U.S. DEPARTMENT OF COMMERCE
Juanita M. Kreps, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Richard A. Frank, Administrator
ENVIRONMENTAL DATA AND INFORMATION SERVICE
Thomas D. Potter, Acting Director

Solar - Geophysical Data

NO. 420 AUGUST 1979

Part I (Prompt Reports)

DATA FOR
JULY 1979
JUNE 1979

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

For obtaining bulletins on a data exchange basis, send request to: World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado 80303.

For sale through the National Geophysical and Solar-Terrestrial Data Center, NOAA, Boulder, CO 80303. Subscription Price: $34.00 annually for both part I (Prompt Reports) and part II (Comprehensive Reports) or $18.00 annually for either part. Annual supplement containing explanation is included. For foreign mailing add $32.00 for both parts or $16.00 for either part. Single issue price is $1.50 for either part and $1.40 for the extra issue. Make checks and money orders payable to: Department of Commerce, NOAA/NGSDC. Note: $2.00 Minimum charge per order.
To standardize referencing these reports in the open literature, the following format is recommended:

Solar-Geophysical Data, 414 Part I (or Part II), pages, December 1979, U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 420

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

CONTENTS

PAGE

Part I (Prompt Reports)

Index for 1978 - 1979 2

Data for July 1979 3-41

Data for June 1979 43-169

Part II (Comprehensive Reports)

Index for 1978-1979 2

Data for February 1979 3-54

Data for January 1979 55-65

Miscellaneous Data 67-121
- Solar Radio Emission
  - 169 MHz Solar Interferometric Chart Nancay June 1979
  - 21 and 43 cm East-West Solar Scans Fleurs June 1979
  - Spectral Observations Fort Davis April and May 1979
- Cosmic Rays--April and May 1979
  - Alert, Deep River, Climax and Huancayo
- Solar Flares--January 1979
  - Hα Solar Flares (Standardized Data)
  - Hα Solar Flares Peking
  - Daily Flare Indices
  - Intervals of No Flare Patrol Observation
- Regional Flare Index--December 1978

DETAILED COVERAGE FOR 1978 AND 1979 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1978 Sep	Oct	Nov	Dec	1979 Jan	Feb	Mar	Apr	May	Jun	Jul
A.	SOLAR AND INTERPLANETARY PHENOMENA											
A.1	Sunspot Drawings	411A 46	412A 40	413A 48	414A 48	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	
A.2a	Zurich Provisional Relative Sunspot Numbers Rz	410A 11	411A 11	412A 9	413A 11	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11
A.2b	Zurich Final Sunspot Numbers Rz	415A 10	415A 10	415A 10	415A 10							
A.2c	American Relative Sunspot Numbers RA	410A 11	411A 11	412A 9	413A 11	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11
A.3a	Mt. Wilson Magnetograms	411A 46	412A 40	413A 48	414A 48	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	411A106	412A102	413A108	414A110	418B 50	418B 60	417A106	418A108	419A110	420A110	
A.3c	Kitt Peak Magnetograms	411A 46	412A 40	413A 48	414A 48	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	
A.3d	Mean Solar Magnetic Field (Stanford)	410A 41	411A 40	412A 34	413A 42	414A 42	415A 44	416A 42	417A 36	418A 38	4.9A 38	420A 40
A.3e	Stanford Magnetograms					415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	
A.4	H-alpha Filtergrams	411A 46	412A 40	413A 48	414A 48	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	
A.5	Calcium Plage Drawings - McMath (or Catania)	411A 46	412A 40	413A 48	414A 48	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	
A.5a	Calcium Plage (McMath) and Sunspot Regions	411A106	412A102	413A108	414A110	418B 50	418B 60	417A106	418A108	419A110	420A110	
A.5b	McMath Daily Calcium Plage Indices	411A116	412A114	413A116	414A121	415A125	416A116	417A118	418A118	419A123	420A121	
A.6	H-alpha Synoptic Charts	411A 44	412A 38	413A 46	414A 46	415A 48	416A 46	417A 40	418A 42	419A 43	420A 44	
A.6b	Synoptic Chart and Active Regions (Paris)	415B 4	416B 4	417B 4	418B 4	419B 4	420B 4					
A.6c	Stanford Solar Magnetic Field Synoptic Charts					415A 49	416A 47	417A 41	418A 43	419A 44	420A 46	
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts								418A 45	419A 45	420A 48	
A.7f	Helium D3 Chromosphere (Big Bear)	410A 37	411A 36	----	413A 38	----	----	416A 38	417A 33	418A 34	419A 34	420A 35
A.7g	Helium Synoptic Maps (KPNO)	410A 38	411A 35	412A 30	413A 36	414A 34	415A 40	416A 36	417A 32	418A 33	419A 33	420A 34
A.7h	Coronal Line Emission (Sac Peak)	411A 46	412A 40	413A 48	414A 48	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	410A 11	411A 11	412A 9	413A 11	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	410A 11	411A 11	412A 9	413A 11	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	410A 11	411A 11	412A 9	413A 11	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11
A.9cb	8.6 mm Radio Maps of the Sun (NOSC - La Posta)	411A 46	----	----	----	----	----	----	----	419A 48	420A 50	
A.9d	2 cm Radio Maps of the Sun (NOSC - La Posta)	411A 46	----	----	----	----	----	----	----	419A 48	420A 50	
A.10a	169 MHz - Interferometric Observations (Nancay)	410A 23	411A 20	412A 18	413A 21	414A 24	415A 25	416A 25	417A 21	419B 52	420B 69	420A 24
A.10c	21 cm East-West Solar Scans (Fleurs)	412B 58	411A 23	412A 21	415B 68	414A 27	415A 28	416A 28	417A 24	418A 25	420B 70	420A 27
A.10d	43 cm East-West Solar Scans (Fleurs)	412B 59	411A 24	412A 22	415B 69	414A 28	415A 29	416A 29	417A 25	418A 26	420B 71	420A 28
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	410A 25	411A 22	412A 20	413A 23	414A 26	415A 27	416A 27	417A 23	418A 24	419A 26	420A 26
A.10f	3 cm East-West Solar Scans (Toyokawa)	410A 24	411A 21	412A 19	413A 22	414A 25	415A 26	416A 26	417A 22	418A 23	419A 25	420A 25
A.11k	Solar X-ray Radiation (SOLRAD 11)	411A120	412A118	413A119	414A126	415A129	416A120	417A119	418A122	419A126	420A124	
A.11g	Solar X-ray (SMS/GOES) (graphs)	416B 96	416B 52	417B 41	418B 31	419B 33	420B 53					
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	---	---	---	---	414A 36	----	----	----	----	----	----
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	----	----	412A 29	----	414A 37	----	----	----	----	----	----
A.12e	Energetic Solar Particles (IMP H & J)	416B 91	416B 46	417B 36	418B 26		420B 48					
A.12f	Energetic Solar Particles (GMS/SEM)	----	----	----	----	----	----	----	----	----	----	----
A.13a	Solar Wind (Pioneers 6 & 7)	---	---	---	---	414A 36	----	----	----	----	----	----
A.13ab	Solar Wind (Pioneers 8 & 9)	----	----	412A 29	----	414A 37	----	----	----	----	----	----
A.13d	Solar Wind from IPS Measurements	410A 39	414B 50	414B 51	414B 52	414A 39	415A 45	416A 39	417A 37	418A 35	419A 35	420A 37
A.13e	Solar Plasma (IMP H & J)	415B 53	416B 45	417B 35	418B 25	419B 32	419B 47					
A.13f	Solar Wind (Pioneer 12 (Venus))					414A 38	415A 39	416A 35	417A 31	418A 32	419A 32	420A 36
A.17	Interplanetary Magnetic Field (Pioneer 8)	---	---	---	---	---	---	---	---	---	---	---
A.17	Interplanetary Magnetic Field (Pioneer 9)	----	----	412A 29	----	414A 37	----	----	----	----	----	----
A.17c	Inferred IP Magnetic Field	410A 40	411A 38	412A 32	413A 40	415A 42	415A 42	417A 34	417A 34	418A 36	419A 36	420A 38
A.18	Interplanetary Electric Field (Pioneer 8)	----	---	---	---	---	---	---	---	---	---	---
A.18	Interplanetary Electric Field (Pioneer 9)	---	---	412A 29	----	414A 37	----	---	---	---	---	---
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA											
B.52	Graphs of Transmission Frequency Range	411A158	412A162	413A160	414A172	415A162	416A166	417A166	418A166	419A168	420A166	
B.53	Quality Figures Based on Frequency Ranges	411A160	412A161	413A159	414A174	415A161	416A165	417A165	418A165	419A167	420A168	
C.	FLARE-ASSOCIATED EVENTS											
C.1a	Optical Observations Flares	410A 14	411A 14	412A 12	413A 14	414A 14	415A 14	416A 14	417A 12	418A 14	419A 14	420A 14
C.1ba	Optical Observations Flares (Standardized Data)	415B 6	416B 8	417B 6	419B 64	420B 82						
C.1d	Flare Patrol Observations	410A 22	411A 19	412A 17	413A 20	414A 23	415A 24	416A 24	417A 20	418A 23	419A 24	420A 23
C.1d	Flare Patrol Observations	415B 32	416B 30	417B 25	419B 93	420B120						
C.1e	Flare Indices (by day)	415B 31	416B 29	417B 24	419B 92	420B119						
C.1f	Flare Indices (by Region)	416B 70	417B 58	419B 94	420B121							
C.3	Solar Radio Waves - Outstanding Occurrences	415B 33	416B 31	417B 26	418B 6	419B 8	420B 8					
	Solar Radio Waves - Fixed Frequencies - Selected	410A 26	411A 25	412A 23	413A 26	414A 29	415A 30	416A 30	417A 26	418A 28	419A 27	420A 29
C.3t	43.25, 80 and 160 MHz Selected Bursts (Culgoora)	411A144	412A148	413A147	414A159	415A147						
C.4a	Solar Radio Spectral Obs. (Fort Davis)	411A135	414B 53	414B 55	414A142	417B 60	417B 62	417A138	420B 72	420B 75	420A139	
C.4d	Solar Radio Spectral Obs. (Culgoora)	412B 60	412A134	413A134	414A142	415A129	416A134	417A138	418A137	419A142	420A139	
C.4e	Solar Radio Spectral Obs. (Weissenau)	411A135	412A134	413A134	414A142	415A129	416A134	417A138	418A137	419A142	420A139	
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	411A135	412A134	413A134	414A142	415A129	416A134	417A138	418A137	419A142	420A139	
C.4h	Solar Radio Spectral Obs. (Dwingeloo)	411A135		413A134	414A142	415A129	416A134	417A138	418A137	419A142	----	
C.4i	Solar Radio Spectral Obs. (Durnten)	411A135	412A134	413A134	415B 70	415A129	416A134	417A138	418A137	419A142		
C.4j	Solar Radio Spectral Obs. (Manila)	411A135	412A134	413A134	414A142	415A129	416A134	417A138	418A137	419A142	420A139	
C.5e	Solar X-ray (SMS/GOES) (graphs)	416B 96	416B 52	417B 41	418B 31	419B 33	420B 53					
C.6	Sudden Ionospheric Disturbances	411A117	412A115	413A117	414A122	415A126	416A117	417A119	418A119	419A124	420A122	
D.	GEOMAGNETIC AND MAGNETOSPHERIC PHENOMENA											
D.1a	Geomagnetic Indices Kp, Kn, Ks, Km, Ap, aa, Cp	411A151	413B 82	413A152	414A164	415A155	416A158	417A158	418A158	419A160	420A160	
D.1ba	27-day Chart of Kp Indices	411A153	412A157	413A154	414A166	415A157	416A160	417A160	418A160	419A162	420A162	
D.1c	27-day Chart of C9	414A167	414A167	414A167	414A167							
D.1d	Principal Magnetic Storms	411A156	412A160	413A157	414A170	415A158	416A163	417A163	418A163	419A165	420A165	
D.1e	Reduced Magnetograms											
D.1f	Sudden Commencement and Solar Flare Effects	411A157	412A161	413A158	414A171	415A160	416A164	418B 76	419B 63	419A166		
D.1g	Equatorial Indices Dst	411A155	412A159	413A156	414A169	416B 90	416A162	417A162	418A162	419A164	420A164	
D.1h	Geomagnetic Substorm Log (Boulder)	410A 43	411A 41	412A 36	413A 43	414A 43	415A 46	416A 43	417A 38	418A 39	419A 39	420A 41
F.	COSMIC RAYS											
F.1a	Cosmic Ray Neutron Counts (Deep River)	411A150	412A154	414B 57	414A161	415A154	416A151	417A151	418A151	419A153	420A155	
F.1b	Cosmic Ray Neutron Counts (Climax)		415B 72	415B 72	415B 72	416B 88	416A151	417A151	418A151	419A153	420A155	
F.1e	Cosmic Ray Neutron Counts (Alert)	411A150	412A154	414B 57	414A161	415A154	416A151	417A151	418A151	420B 78	420A155	
F.1f	Cosmic Ray Neutron Counts (Calgary)											
F.1h	Cosmic Ray Neutron Counts (Thule)	419B 62	419B 62	419B 62	419B 62	419B 62	419B 62	419B 62	419B 62	419A153	420A155	
F.1i	Cosmic Ray Neutron Counts (Kiel)	411A150	412A154	413A149	418B 74	415A154	416A151	417A151	418A151	419A153	420A155	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	411A150	412A154	413A149	418B 74	415A154	416A151	417A151	418A151	419A153	420A155	
F.1k	Cosmic Ray Neutron Counts (Kula)											
F.1l	Cosmic Ray Neutron Counts (Huancayo)						417B 67	418B 72	419B 58	420B 79	420A155	
H.	MISCELLANEOUS											
H.60	IUWDS Alert Decisions	410A 5	411A 4	412A 4	413A 5	414A 4	415A 5	416A 4	417A 4	418A 5	419A 5	420A 5
H.62	Abbreviated Calendar Record	416B 62	417B 50	418B 40	419B 42	420B 58						

Notes:

"411A 46" listed under 1978 Sep means that the sunspot drawings for September 1978 were contained in *Solar-Geophysical Data* Number 411 - Part I, beginning on page 46.

A = Part I, B = Part II.

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

SGD 420 Part I (Prompt)

JULY 1979 DATA

Contents

	Page
Alert Periods	
IUWDS Alert Periods (Advance and Worldwide)	5-9
Daily Solar Indices	
Relative Sunspot Numbers, R_Z, and Daily Solar Flux at 2800 MHz (12 Month Tables)	10
Daily Solar Indices (Sunspot Numbers and Solar Fluxes)	11
Graph of Observed and Predicted Sunspot Numbers	12
Smoothed Observed and Predicted Sunspot Numbers	13
Solar Flares	
Hα Solar Flares	14-22
Intervals of No Flare Patrol Observation	23
Solar Radio Emission	
169 MHz Solar Interferometric Chart - Nancay	24
3 cm East-West Solar Scans - Toyokawa	25
10.7 cm East-West Solar Scans - ARO, Ottawa	26
21 cm East-West Solar Scans - Fleurs	27
43 cm East-West Solar Scans - Fleurs	28
Selected Fixed Frequency Events	29-32
Selected Solar Noise Bursts	33
Spacecraft Observations	
Pioneer XII (Pioneer Venus)	36
Coronal Holes	
Helium 10830 Å Synoptic Maps	34
Helium D3 Chromosphere	35
Solar Wind Measurements	
Interplanetary Scintillations	37
Inferred Interplanetary Magnetic Field Polarities	38
Mean Solar Magnetic Field	
Stanford Mean Solar Magnetic Field (Map)	39
Stanford Mean Solar Magnetic Field (Table)	40
Geomagnetic	
Boulder Geomagnetic Substorm Log	41

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

JULY 1979

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

04 JULY 1979 PRESTO BOULDER 04/2215Z TENFLARE 350 FLUX UNITS 04/1910Z DURATION 79 MINUTES.

07 JULY 1979 PRESTO BOULDER 07/0130Z PROTON EVENT BEGAN AT 07/0015Z 22 PROTONS/CM²/S/STR AT GREATER THAN 10 MEV AT 07/0130Z.

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	Flares: Total	Flares: M	Flares: X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
182	01	30	182	173	010	S12W52	0	0	0		01	S12W52	Q	SOLQUIET MAGQUIET
						N14E01	0	0	0			N14E01	Q	
						N18E04	0	0	0			N18E04	E	
						S07W67	0	0	0			S07W67	Q	
						N05E37	1	0	0			N05E37	E	
						N19W65	2	0	0			N19W65	E	
						N19E41	2	0	0			N19E41	DA	
						S21E43	0	0	0			S21E43	Q	
						N09W81	0	0	0			N09W81	Q	
						N05E65	0	0	0			N05E65	Q	
						S19W12	0	0	0			S19W12	Q	
						S28E65	1	0	0			S28E65	Q	
						S13E63	1	0	0			S13E63	E	
183	02	01	185	180	013	S10W65	0	0	0		02	S10W65	Q	SOLQUIET MAGQUIET
						N15W13	2	0	0			N15W13	DA	
						N18W10	0	0	0			N18W10	DE	
						N04E24	0	0	0			N04E24	E	
						N20W79	0	0	0			N20W79	Q	
						N18E28	5	0	0			N18E28	E	
						S22E29	0	0	0			S22E29	DE	
						N05E51	0	0	0			N05E51	CE	
						S28E51	2	0	0			S28E51	CE	
						N09E08	0	0	0			N09E08	Q	
						S15E47	3	0	0			S15E47	E	
						N21E72	0	0	0			N21E72	DE	
						N09E77	0	0	0			N09E77	CE	
184	03	02	247	195	003	S10W79	0	0	0		03	S10W79	Q	SOLQUIET MAGALERT MINOR 03/04
						N15W27	4	0	0			N15W27	E	
						N18W23	0	0	0			N18W23	Q	
						N04E09	0	0	0			N04E09	Q	
						N19E14	0	0	0			N19E14	E	
						S22E20	0	0	0			S22E20	Q	
						N05E38	0	0	0			N05E38	Q	
						S14E33	0	0	0			S14E33	Q	
						N25E57	0	0	0			N25E57	Q	
						N08E64	0	0	0			N08E64	Q	
						N08E77	1	0	0			N08E77	Q	
						N20E67	0	0	0			N20E67	Q	
185	04	03	338	207	017	N15W41	0	0	0		04	N15W41	E	SOLALERT 04/06 MAGALERT 04/06
						N05W04	2	0	0			N05W04	E	
						N18W01	4	0	0			N18W01	A	
						S22E06	0	0	0			S22E06	Q	
						N05E23	0	0	0			N05E23	Q	
						S27E16	0	0	0			S27E16	Q	
						N10W19	0	0	0			N10W19	E	
						S13E20	0	0	0			S13E20	Q	
						N24E42	1	0	0			N24E42	Q	
						N08E50	1	0	0			N08E50	Q	
						N09E58	0	0	0			N09E58	Q	
						N19E52	0	0	0			N19E52	Q	
						S17E03	0	0	0			S17E03	Q	
						N07E37	0	0	0			N07E37	Q	
						N12E73	0	0	0			N12E73	Q	
						S28E83	0	0	0			S28E83	Q	
						S19E82	0	0	0			S19E82	Q	
186	05	04	334	211	007	N14W52	0	0	0	SAGAMORE HILL	05	N14W52	Q	SOLALERT MINOR 05 MAGALERT 05/06
						N04W15	0	0	0	REPORTS TENFLARE		N04W15	Q	
						N19W12	0	0	0	WITH 350 FLUX UNITS		N19W12	E	
						S12W04	0	0	0	STARTING AT		S12W04	Q	
						N05E12	0	0	0	04/1910Z AND		N05E12	Q	
						N10W30	0	0	0	LASTING 79 MINUTES.		N10W30	E	
						S14E07	0	0	0			S14E09	Q	
						N23E31	0	0	0			N23E31	Q	
						N11E36	5	1	0			N11E36	E	
						N11E44	0	0	0			N11E44	Q	
						S16W09	0	0	0			S16W09	Q	
						N09E22	0	0	0			N09E22	Q	
						N14E61	1	0	0			N14E61	Q	
						S28E67	2	0	0			S28E67	Q	
						S16E67	0	0	0			S16E67	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

JULY 1979

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Active Regions: No of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
187	06	05	306	198	010	N15W66	1	0	0		06	N15W66	Q	SOLALERT 06/XX MAGNIL
						N07W26	0	0	0			N07W26	Q	
						N18W27	3	0	0			N18W27	DA	
						S21W17	0	0	0			S21W17	Q	
						N06W00	0	0	0			N06W00	Q	
						N10W44	1	0	0			N10W44	Q	
						S13W08	1	0	0			S13W08	Q	
						N23E18	0	0	0			N23E18	Q	
						N11E23	0	0	0			N11E23	CA	
						N09E31	0	0	0			N09E31	Q	
						N08E08	0	0	0			N08E08	Q	
						N13E48	0	0	0			N13E48	Q	
						S29E55	3	0	0			S29E55	Q	
						S16E55	0	0	0			S16E55	Q	
						N11W14	0	0	0			N11W14	Q	
						N18E34	0	0	0			N18E34	Q	
						N20E51	1	0	0			N20E51	Q	
						N27E71	0	0	0			N27E71	Q	
188	07	06	303	210	015	N15W80	1	0	0	SUDDEN COMMENCE-	07	N15W80	Q	SOLNIL MAGQUIET
						N07W38	0	0	0	MENT SYDNEY, TOKYO,		N07W38	Q	
						N18W39	2	0	0	BOULDER 06/1931Z.		N18W39	DA	
						S21W30	0	0	0	PROTON EVENT BEGAN		S21W30	E	
						N05W14	0	0	0	07/0015Z. GREATER		N05W14	Q	
						S15W20	2	0	0	THAN 10 MEV FLUX		S15W20	DA	
						N24E05	0	0	0	EQUALED		N24E05	Q	
						N11E11	1	0	0	22 PART/CM^2/S/STR		N11E11	E	
						N09E18	0	0	0	AT 07/0130Z.		N09E18	Q	
						N08W06	0	0	0			N08W06	E	
						N13E36	0	0	0			N13E36	Q	
						S29E42	1	0	0			S29E42	E	
						S17E43	0	0	0			S17E43	E	
						N18E22	0	0	0			N18E22	Q	
						N21E38	3	0	0			N21E38	E	
						N28E59	0	0	0			N28E59	Q	
						S32W07	0	0	0			S32W07	Q	
189	08	07	265	201	018	N07W54	2	0	0		08	N07W54	E	SOLQUIET MAGQUIET
						N18W54	1	0	0			N18W54	Q	
						S21W43	1	0	0			S21W43	Q	
						N05W26	0	0	0			N05W26	Q	
						S14W34	1	0	0			S14W34	Q	
						N24W07	0	0	0			N24W07	Q	
						N11W01	1	0	0			N11W01	CA	
						N14E23	0	0	0			N14E23	Q	
						S28E27	1	0	0			S28E27	Q	
						S17E30	2	0	0			S17E30	Q	
						N18E07	0	0	0			N18E07	Q	
						N22E24	0	0	0			N22E24	Q	
						N27E44	1	0	0			N27E44	Q	
						N08W08	1	0	0			N08W08	Q	
						N17E07	0	0	0			N17E07	Q	
190	09	08	274	200	008	N18W66	0	0	0		09	N18W66	Q	SOLQUIET MAGQUIET
						S22W56	3	0	0			S22W56	DA	
						S06W55	0	0	0			S06W55	Q	
						N05W39	0	0	0			N05W39	Q	
						N24W20	2	0	0			N24W20	Q	
						N08W19	0	0	0			N08W19	Q	
						N11W13	1	0	0			N11W13	DA	
						N12W12	0	0	0			N12W12	Q	
						N18W06	1	0	0			N18W06	Q	
						N14E07	0	0	0			N14E07	Q	
						N20E10	2	0	0			N20E10	CE	
						S28E15	1	0	0			S28E15	CE	
						S17E17	1	0	0			S17E17	Q	
						N28E32	7	1	0			N28E32	CA	
191	10	09	222	193	008	N17W80	0	0	0		10	N17W80	Q	SOLQUIET MAGQUIET
						S22W68	1	0	0			S22W68	Q	
						N07W50	0	0	0			N07W50	Q	
						N23W34	1	0	0			N23W34	Q	
						N11W26	4	0	0			N11W26	E	
						N14W07	0	0	0			N14W07	Q	
						S26E02	1	0	0			S26E02	Q	
						S16E03	0	0	0			S16E03	Q	
						N19W20	1	0	0			N19W20	Q	
						N22W02	2	0	0			N22W02	Q	
						N28E20	2	0	0			N28E20	Q	
						N12E53	0	0	0			N12E53	E	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

JULY 1979

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Active Regions: No. of Flares Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
192	11	10	212	180	008	S22W83	0	0	0		11	S22W83	E	SOLQUIET MAGQUIET
						N06W68	0	0	0			N06W68	Q	
						N22W48	1	0	0			N22W48	Q	
						N11W43	1	0	0			N11W43	E	
						N12W20	0	0	0			N12W20	Q	
						S28W10	0	0	0			S28W10	Q	
						S17W10	1	0	0			S17W10	Q	
						N19W33	0	0	0			N19W33	Q	
						N22W15	4	0	0			N22W15	Q	
						N28E06	1	0	0			N28E06	E	
						N11E39	0	0	0			N11E39	Q	
193	12	11	199	181	007	N05W82	0	0	0		12	N05W82	Q	SOLQUIET MAGQUIET
						N21W61	1	0	0			N21W61	Q	
						N11W56	0	0	0			N11W56	Q	
						N12W32	1	0	0			N12W32	Q	
						S26W25	0	0	0			S26W25	Q	
						S18W23	0	0	0			S18W23	Q	
						N20W47	0	0	0			N20W47	Q	
						N22W28	2	0	0			N22W28	Q	
						N28W04	2	0	0			N28W04	Q	
						N11E23	0	0	0			N11E23	Q	
						S28E72	1	0	0			S28E72	Q	
194	13	12	183	164	005	N21W73	0	0	0		13	N21W73	Q	SOLQUIET MAGQUIET
						N11W68	0	0	0			N11W68	Q	
						N14W45	1	0	0			N14W45	Q	
						S26W38	0	0	0			S26W38	Q	
						S17W35	0	0	0			S17W35	Q	
						N22W39	2	0	0			N22W39	E	
						N27W17	0	0	0			N27W17	Q	
						N10E10	0	0	0			N10E10	Q	
						S26E59	1	0	0			S26E59	Q	
						N29E77	0	0	0			N29E77	Q	
						N15W38	0	0	0			N15W38	Q	
195	14	13	195	156	013	N21W87	0	0	0		14	N21W87	Q	SOLQUIET MAGQUIET
						N11W84	0	0	0			N11W84	Q	
						N12W59	0	0	0			N12W59	Q	
						S27W53	0	0	0			S27W53	Q	
						S18W49	0	0	0			S18W49	Q	
						N21W54	1	0	0			N21W54	Q	
						N28W30	0	0	0			N28W30	Q	
						N10W02	1	0	0			N10W02	Q	
						S26E45	1	0	0			S26E45	Q	
						N29E65	0	0	0			N29E65	Q	
						S12W59	0	0	0			S12W59	Q	
						S12E53	0	0	0			S12E53	Q	
196	15	14	179	153	008	N14W69	0	0	0		15	N14W69	Q	SOLQUIET MAGQUIET
						S27W64	0	0	0			S27W64	Q	
						S18W61	0	0	0			S18W61	Q	
						N22W67	9	0	0			N22W67	A	
						N27W43	0	0	0			N27W43	Q	
						N10W16	0	0	0			N10W16	Q	
						S27E34	4	0	0			S27E34	E	
						N29E53	7	0	0			N29E53	E	
						S27W07	0	0	0			S27W07	Q	
						S03E78	0	0	0			S03E78	Q	
						S25W24	0	0	0			S25W24	Q	
197	16	15	182	150	014	N14W81	0	0	0		16	N14W81	Q	SOLQUIET MAGQUIET
						S27W79	2	0	0			S27W79	Q	
						S18W74	0	0	0			S18W74	Q	
						N20W80	8	0	0			N20W80	E	
						N27W55	0	0	0			N27W55	Q	
						N11W29	0	0	0			N11W29	Q	
						S27E22	0	0	0			S27E22	Q	
						N29E41	0	0	0			N29E41	E	
						S26W25	0	0	0			S26W25	Q	
						S05E73	0	0	0			S05E73	Q	
						S24W37	0	0	0			S24W37	Q	
198	17	16	153	139	010	S18W88	0	0	0	TOYOKAWA REPORTED A	17	S18W88	Q	SOLQUIET MAGQUIET
						N27W66	0	0	0	TENFLARE OF 120		N27W66	Q	
						N11W43	0	0	0	UNITS AND 7 MINUTES		N11W43	Q	
						S28E08	0	0	0	DURATION AT		S28E08	Q	
						N28E29	0	0	0	16/0036Z.		N28E29	E	
						S05E59	0	0	0			S05E59	Q	
						S25W48	0	0	0			S25W48	Q	
						S19W26	0	0	0			S19W26	Q	
						N14W94	1	0	0			N14W94	Q	
						N20W93	3	0	0			N20W93	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

JULY 1979

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Active Regions: No of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
199	18	17	151	138	011	N10W58	0	0	0		18	N10W58	Q	SOLQUIET MAGQUIET
						S28W04	0	0	0			S28W04	Q	
						N28E16	0	0	0			N28E16	Q	
						S05E45	1	0	0			S05E45	Q	
						S25W61	1	0	0			S25W61	Q	
						S18W38	0	0	0			S18W38	Q	
						S21E29	0	0	0			S21E29	Q	
						N12E72	0	0	0			N12E72	Q	
200	19	18	169	139	014	N10W72	0	0	0		19	N10W72	Q	SOLQUIET MAGALERT 19/20
						S26W18	0	0	0			S26W18	Q	
						N29E02	0	0	0			N29E02	Q	
						S03E31	0	0	0			S03E31	Q	
						S25W72	0	0	0			S25W72	Q	
						S18W52	0	0	0			S18W52	Q	
						N11E61	0	0	0			N11E61	Q	
						N32E42	0	0	0			N32E42	Q	
						N28W31	0	0	0			N28W31	Q	
						S20W14	0	0	0			S20W14	Q	
201	20	19	175	139	012	S18W67	0	0	0		20	S18W67	Q	SOLQUIET MAGNIL
						S26W32	0	0	0			S26W32	Q	
						S13W32	0	0	0			S13W32	Q	
						S20W28	0	0	0			S20W28	Q	
						N16W27	1	0	0			N16W27	Q	
						N30W12	0	0	0			N20W12	Q	
						S19E04	0	0	0			S19E04	Q	
						S03E17	7	0	0			S03E17	E	
						N32E28	0	0	0			N32E28	Q	
						N11E50	0	0	0			N11E50	Q	
202	21	20	203	142	011	S26W47	2	0	0		21	S26W47	E	SOLQUIET MAGQUIET
						N29W26	0	0	0			N29W26	Q	
						S03E05	3	0	0			S03E05	E	
						S19W09	0	0	0			S19W09	Q	
						N10E36	0	0	0			N10E36	Q	
						N32E16	0	0	0			N32E16	Q	
						N29W55	4	0	0			N29W55	E	
						S21W41	0	0	0			S21W41	Q	
						N16W41	4	0	0			N16W41	E	
						N01E37	0	0	0			N01E37	Q	
203	22	21	234	142	013	S26W60	2	0	0		22	S26W60	Q	SOLQUIET MAGQUIET
						N29W36	0	0	0			N29W36	Q	
						S04W09	0	0	0			S04W09	Q	
						S19W23	1	0	0			S19W23	E	
						N10E23	0	0	0			N10E23	Q	
						N31E01	1	0	0			N31E01	E	
						N29W68	4	0	0			N29W68	E	
						N16W56	5	0	0			N16W56	A	
						S06E15	0	0	0			S06E15	Q	
						N13W44	0	0	0			N13W44	Q	
204	23	22	218	151	008	S27W73	0	0	0		23	S27W73	Q	SOLALERT 23/26 MAGQUIET
						N30W50	0	0	0			N30W50	Q	
						S04W23	0	0	0			S04W23	Q	
						S19W38	0	0	0			S19W38	Q	
						N11E06	0	0	0			N11E06	Q	
						N31W12	1	0	0			N31W12	Q	
						N29W81	1	0	0			N29W81	Q	
						N15W70	7	0	0			N15W70	A	
						S05E01	0	0	0			S05E01	Q	
						N13W57	1	0	0			N13W57	Q	
						N14E72	0	0	0			N14E72	Q	
						N17E50	0	0	0			N17E50	Q	
205	24	23	212	161	006	N31W64	0	0	0		24	N31W64	Q	SOLALERT 24/XX MAGQUIET
						S04W43	0	0	0			S04W43	Q	
						S18W52	0	0	0			S18W52	Q	
						N11W08	0	0	0			N11W08	Q	
						N33W29	5	0	0			N33W29	Q	
						N16W85	2	0	0			N16W85	A	
						S05W14	1	0	0			S05W14	E	
						N14W72	0	0	0			N14W72	Q	
						N16E57	0	0	0			N16E57	Q	
						N14E08	0	0	0			N14E08	Q	
						S14E22	0	0	0			S14E22	Q	
						S14E49	0	0	0			S14E49	Q	
						N24E04	0	0	0			N24E04	Q	
206	25	24	208	164	008	N29W75	0	0	0		25	N29W75	Q	SOLALERT 25/XX MAGQUIET
						S04W56	0	0	0			S04W56	Q	
						S19W65	0	0	0			S19W65	Q	
						N10W21	1	0	0			N10W21	Q	
						N31W41	6	0	0			N31W41	A	
						S05W25	0	0	0			S05W25	E	
						N14W84	0	0	0			N14W84	Q	
						N15E42	0	0	0			N15E42	Q	
						S13E14	0	0	0			S13E14	A	
						S14E36	0	0	0			S14E36	Q	
						N14E71	0	0	0			N14E71	Q	
						N10W07	0	0	0			N10W07	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

JULY 1979

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	Flares: Total	Flares: M	Flares: X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
207	26	25	189	157	003	S03W70	0	0	0		26	S03W70	Q	SOLALERT MINOR 26 MAGQUIET
						S18W80	0	0	0			S18W80	Q	
						N09W34	0	0	0			N09W34	Q	
						N31W51	4	0	0			N31W51	Q	
						S07W37	3	0	0			S07W37	E	
						N14E29	0	0	0			N14E29	Q	
						S15W01	1	0	0			S15W01	E	
						S15E21	0	0	0			S15E21	Q	
						N15E56	3	0	0			N15E56	Q	
						S19E66	0	0	0			S19E66	Q	
208	27	26	176	156	008	N11W42	0	0	0		27	N11W42	Q	SOLALERT MAGALERT 27/XX
						N31W66	1	0	0			N31W66	Q	
						S06W53	0	0	0			S06W53	Q	
						N14E17	0	0	0			N14E17	Q	
						S18W14	2	0	0			S18W14	E	
						S14W07	0	0	0			S14W07	Q	
						N15E43	3	0	0			N15E43	A	
						S20E54	1	0	0			S20E54	Q	
						S21E74	0	0	0			S21E74	Q	
						N32E68	0	0	0			N32E68	Q	
						N04E78	0	0	0			N04E78	Q	
209	28	27	192	157	020	N10W61	1	0	0		28	N10W61	Q	SOLALERT MAGALERT 28
						N31W79	0	0	0			N31W79	Q	
						S07W66	0	0	0			S07W66	Q	
						N14E05	0	0	0			N14E05	Q	
						S13W28	1	0	0			S13W28	E	
						S15W07	0	0	0			S15W07	Q	
						N15E29	4	0	0			N15E29	A	
						S20E41	0	0	0			S20E41	Q	
						S22E59	0	0	0			S22E59	Q	
						N05E69	0	0	0			N05E69	Q	
210	29	28	181	154	010	N10W74	0	0	0		29	N10W74	Q	SOLALERT 29 MAGNIL
						S07W79	0	0	0			S07W79	Q	
						N15W10	0	0	0			N15W10	Q	
						S13W43	7	0	0			S13W43	E	
						S14W20	3	1	0			S14W20	A	
						N15E15	4	0	0			N15E15	E	
						S19E29	0	0	0			S19E29	Q	
						S22E45	4	0	0			S22E45	E	
						N05E53	0	0	0			N05E53	Q	
						S16E49	1	0	0			S16E49	Q	
						N11E76	0	0	0			N11E76	Q	
						N24W63	0	0	0			N24W63	Q	
						N34E44	0	0	0			N34E44	Q	
211	30	29	184	153	015	N10W89	0	0	0		30	N10W89	Q	SOLALERT 30/XX MAGQUIET
						N13W25	0	0	0			N13W25	Q	
						S14W53	1	0	0			S14W53	A	
						S14W33	0	0	0			S14W33	A	
						N14E02	1	0	0			N14E02	E	
						S18E16	0	0	0			S18E16	Q	
						S22E32	1	0	0			S22E32	E	
						N05E39	0	0	0			N05E39	Q	
						S13E36	0	0	0			S13E36	Q	
						N12E62	0	0	0			N12E62	Q	
						N12W31	0	0	0			N12W31	Q	
212	31	30	217	157	011	N13W35	0	0	0		31	N13W35	Q	SOLALERT MINOR 31 MAGQUIET
						S15W68	2	0	0			S15W68	Q	
						S16W46	0	0	0			S16W46	Q	
						N16W09	3	0	0			N16W09	Q	
						S18E02	0	0	0			S18E02	Q	
						S22E18	0	0	0			S22E18	E	
						N05E27	0	0	0			N05E27	Q	
						S12E25	0	0	0			S12E25	E	
						N12E51	0	0	0			N12E51	Q	
						N20E03	0	0	0			N20E03	Q	
						N17E19	0	0	0			N17E19	Q	
213	01	31	197	148	003	N14W47	0	0	0		01	N14W47	Q	SOLNIL MAGQUIET
						S16W83	1	0	0			S16W83	Q	
						S15W60	0	0	0			S15W60	Q	
						N16W22	0	0	0			N16W22	Q	
						S18W12	0	0	0			S18W12	Q	
						S22E07	0	0	0			S22E07	Q	
						N05E12	0	0	0			N05E12	Q	
						S12E13	0	0	0			S12E13	Q	
						N12E37	0	0	0			N12E37	Q	
						N22W10	0	0	0			N22W10	Q	
						N17E08	0	0	0			N17E08	Q	

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

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

	1978 FINAL					1979 PROVISIONAL						
DAY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	42	136	96	139	110	158	116	116	131	108	121	158
2	48	167	112	122	110	156	127	138	134	106	152	168
3	38	159	105	125	117	191	148	141	135	103	161	205
4	62	162	100	129	115	157	123	142	138	112	178	219
5	74	177	73	121	104	146	134	135	109	113	207	232
6	66	177	74	108	122	173	146	144	91	122	226	249
7	58	147	95	112	138	163	144	146	77	148	222	223
8	62	120	103	118	148	172	142	143	69	165	220	219
9	64	109	121	108	152	165	139	146	61	162	231	191
10	67	99	149	120	144	163	137	143	87	145	205	163
11	98	84	158	118	170	157	137	156	109	148	186	155
12	71	72	158	99	138	159	138	170	107	158	199	145
13	93	92	156	90	165	159	152	169	113	163	172	142
14	93	113	170	78	150	162	163	159	116	203	149	127
15	77	133	166	59	140	178	161	155	117	207	127	121
16	52	143	163	77	143	164	159	130	119	187	103	114
17	50	136	143	92	146	164	160	142	107	184	122	109
18	50	156	135	93	132	146	162	142	98	148	126	109
19	42	159	154	85	95	138	166	136	79	109	110	135
20	36	163	151	76	84	177	169	120	68	107	111	158
21	30	171	144	68	68	181	171	134	68	114	124	151
22	36	148	125	77	63	178	155	143	79	121	108	152
23	45	156	116	55	59	188	127	139	79	117	96	154
24	48	163	104	61	66	209	99	118	80	119	90	143
25	55	168	96	85	81	209	88	114	85	124	120	144
26	45	162	132	101	93	173	108	114	118	123	132	142
27	57	142	115	118	110	162	97	117	125	118	112	146
28	57	126	117	118	122	157	95	114	132	110	128	132
29	59	122	137	111	135	153		110	132	113	124	148
30	72	94	128	103	159	149		127	120	96	154	150
31	100		111		177	130		147		120		144
MEAN	58.1	134.2	125.1	97.9	122.7	165.8	138.0	137.0	102.8	134.5	150.5	159.6

1978 yearly mean=92.5

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_{11}

	1978					1979						
DAY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	106.0	159.8	139.8	152.3	156.6	194.1*	185.8	168.5	202.6*	180.4	189.5	186.3
2	106.0	171.7*	137.8	159.3	167.6	200.1	185.6	170.7	203.4	179.2	206.8*	200.9*
3	109.6	167.3	131.7	169.9	164.2	203.5*	187.4*	173.3	194.2	164.3	216.1*	213.4
4	112.3	174.4*	132.0*	177.4	165.3	192.7*	187.7	181.4	183.5	176.0	228.8*	219.1
5	117.6	179.4	138.7*	181.2	169.5	194.9	197.4	180.1*	179.3	169.6	230.2	204.5
6	122.6	181.1	137.4	172.2*	164.5	190.9	206.5	182.4	176.3	171.1*	238.1	211.3
7	128.2	177.5	141.6	174.6	178.5*	186.2	203.4	183.1*	166.7	178.0	238.1	207.2
8	130.6	167.1	150.1	168.0*	189.9	200.1	207.2*	178.9	169.0*	182.4*	242.7	206.7
9	128.1*	157.6*	155.8	164.9*	189.6	192.6	198.7	181.4	169.6	181.3	247.4*	197.9*
10	127.5	149.8	162.3	166.3	204.7	186.2	198.4*	180.6	173.0	174.7	239.9	185.9
11	121.7	141.5	171.6*	163.7	210.5	179.5	202.2*	181.7*	170.0*	178.6	229.6	178.6
12	124.5	138.5	177.2	160.4	217.3	174.5	195.4	188.7	174.5	184.2	208.3	170.1
13	134.9	138.0	178.5	145.3	210.6*	193.9	195.4	186.3	175.8	186.6	193.7	161.4
14	132.7	143.5*	180.1	136.3	197.8	200.0*	204.2*	189.4	170.9	182.0	185.7	154.7*
15	130.0*	152.6	182.0	133.8	192.7	192.1*	205.0*	181.3	168.1	181.9	176.0	151.1
16	123.6	161.5	176.7*	128.8	186.5	189.9*	209.2	183.5*	171.7	176.4	167.5	143.6
17	119.3*	161.8	171.5	123.1	177.7	175.7	213.1	177.7	168.0	187.7	158.1	142.7
18	115.6	169.3*	169.4	127.4	161.5	177.6	237.7	188.6*	158.7	171.3*	152.6	141.2
19	111.6	168.8*	170.4	128.9	152.9	167.8	237.8	177.6	159.4	161.5	146.2	143.6
20	107.5	168.6	171.8	134.9	133.1	197.2	230.1*	184.1	156.1	155.6	151.5	146.6
21	104.8	172.5	166.9*	126.0	132.1*	210.3	225.1	182.2	161.5	155.7	148.9	143.7*
22	106.0	171.5*	161.4	127.1	132.7	226.9	223.3	181.1	159.7*	156.5*	141.1	155.7
23	104.1	165.5*	161.4	121.9	133.4	225.1	196.0	188.5	162.3	156.0	139.0	163.1*
24	105.4	158.9	156.9	123.5	135.2*	208.5	182.8	188.3	161.9	159.2*	141.2	168.6
25	104.2	157.2	156.1	124.7*	138.0	206.1	167.5	188.2	172.5	153.3*	147.8	164.5
26	100.7	148.5	154.4	132.7	144.2	192.9	166.0	200.2	182.0	149.1	153.7	165.6
27	107.3*	146.2*	150.7	144.4*	148.7*	205.4	162.7	187.9	195.1*	149.4	158.5	159.1*
28	107.7*	147.8	148.4*	154.1	164.1	209.6	163.6	188.6	192.1*	149.2	159.1	158.1
29	116.2	148.1	149.8	162.2	165.2	209.3		191.4	185.7	150.2	166.9	156.7
30	124.1	142.6	146.5	167.8	181.7	194.1*		186.6	185.2*	158.4	176.7*	160.3
31	133.9*		144.0		195.1	193.7		201.4*		174.9		152.4
MEAN	116.9	159.6	157.1	148.2	170.0	196.5	199.1	184.0	175.0	168.9	186.0	171.4

* adjusted for burst
A = interpolated data point

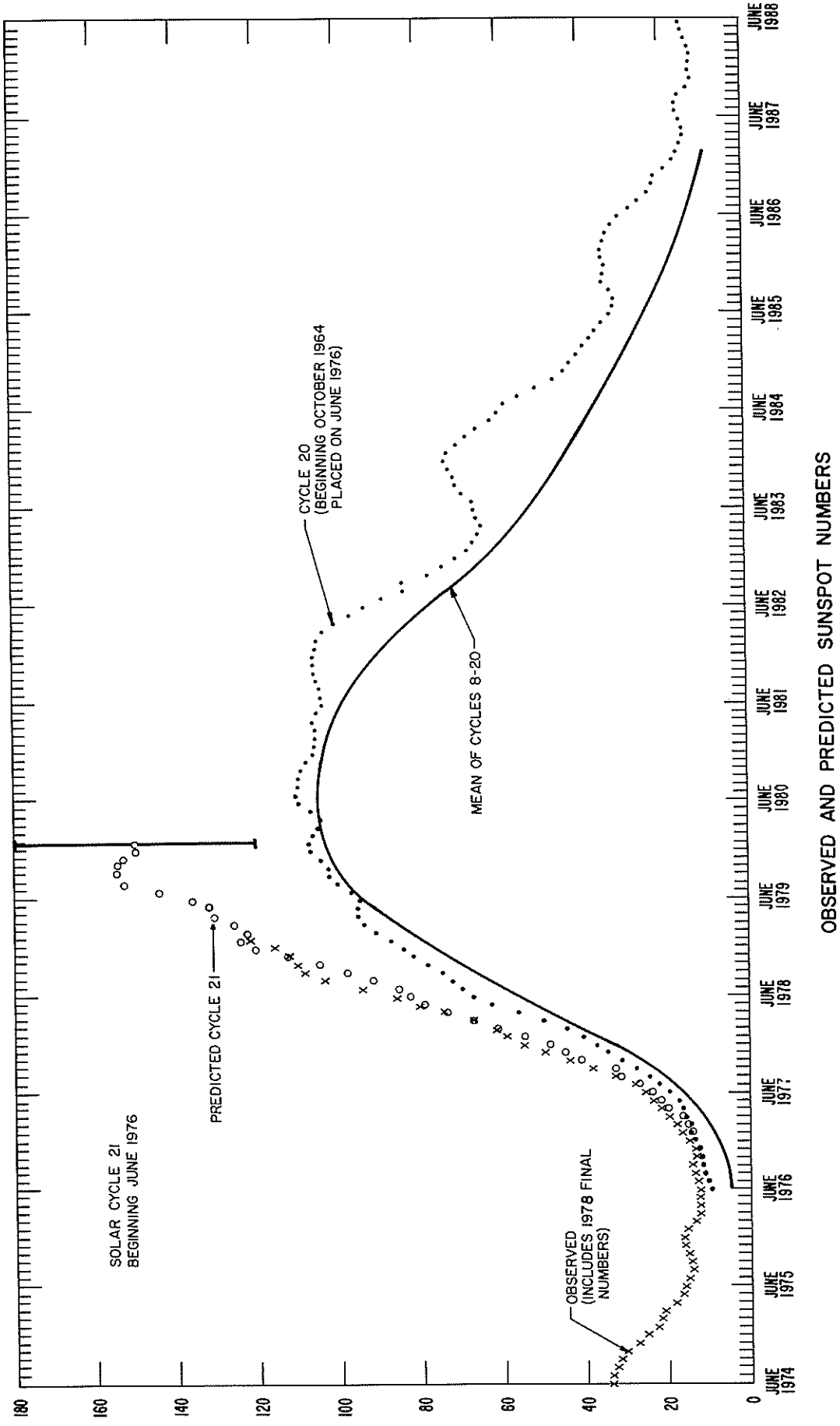
DAILY SOLAR INDICES

JULY 1979

JUL 1979	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	182	24	158	136	180.2	585	399	201	186.3	189.5	101.6	78.7	34.8	18.4
2	183	25	168	154	194.3*	611	412	229	200.9*	219.8	115.4	82.1	36.6	13.7
3	184	26	205	180	206.4	611	404	224	213.4	217.3	120.3	90.8	39.9	17.2
4	185	27	219	200	210.9	611	416	229	218.1	223.6	124.0	92.2	40.9	22.7
5	186	1	232	213	197.8	597	409	208	204.5	202.0	121.0	85.4	50.5	14.2
6	187	2	249	189	204.4	603	421	216	211.3	211.3	121.4	86.6	37.6	14.2
7	188	3	223	186	200.4	601	402	211	207.2	206.1	118.8	92.9	42.7	15.8
8	189	4	219	171	199.9	600	405	213	206.7	205.1	109.7	84.3	32.8	15.5
9	190	5	191	156	191.4*	599	405	209	197.9*	197.2	108.5	87.7		
10	191	6	163	137	179.8	604	393	202	185.9	184.1	102.6	82.3		
11	192	7	155	129	172.7	608	377	196	178.6	173.7	97.5	80.0		
12	193	8	145	134	164.7	595	365	182	170.1	162.7	106.8	74.5		
13	194	9	142	115	156.2	581	368	175	161.4	158.1	110.0	72.0		
14	195	10	127	111	149.8*	569	358	171	154.7*	153.0	106.0	70.0		
15	196	11	121	109	146.3	573	349	166	151.1	145.0	103.7	70.0		
16	197	12	114	88	139.0	569	345	162	143.6	137.6	97.9	71.2		
17	198	13	109	105	138.1	577	347	161	142.7	136.5	98.4	68.5		
18	199	14	109	116	136.7	565	342	159	141.2	136.5	100.8	73.0		
19	200	15	135	116	139.0	589	355	167	143.6	139.8	99.4	75.0		
20	201	16	158	148	141.9	577	351	169	146.6	143.7	104.3	85.0		
21	202	17	151	144	139.2*	576	347	173	143.7*	145.8	105.2	90.0		
22	203	18	152	141	150.9	576	364	181	155.7	148.6	109.4	89.0		
23	204	19	154	140	158.0*	584	358	182	163.1*	160.2	108.5	95.0		
24	205	20	143	146	163.4	599	379	202	168.6	163.9	117.9	84.5		
25	206	21	144	134	159.4	569	369	184	164.5	159.5	111.9	79.9		
26	207	22	142	135	160.5	561	383	188	165.6	161.7	115.6	87.4		
27	208	23	146	122	154.3*	568	355	176	159.1*	156.3	118.1	85.9		
28	209	24	132	124	153.3	560	354	181	158.1	156.5	115.3	75.3		
29	210	25	148	118	152.0	557	359	161	156.7	152.8	104.2	78.8		
30	211	26	150	138	155.5	568	361	175	160.3	157.0	108.6	79.6		
31	212	27	144	122	148.0	558	356	170	152.4	146.7	105.0	80.4		
MEAN			159.6	140.5	165.9	584	374	188	171.4	169.4	109.3	81.5	39.5	16.6

* Adjusted for burst.

Note: Data gaps in AFGL Sagamore Hill are due to equipment problems.



OBSERVED AND PREDICTED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15.2	13.2	12.2	12.6	12.5	12.2	12.9	14.0	14.3	13.4	13.5	14.8
1977	16.7	18.1	20.0	22.2	24.2	26.3	29.0	33.4	39.1	45.6	51.9	56.9
1978	61.3	64.5	69.6	76.9	83.2	89.3	97.4	104.0	108.4	111.0	113.3	116.7
1979	122.8	127.2	131.6	134.6	137.3	141.8	146.2	149.2	151.2	152.4	152.7*	152.2
		(3)	(7)	(12)	(16)	(18)	(20)	(22)	(24)	(25)	(27)	(29)
1980	150.7	149.2	148.4	148.6	147.8	144.6	141.0	138.1	136.3	135.2	133.8	132.5
	(30)	(31)	(30)	(31)	(33)	(36)	(39)	(41)	(41)	(42)	(44)	(47)
1981	132.3	131.8	129.4	126.4	123.8	121.2	120.0	119.7	118.9	117.5	115.1	112.1
	(49)	(49)	(47)	(46)	(47)	(46)	(45)	(44)	(44)	(44)	(42)	(40)
1982	109.0	105.8	103.4	101.6	99.4	97.1	93.4	86.9	84.8	80.3	77.0	73.5
	(38)	(37)	(36)	(34)	(32)	(30)	(28)	(26)	(25)	(22)	(21)	(21)
1983	69.4	66.4	64.4	62.3	60.1	57.7	55.6	53.8	52.1	50.8	50.0	49.1
	(20)	(21)	(21)	(22)	(22)	(23)	(24)	(26)	(27)	(29)	(30)	(31)
1984	47.9	46.0	43.2	39.9	37.4	36.2	35.3	33.8	32.3	31.1	29.8	28.3
	(31)	(30)	(29)	(29)	(29)	(31)	(31)	(31)	(30)	(29)	(27)	(27)
1985	27.1	26.3	25.5	25.0	24.3	23.4	22.6	21.8	21.0	20.2	19.2	18.6
	(27)	(26)	(26)	(26)	(26)	(24)	(23)	(22)	(22)	(23)	(24)	(24)
1986	18.2	17.4	16.7	15.7	14.5	13.3	12.4	11.8	11.6	11.4	11.2	11.3
	(24)	(24)	(24)	(23)	(22)	(20)	(19)	(19)	(17)	(16)	(15)	(13)
1987	11.6	12.2	13.1	14.1	15.2	16.3	17.4					
	(12)	(11)	(11)	(12)	(13)	(13)	(14)					

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 1978 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1979 are received. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1978). 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 390-401 issues, 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 mimimum.

*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 towards 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 1979) indicates that the most probable value for sunspot maximum is 153 ± 27.

Hα SOLAR FLARES

JULY 1979

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	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	01	0046	0058	0110	N18	E41	.681		4.1	24	SB	3	C		53		U F
MANI	01	0659E	0701	0715D	S15	E58	.867		5.6	16D	SF	3	C		40		F
MANI	01	0745E	0745U	0757	S14	E58	.865		5.7	12D	SF	3	C		30		
ISTA	01	0750E		0800	S13	E57	.855		5.6	10D	SF		V				D
ISTA	01	0750E		0830	N23	E90	1.000		8.1	40D	SF		V				AE
ISTA	01	0755		0835	N10	E90	1.000		8.1	40	SB		V				AEK
HOLL	01	1748	1749	1759	S15	E53	.823		5.7	11	SB	3	C		46		F
HOLL	01	1825	1830	1834	N18	E32	.571		4.2	9	SB	3	C		19		F
HOLL	01	1829	1850	1851	S14	E52	.811		5.7	22	SB	3	C		32		
HOLL	01	1919	1921	1935	S27	E57	.887		6.1	16	SB	3	C		53		FDE
HOLL	01	2007	2012	2019	N11	E80	.984		7.8	12	SN	3	C		0		
HOLL	01	2026	2031	2054	S27	E55	.873		6.0	28	SB	3	C		79		F
PALE	01	2030	2030	2040	S28	E55	.876		6.0	10	SN	3	C		26		DE
HOLL	01	2101	2101	2115	N18	E30	.546		4.1	14	SB	3	C		42		DE
PALE	01	2102	2102	2115	N19	E28	.527		4.0	13	SB	3	C		39		DE
PALE	01	2146	2146	2210	N19	E28	.527		4.0	24	SN	3	C		22		DE
MANI	01	2307E	2307U	2312	N14	W12	.280		1.1	5D	SB	2	C		60		
PALE	01	2307E	2308U	2315D	N12	W12	.259		1.1	8D	SB	3	C		61		DE
PALE	02	0314	0314	0321	N14	W15	.317		1.0	7	SN	3	C		33		DE
MONT	02	0859	0902	0916	N16	W19	.387		30.9	17	SN		C	0902	50		H
ATHN	02	0900	0902	0918	N15	W18	.366		1.0	18	SB	3	C		64		DE
MANI	02	0900	0902	0910	N16	W15	.337		1.3	10	SB	3	V		100		
MANI	02	0903E	0903U	0911	N16	W17	.362		1.1	8D	SN	3	P		100	1.1	
MCMA	02	1845E		1955	S28	E42	.776	16112	5.9	70D	1B		P	1903	125	2.1	E
PALE	02	1859	1902	1929	S29	E43	.789		6.0	30	SB	3	C		135		H F
RAMY	02	1912	1912	1919D	S29	E41	.773	16112	5.9	7D	1B	3	C		235		F
HOLL	02	1946	1955	2004	N14	W26	.469		30.9	18	SN	3	C		34		F
HOLL	02	2010	2023	2037	N 9	E66	.912		7.8	27	SB	3	C		46		F
MCMA	02	2010E	2021	2055	N10	E65	.905	16122	7.7	45D	SN		C	2021	80	1.9	E
MCMA	02	2035E		2047D	N16	W26	.480	16104	30.9	12D	SF		P	2042	30	.4	D
BIGB	02	2149	2153	2209	S10	E00	.224		2.9	20	SF	2	C	2153	100	1.0	
HOLL	02	2150	2153	2157	N11	E72	.950		8.3	7	SB	3	C		45		
RAMY	03	1221	1224	1227D	N 9	E57	.838		7.8	6D	SB	3	C		134		F
PALE	03	1819	1823	1840	N17	E 2	.243		3.9	21	SN	3	C		52		DE F
PALE	03	1914E	1914U	1917	N17	E 2	.243		4.0	3D	SN	3	C		99		DE F
PALE	03	1958	2003	2019	N 5	W 1	.038		3.8	21	SN	3	C		51		DE F
PALE	03	2042	2045	2108	N17	E 1	.241		3.9	26	SN	3	C		81		DE F
PALE	03	2209	2210	2216	N14	W 2	.193		3.8	7	SN	3	C		79		U H
PALE	03	2232	2232	2259	N 7	E55	.816		8.1	27	SN	3	C		21		
PALE	03	2304	2309U	2333	N 3	W 2	.035		3.8	29	SN	3	C		158		F
HOLL	04	0006	0007	0022	N 9	E51	.777		7.8	16	SN	3	C		31		
PALE	04	0421	0421	0431	N 7	E50	.765		7.9	10	SN	3	C		43		FDE
ISTA	04	0645E		0825	S14	E83	.995		10.5	100D	SN		V				OK
MONT	04	0654E	0701	0711	S16	E86	.999		10.7	17D	SF		C	0701	40		D
MONT	04	0755	0819	0841	N18	W03	.261		4.1	46	SN		C	0819	110		E
ISTA	04	0758		0815	N17	W01	.239		4.3	17	SN		V				E
MONT	04	0810	0818	0822	S16	E86	.999		10.8	12	SF		C	0818	40		D
ISTA	04	0830	0855	0930	N09	E50	.766		8.1	60	SB		V				F
ATHN	04	0830	0850	0922	N 7	E65	.905	16123	9.2	52	1B	4	C		143		
MONT	04	0834	0855	0958	N08	E47	.731		7.9	84	SN		C	0855	150		
MONT	04	0947	0958	1041	N16	W42	.685	16104	1.3	54	1N		C	0958	250		
RAMY	04	1134E	1137	1140D	S28	E79	.990		10.4	6D	SB	3	V		60		
MCMA	04	1343	1344	1347	N17	E47	.745	16122	8.1	4	SF		C	1344	40	.6	D
MCMA	04	1349	1358	1420	N10	E46	.721	16122	8.0	31	SN		C	1358	25	.4	D
MCMA	04	1411	1412	1427	N16	W08	.260	16117	4.0	16	SN		C	1412	40	.4	E
MCMA	04	1412	1414	1447	N13	W23	.419	16108	2.9	35	SF		C	1414	60	.7	E
MCMA	04	1441	1443	1505	N10	E44	.697	16122	7.9	24	SB		C	1443	60	.9	E
RAMY	04	1441	1443	1445D	N11	E44	.698		7.9	4D	SB	3	V		68		
HOLL	04	1442	1445	1506	N11	E44	.698		7.9	24	SB	3	C		79		DE
MCMA	04	1606	1609	1622	N14	W50	.772	16104	30.9	16	SN		C	1609	50	.8	DH
MCMA	04	1635	1639	1650	N14	W50	.772	16104	30.9	15	SN		C	1639	40	.7	E
MCMA	04	1639	1644	1659	N09	E44	.696	16122	8.0	20	SN		C	1644	30	.4	E
MCMA	04	1701	1715	1730	S28	E16	.570	16112	5.9	29	SN		C	1715	60	.7	E
MCMA	04	1712	1745	1902	N16	W13	.311	16117	3.7	110	SN		C	1745	125	1.4	EF
MCMA	04	1750	1753	1756D	S29	E76	.983	16125	10.4	6D	SN		C	1753	20	.9	D
MCMA	04	1903	1942	2120D	N13	E35	.587	16122	7.4	137D	2B		C	1942	500	6.3	FILY
RAMY	04	1905	1920	1922D	N11	E39	.635	16122	7.7	17D	2B	3	V		482		F
PALE	04	1907	1923	2059	N10	E33	.551	16119	7.3	112	1B	3	C		270		FDE
MCMA	04	1937	1942	2001	S31	E71	.968	16125	10.1	24	SB		C	1942	40	1.6	E

Hα SOLAR FLARES

JULY 1979

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	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
PALE	04	1937E	1943U	1955	S28	E70	.961		10.1	180	SB	3	C		35		F
RAMY	04	1940	1943	1945D	S27	E69	.956		10.0	50	SB	3	V		58		
PALE	04	2216	2217	2222	N20	E65	.910		9.8	6	SN	3	C		23		U F
MONT	05	0651	0656	0706D	S30	E14	.586	16112	6.3	150	1N		C	0656	250		
MONT	05	0757E	0757	0810	N19	W14	.356		4.3	130	SF		C	0757	50		E
MONT	05	0928	0931	1018	S14	E02	.299		5.5	50	SN		C	0931	100		
MONT	05	0930	0931	0941	S17	W14	.415		4.3	11	SF		C	0931	50		E
MCMA	05	1428	1432	1436	S29	E66	.945	16125	10.6	8	SF		C	1432	30	.3	E
MCMA	05	1758E	1803	1820	S14	W03	.301	16118	5.5	220	SB		C	1803	70	.8	E
PALE	05	1801	1802	1817	S14	W 3	.301		5.5	16	SB	3	C		65		F
MCMA	05	1834	1835	1855	S29	E62	.924	16125	10.4	21	SN		C	1835	25	.7	D
PALE	05	1834	1834	1840	S28	E58	.898		10.1	6	SN	3	C		29		
HOLL	05	1836	1838	1857	S27	E61	.914		10.4	21	SB	3	C		27		F
HOLL	05	1952	1954	2032	S28	E59	.904		10.3	40	SB	3	C		52		F
MCMA	05	1952	1957	2020	S29	E60	.913	16125	10.3	28	SN		C	1957	50	1.3	E
BIGB	05	1953	1954	2007	S25	E60	.904	16124	10.3	14	1N	2	C	1954	140	2.9	
HOLL	05	2025	2036	2109	N22	E52	.806	16123	9.8	44	1B	3	C		163		F
MCMA	05	2027	2036	2103D	N21	E53	.814	16127	9.8	36D	SN		C	2036	100	1.7	E
PALE	05	2116	2116	2124D	N16	W26	.478		3.9	8D	SN	3	C		19		F
HOLL	05	2117	2117	2127	N16	W26	.478		3.9	10	SB	3	C		24		F
HOLL	05	2129	2131	2140	N16	W42	.685		2.7	11	SB	3	C		43		
HOLL	05	2144	2154	2303	N15	W33	.567		3.4	79	SB	3	C		115		U F
HOLL	05	2144	2203	2303	N15	W33	.567		3.4	79	SN	3	C		61		U F
BIGB	05	2149	2152	2216	N13	W33	.560		3.4	27	SN	2	P	2152	150	1.8	
BIGB	05	2213	2223	2258	N16	W37	.623		3.2	45	SB	2	C	2223	130	1.7	
HOLL	05	2221	2229	2236	S26	E55	.872		10.1	15	SB	3	C		82		
PALE	05	2235	2235	2244	N16	W28	.505		3.8	9	SN	3	C		42		F
PALE	05	2245	2245	2248	N16	W28	.505		3.8	3	SN	3	C		32		F
HOLL	05	2321	2323	2333	N15	W65	.906		1.1	12	SN	3	C		14		
BIGB	06	0007	0017	0045	S17	W04	.355		5.7	38	SN	2	C	0017	90	.9	
HOLL	06	0007	0024	0031	S16	W 4	.339		5.7	24	SB	3	C		34		F
HOLL	06	0025	0028	0037	N15	W68	.926		30.9	12	SB	3	C		24		
BIGB	06	0025	0029	0037	N15	W68	.926		30.9	12	SN	2	C	0029	60		
HOLL	06	0132	0134	0200D	N18	W27	.503		4.0	28D	SB	2	C		96		F
MCMA	06	1401E	1401	1406	N13	E16	.317	16122	7.8	5D	SF		C	1401	50	.5	EL
MCMA	06	1432	1437	1503	N22	E45	.736	16123	10.0	31	SN		C	1437	40	.6	E
HOLL	06	1434	1441	1455	N22	E42	.704		9.8	21	SB	3	C		30		F
BIGB	06	1459	1500	1510	S31	W05	.570		6.2	11	SN	2	C	1500	60	.6	
MCMA	06	1604	1614	1630D	N18	W36	.618	16117	4.0	26D	SF		C	1614	50	.7	E
MCMA	06	1605E	1618	1643D	S15	W15	.401	16118	5.5	38D	SN		C	1618	60	.7	E
HOLL	06	1605	1606	1611	N18	W37	.630		3.9	6	SN	3	C		20		
MCMA	06	1642	1647	1656D	N09	E13	.243	16122	7.7	14D	SF		C	1647	20	.2	D
BIGB	06	1724	1725	1728	N12	W77	.973		31.0	4	SF	2	C	1725	40		A
HOLL	06	1817	1818	1825	N22	E40	.682		9.8	8	SN	3	C		37		
MCMA	06	1843	1844	1856	S18	W13	.422	16118	5.8	13	SN		C	1844	50	.6	E
HOLL	06	2019	2031U	2050	N22	E41	.693		9.9	31	SB	3	C		85		
BIGB	06	2121	2123	2131	N15	W80	.983		30.9	10	SF	2	C	2123	40		A
HOLL	06	2142	2143	2207	N12	E13	.267		7.9	25	SN	3	C		29		
HOLL	06	2214	2214	2229D	S27	E42	.773		10.1	15D	SN	3	C		26		F
BUCA	07	0745		0811D	S28	E42	.780		10.5	26D	SN		C	0800	107	1.7	E
ISTA	07	0802E		0840D	S30	E46	.822		10.8	38D	SB		V				F
MONT	07	0816E	0819	0918	S29	E43	.793	16125	10.6	62D	1B		C	0819	300		H
MCMA	07	1122	1124	1130	N28	E58	.869	16127	11.8	8	SN		C	1124	25	.5	DH
RAMY	07	1123	1123	1129	N29	E52	.824		11.4	6	SB	3	C		30		
MCMA	07	1136	1142	1150	S16	E38	.673	16124	10.3	14	SN		C	1142	50	.7	E
RAMY	07	1257	1300	1313	N 4	W48	.742		3.9	16	SB	3	C		145		
MCMA	07	1257	1259	1310	N05	W48	.742	16111	3.9	13	SB		C	1259	50	.8	D
HOLL	07	1531	1532	1544	S27	E38	.740		10.5	13	SN	3	C		21		
HOLL	07	1531	1534	1541	S14	W28	.542		5.5	10	SN	3	C		22		
HOLL	07	1942	1951	2006	S23	W41	.743		4.7	24	SB	3	C		39		F
PALE	07	2201	2205	2220	S17	E30	.588		10.2	19	SB	3	C		67		DE F
BIGB	07	2202	2209	2221	S16	E31	.592		10.2	19	SB	2	C	2209	100	1.2	
BIGB	07	2220	2235	2300	N10	W12	.235		7.0	40	SN	2	C	2235	70	1.2	
PALE	07	2229	2230	2235	N 8	W 9	.174		7.3	6	SN	3	C		47		F
PALE	08	0009	0033	0042	S17	E30	.589		10.3	33	SN	3	C		44		DE
BIGB	08	0010	0017	0101E	S15	E30	.574	16124	10.3	51D	1B	2	P	0017	210	2.5	
PALE	08	0105	0105	0108	N20	E22	.454		9.7	3	SN	3	C		22		DE
ISTA	08	0655		0710	S15	E28	.550		10.4	15	SN		V				E

Hα SOLAR FLARES

JULY 1979

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	MCMATH PLAGE REGION	CMP. DAY	MIN.	TANCE	COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ISTA	08	0832		0840	N22	E18	.428		9.7	8	SF		V				D
MCMA	08	1136E		1230D	N18	E15	.351	16123	9.6	54D	SN		C	1155	125	1.4	E
MCMA	08	1340	1341	1348	N28	E43	.739	16127	11.8	8	SN		C	1341	30	.4	E
HOLL	08	1344E	1344U	1429	N29	E40	.715		11.6	45D	SB	3	C		184		UDE
HOLL	08	1428	1433	1531	S28	E21	.609		10.2	63	SB	3	C		167		UDE
MCMA	08	1429	1450	1530D	S30	E27	.674	16125	10.6	61D	SN		C	1450	100	1.4	E
RAMY	08	1431E	1437U	1532	S28	E25	.639		10.5	61D	SB	2	C		171		U F
HOLL	08	1531	1533	1543	N29	E39	.705		11.6	12	SB	3	C		41		F
RAMY	08	1532	1532	1537	N28	E40	.710		11.6	5	SN	2	C		25		
BIGB	08	1641	1647	170J	S29	W50	.848		4.9	19	SN	1	P	1647	100	1.6	
RAMY	08	1646	1648	1702	S27	W52	.855		4.8	16	SN	2	C		45		
MCMA	08	1717	1718	1725D	N11	W82	.989	16126	2.6	8D	SF		C	1718			E
HOLL	08	1717	1718	1747	N10	W80	.983		2.7	30	SB	3	C		0		F
PALE	08	1722	1756	1803	N27	E36	.664		11.4	41	SN	3	C		24		F
MCMA	08	1723		1749D	N23	E16	.420	16127	9.9	26D	SF		P	1725	25	.3	E
HOLL	08	1726	1727	1737	N22	E15	.398		9.9	11	SN	3	C		26		
RAMY	08	1729	1734	1739	N 9	W82	.989		2.6	10	SN	2	C		19		
RAMY	08	1729	1729	1740	N23	E17	.429		10.0	11	SN	3	C		40		
HOLL	08	1738	1759	1810	N29	E38	.696		11.6	32	SB	3	C		39		
RAMY	08	1745	1747	1806	N29	E38	.696		11.6	21	SN	2	C		23		
HOLL	08	1833	1836	1844	N29	E37	.686		11.5	11	SB	3	C		24		
PALE	08	1833	1835	1842	N27	E35	.653		11.4	9	SN	3	C		18		F
BIGB	08	1849	1853	1911	N24	W18	.451		7.4	22	SN	1	P	1853	130	1.4	
HOLL	08	1850	1854	1908	N23	W17	.429		7.5	18	SN	3	C		82		F
BIGB	08	1918	1921	1954	S33	W34	.752		6.3	36	SB	2	C	1921	120	1.5	G
HOLL	08	1926	1930	1942	N23	W17	.429		7.5	16	SN	3	C		26		
HOLL	08	1949	1953	2004	S25	W55	.870		4.7	15	SN	3	C		22		
PALE	08	2008	2030	2112	N27	E35	.653	16127	11.5	64	1B	3	C		335		DE F
HOLL	08	2012	2030	2116	N29	E38	.696	16127	11.7	64	1B	3	C		348		ZDE
RAMY	08	2012	2028	2101D	N29	E38	.696	16127	11.7	49D	1B	3	C		214		
RAMY	08	2012	2023	2047	S24	W56	.875		4.6	35	SB	3	C		38		
BIGB	08	2027	2029	2115	N31	E38	.706	16127	11.7	48	1B	2	P	2029	390	3.8	GK
BIGB	08	2151	2153	2200	N29	E33	.647		11.4	9	SB	2	P	2153	90	1.1	GK
PALE	08	2152E	2153U	2201D	N27	E34	.643		11.5	9D	SN	3	C		32		DE
HOLL	08	2152	2152	2208	N30	E33	.654		11.4	16	SB	3	C		19		
BIGB	08	2200	2222	2313	N09	W12	.226		8.0	73	SB	2	P	2222	170	1.8	
HOLL	08	2201	2214	2258	N 8	W13	.236		7.9	57	SB	3	C		143		F
PALE	08	2201E	2209U	2242D	N 9	W13	.242		7.9	41D	SN	3	C		79		FDE
PALE	08	2218E	2224U	2236D	N27	E33	.633		11.4	18D	SB	3	C		96		DE
HOLL	08	2220	2224	2228	N29	E37	.686		11.7	8	SB	3	C		43		DE
BIGB	08	2222	2223	2227	N29	E37	.686		11.7	5	SB	2	C	2223	120	1.5	G
BIGB	08	2252	2255	2329	N11	W14	.271		7.9	37	SB	2	C	2255	50	.5	
PALE	09	0033E	0035U	0100D	N27	E32	.622		11.4	27D	SN	3	C		46		DE
BIGB	09	0036	0038	0059E	N22	E10	.354		9.8	23D	SN	1	P	0038	180	1.8	
MONT	09	0914	0918	0940	N19	E05	.277		9.8	26	SN		C	0918	110		
RAMY	09	1347	1347U	1404D	N12	W23	.410		7.8	17D	SN	2	C		27		
HOLL	09	1404E	1404U	1416	N11	W22	.391		7.9	12D	SB	3	C		26		
HOLL	09	1450	1452	1458	N11	W17	.315		8.3	8	SN	3	C		20		F
BIGB	09	1547	1549	1613	N23	E04	.337		10.0	26	SN	2	C	1549	90	.9	
BIGB	09	1630	1639	1657	N07	W44	.694		6.4	27	SF	2	C	1639	60	.9	
HOLL	09	1844	1935	2103	S29	E11	.565	16125	10.6	139	1N	3	C		266		U F
HOLL	09	1844	1912	2103	S29	E11	.565	16125	10.6	139	1B	3	C		234		U F
PALE	09	1850E	1912U	1915D	S30	E15	.597		10.9	25D	SB	3	C		63		U F
PALE	09	1850E	1902U	1915D	S30	E15	.597		10.9	25D	SF	3	C		121		U F
RAMY	09	1929	1941	2045D	S30	E13	.587		10.8	76D	SN	2	C		121		U
BIGB	09	1930	1936	2039	S30	E15	.597		10.9	69	SN	3	C	1936	180	1.9	
HOLL	09	2023	2024	2028	N22	W37	.646		7.1	5	SB	3	C		39		
HOLL	09	2032	2037	2114	N23	W 1	.331		9.8	42	SB	3	C		105		F
RAMY	09	2033	2036	2045D	N22	W 0	.314		9.9	12D	SB	2	C		100		F
BIGB	09	2038	2039	2110	N22	W01	.314	16123	9.8	32	1N	3	C	2039	200	2.1	
HOLL	09	2050	2051	2058	S23	W67	.943		4.8	8	SN	3	C		16		
BIGB	09	2115	2117	2146	N18	W22	.436	16120	8.2	31	1N	3	C	2117	250	2.8	
HOLL	09	2119	2120	2141	N18	W19	.398	16123	8.5	22	1B	3	C		270		DE
HOLL	09	2124	2125	2131	N29	E24	.560		11.7	7	SN	3	C		24		
HOLL	09	2155	2157	2231	N22	W 0	.314		9.9	36	SB	3	C		57		
BIGB	09	2330	2331	2340	N32	W28	.624		7.9	10	SN	3	C	2331	70	.8	
MANI	09	2330E	2330U	2338D	N12	W28	.484		7.9	8D	SB	3	V		50		F
PALE	09	2333E	2334U	2338D	N13	W29	.502		7.8	5D	SN	3	C		21		
BIGB	10	0001	0003	0006	S30	E05	.561		10.4	5	SN	3	C	0003	30	.3	
PALE	10	0246	0248	0256	N13	W29	.501		7.9	10	SN	3	C		20		F

Hα SOLAR FLARES

JULY 1979

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	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ISTA	10	0626E		0645	N20	W06	.296		9.8	25D	SB		V				E
MONT	10	0949	0953	1008	N23	W07	.348		9.9	19	SN		C	0953	110		
RAMY	10	1304	1314	1346	N25	W 8	.383		9.9	42	SB	3	C		112		F
MCMA	10	1308E		1335	N23	W09	.360	16127	9.9	27D	SN		P	1310	50	.5	BE
HOLL	10	1310	1313	1318	N22	W 9	.345		9.9	8	SB	3	C		38		
BIGB	10	1448	1451	1503	N22	W09	.345		9.9	15	SN	3	C	1451	70	.7	E
HOLL	10	1517	1521	1525	N23	W11	.374		9.8	8	SN	3	C		25		
HOLL	10	1729	1741	1759	N23	W43	.716		7.5	30	SN	3	C		22		
HOLL	10	1944	1946	1953	N26	E11	.416		11.6	9	SN	3	C		42		
MCMA	10	1958E	2002	2008	N23	W11	.374	16127	10.0	10D	SF		C	2002	40	.4	E
HOLL	10	2036	2039	2053	N22	W12	.368		10.0	17	SB	3	C		61		F
MCMA	10	2037E		2055	N23	W11	.374	16127	10.0	18D	SN		C	2039	50	.5	E
HOLL	10	2123	2129	2157	N23	W12	.382		10.0	34	SB	3	C		90		F
HOLL	10	2245	2250	2257	S16	W 9	.370		10.3	12	SN	3	C		21		
HOLL	10	2308	2310	2328	N22	W15	.395		9.8	20	SB	3	C		58		F
BIGB	10	2308	2313	2318	N23	W13	.390		10.0	10	SN	3	C	2313	180	1.9	
HOLL	11	0127	0140	0150D	N22	W15	.394		9.9	23D	SB	2	C		79		F
HOLL	11	0127	0127	0150D	N22	W15	.394		9.9	23D	SF	2	C		28		F
HOLL	11	0145	0148	0150D	N27	E 6	.403		11.5	5D	SN	2	C		54		F
MONT	11	1026	1029	1035	N22	W21	.458		9.9	7	SN		C	1029	80		E
RAMY	11	1405	1425	1433	S27	E88	1.000		18.2	28	SN	3	C		0		
RAMY	11	1436	1438	1508	N11	W23	.405		9.9	32	SN	3	C		23		
BIGB	11	1516	1518	1530	N06	E10	.177		12.4	14	SN	2	C	1518	60	.7	G
HOLL	11	1831	1833	1855	N29	W 1	.424		11.7	24	SN	3	C		75		F
BIGB	11	2005	2015	2026	N19	W60	.870		7.3	21	SN	1	C	2015	30	.6	
HOLL	11	2014	2014	2021	N23	W57	.850		7.6	7	SN	3	C		19		
BIGB	11	2015	2016	2019	N18	W30	.538		9.6	4	SF	2	C	2016	210	2.5	
BIGB	11	2146	2148	2152	S01	W86	.998		5.5	6	SN	3	C	2148	60		A
BIGB	11	2309	2314	2348	N12	W31	.526		9.6	39	SB	3	C	2314	130	1.6	
HOLL	11	2311	2317	2341	N12	W31	.526		9.6	30	SB	2	C		98		F
PALE	11	2315	2315	2320	N12	W31	.526		9.6	5	SN	3	C		33		F
HOLL	11	2354	2359	0008	N18	W47	.744		8.5	14	SN	2	C		34		
HOLL	11	2358	0000	0012	N 7	W77	.973		6.2	14	SB	2	C		0		F
HOLL	12	0021	0023	0106	N20	W28	.524		9.9	45	SB	2	C		104		F
PALE	12	0022	0022	0028	N21	W33	.592		9.5	6	SB	3	C		43		F
HOLL	12	0022	0023	0126	N12	W31	.525		9.7	58	SB	2	C		66		F
BIGB	12	0022	0024	0059E	N20	W28	.524	16127	9.9	37D	1B	3	C	0024	200	2.3	
MANI	12	0030E	0032	0035	N20	W26	.499		10.1	5D	SB	3	V		100		Z
PALE	12	0031	0033	0035	N21	W33	.592		9.5	4	SN	3	C		39		F
HOLL	12	0119	0120	0130	N 7	W78	.977		6.2	11	SN	2	C		0		
PALE	12	0142	0144	0151	N 5	W77	.973		6.3	9	SN	3	C		0		F
PALE	12	0155	0156	0208	N 6	W78	.977		6.2	13	SN	3	C		0		F
PALE	12	0330	0331	0339	N 5	W80	.984		6.1	9	SN	3	C		25		
PALE	12	0406	0407	0412	S26	E78	.988		18.0	6	SN	3	C		0		
ISTA	12	0710		0720	N07	W78	.977		6.4	10	SN		V				D
ISTA	12	0720		0722	N16	W31	.541		10.0	2	SN		V				D
BIGB	12	1445	1448	1454	N06	W87	.998		6.1	9	SN	2	C	1448	30		A
BIGB	12	1612	1618	1635	S25	E69	.956		17.9	23	SF	2	C	1618	50		
MCMA	12	1613	1618	1629D	S28	E67	.950	16137	17.7	16D	SN		C	1618	30	.9	E
MCMA	12	1636		1639D	N23	W38	.660	16123	9.8	3D	SF		C	1639	30	.4	E
MCMA	12	1745	1751	1758	S28	E65	.941	16137	17.6	13	SF		C	1751	30	.9	E
MCMA	12	1752	1803	1837D	N23	W40	.683	16123	9.7	45D	SF		C	1803	30	.4	D
BIGB	12	2106	2109	2120	N09	E14	.255		13.9	14	SN	2	C	2109	180	1.9	
HOLL	13	0113	0116	0136D	S25	E58	.894		17.4	23D	SB	3	C		83		U F
MANI	13	0117E	0118	0122	S25	E60	.907		17.6	5D	SN	3	V		80	1.3	
PALE	13	0118E	0118U	0140	S27	E65	.939	16144	17.9	22D	1B	3	C		147		F
PALE	13	0151	0151	0154	N13	E74	.959		18.6	3	SF	3	C		0		F
PALE	13	0322	0331	0412	N12	E14	.275		14.2	50	SN	3	C		151		U F
MCMA	13	1327	1331	1354	S31	E55	.891	16137	17.7	27	SF		C	1331	20	.5	E
MCMA	13	1427E	1430	1452	N20	W51	.789	16123	9.8	25D	SF		C	1430	60	1.0	E
HOLL	13	1654	1731	1745	N20	W52	.799		9.8	51	SB	3	C		24		
MCMA	13	1713E		1719D	N20	W51	.789	16123	9.9	6D	SF		P	1713	25	.4	E
HOLL	13	1714	1714	1721	N19	W51	.787		9.9	7	SB	3	C		20		
MCMA	13	1749E		1754D	N20	W51	.789	16123	9.9	5D	SF		P	1750	60	1.0	E
PALE	14	0316	0317	0326	S28	E45	.809		17.5	10	SN	2	C		84		FDE
ISTA	14	0725		0743	N17	W56	.832		10.1	18	SN		V				D
HOLL	14	1349	1350	1356	S26	E40	.756		17.6	7	SB	3	C		17		F
HOLL	14	1526	1531	1643	N19	W63	.892		9.9	77	SN	3	C		50		U

Hα SOLAR FLARES

JULY 1979

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	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	14	1526	1542	1643	N19	W63	.892		9.9	77	SB	3	C		39		U
RAMY	14	1635	1637	1700	N27	E57	.856		19.0	25	SN	3	C		15		
RAMY	14	1748	1754	1805	N18	W65	.906		9.9	17	SN	3	C		19		
PALE	14	1759	1807	1813	N17	W64	.898		9.9	14	SN	3	C		66		F
PALE	14	1833	1844	1846	N18	W65	.906		9.9	13	SN	3	C		34		F H
BIGB	14	1841	1843	1852	N28	E59	.873	16139	19.2	11	1N	3	C	1843	210	4.2	
PALE	14	1842	1843	1850	N29	E58	.867		19.1	8	SN	3	C		74		FDE
RAMY	14	1846	1851	1940	N18	W65	.906		9.9	54	SN	3	C		19		
PALE	14	1850	1851	1856	N21	W65	.908		9.9	6	SN	3	C		28		F
MCMA	14	1923E		1924D	N27	E58	.864	16139	19.2	1D	SN		P	1923	30	.6	E
PALE	14	1928	1930	1931	N18	W66	.913		9.9	3	SN	3	C		21		F
RAMY	14	2113	2118	2124	N29	E56	.852		19.1	11	SB	3	C		30		
PALE	14	2115	2117	2123	N29	E57	.860		19.2	8	SB	3	C		34		FDE
PALE	14	2206	2214	2223	N18	W67	.919	16123	9.9	17	1N	3	C		209		FDE
HOLL	14	2206	2210	2238	N18	W71	.943	16121	9.6	32	1B	3	C		119		UDE
RAMY	14	2207	2208U	2208D	N17	W69	.932		9.7	1D	SN	2	C		17		
MANI	14	2320E	2325U	2335D	S29	W37	.750		12.2	15D	SN	2	V		100		
MANI	14	2320E	2325U	2335D	S29	E37	.750		17.7	15D	SN	2	C		100		
PALE	15	0122E	0122U	0130D	N18	W70	.938		9.8	8D	SN	3	C		44		DE
WEND	15	0652E		0720D	N19	W72	.949		9.9	28D	1N		C	0654	150		F
BIGB	15	1701E	1710	1715	N17	W79	.979		9.8	14D	SN	3	C	1710	30		K
BIGB	15	1722	1723	1735	N13	W85	.995		9.3	13	SN	3	C	1723	30		A
BIGB	15	1736	1738	1741	N16	W79	.979		9.8	5	SN	3	C	1738	40		K
MCMA	15	1737E	1745	1855	N18	W83	.990	16123	9.5	78D	SB		C	1745			D
RAMY	15	1744	1745	1753	N17	W74	.959		10.2	9	SB	3	C		0		
BIGB	15	1744	1746	1755	N16	W79	.979		9.8	11	SN	3	C	1746	40		K
BIGB	15	1830	1832	1847	N18	W80	.982		9.8	17	SN	3	C	1832	30		
BIGB	15	1947	1948	1953	N27	E49	.787		19.5	6	SF	3	C	1948	30	.5	
MCMA	15	1955E		2003D	N18	W83	.990	16123	9.6	8D	SF		C	1956			D
MCMA	15	2023	2031	2045	N21	W85	.994	16123	9.5	22	SN		C	2031			D
RAMY	15	2035E	2035U	2038	N18	W76	.968		10.2	3D	SN	2	C		22		
HOLL	15	2316	2327	0005	S28	E35	.728	16137	18.6	49	1B	3	C		199		Z U
PALE	15	2317E	2322U	2330D	S29	E36	.743		18.7	13D	SN	3	C		71		FDE
MANI	16	0040E	0040U	0050D	N16	W89	.999		9.4	10D	SN	3	V		0		
MONT	16	0730E	0730	0732	N18	W90	1.000		9.6	2D	SF		C	0730	50		
MCMA	16	1350	1351	1356	N28	E28	.582	16139	18.7	6	SF		C	1351	25	.3	E
MCMA	16	2049E		2058D	S30	W00	.565	16136	16.9	9D	SF		P	2055	60	.7	E
BIGB	16	2137	2140	2146	N27	E35	.647		19.5	9	SN	3	C	2140	50	.6	
ISTA	17	0632E		0640	N12	E90	1.000		24.0	8D	SB		V				A
ISTA	17	0655E		0702	N12	W46	.720		13.8	7D	SF		V				D
ISTA	17	0720E		0740	N09	W50	.764		13.6	20D	SN		V				D
ISTA	17	0735		0745	N11	W50	.765		13.6	10	SN		V				D
RAMY	17	1126	1127	1152	S25	W54	.867		13.4	26	SN	3	C		18		
PALE	17	1913	1917	1945	S10	E43	.710		21.0	32	SN	1	C		30		
MCMA	17	1930E		1947D	S08	E42	.691	16148	21.0	17D	SF		C	1930	40	.6	E
ISTA	18	0721		0728	S21	W40	.729		15.3	7	SN		V				D
MONT	18	0740	0744	0805	S06	E36	.608		21.0	25	SN		C	0744	100		
ISTA	18	0742		0758	S07	E37	.625		21.1	16	SN		V				EF
ISTA	18	0810		0814	S03	E46	.726		21.8	4	SF		V				E
MONT	18	1018	1020	1021	S29	W08	.566		17.8	3	SF		C	1020	60		E
BIGB	18	1717	1720	1739	N27	W28	.572		16.6	22	SF	3	C	1720	40	.5	G
MCMA	18	1815	1816	1818D	N22	W04	.306	16161	18.5	3D	SN		C	1816	30	.3	D
BIGB	18	1815	1816	1825	N21	W05	.294		18.4	10	SN	3	C	1816	30	.3	G
BIGB	18	1902	1906	1927	S14	W90	1.000		12.0	25	SN	3	P	1906	60		
ISTA	19	0710	0723	0736	S02	E37	.610		22.1	26	SB		V				E
MANI	19	0723E	0723U	0735D	S 4	E35	.588		21.9	12D	SN	3	V		30		
ISTA	19	0810		0816	S28	W23	.636		17.6	6	SB		V				E
MONT	19	0841	0846	0849	N28	W49	.788		15.7	8	SN		C	0846	110		
MONT	19	0940	0942	0947	S26	W25	.631		17.5	7	SF		C	0942	50		
MONT	19	1055	1056	1106	S03	E34	.571	16148	22.0	11	1B		C	1056	250		H
ATHN	19	1056E	1056U	1100D	S 3	E32	.543		21.9	4D	SB	4	C		143		RDE
MCMA	19	1332	1335	1348	S02	E17	.313	16148	20.8	16	SN		C	1335	40	.4	D
MCMA	19	1540E	1541	1548	S03	E29	.500	16148	21.8	8D	SN		C	1541	100	1.2	E
MCMA	19	1556	1558	1601D	S03	E29	.500	16148	21.8	5D	SB		C	1558	30	.4	EH
BIGB	19	1703	1704	1715	S01	E29	.493		21.9	12	SN	3	C	1704	30	.4	E
MCMA	19	1704E		1705D	S03	E29	.500	16148	21.9	1D	SN		P	1704	100	1.2	EH

Hα SOLAR FLARES

JULY 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY			COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg	
PALE	19	1705E	1708	1713	S 3	E27	.470		21.7	8D	SB	3	C		96		F
PALE	19	1808	1809	1818	S 2	E29	.496		21.9	10	SB	3	C		38		DE H
MCMA	19	1815E		1815D	S03	E28	.485	16148	21.9		SN		P	1815	40	.5	E
PALE	19	1923	1930	1933	S 3	E27	.470		21.8	10	SB	3	C		59		F
MCMA	19	1926E		1930D	S03	E27	.470	16148	21.8	4D	SN		P	1930	30	.3	EH
PALE	19	2129	2129	2143D	N14	W27	.472		17.9	14D	SN	3	C		22		
PALE	19	2248E	2256U	2313D	S 4	E18	.342		21.3	25D	SN	3	C		38		DE H
RAMY	20	1250E	1305U	1313D	N13	W40	.647		17.5	23D	SN	2	C		81		
RAMY	20	1305E	1311U	1313D	N27	W49	.784		16.9	8D	SN	2	C		113		
PALE	20	1645	1650	1705	N27	W52	.811		16.8	20	SN	3	C		67		F
PALE	20	1658	1658	1703	N13	W40	.647		17.7	5	SN	3	C		24		F
PALE	20	1715	1716	1725	N14	W38	.623		17.9	10	SN	3	C		43		F
MCMA	20	1716E		1759D	N15	W41	.664	16161	17.6	43D	SN		P	1716	125	1.7	E
PALE	20	1826	1827	1836	N28	W53	.823		16.8	10	SB	3	C		34		F
MCMA	20	1827E		1835	N30	W53	.828	16160	16.8	8D	SN		P	1827	35	.7	E
PALE	20	1931	1947	1948	N28	W54	.831	16160	16.8	17	1B	3	C		135		F
PALE	20	1931	1947	2004	N26	W53	.818	16160	16.8	33	1B	3	C		135		FDE
PALE	20	1931	1940	1954	N14	W39	.636		17.9	23	SN	3	C		34		F
MCMA	20	1949E		1955D	N30	W53	.828	16160	16.9	6D	SB		C	1949	30	.6	E
MCMA	20	1949E		1955D	N15	W42	.676	16161	17.7	6D	SF		C	1949	40	.6	E
MCMA	20	2031E		2031D	N15	W44	.700	16161	17.6		SF		P	2031	30	.4	D
PALE	21	0228E	0228U	0228D	N14	W43	.686		17.9		SB	2	C		78		F
ISTA	21	0643		0705	N14	W48	.745		17.7	22	SN		V				E
BUCA	21	0645		0730	N15	W48	.746		17.7	45	SN		C	0648	85	1.3	
ISTA	21	0735		0755	S19	W12	.448		20.4	20	SF		V				E
ATHN	21	1035E	1037U	1043	N28	W60	.877		16.9	8D	SB	3	C		48		DE
MCMA	21	1235	1236	1245	S20	W18	.508	16155	20.2	10	SN		C	1236	35	.4	E
RAMY	21	1235	1237	1243	S19	W18	.496		20.2	8	SN	3	C		51		
MCMA	21	1320	1321	1325	N17	W49	.760	16161	17.9	5	SN		C	1321	50	.8	E
RAMY	21	1321	1335	1626	N14	W48	.745		18.0	185	SN	3	C		89		Z F
RAMY	21	1321	1354	1626	N14	W48	.745	16161	18.0	185	1B	3	C		168		Z F
RAMY	21	1324	1328	1334	S30	W50	.859		17.8	10	SN	3	C		20		
MCMA	21	1330	1410	1423	N16	W52	.790	16161	17.7	53	1B		C				
MCMA	21	1330	1351	1423D	N16	W52	.790	16161	17.7	53D	1B		C	1351	125	2.1	EKS
MCMA	21	1338	1339	1350	N32	E32	.648	16163	24.0	12	SN		C	1339	30	.4	E
MCMA	21	1343	1345	1405	N30	E05	.432	16156	21.9	22	SB		C	1345	50	.6	EL
RAMY	21	1344	1346	1357	N28	E 5	.401		21.9	13	SB	3	C		70		F
RAMY	21	1355	1359	1412	N27	W56	.845		17.4	17	SN	3	C		21		
MCMA	21	1503E	1511	1542D	N16	W52	.790	16161	17.7	39D	SN		C	1511	80	1.4	EK
BIGB	21	1548	1551	1602	N15	W56	.828		17.5	14	SN	3	C	1551	40	.7	
RAMY	21	1604	1606	1610	S29	W55	.889		17.5	6	SN	3	C		22		
RAMY	21	1604	1606	1615	N25	W65	.909		16.8	11	SN	3	C		12		
MCMA	21	1611E	1613	1617D	N30	E03	.427	16156	21.9	6D	SN		C	1613	30	.3	E
HOLL	21	1859	1900	1908	N15	W55	.819		17.7	9	SB	3	C		44		F
HOLL	21	2004	2011	2012D	N16	W59	.856	16161	17.4	8D	1B	3	C		187		U F
BIGB	21	2125	2134	2139	N15	W58	.847		17.5	14	SN	3	C	2134	80	1.6	
HOLL	21	2228	2229	2231	N15	W59	.856		17.5	3	SB	3	C		289		
ISTA	22	0600E		0710D	N14	W61	.872		17.7	70D	SN		V				EFB
ISTA	22	0600E		0615	N12	W48	.742		18.7	15D	SN		V				OB
RAMY	22	1333E	1445	1518	N13	W65	.903		17.7	105D	SB	3	C		77		F
RAMY	22	1336	1341	1342	N11	W51	.775		18.7	6	SN	3	C		17		
HOLL	22	1618	1633	1715	N14	W65	.903		17.8	57	SB	3	C		67		U
RAMY	22	1629	1633	1655	N13	W65	.903		17.8	26	SB	3	C		33		F H
HOLL	22	1732	1740	1756	N15	W70	.936		17.5	24	SB	2	C		55		F
RAMY	22	1739	1742	1755	N12	W65	.903		17.9	16	SB	3	C		24		F
MCMA	22	1743E		1810D	N15	W68	.924	16161	17.6	27D	SN		P	1810	40	1.0	E
RAMY	22	1800	1808	1828	N12	W65	.903		17.9	28	SN	3	C		32		F
MCMA	22	1810E		1810D	S05	E05	.193	16166	23.1		SN		P	1810	30	.3	E
HOLL	22	2002	2019	2026	N15	W70	.936		17.6	24	SB	2	C		40		DE
HOLL	22	2002	2004	2026	N15	W70	.936		17.6	24	SB	2	C		45		DE
PALE	22	2005E	2008U	2008D	N15	W70	.936		17.6	3D	SN	2	C		17		FDE
PALE	22	2119E	2122U	2142	N15	W67	.917		17.9	23D	SN	2	C		33		DE
PALE	23	0208	0215	0230	N14	W73	.953	16161	17.6	22	1B	3	C		106		U F
PALE	23	0216	0216	0229	N15	W32	.545		20.7	13	SB	3	C		49		U H
PALE	23	0221	0227	0241	N29	W85	.993		16.7	20	SN	?	C		0		
MANI	23	0350E	0350U	0400	N28	W83	.989		16.9	10D	SN	3	V		50		
ISTA	23	0745E		0757D	N28	W90	.999		16.6	12D	SN		V				A
ISTA	23	0745E		0755	S15	E01	.343		23.4	10D	SN		V				E

