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Solar - Geophysical Data

NO. 446 OCTOBER 1981

Part I (Prompt Reports)

DATA FOR
SEPTEMBER 1981
AUGUST 1981

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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SOLAR-GEOPHYSICAL DATA

No. 446

Issued in two parts

Helen E. Coffey, Editor

Joe H. Allen, Chief
Solar-Terrestrial Physics Division

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		1980 Aug	Sep	Oct	Nov	Dec	1981 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
A.	SOLAR AND INTERPLANETARY PHENOMENA													
A.1	Sunspot Drawings	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
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A.2aa	International Provisional Relative Sunspot Numbers R_I						438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11
A.2b	Zurich Final Sunspot Numbers Rz	440A 10	440A 10	440A 10	440A 10	440A 10	---	---	---	---	---	---	---	---
A.2c	American Relative Sunspot Numbers Ra	433A 11	434A 11	435A 11	436A 11	437A 11	438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11
A.3a	Mt. Wilson Magnetograms	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	434A108	435A110	436A112	437A120	438A106	439A108	440A108	441A120	442A112	443A106	444A112	445A116	
A.3c	Kitt Peak Magnetograms	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.3d	Mean Solar Magnetic Field (Stanford)	433A 40	434A 38	435A 42	436A 42	437A 48	438A 36	439A 38	440A 46	441A 50	442A 44	443A 38	444A 46	445A 47
A.3e	Stanford Magnetograms	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	439A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.4	H-alpha Filtergrams	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.5	Calcium Plage Drawings - Mt. Wilson	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.5a	Calcium Plage (Mt. Wilson) and Sunspot Regions	434A108	435A110	436A112	437A120	438A106	439A108	440A108	441A120	442A112	443A106	444A112	445A116	
A.5b	Mt. Wilson Daily Calcium Plage Indices	434A125	435A127	436A127	437A134	438A121	439A123	440A121	441A135	442A127	443A119	444A122	445A129	
A.6	H-alpha Synoptic Charts		435A 46	436A 46	437A 52	438A 40	439A 42	440A 48	441A 54	442A 48	443A 42	444A 50	445A 52	
A.6b	Synoptic Chart and Active Regions (Paris)	439B121	440B 48	442B 84	444B 52	444B 54	444B 56	444B 58						
A.6c	Stanford Solar Magnetic Field Synoptic Charts	434A 43	435A 47	436A 47	437A 54	438A 41	439A 43	440A 49	441A 55	442A 49	443A 43	444A 51	445A 53	
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts	434A 44	435A 48	436A 48	437A 56	438A 42	439A 44	440A 50	441A 56	442A 50				
A.6e	Mass Ejections from the Sun	438B 29	439B 28	440B 38	441B 51	443B 62	443B 26	444B 48	445B 57					
A.7f	Helium D3 Chromosphere (Big Bear)	433A 35	436A177	436A177	436A 39	437A 44	438A 33	439A 39	441A170	---	---	443A 35	444A 43	
A.7g	Helium Synoptic Maps (KPNO)	434A 45	435A 49	436A 49	437A 58	438A 43	439A 45	440A 51	441A 57					
A.7h	Coronal Line Emission (Sac Peak)	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	433A 11	433A 11	435A 11	436A 11	437A 11	438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	433A 11	433A 11	435A 11	436A 11	437A 11	438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11
A.8q	Daily Values of Adjusted Solar Flux (AFGL)	433A 11	434A 11	435A 11	436A 11	437A 11	438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11
A.10a	169 MHz - Interferometric Observations (Nancay)	433A 22	434A 25	436A176	438A160	439A161	439A154	439A 24	440A 29	442A160	442A 27	443A 23	444A 27	445A 27
A.10c	21 cm East-West Solar Scans (Fleurs)	433A 25	434A 28	435A 30	436A 29	437A 34	438A 24	439A 27	440A 32	441A 33	442A 30	443A 26	444A 30	445A 30
A.10d	43 cm East-West Solar Scans (Fleurs)	433A 26	434A 29	435A 31	436A 30	437A 35	438A 25	439A 28	440A 33	441A 34	442A 31	443A 27	444A 31	445A 31
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	433A 24	434A 27	435A 29	436A 28	437A 33	438A 23	439A 26	440A 31	441A 32	442A 29	443A 25	444A 29	445A 29
A.10f	3 cm East-West Solar Scans (Toyokawa)	433A 23	434A 26	435A 28	436A 27	437A 32	438A 22	439A 25	440A 30	441A 31	442A 28	443A 24	444A 28	445A 30
A.11g	Solar X-ray (SMS/GOES) (graphs)	438B 23	439B 23	440B 32	441B 46	442B 36	443B 20	444B 43	445B 51					
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	---	---	---	---	---	---	---	---	---	---	---	---	---
A.12e	Energetic Solar Particles (IMP H & J)													
A.13a	Solar Wind (Pioneers 6 & 7)	433A 36	---	---	---	---	---	---	---	---	---	---	---	---
A.13ab	Solar Wind (Pioneers 8 & 9)	433A 37	---	---	---	---	---	---	---	---	---	---	---	---
A.13d	Solar Wind from IPS Measurements	433A 31	434A 34	435A 37	436A 37	437A 41	442A161	442A161	442A161	442A161	442A 39	443A 32	445A170	445A 42
A.13e	Solar Plasma (IMP H & J)	443B 64	443B 65	443B 66	443B 67									
A.13f	Solar Wind (Pioneer 12 (Venus))	433A 37	435A160	435A 43	436A 43	437A 45	438A 37	442A170	442A170	442A171	442A 45	443A 39	444A 47	445A 45
A.17	Interplanetary Magnetic Field (Pioneer 9)	433A 37	---	---	---	---	---	---	---	---	---	---	---	---
A.17	Interplanetary Magnetic Field (Pioneer 12)	---	---	436A132	438A162	438A125	439A127	440A153	---	---	---	444A126	445A135	
A.17c	Inferred IP Magnetic Field	433A 38	436A 40	436A 40	436A 40	437A 46	438A 34	439A 36	440A 44	441A 48	442A 42	443A 36	444A 44	445A 46
A.18	Interplanetary Electric Field (Pioneer 9)	---	---	---	---	---	---	---	---	---	---	---	---	---
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA													
B.52	Graphs of Transmission Frequency Range	434A154	435A156	436A172	437A170	438A156	439A150	440A154	441A167	442A156	443A150	444A148	445A166	
B.53	Quality Figures Based on Frequency Ranges	434A153	435A158	436A174	437A169	438A155	439A152	440A156	443A166	442A158	443A149	444A150	445A165	
C.	FLARE-ASSOCIATED EVENTS													
C.1a	Optical Observations Flares	433A 16	434A 16	435A 16	436A 16	437A 16	438A 16	439A 14	440A 18	441A 18	442A 16	443A 15	444A 16	445A 16
C.1ba	Optical Observations Flares (Standardized Data)	436B 50	439B 30	439B 73	442B 44	443B 28	445B 60							
C.1d	Flare Patrol Observations	433A 21	434A 24	435A 27	436A 26	437A 31	438A 21	439A 23	440A 28	441A 30	442A 26	443A 22	444A 26	445A 26
C.1d	Flare Patrol Observations	436B 89	439B 71	439B116	442B 82	443B 59	445B 90							
C.1e	Flare Indices (by day)	436B 88	439B 70	439B115	442B 81	443B 58	445B 89							
C.1f	Flare Indices (by Region)	439B122	439B 72	442B 86	443B 68	445B 92								
C.3	Solar Radio Waves - Outstanding Occurrences	438B 5	439B 5	440B 5	441B 5	442B 5	443B 5	444B 5	445B 5					
	Solar Radio Waves - Fixed Frequencies - Selected	433A 27	434A 30	435A 32	436A 31	437A 36	438A 26	439A 29	440A 34	441A 35	442A 32	443A 28	444A 32	445A 32
C.4a	Solar Radio Spectral Obs. (Fort Davis)	434A129	435A131	436A133	437A139	439A155	439A128	440A126	441A136	442A134	443A123	444A127	445A136	
C.4d	Solar Radio Spectral Obs. (Culgoora)	434A129	435A131	436A133	437A139	438A126	439A128	440A126	441A136	443A154	443A123	444A127	445A136	
C.4e	Solar Radio Spectral Obs. (Weissenau)	434A129	435A131	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123	445A174	445A136	
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	434A129	435A131	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123	444A127	445A136	
C.4h	Solar Radio Spectral Obs. (Dwingeloo)	434A129	435A131	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123	444A127	445A136	
C.4i	Solar Radio Spectral Obs. (Bleien)	434A129	435A131	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123			
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C.4k	Solar Radio Spectral Obs. (Learmonth)	434A129	435A131	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123	444A127	445A136	
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C.5e	Solar X-ray (SMS/GOES) (graphs)	438B 23	439B 23	440B 32	441B 46	442B 36	443B 20	444B 43	445B 51					
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D.1a	Geomagnetic Indices Kp, Kn, Ks, Km, Ap, aa, Cp	434A147	435A152	436A166	437A163	438A149	439A145	440A149	441A162	443A164	443A144	444A144	445A160	
D.1ba	27-day Chart of Kp Indices	434A149	435A154	436A168	437A165	438A151	439A147	440A151	441A164	442A153	443A146	444A146	445A162	
D.1c	27-day Chart of C9	441A165	441A165	441A165	441A165	441A165								
D.1ca	aa graph 1868 - present													
D.1d	Principal Magnetic Storms	434A152	435A155	436A171	437A168	438A154	439A148	440A152	441A166	442A155	443A147	444A147	445A163	
D.1e	Reduced Magnetograms													
D.1f	Sudden Commencement and Solar Flare Effects	435A164	436A179	437A176	437A169	439A163	439A149	441A170	442A180	443A165	443A148	445A180	445A164	
D.1g	Equatorial Indices Dst		436A178	436A168	437A167	438A153	440A160	441A172	442A182	444A155	445A182			
D.1h	Geomagnetic Substorm Log (Boulder)	433A 41	434A 40	435A 44	436A 44	437A 49	438A 38	439A 40	440A 43	441A 51	442A 46	443A 40	444A 48	445A 4
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F.1a	Cosmic Ray Neutron Counts (Deep River)	434A146	435A151	436A165	438A163	439A162	440A159	440A145	442A177	442A151	444A152			
F.1b	Cosmic Ray Neutron Counts (Climax)		436A165	438A163	438A163		440A159	442A177	442A177	442A151	443A141	445A178		
F.1e	Cosmic Ray Neutron Counts (Alert)	434A146	435A151	436A165	438A163	439A162	440A159	440A145	442A177	442A151	444A152			
F.1h	Cosmic Ray Neutron Counts (Thule)	434A146	435A151	436A165	437A162	438A148	439A144	440A145	441A159	442A151	443A141	444A141	445A157	
F.1i	Cosmic Ray Neutron Counts (Kiel)	434A146	435A151	436A165	437A162	438A148	439A144	440A145	441A159	442A151	443A141	444A141	445A157	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	434A146	435A151	436A165	437A162	438A148	439A144	440A145	441A159	442A151	443A141	444A141	445A157	
F.1l	Cosmic Ray Neutron Counts (Huancayo)	437A175	437A175	438A163	439A162	439A162	442A177	442A177	442A177	443A163	443A141	445A178		
H.	MISCELLANEOUS													
H.60	IUWDS Alert Decisions	433A 5	434A 5	435A 5	436A 5	437A 5	438A 5	439A 4	440A 5	441A 5	442A 5	443A 5	444A 5	445A 5
H.62	Abbreviated Calendar Record													

Notes:

"434A 46" listed under 1980 Aug means that the sunspot drawings for Aug 1980 were contained in *Solar-Geophysical Data* Number 434 - Part I, beginning on page 46.

A = Part I, B = Part II.

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

SGD 446 Part I (Prompt)

SEPTEMBER 1981 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

SEPTEMBER 1981

NOTE: See PRESTO Messages on last page of Alert Periods.

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Active Regions: No. of Flares Total	Active Regions: No. of Flares M	Active Regions: No. of Flares X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
244	01	31	318	240	015	S09W87	1	1	0		01	S09W87	Q	SOLALERT 01
						S06W67	2	0	0			S06W67	Q	MAGQUIET
						N22W59	0	0	0			N22W59	Q	
						S06W56	0	0	0			S06W56	Q	
						N17W38	1	0	0			N17W38	E	
						S10W33	0	0	0			S10W33	Q	
						N16W20	6	0	0			N16W20	E	
						S09W06	0	0	0			S09W06	Q	
						S12E08	3	0	0			S12E08	E	
						N15E23	0	0	0			N15E23	E	
						S08E28	0	0	0			S08E28	Q	
						S26E37	1	0	0			S26E37	E	
						N18E47	0	0	0			N18E47	Q	
						N06E53	1	0	0			N06E53	Q	
						S17E63	1	0	0			S17E63	Q	
						S10E55	6	2	0			S10E55	E	
						N11E58	1	0	0			N11E58	Q	
245	02	01	287	244	006	S06W82	2	0	0		02	S06W82	Q	SOLALERT 02
						N21W73	0	0	0			N21W73	E	MAGQUIET
						N17W54	8	0	0			N17W54	E	
						S11W46	0	0	0			S11W46	Q	
						N16W34	0	0	0			N16W34	E	
						S09W23	0	0	0			S09W23	Q	
						S12W06	2	0	0			S12W06	E	
						N14E11	0	0	0			N14E11	E	
						S09E16	0	0	0			S09E16	Q	
						S26E24	1	0	0			S26E24	Q	
						N18E34	1	0	0			N18E34	Q	
						N06E39	0	0	0			N06E39	Q	
						S11E43	11	1	0			S11E43	E	
						N11E45	0	0	0			N11E45	Q	
						S17E51	1	0	0			S17E51	Q	
246	03	02	249	239	020	N16W68	5	0	0		03	N16W68	E	SOLALERT 03
						S12W60	4	0	0			S12W60	E	MAGQUIET
						N16W48	2	0	0			N16W48	E	
						S09W36	0	0	0			S09W36	Q	
						S12W19	2	0	0			S12W19	E	
						N15W03	0	0	0			N15W03	Q	
						S24E11	1	0	0			S24E11	Q	
						N18E23	0	0	0			N18E23	Q	
						N07E27	0	0	0			N07E27	Q	
						S10E28	3	0	0			S10E28	E	
						N11E32	0	0	0			N11E32	Q	
						S17E37	0	0	0			S17E37	Q	
						S19E48	0	0	0			S19E48	Q	
247	04	03	232	225	009	N15W82	0	0	0	Presto Soflare	04	N15W82	Q	SOLALERT 04
						S12W73	0	0	0	M7/2B S13E17		S12W73	Q	MAGQUIET
						N16W62	1	0	0	03/2256Z Duration		N16W62	Q	
						S09W50	3	0	0	31 Minutes		S09W50	Q	
						S12W33	7	0	0	Presto Tenflare		S12W33	E	
						N15W16	0	0	0	230 Flux Units		N15W16	Q	
						S25W02	0	0	0	03/2255Z Duration		S25W02	Q	
						N18E09	0	0	0	45 Minutes		N18E09	Q.	
						N07E13	0	0	0			N07E13		
						S10E15	8	1	0			S10E15	E	
						N12E20	0	0	0			N12E20	Q	
						S17E25	3	0	0			S17E25	Q	
						S19E35	3	0	0			S19E35		
248	05	04	238	223	010	N17W75	0	0	0		05	N17W75	Q	SOLALERT 04/06
						S08W64	0	0	0			S08W64	Q	MAGALERT 05/06
						S12W46	2	0	0			S12W46	E	
						N16W33	0	0	0			N16W33	Q	
						S24W16	0	0	0			S24W16	Q	
						N08W02	0	0	0			N08W02	Q	
						S09E02	3	0	0			S09E02	E	
						S05E05	0	0	0			S05E05	Q	
						N12E06	0	0	0			N12E06	Q	
						S17E10	0	0	0			S17E10	Q	
						S19E21	0	0	0			S19E21	Q	
						N28E43	0	0	0			N28E43	Q	
						N09E76	2	0	0			N09E76	Q	
249	06	05	297	245	018	N17W86	0	0	0		06	N17W86	Q	SOLALERT 06/07
						S09W78	0	0	0			S09W78	Q	MAGALERT 06/07
						S12W60	8	2	0			S12W60	A	
						N16W46	0	0	0			N16W46	Q	
						S24W29	0	0	0			S24W29	Q	
						N08W16	0	0	0			N08W16	Q	
						S10W12	7	0	0			S10W12	E	
						N12W08	0	0	0			N12W08	Q	
						S05W08	0	0	0			S06W08	Q	
						S17W03	4	0	0			S17W03	Q	
						N12E03	0	0	0			N12E03	Q	
						S12E08	0	0	0			S12E08		
						S18E09	0	0	0			S18E09	Q	
						N28E28	0	0	0			N28E28	Q	
						S01E62	0	0	0			S01E62	Q	

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SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
						N10E63	6	3	0			N10E63	A	
						N14E66	0	0	0			N14E66	Q	
						S08E76	0	0	0			S08E76	Q	
250	07	06	316	260	010	S13W74	1	0	0	Presto Toyokawa	07	S13W74	E	SOLALERT 07/09
						N16W59	0	0	0	Tenflare 149 Flux		N16W59	Q	MAGALERT 08/09
						S25W42	0	0	0	Units 07/0053Z		S25W42	Q	
						S11W24	0	0	0	Duration 13 Minutes		S11W24	E	
						N07W29	0	0	0			N07W29	Q	
						S05W22	0	0	0			S05W22	Q	
						N12W21	0	0	0			N12W21	Q	
						S17W16	1	0	0			S17W16	E	
						N12W10	0	0	0			N12W10	Q	
						S19W06	0	0	0			S19W06	Q	
						N18E14	0	0	0			N18E14	Q	
						N28E15	0	0	0			N28E15	Q	
						S19E33	0	0	0			S19E33	Q	
						S01E48	0	0	0			S01E48	Q	
						N14E51	0	0	0			N14E51	Q	
						S08E63	0	0	0			S08E63	Q	
						N09E49	6	2	0			N09E49	Q	
251	08	07	356	255	007	S13W87	3	1	0	Presto Soflare	08	S13W87	E	SOLALERT 09/09
						N16W75	0	0	0	M9/1B N10E40		N16W75	Q	MAGALERT MINOR 08
						S22W56	0	0	0	07/0509Z Duration		S22W56	Q	
						N08W45	0	0	0	20 Minutes. Presto		N08W45	Q	
						S05W38	0	0	0	Tenflare 1200 Flux		S05W38	Q	
						S10W38	3	0	0	Units 07/0510Z		S10W38	E	
						N11W35	0	0	0	Duration 15 Minutes.		N11W35	Q	
						N10E33	15	5	0	Presto Tenflare 100		N10E33	E	
						S17W30	0	0	0	Flux Units 06/2141Z		S17W30	Q	
						S18W22	0	0	0	Duration 9 Minutes.		S18W22	Q	
						N18E01	0	0	0	Presto Tenflare 120		N18E01	Q	
						N29E03	0	0	0	Flux Units 06/2353Z		N29E03	Q	
						N19E20	0	0	0	Presto Tenflare 149		N19E20	Q	
						N13E38	1	0	0	Flux Units 07/0053Z		N13E38	Q	
						S08E48	0	0	0	Duration 13 Minutes.		S08E48	Q	
252	09	08	334	254	007	N16W87	0	0	0	Presto Sydney	09	N16W87	Q	SOLALERT 09/11
						S24W68	0	0	0	08/2300Z Sudden		S24W68	Q	MAGNIL
						N08W55	0	0	0	Commencement 08/		N08W55	Q	
						S04W51	0	0	0	2147Z Presto		S04W51	Q	
						S09W51	5	0	0	Tenflare 220 Flux		S09W51	E	
						N12W49	0	0	0	Units 07/2222Z		N12W49	Q	
						S16W43	2	0	0	Duration 12 Minutes		S16W43	Q	
						S18W24	1	0	0			S18W24	Q	
						N18W13	0	0	0			N18W13	Q	
						N28W11	0	0	0			N28W11	Q	
						N19E06	0	0	0			N19E06	Q	
						N08E21	21	1	0			N08E21	A	
						S01E21	0	0	0			S01E21	Q	
						S14E22	0	0	0			S14E22	Q	
						N14E25	0	0	0			N14E25	Q	
						S08E35	2	0	0			S08E35	Q	
253	10	09	286	253	013	N07W70	0	0	0		10	N07W70	Q	SOLALERT 10/12
						S10W64	4	0	0			S10W64	E	MAGALERT MINOR 10
						N12W63	0	0	0			N12W63	Q	
						S16W56	0	0	0			S16W56	Q	
						S17W38	0	0	0			S17W38	Q	
						N18W25	0	0	0			N18W25	Q	
						N29W22	1	0	0			N29W22	Q	
						N19W09	0	0	0			N19W09	Q	
						N10E06	8	2	0			N10E06	E	
						S00E08	1	0	0			S00E08	Q	
						S13E09	0	0	0			S13E09	Q	
						N15E14	0	0	0			N15E14	Q	
						S08E18	0	0	0			S08E18	Q	
254	11	10	292	244	009	N06W82	0	0	0	Presto Tenflare 200	11	N06W82	Q	MAGALERT 11/12
						S10W78	2	0	0	Flux Units 10/0726Z		S10W78	E	SOLALERT 11/12
						N12W76	4	0	0	Duration 10 Minutes		N12W76	Q	
						S16W71	0	0	0	Presto Soflare M9/2B		S16W71	Q	
						S18W52	0	0	0	N08E04 10/0938Z		S18W52	Q	
						N29W33	2	0	0	Duration 37 Minutes		N29W33	Q	
						N18W40	0	0	0	Presto Tenflare 470		N18W40	Q	
						N18W24	0	0	0	Flux Units 10/0938Z		N18W24	Q	
						N01W08	1	0	0	Duration 6 Minutes		N01W08	Q	
						N10W07	16	3	0			N10W07	P	
						S14W04	1	0	0			S14W04	Q	
						N15E01	2	0	0			N15E01	Q	
						S08E06	1	0	0			S08E06	Q	
						N12E17	0	0	0			N12E17	Q	
						N18E74	1	0	0			N18E74	Q	
255	12	11	284	238	018	S10W90	2	0	0	Presto Soflare	12	S10W90	E	SOLALERT 12/14
						N11W89	1	0	0	M3/2B N06W15 11/		N11W89	Q	MAGALERT 12/13
						S17W84	0	0	0	0313Z Duration 28		S17W84	Q	
						S17W64	1	0	0	Minutes Presto		S17W64	Q	
						N18W55	0	0	0	Tenflare 300 Flux		N18W55	Q	
						N29W47	4	0	0	Units 11/0316Z		N29W47	Q	

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						N18W36	0	0	0	Duration 14 Minutes		N18W36	Q	
						N01W22	0	0	0	Presto Tenflare 200		N01W22	Q	
						N09W21	10	1	0	Flux Units Duration		N09W21	P	
						N15W13	2	0	0	10 Minutes Presto		N15W13	E	
						S08W08	0	0	0	Soflare M2/No Opti-		S08W08	Q	
						S30E01	0	0	0	cal S10W90 11/2308Z		S30E01	Q	
						N13E07	0	0	0	Duration 36 Minutes		N13E07	Q	
						S19E31	0	0	0			S19E31	Q	
						N19E62	6	0	0			N19E62	E	
256	13	12	235	226	018	S17W78	1	0	0	Presto Soflare X1/	13	S17W78	Q	SOLALERT 13/14
						N30W59	0	0	0	2B N04W40 13/0003Z		N30W59	Q	MAGALERT MINOR 13
						N17W51	0	0	0	Duration 14 Minutes		N17W51	Q	
						N09W36	14	0	0	Presto Tenflare 420		N09W36	A	
						S01W31	1	0	0	Flux Units 13/0004Z		S01W31	Q	
						N15W27	3	0	0	Duration 15 Minutes		N15W27	Q	
						S08W21	1	0	0			S08W21	Q	
						N17E03	0	0	0			N17E03	Q	
						S18E18	0	0	0			S18E18	Q	
						N16E40	0	0	0			N16E40	Q	
						N18E48	3	0	0			N18E48	E	
						S17E64	0	0	0			S17E64	Q	
						S05E73	0	0	0			S05E73	Q	
257	14	13	217	227	010	S16W88	0	0	0		14	S16W88	Q	SOLALERT 14/15
						N32W69	0	0	0			N32W69	Q	MAGNIL
						N10W48	3	1	0			N10W48	A	
						N16W41	1	0	0			N16W41	Q	
						S07W37	0	0	0			S07W37	Q	
						S09W09	0	0	0			S09W09	Q	
						S18E05	1	0	0			S18E05	Q	
						S18E16	0	0	0			S18E16	Q	
						N13E27	0	0	0			N13E27	Q	
						N19E35	2	0	0			N19E35	E	
						S18E52	0	0	0			S18E52	Q	
						S05E59	0	0	0			S05E59	Q	
258	15	14	220	239	009	N18W93	0	0	0			N18W93	Q	SOLALERT 15
						N09W61	2	0	0			N09W61	A	MAGQUIET
						N16W54	0	0	0			N16W54	Q	
						S09W21	0	0	0			S09W21	Q	
						S18W07	0	0	0			S18W07	Q	
						S18E01	0	0	0			S18E01	Q	
						N15E17	6	0	0			N15E17	E	
						N19E21	1	0	0			N19E21	E	
						S17E39	1	0	0			S17E39	Q	
						S04E48	0	0	0			S04E48	Q	
						S17E55	0	0	0			S17E55	Q	
						N10E73	0	0	0			N10E73	Q	
						S07E79	1	0	0			S07E79	Q	
259	16	15	218	228	010	N09W76	3	1	1	Presto Soflare	16	N09W76	A	SOLALERT 16
						N15W67	2	0	0	M1/2B S03E39 15/		N15W67	Q	MAGQUIET
						S17W43	0	0	0	1904Z Duration 11		S17W43	Q	
						S19W17	0	0	0	Minutes Presto		S19W17	Q	
						S16W10	0	0	0	Soflare X1/1N N06		S16W10	Q	
						N15E05	3	1	0	W79 15/2113Z Dura-		N15E05	E	
						N19E09	1	0	0	tion 13 Minutes		N19E09	E	
						S17E25	0	0	0	Presto Tenflare510		S17E25	Q	
						S04E31	1	0	0	Flux Units 15/2113Z		S04E31	Q	
						S16E35	1	0	0	Duration 6 Minutes		S16E35	Q	
						N10E56	0	0	0	A Magnetic Crochet		N10E56	Q	
						S07E60	1	0	0	was observed at		S07E60	Q	
						S07E61	0	0	0	2114Z on Boulder		S07E61	Q	
						N09E85	0	0	0	Magnetometer.		N09E85	Q	
260	17	16	228	225	009	N09W91	1	0	0	Presto Toyokawa	17	N09W91	A	SOLALERT 17/19
						S11W73	0	0	0	Tenflare 480 Flux		S11W73	Q	MAGQUEIT
						S17W59	0	0	0	Units 15/2112Z		S17W59	Q	
						S18W28	0	0	0	Duration 8 Minutes		S18W28	Q	
						S17W24	2	0	0			S17W24	E	
						S17W19	0	0	0			S17W19	Q	
						N15W09	4	0	0			N15W09	E	
						N19W04	5	1	0			N19W04	E	
						S06E11	0	0	0			S06E11	Q	
						S17E13	0	0	0			S17E13	E	
						S04E23	0	0	0			S04E23	E	
						N10E44	0	0	0			N10E44	Q	
						S08E47	4	0	0			S08E47	Q	
						N10E72	0	0	0			N10E72	E	
261	18	17	218	219	006	S09W87	0	0	0		18	S09W87	Q	SOLNIL
						S17W38	2	0	0			S17W38	Q	MAGQUIET
						S18W37	2	0	0			S18W37	Q	
						N19W17	4	0	0			N19W17	E	
						N15W21	4	0	0			N15W21	E	
						S06W04	0	0	0			S06W04	Q	
						S15E09	0	0	0			S15E09	Q	
						S04E10	1	0	0			S04E10	Q	
						N14E14	2	0	0			N14E14	Q	
						N10E30	1	0	0			N10E30	Q	

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						S08E33	0	0	0			S08E33	Q	
						N11E58	4	0	0			N11E58	E	
						S08E70	0	0	0			S08E70	Q	
262	19	18	243	218	009	S17W51	0	0	0	Presto Tenflare	19	S17W51	Q	SOLQUIET
						N15W34	2	0	0	120 Flux Units		N15W34	E	MAGALERT 19
						N19W29	0	0	0	18/0129Z Duration		N19W29	E	
						S18W18	0	0	0	6 Minutes		S18W18	Q	
						S05W17	2	0	0			S05W17	Q	
						N20W16	0	0	0			N20W16	Q	
						S14W07	0	0	0			S14W07	Q	
						S04W05	2	0	0			S04W05	Q	
						S15W00	0	0	0			S15W00	Q	
						N14E01	1	0	0			N14E01	Q	
						N10E16	0	0	0			N10E16	Q	
						S08E21	2	0	0			S08E21	Q	
						N10E45	9	0	0			N10E45	E	
						S07E55	10	0	0			S07E55	Q	
263	20	19	209	214	022	N15W47	3	0	0		20	N15W47	E	SOLQUIET
						N18W43	0	0	0			N18W43	Q	MAGALERT 20
						N19W31	0	0	0			N19W31	Q	
						S04W17	2	0	0			S04W17	E	
						S16W15	0	0	0			S16W15	Q	
						S07W10	0	0	0			S07W10	Q	
						N09E03	0	0	0			N09E03	Q	
						S08E06	0	0	0			S08E06	Q	
						N16E08	0	0	0			N16E08	Q	
						N13W14	0	0	0			N13W14	Q	
						N10E30	9	1	0			N10E30	E	
						S08E43	0	0	0			S08E43	E	
264	21	20	210	199	009	N15W61	0	0	0		21	N15W61	E	SOLQUIET
						N19W59	0	0	0			N19W59	Q	MAGNIL
						N20W45	2	0	0			N20W45	Q	
						S14W35	0	0	0			S14W35	Q	
						S04W31	1	0	0			S04W31	E	
						N14W27	0	0	0			N14W27	Q	
						S15W26	0	0	0			S15W26	Q	
						S20W21	0	0	0			S20W21	Q	
						N10W11	0	0	0			N10W11	Q	
						S09W07	0	0	0			S09W07	Q	
						N10E17	2	0	0			N10E17	E	
						S07E30	0	0	0			S07E30	E	
						S08E74	0	0	0			S08E74	Q	
265	22	21	267	190	005	N15W74	0	0	0		22	N15W74	E	SOLQUIET
						N19W72	0	0	0			N19W72	Q	MAGQUIET
						N19W60	0	0	0			N19W60	Q	
						S08E59	0	0	0			S08E59	Q	
						S18W58	0	0	0			S18W58	Q	
						S15W39	0	0	0			S15W39	Q	
						N14W37	0	0	0			N14W37	Q	
						S20W33	0	0	0			S20W33	Q	
						N10W24	0	0	0			N10W24	Q	
						S10W18	0	0	0			S10W18	Q	
						S21W03	0	0	0			S21W03	Q	
						N11E04	4	0	0			N11E04	E	
						S07E16	1	0	0			S07E16	E	
						N20E19	0	0	0			N20E19	Q	
						N21E41	0	0	0			N21E41	Q	
						N17E64	0	0	0			N17E64	Q	
						S09E72	0	0	0			S09E72	Q	
266	23	22	275	182	011	N15W86	0	0	0		23	N15W86	Q	SOLQUIET
						N18W86	0	0	0			N18W86	Q	MAGQUIET
						N20W73	0	0	0			N20W73	Q	
						N13W52	0	0	0			N13W52	Q	
						S21W46	0	0	0			S21W46	Q	
						N10W37	0	0	0			N10W37	Q	
						N16W31	0	0	0			N16W31	Q	
						S10W29	0	0	0			S10W29	Q	
						S22W16	0	0	0			S22W16	Q	
						N10W09	1	0	0			N10W09	E	
						S07E03	0	0	0			S07E03	E	
						N20E04	0	0	0			N20E04	Q	
						N20E27	0	0	0			N20E27	Q	
						S07E46	0	0	0			S07E46	Q	
						N17E50	0	0	0			N17E50	Q	
						S09E59	1	1	0			S09E59	E	
						S14E75	0	0	0			S14E75	Q	
267	24	23	226	183	006	N20W83	1	0	0		24	N20W83	Q	SOLQUIET
						N13W67	0	0	0			N13W67	Q	MAGQUIET
						N10W51	0	0	0			N10W51	Q	
						S12W44	0	0	0			S12W44	Q	
						S21W29	0	0	0			S21W29	Q	
						N11W23	4	0	0			N11W23	E	
						N20W10	0	0	0			N20W10	Q	
						S08W10	0	0	0			S08W10	Q	

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						S07E11	0	0	0			S07E11	Q	
						N17E28	0	0	0			N17E28	Q	
						N16E37	0	0	0			N16E37	Q	
						S07E37	0	0	0			S07E37	Q	
						S09E44	0	0	0			S09E44	Q	
						S14E56	0	0	0			S14E56	Q	
268	25	24	200	181	009	N12W84	0	0	0		25	N12W84	Q	SOLQUIET
						N10W65	0	0	0			N10W65	Q	MAGQUIET
						S23W43	0	0	0			S23W43	Q	
						N10W28	4	0	0			N10W28	E	
						N20W25	0	0	0			N20W25	Q	
						S08W24	0	0	0			S08W24	Q	
						S08W01	0	0	0			S08W01	Q	
						N16E14	0	0	0			N16E14	Q	
						N16E25	0	0	0			N16E25	Q	
						S09E31	0	0	0			S09E31	Q	
						S06E42	0	0	0			S06E42	Q	
						S13E42	0	0	0			S13E42	Q	
						S14E58	0	0	0			S14E58	Q	
269	26	25	216	218	015	N10W79	0	0	0		26	N10W79	Q	SOLQUIET
						N11W43	0	0	0			N11W43	Q	MAGQUIET
						S08W38	2	0	0			S08W38	Q	
						S08W15	0	0	0			S08W15	Q	
						N15E03	0	0	0			N15E03	Q	
						S08E06	0	0	0			S08E06	Q	
						N17E14	0	0	0			N17E14	Q	
						S10E17	0	0	0			S10E17	Q	
						S08E28	0	0	0			S08E28	Q	
						S14E30	0	0	0			S14E30	Q	
						S14E46	0	0	0			S14E46	Q	
						N08E63	1	0	0			N08E63	Q	
						N04E66	0	0	0			N04E66	Q	
						N09E77	0	0	0			N09E77	Q	
270	27	26	219	188	024	N12W56	1	0	0	Presto Magnetic	27	N12W56	Q	SOLQUIET
						S09W51	1	0	0	K=5,5 Two Successive		S09W51	Q	MAGALERT MINOR 27
						S08W29	2	0	0	Periods 26/1230Z		S08W29	E	
						N16W11	0	0	0			N16W11	Q	
						N17W00	0	0	0			N17W00	Q	
						S09E04	0	0	0			S09E04	Q	
						N08E13	0	0	0			N08E13	E	
						S07E15	1	0	0			S07E15	Q	
						S13E17	0	0	0			S13E17	Q	
						S14E33	0	0	0			S14E33	Q	
						N08E46	0	0	0			N08E46	Q	
						N04E52	0	0	0			N04E52	Q	
						N10E64	0	0	0			N10E64	Q	
						S15E77	0	1	0			S15E77	E	
271	28	27	271	194	018	N12W69	1	0	0		28	N12W69	Q	SOLQUIET
						S09W64	0	0	0			S09W64	Q	MAGNIL
						S06W48	0	0	0			S06W48	Q	
						S08W42	3	0	0			S08W42	Q	
						N16W25	0	0	0			N16W25	Q	
						S09W08	0	0	0			S09W08	Q	
						N08E01	3	0	0			N08E01	Q	
						S06E02	0	0	0			S06E02	Q	
						S13E04	3	0	0			S13E04	Q	
						S14E20	2	0	0			S14E20	Q	
						N08E32	0	0	0			N08E32	Q	
						S06E34	0	0	0			S06E34	Q	
						N04E39	2	0	0			N04E39	Q	
						N16E47	0	0	0			N16E47	Q	
						N09E52	0	0	0			N09E52	Q	
						N13E60	1	0	0			N13E60	Q	
						S17E66	0	0	0			S17E66	A	
272	29	28	274	200	008	N11W83	0	0	0		29	N11W83	Q	SOLQUIET
						S09W79	0	0	0			S09W79	Q	MAGQUIET
						S06W63	0	0	0			S06W63	Q	
						S08W56	1	0	0			S08W56	Q	
						S09W22	0	0	0			S09W22	Q	
						S07W14	0	0	0			S07W14	Q	
						N08W13	6	0	0			N08W13	E	
						S14W09	0	0	0			S14W09	Q	
						S14E06	1	0	0			S14E06	Q	
						N08E19	0	0	0			N08E19	Q	
						S07E20	0	0	0			S07E20	Q	
						N04E25	2	0	0			N04E25	Q	
						N17E35	0	0	0			N17E35	Q	
						N10E38	0	0	0			N10E38	Q	
						N14E46	1	0	0			N14E46	Q	
						S18E52	0	0	0			S18E52	Q	
						S18E70	0	0	0			S18E70	Q	
273	30	29	316	204	013	N12W95	0	0	0		30	N12W95	Q	SOLQUIET
						S09W90	0	0	0			S09W90	Q	MAGQUIET
						S08W68	1	0	0			S08W68	E	

ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE
SEPTEMBER 1981

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
						S09W35	0	0	0			S09W35	Q	
						S07W28	1	0	0			S07W28	Q	
						N08W27	6	0	0			N08W27	E	
						S14W22	1	0	0			S14W22	Q	
						S15W07	2	0	0			S15W07	Q	
						N08E05	1	0	0			N08E05	Q	
						S07E07	1	0	0			S07E07	Q	
						N06E11	0	0	0			N06E11	Q	
						N17E22	0	0	0			N17E22	Q	
						N10E25	0	0	0			N10E25	Q	
						N15E32	1	0	0			N15E32	Q	
						S17E38	0	0	0			S17E38	Q	
						N14E53	0	0	0			N14E53	Q	
						S18E57	0	0	0			S18E57	Q	
274	01	30	307	203	013	S09W79	0	0	0		01	S09W79	E	SOLQUIET
						S09W49	0	0	0			S09W49	Q	MAGQUIET
						S07W41	0	0	0			S07W41	Q	
						N08W40	1	0	0			N08W40	E	
						S14W35	0	0	0			S14W35	Q	
						S15W20	2	0	0			S15W20	Q	
						N08W08	0	0	0			N08W08	Q	
						S07W07	1	0	0			S07W07	Q	
						N06W02	0	0	0			N06W02	Q	
						S10E05	0	0	0			S10E05	Q	
						N17E08	0	0	0			N17E08	Q	
						N10E11	0	0	0			N10E11	Q	
						N15E18	1	0	0			N15E18	Q	
						S18E26	0	0	0			S18E26	Q	
						N13E39	2	0	0			N13E39	Q	
						S18E45	2	0	0			S18E45	Q	
						S06E80	0	0	0			S06E80	Q	
						N08E82	2	0	0			N08E82	Q	

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

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

03 SEPTEMBER 1981 PRESTO BOULDER 03/2336Z SOFLARE M7/2B S13E17 03/2256Z DURATION 31 MINUTES
03 SEPTEMBER 1981 PRESTO TOYOKAWA 03/2350Z TENFLARE 230 FLUX UNITS 03/2255Z DURATION 45 MINUTES
03 SEPTEMBER 1981 PRESTO SYDNEY 03/2315Z SOFLARE CULGOORA 2B FLARE S12E30 Start 2256Z
07 SEPTEMBER 1981 PRESTO TOYOKAWA 07/0015Z TENFLARE 100 FLUX UNITS 06/2141Z DURATION 9 MINUTES
07 SEPTEMBER 1981 PRESTO TOYOKAWA 07/0015Z TENFLARE 120 FLUX UNITS 06/2353Z DURATION 12 MINUTES
07 SEPTEMBER 1981 PRESTO TOYOKAWA 07/0115Z TENFLARE 149 FLUX UNITS 07/0053Z DURATION 13 MINUTES
07 SEPTEMBER 1981 PRESTO SYDNEY 07/0520Z TENFLARE FLEURS START 0508Z MAX 0510Z IN PROGRESS 935 FLUX UNITS
07 SEPTEMBER 1981 PRESTO TOYOKAWA 07/0536Z TENFLARE 490 FLUX UNITS 07/0510Z DURATION 15 MINUTES
07 SEPTEMBER 1981 PRESTO BOULDER 07/0528Z SOFLARE M9/1B N10E40 07/0509Z DURATION 20 MINUTES
07 SEPTEMBER 1981 PRESTO BOULDER 07/0528Z TENFLARE 1280 FLUX UNITS 07/0510Z DURATION 15 MINUTES
08 SEPTEMBER 1981 PRESTO YDNEY 08/2300Z SUDDEN COMMENCEMENT 08/2147Z
08 SEPTEMBER 1981 PRESTO TOYOKAWA 08/0011Z TENFLARE 220 FLUX UNITS 07/2222Z DURATION 12 MINUTES
10 SEPTEMBER 1981 PRESTO TOYOKAWA 10/0743Z TENFLARE 200 FLUX UNITS 10/0726Z DURATION 10 MINUTES
10 SEPTEMBER 1981 PRESTO BOULDER 10/1156Z SOFLARE M8/2B N08E04 10/0938Z DURATION 37 MINUTES
10 SEPTEMBER 1981 PRESTO BOULDER 10/1156Z TENFLARE 470 FLUX UNITS 10/0938Z DURATION 6 MINUTES
11 SEPTEMBER 1981 PRESTO BOULDER 11/0413Z SOFLARE M3/2B N06W15 11/0313Z DURATION 28 MINUTES
11 SEPTEMBER 1981 PRESTO BOULDER 11/0413Z TENFLARE 300 FLUX UNITS 11/0306Z DURATION 10 MINUTES
11 SEPTEMBER 1981 PRESTO TOYOKAWA 11/0342Z TENFLARE 490 FLUX UNITS 11/0316Z DURATION 7 MINUTES
12 SEPTEMBER 1981 PRESTO TOYOKAWA 12/0024Z TENFLARE 200 FLUX UNITS 11/2310Z DURATION 10 MINUTES
13 SEPTEMBER 1981 PRESTO TOYOKAWA 13/0028Z TENFLARE 400 FLUX UNITS 13/0003Z DURATION 15 MINUTES
13 SEPTEMBER 1981 PRESTO BOULDER 13/0130Z SOFLARE X1/2B N04W40 13/0003Z DURATION 14 MINUTES
13 SEPTEMBER 1981 PRESTO BOULDER 13/0130Z TENFLARE 420 FLUX UNITS 13/0004Z DURATION 15 MINUTES
15 SEPTEMBER 1981 PRESTO BOULDER 15/2042Z SOFLARE M1/2B S03E39 15/1904Z DURATION 11 MINUTES
15 SEPTEMBER 1981 PRESTO BOULDER 15/2130Z SOFLARE X1/1N N06W79 15/2115Z DURATION IN PROGRESS
15 SEPTEMBER 1981 PRESTO BOULDER 15/2130Z TENFLARE 510 FLUX UNITS 15/2113Z DURATION IN PROGRESS
16 SEPTEMBER 1981 PRESTO TOYOKAWA 16/0032Z TENFLARE 480 FLUX UNITS 15/2112Z DURATION 8 MINUTES
18 SEPTEMBER 1981 PRESTO TOYOKAWA 18/0155Z TENFLARE 120 FLUX UNITS 18/0129Z DURATION 6 MINUTES
26 SEPTEMBER 1981 PRESTO BOULDER 26/1230Z MAGNETIC K=5,5 TWO SUCCESSIVE PERIODS

RELATIVE SUNSPOT NUMBERS

INTERNATIONAL, R_I

	1980 FINAL*			1981 PROVISIONAL								
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	188	171	147	148	147	132	112	62	149	121	219
2	135	218	176	141	132	182	170	133	59	140	105	183
3	139	204	152	122	154	169	148	156	44	140	112	160
4	121	217	146	113	126	183	151	152	62	112	109	170
5	96	201	131	94	133	141	157	162	55	112	113	195
6	116	196	126	71	172	138	132	178	57	85	102	220
7	135	175	108	89	158	130	152	171	61	75	107	205
8	173	201	124	115	129	142	195	177	52	62	115	208
9	186	158	117	126	124	124	199	158	58	65	121	190
10	235	158	145	120	157	127	199	148	55	96	138	202
11	260	144	148	123	178	130	200	169	66	130	136	164
12	256	120	178	126	185	128	193	183	79	139	140	138
13	213	103	185	123	153	127	197	149	86	153	134	132
14	232	108	213	106	142	128	180	140	99	145	140	148
15	224	105	217	106	124	110	212	141	104	150	153	129
16	202	112	237	81	129	128	197	127	109	161	134	138
17	158	109	198	72	120	109	213	124	119	171	125	129
18	142	113	183	79	131	95	214	119	104	161	148	145
19	137	125	166	78	138	86	203	100	85	151	175	169
20	167	112	171	88	133	120	199	77	71	145	188	134
21	155	107	170	105	142	135	170	99	87	129	222	175
22	164	119	178	99	136	134	122	106	106	138	220	172
23	140	112	177	115	98	121	108	93	119	162	200	137
24	127	128	191	120	124	125	92	96	109	196	178	148
25	118	127	200	115	137	142	119	93	127	213	189	142
26	119	140	208	120	169	133	90	105	127	206	215	171
27	134	168	206	115	175	126	73	79	133	218	222	181
28	136	167	206	142	170	135	72	93	112	208	214	195
29	173	148	208	165		160	106	92	138	159	194	191
30	184	153	187	174		184	92	83	148	173	233	190
31	178		182	159		108		92		126	201	
MEAN	164.7	147.9	174.4	114.4	143.5	133.8	156.2	126.0	89.8	144.2	158.2	169.3

1980 YEARLY MEAN = 154.6

* ZURICH R_Z SUNSPOT NUMBER REPLACED BY INTERNATIONAL R_I SUNSPOT NUMBER BEGINNING WITH JANUARY 1981 DATA.

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1980			1981								
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171.1	226.3	223.0	189.7	207.3	224.4*	210.8*	188.0	149.6	175.4	183.9	248.3
2	167.9*	234.2	213.3	181.4	210.1	230.6*	211.2*	193.4	144.3	168.9	182.6	242.8
3	174.1	241.6	197.9	173.1	205.4*	238.9*	221.2	206.5*	134.9	163.3*	192.4	229.0
4	175.2	249.9*	199.4	166.8	197.5	245.6*	219.7	221.2	133.8	165.9	190.6*	233.4
5	182.6	263.3*	186.4	161.8	187.8	227.3	226.2	237.5	136.0	152.5	178.8	248.7
6	185.3*	273.9*	171.0	157.4	185.4*	212.7	235.7	231.2	140.6	148.7	179.6	263.2*
7	198.7*	272.7	176.4	168.6*	180.5*	201.4	242.3	234.2	146.7	149.8	173.0	262.5*
8	212.1*	266.2*	169.3	169.2	179.1	200.6*	268.8*	222.4*	146.7*	152.4	178.4	266.3*
9	223.4*	255.4*	175.1	167.0	176.7	202.9	287.7	218.6	152.8	150.0*	180.5	256.5
10	232.7	257.2*	180.5	164.6	185.2	203.1	268.8*	217.7*	157.1	156.5*	182.0	247.6
11	240.7	256.0*	203.5*	160.5	186.4*	199.7	272.1	228.1*	154.8	167.4	206.4	240.8
12	247.8*	233.2*	240.5*	156.6	190.6*	188.8	251.9	223.4	152.0	167.7*	209.0*	234.2
13	253.3*	226.8	244.2	158.1	197.8	202.1	254.9*	221.3	152.6	174.2*	208.7	230.2
14	251.1	218.8*	253.2	153.9	200.3	208.9	256.5*	232.5	159.1	184.2	208.2	228.7*
15	237.0	205.2*	266.2	149.8	193.5	206.3*	254.9*	223.9	164.7	194.5*	225.1	230.4
16	214.9	191.1	273.0	152.5	186.9	194.9	247.5*	218.9	169.1	205.3*	221.8*	227.5
17	201.1	181.6*	254.8	155.3	188.1*	181.5	242.7	207.6	171.2	200.8*	228.7	218.2*
18	200.6	174.9	255.1	161.0	190.2*	180.0	229.2	194.4	170.1	204.7*	244.1	216.5*
19	203.3	172.4	238.5	165.4	178.8	175.1	214.9	186.6*	165.9	220.3	254.6*	210.5*
20	200.5	161.6	235.9*	159.9*	188.3	182.7	200.9*	180.0	159.8	234.7*	269.8	200.1
21	204.2	161.8	224.8	156.6	189.9*	189.5	196.1	180.4	153.6	228.1*	267.1*	191.2
22	205.3*	171.4	231.2	156.4	199.5	189.4*	191.5	169.3*	166.1*	235.9	262.2*	183.0
23	196.1	167.2	226.0	156.8	217.9*	188.0*	204.9	159.6	171.2*	254.7*	254.8	183.8
24	192.5	174.9*	223.6	157.3	231.5*	191.4	203.0*	169.8	174.6	261.6*	258.9	182.2
25	182.9	176.4*	220.7	169.2*	233.8	199.3	203.8*	177.2	183.6	259.7	254.8	182.0
26	180.3*	189.6	220.1	174.6	238.5	198.6*	198.8	173.8	193.9	273.1*	272.9*	188.8
27	177.2	185.3	220.3	175.8*	235.4	197.6	194.7*	177.0	193.4	255.8*	281.6*	202.8
28	178.2*	191.4	231.5*	197.2*	224.9*	203.7*	178.2*	181.3	191.6	223.6	275.3	200.9
29	186.4	206.1*	217.2	204.2	.	212.4*	176.9	170.6	187.5*	213.3	259.1	204.5
30	201.8	216.3	209.9	209.1	.	208.2	175.3	164.6*	179.0	204.2*	265.1	203.8
31	211.5	.	199.0	209.1	.	214.0*	.	156.1	.	197.6	256.0*	.
MEAN	202.9	213.4	218.8	169.0	199.5	203.2	224.7	198.9	161.9	198.2	226.0	221.9

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

SEPTEMBER 1981

DAY OF MONTH	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	PROVISIONAL SUNSPOT NUMBERS		OBSERVED FLUX OTTAWA 2800	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_I	$R_{A'}$		AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	244	7	219	195	243.9				248.3					
2	245	8	183	177	238.5				242.8					
3	246	9	160	164	225.2				229.0					
4	247	10	170	171	229.5				233.4					
5	248	11	195	204	244.8				248.7					
6	249	12	220	231	259.1*				263.2*					
7	250	13	205	236	258.6*				262.5*					
8	251	14	208	226	262.4*				266.3*					
9	252	15	190	210	253.0				256.5					
10	253	16	202	198	244.2				247.6					
11	254	17	164	174	237.7				240.8					
12	255	18	138	159	231.2				234.2					
13	256	19	132	154	227.2				230.2					
14	257	20	148	174	225.8*				228.7*					
15	258	21	129	163	227.9				230.4					
16	259	22	138	132	225.0				227.5					
17	260	23	129	128	216.0*				218.2*					
18	261	24	145	137	214.6*				216.5*					
19	262	25	169	146	208.6*				210.5*					
20	263	26	134	133	198.5				200.1					
21	264	27	175	141	189.7				191.2					
22	265	1	172	135	181.7				183.0					
23	266	2	137	141	182.5				183.8					
24	267	3	148	127	181.1				182.2					
25	268	4	142	138	181.1				182.0					
26	269	5	171	157	187.9				188.8					
27	270	6	181	225	202.0				202.8					
28	271	7	195	214	200.1				200.9					
29	272	8	191	179	203.9				204.5					
30	273	9	190	210	203.2				203.8					
MEAN			169.3	172.6	219.5				221.9					

*Adjusted for burst.

NOTE: AFGL Sagamore Hill data lost in computer, irretrievably.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX adjusted to 1 AU	
	Rz or R_I		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Oct 78	125.1	111	116.0	105	107.7	111	157.1	160
Nov	97.9	113	92.8	107	98.1	113	148.2	162
Dec	122.7	118	121.0	111	121.6	116	170.0	165
Jan 79	166.6	124	164.4	116	150.2	119	196.5	168
Feb	137.5	131	136.8	123	153.0	124	199.1	172
Mar	138.0	136	132.5	128	136.7	128	184.0	176
Apr	101.5	141	95.8	133	127.0	133	175.0	180
May	134.4	147	121.8	139	120.4	139	168.9	186
Jun	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	155	140.5	145	123.1	145	171.4	192
Aug	142.2	155	125.1	144	129.2	145	177.0	192
Sep	188.4	156	184.0	143	156.5	144	202.3	191
Oct	186.2	158	178.2	144	171.7	145	216.4	192
Nov	183.3	162	176.5	149	182.9	149	226.8	196
Dec	176.3	164	157.6	152	151.0	152	197.2	199
Jan 80	159.6	164	145.3	153	153.6	154	199.6	200
Feb	155.0	163	133.9	154	148.7	155	195.1	200
Mar	126.2	161	107.9	153	117.8	153	166.5	200
Apr	164.1	159	138.5	151	164.0	152	209.3	198
May	179.7	156	172.3	149	185.4	151	229.1	197
Jun	157.3	155	153.6	149	153.2	151	199.3	198
Jul	136.3	153*	136.0	144	144.1	151	190.8	197
Aug	135.4	150*	133.0	144	121.9	150	170.3	196
Sep	155.0	150*	150.0	146	138.8	152	185.9	198
Oct	164.7	150*	160.8	149	157.1	154	202.9	200
Nov	147.9	148*	149.9	149	168.5	153	213.4	199
Dec	174.4	142*	167.5	145	174.3	150	218.8	196
Jan 81	114.4†	140*	115.4	144	120.5	149	169.0	195
Feb	143.5†	141*	143.7	146	153.5	152	199.5	198
Mar	133.8†	143*	149.2	143	157.5	156	203.2	202
Apr	156.2†	140(± 5)*	169.2	140	180.7	152	224.7	---
May	126.0†	138(± 9)*	141.3	137	152.8	150	198.9	---
Jun	89.8†	135(±11)*	99.0	135	112.9	147	161.9	---
Jul	144.2†	133(±12)*	154.3	133	152.1	145	198.2	---
Aug	158.2†	132(±13)*	170.4	132	182.1	143	226.0	---
Sep	169.3†	131(±14)*	---	131	177.7	142	221.9	---
Oct	---	130(±15)*	---	130	---	141	---	---
Nov	---	127(±16)*	---	127	---	137	---	---
Dec	---	123(±17)*	---	123	---	133	---	---
Jan 82	---	119(±17)*	---	119	---	128	---	---
Feb	---	116(±16)*	---	116	---	125	---	---
Mar	---	113(±16)*	---	113	---	122	---	---

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

†R_I replaces R_Z as of January 1981.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

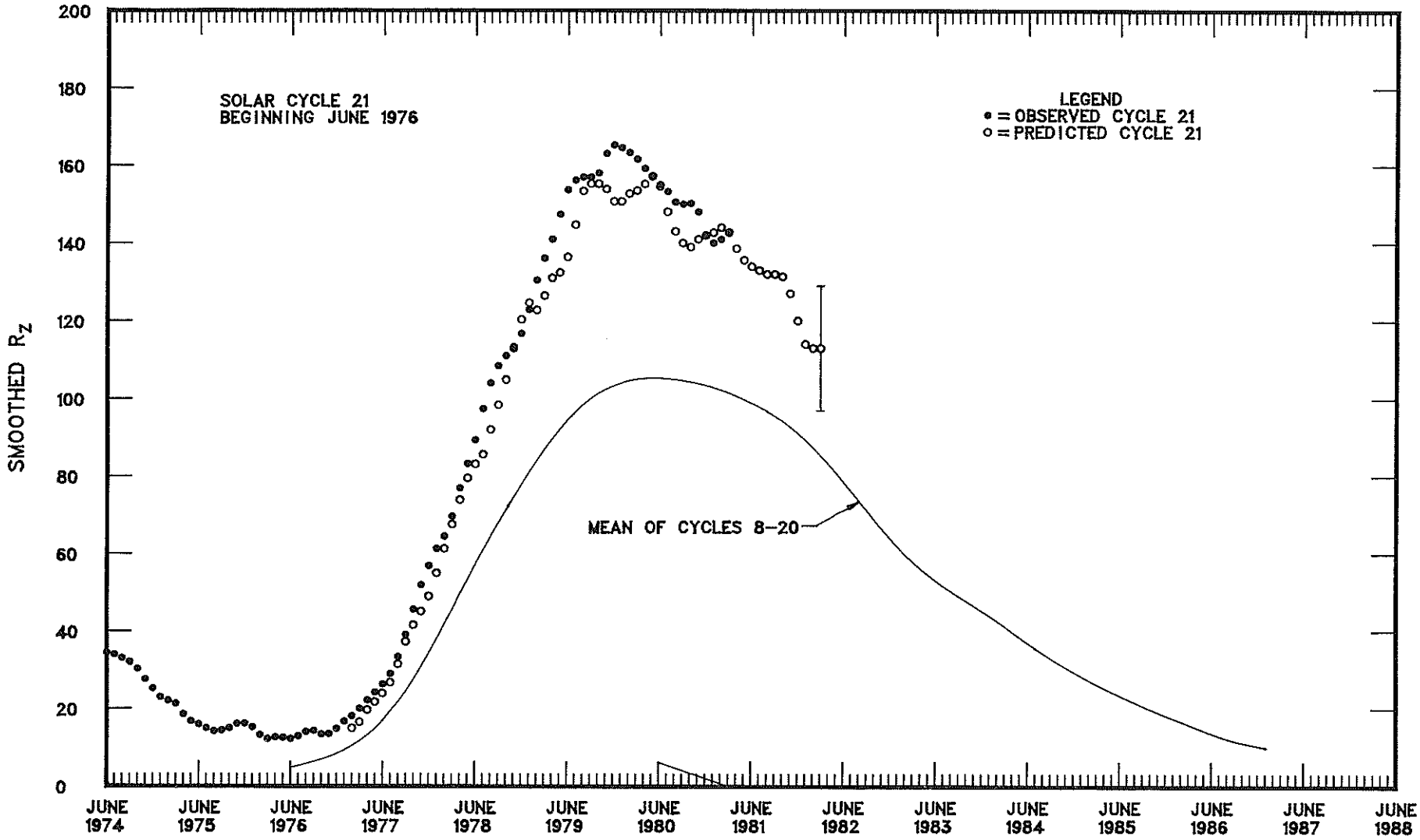
MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	142
1981	140	141	143	140	138	135	133	132	131	130	127	123
				(5)	(9)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1982	119	116	113	110	108	105	101	96	92	86	83	79
	(17)	(16)	(16)	(15)	(13)	(12)	(10)	(8)	(9)	(8)	(8)	(9)
1983	75	73	71	69	66	63	62	60	59	58	58	57
	(10)	(11)	(13)	(14)	(17)	(18)	(20)	(22)	(23)	(25)	(25)	(25)
1984	56	54	51	47	45	45	44	42	41	39	38	36
	(26)	(26)	(26)	(26)	(27)	(28)	(29)	(29)	(28)	(27)	(26)	(26)
1985	35	34	33	33	32	30	29	28	27	26	25	25
	(25)	(24)	(24)	(24)	(23)	(22)	(21)	(20)	(20)	(21)	(22)	(22)
1986	24	23	22	21	19	17	16	15	14	14	13	13
	(22)	(23)	(22)	(22)	(21)	(20)	(19)	(19)	(17)	(16)	(15)	(13)
1987	13	13	14	14	15	16	17					
	(12)	(11)	(11)	(12)	(13)	(14)	(15)					

The table gives observed *smoothed* sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a left-hand bracket. They are based on final Zürich numbers through 1980 and provisional International numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1981 are included. The numbers after the bracket are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1981). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

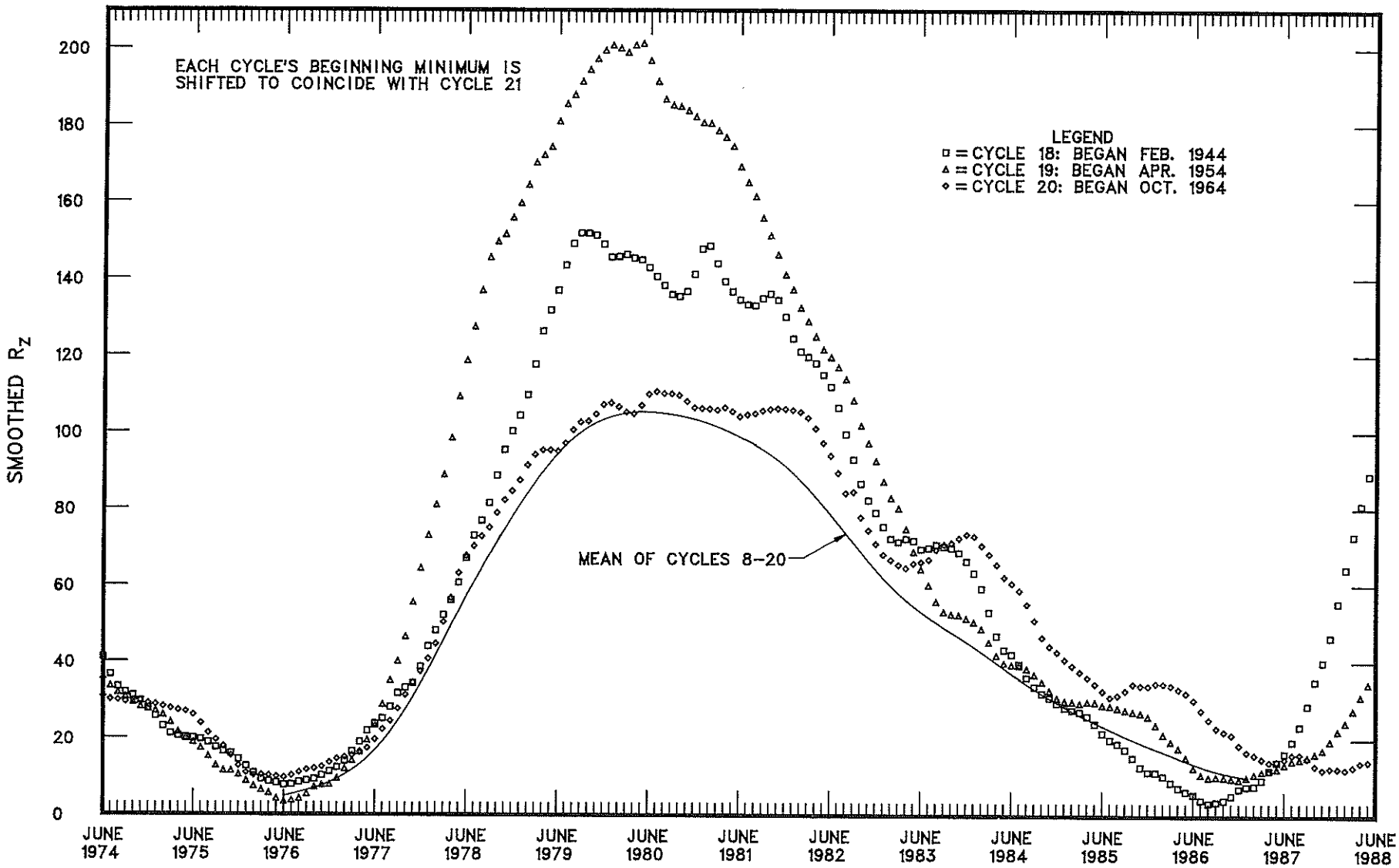
The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Furthermore, the method is very sensitive to the identification of a minimum epoch. In SGD issues 390-401, the Cycle 21 predictions were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

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

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



15
Sep 81

Hα SOLAR FLARES

SEPTEMBER 1981

OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill of Disk	CORR. AREA Sq. Deg.	REMARKS
ISTA	01	0656		0720	N18	W39	.636		29.4	24	SN						E
ISTA	01	0656		0730	N19	W42	.675		29.1	34	SN						E
ISTA	01	0728		0735	S10	E08	.325		1.9	7	SF						E
ISTA	01	0825		0836	S11	W35	.633		29.7	11	SF						E
ISTA	02	0720E		0740	N02	W90	1.000		26.6	20D	SF						A
WEND	02	0757	0802	0806D	S10	W51	.805		29.5	9D	SF		C	0802	44	.7	
BUCA	02	0758	0800	0808	S14	W52	.827		29.4	10	SN		C	0800	107	1.9	E
ISTA	02	0801		0818	S11	W53	.827		29.4	17	SF						
ISTA	02	0850		0906	N11	W38	.611		30.5	16	SN						
WEND	05	0658	0706	0715	N08	E67	.916		10.3	17	SN		C	0706	25		
WEND	05	0740	0749	0801	N07	E76	.967		11.0	21	SN		C	0749	44		
WEND	05	0816	0828	0858	N08	E73	.952		10.8	42	SF		C	0828	44		E
WEND	05	1024	1035	1149	N09	E72	.947		10.8	85	SN		C	1035	88		E
WEND	05	1210	1222	1252	S10	W59	.877		1.1	42	SN		C	1222	50	1.0	
WEND	05	1336E		1350	S13	W52	.824		1.7	14D	1F		C	1336	138	2.4	
WEND	05	1515	1516	1525	S14	E63	.914		10.4	10	SF		C	1516	44	1.0	CG
WEND	06	0745	0750	0806D	S11	W68	.940		1.2	21D	SF		C	0750	44		
WEND	07	0642E	0645	0702	N07	E42	.665		10.4	20D	SF		C	0645	113	1.6	
WEND	07	1031	1039	1056	N07	E38	.611		10.3	25	SN		C	1039	100	1.3	
WEND	07	1126	1139	1149	N07	E40	.638		10.5	23	SF		C	1139	75	1.0	
WEND	07	1214	1223	1236	N11	E36	.584		10.2	22	SN		C	1223	113	1.4	
WEND	07	1326	1330	1338	N08	E39	.625		10.5	12	SN		C	1330	56	.8	
WEND	07	1412	1414	1418	N09	E40	.638		10.6	6	SF		C	1414	36	.5	
WEND	07	1444	1446	1457	N08	E36	.583		10.3	13	SF		C	1446	81	1.0	
WEND	08	0933E		0955	N08	E27	.450		10.4	22D	SF		C	0933	38	.4	
WEND	08	1055	1056	1100	N10	E19	.325		9.9	5	SN		C	1056	63	.7	
UPTC	08	1140	1145U	1150	N10	E18	.303		9.8	10	SN		P	1145	41	.6	L
WEND	08	1140	1142	1149	N10	E19	.325		9.9	9	SF		C	1142	31	.3	
BUCA	10	0730		0740	S12	W75	.974		4.7	10	SN		C	0731	86		
WEND	10	0806	0821	0836	N08	E08	.013		10.3	30	SN		C	0821	112	1.2	
BUCA	10	0810	0813	0842	N09	E01	.035		10.4	32	1N		C	0819	322	3.3	
WEND	10	0815	0825	0840	N10	E11	.195		11.2	25	SN		C	0825	30	.3	
WEND	10	0928E	0943	1017	N07	E06	.104		10.9	39D	2B		C	0943	650	6.8	
WEND	12	0708	0721	0737	N06	W30	.437		10.0	23	SN		C	0721	156	1.9	
WEND	12	0710	0713	0721	S14	W32	.618		9.9	11	SF		C	0713	56	.7	
WEND	12	0740	0743	0755	N17	W15	.302		11.2	15	SN		C	0743	41	.5	
ISTA	12	0743		0804	N17	W17	.330		11.0	21	SF						
WEND	12	1527	1540	1555	N08	W40	.638		9.6	28	SN		C	1540	30	.4	
ISTA	14	0620		0624	S17	W90	1.001		7.5	4	SF						A
ISTA	14	0717		0725	N16	E27	.467		16.3	8	SN						D
BUCA	14	0720		0750	N15	E27	.463		16.3	30	SN		C	0722	107	1.2	
ISTA	16	0723		0728	S20	E09	.479		17.0	5	SF						D
ISTA	16	0735		0800	N15	E33	.549		18.8	25	SF						F
ISTA	17	0600E		0615	N10	W80	.982		11.3	15D	2N						AB
HOLL	17	1444	1449	1456	N18	W10	.251		16.9	12	SF	3	C		28		
HOLL	17	1653	1700	1734	N14	W16	.295		16.5	41	SN	3	C		84		
HOLL	17	1739	1743	1749	N13	E69	.927		22.9	10	SN	3	C		32		
HOLL	17	1846	1847	1912	N16	W16	.308		16.6	26	SN	3	C		89		
HOLL	17	2040	2044	2055	N19	E34	.575		20.4	15	SF	2	C		81		
HOLL	17	2214	2223	2253	S05	E12	.234		18.8	33	SF	3	C		82		
HOLL	17	2302	2303	2312	N18	W15	.312		16.8	10	SF	3	C		31		
HOLL	17	2308	2308	2324	S19	W35	.686		15.3	16	SF	3	C		21		
HOLL	17	2321	2324	2332	N14	W20	.355		16.5	11	SF	3	C		41		
HOLL	17	2331	2336	0002D	N10	E65	.901		22.9	31D	SB	3	C		81		
PALE	17	2332	2334	2339	N11	E63	.885		22.7	6	SF	3	C		36		
MANI	17	2334E	2335	2338D	N10	E64	.893		22.8	4D	SF	3	C		50		
LEAR	17	2334E	2334U	2342	N10	E57	.833		22.3	8D	SN	3	C		49		
LEAR	17	2355	2357	0004	N14	E13	.250		13.0	9	SF	3	C		49		
LEAR	18	0122	0124	0127	N13	W25	.427		16.2	5	SF	3	C		47		
LEAR	18	0133	0136	0150	N08	E67	.916		23.1	17	SN	3	C		78		
LEAR	18	0322	0324	0350	S10	E31	.578		20.5	28	SF	3	C		55		

