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Solar - Geophysical Data

NO. 430 JUNE 1980

Part I (Prompt Reports)

DATA FOR
MAY 1980
APRIL 1980

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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SOLAR-GEOPHYSICAL DATA

No. 430

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	417A 9	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	417A 9	418A 11	419A 11	420A 11	422B 84	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11
A.9cb	8.6 mm Radio Maps of the Sun (NOSC - La Posta)	---	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	
A.9d	2 cm Radio Maps of the Sun (NOSC - La Posta)	---	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	
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A.10d	43 cm East-West Solar Scans (Fleurs)	417A 25	418A 26	420B 71	420A 28	421A 29	422A 29	423A 31	424A 29	425A 28	426A 27	427A 27	429A151	429A 26	430A 30
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A.10f	3 cm East-West Solar Scans (Toyokawa)	417A 22	418A 23	419A 25	420A 25	421A 26	422A 26	423A 28	424A 26	425A 25	426A 24	427A 24	428A 21	429A 23	430A 27
A.11k	Solar X-ray Radiation (SOLRAD 11)	418A122	419A126	420A124	421A129	422A133	423A128	426A158	---	---	---	---	---	---	
A.11g	Solar X-ray (SMS/GOES) (graphs)	422B 31	423B 17	424B 29	425B 20	426B 24	427B 28	428B 24	429B 26	430B 16					
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	---	---	---	---	---	---	---	---	---	---	---	---	---	
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	---	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28	429A 32	
A.12e	Energetic Solar Particles (IMP H & J)	422B 26	424B 40	427B 37	426B 33	427B 42	430B 24	429B 32							
A.13a	Solar Wind (Pioneers 6 & 7)	---	---	---	---	---	---	---	---	---	---	427A 32	428A 27	429A 32	
A.13ab	Solar Wind (Pioneers 8 & 9)	---	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28	429A 32	
A.13d	Solar Wind from IPS Measurements	417A 37	418A 35	419A 35	420A 37	422B 89	422A 39	424B 36	424A 37	426A146	426A 34	427A 35	428A 30	430A164	430A 37
A.13e	Solar Plasma (IMP H & J)	422B 25	423B 17	424B 28	425B 19	426B 23	427B 27	428B 23	429B 25	430B 15					
A.13f	Solar Wind (Pioneer 12 (Venus))	417A 31	418A 32	419A 32	420A 36	421A 35	422A 37	423A 37	424A 36	425A 32	426A 33	427A 34	428A 29	429A 33	
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A.17	Interplanetary Magnetic Field (Pioneer 9)	---	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28	429A 32	
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A.18	Interplanetary Electric Field (Pioneer 8)	---	---	---	---	---	---	---	---	---	---	---	---	---	
A.18	Interplanetary Electric Field (Pioneer 9)	---	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28	429A 32	
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B.52	Graphs of Transmission Frequency Range	418A166	419A168	420A166	421A166	422A178	423A174	424A154	425A152	426A142	427A154	428A140	429A146	430A160	
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C.1ba	Optical Observations Flares (Standardized Data)	430B 32	430B 68												
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C.3t	43.25, 80 and 160 MHz Selected Bursts (Culgoora)														
C.4a	Solar Radio Spectral Obs. (Fort Davis)	420B 72	420B 75	420A139	423B 76	423B 78	423A143	426A149	426A153	426A117	427A126	428A116	429A120	430A128	
C.4d	Solar Radio Spectral Obs. (Culgoora)	418A137	419A142	420A139	421A145	422A149	423A143	424A130	425A125	426A117	427A126	428A116	429A120	430A128	
C.4e	Solar Radio Spectral Obs. (Weissenau)	418A137	419A142	420A139	422B 86	422A149	423A143	424A130	425A125	426A117	427A126	428A116	429A120	430A128	
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	418A137	419A142	420A139	421A145	---	---	---	---	---	---	---	429A120	430A128	
C.4h	Solar Radio Spectral Obs. (Dwingeloo)	418A137	419A142	---	421A145	422A149	423A143	424A130	425A125	426A117	427A126	428A116	429A120	430A128	
C.4i	Solar Radio Spectral Obs. (Bleien)	418A137	419A142	---	---	422A149	423A143	424A130	425A125	426A117	427A126	428A116	429A120	430A128	
C.4j	Solar Radio Spectral Obs. (Manila)	418A137	419A142	420A139	421A145	422A149	---	424A130	425A125	426A117	427A126	---			
C.4k	Solar Radio Spectral Obs. (Learmonth)					422A149	423A143		425A125		427A126	428A116	429A120	430A128	
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D.1ca	aa graph 1868 - present	426A137	426A137	426A137	426A137	426A137	426A137	426A137	426A137	426A137					
D.1d	Principal Magnetic Storms	418A163	419A165	420A165	421A164	422A175	423A171	424A152	425A149	426A140	427A151	428A138	429A145	430A158	
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D.1f	Sudden Commencement and Solar Flare Effects	419B 63	419A166	421B 42	422B 90	422A177	423A172	425B 33	425A150	427A164	427A152				
D.1g	Equatorial Indices Dst	418A162	419A164	420A164	421A163	422A174	423A170	424A151	425A148	426A139	428A147	429A155			
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F.1a	Cosmic Ray Neutron Counts (Deep River)	418A151	419A153	420A155	421A158	422A165	423A161	425B 32	427A159	427A159	428A146	429A153	429A137	430A154	
F.1b	Cosmic Ray Neutron Counts (Climax)	418A151	419A153	420A155	421A158	422A165	423A161	425B 32	425A143	426A132	428A146	428A134	430A167	430A154	
F.1e	Cosmic Ray Neutron Counts (Alert)	418A151	420B 78	420A155	421A158	422A165	423A161	425B 32	427A159	427A159	428A146	429A153	429A137	430A154	
F.1f	Cosmic Ray Neutron Counts (Calgary)														
F.1h	Cosmic Ray Neutron Counts (Thule)	419B 62	419A153	420A155	421A158	422A165	423A161	424A146	425A143	426A132	427A147	428A134	429A137	430A154	
F.1i	Cosmic Ray Neutron Counts (Kiel)	418A151	419A153	420A155	421A158	422A165	423A161	427A159	425A143	426A132	427A147	428A134	429A137	430A154	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	418A151	419A153	420A155	421A158	422A165	423A161	427A159	425A143	426A132	427A147	428A134	429A137	430A154	
F.1k	Cosmic Ray Neutron Counts (Kula)										---	---	---	---	
F.1l	Cosmic Ray Neutron Counts (Huancayo)	419B 58	420B 79	420A155	421A158	423B 81	425B 32	425B 32	426A177	427A159	428A146	430A167	430A167		
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H.60	IUWDS Alert Decisions	417A 4	418A 5	419A 5	420A 5	421A 5	422A 4	423A 4	424A 4	425A 4	426A 4	427A 4	428A 4	429A 4	430A 5
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Notes:

"418A 48" listed under 1979 Apr means that the sunspot drawings for April 1979 were contained in *Solar-Geophysical Data* Number 418 - Part I, beginning on page 48.

A = Part I, B = Part II.

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

SGD 430 Part I (Prompt)

MAY 1980 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

MAY 1980

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

01 MAY 1980 PRESTO BOULDER 01/1708Z TENFLARE 280 FLUX UNITS 01/1621Z DURATION GREATER THAN 40 MINUTES.
BOULDER 01/1918Z SOFLARE X2/1B S20E58 01/1910Z DURATION 10 MINUTES. TENFLARE 800 FLUX UNITS 01/1913Z DURATION 15 MINUTES. UMBRAL COVERAGE WAS 20 PERCENT. TYPE II AND IV RADIO BURSTS WERE OBSERVED WITH X2 EVENT.
07 MAY 1980 PRESTO BOULDER 07/1435Z SOFLARE M4/1B 07/1320Z DURATION 30 MINUTES. TENFLARE 07/1320Z 280 FLUX UNITS DURATION 8 MINUTES.
08 MAY 1980 PRESTO TOYOKAWA 08/0122Z TENFLARE 190 UNITS AT 08/0056Z DURATION 8 MINUTES 15 PERCENT WEST.
PRESTO BERNE 08/1230Z TENFLARE 270 FLUX UNITS 07/1317Z.
09 MAY 1980 PRESTO BOULDER 09/1328Z SOFLARE M7/1B 09/0711Z S21W32 DURATION 37 MINUTES. TENFLARE 09/0712Z 210 FLUX UNITS DURATION 6 MINUTES.
12 MAY 1980 PRESTO TOYOKAWA 12/0108Z TENFLARE 120 FLUX UNITS 11/2342Z DURATION 8 MINUTES.
PRESTO KAKIOKA 12/0123Z MAGSTORM 11/0126Z.
PRESTO BOULDER 12/0336Z TENFLARE 190 FLUX UNITS 12/0255Z DURATION 9 MINUTES.
PRESTO TOYOKAWA 12/0455Z TENFLARE 190 UNITS 12/0245Z DURATION 5 MINUTES.
21 MAY 1980 PRESTO BOULDER SOFLARE X1/2B S14W15 21/2048Z DURATION 29 MINUTES. TENFLARE 1100 FLUX UNITS 21/2049Z DURATION 24 MINUTES.
22 MAY 1980 PRESTO TOYOKAWA 22/0020Z TENFLARE 620 FLUX UNITS 21/2054Z DURATION 12 MINUTES.
28 MAY 1980 PRESTO BOULDER 28/1747Z TENFLARE 323 FLUX UNITS 28/1655Z DURATION 35 MINUTES.
PRESTO BOULDER 28/2006Z SOFLARE X1/2B S18W33 28/1946Z 14 MINUTES DURATION. TENFLARE 28/2006Z 1200 FLUX UNITS 28/1943Z 14 MINUTES DURATION.
29 MAY 1980 PRESTO BOULDER 29/0030Z SOFLARE M6/2B S17W39 28/2332Z 18 MINUTES DURATION.
30 MAY 1980 PRESTO TOYOKAWA 30/0135Z TENFLARE 190 FLUX UNITS 29/0503Z 37 MINUTES DURATION.

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
122	01	30	231	198	010	S31W88	3	0	0		01	S31W88	E	SOLQUIET
						S14W87	3	1	0			S14W87	Q	MAGQUIET
						S23W52	0	0	0			S23W52	Q	
						S07W47	1	1	0			S07W47	Q	
						N29W20	0	0	0			N29W20	Q	
						N12W09	0	0	0			N12W09	Q	
						S13E03	0	0	0			S13E03	Q	
						S17E03	0	0	0			S17E03	E	
						N11E11	0	0	0			N11E11	Q	
						N07E23	0	0	0			N07E23	Q	
						N12E42	1	0	0			N12E42	Q	
						S16E42	0	0	0			S16E42	Q	
						S20E66	0	0	0			S20E66	E	
						N22E75	0	0	0			N22E75	Q	
123	02	01	154	206	009	S32W95	1	0	0	PRESTO BOULDER 01/1708Z TENFLARE 280 FLUX UNITS DURATION GREATER THAN 40 MINUTES. BOULDER 01/1918Z SOFLARE X2/1B S20E58 01/1910Z DURATION 10 MINUTES. TENFLARE 800 FLUX UNITS 01/1913Z DURATION 15 MINUTES. TYPE II AND IV RADIO BURST WITH X2 FLARE. 20 PERCENT UMBRAL COVERAGE.	02	S32W95	Q	SOLALERT 02/XX
						S23W64	4	1	0			S23W64	E	MAGQUIET
						S07W61	0	0	0			S07W61	Q	
						S17W09	2	0	0			S17W09	E	
						N06E09	0	0	0			N06E09	Q	
						N11E29	0	0	0			N11E29	Q	
						S20E54	3	1	1			S20E54	A	
						N24E64	1	1	0			N24E64	A	
124	03	02	226	222	005	N26W87	2	0	0		03	N26W87	Q	SOLALERT 03/04
						S24W77	5	0	0			S24W77	E	MAGQUIET
						S35W29	0	0	0			S35W29	Q	
						S17W23	12	0	0			S17W23	A	
						N07W03	0	0	0			N07W03	Q	
						N12E16	0	0	0			N12E16	Q	
						S16E18	0	0	0			S16E18	Q	
						S19E42	9	0	0			S19E42	A	
						N23E52	3	0	0			N23E52	A	
125	04	03	236	204	004	S23W88	0	0	0		04	S23W88	Q	SOLALERT 04/05
						S36W39	0	0	0			S36W39	Q	MAGALERT 04/05
						S17W36	2	1	0			S17W36	A	
						S30W01	0	0	0			S30W01	Q	
						N10E02	1	0	0			N10E02	E	
						S15E03	0	0	0			S15E03	Q	
						N18E06	0	0	0			N18E06	Q	
						S19E27	3	1	0			S19E27	A	
						N24E38	0	0	0			N24E38	E	
						N29E56	0	0	0			N29E56	Q	
126	05	04	235	222	005	S20E74	0	0	0		05	S20E74	Q	SOLALERT 06/08
						S19W73	0	0	0			S19W73	Q	MAGNIL
						N08W63	0	0	0			N08W63	Q	
						S18W50	3	0	0			S18W50	E	
						S32W13	0	0	0			S32W13	E	
						N10W10	0	0	0			N10W10	Q	
						S17W10	0	0	0			S17W10	Q	
						N17W08	0	0	0			N17W08	Q	
						S20E15	2	0	0			S20E15	E	
						N23E23	0	0	0			N23E23	E	
						N28E45	0	0	0			N28E45	Q	
						S20E64	0	0	0			S20E64	Q	
127	06	05	230	218	005	N07W76	0	0	0		06	N07W76	Q	SOLNIL
						S18W65	6	0	0			S18W65	E	MAGQUIET
						S13W33	0	0	0			S13W33	Q	
						S32W27	0	0	0			S32W27	Q	
						N10W23	1	0	0			N10W23	Q	
						N16W21	0	0	0			N16W21	Q	
						N10W02	0	0	0			N10W02	Q	
						S20E02	6	0	0			S20E02	A	
						N22E13	0	0	0			N22E13	Q	
						N06E17	0	0	0			N06E17	Q	
						N26E33	0	0	0			N26E33	Q	
						S21E51	0	0	0			S21E51	Q	
						S32E75	0	0	0			S32E75	Q	

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128	07	06	230	200	010	S18W76	2	0	0		07	S18W76	E	SOLQUIET
						S13W47	0	0	0			S13W47	Q	MAGQUIET
						S32W39	0	0	0			S32W39	Q	
						N10W36	0	0	0			N10W36	Q	
						N16W35	0	0	0			N16W35	Q	
						N11W14	0	0	0			N11W14	Q	
						N22W12	0	0	0			N22W12	Q	
						S21W09	6	0	0			S21W09	E	
						S30W01	0	0	0			S30W01	Q	
						N23E01	1	0	0			N23E01	Q	
						N26E19	0	0	0			N26E19	Q	
						S22E37	0	0	0			S22E37	Q	
						S33E65	0	0	0			S33E65	Q	
129	08	07	213	201	008	S18W86	0	0	0	PRESTO BOULDER 07/1435Z SOFLARE 1B/M4 07/1320Z DURATION 30 MINUTES. TENFLARE 07/1320Z 280 FLUX UNITS DURATION 8 MINUTES.	08	S18W86	E	SOLQUIET
						S13W63	0	0	0			S13W63	Q	MAGQUIET
						S32W53	0	0	0			S32W53	Q	
						N10W50	0	0	0			N10W50	Q	
						S20W24	7	1	0			S20W24	A	
						N24W12	4	0	0			N24W12	E	
						S13W11	0	0	0			S13W11	Q	
						N19E04	0	0	0			N19E04	Q	
						N28E09	0	0	0			N28E09	Q	
						S20E24	0	0	0			S20E24	Q	
						N07E37	0	0	0			N07E37	Q	
						S32E53	0	0	0			S32E53	Q	
						S22E63	0	0	0			S22E63	Q	
						S16E71	0	0	0			S16E71	Q	
130	09	08	238	202	008	S12W78	1	0	0	PRESTO TOYOKAWA 08/0122Z TENFLARE 190 UNITS AT 08/0056Z DURATION 8 MINUTES 15 PERCENT WEST.	09	S12W78	Q	SOLQUIET
						S31W68	0	0	0			S31W68	Q	MAGQUIET
						N11W65	0	0	0			N11W65	Q	
						S20W37	6	4	0			S20W37	A	
						S06W35	0	0	0			S06W35	Q	
						S16W27	0	0	0			S16W27	Q	
						N25W26	0	0	0			N25W26	E	
						N12W08	1	0	0			N12W08	E	
						N28W03	0	0	0			N28W03	Q	
						S21E12	0	0	0			S21E12	Q	
						S09E29	0	0	0			S09E29	Q	
						S32E40	0	0	0			S32E40	Q	
						S23E47	0	0	0			S23E47	Q	
						S16E60	2	0	0			S16E60	E	
131	10	09	199	219	014	N11W76	2	1	0	PRESTO BOULDER 09/1328Z SOFLARE M7/1B 09/0711Z S21W32 DURATION 37 MINUTES. TENFLARE 210 FLUX UNITS DURATION 6 MINUTES. TOYOKAWA 09/0755Z TENFLARE 250 UNITS 09/0711Z DURATION 9 MINUTES.	10	N11W76	Q	SOLQUIET
						S20W45	0	0	0			S20W45	A	MAGQUIET
						N25W37	0	0	0			N25W37	E	
						S12W23	0	0	0			S12W23	Q	
						N12W21	1	0	0			N12W21	Q	
						S21W02	0	0	0			S21W02	Q	
						S07E05	0	0	0			S07E05	Q	
						S08E18	0	0	0			S08E18	Q	
						S31E27	2	1	0			S31E27	Q	
						S17E47	2	0	0			S17E47	E	
						S22E67	1	0	0			S22E67	Q	
132	11	10	147	187	008	S20W61	1	0	0		11	S20W61	E	SOLQUIET
						S16W57	0	0	0			S16W57	Q	MAGQUIET
						S15W53	0	0	0			S15W53	Q	
						N12W35	0	0	0			N12W35	Q	
						S20W14	0	0	0			S20W14	Q	
						S07W09	0	0	0			S07W09	Q	
						S31E18	0	0	0			S31E18	Q	
						S16E32	11	1	0			S16E32	A	
						S20E53	0	0	0			S20E53	Q	
133	12	11	175	189	010	S20W73	5	2	0		12	S20W73	A	SOLALERT 12/15
						S16W66	0	0	0			S16W66	Q	MAGALERT 12/13
						N12W51	0	0	0			N12W51	Q	
						S12W42	0	0	0			S12W42	Q	
						S21W26	0	0	0			S21W26	Q	
						S31E08	0	0	0			S31E08	Q	
						S16E20	12	0	0			S16E20	A	
						S20E41	0	0	0			S20E41	Q	
						S22E55	0	0	0			S22E55	Q	
134	13	12	198	186	018	S20W95	5	0	0	PRESTO TOYOKAWA 12/0108Z TENFLARE 120 FLUX UNITS 11/2342Z DURATION 8 MINUTES. KAKIOKA 12/0123Z MAGSTORM 11/0126Z. BOULDER 12/0335Z RADIO BURST 245 MHZ 3200 FLUX UNITS. TENFLARE 190 FLUX UNITS 12/0254Z DURATION 9 MINUTES.	13	S20W95	Q	SOLNIL
						N12W65	0	0	0			N12W65	Q	MAGNIL
						N21W56	0	0	0			N21W56	Q	
						S10W56	0	0	0			S10W56	Q	
						S13W56	0	0	0			S13W56	Q	
						S21W41	0	0	0			S21W41	Q	
						S12W23	0	0	0			S12W23	Q	
						S32W11	0	0	0			S32W11	Q	
						N41E04	0	0	0			N41E04	Q	
						S16E07	7	0	0			S16E07	A	
						S20E27	1	0	0			S20E27	E	
						S22E42	0	0	0			S22E42	Q	
						S07E61	0	0	0			S07E61	Q	

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135	14	13	191	189	008	N12W78	0	0	0		14	N12W78	Q	SOLQUIET
						N19W72	0	0	0			N19W72	Q	MAGQUIET
						S12W69	0	0	0			S12W69	Q	
						S31W27	0	0	0			S31W27	Q	
						N40W10	0	0	0			N40W10	Q	
						S16W08	0	0	0			S16W08	E	
						S21E14	0	0	0			S21E14	Q	
						S22E30	0	0	0			S22E30	Q	
						S08E49	2	0	0			S08E49	Q	
136	15	14	181	199	012	S12W82	0	0	0		15	S12W82	Q	SOLQUIET
						S16W22	2	1	0			S16W22	A	MAGQUIET
						N39W20	0	0	0			N39W20	Q	
						S26W05	0	0	0			S26W05	Q	
						S21E01	0	0	0			S21E01	Q	
						S22E16	0	0	0			S22E16	Q	
						S08E36	4	0	0			S08E36	Q	
						N16E60	0	0	0			N16E60	Q	
						S13E73	1	1	0			S13E73	A	
137	16	15	211	199	008	S26W36	0	0	0		16	S26W36	Q	SOLQUIET
						S17W35	2	0	0			S17W35	A	MAGQUIET
						N38W34	0	0	0			N38W34	E	
						S27W18	0	0	0			S27W18	Q	
						S22W14	1	0	0			S22W14	Q	
						S22E01	0	0	0			S22E01	Q	
						S08E23	1	0	0			S08E23	Q	
						N16E45	1	0	0			N16E45	Q	
						S12E59	3	1	0			S12E59	A	
						N11E75	0	0	0			N11E75	Q	
						S29E76	1	0	0			S29E76	Q	
138	17	16	222	202	004	S16W50	2	0	0		17	S16W50	E	SOLQUIET
						N38W41	0	0	0			N38W41	Q	MAGQUIET
						S26W30	0	0	0			S26W30	Q	
						S21W27	0	0	0			S21W27	Q	
						S22W12	1	0	0			S22W12	E	
						S08E10	2	0	0			S08E10	E	
						N25E18	0	0	0			N25E18	Q	
						N15E32	7	0	0			N15E32	E	
						S13E48	6	1	0			S13E48	E	
						N09E62	0	0	0			N09E62	Q	
						S30E65	0	0	0			S30E65	Q	
139	18	17	233	205	001	S21W72	0	0	0		18	S21W72	Q	SOLQUIET
						S16W64	3	0	0			S16W64	E	MAGQUIET
						N38W52	0	0	0			N38W52	Q	
						S20W44	0	0	0			S20W44	Q	
						S23W25	0	0	0			S23W25	Q	
						S08W03	0	0	0			S08W03	E	
						N25E05	0	0	0			N25E05	Q	
						N15E18	6	2	0			N15E18	A	
						S13E34	3	0	0			S13E34	E	
						N08E48	0	0	0			N08E48	Q	
						S31E57	0	0	0			S31E57	Q	
						N24E69	0	0	0			N24E69	Q	
140	19	18	249	214	005	S16W79	1	0	0		19	S16W79	Q	SOLALERT 19/20
						N39W66	0	0	0			N39W66	Q	MAGQUIET
						S20W60	0	0	0			S20W60	Q	
						S22W38	0	0	0			S22W38	Q	
						S07W18	0	0	0			S07W18	E	
						N27W09	0	0	0			N27W09	Q	
						N15E05	3	1	0			N15E05	E	
						S13E22	4	0	0			S13E22	A	
						N09E35	0	0	0			N09E35	Q	
						S28E45	1	0	0			S28E45	Q	
						N25E57	2	0	0			N25E57	Q	
						N18E58	4	0	0			N18E58	Q	
						S23E70	3	0	0			S23E70	Q	
						S07E80	0	0	0			S07E80	E	
141	20	19	366	229	008	S18W92	0	0	0		20	S18W92	Q	SOLALERT 20/21
						S21W73	0	0	0			S21W73	Q	MAGQUIET
						S22W51	1	0	0			S22W51	Q	
						S08W32	1	0	0			S08W32	E	
						N16W08	1	0	0			N16W08	E	
						S12E08	2	0	0			S12E08	A	
						N08E17	0	0	0			N08E17	Q	
						S12E19	0	0	0			S12E19	Q	
						S30E31	3	0	0			S30E31	Q	
						N16E43	1	0	0			N16E43	Q	
						N25E44	0	0	0			N25E44	Q	
						S23E60	0	0	0			S23E60	Q	
						S21E60	0	0	0			S21E60	Q	
						S07E70	3	0	0			S07E70	E	
						S11E80	0	0	0			S11E80	Q	
						S20E82	1	0	0			S20E82	Q	

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142	21	20	330	244	007	S20W84	0	0	0		21	S20W84	Q	SOLALERT 21/XX
						S22W63	0	0	0			S22W63	Q	MAGQUIET
						N09W48	0	0	0			N09W48	Q	
						S08W44	0	0	0			S08W44	E	
						N15W21	0	0	0			N15W21	E	
						S13W05	0	0	0			S13W05	E	
						S13E05	0	0	0			S13E05	Q	
						N09E09	0	0	0			N09E09	Q	
						S31E19	0	0	0			S31E19	Q	
						N16E30	0	0	0			N16E30	Q	
						N23E32	0	0	0			N23E32	Q	
						S26E47	0	0	0			S26E47	Q	
						S22E47	0	0	0			S22E47	Q	
						S09E56	1	0	0			S09E56	E	
						S13E69	3	0	0			S13E69	E	
						S21E69	4	0	0			S21E69	E	
143	22	21	314	246	005	S22W77	0	0	0	PRESTO BOULDER SO-	22	S22W77	Q	SOLALERT 22/XX
						S08W58	0	0	0	FLARE X1/2B S14W15		S08W58	Q	PROTON ARRIVAL ALERT 22/21
						S11W34	0	0	0	21/2048Z DURATION		S11W34	Q	MAGQUIET
						N16W33	0	0	0	29 MINUTES. BOULDER		N16W33	Q	
						S13W18	3	0	1	TENFLARE 21/2049Z		S13W18	E	
						S13W08	1	0	0	1100 FLUX UNITS DU-		S13W08	Q	
						N09W04	0	0	0	RATION 24 MINUTES.		N09W04	Q	
						S31E09	0	0	0	TOYOKAWA TENFLARE		S31E09	Q	
						N16E16	0	0	0	22/0020Z 620 FLUX		N16E16	E	
						S12E18	0	0	0	UNITS 21/2054Z DU-		S12E18	Q	
						N23E19	0	0	0	RATION 12 MINUTES.		N23E19	Q	
						S25E29	0	0	0			S25E29	Q	
						S22E33	0	0	0			S22E33	E	
						S08E43	0	0	0			S08E43	A	
						S20E54	3	0	0			S20E54	A	
						S13E56	1	0	0			S13E56	E	
						S17E81	0	0	0			S17E81	E	
144	23	22	375	270	007	S08W73	0	0	0		23	S08W73	Q	SOLALERT 23/25
						S11W48	0	0	0			S11W48	Q	MAGALERT 23/24
						N16W47	0	0	0			N16W47	Q	
						S13W31	3	0	0			S13W31	E	
						S20W31	0	0	0			S20W31	Q	
						S15W20	0	0	0			S15W20	Q	
						S29W09	1	0	0			S29W09	Q	
						N15E02	3	1	0			N15E02	Q	
						N23E06	0	0	0			N23E06	Q	
						S21E19	1	0	0			S21E19	Q	
						S24E20	0	0	0			S24E20	Q	
						S08E30	1	0	0			S08E30	Q	
						S13E43	1	0	0			S13E43	E	
						S21E43	0	0	0			S21E43	E	
						S18E65	0	0	0			S18E65	Q	
						N09E67	1	0	0			N09E67	Q	
145	24	23	411	278	009	S07W84	0	0	0		24	S07W84	Q	SOLALERT 24/25
						N16W62	0	0	0			N16W62	Q	MAGALERT 24/24
						S13W43	0	0	0			S13W43	A	
						S15W32	0	0	0			S15W32	Q	
						N16W10	0	0	0			N16W10	E	
						N25W07	0	0	0			N25W07	Q	
						S22E05	0	0	0			S22E05	Q	
						S24E06	0	0	0			S24E06	E	
						S08E18	4	1	0			S08E18	E	
						S12E30	0	0	0			S12E30	A	
						S20E31	8	0	0			S20E31	A	
						S18E52	0	0	0			S18E52	Q	
						N08E54	0	0	0			N08E54	Q	
146	25	24	320	283	010	N14W78	0	0	0		25	N14W78	Q	SOLALERT
						S14W57	2	0	0			S14W57	Q	MAGNIL
						N16W24	3	0	0			N16W24	E	
						N24W20	0	0	0			N24W20	Q	
						S19W11	0	0	0			S19W11	Q	
						S24W08	0	0	0			S24W08	Q	
						S08E05	1	0	0			S08E05	E	
						S12E16	2	0	0			S12E16	E	
						S19E18	3	0	0			S19E18	E	
						S17E39	0	0	0			S17E39	Q	
						N10E40	6	0	0			N10E40	E	
						S09E79	1	0	0			S09E79	Q	

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147	26	25	251	285	032	S13W69	2	1	0		26	S13W69	E	SOLALERT 26/28
						N17W38	1	0	0			N17W38	E	MAGQUIET
						N25W33	1	0	0			N25W33	Q	
						S19W24	0	0	0			S19W24	Q	
						S23W21	0	0	0			S23W21	Q	
						S07W08	1	0	0			S07W08	E	
						S12E02	2	0	0			S12E02	E	
						S19E04	5	0	0			S19E04	E	
						S16E25	2	0	0			S16E25	Q	
						N10E27	0	0	0			N10E27	Q	
						S10E67	3	0	0			S10E67	E	
						N10E71	0	0	0			N10E71	Q	
148	27	26	252	277	008	S11W83	0	0	0		27	S11W83	E	SOLALERT 27/29
						N16W53	1	0	0			N16W53	Q	MAGQUIET
						N26W46	0	0	0			N26W46	Q	
						S19W36	0	0	0			S19W36	Q	
						S23W34	0	0	0			S23W34	Q	
						S07W20	0	0	0			S07W20	E	
						S11W12	3	0	0			S11W12	E	
						S19W09	2	0	0			S19W09	E	
						S16E10	1	0	0			S16E10	Q	
						S10E15	3	0	0			S10E15	Q	
						S11E55	4	0	0			S11E55	E	
						N10E57	0	0	0			N10E57	Q	
149	28	27	275	276	004	N16W65	0	0	0		28	N16W65	Q	SOLALERT 28/29
						S19W50	0	0	0			S19W50	Q	MAGQUIET
						S08W34	0	0	0			S08W34	E	
						S11W25	0	0	0			S11W25	E	
						S20W22	3	0	0			S20W22	E	
						S22W04	0	0	0			S22W04	E	
						S16W02	2	0	0			S16W02	Q	
						N10E03	1	0	0			N10E03	Q	
						N17E39	0	0	0			N17E39	Q	
						S11E40	2	1	0			S11E40	E	
						N11E45	0	0	0			N11E45	Q	
						S33E62	0	0	0			S33E62	Q	
						S20E74	0	0	0			S20E74	Q	
150	29	28	292	284	006	N18W81	0	0	0	PRESTO BOULDER, M3/	29	N18W81	Q	SOLALERT 29/XX
						N34W79	0	0	0	1B S18W35 28/1705Z		N34W79	Q	MAGQUIET
						S08W47	3	0	0	46 MINUTE DURATION.		S08W47	E	
						S12W38	1	0	0	10 CM 320 FLUX UNITS		S12W38	E	
						S19W36	12	4	1	41 MINUTE DURATION.		S19W36	A	
						S17W15	0	0	0	X1/2B S18W33		S17W15	E	
						S22W15	0	0	0	28/1924Z 14 MINUTE		S22W15	Q	
						N10W12	5	0	0	DURATION. 10 CM		N10W12	Q	
						S10E27	6	0	0	1300 FLUX UNITS 34		S10E27	E	
						N11E33	0	0	0	MINUTE DURATION.		N11E33	Q	
						S33E48	0	0	0	M6/2B S17W39		S33E48	Q	
						S33E51	0	0	0	28/2332Z 35 MINUTE		S33E51	Q	
						S20E62	0	0	0	DURATION. 10 CM 63		S20E62	Q	
										FLUX UNITS 13 MIN-				
										UTE DURATION.				
151	30	29	299	245	007	S08W62	1	0	0	PRESTO TOYOKAWA TEN-	30	S08W62	E	SOLALERT 30/XX
						S12W54	1	0	0	FLARE 190 UNITS		S12W54	E	MAGALERT MINOR 30/31
						S19W49	3	1	0	29/0503Z DURATION		S19W49	A	
						S22W29	1	0	0	37 MINUTES.		S22W29	Q	
						S18W27	0	0	0			S18W27	Q	
						N10W25	1	0	0			N10W25	E	
						S12E13	2	0	0			S12E13	E	
						N12E19	0	0	0			N12E19	Q	
						S33E35	0	0	0			S33E35	Q	
						S20E49	0	0	0			S20E49	Q	
						N12E70	0	0	0			N12E70	Q	
						S13E76	0	0	0			S13E76	Q	
152	31	30	194	217	012	S08W75	1	0	0		31	S08W75	Q	SOLALERT 31/02
						S12W68	1	0	0			S12W68	E	MAGALERT MINOR 31
						S20W61	3	0	0			S20W61	E	
						S18W38	0	0	0			S18W38	Q	
						N10W38	1	0	0			N10W38	E	
						S12W00	1	0	0			S12W00	E	
						N12E06	0	0	0			N12E06	Q	
						S32E24	1	0	0			S32E24	Q	
						S20E38	0	0	0			S20E38	Q	
						N12E56	0	0	0			N12E56	Q	
						S12E60	0	0	0			S12E60	Q	

A=Active C=Caution D=Doubtful E=Eruptive MF=Major Flare OG=Other Groups P=Proton Q=Quiet

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

	1979 FINAL							1980 PROVISIONAL				
DAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	121	158	115	165	213	224	122	153	208	181	185	121
2	145	168	96	141	187	157	156	158	187	168	145	149
3	154	205	121	148	167	155	187	148	185	151	133	140
4	178	219	110	157	156	172	218	173	182	136	123	166
5	207	232	93	139	168	166	232	190	178	130	154	192
6	226	249	104	139	168	203	206	207	215	132	185	145
7	222	223	110	170	179	240	212	218	248	120	200	147
8	220	219	132	192	190	280	262	225	230	101	199	157
9	224	191	115	190	210	279	280	262	172	103	229	168
10	205	163	92	177	178	302	260	224	140	69	214	144
11	186	155	84	167	183	295	242	245	148	67	245	142
12	199	145	87	156	189	248	261	210	135	70	257	143
13	172	142	91	175	201	183	235	181	131	71	259	150
14	149	127	112	186	213	218	230	178	146	68	203	166
15	117	121	135	177	198	186	225	146	168	52	182	157
16	103	107	115	163	185	166	215	166	163	36	154	148
17	122	109	124	155	214	238	180	160	132	67	126	173
18	126	109	143	177	224	172	151	130	122	63	127	215
19	110	135	176	195	221	174	138	118	129	119	134	218
20	111	158	187	191	214	153	126	115	139	108	173	230
21	124	151	218	184	209	124	124	121	114	105	143	233
22	108	152	216	178	191	116	111	123	99	130	122	244
23	96	154	206	219	179	142	116	124	100	149	95	246
24	90	143	203	236	161	162	130	120	122	175	112	256
25	120	144	201	252	153	155	143	107	121	176	139	229
26	132	142	182	261	145	141	116	127	152	191	171	220
27	112	146	189	256	136	115	93	128	175	205	156	223
28	128	132	174	239	142	119	98	130	197	221	149	190
29	124	148	158	235	184	98	121	122	181	191	145	170
30	154	150	150	233	190	116	139	145		182	138	150
31		144	168		223		135	174		183		138
MEAN	149.5	159.4	142.2	188.4	186.2	183.3	176.3	162.2	159.3	126.5	166.6	179.7

1979 YEARLY MEAN = 155.4

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1979							1980				
DAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	189.5	186.3	149.1	175.8	212.8	211.6	161.9	189.1	212.6*	175.7	181.9	218.5
2	206.8*	200.9*	143.9*	180.1	211.5	209.5	172.0*	199.9	217.9	172.9	181.1*	223.0
3	216.1*	213.4	145.1	180.8	204.7	207.5	195.1*	211.9*	225.7	170.2*	176.1	221.2
4	228.8*	218.1	141.7	175.3*	197.7*	214.2	221.0	212.4*	231.7	172.7*	184.3*	223.1*
5	230.2	204.5	141.6	177.1	192.8*	235.5	223.4*	207.7	218.9	171.3	209.7*	221.9
6	238.1	211.3	149.5	180.4*	195.5	273.2*	223.4	222.1	221.7	169.4	238.4*	203.5
7	238.1	207.2	151.1	186.3	197.0	286.9*	222.6	228.0	223.9*	166.3	236.1*	203.4
8	242.7	206.7	152.7	183.6	200.3	310.1	228.9*	228.1*	218.7	164.9	241.7	200.2*
9	247.4*	197.9*	157.3	187.4	209.5	314.4*	232.4	240.9*	208.2*	161.3	244.7*	193.6
10	239.9	185.9	152.1*	184.6	208.7	367.0*	230.3	253.0*	204.6*	153.9	249.0	191.1
11	229.6	178.6	154.4	181.5*	211.8	325.7*	230.6*	255.7*	213.7	147.8	249.9	191.4*
12	208.3	170.1	144.8	181.7	216.4	294.4	232.3	245.1*	213.7	138.6	245.6	189.5
13	193.7	161.4	155.8	186.1	239.1	272.7	231.7	221.6	217.9	144.6	232.8	192.9
14	185.7	154.7*	158.2*	192.6*	236.4	256.4	238.3	203.8	201.0	141.2	226.3	202.9
15	176.0	151.1	167.6	193.8	230.7	239.7*	231.8	200.0	201.2*	139.3	206.1*	199.8
16	167.5	143.6	164.8	196.3*	232.3	230.6	216.3	188.6	200.2	137.3	192.4	202.9*
17	158.1	142.7	165.8	202.7*	226.0	231.8	202.2	186.9	182.8*	142.9	191.9	207.5*
18	152.6	141.2	180.0	215.7	236.8	231.9	187.4	177.5	180.0*	147.4	201.4	214.3*
19	146.2	143.6	186.4	218.1*	237.3*	214.8	183.0	164.4	177.3	162.3	214.5*	234.2
20	151.5	146.6	204.2*	213.9*	236.7*	205.9	180.8*	156.5	174.7	162.1	215.8	244.7*
21	148.9	143.7*	207.6*	218.4	230.1	189.8	176.7*	153.4	169.6	162.4	207.7	252.6
22	141.1	155.7	223.2	216.5	221.9	182.5	175.3	158.2*	167.3	162.5	199.2	276.6
23	139.0	163.1*	218.6	224.2*	214.9*	183.2	168.6	166.7	160.1	172.4*	186.2	289.5
24	141.2	168.6	225.2	230.7	225.6*	175.2*	160.2	171.1*	157.2*	172.4	186.3	290.2
25	147.8	164.5	229.3*	235.5	215.2	165.8*	162.0	171.3*	165.7	182.5*	185.9	292.8
26	153.7	165.6	223.3	229.9*	202.9	161.6	159.7	178.8*	169.0	185.2	186.6	284.2
27	158.5	159.1*	212.8	228.7*	211.2	155.7	153.6*	190.6*	173.2	195.3*	200.6*	281.2*
28	159.1	158.1	214.2	233.8	210.0	150.1	163.1	194.0	171.7*	203.5	203.7	280.8*
29	166.9	156.7	197.6	225.0	214.8	154.0	174.0	197.9	176.7*	199.9	203.5*	252.3
30	176.7*	160.3	187.8	231.9	213.7*	152.2	185.5	197.9	.	194.3*	200.9	222.7
31	.	152.4	179.9	.	214.9*	.	188.9	213.9*	.	187.2*	.	200.6
MEAN	186.0	171.4	177.0	202.3	216.4	226.8	197.2	199.6	195.1	166.5	209.3	229.1

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

MAY 1980

MAY 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	122	5	121	128	215.1	522	358	234	218.5	194	156		47	
2	123	6	149	148	219.5	526	404	237	223.0	218	144		50	
3	124	7	140	166	217.5	523	401	232	221.2	208	151		47	
4	125	8	166	159	219.4*	531	406	225	223.1*	217	158		64	
5	126	9	192	180	218.0	532	395	221	221.9	213	152		51	
6	127	10	145	158	199.9	533	386	205	203.5	198	151		41	
7	128	11	147	129	199.6	449	382	207	203.4	197	155		41	
8	129	12	157	127	196.5*	447	365	206	200.2*	191	156		38	
9	130	13	168	126	190.0	525	371	206	193.6	186	143		41	
10	131	14	144	122	187.4	513	362	193	191.1	182	146		37	
11	132	15	142	141	187.6*	510	370	197	191.4*	181	143		44	
12	133	16	143	136	185.6	503	361	176	189.5	180	145		32	
13	134	17	150	135	188.9	462			192.9		148		36	
14	135	18	166	129	198.5				202.9					
15	136	19	157	143	195.5	533			199.8		148		41	
16	137	20	148	151	198.3*	531			202.9*		140		41	
17	138	21	173	174	202.8*	538			207.5*		135		42	
18	139	22	215	182	209.3*	541			214.3*		157		42	
19	140	23	218	210	228.7				234.2					
20	141	24	230	224	239.0*	564			244.7*		166		42	
21	142	25	233	237	246.4	547	428	243	252.6	246	170		41	
22	143	26	244	246	269.9	563	406	254	276.6	258	170		47	
23	144	27	246	216	282.2	566	456	280	289.5	269	182		48	
24	145	1	256	248	282.8	560	462	283	290.2	278	188		87	
25	146	2	229	240	285.4	561	449	280	292.8	275	179		66	
26	147	3	220	229	276.7	558	440	275	284.2	261	189		74	
27	148	4	223	216	273.8*	556	426	271	281.2*	265	180		52	
28	149	5	190	232	273.4*	551	436	282	280.8*	275	167		42	
29	150	6	170	204	245.4	560	407	241	252.3	236	159		74	
30	151	7	150	177	216.6	545	390	226	222.7	215	143		43	
31	152	8	138	159	195.1	520	369	205	200.6	188	134		41	
MEAN			179.7	176.5	224.0	530	401	233	229.1	223	157		48	

* Adjusted for burst.

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
Jun 77	38.5	26	34.4	25	40.1	31	94.5	86
Jul	21.4	29	18.3	27	28.4	33	83.7	88
Aug	30.1	33	27.6	32	31.3	37	86.4	92
Sep	44.0	39	41.9	37	47.0	43	100.9	97
Oct	43.8	46	45.5	44	42.0	49	96.3	103
Nov	29.1	52	28.4	50	36.9	56	91.6	109
Dec	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	163(±4)*	157.6	149	151.0	149	197.2	---
Jan 80	162.2*	161(±9)*	146.7	148	153.6	148	199.6	---
Feb	159.3*	159(±11)*	131.0	146	148.7	146	195.1	---
Mar	126.5*	158(±15)*	111.0	145	117.8	145	166.5	---
Apr	166.6*	157(±20)*	148.7	145	164.0	145	209.3	---
May	179.7*	156(±25)*	176.5	144	185.4	144	229.1	---
Jun	---	153(±29)*	---	142	---	142	---	---
Jul	---	149(±33)*	---	138	---	138	---	---
Aug	---	145(±36)*	---	136	---	136	---	---
Sep	---	143(±37)*	---	134	---	134	---	---
Oct	---	142(±38)*	---	133	---	133	---	---
Nov	---	141(±40)*	---	132	---	132	---	---

*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 Zürich 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'.

ERRATA: The smoothed values of Rs and Sa for August 1977 through September 1978, published in the four earlier editions of this table, are in error. These incorrect data appear in SGD 426-429 Part I on either page 10 or 11 (February - May 1980 issues).

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

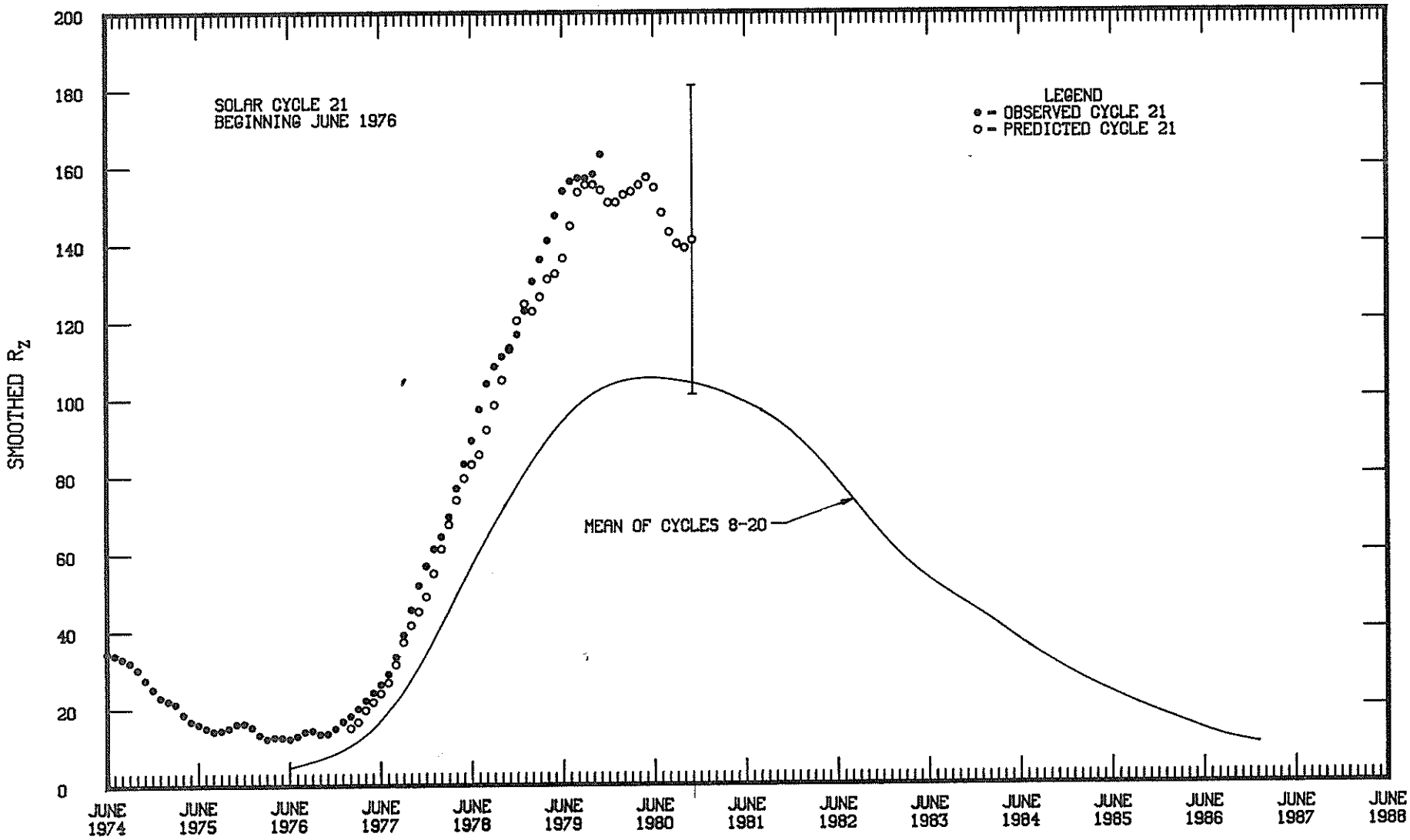
MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1976	15	13	12	13	12	12	13	14	14	13	13	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	64	70	77	83	89	97	104	108	111	113	118
1979	124	131	136	141	147	153	156	157	157	158	163	[16[illegible]* (4)
1980	161 (9)	159 (11)	158 (15)	157 (20)	156 (25)	153 (29)	149 (33)	145 (36)	143 (37)	142 (38)	141 (40)	139 (43)
1981	139 (45)	139 (45)	137 (42)	134 (41)	131 (42)	128 (42)	127 (41)	126 (40)	126 (39)	124 (39)	122 (38)	119 (36)
1982	115 (34)	111 (33)	109 (32)	107 (31)	104 (29)	102 (27)	98 (25)	93 (24)	88 (23)	83 (20)	80 (19)	76 (19)
1983	72 (19)	69 (19)	67 (20)	65 (20)	63 (21)	61 (22)	59 (23)	57 (25)	55 (27)	54 (28)	53 (30)	52 (30)
1984	51 (30)	48 (30)	45 (29)	41 (29)	39 (30)	38 (31)	37 (32)	36 (31)	34 (31)	32 (29)	31 (28)	29 (27)
1985	28 (27)	27 (27)	26 (26)	26 (26)	25 (26)	24 (25)	23 (24)	22 (23)	21 (23)	21 (23)	20 (24)	19 (24)
1986	19 (25)	18 (24)	17 (24)	16 (23)	14 (22)	13 (21)	12 (20)	11 (19)	11 (17)	11 (16)	11 (15)	11 (13)
1987	11 (12)	11 (12)	12 (12)	13 (12)	14 (13)	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.

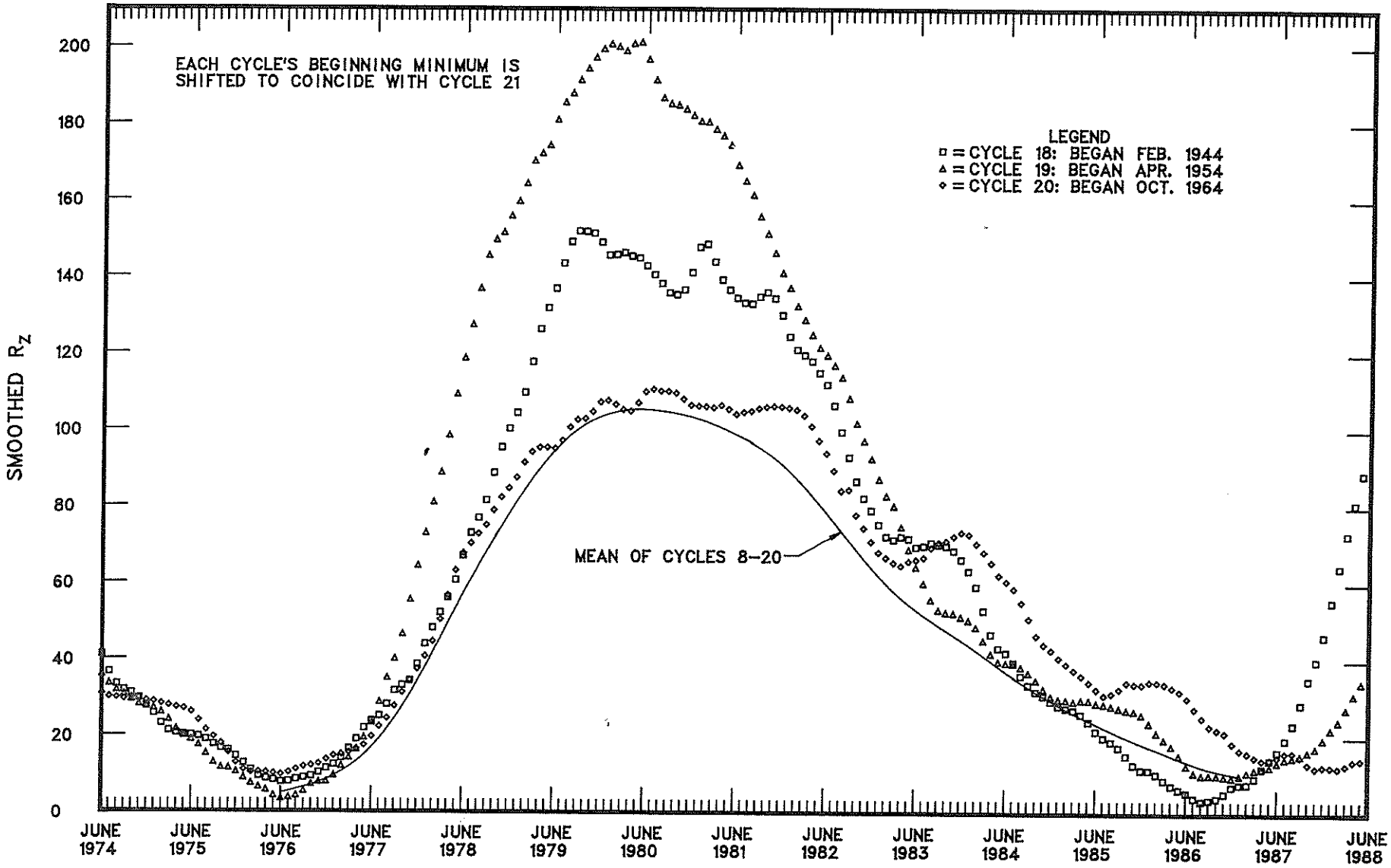
The McNish-Lincoln method is very sensitive to the identification of a minimum epoch. In SGD issues No. 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Latest studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we have adopted a June 1976 minimum.

*PREDICTION OF SUNSPOT MAXIMUM. The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Combining this McNish-Lincoln prediction of sunspot maximum with the Ohl method (as done by Sargent, see *Explanation of Data Reports*, February 1980) indicates that the most probable value for sunspot maximum is 163 ± 5.

OBSERVED AND PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



Hα SOLAR FLARES

MAY 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
PALE	01	0331	0334	0339	S22	E70	.934		6.4	8	SF	3	C		50		
CATA	01	0615	0620	0715	S17	W06	.208		31.8	60	SN	2	C	0620	56	.6	Z
RAMY	01	1205	1223	1234	S25	W56	.834		28.3	29	SF	3	C		110		
RAMY	01	1214	1215	1258	S19	W01	.216		1.4	44	SF	3	C		36		
BIGB	01	1555	1559	1629	N25	E74	.980		7.2	34	1B	1	C	1559	200		
BIGB	01	1622	1625	1647	S21	E63	.887		6.4	25	SN	1	C	1625	80	1.8	
BIGB	01	1642	1645	1701	S23	W59	.857		28.3	19	SN	1	C	1645	100	2.0	
HOLL	01	1816	1840	1915	S25	W60	.867		28.3	59	1B	3	C		227		
RAMY	01	1840	1843	1925	S24	W62	.881		28.1	45	SN	3	C		76		
RAMY	01	1851	1915	1941	S22	E60	.864		6.3	50	1B	3	C		285		D
HOLL	01	1907	1916	1917D	S19	E53	.854		6.2	10D	1B	3	C		299		
RAMY	01	1928	1931	1943	S17	W07	.216		1.3	15	SF	3	C		28		
RAMY	01	2003	2004	2029	S24	W65	.903		28.0	25	SF	3	C		25		
HOLL	01	2104	2104	2151	S35	W90	.998		26.1	47	SN	3	C		0		
PALE	02	0034	0036	0045	N20	E62	.917		6.7	11	SF	2	C		30		D
PALE	02	0106	0106	0110	S26	W65	.904		28.2	4	SF	2	C		22		D
PALE	02	0225	0226	0243	S24	W69	.929		27.9	18	SF	2	C		25		D
PALE	02	0310	0310	0321	N23	W83	.998		26.9	11	SF	2	C		0		D
PALE	02	0315	0315	0320	N22	W80	.993		27.1	5	SF	2	C		0		D
PALE	02	0340	0340	0345	S17	E51	.776		6.0	5	SF	2	C		19		D
PALE	02	0354	0355	0357	S20	E58	.846		6.5	3	SF	2	C		17		D
CATA	02	0625	0625	0630	N26	E63	.935		7.0	5	1N	1	C	0625	84		
MANI	02	0944E	0946U	0952D	S20	E49	.759		6.1	80	SN	1	V		80	1.3	
CATA	02	1130	1130	1130D	N24	W90	1.001		26.7		1N	2	P	1130	56		
RAMY	02	1139	1141	1210	S19	E48	.746		6.1	31	SN	3	C		65		
RAMY	02	1208	1208	1212	S25	W58	.923		28.4	4	SN	3	C		19		
RAMY	02	1237	1241	1247	S18	W22	.412		31.9	10	SB	3	C		94		
RAMY	02	1249	1255	1256D	S17	W13	.284		1.6	70	SB	3	C		64		
RAMY	02	1249	1255	1329	S18	W23	.426		31.8	40	SB	3	C		64		
RAMY	02	1307	1307	1313	S19	E48	.746		6.1	6	SF	3	C		17		
RAMY	02	1406	1407	1410	S26	W69	.929		28.4	4	SN	3	C		13		
RAMY	02	1418	1432	1443	S18	W18	.358		1.2	25	SF	3	C		23		
RAMY	02	1445	1455	1544	S19	W23	.433		31.9	59	SN	3	C		107		
HOLL	02	1450	1454	1543	S17	W17	.336		1.3	53	SB	3	C		145		
RAMY	02	1511	1511	1518	N24	W84	.999		27.3	7	SF	3	C		0		
HOLL	02	1516	1517	1544	S19	W22	.419		1.0	28	SN	3	C		105		
HOLL	02	1517	1517	1530	S21	E49	.761		6.3	13	SN	3	C		35		
HOLL	02	1557	1601	1613	S19	E47	.735		6.2	16	SF	3	C		31		
BIGB	02	1632	1633	1652	S14	W85	.994		27.3	20	1N	2	C	1633	50		
HOLL	02	1705	1706	1745	S18	E46	.722		6.2	40	SN	3	C		66		
HOLL	02	1722	1750	1804	S15	W18	.335		1.4	42	SB	3	C		162		
HOLL	02	1722	1726	1727D	S15	W18	.335		1.4	50	1N	3	C		243		
PALE	02	1723	1725	1744	S17	W17	.336		1.4	21	1N	3	C		260		
PALE	02	1746	1750	1803	S16	W18	.342		1.4	17	SB	3	C		156		
RAMY	02	1747	1750	1802	S17	W19	.364		1.3	15	SN	3	C		108		
HOLL	02	1817	1820	1848	S17	W14	.297		1.7	31	SB	3	C		76		
RAMY	02	1820	1830	1841	S17	W20	.378		1.3	21	SN	3	C		39		
HOLL	02	1832	1833	1838	N27	E61	.926		7.3	6	SF	3	C		19		
PALE	02	2024	2033	2046D	S19	W14	.317		1.8	22D	SF	3	C		49		
HOLL	02	2028	2029	2039	S17	W20	.378		1.4	11	SN	3	C		41		
PALE	02	2047	2048	2102	S19	W14	.317		1.8	15	SN	3	C		70		D
RAMY	02	2047	2048	2054D	S17	W21	.392		1.3	70	SF	3	C		28		
HOLL	02	2218	2218	2224	S19	E45	.713		6.3	6	SF	3	C		25		
PALE	02	2254	2255	2305	S19	E43	.690		6.2	11	SF	3	C		35		D
PALE	02	2302	2302	2304	S25	W76	.964		28.3	2	SF	2	C		0		
PALE	02	2344	0006	0047	N27	E56	.896		7.2	63	2N	3	C		300		D
MANI	02	2348	2359	0037	N26	E57	.900		7.3	49	1N	2	P		150	2.9	
BIGB	02	2350	2353	0054D	N25	E57	.897		7.3	64D	1N	1	P	2353	200	3.8	
PALE	03	0050	0052	0058	S20	E47	.733		6.6	8	SF	3	C		38		D
PALE	03	0141E	0205U	0244D	S19	W14	.318		2.0	63D	1B	3	C		197		D
MANI	03	0200	0206	0210D	S17	W17	.337		1.8	10D	1N	2	P		220	2.4	
WEND	03	0753E	0804	0818	N25	E52	.862		7.2	25D	1B		C	0804	113	2.1	
MANI	03	0753	0803	0815	N25	E53	.869		7.3	22	SN	2	P		110	2.1	
WEND	03	0800	0804	0814	S16	W23	.414		1.6	14	SF		C	0804	41	.5	
WEND	03	0819	0829	0842	S16	W21	.386		1.8	23	SN		C	0829	50	.6	E
CATA	03	0825S	0825	0830	N26	E53	.873		7.3	5D	1B	1	P	0825	112	2.3	
WEND	03	0858	0900	0905	S21	E37	.624		6.1	7	SF		C	0900	68	.9	
WEND	03	0917	0917	0923	S33	W34	.659		31.8	6	SF		C	0917	47	.7	
RAMY	03	1239	1304	1421	S26	E43	.712		6.8	102	1N	3	C		406		
RAMY	03	1620	1623	1626	S22	E38	.640		6.5	6	SB	3	C		42		

Hα SOLAR FLARES

MAY 1980

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
BIGB	03	1749	1752	1910	S16	W29	.499		1.6	81	1N	1	C	1752	190	2.2	
RAMY	03	1749	1755	1815	S16	W29	.499		1.6	26	1N	3	C		191		
BIGB	03	1847	1851	1917	S22	W90	.999		28.0	30	1B	1	C	1851	50		
RAMY	03	2034	2037	2043D	N12	E02	.318		4.0	9D	SF	3	C		55		
MANI	03	2215	2218	2234	S19	W34	.579		1.4	19	SN	2	P		80	1.0	
MANI	03	2315	2318	2326	S19	W35	.592		1.3	11	SN	2	P		150	2.0	
BIGB	04	0041	0043	0058	S22	W90	.999		28.3	17	1B	1	C	0043	60		
BIGB	04	1508	1509	1517	S19	W42	.679		1.5	9	SB	1	C	1509	80	1.0	
HOLL	04	1508	1510	1515	S20	W42	.681		1.5	7	SB	3	C		96		
BIGB	04	1630	1635	1641	S07	E90	1.000		11.4	11	1N	2	C	1635	60		
HOLL	04	1825	1830	1840	S17	W41	.662		1.7	15	SN	3	C		46		
PALE	04	1829	1830	1837	S17	W41	.662		1.7	8	SF	3	C		25		
HOLL	04	2105	2107	2109	S19	E17	.355		6.2	4	SN	3	C		22		
HOLL	04	2206	2206	2212	S21	E22	.436		6.6	6	SF	3	C		27		
MANI	04	2335	2337	2346	S29	W48	.772		1.4	11	SN	2	P		80	1.3	
PALE	04	2336	2340	2345	S21	W47	.740		1.5	9	SN	3	C		43		
HOLL	04	2336	2336	2344	S21	W47	.740		1.5	8	SN	3	C		21		
MANI	05	0824E	0824U	0840D	S26	E20	.460		6.9	16D	SF	1	V		15	1.0	
HOLL	05	1439	1444	1456	S21	W55	.820		1.5	17	SB	3	C		143		
RAMY	05	1444	1445	1452	S20	W56	.829		1.4	8	SB	3	C		110		
RAMY	05	1536	1537	1545	S20	W01	.237		5.6	9	SF	3	C		52		
HOLL	05	1537	1537	1542	S20	E01	.237		5.7	5	SF	3	C		29		
RAMY	05	1646	1647	1651	S17	W51	.776		1.9	5	SF	3	C		16		
HOLL	05	1650	1652	1658	S20	W50	.770		2.0	8	SF	3	C		81		
HOLL	05	1654	1654	1657	S20	E03	.242		5.9	3	SN	3	C		31		
HOLL	05	1733	1735	1805	S16	W56	.825		1.5	32	SF	3	C		31		
HOLL	05	1810	1816	1831	S19	W63	.887		1.0	21	SF	3	C		40		
HOLL	05	1927	1937	1953	S27	E15	.425		6.9	26	SN	3	C		91		
PALE	05	1930	1932	1958	S24	E14	.378		6.9	28	1F	3	C		179		O
PALE	05	1932	1951	2006	S17	W62	.878		1.2	34	SF	3	C		33		
HOLL	05	2013	2017	2022	S17	W01	.186		5.8	9	SF	3	C		42		
MANI	05	2307E	2311	2318	S17	W54	.807		1.9	11D	SN	2	P		80	1.4	
PALE	05	2309	2311	2319	S20	W54	.810		1.9	10	SF	3	C		53		
MANI	06	0211	0218	0249D	S17	W03	.193		5.9	38D	SF	2	P		50	.5	
MANI	06	0311	0313	0321D	S21	W03	.259		5.9	10D	SF	2	P		20	.2	
MANI	06	0334E	0334U	0344D	S25	E07	.340		6.7	10D	SF	2	P		20	.2	
CATA	06	0610	0615	0615D	S24	W03	.309		6.0	5D	SB	2	P	0615	112	1.2	
WEND	06	0633E		0652	S21	W03	.259		6.0	19D	SF		C	0634	106	1.2	
WEND	06	0633E		0717	S24	E04	.312		6.6	44D	SN		C	0633	156	1.8	
WEND	06	0643	0647	0700	S19	W57	.837		2.0	17	SF		C	0647	30	.6	DS
WEND	06	0649	0653	0656	S15	W64	.893		1.5	7	SF		C	0653	41	1.0	
WEND	06	0727	0729	0738	S21	W04	.263		6.0	11	SN		C	0729	34	.4	D
WEND	06	0758	0759	0809	S19	W65	.902		1.5	11	SB		C	0759	80		D
CATA	06	0800	0800	0825	S19	W65	.902		1.5	25	1B	2	C	0800	84	2.1	H
WEND	06	0901	0903	0906	S21	W06	.273		5.9	5	SN		C	0903	94	1.0	
WEND	06	0937	0937	0943	S19	W60	.863		1.9	6	SF		C	0937	53	1.2	
WEND	06	1149	1155	1218	S27	E04	.360		6.8	29	SN		C	1155	168	2.0	
RAMY	06	1153	1157	1217	S27	E04	.360		6.8	24	SF	3	C		74		
WEND	06	1229	1234	1257	S17	W06	.212		6.1	28	SN		C	1234	150	1.6	
RAMY	06	1229	1231	1256	S19	W04	.230		6.2	27	SF	3	C		38		
WEND	06	1336	1344	1349	S15	W68	.922		1.5	13	SF		C	1344	75		
BIGB	06	1809	1811	1829	S14	W69	.928		1.6	20	1F	3	C	1811	170		A
PALE	06	1809	1810	1821	S17	W71	.940		1.4	12	1N	3	C		161		O
HOLL	06	1809	1810	1812D	S19	W68	.922		1.7	3D	1N	3	C		227		
RAMY	06	1811	1811	1831	S17	W72	.945		1.4	20	1N	3	C		138		
RAMY	06	1836	1837	1850	S20	W10	.289		6.0	14	SF	3	C		33		
RAMY	06	1853	1856	1902	S20	W10	.289		6.0	9	SF	3	C		31		
PALE	06	1921	1921	1928	S20	W65	.902		1.9	7	SF	3	C		25		
RAMY	06	1931	1931	1944	S21	W17	.376		5.5	13	SN	3	C		119		
RAMY	06	1948	1951	1955	S20	W10	.289		6.1	7	SF	3	C		31		
BIGB	06	2242	2248	2314	N25	E03	.521		7.2	32	SF	3	C	2248	140	1.4	
PALE	06	2244	2252	2307	N26	E03	.536		7.2	23	SF	3	C		33		
BIGB	07	0120	0125	0145D	N26	E04	.536		7.4	25D	SN	2	P	0125	70	.7	
PALE	07	0120	0121	0144	N25	E03	.520		7.3	24	SF	3	C		48		
RAMY	07	1122	1128	1140	S22	W02	.274		7.3	18	SN	3	C		18		
RAMY	07	1222	1223	1233	S22	W13	.399		6.2	11	SF	3	C		35		
RAMY	07	1316	1317	1321	N23	W08	.503		7.0	5	SF	3	C		24		
RAMY	07	1318	1320	1337	S22	W12	.335		6.7	19	1B	3	C		232		

Hα SOLAR FLARES

MAY 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
HOLL	07	1318	1321	1338	S22	W11	.326		6.7	20	SB	3	C		104		
RAMY	07	1340	1343	1349	N23	W08	.503		7.0	9	SF	3	C		25		
RAMY	07	1357	1403	1457	N23	W08	.503		7.0	60	SF	3	C		33		
RAMY	07	1456	1457	1505	S22	W13	.345		6.6	9	SB	3	C		53		
HOLL	07	1456	1457	1505	S22	W12	.335		6.7	9	SB	3	C		56		
HOLL	07	2047	2048	2054	S22	W16	.376		6.7	7	SN	3	C		31		
HOLL	07	2309	2328	0005	S23	W20	.431		6.5	56	1N	3	C		373		
BIGB	07	2322	2327	2359	S22	W22	.446		6.3	37	SN	2	C	2327	180	2.0	
MANI	07	2331S	2331U	2357D	S22	W21	.434		6.4	26D	1N	2	P		200	2.4	F
PALE	07	2339E	2342U	2348D	S23	W22	.455		6.3	9D	1F	2	C		218		D
BIGB	07	2346	2348	2356	S16	W90	1.000		1.2	10	1N	2	C	2348	60		
MANI	08	0019E	0026U	0032	N12	E06	.327		8.5	13D	SF	2	P		30	.3	
MANI	08	0056F	0056U	0105	S21	W19	.401		6.6	9D	SN	2	P		70	.8	
BIGB	08	0056	0057	0108	S21	W18	.389		6.7	12	SB	2	C	0057	60	.7	
PALE	08	0205	0210	0224	S16	E73	.951		13.6	19	SF	3	C		0		D
MANI	08	0419	0420	0424	S21	W20	.413		6.7	5	SF	2	P		40	.5	
MANI	08	0535	0536	0544	N12	E02	.313		8.4	9	SF	2	P		15	.2	
CATA	08	0605E	0605	0635	N14	W02	.346		8.1	30D	1N	2	P	0605	253	2.7	
WEND	08	0649	0655	0708	N12	E00	.311		8.3	19	SN		C	0655	38	.4	
BUCA	08	0650		0700	N13	E01	.328		8.4	10	SF		C	0654	75	.8	E
CATA	08	0650	0650	0705D	N12	W01	.312		8.2	15D	SB	2	P	0650	56	.6	
WEND	08	0801	0806	0824	N26	W13	.567		7.4	23	SF		C	0806	25	.3	
MANI	08	0905E	0905U	0915D	N11	E01	.295		8.5	10D	SF	1	V		60	.6	F
WEND	08	0954	0958	1017	N25	W19	.591		7.0	23	SN		C	0958	125	1.5	
CATA	08	1035	1035	1055	S12	W66	.909		3.5	20	1N	2	C	1035	84		
WEND	08	1036F		1047	S11	W67	.916		3.4	11D	SF		C	1037	34		
RAMY	08	1127	1129	1145	S22	W24	.471		6.7	18	SB	3	C		68		D
WEND	08	1128E	1128	1137	S20	W24	.456		6.7	9D	SN		C	1128	82	1.0	
RAMY	08	1130	1132	1142	S13	W68	.922		3.4	12	SN	3	C		14		
RAMY	08	1210	1210	1216	S22	W24	.471		6.7	6	SF	3	C		27		
RAMY	08	1341	1345	1442	S22	W25	.483		6.7	61	SB	3	C		109		
HOLL	08	1423	1449	1506	N12	W03	.315		8.4	43	SF	3	C		37		
RAMY	08	1435	1440	1441	S16	E64	.894		13.4	6	SF	3	C		14		
RAMY	08	1936	1938	1950	S22	W29	.533		6.6	14	SB	3	C		153		D
HOLL	08	2352	0006	0025	S22	W30	.545		6.7	33	SN	3	C		89		
HOLL	09	0106	0107	0113	S19	E73	.951		14.5	7	SF	3	C		0		
PALE	09	0137	0138	0141	N12	W08	.338		8.5	4	SF	2	C		26		D
CATA	09	0535	0540	0600	S22	W33	.583		6.6	25	SB	2	C	0540	112	1.4	
MANI	09	0709	0713	0719	S20	W34	.585		6.7	10	SN	2	P		150	2.0	
BUCA	09	0710		0730	S21	W35	.602		6.7	20	SN		C	0715	161	2.0	
CATA	09	0710	0715	0725D	S21	W35	.602		6.7	15D	1B	2	P	0715	197	2.6	
ATHN	09	0711E	0714	0748	S21	W32	.565		6.9	37D	1B	3	C		130		
CATA	09	0715	0715	0725D	S17	W42	.675		6.2	10D	1N	2	P	0715	197	2.8	
RAMY	09	1119	1120	1126	S16	W86	.995		3.0	7	SF	3	C		0		
HOLL	09	1519	1523	1544	S19	E51	.780		13.5	25	SN	3	C		67		
RAMY	09	1522	1526	1539	S20	E52	.791		13.5	17	SN	3	C		63		
RAMY	09	1551	1551	1601	S19	E53	.800		13.6	10	SF	3	C		38		
HOLL	09	1944	1949	2005	S31	E28	.591		11.9	21	SF	3	C		58		
RAMY	09	2015S	2100U	2141D	S31	E31	.619		12.2	86D	1N	3	C		352		
RAMY	09	2015	2048	2050D	S31	E31	.619		12.2	35D	1F	3	C		222		
PALE	09	2022	2054	2056D	S30	E31	.612		12.2	34D	1N	3	C		254		
HOLL	09	2022	2058	2129	S30	E34	.642		12.4	67	1N	3	C		234		
HOLL	09	2109	2113	2122	N23	W22	.590		8.2	13	SF	3	C		41		
HOLL	09	2352	0006	0025	S22	W30	.546		7.7	33	SN	3	C		89		
MANI	10	0521E	0524U	0525D	S16	E40	.649		13.2	4D	SN	1	V		60	.8	
ISTA	10	0745E		0734	S14	E38	.619		13.2	9D	SF						BE
ISTA	10	0810		0823	S13	E42	.669		13.5	13	SF						D
MANI	10	0814E	0816U	0821D	S16	E40	.649		13.3	7D	SF	1	V		30	.4	
CATA	10	1000	1000	1015	S14	E34	.565		13.0	15	SB	2	C	1000	140	1.8	
RAMY	10	1117	1133	1134D	S13	E36	.590		13.2	17D	1B	3	C		212		D
ATHN	10	1132	1134	1154	S13	E36	.590		13.2	22	SB	3	C		127		D
CATA	10	1135	1140	1150	S14	E36	.592		13.2	15	SB	2	C	1140	140	1.8	
ATHN	10	1241	1242	1307	S16	E33	.557		13.0	26	SB	3	C		32		D
RAMY	10	1320	1321	1331	S16	E32	.543		13.0	11	SN	3	C		74		
HOLL	10	1353	1354	1407	S12	E34	.560		13.1	14	SN	2	C		42		
RAMY	10	1503	1507	1530	S15	E31	.526		13.0	27	SN	3	C		39		
RAMY	10	1757	1758	1804	S15	E29	.498		12.9	7	SN	3	C		118		
HOLL	10	1757	1758	1804	S14	E30	.509		13.0	7	SN	3	C		91		
HOLL	10	1952	1953	2005	S12	E31	.518		13.2	13	SB	3	C		118		D

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PALE	10	1954E	1955U	2005	S13	E31	.520		13.2	11D	SN	2	C		124		
RAMY	10	1956E	1957	2004	S13	E31	.520		13.2	8D	SN	3	C		90		
HOLL	10	2004	2020	2055	S25	W57	.845		6.6	51	1N	3	C		263		
RAMY	10	2005	2017	2043D	S25	W58	.853		6.5	38D	2N	3	C		464		
RAMY	10	2005	2014	2016D	S23	W61	.875		6.3	11D	1N	3	C		269		
PALE	10	2007	2021	2034	S26	W58	.854		6.5	27	SF	3	C		77		D
RAMY	10	2021	2023	2029	S15	E28	.484		12.9	8	SB	3	C		68		
PALE	10	2022	2024	2030	S14	E29	.494		13.0	8	SN	3	C		44		
HOLL	10	2022	2024	2030	S14	E29	.494		13.0	8	SN	3	C		52		
MANI	11	0059	0100	0107	S13	E28	.477		13.1	8	SN	2	P		80	.9	
CATA	11	0515	0525	0530	S14	E25	.437		13.1	15	SN	2	C	0525	68	.9	
WEND	11	0642		0651	S14	E22	.392		12.9	9	SN		C	0642	25	.3	
CATA	11	0755	0755	0800	S14	E21	.378		12.9	5	SB	2	C	0755	34	.4	
WEND	11	0916	0918	0924	S12	W68	.923		6.3	8	SN		C	0918	44		
WEND	11	0926	0926	0940	S14	E20	.363		12.9	14	SN		C	0926	31	.4	
WEND	11	1047	1049	1112	S14	E19	.348		12.9	25	SN		C	1049	31	.4	
RAMY	11	1056	1059	1108	S15	E19	.354		12.9	12	SN	3	C		46		
WEND	11	1145	1158	1206	S15	E25	.441		13.4	21	SN		C	1158	37	.4	E
RAMY	11	1149	1149	1206	S16	E25	.446		13.4	17	SN	3	C		36		
WEND	11	1211	1213	1227	S14	E18	.333		12.9	16	SN		C	1213	19	.2	
RAMY	11	1253	1255	1313	S21	W64	.896		6.7	20	1N	3	C		0		
WEND	11	1254	1254	1309	S20	W65	.903		6.7	15	SN		C	1254	38		
RAMY	11	1259	1303	1311	S15	E24	.432		13.3	12	SF	3	C		27		
RAMY	11	1315	1316	1319	S14	E18	.333		12.9	4	SN	3	C		34		
HUAN	11	1346E		1349D	S15	E17	.326		12.8	3D	SN	1	P	1347	40	.4	
RAMY	11	1401	1403	1412	S16	E24	.432		13.4	11	SN	3	C		52		
RAMY	11	1459	1500	1508	S13	E17	.312		12.9	9	SF	3	C		67		
RAMY	11	1512	1513	1534	S15	E21	.383		13.2	22	SB	3	C		255		D
BIGB	11	1655	1656	1704	S15	E16	.311		12.9	9	SB	1	C	1656	100	1.1	
RAMY	11	1655	1656	1704	S15	E16	.311		12.9	9	SB	3	C		173		
PALE	11	1827	1828	1837	S15	E23	.412		13.5	10	SN	3	C		31		D
BIGB	11	1852	1853	1859D	S15	E16	.311		13.0	7D	SB	1	P	1853	70	.8	
PALE	11	1854	1854	1904	S14	E15	.289		12.9	10	SN	3	C		110		
PALE	11	2108	2109	2120	S23	W69	.930		6.7	12	SN	3	C		25		
PALE	11	2130	2157	2202	S22	W74	.956		6.3	32	SF	3	C		45		
PALE	11	2342	2343	0006D	S24	W71	.941		6.7	24D	1B	3	C		113		
PALE	12	0054	0057	0106	S24	W73	.952		6.6	12	SF	3	C		0		
CATA	12	0555	0555	0600	S13	E13	.253		13.2	5	SN	2	C	0555	56	.6	
CATA	12	0600	0600	0610	S14	W09	.209		11.6	10	SB	2	C	0600	56	.6	
WEND	12	0710	0714	0748	S21	W85	.993		5.9	38	SF		C	0714	19		
WEND	12	0956	0956	1008	S14	E06	.175		12.9	12	SN		C	0956	50	.5	
CATA	12	1000E	1000	1005	S14	W07	.185		11.9	5D	SN	1	P	1000	56	.6	
WEND	12	1013	1014	1111	S27	W06	.373		12.0	58	SN		C	1014	113	1.3	E
HOLL	12	1327	1328	1338	S13	E09	.198		13.2	11	SF	3	C		25		
WEND	12	1337	1340	1348	S20	W86	.995		6.1	11	SF		C	1340	19		
HOLL	12	1338	1340	1345	S23	W75	.961		6.9	7	SN	3	C		0		
RAMY	12	1340	1340	1348	S23	W81	.983		6.5	8	SF	3	C		0		
WEND	12	1420	1425	1435	S14	E08	.196		13.2	15	SN		C	1425	25	.3	
RAMY	12	1422	1424	1430	S13	E09	.198		13.3	8	SB	3	C		48		
HOLL	12	1422	1424	1434	S13	E09	.198		13.3	12	SB	3	C		57		
HOLL	12	1528	1530	1533	S12	E09	.187		13.3	5	SN	3	C		33		
HOLL	12	1626	1630	1635	S13	E08	.185		13.3	9	SN	3	C		40		
RAMY	12	1629	1629	1634	S13	E07	.173		13.2	5	SN	3	C		21		
HOLL	12	1736	1739	1746	S13	E09	.198		13.4	10	SB	3	C		38		
BIGB	12	1827	1834	1852	S24	W90	.999		6.0	25	1B	2	C	1834	80		
HOLL	12	1827	1832	1839	S26	W79	.977		6.8	12	SN	3	C		0		
BIGB	12	1915	1921	1927	S21	W90	.999		6.1	12	1N	3	C	1921	90		A
HOLL	12	1916	1918	1922	S24	W85	.993		6.4	6	SF	3	C		0		
PALE	12	2342	2343	0006D	S24	W71	.941		7.7	24D	1B	3	C		113		
PALE	13	0211	0212	0222	S07	E62	.880		17.7	11	SF	3	C		62		
WEND	13	0930		1014	S34	W02	.474		13.2	44	SF		C	0941	125	1.6	
WEND	13	0932		0957	S26	E01	.346		13.5	25	SF		C	0941	81	.9	
HOLL	13	1756	1759	1815	S07	E53	.795		17.7	19	SF	3	C		34		
CATA	14	1100	1100	1125	S13	E90	1.000		21.2	25	1N	1	C	1100	56		
CATA	14	1140E	1150	1150D	S16	W21	.391		12.9	10D	1N	2	P	1150	261	3.2	
BOUL	14	1254	1256	1316	S12	E80	.982		20.5	22	1B	3	C		150		D
WEND	14	1258	1258	1323	S12	E77	.971		20.3	25	1N		C	1258	106		
WEND	14	1337		1406	S09	E45	.704		17.9	29	SF		C	1345	75	1.1	E

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WEND	14	1357		1426D	S15	W13	.272		13.6	29D	SF		C	1404	88	1.0	E
HOLL	14	1507	1520	1548	S13	W22	.389		13.0	41	SN	3	C		127		
PALE	14	1747	1751	1806	S07	E39	.626		17.7	19	SN	4	C		93		D
HUAN	14	1748		1753	S08	E40	.640		17.7	5	SF	1	C				
HOLL	14	1749E	1751	1800D	S08	E40	.640		17.7	11D	SF	3	C		87		
PALE	14	1854	1856	1907	S07	E39	.626		17.7	13	SF	4	C		42		
PALE	14	1905	1921	2043D	S18	W21	.405		13.2	98D	2B	3	C		523		
HUAN	14	1922E		1935	S15	W25	.442		12.9	13D	SN	1	P	1922	60	.7	
PALE	14	2033E	2034U	2043D	S07	E40	.640		17.9	10D	SF	3	C		43		
HOLL	14	2345	2348	2350	S07	E38	.613		17.8	5	SF	3	C		23		
HOLL	15	0019	0023	0028	S25	W04	.338		14.7	9	SF	3	C		22		
HOLL	15	0102	0104	0120	S14	W29	.496		12.9	18	1B	3	C		263		
HOLL	15	0102	0104	0105D	S16	W23	.420		13.3	3D	1B	3	C		263		
WEND	15	0705	0708	0724	S11	W33	.546		12.8	19	SN		C	0708	56	.7	D
WEND	15	0727	0729	0741	S13	W34	.564		12.8	14	SN		C	0729	100	1.3	H
HOLL	15	1250E	1252U	1316	S13	W34	.564		13.0	26D	SB	3	C		165		
HOLL	15	1534	1534	1540	S12	E63	.887		20.4	6	SF	3	C		15		
BIGB	15	1542	1550	1621	S12	E54	.806		19.7	39	1N	2	C	1550	130	2.3	
HOLL	15	1544	1549U	1549D	S10	E54	.805		19.7	5D	1N	3	C		147		
HOLL	15	1544	1553	1615	S11	E53	.795		19.6	31	1N	3	C		165		
HOLL	15	1620E	1622	1640	S30	E90	.999		22.4	20D	SN	3	C		0		
HOLL	15	1622	1625	1715	N16	E50	.809		19.4	53	SN	3	C		41		
BIGB	15	1625	1634	1717	N15	E53	.833		19.7	52	SF	2	C	1634	60	1.0	
BIGB	15	1626	1629	1652	S35	E90	.998		22.4	26	1B	2	C	1629	60		
PALE	15	2002E	2002U	2019D	S07	E25	.421		17.7	17D	SF	3	C		40		D
PALE	15	2053E	2053U	2123	S12	E65	.902		20.7	30D	1B	2	C		182		D
BIGB	15	2355	2357	0031	S09	E22	.376		17.6	36	SB	1	C	2357	100	1.1	
BIGB	16	0007	0011	0028	S16	E65	.902		20.9	21	1N	2	C	0011	140		
BIGB	16	0104	0108	0126D	S13	W90	1.000		9.3	22D	SN	2	P	0108	40		
PALE	16	0119	0125	0135	S08	E20	.342		17.6	16	SF	3	C		47		
PALE	16	0123	0125	0210	S11	E61	.871		20.6	47	SF	3	C		33		
PALE	16	0248	0251	0318	S07	E21	.357		17.7	30	SF	3	C		34		
PALE	16	0306	0306	0329	S10	E52	.784		20.0	23	SF	3	C		42		
HOLL	16	1338E	1341	1450	N16	E36	.664		19.3	72D	SN	3	C		151		
RAMY	16	1343E	1348U	1410	N16	E38	.686		19.4	27D	SN	3	C		126		
BIGB	16	1431	1432	1437	S30	E90	.999		23.4	6	1B	2	C	1432	60		
HOLL	16	1521	1538	1541	N17	E36	.671		19.3	20	SF	3	C		50		
RAMY	16	1618	1631	1638	N16	E37	.675		19.5	20	SF	3	C		52		
BIGB	16	1800	1802	1815	S22	W05	.295		16.4	15	SN	3	C	1802	60	.6	
HOLL	16	1800	1801	1811	S21	W03	.271		16.5	11	SN	3	C		79		
BIGB	16	1816	1825	1903	S28	E90	.999		23.5	47	1B	3	C	1825	60		
HOLL	16	1904	1904	1909	S12	E52	.785		20.7	5	SF	3	C		18		
HOLL	16	1928	1931	1935	N17	E34	.649		19.4	7	SF	3	C		59		
HOLL	16	1929	1932	1937	S18	W44	.703		13.5	8	SF	3	C		21		
BIGB	16	1937	1948	2009	S28	E90	.999		23.6	32	1B	3	C	1948	120		
HOLL	16	2028E	2031U	2034D	N17	E34	.649		19.4	6D	SF	3	C		70		
HOLL	16	2207	2218	2244	N17	E34	.649		19.5	37	SN	3	C		49		
HOLL	16	2208	2212	2214D	S12	E50	.763		20.7	6D	SB	3	C		60		D
HOLL	16	2208	2234	2336	S11	E43	.680		20.1	88	1B	3	C		397		
HOLL	16	2208	2211U	2211	S11	E47	.729		20.4	3	SB	3	C		53		
BIGB	16	2223E	2223U	2259	N15	E36	.658		19.6	36D	SN	3	P	2223	130	1.7	
BIGB	16	2229	2233	0005	S14	E48	.743		20.5	96	1B	3	C	2233	230	3.5	
MANI	16	2233E	2235U	2237D	N21	E53	.851		20.9	4D	SB	1	V		90	1.7	
BIGB	16	2240	2244	2254	S28	E90	.999		23.7	14	1B	3	C	2244	100		
BIGB	16	2315	2324	0001	S15	E50	.766		20.7	46	1F	2	C	2324	150	2.4	
HOLL	16	2315	2322	2333	N16	E31	.609		19.3	18	SN	3	C		27		
BIGB	17	0015	0019	0042	S25	E90	.999		23.8	27	1B	3	C	0019	80		
HOLL	17	0049	0049	0057	S12	E47	.730		20.6	8	SF	3	C		19		
MANI	17	0302E	0303U	0304D	N15	E33	.624		19.6	2D	SN	1	V		20	.3	
MANI	17	0443E	0447U	0452D	N09	E31	.797		21.0	9D	SN	1	V		30	.5	
WEND	17	0537E		0726	S14	E43	.684		20.5	109D	1F		C	0537	194	2.8	
WEND	17	0608E		0623	N15	E29	.578		19.4	15D	SF		C	0615	88	1.1	
WEND	17	0608E		0629	S16	W51	.778		13.4	21D	1N		C	0608	160	2.7	
WEND	17	0720	0735	0818	N15	E29	.578		19.5	58	1B		C	0735	370	4.5	
ATHN	17	0734	0741U	0754	N15	E28	.566		19.4	20	SB	3	C		240		
ISTA	17	0737E		0804	N16	E30	.597		19.6	27D	1B						E
WEND	17	0806	0808	0818	S19	W52	.792		13.4	12	SF		C	0808	68	1.2	E
WEND	17	0856E		0915D	S14	E42	.672		20.5	19D	SF		C	0900	125	1.8	
WEND	17	0904	0906	0915	N15	E28	.566		19.5	11	SF		C	0906	132	1.6	

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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
WEND	17	1007E	1015	1114	N26	E41	.774		20.5	67D	2B		C	1015	640	9.7	IU
ATHN	17	1015E	1018	1030D	N17	E29	.594		19.6	15D	SB	3	C		127		
RAMY	17	1024E	1026U	1123	N26	E41	.774		20.5	59D	2N	3	C		535		D
WEND	17	1050E	1055	1114D	S17	W54	.809		13.4	24D	2N		C	1055	360	6.6	
RAMY	17	1051	1053	1104	S16	W56	.828		13.3	13	SN	3	C		26		
RAMY	17	1324	1327	1331	N16	E25	.541		19.4	7	SN	3	C		38		
BIGB	17	1507	1515	1535	S25	E90	.999		24.4	28	1B	3	C	1515	80		
HOLL	17	1509	1513	1516	N15	E23	.510		19.4	7	SF	3	C		31		
RAMY	17	1733	1734	1738D	N24	E52	.853		21.6	5D	SF	3	C		12		
HOLL	17	2022E	2025	2045	S16	W61	.872		13.3	23D	SF	2	C		38		
PALE	17	2135E	2137U	2214D	N16	E21	.498		19.5	39D	SF	3	C		58		
RAMY	17	2136	2137	2211D	N16	E20	.488		19.4	35D	SF	3	C		56		
HOLL	17	2138E	2158U	2158D	N17	E22	.519		19.6	20D	SF	2	C		32		
HOLL	18	0006E	0008U	0012	S14	E35	.581		20.6	6D	SF	2	C		25		
BIGB	18	0024	0026	0048D	S13	E21	.376		19.6	24D	SN	3	P	0026	80	.9	
HOLL	18	0031E	0038U	0040D	S13	E21	.376		19.6	9D	SF	2	C		88		
MANI	18	0116E	0116U	0118D	N16	E19	.477		19.5	2D	SF	2	P		100	1.1	F
HOLL	18	0118E	0120U	0129D	N17	E16	.460		19.3	11D	1B	2	C		320		
ATHN	18	0745E	0749	0815	N34	E60	.933		22.8	30D	SB	3	C		80		
MANI	18	0818	0820	0830D	S14	E32	.540		20.7	12D	SF	2	P		60	.7	F
ATHN	18	0820E	0821	0853	S08	E31	.513		20.7	33D	SB	3	C		80		
CATA	18	1040	1045	1045D	S13	E29	.494		20.6	5D	SF	2	P	1045	112	1.3	
RAMY	18	1254	1257	1305	S21	E77	.970		24.3	11	SN	3	C		0		
RAMY	18	1345	1354	1404	S22	E78	.974		24.4	19	SF	3	C		0		
BIGB	18	1446	1454	1511	S09	E90	1.000		25.4	25	1B	3	C	1454	50		
BIGB	18	1618	1619	1653	N23	E39	.737		21.6	35	SN	3	C	1619	60	.8	
HOLL	18	1624E	1624U	1647	N24	E37	.725		21.5	23D	SN	3	C		69		
HOLL	18	1847	1849	1857	N17	E59	.886		23.2	10	SF	3	C		29		
HOLL	18	1856	1858	1907	S35	E53	.839		22.8	11	SF	3	C		17		
PALE	18	1903	1908	1922	S23	E74	.957		24.3	19	SN	3	C		0		
PALE	18	1903	1905	1916	S18	W73	.952		13.3	13	SF	3	C		0		
HOLL	18	1903	1903	1917	S18	W73	.952		13.3	14	SN	3	C		0		
HOLL	18	1903	1907	1918	S23	E73	.952		24.3	15	SN	3	C		0		
HOLL	18	1924	1937	2009	N17	E58	.879		23.2	45	SN	3	C		43		
HOLL	18	2020	2021	2026	N13	E00	.315		18.8	6	SN	3	C		40		
HOLL	18	2021	2024	2028	N17	E57	.871		23.1	7	SF	3	C		29		
HOLL	18	2041	2045	2051	S14	E25	.440		20.7	10	SF	3	C		52		
PALE	18	2343	2348	2359	N17	E57	.871		23.3	16	SF	3	C		18		
PALE	19	0045	0045	0051	S15	E22	.402		20.7	6	SF	3	C		59		D
ISTA	19	0622	0628	0644	S09	W21	.361		17.7	22	1N						V
HOLL	19	1329	1329	1338	S29	E44	.741		22.9	9	SN	3	C		29		
HOLL	19	1411	1412	1426	S05	E73	.955		25.1	15	SF	3	C		0		
RAMY	19	1418	1418	1428	S13	E16	.302		20.8	10	SF	3	C		34		
HOLL	19	1420	1422	1428	S12	E14	.265		20.6	8	SF	3	C		36		
HOLL	19	1430	1431	1436	S29	E44	.741		22.9	6	SF	3	C		49		
RAMY	19	1503	1537	1548	S05	E76	.969		25.3	45	SF	3	C		31		
HOLL	19	1517	1522	1538	S19	E84	.992		25.9	21	SF	3	C		0		
HOLL	19	1552	1554	1605	N14	W02	.332		19.5	13	SF	3	C		29		
HOLL	19	1557	1603	1606	S23	W45	.729		16.3	9	SN	3	C		30		
BIGB	19	1609	1612	1628	N13	E48	.778		23.3	19	1N	3	C	1612	170	2.6	
HOLL	19	1609	1610	1634	N15	E47	.775		23.2	25	SN	3	C		94		
CATA	20	0545	0545	0550	N09	E65	.916		25.1	5	SN	2	C	0545	28	.7	
CATA	20	0555	0555	0600D	S14	W01	.154		20.2	5D	SN	2	P	0555	84	.9	
RAMY	20	1404	1407	1415	S20	E85	.994		27.0	11	SF	3	C		0		
RAMY	20	1429	1445	1452	S16	E90	1.000		27.4	23	SF	3	C		0		
RAMY	20	1710	1711	1718	S10	E33	.991		26.9	8	SN	3	C		0		
HOLL	20	1719	1720	1724	S19	E77	.970		26.5	5	SF	3	C		0		
HOLL	20	1743	1744	1806	S07	E64	.896		25.5	23	SF	3	C		32		
HUAN	21	1446	1450	1507	S22	E64	.899		26.4	21	SN	1	C	1450	70	1.6	
HOLL	21	1446	1450	1513	S21	E63	.891		26.3	27	SB	3	C		75		
HOLL	21	1516	1520	1532	S18	E63	.889		26.4	16	SF	3	C		37		
HOLL	21	1619	1635	1659	S11	E61	.871		26.3	40	SF	3	C		36		
HOLL	21	1641	1648	1705	S18	E63	.889		26.4	24	SF	3	C		22		
HOLL	21	1802	1807	1838	S16	W15	.314		20.6	36	SN	3	C		102		
HUAN	21	1803E		1827	S16	W14	.301		20.7	24D	SN	1	P	1808	80	.9	E
PALE	21	1804	1805	1820	S16	W15	.314		20.6	16	SF	3	C		48		D
HUAN	21	1951		1959	N15	E15	.423		23.0	8	SF	1	C				D
BCUL	21	2051	2100	2126D	S14	W15	.296		20.7	35D	2B	4	C		550		

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PALE	21	2058E	2100U	2235D	S13	W15	.288		20.7	97D	3B	3	C		1291		
PALE	21	2058E	2058U	2058D	S14	W06	.185		21.4		SF	3	C		113		D
HOLL	21	2059E	2059U	2100D	S14	W15	.296		20.7	1D	1B	3	C		450		D
CATA	22	0600	0605	0620	S22	E55	.827		26.4	20	1B	2	C	0605	169	3.2	
ATHN	22	0654E	0656U	0725	S27	W25	.536		20.4	31D	SB	3	C		95		
CATA	22	0700E	0700	0720	S25	E33	.608		24.8	20D	SN	2	P	0700	140	1.9	
CATA	22	0825E	0840	1005	N11	E77	.979		28.1	100D	1F	2	P	0840	112		
CATA	22	1030	1030	1105D	N06	E33	.570		24.9	35D	SN	2	P	1030	28	.3	
CATA	22	1125	1125	1125D	S21	E69	.931		27.7		1N	1	P	1125	84		
HUAN	22	1404		1417	N08	E75	.970		28.2	13	SF	1	C	1410	25		D
HOLL	22	1411	1417	1458	S14	W23	.412		20.9	47	SN	3	C		117		
HOLL	22	1416	1423	1437	S07	E36	.586		25.3	21	SF	3	C		37		
HUAN	22	1417		1442	S18	W21	.411		21.0	25	SF	1	C	1422	85	1.0	E
BIGB	22	1417	1420	1443	S18	W21	.411		21.0	26	SF	3	C	1420	80	.9	
RAMY	22	1417	1421	1440	S07	E40	.640		25.6	23	SF	3	C		46		
RAMY	22	1417	1418	1446	S18	W20	.398		21.1	29	SN	3	C		58		
RAMY	22	1439	1439	1447	S32	E03	.456		22.8	8	SF	3	C		32		
HUAN	22	1513		1527	N15	E12	.396		23.5	14	SF	1	C				E
BIGB	22	1515	1524	1543	N18	E12	.437		23.5	28	SF	3	C	1524	110	1.2	
HUAN	22	1517		1537	S18	W21	.411		21.1	20	SF	1	C				E
RAMY	22	1519	1519	1531	S13	W24	.422		20.8	12	SF	3	C		22		
HUAN	22	1529		1540	N09	E75	.971		28.3	11	SF	1	C	1531	25		D
BIGB	22	1711	1712	1729	N18	E12	.437		23.6	18	SN	3	C	1712	70	.7	
BIGB	22	2054	2108	2340	N16	E06	.372		23.3	166	2B	3	C	2108	520	5.4	
PALE	22	2121E	2131U	2145D	N10	E70	.947		28.1	24D	SF	3	C		18		D
PALE	22	2121E	2121U	2247D	N16	E04	.365		23.2	86D	1N	3	C		457		
ISTA	23	0615		0624	S20	E43	.700		26.5	9							
ISTA	23	0623		0640	S19	E60	.867		27.8	17							
HOLL	23	1339	1359	1434	S21	E38	.645		26.4	55	SN	3	C		118		
HUAN	23	1342		1356	N15	W04	.348		23.3	14	SF	1	C	1351	40	.4	
HUAN	23	1404		1428	S23	E37	.643		26.4	24	SF	1	C	1410	120	.6	E
HUAN	23	1441	1446	1451	S21	E37	.634		26.4	10	SF	1	C	1446	80	1.1	E
HOLL	23	1442	1443	1458	S21	E37	.634		26.4	16	SN	3	C		22		
HUAN	23	1451	1452	1457	S28	E12	.434		24.5	6	SF	1	C	1452	70	.8	
HUAN	23	1626	1631	1641	S19	W35	.600		21.1	15	SF	1	C	1631	85	1.1	E
RAMY	23	1704	1706	1710	S20	E37	.629		26.5	6	SF	3	C		21		
HUAN	23	1819		1830	S19	W36	.613		21.1	11	SF	1	C	1823	60	.8	E
HOLL	23	1821E	1824	1836	S21	E36	.622		26.5	15D	SF	3	C		22		
HOLL	23	1821E	1826	1841	S07	E19	.326		25.2	20D	SF	3	C		67		
HOLL	23	2029	2033	2117	S07	E16	.276		25.1	48	SN	3	C		120		
HUAN	23	2030	2034	2054D	S06	E16	.275		25.1	24D	SN	2	P	2034	90	1.0	
HOLL	23	2133	2146	2146D	S06	E15	.258		25.0	13D	1B	3	C		250		
RAMY	23	2137	2137	2142	S17	E36	.605		26.6	5	SF	3	C		23		
RAMY	23	2143	2146	2148D	S06	E16	.275		25.1	5D	1B	3	C		216		D
MANI	23	2259	2303	2314	S21	E32	.573		26.4	15	SF	2	P		25	.3	
HOLL	23	2259	2306	2329	S20	E33	.580		26.4	30	SF	3	C		22		
MANI	24	0019	0020	0130	S24	E31	.580		26.3	71	SN	2	P		80	1.1	
HOLL	24	0019	0021	0035	S23	E33	.597		26.5	16	SN	3	C		105		
MANI	24	0046	0051	0125	N17	W06	.385		23.6	39	SN	2	P		160	2.0	F
HOLL	24	0047	0052	0054D	N17	W08	.395		23.4	7D	1N	3	C		289		
CATA	24	0645E	0650	0655D	S15	W58	.847		19.9	10D	1N	2	P	0650	169	3.4	
CATA	24	0845E	0845	0855	N06	E13	.291		25.3	10D	SN	2	P	0845	84	.9	
RAMY	24	1103	1105	1111	S12	E26	.449		26.4	8	SF	3	C		61		
RAMY	24	1111	1137	1148	S21	E26	.499		26.4	37	SN	3	C		39		
RAMY	24	1112	1113	1123	S06	E12	.208		25.4	11	SN	3	C		51		
RAMY	24	1222	1224	1229	N11	E51	.800		28.3	7	SF	3	C		18		
RAMY	24	1320	1320	1330	S16	W47	.736		21.0	10	SF	3	C		17		
HUAN	24	1355	1358	1407	N10	E50	.788		28.3	12	SN	1	C	1358	65	1.0	E
HOLL	24	1357	1358	1414	N12	E49	.783		28.3	17	SN	2	C		79		
HOLL	24	1423	1426	1437	S16	W50	.769		20.8	14	SF	2	C		28		
RAMY	24	1426	1427	1436	S13	W52	.787		20.7	10	SF	3	C		30		
HUAN	24	1440	1445	1517	N10	E50	.788		28.4	37	SF	1	C	1445	40	.7	
RAMY	24	1444	1447	1450	N12	E50	.793		28.4	6	SF	3	C		18		
HOLL	24	1450	1452	1546	N16	W21	.492		23.0	56	SF	3	C		35		
HUAN	24	1527		1544	S07	E07	.127		25.2	17	SF	1	C				
RAMY	24	1531	1532	1534	S06	E90	1.000		1.4	3	SF	3	C		0		
HUAN	24	1536		1557	N11	E48	.770		28.3	21	SF	1	C				E
HOLL	24	1633	1638	1657	N10	E46	.745		28.1	24	SN	3	C		43		
HUAN	24	1634		1646	N11	E48	.770		28.3	14	SF	1	C				E

