U.S. DEPARTMENT OF COMMERCE
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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
William E. Evans, Under Secretary for Oceans and Atmosphere

NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
Thomas N. Pyke, Jr., Assistant Administrator

SEPTEMBER 1988 NUMBER 529 - Part I

Solar-Geophysical Data prompt reports

Data for August, July 1988, and Late Data

International Standard Serial Number: 0038-0911
Library of Congress Catalog Number: 79-640375 //r81

NATIONAL GEOPHYSICAL DATA CENTER
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Boulder, Colorado

Subscription information is on the inside back cover.

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

NUMBER 529

(Issued in Two Parts)

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C O N T E N T S

PART I (PROMPT REPORTS)

PART II (COMPREHENSIVE REPORTS)

Published with partial support from ONR (N00014-86-F-0049).

DETAILED INDEX OF OBSERVATIONS PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

CODE	KIND OF OBSERVATION	JAN 88	FEB	MAR	APR	MAY	JUN	JUL	AUG
A.	SOLAR AND INTERPLANETARY EVENTS								
A.1	Sunspot Drawings	523A 34	524A 53	525A 46	526A 44	527A 56	528A 50	529A 45	
A.2aa	Internat. Provisional Sunspot Numbers	522A 9	523A 9	524A 11	525A 11	526A 9	527A 11	528A 11	529A 11
A.2c	American Sunspot Numbers	522A 9	523A 9	524A 11	525A 11	526A 9	527A 11	528A 11	529A 11
A.3a	Mt. Wilson Magnetograms	523A 34	524A 53	525A 46	526A 44	527A 56	528A 50	529A 45	
A.3b	Mt. Wilson Sunspot Magnetic Class	523A 65	524A 82	525A 77	526A 74	527A 87	528A 80	529A 76	
A.3c	Kitt Peak Magnetograms	523A 34	524A 53	525A 46	526A 44	527A 56	528A 50	529A 45	
A.3d	Mean Solar Magnetic Field (Stanford)	522A 28	523A 24	524A 39	525A 35	526A 34	527A 45	528A 40	529A 34
A.3e	Stanford Magnetograms	523A 34	524A 53	525A 46	526A 44	527A 56	528A 50	529A 45	
A.4	H-alpha Filtergrams	523A 34	524A 53	525A 46	526A 44	527A 56	528A 50	529A 45	
A.5	Calcium Plage Photographs/Drawings	Oct 87 in 525A154							
A.5a	Calcium Plage Regions	Aug-Oct 87 in 525A138							
A.5b	Daily Calcium Plage Indices	Aug-Oct 87 in 525A141							
A.6	H-alpha Synoptic Charts	523A 28	524A 42	525A 38	526A 36	527A 56	529A 36		
A.6b	Active Region Carte Synoptique (Paris)	527B 4	528B 4	529B 4					
A.6c	Stanford Solar Mag Field Synoptic Maps	523A 29	524A 44	525A 39	526A 37	527A 49	528A 43	529A 38	
A.6d	Kitt Peak " Mag Field Synoptic Maps	523A 32	524A 50	525A 44	526A 42	527A 54	528A 48	529A 44	
A.6e	Mass Ejections from the Sun	527B 38	528B 29	529B 62					
A.6f	Active Prominences and Filaments	527B 39	528B 30	529B 63					
A.6g	Sac Peak Coronal Line Synoptic Maps	523A 34	524A 46	525A 40	526A 38	527A 50	528A 44	529A 38	
A.7h	Coronal Line Emission (Sac Peak)	523A 34	524A 53	525A 46	526A 44	527A 56	528A 50	529A 45	
A.8aa	2800 MHz - Solar Flux (Ottawa)	522A 9	523A 9	524A 11	525A 11	526A 9	527A 11	528A 11	529A 11
A.8ac	2800 MHz - Adj. Solar Flux (Ottawa)	522A 9	523A 9	524A 11	525A 11	526A 9	527A 11	528A 11	529A 11
A.8g	Adjusted Daily Solar Fluxes (Sagamore)	522A 9	523A 9	524A 11	525A 11	526A 9	527A 11	528A 11	529A 11
A.10a	Interferometric Chart (164 MHz) Nancay	522A 25	523A 21	524A 35	---	526A 29	---	529A132	529A 30
A.10c	East-West Scans - 21 cm - Fleurs	522A 24	523A 20	524A 33	525A 29	526A 27	527A 38	528A 35	529A 28
A.10d	East-West Scans - 43 cm - Fleurs	---	---	524A 34	525A 30	526A 28	---	---	529A 29
A.10e	East-West Scans - 10 cm - Ottawa	522A 23	523A 19	524A 32	525A 28	526A 26	527A 37	528A 34	529A 27
A.10f	East-West Scans - 3 cm - Toyokawa	522A 22	523A 18	524A 31	525A 27	526A 25	527A 36	528A 33	529A 26
A.11g	Solar X-ray GOES (graphs/event table)	527B 29	528B 22	529B 52					
A.11k	Solar UV NOAA-9	May-Dec 86 in 529B 74							
A.12e	Solar Particles (IMP H & J)	Sep 85-May 86 in 525B 60							
A.13e	Solar Plasma (IMP H & J)	Oct 87-Jan 88 in 525B 56							
A.13f	Solar Wind (Pioneer 12)	Feb 84-Dec 87 in 525A114							
A.16a	SMM Solar Irradiance	1980-1985 in 515B 26							
A.16b	NIMBUS Solar Irradiance	Nov 78-Feb 87 in 523B 49							
A.17	Interplanetary Mag Field (Pioneer 12)	Oct 87 in 526A112							
A.17c	Inferred Interplanetary Mag Field	Mar 88 in 524A 40							
B.	IONOSPHERIC RADIO PROPAGATION								
B.52	Field Strength Graphs-North Atlantic	523A 92	524A108	525A110	527A126	527A122	528A128	529A128	
B.53	Quality Indices on Paths to Germany	523A 91	524A107	525A109	528A132	527A121	528A130	529A130	
C.	SOLAR FLARE-ASSOCIATED EVENTS								
C.1a	H-alpha Flares	522A 14	523A 14	524A 16	525A 16	526A 14	527A 16	528A 16	529A 16
C.1ba	H-alpha Flare Groups	527B 6	528B 6	529B 6					
C.1d	Flare Patrol Observations	522A 21	523A 17	524A 30	525A 26	526A 24	527A 35	528A 32	529A 25
C.1d	Flare Patrol Observations	527B 17	528B 13	529B 25					
C.3	Radio Bursts Fixed Freq.	527B 19	528B 15	529B 27					
C.3	Radio Bursts Fixed Freq. Selected	522A 26	523A 22	524A 36	525A 32	526A 30	527A 40	528A 37	529A 31
C.4d	Radio Bursts Spectral (Culgoora)	523A 78	524A 92	525A 95	526A 94	527A102	528A103	529A101	
C.4e	Radio Bursts Spectral (Weissenau)	523A 78	524A 92	525A 95	526A 94	527A102		529A101	
C.4f	Radio Bursts Spectral (Sagamore Hill)	523A 78	524A 92	525A 95	526A 94	527A102	528A103	529A101	
C.4i	Radio Bursts Spectral (Bleien)	---	---	---	---	---	---	---	
C.4k	Radio Bursts Spectral (Learmonth)	523A 78	524A 92	525A 95	526A 94	527A102	528A103	529A101	
C.4l	Radio Bursts Spectral (Palehua)	523A 78	524A 92	525A 95	526A 94	527A102	528A103	529A101	
C.6	Sudden Ionospheric Disturbances	523A 76	524A 90	525A 91	526A 91	527A 99	528A 99	529A 98	
D.	GEOMAGNETIC & MAGNETOSPHERIC EVENTS								
D.1a	Geomagnetic Indices	523A 86	524A101	525A104	526A105	527A116	528A122	529A122	
D.1ba	27-day Chart of Kp Indices	523A 88	524A103	525A106	526A107	527A118	528A124	529A124	
D.1cb	Monthly Mean aa Indices	523A 89	524A104	525A107	526A108	527A119	528A125	529A125	
D.1d	Principal Magnetic Storms	523A 90	524A105	525A108	526A109	527A120	528A126	529A126	
D.1f	Sudden Commencements/Flare Effects	524A131	524A106	526A113	526A110	528A136	528A127	529A127	
D.1g	Equatorial Indices Dst	Jul 87 in 519A 99							
F.	COSMIC RAYS								
F.1a	Cosmic Ray Neutron Cts (Deep River)	527A147	527A148	527A149	527A150	527A115	529A133		
F.1b	Cosmic Ray Neutron Cts (Climax)	523A 85	524A100	525A103	527A150	527A115	528A117	529A119	
F.1e	Cosmic Ray Neutron Cts (Alert)	527A147	527A148	527A149	527A150	527A115	529A133		
F.1h	Cosmic Ray Neutron Cts (Thule)	523A 85	524A100	525A103	526A104	527A115	528A117	529A119	
F.1i	Cosmic Ray Neutron Cts (Kiel)	523A 85	524A100	525A103	526A104	527A115	528A117	529A119	
F.1j	Cosmic Ray Neutron Cts (Tokyo)	527A147	527A148	527A149	527A150	527A115	528A117		
F.1l	Cosmic Ray Neutron Cts (Huancayo)	527A147	527A148	527A149	527A150	527A115	528A117	529A119	
H.	MISCELLANEOUS								
H.60	IUWDS Alert Periods	522A 4	523A 5	524A 4	525A 5	526A 4	527A 4	528A 5	529A 5

The entry "523A 34" under Jan 1988, for example, means that the sunspot drawings for Jan 1988 appear in SOLAR-GEOPHYSICAL DATA No. 523, Part I, and that they begin on page 34. "A" denotes Part I and "B", Part II. Blanks indicate data not yet received and dashes mark unavailable data.

C O N T E N T S

Prompt Reports DATA FOR **AUGUST 1988** Number 529 Part I

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages AUGUST 1988

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast[1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
214	01	31	162	187	010	S22 W32	1	0	0	01	S22 W32	E	Solalert 01/XX,
						N12 W45	1	0	0		N12 W45	Q	Magalert Minor
						N15 W30	4	0	0		N15 W30	E	01/XX.
						N27 E23	6	1	0		N27 E23	A	
						N25 W01	0	0	0		N25 W01	Q	
						S25 E39	1	0	0		S25 E39	Q	
215	02	01	158	176	009	S21 W44	1	0	0	02	S21 W44	E	Solalert 02/XX,
						N12 W57	3	0	0		N12 W57	Q	Magnil.
						N14 W43	2	0	0		N14 W43	E	
						N28 E10	2	1	0		N28 E10	A	
						N25 W15	1	0	0		N25 W15	Q	
						S24 E23	1	0	0		S24 E23	Q	
216	03	02	147	182	006	S21 W58	3	0	0	03	S21 W58	E	Solalert 03/XX,
						N12 W72	1	0	0		N12 W72	Q	Magquiet.
						N15 W57	10	0	0		N15 W57	E	
						N27 W04	4	1	0		N27 W04	A	
						N25 W29	0	0	0		N25 W29	Q	
						S25 E10	1	0	0		S25 E10	Q	
217	04	03	187	173	005	S20 W71	2	0	0	04	S20 W71	E	Solalert 04/XX,
						N12 W84	1	0	0		N12 W84	E	Magquiet.
						N15 W71	7	0	0		N15 W71	A	
						N28 W16	2	0	0		N28 W16	E	
						N24 W42	1	0	0		N24 W42	Q	
						S24 W01	0	0	0		S24 W01	Q	
						S19 W32	0	0	0		S19 W32	Q	
						N22 E77	0	0	0		N22 E77	Q	
						N29 E82	0	0	0		N29 E82	Q	
218	05	04	161	159	002	S20 W84	0	0	0	05	S20 W84	Q	Solalert 05/XX,
						N15 W84	2	0	0		N15 W84	E	Magquiet.
						N28 W28	5	0	0		N28 W28	A	
						N24 W56	3	0	0		N24 W56	E	
						S24 W14	0	0	0		S24 W14	Q	
						N23 E64	0	0	0		N23 E64	Q	
						N30 E68	2	0	0		N30 E68	E	
						S14 E15	0	0	0		S14 E15	Q	
219	06	05	136	155	008	N27 W41	1	0	0	06	N27 W41	A	Solalert 06/XX,
						N23 W70	1	0	0		N23 W70	E	Magquiet.
						N22 E50	0	0	0		N22 E50	Q	
						N29 E57	3	0	0		N29 E57	E	
						S13 E01	0	0	0		S13 E01	Q	
220	07	06	186	160	007	N28 W53	3	0	0	07	N28 W53	E	Solnil, Magquiet.
						N23 W87	0	0	0		N23 W87	Q	
						S25 W40	0	0	0		S25 W40	Q	
						N22 E40	0	0	0		N22 E40	Q	
						N29 E44	2	0	0		N29 E44	E	
						S14 W12	1	0	0		S14 W12	E	
						S18 E72	0	0	0		S18 E72	Q	
						N18 W09	0	0	0		N18 W09	Q	
						S11 E23	0	0	0		S11 E23	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages AUGUST 1988

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast[1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
221	08	07	166	166	005	N27 W65	5	0	0	08	N27 W65	E	Solquiet, Magquiet.
						N23 E28	0	0	0		N23 E28	Q	
						N29 E30	0	0	0		N29 E30	Q	
						S13 W26	0	0	0		S13 W26	E	
						S18 E61	0	0	0		S18 E61	Q	
						N16 E72	1	0	0		N16 E72	Q	
						N23 E73	0	0	0		N23 E73	Q	
222	09	08	167	181	004	N27 W76	2	1	0	09	N27 W76	E	Solalert 09/XX,
						N22 E16	1	0	0		N22 E16	E	Magquiet.
						N28 E15	0	0	0		N28 E15	Q	
						S14 W41	0	0	0		S14 W41	E	
						S18 E46	0	0	0		S18 E46	Q	
						N16 E59	0	0	0		N16 E59	E	
						N23 E62	0	0	0		N23 E62	Q	
						N32 E52	0	0	0		N32 E52	Q	
						S20 E67	0	0	0		S20 E67	Q	
223	10	09	177	180	012	N29 W86	0	0	0	10	N29 W86	E	Solnil, Magquiet.
						N23 E02	1	0	0		N23 E02	E	
						N30 E06	0	0	0		N30 E06	Q	
						S14 W54	1	0	0		S14 W54	E	
						S19 E33	0	0	0		S19 E33	Q	
						N16 E46	0	0	0		N16 E46	E	
						N22 E49	2	0	0		N22 E49	E	
						N31 E41	0	0	0		N31 E41	Q	
						S21 E55	0	0	0		S21 E55	Q	
224	11	10	164	180	008	N23 W12	3	0	0	11	N23 W12	E	Solquiet, Magquiet.
						N30 W06	0	0	0		N30 W06	Q	
						S14 W68	6	0	0		S14 W68	E	
						S19 E19	0	0	0		S19 E19	Q	
						N16 E33	1	0	0		N16 E33	E	
						N22 E36	2	0	0		N22 E36	E	
						S22 E45	0	0	0		S22 E45	Q	
225	12	11	164	173	011	N23 W24	0	0	0	12	N23 W24	E	Solquiet, Magquiet.
						N31 W17	0	0	0		N31 W17	Q	
						S13 W80	3	0	0		S13 W80	E	
						S18 E07	0	0	0		S18 E07	Q	
						N16 E20	5	0	0		N16 E20	E	
						N23 E24	1	0	0		N23 E24	Q	
						S22 E32	1	0	0		S22 E32	Q	
226	13	12	192	158	021	N23 W37	1	0	0	13	N23 W37	Q	Solquiet, Magquiet.
						N32 W28	1	0	0		N32 W28	Q	
						S18 W06	0	0	0		S18 W06	Q	
						N16 E07	3	0	0		N16 E07	Q	
						N23 E11	1	0	0		N23 E11	Q	
						S21 E19	0	0	0		S21 E19	Q	
						N24 E76	0	0	0		N24 E76	Q	
						S28 E56	0	0	0		S28 E56	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — AUGUST 1988

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast[1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
227	14	13	159	157	019	N23 W51	1	0	0	14	N23 W51	Q	Solquiet, Magquiet.
						S19 W20	0	0	0		S19 W20	Q	
						N17 W06	0	0	0		N17 W06	Q	
						N23 W02	2	0	0		N23 W02	Q	
						S22 E04	0	0	0		S22 E04	Q	
						N24 E63	0	0	0		N24 E63	Q	
						S25 E45	0	0	0		S25 E45	Q	
						S10 W12	0	0	0		S10 W12	Q	
228	15	14	171	149	020	N23 W63	0	0	0	15	N23 W63	E	Solquiet, Magquiet.
						S19 W33	0	0	0		S19 W33	Q	
						N16 W20	0	0	0		N16 W20	Q	
						N23 W15	1	0	0		N23 W15	Q	
						N34 W24	0	0	0		N34 W24	Q	
						S22 W09	1	0	0		S22 W09	Q	
						N24 E48	0	0	0		N24 E48	Q	
						S09 W25	0	0	0		S09 W25	Q	
						N06 E03	0	0	0		N06 E03	Q	
229	16	15	139	140	021	N23 W77	0	0	0	16	N23 W77	Q	Solquiet, Magquiet.
						S19 W47	0	0	0		S19 W47	Q	
						N16 W33	1	0	0		N16 W33	Q	
						N24 W26	3	0	0		N24 W26	Q	
						N33 W35	1	0	0		N33 W35	Q	
						S21 W22	2	0	0		S21 W22	Q	
						N24 E35	0	0	0		N24 E35	Q	
						N06 W10	0	0	0		N06 W10	Q	
						S19 W11	0	0	0		S19 W11	Q	
230	17	16	101	135	011	N23 W90	0	0	0	17	N23 W90	Q	Solquiet,
						S18 W60	0	0	0		S18 W60	Q	Magalert 17/18.
						N16 W46	3	0	0		N16 W46	E	
						N24 W39	1	0	0		N24 W39	E	
						S20 W35	2	0	0		S20 W35	E	
						N24 E23	0	0	0		N24 E23	Q	
231	18	17	083	138	005	N16 W59	2	0	0	18	N16 W59	E	Solquiet, Magnil.
						N24 W52	4	0	0		N24 W52	E	
						S20 W46	3	0	0		S20 W46	E	
						N24 E10	0	0	0		N24 E10	Q	
						S24 E29	1	0	0		S24 E29	Q	
232	19	18	068	125	011	N15 W74	1	0	0	19	N15 W74	E	Solquiet, Magquiet.
						N23 W66	1	0	0		N23 W66	E	
						S21 W62	0	0	0		S21 W62	E	
						N23 W01	1	0	0		N23 W01	Q	
						N14 E75	0	0	0		N14 E75	Q	
233	20	19	087	121	011	N15 W89	1	0	0	20	N15 W89	Q	Solquiet, Magquiet.
						N23 W82	1	0	0		N23 W82	E	
						S20 W75	1	0	0		S20 W75	E	
						S25 E04	0	0	0		S25 E04	Q	
						N14 E66	0	0	0		N14 E66	E	
						N32 W34	0	0	0		N32 W34	Q	
						N32 E48	0	0	0		N32 E48	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages AUGUST 1988

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
234	21	20	101	115	015	N23 W97	0	0	0	21	N23 W97	Q	Solquiet, Magquiet.
						S21 W88	1	0	0		S21 W88	Q	
						N22 W32	0	0	0		N22 W32	Q	
						S25 W09	0	0	0		S25 W09	Q	
						N14 E55	0	0	0		N14 E55	E	
						S23 E03	0	0	0		S23 E03	Q	
						N32 E18	0	0	0		N32 E18	Q	
						S18 E45	0	0	0		S18 E45	Q	
235	22	21	058	113	009	N23 W46	0	0	0	22	N23 W46	Q	Solquiet, Magalert
						S26 W20	0	0	0		S26 W20	Q	Minor 22/23.
						N14 E42	0	0	0		N14 E42	E	
						S23 W09	1	0	0		S23 W09	Q	
						N16 E63	0	0	0		N16 E63	Q	
		Presto:[2] Boulder				Magstorm begins 21/2228 UT.							
236	23	22	033	113	016	N14 E24	0	0	0	23	N14 E24	Q	Solquiet,
						N17 E34	0	0	0		N17 E34	Q	Magalert 23.
						N22 E74	0	0	0		N22 E74	Q	
237	24	23	061	120	014	N13 E11	0	0	0	24	N13 E11	Q	Solquiet, Magnil.
						N16 E35	0	0	0		N16 E35	Q	
						N16 E19	1	0	0		N16 E19	E	
						N21 E66	0	0	0		N21 E66	Q	
						S37 E21	0	0	0		S37 E21	Q	
238	25	24	074	131	012	N13 W02	0	0	0	25	N13 W02	Q	Solquiet, Magquiet.
						N20 W18	8	0	0		N20 W18	E	
						N17 E09	0	0	0		N17 E09	Q	
						N21 E54	0	0	0		N21 E54	Q	
						S37 E10	0	0	0		S37 E10	Q	
239	26	25	121	140	013	N13 W15	0	0	0	26	N13 W15	Q	Solquiet, Magquiet.
						N19 W31	6	0	0		N19 W31	E	
						S22 W57	0	0	0		S22 W57	Q	
						N15 E08	0	0	0		N15 E08	Q	
						N16 W06	0	0	0		N16 W06	Q	
						N22 E37	0	0	0		N22 E37	Q	
						S22 E64	1	0	0		S22 E64	E	
						N21 W41	0	0	0		N21 W41	Q	
		Presto: Boulder				Proton event began 26/0000 UT, maximum of 10 particles/cm^2-s-ster at greater than 10 MeV.							
240	27	26	123	153	010	N13 W29	0	0	0	27	N13 W29	Q	Solquiet, Magquiet.
						N20 W44	2	0	0		N20 W44	Q	
						N16 W20	0	0	0		N16 W20	Q	
						N21 E24	0	0	0		N21 E24	Q	
						S23 E53	2	1	0		S23 E53	E	
						N21 W53	2	0	0		N21 W53	Q	
						N21 E59	1	0	0		N21 E59	Q	
						S14 E74	1	0	0		S14 E74	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages AUGUST 1988

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
241	28	27	143	163	014	N13 W42	1	0	0	28	N13 W42	Q	Solquiet, Magquiet.
						N20 W57	2	0	0		N20 W57	Q	
						N22 E11	0	0	0		N22 E11	Q	
						S23 E41	1	0	0		S23 E41	E	
						N21 W68	2	0	0		N21 W68	Q	
						N20 E47	3	0	0		N20 E47	Q	
						S14 E62	0	0	0		S14 E62	Q	
						N15 E11	3	0	0		N15 E11	Q	
						S19 E67	1	0	0		S19 E67	E	
242	29	28	178	171	010	N15 W56	1	0	0	29	N15 W56	Q	Solquiet, Magquiet.
						N20 W69	0	0	0		N20 W69	Q	
						N24 E00	0	0	0		N24 E00	Q	
						S23 E30	0	0	0		S23 E30	Q	
						N20 W85	1	0	0		N20 W85	Q	
						N21 E35	2	0	0		N21 E35	Q	
						S13 E49	1	0	0		S13 E49	Q	
						N15 W02	1	0	0		N15 W02	Q	
						S19 E59	4	0	0		S19 E59	E	
		Presto:[2] Boulder				Proton event began 27/1040 UT, maximum of 14 particles/cm²-s-ster at greater than 10 MeV 27/1925, ended 28/0750 UT.							
243	30	29	203	185	013	N14 W71	1	0	0	30	N14 W71	Q	Solquiet, Magquiet.
						N20 W82	0	0	0		N20 W82	Q	
						N23 W12	0	0	0		N23 W12	Q	
						S23 E18	0	0	0		S23 E18	E	
						N21 W86	0	0	0		N21 W86	Q	
						N21 E23	1	0	0		N21 E23	E	
						S13 E35	0	0	0		S13 E35	Q	
						N15 W15	0	0	0		N15 W15	Q	
						S19 E47	5	0	0		S19 E47	E	
244	31	30	188	187	014	N14 W83	2	0	0	31	N14 W83	Q	Solquiet, Magquiet.
						N19 W91	0	0	0		N19 W91	Q	
						S23 E05	0	0	0		S23 E05	E	
						N21 E09	1	0	0		N21 E09	E	
						S13 E22	0	0	0		S13 E22	Q	
						N15 W29	0	0	0		N15 W29	Q	
						S19 E33	7	0	0		S19 E33	E	
						N35 E57	0	0	0		N35 E57	Q	
245	01	31	151	190	011	S23 W09	2	0	0	01	S23 W09	E	Solalert 01/XX,
						N22 W03	8	0	0		N22 W03	E	Magquiet.
						S14 E09	0	0	0		S14 E09	Q	
						S19 E21	6	0	0		S19 E21	E	
						N37 E46	0	0	0		N37 E46	Q	
		Presto: Boulder				Tenflare 23 flux units duration 1 minute 31/1642 UT.							

[1]Q = quiet, E = eruptive, A = active, P = proton.

[2]Presto message is a rapid report of a major event.

INTERNATIONAL RELATIVE SUNSPOT NUMBERS

Day	Sep 87	Oct	Nov	Dec	Jan 88	Feb	Mar	Apr	May	Jun	Jul†	Aug†
01	33	34	56	17	47	63	68	110	69	95	139	142
02	38	25	57	16	31	68	66	96	84	96	145	143
03	37	31	57	16	25	68	72	94	76	100	142	146
04	38	58	46	15	23	74	77	74	101	105	129	135
05	39	54	47	19	32	58	64	66	103	125	119	120
06	44	48	27	24	40	43	61	62	77	145	103	123
07	56	39	31	34	58	44	65	84	50	141	103	144
08	67	55	43	36	57	46	67	92	63	151	106	160
09	64	50	42	41	62	50	49	115	74	173	82	171
10	59	51	30	34	68	38	36	107	87	144	78	152
11	58	63	28	22	75	26	20	115	65	108	95	135
12	44	53	25	13	67	14	39	118	56	77	100	133
13	25	74	18	20	76	23	53	120	44	47	103	122
14	20	92	23	26	91	28	62	138	37	53	114	128
15	21	101	22	42	90	33	63	145	44	65	111	121
16	24	101	33	40	83	42	74	157	53	81	111	85
17	25	91	46	39	72	35	99	144	57	76	116	67
18	30	86	48	39	68	55	95	137	44	67	136	44
19	35	82	51	28	73	66	105	108	20	70	105	57
20	38	79	49	26	85	51	85	88	20	77	106	57
21	32	61	51	14	78	27	81	79	25	95	103	40
22	23	50	70	24	66	15	76	72	30	92	106	22
23	26	33	83	17	47	13	74	43	40	91	109	26
24	25	22	56	13	44	23	83	30	48	93	81	43
25	12	29	42	25	33	19	92	40	54	111	76	71
26	12	40	47	27	44	15	93	44	63	107	76	93
27	19	70	21	29	54	31	103	36	66	111	111	142
28	22	79	11	28	67	40	109	41	70	116	122	146
29	26	82	20	30	59	52	104	39	74	121	157	164
30	26	85	16	42	56		108	47	83	121	161	163
31		62		43	57		120		86		146	151
Mean	33.9	60.6	39.9	27.1	59.0	40.0	76.2	88.0	60.1	101.8	112.6	111.2

† = preliminary. The yearly mean sunspot number equaled 29.2 in 1987.

Algonquin Radio Observatory — OTTAWA 2800 MHz (10.7 cm) SOLAR FLUX — Adjusted to 1 AU

Day	Sep 87	Oct	Nov	Dec	Jan 88	Feb	Mar	Apr	May	Jun	Jul	Aug
01	85.3*	84.2	99.1	87.6	100.1	105.5	99.8*	127.2	108.8	149.3*	194.4*	180.9
02	85.5	84.8	105.0	86.5	93.7	104.3	99.1	126.5	113.1*	147.6	198.9	187.6
03	87.5	85.6*	98.0	85.8	101.2	103.6	101.9*	127.6	116.4*	149.5	190.2	172.2*
04	89.6	89.2	101.1*	85.1	98.2	103.1	102.6*	122.6	127.4	150.9	181.0	163.6
05	93.5*	90.1	99.2	86.8	99.5	102.6	106.7*	114.6	121.1	151.2	171.2	159.2
06	95.6*	89.5	94.9	85.7	101.7	103.6	107.6	116.8	116.5	159.0	156.7	163.4
07	99.5*	90.9	94.4	85.3	102.1	105.3	107.3	120.0	112.9	164.6	152.4	170.4
08	101.9	95.0	92.7	88.7	105.6	102.5	104.1*	121.8*	116.7	168.3	142.4	186.9
09	100.9	92.7	90.3	91.2	100.6*	101.0	101.5	121.8*	121.9	165.9*	137.7	182.4
10	97.8	101.1	89.2	90.1	100.9	100.2	99.2	127.2	116.4	149.8	138.3	181.8
11	95.4	100.8*	92.6	91.1	101.7*	99.6	102.9	128.0*	114.6	137.8	137.7*	178.2
12	91.1	102.2	92.6	91.5*	107.5*	101.3	103.5	130.6*	111.6	125.9	137.9	161.2
13	89.7	105.5	92.9	91.1	108.1*	102.9	107.8	134.6	105.9	115.0	141.3*	159.7
14	86.8	113.3*	92.3	91.5	113.7	102.6	108.9*	146.3	105.2	111.7	150.1	151.6
15	85.0	117.8I	93.7	92.0*	112.4	100.4	112.6*	143.5	103.4	113.5	150.7	144.0
16	83.5	111.1	95.0	93.4*	121.8*	101.0	114.1*	147.6	103.3	121.7	153.3*	137.8
17	84.0	106.0	96.8	92.2	116.4*	106.2	117.4	145.5	103.7	124.8	152.8*	145.6
18	82.4	106.5	100.0	90.2	110.9	112.5	116.1	145.3	106.7	125.7	152.3	128.5
19	82.7	100.4	106.6	88.4	114.2	109.0	116.1*	138.5	104.8	119.4	142.1	123.9
20	84.9	95.6	112.2	86.9	112.7	106.5	116.3*	134.9	106.1	118.5	141.3	118.1
21	83.0	89.3	115.3	90.7	111.6	104.7	117.5*	127.6	112.6	122.8*	145.8	116.1
22	81.3	88.2	117.8	88.1	104.5	102.5	117.6	120.1	114.0	124.4*	141.2	114.9
23	80.4	87.0	115.1	88.2	104.7	100.2	120.9*	111.5	122.2	129.3	144.6	121.7A
24	80.3	87.1	109.4	89.9	102.2	99.6	123.0*	105.6	119.8	135.7*	138.6	133.7
25	77.9	92.3	104.9	96.2*	94.9	96.4	128.5*	106.7	123.8*	153.7	140.9	144.3
26	76.4	96.9	101.3	96.8*	93.5	96.7	127.5*	103.8	127.8	157.6*	149.7	157.1
27	80.2	105.9	94.9	101.4	101.6	96.3	128.0*	101.9	130.0	160.5	161.5	166.8
28	82.3	106.2	92.3	102.5	103.0	97.1	129.8	101.6	130.1	183.2	175.4	174.0
29	83.5	102.7	90.7	101.4	99.1	103.3	131.7	102.1	140.2	189.5	185.9	189.0
30	81.9	104.2	89.1	99.2	100.1		128.3	104.8	142.8	187.4*	188.3	190.0
31		97.8		99.7	103.1		130.6*		153.6*		192.5	194.5
Mean	87.0	97.4	99.0	91.5	104.6	102.4	113.8	123.6	117.9	143.8	157.6	158.0

* = corrected for burst in progress; A = interpolation - interference during calibration; I = 1700 UT calibration taken at 1915 UT. The yearly mean flux equaled 85.3 in 1987.

DAILY SOLAR INDICES

August 1988

Day	Julian Day	Bartels Cycle Day	Sunspot Numbers Int	Amer	Obs Flux Ottawa (2800)	Solar Flux Adjusted to 1 Astronomical Unit — SGMR (15400)	SGMR (8800)	SGMR (4995)	Ottawa (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
01	214	22	142	142	175.6	588	280	205	180.9	181	119	63	43	45
02	215	23	143	149	182.2	580	288	213	187.6	190	124	63	32	31
03	216	24	146	149	167.3*	705	276	205	172.2*	179	116	59	36	21
04	217	25	135	141	159.0	572	264	191	163.6	164	108	57	31	17
05	218	26	120	122	154.7	542	259	183	159.2	156	105	56	31	21
06	219	27	123	129	158.9	580	267	190	163.4	160	105	55	29	12
07	220	1	144	145	165.7	494	270	197	170.4	169	106	55	32	22
08	221	2	160	160	181.8	562	284	217	186.9	181	110	56	35	32
09	222	3	171	171	177.5	---	275	214	182.4	183	113	55	33	27
10	223	4	152	153	177.0	582	290	220	181.8	180	113	57	36	31
11	224	5	135	131	173.5	561	276	191	178.2	172	106	57	36	12
12	225	6	133	145	157.0	556	265	178	161.2	168	103	40	26	10
13	226	7	122	124	155.6	555	262	170	159.7	158	99	54	31	14
14	227	8	128	129	147.8	542	261	160	151.6	148	96	51	29	8
15	228	9	121	113	140.4	550	253	151	144.0	143	95	53	31	14
16	229	10	85	80	134.4	572	266	152	137.8	136	93	53	29	18
17	230	11	67	57	142.1	531	269	150	145.6	125	96	55	32	27
18	231	12	44	47	125.5	577	256	145	128.5	115	92	55	27	24
19	232	13	57	56	121.0	478	254	141	123.9	113	92	54	30	20
20	233	14	57	52	115.4	543	255	139	118.1	110	91	55	32	39
21	234	15	40	33	113.5	502	239	132	116.1	107	90	55	30	16
22	235	16	22	24	112.4	564	246	134	114.9	107	90	55	29	18
23	236	17	26	30	119.1A	580	255	149	121.7A	147	117	61	33	27
24	237	18	43	56	130.9	544	263	149	133.7	122	103	56	31	32
25	238	19	71	78	141.3	574	269	157	144.3	134	109	58	31	24
26	239	20	93	93	153.9	564	263	161	157.1	141	115	59	31	23
27	240	21	142	133	163.5	588	275	171	166.8	149	123	62	33	26
28	241	22	146	144	170.6	543	280	178	174.0	157	128	60	31	23
29	242	23	164	162	185.4	503	290	194	189.0	170	132	58	35	--
30	243	24	163	158	186.5	484	290	193	190.0	170	134	64	37	--
31	244	25	151	142	191.0	484	293	197	194.5	173	135	62	36	48
Mean			111.2	111.2	154.2	553	269	175	158.0	152	108	57	32	24

The International numbers shown above are preliminary values; the American numbers are final.

The observed and the adjusted Ottawa fluxes tabulated here are the "Series C" daily values reported by the Algonquin Radio Observatory, Ottawa, Ontario, Canada. Numbers in parentheses in the column headings denote frequencies in MHz. Qualifiers after an entry have the following meaning:

* = corrected for burst in progress
A = interpolated - interference during calibration

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

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

AUGUST 1988

Date	RELATIVE SUNSPOT NUMBERS: International (R_i) Monthly Mean	International (R_i) Smoothed	American (R_a) Monthly Mean	American (R_a) Smoothed	Derived (R_s) Monthly Mean	Derived (R_s) Smoothed	2800 MHz RADIO FLUX Adjusted to 1 AU (S_a) Monthly Mean	2800 MHz RADIO FLUX Adjusted to 1 AU (S_a) Smoothed
Aug 84	25.5	40	24.5	38	30.7	41	85.8	95
Sep	15.7	34	13.6	32	23.2	35	78.9	90
Oct	12.0	29	9.8	27	16.9	31	73.1	86
Nov	22.8	25	19.4	23	18.6	26	74.6	72
Dec	18.7	22	17.0	20	17.4	23	73.5	79
Jan 85	16.5	20	14.5	19	15.9	21	72.1	77
Feb	15.9	20	16.3	18	15.7	20	71.9	76
Mar	17.2	19	11.8	16	16.3	19	72.5	75
Apr	16.2	18	17.1	17	19.8	19	75.7	75
May	27.5	18	24.0	17	26.6	19	82.0	75
Jun	24.2	18	22.2	16	22.8	19	78.5	75
Jul	30.7	17	30.8	16	25.8	19	81.3	75
Aug	11.1	17	10.7	15	17.2	19	73.3	75
Sep	3.9	17	3.4	16	13.8	20	70.2	76
Oct	18.6	17	16.5	16	18.1	20	74.2	76
Nov	16.2	17	16.4	15	16.4	19	72.6	75
Dec	17.3	15	10.1	14	16.2	19	72.4	75
Jan 86	2.5	14	2.3	12	14.6	18	70.9	74
Feb	23.2	13	23.8	11	26.0	17	81.5	74
Mar	15.1	13	12.5	11	20.3	17	76.2	73
Apr	18.5	14	13.8	12	19.6	18	75.6	74
May	13.7	14	11.6	12	18.1	18	74.2	74
Jun	1.1	14	0.8	11	13.3	18	69.7	74
Jul	18.1	14	17.7	11	16.3	18	72.5	74
Aug	7.4	13	7.6	11	13.7	17	70.1	73
Sep	3.8	12	3.5	10	13.0	17	69.4	73
Oct	35.4	13	19.8	11	27.0	17	82.4	73
Nov	15.2	15	14.7	13	19.5	18	75.5	74
Dec	6.8	16	5.1	14	14.0	19	70.4	75
Jan 87	10.4	18	9.4	16	13.8	20	70.2	76
Feb	2.4	20	3.0	18	13.4	22	69.8	78
Mar	14.7	22	13.3	20	17.2	24	73.3	80
Apr	39.6	24	39.4	23	30.3	25	85.5	81
May	33.0	26	30.7	26	35.0	27	89.8	83
Jun	17.4	28	18.0	28	24.8	29	80.4	84
Jul	33.0	31	34.3	31	32.0	32	87.0	87
Aug	38.7	35	39.0	34	37.6	35	92.2	89
Sep	33.9	39	34.0	38	32.0	38	87.0	93
Oct	60.6	44	55.8	43	43.2	41	97.4	96
Nov	39.9	47	42.5	47	44.9	44	99.0	99
Dec	27.1	51	26.7	52	36.8	49	91.5	102
Jan 88	59.0	58*	56.8	59	51.0	55	104.6	108
Feb	40.0	64*	39.1	65*	48.6	61	102.4	114
Mar	76.2	71(4)*	77.5	71	60.9	67	113.8	--
Apr	88.0	77(7)*	90.9	78	71.5	73	123.6	--
May	60.1	83(10)*	64.7	84	65.3	79	117.9	--
Jun	101.8	89(12)*	106.4	90	93.3	85	143.8	--
Jul	112.6*	97(15)*	108.7	98	108.2	93	157.6	--
Aug	111.2*	106(19)*	111.2*	106	108.6	100	158.0	--
Sep	----	112(22)*	----	113	----	107	----	--
Oct	----	119(26)*	----	120	----	113	----	--
Nov	----	124(29)*	----	125	----	118	----	--
Dec	----	128(32)*	----	129	----	122	----	--
Jan 89	----	131(33)*	----	132	----	125	----	--
Feb	----	134(32)*	----	135	----	129	----	--

*An asterisk marks either a preliminary value or one based in part on preliminary observations.

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

SMOOTHED (OBSERVED AND PREDICTED) SUNSPOT NUMBERS: CYCLES 21 AND 22

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1980	164	163	161	159	156	155	153	150	150	150	148	143
1981	140	142	143	143	143	142	140	141	143	142	139	138
1982	137	133	129	124	120	117	115	109	101	96	95	95
1983	93	90	86	82	77	70	66	66	68	68	67	64
1984	60	56	53	50	48	46	44	40	34	29	25	22
1985	20	20	19	18	18	18	17	17	17	17	17	15
1986	14	13	13	14	14	14	14	13	12*	13	15	16
1987	18	20	22	24	26	28	31	35	39	44	47	51
1988	58	64	71	77	83	89	97	106	112	119	124	128
			(4)	(7)	(10)	(12)	(15)	(19)	(22)	(26)	(29)	(32)
1989	131	134	143	150	157	162	165	168	174	179	181	181
	(33)	(32)	(32)	(32)	(33)	(36)	(38)	(40)	(44)	(46)	(48)	(50)
1990	181	180	178	173	167	163	161	158	151	144	137	133
	(53)	(55)	(56)	(55)	(52)	(47)	(45)	(46)	(44)	(42)	(38)	(34)

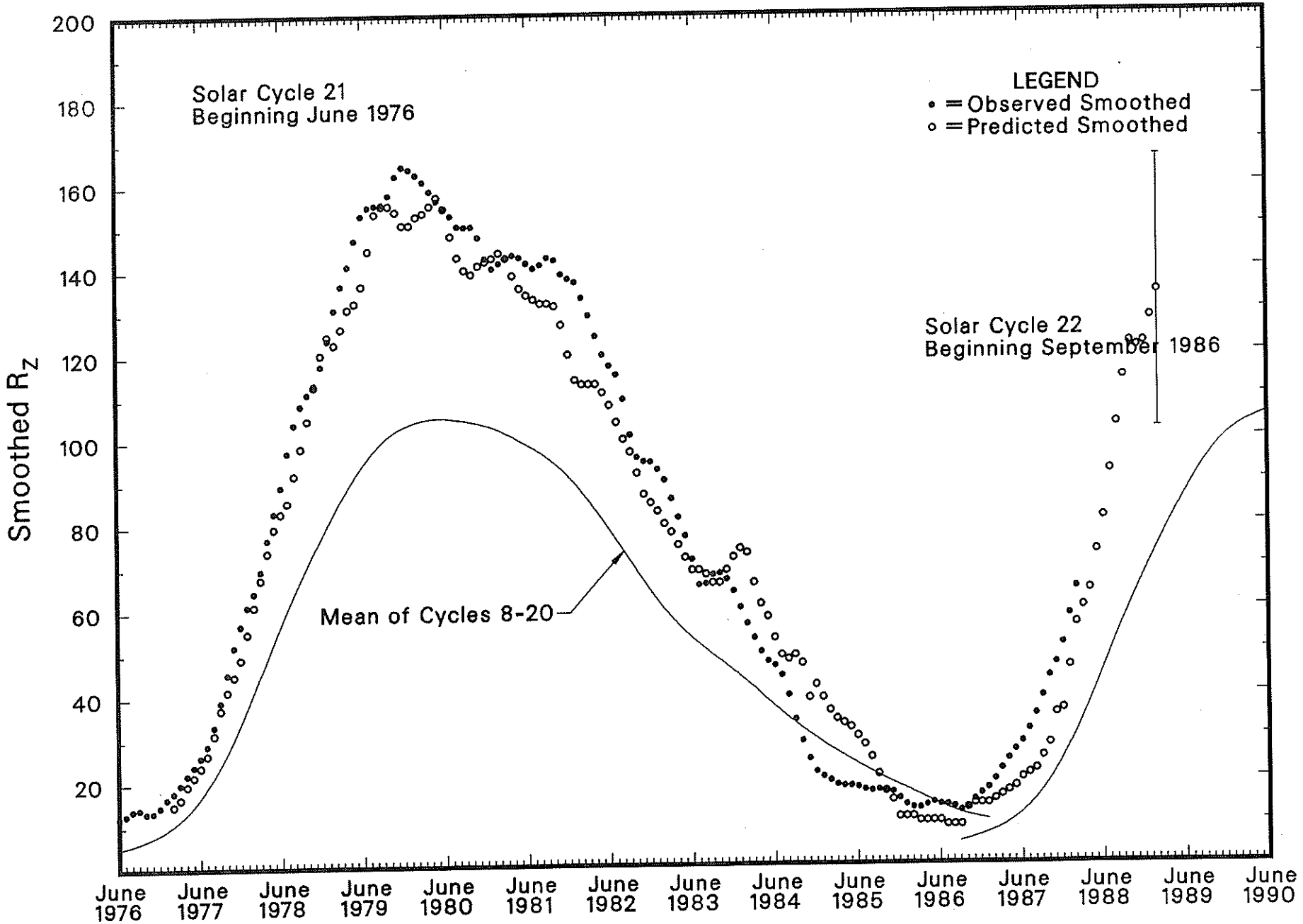
*September 1986 marks the onset of Sunspot Cycle 22.

For the end of Solar Cycle 21, and the beginning of 22, the table gives observed smoothed sunspot numbers up to the one calculated from the most recently available monthly mean. These smoothed observed values are based on final, monthly means through June 1988 and on provisional numbers thereafter.

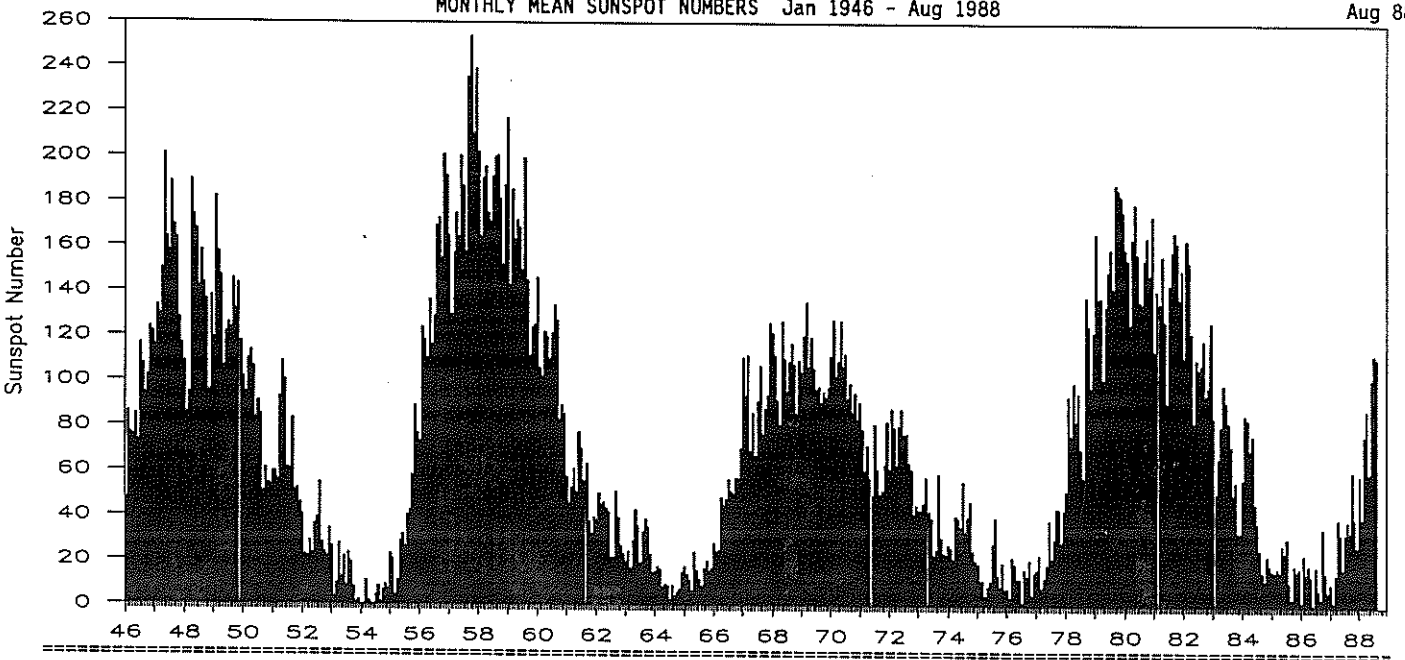
Table entries, with numbers in parentheses below them, denote predictions by the McNish-Lincoln method. (See page 9 in the July 1987 supplement to *Solar-Geophysical Data*.) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval; subtracting the number from the predicted value generates the lower limit. Consider, for example, the February prediction. There exists a 90% chance that in February 1989 the actual smoothed sunspot number will fall somewhere between 102 and 166.

THE MCNISH-LINCOLN PREDICTION METHOD GENERATES USEFUL ESTIMATES OF SMOOTHED, MONTHLY MEAN SUNSPOT NUMBERS FOR NO MORE THAN 12 MONTHS AHEAD. Beyond a year the predictions regress rapidly toward the mean of all 14 cycles used in the computation. Moreover, the method is very sensitive to the data defined as the beginning of the current sunspot cycle, that is, to the date of the most recent sunspot minimum. The new cycle predictions tabulated above are based on the minimum value of 12.3 that occurred in September 1986.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SUNSPOT NUMBERS



MONTHLY MEAN SUNSPOT NUMBERS Jan 1946 - Aug 1988



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1946	47.6	86.2	76.6	75.7	84.9	73.5	116.2	107.2	94.4	102.3	123.8	121.7	92.6
1947	115.7	133.4	129.8	149.8	201.3	163.9	157.9	188.8	169.4	163.6	128.0	116.5	151.6 M
1948	108.5	86.1	94.8	189.7	174.0	167.8	142.2	157.9	143.3	136.3	95.8	138.0	136.3
1949	119.1	182.3	157.5	147.0	106.2	121.7	125.8	123.8	145.3	131.6	143.5	117.6	134.7
1950	101.6	94.8	109.7	113.4	106.2	83.6	91.0	85.2	51.3	61.4	54.8	54.1	83.9
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8	69.4
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3	31.5
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5	13.9
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6	4.4 m
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9	38.0
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1	141.7
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4	190.2 M
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6	184.8
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0	159.0
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6	112.3
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.8	63.6	37.7	32.6	39.9	53.9
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2	37.6
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9	27.9
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1	10.2 m
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0	15.1
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4	47.0
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4	93.8
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8	105.9 M
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9	105.5
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5	104.5
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2	66.6
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3	68.9
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3	38.0
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5	34.5
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8	15.5
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3	12.6 m
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	27.5
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	92.5
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	155.4 M
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4	154.6
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	140.4
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.7	98.1	127.0	115.9
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.8	33.3	33.4	66.6
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7	45.9
1985	16.5	15.9	17.2	16.2	27.5	24.2	30.7	11.1	3.9	18.6	16.2	17.3	17.9
1986	2.5	23.2	15.1	18.5	13.7	1.1	18.1	7.4	3.8	35.4	15.2	6.8	13.4 m
1987	10.4	2.4	14.7	39.6	33.0	17.4	33.0	38.7	33.9	60.6	39.9	27.1	29.2
1988	59.0	40.0	76.2	88.0	60.1	101.8	112.6*	111.2*					81.1*

*Preliminary

For the yearly means, each "M" marks a sunspot cycle maximum and each "m" a minimum.

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

AUGUST 1988

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0001	PALE	01	0003E	0003	0013	S19	W37	5084	07	29.3	10D	SF		3	E		37		F
0002	LEAR	01	0342	0342	0345	N11	W49	5085	07	28.6	3	SF		3	E		13		
0003	LEAR	01	0403	0404	0442	N14	W33	5090	07	29.8	39	SF	C 2.8	3	E		36		
0004		01	0534	0624*	0712	N34	E27	5092	08	3.4	98	1N	M 2.0				256	6.1	F
	SVTO	01	0533E	0624	0708D	N35	E30	5092	08	3.6	95D	1B	M 2.0	2	E		188		F
	LEAR	01	0534	0627	0709	N34	E28	5092	08	3.5	95	1F		3	E		98		
	YUNN	01	0642E	0643	0716	N34	E24	5092	08	3.2	34D	2B			P		482	6.1	F
0005	HOLL	01	1647	1647	1654	N25	W10	5096	07	31.9	7	SF		3	E		10		F
0006	HOLL	01	1703	1707	1815	N15	W39	5090	07	29.8	72	SF		3	E		24		F
0007		01	17381	17402	1753	N30	E16	5092	08	3.0	15	SF					18		
	HOLL	01	1738	1742	1753	N31	E16	5092	08	3.0	15	SF		3	E		19		
	RAMY	01	1739	1740	1753	N30	E15	5092	08	2.9	14	SF		3	E		16		
0008	HOLL	01	2042E	2044U	2044D	S27	E30	5097	08	4.2	2D	SF		2	E		23		
0009	PALE	01	2248	2250	2256D	N12	W46	5085	07	29.6	8D	SF		3	E		32		F
0010	PALE	01	2311	2319	2321	N12	W48	5085	07	29.4	10	SF		3	E		33		F
0011	LEAR	01	2334	2343	2347	N15	W42	5090	07	29.9	13	SF		3	E		25		
0012	LEAR	01	2356	2402	2416	N11	W47	5090	07	29.6	20	SF		3	E		20		
0013		02	0020	00328	0040	S21	W46	5084	07	29.6	20	SN					19	0.4	
	LEAR	02	0020	0032	0037	S20	W46	5084	07	29.6	17	SF		3	E		14		
	YUNN	02	0038E	0040	0044	S22	W46	5084	07	29.6	6D	SN			P		24	0.4	
0014	PALE	02	0432	0439	0443	S26	E27	5097	08	4.3	11	SF		3	E		29		
0015	LEAR	02	0519	0520	0523	N10	W46	5090	07	29.9	4	SF		3	E		14		
0016		02	06484	0652*	0717D	N14	W49	5090	07	29.7	29D	SF	C 1.5				69	1.6	D
	YUNN	02	0648	0652	0658D	N13	W50	5090	07	29.6	10D	SN	C 1.5		P		80	1.3	
	SVTO	02	0652	0658U	0706D	N15	W46	5090	07	29.9	14D	SF	C 1.5	2	E		19		
	PEKG	02	0717E	0717	0717D	N14	W52	5090	07	29.5	14D	SF			P	0717	109	1.8	D
0017	LEAR	02	0803	0803	0807	N14	W51	5090	07	29.6	4	SF		3	E		21		
0018	LEAR	02	0841	0842	0847	N14	W51	5090	07	29.6	6	SF		3	E		14		
0019	RAMY	02	1250	1250	1257	N29	E03	5092	08	2.8	7	SF		3	E		19		
0020		02	1548	1557	1646	N17	W54	5090	07	29.6	58	1N	C 9.5				92		
	RAMY	02	1548	1557	1634	N14	W55	5090	07	29.6	46	1N	C 9.5	3	E		124		
	HOLL	02	1634E	1637U	1657	N20	W54	5090	07	29.7	23D	SF		2	E		60		
0021	RAMY	02	1600	1611	1622	N30	E10	5092	08	3.4	22	SF		3	E		13		
0022		02	17212	17241	1800	N31	E10	5092	08	3.5	39	1B	M 1.7				148		H
	HOLL	02	1721	1724	1805	N31	E10	5092	08	3.5	44	1B	M 1.7	3	E		141		H
	PALE	02	1723	1725	1754	N31	E10	5092	08	3.5	31	1B	M 1.7	3	E		154		H
0023		02	17306	17334	1801	N13	W56	5090	07	29.6	31	SF	C 7.5				47		EF
	HOLL	02	1730	1733	1810	N13	W56	5090	07	29.6	40	SN	C 7.5	3	E		87		FE
	RAMY	02	1732	1733	1807	N12	W58	5090	07	29.5	35	SF	C 7.5	3	E		41		F
	PALE	02	1736	1737	1745	N15	W53	5090	07	29.8	9	SF	C 7.5	3	E		13		
0024	HOLL	02	1810	1816	1847	N15	W66	5085	07	28.9	37	SF		3	E		23		H
0025		02	18204	1834	1852	N17	W62	5090	07	29.1	32	SF	C 6.5				48		F
	HOLL	02	1820	1833U	1859D	N20	W62	5090	07	29.1	39D	SF	C 6.5	3	E		59		
	RAMY	02	1824	1834	1852	N14	W62	5090	07	29.2	28	SF	C 6.5	3	E		36		F
0026	RAMY	02	1857	1858	1903	S21	W61	5084	07	29.2	6	SF		3	E		15		F

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

AUGUST 1988

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0027	RAMY	02	1940	1942	1959	S19	W61	5084	07	29.3	19	SF		3	E		22		
0028	HOLL	02	2035	2040	2116	N15	W54	5090	07	29.9	41	SF	C 5.7	3	E		40		F
0029		02	22038	2211	2239	N15	W58	5090	07	29.6	36	SN	C 7.8				76		F
	HOLL	02	2203	2211	2248	N15	W59	5090	07	29.5	45	SB	C 7.8	3	E		95		F
	PALE	02	2211	2211	2230	N15	W57	5090	07	29.7	19	SF	C 7.8	3	E		91		
	RAMY	02	2213E	2214U	2216D	N15	W59	5090	07	29.5	3D	SN	C 7.8	1	E		42		
0030		02	22043	22052	2216	N31	E08	5092	08	3.5	12	SF	C 5.1				42		FH
	HOLL	02	2204	2205	2215	N31	E07	5092	08	3.5	11	SN	C 5.1	3	E		58		H
	PALE	02	2207	2207	2217	N31	E07	5092	08	3.5	10	SF	C 5.1	3	E		47		H
	RAMY	02	2208E	2208U	2216D	N31	E09	5092	08	3.6	8D	SF	C 5.1	1	E		20		F
0031	LEAR	03	0018	0019	0026	S22	W57	5084	07	29.7	8	SF		3	E		21		
0032	YUNN	03	0141E	0141U	0144	N26	W30	5096	07	31.7	3D	SN			P	0141	24	0.3	
0033	YUNN	03	0234	0237	0256	N30	E00	5092	08	3.1	22	SF			C		32	0.4	
0034	YUNN	03	0259	0302	0303	N34	E03	5092	08	3.4	4	SF			C		64	0.7	
0035		03	0624*	0639*	0720	N13	W63	5090	07	29.6	56	SF	C 3.3				70	2.1	
	LEAR	03	0624	0639	0742	N14	W61	5090	07	29.7	78	SN	C 3.3	3	E		91		
	YUNN	03	0653E	0653U	0658	N13	W62	5090	07	29.7	5D	1F	C 3.3		P	0653	96	2.1	
	YUNN	03	0704	0708	0720	N11	W67	5090	07	29.3	16	SF			C		24		
0036	LEAR	03	0727	0728	0738	S21	W60	5084	07	29.8	11	SF		3	E		40		
0037		03	0829	08322	0904	N15	W70	5085	07	29.1	35	2B	C 8.3				300		
	LEAR	03	0829	0832	0907	N15	W70	5085	07	29.1	38	2N	C 8.3	3	E		261		
	YUNN	03	0830E	0834	0902	N15	W69	5085	07	29.2	32D	2B	C 8.3		P		338		
0038	HOLL	03	1435	1441	1512	N14	W67	5090	07	29.6	37	SF	C 3.0	3	E		22		F
0039	HOLL	03	1525	1542	1546	N19	W68	5090	07	29.5	21	SN	C 2.9	4	E		47		F
0040	HOLL	03	1848	1848	1859	N13	W68	5090	07	29.7	11	SF		3	E		29		F
0041	PALE	03	2034E		2104	N14	W64	5090	07	30.1	30D	SN	M 1.3	3	E		88		F
0042	LEAR	04	0039	0047	0054	N13	W70	5090	07	29.8	15	SF		3	E		31		
0043	LEAR	04	0453	0453	0504	N14	W75	5090	07	29.6	11	SF	C 2.2	3	E		33		
0044		04	0711	07125	0726	N30	W14	5092	08	3.2	15	SF	C 2.2				91	1.9	
	LEAR	04	0711	0712	0722	N31	W13	5092	08	3.3	11	SF	C 2.2	3	E		21		
	YUNN	04	0711	0717	0731	N30	W15	5092	08	3.1	20	SF	C 2.2		C		161	1.9	
0045	HOLL	04	1716	1717	1729	N32	E78	5100	08	10.9	13	SF	C 3.5	3	E		41		F
0046	HOLL	04	1731	1733	1742	N25	W47	5096	08	1.1	11	SF		3	E		17		
0047		04	18197	1828*	1908	N30	W20	5092	08	3.2	49	SF	C 2.8				46		FZ
	RAMY	04	1819	1906	1938	N30	W20	5092	08	3.2	79	SF	C 2.8	3	E		63		ZF
	HOLL	04	1826	1828	1838	N29	W20	5092	08	3.2	12	SF	C 2.0	3	E		28		F
0048	RAMY	04	1926	1927	1941	N30	E74	5100	08	10.6	15	SF		3	E		63		
0049	RAMY	04	1957	2009	2016	N20	W48	5096	08	1.1	19	SF		3	E		49		
0050	RAMY	04	2040E	2042U	2045	N25	W51	5096	07	31.9	5D	SF	C 1.6	2	E		24		
0051	RAMY	04	2052E	2057U	2120D	N27	W26	5092	08	2.8	28D	SF	C 5.5	2	E		80		F
0052	PALE	04	2315	2323	2328	N25	W28	5092	08	2.8	13	SF		3	E		11		
0053		05	00301	00301	0046	N25	W52	5096	08	1.0	16	SF					16		
	PALE	05	0030	0030	0038	N25	W53	5096	07	31.9	8	SF		3	E		15		
	LEAR	05	0031	0031	0055	N25	W50	5096	08	1.1	24	SF		3	E		17		

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

AUGUST 1988

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp	Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0054	LEAR	05	0638	0640	0653	N29	E71	5100	08	10.8	15	SF			3	E		60		
0055	HOLL	05	1739	1742	1803	N27	W36	5092	08	2.9	24	SF			3	E		51		F
0056	RAMY	05	2114	2128U	2153	N28	E56	5100	08	10.3	39	SF			3	E		50		
0057	PALE	05	2259E	2313U	2346D	N27	E56	5100	08	10.3	47D	SF			2	E		36		
0058	RAMY	06	1311	1311	1322	N26	W47	5092	08	2.9	11	SF			3	E		13		F
0059		06	16351	16381	1720	N28	W46	5092	08	3.1	45	SF	C	3.8				46		EF
	HOLL	06	1635	1638	1722	N28	W45	5092	08	3.2	47	SF	C	3.8	3	E		44		FE
	RAMY	06	1636	1639	1719	N27	W46	5092	08	3.1	43	SF	C	3.8	3	E		49		FE
0060		06	1858	1901	1911	N28	W48	5092	08	3.0	13	SF						17		F
	HOLL	06	1858	1901	1911	N28	W48	5092	08	3.0	13	SF			3	E		18		F
	RAMY	06	1858	1901	1931D	N27	W48	5092	08	3.0	33D	SF			3	E		16		
0061		06	1956	19562	2013	S14	W10	5101	08	6.1	17	SF						28		
	PALE	06	1956	1956	2014	S14	W10	5101	08	6.1	18	SF			3	E		29		
	HOLL	06	1956	1958	2012	S14	W10	5101	08	6.1	16	SF			3	E		27		
0062		06	20323	2039	2116	N30	E48	5100	08	10.6	44	SF	C	1.7				71		F
	HOLL	06	2032	2037U	2129	N29	E49	5100	08	10.7	57	SF	C	1.7	3	E		91		F
	PALE	06	2035	2039	2102	N30	E48	5100	08	10.6	27	SF	C	1.7	3	E		51		F
0063	LEAR	07	0445	0446	0451	N14	E88	5105	08	13.8	6	SF			3	E		19		
0064	RAMY	07	1518	1521	1535	N25	W62	5092	08	2.8	17	SF	C	5.5	3	E		19		
0065	RAMY	07	1720	1721	1737D	N26	W61	5092	08	3.0	17D	SF	C	5.9	4	E		55		E
0066	HOLL	07	1944	1948	1952	N28	W60	5092	08	3.1	8	SF	C	2.0	3	E		15		F
0067	HOLL	07	2013	2020	2024	N27	W63	5092	08	2.9	11	SF			3	E		22		F
0068	HOLL	07	2119	2123	2124D	N27	W62	5092	08	3.0	5D	SF			3	E		46		
0069		08	01211	01287	0142	N28	W64	5092	08	3.0	21	SN						46		D
	LEAR	08	0121	0135	0142	N28	W62	5092	08	3.2	21	SF			3	E		28		
	YUNN	08	0122	0128	0141	N28	W65	5092	08	3.0	19	SN				C		64		D
0070	YUNN	08	0122	0138	0141D	N22	E27	5099	08	10.1	19D	SF				P		129	1.5	
0071	YUNN	08	0122	0128	0138	S15	W30	5101	08	5.8	16	SF				C		32	0.4	
0072	YUNN	08	0148	0158U	0210	S16	W27	5101	08	6.0	22	SF				P	0158	32	0.4	
0073	YUNN	08	0714E	0714U	0726	N27	E25	5100	08	10.2	12D	SF				P	0714	32	0.4	
0074		08	0758	0803	0852	N29	W66	5092	08	3.1	54	SN	M	1.3				60		F
	LEAR	08	0758	0803	0856D	N29	W65	5092	08	3.2	58D	SF	M	1.3	3	E		87		
	YUNN	08	0804E	0804U	0852	N29	W68	5092	08	3.0	48D	SB	M	1.3		P	0804	32		F
0075	YUNN	08	0847	0849U	0853	N22	E79	5106	08	14.4	6	SF				P	0849	48		
0076	RAMY	08	1603E	1605	1611	N23	E22	5099	08	10.4	8D	SF	C	4.5	2	E		17		
0077	YUNN	09	0231E	0231U	0245	N22	E15	5099	08	10.2	14D	SF				P	0231	161	1.8	E
0078	BUCA	09	0635	0655	0720	N26	E60	5106	08	13.9	45	1F				C	0655	107	2.3	E
0079	YUNN	09	0836E	0837	0851	N14	E57	5106	08	13.7	15D	SN				P		32	0.6	
0080	YUNN	09	0836E	0837	0848	N24	E12	5099	08	10.3	12D	SN				P		64	0.7	
0081	YUNN	09	0836E	0837	0910	S14	W46	5101	08	5.9	34D	SN				P		48	0.8	
0082	YUNN	09	0856	0902	0912	N14	E56	5106	08	13.6	16	1N				C		177	3.2	

H - ALPHA SOLAR FLARES

AUGUST 1988

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp	Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0083	RAMY	09	1540	1541	1602D	N22	E09	5099	08	10.3	22D	SF	C	3.3	2	E		28		F
0084	YUNN	10	0043E	0046U	0046D	N22	E03	5099	08	10.3	3D	SF				P	0046	64	0.7	
0085	YUNN	10	0153	0158	0158D	N21	E01	5099	08	10.1	5D	SF				P		80	0.9	
0086		10	0232	0234	0240	N22	E00	5099	08	10.1	8	SN	C	4.9				89	2.1	F
	YUNN	10	0232E	0232U	0259D	N21	E02	5099	08	10.2	27D	1B	C	4.9		P	0232	193	2.1	F
	LEAR	10	0232	0234	0239	N22	W01	5099	08	10.0	7	SF	C	4.9	3	E		36		F
	PALE	10	0232E	0236U	0240	N22	E00	5099	08	10.1	8D	SF	C	4.9	3	E		37		F
0087	YUNN	10	0232E	0242	0259D	N21	E49	5106	08	13.9	27D	SF				P		64	1.0	D
0088		10	0257E	0259U	0310D	S16	W56	5101	08	5.9	13D	SN	C	3.2				66	1.8	F
	YUNN	10	0257E	0259U	0259D	S16	W59	5101	08	5.6	2D	SN	C	3.2		P	0259	80	1.8	F
	PALE	10	0258E	0300U	0310D	S15	W53	5101	08	6.1	12D	SF	C	3.2	3	E		51		F
0089	LEAR	10	0629	0634	0658	S15	W58	5101	08	5.9	29	SF			3	E		29		
0090	LEAR	10	0640	0641	0705	N23	W02	5099	08	10.1	25	SF	C	2.1	3	E		36		F
0091		10	08051	0809	0816	S15	W58	5101	08	5.9	11	1N	C	7.2				116	4.5	
	LEAR	10	0805	0809	0817	S15	W57	5101	08	6.0	12	SF	C	7.2	3	E		39		
	YUNN	10	0806	0809	0815	S15	W60	5101	08	5.8	9	1N	C	7.2		C		193	4.5	
0092	YUNN	10	0806E	0806U	0809	N23	W04	5099	08	10.0	3D	SF				P	0806	129	1.4	F
0093	YUNN	10	0824	0828	0840	N32	E03	5100	08	10.6	16	SN				C		24	0.3	
0094	LEAR	10	0846	0847	0858	S16	W57	5101	08	6.0	12	SF			3	E		16		
0095		10	09071	0915	0927	N20	E44	5106	08	13.7	20	SN						122	3.6	
	YUNN	10	0907	0915	0928	N21	E46	5106	08	13.9	21	1B				C		241	3.6	
	SVTO	10	0908E	0915	0922	N20	E41	5106	08	13.5	14D	SF			2	E		58		
	LEAR	10	0908	0915	0930	N20	E44	5106	08	13.7	22	SF			3	E		67		
0096		10	09172	0919	0926	N22	W02	5099	08	10.2	9	SN						72	1.4	
	LEAR	10	0917	0919	0922	N21	W02	5099	08	10.2	5	SF			3	E		15		
	YUNN	10	0919	0919U	0931	N22	W02	5099	08	10.2	12	SN				P	0919	129	1.4	
0097	RAMY	10	1409	1411	1415	N16	E38	5105	08	13.5	6	SF	C	3.5	3	E		17		
0098	RAMY	10	1412	1413	1423	S16	W62	5101	08	5.9	11	SF			3	E		37		
0099	RAMY	10	1438	1441	1503	S15	W64	5101	08	5.8	25	SF			3	E		13		
0100	RAMY	10	1736	1736	1752	N23	E41	5106	08	13.9	16	SF			3	E		22		
0101	LEAR	11	0017	0033	0049	S15	W69	5101	08	5.8	32	SF			3	E		40		
0102	LEAR	11	0034	0036	0053	N16	E31	5105	08	13.4	19	SF			3	E		31		
0103	PALE	11	0130	0133	0142	S14	W69	5101	08	5.8	12	SF			3	E		25		
0104	LEAR	11	0140	0141	0146	N16	E31	5105	08	13.4	6	SF			4	E		36		
0105		11	02052	0208	0216	N14	E34	5105	08	13.6	11	SF						17		F
	PALE	11	0205	0206U	0216	N15	E34	5105	08	13.7	11	SF			3	E		15		F
	LEAR	11	0207	0208	0215	N13	E34	5105	08	13.6	8	SF			4	E		19		
0106		11	0309	03101	0316	N17	E31	5105	08	13.5	7	SF						43	0.8	F
	YUNN	11	0307E	0311	0315	N17	E30	5105	08	13.4	8D	SF				P		64	0.8	
	PALE	11	0309	0310	0316	N17	E32	5105	08	13.6	7	SF			3	E		22		F
0107	LEAR	11	0501	0504	0511	S24	E43	5108	08	14.5	10	SF			4	E		15		
0108	HOLL	11	1416E	1420	1429	S13	W77	5101	08	5.8	13D	SF			4	E		32		
0109	HOLL	11	1933	1936	1946	N22	E28	5106	08	14.0	13	SF			3	E		15		

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

AUGUST 1988

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0110	PALE	11	2252E	2252U	2315D	N14	E17	5105	08	13.2	23D	SF		3	E		18		H
0111	YUNN	12	0302E	0312U	0318	N20	E23	5105	08	13.9	16D	SN			P	0312	80	0.9	F
0112	SVTO	12	0604	0607U	0612	N30	W23	5100	08	10.4	8	SF	C 1.0	2	E		35		H
0113	SVTO	12	0945E	0950	0956	S25	E70		08	17.8	11D	SN		2	E		66		
0114	HOLL	12	1422	1423	1433	N17	E12	5105	08	13.5	11	SF		3	E		12		F
0115	HOLL	12	1543	1545	1549	N26	W35	5099	08	9.9	6	SF		3	E		10		F
0116	HOLL	12	1744	1750	1808	N14	E04	5105	08	13.0	24	SF		4	E		15		FH
0117	HOLL	12	1821	1824	1849	N16	E10	5105	08	13.5	28	SF		4	E		27		
0118	HOLL	12	2056	2058	2103	N27	E17	5106	08	14.2	7	SF		4	E		19		
0119		13	07532	07545	0813	N24	E12	5106	08	14.2	20	SN					48	0.5	FH
	YUNN	13	0753	0754	0757D	N23	E13	5106	08	14.3	4D	SN			P		48	0.5	
	SVTO	13	0755	0759	0813	N24	E12	5106	08	14.2	18	SF		3	E		47		FH
0120		13	18361	18361	1848	N24	E02	5106	08	13.9	12	SF					12		F
	RAMY	13	1836	1836	1848	N24	E01	5106	08	13.8	12	SF		3	E		13		
	HOLL	13	1837	1837	1849	N25	E03	5106	08	14.0	12	SF		3	E		11		F
0121		13	2022	2024*	2053	N23	W48	5099	08	10.2	31	SF	C 1.3				37		F
	HOLL	13	2022	2024	2036D	N22	W46	5099	08	10.3	14D	SF	C 1.3	3	E		34		F
	PALE	13	2030E	2030U	2053	N26	W51	5099	08	9.9	23D	SF	C 1.3	3	E		60		F
	RAMY	13	2045E	2048	2105D	N22	W47	5099	08	10.2	20D	SF		1	E		17		
0122	HOLL	14	1759	1805	1813	S20	W03	5108	08	14.5	14	SF		4	E		12		
0123		14	19101	19121	1920	N26	W10	5106	08	14.0	10	SF					29		E
	PALE	14	1910	1912	1918	N27	W11	5106	08	13.9	8	SF		3	E		23		
	RAMY	14	1910	1913	1920	N26	W10	5106	08	14.0	10	SF		3	E		28		
	HOLL	14	1911	1912	1921	N26	W10	5106	08	14.0	10	SF		4	E		35		E
0124	LEAR	15	0154	0155	0206	N26	W14	5106	08	14.0	12	SF	C 1.0	3	E		24		
0125		15	13113	13142	1320	S25	W15	5108	08	14.4	9	SF					31		F
	SVTO	15	1310E	1316	1319	S25	W15	5108	08	14.4	9D	SF		3	E		34		
	HOLL	15	1311	1314	1320	S25	W15	5108	08	14.4	9	SF		2	E		28		F
	RAMY	15	1314	1314	1346D	S25	W15	5108	08	14.4	32D	SF		3	E		30		
0126	HOLL	15	1544	1545	1554	S25	W17	5108	08	14.3	10	SF		3	E		18		
0127	HOLL	15	2034	2034	2043	N23	W20	5106	08	14.3	9	SF		3	E		17		H
0128	HOLL	15	2043	2044	2059	N15	W32	5105	08	13.4	16	SF	C 1.1	3	E		36		
0129	HOLL	15	2148	2150	2155	N23	W21	5106	08	14.3	7	SF		3	E		10		
0130	LEAR	16	0438	0439	0449	N16	W37	5105	08	13.4	11	SF		3	E		14		
0131	SVTO	16	0518E	0520U	0530	S27	W24	5108	08	14.3	12D	SF		3	E		26		
0132		16	0547	0549	0556	S27	W26	5108	08	14.2	9	SF	C 1.2				37	0.9	
	YUNN	16	0543E	0543U	0558	S28	W26	5108	08	14.2	15D	SF	C 1.2		P	0543	64	0.9	
	LEAR	16	0547	0549	0554	S26	W26	5108	08	14.2	7	SF	C 1.2	3	E		10		
0133	SVTO	16	1126	1135U	1145	N21	W32	5106	08	14.0	19	SF		2	E		34		
0134	HOLL	16	1537	1537	1544	N18	W46	5105	08	13.1	7	SF		3	E		11		
0135		16	1646	1654	1704	N17	W43	5105	08	13.4	18	SF					30		F
	HOLL	16	1646	1654	1707	N17	W43	5105	08	13.4	21	SF		3	E		33		
	RAMY	16	1652E	1654U	1702	N17	W43	5105	08	13.4	10D	SF		3	E		27		F
0136	LEAR	17	0010	0012	0043	S20	W33	5108	08	14.5	33	SF	C 1.6	3	E		66		