Hα SOLAR FLARES

SEPTEMBER 1981

OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
LEAR	18	0446	0448	0456	N09	E63	.886		22.9	10	SF	3	C		47		
LEAR	18	0509	0510	0515	N14	E10	.207		19.0	6	SF	3	C		26		
WEND	18	0824	0828	0840	N14	E09	.194		19.0	16	SF		C	0828	46	.5	
LEAR	18	0916	0918	0921	N17	W22	.401		16.7	5	SF	3	C		70		
WEND	18	1028	1030	1038	S04	E03	.200		18.7	10	SF		C	1030	56	.6	
WEND	18	1413	1416	1422	N09	E57	.833		22.9	9	SF		C	1416	38	.7	
WEND	18	1542	1544	1548	N08	E44	.690		22.0	6	SF		C	1544	19	.3	
WEND	18	1552	1556	1610	N14	W00	.119		18.7	18	SN		C	1556	75	.9	E
HOLL	18	1553E	1557	1617D	S05	E02	.213		18.8	240	SN	3	C		128		
HOLL	18	1601	1603	1623D	S08	E28	.526		20.8	220	SF	3	C		26		
HOLL	18	1734	1736	1837	S05	E58	.858		23.1	33	SB	3	C		112		
PALE	18	1737E	1747	1759	S06	E59	.869		23.2	220	SF	3	C		65		
HOLL	18	1750	1751	1754	N10	E42	.664		21.9	4	SN	3	C		38		
HOLL	18	1803	1803	1928D	S05	W01	.211		18.7	250	SF	3	C		43		
HOLL	18	1936	1937	1957	N10	E40	.638		21.8	21	SN	3	C		24		
HOLL	18	2153	2153	2202	N11	E42	.664		22.1	9	SN	3	C		24		
LEAR	18	2317	2318	2321	N10	E40	.638		22.0	4	SN	3	C		81		
LEAR	19	0050	0052	0113	N16	W33	.551		16.6	23	SF	3	C		39		
LEAR	19	0351	0358	0405	N10	E46	.714		22.6	14	SF	3	C		31		
LEAR	19	0405	0412	0438	N15	W35	.576		16.5	33	SN	3	C		153		
LEAR	19	0421	0424	0441	S04	W07	.227		18.7	20	SF	3	C		77		
LEAR	19	0547	0552	0618	N08	E47	.726		22.8	31	1B	3	C		295		
LEAR	19	0700	0700	0705	N09	E41	.651		22.4	5	SF	3	C		55		
HOLL	19	1440	1441	1446	N10	E44	.689		22.9	6	SF	3	C		65		
HOLL	19	1744	1754	1850	N09	E37	.597		22.5	66	SB	3	C		161		
HOLL	19	1818	1821	1843	N14	W47	.727		16.2	31	SN	3	C		63		
HOLL	19	1852	1929	1935	N11	E35	.570		22.4	43	SF	3	C		20		
HOLL	19	2028	2031	2042	S20	W65	.936		15.0	14	1F	3	C		85		
HOLL	19	2106	2137	2128	N13	E35	.569		22.5	22	SN	3	C		110		
HOLL	19	2248	2249	2255	N11	E33	.542		22.4	7	SN	3	C		39		
HOLL	19	2343	0000	0022	S05	W17	.356		18.7	39	1B	3	C		223		
PALE	19	2356	0000	0012	S06	W16	.353		18.8	16	SF	3	C		140		
HOLL	20	0003	0014	0023	S17	W59	.892		15.6	20	SF	3	C		32		
LEAR	20	0812	0819	0826	N09	E34	.555		22.9	14	SN	3	C		43		
HOLL	20	1639	1643	1715D	N09	E24	.404		22.5	35D	SN	3	C		195		
HOLL	20	2048	2049	2104	N20	W45	.712		17.5	16	SN	3	C		41		
HOLL	20	2048	2055	2119	S18	W42	.749		17.7	31	SB	3	C		70		
HOLL	20	2121	2131	0004	S18	W42	.749		17.7	163	SN	3	C		20		
HOLL	20	2126	2130	2158	N20	W45	.712		17.5	32	SF	3	C		40		
PALE	20	2356	0000	0012	S06	W16	.353		13.8	16	SF	3	C		140		
LEAR	21	0117	0123	0135	N15	E32	.535		23.5	18	SF	3	C		27		
LEAR	21	0142	0144	0213	N10	E20	.342		22.6	31	SN	3	C		60		
LEAR	21	0356	0357	0402	S10	E24	.491		23.0	6	SF	3	C		31		
LEAR	21	0439	0443	0456	N09	E13	.324		22.6	17	SF	3	C		50		
LEAR	21	0539	0541	0550	N10	E17	.293		22.5	11	SN	3	C		65		
WEND	21	1051	1056	1113D	N13	E12	.212		22.4	22D	SN		C	1056	100	1.1	
ATHN	21	1059	1102	1121	N07	E09	.155		22.1	22	SB	3	C		159		
LEAR	22	0242	0259	0315	N10	E06	.115		22.6	33	SF	3	C		52		
ATHN	22	0837	0838	0939	S15	E70	.955		27.6	62	1B	3	C		111		
LEAR	22	0839E	0846	0937D	S10	E65	.920		27.2	58D	1B	3	C		164		
UPIC	22	0904E		0950	S10	E69	.944		27.6	46D	2N		P	0904	204	6.4	U
LEAR	23	0317	0320	0324	N13	W03	.116		22.9	7	SF	3	C		21		
LEAR	23	0518	0524	0535	N09	W06	.109		22.8	17	SF	3	C		26		
LEAR	23	0552	0602	0626	N09	W06	.109		22.8	34	SN	3	C		148		
LEAR	23	0714	0717	0800	N10	W07	.131		22.8	46	1B	3	C		200		
ATHN	23	0716	0718	0732	N12	W07	.148		22.8	16	SB	3	C		95		
PALE	23	1909	1911	1918	N18	W88	.997		17.2	9	SF	3	C				
LEAR	24	0212	0216	0248	N10	W18	.310		22.7	36	SF	3	C		82		
HOLL	24	1852	1906	1924	N09	W22	.373		23.1	32	SF	3	C		149		
HOLL	24	1938	1939	1953	N10	W28	.467		22.7	15	SN	3	C		48		
HOLL	24	2158	2208	2327	N08	W31	.511		22.6	89	SN	3	C		163		
HOLL	25	1730	1731	1746	S04	W32	.556		23.3	16	SF	3	C		37		
HOLL	25	1758	1759	1803	S04	W28	.500		23.6	5	SF	3	C		24		
LEAR	26	0340	0341	0345	N11	W50	.763		22.4	5	SF	3	C		36		

Hα SOLAR FLARES

SEPTEMBER 1981

OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
UPIC	26	1330	1331	1336	N07	E19	.323		28.0	6	SF		P	1331	61	.7	
HOLL	26	1803	1806	1810	S07	E20	.412		28.3	7	SN	3	C		28		
HOLL	26	1849	1850	1901	S09	W46	.749		23.3	12	SN	3	C		57		
HOLL	26	2259	2306	2312	S06	W34	.592		24.4	13	SN	3	C		23		
LEAR	26	2303	2305	2310	S06	W33	.579		24.5	7	SF	3	C		30		
HOLL	27	0003	0013	0025	S07	W35	.610		24.4	22	SF	3	C		40		
LEAR	27	0130	0131	0139	N10	W58	.842		22.7	9	SF	3	C		15		
LEAR	27	0313	0313	0323	S17	E28	.596		29.2	10	SF	3	C		37		
HOLL	27	1559	1605	1620	S12	F22	.483		29.3	21	SF	3	C		64		
RAMY	27	1639	1648	1717	N08	E04	.072		28.0	38	SF	3	C		111		
RAMY	27	1708	1712	1725	S16	E07	.406		28.2	17	SF	3	C		24		
HOLL	27	1709	1713	1735	S16	E06	.431		28.2	26	SF	3	C		21		
HOLL	27	1740	1742	1751	N03	E43	.682		1.0	11	SF	3	C		21		
RAMY	27	1831	1837	1839D	S07	W39	.660		24.8	8D	SB	3	C		114		
HOLL	27	1832	1837	1911	S06	W40	.668		24.8	39	SB	3	C		106		
PALE	27	1836	1837	1854	S08	W39	.664		24.9	19	SF	3	C		46		
HOLL	27	1915	1917	1935	N04	F42	.668		1.0	20	SF	3	C		42		
HOLL	27	2031	2037	2053	N15	F62	.877		2.5	22	SN	3	C		111		
HOLL	27	2249	2255	2310	S15	E03	.376		28.2	21	SN	3	C		54		
LEAR	27	2301E	2301U	2310	S16	E04	.395		28.3	9D	SF	3	C		21		
HOLL	27	2337	2339	2347	N08	W31	.026		27.9	40	SF	3	C		65		
LEAR	27	2309E	2309	2331	N07	E00	.002		28.0	22D	SF	3	C		74		
LEAR	28	0517	0519	0525	N05	E37	.600		1.0	9	SF	3	C		30		
LEAR	28	0612	0617	0643	S07	W01	.240		28.2	31	SF	3	C		39		
ATHN	28	1210F	1213U	1233	S39	W43	.716		25.3	23D	1B	4	C		190		
HOLL	28	1750	1752	1758	N08	W11	.190		27.9	8	SN	3	C		52		
HOLL	28	1905	1906	1912	N04	E27	.454		30.8	7	SN	3	C		76		
HOLL	28	1917	1918	1929	N08	W12	.207		27.9	12	SF	3	C		33		
HOLL	28	2005	2007	2018	N08	W13	.224		27.9	13	SN	3	C		51		
HOLL	28	2121	2130	2138	N08	W13	.224		27.9	17	SN	3	C		40		
HOLL	28	2159	2206	2227	N08	W14	.241		27.9	23	SN	3	C		47		
HOLL	28	2314	2355	2356D	N08	W14	.241		27.9	42D	SB	3	C		94		
LEAR	28	2327E	2359U	0041	N08	W13	.224		28.0	74D	SN	3	C		133		
PALE	28	2354	2357	0018	N08	W14	.241		27.9	24	SF	3	C		42		
MANI	28	2354E	2354U	0005D	N08	W15	.257		27.9	11D	SN	3	C		60		
LEAR	29	0523	0536	0623	N08	W17	.231		28.0	50	SN	3	C		151		
LEAR	29	0718	0728	0753	N07	W18	.307		28.0	35	SF	3	C		113		
ISTA	29	0725	0730	0743	N08	W19	.324		27.9	15	1B						
LEAR	29	0732	0742	0754	S07	W59	.870		24.9	22	SF	3	C		60		
RAMY	29	1438	1441	1512	S06	W22	.423		28.0	34	SN	3	C		51		
HOLL	29	1433E	1439U	1504	S06	W22	.423		28.0	25D	SF	3	C		22		
RAMY	29	1445	1446	1458	S16	W17	.475		28.3	13	SN	3	C		50		
RAMY	29	1452	1456	1602	N08	W23	.388		27.9	70	SB	3	C		147		
HOLL	29	1454	1456	1623	N08	W22	.372		28.0	83	SN	3	C		107		
HOLL	29	1458	1459	1502	S15	W06	.385		29.2	4	SF	3	C		46		
HOLL	29	1641	1643	1651	N09	W23	.389		28.0	10	SN	3	C		48		
HOLL	29	1745	1749	1818	N08	W24	.404		27.9	33	SN	3	C		73		
HOLL	29	1836	1838	1849	N09	E15	.259		30.9	13	SF	3	C		35		
HOLL	29	1935	1937	1957	S14	W09	.385		29.1	22	SB	3	C		83		
HOLL	29	1946	1952	2006	N08	W25	.420		27.9	20	SF	3	C		42		
HOLL	29	2012	2015	2028	S08	E09	.298		30.5	16	SE	3	C		106		
PALE	29	2014E	2015U	2016D	S08	E09	.298		30.5	2D	SB	1	C				
HOLL	29	2142	2143	2159	N12	E30	.500		2.2	16	SF	3	C		63		
LEAR	29	2327E	2359U	0041	N08	W13	.224		29.0	74D	SN	3	C		133		
LEAR	30	0009	0009	0014	S18	E58	.886		4.4	5	SF	3	C		25		
LEAR	30	0041	0048	0205	S16	W12	.433		29.1	84	1B	3	C		316		
LEAR	30	0208	0213	0221	N08	W28	.466		28.0	13	SF	3	C		79		
LEAR	30	0840	0848	0902	N11	E25	.423		2.2	22	SF	3	C		33		
ATHN	30	0847	0850	0953	N17	E29	.532		2.5	65	SB	4	C		48		
HOLL	30	2204	2215	2216D	N10	E91	1.000		7.7	12D	1F	3	C				
PALE	30	2210F	2216U	2231D	N11	E89	.999		7.6	21D	SF	3	C				
HOLL	30	2240	2250	2326	S07	W40	.672		27.9	46	SN	3	C		101		

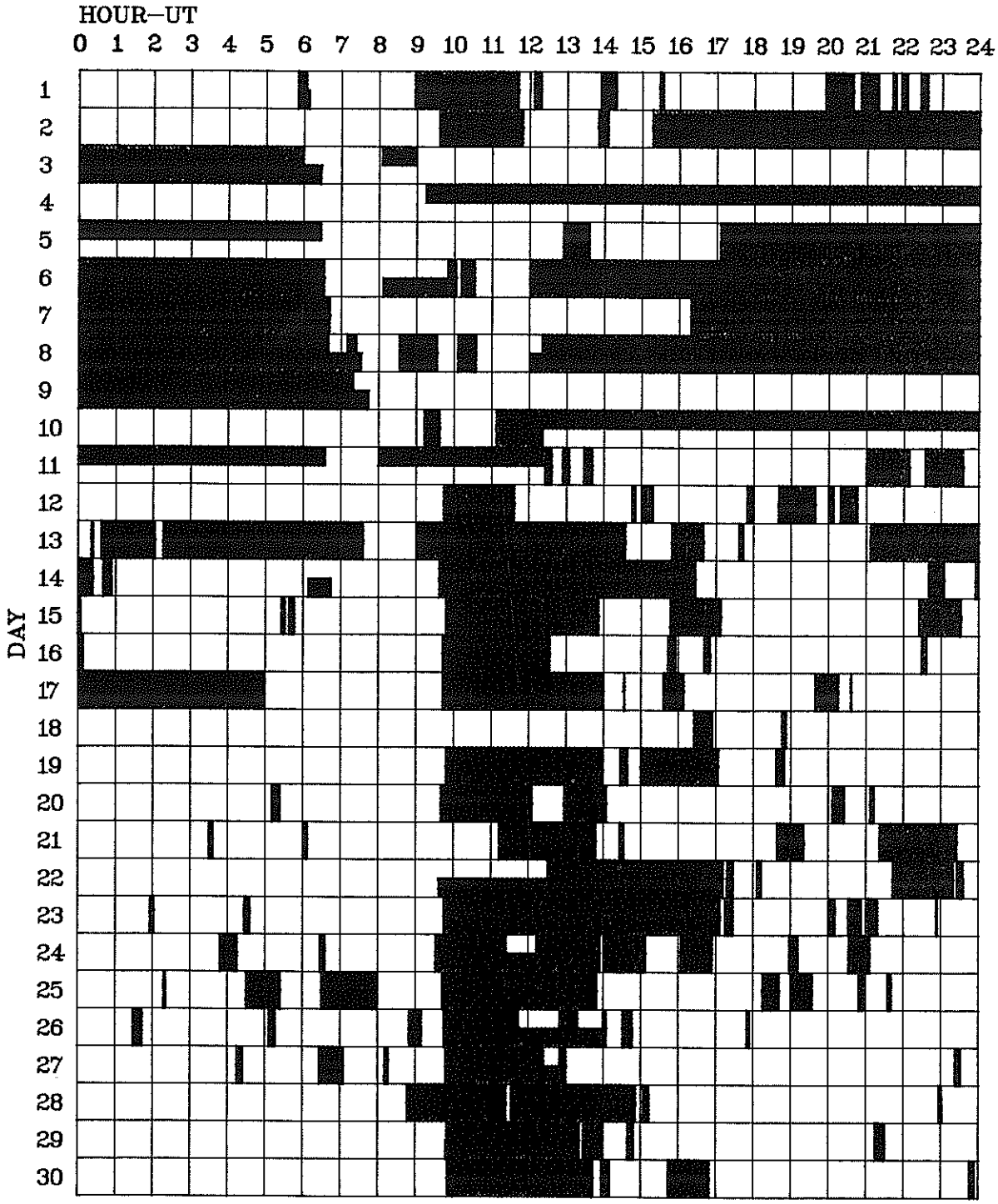
"REMARKS":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of CaII.
P = Flare shows helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

SEPTEMBER 1981



Observatories inclued in total patrol:

Bucharest	Istanbul	Palehua	Upice	Wendelstein
Holloman	Learmonth	Ramey		

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

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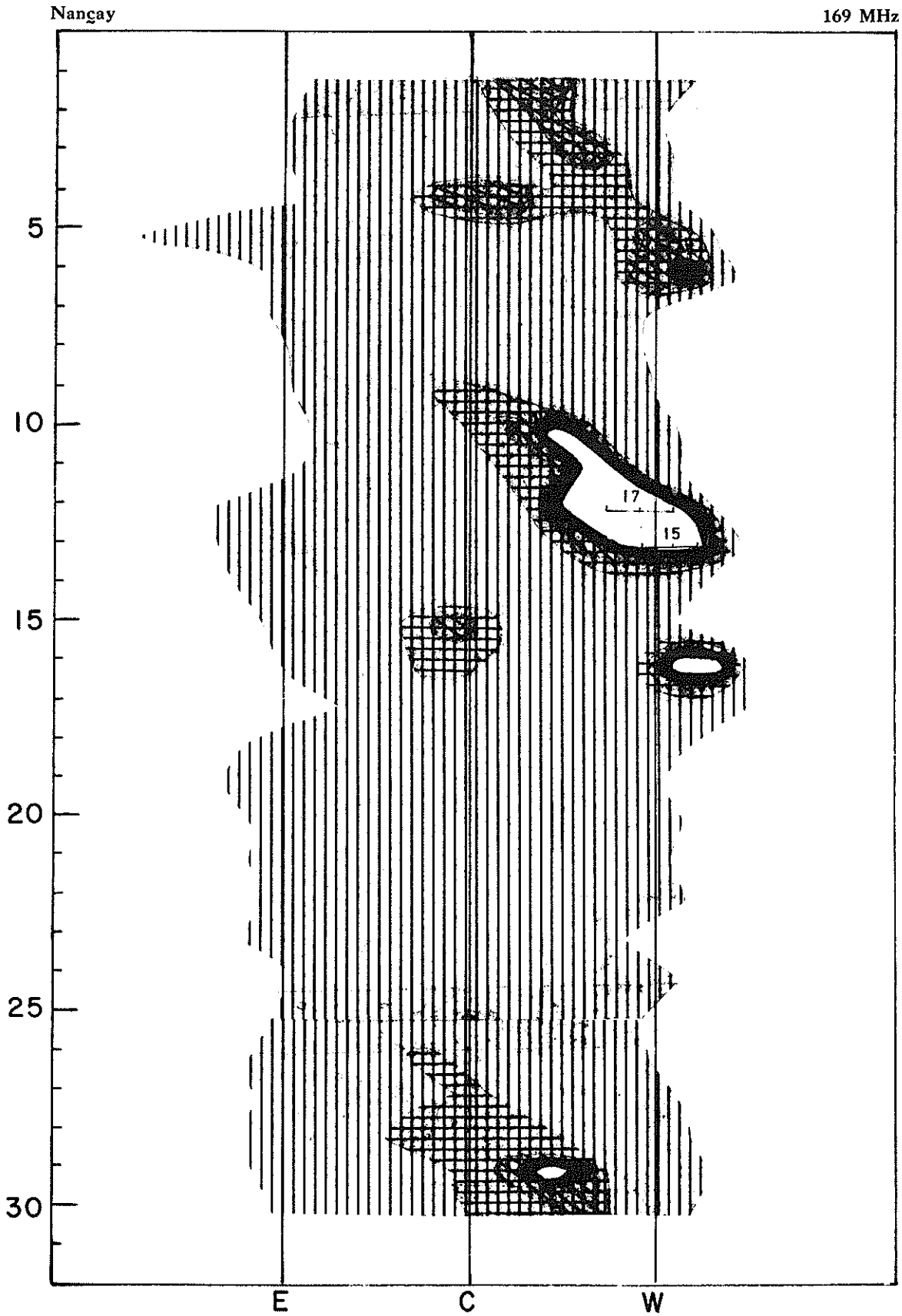
Sep 81

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

SEPTEMBER 1981

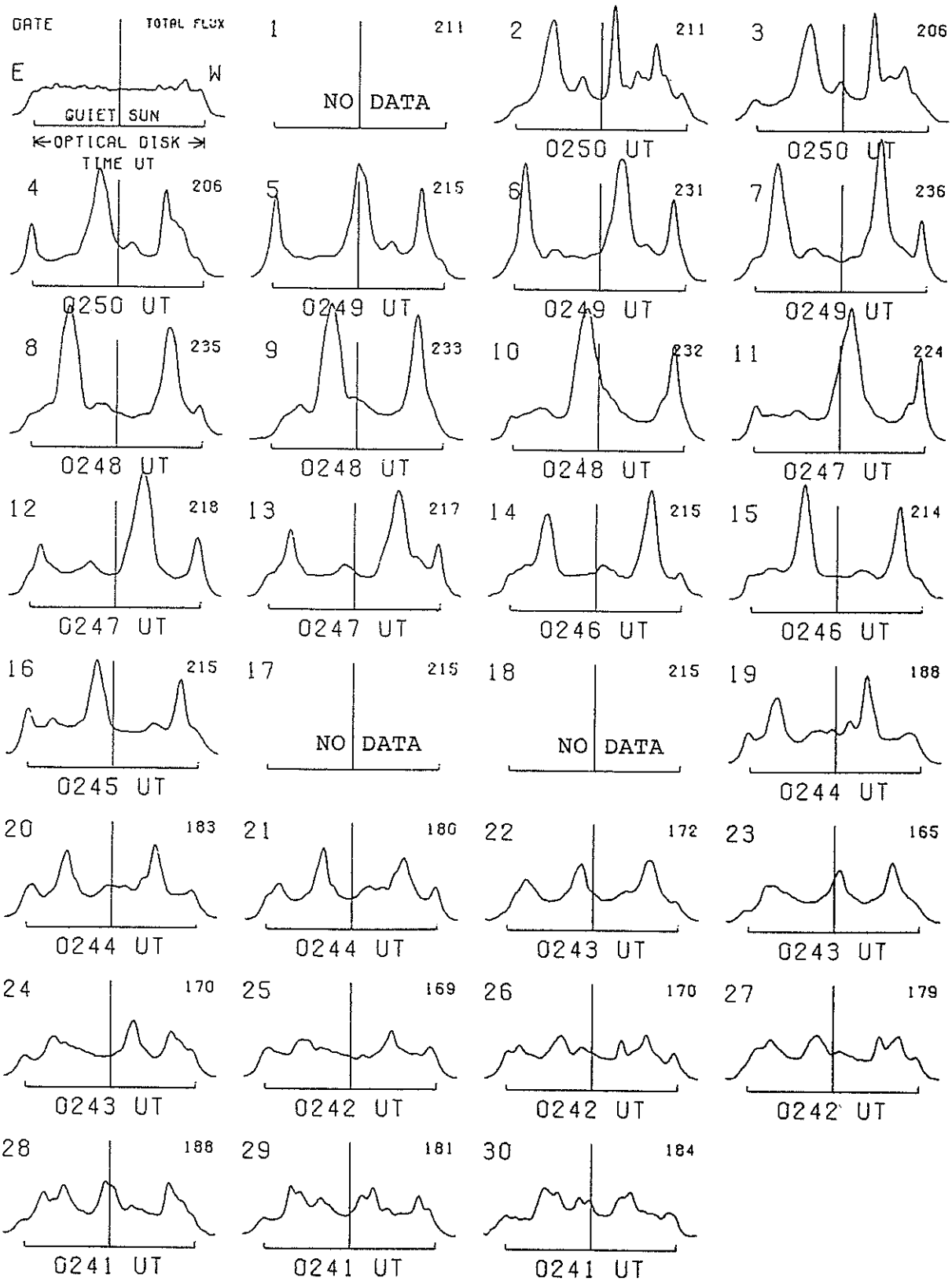


EAST-WEST SOLAR SCANS

SEPTEMBER 1981

TOYOKAWA, JAPAN

8 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



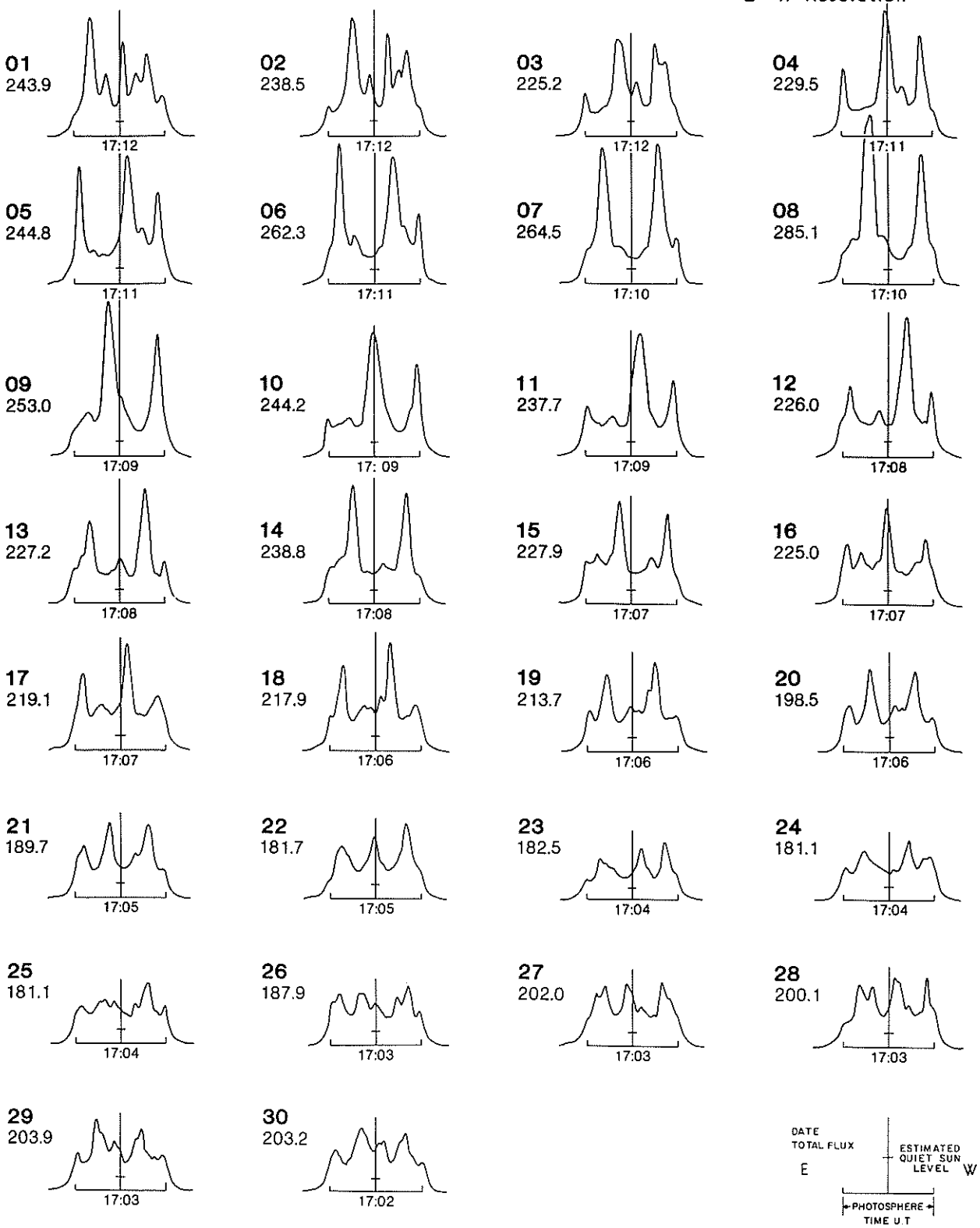
22
Sep 81

EAST-WEST SOLAR SCANS

SEPTEMBER 1981

ALGONQUIN RADIO OBSERVATORY
CANADA

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

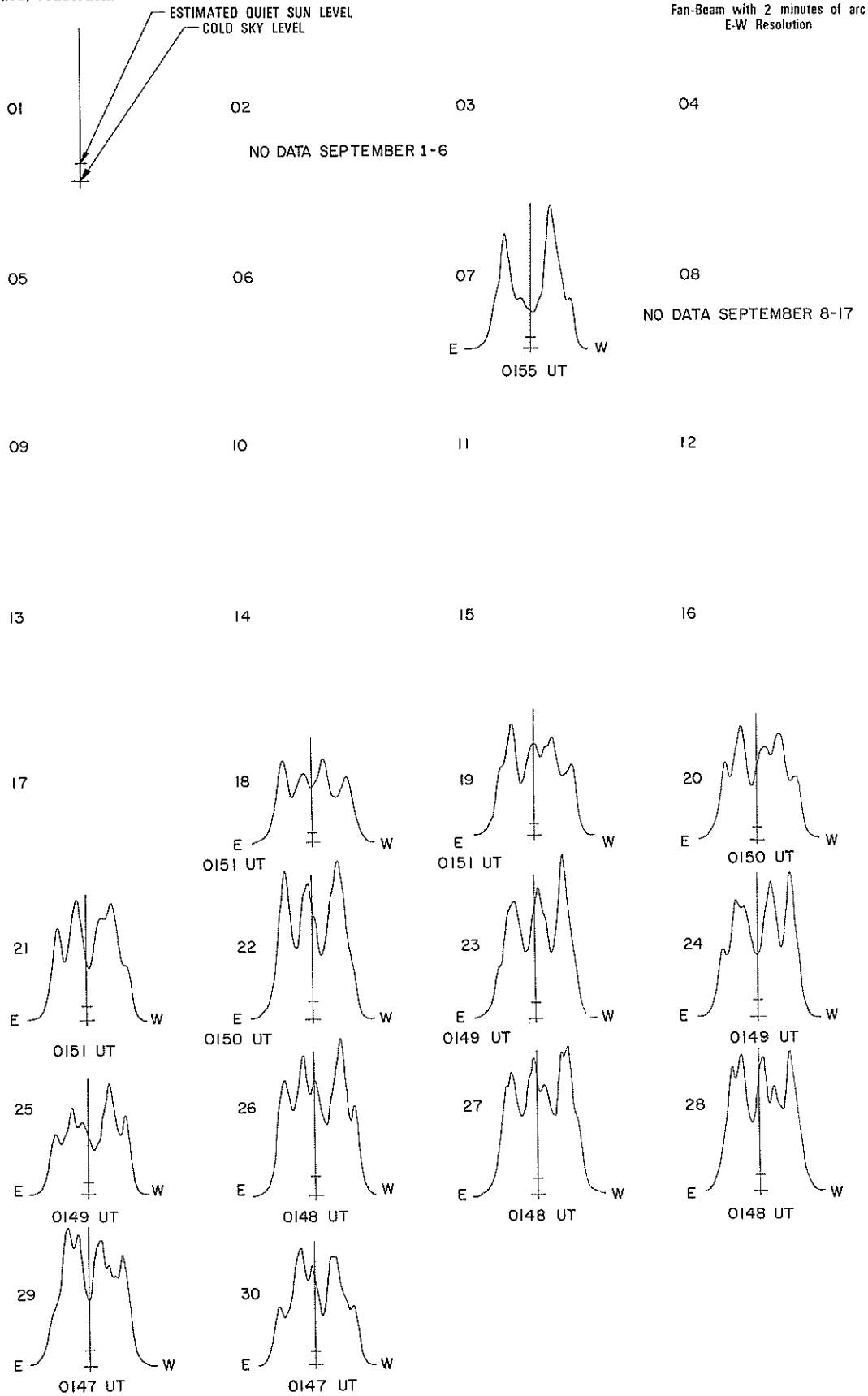


EAST-WEST SOLAR SOLAR SCANS

SEPTEMBER 1981

Fleurs, Australia

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



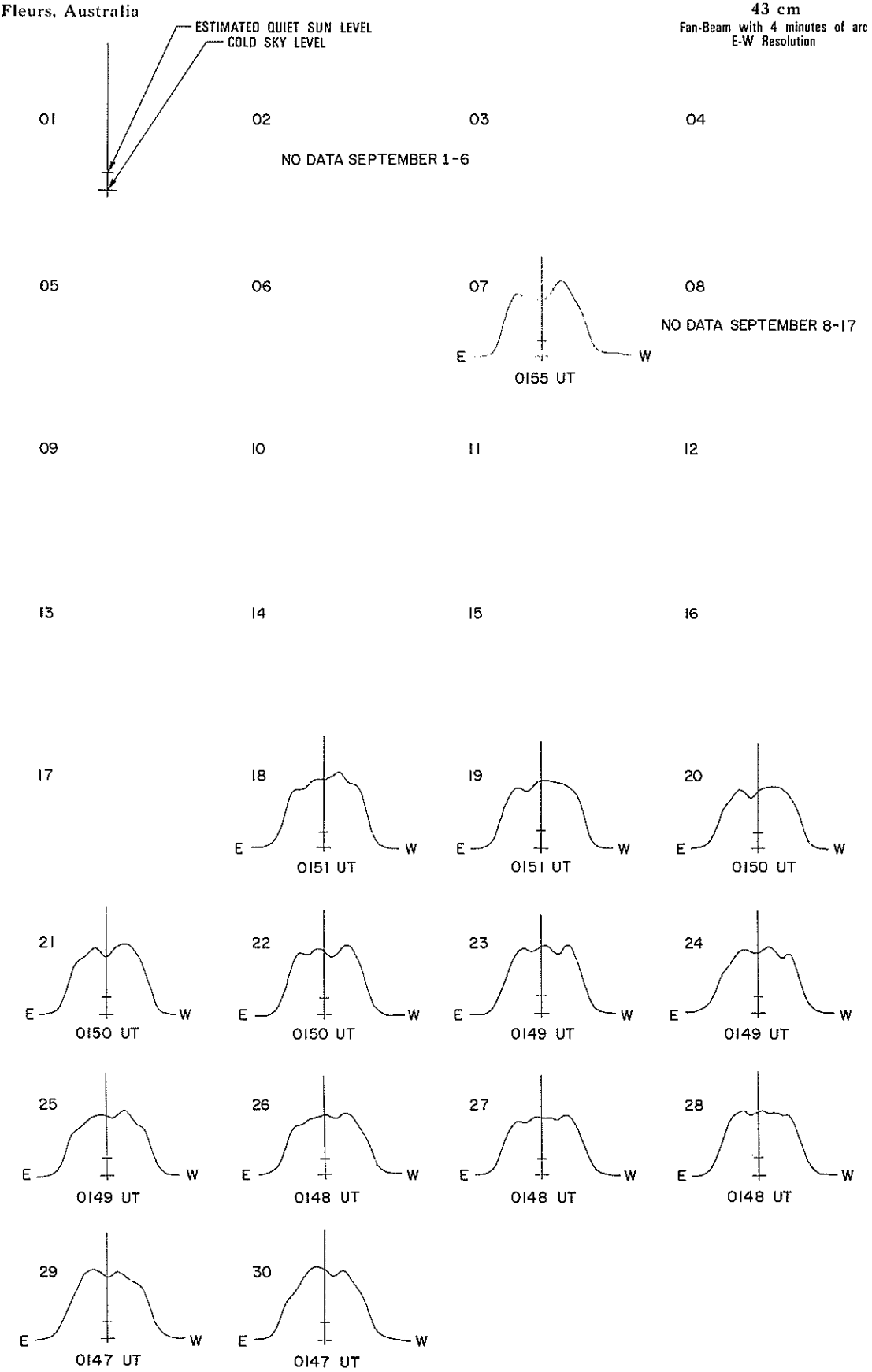
24
Sep 81

EAST-WEST SOLAR SCANS

SEPTEMBER 1981

Fleurs, Australia

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



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
01	3200	BERN	21 GRF	0846.1	0847.0	5.0	14.0			ONLY PAPER REC
	3200	BERN	1 S	1136.7	1137.0	12.0	26.0			ONLY PAPER REC
	2800	OTTA	4 S/F	1137.0	1137.5	3.0	33.0	22.0		
	2800	OTTA	29 PBI	1140.0	1140	10.0	12.4	5.0		
	2800	OTTA	1 S	1654.0	1654.7	2.0	4.6	2.3		
	2800	OTTA	21 GRF	1730.0	1755	90.0	3.6			
	2800	OTTA	1 S	1733.0	1734.5	3.5	3.4	1.7		
	2800	OTTA	26O FAL	1910.0	1955	45.0	-7.0	-3.5		
	2800	OTTA	20 GRF	2010.0	2100	100.0	6.2	4.6		
	2800	OTTA	20 GRF	2200.0	2240	165.0	6.6	4.8		
02	3200	BERN	4 S/F	0830.8	0832.6	8.0	20.0			ONLY PAPER REC
	2800	OTTA	24O R	1250.0	1430	100.0	8.2	4.1		
	2800	OTTA	1 S	1549.0	1551	6.0	5.2	2.6		
	2800	OTTA	20 GRF	1725.0	1815	100.0	4.4	2.2		
	2800	OTTA	21 GRF	1920.0	1955	70.0	4.0	2.0		
	2695	PENT	2 S/F	2008.0	2009.5	7.0	6.4	3.2		
	2800	OTTA	26O FAL	2040.0	2140	60.0	-6.2	-3.1		
03	2800	OTTA	21 GRF	1330.0	1510	145.0	10.6	4.0		
	2800	OTTA	8 S	1518.0	1518.3	.8	5.2			
	2800	OTTA	4 S/F	1612.6	1613	1.5	11.8	5.0		
	2800	OTTA	26O FAL	1700.0	1725	25.0	-4.4	-2.2		
	2800	OTTA	24O R	1925.0	2035	70.0	6.2	3.1		
	2695	PENT	46F C	2255.0	2304.8	18.0	221.0	115.0		
	2695	PENT	29 PBI	2313.0	2313	100.0D	48.0			
04	2800	OTTA	20 GRF	1310.0	1350	70.0	5.0	2.5		
	2800	OTTA	24O R	1725.0	1750	25.0	2.6	1.3		
	2800	OTTA	24O R	1955.0	2030	35.0	4.2	2.1		
	2800	OTTA	1 S	2156.3	2157.2	1.8	8.8	4.0		
	2695	PENT	21 GRF	2305.0	2415	110.0	8.4	4.0		
05	2695	PENT	1 S	0021.0	0021.3	2.0	5.4	2.7		
	3200	BERN	20 GRF	1028.0	1029.5	21.0	10.0			ONLY PAPER REC
	2800	OTTA	23 GRF	1147.0	1335	205.0	10.6			
	2800	OTTA	1 S	1330.5	1332.2	4.0	8.4	3.0		
	3200	BERN	1 S	1331.5	1332.0	2.0	7.0			ONLY PAPER REC
	3200	BERN	1 S	1417.0	1419.7	6.0	7.0			ONLY PAPER REC
	2800	OTTA	1 S	1448.2	1449	2.0	6.0	3.4		
	3200	BERN	1 S	1458.0	1458.8	2.0	7.0			ONLY PAPER REC
	2800	OTTA	24O R	1520.0	1535	20.0	4.8	2.4		
	2800	OTTA	21 GRF	1600.0	1620	35.0	3.8	2.0		
	2800	OTTA	1 S	1606.5	1608.7	5.0	4.6	2.0		
	2800	OTTA	24OAR	1703.0	1718	15.0	2.4			
	2800	OTTA	3 S	1710.0	1710.8	6.0	34.8	5.8		
	3200	BERN	3 S	1710.3	1710.6	1.0U	22.0U			ONLY PAPER REC
	2800	OTTA	46F C	1818.0	1821	6.0	50.0	17.0		
	2800	OTTA	4 S/F	1827.0	1829.2	4.0	11.2	7.8		
	2800	OTTA	23 GRF	1850.0	1947	125.0	20.0	14.0		
	2800	OTTA	40 F	1854.3	1854.5	2.5	14.0			
	2800	OTTA	1 S	2059.0	2059.5	1.0	2.8	1.4		
	2800	OTTA	8 S	2114.4	2114.5	.6	5.0			
	2800	OTTA	20 GRF	2130.0	2135	20.0	3.8	2.0		
	2800	OTTA	8 S	2207.0	2207.2	.6	5.6	2.8		
	2695	PENT	20 GRF	2237.0	2241	13.0	9.2	4.2		
	2695	PENT	3 S	2346.0	2346.5	4.2	10.4	3.4		
	2695	PENT	46F C	2358.8	2400	5.5	18.6	9.2		
06	3200	BERN	46 C	1209.0	1210.2	4.0	15.0			ONLY PAPER REC
	2800	OTTA	45 C	1209.5	1209.9	2.2	15.6	7.8		
	2800	OTTA	20 GRF	1400.0	1450	90.0	7.0	3.8		
	3200	BERN	8 S	1531.3	1531.5	.5	18.0			ONLY PAPER REC
	2800	OTTA	3 S	1531.5	1532	1.0	24.0	6.0		
	2800	OTTA	27AFRF	1535.0		220.0	7.0	5.8		
	2800	OTTA	24 R	1535.0	1600	25.0	7.0	3.5		
	2800	OTTA	24P R	1600.0		170.0	7.0			
	2800	OTTA	1 S	1612.0	1613	3.0	5.2	2.6		
	2800	OTTA	40 F	1628.2	1628.5	1.5	36.0			
	2800	OTTA	40 F	1651.0	1652.5	3.5	9.2			
	2800	OTTA	1 S	1733.2	1733.5	1.0	4.6	2.3		
	2800	OTTA	3 S	1812.5	1813	3.0	13.0	4.3		
	2800	OTTA	1 S	1839.8	1840	2.0	7.8	2.6		
	2800	OTTA	26 FAL	1850.0	1915	25.0	-7.0	-3.5		
	2800	OTTA	21 GRF	1920.0	1940	25.0	3.8	1.9		
	2800	OTTA	1 S	1935.5	1936	2.0	9.4	4.7		
	2800	OTTA	32A ABS	2035.0	2109	45.0	8.2	2.8		
	2800	OTTA	40 F	2106.2	2107.5	9.5	12.4			
	2800	OTTA	21 GRF	2128.0	2155	43.0	9.4	4.7		
	2800	OTTA	1 S	2129.0	2130	2.0	6.2	3.1		
	2800	OTTA		2141.0	2142.3	4.0	101.0			
	2800	OTTA	45 C	2141.0	2142.3	11.0	101.0	29.0		
	2800	OTTA		2145.0	2146.5	7.0	79.0			
	2800	OTTA	26A FAL	2256.0	2406	70.0	-8.2	-6.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
SEPTEMBER 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
06	2695	PENT	3 S	2353.2	2354	12.0	137.0	27.0		
07	2695	PENT	21 GRF	0008.0	0035	66.0	19.6	11.0		
	2695	PENT	4 S/F	0010.0	0010.2	3.0	16.6	8.0		
	2695	PENT	2 S/F	0042.0	0042.5	2.0	4.2			
	2695	PENT	46F C	0053.5	0055.5	15.0	152.0	48.0		
	2695	PENT	46F C	0118.6	0121	5.0	76.0			
	3200	BERN	1 S	0905.1	0905.5	1.0	6.0			ONLY PAPER REC
	3200	BERN	46 C	1035.5	1037.7	7.0	68.0			ONLY PAPER REC
	3200	BERN	3 S	1134.7	1136.0	7.0	31.0			ONLY PAPER REC
	2800	OTTA	4 S/F	1136.0	1136.4	1.5	34.0	16.0		
	3200	BERN	46 C	1214.0	1221.5	20.0	81.0			ONLY PAPER REC
	2800	OTTA	46F C	1214.5	1222	13.5	108.0	44.0		
	2800	OTTA		1214.5	1217	5.0	97.0			
	2800	OTTA		1219.5	1222	8.5	108.0			
	2800	OTTA	29 PBI	1228.0	1228	9.0	5.2	3.8		
	2800	OTTA	27A RF	1305.0		190.0	5.4	4.8		
	2800	OTTA	24 R	1305.0	1330	25.0	5.4	2.7		
	2800	OTTA	24P R	1330.0		145.0	5.4			
	2800	OTTA	21 GRF	1440.0	1452	20.0	5.0	3.4		
	2800	OTTA	8 S	1445.1	1445.1	.1	25.0			
	2800	OTTA	3 S	1446.7	1446.7	1.0	14.4			
	2800	OTTA	26 FAL	1555.0	1615	20.0	-5.4	-2.5		
	2800	OTTA	24OAR	1630.0	1650	20.0	5.4	2.7		
	2800	OTTA	1 S	1646.2	1646.3	1.2	3.0	1.6		
	2800	OTTA	21 GRF	1651.0	1702	65.0	6.2	2.8		
	2800	OTTA	3 S	1658.0	1659.1	3.0	19.0	9.0		
	2695	PENT	1 S	1703.0	1704	3.2	4.2	2.8		
	2800	OTTA	3 S	1718.8	1719.1	1.0	14.4	5.0		
	2800	OTTA	21 GRF	1805.0	1840	90.0	8.2	3.6		
	2800	OTTA	1 S	1820.0	1821	2.0	4.6	2.3		
	2800	OTTA	45 C	1830.5	1837	8.0	10.2	5.0		
	2800	OTTA	21 GRF	1940.0	2137	235.0	18.6	9.3		
	2695	PENT	4 S/F	2003.2	2005	7.0	164.0	50.0		
	2800	OTTA	4 S/F	2221.5	2223.5	16.0	320.0	56.0		
08	3200	BERN	22 GRF	0852.5	0904.7	20.0	6.0			ONLY PAPER REC
	3200	BERN	20 GRF	0929.7	0932.0	20.0	6.0			ONLY PAPER REC
	3200	BERN	1 S	1133.6	1135.0	10.0	6.0			ONLY PAPER REC
	3200	BERN	4 S/F	1333.0	1334.0	12.0	18.0			ONLY PAPER REC
	2800	OTTA	3 S	1333.5	1334.2	5.0	18.2	9.0		
	2800	OTTA	21 GRF	1659.0	1720	280.0	16.6	6.4		
	2800	OTTA	4 S/F	1700.0	1703	5.5	10.2	5.1		
	2695	PENT	3 S	1707.5	1708.1	3.5	11.0	5.0		
	2800	OTTA	3 S	1712.0	1713.7	3.5	15.0	5.0		
	2800	OTTA	8 S	1743.5	1743.8	.8	3.6	2.2		
	2800	OTTA	8 S	1919.5	1919.7	.6	5.0	2.5		
	2800	OTTA	21 GRF	1945.0	2010	105.0	13.2	6.6		
	2800	OTTA	2 S/F	2028.0	2028.6	1.5	3.6			
	2800	OTTA	3 S	2030.5	2032.1	6.0	51.0	12.0		
	2800	OTTA	26O FAL	2215.0	2240	25.0	-3.6	-1.8		
	2695	PENT	3 S	2322.5	2323	1.5	12.8	6.0		
09	2695	PENT	3 S	0113.5	0114.3	2.0	23.2	11.6		
	3200	BERN	4 S/F	0726.1	0731.1	15.0	62.0			ONLY PAPER REC
	3200	BERN	4 S/F	1146.6	1148.6	9.0	28.0			ONLY PAPER REC
	2800	OTTA	46F C	1147.7	1149	5.3	24.0	12.0		
	2800	OTTA	29 PBI	1153.0	1153	7.0	5.2	2.6		
	3200	BERN	4 S/F	1202.2	1203.5	11.0	45.0			ONLY PAPER REC
	2800	OTTA	4 S/F	1202.8	1203.8	3.0	13.8	6.9		
	3200	BERN	3 S	1324.8	1329.1	90.0	54.0			ONLY PAPER REC
	2800	OTTA	21 GRF	1325.0	1340	165.0	19.6	9.8		
	2800	OTTA	4 S/F	1329.0	1329.4	5.0	67.0	22.4		
	2800	OTTA	8 S	1623.6	1623.6	.1	13.6			
	2800	OTTA	45 C	1649.0	1653.2	9.0	9.0	3.0		
	2800	OTTA	20 GRF	1805.0	1820	55.0	3.8	2.8		
	2800	OTTA	21 GRF	1930.0	1955	75.0	5.6	2.8		
	2695	PENT	1 S	2008.0	2009	4.0	4.8	2.4		
	2800	OTTA	8 S	2022.9	2022.9	.1	3.4			
	2800	OTTA	8 S	2035.3	2035.5	.8	7.2	3.6		
	2800	OTTA	3 S	2107.0	2107.3	1.0	15.2	7.6		
	2800	OTTA	21 GRF	2150.0	2220	80.0	16.6	6.0		
	2800	OTTA	4 S/F	2207.5	2209	4.0	20.0	10.8		
10	3200	BERN	3 S	0726.5	0728.5	12.0	148.0			ONLY PAPER REC
	3200	BERN	46 C	0812.2	0819.6	18.0	60.0			ONLY PAPER REC
	3200	BERN	46 C	0937.2	0940.5U	82.0	218.0D			ONLY PAPER REC
	2800	OTTA	21 GRF	1330.0	1425	80.0	6.6			
	2800	OTTA	1 S	1346.0	1347.2	4.0	5.6	2.0		
	2800	OTTA	8 S	1619.0	1619.2	.5	5.6			
	2800	OTTA	21 GRF	1720.0	1820	100.0	6.6	3.3		
	2800	OTTA	45 C	1725.0	1727.5	12.0	82.0	20.8		
11	3200	BERN	4 S/F	0712.0	0713.7	3.0	13.0			ONLY PAPER REC
	3200	BERN	46 C	0753.0	0755.2	6.0	47.0			ONLY PAPER REC

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
11	3200	BERN	3	S	1014.5	1016.5	3.0	13.0			ONLY PAPER REC
	3200	BERN	41	F	1130.0	1131.0	10.0	9.0			ONLY PAPER REC
	3200	BERN	3	S	1212.3	1214.7	8.0	19.0			ONLY PAPER REC
	2800	OTTA	4	S/F	1213.0	1215	7.0	17.0	5.7		
	2800	OTTA	26O	FAL	1320.0	1410	50.0	-13.8	-7.0		
	2800	OTTA	20	GRF	1550.0	1625	60.0	4.4	2.2		
	2800	OTTA	20	GRF	1655.0	1705	35.0	3.8	1.9		
	2800	OTTA	1	S	2053.0	2055	7.0	3.6	1.8		
	2800	OTTA	32A	ABS	2103.0	2155	110.0	7.0	3.5		
	2800	OTTA	40	F	2128.0	2140.2	16.0	24.4			
	2695	PENT	1	S	2234.0	2234.3	1.0	2.4	1.2		
	2695	PENT	3	S	2310.5	2311.8	3.2	39.0	25.0		
	2695	PENT	30	PBI	2313.7	2313.7	100.0	16.2	7.0		
12	2695	PENT	4	S/F	0034.2	0035.7	5.5	30.0			
	2695	PENT	1	S	0037.5	0038	1.0	3.6	1.8		
	3200	BERN	22	GRF	0718.7	0722.7	24.0	9.0			ONLY PAPER REC
	3200	BERN	41	F	1229.7	1230.0	20.0	13.0			ONLY PAPER REC
	2800	OTTA	4	S/F	1230.0	1231.1	2.5	75.0	14.0		
	2800	OTTA	20	GRF	1238.0	1243	11.0	4.4	2.2		
	2800	OTTA	21	GRF	1415.0	1530	160.0	10.0	5.4		
	2800	OTTA	8	S	1541.4	1541.4	.1	5.4			
	2800	OTTA	21	GRF	1750.0	1755	60.0	8.4	2.8		
	2800	OTTA	1	S	1759.0	1803	10.0	8.2	4.1		
	2695	PENT	24OAR		2314.0	2324	10.0	5.6	2.8		
	2695	PENT	8	S	2322.1	2322.2	.6	13.2			
	2695	PENT	24OAR		2345.0	2355	10.0	5.2			
	2695	PENT	1	S	2346.0	2348	8.0	7.0	3.8		
13	2695	PENT	21	GRF	0000.0	0050	90.0D	28.0			
	2695	PENT	46F	C	0004.0	0008	1.2	445.0	77.0		
	2695	PENT	29	PBI	0016.0	0016	25.0	16.6	8.0		
	2800	OTTA	21	GRF	1744.0	1830	80.0	-4.6	-2.3		
	2800	OTTA	1	S	1744.5	1745	1.0	2.2	1.1		
	2800	OTTA	21	GRF	1943.0	2040	225.0	13.6	6.8		
	2800	OTTA	1	S	1944.0	1944.5	1.0	6.0	3.0		
	2695	PENT	4	S/F	2340.0	2342.5	10.0	18.0	6.0		
14	2800	OTTA	21	GRF	1440.0	1620	270.0	15.4	7.7		
	2800	OTTA	45	C	1847.1	1847.4	2.0	57.0	7.4		
	2695	PENT	1	S	2254.9	2255	1.0	4.2	2.0		
	2695	PENT	45	C	2258.0	2259.3	2.0	7.2	3.4		
15	2695	PENT	21	GRF	0005.0	0105	90.0D	29.0			
	2695	PENT	8	S	0040.0	0040.3	.5	6.0			
	2695	PENT	4	S/F	0043.0	0043.8	3.5	16.0	8.0		
	2800	OTTA	24O	R	1215.0	1350	95.0	14.8	7.4		
	2800	OTTA	23	GRF	1710.0	1920	240.0	17.4	8.7		
	2800	OTTA	4	S/F	1842.5	1844	3.0	10.4	5.2		
	2800	OTTA	1	S	1904.0	1905.5	5.0	5.8	3.0		
	2800	OTTA	8	S	1915.3	1915.7	.7	3.6	1.8		
	2800	OTTA	24	R	2112.0	2130	18.0	4.0			
	2800	OTTA	27A	RF	2112.0		168.0	4.0	3.5		
	2800	OTTA	47	GB	2113.0	2115.8	16.0	545.0	55.0		
	2800	OTTA	24P	R	2130.0		125.0	4.0			
	2695	PENT	26	FAL	2335.0	2400	25.0	-4.0	-2.0		
16	2800	OTTA	21	GRF	1305.0	1345	90.0	3.6	1.8		
	3200	BERN	20	GRF	1338.1	1339.2	14.0	8.0			ONLY PAPER REC
	2800	OTTA	1	S	1339.0	1340	2.0	2.8	1.4		
	2800	OTTA	20	GRF	1450.0	1455	70.0	3.8	1.9		
	3200	BERN	3	S	1609.1	1610.0	3.0	14.0			ONLY PAPER REC
	2800	OTTA	1	S	1609.5	1610.3	3.5	7.2	2.4		
	2800	OTTA	21	GRF	1740.0	1758	50.0	8.8	3.0		
	2800	OTTA	4	S/F	1744.0	1747.7	7.0	12.2	5.0		
	2800	OTTA	20	GRF	1910.0	1935	50.0	3.0	1.5		
	2800	OTTA	1	S	2044.5	2045.5	5.0	2.2	1.1		
	2800	OTTA	1	S	2133.0	2133.5	1.0	2.8	1.4		
17	8800	LEAR	4	S/F	0128.8	0129.6	3.7	18			
	8800	PALE	8	S	0129.3	0129.5	.8	30			
	8800	LEAR	8	S	0523.1	0523.8	1.0	13			
	2695	LEAR	8	S	0523.5	0523.8	.6	11			
	2695	MANI	8	S	0523.5	0523.8	1.0	16			
	2800	OTTA	21	GRF	1550.0	1700	110.0	5.6	2.0		
	2800	OTTA	1	S	1649.0	1649.5	1.0	3.4	1.4		
	2800	OTTA	46F	C	1808.0	1813.9	12.0	35.0	13.5		
	8800	PALE	8	S	2317.6	2317.8	.2	20			
	2695	PENT	45	C	2332.0	2334.1	8.0	26.6	4.6		
	8800	LEAR	4	S/F	2332.3	2334.1	2.2	77			
	2695	LEAR	8	S	2332.3	2334.1	2.0	29			
	8800	PALE	8	S	2332.5	2334.1	2.0	100			
	2695	PALE	8	S	2334.0	2334.1	.3	30			
	2695	PENT	8	S	2343.3	2343.5	.7	4.2			
18	8800	LEAR	47	GB	0130.0	0132.1	9.6	19			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	FLUX DENSITY MEAN	INT	REMARKS
18	2695	LEAR	47	GB	0130.0	0130.1	6.6	18			
	2695	PENT	4	S/F	0130.0	0132.7	5.0D	183.0			
	8800	PALE	8	S	0132.0	0132.5	2.0	83			
	2695	PALE	8	S	0132.1	0132.6	1.9	170			
	2695	LEAR	8	S	0450.0	0451.8	1.8	26			
	3200	BERN	46	C	1414.5	1416.0	2.0	37.0			ONLY PAPER REC
	2800	OTTA	21	GRF	1515.0	1640	220.0	6.0	4.0		
	2800	OTTA	3	S	1732.5	1733.3	1.5	13.8	7.0		
	8800	SGMR	8	S	1732.5	1733.3	2.0	17			
	2695	SGMR	8	S	1732.6	1733.1	1.9D	13			
	2800	OTTA	29	PBI	1734.0	1734	5.0	3.4	1.7		
19	8800	PALE	8	S	0058.5	0059.3	1.1	20			
	2695	LEAR	4	S/F	0312.6	0313.3	3.2	80			
	2695	PALE	8	S	0312.8	0313.3	1.7	88			
	8800	LEAR	8	S	0312.8	0313.8	2.0	11			
	2695	LEAR	4	S/F	0409.1	0411.5	8.9	19			
	8800	LEAR	4	S/F	0409.6	0411.8	10.2	11			
	8800	ATHN	4	S/F	0550.6	0551.3	2.7	139			
	2695	ATHN	4	S/F	0550.6	0551.3	2.2	72			
	2695	LEAR	4	S/F	0550.8	0551.1	2.3	80			
	8800	LEAR	4	S/F	0550.8	0551.1	3.3	270			
	2695	MANI	4	S/F	0551.3	0552.0	2.5D	86			
	8800	MANI	8	S	0551.5	0552.0	1.0	320			
	2695	LEAR	8	S	0602.8	0603.0	1.3	08			
	8800	LEAR	8	S	0602.8	0603.0	1.0	20			
	2800	OTTA	40	F	1439.5	1439.6	1.5	35.6			
	2695	SGMR	8	S	1439.5	1440.6	1.5D	30			
	2800	OTTA	31	ABS	1441.0	1507	45.0	-2.6	-1.3		
	2800	OTTA	21	GRF	1530.0	1542	100.0	3.6	1.8		
	2800	OTTA	40	F	1649.0	1650.3	2.0	8.6			
	2800	OTTA	20	GRF	1745.0	1751	60.0	4.0	2.2		
	2800	OTTA	1	S	2105.0	2105.9	2.5	4.8	2.0		
20	2695	LEAR	8	S	0054.8	0055.5	.7	11			
	2695	LEAR	8	S	0622.1	0622.3	.7	30			
	2800	OTTA	22	GRF	1415.0	1435	95.0	2.6	1.3		
21	2695	PENT	20	GRF	2130.0		105.0	3.4	2.5		
22	3200	BERN	4	S/F	0834.7	0845.5	30.0	221.0			ONLY PAPER REC
	8800	ATHN	4	S/F	0837.6	0845.3	25.4	210			
	2695	LEAR	47	GB	0839.1	0843.3	14.7	60			
	8800	LEAR	47	GB	0839.8	0843.3	15.0	89			
	2695	MANI	4	S/F	0840.0	0845.6	16.0D	119			
	2695	ATHN	4	S/F	0840.0	0845.6	19.1D	160			
	8800	MANI	4	S/F	0841.3	0845.5	11.7	139			
	2800	OTTA	20	GRF	1330.0	1500	200.0	6.2	3.1		
	2800	OTTA	24	R	1810.0	1850	40.0	3.4	1.7		
	2800	OTTA	27	RF	1810.0		345.0	3.4	3.0		
	2800	OTTA	24P	R	1850.0		270.0	3.4			
	2800	OTTA	26	FAL	2320.0	2355	35.0	-3.4	-1.7		
23	8800	LEAR	4	S/F	0556.3	0558.3	2.8	16			
	2695	LEAR	8	S	0556.6	0557.5	2.0	09			
	3200	BERN	3	S	0714.1	0715.3	6.0	26.0			ONLY PAPER REC
	8800	ATHN	8	S	0715.3	0715.8	1.8	89			
	2695	ATHN	8	S	0715.5	0715.6	1.6D	18			
	2800	OTTA	20	GRF	1605.0	1623	45.0	2.6	1.3		
24	2800	OTTA	20	GRF	1850.0	1900	40.0	2.8	1.4		
	2800	OTTA	20	GRF	2155.0	2225	155.0	7.6	3.8		
26	3200	BERN	3	S	1010.1	1011.1	4.0	17.0			ONLY PAPER REC
	2800	OTTA	20	GRF	1300.0	1350	130.0	3.0	1.8		
27	2800	OTTA	21	GRF	1820.0	1845	120.0	4.0	2.6		
	2800	OTTA	2	S/F	1835.0	1836.7	2.5	7.2	3.6		
28	3200	BERN	22	GRF	1158.0	1207.1	19.0	12.0			ONLY PAPER REC
	8800	SGMR	8	S	1207.0	1207.3	1.1	50			
	2695	SGMR	8	S	1207.3	1207.5	1.0D	09			
	8800	ATHN	8	S	1207.5	1207.6	.3	43			
	2800	OTTA	260	FAL	1230.0	1300	30.0	-4.2	-2.1		
	2800	OTTA	20	GRF	1500.0	1530	60.0	3.0	1.5		
	2800	OTTA	8	S	1639.9	1640.1	.5	2.8	1.4		
	2800	OTTA	20	GRF	1824.0	1827	15.0	2.2	1.1		
	2800	OTTA	3	S	1917.0	1917.4	5.0	16.6	2.4		
	8800	PALE	8	S	1917.1	1917.3	.2	26			
	2695	PALE	8	S	1917.1	1917.3	.5	38			
	2800	OTTA	20	GRF	2000.0	2006	45.0	2.8	1.4		
29	8800	SGMR	4	S/F	1416.0	1417.5	8.0D	80			
	2695	ATHN	4	S/F	1416.1	1417.6	5.5D	110			
	3200	BERN	3	S	1416.2	1417.5	8.0	128.0			ONLY PAPER REC

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
29	8800	ATHN	4	S/F	1416.5	1417.3	4.6	70			
	2800	OTTA	3	S	1416.5	1417.7	11.0	157.0	38.0		
	2695	SGMR	4	S/F	1416.6	1417.8	11.9D	160			
	2800	OTTA	21	GRF	1435.0	1525	105.0	4.4	2.6		
	2800	OTTA	2	S/F	1445.0	1446	1.2	3.4			
	2695	SGMR	8	S	1454.3	1454.5	1.2	11			
	2800	OTTA	1	S	1454.5	1454.7	4.0	7.6	2.0		
	2800	OTTA	20	GRF	2010.0	2020	80.0	3.6	1.8		
30	8800	ATHN	4	S/F	0513.6	0514.6	7.4	49			
	8800	ATHN	4	S/F	1520.6	1522.1	2.5	330			
	2800	OTTA	21	GRF	1710.0	1717	80.0	6.2	3.1		
	2800	OTTA	46F	C	1718.0	1723	19.0	17.0	6.6		
	2800	OTTA	20	GRF	1905.0	1955	65.0	2.6			
	2800	OTTA	20	GRF	2115.0	2125	25.0	2.6	1.8		
	2695	PENT	240	R	2210.0	2240	30.0	7.4	3.7		

Observatories:

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

Explanation of Type Code:

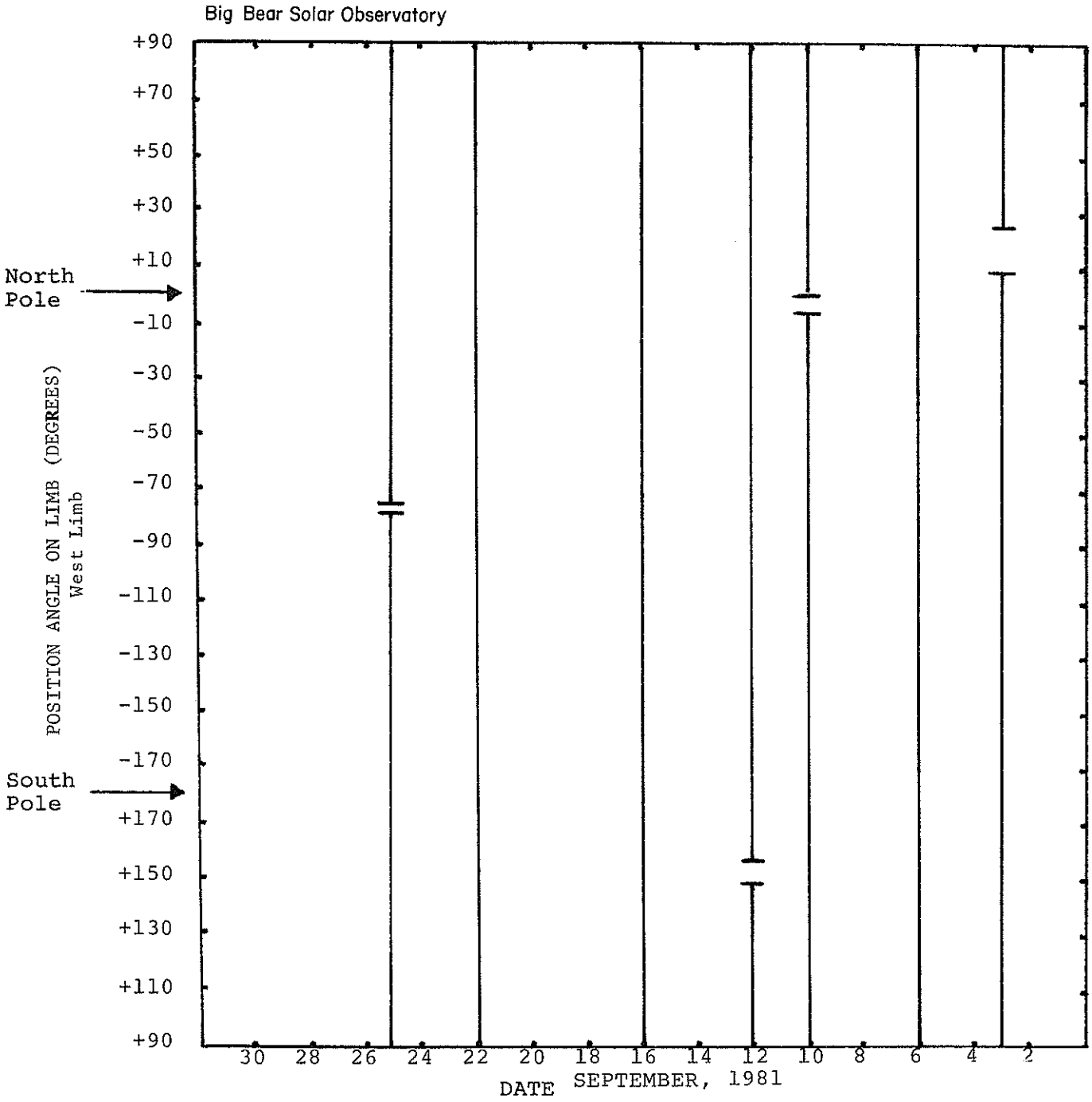
1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase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

30
Sep 81

CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

SEPTEMBER 1981



PIONEER XII

SEPTEMBER 1981

DATE Sep '81	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H+} ($x10^6$°K)
1	0419	085.	449.	26.5	0.068
2	0447		410.	48.6	.09
3	0438		475.	17.9	.112
4	0441		338.	25.	.048
5	0347		378.	59.7	.157
6	0510		333.	36.6	.062
7	0356		359.	52.6	.129
8	0418		374.	17.3	.06
9	0336		358.	21.8	.036
10	0401		334.	63.	.029
11	0314		371.	13.8	.089
12	1401		343.	66.2	.088
13	0300		445.	13.1	.321
14	0352		393.	18.1	.174
15	0306	076.	398.	34.2	.06
16	0314		407.	9.4	.131
17	0409		359.	32.1	.191
18	0453		685.	13.4	.019
19	0426		532.	12.5	.276
20	0437		512.	4.3	.062
21	0410		512.	12.5	.273
22	0423		425.	8.2	.145
23	0432		341.	18.1	.017
24	0324		454.	32.	.233
25	0428		457.	20.6	.441
26	0052		393.	10.3	.059
27	0432		439.	15.5	.182
28	0026		387.	14.8	.095
29	0421		409.	14.6	.041
30	0316		355.	19.	.017

INFERRED IP MAGNETIC FIELD

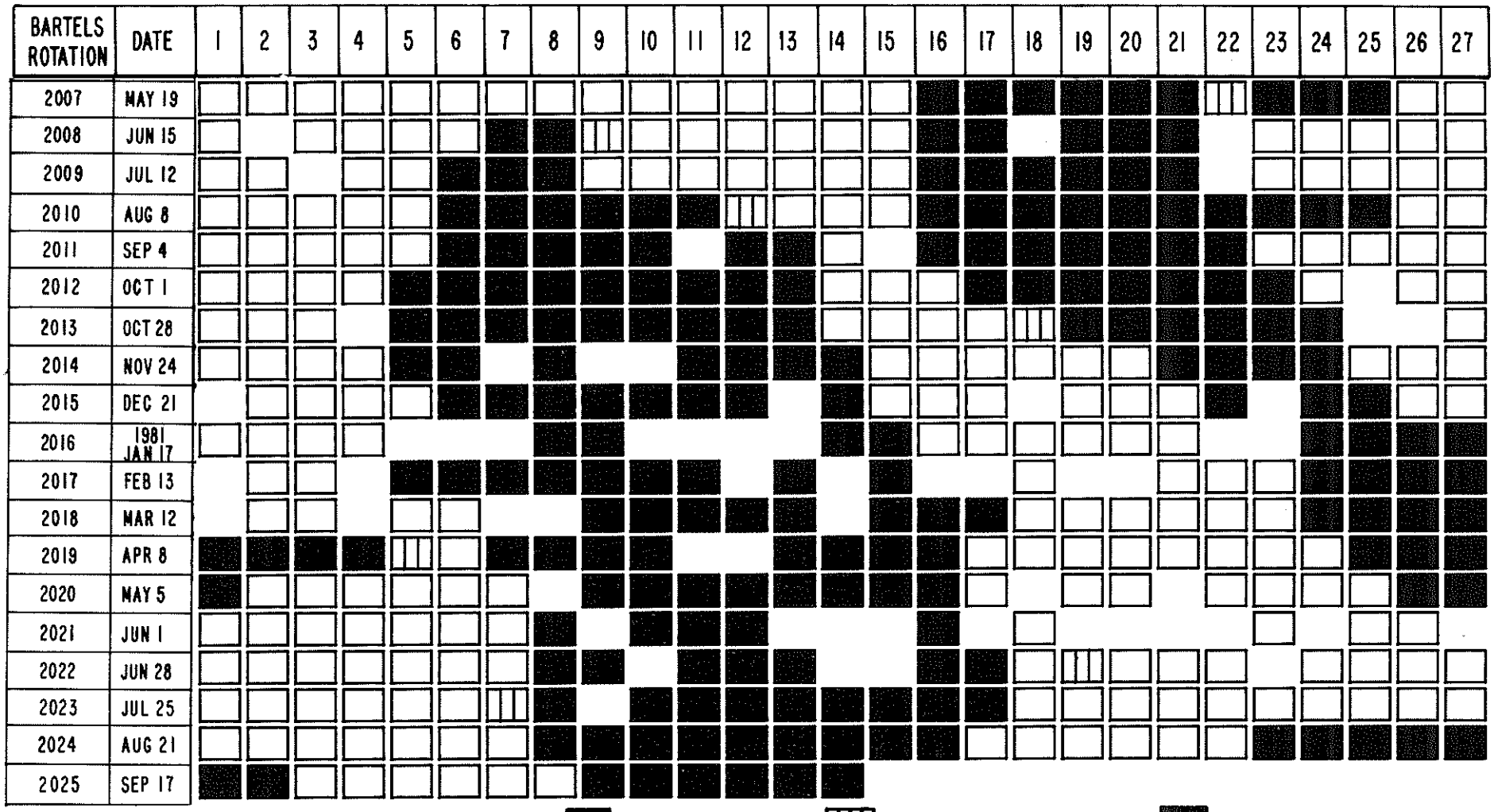
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2006	APR 27		AT			AT -						TA	AT		TA			TA AT	AT						TA	AT	*	TA
2007	MAY 24			AT	AT			*	* -		- -	- -	TA		AT					* TA			- TA		TA		- TA	
2008	JUN 20		-				AT		-	-					-	-							TA		TA		TA	
2009	JUL 17		-	AT		-						-			TA TA		-	AT AT			-		-	-	-	- A*	-	-
2010	AUG 13		AT					-	AT -							-		- AT					TA		-	A*		
2011	SEP 9							TA	AT						TA	TA										TA		
2012	OCT 6							*		TA	TA		AT	A*	A*							TA			TA			
2013	NOV 2	AT					TA	TA				AT	A*								-	TA -	AT			TA		
2014	NOV 29					-					-	-			TA		TA	TA	AT		-	AT			-		TA	
2015	DEC 26										-	-			-	TA -	TA -	-	-	-	-	-	-	AT	AT	-	-	-
2016	1981 JAN 22	TA -			AT	T*	-		-	AT	TA				TA					-				AT				TA
2017	FEB 18			AT	TA									TA	TA		*								AT	TA		TA
2018	MAR 17							AT						-					TA				AT		- -		TA	AT
2019	APR 13	TA	-	-	-	-			TA		-				TA				* AT		-		-		-	AT	-	-
2020	MAY 10	- -	- -	- TA	AT	TA		-		TA			TA									*	*					
2021	JUN 6		*								AT				TA			AT		-	- -	- -	-	-	-	-	-	-
2022	JUL 3	-	-	-	-	- -	- -	-	- -	- -	-	-	- -	- -	- -	- -	-	-	-	-	- -	- -	- -	- -	- -	-	-
2023	JUL 30	-	- -	- -		-	-	-	- -	-	-	-	-	-	-	- -	- -	-	TA -	TA -	- -	-	-	-	-	AT -	- -	-
2024	AUG 26	- -	-	-	TA -	TA -	-	TA -	-	-	TA -	-	-	-	-	TA -	-	TA -	-	-	-	-	TA -	-	-	-	-	-
2025	SEP 22	-	-	-	-	-	-	-	AT -	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. The Thule magnetometer ceased operating in August 1981.