Hα SOLAR FLARES

JULY 1979

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	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ISTA	23	0802E		0810	N04	W74	.960		17.8	8D	SN		V				D
MONT	23	0812	0814	0822	N33	W18	.539		22.0	10	SF		C	0814	60		E
MONT	23	0818	0823	0831	N30	W86	.995		16.9	13	SF		C	0823	50		D
ISTA	23	0826		0838	N28	W90	.999		16.6	12	SN		V				A
ATHN	23	0827E	0828U	0838	N29	W84	.991		17.1	11D	SB	3	C		32		
MONT	23	0947	0950	0954	N15	W76	.967		17.7	7	SF		C	0950	50		D
MONT	23	0955	1002	1024	N31	W18	.515		22.1	29	SN		C	1002	100		E
MONT	23	1050	1054	1102	N14	W66	.910		18.5	12	SF		C	1054	50		D
HOLL	23	1636	1640	1649	N31	W22	.547		22.0	13	SN	4	C		23		
HOLL	23	1645	1650	1715	S 5	W 7	.212		23.2	30	SB	4	C		142		UDE
BIGB	23	1646	1648	1708	S06	W07	.226		23.2	22	SN	3	C	1648	80	.8	
PALE	23	1848	1904	1923	N23	W24	.490		22.0	35	SN	3	C		34		F
PALE	23	1848	1848	1851	N23	W24	.490		22.0	3	SN	3	C		34		F
BIGB	23	1852	1907	1918E	N32	W24	.575		22.0	26D	SF	3	C	1907	50	.6	
PALE	23	2111	2127	2153	N31	W26	.583		21.9	42	SN	3	C		75		U F
PALE	23	2319	2320	2324	N30	W26	.573		22.0	5	SN	3	C		42		F
PALE	24	0058	0109	0132	N31	W29	.610		21.9	34	SB	3	C		119		FDE
PALE	24	0152	0156	0227	N31	W29	.610		21.9	35	SB	3	C		72		F
ISTA	24	0745E	0800	0825	N31	W31	.628		22.0	40D	SB		V				K
MONT	24	0751	0758	0832	N32	W30	.627		22.1	41	SB		C	0758	110		
ATHN	24	0759	0801	0826	N31	W30	.619		22.1	27	SB	3	C		80		F
MCMA	24	1140E		1142D	N32	W33	.655	16156	22.0	2D	SF		P	1140	80	1.1	E
BIGB	24	1507	1512	1608	N31	W35	.667		22.0	61	SN	3	C	1512	70	.9	
RAMY	24	1525E	1531U	1609	N30	W33	.640		22.2	44D	SB	3	C		73		F
BIGB	24	1614	1616	1631	N29	W41	.713		21.6	17	SN	3	C	1616	50	.7	
RAMY	24	1615	1616	1622	N29	W36	.664		22.0	7	SN	3	C		95		F
RAMY	24	1850E	1916U	2018D	N14	E71	.942		30.1	88D	SN	2	C		20		
BIGB	24	1857	1859	1906	N14	E00	.154		24.8	9	SN	3	C	1859	50	.5	
HOLL	24	1900	1902	1906	N10	W18	.317		23.4	6	SN	3	C		25		F
BIGB	24	1901	1903	1913	N12	E65	.903		29.7	12	SN	3	C	1903	50		
RAMY	24	1912E	1958U	2018D	S15	E17	.442		26.1	66D	SN	2	C		30		
BIGB	24	2155	2200	2209	N12	E63	.887		29.6	14	SN	3	C	2200	30	.7	
HOLL	25	0040	0128	0132D	N31	W41	.723		22.0	52D	SB	3	C		113		Z U
PALE	25	0106	0131	0200D	N31	W39	.704	16156	22.1	54D	1B	3	C		180		FDE
PALE	25	0125	0126	0144	N16	E73	.952		30.5	19	SN	3	C		0		FDE
PALE	25	0220	0245	0321	N31	W40	.713		22.1	61	SN	3	C		49		FDE
PALE	25	0249	0256	0326	N16	E72	.947	16171	30.5	37	1B	3	C		110		FDE
MANI	25	0752E	0752U	0756D	S15	E14	.415		26.4	4D	SN	2	V		20		
WEND	25	0826		0941	S14	E13	.393		26.3	75	SN		C		50	.5	E
WEND	25	0830		0933	S13	E09	.347		26.0	63	SN		C				D
WEND	25	0834		0842D	S19	E17	.492		26.6	8D	SF		C				
MONT	25	0835	0839	0928	S15	E09	.376		26.0	53	SN		C	0839	60		E
WEND	25	1211		1257	N11	E61	.871		30.1	46	SN		C		60	1.3	
BIGB	25	1431	1432	1446	N16	E65	.903		30.5	15	SB	3	C	1432	20		
HOLL	25	1432	1432	1446	N15	E62	.880		30.3	14	SB	3	C		19		FDE
RAMY	25	1432	1432	1444	N16	E61	.872		30.2	12	SB	3	C		16		F
WEND	25	1600		1610D	S06	W29	.516		23.5	10D	SN		C	1604	60	.7	
HOLL	25	1601	1607	1619	S 6	W33	.571		23.2	18	SB	3	C		59		F
RAMY	25	1602	1606	1612	S 7	W33	.575		23.2	10	SB	3	C		39		
BIGB	25	1602	1604	1610	S06	W33	.571		23.2	8	SB	3	C	1604	30	.4	
HOLL	25	1737	1739	1756	S 8	W35	.606		23.1	19	SB	3	C		75		F
BIGB	25	1738	1739	1755	S06	W35	.598		23.1	17	SN	3	C	1739	30	.4	
BIGB	25	2048	2056	2103	S22	E90	1.001		1.6	15	SN	3	C	2056	40		
BIGB	25	2300	2301	2317	N32	W60	.882		21.5	17	SN	3	C	2301	40	.8	
HOLL	25	2307	2311	0007	N32	W40	.719		23.0	60	SB	3	C		100		F
BIGB	26	0003	0004	0006	N33	W56	.856		21.8	3	SF	3	C	0004	30	.6	
PALE	26	0235E	0237U	0253D	S15	W 1	.347		26.0	18D	SN	2	C		30		DE
ISTA	26	0656		0725	S13	W02	.316		26.1	29	SB		V				F
ISTA	26	0708		0713	S14	E18	.443		27.6	5	SN		V				E
ISTA	26	0732		0748	S14	E17	.433		27.6	16	SN		V				E
SUCA	26	0735		0750	S14	E17	.433		27.6	15	SF		C	0738	107	1.2	E
MONT	26	0923	0930	0948	S14	W05	.341		26.0	25	SN		C	0930	110		
ATHN	26	0933	0935	1013	N13	E51	.775		30.2	40	SB	4	C		80		F
MONT	26	0935	0952	1019	N15	E56	.827		30.6	44	SN		C	0952	70		
MONT	26	1042	1047	1100D	N16	E17	.339		27.7	18D	SF		C	1047	50		E
HOLL	26	1414	1416	1420	S17	E56	.863		30.8	6	SN	3	C		21		
BIGB	26	1439	1453	1549	N16	E53	.799		30.6	70	SN	3	C	1453	40	.7	
WEND	26	1443E		1456D	N15	E52	.788		30.5	13D	SN		C	1450	45	.8	
BIGB	26	2030	2037	2042	S29	E90	1.001		2.6	12	SN	3	C	2037	40		

Hα SOLAR FLARES

JULY 1979

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	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	26	2058	2112	2131	S13	W11	.363		26.0	33	SB	3	C		75		U F
PALE	26	2058	2107	2128D	S15	W11	.391		26.0	30D	SN	3	C		98		F
BIGB	26	2105	2108	2122	S13	W11	.363		26.1	17	SN	3	C	2108	60	.6	
HOLL	26	2237	2238	2243	N15	E45	.710		30.3	6	SB	3	C		49		FDE
HOLL	27	0037	0039	0045	S15	W14	.417		26.0	8	SB	3	C		48		
PALE	27	0053E	0102U	0116	N17	E44	.702		30.3	23D	SB	3	C		53		FDE
HOLL	27	0055	0101	0113D	N17	E44	.702		30.3	18D	SB	3	C		60		DE
BIGB	27	0101	0104	0118	N16	E45	.712		30.4	17	SN	3	C	0104	60	.9	
PALE	27	0128E	0214U	0322	N17	E45	.714		30.4	114D	SB	3	C		91		FDE
ISTA	27	0806		0810	S15	W17	.445		26.1	4	SF		V				D
MONT	27	0853	0914	0934	N14	E38	.621		30.2	41	SN		C	0914	150		
ATHN	27	0906	0908	1014	N14	E39	.634		30.3	68	SB	3	C		95		F
MONT	27	0934	0936	0949	S07	W54	.822		23.3	15	SF		C	0936	50		H
MCMA	27	1321E		1353D	N13	E35	.578	16171	30.2	32D	SN		C	1322	50	.6	E
HOLL	27	1344	1352	1411	N12	W48	.741		24.0	27	SN	3	C		17		
BIGB	27	1459	1504	1518	N22	E90	.999		3.4	19	SN	3	C	1504	30		
PALE	28	0334	0335	0358	N16	E29	.505		30.3	24	SN	3	C		50		F
MONT	28	0748	0754	0824	S26	E49	.838		1.0	36	SF		C	0754	60		E
HOLL	28	1348	1350	1447	S14	W16	.424		27.4	59	SB	3	C		45		
HOLL	28	1418	1422	1434	S15	W36	.658		25.9	16	SB	3	C		101		
HOLL	28	1442	1442	1448	S21	E50	.826		1.4	6	SB	3	C		32		
HOLL	28	1454	1455	1535	N15	E23	.415		30.3	41	SB	3	C		58		U F
BIGB	28	1500	1507	1529	N17	E25	.455		30.5	29	SN	3	C	1507	170	1.9	
HOLL	28	1556	1558	1616	N15	E21	.386		30.2	20	SB	3	C		86		UDE
HOLL	28	1652	1652	1658	S21	E49	.818		1.4	6	SN	3	C		19		
HOLL	28	1707	1710	1745	S13	W17	.423	16169	27.4	38	1B	3	C		425		UDE
BIGB	28	1709	1711	1742	S13	W05	.327		28.3	33	SB	3	C	1711	170	1.8	
PALE	28	1713E	1714U	1734	S14	W15	.415	16169	27.6	21D	1B	3	C		315		U F
HOLL	28	1749	1754	1826	S13	W34	.622		26.2	37	SB	3	C		67		F
PALE	28	1750	1751	1808D	S13	W35	.634		26.1	18D	SB	3	C		56		FDE
BIGB	28	1750	1752	1759	S16	E54	.844		1.8	9	SF	3	C	1752	30	.5	
BIGB	28	1750	1753	1758	S12	W35	.628		26.1	8	SN	3	C	1753	50	.8	
PALE	28	1752	1752	1756	S15	E52	.823		1.6	4	SN	3	C		17		DE
BIGB	28	1804	1806	1823	S12	W35	.628		26.1	19	SN	3	C	1806	80	1.0	
HOLL	28	2207	2212	2246	S14	W19	.455	16169	27.5	39	1B	3	C		275		FDE
BIGB	28	2207	2212	2248	S13	W17	.423		27.6	41	SB	3	C	2212	160	1.7	
PALE	28	2209	2211	2232	S15	W19	.466		27.5	23	SB	3	C		111		F
BIGB	28	2221	2223	2234	S23	E49	.826		1.6	13	SB	3	C	2223	60	.9	
HOLL	28	2222	2224	2236	S21	E46	.791		1.4	14	SB	3	C		114		
PALE	28	2227E	2228U	2231	S23	E47	.809		1.5	40	SN	3	C		21		
HOLL	28	2301	2311	2359	S15	W40	.702		26.0	58	SN	3	C		21		
HOLL	28	2357	0002	0004D	S21	E45	.782	16174	1.4	7D	1B	3	C		228		FDE
PALE	28	2358	0000	0020D	S22	E46	.796	16172	1.4	22D	1B	3	C		192		H F
BIGB	29	0000E	0000	0010	S23	E47	.809		1.5	10D	SB	3	C	0000	110	1.7	
MCMA	29	1413	1415	1418	S15	W47	.776	16164	26.1	5	SN		C	1415	30	.5	D
WEND	29	1620		1708	N17	E12	.283		30.6	48	SF		C	1635	75	.8	
WEND	29	1620		1705	N18	E07	.246		30.2	45	SF		C	1635	50	.6	
BIGB	29	1623	1624	1651	N17	E10	.260		30.4	28	SF	3	C	1624	150	1.6	
HOLL	29	1624	1627	1631	N15	E11	.248		30.5	7	SN	3	C		33		
WEND	29	1734E		1739D	S21	E38	.716		1.6	5D	SN		C	1734	45	.6	
BIGB	29	2141	2143	2147	S06	E90	1.000		5.7	6	SN	3	C	2143	40		
BIGB	29	2147	2149	2244	N16	E35	.586		1.5	57	SF	3	C	2149	40	.5	G
PALE	29	2312	2314	2322D	S15	W54	.842		25.9	10D	SN	3	C		16		F
HOLL	29	2357	0002	0025	S21	E45	.783	16175	2.4	28	1B	3	C		228		FDE
PALE	30	0234E	0257U	0334D	N23	E15	.384		31.2	60D	SB	3	C		161		U S
PALE	30	0354E	0354U	0446D	N23	E15	.384	16171	31.3	52D	1B	3	C		228		U S
MONT	30	0853	0855	0935	S16	W55	.853	16164	26.2	42	1N		C	0855	250		
MONT	30	0855	0857	0924	N14	W01	.147		30.3	29	SF		C	0857	50		
HOLL	30	1910E	1913	1925	S21	W68	.950		25.7	15D	SB	2	C		73		U
HOLL	30	1910E	1913	1925	S17	W62	.908		26.1	15D	SB	2	C		73		U
BIGB	30	1912	1913	1923	S15	W64	.918		26.0	11	SB	3	P	1913	80	1.9	
HOLL	30	2049	2119	2132	S17	W62	.908		26.2	43	SB	3	C		38		
BIGB	30	2113	2115	2126	N15	W08	.212		30.3	13	SN	3	C	2115	70	.8	
HOLL	30	2114	2114	2128	N14	W 7	.188		30.4	14	SB	3	C		63		
BIGB	30	2117	2118	2131	S15	W64	.918		26.1	14	SN	3	C	2118	50	1.2	
BIGB	30	2148	2149	2200	S15	W65	.925		26.0	12	SB	3	C	2149	20		
HOLL	31	0008	0010	0042	S16	W69	.949		25.8	34	SN	3	C		47		U F

Hα SOLAR FLARES

JULY 1979

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	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	31	0008	0028	0042	S16	W69	.949	16164	25.8	34	1B	3	C		115		U F
PALE	31	0022	0026U	0052D	S16	W68	.944		25.9	30D	SN	3	C		15		DE
BIGB	31	0026	0027	0033	S15	W66	.931		26.1	7	SB	2	C	0027	40		
IS1A	31	0630		0632	S23	E16	.540		1.5	2	SN		V				D
BIGB	31	1636	1637	1643	S23	E14	.527		1.7	7	SN	2	C	1637	30	.3	
BIGB	31	1722	1725	1738	N15	E13	.272		1.7	16	SF	2	C	1725	20	.2	
BIGB	31	1800	1801	1802	N17	W21	.398		30.2	2	SN	2	C	1801	40	.4	

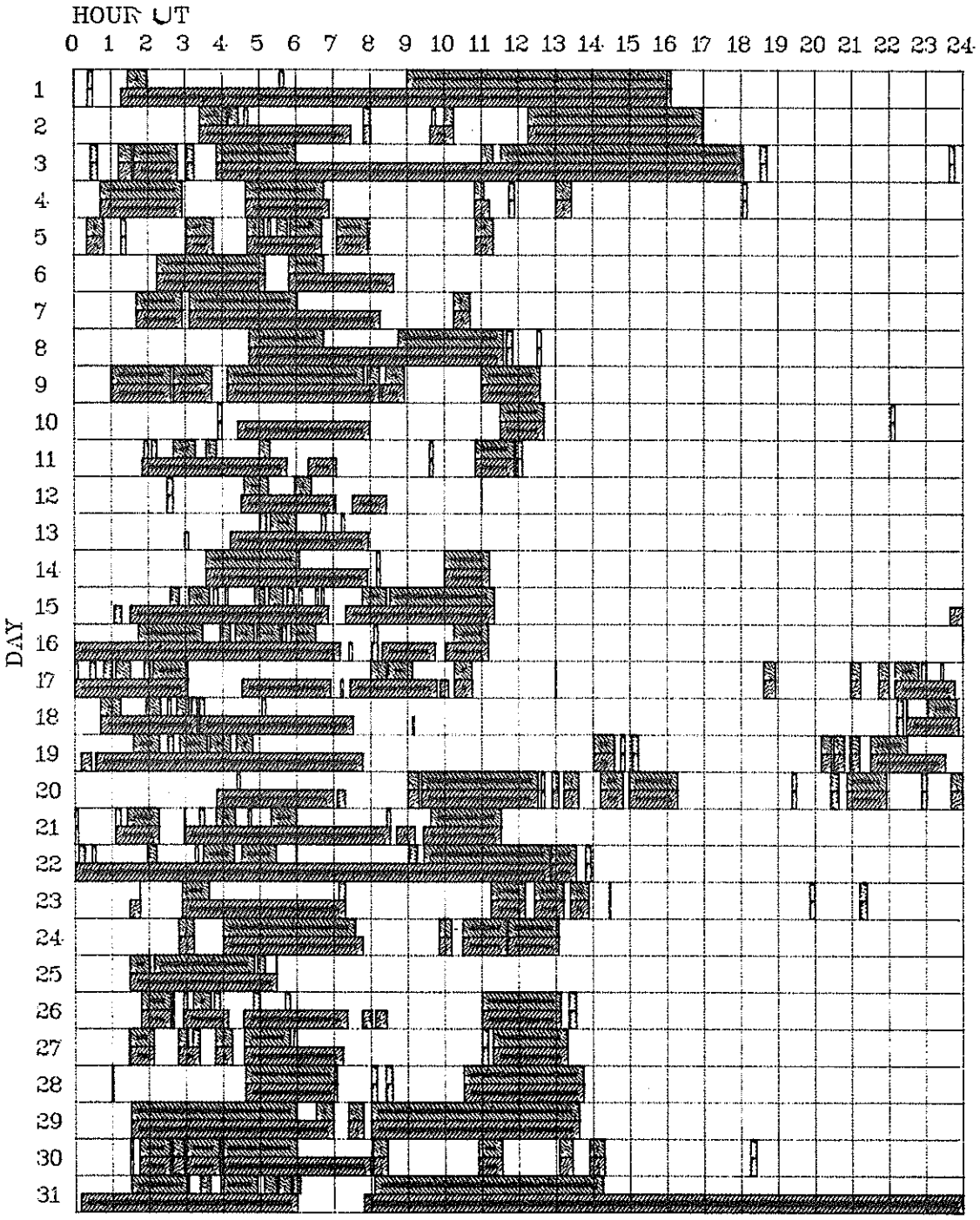
"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

JULY 1979



Observatories included in total patrol:

Athenes	Holloman	Manila	Palehua	Upice
Big Bear	Istanboul	McMath-Hulbert	Ramey	Wendelstein
Bucharest	Kandilli	Monte Mario		

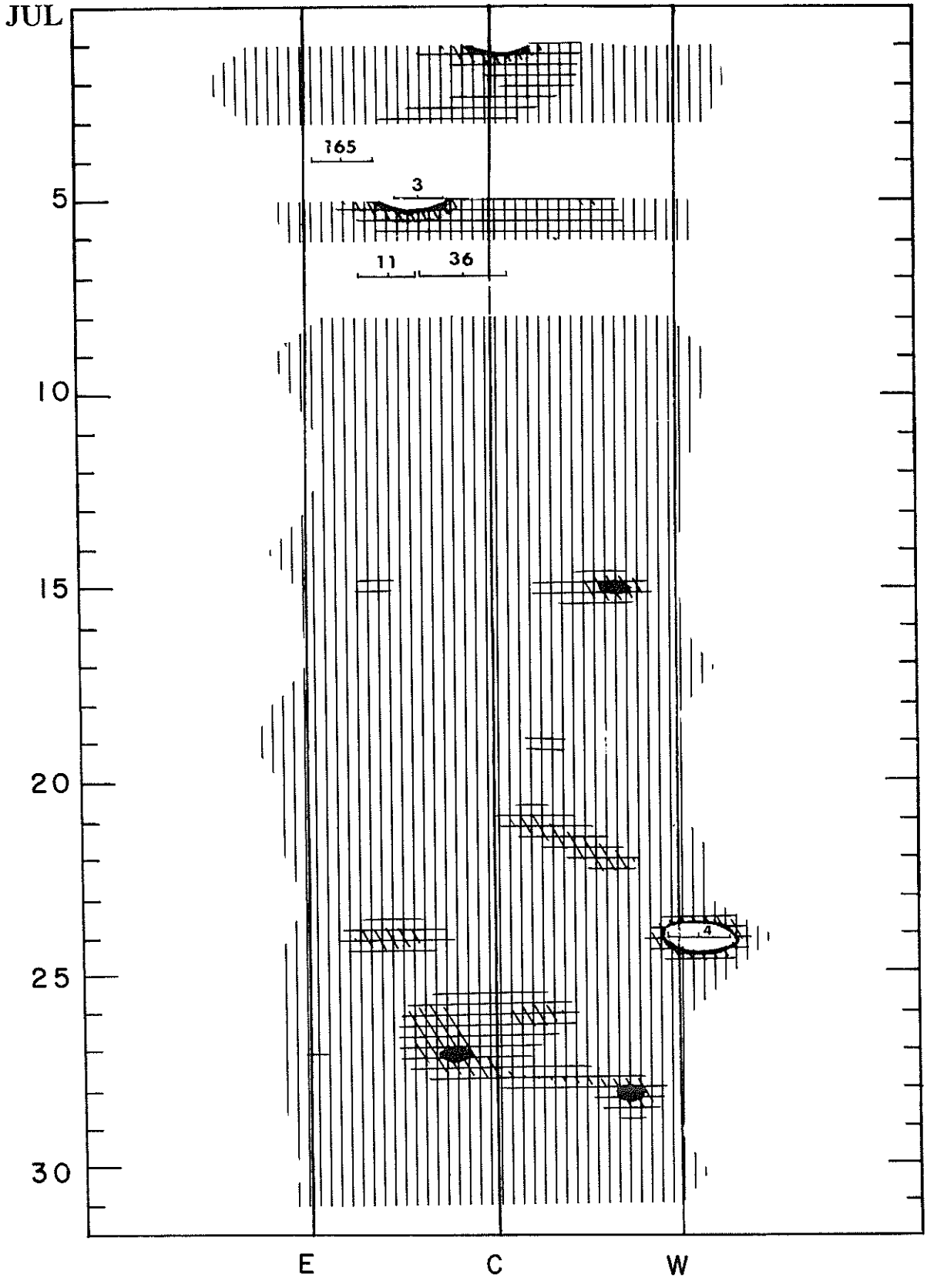
Times of no flare patrol are shown by the shaded area for each day, divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

JULY 1979

Nançay

169 MHz

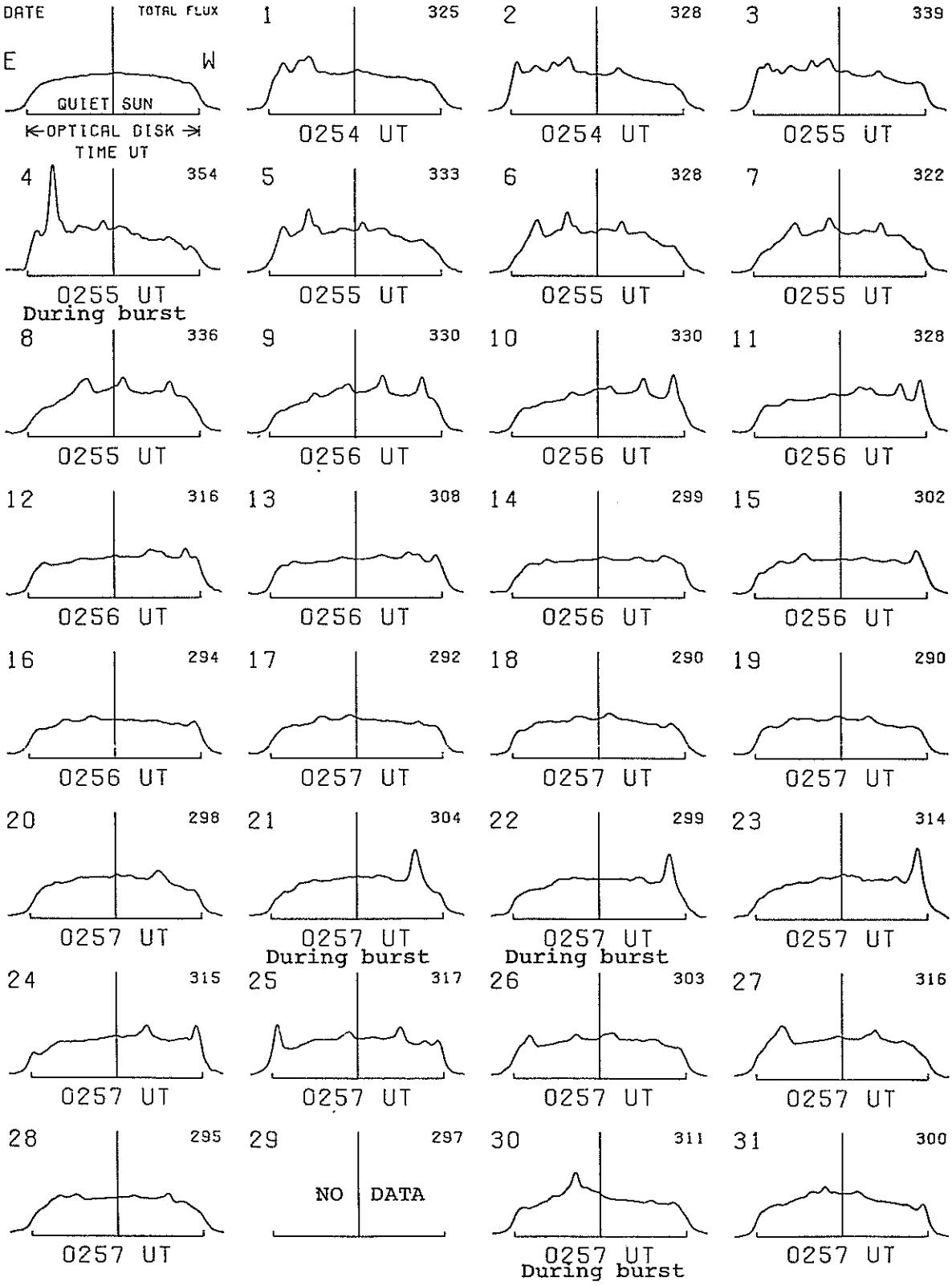


EAST-WEST SOLAR SCANS

JULY 1979

TOYOKAWA, JAPAN

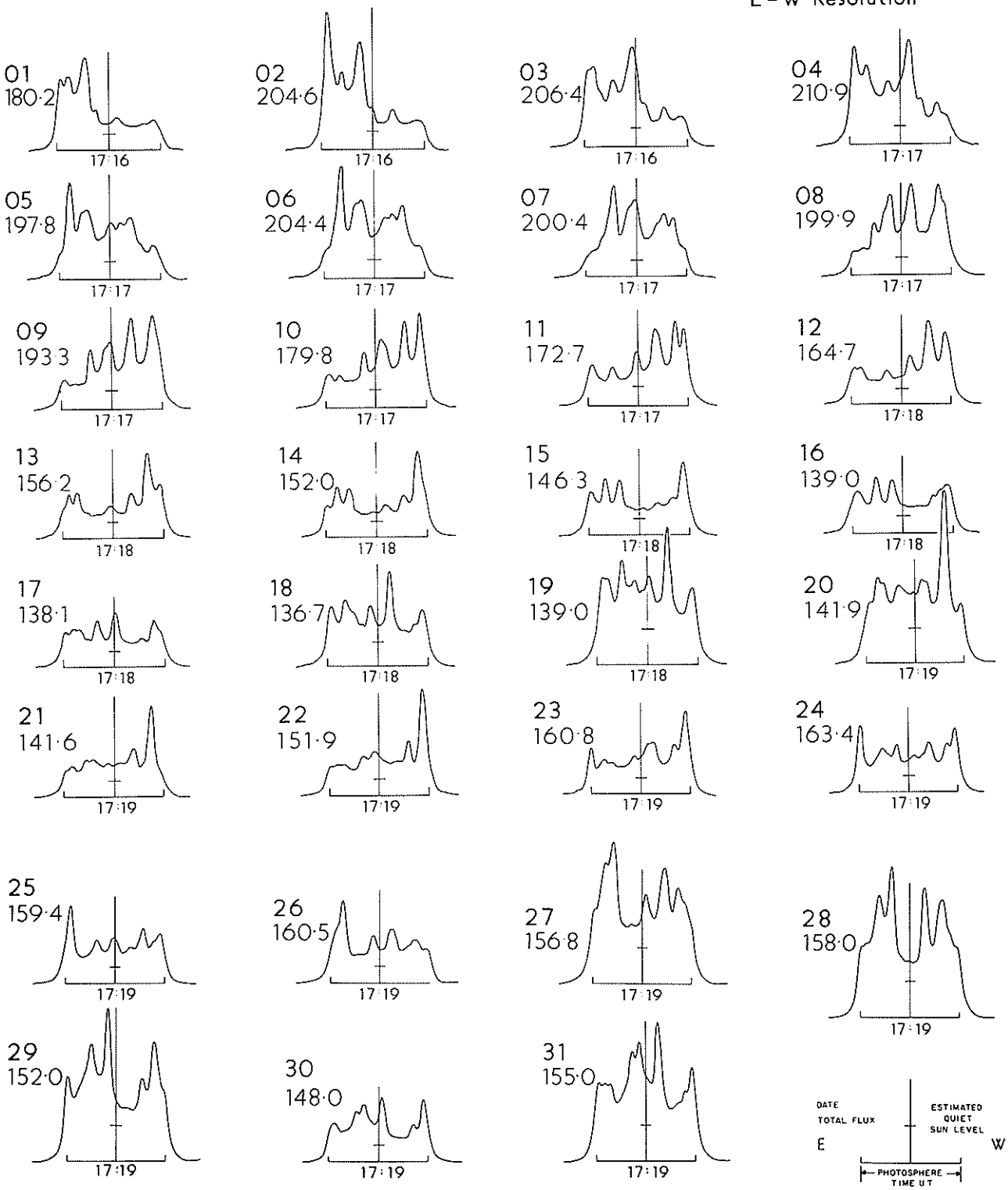
3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



EAST-WEST SOLAR SCANS
JULY 1979

ALGONQUIN RADIO OBSERVATORY
CANADA

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

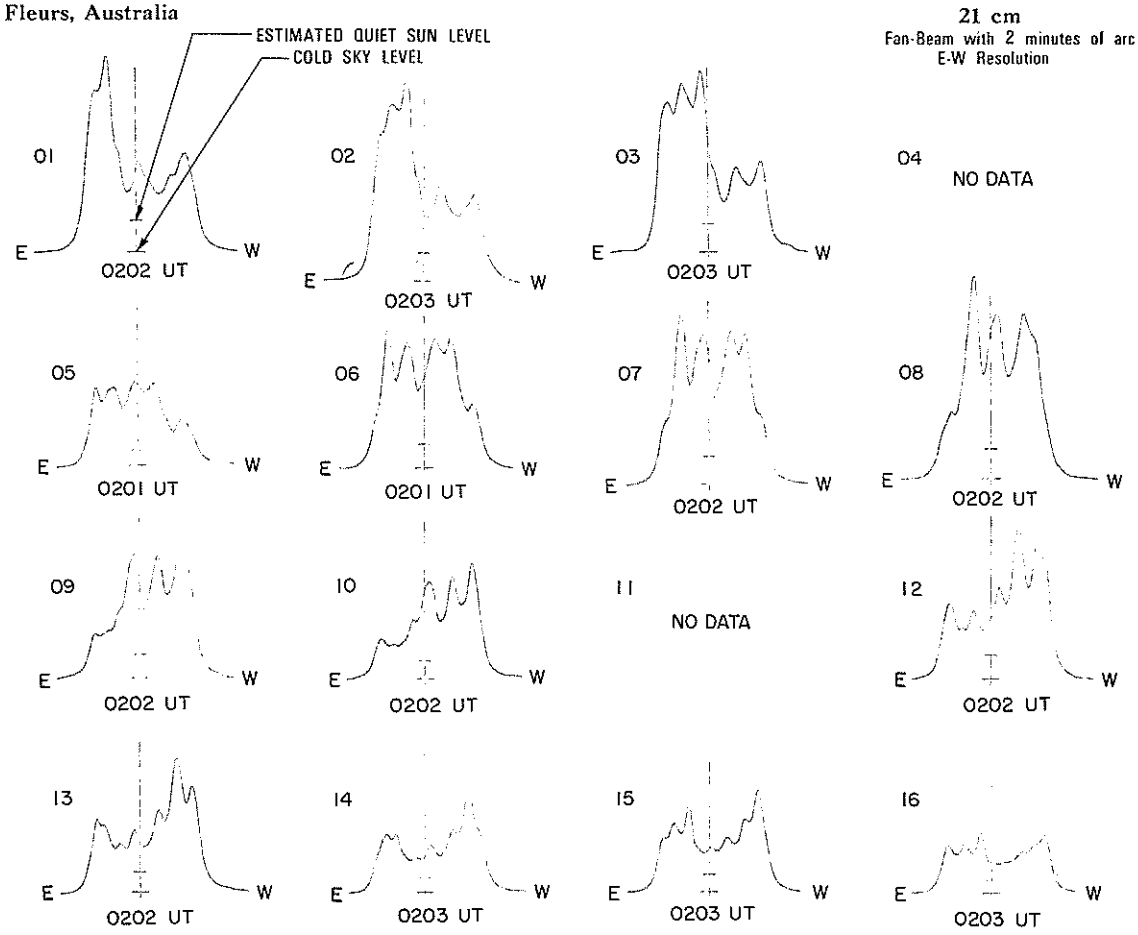


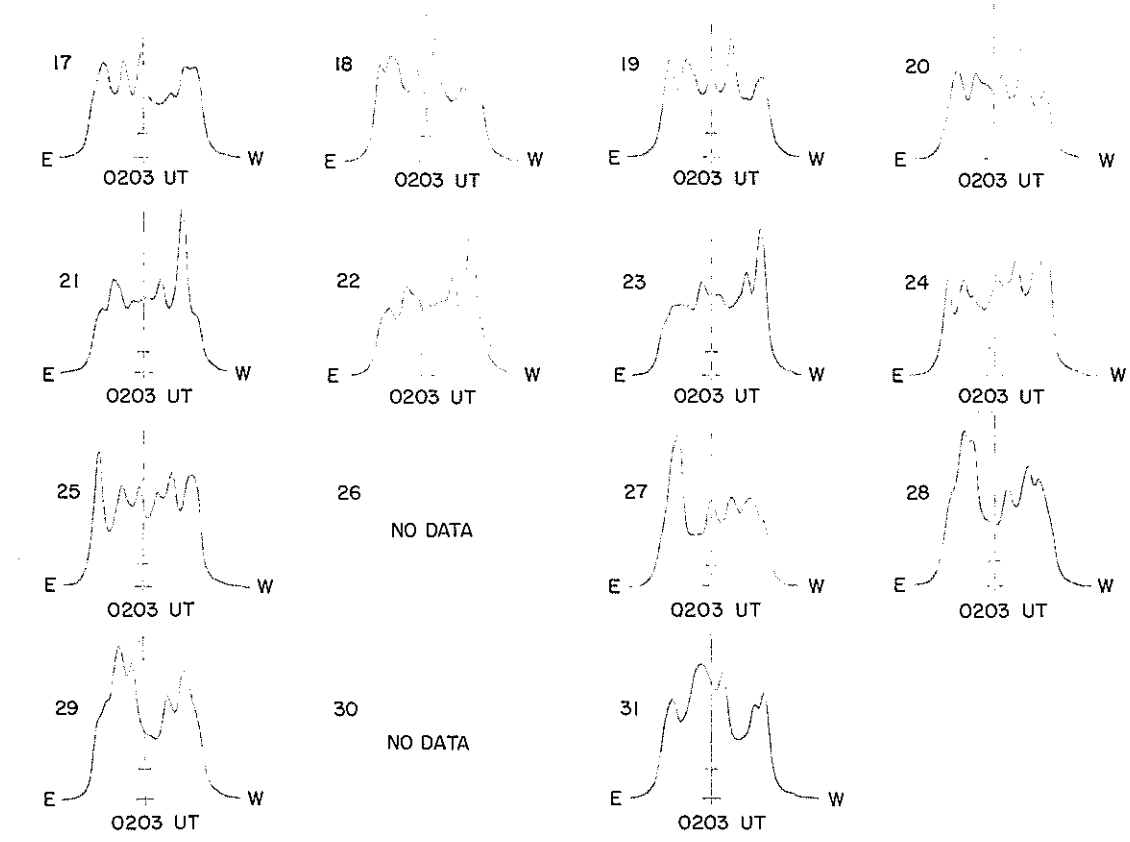
EAST-WEST SOLAR SCANS

JULY 1979

Fleurs, Australia

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



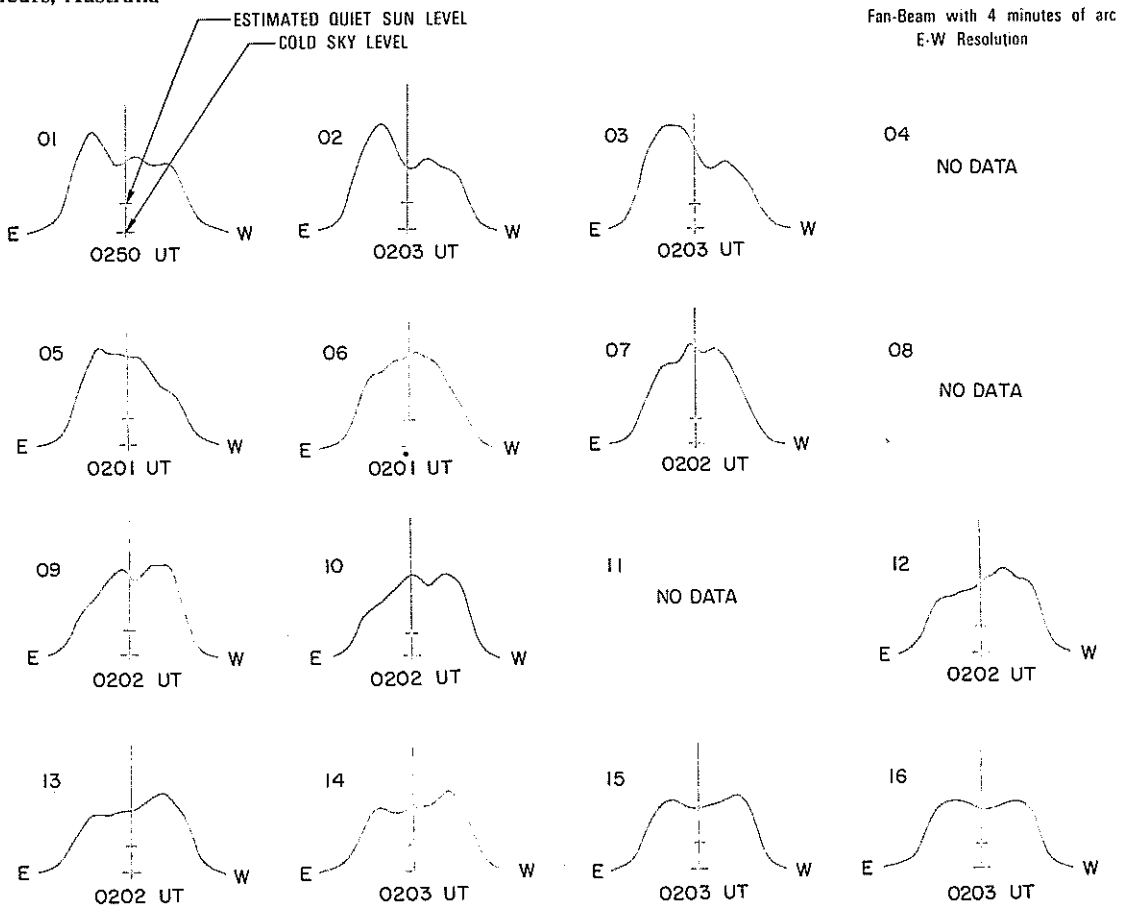


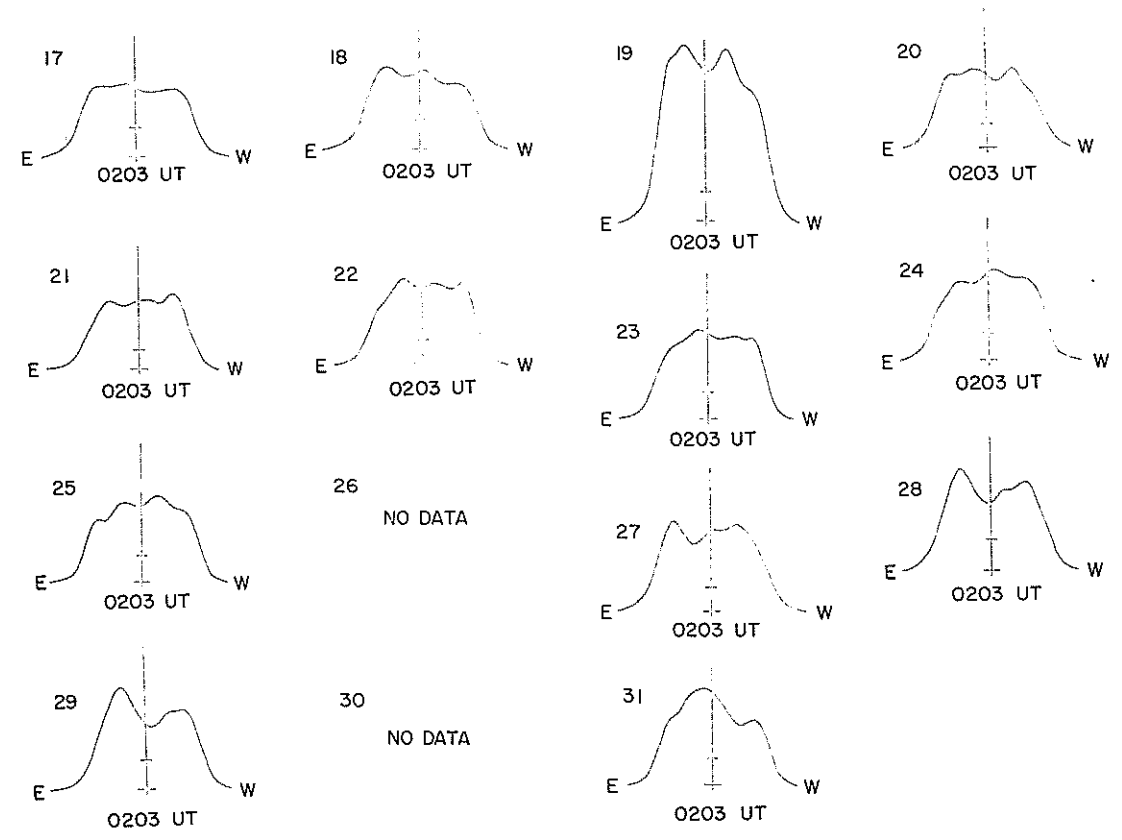
EAST-WEST SOLAR SCANS

JULY 1979

Fleurs, Australia

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





SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JULY 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
1	2800	OTTA	1 S	1147.3	1148.2	1	3.6	1.8		
	2800	OTTA	1 S	1618.2	1619	4	9.2	3.1		
	2695	BCUL	3 S	1619.5E	1620.5	2 D	13	4		
	2695	BCUL	29 PBI	1621.5E	1623 U	12 D	6	2		
	2800	OTTA	1 S	1806	1806.5	1	2.6	1		
	2800	OTTA	4 S/F	1916	1921.3	10	23.4	4.6		
	2695	BCUL	23 GRF	1918 E	1922	6.5D	24	8		
	2800	OTTA	20 GRF	2025	2033	45	2.6	1.3		
	8800	SGMR	3 S	2306.9	2308	2.1	94	25		
	8800	MANI	4 S/F	2307	2308.2	2.3	169.8	56.3		
	2695	MANI	3 S	2307	2309.1	2.8	27.2	9.1		
	2695	SGMR	3 S	2307.4	2307.8	1.3	19	5.6		
	2695	PENT	4 S/F	2307	2307.2	2	19.4	9.7		
	2695	BOUL	4 SF	2308 E	2309	1.5D	20	7		
	2695	BCUL	29 PBI	2309.5E	2309.5	2.5D	13	4		
2	8800	SGMR	3 S	1128.6	1129.6	1.7	75	23		
	2800	OTTA	240 R	1140	1300	80	7.4	4		
	8800	SGMR	1 S	1407.9	1408.5	1.4	5.4	1.6		3G
	2695	SGMR	1 S	1408.2	1408.6	1	5.3	1.5		3G
	2695	PENT	1 S	1408	1408.4	1.5	6	3		
	2800	OTTA	20 GRF	1420	1713	270	12.8	6.4		
	2800	OTTA	22 GRF	1858	1902	25	5.9	2		
	2800	OTTA	22 GRF	2007	2018	25	9	3		
3	2800	OTTA	21 GRF	1055	1120	65	8.2	4.1		
	2800	OTTA	8 S	1137.7	1138	.8	2.4	1.2		
	2800	OTTA	8 S	1207.9	1208	.5	2	1		
	2695	SGMR	3 S	1222.3	1231.1	13.3	19.6	5.9		
	2800	OTTA	22 GRF	1226	1231	23	10.4	3.5		
	2800	OTTA	24 R	1815	1825	10	4			
	2800	OTTA	27AFRF	1815		90	4	3.3		
	2800	OTTA	24P R	1825		60	4			
	2800	OTTA	8 S	1907.5	1907.5	.5	1.8			
	2800	OTTA	1 S	1911	1911.5	1	1.8			
	2800	OTTA	26 FAL	1929	1945	20	-4	-2		
	2800	OTTA	2 S/F	1958	1958.7	1.5	3	1.6		
	2800	OTTA	20 GRF	2020	2044	50	6.6	2.2		
	2695	PENT	21 GRF	2225	2308	85	6	3		
	2800	OTTA	1 S	2258.5	2259	1.5	1.8	.9		
4	2695	PENT	23 GRF	0115	0123	30	3.6	1.8		
	2695	PENT	1 S	0120.7	0121	2	4.8	2.4		
	2695	MANI	4 S/F	0245	0252.3	13	377.5	125.9		
	8800	MANI	47 GB	0608	0609	3	570.2	190.1		
	2695	MANI	3 S	0608.6	0608.9	1.6	118.1	39.4		
	8800	SGMR	3 S	1130.7	1132	6.5	60	18		SWF
	2695	SGMR	3 S	1131.2	1132.1	5.9	79	24		SWF
	2800	OTTA	3 S	1131	1131.5	5	65	18		
	2800	OTTA	26 FAL	1330	1340	40	-5	-2.5		
	2800	OTTA	26 FAL	1450	1550	60	-5.4	-2.7		
	2800	OTTA	3 S	1640.5	1641	3	21.2	5.2		
	2695	BCUL	3 S	1641.5E	1642	2 D	21	7		
	2800	OTTA	23 GRF	1720	1730	75	4.2	2.4		
	2800	OTTA	1 S	1728.5	1728.7	1	6	3		
	2800	OTTA	8 S	1732	1732.2	.3	6.3			
	2800	OTTA	2 S/F	1740	1743	6	7.2	3		
	2800	OTTA	21 GRF	1935	1945	355	45	17.4		
	2695	SGMR	45 C	1910.5	2002.6	78.7	348	10.4		2,CONT,SWF
	2695	SGMR	45 C	1910.5	1938.3		114			2,CONT,SWF
	2695	SGMR	45 C	1910.5	1919.9		131			2,CONT,SWF
	2695	BCUL		1911.5E	1931		97	32		
	2695	BOUL	42 SER	1911.5E	1920.5	86 D	193	64		
	2695	BCUL		1911.5E	2003.5		331	110		
	2695	BCUL		1911.5E	2000.5		139	46		
	2695	BOUL		1911.5E	1938.5		113	38		
	2800	OTTA	4 S/F	1911	1913.7	5	14	4.8		
	8800	SGMR	45 C	1912	1939.5		71.4			2,CONT,SWF
	8800	SGMR	45 C	1912	1920.2	69.4	91.8	27.5		2,CONT,SWF
	2800	OTTA	4 S/F	1918	1919.6	3	121	30		
	2800	OTTA	45 C	1924	1930.1	20	60	29		
	2800	OTTA	40 F	1954.5	2002.7	12.5	205			
	2800	OTTA	2 S/F	2024	2024.6	2	8.4	2.8		
	2800	OTTA	20 GRF	2230	2231.5	50	7.6	2.5		
5	2800	OTTA	21 GRF	1725	1820	115	3.4	1.7		
	2800	OTTA	4 S/F	1758.5	1801	7	12	4		
	2800	OTTA	20 GRF	2210	2225	110	6.2	3.1		
6	2695	PENT	20 GRF	0131.5	0134	14	6.6	3.3		
	2800	OTTA	20 GRF	1545	1605	80	4.2	2.1		
	2800	OTTA	20 GRF	1835	1355	140	4.4	2.2		
	2800	OTTA	2 S/F	2141	2142.5	8	4.2	2.1		
7	2800	OTTA	20 GRF	1135	1140	30	2.2	1.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JULY 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
	2800	OTTA	2	S/F	1222.2	1222.5	3	4.2	2.1		
	2800	OTTA	26	FAL	1740	1905	85	-6			
	2800	OTTA	3	S	2031.7	2032	2	12	4		
	2695	BCUL	3	S	2032 E	2032.5	2.5D	11	4		
	2800	OTTA	24C	R	2220	2232	12	4.2	2.1		
8	2800	OTTA	24C	R	1635	1649	75	4	2		
	8800	SGMR	3	S	2026.5	2028.2	5.9	58.7	17.6		SWF
	2800	OTTA	4	S/F	2026	2028.2	4	62	21		
	2695	SGMR	3	S	2027.4	2028.5	5.4	55.4	16.3		SWF
	2695	BCUL	46	C	2027.5E	2029	4 D	72	24		
	2800	OTTA	29	PBI	2030	2030	75	6.4	3.2		
	2800	OTTA	2C	GRF	2200	2210	50	4.4	2.2		
9	2800	OTTA	21	GRF	1345		85	8.8			
	2800	OTTA	3	S	1357.2	1358	2	17.4	8.7		
	8800	SGMR	1	S	1357.3	1358	1.8	6.9	2.1		
	2695	SGMR	3	S	1357.8	1358.2	1.4	20.1	6		
	2695	BCUL	3	S	1358 E	1359	2.5D	19	6		
	2800	OTTA	27A	RF	1545		395	1.8	1.7		
	2800	OTTA	24	R	1545	1550	5	1.8	.9		
	2800	OTTA	24P	R	1550		370	1.8			
	2800	OTTA	2C	GRF	1630	1650	60	2	1		
	2800	OTTA	22	GRF	1650	2040	195	6.4	3.2		
	2800	OTTA	26	FAL	2210	2230	20	-1.8	-.9		
	2695	PENT	2C	GRF	2325	2331.5	55	5	2.5		
10	2800	OTTA	22	GRF	1200	1209	150	5.8	2.9		
	2800	OTTA	1	S	1834	1834.5	1.5	2.6	1.3		
	2800	OTTA	20	GRF	2120	2124	16	4.4	2		
11	2800	OTTA	21	GRF	1514	1520	40	2.8	1.4		
	2695	SGMR	3	S	1516	1517.2	4.8	17	5.1		S,SWF
	8800	SGMR	3	S	1516	1518.8	8	242	72.6		S,SWF
	2800	OTTA	4	S/F	1516.3	1518	3.2	11.2	5		
	2600	OTTA	26	FAL	1610	1640	30	-2	-1		
	2800	OTTA	24	R	1952	1954	2	3	1.5		
	2800	OTTA	27	RF	1952		40	3	2.4		
	2800	OTTA	24P	R	1954		27	3			
	2800	OTTA	26	FAL	2021	2030	9	-3	-1.5		
	2695	PENT	21	GRF	2310	2322	125	5.2	2.8		
	2695	PENT	2C	GRF	2415	2422	30	13	5		
14	2800	OTTA	2C	GRF	1635	1700	105	2.2	1.1		
	2800	OTTA	2C	GRF	1820	1845	40	1.8	.9		
	2800	OTTA	2C	GRF	1920	1945	45	2.8	1.4		
	2800	OTTA	2C	GRF	2015	2057	65	3.2	1.6		
	2800	OTTA	2C	GRF	2155	2210	70	5.4	2.6		
	2695	PENT	2C	GRF	2312	2319	35	4.4	2.2		
15	2800	OTTA	2C	GRF	1730	1800	185	3	1.8		
	2800	OTTA	21	GRF	2020	2045	70	2.2	1.1		
	8800	SGMR	3	S	2022.9	2023.3	1.5	67.6	20.3		
	2800	OTTA	1	S	2023	2023.3	2	9.6	3.2		
16	2695	PENT	3	S	0036	0039.4	7	77	19.2		
	2695	MANI	3	S	0037.8	0039	3.2	26.8	26.8		
	8800	MANI	3	S	0037.8	0039.1	5.2	260.3	86.7		
	2800	OTTA	1	S	1250.9	1251	1	1.4	.7		
	2695	BCUL	41	F	1753 E	1755.5	7 D	155	52		
	2695	BCUL	41	F	1822 E	1823	4.5D	132	44		
	2695	BCUL	45	C	2137.5E	2138	1.5D	51	17		
	2800	OTTA	3	S	2137	2137.6	1	60	20		
17	2800	OTTA	2C	GRF	1435	1450	35	1.6	.8		
	2695	BCUL	41	F	1727.5E	1728	8.5D	15	5		
	2695	BCUL	41	F	1800 E	1803.5	4 D	25	8		
	2800	OTTA	2C	GRF	1910	1915	130	2.6	1.6		
	2800	OTTA	4	S/F	2100.8	2101.5	1.2	11.6	5.8		
19	2695	SGMR	3	S	1054	1056.5	4	39.7	11.9		5
	8800	SGMR	3	S	1054.5	1056	5	88	26.4		5
	2800	OTTA	2	S/F	1536.5	1539.7	4	2.8			
	2800	OTTA	1	S	1557	1557.5	1.2	2	1.3		
	2800	OTTA	1	S	1703	1703.6	1	4	2		
	2695	BCUL	3	S	1708.5E	1709.5	2 D	10	3		
	2800	OTTA	1	S	1808	1808.5	2.5	9.2	2.4		
	2800	OTTA	8	S	1923.2	1923.5	.8	1.6	.8		
	2800	OTTA	1	S	2049.3	2049.5	1.5	1.8	.9		
	2800	OTTA	8	S	2237.2	2237.2	.1	2.8			
	2800	OTTA	1	S	2247	2250	9	2.4	1.4		
	2695	PENT	2C	GRF	2350	2450	120	3.6	2		
20	2800	OTTA	2C	GRF	1200	1300	185	6	3.6		
	8800	SGMR	3	S	1209.3	1209.4	.3	23.5	7.1		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JULY 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
	2800	OTTA	20	GRF	1615	1650	50	1.6	.8		
	2800	OTTA	24	R	1920	1930	10	2	1		
	2800	OTTA	27A	RF	1920		260	2	1.9		
	2800	OTTA	24P	R	1930		235	2			
	2800	OTTA	4	S/F	1942.5	1944.7	6	34	11.8		
	2695	SGMR	3	S	1942.7	1945.4	8	34.8	10.4		
	8800	SGMR	3	S	1942.7	1946	5.6	7.4	2.2		
	2695	BCUL	46	C	1943 E	1946	3.5D	30	10		
	2695	BCUL	29	PBI	1946.5E	1946.5	2.5D	10	3		
	2800	OTTA	26	FAL	2325	2340	15	-2	-1		
21	2800	OTTA	1	S	1119.2	1119.2	2	2	1		
	2800	OTTA	21	GRF	1335	1357	265	9.2	4.1		
	2695	SGMR	20	GRF	1342.1	1351.2	27.9	9	3.6		SWF
	8800	SGMR	3	S	1342.5	1350.5	27.5	33	13.2		SWF
	2800	OTTA	2	S/F	1342.5	1344.7	3	3.4	1.5		
	2800	OTTA	1	S	1350	1351.3	5	6.6	3		
	2800	OTTA	240	R	1825	1945	80	3	1.5		
	2800	OTTA	1	S	2049	2051.2	5	2.6	1.3		
	2800	OTTA	240	R	2150	2240	50	3.2	1.6		
22	2800	OTTA	240	R	1230	1300	30	2.8	1.4		
	2800	OTTA	1	S	1435	1437	2	3.6	1.7		
	8800	SGMR	1	S	1739.3	1739.9	3.9	7.2	2.1		SWF
	2800	OTTA	21	GRF	2120	2345	270 D	13.6			
	2800	OTTA	1	S	2130.8	2131.5	1.2	3.6	1.7		
	2800	OTTA	1	S	2216	2218	5	5.2	1.8		
	2695	PENT	4	S/F	2332.7	2333.2	1.3	16.4	8.2		
	2695	BCUL	3	S	2333.5E	2334.5	2.5D	10	3		
23	2800	OTTA	20	GRF	1225	1445	240	3.4	1.7		
	2800	OTTA	21	GRF	1635	1655	55	4.4	2.2		
	8800	SGMR	3	S	1646.8	1649	7.3	15	4.5		
	2800	OTTA	4	S/F	1646	1648.5	6	19.2	8		
	2695	BCUL	45	C	1647 E	1649	6 D	26	9		
	2800	OTTA	20	GRF	1845	1910	55	1.8	.9		
	2800	OTTA	32	ABS	2035	2050	25	-2.4	-1.2		
	2800	OTTA	27	RF	2115		105	2.8	2.1		
	2800	OTTA	24	R	2115	2120	5	2.8	1.4		
	2800	OTTA	24P	R	2120		55	2.8			
	2800	OTTA	26	FAL	2215	2330	45	-2.8	-1.4		
24	2800	OTTA	20	GRF	1130 E	1120	110 D	5.8			
	2800	OTTA	21	GRF	1505	1515	115	5.8	2.4		
	2800	OTTA	1	S	1509.5	1510	1.5	3.8	1.9		
	2800	OTTA	20	GRF	1610	1615	30	2.8	1.4		
	2695	BCUL	46	C	1648 E	1649	2 D	33	11		
	2800	OTTA	20	GRF	1820	1925	150	2.8	1.4		
	2695	PENT	24	R	2210	2227	17	3.4	1.1		
	2695	PENT	27	RF	2210		180	3.4	2.8		
	2695	PENT	24P	R	2227		118	3.4			
	2695	PENT	26	FAL	2425	2510	45	-3.4	-1.7		
25	2800	OTTA	20	GRF	1110	1230	235	8	4		
	8800	SGMR	3	S	1430.8	1431.3	2.5	24.5	7.4		
	2800	OTTA	240	R	1610	1620	20	3	1.5		
	2800	OTTA	20	GRF	1610	1540	95	3.4	1.7		
	2800	OTTA	240	R	2035	2050	15	3.6			
26	2800	OTTA	20	GRF	1435	1455	65	2.2	1.1		
	2800	OTTA	26	FAL	1625	1705	40	-2.8	-1.4		
	2800	OTTA	20	GRF	1845	1900	45	2.2	1.1		
	2800	OTTA	20	GRF	2100	2130	80	2.6	1.6		
	2800	OTTA	1	S	2236	2237	2	1.4	.7		
27	2695	PENT	1	S	0035	0037	3	4	1.3		
	2800	OTTA	21	GRF	1145	1340	215	8	5.6		
	8800	SGMR	3	S	1154.6	1155	5.4	14.3	4.3		SWF
	2695	SGMR	45	C	1154.6	1158.3		18.3			SWF
	2695	SGMR	45	C	1154.6	1155.5	7.2	18.3	10.5		SWF
	2800	OTTA	45	C	1154	1155	9	22.8	7.6		
	2800	OTTA	20	GRF	1605	1700	30	2.6	1.3		
	2800	OTTA	20	GRF	1755	1820	55	2.6	1.3		
28	2800	OTTA	20	GRF	1125	1140	55	1.8	.9		
	2800	OTTA	2	S/F	1343.5	1345	10	2.8	1.4		
	2800	OTTA	21	GRF	1452	1505	125	5.8	4.4		
	2800	OTTA	1	S	1554.5	1556	3	6.2	3		
	2695	BCUL	3	S	1556 E	1557.5	3.5D	10	3		
	2800	OTTA	21	GRF	1708	1714	115	4.4	2.2		
	2695	PENT	4	S/F	1710.2	1710.4	1.5	18.2	3.4		
	2695	BCUL	27	RF	1710.5E	1711	6.5D	5	2		
	2800	OTTA	1	S	1748	1751	8	2.8	1.4		
	2800	OTTA	20	GRF	2208	2223	37	6.4	3.2		
	2695	PENT	4	S/F	2358	2359.5	6	30	15		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JULY 1979

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 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2695	BOUL	46	C	2359 E	2405	3.50	42	14		
29	2695	BOUL	29	P9I	0002.5E	0002.5	2.50	5	2		
	2800	OTTA	1	S	1213.5	1214.6	3.5	2.8	1.4		
	2800	OTTA	20	GRF	1515	1520	45	2.4	1.2		
	2800	OTTA	20	GRF	1718	1725	50	2.4	1.4		
	2800	OTTA	20	GRF	1540	1850	40	2.4	1.2		
31	2800	OTTA	21	GRF	1110	1155	90	3	1.5		
	2800	OTTA	1	S	1155.5	1156	2	2.8	1.4		
	2800	OTTA	32	ABS	1855	1920	125	-3	-1.5		
	2800	OTTA	20	GRF	2225	2227	100	3.2	1.8		

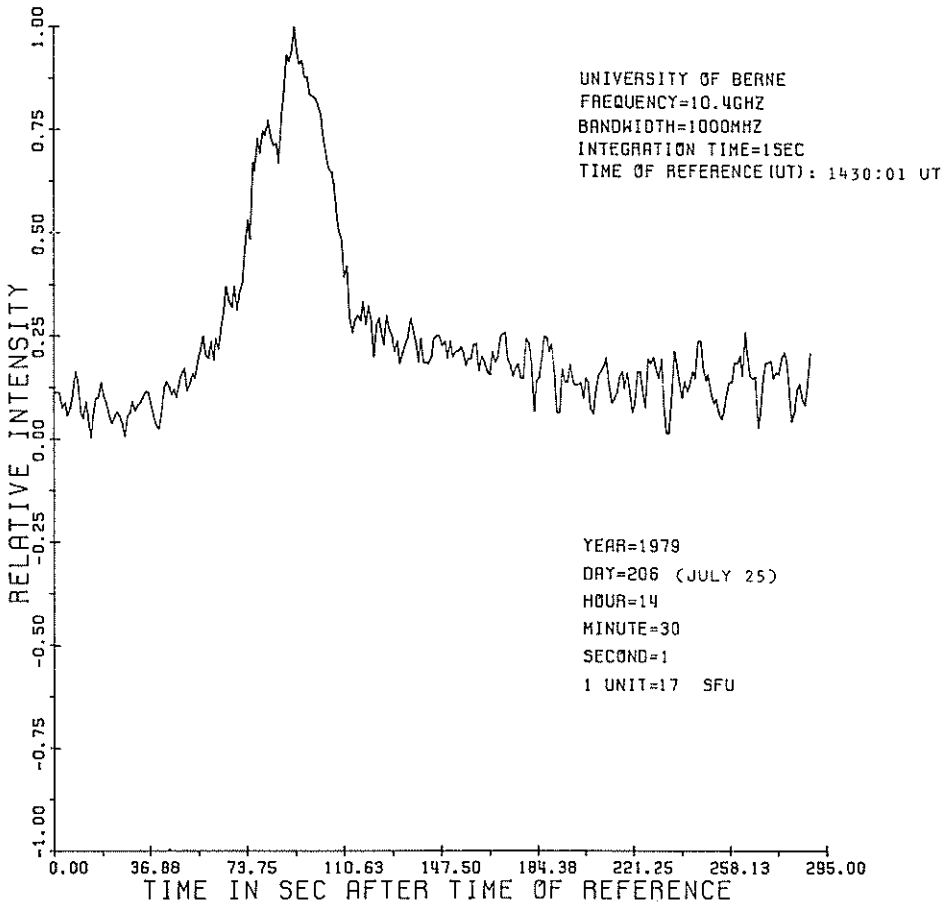
Observatories:

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

Explanation of Type Code:

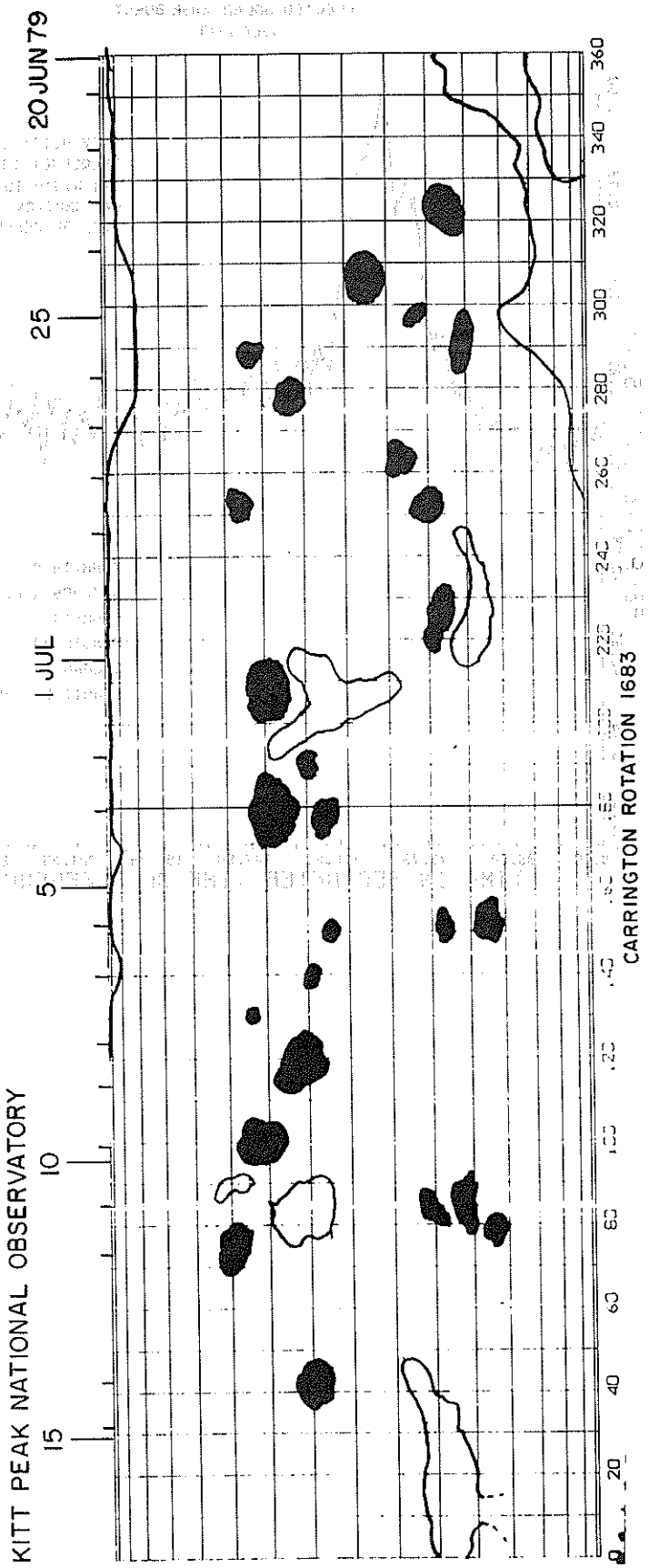
1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase 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 BURST
JULY 1979



HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1683

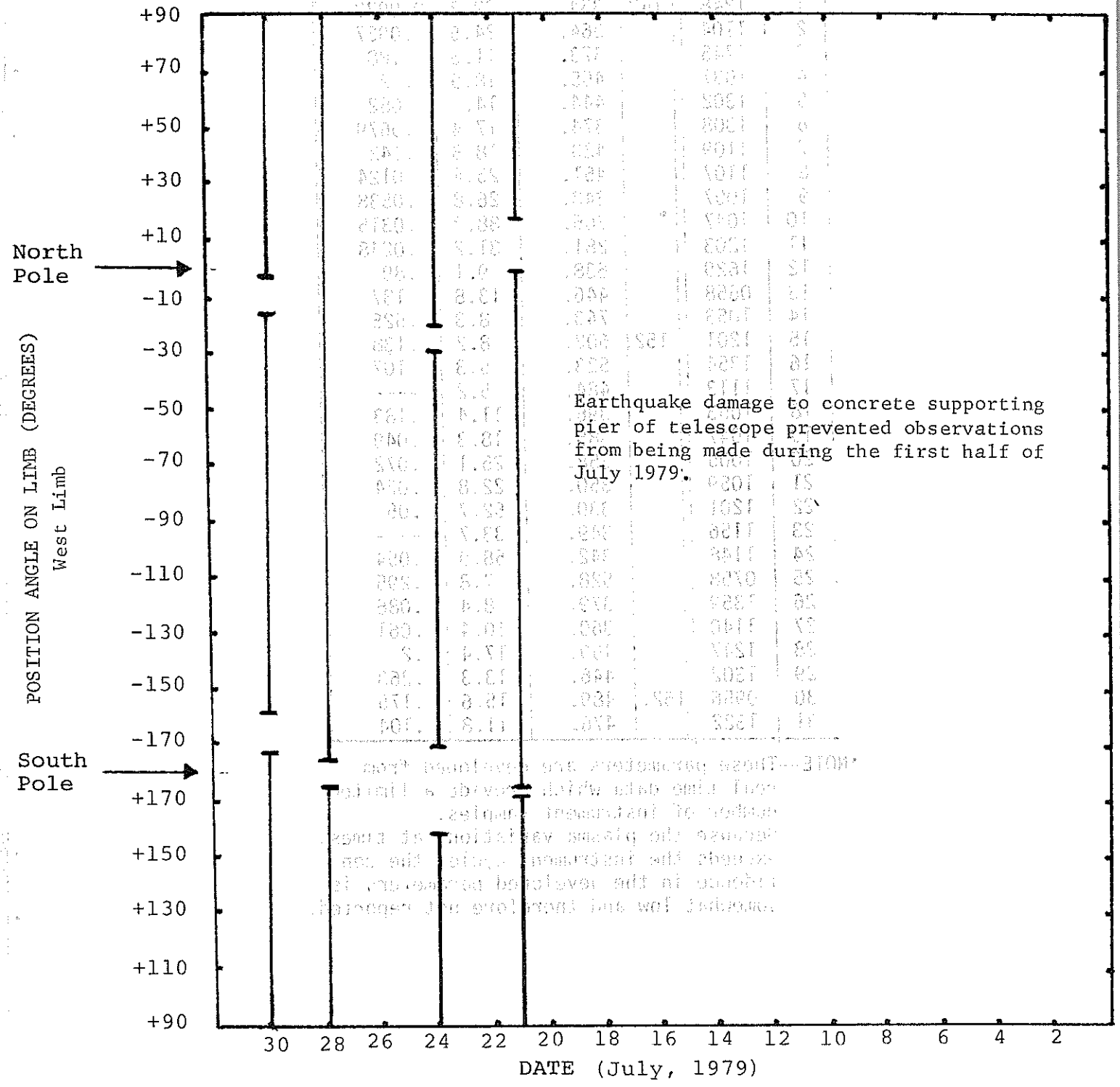


CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

JULY 1979

Big Bear Solar Observatory



Earthquake damage to concrete supporting pier of telescope prevented observations from being made during the first half of July 1979.

PIONEER XII

JULY 1979

DATE Jul '79	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H^+} ($\times 10^6$°K)
1	1248	143.	334.	22.3	0.0982
2	1104		364.	24.6	.0927
3	1745		373.	11.6	.188
4	1037		455.	18.9	.12
5	1302		444.	14.	.082
6	1308		374.	17.4	.0679
7	1109		423.	18.8	.142
8	1107		451.	25.4	.0124
9	1007		348.	26.8	.0538
10	1047		306.	88.2	.0315
11	1203		281.	81.2	.0248
12	1629		638.	9.1	.89
13	0658		446.	13.8	.187
14	1053		743.	8.3	.525
15	1201	152.	602.	8.2	.138
16	1354		523.	5.3	.107
17	1113		484.	5.2	----
18	1053		396.	11.4	.183
19	1047		385.	18.3	.049
20	1005		358.	25.1	.072
21	1059		350.	22.8	.024
22	1201		330.	52.7	.05
23	1156		349.	33.7	----
24	1148		342.	58.9	.054
25	0758		528.	7.8	.295
26	1359		379.	8.4	.086
27	1140		360.	10.4	.061
28	1247		459.	17.4	.2
29	1302		446.	13.3	.263
30	0956	162.	489.	15.6	.175
31	1322		476.	11.8	.104

*NOTE--These parameters are developed from real time data which provide a limited number of instrument samples. Because the plasma variation, at times, exceeds the instrument cycle, the confidence in the developed parameters is somewhat low and therefore not reported.

SOLAR WIND

Interplanetary Scintillations

JULY 1979

DAY	3C48 VEL	3C48 ERR	3C144 VEL	3C144 ERR	3C147 VEL	3C147 ERR	3C161 VEL	3C161 ERR	3C237 VEL	3C237 ERR	3C273 VEL	3C273 ERR	3C298 VEL	3C298 ERR	3C459 VEL	3C459 ERR
1	322	4							252	19						
2	334	12					274	11			382	22				
3	315	10			339	13										
4	373	24							450	33						
5	377	38			339	38	457	8	366	11	402	42	399	51		
6	441	22									490	112	366	30		
7	401	27			474	42					608	21	686	7		
8	348	19					279	31	389	38			321	56		
9			412	12	294	25	456	19			490	49				
10	482	6	467	68	329	82	443	15								
11	419	57			280	8	322	55	472	72	426	97			382	36
12	326	16					275	16	270	31	350	42	270	47		
13	414	98									334	5	358	7		
14	311	18	395	42	380	24	356	15	402	7	383	6	382	12		
15	337	22			354	5	375	7			417	30	457	25	390	66
16	329	47	332	10	371	37					231	39	502	65		
17	366	40					488	66			304	45				
18	530	17	337	17	385	40	487	24			415	6	337	24		
19	364	41	347	10	272	43	316	10			472	39	404	37		
20			362	16			398	30	352	27						
21	385	12	440	14	284	13	354	16	459	119	311	86	398	24		
22			372	7	347	8	430	40	415	55	353	22	298	52		
23	293	9	306	6	352	10			336	30	328	10				
24	421	37	344	7	372	15	604	25	349	39	304	9	235	49		
25	228	3	310	4			482	52	350	24	311	5	341	8		
26	260	41			326	28	372	10			324	7	246	4		
27	336	12	342	6			440	25			280	31	351	27		
28	300	5	352	17	338	7	331	4			321	19	310	8	282	10
29			324	5	322	6	388	17			307	6	350	3	361	24
30	313	30	331	14	253	39	439	10			485	27	384	50	368	13
31	290	10	324	5			365	81			416	99	384	75		

JULY	5 UT	5 LAT	5 DIST	5 DLON	15 UT	15 LAT	15 DIST	15 DLON	25 UT	25 LAT	25 DIST	25 DLON
3C48	15.	12.	0.94	18.	14.	12.	0.99	16.	13.	12.	1.03	15.
3C144	19.	3.	0.34	70.	18.	4.	0.49	61.	17.	5.	0.63	51.
3C147	18.	54.	0.52	37.	17.	43.	0.60	41.	16.	35.	0.69	39.
3C161	20.	-52.	0.50	26.	19.	-42.	0.54	37.	19.	-31.	0.61	39.
3C237	24.	-5.	0.74	-42.	23.	-6.	0.62	-51.	22.	-8.	0.48	-60.
3C273	2.	2.	1.01	-17.	1.	3.	0.96	-18.	0.	4.	0.89	-27.
3C298	4.	6.	1.12	-15.	3.	7.	1.08	-16.	2.	9.	1.03	-17.
3C459	12.	6.	1.15	14.	11.	7.	1.18	12.	11.	8.	1.22	10.

INFERRED IP MAGNETIC FIELD

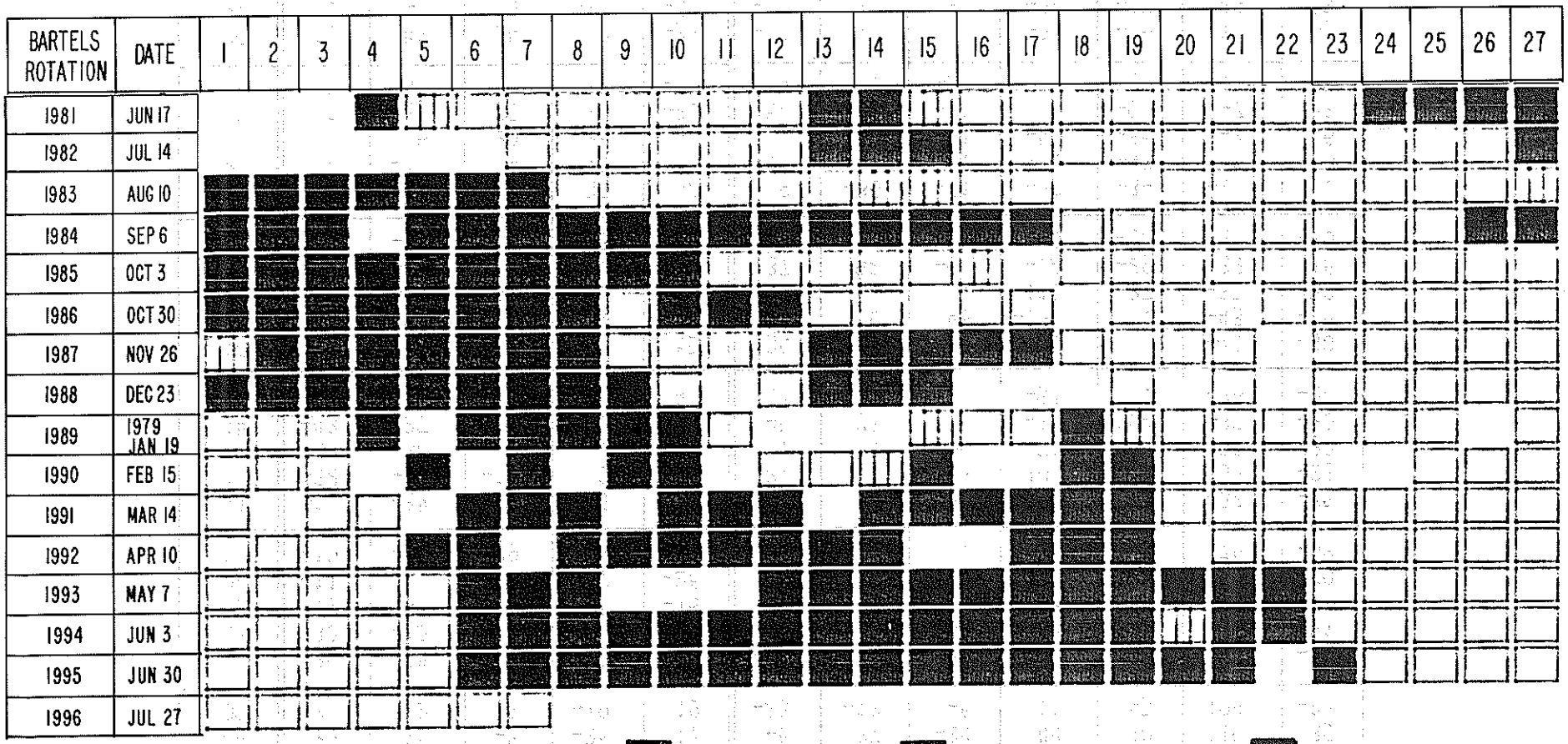
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1979	APR 29		TA		*		TA	AT AT	TA		-	-	T*							TA TA			AT					
1980	MAY 26				TA		AT	AT				-				AT	TA				-				-	-	-
1981	JUN 22	TA					A*					-	TA	TA TA		AT			*				*	AT	AT	-	AT	
1982	JUL 19									TA								-		TA				AT	AT	*	TA	
1983	AUG 15					TA			AT		AT AT			AT	TA						A*						TA	
1984	SEP 11			TA		AT				TA	T*						A*		—				—			A* TA	-	
1985	OCT 8	*	TA		T*		AT				—	-	—						TA	TA —		AT		—				
1986	NOV 4			-			-	AT -	-		-	-						*	AT	-		AT	AT	AT	AT			
1987	DEC 1	AT	AT		-				-		-	TA	-	-	AT -	-	AT -	TA -	-	A*	-			*		-	AT -	-	
1988	DEC 28		-	-	-	-			-	AT *			TA	TA T*		-	AT -	-	TA			-	TA -			-	TA	-
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

= 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 (MICROTESLA)

	1978					1979						
DAY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY
01	40	26	-11	-18	-72	11	.	-36	-4	26	41	97
02	39	32	-20	-21	-39	.	-1	.	16	13	82	86
03	42	15	-14	-36	-7	15	30	.	57	6	137	70
04	39	18	-8	-28	17	-6	27	-24	44	10	115	35
05	31	2	-3	-19	19	-25	-13	-6	11	45	104	-33
06	29	-24	-7	-12	9	-26	1	46	9	68	78	-61
07	30	-12	-20	3	5	.	50	64	14	101	15	-81
08	17	-7	-29	-6	-15	.	88	56	67	134	-27	-80
09	-11	.	-37	-17	-26	.	59	.	102	126	-50	-70
10	-10	-35	-29	-3	-37	27	39	.	124	75	-76	-68
11	-15	-34	-32	5	-19	.	40	21	138	31	-82	-75
12	-22	-42	-14	9	-16	27	30	63	100	-13	-52	-23
13	-33	-36	2	.	13	.	.	100	51	-66	-52	-23
14	-43	-27	7	16	31	45	78	106	-12	-104	-37	-20
15	-31	-26	8	20	43	21	62	.	-51	.	-28	-24
16	-9	-36	9	.	65	36	27	24	.	.	-42	-30
17	5	-48	5	34	.	48	6	45	-121	.	-43	-26
18	13	-44	-1	42	59	59	.	.	-117	-27	-35	-32
19	7	-50	.	.	30	37	-52	-56	-72	-29	-32	-16
20	7	-33	4	55	18	18	.	-81	-40	-36	-37	-10
21	5	-21	3	35	32	9	-86	-81	-27	-34	-24	.
22	4	-14	19	40	27	-15	.	.	-32	-43	0	-16
23	-1	5	20	28	-3	.	-80	-51	-40	-56	-7	6
24	1	31	25	27	-20	-54	-52	-41	.	-51	-7	33
25	5	43	23	18	-26	-64	.	-28	.	-30	10	58
26	18	42	24	2	-32	-70	19	.	-99	-16	17	69
27	.	40	29	-17	-63	-64	10	-29	-92	-17	29	83
28	.	29	30	-48	-51	-27	0	-36	-57	-4	47	92
29	41	15	17	-61	-36	12		-12	.	19	64	90
30	41	2	-3	-65	-22	.		-26	3	10	93	82
31	35		-16		-21	.		-28		9		53

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

JULY 1979

DATE	ONSET TIME	DIRECTION	COMMENTS
01	1155	West	Weak SS
02			Quiet day
03			Slow positive increase began at 0605 UT on H component at all mid- and low-latitude stations and continued until 0905 UT. At 0905 UT a strong equatorial current began. Also at this time, the field became active throughout the network with no distinctive SS activity.
04	0355		Field remained active through 0910 UT. Slow onset with numerous injections; final recovery at 0910 UT.
05			Field became unsettled after 0800 UT: no distinctive SS activity.
06	0700	East	
	0825	West	
	1025	West	
	1150	West	
	1931		Sharp positive impulse on H component at mid- and low-latitude stations. Field disturbed through 07/2000 UT.
07	0730	≃center	Onset of strong SS containing several particle injections. Final recovery at 1730 UT.
08			Field unsettled throughout the day with no significant SS activity.
09			Field intermittently unsettled; no significant SS activity.
10			Field intermittently unsettled; no significant SS activity.
11	0525	East	Weak SS
	0800	≃center	Weak SS; several minor injections with final recovery at 1110 UT.
12	1245		Small positive impulse on H component at all mid- and low-latitude stations.
	1615		Slow onset
13	1040		Onset of active period lasting through 2000 UT. Numerous small SS and particle injections during this period. Strongest response occurred at 1410 UT. Field unsettled throughout the day.
14	2330	East	Field became active after 1900 UT. Boulder in partial ring current sector.
15			Field active almost all day. Sporadic localized minor SS activity; no SS activity affected entire network.
16	0730	East	
17	0350	East	1st of double onset.
	0410	East	2nd of double onset.
	1030	West	
	2050		Start of active field conditions; no distinctive SS activity.
18	0045	East	Weak SS; Boulder in partial ring current sector.
	0530	East	
	0630	≃center	
	1045	West	
	1130	West	
19	0330	East	1st of double onset.
	0415	East	2nd of double onset.
	0715	West	Weak SS
	1250	West	
20	0455	East	
	0920	West	Weak SS
	1015	West	1st of double onset.
	1050	West	2nd of double onset.
	1220	West	1st of double onset; weak SS.
	1240	West	2nd of double onset.
	1850		1st of double onset; strong SS from Inuvik to Sachs Harbour.
	1845		2nd of double onset; strong SS at Johnson Point.
21	0950	West	
22			No distinctive SS activity.
23	0440	East	
24			No distinctive SS activity.
25			Quiet day.
26			Magstorm began at 1833 UT with ssc. Main phase ring current established after 2145 UT.
27	1647		Magstorm ended 0500 UT. Positive impulse on H component at low-latitude stations. Field became active along Alaska Chain from Inuvik northward.
28	0055	East	Onset of broad SS lasting through 0405 UT. Variable responses over network stations.
29			Field active after 0920 UT with no distinctive SS activity.
30	0955		SS along auroral oval stations, Island Lake to Norman Wells.
31			Quiet day.