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RAMY	24	1636	1639	1652	N11	E49	.780		28.4	16	SF	3	C		27		
HUAN	24	1740		1746D	N11	E48	.770		28.3	6D	SF	1	P				
HOLL	24	1744	1745	1750	N12	E45	.741		28.1	6	SF	3	C		30		
HOLL	24	1824	1825	1838	N12	E45	.741		28.1	14	SF	3	C		33		
HOLL	24	1837	1845	1849	S21	E21	.438		26.4	12	SF	3	C		36		
HOLL	24	1940	1940	1947	S24	W54	.822		20.8	7	SF	3	C		20		
HOLL	24	1951	2004	2006	N15	W23	.503		23.1	15	SF	3	C		32		
HUAN	24	2005		2017D	N11	E45	.737		28.2	12D	SF	1	P				E
PALE	24	2344	2345	2349	S14	E17	.327		26.3	5	SF	3	C		31		
PALE	25	0128E	0137U	0205D	S16	W61	.873		20.5	37D	1N	2	C		323		D
CATA	25	0550	0600	0625D	N07	W06	.228		24.8	35D	SB	2	P	0600	56	.6	
WEND	25	0553E		0611D	S07	E06	.111		25.7	18D	SN		C	0554	56	.6	
WEND	25	0553E		0611D	N10	E39	.663		28.2	18D	SF		C	0554	94	1.3	
RAMY	25	1329	1331	1345	S13	E82	.988		1.7	16	SF	3	C		0		
RAMY	25	1334	1338	1342	S15	E08	.223		26.2	8	SF	3	C		60		
RAMY	25	1337	1338	1341	S12	E05	.152		25.9	4	SN	3	C		35		
RAMY	25	1341	1341	1358D	S08	E02	.066		25.7	17D	SF	3	C		23		
HOLL	25	1410	1413	1436	S19	E13	.327		26.6	26	SN	3	C		186		
HUAN	25	1411	1415	1420	S18	E14	.326		26.6	9	SN	1	C	1415	125	1.4	E
RAMY	25	1414	1415	1431	S19	E13	.327		26.6	17	SN	3	C		147		
RAMY	25	1423	1423	1437	S15	E33	.560		28.1	14	SF	3	C		34		
HOLL	25	1423	1423	1433	S15	E32	.546		28.0	10	SF	3	C		27		
WEND	25	1429E		1434D	S15	E31	.532		27.9	5D	SN		C	1429	66	.8	E
HUAN	25	1544	1548	1551	S10	W63	.888		20.9	7	SF	1	C	1548	40		
HOLL	25	1544	1549	1557	S12	W65	.903		20.8	13	SF	3	C		48		
HOLL	25	1544	1551	1610	S23	E12	.368		26.6	26	SN	3	C		63		
HUAN	25	1550	1551	1554	N16	W28	.568		23.6	4	SN	1	C	1551	35	.4	
HOLL	25	1551	1551	1557	N16	W30	.591		23.4	6	SN	3	C		53		
RAMY	25	1600	1607	1619	N24	W29	.647		23.5	19	SF	3	C		27		
WEND	25	1657	1700	1708D	S34	W37	.708		22.9	11D	SF		C	1700	63	1.0	
HOLL	25	1727	1730	1747	S10	E71	.943		1.1	20	SN	2	C		27		
HOLL	25	1848	1849	1858	S21	E08	.309		26.4	10	SF	3	C		90		
HOLL	25	1848	1849	1855	S15	W01	.178		25.7	7	SF	3	C		38		
RAMY	25	1919	1927	1940	S15	E30	.518		28.1	21	SF	3	C		30		
HOLL	25	1924	1926	1930D	S15	E29	.504		28.0	6D	SF	2	C		32		
HOLL	25	1941	1942	1952	S20	E07	.287		26.3	11	SF	3	C		62		
PALE	25	2107E	2125U	2131D	S13	E72	.948		1.3	24D	SF	1	C		30		
HOLL	26	0002E	0002U	0046	S14	E01	.163		26.1	44D	SF	2	C		47		
HOLL	26	0002E	0002U	0018	S18	E07	.259		26.5	16D	SF	2	C		31		
HOLL	26	0003	0026	0031	N15	W39	.687		23.1	28	SF	2	C		20		
HOLL	26	0101	0102	0119	S13	E02	.149		26.2	18	SF	2	C		26		
WEND	26	0633E		0646	S22	W20	.438		24.8	13D	SN		C	0633	44	.5	D
WEND	26	0633E		0709	S19	W27	.500		24.2	36D	1F		C	0642	240	2.9	
WEND	26	0736	0736	0744	S08	W03	.078		26.1	8	SF		C	0736	50	.5	D
WEND	26	0753	0755	0759	S14	E20	.371		27.8	6	SF		C	0755	75	.8	D
WEND	26	0801		0823	S15	E65	.904		1.2	22	1F		C	0804	130		
WEND	26	0810		0827	N18	W44	.754		23.0	17	SN		C	0814	56	.9	
WEND	26	1135		1136D	S08	E55	.816		30.6	3D	SN		C	1138	106	1.9	
WEND	26	1240E		1242D	S15	E64	.896		1.3	2D	1F		C	1240	175	4.2	
ATHN	26	1306E	1308U	1330	S16	E58	.848		30.9	24D	SB	3	C		95		
PALE	26	1648E	1652	1659	S12	E62	.880		1.4	11D	SF	2	C		36		
HOLL	26	1727	1740	1755	S12	E60	.863		1.2	28	SN	2	C		43		
HOLL	26	1728	1729	1736	S10	W09	.180		26.1	8	SF	3	C		50		
HOLL	26	1728	1731	1750	S21	W04	.289		26.4	22	SB	2	C		96		
PALE	26	1729	1731	1735	S21	W02	.283		26.6	6	SF	3	C		23		D
HOLL	26	1730	1731	1737	N09	E19	.396		28.2	7	SF	3	C		39		
PALE	26	1734	1737	1607	S12	E62	.880		1.4	33	SF	3	C		42		D
HOLL	26	1739	1741	1747	N09	E19	.396		28.2	8	SF	2	C		59		
HOLL	26	1811	1813	1831	S14	E14	.287		27.8	20	SF	3	C		71		
BIGB	26	1824E	1827U	1939D	S10	W90	1.000		20.0	75D	SN	2	P	1827	40		
BIGB	26	2023	2025U	2222	S10	W90	1.000		20.1	119	1B	2	P	2025	80		
HOLL	26	2046	2114	2117	S12	E58	.846		1.2	31	SF	3	C		39		
HOLL	26	2116	2116	2136	N11	E18	.404		28.2	20	SF	3	C		20		
HOLL	27	0119	0122	0134D	S18	W08	.268		26.5	15D	SF	3	C		24		
BUCA	27	0600E		0620	S13	E52	.788		1.2	20D	SF		C	0601	54	.9	E
WEND	27	0612E		0620	S13	E52	.788		1.2	8D	SF		C	0614	112	1.9	
WEND	27	0647		0658	N18	W56	.863		23.1	11	SF		C	0654	62	1.2	
WEND	27	0702	0706	0720	S14	E06	.193		27.7	18	SB		C	0706	106	1.1	

Hα SOLAR FLARES

MAY 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
BUCA	27	0705		0730	S15	E06	.208		27.7	25	SF		C	0710	86	.9	
WEND	27	0803		0827	S06	W22	.374		25.7	24	SN		C	0813	34	.4	D
ISTA	27	0821		0832	S19	W09	.290		26.7	11	SF						D
WEND	27	0821	0825	0832	S18	W12	.306		26.4	11	SB		C	0825	175	1.9	
ATHN	27	0825	0827	0841	S19	W12	.319		26.5	16	SB	2	C		127		
WEND	27	0827		0837	S13	E51	.777		1.2	10	SF		C	0832	47	.8	
WEND	27	0902	0904	0910D	S14	E05	.184		27.8	8D	SF		C	0904	131	1.4	
WEND	27	0904		0910D	S14	E51	.778		1.2	6D	1N		C	0910	200	3.4	
HUAN	27	1518		1526	S14	E45	.711		1.0	8	SF	1	C				
WEND	27	1600	1602	1612	S14	E02	.167		27.8	12	1B		C	1602	256	2.7	
BIGB	27	1600	1601	1618	S15	E01	.182		27.7	18	SB	2	C	1601	100	1.0	
BOUL	27	1600	1603	1612	S14	E03	.171		27.9	12	SB	3	C		95		D
HUAN	27	1601		1611D	S15	E01	.182		27.7	10D	SN	1	P	1602	80	.8	
WEND	27	1610	1612	1614	N10	E10	.303		28.4	4	SF		C	1612	62	.7	
HOLL	27	1613E	1617U	1622	S16	E03	.204		27.9	9D	SF	3	C		22		
BIGB	27	1741	1744	1747	S09	W30	1.000		21.0	6	2B	3	C	1744	240		
HOLL	27	1934	1934	1942	N10	E08	.286		28.4	8	SF	3	C		35		
HOLL	27	2105	2105	2123	S11	E45	.707		1.3	18	SB	3	C		48		
HOLL	27	2105	2105	2109D	S10	E42	.669		1.0	4D	SB	3	C		48		
HOLL	27	2138	2140	2155	S22	W19	.428		26.5	17	SF	3	C		67		
MANI	27	2222	2227	2315	S19	W20	.411		26.4	53	SF	2	P		30	.3	F
PALE	27	2334E	0007U	0043	S11	E41	.657		1.1	69D	SN	3	C		168		D
MANI	28	0214	0217	0235D	S23	W24	.495		26.3	21D	1F	2	P		200	2.4	F
PALE	28	0214	0216	0235	S22	W19	.429		26.7	21	1N	3	C		313		
PALE	28	0217	0219	0229	S10	E37	.603		30.9	12	SF	3	C		40		
CATA	28	0735	0735	0750	N32	W72	.976		22.9	15	1B	2	C	0735	68		
HOLL	28	1312	1318	1352	N08	W07	.247		28.0	40	SB	3	C		185		D
HOLL	28	1324	1326	1332	S09	W41	.655		25.5	8	SF	3	C		20		
HOLL	28	1324	1325	1330	S14	W32	.544		26.2	6	SF	3	C		23		
HOLL	28	1326	1327	1337	S10	E33	.547		1.0	11	SF	3	C		27		
HOLL	28	1401	1419	1443	S10	E33	.547		1.1	42	SN	3	C		113		
BIGB	28	1418	1419	1441	S13	W40	.648		25.6	23	SB	3	C	1419	50	.7	E
HOLL	28	1419	1419	1437	S09	W41	.655		25.5	18	SB	3	C		53		
HOLL	28	1508	1510	1529	S24	W28	.549		26.5	21	SF	3	C		59		
HOLL	28	1526	1529	1613	N08	W06	.239		28.2	45	SN	3	C		67		
HOLL	28	1551	1555	1558	S10	E32	.533		1.1	7	SF	3	C		31		
BIGB	28	1552	1601	1635	S19	W35	.603		26.0	43	SB	3	C	1601	50	.6	
HUAN	28	1553		1622D	S20	W34	.595		26.1	29D	1N	1	P	1605	160	2.1	E
HOLL	28	1553	1558	1619	S24	W28	.549		26.6	26	SN	3	C		52		
BIGB	28	1655	1659	1705D	S13	E34	.568		1.3	10D	SB	2	P	1659	120	1.5	
HOLL	28	1655	1700	1721	S10	E31	.518		1.0	26	1N	3	C		209		
HOLL	28	1655	1657	1701	S23	W32	.586		26.3	6	SF	3	C		24		
HOLL	28	1705	1718	1753	S18	W35	.599		26.1	48	1B	3	C		431		
HUAN	28	1712	1722	1742	S20	W35	.608		26.1	30	SN	2	C	1722	120	1.6	E
BIGB	28	1714E	1714U	1805	S17	W33	.569		26.2	51D	1B	2	P	1714	260	3.2	
HOLL	28	1719	1721	1740	N08	W07	.247		28.2	21	SF	3	C		64		
HOLL	28	1758	1602	1808	S20	W30	.546		26.5	10	SF	3	C		19		
HOLL	28	1813	1813	1831	S11	W41	.657		25.7	18	SF	3	C		41		
HUAN	28	1821		1827	S23	E63	.894		3.5	6	SF	1	C				
HOLL	28	1823	1826	1840	N08	W10	.275		28.0	17	SF	3	C		28		
HOLL	28	1829	1831	1839	S20	W30	.546		26.5	10	SF	3	C		26		
HOLL	28	1847	1853	2020	N08	W08	.256		28.2	93	1N	3	C		221		
RAMY	28	1848E	1853U	1916D	N09	W10	.288		28.0	23D	SN	3	C		168		
BIGB	28	1848	1853	2037	N08	W08	.256		28.2	109	1N	2	C	1853	210	2.2	
HUAN	28	1850		1943	N06	W10	.250		28.0	53	SF	1	C				
PALE	28	1853E	1853U	1853D	N08	W09	.265		28.1		SF	3	C		167		D
HOLL	28	1858	1904	1913	S20	W30	.546		26.5	15	SN	3	C		30		
HOLL	28	1924	1947	1949D	S19	W36	.616		26.1	25D	1B	3	C		296		
HOLL	28	1924	1951	2053	S18	W33	.573		26.3	89	2B	3	C		522		D
HUAN	28	1945	1957	2021	S19	W35	.603		26.2	36	SN	2	C	1957	145	2.0	E
BIGB	28	1945	1948	2026	S15	W35	.588		26.2	41	1B	2	C	1948	350	4.4	
HUAN	28	2109		2116	S08	E25	.424		30.8	7	SF	1	C	2110	130	1.5	
BIGB	28	2109	2111	2124	S03	E23	.393		30.6	15	SN	2	C	2111	60	.7	
HOLL	28	2146	2159	2214	S12	E28	.480		1.0	28	SN	3	C		74		
BIGB	28	2147	2150	2217	S13	E29	.498		1.1	30	SN	2	C	2150	60	.7	
HOLL	28	2153	2205	2236	S24	W33	.606		26.4	43	1B	3	C		274		
BIGB	28	2156	2212	2234	S23	W33	.600		26.4	39	1B	2	C	2212	260	3.2	
BIGB	28	2259	2300	2306	S18	W38	.636		26.1	7	SB	2	C	2300	70	.9	
HOLL	28	2259	2300	2306	S19	W38	.640		26.1	7	SN	3	C		123		
HOLL	28	2332	2344	2346D	S17	W39	.646		26.1	14D	2B	3	C		468		D

Hα SOLAR FLARES

MAY 1980

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	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.	
A MANI	28	2334	2347	0018	S16	W37	.617		26.2	44	1B	2	P		350	4.6	F
BIGB	28	2338	2345	0048	S16	W36	.604		26.3	70	1B	2	C	2345	210	2.7	
MANI	29	0140E	0140U	0145D	S23	W16	.410		27.9	5D	SF	2	P		70	.8	F
MANI	29	0505	0515	0534D	S09	W41	.655		26.1	29D	1N	2	P		200	2.8	F
MANI	29	0508	0512	0534D	S17	W41	.670		26.1	26D	1N	2	P		220	3.2	FU
ISTA	29	0753		0757	S19	W44	.711		26.0	4	SN						O
MANI	29	0755	0757	0815	N10	W21	.429		27.8	20	SF	2	P		60	.7	
MANI	29	0756	0800	0834	N16	W14	.417		28.3	38	SF	2	P		25	.3	
ISTA	29	0756	0800	0808	N12	W18	.411		28.0	12	SB						E
WEND	29	0845E		0901D	N08	W09	.264		28.7	16D	SF		C	0845	38	.4	
CATA	29	1050E	1055	1055D	S24	W21	.472		27.9	5D	SN	2	P	1055	112	1.3	
HOLL	29	1303	1306	1321	S07	W55	.817		25.4	18	SF	2	C		29		
HOLL	29	1310	1315	1323	S23	W41	.691		26.5	13	SF	2	C		68		
HUAN	29	1329	1332	1334	S20	W46	.736		26.1	5	SF	1	C	1332	20	.3	D
HOLL	29	1330	1331	1339	S23	W41	.691		26.5	9	SF	2	C		28		
HUAN	29	1406		1411	N06	W12	.273		28.7	5	SF	1	C				D
HOLL	29	1407	1408	1417	N06	W12	.273		28.7	10	SN	3	C		31		
HOLL	29	2130	2132	2145	S24	W26	.527		27.9	15	SF	3	C		44		
HOLL	30	0020	0021	0037	S14	E15	.304		1.1	17	SN	3	C		36		
MANI	30	0027	0031	0041	S18	W48	.753		26.4	14	SF	2	P		40	.6	
RAMY	30	1046E	1046	1154	S14	W52	.789		26.5	68D	SF	3	C		47		
RAMY	30	1046E	1056	1137	S19	W54	.816		26.4	51D	SN	3	C		74		
HOLL	30	1239	1308	1327	S26	W54	.829		26.5	48	SF	3	C		54		
RAMY	30	1249	1304	1328	S24	W53	.816		26.6	39	SN	3	C		42		
RAMY	30	1601	1611	1647	S08	W70	.937		25.4	46	SF	3	C		12		
HOLL	30	2031	2033	2045	S30	E26	.581		2.8	14	SN	3	C		73		
BIGS	30	2051	2052	2106	N07	W29	.516		28.7	15	SB	3	C	2052	80	.9	
HOLL	30	2052	2053	2104	N06	W30	.525		28.6	12	SB	3	C		129		D
ATHN	31	0744E	0745U	0808	S13	W03	.162		1.1	24D	SB	3	C		111		D
ISTA	31	0745E		0751	S12	W03	.145		1.1	6D	SF						BE
CATA	31	1150	1150	1150D	S16	W06	.228		1.0		SN	2	P	1150	84	.9	
HOLL	31	1551	1552	1559	S14	W06	.218		1.1	8	SN	3	C		37		
BIGB	31	1835	1902	2059	S25	S32	.603		4.2	144	SF	2	C	1902	150	1.8	
HOLL	31	2024	2028	2031	S14	W16	.319		30.7	7	SF	3	C		45		

"REMARKS":

A = Eruptive prominence whose base is less than 90 degrees 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.

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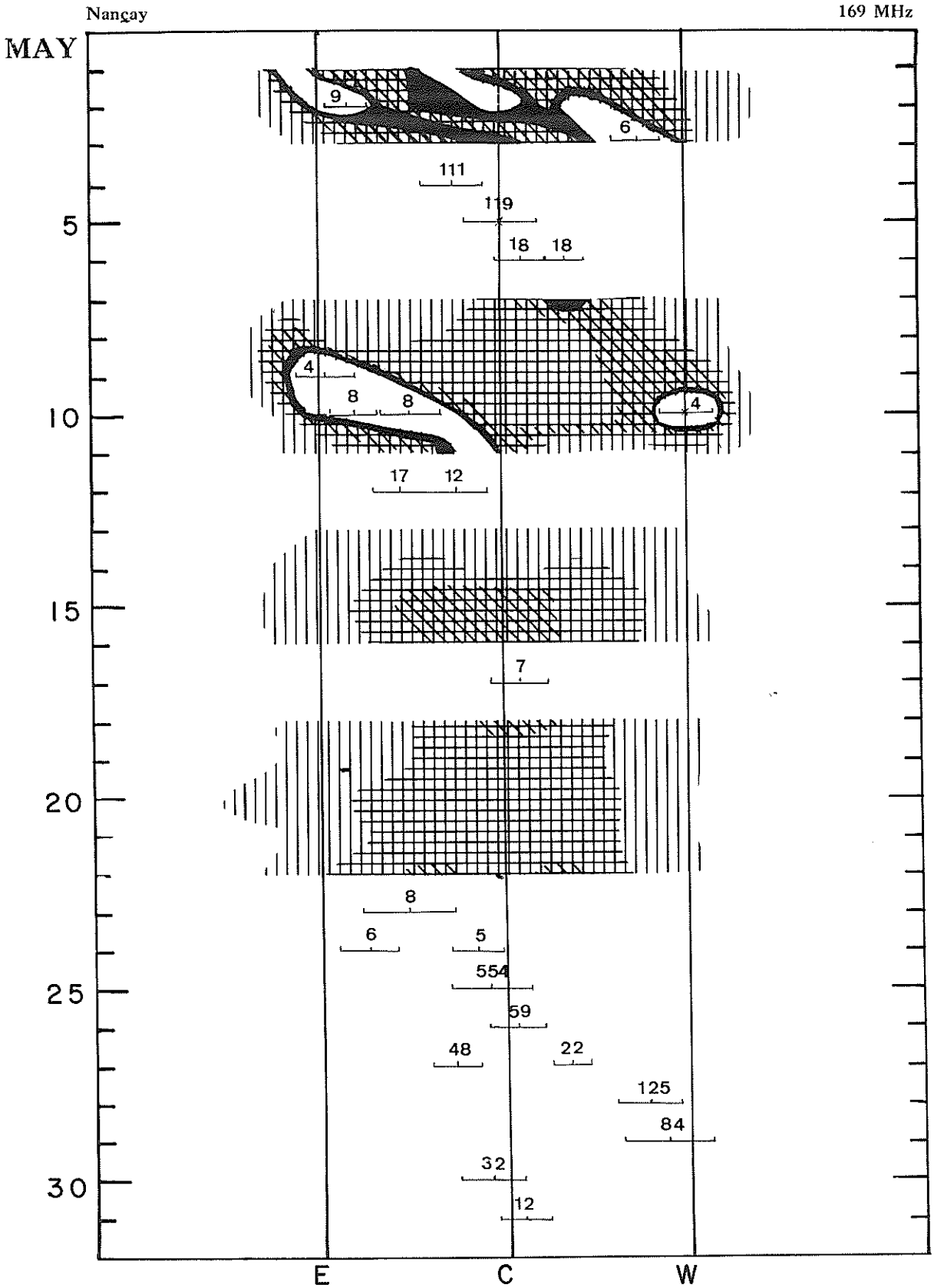
May 80

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

MAY 1980

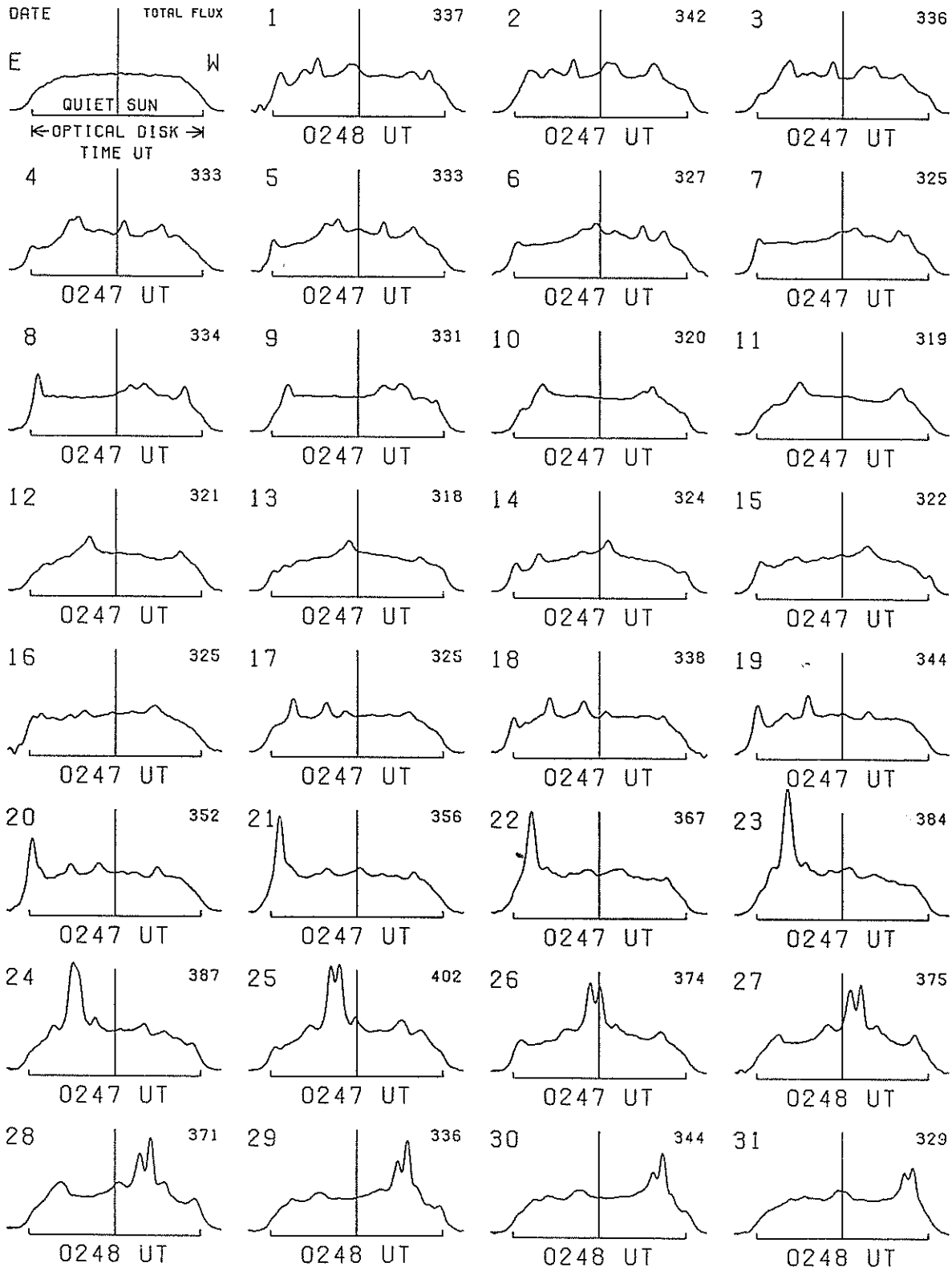


EAST-WEST SOLAR SCANS

MAY 1980

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

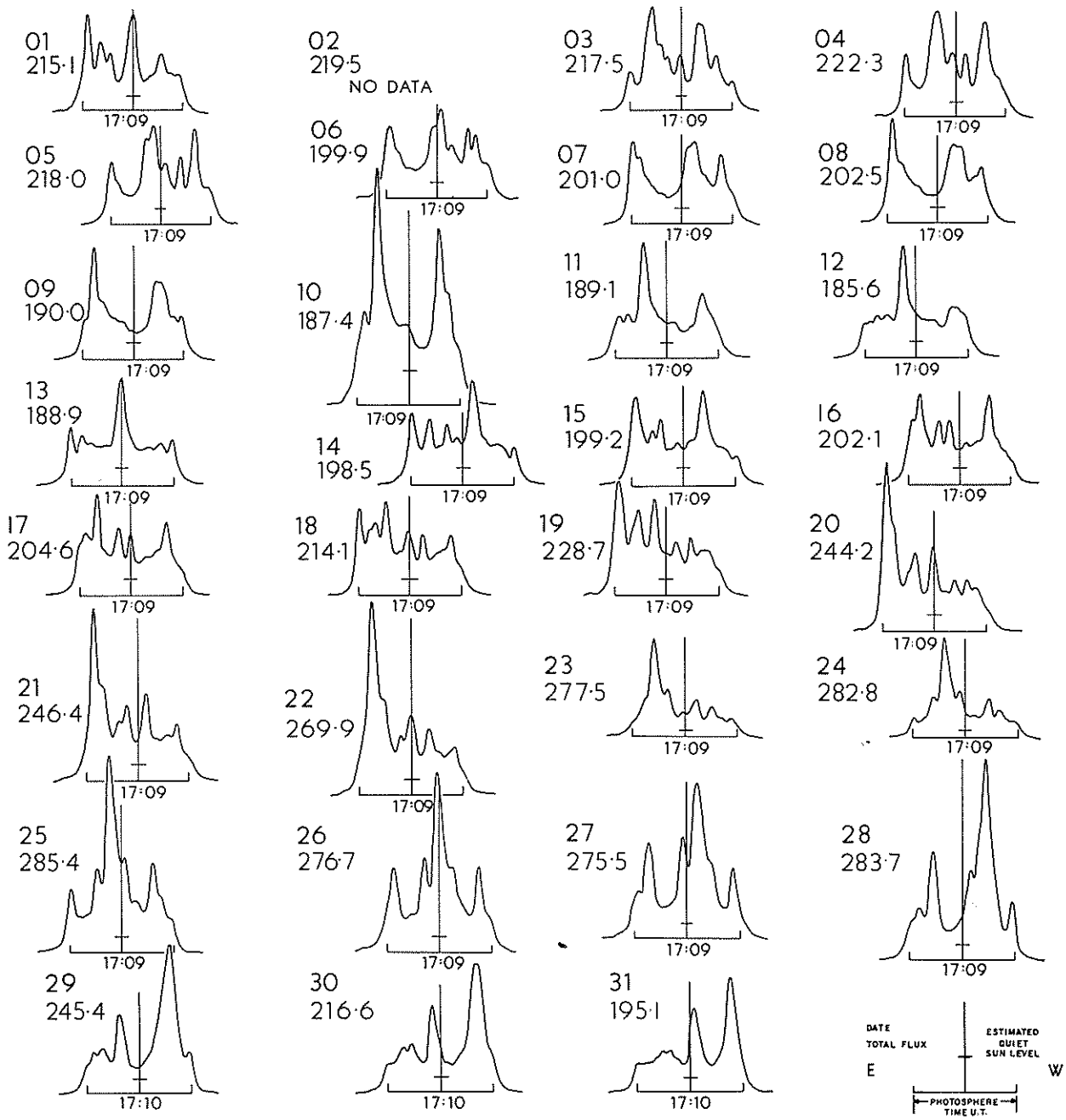


EAST-WEST SOLAR SCANS

MAY, 1980

ALGONQUIN RADIO OBSERVATORY
CANADA

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

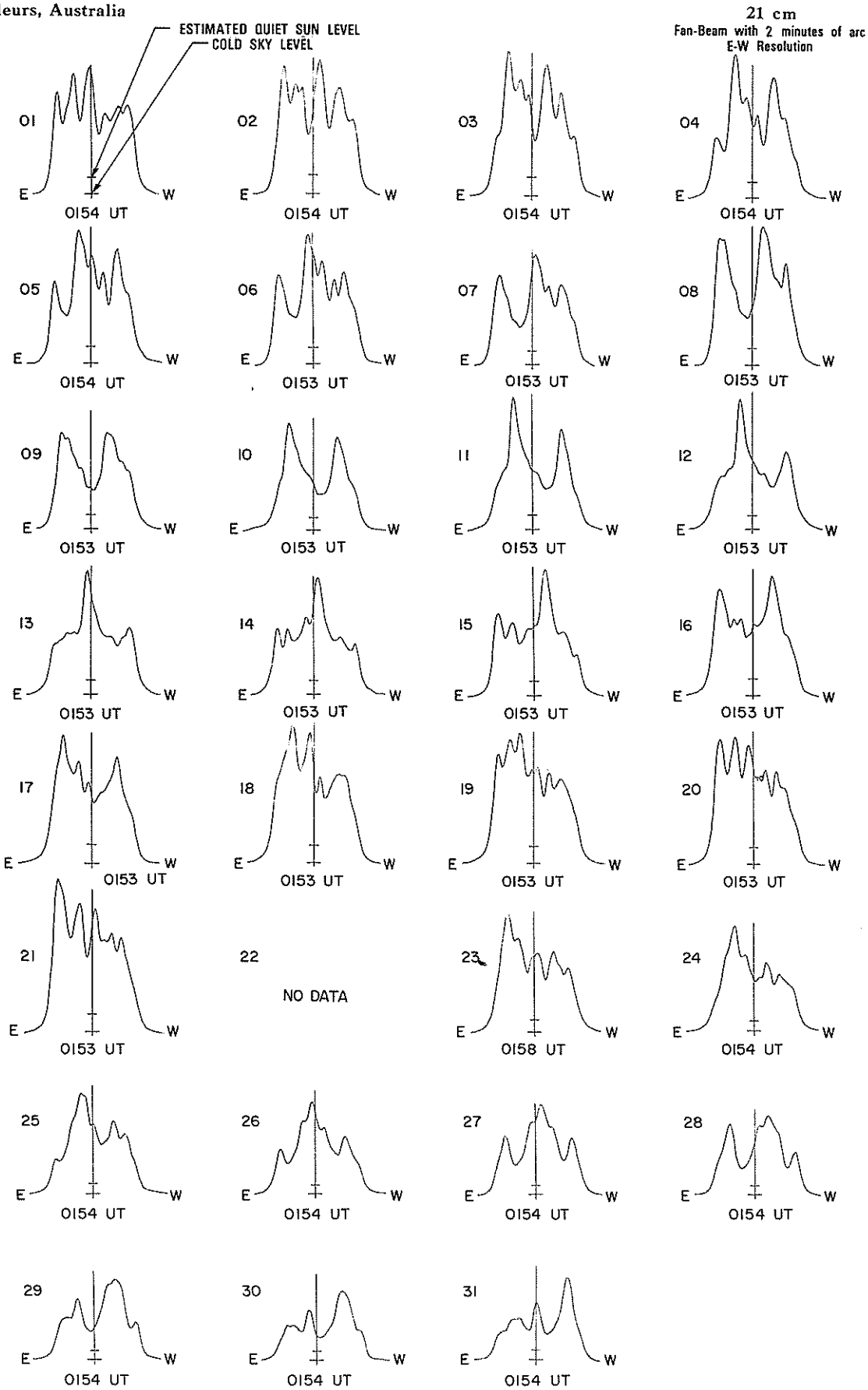


EAST-WEST SOLAR SCANS

MAY 1980

Fleurs, Australia

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

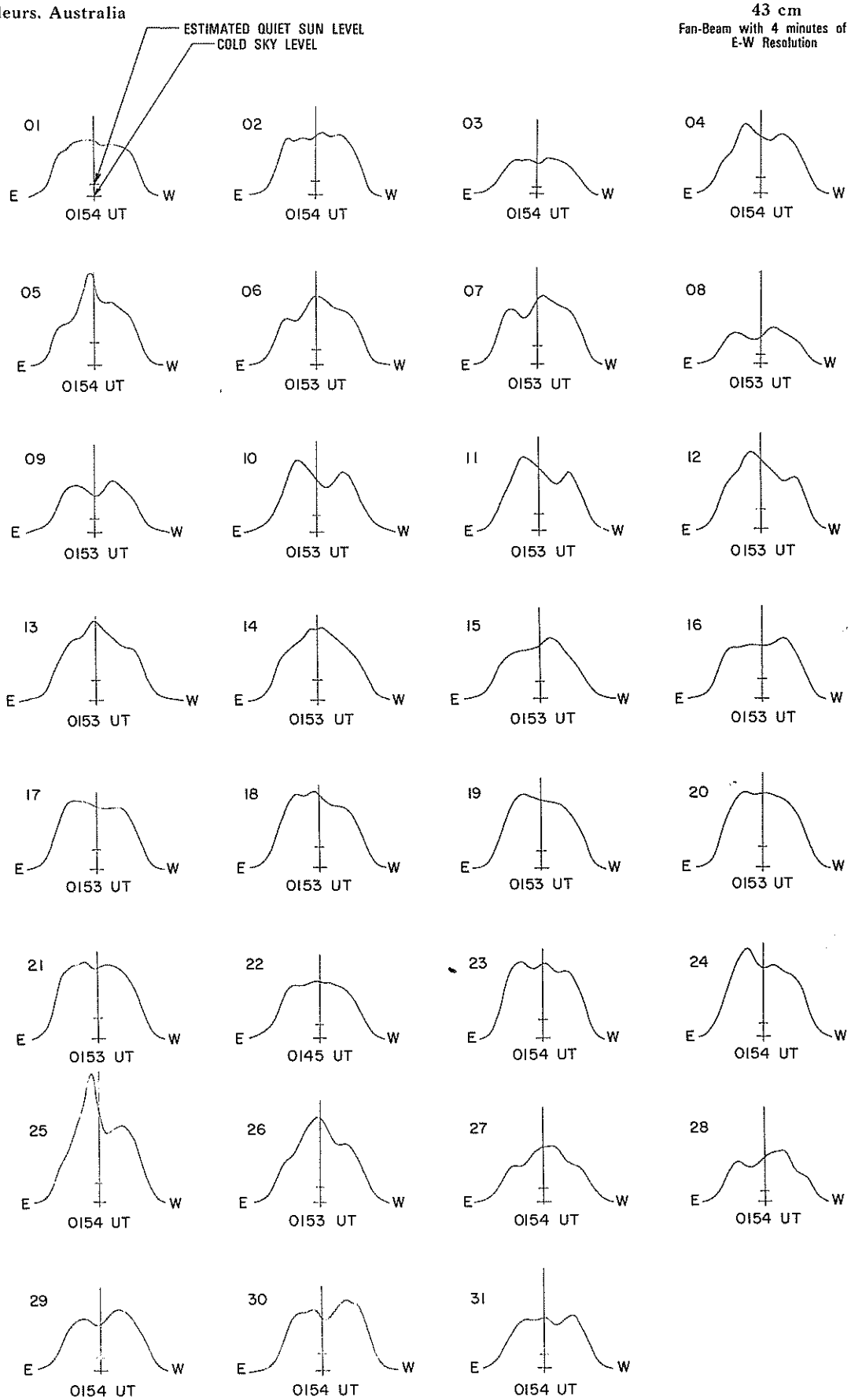


EAST-WEST SOLAR SCANS

MAY 1980

Fleurs, Australia

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



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 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	24OAR	1515.0	1605	50.0	8.2	4.1		
	2800	OTTA	1A S	1553.0	1557	10.0	4.0	2.1		
	2800	OTTA	3 S	1557.7	1558.1	2.5	12.4	6.0		
	2800	OTTA	45 C	1621.0	1624	7.0	258.0	83.0		
	2800	OTTA	30 PBI	1628.0	1628	32.0	18.8	6.2		
	2800	OTTA	4 S/F	1628.2	1628.7	5.0	43.0	14.2		
	2800	OTTA	1 S	1634.2	1634.5	1.5	5.8	2.5		
	2800	OTTA	40 F	1650.3	1650.5	1.0	6.2			
	2800	OTTA	1 S	1755.0	1757	4.0	4.2	2.0		
	2800	OTTA	21 GRF	1910.0		290.0	10.4			
	2800	OTTA	47 GB	1913.5	1916	12.0	750.0	170.0		
	2800	OTTA	4 S/F	1934.8	1935.1	1.5	16.6	5.6		
	2800	OTTA	47 GB	1939.0	2007	130.0	800.0	175.0		
02	2695	PENT	21 GRF	0028.0	0031	32.0	6.8	3.4		
	2695	PENT	4 S/F	0032.0	0034	7.0	14.2	5.6		
	2800	OTTA	24O R	1125.0	1133	8.0	4.2	2.1		
	2800	OTTA	40 F	1233.0	1252.2	45.0	8.4			
	2800	OTTA	23 GRF	1330.0	1500	200.0	12.6	6.0		
	2800	OTTA	3 S	1450.0	1454.5	10.0	11.2	4.0		
	2800	OTTA	20 GRF	1720.0	1722	23.0	6.2	3.1		
	2800	OTTA	20 GRF	1748.0	1753	22.0	2.6	1.3		
	2800	OTTA	26O FAL	1845.0	1935	50.0	-5.0	-2.5		
	2800	OTTA	1 S	2047.0	2047.6	3.0	4.2	2.1		
	2800	OTTA	26O FAL	2105.0	2135	30.0	-3.0	-1.8		
	2800	OTTA	20 GRF	2145.0	2215	55.0	3.0	1.8		
	2695	PENT	20 GRF	2245.0	2300	30.0	2.6	1.8		
	2695	PENT	1 S	2348.0	2351	5.0	4.6	2.3		
	2695	PENT	3 S	2356.0	2357.5	5.0	16.8	7.0		
03	8400	BERN	8	0759.1	0800.5	18.2	108.0			OPR
	2800	OTTA	24 R	1230.0	1244	14.0	7.4	3.7		
	2800	OTTA	27A RF	1230.0		570.0	7.4	7.0		
	2800	OTTA	24P R	1244.0		501.0	7.4			
	2800	OTTA	23 GRF	1246.0	1326	250.0	22.4	7.6		
	2800	OTTA	46F C	1301.0	1309.2	23.0	230.0	60.0		
	8400	BERN	21	1302.7U	1309.2U	15.9U	26.0U			OPR
	2800	OTTA	40 F	1348.0	1348.7	1.0	16.4			
	2800	OTTA	4 S/F	1619.3	1620.3	1.0	250.0	71.0		
	2800	OTTA	4 S/F	1622.0	1622.7	1.2	268.0	30.0		
	2800	OTTA	4 S/F	1748.0	1752.2	7.0	17.2	12.2		
	2800	OTTA	30 PBI	1755.0	1755	115.0	9.4	4.5		
	2800	OTTA	3 S	1759.0	1800.5	5.0	11.0	4.0		
	2800	OTTA	2 S/F	2032.0	2034	7.0	5.4	2.0		
	2800	OTTA	26A FAL	2105.0	2200	55.0	-7.4	-3.7		
	2800	OTTA	1 S	2127.3	2127.9	2.0	4.2	2.1		
	2800	OTTA	1 S	2133.0	2133.3	2.0	2.2	1.1		
	2800	OTTA	21 GRF	2214.0	2221	46.0	4.4	2.2		
	2800	OTTA	3 S	2215.5	2216.8	3.5	17.2	5.8		
	2695	PENT	4 S/F	2316.9	2317.6	1.1	46.2	23.0		
	2695	PENT	29 PBI	2318.0	2318	15.0	9.2	3.0		
04	2800	OTTA	40 F	1508.0	1508.7	3.2	12.6			
	2800	OTTA	20 GRF	1600.0	1630	90.0	4.2	2.1		
	2800	OTTA	46F C	1823.8	1825	7.2	29.2	10.8		
	2800	OTTA	29 PBI	1831.0	1831	25.0	5.8	2.7		
	2800	OTTA	21 GRF	1950.0	2017	50.0*	3.6	1.8		
	2695	PENT	3 S	2013.9	2014.1	1.0	13.4	4.5		
	2800	OTTA	2 S/F	2019.5	2020	3.0	4.2	2.1		
	2800	OTTA	1 S	2100.5	2101	1.0	2.4	1.2		
	2800	OTTA	1 S	2104.8	2105.5	1.4	2.0	1.6		
	2800	OTTA	21 GRF	2200.0	2255	180.0	6.0	4.0		
	2800	OTTA	4 S/F	2203.0	2203.9	3.0	15.8	4.0		
05	8400	BERN	3	0525.1	0525.6	2.5	13.0			OPR
	8400	BERN	20	0625.3	0630.5	16.0	11.0			OPR
	2800	OTTA	20 GRF	1155.0	1235	100.0	4.0	2.0		
	2695	PENT	2 S/F	1411.5	1413.8	9.0	3.6	1.8		
	2800	OTTA	8 S	1429.0	1429.2	.8	1.6	.8		
	2800	OTTA	1 S	1437.8	1438	1.2	2.4	1.0		
	2800	OTTA	4 S/F	1443.4	1444.3	2.0	26.2	13.0		
	2800	OTTA	29 PBI	1445.4	1445.4	11.0	6.2	2.0		
	2800	OTTA	3 S	1536.0	1537	4.0	10.8	4.0		
	8400	BERN	3	1536.3	1537.1	3.0	11.0			OPR
	2800	OTTA	1 S	1659.0	1659.5	1.0	2.6	1.3		
	2800	OTTA	21 GRF	1920.0	1940	80.0	8.2	5.6		
	2800	OTTA	8 S	1936.1	1936.1	.1	7.4			
	2800	OTTA	8 S	1944.3	1944.7	.7	13.4			
	2695	PENT	4 S/F	2010.5	2012.5	4.0	16.4	4.0		
	2800	OTTA	1 S	2225.5	2226	1.0	2.6			
	2695	PENT	1 S	2307.5	2308	1.0	4.4	2.0		
06	8400	BERN	3	0758.5	0759.0	2.0	11.0			OPR
	2800	OTTA	20 GRF	1150.0	1154	36.0	5.4	2.7		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 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
06	2800	OTTA	20	GRF	1228.0	1229	18.0	3.2	1.6		
	2800	OTTA	4	S/F	1808.5	1809.8	3.0	23.0	10.0		
	2800	OTTA	29	PBI	1811.5	1811.5	17.0	4.0	2.0		
	2800	OTTA	22	GRF	1952.0	2020	43.0	2.4	1.2		
	2800	OTTA	22	GRF	2105.0	2130	45.0	3.2	1.6		
	2695	PENT	20	GRF	2205.0	2250	60.0	2.4	1.0		
07	8400	BERN	1		0616.5	0617.1	2.0	5.0			OPR
	8400	BERN	45		1120.0	1122.6	6.0	75.0			OPR
	2800	OTTA	46F	C	1120.0	1121.7	7.0	51.0	10.2		
	2800	OTTA	27A	RF	1305.0		200.0	4.2	3.9		
	2800	OTTA	24	R	1305.0	1316	11.0	4.2	2.0		
	2800	OTTA	4	S/F	1308.0	1308.7	3.0	18.4	8.0		
	8400	BERN	46		1314.0	1317.5	10.0	283.0D			OPR
	2800	OTTA	4	S/F	1314.2	1315.3	1.7	12.6	6.3		
	2800	OTTA	24P	R	1316.0		169.0	4.2			
	2800	OTTA	45	C	1317.0	1320.4	16.0	305.0	54.0		
	8400	BERN	45		1454.7	1456.3	3.0	66.0			OPR
	2800	OTTA	4	S/F	1455.0	1456.5	8.0	205.0	41.0		
	2800	OTTA	26	FAL	1605.0	1625	20.0	-4.2	-2.1		
	2800	OTTA	3	S	2046.0	2046.8	5.0	96.0	16.2		
	2695	PENT	21	GRF	2204.0	2309	130.0	7.4	3.7		
	2695	PENT	3	S	2321.0	2323	7.0	35.0	14.4		
	2695	PENT	29	PBI	2328.0	2328	23.0	7.0	3.5		
08	2695	PENT	4	S/F	0056.5	0057.5	9.5	178.0	39.0		
	2695	PENT	29	PBI	0106.0	0106	15.0	5.2	2.6		
	2800	OTTA	21	GRF	1110.0	1355	440.0	14.4	8.0		
	8400	BERN	45		1126.0	1127.2	3.0	48.0			OPR
	2800	OTTA	4	S/F	1126.4	1127	5.0	79.0	23.8		
	2800	OTTA	1	S	1314.0	1316	5.0	2.8	1.4		
	8400	BERN	45		1328.0	1344.1	16.0	95.0			OPR
	2800	OTTA	46F	C	1338.0	1344.1	13.0	51.0	21.0		
	2800	OTTA	21	GRF	1402.0	1404	35.0	11.0	5.5		
	2800	OTTA	1	S	1404.5	1405	1.0	5.2	2.6		
	2800	OTTA	4	S/F	1935.8	1937.3	4.2	56.0	14.0		
	2800	OTTA	29	PBI	1940.0	1940	6.0	3.8	1.9		
09	2695	PENT	1	S	0004.0	0004.5	1.0	7.0	3.4		
	8400	BERN	3		0531.5	0532.5	4.0	20.0			OPR
	8400	BERN	46		0711.0	0712.2	11.0	200.0D			OPR
	8400	BERN	3		1519.0	1524.0	4.0	12.0			OPR
	2800	OTTA	1	S	1522.0	1523.2	3.0	3.4	1.6		
	2800	OTTA	23	GRF	1940.0	2200	320.0	17.2	10.8		
	2800	OTTA	1	S	1943.5	1945	7.0	5.4	2.5		
	2695	PENT	1	S	2337.0	2338	3.0	4.2	2.4		
10	8400	BERN	3		0526.5	0527.0	6.0	6.0			OPR
	2800	OTTA	46F	C	1129.5	1133.3	6.5	35.4	15.4		
	8400	BERN	45		1130.0	1133.1	10.0	40.0			OPR
	2800	OTTA	21	GRF	1730.0	1742	55.0	3.8	1.8		
	8400	BERN	8		1740.0	1745.5	1.0U	40.0			OPR
	2800	OTTA	3	S	1744.7	1745.2	1.7	45.0	11.2		
	2800	OTTA	21	GRF	1945.0	2015	145.0	7.6	3.0		
	2800	OTTA	45	C	1951.3	1952.2	5.0	59.0	21.8		
	2800	OTTA	40	F	2021.2	2022.8	3.5	3.8			
11	2695	PENT	3	S	0102.2	0102.6	1.5	25.6	9.0		
	2695	PENT	1	S	0115.3	0115.6	1.0	5.6	2.4		
	8400	BERN	3		0818.3	0819.5	2.0	11.0			OPR
	2800	OTTA	21	GRF	1250.0	1302	90.0	5.8	4.0		
	8400	BERN	4		1252.0	1252.6	8.0	37.0			OPR
	2800	OTTA	3	S	1252.2	1253.3	7.0	69.0	15.0		
	8400	BERN	1		1344.6	1345.5	2.5	11.0			OPR
	2800	OTTA	1	S	1345.0	1345.3	1.2	4.0	2.0		
	2800	OTTA	21	GRF	1450.0	1520	90.0	3.8	1.9		
	8400	BERN	45		1512.0	1515.0	6.0	158.0			OPR
	2800	OTTA	46F	C	1512.1	1515	6.0	37.6	16.0		
	2800	OTTA	21	GRF	1650.0	1720	65.0	2.4	1.0		
	2800	OTTA	4	S/F	1654.8	1655.7	3.0	46.4	11.6		
	8400	BERN	4		1655.0	1656.0	4.0	17.0			OPR
	2800	OTTA	1	S	1758.0	1800.4	7.0	4.0	1.4		
	2800	OTTA	2	S/F	1810.0	1810.5	3.0	2.0	1.6		
	2800	OTTA	3	S	1853.0	1853.7	2.5	20.0	5.0		
	2800	OTTA	40	F	2142.0	2144.9	11.0	9.2			
	2695	PENT	21	GRF	2230.0	2330	110.0	3.8	1.9		
	2695	PENT	3	S	2341.7	2343	6.0	105.0	20.0		
12	2800	OTTA	8	S	1237.5	1237.7	.8	2.4	1.2		
	2800	OTTA	8	S	1326.5	1326.7	.5	2.0	1.0		
	2800	OTTA	1	S	1339.8	1340.1	2.0	3.4	1.6		
	2800	OTTA	8	S	1735.8	1736	8.0	3.8	1.9		
13	2800	OTTA	21	GRF	1306.0	1340	80.0	3.6			
	2800	OTTA	1	S	1311.0	1312	6.0	3.0	1.5		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 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
14	8400	BERN	3	1255.6	1257.5	12.8	125.0			OPR
	2800	OTTA	3 S	1256.0	1257.6	5.5	170.0	49.4		
	2800	OTTA	29 PBI	1301.5	1301.5	11.0	4.8	2.0		
	2800	OTTA	1 S	1317.0	1318.7	7.0	2.2	1.1		
	2800	OTTA	8 S	1333.5	1333.7	.5	38.0			
	2800	OTTA	20 GRF	1405.0	1413	30.0	2.2	1.1		
	2800	OTTA	24O R	1500.0	1504	4.0	2.2	1.1		
	2800	OTTA	1 S	1506.0	1509.4	7.0	8.2	2.8		
	2800	OTTA	2 S/F	1517.0	1521	8.0	9.0	3.0		
	2800	OTTA	27A RF	1550.0		465.0	3.6	3.4		
	2800	OTTA	24 R	1550.0	1605	15.0	3.6	1.8		
	2800	OTTA	24P R	1605.0		412.0	3.6			
	2800	OTTA	21 GRF	1720.0	1722.5	14.0	3.6	1.8		
	2800	OTTA	8 S	1721.6	1722	.7	3.8	2.0		
	2800	OTTA	21 GRF	1900.0	1924	140.0	21.8	10.0		
	2800	OTTA	8 S	1915.8	1915.9	.2	21.8			
	2800	OTTA	46F C	1918.5	1920	4.5	61.0	24.4		
	2800	OTTA	3 S	1928.0	1930.7	5.0	13.2	7.0		
	2800	OTTA	45 C	1956.0	1958	7.0	11.2	4.6		
	2800	OTTA	8 S	2139.2	2139.7	.8	16.2	8.1		
	2695	PENT	26 FAL	2257.0	2335	38.0	-3.6			
	2695	PENT	8 S	2352.0	2352.3	.8	7.4	2.4		
15	2695	PENT	4 S/F	0102.0	0103	4.0	60.0	15.0		
	2800	OTTA	24 R	1120.0	1130	10.0	3.0	1.5		
	2800	OTTA	27A RF	1120.0		240.0	3.0	2.9		
	2800	OTTA	24P R	1130.0		220.0	3.0			
	2800	OTTA	1 S	1153.0	1153.3	1.0	3.8	1.9		
	2800	OTTA	1 S	1204.0	1205	2.5	2.6	1.3		
	2800	OTTA	21 GRF	1233.0	1246	107.0	3.8	1.9		
	2800	OTTA	2 S/F	1235.8	1236	1.0	5.2			
	2800	OTTA	1 S	1238.0	1239.7	7.0	9.8	4.5		
	2800	OTTA	26 FAL	1510.0	1520	10.0	-3.0	-1.5		
	2800	OTTA	1 S	1540.0	1542.5	6.0	3.0	1.5		
	2800	OTTA	20 GRF	1620.0	1700	140.0	3.8	1.9		
	2800	OTTA	1 S	1936.0	1936.6	1.2	1.8			
	2800	OTTA	20 GRF	1957.0	1958	15.0	3.8	1.9		
	2800	OTTA	21 GRF	2030.0	2050	60.0	6.4			
	2800	OTTA	4 S/F	2037.0	2041	10.0	45.0	11.0		
	2695	PENT	4 S/F	2355.0	2357.4	4.0	11.4	4.0		
16	2695	PENT	45 C	0134.3	0134.7	4.5	80.0	14.4		
	2800	OTTA	24O R	1155.0	1220	25.0	3.0	1.5		
	2800	OTTA	27 RF	1440.0		170.0	3.8	3.4		
	2800	OTTA	24 R	1440.0	1500	20.0	3.8	1.9		
	2800	OTTA	24P R	1500.0		130.0	3.8			
	2800	OTTA	26 FAL	1710.0	1730	20.0	-3.8	-1.9		
	2800	OTTA	21 GRF	2005.0	2105	95.0	5.6	2.8		
	2800	OTTA	8 S	2040.0	2040.3	.5	3.4			
	2800	OTTA	1 S	2058.0	2059.4	3.0	8.0	2.6		
	2800	OTTA	24 R	2202.0	2204	2.0	5.0	2.0		
	2800	OTTA	27A RF	2202.0		35.0	5.0	4.7		
	2800	OTTA	24P R	2204.0		31.0	5.0			
	2800	OTTA	45 C	2204.1	2210.2	10.0	32.0	14.0		
	2800	OTTA	1 S	2218.5	2219	1.0	2.6	1.3		
	2800	OTTA	3 S	2230.0	2232	4.0	55.0	24.0		
	2800	OTTA	26 FAL	2235.0	2237	2.0	-5.0	-2.5		
	2800	OTTA	32 ABS	2237.5	2255	45.0	-14.4	-9.6A		
17	8400	BERN	45	0732.6	0735.6	45.0	146.0			OPR
	2800	OTTA		1100.0	1310	130.0D	10.4			
	2800	OTTA	20 GRF	1410.0	1413	40.0	3.6	1.8		
	2800	OTTA	21 GRF	1500.0	1557	160.0	4.8	2.4		
	2800	OTTA	1 S	1644.0	1645	2.2	1.8	1.0		
	2800	OTTA	20 GRF	1838.0	1839.7	12.0	3.8	1.6		
	2800	OTTA	1 S	1902.0	1902.5	2.0	5.6	1.9		
	2800	OTTA	20 GRF	2010.0	2027	70.0	6.0	2.8		
	2800	OTTA	20 GRF	2154.0	2235	75.0	3.6	1.8		
	2695	PENT	24O R	2325.0	2335	10.0	4.8	2.4		
18	2695	PENT	21 GRF	0101.0	0108	15.0	9.4	3.1		
	2695	PENT	3 S	0106.5	0107	1.5	21.0	10.0		
	2800	OTTA	21 GRF	1115.0	1450	390.0	9.2	6.4		
	2800	OTTA	1 S	1254.1	1255	1.5	3.6	1.8		
	2800	OTTA	1 S	1344.8	1345	2.0	1.8	.9		
	2800	OTTA	24O R	1900.0	2040	100.0	3.6	1.8		
	2695	PENT	20 GRF	2305.0	2330	90.0	3.0			
19	2800	OTTA	24O R	1235.0	1245	10.0	3.6			
	8400	BERN	3	1418.0	1418.3	2.0	30.0			OPR
	2800	OTTA	1 S	1440.0	1443	5.0	2.6	1.3		
	2800	OTTA	1 S	1556.0	1556.4	1.5	2.0	1.0		
	2800	OTTA	1 S	1608.0	1610.7	5.0	2.6	1.2		
20	8400	BERN	27	1334.0	1411.5	200.0U	21.0			OPR

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 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
20	2800	OTTA	24O R	1340.0	1355	15.0	9.4	3.2		
	2800	OTTA	21 GRF	1356.0	1452	215.0	18.4	11.2		
	2695	PENT	46F C	1407.5	1411.5	11.0	20.0	6.7		
21	2800	OTTA	24O R	1400.0	1410	10.0	3.4	1.7		
	2800	OTTA	24O R	1705.0	1740	35.0	3.4	1.7		
	2800	OTTA	20 GRF	1800.0	1803.5	40.0	5.0	2.4		
	2800	OTTA	24O R	1920.0	2000	40.0	3.0	1.5		
	2800	OTTA	47 GB	2052.0	2056	21.0	800.0	317.0		
	2800	OTTA	30 PBI	2113.0	2113	250.0	25.0			
	2800	OTTA	40 F	2113.5	2117	9.0	17.0			
	2800	OTTA	40 F	2151.0	2153	4.0	6.4			
	2800	OTTA	21 GRF	2157.0	2210.3	65.0	10.6	5.0		
	2800	OTTA	2 S/F	2208.0	2208.6	2.0	7.6	3.8		
22	2800	OTTA	24O R	1300.0	1355	55.0	7.6	3.8		
	2800	OTTA	20 GRF	1416.8	1417	11.0	5.0			
	2800	OTTA	20 GRF	1510.0	1520	65.0	6.2	3.1		
	2800	OTTA	20 GRF	1711.0	1712	15.0	2.4	1.0		
	2800	OTTA	21 GRF	1820.0	2120	400.0	24.6	9.0		
	2800	OTTA	1 S	1853.8	1854.3	1.0	4.0	2.0		
	2800	OTTA	20 GRF	2015.0	2018	30.0	6.2	3.1		
	2800	OTTA	4 S/F	2051.0	2100	23.0	30.0	11.6		
	2800	OTTA	21 GRF	2147.0		28.0	4.0			
	2800	OTTA	1 S	2154.0	2156.3	6.0	7.6	3.8		
	2695	PENT	2 S/F	2256.0	2257.2	2.0	7.6	3.8		
	2695	PENT	29 PBI	2258.0	2258	16.0	3.4	1.7		
23	2800	OTTA	1A S	1055.0	1100	10.0	4.8	2.4		
	2800	OTTA	1 S	1057.5	1057.8	1.0	5.2	2.6		
	2800	OTTA	27A RF	1110.0		225.0	5.2	4.6		
	2800	OTTA	24 R	1110.0	1135	25.0	5.2	2.6		
	2800	OTTA	24P R	1135.0		175.0	5.2			
	8400	BERN	20	1355.5	1356.1	15.0	42.0			OPR
	2800	OTTA	21 GRF	1357.0	1401	28.0	5.2	3.0		
	2800	OTTA	1 S	1402.5	1405	8.0	9.8	4.9		
	2800	OTTA	26 FAL	1430.0	1455	25.0	-5.2	-2.6		
	8400	BERN	20	1440.0U	1440.0U	8.0	42.0			OPR
	2800	OTTA	20 GRF	1800.0	1825	60.0	4.8	2.4		
	2800	OTTA	20 GRF	1915.0	1930	30.0	2.6	1.3		
	2800	OTTA	20 GRF	1955.0	2005	30.0	2.4	1.2		
	2800	OTTA	45 C	2030.0	2032.3	4.0	3.6			
	2800	OTTA	21 GRF	2100.0	2150	110.0	8.4	2.8		
	2800	OTTA	1 S	2145.5	2146.3	2.0	3.6	1.7		
24	2695	PENT	1 S	0016.0	0016.5	1.0	4.8	2.6		
	2695	PENT	1 S	0026.2	0026.4	1.0	2.8	1.4		
	2695	PENT	4 S/F	0047.0	0050.5	6.0	27.4	12.0		
	2695	PENT	29 PBI	0053.0	0053	15.0	7.2	2.4		
	8400	BERN	21	0828.0	0830.3	.1U	8.0			OPR
	2800	OTTA	21 GRF	1103.0	1115	47.0	7.8	3.9		
	2800	OTTA	40 F	1136.2	1136.7	.7	14.0			
	2800	OTTA	20 GRF	1220.0	1235	50.0	3.2	1.6		
	2800	OTTA	1 S	1316.5	1317	1.5	4.6	2.3		
	2800	OTTA	20 GRF	1440.0	1527.5	115.0	6.2	2.1		
	2800	OTTA	21 GRF	2000.0	2030	60.0	3.4	2.0		
	2800	OTTA	1 S	2050.8	2051	1.0	3.4	1.7		
	2800	OTTA	20 GRF	2115.0	2118	20.0	3.4	2.2		
	2695	PENT	20 GRF	2340.0	2342	15.0	3.4	1.7		
25	2695	PENT		0025.0	0133	85.0D	43.8			
	8400	BERN	3	1014.0	1016.0	2.0	8.0			OPR
	2800	OTTA	20 GRF	1238.0	1239	19.0	4.4	2.2		
	2800	OTTA	21 GRF	1325.0	1345	30.0	6.0	3.0		
	8400	BERN	21	1330.0	1411.7	60.0	8.0			OPR
	2800	OTTA	8 S	1332.4	1332.4	.1	8.8			
	2800	OTTA	26O FAL	1420.0	1500	40.0	-6.0	-3.0		
	8400	BERN	20	1549.0	1550.5	20.0	26.0			OPR
	2800	OTTA	1 S	1726.0	1728	10.0	3.8			
	2800	OTTA	26O FAL	1750.0	1830	40.0	-6.0	-3.0		
	2695	PENT	45 C	2354.0	2356	8.0	43.6	17.4		
	2695	PENT	29 PBI	2402.0	2402	55.0	12.0	5.0		
26	2800	OTTA	22 GRF	1205.0	1240	80.0	6.2	3.1		
	2800	OTTA	1A S	1340.0	1350	10.0	4.3			
	2800	OTTA	8 S	1346.0	1346.2	.5	3.8	1.9		
	2800	OTTA	1 S	1424.0	1427.5	9.0	4.4	1.8		
	2800	OTTA	20 GRF	1518.0	1521	35.0	6.2	3.1		
	8400	BERN	21	1727.0	1728.3	10.0	18.0			OPR
	2800	OTTA	3 S	1727.5	1728.4	1.0	11.2	5.6		
	2800	OTTA	29 PBI	1728.5	1728.5	7.0	5.6	2.8		
	2800	OTTA	1 S	1810.5	1810.6	1.0	3.6	1.8		
	2800	OTTA	2 S/F	1824.0	1826	4.0	8.0	4.2		
	2800	OTTA	27 RF	1900.0		110.0	6.8	5.6		
	2800	OTTA	24 R	1900.0	1910	10.0	6.8	3.2		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 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
26	2800	OTTA	24P R	1910.0		70.0	6.8			
	2800	OTTA	26 FAL	2020.0	2050	30.0	-6.8	-3.2		
	2695	PENT	20 GRF	2300.0	2305	40.0	5.0	3.0		
27	8400	BERN	1	0600.7	0601.7	1.0	9.0			OPR
	8400	BERN	1	0820.0	0821.8	10.0U	9.0			OPR
	2800	OTTA	20 GRF	1150.0	1230	120.0	8.8	4.4		
	2800	OTTA	4 S/F	1600.0	1601	5.0	14.4	5.8		
	8400	BERN	4	1600.0	1601.0	10.0	28.0			OPR
	2800	OTTA	20 GRF	1840.0	1850	30.0	2.8	1.2		
	2800	OTTA	8 S	1919.7	1920	.4	12.6			
	2800	OTTA	8 S	1930.5	1930.5	.1	10.4			
	2800	OTTA	4 S/F	2103.5	2104.5	2.5	46.0	20.0		
	2800	OTTA	29 PBI	2106.0	2106	14.0	5.8	2.0		
	2800	OTTA	24O R	2136.0	2140	4.0	5.8	2.0		
	2695	PENT	20 GRF	2345.0	2358	100.0	9.8	7.2		
28	2800	OTTA	21 GRF	1050.0	1110	120.0	10.4	5.2		
	2800	OTTA	1 S	1059.0	1100.5	3.5	4.2	2.2		
	2800	OTTA	24O R	1315.0	1317	2.0	4.6	2.3		
	2800	OTTA	4 S/F	1419.0	1419.5	1.8	14.8	5.0		
	8400	BERN	3	1419.0	1419.5	4.0	10.0			OPR
	2800	OTTA	1 S	1528.0	1528.4	1.0	6.0	2.0		
	2800	OTTA	21 GRF	1545.0	1551	30.0	8.6			
	8400	BERN	41	1545.0	1552.5	35.0	79.0			OPR
	2800	OTTA	3 S	1552.0	1552.5	7.0	77.0	34.0		
	2800	OTTA	3 S	1601.0	1605	9.0	13.2	6.6		
	8400	BERN	46	1637.0	1717.3	34.0	176.0U			OPR
	2800	OTTA	3 S	1637.0	1638.5	7.0	12.6	4.2		
	2800	OTTA	3 S	1653.0	1656	7.0	25.8	13.0		
	2800	OTTA	30 PBI	1700.0	1700	50.0	11.4			
	2695	PENT	28 PRE	1705.0	1706.3	5.0	8.0			
	2800	OTTA	46F C	1710.0	1717.6	27.0	316.0	54.0		
	2800	OTTA	4 S/F	1808.6	1810.1	3.0	20.0	10.0		
	2800	OTTA	21 GRF	1827.0	1920	110.0	9.0			
	2800	OTTA	28 PRE	1940.0		5.0	24.6			
	2800	OTTA	47 GB	1945.0	1947.4	7.0	1132.0	256.0		
	2800	OTTA	30 PBI	1952.0	1952	28.0	37.4	18.7		
	2800	OTTA	4 S/F	1954.5	1956.3	6.5	32.8	16.4		
	2800	OTTA	26A FAL	2100.0	2250	110.0	-16.8	-8.4		
	2800	OTTA	23 GRF	2145.0	2200	55.0	5.6	3.0		
	2800	OTTA	3 S	2218.5	2219.9	4.0	16.0	4.0		
	2695	PENT	21 GRF	2310.0	2400	80.0	11.8	5.9		
	2695	PENT	46F C	2338.0	2339	18.0	69.0	18.9		
29	2695	PENT	20 GRF	0112.0	0115	20.0	7.4	3.7		
	8400	BERN	45	0505.0	0511.0	250.0	123.0			OPR
	2800	OTTA	1 S	1111.0	1113	7.0	4.6	2.3		
	2800	OTTA	8 S	1844.0	1844.1	.5	11.8			
	2695	PENT	1 S	2323.0	2323.8	1.8	5.2	2.6		
30	2695	PENT	21 GRF	0015.0	0025	45.0	4.2	2.4		
	2695	PENT	1 S	0029.0	0030	4.5	5.2	2.6		
	2800	OTTA	20 GRF	1055.0	1056.5	40.0	8.6	4.3		
	2800	OTTA	40 F	2050.9	2051.7	3.0	38.0			
31	8400	BERN	3	0743.0	0744.3	8.0	42.0			OPR
	2800	OTTA	21 GRF	1805.0	1915	280.0	8.6	4.6		
	2800	OTTA	1 S	2048.0	2048.5	1.0	3.2	1.6		

Observatories:

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

Explanation of Type Code:

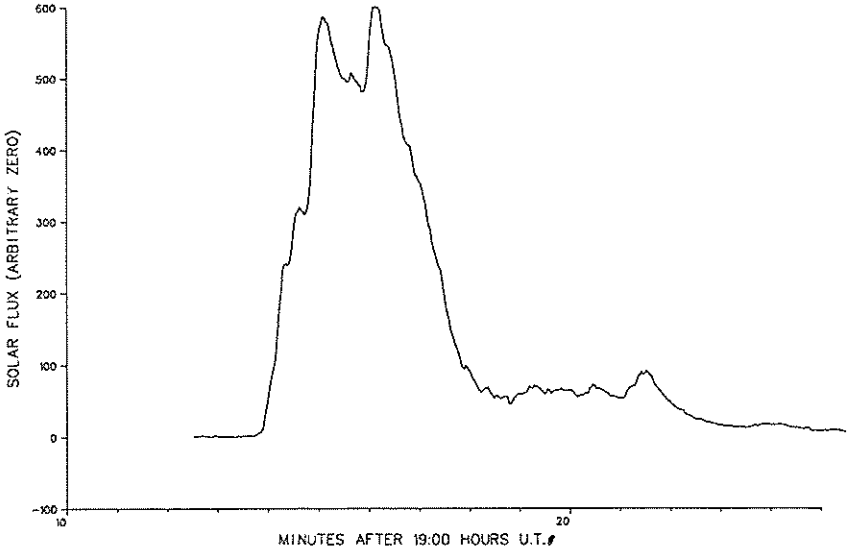
1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase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

SELECTED SOLAR NOISE BURSTS

MAY 1-28, 1980

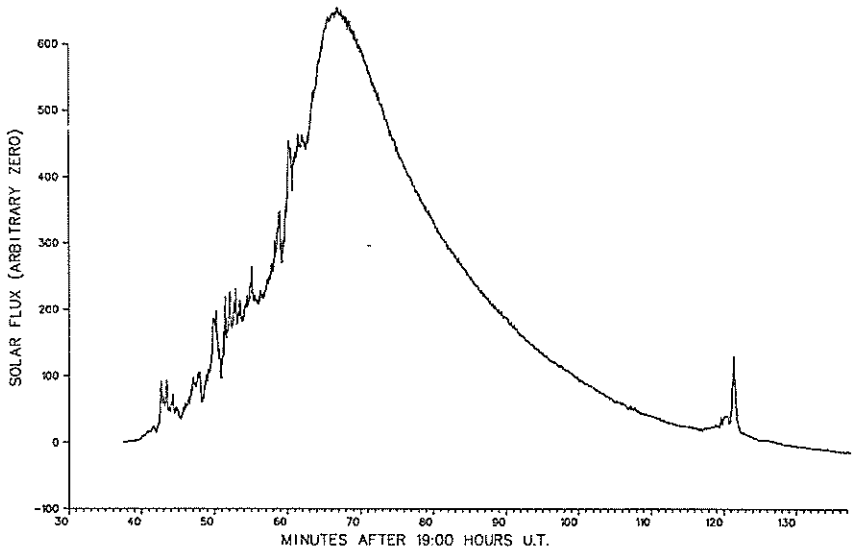
MAY 01, 1980

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



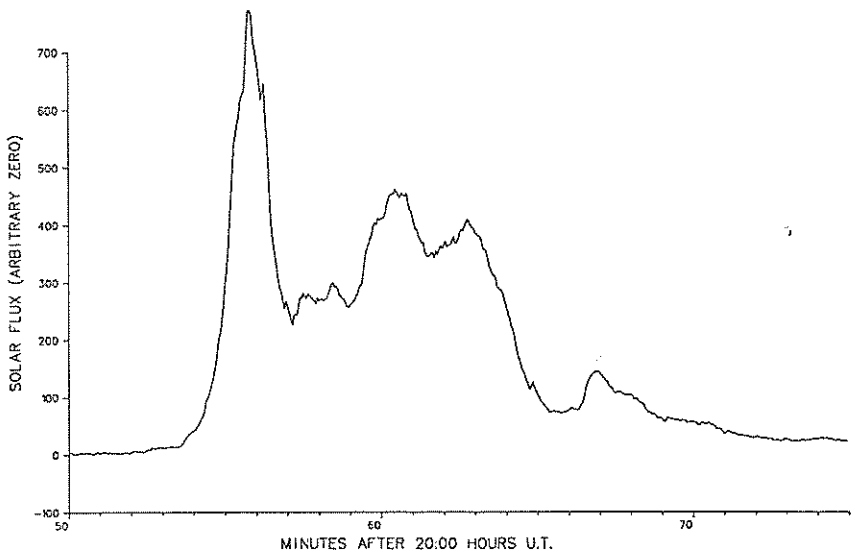
MAY 01, 1980

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



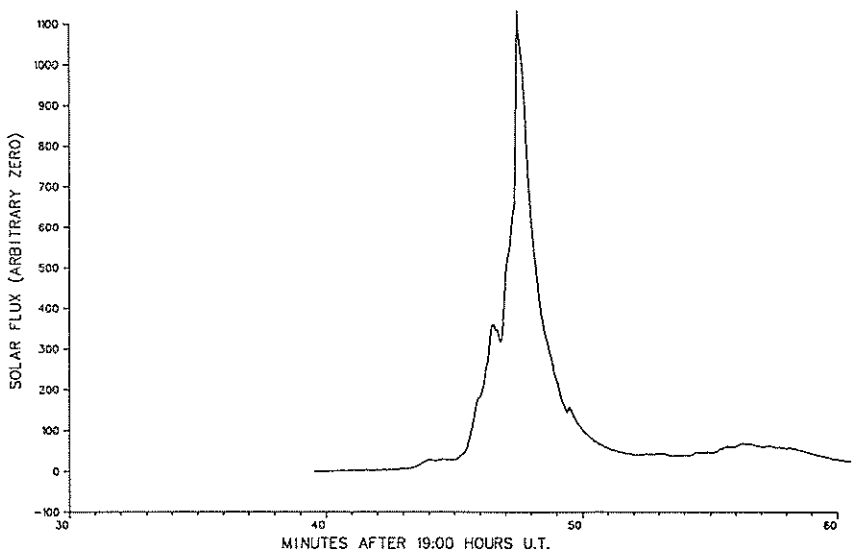
MAY 21, 1980

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



MAY 28, 1980

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



SOLAR WIND

Interplanetary Scintillations

MAY 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
800430	121	0	295	34	330	24	2	3C161	62	-21	0.88	-22	-2.44	1694.40
	121	2	249	15	259	15	3	3C144+	44	-9	0.69	-45	-5.73	1694.49
	121	3	335	13	261	9	2	3C222	105	-8	1.12	-14	-0.48	1694.37
	121	4	425	13	357	26	3	3C237	111	-6	1.14	-14	-0.44	1694.41
	121	16	338	11	386	28	2	3C446	65	1	0.91	25	1.31	1694.32
	121	17	349	11	333	10	3	3C459	50	7	0.77	40	1.71	1694.32
	121	19	381	42	399	11	4	3C48	22	62	0.37	18	-1.70	1694.46
	121	21	368	20	318	17	4	3C144-	43	-9	0.68	-46	-5.13	1694.58
	121	23	261	12	293	13	4	3C144	43	-9	0.68	-47	-5.84	1694.53
800501	122	0	345	13	339	9	3	3C161	61	-22	0.87	-22	-2.36	1694.47
	122	1	308	24	305	14	3	3C144+	43	-9	0.68	-47	-5.51	1694.56
	122	16	422	53	377	49	2	3C459	50	7	0.77	39	1.88	1694.38
	122	19	431	67	416	14	3	3C48	22	62	0.37	22	-1.06	1694.49
	122	20	340	20	328	19	3	3C144-	42	-9	0.67	-47	-5.40	1694.61
	122	22	317	31	409	88	2	3C147	51	15	0.78	-35	-3.98	1694.55
	122	23	337	14	337	14	4	3C144	42	-9	0.67	-47	-5.45	1694.62
800502	123	0	369	13	317	21	3	3C161	61	-22	0.87	-24	-2.47	1694.53
	123	1	370	61	376	62	2	3C144+	42	-9	0.67	-48	-5.33	1694.63
	123	16	385	82	250	44	2	3C446	66	1	0.91	24	1.38	1694.42
	123	17	473	88	542	125	2	3C459	51	7	0.78	37	1.90	1694.43
	123	19	394	22	427	12	4	3C48	23	61	0.39	25	-1.01	1694.51
	123	20	392	18	392	18	4	3C144-	41	-9	0.66	-48	-5.28	1694.67
	123	22	369	18	390	20	2	3C147	50	15	0.77	-35	-3.91	1694.61
800503	124	1	289	12	323	14	2	3C144+	41	-9	0.66	-48	-5.91	1694.64
	124	1	392	46	386	45	2	3C161	60	-23	0.87	-24	-2.47	1694.58
	124	19	345	15	378	33	2	3C48	23	59	0.39	29	-1.15	1694.53
	124	20	407	30	418	30	2	3C144-	40	-9	0.64	-49	-5.41	1694.72
	124	22	373	68	445	229	2	3C147	49	16	0.75	-36	-4.00	1694.65
	124	23	347	12	355	12	4	3C144	40	-9	0.64	-50	-5.74	1694.71
800504	125	0	328	12	348	28	3	3C161	59	-23	0.86	-26	-2.79	1694.59
	125	1	336	47	360	95	2	3C144+	40	-9	0.64	-50	-5.84	1694.71
800505	126	1	397	23	398	23	2	3C144+	39	-9	0.63	-50	-5.60	1694.77
	126	15	449	134	408	75	2	3C459	55	6	0.82	35	1.84	1694.53
800506	127	19	325	57	356	30	2	3C48	24	55	0.41	37	-0.65	1694.61
	127	21	377	27	390	19	2	3C147	47	18	0.73	-38	-4.25	1694.77
	127	23	506	15	507	15	3	3C144	37	-9	0.60	-54	-5.57	1694.87
800507	128	1	575	176	437	19	2	3C144+	37	-9	0.60	-52	-5.28	1694.88
	128	3	487	58	545	175	2	3C237	104	-6	1.11	-15	-0.71	1694.69
	128	6	284	37	317	9	2	3C273	138	-3	1.24	-9	0.87	1694.54
	128	16	307	36	373	18	2	3C459	57	6	0.84	32	1.44	1694.55
	128	18	327	9	342	26	2	3C48	25	54	0.42	38	-0.46	1694.64
	128	22	514	28	533	29	3	3C144	36	-9	0.59	-53	-5.51	1694.91
	128	22	411	53	552	52	2	3C147	46	19	0.72	-38	-4.22	1694.82
800508	129	0	349	16	379	71	2	3C161	56	-25	0.83	-28	-3.06	1694.76
	129	3	346	30	309	89	2	3C222	97	-8	1.08	-15	-0.76	1694.68
	129	4	302	75	333	28	2	3C237	103	-6	1.11	-15	-0.48	1694.64
	129	5	416	39	376	70	2	3C273	139	-3	1.24	-9	0.38	1694.67
	129	16	448	46	290	11	2	3C459	57	6	0.84	33	1.76	1694.65
	129	18	364	10	390	31	3	3C48	25	53	0.42	39	-0.04	1694.68
	129	20	446	33	445	28	3	3C144-	35	-9	0.57	-54	-5.91	1694.93
	129	22	443	20	453	21	3	3C144	35	-9	0.57	-54	-5.94	1694.94
800509	130	0	549	24	568	73	2	3C161	55	-26	0.82	-28	-2.78	1694.85
	130	1	441	22	436	22	2	3C144+	35	-9	0.57	-54	-5.96	1694.94
	130	5	486	26	459	132	2	3C273	138	-3	1.24	-9	0.19	1694.74
	130	15	314	12	321	45	2	3C446	73	0	0.96	18	1.04	1694.64
	130	18	362	11	332	20	3	3C48	26	52	0.44	40	0.09	1694.71
	130	20	368	23	374	23	3	3C144-	35	-9	0.57	-56	-6.42	1694.96
	130	21	596	91	398	21	2	3C147	45	20	0.71	-40	-3.96	1694.94
	130	22	370	16	401	18	3	3C144	34	-9	0.56	-54	-6.32	1694.96
800510	131	16	333	32	390	76	2	3C459	59	5	0.86	30	1.46	1694.68
	131	18	299	8	300	8	3	3C48	26	50	0.44	41	-0.39	1694.73
	131	20	289	19	318	21	3	3C144-	34	-9	0.56	-57	-7.20	1694.97

SOLAR WIND

Interplanetary Scintillations

MAY 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
	131	22	351	15	351	15	3	3C144	33	-9	0.54	-56	-6.67	1695.00
	131	23	418	11	481	86	3	3C161	53	-27	0.80	-28	-3.09	1694.90
800511	132	0	544	26	524	72	2	3C196	67	6	0.92	-21	-1.91	1694.89
	132	1	321	34	296	16	2	3C144+	33	-9	0.54	-56	-6.93	1694.99
	132	4	536	26	559	23	2	3C273	136	-3	1.23	-9	0.09	1694.83
	132	16	425	11	427	9	3	3C459	60	5	0.87	29	1.61	1694.76
	132	18	520	36	526	19	3	3C48	27	49	0.45	42	1.19	1694.80
	132	20	411	14	397	14	3	3C144-	33	-9	0.54	-57	-6.42	1695.05
	132	21	327	13	365	56	3	3C147	43	22	0.68	-41	-4.93	1694.95
	132	22	387	14	382	14	3	3C144	33	-9	0.54	-57	-6.55	1695.05
800512	133	1	349	18	354	15	3	3C144+	32	-9	0.53	-57	-6.85	1695.04
	133	4	378	87	510	13	2	3C273	135	-3	1.23	-9	0.38	1694.80
	133	15	466	49	457	121	2	3C446	76	1	0.97	17	1.16	1694.82
	133	16	482	24	395	16	2	3C459	61	5	0.87	28	1.59	1694.81
	133	18	310	8	355	9	4	3C48	27	48	0.45	43	-0.09	1694.80
	133	20	328	14	333	14	3	3C144-	32	-9	0.53	-59	-7.19	1695.07
	133	21	468	64	407	25	2	3C147	42	23	0.67	-40	-4.35	1695.04
	133	22	311	12	314	13	3	3C144	32	-9	0.53	-58	-7.27	1695.07
	133	23	394	10	381	13	4	3C161	52	-28	0.79	-29	-3.21	1694.97
800513	134	1	322	14	344	16	2	3C144+	31	-9	0.52	-58	-7.22	1695.08
	134	16	467	137	419	22	2	3C459	62	5	0.88	28	1.62	1694.84
	134	18	338	15	383	12	2	3C48	28	47	0.47	43	0.33	1694.84
	134	20	284	15	322	16	3	3C144-	31	-9	0.52	-59	-7.69	1695.10
	134	21	415	78	394	26	2	3C147	42	24	0.67	-42	-4.71	1695.06
	134	22	266	17	287	18	3	3C144	31	-9	0.52	-60	-7.98	1695.09
	134	23	265	14	270	22	3	3C161	51	-29	0.78	-30	-3.84	1694.94
800514	135	1	322	34	335	23	2	3C144+	30	-9	0.50	-59	-7.37	1695.12
	135	16	384	20	424	17	2	3C459	63	5	0.89	26	1.37	1694.85
	135	18	319	12	336	13	2	3C48	28	45	0.47	45	0.30	1694.87
	135	22	304	50	363	22	3	3C144	30	-9	0.50	-60	-7.64	1695.15
	135	23	314	11	240	25	2	3C161	50	-30	0.77	-30	-3.73	1695.01
800515	136	1	276	19	289	20	2	3C144+	30	-9	0.50	-61	-8.03	1695.15
	136	18	314	26	403	35	2	3C48	29	44	0.48	45	0.29	1694.90
	136	20	253	16	254	16	3	3C144-	29	-10	0.48	-61	-8.42	1695.17
	136	21	394	75	384	19	2	3C147	40	25	0.64	-43	-4.95	1695.14
	136	22	269	23	262	22	3	3C144	29	-10	0.48	-62	-8.28	1695.18
	136	23	283	10	286	10	3	3C161	50	-30	0.77	-31	-3.92	1695.03
800516	137	0	212	16	244	18	2	3C144+	29	-10	0.48	-62	-9.23	1695.15
	137	16	280	21	420	40	2	3C459	65	4	0.91	25	1.23	1694.87
	137	18	380	12	482	16	2	3C48	30	43	0.50	44	0.86	1694.95
	137	20	252	16	246	15	2	3C144-	28	-10	0.47	-62	-8.67	1695.21
	137	22	251	17	256	17	3	3C144	28	-10	0.47	-62	-8.70	1695.21
	137	23	342	12	360	13	2	3C161	49	-31	0.75	-31	-3.70	1695.11
800517	138	0	252	17	274	20	2	3C144+	28	-10	0.47	-63	-8.75	1695.22
	138	16	291	15	313	33	2	3C459	66	4	0.91	23	1.18	1694.92
	138	18	348	13	354	14	3	3C48	30	42	0.50	45	0.71	1694.98
	138	19	274	19	290	14	2	3C144-	27	-10	0.45	-63	-8.53	1695.26
	138	21	303	29	352	39	2	3C147	39	27	0.63	-43	-5.53	1695.18
	138	22	339	35	346	17	2	3C144	27	-10	0.45	-63	-7.84	1695.29
	138	23	382	33	356	20	3	3C161	48	-31	0.74	-31	-3.66	1695.16
800518	139	0	280	12	264	11	2	3C144+	27	-10	0.45	-63	-8.46	1695.27
	139	0	308	18	252	104	2	3C196	61	10	0.87	-26	-2.78	1695.09
	139	16	363	9	360	17	3	3C459	67	4	0.92	22	1.24	1695.00
	139	18	327	9	374	11	3	3C48	31	41	0.52	45	0.60	1695.00
800519	140	21	278	10	289	10	3	3C144	25	-10	0.42	-65	-8.81	1695.35
	140	23	268	8	249	7	3	3C161	47	-33	0.73	-33	-4.37	1695.18
800520	141	0	257	13	257	13	2	3C144+	25	-10	0.42	-65	-9.13	1695.35
	141	0	446	28	345	43	2	3C196	59	11	0.86	-27	-2.66	1695.23
	141	4	276	11	312	13	2	3C273	128	-2	1.21	-11	0.53	1695.02
	141	18	361	12	359	18	4	3C48	32	39	0.53	45	0.98	1695.08
	141	19	267	14	262	14	3	3C144-	24	-10	0.41	-66	-9.17	1695.39
	141	21	254	10	262	11	3	3C144	24	-10	0.41	-66	-9.37	1695.39
	141	21	395	72	350	22	2	3C147	37	30	0.60	-44	-5.24	1695.33

SOLAR WIND

Interplanetary Scintillations

MAY 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
	141	23	270	8	267	8	3	3C161	46	-34	0.72	-32	-4.39	1695.22
800521	142	0	354	30	325	132	2	3C196	59	11	0.86	-29	-2.98	1695.23
	142	2	216	16	312	14	2	3C222	85	-7	1.02	-16	-1.11	1695.04
	142	3	230	10	271	9	2	3C237	91	-5	1.05	-17	-0.89	1695.06
	142	4	294	12	342	33	2	3C273	127	-2	1.20	-11	0.41	1695.08
	142	16	359	9	334	36	3	3C459	70	4	0.94	20	1.18	1695.11
	142	17	368	27	475	32	2	3C48	33	38	0.54	45	1.08	1695.12
	142	21	294	40	467	37	2	3C147	36	31	0.59	-44	-5.95	1695.34
800522	143	1	266	21	254	10	2	3C216	68	6	0.93	-20	-2.07	1695.18
	143	4	304	14	328	45	2	3C273	126	-2	1.20	-11	0.39	1695.12
	143	16	289	9	296	7	2	3C459	70	4	0.94	20	1.06	1695.10
	143	17	382	15	399	19	3	3C48	34	37	0.56	45	1.19	1695.16
	143	19	206	15	246	18	2	3C144-	22	-10	0.37	-67	-10.78	1695.45
	143	21	271	13	301	14	2	3C144	22	-10	0.37	-67	-9.44	1695.48
	143	21	409	41	371	41	2	3C147	36	32	0.59	-45	-5.31	1695.41
	143	23	457	40	499	33	2	3C161	45	-35	0.71	-33	-3.69	1695.38
800523	144	0	461	74	429	33	2	3C144+	22	-10	0.37	-67	-7.67	1695.52
	144	2	281	15	274	14	2	3C222	83	-6	1.01	-16	-1.17	1695.20
	144	15	356	24	274	12	2	3C459	71	3	0.95	19	1.14	1695.18
	144	17	364	9	348	9	3	3C48	35	36	0.57	44	1.10	1695.19
	144	22	363	9	349	9	2	3C144	21	-11	0.36	-68	-8.46	1695.55
	144	23	465	126	432	41	2	3C196	56	13	0.83	-30	-3.02	1695.39
	144	23	292	10	271	20	3	3C161	44	-36	0.69	-33	-4.48	1695.36
800524	145	1	298	40	369	107	2	3C222	82	-6	1.00	-16	-1.24	1695.25
	145	1	542	81	468	64	2	3C216	66	7	0.91	-23	-2.07	1695.38
	145	4	296	11	343	58	2	3C273	124	-2	1.19	-12	0.31	1695.19
	145	13	298	42	290	46	2	3C409	105	10	1.12	11	1.48	1695.17
	145	15	410	32	476	59	2	3C459	72	3	0.95	18	1.07	1695.24
	145	17	453	14	436	31	2	3C48	35	35	0.57	44	1.57	1695.25
	145	23	369	9	335	12	3	3C161	43	-36	0.68	-32	-4.06	1695.43
800525	146	1	326	13	324	21	2	3C222	81	-6	1.00	-16	-1.24	1695.30
	146	2	305	7	337	8	2	3C237	87	-5	1.03	-16	-1.10	1695.28
	146	4	384	6	390	7	3	3C273	123	-2	1.19	-12	0.00	1695.29
	146	6	426	22	407	14	2	3C295	102	11	1.10	-9	-0.28	1695.32
	146	17	553	22	823	34	2	3C48	36	34	0.59	48	1.86	1695.30
	146	21	427	51	390	21	2	3C144	19	-11	0.33	-70	-8.30	1695.64
	146	22	369	31	368	27	3	3C161	43	-37	0.68	-34	-4.21	1695.47
800526	147	0	324	23	282	73	2	3C216	64	8	0.90	-24	-2.41	1695.38
	147	1	302	10	296	10	2	3C222	80	-6	0.99	-16	-1.31	1695.32
	147	2	319	12	288	11	2	3C237	86	-4	1.02	-17	-1.21	1695.33
	147	4	260	23	272	46	2	3C273	122	-1	1.19	-12	0.42	1695.23
	147	7	341	8	341	78	2	3C298	140	2	1.24	-7	0.76	1695.29
	147	17	415	19	406	21	3	3C48	37	33	0.60	44	1.50	1695.31
	147	21	520	68	440	22	2	3C144	18	-11	0.31	-71	-7.90	1695.69
	147	23	397	51	351	21	2	3C161	42	-38	0.67	-33	-4.08	1695.52
800527	148	17	373	11	415	12	3	3C48	38	32	0.62	43	1.30	1695.33
	148	19	439	41	425	40	2	3C144-	17	-11	0.29	-72	-8.48	1695.72
	148	20	208	19	252	119	2	3C147	33	38	0.54	-45	-7.51	1695.52
	148	21	366	13	333	12	3	3C144	17	-11	0.29	-72	-9.10	1695.72
	148	22	409	11	379	15	4	3C161	41	-39	0.66	-33	-4.09	1695.56
800528	149	0	470	24	521	31	2	3C216	63	9	0.89	-25	-2.37	1695.52
	149	0	415	18	456	59	2	3C144+	17	-11	0.29	-72	-8.65	1695.73
	149	1	330	16	344	15	2	3C222	78	-6	0.98	-17	-1.40	1695.42
	149	2	285	12	299	13	2	3C237	84	-4	1.01	-16	-1.15	1695.38
	149	5	310	15	345	128	2	3C295	101	11	1.10	-8	-0.09	1695.37
	149	17	552	91	565	49	2	3C48	38	32	0.62	43	1.93	1695.41
	149	21	396	14	371	13	3	3C144	16	-12	0.28	-74	-9.02	1695.76
800529	150	0	413	42	453	23	2	3C144+	16	-12	0.28	-73	-8.82	1695.77
	150	3	385	25	346	22	2	3C273	119	-1	1.18	-12	-0.14	1695.44
	150	6	350	46	322	29	3	3C298	138	3	1.24	-8	0.59	1695.40
	150	15	362	28	350	127	3	3C459	77	4	0.98	17	1.15	1695.40
	150	17	311	8	304	8	4	3C48	39	31	0.63	42	0.91	1695.38
	150	22	476	52	462	51	2	3C161	40	-40	0.64	-34	-3.98	1695.65

SOLAR WIND

Interplanetary Scintillations

MAY 1980

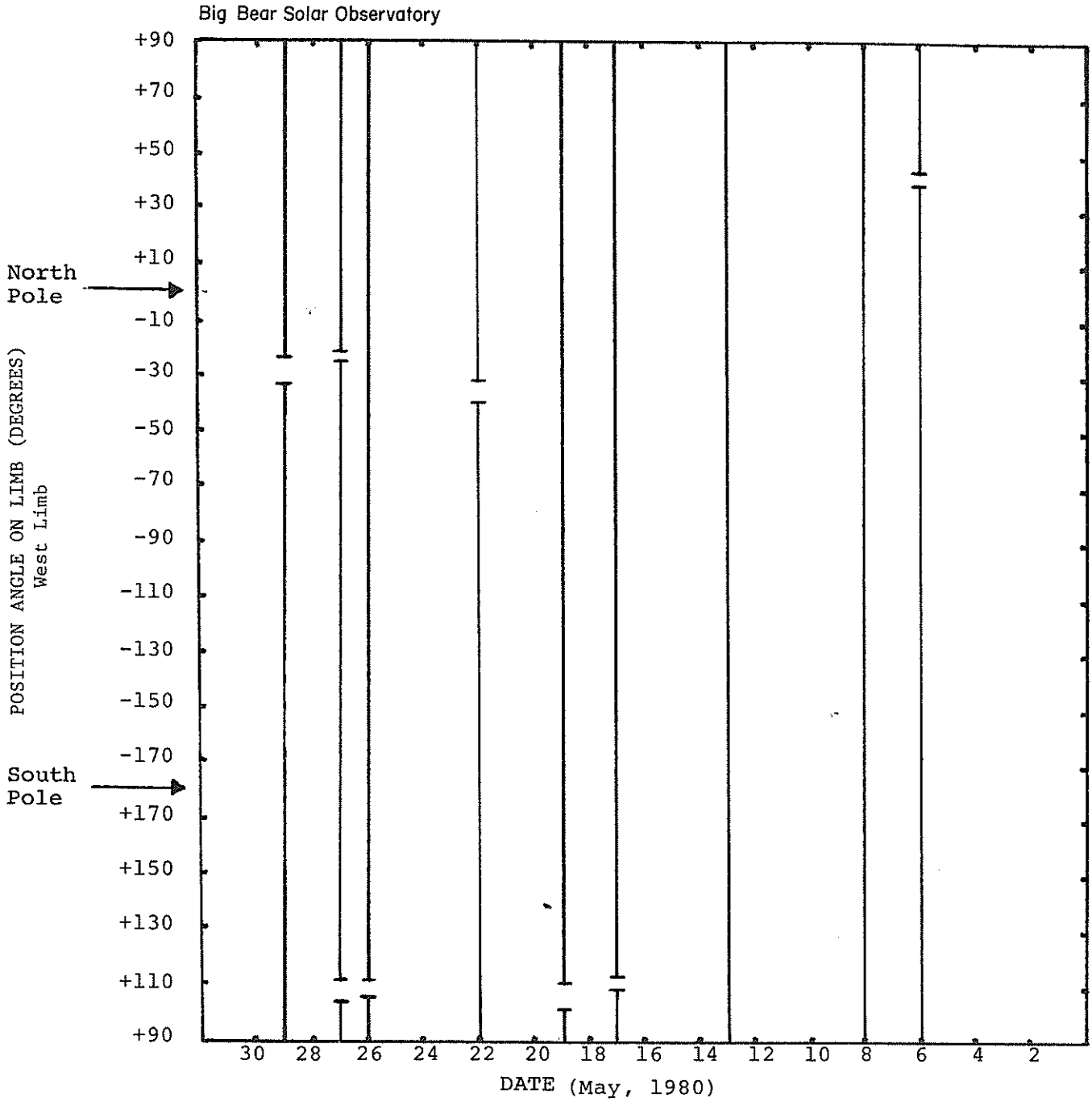
DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
800530	151	17	302	20	348	38	3	3C48	40	30	0.64	42	0.96	1695.42
	151	21	514	26	521	28	2	3C144	14	-12	0.24	-75	-8.47	1695.86
	151	22	339	20	372	31	3	3C161	39	-41	0.63	-33	-4.58	1695.65
	151	23	353	47	387	170	2	3C196	51	18	0.78	-35	-3.83	1695.63
800531	152	3	312	9	290	9	2	3C273	117	-1	1.17	-12	0.02	1695.47
	152	6	347	30	382	59	2	3C298	136	3	1.23	-8	0.62	1695.48
	152	15	392	58	449	75	2	3C459	79	4	0.99	18	1.24	1695.49
	152	17	461	13	473	14	4	3C48	41	29	0.66	42	1.72	1695.50
	152	20	313	20	353	37	2	3C147	31	43	0.52	-44	-6.25	1695.73
	152	21	593	19	614	18	2	3C144	13	-13	0.22	-76	-8.21	1695.90
	152	22	447	18	402	48	3	3C161	39	-42	0.63	-33	-4.09	1695.72
800601	153	2	355	22	388	27	2	3C237	80	-4	0.99	-16	-1.30	1695.58
	153	3	400	18	449	64	2	3C273	116	-1	1.16	-13	-0.26	1695.57
	153	6	275	56	300	23	2	3C298	135	3	1.23	-8	0.89	1695.45
	153	15	291	10	318	24	2	3C459	80	4	0.99	18	1.26	1695.47
	153	17	400	16	415	16	3	3C48	42	29	0.67	40	1.48	1695.52
	153	22	317	10	294	29	3	3C161	38	-43	0.62	-32	-4.73	1695.71

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

MAY 1980



INFERRED IP MAGNETIC FIELD

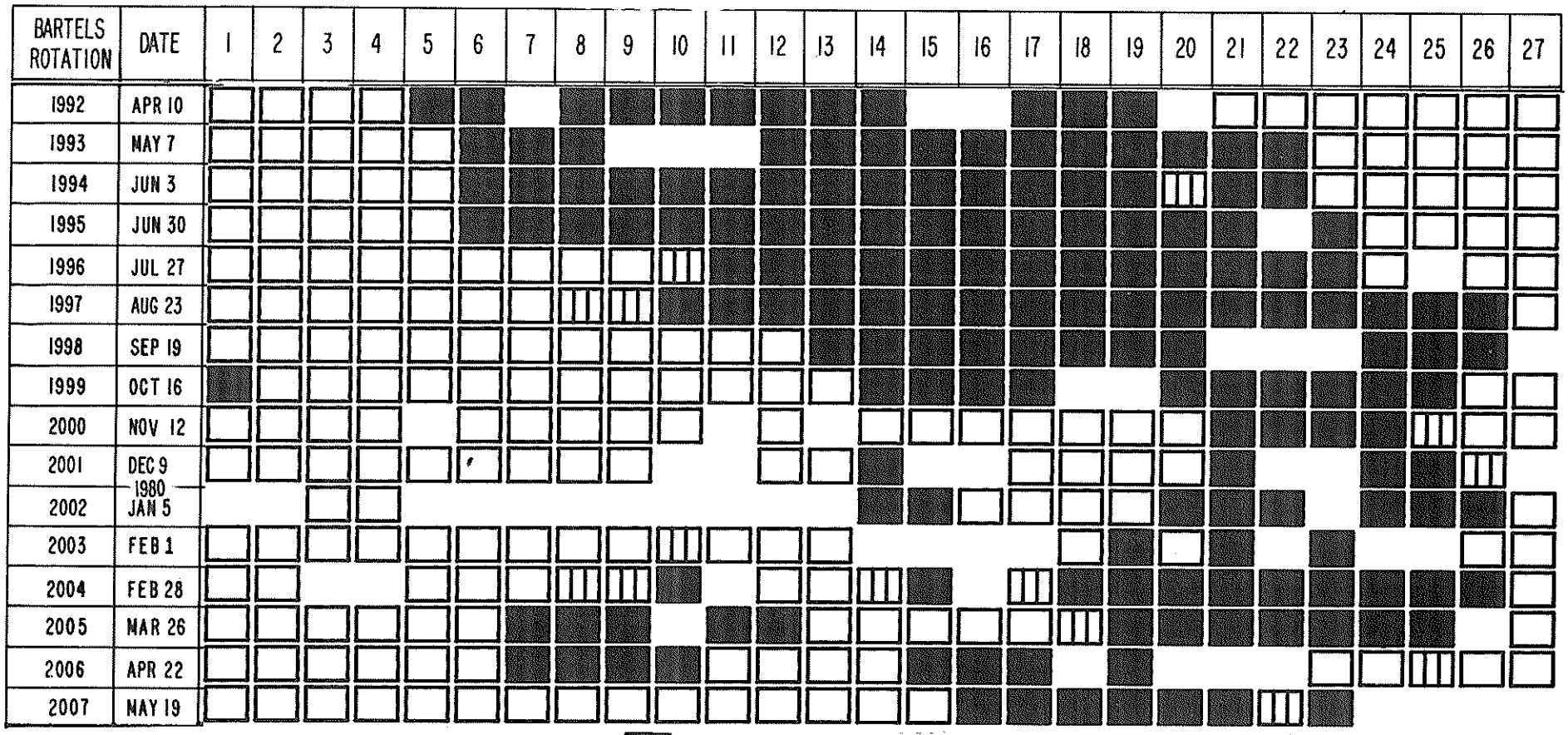
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1989	1979 JAN 24		-			*		TA			TA		TA							*					-		AT	
1990	FEB 20		TA	-	TA -		TA			-	TA -	TA	TA			TA	A*	TA	A*	TA	A*			A*				
1991	MAR 19		AT			AT		T*						*	-	-	-	-	TA -		AT	T*	TA	TA -	A*	-		TA	A*
1992	APR 15		A*	TA	T* AT			TA	TA		T*						TA	*	-	-	AT -	TA			A*		-	TA	
1993	MAY 12									-	-		AT			*		TA			AT	AT				- -		- -
1994	JUN 8	TA	TA	A*	TA						-	AT		-					T*	-	TA		TA	T*		AT	T*	-	TA
1995	JUL 5	TA	TA	AT		TA		AT	A*	TA	TA -			TA		AT				*				TA	T*			TA
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			*	* -																			

[ ] = 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 which affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLAS)

	1979							1980				
DAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY
01	41	97	24	-5	-32	-6	16	-37	94	.	-10	-7
02	82	86	21	-8	-27	.	-3	-28	96	.	-26	9
03	137	70	6	-36	-27	.	-24	1	87	50	-21	26
04	115	35	4	-28	-36	-5	-18	.	72	53	.	55
05	104	-33	2	-20	-45	-8	-6	.	72	12	-44	21
06	78	-61	-6	-24	-31	-17	-1	.	57	-1	-17	-13
07	15	-81	-8	-39	-22	-12	18	54	49	1	9	-34
08	-27	-80	-8	-46	-45	-3	35	59	31	-8	4	-42
09	-50	-70	-6	-54	.	-6	75	.	10	.	7	.
10	-76	-68	-16	-45	.	6	99	.	0	9	7	-17
11	-82	-75	-43	-47	.	29	83	.	10	21	5	.
12	-52	-23	-59	-67	-55	46	60	.	11	1	2	.
13	-52	-23	-46	-74	-62	52	32	.	3	-7	-15	.
14	-37	-20	-33	-53	-49	45	44	.	.	.	-18	5
15	-28	-24	-38	-41	.	26	29	.	.	-2	-12	5
16	-42	-30	-61	-26	-6	.	20	.	.	-10	-14	-1
17	-43	-26	-57	-18	20	13	18	.	.	-9	-8	16
18	-35	-32	-41	3	29	41	.	-17	5	-8	-10	50
19	-32	-16	4	15	25	35	.	-8	-13	-18	-5	73
20	-37	-10	.	41	52	35	7	33	3	-42	.	78
21	-24	.	41	46	64	30	6	32	-7	-41	30	92
22	0	-16	55	64	69	.	-6	10	.	-39	95	120
23	-7	6	58	59	48	22	.	3	-32	-24	113	122
24	-7	33	68	65	50	.	.	-12	.	-20	113	46
25	10	58	74	63	35	12	35	-25	.	13	100	14
26	17	69	77	40	26	20	40	-31	6	43	56	25
27	29	83	47	37	16	27	27	.	43	53	8	64
28	47	92	40	24	3	24	23	-34	58	64	-27	57
29	64	90	32	21	-9	39	-18	-26	57	84	-28	62
30	93	82	1	7	-7	37	.	-13		75	-16	49
31		53	-1		-22		.	29		25		49

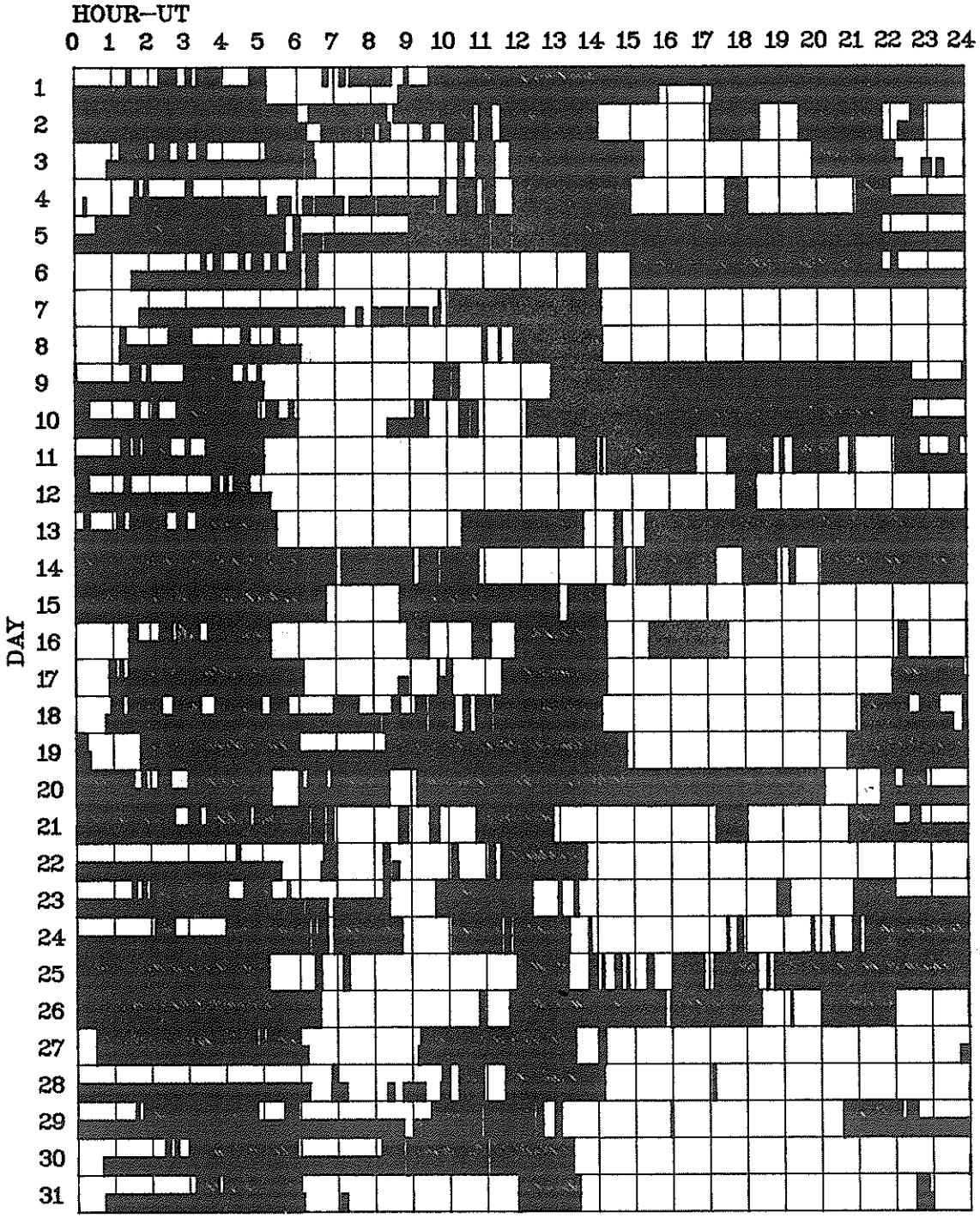
DOT SYMBOL INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

MAY 1980

DATE	ONSET TIME	DIR	COMMENTS
05/01			Field intermittently unsettled.
	1045	West	Weak SS. Boulder magnetometer exhibited a magnetic crochet from 1914-1932 UT. Maximum deflection was 19 gamma at 1918 UT.
05/02			Field slightly unsettled.
05/03			Field slightly unsettled.
05/04			Field intermittently unsettled.
	1305		Weak SS, slow onset.
05/05	1340		Weak SS, slow onset Norman Wells to Arctic Village with slow expansion northward. Field unsettled after 2000 UT.
05/06			Field unsettled all day.
	0645		Several intensifications with recovery near 0900 UT.
	1125		Slow onset, recovery near 1600 UT.
05/07			Small positive impulse H-component all mid/low latitude stations at 0800 UT, and again at 1150 UT. Field unsettled balance of day with no distinctive SS activity.
05/08			Field unsettled through 0800 UT with no distinctive SS activity.
05/09			Field unsettled throughout the day.
	0940	West	Slow onset, several intensifications.
	1440		Moderate positive impulse H-component all mid/low latitude stations at 1930 UT.
05/10			Field unsettled through 0130 UT, then quiet until 1800 UT when field became slightly unsettled.
05/11			Small positive impulse H-component all mid/low latitude stations at 0125 UT, and again at 0155 UT. Field very active after 0600 UT with no distinctive SS activity.
05/12			Field remained very active through 1200 UT and unsettled the balance of the day.
	0330	East	
05/13			Field intermittently unsettled with no distinctive SS activity.
05/14			Field intermittently unsettled.
	1735		Slow onset.
05/15	0530	East	
	0630	West	
05/16	0535		Weak SS.
05/17			Quiet day.
05/18			Field slightly unsettled after 0800 UT.
05/19			Field unsettled after 0700 UT.
	1405	West	Slow expansion northward from College to Cape Parry.
05/20			Field intermittently unsettled with no distinctive SS activity.
05/21			Quiet day becoming slightly unsettled after 2000 UT.
05/22			Field unsettled 0600-1800 UT with no distinctive SS activity.
05/23	1205		Weak positive impulse H-component all mid/low latitude stations.
	1430		Slow expansion northward through Alaskan Chain.
05/24	0800		Gradual onset to active field conditions.
	1800		Moderate SS.
05/25	0730		Onset of moderate ring current and minor mag-storm conditions. Field recovery near 1700 UT.
05/26			Field intermittently unsettled with no distinctive SS activity.
05/27			Field slightly unsettled.
05/28			Field intermittently unsettled with no distinctive SS activity.
05/29	1830		Weak positive impulse H-component all mid/low latitude stations. Field unsettled balance of day.
05/30			Field unsettled all day. No distinctive SS activity.
05/31			Field strongly unsettled all day.
	0455	East	
	1455		
	2130		Moderate positive impulse H-component mid/low latitude stations.