H - ALPHA SOLAR FLARES

AUGUST 1988

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0137	LEAR	17	0607	0607	0611	N15	W51	5105	08	13.4	4	SF		3	E		19		
0138	SVTO	17	1056E	1056U	1058	S17	W31	5108	08	15.1	2D	SF		2	E		31		
0139	HOLL	17	1329	1332	1353	N25	W45	5106	08	14.1	24	SF		3	E		32		F
0140	HOLL	17	1345	1350	1352	N16	W56	5105	08	13.3	7	SF		3	E		17		
0141	HOLL	17	1406	1407	1415	N26	W46	5106	08	14.0	9	SF	C 1.2	3	E		23		F
0142		17	1539	1542	1550	S22	W43	5108	08	14.3	11	SF					22		F
	HOLL	17	1539	1542	1552	S21	W41	5108	08	14.5	13	SF		3	E		22		F
	SVTO	17	1540E	1542U	1548	S23	W45	5108	08	14.2	8D	SF		2	E		22		F
0143	HOLL	17	1745	1748	1801	N26	W48	5106	08	14.0	16	SF		3	E		17		
0144	HOLL	17	2016	2017	2038	N25	W50	5106	08	14.0	22	SF		4	E		42		F
0145	PALE	17	2100	2100	2113	S24	E33		08	20.4	13	SF		3	E		11		
0146	LEAR	18	0110	0113	0123	N27	W53	5106	08	13.9	13	SF		3	E		19		
0147	LEAR	18	0346	0348	0357	N23	E07	5109	08	18.7	11	SF		3	E		29		
0148		18	17564	1800	1808	N17	W71	5105	08	13.3	12	SF					26		
	HOLL	18	1756	1800	1809	N17	W72	5105	08	13.3	13	SF		3	E		32		
	RAMY	18	1800	1800	1806	N17	W70	5105	08	13.4	6	SF		3	E		20		
0149	HOLL	19	1328	1330	1338	N14	W79	5105	08	13.6	10	SF		3	E		11		
0150		19	13372	13423	1410	N23	W75	5106	08	13.8	33	1N	C 8.9				212		EH
	HOLL	19	1337	1342	1428D	N24	W75	5106	08	13.8	51D	1B	C 8.9	3	E		161		EH
	SVTO	19	1338	1344	1411	N23	W74	5106	08	13.9	33	1N	C 8.9	3	E		235		
	RAMY	19	1339	1345	1409	N23	W75	5106	08	13.8	30	1N	C 8.9	3	E		240		H
0151	RAMY	19	1811	1825	1836	S18	W62	5108	08	15.0	25	SF		3	E		16		
0152		19	2112	2112	2128	N22	E40	5127	08	22.9	16	SF					49		F
	RAMY	19	2106E	2106U	2129	N21	E40	5127	08	22.9	23D	SF		3	E		45		F
	PALE	19	2112	2112	2126	N23	E41	5127	08	23.0	14	SF		3	E		53		
0153	RAMY	20	1816	1817	1827	S18	W77	5108	08	14.9	11	SF	C 1.1	3	E		39		
0154	HOLL	21	2058	2100	2106	S24	W07	5118	08	21.3	8	SF		3	E		15		
0155	LEAR	23	0840	0856	0953D	N17	E31	5122	08	25.7	73D	1F	C 7.2	3	E		156		S
0156	RAMY	23	1757	1800	1831	N24	E88		08	30.5	34	SF	M 2.4	3	E		26		Y
0157	PALE	23	2325	2353U	2529	N20	W05	5117	08	23.6	124	SF		3	E		41		
0158	LEAR	24	0056	0103	0124	N18	W01	5117	08	24.0	28	SF		4	E		15		F
0159		24	03466	03496	0407	N20	W05	5117	08	23.8	21	SF					48		F
	LEAR	24	0346	0349	0403	N19	W04	5117	08	23.8	17	SF		4	E		46		F
	PALE	24	0352	0355	0411	N20	W06	5117	08	23.7	19	SF		3	E		51		F
0160	LEAR	24	0851	0905	0935	N21	W07	5117	08	23.8	44	SF	C 2.0	3	E		80		
0161	LEAR	24	0853	0853	0858	S29	W70	5110	08	18.9	5	SF		3	E		12		F
0162		24	1824	18251	1834	N22	W14	5117	08	23.7	10	SF					17		
	PALE	24	1824	1825	1833	N23	W13	5117	08	23.8	9	SF		3	E		14		
	HOLL	24	1824	1826	1836	N21	W15	5117	08	23.6	12	SF		4	E		20		
0163	HOLL	24	1845	1845	1858	N21	W14	5117	08	23.7	13	SF		4	E		13		
0164	PALE	24	2124	2125	2129	N20	W17	5117	08	23.6	5	SF		3	E		23		F
0165	PALE	24	2147	2147	2203	N20	W17	5117	08	23.6	16	SF	C 2.7	3	E		21		F

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

AUGUST 1988

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0166	PALE	24	2313	2314	2331	N20	W17	5117	08	23.7	18	SF	C	3.8	3	E		54		FH
0167	PALE	24	2337	2337		N24	W27	5127	08	22.9		SF			3	E		13		
0168		24	23447	23563	2420	N20	W17	5117	08	23.7	36	SF						57		FH
	LEAR	24	2344	2356	2423	N20	W17	5117	08	23.7	39	SF			3	E		56		F
	PALE	24	2351	2359	2418	N20	W17	5117	08	23.7	27	SF			3	E		58		FH
0169	LEAR	25	0033	0037	0116	N21	W16	5117	08	23.8	43	SF			3	E		40		F
0170	LEAR	25	0213	0217	0224	S22	E72		08	30.6	11	SF			3	E		30		
0171	SVTO	25	0540	0623	0623D	N19	W21	5117	08	23.6	43D	SF			1	E		61		
0172	HOLL	25	1932	1932	1940	N20	W28	5117	08	23.7	8	SF			3	E		18		F
0173	LEAR	26	0046	0048	0056	N20	W30	5117	08	23.7	10	SF	C	1.4	3	E		31		
0174	LEAR	26	0140	0147	0200	S23	E70	5126	08	31.5	20	SF	C	1.3	3	E		17		
0175	LEAR	26	0720	0722	0727	N19	E69	5125	08	31.6	7	SF			3	E		26		
0176		26	1421	1423	1432	N22	W48	5127	08	22.9	11	SF						36		
	RAMY	26	1421	1423	1429	N23	W48	5127	08	22.9	8	SF			3	E		14		
	SVTO	26	1427E	1427U	1436	N20	W49	5127	08	22.8	9D	SF			2	E		57		
0177		26	14481	14494	1500	N19	W38	5117	08	23.7	12	SF						20		
	RAMY	26	1448	1449	1500	N20	W37	5117	08	23.8	12	SF			3	E		25		
	SVTO	26	1449	1453	1500	N18	W39	5117	08	23.6	11	SF			3	E		14		
0178	HOLL	26	2150	2151	2205D	N21	W53	5127	08	22.8	15D	SF			2	E		24		
0179	HOLL	26	2213	2214	2220	N16	E26	5130	08	28.9	7	SF			3	E		20		
0180	LEAR	27	0440	0444	0454	N14	W09	5121	08	26.5	14	SF			3	E		29		
0181	LEAR	27	0617	0618	0628	N21	W56	5127	08	23.0	11	SF			3	E		14		
0182		27	0732	0732	0742	N14	E20	5130	08	28.8	10	SF	C	1.5				13		
	LEAR	27	0732	0732	0741	N14	E20	5130	08	28.8	9	SF	C	1.5	3	E		13		
	SVTO	27	0732E	0732U	0742	N14	E21	5130	08	28.9	10D	SF	C	1.5	2	E		13		
0183		27	08081	08146	0850	N19	W47	5117	08	23.7	42	SF						40		F
	LEAR	27	0808	0814	0850	N19	W46	5117	08	23.8	42	SF			3	E		38		
	SVTO	27	0809	0820	0851	N19	W48	5117	08	23.7	42	SF			3	E		43		F
0184		27	0838	08411	0908	S22	E52	5126	08	31.3	30	SF						48		E
	SVTO	27	0838	0841	0909	S21	E53	5126	08	31.4	31	SF			3	E		51		E
	LEAR	27	0838	0842	0907	S23	E52	5126	08	31.4	29	SF			3	E		44		
0185		27	0800	0827*	0852	N15	E19	5130	08	28.8	52	SF	C	3.1				32	0.7	
	SVTO	27	0800	0827	0844	N15	E19	5130	08	28.8	44	SF			2	E		13		
	LEAR	27	0800	0840	0901	N14	E20	5130	08	28.8	61	SF	C	3.1	3	E		20		
	YUNN	27	0905E	0906U	0906D	N16	E19	5130	08	28.8	1D	SN				P	0906	64	0.7	
0186	SVTO	27	1039	1043	1046	N22	E58	5128	08	31.9	7	SF			3	E		14		
0187	RAMY	27	1128E	1128U	1201D	N20	E57	5128	08	31.8	33D	SF			2	E		13		
0188	RAMY	27	1205	1206	1229	S19	E76	5129	09	2.3	24	SF	C	4.0	3	E		53		F
0189	SVTO	27	1415	1423	1436	N22	E56	5128	08	31.9	21	SF			3	E		11		
0190		27	14224	14233	1444	N20	W44	5117	08	24.2	22	SF						20		F
	RAMY	27	1422	1423	1440	N19	W45	5117	08	24.2	18	SF			4	E		17		F
	HOLL	27	1426	1426	1449	N20	W44	5117	08	24.2	23	SF			3	E		22		F
0191	RAMY	27	1759	1805	1812	N20	W61	5127	08	23.1	13	SF			4	E		11		

AUGUST 1988

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0192		27	20371	2039	2046	N14	W41	5115	08	24.8	9	SF					14		
	PALE	27	2037	2039	2047	N14	W42	5115	08	24.7	10	SF		3	E		15		
	HOLL	27	2038	2039	2046	N15	W40	5115	08	24.8	8	SF		3	E		14		
0193	PALE	27	2037	2044	2053	N15	E12	5130	08	28.8	16	SF		3	E		17		
0194		28	01431	01451	0149	N14	E10	5130	08	28.8	6	SF					79	1.6	D
	PEKG	28	0143	0145	0148	N15	E10	5130	08	28.8	5	SF			C	0145	147	1.6	D
	LEAR	28	0144	0146	0150	N14	E10	5130	08	28.8	6	SF		3	E		11		
0195		28	07306	07353	0748	S20	E72	5131	09	2.8	18	1F					71		D
	LEAR	28	0730	0735	0756	S20	E71	5131	09	2.7	26	SF		3	E		58		
	PEKG	28	0736	0738	0740	S19	E74	5131	09	3.0	4	1F			C	0738	84		D
0196	RAMY	28	1410	1412	1417	N15	W50	5115	08	24.8	7	SF	C 1.0	4	E		12		H
0197	RAMY	28	1411	1411	1421	S19	E68	5131	09	2.8	10	SF		3	E		10		
0198		28	14412	14467	1457	N20	E42	5128	08	31.8	16	SF					20		
	RAMY	28	1441	1446	1500	N19	E43	5128	08	31.9	19	SF		3	E		29		
	SVTO	28	1443	1453	1454	N22	E42	5128	08	31.8	11	SF		3	E		12		
0199	RAMY	28	1746	1746	1754	S14	E60	5129	09	2.3	8	SF		3	E		12		
0200	PALE	28	2312	2315U	2338	S15	E60	5131	09	2.5	26	SN	C 2.6	3	E		58		
0201		28	23312	23355	2351	N20	E36	5128	08	31.7	20	SN	C 2.4				88	1.7	EFH
	PEKG	28	2331	2335	2340	N18	E36	5128	08	31.7	9	SB	C 2.4		C	2334	134	1.7	E
	PALE	28	2333	2340	2402	N22	E37	5128	08	31.8	29	SF	C 2.4	3	E		41		FH
0202	LEAR	29	0636	0642	0658	N21	E35	5128	08	31.9	22	SF		3	E		30		
0203	SVTO	29	0848	0951	1031	S16	E57	5131	09	2.7	103	SN	C 5.3	3	E		76		
0204		29	1544	1550	1612	S18	E53	5131	09	2.7	28	1N	C 9.7				102		F
	SVTO	29	1544	1550	1609	S16	E54	5131	09	2.7	25	1N	C 9.7	3	E		103		F
	RAMY	29	1553E	1554U	1616	S19	E52	5131	09	2.6	23D	1N	C 9.7	2	E		101		F
0205	PALE	29	1801E	1801	1810	S20	E50	5131	09	2.6	9D	SF		3	E		30		
0206	PALE	29	1821	1825	1846D	S18	E52	5131	09	2.7	25D	1N	C 2.4	3	E		106		F
0207		30	01552	0155*	0216	S21	E49	5131	09	2.8	21	SF					94	1.8	E
	LEAR	30	0155	0155	0201	S21	E48	5131	09	2.7	6	SF		3	E		11		
	PEKG	30	0157	0209	0230	S21	E50	5131	09	2.9	33	SF			C	0209	176	1.8	E
0208	PEKG	30	0201	0205	0213	S20	W80	5120	08	24.0	12	SF			C	0205	34		E
0209	PEKG	30	0210	0213	0237	N26	W11		08	29.2	27	SN			C	0213	168	1.8	E
0210	LEAR	30	0411	0415	0421	S20	E45	5131	09	2.6	10	SF		3	E		44		
0211	LEAR	30	0702	0705	0718	S21	E43	5131	09	2.6	16	SF	C 1.8	3	E		35		
0212	LEAR	30	0812	0814	0825	S21	E43	5131	09	2.6	13	SF		3	E		18		
0213	SVTO	30	1122	1125U	1157D	S22	W82	5120	08	24.2	35D	SF		3	E		47		
0214		30	13415	1354*	1419	S21	E43	5131	09	2.9	38	1F	C 9.7				87		EF
	SVTO	30	1341	1354	1420	S21	E44	5131	09	2.9	39	1F	C 9.7	3	E		131		F
	RAMY	30	1346	1409	1418	S21	E42	5131	09	2.8	32	SF	C 9.7	4	E		43		FE
0215	RAMY	30	1419	1421	1425	S19	W81	5120	08	24.4	6	SF		3	E		21		
0216	RAMY	30	1436	1436	1445	S21	E41	5131	09	2.7	9	SF		4	E		20		
0217	RAMY	30	1739	1742	1811	S21	E40	5131	09	2.8	32	SN	C 6.3	3	E		69		F
0218	RAMY	30	1800	1805	1820	N18	W78	5115	08	24.8	20	SF		3	E		25		

H - ALPHA SOLAR FLARES

AUGUST 1988

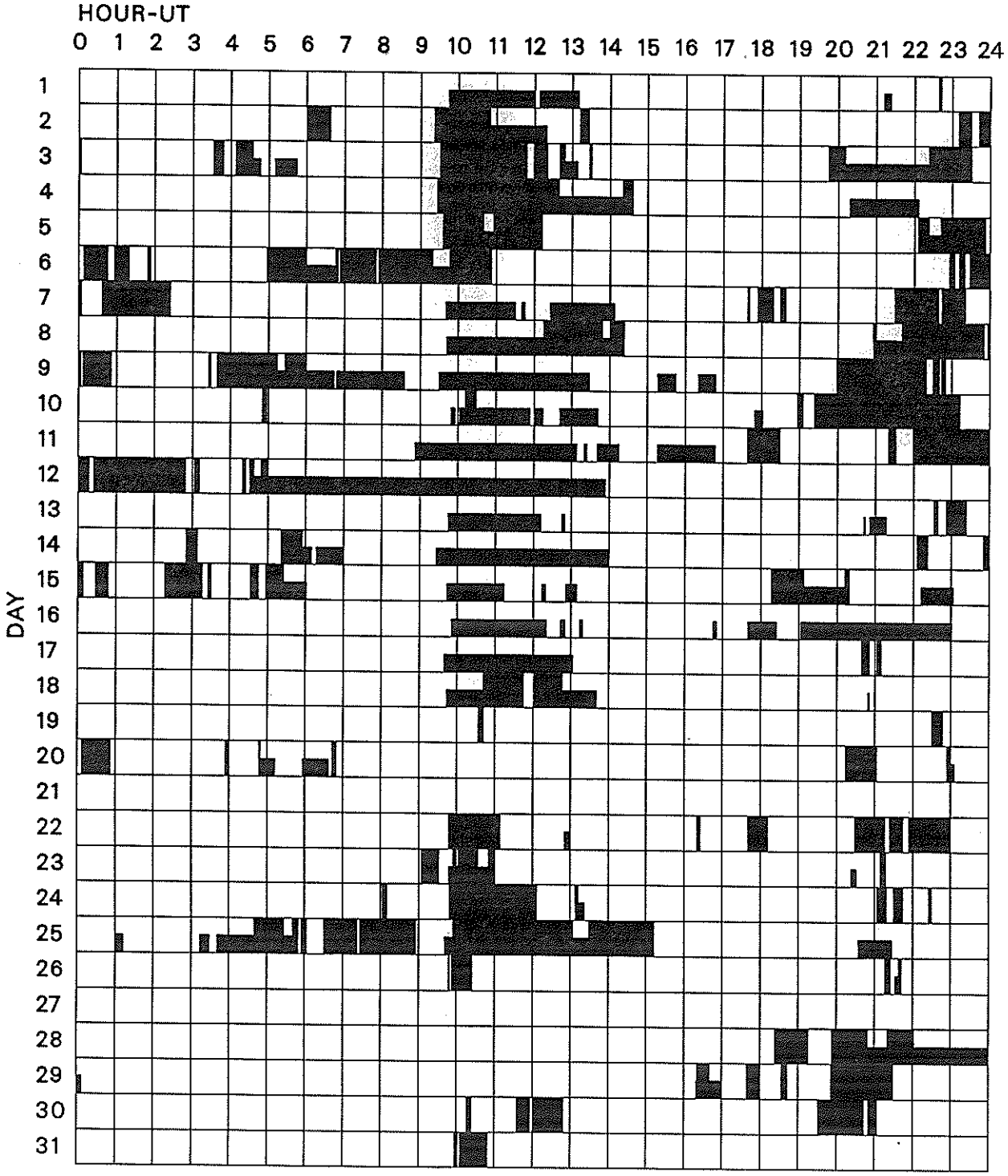
Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0219	HOLL	30	2148E	2149	2201	N13	W81	5115	08	24.8	13D	SF		2	E		14		
0220		30	2338	23401	2402	N22	E12	5128	08	31.9	24	SF					26		F
	PALE	30	2338	2340	2353	N22	E10	5128	08	31.7	15	SF		3	E		26		F
	HOLL	30	2338	2341	2412	N23	E13	5128	09	1.0	34	SF		3	E		25		F
0221	LEAR	31	0119	0120	0128	S23	E36	5131	09	2.8	9	SF		3	E		13		
0222	LEAR	31	0403	0510	0524	N22	E06	5128	08	31.6	81	1F	C 4.4	3	E		124		F
0223	LEAR	31	0613	0613	0619	N22	E09	5128	08	31.9	6	SF	C 2.1	3	E		16		
0224		31	0814	0817	0838	N21	E06	5128	08	31.8	24	SF	C 3.6				68		
	LEAR	31	0814	0817	0834	N22	E08	5128	08	31.9	20	SF	C 3.6	3	E		83		
	SVTO	31	0817E	0819U	0843	N20	E04	5128	08	31.6	26D	SF	C 3.6	2	E		54		
0225	SVTO	31	1106	1121	1132	S20	E30	5131	09	2.7	26	SF		3	E		26		
0226	RAMY	31	1118	1120	1122	N21	E09	5128	09	1.2	4	SF		3	E		15		
0227	RAMY	31	1230	1233	1240	N23	E10	5128	09	1.3	10	SF		3	E		16		
0228		31	12503	12541	1431	N20	E04	5128	08	31.8	101	SN	C 1.8				44		U
	SVTO	31	1250	1254	1556	N20	E03	5128	08	31.8	186	SN	C 1.8	3	E		65		
	RAMY	31	1253	1255	1306	N19	E05	5128	08	31.9	13	SF	C 1.8	3	E		23		U
0229		31	1730	17331	1736	S20	W07	5126	08	31.2	6	SF					32		
	RAMY	31	1730	1733	1737	S20	W07	5126	08	31.2	7	SF		3	E		21		
	PALE	31	1730	1734	1736	S20	W07	5126	08	31.2	6	SF		3	E		44		
0230	PALE	31	1741	1743	1746	S19	W08	5126	08	31.1	5	SF		3	E		35		
0231		31	18055	18064	1819	S20	E24	5131	09	2.6	14	SF					22		
	HOLL	31	1805	1806	1822	S22	E26	5131	09	2.7	17	SF		3	E		21		
	PALE	31	1805	1810	1819	S19	E23	5131	09	2.5	14	SF		3	E		32		
	RAMY	31	1810	1810	1816	S19	E23	5131	09	2.5	6	SF		3	E		14		
0232		31	2015	2016	2020	S17	E26	5131	09	2.8	5	SF	C 1.3				30		
	HOLL	31	2015E	2015U	2020	S17	E26	5131	09	2.8	5D	SF	C 1.3	3	E		43		
	PALE	31	2015	2016	2020	S17	E27	5131	09	2.9	5	SF	C 1.3	3	E		18		
0233	HOLL	31	2046	2049U	2142D	S15	E25	5131	09	2.7	56D	SF	C 1.9	2	E		23		

"Remarks"

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

INTERVALS OF NO FLARE PATROL OBSERVATION
FOR PRECEDING SOLAR FLARE TABLE

AUGUST 1988



Times of no flare patrol, shown here as shaded areas, combine reports from the observatories listed below. Portions of a panel completely shaded mark dates and times of no patrol of any kind, that is, of neither visual nor cinematographic; portions of a panel with only the bottom half shaded mark times of strictly visual patrol.

Bucharest	Holloman	Learmonth Palehua	Peking Ramey	San Vito Yunnan

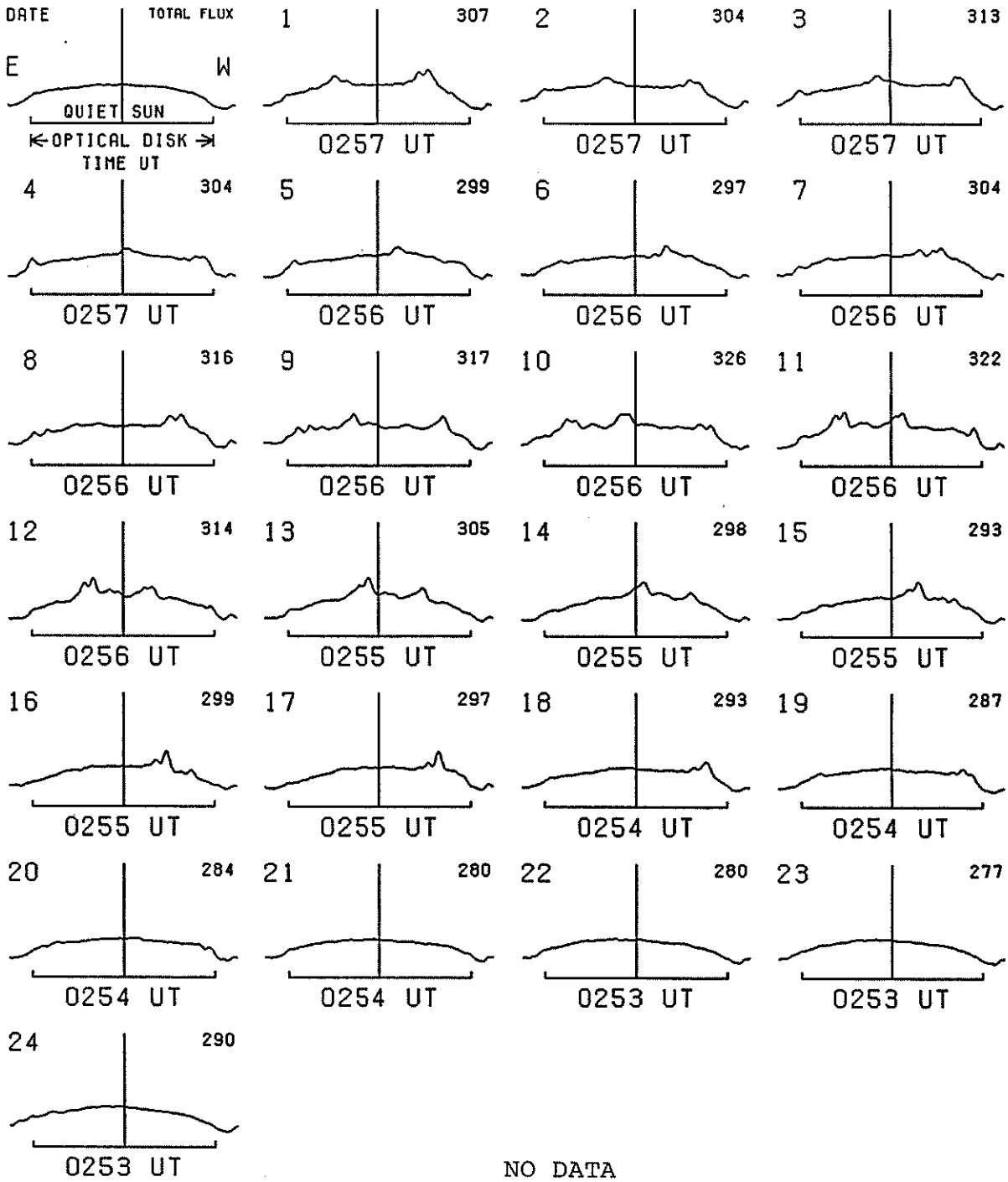
26
Aug 88

EAST-WEST SOLAR SCANS

AUGUST 1988

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



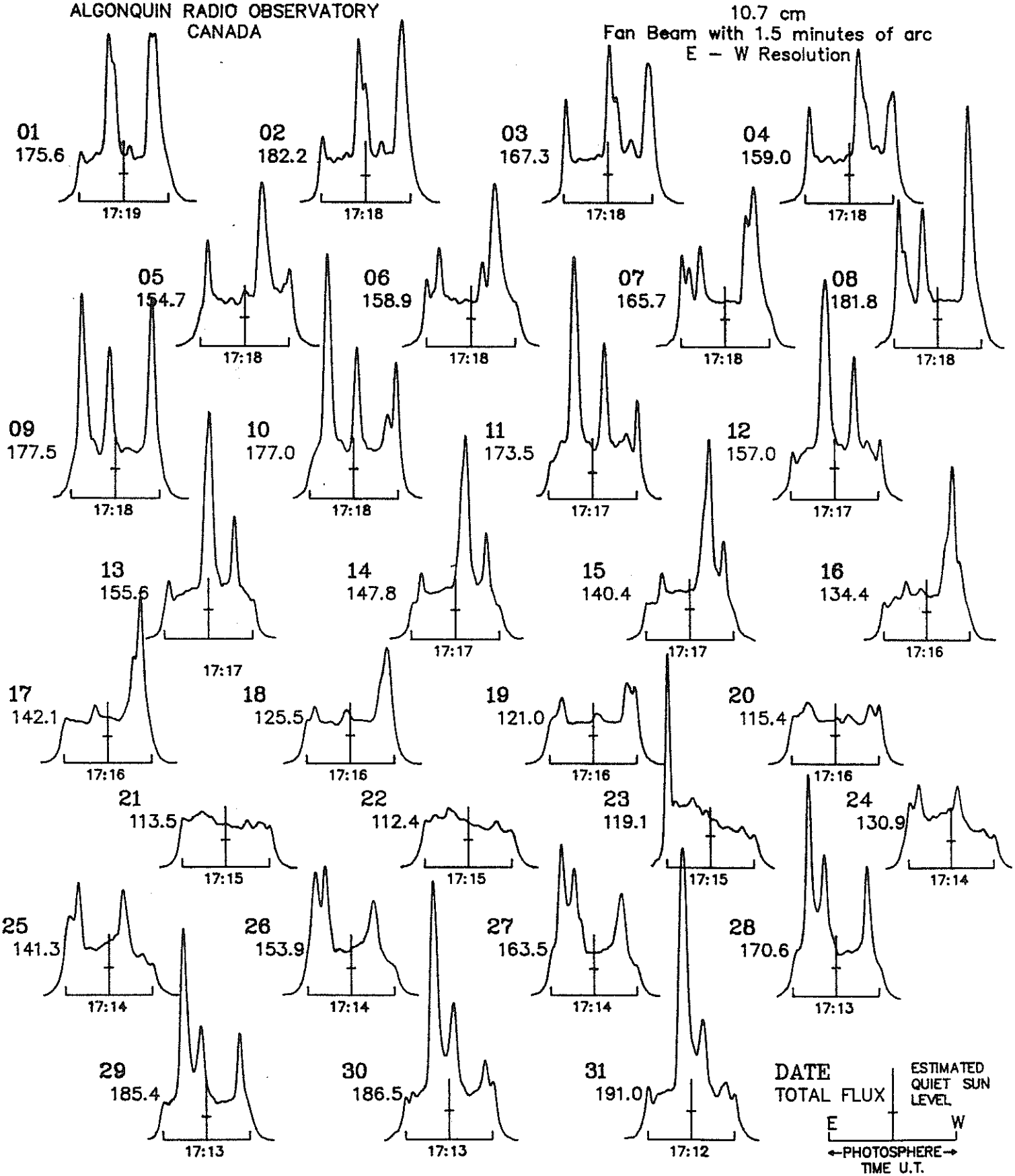
NO DATA

EAST – WEST SOLAR SCANS
AUGUST 1988

27
Aug 88

ALGONQUIN RADIO OBSERVATORY
CANADA

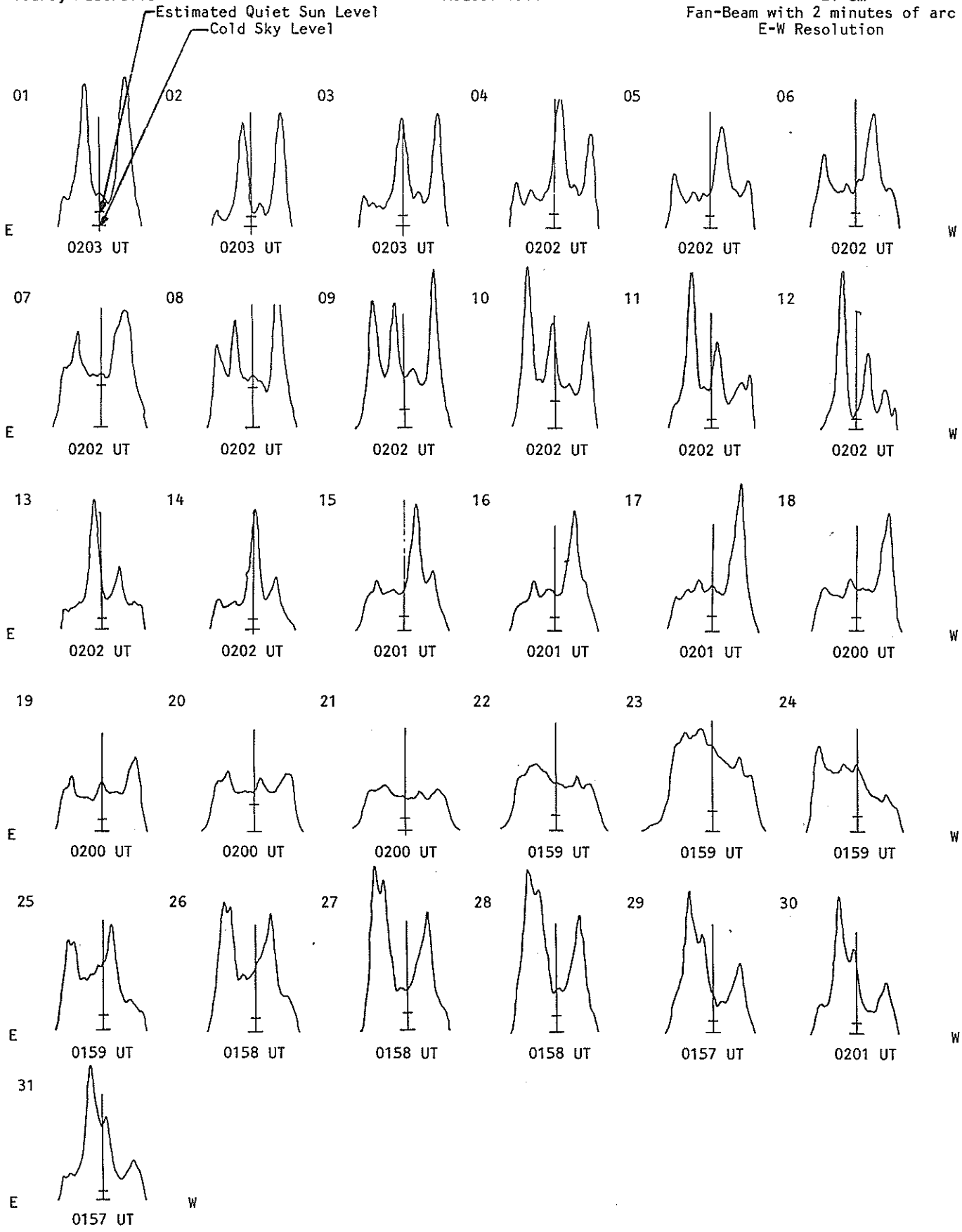
10.7 cm
Fan Beam with 1.5 minutes of arc
E – W Resolution



28
Aug 88

E A S T - W E S T S O L A R S C A N S

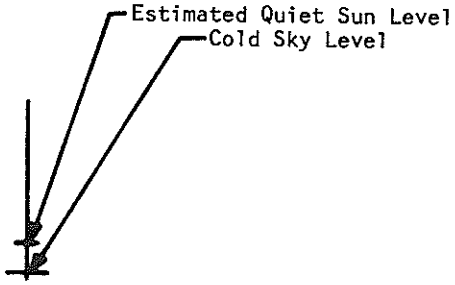
Fleurs, Australia — AUGUST 1988 — 21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution



E A S T - W E S T S O L A R S C A N S

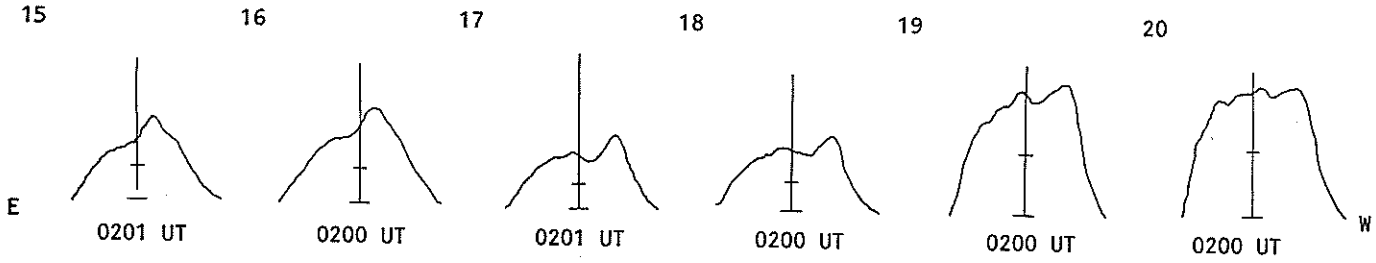
AUGUST 1988

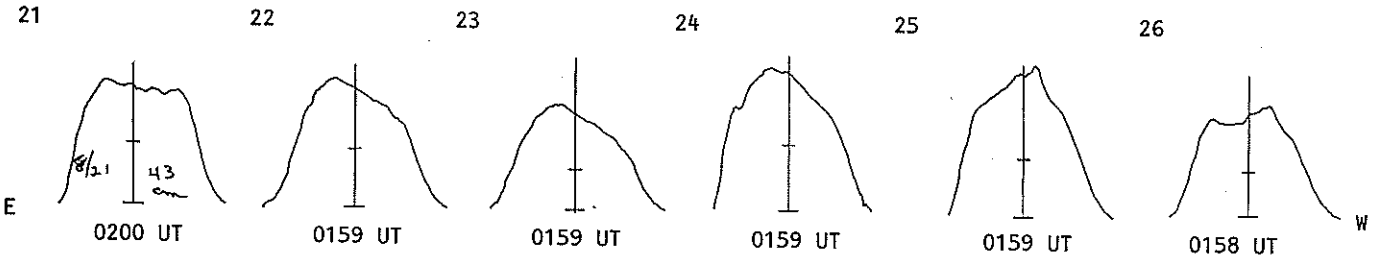
Fleurs, Australia

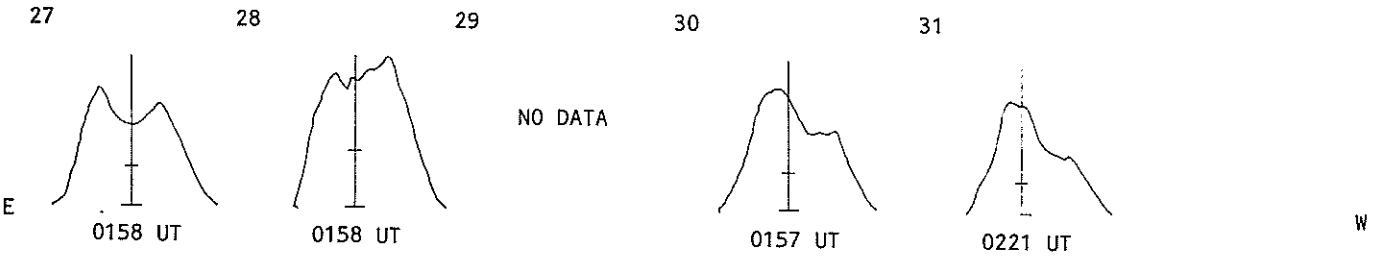


43 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

NO DATA AUGUST 1-14, 1988







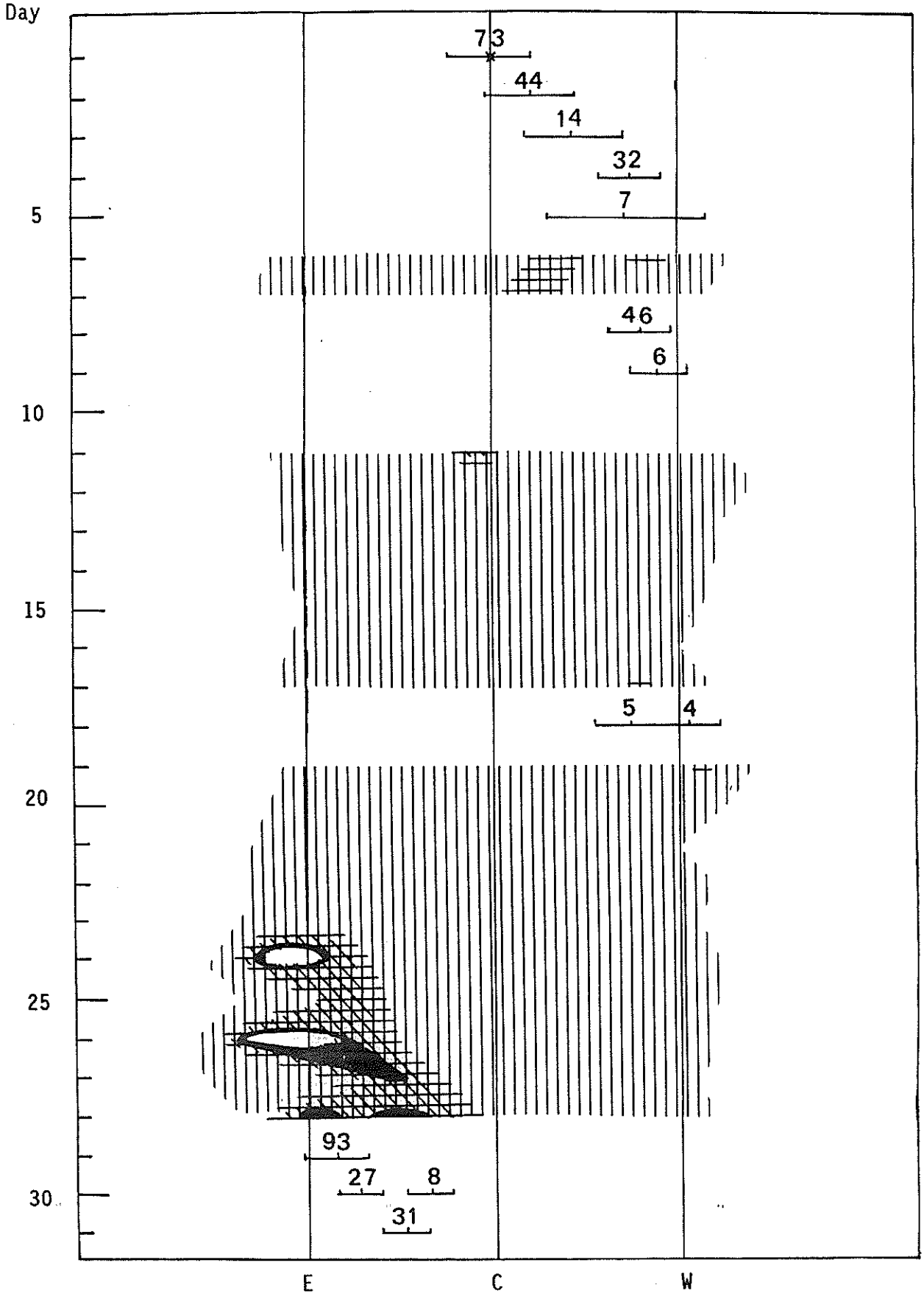
30
Aug 88

SOLAR INTERFEROMETRIC OBSERVATIONS

AUGUST 1988

Nancay

164 MHz



SOLAR RADIO EMISSION--SELECTED FIXED FREQUENCY EVENTS

AUGUST 1988

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remark
01	2800	OTTA	3	S	1427.2	1427.9	4.3	16.2	6.0		
	2800	OTTA	32	ABS	1700.0	1720.0	40.0	4.0	2.0		
	2800	OTTA	4	S/F	1720.6	1723.1	6.6	112.2	33.0		
	2800	OTTA	40	F	1727.2	1727.7	12.0				
02	2695	PALE	8	S	1722.0	1723.0	1.0	110.0			QL=1 ST=2 TYP=3
	2695	SVTO	8	S	1722.0	1723.0	2.0	130.0			QL=1 ST=2 TYP=3
03	8800	SVTO	8	S	1007.0	1008.0	1.0	75.0			QL=1 ST=2 TYP=3
04	8800	LEAR	8	S	0710.0	0711.0	2.0	52.0			QL=1 ST=2 TYP=3
	8800	SVTO	8	S	0710.0	0710.0	1.0	60.0			QL=1 ST=2 TYP=3
07	8800	SGMR	8	S	1516.0	1516.0	1.0	140.0			QL=1 ST=2 TYP=3
	8800	SVTO	8	S	1516.0	1517.0	1.0	140.0			QL=1 ST=3 TYP=3
	8800	PALE	8	S	1719.0	1719.0	1.0	97.0			QL=1 ST=2 TYP=3
	8800	SGMR	8	S	1719.0	1720.0	2.0	85.0			QL=1 ST=2 TYP=3
08	2800	OTTA	20	GRF	1415.5	1421.0	72.0	18.9	3.0		
15	2800	OTTA	4	S/F	2042.7	2043.6	2.4	20.1	10.0		
23	2695	LEAR	20	GRF	0904.0	0918.0	14.0	34.0			QL=1 ST=2 TYP=2
	2695	LEAR	4	S/F	0919.0	0919.0	14.0	16.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	0923.0	0925.0	5.0	15.0			QL=1 ST=2 TYP=3
	2695	LEAR	8	S	0928.0	0929.0	1.0	18.0			QL=1 ST=2 TYP=3
	2800	OTTA	20	GRF	1656.3	1850.0	540.0D	33.9	16.0		
	2800	OTTA	3	S	1703.7	1707.5	10.2	44.9	22.0		
	2800	OTTA	3	S	2005.7	2006.2	5.7	23.6	7.0		
26	8800	SGMR	8	S	1123.0	1124.0	1.0	54.0			QL=1 ST=2 TYP=3
29	8800	SVTO	8	S	0947.0	0948.0	2.0	110.0			QL=1 ST=3 TYP=3
	8800	SGMR	8	S	1545.0	1545.0	1.0	63.0			QL=1 ST=2 TYP=3
	8800	SVTO	8	S	1545.0	1545.0	2.0	65.0			QL=1 ST=3 TYP=3
30	2800	OTTA	4	S/F	1343.3	1348.0	59.0	44.7	13.0		
	2695	SGMR	8	S	1408.0	1408.0	1.0	100.0			QL=1 ST=3 TYP=3
	2695	SVTO	4	S/F	1408.0	1408.0	9.0	160.0			QL=1 ST=3 TYP=3
31	2695	SGMR	8	S	1642.0	1643.0	1.0	230.0			QL=1 ST=3 TYP=3

Reports are received routinely from the following observatories:
LEAR = Learmonth OTTA = Ottawa PALE = Palehua SGMR = Sagamore Hill SVTO = San Vito

Explanation of Type Code:

1 Simple 1	7 Minor +	24 Rise	30 Post Burst Increase A	43 Onset of Noise Storm
2 Simple 1F	8 Spike	25 Rise A	31 Post Burst Decrease	44 Noise Storm in Progress
3 Simple 2	20 Simple 3	26 Fall	33 Absorption	45 Complex
4 Simple 2F	21 Simple 3A	27 Rise and Fall	40 Fluctuation	46 Complex F
5 Simple	22 Simple 3F	28 Precusor	41 Group of Bursts	47 Great Burst
6 Minor	23 Simple 3AF	29 Post Burst Increase	42 Series of Bursts	48 Major

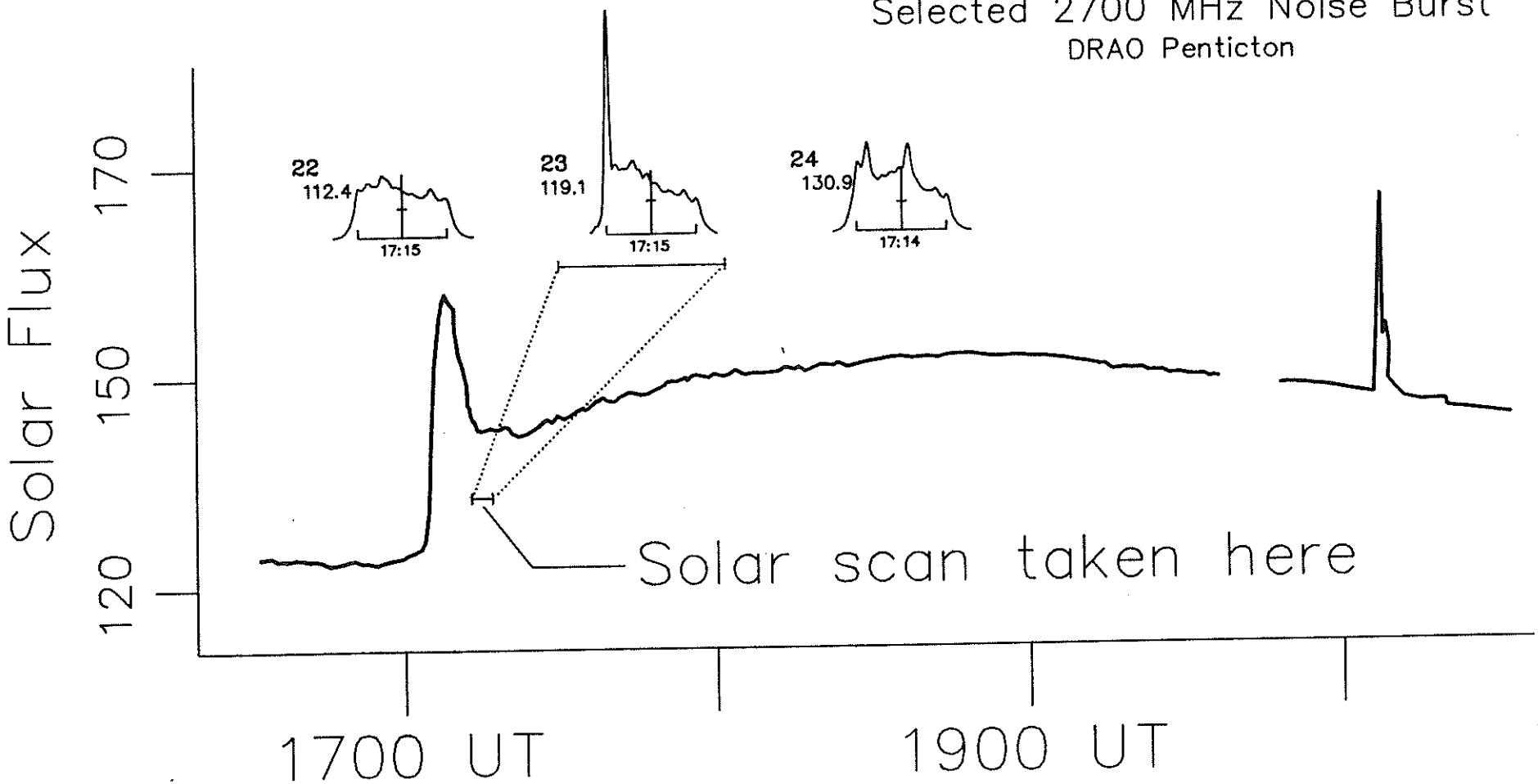
1A Simple 1A	4A Simple 2AF	24PF Post Rise F	27F Rise and Fall F
3A Simple 2A	40 Rise Only	16A Fall A	27AF Rise and Fall AF
21A Simple 3A GRF	40F Rise Only F	260 Fall Only	31A Post Burst Decrease A
2A Simple 1AF	4P Post Rise	26F Fall F	32A Absorption A
			46F Complex F

RSTN Site Information: Beginning in April 1986, the RSTN sites LEAR, PALE, SGMR, and SVTO fixed frequency solar radio data are periodically adjusted to several world standard stations. These world standard stations include: Kislovodsk, USSR 15,500 MHz; Ottawa, Canada 2800 MHz; Hiraiso, Japan 500 and 200 MHz; and Toyokawa, Japan 9400, 3750, 2000 and 1000 MHz.

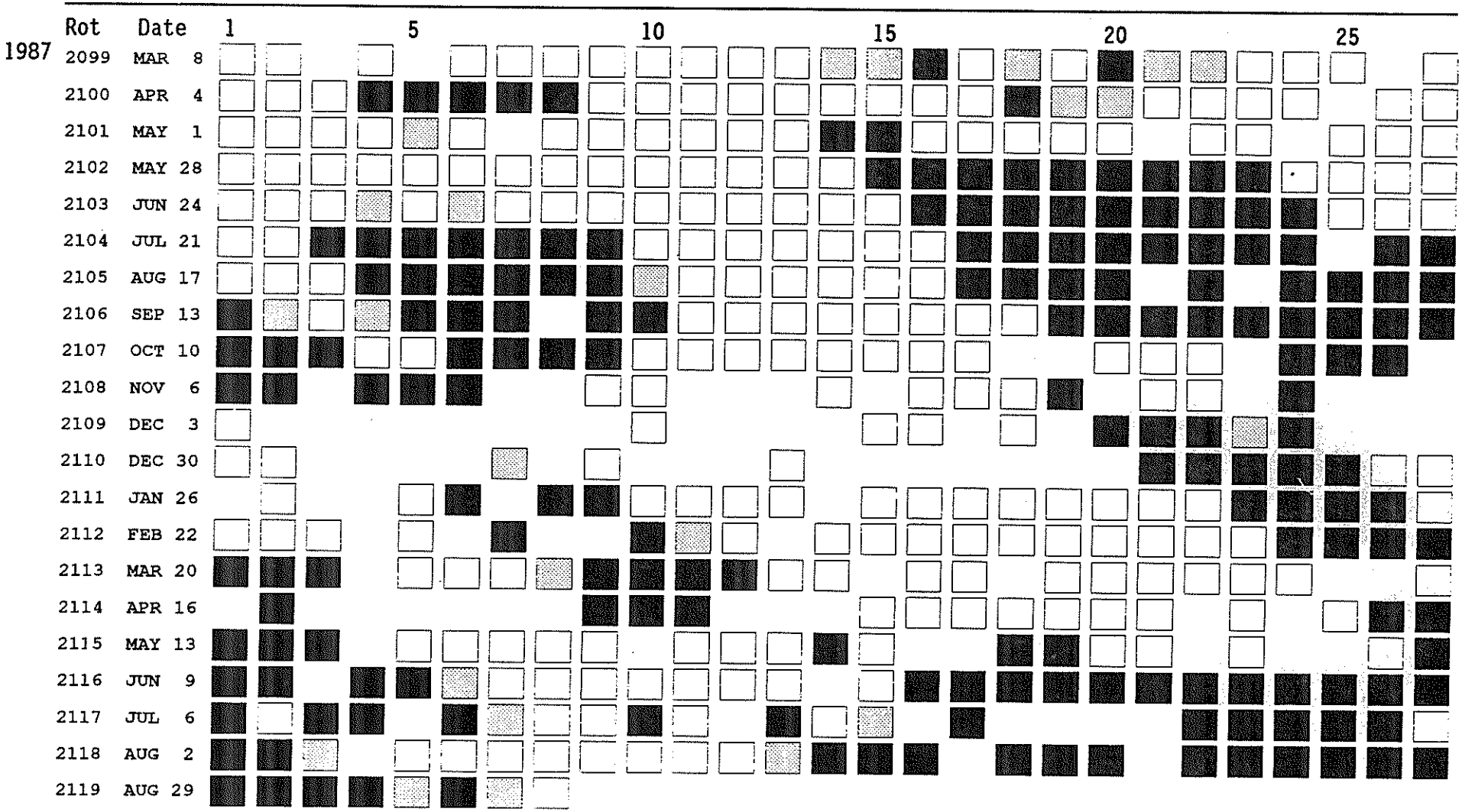
23 August 1988

Selected 2700 MHz Noise Burst

DRAO Penticton



STANFORD MEAN SOLAR MAGNETIC FIELD



Mean Solar Magnetic Field Polarity: = field > 2 microT; = -2 microT ≤ field ≤ 2 microT

= field <-2 microT; No box = no data available

Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates mark times of occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

Day	1987 Sep	Oct	Nov	Dec	1988 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
1	12	-3	.	.	.	.	.	12	13	14	-35	5
2	-3	-4	-20	.	.	-16	-16	21	12	7	-51	-22
3	-16	-3	-19	2	.	-5	1	.	28	.	-29	-14
4	-19	-17	-24	.	.	16	22	35	29	33	-9	1
5	-31	-28	.	.	0	25	.	42	25	.	-13	.
6	.	-35	-10	.	.	42	49	.	37	.	-39	5
7	-49	-28	-12	.	20	40	50	45	.	12	39	18
8	.	-24	.	.	.	.	49	41	39	-14	-18	43
9	-50	-20	-28	.	.	62	44	53	.	-25	-29	48
10	-39	-16	-28	.	.	56	53	47	6	-17	.	51
11	-24	-6	-20	.	29	58	52	43	-8	.	-16	22
12	-18	-3	.	19	.	58	49	36	-11	-14	-1	25
13	-10	6	.	.	.	48	36	.	-22	-11	14	23
14	-1	7	4	.	.	47	35	.	-29	-1	15	1
15	4	-11	5	.	.	23	21	8	-25	13	-6	-14
16	-1	-9	.	.	.	16	-13	.	.	22	2	-15
17	-5	-10	.	22	.	-13	-9	-25	10	28	.	-20
18	-5	-6	.	30	.	-22	-13	.	17	27	-3	.
19	-8	5	18	.	-12	-25	-9	.	15	30	3	-36
20	.	6	.	20	-22	-13	-20	.	12	37	-1	-38
21	-10	9	21	.	-35	11	-14	.	22	35	.	-49
22	-5	12	30	-10	-28	14	-8	.	.	.	-16	.
23	7	23	3	-17	-15	35	.	.	5	15	.	-57
24	14	25	-10	-18	4	37	18	-6	5	-3	.	-79
25	19	21	.	-1	15	.	21	-20	4	-35	.	-91
26	21	23	4	-3	.	17	12	-26	-6	-67	.	-77
27	22	.	4	.	23	.	-1	.	7	-75	-49	-57
28	20	.	.	.	.	-14	-13	.	.	-80	-79	-24
29	15	15	-5	.	.	.	-43	.	.	-57	-51	-10
30	5	2	.	24	3		-40	18	-19	-29	-15	-20
31		4		24	-15		-11		-13		-3	-20

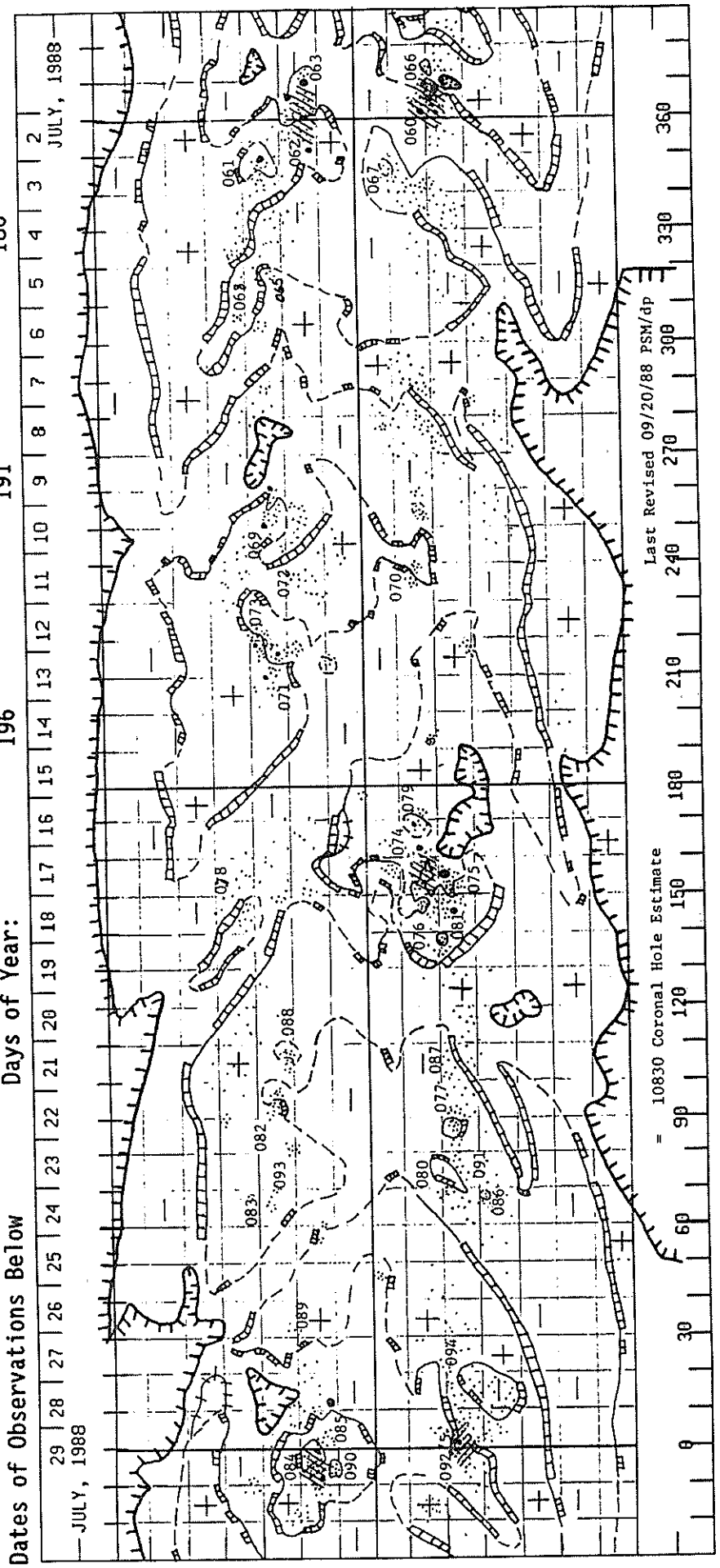
Dot symbol indicates no data available for the day.

CONTENTS

Prompt Reports DATA FOR JULY 1988 Number 529 Part I

PRELIMINARY H-ALPHA SOLAR SYNOPTIC CHART

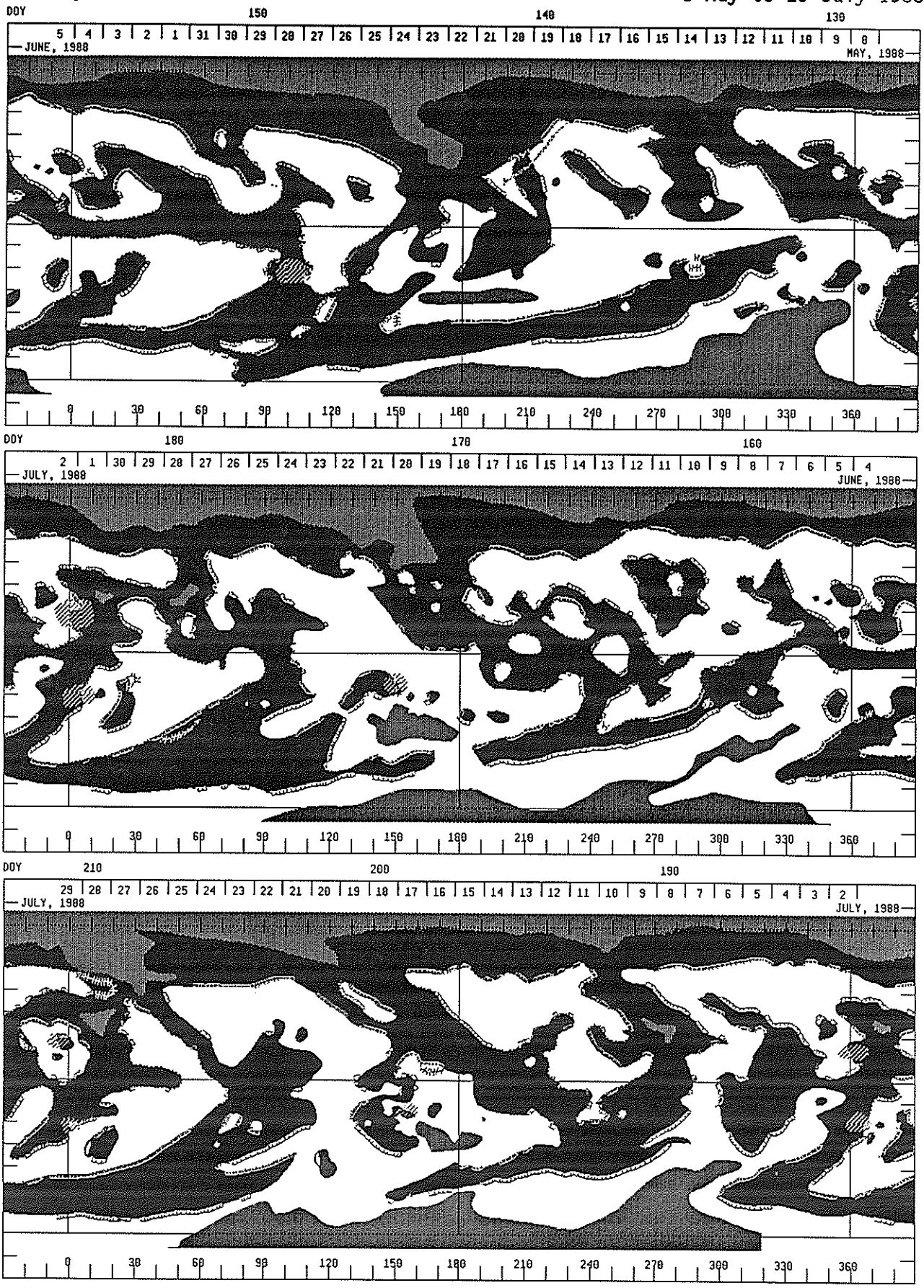
CARRINGTON ROTATION NUMBER 1804
(2 July to 29 July 1988)



SHADED H-ALPHA SOLAR SYNOPTIC CHARTS

Carrington Rot. 1802-1804

8 May to 29 July 1988



□ = Positive Polarity ■ = Negative Polarity ▩ = 10830 Coronal Hole Estimate ▨ = X-Ray Flares > M1

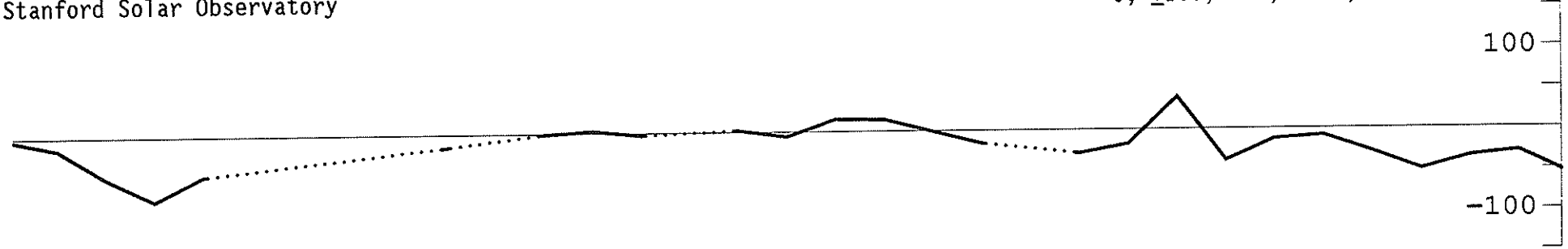
Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1804
(2 July to 29 July 1988)

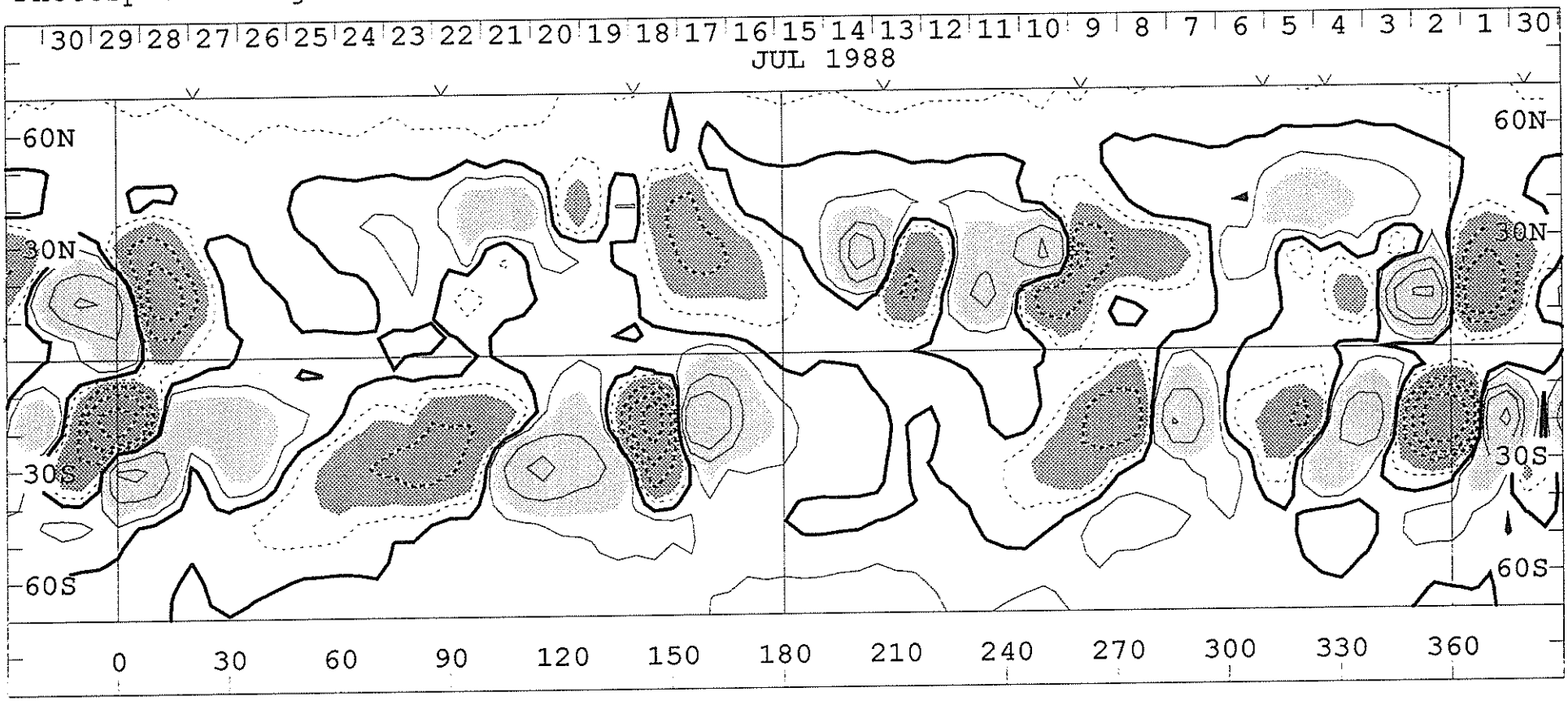
Stanford Solar Observatory

0, ±100, 500, 1000, 2000 microTesla



Photospheric Magnetic Field

0, ±100, 500, 1000, 2000 MicroTesla



Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART

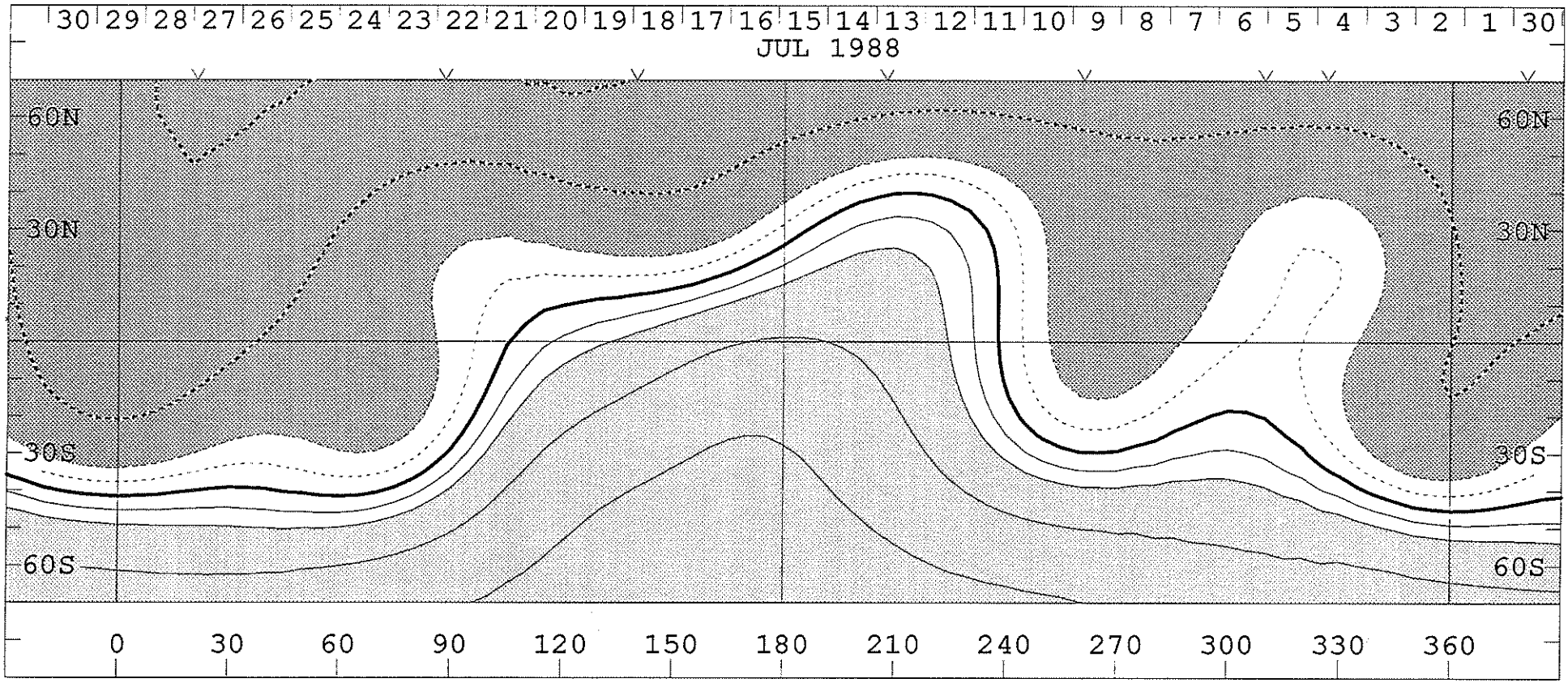
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1804

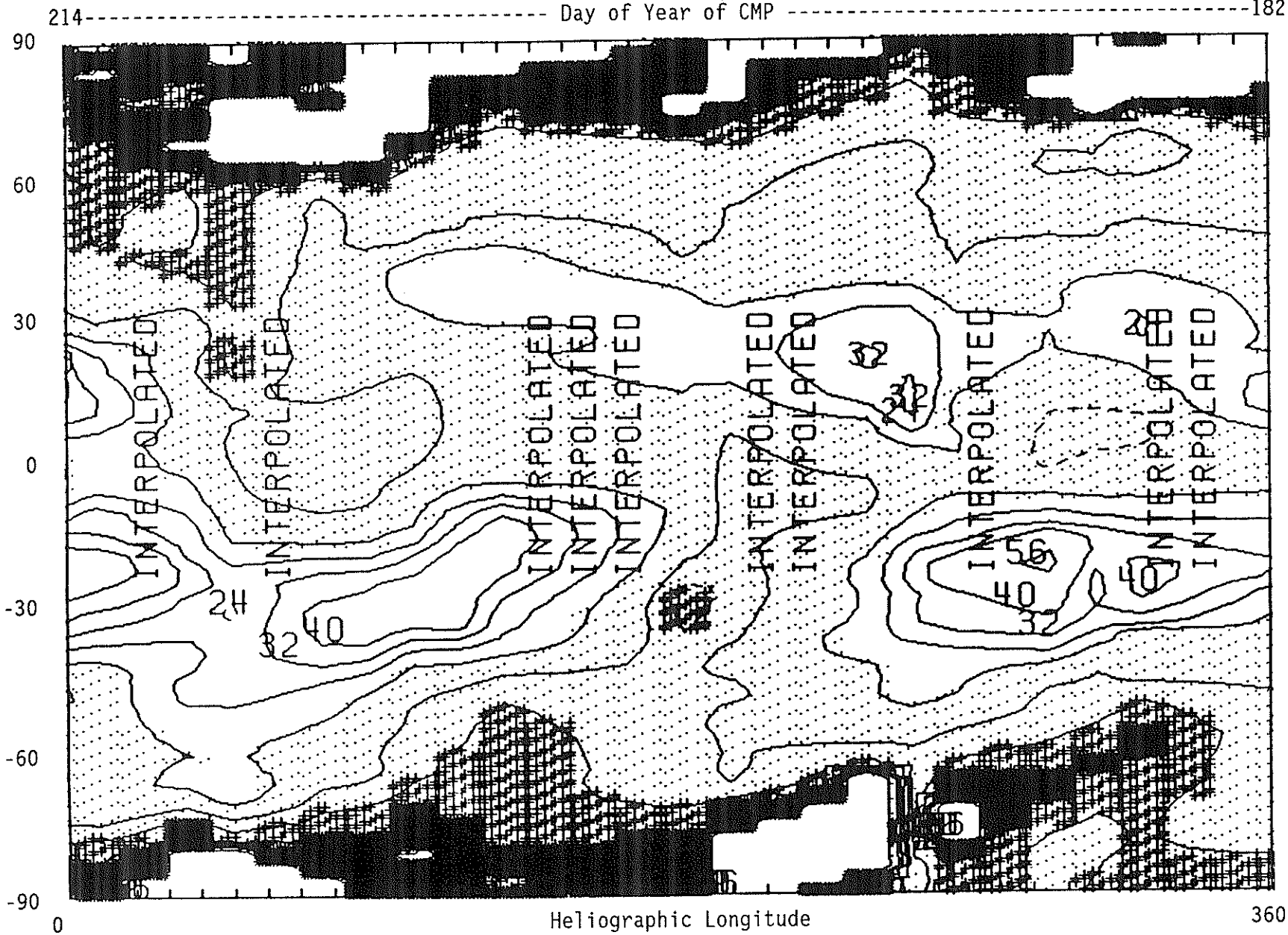
(2 July to 29 July 1988)