SGD 420 Part I (Prompt)

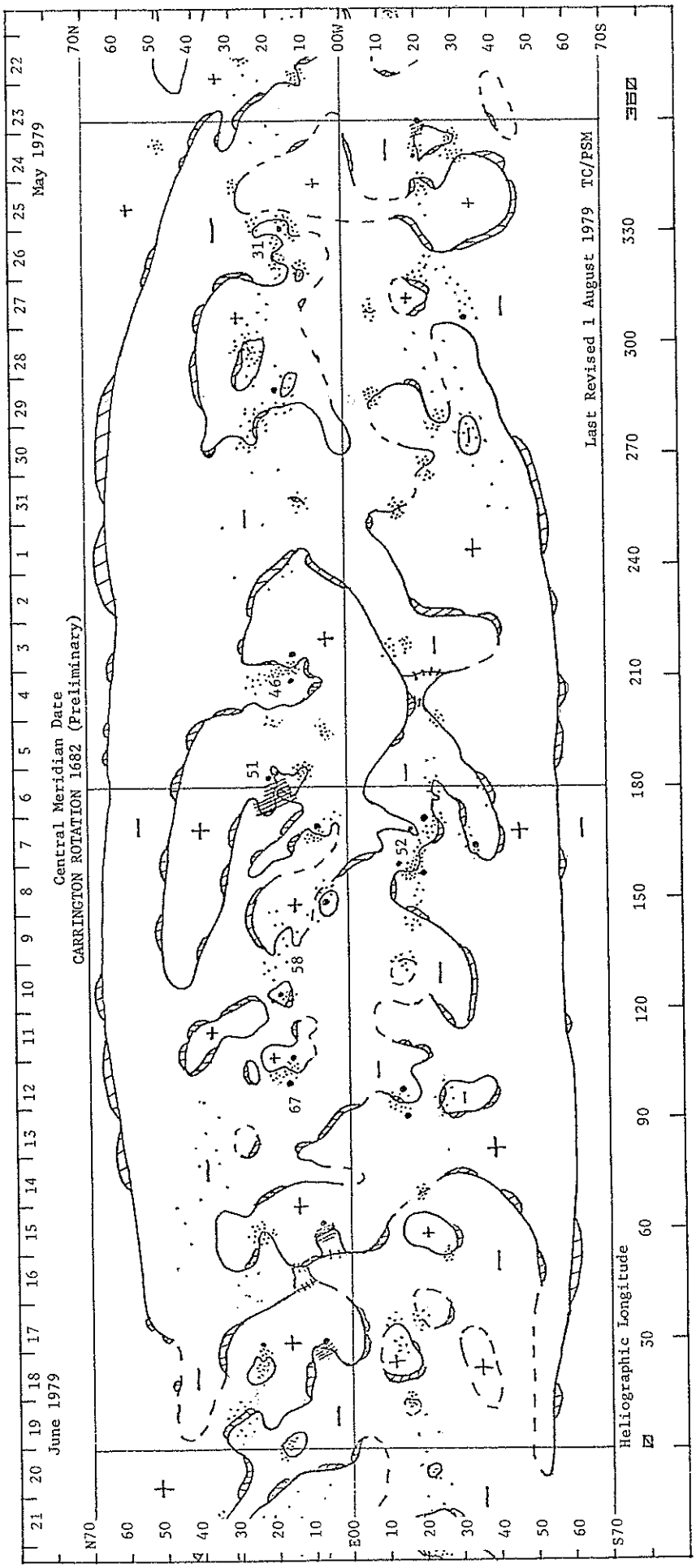
JUNE 1979 DATA

Contents

	Page
Daily Solar Activity Center	
Hα Synoptic Charts and Solar Magnetic Field Synoptic Charts	44-49
Magnetograms, Calcium Plages, Hα Filtergrams, Sunspots, and Corona	50-109
Regions of Solar Activity	110-121
Daily Calcium Plage Index	121
Sudden Ionospheric Disturbances	122-123
Solar X-ray Radiation	
Solrad 11	124-138
Solar Radio Emission	
Spectral Observations	139-154
Selected Solar Events (by Radioheliograph) (Data not available at time of publication)	
Cosmic Rays	
Neutron Monitors Daily Values	155
Chart of Variations	156-159
Geomagnetic Indices	
Geomagnetic Activity Indices (Kp, Kn, Ks, Km, Cp, Ap, aa)	160
Daily Average Indices Ap	161
Chart of Kp by Bartels 27-day Rotation	162
Chart of Dst by Bartels 27-day Rotation	163
Hourly Equatorial Dst Values (Provisional)	164
Principal Magnetic Storms	165
Sudden Commencements and Solar Flare Effects (Data not available at time of publication)	
Radio Propagation Indices	
Transmission Frequency Ranges - North Atlantic Path	166-167
Quality Indices on Paths to Germany	168

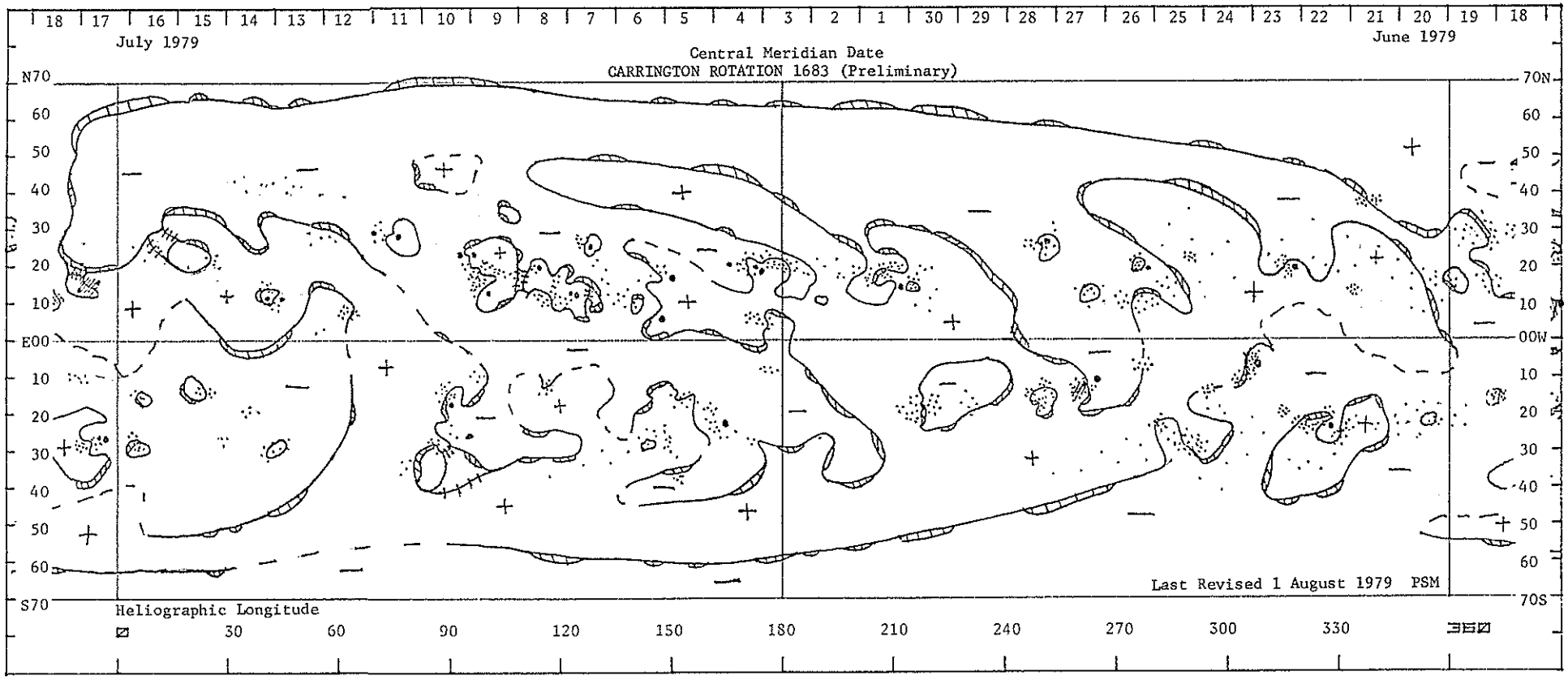
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1682 (PRELIMINARY)

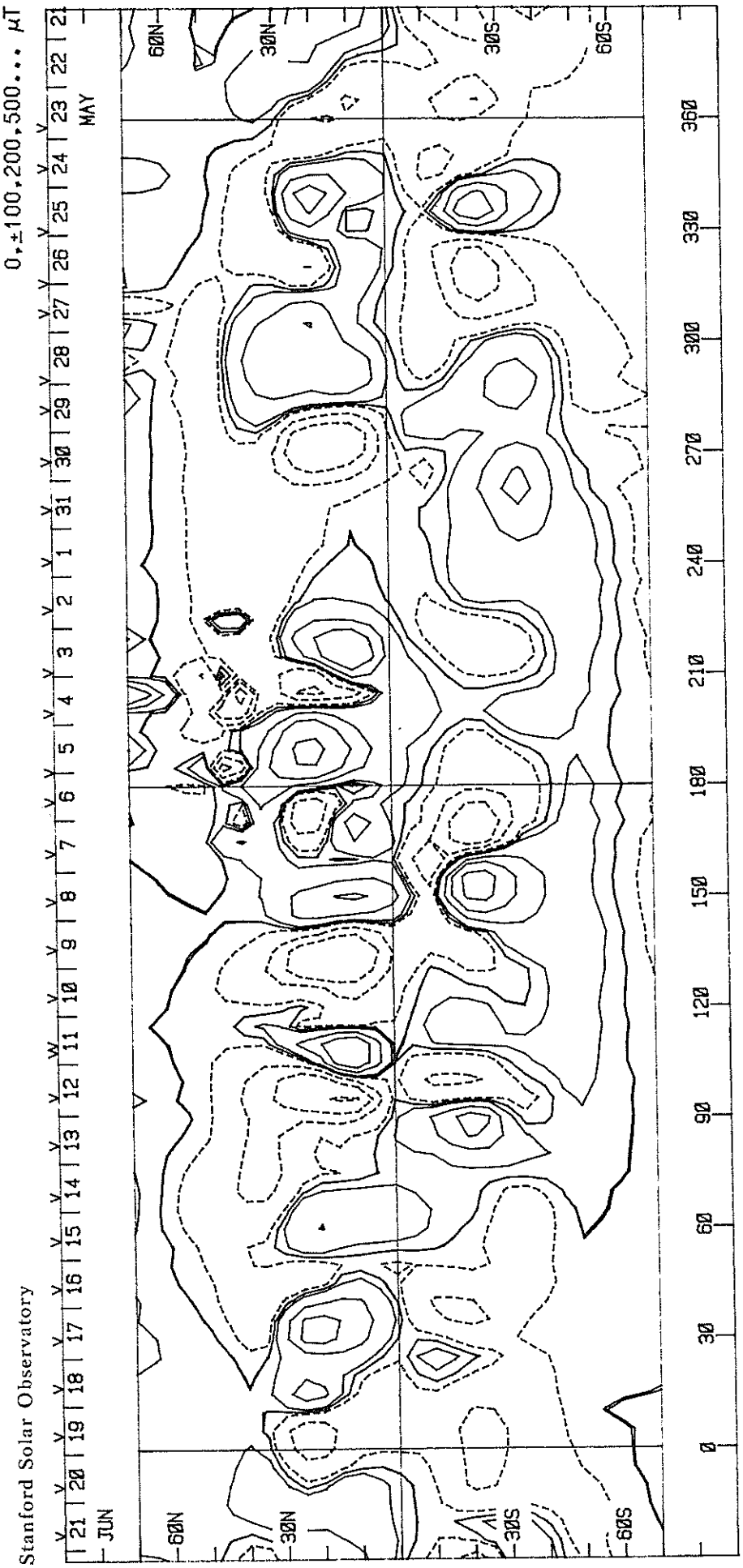


Hα SYNOPTIC CHART

CARRINGTON ROTATION 1683 (PRELIMINARY)



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1682

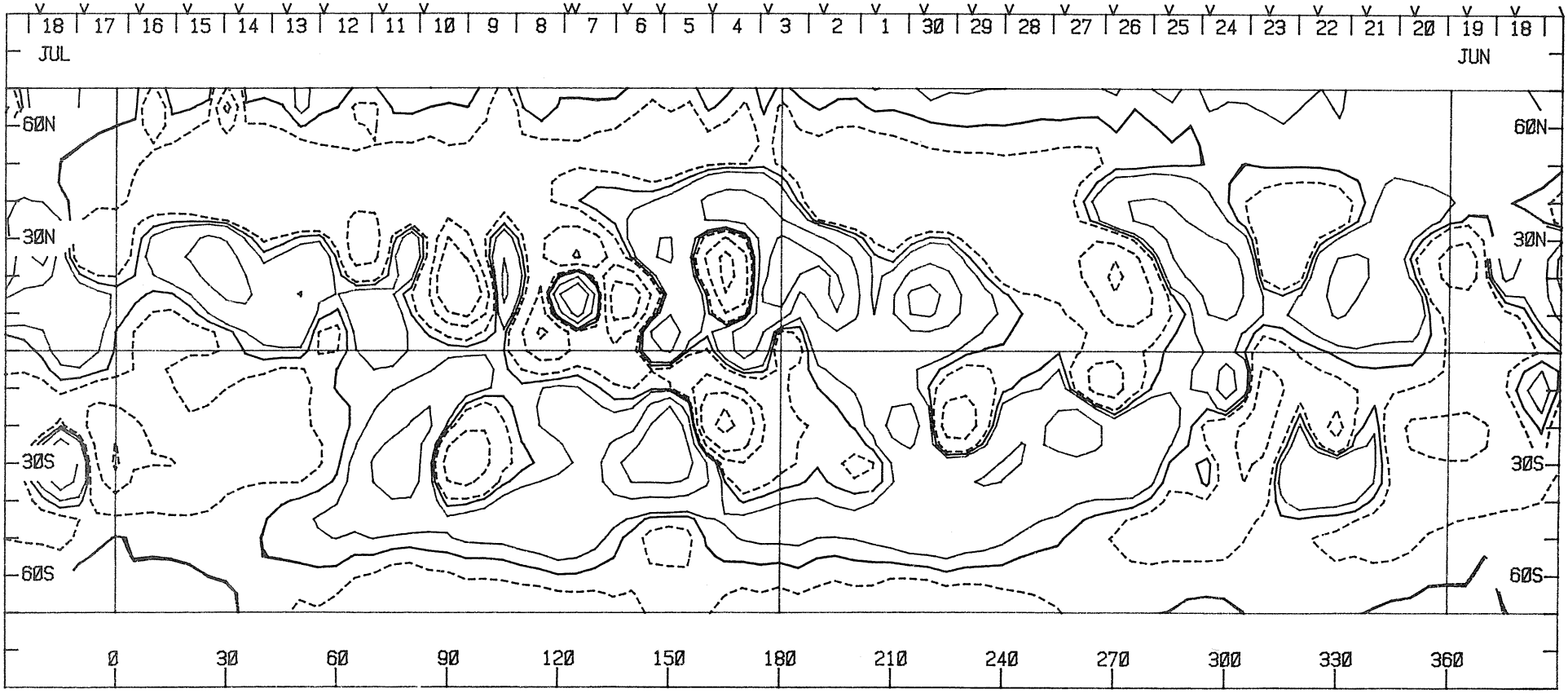


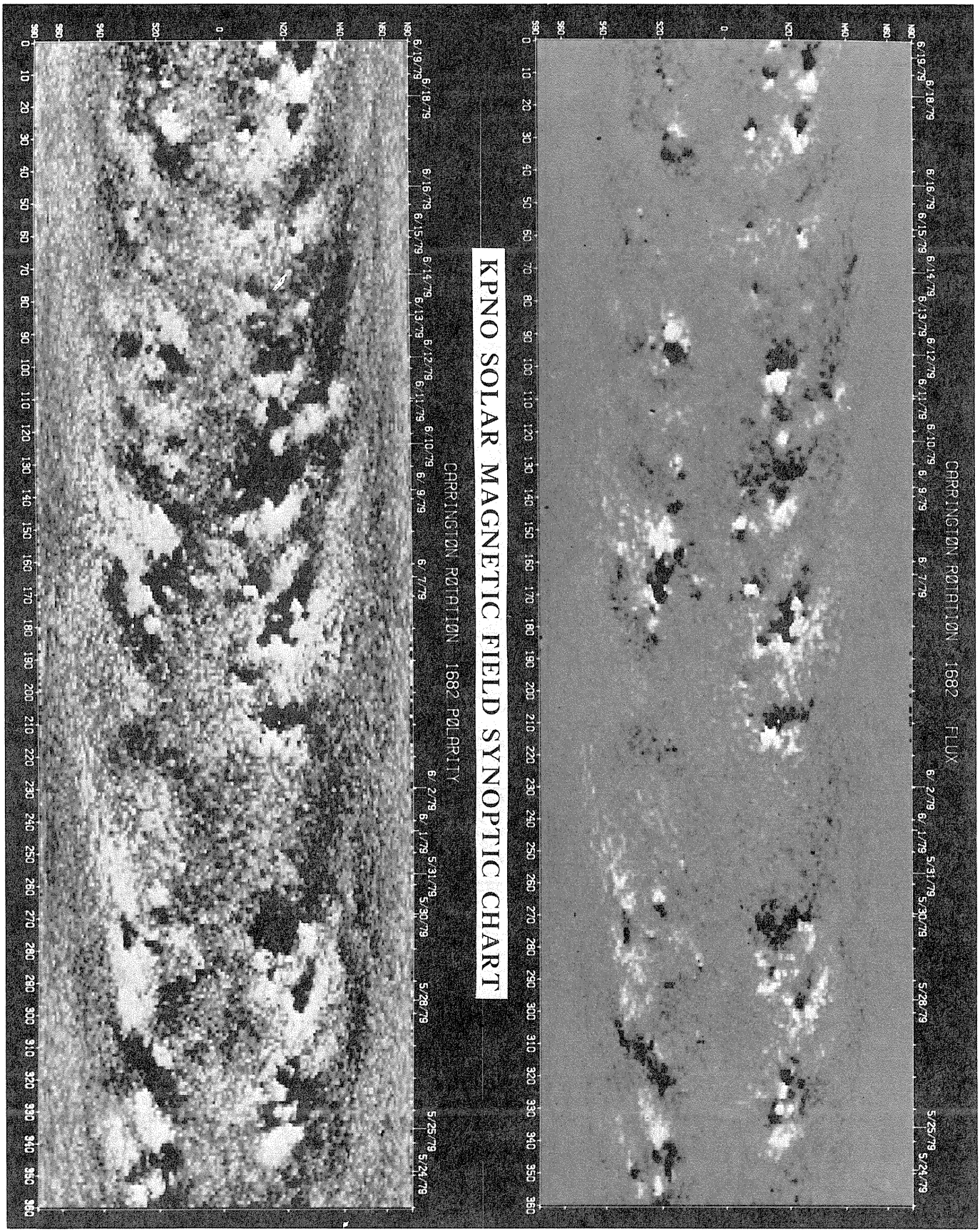
SOLAR MAGNETIC FIELD SYNOPTIC CHART

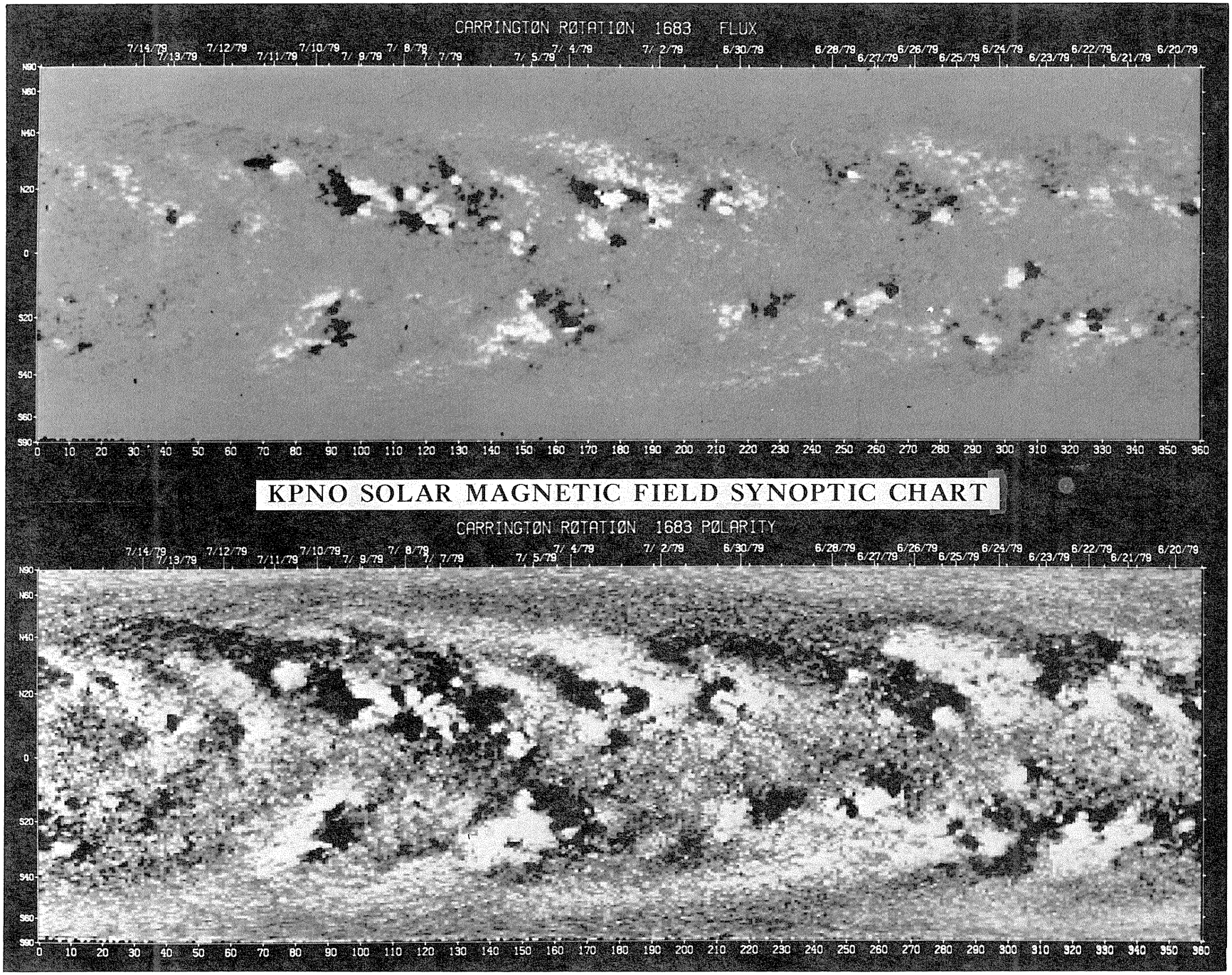
CARRINGTON ROTATION 1683

Stanford Solar Observatory

0, ±100, 200, 500... μT




KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1682 FLUX
CARRINGTON ROTATION 1682 POLARITY


CARRINGTØN RØTATIØN 1683 FLUX
7/14/79
7/13/79
7/12/79
7/11/79
7/10/79
7/ 9/79
7/ 8/79
7/ 7/79
7/ 5/79
7/ 4/79
7/ 2/79
6/30/79
6/28/79
6/27/79
6/26/79
6/25/79
6/24/79
6/23/79
6/22/79
6/21/79
6/20/79
N80
N60
N40
N20
0
S20
S40
S60
S80
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360
KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTØN RØTATIØN 1683 PØLARITY
7/14/79
7/13/79
7/12/79
7/11/79
7/10/79
7/ 9/79
7/ 8/79
7/ 7/79
7/ 5/79
7/ 4/79
7/ 2/79
6/30/79
6/28/79
6/27/79
6/26/79
6/25/79
6/24/79
6/23/79
6/22/79
6/21/79
6/20/79
N80
N60
N40
N20
0
S20
S40
S60
S80
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360

JUNE 1, 1979 (P =-15.68, B_o =-0.70, L_o =251.09)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1329 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.8

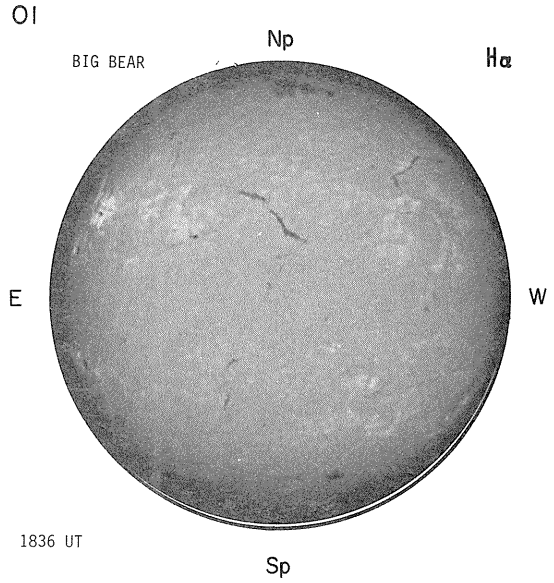
E

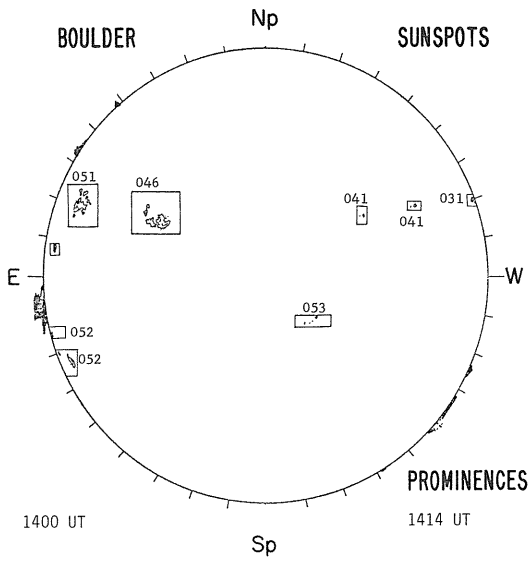
W

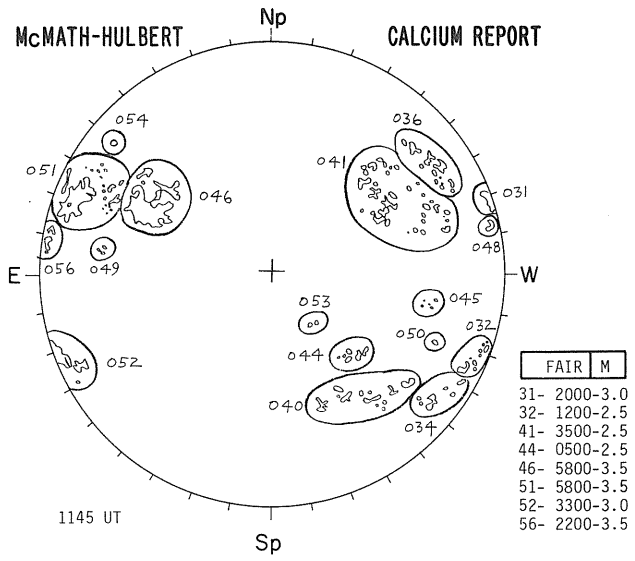
Levels
± 5
± 10
± 20
± 40
± 80

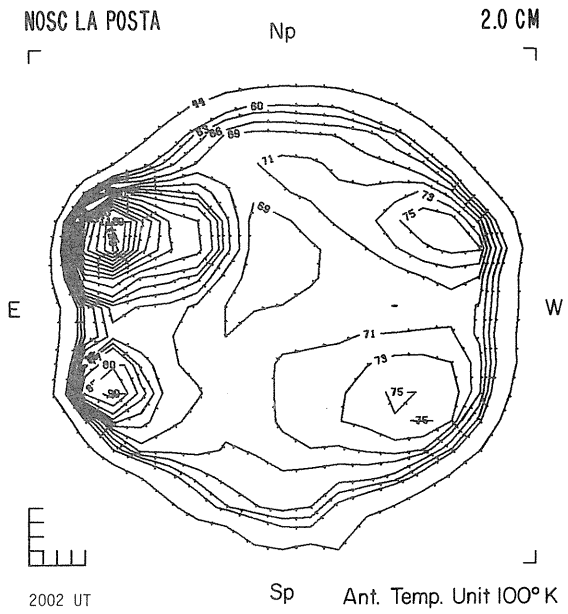
16.58 - 17.50 UT

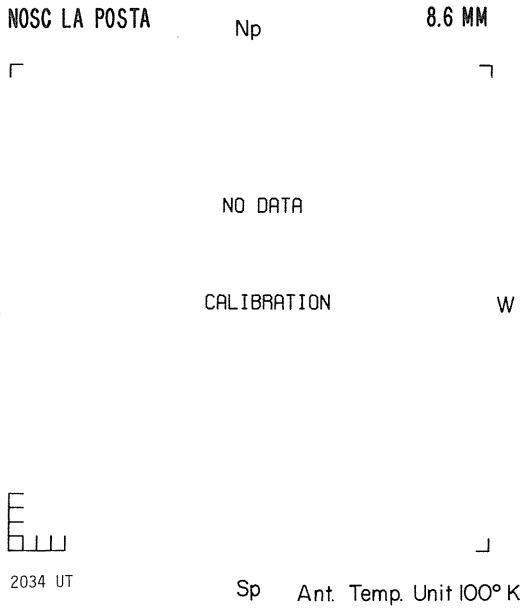
Sp

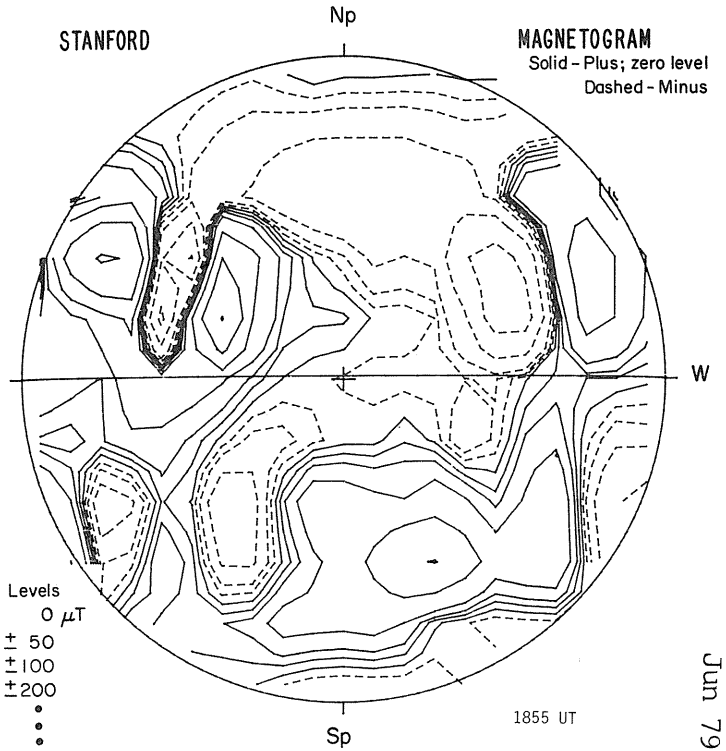

OI
BIG BEAR
Np
Hα
E
W
Sp
1836 UT


BOULDER
Np
SUNSPOTS
051
046
041
041
031
053
052
052
E
W
Sp
1400 UT
PROMINENCES
1414 UT


McMATH-HULBERT
Np
CALCIUM REPORT
054
051
046
036
041
031
048
056
049
053
045
032
050
044
052
040
034
E
W
Sp
1145 UT
FAIR | M
31- 2000-3.0
32- 1200-2.5
41- 3500-2.5
44- 0500-2.5
46- 5800-3.5
51- 5800-3.5
52- 3300-3.0
56- 2200-3.5


NOSC LA POSTA
Np
2.0 CM
E
W
Sp
2002 UT
Ant. Temp. Unit 100° K


NOSC LA POSTA
Np
8.6 MM
NO DATA
CALIBRATION
E
W
Sp
2034 UT
Ant. Temp. Unit 100° K


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Sp
1855 UT
Levels
0 μT
± 50
±100
±200

JUNE 2, 1979 (P =-15.31, B_o =-0.58, L_o =237.86)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

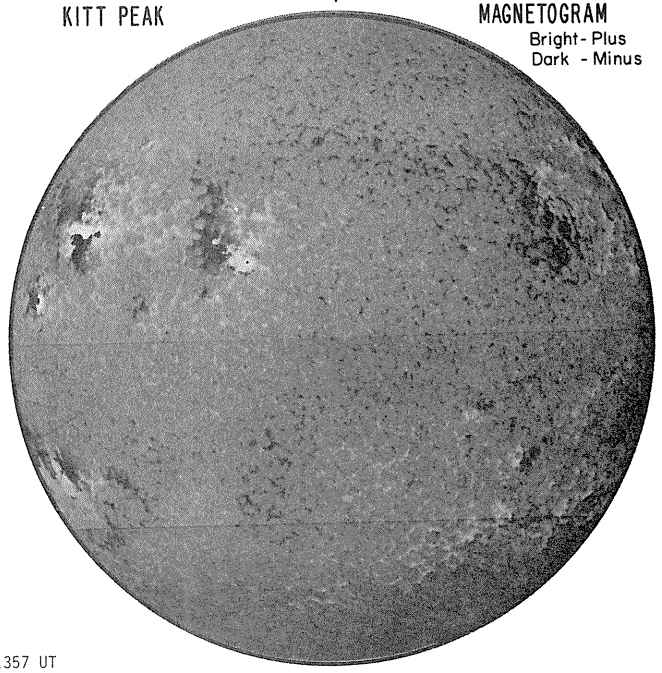
W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright- Plus
Dark - Minus



E

W

1357 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E

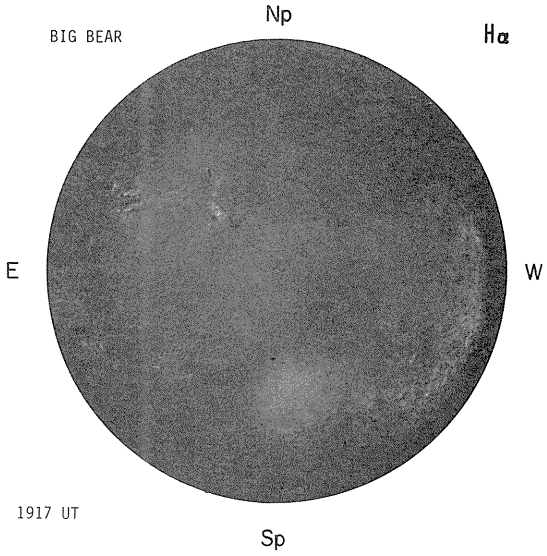
NO DATA

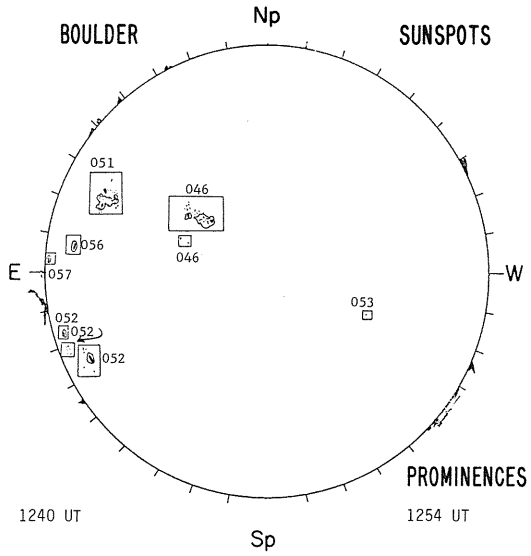
W

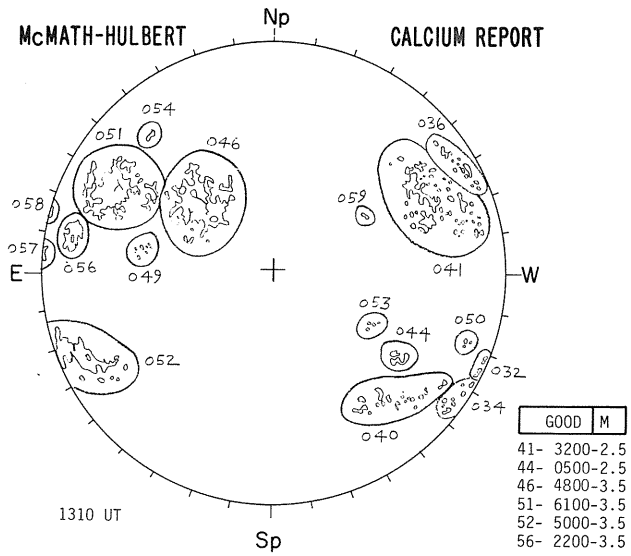
Levels
± 5
± 10
± 20
± 40
± 80

Sp

02







NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

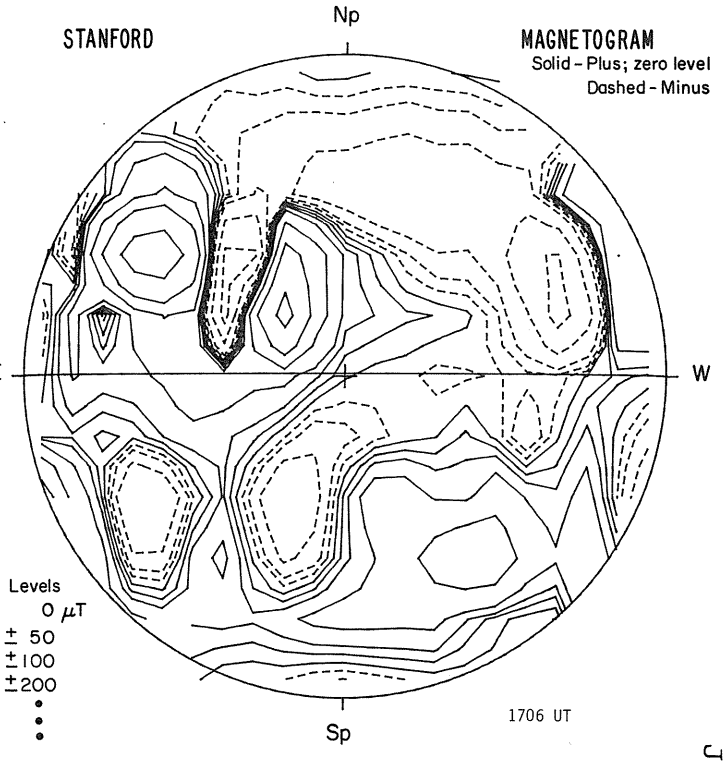
---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

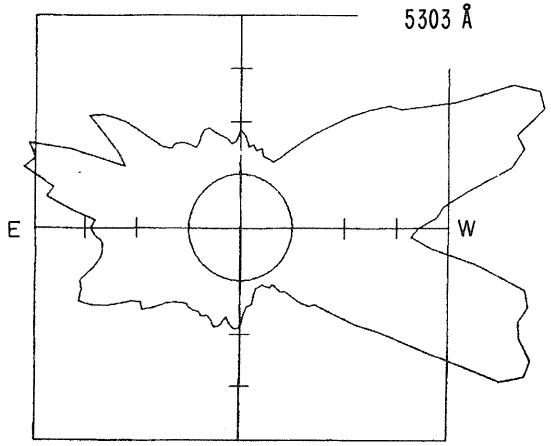
E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

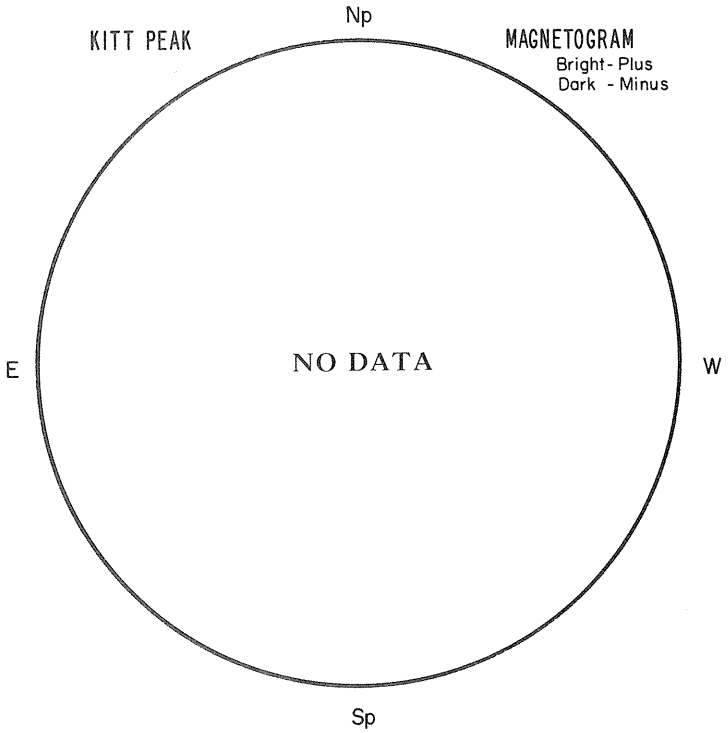


JUNE 3, 1979 (P =-14.93, B_o =-0.46, L_o =224.62)

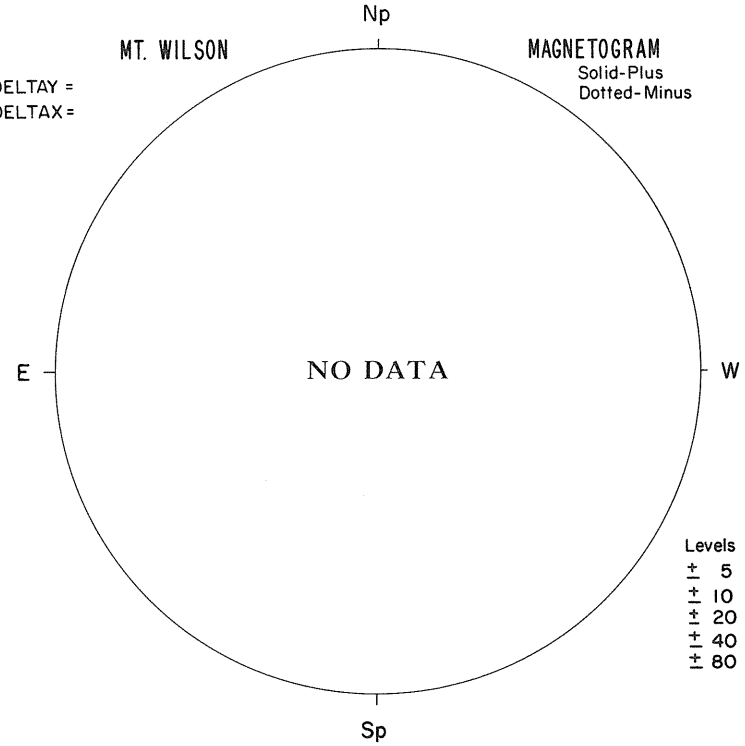
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =



03

BIG BEAR

Np

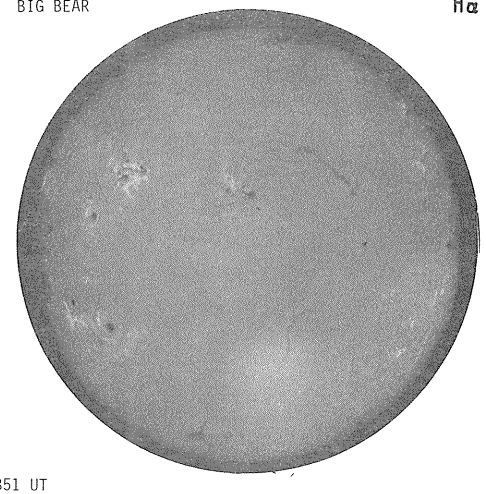
Hα

E

W

Sp

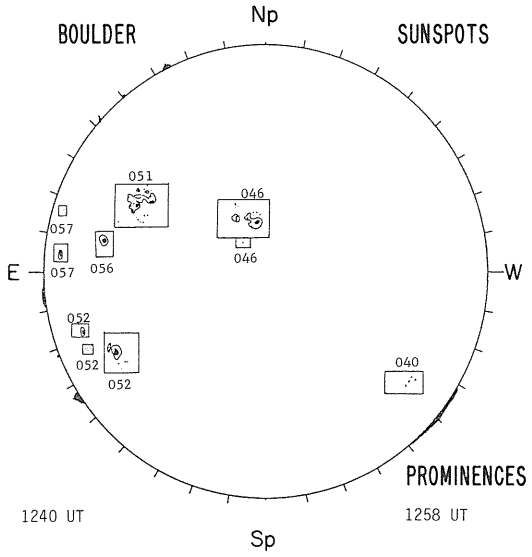
1851 UT



BOULDER

Np

SUNSPOTS



PROMINENCES

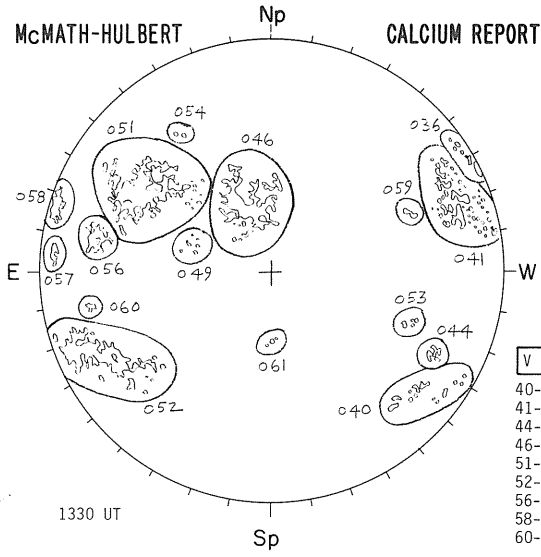
1240 UT

1258 UT

McMATH-HULBERT

Np

CALCIUM REPORT



V GOOD	M

40- 1600-2.5
41- 3200-2.5
44- 0500-2.5
46- 4500-3.5
51- 6400-4.0
52- 6300-3.5
56- 1700-3.0
58- 2000-3.0
60- 0200-3.0

1330 UT

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

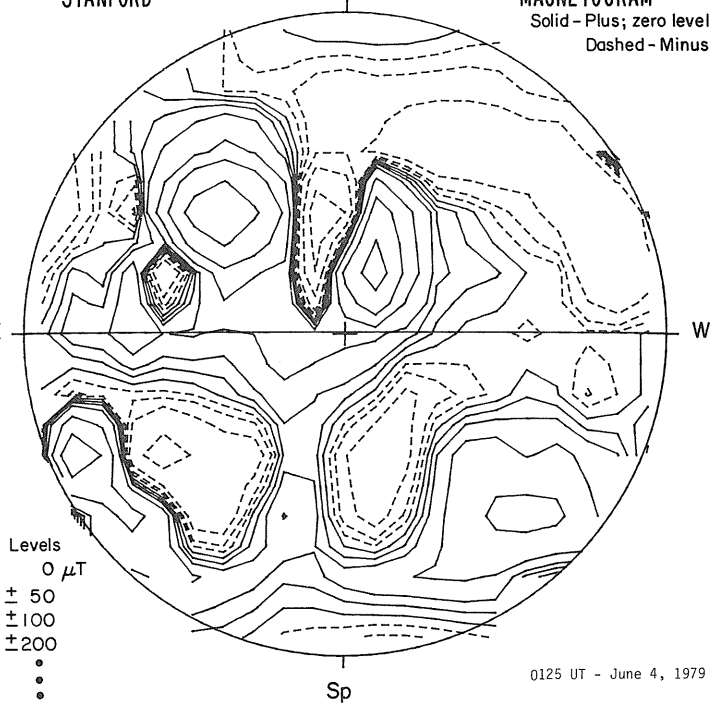
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

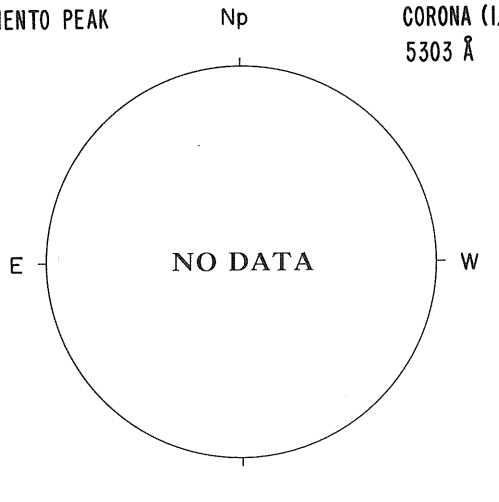
± 100

± 200

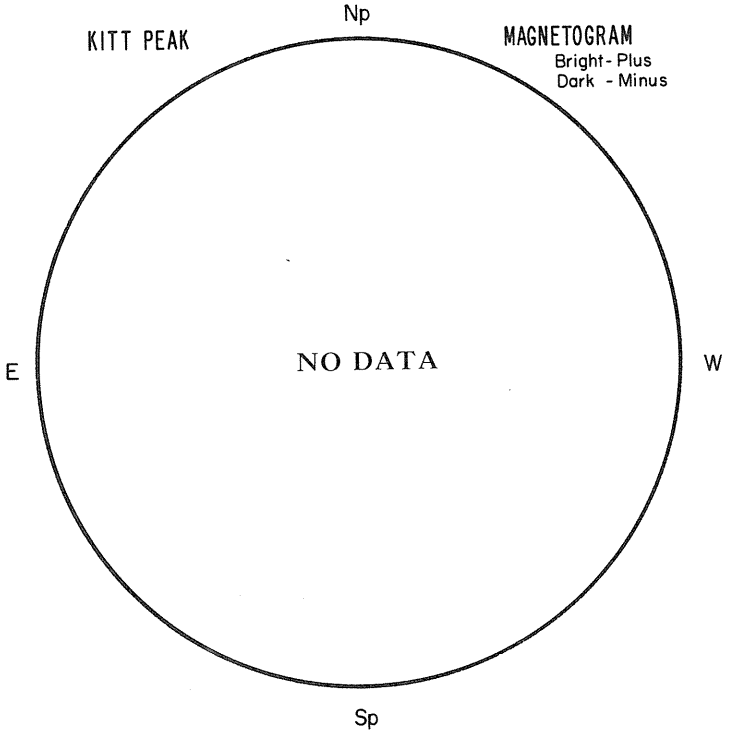
0125 UT - June 4, 1979

JUNE 4, 1979 (P=-14.55, B_o=-0.34, L_o=211.39)

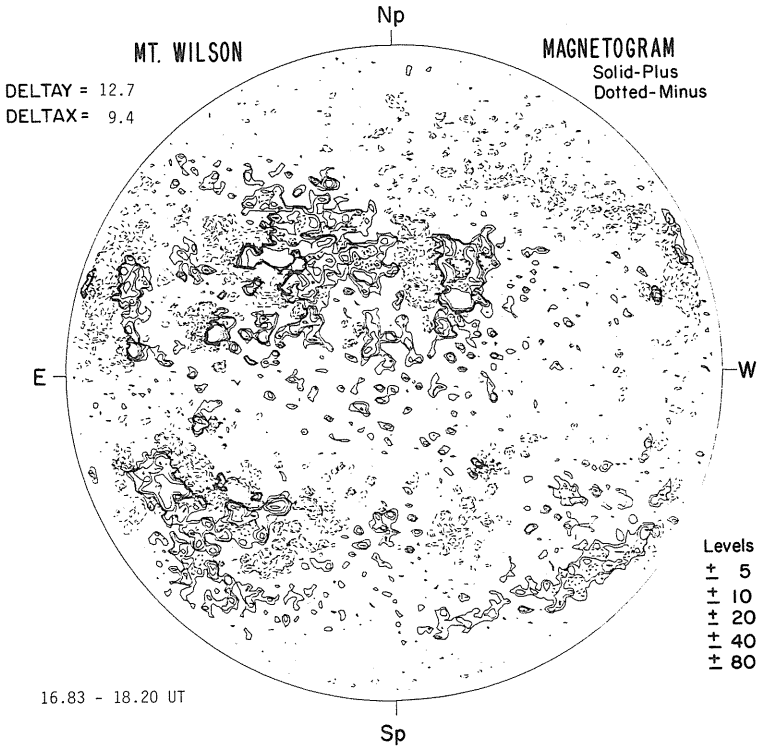
SACRAMENTO PEAK



KITT PEAK

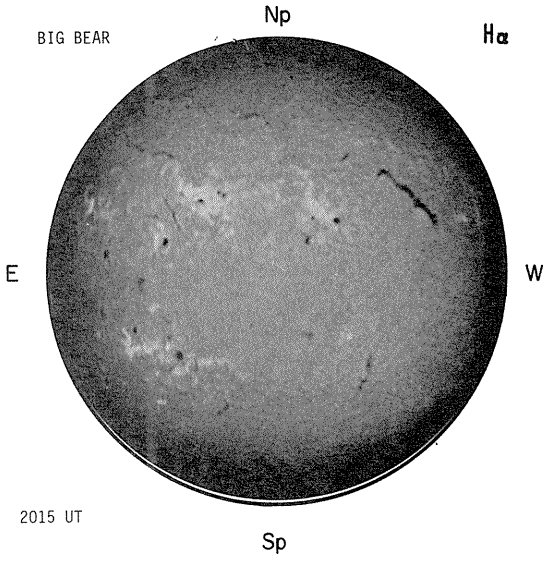


MT. WILSON



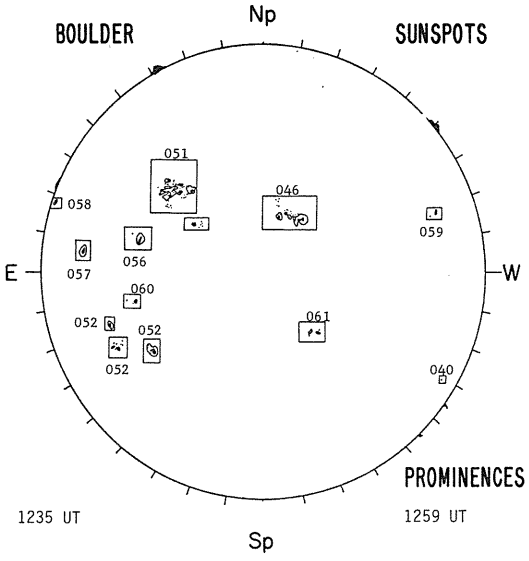
04

BIG BEAR Hα



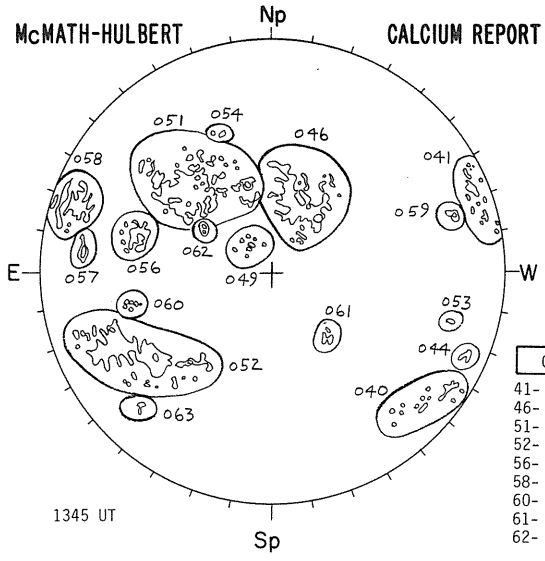
2015 UT

BOULDER SUNSPOTS



1235 UT PROMINENCES 1259 UT

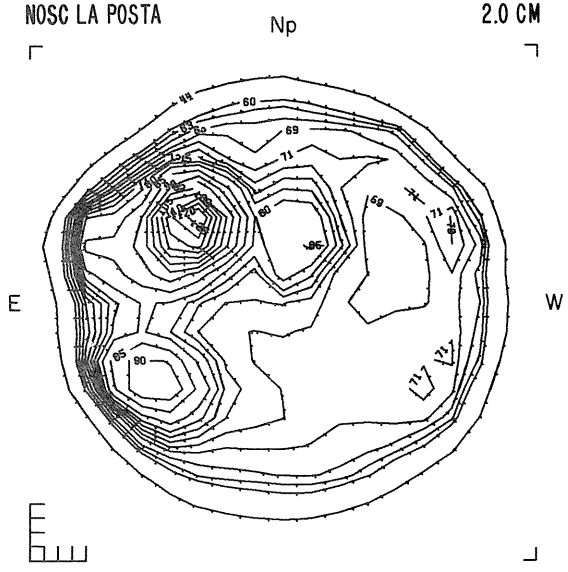
McMATH-HULBERT CALCIUM REPORT



1345 UT

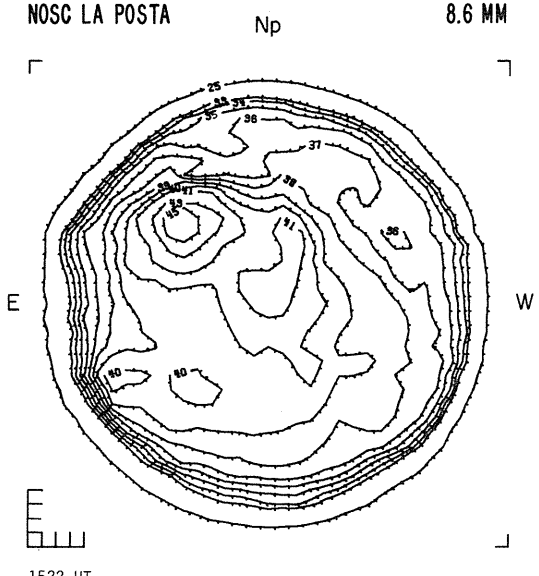
GOOD	S
41-	2400-3.0
46-	4800-3.5
51-	6500-4.0
52-	6800-3.5
56-	1500-3.0
58-	3600-3.0
60-	0300-2.5
61-	0400-2.5
62-	0200-2.5

NOSC LA POSTA 2.0 CM



1454 UT Ant. Temp. Unit 100° K

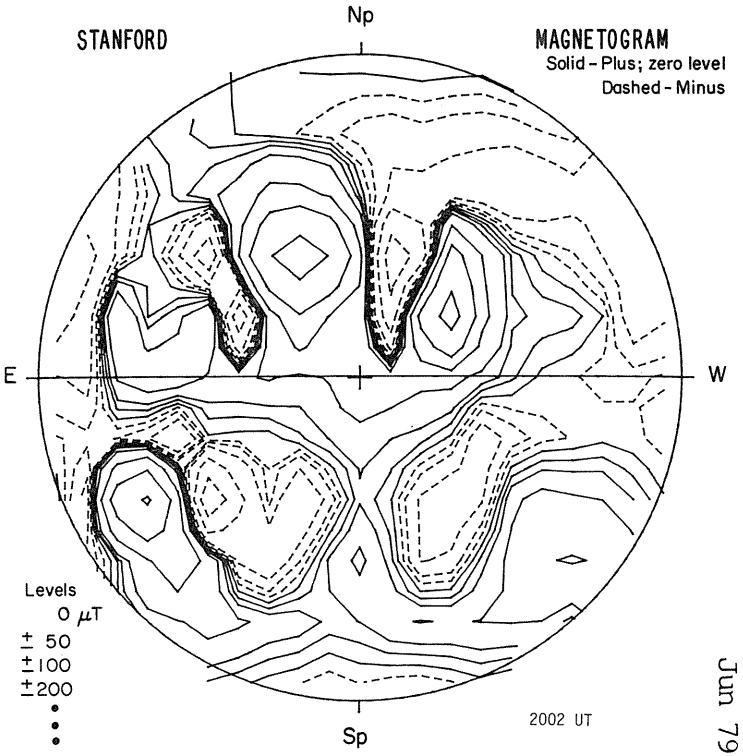
NOSC LA POSTA 8.6 MM



1522 UT Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

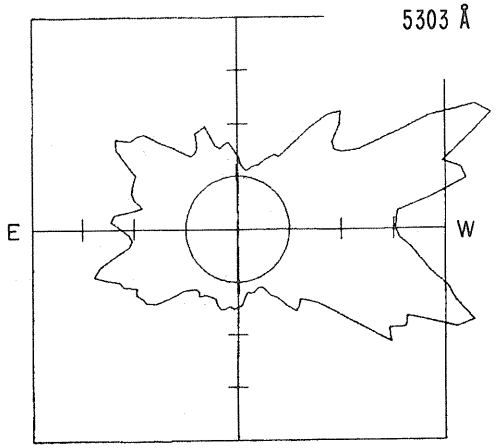


2002 UT

57
Jun 79

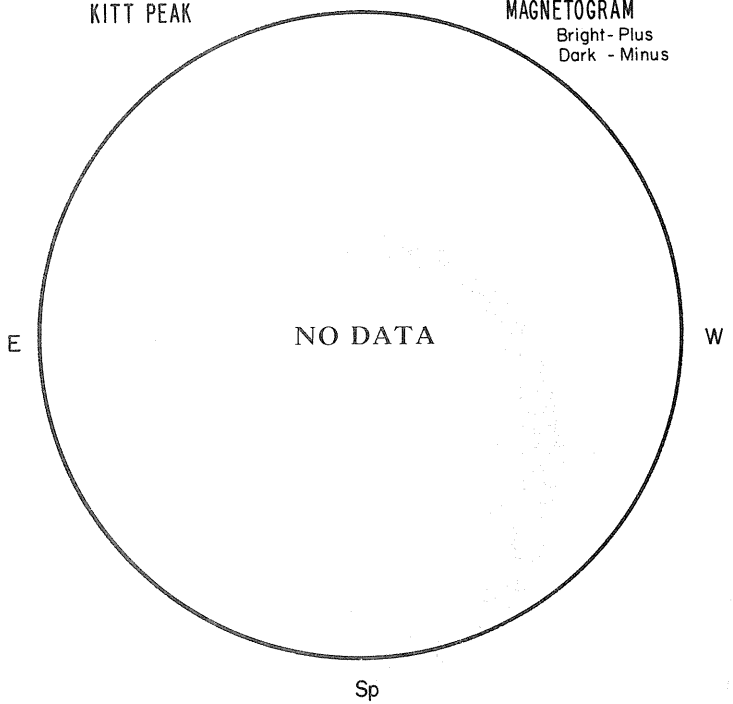
JUNE 5, 1979 (P =-14.16, B_o =-0.22, L_o =198.15)

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

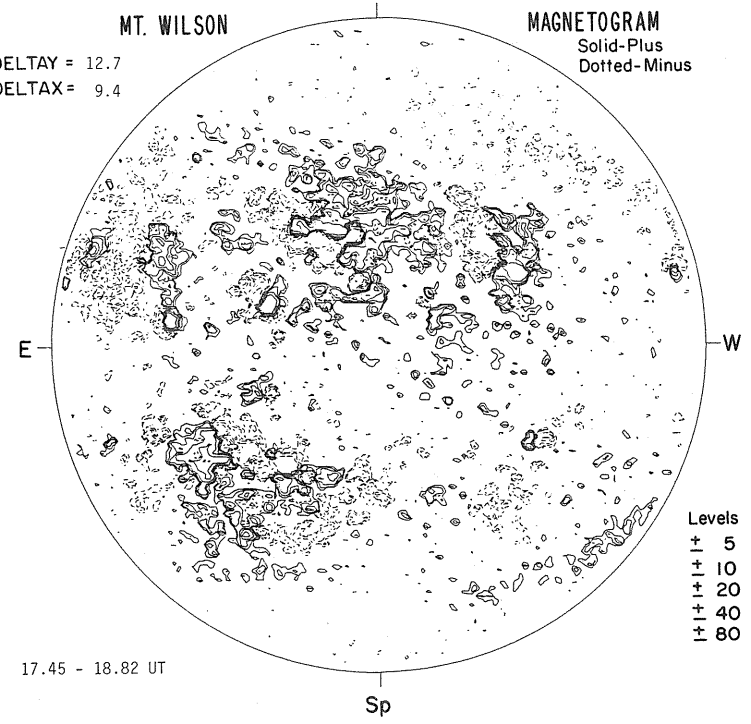


Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.4



17.45 - 18.82 UT

05

BIG BEAR

Np

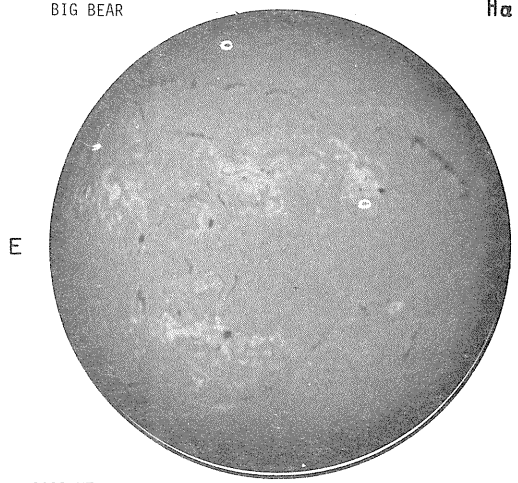
Hα

E

W

Sp

2039 UT



BOULDER

Np

SUNSPOTS

E

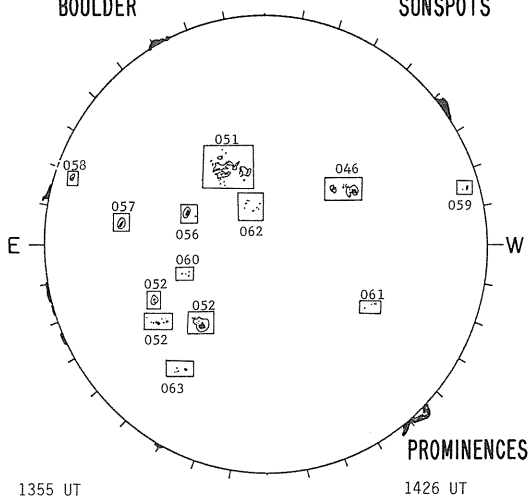
W

Sp

PROMINENCES

1355 UT

1426 UT



McMATH-HULBERT

Np

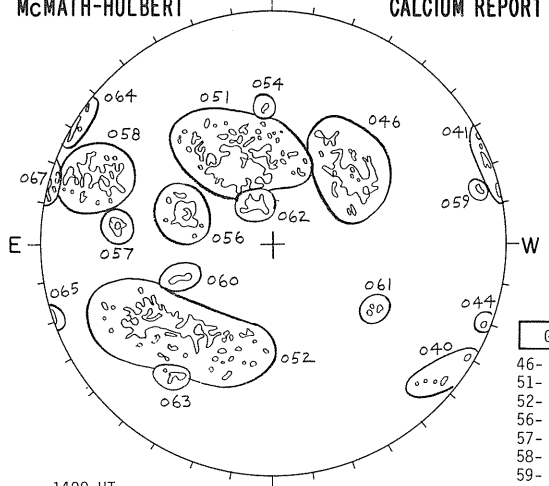
CALCIUM REPORT

E

W

Sp

1400 UT



GOOD	S
46-	4500-3.0
51-	6500-3.5
52-	6600-4.5
56-	1500-3.0
57-	0700-2.5
58-	4800-3.5
59-	0400-2.5
60-	0300-2.5
61-	0300-3.0
62-	0800-2.5
63-	0600-3.0

NOSC LA POSTA

Np

2.0 CM

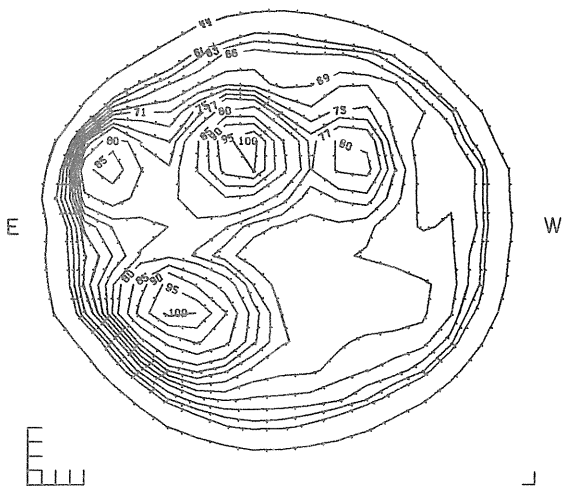
E

W

Sp

1508 UT

Ant. Temp. Unit 100° K



NOSC LA POSTA

Np

8.6 MM

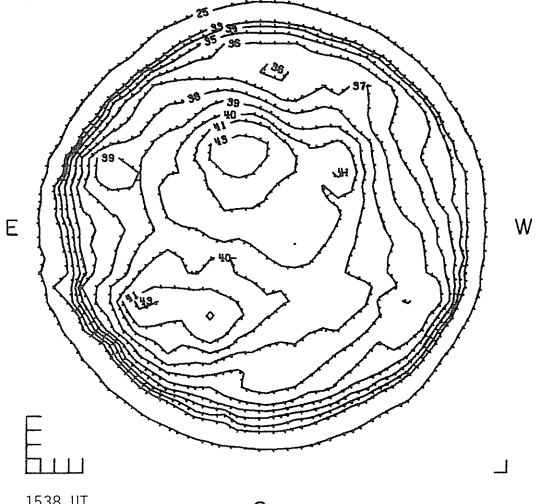
E

W

Sp

1538 UT

Ant. Temp. Unit 100° K



STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Sp

Levels

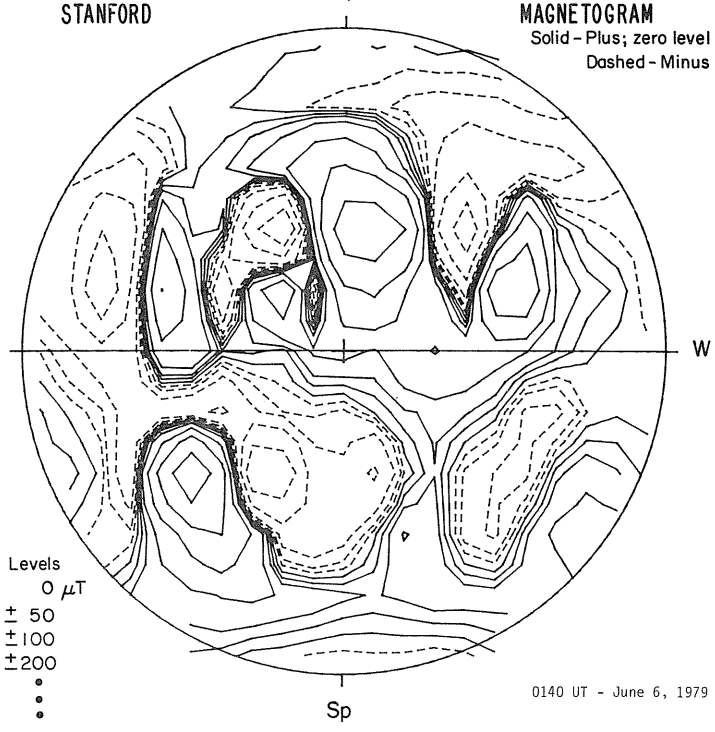
0 μT

± 50

±100

±200

0140 UT - June 6, 1979



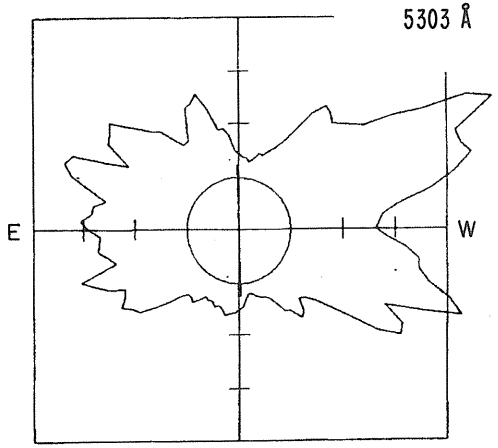
JUNE 6, 1979 (P=-13.77, B_o=-0.10, L_o=184.92)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)

5303 Å



1446 UT

Sp

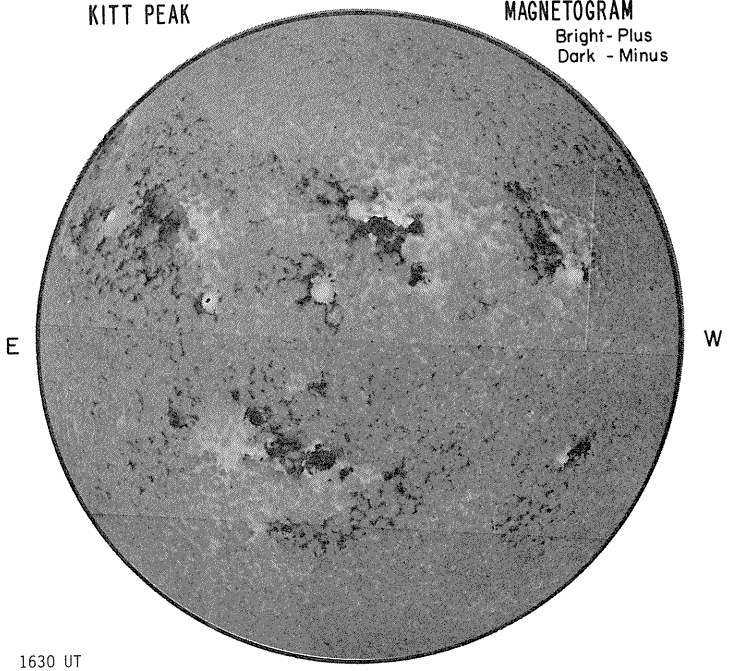
KITT PEAK

Np

MAGNETOGRAM

Bright- Plus

Dark - Minus



1630 UT

Sp

MT. WILSON

Np

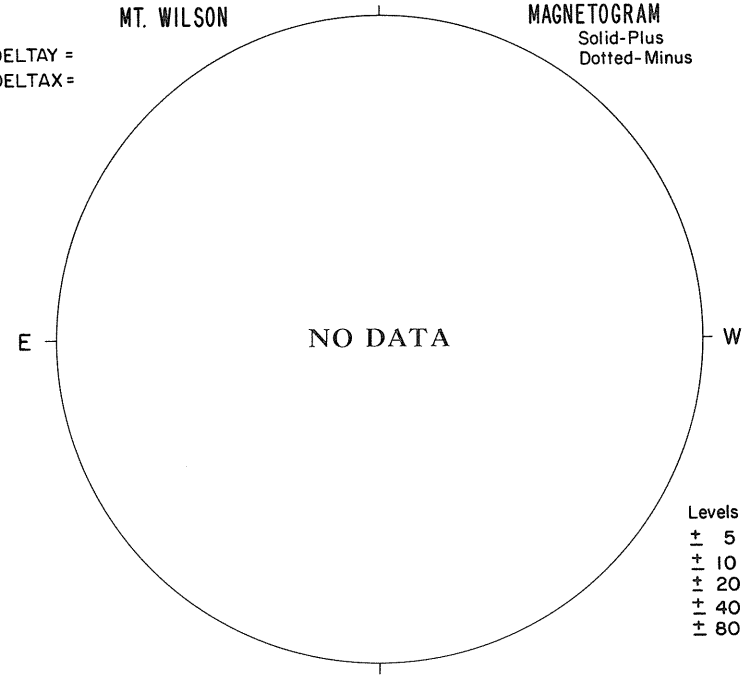
MAGNETOGRAM

Solid-Plus

Dotted-Minus

DELTAY =

DELTAX =



Levels

± 5

± ± 10

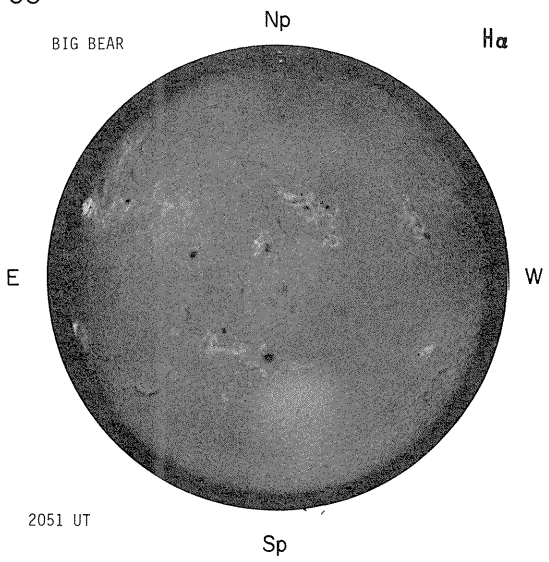
± ± ± 20

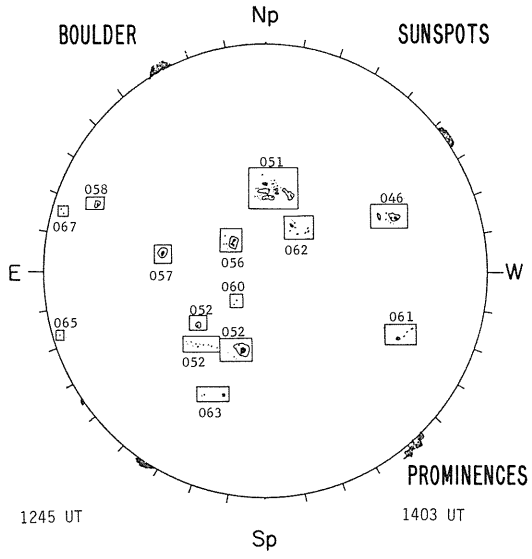
± ± ± ± 40

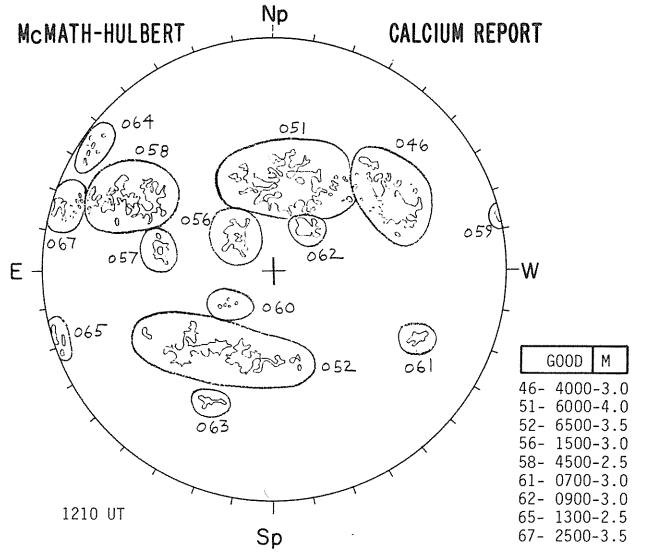
± ± ± ± ± 80

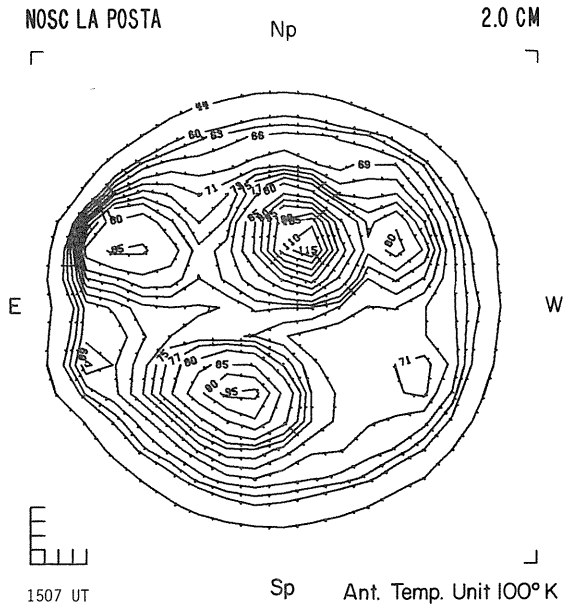
Sp

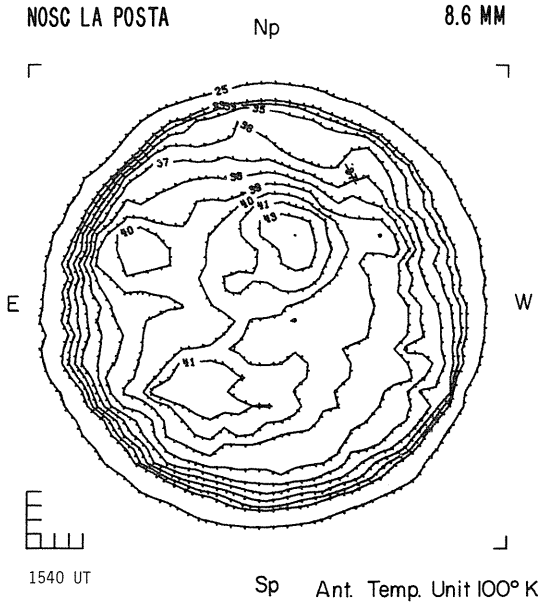
06

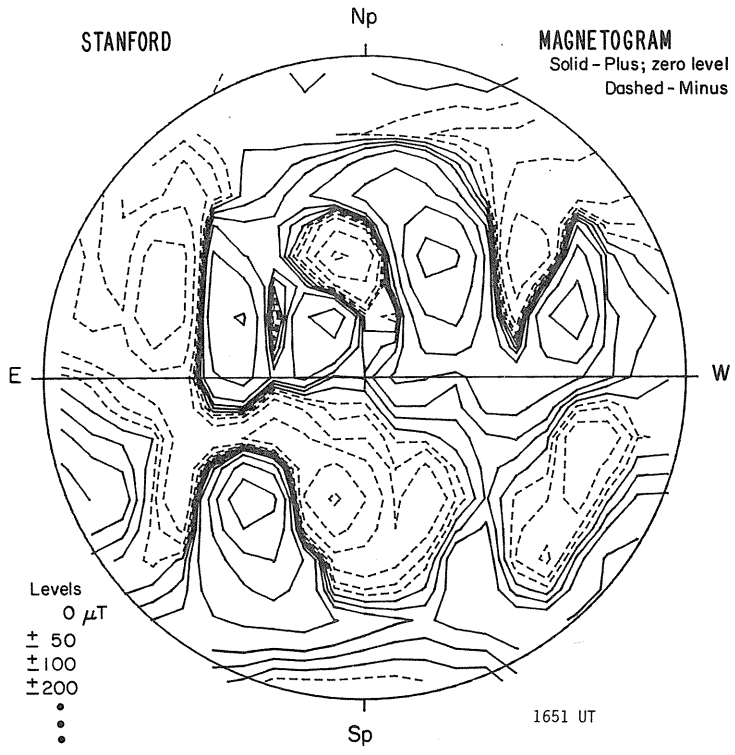

BIG BEAR
Hα
Np
E
W
Sp
2051 UT


BOULDER
SUNSPOTS
Np
E
W
Sp
PROMINENCES
1245 UT
1403 UT
051
058
067
046
062
056
057
060
052
065
061
063


McMATH-HULBERT
CALCIUM REPORT
Np
E
W
Sp
1210 UT
064
058
051
046
056
067
057
062
059
060
065
052
061
063
GOOD | M
46- 4000-3.0
51- 6000-4.0
52- 6500-3.5
56- 1500-3.0
58- 4500-2.5
61- 0700-3.0
62- 0900-3.0
65- 1300-2.5
67- 2500-3.5


NOSC LA POSTA
2.0 CM
Np
E
W
Sp
1507 UT
Ant. Temp. Unit 100° K

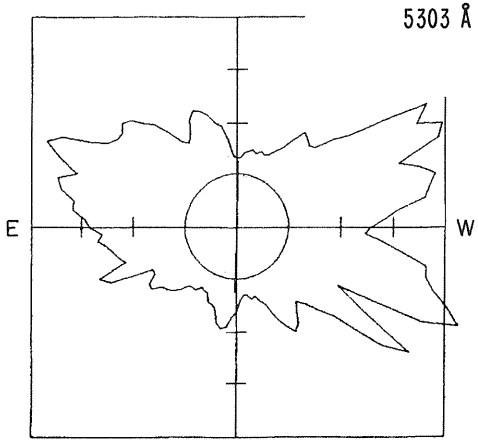

NOSC LA POSTA
8.6 MM
Np
E
W
Sp
1540 UT
Ant. Temp. Unit 100° K


STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
1651 UT
Levels
0 μT
± 50
± 100
± 200

61
Jun 79

JUNE 7, 1979 (P =-13.37, B_o = 0.03, L_o = 171.68)

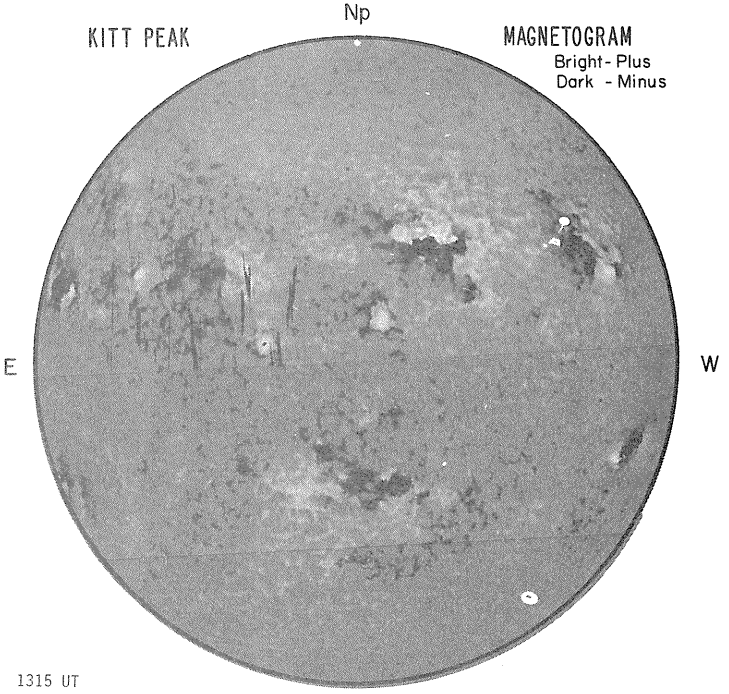
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1448 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

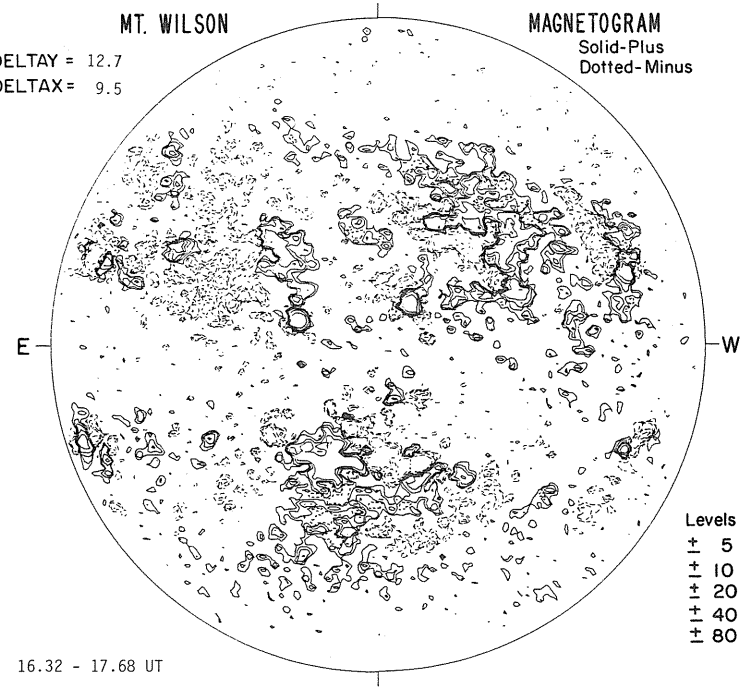


1315 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5



16.32 - 17.68 UT

Sp

07

BIG BEAR

Np

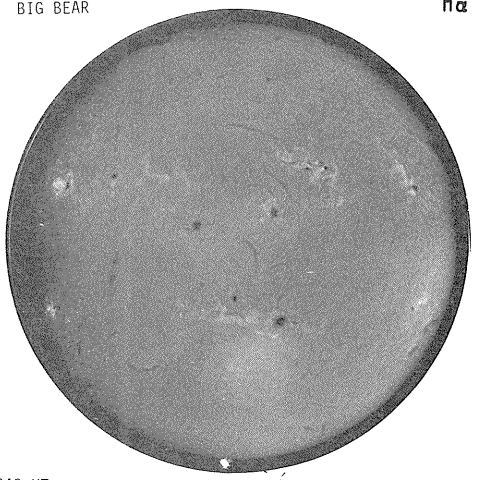
Hα

E

W

Sp

2048 UT



BOULDER

Np

SUNSPOTS

E

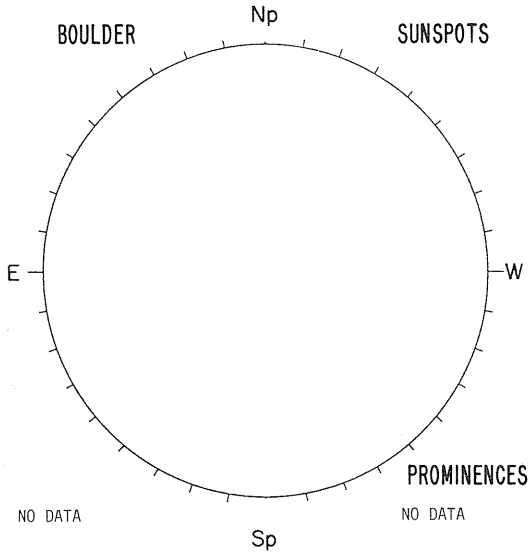
W

Sp

NO DATA

PROMINENCES

NO DATA



McMATH-HULBERT

Np

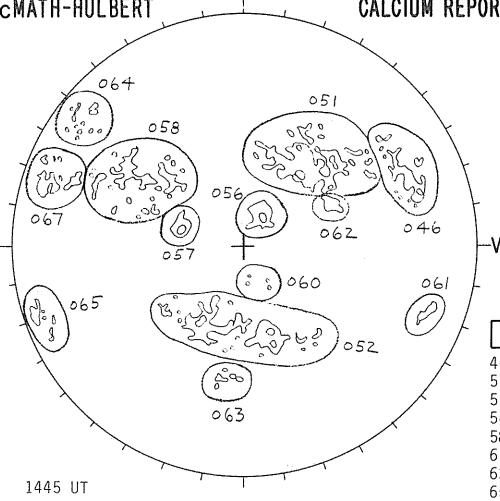
CALCIUM REPORT

E

W

Sp

1445 UT



FAIR	S

46- 3600-3.0
51- 6100-3.5
52- 6300-3.0
56- 1400-2.5
58- 4500-2.5
61- 0800-2.5
62- 0900-2.5
65- 1200-3.5
67- 3600-4.0

NOSC LA POSTA

Np

2.0 CM

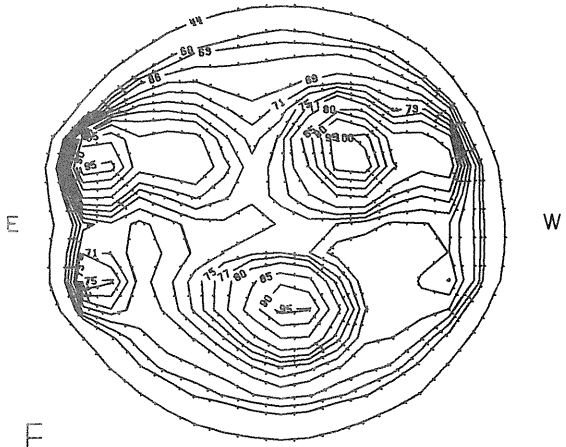
E

W

Sp

1508 UT

Ant. Temp. Unit 100° K



NOSC LA POSTA

Np

8.6 MM

NO DATA

CALIBRATION

E

W

Sp

1541 UT

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Sp

1648 UT

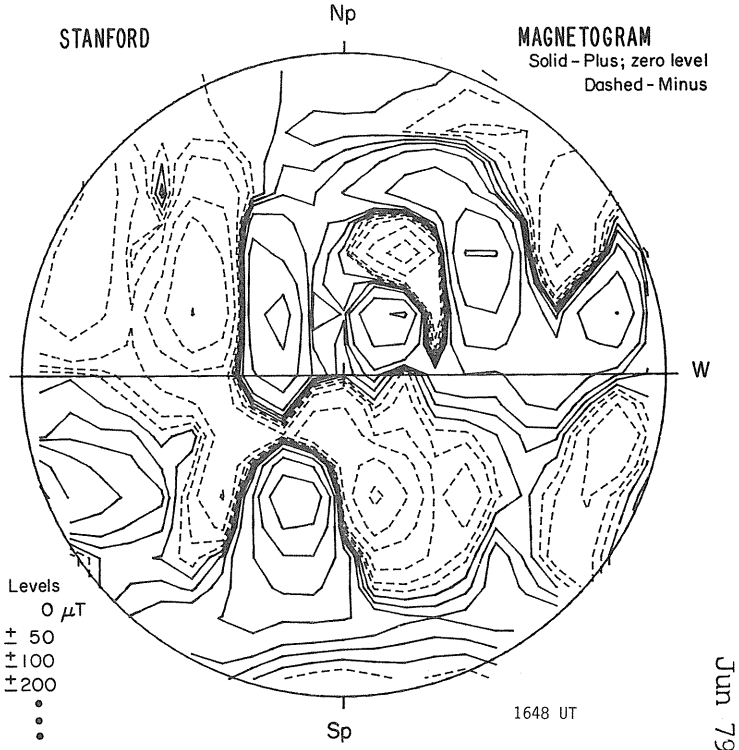
Levels

0 μT

± 50

± 100

± 200



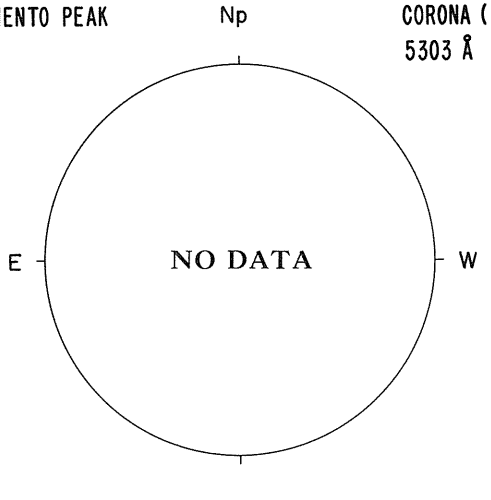
63

Jun 79

JUNE 8, 1979 (P=-12.97, B_o=0.15, L_o=158.45)

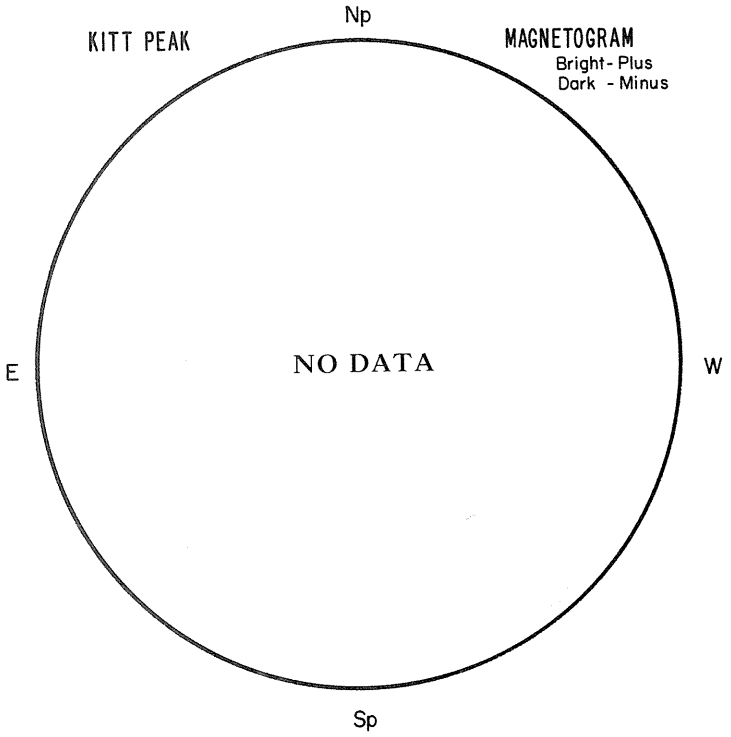
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

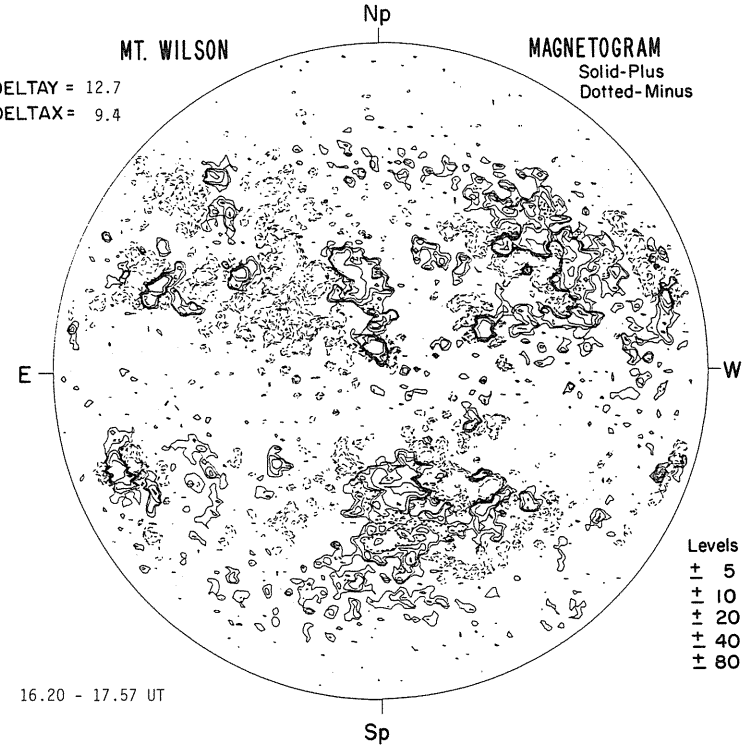
MAGNETOGRAM
Bright-Plus
Dark -Minus



MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

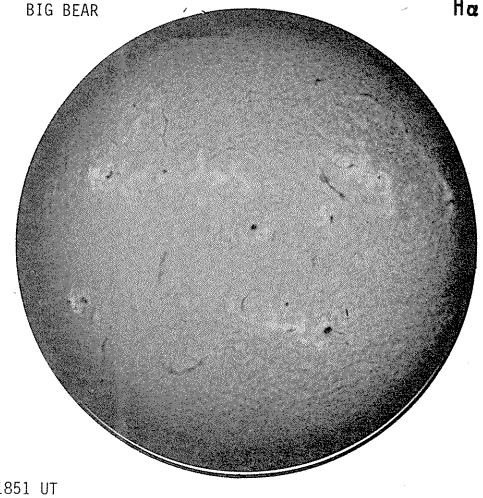
DELTAY = 12.7
DELTAX = 9.4



16.20 - 17.57 UT

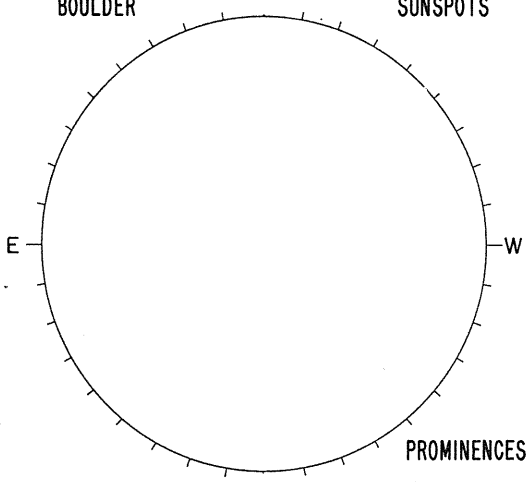
08

BIG BEAR Hα



1851 UT

BOULDER SUNSPOTS

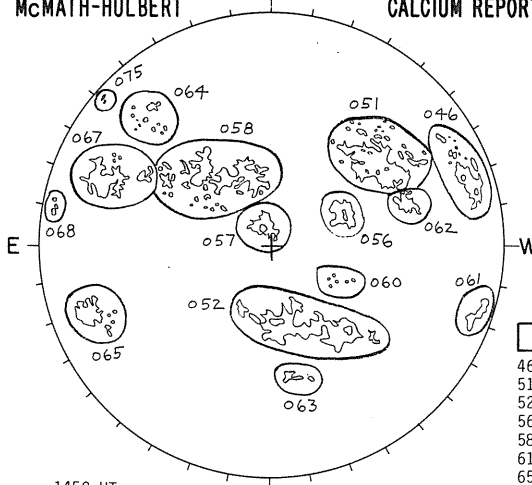


NO DATA

PROMINENCES

NO DATA

McMATH-HULBERT CALCIUM REPORT



1450 UT

FAIR	M
46- 3800-3.0	
51- 6000-3.5	
52- 6300-3.0	
56- 1400-2.5	
58- 4500-2.5	
61- 1000-3.0	
65- 2100-3.0	
67- 4000-3.5	

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E WEATHER W

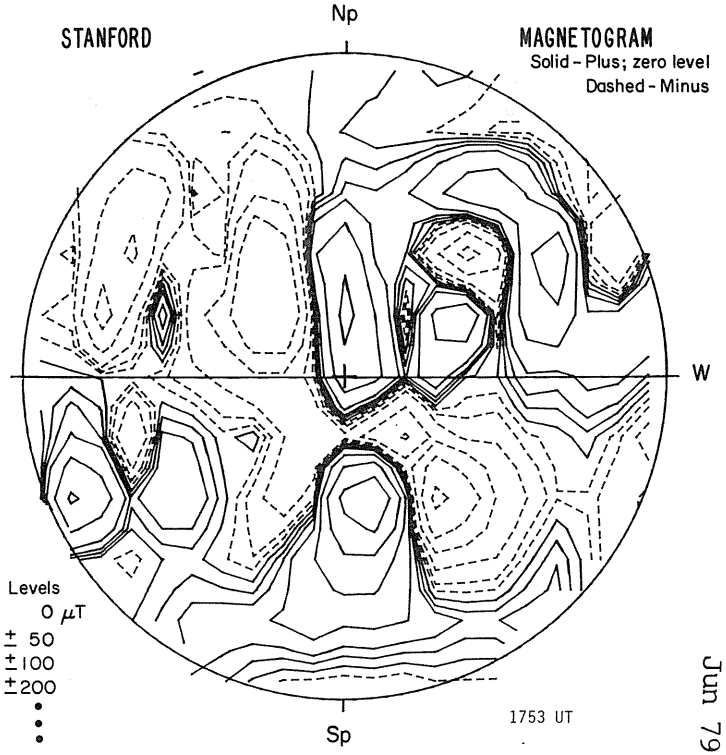
---- UT

Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

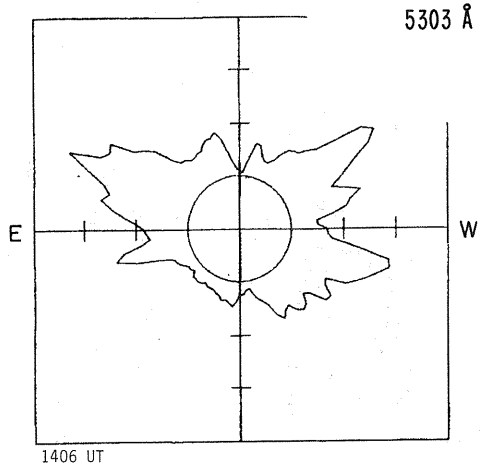


1753 UT

65
Jun 79

JUNE 9, 1979 (P =-12.57, B_o = 0.27, L_o = 145.21)