STANFORD MEAN SOLAR MAGNETIC FIELD



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

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

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

DAY	1980 OCT.	NOV.	DEC.	1981 JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.
01	44	-41	-82	-111	33	.	75	2	16	53	-49	-134
02	59	-94	.	.	20	54	82	-51	21	49	.	-87
03	53	-120	.	-33	64	.	31	-66	17	41	-72	-56
04	26	-123	-100	7	72	.	-23	-56	6	14	-80	-21
05	-4	-111	-97	46	58	102	-67	-24	28	-17	-67	-7
06	-36	-84	-67	66	28	81	-85	23	33	-62	-48	11
07	-62	-99	-16	.	.	39	-97	25	3	.	-33	26
08	-73	-107	41	116	.	-11	-76	36	-27	-93	-26	30
09	-72	-61	71	49	-6	-28	-40	45	.	-56	-19	33
10	-39	28	77	13	-24	-50	-28	49	-96	-43	-7	32
11	-41	27	57	-29	-42	-58	-7	35	-75	.	16	4
12	-45	38	28	.	-26	.	0	.	-58	.	58	-29
13	-10	26	3	-39	.	18	13	-76	.	-9	68	-47
14	10	-1	-52	-13	15	35	-6	-147	.	-7	81	-37
15	38	-21	-93	8	24	.	-29	-131	.	9	68	-24
16	20	-50	-86	18	.	37	-61	-94	-3	0	49	-32
17	-15	-68	-51	62	-8	12	-73	-50	.	38	49	-24
18	-8	-81	26	67	-19	.	.	-47	50	59	42	-8
19	-2	-63	37	67	-62	.	.	-53	.	66	16	11
20	-16	-24	39	37	-65	-41	-85	-41	.	.	12	85
21	-14	.	.	.	-76	-91	-79	13	.	108	31	135
22	-17	.	51	.	-70	-119	-86	.	.	107	38	124
23	-8	97	41	.	-68	-120	-51	72	59	73	52	60
24	31	80	28	-52	.	-102	5	61	.	34	67	6
25	.	70	7	-87	-75	.	43	.	29	29	92	-79
26	54	31	-13	.	.	-88	70	126	18	34	64	-115
27	52	28	-20	.	-8	-52	67	109	.	28	15	-138
28	48	-3	-42	.	.	-20	84	50	44	33	-12	-144
29	44	-26	-65	.		31	122	24	62	43	-64	-121
30	57	.	-88	-59		45	61	-9	50	38	-84	-75
31	.		-95	-4		55		-4		1	-143	

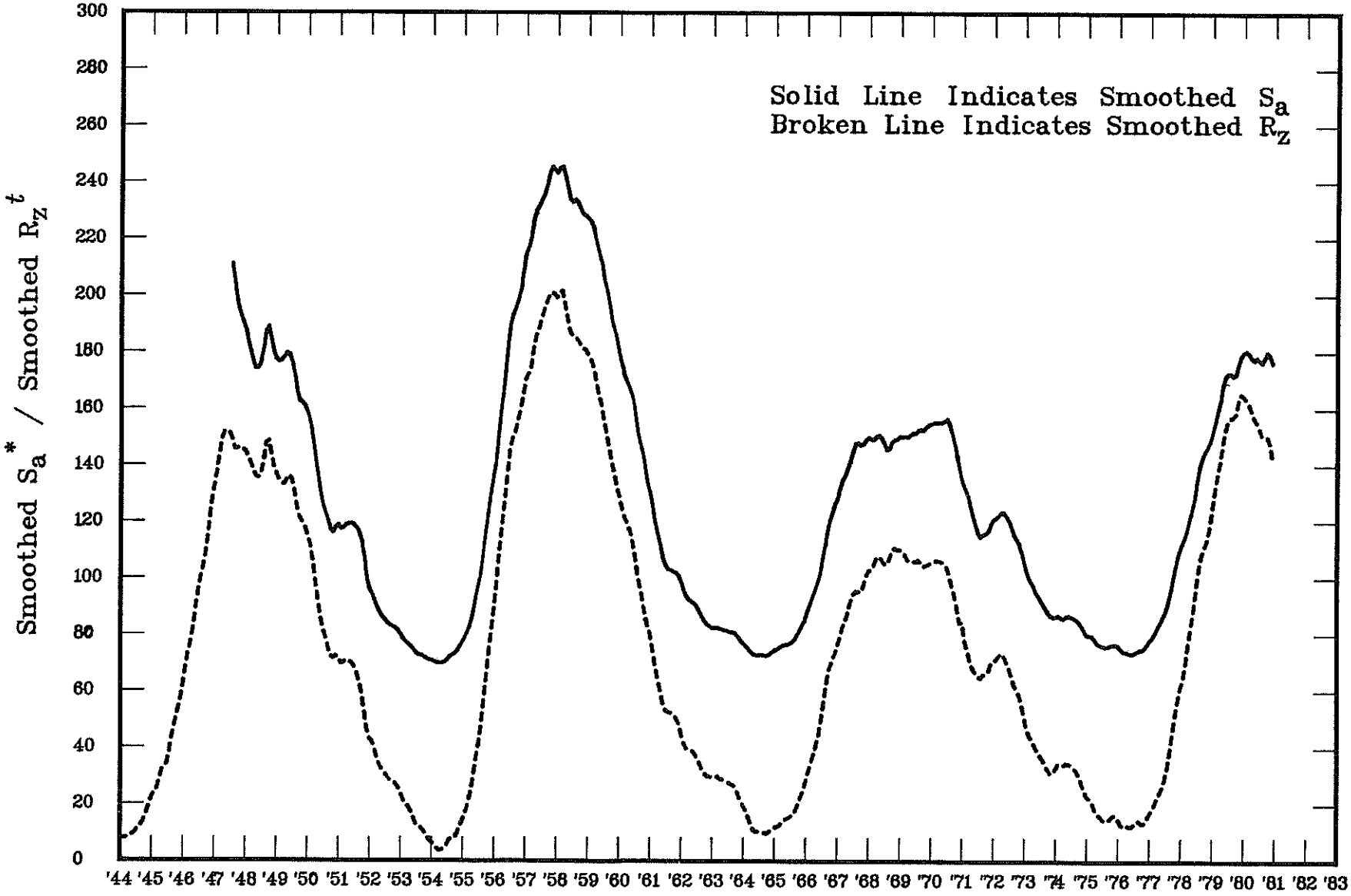
DOT SYMBOL INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

SEPTEMBER 1981

DATE	ONSET TIME	DIR	COMMENTS
09/01			Field slightly unsettled.
09/02			Field strongly active 0500-1800 UT.
	0655	East	
	0920	≃ center	
	1050		SS localized vicinity College.
	1225	West	
	1510		SS localized vicinity Anchorage.
09/03			Field slightly unsettled.
09/04	1220	West	
	2325		Boulder in partial ring current sector.
09/05			Field intermittently unsettled with no distinctive SS activity.
09/06	0615	East	Weak SS. Balance of day slightly unsettled.
09/07			Field slightly unsettled except Sachs Harbour active 1800-2030 UT.
09/08			Field unsettled through 1000 UT.
	2145		Sharp onset, moderate positive impulse H-component all mid/low latitude stations.
09/09	0820	≃ center	
09/10			Field intermittently unsettled with no distinctive SS activity.
09/11	0125		Weak positive impulse H-component all mid/low latitude stations.
	0915	≃ center	
	1240	West	Initial onset at Anchorage with slow expansion effects northward and eastward.
09/12			Field intermittently unsettled.
	0625	East	Several injections with recovery near 0900 UT.
	1320	West	
09/13			Field intermittently unsettled.
	1225	West	Weak SS
09/14			Field unsettled after 0600 UT.
	0755	West	Weak SS
09/15			Field intermittently unsettled.
	0630		
		≃ center	Several injections with recovery near 0900 UT.
09/16			Field intermittently unsettled.
	0935	West	Weak SS
09/17			Field slightly unsettled.
09/18	1912	SSC	Field active balance of day.
09/19			Field generally unsettled along oval stations but active at mid/low latitude stations.
	0135		Positive impulse H-component all mid/low latitude stations.
	0620		Strong ring current established, evident on all mid/low latitude stations. Only Anchorage responded among northern stations of network.
	1025		SS localized College to Anchorage.
09/20			Field slightly unsettled.
09/21			Quiet day
09/22	0515	East	
	0655	West	
09/23			Slightly unsettled through 0400 UT, quiet balance of the day.
09/24	1050	West	Slow onset, several injections with recovery near 1445 UT.
09/25	1245	West	Moderate SS
	1540	West	
09/26	0840	West	Moderate SS
	1120	West	Moderate SS
	1310	West	
	1750		
	2050		SS localized Inuvik to Sachs Harbour.
09/27	0525	East	
	0655	West	Moderate SS
	0955	West	Moderate SS, Anchorage to College.
09/28			Field slightly unsettled.
09/29			
	1445	West	
09/30			
	0550	East	
	1040	West	

Superposition of Zürich Sunspot Numbers and Ottawa 10.7 cm Flux
January 1944 – December 1980



* Solar Flux Units (10^{-22} W/m^2 Hz) Adjusted to 1 A.U., Series D.
t Reduced Zürich Sunspot Numbers.

SGD 446 Part I (Prompt)

AUGUST 1981 DATA

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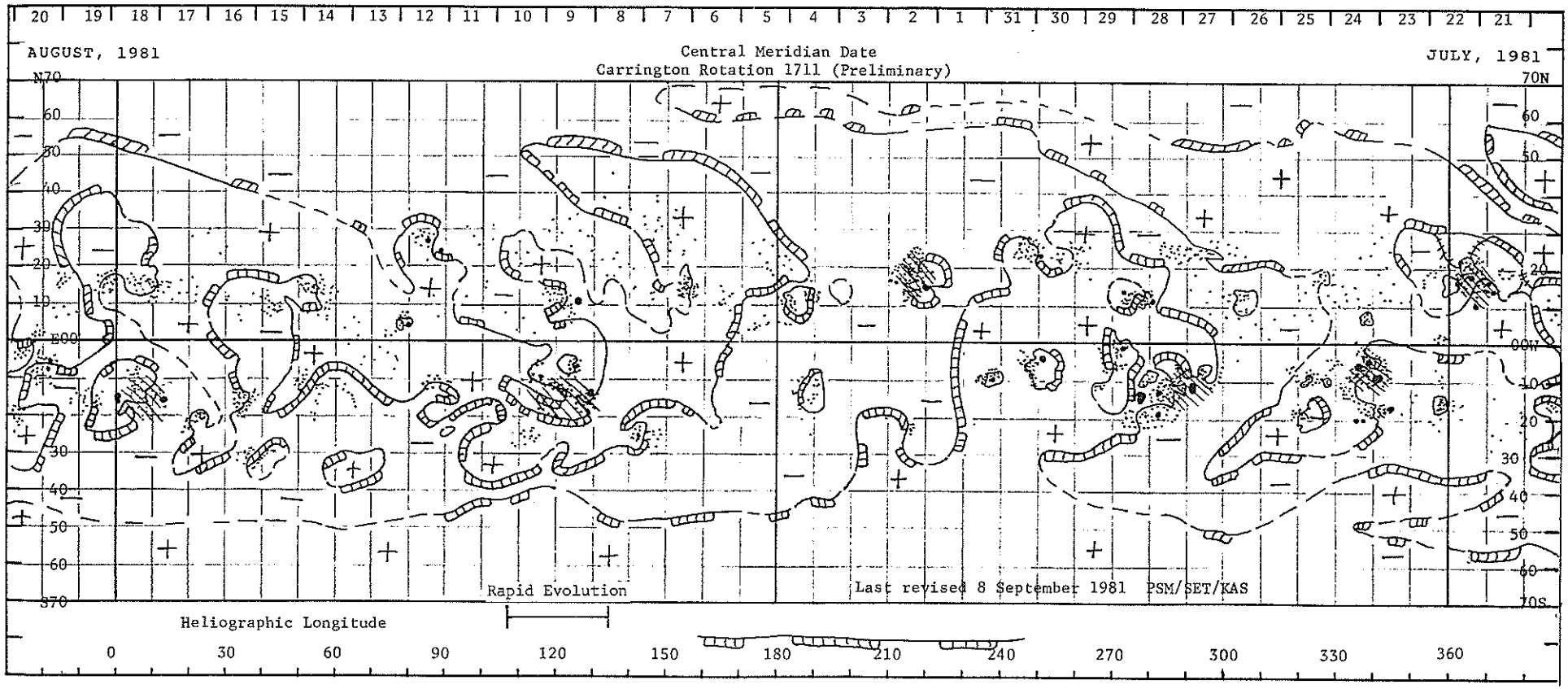
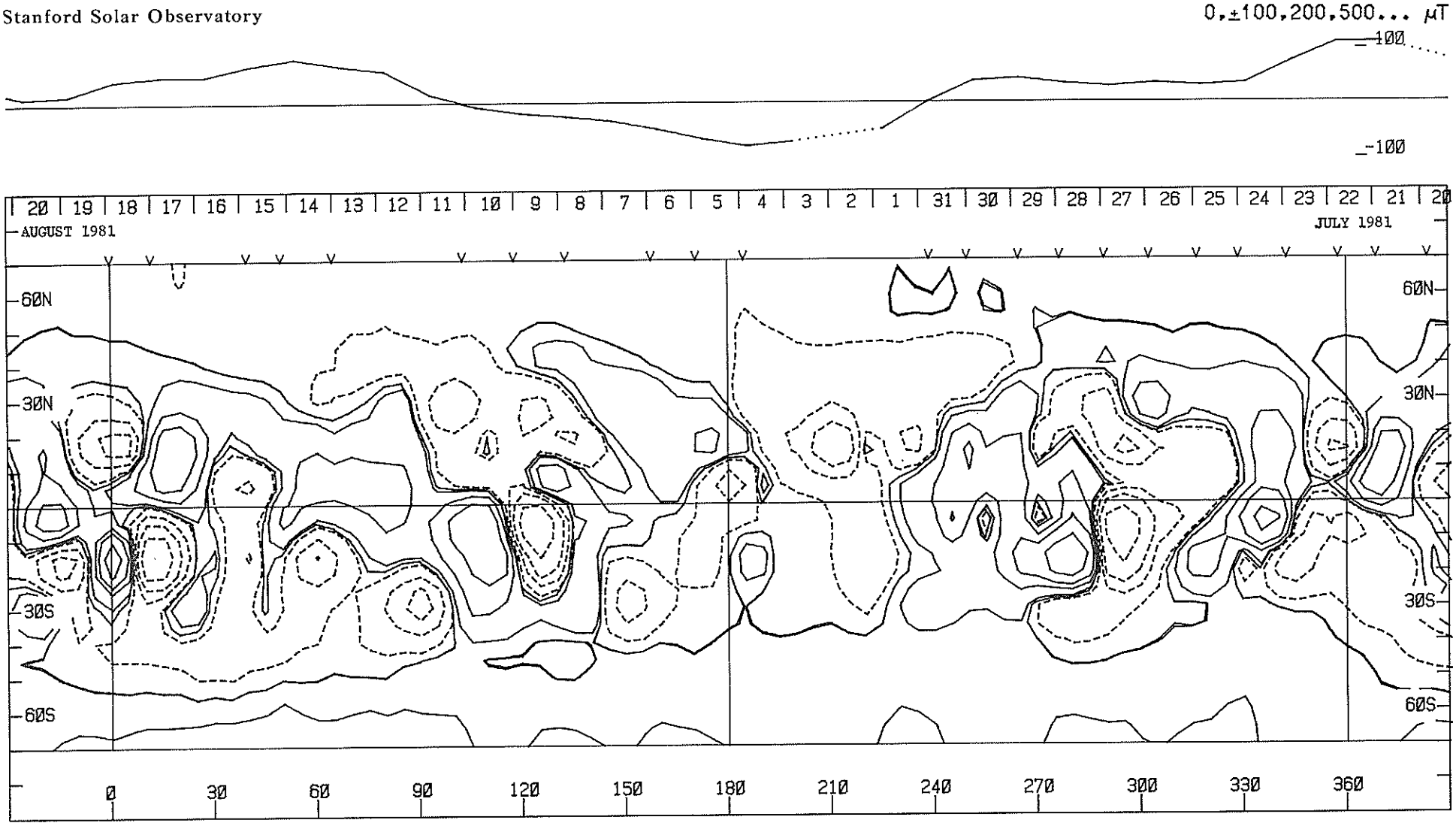
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1711 (PRELIMINARY)



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1711

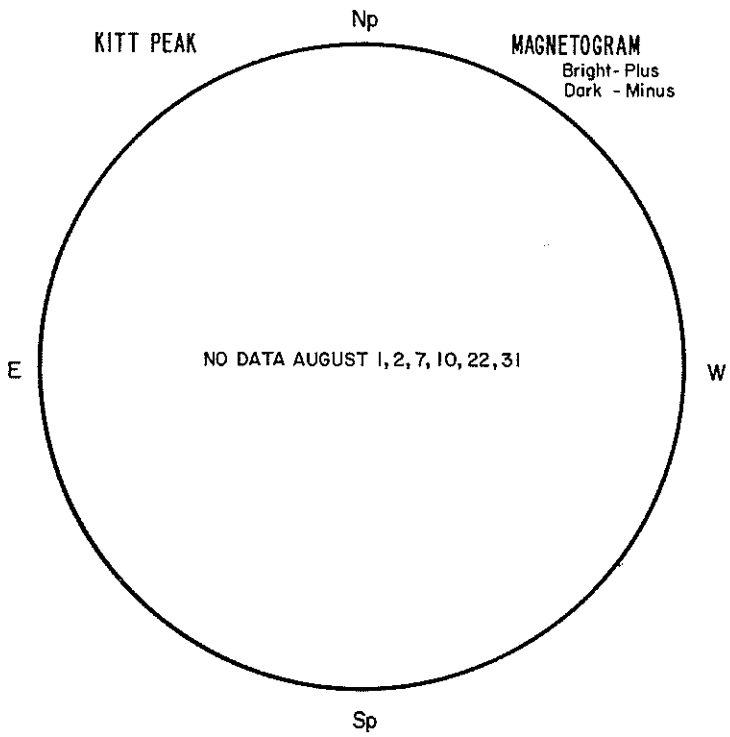
Stanford Solar Observatory

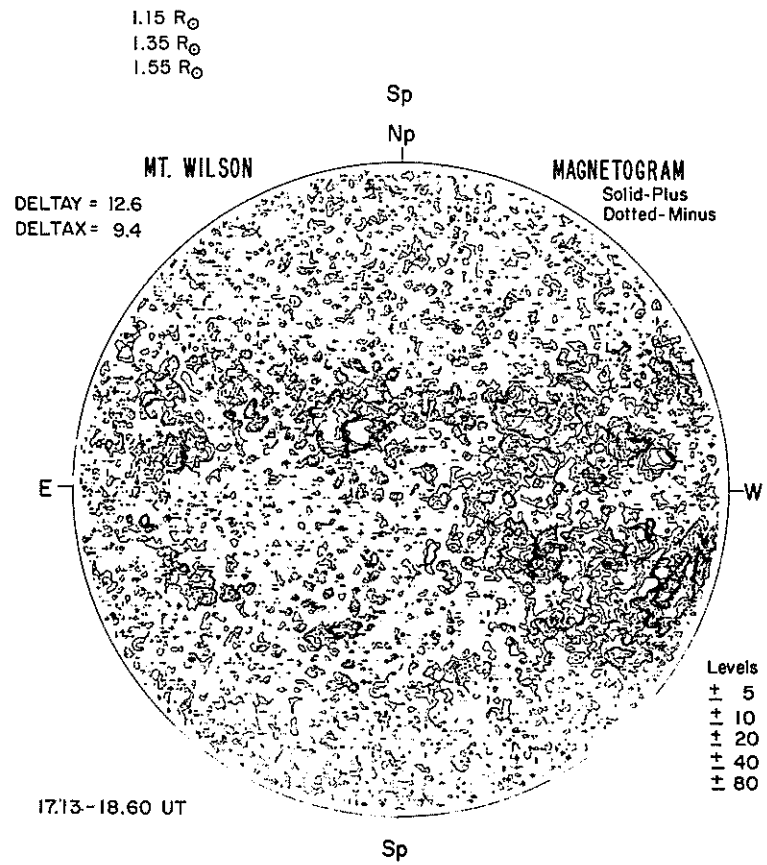


AUGUST 1, 1981 (P=10.79, B_o= 5.80, L_o= 235.48)

SACRAMENTO PEAK Np CORONA 5303 Å

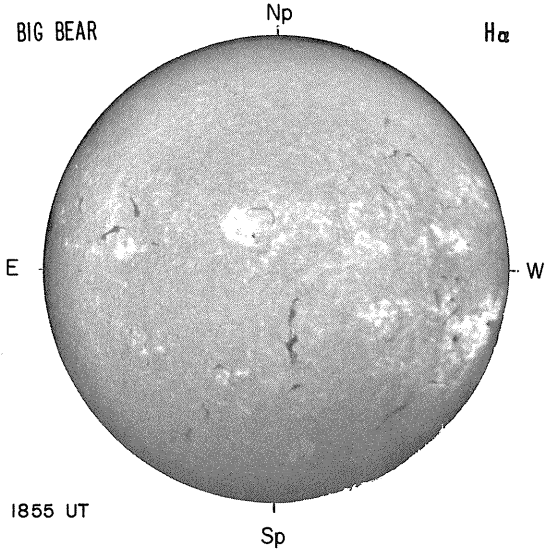
E NO DATA AUGUST 1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 W





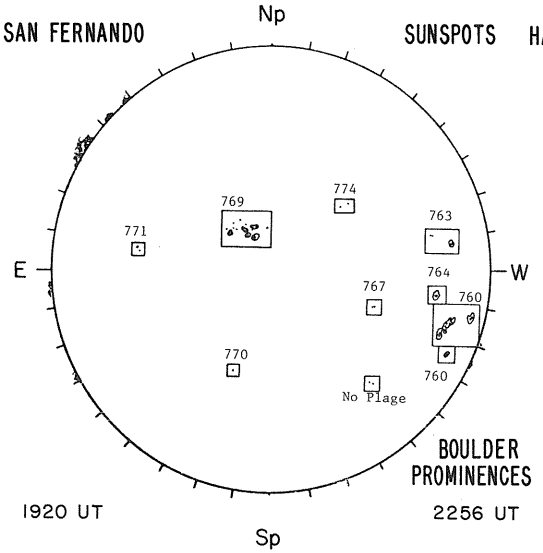
01

BIG BEAR



1855 UT

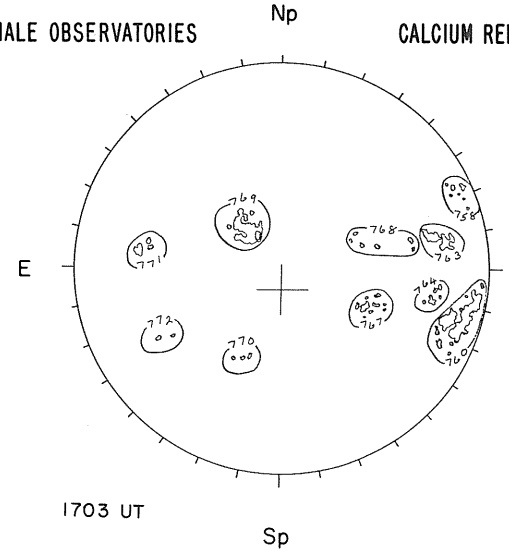
SAN FERNANDO



1920 UT

SUNSPOTS

HALE OBSERVATORIES



1703 UT

CALCIUM REPORT

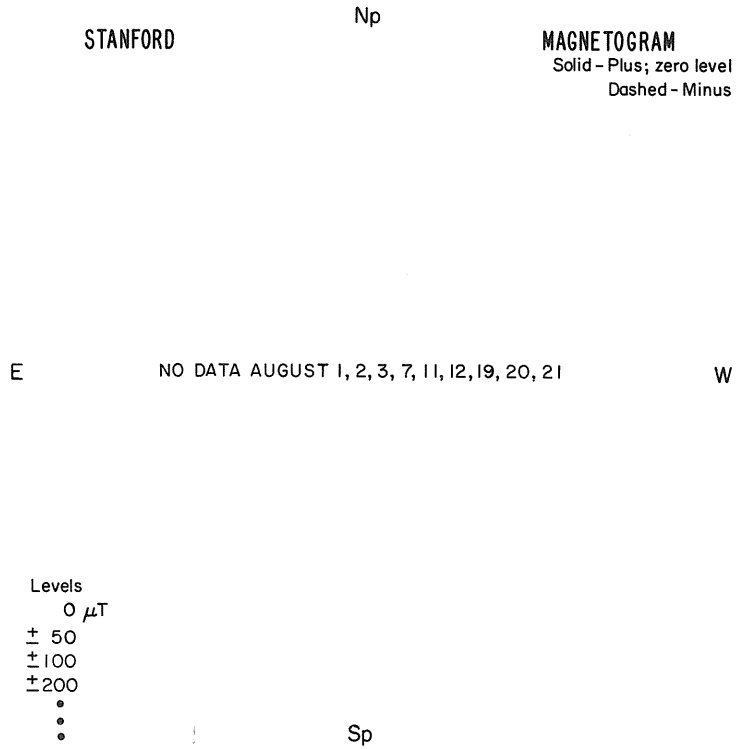
GOOD	JA

58- 0600-3.0
60- 4500-3.5
63- 1300-3.0
64- 0500-3.0
67- 0700-3.0
68- 0500-3.0
69- 1900-3.5
70- 0300-3.0
71- 0500-3.5
72- 0200-3.0

BOULDER PROMINENCES

2256 UT

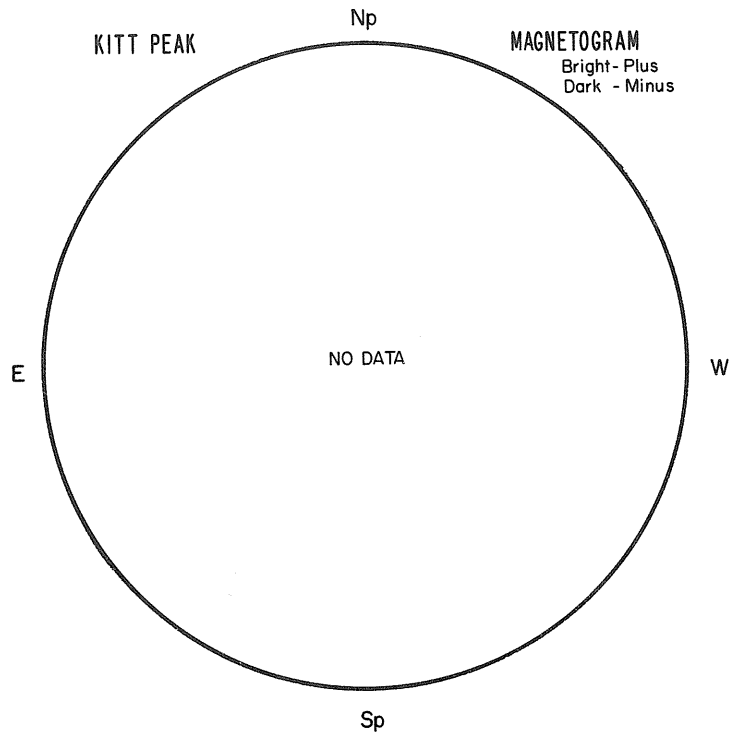
STANFORD

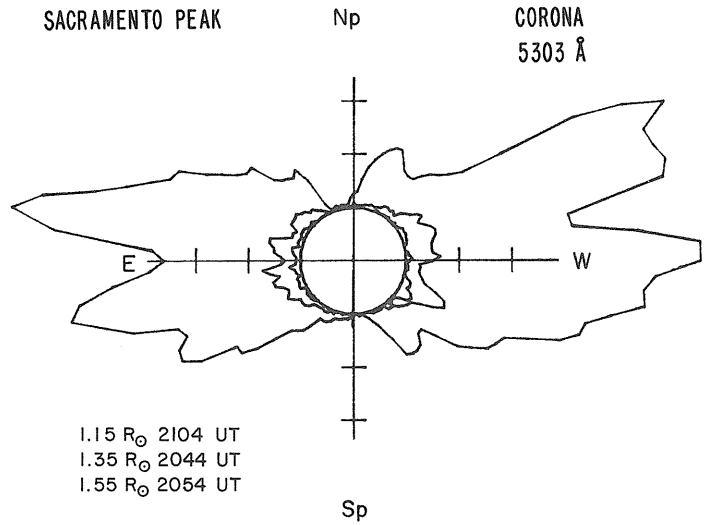


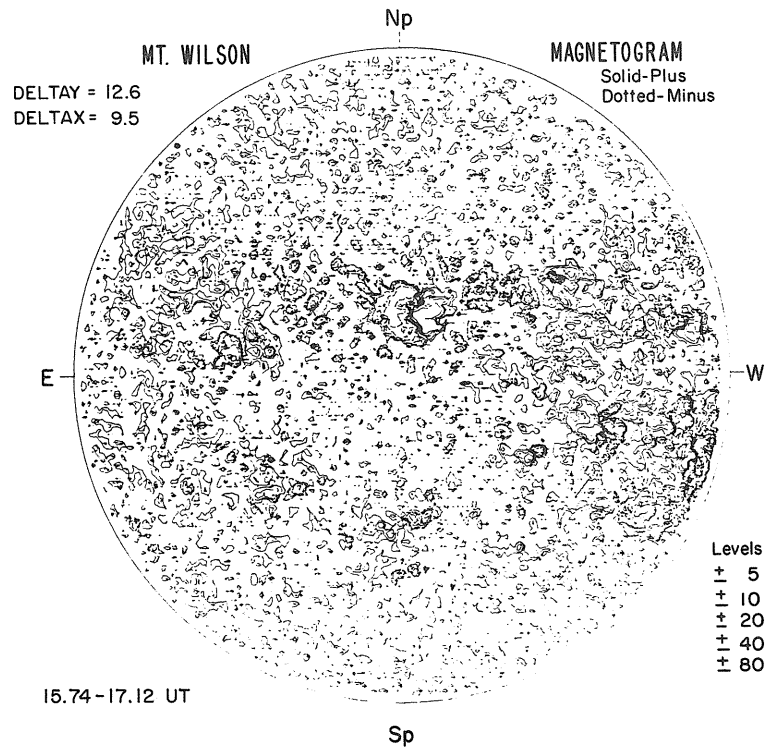
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

NO DATA AUGUST 1, 2, 3, 7, 11, 12, 19, 20, 21

AUGUST 2, 1981 (P=11.19, B_o = 5.87, L_o = 222.26)



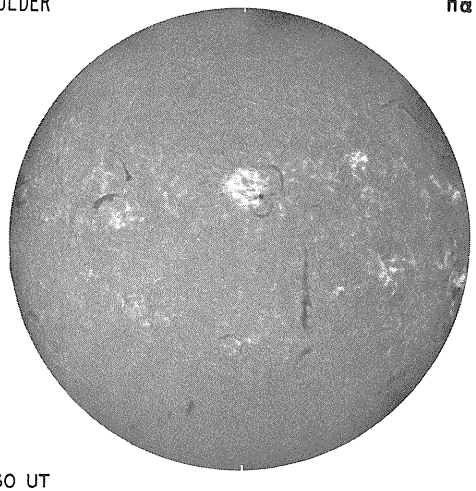




02

BOULDER

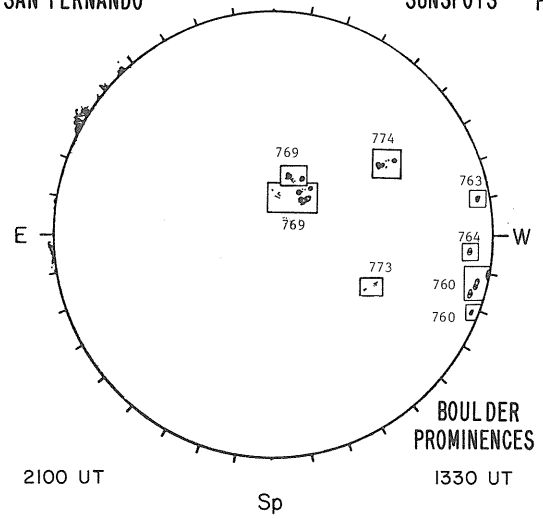
Hα



1330 UT

SAN FERNANDO

SUNSPOTS



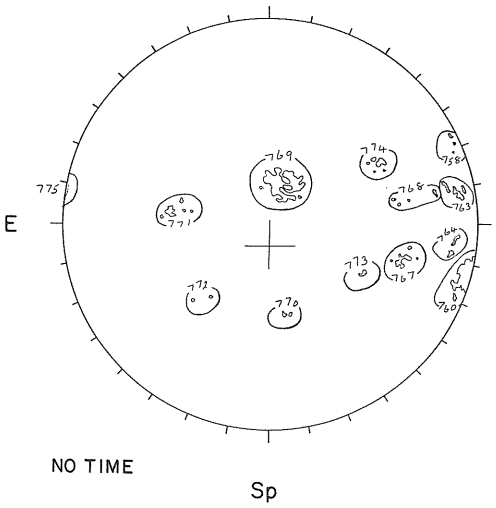
2100 UT

BOULDER PROMINENCES

1330 UT

HALE OBSERVATORIES

CALCIUM REPORT

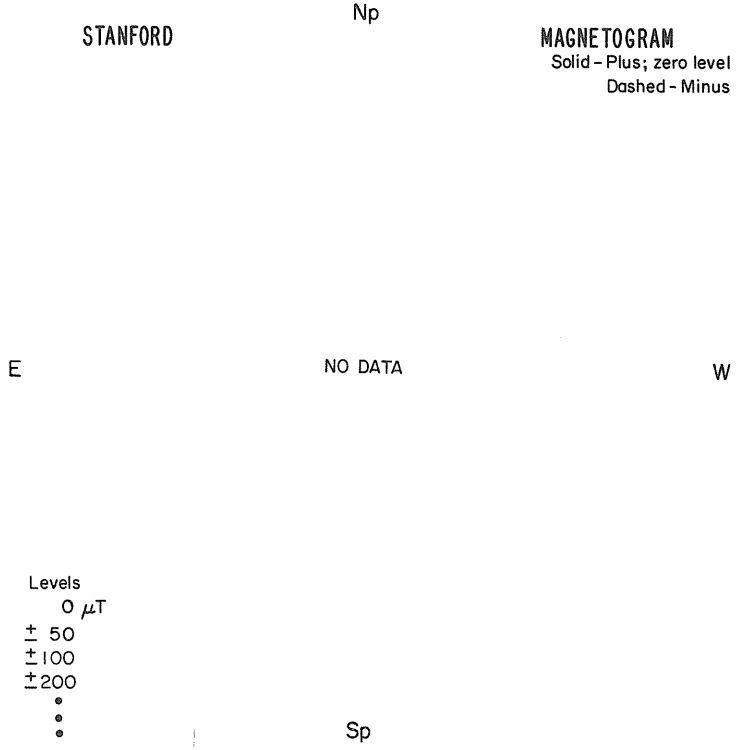


NO TIME

GOOD	JA

58- 0300-3.0
60- 3100-3.5
63- 0800-3.0
64- 0400-3.0
67- 0500-3.0
68- 0300-3.0
69- 1900-3.5
70- 0200-2.5
71- 0500-3.0
72- 0200-2.5
73- 0100-3.0
74- 0400-3.5

STANFORD



MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

NO DATA

Levels
0 μT
± 50
± 100
± 200
•
•
•

AUGUST 3, 1981 (P= 11.58, B_o = 5.94, L_o = 209.03)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1349 UT

Sp

Sp

Np

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

E

W

Levels
± 5
± 10
± 20
± 40
± 80

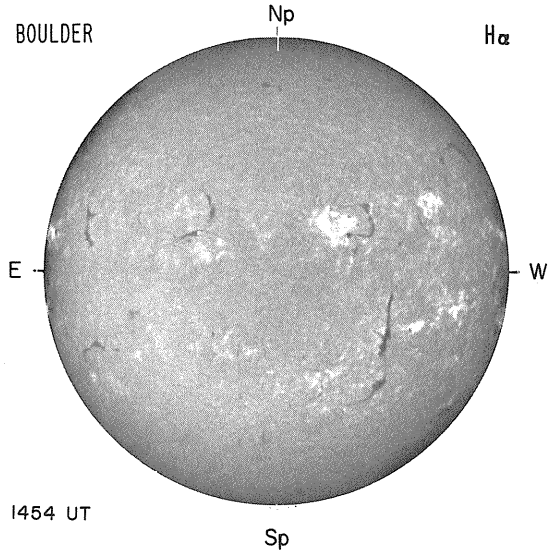
17.14-18.52 UT

Sp

03

BOULDER

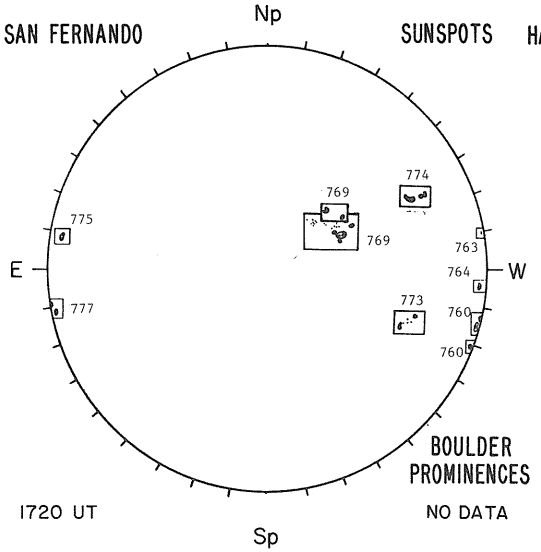
Hα



1454 UT

SAN FERNANDO

SUNSPOTS



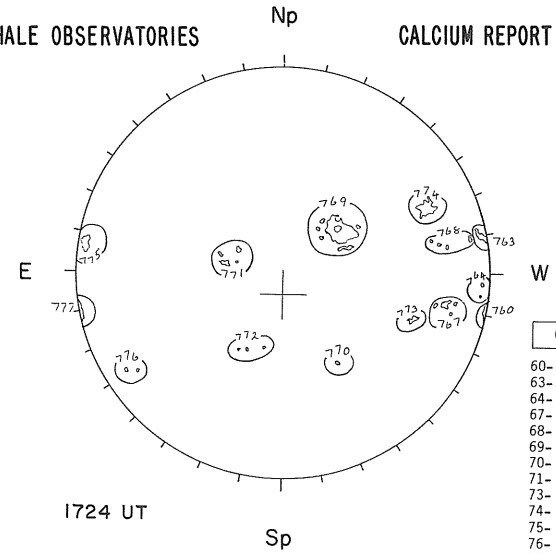
1720 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

CALCIUM REPORT



1724 UT

GOOD	JA

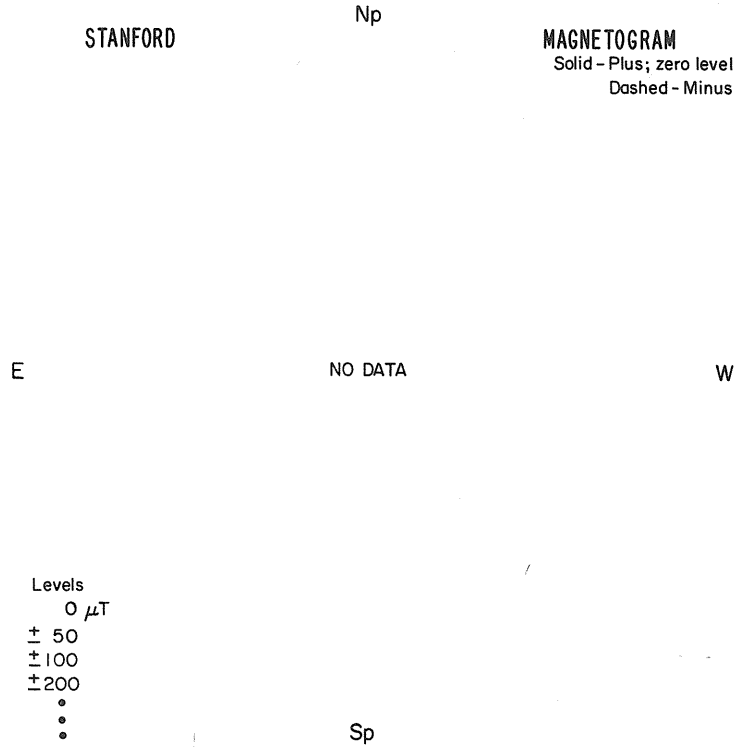
60- 0500-3.0
63- 0400-3.0
64- 0200-2.5
67- 0500-3.0
68- 0400-2.5
69- 2200-3.5
70- 0100-2.0
71- 0400-3.0
73- 0200-3.0
74- 1000-3.0
75- 1000-3.0
76- 0200-3.0
77- 0400-3.5

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

±100

±200

•

•

•

AUGUST 4, 1981 (P= 11.97, B_o = 6.01, L_o = 195.81)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

Np

MAGNETOGRAM
Bright- Plus
Dark - Minus

E

W

1530 UT

Sp

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

Sp

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

W

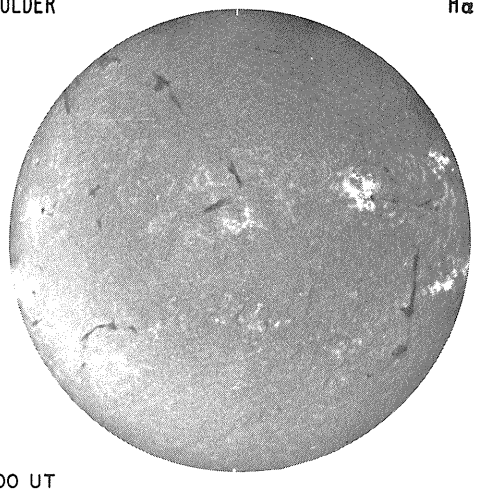
Levels
± 5
± 10
± 20
± 40
± 80

16.83-18.26 UT

Sp

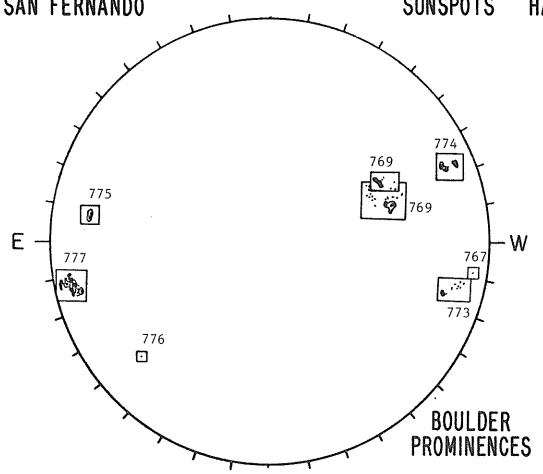
04

BOULDER Hα



1600 UT

SAN FERNANDO SUNSPOTS

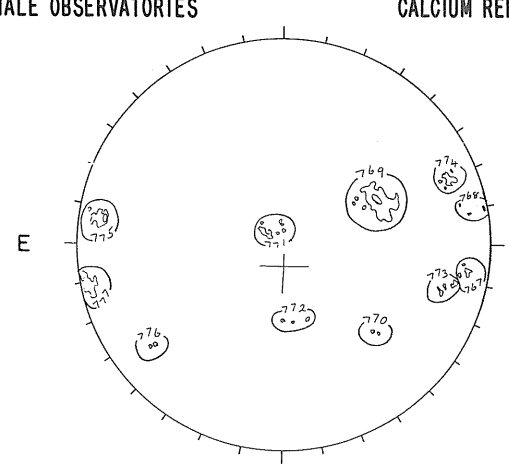


2130 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES CALCIUM REPORT



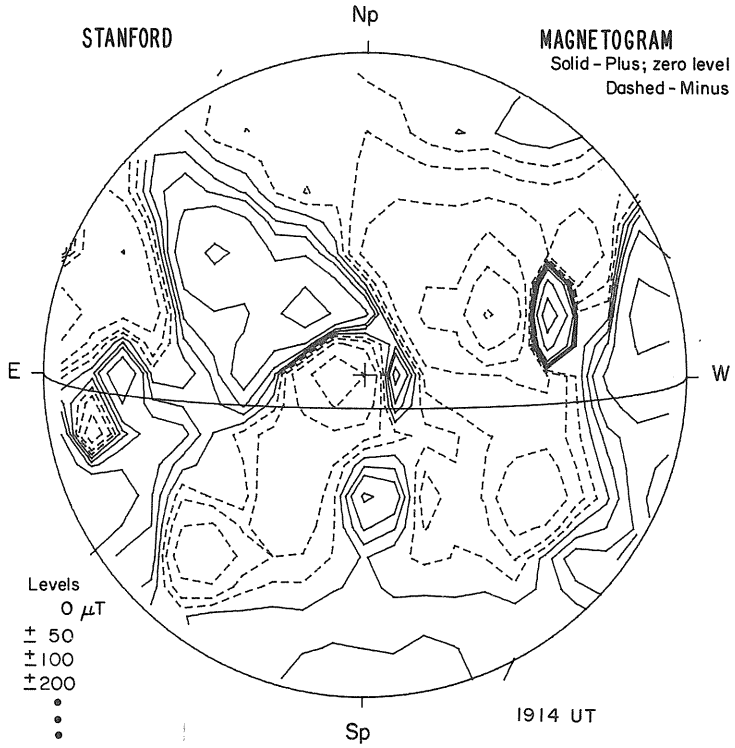
1636 UT

GOOD	JA

67- 0500-3.0
68- 0300-2.5
69- 2500-3.5
71- 0400-3.0
73- 0400-3.0
74- 0600-3.0
75- 1100-3.0
76- 0100-3.0
77- 1400-3.5

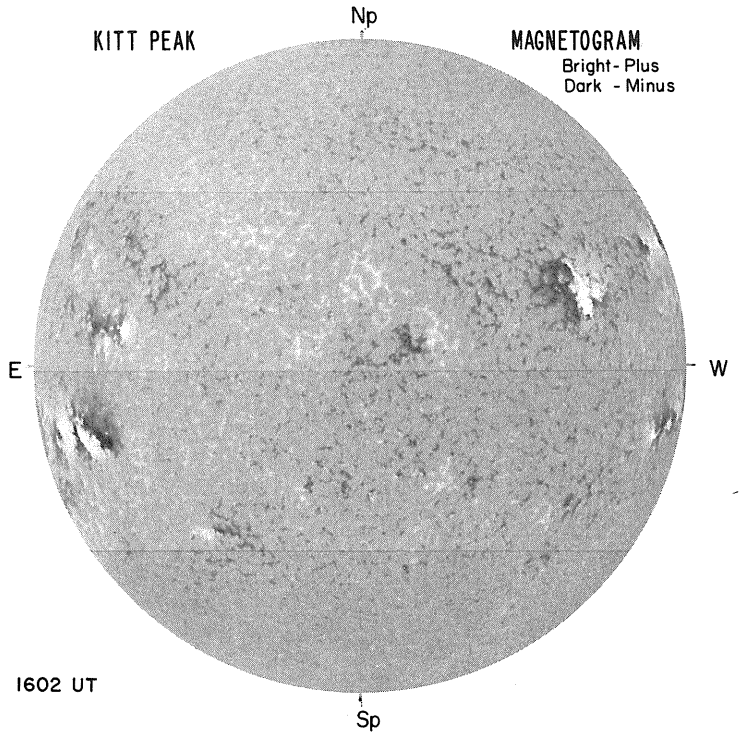
STANFORD

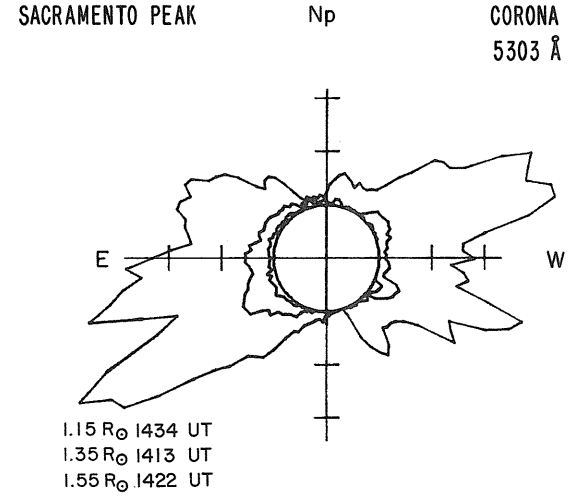
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

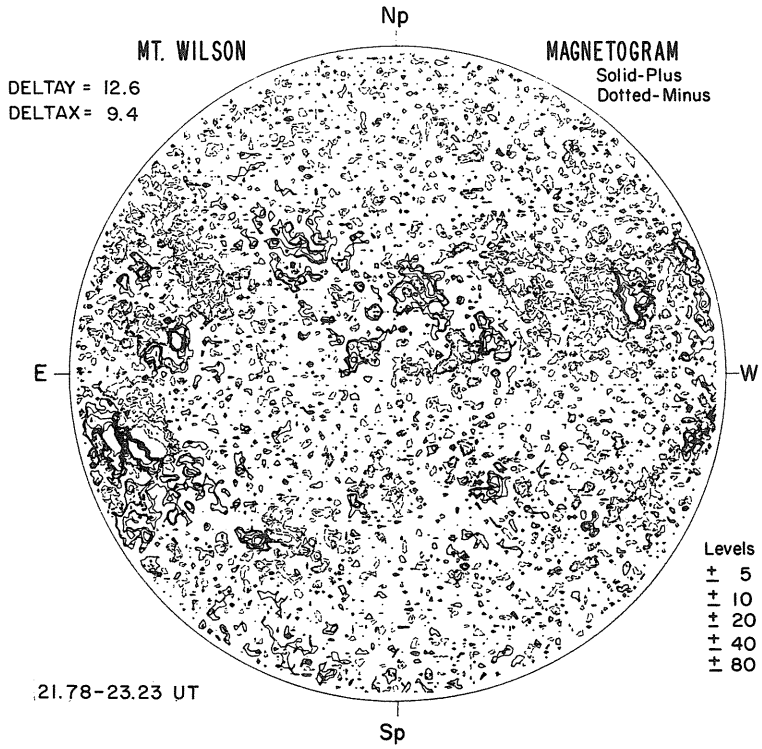


1914 UT

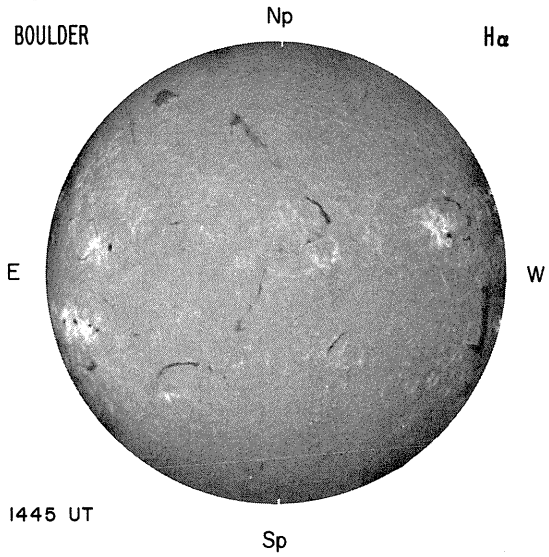
AUGUST 5, 1981 (P= 12.36, B_o = 6.07, L_o = 182.58)

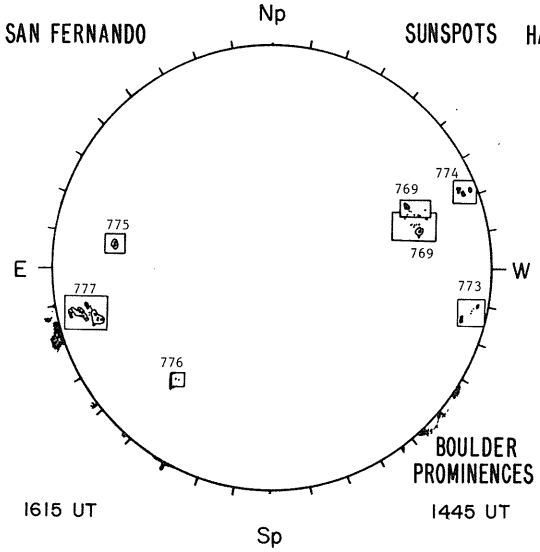


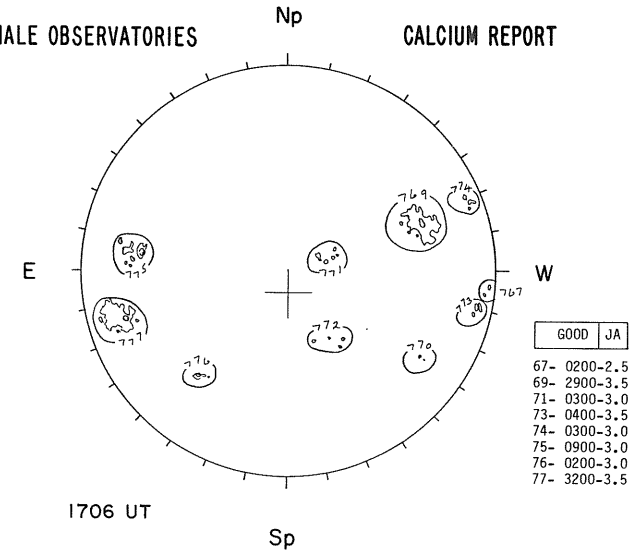


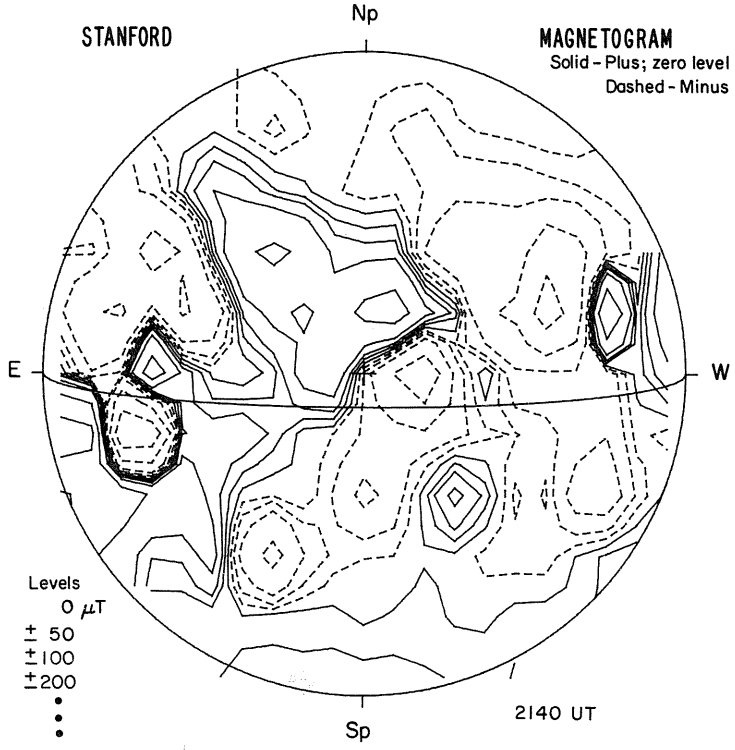


05


BOULDER
Np
Hα
E
W
1445 UT
Sp


SAN FERNANDO
Np
SUNSPOTS
E
W
775
777
776
769
774
769
773
BOULDER
PROMINENCES
1615 UT
Sp
1445 UT


HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
GOOD
JA
67- 0200-2.5
69- 2900-3.5
71- 0300-3.0
73- 0400-3.5
74- 0300-3.0
75- 0900-3.0
76- 0200-3.0
77- 3200-3.5
1706 UT
Sp

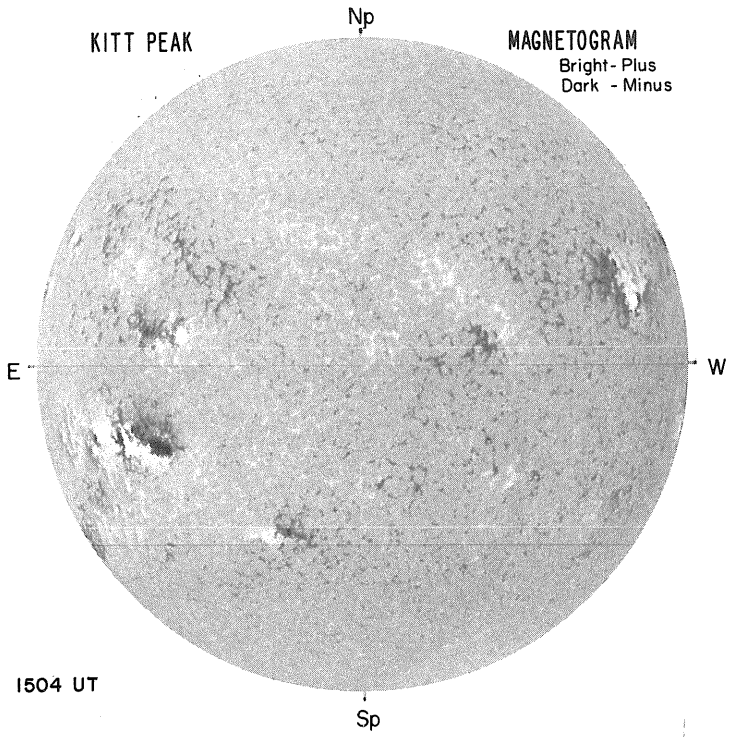

STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
2140 UT

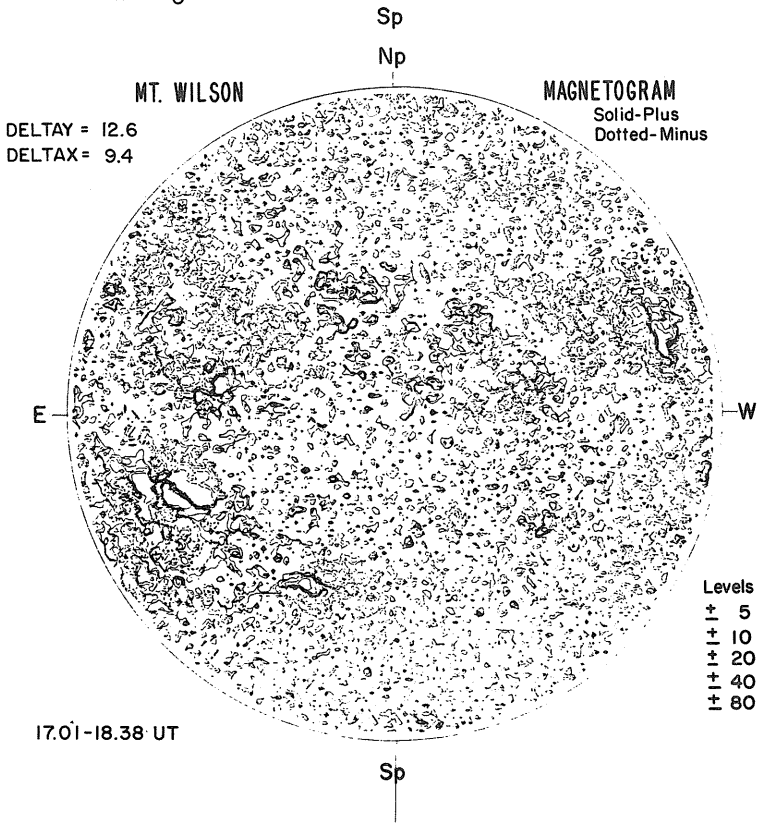
AUGUST 6, 1981 (P= 12.74, B_o = 6.14, L_o = 169.36)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

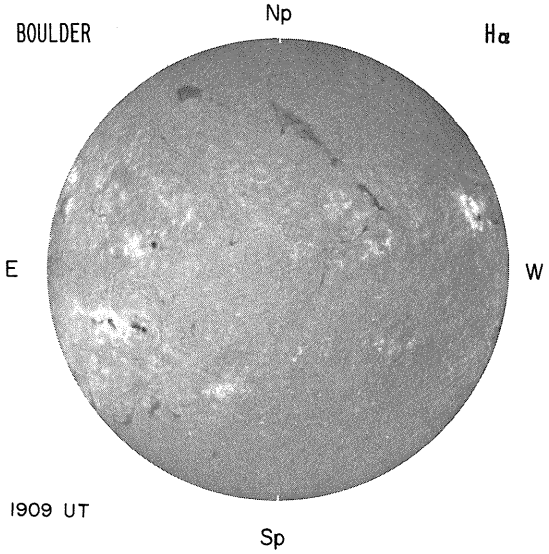
1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$





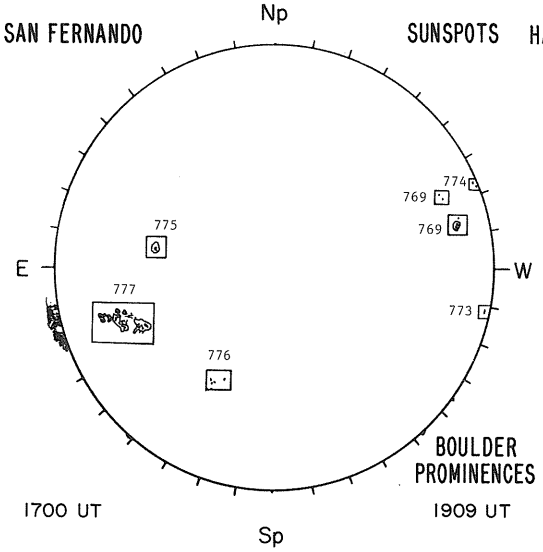
06

BOULDER



1909 UT

SAN FERNANDO SUNSPOTS

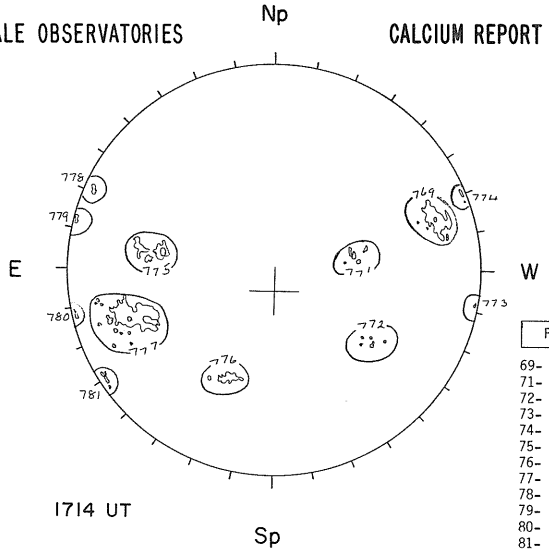


1700 UT

BOULDER PROMINENCES

1909 UT

HALE OBSERVATORIES CALCIUM REPORT



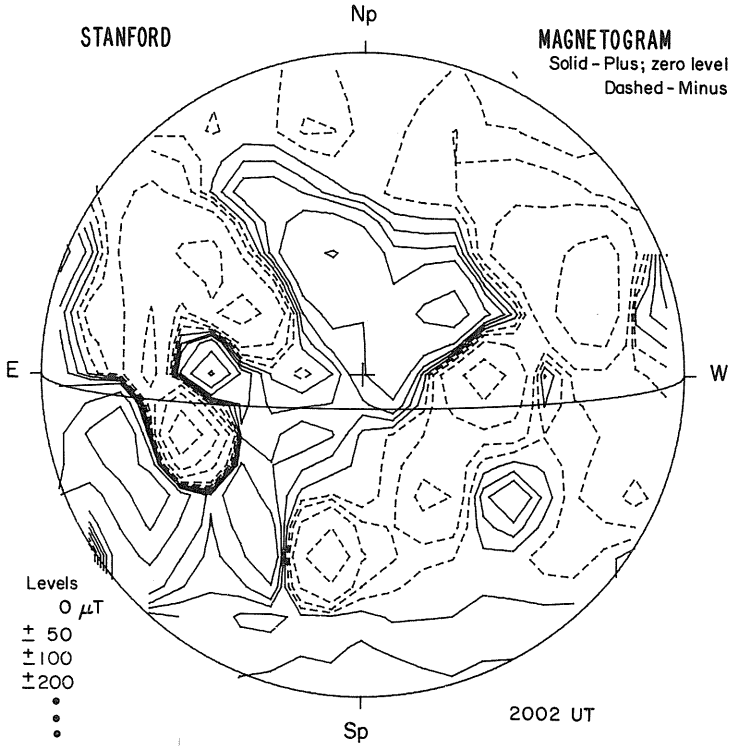
1714 UT

FAIR	JA

69- 2300-3.5
71- 0400-3.0
72- 0200-2.5
73- 0100-3.0
74- 0300-3.0
75- 1000-3.0
76- 0500-3.0
77- 4600-3.5
78- 0300-3.5
79- 0300-3.0
80- 0200-3.0
81- 0300-2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

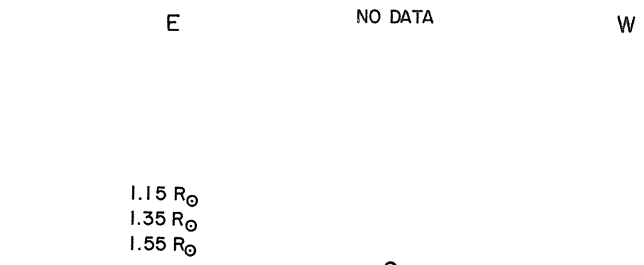


2002 UT

AUGUST 7, 1981 (P= 13.12, B_o = 6.20, L_o = 156.14)

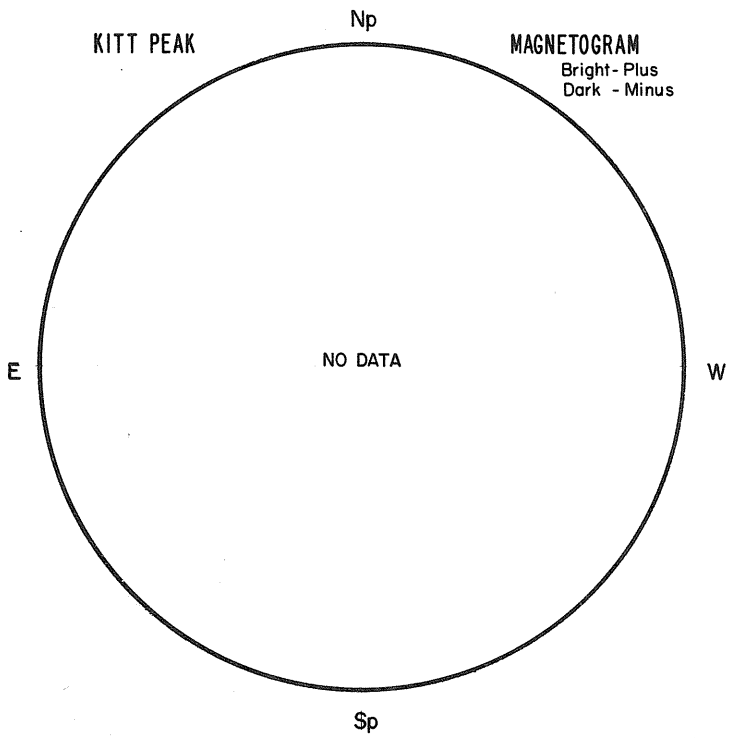
SACRAMENTO PEAK

CORONA
5303 Å



KITT PEAK

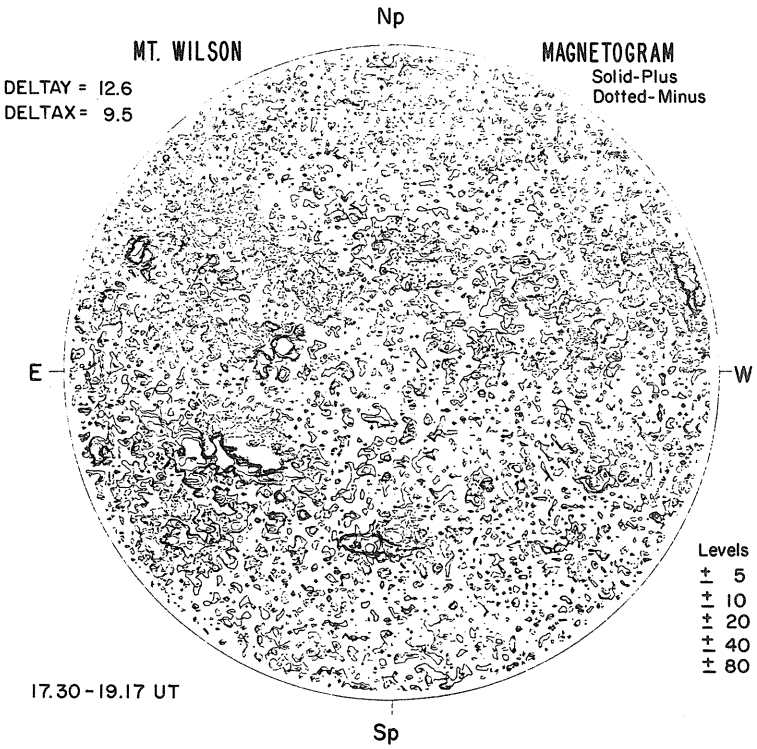
MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus



17.30 - 19.17 UT

07

BOULDER

Np

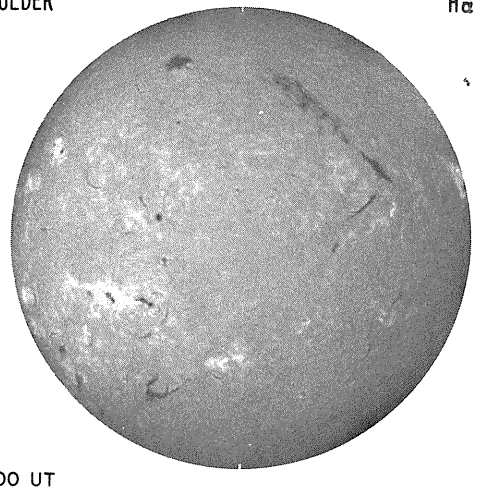
Hα

E

W

1500 UT

Sp



SAN FERNANDO

Np

SUNSPOTS

E

W

778

775

777

780

776

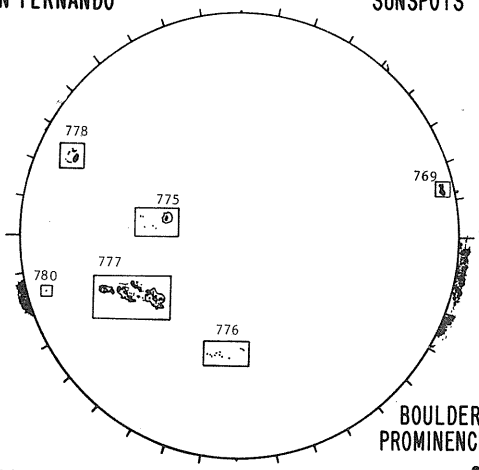
769

1700 UT

Sp

BOULDER PROMINENCES

1500 UT



HALE OBSERVATORIES

Np

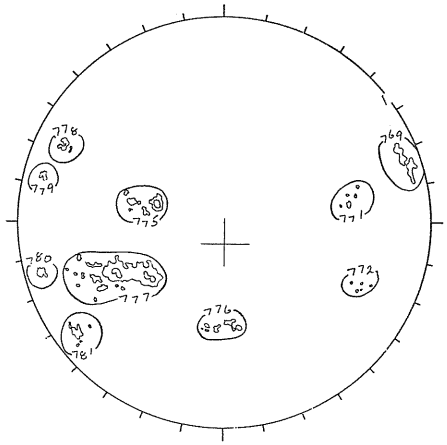
CALCIUM REPORT

E

W

1843 UT

Sp



GOOD	JA

69- 1900-3.5
71- 0300-2.5
72- 0200-2.5
75- 1000-3.0
76- 0500-3.0
77- 4500-3.5
78- 0500-3.5
79- 0300-3.0
80- 0500-3.0
81- 0600-3.0