Stanford Solar Observatory

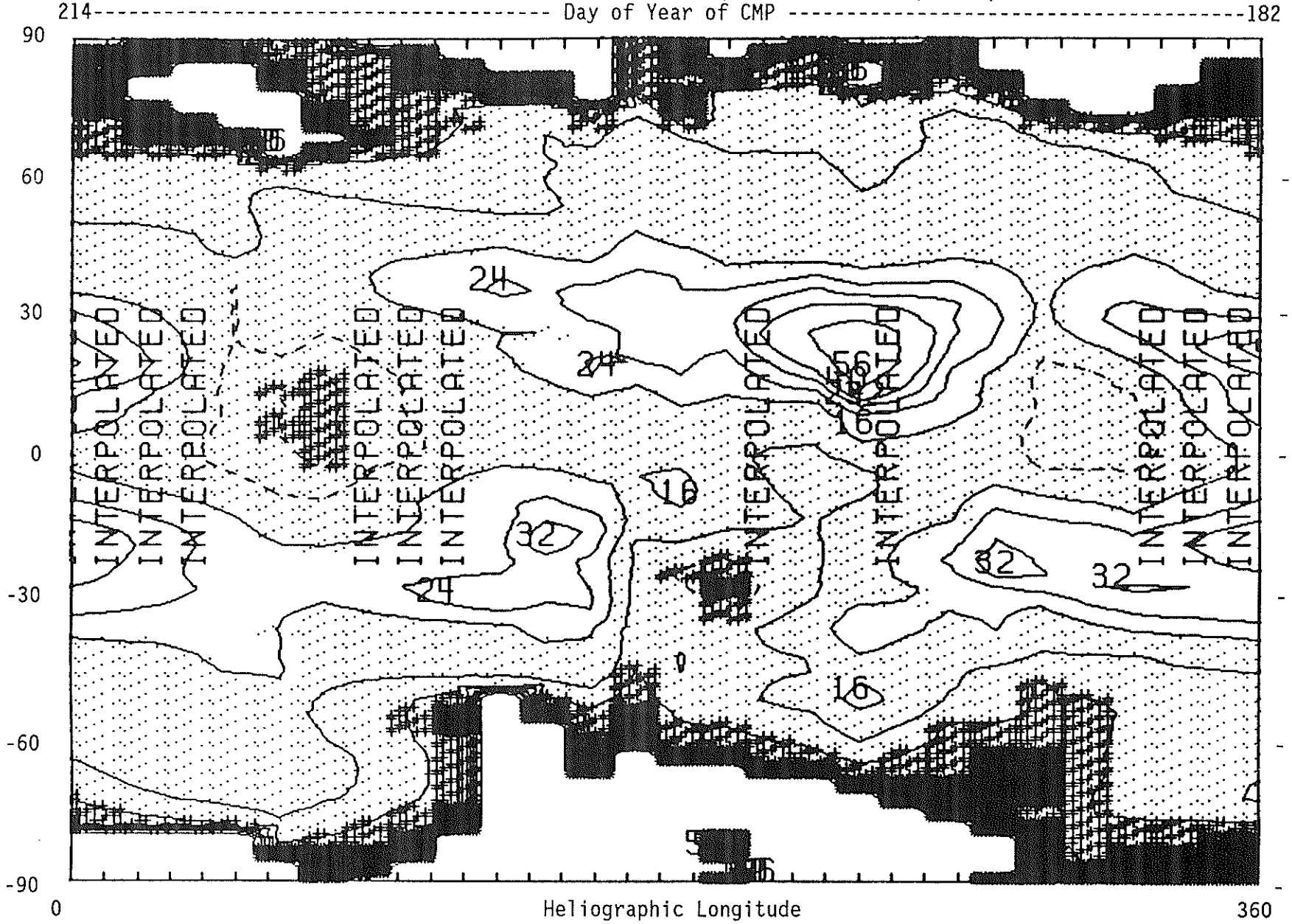
0, ±1, 2, 5, 10, 20 microTesla



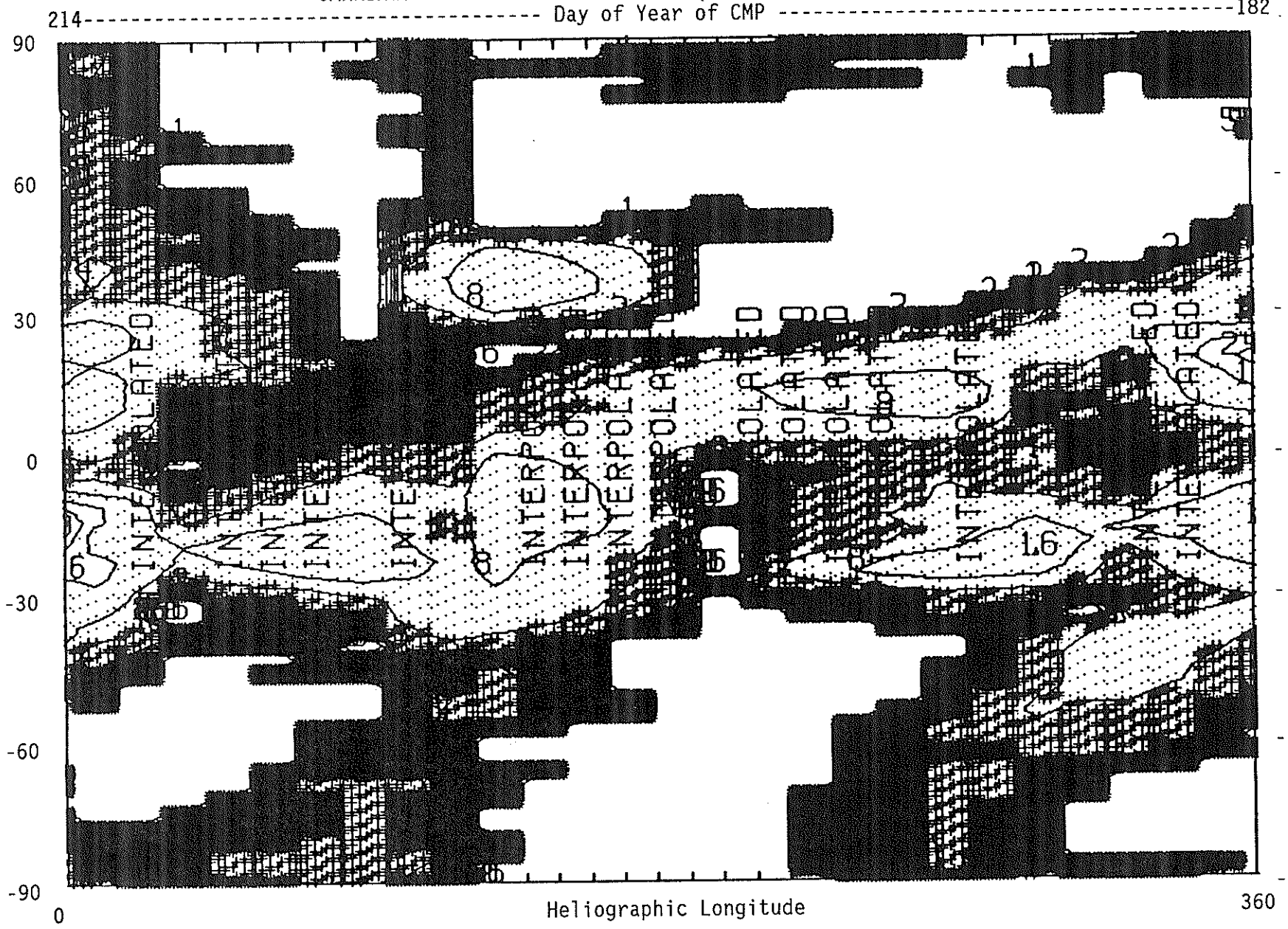
SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1804 (2 July to 29 July 1988)



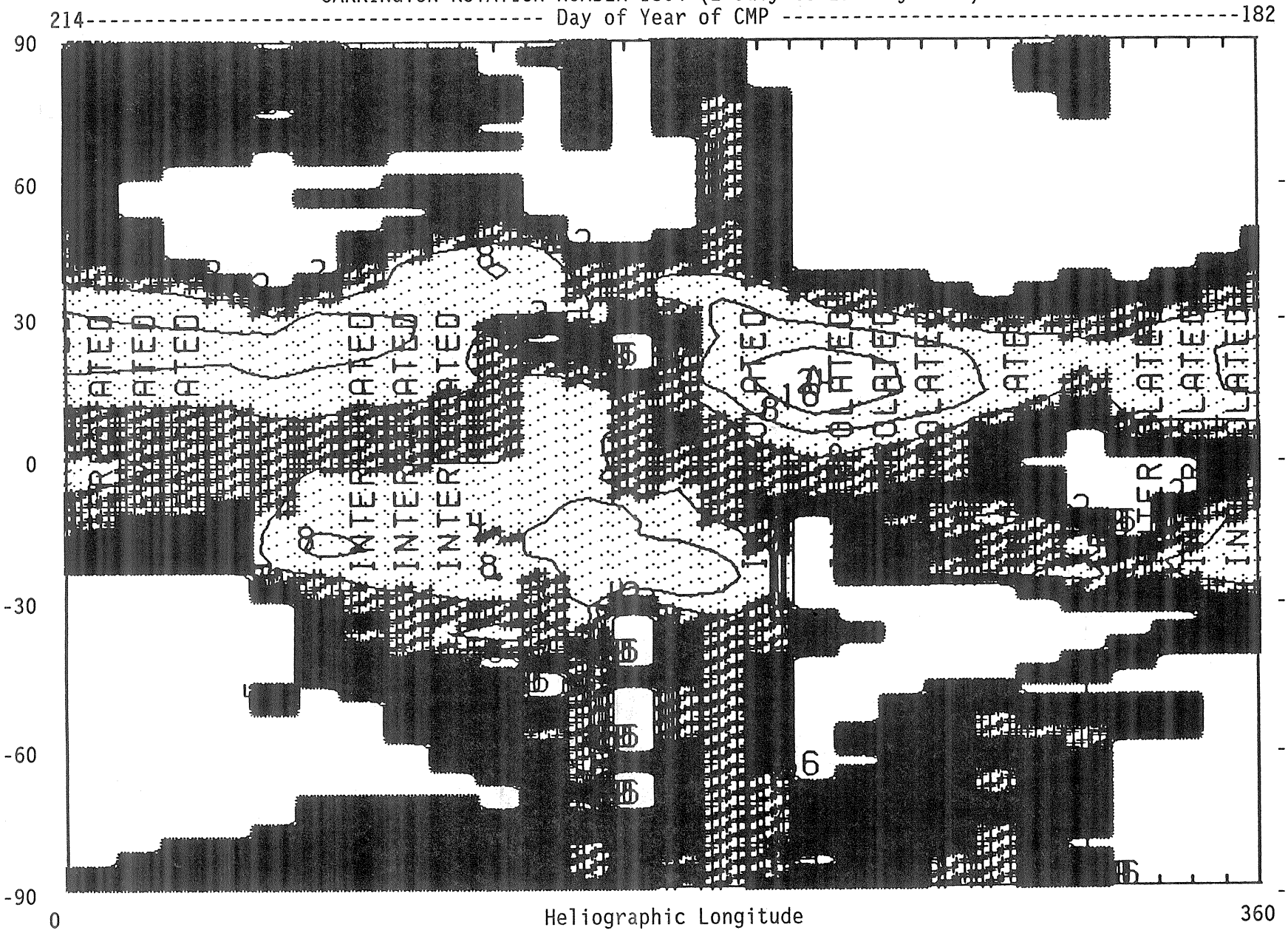
SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1804 (2 July to 29 July 1988)



SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1804 (2 July to 29 July 1988)



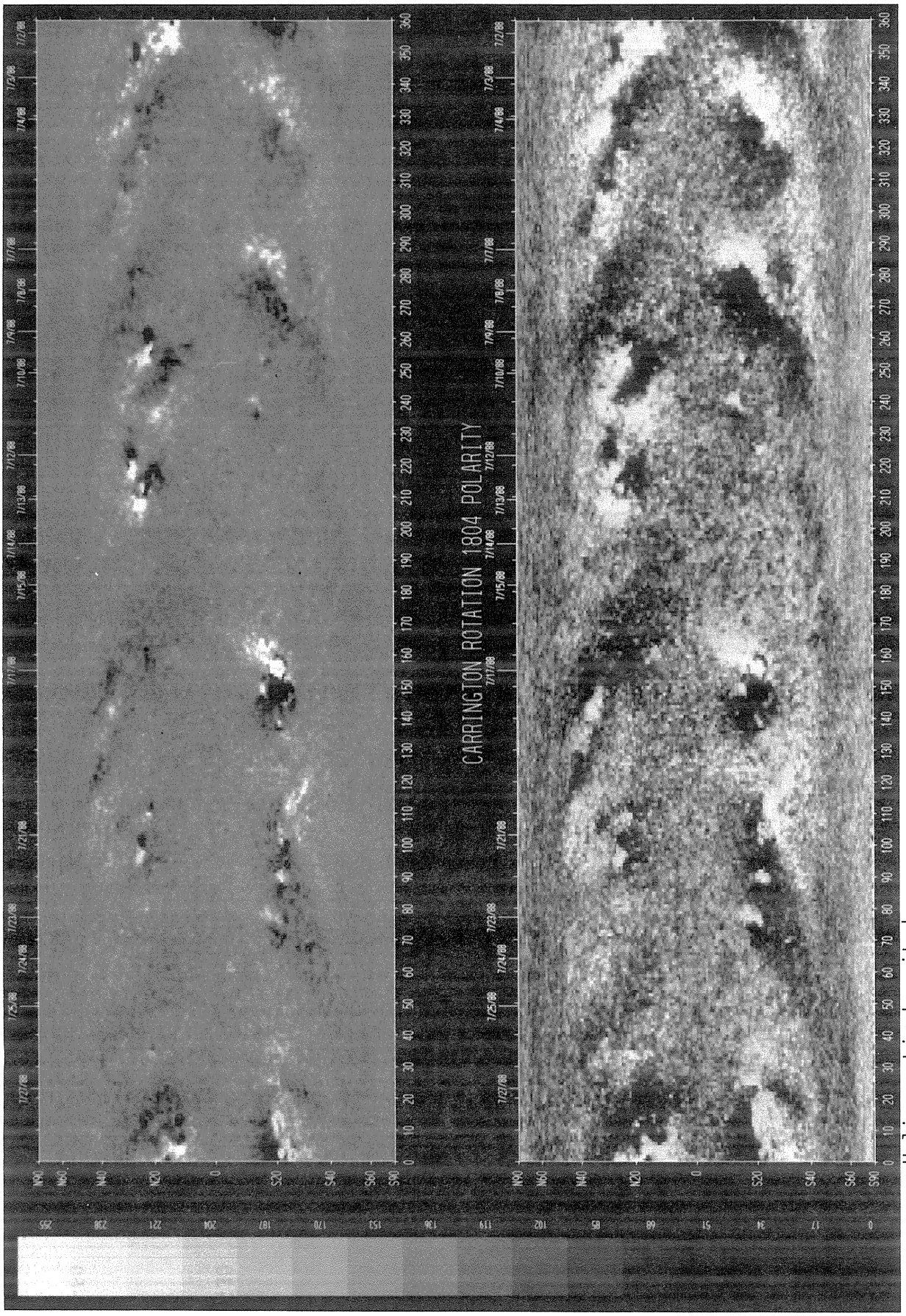
SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1804 (2 July to 29 July 1988)



SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1804
(2 July to 29 July 1988)

Kitt Peak National Observatory



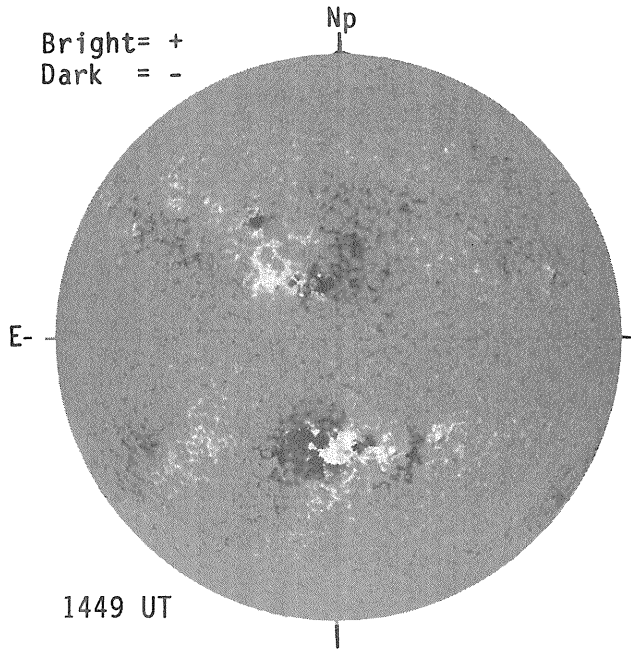
Dates of Observation

Heliographic Longitude

JULY 01, 1988 (P=- 2.58, B_o= 2.91, L_o= 16.38)

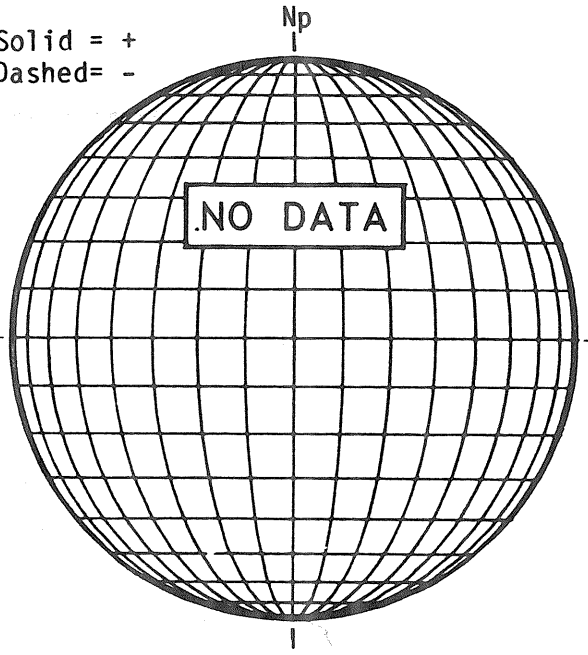
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



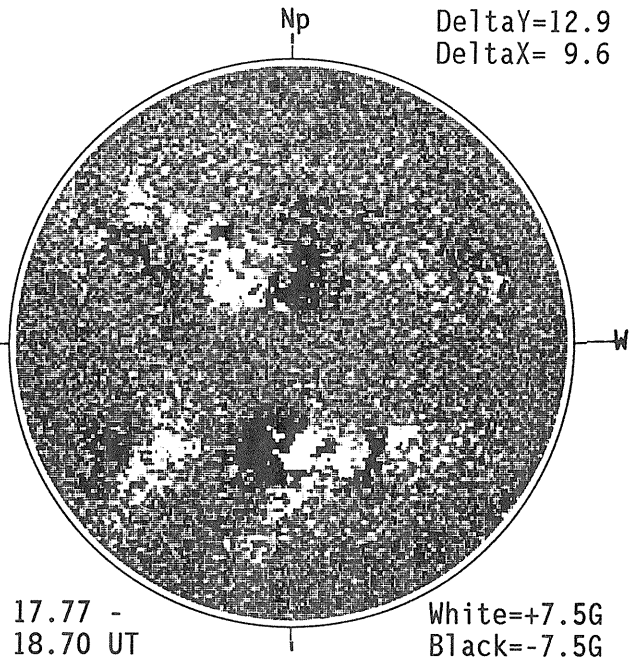
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

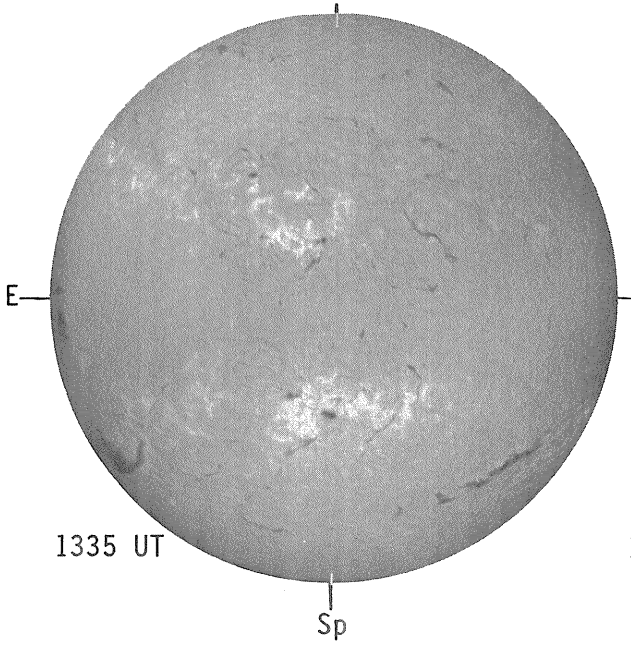


MT. WILSON MAGNETOGRAM

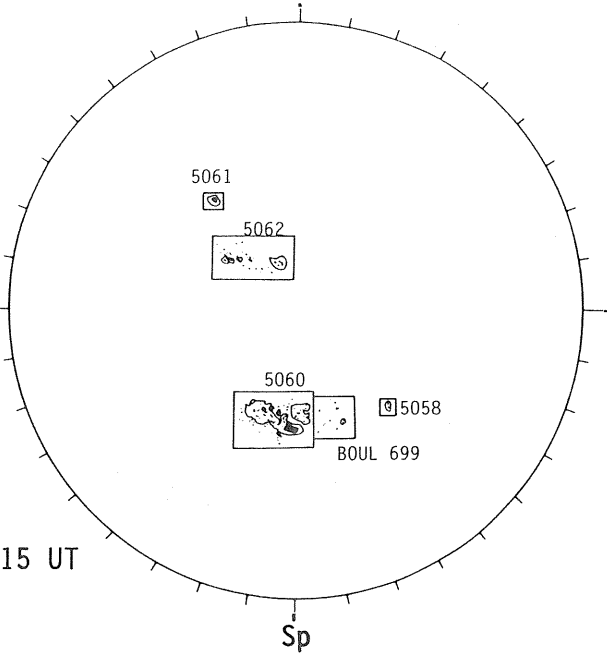
DeltaY=12.9
DeltaX= 9.6



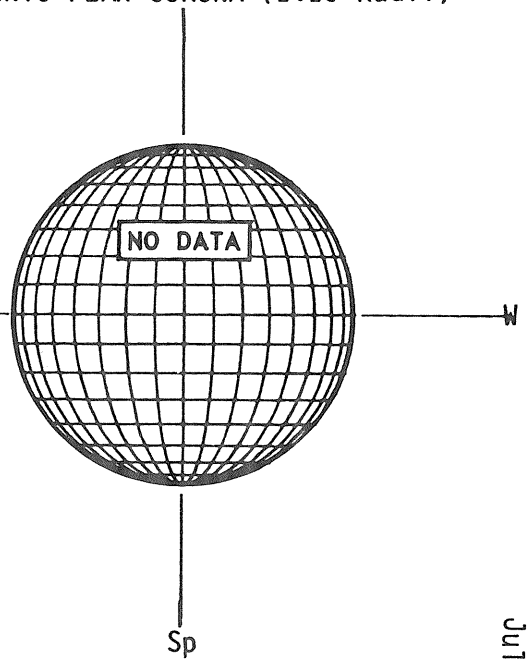
BOULDER H-ALPHA



BOULDER SUNSPOTS



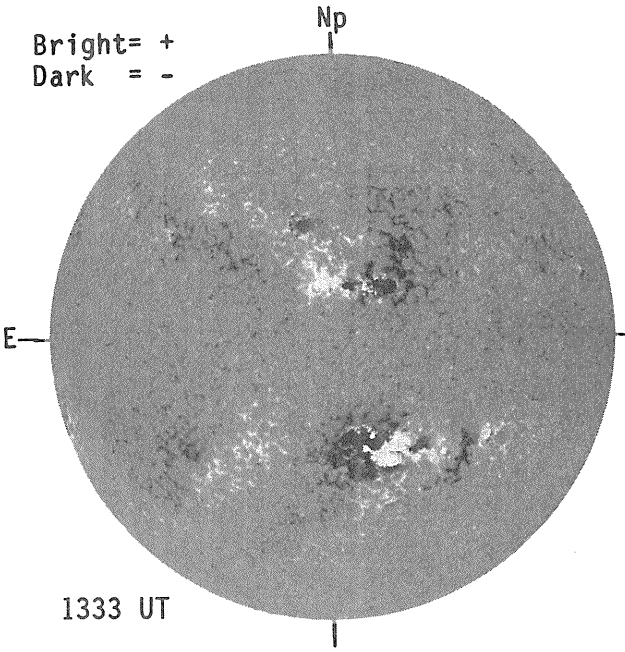
SACRAMENTO PEAK CORONA (1.15 Radii)



JULY 02, 1988 (P=- 2.13, B_o= 3.02, L_o= 3.14)

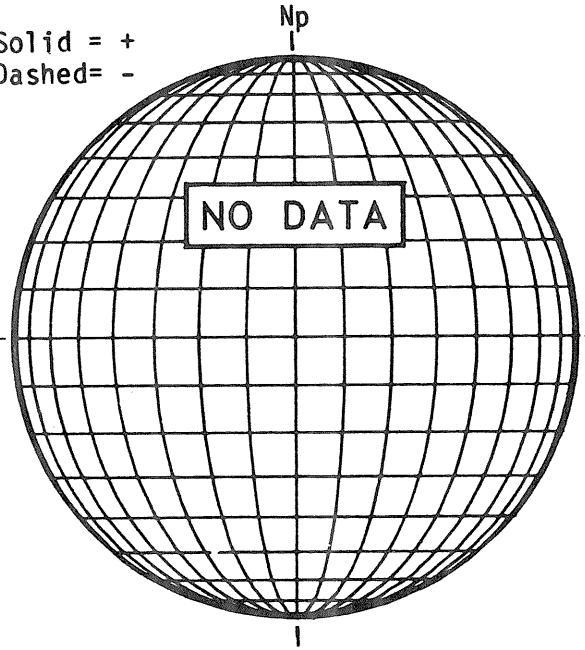
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



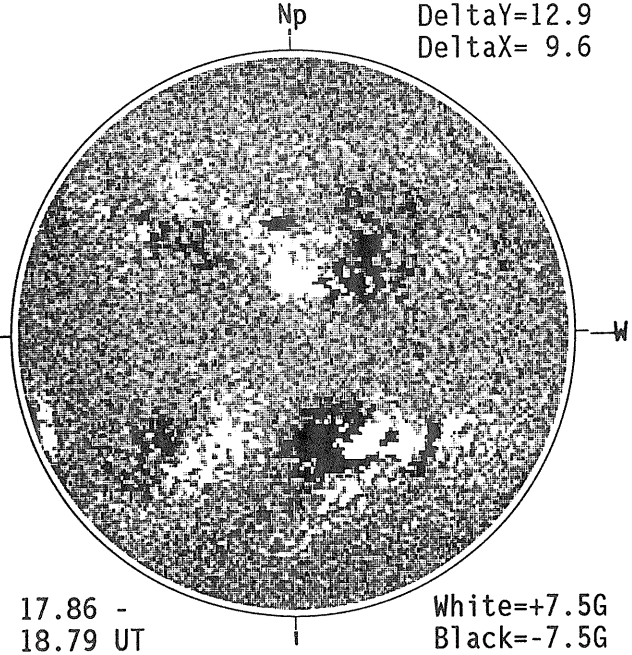
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

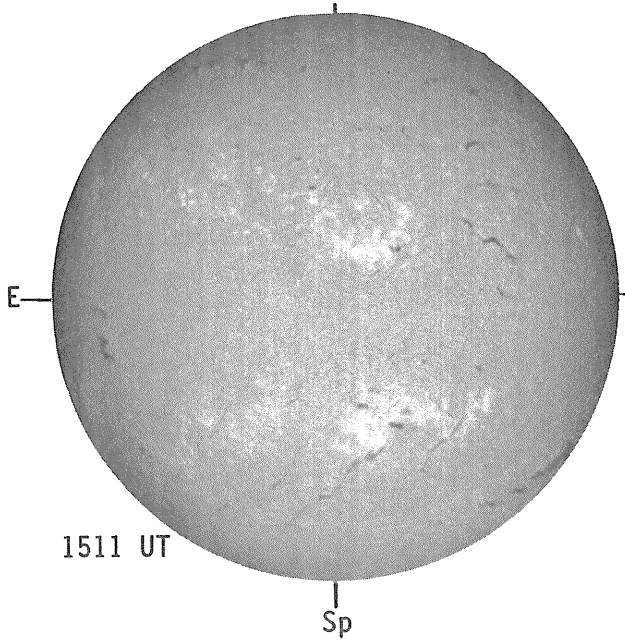
DeltaY=12.9
DeltaX= 9.6



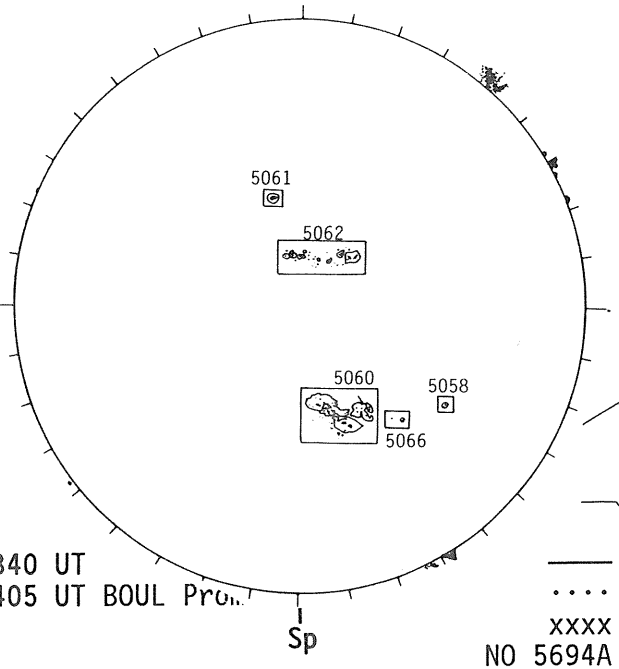
17.86 -
18.79 UT

White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA

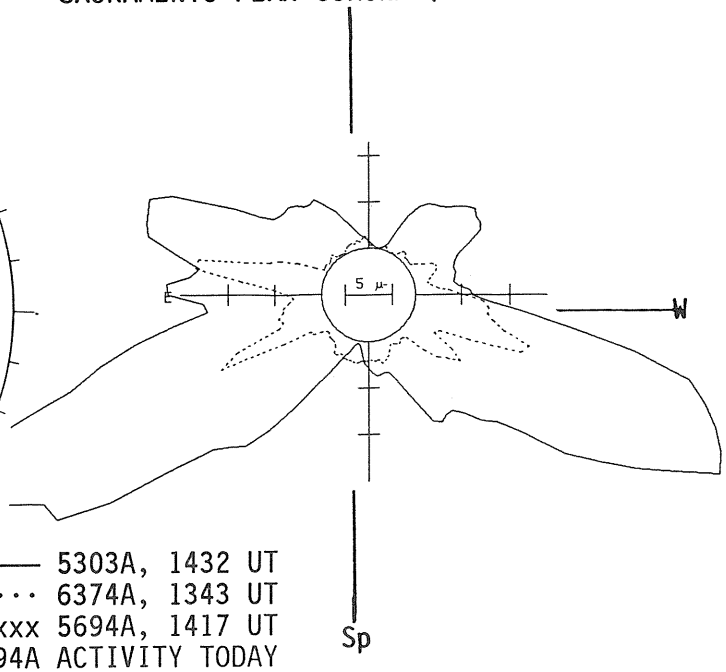


BOULDER SUNSPOTS



1340 UT
1405 UT BOUL Prom.

SACRAMENTO PEAK CORONA (1.15 Radii)

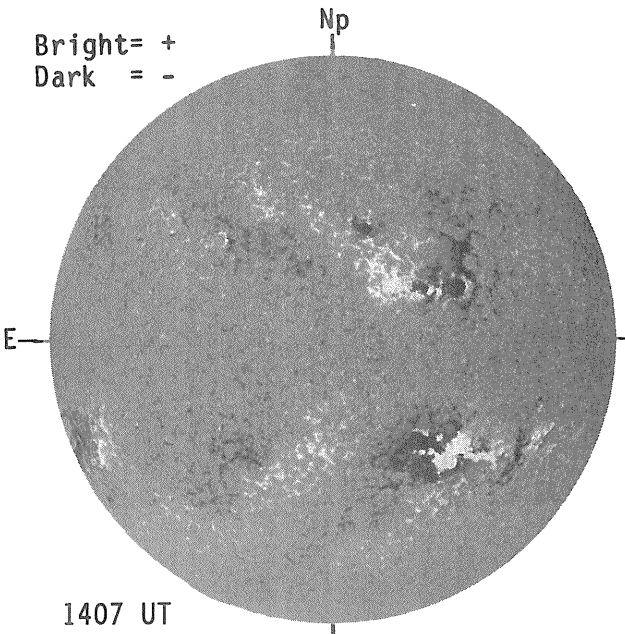


—— 5303A, 1432 UT
···· 6374A, 1343 UT
xxxx 5694A, 1417 UT
NO 5694A ACTIVITY TODAY

JULY 03, 1988 (P=- 1.68, B_o= 3.13, L_o= 349.91)

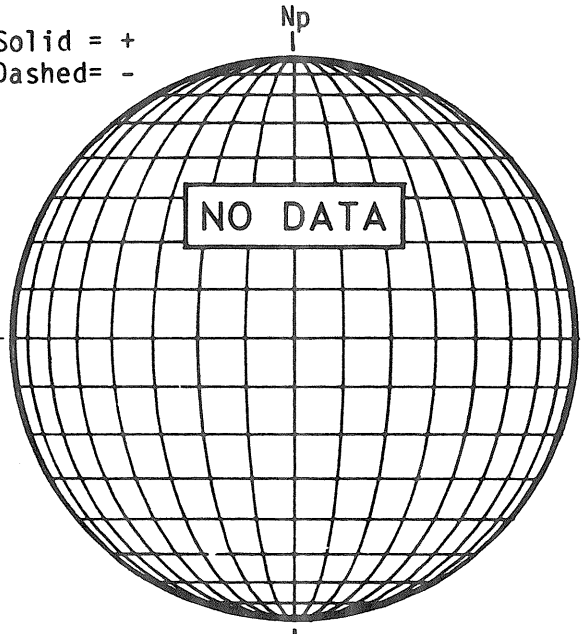
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



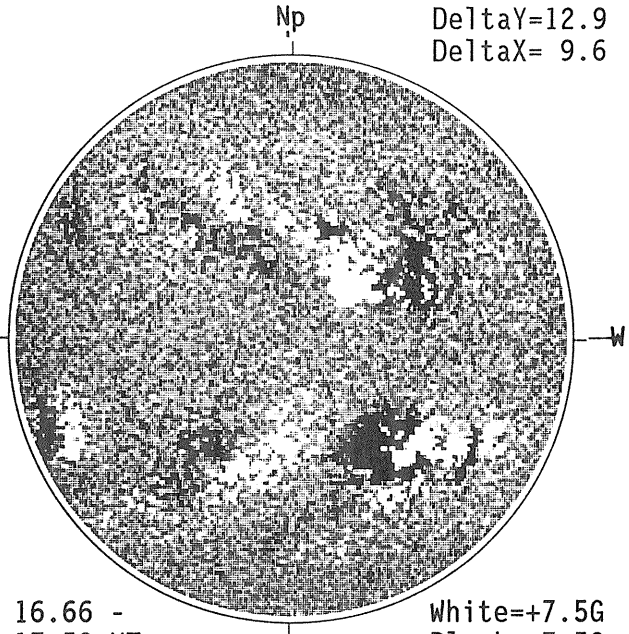
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

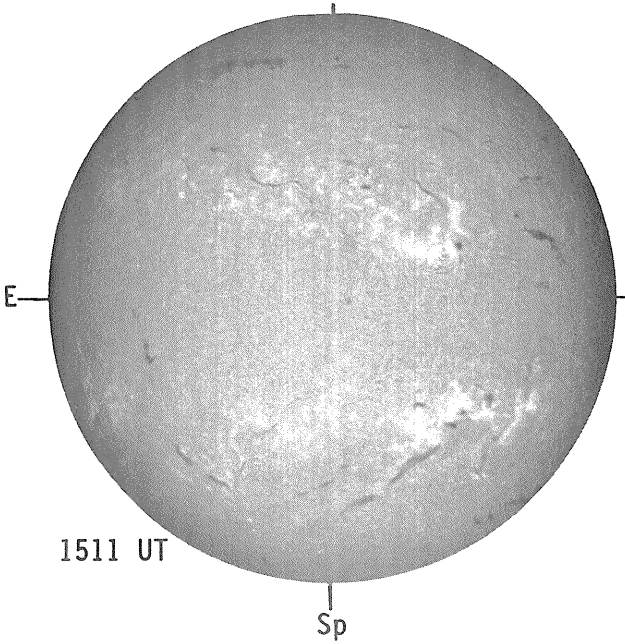
DeltaY=12.9
DeltaX= 9.6



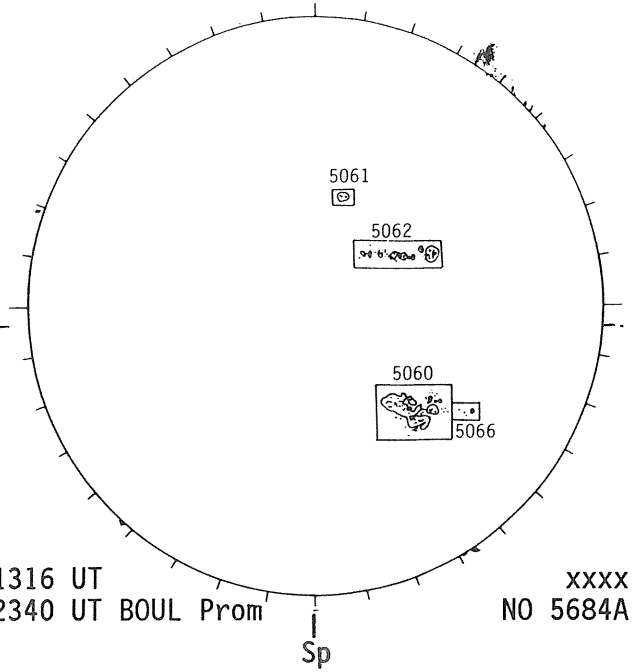
16.66 -
17.59 UT

White=+7.5G
Black=-7.5G

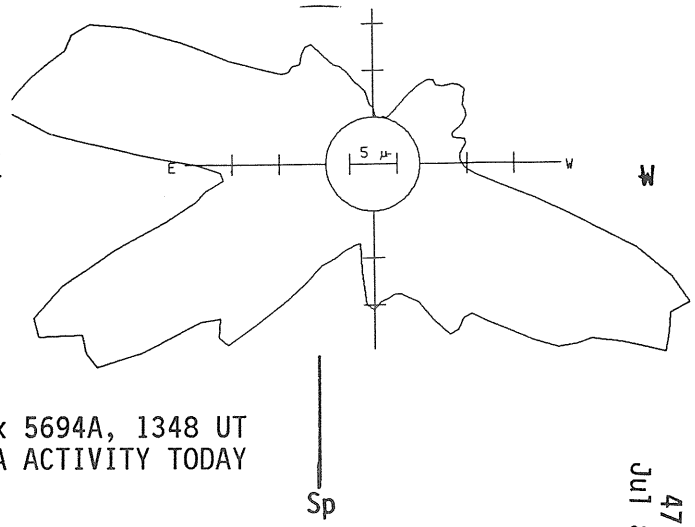
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



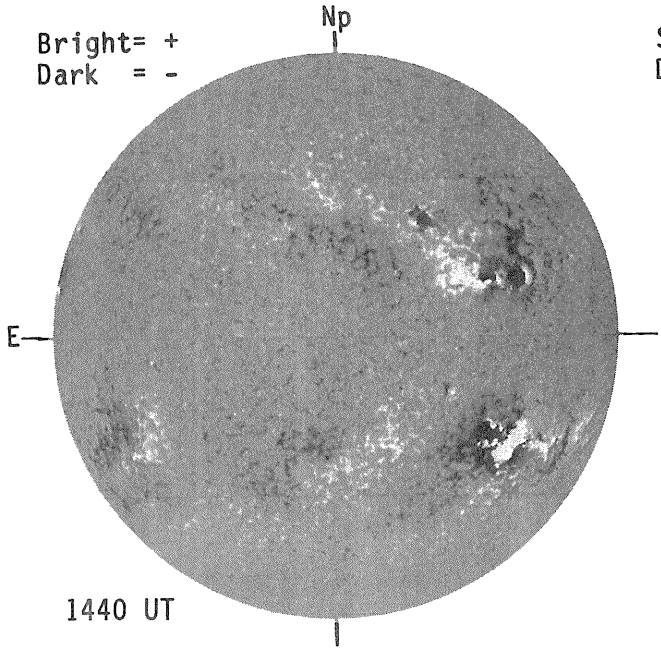
xxxx 5694A, 1348 UT
NO 5684A ACTIVITY TODAY

47
Jul 88

JULY 04, 1988 (P=- 1.22, B_o= 3.23, L_o= 336.67)

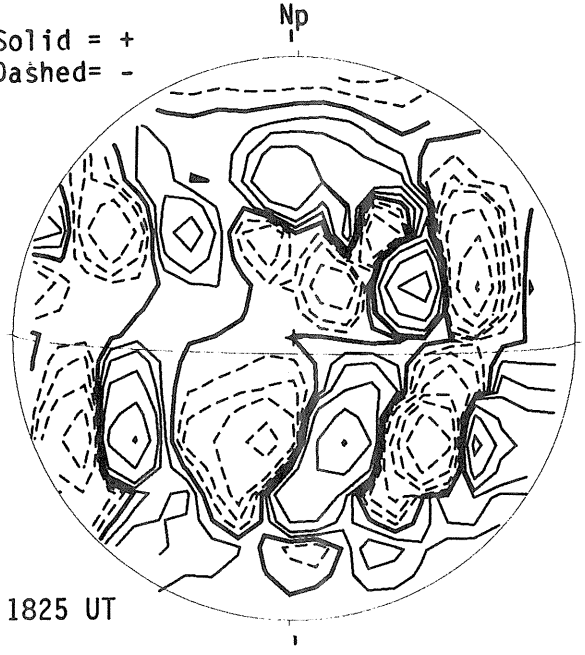
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

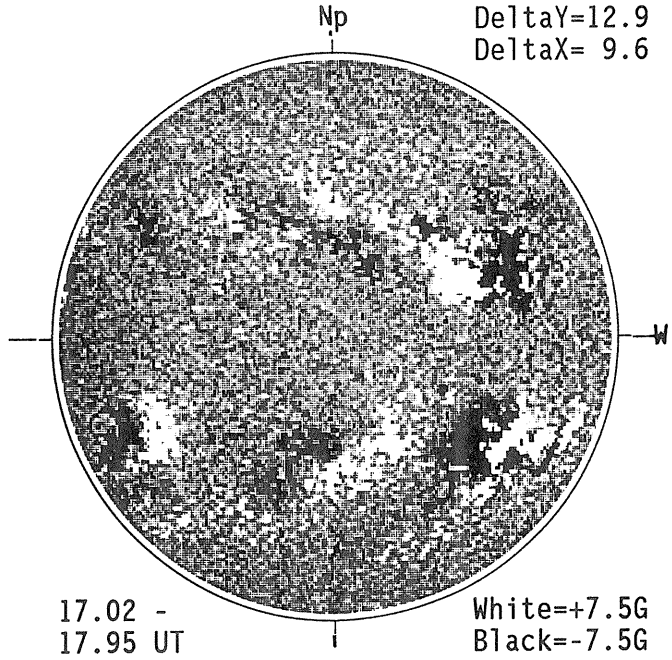


STANFORD MAGNETOGRAM

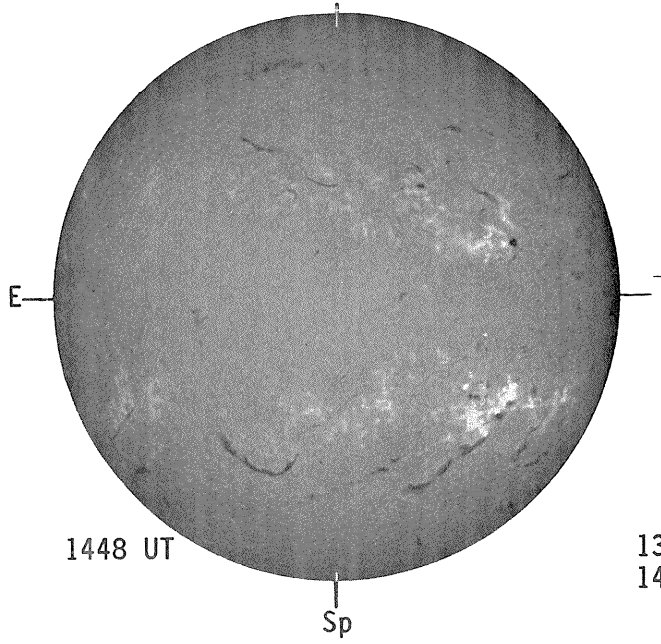
Solid = +
Dashed= -



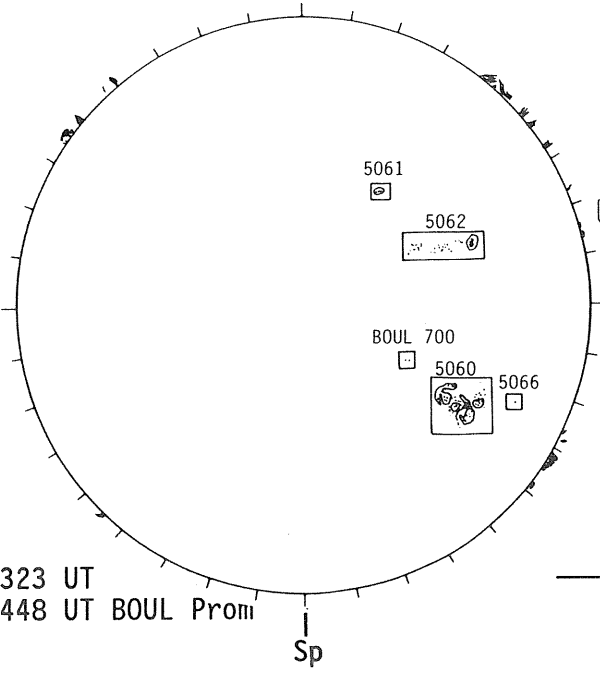
MT. WILSON MAGNETOGRAM



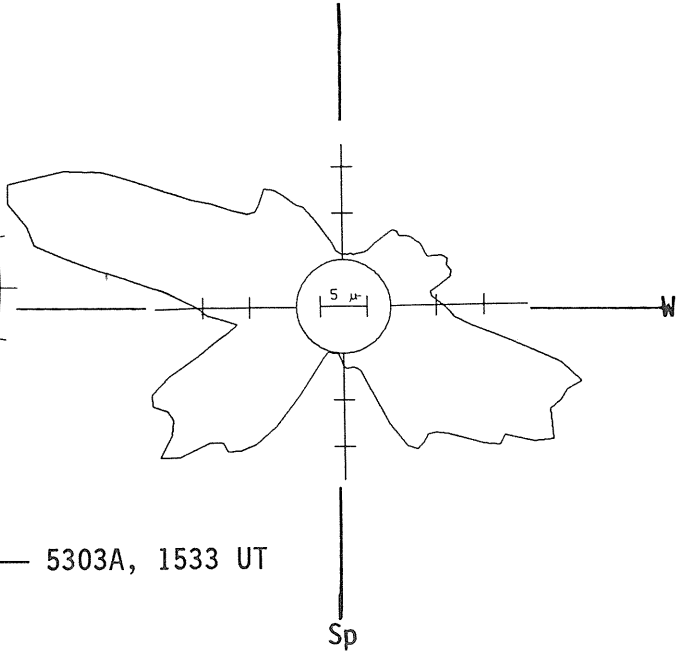
BOULDER H-ALHPA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

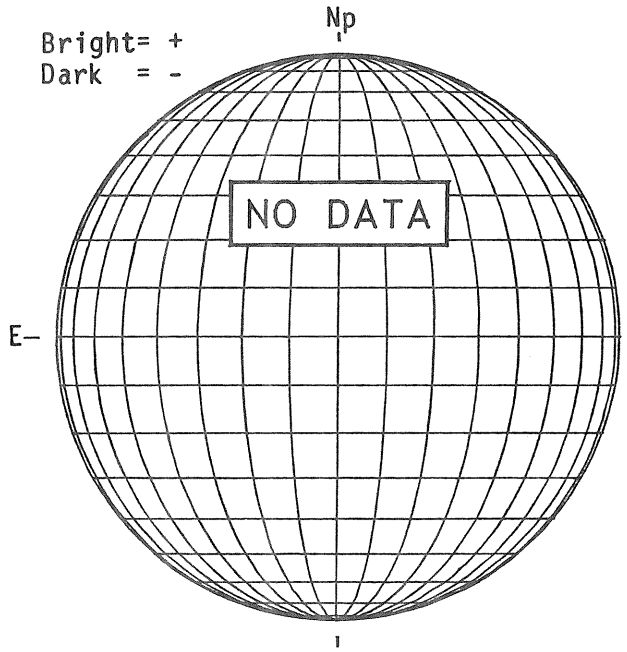


—— 5303A, 1533 UT

JULY 05, 1988 (P=- 0.77, B_o= 3.34, L_o= 323.43)

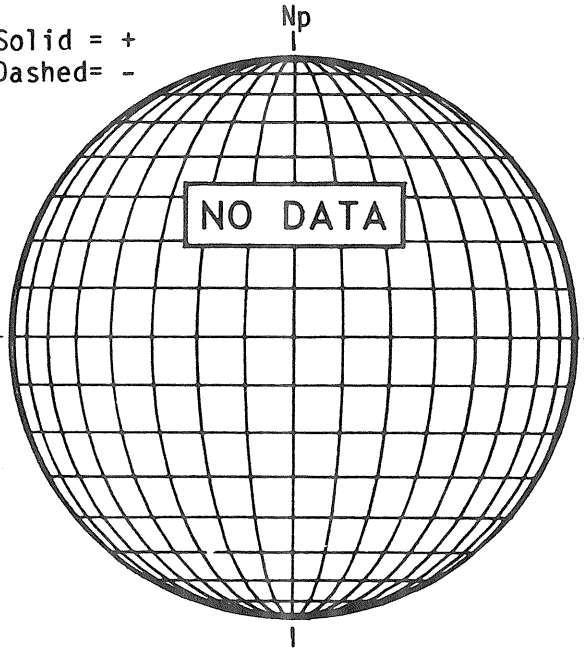
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



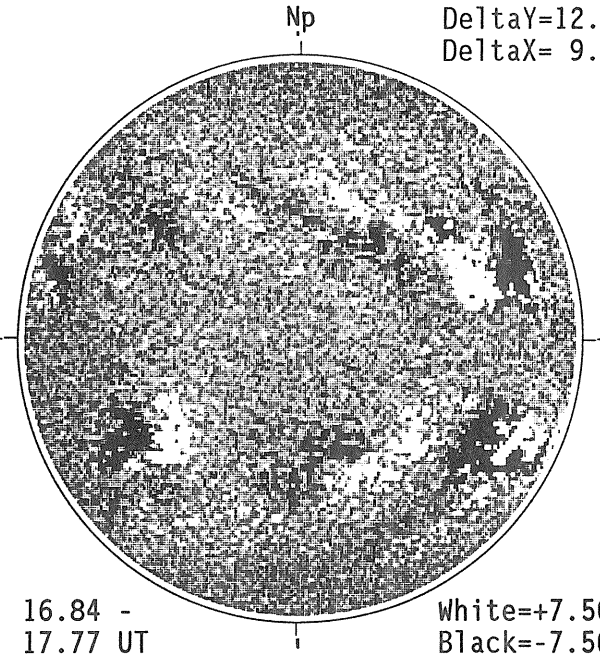
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

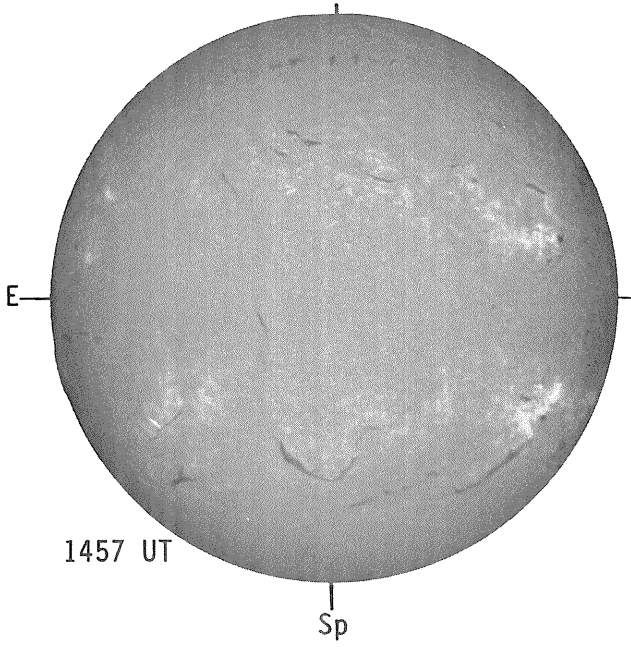
DeltaY=12.9
DeltaX= 9.6



16.84 -
17.77 UT

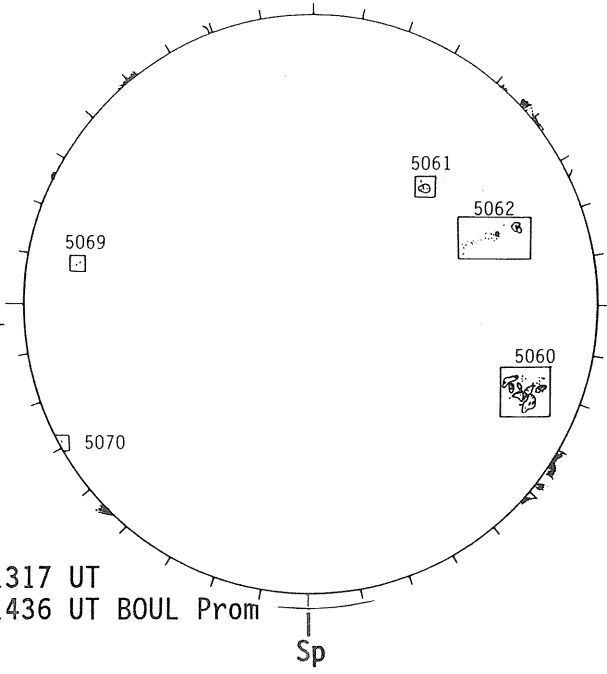
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



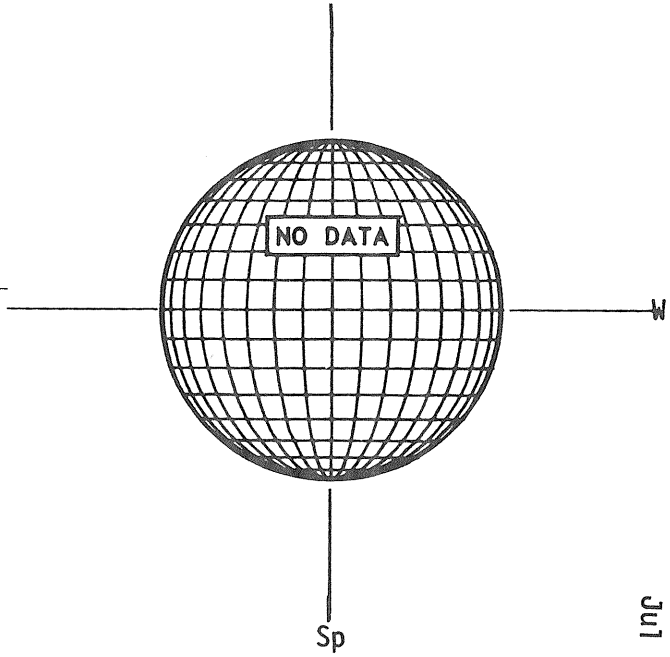
1457 UT

BOULDER SUNSPOTS



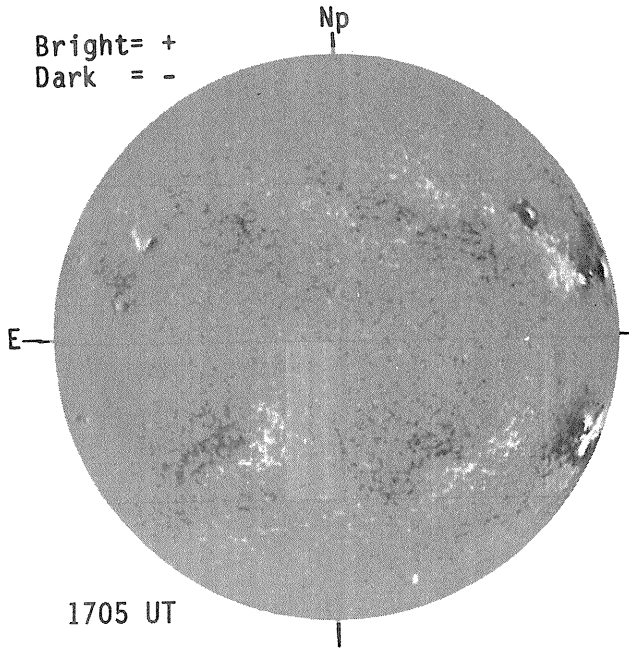
1317 UT
1436 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

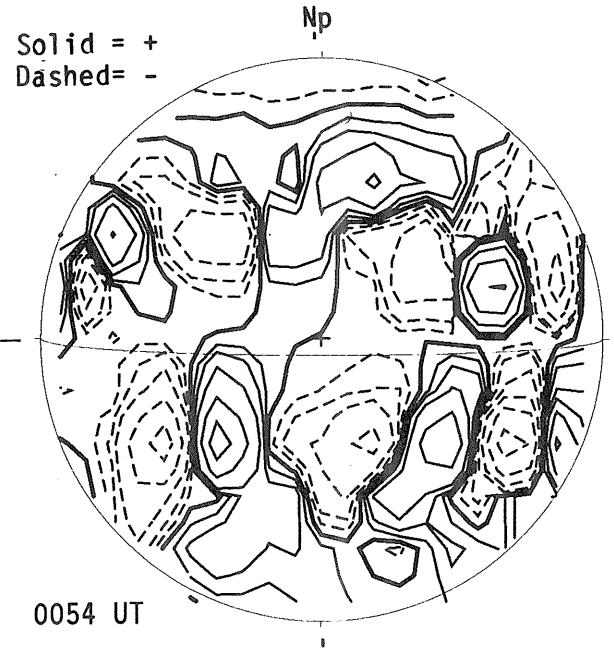


JULY 06, 1988 (P=- 0.31, B_o= 3.45, L_o= 310.20)

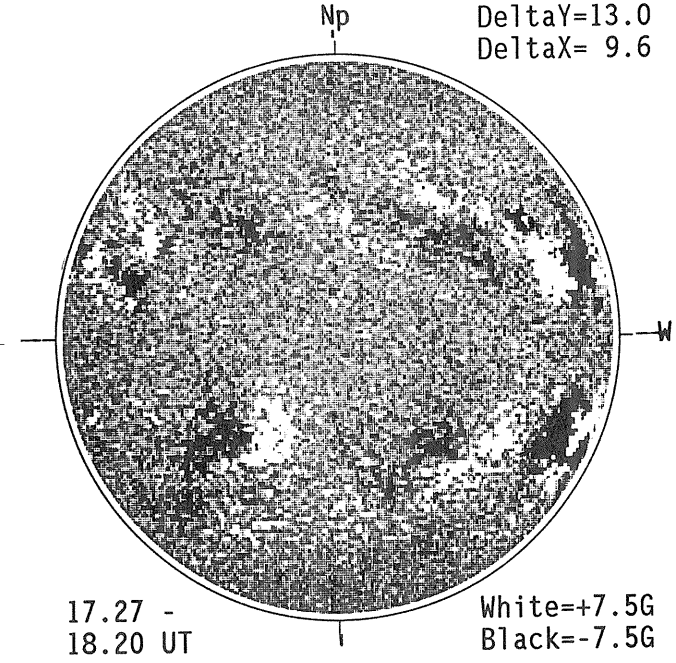
KITT PEAK MAGNETOGRAM



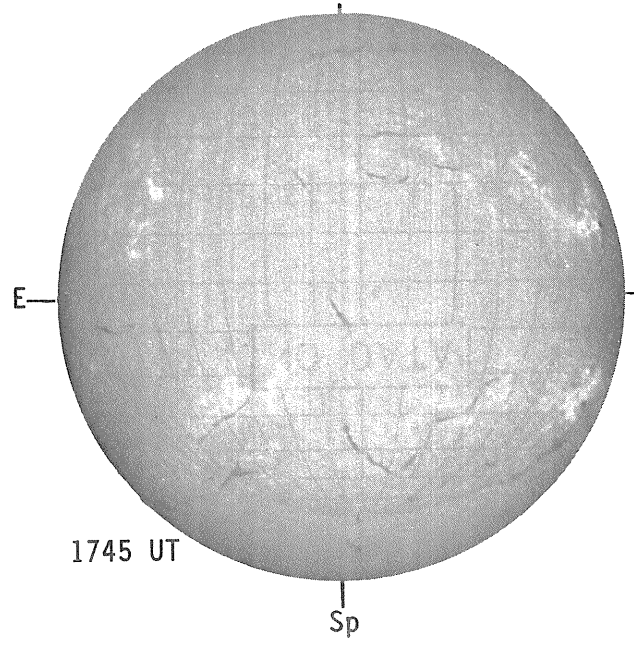
STANFORD MAGNETOGRAM



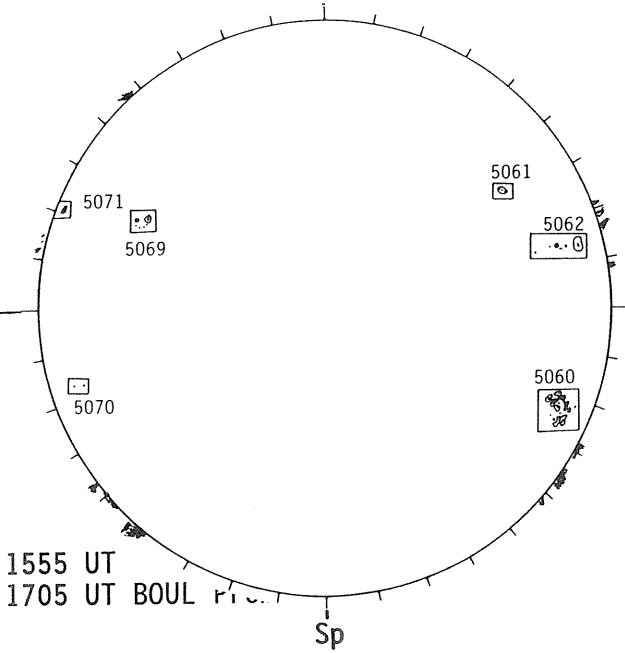
MT. WILSON MAGNETOGRAM



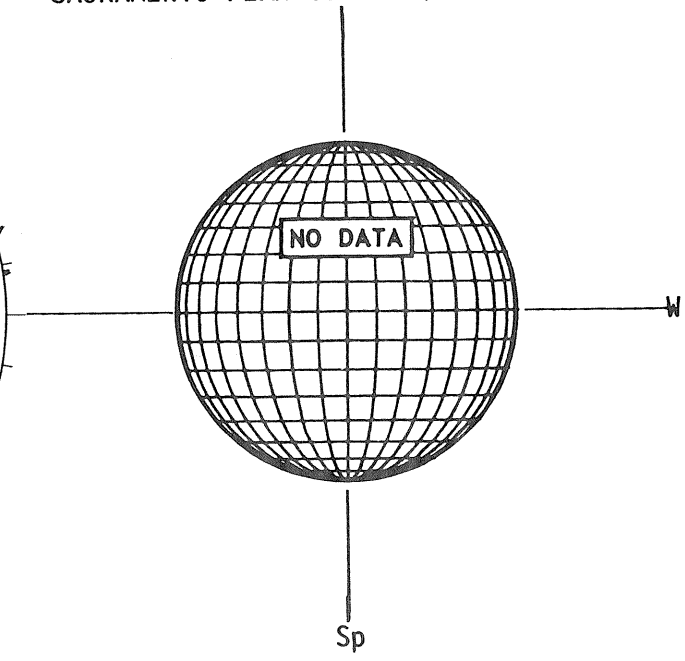
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



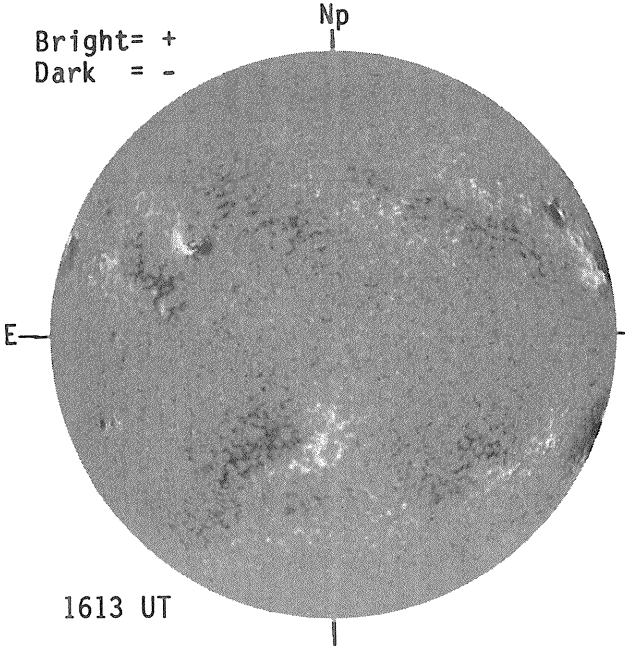
SACRAMENTO PEAK CORONA (1.15 Radii)



JULY 07, 1988 (P= 0.14, B_o= 3.55, L_o= 296.96)

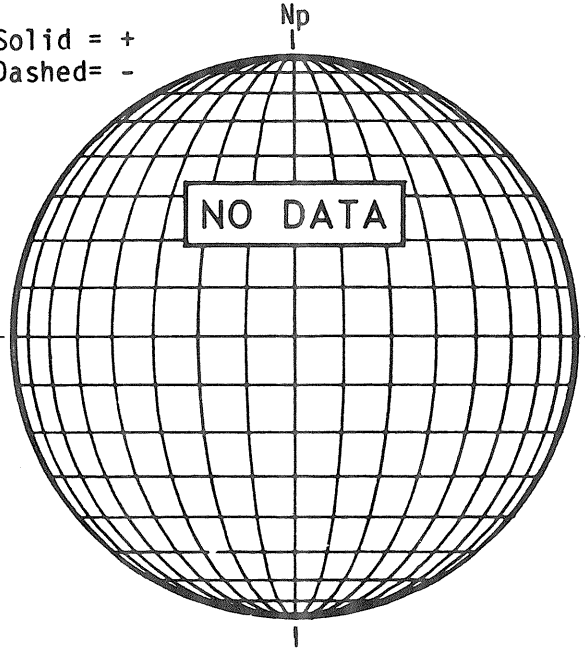
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



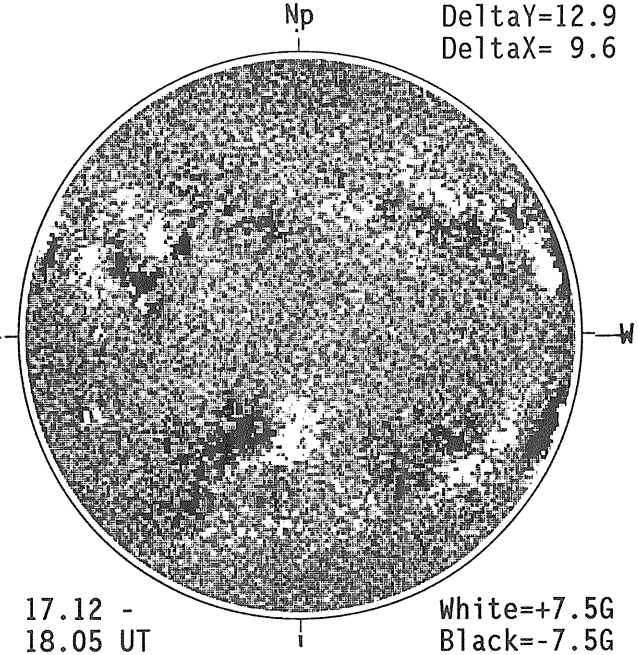
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

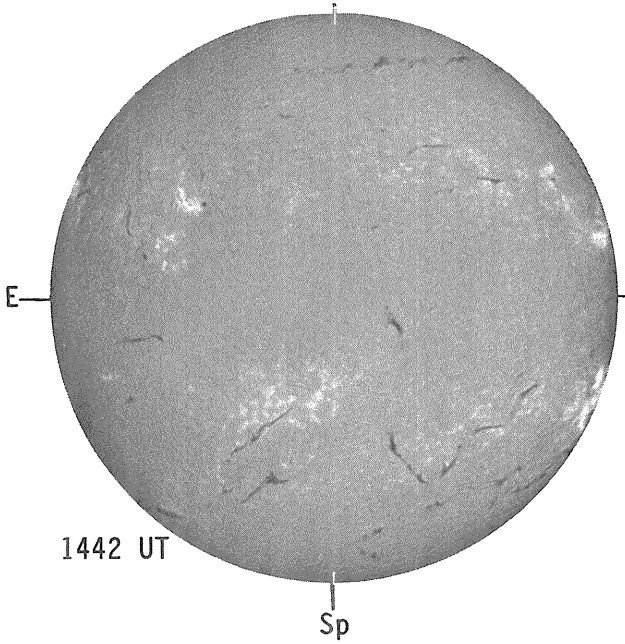
DeltaY=12.9
DeltaX= 9.6



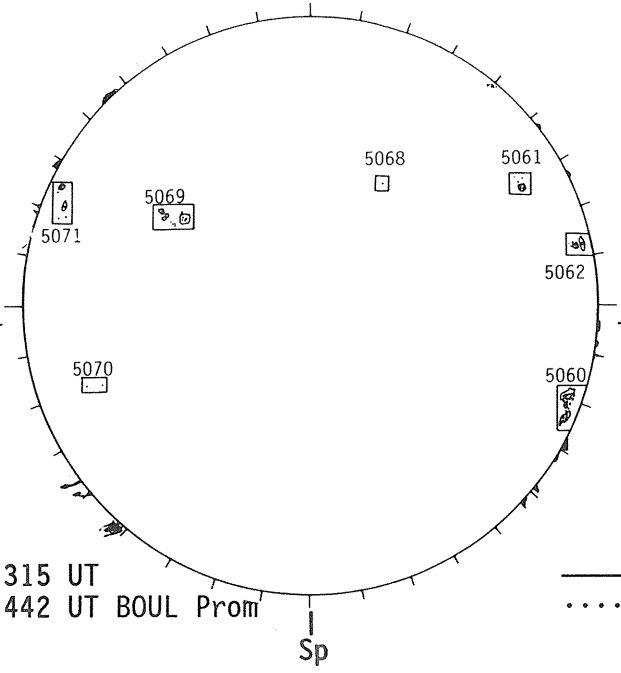
17.12 -
18.05 UT

White=+7.5G
Black=-7.5G

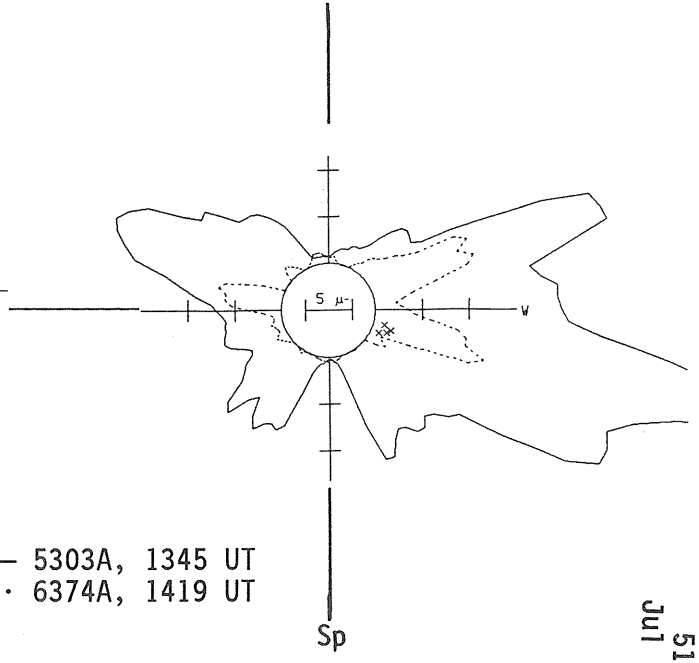
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



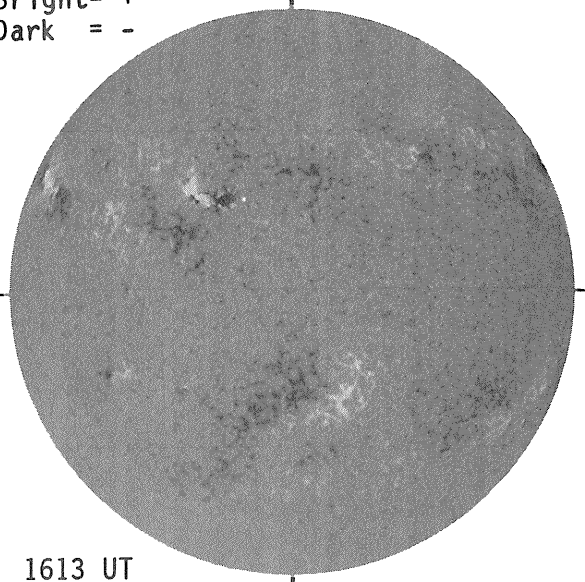
—— 5303A, 1345 UT
···· 6374A, 1419 UT

JULY 08, 1988 (P= 0.59, B_o= 3.66, L_o= 283.73)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -



E

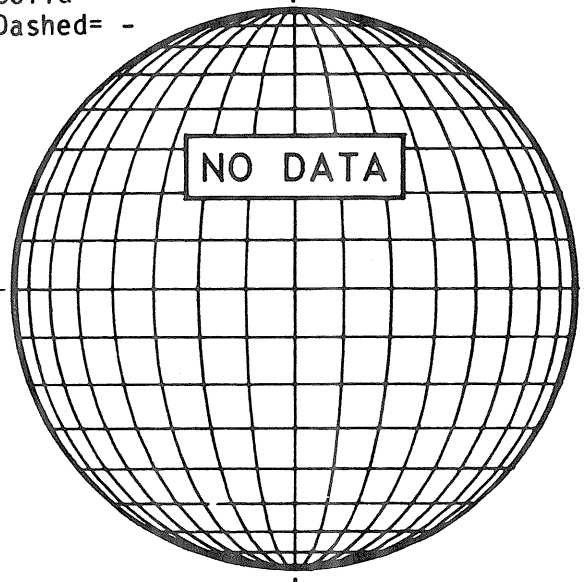
1613 UT

Sp

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -

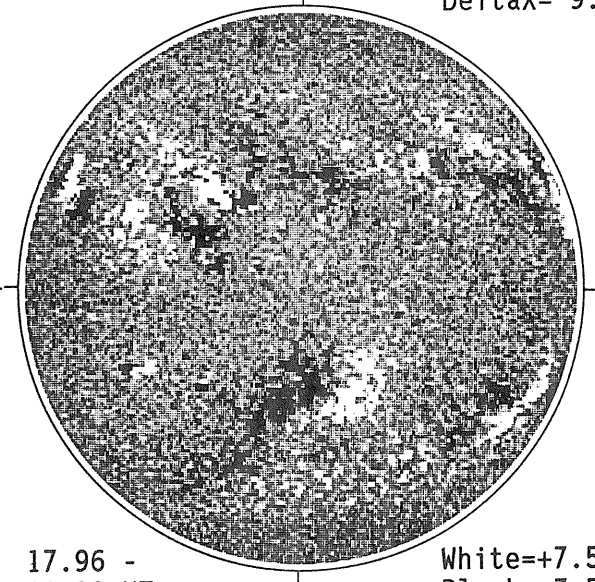


Sp

MT. WILSON MAGNETOGRAM

Np

DeltaY=13.0
DeltaX= 9.6



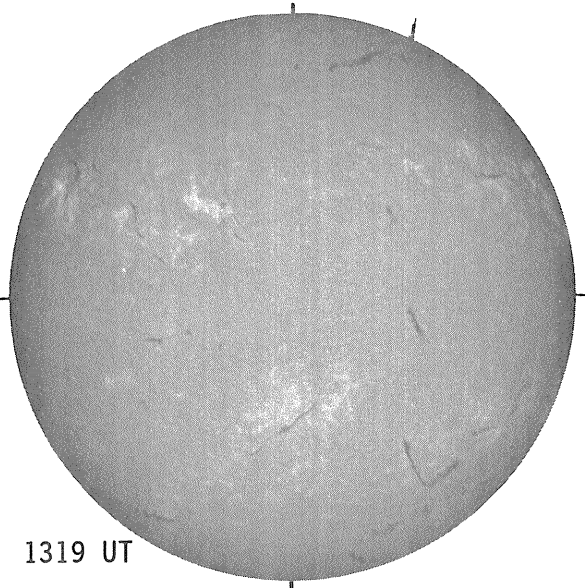
W

17.96 -
18.89 UT

White=+7.5G
Black=-7.5G

Sp

SACRAMENTO PEAK H-ALPHA

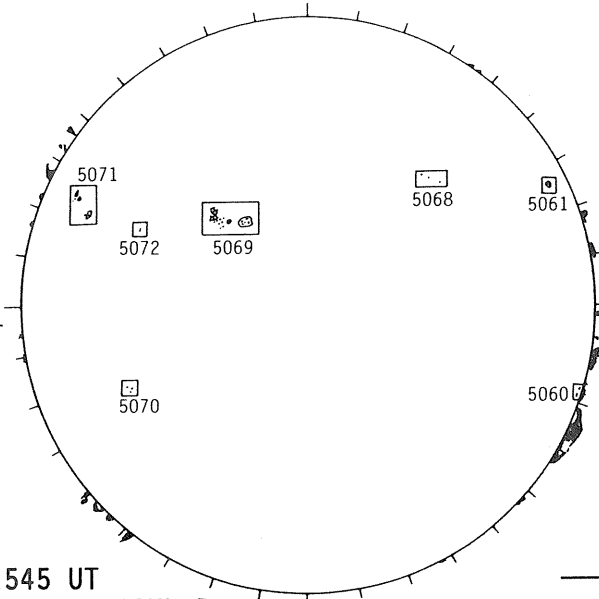


E

1319 UT

Sp

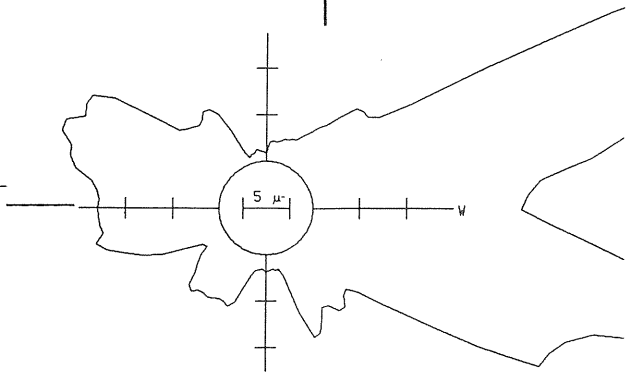
BOULDER SUNSPOTS



1545 UT
1620 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (1.15 Radii)



W

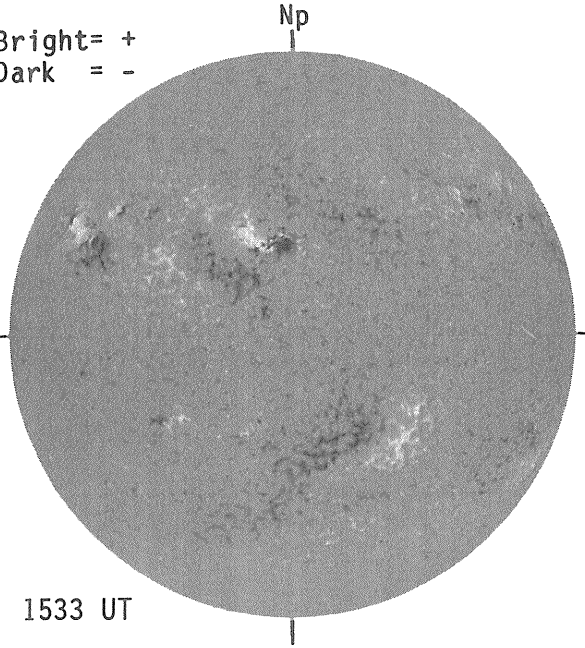
—— 5303A, 1345 UT

Sp

JULY 09, 1988 (P= 1.04, B_o= 3.76, L_o= 270.49)

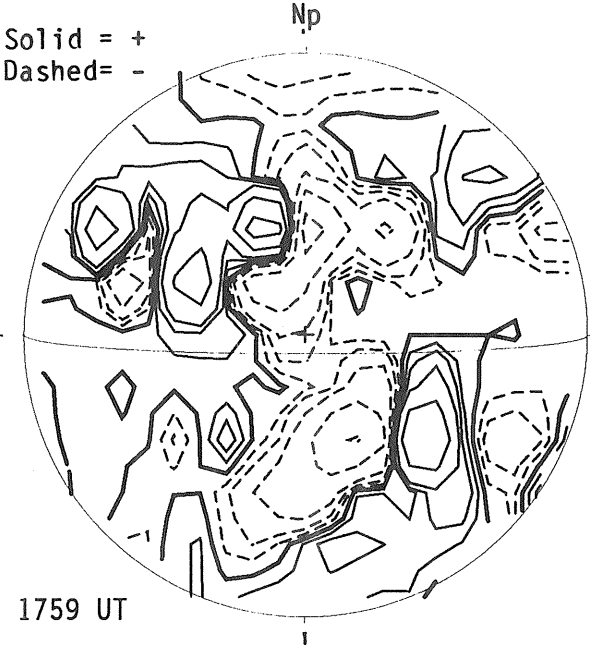
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



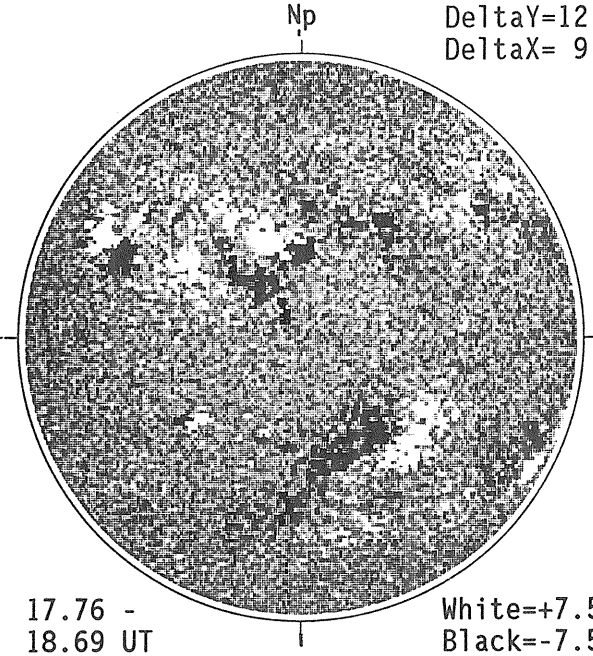
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

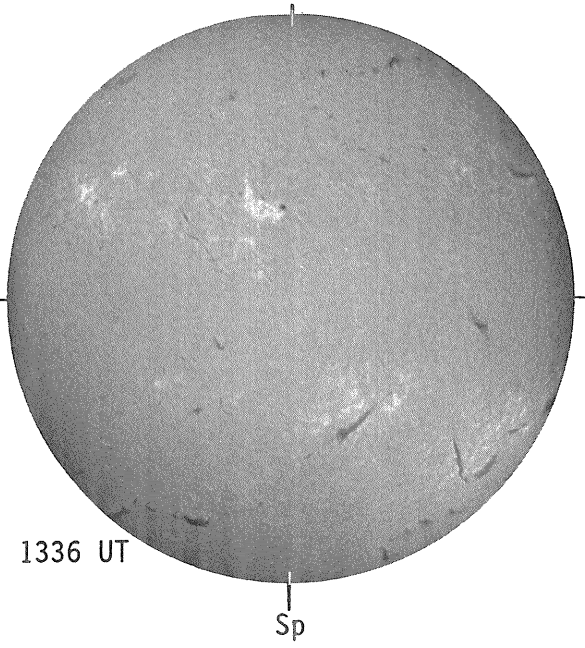


MT. WILSON MAGNETOGRAM

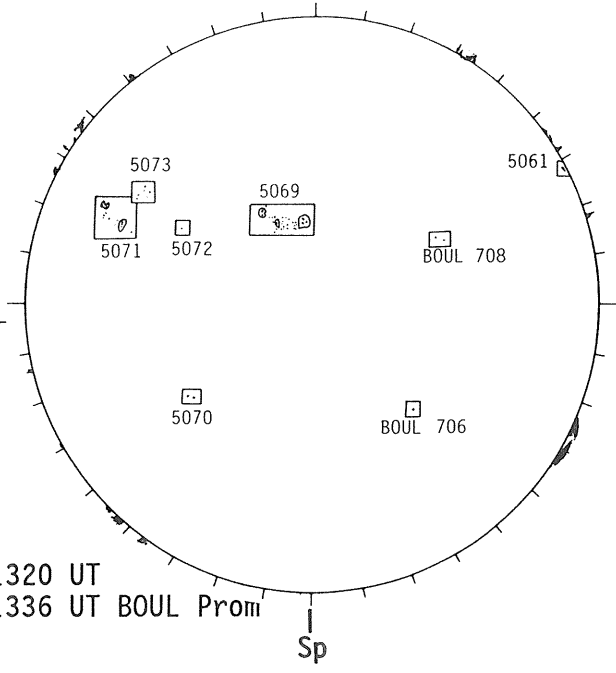
DeltaY=12.9
DeltaX= 9.6



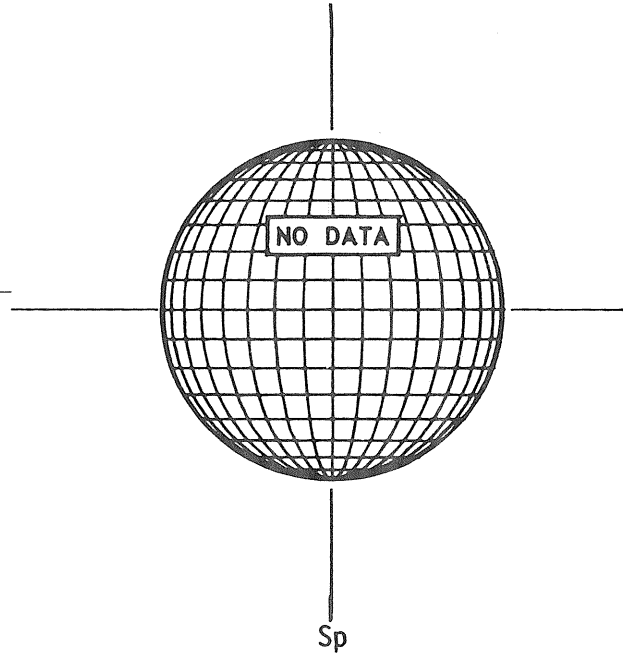
BOULDER H-ALPHA



BOULDER SUNSPOTS



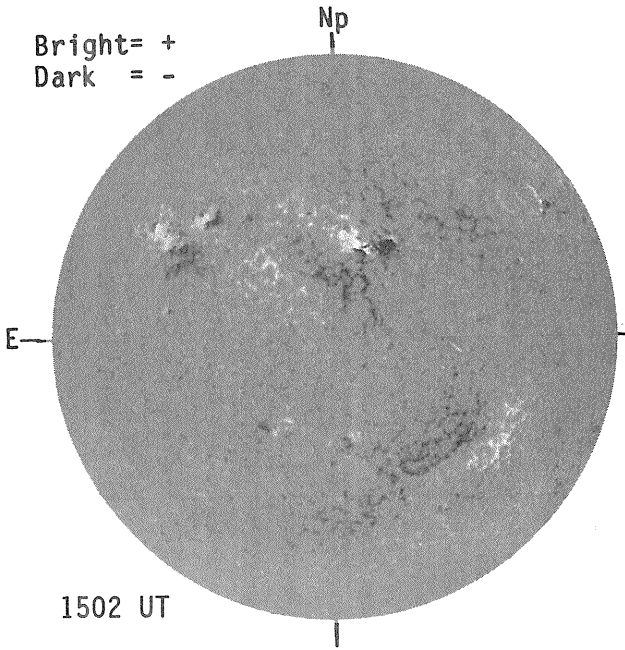
SACRAMENTO PEAK CORONA (1.15 Radii)



JULY 10, 1988 (P= 1.49, B_o= 3.86, L_o= 257.26)

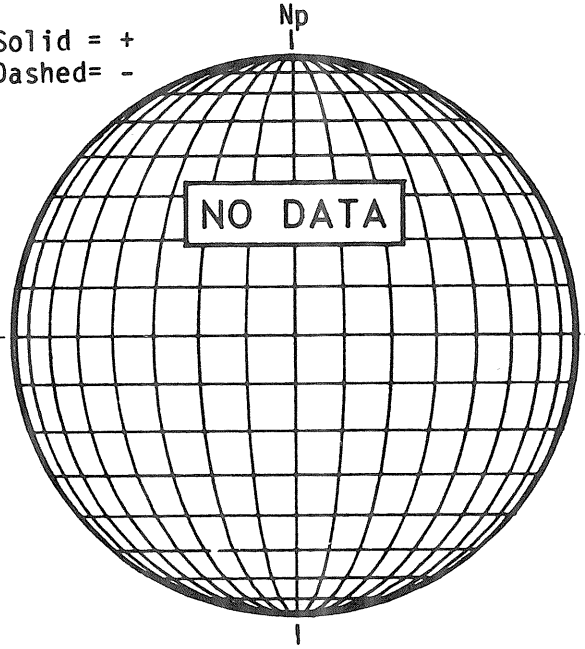
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



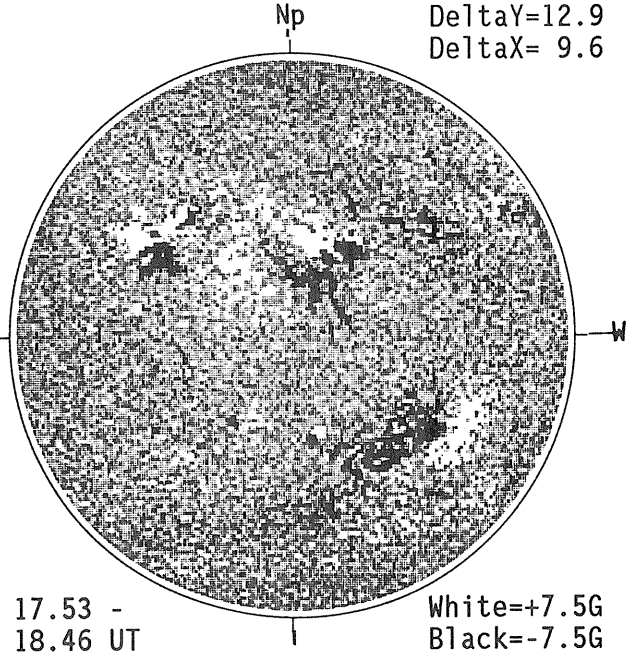
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

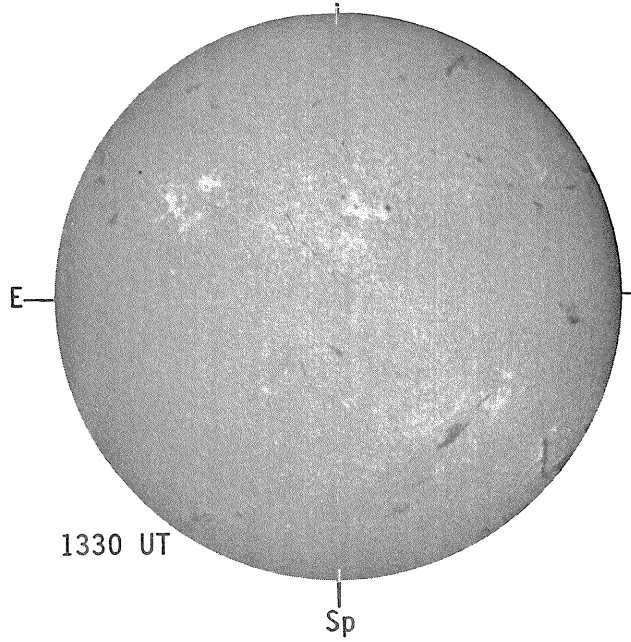
DeltaY=12.9
DeltaX= 9.6



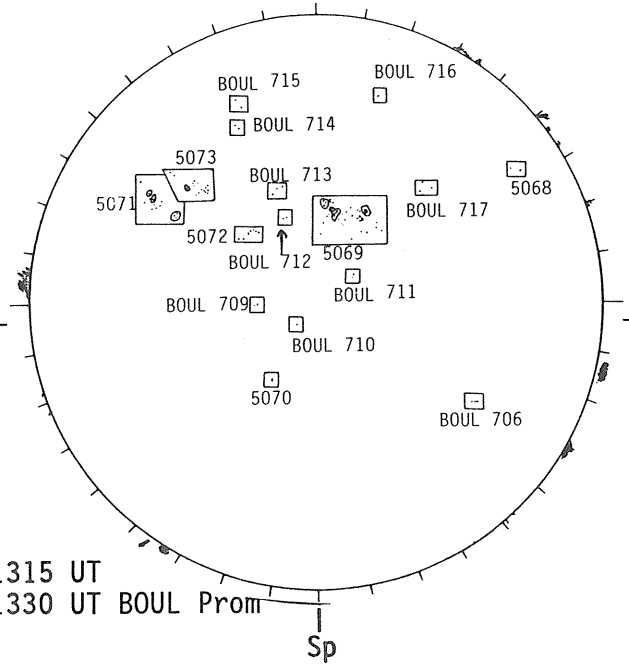
17.53 -
18.46 UT

White=+7.5G
Black=-7.5G

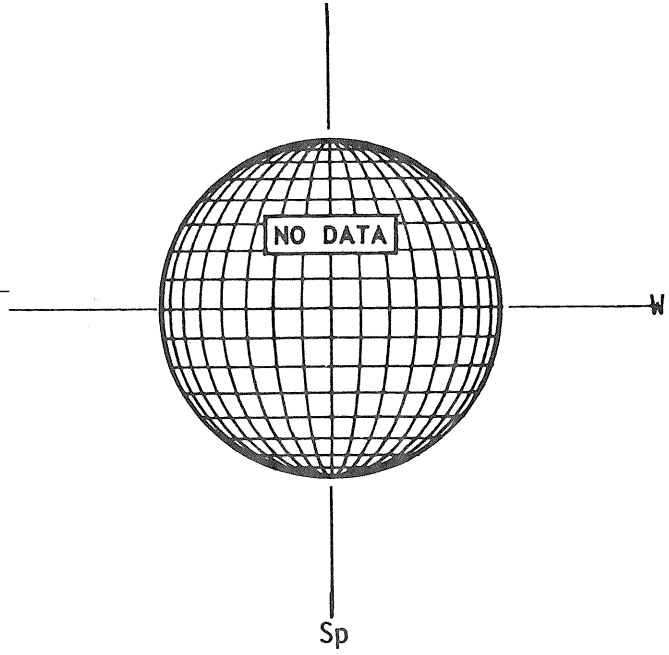
BOULDER H-ALPHA



BOULDER SUNSPOTS



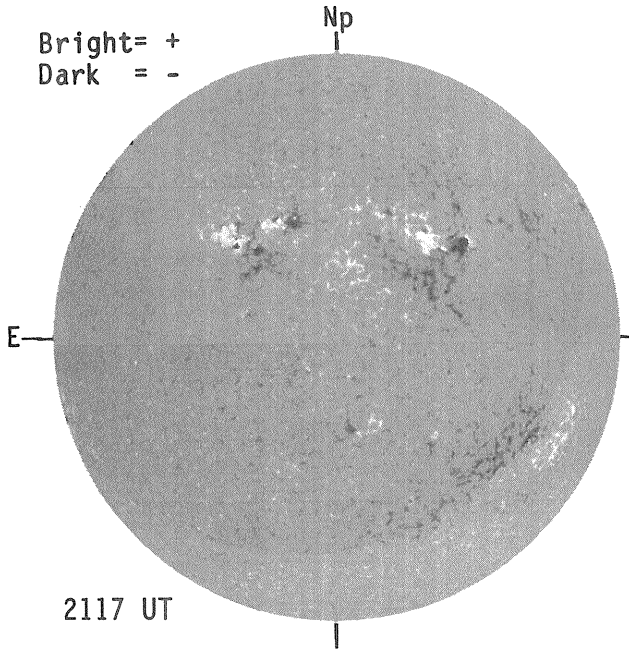
SACRAMENTO PEAK CORONA (1.15 Radii)



JULY 11, 1988 (P= 1.94, B_o= 3.96, L_o= 244.03)

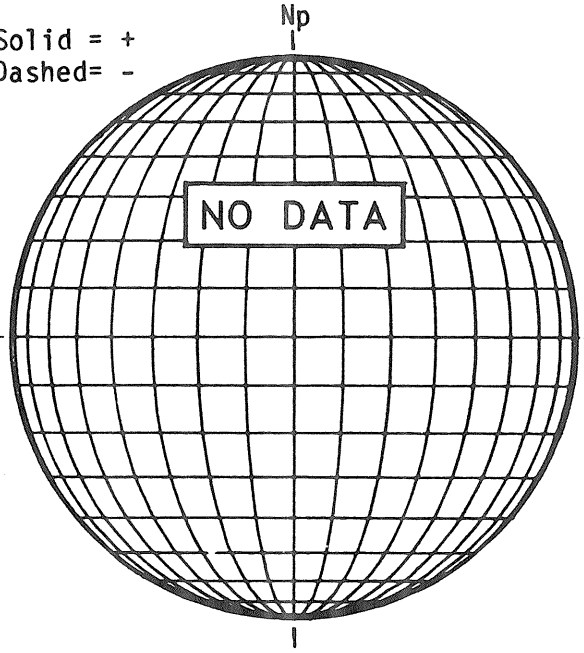
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



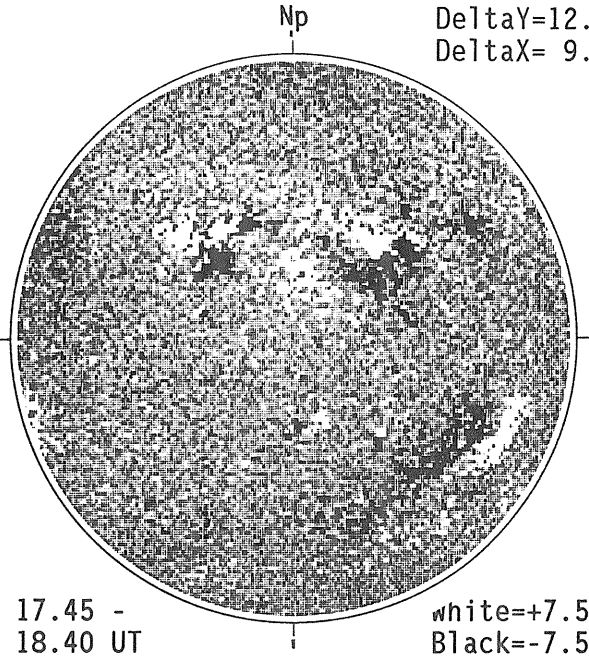
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

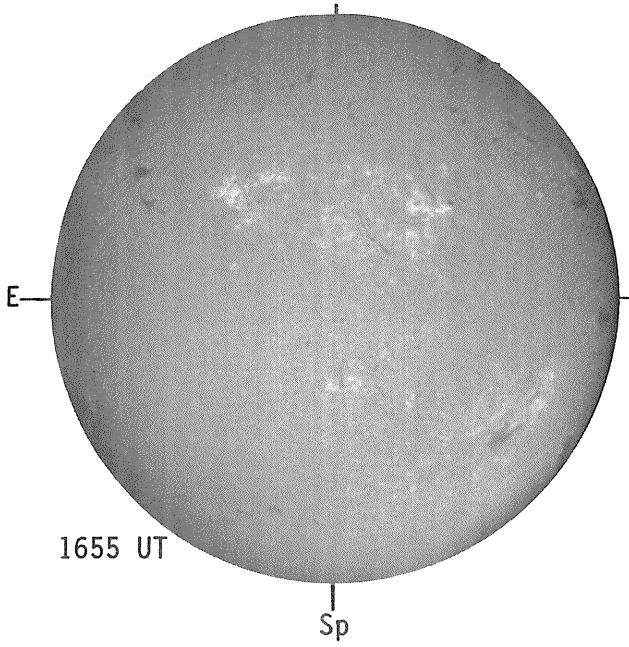
DeltaY=12.9
DeltaX= 9.6



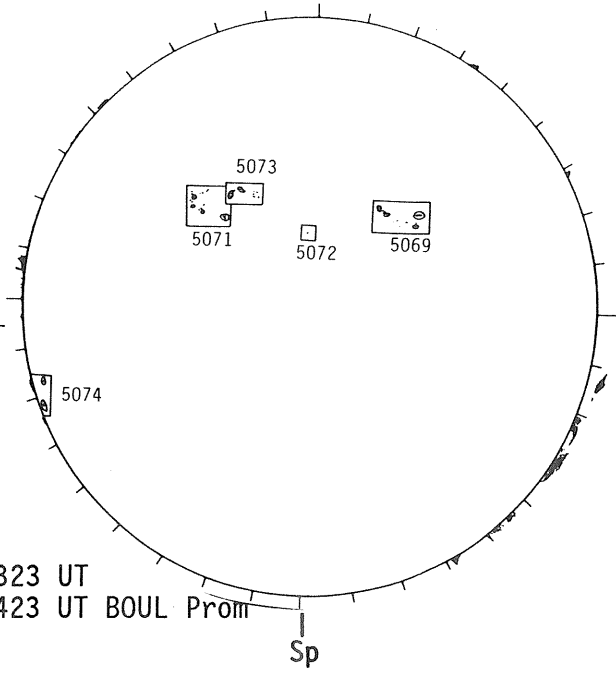
17.45 -
18.40 UT

white=+7.5G
Black=-7.5G

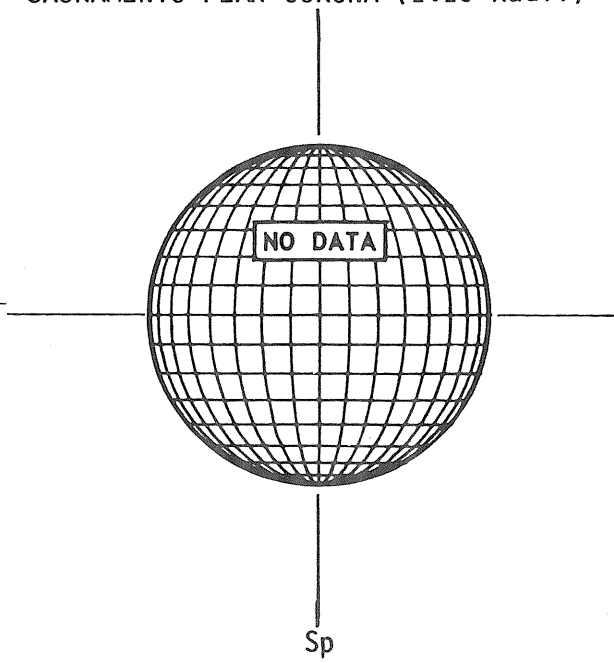
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

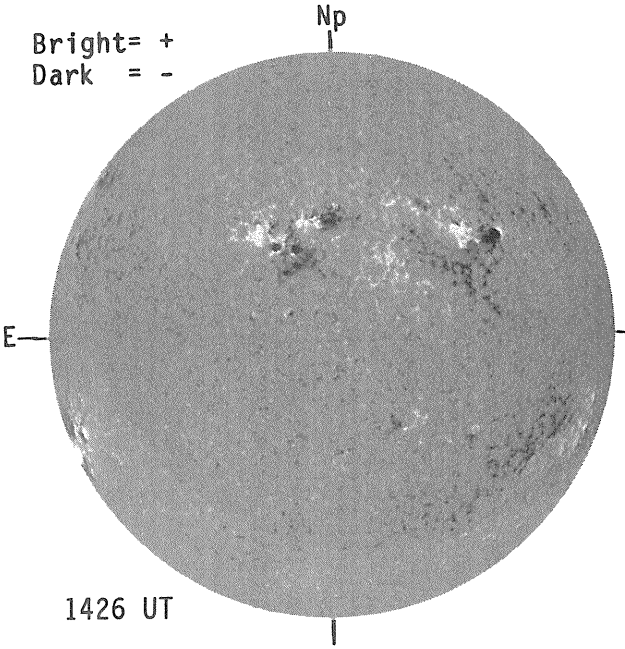


55
Jul 88

JULY 12, 1988 (P= 2.39, B_o= 4.06, L_o= 230.79)

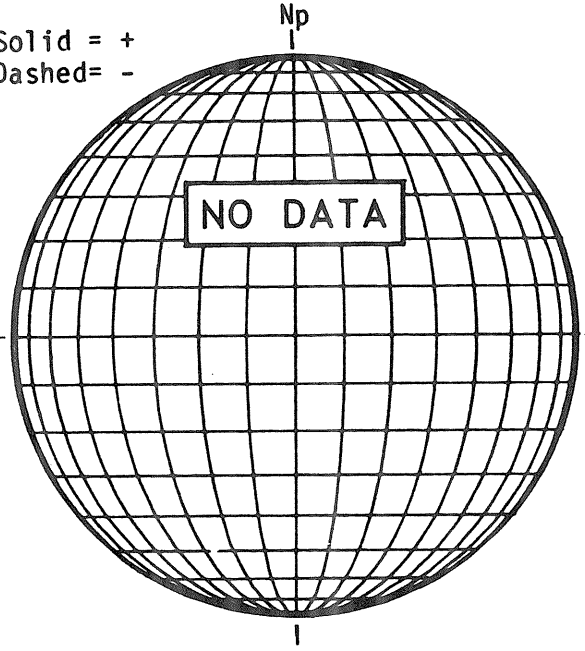
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



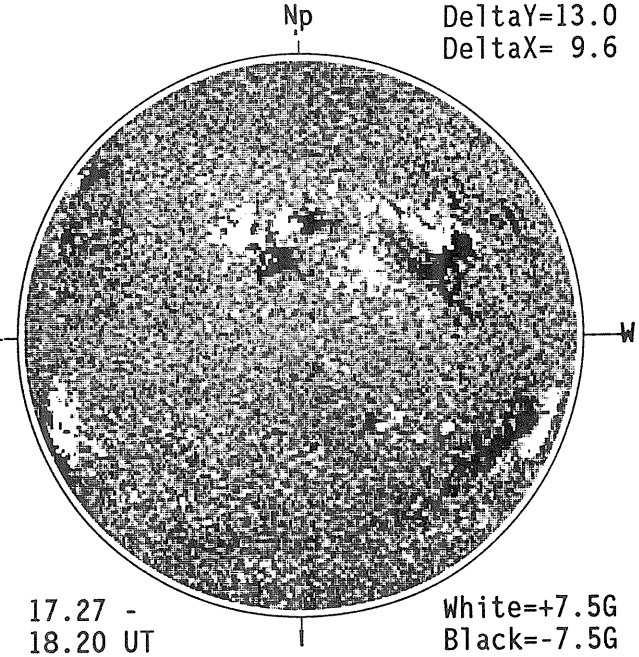
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

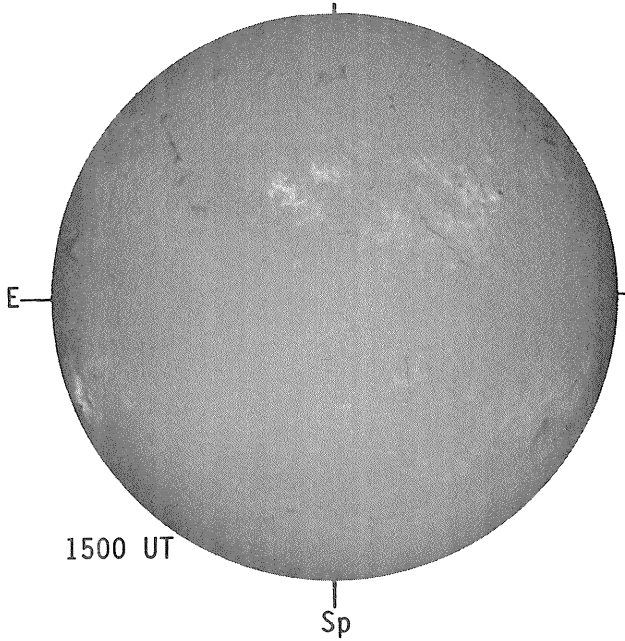
DeltaY=13.0
DeltaX= 9.6



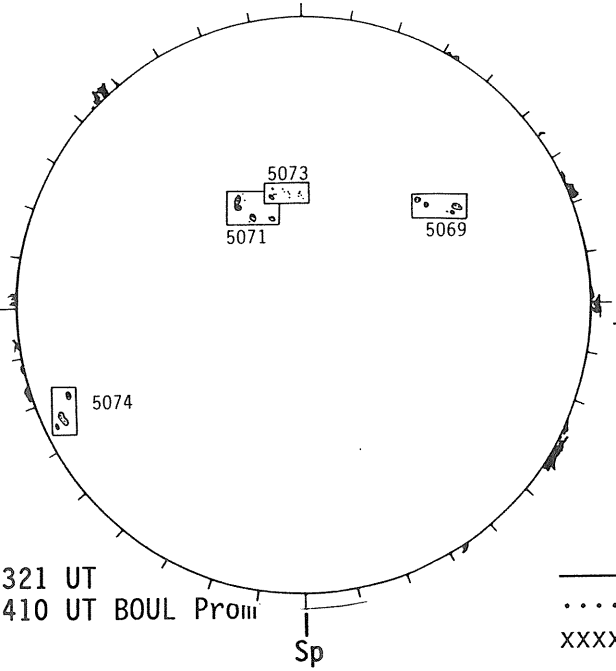
17.27 -
18.20 UT

White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA

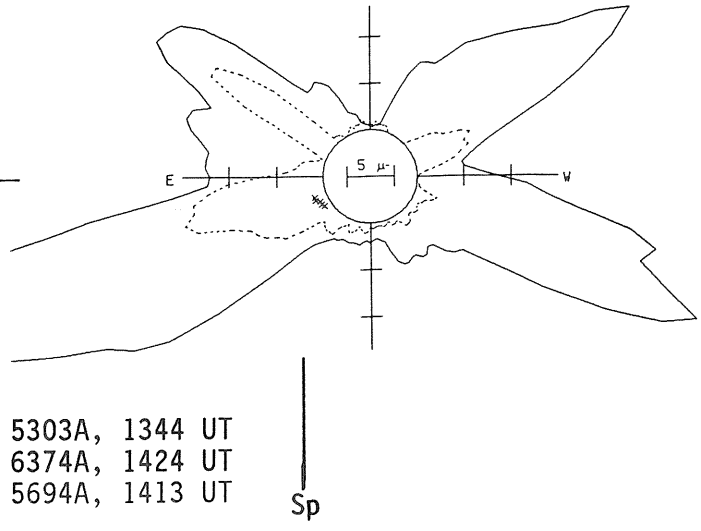


BOULDER SUNSPOTS



1321 UT
1410 UT BOUL Prom

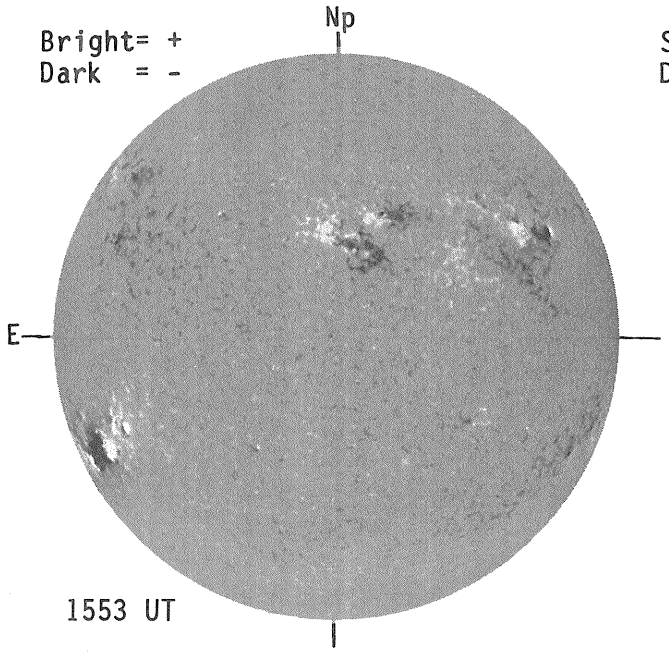
SACRAMENTO PEAK CORONA (1.15 Radii)



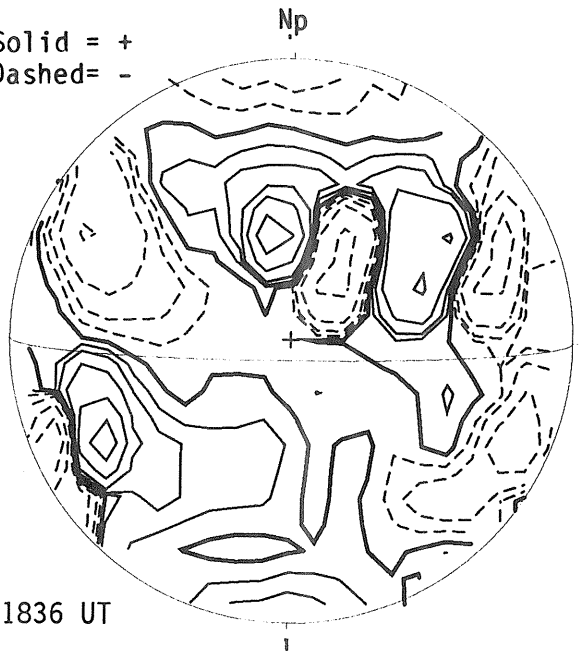
—— 5303A, 1344 UT
···· 6374A, 1424 UT
xxxx 5694A, 1413 UT

JULY 13, 1988 (P= 2.84, B_o= 4.16, L_o= 217.56)

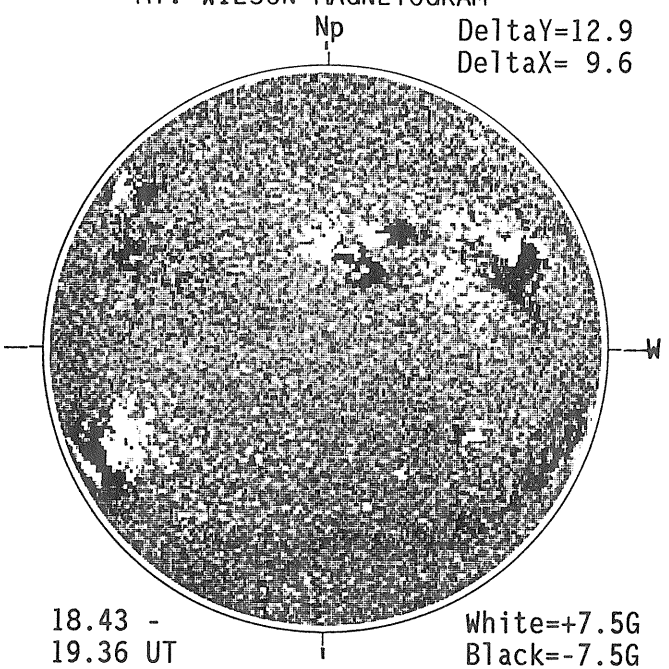
KITT PEAK MAGNETOGRAM



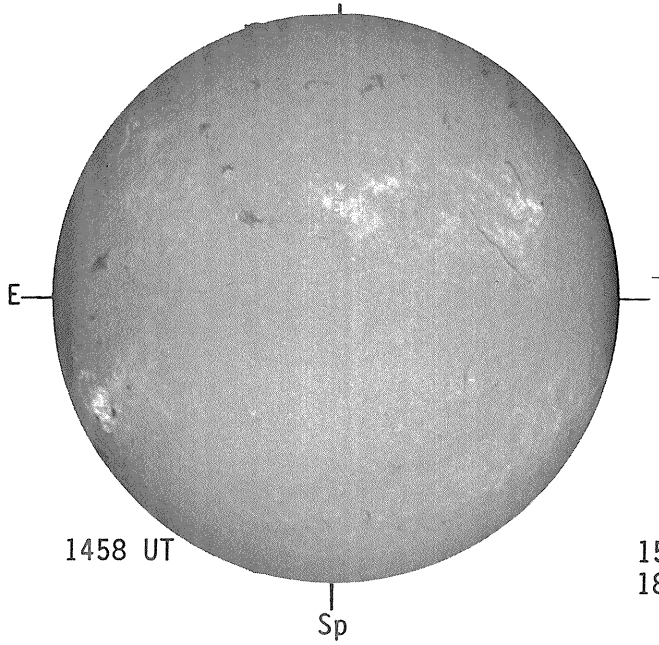
STANFORD MAGNETOGRAM



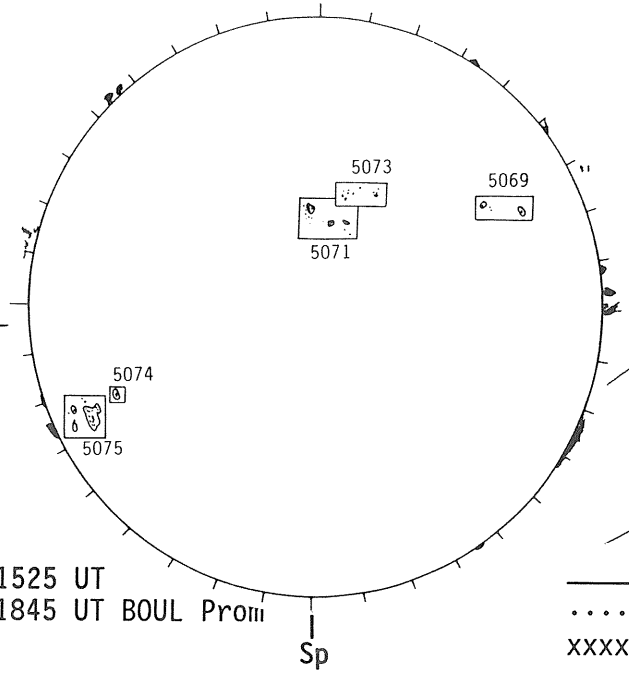
MT. WILSON MAGNETOGRAM



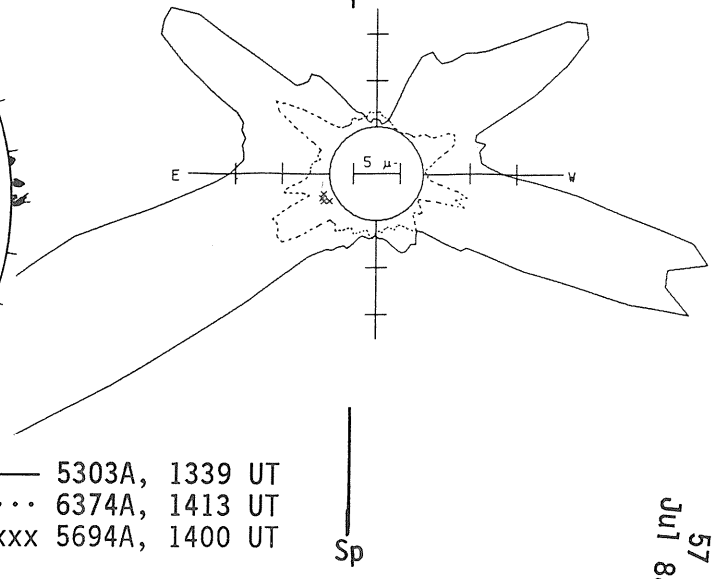
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



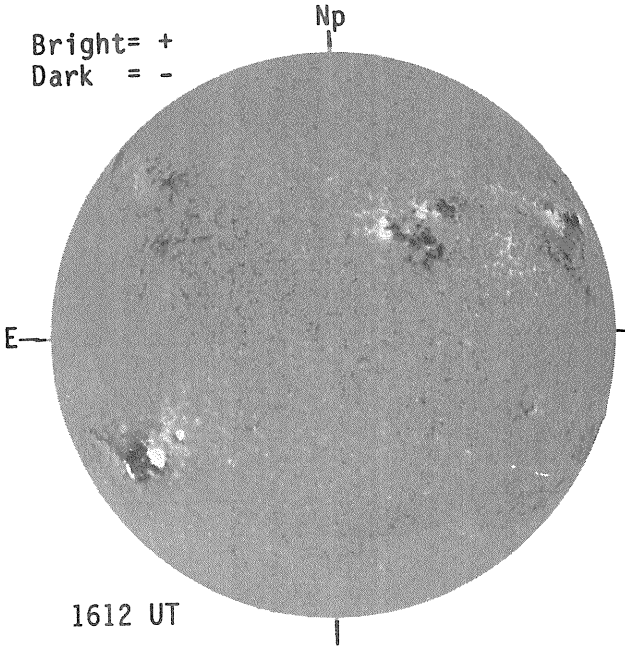
—— 5303A, 1339 UT
···· 6374A, 1413 UT
xxxx 5694A, 1400 UT

57
Jul 88

JULY 14, 1988 (P= 3.29, B_o= 4.26, L_o= 204.33)

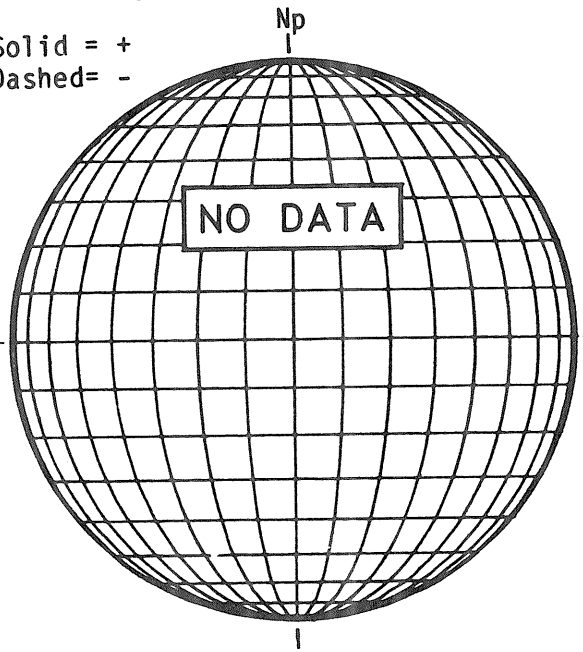
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



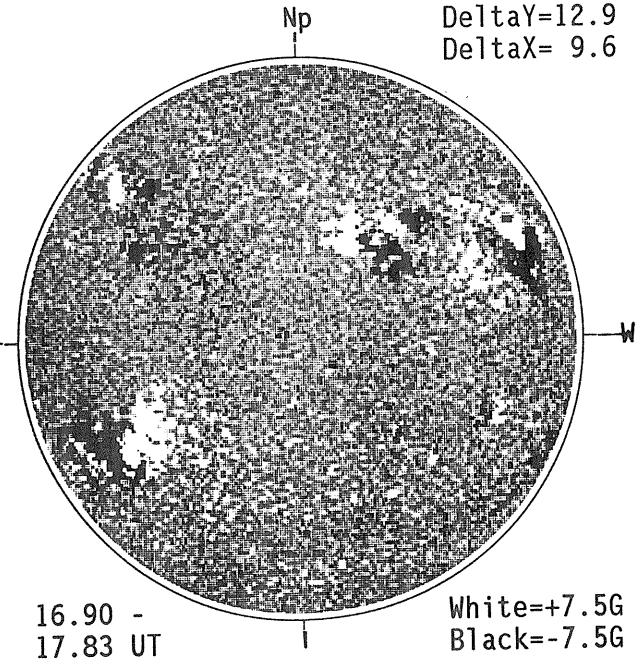
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

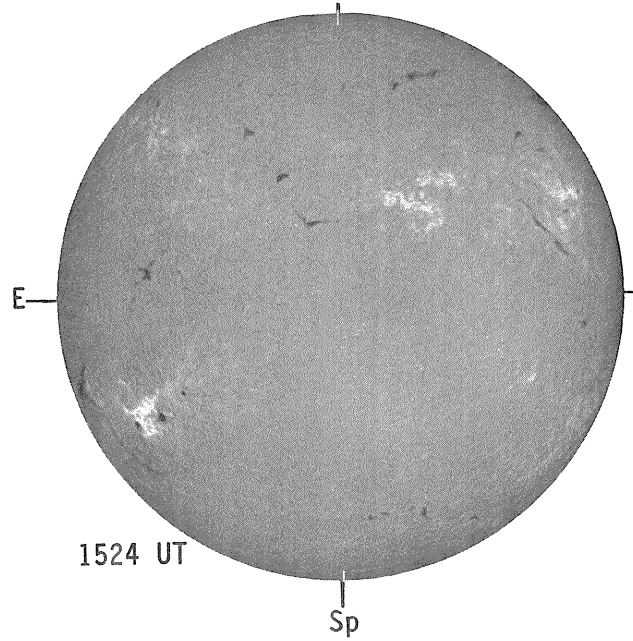


MT. WILSON MAGNETOGRAM

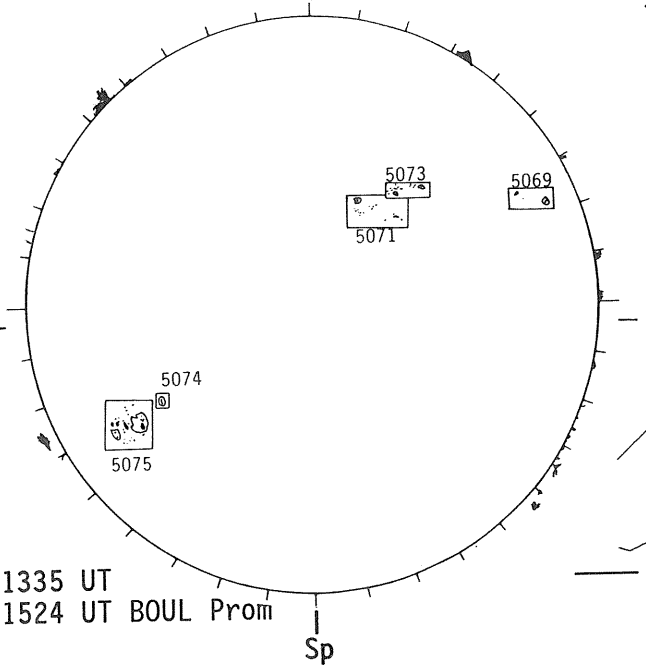
DeltaY=12.9
DeltaX= 9.6



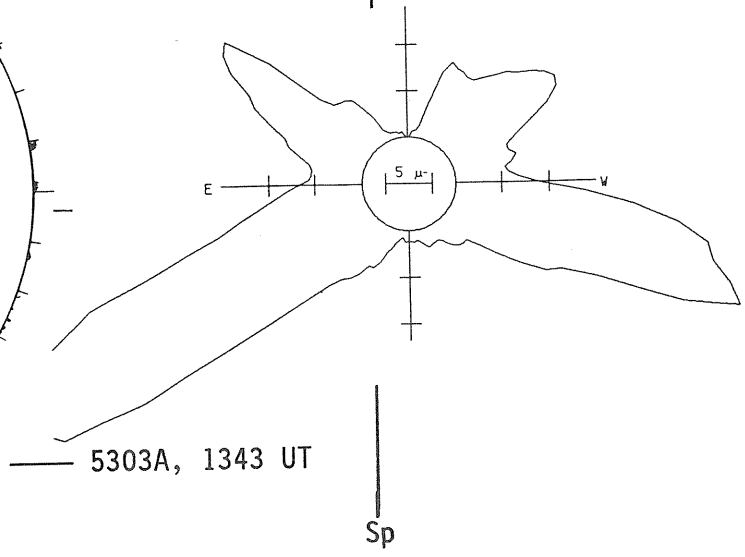
BOULDER H-ALPHA



BOULDER SUNSPOTS



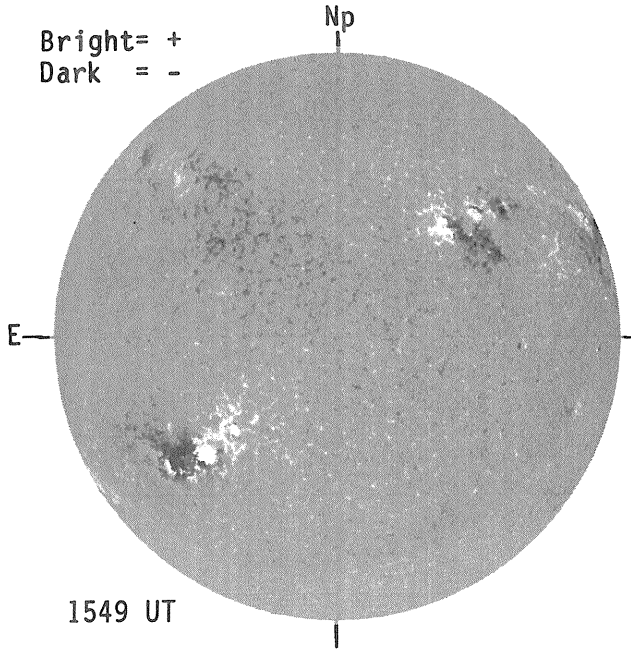
SACRAMENTO PEAK CORONA (1.15 Radii)



JULY 15, 1988 (P= 3.73, B_o= 4.36, L_o= 191.09)

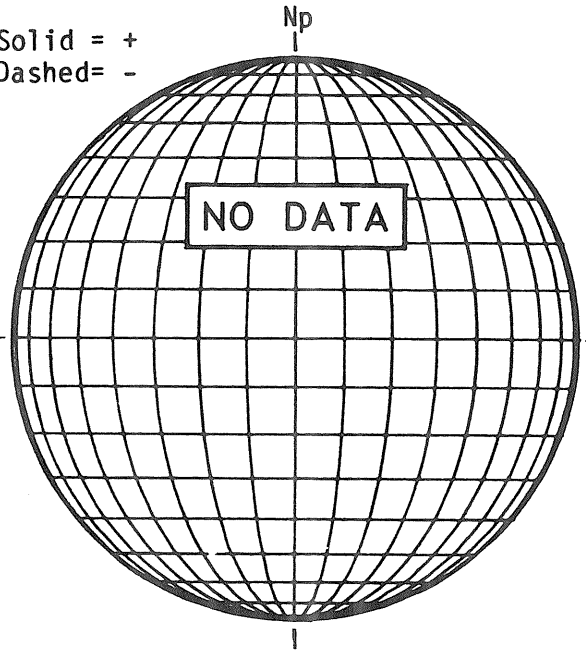
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



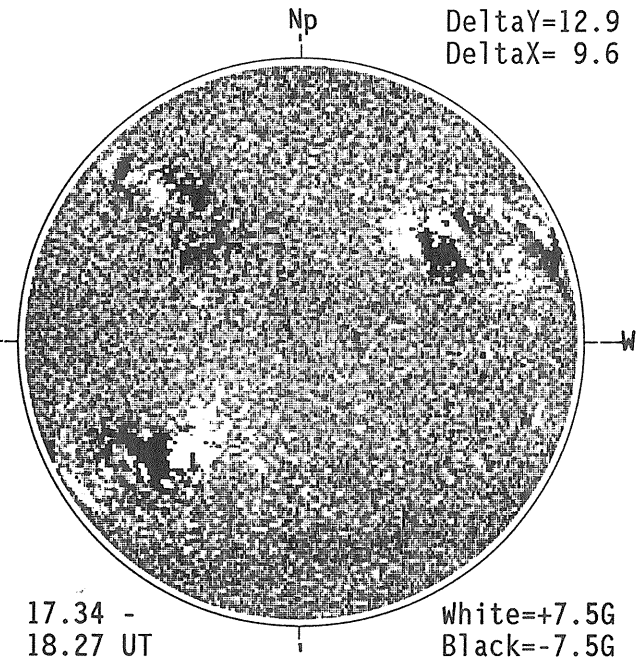
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

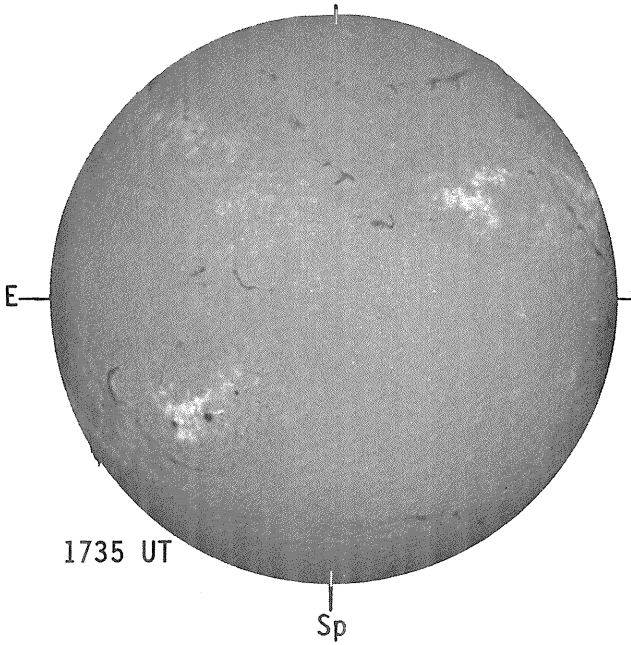


MT. WILSON MAGNETOGRAM

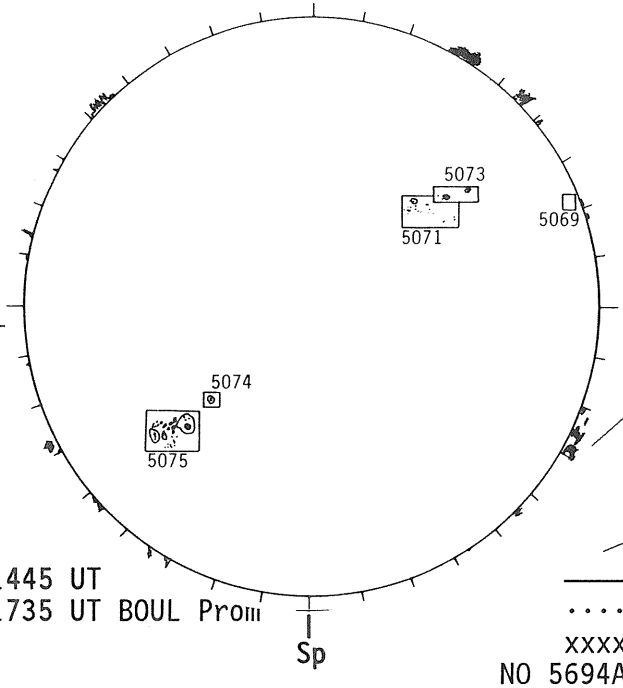
DeltaY=12.9
DeltaX= 9.6



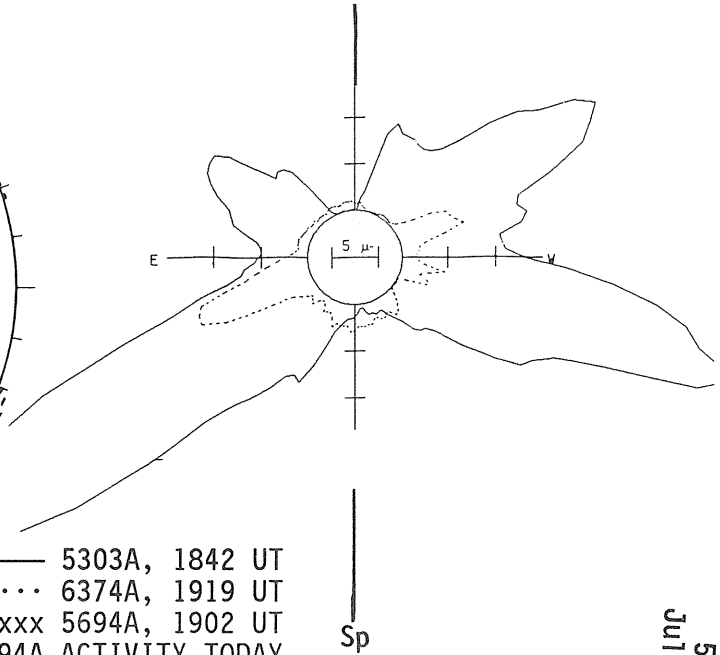
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



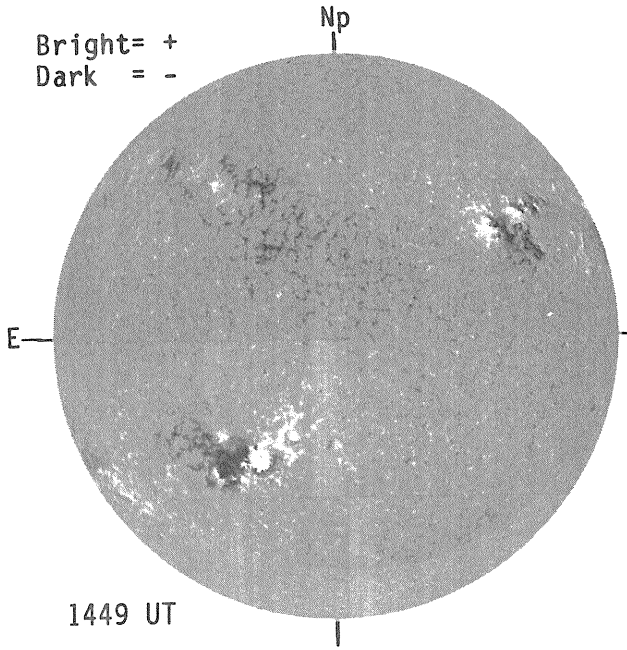
—— 5303A, 1842 UT
···· 6374A, 1919 UT
xxxx 5694A, 1902 UT
NO 5694A ACTIVITY TODAY

59
Jul 88

JULY 16, 1988 (P= 4.17, B_o= 4.45, L_o= 177.86)

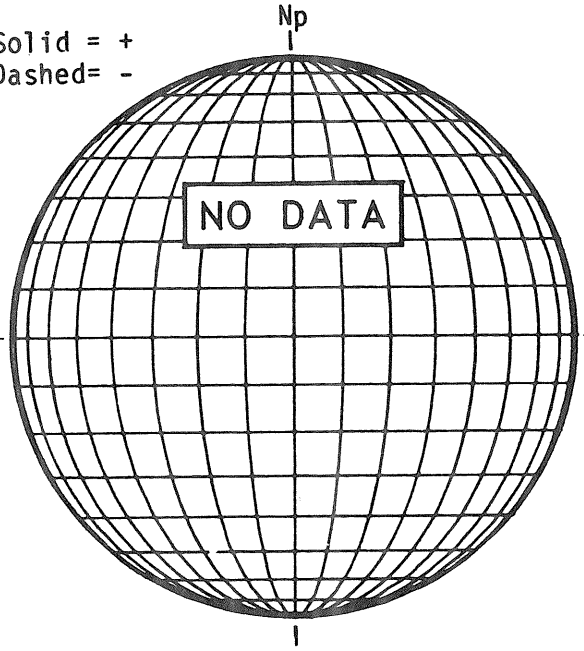
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



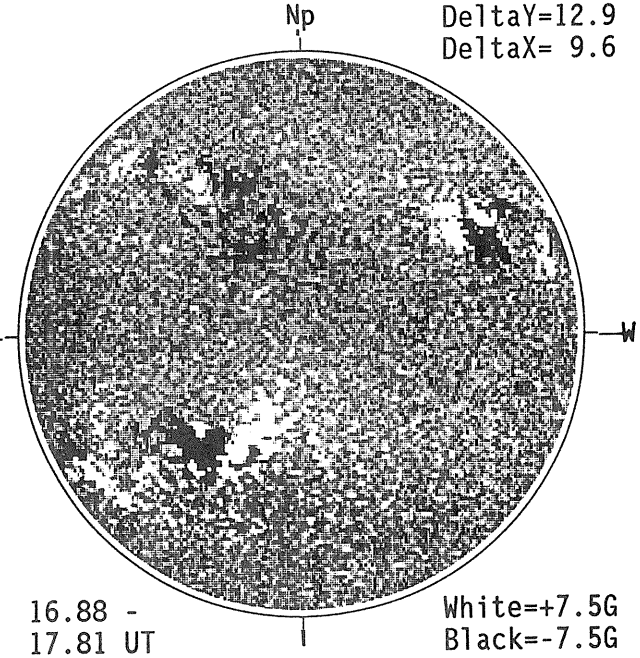
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



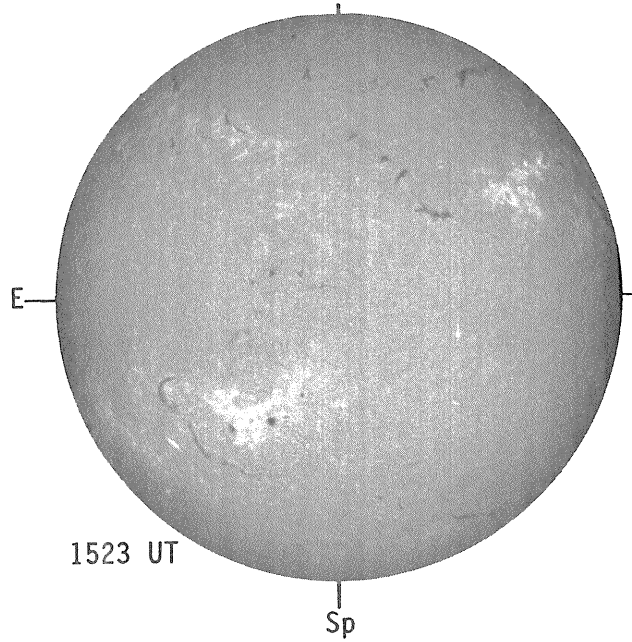
MT. WILSON MAGNETOGRAM

DeltaY=12.9
DeltaX= 9.6

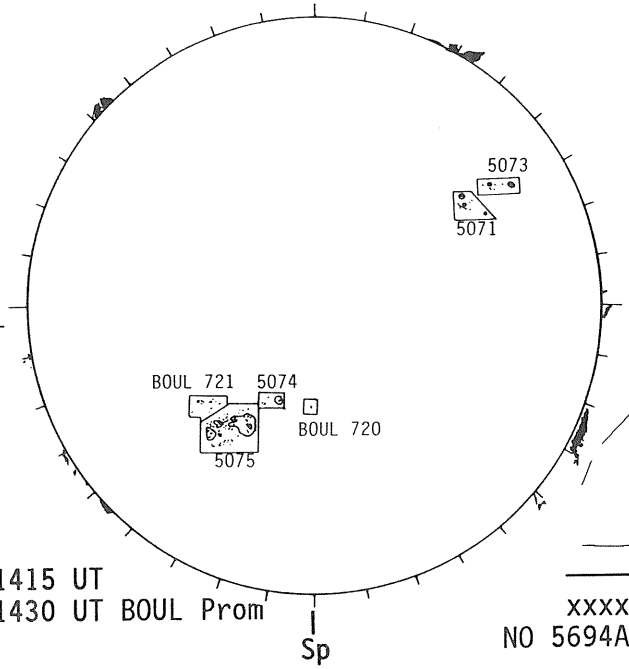


White=+7.5G
Black=-7.5G

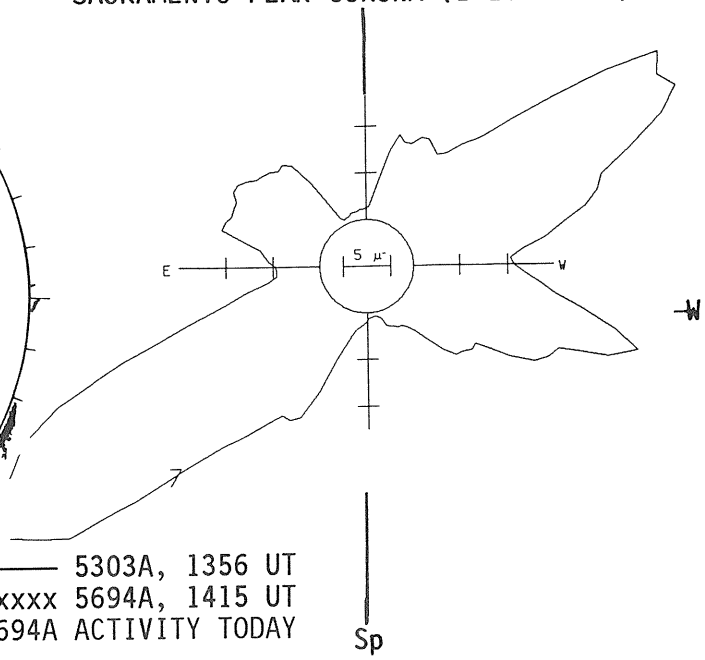
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

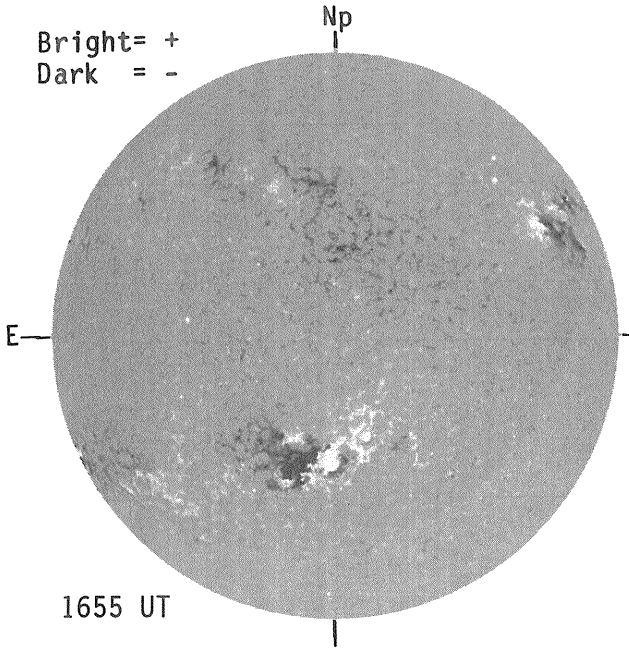


—— 5303A, 1356 UT
xxxx 5694A, 1415 UT
NO 5694A ACTIVITY TODAY

JULY 17, 1988 (P= 4.61, B_o= 4.55, L_o= 164.63)

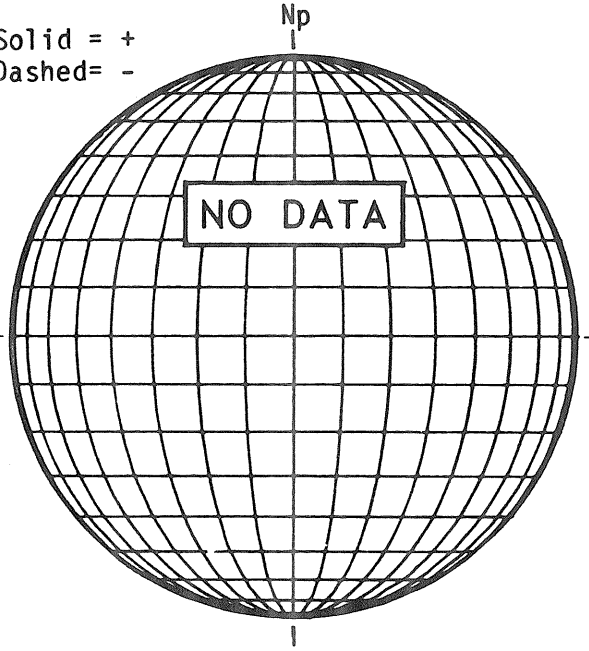
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



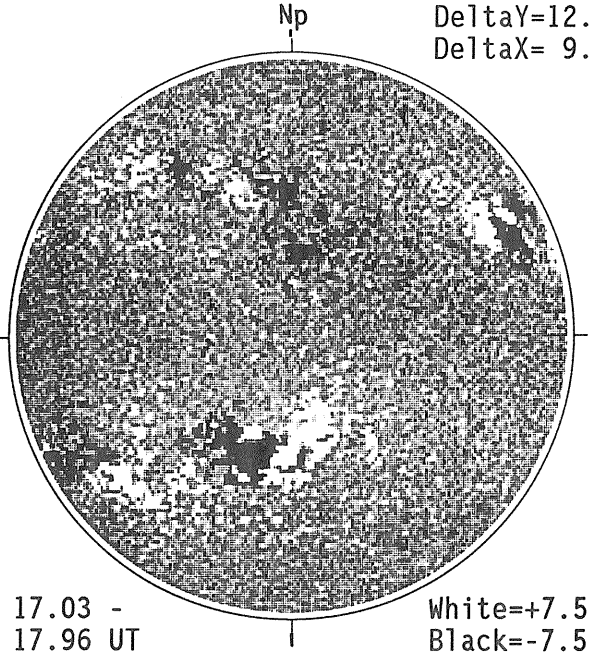
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

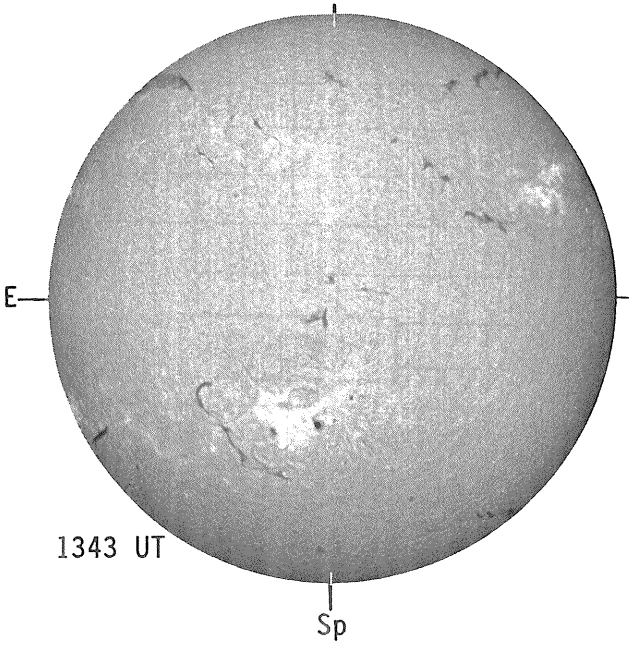


MT. WILSON MAGNETOGRAM

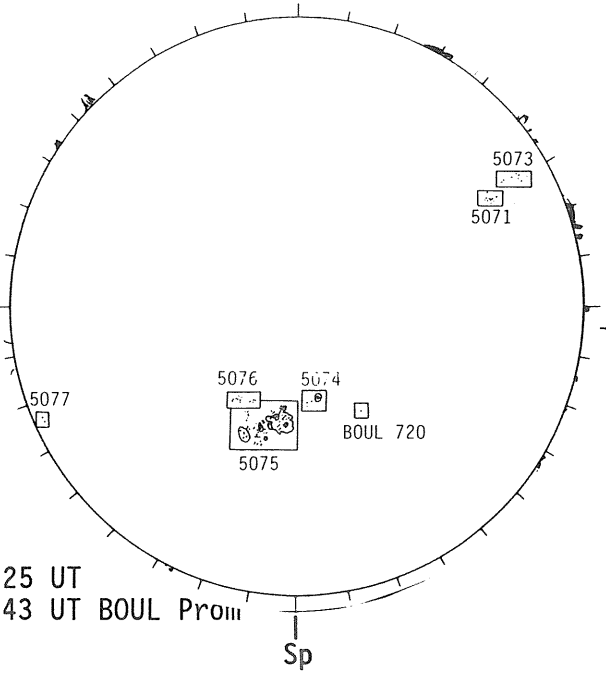
DeltaY=12.9
DeltaX= 9.6



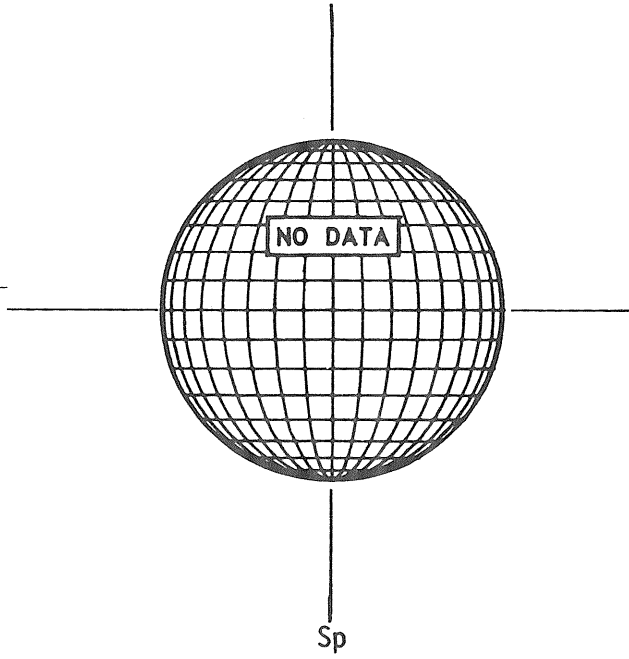
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