INTERVALS OF NO FLARE PATROL OBSERVATION
FOR PRECEDING SOLAR FLARE TABLE
MAY 1980



Observatories included in total patrol:

Athens	Bucharest	Holloman	Istanbul	Palehua	Wendelstein
Big Bear	Catania	Huancayo	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).

SGD 430 Part I (Prompt)

APRIL 1980 DATA

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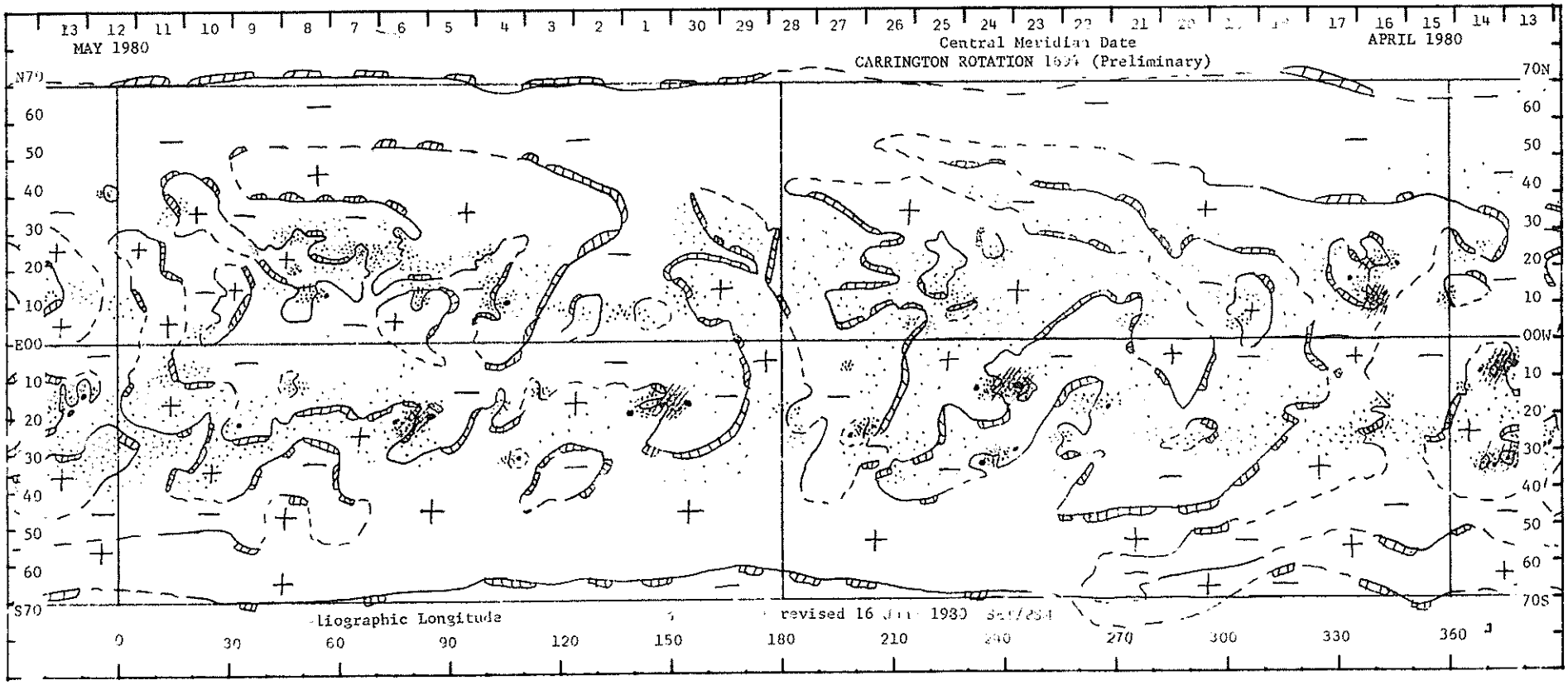
Hα SYNOPTIC CHART

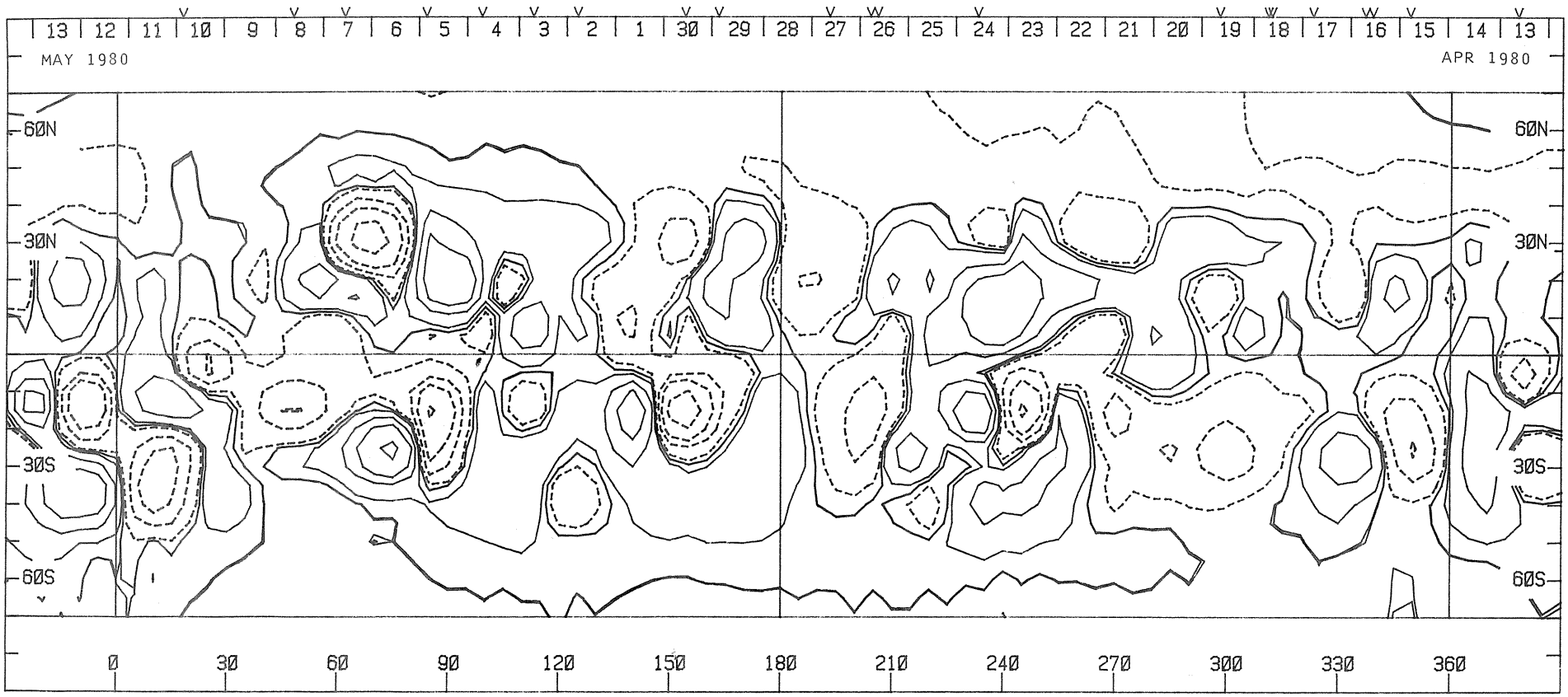
CARRINGTON ROTATION 1694 (PRELIMINARY)

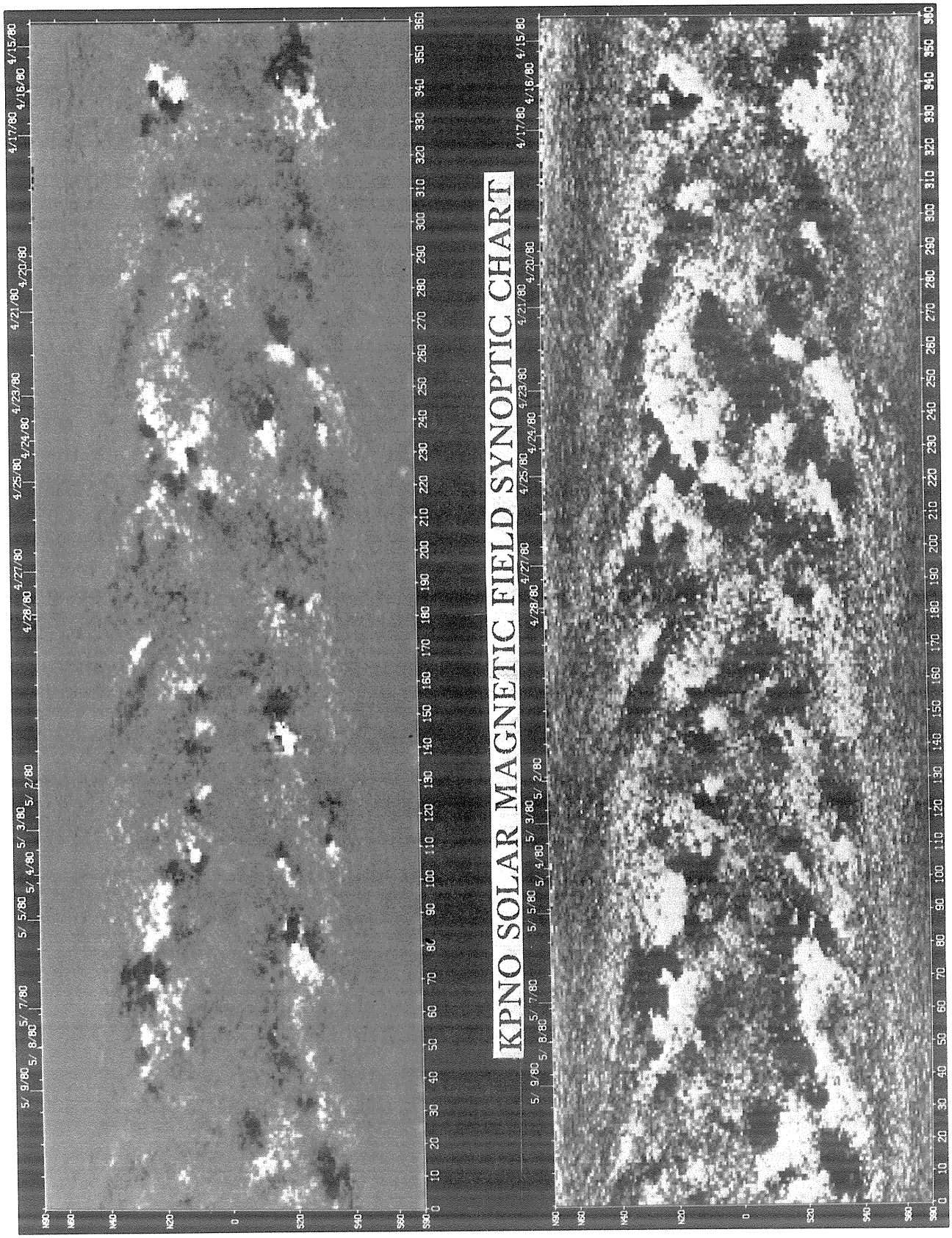


SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1694

Stanford Solar Observatory

0, ±100, 200, 500... μT

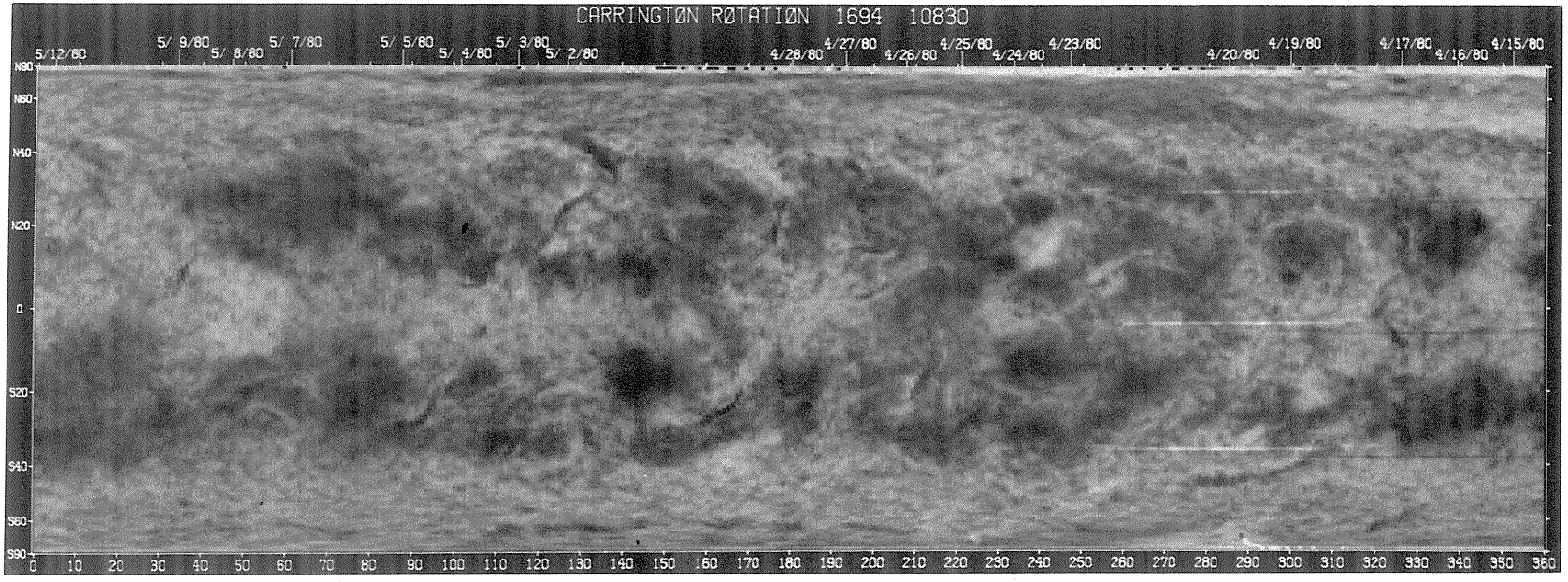



KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

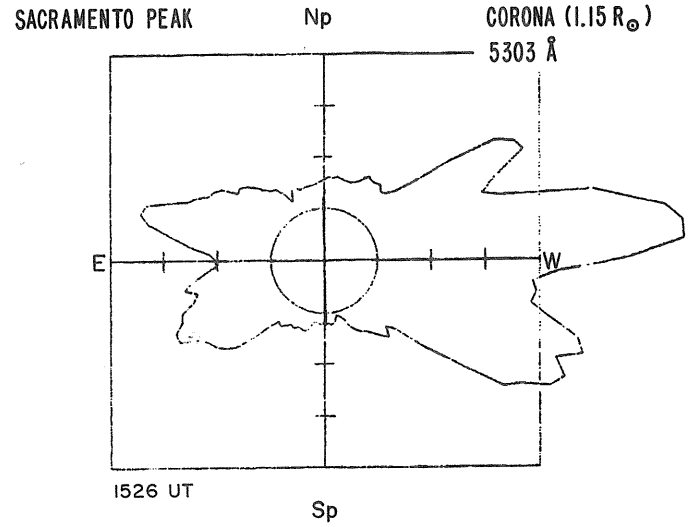
HELIUM 10830Å SYNOPTIC MAPS

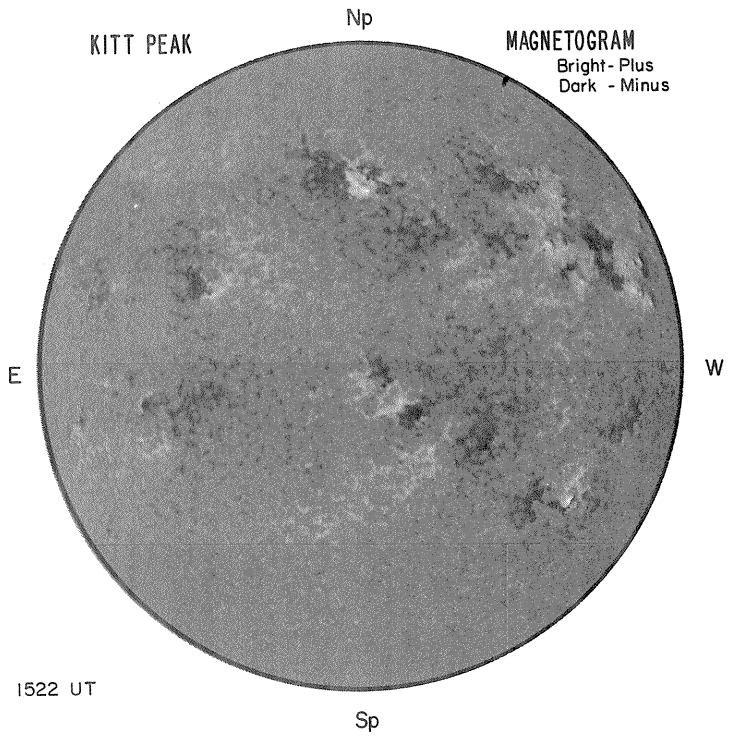
CARRINGTON ROTATION 1694

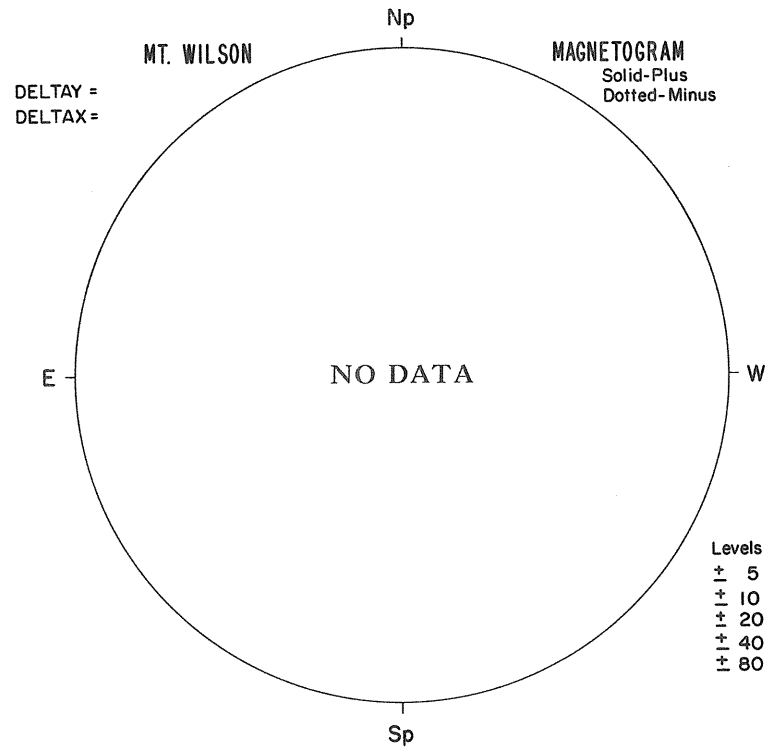
KITT PEAK NATIONAL OBSERVATORY



APRIL 1, 1980 (P =-26.21, B_o =-6.52, L_o =186.46)

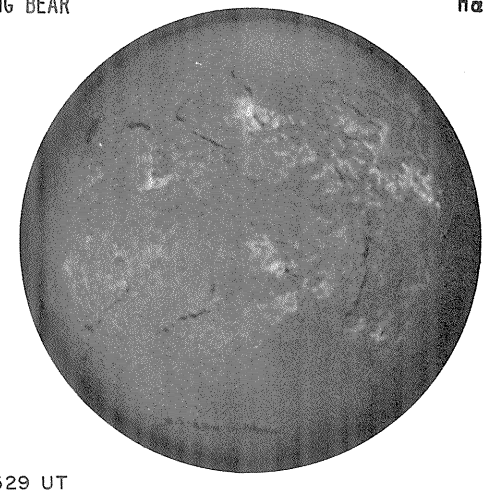






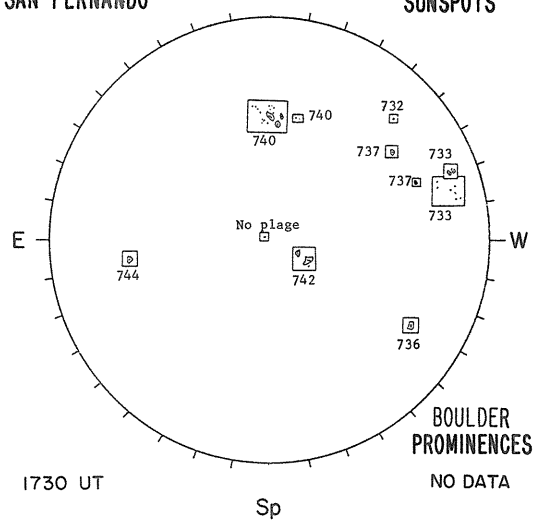
O1

BIG BEAR



1529 UT

SAN FERNANDO

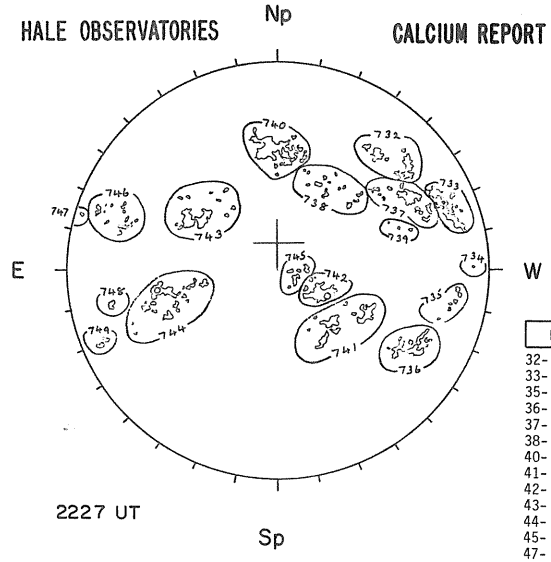


1730 UT

BOULDER PROMINENCES

NO DATA

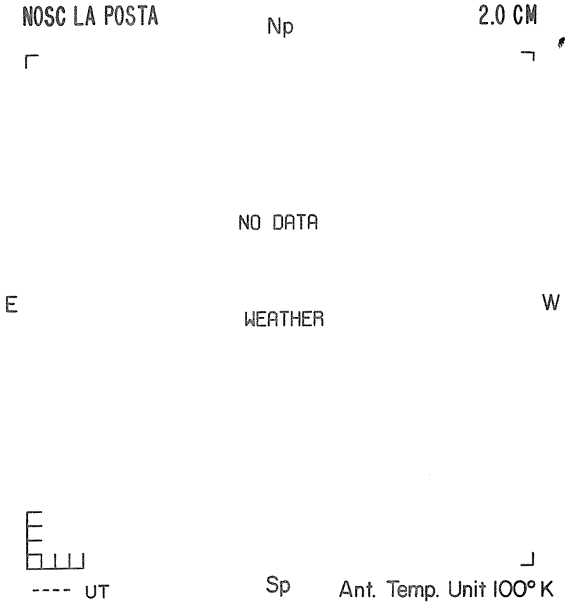
HALE OBSERVATORIES



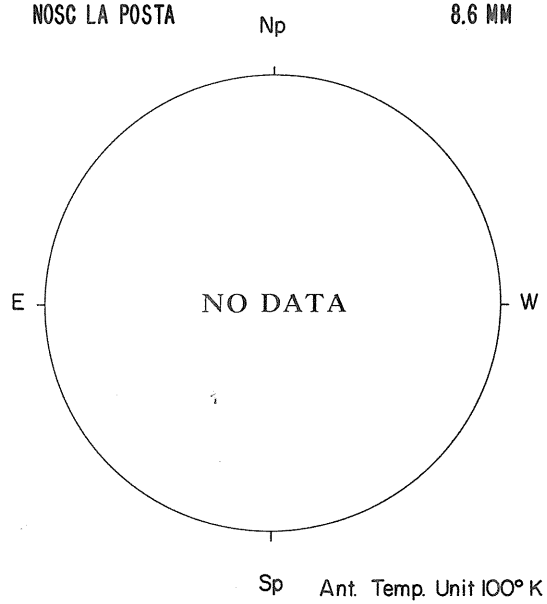
2227 UT

POOR	JA
32-	1500-3.0
33-	2000-3.0
35-	0400-3.0
36-	1200-3.0
37-	1300-3.0
38-	0700-2.5
40-	2700-3.5
41-	1500-3.0
42-	1000-3.5
43-	1700-3.5
44-	1800-3.0
45-	0400-3.0
47-	0100-3.0
48-	0200-3.0
49-	0300-2.5

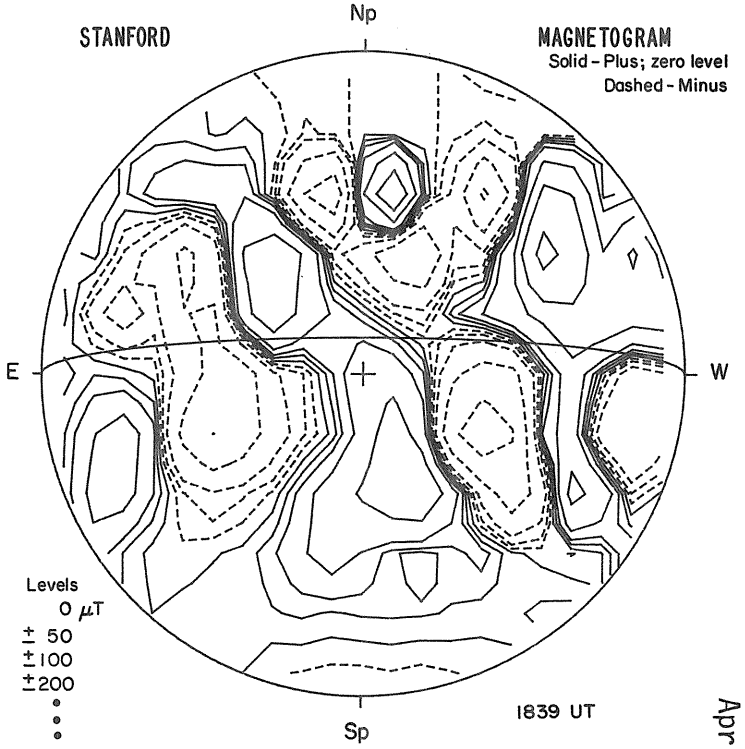
NOSC LA POSTA



NOSC LA POSTA



STANFORD

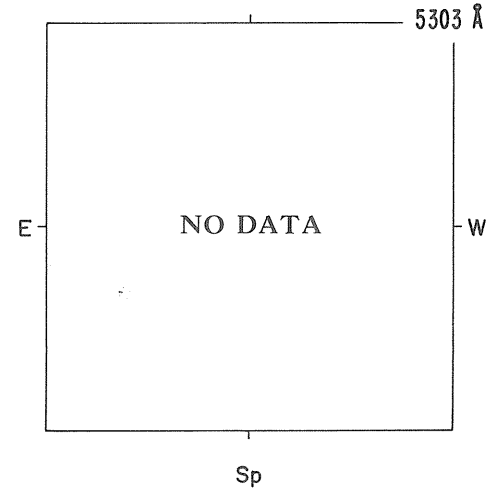


1839 UT

APRIL 2, 1980 (P =-26.25, B_o=-6.46, L_o=173.27)

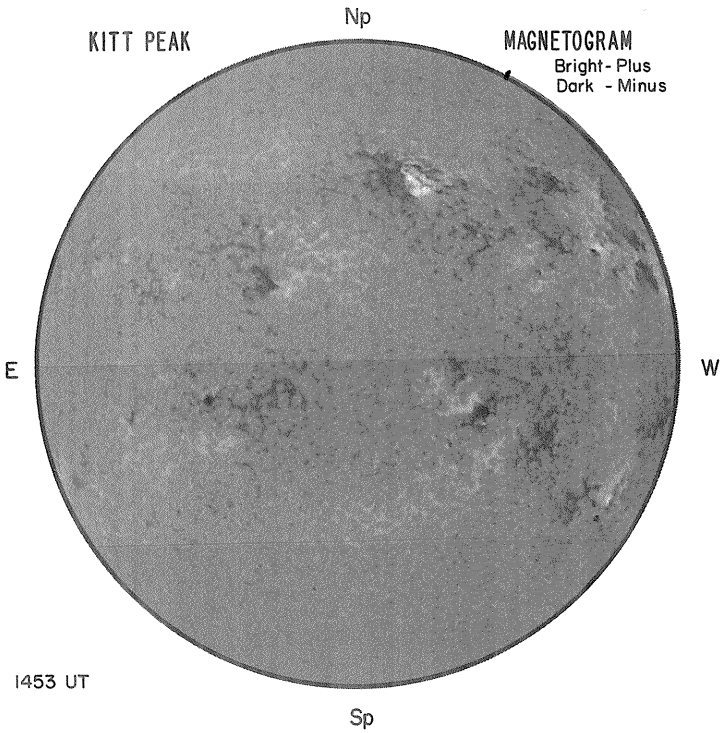
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

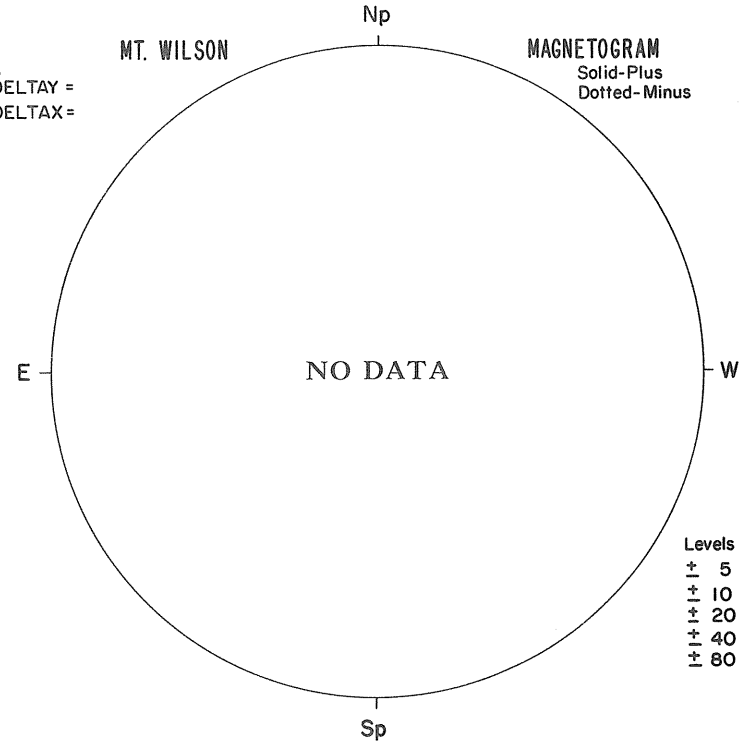


1453 UT

MT. WILSON

DELTAY =
DELTAX =

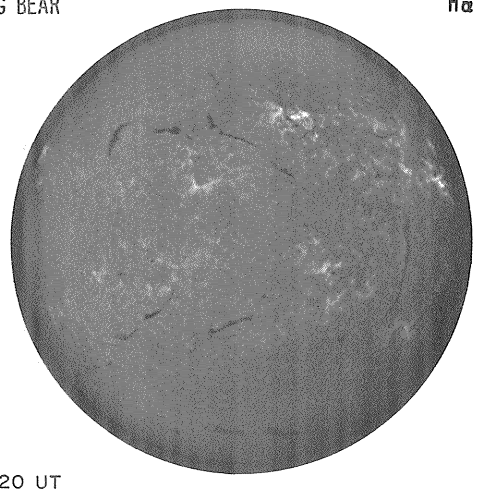
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

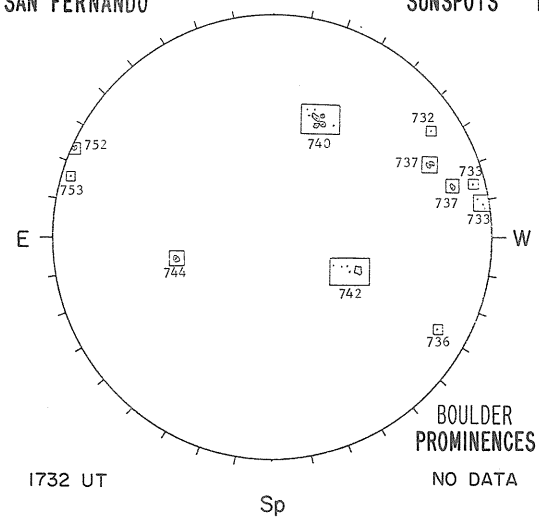
02

BIG BEAR Hα



2020 UT

SAN FERNANDO SUNSPOTS

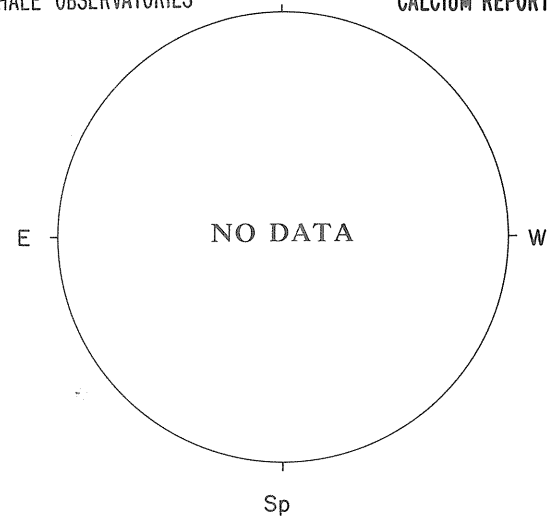


1732 UT

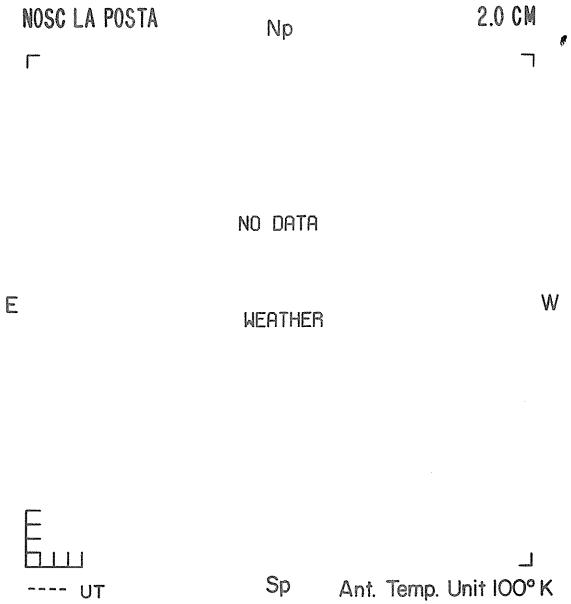
BOULDER PROMINENCES

NO DATA

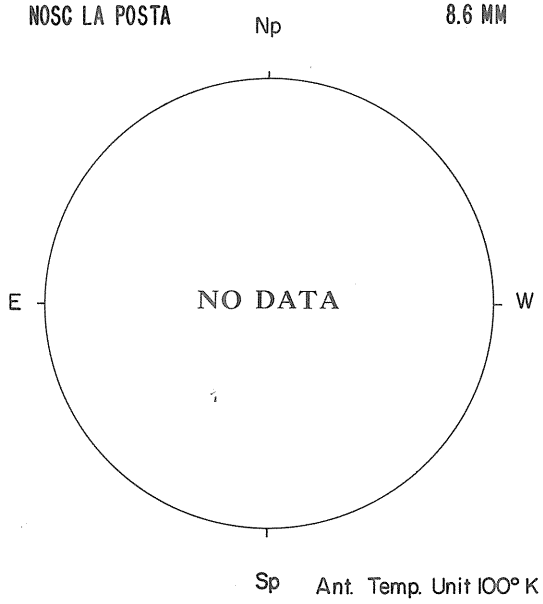
HALE OBSERVATORIES CALCIUM REPORT



NOSC LA POSTA 2.0 CM

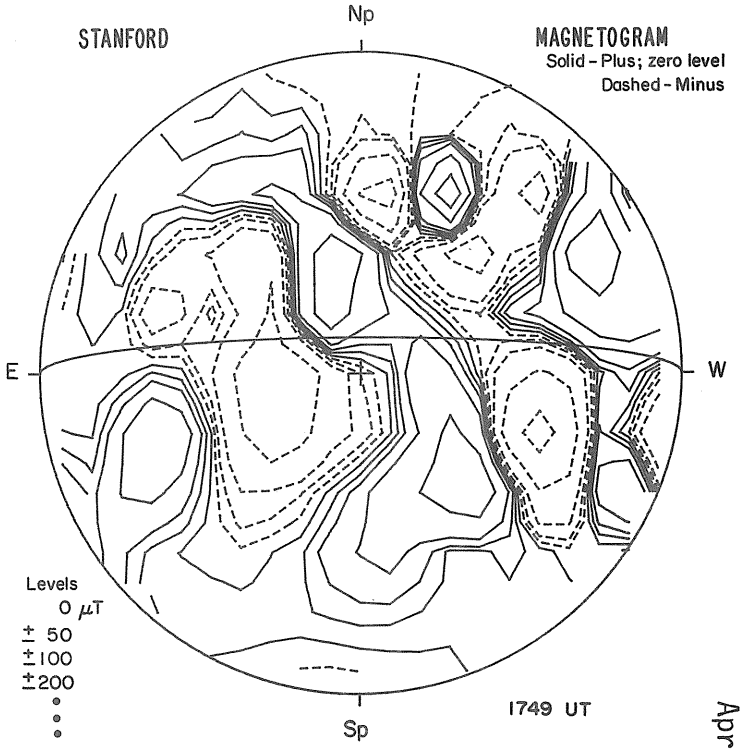


NOSC LA POSTA 8.6 MM



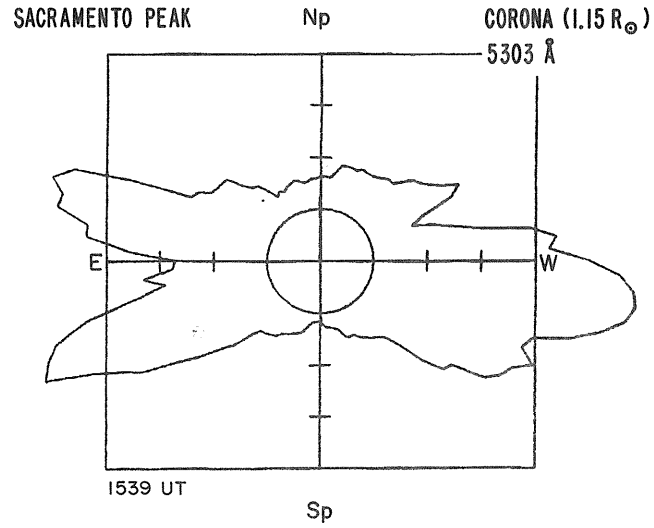
STANFORD MAGNETOGRAM

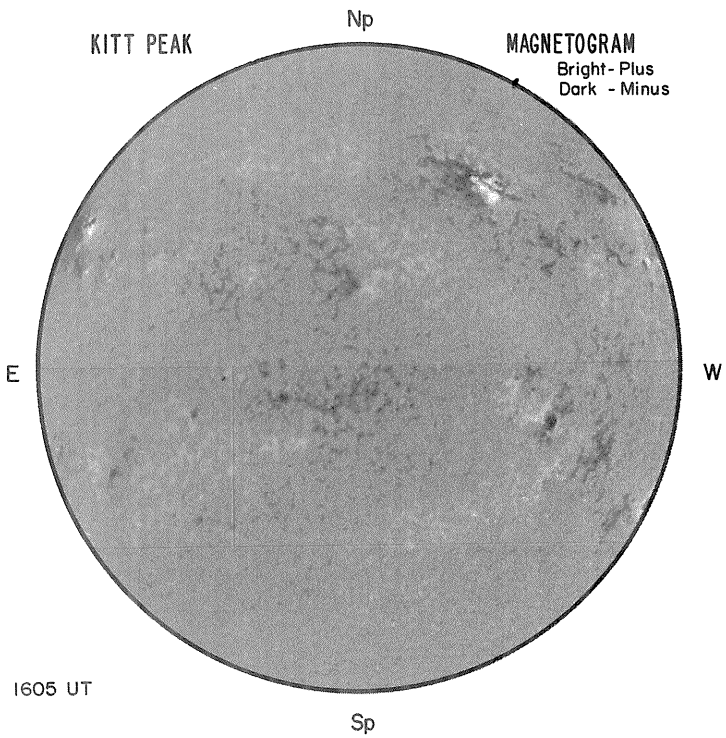
Solid - Plus; zero level
Dashed - Minus

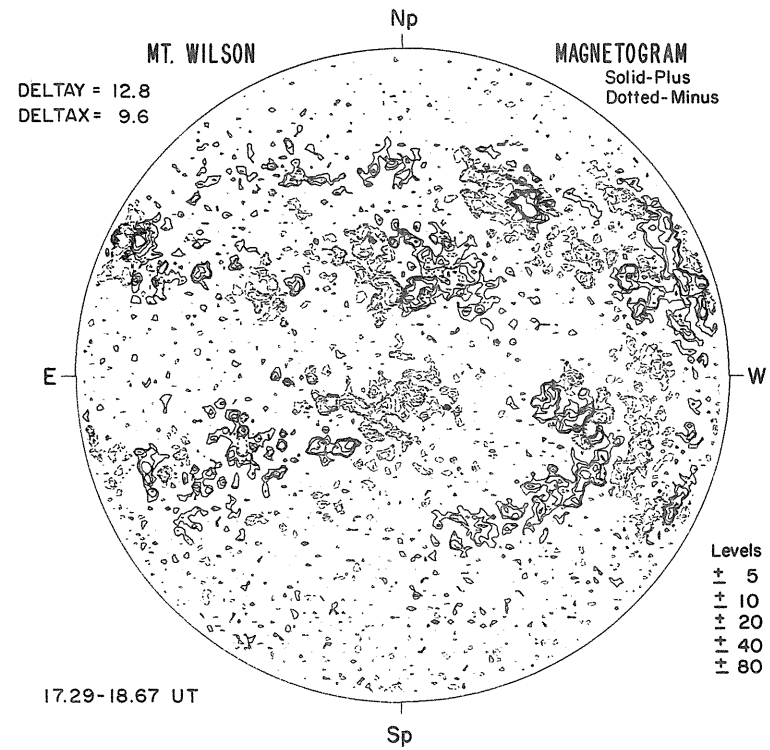


1749 UT

APRIL 3, 1980 (P =-26.28, B_o =-6.40, L_o = 160.08)

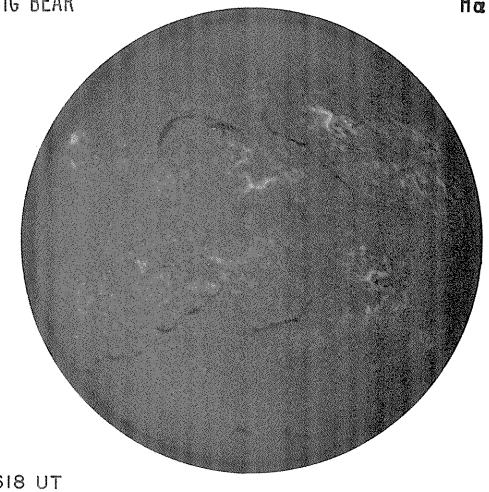






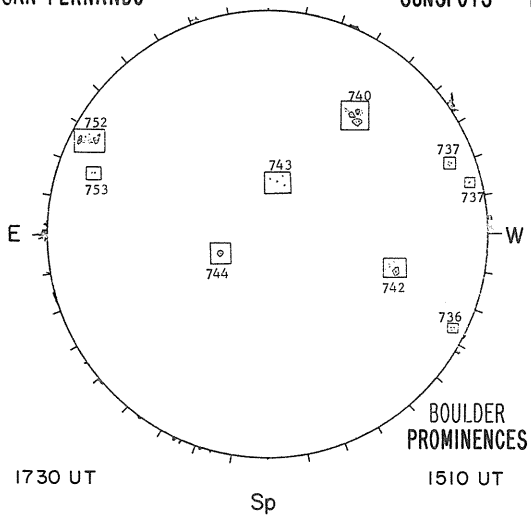
03

BIG BEAR Hα



1618 UT

SAN FERNANDO SUNSPOTS

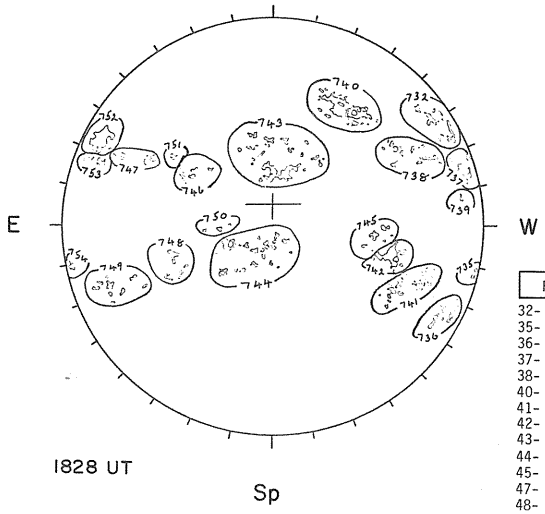


1730 UT

BOULDER PROMINENCES

1510 UT

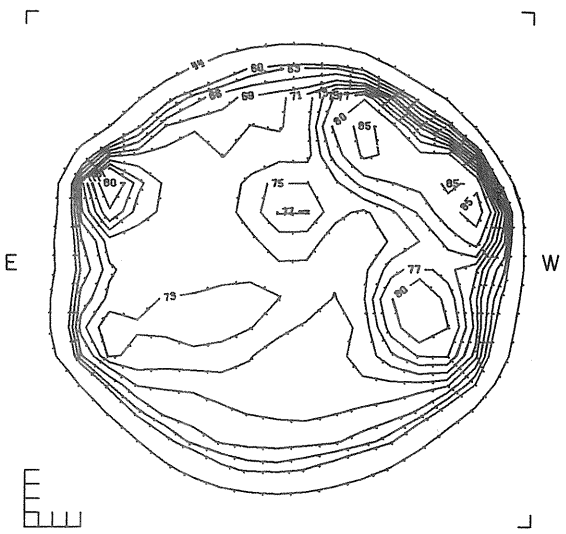
HALE OBSERVATORIES CALCIUM REPORT



1828 UT

FAIR	JA
32-	1100-3.0
35-	0200-2.5
36-	0800-3.0
37-	1000-3.0
38-	0800-2.5
40-	2200-3.0
41-	1300-3.0
42-	1100-3.0
43-	1800-3.0
44-	1200-3.0
45-	0400-2.5
47-	0400-2.5
48-	0500-3.0
49-	0700-2.5
52-	1500-4.0
53-	0300-3.5
54-	0300-3.0

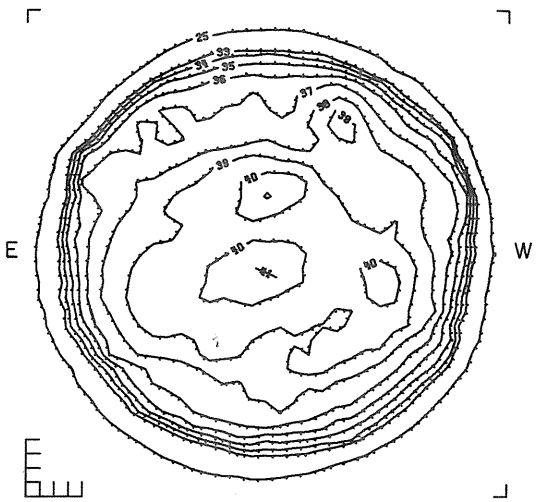
NOSC LA POSTA 2.0 CM



1610 UT

Ant. Temp. Unit 100° K

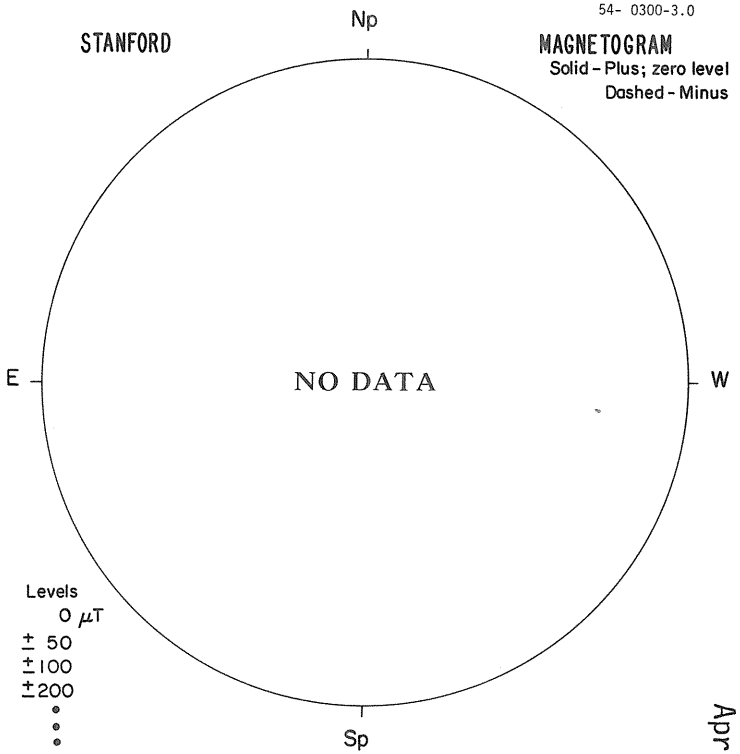
NOSC LA POSTA 8.6 MM



1637 UT

Ant. Temp. Unit 100° K

STANFORD



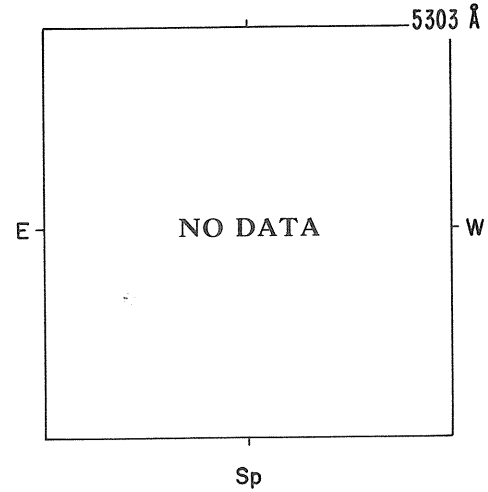
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
± 50
± 100
± 200
• • •

APRIL 4, 1980 (P=-26.30, B_o=-6.34, L_o=146.88)

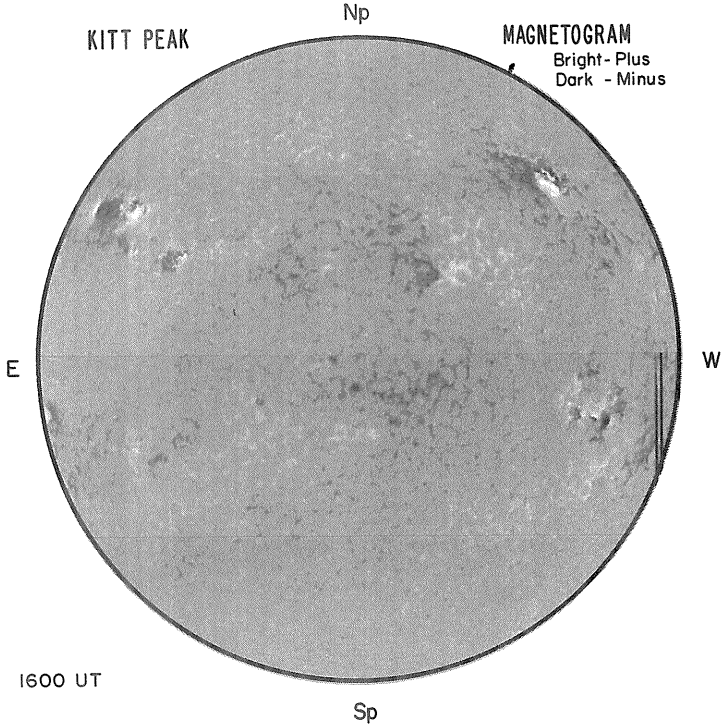
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

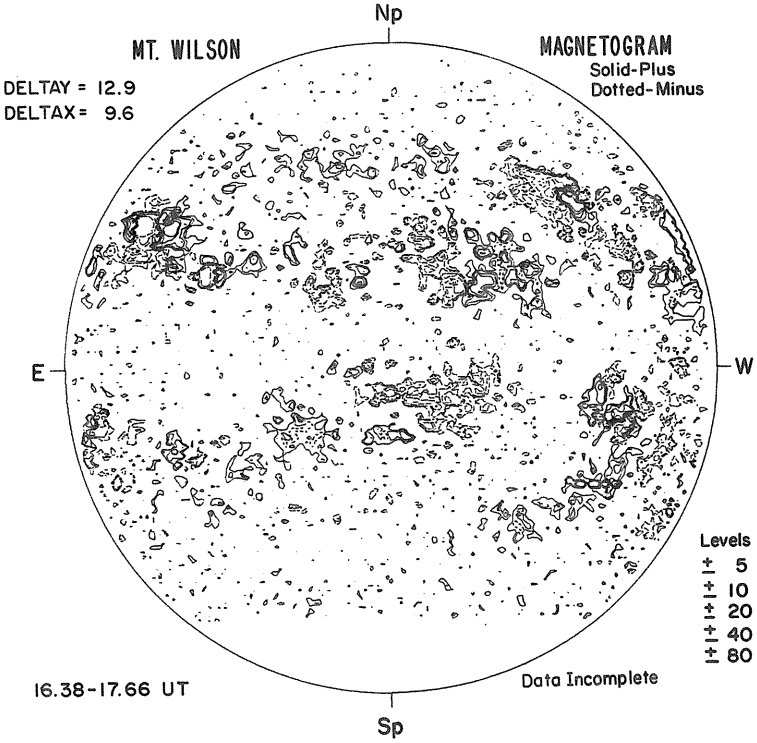


1600 UT

MT. WILSON

DELTAY = 12.9
DELTAX = 9.6

MAGNETOGRAM
Solid-Plus
Dotted-Minus



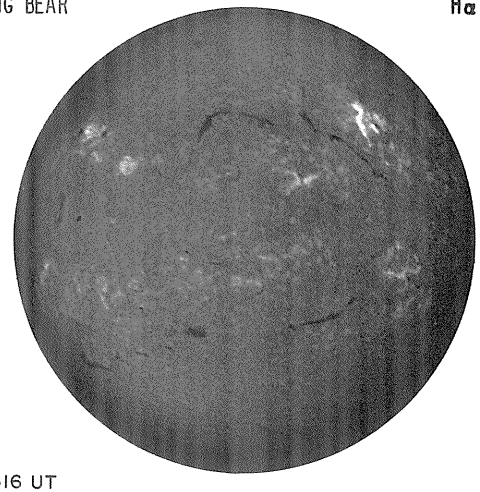
Levels
± 5
± 10
± 20
± 40
± 80

16.38-17.66 UT

Data Incomplete

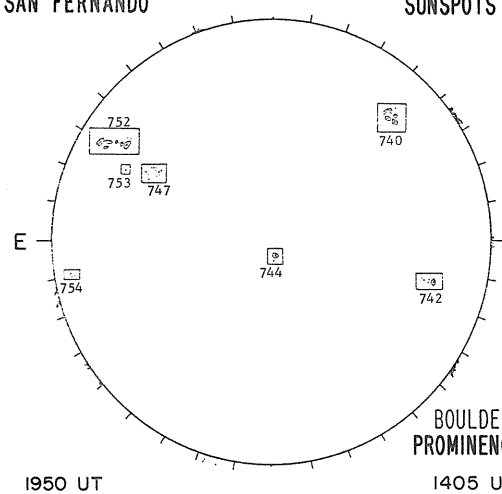
04

BIG BEAR — Hα



1616 UT

SAN FERNANDO — SUNSPOTS

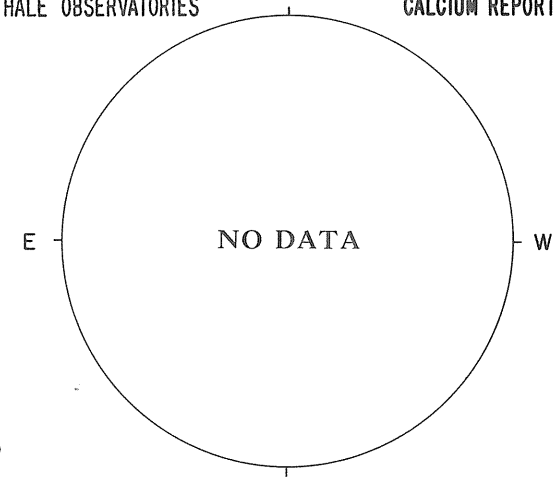


1950 UT

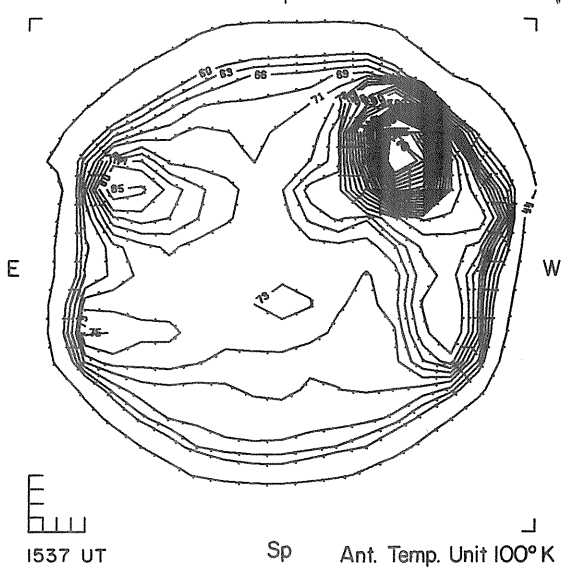
BOULDER PROMINENCES

1405 UT

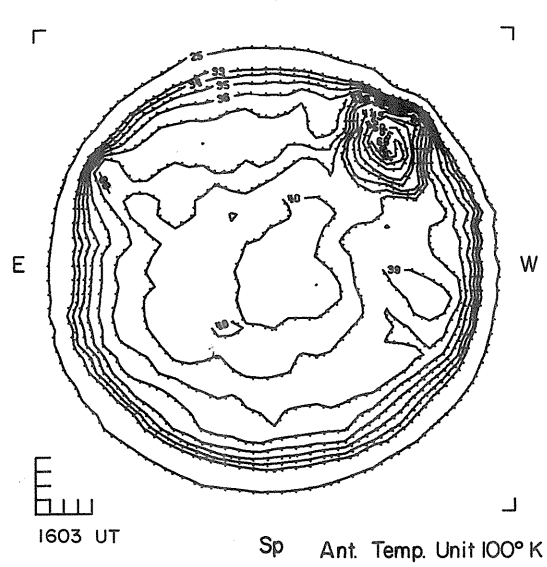
HALE OBSERVATORIES — CALCIUM REPORT



NOSC LA POSTA — 2.0 CM

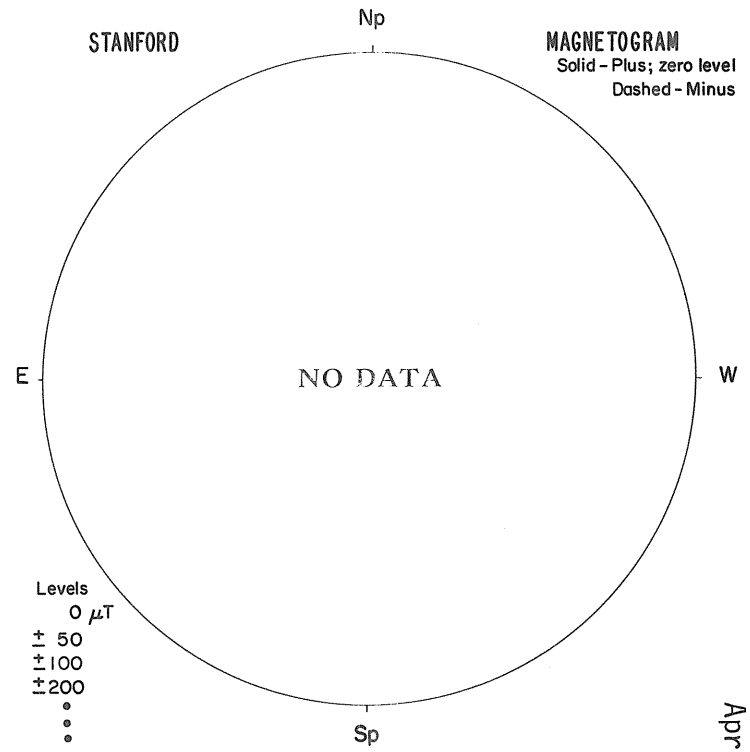


NOSC LA POSTA — 8.6 MM

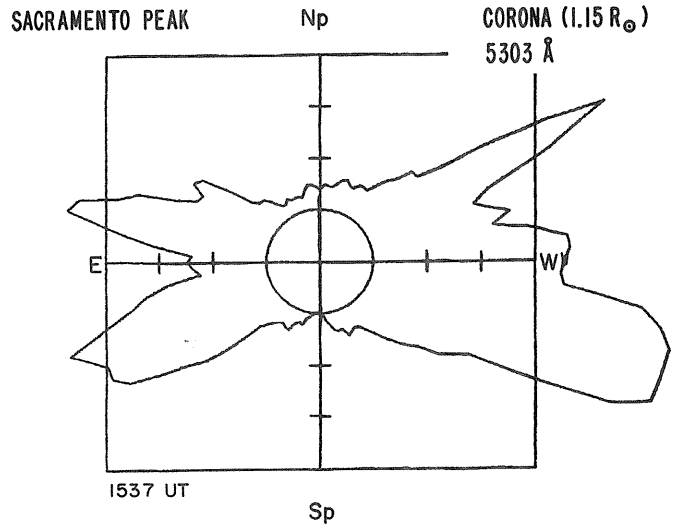


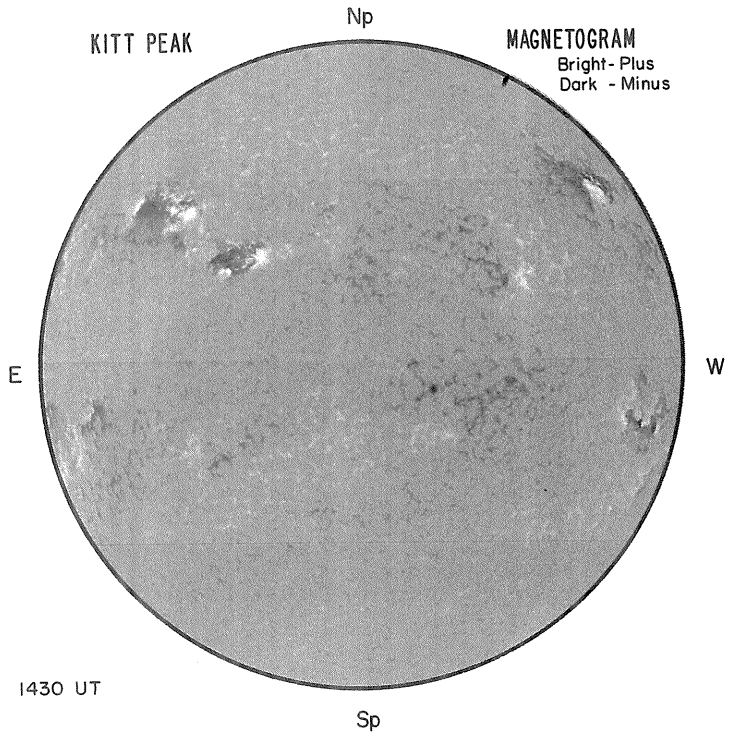
STANFORD — MAGNETOGRAM

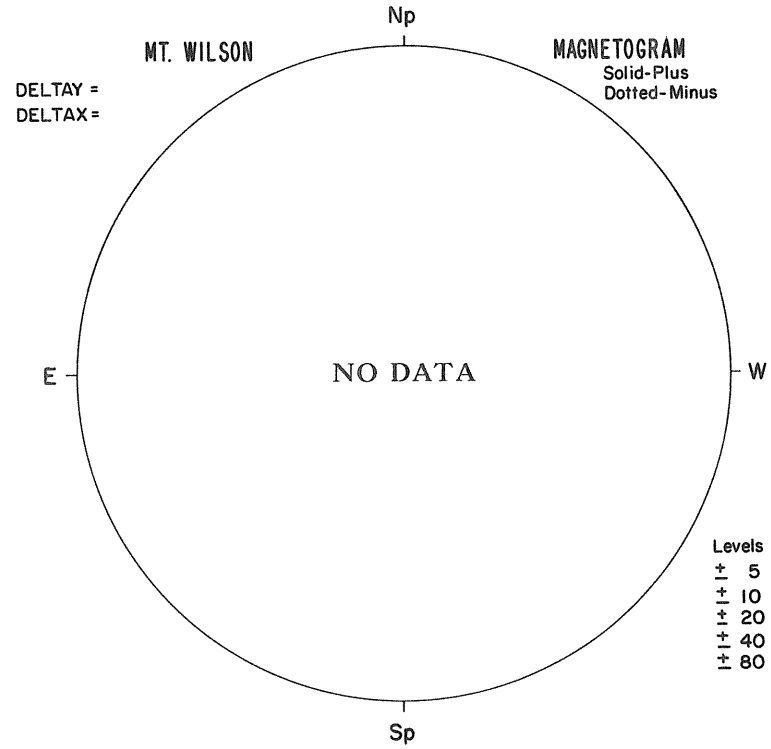
Solid - Plus; zero level
Dashed - Minus



APRIL 5, 1980 (P =-26.31, $B_\odot$ =-6.28, $L_\odot$ =133.68)

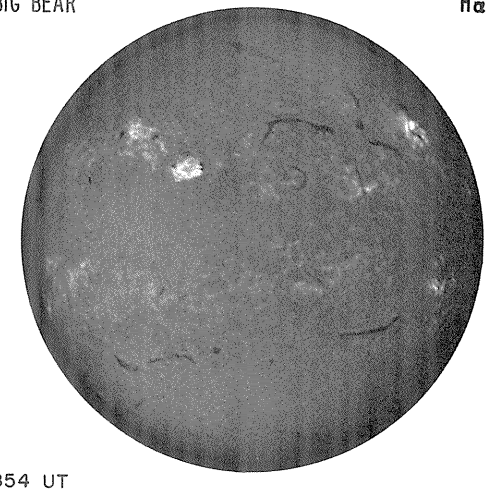






05

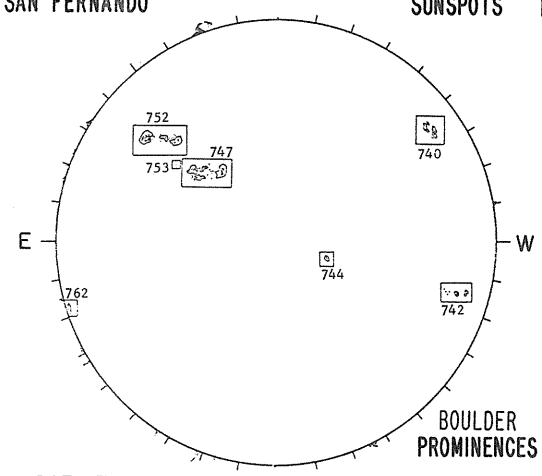
BIG BEAR



Hα

1854 UT

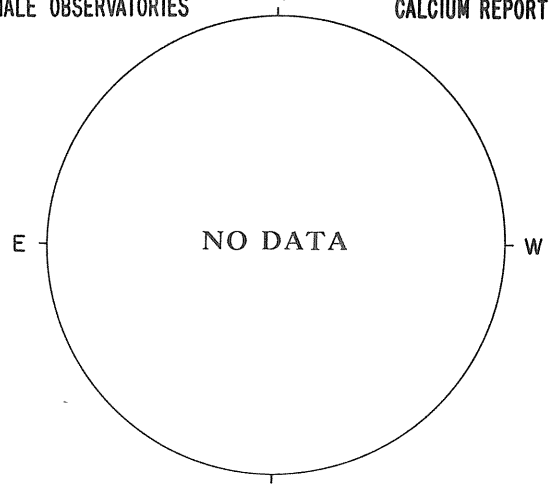
SAN FERNANDO



SUNSPOTS

1845 UT

HALE OBSERVATORIES

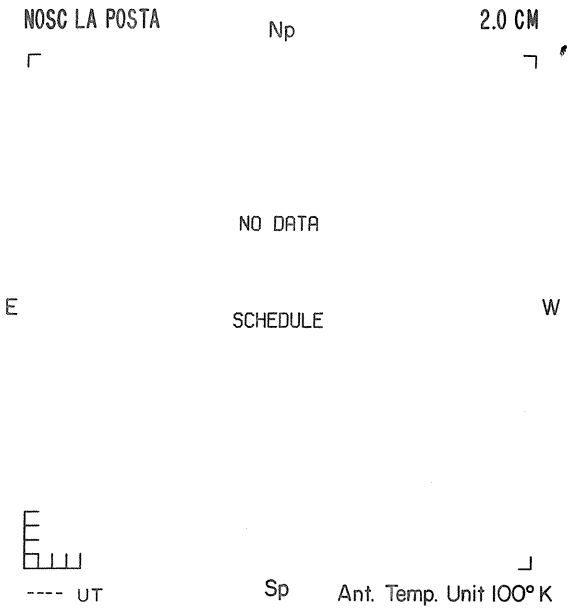


CALCIUM REPORT

BOULDER PROMINENCES

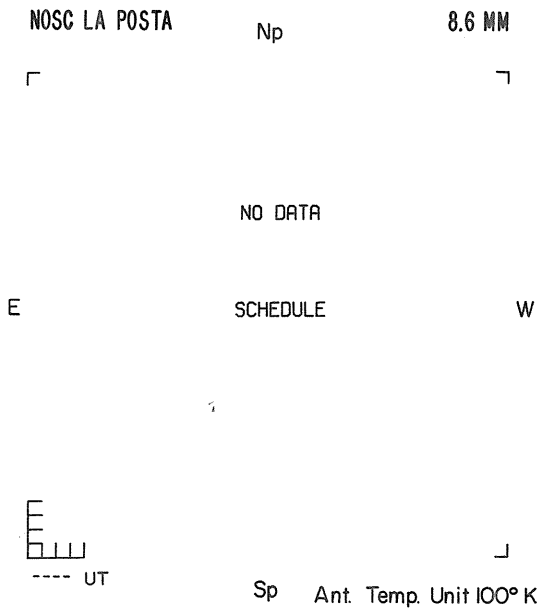
1437 UT

NOSC LA POSTA



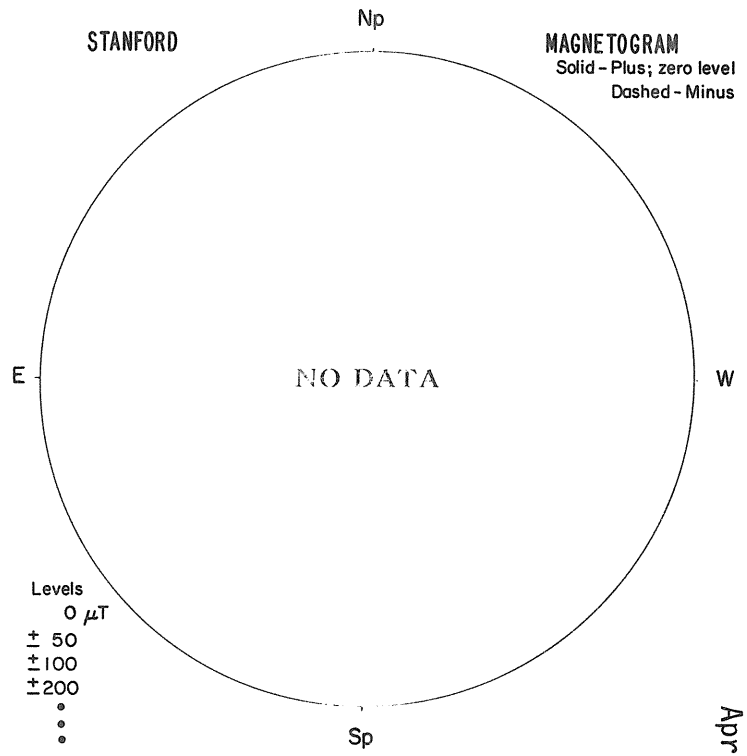
2.0 CM

NOSC LA POSTA



8.6 MM

STANFORD

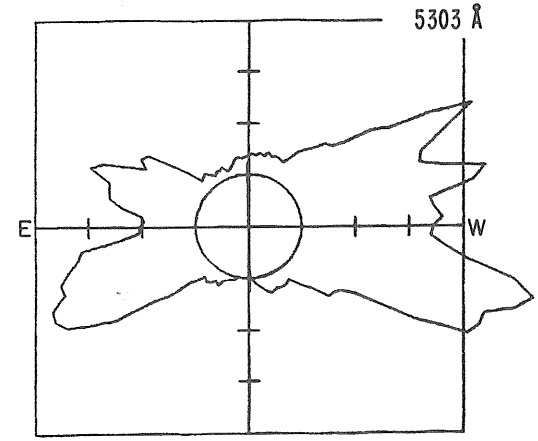


MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

APRIL 6, 1980 (P=-26.32, $B_\odot$=-6.22, $L_\odot$=120.49)

SACRAMENTO PEAK

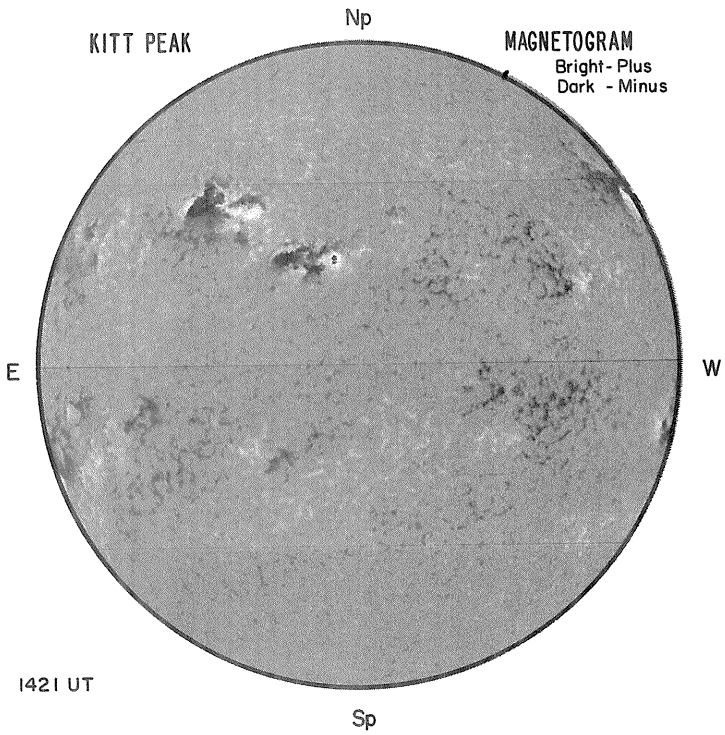
CORONA (1.15 $R_\odot$)
5303 Å



1412 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

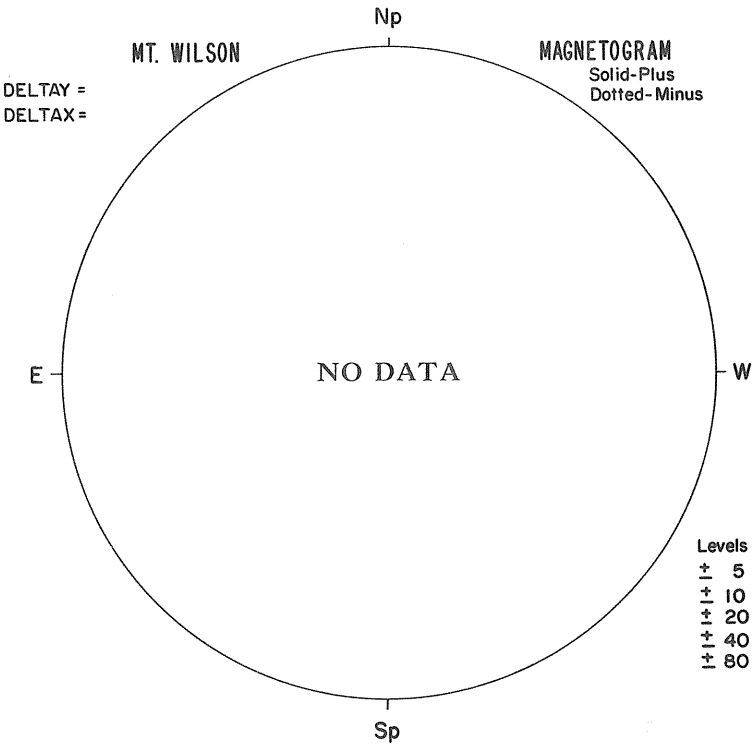


1421 UT

MT. WILSON

DELTAY =
DELTAX =

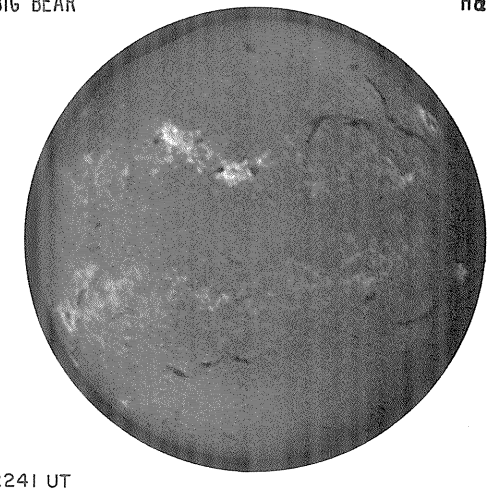
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

06

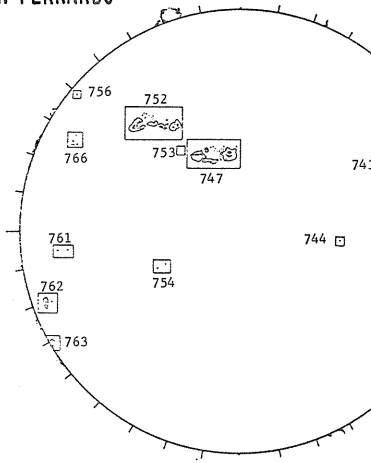
BIG BEAR Np Hα



E W

2241 UT Sp

SAN FERNANDO Np SUNSPOTS



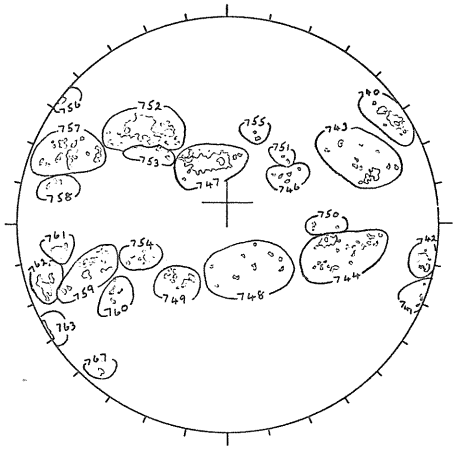
E W

1710 UT Sp

BOULDER PROMINENCES

1436 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1907 UT Sp

POOR	JA
40-	1500-3.0
41-	0200-2.5
42-	1000-3.0
43-	1200-3.0
44-	1400-2.5
47-	2200-4.0
49-	0400-3.0
50-	0200-2.5
52-	3500-4.0
53-	0300-3.0
54-	0300-3.0
56-	0400-3.0
57-	1500-3.0
58-	0300-2.5
59-	1300-3.5
60-	0200-2.5
61-	0400-3.0
62-	1300-3.0
63-	0500-2.5
67-	0200-3.0

NOSC LA POSTA Np 2.0 CM

NO DATA

SCHEDULE

E W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

SCHEDULE

E W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

NO DATA

Levels

0 μT

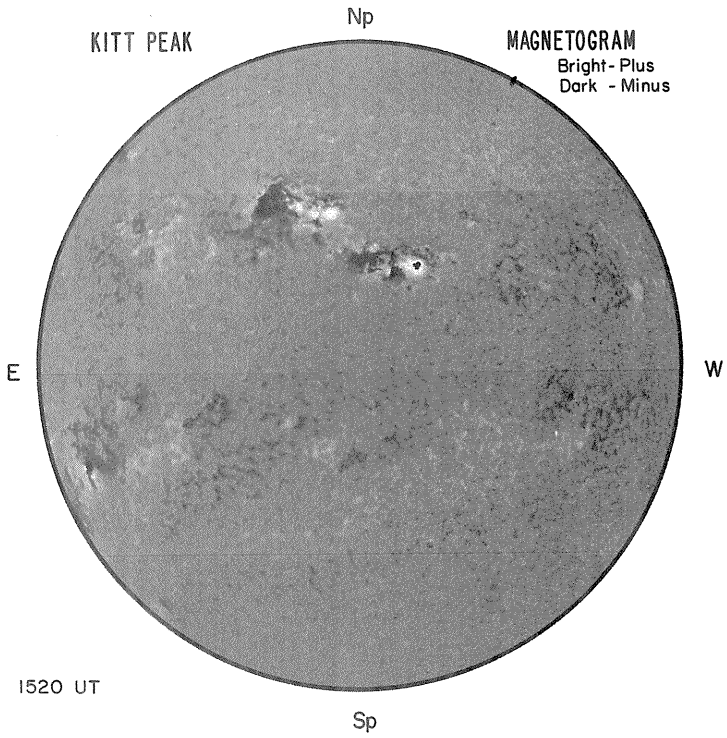
± 50

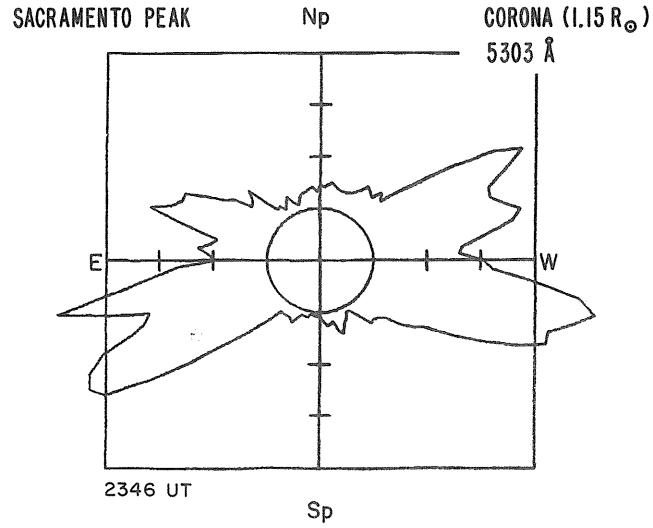
±100

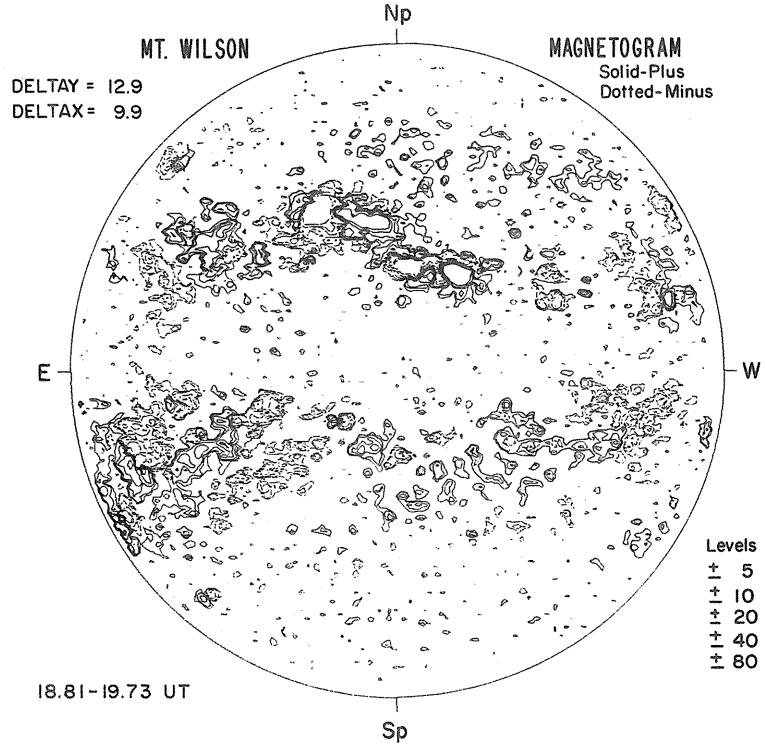
±200

Sp

APRIL 7, 1980 (P =-26.32, B_o =-6.15, L_o = 107.29)

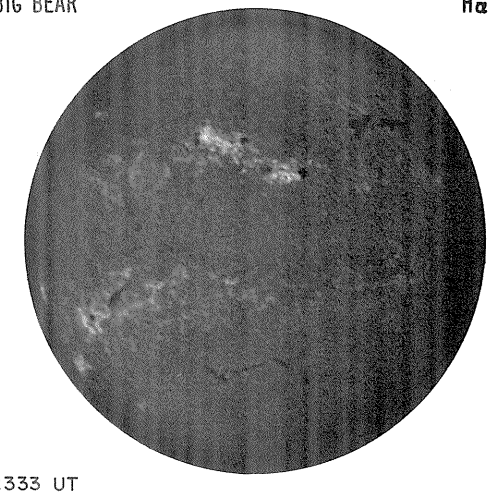






07

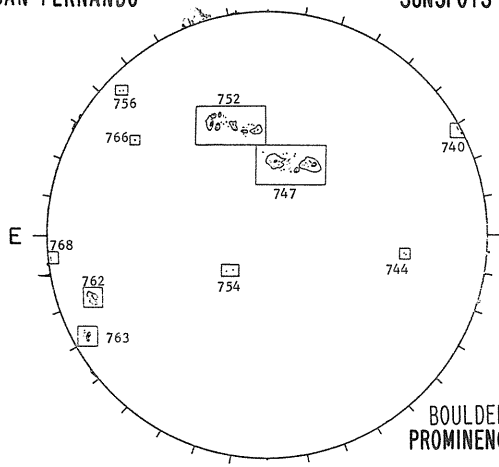
BIG BEAR Np Hα



E W

2333 UT Sp

SAN FERNANDO Np SUNSPOTS

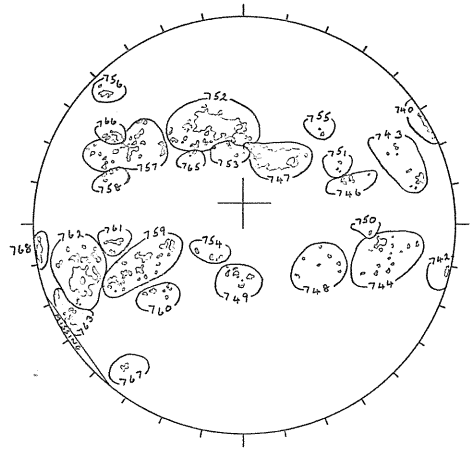


E W

BOULDER PROMINENCES

1710 UT Sp 1742 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

2307 UT Sp

FAIR	JA
40- 0600-2.5	
43- 0600-2.5	
46- 0200-2.5	
47- 2500-3.5	
49- 0300-3.0	
52- 3600-4.0	
53- 0200-3.0	
54- 0200-3.0	
56- 0400-3.5	
57- 1500-3.0	
59- 1600-3.0	
61- 0300-3.0	
62- 3200-3.5	
63- 0600-3.5	
65- 0100-3.0	
66- 0400-3.0	
67- 0200-3.0	
68- 0600-3.5	

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

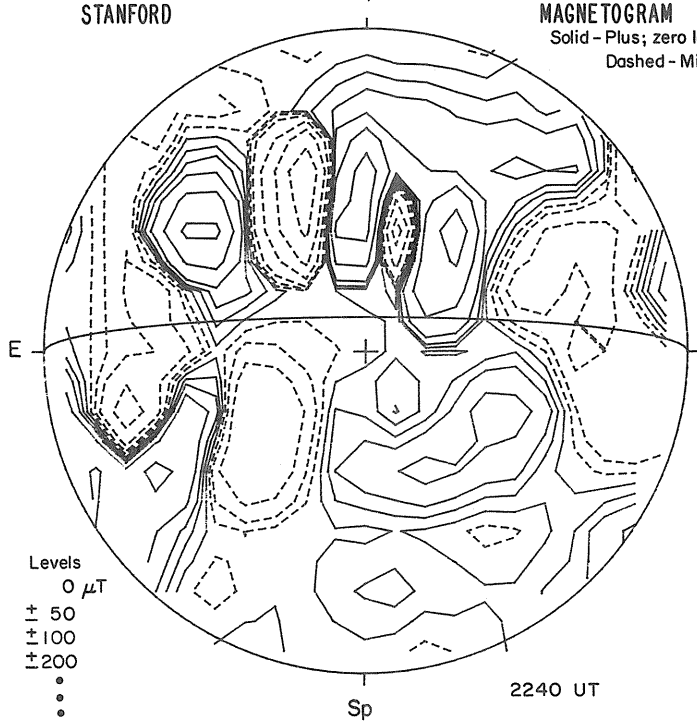
E W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

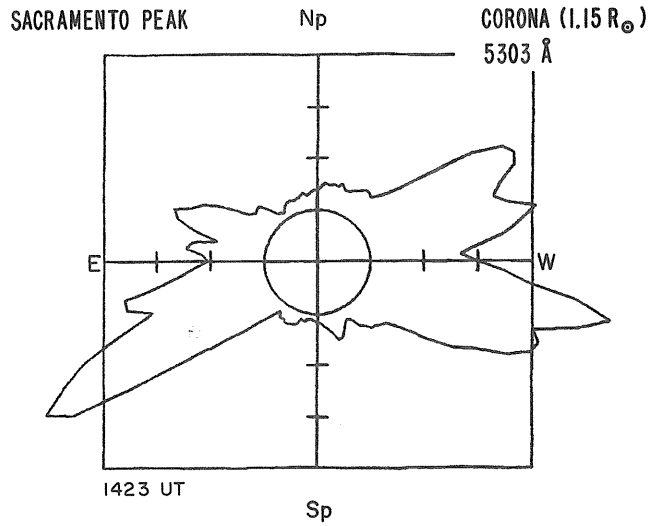
± 50

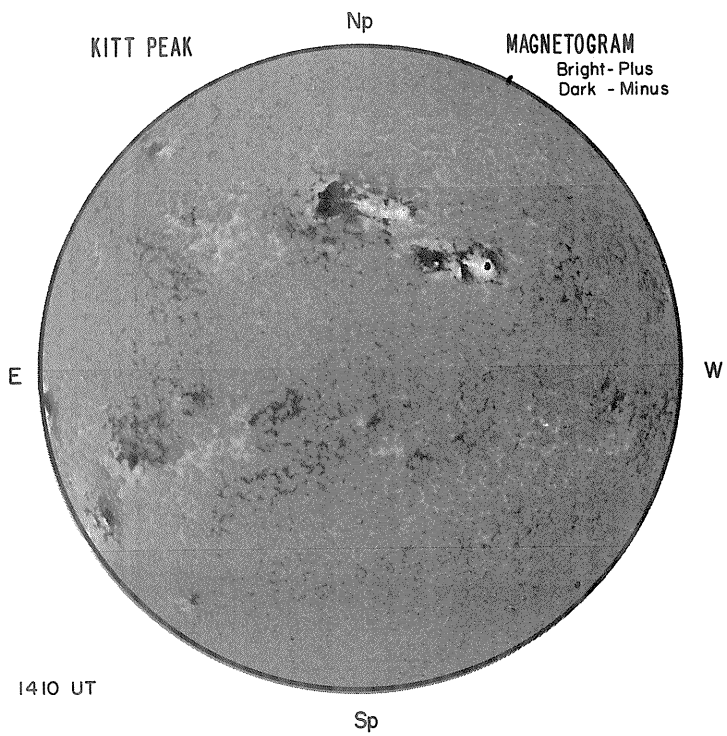
± 100

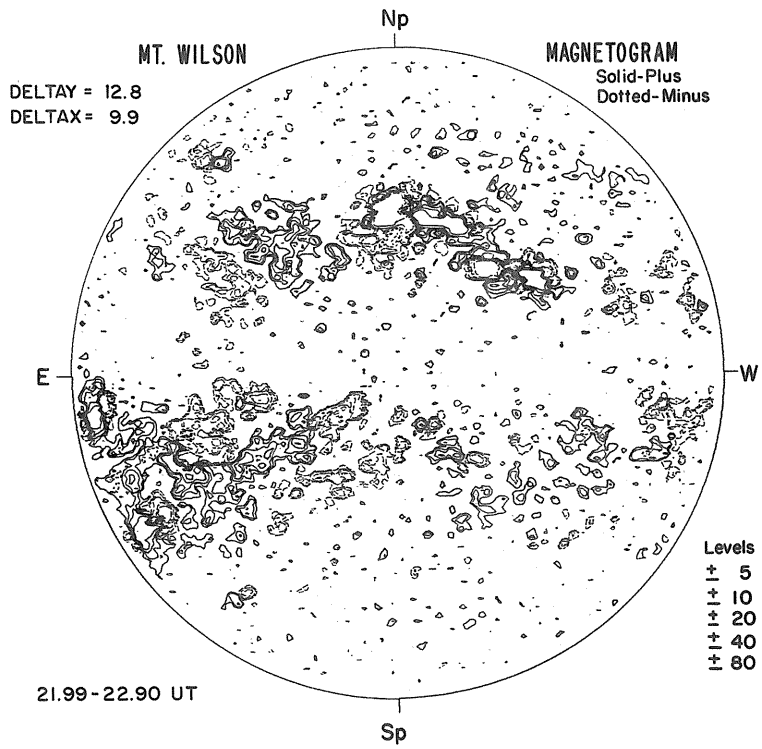
± 200

Sp 2240 UT

APRIL 8, 1980 (P=-26.32, B_o=-6.09, L_o=94.09)