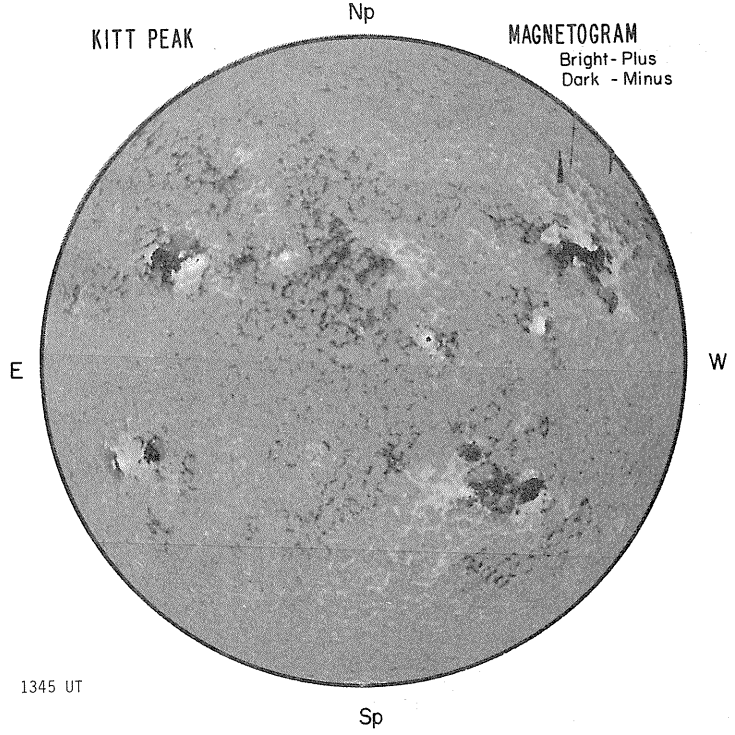
SACRAMENTO PEAK



CORONA (1.15 $R_\odot$)
5303 Å

1406 UT

KITT PEAK

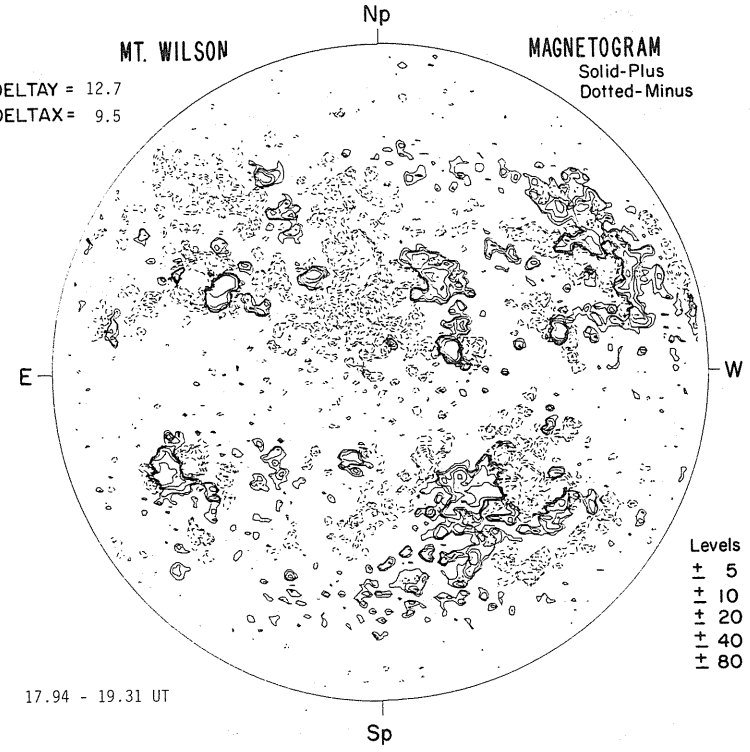


MAGNETOGRAM
Bright - Plus
Dark - Minus

1345 UT

MT. WILSON

DELTAY = 12.7
DELTAX = 9.5



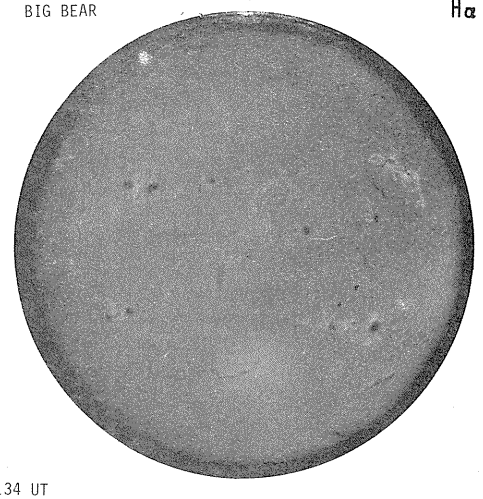
MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
± 5
± 10
± 20
± 40
± 80

17.94 - 19.31 UT

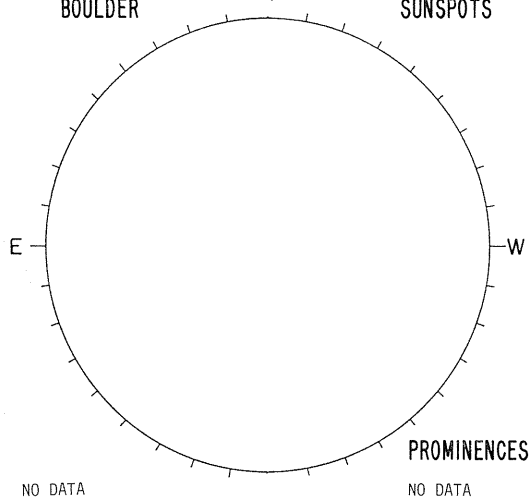
09

BIG BEAR Hα



2134 UT

BOULDER SUNSPOTS

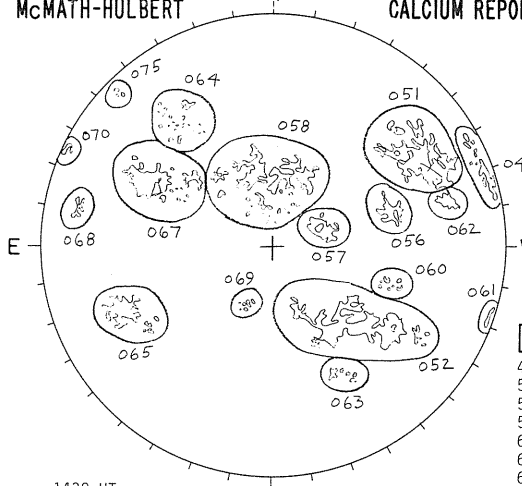


NO DATA

PROMINENCES

NO DATA

McMATH-HULBERT CALCIUM REPORT

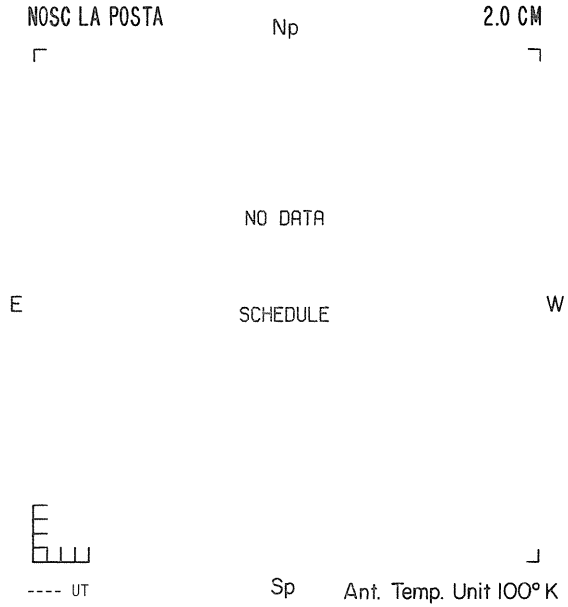


1430 UT

GOOD	M

46- 3000-2.0
51- 6500-3.5
52- 6500-2.5
58- 4300-2.5
61- 1000-2.5
62- 0900-2.5
65- 2600-3.5
67- 4400-3.5

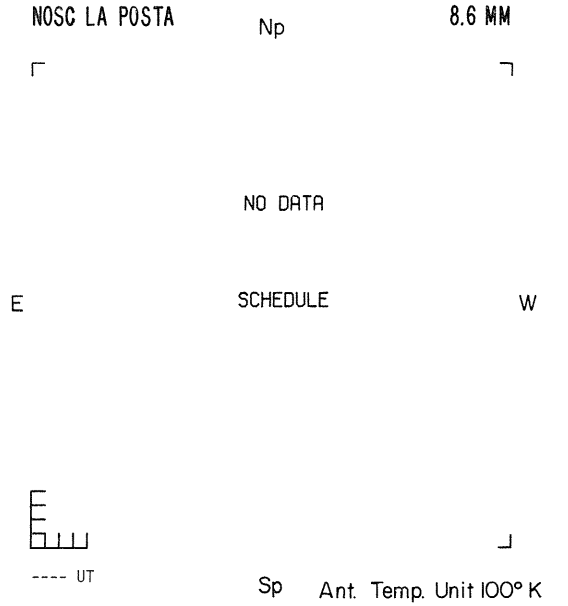
NOSC LA POSTA 2.0 CM



---- UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

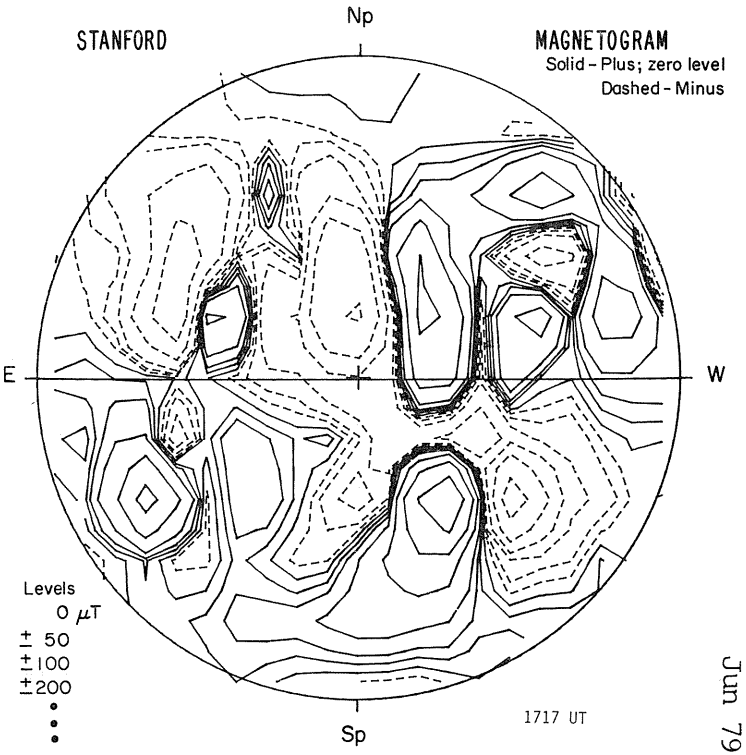


---- UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

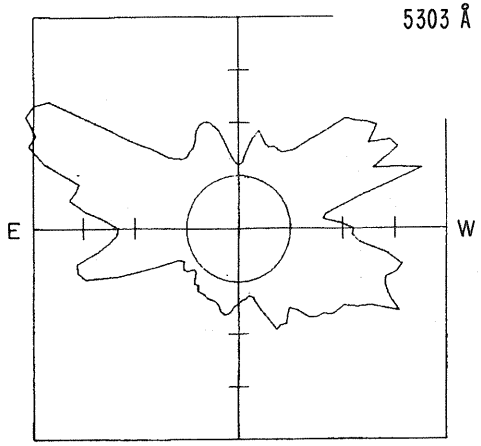


1717 UT

67
Jun 79

JUNE 10, 1979 (P =-12.16, B_o =0.39, L_o =131.97)

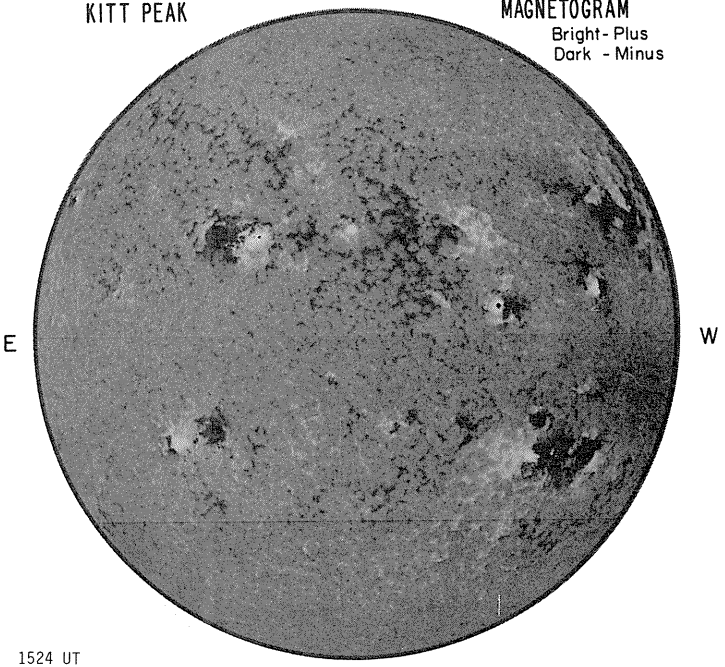
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1356 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



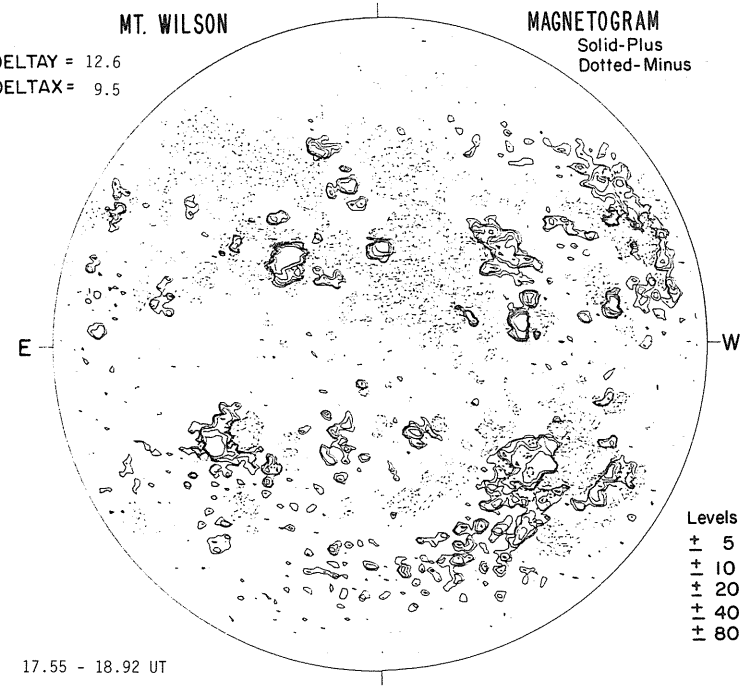
1524 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



17.55 - 18.92 UT

Sp

IO

BIG BEAR

Np

Hα

E

W

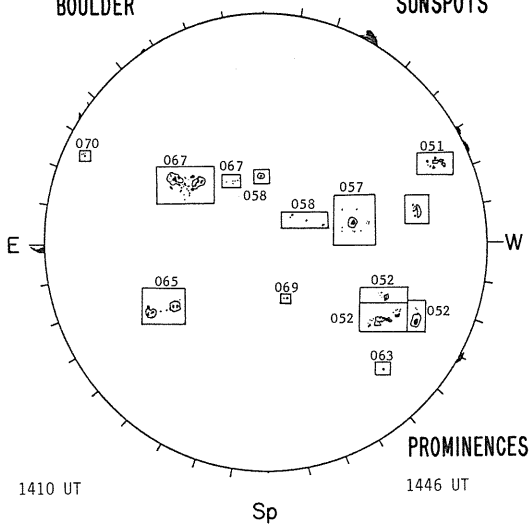
Sp

1833 UT

BOULDER

Np

SUNSPOTS



E

W

PROMINENCES

Sp

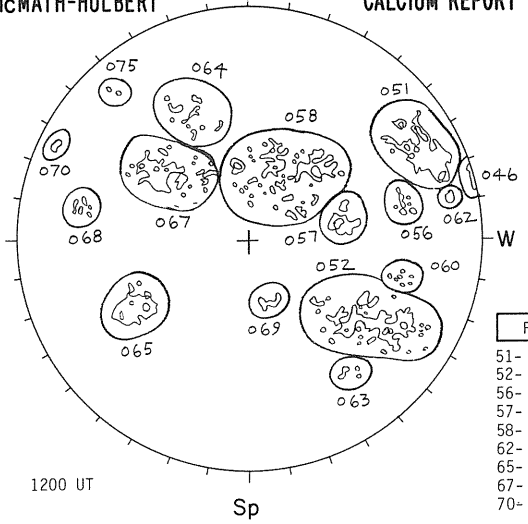
1410 UT

1446 UT

McMATH-HULBERT

Np

CALCIUM REPORT



E

W

Sp

1200 UT

FAIR	S

51- 6500-3.5
52- 6500-3.0
56- 1000-2.5
57- 1200-3.5
58- 4800-2.5
62- 0800-2.5
65- 2800-3.0
67- 4200-3.0
70- 0800-3.0

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

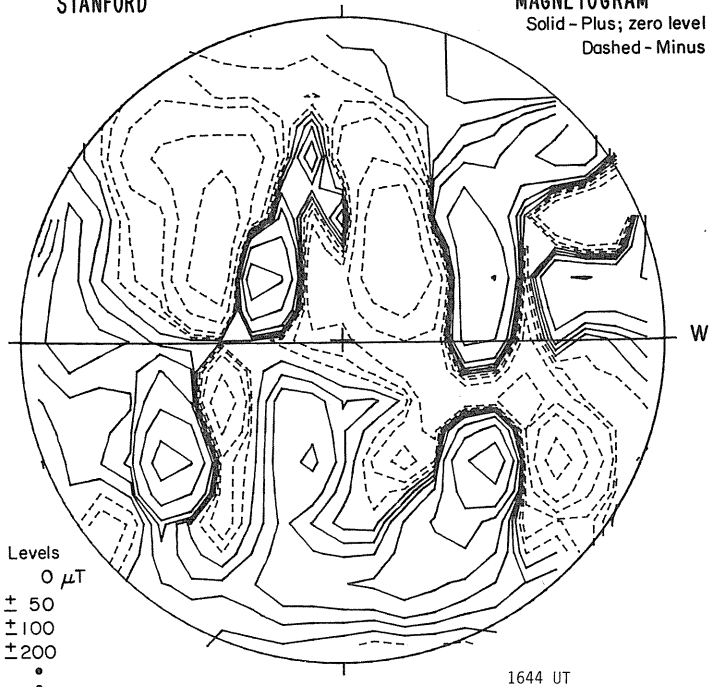
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

± 100

± 200

Sp

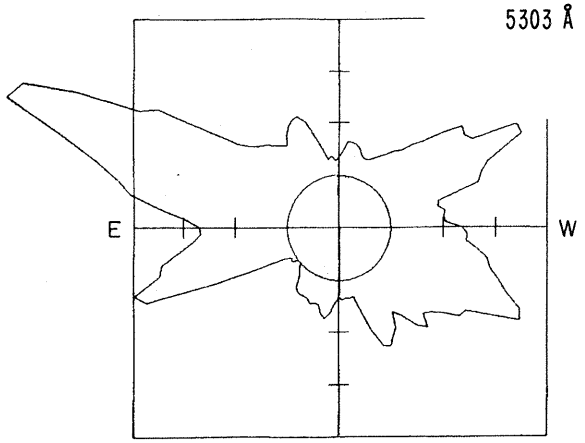
1644 UT

69

Jun 79

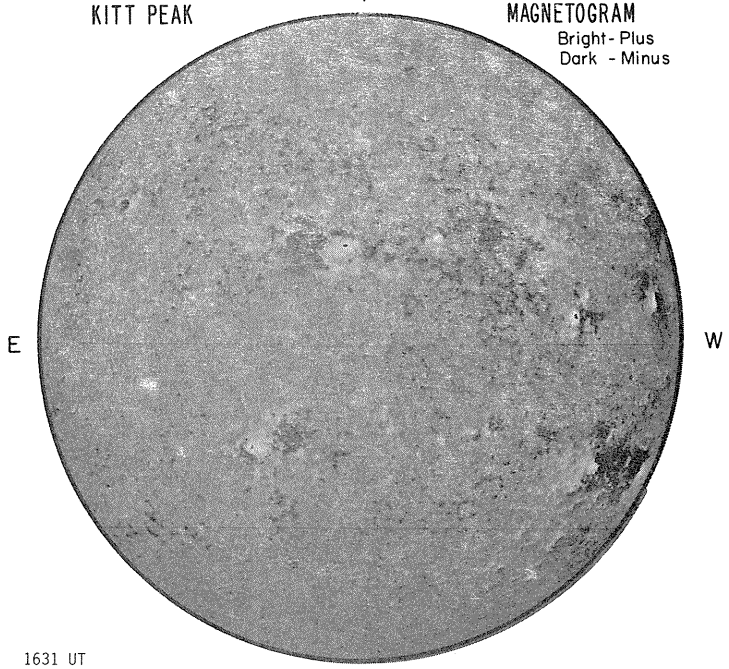
JUNE 11, 1979 (P=-11.75, B_o=0.51, L_o=118.74)

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



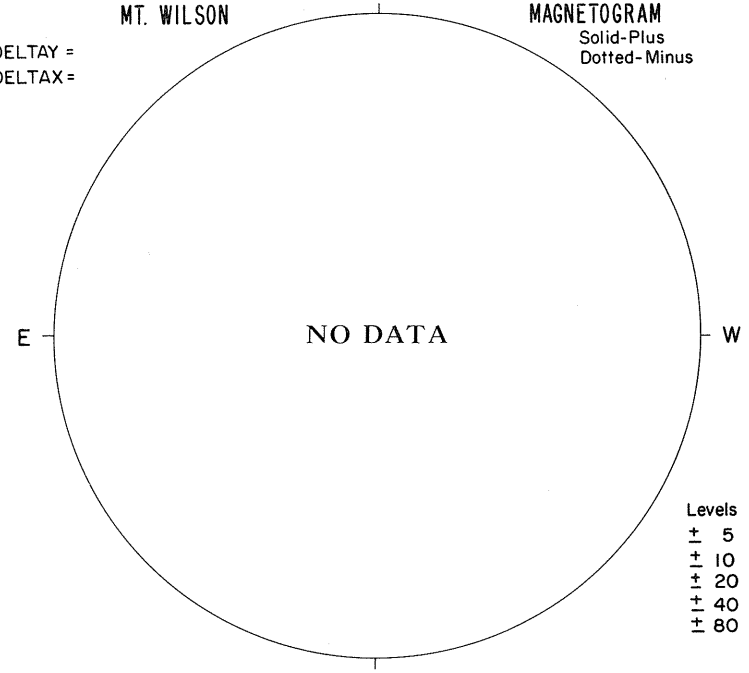
Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX=



Sp

II

BIG BEAR

Np

Hα

E

W

Sp

1937 UT

BOULDER SUNSPOTS

Np

070 058 051 067 057 056 074 065 069 052 052

E W

Sp

1258 UT

PROMINENCES

1304 UT

McMATH-HULBERT CALCIUM REPORT

Np

075 064 058 051 070 067 073 062 068 056 057 072 052 074 065 069 063

E W

Sp

1330 UT

GOOD	S
51-	6500-3.0
52-	6800-2.5
56-	1000-2.5
57-	1400-3.0
58-	5100-3.0
62-	0300-3.0
65-	3200-3.0
67-	4600-3.0
70-	0700-3.5
73-	0500-2.5
74-	0800-2.5

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

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

1923 UT

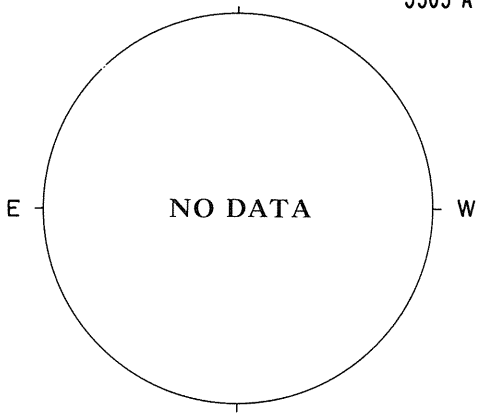
71

Jun 79

JUNE 12, 1979 (P=-11.34, B_o=0.63, L_o=105.50)

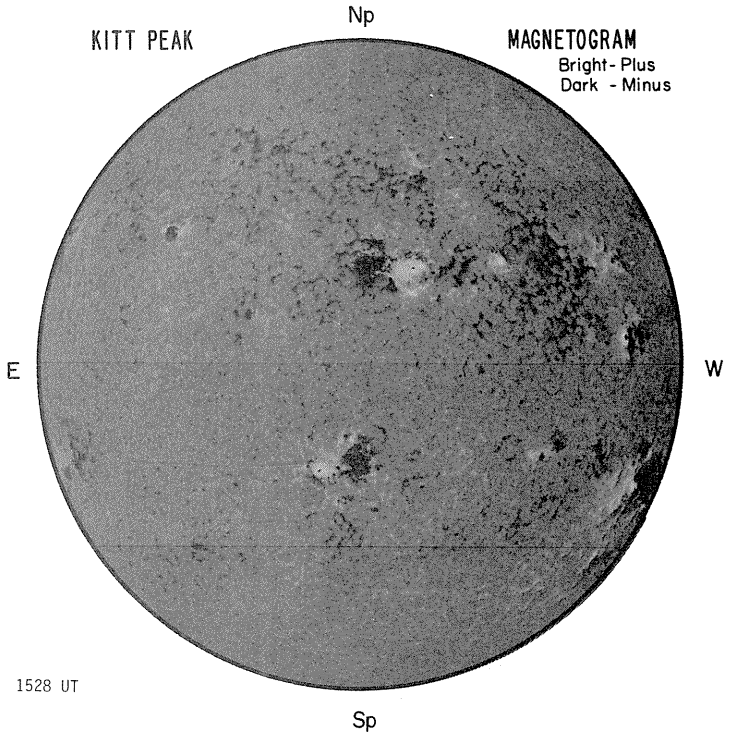
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright- Plus
Dark - Minus

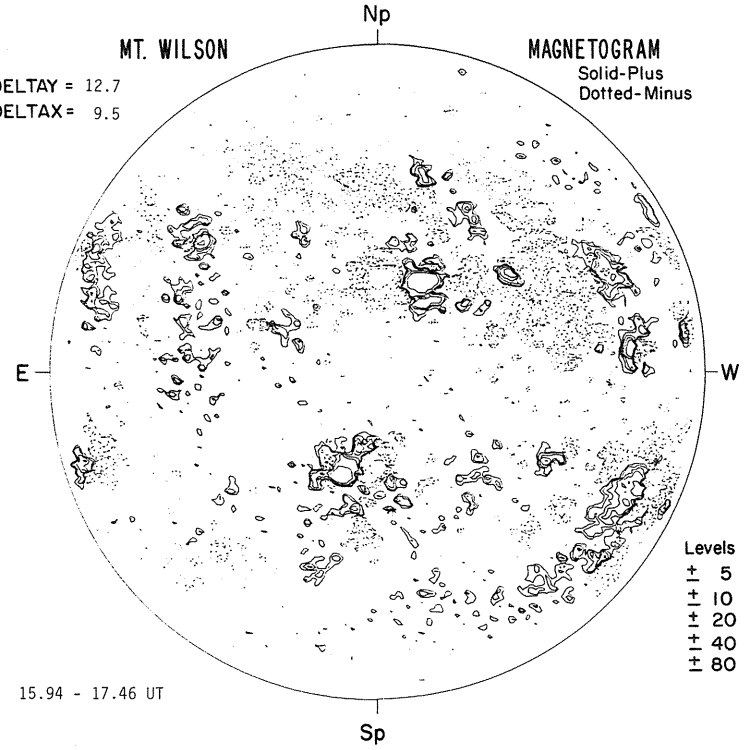


1528 UT

MT. WILSON

DELTAY = 12.7
DELTAX = 9.5

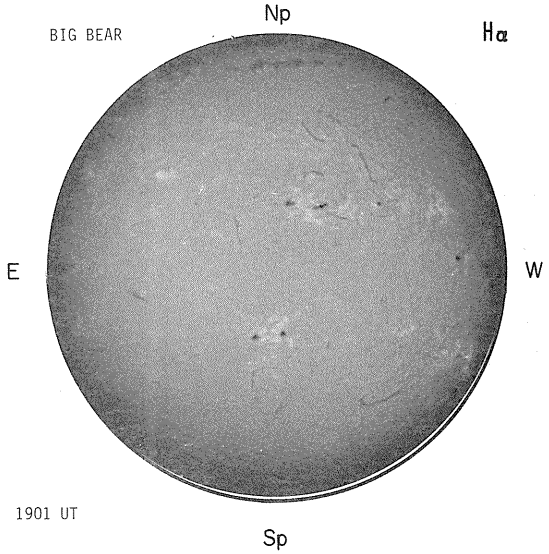
MAGNETOGRAM
Solid-Plus
Dotted-Minus



15.94 - 17.46 UT

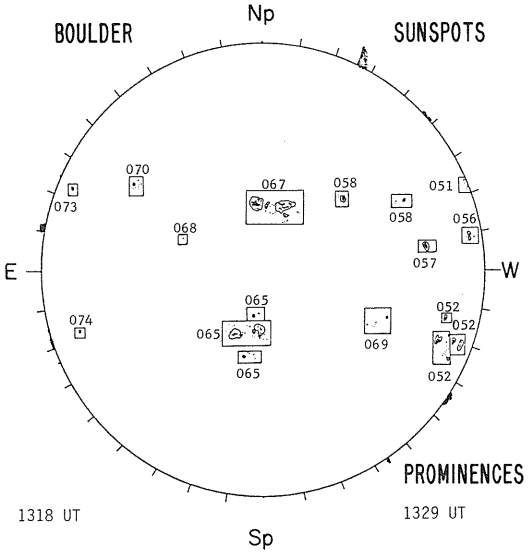
12

BIG BEAR



1901 UT

BOULDER SUNSPOTS

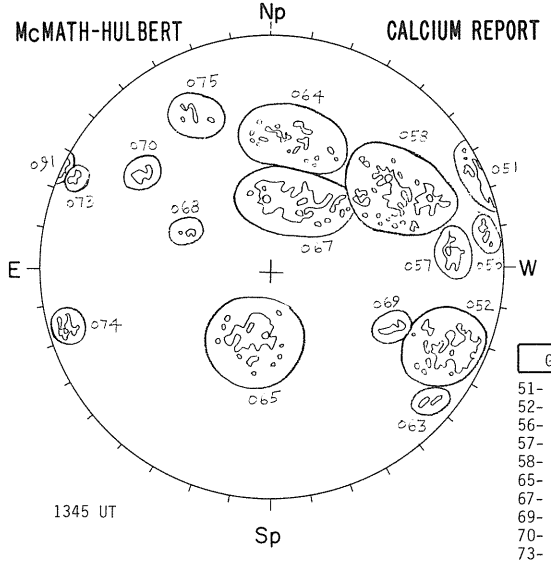


1318 UT

PROMINENCES

1329 UT

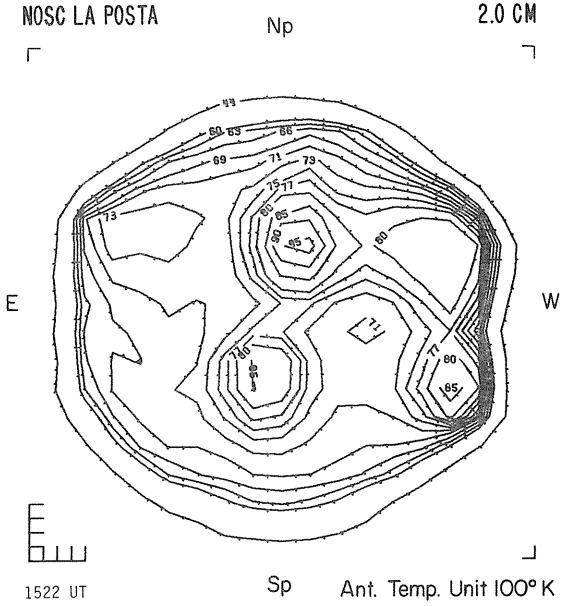
McMATH-HULBERT CALCIUM REPORT



1345 UT

GOOD	S
51-	3500-2.5
52-	6500-2.5
56-	0800-2.5
57-	1600-2.5
58-	5000-2.5
65-	3800-3.0
67-	4800-3.5
69-	0600-2.5
70-	0700-3.5
73-	1000-2.5
74-	1500-2.5

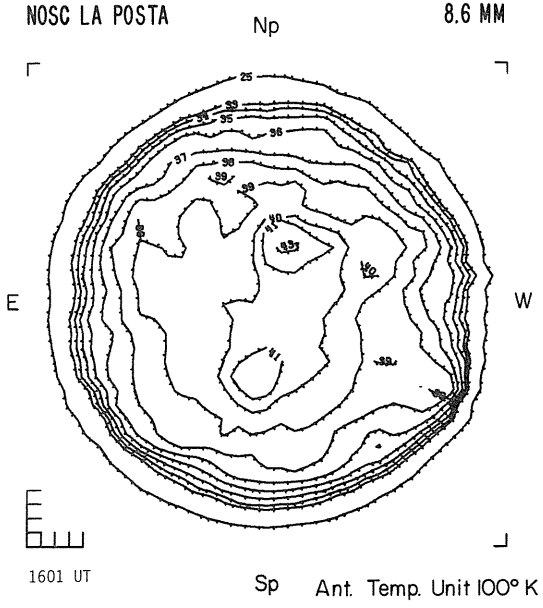
NOSC LA POSTA 2.0 CM



1522 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

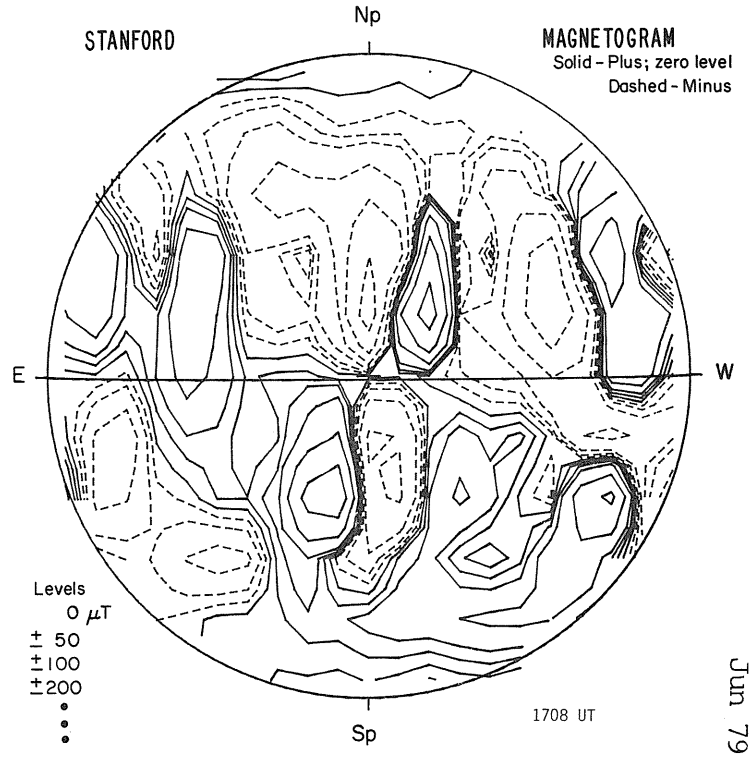


1601 UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



1708 UT

73
Jun 79

JUNE 13, 1979 (P=-10.92, B_o=0.75, L_o=92.27)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright- Plus
Dark - Minus

E

W

1448 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

E

W

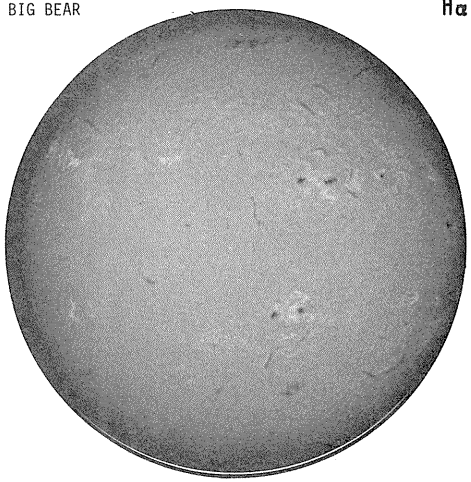
Levels
± 5
± 10
± 20
± 40
± 80

15.88 - 17.24 UT

Sp

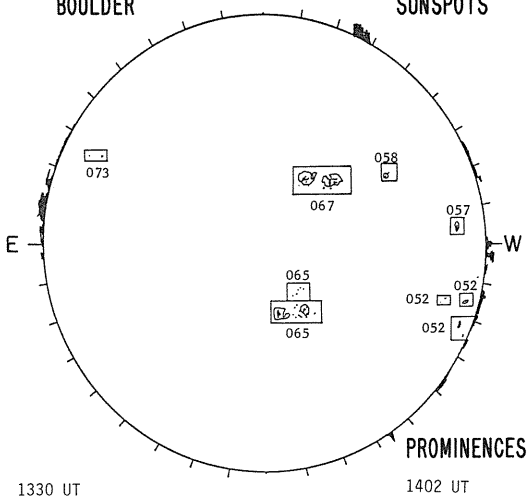
13

BIG BEAR Hα



2000 UT

BOULDER SUNSPOTS

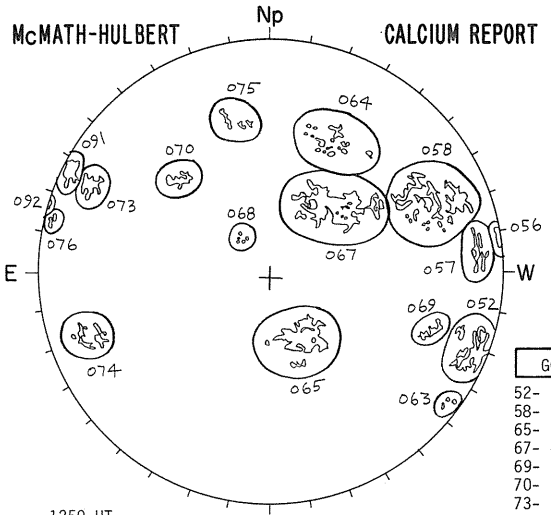


1330 UT

PROMINENCES

1402 UT

McMATH-HULBERT CALCIUM REPORT

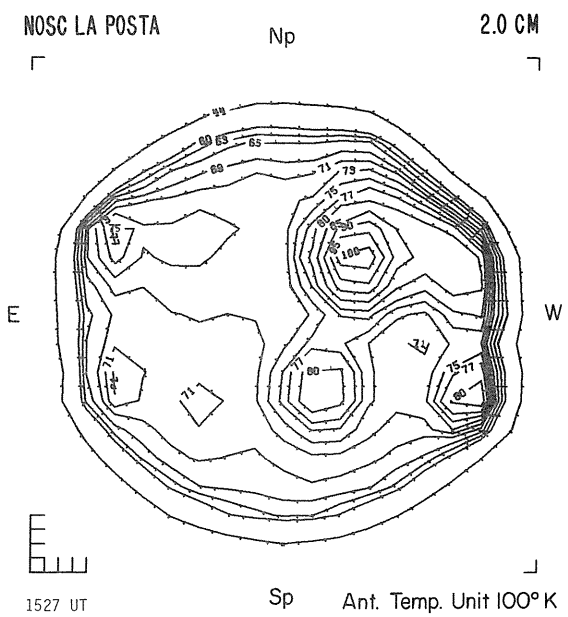


1250 UT

GOOD	M

52- 5200-3.0
58- 5000-2.5
65- 3800-3.5
67- 4300-3.5
69- 0600-3.0
70- 0800-2.5
73- 1600-3.0
74- 1500-3.0
76- 0600-2.5
91- 2200-3.0

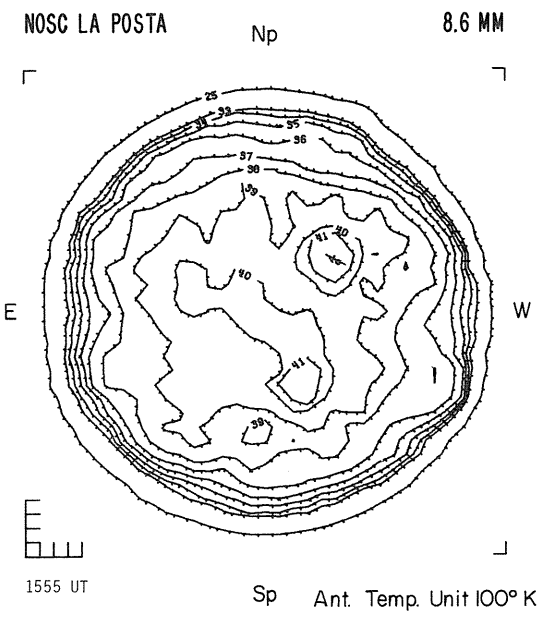
NOSC LA POSTA 2.0 CM



1527 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

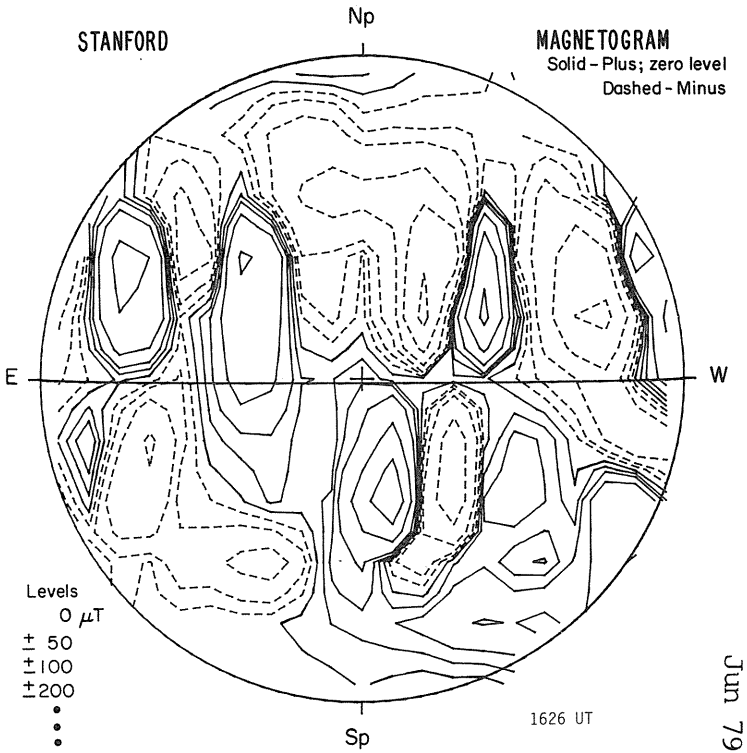


1555 UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
±100
±200

1626 UT

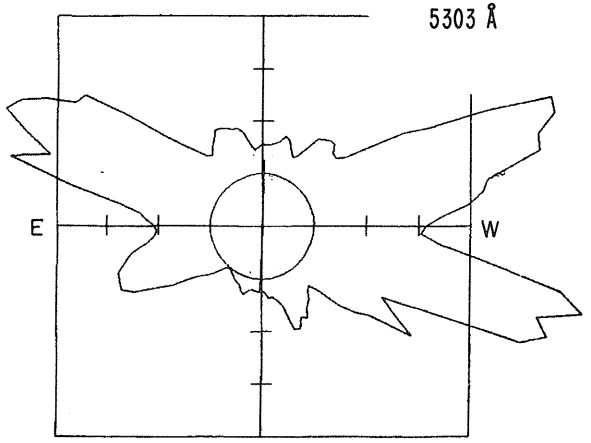
75 Jun 79

JUNE 14, 1979 (P =-10.50, B_o = 0.87, L_o = 79.03)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



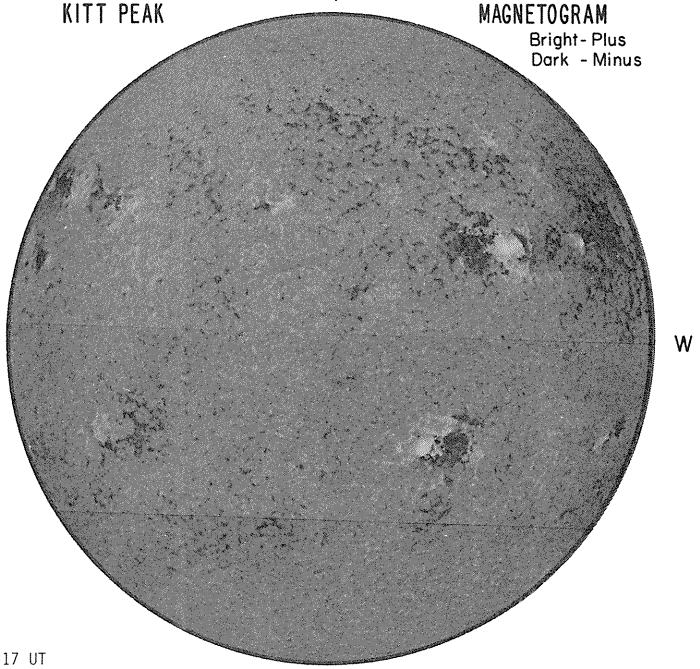
1421 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1317 UT

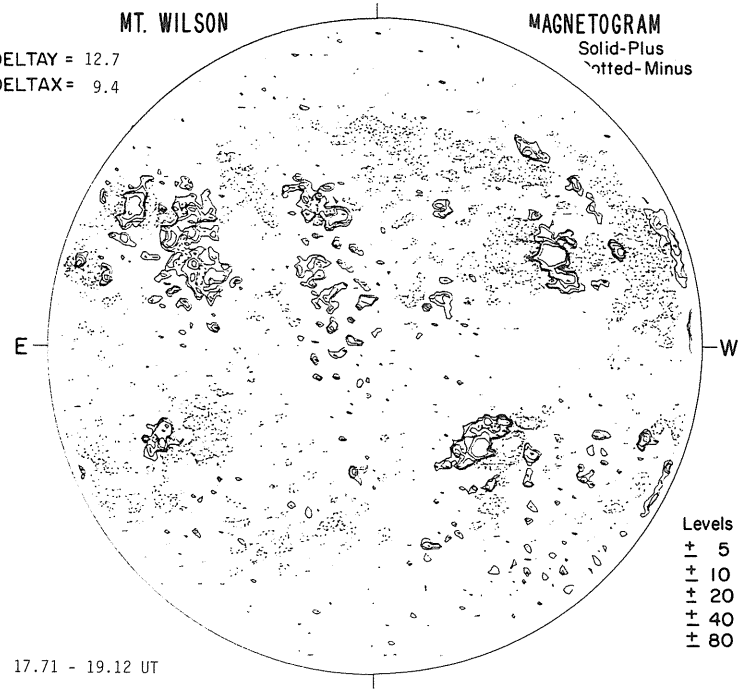
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.4



17.71 - 19.12 UT

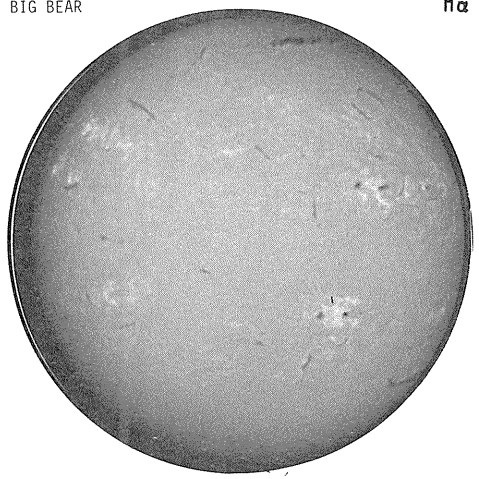
Sp

14

BIG BEAR

Np

Hα



E W

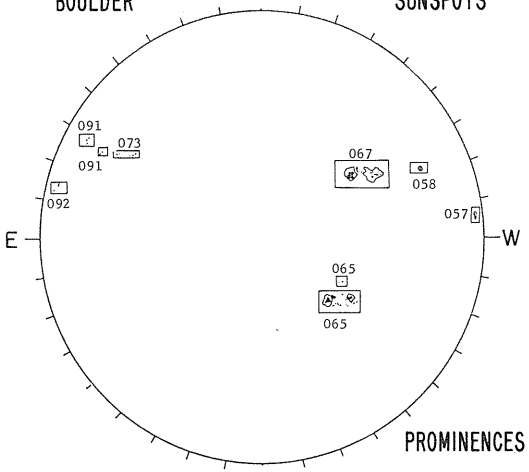
Sp

1849 UT

BOULDER

Np

SUNSPOTS



E W

Sp

1445 UT

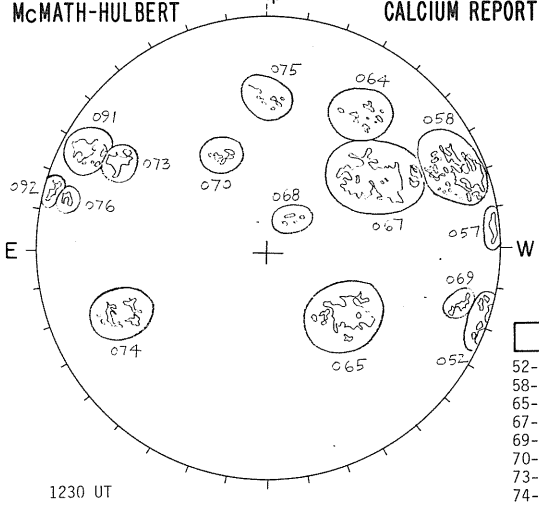
PROMINENCES

NO DATA

McMATH-HULBERT

Np

CALCIUM REPORT



E W

Sp

1230 UT

GOOD	M

52- 3500-2.5
58- 4500-2.5
65- 3800-3.5
67- 4500-3.5
69- 0700-2.5
70- 0500-2.5
73- 1500-3.0
74- 1500-2.5
76- 0500-3.0
91- 2300-3.0
92- 1200-3.0

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

CALIBRATION

W

Sp

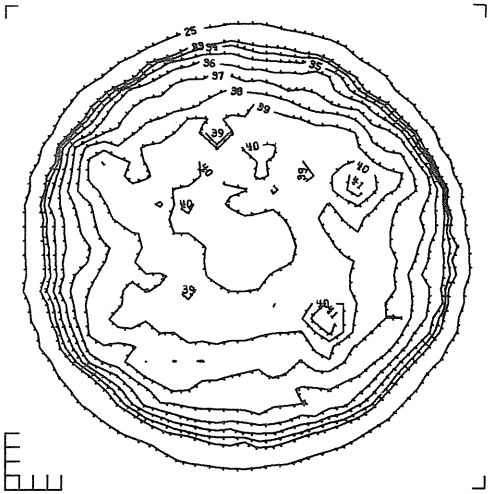
Ant. Temp. Unit 100° K

1514 UT

NOSC LA POSTA

Np

8.6 MM



E W

Sp

Ant. Temp. Unit 100° K

1559 UT

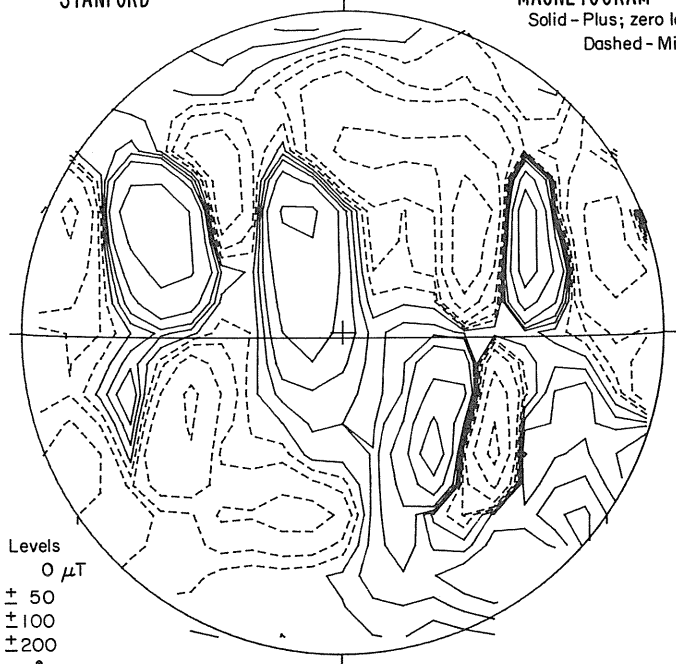
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

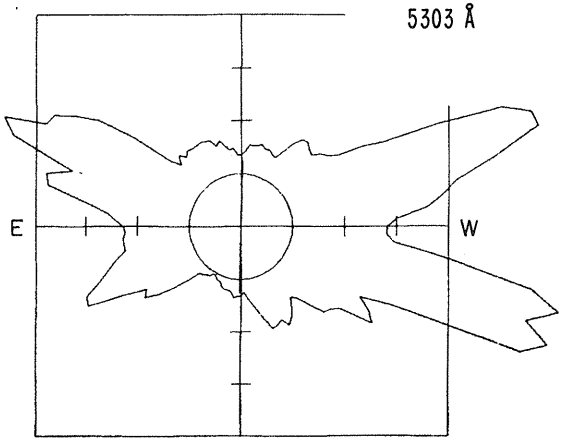
Sp

1755 UT

77 Jun 79

JUNE 15, 1979 (P=-10.07, B_o=0.99, L_o=65.79)

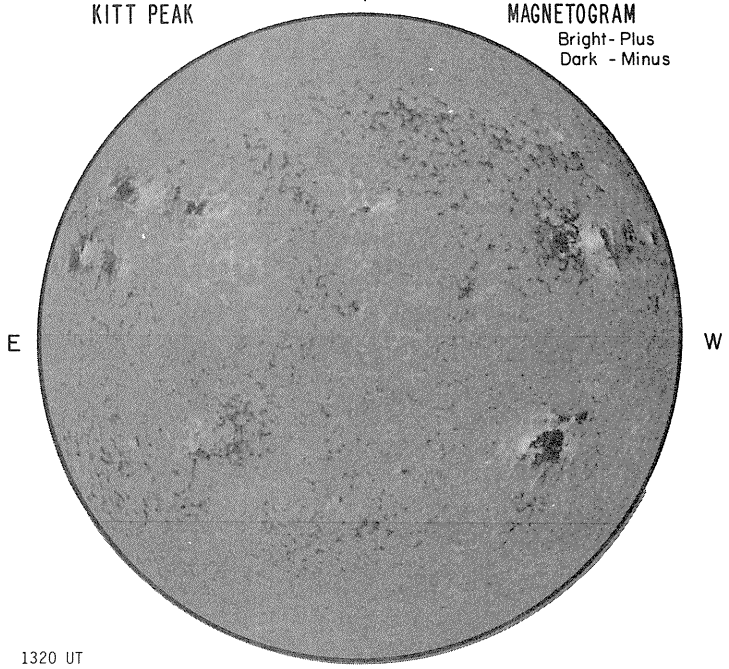
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1408 UT

Sp

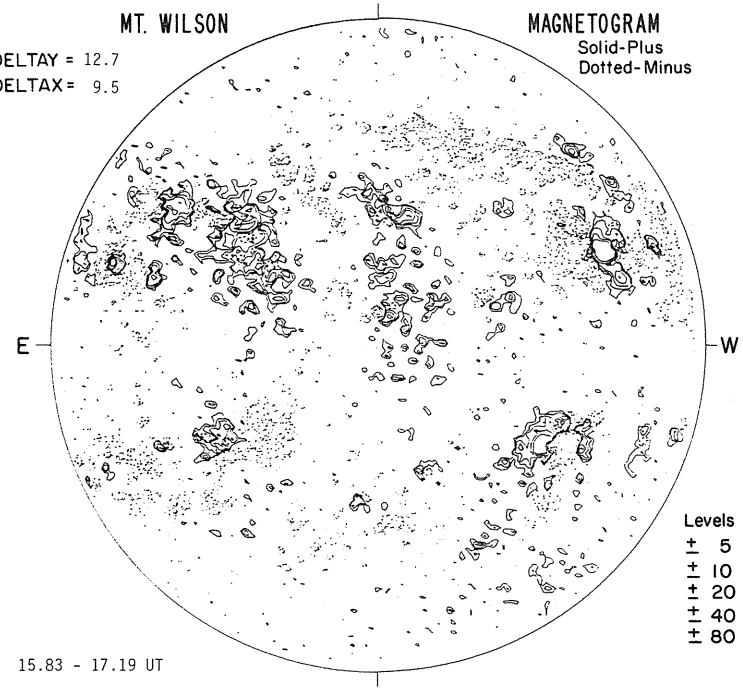
KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus



1320 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.5



15.83 - 17.19 UT

Sp

15

BIG BEAR

Np

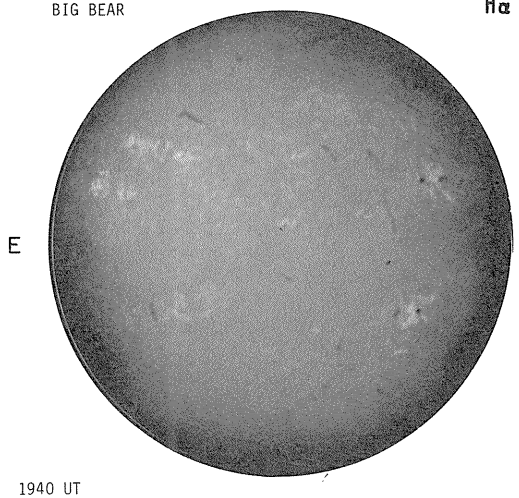
Hα

E

W

Sp

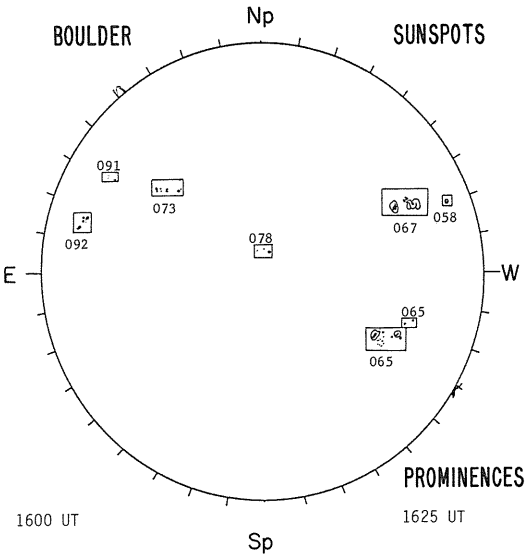
1940 UT



BOULDER

Np

SUNSPOTS



E

W

Sp

1600 UT

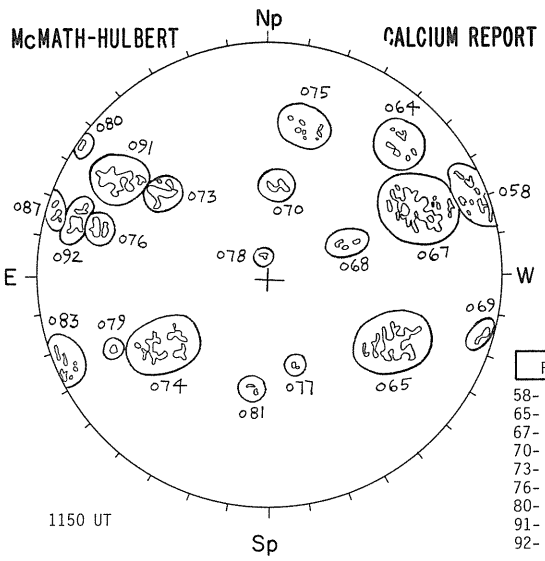
PROMINENCES

1625 UT

McMATH-HULBERT

Np

CALCIUM REPORT



E

W

Sp

1150 UT

FAIR	M
58-	3000-2.0
65-	3600-3.0
67-	4200-3.0
70-	0500-2.5
73-	1400-3.0
76-	0900-3.0
80-	0600-3.0
91-	2600-3.0
92-	1200-3.5

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

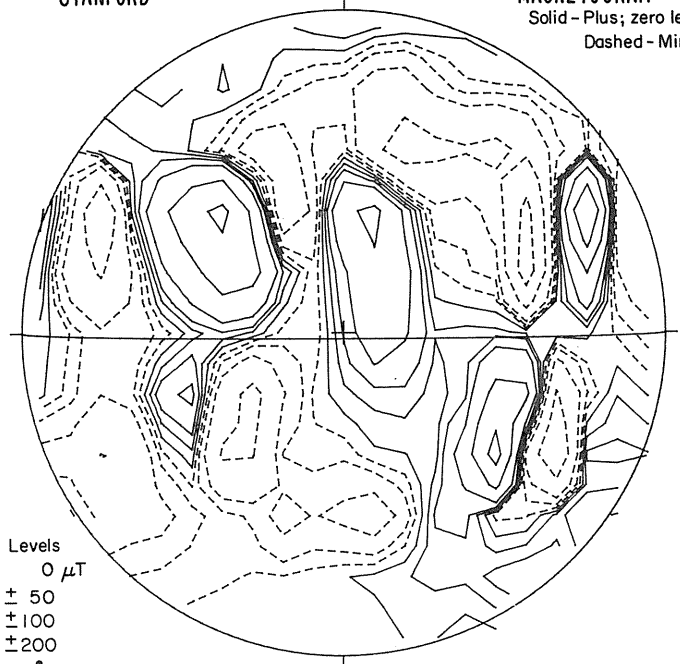
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

Sp

1650 UT

79 Jun 79

JUNE 16, 1979 (P=-9.64, B_o=1.11, L_o=52.55)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright-Plus
Dark -Minus

E

W

1404 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

E

W

Levels
± 5
± 10
± 20
± 40
± 80

15.26 - 16.94 UT

Sp

16

BIG BEAR Hα

Np

E W

Sp

2011 UT

BOULDER SUNSPOTS

Np

091 073 070 067 058 092 082 078 065 081

E W

Sp

1315 UT 1400 UT

PROMINENCES

McMATH-HULBERT CALCIUM REPORT

Np

064 091 080 075 073 084 070 067 058 087 092 076 082 078 068 085 079 074 077 065 083 081

E W

Sp

1230 UT

GOOD	M

65- 3600-3.0
67- 4500-3.0
73- 1400-3.0
76- 0800-3.0
78- 0400-2.5
80- 0500-3.0
91- 2300-3.5
92- 1600-3.0

NOSC LA POSTA Np 2.0 CM

NO DATA

E W

SCHEDULE

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E W

SCHEDULE

---- UT

Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

E W

Levels
0 μT
± 50
± 100
± 200

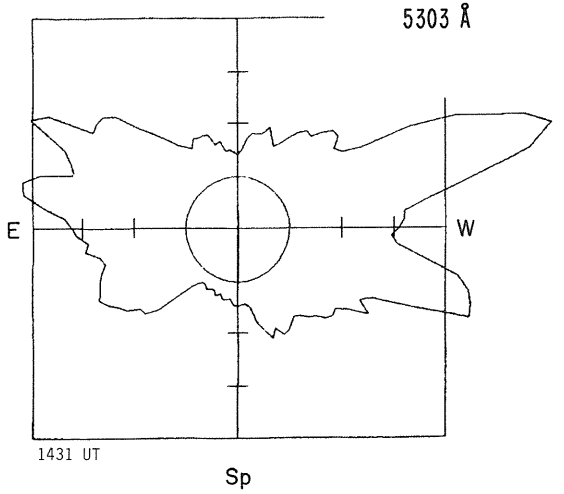
Sp

1624 UT

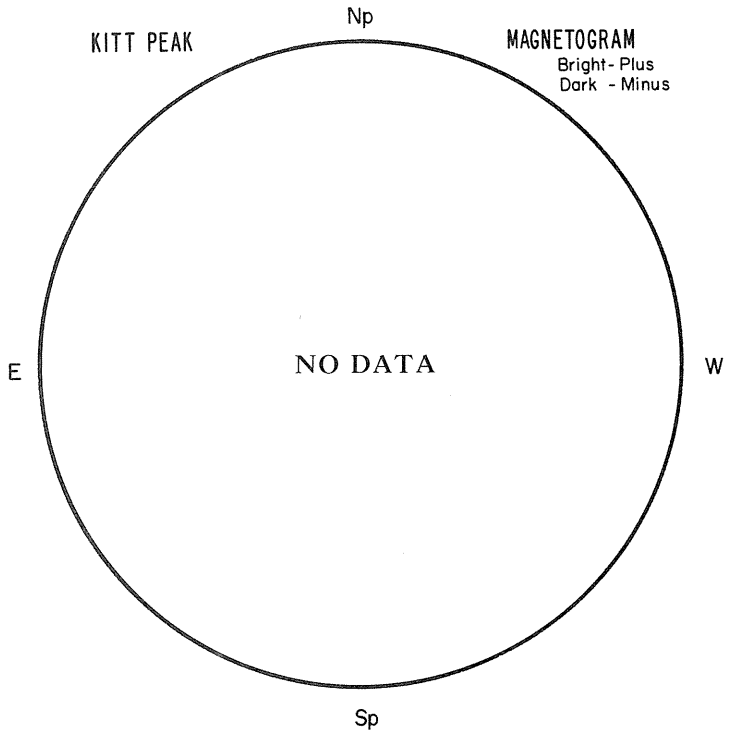
81 Jun 79

JUNE 17, 1979 (P =-9.21, B_o = 1.23, L_o = 39.32)

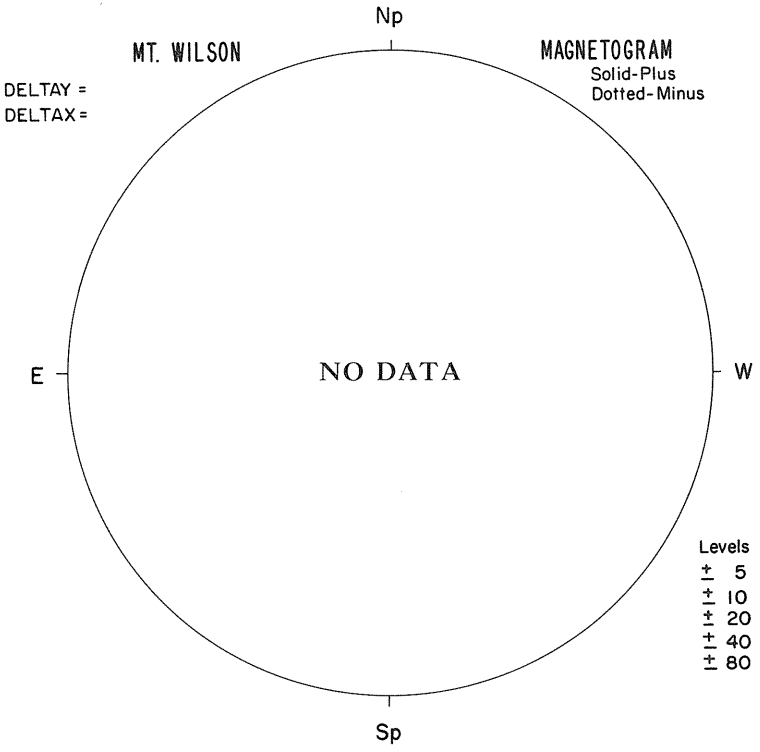
SACRAMENTO PEAK



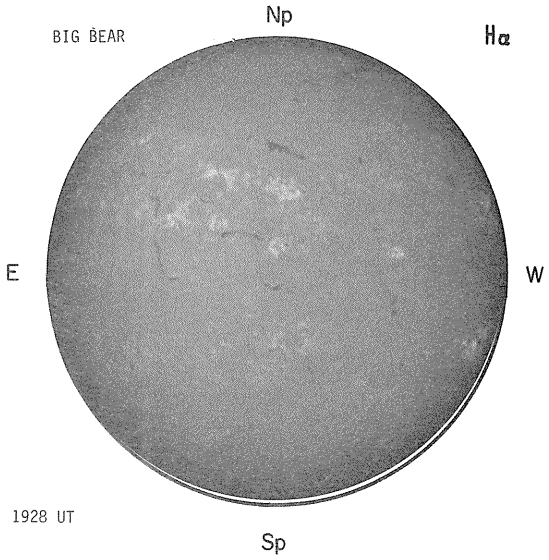
KITT PEAK

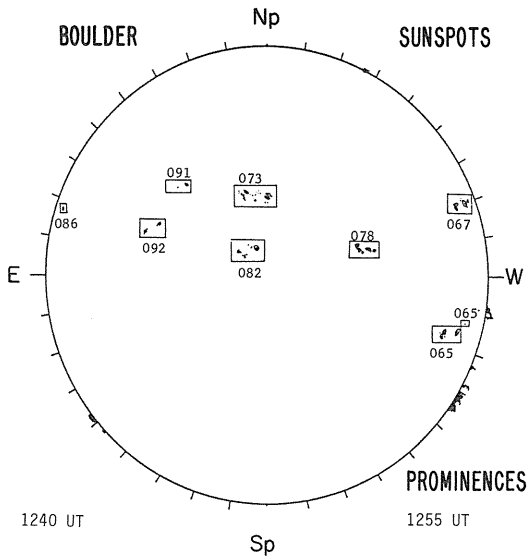


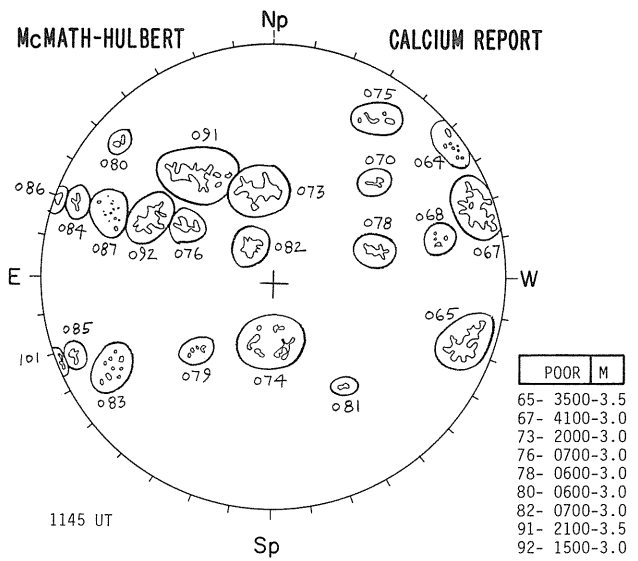
MT. WILSON

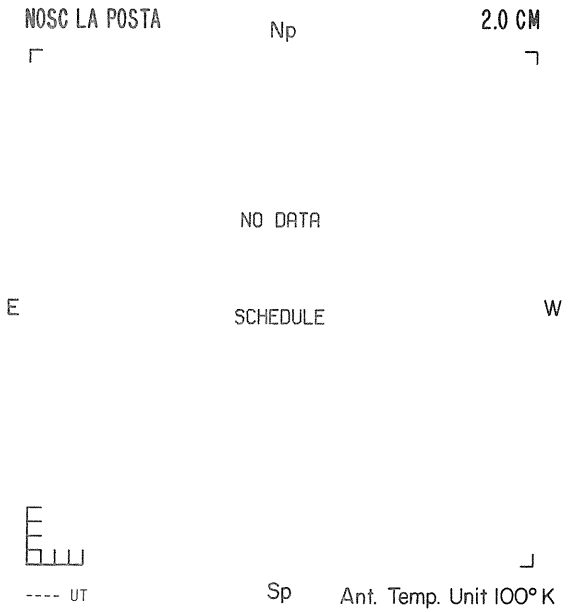


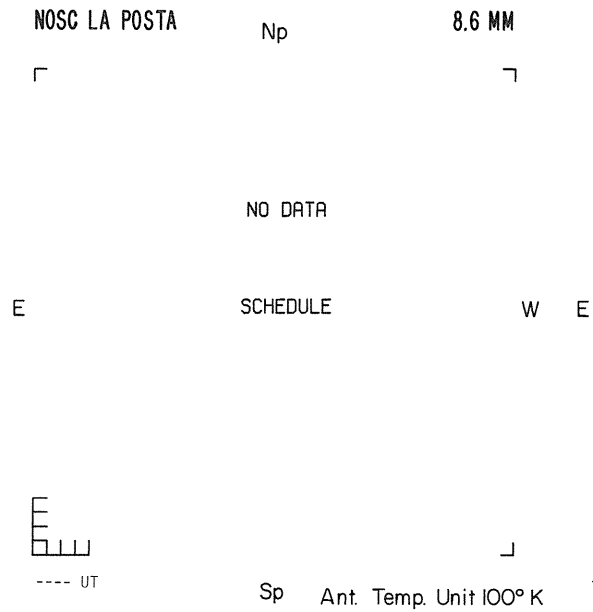
17

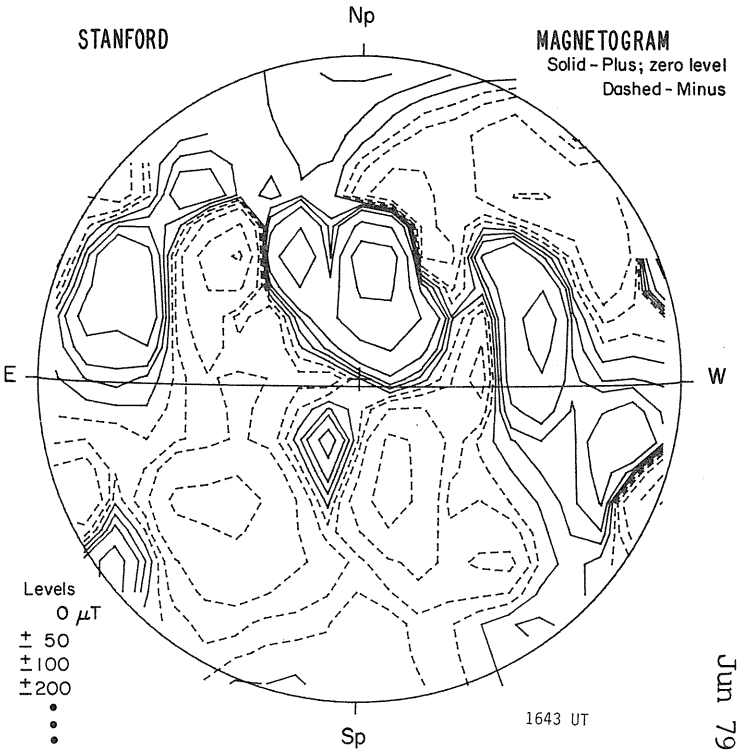

BIG BEAR
Hα
Np
E
W
Sp
1928 UT


BOULDER
SUNSPOTS
Np
E
W
Sp
1240 UT
1255 UT
PROMINENCES
091
073
086
092
082
078
067
065
065


McMATH-HULBERT
CALCIUM REPORT
Np
E
W
Sp
1145 UT
075
091
080
064
086
070
073
084
078
068
087
092
076
082
067
085
065
101
079
074
083
081
POOR | M
65- 3500-3.5
67- 4100-3.0
73- 2000-3.0
76- 0700-3.0
78- 0600-3.0
80- 0600-3.0
82- 0700-3.0
91- 2100-3.5
92- 1500-3.0

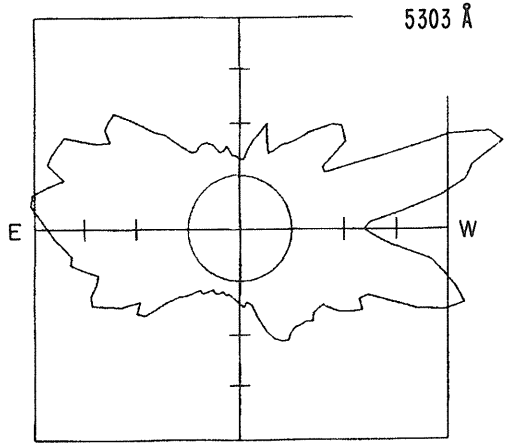

NOSC LA POSTA
Np
2.0 CM
NO DATA
E
SCHEDULE
W
---- UT
Sp
Ant. Temp. Unit 100° K


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


STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
1643 UT
Levels
0 μT
± 50
±100
±200

JUNE 18, 1979 (P =-8.78, B_o = 1.34, L_o = 26.08)

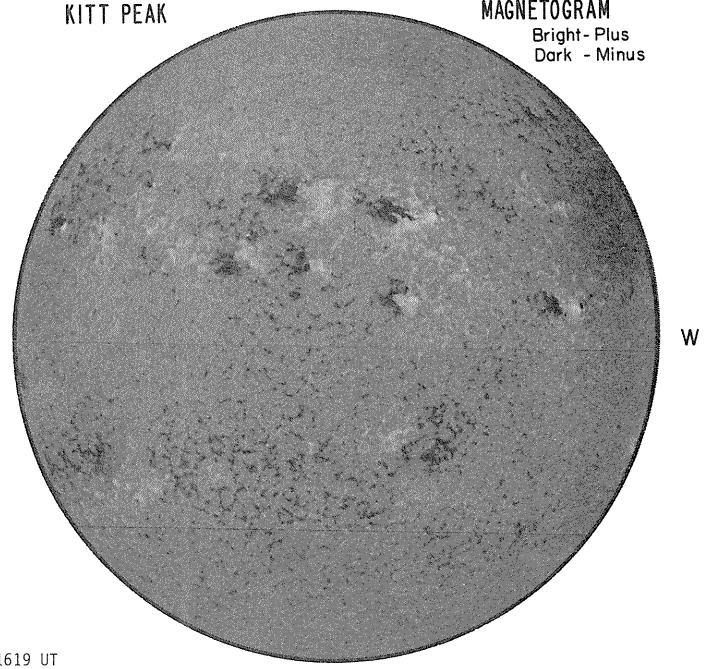
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1410 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1619 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

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

Sp

18

BIG BEAR

Np

Hα

E

W

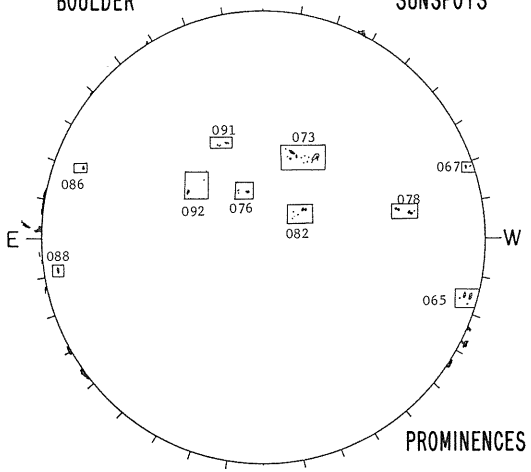
Sp

2145 UT

BOULDER

Np

SUNSPOTS



E

W

Sp

1430 UT

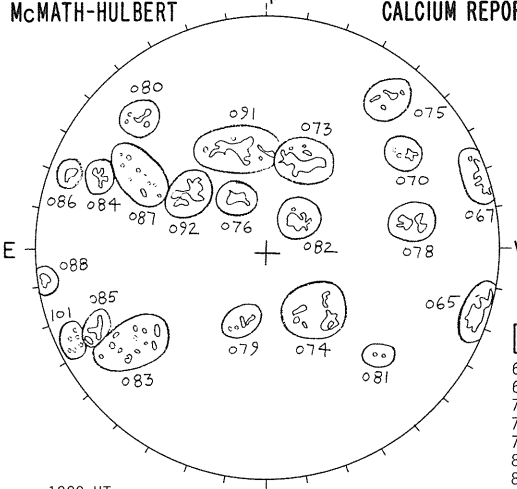
PROMINENCES

1603 UT

McMATH-HULBERT

Np

CALCIUM REPORT



E

W

Sp

1220 UT

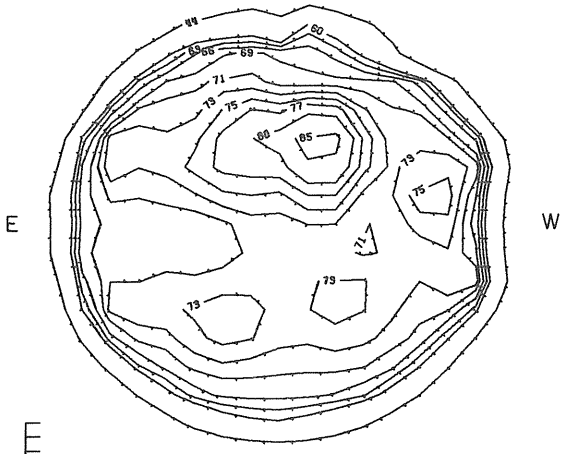
FAIR	M

65- 3200-3.5
67- 3200-2.5
73- 2200-3.5
76- 0600-3.0
78- 0900-2.5
80- 0500-2.5
82- 0700-3.0
86- 0800-2.5
88- 0800-3.5
91- 2000-3.0
92- 1200-3.0

NOSC LA POSTA

Np

2.0 CM



E

W

Sp

1625 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

CALIBRATION

E

W

Sp

1656 UT

Ant. Temp. Unit 100° K

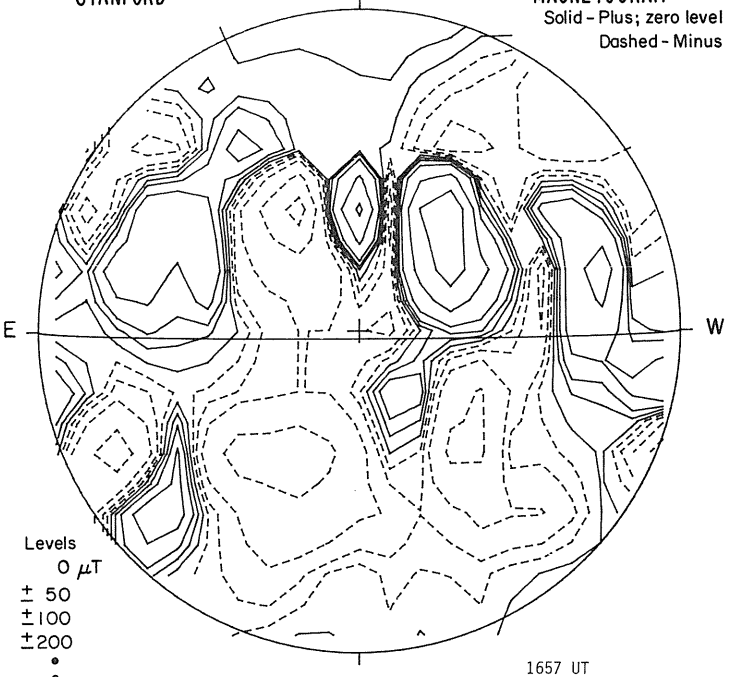
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Sp

1657 UT

Levels

0 μT

± 50

± 100

± 200

85

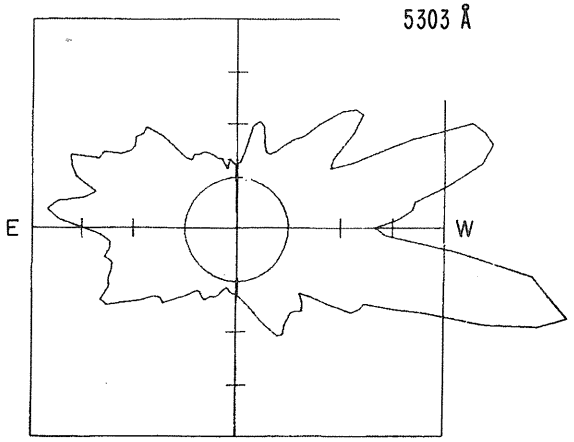
Jun 79

JUNE 19, 1979 (P =-8.34, B_o = 1.46, L_o = 12.84)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



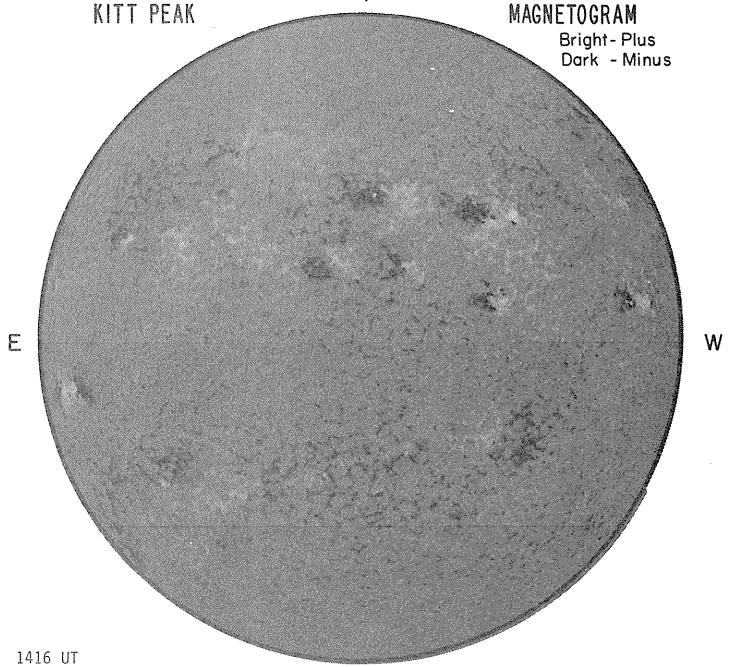
1339 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1416 UT

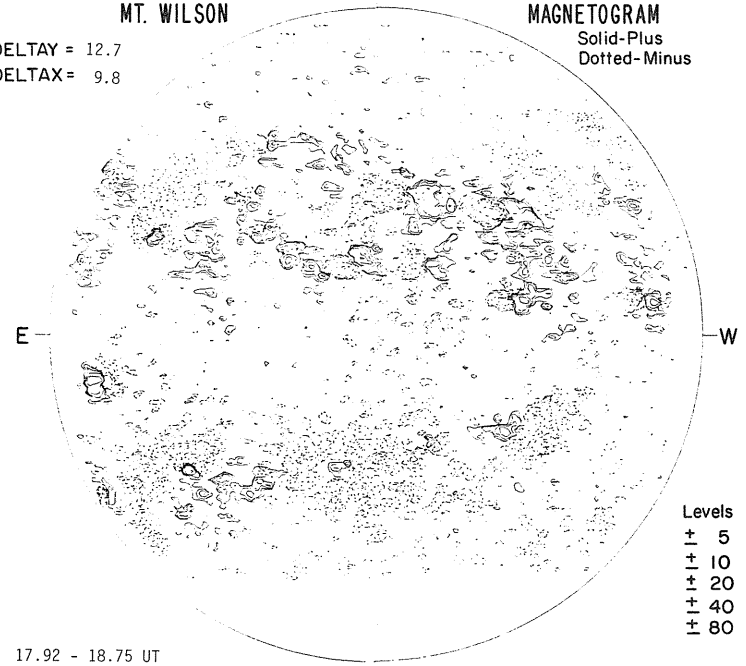
Sp

MT. WILSON

Np

DELTAY = 12.7
DELTAX = 9.8

MAGNETOGRAM
Solid-Plus
Dotted-Minus

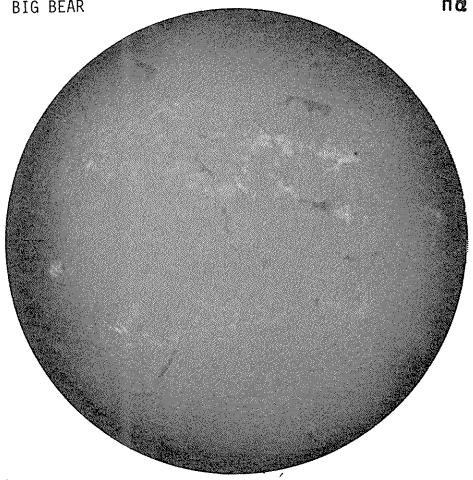


17.92 - 18.75 UT

Sp

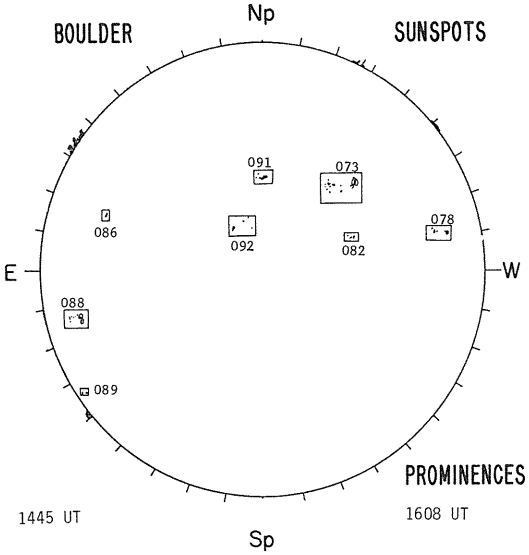
19

BIG BEAR Hα



2019 UT

BOULDER SUNSPOTS

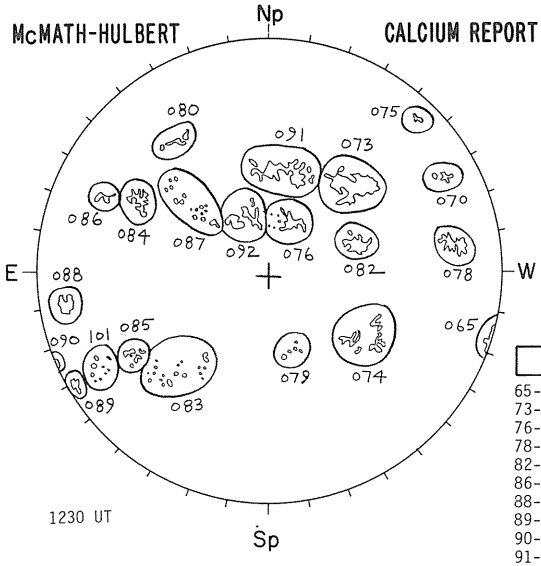


1445 UT

PROMINENCES

1608 UT

McMATH-HULBERT CALCIUM REPORT



1230 UT

GOOD	M
65- 1700-2.5	
73- 2300-3.5	
76- 0800-3.0	
78- 1000-3.0	
82- 0800-3.0	
86- 0500-2.5	
88- 1600-3.5	
89- 0700-3.0	
90- 0300-2.5	
91- 2200-3.0	
92- 1000-3.0	

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E EQUIPMENT W

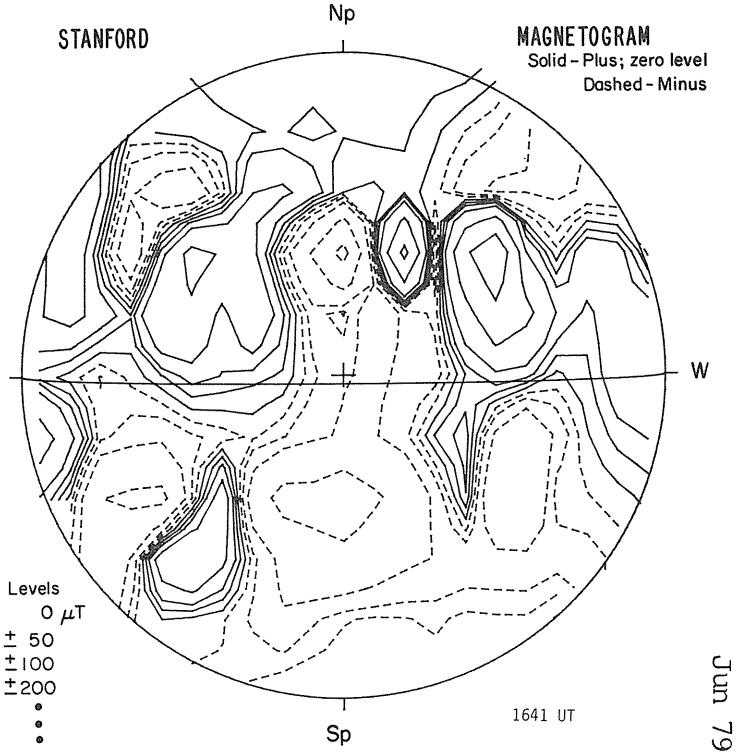
---- UT

Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



1641 UT

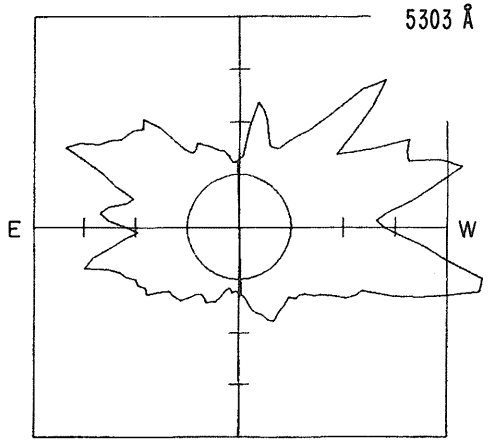
87 Jun 79

JUNE 20, 1979 (P = -7.90, B_o = 1.58, L_o = 359.61)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



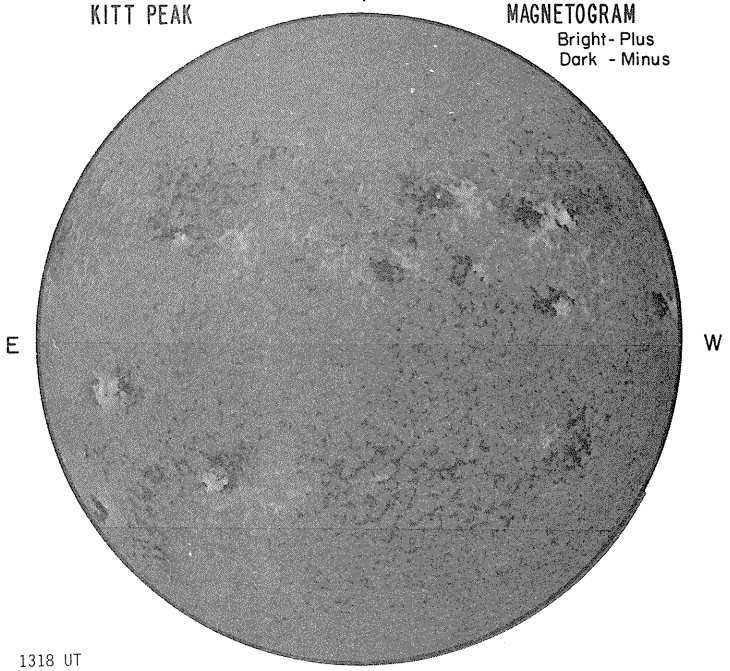
1403 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1318 UT