JULY 18, 1988 (P= 5.05, B_o= 4.64, L_o= 151.40)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -

NO DATA

E-

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -

2139 UT

MT. WILSON MAGNETOGRAM

Np

DeltaY=12.9
DeltaX= 9.6

W

20.67 -
21.60 UT

White=+7.5G
Black=-7.5G

BOULDER H-ALPHA

E

1518 UT

Sp

BOULDER SUNSPOTS

5073
5071
BOUL 723
5077
5076
5074
5079
5075

1321 UT
1518 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (1.15 Radii)

E
5 μ
W

7/18/88

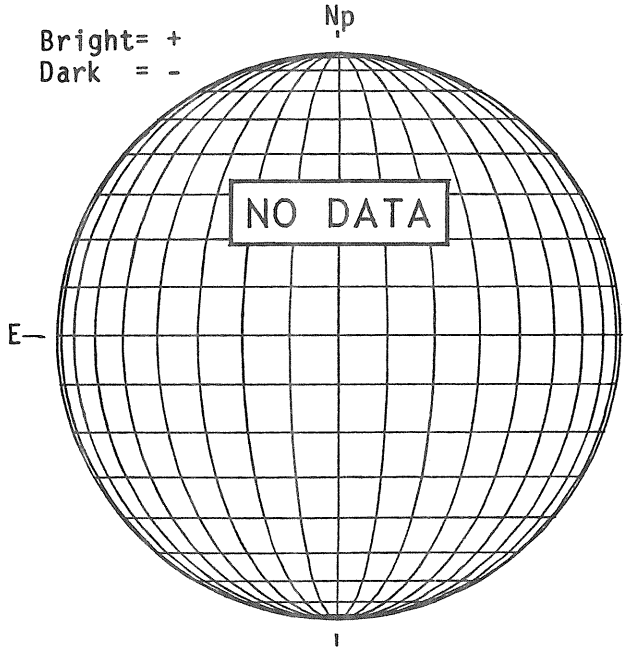
—— 5303A, 2333 UT
xxxx 5694A, 2344 UT
NO 5694A ACTIVITY TODAY

Sp

JULY 19, 1988 (P= 5.49, B_o= 4.73, L_o= 138.17)

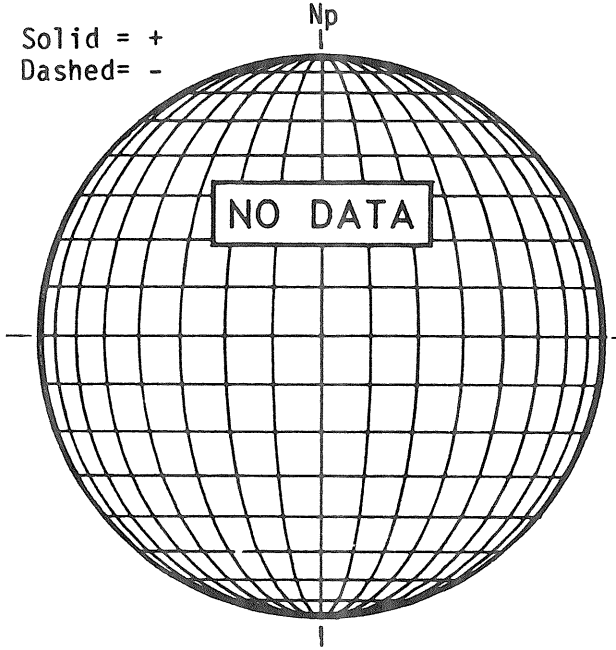
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



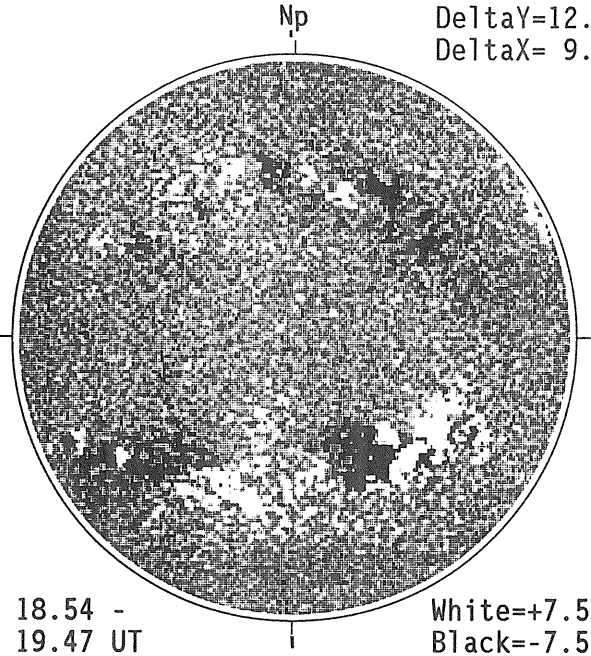
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

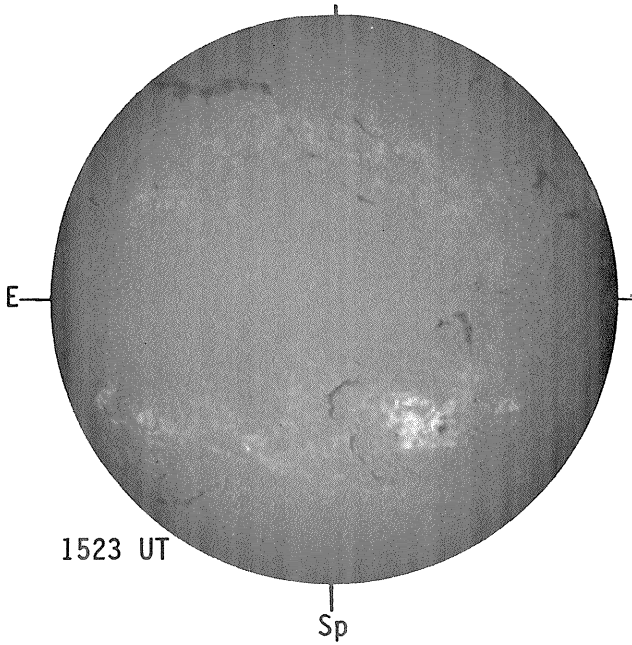
DeltaY=12.9
DeltaX= 9.6



18.54 -
19.47 UT

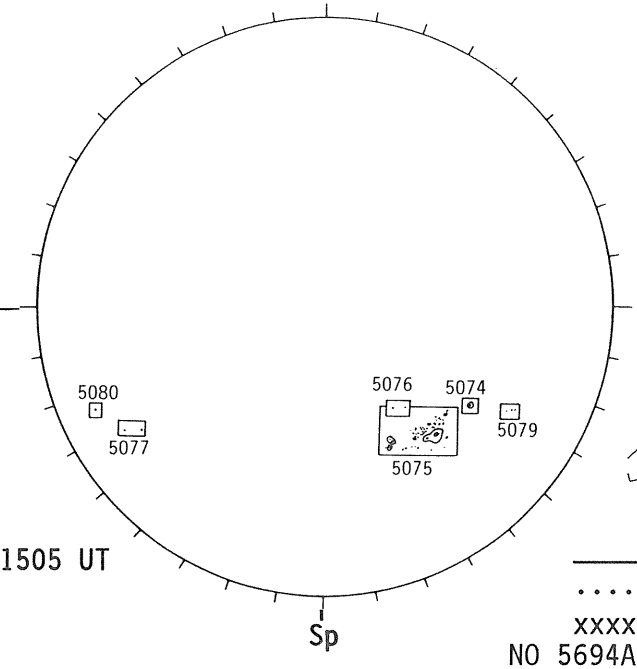
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



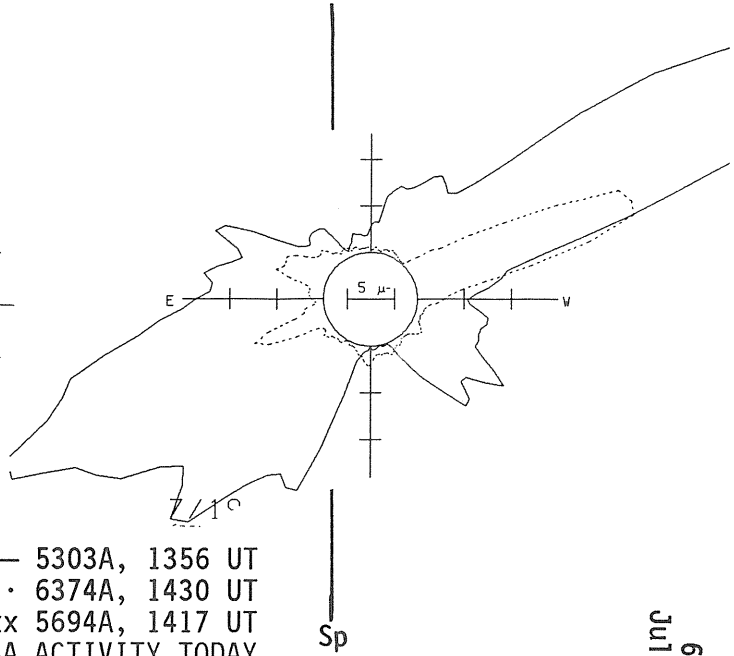
1523 UT

RAMEY SUNSPOTS



1505 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



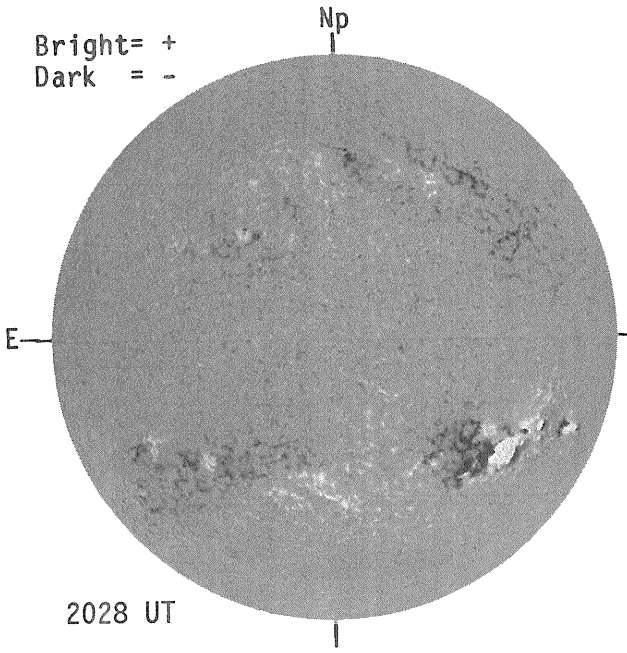
—— 5303A, 1356 UT
···· 6374A, 1430 UT
xxxx 5694A, 1417 UT
NO 5694A ACTIVITY TODAY

63
Jul 88

JULY 20, 1988 (P= 5.92 B_o= 4.82, L_o= 124.94)

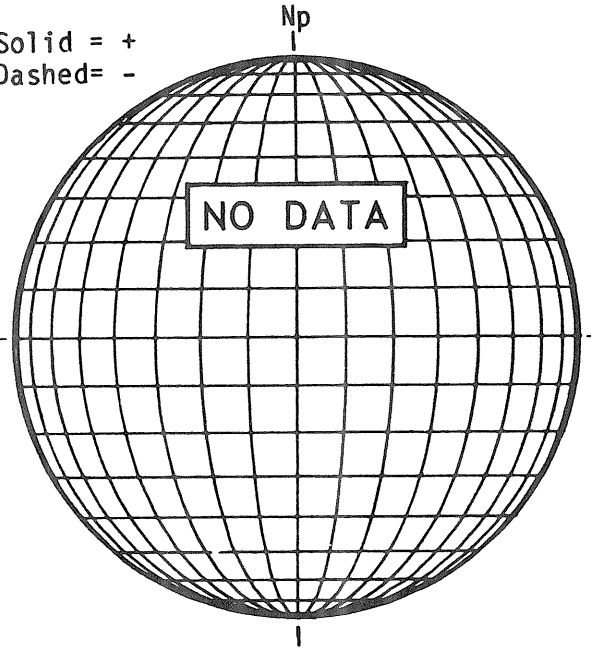
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



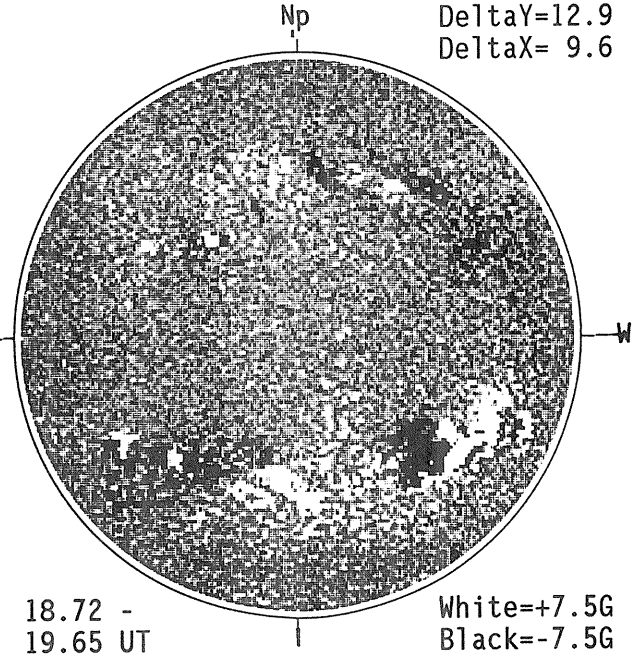
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

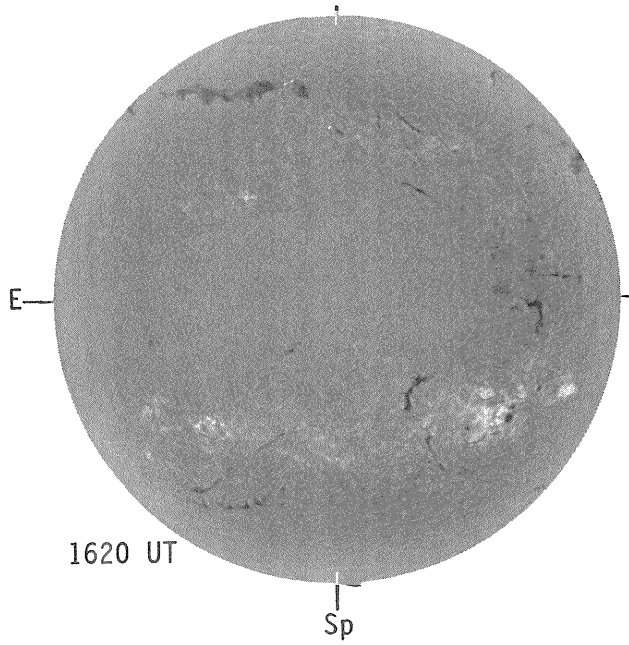
DeltaY=12.9
DeltaX= 9.6



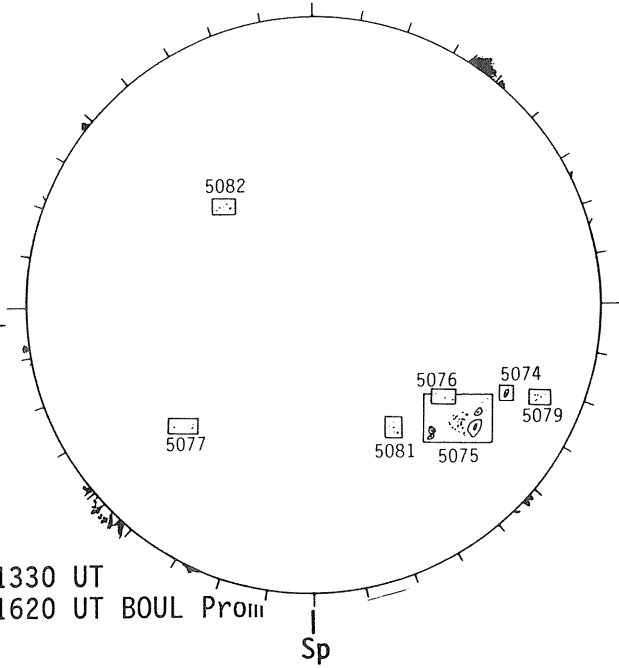
18.72 -
19.65 UT

White=+7.5G
Black=-7.5G

BOULDER H-ALPHA

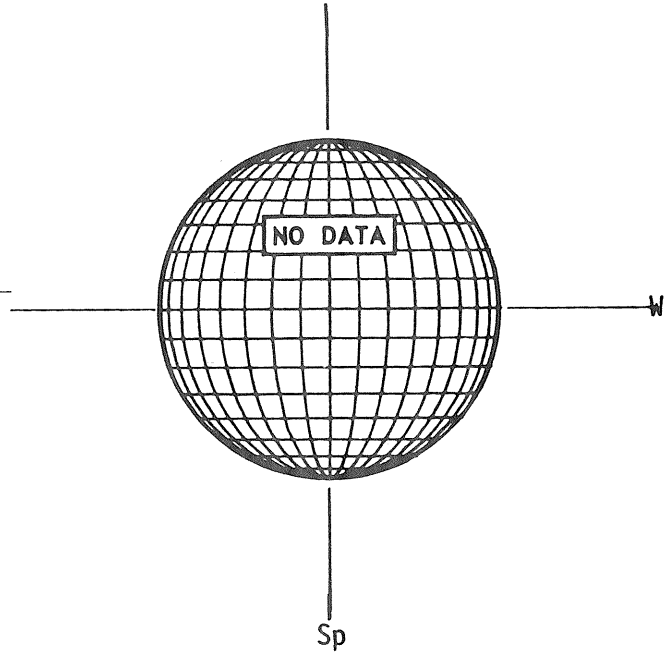


BOULDER SUNSPOTS



1330 UT
1620 UT BOUL Prom

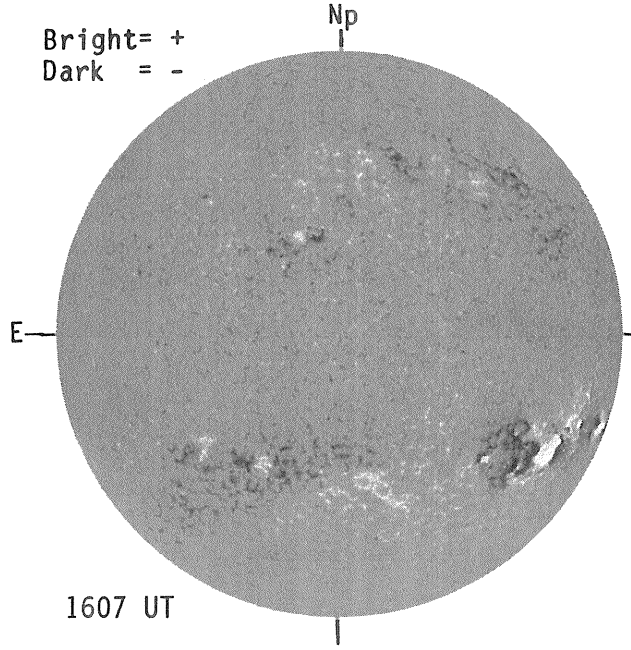
SACRAMENTO PEAK CORONA (1.15 Radii)



JULY 21, 1988 (P= 6.36, B_o= 4.91, L_o= 111.71)

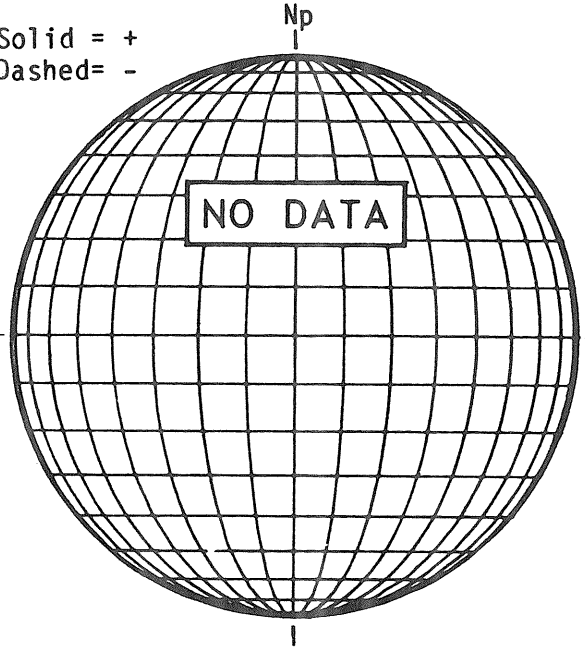
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



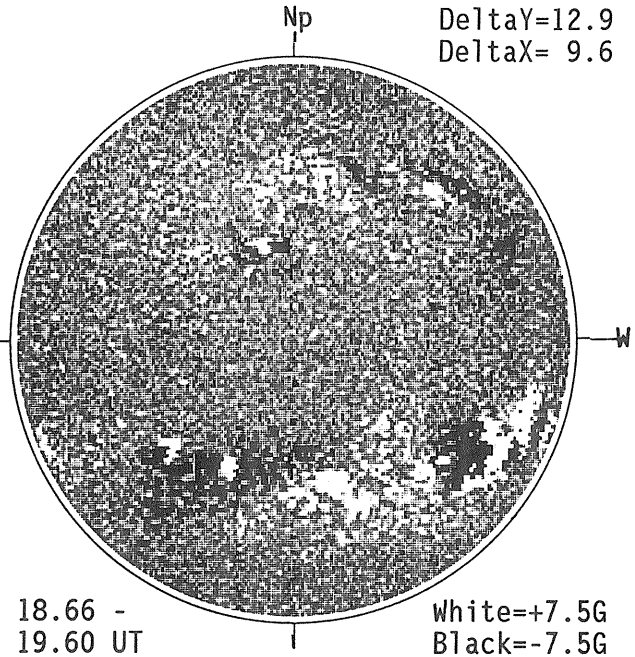
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

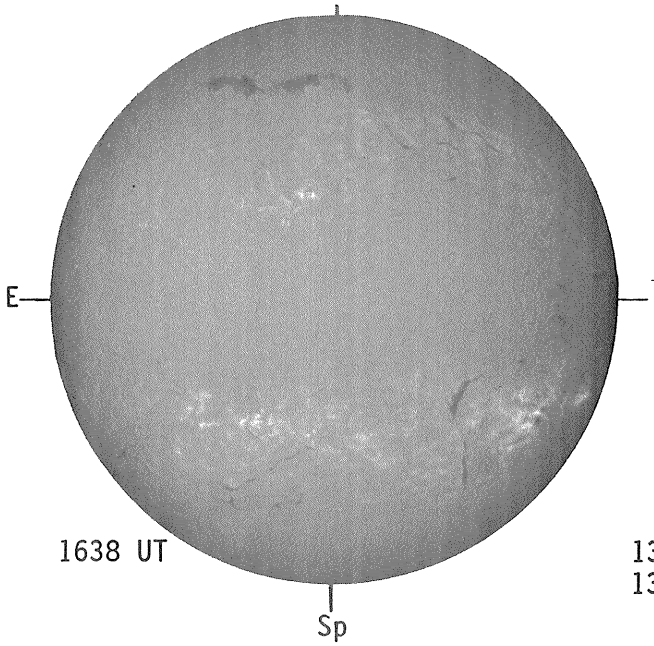


MT. WILSON MAGNETOGRAM

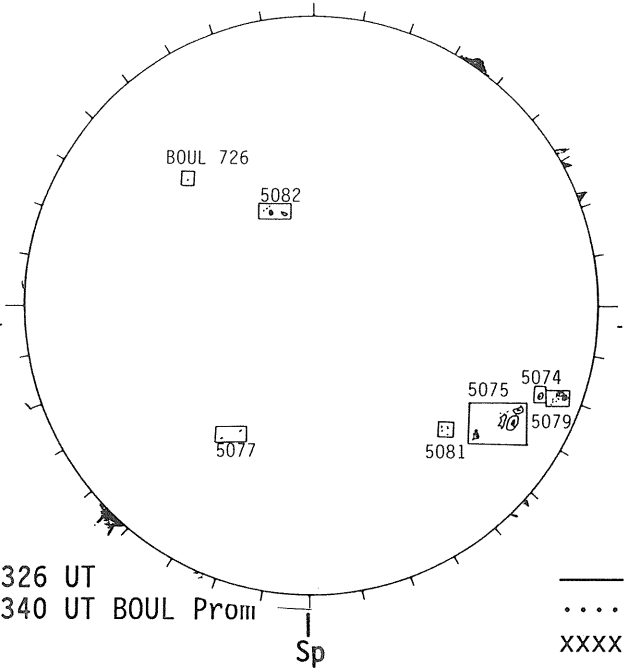
DeltaY=12.9
DeltaX= 9.6



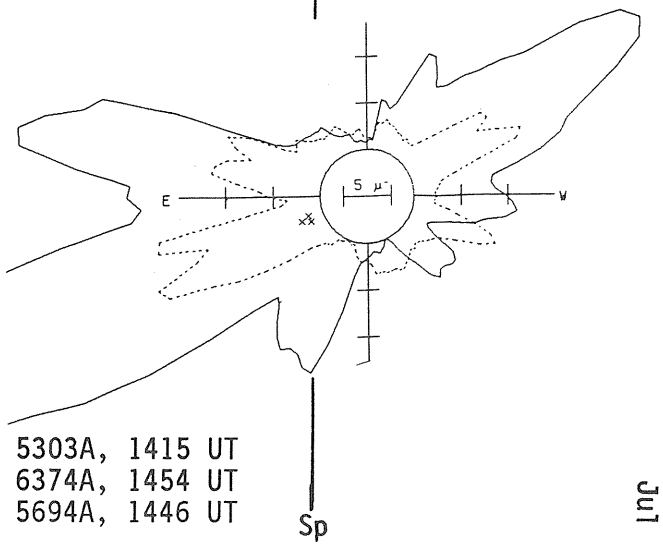
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

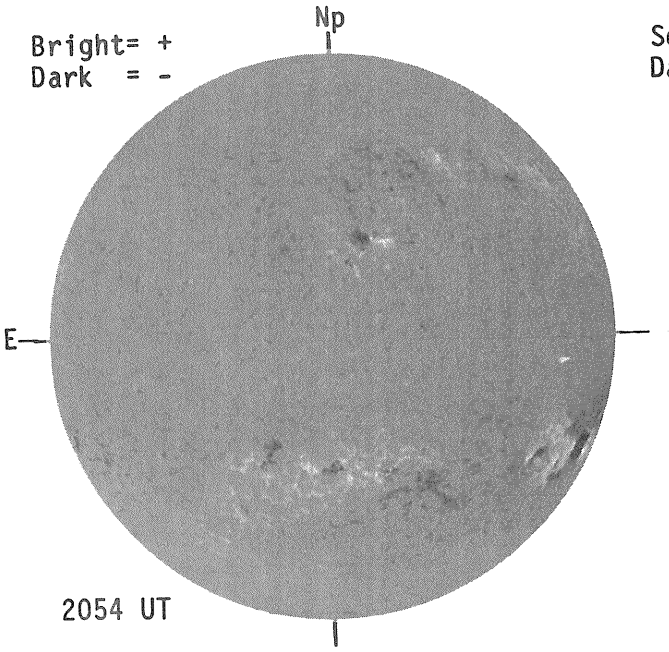


SACRAMENTO PEAK CORONA (1.15 Radii)

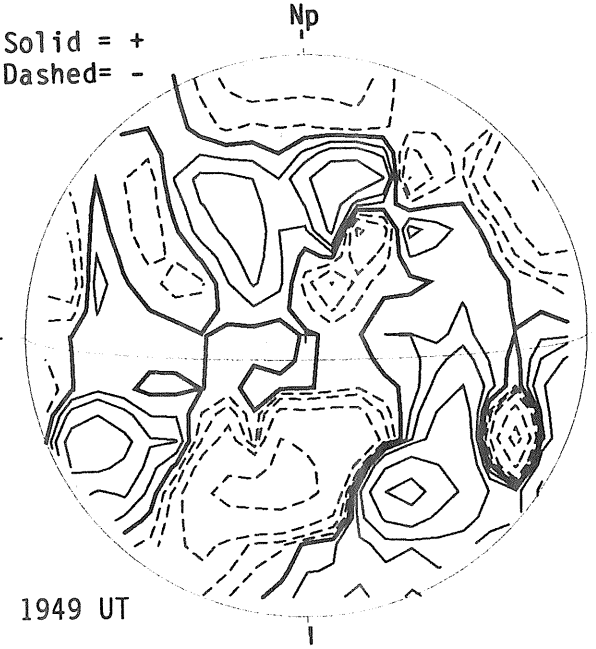


JULY 22, 1988 (P= 6.79, B_o= 5.00, L_o= 98.48)

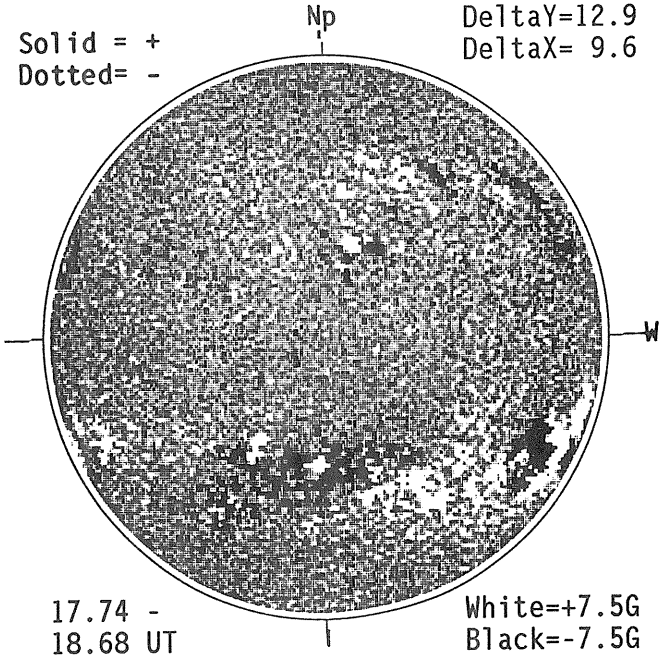
KITT PEAK MAGNETOGRAM



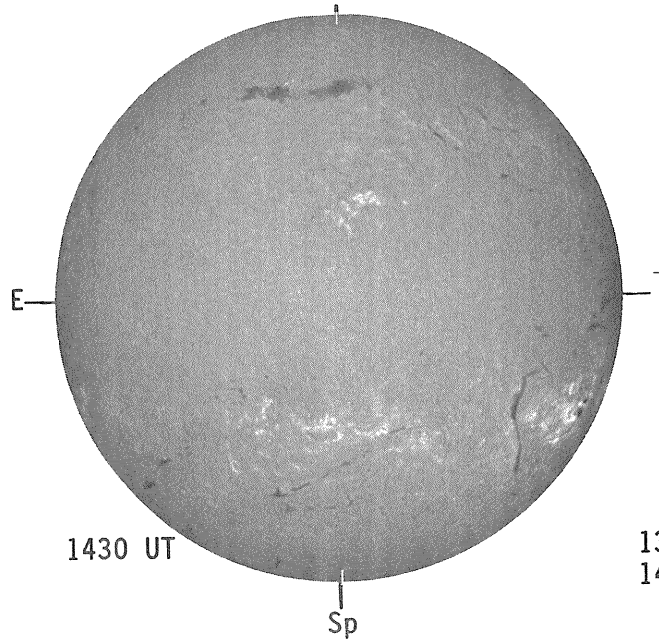
STANFORD MAGNETOGRAM



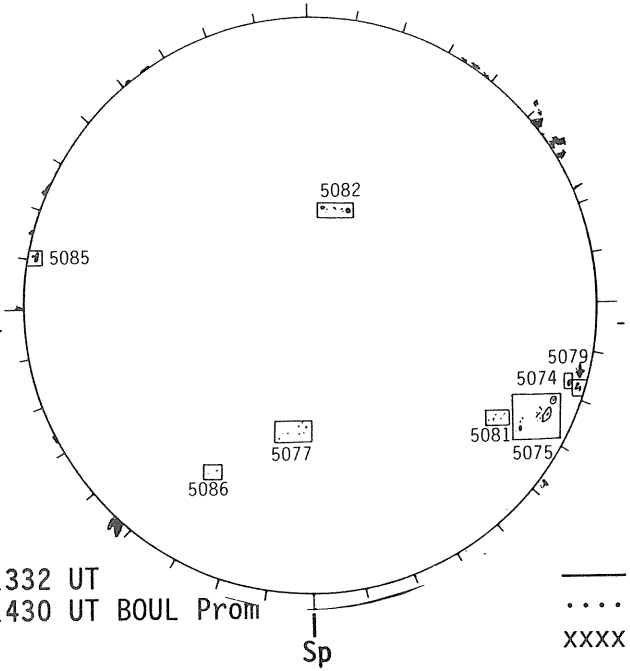
MT. WILSON MAGNETOGRAM



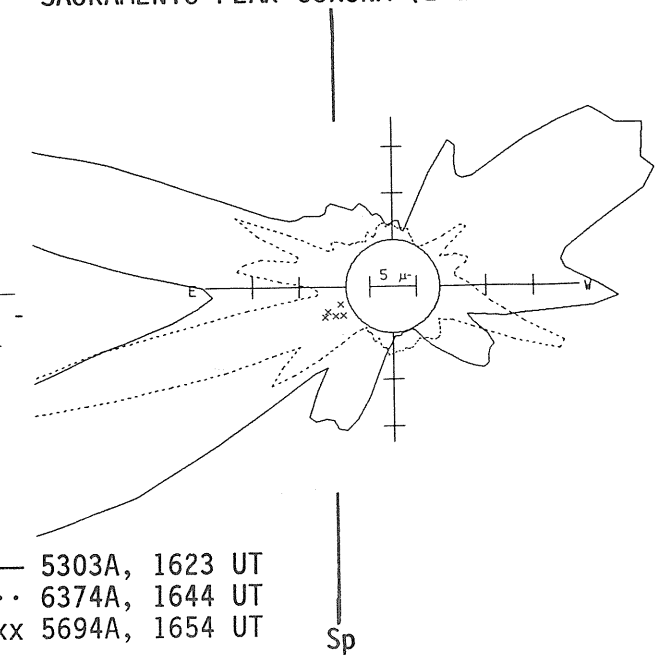
BOULDER H-ALPHA



BOULDER SUNSPOTS



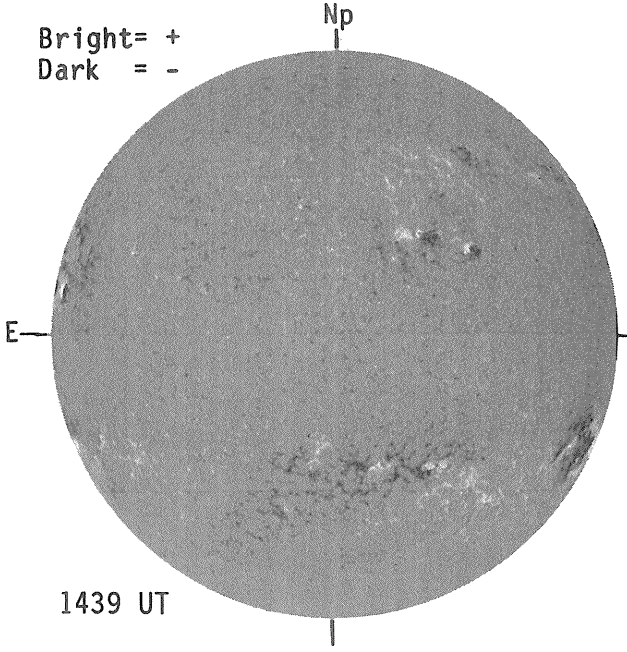
SACRAMENTO PEAK CORONA (1.15 Radii)



JULY 23, 1988 (P= 7.21, B_o= 5.09, L_o= 85.25)

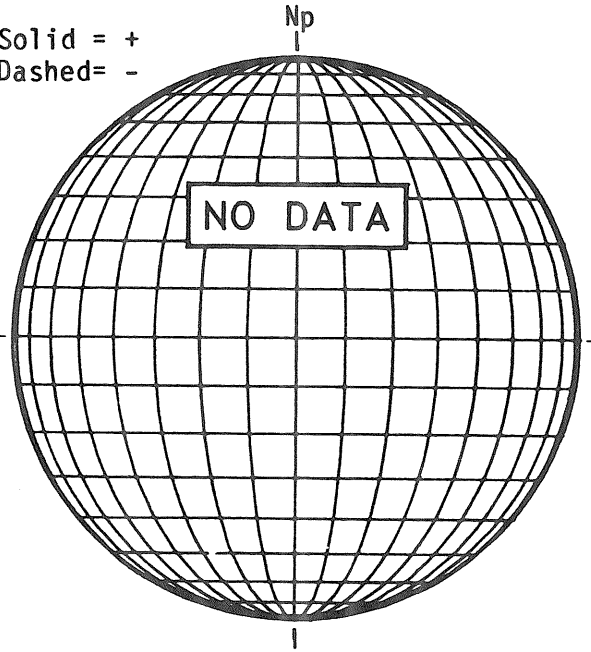
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



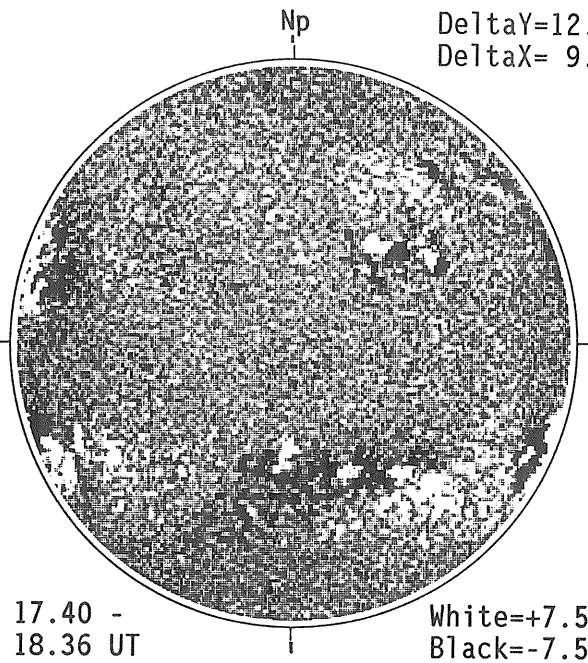
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

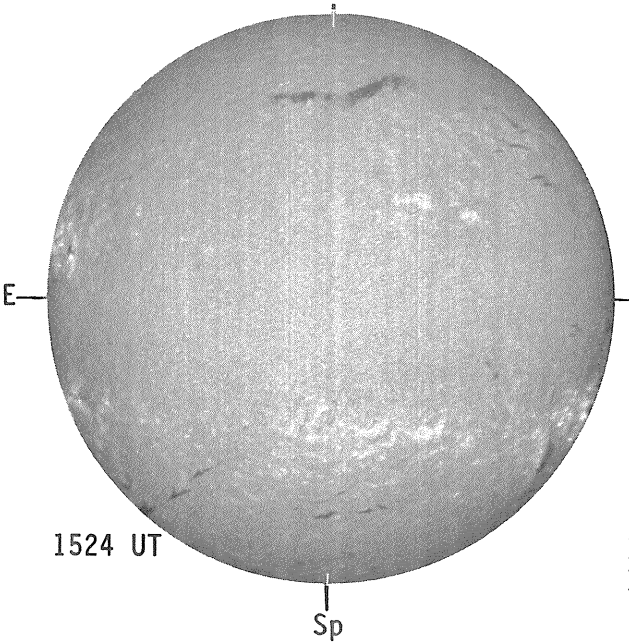


MT. WILSON MAGNETOGRAM

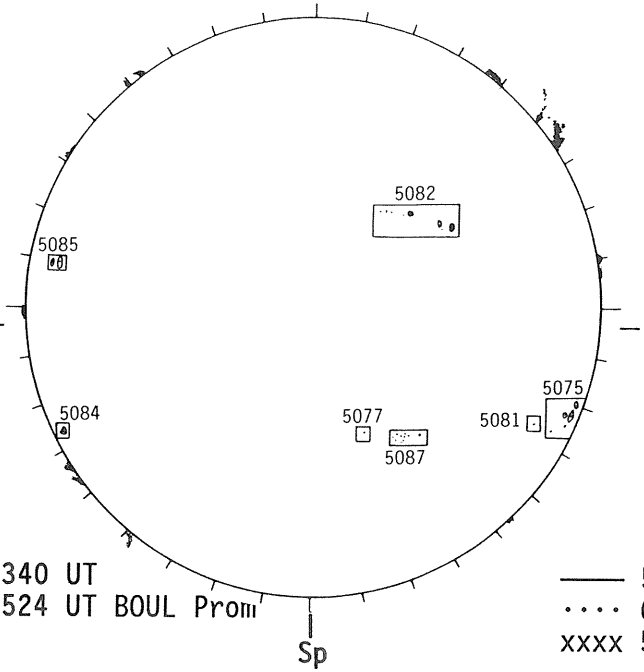
DeltaY=12.9
DeltaX= 9.6



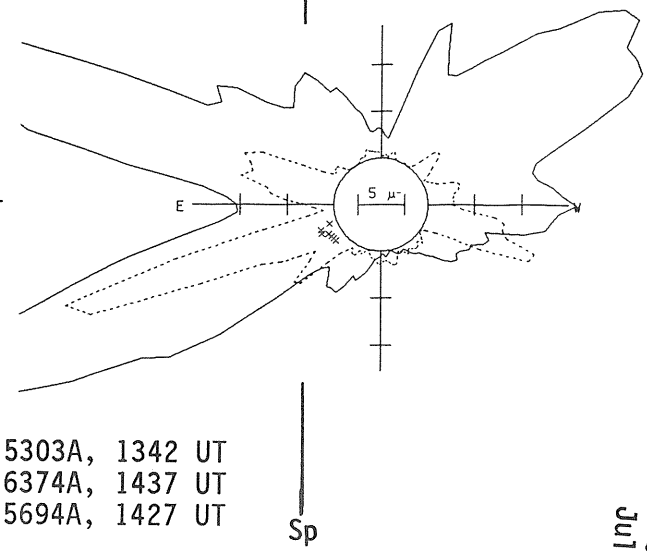
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



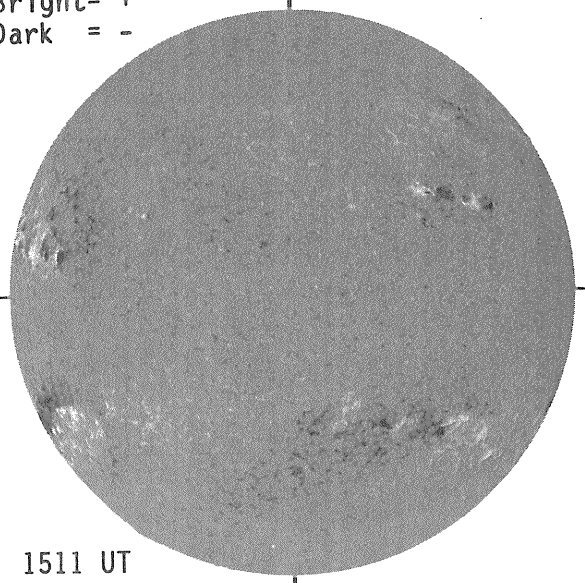
—— 5303A, 1342 UT
···· 6374A, 1437 UT
xxxx 5694A, 1427 UT

JULY 24, 1988 (P= 7.64, B_o= 5.17, L_o= 72.02)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -

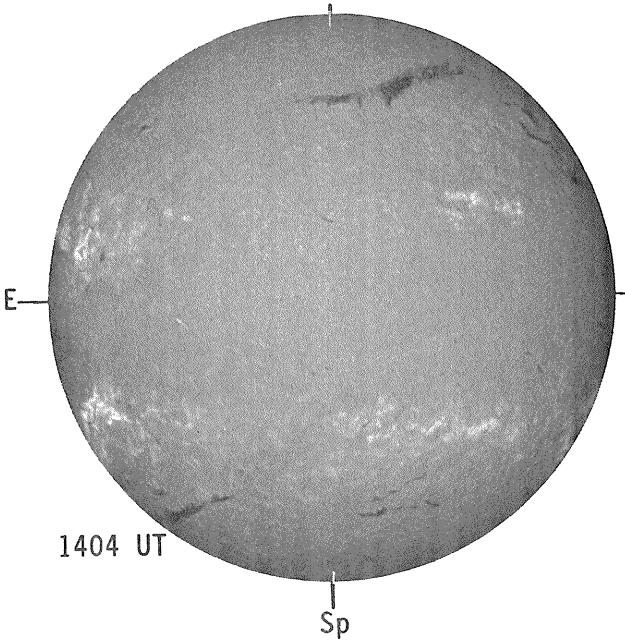


E

1511 UT

Sp

BOULDER H-ALPHA



E

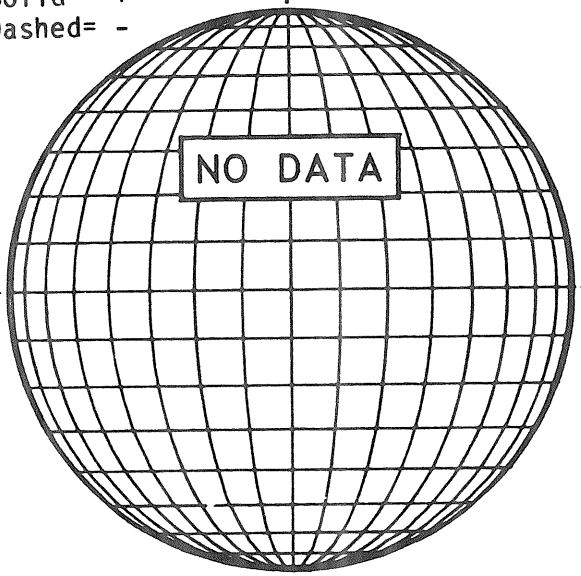
1404 UT

Sp

STANFORD MAGNETOGRAM

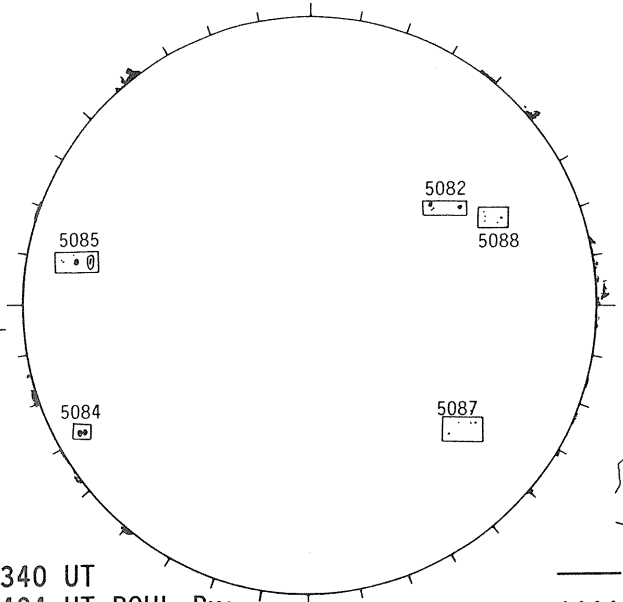
Np

Solid = +
Dashed= -



Sp

BOULDER SUNSPOTS



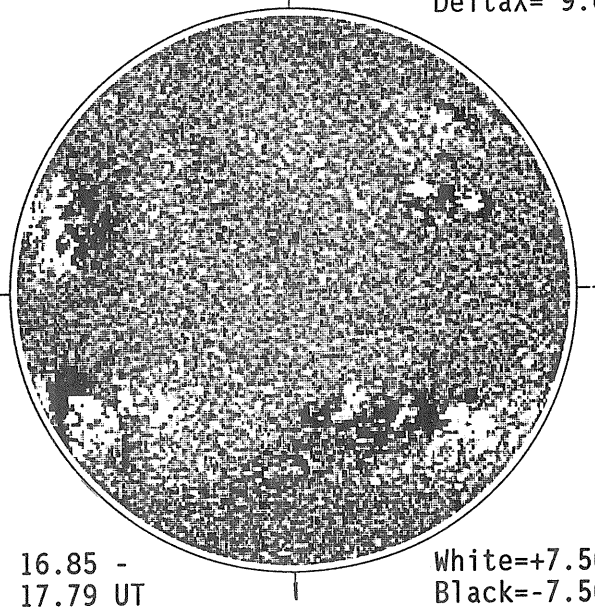
1340 UT
1404 UT BOUL Prom

Sp

MT. WILSON MAGNETOGRAM

Np

DeltaY=12.9
DeltaX= 9.6

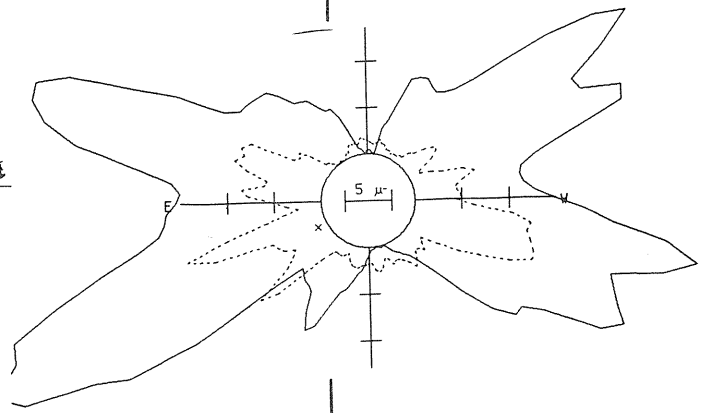


W

16.85 -
17.79 UT

White=+7.5G
Black=-7.5G

SACRAMENTO PEAK CORONA (1.15 Radii)



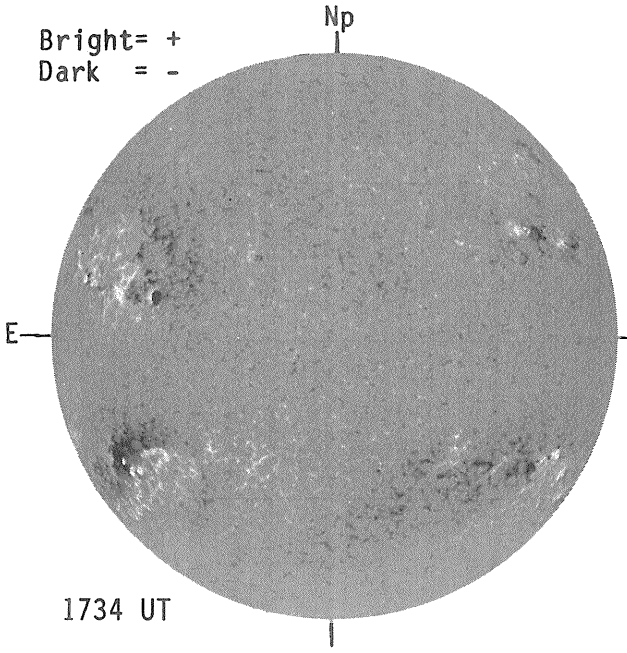
—— 5303A, 1427 UT
···· 6374A, 1355 UT
xxxx 5694A, 1409 UT

Sp

JULY 25, 1988 (P= 8.06, B_o= 5.25, L_o= 58.79)

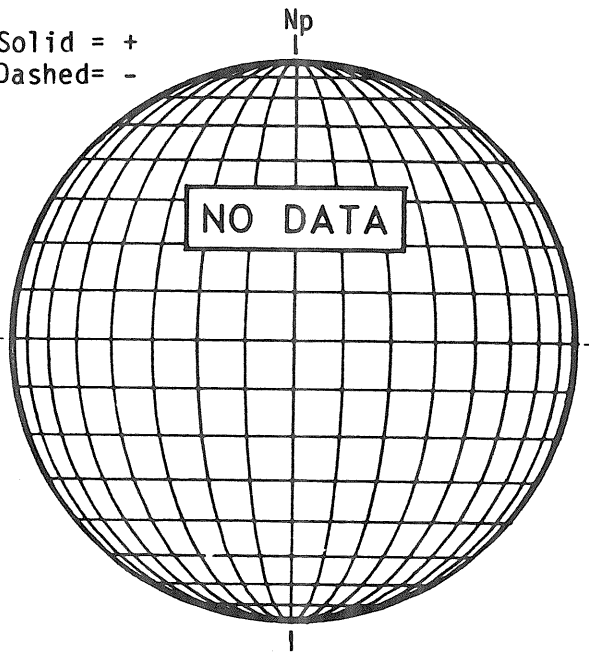
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

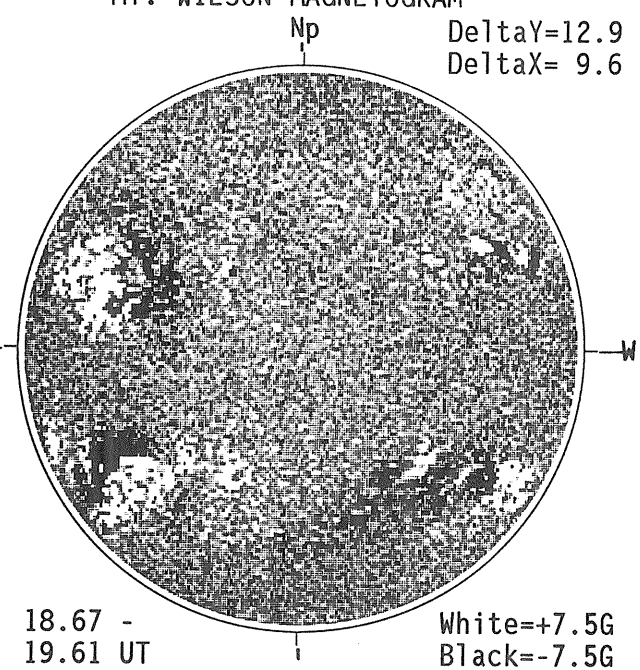


STANFORD MAGNETOGRAM

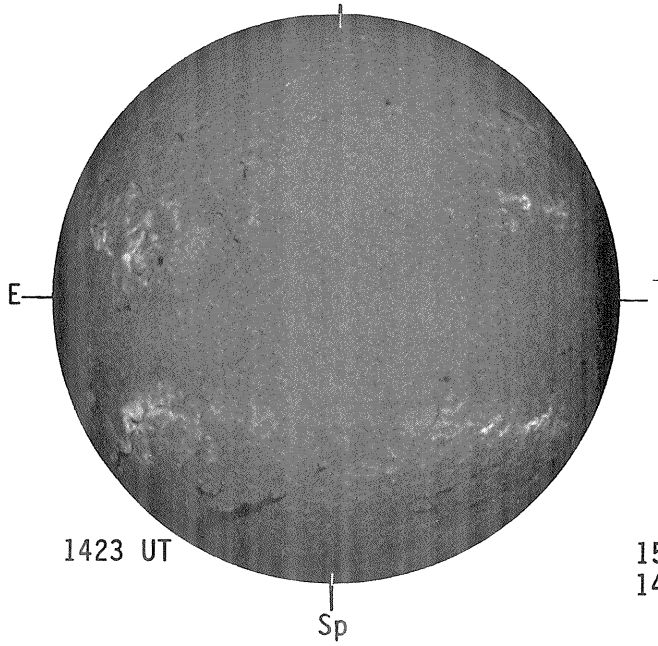
Solid = +
Dashed= -



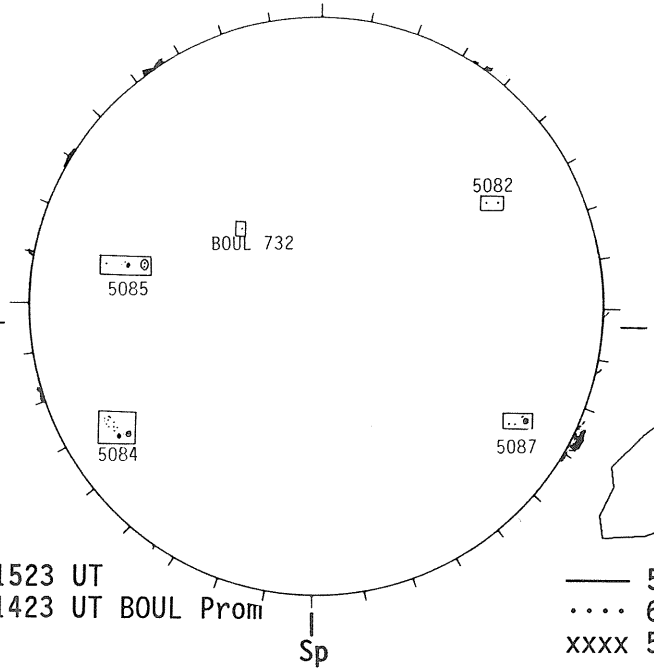
MT. WILSON MAGNETOGRAM



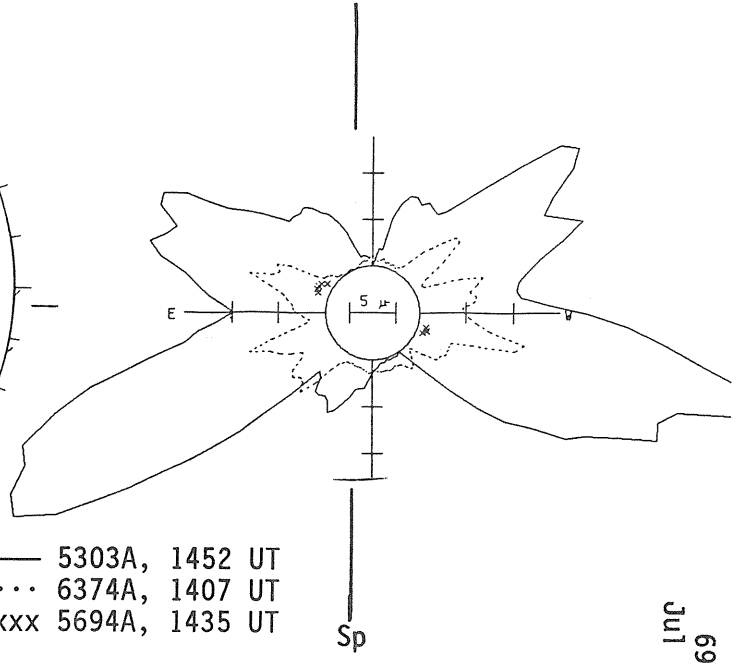
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

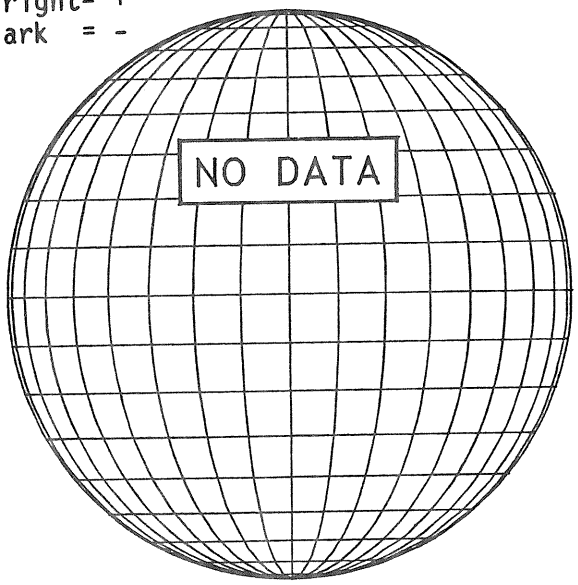


JULY 26, 1988 (P= 8.48, B_o= 5.34, L_o= 45.56)

KITT PEAK MAGNETOGRAM

Np

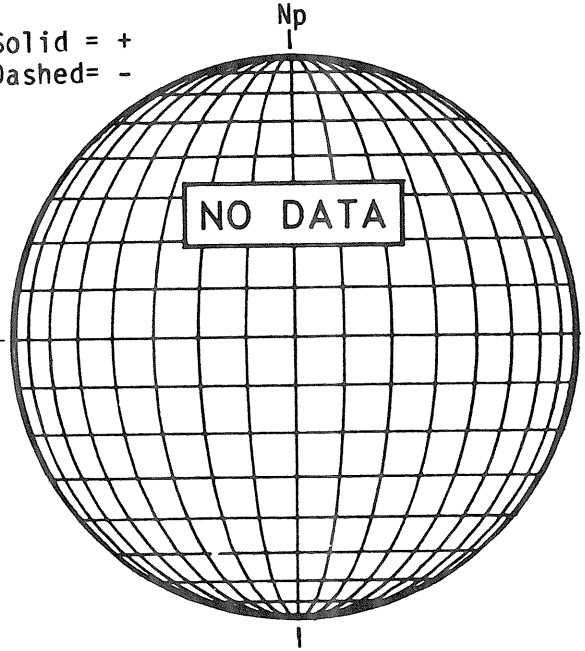
Bright= +
Dark = -



STANFORD MAGNETOGRAM

Np

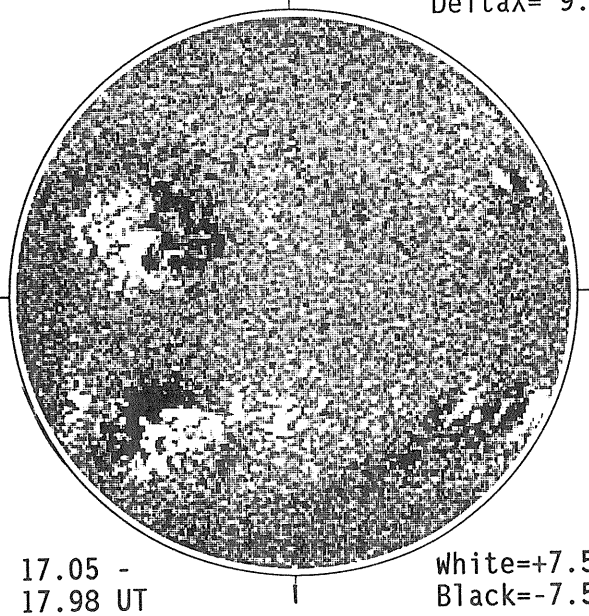
Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

Np

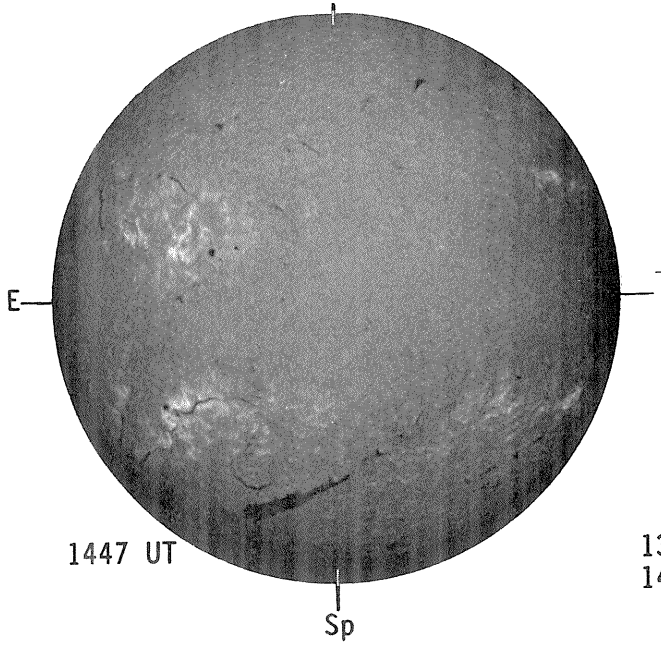
DeltaY=12.9
DeltaX= 9.6



17.05 -
17.98 UT

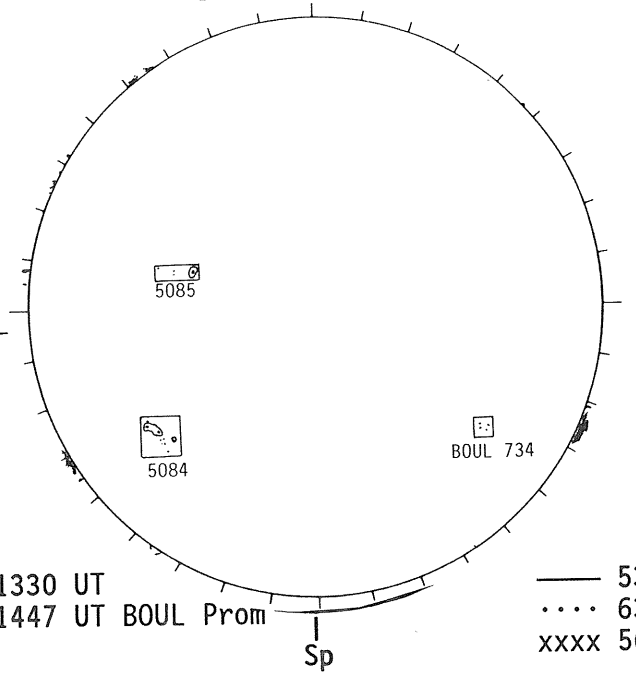
White=+7.5G
Black=-7.5G

BOULDER H-ALPHA



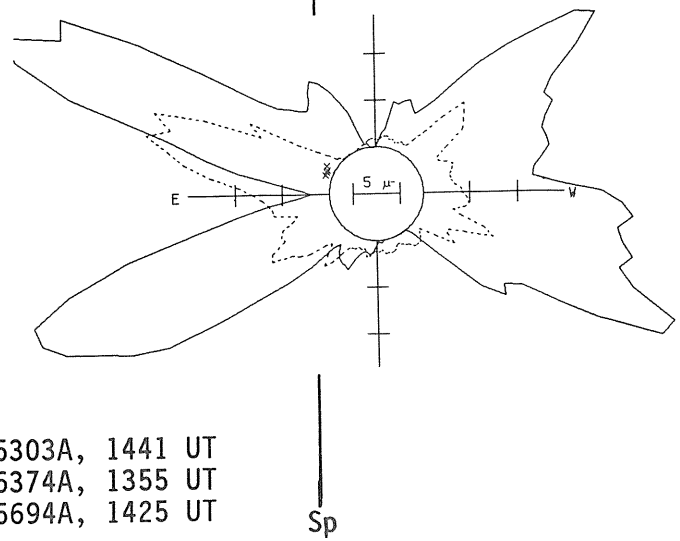
1447 UT

BOULDER SUNSPOTS



1330 UT
1447 UT BOUL Prom

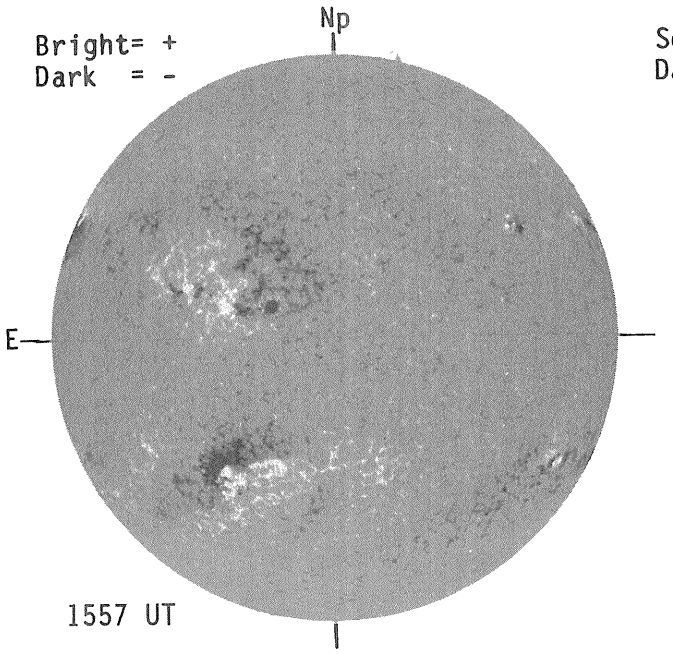
SACRAMENTO PEAK CORONA (1.15 Radii)



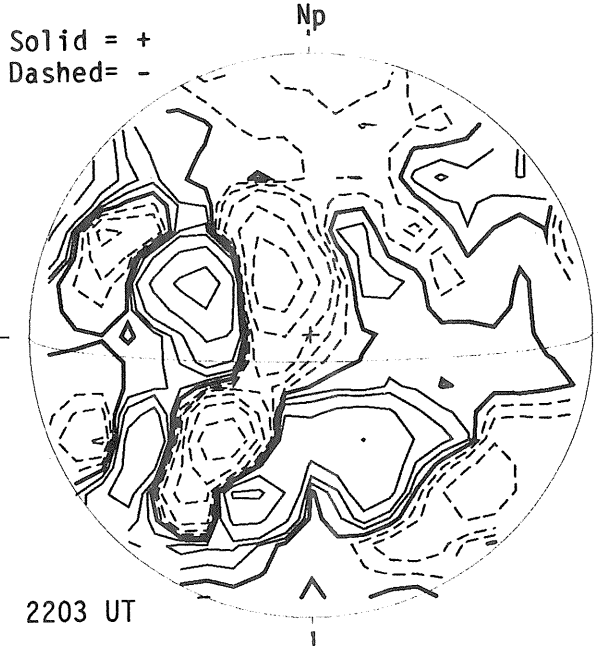
—— 5303A, 1441 UT
···· 6374A, 1355 UT
xxxx 5694A, 1425 UT

JULY 27, 1988 (P= 8.89, B_o= 5.42, L_o= 32.33)

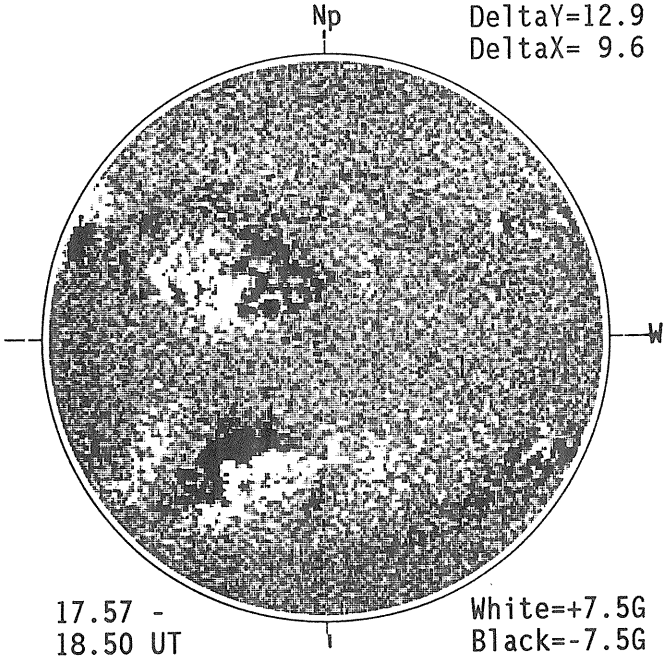
KITT PEAK MAGNETOGRAM



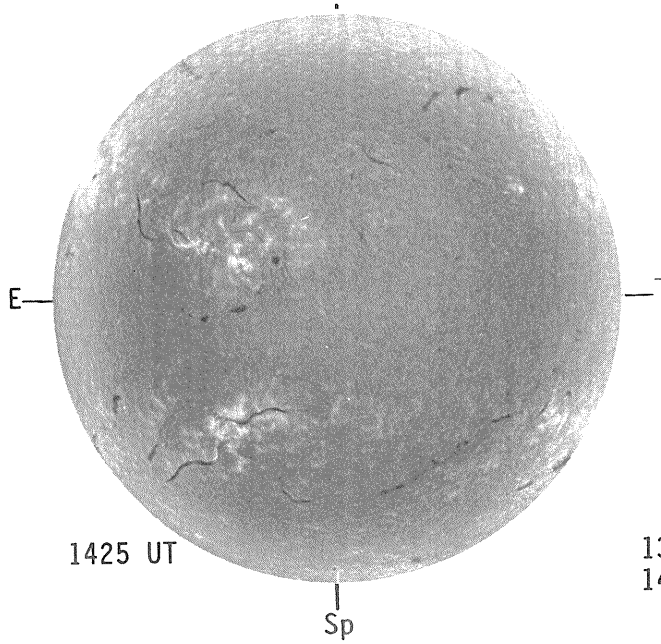
STANFORD MAGNETOGRAM



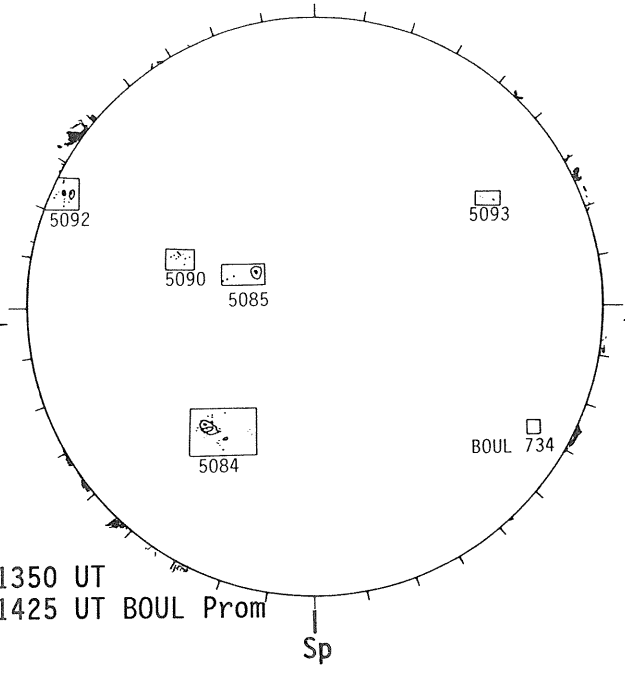
MT. WILSON MAGNETOGRAM



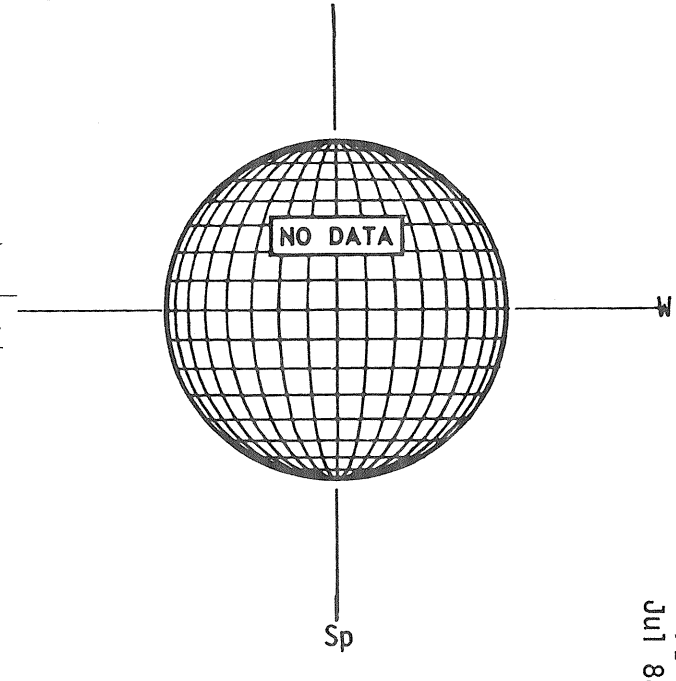
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