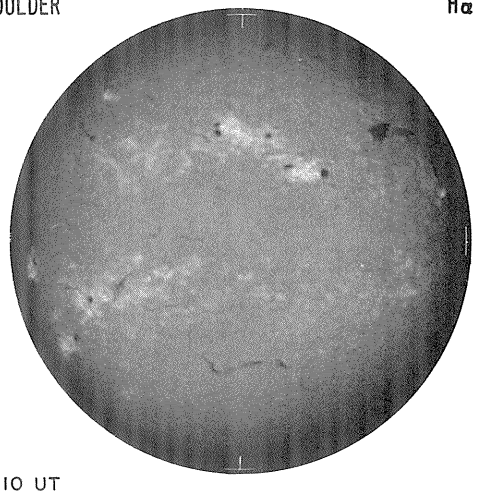






08

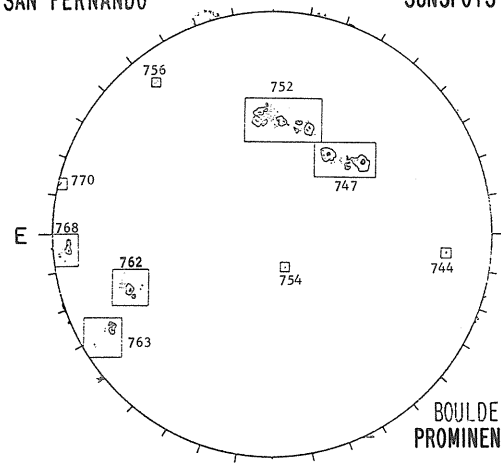
BOULDER Np Hα



E W

1410 UT Sp

SAN FERNANDO Np SUNSPOTS



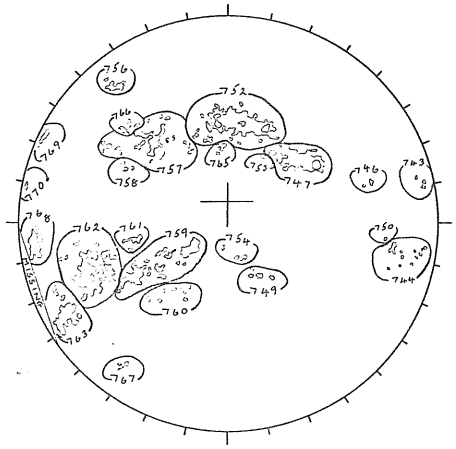
E W

1825 UT Sp

BOULDER PROMINENCES

1410 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1914 UT Sp

FAIR	JA
46-	0200-2.5
47-	2200-3.5
49-	0300-3.0
52-	4200-3.5
53-	0100-3.0
54-	0200-3.0
56-	0600-3.5
57-	2300-3.0
58-	0200-2.5
59-	2200-3.5
61-	0400-3.0
62-	4000-3.5
63-	2500-3.5
65-	0200-3.0
66-	0400-3.0
67-	0200-3.0
68-	1500-4.0

NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

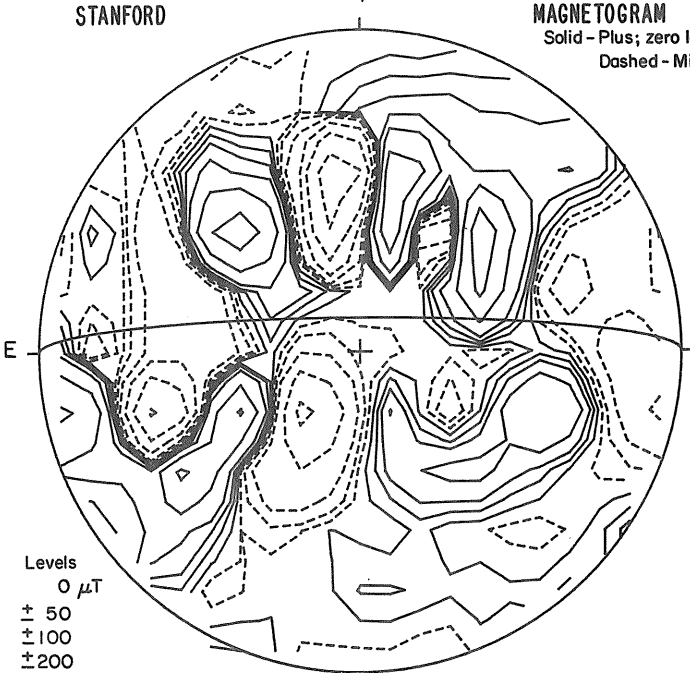
NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



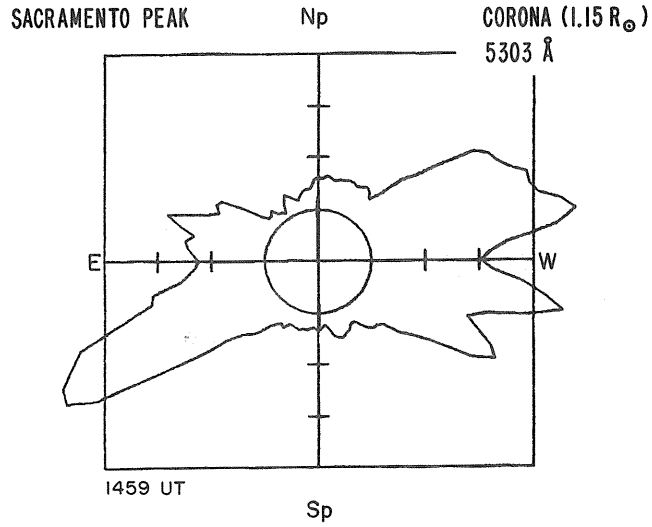
E W

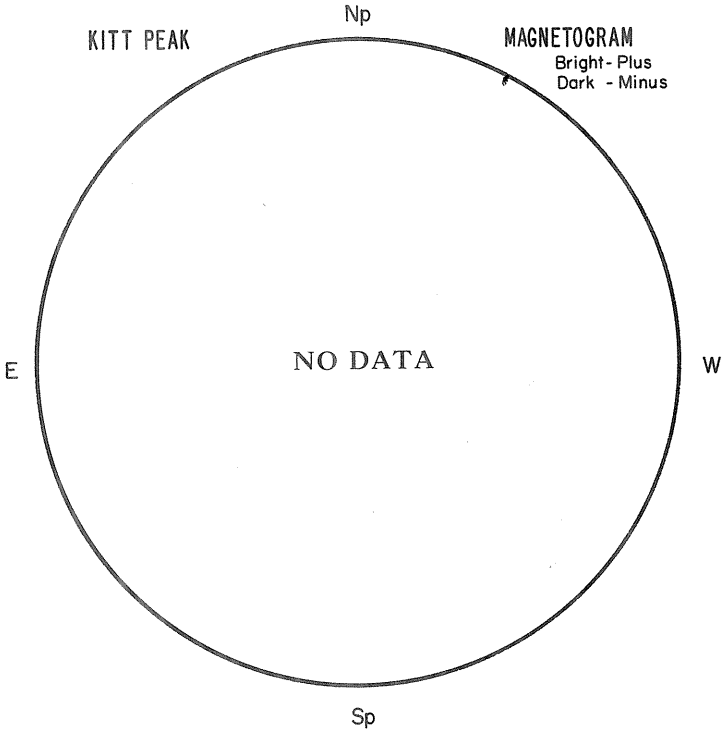
Levels
0 μT
± 50
± 100
± 200
•
•
•

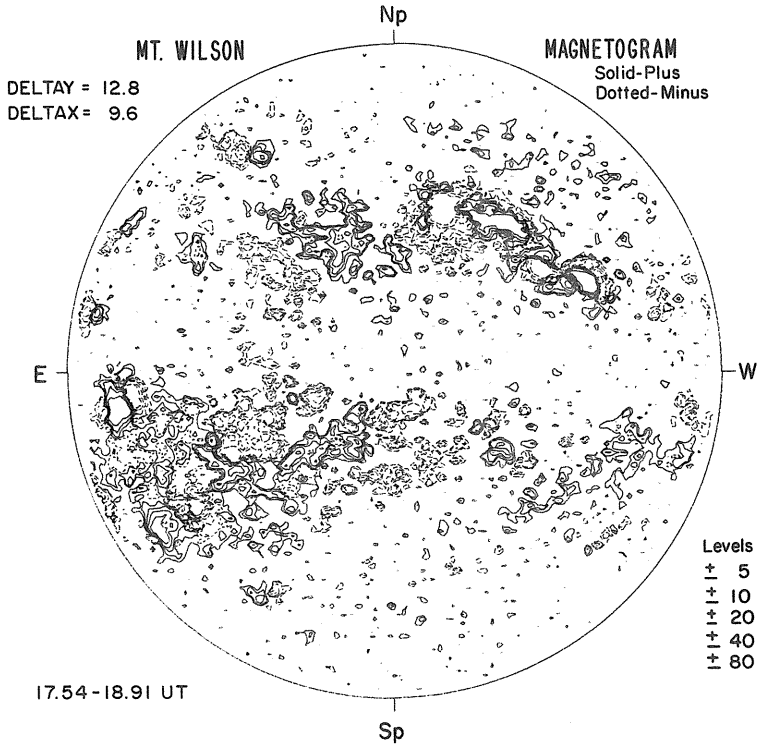
Sp 1717 UT

67
Apr 80

APRIL 9, 1980 (P =-26.30, $B_\odot$ =-6.02, $L_\odot$ = 80.89)

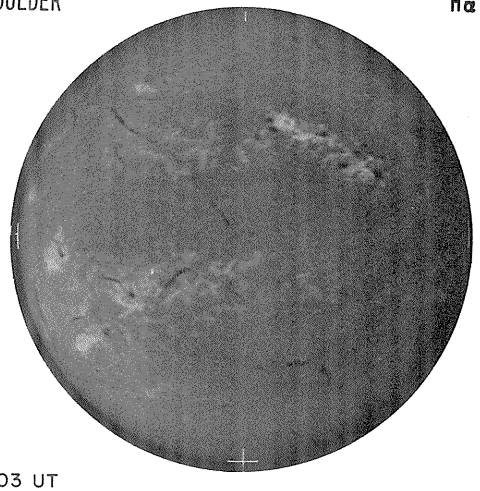






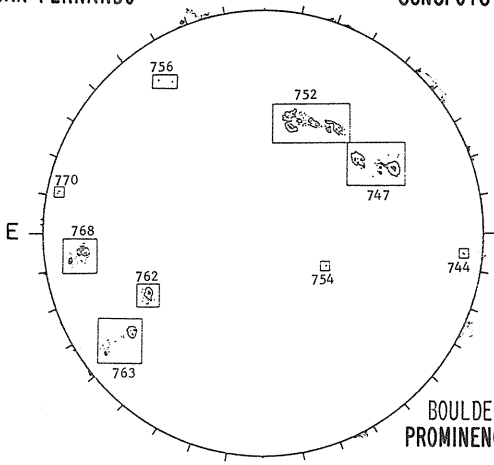
09

BOULDER Hα



1703 UT

SAN FERNANDO SUNSPOTS

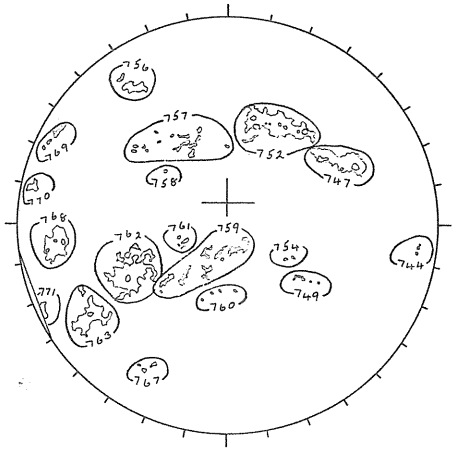


1730 UT

BOULDER PROMINENCES

1703 UT

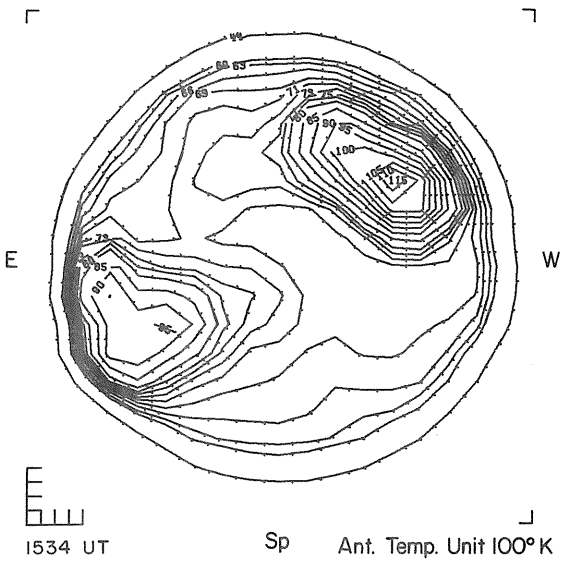
HALE OBSERVATORIES CALCIUM REPORT



1909 UT

FAIR	JA
47-	2300-3.0
49-	0200-3.0
52-	3700-3.5
54-	0100-2.5
56-	1000-3.5
57-	1100-3.0
59-	1400-3.5
61-	0300-3.0
62-	4100-3.5
63-	2600-3.5
67-	0200-3.0
68-	3000-3.5
69-	0600-2.5
70-	0600-3.0
71-	0700-2.5

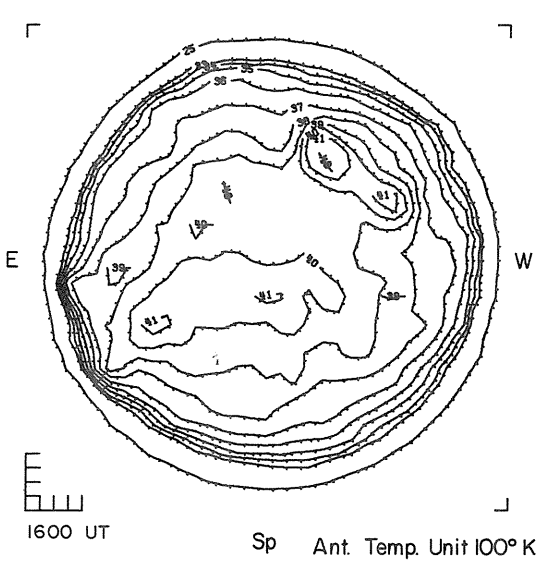
NOSC LA POSTA 2.0 CM



1534 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

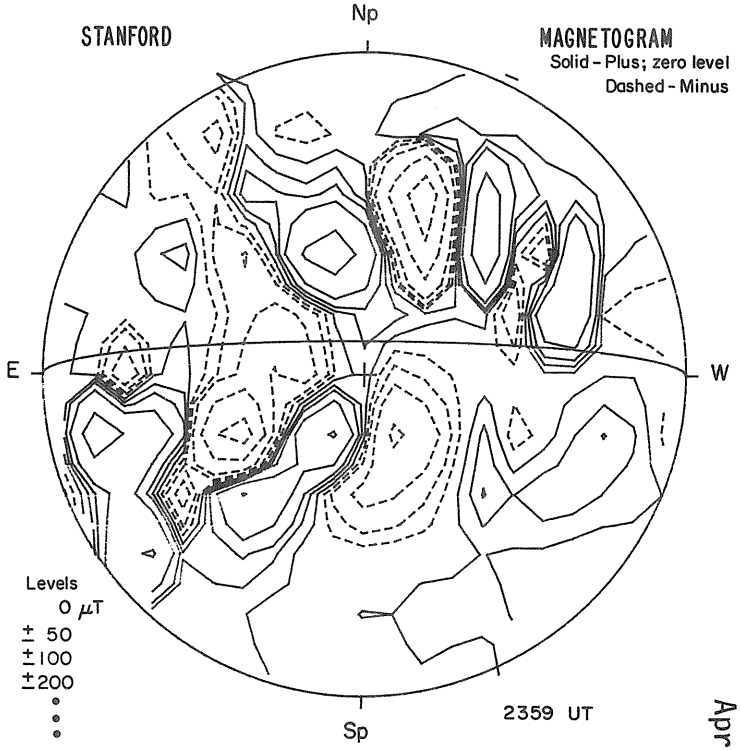


1600 UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

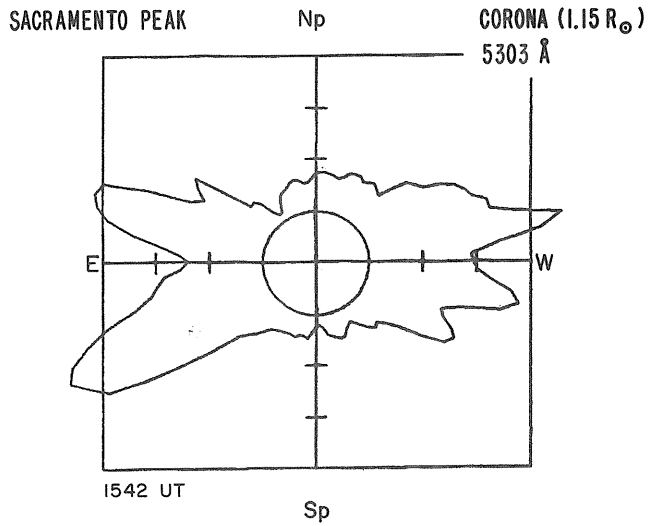
Solid - Plus; zero level
Dashed - Minus

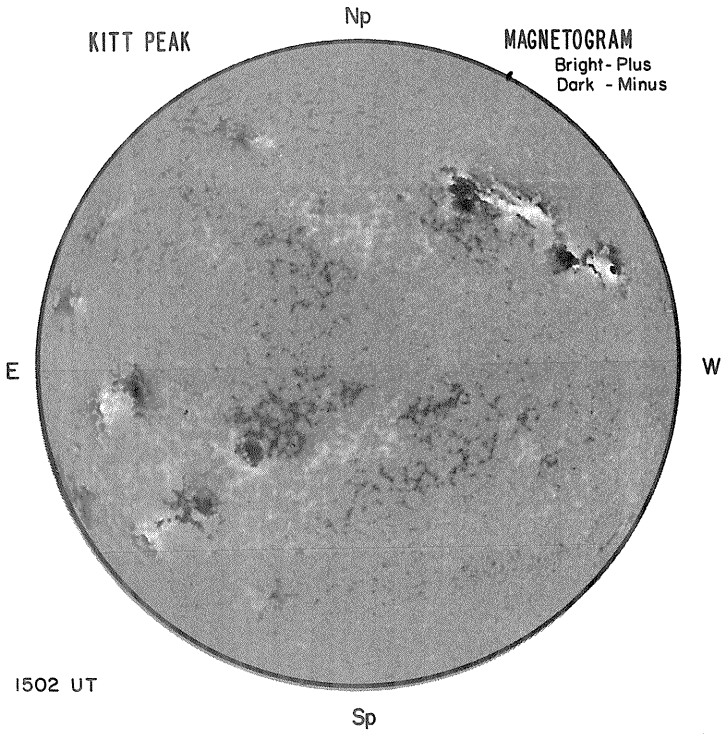


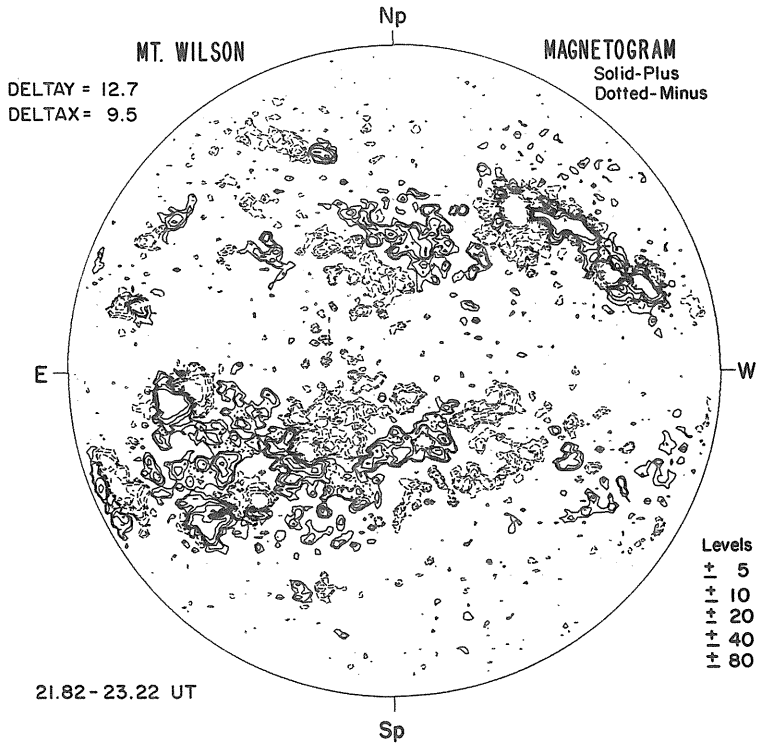
Levels
0 μT
± 50
±100
±200
•
•
•

2359 UT

APRIL 10, 1980 (P =-26.28, $B_\odot$ =-5.95, $L_\odot$ =67.69)

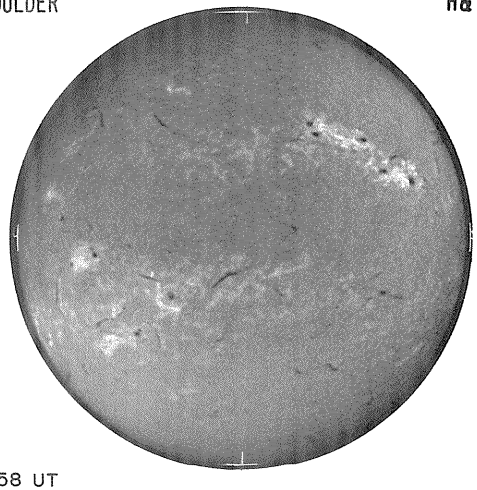






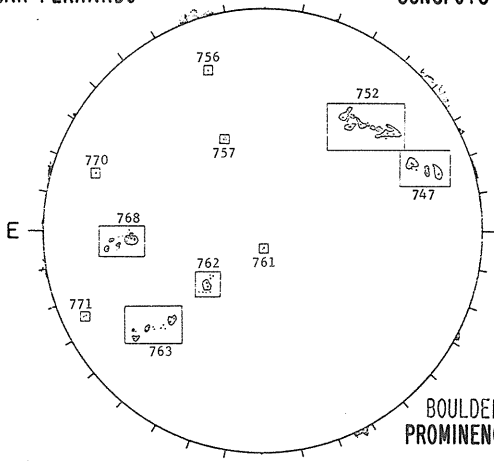
10

BOULDER Np Hα



1558 UT Sp

SAN FERNANDO Np SUNSPOTS

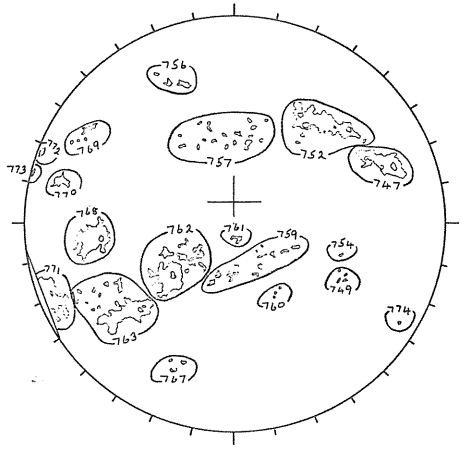


11 APR/0018 UT Sp

BOULDER PROMINENCES

1558 UT

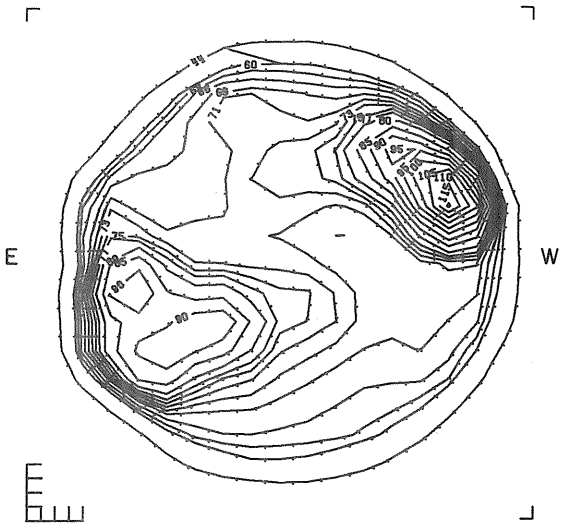
HALE OBSERVATORIES Np CALCIUM REPORT



1932 UT Sp

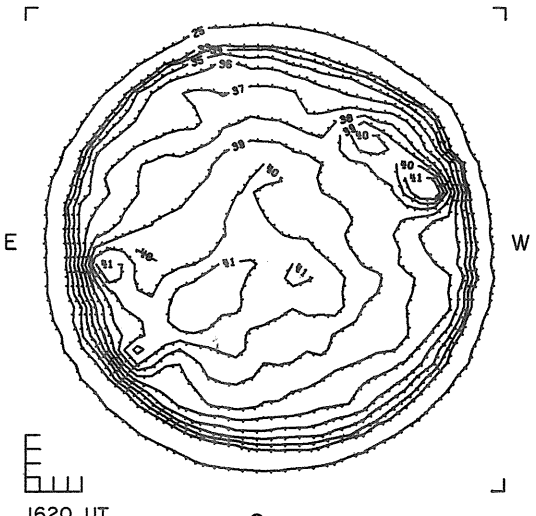
POOR	JA
47-	2400-3.0
49-	0200-2.5
52-	3600-3.5
54-	0100-2.5
56-	0700-3.0
57-	1100-2.5
59-	0900-3.0
61-	0200-2.5
62-	4000-3.5
63-	4600-3.5
67-	0200-2.5
68-	3900-4.0
69-	0500-3.0
70-	0600-3.5
71-	3800-3.0
72-	0300-3.0
73-	0200-2.5

NOSC LA POSTA Np 2.0 CM



1551 UT Sp Ant. Temp. Unit 100° K

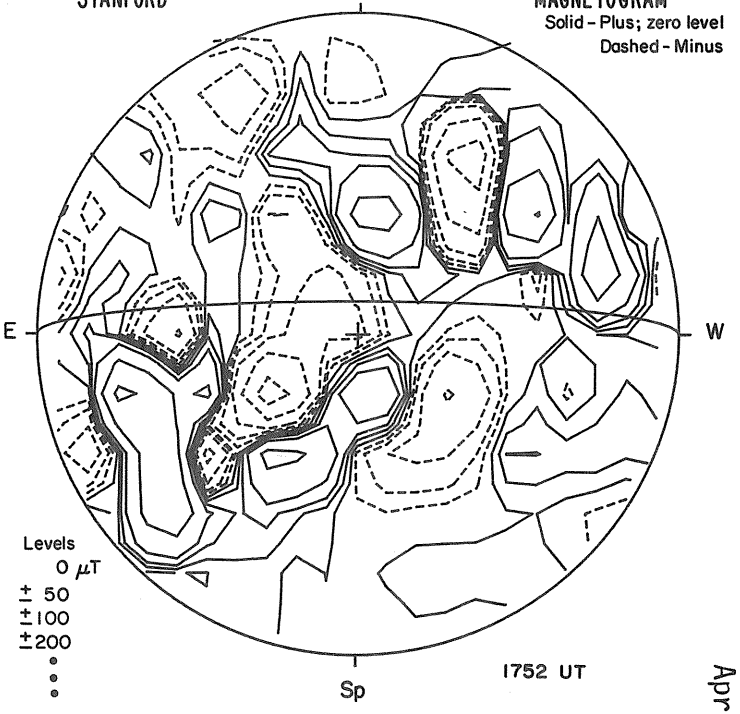
NOSC LA POSTA Np 8.6 MM



1620 UT Sp Ant. Temp. Unit 100° K

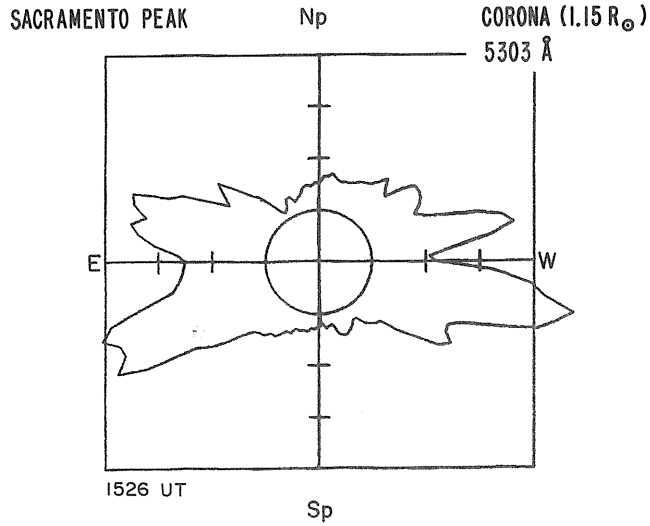
STANFORD Np MAGNETOGRAM

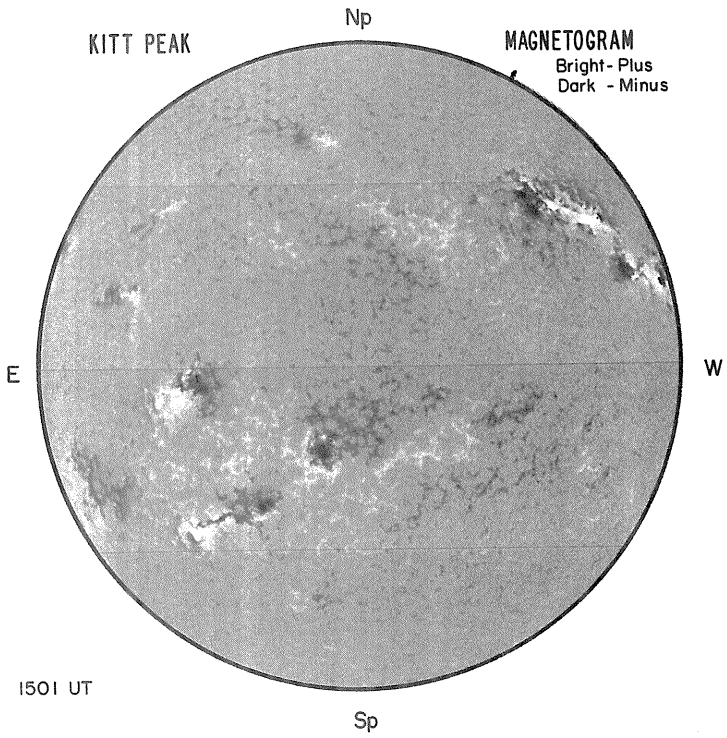
Solid - Plus; zero level
Dashed - Minus

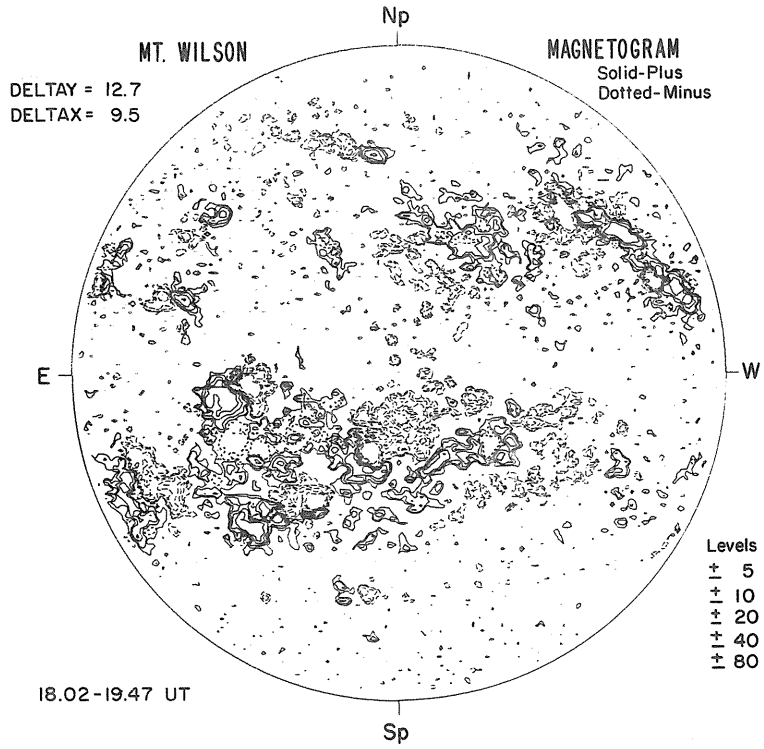


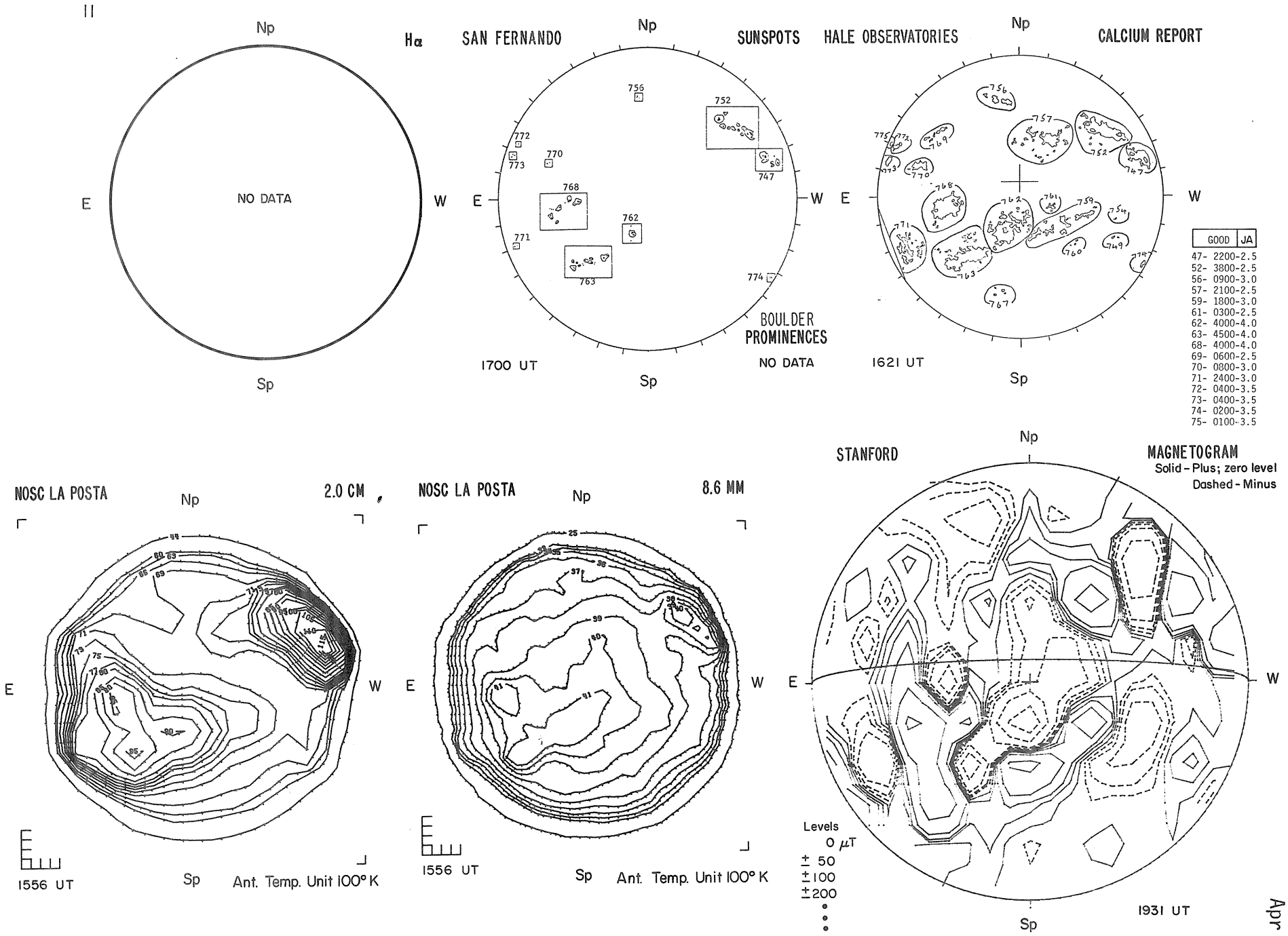
Sp 1752 UT

APRIL 11, 1980 (P =-26.26, $B_\odot$ =- 5.88, $L_\odot$ = 54.49)







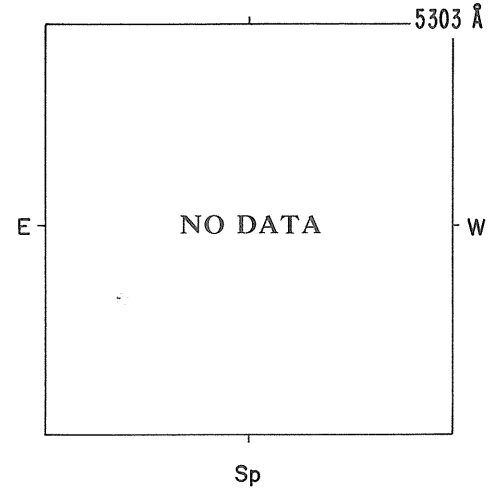

Hα
Np
Sp
E
W
NO DATA
SAN FERNANDO
SUNSPOTS
1700 UT
BOULDER
PROMINENCES
NO DATA
HALE OBSERVATORIES
CALCIUM REPORT
1621 UT
GOOD JA
47- 2200-2.5
52- 3800-2.5
56- 0900-3.0
57- 2100-2.5
59- 1800-3.0
61- 0300-2.5
62- 4000-4.0
63- 4500-4.0
68- 4000-4.0
69- 0600-2.5
70- 0800-3.0
71- 2400-3.0
72- 0400-3.5
73- 0400-3.5
74- 0200-3.5
75- 0100-3.5
NOSC LA POSTA
2.0 CM
1556 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
Levels
0 μT
± 50
±100
±200
1931 UT

APRIL 12, 1980 (P=-26.22, B_o=-5.80, L_o=41.29)

SACRAMENTO PEAK

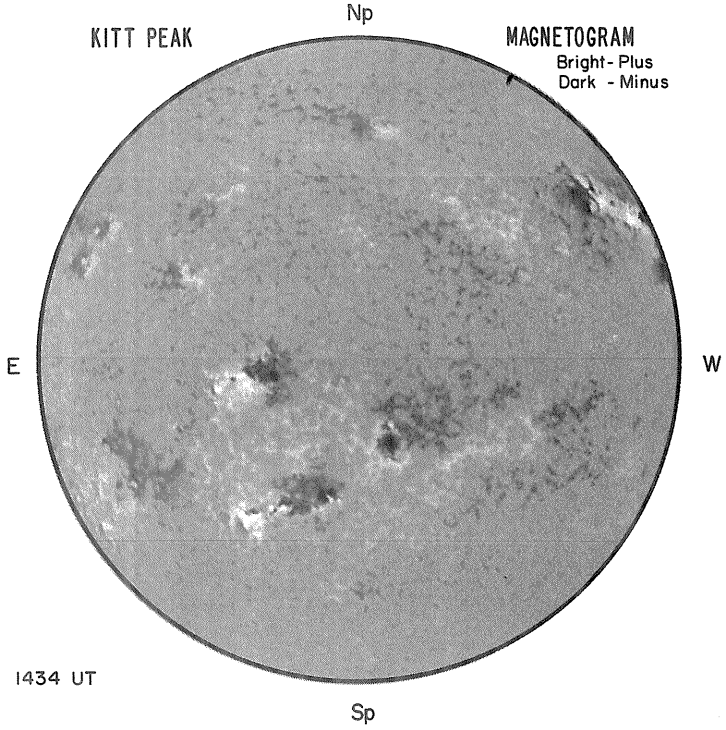
CORONA (1.15 $R_\odot$)

5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

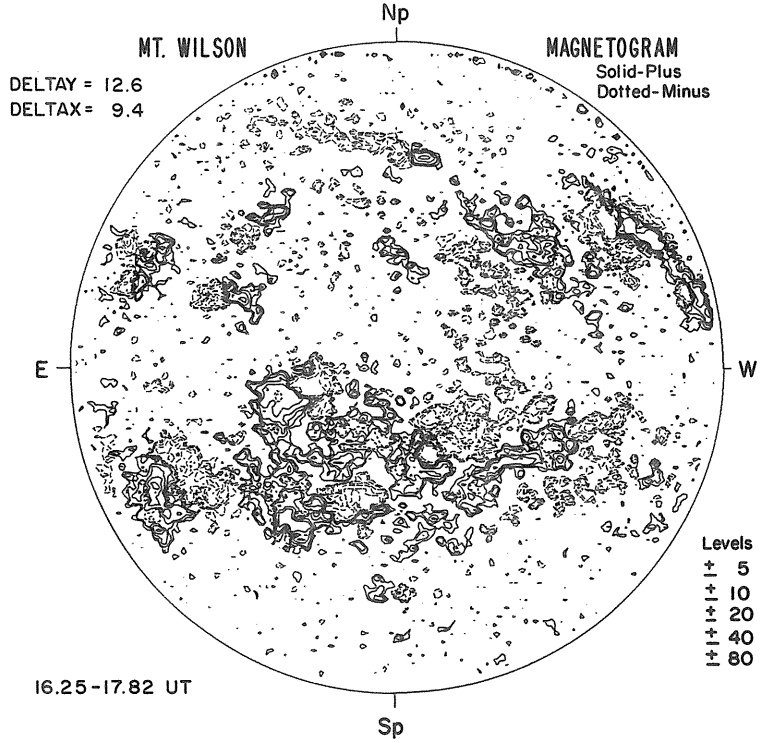


1434 UT

MT. WILSON

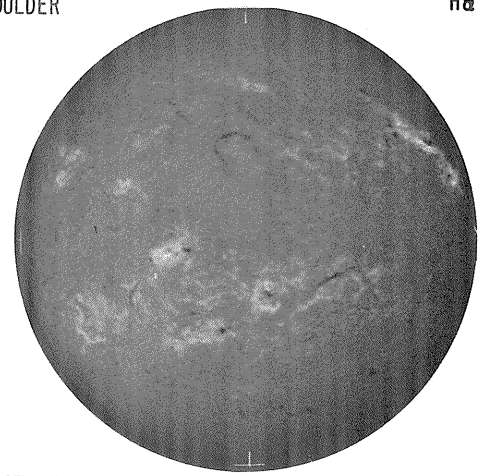
DELTAY = 12.6
DELTAX = 9.4

MAGNETOGRAM
Solid-Plus
Dotted-Minus



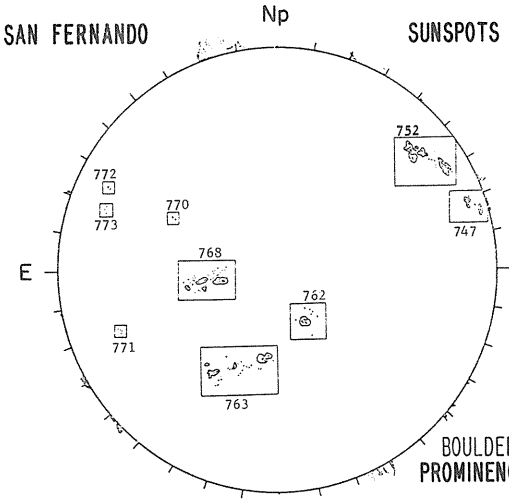
16.25-17.82 UT

BOULDER Hα



1347 UT

SAN FERNANDO SUNSPOTS

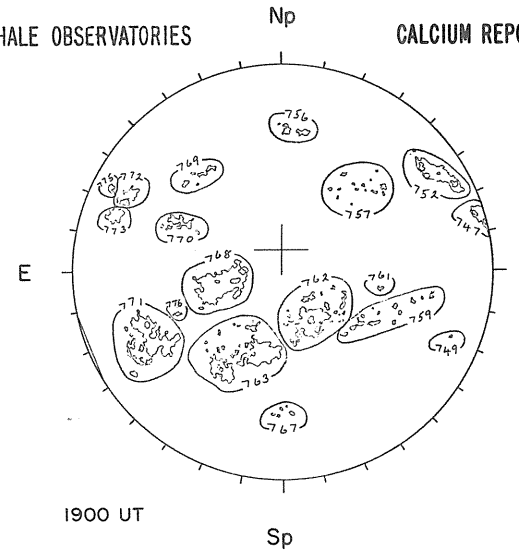


1730 UT

BOULDER PROMINENCES

1347 UT

HALE OBSERVATORIES CALCIUM REPORT



1900 UT

POOR	JA
47-	1500-2.5
52-	3000-2.5
56-	0400-3.0
57-	0700-2.5
59-	1100-2.5
61-	0100-2.5
62-	3300-2.5
63-	4000-3.0
67-	0300-2.5
68-	4000-3.5
69-	0500-2.5
70-	0800-3.0
71-	3600-3.0
72-	0700-3.0
73-	0600-3.5
75-	0200-3.0
76-	0100-2.5

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

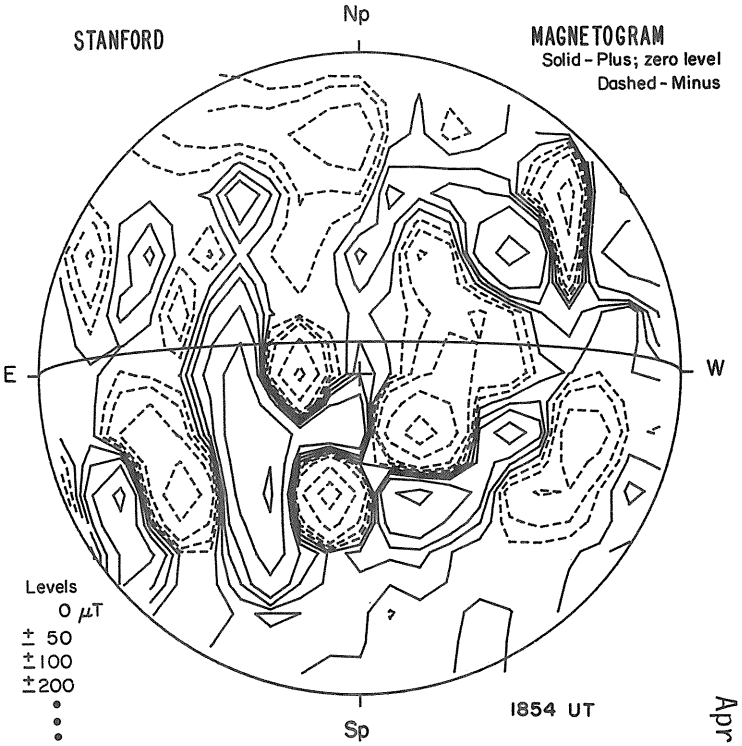
E W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

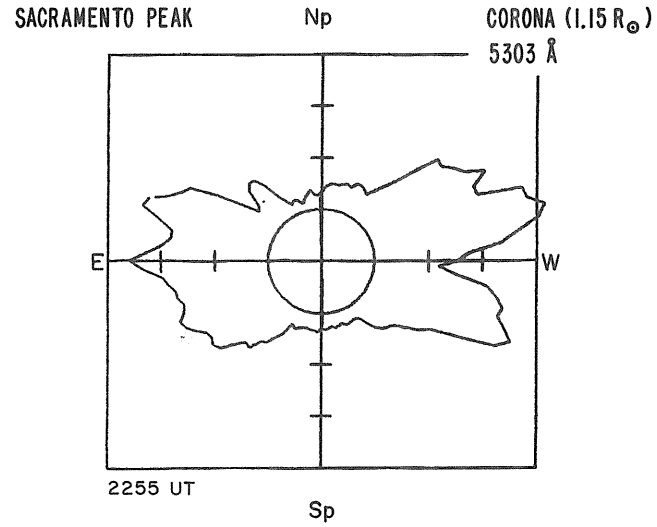
± 50

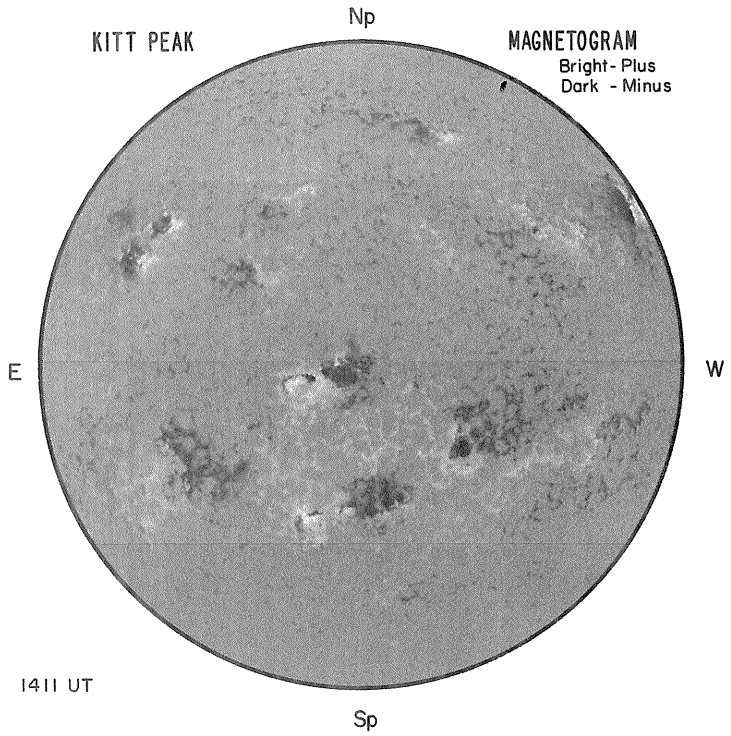
± 100

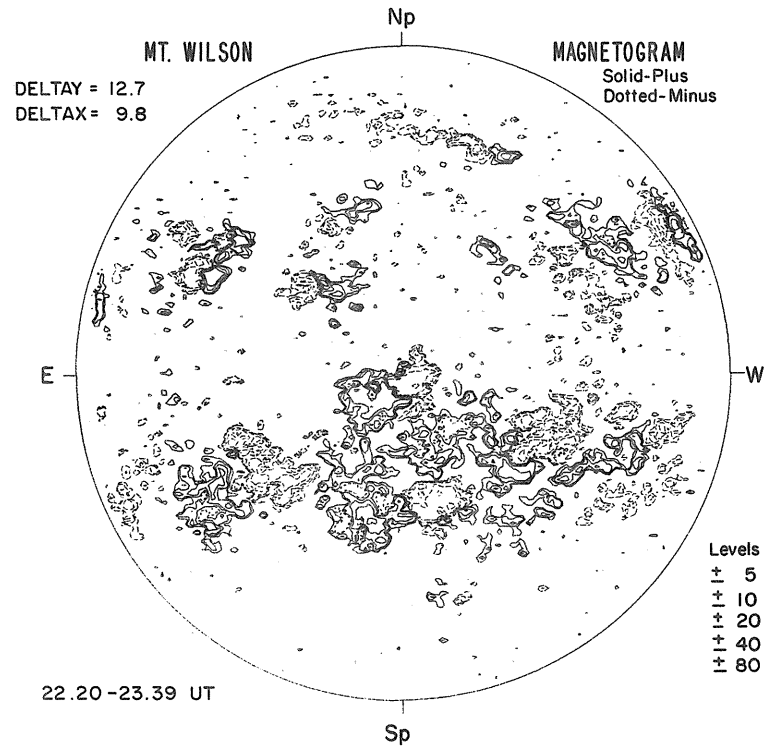
± 200

1854 UT

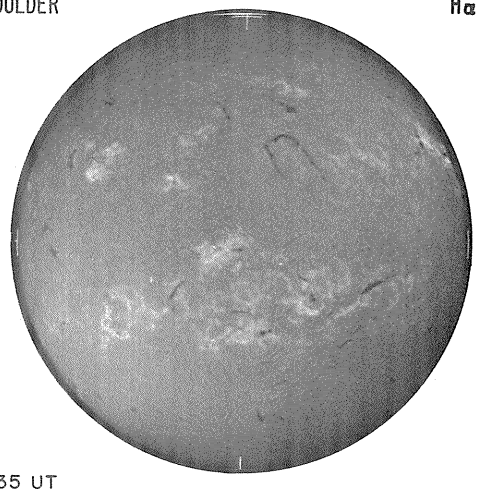
APRIL 13, 1980 ($P = -26.18$, $B_\odot = -5.73$, $L_\odot = 28.09$)





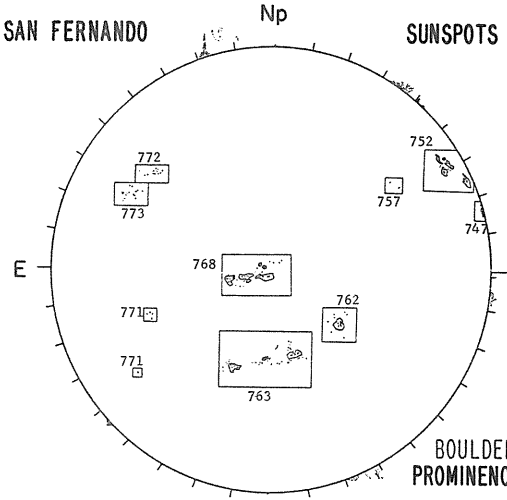


BOULDER Hα



1635 UT

SAN FERNANDO SUNSPOTS

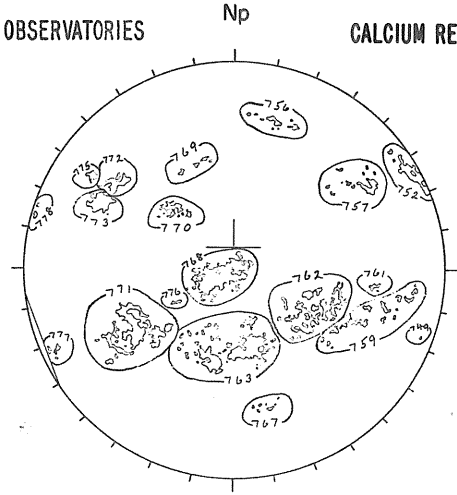


1650 UT

BOULDER PROMINENCES

1635 UT

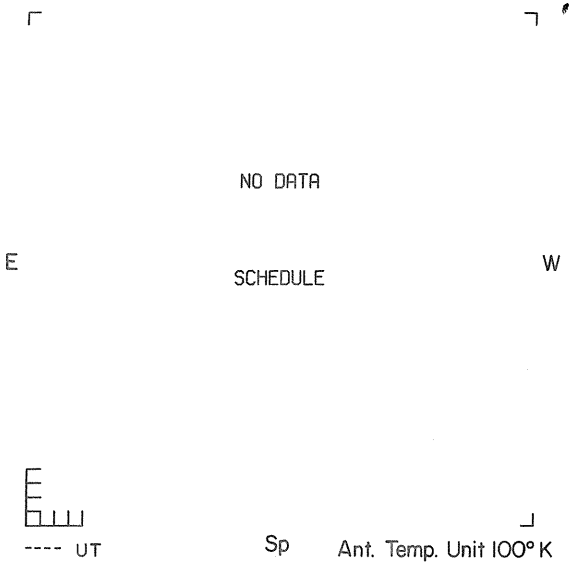
HALE OBSERVATORIES CALCIUM REPORT



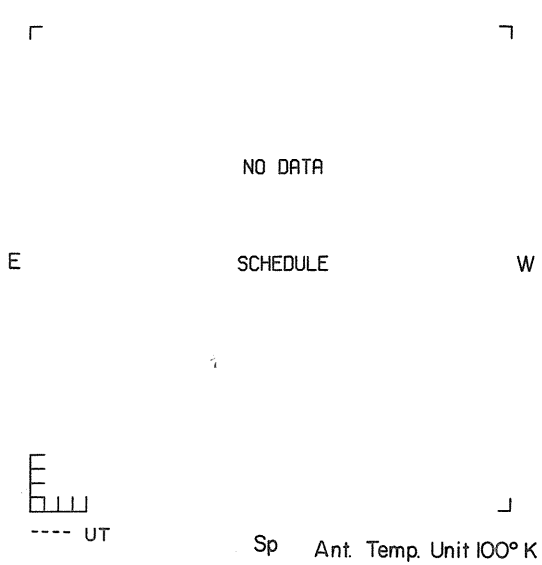
1939 UT

FAIR	JA
52-	2200-2.5
56-	0500-3.0
57-	0700-2.5
59-	1600-2.5
61-	0100-2.5
62-	3200-3.0
63-	4200-3.5
67-	0300-2.5
68-	4000-3.5
69-	0300-3.0
70-	0700-3.0
71-	3700-3.5
72-	1000-3.5
73-	1200-3.5
75-	0300-3.5
76-	0100-3.0
77-	0300-2.5
78-	0200-3.0

NOSC LA POSTA 2.0 CM

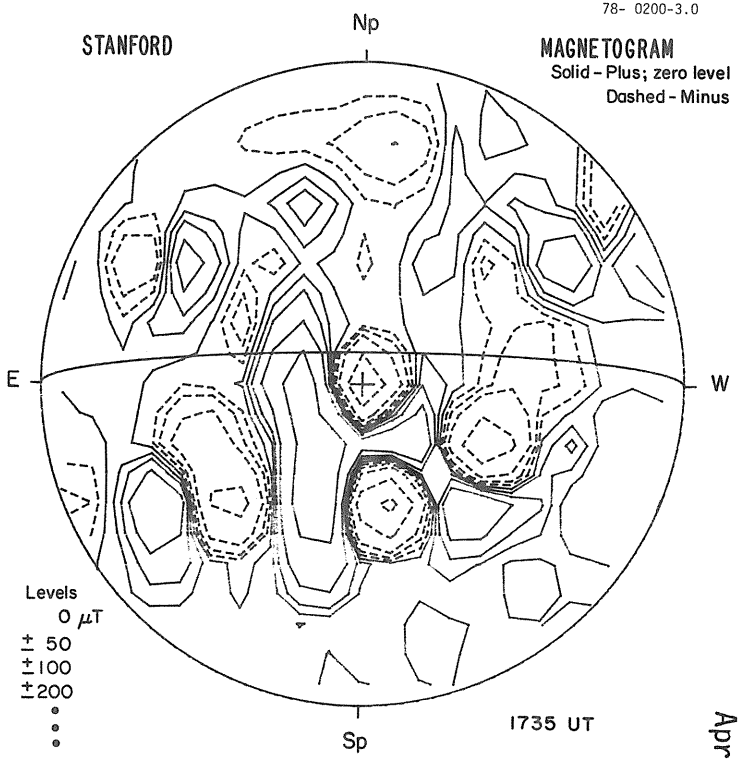


NOSC LA POSTA 8.6 MM



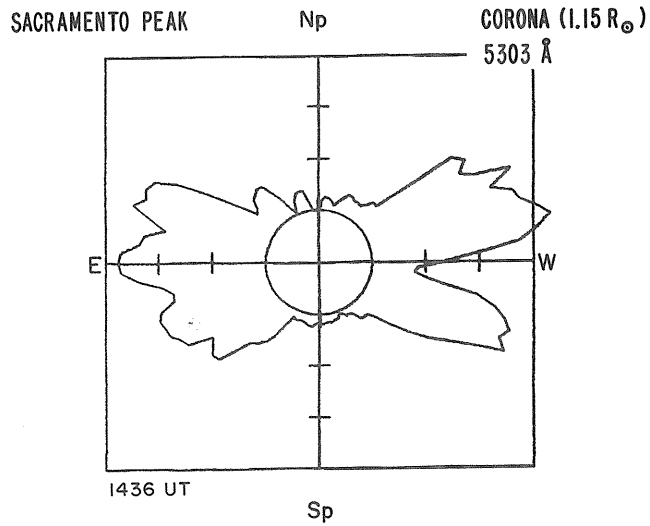
STANFORD MAGNETOGRAM

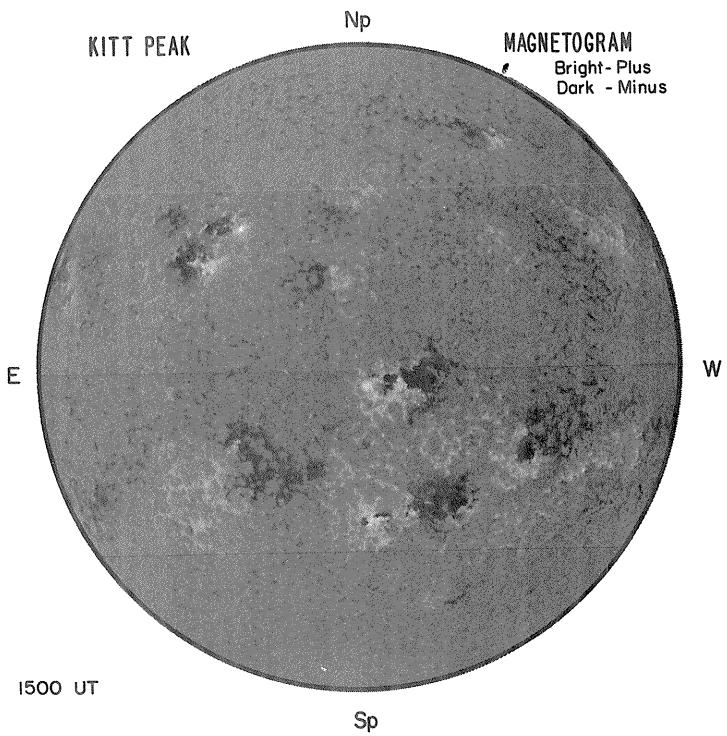
Solid - Plus; zero level
Dashed - Minus

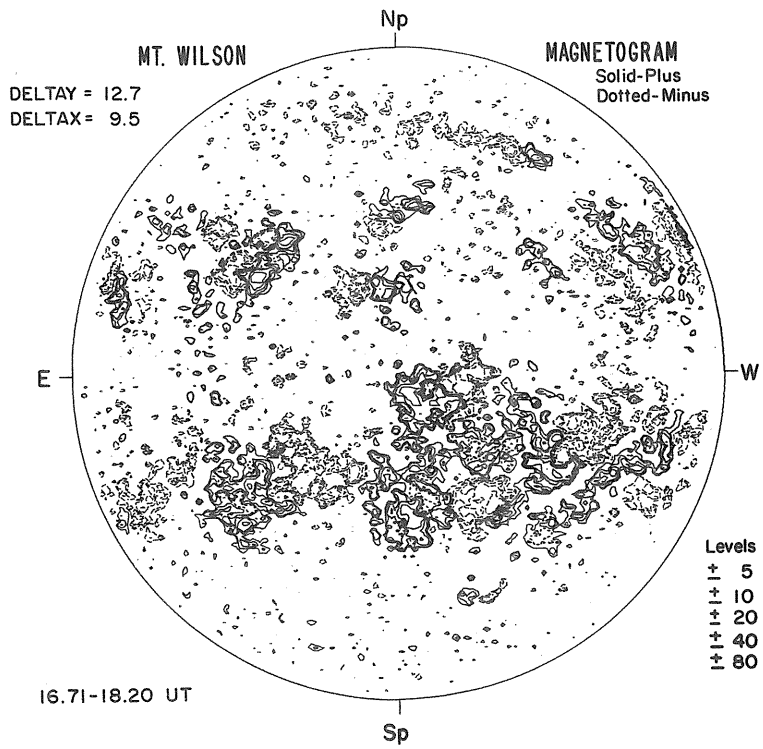


1735 UT

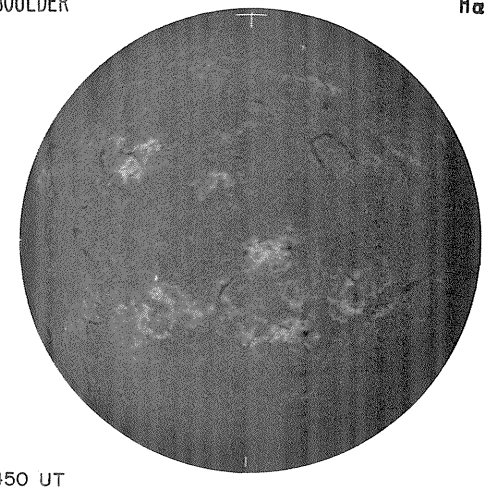
APRIL 14, 1980 ($P = -26.13$, $B_o = -5.65$, $L_o = 14.89$)





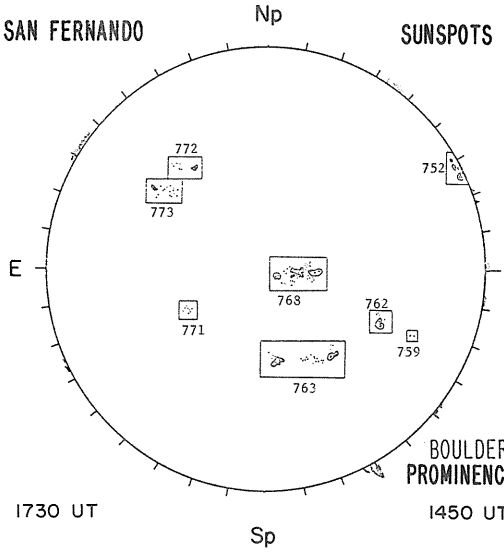


BOULDER Hα



1450 UT

SAN FERNANDO SUNSPOTS

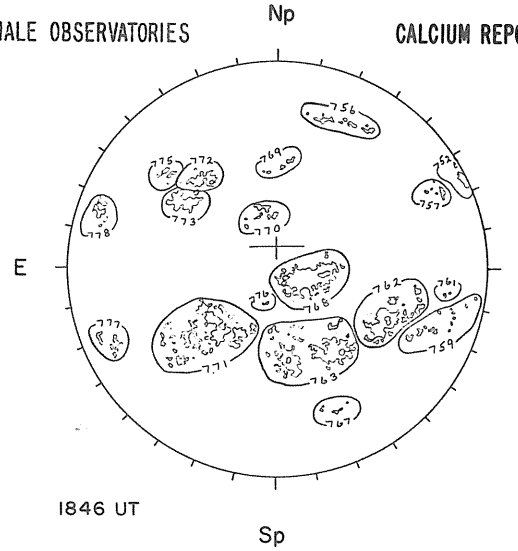


1730 UT

BOULDER PROMINENCES

1450 UT

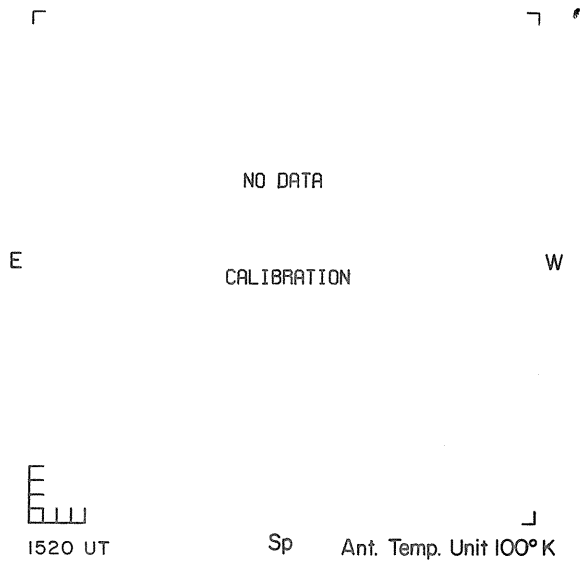
HALE OBSERVATORIES CALCIUM REPORT



1846 UT

FAIR	JA
52-	1300-3.0
56-	0700-3.0
57-	0300-2.5
59-	0900-2.5
62-	2600-3.0
63-	4200-3.5
68-	3900-3.5
69-	0200-2.5
70-	0400-3.0
71-	3200-3.5
72-	0500-3.5
73-	0900-3.5
75-	0300-3.0
77-	0400-2.5
78-	0400-3.5

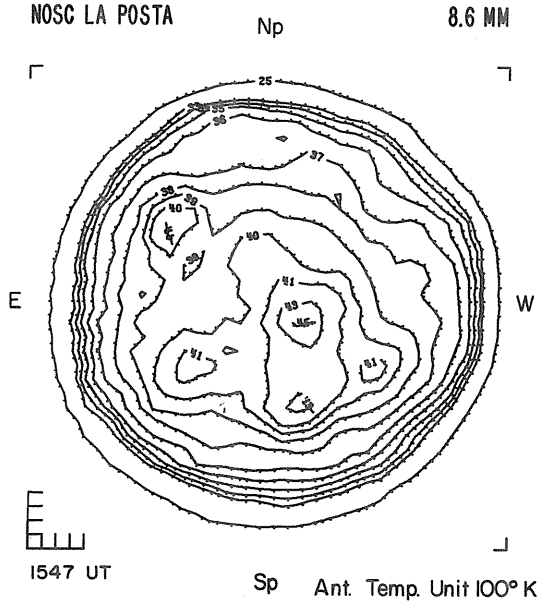
NOSC LA POSTA 2.0 CM



1520 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

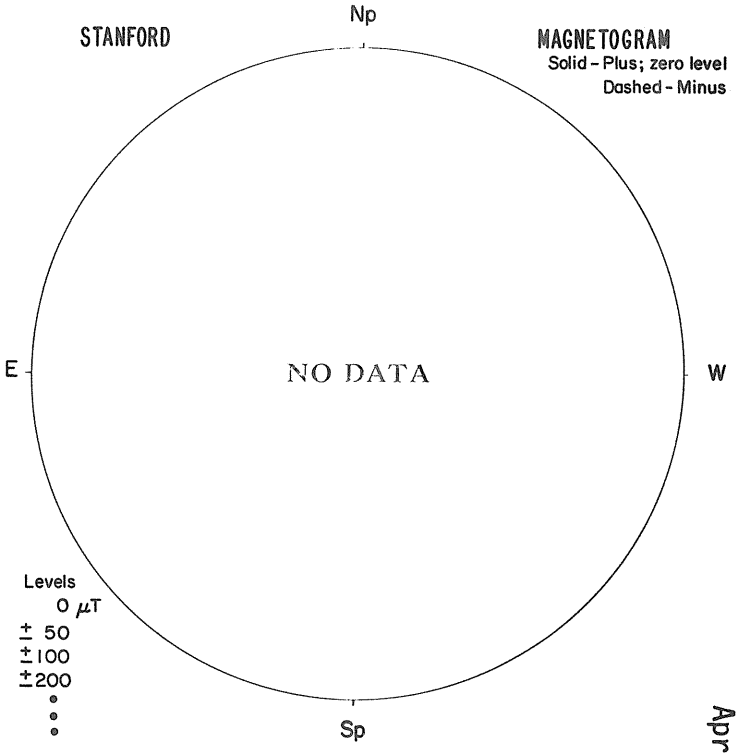


1547 UT

Ant. Temp. Unit 100° K

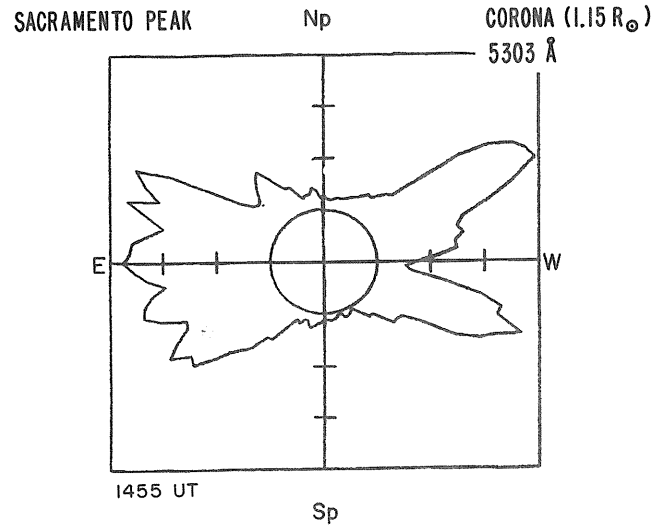
STANFORD MAGNETOGRAM

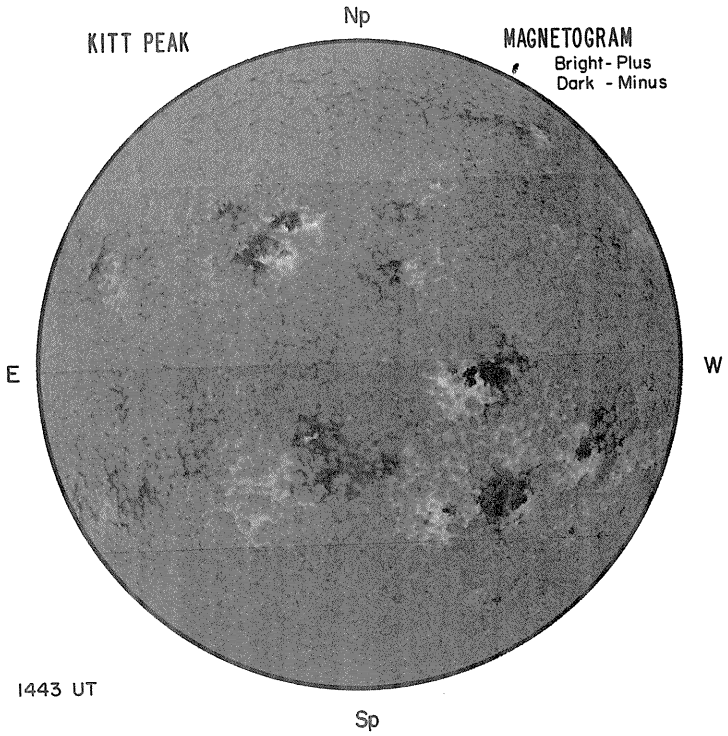
Solid - Plus; zero level
Dashed - Minus

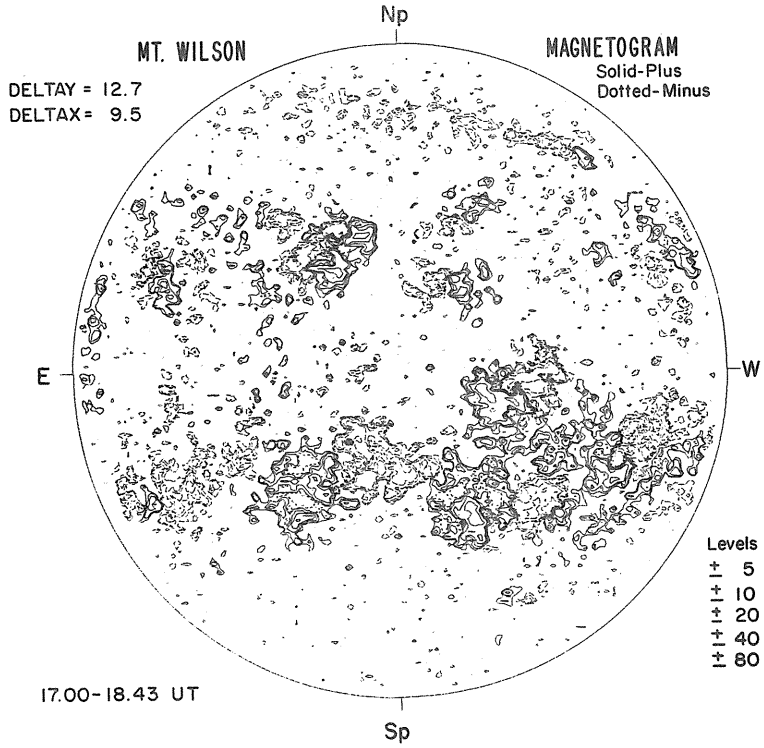


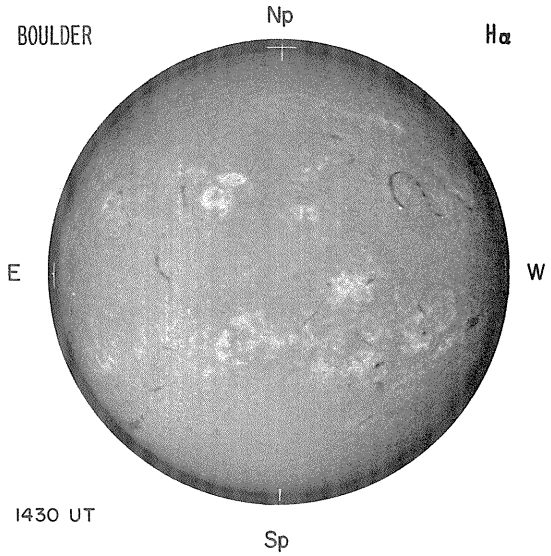
Levels
0 μT
± 50
± 100
± 200

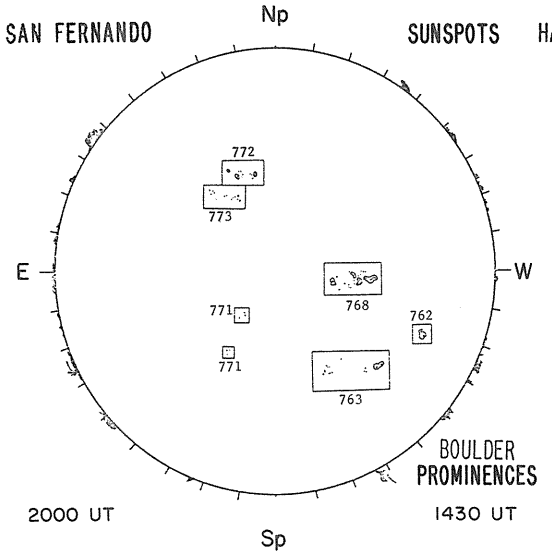
APRIL 15, 1980 (P=-26.07, $B_\odot$=-5.57, $L_\odot$=1.69)

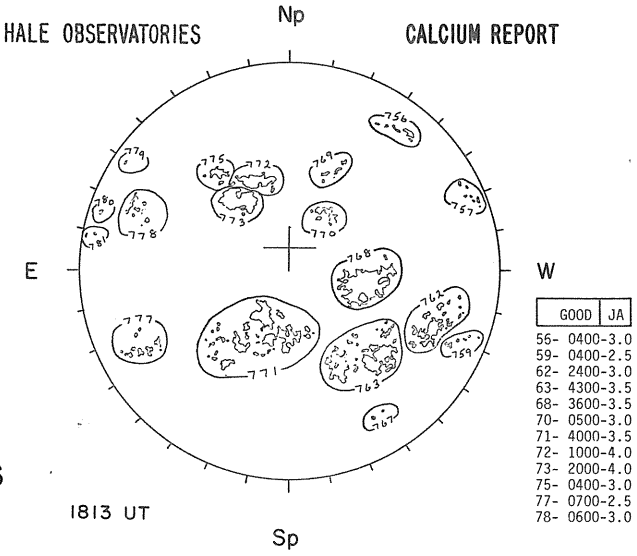


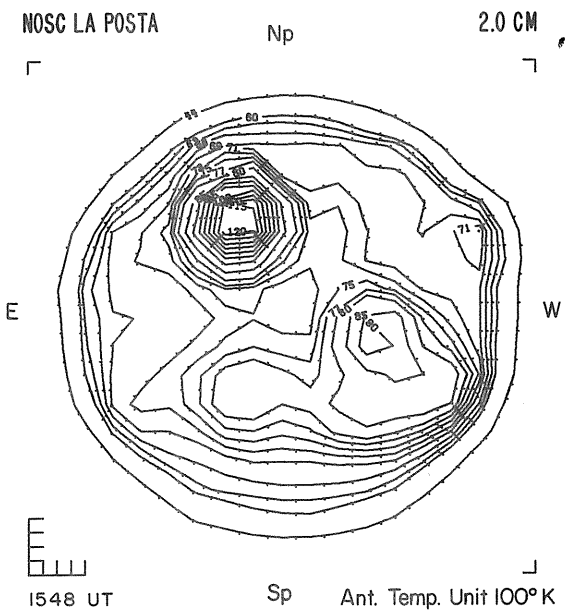


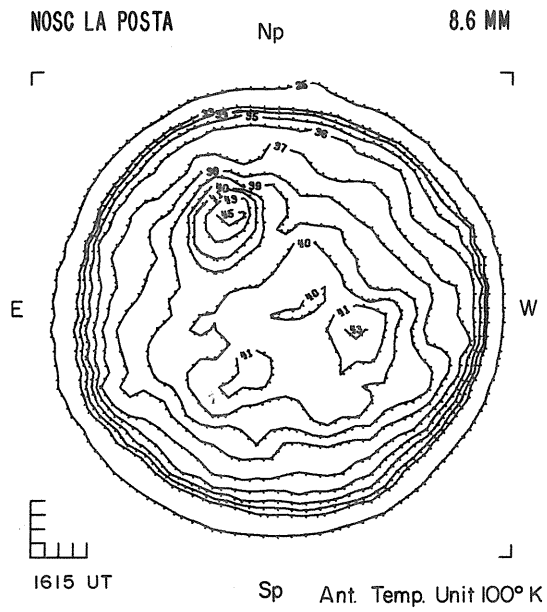


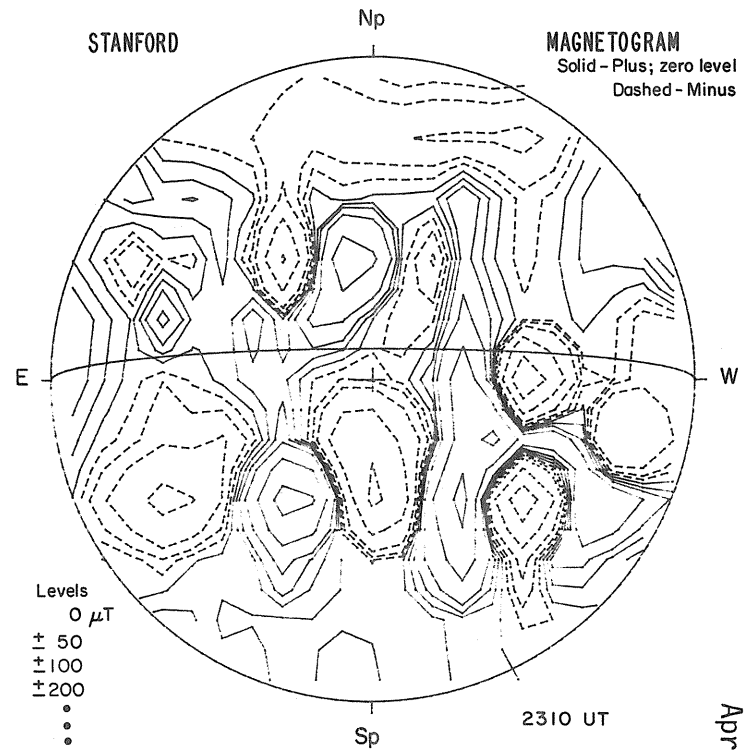

BOULDER
Np
Hα
E
W
1430 UT
Sp


SAN FERNANDO
Np
SUNSPOTS
E
W
772
773
768
762
771
771
763
BOULDER
PROMINENCES
2000 UT
Sp
1430 UT

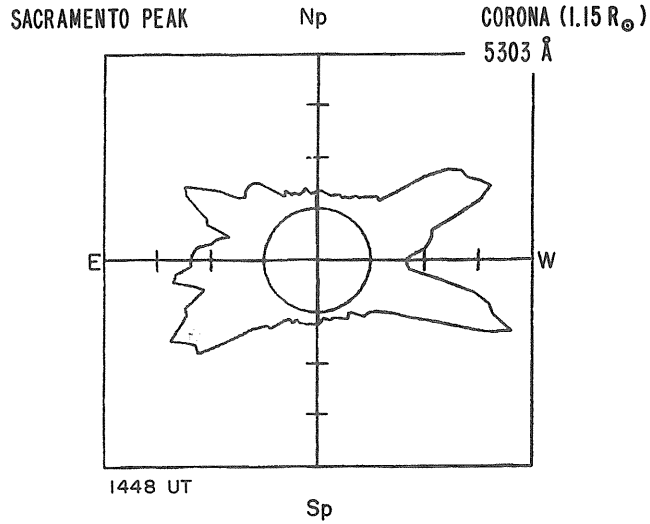

HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
1813 UT
Sp
GOOD | JA
56- 0400-3.0
59- 0400-2.5
62- 2400-3.0
63- 4300-3.5
68- 3600-3.5
70- 0500-3.0
71- 4000-3.5
72- 1000-4.0
73- 2000-4.0
75- 0400-3.0
77- 0700-2.5
78- 0600-3.0

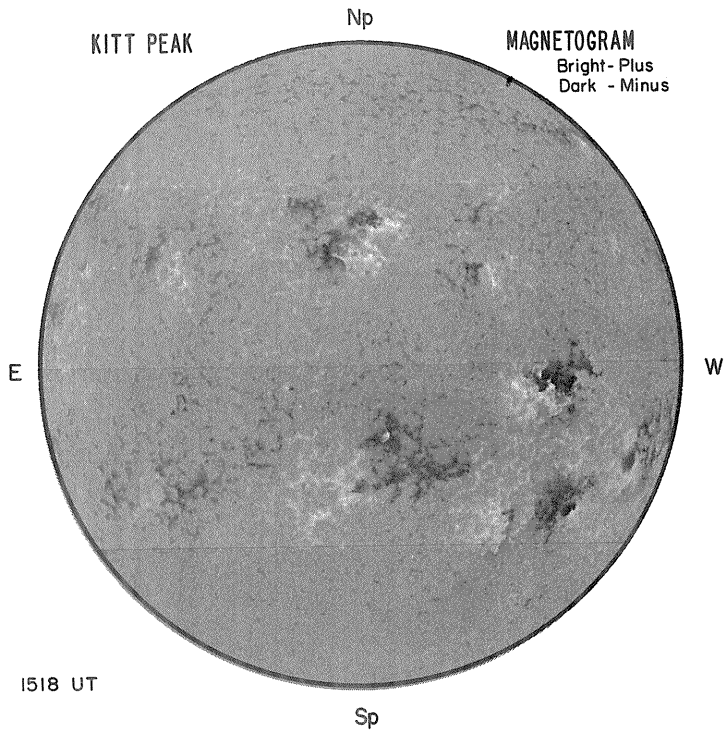

NOSC LA POSTA
Np
2.0 CM
E
W
1548 UT
Sp
Ant. Temp. Unit 100° K

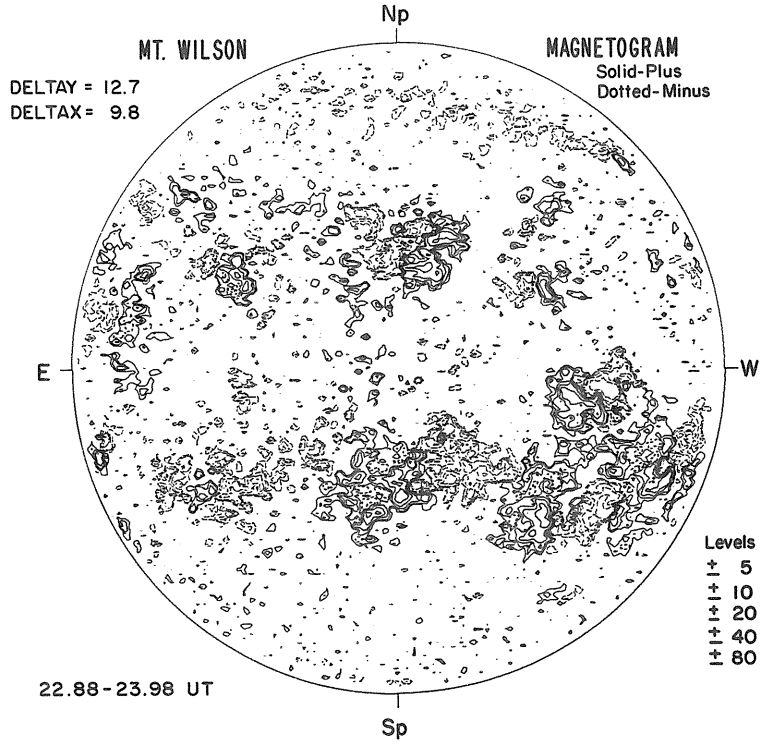

NOSC LA POSTA
Np
8.6 MM
E
W
1615 UT
Sp
Ant. Temp. Unit 100° K

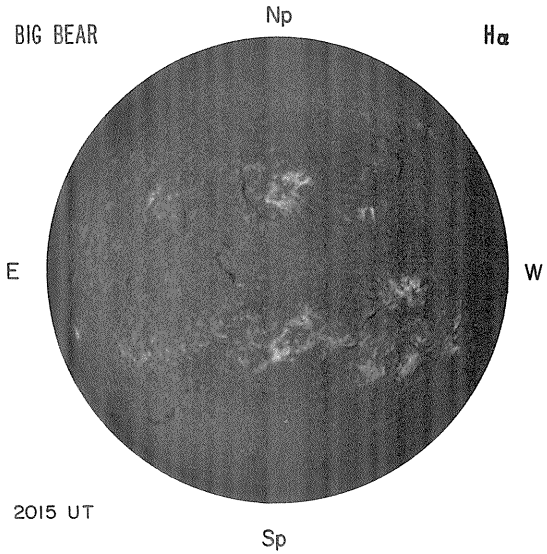

STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
± 100
± 200
Sp
2310 UT

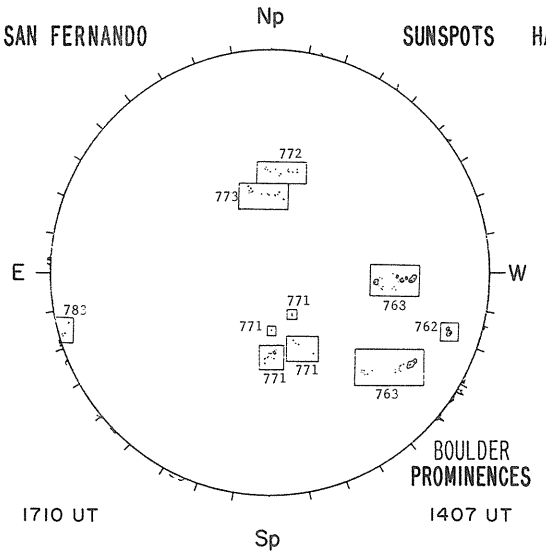
APRIL 16, 1980 ($P = -26.00$, $B_o = -5.49$, $L_o = 348.48$)

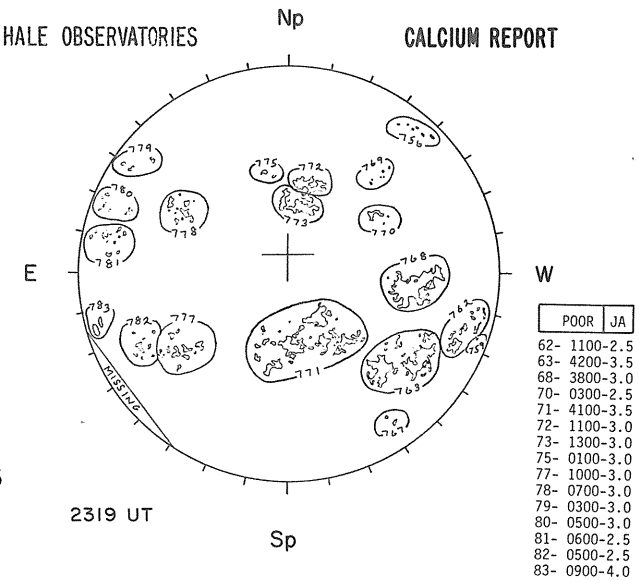


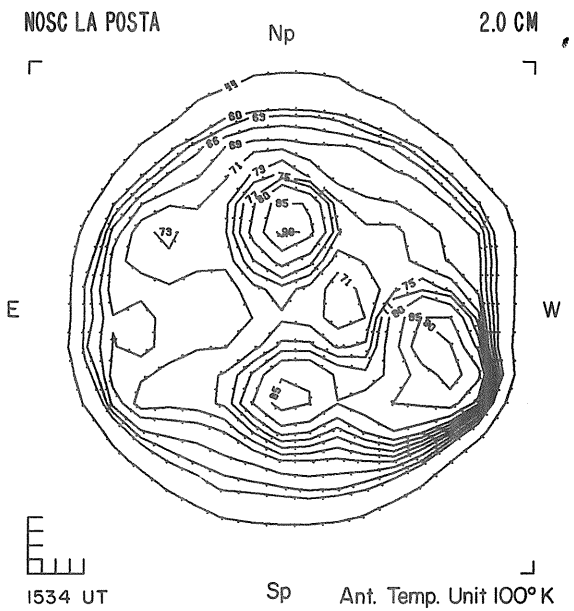


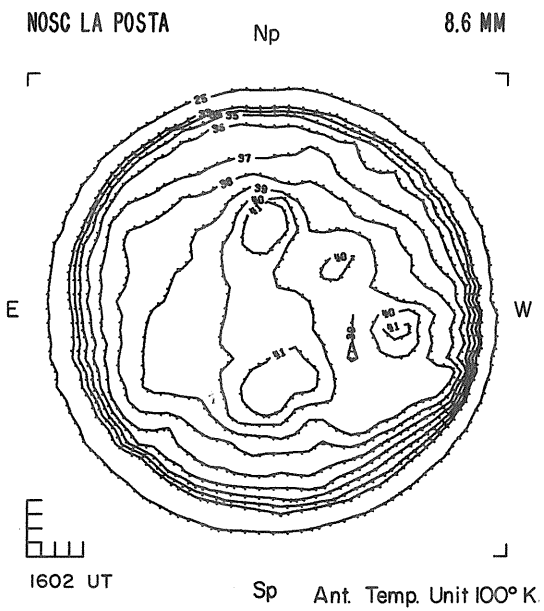


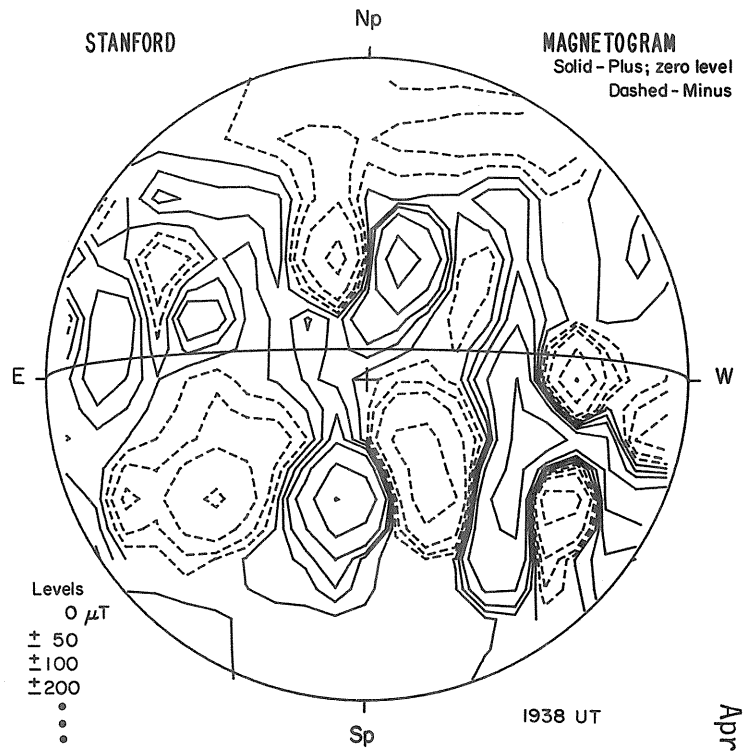

BIG BEAR
Np
Hα
E
W
2015 UT
Sp


SAN FERNANDO
Np
SUNSPOTS
E
W
772
773
771
771
771
771
783
763
762
763
BOULDER
PROMINENCES
1710 UT
1407 UT
Sp

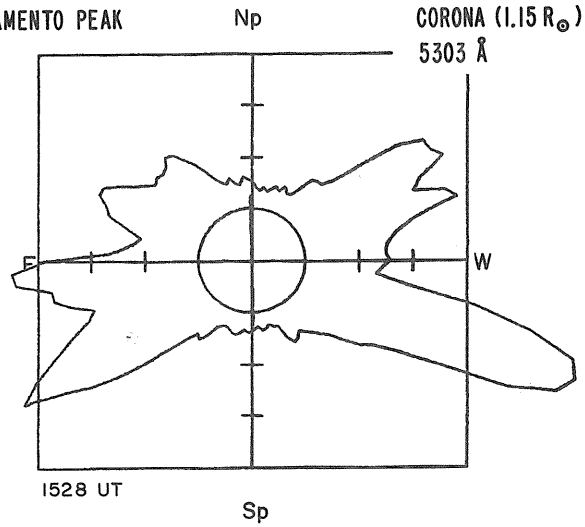

HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
MISSING
2319 UT
Sp
POOR JA
62- 1100-2.5
63- 4200-3.5
68- 3800-3.0
70- 0300-2.5
71- 4100-3.5
72- 1100-3.0
73- 1300-3.0
75- 0100-3.0
77- 1000-3.0
78- 0700-3.0
79- 0300-3.0
80- 0500-3.0
81- 0600-2.5
82- 0500-2.5
83- 0900-4.0

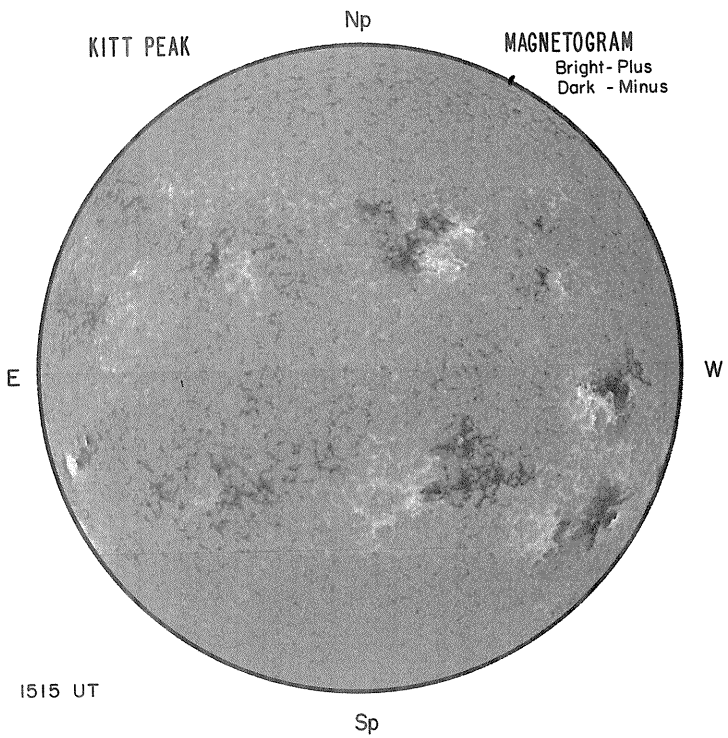

NOSC LA POSTA
Np
2.0 CM
E
W
1534 UT
Sp
Ant. Temp. Unit 100° K

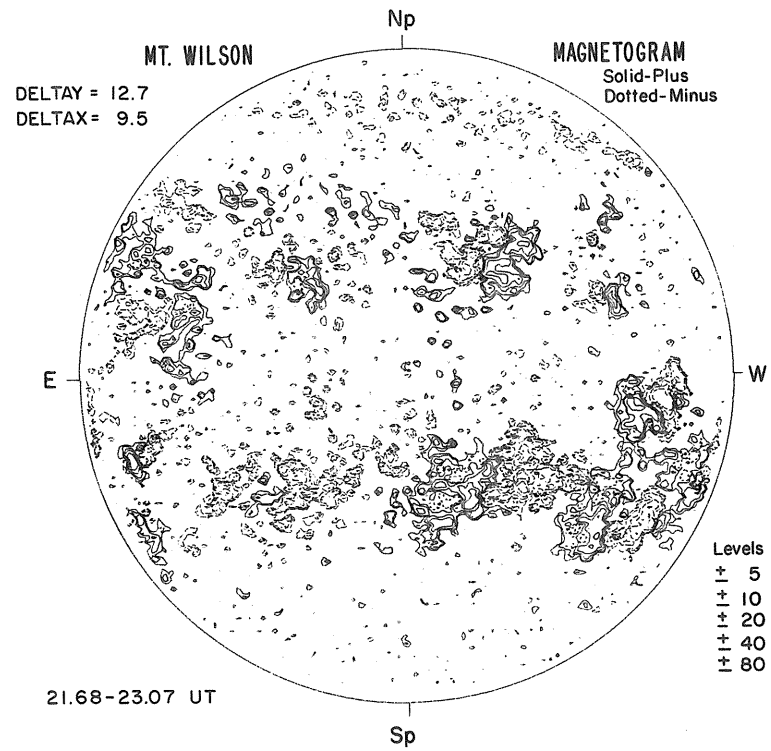

NOSC LA POSTA
Np
8.6 MM
E
W
1602 UT
Sp
Ant. Temp. Unit 100° K


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
± 100
± 200
Sp
1938 UT

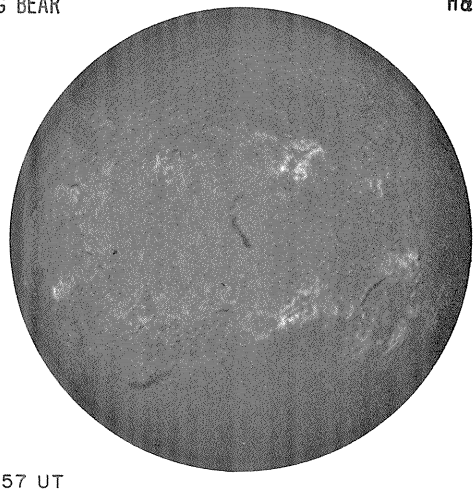
APRIL 17, 1980 (P =-25.93, B_o =-5.41, L_o = 335.28)