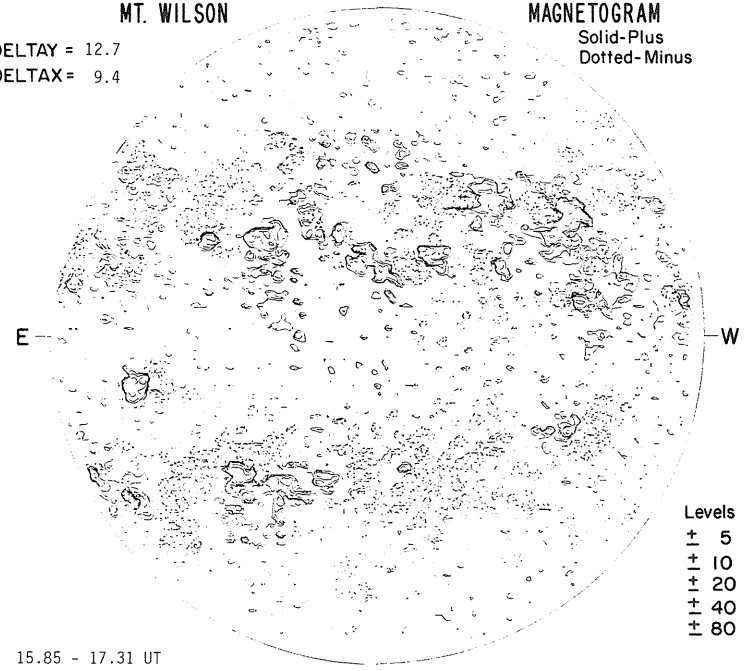
Sp

Np

MT. WILSON

DELTAY = 12.7
DELTAX = 9.4

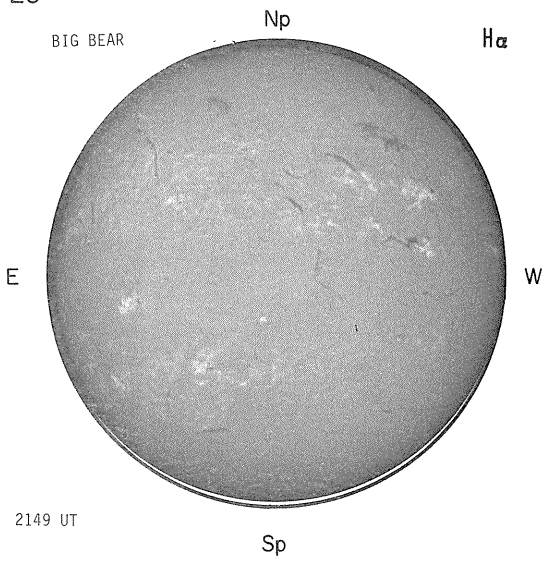
MAGNETOGRAM
Solid - Plus
Dotted - Minus

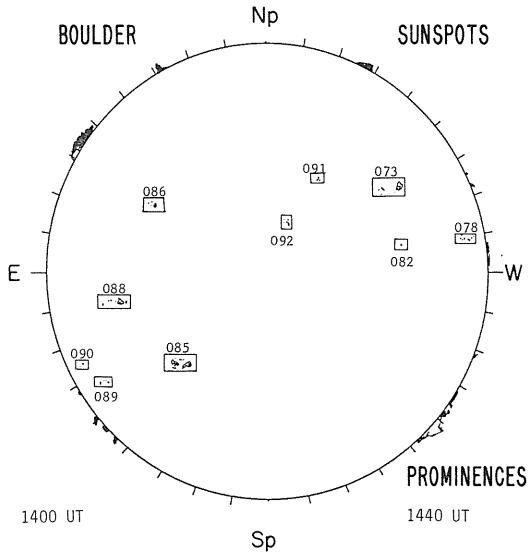


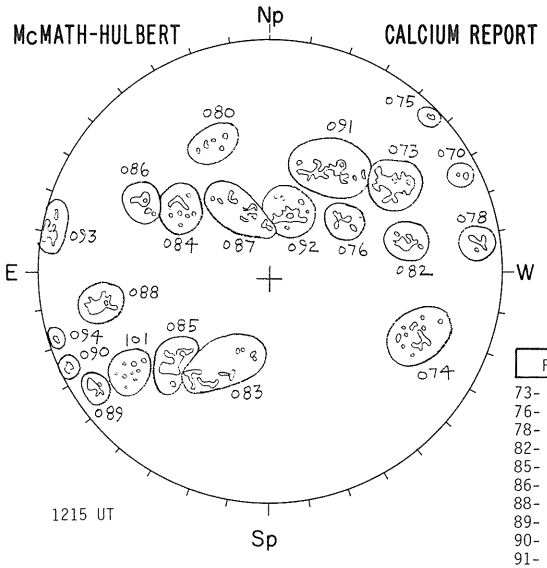
15.85 - 17.31 UT

Sp

20

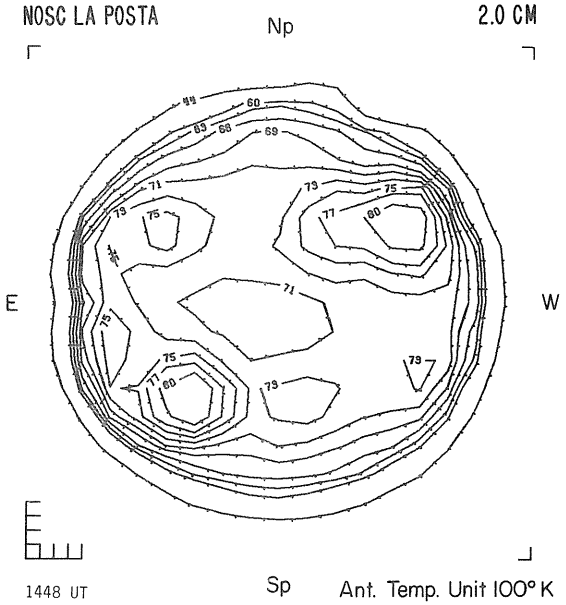


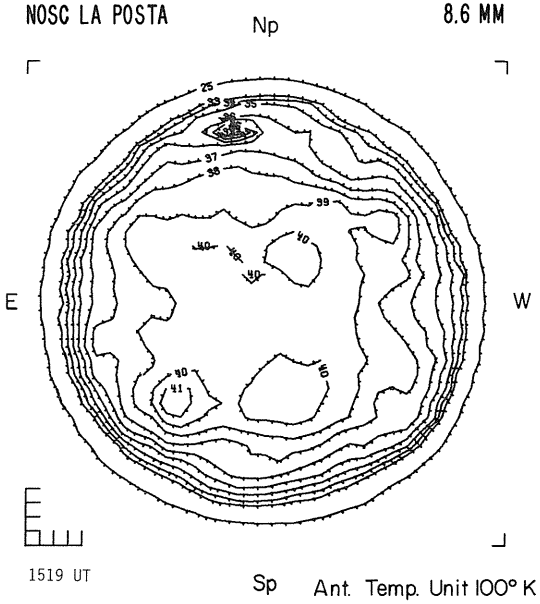


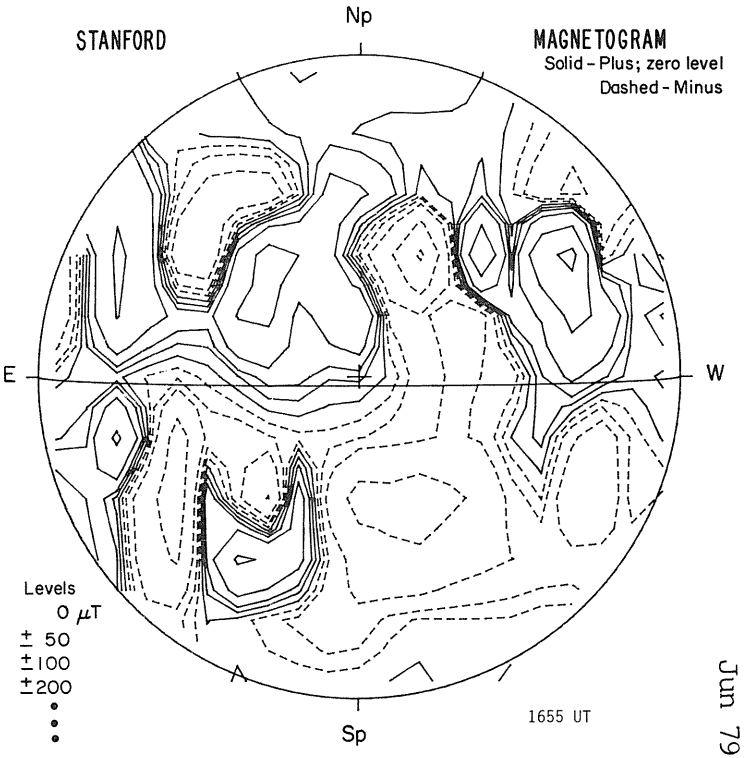


FAIR	M

73- 2500-3.0
76- 0700-2.5
78- 0900-2.5
82- 0900-3.0
85- 1300-3.0
86- 0500-3.0
88- 1600-3.5
89- 1100-3.5
90- 0500-2.5
91- 1800-3.0
92- 0900-2.5
93- 1500-2.5



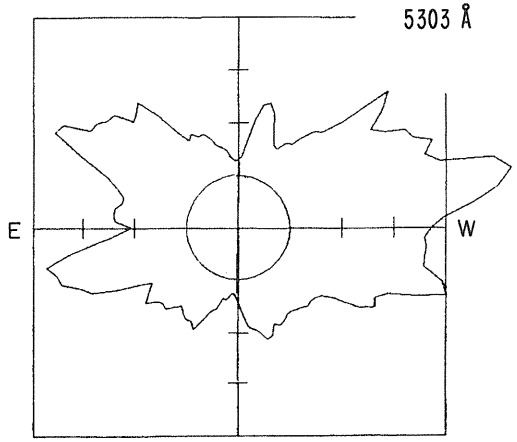




89
Jun 79

JUNE 21, 1979 (P =-7.46, B_o =1.70, L_o =346.37)

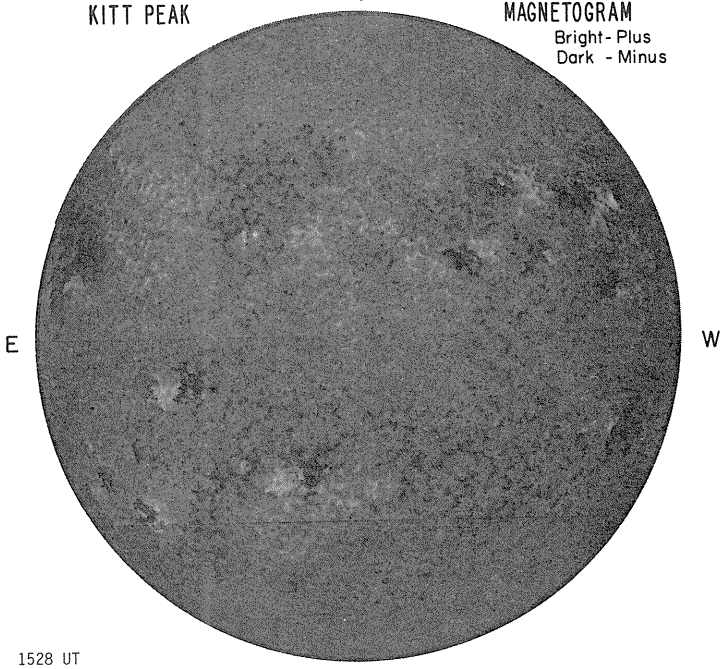
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1626 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



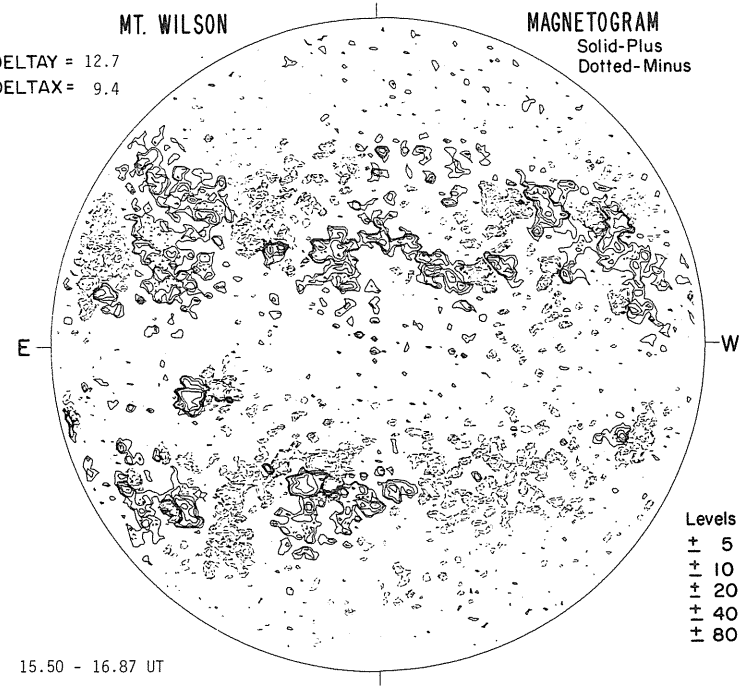
1528 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.4

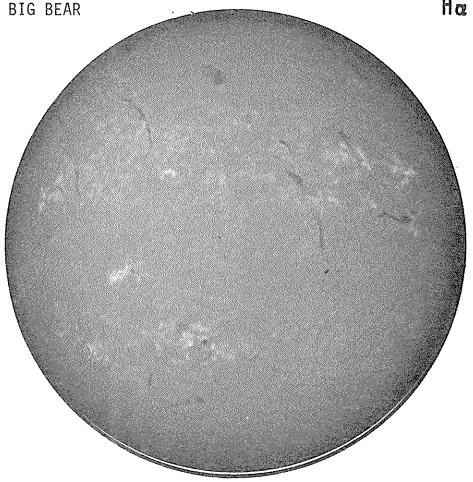


15.50 - 16.87 UT

Sp

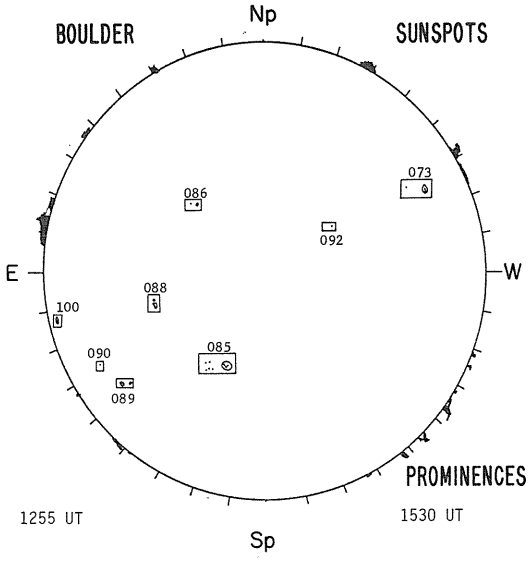
21

BIG BEAR Hα



2037 UT

BOULDER SUNSPOTS

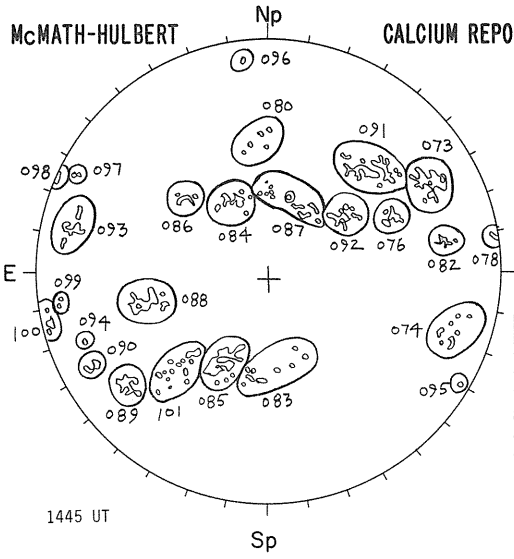


1255 UT

PROMINENCES

1530 UT

McMATH-HULBERT CALCIUM REPORT



1445 UT

GOOD	S

73- 2300-3.0
76- 0700-2.5
78- 0400-2.5
82- 0600-3.0
85- 1700-3.0
86- 0400-2.5
88- 1400-3.5
89- 1000-3.5
90- 0500-2.5
91- 1800-3.0
92- 0800-2.5
93- 1300-2.5
98- 0600-2.5
100- 0600-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

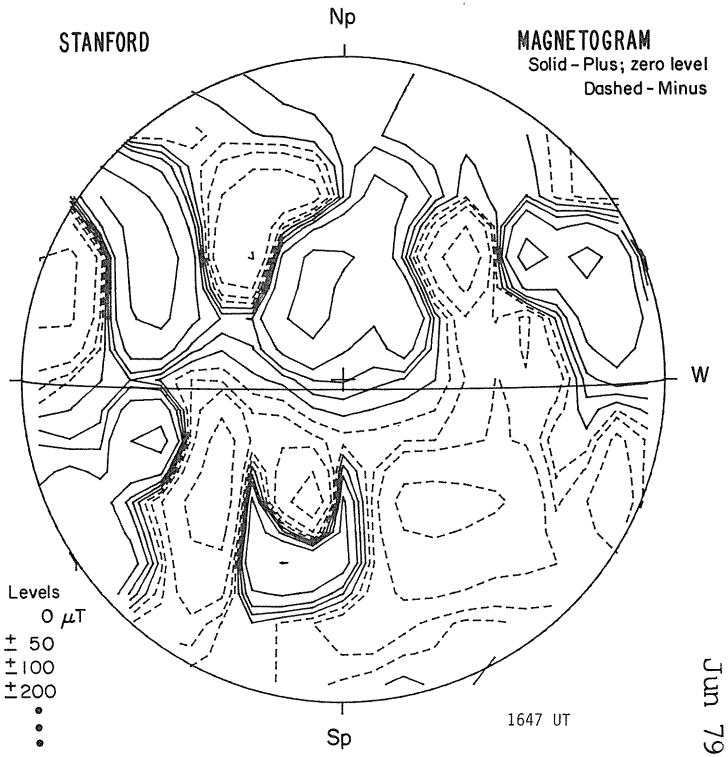
NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



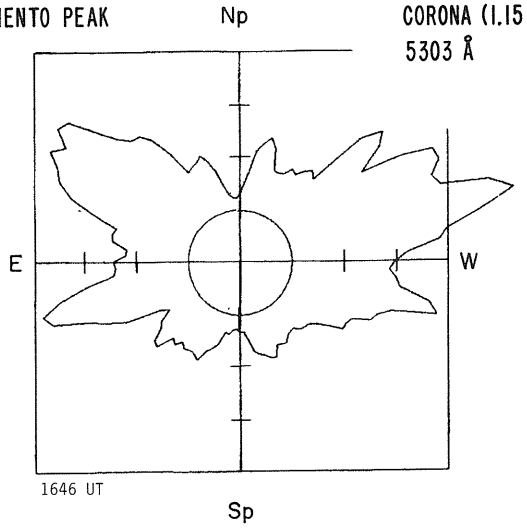
Levels
0 μT
± 50
± 100
± 200

1647 UT

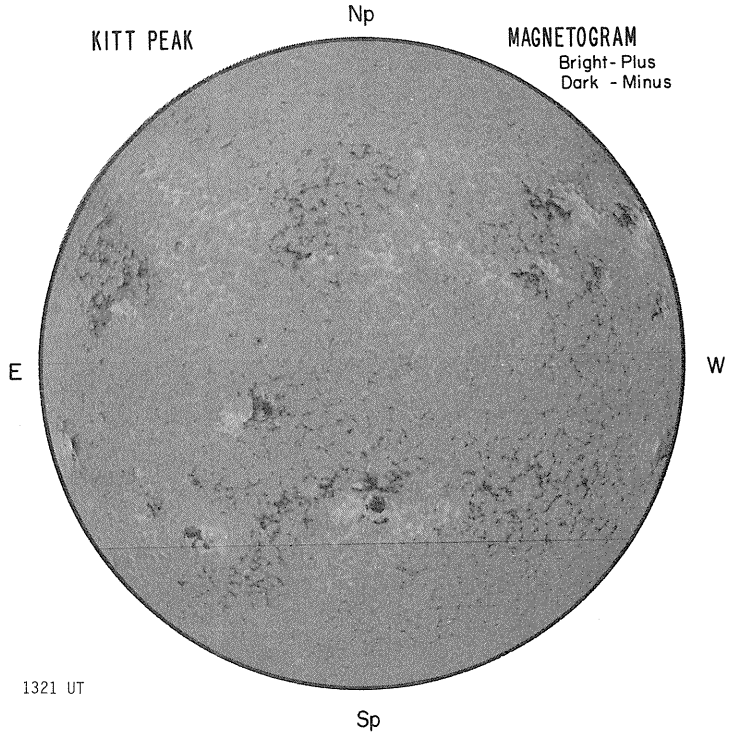
91
Jun 79

JUNE 22, 1979 (P = -7.02, B_o = 1.81, L_o = 333.13)

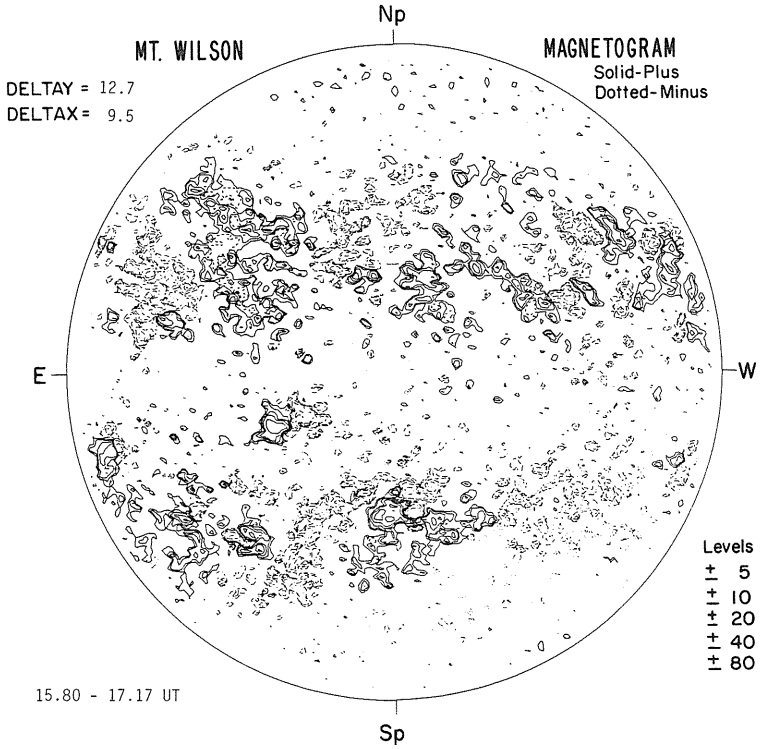
SACRAMENTO PEAK



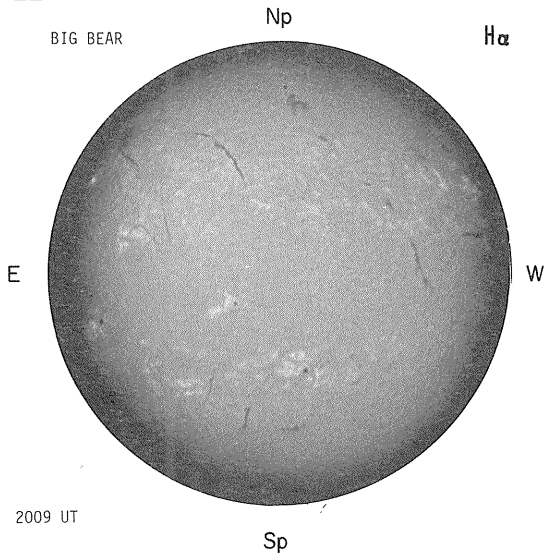
KITT PEAK

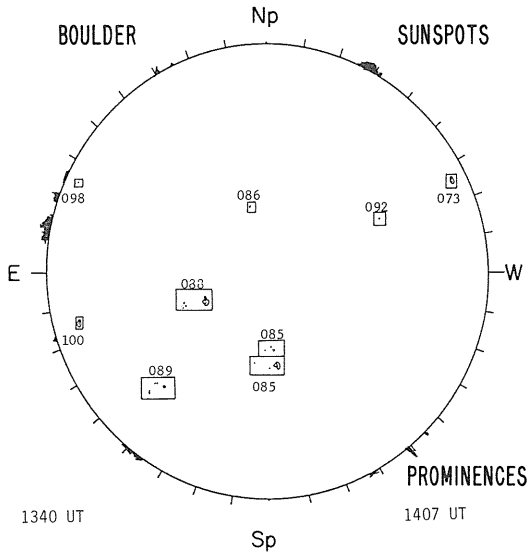


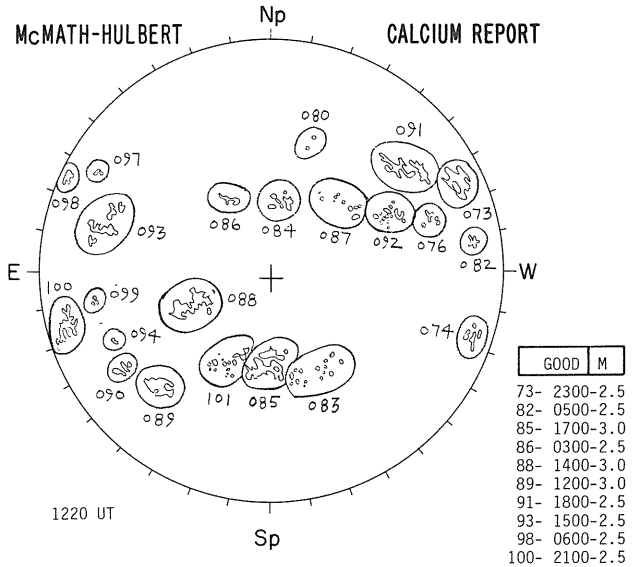
MT. WILSON



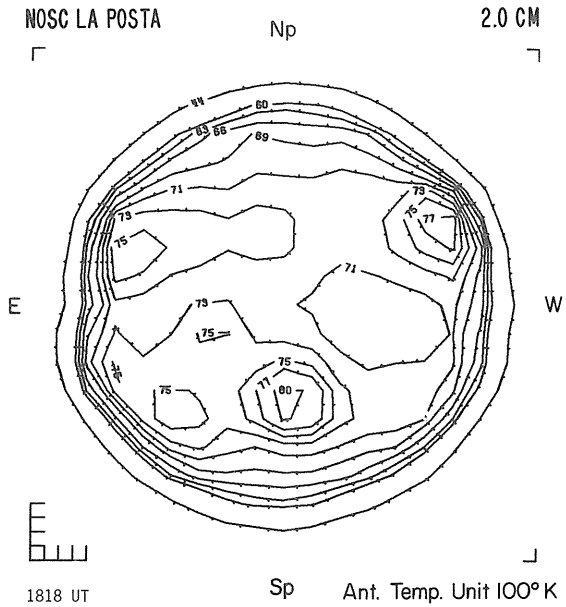
22

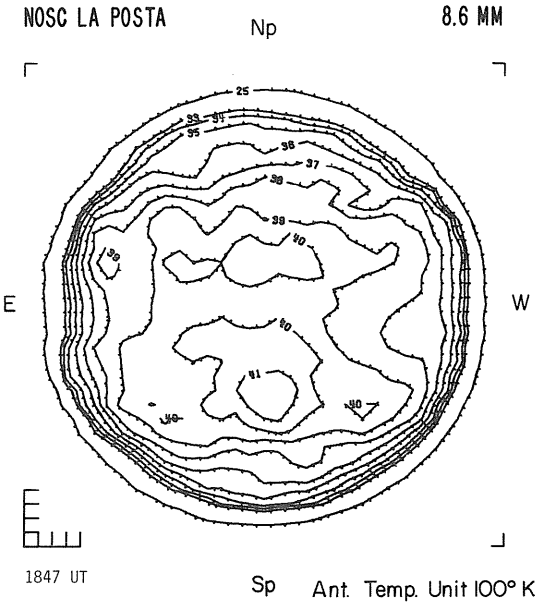


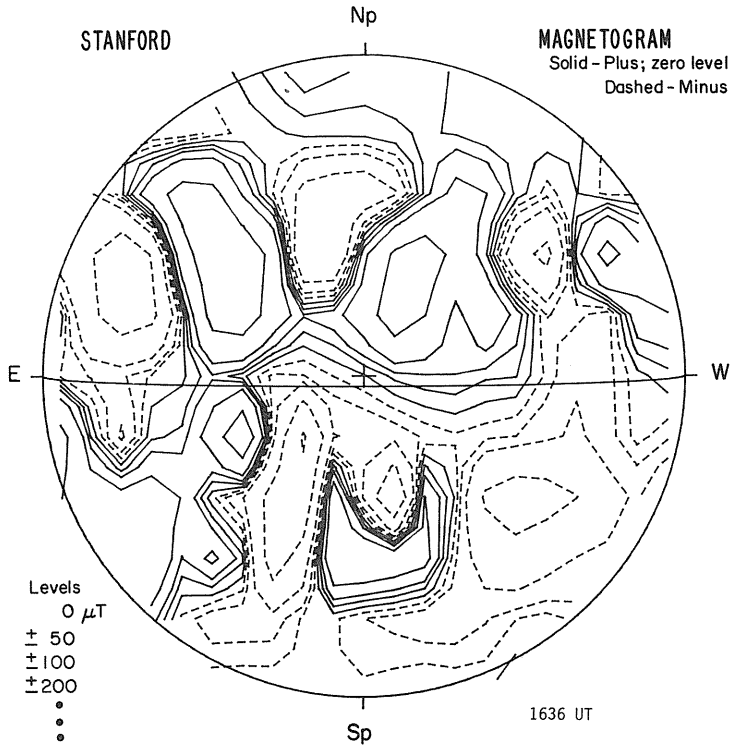




GOOD	M
73-	2300-2.5
82-	0500-2.5
85-	1700-3.0
86-	0300-2.5
88-	1400-3.0
89-	1200-3.0
91-	1800-2.5
93-	1500-2.5
98-	0600-2.5
100-	2100-2.5



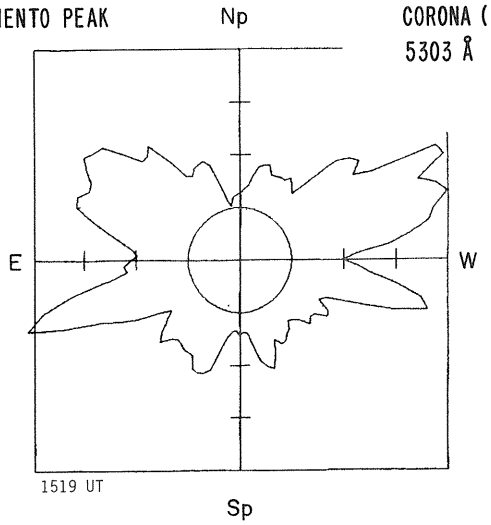


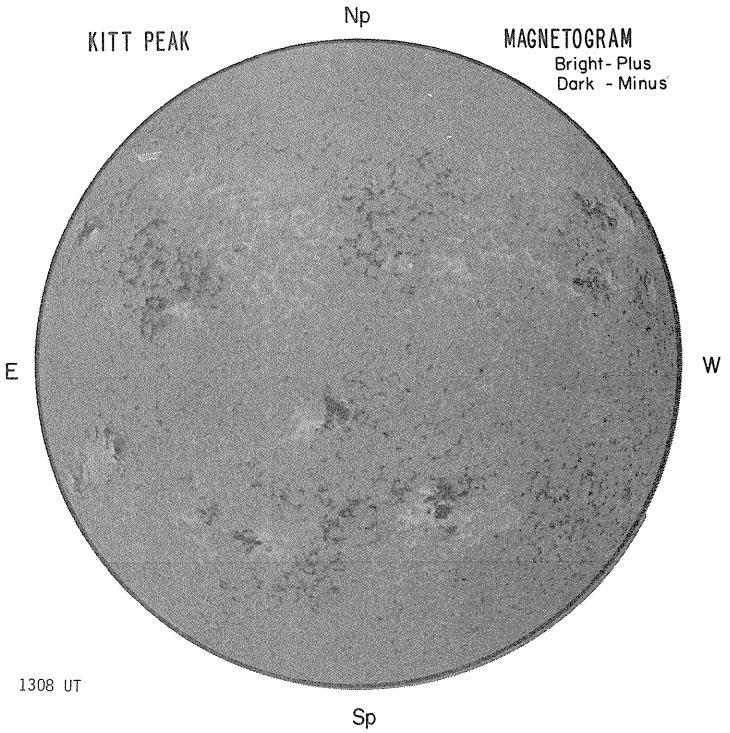


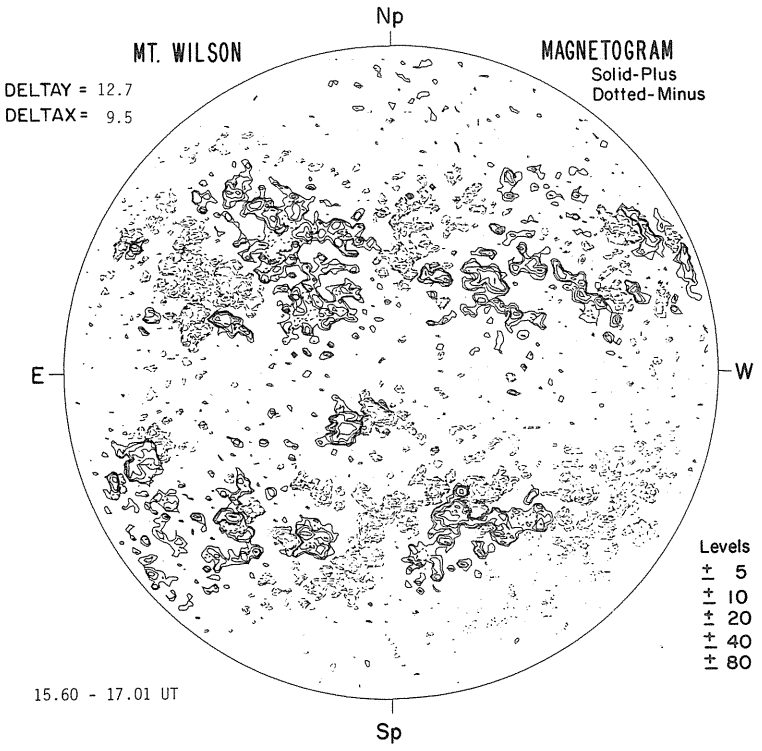
93
Jun 79

JUNE 23, 1979 (P =-6.57, B_o = 1.93, L_o = 319.90)

SACRAMENTO PEAK





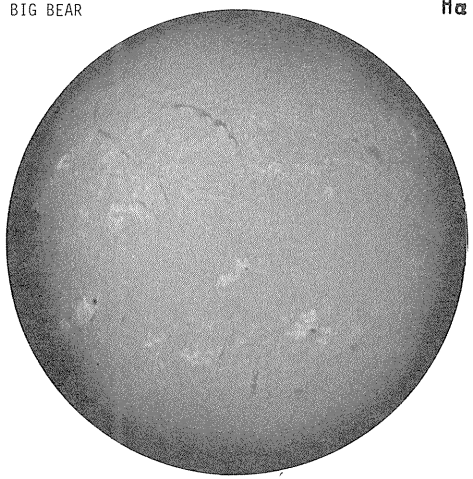


23

BIG BEAR

Np

Hα



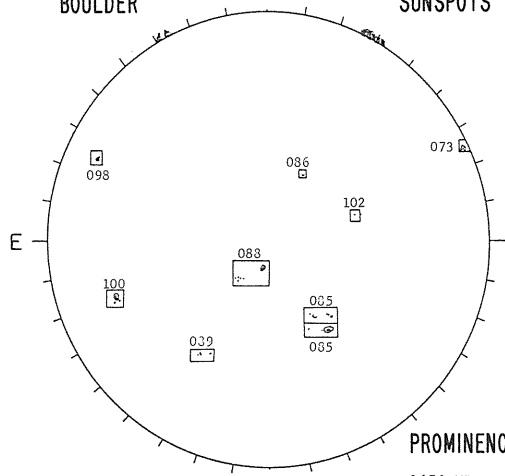
E W

Sp

2122 UT

BOULDER SUNSPOTS

Np



E W

Sp

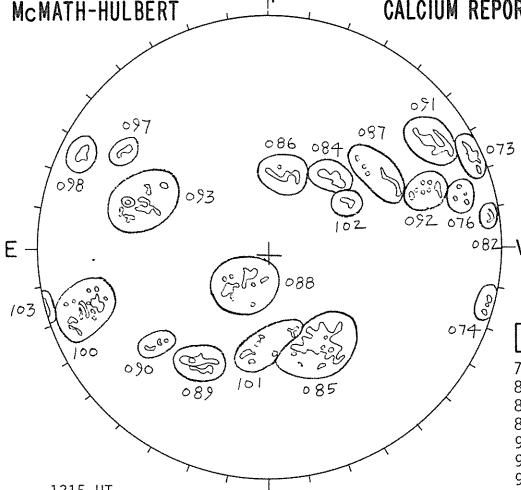
1515 UT

PROMINENCES

1454 UT

McMATH-HULBERT CALCIUM REPORT

Np



E W

Sp

1315 UT

FAIR	S

73- 2200-2.5
85- 2500-3.0
88- 1200-3.0
89- 1300-2.5
91- 1800-3.0
93- 1400-2.5
98- 1200-3.5
100- 1800-3.0

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

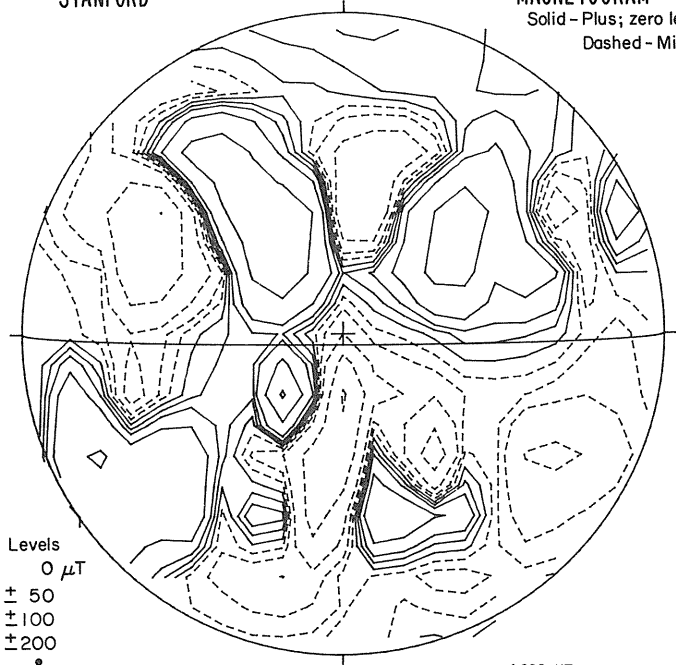
---- UT

Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np



E W

Levels
0 μT
± 50
± 100
± 200

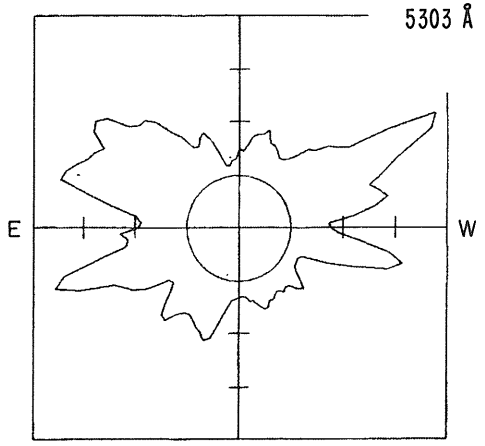
Sp

1600 UT

95
Jun 79

JUNE 24, 1979 (P = -6.13, B_o = 2.05, L_o = 306.66)

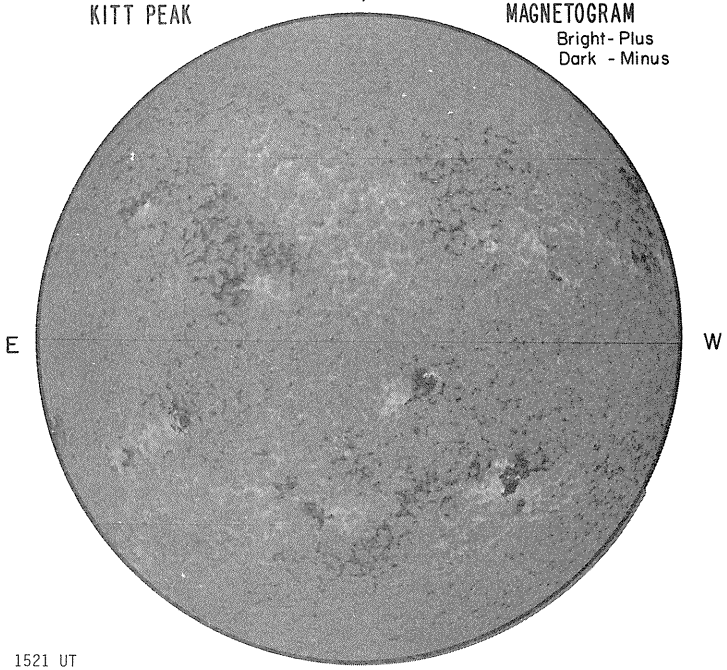
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1418 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

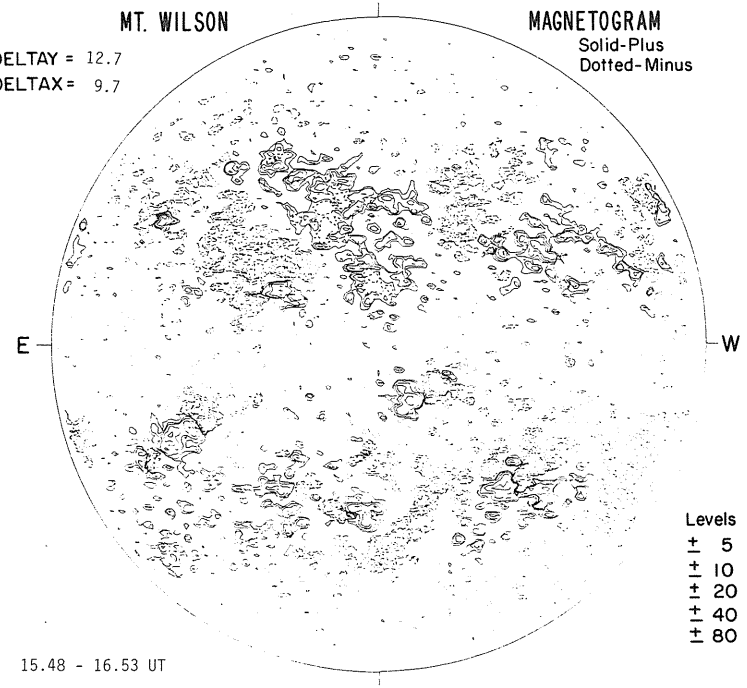


1521 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.7

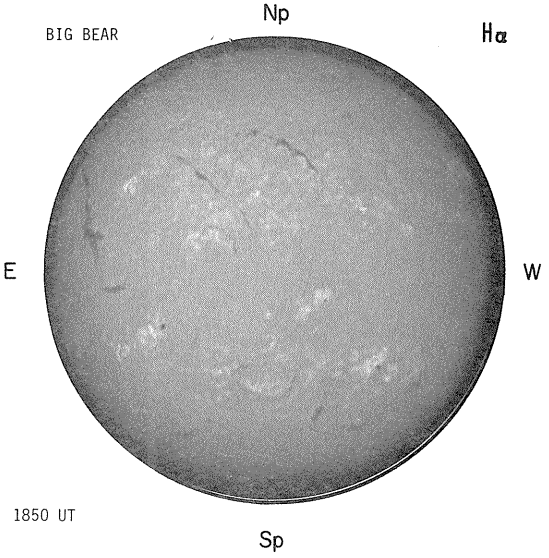


15.48 - 16.53 UT

Sp

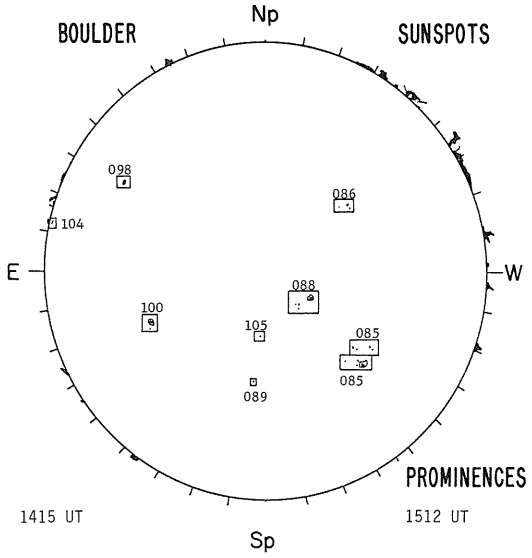
24

BIG BEAR Hα



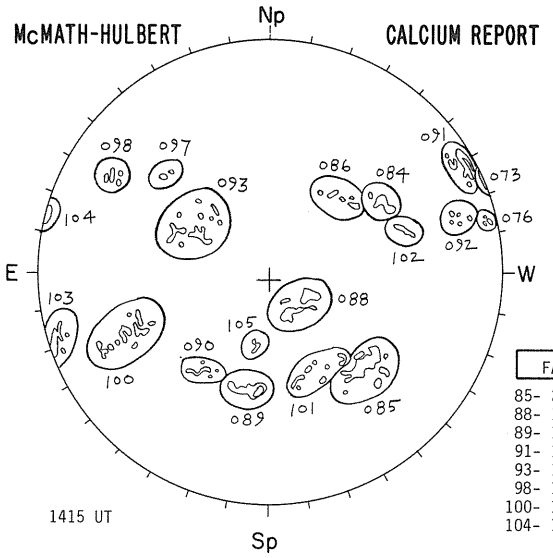
1850 UT

BOULDER SUNSPOTS



1415 UT PROMINENCES 1512 UT

McMATH-HULBERT CALCIUM REPORT



1415 UT

FAIR	S

85- 2500-3.0
88- 1300-3.0
89- 1200-2.5
91- 1800-2.5
93- 1300-2.5
98- 1000-3.0
100- 1700-3.0
104- 1200-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

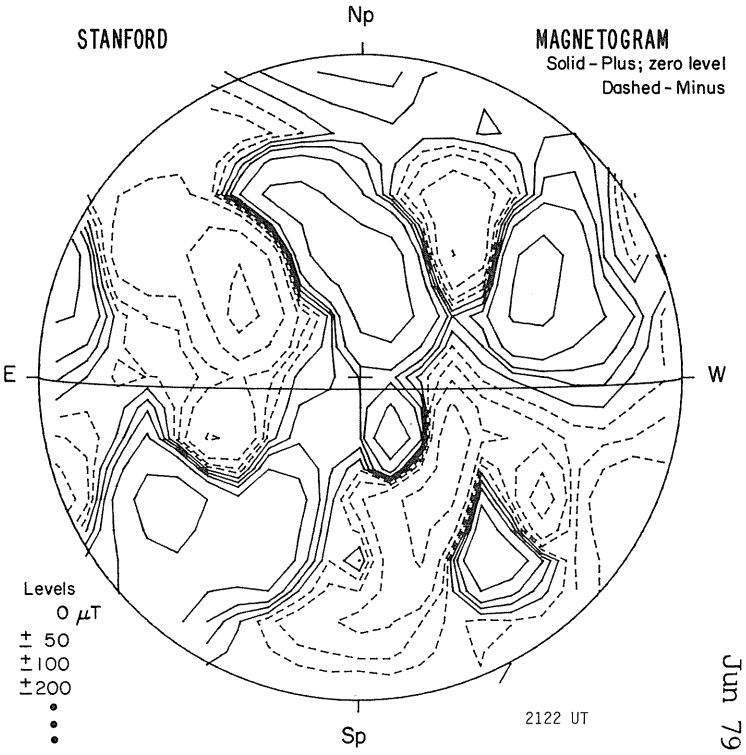
NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

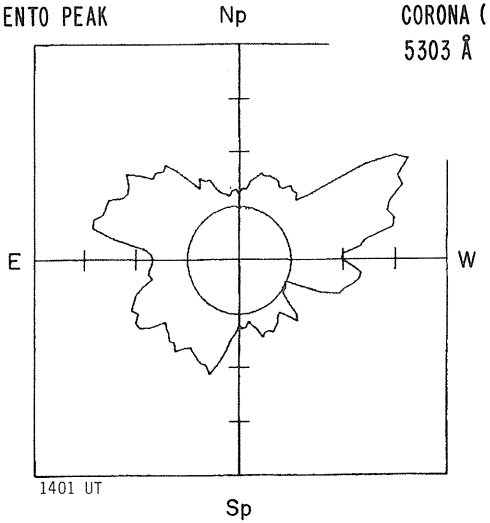


2122 UT

97
Jun 79

JUNE 25, 1979 (P =-5.68, B_o = 2.16, L_o = 293.42)

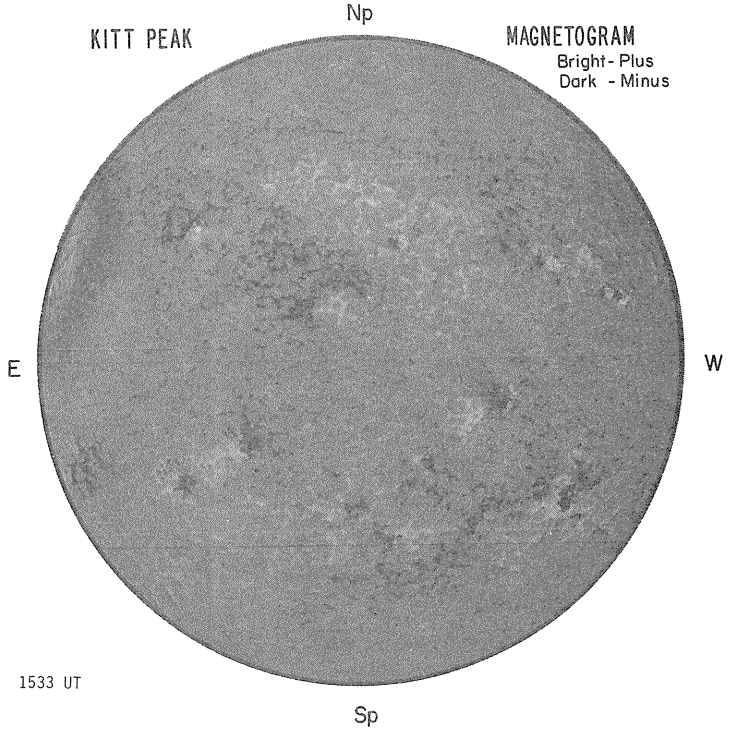
SACRAMENTO PEAK



CORONA (1.15 $R_\odot$)
5303 Å

1401 UT

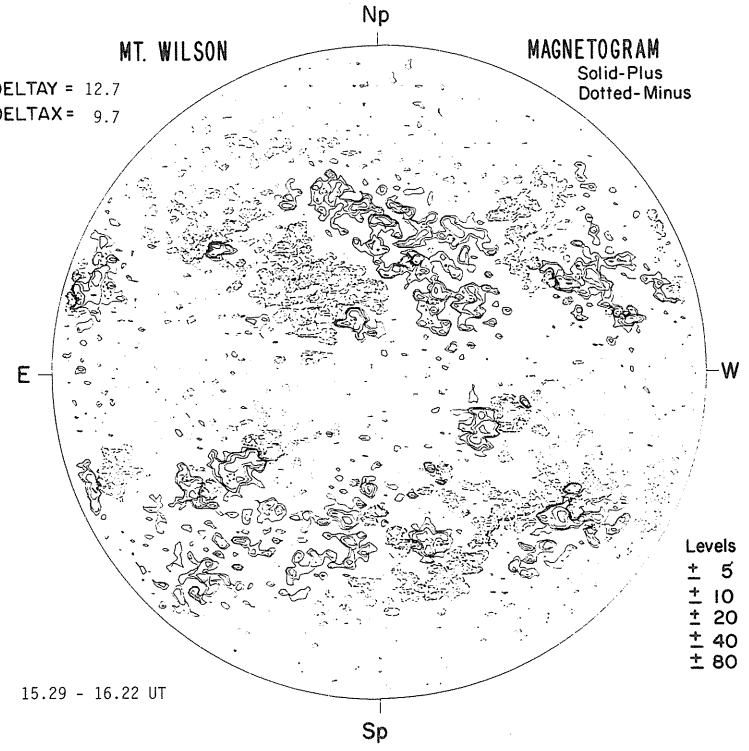
KITT PEAK



MAGNETOGRAM
Bright - Plus
Dark - Minus

1533 UT

MT. WILSON



DELTAY = 12.7
DELTAX = 9.7

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Levels
± 5
± 10
± 20
± 40
± 80

15.29 - 16.22 UT

25

BIG BEAR

Np

Hα

E

W

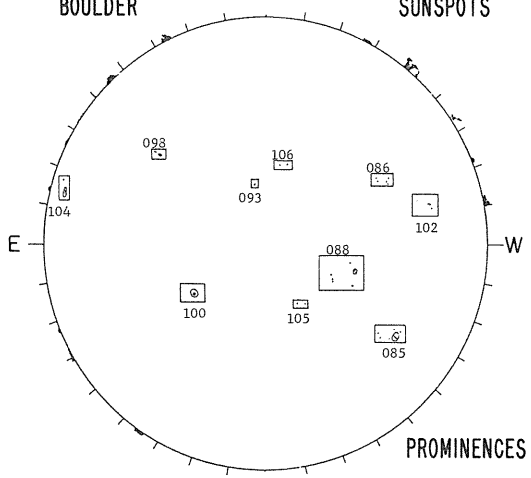
Sp

1920 UT

BOULDER

Np

SUNSPOTS



PROMINENCES

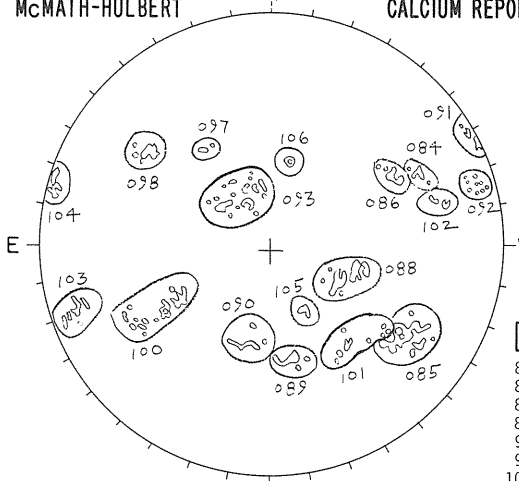
1310 UT

1536 UT

McMATH-HULBERT

Np

CALCIUM REPORT



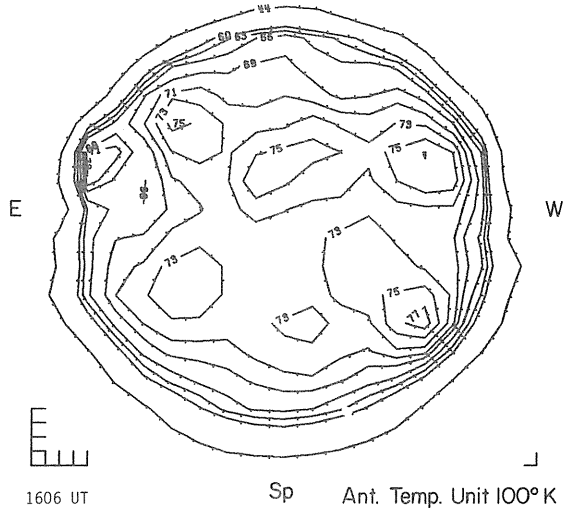
1215 UT

GOOD	M
85-	2500-3.0
86-	0600-2.5
88-	1500-3.0
89-	1000-2.5
93-	1300-2.5
98-	0900-3.0
100-	1800-3.0
102-	0400-3.0
103-	1600-2.5
104-	1600-3.5

NOSC LA POSTA

Np

2.0 CM



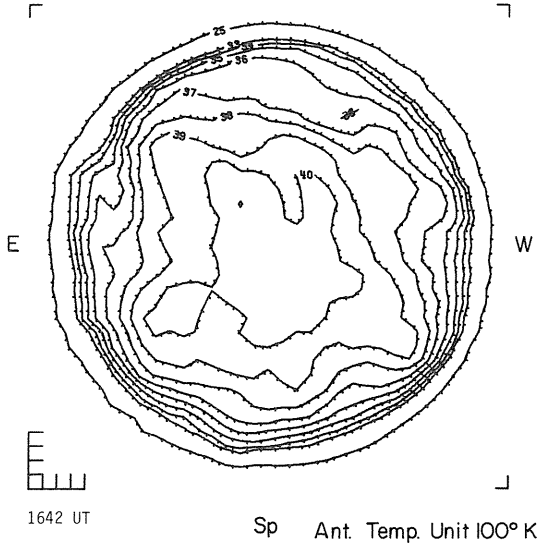
1606 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



1642 UT

Ant. Temp. Unit 100° K

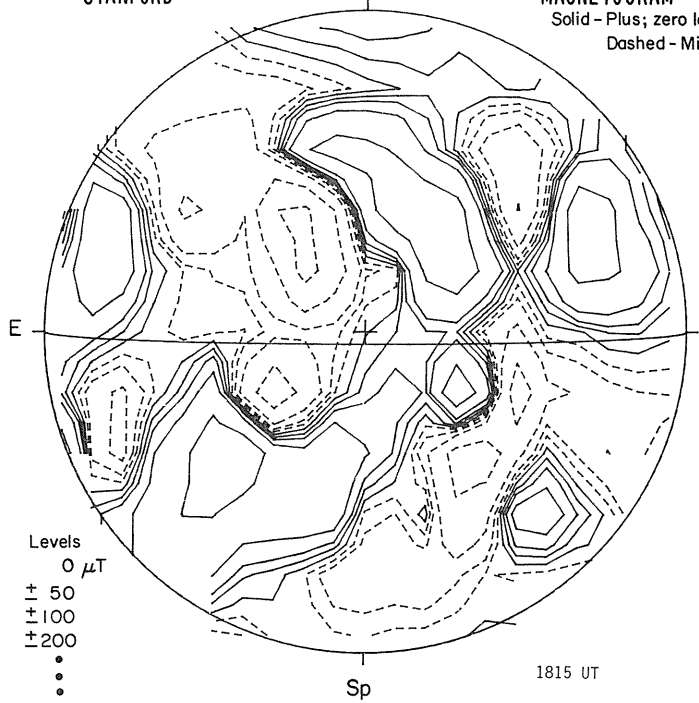
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

±100

±200

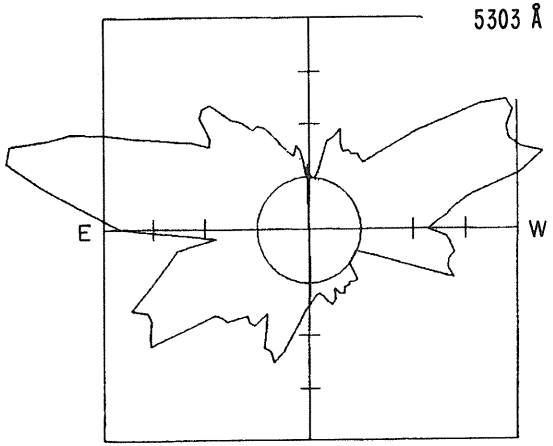
1815 UT

99

Jun 79

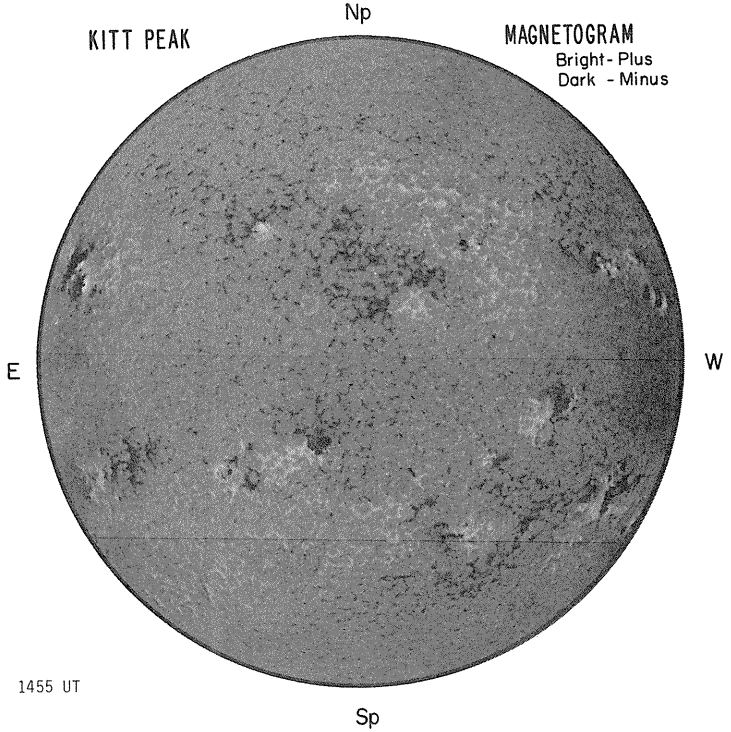
JUNE 26, 1979 (P =-5.23, B_o =2.28, L_o = 280.19)

SACRAMENTO PEAK



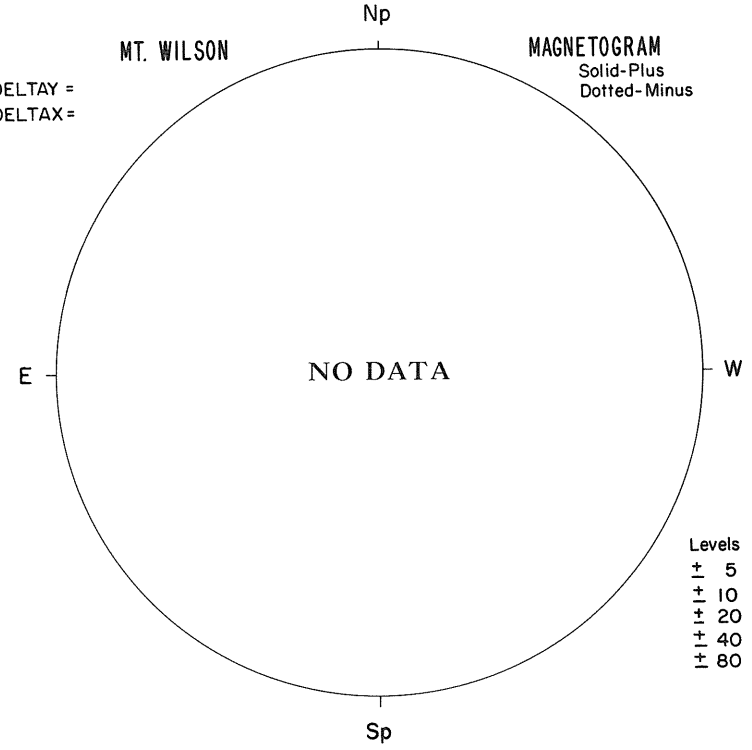
CORONA (1.15 $R_\odot$)
5303 Å

KITT PEAK



MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON



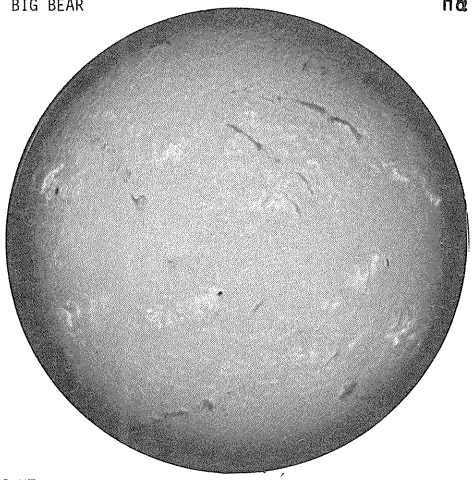
DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Levels
± 5
± 10
± 20
± 40
± 80

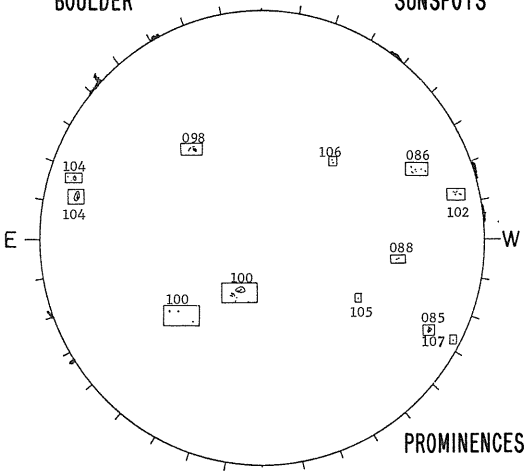
26

BIG BEAR Np Hα



1846 UT Sp

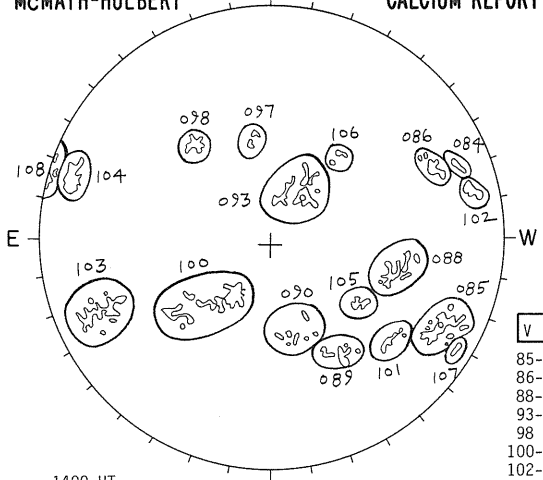
BOULDER Np SUNSPOTS



PROMINENCES

1345 UT 1830 UT Sp

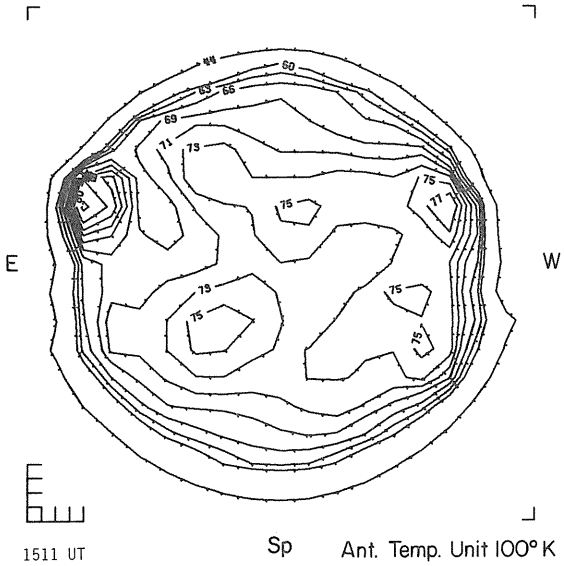
McMATH-HULBERT Np CALCIUM REPORT



V GOOD	S
85-	2500-3.5
86-	0800-3.0
88-	1400-2.5
93-	1400-2.5
98	0800-3.0
100-	2200-3.0
102-	0800-3.5
103-	2000-3.5
104-	2800-3.5
107-	0300-2.5

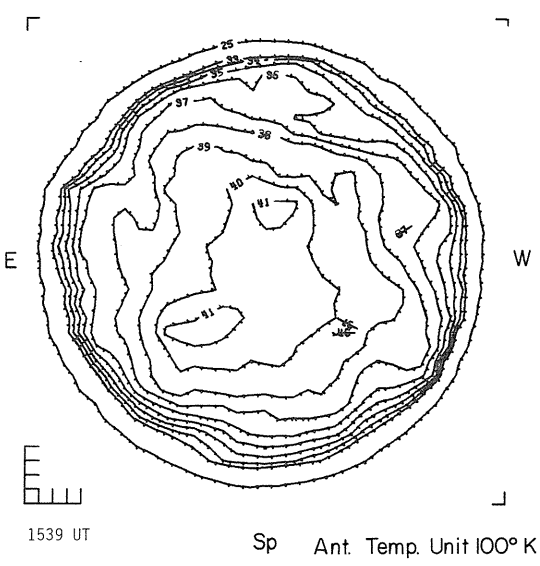
1400 UT Sp

NOSC LA POSTA Np 2.0 CM



1511 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

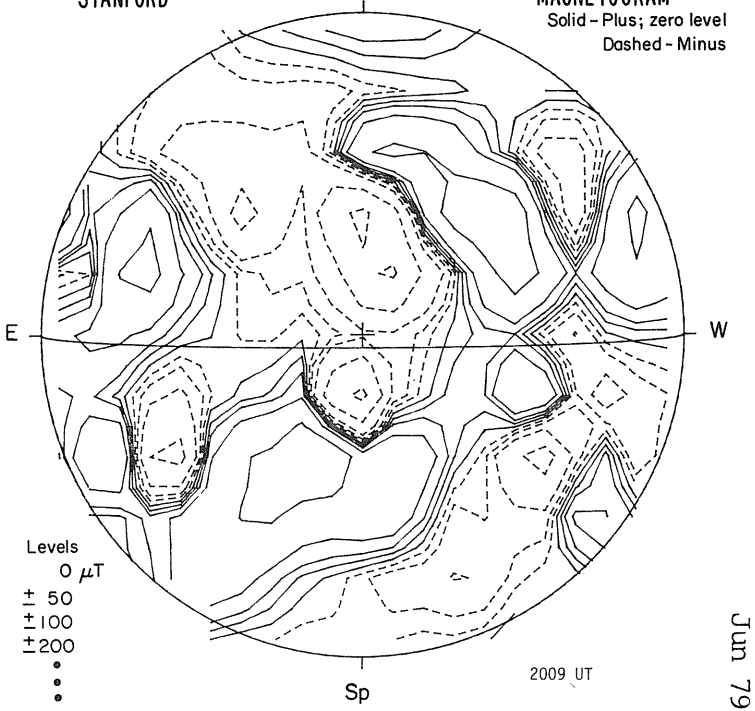


1539 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

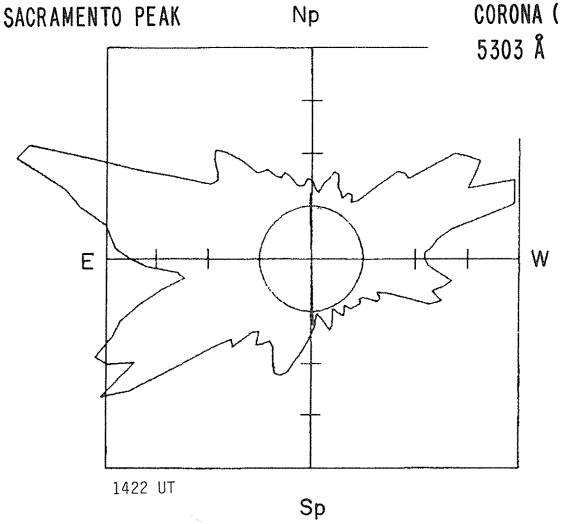
± 100

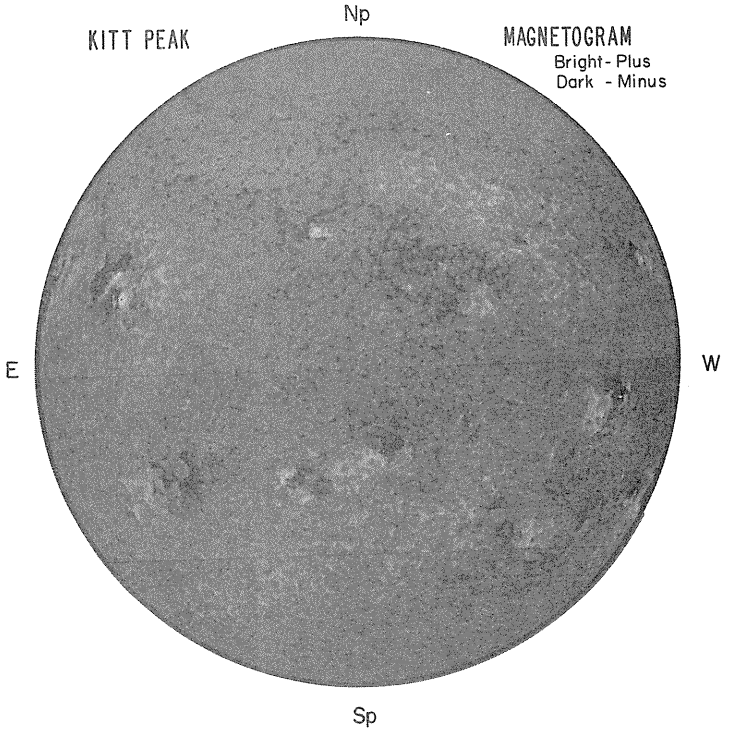
± 200

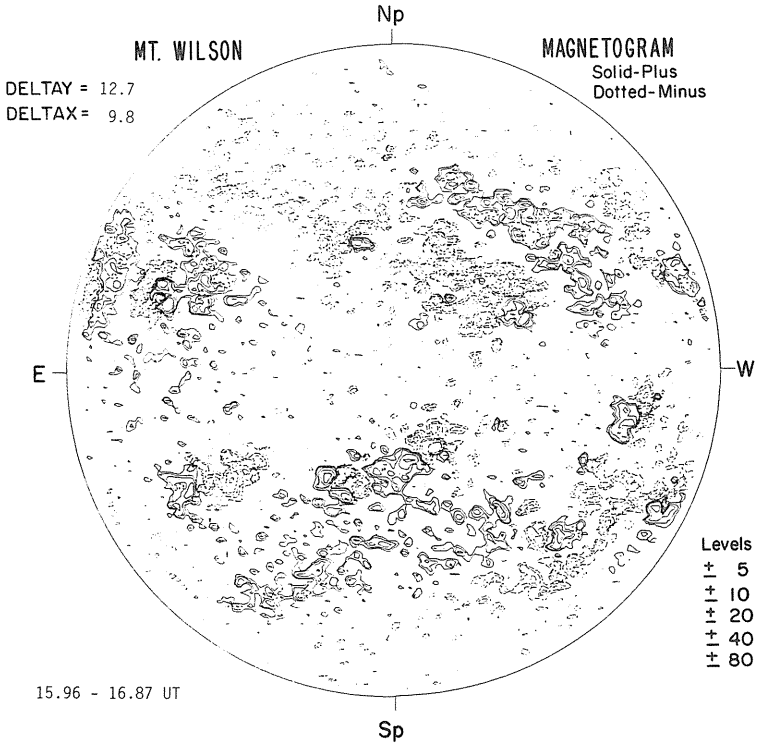
2009 UT Sp

JUNE 27, 1979 (P = -4.78, B_o = 2.39, L_o = 266.95)

SACRAMENTO PEAK

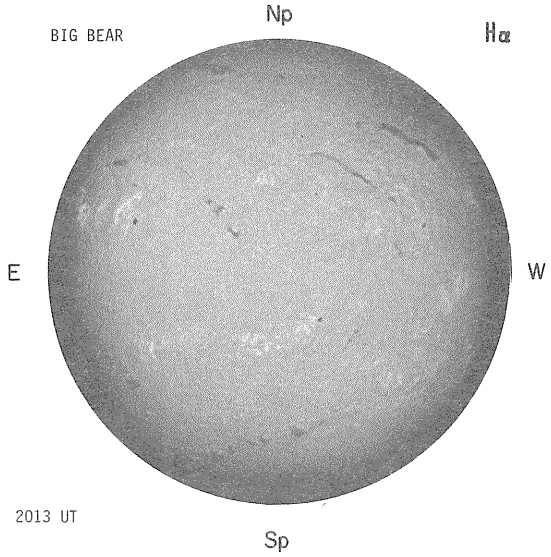






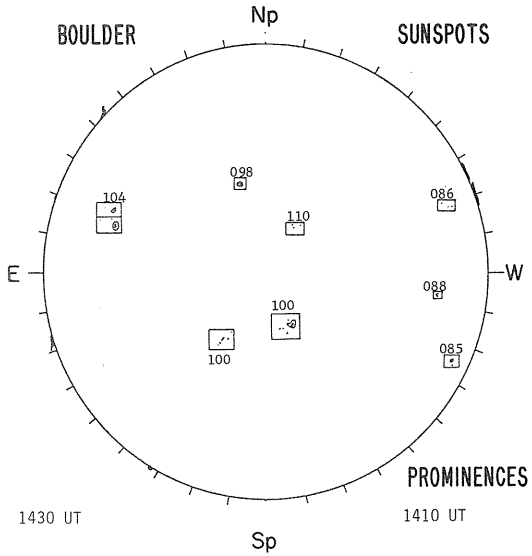
27

BIG BEAR Hα



2013 UT

BOULDER SUNSPOTS

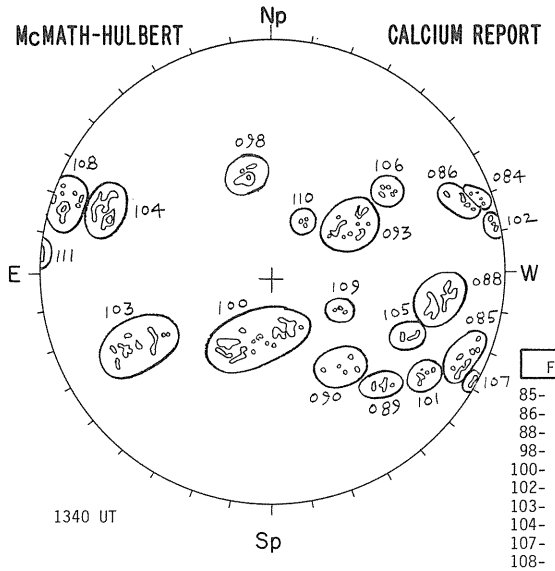


1430 UT

PROMINENCES

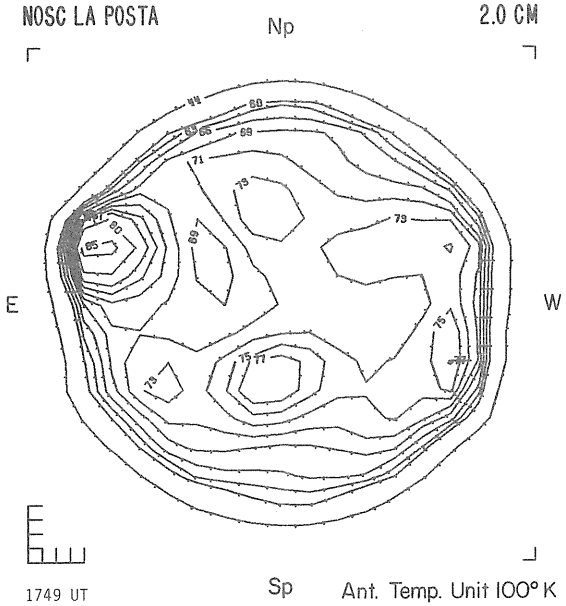
1410 UT

McMATH-HULBERT CALCIUM REPORT



FAIR	S
85-	2100-3.0
86-	0700-3.0
88-	1200-2.5
98-	0800-2.5
100-	2000-3.0
102-	0800-3.0
103-	1700-3.0
104-	2500-3.5
107-	0400-2.5
108-	1600-2.5

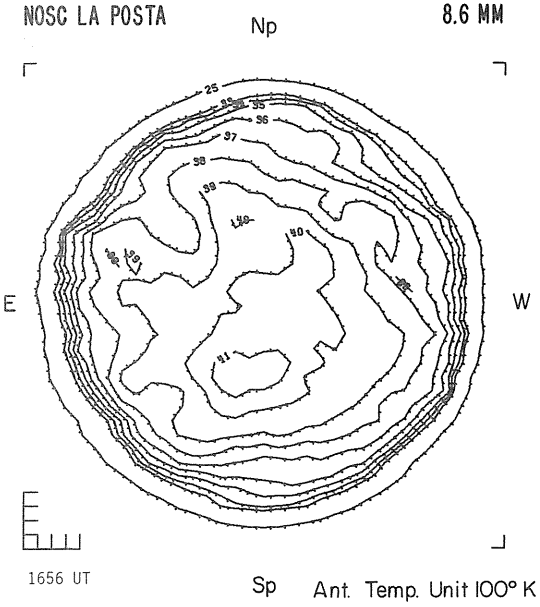
NOSC LA POSTA 2.0 CM



1749 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM



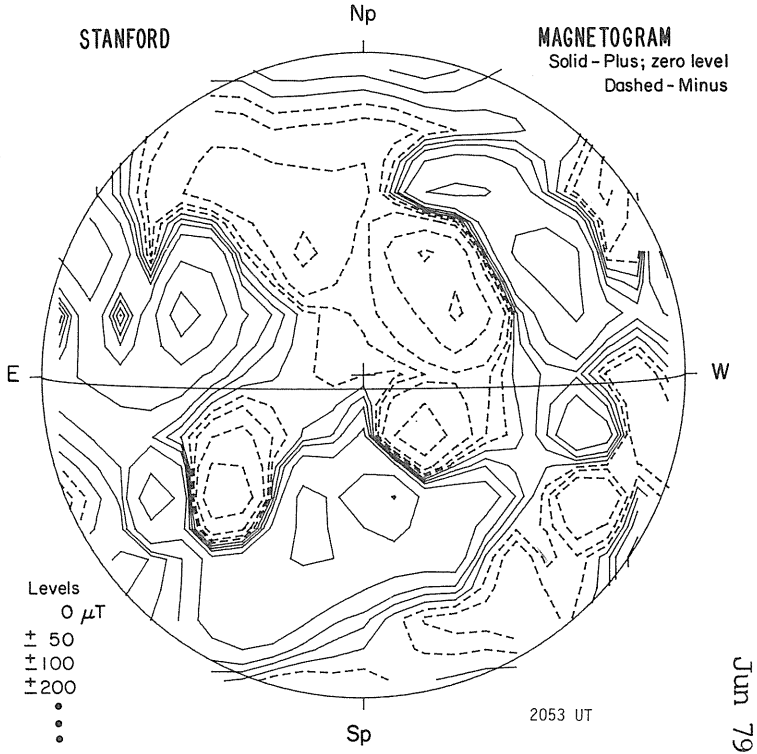
1656 UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



2053 UT

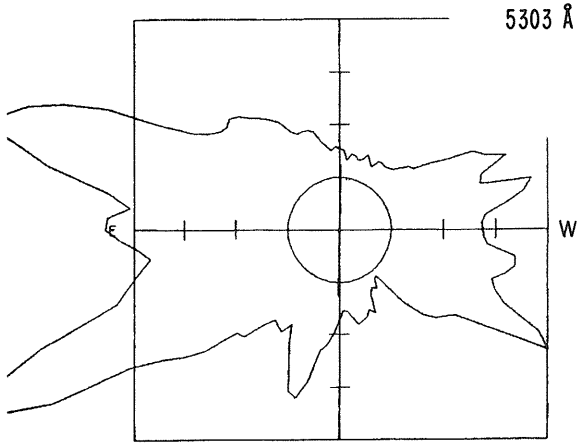
103 Jun 79

JUNE 28, 1979 (P = -4.33, B_o = 2.50, L_o = 253.72)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



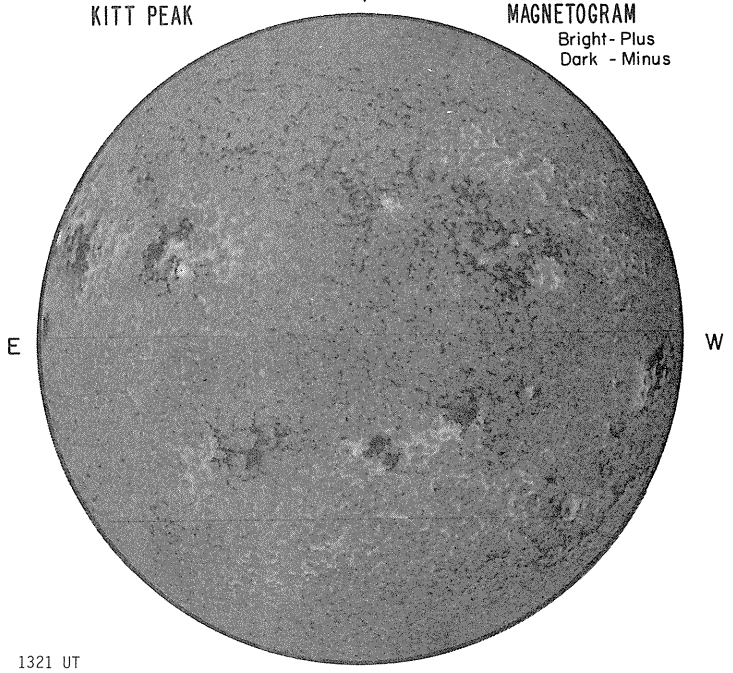
1902 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1321 UT

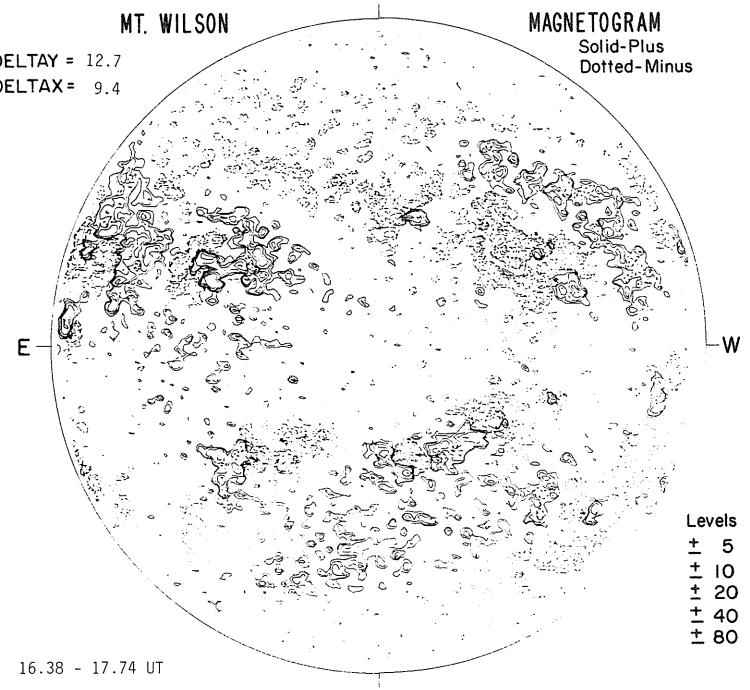
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.4

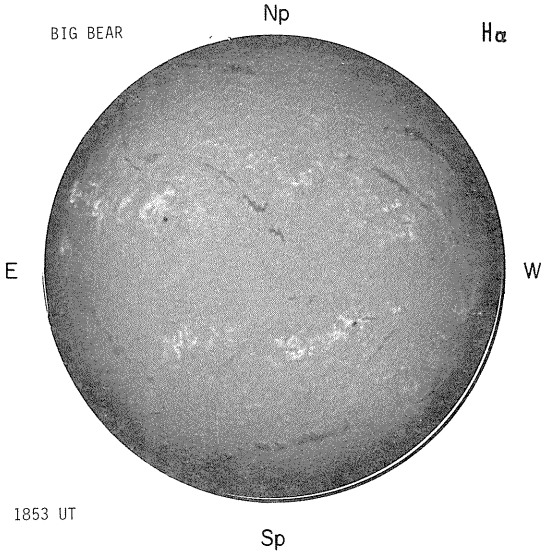


16.38 - 17.74 UT

Sp

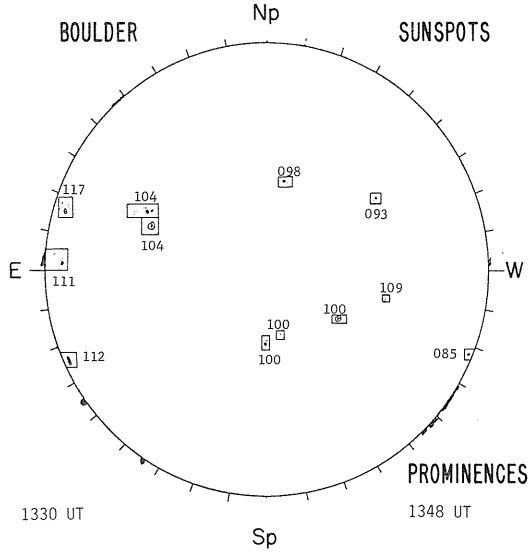
28

BIG BEAR Hα



1853 UT

BOULDER SUNSPOTS

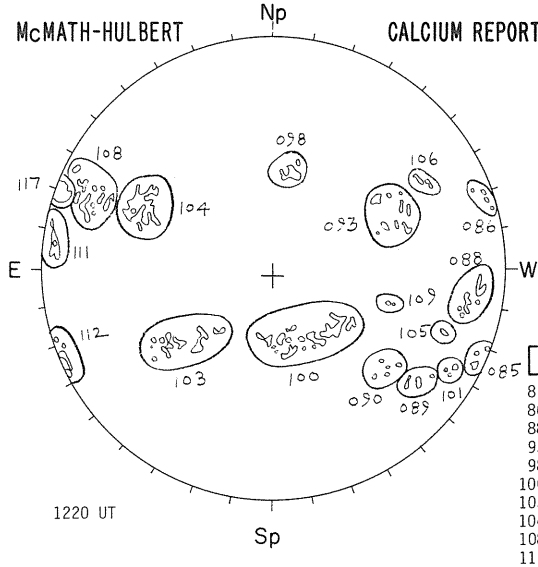


1330 UT

PROMINENCES

1348 UT

McMATH-HULBERT CALCIUM REPORT

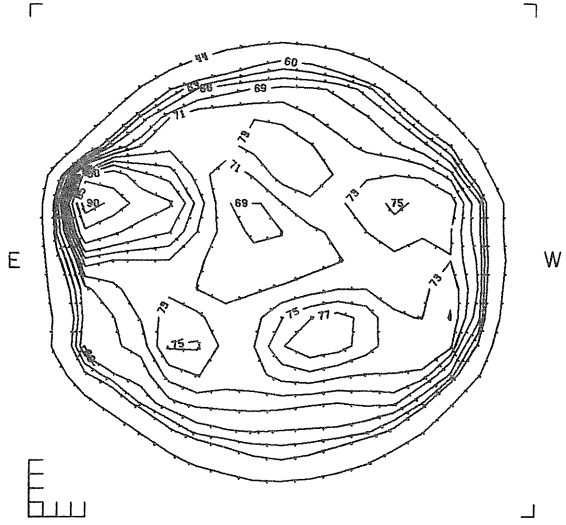


1220 UT

GOOD	S

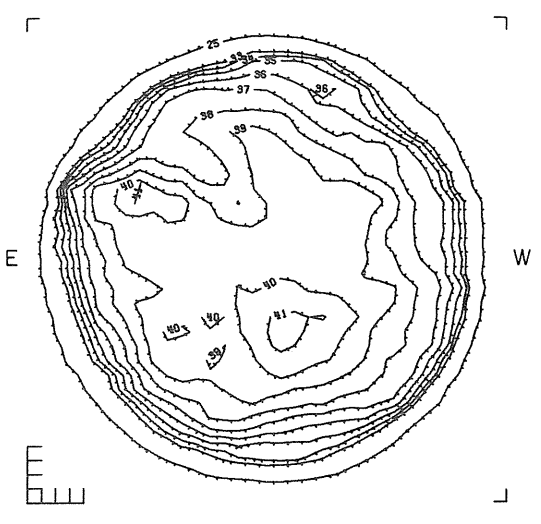
85- 0800-2.5
86- 0600-3.0
88- 1200-2.5
93- 1100-2.5
98- 0800-2.5
100- 2200-2.5
103- 1600-2.5
104- 2800-3.0
108- 3300-3.0
111- 1500-3.5
117- 1800-3.5

NOSC LA POSTA 2.0 CM



1705 UT

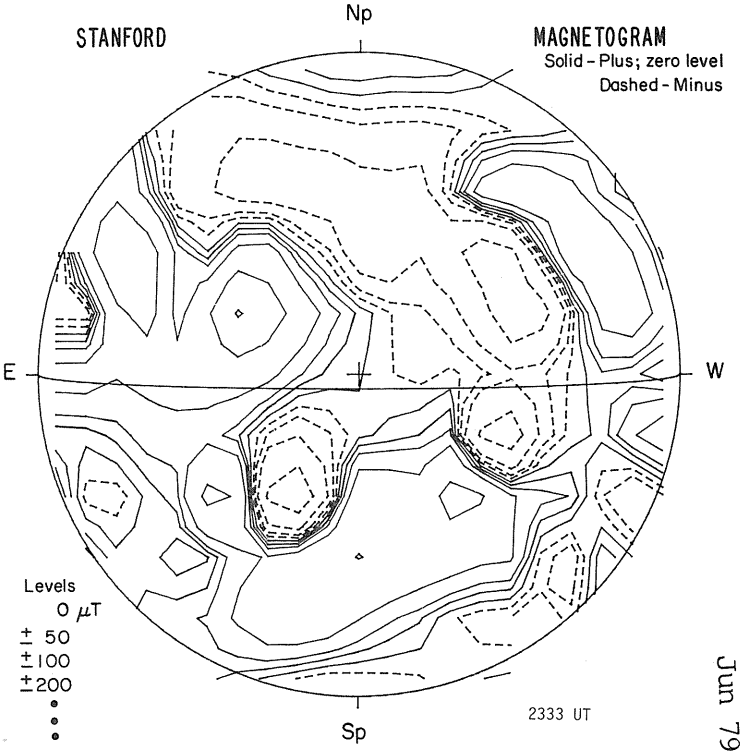
NOSC LA POSTA 8.6 MM



1612 UT

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2333 UT

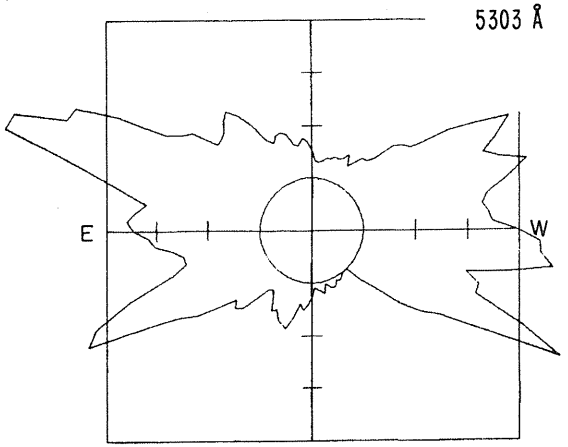
105
Jun 79

JUNE 29, 1979 (P=-3.88, B_o=2.62, L_o=240.48)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



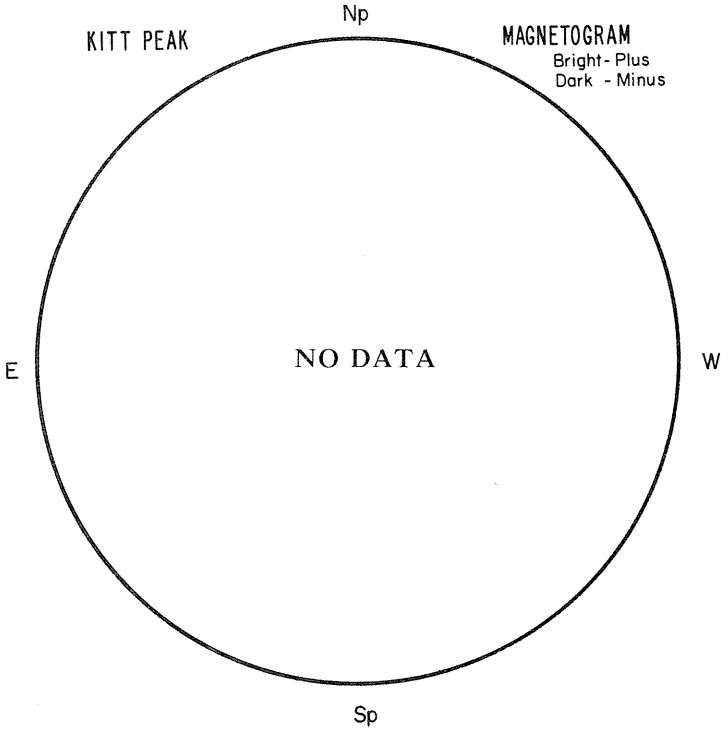
1653 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