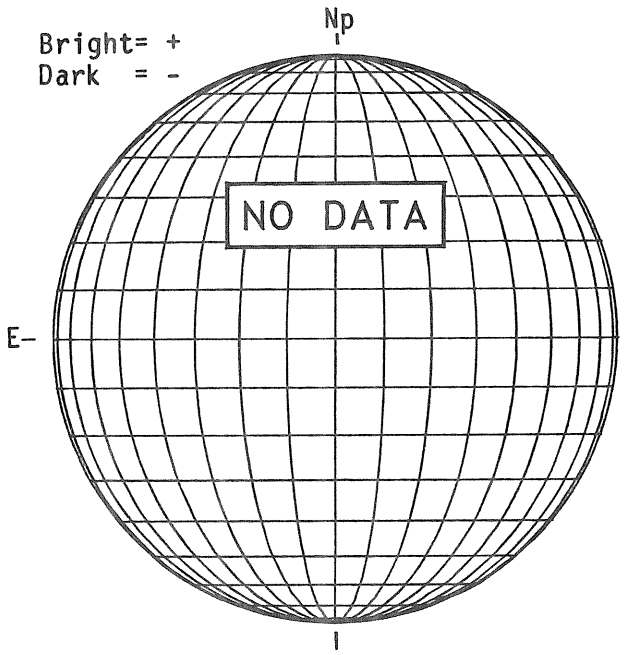


71
Jul 88

JULY 28, 1988 (P= 9.30, B_o= 5.50, L_o= 19.10)

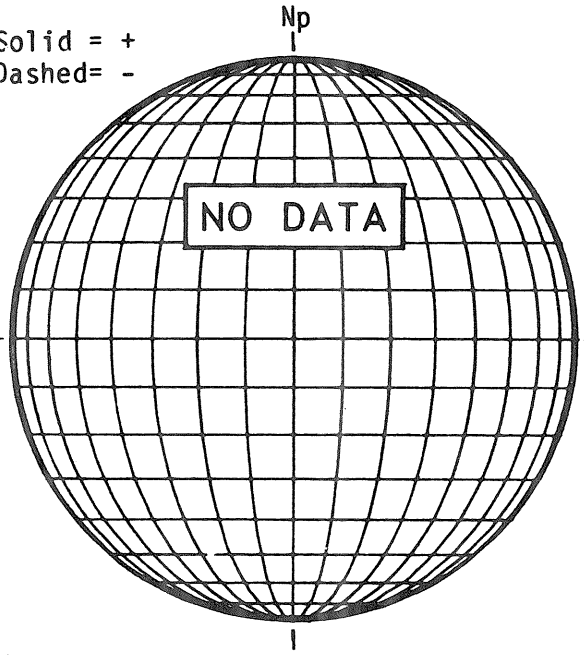
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



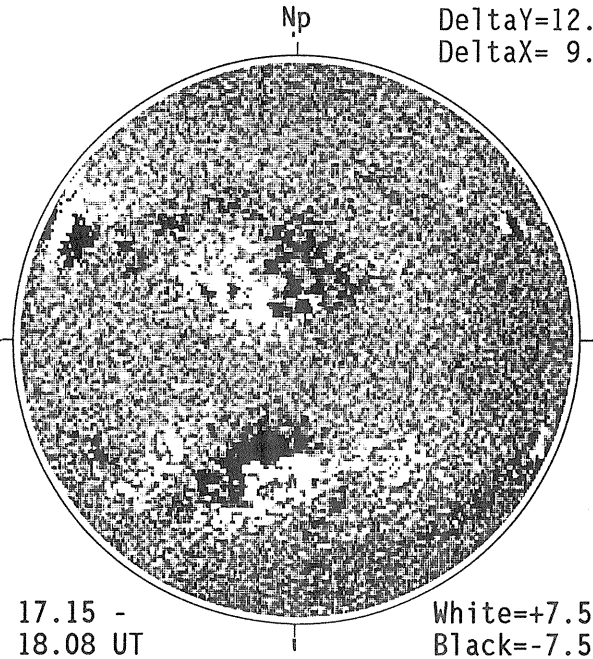
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

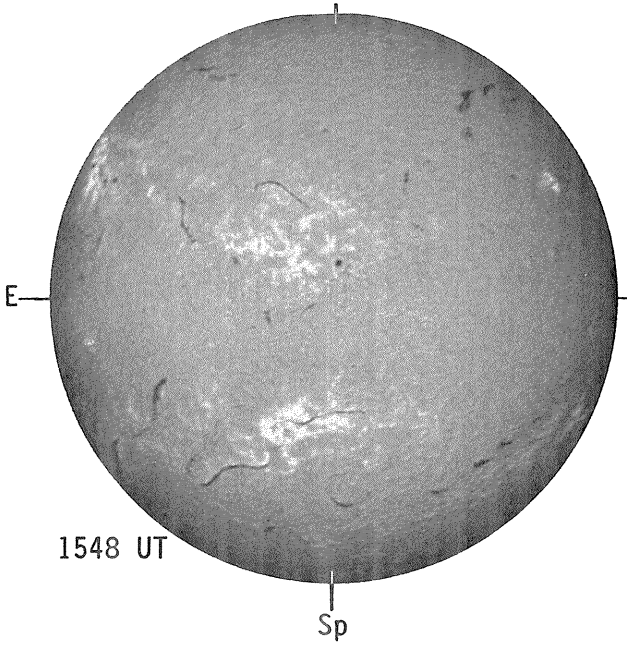
DeltaY=12.9
DeltaX= 9.6



17.15 -
18.08 UT

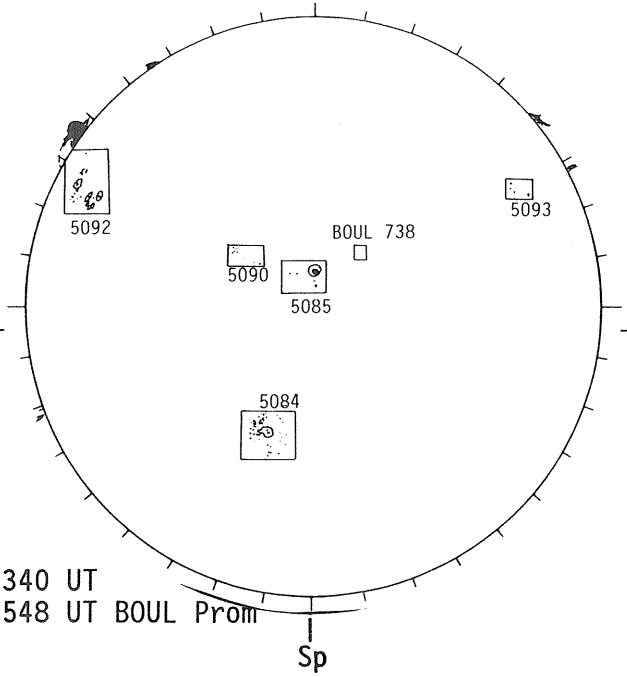
White=+7.5G
Black=-7.5G

BOULDER H-ALPHA



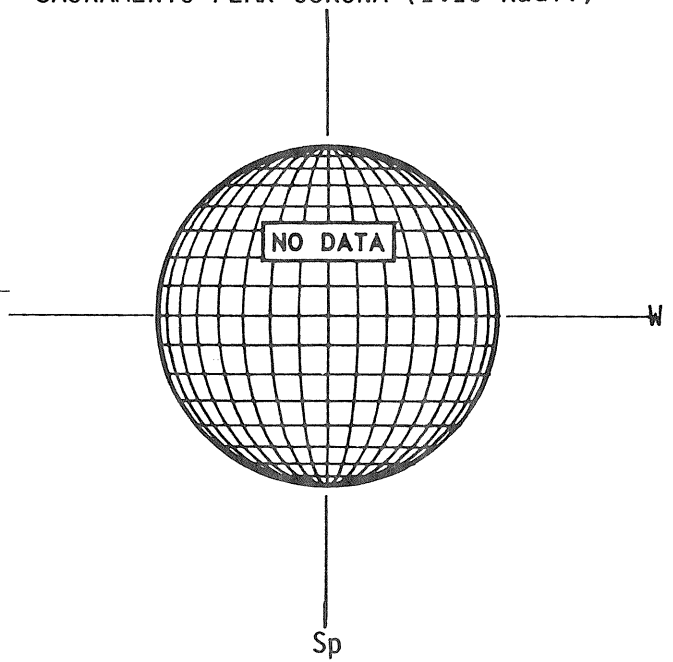
1548 UT

BOULDER SUNSPOTS



1340 UT
1548 UT BOUL Prom

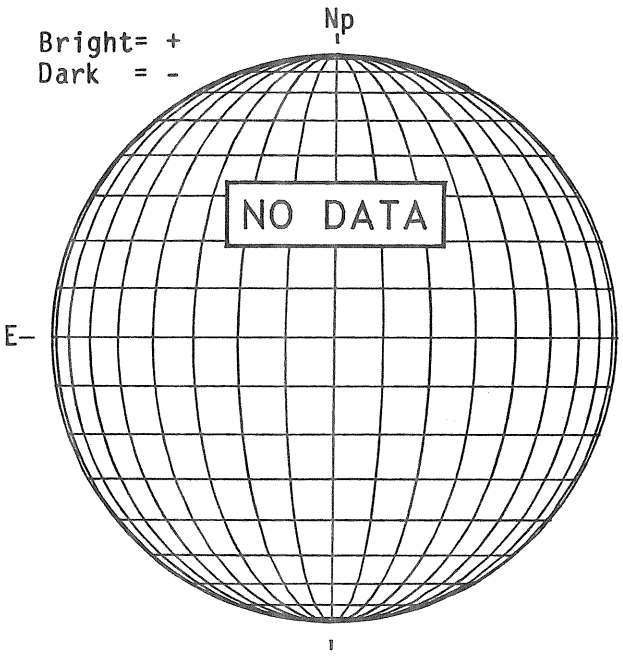
SACRAMENTO PEAK CORONA (1.15 Radii)



JULY 29, 1988 (P= 9.71, B_o= 5.57, L_o= 5.87)

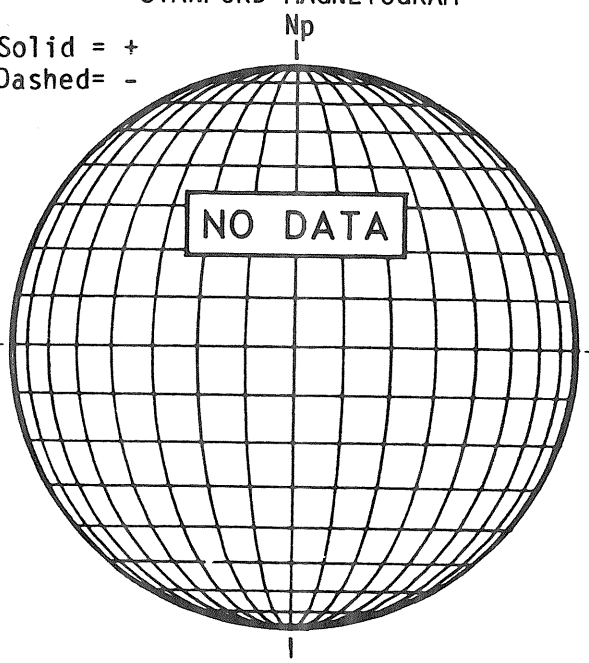
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



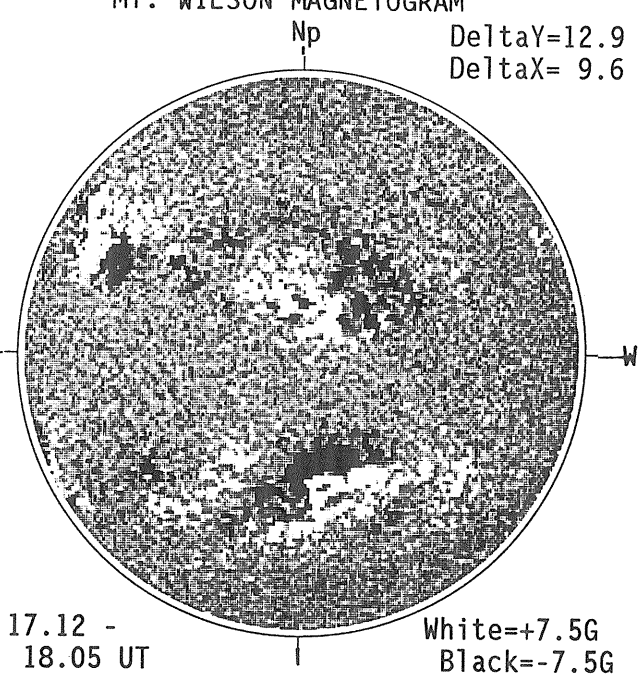
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

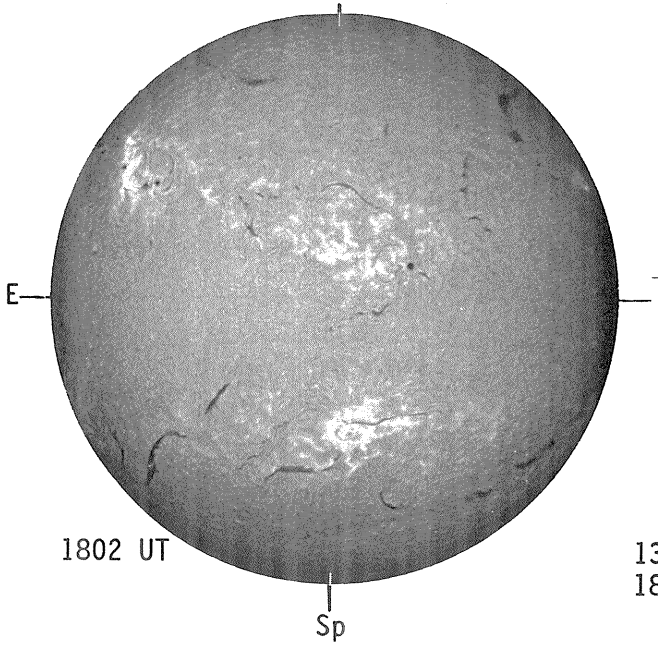
DeltaY=12.9
DeltaX= 9.6



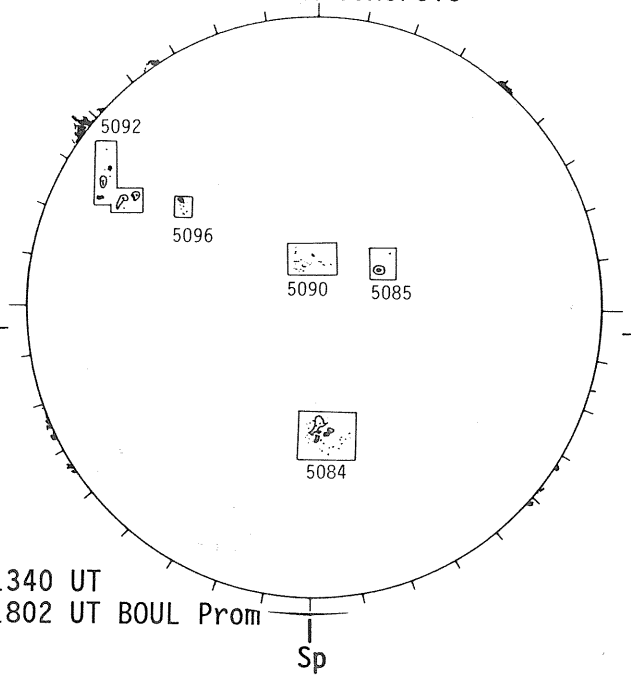
17.12 -
18.05 UT

White=+7.5G
Black=-7.5G

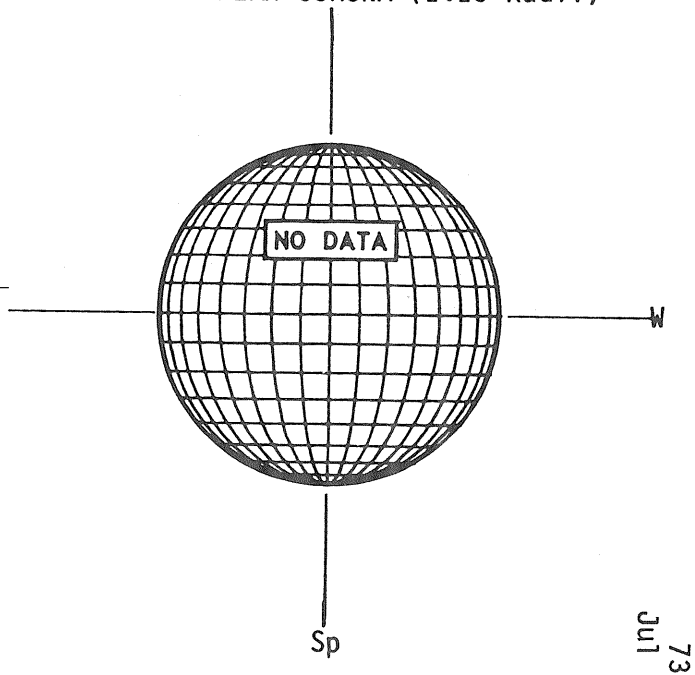
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



73
Jul 88

JULY 30, 1988 (P= 10.12, B_o= 5.65, L_o= 352.65)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -

NO DATA

E

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -

NO DATA

MT. WILSON MAGNETOGRAM

Np

DeltaY=12.9
DeltaX= 9.6

W

17.06 -
18.02 UT

White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA

E

1444 UT

Sp

BOULDER SUNSPOTS

5092
5096
5090
5085
5084

1350 UT
1326 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (1.15 Radii)

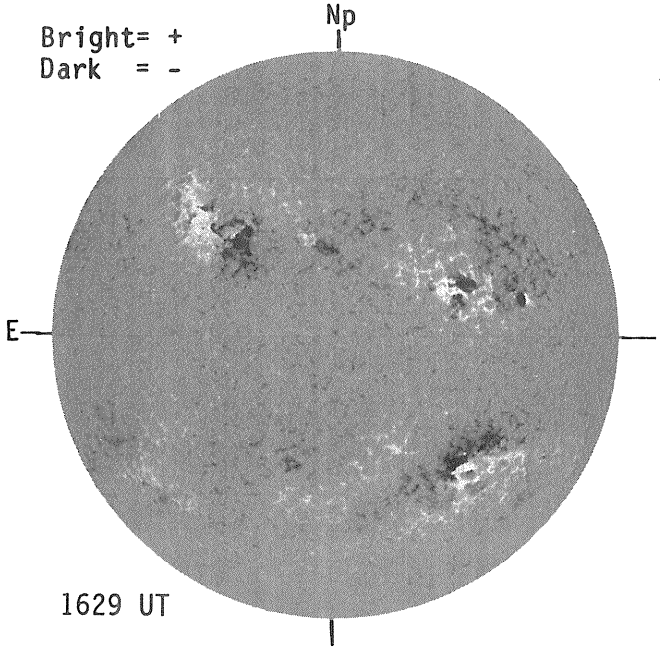
E
W
5 μ

Sp

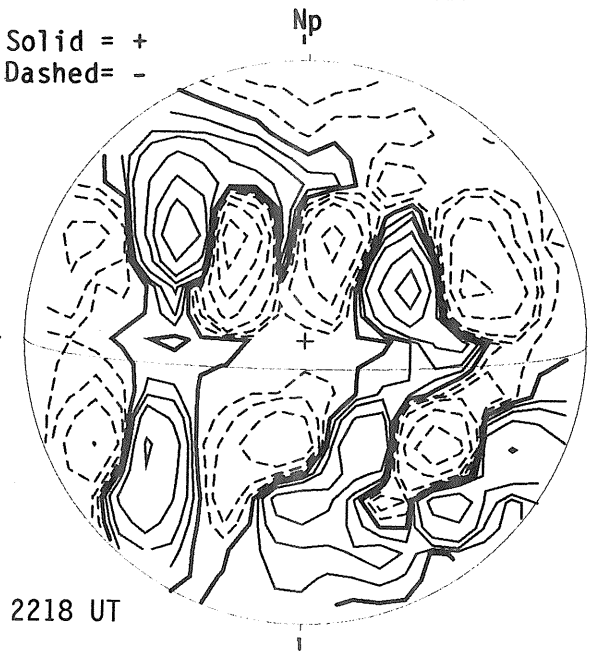
—— 5303A, 1330 UT
···· 6374A, 1403 UT
xxxx 5694A, 1420 UT
NO 5694A ACTIVITY TODAY

JULY 31, 1988 (P= 10.52, B_o= 5.72, L_o= 339.42)

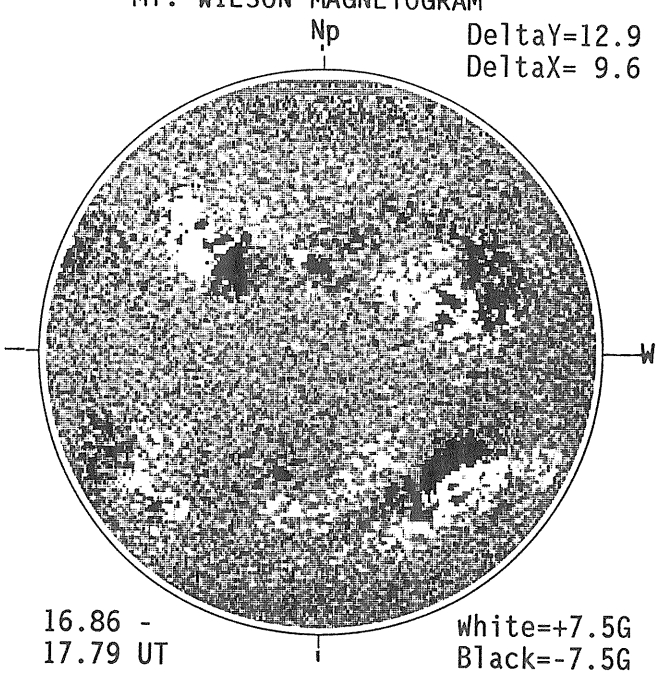
KITT PEAK MAGNETOGRAM



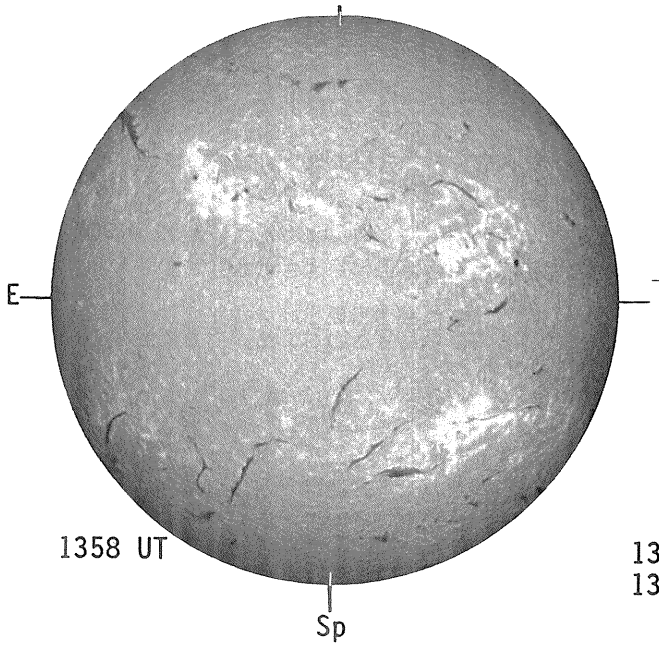
STANFORD MAGNETOGRAM



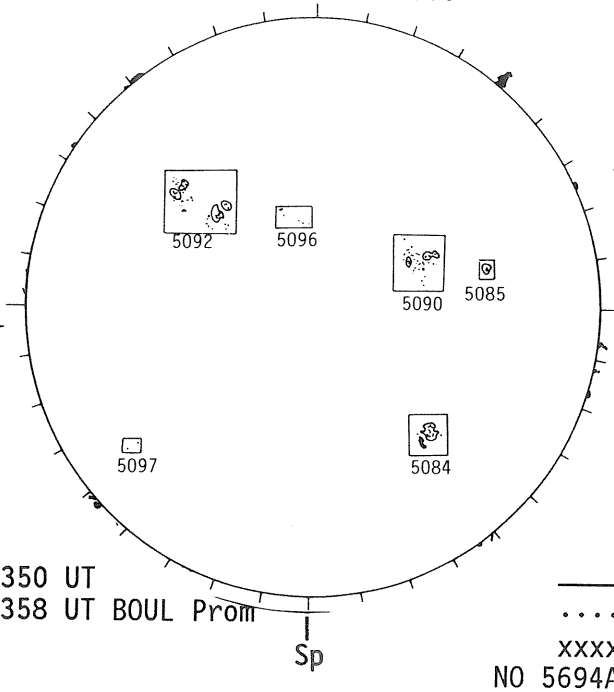
MT. WILSON MAGNETOGRAM



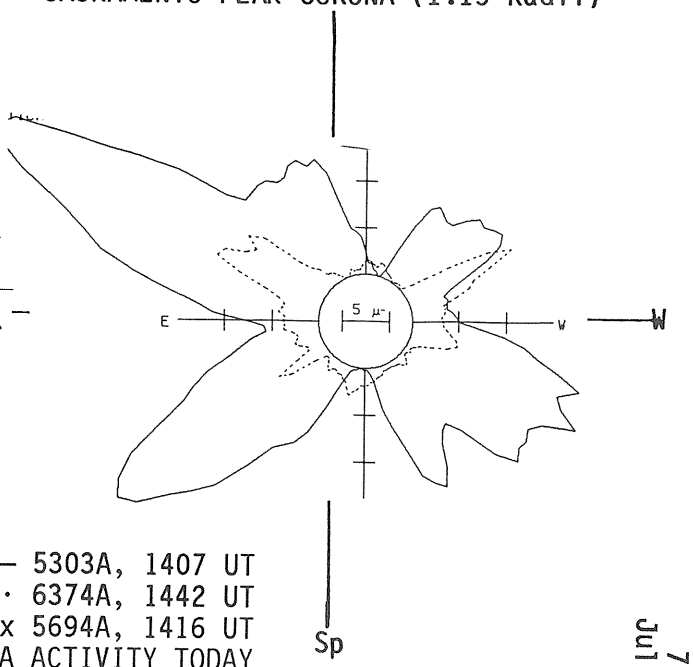
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 1407 UT
···· 6374A, 1442 UT
xxxx 5694A, 1416 UT
NO 5694A ACTIVITY TODAY

75
Jul 88

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

JULY 1988

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5058A		BOUL	06 27 1540	S20 E46	07 1.2		B	CAO	90	14	5	4
5058A		BOUL	06 28 1445	S19 E31	07 1.0		B	DAI	160	21	6	4
5058A		BOUL	06 30 1600	S18 E05	07 1.0		B	CAO	40	8	6	1
5066		BOUL	07 01 1315	S19 W07	07 1.0		B	CSO	60	13	7	3
5066		BOUL	07 02 1340	S20 W22	06 30.9		B	CAO	20	3	3	3
5066		PALE	07 02 1736	S21 W24	06 30.9		B	CSO	50	4	6	3
5066		HOLL	07 02 2002	S21 W27	06 30.8		B	CSO	60	5	8	4
5066		LEAR	07 03 0015	S21 W27	06 30.9		B	CSO	20	3	4	4
5066		SVTO	07 03 0621	S20 W31	06 30.9		B	CAO	30	3	5	3
5066		RAMY	07 03 1209	S19 W35	06 30.8		B	CSO	30	3	4	2
5066		BOUL	07 03 1316	S19 W33	07 1.0		B	CAO	30	3	4	3
5066		HOLL	07 03 1451	S21 W35	06 30.9		B	CSO	40	4	4	3
5066		PALE	07 03 1855	S20 W39	06 30.8		B	CSO	30	4	4	3
5066		LEAR	07 04 0038	S20 W42	06 30.8		A	HR	20	3	2	4
5066		SVTO	07 04 0550	S19 W45	06 30.8		A	HR	30	2	3	3
5066		RAMY	07 04 1242	S18 W50	06 30.7		A	HR	20	2	1	3
5066		BOUL	07 04 1323	S20 W50	06 30.7		A	AX	20	2	1	2
5066		HOLL	07 04 1421	S20 W50	06 30.8		A	HR	30	2	1	3
5066		PALE	07 04 1912	S21 W55	06 30.6		A	AX	10	3	2	3
5066		SVTO	07 05 0555	S21 W57	06 30.9		B	BXO	10	2	1	3
5066		HOLL	07 05 1435	S21 W64	06 30.7		A	AX	10	1	1	3
5066		RAMY	07 05 1537	S18 W67	06 30.5		A	AX	10	1	1	3
5066		PALE	07 05 1740	S21 W66	06 30.7		A	AX	10	1	1	3
5066		RAMY	07 06 1405	S20 W76	06 30.8		B	BXO	40	2	1	4
5063	24654	MWIL	06 27 1430	N20 E50	07 1.4	3	(AP)					
5063	24654	MWIL	06 28 1415	N19 E38	07 1.5	3	(AP)					
5063		PALE	06 28 1855	N19 E34	07 1.4		B	BXO	10	3	3	3
5063		LEAR	06 29 0022	N19 E32	07 1.4		A	AX	10	2	1	4
5063		LEAR	06 30 0012	N18 E19	07 1.4		B	CRO	20	3	3	3
5063	24654	MWIL	06 30 1415	N22 E10	07 1.4	3	(AP)					
5063		HOLL	06 30 1505	N23 E11	07 1.5		B	BXO	10	4	3	4
5063		PALE	06 30 1725	N22 E09	07 1.4		A	AX	10	2	1	3
5063	24654	MWIL	07 01 1445	N20 W03	07 1.4	2	(AP)					
5060		SVTO	06 25 0555	S22 E85	07 1.8		B	DHO	510	1	10	3
5060		BOUL	06 25 1410	S21 E75	07 1.3		BD	DKC	570	1	7	2
5060		RAMY	06 25 1418	S22 E79	07 1.7		A	HK	250	3	3	3
5060	24648	MWIL	06 25 1430	S21 E79	07 1.7	5	(B)					
5060		HOLL	06 25 1541	S20 E78	07 1.6		B	EKI	570	3	11	3
5060		CULG	06 26 0400	S18 E74	07 1.8		BGD	EKC	700	10	11	2
5060		SVTO	06 26 1022	S19 E72	07 1.9		BGD	FKC	1940	20	20	3
5060	24648	MWIL	06 26 1415	S21 E68	07 1.8	5	(D)					
5060		RAMY	06 26 1538	S20 E65	07 1.6		BGD	FKC	1680	27	18	2
5060		HOLL	06 26 1726	S20 E68	07 1.9		BG	FKC	1560	24	20	3
5060		PALE	06 26 1740	S18 E66	07 1.8		BGD	FKC	800	16	18	3
5060		LEAR	06 27 0100	S23 E62	07 1.8		BGD	FKI	1650	29	17	3
5060		CULG	06 27 0350	S19 E61	07 1.8		BG	FKI	900	23	18	3
5060		SVTO	06 27 0553	S19 E60	07 1.8		BD	FKC	2220	35	20	3
5060		RAMY	06 27 1310	S20 E53	07 1.6		BD	FKC	2110	68	20	4
5060	24648	MWIL	06 27 1430	S20 E55	07 1.8	5	(D)					
5060		BOUL	06 27 1540	S20 E56	07 1.9		BD	EKC	2360	58	12	4
5060		HOLL	06 27 1700	S19 E52	07 1.7		BGD	FKC	2120	40	19	2
5060		PALE	06 27 2110	S18 E51	07 1.8		BGD	FKC	2220	40	20	3
5060		LEAR	06 28 0045	S19 E49	07 1.8		BGD	FKI	2120	51	18	3
5060		CULG	06 28 0235	S20 E49	07 1.8		BG	FKC	2500	26	21	2
5060		SVTO	06 28 0542	S20 E46	07 1.7		BGD	FKC	3150	40	21	4
5060	24648	MWIL	06 28 1415	S20 E41	07 1.7	6	(D)					
5060		BOUL	06 28 1445	S18 E42	07 1.8		BD	EKC	2520	74	14	4
5060		RAMY	06 28 1525	S20 E40	07 1.7		BGD	FKC	2700	56	21	3
5060		HOLL	06 28 1643	S19 E38	07 1.6		BGD	FKC	2720	57	21	3
5060		PALE	06 28 1855	S18 E40	07 1.8		BGD	FKC	2780	65	22	3
5060		LEAR	06 29 0022	S20 E35	07 1.7		BGD	FKC	3020	47	22	4
5060		CULG	06 29 0400	S18 E32	07 1.6		BG	FKC	3250	41	21	2
5060		SVTO	06 29 0549	S20 E32	07 1.7		BGD	FKC	3200	50	23	3
5060		HOLL	06 29 1515	S19 E28	07 1.8		BGD	FKC	2840	76	22	4
5060	24648	MWIL	06 29 1530	S20 E30	07 1.9	5	(D)					
5060		RAMY	06 29 1550	S20 E28	07 1.8		BGD	FKC	2600	15	22	3

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

JULY 1988

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5060		BOUL	06 29 1700	S20 E28	07 1.8		BD	EKC	2290	17	14	1
5060		PALE	06 29 1747	S18 E28	07 1.9		BGD	FKC	2800	65	23	4
5060		LEAR	06 30 0012	S19 E21	07 1.6		BGD	FKC	2780	69	21	3
5060		CULG	06 30 0455	S18 E22	07 1.9		BG	FKC	2500	42	22	4
5060		SVTO	06 30 0650	S20 E18	07 1.7		BGD	FKC	2730	79	23	4
5060		RAMY	06 30 1300	S20 E15	07 1.7		BGD	FKC	2900	48	24	3
5060	24648	MWIL	06 30 1415	S20 E16	07 1.8	6	(D)					
5060		HOLL	06 30 1505	S19 E16	07 1.8		BGD	FKC	2860	87	23	4
5060		BOUL	06 30 1600	S19 E16	07 1.9		BGD	EKC	2080	32	14	1
5060		PALE	06 30 1725	S19 E16	07 1.9		BGD	FKC	2530	82	22	3
5060		LEAR	07 01 0014	S20 E11	07 1.8		GD	FKC	2230	40	22	3
5060		CULG	07 01 0410	S19 E07	07 1.7		BG	FKC	2220	50	22	2
5060		SVTO	07 01 0545	S20 E06	07 1.7		BGD	FKC	3210	54	24	3
5060		BOUL	07 01 1315	S20 E05	07 1.9		BGD	EKC	2000	77	15	3
5060		HOLL	07 01 1423	S19 E01	07 1.7		BGD	FKC	3060	86	23	3
5060	24648	MWIL	07 01 1445	S20 E03	07 1.8	5	(D)					
5060		PALE	07 01 1740	S19 E01	07 1.8		BGD	FKC	3010	78	23	3
5060		RAMY	07 01 1840	S19 W03	07 1.5		BGD	FKC	2500	75	25	1
5060		LEAR	07 02 0209	S20 W05	07 1.7		BGD	FKI	2420	31	22	3
5060		CULG	07 02 0413	S21 W07	07 1.6		BG	FKC	2000	44	24	3
5060		SVTO	07 02 0819	S20 W07	07 1.8		BD	FKC	3000	62	22	2
5060		BOUL	07 02 1340	S19 W08	07 1.9		BGD	EKC	1900	50	14	3
5060	24648	MWIL	07 02 1445	S20 W10	07 1.8	5	(D)					
5060		PALE	07 02 1736	S20 W12	07 1.8		BGD	EKC	2490	55	14	3
5060		HOLL	07 02 2002	S19 W12	07 1.9		BGD	FKC	2790	59	16	4
5060		LEAR	07 03 0015	S20 W15	07 1.9		B	FHI	1910	96	17	4
5060		SVTO	07 03 0621	S19 W19	07 1.8		BD	FKC	2800	64	16	3
5060		RAMY	07 03 1209	S20 W22	07 1.8		BGD	FKC	2220	86	16	2
5060		BOUL	07 03 1316	S19 W21	07 1.9		B	FKC	1540	63	16	3
5060	24648	MWIL	07 03 1430	S20 W22	07 1.9	5	(D)					
5060		HOLL	07 03 1451	S20 W23	07 1.8		BGD	FKC	2720	62	16	3
5060		PALE	07 03 1855	S19 W23	07 2.0		BGD	EKC	2160	66	14	3
5060		LEAR	07 04 0038	S20 W29	07 1.8		BG	FKC	1820	86	16	4
5060		SVTO	07 04 0550	S19 W31	07 1.9		BD	EKC	2680	74	14	3
5060		RAMY	07 04 1242	S19 W36	07 1.8		BGD	FKC	1920	66	16	3
5060		BOUL	07 04 1323	S20 W34	07 1.9		B	EKC	1280	61	14	2
5060		HOLL	07 04 1421	S20 W34	07 2.0		BG	EKC	2090	68	13	3
5060	24648	MWIL	07 04 1430	S20 W34	07 2.0	5	(D)					
5060		PALE	07 04 1912	S21 W38	07 1.9		BGD	EKC	1960	48	14	3
5060		SVTO	07 05 0555	S20 W43	07 1.9		BG	EKC	1570	58	15	3
5060		BOUL	07 05 1317	S19 W51	07 1.7		B	EKC	1250	56	14	3
5060	24648	MWIL	07 05 1415	S20 W50	07 1.8	5	(D)					
5060		HOLL	07 05 1435	S20 W48	07 1.9		B	FKC	2210	60	15	3
5060		RAMY	07 05 1537	S18 W50	07 1.8		BG	EKC	1290	55	14	3
5060		PALE	07 05 1740	S20 W50	07 1.9		B	FKC	2030	41	15	3
5060		SVTO	07 06 0815	S20 W58	07 1.9		BG	EKI	1260	34	14	3
5060		RAMY	07 06 1405	S18 W61	07 1.9		BG	EKI	920	28	15	4
5060	24648	MWIL	07 06 1500	S20 W61	07 1.9	5	(D)					
5060		HOLL	07 06 1535	S20 W61	07 2.0		B	EKI	720	49	15	3
5060		BOUL	07 06 1555	S19 W60	07 2.1		B	EAC	880	24	15	2
5060		PALE	07 06 1830	S20 W61	07 2.1		B	EKI	980	18	15	3
5060		LEAR	07 07 0402	S19 W70	07 1.8		B	DKI	380	11	10	2
5060		SVTO	07 07 0858	S19 W71	07 1.9		BG	EKI	720	15	14	2
5060		BOUL	07 07 1315	S19 W69	07 2.3		B	DKC	840	19	8	3
5060		HOLL	07 07 1323	S19 W69	07 2.3		BG	EKI	570	22	12	3
5060		RAMY	07 07 1346	S18 W68	07 2.4		BG	EKI	700	13	14	4
5060	24648	MWIL	07 07 1445	S20 W75	07 1.9	6	(B)					
5060		LEAR	07 08 0005	S19 W80	07 1.9		BG	FKC	860	11	16	4
5060		SVTO	07 08 0805	S20 W80	07 2.2		A	HH	180	5	12	2
5060		RAMY	07 08 1400	S15 W90	07 1.8		A	HA	60	2	2	3
5060		HOLL	07 08 1427	S17 W89	07 1.8		A	HS	50	2	2	4
5060	24648	MWIL	07 08 1500	S17 W81	07 2.5	4	AF					
5060		BOUL	07 08 1545	S17 W90	07 1.8		B	DSO	60	2	2	1
5060A	24650	MWIL	06 26 1415	S28 E66	07 1.7	3	(AP)					
5062	24651	MWIL	06 26 1415	N12 E78	07 2.5	4	(AP)					
5062		RAMY	06 26 1538	N12 E75	07 2.3		B	BXO	30	4	3	2
5062		HOLL	06 26 1726	N13 E74	07 2.3		B	CSO	40	3	2	3

SUNSPOT GROUPS
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JULY 1988

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5062		PALE	06 26 1740	N13 E77	07 2.5		B	BXO	30	2	3	3
5062		LEAR	06 27 0100	N12 E71	07 2.4		B	CAO	20	7	8	3
5062		CULG	06 27 0350	N14 E70	07 2.4		B	BXO	20	2	2	3
5062		SVTO	06 27 0553	N14 E70	07 2.5		B	DAO	110	9	8	3
5062		RAMY	06 27 1310	N13 E67	07 2.6		B	DAI	100	15	10	4
5062	24651	MWIL	06 27 1430	N13 E64	07 2.4	4	(B)					
5062		BOUL	06 27 1540	N13 E60	07 2.2		B	CAO	130	13	7	4
5062		HOLL	06 27 1700	N13 E62	07 2.4		B	DSO	120	5	8	2
5062		PALE	06 27 2110	N13 E61	07 2.5		B	DSO	130	14	8	3
5062		LEAR	06 28 0045	N13 E58	07 2.4		B	DAO	270	12	9	3
5062		CULG	06 28 0235	N13 E59	07 2.5		B	DSO	110	4	8	2
5062		SVTO	06 28 0542	N13 E56	07 2.5		B	DAI	320	16	10	4
5062	24651	MWIL	06 28 1415	N14 E50	07 2.4	5	(B)					
5062		BOUL	06 28 1445	N12 E49	07 2.3		B	DSI	380	19	8	4
5062		RAMY	06 28 1525	N13 E49	07 2.3		B	DAI	300	19	8	3
5062		HOLL	06 28 1643	N13 E47	07 2.2		B	DAO	210	20	10	3
5062		PALE	06 28 1855	N13 E48	07 2.4		B	DAI	310	21	10	3
5062		LEAR	06 29 0022	N13 E44	07 2.3		B	EAI	180	17	11	4
5062		CULG	06 29 0400	N13 E42	07 2.3		B	EAI	270	14	11	2
5062		SVTO	06 29 0549	N13 E42	07 2.4		B	EKI	390	28	13	3
5062		HOLL	06 29 1515	N13 E35	07 2.3		B	EAI	290	33	14	4
5062	24651	MWIL	06 29 1530	N13 E36	07 2.4	5	(B)					
5062		RAMY	06 29 1550	N13 E36	07 2.4		BG	EAI	230	51	11	3
5062		BOUL	06 29 1700	N12 E34	07 2.3		B	EAI	250	7	12	1
5062		PALE	06 29 1747	N13 E36	07 2.4		B	EAI	280	35	12	4
5062		LEAR	06 30 0012	N13 E32	07 2.4		BG	EKI	360	41	14	3
5062		CULG	06 30 0455	N13 E27	07 2.2		B	EAI	180	14	12	4
5062		SVTO	06 30 0650	N14 E27	07 2.3		BG	EAI	370	38	14	4
5062		RAMY	06 30 1300	N13 E25	07 2.4		B	EKI	300	31	13	3
5062	24651	MWIL	06 30 1415	N13 E22	07 2.2	6	(BG)					
5062		HOLL	06 30 1505	N13 E21	07 2.2		BG	FKC	380	59	18	4
5062		BOUL	06 30 1600	N13 E22	07 2.3		B	EKI	320	27	13	1
5062		PALE	06 30 1725	N13 E21	07 2.3		BG	FKC	360	46	19	3
5062		LEAR	07 01 0014	N12 E15	07 2.1		B	EKO	320	22	13	3
5062		CULG	07 01 0410	N13 E13	07 2.1		BG	ESI	300	17	13	2
5062		SVTO	07 01 0545	N13 E13	07 2.2		BG	EKI	430	31	14	3
5062		BOUL	07 01 1315	N14 E10	07 2.3		BG	EKI	370	44	15	3
5062		HOLL	07 01 1423	N12 E08	07 2.2		BG	FKI	450	41	17	3
5062	24651	MWIL	07 01 1445	N13 E08	07 2.2	5	(B)					
5062		PALE	07 01 1740	N12 E07	07 2.3		BG	FKI	500	32	17	3
5062		RAMY	07 01 1840	N13 E07	07 2.3		B	EKI	400	27	14	1
5062		LEAR	07 02 0209	N13 E02	07 2.2		B	FAO	410	24	16	3
5062		CULG	07 02 0413	N14 E01	07 2.2		B	FHI	370	22	16	3
5062		SVTO	07 02 0819	N14 W02	07 2.2		B	FKI	440	27	16	2
5062		BOUL	07 02 1340	N13 W04	07 2.3		B	FKI	470	45	16	3
5062	24651	MWIL	07 02 1445	N13 W07	07 2.1	5	(B)					
5062		PALE	07 02 1736	N13 W07	07 2.2		B	FHI	430	43	17	3
5062		HOLL	07 02 2002	N14 W07	07 2.3		B	FHI	570	53	18	4
5062		LEAR	07 03 0015	N13 W11	07 2.2		BD	FKC	350	53	17	4
5062		SVTO	07 03 0621	N13 W13	07 2.3		B	FKI	550	36	17	3
5062		RAMY	07 03 1209	N13 W17	07 2.2		B	FKC	700	62	17	2
5062		BOUL	07 03 1316	N13 W17	07 2.3		B	FKC	570	48	18	3
5062	24651	MWIL	07 03 1430	N13 W20	07 2.1	5	(D)					
5062		HOLL	07 03 1451	N13 W18	07 2.3		BG	FHI	710	64	18	3
5062		PALE	07 03 1855	N12 W20	07 2.3		B	FHI	650	44	19	3
5062		LEAR	07 04 0038	N14 W25	07 2.1		BG	FKI	470	43	19	4
5062		SVTO	07 04 0550	N13 W28	07 2.1		B	FKI	570	24	18	3
5062		RAMY	07 04 1242	N14 W31	07 2.2		B	FKI	570	32	17	3
5062		BOUL	07 04 1323	N13 W29	07 2.4		B	CKI	370	31	18	2
5062		HOLL	07 04 1421	N13 W31	07 2.2		BG	FHI	520	40	17	3
5062	24651	MWIL	07 04 1430	N13 W33	07 2.1	5	(D)					
5062		PALE	07 04 1912	N13 W35	07 2.1		B	FHI	550	27	19	3
5062		SVTO	07 05 0555	N12 W38	07 2.4		BG	FHI	410	24	18	3
5062		BOUL	07 05 1317	N15 W41	07 2.4		B	FKI	330	23	17	3
5062	24651	MWIL	07 05 1415	N13 W46	07 2.1	5	(BG)					
5062		HOLL	07 05 1435	N12 W43	07 2.4		B	FKI	300	23	18	3
5062		RAMY	07 05 1537	N14 W47	07 2.1		B	FKI	410	15	19	3
5062		PALE	07 05 1740	N12 W45	07 2.3		B	FKI	410	15	17	3
5062		SVTO	07 06 0815	N13 W60	07 1.8		BG	EKI	430	12	13	3

SUNSPOT GROUPS
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JULY 1988

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5062		RAMY	07	06	1405	N15	W60	07	2.0		BG	FKI	480	12	18	4
5062	24651	MWIL	07	06	1500	N13	W62	07	1.9	5	(D)					
5062		HOLL	07	06	1535	N13	W62	07	2.0		B	EKO	300	10	13	3
5062		BOUL	07	06	1555	N15	W57	07	2.3		B	FHI	350	10	20	2
5062		PALE	07	06	1830	N13	W60	07	2.2		B	EHI	480	7	14	3
5062		LEAR	07	07	0402	N14	W71	07	1.8		B	ESI	150	7	12	2
5062		SVTO	07	07	0858	N14	W75	07	1.7		BG	EKI	300	4	14	2
5062		BOUL	07	07	1315	N13	W70	07	2.3		B	DKI	310	6	9	3
5062		HOLL	07	07	1323	N13	W73	07	2.0		B	ESO	220	5	11	3
5062		RAMY	07	07	1346	N15	W75	07	1.9		BG	FKO	300	4	17	4
5062	24651	MWIL	07	07	1445	N13	W78	07	1.7	6	(D)					
5062		LEAR	07	08	0005	N13	W85	07	1.6		B	DSO	100	3	10	4
5067		RAMY	07	04	1242	S08	W22	07	2.9		B	BXO	10	2	2	3
5067		BOUL	07	04	1323	S13	W22	07	2.9		A	AX	10	2	1	2
5067		HOLL	07	04	1421	S09	W22	07	2.9		A	AX	10	2	2	3
5067	24657	MWIL	07	04	1430	S08	W22	07	2.9	4	(B)					
5067		PALE	07	04	1912	S09	W25	07	2.9		B	BXO	10	2	3	3
5061		SVTO	06	26	1022	N27	E81	07	2.7		A	HS	70	1	3	3
5061	24652	MWIL	06	26	1415	N26	E83	07	3.0	4	(AP)					
5061		RAMY	06	26	1538	N26	E80	07	2.9		A	HA	180	1	2	2
5061		HOLL	06	26	1726	N26	E79	07	2.9		A	HH	180	1	3	3
5061		PALE	06	26	1740	N27	E80	07	3.0		A	HA	120	1	2	3
5061		LEAR	06	27	0100	N26	E75	07	2.9		B	DAO	110	2	5	3
5061		CULG	06	27	0350	N27	E78	07	3.2		A	HS	150	1	2	3
5061		SVTO	06	27	0553	N27	E76	07	3.2		A	HS	230	1	2	3
5061		RAMY	06	27	1310	N26	E73	07	3.2		A	HK	250	1	4	4
5061	24652	MWIL	06	27	1430	N26	E70	07	3.0	5	(AP)					
5061		BOUL	06	27	1540	N26	E67	07	2.8		A	HS	190	1	3	4
5061		HOLL	06	27	1700	N27	E68	07	3.0		A	HS	120	1	2	2
5061		PALE	06	27	2110	N28	E68	07	3.2		A	HS	90	1	2	3
5061		LEAR	06	28	0045	N27	E66	07	3.2		A	HK	400	1	6	3
5061		CULG	06	28	0235	N28	E67	07	3.3		A	HS	120	1	2	2
5061		SVTO	06	28	0542	N27	E64	07	3.2		A	HS	180	1	2	4
5061	24652	MWIL	06	28	1415	N26	E58	07	3.1	5	(AP)					
5061		BOUL	06	28	1445	N26	E56	07	3.0		A	HS	150	1	2	4
5061		RAMY	06	28	1525	N26	E58	07	3.1		A	HS	140	1	2	3
5061		HOLL	06	28	1643	N27	E55	07	3.0		A	HS	110	1	2	3
5061		PALE	06	28	1855	N28	E55	07	3.1		A	HH	190	1	3	3
5061		LEAR	06	29	0022	N26	E51	07	3.0		A	HS	140	1	3	4
5061		CULG	06	29	0400	N27	E50	07	3.1		A	HS	130	1	2	2
5061		SVTO	06	29	0549	N26	E50	07	3.1		A	HS	160	1	2	3
5061		HOLL	06	29	1515	N27	E45	07	3.1		A	HS	140	1	2	4
5061	24652	MWIL	06	29	1530	N26	E44	07	3.1	5	(AP)					
5061		RAMY	06	29	1550	N27	E43	07	3.0		A	HH	130	1	3	3
5061		BOUL	06	29	1700	N26	E41	07	2.9		A	HS	140	1	2	1
5061		PALE	06	29	1747	N27	E44	07	3.2		A	HH	120	1	3	4
5061		LEAR	06	30	0012	N27	E40	07	3.1		A	HA	210	1	3	3
5061		CULG	06	30	0455	N27	E37	07	3.1		A	HS	80	1	2	4
5061		SVTO	06	30	0650	N27	E37	07	3.2		A	HH	160	1	3	4
5061		RAMY	06	30	1300	N27	E32	07	3.0		A	HH	160	1	3	3
5061	24652	MWIL	06	30	1415	N26	E32	07	3.1	5	(AP)					
5061		HOLL	06	30	1505	N27	E32	07	3.1		A	HH	180	1	3	4
5061		BOUL	06	30	1600	N26	E30	07	3.0		A	HS	180	1	2	1
5061		PALE	06	30	1725	N28	E31	07	3.1		A	HH	150	1	3	3
5061		LEAR	07	01	0014	N26	E25	07	2.9		A	HH	180	2	3	3
5061		CULG	07	01	0410	N27	E22	07	2.9		A	HS	180	1	3	2
5061		SVTO	07	01	0545	N27	E23	07	3.0		A	HH	200	1	3	3
5061		BOUL	07	01	1315	N25	E19	07	3.0		A	HK	180	1	3	3
5061		HOLL	07	01	1423	N27	E18	07	3.0		A	HH	160	2	3	3
5061	24652	MWIL	07	01	1445	N26	E19	07	3.1	5	(BP)					
5061		PALE	07	01	1740	N27	E18	07	3.1		A	HH	190	1	3	3
5061		RAMY	07	01	1840	N22	E17	07	3.1		A	HS	180	1	2	1
5061		LEAR	07	02	0209	N26	E11	07	2.9		A	HS	170	1	3	3
5061		CULG	07	02	0413	N26	E11	07	3.0		A	HS	160	1	3	3
5061		SVTO	07	02	0819	N27	E09	07	3.0		A	HH	220	1	3	2
5061		BOUL	07	02	1340	N25	E04	07	2.9		A	HS	140	1	2	3
5061	24652	MWIL	07	02	1445	N26	E06	07	3.1	5	(AP)					

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

JULY 1988

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5061		PALE	07 02 1736	N27 E04	07 3.0		A	HH	150	1	3	3
5061		HOLL	07 02 2002	N27 E03	07 3.1		A	HH	170	1	3	4
5061		LEAR	07 03 0015	N26 E00	07 3.0		A	HS	140	3	3	4
5061		SVTO	07 03 0621	N26 W03	07 3.0		A	HH	190	1	3	3
5061		RAMY	07 03 1209	N26 W06	07 3.0		A	HH	180	1	3	2
5061		BOUL	07 03 1316	N25 W06	07 3.1		A	HS	140	2	3	3
5061	24652	MWIL	07 03 1430	N26 W07	07 3.1	5	(BF)					
5061		HOLL	07 03 1451	N25 W08	07 3.0		B	CHO	170	2	5	3
5061		PALE	07 03 1855	N27 W08	07 3.2		A	HH	180	1	3	3
5061		LEAR	07 04 0038	N27 W12	07 3.1		A	HS	100	4	5	4
5061		SVTO	07 04 0550	N27 W15	07 3.1		A	HA	200	1	2	3
5061		RAMY	07 04 1242	N27 W19	07 3.0		A	HH	220	1	3	3
5061		BOUL	07 04 1323	N23 W17	07 3.2		A	HS	130	3	3	2
5061		HOLL	07 04 1421	N26 W19	07 3.1		A	HH	170	1	3	3
5061	24652	MWIL	07 04 1430	N26 W20	07 3.0	5	(AP)					
5061		PALE	07 04 1912	N26 W22	07 3.1		A	HK	180	2	3	3
5061		SVTO	07 05 0555	N25 W27	07 3.1		A	HH	190	4	3	3
5061		BOUL	07 05 1317	N26 W25	07 3.6		B	CAO	130	4	3	3
5061	24652	MWIL	07 05 1415	N26 W32	07 3.1	5	(AP)					
5061		HOLL	07 05 1435	N26 W32	07 3.1		A	HS	120	1	2	3
5061		RAMY	07 05 1537	N27 W32	07 3.1		A	HH	190	5	4	3
5061		PALE	07 05 1740	N27 W34	07 3.1		A	HS	140	1	2	3
5061		RAMY	07 06 1405	N28 W45	07 3.1		A	HS	110	2	2	4
5061	24652	MWIL	07 06 1500	N26 W46	07 3.0	5	(AP)					
5061		HOLL	07 06 1535	N23 W47	07 3.0		A	HS	150	4	4	3
5061		BOUL	07 06 1555	N27 W44	07 3.2		A	HA	150	3	2	2
5061		PALE	07 06 1830	N27 W48	07 3.0		A	HA	160	1	2	3
5061		LEAR	07 07 0402	N28 W54	07 2.9		A	HA	80	4	4	2
5061		SVTO	07 07 0858	N28 W57	07 2.9		A	HK	110	3	4	2
5061		BOUL	07 07 1315	N27 W54	07 3.3		B	CAO	70	6	4	3
5061		HOLL	07 07 1323	N27 W57	07 3.1		A	HA	90	7	3	3
5061		RAMY	07 07 1346	N29 W59	07 2.9		A	HA	110	5	4	4
5061	24652	MWIL	07 07 1445	N27 W58	07 3.1	6	(BP)					
5061		LEAR	07 08 0005	N27 W66	07 2.9		A	HA	140	2	2	4
5061		SVTO	07 08 0805	N27 W65	07 3.3		B	CAO	110	2	3	2
5061		RAMY	07 08 1400	N27 W69	07 3.2		A	HA	60	2	2	3
5061		HOLL	07 08 1427	N27 W70	07 3.1		A	HA	80	1	2	4
5061	24652	MWIL	07 08 1500	N27 W70	07 3.2	5	(AF)					
5061		BOUL	07 08 1545	N26 W68	07 3.4		B	CSO	80	2	3	1
5061		PALE	07 08 2010	N26 W75	07 3.0		A	HS	60	1	2	3
5061		LEAR	07 09 0100	N27 W78	07 3.0		A	HS	30	1	2	3
5061		CULG	07 09 0430	N25 W78	07 3.1		A	HS	60	1	2	2
5061		SVTO	07 09 0653	N27 W80	07 3.0		A	HA	80	1	2	3
5061		RAMY	07 09 1245	N27 W80	07 3.3		A	HA	30	1	2	3
5061		BOUL	07 09 1320	N28 W85	07 2.9		A	HS	60	1	5	3
5061	24652	MWIL	07 09 1500	N27 W82	07 3.2	3	AP					
5061A		SVTO	06 30 0650	N24 E65	07 5.3		A	AX	20	1	1	4
5061A		RAMY	06 30 1300	N19 E59	07 5.0		A	AX	10	1	1	3
5061A	24656	MWIL	06 30 1415	N23 E60	07 5.2	3	(AP)					
5061A		HOLL	06 30 1505	N23 E59	07 5.2		A	AX	10	2	1	4
5061A	24565	MWIL	07 01 1445	N23 E47	07 5.2	2	(AP)					
5068		PALE	07 03 1855	N30 E34	07 6.5		A	AX	10	2	1	3
5068		LEAR	07 04 0038	N31 E25	07 6.0		A	AX	10	3	2	4
5068		BOUL	07 07 1315	N29 W16	07 6.3		A	AX		1		3
5068		HOLL	07 07 1323	N30 W17	07 6.2		A	AX	10	1	1	3
5068		RAMY	07 07 1346	N31 W17	07 6.2		A	AX	10	1	1	4
5068	24662	MWIL	07 07 1445	N30 W18	07 6.2	4	(B)					
5068		LEAR	07 08 0005	N31 W24	07 6.1		A	AX	10	1	1	4
5068		SVTO	07 08 0805	N31 W26	07 6.3		B	BXO	10	3	4	2
5068		RAMY	07 08 1400	N31 W31	07 6.1		A	AX	10	1	1	3
5068		HOLL	07 08 1427	N31 W31	07 6.1		B	BXO	10	3	5	4
5068	24662	MWIL	07 08 1500	N30 W32	07 6.1	4	(B)					
5068		BOUL	07 08 1545	N29 W29	07 6.4		B	CRO	10	3	5	1
5068		PALE	07 08 2010	N28 W37	07 5.9		A	AX		1	1	3
5068		LEAR	07 09 0100	N31 W39	07 6.0		A	HR	10	1	1	3
5068		CULG	07 09 0430	N29 W41	07 6.0		A	AX	10	1	1	2
5068		SVTO	07 09 0653	N31 W40	07 6.1		B	BXO	10	3	4	3

SUNSPOT GROUPS
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JULY 1988

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5068		SVTO	07 10 0543	N30 W53	07 6.1		A	AX		1		3
5068		BOUL	07 10 1315	N29 W52	07 6.5		B	BXO		2	4	4
5068A		SVTO	07 04 0550	N25 E28	07 6.4		B	BXO	10	2	1	3
5068A		HOLL	07 04 1421	N25 E24	07 6.4		A	AX	10	2	2	3
5068A	24658	MWIL	07 04 1430	N24 E24	07 6.4	3	(AP)					
5068B		LEAR	07 08 0005	N16 W03	07 7.8		A	AX	10	1	1	4
5068B		BOUL	07 09 1320	N16 W28	07 7.4		B	BXO		2	3	3
5068C		BOUL	07 09 1320	S17 W22	07 7.9		A	HR	10	1		3
5068C		BOUL	07 10 1315	S18 W35	07 7.9		B	BXO		3	3	4
5068D		BOUL	07 10 1315	N27 W25	07 8.6		B	BXO		3	3	4
5068E		BOUL	07 10 1315	N49 W19	07 8.9		A	AX		1		4
5069		HOLL	07 04 1421	N23 E75	07 10.4		A	AX		1		3
5069	24659	MWIL	07 04 1430	N22 E73	07 10.2	3	(AP)					
5069		SVTO	07 05 0555	N24 E61	07 9.9		B	BXO	20	2	2	3
5069	24659	MWIL	07 05 1415	N22 E58	07 10.0	4	(BP)					
5069		HOLL	07 05 1435	N23 E58	07 10.1		A	AX	70	4	2	3
5069		RAMY	07 05 1537	N21 E58	07 10.1		A	AX	20	4	2	3
5069		PALE	07 05 1740	N23 E58	07 10.2		A	AX	20	4	2	3
5069		SVTO	07 06 0815	N23 E50	07 10.2		B	CSO	40	6	6	3
5069	24659	MWIL	07 06 1500	N22 E45	07 10.1	5	(B)					
5069		HOLL	07 06 1535	N22 E45	07 10.1		B	DAO	120	7	6	3
5069		BOUL	07 06 1555	N21 E43	07 9.9		B	DSI	110	6	4	2
5069		PALE	07 06 1830	N23 E42	07 10.0		B	DSO	200	3	5	3
5069		LEAR	07 07 0402	N23 E37	07 10.0		B	DAO	100	6	8	2
5069		SVTO	07 07 0858	N23 E35	07 10.1		B	DAI	170	9	7	2
5069		BOUL	07 07 1315	N21 E30	07 9.8		B	DAO	250	16	8	3
5069		HOLL	07 07 1323	N23 E32	07 10.0		B	DAO	240	15	9	3
5069		RAMY	07 07 1346	N22 E34	07 10.2		B	DAI	200	12	8	4
5069	24659	MWIL	07 07 1445	N22 E32	07 10.1	5	(BG)					
5069		LEAR	07 08 0005	N23 E26	07 10.0		B	DAI	180	16	9	4
5069		SVTO	07 08 0805	N23 E22	07 10.0		BG	DAI	200	11	8	2
5069		RAMY	07 08 1400	N22 E20	07 10.1		B	DAI	210	17	10	3
5069		HOLL	07 08 1427	N23 E19	07 10.1		BG	DAI	250	25	10	4
5069	24659	MWIL	07 08 1500	N22 E19	07 10.1	5	(BG)					
5069		BOUL	07 08 1545	N21 E16	07 9.9		B	DAI	270	32	10	1
5069		PALE	07 08 2010	N22 E15	07 10.0		B	EAI	240	20	11	3
5069		LEAR	07 09 0100	N23 E12	07 10.0		B	EAI	250	23	11	3
5069		CULG	07 09 0430	N23 E09	07 9.9		BG	DAI	260	19	10	2
5069		SVTO	07 09 0653	N23 E11	07 10.1		BG	EAI	360	31	11	3
5069		RAMY	07 09 1245	N23 E08	07 10.1		BG	EHC	510	30	12	3
5069		BOUL	07 09 1320	N22 E06	07 10.0		B	EHI	360	29	11	3
5069	24659	MWIL	07 09 1500	N22 E05	07 10.0	5	(B)					
5069		PALE	07 09 1747	N22 E05	07 10.1		B	EHI	400	27	11	2
5069		HOLL	07 09 2000	N23 E04	07 10.1		B	EHI	390	33	12	3
5069		LEAR	07 10 0015	N23 E00	07 10.0		B	EAI	400	29	12	2
5069		SVTO	07 10 0543	N23 W03	07 10.0		B	EHI	480	31	11	3
5069		RAMY	07 10 1232	N23 W06	07 10.0		BG	ESI	480	32	12	3
5069		BOUL	07 10 1315	N21 W07	07 10.0		B	ESI	330	40	15	4
5069	24659	MWIL	07 10 1500	N23 W08	07 10.0	5	(B)					
5069		HOLL	07 10 2318	N23 W11	07 10.1		B	EHO	340	30	12	2
5069		LEAR	07 11 0003	N23 W12	07 10.1		BG	ESO	360	23	12	3
5069		CULG	07 11 0415	N23 W16	07 9.9		BG	ESI	250	13	12	2
5069		SVTO	07 11 0545	N23 W13	07 10.2		BG	EHI	460	30	13	3
5069		BOUL	07 11 1323	N22 W19	07 10.1		B	ESI	260	15	11	2
5069		HOLL	07 11 1510	N23 W20	07 10.1		B	ESI	270	27	12	4
5069	24659	MWIL	07 11 1515	N23 W21	07 10.0	5	(B)					
5069		PALE	07 11 1850	N25 W24	07 9.9		B	ESI	270	20	11	3
5069		LEAR	07 12 0005	N26 W24	07 10.1		B	ESO	300	12	12	3
5069		CULG	07 12 0413	N23 W27	07 10.1		B	ESI	280	9	12	2
5069		SVTO	07 12 0511	N23 W27	07 10.1		B	EHI	300	10	12	3
5069		BOUL	07 12 1321	N22 W30	07 10.2		B	ESI	220	7	12	2
5069		HOLL	07 12 1340	N23 W33	07 10.0		B	ESO	240	12	12	4
5069		RAMY	07 12 1430	N24 W34	07 10.0		B	ESO	270	10	12	3

SUNSPOT GROUPS
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5069	24659	MWIL	07 12	1500	N23 W35	07 9.9	5	(B)					
5069		PALE	07 12	2115	N24 W36	07 10.1		B	ESO	240	7	11	2
5069		LEAR	07 13	0030	N23 W39	07 10.0		B	ESO	180	7	11	4
5069		CULG	07 13	0150	N23 W41	07 9.9		B	ESO	180	7	13	3
5069		SVTO	07 13	0635	N24 W43	07 9.9		B	ESO	260	9	12	3
5069		RAMY	07 13	1449	N24 W48	07 9.9		B	ESO	250	8	12	3
5069		HOLL	07 13	1500	N22 W48	07 9.9		B	ESO	530	12	12	3
5069	24659	MWIL	07 13	1500	N24 W46	07 10.1	5	(B)					
5069		BOUL	07 13	1525	N23 W45	07 10.2		B	ESO	270	8	14	3
5069		PALE	07 13	1825	N22 W49	07 10.0		B	ESO	220	4	13	3
5069		LEAR	07 14	0055	N24 W53	07 9.9		B	ESO	240	7	12	3
5069		CULG	07 14	0200	N22 W54	07 9.9		B	ESO	220	4	12	3
5069		SVTO	07 14	0746	N24 W57	07 9.9		B	ESO	150	5	12	3
5069		RAMY	07 14	1209	N24 W57	07 10.1		B	ESO	180	5	12	3
5069		BOUL	07 14	1335	N23 W56	07 10.2		B	ESO	140	4	15	1
5069	24659	MWIL	07 14	1415	N24 W58	07 10.1	5	(B)					
5069		PALE	07 14	1825	N24 W60	07 10.1		B	CSO	180	5	14	3
5069		HOLL	07 14	1909	N23 W60	07 10.2		B	CSO	140	5	14	2
5069		LEAR	07 15	0025	N25 W65	07 10.0		B	CSO	80	7	12	3
5069		CULG	07 15	0440	N21 W70	07 9.8		B	DSO	120	3	9	3
5069		SVTO	07 15	0630	N23 W74	07 9.6		A	HS	50	1	2	3
5069	24659	MWIL	07 15	1415	N23 W76	07 9.7	4	(BP)					
5069		BOUL	07 15	1445	N23 W75	07 9.8		A	HS	60	1	2	1
5069		HOLL	07 15	1556	N21 W78	07 9.7		A	HS	60	1	2	3
5069		PALE	07 15	1812	N22 W81	07 9.5		A	HS	30	1	2	3
5069		LEAR	07 16	0024	N24 W80	07 9.8		A	HS	30	1	5	3
5069A		BOUL	07 05	1317	N09 E55	07 9.7		A	AX	10	2	2	3
5069A		SVTO	07 06	0815	N10 E51	07 10.2		A	AX		1		3
5069A		BOUL	07 10	1315	N09 W06	07 10.1		B	BXO		2	1	4
5069B		BOUL	07 10	1315	S01 E04	07 10.8		A	AX		1		4
5069C		RAMY	07 06	1405	N22 E57	07 11.0		B	CAO	60	7	5	4
5069C		BOUL	07 10	1315	N21 E07	07 11.1		B	BXO		2	1	4
5069D		BOUL	07 10	1315	N27 E09	07 11.2		B	BXO		3	3	4
5070	24660	MWIL	07 05	1415	S14 E78	07 11.5	2	B					
5070		HOLL	07 05	1435	S13 E78	07 11.5		A	AX	10	1	1	3
5070		RAMY	07 05	1537	S16 E79	07 11.6		A	AX	20	1	1	3
5070		PALE	07 05	1740	S13 E79	07 11.7		A	AX	10	1	1	3
5070		SVTO	07 06	0815	S14 E70	07 11.6		B	BXO	20	3	5	3
5070		RAMY	07 06	1405	S15 E66	07 11.6		B	BXO	20	2	5	4
5070	24660	MWIL	07 06	1500	S13 E64	07 11.4	3	(B)					
5070		HOLL	07 06	1535	S13 E63	07 11.4		A	AX	20	3	6	3
5070		BOUL	07 06	1555	S13 E62	07 11.3		B	BXO		2	5	2
5070		PALE	07 06	1830	S13 E62	07 11.4		B	BXO	10	2	6	3
5070		SVTO	07 07	0858	S13 E53	07 11.4		B	BXO	20	2	6	2
5070		BOUL	07 07	1315	S14 E50	07 11.3		B	BXO		2	6	3
5070		HOLL	07 07	1323	S12 E51	07 11.4		B	BXO	10	2	7	3
5070		RAMY	07 07	1346	S14 E51	07 11.4		B	BXO	20	2	5	4
5070	24660	MWIL	07 07	1445	S13 E52	07 11.5	4	(B)					
5070		LEAR	07 08	0005	S13 E45	07 11.4		B	BXO	10	4	6	4
5070		SVTO	07 08	0805	S13 E43	07 11.6		B	BXO	10	2	7	2
5070		RAMY	07 08	1400	S14 E41	07 11.7		A	AX	10	1	1	3
5070		HOLL	07 08	1427	S12 E40	07 11.6		A	AX	10	2	1	4
5070	24660	MWIL	07 08	1500	S13 E40	07 11.6	3	(AF)					
5070		BOUL	07 08	1545	S14 E39	07 11.6		B	BXO		3	2	1
5070		PALE	07 08	2010	S12 E37	07 11.6		A	AX		1	1	3
5070		LEAR	07 09	0100	S13 E35	07 11.7		A	AX	10	1	1	3
5070		SVTO	07 09	0653	S13 E32	07 11.7		A	AX		1		3
5070		BOUL	07 09	1320	S15 E25	07 11.4		B	BXO		2	2	3
5070	24660	MWIL	07 09	1500	S13 E27	07 11.7	3	(AF)					
5070		PALE	07 09	1747	S13 E26	07 11.7		A	AX	10	1	1	2
5070		HOLL	07 09	2000	S13 E24	07 11.6		A	AX		1		3
5070		LEAR	07 10	0015	S13 E20	07 11.5		B	BXO	10	4	6	2
5070		BOUL	07 10	1315	S12 E09	07 11.2		A	AX	10	1		4
5070		HOLL	07 10	2318	S12 E04	07 11.3		A	AX		1		2

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

JULY 1988

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5070		HOLL	07 14 1909	S14 W45	07 11.4		A	AX	10	4	2	2
5070A		BOUL	07 10 1315	N03 E12	07 11.4		B	BXO		2	1	4
5072		LEAR	07 08 0005	N19 E48	07 11.7		A	AX	10	1	1	4
5072		SVTO	07 08 0805	N19 E44	07 11.7		A	AX	10	1	1	2
5072		RAMY	07 08 1400	N18 E42	07 11.8		A	AX	10	2	1	3
5072		HOLL	07 08 1427	N20 E41	07 11.7		A	AX	10	2	1	4
5072	24663	MWIL	07 08 1500	N20 E41	07 11.8	3	(AF)					
5072		BOUL	07 08 1545	N19 E38	07 11.5		B	BXO		2		1
5072		PALE	07 08 2010	N21 E37	07 11.7		A	AX	10	2	2	3
5072		LEAR	07 09 0100	N21 E36	07 11.8		A	AX	10	1	1	3
5072		BOUL	07 09 1320	N19 E28	07 11.7		A	AX		1		3
5072		SVTO	07 10 0543	N19 E18	07 11.6		A	AX	10	2	2	3
5072		BOUL	07 10 1315	N17 E14	07 11.6		B	BXO	10	9	4	4
5072		HOLL	07 10 2318	N19 E08	07 11.6		B	BXO	20	10	3	2
5072		BOUL	07 11 1323	N18 E01	07 11.6		A	AX	10	1	1	2
5072		HOLL	07 11 1510	N19 E00	07 11.6		A	AX		2	1	4
5072	24663	MWIL	07 11 1515	N18 E00	07 11.6	4	(AF)					
5072		PALE	07 11 1850	N18 W03	07 11.5		A	AX	10	2	2	3
5072		SVTO	07 12 0511	N19 W08	07 11.6		B	BXO	10	3	2	3
5072		HOLL	07 12 1340	N19 W13	07 11.6		A	AX		3	2	4
5072A		BOUL	07 05 1317	S29 E81	07 11.9		A	AX	10	1	1	3
5072B		BOUL	07 10 1315	N41 E21	07 12.3		B	BXO		2	2	4
5072C		BOUL	07 10 1315	N47 E23	07 12.5		B	BXO		2	3	4
5073		SVTO	07 09 0653	N28 E48	07 13.0		B	BXO		2	2	3
5073		RAMY	07 09 1245	N28 E42	07 12.8		B	BXO	10	3	3	3
5073		BOUL	07 09 1320	N26 E40	07 12.7		B	BXO	10	6	3	3
5073	24664	MWIL	07 09 1500	N28 E40	07 12.7	3	(BF)					
5073		PALE	07 09 1747	N29 E39	07 12.8		B	BXO	10	3	3	2
5073		HOLL	07 09 2000	N28 E38	07 12.8		B	BXO	10	9	5	3
5073		LEAR	07 10 0015	N28 E35	07 12.7		B	CRO	20	8	5	2
5073		SVTO	07 10 0543	N28 E34	07 12.9		B	DAO	50	11	6	3
5073		RAMY	07 10 1232	N28 E30	07 12.9		B	CRI	30	13	6	3
5073		BOUL	07 10 1315	N28 E30	07 12.9		B	DSO	40	18	10	4
5073	24664	MWIL	07 10 1500	N28 E28	07 12.8	4	(BG)					
5073		HOLL	07 10 2318	N28 E23	07 12.8		B	DSO	100	19	6	2
5073		LEAR	07 11 0003	N28 E23	07 12.8		B	DAO	80	11	7	3
5073		CULG	07 11 0415	N29 E20	07 12.7		B	DSO	40	10	6	2
5073		SVTO	07 11 0545	N28 E21	07 12.9		B	DSI	100	19	8	3
5073		BOUL	07 11 1323	N27 E15	07 12.7		B	DAI	100	12	8	2
5073		HOLL	07 11 1510	N28 E16	07 12.9		B	CAO	90	18	8	4
5073	24664	MWIL	07 11 1515	N27 E15	07 12.8	5	(BG)					
5073		PALE	07 11 1850	N28 E13	07 12.8		B	CAO	100	13	8	3
5073		LEAR	07 12 0005	N27 E13	07 13.0		B	CSO	110	17	7	3
5073		CULG	07 12 0413	N28 E07	07 12.7		B	DSI	70	12	7	2
5073		SVTO	07 12 0511	N27 E08	07 12.8		B	DSI	160	20	8	3
5073		BOUL	07 12 1321	N27 E03	07 12.8		B	DAI	70	15	8	2
5073		HOLL	07 12 1340	N28 E02	07 12.7		B	DAO	70	17	9	4
5073		RAMY	07 12 1430	N28 E03	07 12.8		B	DAI	100	16	9	3
5073	24664	MWIL	07 12 1500	N27 E03	07 12.8	5	(D)					
5073		PALE	07 12 2115	N28 W01	07 12.8		B	DSO	60	11	9	2
5073		LEAR	07 13 0030	N27 W04	07 12.7		B	DSI	90	9	8	4
5073		CULG	07 13 0150	N28 W03	07 12.8		B	DSI	80	11	7	3
5073		SVTO	07 13 0635	N28 W06	07 12.8		B	DSI	70	9	8	3
5073		RAMY	07 13 1449	N28 W11	07 12.7		B	DAI	100	9	8	3
5073	24664	MWIL	07 13 1500	N27 W10	07 12.8	5	(D)					
5073		HOLL	07 13 1500	N28 W10	07 12.8		B	EAI	80	17	12	3
5073		BOUL	07 13 1525	N27 W09	07 12.9		B	DSO	80	13	9	3
5073		PALE	07 13 1825	N28 W14	07 12.7		B	DAI	60	5	10	3
5073		LEAR	07 14 0055	N28 W15	07 12.9		B	DAO	140	15	9	3
5073		CULG	07 14 0200	N28 W18	07 12.7		B	DSI	130	10	9	3
5073		SVTO	07 14 0746	N28 W20	07 12.8		B	DSO	40	13	8	3
5073		RAMY	07 14 1209	N28 W22	07 12.8		B	DRI	90	15	9	3
5073		BOUL	07 14 1335	N27 W22	07 12.8		B	DAI	60	22	9	1