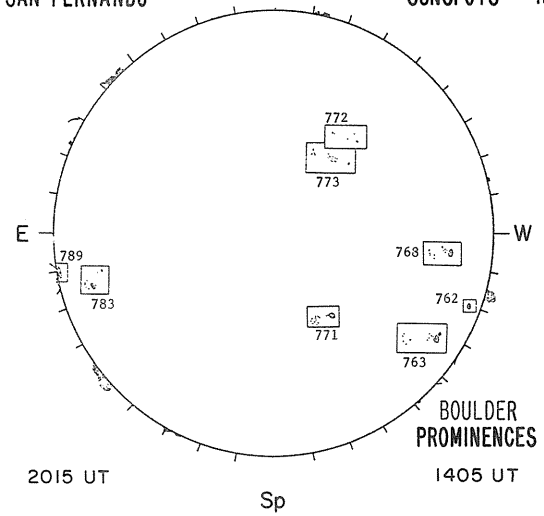


BIG BEAR Hα



2057 UT

SAN FERNANDO SUNSPOTS

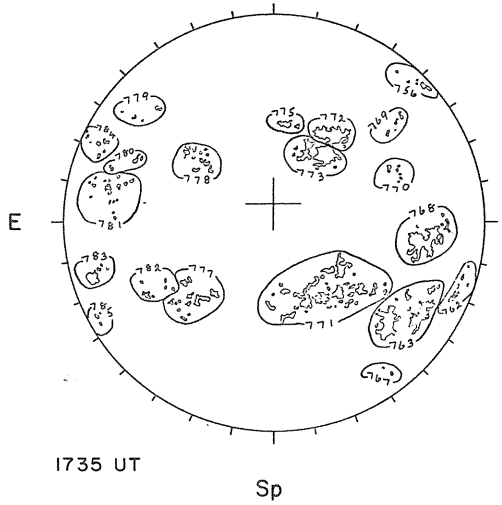


2015 UT

BOULDER PROMINENCES

1405 UT

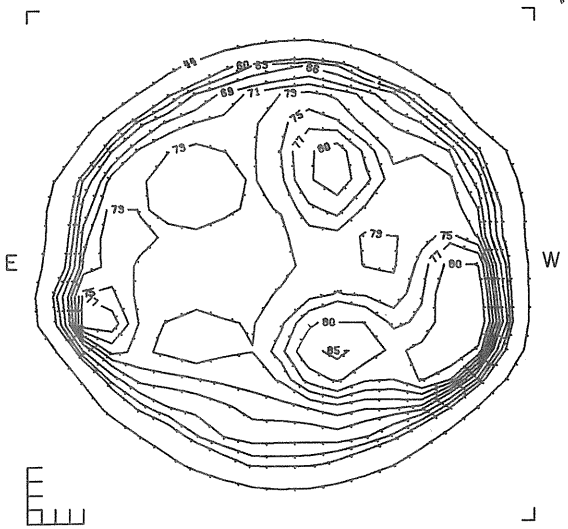
HALE OBSERVATORIES CALCIUM REPORT



1735 UT

FAIR	JA
56-	0400-2.5
62-	0500-2.5
63-	3300-3.5
68-	3100-3.0
70-	0300-2.5
71-	3900-3.5
72-	1400-3.5
73-	1500-3.5
75-	0300-3.0
77-	1100-3.0
78-	0800-3.0
81-	1000-2.5
82-	0300-2.5
83-	0900-4.0
84-	0400-2.5

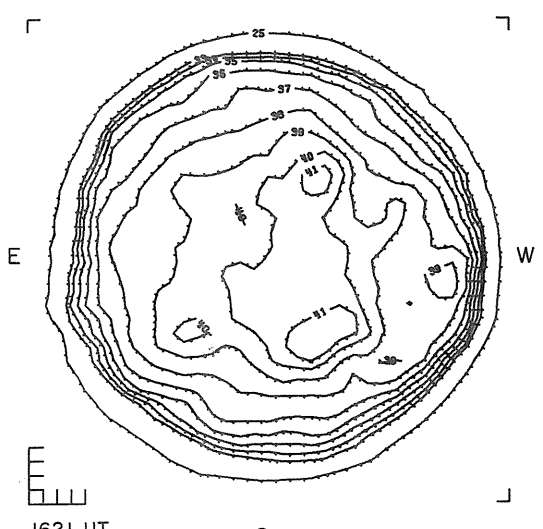
NOSC LA POSTA 2.0 CM



1552 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

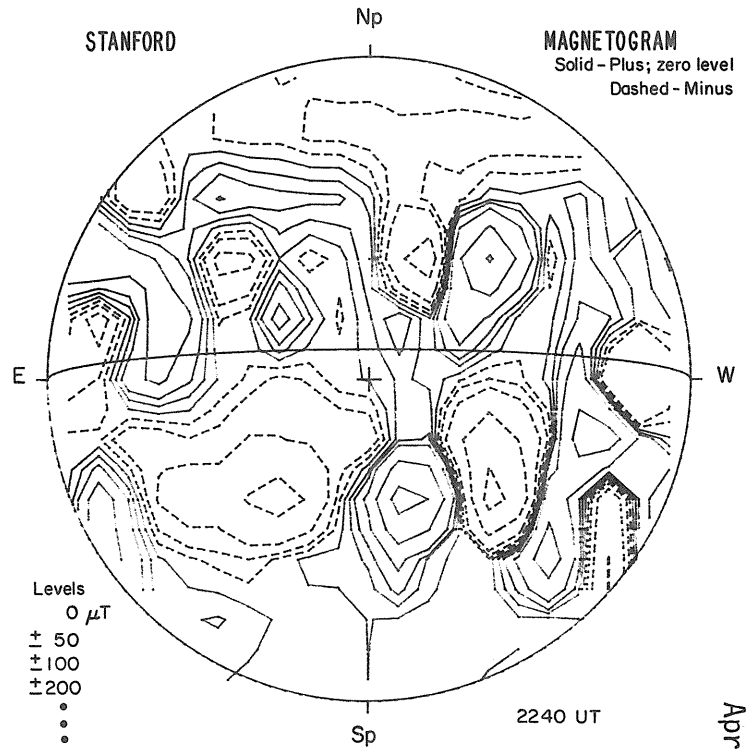


1621 UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

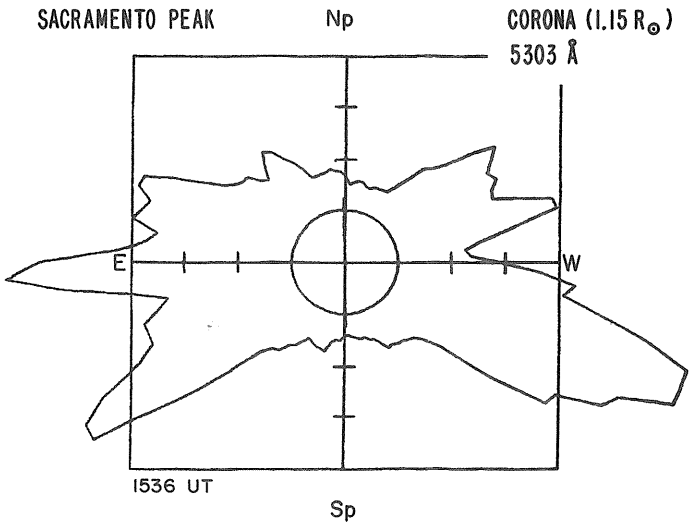


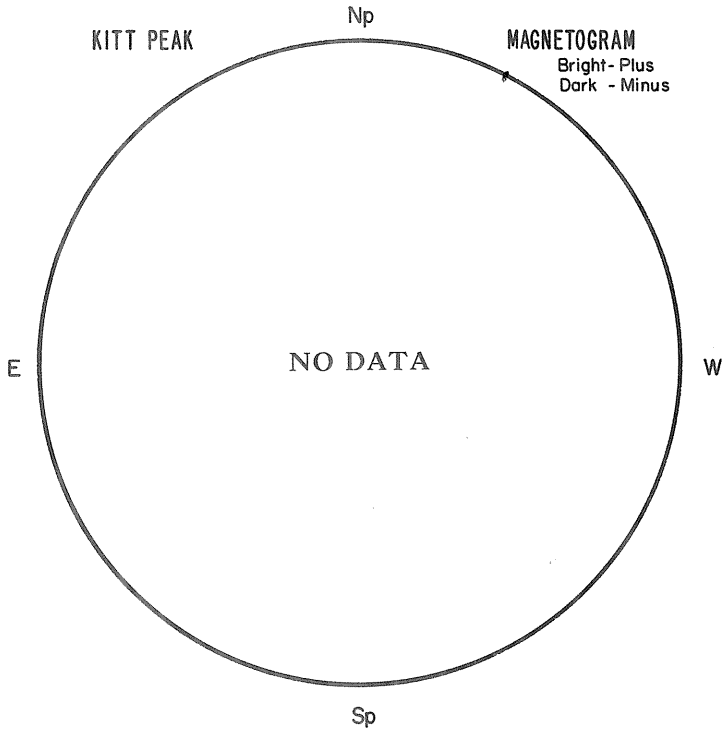
Levels
0 μT
± 50
± 100
± 200
•
•
•

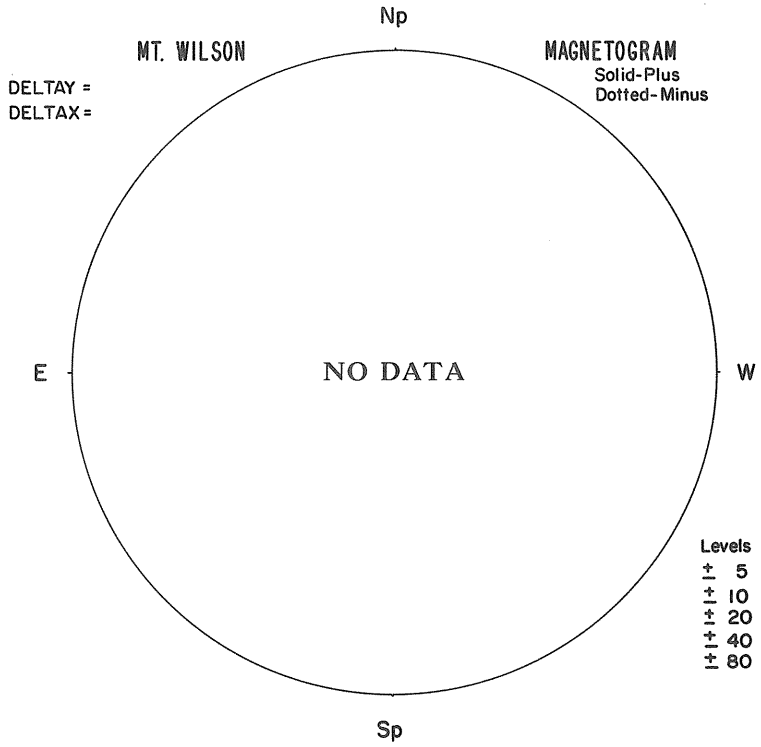
2240 UT

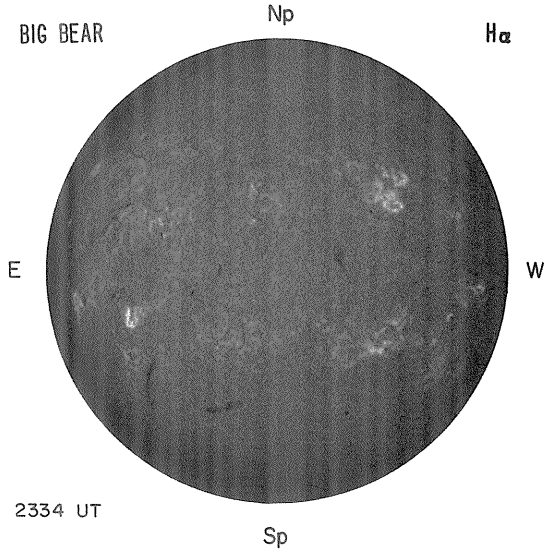
85
Apr 80

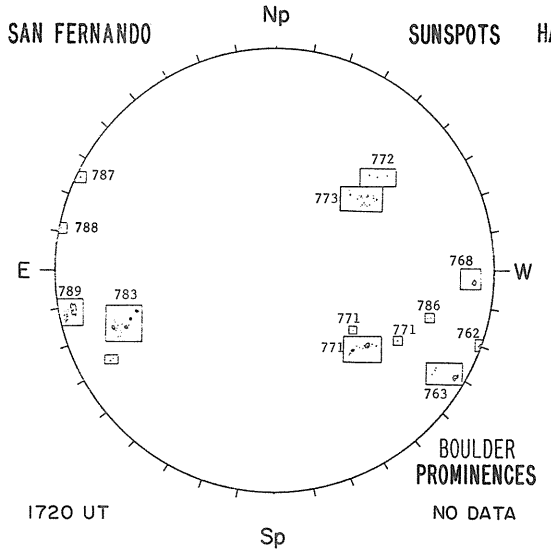
APRIL 18, 1980 (P =-25.85, B_o =-5.33, L_o = 322.07)

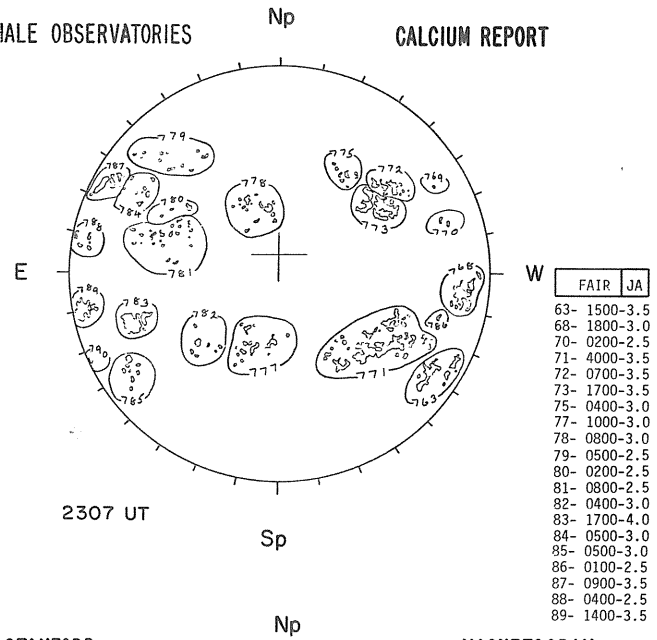


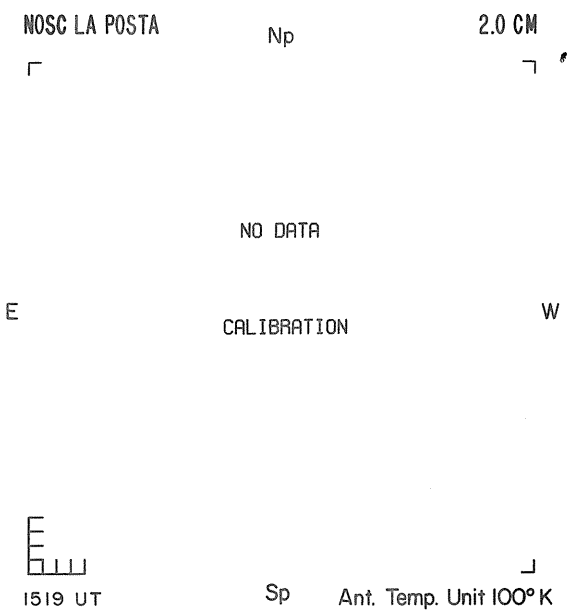


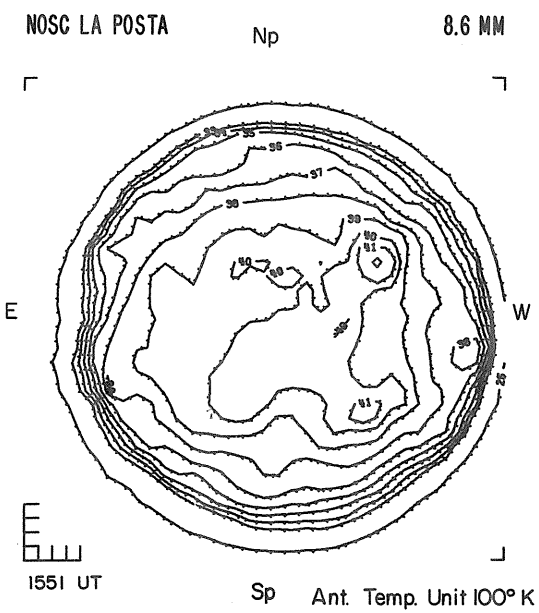


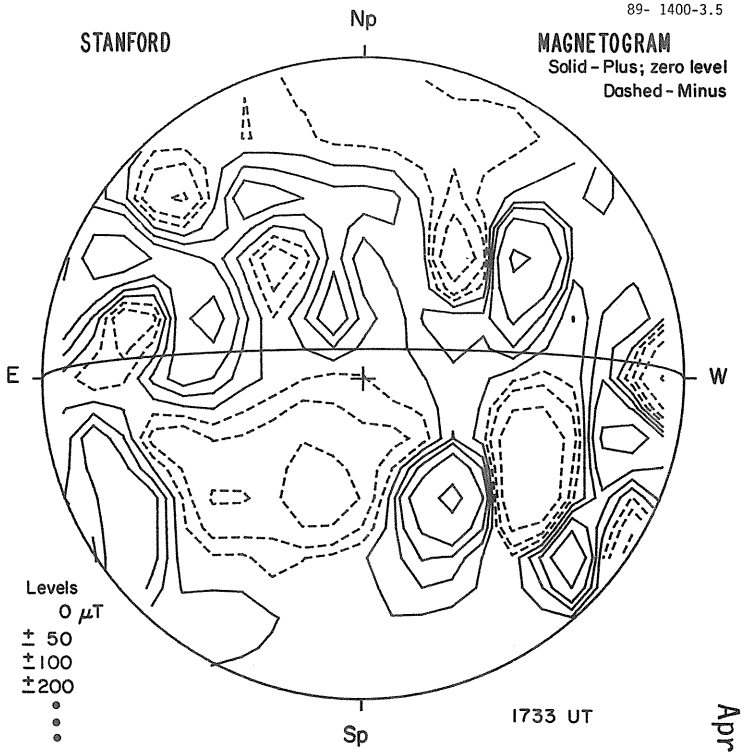

BIG BEAR
Np
Hα
E
W
2334 UT
Sp


SAN FERNANDO
Np
SUNSPOTS
E
W
787
788
789
783
772
773
768
786
771
771
771
762
763
BOULDER
PROMINENCES
NO DATA
1720 UT
Sp

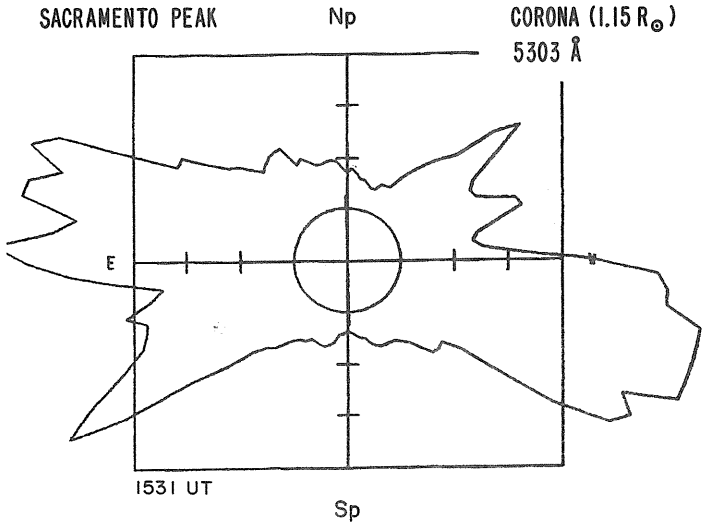

HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
2307 UT
Sp
FAIR JA
63- 1500-3.5
68- 1800-3.0
70- 0200-2.5
71- 4000-3.5
72- 0700-3.5
73- 1700-3.5
75- 0400-3.0
77- 1000-3.0
78- 0800-3.0
79- 0500-2.5
80- 0200-2.5
81- 0800-2.5
82- 0400-3.0
83- 1700-4.0
84- 0500-3.0
85- 0500-3.0
86- 0100-2.5
87- 0900-3.5
88- 0400-2.5
89- 1400-3.5

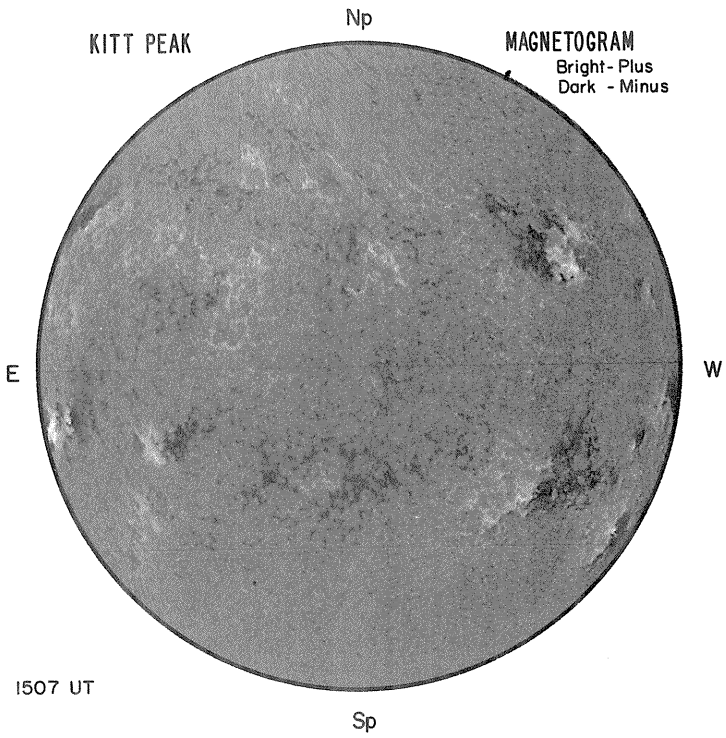

NOSC LA POSTA
Np
2.0 CM
NO DATA
E
CALIBRATION
W
1519 UT
Sp
Ant. Temp. Unit 100° K

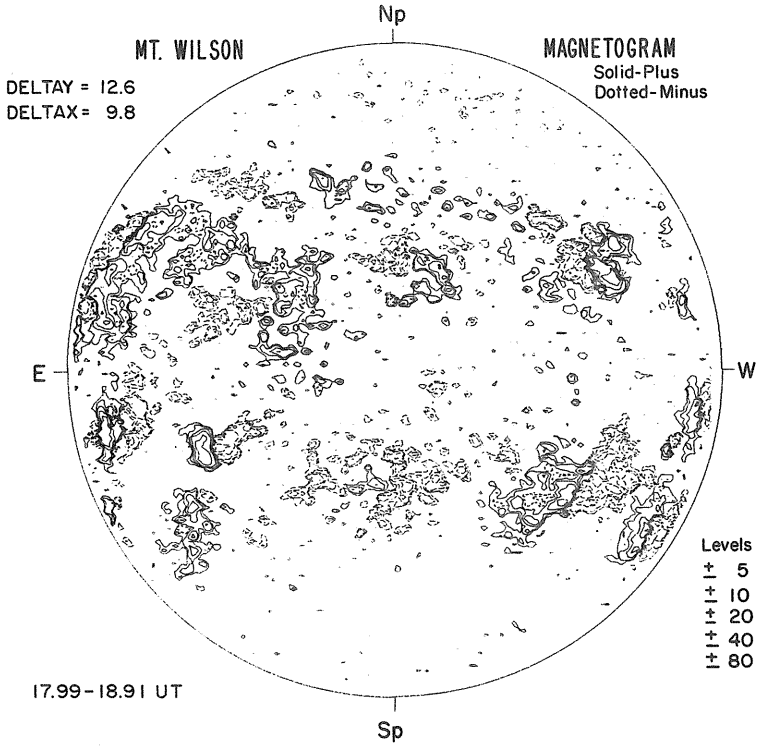

NOSC LA POSTA
Np
8.6 MM
E
W
1551 UT
Sp
Ant. Temp. Unit 100° K


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
1733 UT

APRIL 19, 1980 (P =-25.76, B_o =-5.24, L_o =308.86)

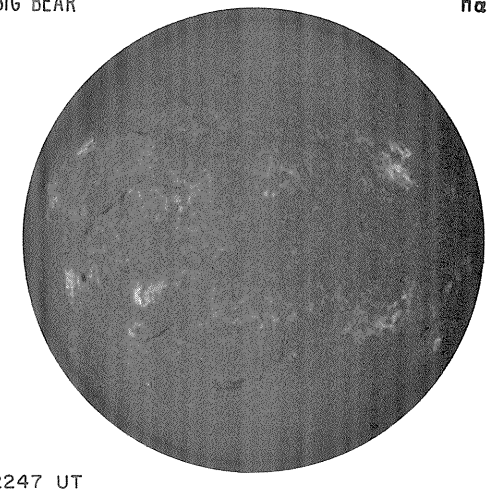






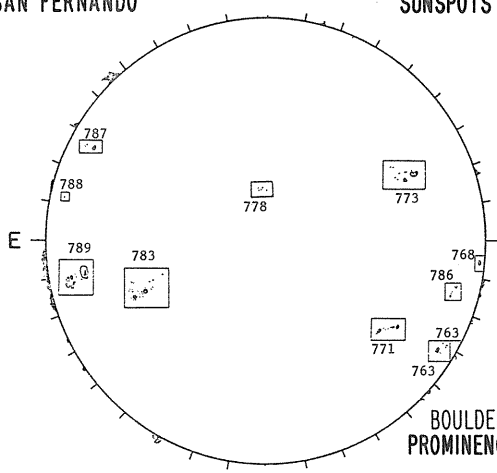
19

BIG BEAR — Hα



2247 UT

SAN FERNANDO — SUNSPOTS

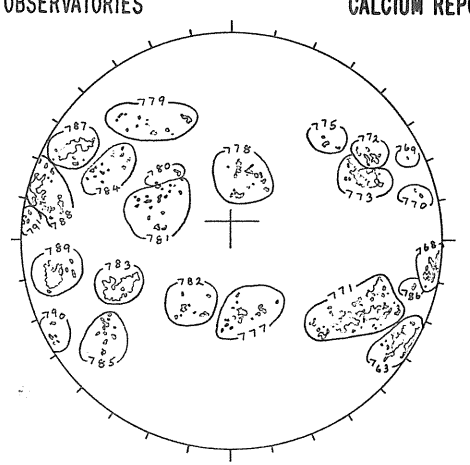


1640 UT

BOULDER PROMINENCES

1353 UT

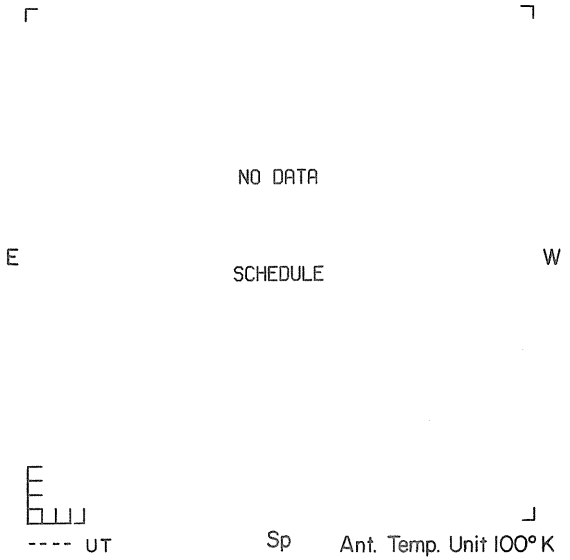
HALE OBSERVATORIES — CALCIUM REPORT



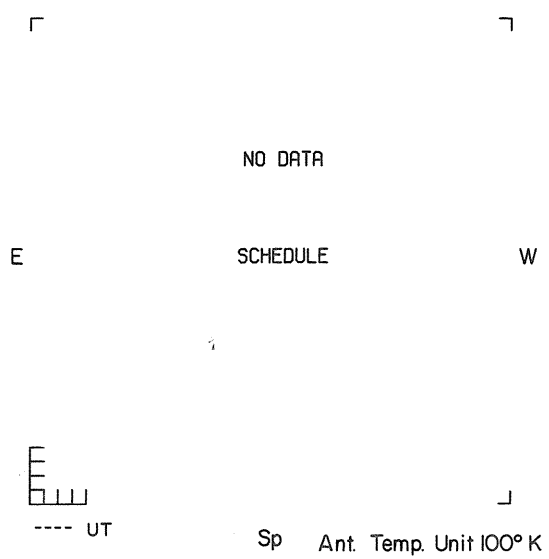
1844 UT

FAIR	JA
63-	1200-3.0
68-	0900-3.0
71-	3600-3.5
72-	0700-3.0
73-	1700-3.0
75-	0200-2.5
77-	0900-3.0
78-	0800-3.0
79-	0600-2.5
80-	0200-2.5
81-	0700-3.0
82-	0400-3.0
83-	2200-4.0
84-	0500-2.5
85-	0500-3.0
86-	0100-3.0
87-	1400-4.0
88-	1500-3.5
89-	2300-4.0
90-	0300-3.0
91-	0300-3.0

NOSC LA POSTA — 2.0 CM

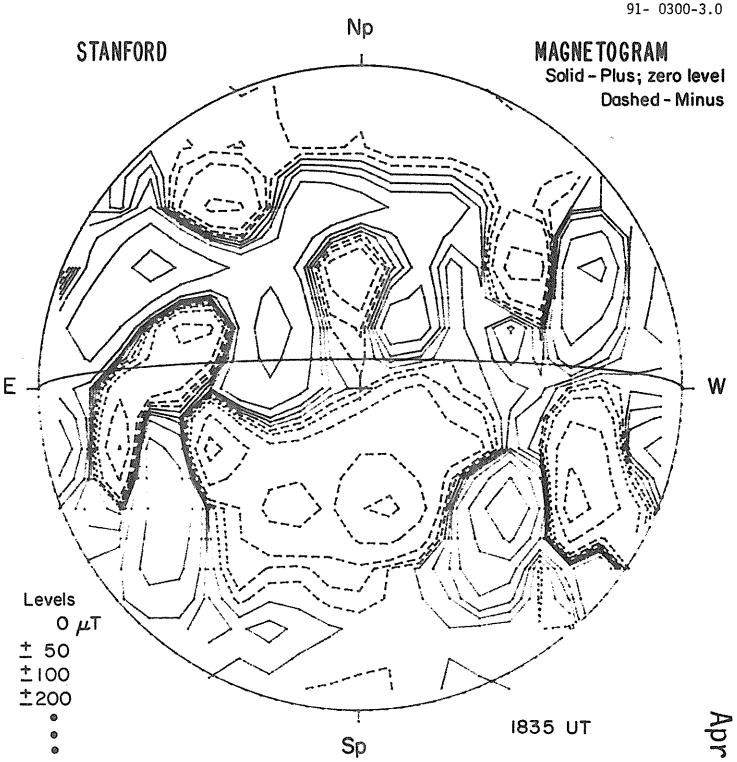


NOSC LA POSTA — 8.6 MM



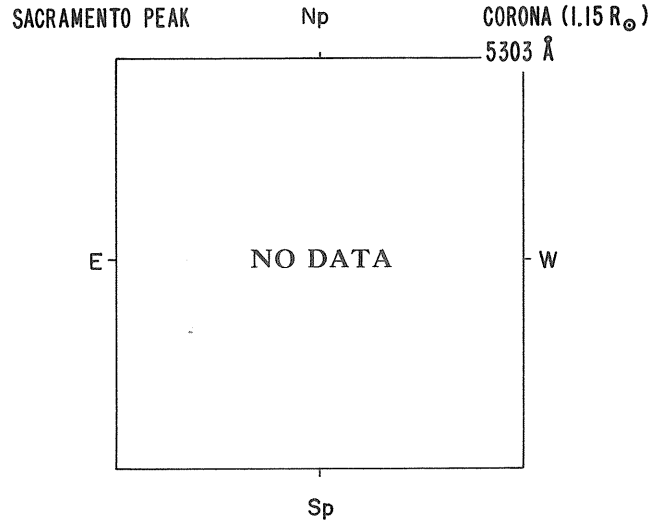
STANFORD — MAGNETOGRAM

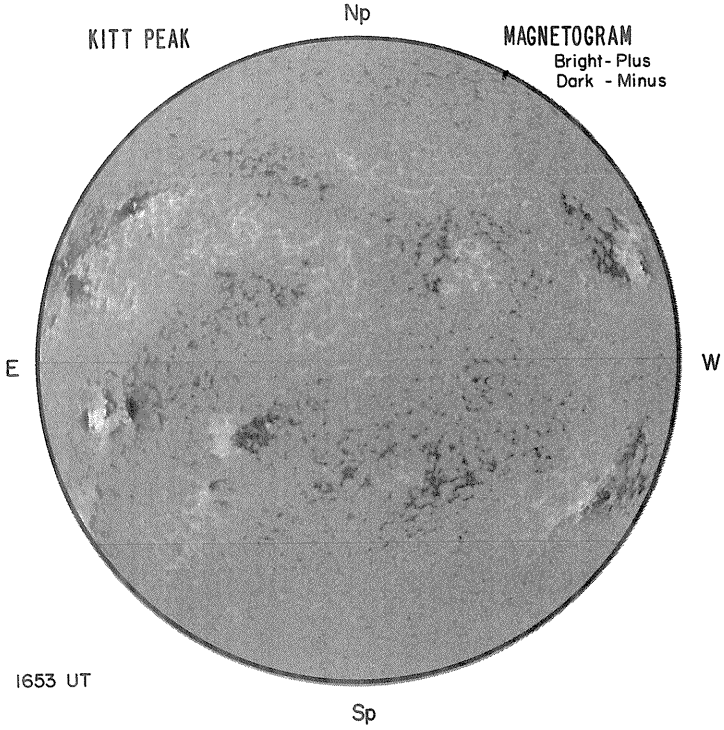
Solid - Plus; zero level
Dashed - Minus

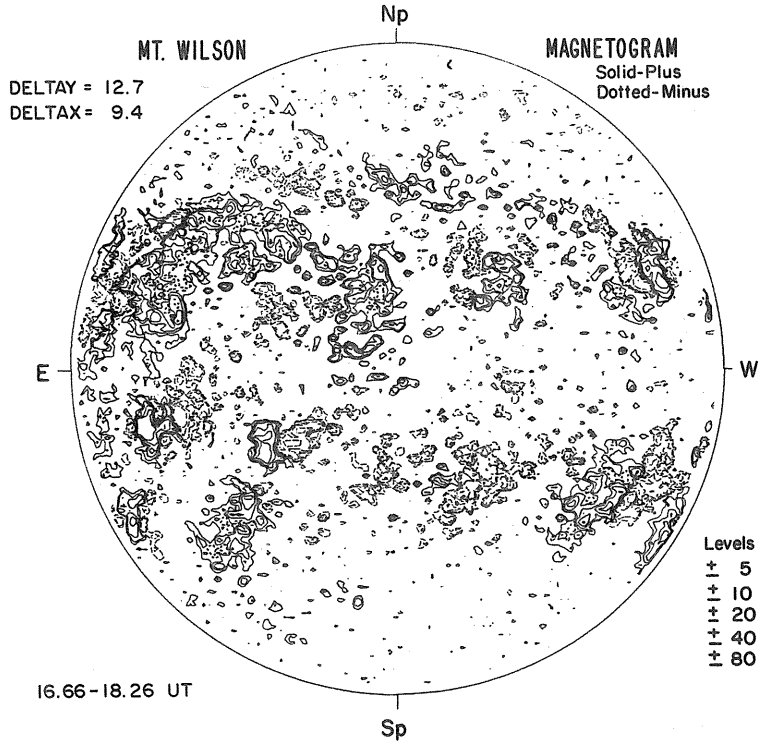


1835 UT

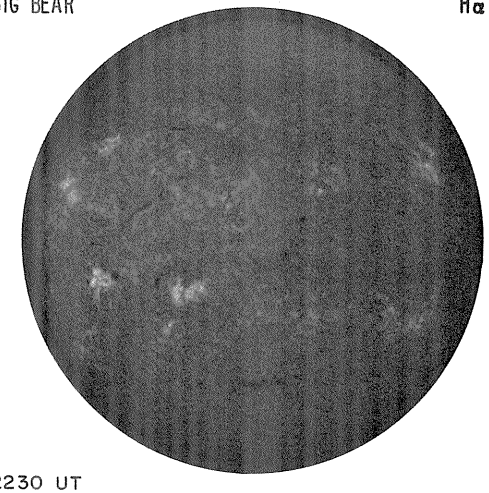
APRIL 20, 1980 (P=-25.67, B_o=-5.16, L_o=295.66)





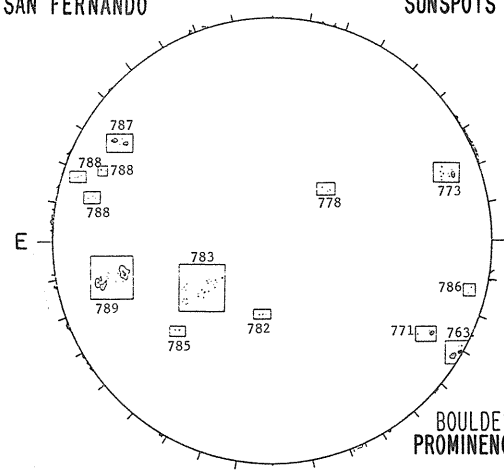


BIG BEAR Hα



2230 UT

SAN FERNANDO SUNSPOTS

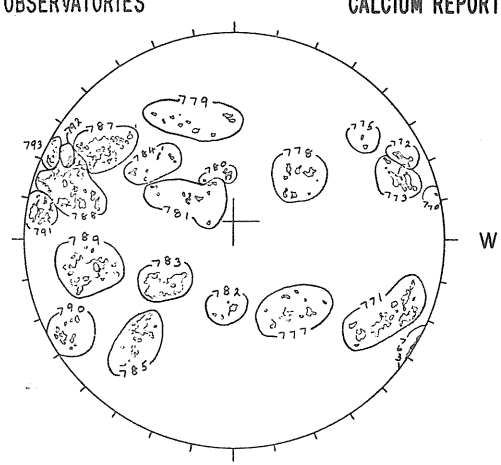


1700 UT

BOULDER PROMINENCES

1535 UT

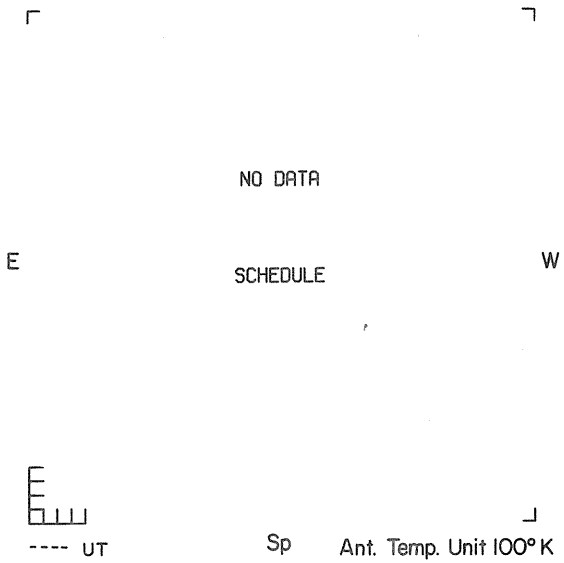
HALE OBSERVATORIES CALCIUM REPORT



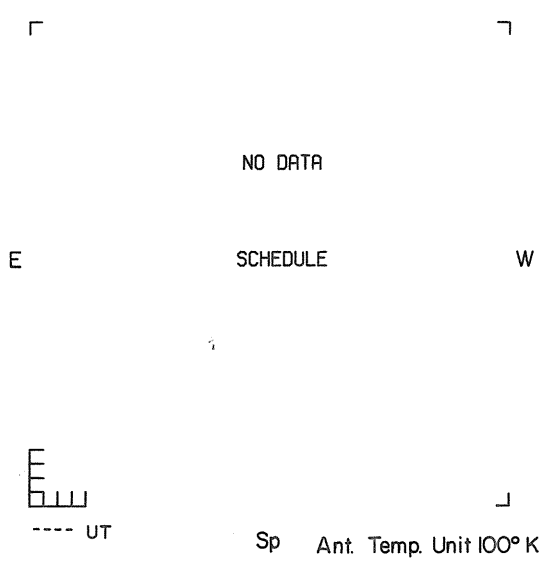
1921 UT

FAIR	JA
63-	0300-2.5
70-	0100-3.0
71-	2600-2.5
72-	0300-2.5
75-	0100-2.5
78-	0600-2.5
79-	0500-2.5
80-	0300-2.5
82-	0200-3.0
83-	1800-3.5
84-	0400-2.5
85-	1100-3.0
87-	1700-3.5
88-	4000-3.5
89-	3000-3.5
90-	0800-3.0
91-	1100-3.0
92-	0300-3.5
93-	0700-3.0

NOSC LA POSTA 2.0 CM

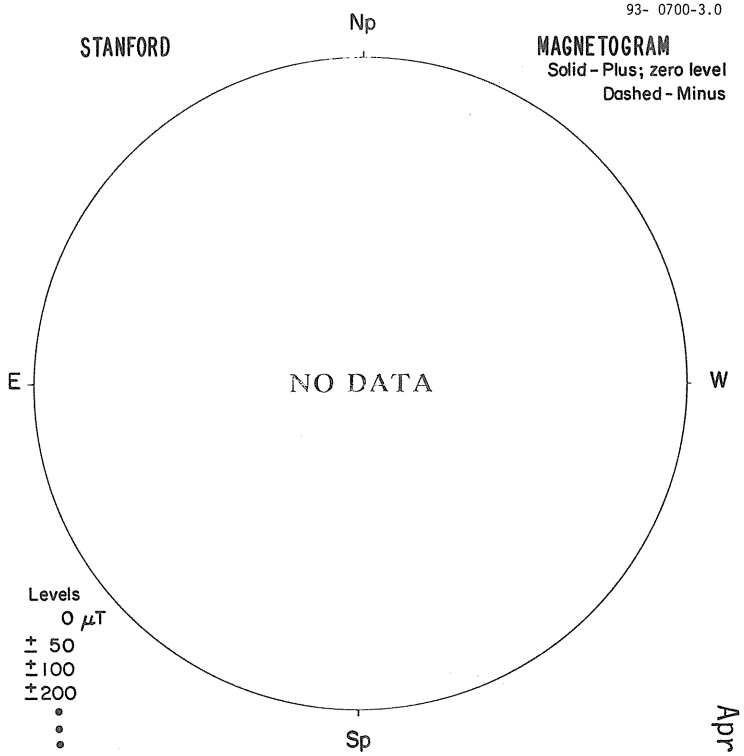


NOSC LA POSTA 8.6 MM



STANFORD

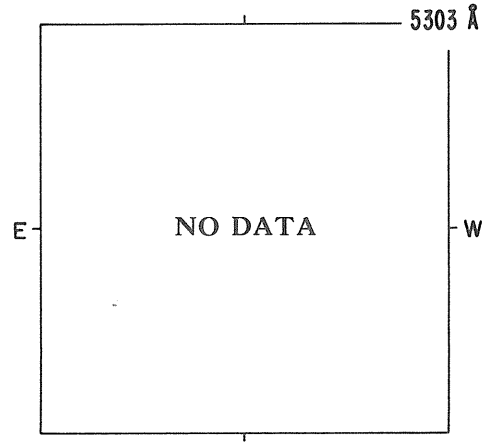
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



APRIL 21, 1980 (P = -25.57, $B_\odot$ = -5.07, $L_\odot$ = 282.45)

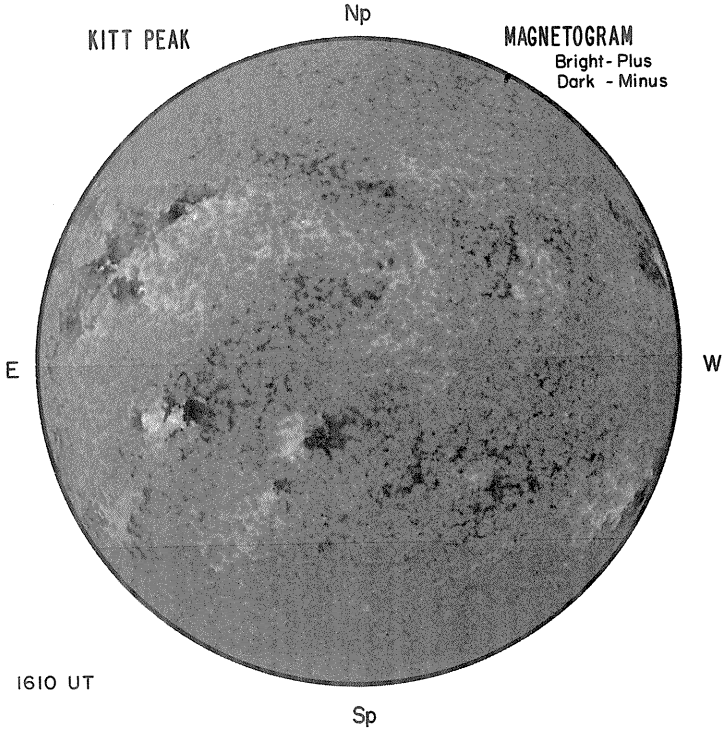
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

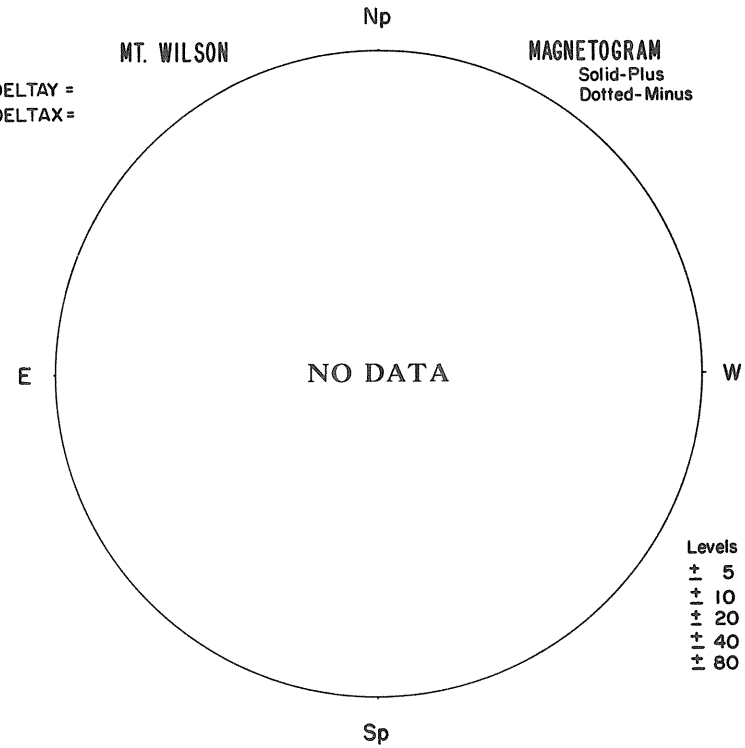


1610 UT

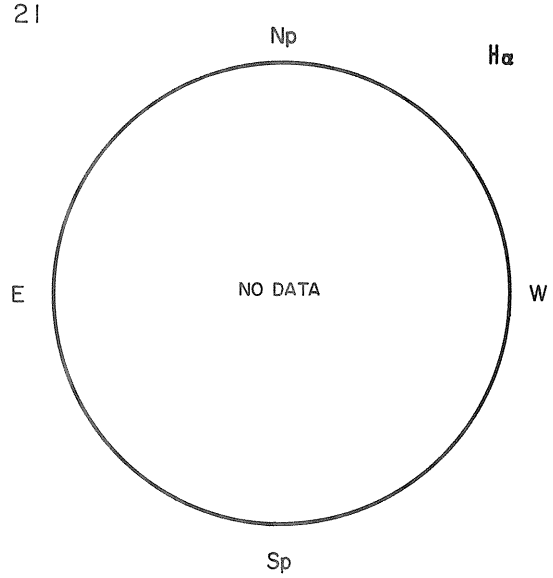
MT. WILSON

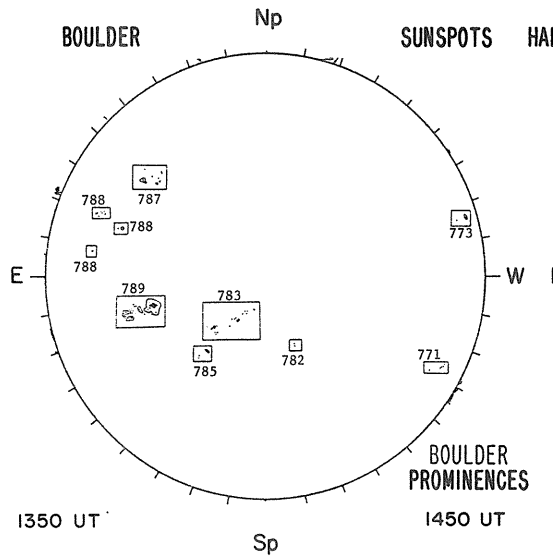
DELTAY =
DELTAX =

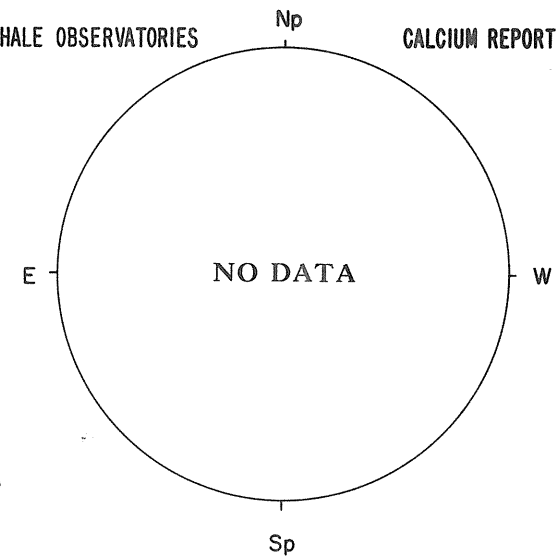
MAGNETOGRAM
Solid-Plus
Dotted-Minus

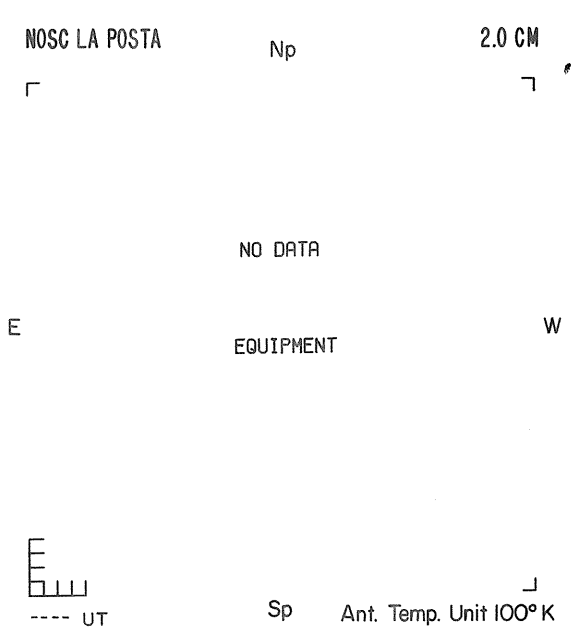


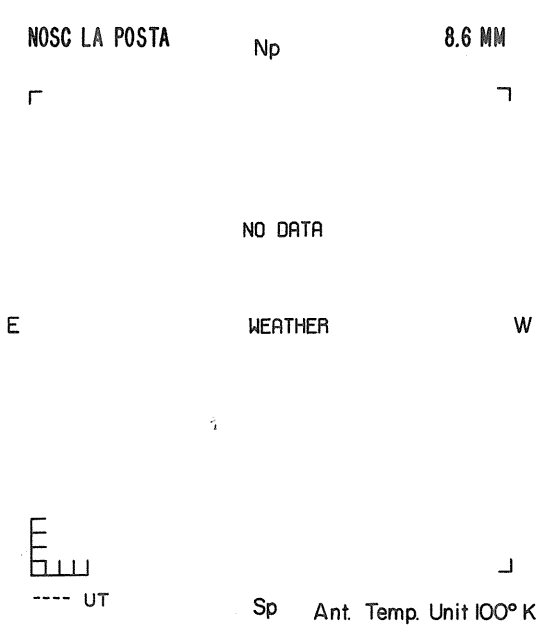
Levels
± 5
± 10
± 20
± 40
± 80

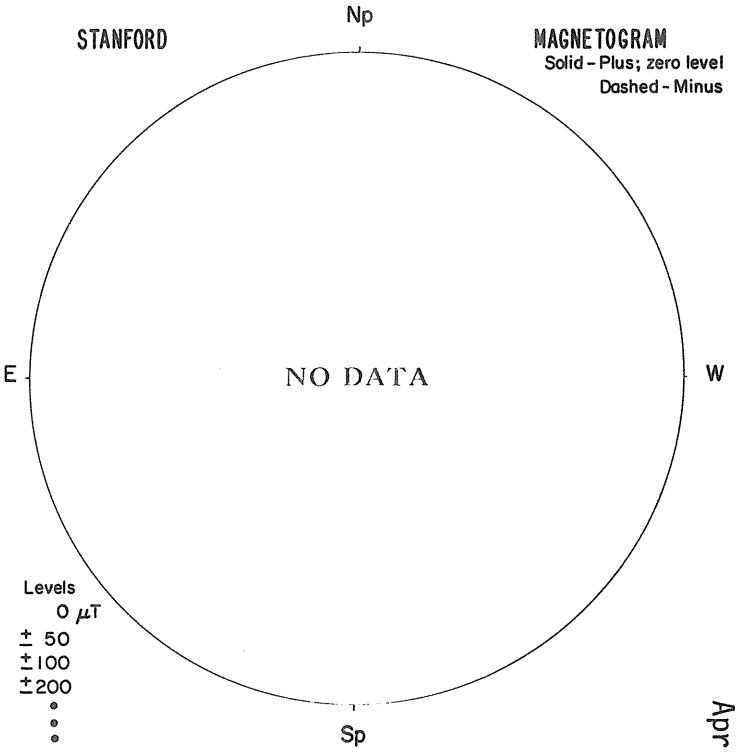

Np
Hα
E
NO DATA
W
Sp


BOULDER
Np
SUNSPOTS
788
787
788
788
773
E
W
789
783
785
782
771
BOULDER
PROMINENCES
1350 UT
1450 UT
Sp

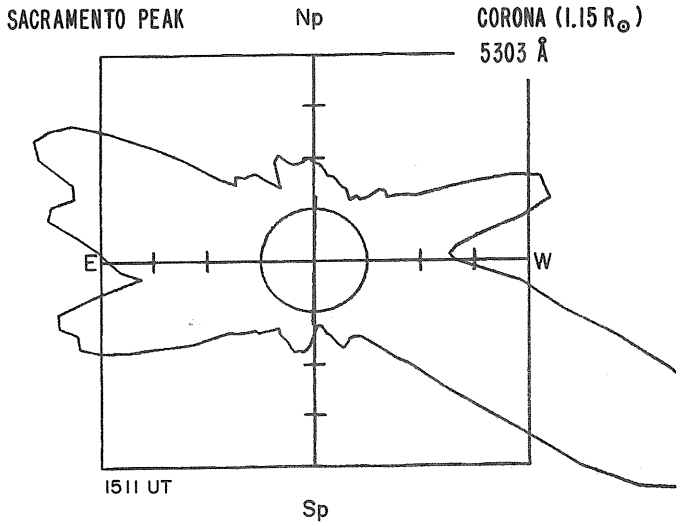

HALE OBSERVATORIES
Np
CALCIUM REPORT
E
NO DATA
W
Sp

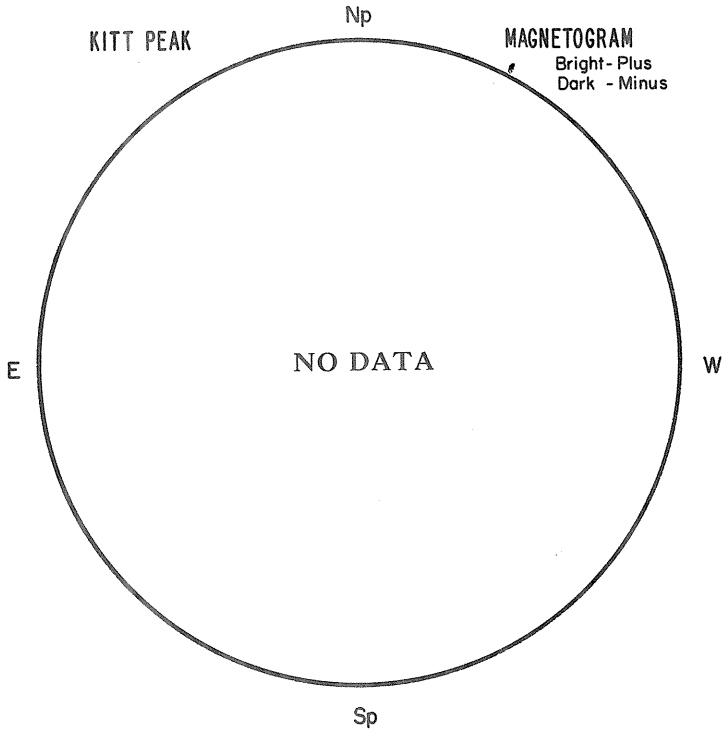

NOSC LA POSTA
Np
2.0 CM
NO DATA
E
EQUIPMENT
W
---- UT
Sp
Ant. Temp. Unit 100° K

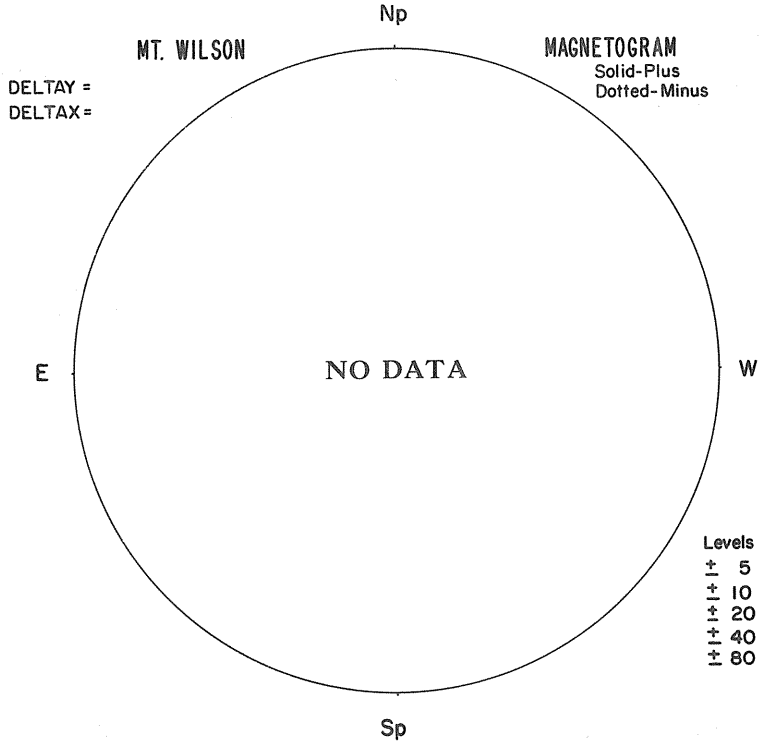

NOSC LA POSTA
Np
8.6 MM
NO DATA
E
WEATHER
W
---- UT
Sp
Ant. Temp. Unit 100° K

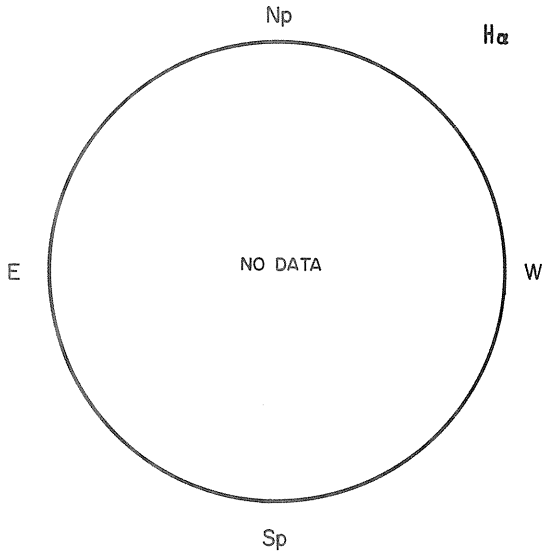

STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
NO DATA
W
Levels
0 μT
± 50
±100
±200
Sp

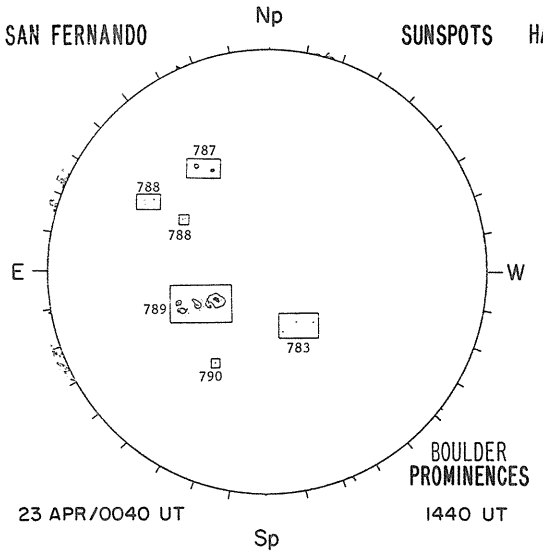
APRIL 22, 1980 (P=-25.46, B_o=-4.98, L_o=269.24)

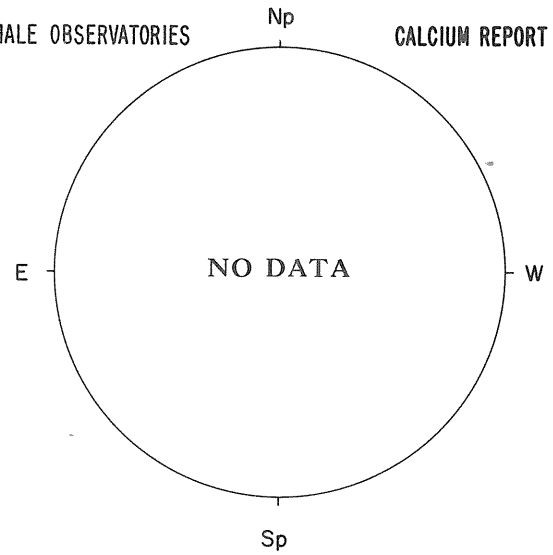


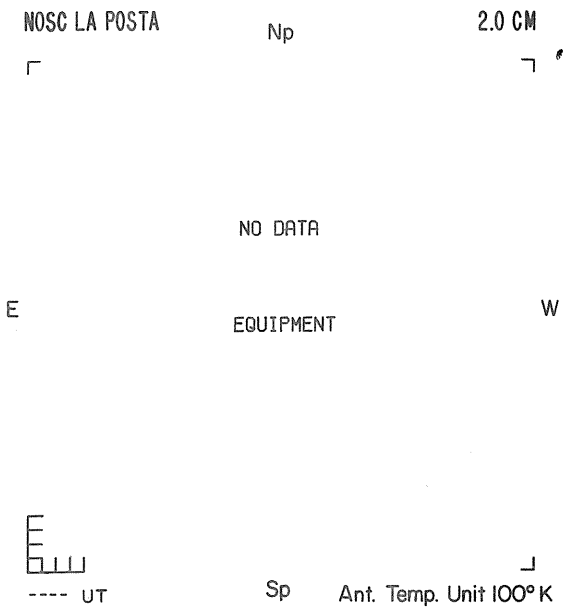


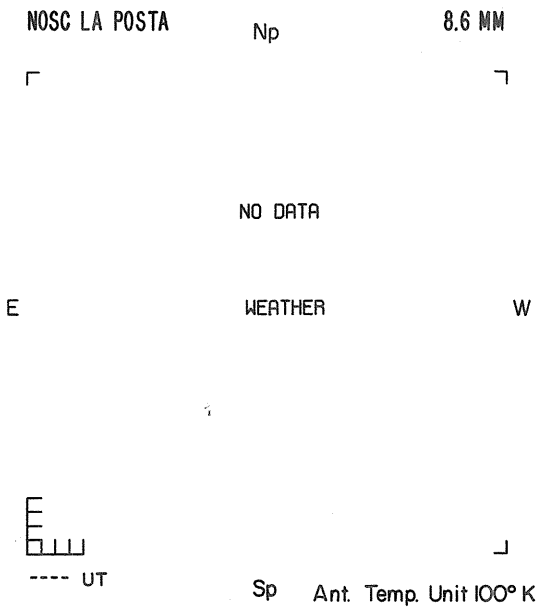


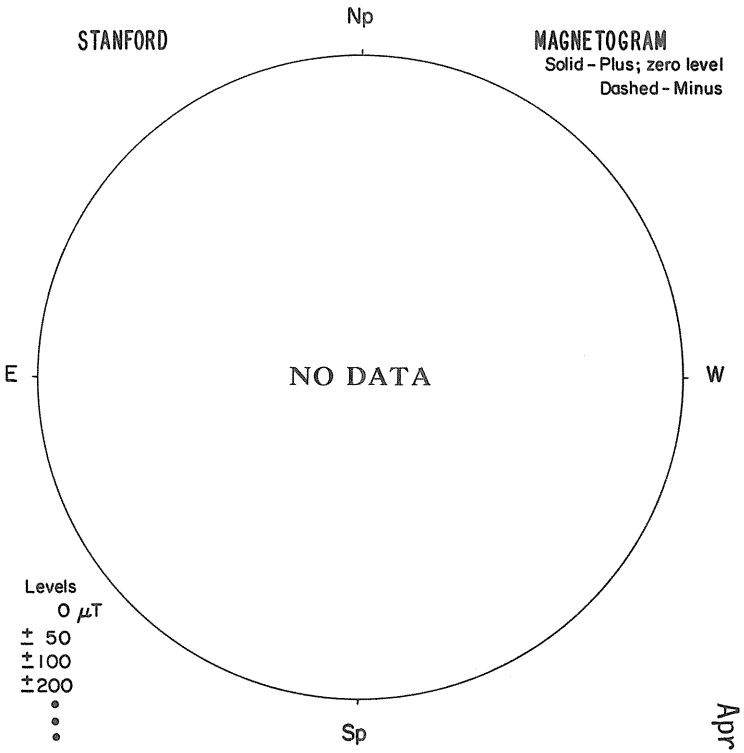

Np
Hα
E
NO DATA
W
Sp


SAN FERNANDO
Np
SUNSPOTS
787
788
788
789
783
790
E
W
BOULDER
PROMINENCES
23 APR/0040 UT
1440 UT
Sp

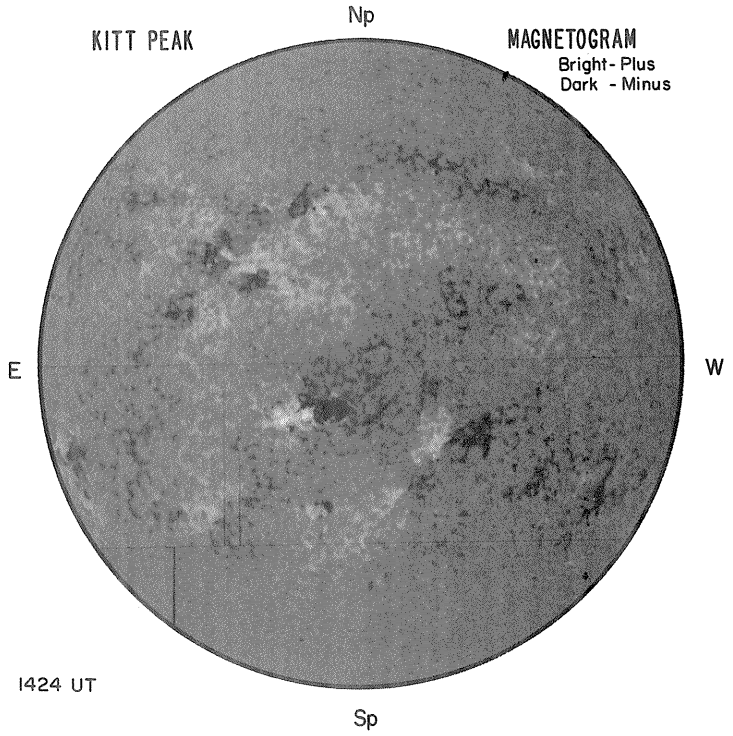

HALE OBSERVATORIES
Np
CALCIUM REPORT
E
NO DATA
W
Sp

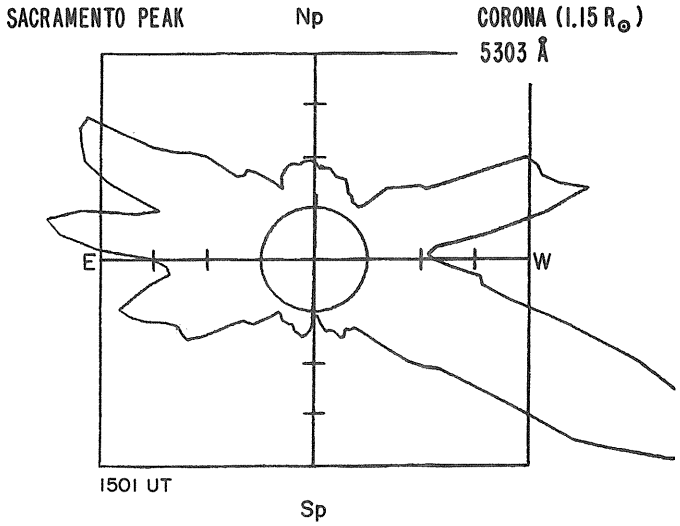

NOSC LA POSTA
Np
2.0 CM
NO DATA
E
EQUIPMENT
W
---- UT
Sp
Ant. Temp. Unit 100° K

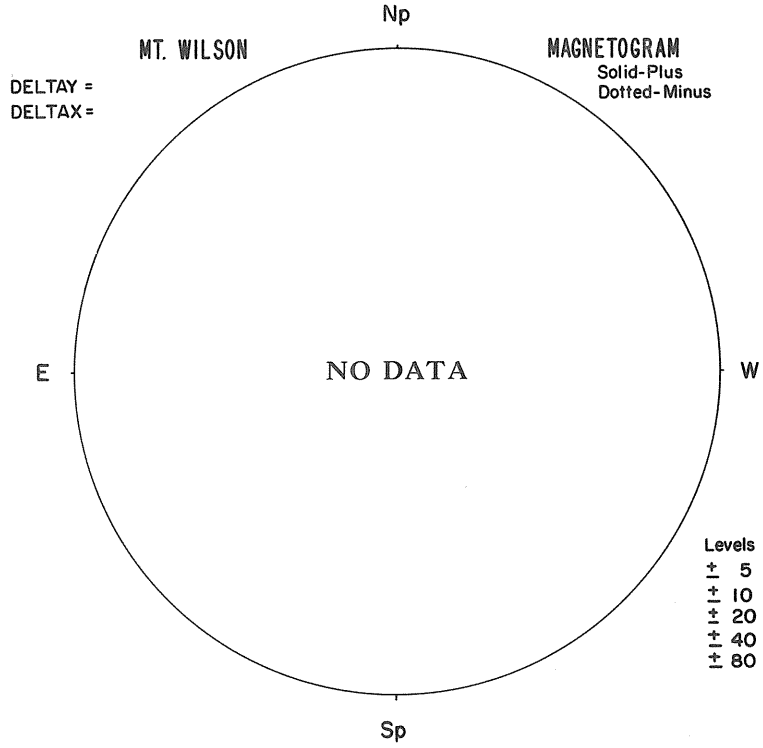

NOSC LA POSTA
Np
8.6 MM
NO DATA
E
WEATHER
W
---- UT
Sp
Ant. Temp. Unit 100° K

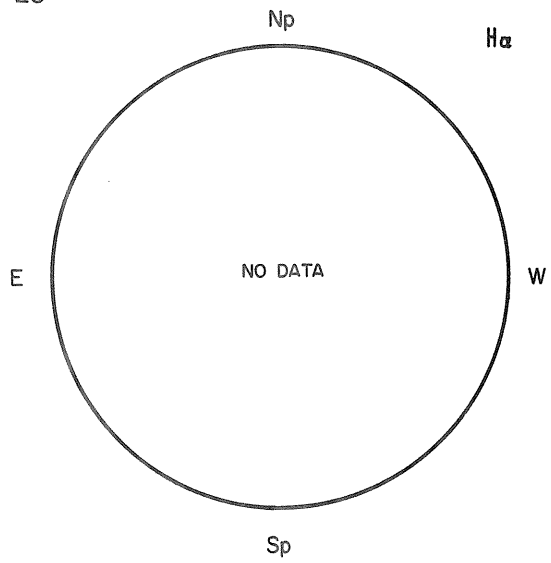

STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
NO DATA
W
Levels
0 μT
± 50
±100
±200
Sp

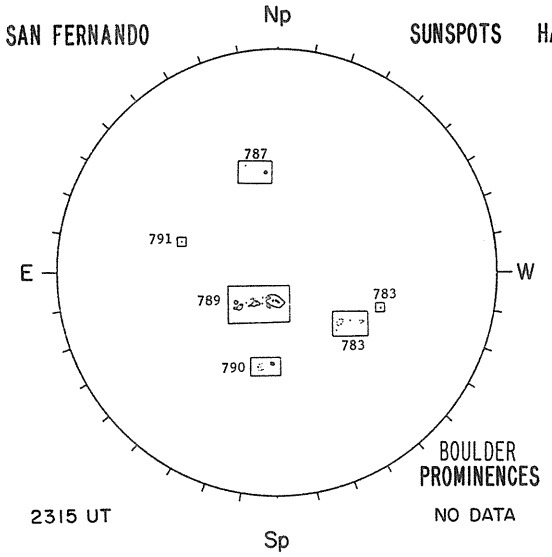
APRIL 23, 1980 (P =-25.34, B_o =-4.89, L_o =256.03)

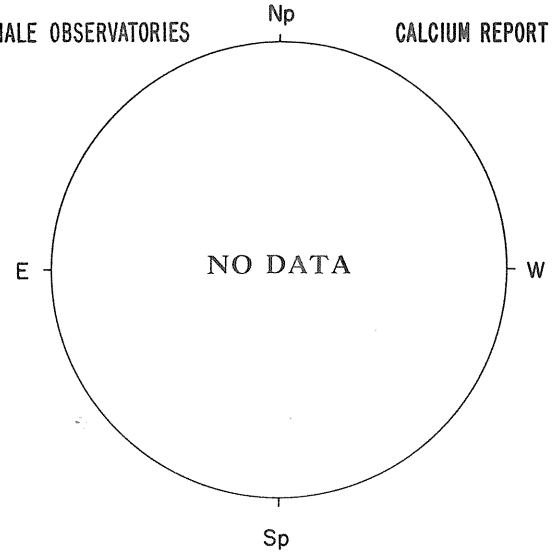


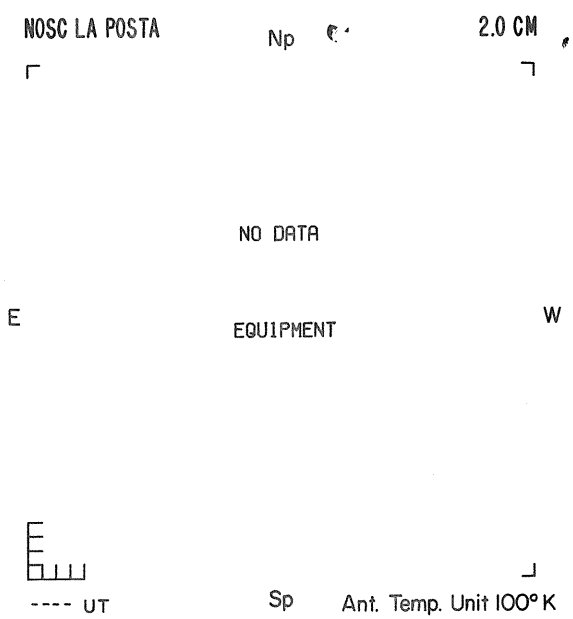


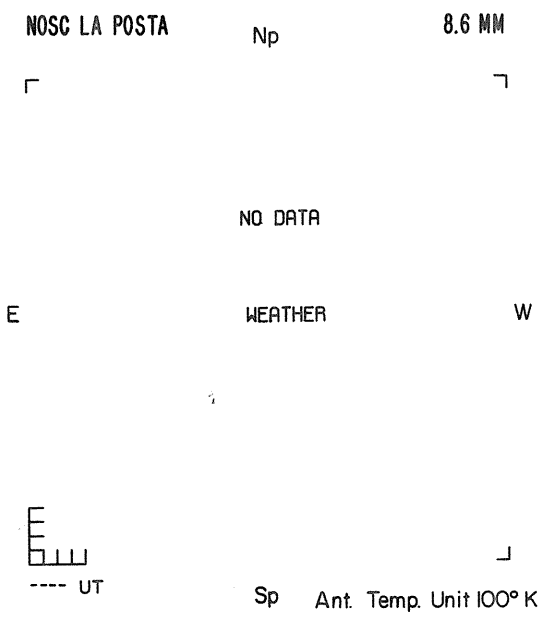


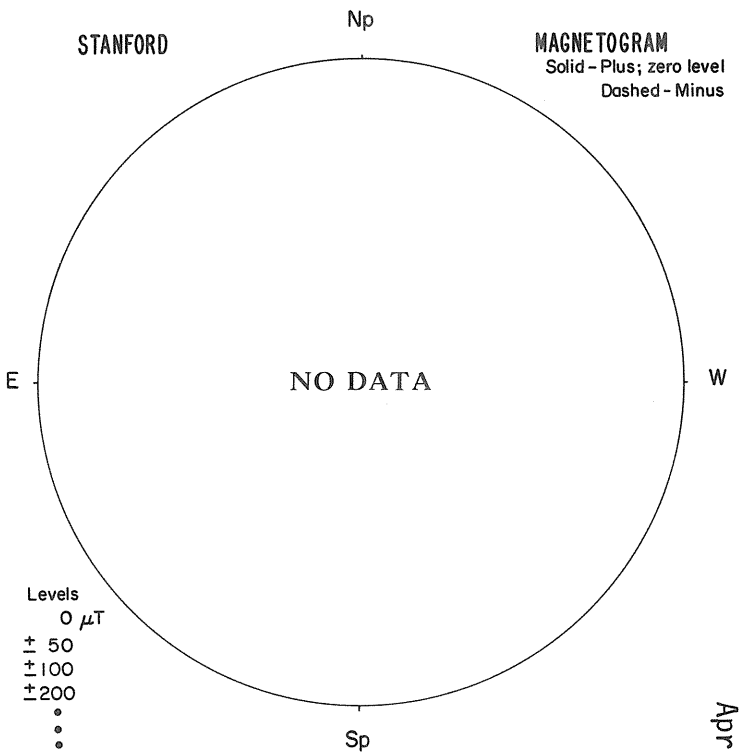

Np
Hα
E
NO DATA
W
Sp


SAN FERNANDO
Np
SUNSPOTS
E
W
787
791
789
783
783
790
BOULDER
PROMINENCES
2315 UT
NO DATA
Sp


HALE OBSERVATORIES
Np
CALCIUM REPORT
E
NO DATA
W
Sp


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

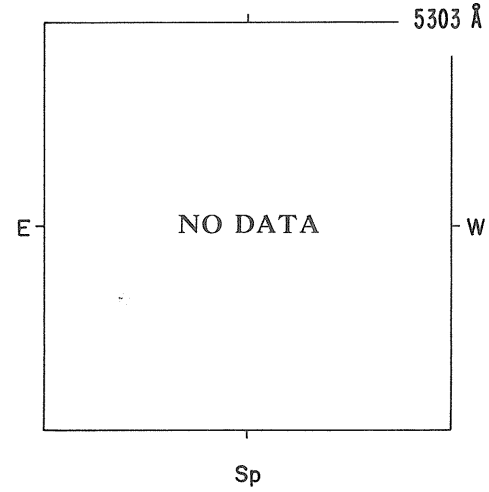

NOSC LA POSTA
Np
8.6 MM
NO DATA
E
WEATHER
W
---- UT
Sp
Ant. Temp. Unit 100° K


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
NO DATA
W
Levels
0 μT
± 50
±100
±200
Sp

APRIL 24, 1980 (P = -25.22, B_o = -4.80, L_o = 242.82)

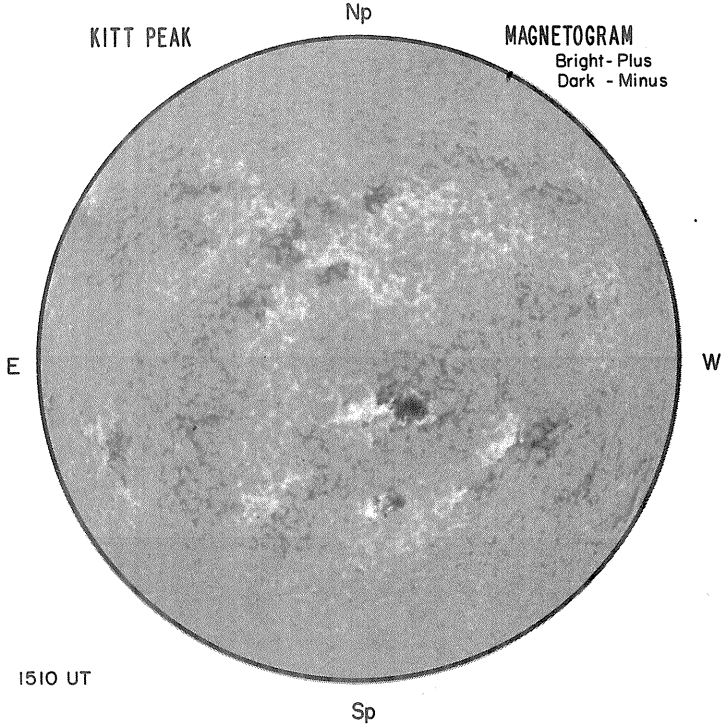
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

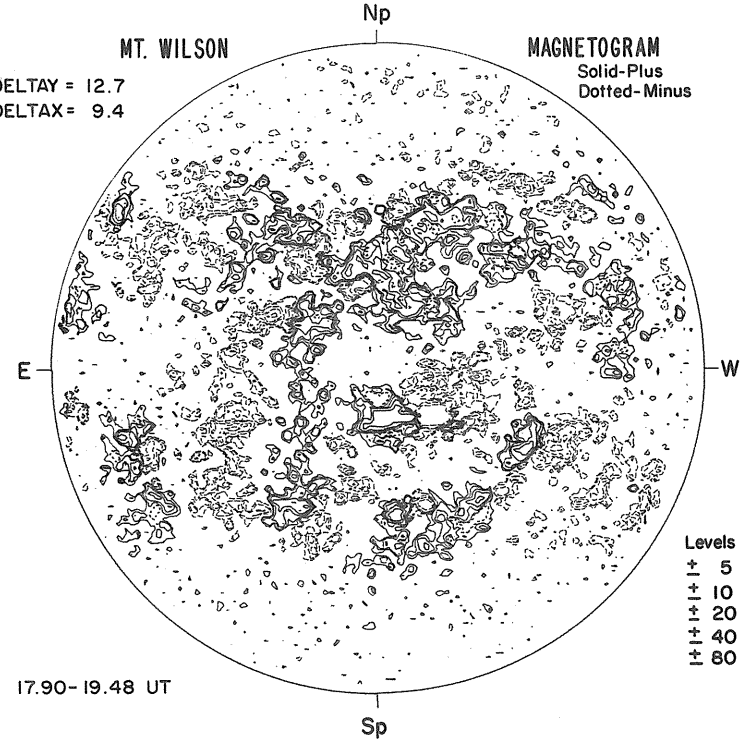


1510 UT

MT. WILSON

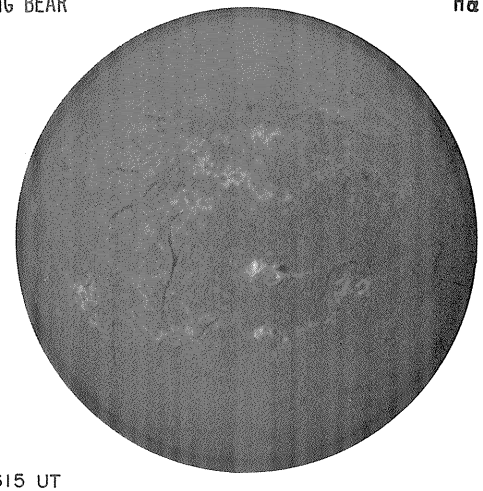
DELTAY = 12.7
DELTAX = 9.4

MAGNETOGRAM
Solid-Plus
Dotted-Minus



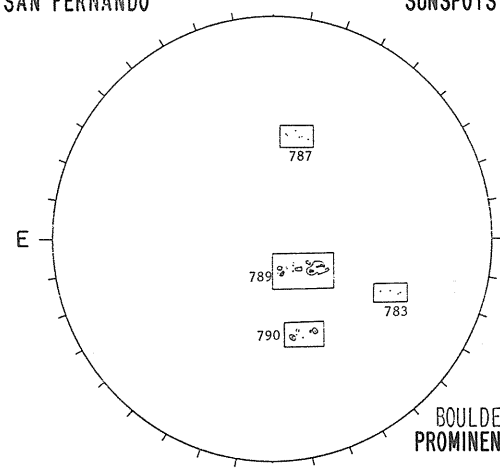
17.90-19.48 UT

BIG BEAR Hα



1615 UT

SAN FERNANDO SUNSPOTS

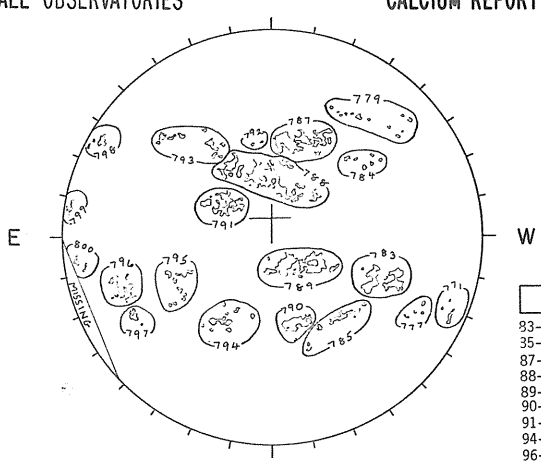


2220 UT

BOULDER PROMINENCES

NO DATA

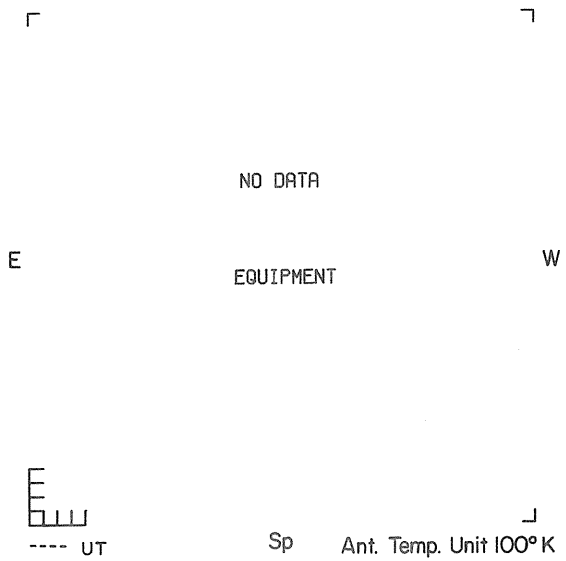
HALE OBSERVATORIES CALCIUM REPORT



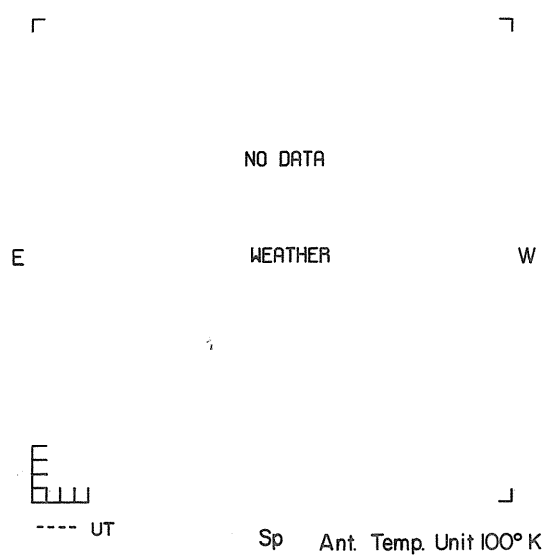
1843 UT

FAIR	JA
83-	1600-2.5
35-	0600-2.5
87-	1700-3.0
88-	3200-3.0
89-	1800-3.5
90-	0800-3.0
91-	1000-3.0
94-	0700-2.5
96-	0800-3.0
97-	0200-2.5
98-	0500-3.0
99-	0300-3.0
00-	0200-2.5

NOSC LA POSTA 2.0 CM

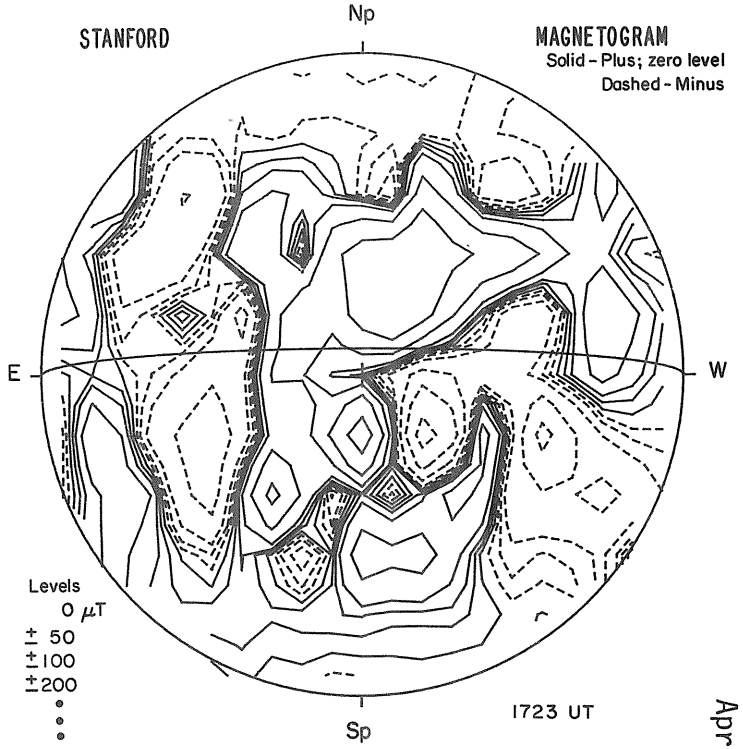


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

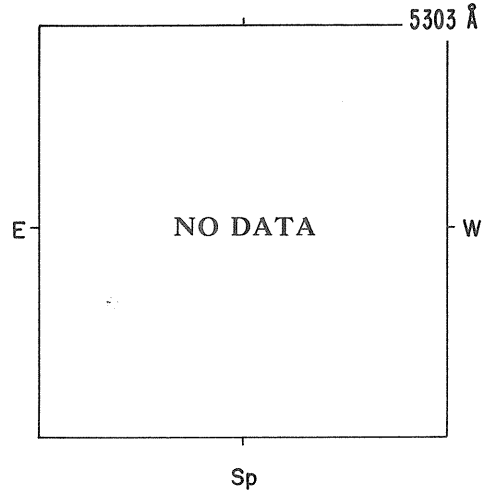


1723 UT

APRIL 25, 1980 (P =-25.09, $B_\odot$ =-4.71, $L_\odot$ =229.61)

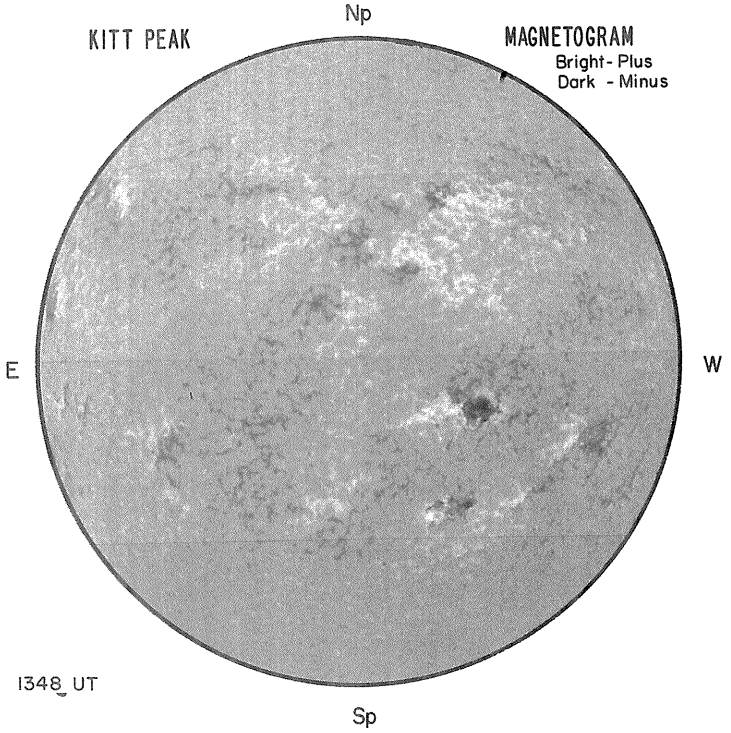
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

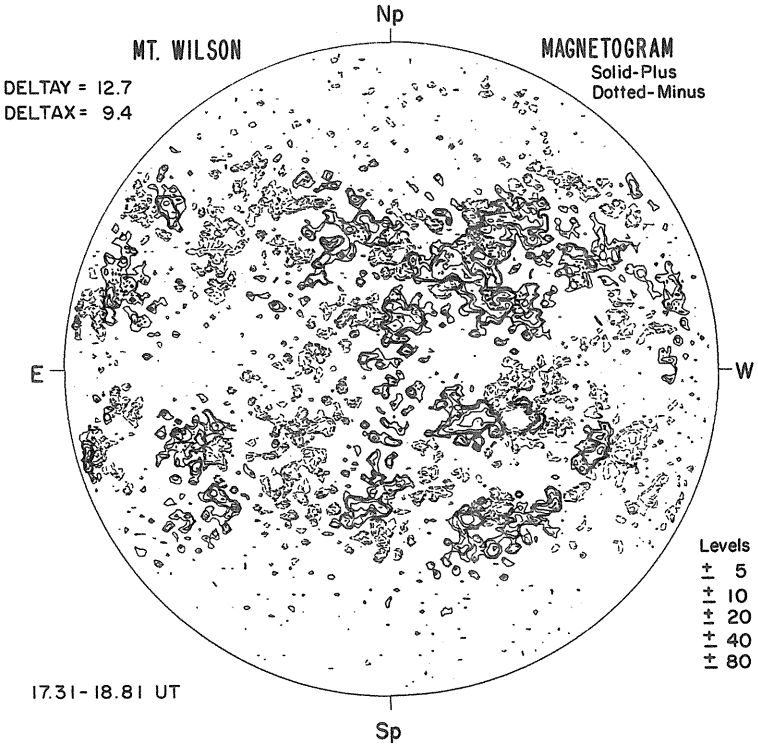


1348 UT

MT. WILSON

DELTAY = 12.7
DELTAX = 9.4

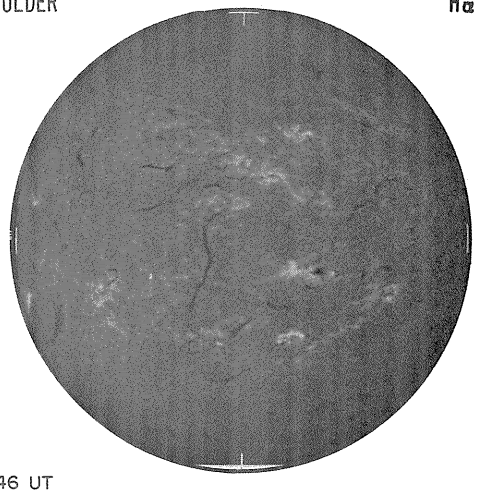
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

17.31 - 18.81 UT

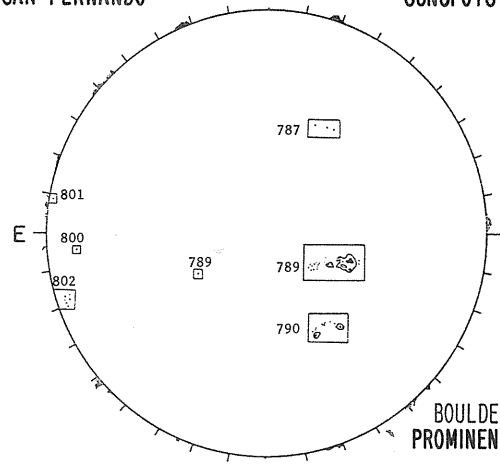
BOULDER Np Hα



E W

1346 UT Sp

SAN FERNANDO Np SUNSPOTS

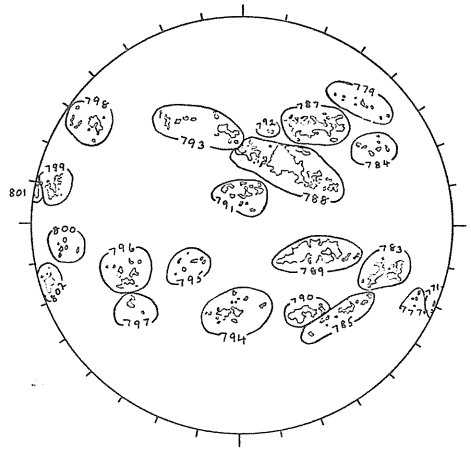


E W

BOULDER PROMINENCES

1655 UT Sp 1346 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1812 UT Sp

FAIR	JA
79-	0300-2.5
83-	1500-3.0
84-	0400-2.5
85-	0600-2.5
87-	2400-3.0
88-	4200-3.0
89-	2900-3.0
90-	0900-3.5
91-	0800-3.0
92-	0100-2.5
93-	0800-2.5
94-	0900-2.5
96-	0700-3.0
97-	0200-3.0
98-	1000-3.5
99-	0900-3.5
00-	0300-2.5
01-	0400-3.0
02-	0600-3.0

NOSC LA POSTA Np 2.0 CM

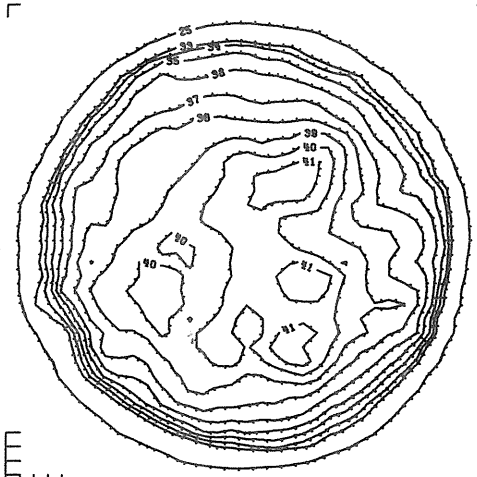
NO DATA

EQUIPMENT

E W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



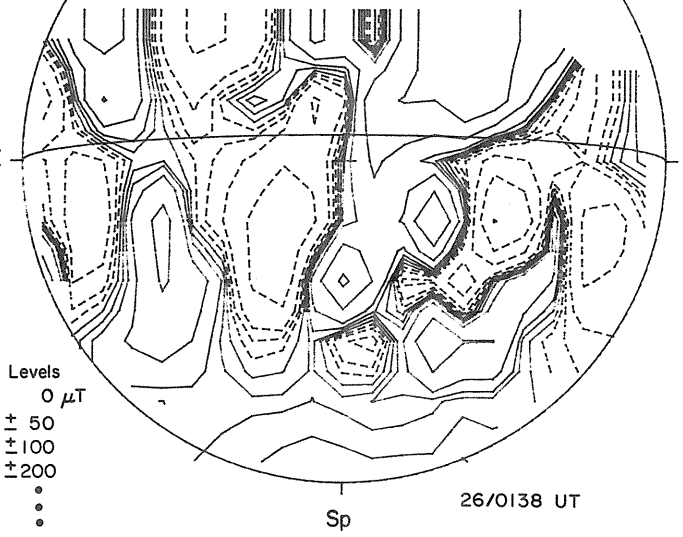
E W

1602 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

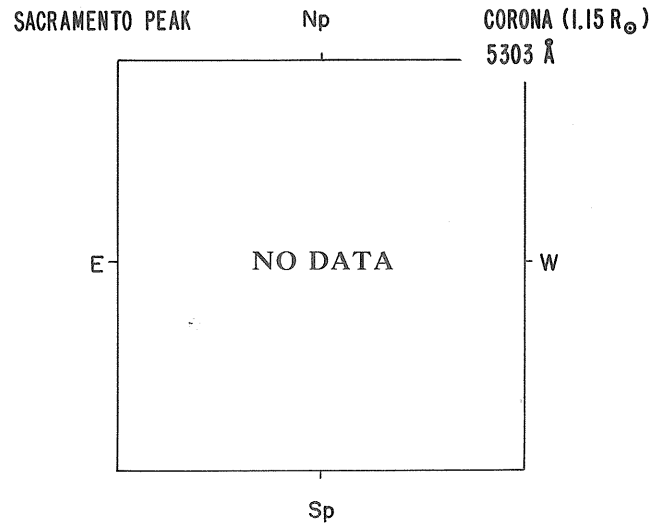
± 50

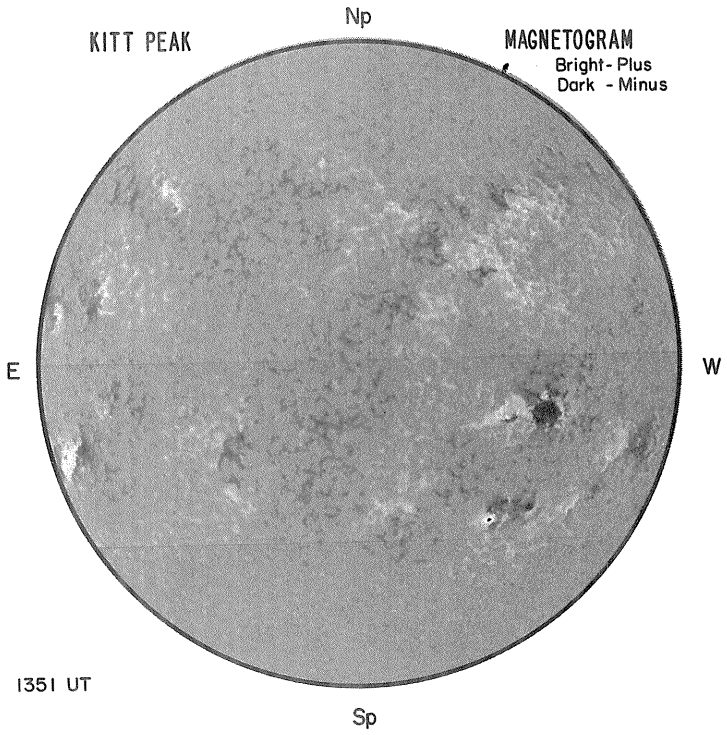
± 100

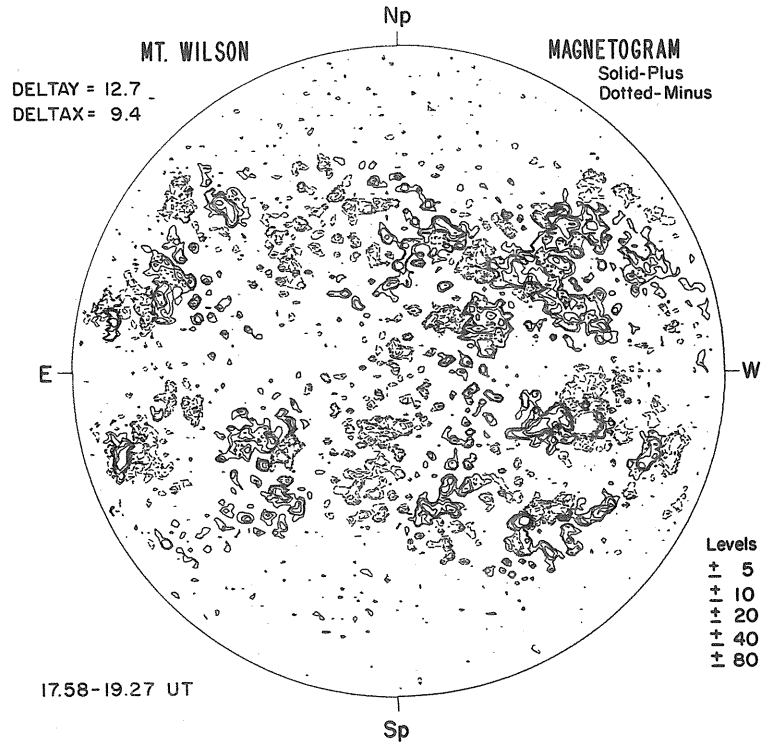
± 200

Sp 26/0138 UT

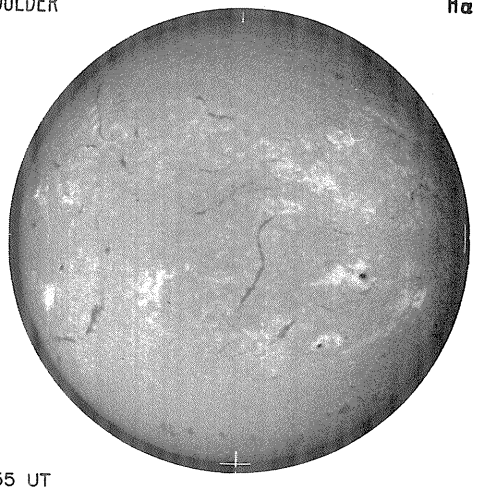
APRIL 26, 1980 (P =-24.95, $B_\odot$ =-4.61, $L_\odot$ =216.39)