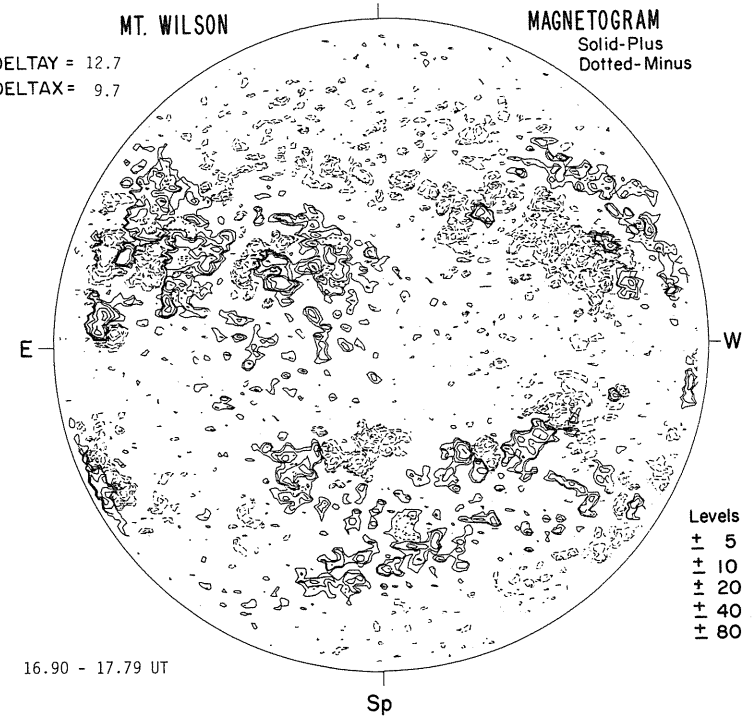
Sp

Np

MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

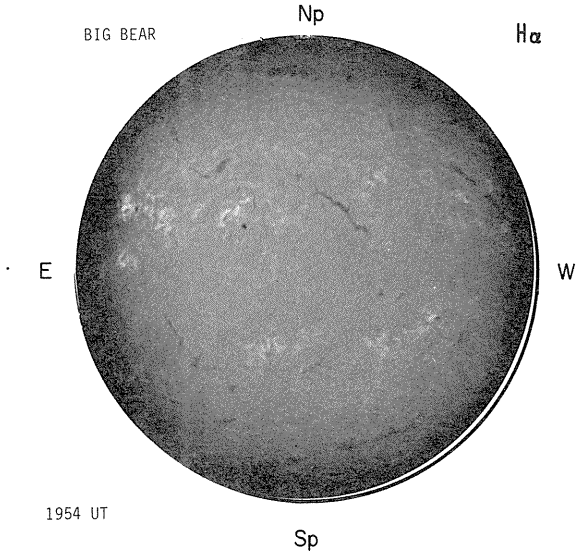
DELTAY = 12.7
DELTAX = 9.7

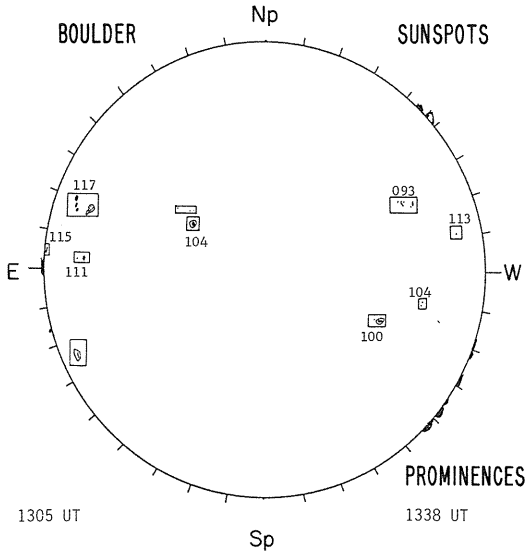


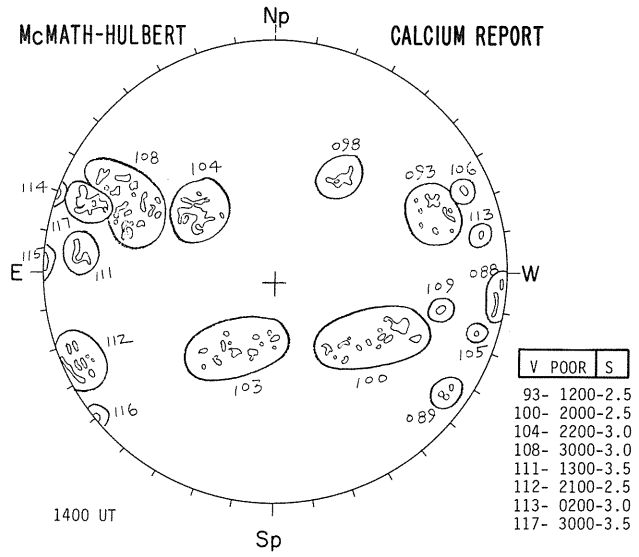
16.90 - 17.79 UT

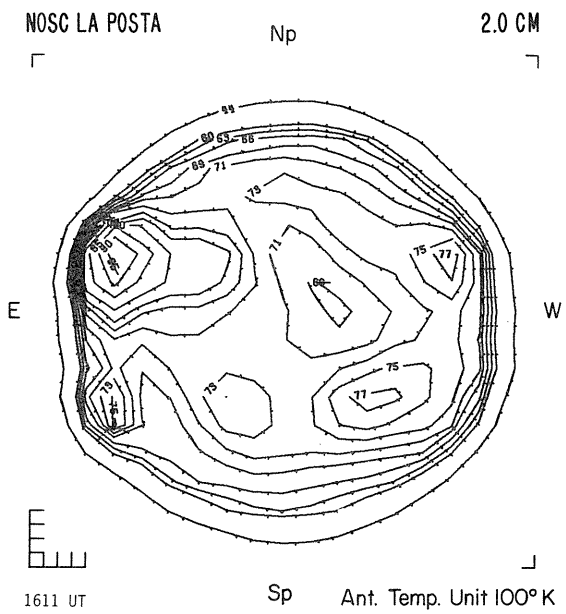
Sp

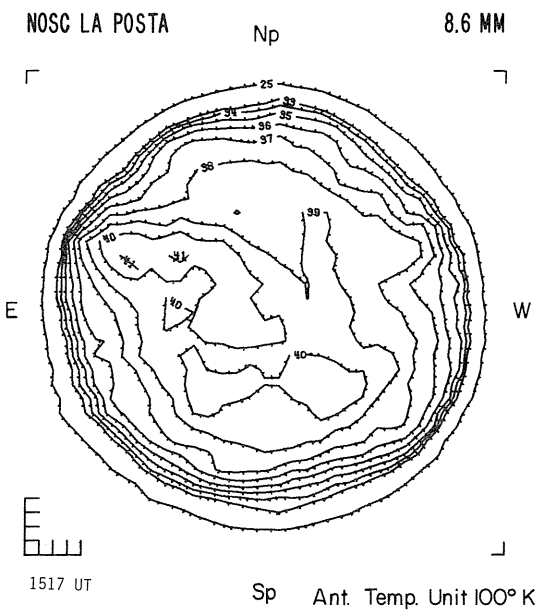
29

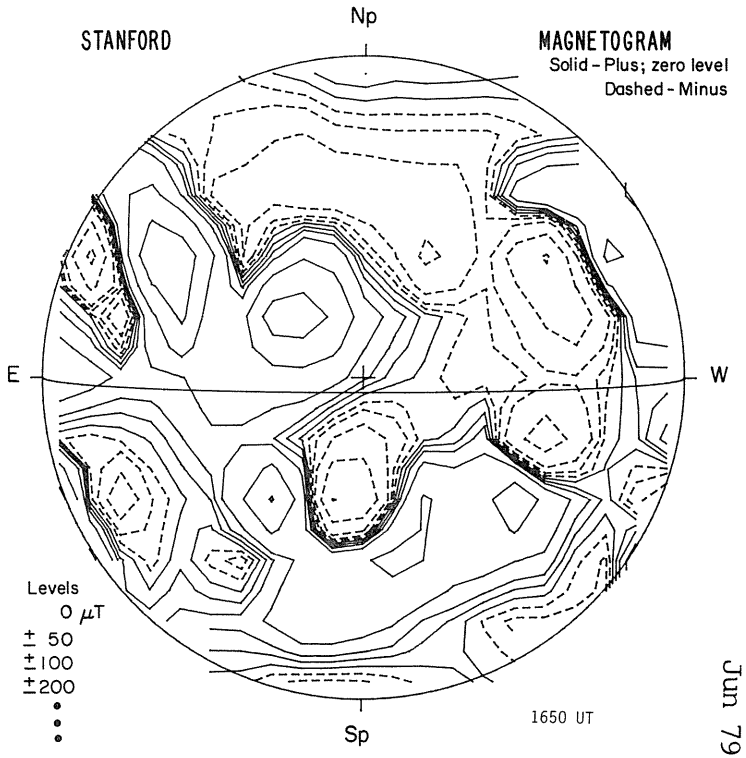

BIG BEAR
Hα
Np
E
W
Sp
1954 UT


BOULDER
SUNSPOTS
Np
E
W
Sp
117
115
111
104
093
113
104
100
PROMINENCES
1305 UT
1338 UT


McMATH-HULBERT
CALCIUM REPORT
Np
E
W
Sp
114
117
115
111
108
104
098
093
106
113
109
088
112
105
103
100
116
089
1400 UT
V POOR | S
93- 1200-2.5
100- 2000-2.5
104- 2200-3.0
108- 3000-3.0
111- 1300-3.5
112- 2100-2.5
113- 0200-3.0
117- 3000-3.5


NOSC LA POSTA
2.0 CM
Np
E
W
Sp
1611 UT
Ant. Temp. Unit 100° K

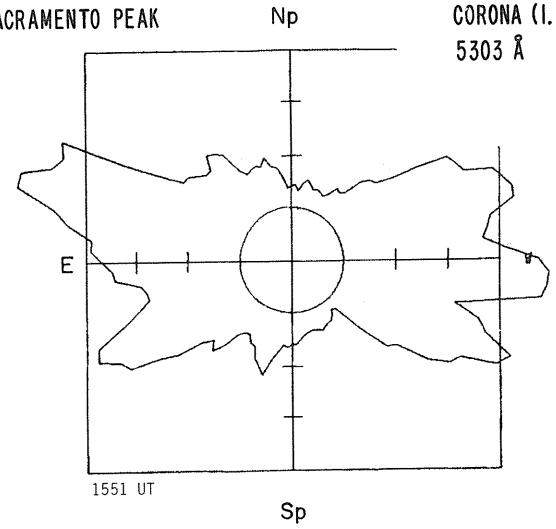

NOSC LA POSTA
8.6 MM
Np
E
W
Sp
1517 UT
Ant. Temp. Unit 100° K


STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
Levels
0 μT
± 50
± 100
± 200
1650 UT

107
Jun 79

JUNE 30, 1979 (P =-3.42, B_o = 2.73, L_o = 227.24)

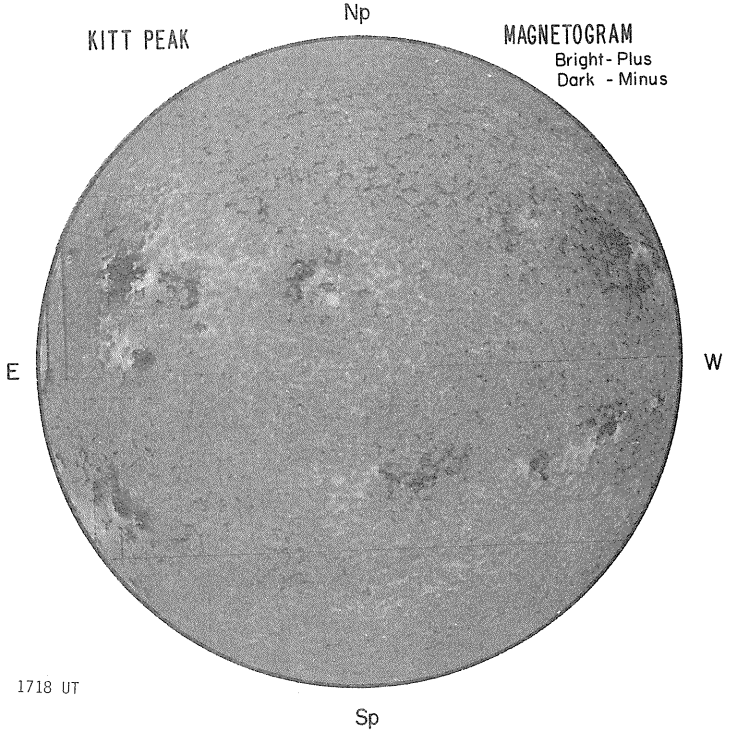
SACRAMENTO PEAK



CORONA (1.15 $R_\odot$)
5303 Å

1551 UT

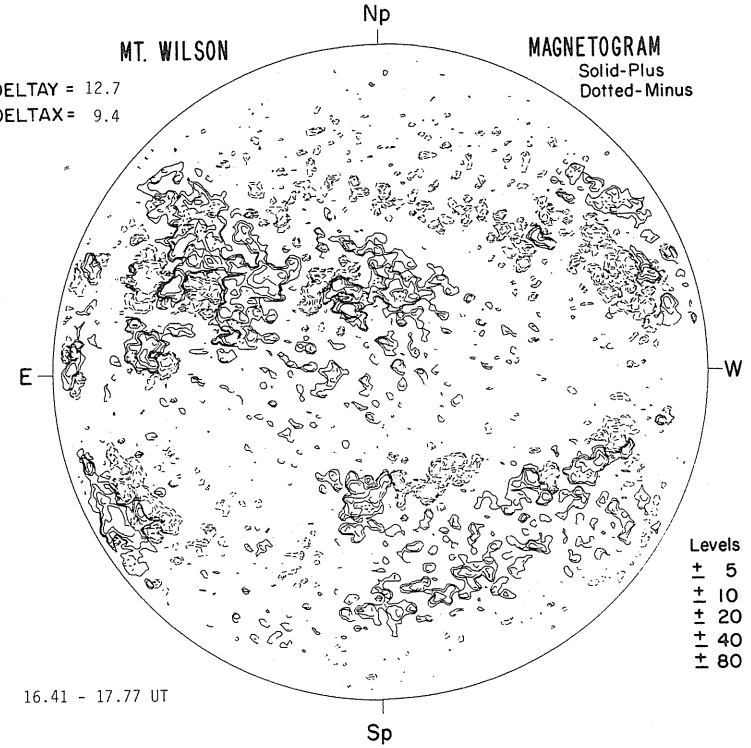
KITT PEAK



MAGNETOGRAM
Bright - Plus
Dark - Minus

1718 UT

MT. WILSON



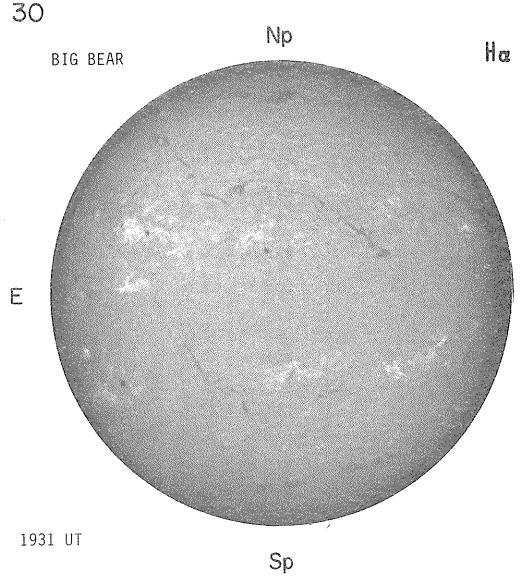
DELTAY = 12.7
DELTAX = 9.4

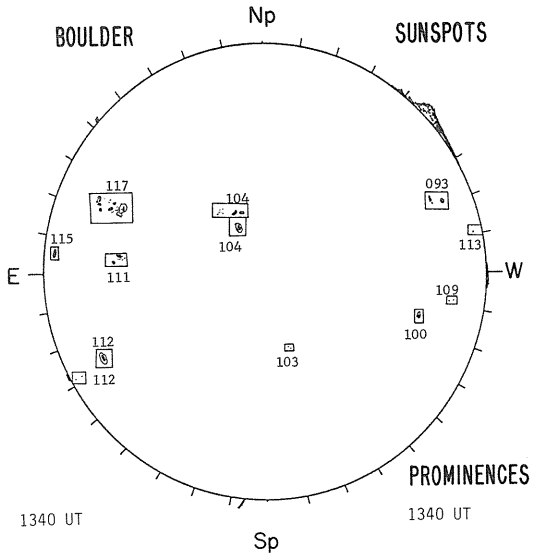
MAGNETOGRAM
Solid-Plus
Dotted-Minus

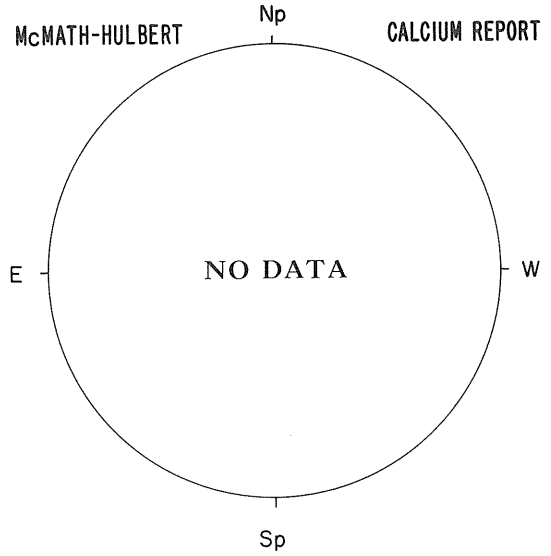
Levels
± 5
± 10
± 20
± 40
± 80

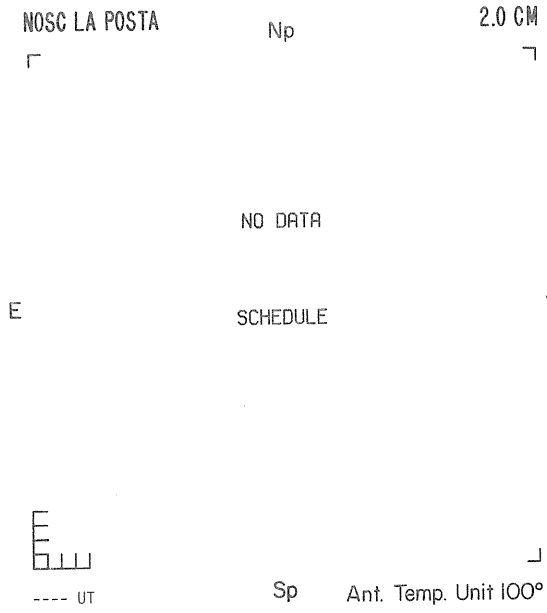
16.41 - 17.77 UT

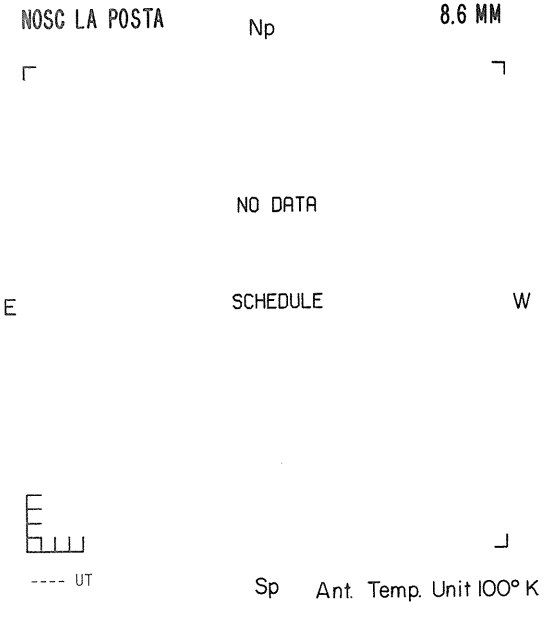
30

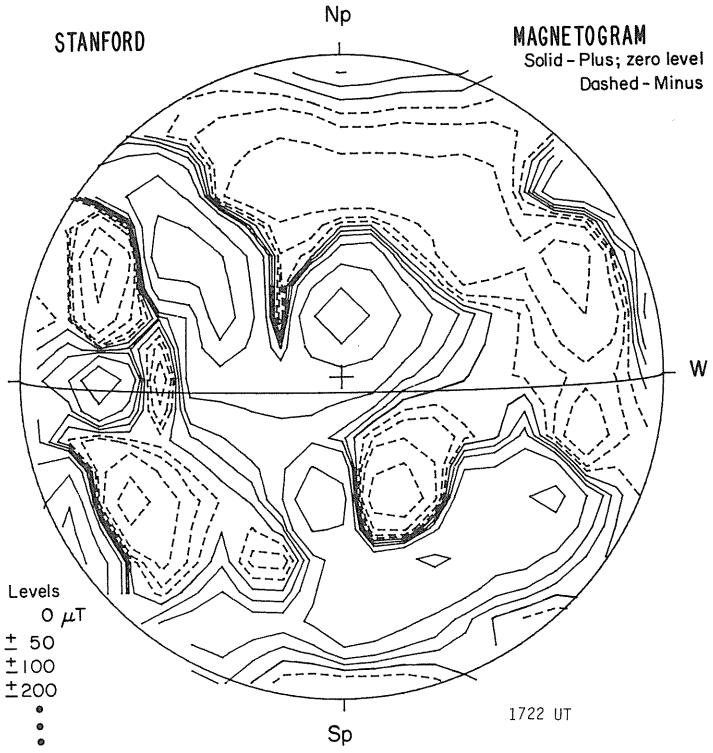

BIG BEAR
Np
Hα
E
W
Sp
1931 UT


BOULDER
Np
SUNSPOTS
117
104
104
093
115
111
113
E
W
109
100
112
112
103
PROMINENCES
1340 UT
1340 UT
Sp


McMATH-HULBERT
Np
CALCIUM REPORT
NO DATA
E
W
Sp


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


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


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
± 100
± 200
Sp
1722 UT

REGIONS OF SOLAR ACTIVITY

JUNE 1979

MCMATH REGION 16061 CMP DATE 3.6

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	3	16061	S17 E00	216	100	2.0	20652	S17 W02	216	(AP)	2				
79	6	4	16061	S18 W15	218	400	2.5	20652	S17 W15	218	(B)	3	B	50	8	DSO
79	6	5	16061	S17 W28	218	300	3.0	20652	S17 W28	218	(BP)	2	B	30	5	CRO
79	6	6	16061	S17 W41	219	700	3.0	20652	S17 W42	219	(BF)	3				
79	6	7	16061	S16 W56	218	800	2.5	20652	S18 W54	217	(B)	4	P	150	7	CAO
79	6	8	16061	S16 W69	218	1000	3.0	20652	S19 W65	215	(AF)	2	P	100	2	CAO
79	6	9	16061	S16 W82	219	1000	2.5	20652	S19 W79	216	AP	3	H	120	2	HSX

MCMATH REGION 16046 CMP DATE 4.0

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	28	16046	N17 E85	211	1100	3.0	20637	N13 E80	216	(X)	4	B	100	1	HSX
79	5	29	16046	N17 E75	210	3000	3.0	20637	N14 E69	215	(AP)	5	B	130	2	CHO
79	5	30	16046	N17 E65	206	4200	3.0	20637	N15 E57	213	(B)	5	P	200	34	DAI
79	5	31	16046	N17 E49	210	5600	3.5	20637	N15 E44	213	(BP)	4	H	590	18	DAI
79	6	1	16046	N17 E33	211	4800	3.5	20637	N14 E31	211	(B)	4	B	720	55	DKC
79	6	2	16046	N17 E18	211	4800	3.5	20637	N13 E17	212	(D)	5	B	670	29	DKC
79	6		16046					20647	N20 E14	215	(AP)	2				
79	6		16046					20648	N07 E22	207	(B)	3	B	10	2	BXO
79	6	3	16046	N17 E06	210	4500	3.5	20637	N13 E04	210	(BP)	5	B	550	24	DKI
79	6		16046					20648	N07 E06	208	(AP)	2	B	0	1	AXX
79	6	4	16046	N17 W07	210	4800	3.5	20637	N13 W09	212	(BP)	5	B	570	28	DKI
79	6	5	16046	N17 W21	211	4500	3.0	20637	N13 W23	213	(BP)	5	B	480	15	DKO
79	6	6	16046	N17 W34	212	4000	3.0	20637	N13 W36	213	(BP)	4	B	320	11	DHO
79	6	7	16046	N17 W47	209	3600	3.0	20637	N13 W49	212	(BP)	4	P	300	8	DSO
79	6	8	16046	N17 W61	210	3800	3.0	20637	N13 W65	215	(AP)	4	P	250	4	DSO
79	6	9	16046	N17 W74	211	3000	2.0	20637	N13 W78	215	(AP)	3	H	160	1	HSX
79	6	10	16046	N17 W88	213	1100	1.0									

MCMATH REGION 16049 CMP DATE 5.0

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	30	16049	N05 E73	198	500	1.5									
79	5	31	16049	N05 E61	198	300	1.5									
79	6	1	16049	N05 E48	196	100	1.5									
79	6	2	16049	N05 E35	194	200	1.0									
79	6	3	16049	N06 E21	195	200	1.0									
79	6	4	16049	N06 E06	197	300	1.0									

MCMATH REGION 16054 CMP DATE 5.8

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	1	16054	N35 E58	186	200	1.5									
79	6	2	16054	N35 E43	186	200	2.0									
79	6	3	16054	N35 E30	186	100	1.0									
79	6	4	16054	N36 E17	186	100	1.5									
79	6	5	16054	N36 E03	187	100	1.0									

MCMATH REGION 16062 CMP DATE 5.9

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	4	16062	N10 E17	186	200	2.5	20656	N11 E18	185	(B)	4	B	30	6	CSO
79	6	5	16062	N10 E04	186	800	2.5	20656	N10 E05	185	(B)	3	B	40	10	DRO
79	6	6	16062	N10 W08	186	900	3.0	20656	N10 W09	186	(B)	4	B	40	11	CSO
79	6	7	16062	N10 W23	185	900	2.5	20656	N10 W22	185	(B)	4	P	50	6	CSO
79	6	8	16062	N10 W35	184	1000	2.0	20656	N10 W34	184	(AP)	2	P	20	3	BXO
79	6	9	16062	N11 W49	186	900	2.5									
79	6	10	16062	N10 W63	188	800	2.5									
79	6	11	16062	N10 W76	187	300	3.0									

REGIONS OF SOLAR ACTIVITY

JUNE 1979

MCMATH REGION 16051 CMP DATE 6.3 RETURN OF REGION 15990 ROTATION 6

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	31	16051	N18 E78	181	3400	3.5	20642	N19 E77	180	(BY)	4	H	230	2	CAO
79	6	1	16051	N18 E58	186	5800	3.5	20642	N19 E63	179	(D)	4	B	950	32	DKC
79	6	2	16051	N19 E46	183	6100	3.5	20642	N19 E50	179	(D)	4	B	1030	34	DKC
79	6	3	16051	N20 E33	183	6400	4.0	20642	N19 E35	179	(D)	5	B	970	33	DKC
79	6	4	16051	N20 E22	181	6500	4.0	20642	N20 E23	180	(D)	5	B	970	59	EKI
79	6	5	16051	N20 E09	181	6500	3.5	20642	N20 E10	180	(D)	4	B	630	64	EKI
79	6	6	16051	N20 W03	181	6000	4.0	20642	N20 W03	180	(D)	4	B	690	40	EKI
79	6	7	16051	N20 W18	180	6100	3.5	20642	N20 W16	179	(D)	4	P	500	50	EAI
79	6	8	16051	N20 W31	180	6000	3.5	20642	N20 W30	180	(Y)	3	P	500	28	EAI
79	6	9	16051	N21 W44	181	6500	3.5	20642	N20 W44	181	(Y)	3	H	360	45	EKI
79	6	10	16051	N21 W56	181	6500	3.5	20642	N20 W57	181	(BY)	3	B	340	28	DKI
79	6	11	16051	N21 W69	180	6500	3.0	20642	N20 W71	182	(BY)	3	B	10	6	BXO
79	6	12	16051	N21 W81	178	3500	2.5		N21 W84				B	30	5	BXO

MCMATH REGION 16072 CMP DATE 6.7

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	11	16072	S06 W64	175	100	1.5									

MCMATH REGION 16056 CMP DATE 7.3 RETURN OF REGION 15992 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	1	16056	N07 E78	166	2200	3.5	20645	N07 E74	168	(AP)	5	B	130	1	HHX
79	6	2	16056	N08 E64	165	2200	3.5	20645	N07 E61	168	(AP)	4	B	300	1	HSX
79	6	3	16056	N08 E50	166	1700	3.0	20645	N07 E47	167	(AP)	5	B	320	1	HHX
79	6	4	16056	N08 E37	166	1500	3.0	20645	N08 E35	168	(BP)	5	B	310	2	CHO
79	6	5	16056	N08 E23	167	1500	3.0	20645	N08 E22	168	(BP)	5				
79	6	6	16056	N08 E10	168	1500	3.0	20645	N07 E08	169	(BP)	4	B	300	6	CHO
79	6	7	16056	N08 W05	167	1400	2.5	20645	N08 W05	168	(AP)	4	P	220	4	CSO
79	6	8	16056	N08 W18	167	1400	2.5	20645	N08 W18	168	(AP)	4	P	200	5	CSO
79	6	9	16056	N08 W31	168	1400	2.0	20645	N08 W32	169	(AP)	4	H	230	5	HAX
79	6	10	16056	N08 W42	167	1000	2.5	20645	N08 W45	169	(AP)	4	B	250	18	HKX
79	6	11	16056	N08 W57	168	1000	2.5	20645	N08 W58	169	(AP)	4	B	170	2	HAX
79	6	12	16056	N08 W69	166	800	2.5	20645	N08 W70	167	(AP)	3	B	140	3	CSO
79	6	13	16056	N08 W82	166	600	1.5									

MCMATH REGION 16060 CMP DATE 7.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	3	16060	S09 E53	163	200	3.0	20653	S09 E51	163	(BP)	3				
79	6	4	16060	S09 E38	165	300	2.5	20653	S08 E37	166	(BP)	3	B	40	3	CSO
79	6	5	16060	S08 E24	166	300	2.5	20653	S09 E22	168	(AP)	4	B	20	4	BXO
79	6	6	16060	S08 E11	167	200	1.0	20653	S09 E07	170	(AP)	3	B	10	2	BXO
79	6	7	16060	S08 W04	166	200	1.0	20653	S09 W07	170	(AP)	2				
79	6	8	16060	S08 W17	166	100	1.0									
79	6	9	16060	S09 W30	167	200	1.0									
79	6	10	16060	S09 W43	168	300	1.0									

MCMATH REGION 16052 CMP DATE 7.8 RETURN OF REGIONS 15987 AND 15996 ROTATIONS 4 AND 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	31	16052	S23 E83	176	2000	2.0	20643	S22 E87	170	(X)	4				
79	6	1	16052	S23 E73	171	3300	3.0	20643	S22 E71	171	(BP)	5	B	350	5	EHO
79	6		16052					20646	S18 E86	156	(BP)	4	B	60	1	HSX
79	6	2	16052	S23 E65	164	5000	3.5	20643	S22 E65	164	(BP)	5	B	400	7	CSO
79	6		16052					20646	S16 E71	158	(AP)	3	B	140	1	HSX
79	6	3	16052	S22 E53	163	6300	3.5	20643	S22 E50	164	(BP)	5	B	590	10	DHI
79	6		16052					20646	S16 E57	157	(AP)	4	B	200	1	HSX
79	6	4	16052	S22 E41	162	6800	3.5	20643	S22 E32	171	(AP)	5	B	490	9	HHX
79	6		16052					20646	S15 E45	158	(AP)	4	B	140	1	HSX
79	6		16052					20657	S21 E44	159	(BF)	3	B	90	12	DSI
79	6	5	16052	S21 E27	163	6600	4.5	20643	S22 E19	171	(BP)	5	B	510	11	HHX
79	6		16052					20646	S15 E33	157	(AP)	4				
79	6		16052					20657	S20 E33	157	(BF)	3	B	40	13	DRI
79	6	6	16052	S21 E16	162	6500	3.5	20643	S22 E06	171	(BP)	5	B	550	6	CHO
79	6		16052					20646	S15 E18	159	(AP)	4	B	100	1	HSX

CONTD

REGIONS OF SOLAR ACTIVITY

JUNE 1979

MCMATH REGION 16052 (CONT) CMP DATE 7.8

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6		16052					20657	S21 E17	160	(BF)	3	B	40	17	CSO
79	6	7	16052	S21 E03	159	6300	3.0	20643	S22 W07	170	(BP)	5	P	450	8	CHO
79	6		16052					20646	S15 E06	157	(BP)	4	P	200	6	CSO
79	6		16052					20657	S20 E05	158	(B)	3	P	50	14	BXO
79	6	8	16052	S21 W10	159	6300	3.0	20643	S22 W20	170	(AP)	4	P	450	7	CHO
79	6		16052					20646	S15 W08	178	(AP)	3				
79	6		16052					20657	S21 W09	169	(B)	3	P	250	5	CSO
79	6	9	16052	S21 W24	161	6500	2.5	20643	S22 W34	171	(AP)	5	H	510	4	CKO
79	6		16052					20646	S16 W21	158	(BP)	4	H	140	4	CAO
79	6		16052					20657	S21 W23	160	(BF)	3	H	210	27	EAI
79	6	10	16052	S21 W35	160	6500	3.0	20643	S22 W47	171	(AP)	5	B	420	3	HHX
79	6		16052					20646	S15 W34	158	(AP)	4	B	50	6	CSO
79	6		16052					20657	S21 W36	160	(BF)	4	B	350	49	EKI
79	6	11	16052	S20 W48	159	6800	2.5	20643	S22 W60	171	(AP)	4	B	600	5	DHO
79	6		16052					20646	S16 W47	158	(AP)	3	B	60	1	HSX
79	6		16052					20657	S21 W47	158	(B)	4	B	480	6	CHO
79	6		16052					20668	S25 W50	161	(B)	4				
79	6	12	16052	S20 W60	157	6500	2.5	20643	S22 W73	170	(AP)	3	B	390	4	DAO
79	6		16052					20646	S15 W60	157	(AP)	3	B	80	1	HSX
79	6		16052					20657	S21 W60	157	(D)	4	B	330	15	DKI
79	6		16052					20668	S25 W65	162	(AP)	2				
79	6	13	16052	S20 W71	155	5200	3.0	20646	S16 W73	157	(B)	2	B	90	1	HSX
79	6		16052					20657	S21 W72	156	(AF)	3				
79	6		16052					20668	S24 W80	164	(AP)	2	B	150	2	DSO

MCMATH REGION 16063 CMP DATE 8.0

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	4	16063	S37 E47	156	300	2.0									
79	6	5	16063	S36 E31	159	600	3.0	20659	S35 E30	160	(B)	3	B	160	1	HSX
79	6	7	16063	S36 E05	157	500	1.5	20659	S35 W01	164	(AP)	2	P	20	1	HSX
79	6	8	16063	S35 W08	157	400	1.5	20659	S36 W14	164	(AP)	3	P	10	1	HSX
79	6	9	16063	S34 W20	157	400	1.5	20659	S36 W27	164	(AP)	3	H	10	1	AXX
79	6	10	16063	S34 W31	156	400	1.0	20659	S36 W39	163	(AP)	2	B	20	1	HRX
79	6	11	16063	S34 W44	155	400	1.5									
79	6	12	16063	S34 W57	154	400	1.0									
79	6	13	16063	S34 W69	153	300	1.0									

MCMATH REGION 16057 CMP DATE 8.8 RETURN OF REGION 15995 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	2	16057	N05 E84	145	800	2.0	20649	N04 E00	149	(AP)	3	B	160	1	HSX
79	6	3	16057	N04 E70	146	900	2.0	20649	N04 E67	147	(AP)	5	B	240	1	HSX
79	6	4	16057	N04 E56	147	700	1.5	20649	N05 E55	148	(AP)	5	B	270	1	HHX
79	6	5	16057	N04 E42	148	700	2.5	20649	N04 E42	148	(AP)	5	B	280	1	HSX
79	6	6	16057	N04 E29	149	700	2.0	20649	N04 E28	149	(AP)	5	B	260	1	HHX
79	6	7	16057	N04 E15	147	700	1.5	20649	N04 E15	148	(B)	5	P	300	1	HHX
79	6	8	16057	N04 E02	147	900	1.5	20649	N04 E02	148	(AP)	4	P	350	5	CSO
79	6	9	16057	N04 W12	149	1200	2.0	20649	N04 W12	149	(BY)	5	H	290	10	CHO
79	6	10	16057	N04 W24	149	1200	3.5	20649	N04 W25	149	(BP)	5	B	260	12	CHO
79	6	11	16057	N04 W38	149	1400	3.0	20649	N04 W37	148	(BP)	5	B	310	5	CSO
79	6	12	16057	N04 W51	148	1600	2.5	20649	N04 W50	147	(AP)	5	B	270	1	HHX
79	6	13	16057	N05 W64	148	1400	2.0	20649	N04 W64	148	(AP)	5	B	160	1	HHX
79	6	14	16057	N05 W77	149	1600	2.0	20649	N04 W77	148	(AP)	4	B	160	1	HSX

MCMATH REGION 16058 CMP DATE 9.8 RETURN OF REGIONS 15999 AND 16ØØØ ROTATIONS 3 AND 4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	2	16058	N15 E85	144	900	2.0									
79	6	3	16058	N16 E76	140	2000	3.0	20654	N15 E70	144	(AP)	2	B	0	1	AXX
79	6	4	16058	N16 E64	139	3600	3.0	20654	N16 E59	144	(AP)	2				
79	6		16058					20658	N18 E83	133	(X)	4	B	70	1	HSX
79	6	5	16058	N16 E54	136	4800	3.5	20658	N18 E67	123	(AP)	3	B	110	1	HSX
79	6	6	16058	N16 E42	136	4500	2.5	20658	N18 E54	123	(AP)	4	B	130	1	HSX
79	6		16058					20660	N14 E32	145	(AP)	2				
79	6		16058					20661	N19 E30	147	(AP)	2				
79	6	7	16058	N17 E30	132	4500	2.5	20658	N17 E41	122	(AP)	4	P	150	1	HSX
79	6		16058					20660	N15 E18	145	B	1				
79	6	8	16058	N17 E17	132	4500	2.5	20658	N18 E28	122	(AP)	4	P	150	1	HSX
79	6	9	16058	N17 E03	134	4300	2.5	20658	N18 E14	123	(AP)	4	H	120	2	HAX
79	6	10	16058	N17 W10	135	4800	2.5	20658	N18 E03	121	(BP)	4	B	110	3	HSX

CONTD

REGIONS OF SOLAR ACTIVITY

JUNE 1979

MCMATH REGION 16058 (CONT) CMP DATE 9.8

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6		16058					20664	N06 W11	135	(BF)	2	B	30	5	DRO
79	6	11	16058	N17 W22	133	5100	3.0	20658	N18 W12	123	(BP)	4	B	110	1	HSX
79	6		16058					20667	N17 W35	146	B	1				
79	6	12	16058	N17 W36	133	5000	2.5	20658	N18 W25	122	(AP)	4	B	90	4	CSO
79	6		16058					20671	N17 W43	140	(B)	2	B	30	3	CSO
79	6	13	16058	N17 W50	134	5000	2.5	20658	N18 W37	121	(BY)	4	B	70	3	CSO
79	6	14	16058	N18 W63	135	4500	2.5	20658	N18 W51	122	(AP)	4	B	60	1	HSX
79	6	15	16058	N18 W77	136	3000	2.0	20658	N17 W63	121	(AP)	4	B	50	1	HSX
79	6	16	16058	N18 W89	135	900	1.5	20658	N17 W75	120	(AP)	3				

MCMATH REGION 16069 CMP DATE 10.1

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	9	16069	S15 E07	130	200	1.5									
79	6	10	16069	S16 W06	131	500	1.5	20665	S15 W05	129	(AF)	2	B	10	4	AXX
79	6	11	16069	S15 W20	131	600	2.0	20665	S13 W22	133	(B)	3	B	0	1	AXX
79	6	12	16069	S15 W33	130	600	2.5	20665	S15 W34	131	(BY)	2	B	50	6	CSO
79	6	13	16069	S15 W46	130	600	3.0	20675	S15 W57	141	(B)	2	B	0	2	BXO
79	6	14	16069	S14 W59	131	700	2.5									
79	6	15	16069	S14 W74	133	700	2.0									

MCMATH REGION 16064 CMP DATE 11.9 RETURN OF REGION 16003 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	5	16064	N31 E85	105	1200	2.0									
79	6	6	16064	N31 E73	105	800	1.0									
79	6	7	16064	N34 E60	102	800	1.0									
79	6	8	16064	N34 E43	106	600	1.5									
79	6	9	16064	N34 E30	107	800	1.5									
79	6	10	16064	N34 E18	107	800	1.5									
79	6	11	16064	N34 E04	107	900	1.5									
79	6	12	16064	N34 W08	105	1200	1.5									
79	6	13	16064	N34 W20	104	800	2.0									
79	6	14	16064	N34 W32	104	800	2.0									
79	6	15	16064	N34 W45	104	900	2.0									
79	6	16	16064	N34 W57	103	800	1.0									
79	6	17	16064	N35 W70	102	500	1.0									

MCMATH REGION 16067 CMP DATE 12.0 RETURN OF REGION 16014 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	5	16067	N16 E80	110	1000	2.0									
79	6	6	16067	N16 E70	108	2500	3.5	20662	N16 E76	101	B	3	B	10	2	CRO
79	6	7	16067	N16 E58	104	3600	4.0	20662	N15 E62	101	(B)	4	F	300	16	DSO
79	6	8	16067	N16 E43	106	4000	3.5	20662	N15 E49	101	(B)	4	P	400	26	EHI
79	6	9	16067	N16 E30	107	4400	3.5	20662	N17 E35	102	(B)	5	H	1020	46	EKI
79	6	10	16067	N16 E19	106	4200	3.0	20662	N17 E22	102	(B)	5	B	950	73	EKI
79	6	11	16067	N16 E06	105	4600	3.0	20662	N17 E10	101	(B)	5	B	1190	14	EKI
79	6	12	16067	N16 W07	104	4800	3.5	20662	N17 W04	101	(B)	4	B	1010	42	EKI
79	6	13	16067	N16 W19	103	4300	3.5	20662	N17 W17	101	(BY)	4	B	1130	18	EKO
79	6	14	16067	N16 W31	103	4500	3.5	20662	N17 W30	101	(B)	4	B	1060	16	EKO
79	6	15	16067	N17 W43	102	4200	3.0	20662	N17 W43	101	(BY)	4	B	870	23	EKI
79	6	16	16067	N17 W57	103	4500	3.0	20662	N17 W54	99	(B)	4				
79	6	17	16067	N17 W70	102	4100	3.0									
79	6	18	16067	N17 W80	99	3200	2.5	20662	N18 W77	95	B	3	B	210	3	DAO

MCMATH REGION 16065 CMP DATE 12.9 RETURN OF REGION 16008 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	5	16065	S18 E89	101	800	1.5									
79	6	6	16065	S17 E78	100	1300	2.5	20663	S17 E79	98	X	3	B	10	1	HRX
79	6	7	16065	S18 E69	93	1200	3.5	20663	S17 E70	93	(B)	3	P	300	12	DSO
79	6	8	16065	S17 E56	93	2100	3.0	20663	S18 E56	94	(B)	4	P	480	20	EHI
79	6	9	16065	S17 E42	95	2600	3.5	20663	S17 E43	94	(B)	4	H	640	15	DKO
79	6	10	16065	S17 E31	94	2800	3.0	20663	S17 E30	94	(B)	4	B	720	39	DKO
79	6	11	16065	S17 E17	94	3200	3.0	20663	S17 E17	94	(BY)	5	B	520	13	DKO
79	6	12	16065	S17 E05	92	3800	3.0	20663	S17 E04	93	(BY)	5	B	530	35	EKO

CONTD

REGIONS OF SOLAR ACTIVITY

JUNE 1979

MCMATH REGION 16065 (CONT) CMP DATE 12.9 RETURN OF REGION 16008 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	6		16065				
79	6		16065				
79	6	13	16065	S16 W07	91	3800	3.5
79	6		16065				
79	6	14	16065	S16 W20	92	3800	3.5
79	6		16065				
79	6	15	16065	S16 W34	93	3600	3.0
79	6		16065				
79	6	16	16065	S16 W47	93	3600	3.0
79	6		16065				
79	6	17	16065	S16 W60	92	3500	3.5
79	6	18	16065	S16 W73	92	3200	3.5
79	6	19	16065	S16 W86	92	1700	2.5

SUNSPOT DATA

NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20672	S12 E04	93	(B)	3	B	30	3	CRO
20673	S23 E04	93	(B)	3	B	30	5	CSO
20663	S17 W07	91	(BY)	5	B	630	22	EKI
20672	S12 W08	92	(B)	3	B	20	5	BXI
20663	S17 W22	93	(D)	4	B	480	17	DHI
20672	S12 W22	93	(AP)	2	B	0	2	AXX
20663	S17 W34	92	(BY)	4	B	380	23	EHI
20672	S13 W42	100	(B)	3	B	50	3	DSO
20663	S17 W47	92	(B)	4	B	410	10	DKO
20672	S13 W55	100	(B)	2	B	20	2	BXO
20663	S16 W75	93	(B)	3				

MCMATH REGION 16068 CMP DATE 14.1

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	6	8	16068	N09 E73	76	500	1.5
79	6	9	16068	N09 E60	77	300	1.5
79	6	10	16068	N08 E47	78	400	1.5
79	6	11	16068	N08 E34	77	200	1.0
79	6	12	16068	N09 E21	76	200	1.5
79	6	13	16068	N09 E08	76	100	1.0
79	6	14	16068	N09 W06	78	200	1.0
79	6	15	16068	N08 W18	77	200	1.5
79	6	16	16068	N08 W32	78	200	1.0
79	6	17	16068	N09 W45	77	100	1.0

SUNSPOT DATA

NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20674	N10 E21	76	(AP)	3	B	10	1	AXX

MCMATH REGION 16075 CMP DATE 14.5 RETURN OF REGION 16018 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	6	8	16075	N40 E78	71	200	1.0
79	6	9	16075	N42 E65	72	200	1.0
79	6	10	16075	N41 E53	72	200	1.5
79	6	11	16075	N42 E38	73	300	1.0
79	6	12	16075	N42 E26	71	400	1.0
79	6	13	16075	N42 E13	71	400	1.0
79	6	14	16075	N42 E00	72	600	1.0
79	6	15	16075	N42 W11	70	400	1.0
79	6	16	16075	N42 W24	70	600	1.0
79	6	17	16075	N43 W36	68	500	1.0
79	6	18	16075	N41 W47	66	500	1.5
79	6	19	16075	N41 W59	65	200	1.5
79	6	20	16075	N42 W71	64	300	1.0

SUNSPOT DATA

NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 16077 CMP DATE 15.0

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	6	15	16077	S22 W07	66	100	1.5
79	6	16	16077	S22 W20	66	100	1.0

SUNSPOT DATA

NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 16070 CMP DATE 15.4 RETURN OF PART OF REGION 16012 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	6	9	16070	N25 E78	59	900	2.0
79	6	10	16070	N23 E68	57	800	3.0
79	6	11	16070	N24 E53	58	700	3.5
79	6	12	16070	N24 E37	60	700	3.5
79	6	13	16070	N24 E25	59	800	2.5
79	6	14	16070	N24 E12	60	500	2.5
79	6	15	16070	N24 W02	61	500	2.5
79	6	16	16070	N24 W15	61	500	2.0
79	6	17	16070	N24 W28	60	400	1.5
79	6	18	16070	N24 W42	61	400	1.5
79	6	19	16070	N24 W55	61	400	1.0
79	6	20	16070	N25 W70	63	300	1.0

SUNSPOT DATA

NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20666	N24 W63	187	(AP)	2				
20666	N23 E52	59	(B)	3	B	10	2	AXX
20666	N24 E38	59	(B)	3	B	40	8	CSI
20679	N24 E09	62	(AP)	3				

REGIONS OF SOLAR ACTIVITY

JUNE 1979

MCMATH REGION 16078 CMP DATE 15.6

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	15	16078	N06 E01	58	100	1.5	20681	N05 W01	59	(B)	2	B	20	3	CSO
79	6	16	16078	N07 W13	59	400	2.5	20681	N06 W14	59	(B)	4	B	40	5	DRO
79	6	17	16078	N07 W26	58	600	3.0		N08 W27				B	130	18	DAI
79	6	18	16078	N07 W40	59	900	2.5	20681	N07 W42	60	(B)	3	B	100	5	DSO
79	6	19	16078	N07 W53	59	1000	3.0	20681	N08 W55	60	(B)	3	B	100	6	DAO
79	6	20	16078	N07 W67	60	900	2.5	20681	N07 W67	59	(B)	3	B	40	7	CRO
79	6	21	16078	N08 W85	64	400	2.5									

MCMATH REGION 16081 CMP DATE 15.8

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	15	16081	S28 E04	55	100	1.0									
79	6	16	16081	S29 W08	54	100	2.0	20683	S28 W08	53	(B)	2	B	10	3	BXO
79	6	17	16081	S29 W20	52	100	1.5									
79	6	18	16081	S28 W33	52	100	1.0									

MCMATH REGION 16095 CMP DATE 16.2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	21	16095	S28 W71	50	100	2.0									

MCMATH REGION 16074 CMP DATE 17.6 RETURN OF REGION 16023 ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	11	16074	S17 E85	26	800	2.5	20669	S15 E74	37	(AP)	3	B	0	1	AXX
79	6	12	16074	S16 E67	30	1500	2.5	20669	S15 E60	37	(AP)	3	B	40	1	HRX
79	6	13	16074	S16 E55	29	1500	3.0									
79	6	14	16074	S16 E42	30	1500	2.5									
79	6	15	16074	S16 E28	31	1500	2.0									
79	6	16	16074	S16 E16	30	1100	2.0									
79	6	17	16074	S16 E02	30	1100	2.0									
79	6	18	16074	S17 W13	32	1200	2.0									
79	6	19	16074	S17 W25	31	1200	1.5									
79	6	20	16074	S16 W40	33	1000	2.0									
79	6	21	16074	S17 W54	33	700	2.0									
79	6	22	16074	S17 W66	33	700	2.0									
79	6	23	16074	S15 W79	32	600	1.0									

MCMATH REGION 16073 CMP DATE 17.7

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	11	16073	N23 E85	26	500	2.5	20670	N22 E85	26	X	3				
79	6	12	16073	N23 E70	27	1000	2.5	20670	N23 E69	28	(AP)	3	B	20	1	HSX
79	6	13	16073	N23 E56	28	1600	3.0	20670	N24 E56	28	(B)	2	B	10	2	BXO
79	6	14	16073	N24 E44	28	1500	3.0	20670	N23 E43	28	(B)	3	B	20	7	BXO
79	6		16073					20676	N23 E54	17	AP	1	B	0	1	AXX
79	6	15	16073	N23 E30	29	1400	3.0	20670	N23 E29	29	(B)	3	B	70	12	DSI
79	6	16	16073	N23 E16	30	1400	3.0	20670	N22 E15	30	(B)	3	B	150	29	DAI
79	6	17	16073	N23 E03	29	2000	3.0		N22 E03				B	170	33	DAI
79	6	18	16073	N23 W10	29	2200	3.5	20670	N23 W12	30	(B)	4	B	180	15	DAO
79	6	19	16073	N24 W23	29	2300	3.5	20670	N23 W25	30	(B)	5	B	230	17	DAO
79	6	20	16073	N24 W36	29	2500	3.0	20670	N23 W38	30	(BY)	4	B	170	12	DSO
79	6	21	16073	N24 W50	29	2300	3.0	20670	N24 W51	31	(BP)	4				
79	6	22	16073	N24 W63	30	2300	2.5	20670	N24 W68	34	(AP)	4	B	150	3	HSX
79	6	23	16073	N24 W77	30	2200	2.5	20670	N23 W80	33	(AP)	2	B	160	2	HSX
79	6	24	16073	N24 W89	29	900	1.5									

MCMATH REGION 16082 CMP DATE 17.9

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	16	16082	N08 E19	27	300	2.0	20684	N09 E17	28	(BP)	2	B	20	6	CRO
79	6	17	16082	N08 E05	27	700	3.0		N08 E04				B	80	9	DSO

CONTD

REGIONS OF SOLAR ACTIVITY

JUNE 1979

MCMATH REGION 16082 (CONT) CMP DATE 17.9

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	18	16082	N08 W08	27	700	3.0	20684	N08 W10	28	(B)	4	B	40	6	CSO
79	6	19	16082	N08 W22	28	800	3.0	20684	N08 W25	30	(BP)	3	B	40	3	CAO
79	6	20	16082	N08 W36	29	900	3.0	20684	N08 W38	30	(B)	2	B	10	1	AXX
79	6	21	16082	N08 W51	30	600	3.0									
79	6	22	16082	N08 W63	30	500	2.5									
79	6	23	16082	N08 W77	30	500	1.5									

MCMATH REGION 16079 CMP DATE 18.9

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	15	16079	S18 E43	16	200	1.5	20682	S17 E43	15	(AP)	2				
79	6	16	16079	S18 E31	15	200	1.5	20682	S17 E30	15	(AP)	2				
79	6	17	16079	S18 E18	14	100	1.0									
79	6	18	16079	S18 E05	14	200	1.0									
79	6	19	16079	S19 W06	12	100	1.0									

MCMATH REGION 16076 CMP DATE 19.0

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	13	16076	N13 E76	8	600	2.5	20678	N13 E73	11	X	1				
79	6	14	16076	N13 E63	9	500	3.0									
79	6	15	16076	N14 E48	11	900	3.0									
79	6	16	16076	N14 E35	11	800	3.0									
79	6	17	16076	N14 E21	11	700	3.0									
79	6	18	16076	N14 E07	12	600	3.0	20685	N13 E06	12	(B)	2	B	20	6	CSO
79	6	19	16076	N14 W06	12	800	3.0									
79	6	20	16076	N15 W19	12	700	2.5		N17 W16				B	30	4	AXX
79	6	21	16076	N15 W33	12	700	2.5									
79	6	22	16076	N15 W45	12	500	2.0									
79	6	23	16076	N15 W58	11	400	1.0									
79	6	24	16076	N15 W72	12	400	1.0									

MCMATH REGION 16091 CMP DATE 19.1 RETURN OF REGION 16024 ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	12	16091	N26 E85	12	1500	2.0									
79	6	13	16091	N26 E70	14	2200	3.0	20677	N27 E78	6	X	2				
79	6		16091					20676	N24 E69	28	(B)	2				
79	6	14	16091	N26 E58	14	2300	3.0	20677	N27 E62	9	AP	1	B	10	3	AXX
79	6	15	16091	N26 E43	16	2600	3.0	20677	N26 E50	8	(AF)	3	B	10	5	BXO
79	6	16	16091	N26 E32	14	2300	3.5	20677	N26 E37	8	(AF)	3				
79	6	17	16091	N26 E20	12	2100	3.5		N25 E24				B	20	4	CSO
79	6	18	16091	N26 E08	11	2000	3.0	20677	N27 E12	6	(AF)	3	B	40	6	DSO
79	6	19	16091	N26 W04	10	2200	3.0	20677	N27 W01	6	(BP)	3	B	50	4	CAI
79	6	20	16091	N27 W16	9	1800	3.0	20677	N27 W15	7	(B)	3				
79	6	21	16091	N27 W30	9	1800	3.0	20677	N27 W28	8	(B)	2				
79	6	22	16091	N27 W42	9	1800	2.5									
79	6	23	16091	N27 W55	8	1800	3.0									
79	6	24	16091	N27 W69	9	1800	2.5									
79	6	25	16091	N27 W80	8	900	1.5									

MCMATH REGION 16092 CMP DATE 20.0

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	13	16092	N15 E88	357	600	1.5									
79	6	14	16092	N14 E74	359	1200	3.0	20680	N14 E70	1	(B)	2	B	20	2	BXO
79	6	15	16092	N15 E60	0	1200	3.5	20680	N14 E59	0	(BF)	3	B	140	11	DSO
79	6	16	16092	N15 E47	0	1600	3.0	20680	N14 E46	0	(B)	3				
79	6	17	16092	N15 E33	0	1500	3.0									
79	6	18	16092	N15 E20	0	1200	3.0	20680	N15 E18	0	(B)	3	B	30	3	DSO
79	6	19	16092	N15 E06	0	1000	3.0	20680	N14 E06	0	(BF)	4	B	40	5	CAO
79	6	20	16092	N16 W06	359	900	2.5	20680	N14 W06	358	(AF)	3	B	20	5	CRO
79	6	21	16092	N15 W20	359	800	2.5	20680	N14 W19	359	(AF)	3	B	10	1	AXX
79	6	22	16092	N15 W32	359	800	2.0	20680	N14 W33	359	(AP)	2	B	0	1	AXX
79	6	23	16092	N16 W45	358	600	2.0									
79	6	24	16092	N15 W58	358	400	1.5									
79	6	25	16092	N15 W68	356	400	1.0									

REGIONS OF SOLAR ACTIVITY

JUNE 1979

MCMATH REGION 16087 CMP DATE 21.2 RETURN OF PART OF REGION 16Ø31 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	15	16087	N18 E75	345	500	1.0									
79	6	16	16087	N17 E61	346	600	1.0									
79	6	17	16087	N17 E48	345	500	1.5									
79	6	18	16087	N17 E35	345	500	1.5									
79	6	19	16087	N17 E23	344	700	1.0									
79	6	20	16087	N17 E09	344	700	1.0									
79	6	21	16087	N18 W08	347	900	1.0									
79	6	22	16087	N18 W20	347	600	1.0									
79	6	23	16087	N18 W34	347	600	1.5									

MCMATH REGION 16083 CMP DATE 21.5 RETURN OF REGIONS 16Ø25 AND 16Ø26 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	15	16083	S24 E77	343	600	1.0									
79	6	16	16083	S24 E63	344	600	1.5									
79	6	17	16083	S24 E50	343	400	1.5									
79	6	18	16083	S24 E40	340	600	1.5									
79	6	19	16083	S25 E27	340	600	1.5									
79	6	20	16083	S26 E13	340	700	1.0									
79	6	21	16083	S26 E00	339	500	1.0									
79	6	22	16083	S25 W12	339	500	1.0									

MCMATH REGION 16107 CMP DATE 21.6

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	26	16107	S28 W66	340	300	2.5	20701	S28 W68	342	AP	2	B	10	1	AXX
79	6	27	16107	S28 W78	338	400	2.5	20701	S27 W80	339	AP	2				

MCMATH REGION 16080 CMP DATE 21.8 RETURN OF REGION 16042 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	15	16080	N34 E78	342	600	3.0									
79	6	16	16080	N35 E68	339	500	3.0									
79	6	17	16080	N35 E55	338	600	3.0									
79	6	18	16080	N35 E41	339	500	2.5									
79	6	19	16080	N35 E29	338	500	2.0									
79	6	20	16080	N35 E17	336	300	1.5									
79	6	21	16080	N35 E03	336	300	1.0									
79	6	22	16080	N35 W11	338	100	1.0									

MCMATH REGION 16102 CMP DATE 22.0

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	23	16102	N13 W20	333	300	1.5	20695	N12 W22	335	(AP)	2	B	0	1	AXX
79	6	24	16102	N12 W36	336	300	1.5									
79	6	25	16102	N12 W48	336	400	3.0	20698	N12 W48	335	(B)	3	B	90	4	BXO
79	6	26	16102	N12 W63	337	800	3.5	20698	N10 W65	339	AP	3	B	60	6	DRI
79	6	27	16102	N12 W78	338	800	3.0	20698	N11 W80	339	AP	3				

MCMATH REGION 16084 CMP DATE 22.4 RETURN OF PART OF REGION 16Ø31 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	16	16084	N18 E80	327	400	1.5									
79	6	17	16084	N18 E66	327	400	2.0									
79	6	18	16084	N18 E50	330	600	2.0									
79	6	19	16084	N18 E37	330	600	1.5									
79	6	20	16084	N18 E24	329	600	2.0									
79	6	21	16084	N18 E10	329	600	2.0									
79	6	22	16084	N18 W03	330	500	2.0									
79	6	23	16084	N18 W17	330	700	2.0									
79	6	24	16084	N18 W31	331	700	2.0									
79	6	25	16084	N18 W43	331	600	2.0									

CONTD

REGIONS OF SOLAR ACTIVITY

JUNE 1979

MCMATH REGION 16084 (CONT) CMP DATE 22.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	26	16084	N18 W58	332	400	1.5									
79	6	27	16084	N18 W71	331	300	1.0									

MCMATH REGION 16085 CMP DATE 22.5 RETURN OF REGION 16030 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	16	16085	S20 E83	324	500	1.0									
79	6	17	16085	S20 E67	326	500	1.5									
79	6	18	16085	S21 E53	327	800	1.5									
79	6	19	16085	S21 E39	328	600	1.5									
79	6	20	16085	S21 E26	327	1300	3.0	20689	S23 E26	326	(B)	4				
79	6	21	16085	S22 E12	327	1700	3.0	20689	S23 E13	327	(BP)	4				
79	6	22	16085	S23 E00	327	1700	3.0	20689	S23 E01	325	(BP)	3				
79	6		16085					20693	S19 W01	327	(AP)	3				
79	6	23	16085	S22 W14	327	2500	3.0	20689	S23 W12	325	(BP)	4	B	140	4	CSO
79	6		16085					20693	S19 W13	326	(B)	3	B	40	5	BXO
79	6	24	16085	S22 W27	327	2500	3.0	20689	S24 W25	325	(BP)	4	B	180	6	CAO
79	6		16085					20693	S19 W27	327	(B)	3	B	50	5	BXO
79	6	25	16085	S22 W39	327	2500	3.0	20689	S24 W37	324	(BP)	3	B	180	6	CSO
79	6	26	16085	S22 W54	328	2500	3.5	20689	S25 W54	328	AP	4	B	90	5	HSX
79	6	27	16085	S22 W67	327	2100	3.0	20689	S23 W66	325	(AP)	4	B	60	2	DSO
79	6	28	16085	S22 W80	328	800	2.5	20689	S24 W79	325	AP	2	B	20	1	HSX

MCMATH REGION 16096 CMP DATE 22.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	21	16096	N67 E16	323	100	1.0									

MCMATH REGION 16086 CMP DATE 23.3 RETURN OF PART OF REGION 16031 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	17	16086	N19 E79	314	600	2.0									
79	6	18	16086	N19 E65	315	800	2.5	20686	N19 E60	319	(AP)	3	B	40	1	HSX
79	6	19	16086	N19 E51	316	500	2.5	20686	N19 E47	319	(AP)	3	B	40	1	HSX
79	6	20	16086	N19 E37	316	500	3.0	20686	N19 E33	319	(BP)	4	B	30	4	CSO
79	6	21	16086	N20 E22	317	400	2.5	20686	N19 E20	320	(B)	3	B	20	2	CRO
79	6	22	16086	N20 E10	317	300	2.5	20686	N19 E05	321	(AP)	3	B	20	1	AXX
79	6	23	16086	N20 W04	317	500	2.0	20686	N19 W09	322	(AP)	3	B	20	1	AXX
79	6	24	16086	N20 W19	319	500	2.0	20686	N18 W22	322	(BP)	3	B	20	3	BXO
79	6	25	16086	N20 W33	321	600	2.5	20686	N18 W35	322	(B)	3	B	10	5	BXO
79	6	26	16086	N20 W48	322	800	3.0	20686	N17 W48	322	AP	3	B	20	6	BXO
79	6	27	16086	N19 W60	320	700	3.0	20686	N18 W61	320	(AP)	3	B	20	3	BXO
79	6	28	16086	N18 W77	325	600	3.0									

MCMATH REGION 16101 CMP DATE 23.3 RETURN OF PART OF REGION 16032 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	17	16101	S22 E80	313	400	1.0									
79	6	18	16101	S23 E66	314	500	1.0									
79	6	19	16101	S23 E52	315	600	1.0									
79	6	20	16101	S23 E37	316	500	1.0									
79	6	21	16101	S22 E22	317	500	1.5									
79	6	22	16101	S22 E10	317	500	2.0									
79	6	23	16101	S22 W01	314	800	1.5									
79	6	24	16101	S23 W15	315	700	1.5									
79	6	25	16101	S24 W25	313	500	1.5									
79	6	26	16101	S24 W35	309	400	1.5									
79	6	27	16101	S26 W47	307	400	1.0									
79	6	28	16101	S25 W60	308	200	1.0									

REGIONS OF SOLAR ACTIVITY

JUNE 1979

MCMATH REGION 16088 CMP DATE 24.2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	18	16088	S07 E76	304	800	3.5	20687	S07 E70	309	(AP)	3	B	30	1	HSX
79	6	19	16088	S07 E64	303	1600	3.5	20687	S07 E60	306	(BP)	4				
79	6	20	16088	S07 E49	304	1600	3.5	20687	S07 E47	305	(BP)	4	B	100	10	DAO
79	6	21	16088	S07 E33	306	1400	3.5	20687	S07 E33	307	(BP)	4				
79	6	22	16088	S07 E20	307	1400	3.0	20687	S07 E18	308	(BP)	5	B	100	8	CAO
79	6	23	16088	S07 E08	305	1200	3.0	20687	S07 E06	307	(BP)	5	B	90	6	CAO
79	6	24	16088	S07 W07	307	1300	3.0	20687	S07 W07	307	(BY)	5	B	80	6	CAO
79	6	25	16088	S07 W19	307	1500	3.0	20687	S07 W21	308	(BP)	3	B	80	6	CSO
79	6	26	16088	S07 W33	307	1400	2.5	20687	S07 W38	312	AP	4	B	40	3	HAX
79	6	27	16088	S07 W47	307	1200	2.5	20687	S05 W51	310	(AP)	3	B	40	3	CRI
79	6	28	16088	S05 W60	308	1200	2.5									
79	6	29	16088	S05 W75	309	1100	1.5									

MCMATH REGION 16113 CMP DATE 24.6

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	29	16113	N11 W66	300	200	3.0		N12 W63				B	0	1	AXX
79	6	30	16113					20708	N10 W79	300	(AP)	2	B	10	1	AXX

MCMATH REGION 16105 CMP DATE 24.9

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	24	16105	S14 E04	296	300	1.0	20697	S16 E03	297	(AP)	2	B	0	1	AXX
79	6	25	16105	S14 W09	297	300	2.0	20697	S15 W10	297	(B)	3	B	10	2	BXO
79	6	26	16105	S14 W24	298	400	1.5	20697	S16 W27	301	AP	2	B	10	1	AXX
79	6	27	16105	S14 W38	298	300	1.5									
79	6	28	16105	S14 W50	298	200	1.5									
79	6	29	16105	S13 W65	299	100	1.0									

MCMATH REGION 16089 CMP DATE 25.1 RETURN OF PART OF REGION 16032 ROTATION 4

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	19	16089	S30 E76	291	700	3.0	20688	S28 E70	296	(B)	3				
79	6	20	16089	S30 E60	293	1100	3.5	20688	S28 E57	295	(B)	3				
79	6	21	16089	S28 E43	296	1000	3.5	20688	S28 E45	295	(B)	3	B	100	2	DSO
79	6	22	16089	S28 E34	293	1200	3.0	20688	S28 E32	294	(B)	3	B	30	7	CRO
79	6	23	16089	S28 E20	293	1300	2.5	20688	S28 E21	292	(B)	3	B	40	5	CRO
79	6	24	16089	S28 E07	293	1200	2.5	20688	S29 E06	294	(AP)	3	B	0	1	AXX
79	6	25	16089	S28 W06	294	1000	2.5	20688	S29 W07	294	(AP)	2				
79	6	26	16089	S29 W21	295	1100	2.0									
79	6	27	16089	S28 W33	293	800	2.0									
79	6	28	16089	S28 W44	292	600	2.0									
79	6	29	16089	S29 W60	294	600	1.5									

MCMATH REGION 16106 CMP DATE 25.2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	25	16106	N22 W04	292	300	1.5	20699	N22 W06	293	(B)	3	B	10	2	BXO
79	6	26	16106	N22 W18	292	200	2.0	20699	N21 W21	295	AP	2	B	10	2	AXX
79	6	27	16106	N22 W32	292	300	1.5									
79	6	28	16106	N23 W45	293	300	1.0									
79	6	29	16106	N23 W62	296	300	2.0									

MCMATH REGION 16094 CMP DATE 25.8

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	20	16094	S17 E75	278	300	1.0									
79	6	21	16094	S17 E56	283	100	2.0									
79	6	22	16094	S17 E44	283	100	1.5									

REGIONS OF SOLAR ACTIVITY

JUNE 1979

MCMATH REGION 16090 CMP DATE 26.0 RETURN OF PART OF REGION 16Ø4Ø

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	19	16090	S23 E85	282	300	2.5									
79	6	20	16090	S23 E71	282	500	2.5									
79	6	21	16090	S23 E56	283	500	2.5									
79	6	22	16090	S24 E44	283	500	2.0									
79	6	23	16090	S23 E31	282	300	2.0									
79	6	24	16090	S23 E19	281	300	1.5									
79	6	25	16090	S23 E07	281	500	1.5									
79	6	26	16090	S23 W06	280	600	1.5									
79	6	27	16090	S23 W19	279	500	1.5									
79	6	28	16090	S23 W32	280	400	1.0									

MCMATH REGION 16093 CMP DATE 26.2 RETURN OF REGION 16Ø59 AND PART OF REGION 16Ø41 ROTATIONS 2 AN

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	20	16093	N11 E78	275	1500	2.5									
79	6	21	16093	N12 E60	279	1300	2.5									
79	6	22	16093	N13 E47	280	1500	2.5									
79	6	23	16093	N12 E34	279	1400	2.5									
79	6	24	16093	N12 E20	280	1300	2.5									
79	6	25	16093	N13 E09	279	1300	2.5									
79	6	26	16093	N13 W06	280	1400	2.5									
79	6	27	16093	N13 W20	280	1100	2.0									
79	6	28	16093	N14 W33	281	1100	2.5	20703	N20 W33	279	(B)	3	B	20	2	CSO
79	6	29	16093	N14 W48	282	1200	2.5	20703	N20 W46	279	(B)	4	B	60	5	CRO
79	6	30	16093					20703	N19 W57	278	(B)	3	B	90	5	DSO

MCMATH REGION 16109 CMP DATE 26.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	27	16109	S08 W18	278	100	1.5									
79	6	28	16109	S08 W30	278	100	2.0	20704	S07 W33	279	(AP)	2	B	10	2	AXX
79	6	29	16109	S08 W46	280	200	1.5	20704	S07 W48	281	(AP)	3	B	10	2	AXX
79	6	30	16109					20704	S07 W62	283	AP	1	B	10	2	BXO

MCMATH REGION 16099 CMP DATE 26.3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	21	16099	S07 E65	274	100	1.5									
79	6	22	16099	S07 E50	277	100	1.0									

MCMATH REGION 16097 CMP DATE 26.9 RETURN OF PART OF REGION 16Ø41 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	21	16097	N26 E68	271	200	1.5									
79	6	22	16097	N27 E58	269	200	1.0									
79	6	23	16097	N26 E45	268	200	1.0									
79	6	24	16097	N27 E30	270	200	1.0									
79	6	25	16097	N26 E18	270	100	1.0									
79	6	26	16097	N27 E04	270	200	1.0									

MCMATH REGION 16110 CMP DATE 27.0

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	27	16110	N14 W08	268	100	1.5	20702	N16 W07	266	(B)	3	B	10	3	BXO

REGIONS OF SOLAR ACTIVITY

JUNE 1979

MCMATH REGION 16100 CMP DATE 27.7

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	21	16100	S13 E75	264	600	2.5	20692	S12 E73	267	(AP)	3				
79	6	22	16100	S13 E65	262	2100	2.5	20692	S12 E59	267	(AP)	4				
79	6	23	16100	S14 E55	258	1800	3.0	20692	S12 E47	266	(AP)	3	B	180	4	HSX
79	6	24	16100	S14 E41	259	1700	3.0	20692	S13 E34	266	(BP)	5	B	90	3	HSO
79	6	25	16100	S14 E28	260	1800	3.0	20692	S13 E22	265	(AP)	4	B	190	1	HXX
79	6		16100					20700	S20 E35	252	(AP)	2				
79	6	26	16100	S14 E14	260	2200	3.0	20692	S13 E07	267	AP	5	B	150	12	DSI
79	6		16100					20700	S18 E25	249	B	2	B	10	3	BXO
79	6	27	16100	S15 E02	258	2000	3.0	20692	S11 W07	266	(AP)	5	B	130	5	CSO
79	6		16100					20700	S16 E13	246	(BF)	3	B	50	4	HSX
79	6	28	16100	S15 W10	258	2200	2.5	20692	S11 W20	266	(AP)	4				
79	6		16100					20700	S17 E01	245	(AF)	3	B	80	2	HSX
79	6	29	16100	S15 W25	259	2000	2.5	20692	S11 W34	267	(AP)	4	B	140	3	HSX
79	6		16100					20700	S17 W14	247	(AP)	1				
79	6	30	16100					20692	S11 W47	268	(AP)	4	B	120	1	HSX
79	7	01	16100					20692	S11 W60		(AP)	3				
79	2	02	16100	S15 W67		1800	2.0	20692	S17 W75		(AP)	3				
79	2	03	16100	S15 W79		1600	2.0									

MCMATH REGION 16098 CMP DATE 28.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	21	16098	N25 E88	251	600	2.5									
79	6	22	16098	N25 E75	252	600	2.5	20694	N24 E72	254	(AP)	2	B	10	2	AXX
79	6	23	16098	N25 E62	251	1200	3.5	20694	N25 E59	254	(AP)	4	B	60	1	AXX
79	6	24	16098	N25 E48	252	1000	3.0	20694	N25 E45	255	(AP)	3	B	60	2	CSO
79	6	25	16098	N25 E35	253	900	3.0	20694	N26 E34	253	(AP)	3	B	40	2	CRI
79	6	26	16098	N25 E21	253	800	3.0	20694	N24 E19	255	AP	3	B	40	8	CRI
79	6	27	16098	N25 E08	252	800	2.5	20694	N26 E07	252	(AP)	3				
79	6	28	16098	N26 W05	253	800	2.5	20694	N27 W06	252	(AP)	3	B	20	2	CSO
79	6	29	16098	N26 W19	253	900	2.0									
79	2	02	16098	N26 W59		600	1.5									
79	2	03	16098	N26 W71		400	1.0									

MCMATH REGION 16103 CMP DATE 30.3 RETURN OF REGION 16061 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	23	16103	S16 E89	224	600	1.0									
79	6	24	16103	S18 E79	221	1600	2.0									
79	6	25	16103	S17 E65	223	1600	2.5									
79	6	26	16103	S18 E51	223	2000	3.5									
79	6	27	16103	S18 E39	221	1700	3.0									
79	6	28	16103	S17 E23	225	1600	2.5									
79	6	29	16103	S17 E09	225	1400	2.0		S18 E04				B	10	2	BXO
79	6	30	16103					20710	S18 W07	228	(AP)	2	B	10	2	AXX
79	2	02	16103	S17 W31		1400	2.0									
79	2	03	16103	S17 W43		1600	2.0									
79	2	04	16103	S17 W55		1600	1.5									
79	2	05	16103	S17 W68		1100	1.5									
79	2	06	16103	S17 W80		700	1.0									

NOTE: NO CALCIUM SPECTROHELIOGRAMS WERE SECURED AT THE MCMATH-HULBERT OBSERVATORY ON JUNE 30, 1979.
NO SUNSPOT OBSERVATIONS WERE MADE AT MT. WILSON ON JUNE 17, 1979.

DAILY CALCIUM PLAGE INDEX

JUNE 1979

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
79	6	1	42.4	79	6	11	61.1	79	6	21	31.1
79	6	2	48.4	79	6	12	55.2	79	6	22	28.7
79	6	3	59.4	79	6	13	50.9	79	6	23	30.3
79	6	4	69.6	79	6	14	44.6	79	6	24	27.4
79	6	5	78.0	79	6	15	37.0	79	6	25	29.2
79	6	6	74.4	79	6	16	35.5	79	6	26	34.3
79	6	7	69.8	79	6	17	35.9	79	6	27	28.6
79	6	8	70.9	79	6	18	33.1	79	6	28	31.1
79	6	9	68.2	79	6	19	31.0	79	6	29	32.3
79	6	10	65.7	79	6	20	32.0	79	6	30	*

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

JUNE 1979

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
01	0157	0300	0205	1-	3	1			2				*	
01	0558	0617	0610	1-	5	1		1	1				*	
01	1400	1430U	1410U	1	1		1						*	
01	1602	1617	1609	1-	3	1					3		1602	16051
01	1654	1715	1700	1-	1	1							1654	16046
01	1911	1947	1921	1-	1	1					3		*	
02	0825	0850	0828	1-	1			1					0820E	16051
02	1325	1400D	1400	1	5		1		1		4		NF	
02	1344	1423	1357	1	5	1		1	1		1		1342	16051
02	1447	1515	1504	1+	5	4		1	3		6		1442	16051
02	1748	1845	1800	1-	5				2		3		1738	16046
02	1858	1930	1906	1-	3						2		1858	16046
02	2033	2130	2047	1-	5				2		2		2031	16051
02	2239	0019	2258	1-	3				2				NF	
03	0202	0330	0232	1+	1				1				0157	16051
03	0846	1043	0907	2	5	3	1	4	2		2		0842D	16051
03	0916	0930	0920	1-	1			1	1				0910	16052
03	1432	1600	1444	2	5	6	1	2	3		6		1433	16051
04	0023	0214D	0044	1-	1				1				0025	16051
04	0321	0647	0410	3	1				1				*	
04	0347	0520	0405	2	5	3			2				0346	16051
04	1347	1403U	1353	1-	1	1							1349E	16051
04	1642	1900	1715	1-	5				2		3		1645	16051
04	1806	1833	1811	1-	1						1		1803	16051
04	1940	2041	1956	1-	5	1			2		1		1939	16051
05	0124	0344	0156	2	5	1			1		1		0124	16051
05	0457	1009	0549	2	5	4	1	2	2		1		0455E	16051
06	0023	0058	0033	1-	1				1				0026	16052
06	1437	1515	1450	1-	3			1	1		1		1434	16051
06	2106	0008	2118	2	5	3			2		3		2105	16067
07	0125	0154	0129	1-	1				1				0124	16065
07	2328	0039	2344	1-	1				1				2334	16051
08	0712	0806	0721	1-	3				2				NF	
08	1136	1210	1140	1-	1			1					*	
08	1243	1258	1249	1-	1			1					*	
08	1501	1600	1515	1-	5			1	2		4		1500	16051
08	2219	2342	2245	1-	3				2				2220	16051
09	0003	0200	0100	1-	1				1				0000E	16051
09	0721	0752	0727	1-	1				1				0720	16051
09	1335	1400U	1355	1-	1						1		1336E	16051
09	1557	1630U	1604	1-	1						1		1555E	16051
09	1833	1900	1841	1-	3						2		1833	16051
09	2210	2351	2246	1-	3				2				2210	16051
09	2239	2340	2250	1-	3				2				2235	16058
10	0807	1030	0907	3	5	1		1	2				0804	16051
10	0857	0935	0919	1	5	2		2			1		NF	
10	1759	1901	1815	1-	5	1			2		4		1800	16067
11	0448	0530	0455	1-	1				1				*	
11	1206	1256	1212	1-	1				1				*	
11	1225	1400	1233	2	5	3		4	2		5		*	
11	1752	1834	1801	1-	5	1			2	1	1		1747	16051
12	0247	0309	0251	1-	1				1				0249E	16051
13	0355	0440	0408	1-	3	1			1				NF	
13	1506	1545	1515	1-	5			1	2		4		1455	16067
15	1009	1032	1019	1-	1			1					*	
16	1016	1051	1028	1-	1			1					*	
16	1822	1903	1835	1-	5				1	1	3		1807	16067
16	2235	0026	2256	1	5	1			1		3		2236	16067
17	1219	1230	1224	1-	5			1	2		2		1222	16073
18	0623	0635	0627	2+	5	2		1	2		1		NF	
18	1810	1825	1812	1-	3	1					2		1811	16065
18	2054	2218	2106	1	5	1			1		3		2056	16073

SUDDEN IONOSPHERIC DISTURBANCES

JUNE 1979

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
19	2121	2203	2129	1-	1				1				2119	16089
21	0151	0256	0220	1-	1				1				0151	16089
22	0445	0556	0504	1	5	1		1	1				0455	16070
24	0843	0924U	0857	1-	1			1					*	
25	0528	0728D	0544	2	5	3		1	2		2		NF	
26	0707	0806	0717	1	5	2		1	2		2		0705	16108
26	1015	1100	1025	2	5	3		1	2		2		1018	16102
26	1545U	1620	1600	1-	1	1							1544	16102
26	2053	2132	2106	1-	1				1				2056	16102
29	1823	1857	1832U	1-	5	2			2	1	4		1823	16117
29	1855	1915	1905	1-	1	1							1853	16104
30	1217	1230	1221	1-	3				1		1		1215	16117

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
01	0515-1300 UM (13 kHz), 1728-1844 TM
02-03	0000-2400 TN
02	0320-0407 TM
05	0000-2400 TN
06	0630-2400 CL
07	2220-2246 TM
09	0000-2400 TN
13	1513-1532 TM
14-15	2130-0300 UM (13 kHz)
17-19	0000-2400 TM
19	0000-2400 TN
21-22	0000-2400 TN
22	1505-1519 TM
25	1707-1717 TM
26	0000-2400 TN, 1000-1400 UM (16 kHz), 1200-1325 TM, 1623-1650 TM
27	0000-2400 TM

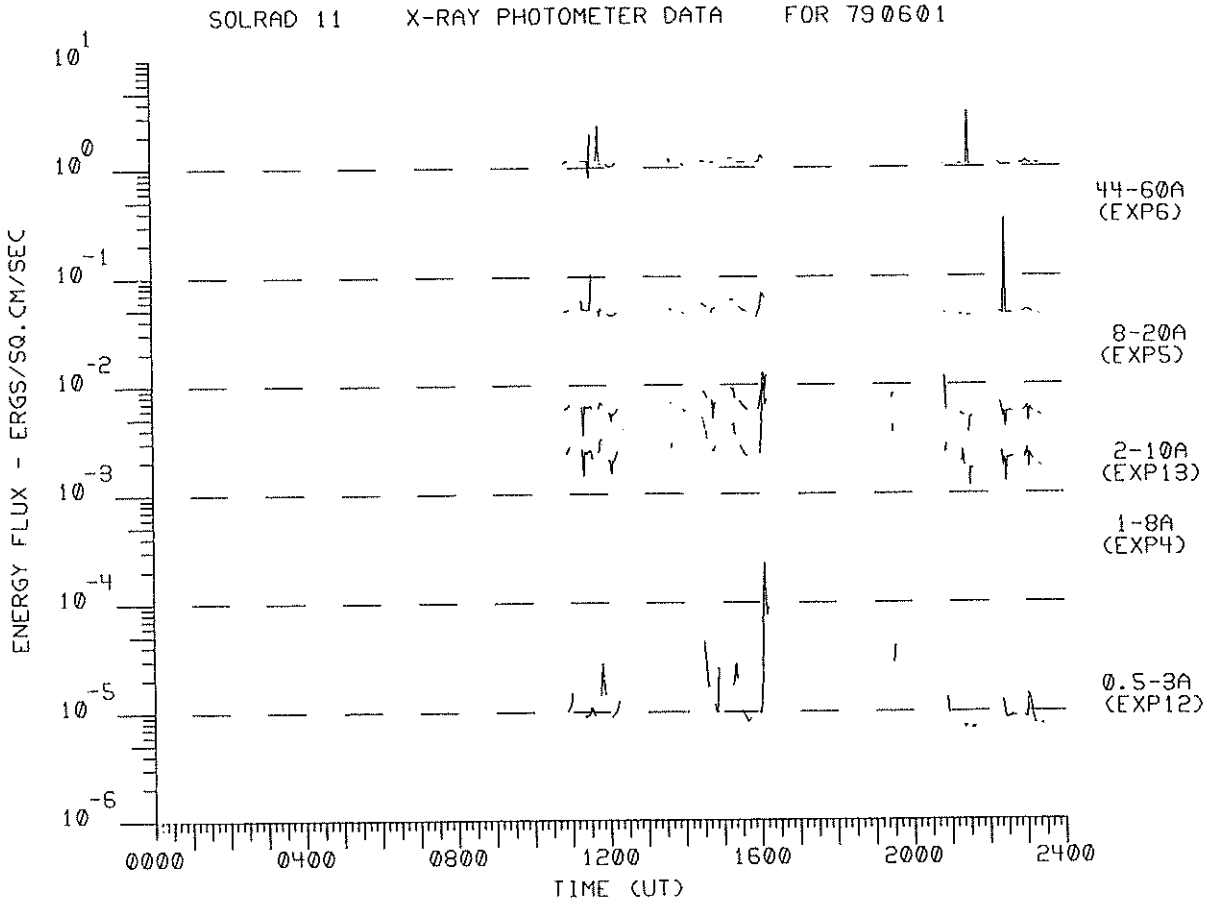
STATIONS REPORTING FOR JUNE 1979

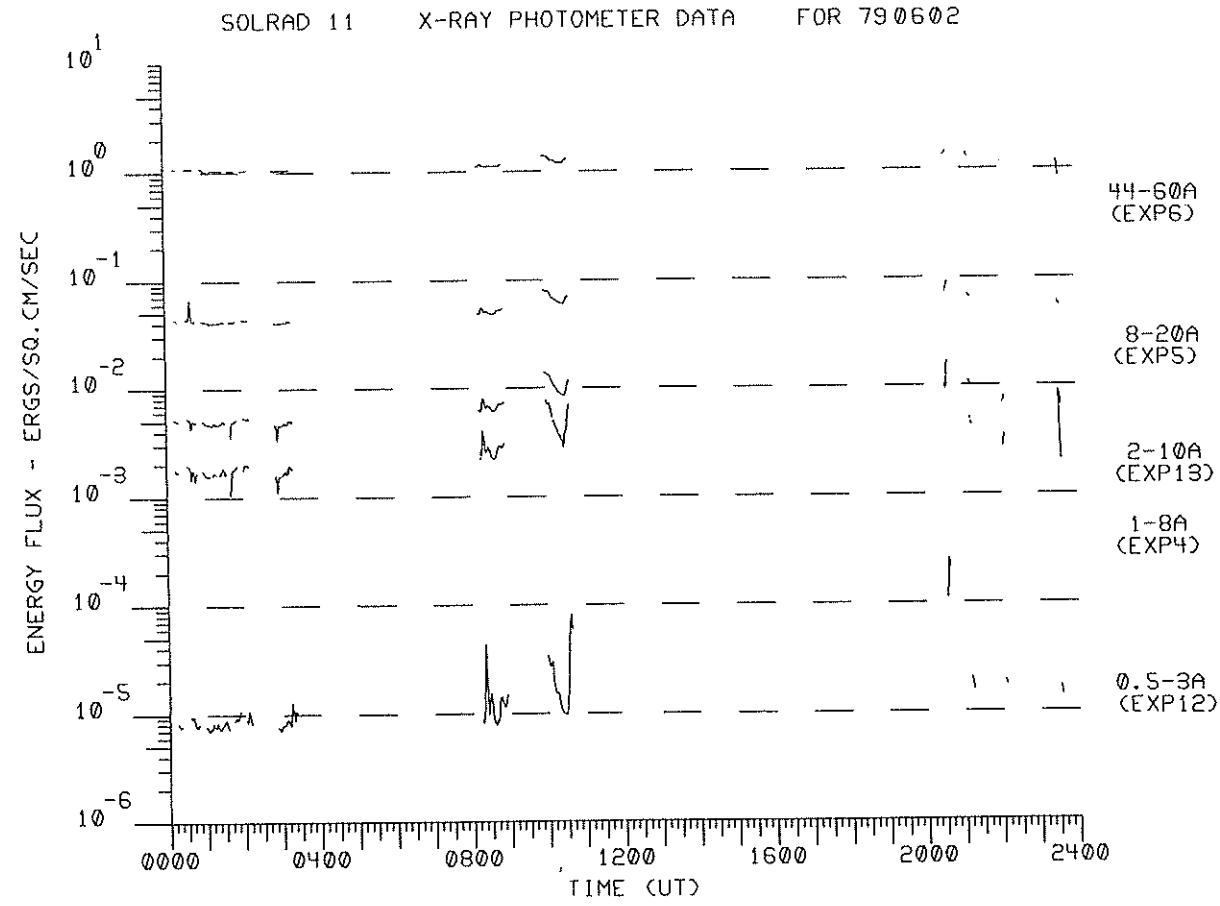
AAVSO (A21) (SES)
CHILWORTH (CL) (SCNA)
DARMSTADT (DA) (SWF)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
JULIUSRUH (JH) (SWF)
KANDILLI (KD) (SEA)
KUHLUNGSBORN (KU) (SEA, SPA)
MC MATH (MC) (SWF)
NEW JERSEY (NJ) (SES)
PANSKA VES (PU) (SWF, SEA, SES)
SAO PAULO (UM) (SES, SPA)
SOFIA (SF) (SES)
SOMERTON (SO) (SWF)
ST CLOUD (SC) (SES)
TABLE MOUNTAIN (TM) (SPA, LF-SPA)
TORINO (TN) (SPA)
UPICE (UI) (SEA)

SIDs BY McMATH REGION

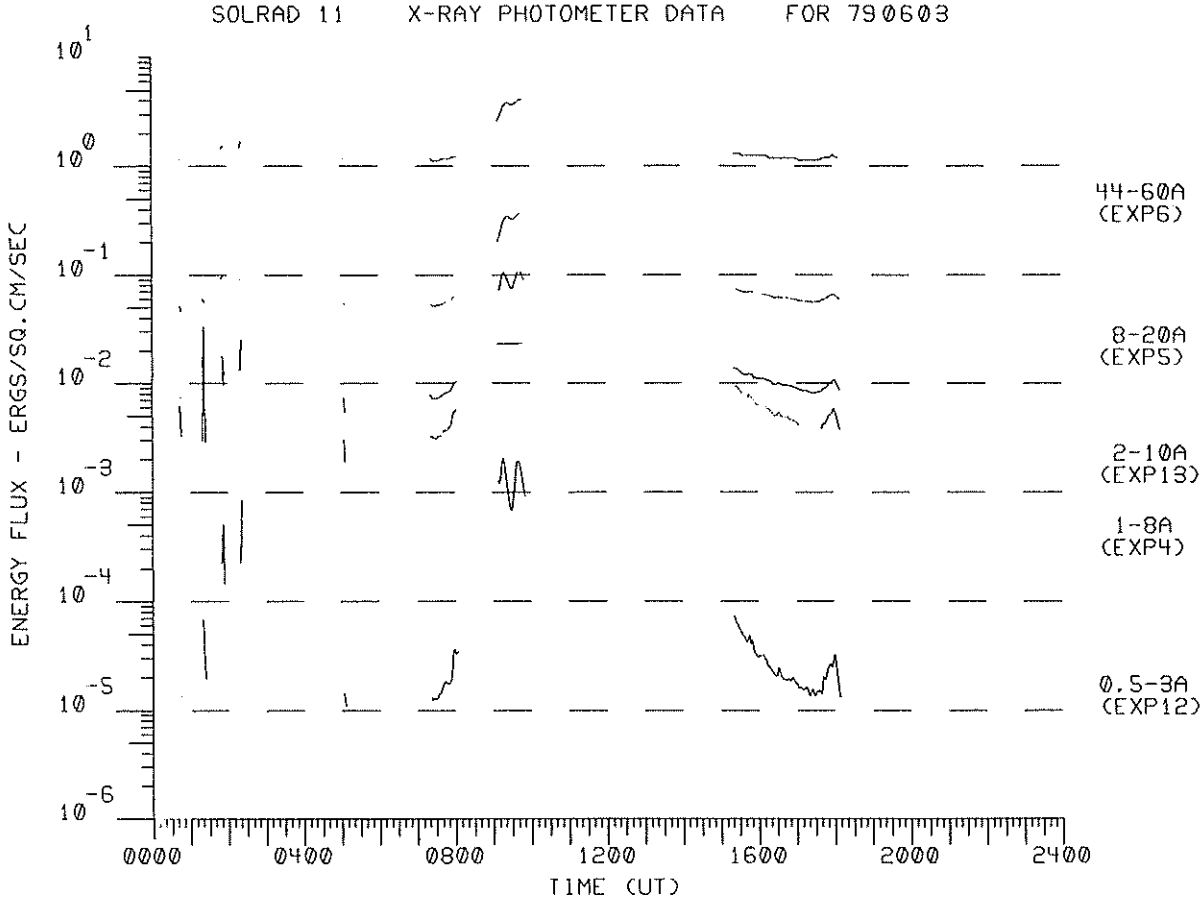
JUNE 1979

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																														
16046	1	2																												
16051	1	4	3	6	2	1	1	2	6	1	1	1																		
16052			1	1																										
16058									1																					
16065							1											1												
16067						1				1			1			1														
16070																						1								
16073																	1	1												
16089																			1		1									
16102																										3				
16104																													1	
16108																							1							
16117																													1	1
X-RAY																														
UNKNOWN		2						1		1			1											1						
NO FP	4		1					2			3			1	1		1							1						

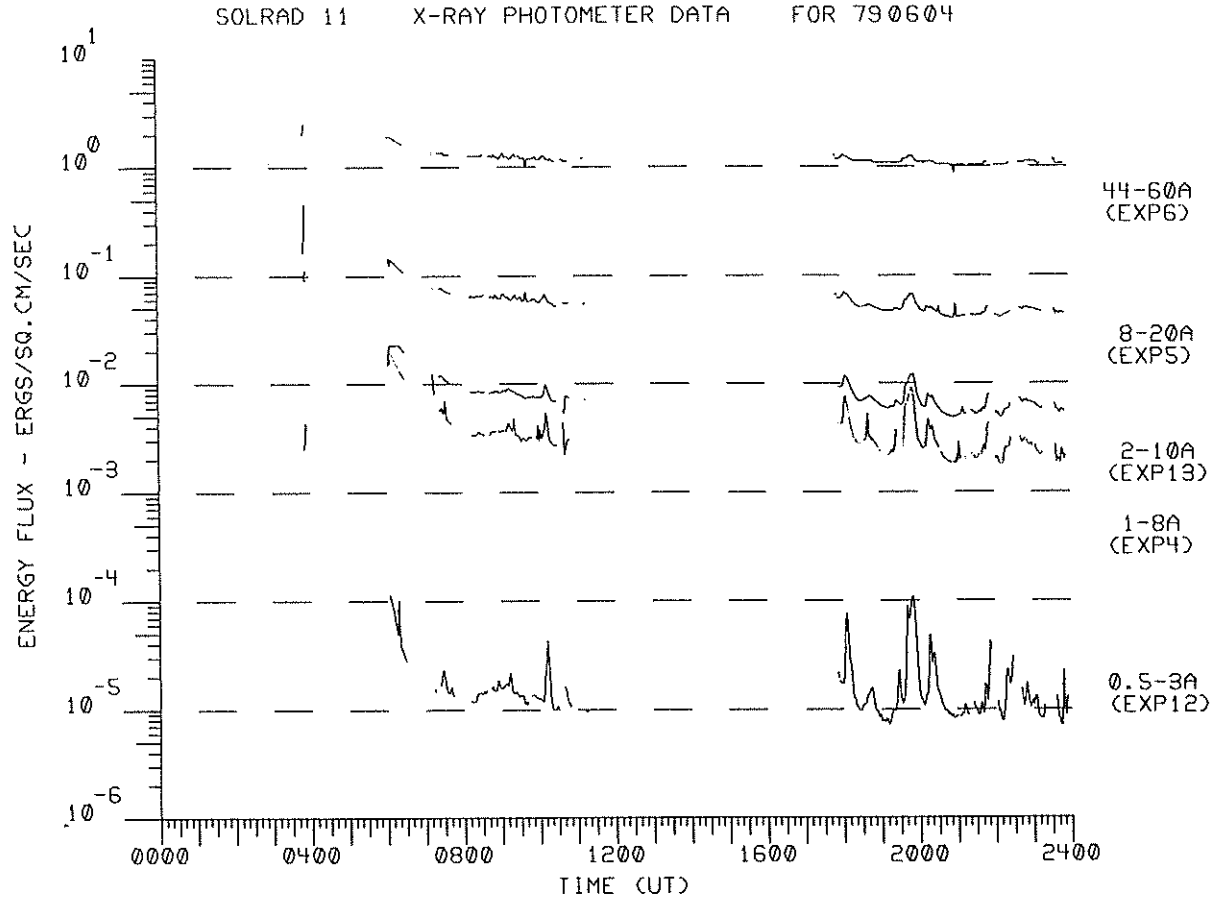

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790601
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790602
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

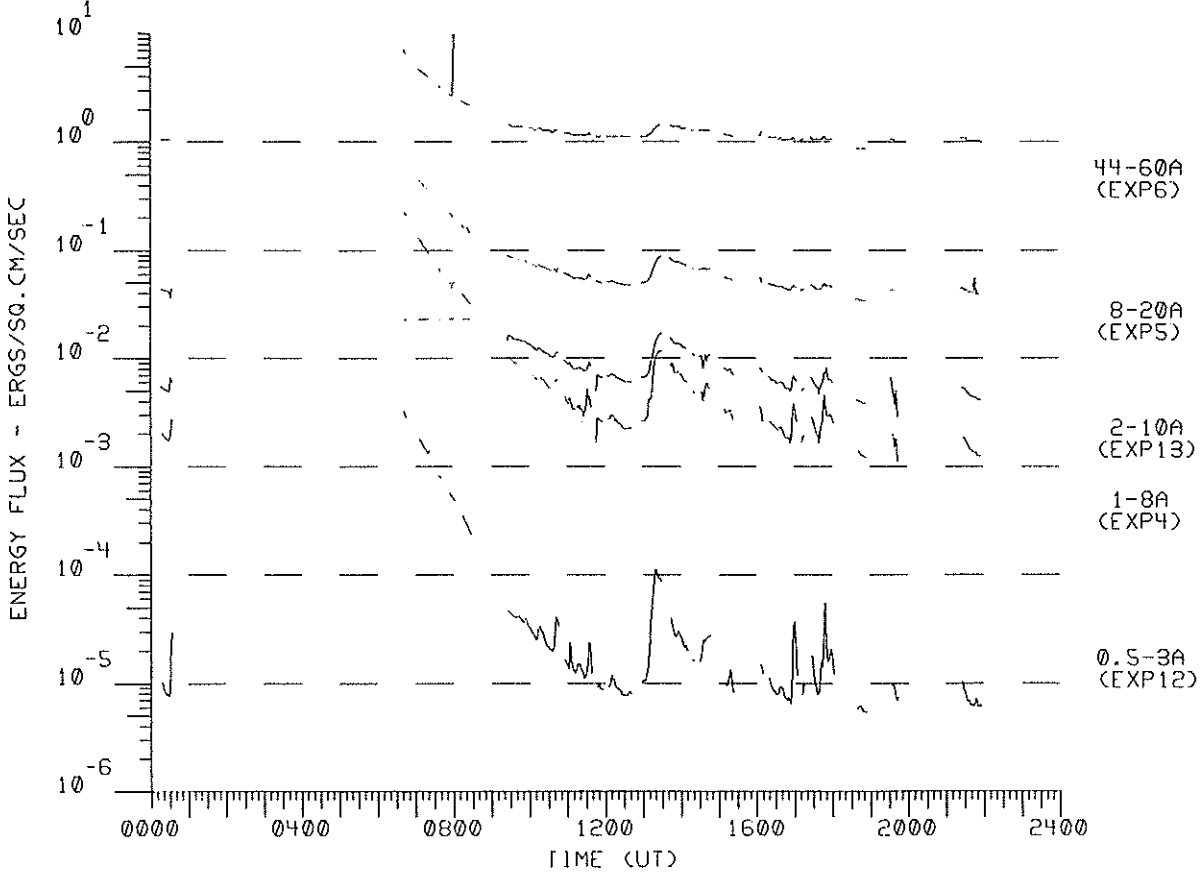
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790603