SUNSPOT GROUPS
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JULY 1988

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5073	24664	MWIL	07 14 1415	N28 W23	07 12.8	4	(B)					
5073		PALE	07 14 1825	N28 W27	07 12.6		B	CSO	70	8	10	3
5073		HOLL	07 14 1909	N27 W25	07 12.8		B	BXO	40	11	9	2
5073		LEAR	07 15 0025	N27 W27	07 12.9		B	DSO	30	6	10	3
5073		CULG	07 15 0440	N27 W32	07 12.7		B	DSO	40	4	7	3
5073		SVTO	07 15 0630	N27 W31	07 12.8		B	CSO	20	7	9	3
5073	24664	MWIL	07 15 1415	N28 W35	07 12.8	5	(B)					
5073		BOUL	07 15 1445	N26 W33	07 13.0		B	DSO	50	5	9	1
5073		HOLL	07 15 1556	N27 W36	07 12.8		B	DSO	30	9	9	3
5073		PALE	07 15 1812	N27 W37	07 12.9		B	DSO	50	10	9	3
5073		LEAR	07 16 0024	N27 W42	07 12.7		B	EAO	100	11	11	3
5073		CULG	07 16 0400	N26 W43	07 12.8		B	CSO	10	10	9	3
5073		SVTO	07 16 0702	N27 W43	07 12.9		B	DSO	70	10	10	3
5073		BOUL	07 16 1415	N28 W46	07 13.0		B	DAO	50	11	10	4
5073		HOLL	07 16 1421	N28 W48	07 12.8		B	CRO	30	7	9	3
5073	24664	MWIL	07 16 1515	N28 W48	07 12.9	4	(B)					
5073		PALE	07 16 1715	N27 W49	07 12.9		B	CSO	50	8	8	3
5073		LEAR	07 17 0020	N28 W55	07 12.7		B	CSO	50	8	14	4
5073		CULG	07 17 0350	N27 W58	07 12.6		A	AX		1		3
5073		SVTO	07 17 0545	N28 W56	07 12.9		B	CRO	50	5	9	3
5073		HOLL	07 17 1323	N29 W60	07 12.8		B	BXO	20	5	9	3
5073		BOUL	07 17 1325	N29 W59	07 12.9		B	BXO		8	13	3
5073	24664	MWIL	07 17 1430	N28 W60	07 12.9	4	(B)					
5073		PALE	07 17 1750	N28 W64	07 12.7		B	BXO	20	2	4	3
5073		LEAR	07 18 0022	N27 W72	07 12.4		A	AX	10	1	1	3
5073		SVTO	07 18 0535	N32 W72	07 12.5		A	AX	40	3	2	3
5073		BOUL	07 18 1321	N29 W75	07 12.7		B	BXO	30	2	4	2
5073		RAMY	07 18 1457	N29 W81	07 12.3		A	AX	10	1	1	2
5073	24664	MWIL	07 18 1530	N28 W79	07 12.5	2	X					
5073		PALE	07 18 1950	N28 W85	07 12.2		A	AX	20	1	2	3
5073		HOLL	07 18 2057	N29 W85	07 12.2		B	BXO	10	2	5	3
5071		RAMY	07 06 1405	N20 E85	07 13.1		A	HS	50	1	3	4
5071	24661	MWIL	07 06 1500	N23 E82	07 12.9	3	AP					
5071		HOLL	07 06 1535	N22 E82	07 12.9		A	AX	60	2	2	3
5071		BOUL	07 06 1555	N22 E78	07 12.6		A	HS	90	1	2	2
5071		PALE	07 06 1830	N23 E82	07 13.1		A	HS	120	2	2	3
5071		LEAR	07 07 0402	N22 E77	07 13.1		A	HA	20	2	1	2
5071		SVTO	07 07 0858	N24 E77	07 13.3		B	DAO	180	4	10	2
5071		BOUL	07 07 1315	N23 E71	07 13.0		B	ESO	210	7	13	3
5071		HOLL	07 07 1323	N25 E75	07 13.4		B	ESO	140	9	15	3
5071		RAMY	07 07 1346	N24 E76	07 13.4		B	EAO	150	4	11	4
5071	24661	MWIL	07 07 1445	N23 E75	07 13.4	5	(B					
5071		LEAR	07 08 0005	N23 E69	07 13.3		B	ESO	220	5	13	4
5071		SVTO	07 08 0805	N24 E65	07 13.3		B	DAO	200	11	10	2
5071		RAMY	07 08 1400	N23 E65	07 13.6		B	EAO	210	8	11	3
5071		HOLL	07 08 1427	N24 E62	07 13.4		B	ESO	150	12	15	4
5071	24661	MWIL	07 08 1500	N23 E62	07 13.4	5	(B)					
5071		BOUL	07 08 1545	N24 E59	07 13.2		B	ESI	140	8	11	1
5071		PALE	07 08 2010	N26 E60	07 13.5		B	ESI	230	9	12	3
5071		LEAR	07 09 0100	N25 E56	07 13.4		B	DSO	130	6	9	3
5071		CULG	07 09 0430	N24 E55	07 13.4		B	EAO	170	5	11	2
5071		SVTO	07 09 0653	N23 E55	07 13.5		B	EAO	200	13	11	3
5071		RAMY	07 09 1245	N24 E53	07 13.6		B	DAI	240	16	10	3
5071		BOUL	07 09 1320	N21 E47	07 13.1		B	EAI	180	12	14	3
5071	24661	MWIL	07 09 1500	N23 E49	07 13.4	5	(B)					
5071		PALE	07 09 1747	N25 E48	07 13.4		B	DAO	130	6	9	2
5071		HOLL	07 09 2000	N24 E47	07 13.5		B	DAO	200	8	10	3
5071		LEAR	07 10 0015	N24 E44	07 13.4		B	DAO	140	7	10	2
5071		SVTO	07 10 0543	N23 E43	07 13.5		B	DAO	170	6	10	3
5071		RAMY	07 10 1232	N23 E39	07 13.5		B	DSO	170	13	10	3
5071		BOUL	07 10 1315	N24 E37	07 13.4		B	EAI	170	12	14	4
5071	24661	MWIL	07 10 1500	N23 E35	07 13.3	5	(BG)					
5071		HOLL	07 10 2318	N24 E32	07 13.4		B	DSO	160	15	10	2
5071		LEAR	07 11 0003	N25 E32	07 13.5		B	DSO	180	13	10	3
5071		CULG	07 11 0415	N26 E28	07 13.3		B	DSO	130	15	10	2
5071		SVTO	07 11 0545	N24 E28	07 13.4		B	ESO	190	24	12	3
5071		BOUL	07 11 1323	N24 E24	07 13.4		B	EAI	180	19	11	2
5071		HOLL	07 11 1510	N25 E25	07 13.6		B	DSO	190	23	10	4

SUNSPOT GROUPS
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5071	24661	MWIL	07 11 1515	N23 E23	07 13.4	5	(B)					
5071		PALE	07 11 1850	N25 E24	07 13.6		B	DSI	150	19	10	3
5071		LEAR	07 12 0005	N22 E21	07 13.6		B	DAI	240	20	10	3
5071		CULG	07 12 0413	N25 E15	07 13.3		B	DSI	160	14	10	2
5071		SVTO	07 12 0511	N24 E15	07 13.4		B	ESI	220	22	12	3
5071		BOUL	07 12 1321	N24 E11	07 13.4		B	EAI	210	15	11	2
5071		HOLL	07 12 1340	N25 E11	07 13.4		B	EAI	200	24	10	4
5071		RAMY	07 12 1430	N24 E11	07 13.4		B	DAI	200	19	10	3
5071	24661	MWIL	07 12 1500	N23 E11	07 13.5	5	(BG)					
5071		PALE	07 12 2115	N25 E08	07 13.5		B	DSI	190	14	10	2
5071		LEAR	07 13 0030	N25 E05	07 13.4		B	DAI	120	13	9	4
5071		CULG	07 13 0150	N23 E04	07 13.4		B	ESI	180	10	10	3
5071		SVTO	07 13 0635	N23 E02	07 13.4		B	DAI	150	13	10	3
5071		RAMY	07 13 1449	N24 W04	07 13.3		B	DAI	170	20	10	3
5071	24661	MWIL	07 13 1500	N23 W01	07 13.5	5	(BG)					
5071		HOLL	07 13 1500	N24 W04	07 13.3		B	ESO	130	29	12	3
5071		BOUL	07 13 1525	N23 W03	07 13.4		B	EAI	200	22	11	3
5071		PALE	07 13 1825	N24 W02	07 13.6		B	ESO	180	15	11	3
5071		LEAR	07 14 0055	N23 W08	07 13.4		B	DAI	200	13	11	3
5071		CULG	07 14 0200	N23 W09	07 13.4		B	ESI	140	16	10	3
5071		SVTO	07 14 0746	N24 W12	07 13.4		B	EAO	110	12	11	3
5071		RAMY	07 14 1209	N24 W13	07 13.5		B	EAO	160	20	12	3
5071		BOUL	07 14 1335	N24 W14	07 13.5		B	EAO	50	24	12	1
5071	24661	MWIL	07 14 1415	N24 W14	07 13.5	4	(B)					
5071		PALE	07 14 1825	N23 W15	07 13.6		B	ESI	180	27	11	3
5071		HOLL	07 14 1909	N23 W17	07 13.5		B	CAO	110	31	11	2
5071		LEAR	07 15 0025	N24 W18	07 13.6		B	CSO	100	20	12	3
5071		CULG	07 15 0440	N22 W21	07 13.6		B	DSI	70	10	8	3
5071		SVTO	07 15 0630	N23 W23	07 13.5		B	CSI	100	23	12	3
5071	24661	MWIL	07 15 1415	N24 W26	07 13.6	5	(BG)					
5071		BOUL	07 15 1445	N23 W26	07 13.6		B	CSO	70	22	13	1
5071		HOLL	07 15 1556	N23 W27	07 13.6		B	CSO	80	16	11	3
5071		PALE	07 15 1812	N25 W26	07 13.7		B	CSO	90	21	11	3
5071		LEAR	07 16 0024	N24 W32	07 13.5		B	DSO	80	10	8	3
5071		CULG	07 16 0400	N23 W33	07 13.6		B	DSO	30	13	6	3
5071		SVTO	07 16 0702	N24 W34	07 13.7		B	DSI	120	16	7	3
5071		BOUL	07 16 1415	N24 W36	07 13.8		B	DAI	70	18	8	4
5071		HOLL	07 16 1421	N25 W38	07 13.6		B	CSO	50	16	8	3
5071	24661	MWIL	07 16 1515	N25 W38	07 13.7	4	(BF)					
5071		PALE	07 16 1715	N25 W39	07 13.7		B	CSO	90	20	9	3
5071		LEAR	07 17 0020	N25 W45	07 13.5		B	CRO	40	15	10	4
5071		CULG	07 17 0350	N23 W43	07 13.8		A	HR	20	2	1	3
5071		SVTO	07 17 0545	N25 W44	07 13.8		B	DRO	50	6	6	3
5071		HOLL	07 17 1323	N26 W50	07 13.7		B	BXO	20	7	5	3
5071		BOUL	07 17 1325	N26 W48	07 13.8		B	BXI		10	4	3
5071	24661	MWIL	07 17 1430	N26 W50	07 13.7	4	(BF)					
5071		PALE	07 17 1750	N26 W53	07 13.6		B	BXO	10	7	2	3
5071		LEAR	07 18 0022	N25 W56	07 13.7		B	CSO	50	5	4	3
5071		CULG	07 18 0520	N23 W58	07 13.7		A	AX	10	1	1	3
5071		SVTO	07 18 0535	N25 W58	07 13.7		A	AX	20	3	2	3
5071		BOUL	07 18 1321	N26 W60	07 13.9		B	BXO	10	2	1	2
5071		RAMY	07 18 1457	N26 W65	07 13.6		B	BXO	20	3	2	2
5071	24661	MWIL	07 18 1530	N26 W64	07 13.7	4	(BF)					
5071		PALE	07 18 1950	N24 W66	07 13.7		B	BXO	10	3	2	3
5071		HOLL	07 18 2057	N25 W67	07 13.7		A	AX	10	3	1	3
5071		LEAR	07 19 0037	N24 W74	07 13.3		A	AX	20	1	1	3
5071		HOLL	07 19 1348	N24 W79	07 13.5		A	AX	10	1	1	3
5071A		PALE	07 18 1950	S18 W66	07 13.8		A	AX	10	1	1	3
5079		BOUL	07 16 1415	S16 E01	07 16.7		A	AX		1		4
5079		HOLL	07 16 1421	S16 E01	07 16.7		A	AX		1		3
5079	24668	MWIL	07 16 1515	S16 E00	07 16.6	3	(B)					
5079		BOUL	07 17 1325	S16 W13	07 16.6		A	AX		1		3
5079		BOUL	07 18 1321	S16 W25	07 16.7		A	BXO	20	3	4	2
5079		RAMY	07 18 1457	S16 W29	07 16.4		B	BXO	20	2	3	2
5079	24668	MWIL	07 18 1530	S16 W27	07 16.6	4	(B)					
5079		PALE	07 18 1950	S17 W30	07 16.5		B	BXO	10	2	3	3
5079		LEAR	07 19 0037	S17 W34	07 16.4		B	CSO	20	4	4	3

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JULY 1988

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo Day	Time (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5079		CULG	07 19	0437	S15 W38	07 16.3		B	BXO	10	3	4	3
5079		SVTO	07 19	0555	S16 W38	07 16.4		B	CRO	20	3	3	3
5079		HOLL	07 19	1348	S17 W40	07 16.5		B	BXO	20	4	4	3
5079	24668	MWIL	07 19	1500	S16 W43	07 16.4	4	(BP)					
5079		RAMY	07 19	1505	S16 W43	07 16.4		B	BXO	20	3	3	3
5079		PALE	07 19	1715	S18 W45	07 16.3		A	AX		1	1	3
5079		LEAR	07 20	0042	S17 W47	07 16.4		B	DSO	40	5	4	4
5079		CULG	07 20	0410	S20 W50	07 16.3		B	BXO	10	4	4	3
5079		SVTO	07 20	0516	S17 W51	07 16.3		B	CRO	30	5	6	3
5079		BOUL	07 20	1330	S16 W54	07 16.5		B	CAO	90	7	4	4
5079		RAMY	07 20	1339	S16 W55	07 16.4		B	CRI	30	3	4	3
5079	24668	MWIL	07 20	1515	S16 W55	07 16.5	6	(B)					
5079		PALE	07 20	1730	S18 W57	07 16.4		B	CAO	100	6	4	3
5079		HOLL	07 20	2157	S16 W58	07 16.5		B	DAO	90	9	6	3
5079		LEAR	07 21	0108	S18 W61	07 16.4		B	DAO	190	9	5	3
5079		SVTO	07 21	0523	S16 W62	07 16.5		B	CSO	140	9	7	4
5079		BOUL	07 21	1326	S16 W65	07 16.6		B	DAI	120	13	10	3
5079		RAMY	07 21	1420	S16 W69	07 16.4		B	CRO	150	7	7	3
5079		HOLL	07 21	1532	S16 W70	07 16.3		B	DSO	180	13	9	4
5079	24668	MWIL	07 21	1630	S16 W69	07 16.4	4	(B)					
5079		PALE	07 21	1723	S17 W69	07 16.5		B	DAO	180	7	6	3
5079		LEAR	07 22	0309	S16 W78	07 16.2		B	DSO	90	3	6	1
5079		SVTO	07 22	0504	S16 W74	07 16.6		B	CKO	320	6	8	3
5079		CULG	07 22	0540	S18 W74	07 16.6		B	CSO	30	3	3	3
5079		BOUL	07 22	1332	S16 W77	07 16.7		B	DAI	110	3	5	2
5079		RAMY	07 22	1415	S14 W75	07 16.9		A	HS	50	3	2	2
5079		HOLL	07 22	1538	S16 W82	07 16.4		B	CSO	80	7	7	4
5079	24668	MWIL	07 22	1600	S16 W80	07 16.6	3	B					
5079		PALE	07 22	1714	S17 W81	07 16.6		A	AX	30	2	2	3
5074		HOLL	07 10	2318	S15 E84	07 17.3		A	HS	120	1	2	2
5074		LEAR	07 11	0003	S15 E83	07 17.3		A	HS	90	1	4	3
5074		CULG	07 11	0415	S14 E85	07 17.6		A	HS	100	1	1	2
5074		SVTO	07 11	0545	S15 E79	07 17.2		A	HH	120	1	3	3
5074		BOUL	07 11	1323	S18 E75	07 17.3		B	EHO	250	2	11	2
5074		HOLL	07 11	1510	S16 E75	07 17.3		B	DHO	210	2	10	4
5074	24666	MWIL	07 11	1515	S16 E73	07 17.2	5	(AP)					
5074		PALE	07 11	1850	S16 E78	07 17.7		B	DHO	240	2	9	3
5074		LEAR	07 12	0005	S16 E71	07 17.4		B	FKO	420	6	22	3
5074		CULG	07 12	0413	S18 E70	07 17.5		B	EHO	210	3	12	2
5074		SVTO	07 12	0511	S18 E69	07 17.5		B	EHI	460	5	14	3
5074		BOUL	07 12	1321	S18 E63	07 17.3		B	EKO	400	3	12	2
5074		HOLL	07 12	1340	S15 E61	07 17.2		A	HA	60	2	2	4
5074		RAMY	07 12	1430	S16 E61	07 17.2		A	HS	100	1	2	3
5074	24666	MWIL	07 12	1500	S16 E60	07 17.2	5	(AP)					
5074		PALE	07 12	2115	S13 E57	07 17.2		A	HA	90	2	3	2
5074		LEAR	07 13	0030	S14 E54	07 17.1		A	HS	70	1	2	4
5074		CULG	07 13	0150	S14 E55	07 17.2		A	HS	70	1	2	3
5074		SVTO	07 13	0635	S16 E53	07 17.3		A	HS	100	1	2	3
5074		RAMY	07 13	1449	S14 E48	07 17.2		A	HS	100	1	2	3
5074		HOLL	07 13	1500	S14 E48	07 17.2		A	HS	90	1	2	3
5074	24666	MWIL	07 13	1500	S16 E47	07 17.2	5	(AP)					
5074		BOUL	07 13	1525	S15 E45	07 17.0		A	HS	150	1	2	3
5074		PALE	07 13	1825	S13 E46	07 17.2		A	HS	120	1	2	3
5074		LEAR	07 14	0055	S15 E42	07 17.2		A	HS	40	1	2	3
5074		CULG	07 14	0200	S14 E42	07 17.2		A	HS	90	1	2	3
5074		SVTO	07 14	0746	S15 E38	07 17.2		A	HS	90	1	2	3
5074		RAMY	07 14	1209	S15 E36	07 17.2		A	HS	120	1	2	3
5074		BOUL	07 14	1335	S15 E33	07 17.1		A	HS	100	1	2	1
5074	24666	MWIL	07 14	1415	S16 E36	07 17.3	5	(AP)					
5074		PALE	07 14	1825	S13 E32	07 17.2		A	HS	30	1	2	3
5074		HOLL	07 14	1909	S16 E32	07 17.2		A	HS	100	1	2	2
5074		LEAR	07 15	0025	S18 E29	07 17.2		A	HS	70	1	2	3
5074		CULG	07 15	0440	S14 E27	07 17.2		A	HS	40	1	1	3
5074		SVTO	07 15	0630	S17 E26	07 17.2		A	HS	110	1	2	3
5074	24666	MWIL	07 15	1415	S16 E22	07 17.3	5	(AP)					
5074		BOUL	07 15	1445	S15 E20	07 17.1		A	HS	70	1	1	1
5074		HOLL	07 15	1556	S15 E21	07 17.2		A	HS	90	1	2	3
5074		PALE	07 15	1812	S16 E20	07 17.3		A	HS	70	1	2	3

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5074		LEAR	07 16 0024	S17 E15	07 17.1		A	HS	80	2	2	3
5074		CULG	07 16 0400	S15 E15	07 17.3		A	HS	80	1	2	3
5074		SVTO	07 16 0702	S16 E13	07 17.3		A	HS	60	3	3	3
5074		BOUL	07 16 1415	S14 E09	07 17.3		B	CSO	70	4	5	4
5074		HOLL	07 16 1421	S14 E08	07 17.2		A	HS	70	1	2	3
5074	24666	MWIL	07 16 1515	S15 E08	07 17.2	5	(AP)					
5074		PALE	07 16 1715	S15 E08	07 17.3		A	HS	60	1	2	3
5074		LEAR	07 17 0020	S15 E02	07 17.2		A	HS	90	1	2	4
5074		CULG	07 17 0350	S14 E02	07 17.3		A	HS	40	1	1	3
5074		SVTO	07 17 0545	S15 W01	07 17.2		A	HS	60	2	2	3
5074		HOLL	07 17 1323	S16 W03	07 17.3		B	CSO	70	3	4	3
5074		BOUL	07 17 1325	S14 W04	07 17.2		B	CSO	80	4	4	3
5074	24666	MWIL	07 17 1430	S15 W04	07 17.3	5	(AP)					
5074		PALE	07 17 1750	S15 W07	07 17.2		B	CSO	80	3	3	3
5074		LEAR	07 18 0022	S16 W09	07 17.3		B	CSO	90	7	5	3
5074		CULG	07 18 0520	S17 W13	07 17.2		A	HS	30	1	1	3
5074		SVTO	07 18 0535	S14 W13	07 17.2		A	HS	70	1	2	3
5074		BOUL	07 18 1321	S14 W17	07 17.3		A	HS	70	1	2	2
5074		RAMY	07 18 1457	S15 W19	07 17.2		A	HS	70	1	2	2
5074	24666	MWIL	07 18 1530	S15 W19	07 17.2	5	(AP)					
5074		PALE	07 18 1950	S16 W21	07 17.2		A	HS	80	1	2	3
5074		HOLL	07 18 2057	S16 W21	07 17.3		B	CSO	40	2	3	3
5074		LEAR	07 19 0037	S16 W25	07 17.1		B	HS	90	2	2	3
5074		CULG	07 19 0437	S18 W27	07 17.1		A	HS	70	1	2	3
5074		SVTO	07 19 0555	S15 W27	07 17.2		A	HS	70	1	2	3
5074		HOLL	07 19 1348	S15 W31	07 17.2		A	HS	20	1	2	3
5074	24666	MWIL	07 19 1500	S15 W32	07 17.2	5	(AP)					
5074		RAMY	07 19 1505	S15 W32	07 17.2		A	HS	70	1	2	3
5074		PALE	07 19 1715	S16 W32	07 17.3		A	HS	70	1	2	3
5074		LEAR	07 20 0042	S16 W37	07 17.2		A	HS	50	1	2	4
5074		CULG	07 20 0410	S19 W39	07 17.2		A	AX	70	1	2	3
5074		SVTO	07 20 0516	S15 W40	07 17.2		A	HS	80	1	2	3
5074		BOUL	07 20 1330	S14 W43	07 17.3		A	HS	80	1	2	4
5074		RAMY	07 20 1339	S15 W45	07 17.2		A	HS	90	1	2	3
5074	24666	MWIL	07 20 1515	S15 W45	07 17.2	5	(AP)					
5074		PALE	07 20 1730	S16 W47	07 17.2		A	HS	90	1	2	3
5074		HOLL	07 20 2157	S15 W49	07 17.2		A	HS	90	1	2	3
5074		LEAR	07 21 0108	S17 W50	07 17.2		A	HS	100	1	2	3
5074		SVTO	07 21 0523	S15 W54	07 17.1		A	HS	80	1	2	4
5074		BOUL	07 21 1326	S15 W56	07 17.3		A	HS	80	1	2	3
5074		RAMY	07 21 1420	S15 W58	07 17.2		A	HS	80	1	2	3
5074		HOLL	07 21 1532	S15 W59	07 17.2		A	HS	80	1	2	4
5074	24666	MWIL	07 21 1630	S15 W59	07 17.2	5	(AP)					
5074		PALE	07 21 1723	S16 W60	07 17.2		A	HS	90	1	2	3
5074		LEAR	07 22 0309	S15 W67	07 17.0		A	HS	40	1	2	1
5074		SVTO	07 22 0504	S14 W65	07 17.3		A	HS	50	1	2	3
5074		CULG	07 22 0540	S17 W65	07 17.3		A	HS	60	1	1	3
5074		BOUL	07 22 1332	S15 W69	07 17.3		A	HA	80	1	1	2
5074		RAMY	07 22 1415	S13 W68	07 17.5		A	HS	60	1	2	2
5074		HOLL	07 22 1538	S15 W71	07 17.3		A	HS	60	1	2	4
5074	24666	MWIL	07 22 1600	S15 W71	07 17.3	4	AP					
5074		PALE	07 22 1714	S16 W73	07 17.2		A	HS	60	1	2	3
5074		LEAR	07 23 0009	S15 W76	07 17.2		A	HS	60	1	2	3
5074		CULG	07 23 0220	S16 W76	07 17.3		A	HS	60	1	1	2
5074		SVTO	07 23 0722	S14 W79	07 17.3		A	HS	30	1	2	4
5074		CULG	07 24 0310	S17 W89	07 17.4		A	HS	40	1	1	3
5078		LEAR	07 17 0020	N37 E12	07 18.0		A	AX	10	3	2	4
5078		SVTO	07 17 0545	N35 E08	07 17.9		B	BXO	10	2	2	3
5078		HOLL	07 17 1323	N38 E05	07 18.0		A	AX		2	1	3
5078	24670	MWIL	07 17 1430	N38 E06	07 18.1	3	(AP)					
5078		LEAR	07 18 0022	N37 W01	07 17.9		A	AX	10	1	1	3
5078		SVTO	07 18 0535	N37 W03	07 18.0		B	BXO	10	2	2	3
5075	24667	MWIL	07 11 1515	S22 E82	07 17.9	5	(AP)					
5075		HOLL	07 12 1340	S20 E71	07 18.0		B	EKO	480	11	13	4
5075		RAMY	07 12 1430	S22 E72	07 18.1		B	EKO	590	9	15	3
5075	24667	MWIL	07 12 1500	S22 E69	07 17.9	5	(AP					
5075		PALE	07 12 2115	S19 E68	07 18.1		B	EKI	680	10	12	2

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5075		LEAR	07 13 0030	S20 E66	07 18.1		B	EKI	400	15	11	4
5075		CULG	07 13 0150	S21 E65	07 18.0		B	EKI	1200	9	12	3
5075		SVTO	07 13 0635	S22 E63	07 18.1		B	EKC	900	15	12	3
5075		RAMY	07 13 1449	S20 E59	07 18.1		B	EKI	1120	22	11	3
5075		HOLL	07 13 1500	S18 E60	07 18.2		B	FKI	690	36	16	3
5075	24667	MWIL	07 13 1500	S23 E57	07 18.0	6	(D)					
5075		BOUL	07 13 1525	S21 E58	07 18.1		B	EKI	1250	29	12	3
5075		PALE	07 13 1825	S18 E54	07 17.9		B	EKI	900	24	10	3
5075		LEAR	07 14 0055	S22 E53	07 18.1		BG	EKI	900	25	12	3
5075		CULG	07 14 0200	S20 E53	07 18.1		B	EKI	1000	11	12	3
5075		SVTO	07 14 0746	S21 E50	07 18.1		B	EKI	1100	32	12	3
5075		RAMY	07 14 1209	S22 E46	07 18.0		BGD	EKI	1250	30	11	3
5075		BOUL	07 14 1335	S21 E43	07 17.9		B	EKC	870	34	12	1
5075	24667	MWIL	07 14 1415	S22 E46	07 18.1	6	(D)					
5075		PALE	07 14 1825	S22 E43	07 18.1		B	EKI	1200	41	12	3
5075		HOLL	07 14 1909	S21 E44	07 18.2		B	EKI	1330	30	12	2
5075		LEAR	07 15 0025	S24 E40	07 18.1		B	EHI	1060	25	12	3
5075		CULG	07 15 0440	S21 E38	07 18.1		BG	EKI	900	20	11	3
5075		SVTO	07 15 0630	S23 E37	07 18.1		B	EKI	1200	39	12	3
5075	24667	MWIL	07 15 1415	S23 E33	07 18.1	6	(BG)					
5075		BOUL	07 15 1445	S22 E31	07 18.0		B	EKC	850	31	11	1
5075		HOLL	07 15 1556	S21 E33	07 18.2		B	EKI	1200	38	12	3
5075		PALE	07 15 1812	S22 E32	07 18.2		BG	EKI	1140	32	14	3
5075		LEAR	07 16 0024	S22 E28	07 18.2		BG	EKI	960	31	13	3
5075		CULG	07 16 0400	S20 E26	07 18.1		BG	EHI	1100	42	14	3
5075		SVTO	07 16 0702	S22 E25	07 18.2		BG	EKC	1140	40	14	3
5075		BOUL	07 16 1415	S21 E18	07 18.0		B	EKC	1040	74	11	4
5075		HOLL	07 16 1421	S21 E20	07 18.1		B	EKI	2240	57	13	3
5075	24667	MWIL	07 16 1515	S21 E19	07 18.1	6	(BG)					
5075		PALE	07 16 1715	S22 E19	07 18.2		B	EKI	1190	54	15	3
5075		LEAR	07 17 0020	S21 E14	07 18.1		BG	EKI	1250	51	13	4
5075		CULG	07 17 0350	S20 E14	07 18.2		BG	EKI	900	20	11	3
5075		SVTO	07 17 0545	S22 E12	07 18.2		BG	EKC	1350	61	13	3
5075		HOLL	07 17 1323	S21 E08	07 18.2		B	EKI	1380	52	13	3
5075		BOUL	07 17 1325	S19 E07	07 18.1		B	EKC	990	82	13	3
5075	24667	MWIL	07 17 1430	S21 E06	07 18.1	6	(D)					
5075		PALE	07 17 1750	S22 E05	07 18.1		BG	EKI	1010	64	13	3
5075		LEAR	07 18 0022	S22 E01	07 18.1		BG	EKI	60	96	15	3
5075		CULG	07 18 0520	S22 W02	07 18.1		B	EKI	500	19	11	3
5075		SVTO	07 18 0535	S20 W03	07 18.0		BG	EKC	100	43	15	3
5075		BOUL	07 18 1321	S19 W08	07 17.9		B	EKC	930	59	13	2
5075		RAMY	07 18 1457	S21 W09	07 17.9		B	EKC	750	42	15	2
5075	24667	MWIL	07 18 1530	S21 W08	07 18.0	6	(D)					
5075		PALE	07 18 1950	S21 W09	07 18.1		B	EKC	900	49	13	3
5075		HOLL	07 18 2057	S21 W12	07 17.9		BG	FKI	730	64	16	3
5075		LEAR	07 19 0037	S22 W14	07 17.9		BG	FKI	1170	75	17	3
5075		CULG	07 19 0437	S21 W15	07 18.0		B	EKO	670	28	14	3
5075		SVTO	07 19 0555	S17 W21	07 17.6		B	EKC	1260	56	14	3
5075		HOLL	07 19 1348	S20 W19	07 18.1		B	EKO	710	42	14	3
5075	24667	MWIL	07 19 1500	S21 W22	07 17.9	6	(D)					
5075		RAMY	07 19 1505	S22 W21	07 18.0		B	EKC	760	43	14	3
5075		PALE	07 19 1715	S21 W21	07 18.1		B	EKI	830	37	14	3
5075		LEAR	07 20 0042	S20 W27	07 18.0		B	EKI	830	44	16	4
5075		CULG	07 20 0410	S22 W26	07 18.2		B	EHO	640	21	14	3
5075		SVTO	07 20 0516	S21 W31	07 17.8		B	EKC	830	35	14	3
5075		BOUL	07 20 1330	S18 W32	07 18.1		B	EKC	1120	52	14	4
5075		RAMY	07 20 1339	S20 W33	07 18.0		B	EKI	1070	33	14	3
5075	24667	MWIL	07 20 1515	S21 W36	07 17.9	6	(D)					
5075		PALE	07 20 1730	S23 W34	07 18.1		B	EKI	830	27	13	3
5075		HOLL	07 20 2157	S20 W36	07 18.2		B	FKO	770	31	17	3
5075		LEAR	07 21 0108	S22 W38	07 18.1		B	FKI	640	31	17	3
5075		SVTO	07 21 0523	S23 W42	07 18.0		B	EKI	770	25	15	4
5075		BOUL	07 21 1326	S21 W44	07 18.2		B	FHC	610	18	18	3
5075		RAMY	07 21 1420	S20 W45	07 18.1		B	EKI	720	17	14	3
5075		HOLL	07 21 1532	S22 W47	07 18.0		B	FHO	720	22	17	4
5075	24667	MWIL	07 21 1630	S21 W50	07 17.8	6	(B)					
5075		PALE	07 21 1723	S23 W46	07 18.2		B	EKI	560	18	14	3
5075		LEAR	07 22 0309	S20 W53	07 18.1		B	FKI	470	11	19	1
5075		SVTO	07 22 0504	S22 W51	07 18.3		B	EHI	450	17	13	3

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5075		CULG	07 22 0540	S22 W54	07 18.1		B	EHO	340	16	12	3
5075		BOUL	07 22 1332	S21 W57	07 18.2		B	FHI	560	12	19	2
5075		RAMY	07 22 1415	S19 W58	07 18.2		B	EKI	400	11	14	2
5075		HOLL	07 22 1538	S22 W60	07 18.0		B	FHO	560	17	17	4
5075	24667	MWIL	07 22 1600	S21 W61	07 18.0	6	(B)					
5075		PALE	07 22 1714	S23 W60	07 18.1		B	FKO	460	9	16	3
5075		LEAR	07 23 0009	S20 W66	07 17.9		B	FKI	520	9	17	3
5075		CULG	07 23 0220	S22 W68	07 17.9		B	EHO	240	4	12	2
5075		SVTO	07 23 0722	S23 W67	07 18.1		B	FKI	430	10	22	4
5075		BOUL	07 23 1340	S20 W68	07 18.4		B	EHI	310	6	12	2
5075		HOLL	07 23 1515	S21 W70	07 18.3		B	CKO	350	6	13	4
5075	24667	MWIL	07 23 1530	S22 W75	07 17.9	6	(B)					
5075		RAMY	07 23 1540	S20 W72	07 18.1		B	EHI	330	5	12	3
5075		PALE	07 23 1920	S23 W75	07 18.0		B	DKO	230	3	8	2
5075		LEAR	07 24 0009	S21 W78	07 18.0		B	HH	300	1	3	/
5075		CULG	07 24 0310	S22 W80	07 18.0		B	EHO	470	16	12	3
5075		CULG	07 24 0330	S21 W80	07 18.0			HH	100	1	3	3
5076		BOUL	07 16 1415	S16 E23	07 18.3		B	CRO	10	14	7	4
5076		HOLL	07 16 1421	S15 E25	07 18.5		B	BXO	20	8	4	3
5076	24669	MWIL	07 16 1515	S15 E24	07 18.4	4	(B)					
5076		PALE	07 16 1715	S15 E23	07 18.5		B	CAO	60	8	5	3
5076		LEAR	07 17 0020	S15 E18	07 18.4		B	DRO	30	11	5	4
5076		CULG	07 17 0350	S13 E18	07 18.5		B	CRO	10	2	4	3
5076		SVTO	07 17 0545	S16 E16	07 18.4		B	DRO	50	6	5	3
5076		HOLL	07 17 1323	S15 E12	07 18.5		B	BXO	20	10	6	3
5076		BOUL	07 17 1325	S14 E12	07 18.5		B	BXI	10	13	5	3
5076	24669	MWIL	07 17 1430	S15 E12	07 18.5	4	(B)					
5076		PALE	07 17 1750	S15 E10	07 18.5		B	BXO	30	14	6	3
5076		LEAR	07 18 0022	S15 E06	07 18.5		B	DAO	1300	14	6	3
5076		CULG	07 18 0520	S17 E03	07 18.4		B	CRO	10	5	5	3
5076		SVTO	07 18 0535	S15 E03	07 18.4		B	DSO	50	8	6	3
5076		BOUL	07 18 1321	S14 W01	07 18.5		B	CSO	40	5	4	2
5076		RAMY	07 18 1457	S14 W03	07 18.4		B	CAO	30	4	4	2
5076	24669	MWIL	07 18 1530	S15 W03	07 18.4	4	(B)					
5076		PALE	07 18 1950	S15 W04	07 18.5		B	CSO	30	4	5	3
5076		HOLL	07 18 2057	S15 W06	07 18.4		B	CSO	20	7	6	3
5076		LEAR	07 19 0037	S15 W07	07 18.5		B	CSO	40	5	4	3
5076		CULG	07 19 0437	S16 W08	07 18.6		A	HS	10	3	1	3
5076		SVTO	07 19 0555	S15 W12	07 18.3		B	CRO	30	8	6	3
5076		HOLL	07 19 1348	S14 W14	07 18.5		B	CRO	10	5	4	3
5076	24669	MWIL	07 19 1500	S15 W15	07 18.5	4	(B)					
5076		RAMY	07 19 1505	S15 W15	07 18.5		B	BXO	10	2	3	3
5076		PALE	07 19 1715	S15 W16	07 18.5		B	BXO		2	4	3
5076		LEAR	07 20 0042	S15 W23	07 18.3		B	CRO	30	3	2	4
5076		SVTO	07 20 0516	S13 W23	07 18.5		B	BXO	10	4	6	3
5076		BOUL	07 20 1330	S13 W27	07 18.5		B	BXO	10	3	4	4
5076		RAMY	07 20 1339	S14 W27	07 18.5		B	BXO		2	3	3
5076	24669	MWIL	07 20 1515	S14 W29	07 18.4	3	(BF)					
5076		PALE	07 20 1730	S13 W28	07 18.6		B	BXO	10	3	3	3
5076		SVTO	07 21 0523	S13 W35	07 18.6		B	BXO	10	2	1	4
5081		LEAR	07 18 0022	S20 E24	07 19.8		A	AX	10	1	1	3
5081		CULG	07 20 0410	S21 W11	07 19.3		B	BXO	10	2	1	3
5081		SVTO	07 20 0516	S22 W14	07 19.1		B	DRO	20	3	2	3
5081		BOUL	07 20 1330	S20 W17	07 19.3		B	BXO	30	5	3	4
5081		RAMY	07 20 1339	S21 W18	07 19.2		B	BXO	10	4	3	3
5081	24675	MWIL	07 20 1515	S22 W18	07 19.2	3	(B)					
5081		PALE	07 20 1730	S21 W19	07 19.3		B	BXO	20	3	3	3
5081		HOLL	07 20 2157	S21 W22	07 19.2		B	BXO	10	2	3	3
5081		LEAR	07 21 0108	S22 W22	07 19.3		B	BXO	10	2	3	3
5081		SVTO	07 21 0523	S22 W25	07 19.3		B	BXO	10	4	4	4
5081		BOUL	07 21 1326	S21 W30	07 19.2		B	CAO	30	5	2	3
5081		RAMY	07 21 1420	S21 W31	07 19.2		B	BXO	30	4	2	3
5081		HOLL	07 21 1532	S21 W33	07 19.1		B	BXO	30	5	3	4
5081	24675	MWIL	07 21 1630	S21 W33	07 19.1	5	(B)					
5081		PALE	07 21 1723	S22 W33	07 19.2		B	BXO	30	4	3	3
5081		LEAR	07 22 0309	S21 W39	07 19.1		B	CSO	30	3	4	1
5081		SVTO	07 22 0504	S22 W37	07 19.4		B	CRI	40	8	4	3

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

JULY 1988

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5081		CULG	07 22 0540	S22 W38	07 19.3		B	CSO	20	3	3	3
5081		BOUL	07 22 1332	S20 W44	07 19.2		B	BXO		9	5	2
5081		RAMY	07 22 1415	S20 W43	07 19.3		B	BXO	20	5	4	2
5081		HOLL	07 22 1538	S20 W45	07 19.2		B	BXO	20	8	5	4
5081	24675	MWIL	07 22 1600	S21 W46	07 19.1	4	(B)					
5081		PALE	07 22 1714	S22 W47	07 19.1		B	BXO	20	5	6	3
5081		LEAR	07 23 0009	S22 W53	07 18.9		B	DSO	60	9	10	3
5081		SVTO	07 23 0722	S22 W53	07 19.2		B	BXO	10	2	2	4
5081		BOUL	07 23 1340	S21 W56	07 19.3		A	AX		1		2
5081		HOLL	07 23 1515	S20 W58	07 19.2		B	BXO	10	3	4	4
5081	24675	MWIL	07 23 1530	S21 W58	07 19.2	4	(B)					
5081		RAMY	07 23 1540	S22 W58	07 19.2		A	AX	10	1	1	3
5081		CULG	07 24 0310	S22 W67	07 19.0		B	BXO	10	4	3	3
5081		SVTO	07 24 0526	S21 W66	07 19.2		B	BXO		2	3	3
5081		HOLL	07 24 1530	S20 W70	07 19.3		A	AX		1		4
5081A	24671	MWIL	07 17 1430	N42 E33	07 20.3	3	(AP)					
5081B	24674	MWIL	07 19 1500	S25 E19	07 21.1	4	(BP)					
5081B	24674	MWIL	07 20 1515	S24 E06	07 21.1	4	(AP)					
5088		SVTO	07 23 0722	N22 W26	07 21.3		B	BXO	10	5	3	4
5088		HOLL	07 23 1515	N21 W32	07 21.2		B	DRO	40	5	4	4
5088	24680	MWIL	07 23 1530	N21 W32	07 21.2	5	(B)					
5088		RAMY	07 23 1540	N22 W33	07 21.1		B	DAO	50	3	3	3
5088		LEAR	07 24 0009	N21 W37	07 21.2		B	DSO	60	7	5	/
5088		CULG	07 24 0330	N22 W37	07 21.3		B	BXO	10	4	5	3
5088		SVTO	07 24 0526	N22 W39	07 21.2		B	CRO	20	10	4	3
5088		BOUL	07 24 1340	N21 W43	07 21.3		B	DSO	30	6	7	3
5088	24680	MWIL	07 24 1430	N22 W45	07 21.1	4	(B)					
5088		RAMY	07 24 1500	N21 W43	07 21.3		B	BXO	20	4	5	2
5088		HOLL	07 24 1530	N22 W44	07 21.3		B	BXO	10	6	5	4
5088		LEAR	07 25 0012	N22 W50	07 21.2		B	BXO	20	3	8	3
5088		RAMY	07 25 1400	N21 W59	07 21.1		A	AX	10	1	1	4
5087	24677	MWIL	07 22 1600	S23 W10	07 21.9	3	(BG)					
5087		PALE	07 22 1714	S22 W10	07 21.9		A	AX	10	3	2	3
5087		LEAR	07 23 0009	S23 W14	07 21.9		B	CSO	20	4	4	3
5087		CULG	07 23 0220	S22 W13	07 22.1		B	BXO	10	3	3	2
5087		SVTO	07 23 0722	S23 W17	07 22.0		B	BXO	30	14	6	4
5087		BOUL	07 23 1340	S22 W20	07 22.0		B	CRI	10	10	7	2
5087		HOLL	07 23 1515	S22 W23	07 21.9		B	CRI	30	12	7	4
5087	24677	MWIL	07 23 1530	S23 W22	07 21.9	5	(BG)					
5087		RAMY	07 23 1540	S22 W21	07 22.0		B	BXO	40	9	7	3
5087		PALE	07 23 1920	S23 W22	07 22.1		B	CRO	70	11	8	2
5087		LEAR	07 24 0009	S23 W27	07 21.9		B	DSO	60	13	7	/
5087		CULG	07 24 0330	S23 W29	07 21.9		A	AX	10	1	1	3
5087		SVTO	07 24 0526	S23 W31	07 21.8		B	DSO	50	9	5	3
5087		BOUL	07 24 1340	S21 W35	07 21.9		B	DRO	30	4	8	3
5087	24677	MWIL	07 24 1430	S23 W37	07 21.7	4	(BP)					
5087		RAMY	07 24 1500	S25 W32	07 22.1		B	BXO	20	5	7	2
5087		HOLL	07 24 1530	S22 W36	07 21.9		B	BXO	20	9	6	4
5087		LEAR	07 25 0012	S22 W41	07 21.8		B	CSO	10	5	10	3
5087		CULG	07 25 0430	S22 W49	07 21.4		A	AX	10	1	1	4
5087		SVTO	07 25 0725	S21 W49	07 21.5		B	BXO	10	2	2	3
5087		RAMY	07 25 1400	S23 W48	07 21.9		B	BXO	40	4	5	4
5087		BOUL	07 25 1523	S21 W48	07 22.0		B	CSO	30	4	8	2
5087		HOLL	07 25 1528	S20 W52	07 21.7		B	BXO	40	3	4	3
5087	24677	MWIL	07 25 1630	S22 W52	07 21.7	5	(BP)					
5087		PALE	07 25 2129	S24 W57	07 21.5		B	BXO	10	3	6	3
5087		LEAR	07 26 0045	S21 W56	07 21.7		B	CRO	20	3	6	2
5087		CULG	07 26 0310	S24 W64	07 21.2		A	AX	10	1	1	3
5087		SVTO	07 26 0735	S21 W62	07 21.6		B	BXO	10	2	4	3
5087	24677	MWIL	07 26 1430	S22 W65	07 21.6	4	(BP)					
5087		RAMY	07 26 1540	S23 W61	07 21.9		B	BXO	40	4	4	2
5087		PALE	07 26 1710	S25 W63	07 21.8		A	AX	10	1	1	3
5087		LEAR	07 27 0050	S23 W65	07 22.0		A	AX	10	2	2	3
5087		CULG	07 27 0402	S23 W70	07 21.8		A	AX	10	1	1	3
5087		SVTO	07 27 0715	S23 W69	07 22.0		A	AX	10	1		3

SUNSPOT GROUPS
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JULY 1988

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5087	24677	MWIL	07	27	1445	S22	W74	07	21.9	3	AP					
5082		SVTO	07	20	0516	N26	E25	07	22.2		A	AX		1		3
5082		BOUL	07	20	1330	N26	E21	07	22.2		B	BXO	30	5	3	4
5082		RAMY	07	20	1339	N25	E21	07	22.2		B	BXO	10	4	4	3
5082	24676	MWIL	07	20	1515	N25	E20	07	22.2	4	(B)					
5082		PALE	07	20	1730	N25	E21	07	22.3		B	BXO	20	4	4	3
5082		HOLL	07	20	2157	N25	E17	07	22.2		B	BXO	20	8	4	3
5082		LEAR	07	21	0108	N24	E16	07	22.3		B	DRO	20	7	4	3
5082		SVTO	07	21	0523	N25	E12	07	22.1		B	CRO	40	11	5	4
5082		BOUL	07	21	1326	N24	E08	07	22.2		B	DAO	50	10	5	3
5082		RAMY	07	21	1420	N25	E06	07	22.1		B	CRI	30	11	6	3
5082		HOLL	07	21	1532	N25	E06	07	22.1		B	BXO	20	9	4	4
5082	24676	MWIL	07	21	1630	N24	E05	07	22.1	5	(B)					
5082		PALE	07	21	1723	N25	E05	07	22.1		B	BXO	20	10	6	3
5082		LEAR	07	22	0309	N25	W01	07	22.0		B	DSO	80	7	6	1
5082		SVTO	07	22	0504	N25	W01	07	22.1		B	CRI	30	13	6	3
5082		CULG	07	22	0540	N25	W01	07	22.1		B	CRO	30	8	7	3
5082		BOUL	07	22	1332	N24	W04	07	22.2		B	DSI	60	10	6	2
5082		RAMY	07	22	1415	N24	W06	07	22.1		B	BXO	40	6	7	2
5082		HOLL	07	22	1538	N25	W07	07	22.1		B	BXO	30	17	7	4
5082	24676	MWIL	07	22	1600	N24	W07	07	22.1	5	(B)					
5082		PALE	07	22	1714	N25	W08	07	22.1		B	BXO	30	12	7	3
5082		LEAR	07	23	0009	N24	W13	07	22.0		B	DSO	40	10	7	3
5082		CULG	07	23	0220	N25	W12	07	22.2		B	CRO	20	3	8	2
5082		SVTO	07	23	0722	N25	W14	07	22.2		B	BXO	20	6	8	4
5082		BOUL	07	23	1340	N23	W22	07	21.9		B	FSO	70	12	18	2
5082		HOLL	07	23	1515	N25	W20	07	22.1		B	CRO	30	6	9	4
5082	24676	MWIL	07	23	1530	N24	W21	07	22.0	5	(B)					
5082		RAMY	07	23	1540	N25	W20	07	22.1		B	BXO	30	8	8	3
5082		PALE	07	23	1920	N22	W18	07	22.4		B	ERO	40	8	15	2
5082		LEAR	07	24	0009	N24	W26	07	22.0		B	CSO	40	6	7	/
5082		CULG	07	24	0330	N25	W27	07	22.0		B	BXO	10	3	8	3
5082		SVTO	07	24	0526	N25	W27	07	22.1		B	DSO	30	7	7	3
5082		BOUL	07	24	1340	N25	W31	07	22.2		B	DRO	20	6	9	3
5082	24676	MWIL	07	24	1430	N24	W34	07	22.0	5	(B)					
5082		RAMY	07	24	1500	N25	W34	07	22.0		B	BXO	30	7	8	2
5082		HOLL	07	24	1530	N25	W33	07	22.1		B	BXO	20	6	8	4
5082		LEAR	07	25	0012	N24	W38	07	22.1		B	BXO	10	2	8	3
5082		CULG	07	25	0430	N24	W37	07	22.3		A	AX	10	1	1	4
5082		SVTO	07	25	0725	N24	W43	07	22.0		B	BXO	10	3	7	3
5082		RAMY	07	25	1400	N24	W45	07	22.1		B	BXO	20	4	9	4
5082		BOUL	07	25	1523	N25	W43	07	22.3		B	BXO	10	3	8	2
5082		HOLL	07	25	1528	N23	W46	07	22.1		B	BXO	20	4	10	3
5082	24676	MWIL	07	25	1630	N24	W45	07	22.2	4	(B)					
5082		PALE	07	25	2129	N23	W48	07	22.2		B	BXO	10	2	3	3
5082		LEAR	07	26	0045	N25	W49	07	22.2		B	BXO	10	2	3	2
5082		CULG	07	26	0310	N22	W49	07	22.4		A	AX	10	1	1	3
5082		SVTO	07	26	0735	N24	W52	07	22.3		A	AX		2	3	3
5077		HOLL	07	17	1323	S21	E75	07	23.3		A	HS	30	2	1	3
5077		BOUL	07	17	1325	S21	E72	07	23.1		B	DAO	60	2	3	3
5077	24672	MWIL	07	17	1430	S21	E74	07	23.3	4	(BF)					
5077		PALE	07	17	1750	S21	E68	07	22.9		B	CAO	20	3	4	3
5077		CULG	07	18	0520	S22	E63	07	23.1		B	BXO	10	2	7	3
5077		SVTO	07	18	0535	S21	E62	07	23.0		B	CRO	20	4	8	3
5077		BOUL	07	18	1321	S21	E56	07	22.8		B	BXO	20	6	7	2
5077		RAMY	07	18	1457	S23	E58	07	23.1		B	BXO	30	5	7	2
5077	24672	MWIL	07	18	1530	S21	E57	07	23.0	4	(B)					
5077		PALE	07	18	1950	S20	E56	07	23.1		B	BXO	20	3	7	3
5077		HOLL	07	18	2057	S21	E54	07	23.0		B	CRO	40	7	7	3
5077		LEAR	07	19	0037	S21	E53	07	23.1		B	CRO	40	6	7	3
5077		CULG	07	19	0437	S21	E49	07	22.9		A	AX	10	1	1	3
5077		SVTO	07	19	0555	S22	E52	07	23.2		B	CRO	20	6	8	3
5077		HOLL	07	19	1348	S20	E42	07	22.8		B	CRO	20	5	1	3
5077	24672	MWIL	07	19	1500	S21	E43	07	22.9	4	(B)					
5077		RAMY	07	19	1505	S21	E43	07	22.9		B	BXO	20	2	6	3
5077		PALE	07	19	1715	S20	E40	07	22.8		A	AX		1	1	3
5077		LEAR	07	20	0042	S22	E38	07	22.9		B	CSO	30	4	6	4

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5077		CULG	07 20 0410	S19 E37	07 23.0		A	AX	10	1	1	3
5077		SVTO	07 20 0516	S22 E37	07 23.1		B	BXO	10	4	6	3
5077		BOUL	07 20 1330	S19 E29	07 22.8		B	BXO	20	4	5	4
5077		RAMY	07 20 1339	S21 E32	07 23.0		B	BXO	10	4	6	3
5077	24672	MWIL	07 20 1515	S21 E30	07 22.9	5	(BP)					
5077		PALE	07 20 1730	S21 E31	07 23.1		B	BXO	20	2	6	3
5077		HOLL	07 20 2157	S21 E27	07 23.0		B	BXO	20	3	6	3
5077		LEAR	07 21 0108	S21 E23	07 22.8		B	CSO	20	2	2	3
5077		SVTO	07 21 0523	S22 E21	07 22.8		A	AX	10	1	1	4
5077		BOUL	07 21 1326	S22 E17	07 22.9		B	CRO	10	2	4	3
5077		RAMY	07 21 1420	S21 E16	07 22.8		B	BXO	10	2	1	3
5077		HOLL	07 21 1532	S22 E15	07 22.8		A	AX	10	1	1	4
5077	24672	MWIL	07 21 1630	S22 E14	07 22.8	4	(AP)					
5077		PALE	07 21 1723	S21 E14	07 22.8		A	AX	10	1	1	3
5077		LEAR	07 22 0309	S21 E06	07 22.6		A	AX	10	2	2	1
5077		SVTO	07 22 0504	S22 E07	07 22.7		B	BXO	10	4	3	3
5077		CULG	07 22 0540	S22 E09	07 22.9		B	BXO	10	4	3	3
5077		BOUL	07 22 1332	S21 E04	07 22.9		B	BXO		8	6	2
5077		RAMY	07 22 1415	S21 E05	07 23.0		B	CRI	30	10	7	2
5077		HOLL	07 22 1538	S22 E03	07 22.9		B	BXO	20	7	6	4
5077	24672	MWIL	07 22 1600	S21 E02	07 22.8	3	(BP)					
5077		PALE	07 22 1714	S21 E03	07 22.9		B	BXO	20	6	6	3
5077		LEAR	07 23 0009	S22 W01	07 22.9		B	DSO	20	9	7	3
5077		SVTO	07 23 0722	S22 W08	07 22.7		A	AX	10	1	1	4
5077		BOUL	07 23 1340	S20 W11	07 22.7		A	AX		1		2
5077		HOLL	07 23 1515	S21 W13	07 22.6		A	AX		1		4
5077	24672	MWIL	07 23 1530	S21 W13	07 22.6	4	(AP)					
5077		RAMY	07 23 1540	S21 W12	07 22.7		A	AX	10	1	1	3
5077		LEAR	07 24 0009	S23 W17	07 22.7		A	AX	10	1	1	/
5077		CULG	07 24 0310	S21 W22	07 22.4		A	AX		1		3
5080		SVTO	07 18 0535	S17 E70	07 23.5		A	AX	30	1	1	3
5080		BOUL	07 18 1321	S18 E68	07 23.7		A	AX	10	1	1	2
5080		RAMY	07 18 1457	S18 E68	07 23.8		A	AX	10	1	1	2
5080	24673	MWIL	07 18 1530	S18 E67	07 23.7	4	(AP					
5080		HOLL	07 18 2057	S19 E65	07 23.8		A	AX	10	1	1	3
5080		LEAR	07 19 0037	S17 E62	07 23.7		A	AX	10	1	1	3
5080		CULG	07 19 0437	S19 E62	07 23.9		A	AX	10	1	1	3
5080		SVTO	07 19 0555	S18 E59	07 23.7		A	AX	10	1	1	3
5080		HOLL	07 19 1348	S17 E55	07 23.7		B	BXO	10	3	6	3
5080	24673	MWIL	07 19 1500	S17 E55	07 23.8	4	(AP)					
5080		RAMY	07 19 1505	S18 E55	07 23.8		A	AX	10	1	1	3
5080		PALE	07 19 1715	S16 E52	07 23.7		A	AX		1	1	3
5080		LEAR	07 20 0042	S17 E49	07 23.7		A	AX	10	1	1	4
5080		SVTO	07 20 0516	S18 E47	07 23.8		A	AX	10	2	1	3
5080		RAMY	07 20 1339	S17 E43	07 23.8		A	AX		1	1	3
5080	24673	MWIL	07 20 1515	S16 E43	07 23.9	3	(AP)					
5080		SVTO	07 26 0735	S23 W36	07 23.5		B	BXO	10	2	3	3
5080		BOUL	07 26 1330	S22 W38	07 23.6		B	BXO	20	4	3	3
5080		BOUL	07 27 1350	S22 W54	07 23.4		A	AX	10	1	1	3
5091	24685	MWIL	07 26 1430	S23 W40	07 23.5	5	(BP)					
5091		HOLL	07 26 1443	S22 W40	07 23.5		A	AX	10	1	1	3
5091		RAMY	07 26 1540	S23 W38	07 23.7		A	AX	20	2	1	2
5091		PALE	07 26 1710	S23 W41	07 23.5		A	AX		1	1	3
5091		LEAR	07 27 0050	S23 W45	07 23.6		A	AX	10	1	1	3
5091	24685	MWIL	07 27 1445	S23 W55	07 23.4	4	(AP)					
5091		HOLL	07 27 1717	S22 W57	07 23.3		A	AX	10	1	1	3
5083		SVTO	07 21 0523	N32 E36	07 24.1		B	BXO	10	2	2	4
5083		BOUL	07 21 1326	N30 E30	07 23.9		A	AX		1		3
5083		RAMY	07 21 1420	N32 E31	07 24.0		A	AX	10	1	1	3
5083		HOLL	07 21 1532	N32 E31	07 24.1		A	AX		1		4
5093		SVTO	07 27 0715	N25 W40	07 24.2		A	AX		1		3
5093		BOUL	07 27 1350	N26 W41	07 24.4		B	BXO	30	3	4	3
5093	24687	MWIL	07 27 1445	N26 W43	07 24.3	4	(B)					
5093		HOLL	07 27 1717	N27 W44	07 24.3		B	BXO	20	3	4	3
5093		PALE	07 27 1858	N25 W44	07 24.4		B	BXO	20	2	3	3

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

JULY 1988

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5093		CULG	07 28 0250	N23 W52	07 24.1		B	BXO	30	5	6	3
5093		SVTO	07 28 0543	N27 W52	07 24.2		B	CRO	50	3	7	3
5093		BOUL	07 28 1340	N27 W54	07 24.4		B	CRO	20	4	9	3
5093		RAMY	07 28 1430	N27 W57	07 24.2		B	BXO	20	5	7	3
5093	24687	MWIL	07 28 1430	N27 W57	07 24.2	4	(B)					
5093		PALE	07 28 1725	N25 W57	07 24.3		B	BXO	20	4	5	3
5093		HOLL	07 28 2250	N27 W60	07 24.3		B	BXO	20	5	7	3
5093		LEAR	07 29 0023	N26 W65	07 24.0		B	BXO	10	3	7	3
5093		SVTO	07 29 0625	N27 W65	07 24.2		B	BXO	20	4	5	3
5093		RAMY	07 29 1345	N27 W70	07 24.1		B	BXO	20	3	3	3
5093	24687	MWIL	07 29 1445	N27 W69	07 24.2	3	(B)					
5086		SVTO	07 22 0504	S32 E29	07 24.5		B	AXO	20	2	1	3
5086		BOUL	07 22 1332	S31 E23	07 24.4		B	BXO		2	2	2
5086		RAMY	07 22 1415	S32 E23	07 24.4		A	AX	10	1	1	2
5086		HOLL	07 22 1538	S31 E24	07 24.5		A	AX	10	2	2	4
5086	24678	MWIL	07 22 1600	S31 E23	07 24.5	3	(B)					
5086A		LEAR	07 25 0012	N20 E26	07 27.0		A	AX	10	2	2	3
5086A		SVTO	07 25 0725	N21 E21	07 26.9		B	BXO		2	3	3
5086A		RAMY	07 25 1400	N21 E17	07 26.9		A	AX	10	1	1	4
5086A		BOUL	07 25 1523	N20 E16	07 26.9		A	AX	10	1		2
5086A		HOLL	07 25 1528	N21 E16	07 26.9		A	AX	10	1	1	3
5089		BOUL	07 28 1340	N17 W09	07 27.9		A	AX		1		3
5089	24689	MWIL	07 28 1430	N16 W10	07 27.8	3	(AP)					
5089		RAMY	07 28 1430	N18 W11	07 27.8		B	BXO	10	4	5	3
5089		PALE	07 28 1725	N16 W13	07 27.7		B	BXO	10	4	4	3
5085		LEAR	07 22 0309	N12 E85	07 28.5		A	HS	70	1	2	1
5085		SVTO	07 22 0504	N13 E82	07 28.4		A	HH	120	1	4	3
5085		CULG	07 22 0540	N13 E85	07 28.6		A	HS	40	1	1	3
5085		BOUL	07 22 1332	N11 E77	07 28.3		B	DSO	120	2	4	2
5085		RAMY	07 22 1415	N10 E79	07 28.5		BGD	HX	80	2	2	2
5085		HOLL	07 22 1538	N11 E80	07 28.7		B	DSO	210	2	3	4
5085	24679	MWIL	07 22 1600	N13 E80	07 28.7	5	(AP)					
5085		PALE	07 22 1714	N13 E81	07 28.8		B	DSO	150	2	5	3
5085		LEAR	07 23 0009	N12 E75	07 28.6		B	DSO	270	3	6	3
5085		CULG	07 23 0220	N12 E75	07 28.7		B	CSO	150	2	6	2
5085		SVTO	07 23 0722	N13 E75	07 29.0		B	DHO	280	2	7	4
5085		BOUL	07 23 1340	N12 E66	07 28.5		B	DHO	220	2	6	2
5085		HOLL	07 23 1515	N11 E68	07 28.7		B	DHO	190	5	7	4
5085	24679	MWIL	07 23 1530	N13 E66	07 28.6	6	(AP)					
5085		RAMY	07 23 1540	N13 E69	07 28.8		B	DHO	290	2	5	3
5085		PALE	07 23 1920	N13 E67	07 28.9		B	DAO	170	2	7	2
5085		LEAR	07 24 0009	N12 E62	07 28.7		B	DSO	240	4	7	/
5085		CULG	07 24 0330	N12 E63	07 28.9		B	CSO	120	2	6	3
5085		SVTO	07 24 0526	N13 E60	07 28.7		B	DSO	200	3	5	3
5085		BOUL	07 24 1340	N11 E56	07 28.8		B	ESO	220	6	12	3
5085	24679	MWIL	07 24 1430	N12 E53	07 28.6	6	(AP)					
5085		RAMY	07 24 1500	N13 E55	07 28.8		B	DHO	200	3	7	2
5085		HOLL	07 24 1530	N11 E54	07 28.7		B	DHO	270	4	7	4
5085		LEAR	07 25 0012	N12 E49	07 28.7		B	DSO	180	3	5	3
5085		CULG	07 25 0430	N12 E50	07 28.9		B	CSO	90	3	11	4
5085		SVTO	07 25 0726	N13 E47	07 28.8		B	DSO	170	4	6	3
5085		RAMY	07 25 1400	N13 E45	07 29.0		B	EHO	300	6	12	4
5085		BOUL	07 25 1523	N11 E43	07 28.9		B	DSO	230	6	12	2
5085		HOLL	07 25 1528	N12 E41	07 28.7		B	DHO	230	3	8	3
5085	24679	MWIL	07 25 1630	N13 E39	07 28.6	6	(BP)					
5085		PALE	07 25 2129	N13 E41	07 29.0		B	CSO	150	6	12	3
5085		LEAR	07 26 0045	N12 E36	07 28.7		A	HK	250	2	6	2
5085		CULG	07 26 0310	N14 E37	07 28.9		B	CSO	200	4	12	3
5085		SVTO	07 26 0735	N12 E35	07 28.9		B	CHO	220	5	12	3
5085		BOUL	07 26 1330	N11 E30	07 28.8		B	CAO	180	4	10	3
5085	24679	MWIL	07 26 1430	N13 E27	07 28.6	6	(BP)					
5085		HOLL	07 26 1443	N12 E29	07 28.8		B	CHO	180	2	6	3
5085		RAMY	07 26 1540	N12 E31	07 29.0		B	ESO	230	4		2
5085		PALE	07 26 1710	N13 E26	07 28.7		B	CSO	170	2	6	3
5085		LEAR	07 27 0050	N12 E23	07 28.8		B	DSO	170	4	7	3

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

JULY 1988

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5085		CULG	07 27 0402	N12 E20	07 28.7		B	CSO	210	5	7	3
5085		SVTO	07 27 0715	N11 E19	07 28.7		B	CSO	200	2	6	3
5085		BOUL	07 27 1350	N12 E15	07 28.7		B	CSO	170	3	7	3
5085	24679	MWIL	07 27 1445	N13 E13	07 28.6	6	(BP)					
5085		HOLL	07 27 1717	N12 E16	07 28.9		B	CHO	230	5	8	3
5085		PALE	07 27 1858	N12 E13	07 28.8		B	CHO	200	3	8	3
5085		LEAR	07 28 0044	N11 E10	07 28.8		B	CSO	150	4	7	3
5085		CULG	07 28 0250	N12 E09	07 28.8		B	CSO	180	4	8	3
5085		SVTO	07 28 0543	N12 E07	07 28.8		B	CHO	260	6	7	3
5085		BOUL	07 28 1340	N12 E03	07 28.8		B	CHO	200	5	7	3
5085	24679	MWIL	07 28 1430	N12 E00	07 28.6	6	(BG)					
5085		RAMY	07 28 1430	N13 E04	07 28.9		B	CSO	260	10	10	3
5085		PALE	07 28 1725	N12 E02	07 28.9		B	CSO	210	6	10	3
5085		HOLL	07 28 2250	N12 W02	07 28.8		B	CHO	200	5	7	3
5085		LEAR	07 29 0023	N12 W08	07 28.4		B	CSO	150	2	6	3
5085		SVTO	07 29 0625	N11 W09	07 28.6		A	HH	220	1	3	3
5085		BOUL	07 29 1340	N14 W14	07 28.5		B	CSO	150	2	4	1
5085		RAMY	07 29 1345	N14 W13	07 28.6		A	HS	200	6	7	3
5085	24679	MWIL	07 29 1445	N12 W14	07 28.5	5	(BP)					
5085		HOLL	07 29 1600	N14 W16	07 28.4		B	CSO	150	2	4	3
5085		PALE	07 29 1719	N12 W16	07 28.5		A	HS	150	1	2	3
5085		LEAR	07 30 0029	N12 W19	07 28.6		A	HS	150	1	3	3
5085		CULG	07 30 0155	N12 W22	07 28.4		A	HS	160	1	2	3
5085		SVTO	07 30 0724	N12 W23	07 28.6		A	HA	190	1	2	2
5085		BOUL	07 30 1350	N12 W25	07 28.7		A	HS	150	1	2	4
5085	24679	MWIL	07 30 1430	N12 W26	07 28.6	6	(AP)					
5085		HOLL	07 30 1450	N13 W27	07 28.6		A	HS	150	1	2	4
5085		PALE	07 30 1915	N12 W29	07 28.6		A	HS	160	1	2	3
5085		LEAR	07 31 0032	N12 W33	07 28.5		A	HS	130	1	3	3
5085		CULG	07 31 0400	N10 W35	07 28.5		A	HS	200	1	3	3
5085		SVTO	07 31 0756	N12 W36	07 28.6		A	HA	240	1	2	2
5085		RAMY	07 31 1340	N12 W40	07 28.5		A	HS	140	1	3	2
5085		BOUL	07 31 1350	N13 W38	07 28.7		A	HS	160	1	2	3
5085	24679	MWIL	07 31 1430	N12 W40	07 28.6	5	(AP)					
5085		HOLL	07 31 1445	N13 W40	07 28.6		A	HS	130	1	2	4
5085		PALE	07 31 1710	N12 W42	07 28.5		A	HS	130	1	2	3
5085		LEAR	08 01 0020	N13 W47	07 28.6		A	D	120	1	3	3
5085		CULG	08 01 0413	N09 W49	07 28.6		A	HS	150	1	2	2
5085		SVTO	08 01 0756	N12 W50	07 28.7		A	HA	160	1	2	2
5085		BOUL	08 01 1339	N13 W50	07 28.9		A	HS	170	1	2	2
5085		HOLL	08 01 1422	N12 W53	07 28.7		A	HS	160	1	2	3
5085		RAMY	08 01 1504	N13 W53	07 28.7		A	HS	130	1	3	3
5085	24679	MWIL	08 01 1515	N12 W54	07 28.7	6	(AP)					
5085		PALE	08 01 1710	N12 W53	07 28.8		A	HS	170	1	2	3
5085		LEAR	08 02 0030	N13 W58	07 28.7		A	HS	190	1	3	3
5085		CULG	08 02 0530	N10 W63	07 28.6		A	HS	200	1	2	2
5085		SVTO	08 02 0825	N13 W65	07 28.5		A	HH	200	1	3	2
5085		BOUL	08 02 1330	N13 W64	07 28.8		A	HS	140	1	2	2
5085	24679	MWIL	08 02 1500	N12 W68	07 28.6	5	(AP)					
5085		HOLL	08 02 1855	N12 W68	07 28.8		A	HS	210	1	2	2
5085		PALE	08 02 1945	N12 W69	07 28.7		A	HS	110	1	2	3
5085		LEAR	08 03 0113	N13 W74	07 28.6		A	HA	150	1	2	3
5085		CULG	08 03 0338	N09 W73	07 28.8		A	HS	120	1	2	2
5085		SVTO	08 03 0603	N13 W78	07 28.5		A	HS	120	1	3	3
5085		RAMY	08 03 1357	N13 W79	07 28.7		A	HS	100	1	2	2
5085		HOLL	08 03 1409	N12 W79	07 28.7		A	HS	60	1	2	3
5085	24679	MWIL	08 03 1500	N13 W79	07 28.8	5	(AP)					
5085		BOUL	08 03 1638	N13 W78	07 28.9		A	HS	60	2	2	1
5085		PALE	08 03 2210	N12 W78	07 29.1		A	HS	110	1	2	3
5085		LEAR	08 04 0003	N15 W84	07 28.7		A	AX	10	1	1	2
5094	24683	MWIL	07 25 1630	S17 E36	07 28.4	4	(B)					
5094		CULG	07 27 0402	S22 E21	07 28.8		A	AX	10	1	1	3
5094	24683	MWIL	07 27 1445	S22 E15	07 28.8	4	(AP)					
5094		LEAR	07 28 0044	S22 E10	07 28.8		A	AX	10	1	1	3
5094		LEAR	07 29 0023	S22 W02	07 28.9		A	AX	10	1	1	3
5094	24683	MWIL	07 31 1430	S19 W38	07 28.7	2	(AP)					
5094A	24690	MWIL	07 28 [illegible]	N24 E06	07 29.1	3	(AP)					