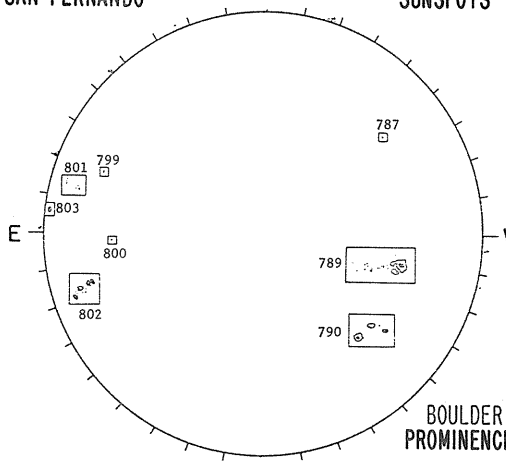
BOULDER Np Hα



E W

1355 UT Sp

SAN FERNANDO Np SUNSPOTS



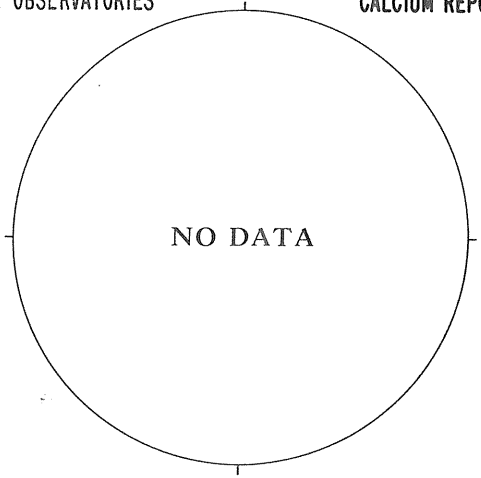
E W

2220 UT Sp

BOULDER PROMINENCES

1358 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

Sp

NOSC LA POSTA Np 2.0 CM

NO DATA

SCHEDULE

E W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

SCHEDULE

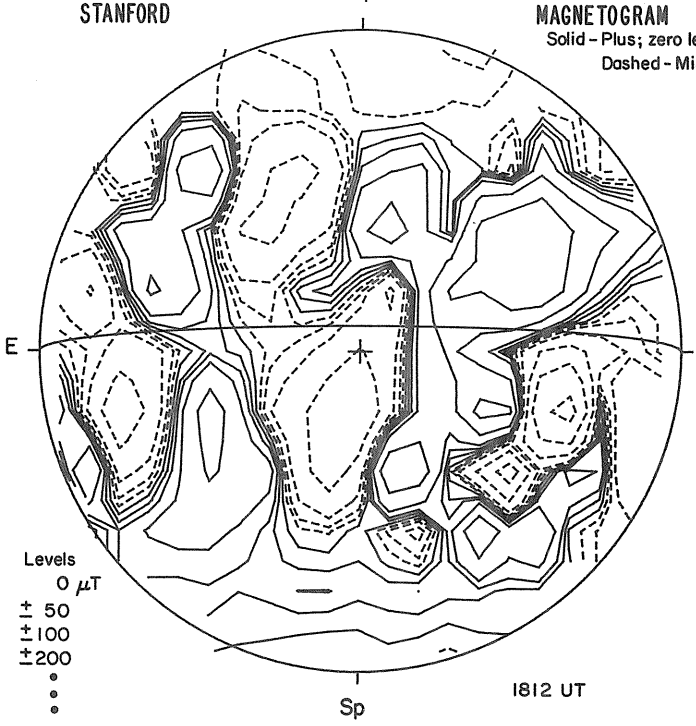
E W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

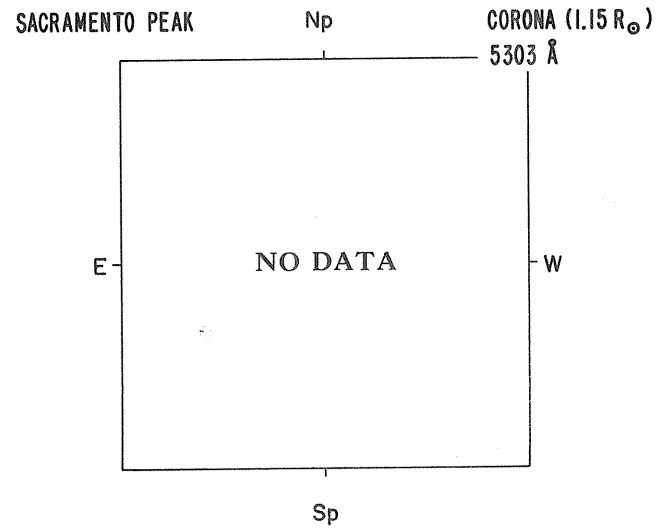
± 50

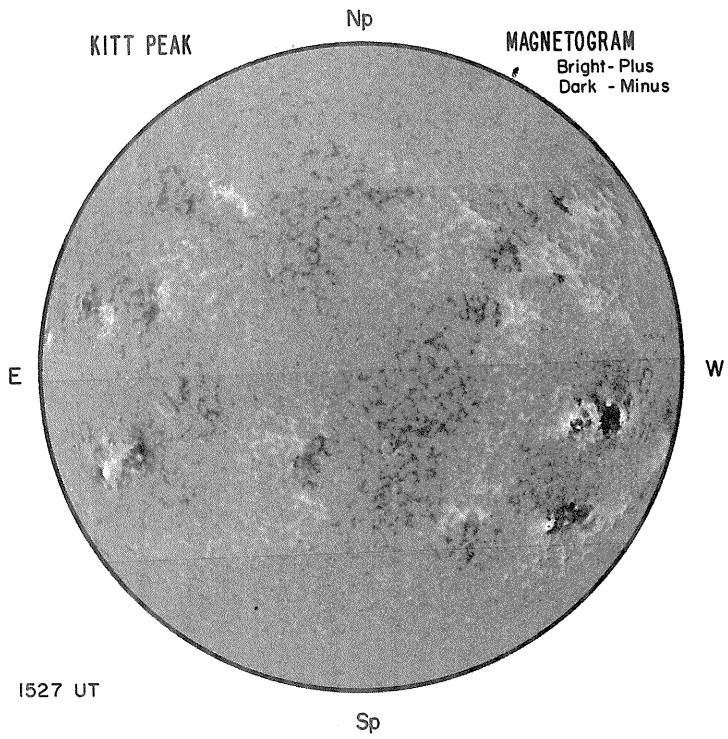
± 100

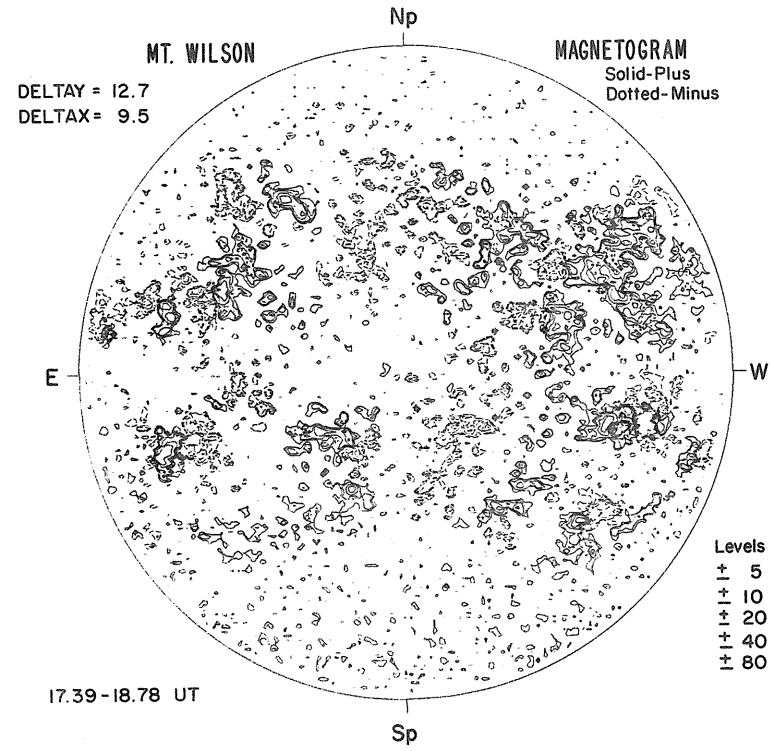
± 200

Sp 1812 UT

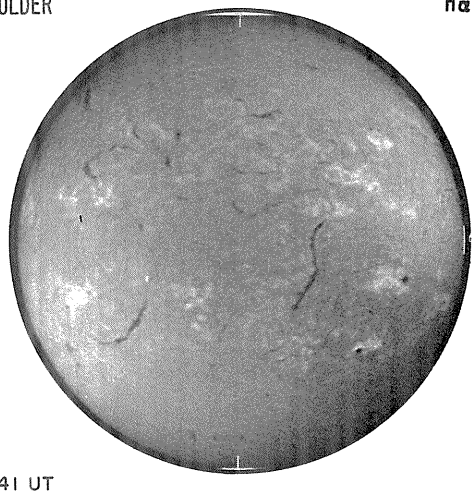
APRIL 27, 1980 (P=-24.80, B_o=-4.52, L_o=203.18)





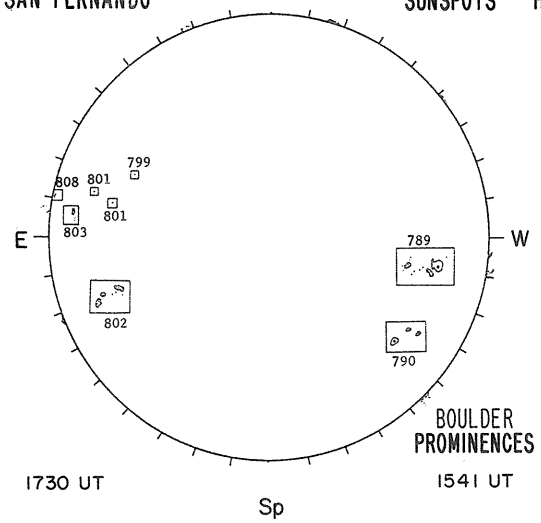


BOULDER Hα



1541 UT

SAN FERNANDO SUNSPOTS

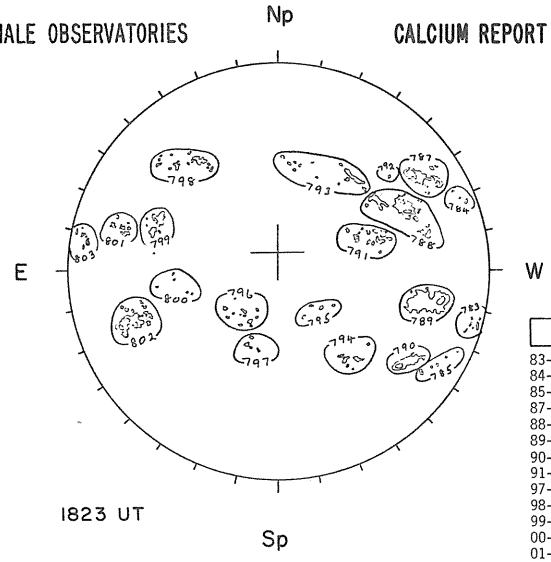


1730 UT

BOULDER PROMINENCES

1541 UT

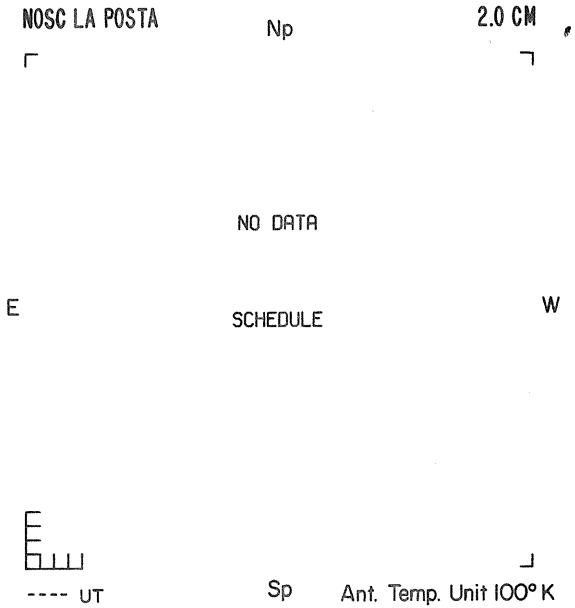
HALE OBSERVATORIES CALCIUM REPORT



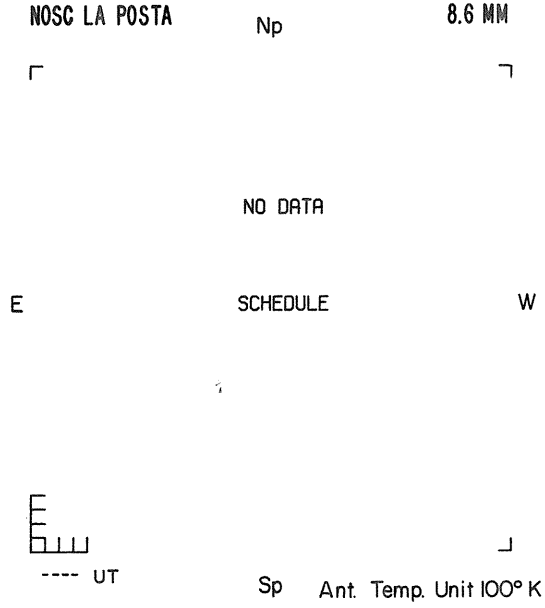
1823 UT

FAIR	JA
83-	0400-3.0
84-	0200-3.0
85-	0200-2.5
87-	1100-3.0
88-	2100-2.5
89-	3000-3.0
90-	1000-3.0
91-	0600-2.5
97-	0200-2.5
98-	0700-3.0
99-	0700-3.5
00-	0200-2.5
01-	0300-3.5
02-	1600-3.5
03-	0300-2.5

NOSC LA POSTA 2.0 CM

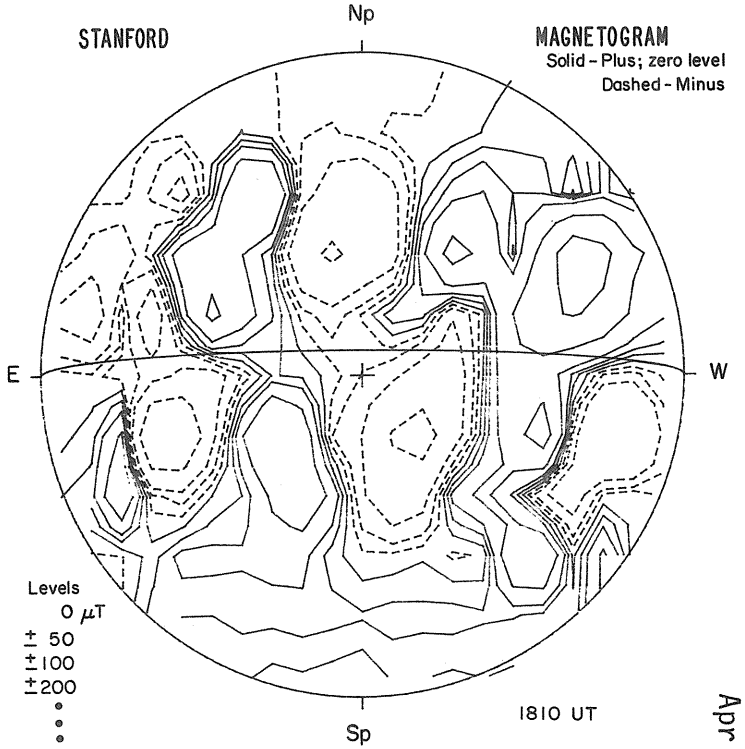


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



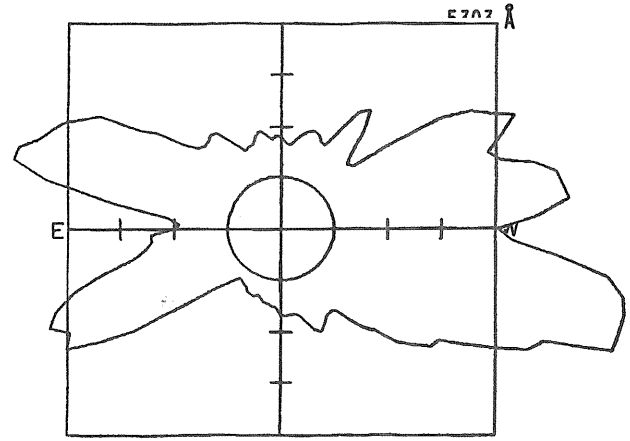
1810 UT

APRIL 28, 1980 (P=-24.65, B_o=-4.42, L_o=189.96)

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)

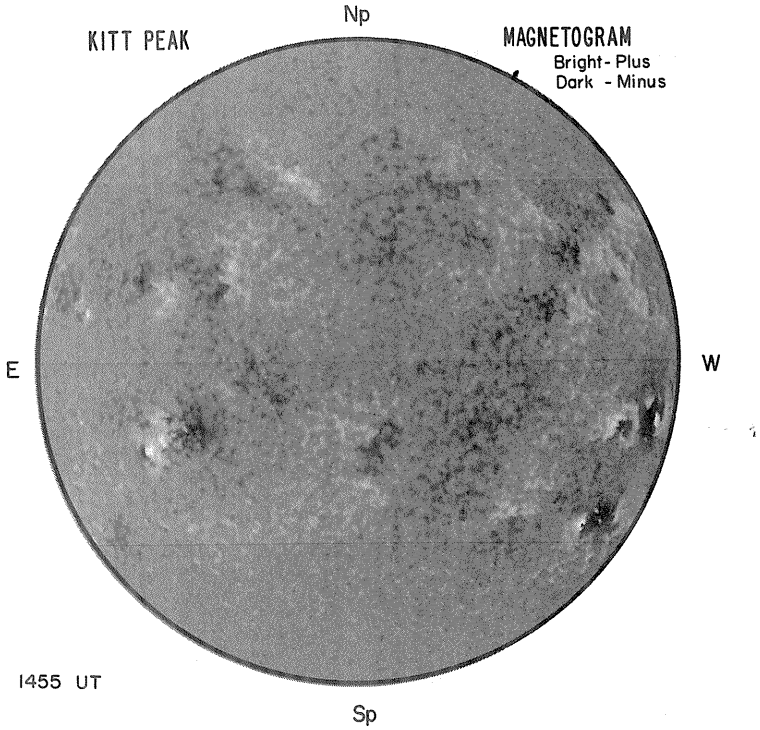
5303 Å



1724 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

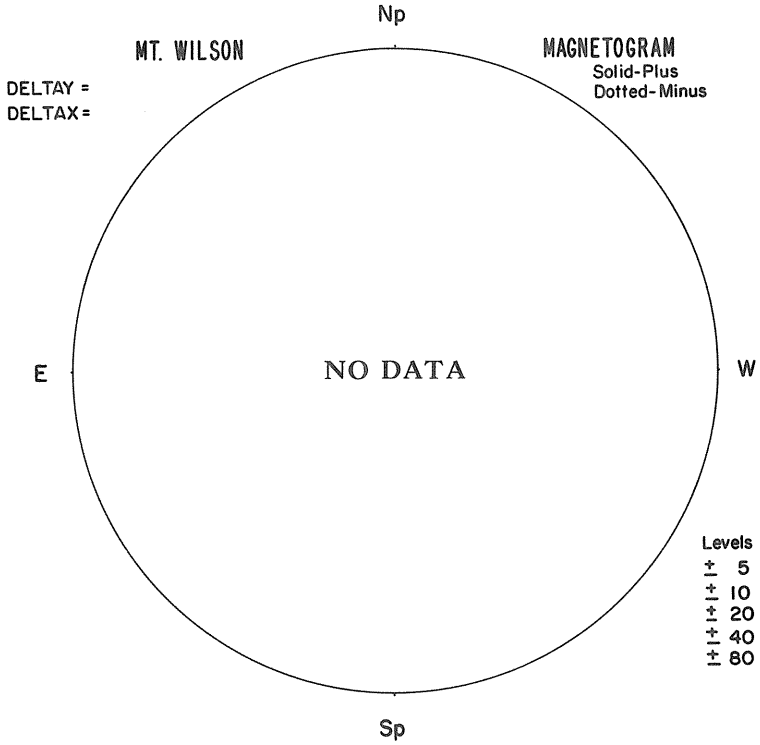


1455 UT

MT. WILSON

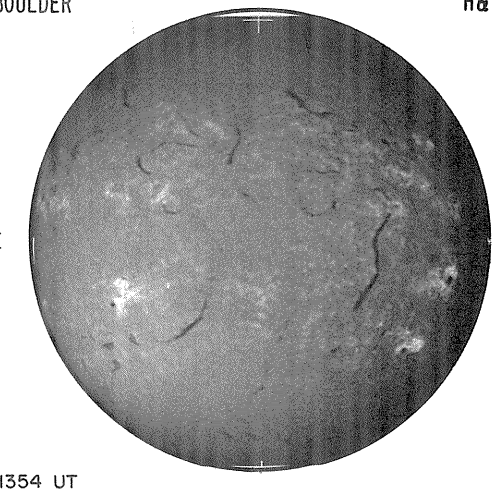
DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus



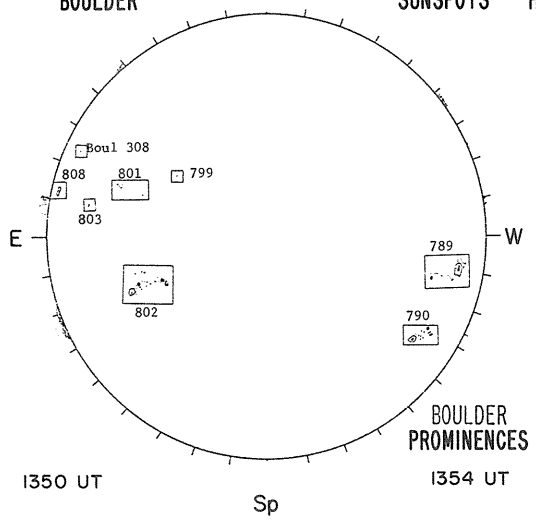
Levels
± 5
± 10
± 20
± 40
± 80

BOULDER Hα



1354 UT

BOULDER SUNSPOTS

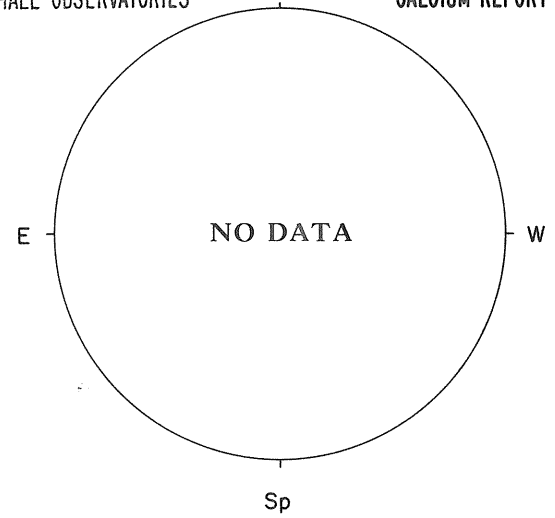


1350 UT

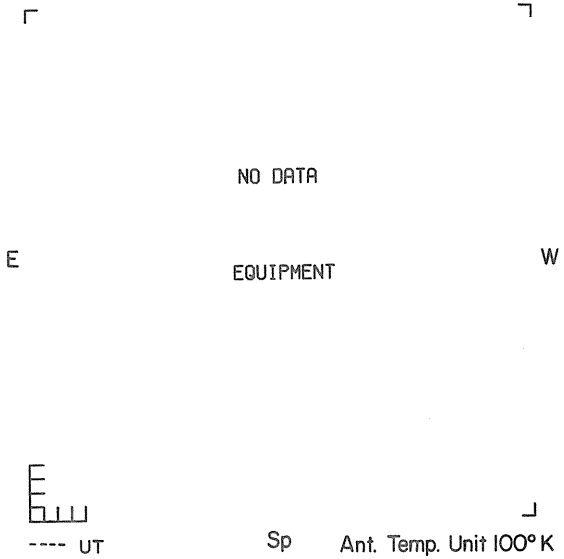
BOULDER PROMINENCES

1354 UT

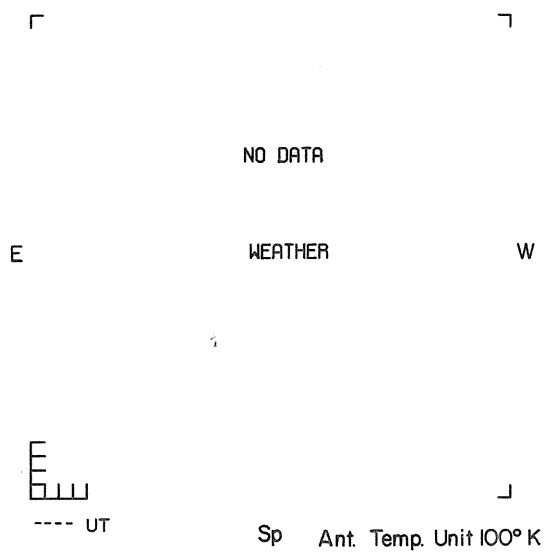
HALE OBSERVATORIES CALCIUM REPORT



NOSC LA POSTA 2.0 CM

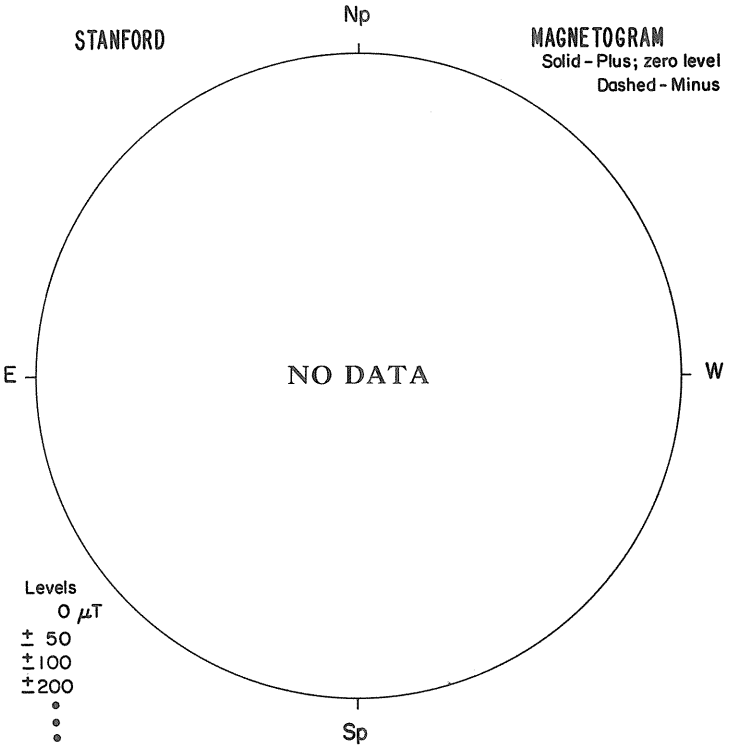


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



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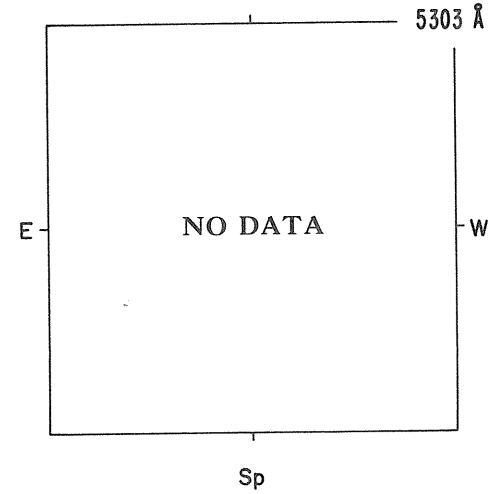
APRIL 29, 1980 (P=-24.49, B_o=-4.32, L_o=176.75)

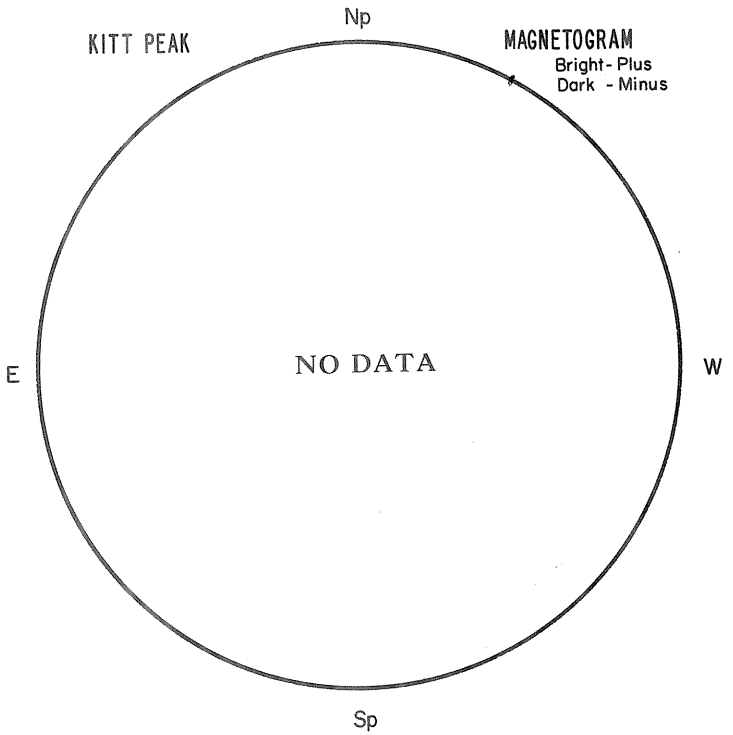
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

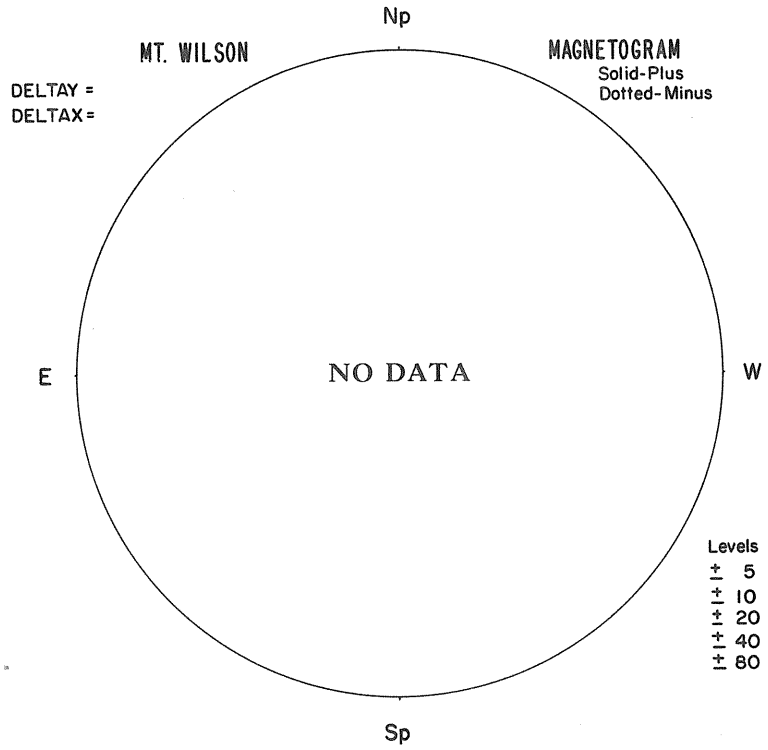
MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

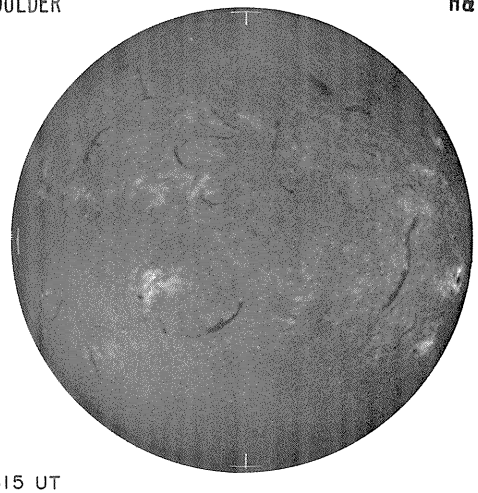
DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus



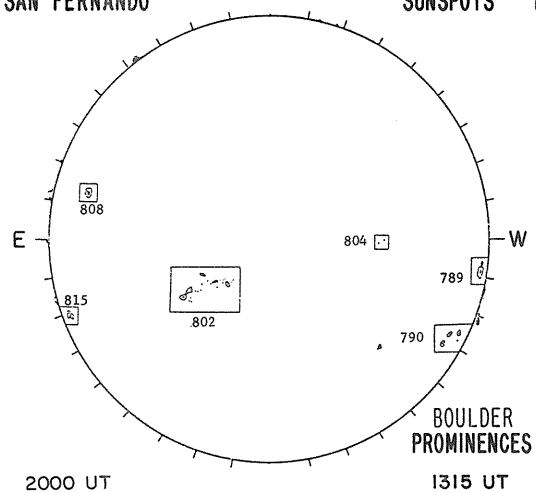
Levels
± 5
± 10
± 20
± 40
± 80

BOULDER Hα



1315 UT

SAN FERNANDO SUNSPOTS

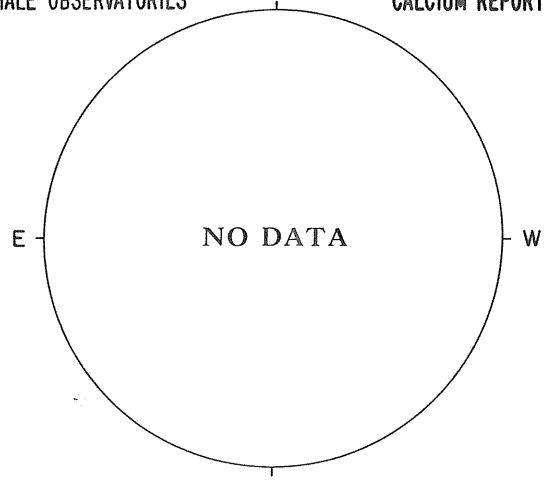


2000 UT

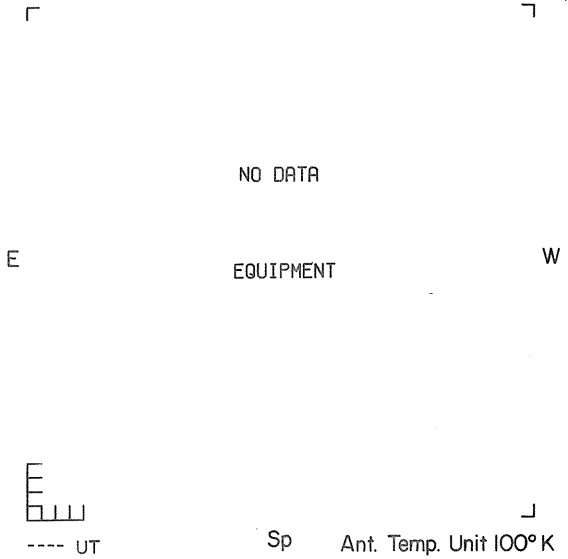
BOULDER PROMINENCES

1315 UT

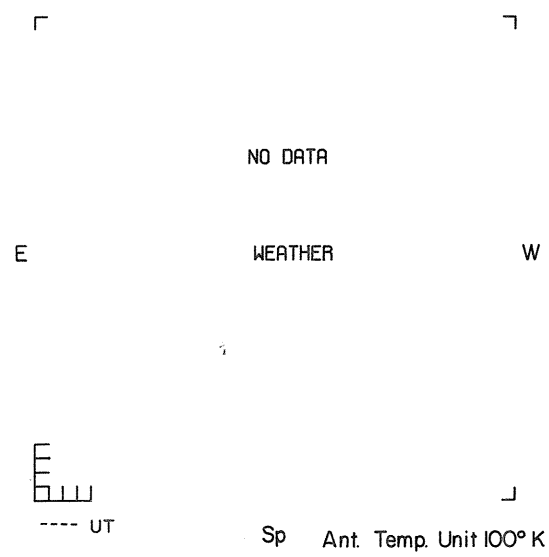
HALE OBSERVATORIES CALCIUM REPORT



NOSC LA POSTA 2.0 CM

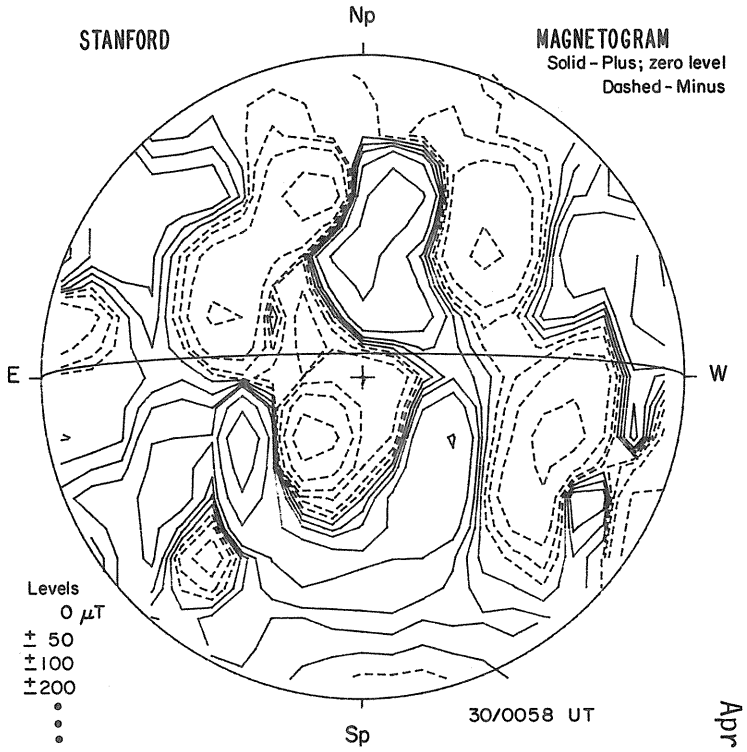


NOSC LA POSTA 8.6 MM



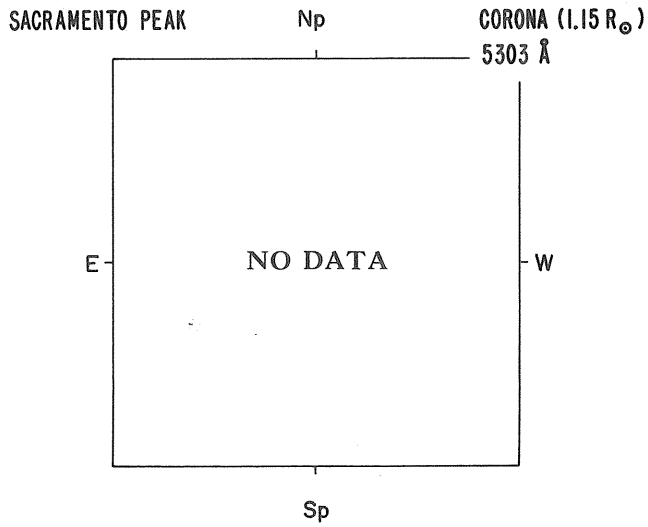
STANFORD MAGNETOGRAM

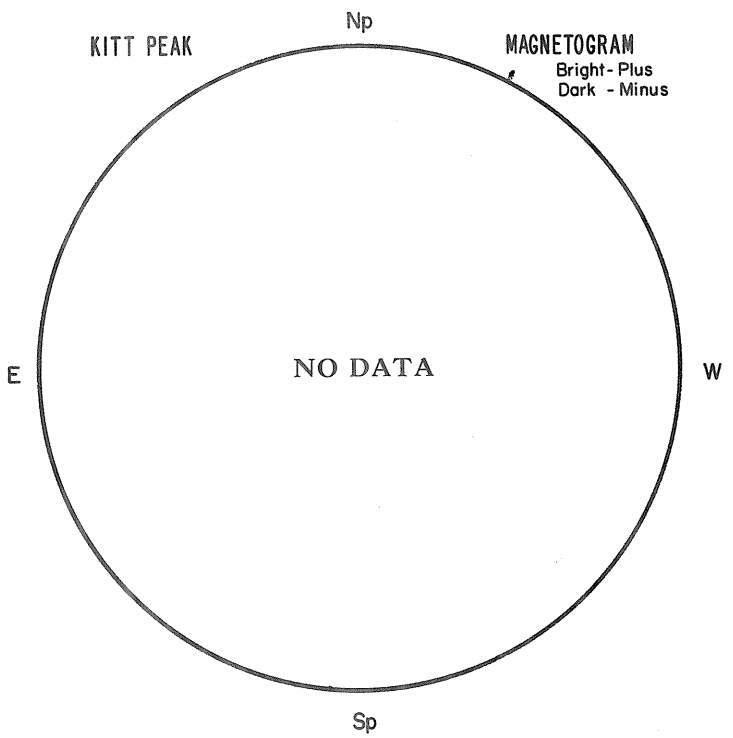
Solid - Plus; zero level
Dashed - Minus

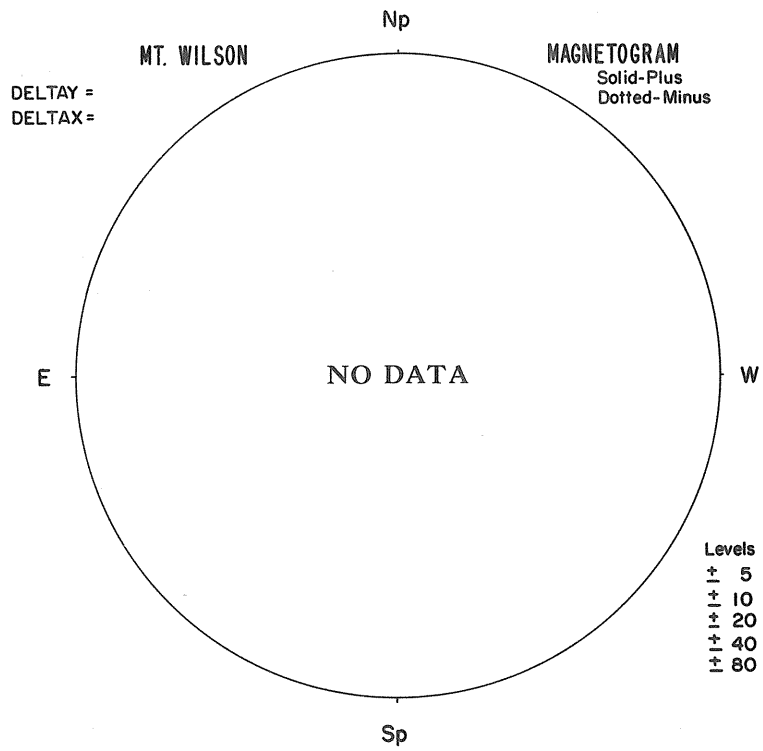


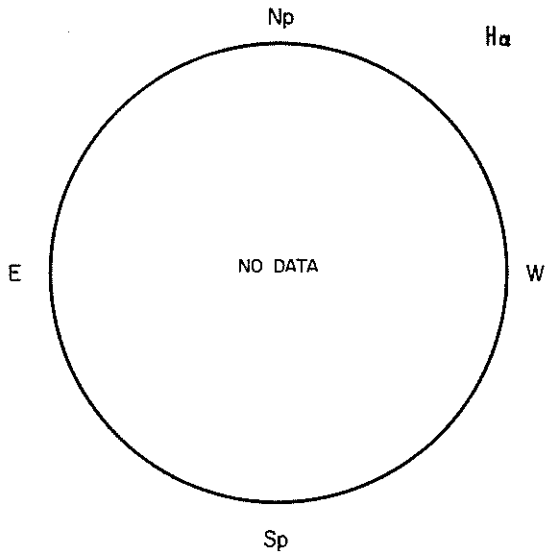
30/0058 UT

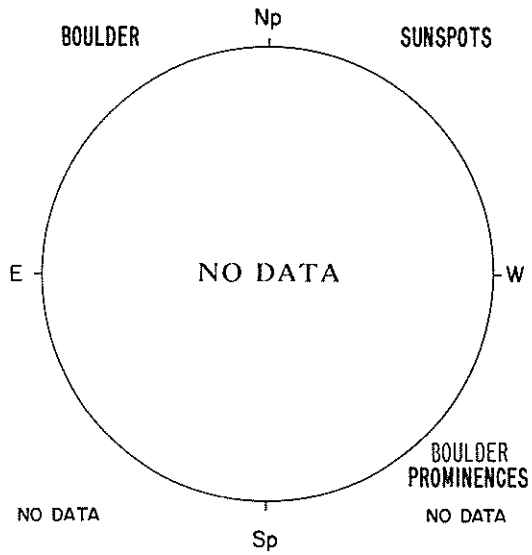
APRIL 30, 1980 (P = -24.32, B_o = -4.22, L_o = 163.53)

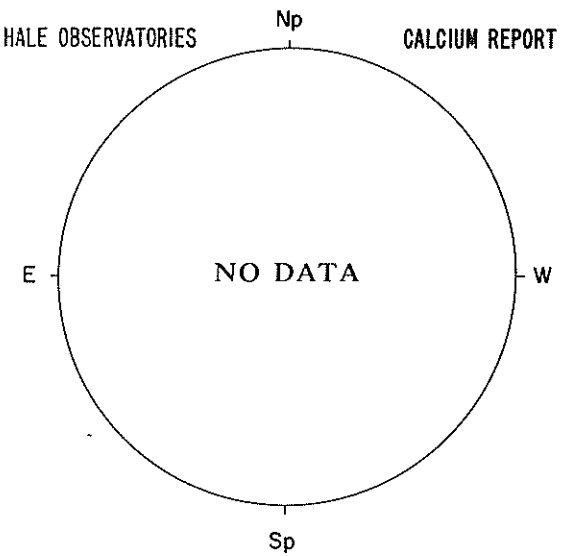


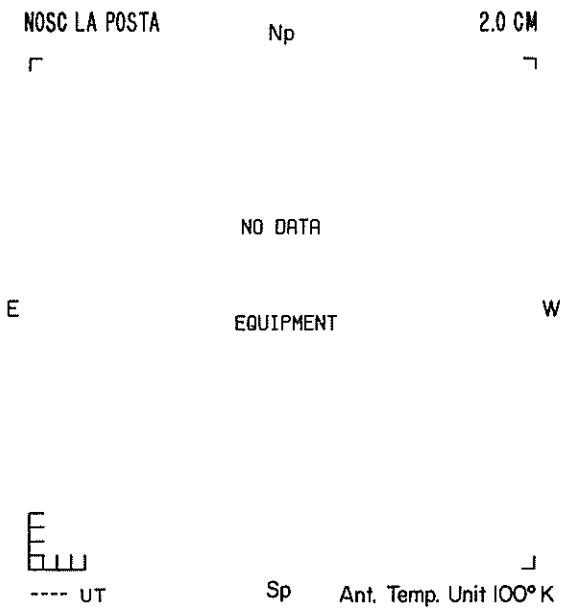


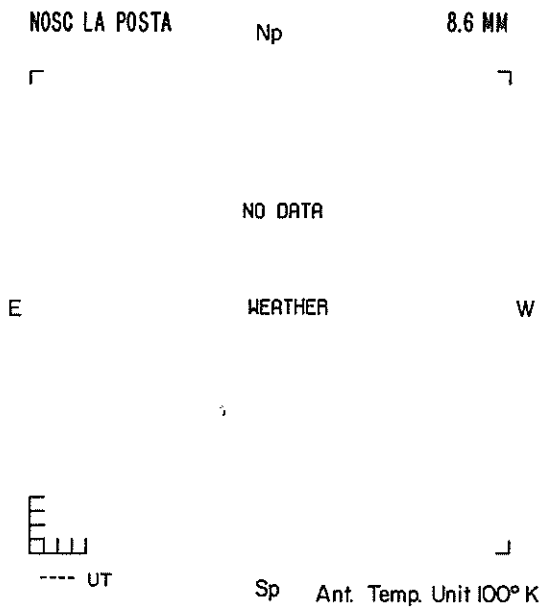


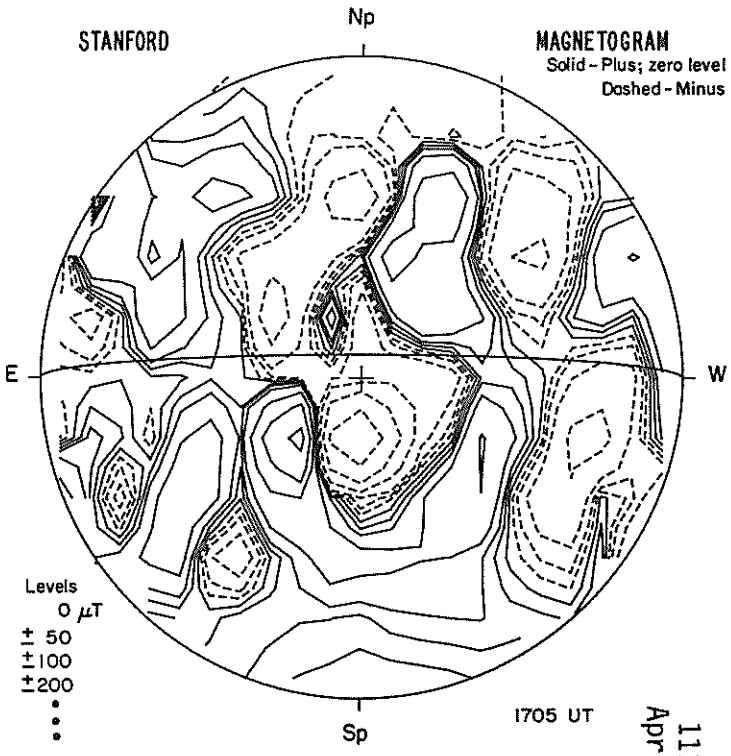

Np
Hα
E
NO DATA
W
Sp


BOULDER
Np
SUNSPOTS
E
NO DATA
W
NO DATA
Sp
BOULDER
PROMINENCES
NO DATA


HALE OBSERVATORIES
Np
CALCIUM REPORT
E
NO DATA
W
Sp


NOSC LA POSTA
Np
2.0 CM
NO DATA
E
EQUIPMENT
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
1705 UT

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Apr 80

REGIONS OF SOLAR ACTIVITY

APRIL 1980

HALE REGION 16742 CMP DATE 1.0

				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	3	25	16742					21343	S12 E85	185	AP	2				
80	3	26	16742	S12 E70	184	500	3.5	21343	S13 E69	188	(AP)	5	B	120	3	DSO
80	3	27	16742					21343	S13 E59	185	(BP)	5	A	260	11	DSI
80	3		16742					21345	S09 E60	184	(B)	2	B	10	1	AXX
80	3	28	16742	S13 E45	184	2000	3.0	21343	S14 E44	186	(BP)	5				
80	3	29	16742	S13 E30	184	1800	3.5	21343	S14 E30	187	(BP)	5	B	160	10	CAI
80	3	30	16742					21343	S14 E18	186	(BP)	4	A	200	11	CAO
80	3		16742					21352	S08 E25	179	(B)	3	A	60	12	DRO
80	3	31	16742					21343	S14 E05	187	(BP)	4	A	200	9	CKO
80	3		16742					21352	S09 E13	179	(BP)	2	B	20	5	BXO
80	4	1	16742	S13 W12	185	1000	3.5	21343	S14 W07	184	BP	4	A	150	5	CHO
80	4	2	16742						S13 W20				H	220	7	CHO
80	4	3	16742	S13 W35	183	1100	3.0	21343	S14 W35	185	(BP)	4				
80	4	4	16742					21343	S14 W46	184	(BY)	4				
80	4	6	16742	S12 W75	184	1000	3.0	21343	S13 W71	183	(BP)	3				
80	4	7	16742	S14 W80	173	200	2.0	21343	S14 W85	182	AP	1				

HALE REGION 16745 CMP DATE 1.6

				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	4	1	16745	S09 W05	178	400	3.0		S08 E04				B	10	1	AXX
80	4	3	16745	S09 W29	177	400	2.5									

HALE REGION 16740 CMP DATE 1.9

				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	3	26	16740	N26 E72	182	1000	4.0	21344	N25 E85	172	(AP)	5	B	350	2	HHX
80	3	27	16740					21344	N25 E64	180	(BY)	5	A	690	14	DKO
80	3	28	16740	N26 E51	178	2400	3.5	21344	N25 E54	176	(BY)	5				
80	3	29	16740	N26 E36	179	2200	3.5	21344	N25 E39	178	(D)	5	B	510	9	EKI
80	3	30	16740					21344	N25 E26	178	(D)	5	A	690	42	EKI
80	3	31	16740					21344	N25 E15	177	(D)	4	A	440	23	CKI
80	4	1	16740	N27 W01	174	2700	3.5	21344	N25 E01	176	BY	4	A	410	34	EKI
80	4	2	16740						N26 W13				H	510	27	DKI
80	4	3	16740	N29 W22	170	2200	3.0	21344	N26 W25	175	(BY)	5	B	260	20	CKI
80	4	4	16740					21344	N27 W37	175	(BY)	5	B	800	9	DKI
80	4	5	16740						N27 W50				B	370	7	DKO
80	4	6	16740	N27 W61	170	1500	3.0	21344	N27 W63	175	(AP)	4				
80	4	7	16740	N28 W78	171	600	2.5	21344	N27 W76	173	AP	2				

HALE REGION 16743 CMP DATE 3.7 RETURN OF REGION 16694 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	3	28	16743	N08 E75	154	600	3.5									
80	3	29	16743	N08 E61	153	1700	3.5	21351	N08 E67	150	(AP)	2				
80	3	31	16743					21353	N07 E39	153	AP	1				
80	4	1	16743	N08 E21	152	1700	3.5									
80	4	2	16743						N09 E12				H	20	2	BXO
80	4	3	16743	N12 W01	149	1800	3.0	21354	N08 W02	152	(BP)	2	B	10	2	BXO
80	4	6	16743	N12 W42	151	1200	3.0	21354	N10 W40	152	(B)	3				
80	4	7	16743	N12 W51	144	600	2.5	21354	N12 W55	152	AP	1				
80	4	8	16743	N10 W69	151	300	2.0									

HALE REGION 16744 CMP DATE 4.1 RETURN OF REGION 16699 ROTATIONS 9 AND 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	3	29	16744	S13 E73	141	900	2.5	21350	S10 E83	134	(AP)	2	B	70	1	HAX
80	3	30	16744					21350	S12 E66	136	(AP)	4	B	40	1	HAX
80	3	31	16744					21350	S12 E55	137	(AP)	4	B	80	1	HSX
80	4	1	16744	S13 E31	142	1800	3.0	21350	S12 E41	136	AP	4	B	100	1	HSX
80	4	2	16744						S11 E27				H	90	1	HSX
80	4	3	16744	S13 E05	143	1200	3.0	21350	S10 E14	136	(AP)	4				
80	4	4	16744					21350	S10 E01	137	(AP)	4				
80	4	6	16744	S12 W35	144	1400	2.5	21350	S09 W25	137	(AP)	4				
80	4	7	16744	S13 W45	138	1000	2.0	21350	S08 W38	135	(AP)	3				
80	4	8	16744	S12 W60	142	700	1.5	21350	S08 W52	137	(AP)	3				

CONTD

REGIONS OF SOLAR ACTIVITY

APRIL 1980

HALE REGION 16744 (CONT)

				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	4	9	16744	S08 W66	135	100	2.0		21350	S08 W65	137	(AP)	2	B	0	1	AXX
80	4		16744						21369	S06 W85	157	(X)	2				

HALE REGION 16750 CMP DATE 4.8

				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	4	3	16750	S06 E15	133	200	2.0										
80	4	6	16750	S06 W27	136	200	2.5										
80	4	7	16750	S07 W37	130	100	2.0										
80	4	8	16750	S07 W49	131	100	2.0										

HALE REGION 16751 CMP DATE 5.5 RETURN OF NORTHEAST PART OF REGION 16696 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	4	3	16751	N14 E29	119	100	1.5										
80	4	6	16751	N12 W17	126	200	2.0										
80	4	7	16751	N11 W27	120	100	2.0										

HALE REGION 16746 CMP DATE 5.6 RETURN OF TRAILING PART OF REGION 16696 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	4	1	16746	N10 E50	123	900	2.0										
80	4	3	16746	N09 E22	126	400	1.5										
80	4	6	16746	N07 W16	125	300	2.0										
80	4	7	16746	N07 W31	124	200	2.5										
80	4	8	16746	N07 W42	124	200	2.5										

HALE REGION 16774 CMP DATE 5.8

				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	4	10	16774	S31 W66	122	100	2.0			S37 W65				M	10	1	AXX
80	4	11	16774	S30 W78	123	200	3.5		21377	S32 W77	122	(B)	2				

HALE REGION 16755 CMP DATE 6.2

				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	4	6	16755	N19 W08	117	200	2.0										
80	4	7	16755	N21 W23	116	100	1.5										

HALE REGION 16748 CMP DATE 6.3 RETURN OF LEADING PART OF REGION 16701 ROTATION 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	4	1	16748	S13 E54	119	200	3.0										
80	4	3	16748	S15 E29	119	500	3.0										
80	4	6	16748	S18 W07	116	400	1.5										
80	4	7	16748	S16 W22	115	300	2.0										

HALE REGION 16747 CMP DATE 7.3

				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	4	1	16747	N12 E70	103	100	3.0										
80	4	2	16747							N14 E70				H	10	1	AXX
80	4	3	16747	N13 E43	105	400	2.5										
80	4	4	16747						21358	N13 E34	104	(3)	3	3	10	2	AXX
80	4	5	16747							N11 E21				3	200	16	DKI

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HALE REGION 16747 (CONT) CMP DATE 7.3

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	4	6	16747	N11 E06	103	2200	4.0	21358	N13 E08	104	(D)	5	S	650	34	EHI
80	4	7	16747	N13 W09	102	2500	3.5	21358	N13 W05	102	(D)	6				
80	4	8	16747	N13 W20	102	2200	3.5	21358	N13 W17	102	(D)	6				
80	4	9	16747	N13 W33	102	2300	3.0	21358	N13 W30	102	(D)	5	S	1530	48	FKI
80	4	10	16747	N13 W46	102	2400	3.0	21358	N13 W44	102	(D)	6	M	970	13	EKI
80	4	11	16747	N13 W58	103	2200	2.5	21358	N13 W56	101	(BY)	5	-	790	24	SKI
80	4	12	16747	N13 W75	104	1500	2.5	21358	N13 W70	102	(B)	3	B	630	8	FKI
80	4	13	16747					21358	N13 W79	98	AF	3	B	30	6	HRO

HALE REGION 16749 CMP DATE 8.1

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	4	1	16749	S23 E63	110	300	2.5									
80	4	3	16749	S21 E52	96	700	2.5									
80	4	6	16749	S21 E14	95	400	3.0									
80	4	7	16749	S20 E02	91	300	3.0									
80	4	8	16749	S20 W10	92	300	3.0									
80	4	9	16749	S20 W25	94	200	3.0									
80	4	10	16749	S20 W33	89	200	2.5									
80	4	11	16749	S22 W45	90	100	1.5									
80	4	12	16749	S22 W58	87	100	2.0									
80	4	13	16749	S21 W70	86	100	2.0									

HALE REGION 16753 CMP DATE 9.2

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	4	3	16753	N15 E60	88	300	3.5	21356	N15 E58	92	(AP)	3	B	10	1	AXX
80	4	4	16753					21356	N15 E45	93	(AP)	3	B	0	1	AXX
80	4	5	16753						N15 E30				B	10	1	AXX
80	4	6	16753	N16 E22	87	300	3.0		N13 E16				B	0	1	AXX
80	4	7	16753	N15 E03	90	200	3.0									
80	4	8	16753	N13 W10	92	100	3.0									

HALE REGION 16754 CMP DATE 8.6

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	4	3	16754	S13 E77	71	300	3.0									
80	4	4	16754					21359	S11 E68		(AP)	2				
80	4	6	16754	S14 E25	84	300	3.0									
80	4	7	16754	S14 E09	84	200	3.0	21365	S14 E11		(B)	2				
80	4	8	16754	S14 W02	84	200	3.0									
80	4	9	16754	S14 W17	86	100	2.5	21370	S15 W16	88	(B)	2				
80	4	10	16754	S14 W32	88	100	2.5									
80	4	11	16754	S13 W43	88	100	1.5									

HALE REGION 16752 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	4	3	16752	N21 E61	87	1500	4.0	21355	N23 E66	84	(BY)	4	B	420	16	FKI
80	4	4	16752					21355	N23 E53	85	(D)	4	S	450	8	EKI
80	4	5	16752						N20 E36				B	1080	12	FKI
80	4	6	16752	N22 E25	84	3500	4.0	21355	N23 E26	86	(BY)	5	S	650	33	FKI
80	4	7	16752	N21 E10	83	3600	4.0	21355	N24 E13	84	(BY)	5				
80	4	8	16752	N23 W03	85	4200	3.5	21355	N23 W01	86	(BY)	5				
80	4	9	16752	N23 W16	85	3700	3.5	21355	N23 W14	86	(D)	5	S	1530	44	FKI
80	4	10	16752	N24 W28	84	3600	3.5	21355	N23 W26	84	(D)	5	M	1190	37	FKC
80	4	11	16752	N24 W41	86	3800	2.5	21355	N23 W33	83	(D)	5	M	1820	54	FKC
80	4	12	16752	N24 W55	84	3000	2.5	21355	N23 W51	83	(B)	4	B	1600	13	FKI
80	4	13	16752	N25 W69	85	2200	2.5	21355	N23 W65	84	(B)	5	S	920	32	FKI
80	4	14	16752	N25 W75	78	1300	3.0	21355	N23 W75	81	E	3	B	620	8	FKI

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HALE REGION 16765 CMP DATE 9.0 RETURN OF CENTRAL PART OF REGION 16702 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	4	7	16765	N14 E15	78	100	3.0								
80	4	8	16765	N14 E02	80	200	3.0								

HALE REGION 16760 CMP DATE 10.0

				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	4	6	16760	S24 E37	72	200	2.5								
80	4	7	16760	S24 E25	68	300	2.0								
80	4	8	16760	S25 E17	65	400	2.0								
80	4	9	16760	S25 E03	66	200	2.0								
80	4	10	16760	S25 W13	69	100	2.0								
80	4	11	16760	S25 W25	70	100	2.0								

HALE REGION 16759 CMP DATE 10.3 RETURN OF REGION 16705 ROTATIONS 7 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	4	6	16759	S17 E44	65	1300	3.5								
80	4	7	16759	S16 E31	62	1600	3.0								
80	4	8	16759	S17 E20	62	2200	3.5								
80	4	9	16759	S17 E16	53	1400	3.5								
80	4	10	16759	S17 W07	63	900	3.0	21373	S21 E07	51	(AF)	2			
80	4	11	16759	S17 W19	64	1800	3.0								
80	4	12	16759	S17 W32	61	1100	2.5								
80	4	13	16759	S17 W45	61	1600	2.5								
80	4	14	16759	S18 W53	56	900	2.5	21387	S22 W45	51	(AF)	2			
80	4	15	16759	S22 W62	52	400	2.5	21387	S22 W58	51	(AP)	2			
80	4	16	16759	S20 W71	47	100	2.0								

HALE REGION 16761 CMP DATE 10.8

				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	4	6	16761	S11 E55	54	400	3.0	21361	S08 E57		(B)	3			
80	4	7	16761	S10 E38	55	300	3.0								
80	4	8	16761	S11 E28	54	400	3.0								
80	4	9	16761	S11 E13	56	300	3.0								
80	4	10	16761	S10 W01	57	200	2.5	21372	S10 E00	58	(AP)	2			
80	4	11	16761	S10 W13	58	300	2.5								
80	4	12	16761	S10 W28	57	100	2.5								
80	4	13	16761	S09 W42	58	100	2.5								
80	4	14	16761	S10 W55	58	100	2.0								

HALE REGION 16757 CMP DATE 11.0 RETURN OF REGION 16703 ROTATION 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	4	6	16757	N17 E52	57	1500	3.0								
80	4	7	16757	N16 E35	58	1500	3.0	21366	N15 E35		AP	1			
80	4	8	16757	N17 E22	60	2300	3.0								
80	4	9	16757	N17 E15	54	1100	3.0								
80	4	10	16757	N17 E03	53	1100	2.5	21374	N24 W09	66	(B)	2			
80	4		16757					21375	N18 E11	47	(AF)	2			
80	4	11	16757	N17 W11	56	2100	2.5								
80	4	12	16757	N18 W23	52	700	2.5								
80	4	13	16757	N19 W40	56	700	2.5	21383B	N17 W34	53	(B)	2			
80	4	14	16757	N19 W52	55	300	2.5								
80	4	15	16757	N18 W65	55	300	2.0								

HALE REGION 16758 CMP DATE 11.1 RETURN OF SOUTHEAST PART OF REGION 16703 ROTATION 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	4	6	16758	N09 E57	52	300	2.5								
80	4	7	16758	N10 E40	53	200	2.0								
80	4	8	16758	N10 E29	53	200	2.5								

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HALE REGION 16758 (CONT)

				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	4	9	16758	N09 E17	52	100	2.0									

HALE REGION 16766 CMP DATE 11.2 RETURN OF NORTH CENTRAL PART OF REGION 16703 ROTATION 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	4	6	16766					21360	N20 E56	56	(B)	3				
80	4	7	16766	N21 E41	52	400	3.0	21360	N20 E42	55	(AP)	2				
80	4	8	16766	N22 E32	50	400	3.0									

HALE REGION 16762 CMP DATE 12.1 NEW REGION IN LOCATION OF LEADING PART OF REGION 16714 AND TRAILING PART OF REGION 16707

				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	4	6	16762	S18 E65	44	1300	3.0	21363	S20 E72	40	(AP)	4				
80	4	7	16762	S16 E52	41	3200	3.5	21363	S20 E58	39	(BP)	4				
80	4	8	16762	S17 E42	40	4000	3.5	21363	S20 E46	39	(BP)	5	B	200	4	DSO
80	4	9	16762	S18 E28	41	4100	3.5	21363	S20 E33	39	(BP)	5				
80	4	10	16762	S18 E17	39	4000	3.5	21363	S20 E20	38	(BF)	4	N	280	14	CHO
80	4	11	16762	S18 E05	40	4000	4.0	21363	S20 E07	38	(BY)	5	[illegible]	330	17	CHC
80	4		16762						S23 W04				R	10	1	AXX
80	4	11	16762					21378	S08 W05	50	AP	1				
80	4	12	16762	S18 W08	37	3300	2.5	21363	S20 W05	37	(BY)	4	[illegible]	300	7	CAC
80	4	13	16762	S18 W24	40	3200	3.0	21363	S20 W19	38	(BP)	5	B	270	9	HKO
80	4	14	16762	S18 W34	37	2600	3.0	21363	S20 W31	37	(BP)	5	B	280	3	HKX
80	4	15	16762	S18 W46	36	2400	3.0	21363	S20 W45	36	(BP)	4	R	220	3	HKX
80	4	15	16762					21389	S08 W56	49	(AP)	2				
80	4	16	16762	S18 W58	34	1100	2.5	21363	S20 W58	39	(AP)	4	B	140	2	HAX
80	4	17	16762	S21 W68	33	500	2.5	21363	S21 W71	36	(AP)	3	B	80	2	HAX
80	4	18	16762					21363	S21 W85	39	AP	2				

HALE REGION 16756 CMP DATE 12.5

				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	4	6	16756	N35 E75	34	400	3.0	21362	N36 E70	42	(AP)	2				
80	4	7	16756	N37 E55	38	400	3.5	21362	N36 E60	37	(AP)	2				
80	4	8	16756	N37 E43	39	600	3.5	21362	N37 E47	36	(B)	2	R	10	1	CSO
80	4	9	16756	N37 E35	34	1000	3.5	21362	N37 E33	39	(B)	2				
80	4	10	16756	N37 E22	34	700	3.0	21362	N37 E25	33	AP	1				
80	4	11	16756	N37 E11	34	900	3.0	21362	N35 E05	40	(B)	2				
80	4	12	16756	N37 W04	33	400	3.0									
80	4	13	16756	N38 W14	39	500	3.0									
80	4	14	16756	N38 W24	27	700	3.0									
80	4	15	16756	N38 W41	31	400	3.0									
80	4	16	16756	N39 W52	28	300	2.0									
80	4	17	16756	N38 W62	27	400	2.5									

HALE REGION 16767 CMP DATE 12.6

				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	4	6	16767	S47 E67	42	200	3.0									
80	4	7	16767	S46 E57	36	200	3.0									
80	4	8	16767	S47 E48	34	200	3.0									
80	4	9	16767	S47 E36	33	200	3.0									
80	4	10	16767	S47 E22	34	200	2.5									
80	4	11	16767	S47 E12	33	200	2.0									
80	4	12	16767	S48 E01	29	300	2.5									
80	4	13	16767	S48 W12	28	300	2.5									
80	4	14	16767	S47 W24	27	300	1.5									
80	4	15	16767	S48 W36	28	100	1.0									
80	4	16	16767	S48 W48	24	200	1.0									
80	4	17	16767	S48 W58	23	100	1.5									

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HALE REGION 16763 CMP DATE 13.9 NEW REGION IN LOCATION OF SOUTHERN PART OF REGION 16714 ROTATIONS 5 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	4	6	16763	S31	E88	21	500	2.5	21364	S29	E85	27	(AP)	2				
80	4	7	16763	S29	E70	23	600	3.5	21364	S29	E70	67	(BP)	4				
80	4	8	16763	S27	E61	21	2500	3.5	21364	S30	E62	23	(BP)	4	B	310	5	CSO
80	4	9	16763	S30	E49	20	2600	3.5	21364	S30	E51	21	(BP)	5	B	450	7	FKO
80	4	10	16763	S29	E38	18	4600	3.5	21364	S30	E40	18	(BP)	5	M	400	25	FHO
80	4	11	16763	S29	E26	19	4500	4.0	21364	S31	E27	18	(D)	4	F	710	34	FKO
80	4	12	16763	S29	E13	16	4000	3.0	21364	S31	E15	17	(D)	5	B	920	22	FKI
80	4	13	16763	S28	E00	16	4200	3.5	21364	S31	E01	18	(BY)	5	B	430	57	FKI
80	4	14	16763	S28	W12	15	4200	3.5	21364	S30	W10	16	(D)	5	B	480	24	FKO
80	4	15	16763	S30	W24	14	4300	3.5	21364	S31	W23	16	(BY)	5	B	260	19	FKO
80	4	16	16763	S30	W40	16	4200	3.5	21364	S31	W36	17	(B)	4	B	170	10	FHO
80	4	17	16763	S30	W45	10	3300	3.5	21364	S31	W50	17	(BP)	4	B	190	6	CAO
80	4	18	16763	S31	W59	6	1500	3.5	21364	S30	W70	24	(BP)	3				
80	4	19	16763	S32	W68	6	1200	3.0	21364	S31	W75	16	(B)	3				
80	4	20	16763	S32	W80	5	300	2.5	21364	S32	W83	11	(B)	3	B	190	10	DAO

HALE REGION 16768 CMP DATE 14.1

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	4	7	16768	S07	E78	15	600	3.5	21367	S08	E80	17	AP	2				
80	4	8	16768	S07	E67	15	1500	4.0	21367	S08	E70	15	(BP)	4				
80	4	9	16768	S06	E55	14	3000	3.5	21367	S08	E59	13	(D)	4	B	570	7	DKO
80	4	10	16768	S08	E43	13	3900	4.0	21367	S08	E46	12	(BP)	5	M	540	30	EKO
80	4	11	16768	S09	E32	13	4000	4.0	21367	S08	E34	11	(D)	4	K	850	32	CKO
80	4	12	16768	S09	E17	12	4000	3.5	21367	S08	E20	12	(BY)	5	P	870	16	EKI
80	4	13	16768	S08	E04	12	4000	3.5	21367	S08	E06	13	(D)	5	B	590	54	FKI
80	4	14	16768	S08	W06	11	3900	3.5	21367	S08	W06	12	(D)	4	B	540	37	FKI
80	4	15	16768	S08	W22	12	3600	3.5	21367	S08	W20	13	(D)	3	B	380	22	CKI
80	4	16	16768	S08	W37	13	3800	3.0	21367	S08	W34	15	(B)	4	B	360	24	EKI
80	4	17	16768	S08	W47	12	3100	3.0	21367	S08	W47	14	(BP)	4	B	190	33	ESO
80	4	18	16768	S08	W61	10	1800	3.0	21367	S07	W64	18	(BP)	4				
80	4	19	16768	S08	W73	11	900	3.0	21367	S08	W75	16	(BP)	3				

HALE REGION 16769 CMP DATE 14.7

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	4	8	16769	N23	E72	10	500	1.5										
80	4	9	16769	N22	E64	5	600	2.5										
80	4	10	16769	N22	E49	7	500	3.0										
80	4	11	16769	N22	E39	6	600	2.5										
80	4	12	16769	N22	E25	4	500	2.5										
80	4	13	16769	N24	E12	4	300	3.0										
80	4	14	16769	N24	W01	4	200	2.5										
80	4	15	16769	N23	W13	3	300	2.0										
80	4	16	16769	N23	W28	4	200	1.0										
80	4	17	16769	N23	W38	3	300	2.0										
80	4	18	16769	N22	W51	0	100	2.0										
80	4	19	16769	N21	W62	0	100	1.5										

HALE REGION 16776 CMP DATE 15.0

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	4	12	16776	S17	E32	358	100	2.5										
80	4	13	16776	S15	E16	0	100	3.0										
80	4	14	16776	S15	E03	0	100	1.5										

HALE REGION 16770 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	4	8	16770	N08	E77	5	200	2.0	21368	N08	E80	5	(X)	1				
80	4	9	16770	N09	E69	0	600	3.0	21368	N09	E70	7	(AP)	3	B	0	2	AXX
80	4	10	16770	N09	E57	0	600	3.5	21368	N09	E57	1	(AP)	3	M	10	3	HRX
80	4	11	16770	N09	E45	0	800	3.0	21368	N09	E42	3	(BP)	3	[illegible]	20	5	CRO
80	4	12	16770	N08	E30	0	800	3.0	21368	N09	E30	2	(AP)	2	[illegible]	10	1	AXX
80	4	13	16770	N10	E16	0	700	3.0										
80	4	14	16770	N10	E04	0	400	3.0										

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HALE REGION 16770 (CONT) CMP DATE 15.1

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	4	15	16770	N10	W11	1	500	3.0
80	4	16	16770	N11	W24	0	300	2.5
80	4	17	16770	N10	W34	359	300	2.5
80	4	18	16770	N12	W52	1	200	2.5
80	4	19	16770	N11	W63	1	200	2.0
80	4	20	16770	N11	W75	0	100	3.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N08	W19				B	380	22	EKI

HALE REGION 16786 CMP DATE 15.1

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	4	18	16786	S15	W51	0	100	2.5
80	4	19	16786	S15	W63	1	100	3.0
80	4	20	16786					

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21398	S16	W47		(AF)	2				
21398	S16	W62		(B)	3				
21398	S16	W77		(B)	3				

HALE REGION 16771 CMP DATE 16.3 RETURN OF REGION 16721 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	4	9	16771	S26	E77	353	700	2.5
80	4	10	16771	S23	E69	348	3800	3.0
80	4	11	16771	S23	E58	348	2400	3.0
80	4	11	16771					
80	4	12	16771	S23	E45	345	3600	3.0
80	4	13	16771	S23	E30	347	3700	3.5
80	4		16771					
80	4		16771					
80	4	14	16771	S23	E19	345	3200	3.5
80	4		16771					
80	4	15	16771	S24	E07	344	4000	3.5
80	4		16771					
80	4		16771					
80	4		16771					
80	4	15	16771					
80	4	16	16771	S24	W07	343	4100	3.5
80	4		16771					
80	4	16	16771					
80	4	17	16771	S25	W17	342	3900	3.5
80	4	18	16771	S25	W32	341	4000	3.5
80	4	18	16771					
80	4	18	16771					
80	4	19	16771	S25	W42	340	3600	3.5
80	4	19	16771					
80	4	19	16771					
80	4	20	16771	S25	W53	338	2600	2.5
80	4	21	16771					
80	4	24	16771	S24	W66	298	300	2.0
80	4	25	16771	S24	W79	298	100	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21376	S24	E61	358	AP	1				
21382	S19	E62	344	AP	1				
21383A	S27	E68		AP	1				
21382	S19	E51	342	(AF)	2	B	30	2	BXO
21382	S18	E37	343	(B)	3	B	10	3	AXX
21384	S25	E24	356	B	1				
21386	S32	E47	333	(AF)	2				
21382	S17	E24	343	(B)	3	B	30	10	CRO
21388	S24	E22	345	(AP)	2				
21382	S18	E11	343	(BY)	2	B	10	4	BXO
21388	S26	E08	346	(AP)	2	B	10	3	BXO
21391	S22	E02	352	AP	1				
21392	S31	E03	351	AP	1				
21393	S27	E15		(B)	3				
21382	S19	W02	343	(BY)	2	B	10	2	AXX
21388	S26	W08	349	(AP)	2	B	0	1	AXX
21393	S27	E03		(BF)	3				
21393	S27	W11		(B)	4				
21393	S27	W24		(B)	4				
21399	S24	W36		(AP)	2				
21400	S16	W31		AP	1				
21393	S27	W37		(B)	4				
21399	S24	W52		(AP)	2				
21400	S17	W45		B	1				
21393	S28	W50		(B)	3				
	S27	W62				B	20	7	BXO

HALE REGION 16772 CMP DATE 16.5

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	4	10	16772	N19	E75	342	300	3.0
80	4	11	16772	N19	E64	342	400	3.5
80	4	12	16772	N17	E51	339	700	3.0
80	4	13	16772	N18	E37	340	1000	3.5
80	4	14	16772	N19	E23	341	500	3.5
80	4	15	16772	N19	E10	341	1000	4.0
80	4	16	16772	N19	W06	342	1100	3.0
80	4	17	16772	N19	W17	342	1400	3.5
80	4	18	16772	N20	W33	342	700	3.5
80	4	19	16772	N19	W44	342	700	3.0
80	4	20	16772	N20	W58	343	300	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N20	E79				M	10	1	AXX
21380	N19	E69	337	(AP)	2				
21380	N19	E56	337	(AP)	2				
21380	N18	E39	341	(AP)	4	B	30	13	CRO
21380	N19	E25	342	(BP)	4	B	120	6	DAO
21380	N18	E11	343	(BF)	5	B	110	14	DAI
21380	N19	W03	344	(B)	3	B	30	11	BXI
21380	N19	W16	343	(BP)	4	B	20	14	BXO
21380	N20	W31	345	(B)	2	B	0	1	AXX

HALE REGION 16773 CMP DATE 16.7

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	4	10	16773	N13	E78	339	200	2.5
80	4	11	16773	N13	E70	336	400	3.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21381	N15	E70	336	(AF)	2				

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HALE REGION 16773 (CONT) CMP DATE 16.7

				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	4	12	16773	N13 E55	335	600	3.5									
80	4	13	16773	N14 E41	336	1200	3.5	21385	N13 E43	337	(D)	3	8	100	21	DAI
80	4	14	16773	N14 E28	336	900	3.5	21385	N13 E30	337	(B)	4	3	40	16	DAO
80	4	15	16773	N14 E15	336	2000	4.0	21385	N12 E16	338	(B)	4	3	80	1	DRO
80	4	16	16773	N13 W03	339	1300	3.0	21385	N13 E03	338	(D)	4	8	80	12	CSI
80	4	17	16773	N13 W13	338	1500	3.5	21385	N14 W11	338	(B)	4	3	30	19	BXO
80	4	18	16773	N14 W29	338	1700	3.5	21385	N13 W25	339	(B)	4	9	30	13	CRI
80	4	19	16773	N14 W41	339	1700	3.0	21385	N12 W40	341	(BY)	4	2	160	13	DAI
80	4	20	16773	N14 W55	340	900	2.0	21385	N12 W55	343	(EY)	4	8	100	16	CSO
80	4	21	16773						N13 W67				8	100	4	CSO

HALE REGION 16775 CMP DATE 17.4

				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	4	11	16775	N20 E74	332	100	3.5		N19 E70				R	10	1	AXX
80	4	12	16775	N20 E60	330	200	3.0									
80	4	13	16775	N22 E47	330	300	3.5									
80	4	14	16775	N22 E35	329	300	3.0									
80	4	15	16775	N22 E22	329	400	3.0									
80	4	16	16775	N22 E06	330	100	3.0									
80	4	17	16775	N22 W04	329	300	3.0									
80	4	18	16775	N23 W19	328	400	3.0	21404	N21 W14	328	(AF)	2				
80	4	19	16775	N23 W39	337	200	2.5									
80	4	20	16775	N23 W42	327	100	2.5									

HALE REGION 16778 CMP DATE 19.4 RETURN OF REGION 16727 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	4	13	16778	N14 E78	299	200	3.0									
80	4	14	16778	N14 E60	304	400	3.5									
80	4	15	16778	N14 E48	303	600	3.0									
80	4	16	16778	N13 E32	304	700	3.0									
80	4	17	16778	N13 E23	302	800	3.0									
80	4	18	16778	N13 E06	303	800	3.0									
80	4	19	16778	N13 W05	303	800	3.0	21405	N08 W01		(B)	2				
80	4	20	16778	N13 W18	303	600	2.5	21405	N08 W14		(B)	2				

HALE REGION 16777 CMP DATE 19.5 RETURN OF REGION 16725 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	4	13	16777	S25 E70	307	300	2.5									
80	4	14	16777	S25 E62	302	400	2.5									
80	4	15	16777	S27 E51	300	700	2.5	21394	S25 E45	309	(AP)	2				
80	4	16	16777	S27 E35	301	1000	3.0	21395	S21 E41	300	(AP)	2				
80	4	17	16777	S26 E25	300	1100	3.0									
80	4	18	16777	S26 E07	302	1000	3.0									
80	4	19	16777	S26 W04	302	900	3.0									
80	4	20	16777	S26 W18	303	700	2.0									
80	4	24	16777	S25 W48	280	200	2.0									
80	4	25	16777	S23 W63	282	200	2.0									

HALE REGION 16782 CMP DATE 20.7 RETURN OF REGION 16726 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	4	16	16782	S24 E50	286	500	2.5									
80	4	17	16782	S23 E38	287	300	2.5									
80	4	18	16782	S24 E23	286	400	3.0									
80	4	19	16782	S24 E12	286	400	3.0									
80	4	20	16782	S24 E01	284	200	3.0	21408	S25 E04	284	(AP)	2				
80	4	21	16782						S23 W09				R	10	2	AXX

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HALE REGION 16780 — CMP DATE 21.1 — RETURN OF PART OF THE LEADING NORTH EDGE OF REGION 16730 ROTATION 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	4	15	16780	N14 E68	283	100	2.0									
80	4	16	16780	N15 E60	276	500	3.0									
80	4	17	16780	N13 E45	280	300	2.0									
80	4	18	16780	N13 E30	279	200	2.5									
80	4	19	16780	N13 E17	281	200	2.5									
80	4	20	16780	N13 E04	281	300	2.5									

HALE REGION 16779 — CMP DATE 21.7 — RETURN OF REGION 16726 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	4	15	16779	N28 E63	288	100	2.0									
80	4	16	16779	N28 E57	279	300	3.0									
80	4	17	16779	N28 E45	280	200	2.0									
80	4	18	16779	N28 E35	274	500	2.5									
80	4	19	16779	N29 E24	274	600	2.5									
80	4	20	16779	N29 E12	273	500	2.5									
80	4	24	16779	N30 W32	264	400	2.0									
80	4	25	16779	N32 W41	260	300	2.5									

HALE REGION 16781 — CMP DATE 21.7 — RETURN OF LEADING PORTION OF REGION 16730 ROTATIONS 4 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	4	15	16781	N08 E72	279	200	1.5									
80	4	16	16781	N07 E59	277	600	2.5									
80	4	17	16781	N07 E51	274	1000	2.5									
80	4	18	16781	N07 E32	277	800	2.5									
80	4	19	16781	N06 E20	278	700	3.0									
80	4	20	16781	N06 E12	273	300	2.0									

HALE REGION 16783 — CMP DATE 22.4

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	4	16	16783	S17 E71	265	900	4.0	21396	S14 E74	267	(AP)	3	P	10	1	AXX
80	4	17	16783	S17 E64	261	900	4.0	21396	S16 E63	264	(BP)	4	B	50	15	CAO
80	4	18	16783	S17 E45	264	1700	4.0	21396	S17 E49	265	(B)	4				
80	4	19	16783	S17 E34	264	2200	4.0	21396	S16 E35	266	(B)	4	C	190	10	EAI
80	4	20	16783	S17 E20	265	1800	3.5	21396	S17 E22	266	(BP)	4	B	70	34	FSI
80	4	21	16783						S17 E08				B	120	24	ISI
80	4	22	16783						S16 W05				B	60	6	BXO
80	4	23	16783						S17 W16				M	130	6	BXO
80	4	24	16783	S16 W32	264	1600	2.5	21396	S18 W32	266	(B)	3	P	40	6	DRO
80	4	25	16783	S17 W45	264	1500	3.0									
80	4	27	16783	S17 W72	264	400	3.0									

HALE REGION 16784 — CMP DATE 22.7 — RETURN OF NORTHEAST PART OF REGION 16730 ROTATIONS 4 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	4	17	16784	N20 E62	263	400	2.5									
80	4	18	16784	N19 E44	265	500	3.0									
80	4	19	16784	N17 E37	261	500	2.5									
80	4	20	16784	N17 E24	261	400	2.5									
80	4	24	16784	N17 W27	259	400	2.0									
80	4	25	16784	N18 W40	259	400	2.5									
80	4	27	16784	N18 W63	255	200	3.0									

HALE REGION 16785 — CMP DATE 23.3 — RETURN OF REGION 16729 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	4	17	16785	S28 E71	254	100	2.0									
80	4	18	16785	S30 E53	256	500	3.0	21401	S27 E58		(AF)	3				
80	4	19	16785	S30 E43	255	500	3.0									
80	4	20	16785	S30 E32	253	1100	3.0	21411	S27 E32	256	(BF)	3	P	0	1	AXX

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HALE REGION 16785 (CONT) CMP DATE 23.3 RETURN OF REGION 16729 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	4	21	16785						S27 E17				B	50	4	CSO
80	4	22	16785						S25 E03				B	10	2	BXO
80	4	23	16785						S30 E04				H	50	6	DAO
80	4	24	16785	S30 W19	251	600	2.5									
80	4	25	16785	S29 W32	251	600	2.5									
80	4	27	16785	S29 W60	252	200	2.5									

HALE REGION 16787 CMP DATE 24.1 NEW PLAGE IN LOCATION OF TRAILING REGION 16731

				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	4	18	16787	N23 E62	247	900	3.5	21402	N24 E78	236	(X)	1				
80	4	19	16787	N23 E53	245	1400	4.0	21402	N23 E63	238	(B)	3	B	20	2	CSO
80	4	20	16787	N23 E42	243	1700	3.5	21402	N23 E49	239	(B)	4				
80	4	24	16787	N23 W09	241	1700	3.0	21402	N22 W05	239	(B)	4	P	50	8	DRC
80	4	25	16787	N23 W22	241	2400	3.0	21402	N22 W17	238	(B)	4	B	20	5	BXI
80	4	26	16787					21402	N22 W33	241	(AP)	4	B	30	2	CSO
80	4	27	16787	N23 W48	240	1100	3.0	21402	N23 W42	236	(AF)	3	B	0	3	BXO

HALE REGION 16789 CMP DATE 24.2

				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	4	17	16789					21397	S12 E87	240	(X)	3	B	130	1	AXX
80	4	18	16789	S12 E70	239	1400	3.5	21397	S12 E79	235	(B)	4				
80	4	19	16789	S13 E58	240	2300	4.0	21397	S12 E64	237	(B)	5				
80	4	20	16789	S13 E47	238	3000	3.5	21397	S12 E50	238	(BY)	5	B	750	57	EKI
80	4	21	16789						S13 E36				B	920	53	EKI
80	4	22	16789						S12 E21				B	1040	19	EKI
80	4	23	16789						S12 E17				M	1130	30	EKI
80	4		16789						S13 E04				M	930	32	EKI
80	4	24	16789	S13 W08	240	1800	3.5	21397	S13 W06	240	(B)	5	P	940	36	EKI
80	4	25	16789	S13 W22	241	2900	3.0	21397	S13 W19	240	(BP)	5				
80	4	26	16789					21397	S13 W33	241	(BY)	5	B	600	20	EKI
80	4	27	16789	S13 W46	238	3000	3.0	21397	S13 W46	240	(BP)	5	B	780	45	FHI
80	4	28	16789						S12 W57				B	640	31	FKI
80	4	29	16789						S11 W71				B	630	7	FKI

HALE REGION 16790 CMP DATE 24.2

				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	4	18	16790	S25 E80	229	100	2.0									
80	4	19	16790	S23 E72	226	300	3.0									
80	4	20	16790	S28 E76	209	800	3.0									
80	4	24	16790	S28 W07	239	800	3.0	21412	S31 W05	239	(B)	4	P	190	18	CAO
80	4	25	16790	S28 W21	240	900	3.5	21412	S31 W18	239	(B)	4	B	150	10	CSI
80	4	26	16790					21412	S30 W31	239	(B)	5	B	320	8	EKO
80	4	27	16790	S29 W45	237	1000	3.0	21412	S31 W43	237	(B)	5	B	320	22	ESI
80	4	28	16790						S29 W54				B	330	12	EHI
80	4	29	16790						S29 W67				B	340	8	ESI
80	4	30	16790						S31 W82				B	340	5	EHO

HALE REGION 16788 CMP DATE 24.9 RETURN OF REGION 16733 AND LEADING PART OF REGION 16737 ROTATIONS 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	4	18	16788	N07 E68	241	400	2.5	21403	N10 E88	226	(X)	1				
80	4	19	16788	N11 E66	232	1500	3.5	21403	N10 E73	228	(AF)	2				
80	4	19	16788					21407	N14 E80		(X)	1				
80	4	20	16788	N11 E53	232	4000	3.5	21403	N10 E57	231	(BP)	3	B	20	5	CSO
80	4		16788					21410	N07 E45	243	AP	1				
80	4	20	16788					21407	N15 E66		(AF)	3				
80	4	20	16788					21409	N16 E51		(AP)	2				
80	4	21	16788						N09 E43				B	40	2	CSO
80	4	22	16788						N09 E27				B	20	1	HSX
80	4	23	16788						N10 E22				H	0	4	CRC
80	4	24	16788	N11 E01	231	3200	3.0	21403	N11 E02	232	B	1				
80	4	25	16788	N11 W14	233	4200	3.0									
80	4	27	16788	N11 W38	230	2100	2.5									

REGIONS OF SOLAR ACTIVITY

APRIL 1980

HALE REGION 16792 CMP DATE 25.1

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	4	20	16792	N20 E58	227	300	3.5									
80	4	24	16792	N22 E04	228	100	2.0									
80	4	25	16792	N22 W08	227	100	2.5									
80	4	27	16792	N22 W44	236	100	2.0									

HALE REGION 16791 CMP DATE 25.7

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	4	19	16791	N04 E78	220	300	3.0	21406	N05 E80		(X)	1				
80	4	20	16791	N04 E68	217	1100	3.0	21406	N05 E66		(X)	1				
80	4	21	16791						N04 E52				P	10	1	AXX
80	4	24	16791	N04 E14	218	1000	3.0		N04 E14				P	10	2	BXO
80	4	25	16791	N04 W01	220	800	3.0									
80	4	27	16791	N04 W25	217	600	2.5									

HALE REGION 16794 CMP DATE 25.8 RETURN OF REGION 16736 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	4	24	16794	S28 E15	217	700	2.5									
80	4	25	16794	S29 E01	218	900	2.5									
80	4	27	16794	S29 W24	216	300	2.0									

HALE REGION 16793 CMP DATE 26.7 RETURN OF REGION 16732 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	4	20	16793	N23 E70	215	700	3.0									
80	4	24	16793	N23 E23	209	600	2.0		N22 E16				P	10	1	AXX
80	4	25	16793	N23 E13	206	800	2.5									
80	4	27	16793	N23 W13	205	700	2.0									

HALE REGION 16795 CMP DATE 26.9 RETURN OF NORTHERN PART OF REGION 16741 ROTATION 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	4	24	16795	S17 E26	204	600	2.0									
80	4	25	16795	S16 E15	204	300	2.0	21414	S15 E20		B	2				
80	4	27	16795	S16 W11	203	200	2.0									
80	4	29	16795						S15 W40				B	10	1	AXX
80	4		16795						S07 W29				B	20	1	BXO
80	4	30	16795						S23 W45				B	10	1	AXX
80	4		16795						S07 W41				B	10	3	BXO

HALE REGION 16804 CMP DATE 27.4

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	5	2	16804	S06 W70		100	2.5									

HALE REGION 16805 CMP DATE 27.4

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	5	2	16805	S21 W71		300	3.0	21420	S21 W65		(B)	4				
80	5	3	16805	S22 W80		200	3.0	21420	S24 W80		B	2				

REGIONS OF SOLAR ACTIVITY

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HALE REGION 16797 — CMP DATE 28.4 — RETURN OF SOUTHERN PART OF REGION 16741 — ROTATION 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	4	24	16797	S26 E46	186	200	2.5									
80	4	25	16797	S26 E35	184	200	3.0									
80	4	27	16797	S25 E08	184	200	2.5									

HALE REGION 16796 — CMP DATE 28.5 — RETURN OF REGION 16742 — 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	4	24	16796	S17 E48	184	800	3.0									
80	4	25	16796	S17 E35	184	700	3.0									
80	4	27	16796	S17 E10	182	400	2.0									

HALE REGION 16798 — CMP DATE 30.0

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	4	24	16798	N25 E63	169	500	3.0									
80	4	25	16798	N26 E54	165	1000	3.5		N26 E52				S	10	2	BXO
80	4	27	16798	N27 E29	163	700	3.0									
80	4	30	16798						N29 W13				R	10	2	BXO
80	5	2	16798	N29 W38		600	3.0									
80	5	3	16798	N28 W52		400	2.5									
80	5	4	16798	N28 W66		200	2.5									

HALE REGION 16800 — CMP DATE 30.1

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	4	24	16800	S09 E66	166	200	2.5	21413	S07 E74	160	(AF)	3	P	10	2	BXO
80	4	25	16800	S07 E57	162	300	2.5	21413	S07 E59	162	(AF)	3	B	0	1	AXX
80	4	26	16800					21413	S07 E46	162	(AF)	4	B	10	1	AXX
80	4	27	16800	S07 E30	162	200	2.5		S07 E32				B	0	1	AXX
80	5	2	16800	S10 W41		100	2.0									
80	5	3	16800	S10 W54		100	1.5									

HALE REGION 16799 — CMP DATE 30.4

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	4	24	16799	N06 E75	157	300	3.0									
80	4	25	16799	N07 E64	155	900	3.5									
80	4	26	16799					21417	N12 E50		(AF)	3				
80	4	27	16799	N08 E35	157	700	3.5	21417	N12 E36		(AF)	3				
80	4	28	16799						N12 E25				B	0	1	AXX
80	4		16799						N07 E29				B	20	5	BXO
80	5	2	16799	N13 W31		500	2.5									
80	5	3	16799	N12 W45		400	2.0									
80	5	4	16799	N11 W58		200	2.0	21429	N07 W58		(BF)	3	B	10	2	BXO
80	5	5	16799	N10 W74		300	2.0	21429	N07 W70		(B)	4	B	10	3	BXO

NOTE: REGION NUMBER 16764 WAS NOT USED.
NO CALCIUM SPECTROHELIOGRAMS WERE SECURED AT MT WILSON OBSERVATORY ON APRIL 2, 4, 5, 21-23, 26 AND 28-30, 1980.
NO SUNSPOT OBSERVATIONS WERE MADE AT MT WILSON ON APRIL 2, 5, 21-23 AND 28-30, 1980.