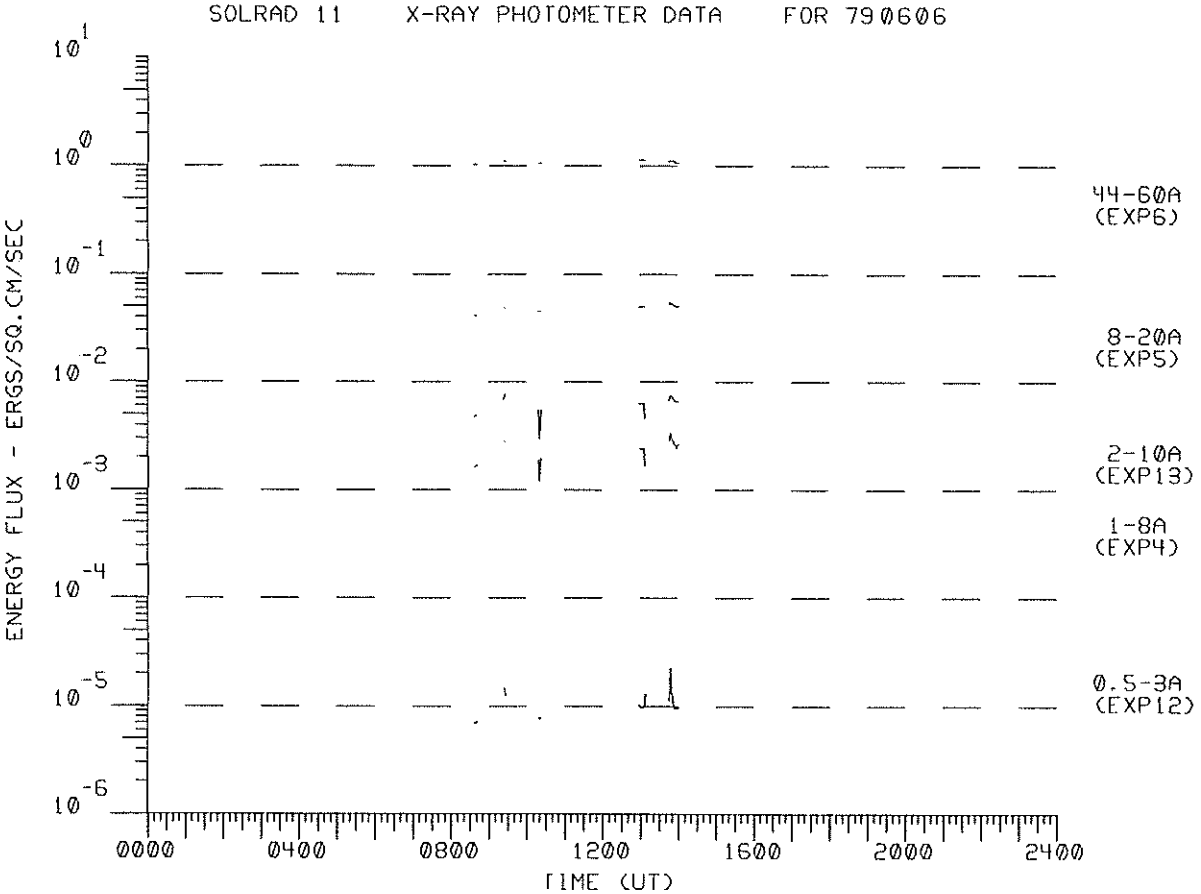
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790604



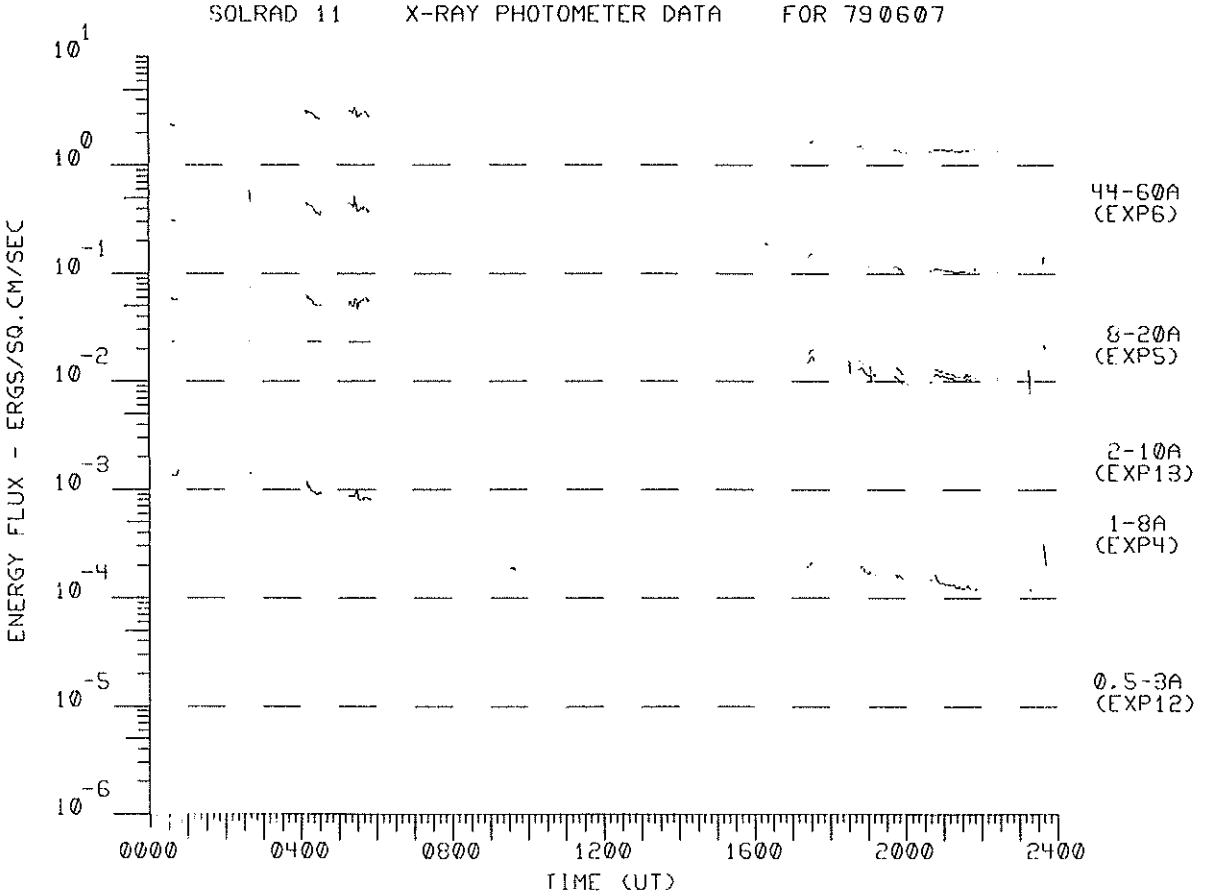
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790605



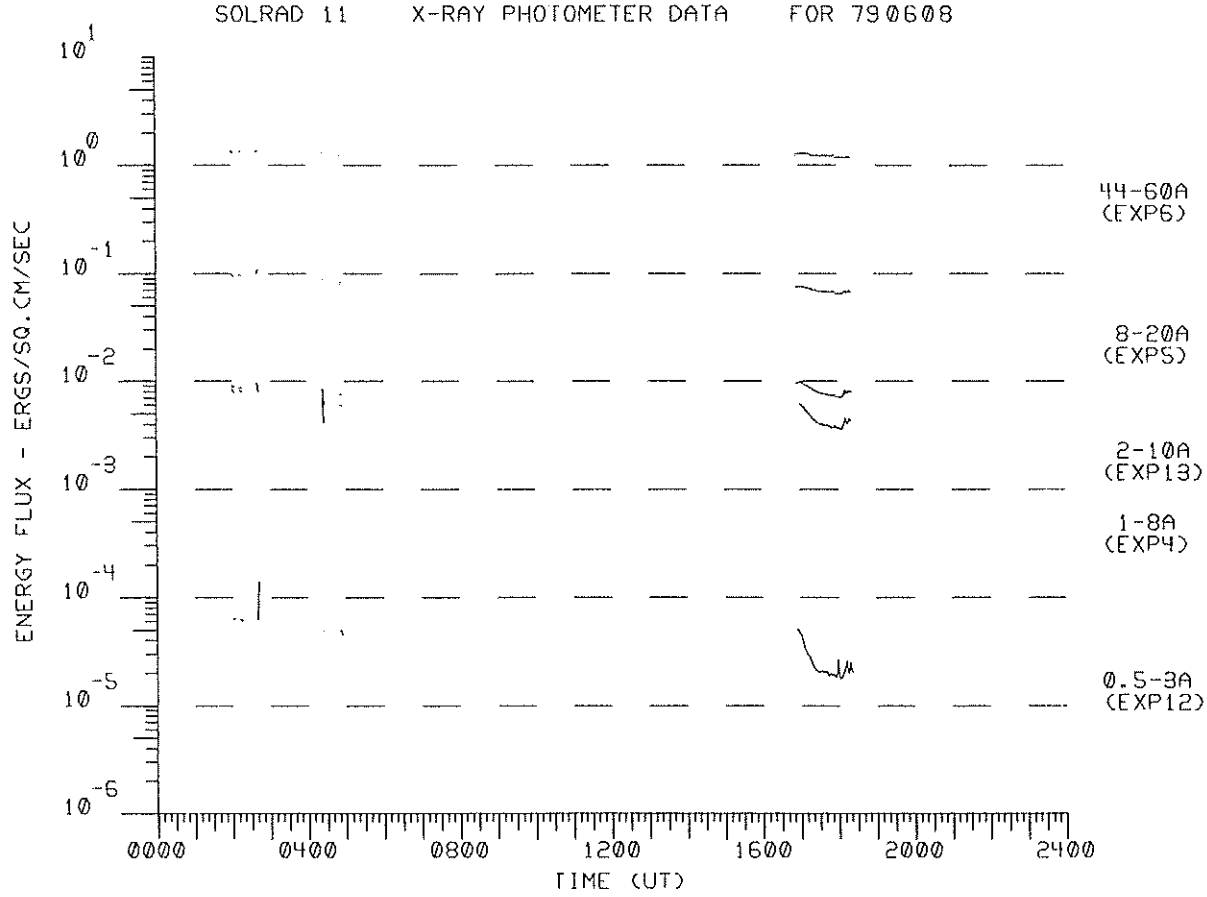
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790606



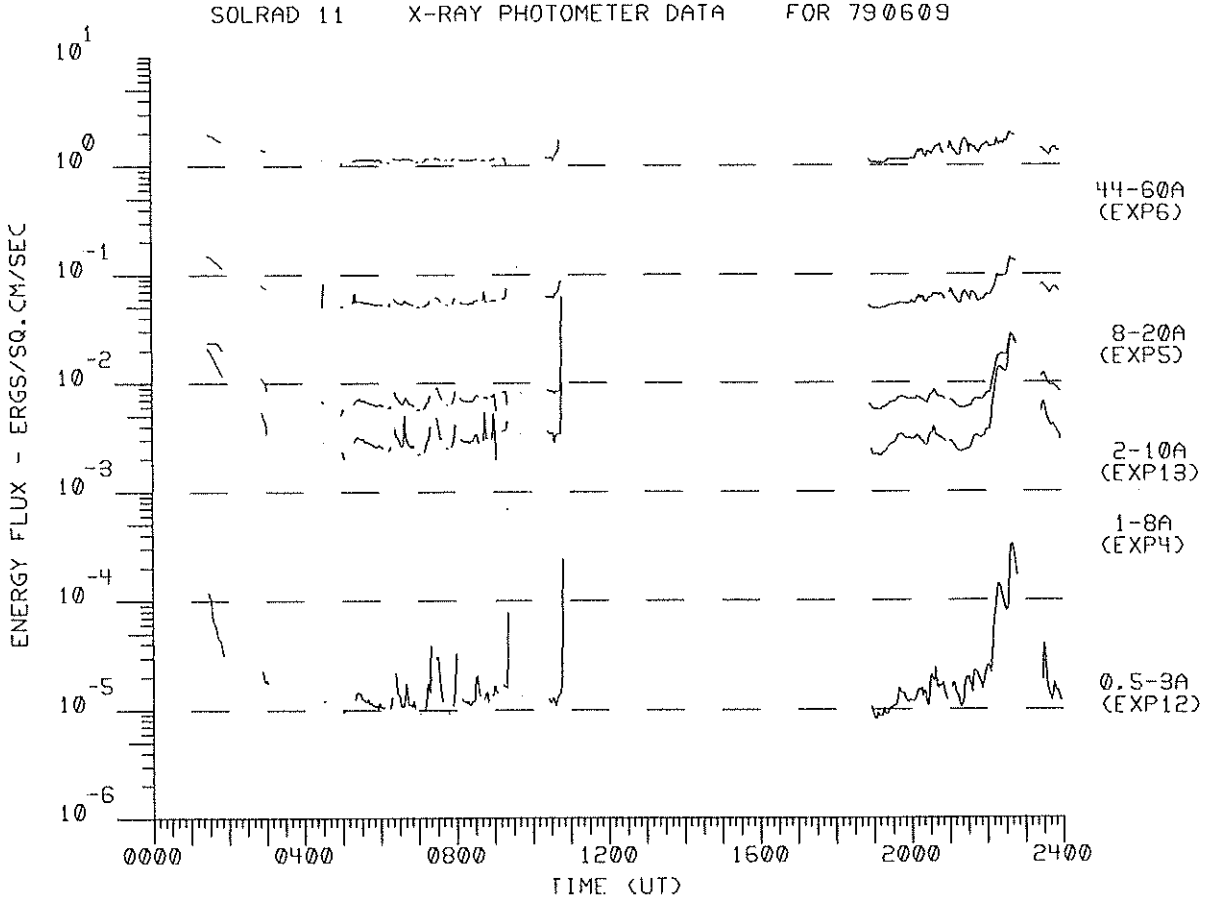
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790607



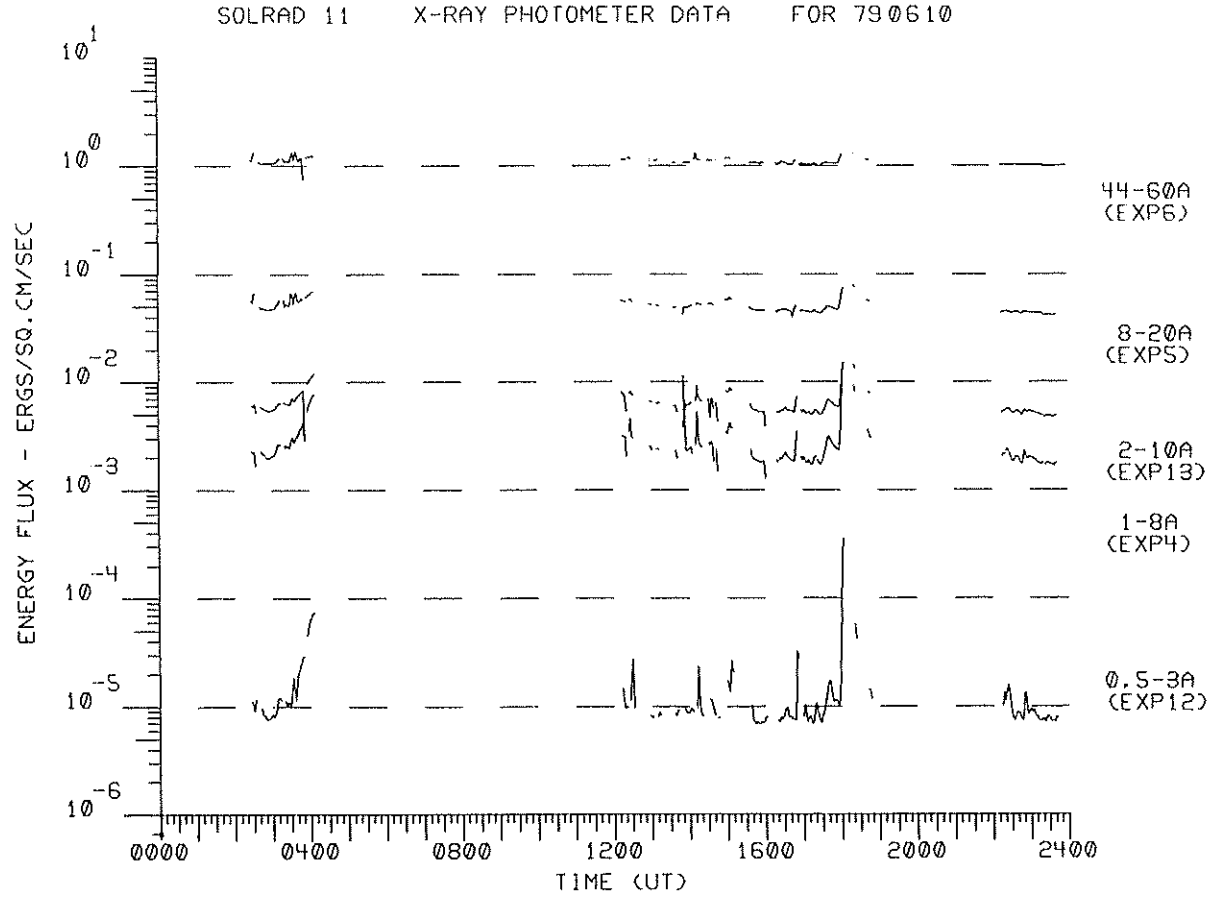
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790608

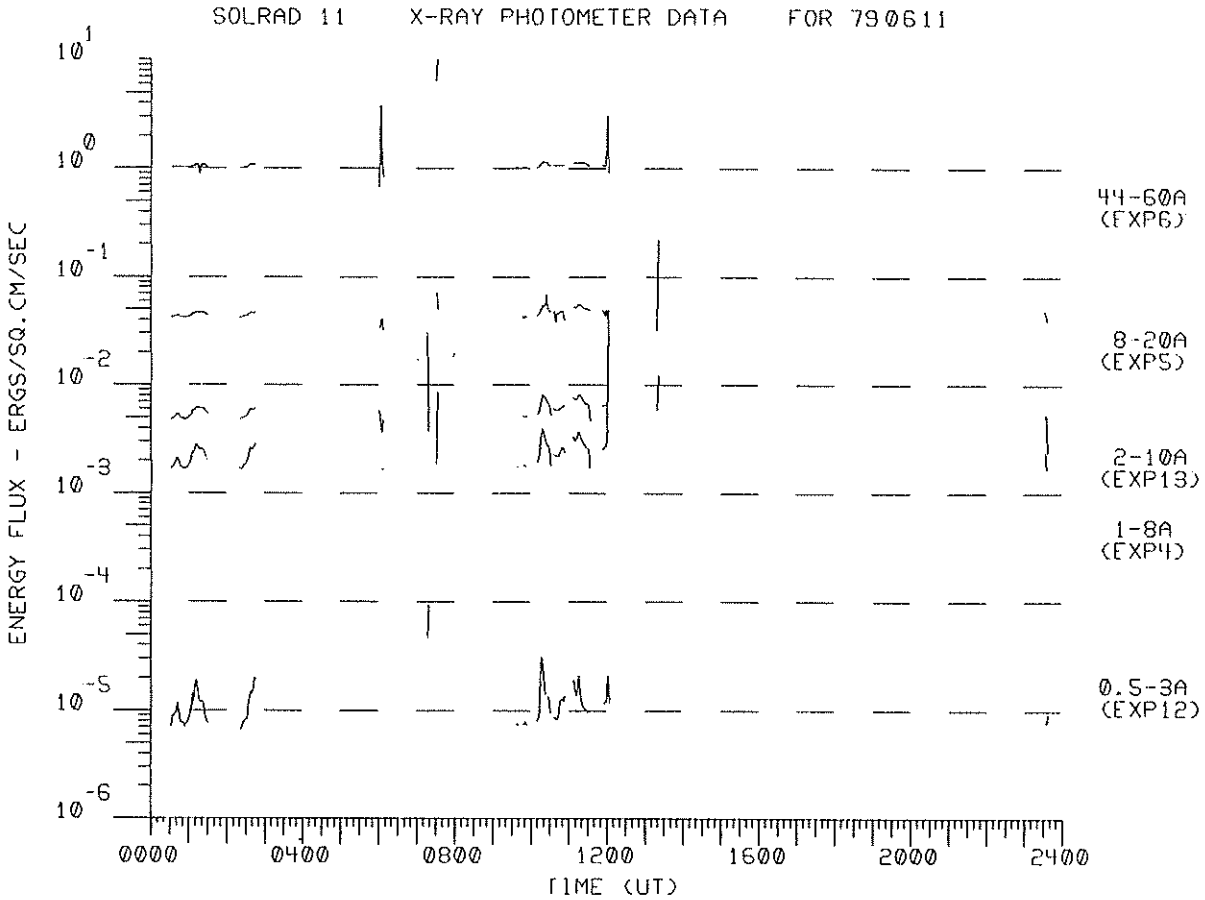


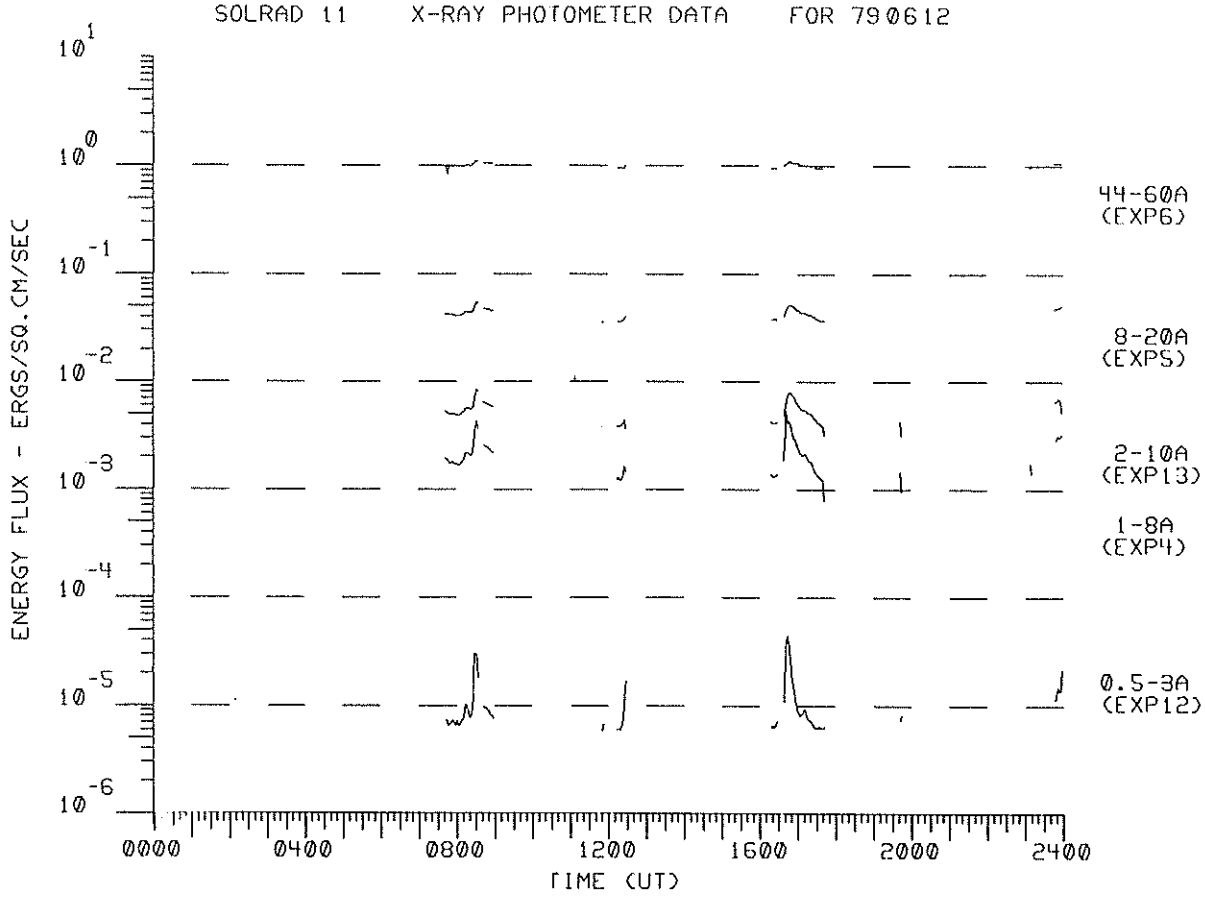
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790609

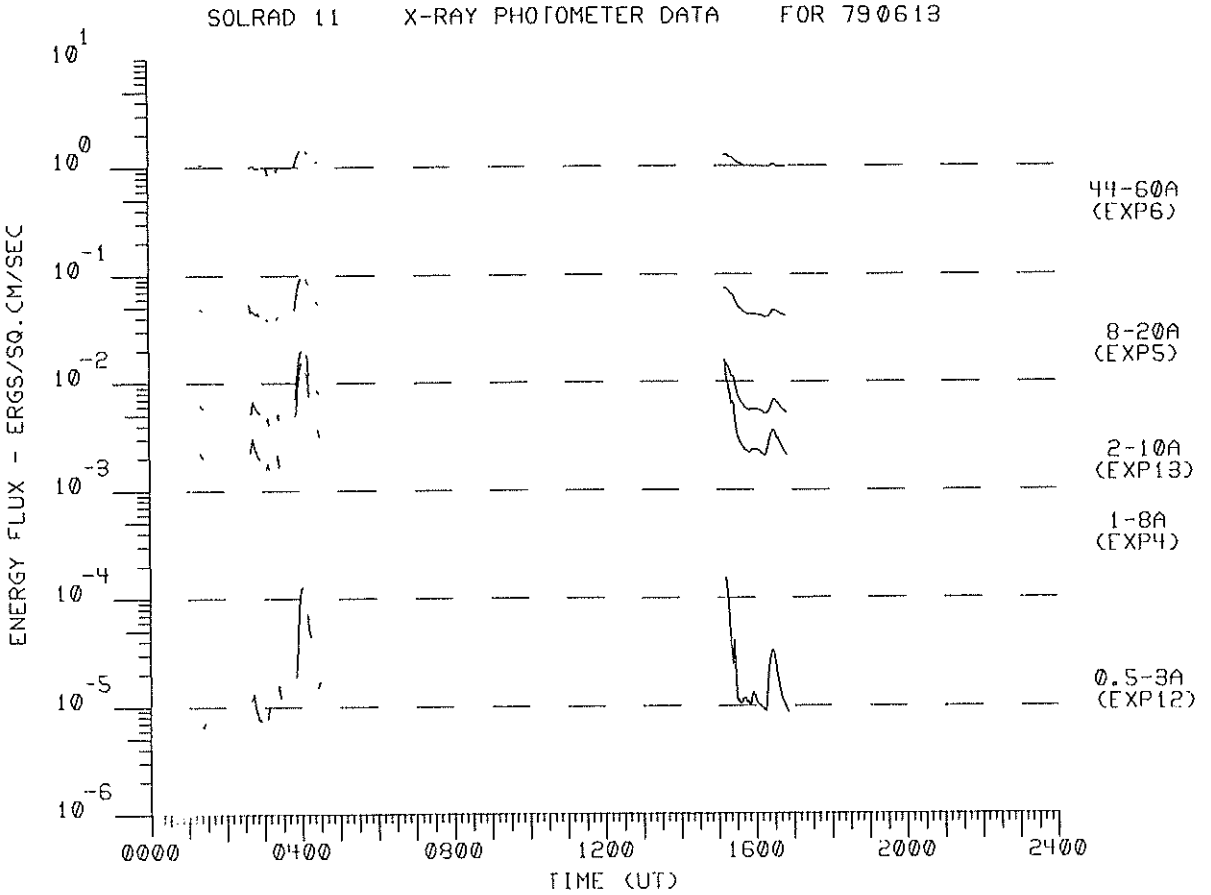


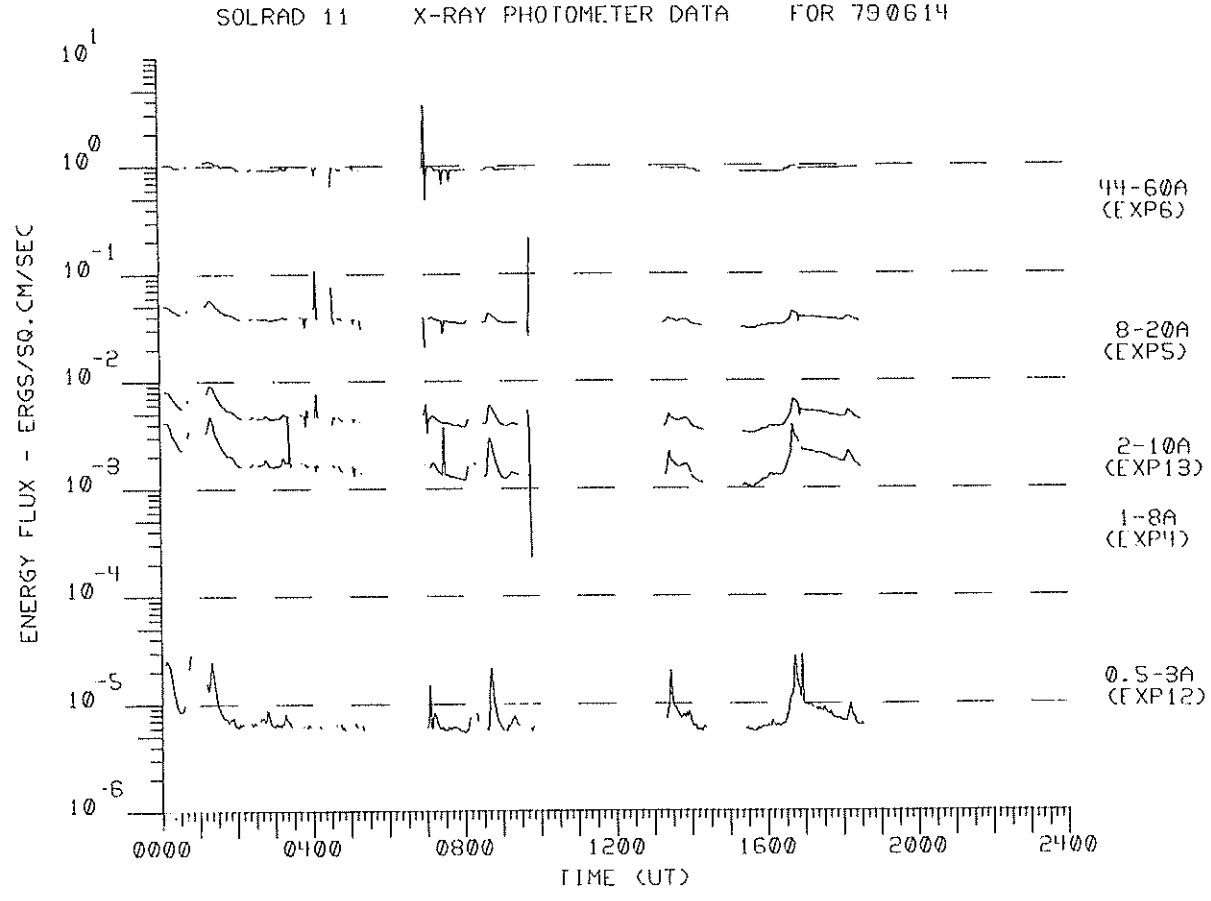
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790610



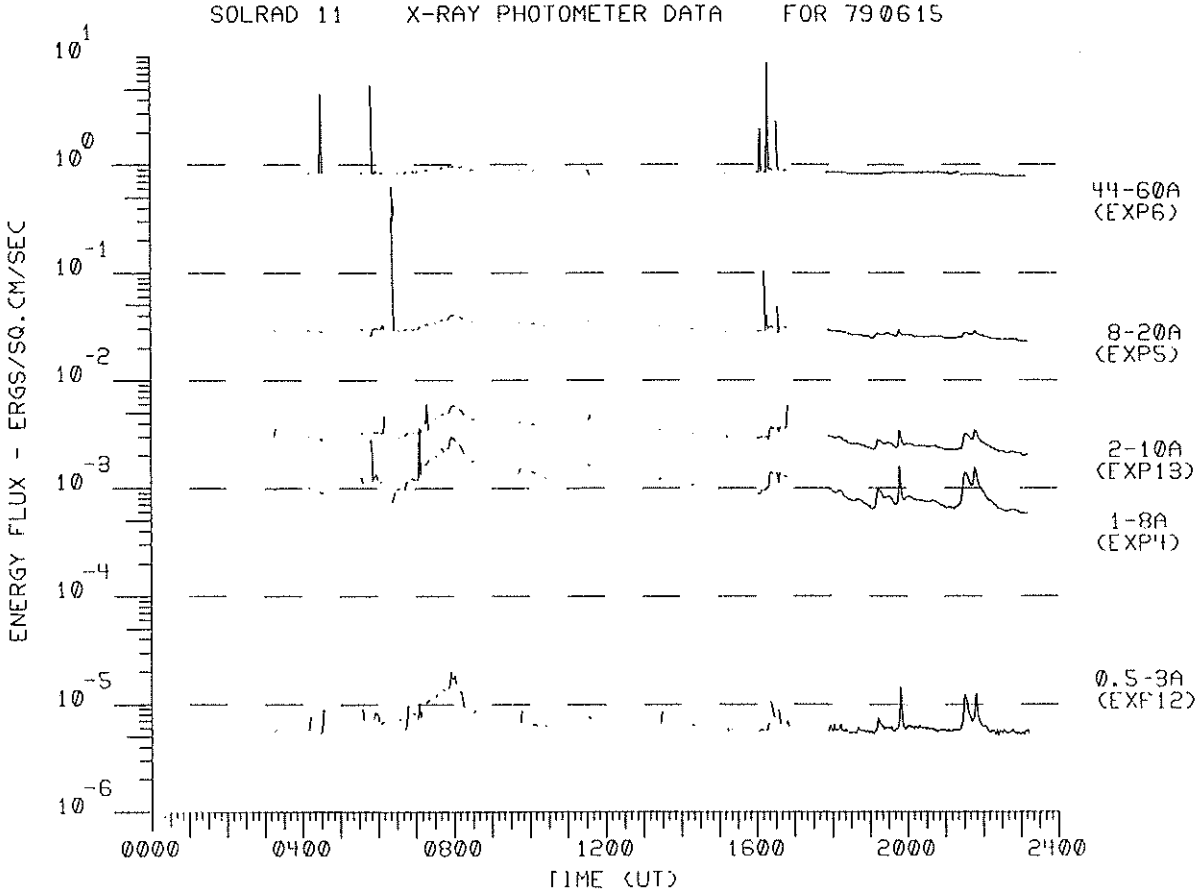

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790611
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790612
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

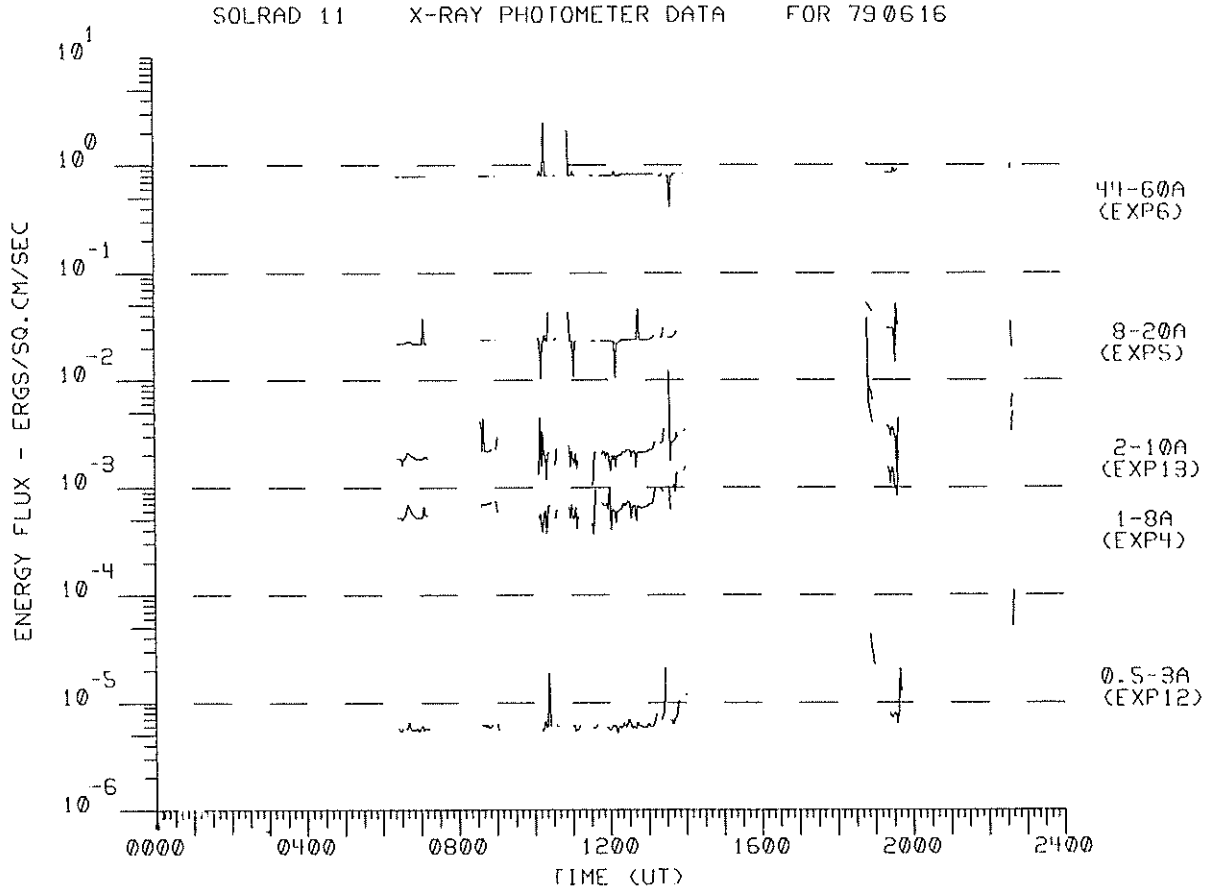

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790613
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

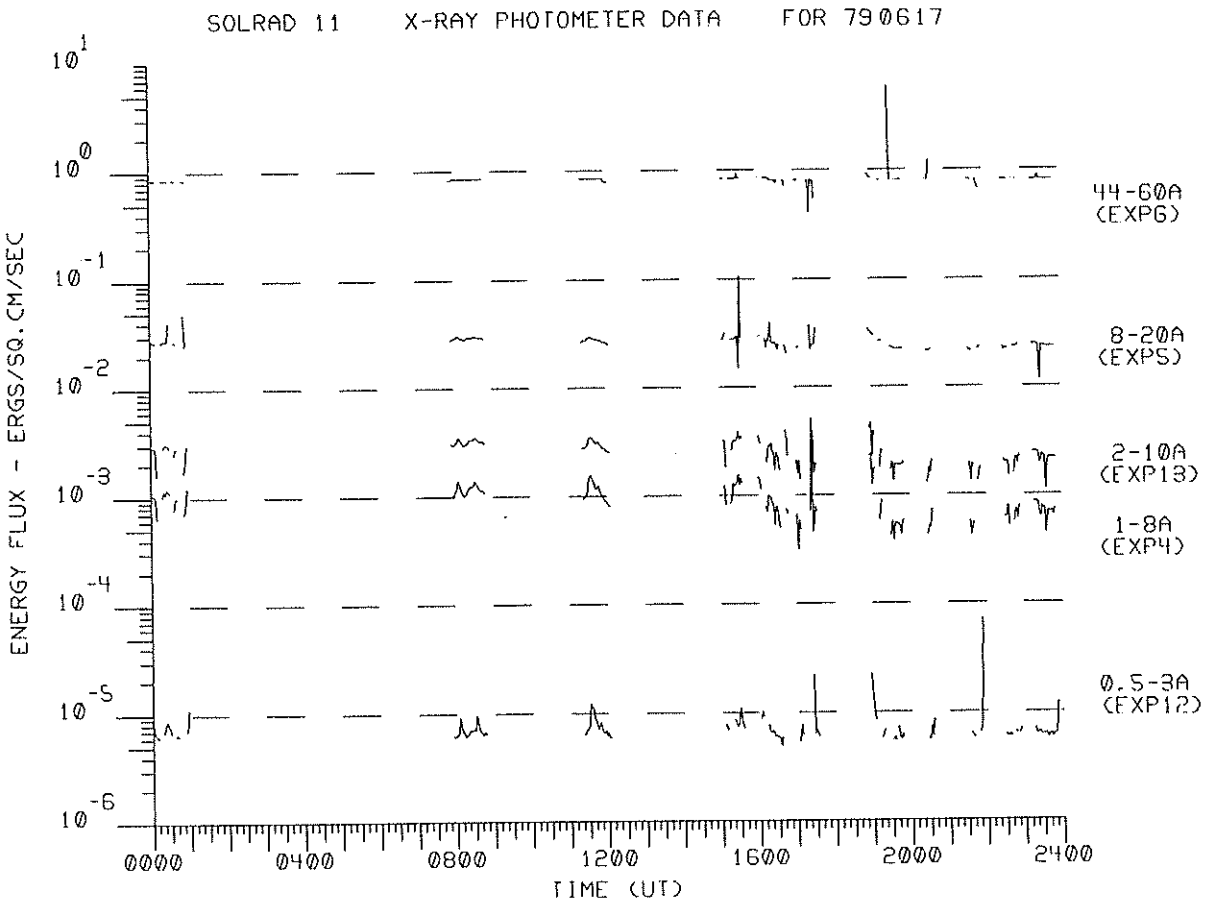

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790614
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

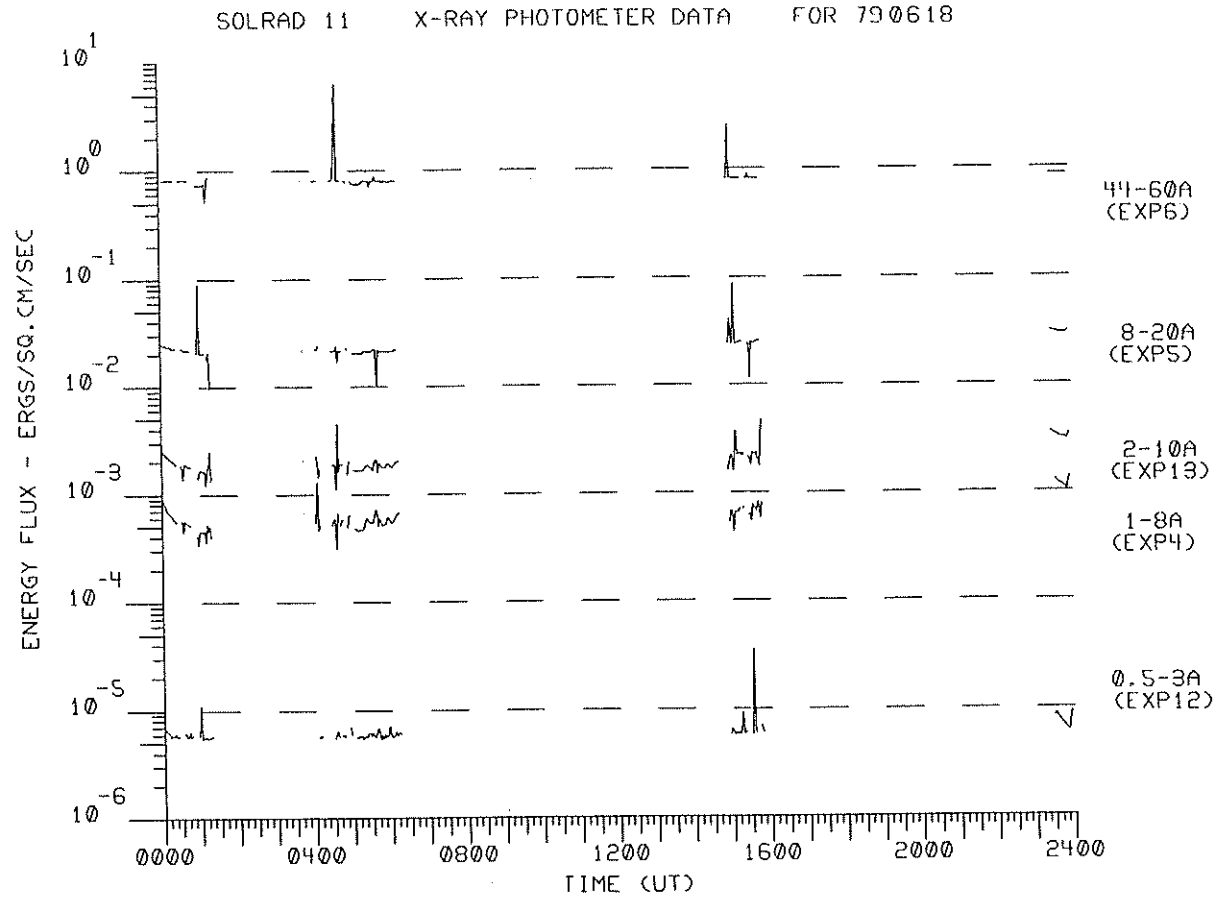
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790615



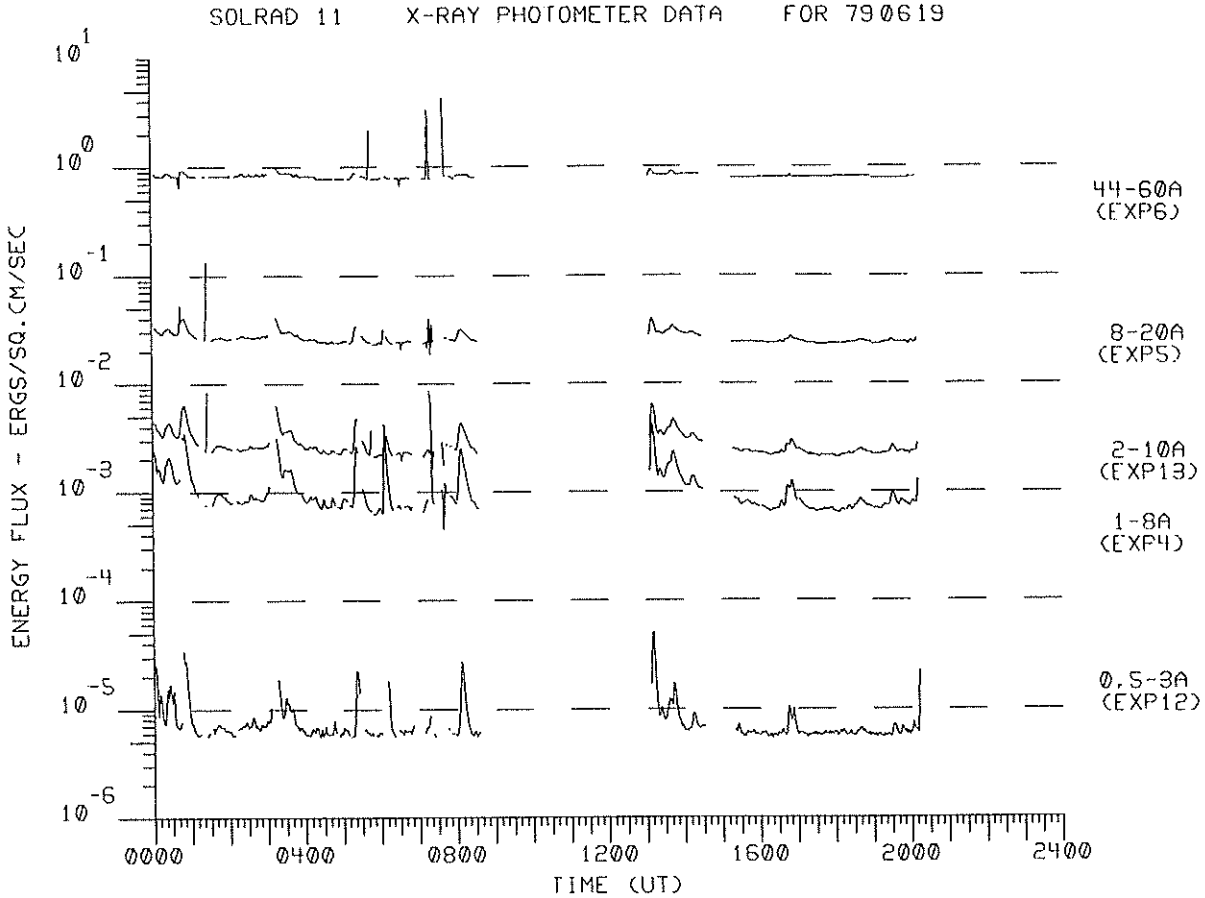
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790616



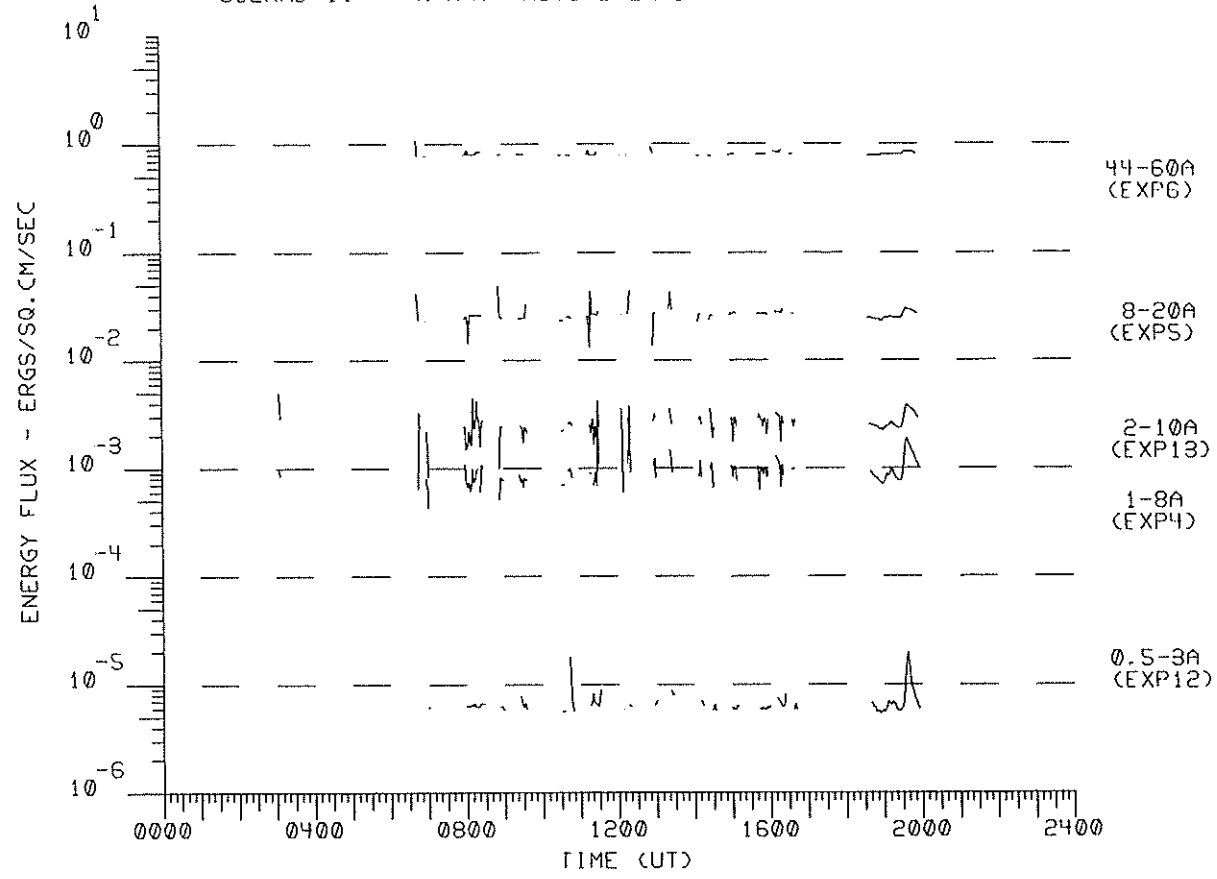

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790617
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

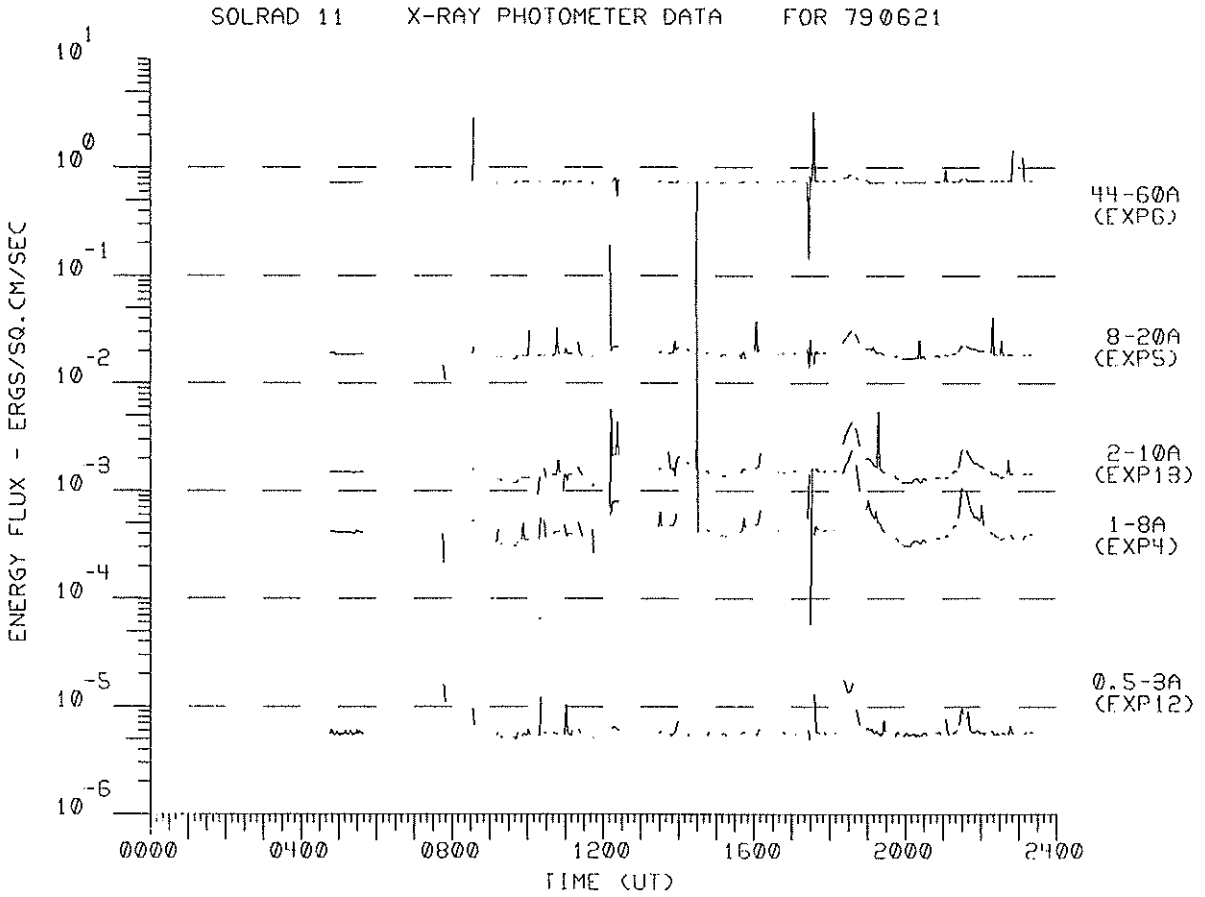

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790618
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

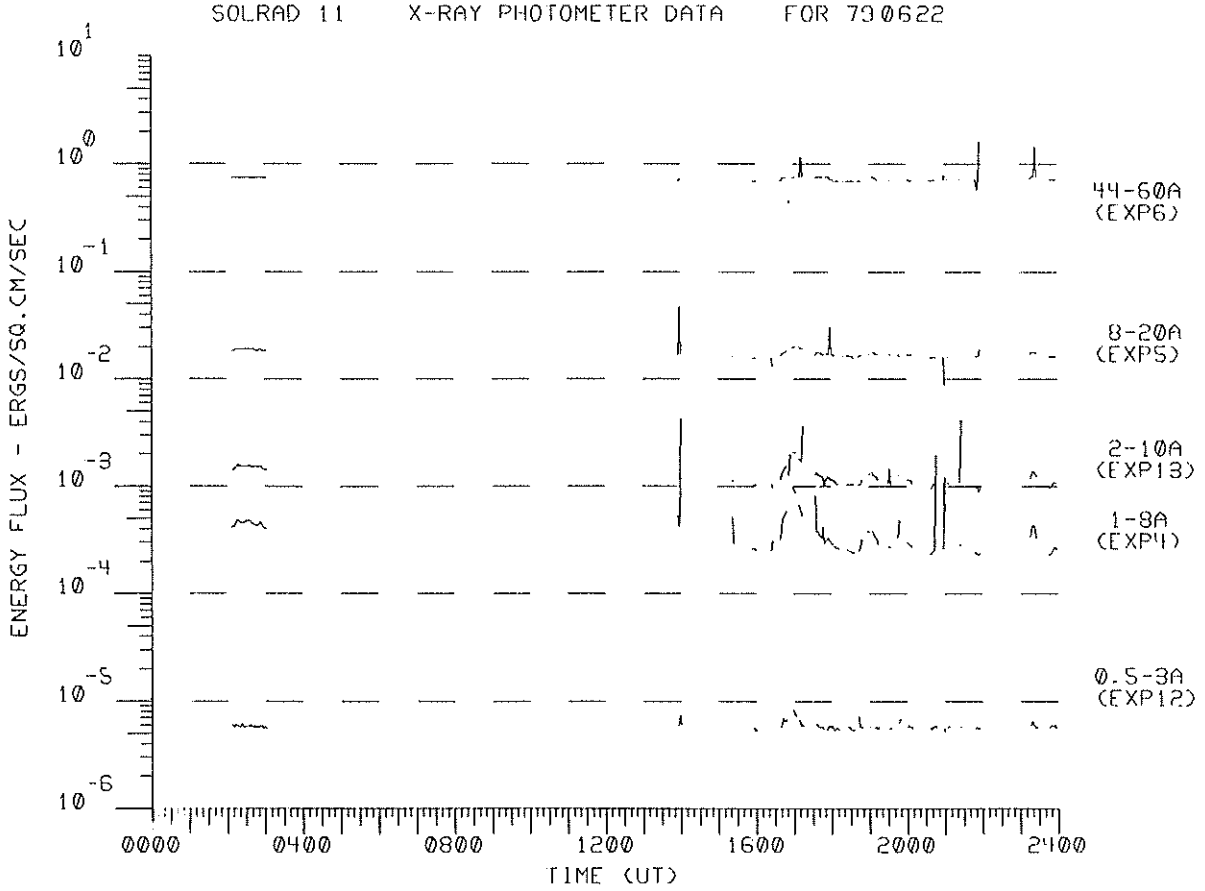
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790619



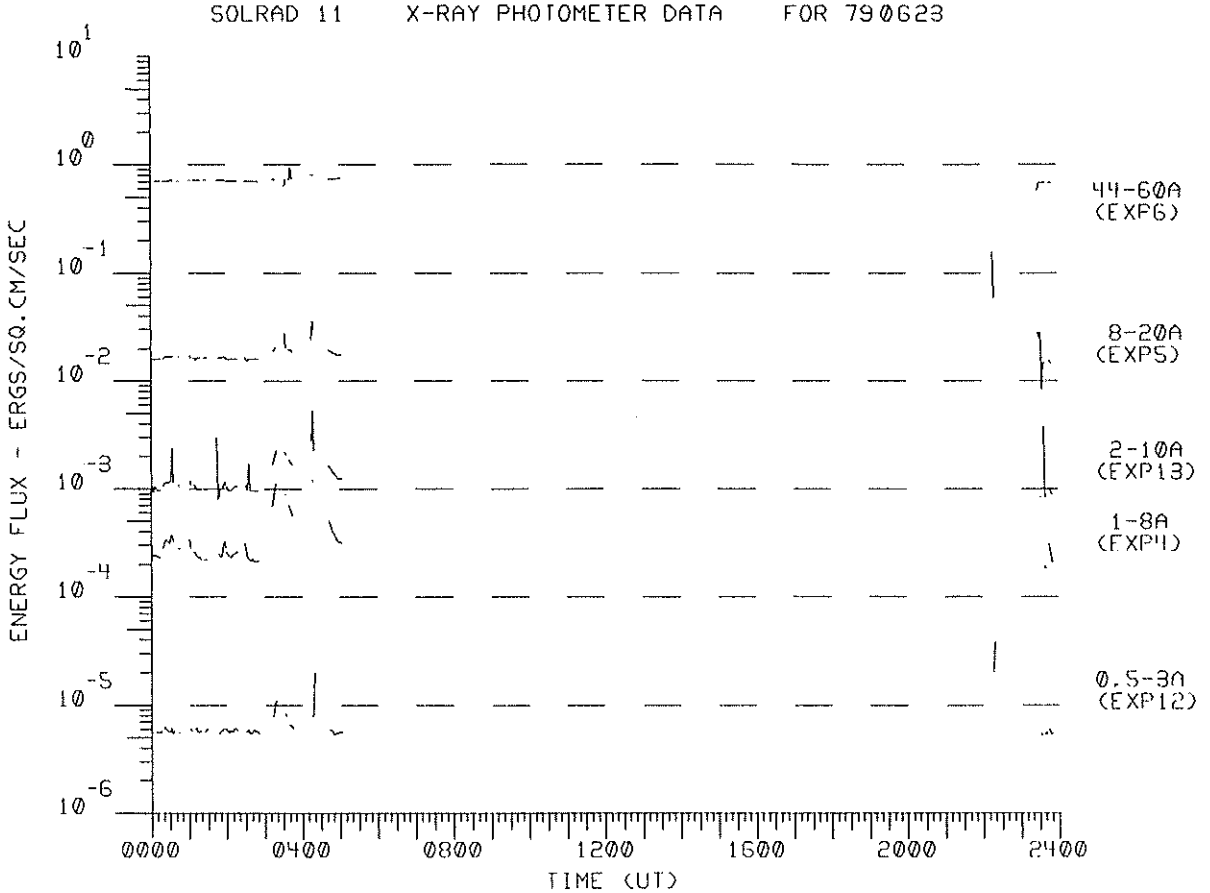
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790620



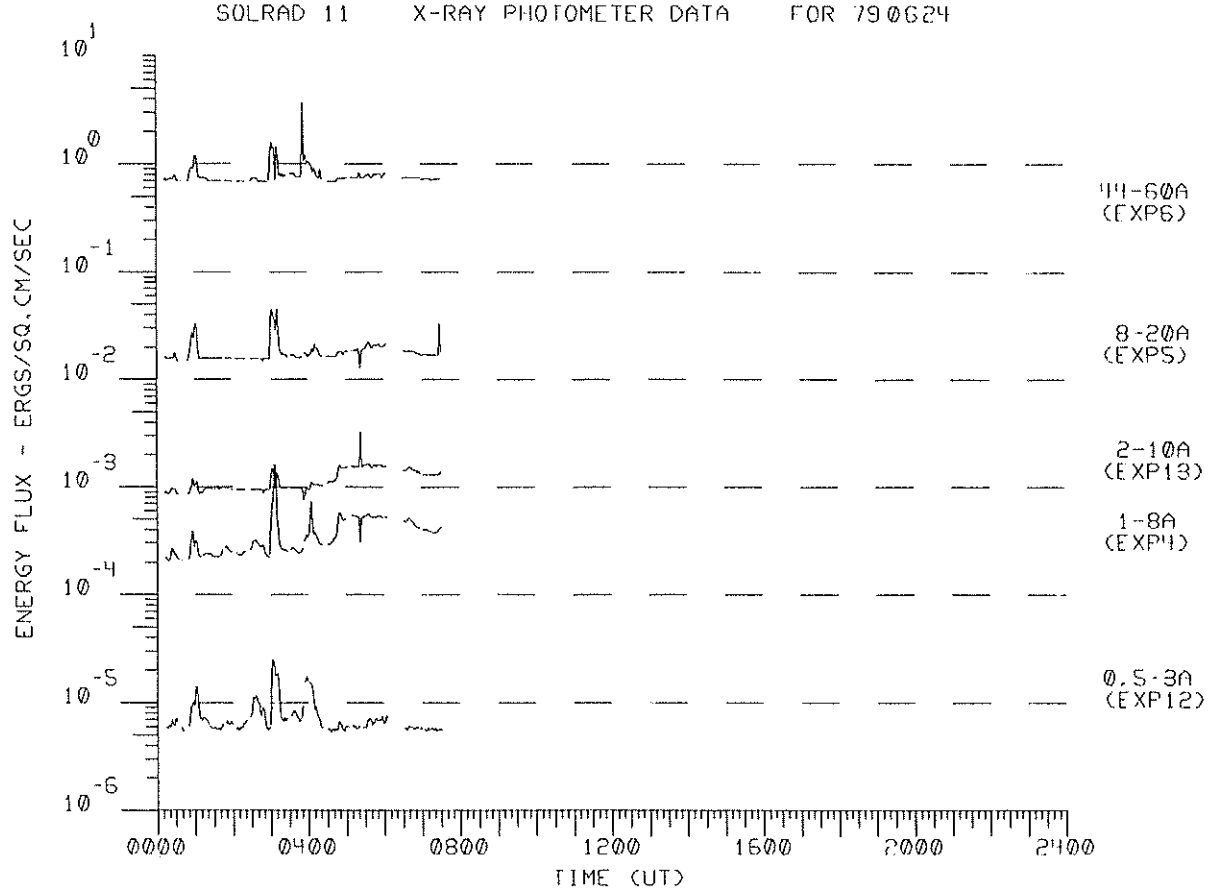

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790621
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

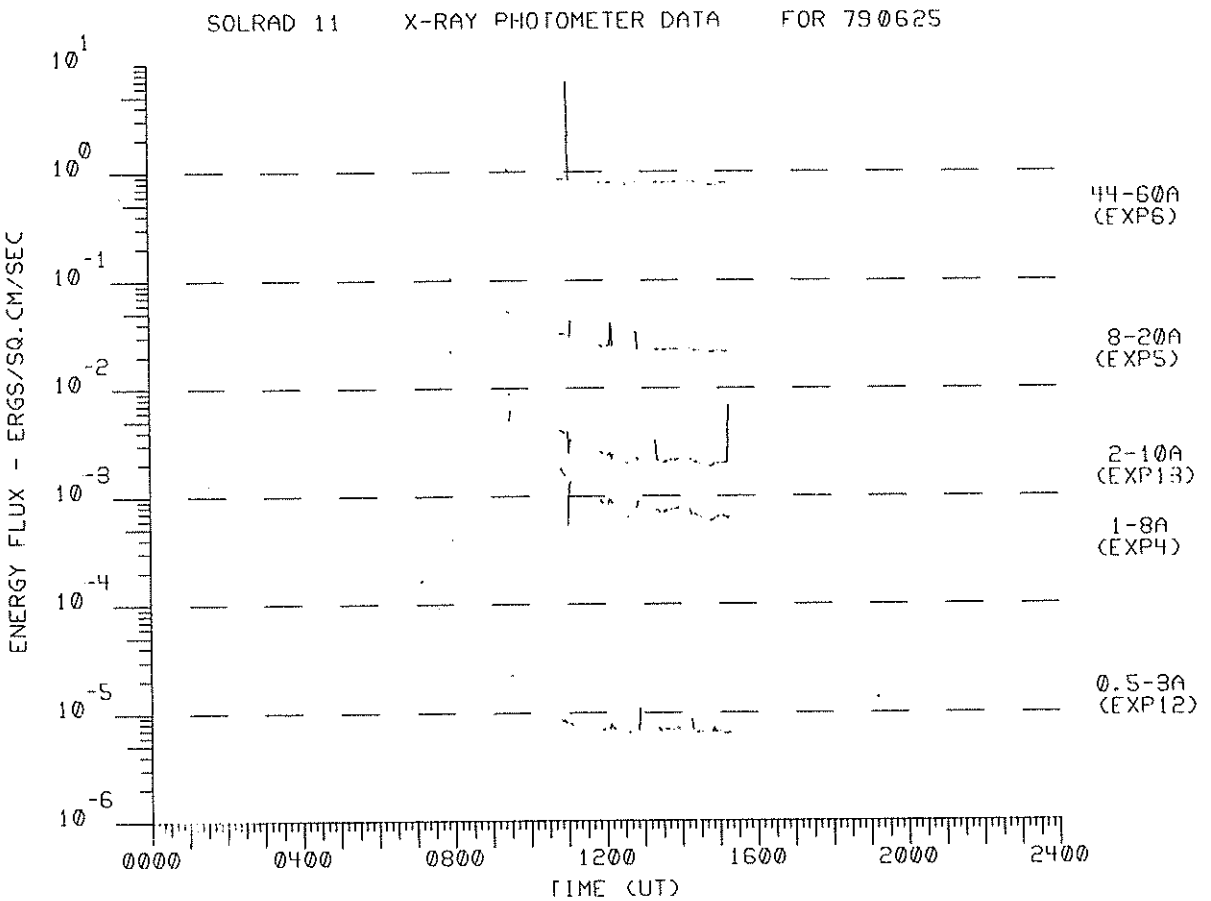

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790622
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

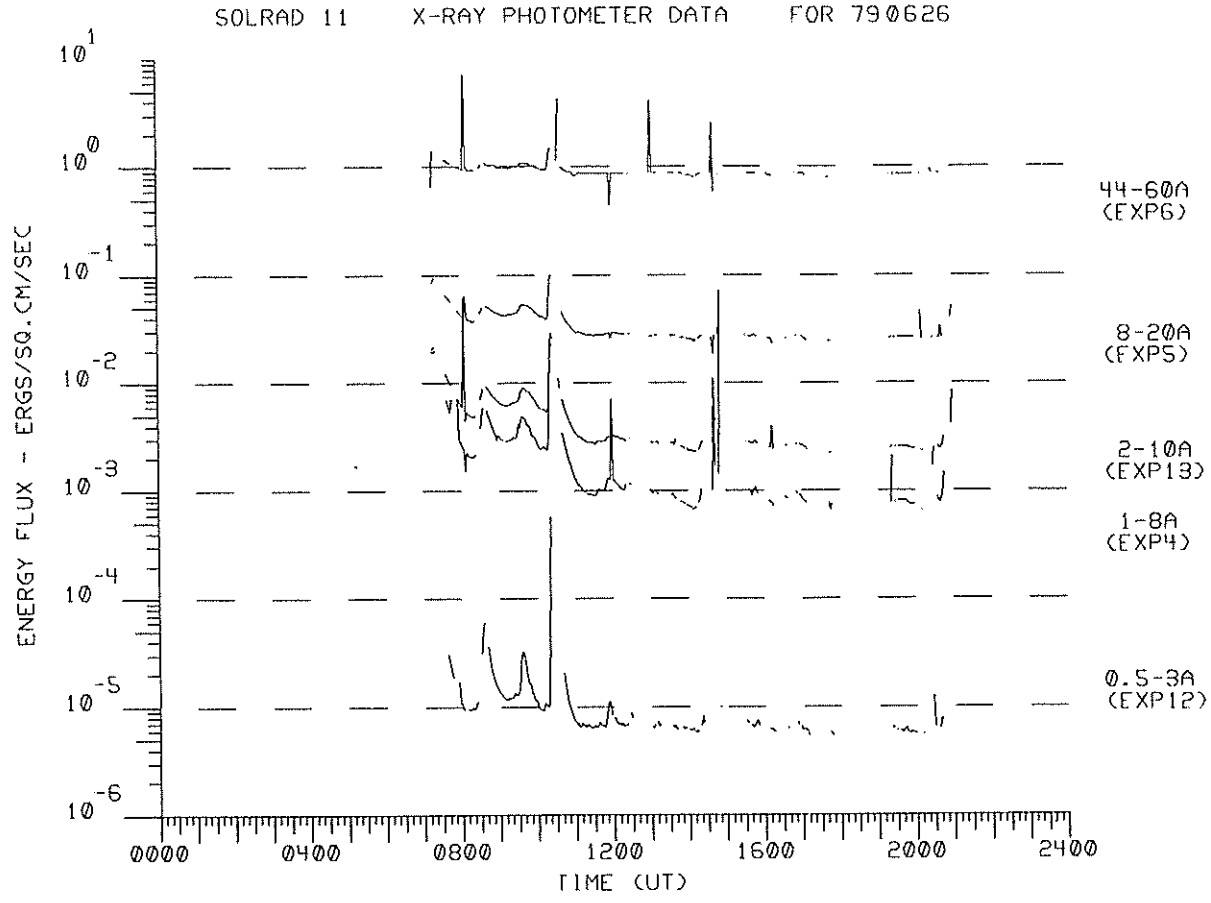
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790623

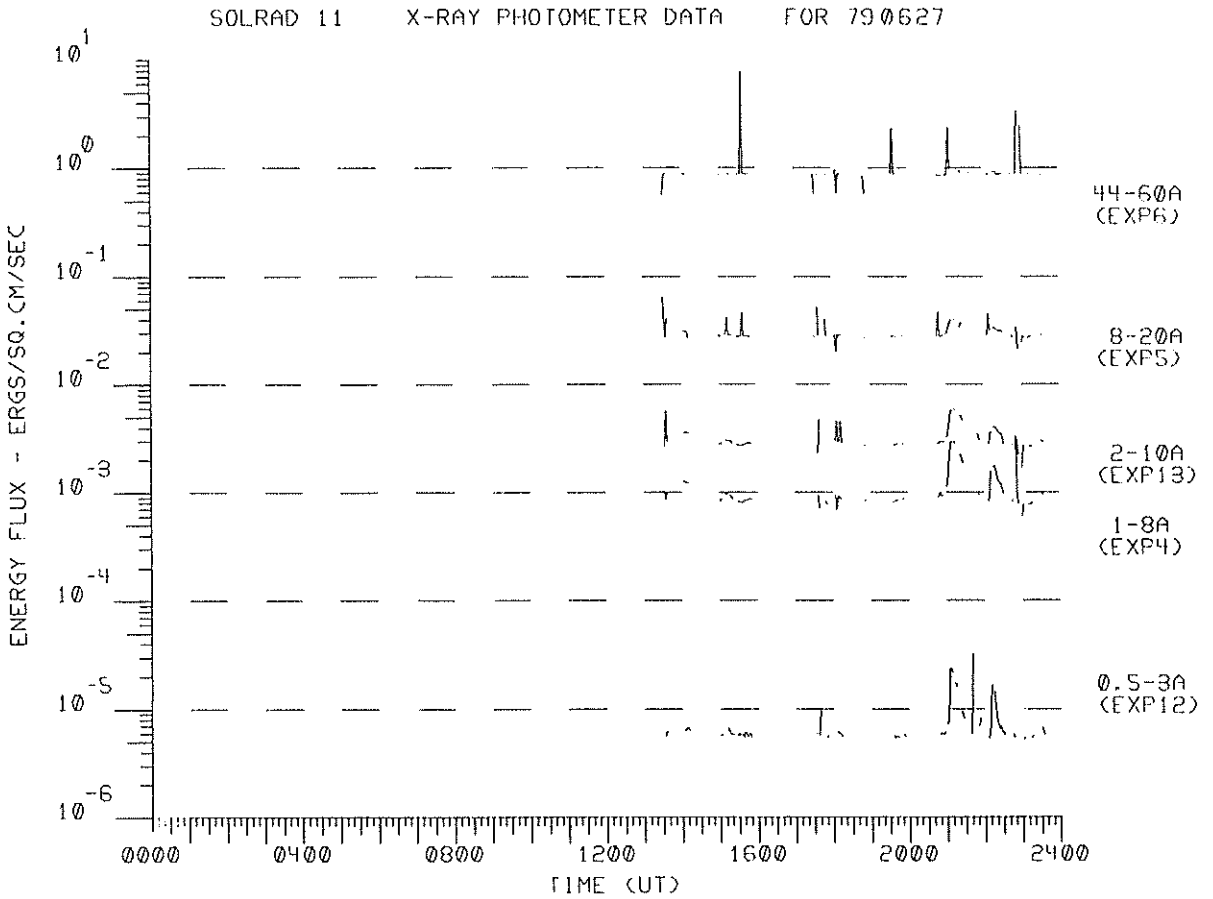


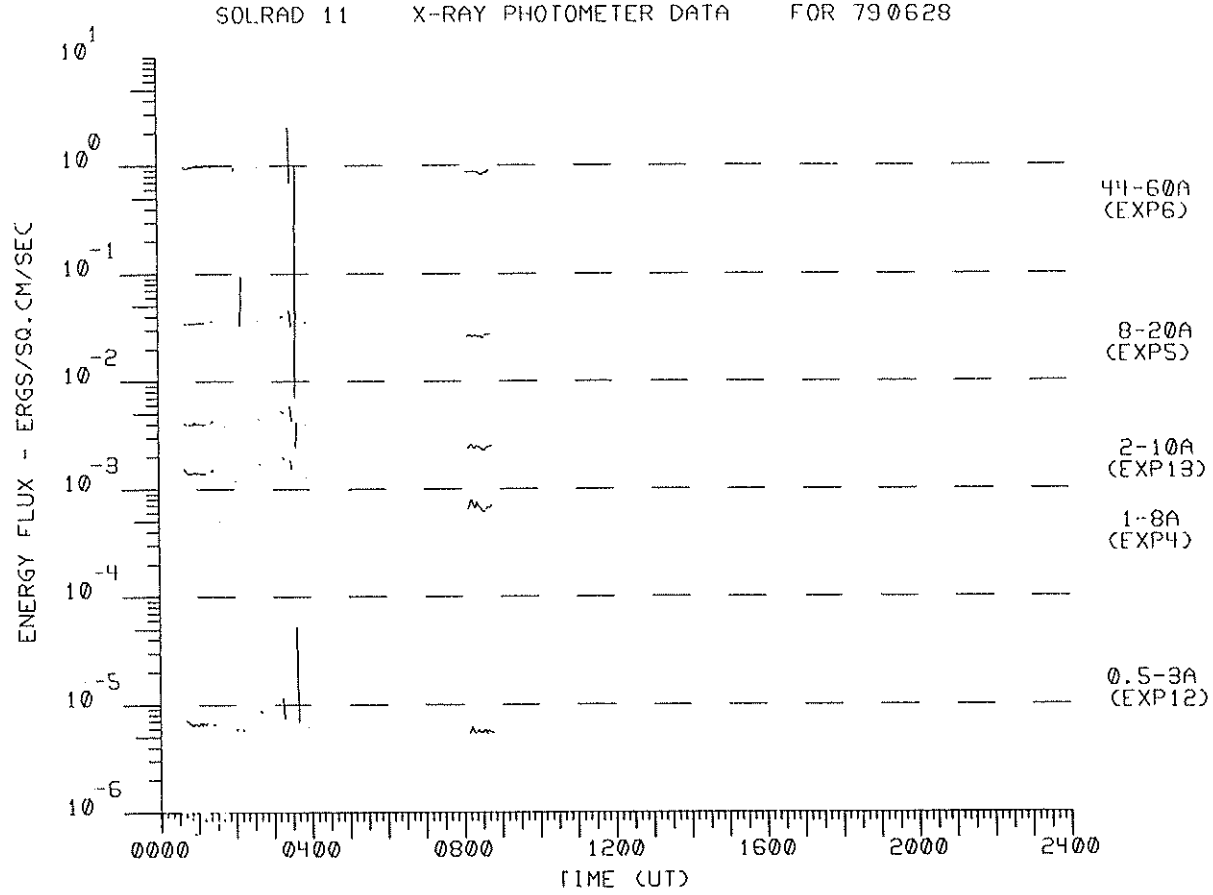
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790624



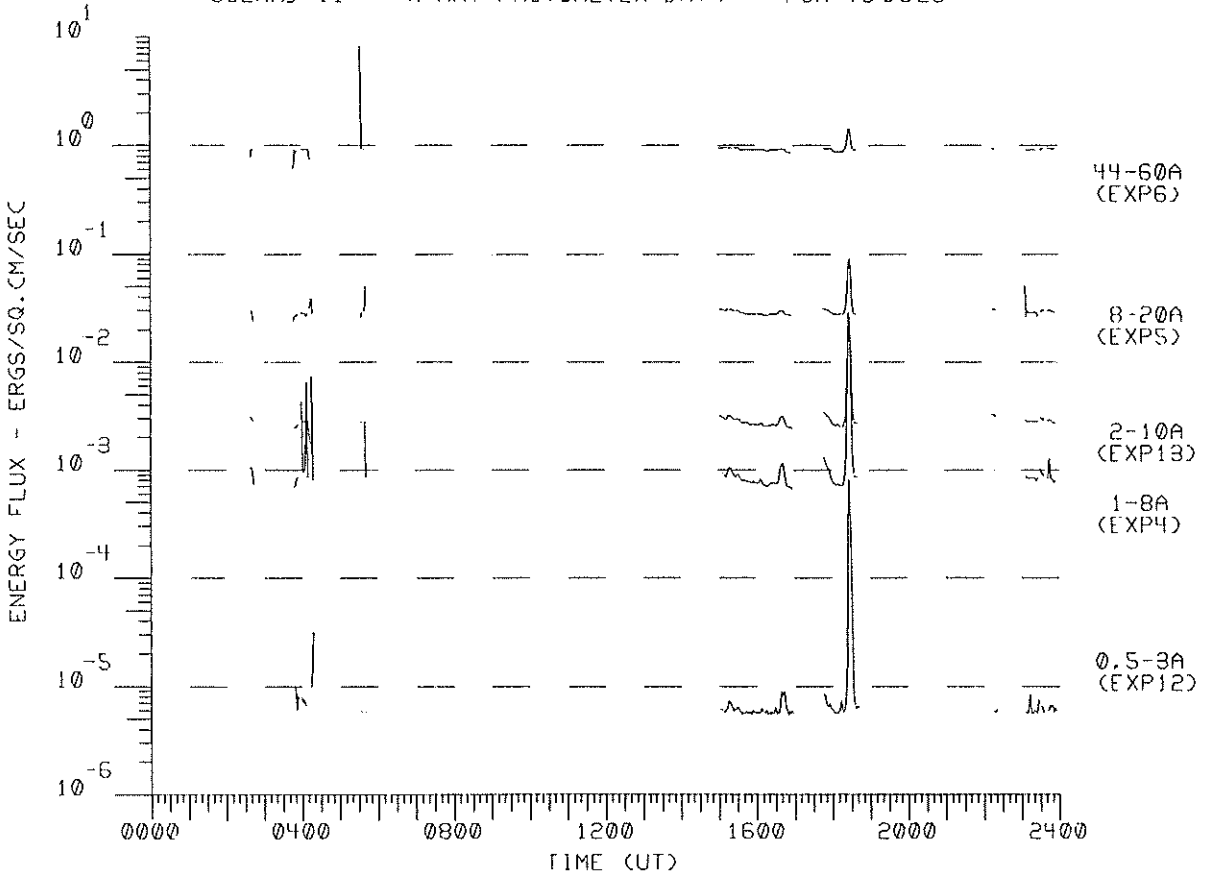

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790625
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790626
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

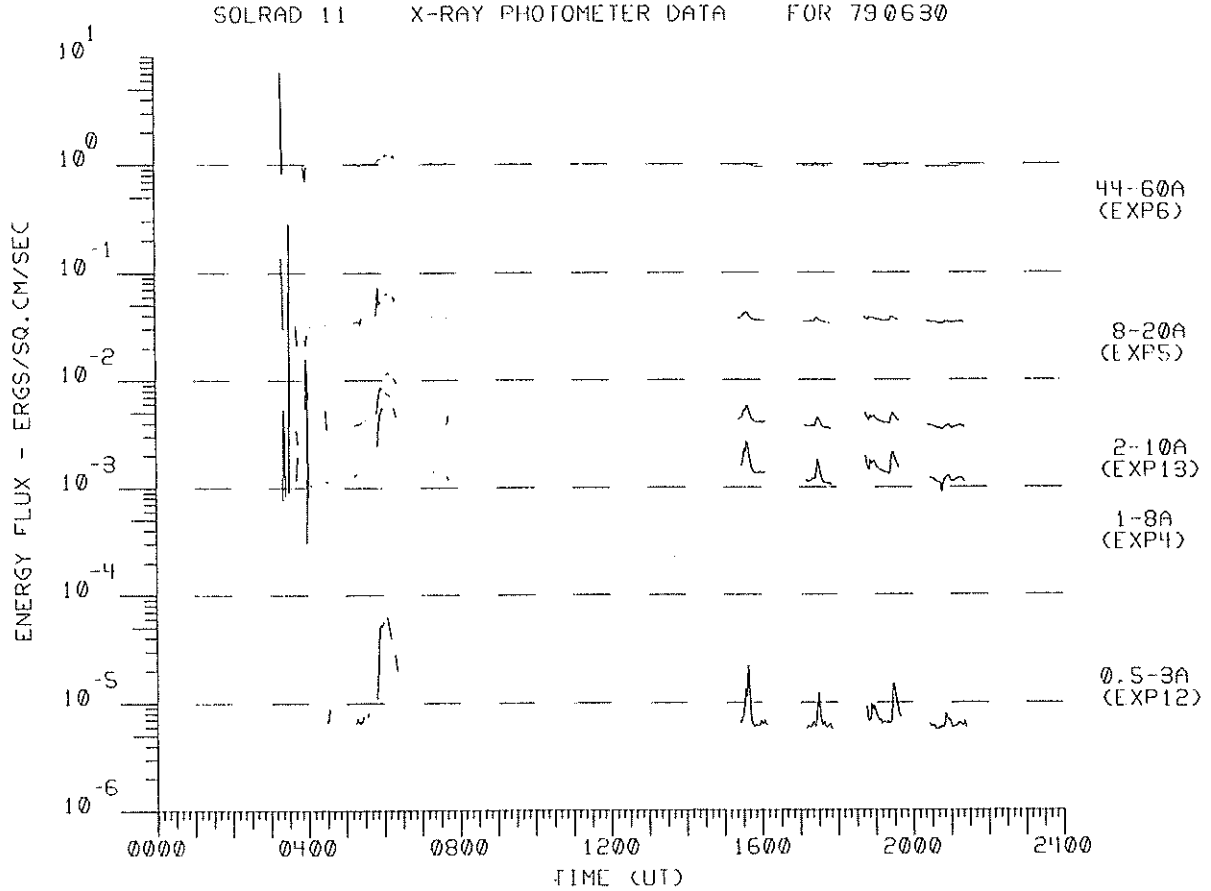

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790627
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790628
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790629



SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790630



SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

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	0950	MANI										
			CULG				0000	0706	1				N,SCINTILL
			CULG				0000	0706	1				IIIN
	0000	0730	CULG				0000	0706	1				IS,C
			CULG				0018	0706	1				N,RS,DP
			CULG	0159.5	0200	2							FAST DRIFT
	0409	1040	WEIS				0423.0	1830.0	2				IS
	1045	1830	WEIS				0432.0	1718.0	2				IIIN
	0913	2409	SGMR				0913.0	2028.0	1				CONT
	1230	2245	HARV				1336	1507	1				I
			HARV				1455	1816	2				IIIN
			HARV				1507	1800	2				IC
			HARV				1718	1826	2				IIIN
			HARV				1800	1910	3				IC
			HARV				1820	1845	2	1820	1845	2	IIIS
			HARV				1845	2100	2	1845	2110	2	IIIN
			HARV				1910	2245	2				IC
	2030	2400	CULG				2055	2400	2				IS,C
			CULG	2055	2400								IS,C,W
			CULG				2107	2400	1				IIIS
			CULG				2107	2400	1				N,RS,DP
			CULG				2123	2400	1				N,DP
	2130	2400	MANI										
			CULG				2327	2400	1				SCINTILLAT
02	0000	0730	CULG				0000	0706	1				IIIS
			CULG				0000	0706	1				N,DP
			CULG				0000	0706	1				N,RS,DP
			CULG				0000	0707	1				N,SCINTILL
			CULG				0000	0707	2				IS,C
	0000	1000	MANI										
			CULG	0049	0049.5	1							FAST DRIFT
			CULG	0322	0322.5	1							FAST DRIFT
	0408	1545	WEIS				0409.0	1544.0	1				IS,DC
			WEIS				0409.0	1545.0	1				IIIS
			CULG				0558.5	0559	2				IIIG
			CULG				0607.5	0608	2				IIIG
			SGMR				1035.0	2410.00	1				CONT
	0913	2410	SGMR				1058.5	1058.6	1				III
			SGMR				1138.8	1139.2	2				V
			SGMR				1152.8	1202.1	2				IIIG
	1230	2255	HARV				1318	1446	1				IIIN
			HARV				1400	1520	1				I
			SGMR				1446.0	1447.3	2				IIIG
			HARV				1447	1645	2	1447	1645	2	IIIN
			HARV				1520	1620	2				IC
	1554	1831	WEIS										
			HARV				1620	2240	3				IC
			HARV				1645	1940	3	1645	1940	3	IIIS
			HARV				1940	2250	2	1940	2250	2	IIIN
	2030	2400	CULG	2054	2400	1	2056	2400	2				IS,C,DC
			CULG				2102	2244	2				IIIS
			CULG				2102	2400	1				N,DP
			CULG				2102	2400	1				N,RS,DP
	2129	2400	MANI										
			CULG				2244	2400	1				IIIS
			CULG							2358	2400	1	IIIN
03			CULG				0000	0706	1				N,DP
			CULG				0000	0706	1				N,RS,DP
			CULG	0000	0705	1	0000	0706	1				IS,C,DC
	0000	0730	CULG				0000	0351	1				IIIS
	0000	0959	MANI										
			CULG							0003	0004	1	IIIN
			CULG	0346.5	0347	1							FAST DRIFT
			CULG				0351	0705	1				IIIS,W
	0407	1834	WEIS				0409.0	1747.0	2				IN,DC
			WEIS				0417.9	1820	2				IIIN
			CULG				0418		2	0418		1	IIIB
			CULG				0446.5		2	0446.5		1	IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

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			CULG				0620	0705	1				SCINTILLAT
	0913	2410	SGMR				1200.0	1200.3	1				V
			SGMR				1228.4	1229.0	1				IIIG
			SGMR				1246.2	1246.5	1				V
			SGMR				1259.8	1300.2	1				IIIG
			WEIS				1413.3	1416.4	3				IIIGG
			SGMR				1413.5	1416.5	3				V
	1230	1450	HARV				1414	1416	3	1414	1416	3	IIIGG,V
			WEIS				1432.9	1436.8	2				IIIG/V,U
			SGMR				1433.7	1437.5	3				V
			HARV	1434		2	1434	1436	3	1434	1436	3	IIIGG
			SGMR				1459.6	1500.2	2				V
			SGMR				1512.8	1514.0	2				V
			SGMR				1520.8	1521.1	2				V
			SGMR				1640.9	1641.4	1				V
	1610	2245	HARV				1641		1	1641		1	IIIG
			HARV	1759	1800	2							IIIG
			HARV				1815	1820	3				IIIG
			HARV				1905	1906	1				IW
			HARV				1918	2026	2	1918	2018	1	IIIN
			HARV	2030		3	2029	2030	3				IIIGG
			SGMR				2052.6	2053.0	2				V
			HARV				2052	2053	3	2052	2053	3	IIIB,V
	2030	2400	CULG	2056	2322	1							IS
			CULG				2125	2400					IN,W
	2130	2400	MANI										
			CULG				2131	2400					IIIN,W
			CULG				2136	2143					N,RS,DP,W
			CULG				2142	2315					N,DP,W
			CULG	2248.5	2249	2	2248.5	2249.5	3				IIIG
			SGMR				2249.0	2249.3	2				V
			CULG	2322	2400								IN,W
04	0000	0730	CULG	0000	0303		0000	0436					IN,W
	0000	0954	MANI										
			CULG	0009.5	0010	1	0009.5	0011.5	2	0009.5	0010	1	IIIG
			CULG				0025	0655					IIIN,W
			CULG				0049.5		1				IIIB
			CULG				0220	0222.5	2	0220.5	0221	1	IIIG,V
			CULG	0303	0420	1							IS
			CULG				0320.5		1				IIIB
			CULG				0350	0350.5	2	0350	0350.5	2	IIIB
			CULG				0352.5		1				IIIB
			CULG				0353.5		2	0353.5		1	IIIB
			CULG				0354.5		1	0354.5		1	IIIB
			CULG							0356		1	IIIB
			CULG				0357.5	0358.5	1				IIIG
			CULG							0359	0430	2	S.W.F.
			CULG	0400.5	0401.5	2							FAST DRIFT
			CULG				0402.5	0403.5	2	0403	0403.5	2	IIIG
			CULG	0402	0402.5	2							FAST DRIFT
			CULG				0403.5	0404.5	1				UNCLF
			CULG	0406.5	0407	1							FAST DRIFT
	0408	0554	WEIS										
			CULG				0411	0411.5	2	0411	0411.5	1	IIIG
			CULG				0413	0414	1				IIIG
			CULG	0420	0657								IN,W
	0604	1834	WEIS										
			WEIS				0643.0	1724.0	2				IIIN
	1230	2245	HARV				1406	1723	1				IIIN
	0912	2411	SGMR				1408.4	1409.1	2				V
			HARV				1409		2				IIIB
			SGMR				1418.9	1617.8	2				IIIG
			SGMR				1506.8	1507.1	3				V
			HARV				1507		3	1507		3	IIIB
			SGMR				1723.0	1723.5	2				V
			HARV				1916	2152	1				IN,W
			SGMR				1943.1	1952.1	1				IIIS
			HARV	1951	1952	2	1951	1952	2				IIIG
			SGMR				2034.8	2035.7	2				V