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

$\pm$ 50

$\pm$100

$\pm$200

•

•

•

Sp

AUGUST 8, 1981 (P= 13.49, B_o = 6.27, L_o = 142.92)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1723 UT

Sp

MT. WILSON

DELTAY = 12.6
DELTAX = 9.4

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

W

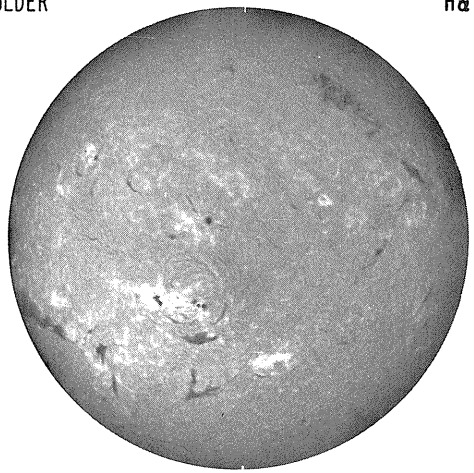
Levels
± 5
± 10
± 20
± 40
± 80

16.04-17.50 UT

Sp

08

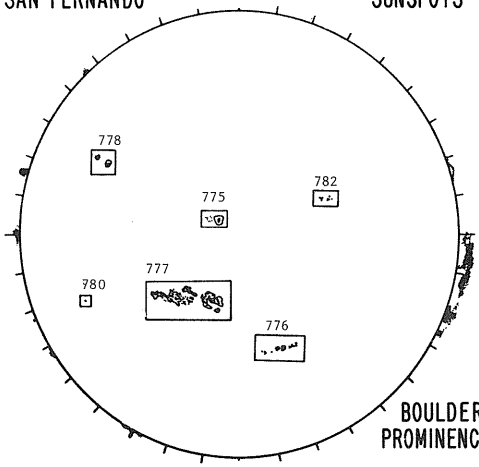
BOULDER Np Hα



E W

1355 UT Sp

SAN FERNANDO Np SUNSPOTS

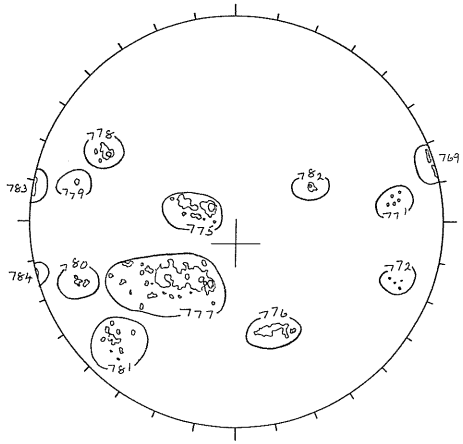


E W

BOULDER PROMINENCES

1930 UT Sp 1355 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

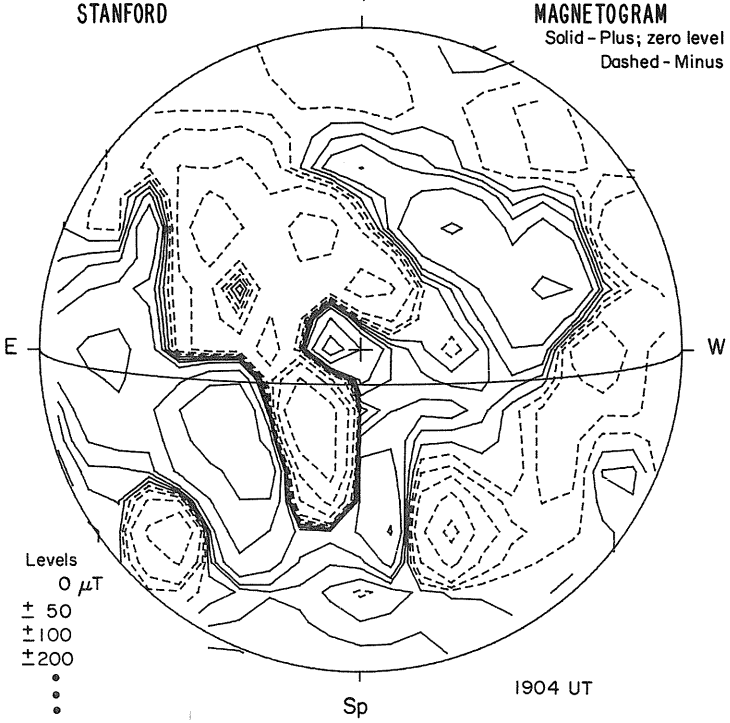
1627 UT Sp

GOOD	JA

69- 0800-3.5
71- 0200-2.5
75- 1000-3.0
76- 0900-3.5
77- 3800-3.5
78- 0600-3.0
79- 0100-3.0
80- 0300-3.0
81- 0900-3.0
82- 0200-3.0
83- 0500-3.0
84- 0200-2.5

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



E W

Levels
0 μT
± 50
±100
±200
•
•
•

Sp 1904 UT

AUGUST 9, 1981 (P= 13.86, B_o= 6.33, L_o= 129.69)

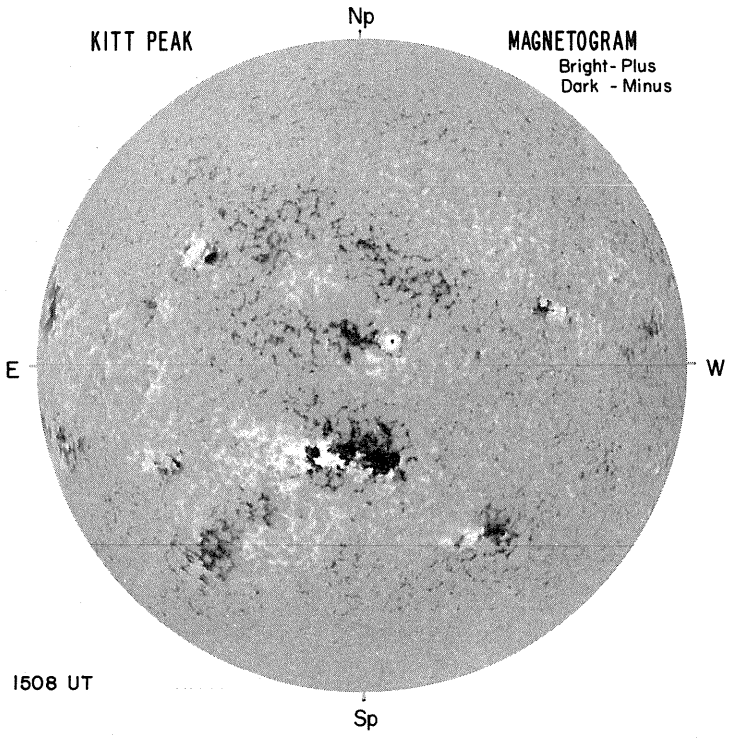
SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

MAGNETOGRAM
Bright- Plus
Dark - Minus

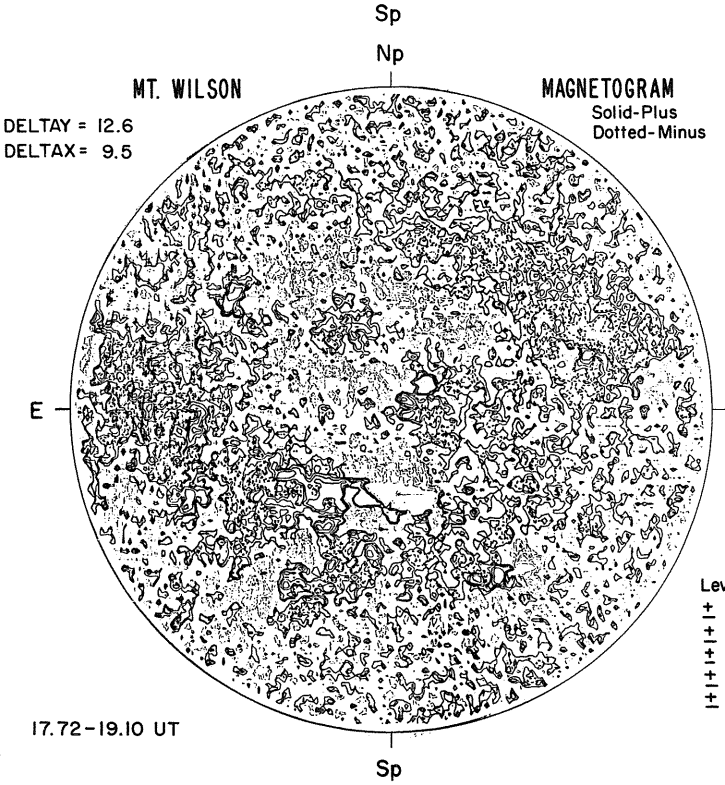


1508 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus

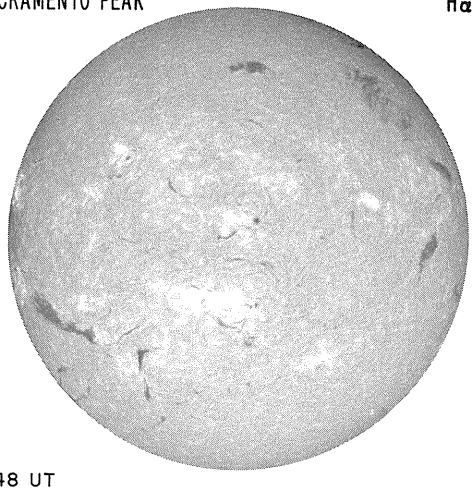


Levels
± 5
± 10
± 20
± 40
± 80

17.72-19.10 UT

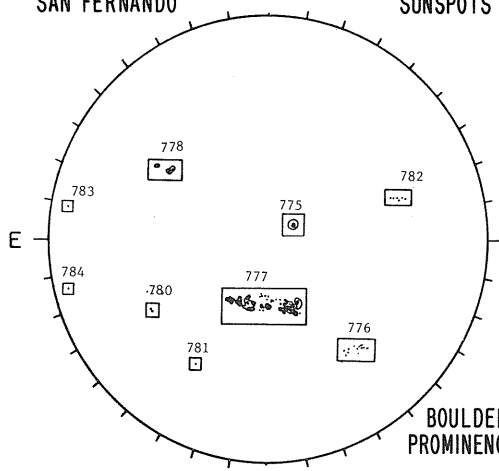
09

SACRAMENTO PEAK



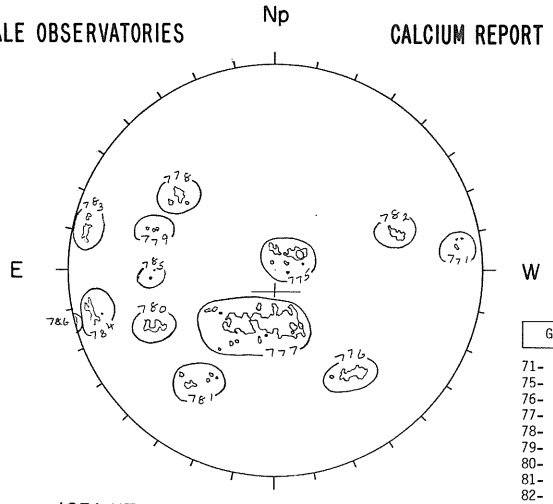
1348 UT

SAN FERNANDO SUNSPOTS



1800 UT

HALE OBSERVATORIES CALCIUM REPORT



1831 UT

GOOD	JA

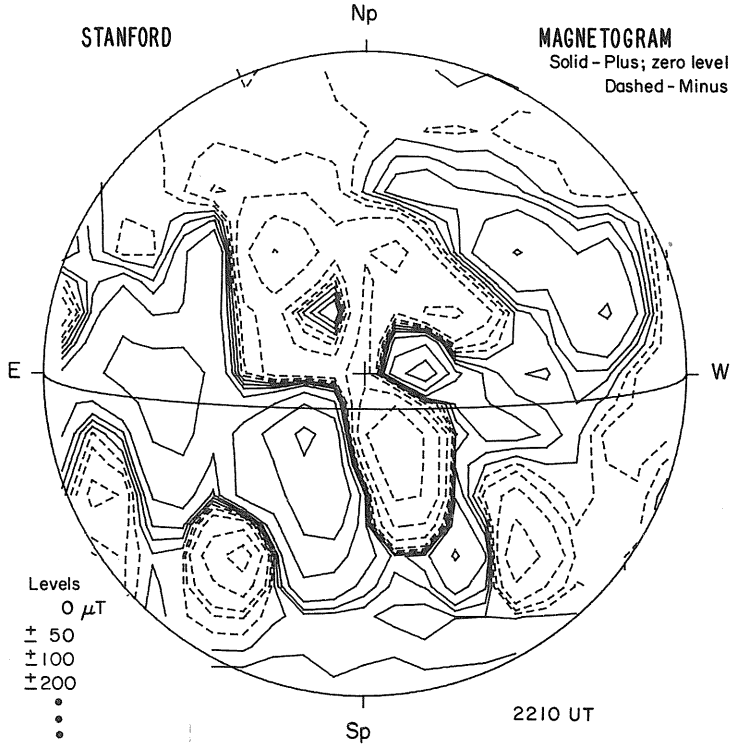
71- 0200-2.5
75- 0800-3.0
76- 1000-3.5
77- 4500-3.5
78- 0600-3.5
79- 0100-3.0
80- 0100-3.0
81- 0400-3.0
82- 0600-3.5
83- 0800-3.5
84- 0900-3.0
85- 0100-3.0
86- 0300-2.5

BOULDER PROMINENCES

NO DATA

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2210 UT

AUGUST 10, 1981 (P= 14.23, B_o = 6.38, L_o = 116.47)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

NO DATA

W

Sp

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

Sp

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

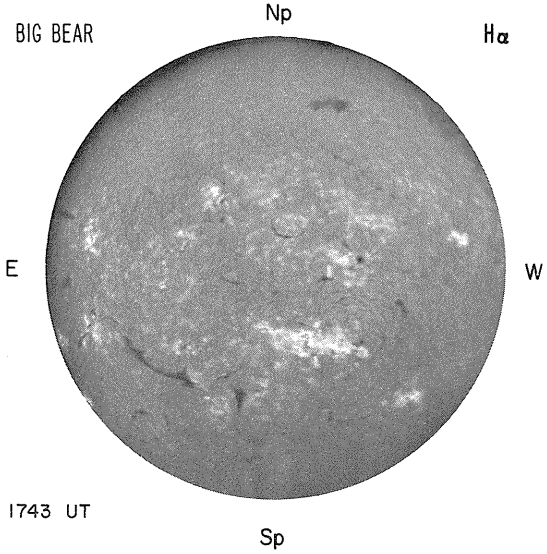
W

Levels
± 5
± 10
± 20
± 40
± 80

17.02-18.46 UT

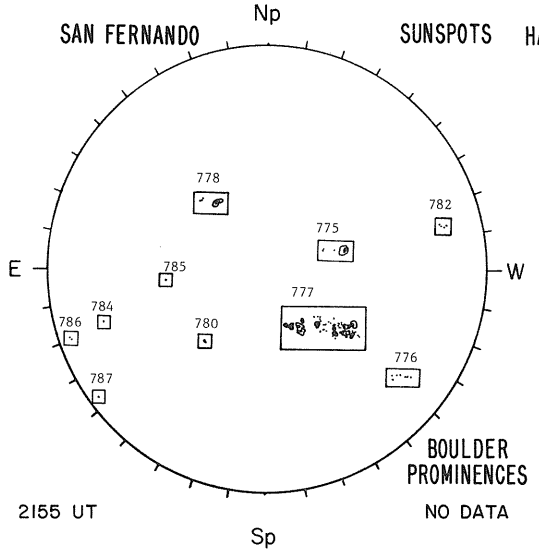
Sp

BIG BEAR



1743 UT

SAN FERNANDO SUNSPOTS

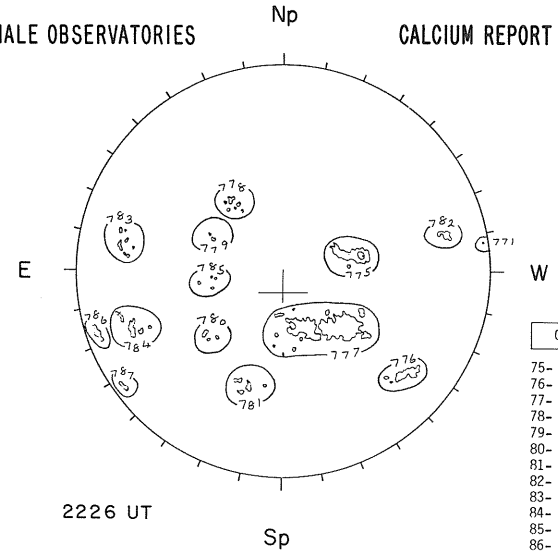


2155 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES CALCIUM REPORT



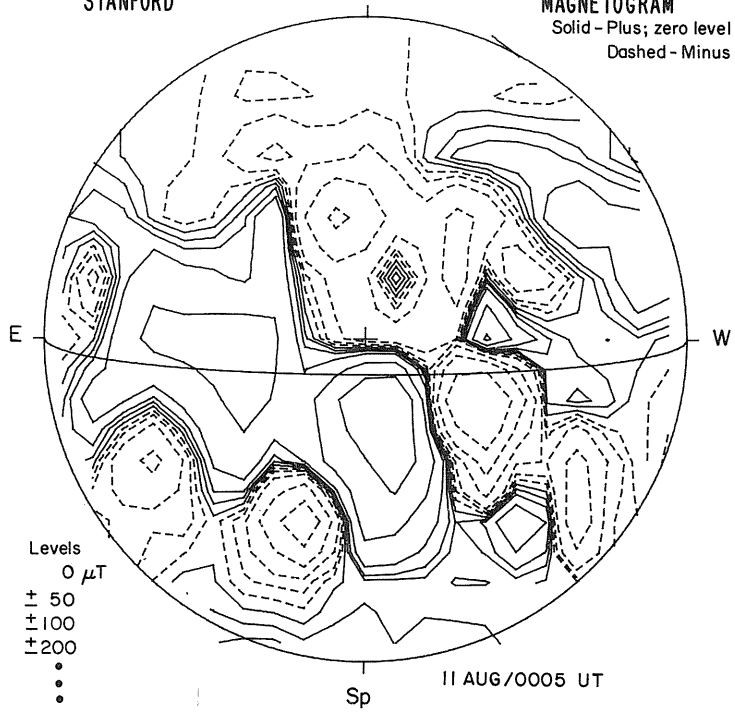
2226 UT

GOOD	JA

75- 1200-3.0
76- 0900-3.5
77- 5100-3.5
78- 0400-3.0
79- 0100-3.0
80- 0200-3.0
81- 0400-3.0
82- 0400-3.0
83- 0400-3.5
84- 0700-3.0
85- 0200-3.0
86- 0500-3.5
87- 0300-3.5

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



11 AUG/0005 UT

AUGUST 11, 1981 (P= 14.59, B_o = 6.44, L_o = 103.25)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1451 UT

Sp

MT. WILSON

DELTAY = 12.6
DELTAX = 9.4

Sp

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

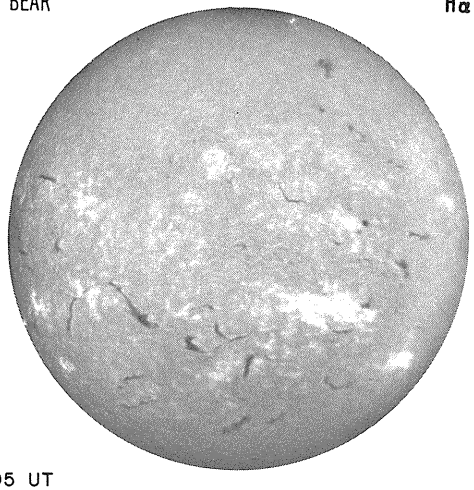
W

Levels
± 5
± 10
± 20
± 40
± 80

17.26-18.64 UT

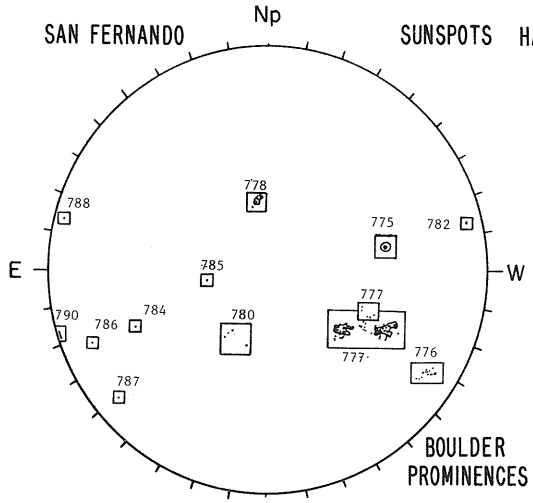
Sp

BIG BEAR



1705 UT

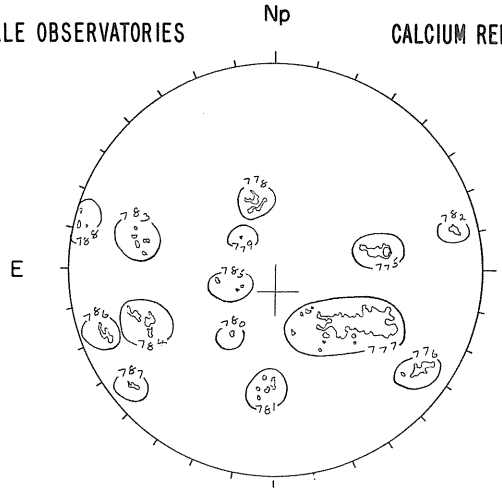
SAN FERNANDO



1745 UT

SUNSPOTS

HALE OBSERVATORIES



1716 UT

CALCIUM REPORT

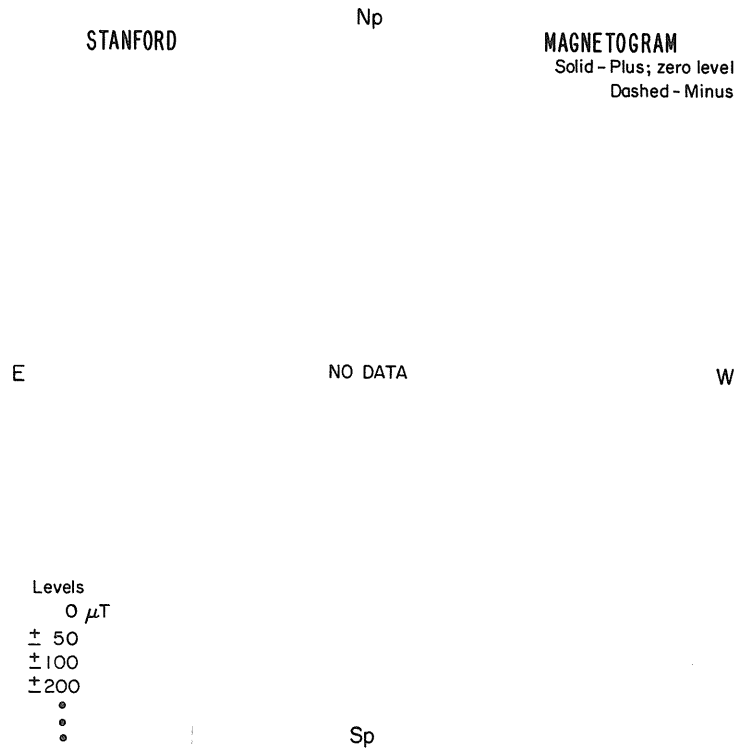
GOOD	JA

75- 0700-3.0
76- 0800-3.0
77- 5400-3.5
78- 0600-3.0
79- 0100-3.0
80- 0100-2.5
81- 0400-3.0
82- 0400-3.0
83- 0400-3.5
84- 0900-3.0
85- 0200-3.0
86- 0500-3.0
87- 0200-3.0
88- 0400-3.0

BOULDER PROMINENCES

NO DATA

STANFORD



MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
± 50
±100
±200
•
•
•

AUGUST 12, 1981 (P= 14.94, B_o = 6.50, L_o = 90.03)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

2109 UT

Sp

Sp

Np

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4

E

W

Levels
± 5
± 10
± 20
± 40
± 80

16.31-17.69 UT

Sp

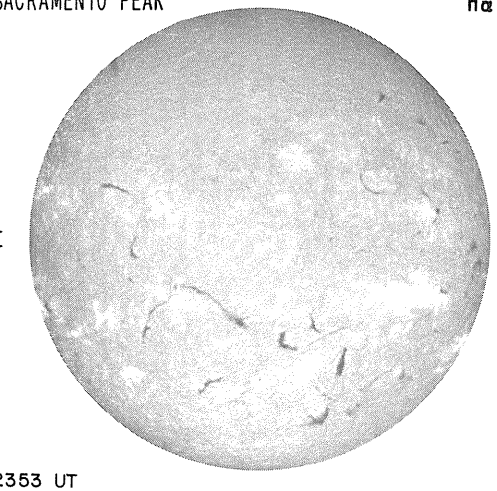
SACRAMENTO PEAK

Np

Hα

E

W



2353 UT

Sp

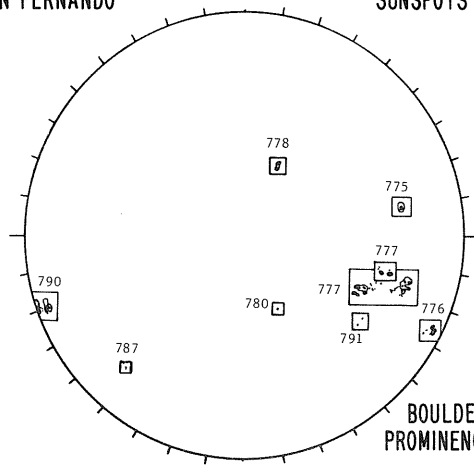
SAN FERNANDO

Np

SUNSPOTS

E

W



1715 UT

Sp

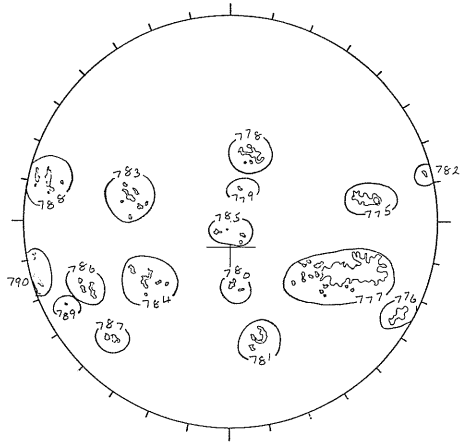
HALE OBSERVATORIES

Np

CALCIUM REPORT

E

W



1659 UT

Sp

GOOD	JA

75- 0700-3.0
76- 0900-3.0
77- 5400-3.5
78- 0600-3.0
79- 0100-2.5
80- 0200-3.0
81- 0400-3.5
82- 0300-3.0
83- 0400-3.5
84- 0600-3.5
85- 0200-3.0
86- 0500-3.5
87- 0300-3.5
88- 0500-3.0
89- 0100-3.0
90- 1000-3.5

BOULDER PROMINENCES

NO DATA

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

$\pm$ 50

$\pm$100

$\pm$200

•

•

•

Sp

AUGUST 13, 1981 (P= 15.30, B_o = 6.55, L_o = 76.81)

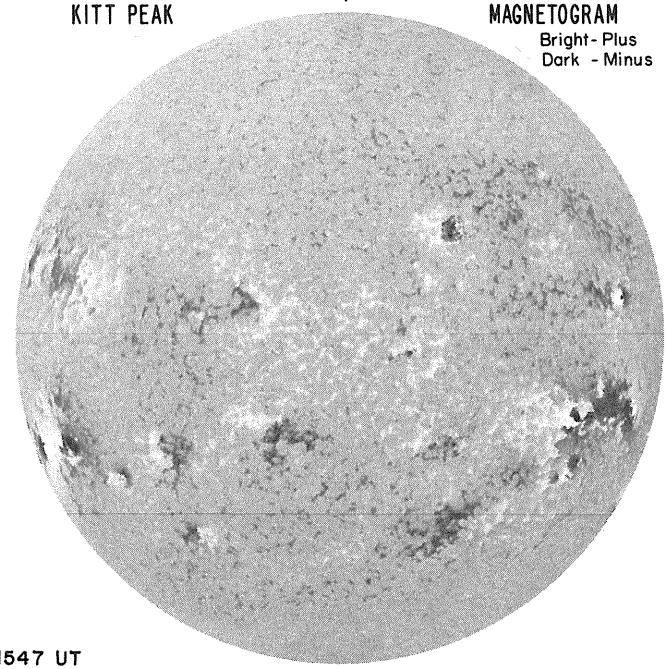
SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

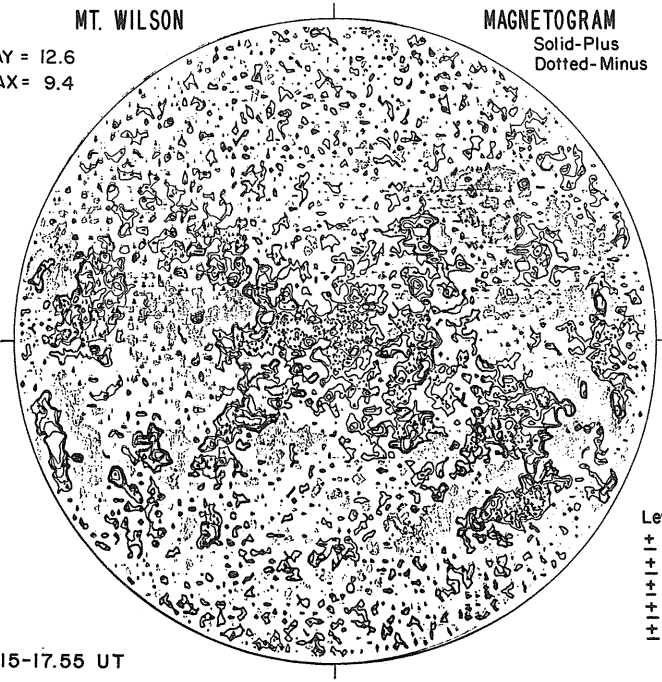


1547 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.4

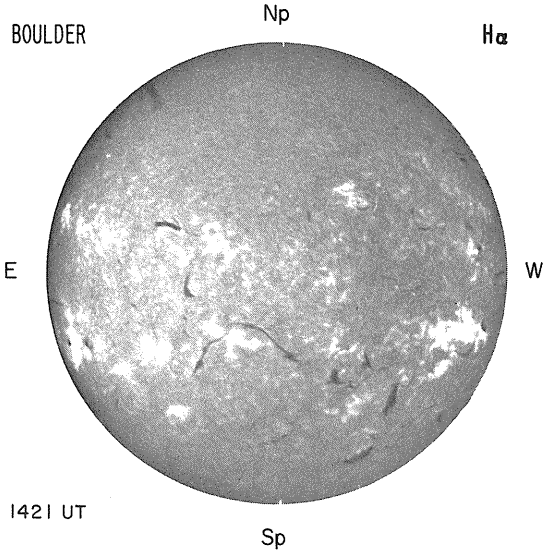
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

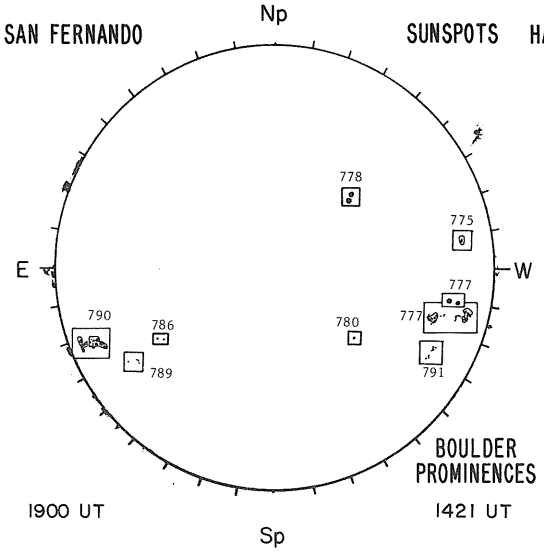
16.15-17.55 UT

BOULDER Hα



1421 UT

SAN FERNANDO SUNSPOTS

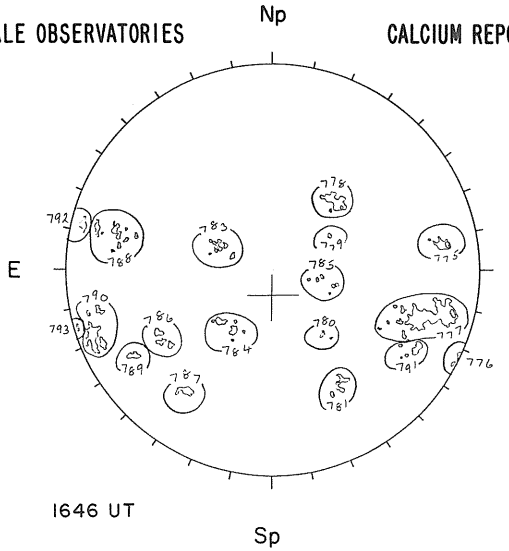


1900 UT

BOULDER PROMINENCES

1421 UT

HALE OBSERVATORIES CALCIUM REPORT



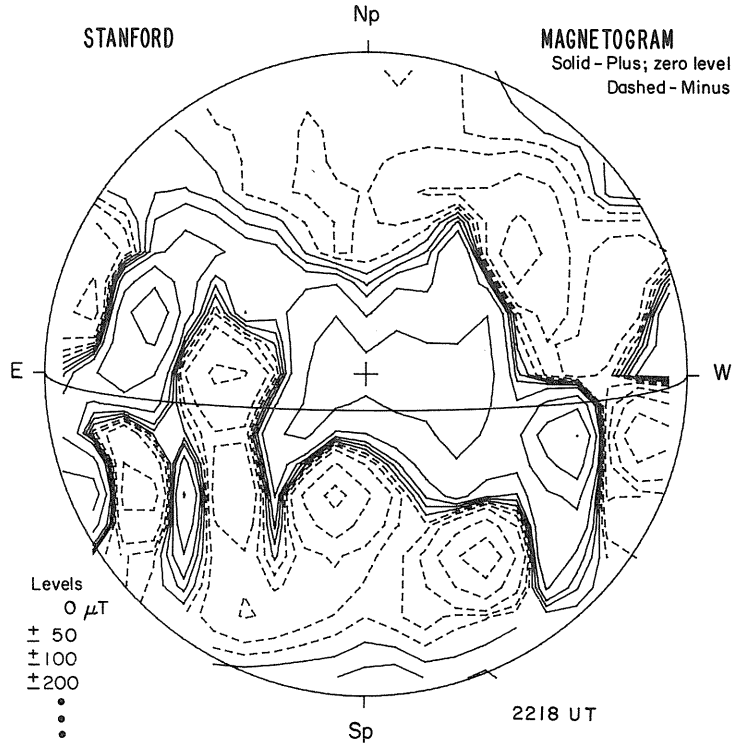
1646 UT

GOOD	JA

75- 0700-3.0
76- 0800-3.0
77- 5400-3.0
78- 0800-3.0
79- 0100-3.0
80- 0200-2.5
81- 0400-2.5
83- 0400-3.0
84- 0600-3.0
85- 0200-3.0
86- 0500-3.0
87- 0400-3.0
88- 0600-3.5
89- 0200-3.0
90- 1300-3.5
91- 0300-3.0
92- 0500-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2218 UT

AUGUST 14, 1981 (P= 15.64, B_o = 6.60, L_o = 63.59)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

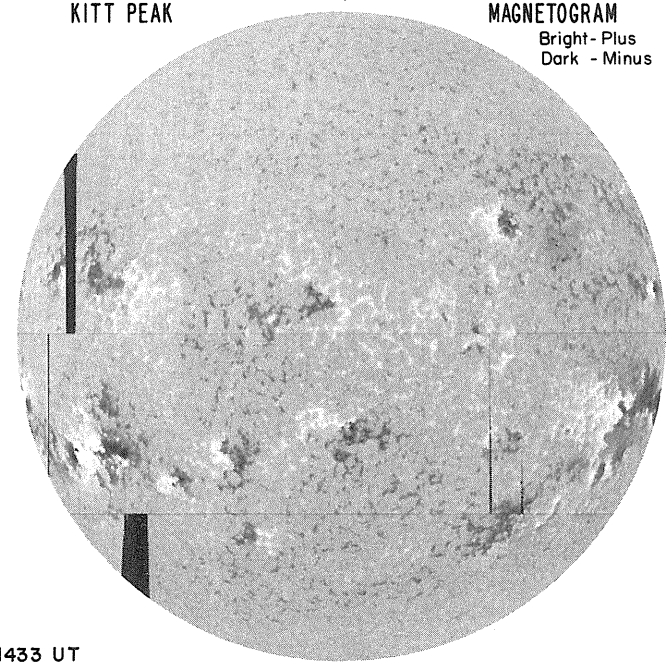
NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

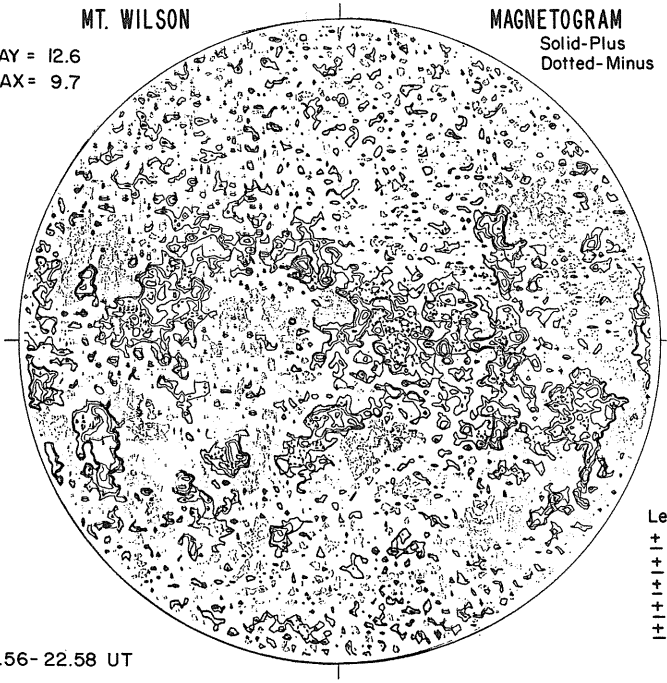


1433 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.7

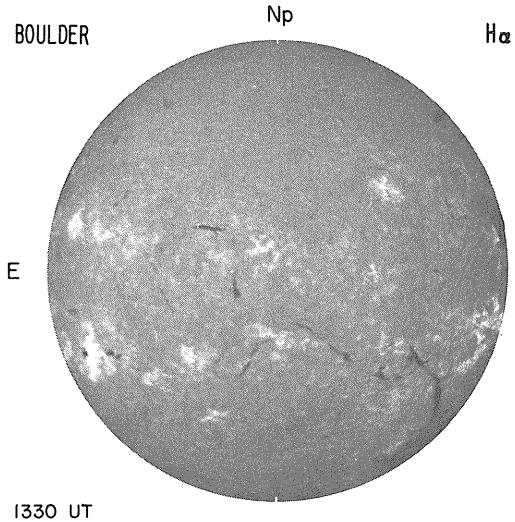
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

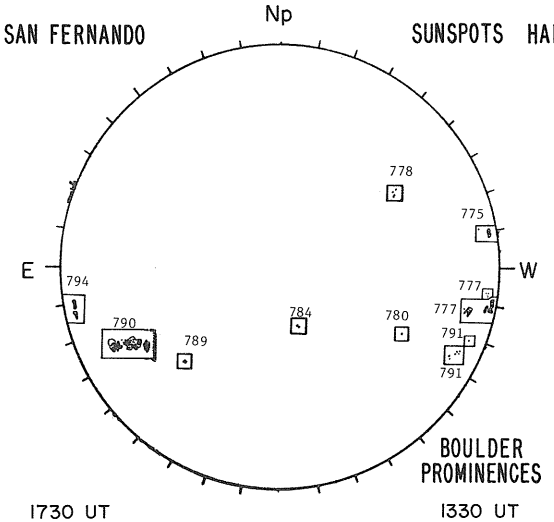
21.56- 22.58 UT

BOULDER Hα



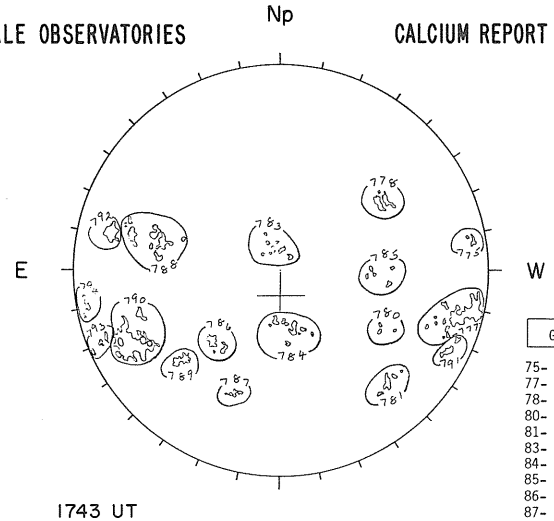
1330 UT

SAN FERNANDO SUNSPOTS



1730 UT

HALE OBSERVATORIES CALCIUM REPORT



1743 UT

GOOD	JA

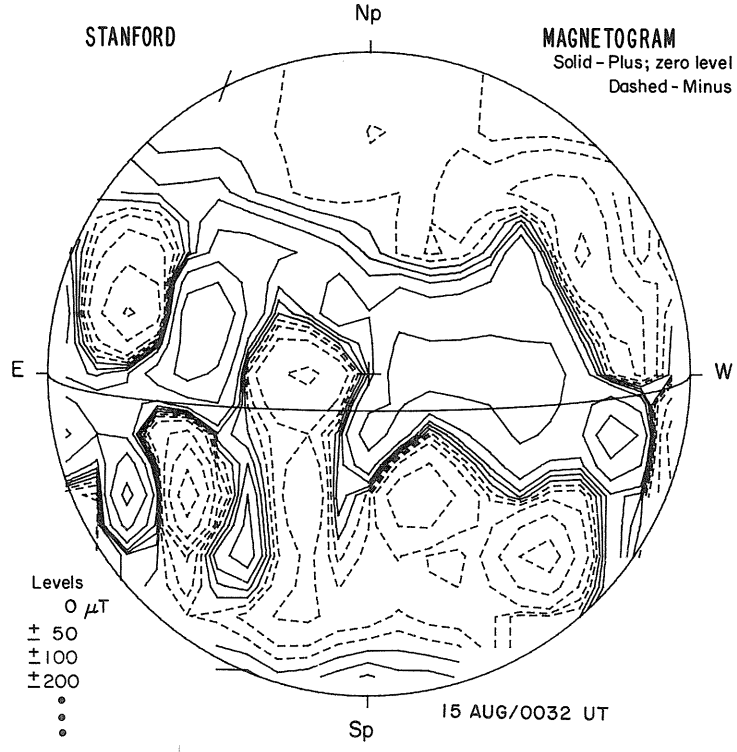
75- 0500-3.0
77- 4700-3.5
78- 0800-3.5
80- 0200-3.0
81- 0400-3.0
83- 0400-3.0
84- 0600-3.0
85- 0200-3.0
86- 0500-3.0
87- 0300-3.0
88- 1000-3.5
89- 0400-3.0
90- 3000-3.5
91- 0300-3.0
92- 0700-3.0
93- 0300-3.0
94- 0400-3.0

BOULDER PROMINENCES

1330 UT

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



15 AUG/0032 UT

AUGUST 15, 1981 (P= 15.99, B_o= 6.65, L_o= 50.37)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

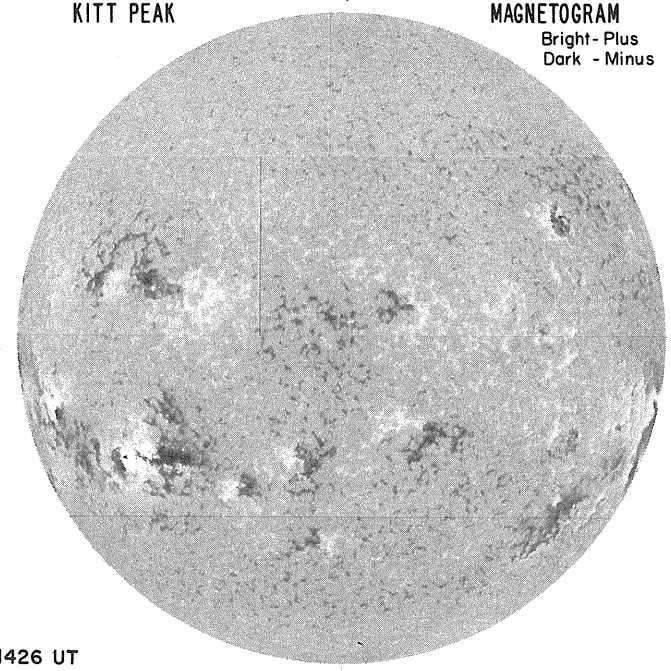
KITT PEAK

Np

MAGNETOGRAM
Bright- Plus
Dark - Minus

E

W



1426 UT

Sp

Sp

Np

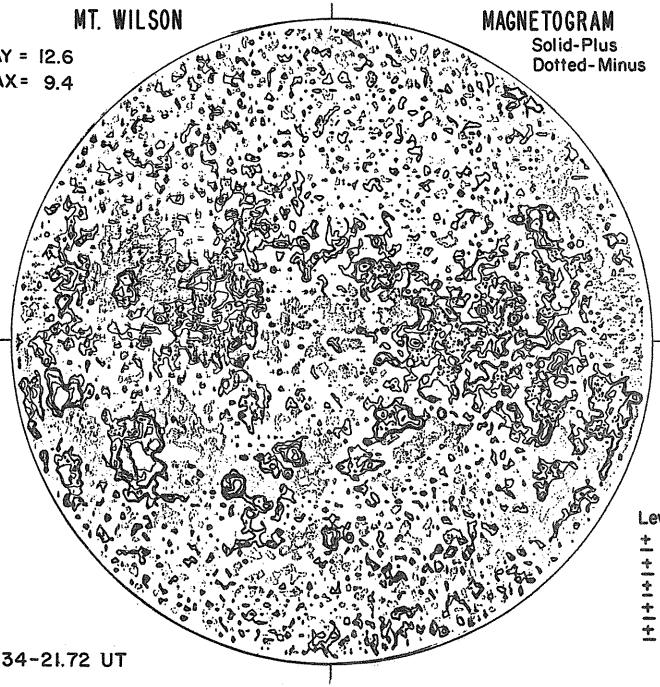
MT. WILSON

DELTAY = 12.6
DELTAX= 9.4

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

W

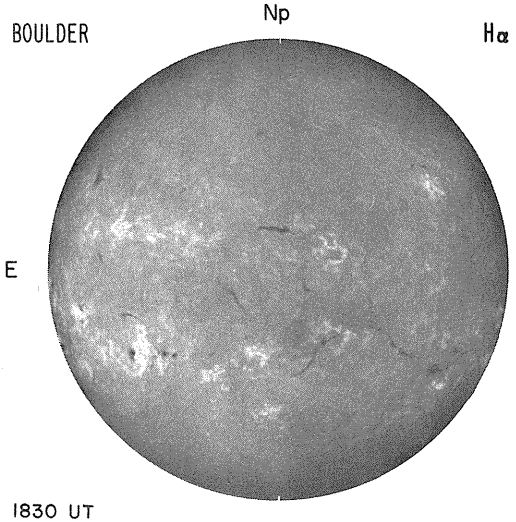


Levels
± 5
± 10
± 20
± 40
± 80

20.34-21.72 UT

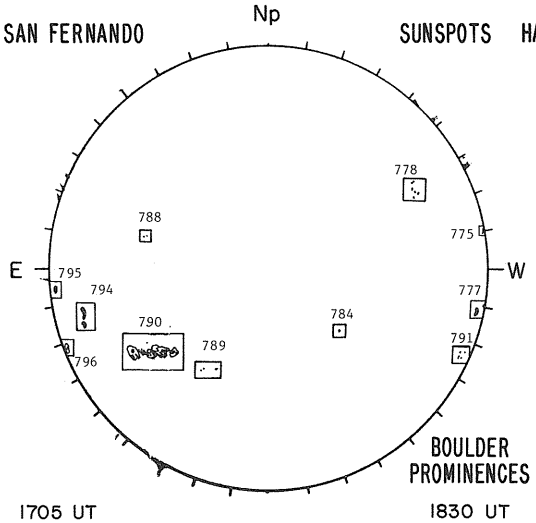
Sp

BOULDER Hα



1830 UT

SAN FERNANDO SUNSPOTS

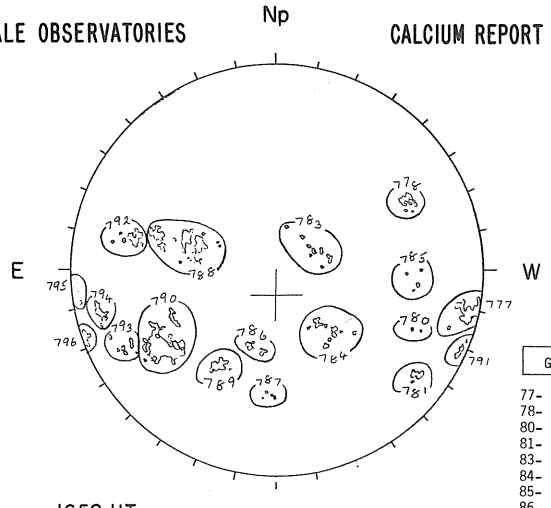


1705 UT

BOULDER PROMINENCES

1830 UT

HALE OBSERVATORIES CALCIUM REPORT



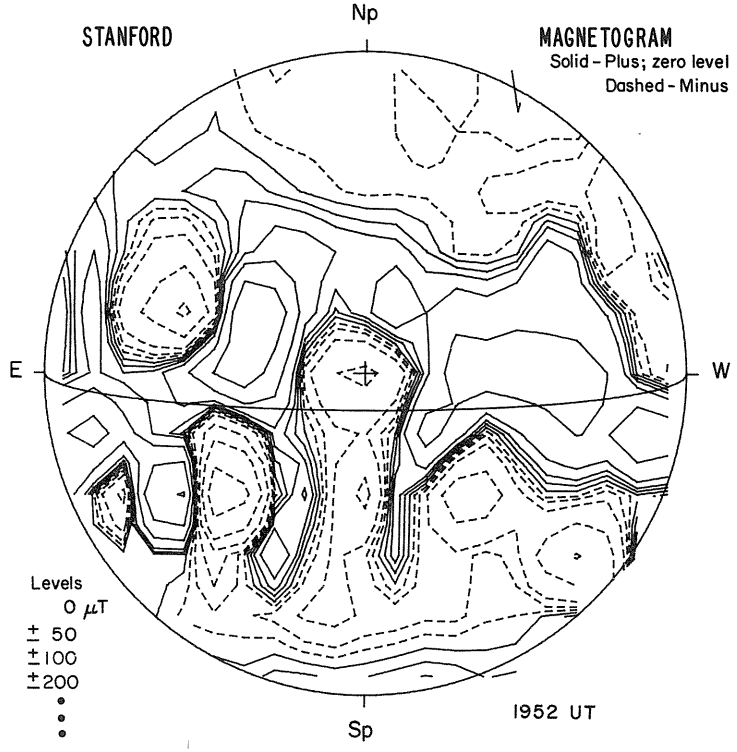
1658 UT

GOOD	JA

77- 2000-3.0
78- 0500-3.0
80- 0200-2.5
81- 0400-3.0
83- 0400-3.0
84- 0600-3.0
85- 0200-2.5
86- 0400-3.0
87- 0200-2.5
88- 1500-3.5
89- 0400-3.0
90- 3000-3.5
91- 0300-3.0
92- 0700-3.0
93- 0300-3.0
94- 0500-3.5
95- 0400-3.0
96- 1000-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



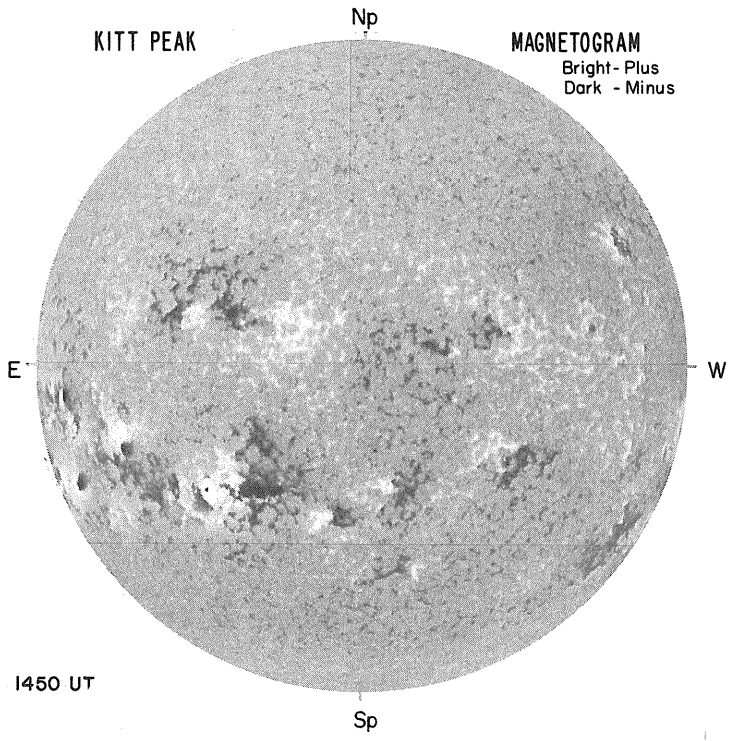
1952 UT

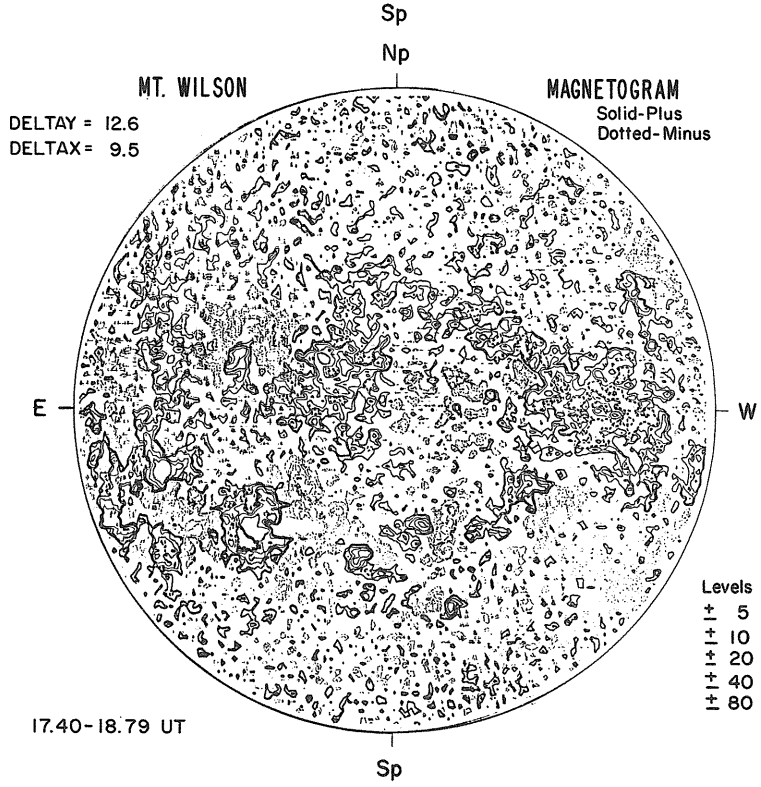
AUGUST 16, 1981 (P= 16.33, B_o = 6.70, L_o = 37.15)

SACRAMENTO PEAK Np CORONA 5303 Å

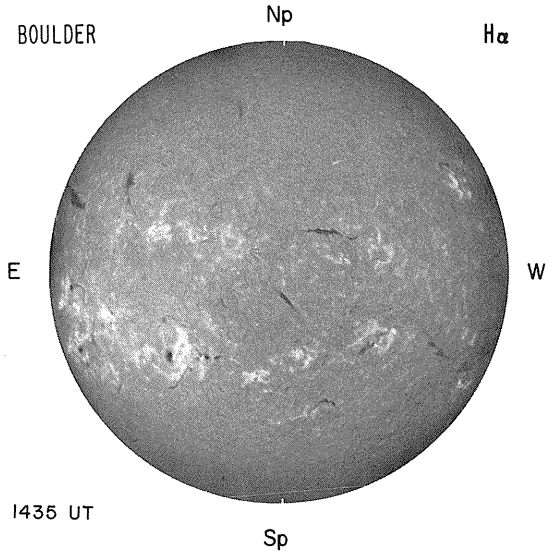
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$



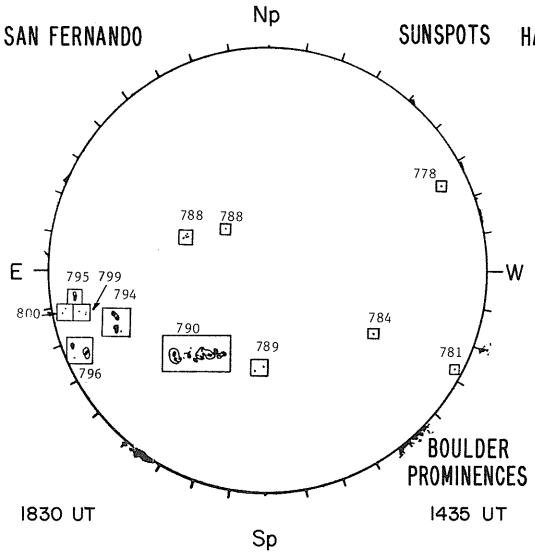


BOULDER Hα



1435 UT

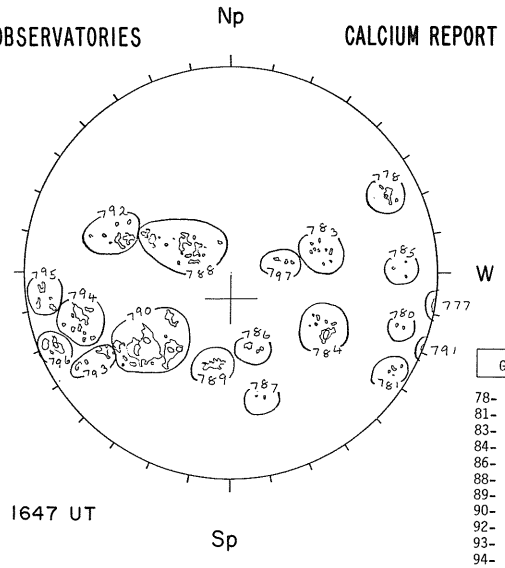
SAN FERNANDO SUNSPOTS



BOULDER PROMINENCES

1830 UT 1435 UT

HALE OBSERVATORIES CALCIUM REPORT



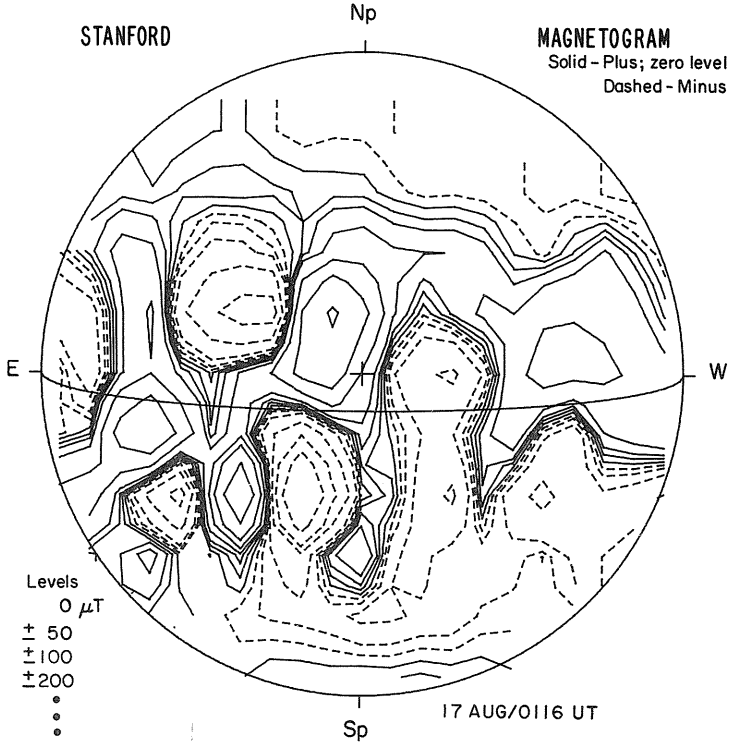
1647 UT

GOOD	JA

78- 0500-2.5
81- 0300-3.0
83- 0400-3.0
84- 0600-3.0
86- 0400-3.0
88- 1300-3.0
89- 0400-3.0
90- 3000-3.5
92- 0700-2.5
93- 0400-3.0
94- 0900-3.0
95- 0400-3.0
96- 1000-3.0
97- 0200-2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



17 AUG/0116 UT

AUGUST 17, 1981 (P= 16.66, B_o= 6.74, L_o= 23.94)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

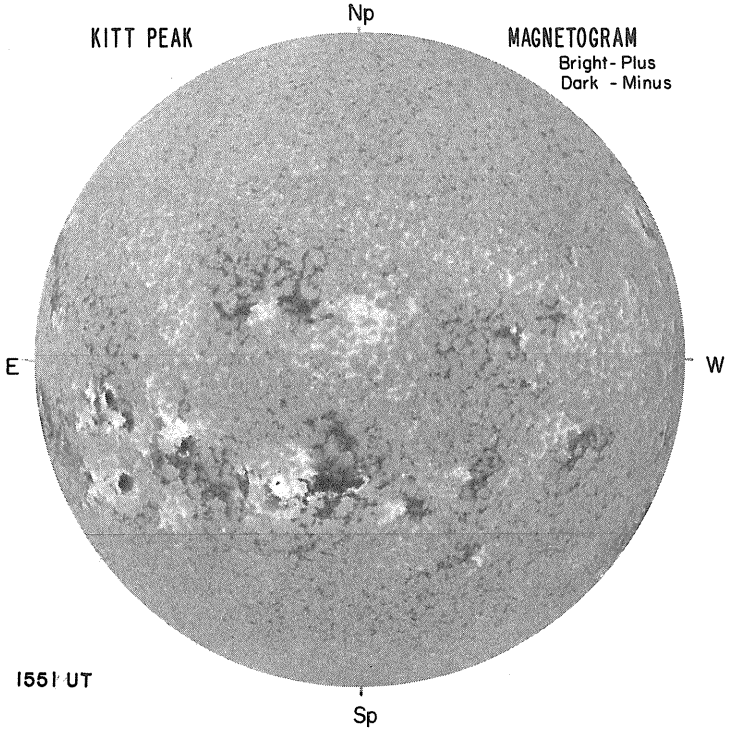
NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

MAGNETOGRAM
Bright- Plus
Dark - Minus

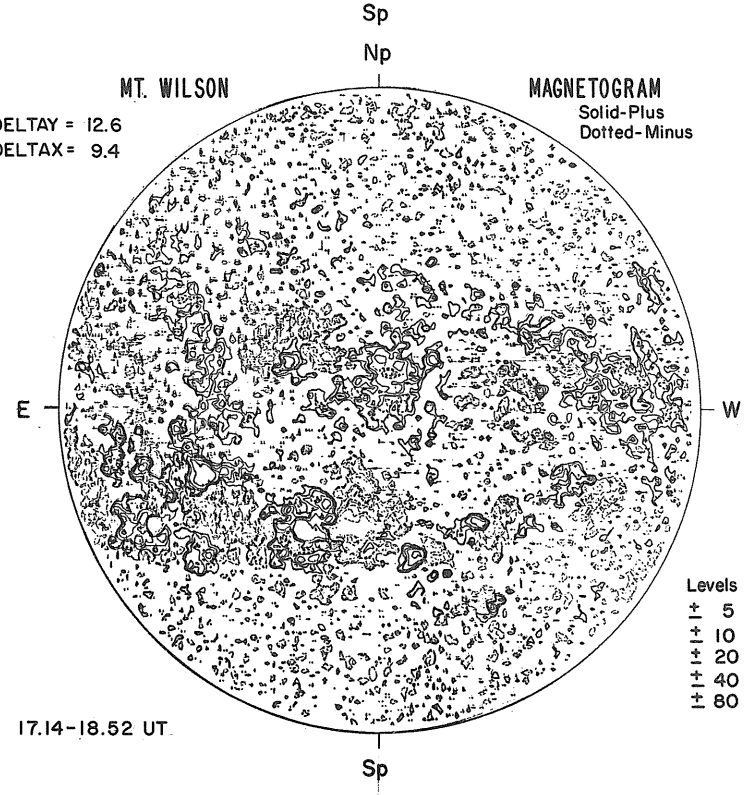


1551 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.4

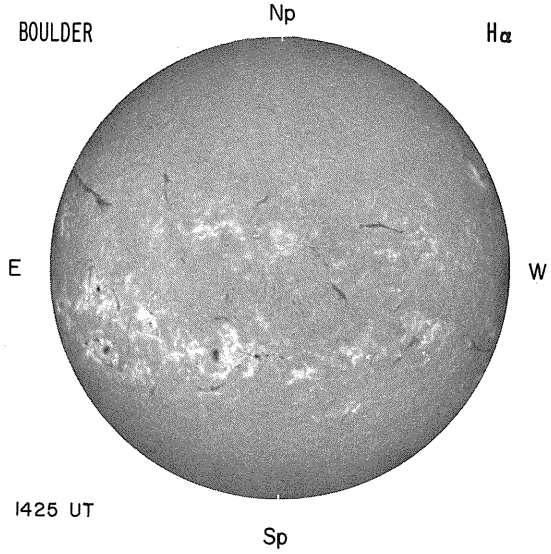
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

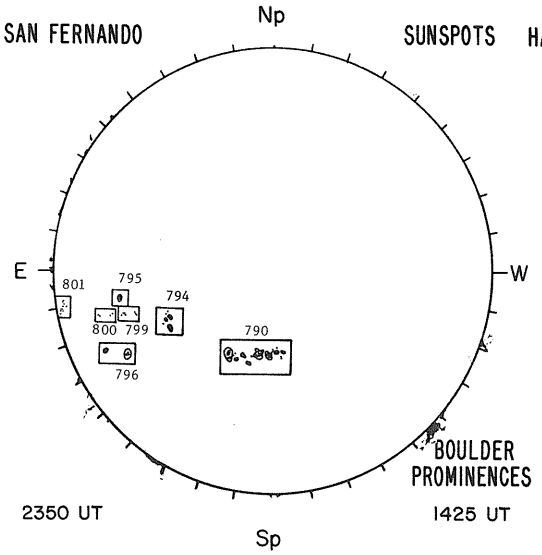
17.14-18.52 UT

BOULDER Hα



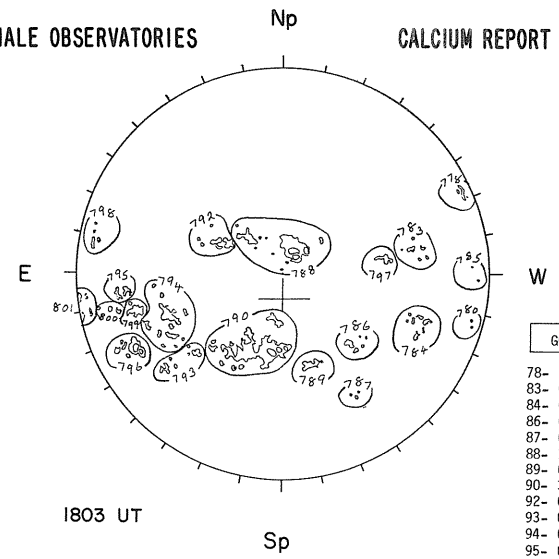
1425 UT

SAN FERNANDO SUNSPOTS



2350 UT 1425 UT

HALE OBSERVATORIES CALCIUM REPORT



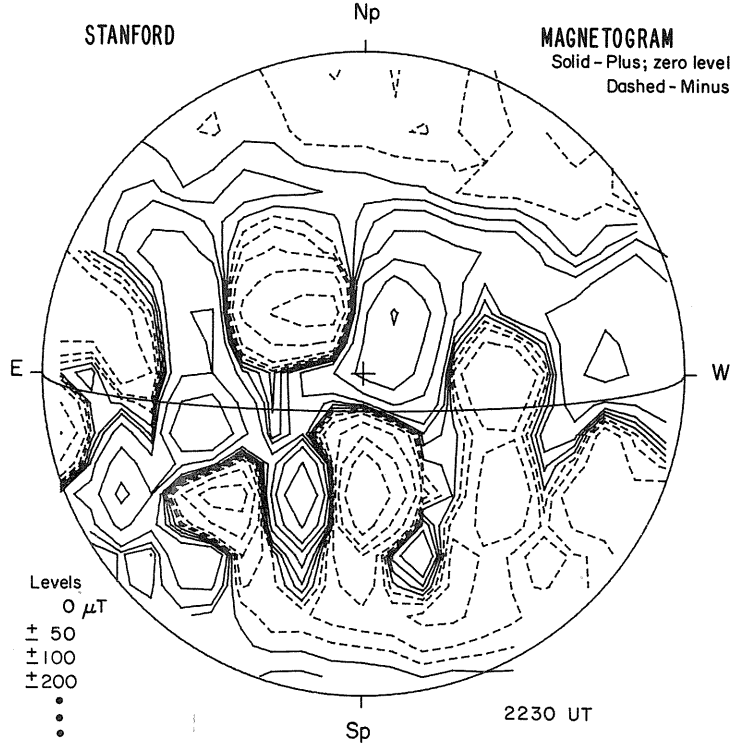
1803 UT

GOOD	JA

78- 0500-2.5
83- 0400-2.5
84- 0600-3.0
86- 0400-3.0
87- 0100-2.5
88- 1300-3.0
89- 0400-3.0
90- 3000-3.5
92- 0600-3.5
93- 0500-3.0
94- 0900-3.5
95- 0400-3.5
96- 1000-3.5
97- 0200-3.0
98- 0400-2.5
99- 0600-3.0
00- 0200-3.0
01- 1000-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2230 UT

AUGUST 18, 1981 (P= 16.99, B_o= 6.79, L_o= 10.72)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