CONTIGUOUS PLAGES APRIL 1980: NONE

DAILY CALCIUM PLAGE INDEX

APRIL 1980

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
80	4	1	42.8	80	4	11	72.2	80	4	21	*
80	4	2	*	80	4	12	54.1	80	4	22	*
80	4	3	32.2	80	4	13	62.5	80	4	23	*
80	4	4	*	80	4	14	54.0	80	4	24	37.8
80	4	5	*	80	4	15	58.7	80	4	25	47.2
80	4	6	42.1	80	4	16	48.8	80	4	26	*
80	4	7	45.8	80	4	17	46.4	80	4	27	28.0
80	4	8	57.4	80	4	18	42.3	80	4	28	*
80	4	9	53.8	80	4	19	44.0	80	4	29	*
80	4	10	63.7	80	4	20	41.0	80	4	30	*

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 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	1527	1605	1530	1-	3	0	0	0	0	0	2	0	*	
01	2017	2100	2020	1-	3	0	0	0	0	0	2	0	*	
01	2200	2227	2206	1-	5	0	0	0	1	0	2	0	*	
01	2247	2312	2251	1-	3	0	0	0	1	0	1	0	*	
02	0207	0314	0234	1-	1	0	0	0	1	0	0	0	*	
02	0416	0450	0422	1-	1	0	0	0	1	0	0	0	*	
02	0802	0830	0814	1-	5	0	0	1	1	1	0	0	*	
02	1122	1135	1127	1-	1	0	0	0	0	1	0	0	1115	16740
02	1336	1410	1343	1-	1	1	0	1	0	1	0	0	1335	16740
02	1700	1745	1707	1-	3	0	0	0	0	0	4	0	*	
02	1946	2035	2000	1+	5	1	0	0	1	0	4	0	*	
03	0116	0253	0129	2	1	1	0	0	1	0	0	0	*	
03	0634	0922	0720	2	1	0	0	1	1	1	0	0	0636E	16740
03	0657	0735	0708	1	5	2	0	1	0	1	0	0	0655E	16740
03	1355	1417	1358	1	1	0	0	1	0	0	0	0	*	
03	2040	2131	2050	1	5	0	0	0	1	0	3	0	2040	16737
04	0029	0056	0033	1-	1	0	0	0	1	0	0	0	0027	16752
04	0112	0157	0122	1-	1	0	0	0	1	0	0	0	0106	16752
04	1018	1050	1020	1	5	2	0	2	1	1	1	0	1015E	16740
04	1059	1130	1109	1	5	0	0	2	1	0	0	0	*	
04	1103	1135	1110	1	3	2	0	3	0	1	1	0	*	
04	1155	1240	1202	1	5	0	0	2	0	1	1	0	*	
04	1200	1228	1210	1	1	0	0	1	0	0	1	0	*	
04	1405	1500	1430	1	1	0	0	2	0	0	0	0	*	
04	1457	1540	1508	3	5	4	0	6	0	1	5	0	1458	16740
05	0230	0312	0238	1-	1	0	0	0	1	0	0	0	0235	16747
05	0345	0532	0402	2+	3	2	0	0	1	0	0	0	*	
05	0553	0730	0606	2	3	2	0	3	1	0	0	0	0602E	16747
05	1041	1105	1046	1	3	0	0	1	0	1	1	0	*	
05	1111	1132	1114	1	3	0	0	2	0	0	1	0	*	
05	1546	1635	1552	2+	5	4	0	5	0	1	5	0	1545	16747
05	1753E	1957D	1802	1	3	0	0	0	0	0	3	0	1756	16747
05	1957E	2004D	2004	1	3	0	0	0	0	0	3	0	1952	16761
05	2144	2244	2153	1-	5	0	0	0	1	0	2	0	2140	16753
06	0048E	0234	0100	1-	1	0	0	0	1	0	0	0	*	
06	0403	0634	0419	3	3	2	0	0	1	0	0	0	*	
06	0731	0818	0748	1-	1	0	0	0	1	0	0	0	*	
06	1224	1310	1231	1	5	2	0	5	0	1	3	0	1237	16761
06	1341	1624	1550	1	1	0	0	1	0	0	0	0	*	
06	1420	1500	1425	2+	5	6	0	6	0	1	4	0	*	
06	1540	1620	1547	2	5	3	0	5	0	1	3	0	1536	16751
06	1625	1710	1630	2-	5	3	0	6	0	1	4	0	1621	16747
06	2102	2300	2115	2	5	0	0	0	1	0	3	0	2055	16747
06	2308	2355	2316	1-	1	0	0	0	1	0	0	0	*	
07	0037	0238	0112	2+	3	2	0	1	1	0	0	0	*	
07	0320	0343	0324	1	1	0	0	0	1	0	0	0	0312	16757
07	0347E	0427D	0410	1-	1	0	0	0	1	0	0	0	*	
07	0455	0508	0500U	1	3	1	0	0	1	0	0	0	*	
07	0530	0640	0548	2+	5	3	0	2	1	1	1	0	0547E	16747
07	0533	0622	0544	2	3	1	0	4	0	0	0	0	0545E	16747
07	1345	1400	1352	1-	1	1	0	1	0	1	0	0	1347	16752
07	1602	1620	1610	1+	5	2	0	6	0	1	2	0	*	
07	1653E	1730	1658	1-	3	0	0	0	0	0	2	0	*	
07	1843	1923	1852	1	5	1	0	0	1	0	2	0	1845	16747
07	2247E	2322	2257	1-	5	0	0	0	1	0	2	0	*	
08	0118	0140	0120D	1-	1	1	0	0	1	0	0	0	*	
08	0151E	0300D	0200	1-	1	0	0	0	1	0	0	0	0215E	16761
08	0255E	0449	0312	3	3	2	0	0	1	0	0	0	*	
08	0458	0607	0509	1+	1	0	0	0	1	0	0	0	*	
08	0650	0705	0655	1-	5	0	0	0	1	0	0	0	*	
08	0729	0745	0734	1-	5	1	0	1	1	1	0	0	0740E	16742
08	1049	1120	1105	1-	5	0	0	0	1	1	0	0	*	
08	1433	1441	1435	1-	1	1	0	1	0	1	0	0	*	
08	1957	2045	2001	1-	3	0	0	0	0	0	3	0	*	
08	2054	2143	2108	1-	5	0	0	0	1	0	3	0	2053	16747
08	2155	2231D	2207	1-	1	0	0	0	1	0	0	0	2155	16752
08	2231E	2307	2241	1-	1	0	0	0	1	0	0	0	2237	16757
08	2356	0038	0008	1-	1	0	0	0	1	0	0	0	*	
09	0045	0102	0048	1	3	1	0	0	1	0	0	0	*	
09	0153	0300	0215	1	3	1	0	0	1	0	0	0	*	
09	0514	0627	0518	2-	1	1	0	0	1	0	0	0	*	
09	0808	0814D	0814	1-	5	1	0	1	1	1	0	0	0755	16768
09	0830	0847	0833	1-	1	1	0	0	0	1	0	0	*	
09	1508	1629	1547U	1	1	0	0	1	0	0	0	0	*	
09	1758	1835	1802	1-	3	0	0	0	0	0	2	0	*	
09	2221	0006	2240	1-	5	1	0	0	1	0	2	0	*	
10	0239	0349	0255	1-	1	0	0	0	1	0	0	0	*	
10	0436	0512	0446	1-	1	0	0	0	1	0	0	0	*	
10	0628	0640	0639	1	1	0	0	1	0	0	0	0	*	
10	0757	0809D	0809	1	5	2	0	4	1	1	0	0	0756	16763
10	0834	0858	0844	1-	5	0	0	1	1	1	1	0	*	
10	0918	1025	0926	2+	5	3	0	6	1	1	1	0	0930E	16747
10	1254	1310	1300	1	3	2	0	4	0	1	1	0	*	
10	1724	1750	1730	2	5	2	0	4	0	1	3	0	1722	16747
10	1946	2015	1953	1-	1	0	0	0	0	0	1	0	*	
10	2156	2242	2208	1-	5	0	0	0	1	0	2	0	2218E	16763

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TIME SWF	SCHA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
11	0413	0500	0425	1-	1	0	0	0	1	0	0	0	*	
11	0630	0715	0645	1+	5	1	0	3	1	1	1	0	*	
11	0726	0751	0735	1	5	1	0	3	1	1	1	0	*	
11	0813	0850	0830	1	5	0	0	1	1	1	0	0	*	
11	0905	0955	0914	1+	5	2	0	5	1	1	1	0	*	
11	1246	1342	1301	1	1	0	0	2	0	0	0	0	1248	16752
11	1307	1327	1315	1	3	2	0	2	0	1	1	0	*	
11	1350	1410	1357	1	5	2	0	5	0	1	4	0	1356	16761
11	1509	1520	1513	1-	1	0	0	1	0	1	0	0	1506	16747
11	1745	1900	1754	1	3	0	0	0	0	0	2	0	1746E	16763
11	1935	2030	1943	1	3	0	0	0	0	0	2	0	*	
11	2254	0023	2319	1-	5	0	0	0	1	0	2	0	2309	16763
12	0054	0150	0100	1-	1	0	0	0	1	0	0	0	*	
12	0205	0300	0225	1-	1	0	0	0	1	0	0	0	*	
12	0543	0628D	0603	1-	1	0	0	0	1	0	0	0	0610E	16762
12	0630	0700	0641	2	5	2	0	2	1	1	1	0	0640	16752
12	0903	1010	0928	1	5	3	0	4	1	1	1	0	0920	16763
12	1403	1425	1409	1	5	2	0	2	0	1	4	0	*	
12	1432	1450	1438	1-	1	0	0	1	0	1	0	0	*	
12	2009	2039D	2020	1-	1	0	0	0	1	0	0	0	2001	16752
12	2039E	2155	2055	1+	5	0	0	0	1	0	4	0	2039	16747
12	2225	2251D	2231	1	5	0	0	0	1	0	2	0	2228	16752
12	2251E	0011	2309	1-	1	0	0	0	1	0	0	0	2301	16763
13	0403	0610	0414	2	3	2	0	0	1	0	0	0	*	
13	0836	0846D	0846	1+	5	2	0	5	1	1	1	0	0834	16752
13	0905	0920	0909	1-	1	0	0	0	0	1	0	0	0900	16752
13	1006	1015	1009	1-	1	0	0	0	0	1	0	0	1003	16763
13	1114	1130	1118	1	3	1	0	3	0	1	1	0	1113	16773
13	1230	1245	1237	1	3	0	0	3	0	1	1	0	1228	16768
13	1424	1448	1435	1	1	0	0	1	0	1	0	0	1419	16773
13	1543	1645	1552	1	1	0	0	1	0	0	0	0	1545	16747
13	1732	1810	1735	1-	3	0	0	0	0	0	2	0	1728	16773
13	1853	1925	1858	1-	3	0	0	0	0	0	3	0	1851	16768
13	1955	2045	2002	1-	3	0	0	0	0	0	3	0	1955	16773
13	2130	2216	2137	1-	5	0	0	0	1	0	3	0	2127	16763
13	2313	2322D	2322	1-	1	0	0	0	1	0	0	0	*	
14	0217	0238D	0220	1-	1	0	0	0	1	0	0	0	*	
14	0238E	0310	0248	1-	1	0	0	0	1	0	0	0	*	
14	0406	0523	0421	1-	1	0	0	0	1	0	0	0	*	
14	0914	1000	0926	1	1	1	0	1	0	1	0	0	0920E	16771
14	1113	1140	1125	1	1	1	0	1	0	1	0	0	*	
14	2006	2030D	2014	1-	5	0	0	0	1	0	3	0	2004	16771
14	2030E	2123	2046	1-	5	0	0	0	1	0	3	0	2037	16771
14	2137	2250	2143	1	5	0	0	0	1	0	4	0	2137	16763
15	0204	0305	0211	2	1	1	0	0	1	0	0	0	*	
15	0319E	0400	0323	1-	1	0	0	0	1	0	0	0	*	
15	0441	0512	0450	1-	1	0	0	0	1	0	0	0	*	
15	0550	0630	0553	1+	5	3	0	2	1	1	1	0	*	
15	1509	1540	1511	2	5	4	0	6	0	1	4	0	1509	16773
16	0058	0252	0110	1	1	1	0	0	1	0	0	0	0058E	16773
16	0539	0606	0543	1-	1	0	0	0	1	0	0	0	0541E	16773
16	0636	0739	0651	1-	5	0	0	0	1	0	1	0	0645	16773
16	0909	0950	0914	1	5	0	0	1	1	1	0	0	0909	16773
17	0249	0323	0301	1-	1	0	0	0	1	0	0	0	*	
17	0351	0423	0359	1-	1	0	0	0	1	0	0	0	*	
17	0436	0633	0450	1	1	0	0	0	1	0	0	0	*	
17	2002	2030	2010	1-	3	0	0	0	1	0	3	0	*	
17	2213	2314	2232	1-	1	0	0	0	1	0	0	0	*	
17	2317	2350	2327	1-	1	0	0	0	1	0	0	0	*	
18	0435	0516	0446	1-	1	0	0	0	1	0	0	0		
18	0625	0650	0630	1	5	0	0	0	1	0	0	0	0624E	16773
18	0809	0840	0812	1-	5	0	0	0	1	1	0	0	0812	16788
18	1330	1358	1338	1-	1	0	0	2	0	0	0	0	*	
18	1500	1525	1506	1-	5	0	0	0	0	1	3	0	*	
18	2003	2105	2010	1	5	0	0	0	1	0	3	0	2000	16788
19	0238	0330	0258	1-	1	0	0	0	1	0	0	0	*	
19	0346	0409	0348	1-	1	0	0	0	1	0	0	0	*	
20	0249	0308	0254	1-	1	0	0	0	1	0	0	0	*	
20	0640	0700	0642	2	5	1	0	0	1	1	0	0	*	
20	2137	2235	2148	1-	5	0	0	0	1	0	3	0	*	
21	0243	0308	0247	1-	1	0	0	0	1	0	0	0	*	
21	0359	0513	0414	1-	1	0	0	0	1	0	0	0	*	
21	0542	0610	0545	1-	5	0	0	0	1	1	0	0	*	
21	0600E	0640	0614	1-	1	0	0	0	1	0	0	0	0600E	16788
21	1910	2015	1915	1-	3	0	0	0	0	0	4	0	*	
22	0116	0156D	0125	1-	1	0	0	0	1	0	0	0	*	
22	0323	0400	0338	1-	1	0	0	0	1	0	0	0	*	
22	0518	0650	0530	1+	5	0	0	0	1	0	0	0	*	
22	1319	1347	1328U	1-	1	0	0	3	0	0	0	0	*	
23	1145	1326	1152	1-	1	0	0	2	0	0	0	0	*	
24	1218	1301	1225	1-	1	0	0	2	0	0	0	0	1201	16783
25	1103	1130	1110	1-	1	0	0	1	0	1	0	0	*	
25	1532	1610	1541	1-	3	0	0	0	0	0	3	0	1532	16802
25	2041	2140	2047	1-	5	0	0	0	1	0	2	0	*	

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 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	McMATH REGION
26	0011	0052	0030	1-	1	0	0	0	1	0	0	0	*	
26	0057	0112D	0112	1-	1	0	0	0	1	0	0	0	*	
26	0330	0516	0335	2	3	1	0	1	1	0	0	0	*	
26	0602	0620	0608	1	5	1	0	2	1	1	0	0	0610	16783
26	0655	0710	0704	1-	5	0	0	0	1	0	0	0	*	
26	0720	0755	0726	1-	5	1	0	2	1	1	0	0	0720	16802
26	0836E	0930	0843	1-	5	1	0	4	1	1	0	0	*	
26	0942	1020	0951	1	5	1	0	4	1	1	0	0	0943E	16802
26	1145	1220	1152	1	5	1	0	1	0	1	1	0	1147E	16783
26	1248	1252D	1252	1-	5	0	0	4	0	1	3	0	1250E	16802
26	1305	1318	1309	1-	1	1	0	0	0	1	0	0	*	
26	1510	1535	1520	1	5	0	0	3	0	1	2	0	1510	NO DATA
26	1739	1800	1742	1-	3	0	0	0	0	0	3	0	*	
26	2031	2137D	2037	1	5	0	0	0	1	0	4	0	2031	16802
26	2300	2339	2312	1-	1	0	0	0	1	0	0	0	2315E	16801
27	0110	0127	0114	1-	1	0	0	0	1	0	0	0	0059	16783
27	0156	0226	0204	1-	1	0	0	0	1	0	0	0	*	
27	0229	0252D	0233	1-	1	1	0	0	1	0	0	0	*	
27	0251E	0363	0304	1-	1	0	0	0	1	0	0	0	*	
27	0516	0603	0521	1-	1	0	0	0	1	0	0	0	*	
27	1125	1135	1129	1-	1	1	0	0	0	1	0	0	*	
27	1540	1555	1545	1-	1	0	0	1	0	1	0	0	*	
27	1930	2012	1932	1-	5	0	0	0	1	0	3	0	1928	16789
27	2053	2138	2100	1-	5	0	0	0	1	0	3	0	*	
28	0041	0106	0046	1-	1	0	0	0	1	0	0	0	*	
28	0343	0418	0347	1-	1	0	0	0	1	0	0	0	*	
28	0848	0904	0852	1-	1	0	0	2	0	1	0	0	*	
28	1204	1230	1211	1	3	2	0	3	0	1	1	0	1157	16803
28	1236	1330	1247	2	5	3	0	5	0	1	1	0	*	
28	1537	1615	1542	1-	1	0	0	0	0	0	2	0	1539	16803
28	1705	1713D	1713	1	5	1	0	1	0	1	2	0	*	
28	1727	1750	1737	1-	1	1	0	1	0	1	0	0	*	
28	1925	2015	1930	1-	1	0	0	0	0	0	2	0	*	
28	2040	2116D	2046	1-	5	0	0	0	1	0	2	0	*	
28	2116E	2234	2122	1-	5	0	0	0	1	0	2	0	*	
28	2302	0012	2320	1-	5	0	0	0	1	0	1	0	*	
29	0303	0346	0307	1-	1	0	0	0	1	0	0	0	*	
29	0353	0525	0411	1-	1	0	0	0	1	0	0	0	0352E	16803
29	0537	0704	0601	1-	1	0	0	0	1	0	0	0	*	
29	0843	0930	0903	1	5	1	0	1	1	1	0	0	*	
29	0930	1006	0956U	1	1	0	0	2	0	0	0	0	*	
29	1025	1040	1032	1	1	1	0	1	0	1	0	0	*	
29	1049	1105	1056	1-	1	0	0	1	0	1	0	0	*	
29	1228	1303	1252	2	1	3	0	1	0	1	1	0	*	
29	1419	1450	1426	1-	5	1	0	1	0	1	2	0	1428	16803
29	1457	1510	1502	1-	5	0	0	1	0	1	2	0	1507	16802
29	1611	1620	1615	1-	5	0	0	1	0	1	2	0	*	
29	1719	1728	1723	1-	5	0	0	1	0	1	2	0	*	
29	1816E	1845	1821	1-	3	0	0	0	0	0	2	0	*	
29	2018	2108	2024	1-	3	0	0	0	1	0	3	0	*	
30	0019	0133	0035	1-	1	0	0	0	1	0	0	0	*	
30	0149	0319	0201	1-	1	0	0	0	1	0	0	0	*	
30	0342	0553	0413	1-	1	0	0	0	1	0	0	0	*	
30	0545	0600	0551	1	5	1	0	1	1	1	0	0	*	
30	0837	0850	0842	1-	1	0	0	1	0	1	0	0	*	
30	0901	0912D	0912	1-	5	1	0	2	1	1	0	0	*	
30	0924	0934	0929	1-	1	0	0	1	0	1	0	0	*	
30	0946	1025	1001	1	5	1	0	1	1	1	0	0	*	
30	1104	1232	1132	2	5	3	0	3	1	1	1	0	*	
30	1255	1310	1302	1	1	0	0	1	0	1	0	0	*	
30	1342	1415	1356	1	5	1	0	3	0	1	3	0	*	
30	1547	1554D	1554	1	5	1	0	1	0	1	5	0	1537	16802
30	1608	1630	1617	1	3	0	0	3	0	1	0	0	*	
30	2022	2130	2033	1	5	0	0	0	1	0	4	0	2030E	16783

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) AND STATION
01	0530-0710 GN

STATIONS REPORTING FOR APRIL 1980:

Ellensburg, Washington, USA	SES
Glenorchy, Tasmania, Australia	SWF
Hiraiso, Japan	SWF
Hobart, Tasmania, Australia	SEA
Huancayo, Peru	SWF
Inubo, Japan	SPA
Juliusruh, GDR	SWF
Kühlungsborn, GDR	SEA, LF-SPA
Littleton, Colorado, USA	SES
Lüchow, GFR	SWF
Panská Ves, Czechoslovakia	SEA, SES, SWF
Preston, UK	SEA
St. Cloud, Minnesota, USA	SES
Somerton, UK	SWF
Trenton, New Jersey, USA	SES
Úpice, Czechoslovakia	SEA
Vsetin, Czechoslovakia	SEA
Zilina, Czechoslovakia	SEA

SIDs BY HALE REGION

APRIL 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
REGION																														
16737			1																											
16740		2	2	2																										
16742								1																						
16747					4	2	3	1		2	1	1	1																	
16751						1																								
16752				2			1	1			1	3	2																	
16753					1																									
16757							1	1																						
16761					1	1		1			1																			
16762										1		1																		
16763										2	2	2	2	1																
16768									1		1		2																	
16771														3																
16773													4		1	4		2												
16783																	1				1			1	1	2	1			1
16788																		2			1									
16789																											1			
16801																										1				
16802																									1	4			1	1
16803																												3	2	
NO REGION DATA																										1				
NO FLARE PATROL	4	5	2	5	3	5	6	8	7	6	7	4	2	4	4		6	2	2	3	4	4	1		2	7	7	10	11	12
EVENT TOTALS	4	7	5	9	9	9	11	13	8	11	13	11	13	8	5	4	7	6	2	3	6	4	1	1	4	15	9	13	14	14

PIONEER XII

MAGNETIC FIELD MAGNITUDES

APRIL 1980

DATE	TIME	BMAG
04/01/80	20:50:50	19.74
04/02/80	20:25:39	9.71
04/03/80	23:16:22	7.37
04/04/80	20:26:45	6.85
04/05/80	20:29:47	10.12
04/06/80	20:30:08	7.74
04/07/80	20:33:24	5.64
04/08/80		----
04/09/80	20:31:21	7.70
04/10/80	20:32:59	8.10
04/11/80	20:32:19	7.26
04/12/80	20:33:43	7.52
04/13/80	20:32:18	7.17
04/14/80	20:31:14	12.42
04/15/80	20:56:23	9.85
04/16/80	20:28:55	12.47
04/17/80	20:30:54	6.70
04/18/80	20:29:34	10.56
04/19/80	20:44:20	8.22
04/20/80	20:26:52	6.13
04/21/80	20:23:06	10.89
04/22/80	20:25:04	9.62
04/23/80	20:20:15	9.28
04/24/80	20:20:53	9.38
04/25/80	20:16:21	9.53
04/26/80	20:15:07	14.25
04/27/80	20:08:48	10.17
04/28/80	20:09:47	9.43
04/29/80	20:04:36	8.57
04/30/80		----

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 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	0736	CULG	0110	0201								IS,W
			CULG	0201	0736		0145	0736					IN,W
			CULG	0300.5	0301.5	1	0300.5	0302	1				IIIG,V
			LEAR				0300.6	0301.9	1				CONT
			CULG				0303	0304.5	1				IIIG
			LEAR				0330.5	0330.9	1				CONT
	0536	1715	WEIS				0545.5	0548.6	2				IIIG
			CULG				0546.5		1				IIIB
	0550	0912	BLEN				0550 E	0912 D	2				I,DC
			WEIS				0601.0	1037	1				IN
			WEIS				0617.7	0617.9	2				IIIG
			CULG				0621		1				IIIB
			LEAR				0706.7	0707.8	1				III
			CULG				0707.5	0708	1				IIIB,U
			WEIS				0707.6	0707.9	2				IIIG
			WEIS				0720.7	0721.1	2				IIIG
			CULG				0732.5						IIIB,W
			LEAR				0732.6	0732.8	1				III
			WEIS				0732.7	0732.8	1				IIIB
			WEIS				0734.9	0735.2	1				IIIG
			WEIS				0816.4	0816.6	1				IIIB
			WEIS				0819.1	0819.3	1				IIIB
			BLEN				0826.2	0827.2	2				IIIG
			WEIS				0826.3	0827.4	2				IIIG
			LEAR				0826.4	0826.7	1				CONT
			WEIS				1010.9	1011.2	2				IIIB
			WEIS				1040.7	1040.8	2				IIIB
			WEIS				1318.3	1322.8	2				IIIG
	1319	2400	HARV				1321	2400	1				IN,W
			WEIS				1325.8	1326.1	1				IIIB
			HARV				1329	2330	1				IIIN
	1048	1655	BLEN	1329.2	1329.3	1	1329.2	1329.3	1				III,B,RS
			HARV	1524	1528	2	1524	1528	2				IIIGG
			BLEN	1524.2	1528.4	3	1524.2	1528.4	3				IIIGG
			WEIS				1524.4	1527.8	2				IIIGG,RS
	0820	1700	DWIN	1525.6		2							IIIB
			HARV				1540	1548	2				IIIGG
			WEIS				1540.7	1541.9	1				IIIG
			BLEN				1540.7	1548.0	2				IIIG
			WEIS				1546.6	1548.2	2				IIIG
			WEIS				1608.8	1609.2	1				IIIG
			WEIS				1618.0	1618.8	1				IIIG
			WEIS				1633.8	1634.1	2				IIIB
			WEIS				1635.8	1636.3	1				IIIG
			WEIS				1641.9	1642.2	2				IIIG
			HARV				1749	1750	2				IIIG
			HARV				1829	1830	2	1829	1830	2	IIIG,U
			PALE				1829.5	1829.9	2				V
			HARV				1900	1901	2	1901		2	IIIG,U
			PALE				1900.7	1902.1	1				V
			HARV				2047	2051	2				IIIGG
	2036	2400	CULG	2047	2051	1	2047	2050	1				IIIG
			CULG				2127						IIIB,W
			CULG	2146.5	2211	1							IIIS
			CULG				2148.5	2150					IIIG,W
			CULG				2222.5		1				IIIB
			CULG				2225.5	2226	1				IIIG
			HARV				2226		2				IIIG
			HARV				2337	2339	2				IIIG
			CULG	2337	2338	2	2337	2338.5	1				IIIG
			LEAR				2337.5	2339.4	1				CONT
			PALE				2337.8	2339.4	1				V
			CULG	2352	2353.5								I,W
02	0000	0736	CULG				0008	0730					IN,W
			CULG				0029.5		1				UNCLF
			LEAR				0029.7	0033.7	1				CONT
			CULG	0031.5	0032.5	1	0031	0032.5	2	0032	0032.5	1	IIIG
			CULG	0049	0122	2							IIIG,N
			CULG	0102.5	0104.5	1	0102.5	0104.5	2	0103	0104	1	IIIGG,U

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 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	
02			LEAR				0102.8	0104.5	1				CONT
			PALE				0102.9	0104.3	2				V
			CULG	0108	0736								IN,W
			CULG				0129	0129.5					IIIG,W
			LEAR				0129.4	0129.5	1				III
			LEAR				0242.8	0251.3	1				CONT
			CULG				0243	0251		0244	0245.5		IIIN,W
			CULG	0247	0257	1							IIIG,N
			CULG	0410	0421	1							IIIG,N
			CULG	0444	0529	1	0444	0529	1				IIIG,N
	0534	1016	WEIS				0551.2	0551.6	1				IIIG
			WEIS				0604.4	0604.5	1				IIIB
			WEIS				0649.6	0649.7	1				IIIB
	0550	1705	BLEN	0726.1	0726.3	1	0726.1	0737.1	2				IIIGG
			WEIS				0726.4	0726.5	2				IIIB
			CULG				0726.5		1				IIIB
			WEIS				0902.3	0904.0	2				IIIG
			BLEN	0902.3	0904.8	2	0902.3	0904.8	3				IIIGG,RS,U
			WEIS				1007.1	1007.5	1				IIIG
	0650	1705	DWIN	1121.4	1121.6	2							IIIG
			BLEN	1121.4	1121.6	2							DCIM
			BLEN				1153.8	1217.9	3				IIIGG,U
			BLEN	1214.4	1214.6	1							DCIM
	1319	2345	HARV				1319	2345	2				I
			BLEN				1400	1705 D	2				I,DC
			BLEN	1405.3	1406.4	2							DCIM
			DWIN	1409.1	1409.6	1							IIIG
			HARV				1411	2212	2				IIIN
	1026	1709	WEIS				1457.7	1457.9	1				IIIB
			WEIS				1659.7	1700.9	2				IIIG
			BLEN	1659.8	1703.0	2	1659.8	1703.0	3				IIIGG
			HARV				1700		3				IIIG
			HARV				1721		2				IIIG
			HARV				1822	1825	2				IIIG
			HARV				2022	2026	3	2023	2026	2	IIIGG,V
			SGMR				2022.3	2023.4	2				V
			PALE				2022.5	2025.8	2				CONT
	2035	2400	CULG				2035	2400					IS,DC,W
			HARV				2111	2136	2				DC
			CULG				2211	2330					IIIN,W
03	0000	0735	CULG				0000	0120					IS,W
			CULG				0009	0735					IIIN,W
			LEAR				0009.7	0010.1	1				CONT
			LEAR				0026.6	0036.0	1				CONT
			LEAR				0055.7	0105.8	1				II
			LEAR				0117.0	1004.0	1				B
			CULG							0120	0135	1	SWF
			CULG				0120	0224	1				IS,DC
			CULG	0122	0735								IN,W
			CULG				0224	0449					IS,DC,W
			CULG				0446	0447	2				IIIG
			CULG				0449	0735	1				IS,DC
	0545	1711	WEIS				0545	1625	2				IN
			WEIS				0621	1549	2				IIIN
			CULG				0625	0626	2				IIIG
			CULG	0628	0641	1							IIIS
	0550	1705	BLEN	0629.0	0640.6	2							DCIM
			WEIS				0634.0	0639.0	2				IS
			CULG	0637	0735	2	0701	0735	2				IV P
			BLEN	0653	0730	3	0647	0825	3				IV,P
	0650	1515	DWIN	0701	0722	2							IV P
			CULG				0705.5	0707	1				IIIG
			CULG				0706	0729	3				II
			WEIS				0706.0	1330	1				CONT
			LEAR				0715.9	0729.5	1				II
			WEIS				0716.0	0722.0	2				II
			LEAR				0730.0	1004.0	1				IV
			BLEN				0908.7	0912.4	1				IIIG
			BLEN				1048	1705 D	2				I,DC

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 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	
03			BLEN	1131.2	1134.8	2	1131.2	1134.8	2				IIIGG
	1319	2340	HARV				1319	2340	2				I
			HARV				1559	2052	2				IIIN
			SGMR				1629.1	1628.4	2				CONT
			WEIS				1630.7	1633.5	3				IIIGG,U
			BLEN	1630.7	1635.8	1	1630.7	1635.8	2				IIIGG,B
			HARV				1631	1633	2	1632	1633	2	IIIGG,U
			SGMR				1631.1	1632.4	2				CONT
			PALE				1915.2	0435.0	1				B
	2035	2400	CULG				2035	2400	1				IS,C,DC
			CULG				2043	2051					IIIS,W
			CULG				2246.5	2247.5	1				IIIG
			HARV				2247		2				IIIG
			LEAR				2248.0	1004.0	1				B
			CULG	2251	2251.5								IIIG,W
			HARV				2252	2253	2				IIIG
			CULG				2252	2253	2				IIIG
			CULG	2253	2329								IN,W
			CULG	2348.5	2349								IIIG,W
04	0000	0546	CULG				0000	0057	1				IS,C,DC
			CULG	0008.5	0009	1							IIIG
			CULG				0026.5	0028.5	3				IIIGG
			CULG				0029	0134	2	0030	0134	1	IIIN
			CULG	0038	0106								IS,W
			CULG				0039	0546					IIIN,W
			CULG				0057	0115	1				IS
			CULG				0115	0546					IS,W
			CULG	0248	0546								IN,W
			CULG				0311	0316	1	0311	0318	1	IIIS
			CULG	0526.5		1	0526.5		1				IIIB,U
	0600	0735	CULG	0600	0735								IN,W
			CULG				0600	0735					IS,W
			CULG				0613.5	0615.5	2				IIIGG
	0540	0642	WEIS				0613.6	0616.3	2				IIIGG
	0550	1305	BLEN				0613.6	0620.4	2				IIIG,U
			WEIS				0619.9	0620.4	2				IIIG
			CULG				0620	0735					IIIN,W
			WEIS				0638.3	0638.5	2				IIIG
			CULG				0647.5	0649	3				IIIG
			LEAR				0647.9	0649.1	2				V
			BLEN				0700						I,DC
			CULG	0707	0707.5	2	0706	0708	3				IIIGG,V
			CULG	0710	0710.5	2	0709.5	0710	2				IIIG
	0650	1345	DWIN	0710.0	0710.5	2							IIIG
			BLEN	0710.0	0710.4	1	0706.0	0710.4	3				IIIGG,V,DC
			BLEN	0858.5	0859.0	1							DCIM
	0832	1730	WEIS				0924.9	0926.3	1				IIIG
			WEIS				0928.9	0929.3	1				IIIB
			WEIS				0934.5	0936.2	2				IIIGG
			BLEN	0935.2	0935.8	1							DCIM
			WEIS				1012.3	1012.9	1				IIIG
			WEIS				1035.7	1036.1	1				IIIG
			BLEN	1102.3	1102.7	1	1102.3	1102.7	1				IIIG
			BLEN	1139.5	1140.1	2	1139.7	1140.1	2				IIIG,U
			DWIN	1139.7	1139.9	2							IIIG
			WEIS				1143.3	1143.4	2				IIIG
			BLEN	1239.2	1251.4	2	1239.2	1251.4	2				IIIGG,U
			WEIS				1239.3	1239.8	2				IIIG
			WEIS				1242.2	1242.7	2				IIIG
			WEIS				1250.9	1251.3	2				IIIG
			WEIS				1252.8	1253.1					IIIU
			WEIS				1257.4	1258.4	2				IIIG
			WEIS				1313.3	1314.6	2				IIIG
	1320	2345	HARV				1320	2345	2				I
			WEIS				1332.2	1333.4	2				IIIG
			HARV				1334	2345	2				IIIN
			HARV				1342	1344	2				IIIG
			WEIS				1342.0	1344.4	2				IIIGG
			WEIS				1346.3	1346.6	2				IIIG

SOLAR RADIO EMISSION
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APRIL 1980

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
04			WEIS				1414.9	1417.4	2				IIIG
			WEIS				1420.6	1420.7	2				IIIB
			HARV	1502	1544	2	1502	1605				IV	
			WEIS				1502.2	1627.0	3			IV	
			HARV				1503	1528	3	1506	1528	3 II	
			HARV				1537	1539	2	1537	1539	2	IIIGG
			WEIS				1637.2	1639.3	2				IIIG
			HARV				1714	1716	2				IIIG
			HARV				1720	1723	2	1720	1722	2	IIIG
			HARV				2010	2011	2				IIIG
	2035	2400	CULG				2035	2154					IIIN,W
			CULG				2035	2400					IS,W
			CULG	2151	2400	1							IIIN
			HARV				2153		2				IIIG
			CULG	2153		2							IIIB,RS
			CULG				2154	2212	1				IIIS
			CULG	2157	2400								IS,W
			CULG				2212	2238					IIIN,W
			HARV				2238	2248	2				IIIGG
			CULG				2238	2250	2				IIIS
			CULG				2250	2400					IIIN,W
			HARV				2304	2305	2				IIIG
			HARV				2328	2334	2				IIIG
			CULG				2328	2330	2				IIIGG
			LEAR				2329.0	2330.4	1				CONT
			CULG	2333		1	2333		2				IIIB
05	0000	0735	CULG	0000	0735		0000	0624					IS,W
			CULG				0000	0735					IIIS,W
			CULG	0009	0010	3							IIIG
			CULG				0023	0023.5	1				IIIG
			CULG				0041			0041			IIIB,W
			CULG	0047	0601								IIIN,W
			CULG				0154	0735	1				IIIN
			CULG	0425	0425.5	1							IIIG,RS
			CULG	0449	0449.5	2							DCIM
			CULG	0450	0450.5	1	0450	0450.5	1				IIIG
			CULG	0554.5	0555	1							IIIG,RS
			CULG	0622	0622.5	1							IIIG
			CULG				0624	0735	1				IS
	0537	1654	WEIS				0630.0	1715.0	2				IIIN,DP
			LEAR				0644.4	0645.6	2				CONT
			WEIS				0840.7	0840.9	3				IIIB
			WEIS				0850.9	0851.8	2				IIIG
			WEIS				0944.4	0945.1	3				IIIG
			WEIS				1009.0	1010.3	2				IIIG
			WEIS				1024.2	1025.3	3				IIIG
	1038	1720	BLEN				1038 E	1720 D	2				I,NS
			WEIS				1041.3	1042.9	3				IIIG
	1319	2340	HARV				1319	2340	2				IC
			HARV				1320	2340	2				IIIN
			HARV				1355		2				IIIB
			HARV				1424		2				IIIG
			BLEN	1452.7	1452.9	2							DCIM
			HARV				1526	1527	2				IIIG
			BLEN	1536.4	1536.7	1							DCIM
	1250	1730	DWIN	1542	1605	2						IV	Z,DCIM
			HARV	1542	1602	3	1542	1600	2	1542	1557	1 IV	
			HARV				1542	1557	2				IIIG
			BLEN	1542.3	1720	3	1542.3	1720	3			IV	
			WEIS				1545	1659	3			IV	
			WEIS				1554	1606	2			II	
			HARV				1554	1605	2			II	
			HARV				1633		1				IIIG
			WEIS				1642.5	1654.0	3				IIIGG
	1709	1715	WEIS										
			HARV				1709	1713	2	1709	1713	1	IIIG
			PALE				1720.0	0437.0	1				B
			HARV				1732		2				IIIB
			HARV				1744		2				IIIG

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	
05			HARV				1747	1759	2				IIIGG
			HARV				1840	1841	2				IIIGG
			HARV				1850	1851	3				IIIG
			HARV				1901	1903	2				IIIG
			CULG				2035	2400	2				IS,C,DC
			CULG				2035	2400	1				IIIS
	2035	2400	CULG	2035	2400	1							IS,W
			CULG				2050.5	2051	2				IIIG
			HARV				2153		3				IIIG
			HARV				2253	2257	3				IIIGG,V
			LEAR				2253.4	2256.7	1				CONT
			CULG				2253.5	2254	2				IIIG
			CULG				2254.5	2257	2	2256	2257	1	IIIGG,V
06			CULG				0000	0254	2				IS,DC
			CULG	0000	0734								IS,W
	0000	0734	CULG				0000	0108					IIIS,W
			CULG				0015	0016.5	2				IIIG
			CULG				0046		1				IIIB
			CULG				0108	0138	1				IIIS
			CULG				0138	0345					IIIN,W
			CULG	0206	0206.5	2							DCIM
			CULG	0239	0240	1							DCIM
			CULG				0249.5		1				IIIB
			CULG				0254	0407					IS,W
			CULG				0316	0322.5	2				DC
			CULG				0345	0510					IIIS,W
			CULG				0407	0734	2				IS
			CULG	0408	0615	3							IV
			CULG				0408.5	0434	2				II
			CULG				0409.5		2				IIIB
			CULG							0410	0430	2	SWF
			CULG				0413	0734	3				IV
			CULG				0510	0734	1				IIIS
	0536	1714	WEIS				0537	0730					CONT
			WEIS				0545	1423	2				IN
	0545	1722	BLEN	0545 E		3	0545 E		3				C
			CULG	0615	0734	1							IV
			BLEN				0630		2				I,DC
			CULG				0635	0734	1				N,RS,DP
	0645	1345	DWIN										
			WEIS				0713	1422	2				IIIS,DP
			BLEN				0713.4	0718.8	2				IIIGG
			CULG	0713.5	0714	1	0713.5	0714.5	2				IIIG
			BLEN	0732.5	0734.2	2	0732.5	0737.5	2				IIIGG,RS
			CULG	0733	0733.5	1							IIIG,RS
			BLEN	0855		2							I,DC
			BLEN				0959.4	1005.8	2				IIIG
			BLEN				1118.5	1118.7	2				IIIG
			BLEN				1304.7	1310.2	1				IIIG
			WEIS				1306.5	1313.5	3				IIIGG
			SGMR				1308.8	1309.2	1				CONT
			BLEN	1420.5	1715	3	1422.5	1721 D	3				IV,II
			SGMR				1422.8	1424.2	2				V
			WEIS				1423.3	1428.0	3				IIIGG
			WEIS				1423.5	1440.0	3				II
			WEIS				1424	1711	3				IV
			SGMR				1430.0	1430.5	1				CONT
			SGMR				1449.0	1638.0	1				B
	1603	2400	HARV				1603	2348	2				I
			HARV				1909		1				IIIB,W
	2034	2400	CULG				2034	2054	2				IS,C
			CULG	2034	2314								IS,W
			CULG				2040	2400					IIIN,W
			CULG				2054	2255	2				IS
			HARV				2152		1				IIIB,W
			HARV				2220	2239	2				IIIGG
			CULG				2231	2259	2				IIIG,N
			CULG	2237	2247	2							IIIN
			HARV				2244	2247	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	
06			HARV				2252		2				IIIG,U
			CULG				2255	2400	1				IS
			CULG	2314	2400	1							IS
			CULG				2357.5	2358	2				IIIG,V
			HARV				2358		2				IIIG,U
07			CULG	0000	0056	1	0000	0100	1				IS
	0000	0734	CULG				0000	0046					IIIN,W
			CULG				0017	0017.5	2	0017	0017.5	1	IIIG
			CULG				0046	0224					IIIS,W
			CULG							0055	0120	2	SWF
			CULG				0056	0142	1				IIIN
			CULG	0056	0540	2							IS,C
			CULG				0100	0550	2				IS,C,DC
			CULG				0224	0240	1				IIIS
			CULG				0240	0734					IIIN,W
			CULG				0301.5	0302	2				IIIG
			CULG				0524	0734	1				IIIN
			CULG				0526		2				IIIB
	0534	1357	WEIS				0534	1717	2				CONT,IS
			CULG							0535	0551	2	SWF
	0537	1715	BLEN	0537	0542	2	0537	0542	3				II,DCIM
			WEIS				0537.8	0541.4	3				IIIGG
			LEAR				0537.9	0751.0	2			IV	
			CULG	0538	0541.5	2	0539	0543	3				IIIGG,V
			CULG	0540	0734	3							IS,C
			BLEN	0540	1715 D	2	0540	1715 D	2				C,DCIM
	1401	1717	WEIS				0543	1703	2				IIIN
			CULG				0550	0734	3				IS,C,DC
			CULG				0602.5		2				IIIB
			LEAR				0847.0	0849.2	2				CONT
			WEIS				1015.8	1016.6	2				IIIG
			WEIS				1033.9	1039.6	3				IIIGG
			BLEN				1100	1715 D	2				I,DC
			WEIS				1254.2	1255.3	3				IIIG
			SGMR				1254.5	1254.8	2				V
	1318	2345	HARV				1318	2345	3				IC
			HARV				1319	2345	2				IIIN
	0925	1623	DWIN	1411	1451	1							IC
			WEIS				1512.9	1513.4	2				IIIG
			HARV				1513		2				IIIB
			SGMR				1513.0	1513.2	1				III
			HARV				1638		2	1638		2	IIIG
			HARV				1643		2				IIIB
			HARV				1745		2				IIIB
			HARV				1907		2	1907		2	IIIB,V
			HARV				1912	1914	2	1912	1914	2	IIIG
			CULG				2034	2400					IIIN,W
			CULG				2034	2400	2				IS,C,DC
	2034	2400	CULG	2034	2400	1							IS,C
			CULG				2048.5		1				RS,DP
			CULG				2059.5	2107	2				DC
			CULG				2142		1				IIIB
			HARV				2223		2				IIIB
			CULG				2223.5		2				IIIB
			HARV				2328	2330	2				IIIG
			LEAR				2328.3	2331.2	1				CONT
			CULG				2328.5	2329	1				IIIG
			CULG				2329.5	2330	2				IIIG
08			CULG				0000	0734	2				IS,C,DC
	0000	0734	CULG	0000	0734	1							IS,C
			CULG				0011	0734					IIIN,W
			LEAR				0055.5	0101.2	2				CONT
			CULG				0055.5	0057.5	2	0055.5	0057.5	1	IIIGG
			CULG				0057	0734					N,RS,DP,W
			CULG				0100	0639	2	0100	0322	1	IIIG,N
			PALE				0158.2	0159.4	3				V
			CULG				0158.5	0159	3	0158.5	0159	2	IIIG,V
			LEAR				0158.6	0159.4	2				V

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	
08			CULG							0306	0320	2	SWF
			CULG				0444	0445	3	0444	0444.5	1	IIIG,V
			LEAR				0444.0	0445.3	3				V
			LEAR				0528.8	0531.0	2				V
			CULG				0529	0530	3	0529	0530	1	IIIG,V
	0532	1724	WEIS				0533.0	1723.0	2				IN,CONT
	0540	0833	BLEN	0540 E	0833 D	2	0540 E	0833 D	2				C
			WEIS				0637.0	1722.0	2				IIIN
			CULG				0702	0730	1				SCINT
	0918	1713	BLEN	0918 E		2	0918 E		2				C
	0815	1740	DWIN	0943.0		2							IIIB
			WEIS				1116.4	1116.9	2				IIIG
			BLEN	1124.5	1143.5	2							DCIM
			DWIN	1129.6		1							IIIB
			DWIN	1132.6		2							IIIB
			DWIN	1142.5	1142.6	2							IIIG
			WEIS				1157.3	1202.7	3				IIIGG
			BLEN	1157.4	1158.2	3							UNCLF
			SGMR				1159.3	1159.5	1				III
			BLEN	1219.3	1219.7	2							UNCLF
	1303	2350	HARV				1303	23[illegible]0	2				IC
			HARV				1314	2256	2				IIIN
			DWIN	1332.5	1332.8	2							IIIG
			BLEN	1332.6	1348.5	2							DCIM
			HARV				1359	1419	2				IIIGG
			BLEN	1407.0	1425.0	2	1407.0	1425.0	2				IIIGG
			BLEN				1525	1713 D	2				I,DC
			DWIN	1528.2	1528.5	1							IIIG
			BLEN	1528.3	1529.9	2							DCIM
			DWIN	1529.6	1529.7	1							IIIG
			DWIN	1532.6	1533.1	1							IIIG
			HARV				1603	1604	3	1603	1604	3	IIIG,U
			WEIS				1603.3	1605.6	3				IIIG
			HARV				1630		1				IIIB
			HARV				1745	1850	2				DC
			CULG				2034	2400	1				IS
	2034	2400	CULG	2034	2400								IS,W
			HARV				2058		2				IIIB
			CULG				2058	2150	1				IIIN
			HARV				2149	2157	3				IIIGG
			CULG				2150	2400					IIIN,W
			CULG	2153	2154	2	2153	2154	2				IIIGG
			PALE				2153.1	2156.7	2				V
			CULG	2155	2155.5	1	2155	2156.5	3				IIIG,V
09	0000	0734	CULG	0000	0734		0000	0207					IS,W
			CULG				0048	0[illegible]55	1	0051	0055	1	IIIN
			LEAR				0048.5	00[illegible]9.0	1				CONT
			PALE				0059.1	0437.0	1				B
			CULG				0105.5	0106	2				IIIG,U
			LEAR				0154.2	0154.4	1				V
			CULG				0207	0500	1				IS,DC
			CULG				0500	0734	2				IS,DC
	0520	1000	WEIS				0521	0955	2				IS
	0540	0900	BLEN	0540 E	0900 D	2	0540 E	0900 D	2				I,DC
	0635	1720	DWIN										
			CULG				0645.5	0646	2				IIIB
			LEAR				0645.6	0646.7	2				CONT
			WEIS				0645.6	0646.6	3				IIIG
			CULG				0646	0717	1				IIIN
			LEAR				0659.1	0702.0	1				CONT
			WEIS				0659.2	0702.9	2				IIIGG
			CULG				0702		2				IIIB
			LEAR				0707.9	0959.0	1				B
			WEIS				0715.2	0717.8	2				IIIGG
			CULG				0716.5		2				IIIB
			WEIS				0832.2	0832.8	2				IIIG
	1303	2345	HARV				1303	2345	2				I
			HARV				1306	1308	2				IIIG
			HARV				1314	1316	2				IIIG

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
09	1318	1710	BLEN	1318 E	1710 D	2	1318 E	1710 D	2				I,DC
			BLEN				1331.9	1332.6	2				IIIG
			HARV				1332	1333	2				IIIG
			HARV				1430		2				IIIGG
			HARV				1457		3				IIIG,V
			SGMR				1600.7	1611.6	1				CONT
			HARV				1601	1604	2	1601	1604	2	IIIG,V
			HARV				1612	1613	3	1612	1613		IIIG
			BLEN				1612.3	1612.5	2				IIIG
			HARV				1623		1				IIIG
			HARV				1632		2	1632		2	IIIG
			HARV				1647	1648	3				IIIG
			HARV				1711		2	1711		2	IIIG
			HARV				1721	1724	3	1721	1724	3	IIIGG,V
			SGMR				1721.1	1721.9	2				CONT
			HARV				1752	1809	2	1752	1809	2	IIIN
			PALE				1928.8	1931.2	2				V
			HARV				1929	1930	3	1929	1930	2	IIIGG
			HARV	2025		2							IIIB
			CULG				2033	2258					IIIN,W
	2033	2400	CULG				2033	2220	1				IS,DC
			CULG	2033	2400								IS,W
			HARV				2121	2123	2				IIIG
			CULG				2121.5		1				IIIB
			CULG				2126.5	2127	2				IIIG
			HARV				2127		3				IIIG,U
			PALE				2127.8	2128.1	1				III
			HARV				2209		2	2209		2	IIIG
			CULG				2209	2209.5	3				IIIB
			CULG				2220	2400					IS,W
			CULG				2229	2232	1				UNCLF
			HARV				2233	2240	2				II
			CULG				2236.5	2241.5	2				II
			PALE				2236.8	2244.4	1				II
10	0000	0733	CULG	0000	0733		0000	0733					IS,W
			PALE				0046.8	0048.0	3				III
			LEAR				0046.8	0048.8	2				CONT
			CULG				0047	0706	1	0047	0152	1	IIIN
			CULG				0047.5	0048	3	0047.5	0049	2	IIIG
			LEAR				0107.6	0116.2	1				CONT
			PALE				0107.6	0107.8	1				III
			CULG	0108	0416	1							IIIN
			PALE				0115.8	0116.0	1				III
			CULG				0124	0126	3	0124.5	0126.5	2	IIIGG
			LEAR				0124.0	0128.0	2				V
			PALE				0124.0	0128.3	3				V
			LEAR				0148.2	0958.0	1				B
			CULG	0251	0252.5	2	0251.5	0252	1				IIIGG
	0540	1305	BLEN	0540 E	1305 D	2	0540 E	1305 D	2				I,DC
	0620	1345	DWIN										
			CULG				0639	0640	3				IIIG
			LEAR				0639.2	0640.1	2				V
			CULG				0653	0655.5	3				IIIG,U
			LEAR				0653.0	0655.8	2				CONT
			LEAR				0800.2	0801.8	2				CONT
			BLEN				0800.2	0800.9	3				IIIGG
			BLEN	1025.1	1027.3	3							IIIGG
	1304	2350	HARV				1304	2350	2				I
			HARV				1313		3				IIIB
			HARV				1345	1346	1				IIIG
			SGMR				1354.7	1408.1	2				V
			HARV				1355		2				IIIG
			HARV				1400	1404	3				IIIGG
	1405	1713	BLEN	1405 E	1713 D	1	1405 E	1713 D	1				I,DC
			HARV				1406	1409	3	1406	1409	2	IIIG,V
			BLEN				1407.8	1408.2	2				IIIG
			BLEN	1418.8	1424.9	2							DCIM
			HARV	1423		2							IIIG
	1433	1730	DWIN										

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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			BLEN	1539.8	1540.1	2							DCIM
			HARV				1609		1	1609		1	IIIG,W
			SGMR				1621.2	1624.5	1				CONT
			BLEN	1705.8	1706.3	3							IIIG
			HARV	1706		2	1706		2				IIIG
			HARV				1805		1	1805		1	IIIB,W
			HARV				1826		2	1826		2	IIIG
			HARV				1913		1				IIIB
			HARV				2005		1	2005		1	IIIB
			HARV				2009		1				IIIB
	2033	2400	CULG	2033	2115	1							IS
			CULG				2033	2400	1				IS,DC
			CULG				2035	2202					IIIN,W
			CULG	2115	2400								IS,W
			CULG	2127	2400	1							N,DCIM
			CULG	2127	2400								IIIN,W
			HARV				2139	2140	1				IIIG
			HARV				2201	2202	2	2201	2202	2	IIIG
			CULG				2201	2201.5	2				IIIG
			PALE				2201.3	2202.4	1				III
			HARV				2315		2				IIIG
			CULG				2315		1				IIIB
			HARV				2335		1				IIIB,W
11	0000	0733	CULG	0000	0733	1	0000	0733	1				IS,DC
			CULG	0044	0112		0044	0112					IIIN,W
			CULG	0103	0103.5	2							IIIG
			LEAR				0146.6	0147.0	1				CONT
			LEAR				0240.6	0255.6	1				S
			CULG				0255	0255.5	1	0255	0255.5	1	IIIG
			LEAR				0413.5	0418.4	1				CONT
			CULG				0413.5	0414	1				IIIG
			CULG	0416.5	0417	1	0416.5	0417	1				IIIG
			CULG				0427.5	0429.5	2				IIIG
			LEAR				0427.7	0957.0	1				B
			CULG	0512	0514.5	2	0512	0514.5	2				IIIG
			CULG	0517.5	0518	2							IIIG
	0535	0951	BLEN	0535 E	1715 D	2	0535 E	1715 D	2				I,DC
			CULG				0634	0636	1				IIIG
	0551	1729	WEIS				0652	1724	2				IS,DC
			WEIS				0658	1615	2				IIIN
			LEAR				0916.5	0916.8	2				III
			WEIS				0916.6	0917.1	3				IIIB
			WEIS				0954.9	0955.5	3				IIIG
			WEIS				1008.2	1010.6	3				IIIG
			WEIS				1036.7	1037.5	3				IIIG
	1035	1715	BLEN				1036.8	1037.1	3				IIIG
			SGMR				1104.3	1104.6	1				III
			WEIS				1105.3	1106.6	3				IIIG
	1303	2345	HARV				1303	2345	2				I
			WEIS				1305.9	1306.8	3				IIIG
			HARV				1306	1307	2				IIIG
			WEIS				1310.8	1312.3	3				IIIG
			BLEN	1310.8	1311.8	1	1310.8	1311.8	1				DCIM
			HARV				1311	1312	2				IIIG
	0630	1730	DWIN	1311.0	1311.5	1							IIIG
			HARV				1324	1326	2				IIIG
			BLEN	1348.7	1350.5	1	1348.7	1350.8	1				IIIGG,DCIM
			HARV				1349	1351	2				IIIG
			DWIN	1349.1	1350.5	1							IIIG
			DWIN	1359.0	1359.4	1							IIIG
			HARV				1425	1426	3				IIIG
			HARV	1459		1	1459		2				IIIG
			WEIS				1459.2	1500.0	3				IIIG
			BLEN	1459.2	1511.5	2	1459.2	1511.2	2				DCIM,RS
	0630	1730	DWIN	1510.5	1511.7	2							IIIG
			WEIS				1510.7	1511.3	2				IIIG
			HARV	1511		1	1511		2				IIIG
			WEIS				1516.9	1517.9	3				IIIG
			HARV				1517	1518	3	1517	1518	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	
11			HARV				1521		3				IIIG
			WEIS				1521.3	1521.5	2				IIIG
			HARV				1530	1531	3				IIIG
			WEIS				1530.2	1532.1	3				IIIG
			HARV				1540		1	1540		1	IIIB,W
			HARV				1736		1				IIIB,W
			HARV				1801	1804	1	1801	1804	1	IIIG
			HARV				1818		1				IIIG,W
			HARV	1821	1822	2	1821	1826	3	1821	1826	3	IIIGG,V
			PALE				1821.0	1828.0	3				V
			SGMR				1821.5	1823.1	3				V
			HARV				1848	1849	2				IIIG
	2033	2400	CULG	2033	2400								IS,W
			CULG				2033	2400	1				IS
			CULG				2101	2200					IIIN,W
			CULG				2126.5	2127.5	2				IIIG
			PALE				2126.8	2133.8	1				CONT
			HARV				2127		2				IIIG
			HARV				2132	2133	2				IIIG
			CULG				2132	2134	2				IIIG
			CULG	2142.5	2143	1							DCIM
			CULG				2145.5	2146	2				IIIG
			HARV				2146		2				IIIG
			CULG				2200	2325					IIIS,W
			HARV				2251	2300	2	2251	2300	2	IIIGG,V
			PALE				2251.0	2334.8	1				S
			CULG				2253	2302	2				IIIGG,V,U
			LEAR				2253.3	2258.2	1				CONT
			HARV				2315	2316	2				IIIG
			CULG				2315		1				IIIB
12	0000	0733	CULG	0000	0056	2	0000	0210	1				IS
			CULG				0046	0419					IIIN,W
			LEAR				0046.4	0957.0	1				B
			CULG				0127.5	0129	2	0127.5	0128.5	1	IIIG,U
			PALE				0127.6	0129.0	1				V
			CULG	0323	0323.5	2							DCIM
			CULG				0419	0640	1				IIIN
			LEAR				0457.1	0459.1	2				V
			CULG	0457.5	0458	1	0457	0459	3				IIIG,V
	0514	1332	WEIS				0518	1627	2				IN,CONT
	0535	1718	BLEN	0535 E	1718 D	3	0535 E	1718 D	3				I,DC
	1340	1731	WEIS				0547	1731	2				IIIN
			BLEN	0558.5	0602.0	2							DCIM,RS
			CULG	0602		2							DCIM
			BLEN	0620.3	0620.7	2							IIIG
			CULG	0620.5	0621	2							DCIM
			BLEN	1141.0	1141.3	3							IIIG
	0630	1730	DWIN	1235.2		2							IIIB
			BLEN	1235.2	1235.3	2							IIIB
			BLEN	1253.0	1257.7	2							DCIM
	1304	2400	HARV				1304	2400	2				IC
			HARV				1338	1339	2				IIIG
			SGMR				1338.2	1340.1	1				V
			BLEN	1338.2	1339.4	1	1338.2	1338.5	2				IIIG,DCIM
			HARV				1402	1413	2				IIIGG
			BLEN				1406.5	1408.1	2				IIIG
			BLEN	1653.5	1654.7	2							DCIM
			HARV	1654	1655	1							IIIG,W
			PALE				1948.9	1950.4	1				V
			PALE				2002.4	2007.3	1				CONT
			HARV				2007		2				IIIG
			HARV				2027		2				IIIB
			HARV				2032	2033	2				IIIG
	2033	2400	CULG	2033	2400	1	2033	2400	2				IS
			HARV				2040	2048	2				IIIGG
			CULG	2040	2043	1	2040	2045.5	3				IIIGG,V
			CULG				2047	2047.5	1				UNCLF
			PALE				2048.9	2050.4	1				V
			HARV				2053	2100	3				II

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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				2053	2104.5	3				II
			PALE				2053.8	2103.0	1				II
			HARV	2225	2228		2224	2227	3				IIIG
			CULG	2226	2227	2	2225.5	2227	2				IIIGG
			CULG				2235	2344.5	2				II
			HARV				2236	2242	2				II
			HARV	2300	2303	2							IIIG
			CULG	2300.5	2303.5	2							IIIG
			HARV				2326	2338	3				IIIGG
			CULG				2326	2350	1				IIIS
			CULG				2326	2332	2				IIIGG
			HARV				2343	2350	2				IIGG
13	0000	0733	CULG	0000	0733	1	0000	0733	1				IS
			CULG				0002	0733	1				IIIN
			LEAR				0018.0	0956.0	1				B
			CULG				0157.5	0158	1				IIIG
			CULG				0213	0214.5	2	0213.5	0214	2	IIIG,V
			CULG	0230.5	0231	2	0225.5	0230	2				IIIG
			CULG				0241.5	0242	2				IIIG
	0511	1734	WEIS				0511	1718	2				IS
			WEIS				0521	1638	3				IIIN
	0532	1720	BLEN	0532 E	1720 D	3	0532 E	1720 D	3				I,DC
			WEIS				0709.5	0709.8	3				IIIG
			CULG				0709.5	0710	3				IIIG
			BLEN				0709.5	0709.7	3				IIIG
			BLEN	0828.3	0831.8								DCIM
			WEIS				0829.4	0830.6	1				IIIG
	0625	1310	DWIN	0847.1	0847.3	2							IIIG
			BLEN	0859.7	0913.7	2	0902.2	0913.7	2				IIIGG,DCIM
			WEIS				0900.6	0913.8	3				IIIGG
			DWIN	0901.2	0901.4	1							IIIG
			LEAR				0903.2	0913.7	1				S
			DWIN	0903.4	0907.7	2							IIIG
			WEIS				0952.3	0953.2	3				IIIG
			BLEN	0952.5	0953.2	2	0952.5	0953.2	2				IIIG
			DWIN	1023.8	1024.7	2							IIIG
			BLEN	1023.8	1024.9	3	1023.8	1024.9	3				IIIGG,DCIM
			WEIS				1023.9	1024.8	3				IIIGG
			BLEN	1059.5	1102.0	2	1059.5	1102.0	2				IIIGG
			DWIN	1227.5	1230.5	2							IIIGG
			BLEN	1227.5	1240.5	2	1226.1	1240.5	3				IIIGG,DCIM
			WEIS				1229.7	1230.4	3				IIIGG,RS
			DWIN	1240.0	1240.6	2							IIIG
			BLEN	1410.0	1411.2	2	1410.0	1411.2	2				IIIGG
	1449	2345	HARV			2	1449	2345	2				I
			HARV				1555	1558	2				IIIG
			BLEN	1555.2	1555.8	2	1555.2	1555.8	2				IIIGG
			HARV				1735		2				IIIG
			HARV				1806		2				IIIB
			PALE				1806.2	1806.4	1				III
			HARV	1851		2	1851		2				IIIG
			HARV				1955	1956	2				IIIG
			HARV				1959	2004	2				II
	2033	2400	CULG	2033	2400	1							IS
			CULG				2034	2400					IN,W
			CULG				2036	2037	1				IIIG
			CULG	2133.5	2134	2							IIIG
			HARV	2134		3	2134		3				IIIG
			PALE				2141.8	2142.1	1				III
			HARV				2142	2148	2				IIIGG
			CULG				2142	2148	2				IIIG
			HARV	2156		2	2156		2				IIIB
			CULG	2156	2324	2							IIIN
			HARV	2314	2316	2	2314		2				IIIG
			HARV				2324		2				IIIG
14	0000	0733	CULG	0000	0733	1							IS
			CULG				0013.5						IIIB,W
			CULG				0018	0018.5	1				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	
14			LEAR				0018.0	0018.3	1				V
			CULG	0026	0614	2							IIIN
			LEAR				0150.8	0151.3	1				CONT
			CULG				0507		1				IIIB
	0509	0825	WEIS				0510	1148	1				IN
	0530	1149	BLEN	0530 E	1718 D	2	0530 E	1718	2				I,DC
			WEIS				0535.8	0537.8	2				IIIGG
			BLEN	0535.8	0540.5	2	0535.8	0540.5	2				IIIGG
			WEIS				0550.8	0550.9	2				IIIB
			CULG				0608		1				IIIB
			WEIS				0608.7	0608.9	2				IIIG
			BLEN	0608.7	0613.7	2	0608.7	0613.7	2				IIIG
			CULG				0613		1				IIIB
			WEIS				0613.6	0613.8	2				IIIG
			CULG				0656	0730					IS,W
	0847	1302	WEIS				0909.6	0912.3	2				IIIG
			WEIS				0917.7	0918.9	1				IIIG
			BLEN	0941.0	0950.7	2	0941.0	0950.7	2				IIIG,RS
			BLEN	1030.0	1031.9	3							IIIG
	0800	1720	DWIN	1031.7	1031.9	1							IIIG
			BLEN	1107.2	1112.3	2							IIIG
			BLEN	1147.2	1148.5	2							IIIGG
			DWIN	1152.0	1153.8	2							IIIG
			WEIS				1215.7	1218.6	2				IIIG
			DWIN	1217.6	1218.6	1							IIIG
	1304	2345	HARV				1308	2345	1				I
			DWIN	1326.6	1326.8	1							IIIG
			HARV	1358	1359	1	1358	1359	1				IIIG
	1358	1718	BLEN	1358.3	1358.4	1							IIIG
			BLEN	1404.7	1404.9	1							DCIM
			HARV				1423	1424	1				IIIG,W
	1458	1736	WEIS				1634.6	1634.8	1				IIIG
			HARV				1738	1739	1				IIIG
			HARV				1921		2	1921		2	IIIB
			PALE				1921.1	1921.3	1				III
			HARV				1944	1945	2	1944	1945	2	IIIG
			PALE				1944.2	1945.4	2				V
			HARV	2004	2005	2	2004	2006	3				IIIGG
			PALE				2004.7	2006.3	3				V
			SGMR				2005.8	2006.0	2				V
			HARV				2010	2015	2				UNCL
	2033	2400	CULG	2033	2400								IS,W
			CULG				2036	2232					IIIN,W
			HARV	2057	2058	3	2057	2058	3				IIIG
			PALE				2057.4	2058.6	2				V
			SGMR				2057.5	2057.8	2				V
			CULG				2057.5	2058	2				IIIG,U
			CULG				2117		1				IIIB
			HARV	2136	2143	2	2136	2143	2				IIIGG
			CULG	2136	2143	2							IIIGG
			CULG				2138.5	2139	1				IIIG
			PALE				2138.8	2152.2	2				S
			HARV				2140	2151	3				II
			CULG				2141	2145					II W
			CULG				2145	2150.5	2				II H
			HARV				2151	2152	2				IIIG
			CULG				2151		2				IIIB
			HARV				2231	2232	2				IIIG
			CULG				2241		1				IIIB
15	0000	0732	CULG	0000	0732	1							IS
			PALE				0204.8	0226.1	3				V
			LEAR				0204.8	0209.0	2				CONT
			CULG	0205	0208	2	0204.5	0209	2	0205.5	0208.5	2	IIIGG,V
			CULG				0210	0211					POSS II,W
			LEAR				0213.7	0224.5	1				II
			CULG				0316.5	0320.5	1				IIIG
			CULG	0318	0319	1							UNCLF
			CULG				0416	0417	1				IIIG
			LEAR				0500.2	0501.7	1				V

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

APRIL 1980

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
15	0507	1500	WEIS				0523.7	0524.1	2				IIIB
			LEAR				0523.8	0524.5	1				V
			CULG				0524		2				IIIB
			LEAR				0529.9	0530.3	1				CONT
	0530	1718	BLEN	0530 E	1718 D	2	0530 E	1718 D	2				I,DC
			WEIS				0530.2	0530.3	1				IIIB
			WEIS				0547.2	0550.8	3				IIIGG/V
			LEAR				0547.4	0551.7	2				V
			CULG	0548.5	0550	1	0547	0550.5	3				IIIGG,V
			BLEN	0548.6	0553.8	2	0547.5	0550.0	3				IIIGG,DCIM
			CULG	0550	0552	1							UNCLF
			BLEN	0550.0	0551.1	2	0550.2	0554.7	3			II	
			WEIS				0550.2	0611.5	3			II	HARMONIC
			CULG				0550.5	0609	3			II	H
			LEAR				0551.7	0612.5	2			II	
			CULG				0606.5		1				IIIB,RS
			WEIS				061[illegible].4	0614.6	1				IIIB
			WEIS				0706.3	0708.9	3				IIIG
			LEAR				0707.4	0709.2	1				V
			CULG				0707.5	0708.5	1				IIIG,V
			WEIS				0736.9	0737.2	2				IIIB
			WEIS				0809.2	0809.4	1				IIIG
			WEIS				0824.0	1444.0	1				IN
			WEIS				0911.0	0911.2	1				IIIG
			WEIS				0918.1	0920.3	1				IIIG
			WEIS				1032.2	1032.6	1				U
			WEIS				1033.7	1034.3	1				IIIG
			WEIS				1049.3	1052.0	2			II	
			WEIS				1101.7	1122.0	3			II	HB
			SGMR				1104.3	1107.5	2			II	
			WEIS				1240.1	1247.2	2				IIIG
	1304	2340	HARV				1304	2340	2				I
	1504	1737	WEIS										
			BLEN	1511.0	1515.0	1							DCIM
	0625	1730	DWIN	1511.0	1515.0	2							IIIG
			HARV				1837	1838	2				IIIG
			HARV				1841	1842	1				IIIB,W
			HARV				1936		2				IIIG
			HARV				1946		2				IIIG
			PALE				2007.9	2009.3	2				CONT
			HARV				2008	2012	2	2008	2012	1	IIIGG
			HARV				2103	2104	2				IIIG
	2035	2351	CULG				2103						IIIB,W
			CULG	2117	2157								IN,W
			HARV				2124	2126	1				IIIG
			PALE				2147.2	2149.3	1				CONT
			CULG				2204.5	2205	2				IIIG,U
			HARV				2205		2				IIIG,U
16	0012	0732	CULG				0025.5						IIIB,W
			PALE				0037.2	0040.2	3				CONT
			CULG				0046.5	0047	2				IIIG
			CULG	0048	0048.5		0048	0048.5					IIIG,W
			CULG				0058	0058.5	2				IIIG
			CULG	0059	0100.5	1	0059	0100	3	0059.5	0100	1	IIIGG
			PALE				0213.5	0213.7	1				III
			CULG	0332	0527	1	0209	0732	1				IIIN
	0504	1718	WEIS				0524.2	0526.8	1				IIIG
	0625	0849	DWIN										
			WEIS				1105.7	1106.3	1				IIIG
			WEIS				1158.3	1158.7	1				IIIG
			WEIS				1258.0	1258.2	1				IIIB
			WEIS				1303.3	1303.5	1				IIIB
	0530	1718	BLEN	1337.8	1338.4	1							DCIM
	1420	1725	DWIN										
			WEIS	1531.3	1532.8	2							IIIG
			BLEN	1531.5	1532.8	2							
			WEIS				1559.8	1559.9	2				IIIB
	1443	2345	HARV				1623		2				I
			HARV	1640		2							IIIB

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

APRIL 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	
16			BLEN	1640.5	1640.6	2							
			HARV				1830	1831	1				IIIB
			HARV	1838		2							IIIB,W
			HARV	2003		1	2002	2003	1				IIIB
	2032	2400	CULG	2151	2151.5	1							IIIG,W
			HARV	2248	2248	2	2248	2250	3				IIIG
			CULG	2248	2249.5	3							IIIGG
													DCIM
17	0000	0732	CULG	0012.5	0013	1							DCIM
			CULG	0041	0044.5	1							DCIM
			CULG	0121	0130	2	0121	0127	1				IIIGG
			PALE				0122.8	0126.2	1				CONT
			LEAR				0124.7	0128.2	1				CONT
			CULG				0217		1				IIIB
			PALE				0217.2	0217.5	1				III
			LEAR				0217.2	0220.0	1				CONT
			CULG	0254		1	0254		1				IIIB
			LEAR				0308.0	0308.2	1				III
			CULG	0321	0321.5	1	0321	0325	1	0324.5		1	IIIG
			PALE				0321.4	0324.4	1				CONT
			LEAR				0321.4	0324.6	1				CONT
			LEAR				0345.4	0345.5	1				III
			CULG				0345.5						IIIB,W
	0503	0957	WEIS				0512.3	0512.4	1				IIIB
			LEAR				0747.0	0756.0	2				V
			WEIS				0747.3	0755.0	3				IIIGG/V
	0530	0900	BLEN				0749.2	0752.1					IIIGG
	0620	1318	DWIN	0751.0	0752.0	1							IIIG
			BLEN	0752.6	0753.1	1							DCIM
			LEAR				0758.0	0808.2	1				II
			WEIS				0759.4	0808.5	2				II
	0932	1715	BLEN										
	1025	1738	WEIS				1229.6	1229.8	1				IIIB
	1430	1720	DWIN										
	1303	2345	HARV				1539	1540	2				IIIG
			WEIS				1539.3	1514.1	2				IIIG
			HARV				1609	1614	1				IIIG
			WEIS				1611.0	1611.2	1				IIIB
			WEIS				1613.5	1613.7	1				IIIB
			WEIS				1627.0	1627.3	2				IIIB
			HARV				1650	1656	3	1650	1655	2	IIIG
			WEIS				1650.0	1656.0	3				IIIGG
			PALE				1652.4	1655.0	1				CONT
			WEIS				1704.4	1704.7	2				IIIG
			HARV				1705	1708	1				IIIG
			WEIS				1706.6	1707.1	1				IIIG
	2032	2400	CULG				2037	2040					IIIG,U,W
			HARV				2038	2040	2				IIIG,U
			PALE				2052.8	2059.4	2				CONT
			CULG	2053	2056	1	2050	2056	2				IIIGG
			HARV	2054	2056	1	2050	2056	3	2050	2056	2	IIIGG
			HARV				2059	2100	1				IIIG
			CULG				2059		1				IIIB
			HARV				2211	2212	1				IIIG
			PALE				2250.7	2302.4	2				S
			HARV				2251		1				IIIB
			CULG				2251		1				IIIB
			HARV				2253	2255	2				IIIG,U
			CULG				2253	2255.5	2				IIIG,V
			LEAR				2253.6	2302.4	1				CONT
			LEAR				2256.9	2300.2	1				II
			HARV				2257	2308	3				II
			CULG				2257	2306	3				II H
18	0000	0731	CULG				0220	0221	1				IIIG
			LEAR				0220.3	0221.3	1				CONT
			PALE				0224.2	0224.5	1				III
			LEAR				0329.6	0329.8	1				III
			CULG				0415	0422					IIIN,W
			LEAR				0419.5	0421.2	1				V

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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
18			CULG				0419.5	0420.5	2				IIIG
			CULG	0421.5		1	0421.5		1				IIIB
			LEAR				0518.8	0519.4	1				CONT
			CULG				0519						IIIB,U,W
			LEAR				0550.7	0553.7	1				CONT
	0504	1740	WEIS				0550.7	0553.3	2				IIIG
			CULG	0551.5	0552.5	1	0550.5	0553.5	2				IIIG
	0530	1715	BLEN				0551.7	0552.3	2				IIIG
			LEAR				0622.4	0622.6	1				III
			WEIS				0622.4	0622.5	1				IIIB
			CULG	0631	0640								IIIN,W
			BLEN				0639.1	0642.4	2				IIIG
			WEIS				0639.2	0639.2	2				IIIG
			LEAR				0651.9	0657.3	1				CONT
			LEAR				0724.0	0724.2	1				III
			BLEN	0809.4	0810.5	2							DCIM
	0620	1315	DWIN	0810.3	0811.1	2							IIIG
			WEIS				1137.9	1138.2	1				IIIB
			WEIS				1140.6	1140.7	1				IIIB
			BLEN				1216.1	1216.5	1				I,III
	1303	2345	HARV				1309	1953	1				IIIN,W
			WEIS				1313.8	1314.3	1				IIIG
			HARV				1314		2				IIIG
			HARV				1347	2333	1				IN,W
			WEIS				1414.9	1417.3	3				IIIG
	1415	1720	DWIN										
			HARV				1415	1417	2				IIIG
			BLEN				1415.0	1415.4	2				IIIG
			WEIS				1444.3	1444.8	2				IIIG
			HARV				1708	1710	2	1708	1710	2	IIIG
			WEIS				1708.1	1710.1	3				IIIG
			PALE				1708.1	1713.9	1				CONT
			HARV				1712	1714	3	1712	1714	2	IIIG
			WEIS				1712.2	1714.3	3				IIIG
			BLEN	1713.4	1713.9	2	1708.4	1713.9	2				IIIG
			PALE				1749.0	1749.9	1				III
			HARV				2028	2030	3	2030		1	IIIG
			PALE				2028.3	2030.7	1				CONT
	2031	2400	CULG										
19			LEAR				0224.3	0224.6	1				V
	0000	0731	CULG				0224.5		1				IIIB
			PALE				0320.5	0324.3	2				V
			CULG	0344.5	0346.5	1							IIIG
			CULG				0350.5	0351	1				IIIG
			LEAR				0350.6	0351.6	1				V
			LEAR				0352.0	0354.2	2				V
			CULG				0353	0354.5	3	0353	0354	2	IIIG,V
	0530	1715	BLEN				0622.4	0622.6	2				IIIG
			CULG	0713.5			0713.5	0714					IIIG,W
			BLEN	0713.6	0713.6	1	0713.4	0713.6	1				IIIG
			LEAR				0713.6	0724.5	1				III
			LEAR				0725.5	0800.5	1				S
			BLEN				0746.1	0746.3	2				IIIG
	0800	1741	WEIS				0836.4	0836.8	2				IIIG
	0620	1715	DWIN	1156.2	1157.2	1							IIIG
	1303	2345	HARV				1303	2345	1				IN,W
			HARV				1349	1350	2				IIIG
			BLEN	1349.3	1351.2	1	1349.3	1349.8	2				UNCLF
			WEIS				1349.4	1349.8	2				IIIG
			WEIS				1508.6	1510.7	3				IIIG
			HARV				1509	1510	3				IIIG
			HARV				1554	1556	2				IIIG
			BLEN	1554.1	1556.0	2	1554.1	1556.0	2				IIIGG
			WEIS				1554.3	1556.0	2				IIIG
			WEIS				1639.3	1640.3	2				IIIG
			HARV				1640		2				IIIB
	2031	2400	CULG				2356.5	2400					I,W
20	0000	0730	CULG	0057	0323								IS,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
20			LEAR				0129.5	0131.0	1				CONT
			PALE				0129.8	0130.0	1				III
			CULG	0309	0309.5	2							IIIG
			LEAR				0418.3	0429.8	1				S
			LEAR				0526.9	0529.9	1				CONT
	0528	1137	BLEN										
	0459	1522	WEIS				0529.7	0529.9	1				IIIB
	0620	1340	DWIN										
			WEIS				0638.2	0638.4	1				IIIB
			LEAR				0638.2	0638.5	1				III
			WEIS				0652.4	0656.8	1				II
			CULG				0654	0658	1				DC
			WEIS				0726.3	0726.4	1				IIIB
	1310	1720	BLEN	1338.6	1338.7	1							DCIM
			BLEN	1505.9	1506.7	2							DCIM
			BLEN	1611.5	1611.8	2							DCIM
	1303	2345	HARV				1621		2				IIIB,W
	1647	1741	WEIS										
			BLEN	1714.5	1714.7	1							DCIM
			HARV				1743	2345	1				I
			HARV				1931		1				IIIG
	2031	2400	CULG	2200	2225								IS,W
21	0000	0731	CULG	0035	0115								IS,W
	0525	1720	BLEN	0950	1720 D	3	0950	1720 D	3				I,DC
			BLEN	1030.2	1030.4	1							DCIM
			BLEN				1031.5	1031.5	1				IIIB
	0456	1744	WEIS				1031.6	1032.7	2				IIIG
			WEIS				1148.7	1148.9	1				IIIB
			WEIS				1243.7	1244.7	2				IIIG
	1304	2345	HARV				1305	2345	1				IN
			WEIS				1323	1728	1				IN
			HARV				1334		2				IIIG
			BLEN				1334.1	1334.3	2				IIIG
			WEIS				1334.2	1334.4	2				IIIG
	1405	1725	DWIN										
			HARV				1548	1549	2				IIIG
			WEIS				1548.2	1548.5	2				IIIG
			HARV				2204	2210	2				IIIGG
	2031	2400	CULG	2205	2400	1							IS
			CULG	2207			2207						IIIB,W
22	0000	0731	CULG	0000	0731								IS,W
	0525	1720	BLEN	0620	1720 D	2	0620	1720 D	2				I,DC
			BLEN	0758.8	0802.8	2	0758.8	0802.8	2				IIIGG
			LEAR				0802.7	0802.9	1				III
	0457	1101	WEIS				0802.7	0803.9	2				IIIG
			WEIS				0847.6	0848.3	2				IIIG
			BLEN	0848.1	0848.6	2							IIIG
			BLEN	0909.8	0909.8	2							IIIB
			WEIS				1017.7	1017.8	1				IIIB
			BLEN	1042.5	1044.5	1	1042.8	1044.3	1				DCIM
			BLEN	1059.0	1059.4	2	1059.0	1063.7	2				IIIGG
			WEIS				1059.3	1059.4	1				IIIB
			BLEN	1210	1500	2	1210	1500	2				C
	1106	1744	WEIS				1238.3	1238.4	1				IIIB
	1303	2345	HARV				1303	2345	1				I
			WEIS				1428.8	1429.0	1				IIIB
			WEIS				1511.6	1511.7	1				IIIB
	0615	1720	DWIN	1514.6	1515.1	2							IIIG
			BLEN	1514.7	1515.2	2							DCIM
			HARV	1515		2							IIIG
			BLEN	1554.8	1557.7	2	1554.8	1557.7	2				IIIGG
			WEIS				1554.9	1555.3	1				IIIG
			HARV	1555		2	1555		2				IIIG
			HARV				1626	1627	1				IIIB
	2031	2400	CULG	2134	2400								IS,W
			PALE				2149.7	2153.2	2				V
			PALE				2329.6	2330.2	3				III
			PALE				2340.1	2343.6	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	
22			CULG				2340.5	2342					IIIG,W
			HARV				2342		1				IIIG
23	0000	0730	CULG	0000	0730	1							IS
			CULG				0145	0145.5					IIIG,W
			PALE				0145.0	0145.4	2				III
			CULG				0451	0452.5	2				IIIG
			LEAR				0457.3	0457.6	1				CONT
	0520	1306	BLEN	0520 E	1720 D	2	0520 E	1720 D	2				I,DC
	0455	1723	WEIS				0520	1711	2				IN
			LEAR				0610.2	0610.7	1				CONT
			BLEN	0949.0	0950.1	2	0949.0	0950.1	2				IIIGG
	0610	1730	DWIN	1140.9	1141.3	2							IIIG
			WEIS				1240.6	1241.1	1				IIIG
	1304	2345	HARV				1304	2345	2				IN
	1541	1720	BLEN										
	2030	2400	CULG	2030	2400	1							IS
24	0000	0730	CULG	0000	0730	1							IS
			CULG	0557	0558	2							DCIM
	0520	1720	BLEN	0557.0	0558.0	2							IIIGG
	0517	1745	WEIS	0557.3	0557.9	2							IIIG
			BLEN	0608.7	0608.7	1	0608.7	0608.7	1				IIIB
			BLEN	0610	1720 D	2	0610	1720 D	2				I,DC
			BLEN	0930.5	0933.4	2	0930.5	0933.4	2				IIIGG
			WEIS				0930.6	0931.3	3				IIIG
			WEIS				0932.7	0933.2	2				IIIG
	0610	1650	DWIN	0932.8	0933.0	1							IIIG
			BLEN	0951.4	0951.5	2	0951.4	0951.5	2				IIIG
			WEIS				1203.4	1203.6	2				IIIG
	1304	2345	HARV				1304	2345	1				IN
			BLEN	1400.8	1401.4	2							IIIG
			HARV				1401		2				IIIG
			HARV				1433	1434	2				IIIG
			BLEN	1433.2	1433.8	2							IIIGG
			WEIS				1433.3	1433.6	2				IIIG
			HARV				1638		1				IIIG
			HARV				1938		2				IIIG
	2030	2400	CULG	2033	2400	1							IS
			CULG				2141.5	2142.5	2				IIIG
			HARV				2142	2143	2				IIIG
			HARV				2234		1				IIIG
			HARV				2243	2244	1				IIIG,W
			HARV				2302		1				IIIG,W
25	0000	0718	CULG	0000	0718	1							IS
			CULG				0010.5						IIIB,W
	0650	1730	DWIN										
	0453	1046	WEIS				0754.7	0754.9	2				IIIG
			BLEN	0754.7	0754.8	2							IIIG
			BLEN	1251.8	1252.2	1							III
	1049	1749	WEIS				1251.9	1252.6	2				IIIG
	1303	2345	HARV				1304	2345	1				IN
			BLEN	1510.5	1510.7	2	1510.5	1510.7	2				IIIG
			WEIS				1510.7	1529.6	2				IIIGG
			HARV	1511		1	1511		2				IIIG
			HARV				1515	1528	1				IIIG,W
	0520	1720	BLEN	1520 E	1540	2	0520 E	1540	2				I
			BLEN	1525.2	1525.8	2							IIIG,U
			HARV	1857	1858	2							IIIG
	2030	2400	CULG	2033	2400								IS,W
26	0000	0730	CULG	0000	0730	1							IS
			CULG				0434.5						IIIB,W
	0515	1550	BLEN	0515 E	1550 D	2	0515 E	1550 D	2				I,DC
	0450	1749	WEIS				0531	1713	2				IN
			BLEN	0608.3	0609.3	2							IIIG,RS
			CULG	0608.5	0909.5	1							IIIG
			BLEN	0651.5	0651.8	1							DCIM
			CULG	0716.5	0717	1							IIIG

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	
26			BLEN	0716.6	0716.8	1							IIIG
			WEIS				0834.5	0836.2	1				IIIG
			WEIS				0839.2	0839.4	1				IIIB
			WEIS				0945.8	0945.9	1				IIIB
			WEIS				0949.3	0949.7	2				IIIG
			WEIS				0954.5	0956.7	2				IIIG
			WEIS				1136.4	1136.8	2				IIIG,U
			WEIS				1214.1	1214.2	1				IIIB
			BLEN	1245.5	1246.2	1							DCIM
	1304	2400	HARV				1305	2345	1				IN
			BLEN	1308.8	1310.0	1							DCIM
			HARV				1334	1352	3	1341	1352	2	II
			WEIS				1334.2	1352.5	3				II HARMONIC
			BLEN				1334.7	1344.0	3				II
			HARV				1337	1339	2				IIIG
			SGMR				1338.7	1349.3	3				II
			WEIS				1433.3	1433.4	1				IIIG
			HARV				1923	1926	2				IIIG
			HARV				1931	1933	2				IIIG
			HARV	2027		2	2027		2				IIIB
			HARV	2031	2032	3							IIIG
	2030	2400	CULG	2033	2400								IS,W
			CULG				2133.5	2134	2				IIIG
			PALE				2133.6	2134.0	1				III
			HARV				2134		2				IIIB
			CULG	2136.5	2137.5	2							IIIG
			HARV	2137	2138	3	2137		1				IIIG
			HARV				2245		2				IIIG
			CULG				2245.5						IIIB,W
			HARV	2255		3	2255		3				IIIG
			CULG	2255	2255.5	2	2255	2255.5	1				IIIG
			HARV				2306	2307	2				IIIG
			CULG				2306	2307	2	2306	2307	1	IIIG
			PALE				2306.0	2307.1	2				V
			CULG				2329.5		1				IIIB
27	0000	0728	CULG				0004	0004.5	1				IIIG,U
			PALE				0004.0	0004.9	1				V
			LEAR				0004.2	0004.7	1				V
			CULG				0016	0728					IIIN,W
			PALE				0016.8	0021.5	1				CONT
			CULG				0017	0018	1				IIIG
			CULG	0021	0728								IS,W
			CULG	0025.5	0026.5	1							IIIG
			LEAR				0100.3	0150.7	1				S
			CULG				0100.5		1				IIIB
			PALE				0102.0	0107.6	1				CONT
			CULG	0106	0106.5	1							IIIG
			CULG				0112.5	0113.5	2				IIIG
			PALE				0129.0	0130.2	1				CONT
			PALE				0137.2	0144.1	2				CONT
			LEAR				0142.5	0144.1	2				CONT
			CULG	0142.5	0143.5	1	0142.5	0144	2	0142.5	0144	1	IIIGG
			PALE				0149.1	0149.9	1				V
			PALE				0204.1	0225.1	1				S
			LEAR				0204.2	0259.0	1				S
			CULG				0208	0209	2				IIIG
			PALE				0226.8	0231.0	3				CONT
			LEAR				0227.8	0233.5	3				CONT
			CULG	0228.5	0232.5	2	0226.5	0232	3	0226.5	0232	2	IIIGG,V
			CULG				0231	0232	1				POSS II
			CULG				0245	0250	1				II
			PALE				0245.0	0253.0	1				II
			LEAR				0245.5	0253.4	1				II
			CULG	0251.5	0252	1							IIIG
			CULG	0259.5		1							IIIB
			LEAR				0314.7	0409.2	1				S
			CULG				0344	0344.5	2				IIIG
			CULG				0438	0439.5	3				IIIGG,V
			CULG	0442.5	0445	1							IIIG,U

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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	
27			LEAR				0503.6	0512.5	1				CONT
			CULG				0504	0505	2				IIIG
			LEAR				0516.6	0519.8	2				CONT
			CULG				0518	0519	3				IIIG
			LEAR				0544.0	0544.4	1				CONT
	0554	1752	WEIS				0555	1608	2				IIIN
			WEIS				0558	1523	2				IN
			LEAR				0617.0	0721.3	1				B
			CULG				0712.5	0714.5	1				IIIGG
			WEIS				0712.7	0714.4	3				IIIG
			CULG				0720	0721	1				IIIG
			WEIS				0720.2	0720.9	2				IIIG
			WEIS				0915	1050					CONT
			WEIS				1123.4	1124.3	2				IIIG
	1122	1722	BLEN	1124.5	1126.2	2							IIIGG
			BLEN	1145	1722 D	2	1145	1722 D	2				I,DC
			BLEN	1152.9	1153.1	1	1152.9	1153.1	1				IIIG
			BLEN	1201.8	1201.8	1							DCIM
	1304	2245	HARV				1304	2245	2				I
			BLEN	1423.2	1425.7	2							DCIM
			HARV				1644	1649	2				IIIG
			HARV				1711	1712	2	1711	1712	1	IIIG
			WEIS				1711.4	1712.6	2				IIIG
			HARV				1757		2				IIIG
			PALE				1957.7	2000.1	1				CONT
			HARV				1958		2				IIIG
	2032	2400	CULG	2033	2400	2	2035	2400	2				IS
			CULG				2040	2230					IIIN,W
			CULG	2047.5	2048	2							DCIM
28			CULG	0000	0730	1							IS
	0000	0730	CULG				0000	0144					IS,W
			CULG	0119.5	0120		0119.5	0120					IIIG,W
			PALE				0324.8	0325.9	1				III
			CULG	0329.5			0325.5	0329.5					IIIG,W
	1302	1753	WEIS				0526	1734	3				IIIS
	0515	1723	BLEN	0603.7	0604.2	1							DCIM
			CULG	0643	0716		0643	0716					IIIN,W
			WEIS				0643.2	0644.9	2				IIIG
			BLEN				0644.0	0644.7	2				IIIG
	0447	1259	WEIS				0646	1713	2				IN
			WEIS				0705.4	0706.8	2				IIIG
			CULG	0705.5	0707	2	0705.5	0706.5	2				IIIG
			BLEN	0706.0	0706.8	2	0705.3	0706.8	2				IIIGG
			WEIS				0715.7	0715.9	2				IIIG
			BLEN	0715.7	0715.9	2	0715.7	0715.9	2				IIIG
			BLEN	0810.5	0812.5	1							DCIM
			BLEN	0835	1723 D	2	0835	1723 D	2				I,DC
			BLEN	0900.8	0917.5	2	0916.8	0917.5	2				IIIG
	0840	1739	DWIN	0901.0	0903.0	2							IIIG
			WEIS				0901.3	0902.9	2				IIIG
			DWIN	0916.8	0917.3	1							IIIG
			BLEN	0939.2	0943.3	2	0939.2	0943.3	2				IIIGG
			WEIS				0939.3	0943.2	3				IIIG
			BLEN	0951.7	0952.2	2							DCIM,RS
			DWIN	0952.6		2							IIIB
			BLEN				1006.1	1011.7	3				IIIG,V
			WEIS				1006.4	1007.3	3				IIIG
			WEIS				1011.3	1011.7	3				IIIG
			WEIS				1036.8	1042.3	3				IIIG
			BLEN				1036.9	1045.5	3				IIIGG,V
			BLEN				1115.8	1116.2	2				IIIG
			BLEN				1135.8	1139.8	3				IIIGG,V
			WEIS				1135.8	1140.0	3				IIIG
			WEIS				1202.1	1209.0	3				IIIGG/V
			DWIN	1203	1206	2							IV F
			WEIS	1203.5	1207.5	1							CONT
			BLEN	1203.5	1204.8	2	1202.0	1205.6	2				IIIGG,V
			BLEN	1235.1	1245.4	2	1243.8	1245.4	3				DCIM,V
			DWIN	1236	1246	2							IV DCIM

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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	
28			WEIS				1243.3	1255.0	3				IIIGG
			WEIS				1244.0	1245.5	1				CONT
	1304	2245	HARV				1304	2245	2				I
			WEIS				1305	1430	2				CONT
			BLEN	1306.8	1307.5	1	1306.8	1307.5	1				IIIGG
			HARV				1307	1308	1				IIIG
			HARV				1319		2				IIIB
			HARV				1331		2				IIIG
			HARV				1345	1346	2				IIIG
			DWIN	1533.7	1535.0	2							IIIG
			BLEN	1533.8	1547.0	1	1545.0	1547.0	2				IIIG,DCIM
			HARV	1534	1535	1							IIIG
			DWIN	1543.2	1543.3	2							IIIG
			HARV				1545	1547	2				IIIGG
			HARV				1611		2				IIIB
			HARV				1617	1618	3				IIIG
			BLEN				1617.2	1617.5	2				IIIG
			HARV	1704	1710	3	1707	1708	3				IIIG
			DWIN	1704.1	1704.6	2							IIIG
			BLEN	1704.2	1718.4	2	1706.8	1707.9	3				IIIGG
			DWIN	1706.3	1707.3	2							IIIG
			WEIS				1706.4	1708.2	3				IIIGG
			PALE				1707.8	1708.0	1				III
			HARV				1743	1744	2				IIIG
			DWIN	1752.5		2							IIIB
			PALE				1812.9	1814.0	1				CONT
			HARV				1813	1814	2				IIIG
	2030	2400	CULG	2036	2400	1							IS
			HARV	2039	2041	3	2039	2041	3				IIIGG,V
			CULG	2039	2041	2	2039.5	2041	3				IIIGG,V
			SGMR				2040.0	2040.2	1				III
			PALE				2040.1	2041.1	2				V
			CULG	2115.5	2117	2							DCIM
			HARV	2116	2117	3							IIIG
			CULG				2315	2317	1				IIIGG
			CULG				2327.5	2328.5	2				IIIG
			PALE				2327.7	2328.3	2				III
			LEAR				2327.9	2328.3	1				CONT
29	0000	0730	CULG	0000	0730	1							IS
			PALE				0115.3	0118.0	1				CONT
			CULG				0116.5		1				IIIB
			CULG	0303	0304.5	3							IIIG
			CULG				0443.5	0444					IIIG,W
	0446	1754	WEIS				0526.3	0526.4	1				IIIB
	0510	1720	BLEN	0854.5	0855.3	1	0854.8	0855.3	1				IIIG
			WEIS				1038.7	1040.8	3				IIIGG
			BLEN				1039.0	1040.2	2				IIIGG
			BLEN	1108.8	1112.2	2	1108.8	1112.2	2				IIIGG,U
			WEIS				1108.9	1112.6	3				IIIGG
	0600	1405	DWIN	1109.0	1109.3	2							IIIG
			DWIN	1111.0		1							IIIB
			DWIN	1111.8	1112.0	1							IIIG
			WEIS				1147.3	1148.9	2				IIIG
			BLEN	1154.8	1156.8	2	1154.8	1156.8	2				IIIGG
			WEIS				1154.8	1157.4	3				IIIGG
			WEIS				1220.4	1220.8	2				IIIG
			WEIS				1249.7	1251.9	2				IIIG
			BLEN				1322.8	1326.0	2				IIIG
	1305	2245	HARV				1323	1330	3				IIIG,U
			WEIS				1323.9	1324.5	2				IIIG
			WEIS				1325.4	1326.6	2				IIIG
			WEIS				1329.7	1330.3	2				IIIG
			WEIS				1338.7	1338.9	1				IIIB
			HARV				1407	1408	2				IIIB,U
			WEIS				1407.0	1407.9	2				IIIG,U
			WEIS				1410.6	1410.8	2				IIIB
			HARV				1416		1				IIIG,W
			HARV				1418	2245	1				IN
			HARV				1419	1420	3				IIIG,U

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1980

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
29			WEIS				1419.2	1419.7	2				IIIG
			HARV				1427	1430	3				IIIGG,U
			WEIS				1427.4	1430.4	3				IIIGG
			BLEN	1427.5	1436.3	2	1419.2	1434.7	2				IIIGG,DCIM
			SGMR				1427.6	1430.0	2				V
	1430	1800	DWIN										
			HARV				1432	1437	2				IIIG
			WEIS				1432.2	1432.3	1				IIIB
			WEIS				1434.6	1435.1	2				IIIG
			WEIS				1436.5	1436.8	3				IIIB
			HARV				1442	1443	2				IIIG
			WEIS				1442.2	1443.3	3				IIIG
			WEIS				1510.4	1511.0	2				IIIG
			HARV				1511		1				IIIG
			WEIS				1524.3	1524.5	2				IIIG
			WEIS				1530.3	1530.4	1				IIIB
			BLEN	1609.2	1609.4	1							DCIM
			WEIS				1630.7	1637.8	3				IIIG
			BLEN	1635	1720 D	2	1635	1720 D	2				I,DC
			HARV				1637	1638	1				IIIG
			HARV				1738	1746	2	1738		1	IIIGG
			WEIS				1738.3	1740.9	2				IIIG
			PALE				1738.3	1741.3	1				CONT
			HARV				1802	1816	2				IIIG
			PALE				1802.1	1802.8	1				III
			HARV				1821	1830	2				IIIG
			HARV				1856		2				IIIB
			HARV				1901	1908	2				IIIG
			HARV				1930	1931	2				IIIG
			HARV				2028		1				IIIB
	2029	2400	CULG	2035	2400								IS,W
			CULG				2037.5		1				IIIB,U
			HARV				2038		1				IIIG
			CULG				2050	2400					IIIN,W
			HARV				2054	2056	3				IIIG
			CULG				2054	2054.5	3				IIIB
			CULG				2056	2056.5	2				IIIG
			HARV				2101		1				IIIB
			HARV				2136	2138	2				IIIG
			CULG				2136	2138.5	2				IIIG
			PALE				2153.9	2156.7	2				CONT
			HARV				2213		1				IIIG
			HARV				2222	2226	1				IIIG
			CULG				2347.5	2348	1	2347.5		1	IIIG
			LEAR				2347.7	2359.0	2				CONT
			CULG				2351	2352.5	3	2351	2352.5	2	IIIGG
			PALE				2351.0	2353.4	2				V
30	0000	0726	CULG	0000	0726								IS,W
			CULG				0015		1				IIIB
			LEAR				0116.5	0121.6	1				CONT
			CULG				0116.5		1				IIIB
			CULG				0120.5		1				IIIB
			CULG				0215	0726					IIIN,W
			CULG				0321	0435					IS,W
			LEAR				0330.0	0942.0	1				B
			CULG	0331.5	0332	1							IIIG
			CULG				0350	0350.5	1				IIIG
			CULG	0356	0356.5	1	0356	0356.5	1				IIIG
			CULG				0426.5	0427.5	2	0427	0427.5	1	IIIG
			CULG				0435	0526	2				IS,C
			CULG				0447.5		2				IIIB
	0443	0633	WEIS				0506.0	1651	2				IIIN
			CULG				0526	0552					IS,W
	0636	1755	WEIS				0530	1726	1				IN
			WEIS				0624.9	0626.3	3				IIIGG
	0510	1030	BLEN				0624.9	0626.2	2				IIIG
			CULG	0625	0626	1	0625	0626	2				IIIGG
			BLEN				0710.7	1716.5	2				IIIG
			WEIS				0710.7	0713.5	3				IIIGG

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

APRIL 1980

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
30			CULG				0711		1				IIIB
			CULG				0712.5	0713	1				IIIG
			WEIS				0716.5	0716.8	2				IIIG
			BLEN	0728.9	0729.5	3							IIIG,U
	0600	1800	DWIN	0729.0	0729.5	2							IIIG
			WEIS				0729.3	0729.4	3				IIIG,U
			DWIN	0731.5	0732.0	"1							IIIG
			BLEN				0907.3	0907.6	2				III
			BLEN				0939.1	0947.5	2				IIIG
			WEIS				0939.2	0939.5	3				IIIG
			WEIS				0943.0	0947.5	2				IIIG,U
			DWIN	1014.6	1015.1	2							IIIG
			BLEN	1014.7	1015.2	1							DCIM
			BLEN	1130	1725 D	1	1130	1725 D	1				I
			WEIS				1132.0	1132.8	3				IIIG
	1113	1725	BLEN				1132.0	1150.7	2				IIIGG
			WEIS				1142.8	1143.3	2				IIIG
	1304	2245	HARV				1312	2245	2				IN
			HARV				1312	1313	1				IIIG
			HARV				1319		3				IIIG
			BLEN				1319.0	1319.7	2				IIIG
			WEIS				1319.1	1319.5	2				IIIG
			BLEN				1352.5	1413.8	2				IIIGG
			HARV				1353		2				IIIG
			HARV				1411	1414	3				IIIG
			WEIS				1411.5	1413.7	2				IIIG
			HARV				1504	1505	2				IIIG
			BLEN				1505.2	1505.4	2				III,U
			HARV				1521		2				IIIG
			HARV				1526		2				IIIG
			HARV				1532	1536	3	1533	1534		IIIGG,V
			WEIS				1532.1	1536.5	3				IIIGG
			BLEN	1532.5	1548.0	2	1532.5	1548.0	2				IIIGG,DCIM
			DWIN	1532.5	1533.0	1							IIIG
			SGMR				1532.8	1533.6	3				V
			DWIN	1533.6	1535.6	2							IIIG
			WEIS				1544.5	1544.6	1				IIIB
			HARV				1545		2				IIIG
			WEIS				1547.7	1548.0	2				IIIG
			HARV				1548		3				IIIG
			HARV				1630	1633	2				IIIG
			HARV				1644		1	1644			IIIG
			HARV				1740		2				IIIG
			HARV				1823	1824	2				IIIG
			HARV				1912		3				IIIG
			HARV				1923		2				IIIG
	2030	2400	CULG	2030	2400								IS,W
			CULG				2043.5	2044.5					IIIG,W
			HARV				2044	2046	2				IIIG
			CULG				2046	2046.5					IIIG,W
			HARV				2111		2				IIIG
			HARV				2131	2132	2				IIIG
			PALE				2204.5	2206.3	1				V
			HARV				2211	2213	2				IIIG
			CULG	2211.5		1	2211.5		1				IIIB
			CULG				2310.5	2311					IIIG,W
			CULG				2311	2311.5	1				IIIG
			LEAR				2347.7	2359.0	2				CONT
			CULG	2354	2354.5	1	2354	2354.5	2				IIIG
			CULG	2355		1	2355		1				IIIB

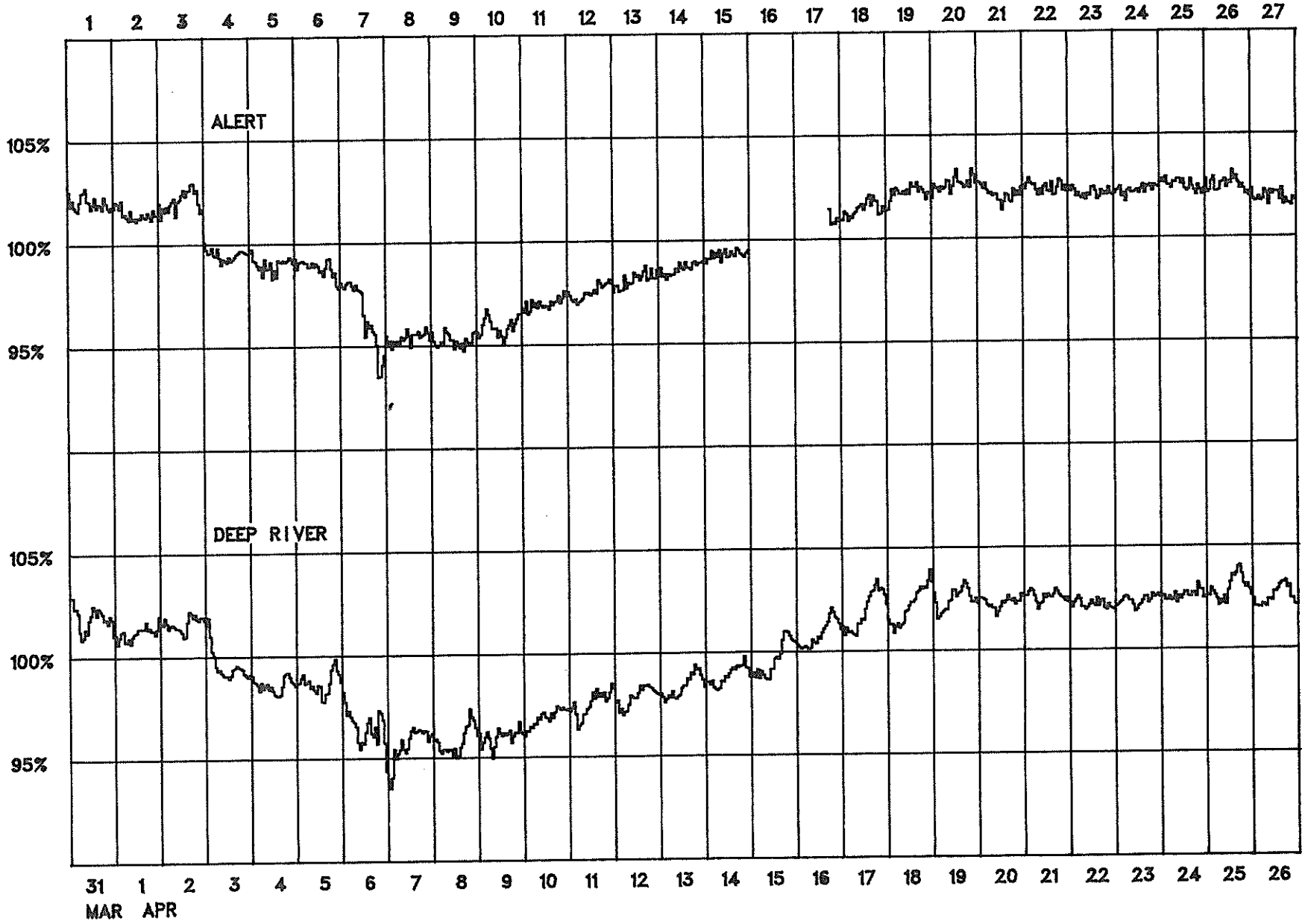
The symbols used in connection with the spectral type in describing the important bursts are as follows:

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

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

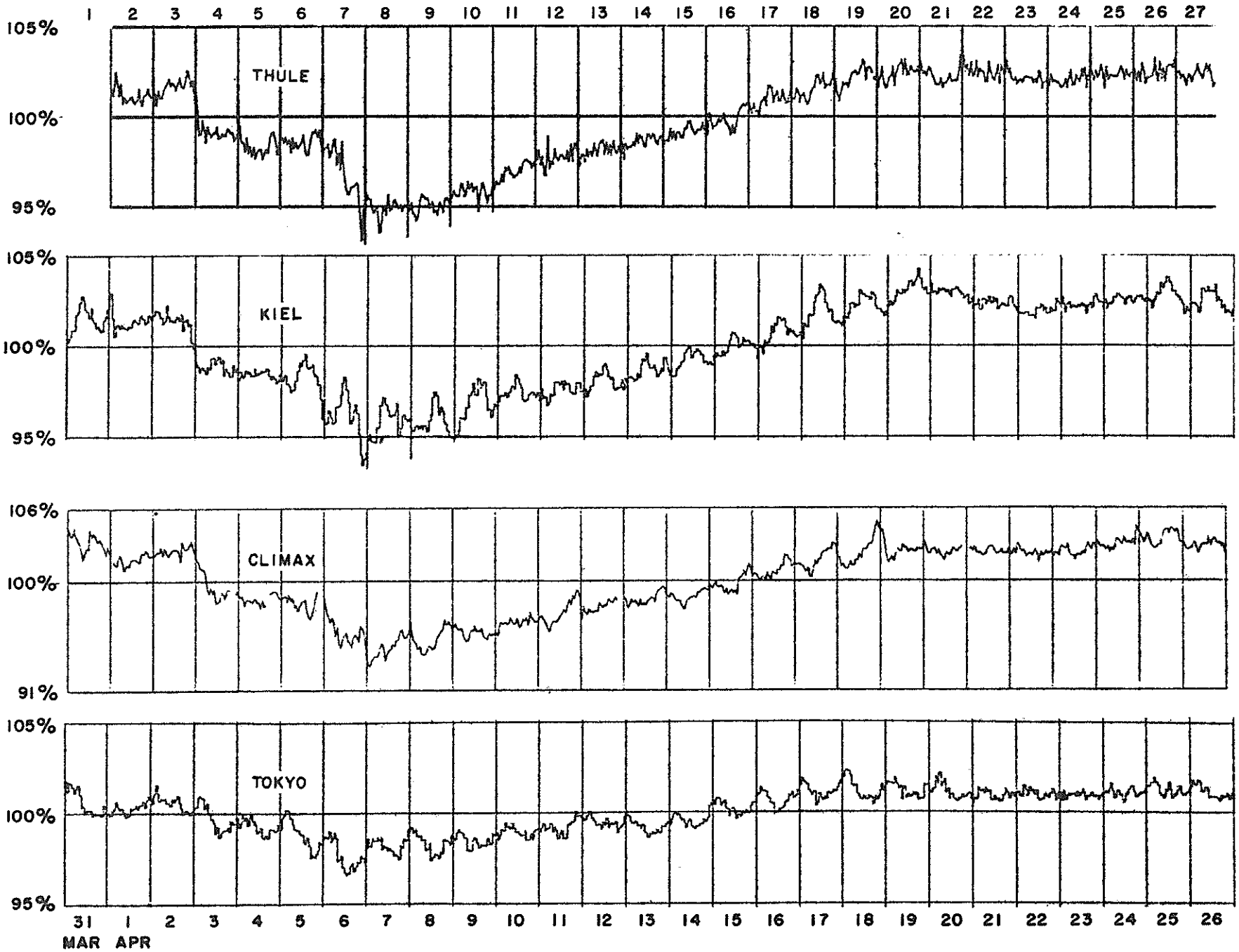
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2005 (March 1980– April 1980)



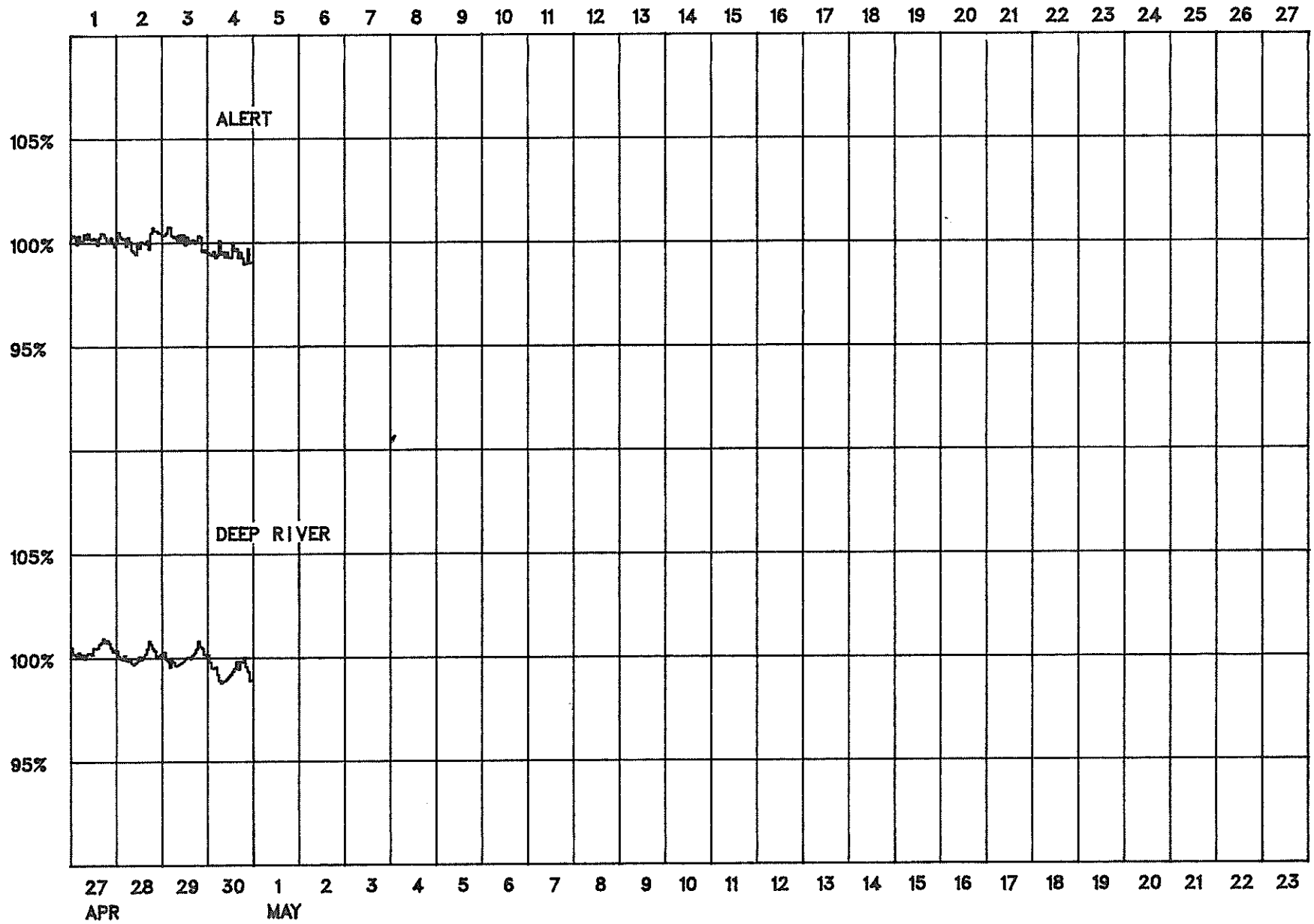
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2005 (March-April 1980)



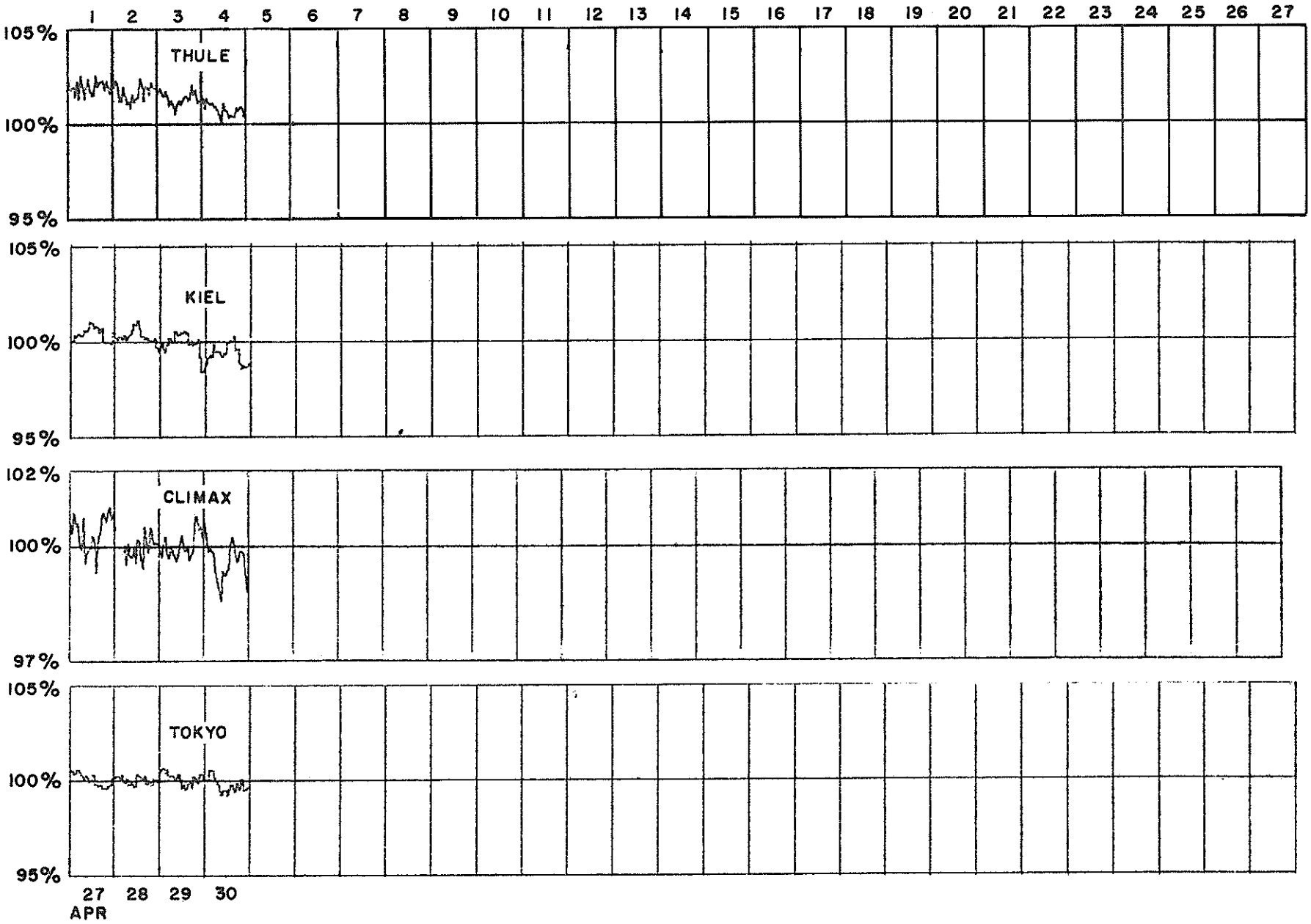
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2006 (April 1980–May 1980)



COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2006 (April 1980)



COSMIC RAY INDICES

(Neutron Monitors)

APRIL 1980

Apr 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	4225	6932.9	6549.3	Data not available at time of publication.	5922.6	3883.6	3580.8	Data not available at time of publication.
2	4244	6975.7	6577.7		5922.7	3911.7	3592.3	
3	4137	6796.7	6446.2		5773.3	3798.0	3561.9	
4	4106	6765.1	6381.6		5748.5	3758.2	3545.5	
5	4115	6751.3	6388.0		5737.7	3745.1	3529.6	
6	4039	6595.6	6246.7		5609.8	3654.0	3487.9	
7	3964	6517.3	6190.6		5601.5	3606.0	3507.2	
8	3968	6506.8	6202.1		5596.4	3632.5	3510.7	
9	4002	6552.8	6213.0		5651.1	3652.5	3515.5	
10	4048	6626.5	6272.4		5690.3	3683.9	3533.0	
11	4081	6664.6	6315.7		5701.3	3716.1	3542.8	
12	4095	6703.1	6334.8		5728.1	3733.6	3551.7	
13	4117	6738.3	6366.6		5763.7	3758.9	3541.2	
14	4139	6783.8	6399.3		5796.6	3765.0	3555.3	
15	4168	---	6449.7		5840.0	3806.9	3578.4	
16	4213	6895.2 (6)	6527.6		5882.0	3847.2	3595.5	
17	4240	6929.7	6598.3		5947.0	3881.1	3611.5	
18	4266	6983.2	6615.3		5973.4	3903.4	3613.9	
19	4275	7011.0	6633.5		6020.3	3912.1	3614.0	
20	4268	6979.2	6621.8		6009.7	3907.6	3610.9	
21	4278	6998.5	6639.2		5977.8	3907.6	3603.8	
22	4264	6979.8	6614.3		5952.8	3902.3	3606.9	
23	4260	6988.2	6625.3		5972.1	3907.8	3604.3	
24	4273	7003.4	6640.9		5988.8	3933.1	3610.5	
25	4278	7003.2	6662.7		6002.7	3951.0	3616.4	
26	4269	6962.0	6635.0		5985.3	3925.9	3611.3	
27	4258	6935.7	6596.2		5951.9	3889.6	3588.6	
28	4245	6930.4	6576.3		5944.0	3873.9	3586.3	
29	4232	6934.9	6571.8		5922.2	3875.8	3590.0	
30	4207	6882.2	6527.9		5888.1	3859.7	3577.7	
MEAN	4176	6838.9	6480.7		5850.1	3819.6	3572.5	

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

GEOMAGNETIC ACTIVITY INDICES

APRIL 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	2	1-	1-	0+	1+	1+	1	0	7+	4	0.1	2-	0+	1-	0	2-	1+	1	0+	6	8	9	6 10 CK
2	Q1	1-	1-	0+	1-	1-	1-	0+	2-	6-	3	0.1	0+	0+	0	0+	0+	0+	0+	1+	3	5	3	4 5 CC
3		1+	3-	2-	2+	2-	2+	2	1-	15-	7	0.4	1+	2+	1+	2	1+	2+	2	1-	12	12	12	12 12 CC
4		0+	1+	3	3	3-	3+	3	1	18-	11	0.6	0+	1+	3-	3-	2	3-	2+	1-	16	16	19	15 20 K
5		1	2-	1	1	2+	3+	2	1-	13	7	0.3	1	1+	1-	1-	2	3+	2-	1	11	11	7	4 14 C
6	D3	0+	2+	1+	5-	5	5	5+	3+	27+	28	1.2	0+	2	1+	4-	4-	4	4	3+	34	47	35	21 62
7		3+	3-	3+	2-	3-	3-	5-	4	25	18	1.0	3-	3-	3	2-	3-	2-	4	4-	27	41	24	24 41
8		3+	4-	3-	4	4	3-	2-	3-	25-	17	0.9	3	3+	3-	3	4-	2+	1+	3-	28	27	38	32 32
9		3	1+	1-	5-	4	3+	2-	1+	26	20	1.0	3-	4	4-	5-	4	3	1+	2-	38	33	37	48 23
10	D4	4	5	4	5-	3-	2+	2	2+	27	22	1.1	3+	4	4-	4	3-	2	2-	3-	32	34	23	41 16
11	D1	3	3-	4+	3	3	4+	6-	5	31	30	1.3	3-	3-	4	3	2+	4-	5	4+	45	48	42	37 53
12	D2	5	4-	3	3+	3+	4+	3+	5+	31+	28	1.2	4	3+	3-	3	3	3+	3-	5-	39	48	32	34 47
13		5-	3+	4-	3	3-	3+	3-	2-	25	18	1.0	4-	3	3	3-	2	3-	3-	1+	26	27	26	31 23
14		1	2	2-	0+	1+	3-	3	4	16	10	0.5	1-	1+	1	0+	1+	2	3-	3+	14	18	16	9 26
15	D5	5-	4-	3+	2+	2+	3+	4-	4	27+	20	1.0	4	3	3+	2-	2-	3	3+	4-	33	40	23	28 35
16		3	3	3-	1+	2+	3	2	3	20+	12	0.7	3-	3-	3-	2-	2	3-	2	3+	21	23	19	18 25
17		4-	4	2	1-	2	2+	2+	2	19	11	0.7	3	3	2-	1-	1+	2	2	2	16	20	9	18 12
18	Q3	1	2	1-	1	1	1-	1-	2-	9-	4	0.1	1-	2	1-	1+	0+	0+	0+	1+	6	8	4	7 5 CC
19	Q5	1	0+	1	1	1+	2-	2-	2-	10-	5	0.2	0+	0+	1	1	1	1+	1+	2-	7	9	4	5 9 CC
20	Q0	2+	2	1-	1	1+	1	2	2-	12	6	0.3	2+	2-	0+	1	1+	1-	2	2	10	13	7	11 10 CC
21	Q4	2-	2-	1	1	1-	1	1+	1+	10-	5	0.2	1+	1	1-	1	1-	1-	1+	1	6	10	4	7 7 CC
22		3+	3-	1	1+	3-	2	2-	2-	16+	9	0.5	3	3-	1	1+	2	2-	1+	2-	14	16	12	15 14 K
23		3-	2+	1-	1	2-	2-	1-	2	13-	6	0.3	3-	2	1	1-	2-	2-	1-	2-	11	15	7	10 12 CC
24		3-	3-	1	1	1	2	1	2	13+	7	0.3	3-	2	1-	0+	1-	2+	1+	2-	11	17	9	10 15 K
25		3-	2+	2	3-	3+	2-	1-	1	16+	9	0.5	2+	3-	2	3	3	2-	1-	1-	17	18	16	22 13
26	Q7	1-	2	1+	0+	2	1+	1	1+	10	5	0.2	1-	2+	2-	0+	2-	1	1+	1+	9	11	9	9 12 CC
27	Q8	0+	1+	0+	1	2-	1+	1-	3-	9+	5	0.2	0+	1+	1-	1-	1+	1+	1	2+	8	11	8	7 13 CC
28	Q6	2-	1	0+	1+	2-	2	1-	1-	9+	4	0.2	1+	1+	0+	1+	2-	1+	0+	1-	8	11	5	6 11 CC
29	Q9	1+	2-	2-	1+	2	2-	1	1+	12	6	0.2	1+	1+	2-	1+	1+	1	1	1+	9	11	7	9 9 CC
30		2-	2+	1	3-	3	2+	2-	2-	16+	8	0.5	1+	2	1	2+	3-	2	2-	2-	13	16	11	11 16 CC
										Mean	11	0.56									17.7	20.8	15.9	18.6

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	2-	0+	1-	0+	1+	1+	1	0	6	2	0	1-	0	2	1+	1	0+	7
2	1-	1-	0	0+	0+	1-	1-	2-	4	0+	0+	0	0	1-	0+	0+	1+	3
3	1+	2+	1+	2+	2-	2+	2+	1	14	1+	2+	1	1+	1	2	2	0+	11
4	0+	1	3-	3	2+	3	2+	1	17	0+	1+	2+	3-	2-	3-	3-	1-	15
5	1	2-	1-	1+	2+	3+	2	1+	14	1	1+	1-	0	1+	3	1+	1-	9
6	0+	2	1+	4-	4	5-	4+	4-	40	1-	2+	1	3+	3+	4-	4-	3+	29
7	3	3-	3+	2-	3	2	4	4-	30	3-	2+	3-	1+	2	2-	4-	4-	25
8	3	3+	3-	3	4-	3-	2-	3	29	3	4-	3-	3	4-	2+	1+	3-	27
9	3-	4	3+	5-	4+	3	2-	2-	39	3-	4	4-	4+	4	3	1	2-	36
10	3+	4	4-	4+	3-	2+	2	3-	37	3	4-	3+	4-	2+	1+	1+	2+	27
11	3-	3-	4	3	2+	4	2-	4	44	3-	2+	4	3+	3-	3+	5+	4+	47
12	4	3+	3-	3-	3	4-	3	5-	41	4	3+	3-	3	3	3+	3-	4+	37
13	4	3	3	3-	3-	3	3-	1+	28	3+	3+	3	2+	1+	3-	3-	1+	24
14	1-	2-	1+	1-	1+	2+	3-	3+	15	1-	1	1	0	1+	2	3-	3+	13
15	4	3	4-	2+	2	3	3+	4-	35	4	3	3	1+	1	3	3+	4-	30
16	3-	3-	3-	2-	2	3-	2	3	20	3-	3-	3-	2-	2	3-	2-	3+	21
17	3	3	2	1	2-	2+	2+	2	17	3+	3	2-	0+	1	2-	2	2	16
18	1-	2	1-	1+	0+	1-	1-	2-	7	1-	2	1	1+	0	0	0	1+	5
19	1-	1-	1+	1+	1	2-	2-	2-	9	0+	0+	1-	1-	1-	1	1	2-	5
20	2	2-	1-	1+	1+	1	2	2+	11	2+	1+	0	1-	1+	0+	2-	1+	8
21	2-	1+	1	1+	1	1	1+	1	8	1+	1	0+	1-	0+	0+	1	1-	5
22	3	2+	1+	2	2+	2	1+	2-	16	3-	3	1-	1	1+	1	1	1+	12
23	2+	2	1+	1+	2	2+	1+	2	14	3-	2	0+	0	1	1-	0	2-	8
24	2+	2-	1-	1-	1	3-	2-	2-	11	3-	2+	0+	0	1-	2+	1-	1+	10
25	3-	3-	2	3+	3	2	1	1+	19	2	3-	2-	3	3	1	0+	0	15
26	1	2+	2-	1-	2	1+	2-	2	11	0+	2+	2-	0	2-	0+	1-	1	9
27	1-	1+	1-	1	2-	2	1+	3	11	0+	1+	1-	0+	1-	1-	0+	2-	6
28	1+	1+	1	1+	2-	2-	1-	1	9	1+	1+	0	1+	1+	1	0	0+	6
29	1+	2-	2	2-	2-	1+	2-	1+	11	1+	1+	1+	1	1-	0+	0+	1-	6
30	1+	2+	1+	3-	3-	2+	2	2	16	1	2	0+	2	2+	1+	1+	1+	11
								Mean	19.4									16.1

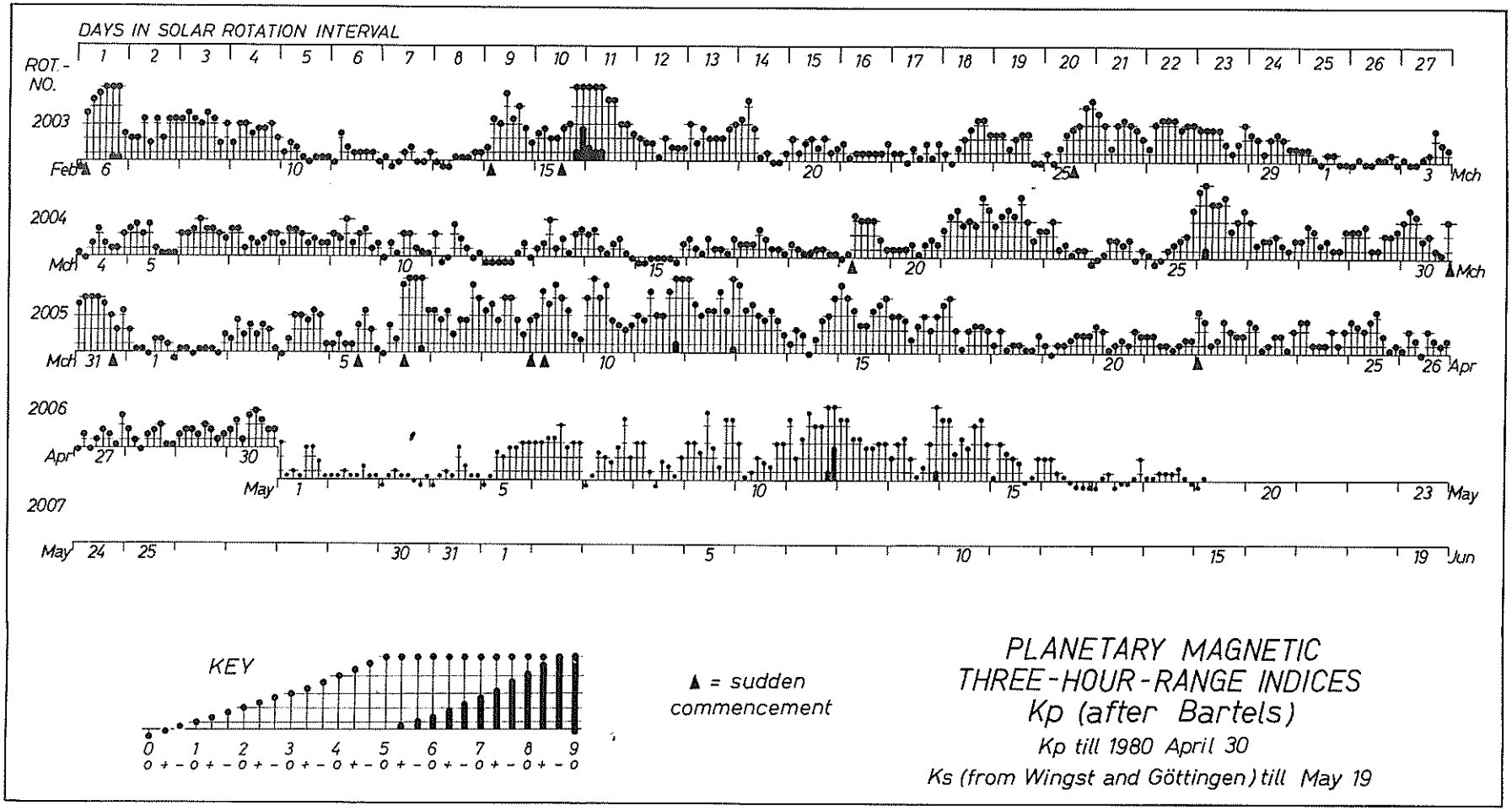
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, 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	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
1	18	5	7	16	10	10	16	9	24	10	3	4
2	14	6	4	11	5	7	12	11	12	9	3	3
3	6	4	14	10	9	13	10	9	18	3	5	7
4	7	6	9	16	10	9	10	16	16	4	5	11
5	7	4	9	8	17	6	2	7	12	3	7	7
6	6	34	22	18	15	36	3	6	8	33	9	28
7	11	26	27	10	6	32	12	4	5	12	7	18
8	8	14	9	7	6	37	14	10	6	17	6	17
9	14	15	6	6	5	23	19	7	3	11	7	20
10	7	14	6	7	9	17	6	5	3	4	4	22
11	19	10	4	10	14	10	10	5	11	4	4	30
12	9	7	11	18	8	8	7	4	4	3	1	28
13	8	8	16	76	8	12	35	4	23	2	7	18
14	11	7	14	7	10	6	13	4	9	18	5	10
15	11	10	15	4	8	8	3	9	6	33	2	20
16	5	16	11	5	14	8	12	10	9	40	4	12
17	3	14	14	8	11	4	8	13	13	6	5	11
18	11	6	15	11	64	3	4	7	4	10	4	4
19	24	6	11	35	6	5	7	6	4	10	10	5
20	13	8	18	42	22	6	10	4	6	6	4	6
21	13	15	9	22	23	10	6	4	6	4	18	5
22	36	24	6	12	6	14	2	15	5	4	16	9
23	11	19	6	5	7	6	4	3	5	9	6	6
24	27	10	5	13	15	12	24	7	5	6	4	7
25	34	9	3	22	19	14	15	2	7	13	6	9
26	25	20	17	15	19	8	4	10	6	14	30	5
27	17	10	23	12	15	6	4	12	24	14	7	5
28	11	4	10	10	16	9	2	16	27	10	7	4
29	30	7	24	77	15	11	4	32	26	7	8	6
30	10	10	9	15	18	5	15	20	10		11	8
31	6		3	12		5		9	5		21	
MEAN	14	12	12	18	14	12	10	9	10	11	8	11

GEOMAGNETIC ACTIVITY INDICES



PRINCIPAL MAGNETIC STORMS

APRIL 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
HYB	07.6N	02	2113	SC	- .2	9	- 1	03(2,6)	3	6	88	41	03	22
KGL	56.5S	02	2110	SC*	12	11	--	03(2)	2	--	--	--	03	03
FRD	49.6N	06	1058	SC	4	23	- 4	06(5,6,7) 07(7) 09(4)	5	25	130	92	13	21
COL	64.6N	06	1059	SC*	- 9	-97	-39	06(5,6)	6	172	1160	750	07	03
SIT	60.0N	06	1100	SC*	-11 *	41	9	09(5)	7	70	--	460	10	12
WIT	54.2N	06	1059	SC*	- 5 *	80	* 3	06(4,5,6,7) 10(2,3,4) 12(1,8)	5	20	115	90	07	01
SJG	29.9N	06	1158	SC	1	12	* 3	06(4)	5	12	100	37	07	03
HON	21.1N	06	1100	SC	--	22	9	06(7)	4	6	37	21	07	04
JAI	17.3N	06	1059	SC	- 1.6	37	-11			6	126	31	07	03
SHL	14.6N	06	1059	SC	- .3	31	8			5	102	26	07	03
UJJ	13.5N	06	1059	SC	- .9	41	- 9			4	136	29	07	03
ABG	09.5N	06	1059	SC	- 1.3	32	-12	06(5,6,7)	5	5	129	29	07	03
HYB	07.6N	06	1059	SC	- .8	36	- 3	06(6)	6	5	145	24	07	10
GUA	04.0N	06	1059	SC	--	29	- 9	06(8)	5	10	100	30	07	10
ANN	01.5N	06	1059	SC	- 2.1	49	25			4	161	37	07	03
HUA	00.6S	06	1058	SC*	3	60	4	06(6)	7	6	355	45	07	03
TRD	01.1S	06	1059	SC	.3	50	58			2	176	94	07	03
PMG	18.6S	06	1059	SC	.5	31	26	06(6)	5	8	110	50	08	18
GNA	43.2S	06	1100	SC	2.4	29	16	06(6,7,8) 07(7,8) 08(5)	4	14	60	100	08	18
KGL	56.5S	06	1100	SC*	49	58	23	06(4,5,6,7)	3	--	--	--	07	09
HYB	07.6N	07	1214	SC	- .2	12	- 1	08(2,3)	4	7	124	26	08	18
GUA	04.0N	07	2020	..	..	..	..	09(2)	5	10	110	40	09	03
HUA	00.6S	07	1214	SC	1	13	3	08(5)	5	10	301	53	08	18
NEW	55.1N	08	2336	SC*	3	35	3	09(4,5) 10(4) 11(6)	5	28	185	232	13	24
PMG	18.6S	08	2331	SC	.3	20	18	09(4)	6	10	160	80	13	20
COL	64.6N	09	05--	..	..	..	..	09(3,5) 10(3,4)	6	281	1430	150	10	13
HON	21.1N	09	0509	SC	--	14	5	09(5)	5	3	73	26	10	15
JAI	17.3N	09	0508	SC	- .3	23	- 3			9	139	66	12	18
SHL	14.6N	09	0508	SC	.2	22	3			9	168	66	12	18
UJJ	13.5N	09	0508	SC	- .1	28	- 7			8	157	58	12	18
ABG	09.5N	09	0508	SC	- .5	25	- 9	09(2,4)	6	7	179	54	12	18
HYB	07.6N	09	0508	SC	- .4	29	- 5	09(4,5)	6	4	193	37	10	20
GUA	04.0N	09	0508	SC	--	24	- 6	09(4)	6	10	180	30	10	15
ANN	01.5N	09	0508	SC	- 1.3	63	14			6	298	89	12	18
HUA	00.6S	09	0508	SC	1	24	7	09(5,6)	5	12	247	49	09	20
TRD	01.1S	09	0508	SC	.1	64	--			5	--	--	12	18
GNA	43.2S	09	0508	SC*	-22 *	5	-11	* 09(4)	5	17	80	110	13	09
KGL	56.5S	09	0508	SC*	33	-16	--	09(2,3,4,5,6)	3	--	--	--	09	18
COL	64.6N	11	06--	..	..	..	..	11(4)	6	137	960	470	13	11
WIT	54.2N	11	13--	..	..	..	..	11(7) 12(8)	6	30	170	80	13	04
SJG	29.9N	11	1500	..	..	..	..	11(7)	6	11	112	33	12	07
HYB	07.6N	11	0200	..	..	..	..	11(7)	5	8	183	44	13	16
HUA	00.6S	11	0217	..	..	..	..	11(6)	6	6	322	16	12	07
HER	33.7S	11	0600	..	..	..	..	11(3,7,8)	5	21	105	105	12	03
HYB	07.6N	14	1400	..	..	..	..	15(6,7)	4	7	118	45	16	19
KGL	56.5S	14	15--	..	25	12	..	14(8) 15(1)	4	--	--	--	15	08
HON	21.1N	22	0037	SC	--	17	5	23(1)	4	2	73	11	23	08
HYB	07.6N	22	0037	SC	- .1	19	- 1	22(2)	4	5	113	41	22	20
GUA	04.0N	22	0037	SC*	--	31	- 8	22(1)	4	--	110	20	22	08

Reports were received from the following observatories:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU HUANCAYO HYDERABAD JAIPUR
KERGUELEN NEWPORT PORT MORESBY SAN JUAN SHILLONG SITKA TRIVANDRUM UJJAIN WITTEVEEN

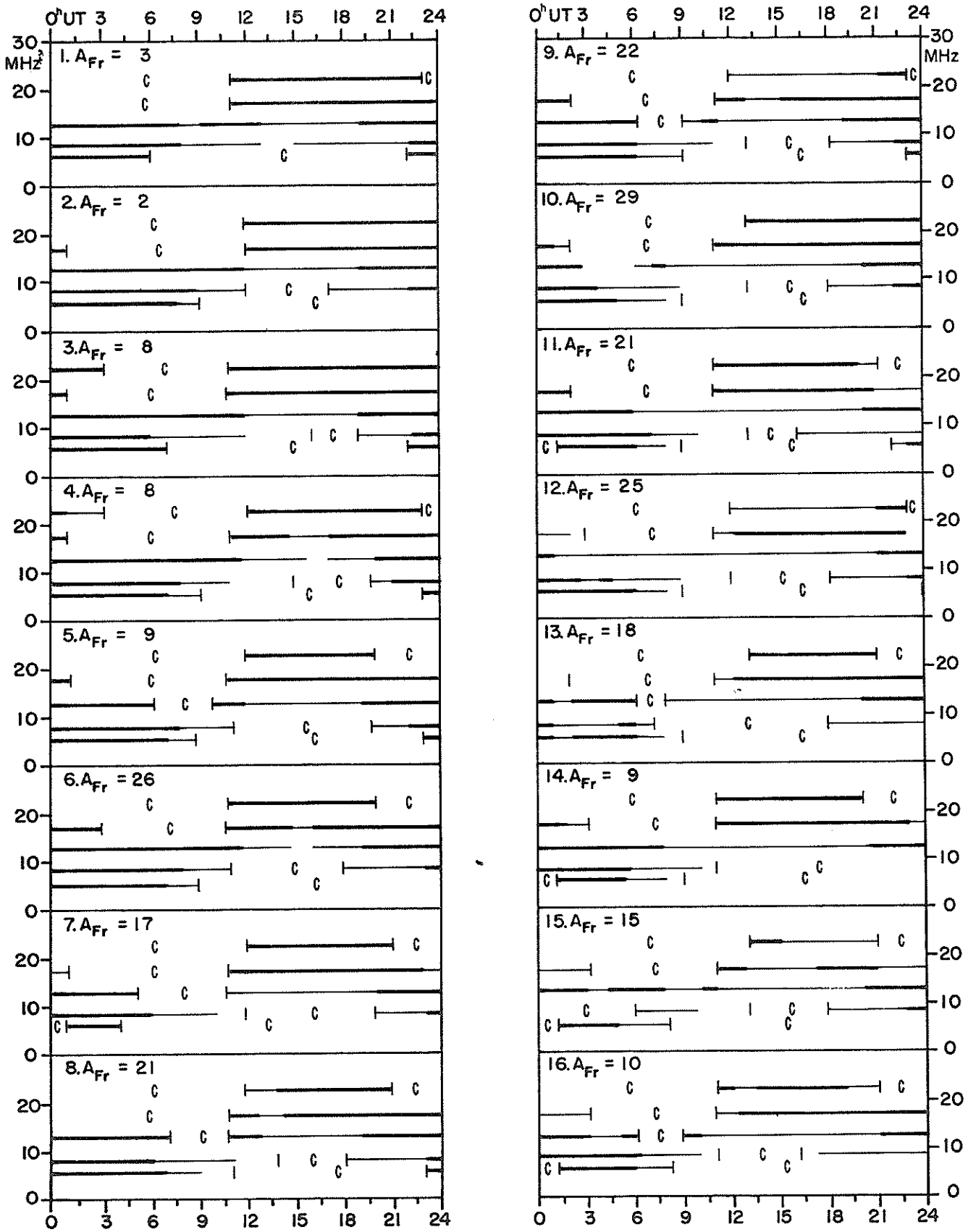
RADIO PROPAGATION QUALITY INDICES

APRIL 1980

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	5.7	7.9	11.3	13.4	13.5
2	5.6	8.1	10.7	13.5	13.1
3	5.2	8.4	10.7	13.2	13.0
4	5.1	7.9	10.6	13.6	12.4
5	5.0	7.6	11.0	13.4	12.5
6	4.2	7.9	10.3	12.8	12.5
7	4.9	7.2	9.7	12.6	12.4
8	4.8	7.6	9.1	13.2	12.8
9	4.7	6.1	8.4	13.3	12.6
10	3.4	6.7	10.2	12.8	12.3
11	3.5	6.4	10.4	12.9	12.3
12	4.5	5.7	9.6	12.8	12.0
13	3.4	7.1	8.8	12.6	12.1
14	4.2	6.7	10.0	12.6	12.2
15	3.8	5.3	9.7	12.5	12.0
16	3.8	6.8	10.4	12.3	12.2
17	5.4	7.1	10.5	13.0	12.3
18	5.7	7.7	10.8	13.4	12.3
19	5.9	7.7	10.9	13.4	12.3
20	5.5	6.2	10.0	13.4	12.1
21	6.8	7.8	9.1	13.5	12.4
22	6.3	8.3	10.2	13.4	12.3
23	7.0	7.9	11.6	13.6	13.3
24	6.0	8.3	10.7	13.6	13.1
25	5.8	8.3	10.8	13.8	13.2
26	5.7	8.3	10.6	13.5	13.1
27	5.3	7.3	10.6	13.4	13.2
28	5.7	7.0	10.4	13.3	13.2
29	6.2	7.6	9.8	13.1	13.0
30	5.0	8.1	10.0	13.3	13.5
MEAN	5.1	7.4	10.2	13.2	12.6

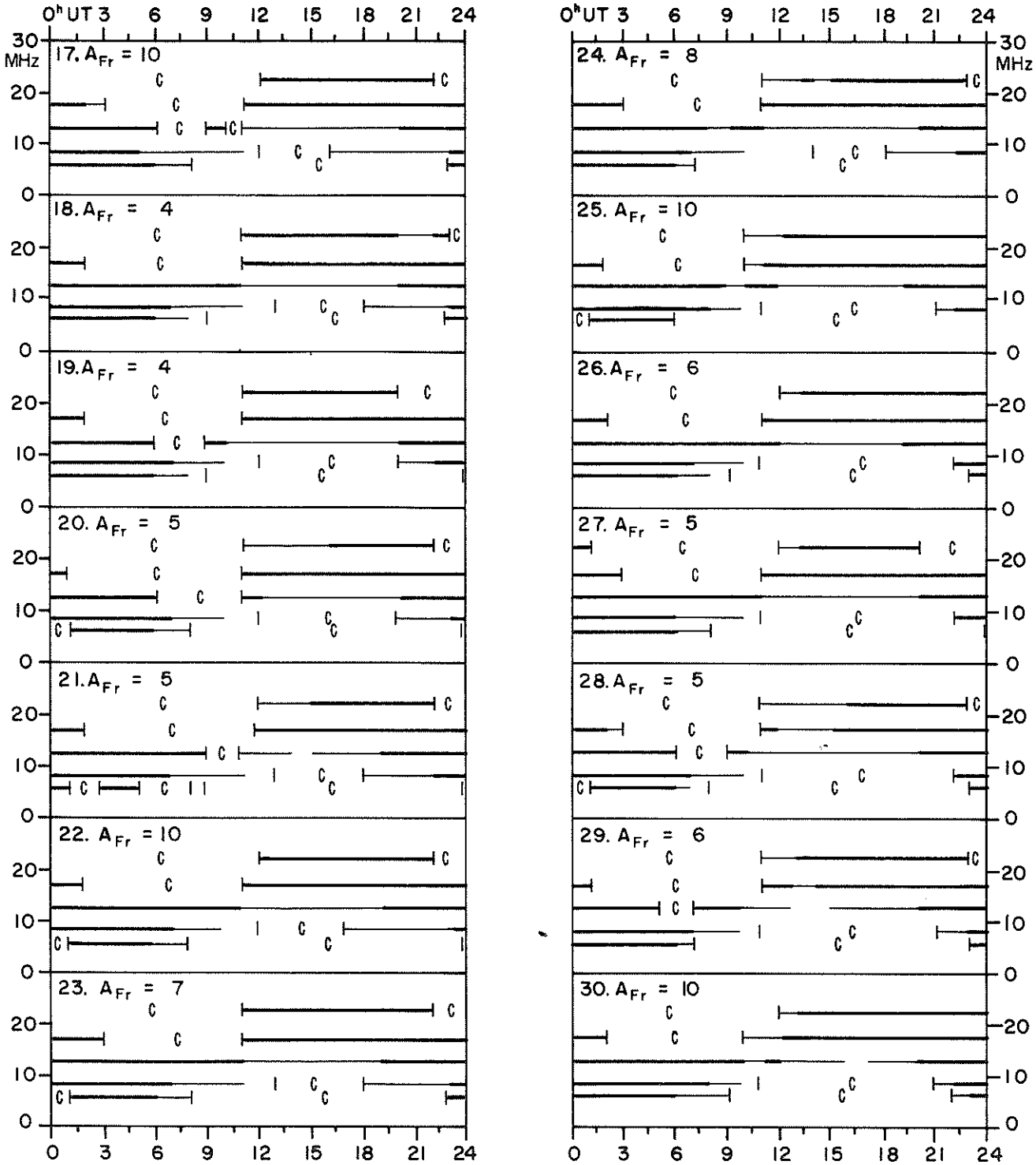
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

APRIL 1980



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

APRIL 1980



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Lüchow -New York circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 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

SGD 430 Part I (Prompt)

LATE DATA

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SOLAR WIND

Interplanetary Scintillations

APRIL 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
800331	91	0	330	40	371	25	2	3C147	77	1	0.98	-16	-1.40	1693.29
	91	1	385	17	383	17	4	3C144	73	-8	0.96	-18	-1.58	1693.33
	91	2	410	9	429	9	3	3C161	87	-15	1.03	-15	-1.05	1693.32
	91	4	422	87	390	52	2	3C144+	73	-8	0.96	-17	-1.53	1693.35
	91	19	261	49	237	39	2	3C459	22	21	0.37	64	0.37	1693.20
	91	21	355	11	375	39	4	3C48	31	31	0.52	-47	-6.15	1693.51
	91	22	415	18	437	44	2	3C144-	72	-8	0.95	-18	-1.60	1693.37
800401	92	1	415	12	413	12	4	3C144	72	-8	0.95	-18	-1.60	1693.38
	92	2	351	10	301	92	3	3C161	86	-15	1.02	-14	-0.98	1693.33
	92	3	412	81	430	60	2	3C144+	72	-8	0.95	-18	-1.64	1693.38
	92	18	271	64	336	13	2	3C459	23	20	0.39	63	0.56	1693.24
	92	21	354	9	363	36	3	3C48	30	32	0.50	-47	-6.24	1693.55
	92	22	904	80	950	45	2	3C144-	71	-8	0.95	-18	-1.53	1693.50
800402	93	1	518	15	653	25	3	3C144	71	-8	0.95	-18	-1.62	1693.45
	93	2	403	15	457	10	3	3C161	86	-15	1.02	-15	-1.06	1693.39
	93	3	566	25	424	32	2	3C144+	71	-8	0.95	-19	-1.62	1693.46
	93	3	566	25	424	32	2	3C144+	71	-8	0.95	-19	-1.62	1693.46
	93	17	509	30	483	198	2	3C446	37	4	0.60	51	2.41	1693.32
	93	19	417	97	588	201	2	3C459	23	20	0.39	62	1.98	1693.31
	93	21	368	25	366	15	3	3C48	30	32	0.50	-48	-6.19	1693.59
800403	94	1	398	16	406	89	3	3C144	70	-8	0.94	-18	-1.72	1693.45
	94	3	466	29	499	166	2	3C196	99	0	1.09	-14	-0.74	1693.44
	94	6	430	15	436	43	2	3C237	137	-8	1.24	-9	0.29	1693.39
	94	18	436	46	340	49	2	3C459	24	19	0.41	63	2.17	1693.35
	94	20	474	61	279	147	2	3C48	29	34	0.48	-48	-5.67	1693.65
800404	95	0	345	24	430	95	3	3C144	69	-8	0.93	-20	-1.91	1693.46
	95	2	325	57	236	34	2	3C161	84	-15	1.01	-14	-1.03	1693.42
	95	18	465	132	656	73	2	3C459	25	18	0.42	62	2.36	1693.39
	95	22	357	49	323	17	2	3C144-	69	-8	0.93	-22	-2.03	1693.51
800405	96	1	291	17	361	20	3	3C144	68	-8	0.93	-21	-2.08	1693.47
800406	97	0	475	97	621	305	2	3C147	72	1	0.95	-16	-1.42	1693.57
	97	1	397	16	461	41	2	3C144	67	-8	0.92	-21	-2.04	1693.57
	97	2	351	15	241	10	2	3C161	82	-15	1.00	-14	-1.06	1693.52
800407	98	1	446	27	457	28	3	3C144	66	-8	0.91	-24	-2.20	1693.63
	98	2	517	44	528	45	2	3C161	81	-15	1.00	-14	-1.10	1693.62
800408	99	0	592	98	526	57	2	3C144	66	-8	0.91	-24	-2.16	1693.70
	99	2	307	25	411	14	2	3C161	80	-15	0.99	-14	-1.14	1693.56
	99	3	387	52	431	22	2	3C144+	65	-8	0.91	-23	-2.23	1693.65
	99	5	398	64	441	38	2	3C237	132	-8	1.22	-9	0.33	1693.57
	99	20	500	66	577	18	2	3C48	26	41	0.44	-47	-5.69	1693.84
	99	22	493	22	492	22	2	3C144-	65	-8	0.91	-26	-2.33	1693.72
	99	23	468	28	482	27	3	3C147	70	2	0.94	-18	-1.63	1693.69
800409	100	0	481	17	484	17	3	3C144	65	-8	0.91	-26	-2.35	1693.72
	100	3	429	20	549	68	2	3C196	94	1	1.06	-14	-0.85	1693.65
	100	3	461	15	466	15	2	3C144+	64	-8	0.90	-25	-2.37	1693.72
	100	17	385	19	411	76	2	3C446	44	3	0.69	45	1.91	1693.55
	100	18	417	38	458	19	2	3C459	30	15	0.50	57	2.05	1693.56
	100	20	430	12	458	13	3	3C48	26	42	0.44	-47	-5.99	1693.87
	100	22	370	54	406	30	2	3C144-	64	-8	0.90	-26	-2.53	1693.72
	100	23	478	56	460	17	2	3C147	69	3	0.93	-18	-1.70	1693.73
800410	101	0	309	12	355	14	3	3C144	64	-8	0.90	-27	-2.69	1693.69
	101	2	412	23	406	10	3	3C161	79	-15	0.99	-15	-1.26	1693.69
	101	2	334	41	332	17	2	3C196	93	1	1.06	-14	-0.80	1693.64
	101	20	419	12	467	13	3	3C48	25	44	0.42	-46	-6.11	1693.90
800411	102	0	280	17	326	11	2	3C144	63	-8	0.89	-27	-2.78	1693.71
	102	2	318	17	352	26	2	3C161	78	-15	0.98	-14	-1.23	1693.68
	102	17	419	35	318	17	2	3C459	32	13	0.53	55	2.07	1693.64
	102	20	554	48	515	21	2	3C48	24	46	0.41	-44	-5.33	1693.95
800416	107	1	379	79	391	182	2	3C161	74	-15	0.96	-15	-1.35	1693.90
	107	2	293	39	264	36	2	3C144+	58	-8	0.85	-32	-3.40	1693.93
	107	18	512	42	521	18	2	3C459	36	12	0.59	51	2.35	1693.84
	107	20	409	11	428	22	4	3C48	23	53	0.39	-39	-5.76	1694.11

SOLAR WIND

Interplanetary Scintillations

APRIL 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
	107	21	352	40	363	36	2	3C144-	57	-8	0.84	-33	-3.39	1693.99
800417	108	0	265	23	267	23	3	3C144	57	-8	0.84	-33	-3.69	1693.95
	108	1	256	44	335	62	2	3C161	73	-15	0.96	-14	-1.43	1693.86
	108	18	445	71	393	15	2	3C459	37	11	0.60	51	2.18	1693.87
	108	20	450	22	493	28	4	3C48	22	55	0.37	-36	-5.35	1694.14
	108	21	345	17	338	16	3	3C144-	56	-8	0.83	-35	-3.58	1694.03
800418	109	0	309	14	330	15	4	3C144	56	-8	0.83	-34	-3.67	1694.02
	109	1	275	11	260	13	4	3C161	72	-16	0.95	-13	-1.39	1693.91
	109	17	529	144	500	192	2	3C446	53	2	0.80	36	2.01	1693.93
	109	18	369	16	333	100	2	3C459	38	11	0.62	51	1.85	1693.88
	109	20	423	17	428	12	4	3C48	22	57	0.37	-34	-5.38	1694.17
	109	21	278	16	293	17	3	3C144-	55	-8	0.82	-35	-3.89	1694.04
	109	23	377	16	353	23	2	3C147	61	7	0.87	-24	-2.51	1694.05
800419	110	0	323	34	295	31	3	3C144	55	-8	0.82	-36	-3.79	1694.07
	110	1	310	24	303	10	3	3C161	71	-16	0.95	-14	-1.46	1693.98
	110	16	392	58	355	66	2	3C446	54	2	0.81	36	1.77	1693.93
	110	17	286	17	327	24	2	3C459	39	11	0.63	49	1.30	1693.88
	110	19	369	18	456	97	2	3C48	22	58	0.37	-31	-5.57	1694.19
	110	21	324	15	341	20	3	3C144-	54	-8	0.81	-35	-3.77	1694.10
800420	111	0	291	34	344	57	3	3C144	54	-8	0.81	-37	-4.05	1694.09
	111	1	325	10	341	14	3	3C161	70	-16	0.94	-16	-1.56	1694.03
	111	2	303	17	274	24	3	3C144+	54	-8	0.81	-36	-3.94	1694.10
	111	5	346	33	314	44	2	3C237	121	-7	1.18	-12	0.00	1693.99
	111	18	292	11	323	46	3	3C459	40	10	0.64	48	1.36	1693.92
	111	20	406	75	382	15	3	3C48	22	59	0.37	-28	-5.04	1694.23
	111	21	359	21	335	20	3	3C144-	53	-8	0.80	-37	-3.90	1694.16
	111	23	333	26	307	21	2	3C147	60	8	0.87	-27	-2.86	1694.11
800421	112	0	307	13	322	54	2	3C144	53	-8	0.80	-36	-4.02	1694.14
	112	1	386	16	339	12	3	3C161	70	-17	0.94	-17	-1.64	1694.10
	112	2	336	19	377	52	2	3C144+	53	-8	0.80	-37	-3.95	1694.16
	112	4	332	14	414	73	2	3C222	113	-9	1.15	-13	-0.15	1694.02
	112	4	295	14	295	23	2	3C237	120	-7	1.18	-12	0.21	1693.98
	112	17	387	16	345	32	3	3C459	41	10	0.66	47	1.86	1694.00
	112	19	307	9	323	10	3	3C48	22	61	0.37	-24	-5.68	1694.23
	112	21	361	20	327	18	3	3C144-	52	-8	0.79	-38	-4.02	1694.20
	112	23	248	30	352	70	3	3C147	59	9	0.86	-28	-3.26	1694.09
800422	113	0	290	11	286	11	3	3C144	52	-8	0.79	-37	-4.22	1694.17
	113	1	320	6	315	12	3	3C161	69	-17	0.93	-18	-1.80	1694.10
	113	2	403	26	421	89	2	3C196	83	2	1.01	-15	-1.13	1694.13
	113	2	405	17	318	13	3	3C144+	52	-8	0.79	-37	-3.84	1694.23
	113	18	282	59	345	23	2	3C459	42	10	0.67	47	1.36	1693.99
	113	20	300	12	377	15	3	3C48	21	62	0.36	-19	-5.44	1694.26
	113	21	405	22	350	19	3	3C144-	51	-8	0.78	-39	-3.99	1694.26
	113	22	326	12	415	73	3	3C147	58	9	0.85	-28	-3.06	1694.19
800423	114	0	363	11	341	11	3	3C144	51	-8	0.78	-39	-4.14	1694.25
	114	1	358	17	319	8	2	3C161	68	-18	0.93	-17	-1.71	1694.16
	114	2	293	11	288	11	2	3C196	82	2	1.00	-16	-1.20	1694.10
	114	2	383	34	283	35	2	3C144+	51	-8	0.78	-39	-4.10	1694.26
	114	3	311	25	313	8	2	3C216	93	1	1.06	-15	-0.83	1694.11
	114	3	304	13	303	10	2	3C222	111	-8	1.14	-13	-0.14	1694.08
	114	4	319	8	341	41	2	3C237	118	-7	1.17	-13	0.00	1694.08
	114	8	293	35	304	24	2	3C295	115	7	1.16	-6	0.54	1694.05
	114	15	240	24	227	26	2	3C409	83	8	1.01	12	0.96	1693.99
	114	17	353	12	327	11	3	3C459	43	9	0.68	45	1.70	1694.06
	114	19	320	22	332	8	3	3C48	21	63	0.36	-16	-4.98	1694.29
	114	21	321	18	302	17	4	3C144-	50	-8	0.77	-39	-4.36	1694.27
	114	23	316	10	326	12	4	3C144	50	-8	0.77	-39	-4.37	1694.27
800424	115	1	364	11	331	22	3	3C161	67	-18	0.92	-19	-1.85	1694.21
	115	1	311	59	371	117	2	3C196	81	2	1.00	-14	-1.13	1694.15
	115	2	429	37	303	42	3	3C144+	50	-8	0.77	-40	-4.11	1694.32
	115	3	316	45	280	54	2	3C216	92	1	1.05	-14	-0.81	1694.15
	115	8	323	56	271	53	2	3C295	115	8	1.16	-5	0.53	1694.11
	115	16	299	25	242	13	2	3C446	59	1	0.86	31	1.43	1694.07

SOLAR WIND

Interplanetary Scintillations

APRIL 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
	115	17	286	16	251	25	3	3C459	44	9	0.69	45	1.37	1694.06
	115	19	277	9	304	9	4	3C48	21	63	0.36	-10	-5.13	1694.30
	115	22	321	18	306	39	2	3C147	56	10	0.83	-30	-3.30	1694.27
	115	23	333	11	331	11	4	3C144	49	-8	0.75	-41	-4.53	1694.32
800425	116	1	290	8	311	23	3	3C161	66	-19	0.91	-19	-2.02	1694.20
	116	2	418	22	363	36	3	3C144+	49	-8	0.75	-41	-4.22	1694.36
	116	16	266	10	263	8	2	3C446	60	1	0.87	30	1.26	1694.08
	116	17	276	9	292	12	4	3C459	45	9	0.71	44	1.29	1694.09
	116	19	309	19	330	10	4	3C48	21	64	0.36	-6	-4.36	1694.33
	116	21	422	24	392	22	3	3C144-	48	-8	0.74	-42	-4.33	1694.39
	116	22	305	89	198	15	2	3C147	56	11	0.83	-30	-3.37	1694.30
	116	23	334	15	352	16	4	3C144	48	-8	0.74	-42	-4.66	1694.36
800426	117	0	324	9	327	14	3	3C161	65	-19	0.91	-19	-2.03	1694.26
	117	2	333	17	322	16	3	3C144+	48	-8	0.74	-41	-4.60	1694.37
	117	4	388	29	372	15	2	3C237	115	-7	1.16	-13	-0.25	1694.24
	117	16	373	15	314	13	2	3C446	61	1	0.87	29	1.53	1694.18
	117	17	357	10	293	31	4	3C459	46	8	0.72	42	1.68	1694.17
	117	19	352	9	387	10	4	3C48	21	64	0.36	-1	-3.47	1694.36
	117	21	380	22	338	19	3	3C144-	47	-8	0.73	-43	-4.59	1694.42
	117	22	303	87	283	14	2	3C147	55	12	0.82	-31	-3.49	1694.34
	117	23	326	14	326	14	3	3C144	47	-8	0.73	-43	-4.80	1694.40
800427	118	1	422	89	406	52	2	3C161	65	-20	0.91	-21	-2.06	1694.35
	118	2	302	45	318	46	2	3C144+	47	-8	0.73	-43	-4.95	1694.40
	118	17	297	9	370	12	3	3C459	47	8	0.73	42	1.46	1694.18
	118	19	343	12	360	13	3	3C48	22	64	0.37	3	-3.23	1694.38
	118	22	558	23	532	22	2	3C147	54	12	0.81	-32	-3.11	1694.46
	118	23	368	12	371	13	3	3C144	46	-8	0.72	-44	-4.75	1694.46
800428	119	0	353	10	382	47	3	3C161	64	-20	0.90	-21	-2.16	1694.36
	119	1	348	24	275	65	2	3C196	78	2	0.98	-16	-1.33	1694.33
	119	2	367	20	356	19	2	3C144+	46	-8	0.72	-45	-4.84	1694.47
	119	17	302	9	305	14	3	3C459	48	8	0.74	40	1.41	1694.22
	119	19	399	15	381	14	3	3C48	22	64	0.37	8	-2.31	1694.42
	119	21	238	15	266	17	2	3C144-	45	-8	0.71	-43	-5.62	1694.43
	119	23	359	16	359	25	4	3C144	45	-8	0.71	-44	-4.88	1694.50
800429	120	0	454	14	402	69	2	3C161	63	-21	0.89	-22	-2.13	1694.44
	120	1	363	32	359	26	2	3C196	77	2	0.98	-16	-1.34	1694.37
	120	2	307	17	285	36	2	3C144+	45	-8	0.71	-45	-5.23	1694.48
	120	2	388	11	398	13	2	3C216	88	1	1.03	-16	-1.08	1694.37
	120	4	314	45	289	39	2	3C237	112	-7	1.15	-14	-0.24	1694.30
	120	16	358	87	337	143	2	3C446	64	1	0.90	26	1.39	1694.29
	120	17	342	9	310	8	3	3C459	49	8	0.75	40	1.68	1694.28
	120	19	524	103	535	63	2	3C48	22	63	0.37	14	-1.20	1694.45
	120	21	325	18	317	18	2	3C144-	44	-9	0.69	-45	-5.20	1694.52
800430	121	0	295	34	330	24	2	3C161	62	-21	0.88	-22	-2.44	1694.40
	121	2	249	15	259	15	3	3C144+	44	-9	0.69	-45	-5.73	1694.49
	121	3	335	13	261	9	2	3C222	105	-8	1.12	-14	-0.48	1694.37
	121	4	425	13	357	26	3	3C237	111	-6	1.14	-14	-0.44	1694.41
	121	16	338	11	386	28	2	3C446	65	1	0.91	25	1.31	1694.32
	121	17	349	11	333	10	3	3C459	50	7	0.77	40	1.71	1694.32
	121	19	381	42	399	11	4	3C48	22	62	0.37	18	-1.70	1694.46
	121	21	368	20	318	17	4	3C144-	43	-9	0.68	-46	-5.13	1694.58
	121	23	261	12	293	13	4	3C144	43	-9	0.68	-47	-5.84	1694.53
800501	122	0	345	13	339	9	3	3C161	61	-22	0.87	-22	-2.36	1694.47
	122	1	308	24	305	14	3	3C144+	43	-9	0.68	-47	-5.51	1694.56
	122	16	422	53	377	49	2	3C459	50	7	0.77	39	1.88	1694.38
	122	19	431	67	416	14	3	3C48	22	62	0.37	22	-1.06	1694.49
	122	20	340	20	328	19	3	3C144-	42	-9	0.67	-47	-5.40	1694.61

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.

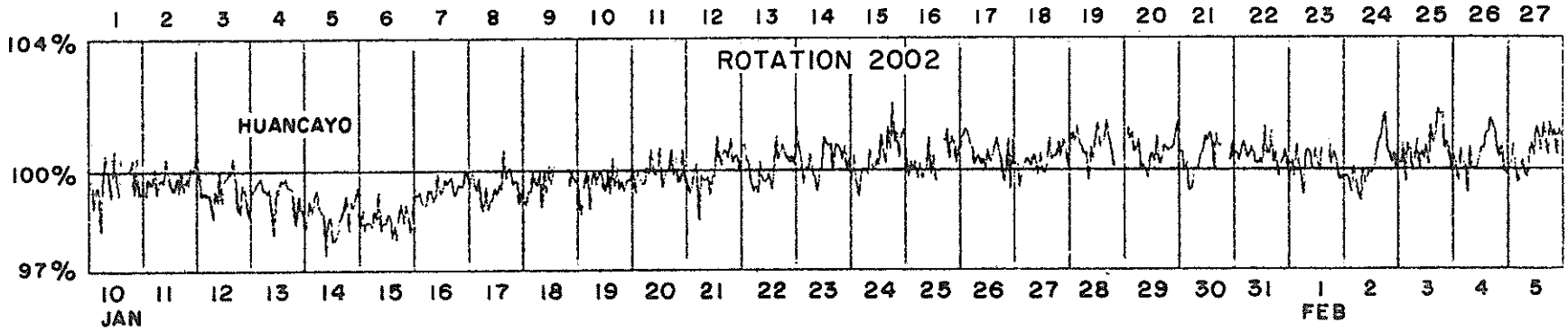
COSMIC RAY INDICES
(Neutron Monitors)

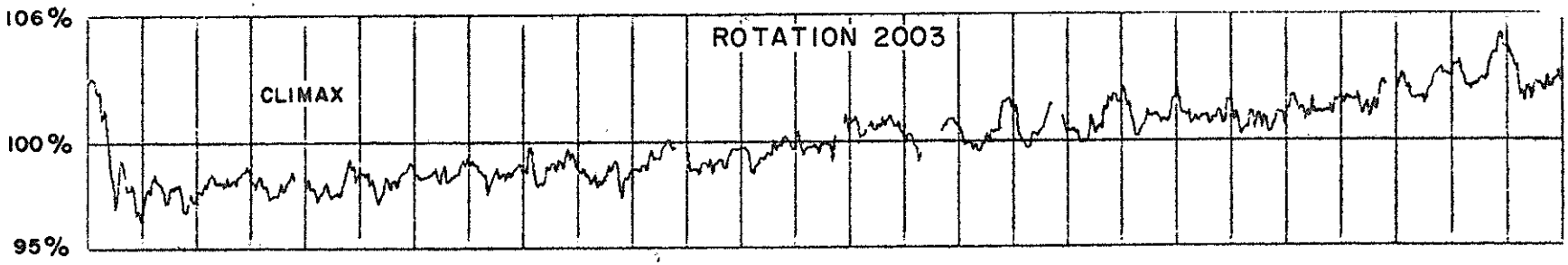
Day	FEBRUARY 1980 HUANCAYO Average (cts/h)/100	MARCH 1980 CLIMAX Average (cts/h)/100	MARCH 1980 HUANCAYO Average (cts/h)100
1	1746.2	3938.1	---
2	1744.6	3968.4	---
3	1753.5	3945.2	---
4	1749.7	3909.1	---
5	1752.2	3853.1	---
6	1720.0	3842.0	1730.3 (6)
7	1709.2	3824.6	1728.3
8	1713.8	3814.4 (38)	1727.6
9	1716.3	3825.4	1726.7
10	1722.9	3828.6	1729.2
11	1721.0	3850.0	1728.4
12	1730.3	3829.0	1734.7
13	1728.3	3855.0	1734.1
14	1729.4	3874.5	1736.7
15	1734.7 (38)	---	1742.9
16	1739.7	---	1746.7
17	1738.9	---	1746.5
18	1742.0	---	1749.9
19	1741.2	---	1748.5
20	1742.8	---	1729.1
21	1745.0	---	1739.3 (30)
22	1737.8	---	1748.0 (20)
23	1741.2	3939.6 (32)	1749.3
24	1747.1	3932.4	1751.5
25	1750.6	3919.9	1746.6
26	1746.0	3943.8	1747.3
27	1745.3 (36)	3951.8	1745.4
28	---	3975.3	1747.9
29	---	3960.2	1752.4
30		3972.1	1756.6
31		3938.7	1743.3
MEAN	1736.6	3899.5	1741.3

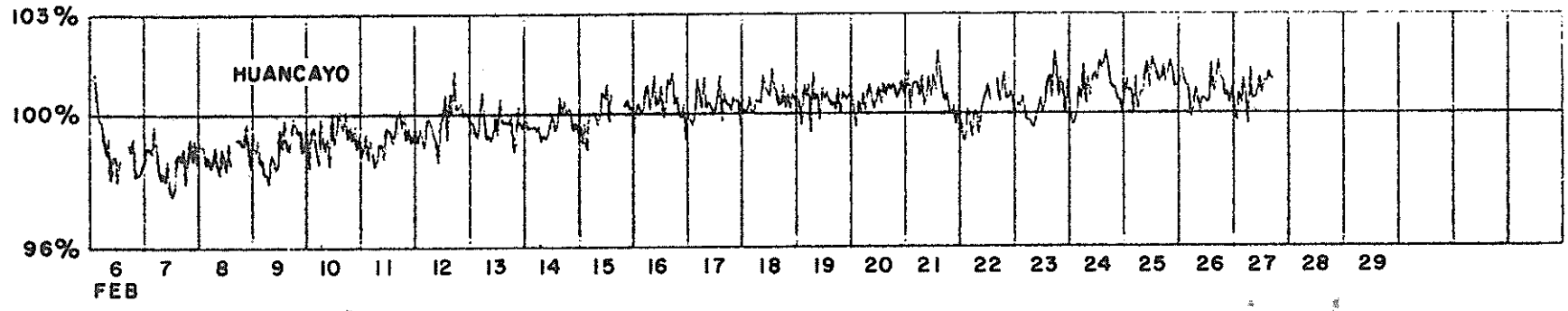
For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. Parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2002-2003 (January-February 1980)

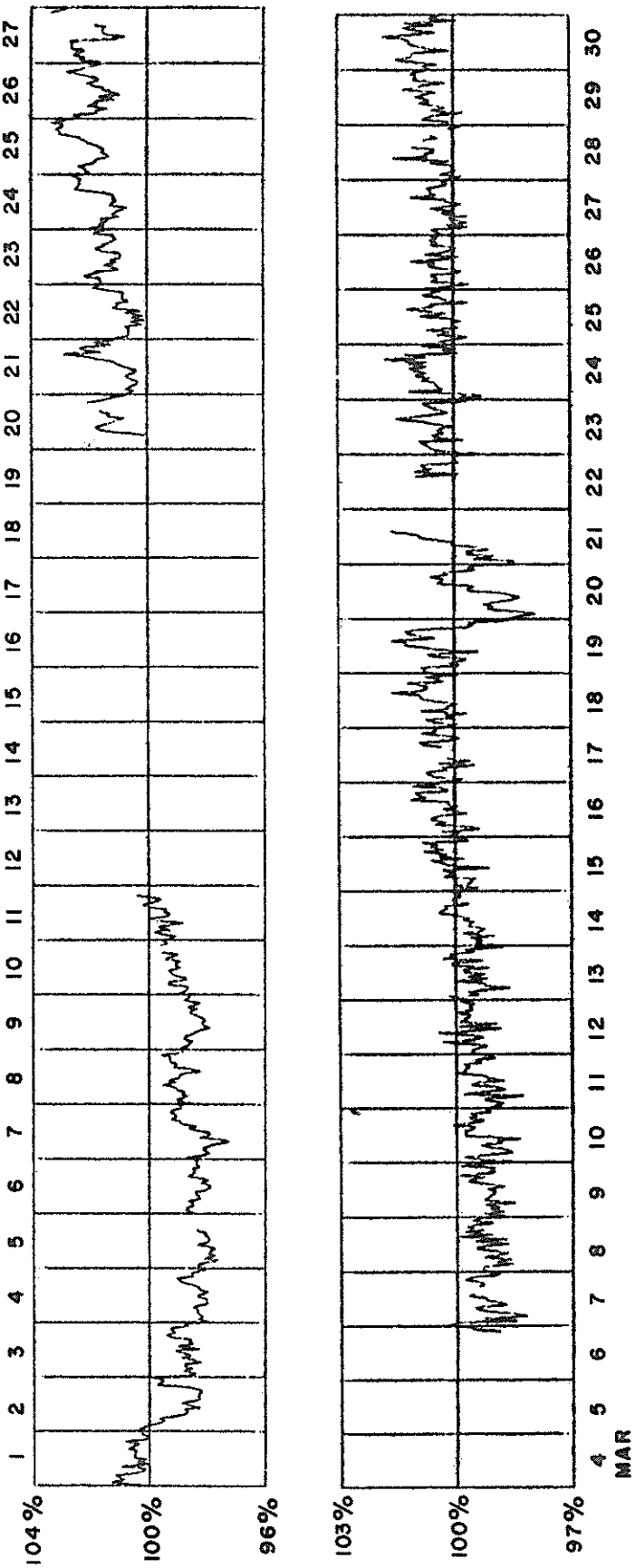






COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2004 (March 1980)



GEOMAGNETIC ACTIVITY INDICES

JAN 1979

Day		Three-Hourly Indices Kp									Three-Hourly Indices Km								Ap	aa				Cp
		1	2	3	4	5	6	7	8	Sum	1	2	3	4	5	6	7	8		N	S	M		
1	Q7A	2	3	2-	2-	2+	1	1	4	17-	2+	3-	1	1+	2+	1-	1+	3	10	17	16	14	20	0.5
2		3-	1+	2-	3+	3+	4-	5-	4+	25	1+	1+	1+	3	3	4-	4+	4	19	37	35	18	55	1.0
3		4	4-	2+	3+	3	3	4	3+	27-	3	3-	2	3	3	3	4-	3+	19	31	28	27	33	1.0
4	D1	4+	5	5-	4-	5-	5+	6-	5+	39-	4-	4-	3+	3+	4+	5-	5+	4+	45	71	54	42	84	1.5
5		5+	5	3+	3-	2	3+	3	3-	27+	4	4-	3-	2	2-	3	3	2+	23	32	24	34	23	1.1
6		4-	2+	2+	3+	4+	4	3	2+	25+	3	2	3-	3	4	4+	3+	3	18	32	47	34	46	1.0
7	D4	1+	1	2+	3+	5-	5+	6+	4	28+	2	1+	3-	3	5-	5	6-	3+	32	56	50	22	84	1.3
8	Q6A	3+	2+	3-	1	1-	1+	2	2+	16-	3	2	2+	1+	1-	2-	2	2+	8	14	14	18	10	0.5
9		3	5-	3+	2+	3-	3-	2+	2-	23-	3-	4+	3+	2	3	3	3-	2+	15	26	42	48	21	0.8
10	Q1	1+	1+	1-	0+	1-	0+	2	1	8-	1+	1	1-	0	1-	1-	2-	1+	4	7	6	7	7 CK	0.1
11	Q2	2	2-	1-	2+	2-	0+	0	0+	9	1	1+	1-	2-	2-	1-	0	0+	4	8	7	11	4 CK	0.2
12	Q8A	1+	3-	2+	2	3-	2	2	3+	18+	1+	2+	2+	2-	3-	2+	2	3	10	18	21	18	21 K	0.5
13	Q3K	3+	0	1-	1	1	1	1-	1-	8+	3-	0+	1-	1-	1	1+	1-	1-	5	6	8	8	6 CK	0.2
14	Q5A	1-	2-	2+	2+	3-	3	1+	0+	14+	1+	2-	2+	2-	3	3	1+	1	8	12	16	12	17	0.4
15		1	2	2	4-	3+	3	4	4-	23-	2-	2-	2	3+	3+	3	4-	3	15	24	30	22	33	0.9
16		3+	4-	3	3-	3-	2-	1-	2-	19+	3-	3	2+	2	2+	2-	1-	2-	12	20	18	27	11	0.7
17	Q4A	0+	1	0+	2-	3-	2+	2+	3-	13+	0+	1+	1-	1+	2+	3-	3-	3-	7	15	20	7	27	0.4
18	Q0A	3	3	1+	3-	3-	3	2+	2	20	2+	2-	1	3-	3	3	3-	2+	11	18	18	17	20	0.6
19		4+	5	3-	3+	3-	2+	2+	3-	25+	4-	4	3-	3	2+	2+	2+	3-	19	27	28	39	17	1.0
20		3	3	3	2+	2+	3-	3-	1+	20+	2	3-	3-	2+	3-	3	3-	1+	12	21	20	21	21	0.7
21	Q9A	3	3-	2	3	3	3-	2	2-	20	3-	2+	2-	3-	3	3-	2	2-	11	18	21	23	17	0.6
22		0	1-	1+	2	3	1+	4+	5	18-	0+	1	1+	2-	3	2	4	5-	14	31	18	7	42	0.8
23	D5	3	2	2+	4+	4+	4	5+	5-	30	2	2-	2	4	4+	4+	5-	4+	27	39	42	28	53	1.2
24		6-	5-	3-	3+	2+	3-	3-	3-	27-	5-	3	3-	3+	2	3	3-	3-	23	35	30	42	23	1.1
25	D2	6-	6-	4-	4-	4	4-	4	3+	34-	5	4+	3+	4-	4	4	4-	3	34	52	52	58	46	1.3
26	D3	4+	4-	3	3+	3	4+	4+	5+	31+	3+	3	3-	3-	3-	4	4+	4+	28	52	39	31	60	1.2
27		4-	5	4-	3-	2+	3	4-	4+	28+	3	4-	3	2+	2	3	3+	4-	23	41	36	36	41	1.1
28		2+	3	3-	3+	3	2+	3+	2	22	2+	2+	3-	3	2	2	3+	2-	13	22	26	22	27	0.7
29		3	3	3-	2+	3+	2+	3-	3	22+	2+	2+	2+	2-	3	3-	3-	2+	13	26	25	22	29	0.8
30		3+	3-	3+	3	3+	2+	3	4	25	3-	2	2+	3-	3	2+	3-	3+	16	36	22	30	29	0.9
31		3	3-	3-	3+	3	2-	3-	3-	22-	2	2-	2-	3-	3-	2-	3-	3-	13	22	19	21	21	0.7
																		Mean	16	28.0	27.0	27.5		0.80

Day	Three-Hourly Indices Kn								Three-Hourly Indices Ks							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
1	2+	3-	1+	1+	3-	1-	1	3+	2	3-	1	1+	2+	1	1+	3
2	2-	1+	1+	3	3	4	4+	4-	1+	1+	2-	3	3+	3+	4+	4+
3	3	3-	2	3-	3+	3-	4-	3	3	3-	2	3	3	3	4-	4-
4	4-	4	3+	3+	4+	5-	5	4+	4-	3+	3+	3+	5-	5	6-	4+
5	4	4	3-	2	2	3+	3	2	4+	3+	3-	2	2-	3	3	2+
6	3	2-	2+	3-	4	4	3	3-	3+	3-	3	3	4	4+	4-	3
7	2-	1	2+	3	5-	5+	5+	3+	2	2-	3	3-	5-	5	6	4-
8	3	2-	2-	1-	1	2-	2	2	3+	3-	3-	2-	1-	2-	2	3-
9	2+	4-	3	2	3	3-	3-	2-	3	5-	4-	2+	3	3+	3	3-
10	1	1	0+	0+	1-	1-	1+	1+	2-	1	1	0	1	1	2	2-
11	1+	1+	1-	2-	2-	1-	0	0	1-	1+	1-	2	2-	1-	0+	1-
12	1	2-	2-	1+	2+	2	2	3	1+	3-	3-	2-	3-	2+	2+	3
13	3-	0+	1-	1-	1+	1+	0+	0+	2+	1-	0+	1-	1	1+	1+	1
14	1-	2-	3-	2-	3-	3	1+	1-	2-	2-	2-	2-	3	3	2-	1+
15	1	1+	2	3+	3+	3+	4-	3+	2+	2+	2	3	3+	3	4-	3
16	3-	3	2+	2	3-	2-	1-	1+	3-	3+	2+	2	2	1+	1-	2-
17	0+	1-	0+	1+	2	3-	3-	2+	1-	2-	1	2-	2+	3-	3-	3-
18	3-	2-	1-	3-	3-	3	2+	2-	2+	2-	1+	2+	3	3	3-	2+
19	3+	4	2	3	2+	2+	2	3-	4	4+	3-	3	2+	3-	3-	3
20	2+	3-	3-	2	2+	3	3-	1	2-	3-	2+	2+	3-	3-	2+	2-
21	3-	2+	2-	3-	3+	3	2	1+	3	2	2-	3-	3	3-	2+	2-
22	0+	1-	1	1+	3	2	4+	4+	0+	1+	2-	2-	3	2-	4	5-
23	2	2-	2-	4-	5-	4+	5-	4	2	2-	2	4	4	4+	5-	5-
24	5+	4-	3	3+	2	3	2+	3-	4	3-	3-	3+	2+	3	3	3-
25	5	5-	3	3+	4-	4	3+	3	5-	4	3+	4	4+	4	4	3
26	4-	3-	3-	3	3-	4	4+	4+	3	3	3-	3-	2+	4+	4+	4+
27	3	4-	3	2+	2	3	3+	4	3	4	3-	3-	2	3+	3+	4-
28	2-	2+	2+	3	2	2+	4-	2-	3-	2+	3-	3	2	2	3+	2
29	2+	2+	2	2-	3	3-	3-	3-	3-	2+	3-	1+	3	3-	3-	2+
30	3-	2	2+	3-	3	3-	3-	3+	2+	2-	3-	3-	3	2+	3-	3+
31	2+	2-	2	3-	3-	2-	2+	2+	2	2	2-	3-	3	2-	3-	3-

ERRATA: The values of Kn and Km for January 1979 which appeared in SGD 415 Part I, page 155, March 1979 issue, were slightly in error. Corrected values appear here.

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 lnT), 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.

GEOMAGNETIC ACTIVITY INDICES

APR 1979

Day		Three-Hourly Indices Kp									Three-Hourly Indices Km								Ap	aa				Cp
		1	2	3	4	5	6	7	8	Sum	1	2	3	4	5	6	7	8		N	S	M		
1		4+	5-	3	4	4+	3+	2+	6+	32+	4-	4	3-	4-	4-	3+	2+	5+	33	34	46	41	39		1.3
2		6+	5	3+	4-	4-	5-	4-	4-	34	6	5-	3	3	3	4+	3	3	36	59	56	56	58		1.4
3		3	2+	3-	3-	3-	5+	7-	8	33+	3	2	3-	3-	3-	5-	6-	7-	54	32	31	45	19		1.6
4	D5	7-	6+	5+	5+	5-	2	2-	2+	34+	6-	5	5-	4+	4+	1+	2-	2	47	88	93	00	81		1.5
5	D2	4+	4	5-	6	7-	6+	4-	3-	38+	4+	4+	4+	5+	6-	5+	3+	3-	52	40	71	36	75		1.6
6		4-	3-	3	1+	3-	3+	2+	2	21	3	2+	2+	1+	2	3-	2+	2	12	61	24	68	18		0.7
7	Q0A	2+	3	3	3-	2-	2+	2+	3+	21-	2	2+	3-	3-	1+	2	2	3	12	22	15	17	21		0.7
8		3+	3-	2+	2	2-	2+	3	3+	21-	3-	2+	2+	2-	2-	2	3	3	12	19	16	17	19		0.7
9	Q6A	4	3+	1	1-	1+	2-	2-	1+	15	3+	3	1+	1	1+	1+	2-	1	9	25	18	22	22		0.5
10	Q8A	1	3-	3+	2+	3	3	3-	2	20	1	3	3	2+	3-	2+	2+	2+	12	12	15	9	18	K	0.7
11	Q3K	1-	1	1+	1+	1+	3	1+	2	12	1-	1	1	1+	1+	2+	1+	2-	6	12	10	17	6	CK	0.3
12		2	3	3	3+	2+	3	3	4	24-	1+	3-	3	3	2	3-	3-	3+	15	20	18	11	26		0.9
13	Q9A	2+	2+	2+	3-	3+	3+	2-	2+	20+	2	2	2+	2	3	3-	2-	2	11	25	16	28	14		0.6
14		2+	2+	2	3-	3-	4-	3-	5-	23	2	2	2-	2	2	3-	3-	4	15	18	14	21	12		0.9
15		4	3	2	3-	4+	3+	3-	3+	25+	4-	3-	1+	3-	3+	3	3-	3	18	34	19	35	20		1.0
16		4	5-	3+	3	2+	3-	2	1	23	4-	4	3	3-	2	2	2+	1	16	34	25	32	27		0.9
17	Q5A	3	3-	3	2+	2	2-	3-	2+	20-	3-	2+	3-	3-	2-	1+	3-	2	11	17	16	14	20		0.6
18	Q4	2	2	1+	2+	1	1	1+	2-	13-	2-	2-	1+	2+	1	1-	1+	2-	6	16	13	17	13		0.3
19	Q2	1	2	2-	1	1	2+	1+	1+	12-	1+	2+	2-	1	1-	2+	1	1	6	11	7	8	10	CC	0.2
20	Q1	1-	0	1-	0+	0+	1-	1-	0+	4-	0+	0	0+	0	0	0	1-	1-	2	9	6	12	3	CC	0.0
21		1	2-	2+	3-	4	4+	4	5	25	1-	1+	2+	3-	4-	3+	4-	5-	21	8	10	4	13	C	1.1
22	D4	6-	6-	4	5	4+	5	5-	4+	39-	5-	4	3+	4+	3+	4	4	4-	45	59	52	53	58		1.5
23		5	5	3+	3+	3+	3+	3-	2	28	4+	4	3+	3	3+	3	2+	2-	23	52	39	48	43		1.1
24		3+	3+	3+	2+	2+	2	2-	4	22+	3+	3	3-	2+	2+	2+	2-	4-	14	24	25	26	24		0.8
25	D1	8-	8	8-	7	7	5	6-	6-	54-	6+	6+	7-	6+	6	4+	4+	5	126	09	66	27	48		1.9
26	Q7A	4	2+	1	2	1	3-	3	3	19	4-	2+	1+	2-	1+	2	3-	3-	12	51	66	03	15		0.7
27		3+	3+	3	3-	3+	5	5-	5	30+	3+	4-	3	3-	3	4	4-	4+	27	26	17	18	26		1.2
28		5-	4	5+	4+	4-	3+	4	4	33+	4+	4-	4+	4	3	3-	3+	4-	31	45	50	48	48		1.3
29	D3	4	5+	5+	4+	4+	5+	5	6-	39+	4	4+	5-	4-	4-	4+	4+	5-	47	43	36	34	45		1.5
30		5+	4+	3+	4+	4+	3	3	3-	30+	4+	4	3+	4	4-	2+	3-	2+	26	66	52	75	43		1.2
																		Mean	25	35.7	31.4	33.8		0.96

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

ERRATA: The values of Km for April 1979 which appeared in SGD 418 Part I, page 158, June 1979 issue, were slightly in error. Corrected values appear here.

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.

Hα SOLAR FLARES

APRIL 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
BIGB	13	1545	1547	1612	N11	W90	1.000		6.9	27	1B	3	C	1547	60		
RAMY	13	1546	1558	1612	N16	W63	.914		8.9	26	SN	3	C		27		
RAMY	13	1615	1622	1704	S12	E74	.957		19.2	49	2B	3	C		0		
RAMY	13	1619	1625	1639	S18	W69	.929		8.5	20	1B	3	C		199		
RAMY	13	1621	1625	1640	S15	W79	.978		7.8	19	1B	3	C		0		
WEND	13	1629	1630	1636	S31	E02	.427		13.8	7	SN		C	1630	38	.5	
WEND	13	1650	1654	1702	N12	E43	.723		16.9	12	SN		C	1654	94	1.3	
BIGB	13	1725	1732	1744	N09	W90	1.000		7.0	19	1F	3	C	1732	60		
WEND	13	1727		1737D	S18	E38	.630		16.6	10D	SF		C	1729	28	.4	
BIGB	13	1728	1733	1817	N18	E39	.710		16.7	49	SB	3	C	1733	90	1.2	
RAMY	13	1728	1730	1833	N26	W32	.700		11.3	65	SF	3	C		32		
WEND	13	1729		1737D	N18	E40	.720		16.7	8D	SN		C	1735	31	.4	
RAMY	13	1751	1801	1908	S14	E71	.941		19.1	77	SN	3	C		35		
RAMY	13	1806	1815	2021D	N15	W65	.925		8.9	135D	SB	3	C		65		D
HOLL	13	1817E	1837U	1902D	N13	W65	.922		8.9	45D	SB	2	C		187		
BIGB	13	1851	1854	1910	S06	E03	.052		14.0	19	SB	3	C	1854	120	1.2	
HOLL	13	1937	1940	1954	S09	E77	.972		19.6	17	SF	2	C		0		
BIGB	13	1938	1941	2005	N13	E42	.716		17.0	27	SN	3	C	1941	110	1.5	
BIGB	13	1955	2002	2042	N18	E38	.700		16.7	47	SN	3	C	2002	90	1.2	
BIGB	13	2121	2122	2131	N10	W90	1.000		7.1	10	1B	3	C	2122	60		
BIGB	13	2127	2134	2152	S32	E01	.442		14.0	25	SN	3	C	2134	100	1.0	
WEND	14	0559E		0602	S08	E04	.080		14.5	3D	SN		C	0559	100	1.0	BZ
WEND	14	0559E		0606D	S21	W22	.442		12.6	7D	SN		C	0600	31	.4	
WEND	14	0637E		0710	S18	E28	.500		16.4	33D	SF		C	0645	68	.8	
CATA	14	0640	0645	0655D	S18	E29	.513		16.5	15D	SB	2	P	0645	68	.8	
WEND	14	0802	0805	0813	S06	W09	.156		13.7	11	SF		C	0805	22	.2	D
WEND	14	0824		0845	N21	W80	.992		8.4	21	SF		C	0832	19		
CATA	14	0825E	0825	0830D	S24	W29	.550		12.2	5D	SB	2	P	0825	84	1.0	
CATA	14	0920E	0935	0955	S19	E27	.492		16.4	35D	SN	2	P	0935	112	1.3	
RAMY	14	1220	1222	1231	S13	W55	.816		10.4	11	SN	3	C		45		
RAMY	14	1313	1319	1328	S14	W58	.844		10.2	15	SB	3	C		60		
RAMY	14	1443	1446	1449	N09	E02	.256		14.8	6	SF	3	C		22		
RAMY	14	1657	1712	1727	N09	E02	.256		14.9	30	SF	3	C		40		
HOLL	14	1712	1721	1721	N11	W00	.287		14.7	9	SF	3	C		21		
HOLL	14	1840	1847	1901	N18	W53	.842		10.8	21	SF	3	C		21		
HOLL	14	1906	1915	1929	N14	W58	.873		10.4	23	SF	3	C		18		
BIGB	14	2004	2034	2123	S19	E21	.413		16.4	79	1B	3	C	2034	200	2.2	
BIGB	14	2025	2026	2035	S05	W13	.224		13.9	10	SN	3	C	2026	70	.7	
BIGB	14	2028	2035	2114	S32	W11	.473		14.0	46	SN	3	C	2035	170	1.8	
HOLL	14	2037	2043	2135	S19	E15	.338		16.0	58	SN	3	C		145		
HOLL	14	2132	2137	2212	N11	W01	.288		14.8	40	SF	3	C		42		
BIGB	14	2136	2139	2220	S33	W03	.461		14.7	44	SB	3	C	2139	100	1.0	
HOLL	14	2220	2222	2300	N11	W02	.289		14.8	40	SF	3	C		61		
CATA	15	1245	1245	1245D	S27	E65	.908		20.4		1N	2	P	1245	84	2.1	
BIGB	15	1509	1512	1609	N19	E12	.459		16.5	60	SB	1	C	1512	160	1.7	
WEND	15	1514E		1610	N18	E12	.445		16.5	56D	1N		C	1515	250	2.8	
RAMY	15	1619	1621	1623	N08	W13	.322		14.7	4	SF	3	C		28		
WEND	15	1621E		1732D	S09	W20	.344		14.2	71D	SF		C	1635	75	.8	E
RAMY	15	1700	1701	1706	N26	W57	.896		11.4	6	SF	3	C		16		
BIGB	16	0058E	0104	0114D	N19	E07	.431		16.6	16D	SB	2	P	0104	170	1.8	
WEND	16	0541E	0544	0617	N12	E09	.337		16.9	36D	1N		C	0544	320	3.4	
ISTA	16	0645E		0710	N20	E04	.436		16.6	25D	1B						BF
WEND	16	0645	0656	0724	N19	E04	.420		16.6	39	1N		C	0656	225	2.5	
ATHN	16	0705	0709	0747	N18	W02	.401		16.1	42	SN	3	V	0709	147	1.6	
WEND	16	0726	0728	0734	N12	E10	.345		17.1	8	SF		C	0728	68	.7	
WEND	16	0804		0858	N19	E03	.418		16.6	54	SN		C	0845	156	1.7	
ATHN	16	0846	0927	1002	N18	W01	.400		16.3	76	SN	3	V	0927	164	1.8	
WEND	16	0909	0913	0951	N19	E03	.418		16.6	42	SN		C	0913	118	1.3	
WEND	16	0913	0917	0932	N11	E07	.308		16.9	19	SF		C	0917	113	1.2	
ATHN	16	1011	1022	1032	N18	E01	.400		16.5	21	SN	3	V	1022	131	1.4	
WEND	16	1012E		1023D	N19	E02	.417		16.6	11D	SN		C	1012	168	1.8	
WEND	16	1330	1332	1348	S20	E80	.981		22.6	18	SN		C	1332	25		A
RAMY	16	1351	1359	1411	S15	E41	.661		19.7	20	SN	3	C		96		
WEND	16	1447E		1518D	N19	E03	.418		16.8	31D	SF		C	1454	56	.6	E
WEND	16	1644E		1648D	S27	E01	.366		16.8	4D	SN		P	1646	28	.3	D
RAMY	16	1937	1938	1943	N24	W75	.981		11.2	6	SN	3	C		0		
RAMY	16	1951	1951U	2001	S14	E35	.580		19.5	10	SN	3	C		25		
BIGB	16	2030	2037	2126	S17	W58	.846		12.5	56	SF	2	C	2037	60	1.2	
HOLL	16	2043E	2043U	2057D	N27	W74	.980		11.3	14D	SF	2	C		14		

Hα SOLAR FLARES

APRIL 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
PALE	26	1930	1955	1959	N04	E73	.959		2.3	29	SF	3	C		42		
BIGB	26	1934	1945	2005	S13	W35	.581		24.2	31	SN	2	C	1945	60	.8	
RAMY	26	1937	1938	1942	N08	W80	.987		20.8	5	SN	3	C		0		
HOLL	26	1938	1938	1946	N06	W81	.989		20.7	8	SN	3	C		20		
RAMY	26	1952	1953	2002	N04	E74	.963		2.4	10	SF	3	C		0		
PALE	26	2000	2002	2004	N06	W85	.997		20.5	4	SF	3	C		0		D
BIGB	26	2031	2034	2057	S18	E62	.883		1.5	26	1N	2	C	2034	200	4.3	A
PALE	26	2113E	2128U	2145	N06	W87	.999		20.4	32D	SN	3	C		0		D
HOLL	26	2125	2128	2146	N08	W85	.997		20.5	21	SN	3	C		0		
HOLL	26	2201	2211	2223	N08	W89	1.000		20.2	22	SN	3	C		0		
PALE	26	2203	2211	2219	S18	W63	.890		22.2	16	SN	3	C		19		D
HOLL	26	2203	2204	2223	S19	W61	.875		22.3	20	SN	3	C		36		
PALE	26	2211	2212	2218	N07	W83	.994		20.7	7	SN	3	C		31		
PALE	26	2315E	2347	0008	N02	E74	.962		2.5	53D	SF	3	C		0		
PALE	27	0059		0132	S19	W66	.912		22.1	33	SN	3	C		37		D
CATA	27	0630	0630	0645	S16	W36	.604		24.6	15	SN	2	C	0630	26	.4	
RAMY	27	1236	1251	1311	N02	E70	.941		2.8	35	SF	3	C		17		
RAMY	27	1255	1259	1318	S11	E09	.191		28.2	23	SN	3	C		32		
RAMY	27	1314	1323	1330	N03	E64	.902		2.4	16	SF	3	C		21		
RAMY	27	1816	1817	1848	N03	E61	.878		2.3	32	SB	3	C		118		
HOLL	27	1817E	1819	1849	N03	E61	.878		2.3	32D	SB	3	C		119		
BIGB	27	1912	1918	1928	N05	E90	1.000		4.6	16	1N	1	C	1918	130		
BIGB	27	1928	1929	1940	S15	W43	.689		24.6	12	SB	1	C	1929	80	1.1	
HOLL	27	2129	2135	2138D	S11	E04	.131		28.2	9D	SF	3	C		57		
PALE	27	2315E	2347	0008	N02	E74	.962		3.5	53D	SF	3	C		0		
MANI	28	0310E	0310U	0321D	S18	W78	.975		22.3	11D	SN	2	C		80		
ISTA	28	0530E		0551	S29	W54	.835		24.2	21D	SN						D
MANI	28	0629E	0631U	0637D	S20	E30	.546		30.5	8D	SN	4	C		40		
ISTA	28	0631		0646	S09	W59	.855		23.8	15	SN						E
MANI	28	0738E	0740U	0748D	S04	E56	.827		2.5	10D	1N	4	C		150		
CATA	28	0820	0825	0825D	S15	E36	.601		1.0	5D	SN	2	P	0825	84	1.1	
RAMY	28	1157	1157	1214	N07	E53	.810		2.5	17	SN	3	C		27		
RAMY	28	1334	1336	1352	S19	W86	.996		22.1	18	SN	3	C		0		
RAMY	28	1416	1417	1425	N04	E53	.805		2.6	9	SN	3	C		21		
RAMY	28	1441	1442	1450	N05	E53	.807		2.6	9	SN	3	C		34		
RAMY	28	1539	1543	1554	N13	E80	.989		4.7	15	SF	3	C		0		
RAMY	28	1852	1906	1936	N04	E49	.762		2.5	44	SN	3	C		68		
HOLL	28	2228	2231	2242D	S21	E20	.430		30.4	14D	1N	2	C		224		
MANI	29	0352E	0355	0402	N03	E45	.714		2.5	10D	SN	3	C		80		
MANI	29	0650E	0652U	0705D	S20	E15	.365		30.4	15D	SN	3	C		50		
MANI	29	0810E	0812	0825D	S13	E85	.995		5.7	15D	SN	3	C		20		
RAMY	29	1208	1221	1310	N07	E40	.663		2.5	62	SN	3	C		129		
RAMY	29	1241	1242	1250	S21	E14	.366		30.6	9	SN	3	C		29		
ATHN	29	1300E	1305	1317	S17	W68	.925		24.4	17D	1B	3	V	1305	98	2.7	
RAMY	29	1324	1325	1332	N15	E55	.846		3.7	8	SN	3	C		40		
RAMY	29	1401	1402	1407	S15	E88	.999		6.2	6	SN	3	C		0		
RAMY	29	1428	1430	1440	N15	E57	.863		3.9	12	SF	3	C		54		
RAMY	29	1507	1508	1521	S19	E11	.311		30.5	14	SF	3	C		24		
RAMY	29	1540	1601	1617	N13	E60	.883		4.2	37	SF	3	C		43		
RAMY	29	1544	1603	1631	S20	E10	.316		30.4	47	SN	3	C		99		
RAMY	29	1644	1654	1700	S15	E79	.979		5.6	16	SN	3	C		17		
RAMY	29	1853	1855	1900	N13	E57	.859		4.1	7	SF	3	C		15		
RAMY	29	1935	1937	1944	N14	E57	.861		4.1	9	SF	2	C		30		
RAMY	29	2114	2114	2121	N15	E53	.829		3.9	7	SF	2	C		17		
RAMY	30	1537	1541	1650	S20	W02	.273		30.5	73	1N	3	C		276		
RAMY	30	1645	1646	1701	N15	E41	.707		3.8	16	SN	3	C		84		
RAMY	30	1717	1759	1802	S12	E66	.911		5.7	45	SN	3	C		21		
RAMY	30	1727	1727	1753	N10	E53	.816		4.7	26	SF	3	C		16		
RAMY	30	1735	1749	1833	N06	E24	.440		2.5	58	SB	3	C		168		
RAMY	30	1931	1933	1947	N14	E43	.724		4.0	16	SF	3	C		16		
RAMY	30	1956	1958	2009	S19	W04	.263		30.5	13	SN	3	C		140		
BIGB	30	2030E	2030U	2122	S14	W86	.996		24.4	52D	1B	1	P	2030	80		A
RAMY	30	2050	2112	2144D	S12	E64	.896		5.7	54D	SF	3	C		34		
MANI	31	0053E	0056U	0112	S11	E62	.881		5.7	19D	SF	3	C		50		
MANI	31	0107E	0111U	0121	S20	W07	.296		30.5	14D	SN	3	C		100		
MANI	31	0142E	0142U	0152	S11	E61	.873		5.6	10D	SN	3	C		70		
MANI	31	0441E	0446U	0446D	S11	E60	.864		5.7	5D	SN	2	C		80		

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Late
Apr 80

Hα SOLAR FLARES

APRIL 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	31	1150	1157	1202	S10	E54	.807		5.5	12	SN	3	C		32		
RAMY	31	1150	1150	1210	N02	E11	.218		2.3	20	SB	3	C		191		
RAMY	31	1159	1159	1204	S13	E81	.986		7.6	5	SF	3	C		0		
RAMY	31	1334	1335	1339	S14	E60	.865		6.1	5	SN	3	C		20		
RAMY	31	1349	1404	1412	S13	E53	.799		5.6	23	SN	3	C		41		
RAMY	31	1354	1359	1416	N07	E12	.282		2.5	22	SF	3	C		55		
RAMY	31	1408	1413	1431	S21	W14	.369		30.5	23	SF	3	C		83		
RAMY	31	1526	1531	1630	N17	E52	.825		5.5	64	SN	3	C		61		
RAMY	31	1629	1630	1649	S20	W16	.378		30.5	20	SB	3	C		159		D

"REMARKS":

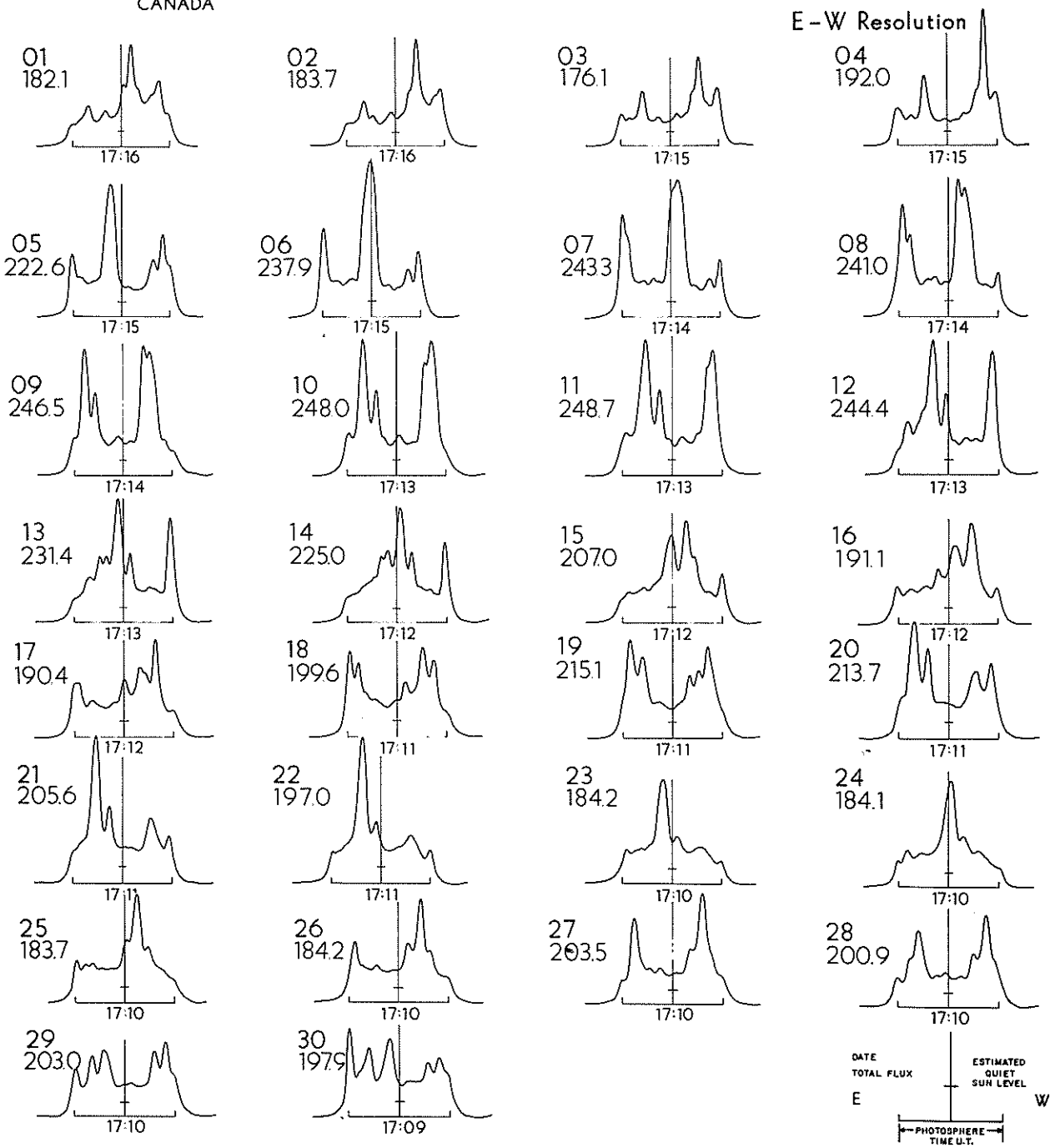
A = Eruptive prominence whose base is less than 90 degrees from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied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

EAST-WEST SOLAR SCANS

APRIL 1980

ALGONQUIN RADIO OBSERVATORY
CANADA

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



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WORLD DATA CENTER A
FOR
SOLAR-TERRESTRIAL PHYSICS

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

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