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

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	
04	2030	2400	CULG	2056	2224	1							IS
			CULG				2113	2400					IIIN,W
			CULG				2121	2121.5	1				IIIG
	2127	2400	MANI										
			CULG				2224.5	2225	2				IIIG
			CULG	2224	2325								IS,W
			CULG				2226		1				IIIB
			CULG				2325	2327	2	2325.5	2326	1	IIIG
			CULG	2325	2400	1							IS
			CULG				2352.5	2354	2				IIIG
05	0000	0728	CULG	0000	0037	1							IS
			CULG				0009	0500					IIIN,W
			CULG	0037	0104	2							IS
			CULG				0046.5	0047	3	0046.5	0047	2	IIIB
			CULG				0048		1				IIIB
			CULG				0058	0120	1				IS
			CULG	0102	0102.5	2	0102		2				IIIG
			CULG	0104	0207								IS,W
			CULG				0111	0111.5	1	0111	0111.5	1	IIIG
			CULG				0113	0113.5	2	0113	0113.5	1	IIIG
			CULG				0120	0310	1				IS,C
			CULG				0135.5	0137	2	0135.5	0137	1	IIIG
			CULG				0140	0236	1				SCINTILLAT
			CULG	0207	0317	1							IS
			CULG	0317	0504		0319	0503					IN,W
			CULG				0328.5	0329	1				IIIG
			CULG				0330		2				IIIB
			CULG	0402	0403.5	3	0402	0403.5	3	0402	0403.5	3	IIIG
			CULG				0407.5	0410	2	0409.5	0410	1	IIIG
			WEIS				0409.0	0828.0	2				IIIN
			CULG				0412.5	0414.5	1				IIIG
			CULG				0419		2				IIIB
	0000	0958	MANI							0420.3	0402.5	1	III
	0407	1123	WEIS				0429.0	1122.0	2				IN,DC
			CULG				0500	0520	1				IIIS
			CULG	0503	0652	1	0504	0653	1				IS
			CULG				0509	0654	2				IV
			WEIS				0510.0	0650.0	2				CONT
			CULG	0510	0605	2							IV, P
			CULG							0511	0615	2	S.W.F.
			CULG				0514	0546	3				II
			CULG				0529	0535	2				IIIGG
			CULG	0547	0547.5	1	0547	0547.5	2				IIIG
			CULG				0648	0649	2				IIIG
			CULG				0650.5		1				IIIB
	0911	2412	SGMR				1205.1	1205.9	2				V
			SGMR				1316.4	1317.0	1				IIIG
			SGMR				1323.9	1324.3	1				V
	1230	2245	HARV				1409	1620	1				IN,W
			HARV				1427	1958	1				IIIN
			SGMR				1434.6	1434.9	1				V
			SGMR				1445.6	1446.0	2				V
			SGMR				1457.6	1457.8	1				V
			SGMR				1537.2	1538.0	3				V
			HARV				1537	1551	3				IIIS
			SGMR				1538.0	1553.0	3				IIIG
			SGMR				1542.1	1543.8	3				V
			SGMR				1558.0	1603.9	1				IIIG
			SGMR				1624.4	1624.8	1				V
	1823	1834	WEIS										
			SGMR				1835.8	1836.0	1				V
			SGMR				1958.0	1958.2	1				III
			SGMR				2001.8	2002.1	3				V
			HARV				2001	2003	3				IIIGG
			SGMR				2003.0	2003.1	2				III
	2031	2400	CULG	2059	2115	1							IS
	2130	2400	MANI										
			CULG	2153	2308	1							IS
			CULG	2305	2306	1	2305	2306	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
05			CULG				2307		2				IIIB
			CULG	2308	2354								IN,W
			CULG				2320.5						IIIB,W
			CULG	2354	2400	1							IS
06	0000	0730	CULG	0000	0703	1							IS
	0000	0957	MANI										
			CULG				0016	0017					IIIG,W
			CULG				0027.5	0029					IIIG,W
			CULG				0028.5		1				IIIB
			CULG	0030.5	0033	2	0030.5	0032.5	1				IIIG
			CULG	0057	0059	1	0056	0059	1				IIIG
			CULG				0103						IIIB,W
			CULG				0104	0105					IIIG,W
			CULG				0105	0110	1				I
			CULG				0222	0222.5	1				IIIG
			CULG				0237	0238	1				IIIG
			CULG				0312.5						IIIB,W
			CULG	0315	0321	1	0315	0321.5	1				IIIGG
			CULG				0319	0320	2	0319	0320	1	IIIG
			CULG				0325	0351	1				IS
			CULG	0355	0356	1	0355.5	0356.5	2	0356	0356.5	2	IIIG
			CULG				0357	0400	2				I
			CULG	0357	0358.5	1	0357	0359	1				IIIG
			CULG	0401.5	0402.5	2	0401.5	0402.5	2	0402	0402.5	2	IIIG
			WEIS				0417.0	1744.0	2				IIIN
			CULG	0417	0417.5	1	0417	0417.5	2				IIIG
	0407	1835	WEIS				0425.0	0729.0	1				IN
			CULG				0523						IIIB,W
			CULG	0610	0625	2							IS
			CULG				0612	0642					IIIS,W
			CULG				0622.5	0657	1				IS
	0911	2412	SGMR				1553.9	1554.1	1				III
			SGMR				1641.9	1642.4	1				III
			SGMR				1743.7	1743.9	1				III
	1230	2245	HARV				1744		1				IIIB
	2030	2400	CULG	2059	2331	1							IS
			CULG				2101	2227	1				IIIS
			HARV				2107	2227	2				IIIN
			CULG	2133	2134	2	2133	2133.5	1				IIIG
	2134	2400	MANI										
			CULG				2220	2230	1				I
			CULG				2227	2400					IIIS,W
			CULG				2301.5	2302	2				IIIG
			CULG				2324.5	2327	1				I
07	0000	0730	CULG				0000	0024					IIIS,W
	0000	0956	MANI										
			CULG				0024	0129	1				IIIS
			CULG				0104	0210	1				IS
			CULG	0126.5	0127	1	0126.5	0127	1				IIIG
			CULG				0129	0219					IIIS,W
			CULG				0209.5	0210	2	0210		1	IIIG
			CULG	0307	0420	1							IS
			CULG				0313.5	0411					IIIN,W
			CULG				0320.5	0321	1				IIIG
			CULG	0420	0524								IN,W
	0726	1244	WEIS				0843.3	0843.7	2				IIIG
			WEIS				0853.3	0853.4	1				IIIG
	0911	2413	SGMR				1310.8	1312.5	2				IIIG
	1230	2245	HARV				1311	1312	3				IIIG
			SGMR				1332.8	1333.2	1				IIIG
			SGMR				1403.1	1454.0	2				IIIG
			HARV				1403		1				IIIG
			HARV				1412	2116	1				IIIN
			HARV				1447	1450	1				IIIG,W
			SGMR				1540.0	1540.5	1				IIIG
			HARV				1540		3				IIIG
			SGMR				1616.0	1616.3	2				V
			SGMR				1621.6	1621.8	1				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

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	
07			SGMR				1644.0	2207.5	2				IIIS
			HARV				1735		2				IIIG
			HARV				1745	1748	2				IIIG
			HARV				1852	1858	2				IIIGG
			HARV				2019	2024	2				IIIGG
	2031	2400	CULG	2059	2351	1							IS
			CULG				2103	2400					IIIN,W
			CULG				2105.5	2107	1				IIIG
			HARV				2106		2				IIIG
			CULG				2114	2400					IN,W
	2126	2400	MANI										
			CULG				2128.5	2129.5	1				IIIG
			CULG				2129		1				DP
			HARV				2129		1				IIIG
			CULG	2206.5	2207.5	1	2206.5	2208	3				IIIG,V
			HARV				2207	2208	3				IIIG,U,V
			CULG				2310	2310.5	1				IIIG
			SGMR				2313.0	2313.2	1				III
			CULG				2357	2357.5	1				IIIG
08			CULG				0000	0659					IIIN,W
	0000	0730	CULG	0000	0115								IS,W
	0000	0955	MANI							0029.1	0029.5	1	III
			CULG	0029	0029.5	1	0029	0029.5	3	0029	0029.5	2	IIIG
			CULG				0051	0215					IS,W
			CULG	0115	0614		0215	0643					IN,W
			CULG				0251	0251.5	3	0251	0251.5	2	IIIG
			CULG				0346.5	0347	1	0346.5	0347	1	IIIG
			CULG	0419.5	0421	2	0419.5	0421	3	0420	0420.5	1	IIIG,V
			CULG	0419.5	0432	2							I
			MANI							0420.3	0420.7	1	III
			CULG				0427	0427.5	2	0427	0427.5	1	IIIG
			CULG				0428.5	0429.5	1				IIIG
			CULG				0440.5		2				IIIB
			CULG	0537.5	0538	1	0537.5	0538	1				IIIG
			CULG				0639.5	0640	1				IIIG
			CULG				0658.5		1				IIIB
	0722	1836	WEIS				0737.6	0737.9	2				IIIG
			WEIS				0740.6	0740.7	2				IIIB
			WEIS				0819.1	0819.2	1				IIIG
			WEIS				0822.8	0822.9	1				IIIB
			WEIS				0854.9	0855.0	1				IIIB
			WEIS				0916.0	0928.2	3				IIIGG
	0911	2414	SGMR				0919.4	0924.1	2				IIIG
			SGMR				1021.1	1021.4	1				III
			WEIS				1037.4	1037.6	1				IIIG
			WEIS				1050.8	1051.4	2				IIIG
			WEIS				1104.0	1107.6	2				IIIG
			SGMR				1104.0	1105.8	2				IIIG
			SGMR				1201.9	1202.3	1				IIIG
			WEIS				1251.7	1252.1	1				IIIG
			WEIS				1340.4	1340.7	1				IIIB
			SGMR				1340.4	1340.7	1				III
			SGMR				1459.7	1503.4	2				IIIG
			WEIS				1502.6	1503.3	2				IIIG
	1230	2245	HARV	1503		2	1503		1				IIIG
			WEIS				1510.8	1510.9	1				IIIB
			SGMR				1510.9	2321.0	2				IIIS
			WEIS				1515.5	1517.7	2				IIIG
			WEIS				1531.5	1535.5	1				IIIG
			WEIS				1655.7	1657.7	2				IIIG
			HARV				1656	1657	2				IIIG
			WEIS				1749.6	1751.7	2				IIIG
			HARV				1749	1806	2				IIIGG
			WEIS				1753.3	1756.7	2				IIIG
			WEIS				1801.7	1801.8	2				IIIB
			WEIS				1803.4	1806.7	2				IIIG
			WEIS				1810.5	1812.0	1				IIIG
			HARV				1812	1814	1				IIIG
			WEIS				1813.9	1814.0	2				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

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
08			WEIS				1821.6	1821.7	2				IIIG
			HARV				1821	1829	3				IIIGG
			WEIS				1825.2	1825.4	1				IIIG
			WEIS				1827.6	1829.7	2				IIIGG
			SGMR				1827.8	1828.0	3				V
	2031	2400	CULG	2101	2400								IS,W
			CULG				2111	2113	1				IIIGG
			CULG				2123	2400					IN,W
			CULG				2123.5	2134	1				IIIGG
			CULG				2129.5	2130	1				RS,DP
			SGMR				2130.0	2133.3	3				V
			HARV				2130	2134	3	2133		2	IIIGG
	2130	2400	MANI										
			CULG	2132.5	2133.5	1	2132.5	2134	3				IIIGG
			CULG				2135	2400					IIIN,W
			CULG				2148.5		2				IIIB
			HARV				2148	2216	1				IIIN
			CULG	2215.5	2216	1	2215.5	2216.5	2				IIIG,U
			CULG				2254	2254.5	1				IIIG
			CULG				2334.5	2336	3	2335	2336	2	IIIG
09			CULG				0000	0132					IIIN,W
	0000	0730	CULG	0000	0135		0000	0014					IN,W
	0000	1000	MANI										
			CULG				0036.5	0037.5	1	0036.5	0037.5	1	IIIG
			CULG				0132	0148	1				IIIS
			CULG	0135	0157	1	0133	0548	1				IS
			CULG				0136	0140.5	3	0137	0140.5	2	IIIGG
			CULG				0155	0601					IIIN,W
			CULG				0206		2	0206		2	IIIB
			CULG				0211		1				IIIB
			CULG				0241.5		1				IIIB
			CULG	0259.5	0303	1							I
			CULG				0259.5	0302	2	0259.5	0302	2	IIIGG
			CULG				0310.5	0311	2				IIIG
			CULG				0403.5		1				IIIB
			CULG				0404.5	0405	2	0405		1	IIIG
			CULG				0410.5		1				IIIB
	0407	1228	WEIS				0450.0	1729.0	2				IIIN
			CULG	0450	0450.5	1	0450	0450.5	1				IIIG
			CULG				0508		2				IIIB
			CULG				0509	0510	2				IIIG
			CULG				0533.5	0534.5	1				IIIG
			CULG	0547.5	0548	1	0547.5	0548	2				IIIG
			CULG				0548	0730					IS,W
			CULG				0601	0623					IIIS,W
			CULG				0602.5		1				IIIB
			CULG	0607	0730	1							IN
			CULG				0621	0623	3				IIIG
			CULG				0633.5		1				IIIB
			CULG				0642	0643	2				IIIG
			CULG				0642	0643	1				DP
			CULG				0645.5	0646.5	1				IIIG
			CULG				0723	0723.5	1				UNCLF
	1235	1837	WEIS				1008.4	1012.1	3				IIIGG,RS
	0911	2414	SGMR				1009.2	1011.6	3				IIIG
			SGMR				1029.4	1029.6	1				IIIG
			SGMR				1055.1	1104.0	2				IIIG
			SGMR				1126.5	1126.9	1				IIIG
			SGMR				1226.5	1227.3	3				V
			SGMR				1309.5	1309.8	2				V
	1230	2245	HARV				1309	1310	2				IIIG
			SGMR				1310.0	1310.5	2				V
			SGMR				1320.6	1336.5	2				IIIG
			SGMR				1411.0	1417.6	2				IIIG
			HARV				1413	1414	1				IIIG,W
			HARV				1459	1500	1				IIIG
			WEIS				1623.8	1629.0	3				IIIGG
			SGMR				1624.1	1626.7	3				V
			HARV	1625		2	1624	1627	3	1625	1626	3	IIIG,V

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
09			HARV				1645	1646	1				IIIG
			SGMR				1846.8	1847.0	1				III
			HARV				1848		3				IIIG
			HARV				1923	2205	1				IIIN
	2030	2400	CULG	2102	2400								IN,W
			SGMR				2104.0	2104.3	2				III
			CULG				2104	2337					IIIN,W
			CULG				2122.5		1				IIIB
	2135	2400	MANI										
			CULG				2136		1				IIIB
			CULG				2137	2257					IN,W
			CULG				2205.5		1				IIIB
			CULG				2257	2400	2				IS,DC
			CULG				2337	2400	1				IIIN
10	0000	0730	CULG				0000	0039	1				IS,DC
			CULG	0000	0220								IS,W
			CULG				0000	0206					IIIS,W
			CULG				0016	0206	1				IIIN
			CULG				0034.5	0035	3	0034.5	0035	2	IIIB
			CULG				0039	0220	1				IS
			CULG	0127.5	0128	1	0127.5	0128	1				IIIG
			CULG				0140		2				IIIB
			CULG				0206	0350	2	0214	0427	1	IIIS
			CULG				0220	0450	2				IS,C,DC
			CULG	0220	0330								IS,C,W
	0000	0955	MANI							0250.0	0250.3	1	III
			MANI							0258.0	0258.4	1	III
			CULG	0330	0703								IS,W
			CULG				0350	0629					IIIN,W
	0404	1750	WEIS				0406.0	1641.0	2				IN
			CULG				0416.5	0417	1				IIIG
			CULG				0450	0657	1				IS,DC
			WEIS				0459.0	1736.0	2				IIIN
			CULG				0518	0518.5	1				IIIG
			CULG				0519.5	0520	1				IIIG
			CULG				0629	0655	1				IIIS
			WEIS				0637.0	0647.0	2				IIIGG
			CULG				0639.5	0645	2				IIIGG
			CULG	0642	0648	1							IIIN
			WEIS				0902.5	0927.0	3				II HARM
	0911	2414	SGMR				1245.8	1249.3	2				IIIG
	1230	2245	HARV				1248	1249	1				IIIG
			SGMR				1316.1	1324.8	1				IIIG
			SGMR				1424.0	1739.5	1				CONT
			HARV				1705		1				IIIB
			HARV				1736	1738	1				IIIG
			HARV				2047		1				IIIB,W
	2032	2400	CULG	2102	2337		2104	2400					IS,W
			CULG				2107	2400					IIIN,W
	2130	2400	MANI										
11	0000	0955	MANI										
	0000	0731	CULG				0000	0125	1				IS
			CULG				0000	0134					IIIN,W
			CULG	0025	0137	1							IS
			CULG	0157.5	0158	1							I
			CULG				0214.5	0215.5	1				IIIG
			CULG				0223.5	0227.5	1				IIIG
			CULG	0232	0233	1							I
			CULG	0232	0233		0232.5	0233					IIIG,W
			CULG				0253.5						IIIB,W
			CULG				0319		2				IIIB
	0435	1838	WEIS				0508.0	1834.0	3				IIIS
			CULG				0508.5	0510					IIIG,W
			CULG	0512.5	0513	1	0512.5	0513.5	2				IIIG,U
			CULG				0535.5	0538					IIIG,W
			CULG	0550	0601	1							IS
			CULG				0629.5		2				IIIB
			CULG				0630.5	0631					IIIG,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

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			CULG				0634.5	0635.5	2				IIIG
			CULG				0650	0652					IIIG,W
	0910	2415	SGMR				1053.8	1105.0	2				IIIG
			SGMR				1100.0	1100.5	3				V
			WEIS				1150.0	1820.0	2				CONT,P
			WEIS				1150.0	1838.0	3				IS
			SGMR				1158.0	1815.5	1				CONT
			SGMR				1221.0	1221.5	3				V
			SGMR				1225.0	1227.5	3				V
	1230	2300	HARV				1230	1255	1				I
			SGMR				1242.0	1245.0	3				IV
			HARV				1255	1340	2				IC
			HARV				1340	1520	1				IN
			HARV				1520	1740	2				IC
			SGMR				1531.2	1531.5	2				III
			HARV				1740	2300	3				IC
			SGMR				1747.8	1755.0	3				IIIG
			HARV				1748	1754	3				IIIGG
			SGMR				1815.5	2415.00	2				CONT
	2031	2400	CULG	2100	2400	2	2100	2400	2				IS,C,P
			CULG				2101	2400	2				IIIS
			CULG	2136.5	2137	2	2136.5	2137	3				IIIG
			HARV				2137		3				IIIB
	2137	2400	MANI										
			CULG				2230	2400					S.W.F.,W
			CULG				2310	2400	1				SCINTILLAT
12			CULG	0000	0350	1	0000	0445	2				IS,C,DC
	0000	0730	CULG				0000	0053	2				IIIS
			CULG							0000	0400		S.W.F.,W
	0000	0955	MANI										
			CULG				0053	0255	1				IIIS
			CULG				0245	0249.5	2	0245.5	0249.5	2	IIIGG
			CULG				0255	0609					IIIS,W
			CULG	0350	0526								IN,W
	0405	0947	WEIS				0406.0	1838.0	3				IN,DC
	0951	1838	WEIS				0424.0	1706.0	2				IIIN
			CULG				0430	0440	1				SCINTILLAT
			CULG				0445	0552	2				IS,DC
			CULG	0526	0613								IS,W
			WEIS				0550.0	1010.0	2				CONT,P
			CULG				0552	0705	2				IS,C,DC
			CULG				0609	0710	1				IIIS
			CULG				0610	0700	1				SCINTILLAT
			CULG	0613	0705	1							IS,C
			CULG				0623.5	0624	2				IIIG
	0910	2416	SGMR				1031.4	1033.0	1				IIIG
			SGMR				1134.5	2212.0	2				CONT
	1230	2245	HARV				1340	1458	1				I
			HARV				1458	1700	2				IC
			SGMR				1652.8	1655.2	3				IIIG
			HARV				1653	1654	3				IIIGG
			HARV				1700	2245	3				IC
	2031	2400	CULG				2058	2400	2				IS,C,DC
			CULG				2101	2400	1				IIIS
			CULG	2101	2400	1							IS,C,P
			CULG				2137	2200	2				IIIN
	2137	2400	MANI										
13	0000	0958	MANI										
	0000	0732	CULG				0000	0248	2				IS,C,DC
			CULG				0000	0545					IIIS,W
			CULG	0000	0408								IS,W
			CULG				0034	0545	1				IIIN
			CULG				0152	0152.5	1	0152	0152.5	1	IIIG
			CULG				0159		2	0159		1	IIIB
			CULG				0244		1	0244		1	IIIB
			CULG				0248	0545	1				IS,DC
			CULG				0400	0428	2				II
	0405	0823	WEIS				0408.0	1838.0	2				IS,DC

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13			CULG	0408	0655								IN,W
	1100	1334	WEIS				0414.0	1828.0	2				IIIS
			CULG				0526	0528	2				IIIG,V
			CULG				0545	0700	2				IS,C,DC
			CULG				0545	0655	1				IIIS
			CULG				0624	0655	1				SCINTILLAT
	0910	2417	SGMR				1054.8	2328.0	3				CONT
	1457	1838	WEIS				1104.0	1800.0	2				CONT
	1230	2245	HARV				1230	2245	3				IC
	2032	2400	CULG	2101	2215	1	2101	2400	2				IS,C,DC
			CULG				2104	2400	2				IIIS
	2136	2400	MANI										
			CULG	2215	2322								IS,W
14			CULG				0000	0141	2				IIIS
	0000	0732	CULG				0000	0131	2				IS,C,DC
	0000	1000	MANI										
			CULG							0007	0432		IIIN,W
			CULG				0021.5	0700	1				N,RS,DP
			CULG				0131	0702	1				IS,C,DC
			CULG				0141	0700	1				IIIS
			WEIS				0428.0	1648.0	2				IN,DC
	0405	1833	WEIS				0445.0	1832.0	2				IIIN
			CULG				0445	0641	2				IIIN
			CULG				0545	0702	1				SCINTILLAT
	0910	2417	SGMR				1124.4	2417.0D	2				CONT
			SGMR				1320.6	1322.6	2				V
			SGMR				1322.7	1325.1	2				V
	1230	2250	HARV				1322	2220	1				IIIN
			HARV				1803	1805	2				IIIG
			HARV				1845	2220	1				IN
	2032	2400	CULG	2102	2126	1	2102	2400	1				IS,C
			CULG				2110	2400	1				IIIS
			CULG				2110	2400	2				IIIN
			CULG				2119	2400	1				N,RS,DP
			CULG				2126.5	2127	2				UNCLF
	2137	2400	MANI										
			CULG	2326	2326.5	2	2326	2326.5	3	2326	2326.5	1	IIIG,V
			CULG				2332	2400	1				SCINTILLAT
15	0000	0710	CULG				0000	0024	1				IIIS
			CULG				0000	0631	1				N,RS,DP
			CULG				0000	0530	1				N,SCINTILL
			CULG				0000	0659	1				IS,C,DC
	0000	1000	MANI										
			CULG				0024	0631					IIIS,W
			CULG				0024	0710	1				IIIN
			CULG				0112	0112.5	2				IIIG,U
	0519	1839	WEIS				0410.0	1821.0	2				IN,DC
	0405	0504	WEIS				0418.0	1814.0	1				IIIN
			CULG				0605.5		2				IIIB
	0910	2417	SGMR										
			WEIS				1234.1	1234.6	2				IIIG
	1215	2245	HARV				1234		2				IIIG
			HARV				1927	1928	1				IIIG
			HARV				2036	2039	1				IIIG,W
	2032	2400	CULG				2102	2308					IS,W
			CULG				2109	2110.5	1				I
			CULG				2112	2400					IIIN,W
			CULG				2113	2242	1				N,RS,DP
	2130	2400	MANI										
			CULG				2242	2243	1				IIIG
			HARV				2242	2243	1				IIIG
			CULG				2247.5	2248.5	1				IIIG
			CULG				2247.5	2248	3	2247.5	2248	1	IIIG
			CULG				2316.5		1				IIIG
16	0000	0732	CULG				0000	0632					IIIN,W
	0000	1000	MANI										
			CULG				0029.5	0030	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

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			CULG	0031.5	0032.5	1	0030.5	0032.5	2	0031.5	0032.5	2	IIIGG
			CULG				0106	0138					IS,W
			CULG				0133		1				IIIB
			CULG				0138	0244	1				IS
			CULG				0244	0534					IN,W
	0405	1020	WEIS				0420.0	1808.0	2				IIIN
			CULG				0550	0552	1				IIIGG
			CULG				0554	0554.5	1				IIIG
			CULG				0613	0613.5	2				IIIG
			CULG				0615.5	0616	2				IIIG
			CULG				0619	0620	2				IIIG
			CULG				0632	0656	1				IIIS
	0910	2418	SGMR				1100.8	1100.6	2				IIIG
	1107	1840	WEIS										
	1215	2245	HARV				1452		1				IIIB,W
			HARV				1544		1				IIIG,W
			SGMR				1610.1	1610.5	2				V
			HARV				1610		2				IIIG
			SGMR				1647.8	1648.1	2				V
			HARV				1648	1653	2				IIIG
			SGMR				1800.0	1806.8	2				IIIS
			HARV				1800	1801	1				IIIG
			HARV				1807		2				IIIG
			HARV				1842		1				IIIB,W
	2032	2400	CULG				2129	2131.5	2				IIIGG
			SGMR				2130.1	2131.1	2				V
			HARV				2130	2134	3	2130	2143	3	IIIGG
	2130	2400	MANI										
			CULG				2132.5		1				IIIB
			CULG	2133.5	2134	1	2133.5	2134	2	2133	2134	2	IIIG
			SGMR				2133.8	2134.0	1				III
			CULG				2254	2400					IS,W
17	0000	0733	CULG				0000	0120					IS,W
	0000	1000	MANI										
			CULG				0009	0014					IIIN,W
			CULG				0215.5		1				UNCLF
			CULG				0312.5	0313					IIIG,W
			CULG				0336	0337	1	0336.5		1	IIIG
			CULG				0343.5		1				IIIG
	0405	1610	WEIS				0521.0	1759.0	2				IIIN
			CULG				0521	0521.5	2				IIIB,V
			CULG				0614		1				IIIB
			CULG	0621.5		1							IIIB
			CULG				0647.5	0649.5					IIIG,W
	1640	1840	WEIS				0959.7	1025.6	3				IIIGG
	0910	2419	SGMR				1001.5	1005.5	2				V
			SGMR				1110.3	1147.0	2				IIIS
			WEIS				1215.1	1222.6	3				IIIGG
			SGMR				1215.8	1221.2	3				V
	1215	2245	HARV	1220		1	1217	1222	2				IIIGG
			SGMR				1245.4	1246.1	2				V
			SGMR				1304.6	1305.4	3				V
			HARV				1305		2				IIG,V
			SGMR				1429.4	1439.4	2				IIIG
			HARV				1430	2217	1				IIIN
			SGMR				1634.3	1635.0	2				V
			HARV				1634	1647	3	1637	1643	3	IIG,N
			SGMR				1636.6	1637.1	3				V
			SGMR				1641.7	1644.1	3				V
			SGMR				1645.2	1647.2	2				V
			SGMR				1713.0	1716.0	2				V
			HARV				1713	1715	3	1713	1715	3	IIIG,V
			SGMR				1724.8	1725.0	1				III
			HARV	1749		2	1749		2				IIIG
			HARV				1916		2				IIIG
			SGMR				1935.7	1735.9	1				III
			HARV				1936		3				IIIB
			HARV				1953	1954	2				IIIG
	2033	2400	CULG				2107.5	2109.5					IIIG,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

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
17			CULG				2108		1				IIIB
	2133	2400	MANI										
			CULG				2135.5	2136.5					IIIG,W
			CULG				2147.5						IIIB,W
			SGMR				2154.2	2154.4	1				III
			CULG				2154	2155.5	2				IIIG,V
			HARV				2154		2				IIIG
			CULG				2215.5	2217					IIIGG,W
			CULG				2221.5						IIIB,W
			CULG				2228.5	2229					UNCLF,W
			CULG	2233.5	2234	1							I
			CULG				2308	2340					IS,W
			CULG				2322.5	2323.5					IIIG,W
			CULG				2347.5						IIIB,W
18	0000	1000	MANI										
	0000	0733	CULG				0049.5		1				IIIB
			CULG				0050	0208					IIIN,W
			CULG				0113	0114	2				IIIG
			CULG				0139.5	0142	1				IIIG
			CULG				0159	0159.5	2				IIIG
			CULG	0203	0203.5	1	0203	0203.5	1				IIIG
			CULG	0208.5		1							IIIB
			CULG				0231.5		1				IIIB
			CULG				0248.5		1				IIIB
	0405	1841	WEIS				0410.0	1804.0	2				IIIN
			CULG				0410.5	0411					IIIG,W
			WEIS				0622.4	0625.6	2				IIIGG,RS
			CULG	0623.5	0624.5	1	0622.5	0626	3				IIIG,V
			CULG				0625.5	0637.5	3				IIH
			WEIS				0626.3	0837.0	3				II HARM
			CULG				0627.5	0628	1				IIIG
			CULG				0633	0635	2				IIIG
			CULG				0648.5						IIIB,W
	0910	2419	SGMR				1200.9	1201.1	1				V
			SGMR				1216.5	1216.8	1				III
			SGMR				1514.0	1514.2	1				III
			WEIS				1810.9	1813.4	2				IIIGG,U
			SGMR				1811.0	1812.4	2				V
	1215	2245	HARV				1811	1813	3				IIIGG,V
			WEIS				1818.1	1826.3	2				II
			HARV				1818	1829	2				II
			SGMR				1912.8	1913.0	2				III
			HARV				1913	1919	2				IIIGG
			SGMR				2013.7	2013.8	2				III
			HARV				2013	2015	2				IIIG
			HARV				2038	2039	3				IIIG
			HARV				2100	2107	3				IIIGG
	2033	2400	CULG				2101	2256					IIIN,W
			CULG	2104	2112								IS,W
			SGMR				2105.9	2106.2	3				V
			CULG				2106	2106.5	3				IIIB
			CULG				2107		1				IIIG
			CULG				2116	2400					IS,W
	2131	2400	MANI										
			SGMR				2159.4	2159.5	1				V
			CULG	2159.5	2200	1	2159.5	2200	1				IIIG
			CULG				2256	2315					IIIS,W
			CULG				2301		1				IIIB
			CULG				2305.5	2306.5	2				IIIG,V
			CULG	2358	2359	1	2358	2400	3	2359	2400	1	IIIGG
19	0000	0733	CULG				0000	0002					IS,W
	0000	0955	MANI										
			CULG				0002	0002.5					IIIG,W
			CULG				0003	0003.5					IIIG,W
			CULG	0011.5	0012								I,W
			CULG				0015.5						IIIB,W
			CULG				0102.5	0103	1				UNCLF
			CULG				0102	0103	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

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	
19			CULG				0154.5						IIIB,W
			CULG				0249						IIIB,W
			CULG				0307.5	0310.5					IIIG,W
			CULG				0403.5		1				IIIB
	0405	0713	WEIS				0554.0	1832.0	2				IIIN
			CULG				0554.5	0555.5	1				IIIG
			CULG				0643.5	0644	1				IIIG
			CULG				0646	0646.5	1				IIIG,W
			CULG				0643						IIIB,W
			CULG				0704	0704.5					IIIG,W
	0910	2419	SGMR				1033.4	1036.1	2				IIIG
	0718	1841	WEIS				1033.5	1036.1	2				IIIGG
			SGMR				1237.7	1238.1	2				V
	1215	2245	HARV				1238		1				IIIB
			SGMR				1307.5	1307.9	1				V
			SGMR				1311.7	1312.4	1				V
			HARV				1312		2				U
			SGMR				1525.8	1526.9	1				V
			SGMR				1827.0	1827.3	2				III
			HARV				1827	1831	2				IIIG
			SGMR				1830.0	1831.4	3				V
			HARV				1935		1				IIIB,W
	2130	2400	MANI										
	2033	2400	CULG				2142	2400					IIIN,W
			CULG				2150.5	2151	1				IIIG
			CULG	2239.5	2240.5	1	2239.5	2242.5	2				IIIGG,U
			SGMR				2239.7	2239.9	1				III
			HARV				2240		2				IIIG
			CULG				2355	2355.5	1				IIIG
20	0000	0959	MANI										
	0000	0727	CULG				0013	0643					IIIN,W
			CULG				0057		1				IIIB
			CULG				0245	0245.5	1				IIIG
			CULG				0255	0256					IIIG,W
			CULG				0314	0314.5	1	0314	0314.5	1	IIIG
	1217	1841	WEIS				0420.3	0421.0	2				IIIG
			CULG				0420	0421	3	0420.5	0421	2	IIIG,V
	0405	1213	WEIS				0422.0	1749.0	2				IIIN
			CULG				0502		1				IIIB
			WEIS				0516.3	0516.5	2				IIIG
			CULG				0516	0516.5	2				IIIB
			CULG				0558.5	0559.5	1				IIIG
			CULG				0614	0615	1				IIIG
			CULG				0617.5	0619	2				IIIG
	0911	2418	SGMR				1259.5	1258.8	1				V
			WEIS				1437.6	1440.6	2				IIIG
			SGMR				1438.4	1441.6	3				V
	1215	2245	HARV				1439	1440	1				IIIG
	2131	2400	MANI										
	2035	2400	CULG				2250.5	2253	3	2252	2252.5	1	IIIG,V
			SGMR				2252.0	2252.3	2				V
			CULG				2302.5	2303	1				IIIG
			CULG				2316	2316.5					IIIG,W
			CULG				2322	2324.5	2				IIIG
			CULG				2323.5	2324	1				UNCLF
21	0000	0955	MANI										
	0000	0734	CULG				0004.5		1	0004.5		1	IIIB
			CULG				0139	0142.5	2	0140	0142.5	2	IIIG,V
			CULG				0206.5	0207	1				UNCLF
			CULG				0322	0648					IIIN,W
	0405	1710	WEIS										
			WEIS				0412.0	1625.0	2				IIIN
			CULG				0541.5		1				IIIB
	0911	2419	SGMR				1208.8	1209.7	1				V
	1215	2245	HARV										
			SGMR				1246.9	1305.1	1				IIIG
			SGMR				1408.0	1442.1	1				IIIS
			SGMR				1511.6	1512.0	2				V

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

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
21	1718	1842	WEIS										
	2034	2400	CULG										
	2130	2400	MANI										
22	0000	0955	MANI										
	0000	0733	CULG	0032	0100								IN,W
			CULG				0116	0116.5	1				IIIG
			CULG				0128.5						IIIB,W
			CULG				0231	0231.5	2	0231	0231.5	1	IIIG
			CULG				0249.5	0252	3	0250	0251.5	2	IIIG,V
	0405	0721	WEIS				0448.0	0546.0	2				IIIN
			CULG				0448.5	0454	2	0451.5	0452	1	IIIGG,U
			CULG				0449	0451	1				CONT
			CULG				0452.5	0453	2			II	POSS
			WEIS				0453.3	0453.7	2				U
			CULG				0456	0625					IIIN,W
			CULG				0501	0638	1				IS,C
	0941	1842	WEIS										
	1215	2245	HARV										
	0911	2419	SGMR				1937.9	1946.0	2				IIIG
	2034	2400	CULG										
	2134	2400	MANI										
23	0000	0244	MANI										
	0000	0734	CULG				0207.5						IIIB,W
	0250	0955	MANI										
			CULG				0254	0254.5					UNCLF,W
			CULG				0325	0328	1				IIIGG
	0406	0654	WEIS				0533.0	1745.0	1				III
			CULG				0534	0535					IIIG,W
	0735	1842	WEIS										
	0911	2419	SGMR				1714.0	1714.3	1				III
	1215	2245	HARV				1714		1				IIIG,W
			SGMR				1735.5	1741.2	1				IIIG
	2034	2400	CULG				2131	2131.5	1				IIIG
			CULG				2132	2243					IN,W
	2132	2400	MANI										
24	0000	0955	MANI										
	0000	0735	CULG				0039.5						IIIB,W
			CULG				0100.5	0101	3	0100.5	0101	2	IIIG
			CULG				0214	0255	1				IS
			CULG				0240	0242.5	2	0240.5	0242	1	IIIG,V
			CULG				0255	0411	1				IS
			CULG				0255	0317					IIIS,W
			CULG				0301.5		1				IIIB
			CULG				0306.5		2				IIIB
			CULG				0316.5		1				IIIB
	0406	1220	WEIS				0435.0	1824.0	2				III
			CULG				0436	0519					IIIN,W
	1224	1843	WEIS										
	0911	2419	SGMR				1251.6	1252.3	2				V
			SGMR				1314.0	1314.5	2				III
			SGMR				1603.2	1610.1	1				IIIG
	1215	2245	HARV				1607	1610	2				IIIGG
			SGMR				1808.8	1823.4	2				IIIG
			HARV				1809	1823	2				IIIGG
	2034	2400	CULG				2116	2212					IS,W
	2130	2400	MANI										
25	0000	1004	MANI										
	0000	0716	CULG				0049.5						IIIB,W
			CULG				0133	0643					IIIN,W
			CULG				0231	0231.5	2	0231	0231.5	1	IIIG
			CULG				0246	0249					IIIGG,W
			CULG				0420						I,W
	0406	1725	WEIS				0442.0	1443.0	1				IN
			CULG				0526.5	0528	2				UNCLF
			WEIS				0526.7	0530.6	2				IIIG
			CULG				0528.5	0532	3				IIIG,V

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
25			CULG				0532.5	0606	3				IIH
			WEIS				0532.8	0557.5	3				II HARM
			WEIS				0553.4	0553.7	1				IIIG
			CULG				0553.5	0554	1				IIIG
	0726	0734	CULG										
			WEIS				1052.3	1052.4	1				IIIG
			WEIS				1056.6	1056.7	2				IIIG
			WEIS				1127.9	1128.5	2				IIIG
	0912	2420	SGMR				1127.9	1128.2	2				V
			WEIS				1342.5	1356.2	1				IIIG
			WEIS				1352.2	1352.4	1				IIIB
			WEIS				1407.0	1410.2	2				IIIG
			SGMR				1408.4	1428.2	1				IIIG
	1215	2245	HARV				1408	1410	2				IIIG
			WEIS				1417.6	1417.8	1				IIIG
			WEIS				1425.3	1432.3	2				IIIG
			HARV				1425	1432	1				IIIG
	1733	1843	WEIS										
			HARV				2004		1				IW
			SGMR				2037.2	2039.0	2				IIIG
			HARV				2037	2039	1				IIIG
	2035	2400	CULG				2138	2357					IIIN,W
	2139	2400	MANI										
			CULG				2225		1				IIIB
			CULG				2227.5		1				IIIB
26	0000	0950	MANI										
	0000	0735	CULG				0022	0650					IIIN,W
			CULG				0025	0029	2	0025	0028	1	IIIGG
			CULG				0037	0148					IN,W
			CULG				0053	0058.5					IIIGG,W
			CULG				0135.5	0136	1	0135.5	0136	1	IIIG
			CULG				0200.5	0203.5	2	0201.5	0203	1	IIIGG
			CULG	0250.5	0251								IIIG,W
			CULG				0403		1				IIIB
	0407	1843	WEIS				0424.0	1242.0	2				IIIN
			CULG				0424	0425	3				IIIG,V
			CULG				0428.5	0432.5	1	0428.5	0432.5	1	IIIG
			CULG				0540.5	0541	2				IIIG
			CULG				0621		1				IIIB
			CULG				0635	0637	2				IIIG
			WEIS				1023.6	1028.0	2				II HARM
	1215	2245	HARV				1858	1901	3				IIIGG
	0912	2419	SGMR				1900.0	1900.9	1				IIIG
			HARV				2200		2				IIIB
	2035	2400	CULG				2214	2400					IIIN,W
			MANI										
27	0000	0735	CULG				0004.5	0005	1	0004.5	0005	1	IIIG
			CULG				0129	0129.5		0129	0129.5		IIIG,W
			CULG				0151.5	0152					IIIG,W
			CULG				0205.5		1				IIIB
			CULG				0233						IIIN,W
	0407	0742	WEIS				0437.0	1823.0	1				IIIN
			CULG				0440.5		1				IIIB
			CULG				0558	0558.5	1				IIIG
			CULG				0610.5		1				IIIB
			CULG				0611.5	0612	1				IIIG
			CULG				0633	0634	1				IIIG
			CULG				0656.5	0657.5	2				IIIG
	0812	1843	WEIS										
	0904	0957	MANI										
	0913	2420	SGMR				1414.7	1414.9	1				V
			SGMR				1446.4	1446.5	1				III
			SGMR				1503.5	1503.8	1				V
			SGMR				1656.5	1656.8	1				V
	1215	2245	HARV				1656		1				IIIB
			SGMR				1709.0	1709.6	1				V
			SGMR				1821.4	1829.8	1				IIIG
			HARV				1823		1				IIB ,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
27			SGMR				1951.4	1951.7	1				V
			HARV				1951		1				IIIG,W
	2132	2400	MANI										
			SGMR				2153.0	2154.1	1				V
	2035	2400	CULG				2153	2154	1				RS,DP
			CULG				2153	2154.5	1				IIIG
			CULG				2209	2211.5					IIIGG,W
			CULG				2212.5						IIIB,W
			CULG				2328			2328.5			IIIB,W
28	0000	0955	MANI										
	0000	0735	CULG				0110						IIIB,W
			CULG				0238.5	0239.5					IIIG,W
			CULG				0240	0242	2	0240	0242	2	IIIG,V,U
			CULG				0404		1	0404		1	IIIB
	0408	1004	WEIS				0424.0	1736.0	2				IIIN
			CULG				0437	0439					IIIGG,W
			CULG				0501.5	0503.5	1				IIIG
			CULG				0505.5	0506					IIIG,W
			CULG				0515.5	0516					IIIG,W
			CULG				0545	0707	1				IS,DC
	1453	1843	WEIS				0601.0	0709.0	2				IS,DC
			CULG				0615.5						IIIB,W
	0913	2420	SGMR				1239.7	1240.0	1				V
	1215	2245	HARV				1244	1840	1				I
			SGMR				1431.0	1431.2	1				V
			SGMR				1502.0	1502.5	3				V
			SGMR				1502.5	1503.0	1				IIIG
			HARV				1502		2				IIIG
			SGMR				1735.0	1736.7	1				IIIG
			HARV				1736		1				IIIG
			SGMR				1814.1	1816.1	1				IIIG
			HARV				1840	2040	2				I
			HARV				2040	2245	1				I
	2035	2400	CULG	2108	2323	1							IN
			CULG				2113.5	2114					IIIG,W
	2135	2400	MANI										
			CULG				2305.5	2306	2				IIIG
			CULG				2307						IIIB,W
			CULG				2309						IIIB,W
29	0000	0955	MANI										
	0000	0735	CULG				0012						IIIB,W
			CULG				0013	0013.5					IIIG,W
			CULG	0100	0132								IN,W
			CULG				0135	0135.5					IIIG,W
			CULG	0200	0203	1							I
			CULG	0234	0235	1							I
			CULG				0358.5	0359					IIIG,W
			CULG				0408.5	0409					IIIG,W
	0408	1843	WEIS				0530.0	1829.0	2				IIIN
			CULG				0545.5						IIIB,W
			CULG				0626.5						IIIB,W
			CULG				0641.5		1				IIIB
			CULG				0649.5	0650.5	2				IIIG
	1215	2245	HARV				1238		1				IIIB,W
			HARV				1444		1				IIIB,W
	0913	2420	SGMR				1453.9	1454.6	2				V
			HARV				1635		1				IIIB
			HARV				1824	1829	2				IIIG
	2035	2400	CULG				2128.5						IIIB,W
	2135	2400	MANI										
			CULG				2205	2206					IIIG,W
			CULG				2222	2222.5	1				IIIB
			HARV				2222		1				IIIB
			CULG	2223		2							IIIG
			CULG				2317.5						IIIB,W
			CULG				2318	2318.5	1				I
			CULG				2320.5		1				IIIB
			CULG	2327	2327.5	1							IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
29			CULG				2348.5	2349	1	2348.5	2349	1	IIIG
30	0000	0907	MANI										
	0000	0719	CULG				0110.5						IIIB,W
			CULG				0126	0126.5					IIIG,W
			CULG				0139.5						IIIB,W
			CULG	0404.5	0405								I,W
			CULG				0413	0414					IIIG,W
			CULG				0413		3				IIIB
	0408	0425	WEIS				0414.0	1723.0	2				IIIN
			CULG				0458.5	0459.5	1				I
			CULG				0603.5						IIIB,W
			CULG				0605.5	0606					IIIG,W
			CULG				0624	0655	1				IS,C,DC
	0848	1843	WEIS				0913.0	1813.0	2				IN
	0914	0955	MANI										
	1215	2245	HARV				1215	1830	2				I
	1245	2420	SGMR										
			HARV				1618	1621	2				IIIG
	0913	0924	SGMR				1619.2	1620.3	1				IIIG
			HARV				1830	2245	3				IC
	2035	2400	CULG	2106	2126	1	2108	2255	1				IS,DC
			CULG				2111	2400					IIIN,W
			HARV				2111		1				IIIG
	2134	2400	MANI										
			CULG				2249.5		1				IIIB
			CULG				2253	2253.5	1				RS,DP
			CULG				2255	2400					IS,W

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 Monitors)

June 1979	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)/256	KULA Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	4201.2	6874.7	6522.1		5843.8	3888.2	3589.4		1716.1
2	4243.0	6923.7	6554.8		5871.3	3899.1	3609.0		1721.9
3	4250.0	6935.8	6569.4		5905.0	3903.2	3609.7		1727.0
4	4240.0	6941.1	6558.1		5901.0	3901.1	3617.8		1723.5
5	4233.5	6911.9	6585.7		5916.9	3912.9	3608.1		1721.5(38)
6	4248.3	6928.0	6590.1		5911.0	3910.0	3606.0		1724.8
7	4049.2	6605.8	6259.4		5655.1	3726.3	3497.5		1675.6
8	4059.4	6626.9	6225.6		5659.8	3697.8	3493.8		1675.4
9	4085.1	6663.5	6278.3		5711.4	3741.4	3523.0		1687.7
10	4103.2	6690.9	6301.8		5718.2	---- (00)	3544.7		1696.7
11	4128.0	6738.0	6356.5		5744.5	---- (00)	3552.6		1707.1
12	4125.1	6443.3	6384.5		5748.0	3771.6(10)	3555.0		1708.7
13	4135.8	6730.0	6380.2		5763.4	3752.5	3555.7		1708.7
14	4134.4	6734.2	6392.2		5765.6	3778.3	3563.5		1710.7
15	4181.0	6761.8	6389.2		5785.3	3796.4	3566.8		1711.5
16	4172.2	6785.4	6397.9		5786.0	3812.2	3570.7		1715.3
17	4165.3	6774.5	6394.2		5760.8	3818.8	3576.0		1714.6
18	4151.1	6767.5	6403.6		5763.2	3815.4	3574.4		1708.5(36)
19	4176.7	6799.5	6446.6		5788.1	3832.6	3570.8		1711.4
20	4164.6	6809.6	6440.9		5807.8	3812.8	3565.4		1709.3
21	4165.0	6804.5	6407.9		5801.2	3791.7	3556.1		1705.6
22	4151.0	6768.0	6376.3		5772.9	3789.7	3562.5		1706.0
23	4131.9	6742.9	6379.0		5767.6	3788.2	3559.1		1701.3
24	4110.8	6714.5	6344.0		5743.9	3753.8	3549.2		---- (00)
25	4111.7	6710.1	6376.5		5745.5	3761.7	3548.3		1699.4(36)
26	4144.5	6761.7	6391.5		5774.4	3774.0	3561.2		1705.8
27	4153.1	6790.0	6421.6		5795.3	3808.7	3572.5		1713.3
28	4174.0	6801.6(20)	6473.4		5824.6	3829.0	3580.3		1718.8
29	4210.1	---- (00)	6507.0		5869.7	3852.7	3583.1		1723.5
30	4243.5	6943.8(09)	6543.9		5907.8	3887.6	3599.8		1729.8
MEAN	4161.4	6785.6	6421.7		5793.6	3816.0	3567.4		1709.7

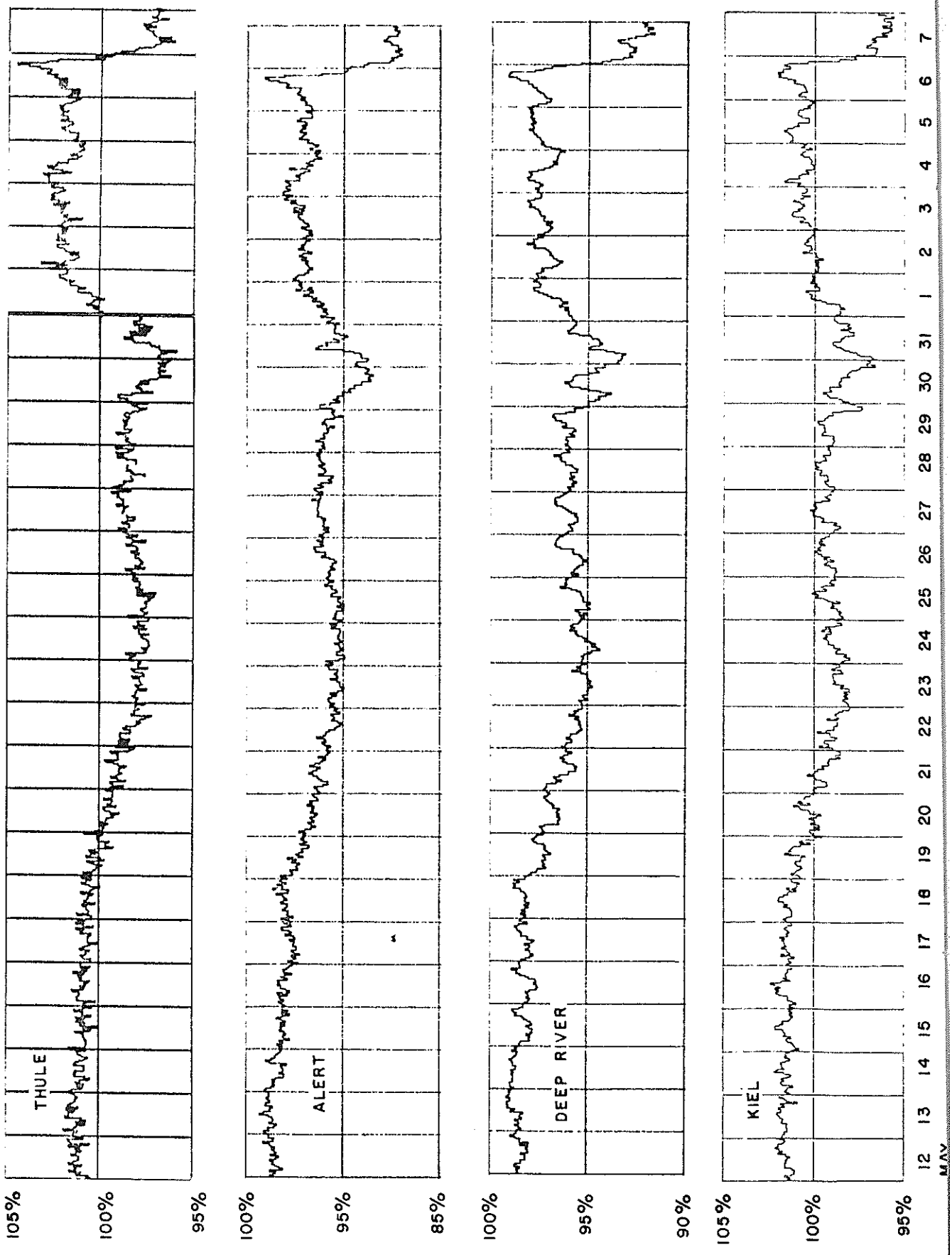
Data not available at time of publication.

Data not available at time of publication.

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

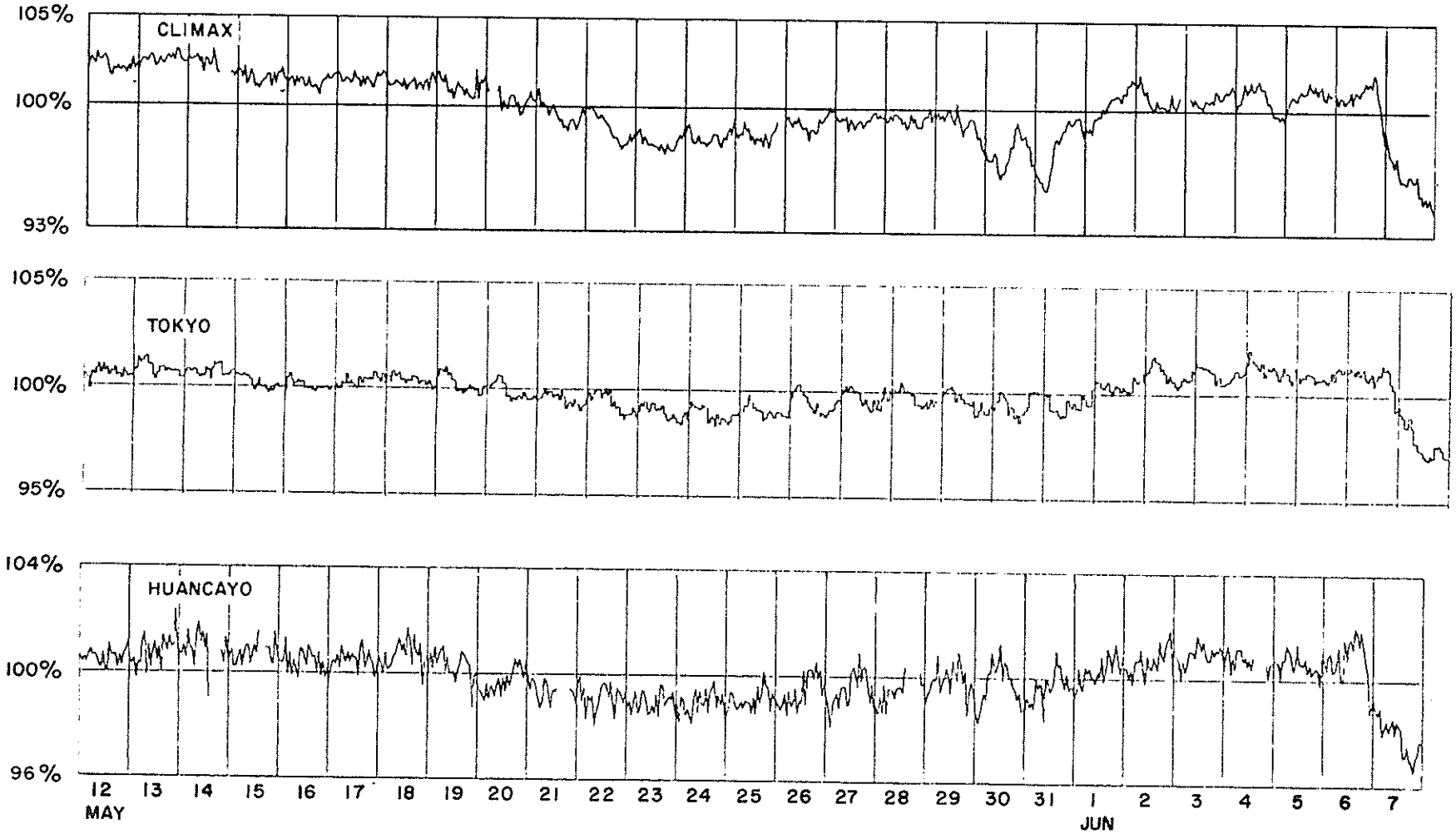
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1993 (May-June 1979)



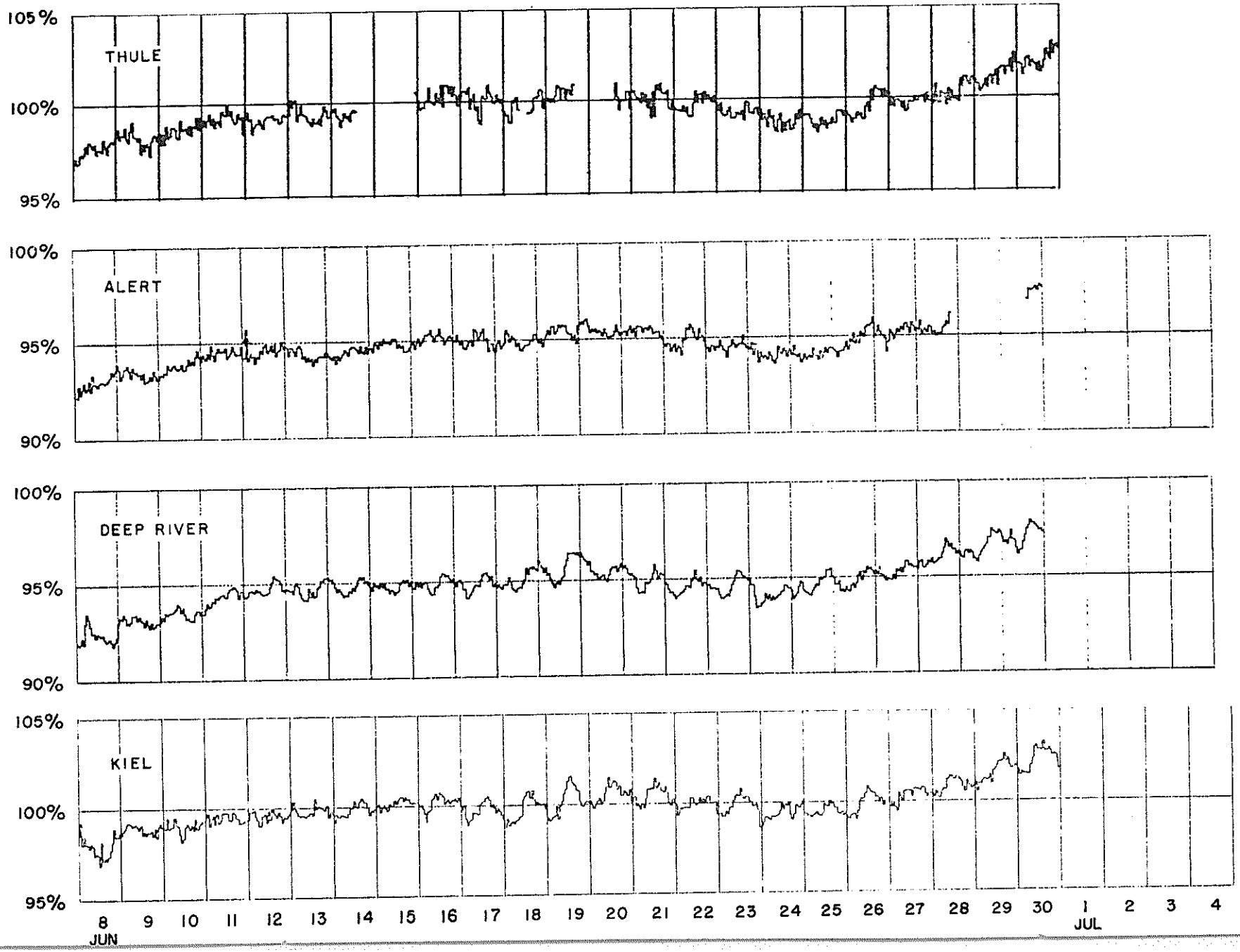
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1993 (May-June 1979)



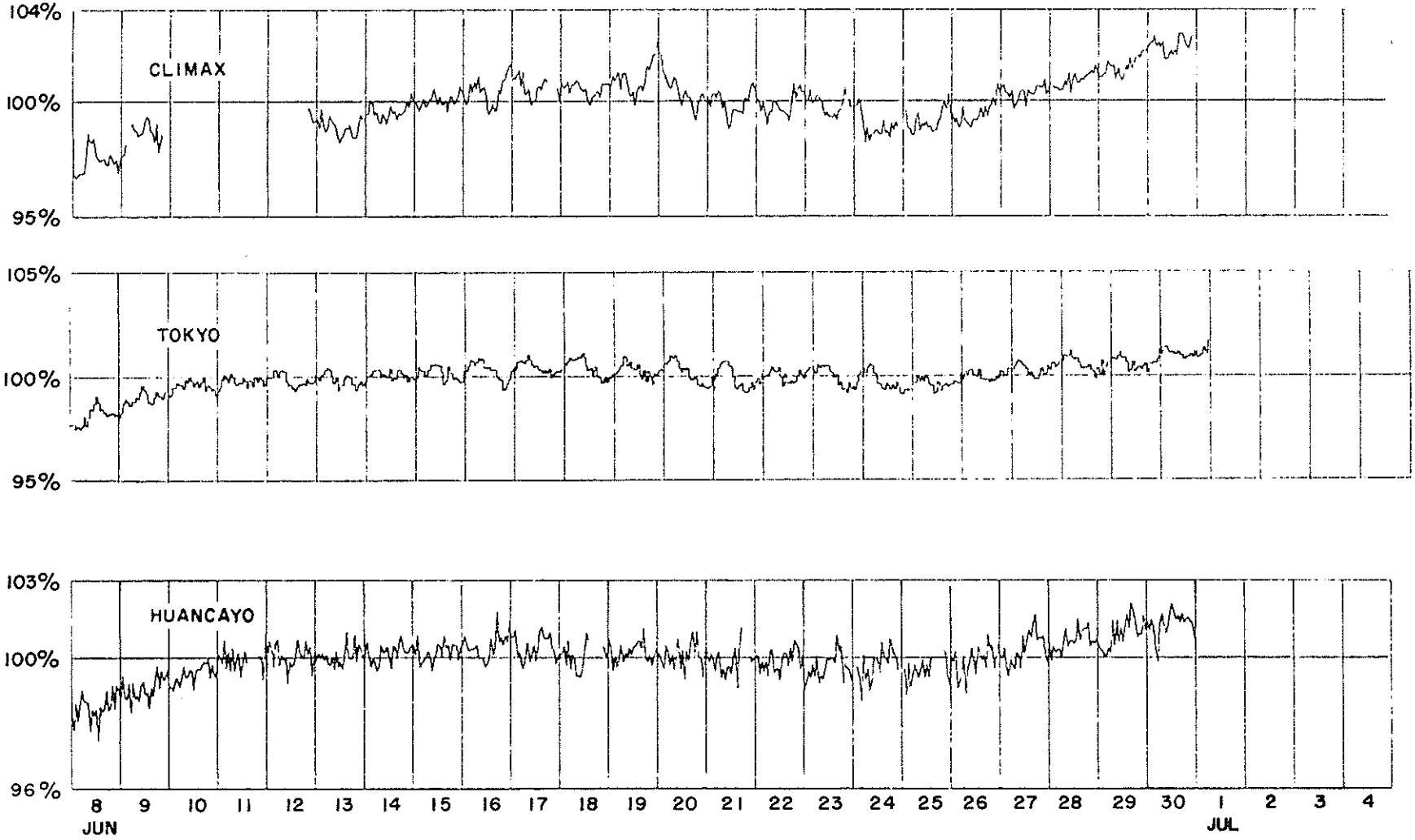
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1994 (June-July 1979)



COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1994 (June-July 1979)



GEOMAGNETIC ACTIVITY INDICES

JUNE 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	Q4	1-	1	1	1	1-	1+	1	3-	9+	1	1	1+	1-	0+	1+	1-	2-	5	14	4	7	12	CC	0.2
2	Q6	2-	2-	1-	2	1+	1	1-	3-	12-	1+	2	1-	2-	1	1	0+	2+	6	16	4	11	10	CC	0.3
3	Q2	1-	0+	0+	1	1+	1+	1+	2-	8	1	0	0+	0+	1	1	1+	2-	4	11	6	2	15	CC	0.1
4	Q7	1+	2-	2-	2	2	1+	2	1-	13-	1+	1+	2-	2	2-	1	1+	0+	6	16	8	11	13	KK	0.3
5	Q1	1	1	2-	1	1+	1-	1-	1-	8	1-	1-	1	1-	1+	1-	1-	0+	4	14	4	13	6	CK	0.1
6	D2	1	1+	1-	3-	4-	3	7	6	25+	1-	2-	1-	2+	3	3-	5+	5	34	51	28	9	70		1.3
7	D1	4-	5	5-	2-	3	4+	4+	3+	30	4-	5-	4-	2-	3-	3+	3	3	26	43	25	37	33		1.2
8		3	3-	2+	3-	3-	3	4-	3-	23-	3	3-	2+	2	2	2+	3-	2+	14	28	14	20	23		0.8
9		2+	3-	2+	3+	3+	4-	4-	3-	24	2+	3-	2+	3-	2+	3	3+	3-	15	29	20	21	29		0.9
10		2+	3-	3	3	3	3+	3+	2+	23	2+	2+	3	3	2+	3-	3-	2	14	29	20	22	28		0.8
11		2+	3	2+	2	3	3-	2-	2	19	2-	3-	2+	2-	2+	2	1+	2-	10	22	12	16	18		0.6
12	Q9A	2	2+	2-	1-	1	1-	3	2	13+	2	2+	2-	1	1-	1-	2	2-	7	13	5	9	10	CK	0.3
13		1+	1	0+	1+	3-	3	2+	3-	15-	1+	0+	0+	1+	2+	2+	2-	2+	8	15	9	6	19	KC	0.4
14		2+	2+	2-	2-	2-	2+	2-	1+	15	2-	2+	2-	2	1+	2-	1+	1	7	18	7	13	12	CC	0.4
15		1	2+	3-	1+	3-	2+	3-	3	18	1-	2	3-	2-	2	2-	2+	2+	10	16	10	10	16	C	0.5
16	D5*	3-	3-	3+	2+	4	3-	4-	3	24+	3-	3	3+	3-	4-	3-	3	3	16	29	22	19	33		0.9
17		2+	3+	2+	2	4-	4	3	2	23-	3-	3	2	2	3-	4-	3-	2-	14	28	24	28	34		0.8
18	Q5	1+	2+	2-	1+	1	2-	2-	1+	12+	1+	2+	2-	1	1-	1-	1+	1-	6	16	4	10	11	C	0.3
19	Q8	1+	3-	2	1+	1+	1+	1+	2-	13	1+	3-	2	2-	1+	1	1	1+	6	15	7	11	11	CC	0.3
20		2-	1	2	1	2+	2+	3-	3-	16-	2-	1	2	1+	2+	2	3-	2+	8	21	10	7	24		0.4
21		2-	2+	3	2+	3	3+	4	4-	23+	2-	2+	3+	2+	3-	3-	3+	3+	15	34	21	14	42		0.9
22	D3	4	2	3+	3-	4-	4+	5+	3+	29-	4-	2-	3-	3-	3	4-	4	4-	24	36	29	26	39		1.2
23	D4*	3	4-	4	4-	3-	3-	3-	4	26+	3	4-	4-	3+	2+	3-	3-	4-	19	30	22	25	28		1.0
24		3-	3+	3	2	2-	1+	2	2	18	3-	3	3	2-	1+	1+	1+	2+	10	16	13	17	12		0.5
25		2+	3-	2+	2	2-	1+	3	2-	17	2-	3-	3-	2	2-	1+	3-	1+	9	18	15	16	18		0.5
26		0+	1	2-	2	5	4+	4+	4	23-	0+	1	1+	3-	4-	3+	3+	4-	20	39	23	9	53		1.0
27		3	3-	2+	3-	3-	3-	1+	0+	18-	3-	3-	2+	2+	3-	2+	1	0+	10	17	16	15	18		0.6
28	Q3	0+	1	2	1-	1-	1-	2-	1+	8+	0+	1-	2	0+	0+	1-	1	1+	4	9	4	5	8	CK	0.1
29	Q0A	1+	0+	0+	1+	2	2	3+	2+	13	1+	1-	0+	1+	2-	2	3	2	7	17	12	8	21	K	0.3
30		2	2-	2-	2-	2-	4-	2+	3	18-	2	2	2-	2-	1+	3-	1+	3-	10	22	8	9	22		0.5
																		Mean	12	22.7	13.5	18.4			0.58

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

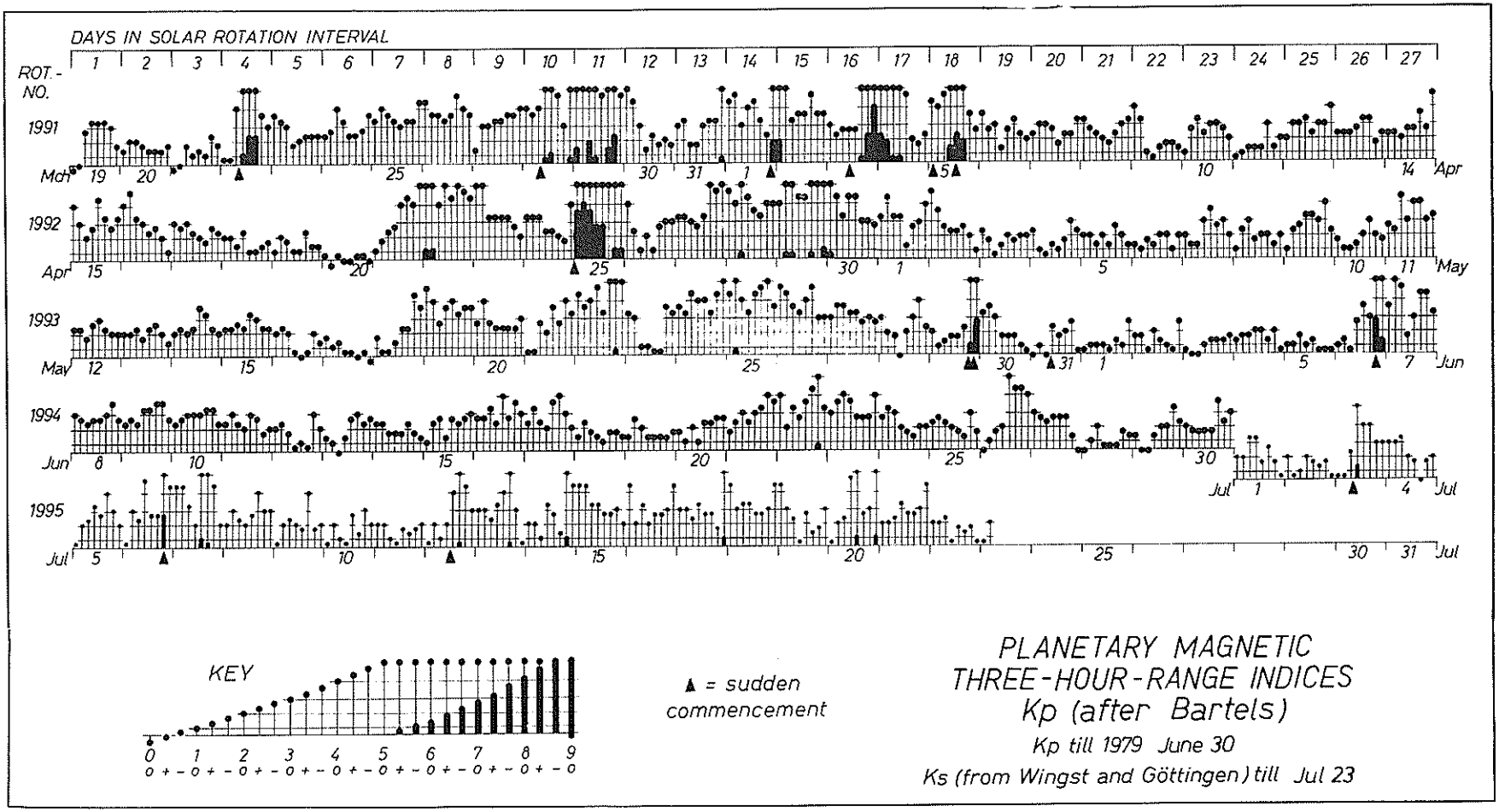
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) are prepared by Geophysikalisches Institut at the University of 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≥ 3o or two Kp values ≥ 3-"). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Kn, Ks and Km as in *IAGA-Bulletin No. 32* and indices aa ("antipodal") as in *IAGA-Bulletin No. 33* are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. Really quiet (C) and quiet but slightly disturbed three-hourly intervals (K) are given for 24-hour and 48-hour intervals centered on 1200 UT.

DAILY AVERAGE INDICES Ap

	1978						1979					
DAY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1	6	4	21	13	13	11	10	6	12	33	18	5
2	5	4	20	12	10	3	19	10	20	36	14	6
3	11	16	11	8	12	5	19	9	13	54	6	4
4	80	30	8	17	5	12	45	19	27	47	7	6
5	53	22	7	8	6	10	23	9	13	52	7	4
6	13	16	14	4	2	5	18	16	30	12	6	34
7	14	7	6	4	9	2	32	6	7	12	11	26
8	14	6	24	5	14	3	8	9	7	12	8	14
9	8	5	31	11	8	3	15	9	15	9	14	15
10	10	6	12	15	16	1	4	6	54	12	7	14
11	6	11	12	5	10	1	4	12	18	6	19	10
12	4	21	13	14	53	4	10	17	6	15	9	7
13	20	13	6	8	22	7	5	3	7	11	8	8
14	48	6	5	5	11	28	8	2	3	15	11	7
15	6	3	3	5	8	28	15	11	8	18	11	10
16	6	4	6	4	6	14	12	7	11	16	5	16
17	6	9	8	5	6	9	7	5	21	11	3	14
18	18	24	3	32	5	48	11	22	7	6	11	6
19	11	11	2	22	13	24	19	15	11	6	24	6
20	5	3	5	9	22	26	12	6	6	2	13	8
21	6	6	9	13	16	12	11	59	4	21	13	15
22	8	6	12	10	28	19	14	33	45	45	36	24
23	8	4	11	6	12	7	27	31	12	23	11	19
24	6	4	10	5	18	6	23	17	15	14	27	10
25	8	9	36	7	60	21	34	14	21	126	34	9
26	5	4	36	18	33	8	28	22	26	12	25	20
27	4	29	51	23	17	14	23	24	18	27	17	10
28	6	124	50	14	5	14	13	17	39	31	11	4
29	4	40	109	16	4	20	13		68	47	30	7
30	3	31	11	25	5	27	16		16	26	10	10
31	2	45		20		18	13		19		6	
MEAN	13	17	18	12	15	13	16	15	19	25	14	12

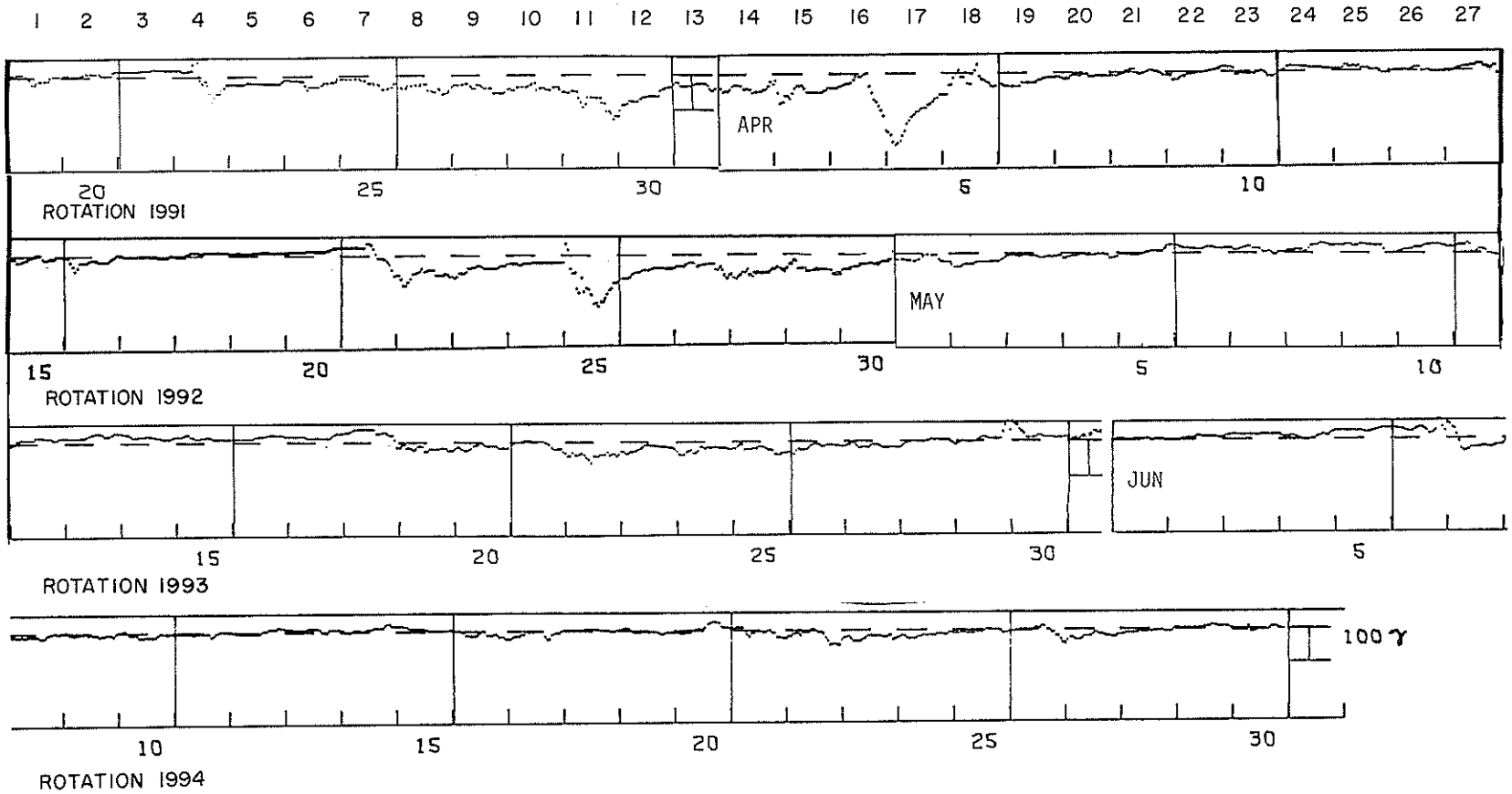
GEOMAGNETIC ACTIVITY INDICES



GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



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

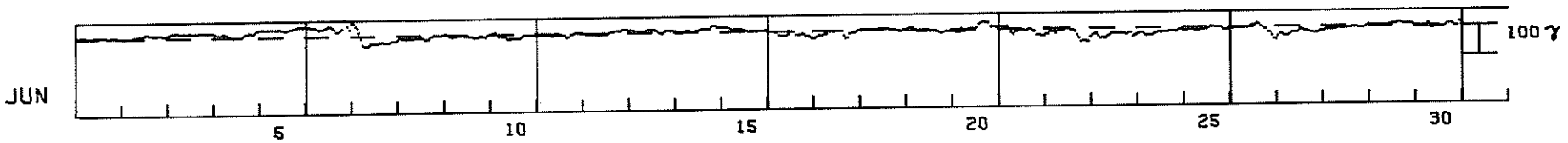
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

JUNE 1979

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	3	3	4	2	-1	-4	-4	-3	1	3	3	2	1	2	0	-1	-4	-5	1	1	0	-2	-5	-6
2	-4	-4	-4	-1	-1	1	3	3	5	2	3	7	11	10	5	4	4	4	6	5	4	2	2	3
3	10	12	13	14	13	11	10	11	12	12	11	11	11	11	11	12	14	14	11	10	12	14	14	11
4	7	3	7	7	10	9	5	1	-1	-5	-6	-3	-1	0	0	5	9	10	13	7	9	15	19	22
5	23	23	22	21	20	22	21	19	21	22	20	17	14	14	20	22	24	26	28	30	30	27	27	26
6	27	27	24	23	22	19	17	17	18	24	27	31	28	23	18	11	13	16	22	53	48	28	19	41
7	37	25	22	7	-13	-34	-38	-35	-32	-27	-25	-25	-25	-23	-22	-21	-27	-28	-27	-22	-19	-18	-20	-15
8	-9	-14	-11	-10	-14	-11	-15	-12	-10	-12	-10	-10	-13	-17	-16	-14	-8	-4	-1	-3	-3	-5	-1	0
9	2	-3	-3	-11	-10	-5	-4	-2	-2	-2	-9	-7	-8	-10	-12	-14	-10	-9	-6	-6	-11	-13	-4	1
10	2	4	5	-5	-10	-11	-10	-12	-18	-15	-15	-13	-15	-16	-17	-15	-9	-4	-6	-8	-6	-5	-6	-9
11	-5	-4	-5	-5	-8	-4	-9	-11	-8	-5	-4	-6	-6	-7	-8	-15	-12	-5	-2	1	2	-2	-2	-2
12	-4	-7	-6	-7	-9	-9	-8	-10	-8	-6	-5	-5	-5	0	3	3	7	4	5	5	11	8	8	5
13	6	6	3	1	1	1	0	2	6	9	7	5	6	6	2	-5	-7	-3	4	5	4	4	2	1
14	0	-4	-7	-5	0	4	1	0	-4	-4	4	6	7	9	10	7	6	7	15	20	17	12	12	13
15	11	13	10	9	6	3	8	7	7	5	4	2	-1	-3	-2	0	0	1	-1	0	0	1	3	2
16	-4	-2	-2	-7	-6	-14	-17	-18	-17	-14	-12	-5	-1	-3	-14	-15	-13	-10	-11	-19	-20	-21	-25	-27
17	-25	-19	-15	-17	-14	-11	-11	-4	-6	-3	-3	-2	-1	-1	-4	-18	-27	-23	-12	-8	-6	-7	-2	1
18	2	1	0	0	0	-1	-2	1	3	4	3	2	2	1	1	-2	-2	-2	-3	-5	-7	-3	1	2
19	3	7	7	3	-3	-8	-10	-7	-5	-4	-4	-6	-5	-5	-5	-8	-11	-14	-11	-8	-6	-9	-8	-9
20	-9	-12	-13	-11	-7	-8	-6	-1	2	-1	0	2	7	16	20	23	21	18	17	8	4	3	3	3
21	3	5	6	8	6	-4	-14	-21	-11	-8	-4	-3	-6	-10	-5	-1	-4	-11	-12	-22	-22	-26	-27	-25
22	-18	-17	-12	-10	-10	-17	-8	-9	-7	-5	1	0	-6	-10	-9	-13	-23	-34	-44	-40	-39	-46	-43	-28
23	-22	-19	-17	-28	-35	-32	-35	-36	-26	-23	-17	-18	-18	-20	-19	-17	-21	-24	-21	-16	-17	-30	-25	-22
24	-19	-16	-20	-25	-23	-25	-25	-25	-19	-17	-14	-18	-15	-14	-15	-15	-12	-13	-13	-15	-14	-8	-10	-13
25	-10	-9	-8	-9	-11	-13	-10	-12	-10	-7	-8	-8	-3	1	-1	-2	-4	-4	-2	-6	-12	-10	-8	-8
26	-6	-5	-3	-7	-3	-6	-6	-5	-6	-1	4	4	2	10	5	-2	-4	-11	-9	-20	-23	-31	-41	-45
27	-32	-25	-26	-32	-34	-31	-27	-21	-19	-21	-19	-13	-9	-13	-18	-16	-21	-23	-22	-25	-24	-20	-16	-16
28	-14	-12	-12	-14	-12	-12	-11	-7	-11	-9	-7	-6	-8	-6	-4	-4	-5	-6	-10	-10	-10	-4	1	4
29	-2	-3	-1	-1	0	-1	-2	-2	0	0	4	6	5	6	10	8	6	3	5	7	6	3	0	-7
30	-9	-9	-8	-5	-9	-8	6	-11	-10	-7	-4	-3	-3	-5	-4	0	5	6	4	-3	-5	0	11	6



Note: Due to the adoption of updated, improved baselines for the magnetic observatories used in the Dst calculation there is a discontinuity (of about 10 nT) in the reference level of the provisional Dst between the last hourly interval of May (distributed last month) and the first hour of June. Revised provisional Dst values based on the new baselines will be provided upon request. However, the baseline changes have no significant effects on relative values of Dst over period of one month or less. The final Dst values for 1979 will be published after the end of the year based on baselines further updated. The revision of baselines is related to the circumstance that during periods of high solar activity, accurate baseline determinations are more difficult than during years of low solar activity.

PRINCIPAL MAGNETIC STORMS

JUNE 1979

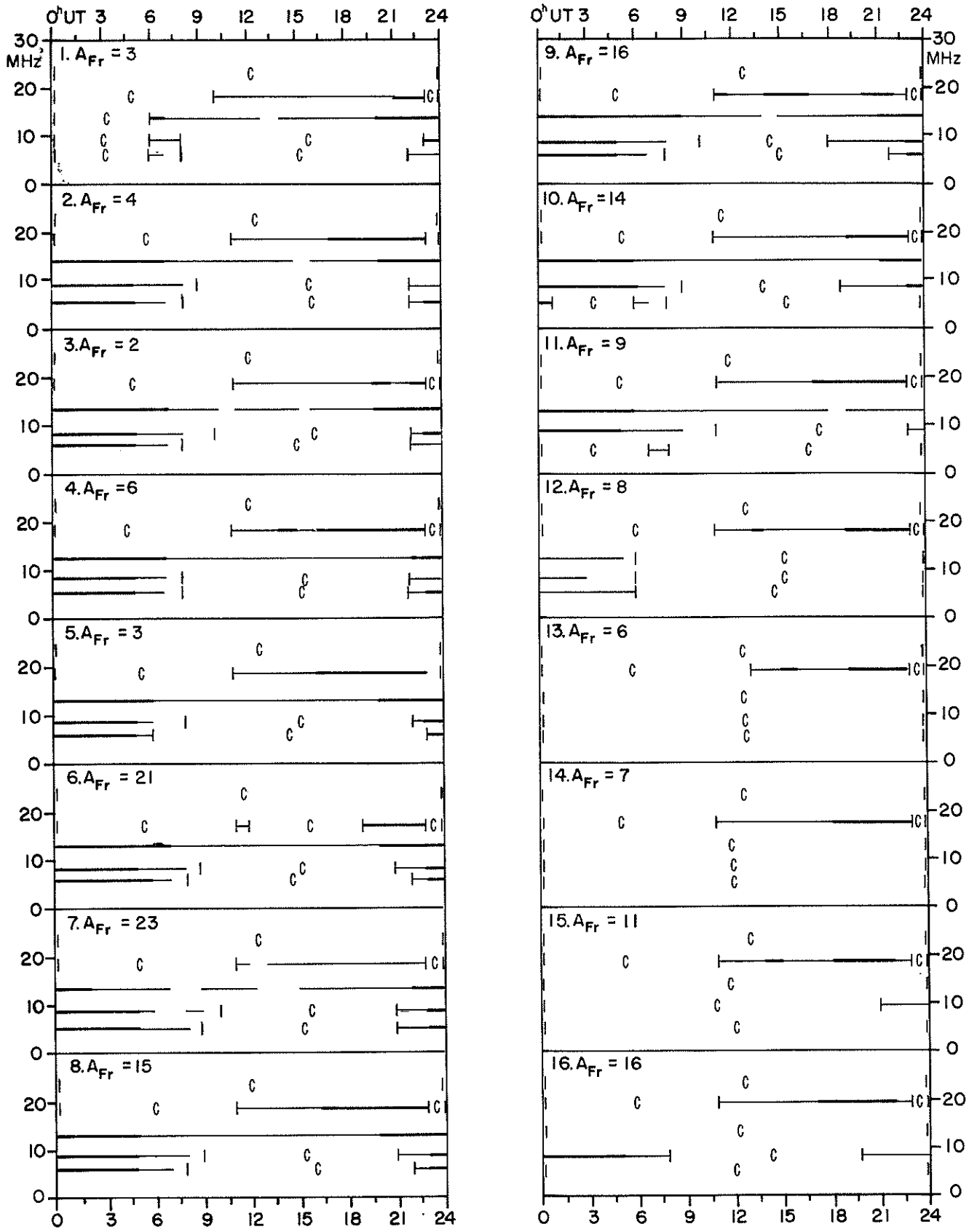
OBS. 3 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
COL	64.6N	6	1926	SC*	-56	-312	-70	07(2)	6	95	1290	440	08	11
NEW	55.1N	6	1926	SC*	13	84	6	06(7)	6	28	238	129	11	10
WIT	54.2N	6	1927	SC*	- 8 *	180 *	7	06(7)	7	32	290	22	07	08
FRD	49.6N	6	1927	SC*	6	44	-12	06(8)	6	22	205	58	11	09
IRK	41.0N	6	1927	SC	- 5.5	105	25	06(8)	7	32	221	55	08	12
SJG	29.9N	6	1927	SC	1	43	15	06(7)	5	6	108	36	10	06
HON	21.1N	6	1927	SC	4	15	6	06(7)	5	5	154	41	07	16
JAI	17.3N	6	1927	SC	- 2.3	91	-20	--	-	10	148	49	07	18
SHL	14.7N	6	1927	SC	.6	81	17	--	-	10	136	53	07	18
UJJ	13.5N	6	1927	SC	- 1	97	-20	--	-	8	180	36	07	18
ABG	09.5N	6	1927	SC	- 1.4	83	-12	06(7)	6	7	139	42	07	18
HYB	07.6N	6	1928	SC	- .5	85	- 6	06(7)	6	7	153	28	08	10
GUA	04.0N	6	1927	SC	1	50	-15	06(7)	5	10	130	30	07	08
ANN	01.5N	6	1927	SC	- 3.2	98	53	--	-	7	163	103	07	18
TRD	01.1S	6	1927	SC	.5	83	112	--	-	6	184	203	07	18
PMG	18.6S	6	1926	SC*	1.8*	57	57	06(7,8) 07(2)	5	5	140	90	07	09
HER	33.7S	6	1927	SC	4	38	28	06(7)	5	18	110	74	08	15
GNA	43.2S	6	1928	SC*	10 *	64	59 *	06(7,8) 07(2)	5	17	130	100	07	09
TOO	46.7S	6	1928	SC*	9 *	67	8	06(8)	5	17	140	50	07	09
KGL	56.5S	6	1927	SC	52	66	34	06(7,8) 07(1,2,3)	4	--	--	--	08	11
HYB	07.6N	8	1700	..	..	..	..	09(3,4,7) 10(4,6)	3	8	84	37	10	22
HYB	07.6N	16	1900	..	..	..	..	17(6)	4	7	108	19	18	09
NEW	55.1N	21	1844	..	..	..	..	22(7) 23(3)	5	28	150	129	24	12
FRD	49.6N	21	18--	..	..	..	..	22(7)	5	22	114	76	24	11
IRK	41.0N	21	0500	..	..	..	..	23(3)	5	23	102	50	23	18
HYB	07.6N	21	0500	..	..	..	..	22(7)	5	8	182	27	23	23
COL	64.6N	22	11--	..	..	..	..	22(5,6,7) 23(4)	6	247	1560	850	24	13
JAI	17.3N	22	0000	..	..	..	..	--	-	11	116	34	23	11
SHL	14.7N	22	0000	..	..	..	..	--	-	8	125	40	23	11
UJJ	13.5N	22	0000	..	..	..	..	--	-	--	--	--	23	11
ABG	09.5N	22	0000	..	..	..	..	22(7)	5	8	134	36	23	11
ANN	01.5N	22	0000	..	..	..	..	--	-	8	167	42	23	11
TRD	01.1S	22	0000	..	..	..	..	--	-	8	197	94	23	11
HYB	07.6N	26	0900	..	..	..	..	26(5)	4	8	107	21	27	18
KGL	56.5S	26	1000	..	..	..	..	26(7)	5	--	--	--	27	18

REPORTS WERE RECEIVED FROM THE FOLLOWING OBSERVATORIES:

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

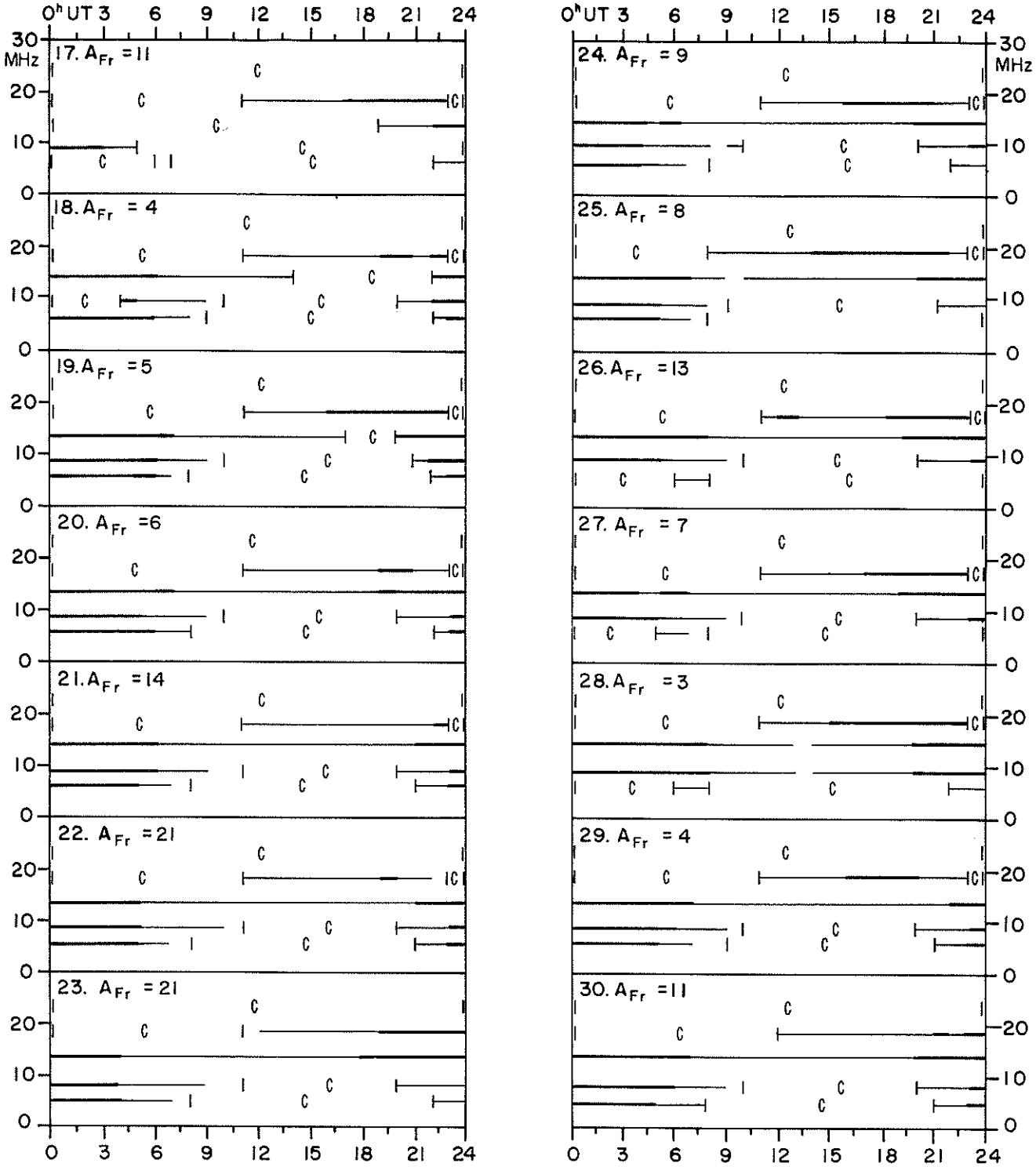
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JUNE 1979



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JUNE 1979



Field strengths from five frequencies, 6.4, 8.5, 12.8, 17.1, and 22.4 MHz, observed on a Lüchow - Halifax circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line.

Adapted from Observations by Deutsche Bundespost

RADIO PROPAGATION QUALITY INDICES

JUNE 1979

Quality Indices calculated for reception at Lüchow

DAY	TOKYO	HALIFAX	TEHERAN	MOSCOW	CANBERRA	BRACKNELL
1	5.5	4.4	11.2	11.2	2.9	12.2
2	4.3	4.6	11.1	10.9	3.1	12.0
3	4.3	4.4	9.9	11.4	2.8	11.8
4	4.0	4.7	10.4	10.6	3.0	11.4
5	5.8	5.1	10.3	11.5	3.2	12.0
6	3.2	4.8	10.4	12.0	2.2	12.2
7	1.6	3.8	10.7	11.0	3.3	10.5
8	4.5	4.6	10.4	11.8	3.4	11.7
9	4.5	4.8	10.9	10.4	3.0	10.7
10	4.9	4.5	10.9	9.9	2.7	10.6
11	4.3	4.4	11.0	11.6	2.5	11.8
12	4.2	4.4	11.5	11.0	2.6	10.9
13	3.7	4.4	11.1	12.1	2.8	11.6
14	4.1	4.3	10.9	11.0	3.0	10.8
15	5.1	5.0	10.7	12.7	3.8	10.9
16	3.1	4.8	11.1	11.2	2.8	10.9
17	3.9	4.5	10.9	11.1	3.0	10.3
18	4.6	4.2	10.7	11.1	3.4	10.6
19	4.5	4.8	11.3	11.6	3.0	11.4
20	4.0	4.1	11.0	11.2	2.9	12.2
21	3.0	3.9	10.9	11.1	2.0	11.7
22	3.0	2.9	10.3	11.2	2.3	11.2
23	0.9	4.2	9.9	10.5	2.5	11.2
24	2.0	4.2	10.4	11.1	2.7	11.3
25	4.1	4.5	10.5	11.2	2.7	11.2
26	3.4	5.0	10.9	11.4	2.7	11.2
27	2.8	4.7	11.0	11.0	2.6	10.8
28	4.7	4.5	11.0	10.7	2.6	11.6
29	5.3	4.6	11.5	11.2	2.1	11.9
30	4.2	4.2	11.2	10.3	3.1	12.0
MEAN	3.9	4.5	10.8	11.2	2.8	11.4

☆GPO 1979—677-073/4

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."