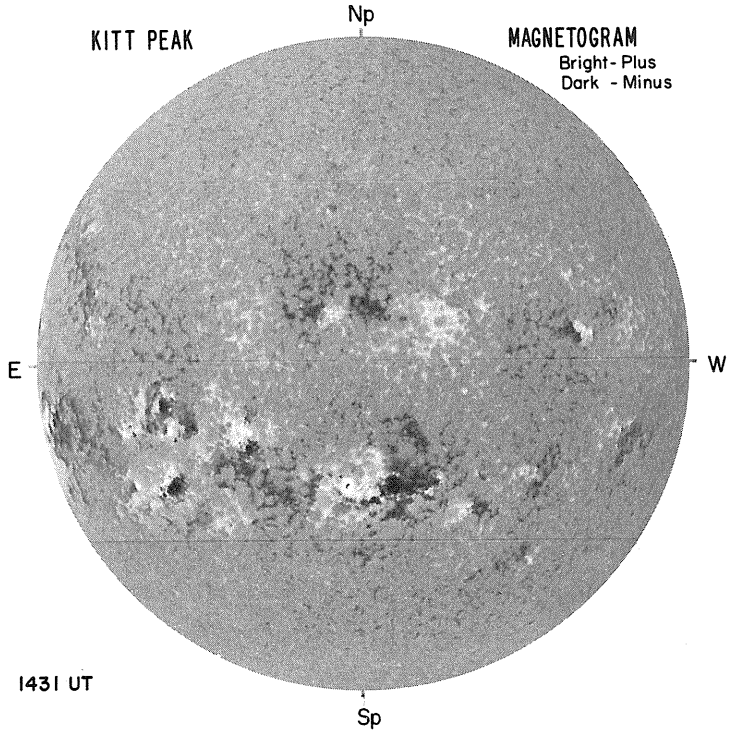
NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

MAGNETOGRAM
Bright- Plus
Dark - Minus

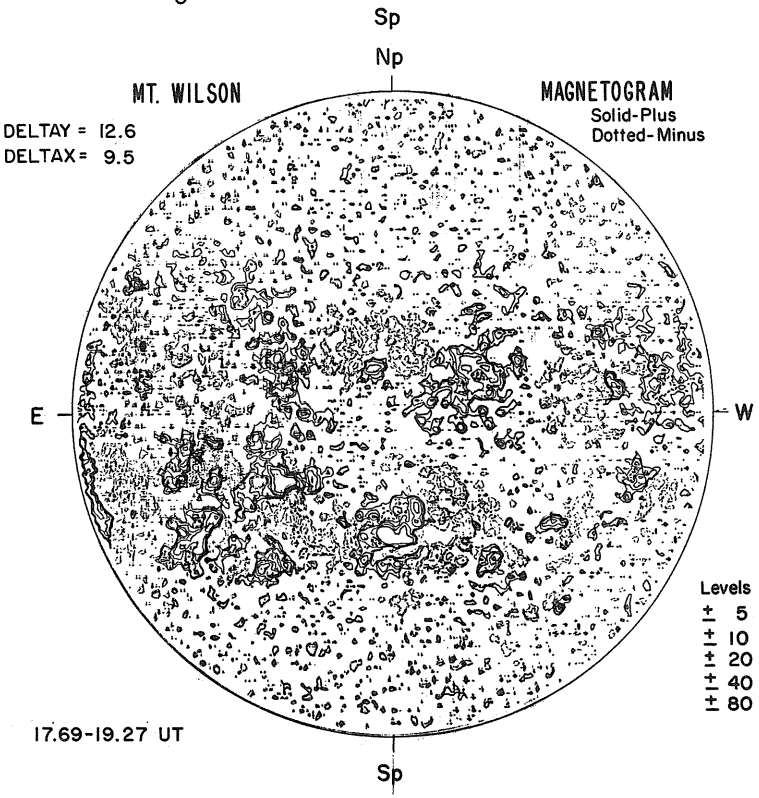


1431 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

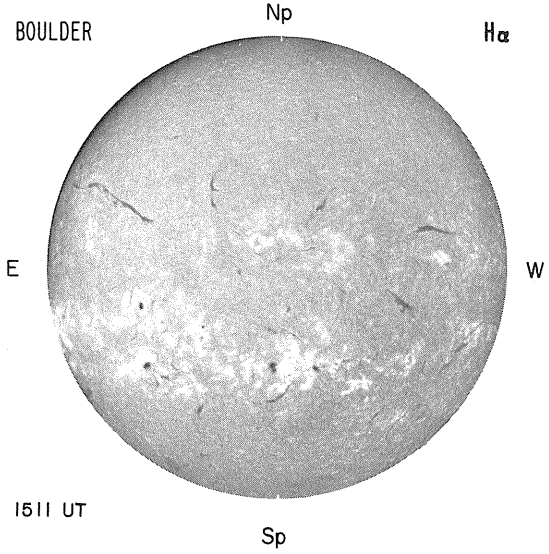
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

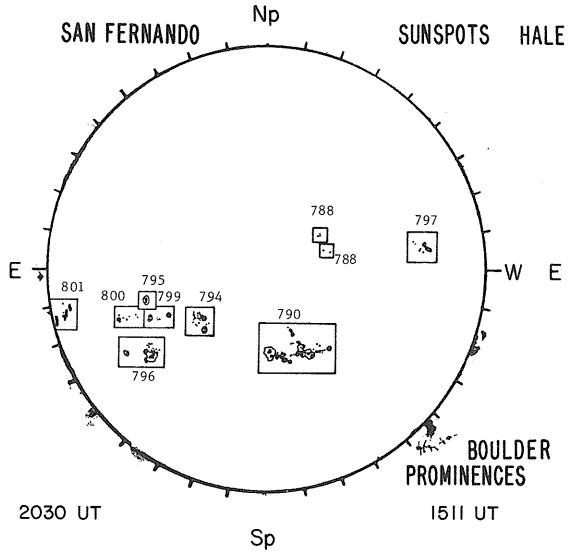
17.69-19.27 UT

BOULDER Hα



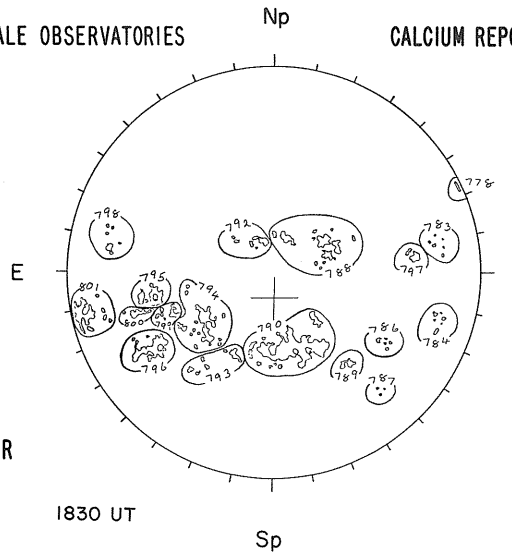
1511 UT

SAN FERNANDO SUNSPOTS



2030 UT 1511 UT

HALE OBSERVATORIES CALCIUM REPORT



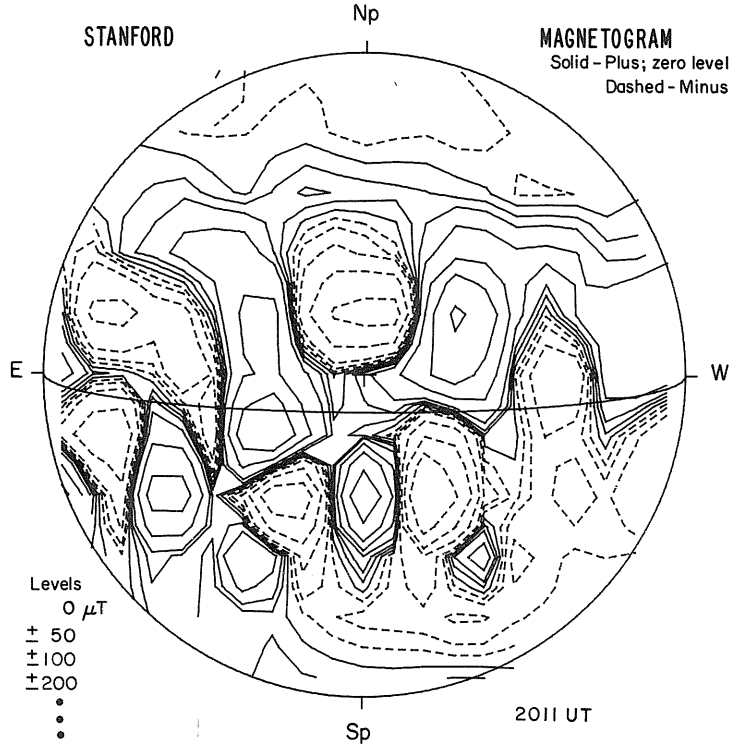
1830 UT

GOOD	JA

83- 0400-2.5
84- 0400-2.5
86- 0300-2.5
87- 0100-2.5
88- 1300-3.5
89- 0400-3.5
90- 3000-3.5
92- 0600-3.5
93- 0600-3.0
94- 1200-3.5
95- 0700-3.5
96- 1200-3.5
97- 0400-3.5
98- 0400-3.0
99- 0400-3.0
00- 0500-3.0
01- 3000-3.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

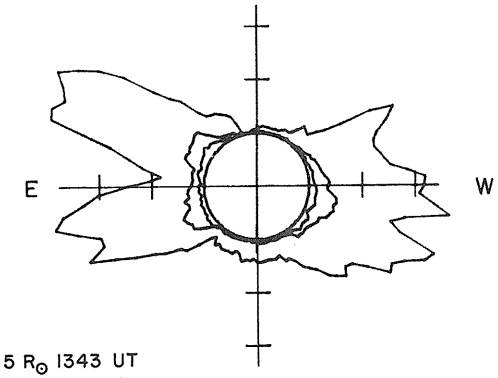


2011 UT

AUGUST 19, 1981 (P= 17.31, B_o= 6.83, L_o= 357.50)

SACRAMENTO PEAK

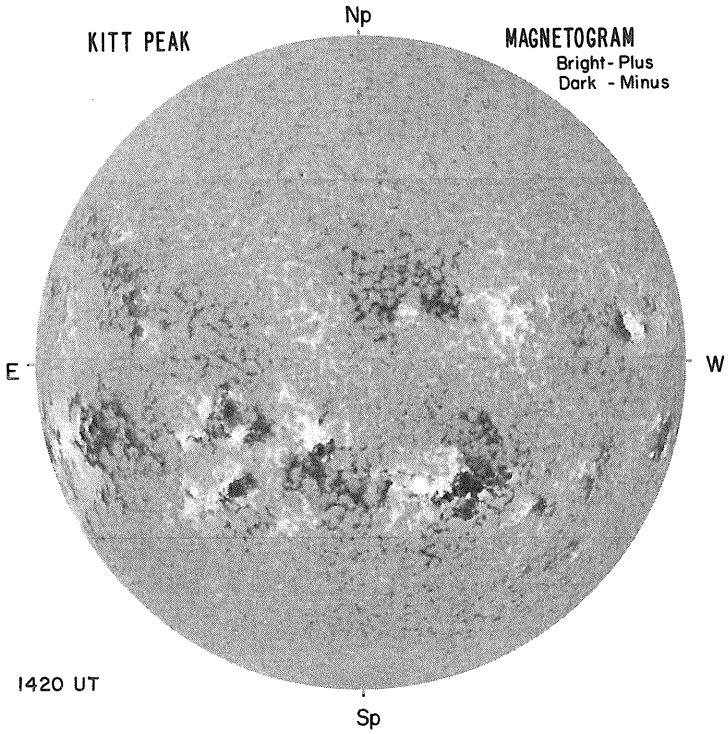
CORONA
5303 Å



1.15 $R_\odot$ 1343 UT
1.35 $R_\odot$ 1351 UT
1.55 $R_\odot$ 1400 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

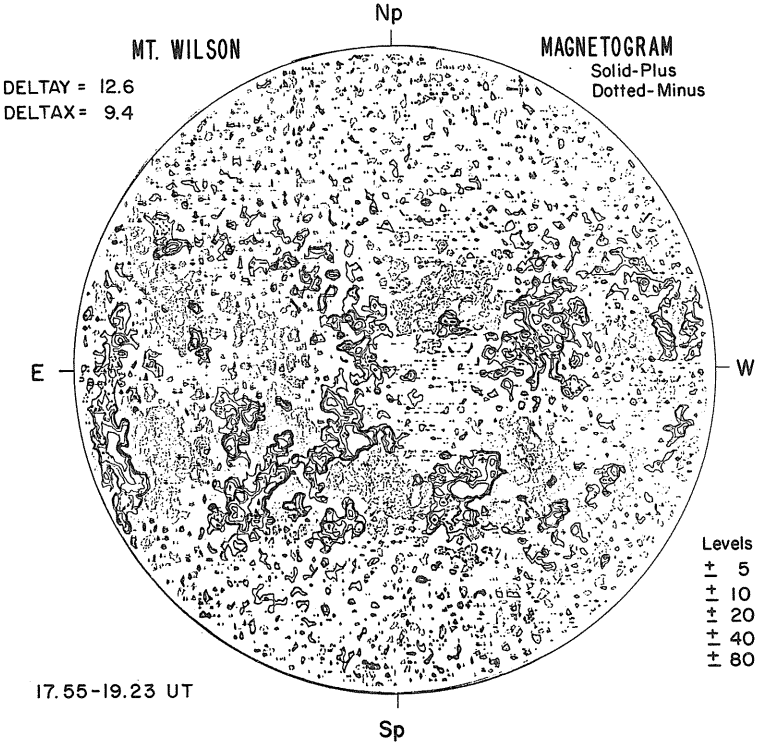


1420 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.4

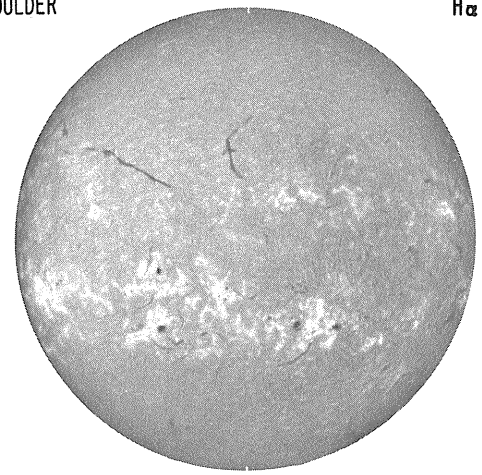
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

17.55-19.23 UT

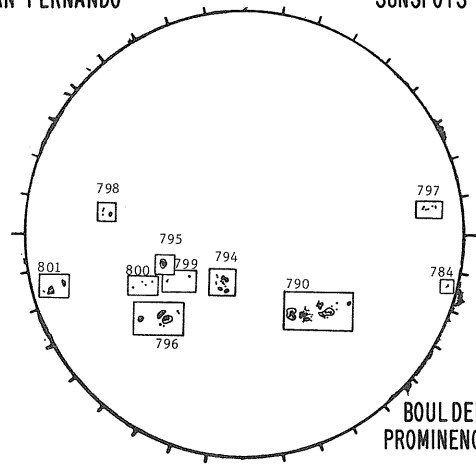
BOULDER Np Hα



E W

1711 UT Sp

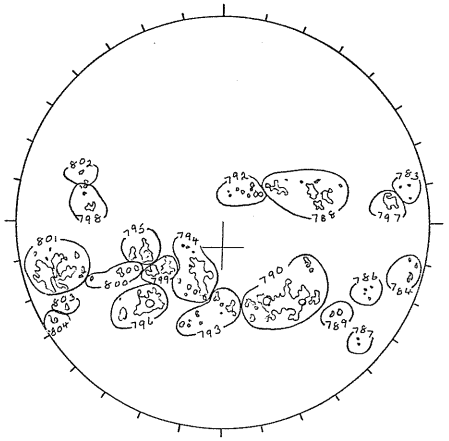
SAN FERNANDO Np SUNSPOTS



E W

1755 UT Sp

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1711 UT 1721 UT Sp

BOULDER PROMINENCES

GOOD	JA

84- 0400-3.0
86- 0200-2.5
88- 1300-3.5
89- 0200-3.0
90- 3000-3.5
92- 0500-3.0
93- 0600-3.0
94- 1400-3.5
95- 0600-3.5
96- 1300-3.5
97- 0700-3.0
98- 0400-3.0
99- 0600-3.0
00- 0400-3.0
01- 3000-3.5
02- 0300-2.5
03- 0100-2.5
04- 0200-2.5

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
± 100
± 200
•
•
•

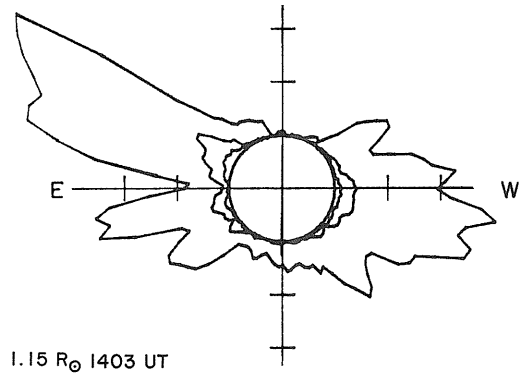
Sp

77
Aug 81

AUGUST 20, 1981 (P= 17.63, B_o = 6.87, L_o = 344.29)

SACRAMENTO PEAK

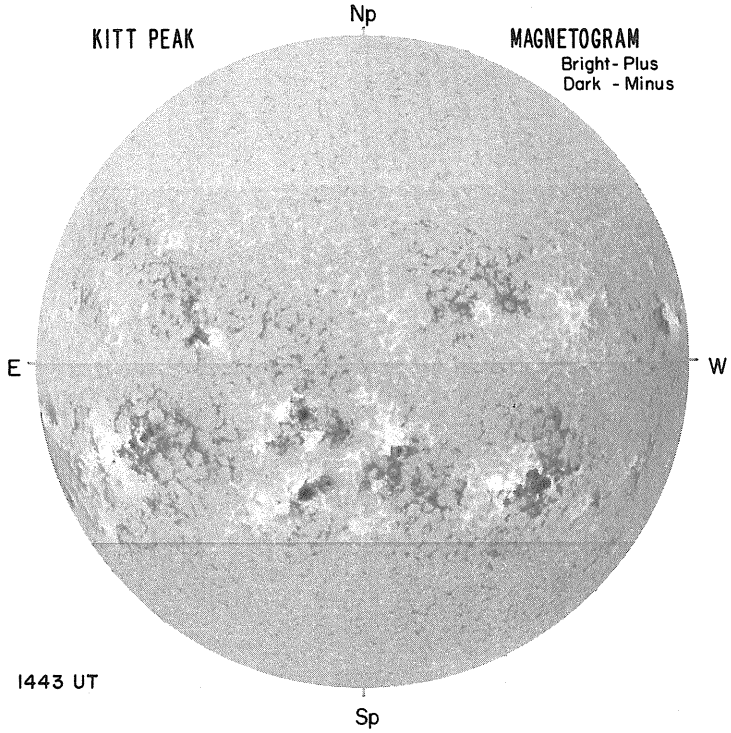
CORONA
5303 Å



1.15 $R_\odot$ 1403 UT
1.35 $R_\odot$ 1343 UT
1.55 $R_\odot$ 1353 UT

KITT PEAK

MAGNETOGRAM
Bright- Plus
Dark - Minus

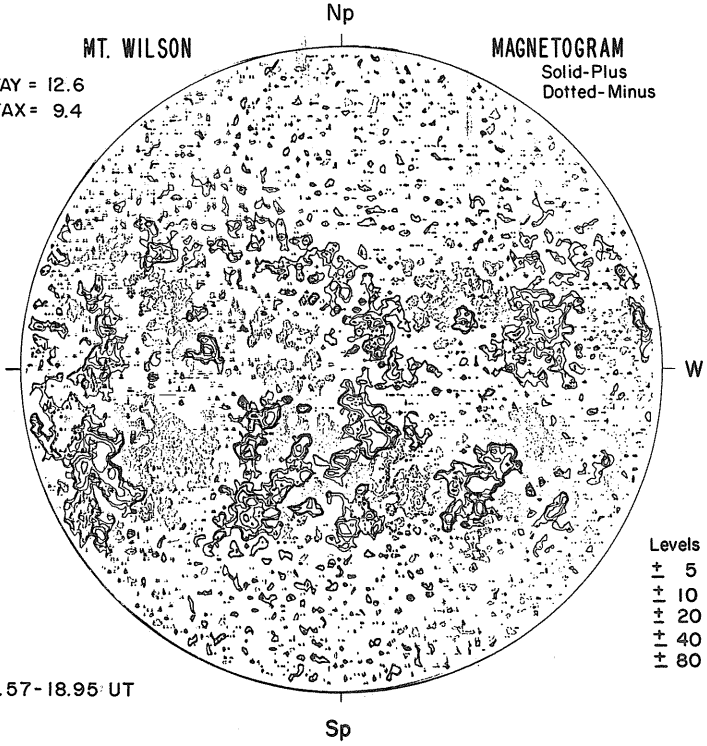


1443 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.4

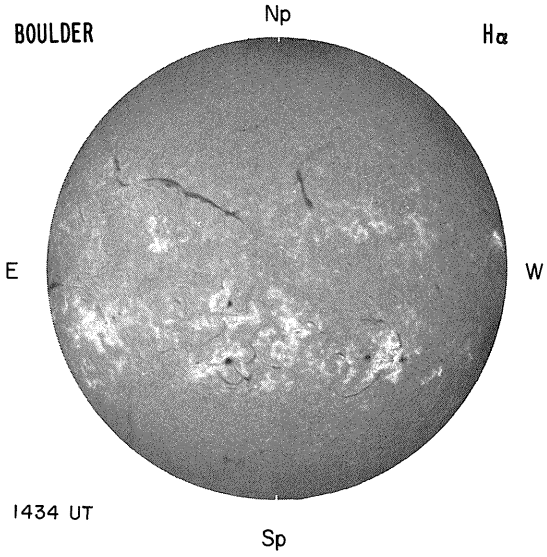
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

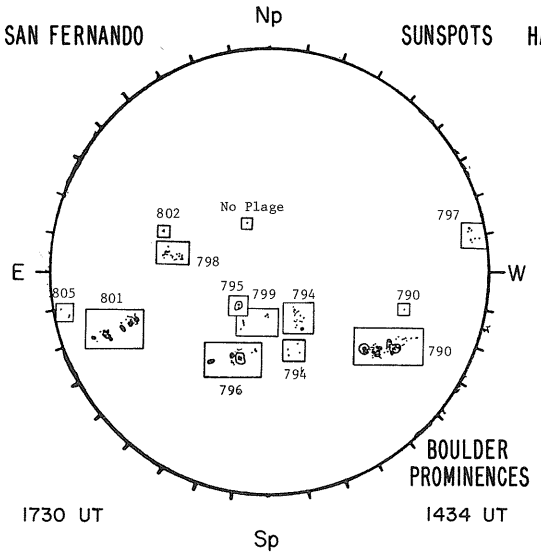
17.57-18.95 UT

BOULDER Hα



1434 UT

SAN FERNANDO SUNSPOTS

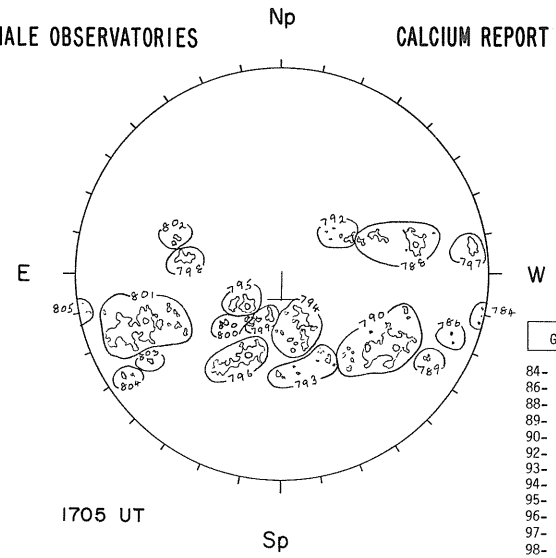


1730 UT

BOULDER PROMINENCES

1434 UT

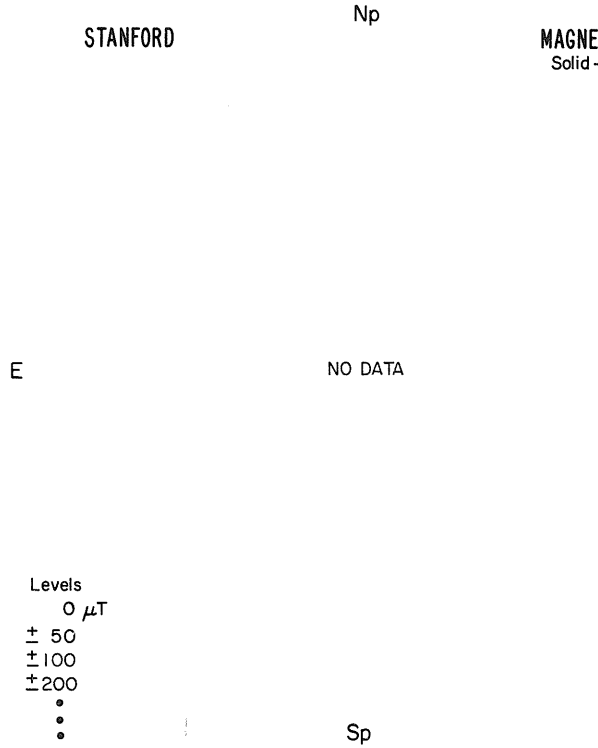
HALE OBSERVATORIES CALCIUM REPORT



1705 UT

GOOD	JA
84-	0300-2.5
86-	0200-2.5
88-	1300-3.0
89-	0200-3.0
90-	3200-3.5
92-	0500-3.0
93-	0600-3.0
94-	1400-3.0
95-	0600-3.5
96-	1300-3.5
97-	0800-3.0
98-	0400-3.0
99-	0500-3.0
00-	0300-3.0
01-	5000-3.5
02-	0300-3.0
03-	0100-3.0
04-	0700-3.0
05-	0300-3.0

STANFORD



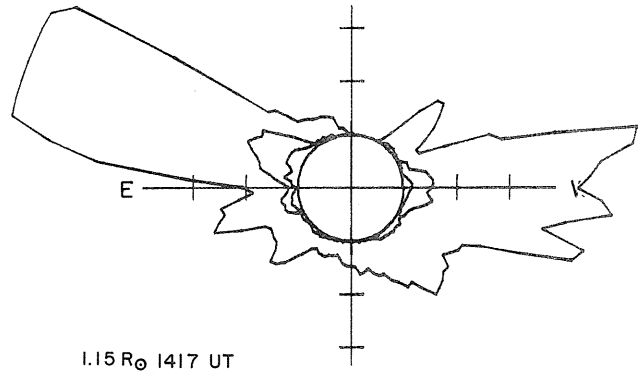
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
± 50
± 100
± 200
•
•
•

AUGUST 21, 1981 (P= 17.95, B_o= 6.91, L_o= 331.07)

SACRAMENTO PEAK

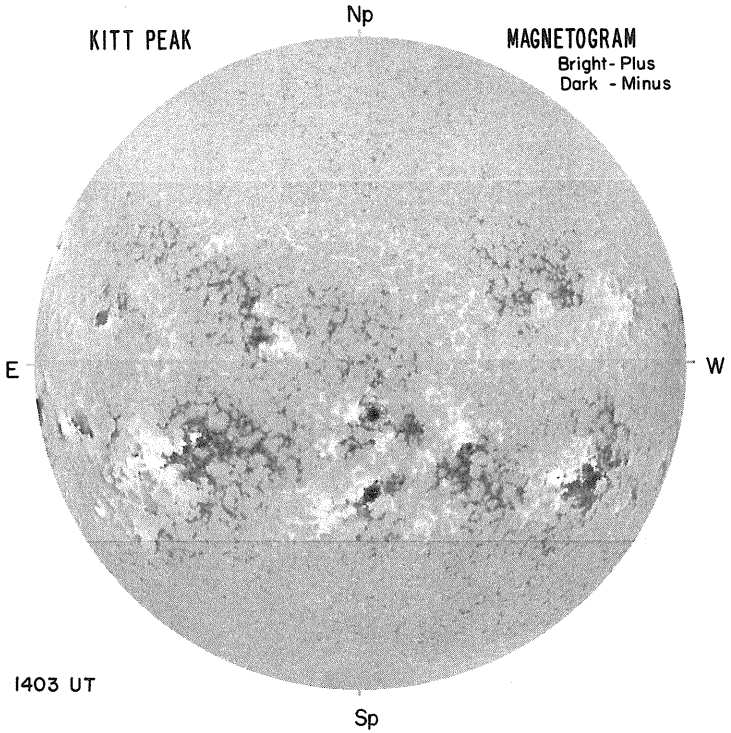
CORONA
5303 Å



1.15 $R_\odot$ 1417 UT
1.35 $R_\odot$ 1357 UT
1.55 $R_\odot$ 1408 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

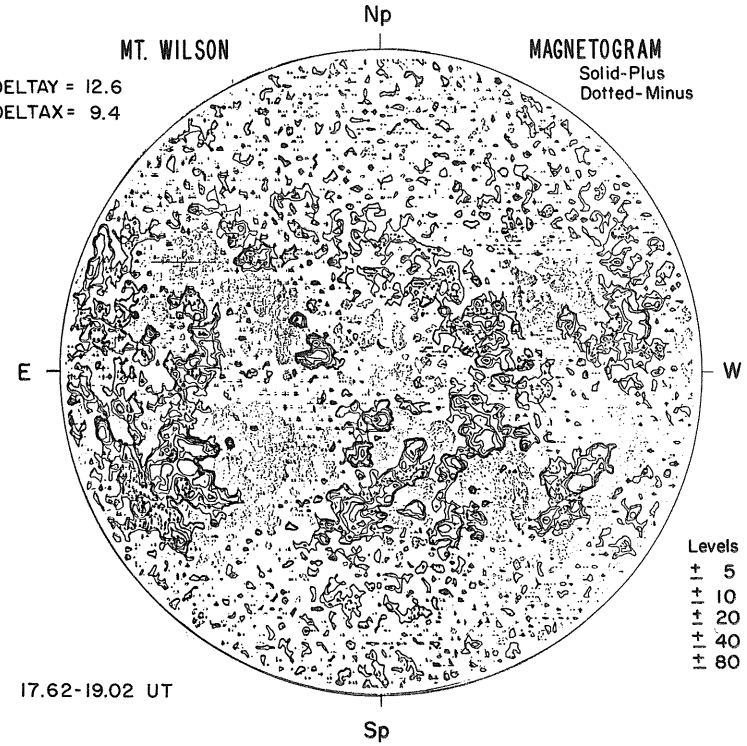


1403 UT

MT. WILSON

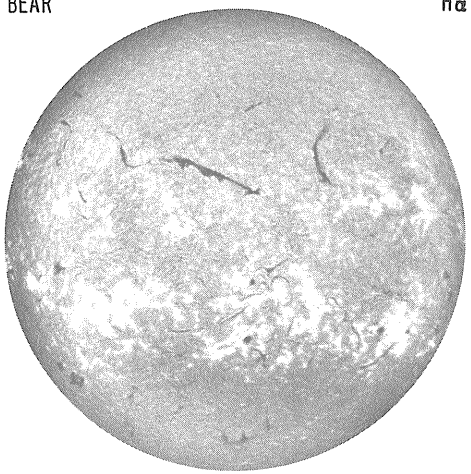
DELTAY = 12.6
DELTAX = 9.4

MAGNETOGRAM
Solid-Plus
Dotted-Minus



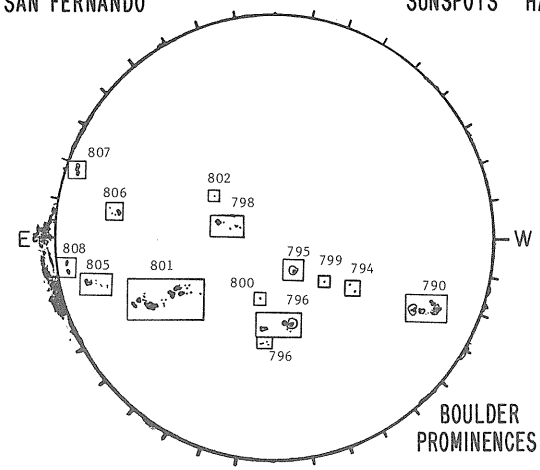
17.62-19.02 UT

BIG BEAR



1634 UT

SAN FERNANDO



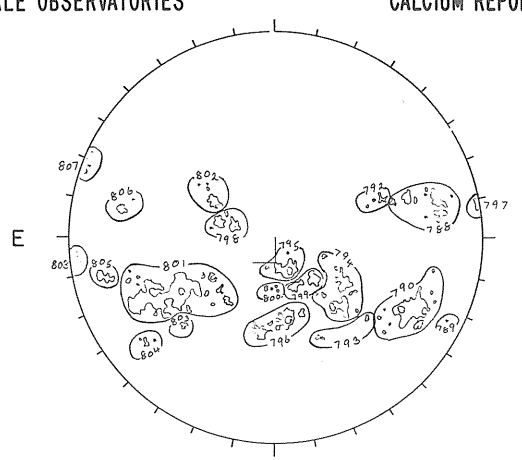
1830 UT

SUNSPOTS

BOULDER PROMINENCES

1424 UT

HALE OBSERVATORIES



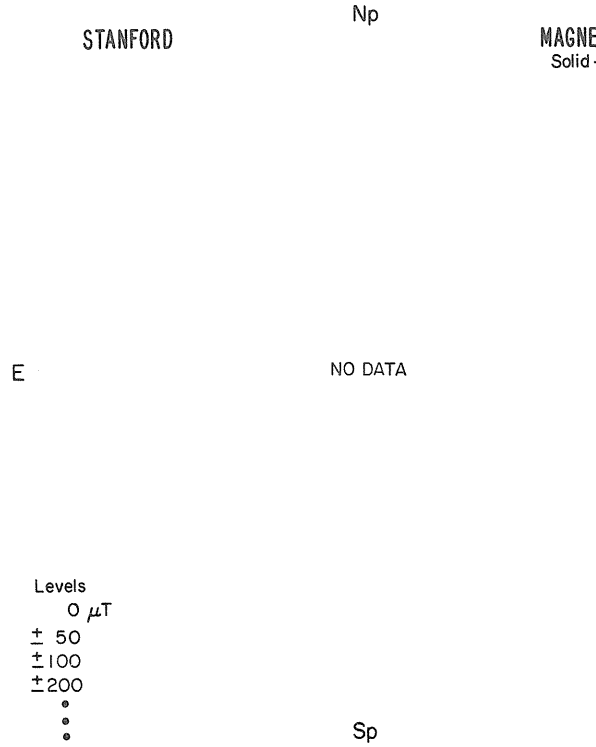
1649 UT

CALCIUM REPORT

GOOD	JA

88- 1300-2.5
89- 0100-2.5
90- 3200-3.5
92- 0200-3.0
93- 0400-3.0
94- 1400-3.5
95- 0700-3.5
96- 1300-3.5
97- 0600-3.5
98- 0600-3.5
99- 0500-3.0
00- 0200-3.0
01- 5000-3.5
02- 0300-3.0
03- 0100-3.0
04- 0200-3.0
05- 0600-3.0
06- 0300-3.0
07- 0800-3.0
08- 0300-3.0

STANFORD



MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

NO DATA

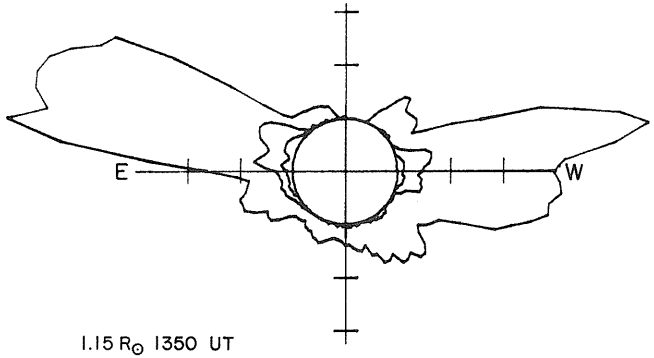
Levels
0 μT
± 50
±100
±200
•
•
•

81
Aug 81

AUGUST 22, 1981 (P=18.26, B_o= 6.94, L_o= 317.86)

SACRAMENTO PEAK

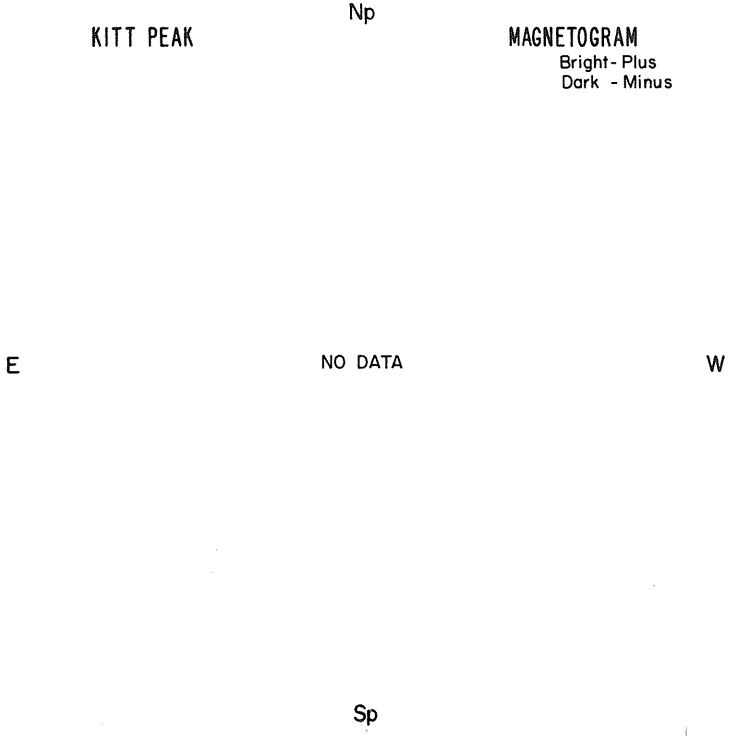
CORONA
5303 Å



1.15 $R_\odot$ 1350 UT
1.35 $R_\odot$ 1358 UT
1.55 $R_\odot$ 1407 UT

KITT PEAK

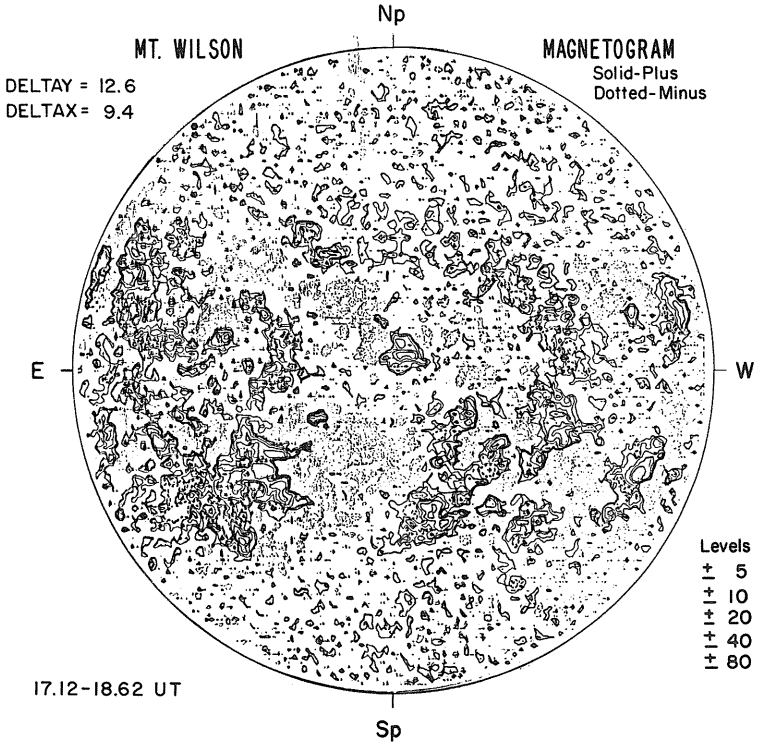
MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

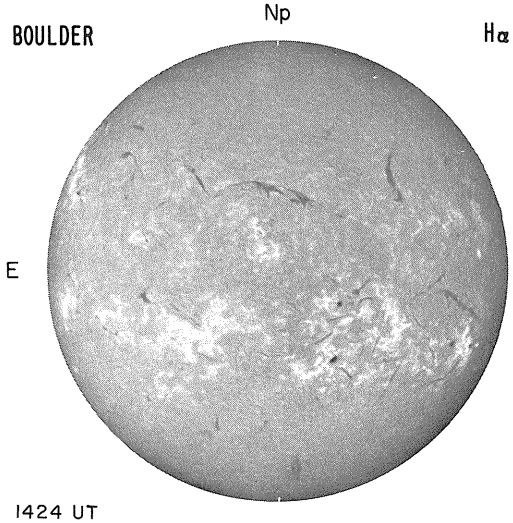
DELTAY = 12.6
DELTAX = 9.4



Levels
± 5
± 10
± 20
± 40
± 80

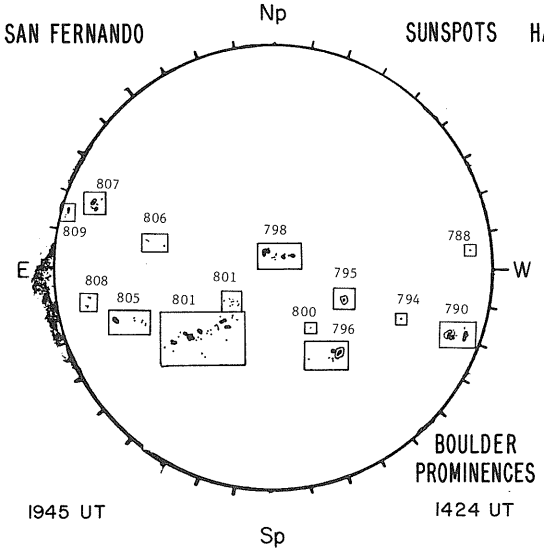
17.12-18.62 UT

BOULDER Hα



1424 UT

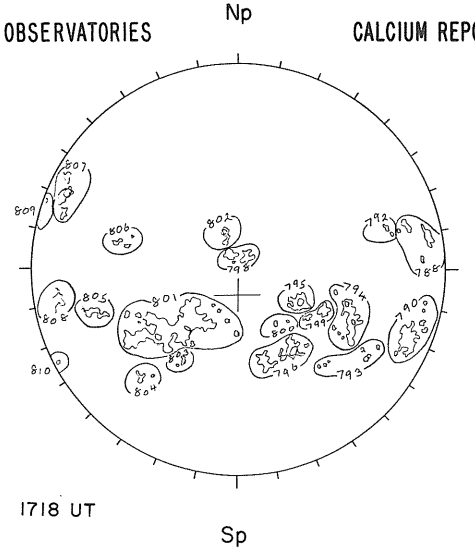
SAN FERNANDO SUNSPOTS



BOULDER PROMINENCES

1945 UT 1424 UT

HALE OBSERVATORIES CALCIUM REPORT



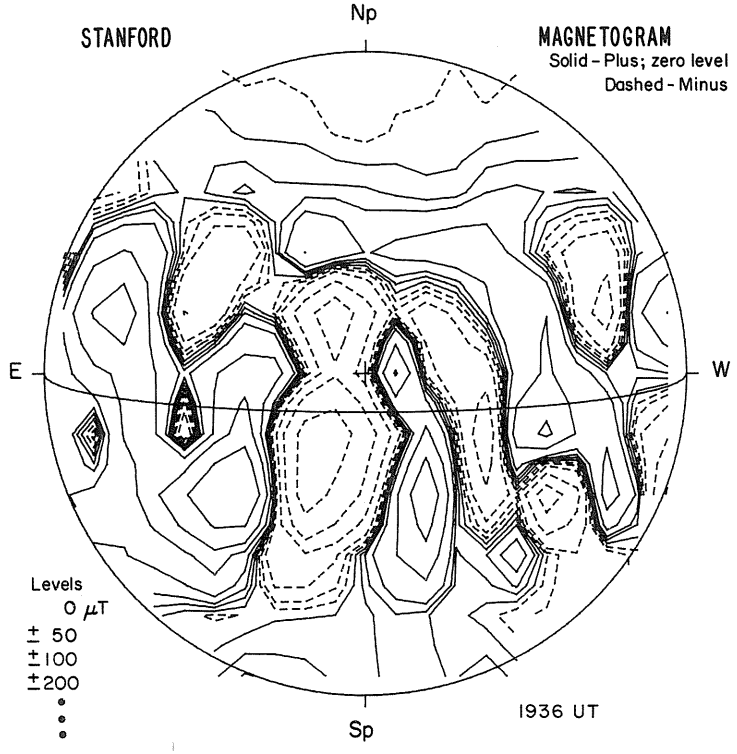
1718 UT

GOOD	JA

88- 1300-3.0
90- 2900-3.5
92- 0200-3.0
93- 0400-2.5
94- 1400-3.0
95- 0700-3.0
96- 1300-3.5
98- 0600-3.0
99- 0500-3.0
00- 0100-2.5
01- 5000-3.5
02- 0300-3.0
03- 0100-3.0
04- 0200-3.0
05- 0600-3.0
06- 0300-3.0
07- 1000-3.0
08- 0700-3.5
09- 0900-3.0
10- 0100-3.0

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

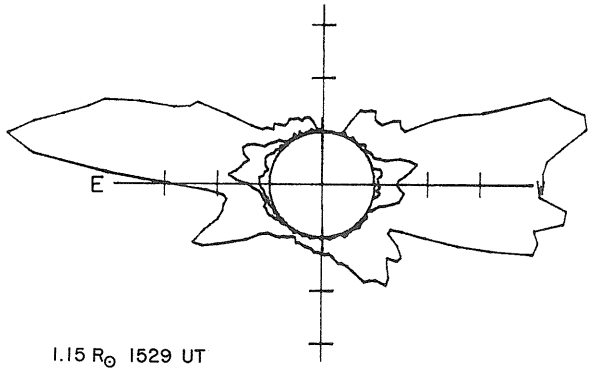


1936 UT

AUGUST 23, 1981 (P= 18.56, B_o = 6.98, L_o = 304.64)

SACRAMENTO PEAK

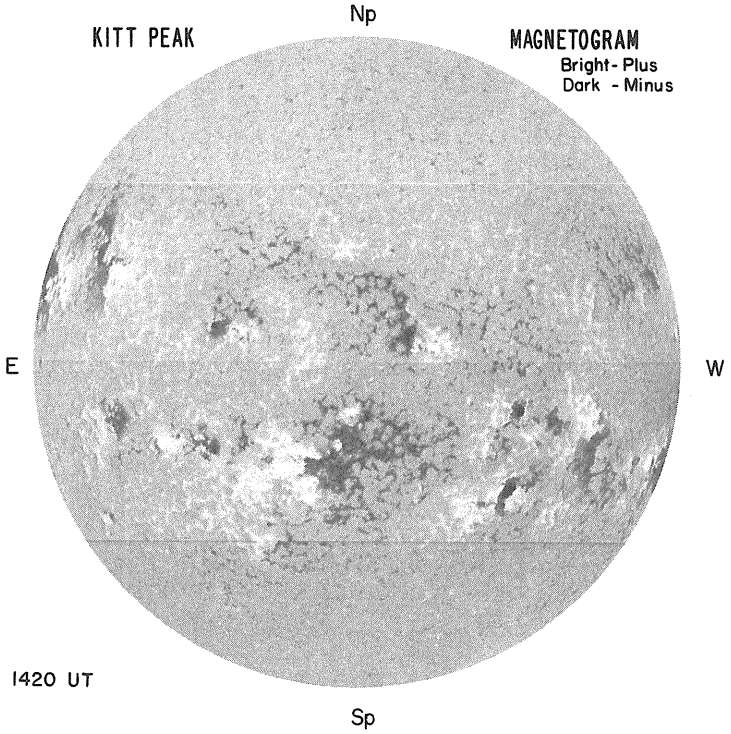
CORONA
5303 Å



1.15 $R_\odot$ 1529 UT
1.35 $R_\odot$ 1508 UT
1.55 $R_\odot$ 1518 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

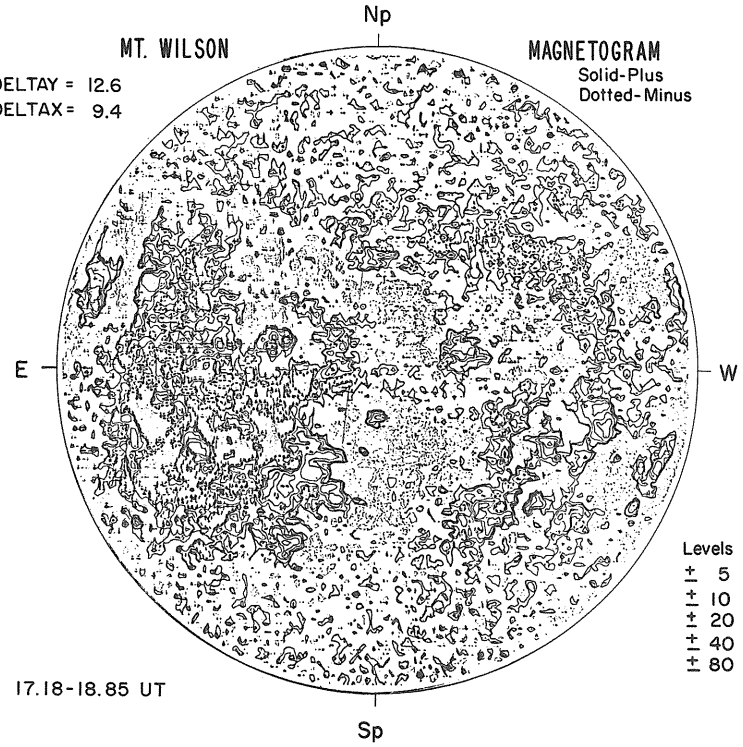


1420 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.4

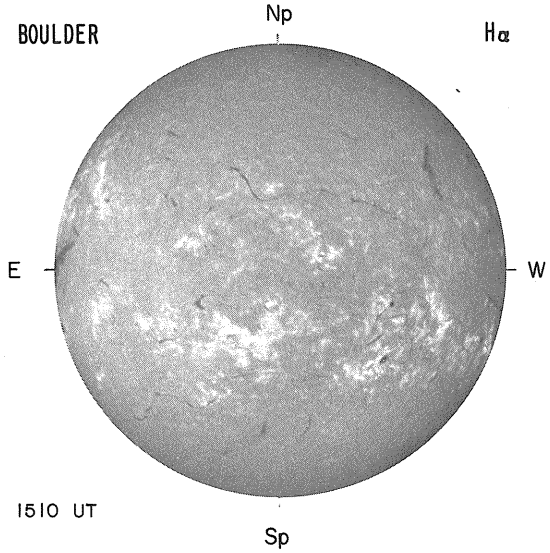
MAGNETOGRAM
Solid-Plus
Dotted-Minus



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

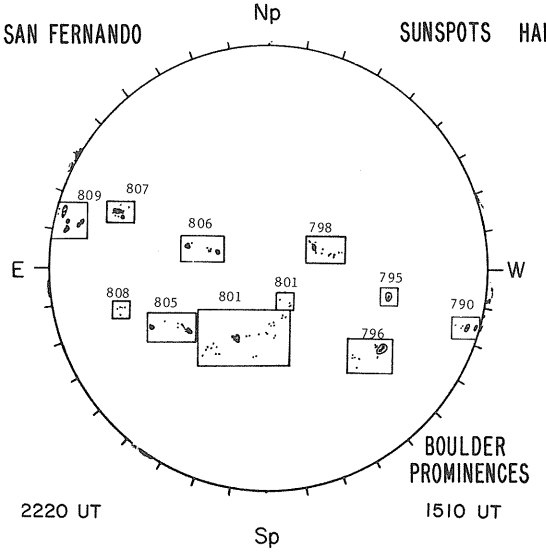
17.18-18.85 UT

BOULDER Hα



1510 UT

SAN FERNANDO SUNSPOTS

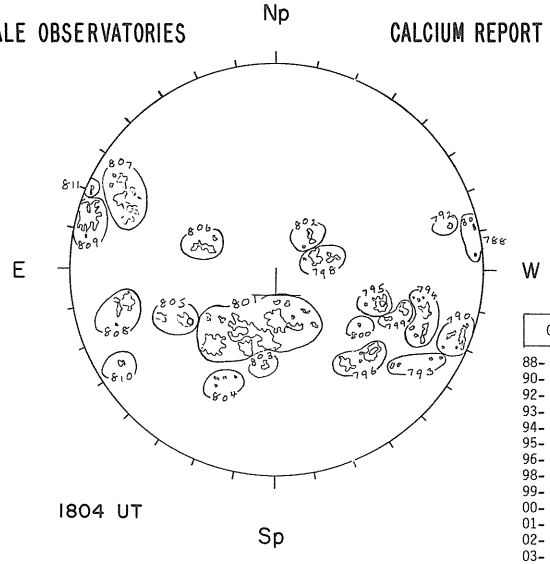


2220 UT

BOULDER PROMINENCES

1510 UT

HALE OBSERVATORIES CALCIUM REPORT

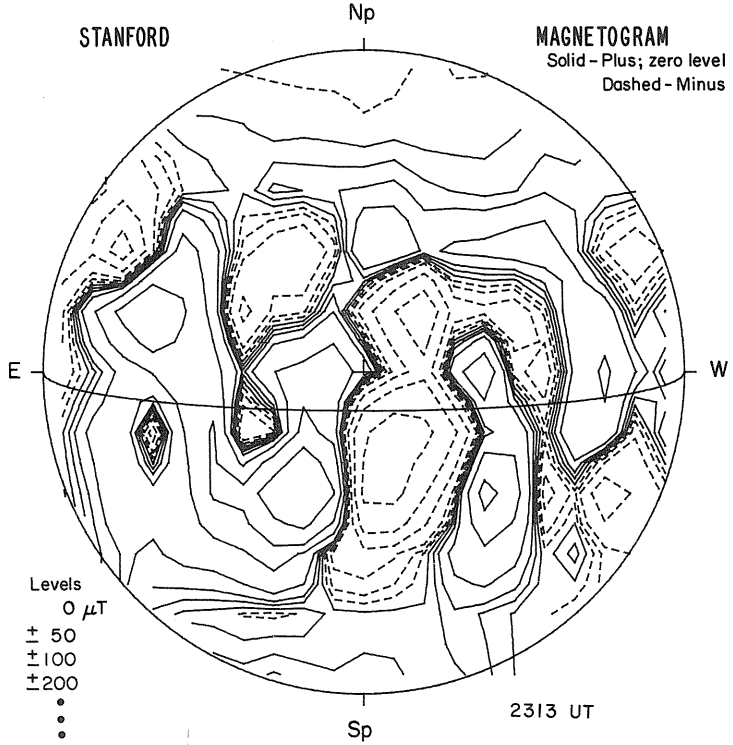


1804 UT

GOOD	JA
88-	0500-2.5
90-	1000-3.0
92-	0200-2.5
93-	0300-3.0
94-	1400-3.0
95-	0600-3.0
96-	1200-3.0
98-	0600-3.0
99-	0500-3.0
00-	0100-2.5
01-	5000-3.5
02-	0300-2.5
03-	0100-3.0
04-	0200-3.0
05-	0600-3.0
06-	0300-3.0
07-	2000-3.5
08-	0900-3.0
09-	3000-3.5
10-	0300-2.5
11-	0200-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

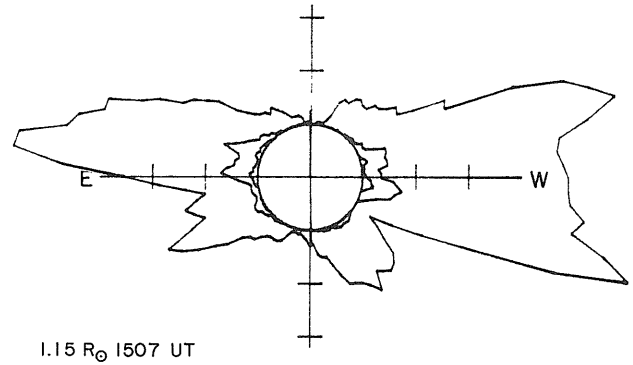


2313 UT

AUGUST 24, 1981 (P= 18.86, B_o = 7.01, L_o = 291.43)

SACRAMENTO PEAK

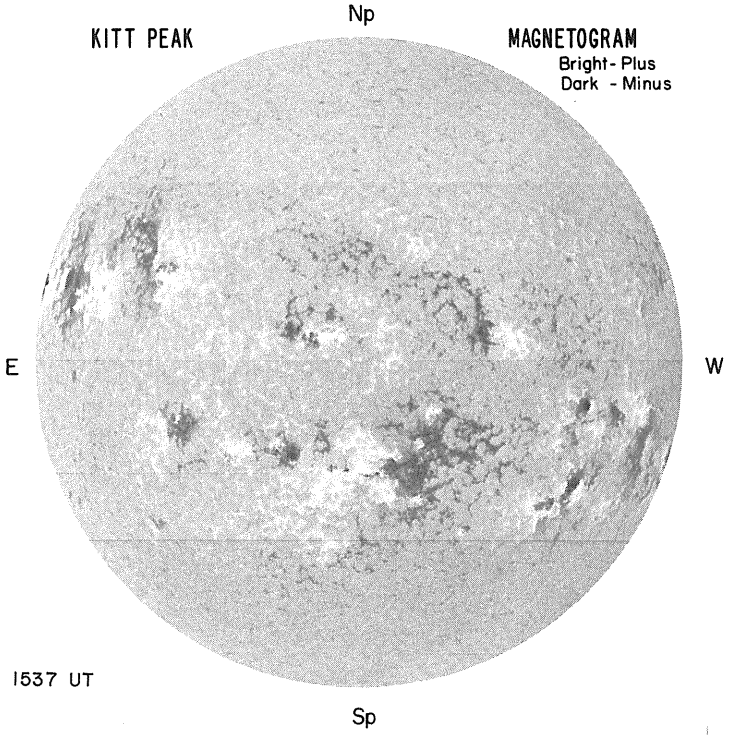
CORONA
5303 Å



1.15 $R_\odot$ 1507 UT
1.35 $R_\odot$ 1448 UT
1.55 $R_\odot$ 1455 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

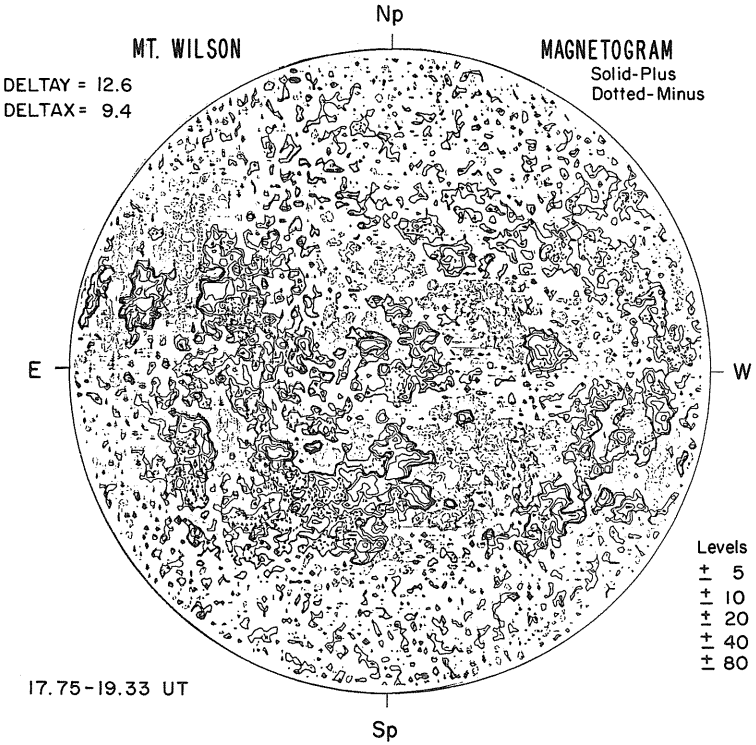


1537 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.4

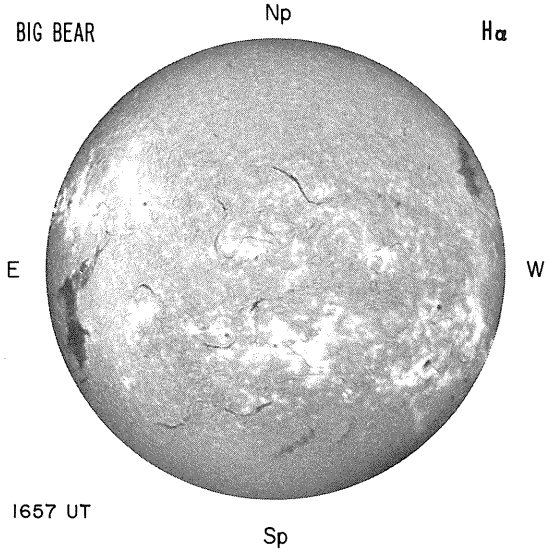
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

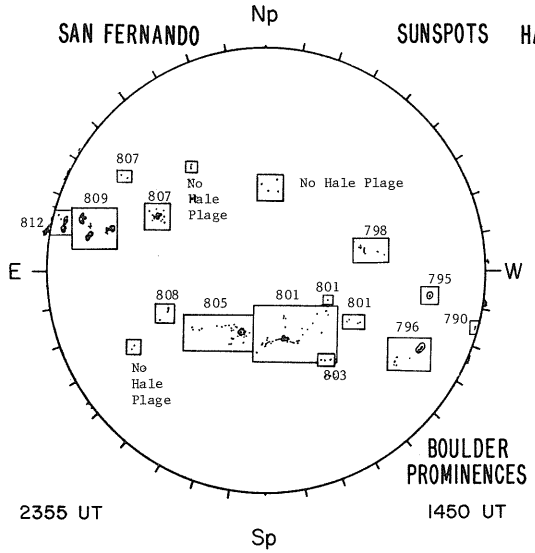
17.75-19.33 UT

BIG BEAR



1657 UT

SAN FERNANDO SUNSPOTS

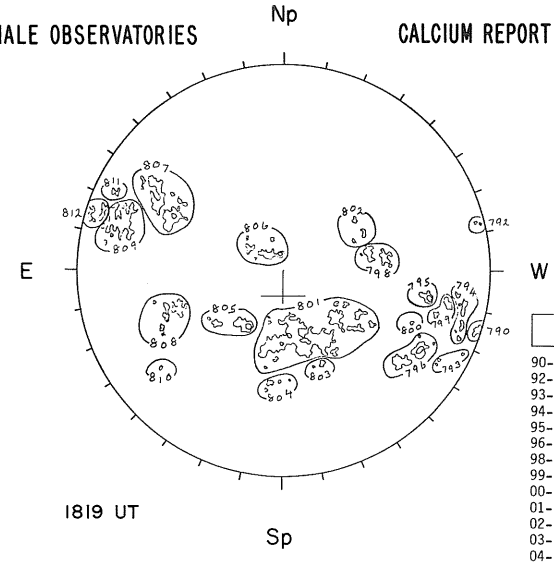


2355 UT

BOULDER PROMINENCES

1450 UT

HALE OBSERVATORIES CALCIUM REPORT

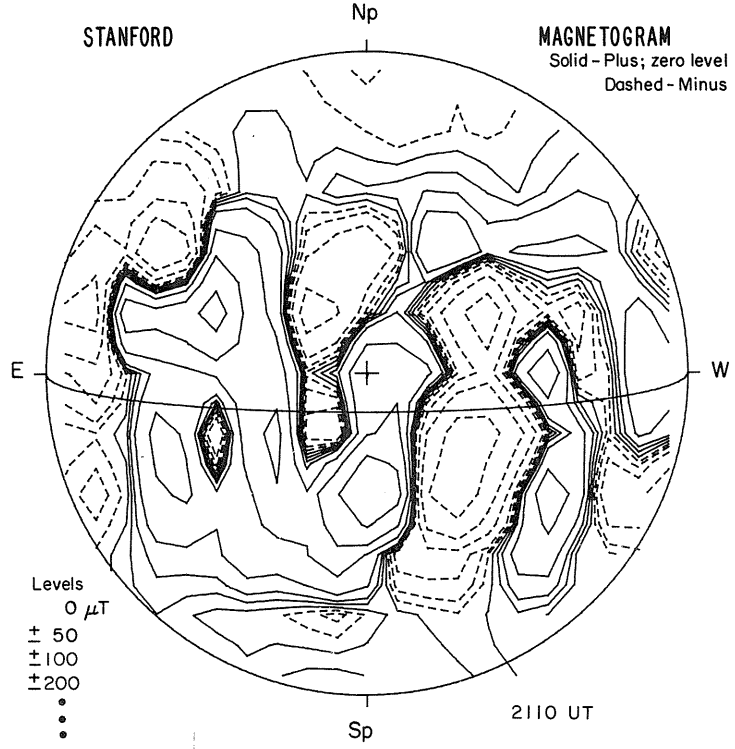


1819 UT

GOOD	JA
90-	1000-2.5
92-	0200-2.5
93-	0300-2.5
94-	0800-3.0
95-	0400-3.0
96-	1300-3.0
98-	0600-3.0
99-	0400-3.0
00-	0100-2.5
01-	5000-3.5
02-	0300-2.5
03-	0100-3.0
04-	0200-3.0
05-	0600-3.0
06-	0400-3.0
07-	2000-3.0
08-	0900-3.0
09-	3000-3.5
10-	0100-3.0
11-	0300-3.0
12-	1200-3.5

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

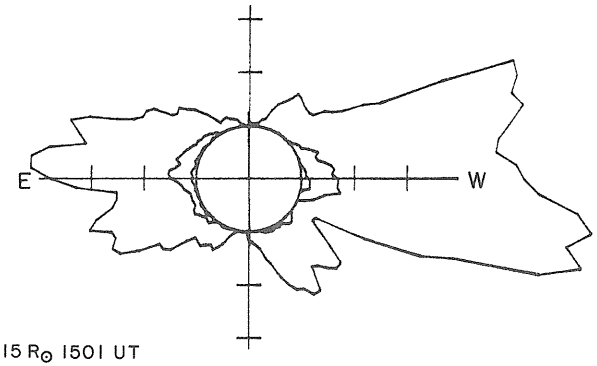


2110 UT

AUGUST 25, 1981 (P=19.16, B_o= 7.04, L_o= 278.21)

SACRAMENTO PEAK

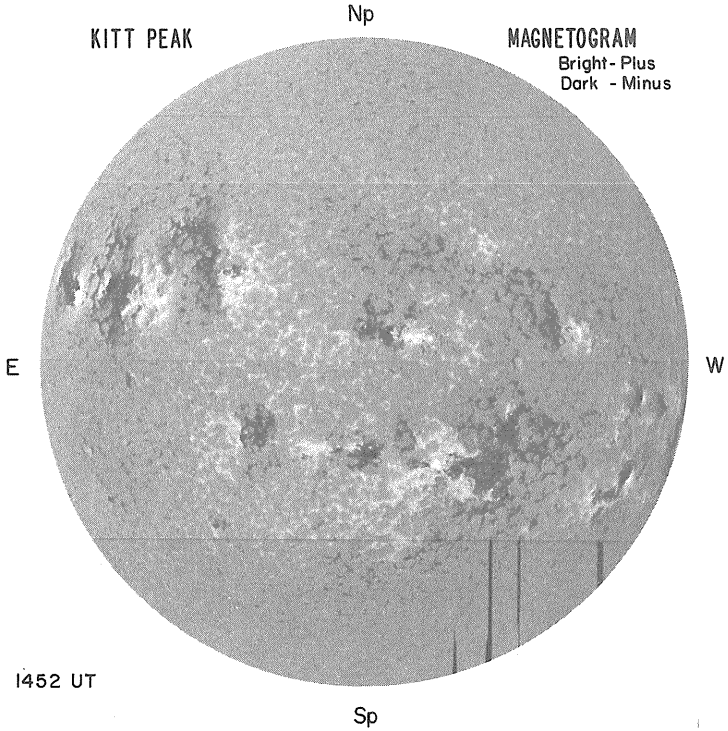
CORONA
5303 Å



1.15 $R_\odot$ 1501 UT
1.35 $R_\odot$ 1440 UT
1.55 $R_\odot$ 1450 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

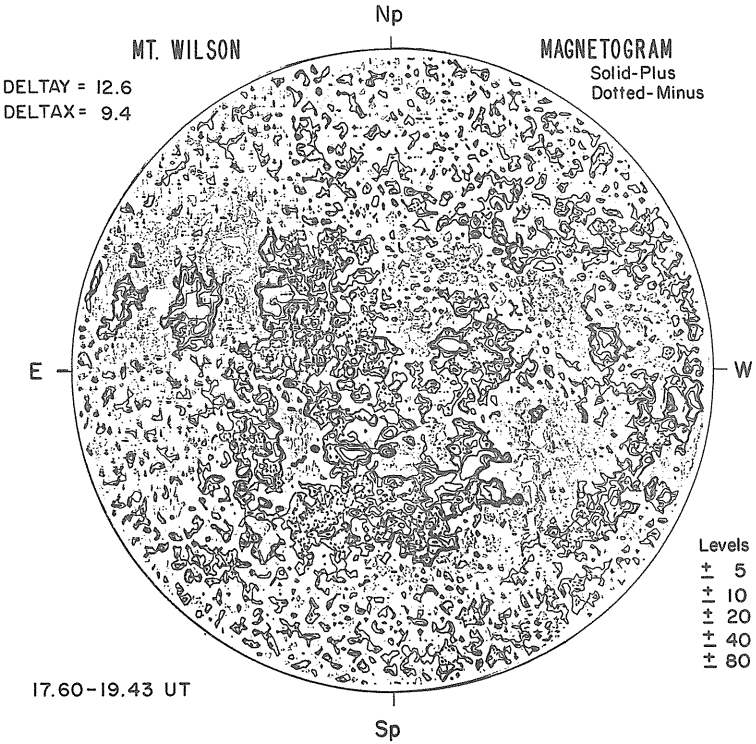


1452 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.4

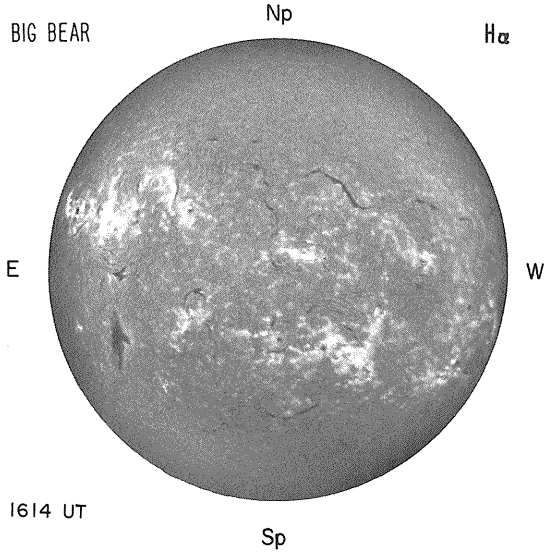
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

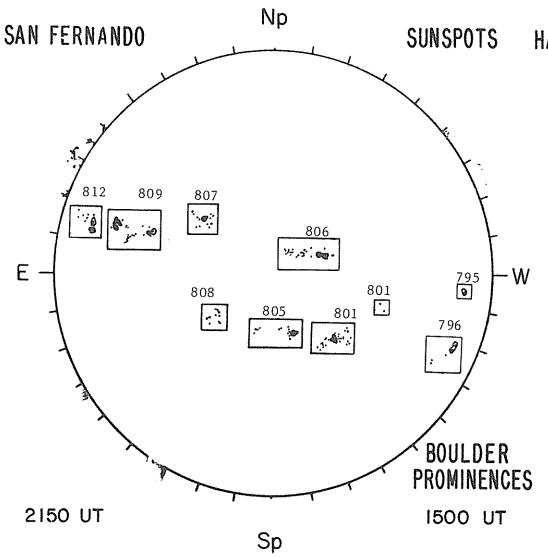
17.60-19.43 UT

BIG BEAR



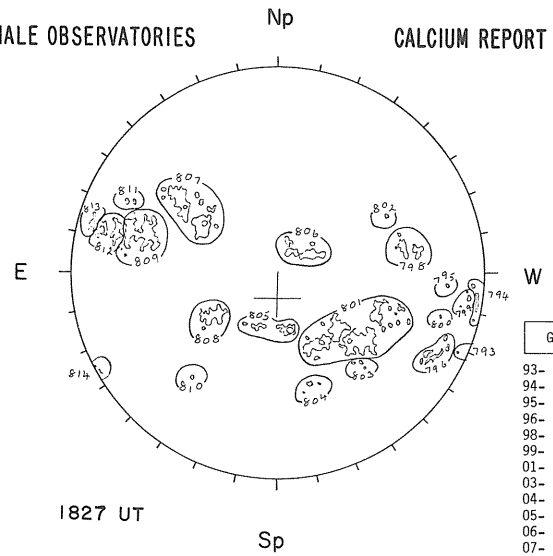
1614 UT

SAN FERNANDO



2150 UT

HALE OBSERVATORIES



1827 UT

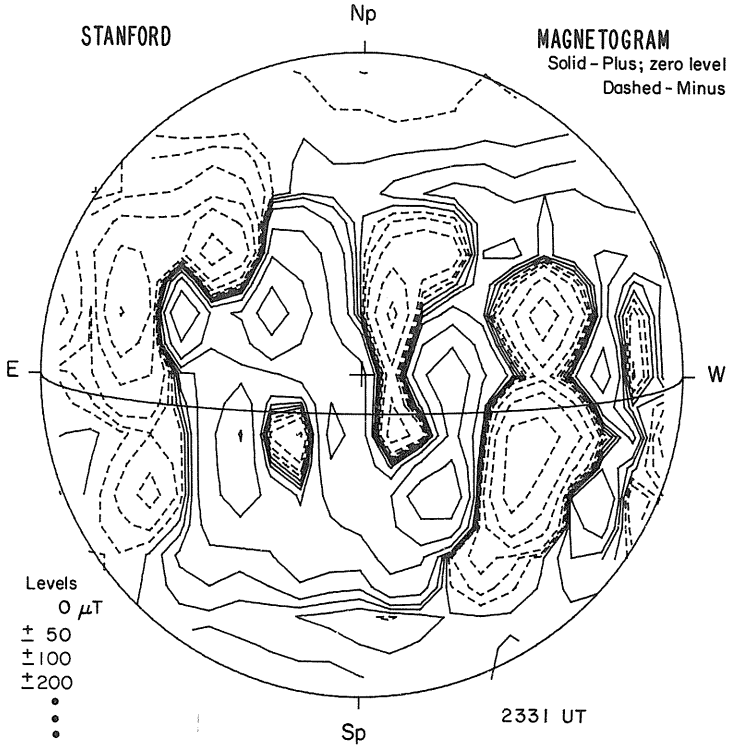
GOOD	JA

93- 0300-2.5
94- 0800-2.5
95- 0100-2.5
96- 0800-3.0
98- 0700-3.0
99- 0400-2.5
01- 5000-3.5
03- 0100-3.0
04- 0200-3.0
05- 0600-3.5
06- 0600-3.5
07- 2000-3.5
08- 0900-3.5
09- 3000-3.5
10- 0100-2.5
12- 1000-3.0
13- 0600-3.0

BOULDER PROMINENCES

1500 UT

STANFORD

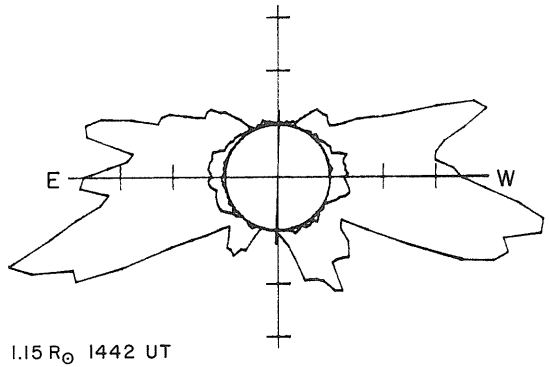


2331 UT

AUGUST 26, 1981 (P= 19.45, B_o= 7.07, L_o= 265.00)

SACRAMENTO PEAK

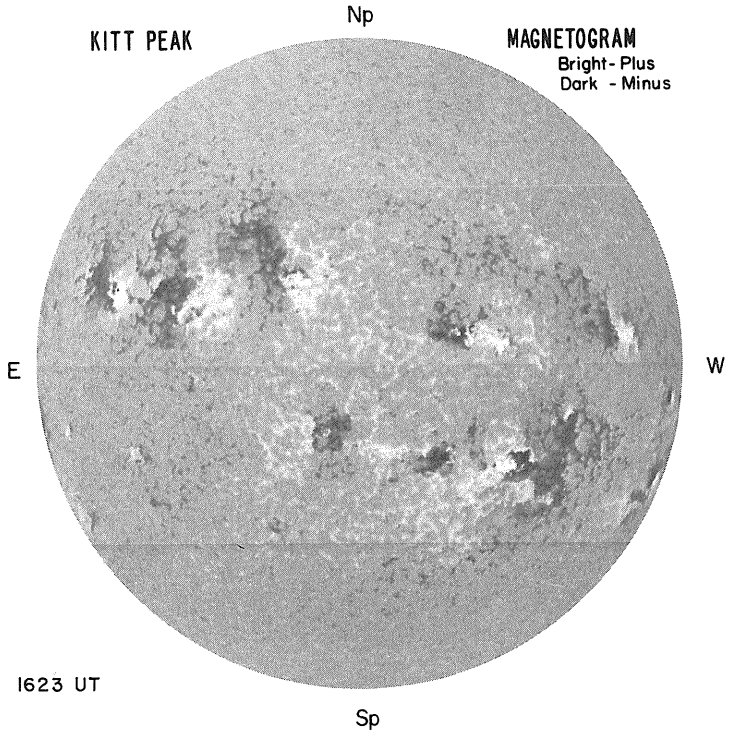
CORONA
5303 Å



1.15 $R_\odot$ 1442 UT
1.35 $R_\odot$ 1422 UT
1.55 $R_\odot$ 1431 UT

KITT PEAK

MAGNETOGRAM
Bright- Plus
Dark - Minus

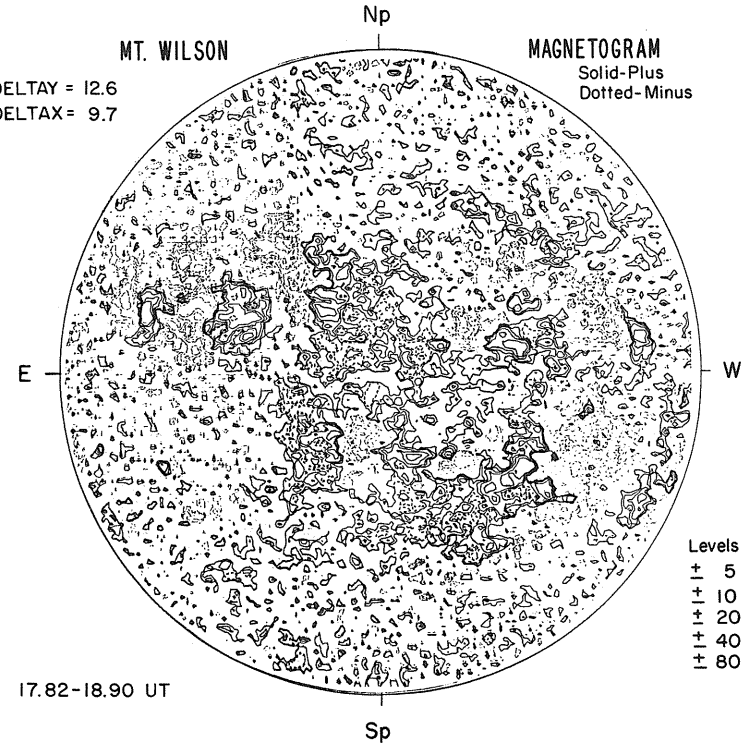


1623 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.7

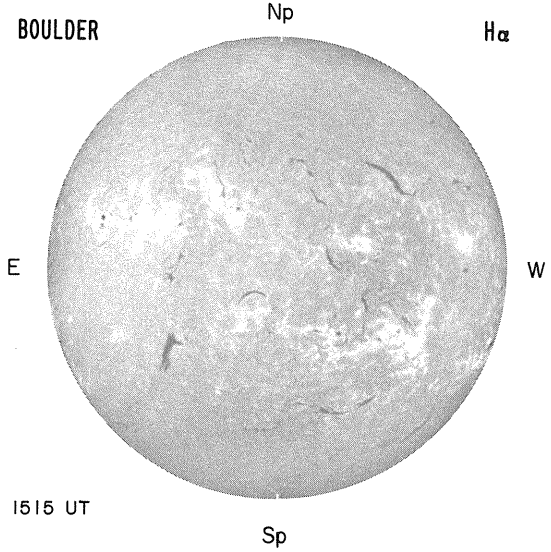
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

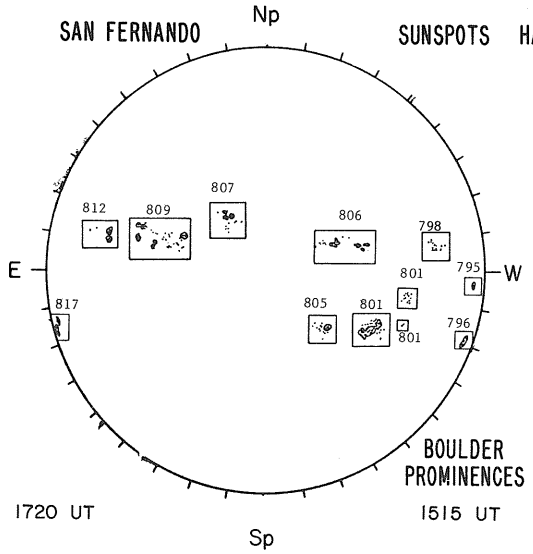
17.82-18.90 UT

BOULDER



1515 UT

SAN FERNANDO SUNSPOTS

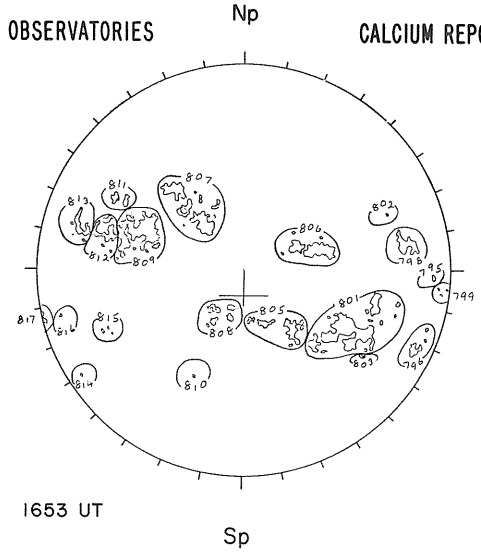


1720 UT

BOULDER PROMINENCES

1515 UT

HALE OBSERVATORIES CALCIUM REPORT



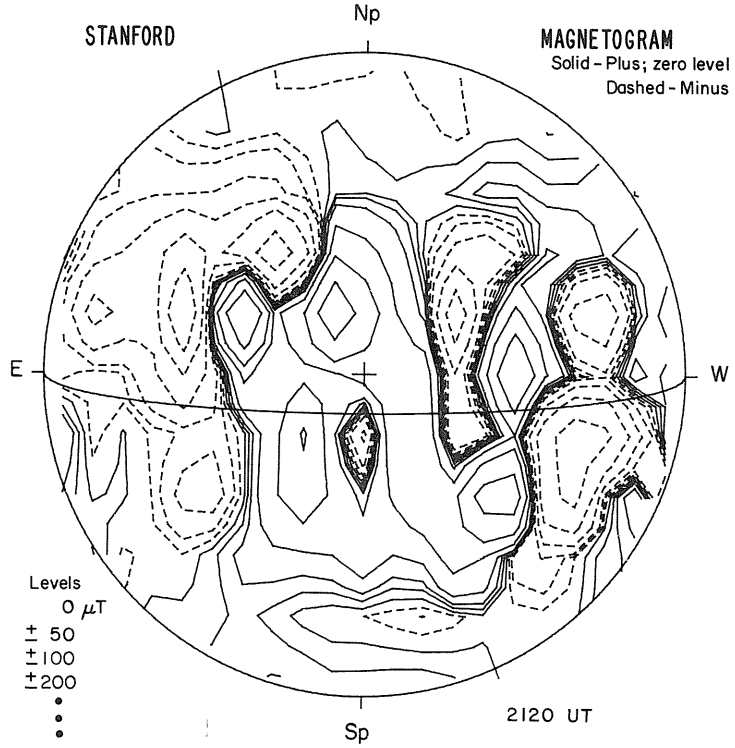
1653 UT

GOOD	JA

95- 0100-2.5
96- 0800-3.0
98- 1000-3.5
99- 0300-2.5
01- 5000-3.5
02- 0100-2.5
03- 0100-2.5
05- 0800-3.0
06- 1500-3.0
07- 2200-3.5
08- 0800-3.0
09- 2000-3.5
10- 0100-3.0
11- 0300-3.0
12- 0800-3.0
13- 0600-3.5
14- 0100-3.0
15- 0200-3.0
16- 0100-2.5
17- 0400-3.0

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

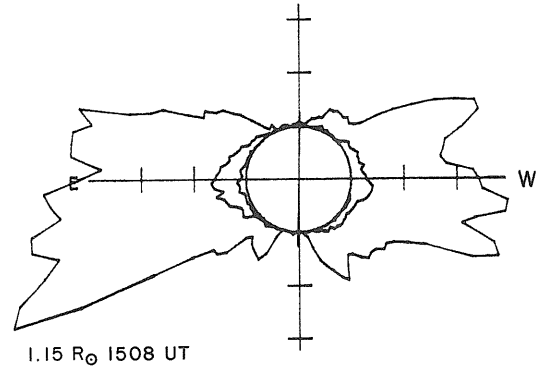


2120 UT

AUGUST 27, 1981 (P= 19.73, B_o= 7.09, L_o= 251.79)

SACRAMENTO PEAK

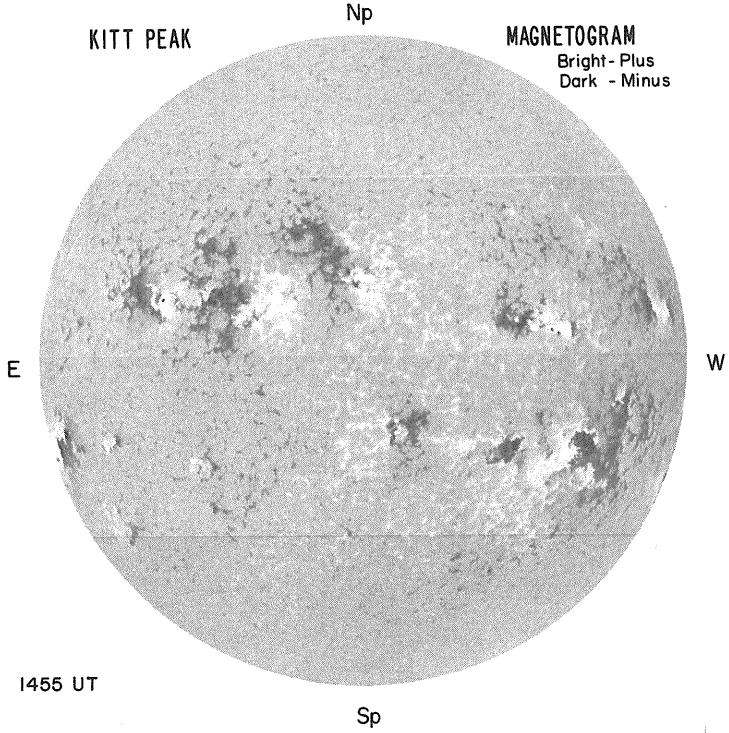
CORONA
5303 Å



1.15 $R_\odot$ 1508 UT
1.35 $R_\odot$ 1445 UT
1.55 $R_\odot$ 1454 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

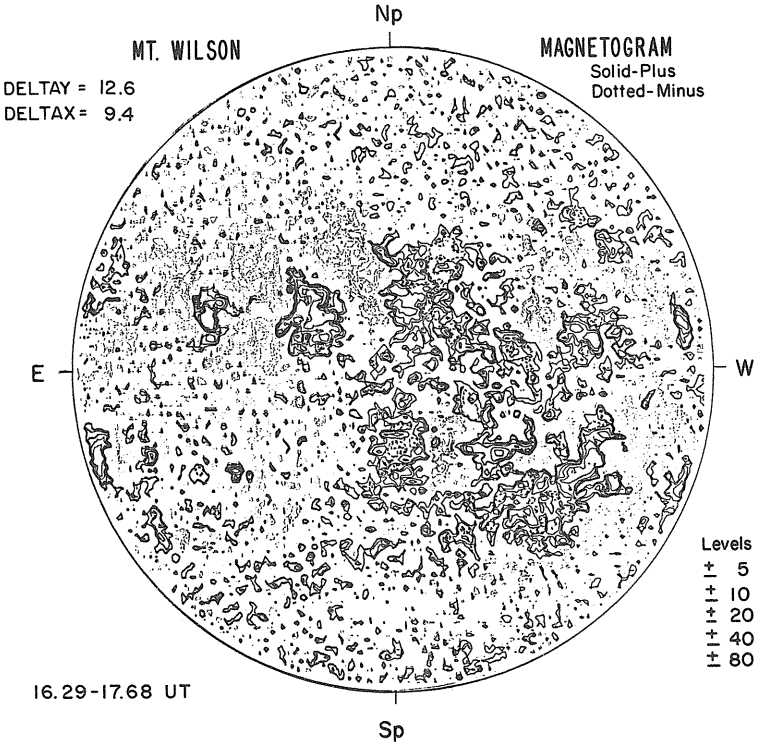


1455 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.4

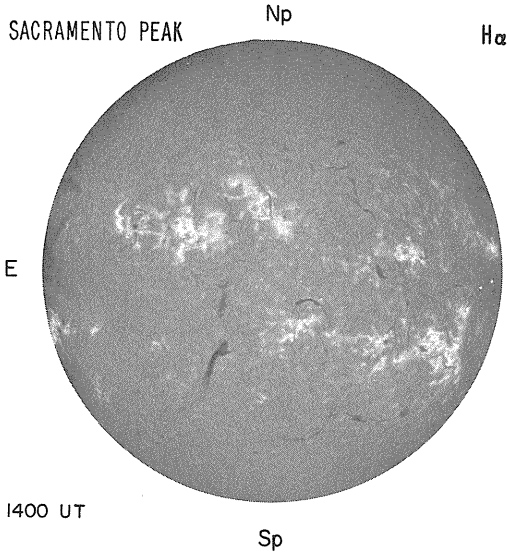
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

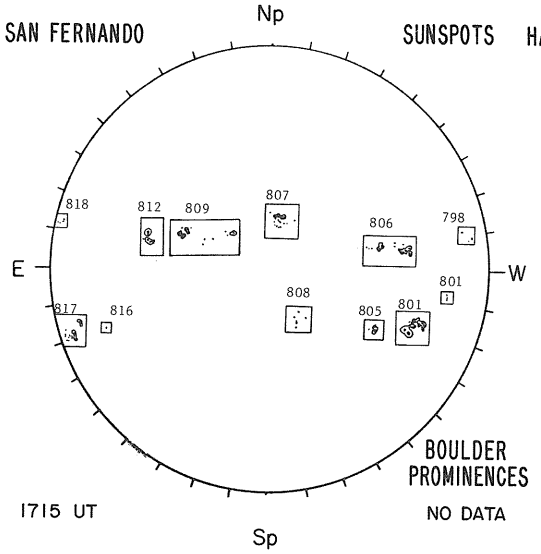
16.29-17.68 UT

SACRAMENTO PEAK Hα



1400 UT

SAN FERNANDO SUNSPOTS

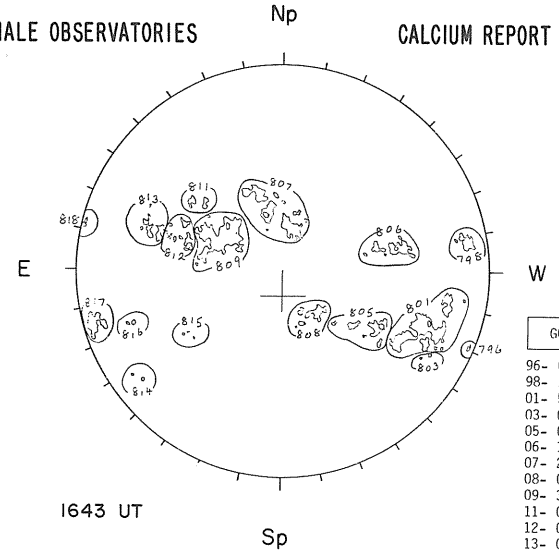


1715 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES CALCIUM REPORT



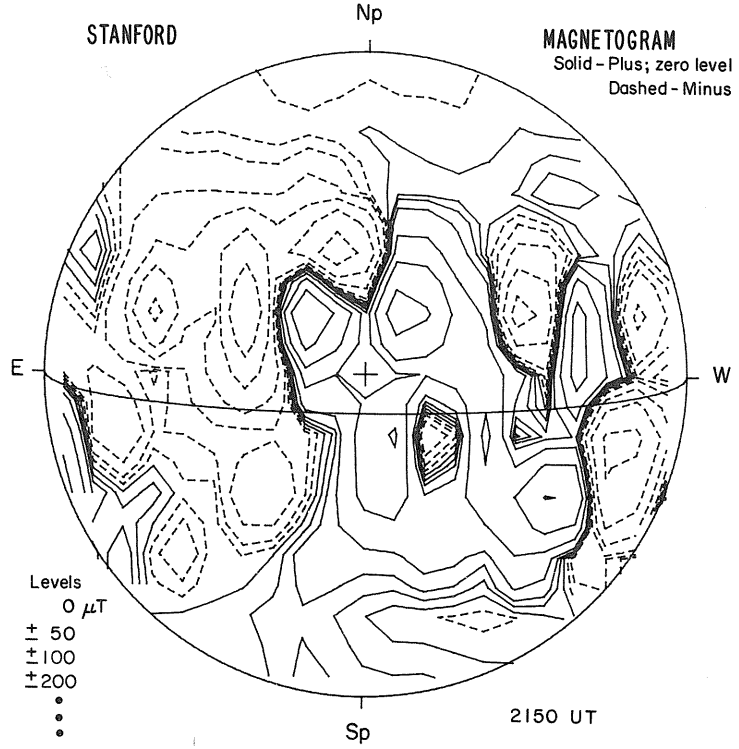
1643 UT

GOOD	JA

96- 0500-3.0
98- 1000-3.0
01- 5000-3.5
03- 0100-3.0
05- 0800-3.5
06- 1300-3.5
07- 2200-3.5
08- 0700-3.0
09- 3000-3.5
11- 0300-3.0
12- 0800-3.5
13- 0600-3.5
14- 0100-3.0
15- 0200-2.5
16- 0100-3.0
17- 1500-3.5
18- 0200-3.0

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

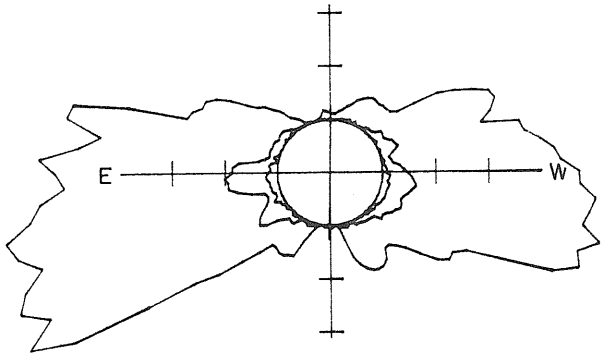


2150 UT

AUGUST 28, 1981 (P= 20.01, B_o= 7.12, L_o= 238.58)

SACRAMENTO PEAK

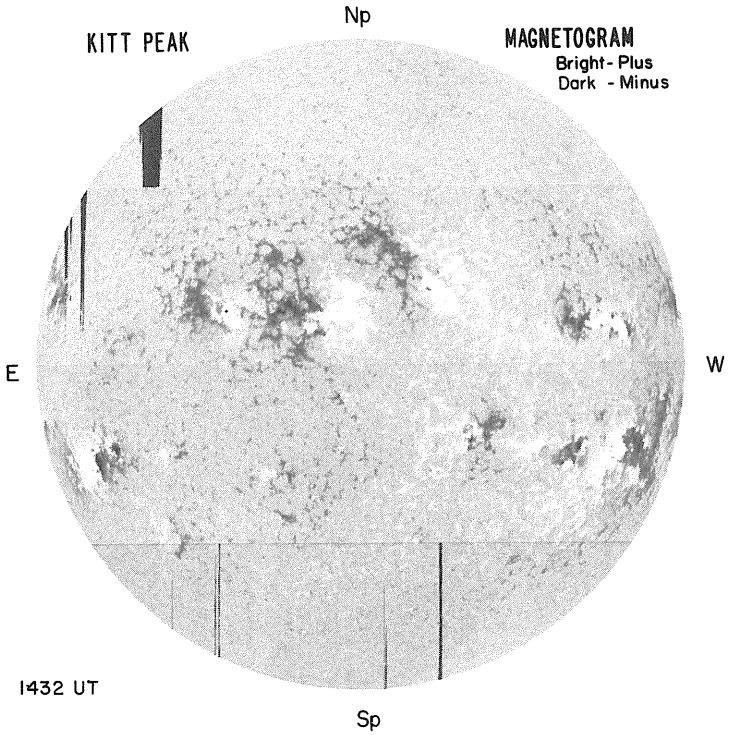
CORONA
5303 Å



1.15 $R_\odot$ 1509 UT
1.35 $R_\odot$ 1448 UT
1.55 $R_\odot$ 1458 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

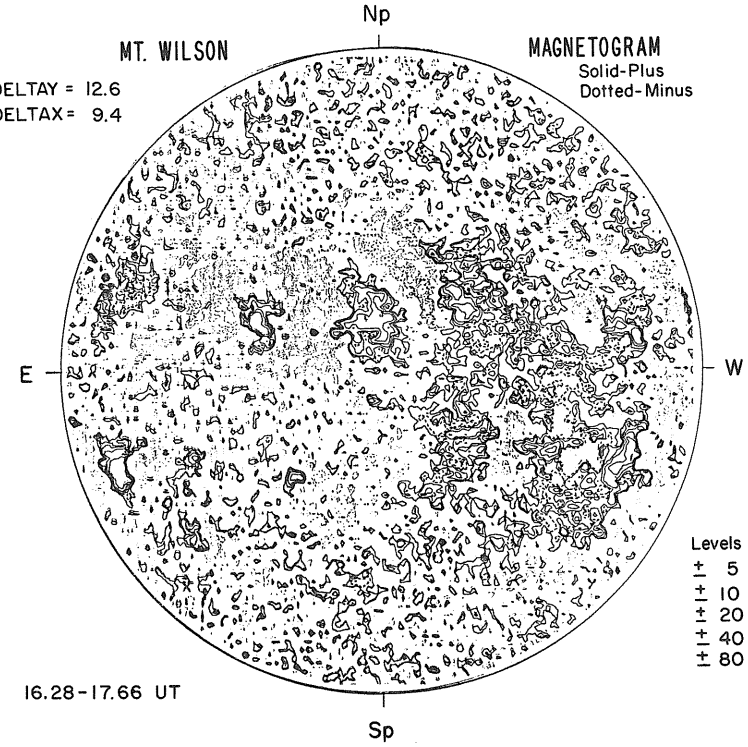


1432 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.4

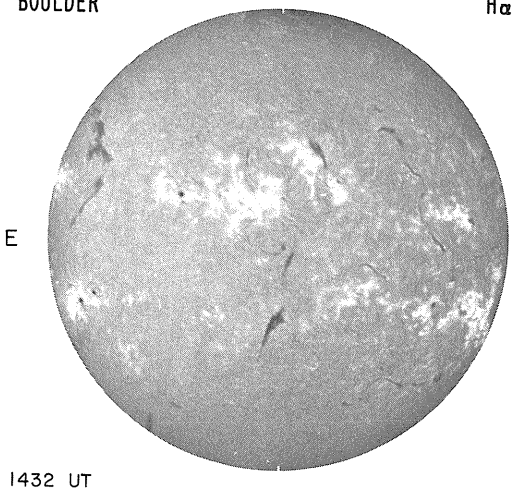
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

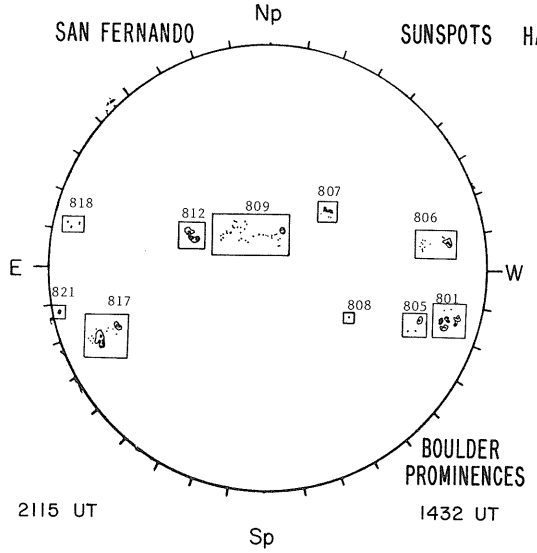
16.28-17.66 UT

BOULDER



1432 UT

SAN FERNANDO SUNSPOTS

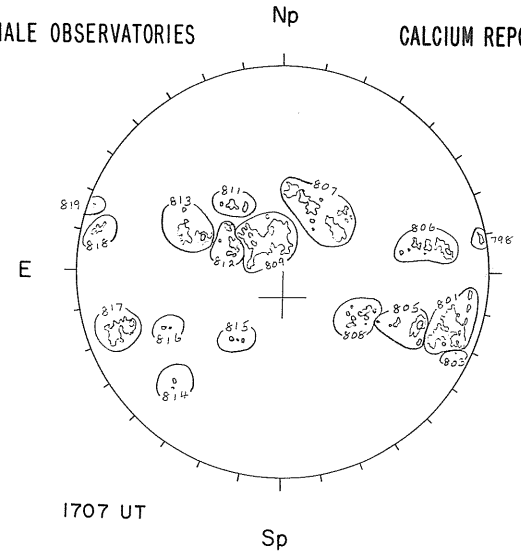


2115 UT

BOULDER PROMINENCES

1432 UT

HALE OBSERVATORIES CALCIUM REPORT



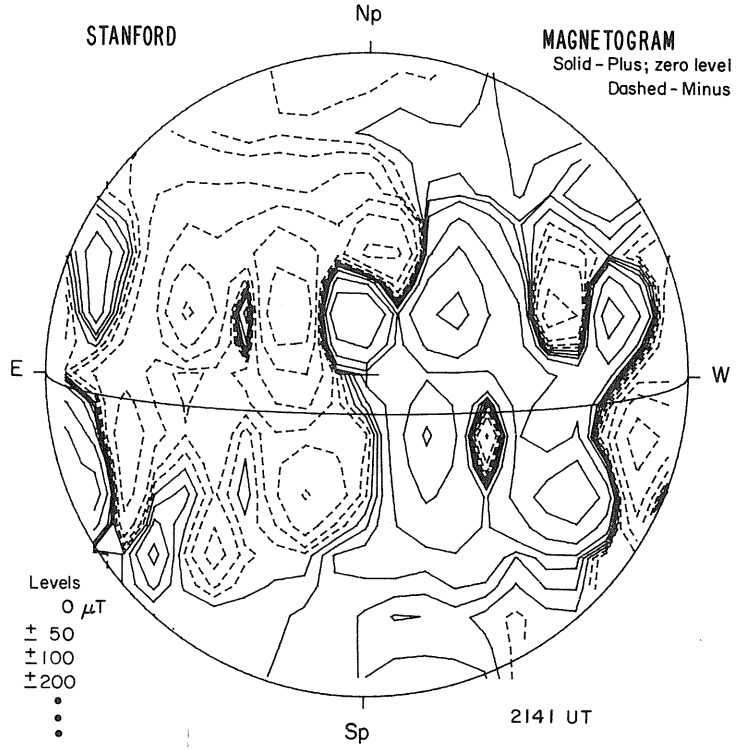
1707 UT

GOOD	JA

98- 0500-3.0
01- 5000-3.5
03- 0100-3.0
05- 0800-3.5
06- 1300-3.5
07- 2500-3.5
08- 0700-3.5
09- 3000-3.5
11- 0400-3.0
12- 0600-3.5
13- 0800-3.5
14- 0100-3.0
15- 0200-3.0
16- 0100-3.0
17- 1500-3.5
18- 0600-3.0
19- 0100-3.0

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

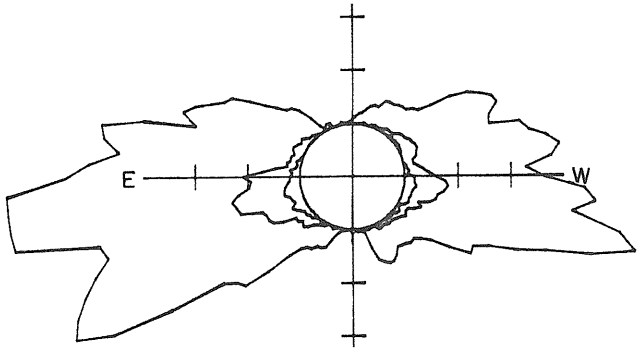


2141 UT

AUGUST 29, 1981 (P= 20.28, B_o= 7.14, L_o= 225.37)

SACRAMENTO PEAK

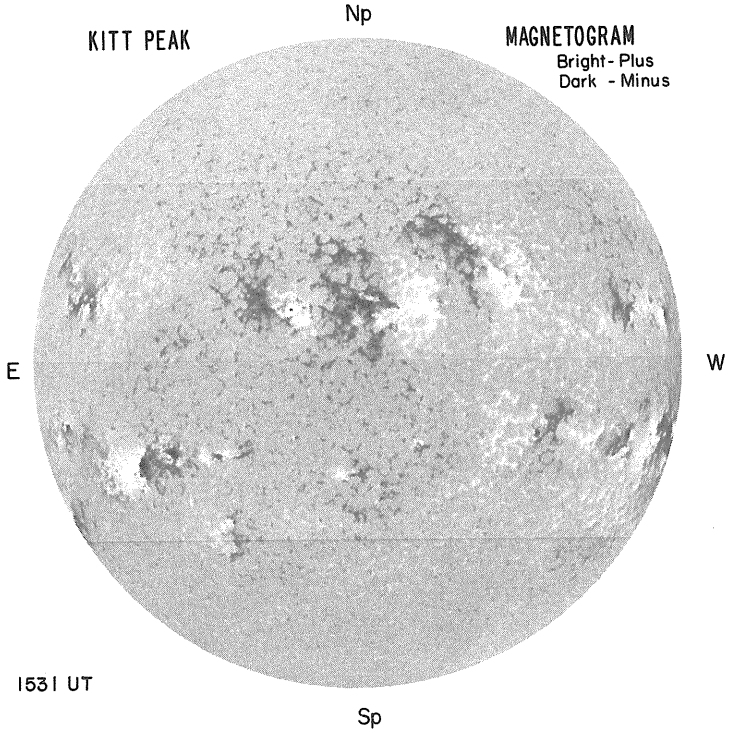
CORONA
5303 Å



1.15 $R_\odot$ 1424 UT
1.35 $R_\odot$ 1403 UT
1.55 $R_\odot$ 1412 UT

KITT PEAK

MAGNETOGRAM
Bright- Plus
Dark - Minus

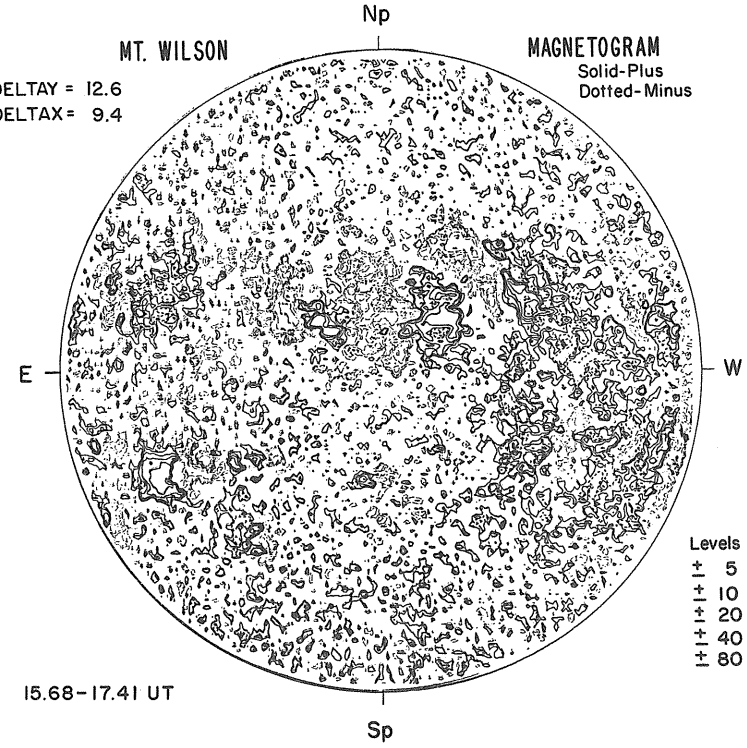


1531 UT

MT. WILSON

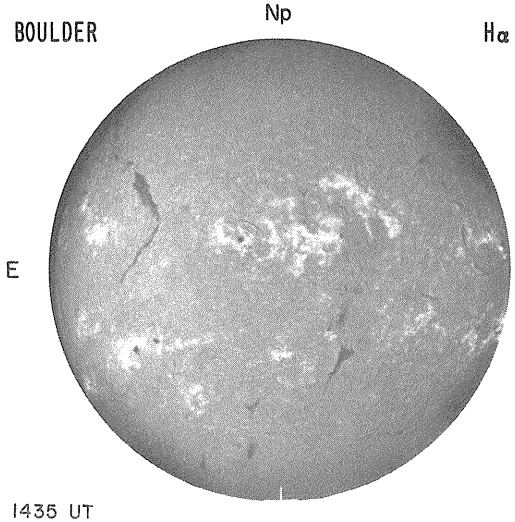
DELTAY = 12.6
DELTAX = 9.4

MAGNETOGRAM
Solid-Plus
Dotted-Minus



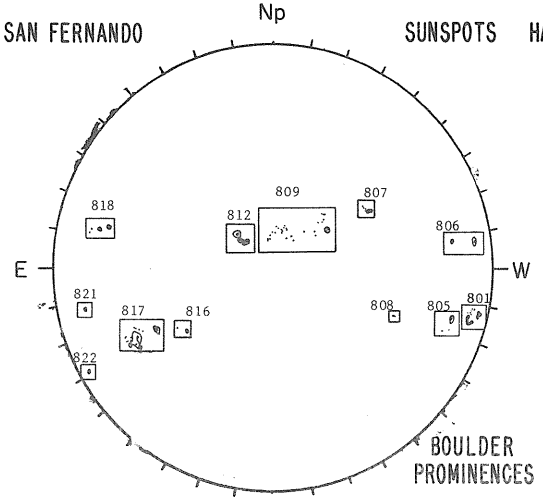
15.68-17.41 UT

BOULDER Hα



1435 UT

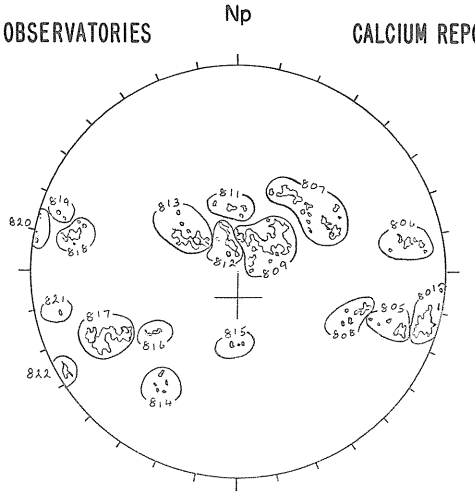
SAN FERNANDO SUNSPOTS



BOULDER PROMINENCES

1645 UT 1435 UT

HALE OBSERVATORIES CALCIUM REPORT



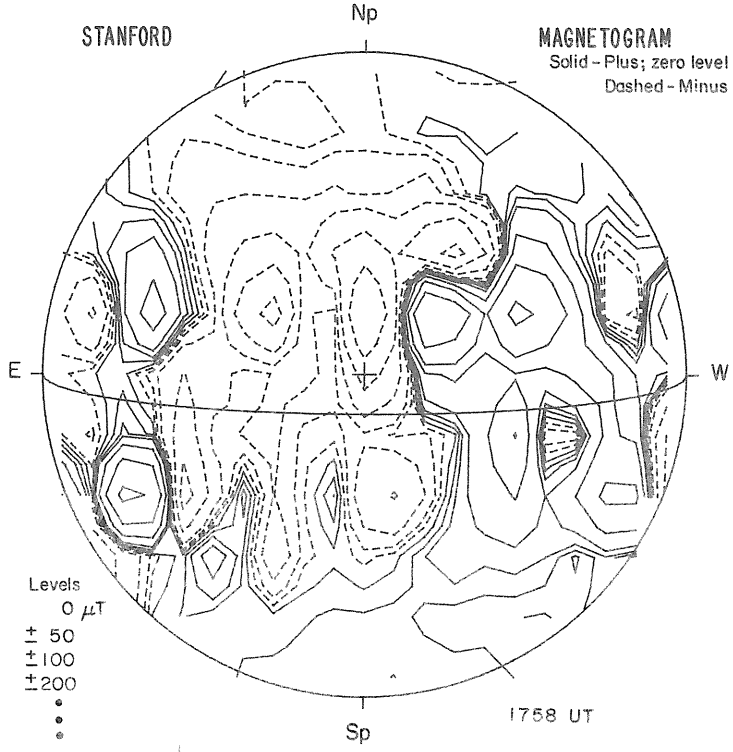
1624 UT

FAIR	JA

01- 5000-3.0
05- 0800-3.0
06- 1300-3.0
07- 2000-3.5
08- 0700-3.0
09- 3000-3.0
11- 0400-3.5
12- 0600-3.5
13- 0800-3.5
14- 0200-3.0
15- 0200-3.0
16- 0200-3.0
17- 1800-3.5
18- 0600-3.5
19- 0300-3.0
20- 0600-2.5
21- 0100-2.5
22- 0400-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

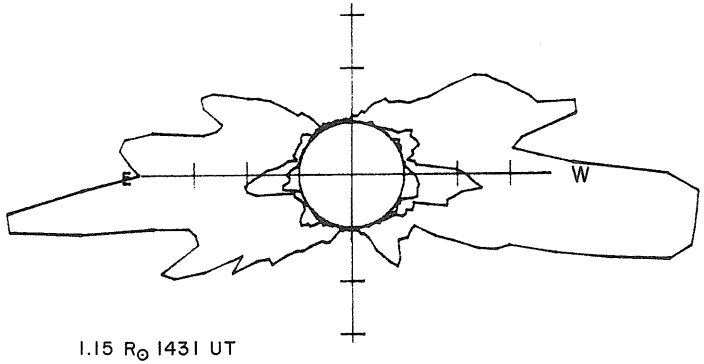


1758 UT

AUGUST 30, 1981 (P= 20.55, B_o= 7.16, L_o= 212.16)

SACRAMENTO PEAK

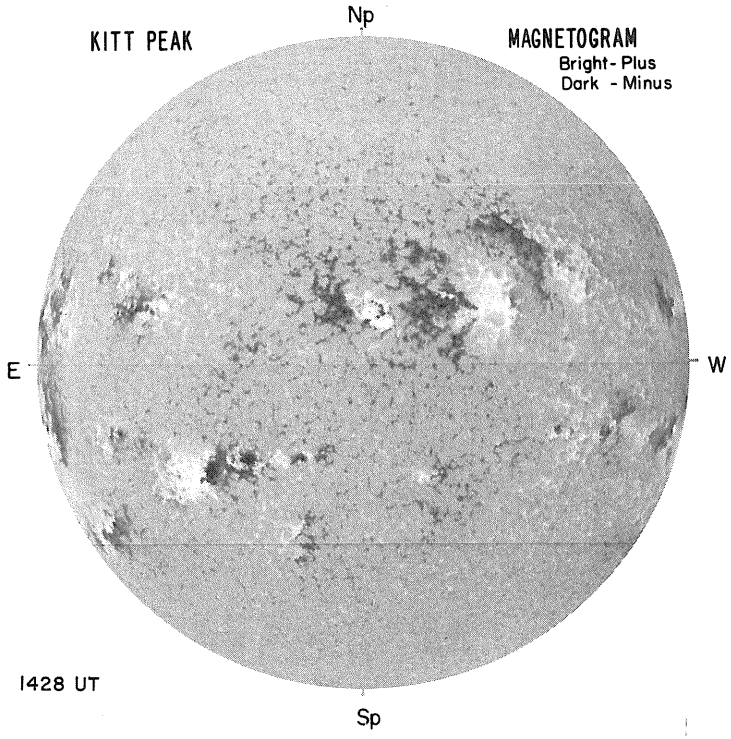
CORONA
5303 Å



1.15 $R_\odot$ 1431 UT
1.35 $R_\odot$ 1411 UT
1.55 $R_\odot$ 1420 UT

KITT PEAK

MAGNETOGRAM
Bright- Plus
Dark - Minus

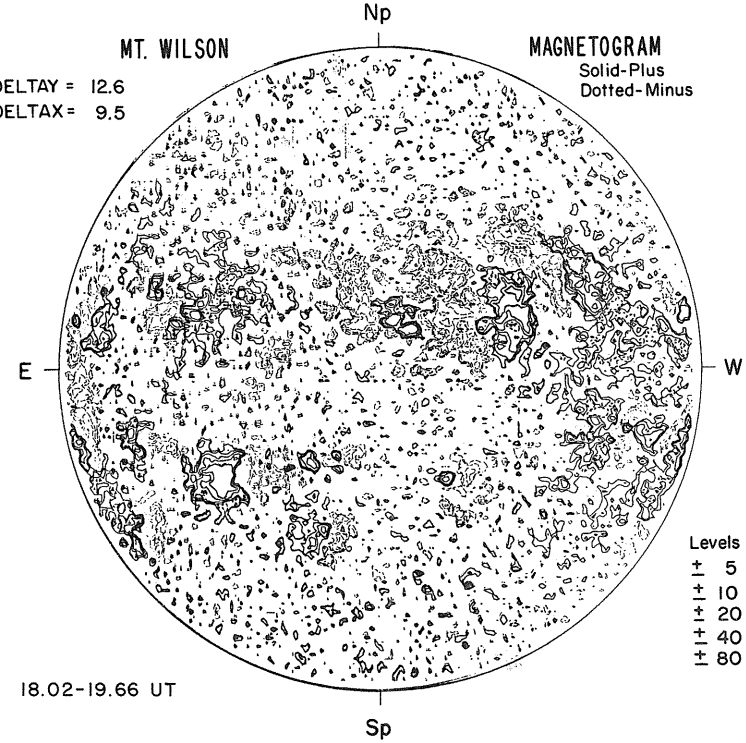


1428 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

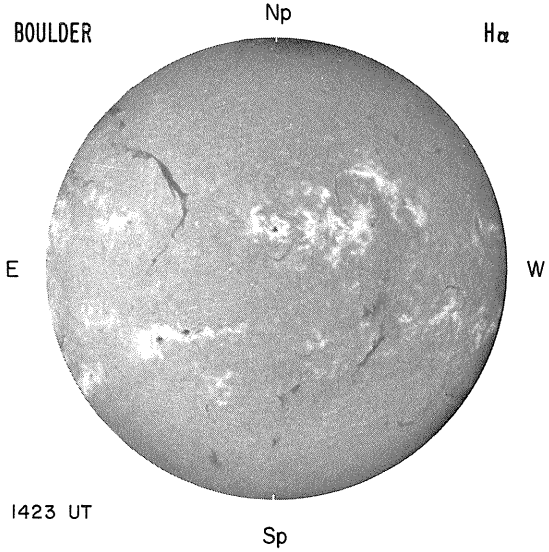
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

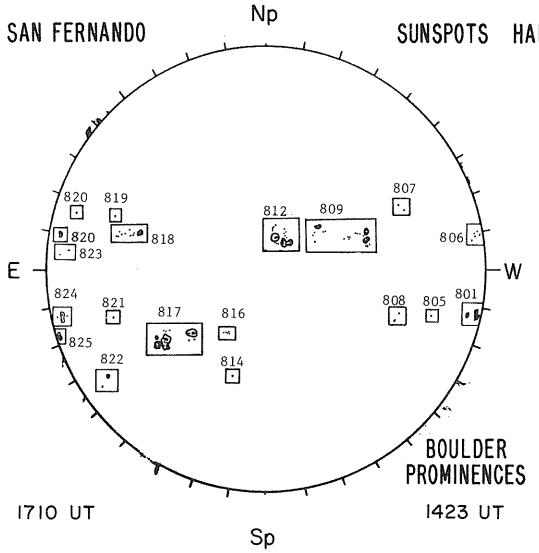
18.02-19.66 UT

BOULDER Hα



1423 UT

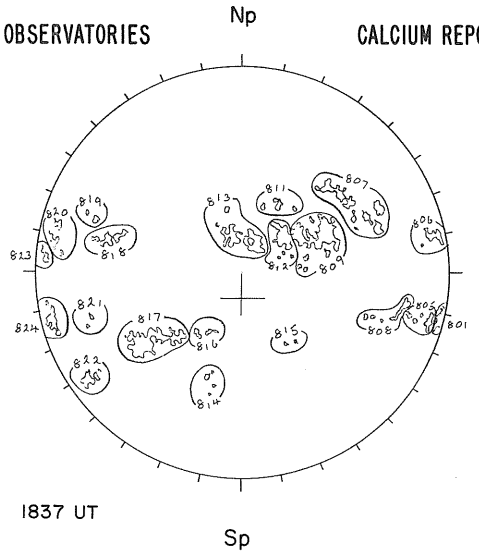
SAN FERNANDO SUNSPOTS



BOULDER PROMINENCES

1710 UT 1423 UT

HALE OBSERVATORIES CALCIUM REPORT



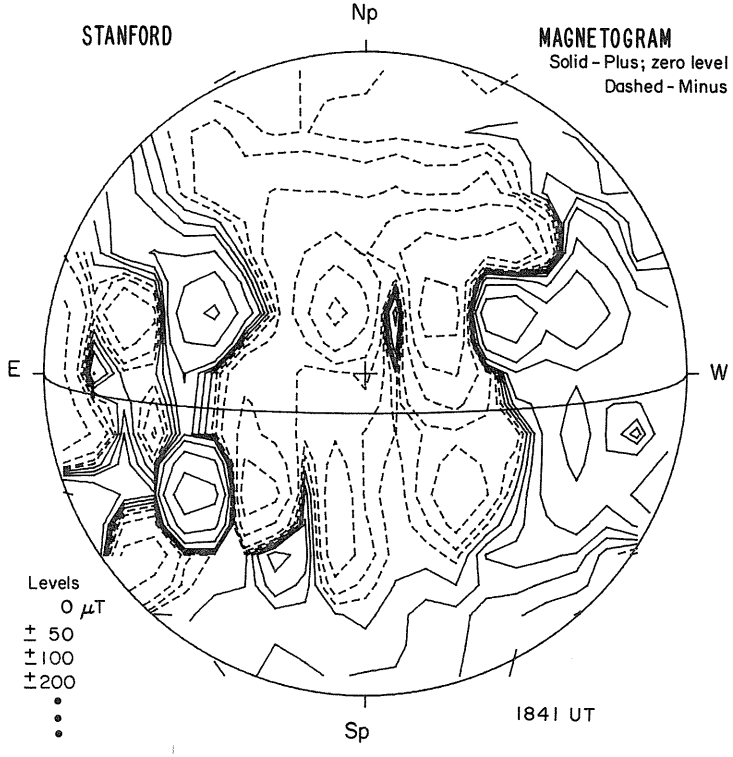
1837 UT

FAIR	JA

01- 1100-3.0
05- 0800-2.5
06- 1300-3.0
07- 2000-3.5
08- 0700-3.0
09- 3000-3.5
11- 0400-3.0
12- 0700-3.0
13- 1000-3.5
14- 0200-3.0
15- 0200-3.0
16- 0300-3.0
17- 1800-3.5
18- 0600-3.5
19- 0400-3.0
20- 0900-3.0
21- 0100-3.0
22- 0800-3.5
23- 0400-3.0
24- 1000-3.5

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

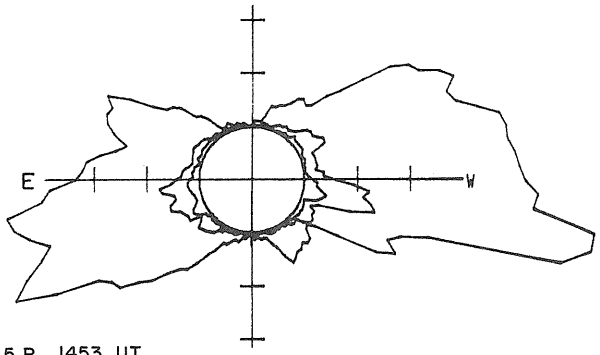


1841 UT

AUGUST 31, 1981 (P= 20.82, B_o= 7.18, L_o= 198.95)

SACRAMENTO PEAK

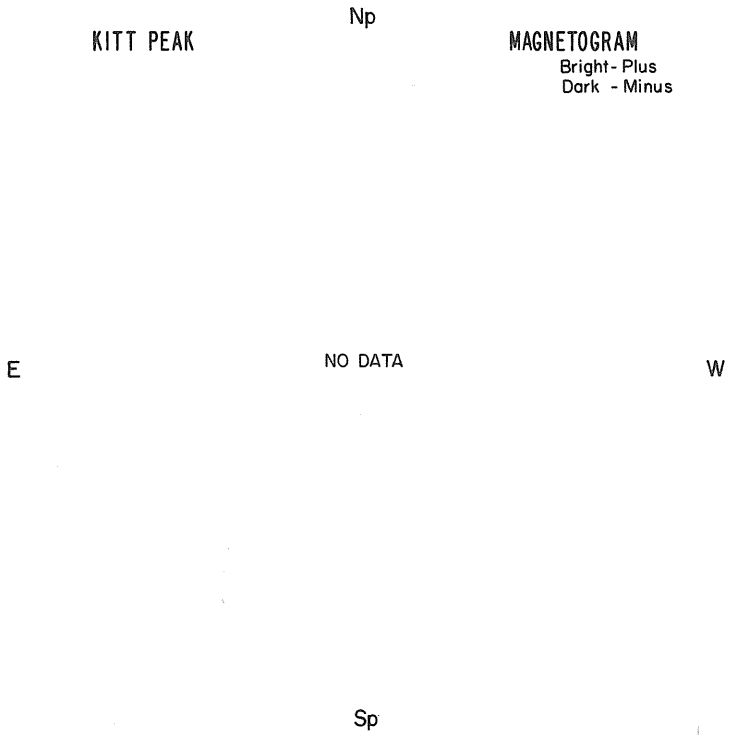
CORONA
5303 Å



1.15 $R_\odot$ 1453 UT
1.35 $R_\odot$ 1433 UT
1.55 $R_\odot$ 1442 UT

KITT PEAK

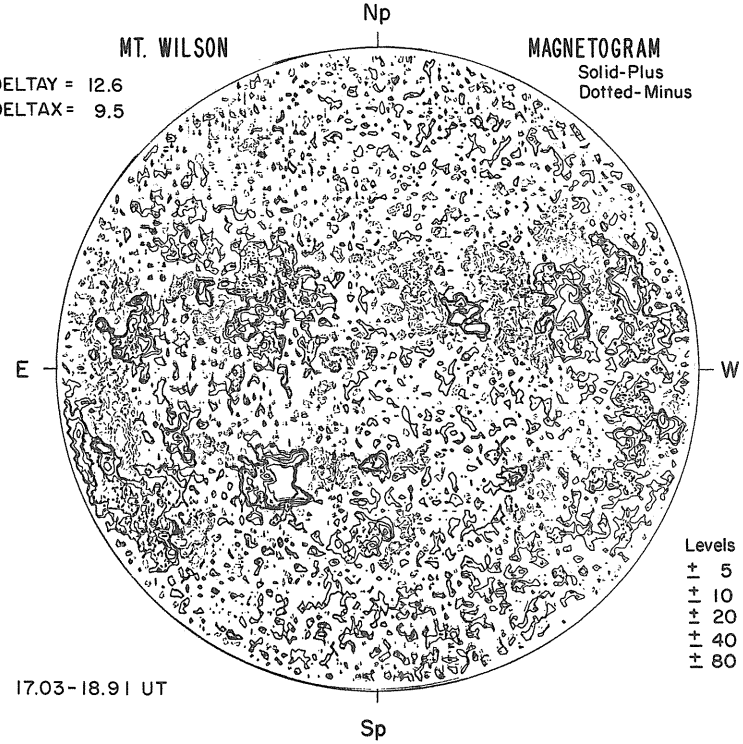
MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

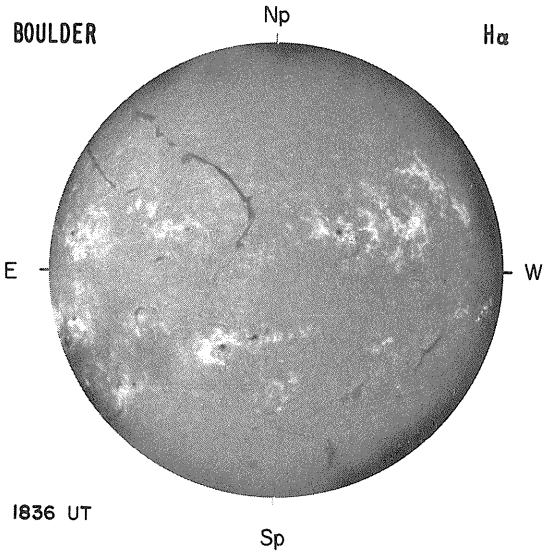
MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



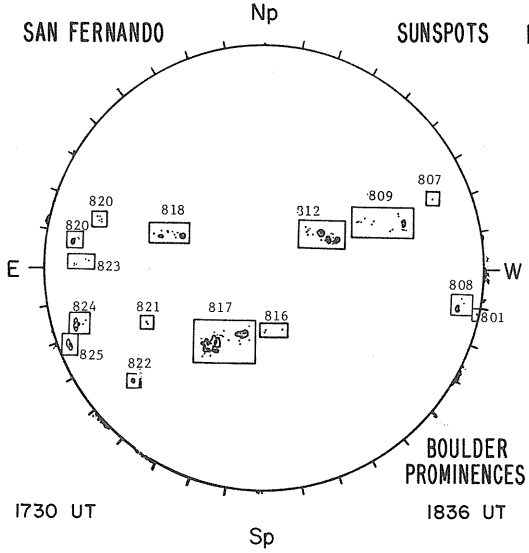
17.03-18.91 UT

BOULDER Hα



1836 UT

SAN FERNANDO SUNSPOTS

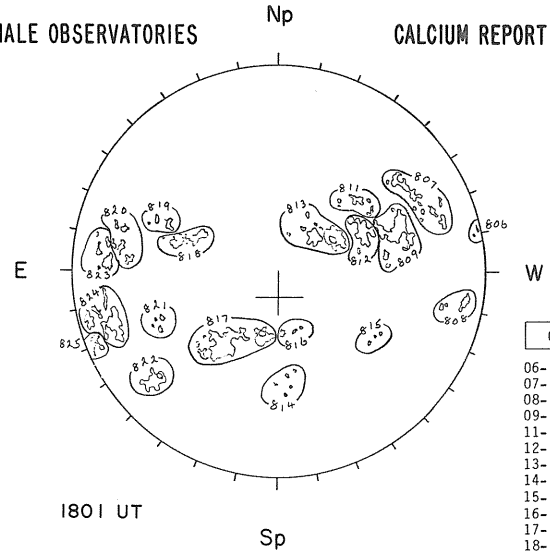


1730 UT

BOULDER PROMINENCES

1836 UT

HALE OBSERVATORIES CALCIUM REPORT



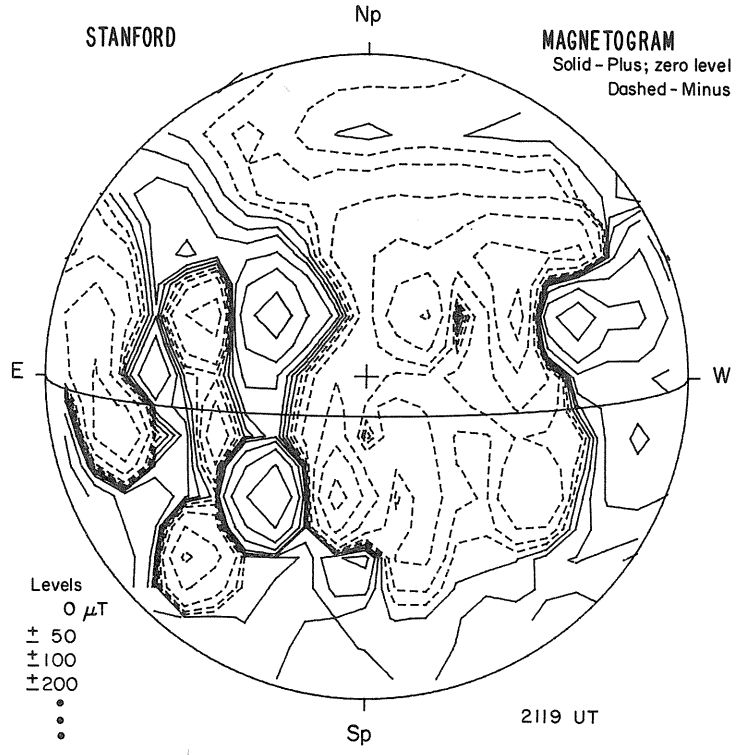
1801 UT

GOOD	JA

06- 0200-2.5
07- 2000-3.5
08- 0700-3.0
09- 3000-3.5
11- 0400-3.0
12- 0800-3.0
13- 1300-3.5
14- 0300-3.0
15- 0200-3.0
16- 0300-3.0
17- 1800-3.0
18- 0600-3.5
19- 0400-3.0
20- 0900-3.0
21- 0300-3.0
22- 1000-3.0
23- 0700-3.0
24- 2400-3.5
25- 1500-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2119 UT

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1981

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
01	0048	0148	0110	1-	3	1			1				*	
01	0456	0541	0459	1-	1				1				*	
01	1323	1405	1333	1-	1				1		1		1327	17769
01	1416	1500	1433	1	3						6		*	
01	1615	1815	1645	2	3						4		*	
01	1927	2009	1943	1-	3	1			1		5		1932	17769
02	1552	1654	1630	1	3			3					*	
02	2002	2030	2015	1-	3						4		NF	
02	2014	2030	2017	1-	1						1		2012	17774
02	2202	2240	2210	1-	5	2			1		11		2203	17760
03	0255	0410	0312	1	3	1			1				0257	17774
03	0421	0525D	0434	2+	3	2			1				*	
03	0910	0947	0919	1-	3				1		1		*	
03	0958	1049	1011	2	5	3		4	2	1	2		*	
03	1121	1145	1134	1-	5	2		2	2	1	2		1121	17764
03	1234	1305	1253	1-	5	1		1	1	1	1		1228	17760
03	1412	1510	1415	1-	3				2				1417	17763
03	1540	1642	1616	2	3						7		NF	
03	1602	1620	1613	1-	5	1		1	1		4		NF	
03	1638	1730	1656	1-	5	4		2	1	1	13		NF	
03	1910	2007	1930	1-	3				1		7		NF	
03	2017	2215	2030	2+	5	3			2		12		2019	17777
03	2223	2300D	2235	1-	1				1				*	
03	2300	0039D	2351	2+	3			1	1				NF	
03	2334	0037	2351	1-	5	2			1	1	2		2341E	17777
04	0037E	0120	0040	1-	3				2		1		0025	17777
04	0130	0220	0140	1-	5				1	1	5		NF	
04	0226E	0324	0248	1	3			1	1		1		NF	
04	0455	0646	0510	1	5			1	1		4		*	
04	0655	0806	0700	1-	3	1		1	1	1			0656E	17777
04	0811	0820	0816	1-	3			1		1			0815	17775
04	0947	1016	0952	1-	5	1		3	1	1			*	
04	1020	1052	1026	1-	5	1		4	1	1			1023E	17777
04	1109	1215	1132	1+	5	2		3	1	1			1108	17777
04	1228	1245	1235	1-	3	2				1			1222	17769
04	1321	1500	1330	2+	1	1							1320	17777
04	1758	1900	1804	1	5	1			1		6		*	
04	1949	2053	1958	1-	1				1				1954E	17777
04	2350	0019	2358	1-	3	1			1				NF	
05	0229	0330	0236	1-	3	1			2				*	
05	0738	0835	0743	1-	3			1	1				0740E	17777
05	1542	1605	1550	1-	5	3		3	1	1	13		1541	17777
05	1745	1833	1758	1-	1			1	1				NF	
06	0144	0300	0159	1-	3				1		3		*	
06	0817	1000	0834	2+	5	2		6	1	2	2		0818	17777
07	0210	0248	0224	1-	3	1			1	1			*	
07	0736	0815	0745	1-	3			1	1	2			0740E	17777
07	1315	1340	1324	1-	3				1	1			1314	17777
07	1358	1502	1413	1-	3			1	1		3		*	
07	1903	2133	1918	2+	5	2			1		14		1902	17777
07	2000	2100	2008	1+	3						2		1959E	17777
08	0308	0353	0328	1-	1				1				*	
08	1713	1730	1715	1-	3				1		4		NF	
08	2026	2130	2032	1-	5	2			2		13		2026	17777
08	2130	2308	2144	1	5	2			1		15		2129E	17777
09	0254	0404	0302	1-	3				2	1			NF	
09	0419	0510	0431	1-	3				2		1		*	
09	0709	0740	0716	1-	5	1		2	2	2			NF	
09	1501	1535	1508	1-	5	1			1	1	11		1501	17777
09	1744	1835	1752	1-	5				1		12		NF	
10	0658	0914	0704	3	5	4		3	1	2			0657	17777
10	0745	0815	0753	1-	3			1			2		0747	17777
10	1808	1923	1827	1-	5	1			1		14		1807	17775

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1981

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
11	0037	0116	0047	1-	3	1			1				*	
11	0144	0348	0151	2+	5	3		1	2		6		0144	17777
11	0740E	1002	0750	3+	5	4		4	2	1	4		0745	17777
11	1332	1400	1341	1-	3	2		1	1	1			*	
11	1432	1441D	1441	1-	5	3		4	1	1	6		*	
11	1449	1623	1454	1	5	2			1		4		*	
11	1807	1835	1810	1-	3				1		2		1810E	17777
11	1843	1928	1850	1-	5				1		7		1858E	17777
11	2216	2324	2238	1-	1				1				*	
12	0038	0118D	0109	1	3	1			1	1			0043	17777
12	0219	0345D	0238	2+	1	2			1	1	1		0219	17777
12	0345E	0416D	0349	1-	3	2			1				0346	17777
12	0416E	0452	0426	1-	3	2			1				0418	17777
12	0624	0852	0633	3+	5	5		6	1	1			0624	17777
12	1026	1050	1036	1	3	2		2	1	1			*	
12	1448	1553	1457	1-	3				1		5		1448	17777
12	2000	2054D	2005	1	3						4		1951	17777
12	2056	2216D	2117	2	5	1			2		15		NF	
12	2218E	2317	2229	1	5	1			1		11		NF	
12	2323	0004	2340	1-	3				1		2		2319	17790
13	0012	0154	0048	1	3	1		1	1	1			0009	17777
13	0031	0203	0048	1-	5	2			2	1	3		*	
13	0204	0230	0210	1-	3				1	1			0203E	17777
13	0250	0436	0300	2+	5	3			2	1	4		0250	17777
13	0637	0655	0642	1-	3			1	1	2			0636	17777
13	0716	0800D	0721	1+	5	4		6	2	1	4		0716	17777
13	0800E	1005	0814	3+	5	4		5	1	1	4		0757	17777
13	1200	1250	1212	1	5	2		4		1	1		1200E	17777
13	1337	1430	1345	1	5	2		5		1	7		1336E	17777
13	1434	1450	1438	1-	5			2		1	10		1424	17777
13	2136	2227	2144	1	5	1			1		13		2142E	17777
13	2304	2350	2320	1-	3	1			1				*	
14	0024	0233	0057	2	3	2			1	1			*	
14	0048	0200	0055	1-	5	1			1	1	5		*	
14	0302	0354	0327	1-	3				1	1	1		*	
14	0319	0400	0324	1-	3	1			1	1			*	
14	0511	0616	0530	2+	5	1			2	1	2		0520E	17777
14	0636	0737	0644	1+	5	1		1	1	2	1		NF	
14	1534	1555	1539	1-	5					1	12		1537E	17777
14	1827	1853	1833	1-	5	3			1		15		NF	
14	2148	2242	2200	1-	5				1		4		NF	
14	2309	2346	2316	1-	5	1			1		5		2309	17777
15	0125	0320	0144	2+	5	2			1	1	1		NF	
15	0139E	0254	0150	1-	1	2			1		4		0138	17777
15	0642	0822	0654	2	5	2		5	2	1	1		*	
15	1106	1255	1126	2+	5	4		5	1	1			NF	
15	1118	1215	1128	1-	3			1	1		1		1120E	17777
15	2004	2046	2013	1-	5				1		13		*	
15	2315	0026	2338	1-	5	1			1		7		*	
16	0522	0610D	0538	1	3				2	1	1		NF	
16	1416	1510	1430	1	5	3		2	1	1	14		NF	
16	1623	1651	1631	1-	3	1					6		1619	17790
16	1730	1810	1736	1-	5	1			1		16		1728	17791
16	1937	2015	1942	1	3	1			8				1934	17790
16	2238	2311	2243	1-	3				1		1		*	
17	0150	0248	0207	1-	3	1			1				*	
17	0251	0402	0259	2+	5	3			1	1	1		NF	
17	1400	1446	1406	1-	3	1				1	7		1400	17794
17	1723	1743	1734	1	3	1					11		*	
17	1740	1825	1745	1	3						2		*	
18	0055	0121	0056	1	3	1			1	1	2		0054	17790
18	0503	0612	0515	1	3				1	1			0506	17780
18	0641	0800	0647	1-	3	1		2	1	1			0640	17790
18	1120	1145	1125	1-	3				1	1			1117	17790
19	0325	0420	0335	1-	3	1			1				0320E	17790
19	1230	1500	1316	3+	3			1		1			*	
19	1252	1438	1323	1-	5	2		5	1	1	7		1250	17796

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1981

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
20	0013	0110	0020	1-	3	1			1	1			0020E	17790
20	0226	0254	0230	1-	3				1	1			0226	17798
20	0416	0455	0426	1-	3				1	1			0415	17790
20	1036	1114	1044	1-	3	1		2	1	1			1042E	17790
20	1548	1615	1558	1-	3				1		4		1542	17789
20	1630	1700	1643	1-	3	1					4		*	
20	1848	1910	1854	1	3						9		NF	
21	0213	0324	0221	1	3	2			1	1	2		0212	17790
21	0410	0440D	0418	1-	3	1		1	1	1			NF	
21	0530	0600	0533	1-	3				1	1	1		0531	17790
21	0625	0744	0634	1+	3	1		2	1	2			0627	17801
21	0828	1048	0840	2+	5	4		3	1	2	3		0828	17800
21	1427	1445	1434	1-	3			2		1			1418	17790
21	1450	1515	1500	1-	3						7		1448	17797
21	1700	1721	1708	1	3				1		10		NF	
21	1715	1727	1716	1	3	1			1		15		1713	17790
21	2024	2103	2032	1-	3				1		9		2025	17790
21	2124	2218	2134	1-	3	1			1		7		*	
22	0204	0227	0214	1-	3	2			1	1			0203	17796
22	0518	0538D	0524	1-	3				1	1			0515	17800
22	0658	0710	0701	1-	3				1	2			0658	17790
22	0736	0821	0741	1-	3				1	1			0734	17801
22	1028	1115	1042	1-	3			1	1	1			1027E	17800
22	1443	1455	1446	1-	5					1	12		1438	17790
22	1459	1515	1503	1-	3						3		1453	17808
22	1749	1810	1755	1	3						2		1755E	17796
23	1744	1805	1756	1	3	1					13		1743	17809
23	2118	2145	2127	1-	3	1			1		4		2114	17801
24	0138	0236	0156	1-	3				1	1			0136	17801
24	0554	0646	0559	1-	3				1	1			*	
24	2208	2306	2220	1-	1				1				*	
25	0258	0312	0303	1-	3	1			1	1			*	
25	0512	0654	0530	1+	3				1	1	2		*	
25	0723	0836	0729	1-	5	1		2	1	2			*	
26	0154	0244	0206	1-	3				1	1	1		*	
26	0330	0416	0348	2	3	1			2	1	1		0333	17801
26	0416	0535	0423	1+	3	1		1	1	1			0412	17807
26	0548	0625	0600	1-	1				1				0550	17802
26	0756	0818	0802	1-	1					1			0759E	17802
26	1021	1110	1035	1	3			2	1	1			*	
26	1919	2015	1933	1	3						4		1913	17809
26	2109	2219	2127	1-	3				1		9		2113	17805
26	2304	0013	2324	1-	3				1		3		*	
26	2351	0016	2354	1-	1					1			2349	17801
27	0128	0200	0139	1	3						2		0126	17808
27	0146	0241	0203	1-	1	1							0145	17812
27	0235	0305	0241	1-	3				1	1			*	
27	0305	0340	0312	1-	3	1			1	1	1		0303	17806
27	0356	0554D	0428	3	3	1			1	1			0351	17801
27	0427E	0546	0427	2+	3	1			2	1	2		NF	
27	0554E	0731	0602	3+	5	6		4	1	2	4		0543	17817
27	0731	0821	0735	1-	1				1				0734E	17818
27	1359	1418	1405	1-	3				1		4		NF	
27	1456	1540	1518	1-	3				1		4		1454	17806
27	1515	1530	1519	1-	1						1		1512	17801
27	1645	1730	1705	1	3						4		1644	17809
27	1822	1853	1835	2	3				1		11		1821	17806
27	1855	2000	1903	1	3						7		1850	17806
27	2006	2041	2010	1	3						6		*	
28	0137	0253	0148	1-	3	1			2	1			0137	17806
28	0335	0510	0351	3	3	3			2	1			0334	17817
28	1017	1110	1030	1	3				1	1			*	
28	1214	1240	1218	1-	3	1		2	1	1			*	
28	1508	1545	1515	1+	5	2		6	1	1	13		1525	17816
28	1830	1945	1837	2+	3	2			1		14		*	
28	1924	1945	1925	1-	3				1		14		1920	17805
28	2009	2030	2016	1-	3						2		2001	17804

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1981

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
29	0034	0114	0046	1-	3				1		1		0039	17808
29	0410E	0431D	0416	1-	1	1							0408	17805
29	0455	0723	0500	1	3				2	1	1		0453	17805
29	0521	0632	0530	1+	3				1	1	2		NF	
29	0632	0750	0650	1	3			1	1	1	1		0632	17801
29	0801	0946	0808	1	3			3	1	1			0800	17817
29	0915	1000	0925	1-	1				1				0911	17817
29	1336	1420	1341	2+	5	4		5	1	1	7		1338	17813
29	1900	1930	1907	1	3						7		1905E	17818
29	1949	2113	2026	1-	5	1			1		11		1952	17817
29	2003	2116	2026	1-	1				1				2005	17812
29	2113	2223	2118	1	5				1		12		2117E	17824
30	0031	0414	0038	1	5	3			2		6		0031	17824
30	0122	0216	0131	1	5	1			1	1	4		0124E	17824
30	0216	0328	0229	2+	5	1			1	1	5		0218E	17824
30	0328	0500	0338	1	3				1	1	1		0330	17817
30	0556	0642	0609	1-	3				1	1			0554	17813
30	0910	1034	0918	2+	5	4		4	1	1			0910	17824
30	1139	1247	1147	1	5	4		6	2	1	2		1145E	17813
30	1339	1420	1346	1-	5	4		6	1	1	8		1340E	17824
30	1445	1515	1458	1	3			1			5		1443	17824
30	1545	1600	1546	1-	3						5		1543	17813
30	1652	1740	1710	1	5	1		3	1		9		1656E	17824
30	1829	1849	1835	1	5	1			1		12		1827	17824
30	1849	1914	1856	1-	5	4			1				1849	17813
30	1948	2019	2002	1-	5	3			2		15		1944E	17824
31	0000	0052	0014	1-	3	1			1	1			0004	17824
31	0112	0222	0124	1	3	1			1	1	1		NF	
31	0423	0500	0447	1-	3	1			1	1	1		*	
31	0722	0828	0732	2+	5	4		6	1	2			0726E	17824
31	0951	1110	1002	2	3	3		6		1			*	
31	1353	1530	1405	1	5	4		4	2	1	10		*	
31	1749	1845	1811	1-	3	1			1		13		1748	17809
31	1809	1900	1817	2+	3	1			1		13		1807	17824
31	1950	2026	1957	1-	5	1					10		*	

OBSERVATORIES REPORTING FOR AUGUST 1981:

Darmstadt, GFR (DA)	SWF
Durham, North Carolina, USA (A54)	SES
Edenvale, Transvall, South Africa (A52)	SES
Eureka, Montana, USA (A56)	SES
Frenchtown, Montana, USA (A56)	SES
Glenorchy, Tasmania, Australia (GN)	SWF
Hiraiso, Japan (HI)	SWF
Hobart, Tasmania, Australia (A43)	SES
Hobart, Tasmania, Australia (TA)	SEA
Houston, Texas, USA (A50)	SES
Huancayo, Peru (HU)	SWF
Inubo, Japan (IN)	SPA
Juliusruh, GDR (JH)	SWF
Kasugai, Japan (KA)	SPA
Kuhlungsborn, GDR (KU)	SEA, LF-SPA
La Crescenta, California, USA (A40)	SES
Lake Hiawatha, New Jersey, USA (A32)	SES
Latrobe, Pennsylvania, USA (A19)	SES
Lintong, China (LT)	LF-SPA
Louisville, Kentucky, USA (A26)	SES
Mayfield Village, Ohio, USA (A28)	SES
Maui, Hawaii, USA (MI)	SWF
Missoula, Montana, USA (31)	SES, SWF
Panska Ves, Czechoslovakia (PU)	SEA, SWF
Paterson, New Jersey, USA (A46)	SES
Portage, Michigan, USA (51)	SES
Saint Cloud,Minnesota, USA (SC)	SES
Sao Paulo, Brasil (UM)	SES, SPA
Sofia, Bulgaria (SF)	SEA
Thornwood, New York (A48)	SES
Trenton, New Jersey, USA (NJ)	SES
Tucson, Arizona, USA (A9)	SES
Upice, Czechoslovakia (UI)	SEA
Valley Cottage, New York, USA (A1)	SES
Vsetin, Czechoslovakia (VS)	SEA
Yakima, Washington, USA (37)	SES
Zilina, Czechoslovakia (ZL)	SEA

* No Flare Patrol

Observations are not necessarily continuous for each reporting station.

SIDs BY HALE REGION

AUGUST 1981

Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
17760		1	1																												
17763			1																												
17764			1																												
17769	2			1																											
17774		1	1																												
17775				1						1																					
17777			2	6	2	1	4	2	1	2	4	7	10	3	2																
17780																		1													
17789																				1											
17790												1				2		3	1	3	5	2									
17791																1															
17794																	1		1												
17796																						2									
17797																					1										
17798																				1											
17800																					1	2									
17801																					1	1	1	1		2	2		1		
17802																										2					
17804																												1			
17805																										1		1	2		
17806																											4	1			
17807																										1					
17808																						1					1		1		
17809																							1			1	1				1
17812																											1		1		
17813																													1	4	
17816																												1			
17817																											1	1	3	1	
17818																											1		1		
17824																													1	9	3
NO FLARE		1	5	3	1			1	3			2		3	2	2	1			1	2						2		1		1
NO FLARE PATROL	4	1	4	3	1	1	2	1	1		5	1	2	4	3	1	3		1	1	1			2	3	3	2	3			4
NO DATA																															
EVENT TOTALS	6	4	15	14	4	2	6	4	5	3	9	11	12	10	7	6	5	4	3	7	11	8	2	2	3	10	15	8	12	14	9

PIONEER XII (VENUS ORBITER)
Interplanetary Magnetic Field Magnitudes

MAGNETIC FIELD MAGNITUDES

AUGUST 1981

DATE	TIME	BMAG
08/01/81	08:58:18	10.57
08/02/81	09:02:52	8.79
08/03/81	09:02:03	3.27
08/04/81	09:06:33	17.60
08/05/81	16:58:50	22.49
08/06/81	08:58:39	14.56
08/07/81		---
08/08/81		---
08/09/81		---
08/10/81	17:09:13	12.65
08/11/81	17:10:50	10.87
08/12/81	17:14:20	12.53
08/13/81	17:08:57	7.98
08/14/81	08:29:38	12.36
08/15/81	17:15:11	26.42
08/16/81		---
08/17/81		---
08/18/81		---
08/19/81	17:19:52	13.03
08/20/81	17:26:44	11.80
08/21/81	18:03:58	17.28
08/22/81	17:53:49	14.07
08/23/81	12:58:51	16.34
08/24/81	17:27:11	12.98
08/25/81	17:30:07	22.61
08/26/81	17:40:29	10.88
08/27/81	17:41:05	11.79
08/28/81	17:32:59	13.28
08/29/81	17:37:41	10.12
08/30/81	17:35:52	11.73
08/31/81		---

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1981

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			CULG				0000	0640					IIIN,W
	0000	0640	CULG				0000	0315					IS,W
			CULG	0033	0200	1	0029	0620	1	0029	0220	1	IIIN
			PALE				0040.9	0051.2	2				CONT
			CULG				0052		2	0052		2	IIIB
			CULG	0142	0143	1							DCIM
			PALE				0219.5	0219.7	1				III
			CULG				0315	0640	1				IS,DC
			LEAR				0338.8	0348.0	1				S
			CULG				0340	0346	1				IIIS
	0434	0515	WEIS				0510.3	0510.6	2				IIIG
			CULG				0517	0518	2				IIIG
			CULG				0518.5	0519.5	2				IIIG,Z
			CULG				0557	0615	1				IIIS
	0556	1822	WEIS				0557.3	0619.0	3				IIIGG,RS
			CULG				0606		3				IIIB
			CULG				0612		2				IIIB
			WEIS				0702.3	0702.7	1				IIIB
			WEIS				0712.8	0713.0	1				IIIB
			WEIS				0735.5	0735.7	1				IIIB
			WEIS				0741.0	0741.2	1				IIIB
			WEIS				0744.2	0744.3	1				IIIB
			WEIS				0755.3	0756.4	3				IIIG
			WEIS				0758.9	0759.3	2				IIIG
			WEIS				0807.6	0810.8	3				IIIGG
			WEIS				0843.3	0843.5	1				IIIG
			WEIS				0849.6	0849.7	1				IIIB
			WEIS				0940.6	0941.3	2				IIIG
			WEIS				0943.1	0943.7	3				IIIG
			WEIS				1050.8	1050.9	1				IIIB
			WEIS				1111.9	1112.2	1				IIIB
			WEIS				1128.4	1128.6	1				IIIB
			WEIS				1213.7	1213.9	1				IIIB
	1249	2250	HARV				1250	2250	2				I
			HARV				1259	1300	1				IIIG
			WEIS				1306.4	1306.6	1				IIIB
			WEIS				1309.3	1309.4	1				IIIB
			WEIS				1330.8	1332.6	1				IIIG
			WEIS				1340.9	1341.1	1				IIIB
			WEIS				1438.3	1441.3	3				V
			SGMR				1438.6	1440.6	2				V
			HARV				1439	1440	3				IIIG
			WEIS				1545.3	1545.4	1				IIIB
			WEIS				1546.6	1548.8	1				IIIB
			WEIS				1555.4	1556.2	2				IIIG
			WEIS				1758.7	1758.8	1				IIIB
			HARV				1807	1808	2				IIIG
			WEIS				1807.2	1807.3	1				IIIB
			HARV				1919	1934	3				IIIGG
			PALE				1919.6	0315.0	2				B
	2040	2400	CULG				2050	2400	2				IS,C
			CULG				2055	2400					IIIN,W
			CULG				2258	2300	1				IIIG,V
02	0000	0738	CULG				0000	0725	1				IS,C
			CULG				0000	0725					IIIN,W
			LEAR				0028.8	0052.8	1				S
			CULG	0039.5	0040	2	0039.5	0040.5	1				IIIG
			LEAR				0139.5	0219.7	1				S
			CULG	0148	0210								IS,W
			LEAR				0320.0	0510.0	1				B
			LEAR				0338.8	0348.0	1				CONT
			CULG	0339.5	0340.5	1							IIIG
			CULG				0433		3				IIIB
			LEAR				0433.2	0433.5	1				CONT
			LEAR				0510.2	0519.1	1				CONT
			LEAR				0539.2	0539.6	1				CONT
	0436	0717	WEIS				0539.3	0539.4	1				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
02			LEAR				0555.7	0730.0	1				B
			LEAR				0606.2	0614.6	2				CONT
	0850	1821	WEIS				0632.1	0638.7	2				IIIG
			CULG				0633.5	0635	2				IIIG,Z
			CULG	0633.5	0638	1							DCIM
			CULG				0636	0637	1				IIIG
			WEIS				0655.1	0656.2	1				IIIG
			LEAR				0708.6	0709.5	2				CONT
			WEIS				0708.7	0709.6	2				IIIG
			CULG				0709		1				IIIB
			WEIS				0714.2	0714.3	1				IIIB
			LEAR				0721.7	0722.3	1				CONT
			LEAR				0755.3	0755.8	1				CONT
			LEAR				0807.8	0810.8	2				CONT
			WEIS				0859.7	0859.8	1				IIIB
			WEIS				0906.4	0906.6	1				U
			WEIS				0909.3	0909.4	1				IIIB
			WEIS				0911.7	0911.9	1				IIIB
			WEIS				0915.2	0915.3	1				IIIB
			LEAR				0923.7	0924.3	1				CONT
			WEIS				0923.8	0924.7	3				IIIG
			WEIS				0957.9	0958.6	1				IIIB
			WEIS				0959.5	0959.7	1				IIIB
			WEIS				1006.5	1006.6	1				IIIB
			WEIS				1012.2	1012.3	1				IIIB
			WEIS				1017.2	1018.2	2				IIIG
			WEIS				1050	1739	1				IN
			WEIS				1121.7	1121.8	1				IIIB
			WEIS				1145.6	1145.8	1				IIIB
			WEIS				1151.0	1151.2	1				IIIB
			WEIS				1206.1	1206.2	1				IIIB
			WEIS				1244.8	1245.5	1				DCIM
	1249	2250	HARV				1249	1500	1				IN
			WEIS				1252.8	1252.9	1				IIIB
			HARV				1500	2250	2				I
			PALE				1710.6	1713.9	1				CONT
			SGMR				1710.7	1713.1	1				CONT
			WEIS				1710.7	1712.3	3				IIIG
			HARV				1711	1712	2				IIIG,U
			HARV				1728		1				IIIB
			PALE				1902.5	1904.3	2				V
			HARV				1903		3				IIIG
			HARV				2019		1				IIIB
	2038	2400	CULG				2050	2320					IS,W
			CULG	2050	2400								IN,W
			CULG				2101	2400					IIIN,W
			CULG	2209	2400	1	2205	2400	1				IIIN
			HARV				2209	2217	3				IIIGG
			HARV				2243	2244	2				IIIG
			CULG				2249.5		2				IIIB
			PALE				2249.8	2333.3	2				CONT
			HARV				2250		3				IIIG
			CULG				2320	2400	1				IS,C
			LEAR				2332.7	2333.2	1				CONT
03			CULG				0000	0726					IIIN,W
	0000	0738	CULG				0000	0055	1				IS,C
			CULG				0007	0558	1				IIIN
			CULG				0009.5		2				IIIB
			LEAR				0032.0	0213.0	1				B
			CULG				0055	0725					IS,W
			CULG	0137	0142	1							DCIM,N
			PALE				0137.0	0141.1	2				V
			CULG				0137.5	0139	2				IIIG,V
			LEAR				0137.6	0141.3	1				CONT
			CULG				0258	0258.5	2	0258	0258.5	1	IIIG
			LEAR				0258.4	0258.8	1				CONT
			PALE				0258.4	0258.6	2				III
			CULG	0335	0440								IS,W
			CULG	0424	0424.5	2							IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1981

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							0430	0433		IIIG,W
	0951	1402	WEIS				0523.7	0523.9	1				IIIB
			CULG	0525.5	0526	1	0525.5	0526	1				IIIG
	0437	0834	WEIS				0525.6	0526.0	2				IIIG
	1408	1818	WEIS				0557.9	0558.6	2				IIIG
			WEIS				0617.7	0619.3	2				IIIG
			CULG				0618	0619.5	1				IIIG
			WEIS				0702.7	0702.9	2				IIIB
			LEAR				0711.9	0712.4	1				CONT
			WEIS				0712.2	0712.4	2				IIIB
			LEAR				0726.0	0742.3	1				S
			WEIS				0726.2	0726.4	2				IIIG
			WEIS				0819.4	0819.6	1				IIIG
			WEIS				0832.3	0832.6	1				IIIB
			WEIS				0904.7	0904.9	2				IIIB
			WEIS				1118.7	1128.6	3				IIIGG/VRS
			SGMR				1118.8	1122.4	2				CONT
			WEIS				1133.7	1141.7	2				IIIGG
			WEIS				1218.7	1219.7	2				IIIG
			WEIS				1248.3	1249.6	3				IIIG
	1249	2325	HARV				1257	2320	1				IN
			HARV				1347	1348	1				IIIGW
			WEIS				1348.5	1349.2	2				IIIB
			HARV				1425	1427	3				IIIG
			HARV				1435		1				IIIG
			HARV				1510		1				IIIGW
			HARV				1527	1528	3				IIIG
			SGMR				1527.2	1527.8	2				CONT
			WEIS				1527.3	1528.2	3				IIIG
			WEIS				1616.7	1617.1	2				IIIB
			HARV				1617		2				IIIG
			WEIS				1628.7	1628.9	1				IIIG
			PALE				1648.1	1800.0	1				B
	2038	2400	CULG				2053	2400					IN,W
			CULG				2102	2400					IIIN,W
			CULG	2230	2400								IN,W
			CULG	2254.5	2255	2							IIIG
			HARV				2310	2311	3				IIIG
			CULG	2310	2310.5	1	2310	2310.5	1				IIIG
			PALE				2310.3	2310.6	2				III
04	0000	0738	CULG	0000	0725								IN,W
			CULG				0054	0720					IIIN,W
			CULG	0139	0658	2							IIIN
			LEAR				0216.9	0219.8	1				CONT
			CULG				0219	0219.5	1				IIIG
			PALE				0219.5	0219.8	1				III
			LEAR				0337.5	0343.9	1				CONT
	0439	1818	WEIS	0508.0	0508.7	2							DCIM
			WEIS	0524.4	0524.6	2							RS
			WEIS	0526.8	0526.9	1							RS
			WEIS				0607	1647	1				IN
			CULG				0622.5	0623	1				IIIG
			WEIS				0623.1	0623.3	1				IIIB
			WEIS	0653.2	0654.7	2							RS
%5			WEI!2*2r22*:r										
			CULG				0708.5	0709	1				IIIG
			WEIS				0709.0	0709.4	2				IIIG
			WEIS				0716.6	0716.7	1				IIIB
			LEAR				0810.2	0811.2	1				CONT
			WEIS				0810.2	0811.8	3				IIIG
			WEIS				0919.0	0923.3	2				IIIG
			LEAR				0939.2	0942.2	1				CONT
			WEIS				0939.7	0943.7	3				IIIGG/V
			WEIS				0953.8	0953.9	1				IIIB
			WEIS				1102.7	1105.2	2				IIIG
	1249	2340	HARV				1249	2340	1				IN
			WEIS				1254.6	1254.7	1				IIIB
			WEIS				1354.4	1354.5	1				IIIB
			HARV				1356	2140	2				IIIN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1981

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			WEIS				1356.2	1356.3	2				IIIG
			WEIS				1431.7	1431.8	1				IIIB
			WEIS				1433.4	1433.6	1				IIIB
			WEIS				1436.2	1436.5	1				IIIB
			WEIS				1443.9	1445.7	2				IIIB
			WEIS				1447.6	1449.3	2				IIIG
			WEIS				1516.1	1522.9	2				IIIGG
			HARV				1529	1530	3				IIIG,V
			WEIS				1529.2	1530.7	3				IIIGG
			SGMR				1529.2	1530.3	2				V
			WEIS				1534.1	1534.9	2				IIIG
			WEIS				1551.2	1551.4	1				IIIB
			WEIS				1605.2	1605.4	1				IIIB
			WEIS	1609.6	1609.8	2							RSIII,B
			WEIS				1628.2	1629.2	1				IIIG
			WEIS				1632.5	1632.7	1				IIIB
			WEIS				1634.2	1634.9	1				IIIG
			WEIS				1646.2	1646.3	1				IIIB
			WEIS				1709.4	1709.6	2				IIIB
			WEIS				1714.3	1715.6	2				IIIG
			WEIS				1724.2	1724.3	2				IIIB
			HARV				1840		3				IIIG
			HARV				1923	1925	3				IIIG,RS
			PALE				1923.4	1927.1	2				V
			CULG				2050	2225					IIIS,W
	2038	2400	CULG				2050	2400	1				IS,C
			HARV				2124		3				IIIG,U
			CULG				2124	2124.5	2				IIIG
			PALE				2124.2	2124.4	2				III
			CULG				2140.5	2141	1				IIIG
			PALE				2140.7	2140.9	2				III
			CULG				2225	2400					IIIN,W
			CULG	2327	2328	3	2327	2328	3	2327	2328	3	IIIG,U
			HARV				2327	2328	3				IIIG
			LEAR				2327.3	2327.8	1				CONT
05			CULG				0000	0700					IIIN,W
	0000	0738	CULG				0000	0541					IS,W
			LEAR				0318.2	0325.2	1				V
			LEAR				0333.1	0336.9	1				V
			CULG				0334	0334.5	1	0334	0334.5	1	IIIG
			PALE				0334.1	0334.6	1				III
			CULG				0441	0450					SCINT
			LEAR				0522.7	0527.1	1				V
			CULG				0523	0525.5					UNCLF
			LEAR				0545.9	0550.1	1				V
			LEAR				0657.6	0657.8	1				III
			LEAR				0739.0	0742.4	2				CONT
			LEAR				0755.6	0755.8	1				CONT
	1250	2300	HARV				1441	2300	1				IN
	0441	0649	WEIS				1509.6	1509.8	1				IIIB
			HARV				1552	1554	1				IIIG
	1415	1815	WEIS				1552.6	1552.8	2				IIIG
			HARV				1556	1557	2				IIIG
			WEIS				1616.9	1617.2	1				IIIB
			HARV				1635		2				IIIG
			HARV				1704		1				IIIB
			HARV				1722	1723	2				IIIB
			HARV				1733	1737	1				IIIG
			WEIS				1735.0	1735.2	1				IIIB
			HARV				1827		2				IIIG
			HARV				1834	1838	2				IIIGG
			HARV				1934	1936	2				IIIG
			PALE				1934.1	1935.8	1				V
			HARV				2002	2003	3				IIIGG
			PALE				2002.5	2002.9	2				V
			HARV				2034	2035	2				IIIG
			PALE				2034.9	2035.0	1				III
	2038	2400	CULG				2049	2400					IIIS,W
			CULG				2050	2400	1				IIIN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
05			HARV				2050		2				IIIG
			PALE				2050.7	2050.7	1				III
			CULG				2052	2400					IS,W
			HARV				2059		2				IIIG
			CULG				2107.5	2108	2				IIIG
			HARV				2108		3				IIIG
			CULG	2121.5	2122	1							IIIG
			HARV				2122		3				IIIG
			HARV				2146	2148	3				IIIG
			CULG				2147	2147.5	2				IIIG
			PALE				2147.2	2147.7	1				V
			PALE				2249.8	2350.2	1				V
			HARV				2251		2				IIIG
			PALE				2313.3	2319.4	1				CONT
			PALE				2342.3	2348.4	1				CONT
			PALE				2356.7	2358.6	2				V
			CULG				2357	2357.5	3	2357	2357.5	3	IIIG
			LEAR				2357.0	2358.5	2				CONT
			CULG				2358.5		3	2358.5		2	IIIB
06			CULG				0000	0730					IIIS,W
	0000	0738	CULG				0000	0434					IS,W
			CULG				0006	0716	1				IIIN
			CULG				0009.5	0012.5	2				IIIGG
			LEAR				0009.5	0014.5	1				CONT
			PALE				0009.6	0115.3	2				CONT
			CULG	0011	0012	1							DCIM
			LEAR				0040.8	0046.0	1				CONT
			PALE				0042.8	0043.3	2				III
			CULG							0043	0736	1	IIIN
			PALE				0047.7	0048.0	2				III
			CULG	0103.5	0104	1	0103.5	0104	3	0103.5	0104	2	IIIG
			PALE				0103.6	0104.2	3				III
			LEAR				0103.7	0106.3	2				CONT
			PALE				0106.1	0115.3	2				CONT
			CULG	0108.5	0109	2	0108.5	0109.5	2	0108.5	0109	2	IIIG
			LEAR				0108.6	0112.5	2				CONT
			CULG	0111	0111.5	1	0111	0111.5	3	0111	0111.5	3	IIIG
			CULG	0112.5	0113	1							DCIM
			CULG				0115	0115.5	2	0115	0115.5	2	IIIG
			LEAR				0115.2	0115.5	1				CONT
			PALE				0130.0	0130.3	1				III
			PALE				0139.4	0139.6	1				III
			CULG	0152	0320								IS,W
			PALE				0204.3	0204.5	1				III
			LEAR				0209.9	0948.0	1				B
			PALE				0210.2	0210.4	1				III
			PALE				0250.2	0251.0	2				III
			LEAR				0250.3	0252.5	2				CONT
			CULG	0250.5	0251	1	0250	0251	2	0250	0251	1	IIIG
			PALE				0252.0	0257.4	1				CONT
			CULG				0314.5	0317.5	3	0314.5	0317.5	2	IIIG
			LEAR				0314.7	0317.5	2				CONT
			PALE				0314.7	0317.4	2				CONT
			CULG	0401	0401.5	2	0401	0401.5	3	0401	0401.5	2	IIIG
			PALE				0401.1	0401.5	2				V
			LEAR				0401.1	0401.5	2				CONT
			CULG				0409	0422					SCINT
			CULG				0434	0731	1				IS,C
			CULG	0459	0459.5	1	0459	0459.5	2				IIIG
			LEAR				0459.6	0500.8	1				CONT
			CULG	0612.5	0613	1	0612.5	0613	2				IIIG
			LEAR				0612.6	0613.2	1				CONT
			LEAR				0637.8	0655.0	1				S
			CULG				0638	0639	2				IIIG
			WEIS				0648	1405	1				IN
	0648	1517	WEIS				0649.0	0651.2	1				IIIG
			WEIS				0652.5	0655.0	2				IIIG
			CULG	0655.5	0656								DCIM
			WEIS				0715.3	0716.4	3				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
06			LEAR				0715.8	0716.3	1				CONT
			WEIS				0725.5	0725.8	1				IIIG
			WEIS				0743.7	0743.8	1				IIIB
			WEIS				0808.5	0808.7	2				IIIB
			WEIS				0819.2	0819.3	1				IIIB
			WEIS				0842.2	0843.0	2				IIIG
			LEAR				0842.3	0842.8	1				CONT
			WEIS				1022.6	1022.7	1				IIIB
			WEIS				1028.8	1029.2	2				IIIG
			WEIS				1138.8	1139.0	1				IIIB
			SGMR				1212.8	1216.5	1				CONT
			WEIS				1213.8	1216.7	3				IIIG
			WEIS				1243.5	1243.7	1				IIIB
	1249	2245	HARV				1310	2245	1				IN
			WEIS				1312.8	1312.9	1				IIIB
			WEIS				1319.0	1319.2	1				IIIB
			HARV				1327		2				IIIG
			SGMR				1327.0	1327.2	1				III
			WEIS				1327.2	1327.3	3				IIIG
			WEIS				1416.2	1416.3	1				IIIB
			WEIS				1429.4	1429.5	1				IIIB
			HARV				1433	1437	3				IIIG
			SGMR				1433.2	1648.8	1				S
			WEIS				1433.3	1434.4	3				IIIGG
			WEIS				1437.2	1437.8	2				IIIG
			WEIS				1448.2	1448.3	1				IIIB
			WEIS				1504.7	1504.8	2				IIIB
			HARV				1518	1526	3				IIIGG
			HARV				1536		2				IIIG
			HARV				1557	1601	2				IIIG
			HARV				1617	1618	2				IIIG
			HARV				1624	1626	2				IIIG
			HARV				1634		2				IIIG
			HARV				1640		2				IIIG
			HARV				1645	1651	3				IIIGG
			HARV				1819	1822	2				IIIG
			HARV				1853	1856	2				IIIG
			HARV				1912	1913	3				IIIG,V
			HARV				2016		2				IIIB
			HARV				2020		3				IIIG,U
			PALE				2021.2	2021.5	2				III
	2039	2400	CULG				2047	2400	1				IIIS
			CULG				2050	2400	1				IS,C
			PALE				2117.3	2123.8	2				CONT
			HARV				2120	2121	2				IIIG
			CULG				2120	2121	1				IIIG
			HARV				2211	2212	3				IIIG
			CULG				2211.5	2212	3				IIIG
07	0000	0738	CULG				0000	0726					IS,W
			CULG				0000	0726					IIIN,W
			PALE				0234.3	0234.5	2				III
			LEAR				0234.4	0234.7	1				III
			CULG	0234.5	0235	1	0234.5	035	1				IIIB
			CULG	0248	0725								IS,W
			CULG				0259	0259.5	1	0259.5	0302.5	3	IIIG,V
			LEAR				0259.0	0301.2	1				V
			CULG				0331	0431					SCINT
			LEAR				0556.8	0604.0	1				CONT
	0541	1813	WEIS				0557	1753	2				IIIN
			CULG				0603.5		2				IIIB
			WEIS				0603.7	0604.1	2				IIIG
			WEIS				0613	1739	1				IN
			WEIS				0615.3	0615.6	2				IIIG
			CULG	0615.5		1	0615.5		3				IIIB
			CULG				0624	0655	1				IIIN
			LEAR				0645.3	0646.8	1				CONT
			WEIS				0645.7	0646.7	2				IIIG
			LEAR				0745.7	0754.0	1				CONT
			WEIS				0753.7	0754.1	2				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
07			LEAR				0802.2	0803.3	2				CONT
			WEIS				0802.3	0803.2	2				IIIG
			LEAR				0910.9	0927.1	1				S
			WEIS				0911.0	0911.8	2				IIIG
			WEIS				0914.3	0916.2	2				IIIG
			WEIS				0917.4	0918.7	3				IIIG
			WEIS				0924.7	0927.3	3				IIIG
			WEIS				1027.8	1030.9	3				IIIG
			SGMR				1027.9	1028.0	1				III
			WEIS				1102.8	1110.7	3				IIIGG
			SGMR				1103.1	1103.3	1				III
			SGMR				1107.7	1109.0	2				CONT
			WEIS				1147.4	1148.1	3				IIIG
			SGMR				1147.4	1147.7	1				CONT
			WEIS				1152.6	1153.2	2				IIIG
			SGMR				1201.7	1202.7	3				V
			WEIS				1201.9	1203.7	3				IIIGG
			SGMR				1207.5	1208.5	2				CONT
			WEIS				1207.7	1208.8	3				IIIGG
			SGMR				1241.0	1250.1	1				CONT
			WEIS				1241.1	1241.7	2				IIIG
			WEIS				1249.7	1252.0	2				IIIG
	1250	2300	HARV				1307	2226	1				IN
			HARV				1312	1313	2				IIIG
			WEIS				1313.6	1314.7	3				IIIG
			HARV				1318	1332	3				IIIGG
			WEIS				1319.6	1333.2	3				IIIGG
			HARV				1339	1340	2				IIIG
			WEIS				1340.1	1341.3	2				IIIG
			HARV				1404	1418	3				IIIGG
			WEIS				1405.4	1419.7	3				IIIGG
			SGMR				1412.3	1740.0	2				S
			SGMR				1418.2	1752.9	1				S
			HARV				1423		2				IIIG
			WEIS				1423.7	1424.1	3				IIIG
			HARV				1453	1454	2				IIIG
			WEIS				1453.7	1454.2	3				IIIG
			HARV				1513	1520	3				IIIGG
			WEIS				1513.3	1520.0	3				IIIGG
			HARV				1527		2				IIIG
			HARV				1610	1611	2				IIIG,U
			HARV				1629	1630	2				IIIG
			PALE				1646.7	1647.0	2				III
			HARV				1647		3				IIIG
			WEIS				1647.0	1647.4	2				IIIG
			HARV				1656	1657	1				IIIB
			HARV				1710	1718	3				IIIGG
			PALE				1713.0	1717.4	2				CONT
			HARV				1737	1740	3				IIIGG
			PALE				1737.0	1833.3	2				S
			WEIS				1739.0	1740.2	2				IIIG
			HARV				1748		2				-%%£
			HARV				1753		3				IIIG
			HARV				1829	1833	3				IIIGG
			PALE				1840.7	1909.1	2				S
			HARV				1844		2				IIIG
			HARV				1904	1909	3				IIIG,V
			HARV				1907	2128	3				IV
			PALE				1926.9	2231.0	2				IV
	2038	2400	CULG				2038	2212	1				IS,C
			CULG				2041	2400	1				IIIS
			HARV				2043	2046	3				IIIGG
			CULG				2046	2346	1				RSDP,N
			CULG	2046	2240	1							CONT
			HARV				2100	2102	2				IIIG
			CULG				2102	2236	1				IIIN
			HARV				2142	2220	3				IV P
			HARV				2145		2				IIIG
			HARV				2159	2202	2				IIIG
			CULG				2159	2200	2	2159.5	2200	1	IIIG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
07			HARV				2220	2224	3				IIIG
			CULG				2220	2221.5	2				IIIG
			CULG				2225	2400					IIIS,W
			CULG				2225	2400					IS,W
			HARV				2235		2				IIIB
08			CULG				0000	0246	1				RSDP,N
			CULG				0000	0720					IN,W
	0000	0738	CULG				0000	0245					IIIS,W
			LEAR				0045.0	0948.0	1				B
			LEAR				0103.0	0948.0	1				B
			CULG	0108.5	0109	1							DCIM
			CULG				0245	0711					IIIN,W
	0444	1221	WEIS				0604	1516	1				IIIN
	1228	1812	WEIS				0832.8	0833.1	3				IIIB
			LEAR				0832.8	0833.1	1				CONT
			WEIS				1200	1745	2				CONT P
			SGMR				1225.5	1226.5	2				CONT
	1250	2240	HARV				1250	1451	1				IV
			HARV				1259	2235	1				IN
			WEIS				1308.4	1308.6	2				IIIB
			HARV				1441	1443	2				IIIG
			WEIS				1441.0	1443.3	3				IIIG
			HARV				1451	2240	2				IV
			HARV				1508		2				IIIG
			PALE				1931.5	0118.0	1				B
	2038	2400	CULG				2045	2400					IS,W,C
			CULG				2114	2400					IIIN,W
			CULG				2141	2255	1				RSDP,N
			CULG				2142		1				IIIB
			CULG				2147	2400					SCINT,N
09	0000	0738	CULG				0000	0732	1				IS,C
			CULG				0106	0732					IIIN,W
			CULG	0120.5			0120.5						IIIB,W
			LEAR				0123.3	0123.6	1				CONT
			LEAR				0128.0	0949.0	1				B
			CULG				0220	0221	1				IIIG
			PALE				0220.1	0222.1	1				III
			CULG	0233	0234.5	1	0233	0235	1				IIIG
			CULG				0235		1	0235		2	IIIB
			CULG	0306	0306.5	1	0306	0306.5	1				IIIG
			PALE				0306.1	0306.5	1				III
			CULG	0356	0357	1	0356	0357	3	0356.5	0357	2	IIIG,V
			LEAR				0356.2	0358.4	2				CONT
			PALE				0356.2	0357.0	2				III
			CULG				0434.5	0435	1				IIIG
			CULG				0610	0731					SCINT
	0644	1811	WEIS				0719	1511	2				IN
			WEIS				1051.7	1051.8	2				U
	1251	2250	HARV				1510	2250	1				IN
			HARV				1555	2250	3				IV
			WEIS				1654.4	1655.3	2				IIIG
			HARV				1655		2				IIIG
			HARV				1917		3				IIIG
			PALE				1931.5	0118.0	1				B
			HARV				2006	2007	3				IIIG
			HARV				2010		2				IIIG
	2038	2400	CULG				2043	2156	1				IS,C,DC
			CULG	2045	2400	1							CONT
			CULG				2051	2400					IIIS,W
			CULG				2120	2400	1				RSDP,N
			CULG				2156	2400					IS,W,C
			CULG				2204.5		1				IIIB
			CULG				2253	2350	1				SCINT
10			CULG				0000	0715					IIIN,W
	0000	0738	CULG				0000	0330	1				IS,C
			CULG				0041	0047	1				SCINT
			CULG				0056	0619	1				RSDP,N

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
10			LEAR				0109.0	0949.0	1				B
			CULG	0144	0145	3	0144	0145.5	3				IIIG,GV
			PALE				0144.2	0146.2	2				V
			LEAR				0144.3	0145.7	2				CONT
			CULG				0236.5	0237					IIIG
			PALE				0236.6	0237.0	1				III
			CULG				0319	0320	1				IIIG
			PALE				0319.1	0319.4	1				III
			CULG				0330	0729	1				IS
			CULG	0342	0346	1							IIIN
			CULG	0352	0352.5	1	0352	0352.5	2				IIIG
			PALE				0353.2	0353.5	1				III
			CULG				0359	0402	1				DP,N
			CULG	0440.5	0441.5	1	0440.5	0441.5	1				IIIG
	0446	0725	WEIS				0523	1758	2				IIIN,DP
			CULG	0631	0634	1							DCIM
	0737	1819	WEIS				0632	1514	2				IN
			CULG	0658.5	0706	3							DCIM
			WEIS				0658.8	0659.9	2				IIIG
			CULG							0701	0706		SWF,W
	1251	2245	HARV				1252	1558	1				IN
			HARV				1558	2245	2				I
			HARV				1719	2230	2				IIIN
			HARV				1723		2				IIIG
			HARV				1753	1755	2				IIIGG
			HARV				1926		2				IIIG
	2037	2400	CULG				2044	2400					IS,W
			CULG				2045	2400					IIIS,W
11			CULG				0000	0726					IIIN,W
	0000	0726	CULG				0000	0726					IS,W
			CULG	0026	0056								IN,W
			CULG	0101.5									IIIB,W
			CULG	0144.5	0149.5	2							DCIM
			CULG							0145	0210	1	SWF
			CULG				0151	0200	1				II
			CULG	0204.5		1	0204.5		1				IIIB
			CULG	0545	0546								DCIM,W
			WEIS				0612	1404	1				IIIN
	0440	1409	WEIS				0656.2	0656.3	2				IIIB
			LEAR				0657.8	0658.9	1				CONT
			CULG				0658	0658.5	1				IIIG
	1414	1818	WEIS				0658.0	0658.7	2				IIIG
			LEAR				0740.2	0753.8	1				S
			WEIS				0740.5	0753.7	2				IIIGG
			WEIS				0751.2	0759.6	1				II HARM
			LEAR				0755.1	0800.1	1				II
			LEAR				0807.8	0813.4	1				CONT
			WEIS				0812.2	0813.6	2				IIIG
			WEIS				1036.5	1036.7	2				IIIG
			WEIS				1230.8	1231.3	2				IIIG
	1250	2255	HARV				1258	1527	1				IN
			WEIS				1324.6	1324.8	2				IIIG
			HARV				1325		3				IIIG
			WEIS				1333.2	1335.2	3				IIIG
			HARV				1335		3				IIIG
			HARV				1527	1700	2				I
			HARV				1700	2100	1				IN
			HARV				1808	1809	3				IIIG,U
			PALE				1808.9	1809.7	2				III
			HARV				1820		1				IIIB
			HARV				1823		1				IIIBW
			PALE				1855.9	1856.3	2				III
			HARV				1856		3				IIIG
	2037	2400	CULG	2044	2400								IS,W
			CULG				2045	2310					IS,W,C
			CULG				2050	2400					IIIN,W
			HARV				2100	2255	2				I
			CULG				2310	2400					IS,W
12			CULG	0000	0315								IN,W

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
12	0000	0738	CULG				0000	0130					IS,W
			CULG				0023	0704					IIIN,W
	0441	1816	WEIS				0611.4	0617.7	2				IIIG
			CULG				0612	0617	1				IIIN
			CULG	0625.5	0627	1							DCIM
			CULG							0626	0645	2	SWF
			CULG				0634.5	0636	1				II
			WEIS				1057.0	1057.3	1				IIIB
			WEIS				1103.8	1104.2	2				IIIG
	1251	2300	HARV				1253	1841	1				IN
			HARV				1317	1319	2				IIIG
			HARV				1416	1419	3				IIIG
			WEIS				1416.6	1416.8	1				IIIB
			SGMR				1418.6	1418.9	1				III
			WEIS				1418.6	1419.6	3				IIIG
			HARV				1422	1423	1				IIIGW
			WEIS				1427.5	1429.4	2				IIIG
			HARV				1428	1429	3				IIIGG
			WEIS				1500.9	1501.6	2				IIIG
			HARV				1501	1502	2				IIIG
			WEIS				1550.8	1551.9	2				IIIG
			HARV				1551	1552	2				IIIG
			WEIS				1555.6	1556.7	2				IIIG
			WEIS				1602.6	1602.7	1				IIIB
			HARV				1849	2300	2				I
	2037	2400	CULG	2044	2400		2045	2400					IN,W
			CULG				2055	2400					IIIN,W
			CULG	2224.5	2227	2							DCIM
			CULG				2244		1				IIIB
			CULG	2344	2345.5	1							DCIM
13	0000	0737	CULG				0019	0715					IIIN,W
			CULG				0052.5	0053	1				IIIG
			CULG	0126	0126.5	1							DCIM
			CULG				0127		1				IIIB
			CULG	0154	0212								DCIM,N
			CULG							0253	0311	2	SWF
			CULG				0418.5	0419	2				IIIG
			LEAR				0418.8	0426.3	1				CONT
			CULG				0427		1				IIIB
	0441	0649	WEIS				0550	1720	2				IIIN
			LEAR				0557.3	0600.2	2				CONT
			CULG				0557.5		1				IIIB
			CULG				0559	0600	3				IIIB,V
			WEIS				0559.5	0600.0	3				IIIG
			CULG	0613.5		2							DCIM
			CULG				0630.5	0631	2				IIIG
			WEIS				0630.7	0632.8	3				IIIG
			LEAR				0630.7	0636.9	2				CONT
			CULG				0631.5		1				IIIB
			CULG				0632.5		2				IIIB
			WEIS				0634.9	0635.1	2				IIIB
			CULG	0636	0637	1	0636.5		2				IIIG
			WEIS				0636.6	0637.0	3				IIIB
	0701	1814	WEIS				0650	1739	1				IN
			LEAR				0714.5	0714.9	1				CONT
			LEAR				0752.2	0756.2	1				CONT
			WEIS				0824.3	0825.1	3				IIIG
			LEAR				0824.5	0825.0	1				CONT
			LEAR				0831.2	0835.5	2				CONT
			WEIS				0831.2	0832.1	3				IIIG
			WEIS				0833.6	0835.6	3				IIIG
			WEIS				0945.6	0947.3	2				IIIG
			WEIS				1002.3	1003.2	2				IIIG
			WEIS				1042.7	1043.2	2				IIIG
	1250	2245	HARV				1300	1851	1				IN
			HARV				1405		1				IIIG
			HARV				1440		1				IIIB
			WEIS				1440.0	1440.2	2				IIIG
			WEIS				1457.8	1458.2	2				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13			HARV				1458		2				IIIG
			HARV				1507	1511	3				IIIG
			WEIS				1507.2	1509.2	3				IIIGG
			SGMR				1507.5	1508.8	1				III
			HARV				1851	2020	2				I
			HARV				1926	1927	2				IIIG
			SGMR				1926.4	1926.6	1				V
			HARV				2020	2245	1				IN
	2037	2400	CULG				2055	2344					IIIN,W
			HARV				2056	2057	1				IIIG
			HARV				2104	2107	3				IIIGG
			CULG				2105		1				IIIB
			CULG				2105.5	2106	1				IIIG
			HARV				2136	2138	2				IIIG
			HARV				2142		1				IIIG
14	0000	0737	CULG	0031	0332								IS,W
			CULG	0038	0220	1							CONT
			CULG				0048	0721					IIIN,W
			CULG							0048	0100	1	SWF
			CULG				0057	0107					IS,W
			CULG				0059	0059.5	1				IIIG
			LEAR				0059.2	0101.5	1				CONT
			CULG				0107	0230	1				IS,C
			CULG				0109	0114					SCINT
			LEAR				0144.4	0226.6	1				IV
			CULG	0144.5	0150								P
			CULG				0230	0737					IN,W
			CULG	0332	0730								IN,W
			CULG				0353.5	0356.5	2	0353.5	0355.5	2	IIIGG
			LEAR				0353.7	0356.5	2				CONT
	0442	1335	WEIS				0629.6	0629.8	1				IIIB
	1341	1813	WEIS				0717.2	0720.7	1				IIIG
			WEIS				1009	1559	1				IN
			WEIS				1032.9	1034.3	2				IIIG
			WEIS				1127.7	1128.0	1				IIIB
			WEIS				1201.9	1202.1	1				IIIB
			WEIS				1216.2	1216.3	1				IIIB
			WEIS				1221.0	1221.8	2				IIIG
			WEIS				1301.6	1301.8	1				IIIB
	1251	2245	HARV				1302	2245	1				IN
			HARV				1325	1326	1				IIIG
			WEIS				1325.6	1326.1	3				IIIG
			WEIS				1610.2	1610.3	1				IIIB
			HARV				1613		1				IIIB
			WEIS				1613.9	1613.2	1				IIIB
			HARV				1652		2				IIIB
			WEIS				1652.3	1652.4	1				IIIB
			HARV				1703	1706	1				IIIG
			WEIS				1723.7	1724.5	1				IIIG
			HARV				1724	1727	2				IIIG
			WEIS				1726.6	1726.7	1				IIIB
			WEIS				1728.8	1730.6	2				IIIG
			HARV				1729	1731	3				IIIG
			HARV				1911		1				IIIB
			HARV				1920		2				IIIB
			HARV				2014		2				IIIG
	2036	2400	CULG				2053	2400					IN,W
			CULG				2058	2254					IIIS,W
			CULG				2115.5	2116	1				IIIG
			HARV				2116		2				IIIG
			CULG	2119.5		1	2119.5		1				IIIB
			HARV				2120		2				IIIG
			CULG	2132	2400								IS,W
			HARV				2222		2				IIIG
			CULG				2254	2400					IIIN,W
			CULG				2340.5		1				IIIB
15	0000	0736	CULG				0005	0736					IIIN,W
			CULG				0007	0722					IS,W

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
15			CULG	0029	0730								IN,W
			CULG							0139	0210	1	SWF
			LEAR				0226.3	0226.6	1				CONT
			CULG				0455.5		1				IIIB
	0443	1812	WEIS				0455.8	0456.2	1				IIIB
			WEIS				0534.2	0534.3	1				IIIB
			LEAR				0601.6	0605.2	1				CONT
			WEIS				0601.8	0605.6	3				IIIG
			CULG	0602	0602.5	1	0601.5	0602.5	1				IIIG
			CULG	0604	0604.5		0604		2				IIIB
			WEIS				0653	1729	2				IN
			WEIS				0656.7	0656.8	1				IIIB
			WEIS				0659.8	0702.4	1				IIIG
			WEIS				0758.8	0759.6	3				IIIG
			LEAR				0758.8	0759.5	1				CONT
			LEAR				0831.2	0831.4	1				III
			WEIS				0831.2	0832.5	3				IIIG
			LEAR				0852.9	0853.5	1				CONT
			WEIS				0853.1	0854.7	2				IIIG
			WEIS				0929.6	0930.0	2				IIIG
			WEIS				1027.1	1027.3	1				IIIG
			WEIS				1029.5	1029.8	2				IIIG
			WEIS				1054.2	1056.7	3				IIIG
	1251	2255	HARV				1251	1403	1				IN
			WEIS				1329.2	1329.7	2				IIIG
			HARV				1403	1446	2				I
			HARV				1439	1440	2				IIIG
			WEIS				1439.5	1440.3	2				IIIG
			HARV				1446	1623	1				IN
			HARV				1527	1528	2				IIIG
			HARV				1530	1531	3				IIIG
			WEIS				1530.4	1532.2	3				IIIG
			HARV				1618	1706	1				IIIN
			HARV				1623	1815	2				I
			HARV				1815	2255	1				IN
			PALE				2008.7	2009.5	2				V
			HARV				2009	2010	2				IIIG
	2036	2400	CULG	2041	2400								IS,W
			CULG				2041	2400					IN,W
			CULG				2048	2400					IIIN,W
			CULG	2250.5	2251								IIIG,W
			CULG	2338	2338.5								IIIG,W
16	0000	0735	CULG	0000	0732								IS,W
			CULG				0000	0730					IN,W
			CULG				0000	0725					IIIN,W
			CULG	0147	0148	1	0147	0148.5	1				IIIG
			PALE				0147.2	0148.4	2				V
			LEAR				0147.3	0148.7	1				CONT
	0445	0648	WEIS				0451	1743	2				IN
			LEAR				0537.3	0540.5	1				CONT
			CULG				0607	0609.5	2				IIIG
	0711	1811	WEIS				0608.3	0608.9	2				IIIG
			CULG				0611		1				IIIB
			WEIS				0611.3	0611.5	3				IIIB
			LEAR				0649.1	0649.8	1				CONT
			WEIS				0904.3	0905.8	2				IIIG
			WEIS				0922.7	0922.8	1				IIIB
			WEIS				0926.9	0927.2	2				IIIG,RS
			WEIS				1010.4	1014.7	2				IIIGG
			WEIS				1040.7	1041.8	1				RS,DP
			WEIS				1110.7	1110.8	2				IIIB,RS
			WEIS				1147.9	1152.3	3				IIIGG
			SGMR				1148.0	1152.0	1				CONT
			WEIS				1159.2	1159.3	1				IIIB
			WEIS				1202.6	1205.2	3				IIIG
			WEIS				1212.7	1213.9	2				IIIG
			WEIS				1215.5	1216.4	3				IIIG
			SGMR				1215.9	1216.1	1				III
			WEIS				1238.1	1218.3	3				IIIB

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
16	1250	2245	HARV				1250	1500	3				I
			WEIS				1309.4	1309.7	2				IIIG
			WEIS				1319.8	1320.1	1				IIIG
			HARV				1348	1651	2				IIIN
			WEIS				1409.8	1414.7	2				IIIGG
			HARV				1410	1414	2				IIIGG
			WEIS				1421.0	1423.8	1				IIIG
			HARV				1429	1442	2				IIIGG
			WEIS				1456.8	1442.0	2				IIIGG
			HARV				1500	1600	2				I
			WEIS				1501.4	1501.5	1				IIIB
			WEIS				1509.2	1510.5	2				IIIG
			WEIS				1540.7	1540.8	1				IIIB
			HARV				1600	2245	3				I
			WEIS				1637.2	1637.6	2				IIIG
			PALE				1727.5	1728.4	1				III
			WEIS				1728.4	1728.6	2				IIIG
			PALE				2029.6	2036.4	2				V
	2040	2400	CULG	2040	2400	1							IS
			CULG				2040	2400	1				IIIS
			CULG		$		2040	2310	1				IS,C
			PALE				2134.7	2135.1	2				III
			CULG				2135		1				IIIB
			HARV				2234	2237	2				IIIG
			CULG				2234.5		1				IIIB
			PALE				2234.5	2234.7	1				III
			HARV				2241	2242	1				IIIB
			CULG				2310	2400					IS,W
			CULG				2346		2				IIIB
			LEAR				2346.1	2351.6	1				CONT
			CULG	2349.5	2350.5	1	2348.5	2351.5	2	2349	2351.5	1	IIIG
17			CULG				0000	0300	1				IN
			CULG				0000	0327					IIIS,W
	0000	0736	CULG	0000	0732		0000	0300					IS,W
			PALE				0016.5	0016.7	1				III
			PALE				0102.6	0141.3	1				S
			LEAR				0102.7	0202.7	1				S
			CULG				0115	0327	1				IIIN
			LEAR				0202.7	0952.0	1				B
			PALE				0209.5	0256.3	2				S
			CULG				0251.5	0254	1	0251	0253	1	IIIG,V
			CULG							0252	0310	1	SWF
			CULG				0259.5	0310	2				II
			PALE				0259.6	0311.0	2				II
			CULG				0300	0736	1				IS,C
			LEAR				0301.5	0312.0	1				II
			CULG				0317	0318	2	0317	0318	1	IIIG
			CULG	0322.5	0323	1	0322.5	0324	3	0323	0324	1	IIIG,V
			CULG	0325.5	0328.5	2	0326	0328.5	2	0326	0327.5	1	IIIGG
			PALE				0326.9	0344.2	2				S
			CULG				0327	0350	1				IIIS
			CULG	0330	0330.5	1	0330	0330.5	2	0330	0330.5	1	IIIG
			CULG				0350	0730	1				IIIN
			CULG				0350	0735					IIIS,W
	0446	1357	WEIS				0448	1714	2				IN
	1402	1758	WEIS				0513	1519	2				IIIN
			WEIS				0955.7	0955.8	2				IIIG
			WEIS				1217.5	1217.8	2				IIIB
	1251	2245	HARV				1255	1600	1				IN
			HARV				1331	1333	2				IIIG
			WEIS				1331.4	*1332.0	2				IIIG
			HARV				1355	1838	2				IIIN
			HARV				1600	1748	3				I
			HARV				1748	2245	1				IN
			PALE				1828.9	1835.6	1				CONT
			HARV				1829		3				IIIB
			CULG				2035	2120	1				IS,C
	2035	2400	CULG	2035	2400								IS,W
			CULG				2035	2400	1				IIIS

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
17	2036	2400	CULG	2039	2400								IS,W
			CULG				2042	2400					IS,W,C
			HARV				2120		2				IIIB
			CULG				2200.5	2201.5	1				IIIG
			CULG				2205.5	2206.5	1				IIIG
			CULG				2240	2400					IS,W,C
			CULG				2240	2400					IIIS,W
			CULG				2240	2357	1				IIIN
			HARV				2245	2246	3				IIIG,U
			CULG				2328.5	2330.5	3	2329	2329.5	1	IIIG
18			PALE				0219.4	0256.4	1				S
			LEAR				0219.5	0219.9	1				CONT
			LEAR				0245.3	0245.5	1				III
			LEAR				0358.2	0358.4	1				III
			LEAR				0453.1	0453.3	1				CONT
	0457	1757	WEIS	0458.9	0500.4	1							DCIM,RS
			WEIS				0517	1729	2				IS
			WEIS				0613	1747	2				IIIS
			WEIS				0614.2	0614.5	2				DCIM
			LEAR				0630.7	0633.9	1				CONT
			WEIS				0640.6	0646.5	2				DCIM
			LEAR				0710.1	0852.8	1				B
			WEIS				1115.7	1119.4	3				IIIG,DCIM
	1250	2300	HARV				1250	1530	1				IN
			HARV				1401		2				IIIG
			HARV				1405	2254	2				IIIN
			HARV	1433	1434	3	1433	1435	2				IIIGG
			HARV				1438	1444	2				IIIGG,U
			WEIS				1438.3	1444.7	3				IIIGG
			HARV				1456	1502	2				IIIGG
			HARV				1530	1620	3				I
			HARV	1614	1615	3							IIIG
			HARV				1620	2112	2				I
			HARV				1658		2				IIIG
			HARV	1703		2	1702	1704	3				IIIG,U
			HARV				1727	1731	2				IIIG
			HARV				1746	1747	3				IIIG
			HARV				1754	1755	2				IIIG
			HARV	1758	2105	2							IIIN
			HARV	1829	1831	3	1831		2				IIIG
			PALE				1858.4	1906.8	3				CONT
			HARV				1859	1902	3	1859	1902	2	IIIGG,V
			HARV	1905	1907	1	1905	1907	2				IIIGG
			HARV	1914	1915	2	1912	1921	2				IIIGG
			HARV				1926	1934	2				IIIGG
			PALE				1954.2	1954.6	1				III
			HARV	2012	2015	2							IIIG
			HARV				2112	2300	3				IC
			HARV				2119	2121	3	2119	2121	3	IIIG,V
			PALE				2119.4	2121.3	3				CONT
			PALE				2305.2	0440.0	1				B
			LEAR				2318.0	0953.0	1				B
19			LEAR				0211.2	0212.2	2				CONT
			LEAR				0314.6	0330.8	2				S
			PALE				0317.1	0318.0	2				III
			LEAR				0322.5	0324.7	3				CONT
			PALE				0322.8	0324.2	3				CONT
			PALE				0326.6	0327.5	2				III
	0458	0800	WEIS				0500	1734	2				IIIN
	0806	1755	WEIS				0511	1734	2				IN
			LEAR				0704.5	0705.1	1				CONT
			WEIS				0704.6	0705.2	2				IIIG
			LEAR				0815.1	0817.4	2				V
			WEIS				0816.0	0826.1	3				IIIGG
			WEIS				0901.6	0903.3	3				IIIGG
			WEIS				0914.7	0915.7	2				IIIG
			WEIS				1004.5	1005.6	3				IIIG
			WEIS				1125.2	1127.7	3				IIIGG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
19			SGMR				1125.4	1126.4	1				V
			WEIS	1251	1445	3							IV DM,P
	1251	2325	HARV				1251	1706	3				IC
			WEIS				1251.4	1253.4	2				DCIM
			WEIS				1255	1546	3				IV M,P
			WEIS				1257.3	1315.3	3				IIIGG
			SGMR				1300.4	1300.6	2				V
			SGMR				1300.6	1900.0	1				B
			HARV	1448	1450	3	1251	1700	3				IIIS
			HARV	1456	2254	1							IN
			HARV				1547	1554	3				IIIGG,V
			WEIS				1547.2	1601.3	3				IIIGG
			HARV				1557	1601	3				IIIG
			HARV				1626	1627	3				IIIG
			WEIS				1626.6	1626.8	3				IIIG
			HARV				1700	2000	2				IIIN
			HARV				1706	1940	2				I
			HARV				1940	2120	3				I
			HARV				2000	2128	2				IIIS
			HARV				2120	2325	1				IN
			HARV				2128	2325	2				IIIN
			HARV	2201		1	2200	2201	2				IIIG
			HARV				2206		3				IIIG
			PALE				2305.2	0440.0	1				B
			LEAR				2327.9	2331.2	1				CONT
20			WEIS				0 52.8	0 3	2				IIIB
			CULG				0000	0100					IS,W,C,DC
	0000	0735	CULG	0000	0735								IS,W
			CULG				0000	0222					IIIN,W
			CULG				0015.5	0016	1				IIIG
			CULG				0100	0310					IS,W
			CULG	0214.5	0215	1	0214.5	0215	1	0214.5	0215	1	IIIG
			LEAR				0214.5	0953.0	1				B
			CULG				0222	0305					IIIS,W
			CULG				0227	0305	1				IIIN
			PALE				0300.0	0439.0	1				B
			CULG				0305	0402	1				IIIS
			CULG				0310	0735	1				IS,C,DC
			CULG				0340	0354	2				IIIN
			CULG				0402	0612					IIIN,W
			CULG				0409	0418.5	3	0415	0417.5	3	IIIGG,V
			LEAR				0414.6	0418.2	2				CONT
			PALE				0415.3	0417.3	2				V
	0458	1106	WEIS				0501	1736	3				IIIS
	1111	1753	WEIS				0516	1726	3				IS
			CULG	0554	0735	1							CONT
			CULG				0557.5	0600	3				IIIGG
			WEIS				0557.7	0559.9	3				IIIGG
			CULG				0612	0735	1				IIIS
			WEIS				0950.6	0950.8	2				IIIG
			WEIS				1012.0	1012.4	2				IIIG
			SGMR				1228.2	1228.4	1				III
			WEIS				1228.3	1228.5	3				IIIG
			WEIS				1256.5	1256.9	2				IIIG
	1251	2245	HARV				1257	1926	2				IIIN
			HARV	1300	2224	1	1300	1440	1				IN
			WEIS				1354.7	1356.8	3				IIIG
			HARV				1356		3				IIIG
			HARV				1401		2				IIIG
			WEIS				1419.7	1421.2	3				IIIG
			WEIS				1439.7	1440.9	3				IIIG
			HARV				1440	2245	3				IC.
			WEIS				1504.7	1505.5	2				IIIG
			HARV				1536		3				IIIB
			WEIS				1536.3	1536.7	3				IIIB
			HARV				1546	1547	3				IIIG
			WEIS				1546.4	1547.1	3				DCIM
			HARV				1611	1613	2				IIIG
			WEIS				1611.2	1613.3	3				IIIG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
20			HARV				1636		2				IIIB
			WEIS				1636.5	1636.8	2				IIIB,U
			HARV				1706	1710	2				IIIG
			HARV				1736		3				IIIB
			HARV				1906	1908	3	1906	1908		IIIG
			PALE				1908.2	1930.0	1				B
			HARV				1921	1925	2				IIIG
			HARV				1926	2245	3				IIIS
			PALE				1930.0	2330.0	2				B
			HARV				1941	1943	3	1941	1943	2	IIIG
	2035	2400	CULG	2035	2210								IS,W
			CULG				2035	2400	1				IS,C
			CULG				2035	2400					IIIS,W
			HARV				2206	2211	2				DC
			CULG	2210	2400								IN,W
			CULG				2228.5	2229	2				IIIB
			HARV				2229		2				IIIG
			HARV				2237		2				IIIG
			LEAR				2300.0	0953.0	1				B
			PALE				2330.0	0426.0	1				B
			CULG				2338	2354	1	2338	2354	1	IIIB,N
21	0000	0700	CULG				0000	0415	1				IS,C
			CULG				0000	0419					IIIS,W
			CULG				0047		1	0047		1	IIIB
			CULG	0105	0225	1							IIIN
			CULG	0110	0700								IS,W
			CULG				0240	0419	1				IIIN
			CULG				0411	0412	2	0411	0441.5	2	IIIG
			CULG				0415	0515					IS,W
			CULG				0419	0645					IIIN,W
			LEAR				0429.1	0530.5	2				CONT
			CULG	0434	0435	2							IIIG
			CULG				0529	0530	3				IIIG
	0458	1752	WEIS				0529.2	0533.2	3				IIIGG
			CULG				0531	0532	2				IIIG
			WEIS				0613	1618	2				IIIN
			LEAR				0644.7	0652.5	2				CONT
			CULG				0645	0700					IIIS,W
			CULG				0646.5	0650	2				IIIG,Z
			WEIS				0646.8	0650.8	3				IIIGG
			LEAR				0719.2	0723.4	2				CONT
			WEIS				0721.1	0723.3	3				IIIG
			WEIS	0828	0831	3	0828	0831	3				IV DM,P
			WEIS				0829.2	0833.4	3				IIIGG
			LEAR				0829.9	0901.2	2				IV
			WEIS				0831.8		3				II
			WEIS				0832	1043	3				IV M,P
			SGMR				1141.7	1142.1	1				III
			WEIS				1141.7	1143.7	3				IIIG
			WEIS				1152.0	1155.6	3				IIIGG
			WEIS				1212.3	1212.7	3				IIIG
			SGMR				1213.2	1213.4	1				III
			WEIS				1218.4	1219.3	3				IIIG
	1304	2245	HARV				1307	2245	1				IN
			SGMR				1339.1	1441.4	1				CONT
			SGMR				1348.1	1448.7	1				CONT
			HARV				1421	2237	2				IIIN
			WEIS				1438.3	1442.1	3				IIIGG
			HARV				1439	1442	2				IIIGG
			HARV	1445		1	1445		2				IIIG,U
			WEIS				1447.8	1453.7	3				IIIGG
			HARV				1448	1451	2				IIIG
			HARV	1500	2100	1							IIIN
			HARV	1507	2238	1							IN
			HARV				1516		2				IIIG
			WEIS				1516.2	1516.4	2				IIIG
			SGMR				1527.5	1528.2	1				CONT
			HARV				1627	1630	3				IIIGG
			WEIS				1627.7	1630.9	3				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
21			WEIS				1651.6	1652.3	3				IIIG
			WEIS				1653.8	1654.3	2				DCIM
			HARV	1655	1658	3	1651	1658	3				IIIGG
			WEIS				1657.2	1657.6	2				DCIM
			HARV	1707		2							IIIG
			SGMR				1709.2	1709.5	1				III
			HARV				1744		2				IIIG
			HARV				1855		1				IIIG
			HARV				1921	1923	2				IIIG
			PALE				1922.0	1936.9	1				CONT
			HARV				1936		2				IIIG
			PALE				2010.6	2010.9	1				III
			HARV				2011		2				IIIG
			CULG				2036	2134					IIIN,W
	2036	2400	CULG	2036	2400		2036	2400					IS,W
			CULG				2058	2400					DC,N
			CULG				2134	2400					IIIS,W
			HARV				2200		2				IIIG,U
			PALE				2350.0	0415.0	2				B
			LEAR				2350.8	0954.0	1				B
22			CULG				0000	0340	1				IIIS
	0000	0735	CULG	0000	0735								IS,W
			CULG				0000	0332	1				IS,DC
			CULG				0007	0519	2				IIIN
			CULG	0111.5	0118	2	0110.5	0119	3	0110.5	0119	3	IIIGG
			CULG							0113	0120		SWF,W
			CULG				0242.5	0244	2	0242	0243.5	1	IIIG
			LEAR				0243.1	0244.4	2				CONT
			CULG	0252.5		1	0252.5		1				IIIB,U
			CULG				0332	0400					IS,W
			CULG				0340	0735					IIIN,W
	0540	1750	WEIS				0509.8	0510.4	3				IIIG
			WEIS				0517.8	0518.1	2				DCIM
			WEIS				0608.2	0608.3	1				IIIB
			WEIS				0610.6	0612.1	3				IIIGG
			LEAR				0610.8	0612.1	3				CONT
			CULG	0611	0611.5	1	0611	0612	3				IIIG,V
			CULG				0657	0659.5	3	0657.5	0658	1	IIIG,V
			WEIS				0657.3	0659.7	3				IIIG/V
			LEAR				0657.3	0659.5	3				CONT
	0502	0518	WEIS				0714	1744	2				IIIN
			WEIS				1212.9	1213.2	3				IIIG
			WEIS				1252.2	1253.3	3				IIIG
			WEIS				1257.2	1259.6	2				IIIG
	1305	2300	HARV				1306	2300	2				IIIN
			HARV				1317	2300	1				IN
			HARV	1318	2146	2							IN
			HARV				1442	1444	2				IIIG
			WEIS				1454.7	1457.6	2				IIIG
			HARV				1455	1456	2				IIIG
			HARV				1503	1506	3				IIIG,U
			WEIS				1503.4	1512.1	2				IIIGG,U
			HARV				1509	1512	3				IIIG,U
			HARV				1643		2				IIIG
			HARV				1718	1720	3				IIIGG,V,U
			WEIS				1718.7	1720.7	3				IIIGG
			PALE				1718.8	1728.4	2				CONT
			SGMR				1718.9	1720.1	2				CONT
			HARV				1728		3				IIIB
			SGMR				1728.4	1728.6	1				III
			WEIS				1728.4	1728.7	2				IIIB
			PALE				1736.0	1743.2	1				CONT
			HARV	1737		1	1736	1743	2				IIIG
			HARV				1800	1803	2				IIIG
			HARV				1832	1833	2				IIIG,U
			HARV				1925	1926	3				IIIG,U
			CULG				2035	2400					IIIS,W
	2035	2400	CULG	2035	2400		2035	2123					IS,W
			CULG				2123	2400	1				IS,C

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
22			HARV				2128	2129	2				IIIG
			CULG				2128.5		1				IIIB
			HARV	2146	2210	2							I
			HARV	2210	2300	1							IN
			HARV				2230		2				IIIG,U
			HARV				2233	2234	2				IIIG,U
23	0000	0735	CULG				0000	0125					IS,W,C
			CULG				0125	0225					IS,W
			CULG	0210	0400								IS,W
			CULG				0225	0632					IN,W
			CULG				0243.5	0246.5					IIIN,W
			CULG	0245.5	0246	1	0245.5	0246	1				IIIG
			CULG				0406	0608					IIIN,W
			CULG				0608	0635					IIIS,W
	0503	1303	WEIS				0608	1715	2				IIIN
			LEAR				0631.8	0954.0	1				B
			CULG				0632	0735	1				IS,C
	1311	1748	WEIS				0633	0740	3				IS
			CULG				0635	0735	1				IIIS
			CULG				0655.5		2				IIIB
			WEIS				1038.2	1040.4	1				DCIM
	1304	2315	HARV				1308	2315	1				IN
			HARV	1315	2315	1							IN
			HARV				1326	1936	2				IIIN
			HARV	1408		2							IIIG
			HARV	1541		2	1541		1				IIIG
			HARV				1712	1715	2				IIIG
			HARV				1751	1830	2				IIIS
			PALE				1823.5	2215.1	1				B
			HARV	1838		2							IIIG
			HARV				1840	1842	2				IIIG
			HARV				1852	1900	2				IIIGG
	2035	2400	CULG				2035	2400					IS,W,DC
			CULG				2040	2400					IIIN,W
			HARV	2147	2150	3	2147	2150	2				IIIGG
			HARV	2153		1	2153		2				IIIG
			CULG				2200.5	2217	1				POSS II
			HARV				2210	2213	2				IIIG
24	0000	0738	CULG				0000	0635					IS,W
			CULG				0005	0738					IIIN,W
			CULG				0005.5		2				IIIB
			LEAR				0005.8	0006.2	1				CONT
			CULG				0021	0021.5	1				IIIG
			LEAR				0021.2	0021.8	1				CONT
			PALE				0051.3	0052.0	2				V
			LEAR				0137.2	0137.6	1				CONT
			PALE				0137.3	0157.8	1				S
			CULG				0137.5		1				IIIB
			CULG				0156.5	0157	2				IIIG,U
			LEAR				0156.7	0158.1	1				V
			LEAR				0240.5	0241.1	1				CONT
			LEAR				0245.3	0247.1	1				V
			CULG				0245.5	0246.5	2				IIIG
			PALE				0315.5	0316.8	2				V
			LEAR				0335.9	0338.2	1				CONT
			CULG				0337	0738	1				IIIN
	0504	1746	WEIS				0549.9	0556.7	3				IIIGG/V
			LEAR				0552.2	0557.5	2				CONT
			CULG				0554	0556.5	3				IIIG,V
			WEIS				0621.2	0621.6	2				IIIG
			CULG				0635	0738	1				IS,DC
			WEIS				0639.3	0639.8	2				IIIG
			LEAR				0639.5	0639.9	1				CONT
			WEIS				0645.7	0646.3	1				RS
			CULG	0713	0738	1							IIIN
			WEIS				0713.7	0713.8	1				DCIM
			WEIS				0716.7	0717.2	1				DCIM
			WEIS				0728.3	0728.8	2				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
24			WEIS				0733.7	0734.7	2				IIIGG
			WEIS				0801.7	0802.3	1				IIIG
			WEIS				0848.4	0848.7	2				U
			WEIS				0919.2	0919.3	2				IIIB
			WEIS				0933.5	0934.6	2				IIIG
			WEIS				0937.7	0944.3	3				IIIGG
			WEIS				0950.1	0950.3	1				IIIB
			WEIS				0952.2	0952.7	2				IIIG
			WEIS				1013.7	1013.9	2				IIIG
			WEIS				1016.3	1016.7	2				IIIG
			WEIS				1159.4	1159.6	1				IIIB
			WEIS				1211.7	1211.9	2				IIIB
			WEIS				1253.3	1253.7	1				IIIG
			WEIS				1256.8	1256.9	2				RS
			WEIS				1259.6	1302.6	2				IIIGG
	1305	2305	HARV				1307	1308	3				IIIG
			WEIS				1307.7	1308.2	3				IIIG
			HARV	1308	1820	1							IN
			HARV				1313	2237	2				IIIN
			HARV				1316	1752	1				I
			WEIS				1319.6	1320.0	2				IIIG
			HARV				1320		2				IIIG
			WEIS				1323.7	1323.8	2				IIIB
			HARV				1351	1352	2				IIIG
			WEIS				1351.7	1351.9	2				IIIG
			WEIS				1402.2	1402.3	2				IIIB
			WEIS				1409.8	1409.9	2				IIIB
			HARV				1410		2				IIIG
			HARV				1432	1433	2				IIIG
			WEIS				1432.0	1433.2	1				IIIG
			WEIS				1451.2	1451.3	1				IIIB
			HARV				1551		3				IIIG
			WEIS				1551.0	1551.4	2				IIIG
			WEIS				1637.7	1638.6	1				IIIG
			HARV				1752	1917	2				I
			HARV				1758	1759	2				IIIG
			SGMR				1824.6	1827.0	1			II	
			HARV	1842	1848	3	1842	1850	3				IIIGG,V,U
			SGMR				1847.8	1848.1	1				CONT
			PALE				1847.8	1849.1	2				V
			HARV	1851		3							IIIG
			HARV				1917	2257	1				IN
			HARV	2023	2042	1							IIIN
			HARV				2114		2				IIIG
	2035	2400	CULG				2208	2400					IN,W
			CULG				2232	2306					IIIN,W
			CULG	2254	2254.5	1	2254	2254.5	1				IIIG
			HARV	2255			2255		2				IIIG
			CULG	2313	2313.5	1	2313	2314	1				IIIG
			CULG				2321.5		1				IIIB
25	0000	0734	CULG				0045	0734					IIIN,W
			CULG	0131	0131.5	1							IIIG
			CULG	0155	0155.5		0155	0155.5					IIIG,W
			CULG	0202.5	0203	1	0202.5	0203.5	2				IIIG,V
			CULG				0255.5	0257	1				IIIG,V
			CULG	0319.5	0320	1	0319.5	0320	1				IIIG
			CULG	0513.5	0514	1							IIIG
			CULG				0721.5	0722					UNCLF
			CULG				0722.5	0724	1				DC
			CULG	0722.5	0724.5	2	0722.5	0724	1				IIIGG
	0503	0747	WEIS				0722.8	0724.4	2				DCIM
	0752	1745	WEIS				0733	0703	2				IIIN
			WEIS				1030.4	1032.9	2				IIIGG
			WEIS				1231.6	1232.2	1				DCIM
	1305	2255	HARV				1315	1947	1				IIIN
			HARV				1318	1323	2				IIIG
			WEIS				1318.4	1323.6	3				IIIG
			WEIS				1331.7	1332.6	3				IIIG
			HARV				1332	1333	2				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
25			WEIS				1457.8	1458.1	2				U
			WEIS				1526.7	1527.1	2				IIIG
			HARV	1702		1	1702	1703	2				IIIG
			WEIS				1702.4	1702.8	2				IIIG
			HARV				1747		2				IIIG
			HARV				1808	1809	2				IIIG
			PALE				1812.8	1813.6	2				V
			HARV				1813		3				IIIG
			SGMR				1813.2	1813.6	1				V
			PALE				1942.9	1943.1	2				V
			HARV	1943		3	1943		2				IIIG
			HARV				1945	1946	3				II
	2035	2400	CULG	2319.5	2320.5	1							DCIM
26	0000	0240	CULG	0000.5	0001	1	0000.5	0001	1				IIIG
			LEAR				0503.2	0503.5	1				CONT
	0506	1523	WEIS				0642.2	0643.6	2				IIIG
			LEAR				0642.3	0643.4	1				CONT
	1530	1743	WEIS				0647.9	0648.7	2				IIIG
			LEAR				0647.9	0648.4	1				CONT
			WEIS				0706.6	0707.3	2				IIIG
			LEAR				0706.7	0707.2	1				CONT
			WEIS				0732.3	0732.7	2				IIIG
			WEIS				1305.5	0306.3	2				IIIG
	1305	2300	HARV				1424	1427	2				IIIG
			WEIS				1424.2	1427.4	2				IIIG
			WEIS				1434.4	1434.6	1				IIIG
			HARV				1435	2127	1				IIIN
			WEIS				1437.5	1438.7	2				IIIG
			WEIS				1523.1	1523.3	2				IIIG
			HARV	1524	1529	1	1523	1530	3				IIIGG
			WEIS				1529.1	1529.3	2				IIIB
			HARV	1803	1804	2	1803	1804	2				IIIG
	2035	2400	CULG				2045	2400					IIIN,W
			HARV				2054	2231	1				IN
			HARV	2215	2218	2							IIIG
27	0000	0734	CULG				0040.5		1				IIIB
			CULG				0050.5						IIIR,L
			LEAR				0123.7	0127.8	2				CONT
			PALE				0123.9	0126.5	2				CONT
			PALE				0123.9	0126.5	2				III
			CULG				0124	0124.5					IIIG,W
			CULG	0127.5		1	0125.5	0127.5	2	0126	0126.5	2	IIIG
			CULG							0419	0452	2	SWF
			CULG				0424.5	0425					UNCLF,W
			CULG				0438	0711					IIIN,W
			LEAR				0457.2	0501.9	1				V
			CULG	0459.5	0501	1	0457	0502	2	0500	0501	1	IIIGG
			CULG				0506.5	0507.5	1				IIIG
			LEAR				0506.5	0507.3	1				CONT
	0507	1740	WEIS				0534	1623	2				IIIN
			LEAR				0534.3	0534.7	1				CONT
			CULG				0534.5		1				IIIB,Z
			CULG							0555	0601		SWF,W
			CULG				0645	0645.5	1				IIIG
			WEIS				0645.2	0645.6	2				IIIG
			LEAR				0645.3	0645.6	1				CONT
			LEAR				0647.9	0648.4	2				CONT
			WEIS				0657.6	0658.7	3				IIIG
			CULG				0658	0658.5	1				IIIG
			LEAR				0658.0	0658.6	1				CONT
			WEIS				0738.2	0739.8	3				IIIG
			LEAR				0738.2	0738.9	2				CONT
			LEAR				0739.4	0746.7	1				CONT
			WEIS				0741.3	0741.7	3				IIIB
			WEIS				0743.2	0753.5	3				IIIB
			WEIS				0745.9	0746.8	2				IIIG
			LEAR				0806.8	0807.5	1				CONT
			WEIS				0806.9	0807.8	3				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
27			LEAR				0825.7	0826.5	1				CONT
			WEIS				0825.7	0826.8	3				IIIG
			WEIS				1003.6	1003.9	3				IIIB
			WEIS				1034.2	1035.1	3				IIIG
			WEIS				1101.0	1101.3	2				IIIB
			WEIS				1122.8	1123.4	3				IIIG
			WEIS				1212.4	1214.8	3				IIIG
	1305	2305	HARV	1307		3	1307		2				IIIG
			HARV	1312	1317	2							IIIG
			WEIS				1312.0	1313.1	3				IIIG
			HARV	1314	2250	1							INW
			HARV	1412	2152	1							IIIN
			WEIS				1415.7	1416.0	3				IIIG
			HARV				1435	1436	3				IIIG
			WEIS				1435.2	1436.1	3				IIIG
			HARV				1445	2208	1				IN
			HARV				1449	2305	2				IIIN
			HARV				1507	1509	2				IIIG
			WEIS				1507.0	1509.5	3				IIIG
			HARV				1529	1531	2				IIIG
			HARV				1535	1537	2				IIIG
			WEIS				1536.8	1537.1	3				IIIG
			WEIS				1543.4	1543.8	3				IIIB
			HARV				1605	1606	2				IIIG
			WEIS				1605.2	1605.9	3				IIIG
			HARV				1616		2				IIIG
			HARV	1623		1	1622	1623	2				IIIGG
			WEIS				1649.8	1652.3	3				IIIG
			HARV	1650		2	1650	1652	2				IIIG
			WEIS				1659.3	1701.2	3				DCIM
			HARV	1700	1702	2	1659	1701	3				IIIGG
			HARV				1704	1706	3				IIIG,V
			WEIS				1705.6	1706.3	3				IIIG
			PALE				1828.3	1919.5	1				S
			HARV				1836	1840	2				IIIGG
			HARV	2005		2	2004	2005	2				IIIGG
			HARV				2018	2019	2				IIIG
	2034	2400	CULG				2044	2331					IIIS,W
			HARV				2046	2050	2				IIIGG
			CULG	2047	2047.5	1	2046	2047.5	1				IIIG
			CULG				2048	2305	1				IIIN
			HARV	2154		2	2154		2				IIIG
			CULG	2159	2159.5								IIIG,W
			CULG				2206.5	2208.5	2				IIIG
			HARV				2207		2				IIIG
			HARV				2213	2216	3				IIIG,V
			CULG				2213.5	2216	2				IIIG,V
			PALE				2236.3	2304.5	2				S
			CULG				2251.5	2255	1				IIIGG
28	0000	0733	CULG				0014	0733					IIIN,W
			CULG				0040	0711	1				IIIN
			LEAR				0040.6	0043.3	1				CONT
			LEAR				0102.4	0104.1	1				CONT
			CULG	0103	0103.5	1	0103	0104	2				IIIG
			LEAR				0108.2	0108.5	1				CONT
			CULG				0136.5	0139.5	2	0138.5	0139	1	IIIGG
			LEAR				0137.1	0140.1	2				V
			LEAR				0146.2	0147.7	1				CONT
			LEAR				0231.7	0232.1	1				CONT
			LEAR				0340.7	0346.4	1				CONT
			CULG	0342	0348								DCIM,W
			CULG				0343	0345	1				IIIG
			CULG							0346	0357	1	SWF
			CULG	0346.5	0347.5	1	0347	0359	1			II	
			CULG				0347	0347.5					UNCLF
			CULG	0543.5	0548.5	1							IIIN
	0509	1024	WEIS				0545.1	0545.3	2				DCIM
	1028	1325	WEIS				0547.6	0548.4	2				IIIG
			LEAR				0710.4	0711.2	1				CONT

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
28	1403	1739	WEIS				0710.7	0711.3	2				IIIG
			WEIS				0833.1	0835.3	2				IIIG
			WEIS				0838.6	0838.8	1				IIIB
			WEIS				0905.9	0906.7	2				IIIB,RS
			WEIS				0929.9	0931.5	3				IIIG
			LEAR				0930.1	0931.1	1				CONT
			WEIS				1015.7	1015.8	1				IIIB
			WEIS				1017.6	1017.8	2				IIIG
			WEIS				1020.6	1020.7	1				IIIG
			WEIS				1119.1	1119.4	1				IIIG
			WEIS				1128.2	1132.1	2				IIIG
			WEIS				1205.9	1206.4	3				IIIB
			WEIS				1214.4	1314.7	2				RS
			SGMR				1231.4	1232.1	1				V
			WEIS				1231.5	1233.9	3				IIIGG
			WEIS				1240.0	1240.3	1				IIIB
			WEIS				1257.2	1257.3	1				IIIB
			WEIS				1303.7	1304.7	3				IIIG
	1304	2315	HARV	1304	2222	1	1304	2306	2				IIIN
			WEIS				1314.4	1318.1	3				IIIGG
			HARV	1316	1318	2	1315	1318	3				IIIGG
			SGMR				1317.0	1317.2	1				III
			HARV				1337		2				IIIG
			HARV	1337	2232	1	1342	2300	1				IN
			SGMR				1408.5	1410.6	1				CONT
			WEIS				1408.7	1416.6	3				IIIGG/V
			HARV	1409	1413	1	1408	1414	3				IIIGG
			HARV	1419	1421	3							UNCLF
			HARV	1421	1428	2	1421	1428	2			IV	
			WEIS				1421.0	1429.0	3			IV	DM
			WEIS				1433.4	1435.6	3				IIIGG
			HARV	1436	1437	1	1433	1437	2				IIIG
			WEIS				1438.8	1440.1	2				IIIG
			HARV	1442		1	1442	1443	3				IIIG
			WEIS				1442.4	1442.9	3				IIIG
			WEIS				1444.3	1444.4	1				IIIB
			WEIS				1446.2	1446.4	2				IIIG
			WEIS				1451.5	1451.7	1				IIIB
			WEIS				1503.6	1515.3	3				IIIGG/V
			SGMR				1505.7	1509.6	2				CONT
			HARV	1506	1514	2	1504	1515	3				IIIGG,V
			HARV				1510	1514	3				UNCLF
			SGMR				1511.9	1516.1	1				CONT
			HARV	1520	1523	2	1520	1526	3				IIIGG
			WEIS				1520.0	1525.3	3				IIIGG
			SGMR				1523.0	1523.3	1				III
			WEIS				1542.1	1542.3	1				IIIB
			WEIS				1551.4	1551.7	2				IIIG
			WEIS				1601.8	1602.1	2				IIIG
			HARV				1602		2				IIIG
			HARV				1632		2				IIIB
			WEIS				1632.2	1632.3	3				IIIB
			WEIS				1636.5	1636.7	1				IIIB
			WEIS				1702.8	1703.4	2				IIIG
			HARV				1703		3				IIIG
			WEIS				1715.2	1715.3	1				IIIB
			WEIS				1716.9	1717.0	1				IIIB
			HARV	1718	1725	3	1715	1726	3	1724	1726	2	IIIGG
			WEIS				1718.4	1720.3	2				IIIG
			PALE				1718.8	1731.0	1				S
			WEIS				1722.7	1726.3	3				IIIGG
			SGMR				1724.3	1725.1	1				III
			SGMR				1724.3	1725.1	1				CONT
			HARV	1730	1731	3	1730	1731	3				IIIG,U
			WEIS				1730.6	1731.0	2				IIIG
			HARV	1833	1835	3	1833	1835	3				IIIG
			PALE				1833.1	1834.9	3				CONT
			PALE				1839.4	1900.3	2				S
			HARV				1849	1853	3				IIIGG
			HARV				1856	1900	3				IIIGG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
28			HARV				1939		2				IIIG
			PALE				1939.2	1939.4	2				III
			HARV	1950	1951	3	1950	1951	3				IIIG
			HARV	1959	2001	2	1958	2003	3				IIIGG
			PALE				1959.0	2004.0	2				CONT
			HARV	2010	2014	2	2010	2014	2				IIIG
			HARV	2018	2020	2	2018	2023	3				IIIGG
			HARV	2029	2032	2	2028	2035	3				IIIGG,V
	2033	2400	CULG				2033	2400					IN,W
			CULG				2033	2036	1				IIIG
			CULG	2106	2106.5	2							IIIG
			HARV	2106	2107	3	2106	2107	3				IIIG
			CULG				2114	2347	1				IIIN
			PALE				2114.9	2117.1	2				CONT
			CULG	2115	2116	1							IIIG
			HARV	2115	2117	3	2115	2117	3				IIIG
			CULG				2156	2400					IIIN,W
			HARV				2209	2210	2				IIIG
			HARV	2232	2238	1	2232	2238	2				IIIG
29	0000	0735	CULG	0055.5		1	0055.5	0056	1				IIIG
			LEAR				0055.7	0056.1	1				CONT
			CULG	0125	0125.5	1							DCIM
			CULG				0132	0132.5	1				IIIG
			CULG				0135.5		1				IIIB
			LEAR				0135.7	0135.9	1				CONT
			PALE				0135.8	0142.9	2				CONT
			CULG	0140.5	0141.5	1	0140.5	0142	2	0141	0141.5	1	IIIG
			CULG				0142.5	0143					IIIG,W
			CULG				0337.5	0338					IIIG,W
			LEAR				0452.5	0457.7	2				CONT
			CULG	0453.5	0455	1	0452.5	0456	2	0454	0455	1	IIIGG,V
			CULG				0456	0502	1				IIIS
			LEAR				0500.0	0500.8	1				CONT
			CULG				0710	0730					IIIN,W
	0510	1736	WEIS				0919.3	0919.6	1				RS
			WEIS				0959.2	0959.7	1				IIIG
			WEIS				1020.4	1020.5	1				IIIB
			WEIS				1038.3	1038.4	1				IIIB
			WEIS				1123.6	1123.9	1				IIIB
			WEIS				1302.7	1306.8	3				IIIGG/V
			SGMR				1303.3	1307.1	2				CONT
	1304	2300	HARV				1304	1305	2				IIIG
			HARV	1305	2203	1							IN
			HARV				1308	2305	1				IN
			HARV				1326		2				IIIG
			HARV				1443	2245	2				IIIN
			HARV	1449	1450	2	1449	1450	2				IIIG
			WEIS				1449.5	1450.4	2				IIIG
			WEIS				1459.2	1459.4	1				IIIB
			WEIS				1521.9	1523.2	2				IIIG
			WEIS				1525.1	1525.6	2				IIIG
			WEIS				1548.7	1548.8	1				IIIB
			WEIS				1641.7	1641.8	1				IIIB
			HARV				1816		2				IIIG
			HARV	1907		2	1907		2				IIIG
			HARV				1922	1923	2				IIIG
			HARV				2001	2017	3				II
			HARV	2008	2010	1	2008	2010	3				IIIG
			HARV				2017	2100	2				IC
			HARV	2021	2028	2							IV
			HARV				2030	2031	2				IIIG
	2033	2400	CULG				2033	2150					IS,W,C
			CULG				2035	2324					IIIN,W
			CULG				2037	2037.5	1				IIIG
			HARV				2037		2				IIIG
			HARV	2143		2	2143		2				IIIG
			CULG	2143	2311	1							IIIN
			CULG				2149	2256	1				IIIN
			CULG				2150	2400					IS,W

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
29			HARV	2152		1	2148	2152	2				IIIG
			HARV				2255		2				IIIG
			CULG				2354.5	2355.5	1				IIIG,Z
			LEAR				2354.9	2355.4	1				CONT
			LEAR				2356.9	2358.1	2				CONT
			CULG	2357	2357.5	1	2356.5	2358.5	2	2357	2358	2	IIIG,V
30	0000	0733	CULG				0000	0733					IS,W,DC
			CULG				0004	0005	2				IIIG
			LEAR				0004.1	0004.7	2				CONT
			CULG				0029	0725					IIIN,W
			CULG				0045	0045.5	2				IIIG
			LEAR				0045.3	0048.4	1				V
			CULG				0110	0343	1				IIIN
			LEAR				0143.5	0151.5	1				CONT
			LEAR				0158.2	0159.6	1				CONT
			LEAR				0306.5	0306.9	1				CONT
	0512	0537	WEIS				0604.0	0604.2	2				DCIM
	0544	1735	WEIS				0605.9	0606.1	1				IIIB
			WEIS				0703.9	0704.2	2				IIIB
			WEIS				0757.2	0757.9	1				IIIG
			WEIS				0814.8	0815.0	1				IIIB
			WEIS				0817.3	0817.6	2				IIIG
			WEIS				0836.3	0836.5	3				IIIB
			WEIS				0923.7	0923.8	1				IIIB
			WEIS				0940.2	0940.6	3				IIIB
			WEIS				0943.7	0944.9	3				IIIG
			WEIS				0948.6	0948.7	1				IIIB
			WEIS				1030.4	1030.7	3				IIIG
			WEIS				1057.3	1059.9	3				IIIG
			WEIS				1103.0	1103.3	2				IIIB
			WEIS				1109.0	1110.2	2				IIIG
			WEIS				1115.1	1116.6	3				IIIG
			WEIS				1126.2	1126.7	2				IIIB
			WEIS				1139.3	1143.7	2				IIIGG
			WEIS				1151.2	1153.3	3				IIIG,U
			WEIS				1156.0	1156.2	3				IIIB
			WEIS				1254.7	1255.7	2				IIIG,RS
			WEIS				1300.6	1302.9	2				IIIG
	1304	2330	HARV	1304	2325	1							IN
			HARV				1307	2330	1				IN
			WEIS				1307.7	1307.8	1				IIIB
			HARV				1318	1319	2				IIIG
			WEIS				1318.1	1319.7	3				IIIG
			SGMR				1318.7	1318.8	1				III
			WEIS				1323.3	1333.2	3				IIIGG
			HARV				1324	1326	2				IIIG
			HARV				1332	2306	2				IIIN
			HARV	1338	2306	1							IIIN
			WEIS				1409.9	1411.0	3				IIIG
			HARV				1410		2				IIIG
			WEIS				1426.2	1429.7	2				IIIGG
			HARV	1427	1431	1	1426	1431	2				IIIGG
			WEIS				1441.7	1441.8	2				IIIB
			WEIS				1445.2	1446.0	1				IIIG
			HARV	1446	1449	2	1445	1449	2				IIIG
			WEIS				1447.8	1449.0	3				IIIG
			WEIS				1516.7	1516.9	1				IIIB
			WEIS				1520.9	1524.8	3				IIIGG
			HARV	1521	1524	3	1521	1524	2				IIIG
			SGMR				1521.2	1523.8	1				CONT
			WEIS				1545.4	1545.7	1				U
			WEIS				1552.4	1552.5	1				IIIB
			WEIS				1556.6	1556.7	1				IIIB
			HARV				1605	1606	2				IIIG
			WEIS				1605.3	1606.4	2				IIIG
			HARV	1641	1642	3	1641	1642	3				IIIG
			SGMR				1646.0	1655.2	1				CONT
			WEIS				1647.6	1650.9	3				IIIGG
			HARV				1648	1651	3				IIIGG

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

AUGUST 1981

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
30			HARV				1653	1656	3				IIIGG
			WEIS				1653.3	1656.2	3				IIIG
			WEIS				1708.9	1709.3	2				IIIB
			HARV				1824	1825	3				IIIG,U
			HARV				1835		2				IIIG
			HARV				1921	1922	3				IIIG,U
			HARV				1934		2				IIIG
			HARV				1949	1952	3				IIIG
			PALE				1959.8	2013.4	2				II
			HARV	2005	2006	3	2005		3				IIIG
			PALE				2013.5	2200.0	2				IV
			HARV				2014	2015	3				IIIG
	2033	2400	CULG				2033.5	2034	1				IIIG
			CULG				2044	2400					IIIN,W
			CULG				2050	2213	1				IIIB,U,N
			CULG				2055	2056	1				IIIG
			HARV				2055	2056	2				IIIG
			CULG				2109	2400					IN,W
			CULG	2125.5	2127	1	2125.5	2127.5	1				IIIG
			HARV	2127		2	2126	2127	3				IIIG,V
			CULG	2202.5	2203	1	2202.5	2203.5	1				IIIG
			HARV	2204	2207	2	2203	2208	3				IIIG
			CULG				2207	2208	1				IIIG
			LEAR				2354.9	2355.4	1				CONT
			LEAR				2356.9	2358.1	2				CONT
31	0000	0730	CULG				0000	0730					IN,W
			CULG	0007	0007.5	1	0007	0007.5	1				IIIG
			CULG	0008		1	0008	0008.5	1				IIIG
			CULG				0009	0549					IIIN,W
			CULG	0104	0106	1	0104	0106	1				IIIG
			LEAR				0104.0	0118.0	1				S
			CULG	0108	0113.5	1	0107	0109	1				IIIG
			CULG				0112	0114	1				IIIG
			CULG	0118	0119	1	0117.5	0119	1				IIIG
			CULG	0119	0556	1	0119	0639	1				IIIN
			LEAR				0201.4	0206.3	1				CONT
			LEAR				0353.1	0353.8	1				III
			LEAR				0456.5	0457.3	1				CONT
			CULG				0506.5						RSDP,W
	0512	1321	WEIS				0513.8	0514.6	2				IIIG
	1327	1733	WEIS				0525.6	0525.8	1				IIIB
			WEIS				0538.6	0539.4	1				IIIG
			LEAR				0543.3	0823.0	1				B
			WEIS				0543.4	0543.7	2				IIIG
			CULG	0549	0550	1							CONT
			WEIS				0550.1	0552.4	3				IIIGG
			CULG	0550.5	0532	1	0550.5	0552	2				IIIGG,V
			WEIS				0555.0	0556.1	3				IIIG
			WEIS				0629	1434	1				IN
			WEIS				0638.3	0639.1	2				IIIB
			WEIS				0953.9	1003.8	2				IIIGG,U
			WEIS				1043.8	1046.7	3				DCIM,U
			WEIS				1056.2	1056.3	1				IIIB
			WEIS				1106.3	1106.7	2				IIIB
			WEIS				1118.0	1119.3	3				IIIG
	1305	2300	HARV				1305	2300	1				IN
			HARV	1336	2059	1	1336	2223	2				IIIN
			HARV	1338	2057	1							IIIN
			WEIS				1350.6	1352.3	3				IIIG
			HARV	1351	1352	3	1351	1352	3				IIIG
			HARV	1356	2225	1							IN
			HARV	1417		2	1417		2				IIIG,U
			HARV	1423		2	1422	1423	2				IIIG,U
			HARV	1540	1541	2	1540	1541	3				IIIG,U
			WEIS				1540.5	1542.4	3				IIIG
			HARV				1551	1552	3				IIIG,U
			WEIS				1551.2	1552.4	3				IIIG
			HARV				1819	1820	2				IIIG
			HARV				1915	1916	2				IIIG,U

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

AUGUST 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
31			HARV	1949	1951	2	1949	1950	2				IIIG,U
	2035	2400	CULG				2035	2157					IS,W
			CULG	2040.5	2042.5								I,W
			CULG				2041	2139					IIIN,W
			CULG				2139	2230	1				IIIS
			HARV				2144	2145	2				IIIG
			CULG				2151.5	2152	1				IIIG
			HARV				2152	2153	2				IIIG
			CULG				2157	2230	1				IS
			CULG	2158.5	2159.5	1	2156.5	2200	1				IIIGG
			HARV	2159	2202	1	2157	2202	2				IIIGG
			CULG	2201.5	2202	1	2201.5	2202.5	1				IIIG
			CULG				2230	2400					IS,W
			CULG				2230	2300					IIIS,W
			CULG				2300	2400					IIIN,W

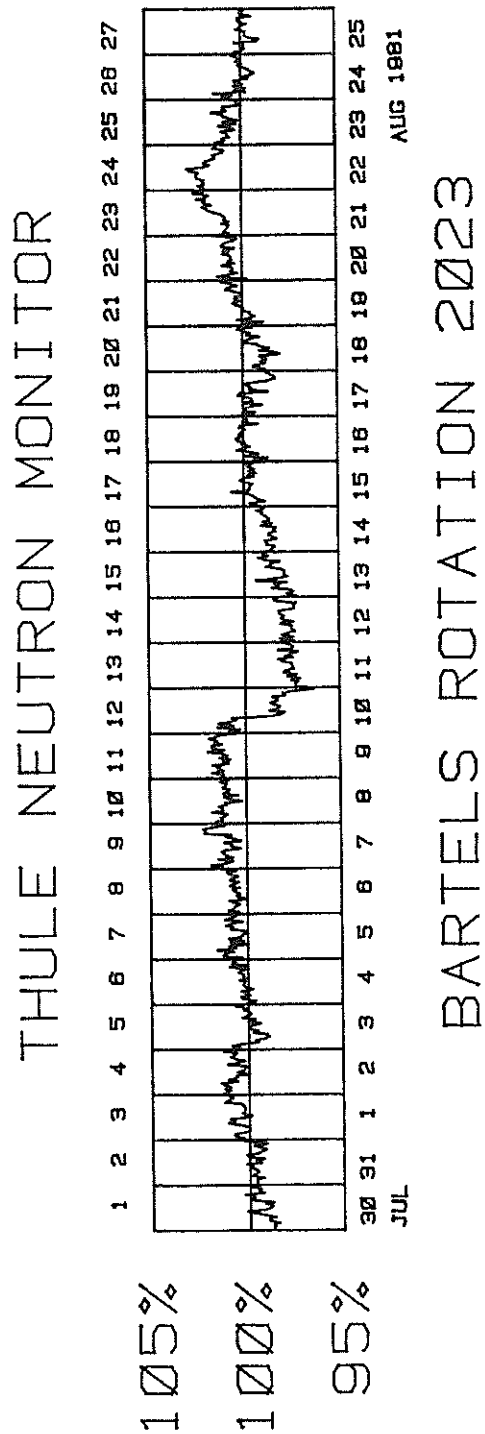
The symbols used under the column heading SPECTRAL TYPE have the following definitions:

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

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

COSMIC RAY INDICES
(Neutron Monitor)

AUG 1981	THULE Average (cts/h)/100
1	4076
2	4084
3	4050
4	4064
5	4083
6	4082
7	4103
8	4100
9	4110
10	4014
11	3960
12	3967
13	3987
14	4004
15	4040
16	4050
17	4030
18	4025
19	4061
20	4082
21	4112
22	4129
23	4084
24	4058
25	4049
26	4077
27	4104
28	4122
29	4111
30	4109
31	4095
MEAN	4065



GEOMAGNETIC ACTIVITY INDICES

AUGUST 1981

Day		Three-Hourly Indices Kp 1	2	3	4	5	6	7	8	Sum	Ap	Cp
1		3-	4-	3+	4-	2	3	4+	3	26-	18	1.0
2		2	1	2-	2+	3+	4	3	4+	22-	15	0.8
3		3-	4-	4+	3	3	3+	3+	2+	26-	18	1.0
4		2+	4	3+	3-	1	1+	2	1	18-	11	0.6
5		1-	4-	4-	3-	3-	2+	4-	3	22+	15	0.8
6		5-	3+	3	3-	3-	2	1+	2-	21+	14	0.8
7	Q8A	1+	2-	2-	1+	3-	3	4-	2	17+	10	0.5
8	Q1	2	1-	1-	1+	1	0	0	2	8-	4	0.1
9	Q2A	3	2-	0+	0+	1-	1+	3-	2+	12+	7	0.3
10		3-	5-	3	4-	3	3	1	2-	23-	16	0.9
11		2	2	2-	2	3-	4	5-	3+	22+	15	0.9
12	Q7A	3	3-	2-	1+	2	2+	2+	2+	18-	9	0.5
13	Q9A	2+	3-	2+	2	2	2-	2+	3	18+	9	0.5
14	Q5A	2+	1	2-	2-	3-	2-	2+	3-	16	8	0.4
15		1-	1+	1+	1+	2	2-	4+	5-	17+	13	0.7
16	Q4A	3+	2+	1+	2-	2	2-	1	2	15+	8	0.4
17	D3	4+	3	4	5	3+	3+	3+	4-	30	25	1.2
18	D5	5-	2+	4-	3+	4	4	4-	3+	29	23	1.1
19	Q0A	3-	3-	2+	2	3	2	2+	2	19	10	0.5
20	Q6A	2+	2+	2	1	1-	2+	3	2	16-	8	0.4
21		2+	2-	4-	2+	3	4-	4-	2+	23-	14	0.8
22		3+	3	3-	2	1+	3-	3+	3	21+	13	0.7
23	D1	5	4	5	5-	6+	6	4+	6	41+	56	1.6
24	D2	5-	4+	3-	3-	3	5	4	5-	31	28	1.2
25		4-	2	3	3-	3-	4-	4-	3	24+	16	0.9
26	Q3A	0+	1	1+	1	2-	3+	2+	3-	14-	8	0.4
27	D4	2+	2	2-	3+	5+	5+	4+	3	27+	25	1.2
28		3+	3+	4-	3+	3	4	3-	3+	27-	18	1.0
29		3-	3-	3+	4+	4+	3+	2+	2	25	18	1.0
30		4-	4+	3-	3+	3-	3	1+	4-	25-	17	0.9
31		3+	5+	3+	2	2	2-	1-	0+	19-	15	0.8
										Mean	15	0.77

Day	Three-Hourly Indices Km 1	2	3	4	5	6	7	8	Am	aa N	S	M
1	3-	3+	3+	3+	2-	3-	3+	3	29	38	27	32 33
2	2-	1	2-	2+	2+	3+	2+	4-	21	28	17	12 33
3	3-	3+	4	3+	3-	3-	3-	2+	30	30	21	29 22
4	3-	3+	3+	3-	1+	1+	2-	1	19	21	18	30 9
5	1+	4-	4	2+	2+	3-	3+	3-	28	25	18	20 23
6	4	3+	3+	3	3-	1+	1	1+	26	25	18	26 18
7	1	2-	1+	1+	3-	3-	3+	2-	16	16	15	9 23
8	3	1-	0+	1	1-	0	0+	2+	7	9	3	6 6 CK
9	3-	2	0+	0+	1-	1	3-	2	12	17	5	10 13 C
10	2+	5-	3+	3+	3	3	1+	2-	31	29	27	39 17
11	2+	2	2-	2+	3-	3	4	3+	26	30	25	14 41
12	3-	2+	3-	1+	2-	2+	2	2+	18	22	17	19 19
13	3-	3-	2+	2-	2-	1+	2-	2+	16	18	16	18 15
14	2	1+	2-	2	3-	1+	1+	2+	14	22	13	15 20
15	1	2-	2-	1	1+	2-	4-	4+	21	27	14	8 32
16	3	2+	1+	2+	2	2-	1	2+	16	26	13	23 16
17	4	3	4-	5-	3-	3	3-	3+	39	43	35	47 31
18	4	2	3+	3-	3+	3	3	3	32	36	35	28 43
19	2+	3-	2	2	3-	2	2	2-	16	17	17	15 18
20	2+	2	2-	0+	1-	1+	3-	1+	12	15	9	9 14 C
21	2	2-	3	2+	2+	3-	3	3-	22	23	23	17 29
22	3	3	3-	2	1	2	3-	3-	21	26	19	22 22
23	4+	4-	4	4-	5+	5-	4-	5+	70	66	59	46 79
24	4-	4-	2+	3-	2+	4-	4	5-	40	38	44	36 47
25	4-	2-	3	3-	2+	3-	3	3-	25	29	31	33 28
26	1-	1	2-	1-	1+	3-	2	2+	12	17	13	11 19
27	2+	2-	1+	3	4-	4	3+	3-	30	39	25	16 48
28	3	3-	3	3-	2+	3+	2	3+	27	29	32	29 32
29	2+	3-	3+	4-	4-	3	2+	2+	29	25	32	27 30
30	3+	3+	2+	3	3-	2+	1	3	25	29	26	34 23
31	3+	4	3+	2+	2-	2-	0+	0	22	22	30	41 11
									24.3	27.0	22.5	24.8

Day	Three-Hourly Indices Kn 1	2	3	4	5	6	7	8	An
1	3-	4-	4-	3+	2	3-	4-	3+	34
2	2	1+	1+	3-	3	4	3-	4-	27
3	3	4-	4	3+	3	3	3-	2+	33
4	3-	3+	4-	3	2-	2	2	2-	24
5	1+	4-	4	3-	3-	3	3+	3	32
6	4-	3	3+	3	3	2-	1	2-	26
7	1+	1+	1+	1+	3-	3-	3	2	16
8	2-	1-	1-	1+	1+	0	1-	3-	8
9	3-	2+	1-	0+	1+	2-	3	3-	15
10	3-	5-	3+	4-	3+	3+	1+	2+	36
11	2+	2+	2-	3-	3+	4-	4-	4-	30
12	3-	3-	2+	2-	2+	3-	3-	3-	19
13	3-	3-	2+	2-	2+	2-	2	3-	18
14	2+	1+	1+	2	3-	2-	2	3-	16
15	1	2-	1+	1+	2	2	4	4+	22
16	3	3-	1+	3-	2+	2	2-	2+	19
17	4	3+	4	5-	3-	3+	3+	4-	46
18	4-	2-	4-	3	3	3+	3	3	33
19	2	2+	2	2+	3-	2+	2+	2	18
20	2	2	2	1-	1	2-	3	2-	14
21	2-	2	3+	2+	3-	3	3	2+	23
22	3	3-	3	2+	1+	3-	3	3-	23
23	4	4-	4+	4	5	5	4	5+	73
24	4-	3+	3-	3	3-	4	4-	4-	39
25	3+	2	3	3	2+	3	3	3-	27
26	1	1+	2-	1	2-	3-	2+	3-	14
27	2	2	2-	3	4+	4+	4-	3	35
28	3-	3	3	3	3-	4-	2+	3+	30
29	3-	3-	4-	4	4-	3-	2+	2+	32
30	3+	3+	2+	3+	3-	3-	1+	3+	28
31	3	4+	3+	2	2-	2	1-	0	23
								Mean	26.9

Day	Three-Hourly Indices Ks 1	2	3	4	5	6	7	8	As
1	3-	3	3	3	1	2	3+	3-	24
2	2-	1-	2-	2	2-	3-	2	3	16
3	3-	3+	4	3+	2+	2	2+	2+	27
4	2+	3	3	3-	1-	0	1+	0	15
5	1	3+	4-	2+	2	2+	3+	2+	24
6	4	4-	3+	3-	2	1	1	1+	25
7	1	2-	1+	1	3	2+	3+	1+	16
8	2+	0+	0+	0+	0	0	0	2	5
9	2+	2-	0	0	0+	0+	2-	1+	8
10	2+	4+	3	3	3-	3-	1-	1	25
11	2+	2-	2-	2-	2	3-	4+	3-	22
12	3-	2+	3-	1+	1+	2-	2-	2+	16
13	2+	2+	2+	1+	1+	1+	1	2-	13
14	2	1+	2-	2	2+	1	1-	2	12
15	1-	2-	2	1	1-	1+	4-	4	20
16	3-	2	1+	2	1+	1+	0	2+	12
17	4	2+	3-	4+	2+	3-	2	3	32
18	4	2+	3-	3-	3+	3-	3	3	30
19	2+	3-	2	2-	2+	2-	1+	1	14
20	3-	2+	1+	0	0	1-	2+	1+	10
21	2+	1+	3-	3-	2-	2+	3	3	20
22	3	3	2+	1+	0+	1+	3-	2+	18
23	4+	4	4-	4-	5+	4+	3+	5+	68
24	4-	4-	2-	2+	2+	4-	4+	5	42
25	4-	2-	3-	2	2	3-	3-	3-	23
26	0+	1-	2-	0	1-	3	2-	2-	10
27	2+	1+	1	3-	3-	4	3	2+	24
28	3+	2+	3	3-	2-	3	2	3	25
29	2+	2+	3	3+	3+	3	3-	2+	26
30	3	3	2+	3-	3-	2+	0+	3-	22
31	3+	4	4-	2+	2-	1+	0	0	22
									21.5

ERRATA:

Conversion in 1979 to a new computer with a different word size caused values of indices aa to be truncated if they exceeded 99; the machine read and printed only the two least significant digits. Correct values of the affected indices are listed below. Both half-daily values are given, too, to make clear which of the two entries should be corrected.

Date	N	S	M
21 Feb 1979		66	102
10 Mar		54	101
25 Apr	109	27	148
26 Apr		103	15
13 Aug		53	108
20 Aug		33	100
29 Aug		59	111
18 Sep		100	63
25 Jul 1980		13	100
19 Dec	118	123	63	178
06 Feb 1981		24	116

NOTE:

aa indices are provisional from 1 January 1981 until further notice, in connection with the change of the Southern Hemisphere observatory.

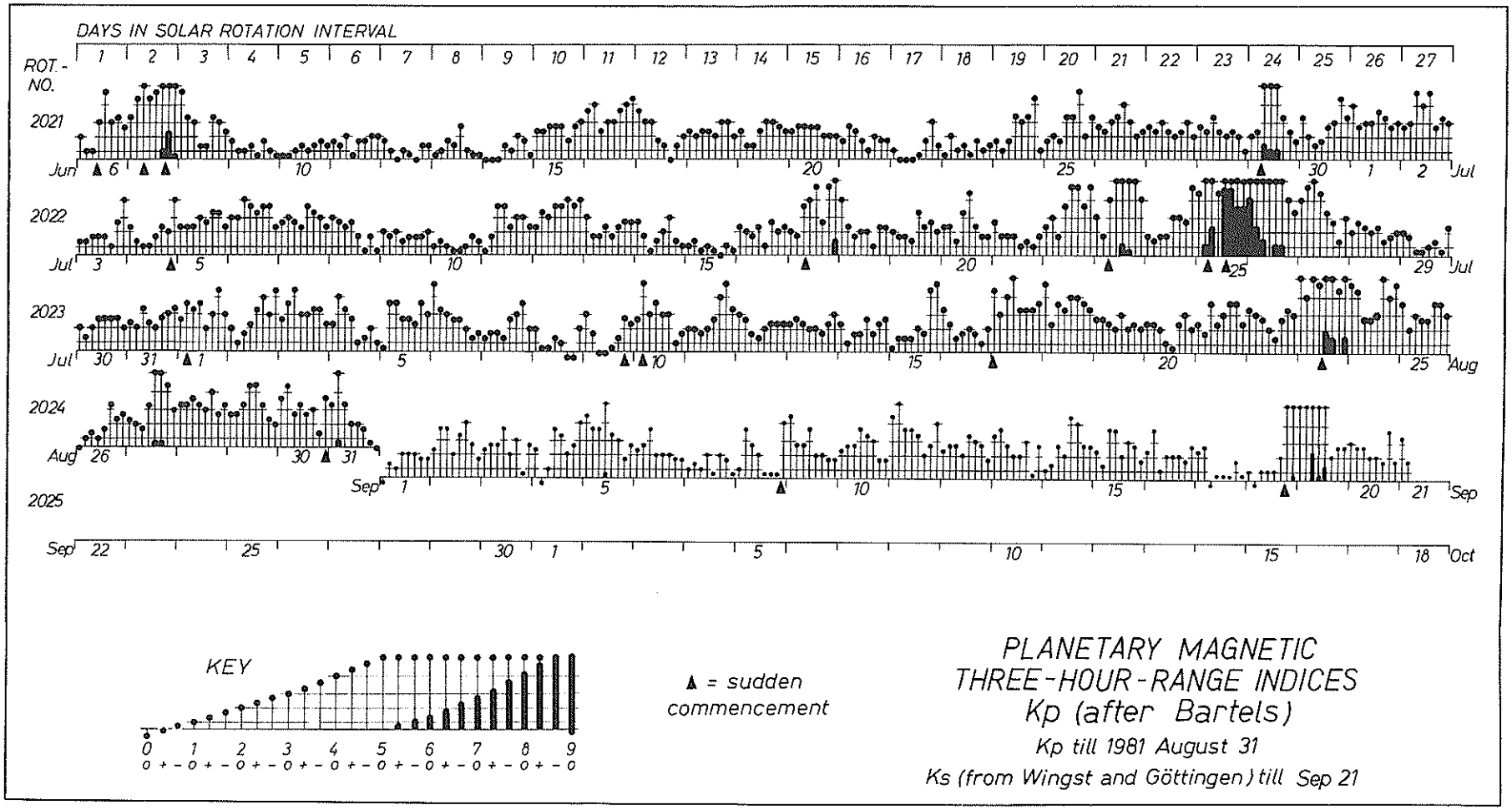
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen,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

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

DAILY AVERAGE INDICES Ap

	1980				1981							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	7	2	16	19	13	14	28	23	16	7	17	18
2	4	5	11	7	9	22	25	10	7	7	22	15
3	12	5	5	21	9	13	8	14	5	16	9	18
4	12	26	12	8	14	9	12	11	4	5	9	11
5	10	22	5	4	9	25	81	4	4	6	12	15
6	9	14	6	4	9	48	11	10	5	14	19	14
7	10	12	6	6	6	20	20	9	5	50	14	10
8	8	12	6	9	11	14	10	11	11	16	8	4
9	12	16	9	10	6	22	4	8	39	4	6	7
10	4	22	14	10	9	3	8	8	32	4	4	16
11	6	40	24	16	19	10	7	39	61	6	13	15
12	18	11	12	16	4	11	11	96	13	4	20	9
13	16	5	6	6	6	7	28	121	10	5	9	9
14	8	11	10	8	6	3	45	27	18	4	7	8
15	8	15	22	10	7	10	19	8	54	11	4	13
16	8	3	16	16	12	10	14	13	59	21	8	8
17	14	5	11	5	8	6	18	19	13	10	29	25
18	4	21	16	15	4	6	19	14	57	10	10	23
19	6	11	17	79	3	6	10	45	18	10	9	10
20	7	4	17	21	4	9	9	53	43	10	12	8
21	2	7	13	26	2	5	8	41	12	7	6	14
22	8	23	8	11	9	6	4	33	6	5	24	13
23	5	44	10	5	8	12	4	31	19	5	37	56
24	4	14	12	3	8	20	4	22	18	13	13	28
25	7	24	16	8	7	24	36	19	33	15	134	16
26	5	13	21	6	8	29	28	62	8	14	78	8
27	6	3	19	10	8	21	14	43	6	10	24	25
28	6	2	23	4	16	11	12	13	12	9	8	18
29	9	3	16	9	15		18	19	6	33	5	18
30	5	10	24	13	7		16	7	6	14	9	17
31		30		15	22		26		8		12	15
MEAN	8	14	13	13	9	14	18	23	20	12	19	15

GEOMAGNETIC ACTIVITY INDICES



SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

AUGUST 1981

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

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

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

10 0434 A: SOD WNG WIT HAD EBR COI TOL FRD ALM HUA MPO CZT KGL DUM; B: ESK NGK AQU HTY; C: KNY

17 0045 A: NUR WNG AQU EBR COI FRD ALM BNG HUA MPO CZT KGL; B: SOD ESK WIT MMB TOL KAK HTY KNY DUM; C: NGK HAD

23 1257 A: NUR WNG WIT EBR COI MPO CZT KGL DUM; B: NGK AQU TOL ALM BNG; C: HAD DUM (si: A: HUA)

30 2222 A: BNG; B: WIT ALM HUA MPO; C: NGK EBR HTY (bps:C: TOL)

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined

05 1205 - 1257 NGK

06 1205 - 1222 TOL

08 2025 - 2033 HUA

10 0929 - 0948 NGK MPO (si:C:TOL)

11 0144 - 0220 MMB KAK HTY

11 0743 - 0818 MMB KAK HTY

11 1538 - 1554 TOL

12 0624 - 0700 MMB KAK HTY KNY

13 0249 - 0320 MMB

14 0518 - 0554 KAK

15 0802 - 0909 MPO (ssc:C:BNG)

17 1405 - 1413 WNG

19 2041 - 2045 HUA? (bp.C: MPO)

21 0433 - 0515 KAK

24 1600 - 1624 TOL

26 1523 - 1543 WNG NGK EBR TOL BNG HUA?

27 0339 - .... MMB

27 0355 - 0539 KAK KNY

27 0416 - 0530 MMB

27 0616 - 0632 WNG (ssc:B: SOD)

28 0345 - 0500 MMB KAK HTY KNY

29 0612 - .... BNG

30 0909 - 0945 MMB

30 1029 - 1100 NGK BNG (ssc: C: WNG - bp: B: MPO)

RADIO PROPAGATION QUALITY INDICES

AUGUST 1981

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	5.0	4.5	6.0	4.3	3.1
2	5.7	4.9	6.0	5.0	6.4
3	5.4	4.3	4.6	3.3	3.0
4	5.0	5.0	5.3	4.3	3.7
5	5.7	5.0	5.4	4.7	4.0
6	5.4	5.0	5.7	4.7	4.1
7	5.1	5.1	5.7	5.1	4.9
8	6.2	5.9	5.4	7.9	5.0
9	6.5	7.2	5.7	8.4	8.7
10	6.5	6.9	5.8	7.4	8.2
11	5.9	6.9	5.8	5.7	6.7
12	6.3	6.6	6.6	7.5	8.4
13	6.3	6.0	7.3	7.7	9.2
14	6.7	6.7	4.6	7.0	6.0
15	6.3	6.4	7.6	7.3	7.6
16	7.0	6.7	6.2	6.9	5.2
17	6.6	6.1	6.2	5.0	4.6
18	6.3	6.4	5.9	5.4	7.3
19	6.3	6.8	4.9	6.4	5.5
20	6.6	7.4	6.0	6.3	5.1
21	6.2	5.7	6.7	6.3	5.9
22	5.8	6.0	6.5	5.2	5.2
23	5.8	4.9	6.1	4.2	5.1
24	6.1	5.2	4.8	2.5	5.4
25	6.4	5.8	5.5	6.6	8.1
26	7.0	7.5	5.5	6.9	5.7
27	5.3	5.7	4.6	3.8	4.0
28	6.3	5.4	4.3	3.8	4.5
29	6.4	3.4	4.7	4.2	2.8
30	6.0	6.4	6.4	4.9	6.2
31	7.4	8.3	6.3	5.8	7.1
MEAN	6.1	5.9	5.7	5.6	5.7

CALCULATION OF QUALITY INDICES (Q)

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

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

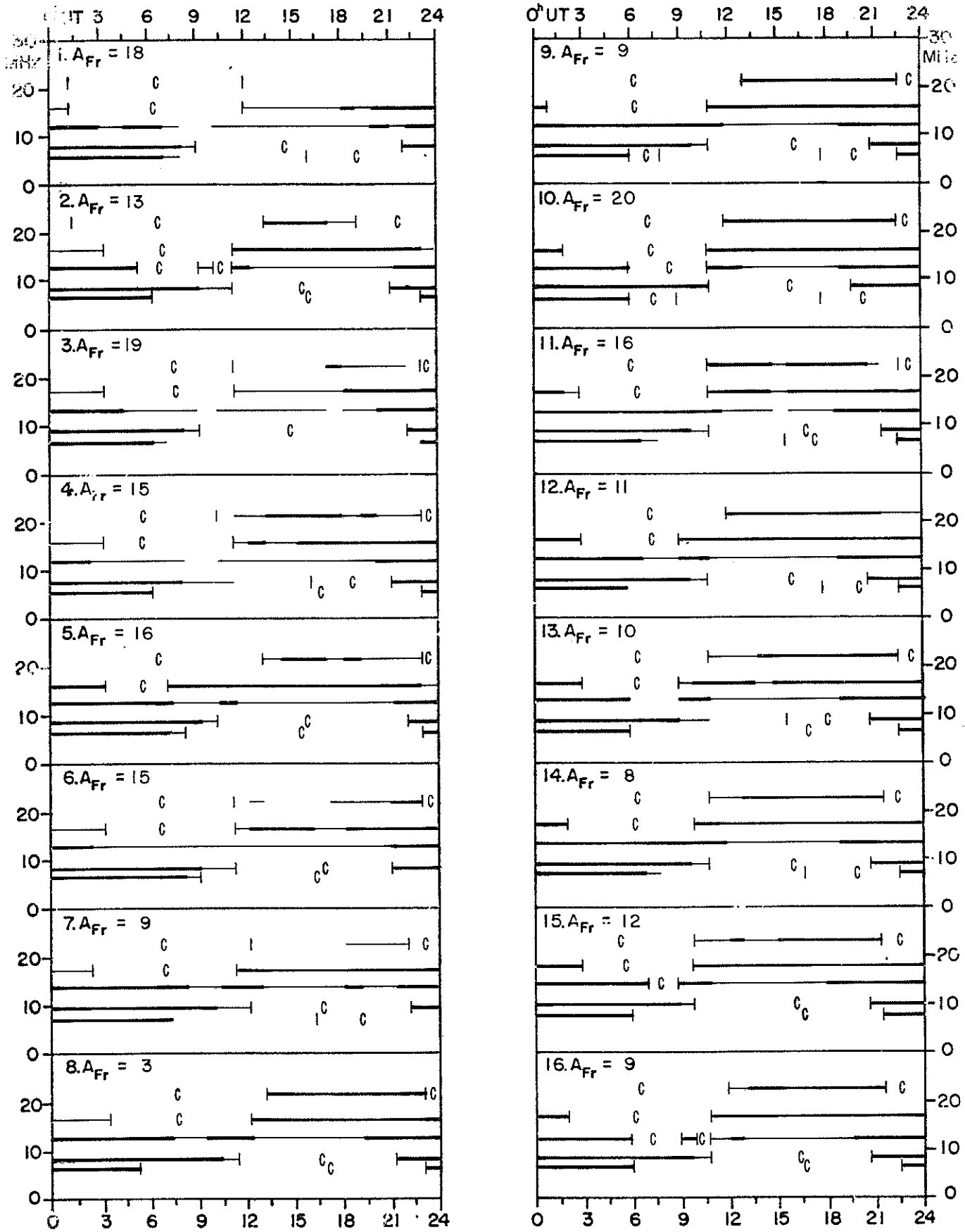
The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceeding 27 days.

Scale for Quality Indices

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

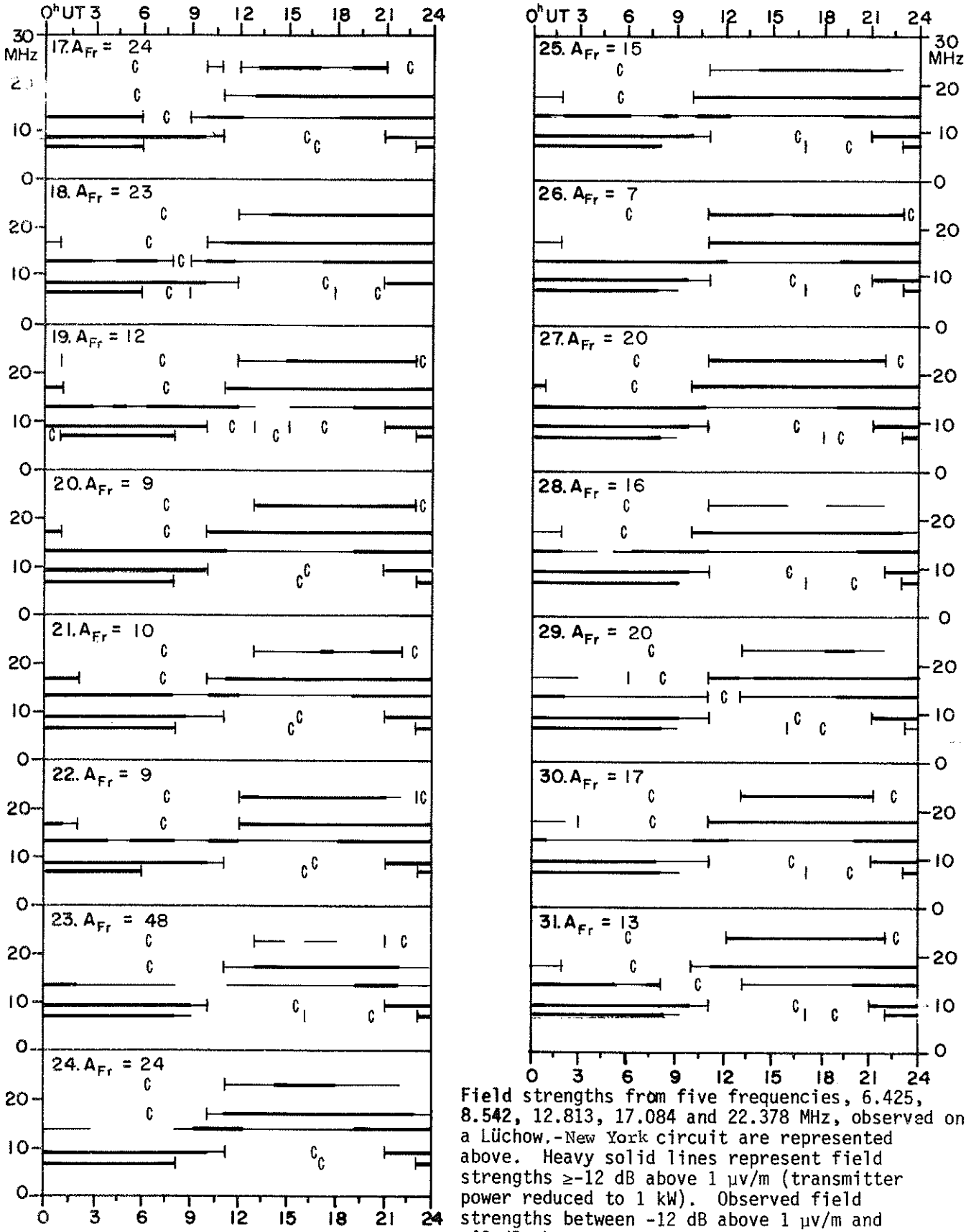
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

AUGUST 1981



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

AUGUST 1981



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

USCOMM - ERL

SGD 446 Part I (Prompt)

LATE DATA

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SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

JULY 1981

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

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

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

17 0802 A: COI FRD HUA MPO; B: SOD ESK WNG WIT HAD MMB KAK HTY BNG CZT KGL DUM; C: NGK BDV EBR KNY

23 0646 A: SOD ESK WNG DOU COI HUA MPO CZT KGL; B: WIT NGK HAD BDV MMB EBR KAK HTY BNG DUM; C: KNY

25 0514 A: DOU COI BNG HUA MPO; B: WNG WIT MMB KAK HTY KGL DUM; C: BDV EBR KNY CZT

25 1322 A: WNG WIT NGK HAD DOU BDV MMB EBR KAK HTY KNY MPO (si:A:HUA)

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

02 1301 - 1341 WNG (bp: B: MPO)

04 1550 - 1604 BNG HUA? (ssc: B: COI - bp: B: MPO)

07 1802 - 1810 HUA?

15 0355 - 0440 MMB KAK HTY KNY

15 0812 - 0842 WNG EBR KNY

16 0442 - 0606 MMB KAK KNY BNG (ssc: B: WNG; C: HAD BDV - b:B: HUA - bp:B: MPO)

16 0640 - 0700 KNY

16 1004 - 1038 WNG

16 1530 - 1555 SOD WNG NGK BDV

17 1215 - 1310 WNG

19 0418 - 0500 MMB KAK HTY KNY

19 0513 - 0630 MMB KAK KNY

20 1730 - 1740 HUA

21 0400 - 0500 MMB KAK HTY KNY

22 0834 - 0904 HTY

25 0359 - 0406 HAD (ssc: C: CZT)

26 1351 - 1406 MPO

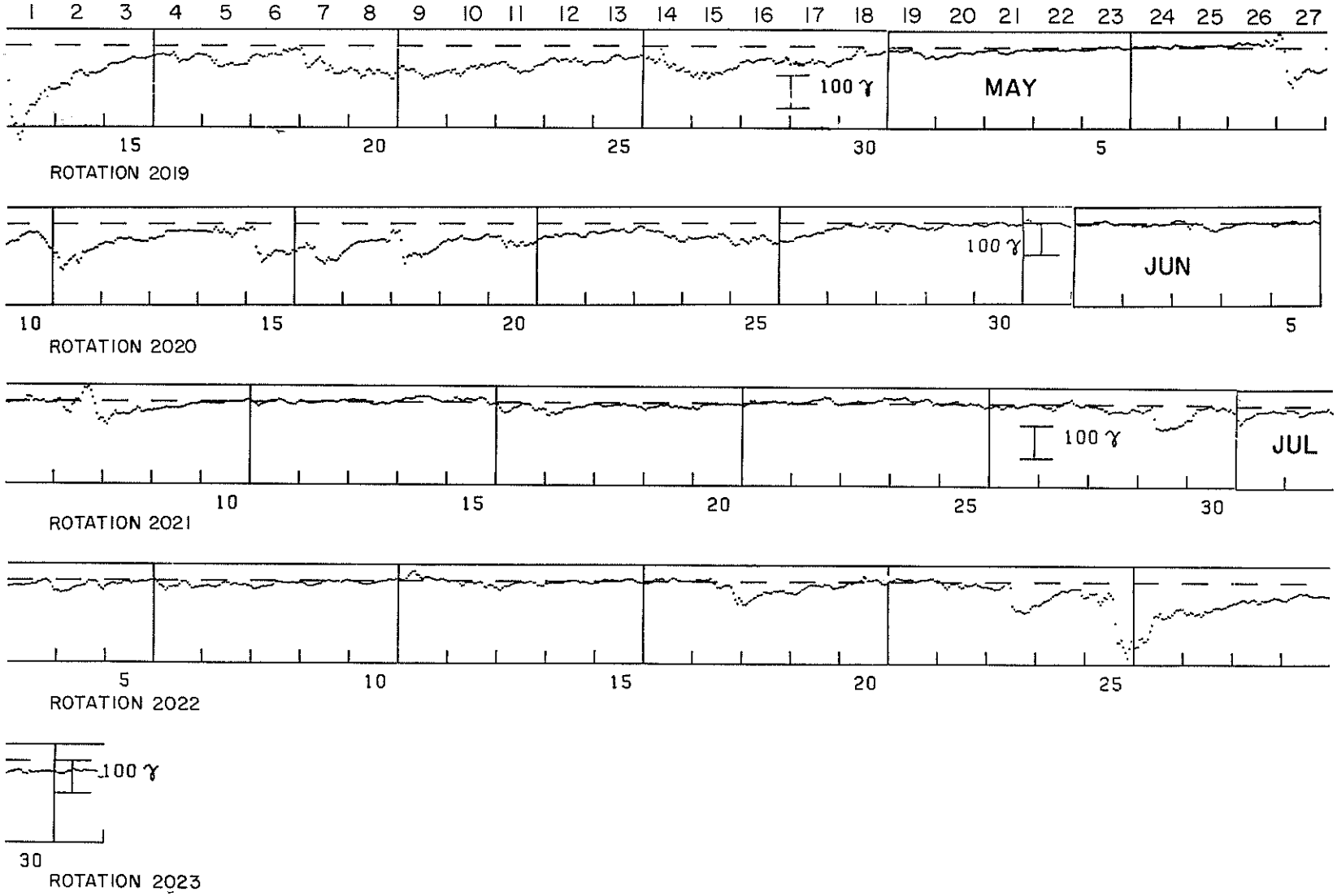
26 2129 - 2150 KNY

27 0630 - 0655 HTY KNY

27 1724 - 1734 HUA

GEOMAGNETIC ACTIVITY INDICES
Hourly Equatorial Dst

by Bartels Rotation



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

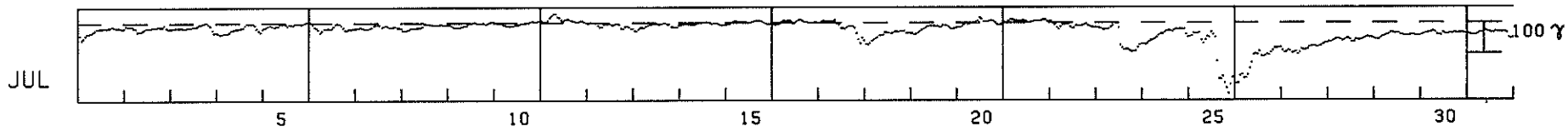
HOURLY EQUATORIAL DST VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

JULY 1981

(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	-40	-56	-49	-40	-35	-34	-32	-28	-25	-19	-18	-17	-17	-16	-18	-15	-14	-12	-14	-16	-16	-17	-19	-17
2	-10	-12	-11	-12	-15	-18	-29	-28	-27	-23	-19	-16	-16	-18	-13	-15	-13	-12	-13	-13	-7	-15	-19	-18
3	-18	-17	-15	-16	-16	-16	-17	-17	-15	-14	-14	-12	-13	-11	-6	-5	-2	0	1	-5	-10	-24	-32	-32
4	-35	-38	-36	-34	-36	-34	-30	-24	-22	-19	-19	-18	-16	-14	-8	-2	-4	-3	-3	-8	-18	-26	-31	-20
5	-15	-13	-10	-8	-11	-13	-12	-11	-4	-4	-3	-6	-11	-5	-8	-8	-3	-2	-4	-5	-3	-1	2	3
6	1	-6	-14	-16	-22	-32	-25	-19	-20	-17	-19	-17	-12	-4	-2	-4	-9	-15	-24	-24	-20	-21	-18	-18
7	-18	-16	-14	-17	-20	-20	-20	-16	-14	-8	-7	-7	-8	-14	-11	-9	-11	-14	-14	-13	-12	-15	-16	-18
8	-25	-26	-24	-22	-18	-17	-17	-16	-15	-15	-12	-4	-3	-5	-6	-7	-8	-8	-7	-5	-6	-8	-7	-6
9	-7	-10	-13	-16	-16	-16	-13	-12	-10	-9	-3	-2	0	2	-2	-3	-3	-1	-2	-6	-2	2	3	2
10	-1	-3	-2	-4	-8	-9	-11	-12	-12	-10	-8	-7	-6	-3	-2	-1	0	0	3	5	2	2	6	6
11	6	1	2	8	16	23	29	28	18	16	9	5	11	12	11	7	5	3	1	3	6	6	2	-2
12	-3	1	-1	-1	-3	-10	-15	-13	-5	-4	-5	-3	-8	-7	-4	-3	-6	-18	-20	-13	-12	-14	-20	-20
13	-26	-28	-21	-15	-16	-15	-12	-9	-6	-5	-4	-3	-6	-6	-3	-1	-2	-6	-6	-13	-13	-15	-14	-8
14	-8	-5	-5	-6	-5	-7	-7	-6	-4	0	1	0	2	2	2	-1	-5	-2	-3	-4	-7	-9	-7	-6
15	-5	-4	0	3	6	3	2	4	4	2	0	-1	1	3	5	7	7	6	4	0	-4	-5	-5	-7
16	-7	-7	-5	-3	2	8	6	6	9	5	-3	-1	5	10	11	6	2	1	0	0	1	1	2	-1
17	-1	5	7	5	3	4	6	6	10	-4	-7	-18	-17	-20	-14	-12	-12	-12	-16	-35	-55	-67	-49	-59
18	-70	-71	-65	-60	-55	-50	-47	-41	-40	-38	-31	-33	-34	-36	-33	-28	-29	-30	-27	-27	-26	-34	-34	-34
19	-35	-38	-37	-33	-28	-23	-19	-16	-11	-10	-11	-11	-12	-12	-13	-13	-8	-10	-10	-14	-19	-20	-18	-15
20	-14	-14	-11	-5	0	-6	-3	-1	1	2	6	16	12	3	3	4	6	8	5	0	-6	-8	-6	-4
21	3	2	6	11	10	8	6	7	5	7	8	5	0	0	3	5	7	5	5	8	11	10	4	5
22	5	-2	-8	-15	-21	-13	-6	-5	-4	-5	-13	-18	-16	-9	-12	-11	-10	-7	-4	-9	-12	-14	-15	-14
23	-16	-17	-19	-23	-22	-21	-20	-14	-9	0	-4	-16	-73	-82	-88	-86	-87	-91	-94	-92	-91	-80	-72	-69
24	-68	-71	-68	-62	-58	-55	-52	-47	-40	-36	-36	-31	-26	-25	-27	-29	-23	-20	-21	-20	-20	-21	-38	-47
25	-45	-42	-35	-36	-36	-32	-58	-67	-56	-45	-49	-31	-38	-49	-124	-183	-183	-174	-195	-212	-230	-199	-177	-166
26	-197	-194	-171	-167	-180	-178	-169	-147	-129	-104	-100	-104	-92	-109	-110	-107	-102	-106	-97	-89	-82	-82	-80	-81
27	-90	-96	-94	-88	-92	-98	-96	-93	-102	-96	-86	-88	-87	-85	-78	-76	-76	-77	-79	-75	-74	-69	-65	-64
28	-62	-63	-59	-55	-52	-52	-56	-60	-56	-51	-50	-55	-63	-62	-54	-57	-56	-54	-51	-48	-45	-48	-49	-51
29	-54	-55	-55	-48	-43	-42	-39	-37	-32	-33	-36	-34	-34	-39	-40	-42	-42	-42	-40	-39	-40	-42	-43	-42
30	-39	-37	-34	-34	-31	-30	-28	-32	-38	-40	-41	-32	-37	-38	-35	-36	-35	-32	-35	-33	-33	-33	-36	-35
31	-36	-39	-40	-39	-40	-36	-32	-32	-29	-26	-30	-31	-34	-33	-28	-31	-30	-32	-30	-30	-34	-50	-53	-49



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UAG-13 "Data on the Solar Proton Event of November 2, 1969 through the Geomagnetic Storm of November 8-10, 1969," compiled by Dale B. Bucknam and J. Virginia Lincoln, World Data Center A, Upper Atmosphere Geophysics, ESSA now NOAA, Boulder, CO, May 1971, 76 pp, $0.90.

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UAG-17 "Ionospheric Drift Velocity Measurements at Jicamarca, Peru (July 1967 - March 1970)," by Ben B. Balsley, NOAA Aeronomy Laboratory, Boulder, CO, and Ronald F. Woodman, Jicamarca Radar Observatory, Instituto Geofisico del Peru, Lima, Peru, October 1971, 45 pp, $0.55 (microfiche only).

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UAG-23 "U.R.S.I. Handbook of Ionogram Interpretation and Reduction," Second Edition, November 1972, edited by W.R. Piggott, Radio and Space Research Station, Slough, UK, and K. Rawer, Arbeitsgruppe fur Physikalische Weltraumforschung, Freiburg, GFR, November 1972, 324 pp, $1.75.

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UAG-24 "Data on Solar-Geophysical Activity Associated with the Major Ground Level Cosmic Ray Events of 24 January and 1 September 1971," Parts 1 and 2, compiled by Helen E. Coffey and J. Virginia Lincoln, World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, CO, December 1972, 462 pp, $2.00 (includes Parts 1 and 2).

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UAG-29 "Auroral Electrojet Magnetic Activity Indices AE(11) for 1968," by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, October 1973, 148 pp, $0.75.

UAG-30 "Catalogue of Data on Solar-Terrestrial Physics," prepared by NOAA Environmental Data Service, Boulder, CO, October 1973, $1.50. Supersedes UAG-11, 15, and 20 catalogs.

UAG-31 "Auroral Electrojet Magnetic Activity Indices AE(11) for 1969," by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, February 1974, 142 pp, $0.75.

UAG-32 "Synoptic Radio Maps of the Sun at 3.3 mm for the Years 1967-1969," by Earle B. Mayfield, Kennon P. White III, and Fred I. Shimabukuro, Aerospace Corp., El Segundo, CA, April 1974, 26 pp, $0.35.

UAG-33 "Auroral Electrojet Magnetic Activity Indices AE(10) for 1967," by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, May 1974, 142 pp, $0.75.

UAG-34 "Absorption Data for the IGY/IGC and IQSY," compiled and edited by A.H. Shapley, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO; W.R. Piggott, Appleton Laboratory, Slough, UK; and K. Rawer, Arbeitsgruppe fur Physikalische Weltraumforschung, Freiburg, GFR, June 1974, 381 pp, $2.00.

UAG-35 "Catalogue of Digital Geomagnetic Variation Data at World Data Center A for Solar-Terrestrial Physics," prepared by NOAA Environmental Data Service, Boulder, CO, July 1974, 20 pp, $0.20.

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

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