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

JULY 1988

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5084		LEAR	07	23	0009	S24	E78	07	29.0		A	HS	90	1	2	3
5084		SVTO	07	23	0722	S24	E76	07	29.2		B	DSO	90	2	5	4
5084		BOUL	07	23	1340	S24	E72	07	29.1		B	DSO	120	2	5	2
5084		HOLL	07	23	1515	S24	E72	07	29.2		B	DAO	120	3	5	4
5084	24681	MWIL	07	23	1530	S23	E72	07	29.2	4	(AP)					
5084		RAMY	07	23	1540	S23	E72	07	29.2		B	DSO	120	2	4	3
5084		PALE	07	23	1920	S23	E73	07	29.4		B	DAO	120	2	6	2
5084		LEAR	07	24	0009	S25	E70	07	29.4		B	DSO	110	2	4	/
5084		CULG	07	24	0330	S23	E69	07	29.5		B	CSO	30	2	5	3
5084		SVTO	07	24	0526	S24	E65	07	29.2		B	DSO	120	2	4	3
5084		BOUL	07	24	1340	S24	E60	07	29.2		B	DSO	90	3	5	3
5084	24681	MWIL	07	24	1430	S24	E60	07	29.2	5	(AP)					
5084	24681	MWIL	07	24	1430	S28	E61	07	29.4	4	(AP)					
5084		RAMY	07	24	1500	S25	E61	07	29.3		B	DSO	90	3	3	2
5084		HOLL	07	24	1530	S24	E60	07	29.3		B	DSO	90	3	5	4
5084		LEAR	07	25	0012	S21	E60	07	29.6		A	AX	10	1	1	3
5084		LEAR	07	25	0012	S24	E56	07	29.3		B	DSO	140	2	5	3
5084		CULG	07	25	0430	S23	E54	07	29.3		B	CSO	40	4	6	4
5084		SVTO	07	25	0726	S21	E53	07	29.4		B	DSI	150	10	9	3
5084		RAMY	07	25	1400	S22	E47	07	29.2		B	EAO	150	20	15	4
5084		BOUL	07	25	1523	S23	E50	07	29.5		B	DAO	160	17	10	2
5084		HOLL	07	25	1528	S23	E52	07	29.6		B	CAO	140	10	6	3
5084	24681	MWIL	07	25	1630	S23	E48	07	29.4	5	(B)					
5084		PALE	07	25	2129	S22	E47	07	29.5		B	DAO	190	13	8	3
5084		LEAR	07	26	0045	S23	E45	07	29.5		B	DAI	200	15	10	2
5084		CULG	07	26	0310	S21	E43	07	29.4		B	DAO	210	16	8	3
5084		SVTO	07	26	0735	S23	E40	07	29.4		B	DKI	310	11	9	3
5084		BOUL	07	26	1330	S23	E34	07	29.2		B	DKO	410	15	10	3
5084	24681	MWIL	07	26	1430	S23	E37	07	29.4	5	(BG)					
5084		HOLL	07	26	1443	S22	E38	07	29.5		BD	DKO	390	14	9	3
5084		RAMY	07	26	1540	S24	E37	07	29.5		BD	EKI	330	14	13	2
5084		PALE	07	26	1710	S23	E37	07	29.6		BD	DKO	520	19	8	3
5084		LEAR	07	27	0050	S23	E30	07	29.3		B	EKO	600	26	14	3
5084		CULG	07	27	0402	S22	E31	07	29.5		BD	DKI	450	25	9	3
5084		SVTO	07	27	0715	S23	E25	07	29.2		BG	EKI	460	27	14	3
5084		BOUL	07	27	1350	S20	E20	07	29.1		BG	EKI	550	28	12	3
5084	24681	MWIL	07	27	1445	S23	E25	07	29.5	5	(BG)					
5084		HOLL	07	27	1717	S22	E25	07	29.6		B	DKO	500	26	10	3
5084		PALE	07	27	1858	S20	E23	07	29.5		B	DKI	540	35	10	3
5084		LEAR	07	28	0044	S21	E19	07	29.5		B	DKI	410	12	10	3
5084		CULG	07	28	0250	S21	E17	07	29.4		B	DKI	440	22	8	3
5084		SVTO	07	28	0543	S21	E15	07	29.4		BG	DHI	480	31	8	3
5084		BOUL	07	28	1340	S20	E10	07	29.3		B	DAC	360	52	8	3
5084		RAMY	07	28	1430	S20	E11	07	29.4		BD	DKI	470	52	10	3
5084	24681	MWIL	07	28	1430	S20	E12	07	29.5	5	(BG)					
5084		PALE	07	28	1725	S19	E10	07	29.5		BD	DKI	450	44	10	3
5084		HOLL	07	28	2250	S22	E08	07	29.6		B	DKI	440	36	9	3
5084		LEAR	07	29	0023	S22	E05	07	29.4		BG	DKI	380	23	8	3
5084		SVTO	07	29	0625	S22	E03	07	29.5		BD	DKC	740	47	10	3
5084		BOUL	07	29	1340	S20	W03	07	29.3		BG	DKC	360	42	10	1
5084		RAMY	07	29	1345	S22	W02	07	29.4		B	EKI	610	51	12	3
5084	24681	MWIL	07	29	1445	S20	W01	07	29.5	5	(BG)					
5084		HOLL	07	29	1600	S21	W04	07	29.4		B	EKI	460	50	12	3
5084		PALE	07	29	1719	S22	W05	07	29.3		B	EKI	930	43	11	3
5084		LEAR	07	30	0029	S22	W07	07	29.5		BG	DKI	400	28	9	3
5084		CULG	07	30	0155	S22	W08	07	29.5		B	DKI	260	17	7	3
5084		SVTO	07	30	0724	S22	W11	07	29.5		B	DKO	560	26	7	2
5084		BOUL	07	30	1350	S20	W13	07	29.6		B	EKC	440	46	12	4
5084	24681	MWIL	07	30	1430	S21	W14	07	29.5	5	(D)					
5084		HOLL	07	30	1450	S21	W15	07	29.5		BD	DKI	460	38	11	4
5084		PALE	07	30	1915	S19	W17	07	29.5		BD	DKI	330	25	8	3
5084		LEAR	07	31	0032	S22	W19	07	29.6		BG	DKI	410	33	7	3
5084		CULG	07	31	0400	S23	W19	07	29.7		B	DAI	210	19	8	3
5084		CULG	07	31	0400	S23	W21	07	29.5		B	DKI	380	16	7	3
5084		SVTO	07	31	0756	S21	W23	07	29.6		B	DAI	450	17	7	2
5084		RAMY	07	31	1340	S23	W26	07	29.6		BD	DKI	440	20	10	2
5084		BOUL	07	31	1350	S20	W25	07	29.7		B	DKC	430	27	6	3
5084	24681	MWIL	07	31	1430	S21	W27	07	29.5	5	(D)					
5084		HOLL	07	31	1445	S21	W28	07	29.5		BD	DKI	420	28	8	4

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

JULY 1988

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo Day	Time (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5084		PALE	07 31	1710	S21 W28	07 29.6		BD	DKI	420	17	8	3
5084		LEAR	08 01	0020	S20 W32	07 29.7		BG	DKI	290	18	6	3
5084		CULG	08 01	0413	S25 W35	07 29.6		B	DKI	250	11	5	2
5084		SVTO	08 01	0756	S22 W37	07 29.6		B	DAC	440	15	5	2
5084		BOUL	08 01	1339	S21 W38	07 29.7		B	DKC	340	13	6	2
5084		HOLL	08 01	1422	S21 W40	07 29.6		B	DKO	280	8	6	3
5084		RAMY	08 01	1504	S21 W39	07 29.7		BD	DKI	400	17	5	3
5084	24681	MWIL	08 01	1515	S21 W40	07 29.7	5	(D)					
5084		PALE	08 01	1710	S22 W40	07 29.7		B	DKI	530	21	5	3
5084		LEAR	08 02	0030	S21 W45	07 29.7		BG	DKO	320	21	5	3
5084		CULG	08 02	0530	S23 W48	07 29.6		B	DKI	240	8	5	2
5084		SVTO	08 02	0825	S22 W50	07 29.6		BD	DKI	240	13	7	2
5084		BOUL	08 02	1330	S20 W51	07 29.8		B	DKC	310	9	7	2
5084	24681	MWIL	08 02	1500	S21 W53	07 29.7	4	(D)					
5084		HOLL	08 02	1855	S21 W55	07 29.7		B	DKO	340	9	7	2
5084		PALE	08 02	1945	S23 W55	07 29.7		B	DKI	280	13	7	3
5084		LEAR	08 03	0113	S21 W58	07 29.7		B	EKO	400	18	11	3
5084		CULG	08 03	0338	S23 W60	07 29.6		B	DAI	170	9	3	2
5084		SVTO	08 03	0603	S20 W62	07 29.6		B	DAO	250	6	5	3
5084		RAMY	08 03	1357	S20 W65	07 29.7		B	DAO	230	6	6	2
5084		HOLL	08 03	1409	S20 W65	07 29.7		B	DKO	200	9	5	3
5084	24681	MWIL	08 03	1500	S20 W66	07 29.7	5	(D)					
5084		BOUL	08 03	1638	S18 W67	07 29.7		B	DAO	240	9	3	1
5084		PALE	08 03	2210	S22 W68	07 29.8		B	DKO	250	5	3	3
5084		LEAR	08 04	0003	S19 W71	07 29.7		B	CSO	210	5	6	2
5084		CULG	08 04	0335	S23 W76	07 29.4		B	DSI	100	2	6	3
5084		SVTO	08 04	0628	S20 W77	07 29.5		A	HH	180	3	5	1
5084		RAMY	08 04	1400	S19 W78	07 29.7		B	CSO	110	4	7	3
5084	24681	MWIL	08 04	1445	S20 W78	07 29.7	4	AF					
5084		HOLL	08 04	1704	S20 W78	07 29.8		B	DAO	100	4	5	3
5084		PALE	08 04	1720	S20 W79	07 29.8		A	HH	180	3	5	3
5090		RAMY	07 24	1500	N13 E66	07 29.6		A	AX	10	3	3	2
5090		HOLL	07 24	1530	N11 E63	07 29.4		A	AX	10	2	1	4
5090		SVTO	07 25	0725	N14 E64	07 30.1		A	AX		1		3
5090		RAMY	07 25	1400	N15 E60	07 30.1		A	AX	10	1	1	4
5090		HOLL	07 25	1528	N11 E50	07 29.4		A	AX	20	1	1	3
5090	24684	MWIL	07 25	1630	N15 E59	07 30.1	3	(AP)					
5090		PALE	07 25	2129	N15 E57	07 30.2		A	AX	10	2	1	3
5090		LEAR	07 26	0045	N14 E54	07 30.1		A	AX	20	1	1	2
5090		SVTO	07 26	0735	N12 E50	07 30.1		A	AX		2		3
5090		HOLL	07 26	1443	N12 E37	07 29.4		A	AX	10	1	1	3
5090		LEAR	07 27	0050	N14 E36	07 29.7		A	AX	10	3	3	3
5090		CULG	07 27	0402	N16 E35	07 29.8		B	BXO	10	2	3	3
5090		SVTO	07 27	0715	N15 E34	07 29.9		B	BXO	20	5	4	3
5090		BOUL	07 27	1350	N15 E28	07 29.7		B	BXO	30	10	4	3
5090	24684	MWIL	07 27	1445	N15 E30	07 29.9	4	(B)					
5090		HOLL	07 27	1717	N16 E28	07 29.8		B	BXO	20	9	4	3
5090		PALE	07 27	1858	N17 E28	07 29.9		B	BXO	20	8	5	3
5090		LEAR	07 28	0044	N15 E24	07 29.8		B	BXO	10	3	4	3
5090		CULG	07 28	0250	N16 E22	07 29.8		B	CSO	30	6	4	3
5090		SVTO	07 28	0543	N16 E22	07 29.9		B	BXO	10	6	2	3
5090		BOUL	07 28	1340	N16 E14	07 29.6		B	BXO	10	8	7	3
5090		RAMY	07 28	1430	N16 E13	07 29.6		B	BXO	20	9	11	3
5090	24684	MWIL	07 28	1430	N16 E16	07 29.8	4	(BG)					
5090		PALE	07 28	1725	N15 E10	07 29.5		B	BXO	10	5	12	3
5090		HOLL	07 28	2250	N15 E12	07 29.8		B	BXO	10	7	7	3
5090		LEAR	07 29	0023	N16 E11	07 29.8		B	BXO	10	4	3	3
5090		SVTO	07 29	0625	N15 E08	07 29.9		B	DRO	60	16	5	3
5090		BOUL	07 29	1340	N15 E01	07 29.6		B	DRI	40	29	8	1
5090		RAMY	07 29	1345	N17 E03	07 29.8		BG	DRI	90	35	8	3
5090	24684	MWIL	07 29	1445	N15 E02	07 29.8	5	(BG)					
5090		HOLL	07 29	1600	N15 E01	07 29.7		B	DRI	50	24	8	3
5090		PALE	07 29	1719	N15 E00	07 29.7		B	BXO	80	29	9	3
5090		LEAR	07 30	0029	N14 W04	07 29.7		BG	DSO	140	28	7	3
5090		CULG	07 30	0155	N15 W05	07 29.7		B	DAI	70	12	7	3
5090		SVTO	07 30	0724	N15 W08	07 29.7		B	DAI	190	22	7	2
5090		BOUL	07 30	1350	N15 W11	07 29.7		B	DAI	170	39	7	4
5090	24684	MWIL	07 30	1430	N15 W11	07 29.8	5	(BG)					

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

JULY 1988

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5090		HOLL	07	30	1450	N15	W12	07	29.7		B	DAI	100	25	7	4
5090		PALE	07	30	1915	N16	W14	07	29.7		B	DSI	210	27	8	3
5090		LEAR	07	31	0032	N14	W17	07	29.7		BG	DAI	280	27	7	3
5090		SVTO	07	31	0756	N15	W22	07	29.7		B	DAI	250	20	8	2
5090		RAMY	07	31	1340	N16	W25	07	29.7		B	DAI	350	35	10	2
5090		BOUL	07	31	1350	N15	W23	07	29.8		B	DAI	270	51	9	3
5090	24684	MWIL	07	31	1430	N15	W25	07	29.7	5	(BG)					
5090		HOLL	07	31	1445	N15	W25	07	29.7		B	DAI	280	35	9	4
5090		PALE	07	31	1710	N15	W25	07	29.8		B	DKI	370	31	10	3
5090		LEAR	08	01	0020	N15	W29	07	29.9		B	DKI	40	32	10	3
5090		CULG	08	01	0413	N11	W34	07	29.7		B	DAI	350	20	9	2
5090		SVTO	08	01	0756	N15	W35	07	29.8		B	DHO	450	32	9	2
5090		BOUL	08	01	1339	N15	W35	07	30.0		B	DAI	380	22	9	2
5090		HOLL	08	01	1422	N15	W37	07	29.9		BG	DAI	340	18	9	3
5090		RAMY	08	01	1504	N15	W38	07	29.8		B	DAI	420	24	9	3
5090	24684	MWIL	08	01	1515	N15	W38	07	29.8	5	(B)					
5090		PALE	08	01	1710	N14	W38	07	29.9		B	DAI	400	20	10	3
5090		LEAR	08	02	0030	N16	W44	07	29.8		BG	DKI	380	22	10	3
5090		CULG	08	02	0530	N13	W47	07	29.8		B	DAI	280	16	9	2
5090		SVTO	08	02	0825	N16	W48	07	29.8		BG	DAI	350	17	9	2
5090		BOUL	08	02	1330	N15	W50	07	29.9		B	DAI	320	20	9	2
5090	24684	MWIL	08	02	1500	N15	W53	07	29.7	5	(B)					
5090		HOLL	08	02	1855	N16	W54	07	29.8		B	DAI	340	16	9	2
5090		PALE	08	02	1945	N14	W55	07	29.8		B	DAI	310	20	10	3
5090		LEAR	08	03	0113	N16	W59	07	29.7		B	DAO	560	25	9	3
5090		CULG	08	03	0338	N12	W60	07	29.7		B	DAI	250	16	10	2
5090		SVTO	08	03	0603	N16	W63	07	29.6		B	EAI	470	18	12	3
5090		RAMY	08	03	1357	N16	W65	07	29.7		B	DAO	290	12	10	2
5090		HOLL	08	03	1409	N16	W66	07	29.7		B	EAI	300	12	11	3
5090	24684	MWIL	08	03	1500	N16	W65	07	29.8	5	(BG)					
5090		BOUL	08	03	1638	N17	W65	07	29.8		B	DAI	360	12	10	1
5090		PALE	08	03	2210	N14	W67	07	30.0		B	DKI	270	9	9	3
5090		LEAR	08	04	0003	N16	W72	07	29.6		B	DAO	220	9	8	2
5090		CULG	08	04	0335	N13	W75	07	29.6		G	FAI	100	8	11	3
5090		SVTO	08	04	0628	N17	W75	07	29.7		B	ESO	260	5	13	1
5090		RAMY	08	04	1400	N14	W78	07	29.8		B	CAO	70	9	10	3
5090	24684	MWIL	08	04	1445	N16	W79	07	29.7	4	B)					
5090		HOLL	08	04	1704	N15	W80	07	29.7		B	EAO	110	5	11	3
5090		PALE	08	04	1720	N14	W79	07	29.8		B	DSO	190	4	10	3
5090		BOUL	08	04	1720	N16	W79	07	29.8		B	CSO	90	4	7	1

Stations reporting:

BOUL = Boulder
CULG = Culgoora
HOLL = Holloman
LEAR = Learmonth
MWIL = Mt. Wilson
PALE = Palehua
RAMY = Ramey
SVTO = San Vito

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1988

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF SPA	SES	Flare (UT)	X-ray Class	NOAA Region
01	0502	0509	0605	1	3	1		1	1		0500	C4.3	5060
01	0838	0857	0935	1	5	2	3	1	1	3	0832	C6.9	5060
01	1454	1506	1540	1-	1				1		1458		5060
01	1543	1600	1650	1-	5	1		1	1	4	1543E	C6.3	5060
01	2108	2112	2137	1-	3	1		1		1	2109E	C2.0	5060
02	0048	0105	0155	3	3	2		1	1		0048	M3.0	5060
02	0643	0652	0720	1-	3	1		1	1		0638	C3.7	5060
02	0725	0737	0751	1-	3	1	1	1	1		No flare		
02	1331	1341	1400	1-	3				1	6	1336E	C1.4	5060
02	1605	1608	1629	1-	3					2	1603		5060
02	2209	2222	2249	1-	1			1			2210		5060
03	0017	0025	0128	1-	3			1	1		0016	C2.5	5062
03	0045	0100	0105	1+	1	1					0042	C2.5	5060
03	0218	0227	0255	1-	1			1			0216	C1.8	5060
03	0345	0352	0419	1-	1			1			0343		5062
03	1421	1431	1519	1-	5	2		1	1	8	1426		5060
03	1601	1612	1700	1-	5	1	1	1	1	9	1557	C8.2	5062
03	1625	1629	1643	1	3					2	1625	C2.2	5062
03	1918	1922	1930	1	3					5	1917	C2.8	5062
03	2145	2152	2222	1-	3			1		5	2146	C5.8	5062
04	0223	0229	0253	1-	3			1	1		0223	C2.0	5062
05	0059	0105	0127	1-	3			1	1		0059	C1.3	5062
05	0430	0434	0454	1-	3			1	1		No flare		
05	0632	0644	0709	1-	1			1			0629	C1.8	5062
05	2155	2200	2254	1-	3			1		5	2153	C5.2	5060
06	0451	0500	0541	1-	3			1	1		No flare		
06	1027	1035	1043	1	1		1				1024	C1.8	5062
06	1155	1203	1253	2-	1		1				1156	C1.8	5060
06	1525	1532	1617	2	3					2	1527	C1.6	5062
07	0557	0608	0722	2	5	4	3	1	2	3	0558	M1.1	5062
07	0720	0727	0830	3	5	4	3	1	2	3	0722	M3.3	5062
07	1442	1458	1520	1-	5	4	1	1	1	6	1440	C6.3	5060
07	1532	1533	1543	1-	1					1	1530	C1.6	5069
08	0333	0340	0435	2	3			1	1	1	0335	C9.4	5060
08	0752	0759	0917	2	5	3	2	1	2	5	0754	M1.1	5060
08	0932	0943	1023	2	5	3	4	1	1	3	0936	C7.4	5069
08	1144	1206	1324	1	3	2		1	1	3	1147	M4.4	5062
08	1409	1416	1450	1-	3		1		1	2	1407	C3.4	5069
08	1542	1544	1545	1-	3	1			1	2	1541	C4.7	5062
08	1603	1605	1610	1	3	1			1	4	1604	C7.3	5062
08	1644	1646	1704	1	3					2	1641	C3.4	5062
09	0651	0700	0721	1-	5			1	2	2	No flare		
09	0714	0724	0740	2	5	1	2	1	2	4	0718	C6.8	5069
09	1017	1022	1100	1-	3	1			1	1	1018	C1.9	5069
09	1320	1324	1400	2+	3				1	1	1321	C2.0	5069
09	2339	2348	0116	2+	5	2		1	1	4	2340	M1.6	5069
10	0628	0718	0827	2	1		1				0634	C5.3	5069
10	0651	0721	0822	2	5	1	1	1	2	2	0652	C5.3	5069
10	1025	1035	1111	1+	5	3	3	1	1	3	No flare		
10	1138	1149	1220	1-	3	1			1	2	1137		5069
10	1306	1312	1340	1-	3	1	1		1	4	No flare		
10	1436	1445	1454	1	3	1			1	2	No flare		
11	0029	0042	0113	1-	3	1		1	1		0029	M2.7	5075
11	1125	1128	1145	1	3	1			1	2	1126	C2.7	5071
11	1833	1836	1853	1	3					2	No flare		
12	1450	1506	1520	1+	5	1			1	4	1447	C2.5	5071
12	1910	1915	1931	1	3					2	1909	C2.4	5073
13	0029	0035	0128	1+	3	2		1	1		0023		5071

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1988

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF SPA	SES	Flare (UT)	X-ray Class	NOAA Region
13	0427	0434	0508	1+	3			1	1		0428	C7.3	5073
13	0531	0534	0548	1-	1			1			0528	C1.6	5075
13	0610	0616	0714	1-	1			1			0612	C2.3	5071
16	1545	1549	1601	1-	3				1	5	1547E	C2.4	5075
16	1650	1705	1800	2+	1					1	1652	C3.0	5076
17	1331	1339	1400	1+	3	1			1	4	1332	C1.8	5075
18	0027	0032	0047	1-	1				1		0030	C1.2	5075
18	0748	0800	0815	1-	3	1			1		0742		5075
18	0951	0957	1010	1-	3	1			1	2	0952	C1.8	5073
18	1045	1100	1130	1+	3	1	1		1	2	1053	C2.8	5073
18	1252	1300	1320	1-	3				1	4	1252	C2.3	5073
18	1539	1544	1600	1-	3				1	4	1540	C2.2	5075
18	1603	1610	1630	1	3	2	1		1	6	1600		5075
18	1627	1630	1645	1-	1					1	1626	C4.6	5075
18	1710	1717	1743	1	3					2	*		
19	0027	0037	0138	1	3	2			1		0027	C9.4	5075
19	0755	0800	0820	1-	3		1		1	2	0752	C7.1	5075
19	1218	1225	1300	1-	3				1	3	1212	C3.4	5075
19	1335	1342	1400	1-	3				1	2	1336	C2.3	5075
20	0929	0934	0952	1-	3			1		2	0927	C1.8	5075
20	1415	1424	1445	1-	3	1	1		1	5	1412	C2.8	5075
21	0132	0137	0248	1	3			1	1		0129	C6.2	5075
21	0708	0715	0742	1-	3	1		1	1		0708	C3.3	5075
21	1824	1830	2000	3+	3					2	1825	C4.5	5084
22	1115	1126	1210	1	5	1	3	1	1	5	1115E	C7.3	5075
23	1314	1327	1400	1-	3	1			1	5	1310	C2.3	5075
24	0337	0344	0428	1-	3			1	1		No flare		
24	0635	0659	1000	2+	5	4		1	2	2	0637	M2.8	5084
24	1220	1233	1320	1+	5	3	1		1	6	1215	C5.3	5085
24	1601	1609	1630	1	5				1	8	1559	C4.3	5087
25	0141	0150	0205	1-	3			1	1		No flare		
25	1956	2010	2100	1	3	1		1		6	1947E	M1.5	5084
26	0020	0028	0110	1-	3			1	1		No flare		
26	0155	0243	0323	1-	3			1	1		No flare		
26	1011	1020	1050	1-	3	1	1	1	1	1	No flare		
26	1300	1305	1330	1-	3	1	1		1	3	No flare		
27	0030	0034	0053	1-	1			1			0038		5084
27	0157	0200	0214	1-	3			1	1		No flare		
27	0334	0344	0434	1-	3			1	1		No flare		
27	0741	0747	0852	2	5	2	1	1	2	2	0729	C8.9	5084
27	1030	1034	1100	1-	3				1	1	1031	C3.2	5092
27	1113	1131	1213	1	3	1	2	1	1	2	1104	C5.7	5084
27	1217	1223	1250	1-	1				1		1221	C3.4	5084
27	1354	1403	1450	1-	5	1			1	7	1356	C4.0	5084
27	1453	1524	1614	2	1		1				1455	C1.3	5090
27	1743	1746	1802	1	3					4	1732		5084
27	2233	2241	2254	1-	1			1			No flare		
28	0010	0015	0042	1-	3			1	1		0011		5092
28	0233	0256	0342	2	3	1		1	1		No flare		
28	0442	0452	0457	1-	3			1	1		0441	C2.0	5092
28	0634	0649	0723	1-	3		1	1			0636	C1.7	5092
28	0731	0738	0837	1-	3	1		1	2		0734	C2.7	5092
28	1210	1228	1259	1-	5	3	3	1	1	6	1206	C7.9	5095
28	2252	2328	0035	1	1			1			*		
29	0039	0043	0104	1-	3			1	1		No flare		
29	0802	0808	0829	1-	3	1		1	1		0804	C2.5	5092

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1988

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF SPA	SES	Flare (UT)	X-ray Class	NOAA Region
29	1351	1358	1425	1-	3	1			1	5	1349	C3.5	5095
29	2125	2133	2230	1+	3	1		1		4	2131	M1.6	5092
29	2220	2230	2300	1-	3	1		1			2227		5090
30	0012	0044	0158	1-	3			1	1		0008	C6.0	5084
30	0237	0242	0302	1-	3			1	1		0237		5084
30	0258	0312	0351	1	3			1	1		0257	C4.6	5084
30	0655	0705	0730	1-	3	1		1	2		0655	C2.7	5084
30	0848	0855	1018	3	5	4	3	1	2	2	0845		5095
30	1735	1740	1750	1-	1					1	1734	C2.8	5092
30	2131	2139	2214	1-	5	1		1		6	2128	C6.1	5084
30	2355	0000	0057	1-	3			1	1		2355	C2.4	5090
31	0718	0734	1017	3+	5	4	3	1	2	3	0718	M4.0	5095
31	1456	1501	1545	1+	3					2	1452E	C3.2	5092
31	1600	1602	1645	2	3					3	1602	C3.9	5092
31	2130	2138	2157	1-	3			1		1	2129	C2.1	5090

OBSERVATORIES REPORTING

Amherst, New Hampshire, USA	SES	Lintong, People's Republic of China	SPA
Ayrshire, Scotland	SES	Louisville, Kentucky, USA	SES
Darmstadt, German Federal Republic	SWF	Maui, Hawaii, USA	SWF
Farsta, Sweden	SES	Panska Ves, Czechoslovakia	SES, SEA, SWF
Hiraiso, Japan	SWF	Paterson, New Jesey, USA	SES
Houston, Texas, USA	SES	Somersworth, New Hampshire, USA	SES
Inubo, Japan	SPA	Tavares, Florida, USA	SES
Juliusruh, German Democratic Rep.	SWF	Tucson, Arizona, USA	SES
Kandilli, Turkey	SEA	Upice, Czechoslovakia	SEA
Kuhlungsborn, German Democratic Rep.	SEA, SPA	Valley Cottage, New York, USA	SES
Latrobe, Pennsylvania, USA	SES		

Observations are not necessarily continuous.

SIDs BY NOAA/SESC REGIONS

Day :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Reg. No.																															
5060	5	5	3		1	1	1	2																							
5062			6	1	2	2	2	4																							
5069							1	2	4	3																					
5071											1	1	2																		
5073												1	1					3													
5075											1		1			1	1	5	4	2	2	1	1								
5076																1															
5084																					1		1	1	1		6			5	
5085																							1	1							
5087																							1	1							
5090																											1		1	1	1
5092																											1	4	2	1	2
5095																												1	1	1	1
Number of events with X-Ray flares	4	3	7	1	3	3	4	8	4	2	2	2	3			2	1	6	4	2	3	1	1	3	1		6	4	3	6	4
Number of events with no flare patrol																		1										1			
Number of events with no flare reported		1			1	1			1	3	1													1	1	4	3	1	1		
Total SID events	5	6	9	1	4	4	4	8	5	6	3	2	4			2	1	9	4	2	3	1	1	4	2	4	11	7	5	8	4

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

JULY 1988

Observation Start Day (UT)	End (UT)	Sta	Decimetric Band Start (UT)	End (UT)	Int (1-3)	Metric Band Start (UT)	End (UT)	Int (1-3)	Dekametric Band Start (UT)	End (UT)	Int (1-3)	Spectral Type
01		LEAR				0101.0	0101.0	2				III
		PALE				0101.0	0101.0	1				III
		LEAR				0147.0	0147.0	2				III
		PALE				0147.0	0147.0	1				III
		LEAR				0250.0	0250.0	1				III
		LEAR				0550.0	0622.0	2				S
		LEAR				0720.0	0723.0	2				III
		LEAR				0748.0	0748.0	2				III
		LEAR				0806.0	0806.0	1				III
		LEAR				0817.0	0818.0	2				III
		SGMR				0934.0	0001.0	1				CONT
	1251 1857	WEIS				1304.3	1306.1	2				IIIG
		SGMR				1314.0	1315.0	2				III
		WEIS				1314.5	1315.1	1				IIIG
		WEIS				1320.5	1320.9	1				IIIG
		WEIS				1350.9	1351.1	1				IIIB
		WEIS				1356.2	1356.3	1				IIIB
		WEIS				1413.8	1414.0	1				IIIG
		WEIS				1432.9	1433.2	1				IIIB
		WEIS				1501.6	1501.7	1				IIIB
		WEIS				1528.3	1528.4	2				IIIB
		WEIS				1545.9	1546.0	1				IIIB
		WEIS				1551.2	1551.3	2				IIIB
		WEIS				1614.8	1615.0	2				IIIB
		WEIS				1618.6	1618.4	1				IIIB
		SGMR				1647.0	1651.0	2				V
		WEIS				1647.0	1649.1	2				IIIG
		SGMR				1656.0	1702.0	3				V
		WEIS				1657.2	1700.0	3				IIIGG
		PALE				1659.0	1700.0	2				III
		PALE				1736.0	1833.0	1				S
		PALE				1838.0	1935.0	1				S
		SGMR				1932.0	1942.0	2				V
		PALE				1942.0	1943.0	2				III
		PALE				1945.0	0501.0	1				CONT
		SGMR				2036.0	2039.0	3				V
		SGMR				2101.0	2114.0	3				IV
		PALE				2105.0	2117.0	3				S
		SGMR				2115.0	2116.0	3				V
		PALE				2305.0	2307.0	2				V
		PALE				2315.0	2319.0	2				V
		LEAR				2316.0	2317.0	1				III
02		CULG				0025.0	0128.0	3				S
		LEAR				0025.0	0032.0	2				III
		LEAR				0048.0	0050.0	2				III
		PALE				0048.0	0050.0	2				III
		LEAR				0050.0	0933.0	1				IV
		PALE				0101.0	0117.0	2				S
		PALE				0127.0	0128.0	3				V
		CULG				0206.0	0206.0	3				III
		CULG				0409.0	0438.0	2				S
		LEAR				0413.0	0419.0	2				III
		PALE				0413.0	0413.0	2				III
	0412 1415	WEIS				0413.0	1850.2	2				IIIN
		LEAR				0427.0	0438.0	3				III
		PALE				0427.0	0427.0	2				III
		WEIS				0427.3	0427.5	3				IIIG
		WEIS				0551.0	1530.2	2				IN
		CULG				0638.0	0650.0	3				S
		LEAR				0642.0	0644.0	3				III
		WEIS				0642.3	0644.7	3				IIIGG
		WEIS				0646.7	0650.0	3				IIIGG,RS
		LEAR				0718.0	0719.0	3				III
		WEIS				0718.6	0718.9	3				IIIG
		WEIS				0803.4	0807.0	3				IIIGG
		WEIS				0825.4	0828.7	3				IIIGG

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

JULY 1988

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
02		LEAR				0826.0	0828.0	3				III
		SGMR				1041.0	1449.0	1				CONT
		WEIS				1048.5	1054.8	3				IIIGG
		WEIS				1258.3	1259.7	3				IIIGG
		SGMR				1312.0	1317.0	3				V
		WEIS				1312.5	1323.5	3				IIIGG
		SGMR				1348.0	1348.0	2				III
		WEIS				1348.4	1348.7	2				IIIG
		SGMR				1445.0	1445.0	2				V
		SGMR				1449.0	0000.0	2				CONT
	1533	WEIS				1600.6	1600.9	3				IIIG
		SGMR				1605.0	1606.0	3				V
		WEIS				1605.4	1605.6	2				IIIG
		WEIS				1614.3	1614.7	3				IIIG
		WEIS				1634.8	1637.3	3				IIIGG
		PALE				1635.0	1636.0	2				III
		PALE				1643.0	1644.0	2				III
		SGMR				1643.0	1643.0	3				V
		WEIS				1643.4	1647.0	3				IIIGG
		PALE				1745.0	0501.0	1				CONT
		PALE				1904.0	1907.0	3				V
		SGMR				1904.0	1906.0	3				V
		PALE				2028.0	2029.0	2				III
		SGMR				2243.0	2248.0	3				V
		SGMR				2343.0	2343.0	3				V
03		LEAR				0010.0	0934.0	1				CONT
		LEAR				0248.0	0248.0	2				III
		LEAR				0322.0	0331.0	2				III
	1103	WEIS				0431.0	1851.0	3				IS,DC
		LEAR				0529.0	0529.0	2				III
	0414	WEIS				0529.0	1854.0	3				IIIN
		SGMR				0953.0	1257.0	1				CONT
		PALE				1702.0	0400.0	1				CONT
		PALE				1729.0	1730.0	2				V
		SGMR				1729.0	1732.0	3				V
		WEIS				1729.1	1729.5	3				IIIG
		PALE				1731.0	1732.0	2				III
		SGMR				1731.0	1732.0	3				V
		WEIS				1732.2	1732.4	3				IIIG
		PALE				1858.0	1858.0	2				III
		CULG				2223.0	2235.0	2				S
		LEAR				2351.0	0015.0	2				III
04		LEAR				0047.0	0934.0	1				CONT
		LEAR				0115.0	0116.0	2				III
	0414	WEIS				0422.0	1845.3	1				IIIN
		LEAR				0521.0	0521.0	2				III
		LEAR				0632.0	0632.0	2				III
		SGMR				1002.0	1002.0	1				V
		SGMR				1139.0	1422.0	1				CONT
		SGMR				1259.0	1300.0	3				V
		WEIS				1259.6	1259.9	3				IIIG
		SGMR				1304.0	1304.0	2				V
		SGMR				1317.0	1318.0	3				V
		WEIS				1317.5	1317.8	3				IIIG
		SGMR				1329.0	1331.0	3				V
		WEIS				1329.3	1331.4	3				IIIGG
		SGMR				1336.0	1358.0	1				II
		SGMR				1339.0	1339.0	2				V
		SGMR				1422.0	0000.0	2				CONT
		SGMR				1446.0	1448.0	3				V
		WEIS				1446.3	1447.0	3				IIIG
		WEIS				1456.0	1456.1	2				IIIG
		WEIS				1457.4	1458.8	2				IIIG
		SGMR				1536.0	1538.0	3				V
		WEIS				1536.8	1537.5	3				IIIG

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

JULY 1988

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
04		PALE				1706.0	1706.0	2				III
		SGMR				1706.0	1706.0	3				V
		WEIS				1706.1	1706.4	3				IIIG
		PALE				1830.0	1832.0	3				III
		SGMR				1830.0	1833.0	3				V
		WEIS				1830.6	1832.0	3				IIIGG
		PALE				1840.0	1845.0	2				III
		PALE				1846.0	1848.0	3				V
		SGMR				1846.0	1847.0	3				V
		WEIS				1846.5	1847.2	3				IIIG
		PALE				1928.0	1931.0	2				V
		SGMR				1928.0	1929.0	3				V
		PALE				2007.0	2013.0	2				III
		PALE				2124.0	2142.0	2				S
		PALE				2234.0	2249.0	1				S
		PALE				2308.0	2309.0	1				III
		PALE				2319.0	2320.0	2				V
05		PALE				0022.0	0022.0	1				III
		LEAR				0052.0	0053.0	2				III
		PALE				0052.0	0053.0	2				III
		LEAR				0107.0	0119.0	2				S
		PALE				0107.0	0119.0	2				S
		LEAR				0145.0	0149.0	2				III
		PALE				0145.0	0148.0	1				III
		LEAR				0237.0	0237.0	1				III
		LEAR				0257.0	0312.0	3				S
		PALE				0311.0	0313.0	2				V
		CULG				0312.0	0312.0	3				III
		LEAR				0324.0	0334.0	2				S
		PALE				0324.0	0333.0	2				S
		LEAR				0408.0	0408.0	2				III
		LEAR				0427.0	0429.0	2				III
	0416	0627 WEIS				0428.2	0428.6	2				IIIG
		LEAR				0449.0	0450.0	1				III
		LEAR				0523.0	0523.0	1				III
		LEAR				0545.0	0546.0	2				III
		WEIS				0545.9	0546.5	2				IIIG
		LEAR				0557.0	0600.0	1				III
		LEAR				0612.0	0637.0	3				III
		CULG				0613.0	0616.0	3				V
		WEIS				0613.1	0615.8	3				IIIGG,RS
		LEAR				0620.0	0934.0	1				CONT
		WEIS				0621.7	0623.0	2				IIIG
		CULG				0622.0	0630.0	3				III
		WEIS				0626.6	0626.8	1				IIIB
	0628	0631 WEIS				0628.8	0630.7	3				IIIGG,RS
		WEIS				0647.0	1608.0	2				IN,Cont
		LEAR				0652.0	0652.0	1				III
		LEAR				0653.0	0656.0	2				III
	0653	0722 WEIS				0653.2	0653.8	2				IIIG
		WEIS				0656.8	0657.0	2				IIIG
		LEAR				0837.0	0837.0	2				III
		LEAR				0842.0	0844.0	3				III
		LEAR				0902.0	0902.0	2				III
	0906	1857 WEIS				0936.7	0937.0	1				IIIG
		WEIS				0939.6	0939.8	1				IIIG
		SGMR				1138.0	1139.0	2				V
		WEIS				1138.1	1138.4	2				IIIG
		WEIS				1225.9	1226.2	3				IIIG
		SGMR				1315.0	1318.0	3				V
		WEIS				1315.3	1317.7	3				IIIG
		SGMR				1345.0	1346.0	1				V
		WEIS				1345.2	1346.0	2				IIIG
		SGMR				1540.0	1542.0	2				V
		WEIS				1540.3	1541.8	2				IIIG
		SVTO				1541.0	1541.0	2				III

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

JULY 1988

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
05		SVTO				1600.0	1622.0	2				S
		WEIS				1600.9	1602.5	2				IIIGG
		SGMR				1601.0	1626.0	2				S
		WEIS				1607.9	1608.5	2				IIIG
		WEIS				1610.0	1610.6	2				IIIG
		WEIS				1617.1	1617.3	1				IIIB
		WEIS				1618.3	1624.5	3				IIIG
		SGMR				1646.0	1647.0	2				V
		SVTO				1646.0	1646.0	2				III
		WEIS				1646.1	1646.8	2				IIIG
		PALE				1816.0	1816.0	2				V
		SGMR				1816.0	1817.0	2				V
		WEIS				1816.2	1816.5	2				IIIG
		SGMR				1826.0	1827.0	1				III
		PALE				1841.0	2037.0	3				S
		SGMR				1841.0	1845.0	3				S
		WEIS				1841.2	1841.5	3				IIIG
		WEIS				1845.4	1845.7	1				IIIG
		SGMR				1907.0	1909.0	3				V
		SGMR				1922.0	1936.0	3				S
		SGMR				2018.0	2019.0	3				III
		CULG				2119.0	2149.0	1				S
		CULG				2150.0	2154.0	3				III
		PALE				2150.0	2158.0	3				III
		SGMR				2150.0	2157.0	3				III
		CULG				2154.0	2157.0	3				V
06		CULG				0158.0	0652.0	1				S
		LEAR				0238.0	0238.0	1				III
	0415	0927 WEIS				0432.9	0433.6	2				IIIG,U
		CULG				0433.0	0433.0	-2				III
		LEAR				0433.0	0433.0	2				III
		SVTO				0433.0	0433.0	1				III
		WEIS				0515.0	1629.0	1				IN
		WEIS				0742.4	0742.5	2				IIIB
		LEAR				0855.0	0856.0	2				III
		SVTO				0855.0	0856.0	1				V
		WEIS				0855.5	0857.1	2				IIIG
		SVTO				0931.0	0932.0	1				V
	0930	1129 WEIS				0931.2	0932.1	3				IIIG
		WEIS				1058.9	1100.3	2				IIIG
		SGMR				1059.0	1100.0	1				V
		SGMR				1148.0	1150.0	2				III
		SVTO				1148.0	1157.0	2				V
		SGMR				1152.0	1157.0	3				V
	1154	1856 WEIS				1155.1	1156.7	3				IIIGG
		SVTO				1229.0	1230.0	1				III
		WEIS				1229.9	1230.8	3				IIIGG,U
		SGMR				1245.0	1246.0	2				III
		SVTO				1245.0	1259.0	2				S
		WEIS				1245.1	1245.4	1				IIIB
		SGMR				1255.0	1259.0	3				V
		WEIS				1255.7	1258.8	3				IIIGG
		SGMR				1343.0	1344.0	1				V
		WEIS				1343.8	1345.1	3				IIIG
		SGMR				1436.0	1442.0	3				V
		SVTO				1436.0	1440.0	2				V
		SGMR				1522.0	1523.0	1				III
		WEIS				1523.0	1523.2	2				IIIB
		SGMR				1616.0	1625.0	2				V
		WEIS				1616.7	1623.0	3				IIIGG,DP
		SGMR				1632.0	1636.0	2				III
		WEIS				1632.6	1633.1	2				IIIG
		SGMR				1647.0	1648.0	1				III
		SGMR				1832.0	1832.0	1				III
		PALE				1909.0	1909.0	1				III
		SGMR				1909.0	1909.0	1				III

JULY 1988

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
06		PALE				1949.0	1950.0	1				III
		PALE				2000.0	2048.0	1				S
		SGMR				2006.0	2006.0	1				III
		SGMR				2031.0	2035.0	2				V
		PALE				2057.0	2059.0	2				V
		SGMR				2057.0	2059.0	2				V
		CULG							2058.0	2058.0	1	III
		CULG				2154.0	2154.0	1				III
		PALE				2200.0	2200.0	2				V
		CULG				2226.0	2228.0	2				III
		LEAR				2354.0	2355.0	1				III
		PALE				2354.0	2355.0	2				III
07		CULG				0059.0	0100.0	2				III
		CULG				0144.0	0149.0	3				III
		CULG				0251.0	0304.0	2				III
		LEAR				0259.0	0300.0	1				III
		CULG				0325.0	0515.0	2				I
		CULG				0325.0	0515.0	2				S
		CULG				0401.0	0414.0	2				III
	0418 1719	WEIS				0440.0	1734.0	2				IN
		LEAR				0450.0	0451.0	2				V
		SVTO				0450.0	0450.0	1				III
		WEIS				0450.5	0450.9	2				IIIG
		CULG				0603.0	0624.0	3				III
		SVTO				0944.0	0944.0	1				III
		WEIS				0944.2	0944.8	2				IIIG
		WEIS				1023.3	1025.5	2				IIIG
		WEIS				1043.3	1044.3	2				IIIG
		WEIS				1214.3	1214.7	2				IIIG
		WEIS				1226.4	1226.6	1				IIIG
		SGMR				1326.0	1326.0	1				III
		SGMR				1354.0	1354.0	1				III
		WEIS	1354.0	1357.6	2							IIIGG
		SGMR				1437.0	1447.0	3				IV
		SVTO				1437.0	1444.0	2				III
		WEIS				1437.4	1438.8	3				IIIGG
		WEIS				1440.3	1445.6	3				IIIGG
		SGMR				1617.0	1617.0	1				V
		SGMR				1622.0	1624.0	2				V
	1728 1856	WEIS				1623.4	1623.6	1				IIIB
		PALE				1942.0	1942.0	2				III
		SGMR				1942.0	1942.0	2				V
08		CULG				0241.0	0241.0	2				III
		LEAR				0241.0	0242.0	2				III
		CULG				0243.0	0254.0	1				S
		CULG				0331.0	0338.0	3				V
		LEAR				0332.0	0338.0	3				III
		PALE				0332.0	0337.0	2				III
		SVTO				0335.0	0336.0	1				III
		CULG				0404.0	0404.0	1				III
	0416 0726	WEIS				0451.0	1625.0	2				IN
		CULG				0509.0	0633.0	1				S
		LEAR				0541.0	0542.0	1				III
		LEAR				0613.0	0615.0	1				III
		SVTO				0748.0	0748.0	1				III
		LEAR				0802.0	0806.0	1				III
		SVTO				0802.0	0805.0	1				III
		SGMR				1042.0	1051.0	1				V
		SVTO				1042.0	1045.0	1				V
		SGMR				1105.0	1220.0	1				CONT
	1053 1854	WEIS				1114.0	1807.0	3				IIIS,DP
		SVTO				1138.0	1145.0	1				III
		SVTO				1210.0	1601.0	1				CONT
		SGMR				1220.0	0000.0	2				CONT
		SGMR				1239.0	0000.0	3				S

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

JULY 1988

Observation Start Day (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
08		SVTO				1239.0	1240.0	2				III
		SGMR				1332.0	1333.0	3				V
		SGMR				1443.0	1446.0	3				V
		WEIS				1443.3	1446.5	3				IIIGG
		SGMR				1546.0	2030.0	1				CONT
		SGMR				1552.0	1553.0	2				III
		SGMR				1623.0	1624.0	2				V
		SGMR				1653.0	1654.0	2				V
		WEIS				1707.1	1708.8	1				IIIB,RS,DP
		SGMR				1714.0	1716.0	3				V
		PALE				1715.0	1716.0	2				V
		WEIS				1715.1	1716.4	3				IIIGG
		PALE				1806.0	1809.0	1				III
		SGMR				1806.0	1809.0	2				V
		PALE				1848.0	1851.0	1				III
		PALE				1901.0	1909.0	2				V
		SGMR				1906.0	1907.0	3				V
		PALE				1923.0	1926.0	2				V
		SGMR				1924.0	1925.0	3				V
		PALE				1938.0	1949.0	3				S
		SGMR				1938.0	1938.0	3				V
		SGMR				1942.0	1948.0	3				V
		PALE				2010.0	2011.0	2				III
		SGMR				2010.0	2011.0	2				III
		PALE				2021.0	2033.0	2				S
		SGMR				2030.0	2047.0	2				S
		PALE				2039.0	2046.0	1				III
		SGMR				2047.0	2359.0	1				CONT
		PALE				2138.0	2213.0	1				S
		CULG				2255.0	2303.0	2				III
		PALE				2255.0	2313.0	3				V
		SGMR				2255.0	2303.0	3				V
		CULG				2313.0	2314.0	2				III
		LEAR				2313.0	2313.0	1				III
		PALE				2320.0	2320.0	1				III
09		PALE				0047.0	0048.0	1				III
		LEAR				0059.0	0102.0	2				V
		PALE				0059.0	0059.0	2				V
		PALE				0142.0	0148.0	2				V
		LEAR				0143.0	0148.0	3				V
		LEAR				0148.0	0000.0	1				CONT
		LEAR				0251.0	0305.0	3				S
		PALE				0252.0	0301.0	2				V
		LEAR				0331.0	0337.0	2				III
		PALE				0331.0	0331.0	1				III
		LEAR				0347.0	0353.0	2				III
		LEAR				0405.0	0415.0	3				S
		PALE				0405.0	0409.0	1				V
	0419	0809 WEIS				0459.0	1801.0	2				IN
		LEAR				0505.0	0507.0	2				III
		SVTO				0506.0	0506.0	1				III
	0825	1855 WEIS				0506.0	1746.0	3				IIIS
		LEAR				0603.0	0619.0	3				S
		SVTO				0603.0	0618.0	1				S
		LEAR				0630.0	0631.0	2				III
		SVTO				0630.0	0634.0	1				V
		LEAR				0645.0	0645.0	2				III
		SVTO				0645.0	0645.0	1				III
		SVTO				0723.0	0738.0	1				S
		SGMR				0938.0	2359.0	1				CONT
		SVTO				1208.0	1208.0	1				III
		SVTO				1302.0	1302.0	1				III
		SVTO				1334.0	1430.0	1				S
		SGMR				1426.0	1431.0	3				V
		SVTO				1428.0	1430.0	2				V
		SGMR				1527.0	1535.0	2				V

JULY 1988

Observation Day	Start (UT)	End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
09			SVTO				1527.0	1534.0	2				III
			SGMR				1656.0	1724.0	2				IV
			PALE				1659.0	1708.0	2				III
			SGMR				1707.0	1708.0	3				V
			PALE				1912.0	1916.0	1				V
			SGMR				1912.0	1912.0	2				V
			SGMR				1914.0	1916.0	3				V
			PALE				1946.0	1953.0	2				V
			SGMR				1946.0	1953.0	2				V
			SGMR				1952.0	1953.0	2				V
			PALE				2035.0	2039.0	2				V
			SGMR				2035.0	2037.0	3				V
			PALE				2055.0	2056.0	2				V
			SGMR				2055.0	2056.0	2				V
			PALE				2114.0	2119.0	2				V
			PALE				2131.0	2133.0	2				V
			SGMR				2131.0	2133.0	2				III
			PALE				2208.0	2256.0	1				CONT
10			CULG				0401.0	0552.0	1				S
	0418	1853	WEIS				0541.0	1743.0	2				IN
			SVTO				0601.0	0000.0	1				CONT
			CULG				0629.0	0629.0	2				III
			LEAR				0629.0	0629.0	2				III
			WEIS				0629.1	0629.3	2				IIIB
			WEIS				0947.9	0948.3	2				IIIG
			WEIS				1003.5	1003.7	2				IIIG
			WEIS				1045.3	1045.5	1				IIIB
			WEIS				1057.0	1057.2	1				IIIB
			WEIS				1123.7	1123.8	1				IIIB
			SGMR				1351.0	1352.0	1				III
			SGMR				1443.0	1443.0	1				III
			SGMR				1457.0	1458.0	2				V
			SGMR				1616.0	1617.0	2				V
			WEIS				1616.8	1617.1	2				IIIB
			SGMR				1622.0	1623.0	1				V
			SGMR				1647.0	1654.0	2				V
			PALE				1648.0	1648.0	1				III
			WEIS				1648.0	1648.5	2				IIIG
			SGMR				1713.0	2358.0	1				CONT
			SGMR				1750.0	1751.0	2				V
			PALE				1751.0	1751.0	1				V
			PALE				1834.0	1834.0	1				III
			PALE				2037.0	0003.0	1				CONT
			CULG				2133.0	2134.0	2				III
11			LEAR				0106.0	0107.0	1				III
			LEAR				0239.0	0937.0	1				CONT
			LEAR				0336.0	0337.0	2				III
			WEIS				0451.5	0452.2	1				IIIG
	0420	1541	WEIS				0505.0	1800.0	1				IN
			WEIS				0723.6	0725.2	2				IIIG
			SVTO				0724.0	0725.0	1				III
			LEAR				0725.0	0738.0	2				S
			SVTO				0734.0	0738.0	1				III
			WEIS				0734.9	0735.3	2				IIIG
			WEIS				0737.4	0738.2	3				IIIG
			SVTO				0755.0	0755.0	1				III
			SGMR				1015.0	1022.0	1				V
			WEIS				1015.5	1019.6	2				IIIGG
			SGMR				1044.0	1047.0	1				V
			WEIS				1046.4	1047.0	2				IIIG
			SGMR				1124.0	1128.0	3				V
			SVTO				1124.0	1127.0	3				III
			WEIS				1124.2	1127.5	3				IIIGG,V
			SGMR							1256.0	1332.0	1	CONT

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

JULY 1988

Observation Start Day (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
11		SGMR				1313.0	1314.0	1				III
		WEIS				1313.9	1314.7	1				IIIG
		SGMR				1332.0	2358.0	1				CONT
		WEIS				1406.5	1406.6	1				IIIB
		WEIS				1417.2	1420.5	3				IIIG
		SGMR				1418.0	1420.0	2				V
		SVTO				1419.0	1420.0	2				III
		SGMR				1533.0	1534.0	2				III
		WEIS				1533.6	1533.8	2				IIIB
	1758	1854 WEIS				1827.3	1827.4	1				IIIB
		PALE				1918.0	1918.0	1				III
		PALE				2004.0	2005.0	2				III
		PALE				2225.0	2225.0	1				III
		CULG							2247.0	2249.0	1	III
		LEAR				2348.0	2349.0	1				III
		PALE				2348.0	2354.0	1				V
12		CULG				0041.0	0047.0	2				III
		PALE				0041.0	0042.0	1				III
		CULG				0054.0	0055.0	1				III
		CULG				0137.0	0137.0	1				III
		CULG				0146.0	0146.0	1				III
		CULG				0201.0	0206.0	2				III
		LEAR				0202.0	0207.0	1				III
		PALE				0202.0	0208.0	1				III
		LEAR				0205.0	0205.0	2				S
		PALE				0237.0	0251.0	1				III
		CULG				0239.0	0239.0	1				III
		CULG				0433.0	0439.0	1				III
		LEAR				0433.0	0433.0	1				V
		LEAR				0438.0	0441.0	-1				IIIB
	0419	1852 WEIS				0551.7	0551.8	1				III
		CULG				0614.0	0614.0	1				III
		CULG				0629.0	0634.0	1				III
		LEAR				0629.0	0631.0	1				III
		CULG				0659.0	0659.0	1				III
		LEAR				0732.0	0732.0	1				III
		SVTO				0732.0	0732.0	1				IIIB
		WEIS				0732.3	0732.5	1				IN,DC
		WEIS				0827.0	1646.0	2				III
		SGMR				1215.0	1215.0	1				CONT
		SGMR				1215.0	2357.0	1				IIIB
		WEIS				1215.3	1215.5	1				IIIG
		WEIS				1244.4	1245.2	1				S
		PALE				1742.0	1809.0	1				III
		PALE				1821.0	1822.0	1				S
		SGMR				1821.0	1841.0	2				III
		PALE				1837.0	1838.0	2				IIIG
		WEIS				1837.4	1838.0	1				S
		PALE				1857.0	1952.0	1				S
		PALE				1958.0	2033.0	1				V
		PALE				2348.0	2354.0	1				
13		CULG				0120.0	0121.0	1				III
		CULG				0122.0	0123.0	2				III
		CULG				0446.0	0554.0	1				S
		LEAR				0454.0	0454.0	1				III
	0422	0902 WEIS				0543.0	1610.0	2				IN
		LEAR				0809.0	0810.0	2				III
		SVTO				0810.0	0810.0	1				III
		SVTO				0810.0	0811.0	1				III
		WEIS				0810.3	0811.0	1				IIIG
		SVTO				1419.0	1420.0	1				III
		SGMR				1420.0	1420.0	1				III
	0923	1852 WEIS				1420.3	1420.5	2				IIIB
		CULG				2212.0	2212.0	1				III
		CULG				2224.0	2227.0	1				III

JULY 1988

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
13		CULG				2302.0	2302.0	1				III
		CULG				2304.0	2304.0	1				III
14		CULG				0013.0	0513.0	1				S
		CULG				0250.0	0335.0	2				I
		LEAR				0252.0	0252.0	2				III
		PALE				0252.0	0252.0	1				III
		CULG				0253.0	0253.0	2				III
		SVTO				0901.0	0901.0	1				III
		WEIS				0901.6	0901.8	2				IIIB
		SGMR				1057.0	1058.0	1				III
		WEIS				1057.7	1058.1	1				IIIG
0421	1521	WEIS				1216.0	1744.0	2				IN
		WEIS				1328.6	1329.2	3				IIIG,RS
		SGMR				1438.0	1438.0	1				III
		WEIS				1438.4	1438.6	1				IIIB
		SGMR				1533.0	1534.0	2				V
1530	1850	WEIS				1533.2	1534.2	3				IIIG
		SGMR				1624.0	1625.0	2				V
		WEIS				1624.7	1625.0	2				IIIB
		SGMR				1711.0	1711.0	1				III
		WEIS				1711.2	1711.7	2				IIIB
		PALE				1759.0	1759.0	1				III
		SGMR				1759.0	1800.0	2				V
		WEIS				1759.2	1759.7	1				IIIG
		SGMR				1849.0	1849.0	1				V
		PALE				1908.0	1908.0	1				III
		SGMR				1908.0	1909.0	1				V
		SGMR				1946.0	1947.0	1				III
		PALE				1949.0	1949.0	1				III
		SGMR				1949.0	1949.0	2				III
		SGMR				2039.0	2356.0	1				CONT
		PALE				2043.0	2047.0	1				III
		PALE				2306.0	2306.0	1				III
		PALE				2327.0	2329.0	1				III
15		LEAR				0114.0	0114.0	2				III
		PALE				0114.0	0114.0	1				III
		LEAR				0131.0	0132.0	1				III
		PALE				0204.0	0212.0	1				III
		LEAR				0206.0	0212.0	2				III
		LEAR				0317.0	0318.0	1				III
		LEAR				0341.0	0342.0	1				III
		LEAR				0531.0	0938.0	1				CONT
		LEAR				0551.0	0552.0	2				III
		SVTO				0551.0	0552.0	2				III
0424	0913	WEIS				0551.9	0552.1	2				IIIG
		LEAR				0640.0	0640.0	2				III
		SVTO				0640.0	0640.0	1				III
		WEIS				0640.4	0640.6	1				IIIG
		WEIS				0710.8	0711.4	1				IIIG
		LEAR				0711.0	0711.0	2				III
		SVTO				0711.0	0711.0	2				III
		SVTO				0733.0	0733.0	1				III
		WEIS				0733.7	0733.8	1				IIIB
		SVTO				0806.0	0806.0	1				III
		SVTO				0818.0	0818.0	1				III
		SVTO				0846.0	0846.0	1				III
		WEIS				0846.4	0847.0	1				IIIG
		WEIS				0908.1	0908.5	1				IIIG
0927	1851	WEIS				0950.8	0950.9	1				IIIG
		WEIS				1011.8	1012.5	1				IIIG
		WEIS				1020.8	1021.0	1				IIIB
		WEIS				1127.7	1127.8	1				IIIB
		SGMR				1226.0	1228.0	1				V
		WEIS				1227.2	1228.5	2				IIIGG
		SGMR				1242.0	1915.0	1				CONT

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

JULY 1988

Observation Start Day (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
15		WEIS				1433.8	1434.8	2				IIIG
		WEIS				1436.9	1439.4	2				IIIG
		WEIS				1640.3	1640.5	1				IIIB
		WEIS				1747.5	1747.6	1				IIIB
		PALE				1816.0	1836.0	2				S
		SGMR				1824.0	1827.0	2				V
		WEIS				1824.5	1826.8	2				IIIGG
		SGMR				1835.0	1836.0	2				V
		WEIS				1835.7	1836.4	2				IIIG
		PALE				1854.0	1855.0	2				III
		SGMR				1854.0	1855.0	2				V
		SGMR				1915.0	2356.0	2				CONT
		SGMR				1954.0	1955.0	2				V
		PALE				2000.0	2003.0	2				V
16		LEAR				0016.0	0023.0	3				III
		PALE				0016.0	0023.0	2				III
		LEAR				0059.0	0111.0	2				III
		PALE				0059.0	0102.0	1				III
		PALE				0111.0	0111.0	1				III
		LEAR				0129.0	0155.0	2				S
		PALE				0136.0	0155.0	2				S
		LEAR				0215.0	0939.0	1				CONT
		LEAR				0254.0	0338.0	2				S
		PALE				0254.0	0306.0	1				S
		PALE				0317.0	0319.0	1				III
		PALE				0330.0	0331.0	1				III
		LEAR				0352.0	0402.0	2				III
		PALE				0352.0	0401.0	1				III
	0423	0647 WEIS				0522.0	1838.0	3				IIIN,Z,F,D
		LEAR				0523.0	0523.0	2				III
		SVTO				0635.0	0636.0	1				III
		LEAR				0713.0	0715.0	2				III
		SVTO				0713.0	0714.0	1				V
		SVTO				0742.0	1654.0	1				CONT
		SVTO				0744.0	0844.0	1				S
		LEAR				0834.0	0834.0	2				III
		SVTO				0834.0	0834.0	2				III
		LEAR				0918.0	0920.0	2				III
		SVTO				0918.0	0922.0	2				III
	0705	1850 WEIS				0918.2	0922.7	3				IIIGG
		LEAR				0921.0	0922.0	3				III
		LEAR				0934.0	0934.0	2				III
		SVTO				0934.0	0934.0	2				III
		WEIS				0934.1	0934.8	3				IIIG,U
		SGMR				0946.0	2355.0	1				CONT
		SGMR				1142.0	1143.0	2				III
		SVTO				1142.0	1142.0	1				III
		SGMR				1314.0	1315.0	2				III
		SGMR				1332.0	1332.0	3				III
		SVTO				1332.0	1332.0	2				III
		WEIS				1332.3	1332.7	3				IIIG
		SGMR				1409.0	1412.0	2				III
		SVTO				1409.0	1411.0	1				III
		WEIS				1433.6	1434.3	3				Spikes
		SGMR				1836.0	1838.0	2				V
		PALE				2203.0	2207.0	2				V
		CULG				2204.0	2206.0	3				III
		LEAR				2345.0	2345.0	1				III
		PALE				2355.0	2357.0	3				III
		LEAR				2356.0	2356.0	2				III
17		CULG				0001.0	0143.0	1				S
		LEAR				0011.0	0939.0	1				CONT
		LEAR				0049.0	0103.0	2				S
		CULG				0053.0	0103.0	3				III
		PALE				0057.0	0103.0	2				III

JULY 1988

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
17		CULG				0143.0	0214.0	1				S
		LEAR				0147.0	0148.0	2				III
		CULG				0214.0	0323.0	1				S
		CULG				0323.0	0418.0	1				S
		LEAR				0337.0	0401.0	2				S
		WEIS				0425.0	1701.0	3				IIIN
		CULG				0427.0	0428.0	2				III
		LEAR				0427.0	0439.0	2				S
		SVTO				0427.0	0437.0	1				S
		SVTO				0433.0	1754.0	1				CONT
		CULG				0436.0	0440.0	2				III
		WEIS				0436.1	0437.8	2				IIIG
		WEIS				0526.7	0528.2	3				IIIGG
		CULG				0539.0	0540.0	2				III
		LEAR				0548.0	0554.0	2				III
		WEIS				0548.7	0550.2	3				IIIG
		LEAR				0549.0	0550.0	3				III
		SVTO				0549.0	0550.0	1				III
		LEAR				0610.0	0611.0	2				III
		SVTO				0610.0	0610.0	1				III
		CULG				0611.0	0611.0	1				III
		WEIS				0616.0	1815.0	2				IN,DC,DP
		SVTO				0627.0	1602.0	2				CONT
		CULG				0634.0	0655.0	1				S
		CULG				0645.0	0647.0	2				I
		WEIS				0645.3	0647.8	2				IIIG,Spikes
		CULG				0646.0	0648.0	2				III
		LEAR				0646.0	0647.0	2				III
	0426	1849 WEIS				0930.0	1846.0	2				Cont
		SGMR				0946.0	1246.0	1				CONT
		WEIS				1014.1	1016.1	2				IIIGG,Spikes
		SGMR				1246.0	2356.0	2				CONT
		WEIS				1414.7	1415.4	3				IIIGG,Spikes
		SGMR				1415.0	1415.0	3				III
		SGMR				1437.0	1438.0	3				III
		WEIS				1437.7	1438.3	3				IIIGG
		PALE				1640.0	0459.0	2				CONT
		LEAR				2320.0	0000.0	1				CONT
		LEAR				2359.0	0000.0	2				III
18		LEAR				0032.0	0032.0	2				III
		LEAR				0045.0	0940.0	2				CONT
		LEAR				0148.0	0149.0	3				III
		CULG				0200.0	0230.0	2				CONT
		LEAR				0259.0	0300.0	3				III
		CULG				0300.0	0336.0	2				S
		SVTO				0433.0	0000.0	1				CONT
		WEIS				0453.0	1618.0	2				IN,DC
	0425	1513 WEIS				0458.0	1832.0	3				IIIS,DP,F
		WEIS				0930.7	0931.6	3				IIIG
		SGMR				0945.0	1245.0	1				CONT
		WEIS				0947.5	0948.3	3				IIIG
		WEIS				1231.0	1231.4	3				IIIG
		WEIS				1238.8	1239.1	3				IIIG
		SVTO				1247.0	1247.0	2				III
		WEIS				1247.3	1248.7	3				IIIGG
		SVTO				1537.0	1541.0	3				III
	1522	1849 WEIS				1537.5	1542.6	3				IIIGG,U
		SGMR				1539.0	1539.0	3				III
		WEIS				1546.8	1547.4	3				IIIG
		SVTO				1624.0	1651.0	3				IV
		WEIS				1624.9	1632.2	3				IIIGG,F
		PALE				1625.0	1629.0	2				V
		SGMR				1625.0	1655.0	3				IV
		PALE				1635.0	1637.0	1				III
		WEIS				1635.5	1638.5	3				IIIGG
		PALE				1654.0	0000.0	1				CONT

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

JULY 1988

Observation Day	Start (UT)	End (UT)	Sta	Decimetric Band Start (UT)	End (UT)	Int (1-3)	Metric Band Start (UT)	End (UT)	Int (1-3)	Dekametric Band Start (UT)	End (UT)	Int (1-3)	Spectral Type
18			PALE				1848.0	1913.0	3				V
			SGMR				1848.0	1858.0	3				V
			WEIS				1848.3	1848.8	3				IIIG
			LEAR				2320.0	0031.0	1				CONT
19			LEAR				0031.0	0036.0	2				III
			LEAR				0031.0	0940.0	2				CONT
			LEAR				0158.0	0158.0	3				III
			CULG				0317.0	0527.0	1				S
			SVTO				0356.0	1604.0	2				CONT
			WEIS				0428.0	1836.0	3				Cont
	0428	1848	WEIS				0432.0	1813.0	3				IIIS
			WEIS				0446.0	1844.0	2				IN
			LEAR				0453.0	0456.0	3				III
			LEAR				0549.0	0551.0	3				III
			LEAR				0742.0	0743.0	3				III
			WEIS				0742.4	0743.3	3				IIIG
			LEAR				0750.0	0753.0	3				III
			WEIS				0750.6	0753.5	3				IIIGG
			SVTO				0751.0	0753.0	3				III
			WEIS				0830.5	0831.6	3				IIIG
			WEIS				0846.0	0849.1	3				IIIGG
			SGMR				0946.0	1126.0	1				CONT
			WEIS				0949.8	0950.9	3				IIIG
			WEIS				0956.0	0956.8	3				IIIG
			WEIS				1007.0	1007.7	3				IIIG
			WEIS				1016.7	1018.4	3				IIIG
			WEIS				1038.6	1040.2	3				IIIG
			WEIS				1048.1	1049.2	3				IIIG
			WEIS				1111.8	1112.1	3				IIIG
			SGMR				1112.0	1113.0	-2				III
			SGMR				1126.0	1430.0	2				CONT
			WEIS				1126.3	1129.2	3				IIIGG
			SGMR				1210.0	1227.0	3				IV
			WEIS				1211.1	1226.9	3				IIIGG
			WEIS	1334.6	1337.3	3							Spikes
			WEIS				1334.9	1337.8	3				IIIGG
			SGMR				1335.0	1337.0	3				V
			SGMR				1430.0	1600.0	3				CONT
			WEIS				1440.2	1454.2	3				IIIGG
			PALE				1541.0	0459.0	2				CONT
			WEIS				1550.1	1554.7	3				IIIGG
			SGMR				1600.0	2353.0	2				CONT
			LEAR				2316.0	0015.0	1				CONT
20			CULG				0014.0	0015.0	2				III
			LEAR				0015.0	0940.0	2				CONT
			CULG				0153.0	0153.0	2				III
			CULG				0215.0	0218.0	2				III
			SVTO				0419.0	0000.0	1				CONT
	0427	0700	WEIS				0431.0	1039.0	2				IS,DC
			WEIS				0540.0	1055.0	2				Cont,P
			LEAR				0650.0	0707.0	3				II
			WEIS	0925.3	0925.5	2							IIIG
			WEIS				0930.9	0931.8	3				IIIG
			SGMR				0947.0	1306.0	1				CONT
			SGMR				1306.0	2352.0	2				CONT
	0706	1847	WEIS				1329.0	1846.0	2				IIIN
			WEIS				1425.3	1434.7	3				IIIGG
			WEIS				1536.3	1538.4	3				IIIG
			PALE				1728.0	1741.0	2				IV
			WEIS				1728.2	1729.7	2				IIIG
			SGMR				1734.0	1744.0	3				IV
			WEIS				1734.2	1745.7	3				Spikes
			PALE				1842.0	1855.0	3				S
			SGMR				1842.0	1854.0	3				S
			LEAR				2347.0	2351.0	2				III

JULY 1988

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
20		PALE				2347.0	2351.0	3				III
21		CULG				0025.0	0026.0	1				III
		CULG				0100.0	0124.0	1				S
		CULG				0128.0	0135.0	3				III
		LEAR				0128.0	0137.0	3				V
		PALE				0128.0	0148.0	3				S
		CULG				0135.0	0148.0	1				III
		CULG				0136.0	0142.0	1				III
		LEAR				0137.0	0900.0	1				CONT
		CULG				0225.0	0229.0	1				III
		LEAR				0225.0	0229.0	2				V
		PALE				0225.0	0227.0	2				III
		CULG				0520.0	0639.0	1				S
		SVTO				0556.0	1752.0	1				CONT
		LEAR				0706.0	0718.0	3				V
		WEIS				0706.9	0711.8	3				IIIGG
		CULG				0708.0	0712.0	3				III
		CULG				0709.0	0709.0	1				III
		CULG				0714.0	0716.0	1				III
		SGMR				1104.0	1106.0	1				V
0430	1846	WEIS				1104.0	1808.0	2				IIIN
		SGMR				1142.0	0000.0	1				CONT
		SGMR				1142.0	2351.0	1				CONT
		SVTO				1448.0	1448.0	2				III
		WEIS				1544.6	1545.0	3				IIIG
		SGMR				1656.0	1657.0	2				V
		WEIS				1656.7	1657.7	2				IIIG
		PALE				1700.0	1700.0	2				III
		SGMR				1700.0	1701.0	3				V
		SVTO				1700.0	1700.0	2				III
		WEIS				1700.3	1701.5	3				IIIG
		PALE				1807.0	1808.0	1				III
		SGMR				1807.0	1808.0	2				V
		PALE				1854.0	1900.0	1				III
		SGMR				1854.0	1900.0	2				III
		PALE				2032.0	2033.0	1				V
		PALE				2100.0	2100.0	2				III
		SGMR				2100.0	2100.0	2				III
		CULG				2106.0	2107.0	1				III
		CULG				2108.0	2109.0	1				III
		PALE				2111.0	2115.0	2				III
		SGMR				2111.0	2114.0	2				V
		CULG				2151.0	2205.0	1				III
		PALE				2151.0	2205.0	1				S
		PALE				2235.0	0300.0	1				CONT
		PALE				2245.0	2247.0	2				V
		CULG				2246.0	2247.0	3				III
		PALE				2246.0	2247.0	2				V
		SGMR				2246.0	2246.0	2				V
		CULG				2309.0	2316.0	1				III
		PALE				2309.0	2311.0	2				III
		PALE				2347.0	2351.0	3				III
22		PALE				0025.0	0029.0	3				V
		CULG				0026.0	0027.0	1				III
		LEAR				0026.0	0029.0	3				V
		PALE				0106.0	0114.0	2				V
		CULG				0107.0	0109.0	1				III
		LEAR				0107.0	0114.0	3				III
		CULG				0111.0	0112.0	3				III
		LEAR				0133.0	0136.0	2				III
		PALE				0144.0	0200.0	3				S
		LEAR				0145.0	0200.0	3				S
		CULG				0152.0	0158.0	3				III
		CULG				0159.0	0200.0	3				III
		LEAR				0205.0	0205.0	1				III

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

JULY 1988

Observation Start Day (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
22		LEAR				0219.0	0230.0	2				S
		PALE				0219.0	0225.0	1				III
		LEAR				0245.0	0340.0	3				S
		PALE				0246.0	0301.0	3				S
		CULG				0258.0	0301.0	3				III
		PALE				0310.0	0339.0	2				S
		CULG				0326.0	0328.0	3				III
		CULG				0327.0	0400.0	1				I
		CULG				0336.0	0336.0	2				III
		LEAR				0350.0	0400.0	3				V
		PALE				0350.0	0356.0	3				V
		SVTO				0351.0	0351.0	1				III
		LEAR				0403.0	0422.0	1				S
	0429	1533 WEIS				0450.0	1756.0	2				IN
		LEAR				0452.0	0453.0	1				III
		WEIS				0452.0	1415.0	2				IIIN
		CULG				0456.0	0458.0	1				III
		LEAR				0456.0	0457.0	2				III
		SVTO				0456.0	0457.0	1				III
		CULG				0550.0	0556.0	2				III
		LEAR				0550.0	0556.0	2				III
		SVTO				0550.0	0555.0	2				III
		WEIS				0550.2	0555.9	3				IIIGG
		LEAR				0551.0	0553.0	3				III
		LEAR				0648.0	0648.0	1				III
		SVTO				0648.0	0652.0	2				III
		WEIS				0648.1	0652.6	3				Spikes
		CULG				0652.0	0652.0	1				III
		LEAR				0652.0	0652.0	2				III
		WEIS				0652.2	0652.5	3				IIIG
		SVTO				0712.0	0723.0	2				S
		LEAR				0715.0	0719.0	1				III
		LEAR				0746.0	0746.0	2				III
		SVTO				0746.0	0746.0	1				III
		SVTO				0759.0	0800.0	1				III
		LEAR				0800.0	0800.0	1				III
		SVTO				0905.0	0906.0	1				III
		SVTO				0948.0	0951.0	1				III
		SGMR				1210.0	1210.0	1				V
		SGMR				1333.0	2351.0	1				CONT
	1631	1844 WEIS										
		PALE				1858.0	1902.0	2				V
		SGMR				1900.0	1903.0	3				V
		PALE				1913.0	1914.0	1				III
		CULG				2126.0	2127.0	1				III
		CULG				2214.0	2221.0	1				III
		CULG				2228.0	2230.0	1				III
		CULG				2234.0	2234.0	1				III
		CULG				2304.0	2304.0	2				III
		PALE				2308.0	2309.0	2				V
		CULG				2312.0	2312.0	1				III
		CULG				2320.0	2325.0	2				III
		PALE				2320.0	2324.0	2				V
		LEAR				2322.0	2325.0	1				III
23		LEAR				0550.0	0550.0	1				III
		CULG				0551.0	0551.0	1				III
		LEAR				0728.0	0729.0	2				III
		SVTO				0728.0	0729.0	1				III
		SVTO				0728.0	0729.0	2				III
	0431	1844 WEIS				0728.8	0729.5	2				IIIG
		SGMR				1225.0	1226.0	2				III
		SVTO				1225.0	1225.0	2				III
		WEIS				1225.6	1225.9	2				IIIG
		WEIS				1315.9	1316.5	2				IIIG,Spikes
		SGMR				1317.0	1324.0	3				III
		SVTO				1317.0	1323.0	3				V

JULY 1988

Observation Start (UT) Day	End (UT)	Sta	Decimetric Band Start (UT)	End (UT)	Int (1-3)	Metric Band Start (UT)	End (UT)	Int (1-3)	Dekametric Band Start (UT)	End (UT)	Int (1-3)	Spectral Type
23		WEIS				1317.0	1323.5	3				II H,HB
		SGMR				1440.0	1443.0	3				V
		SVTO				1440.0	1441.0	2				V
		WEIS				1440.4	1442.8	3				IIIG
		SGMR				1503.0	1524.0	3				S
		WEIS				1503.9	1517.7	3				IIIGG
		SVTO				1504.0	1526.0	3				S
		WEIS				1522.6	1525.7	3				IIIG
		PALE				1655.0	1655.0	2				III
		SGMR				1655.0	1656.0	3				V
		SVTO				1655.0	1655.0	2				III
		WEIS				1655.0	1655.7	3				IIIG
		SGMR				1725.0	1726.0	2				V
		WEIS				1725.8	1726.0	2				IIIB
		SGMR				1816.0	1835.0	2				S
		PALE				1818.0	1835.0	3				S
		WEIS				1821.8	1822.4	2				IIIG
		SGMR				1833.0	1834.0	3				V
		WEIS				1833.6	1833.9	3				IIIG
		PALE				1954.0	1955.0	1				III
		PALE				2030.0	2056.0	2				S
		SGMR				2030.0	2055.0	3				S
		PALE				2110.0	2111.0	1				III
		PALE				2122.0	2125.0	1				III
		PALE				2144.0	2144.0	1				III
		CULG				2200.0	2212.0	2				III
		PALE				2200.0	2209.0	2				V
		SGMR				2200.0	2209.0	2				S
		CULG				2232.0	2232.0	1				III
		PALE				2236.0	2246.0	2				V
		CULG				2237.0	2237.0	2				V
		PALE				2331.0	2333.0	2				V
		LEAR				2332.0	2333.0	1				III
		CULG				2346.0	2352.0	3				III
24		PALE				0003.0	0005.0	1				III
		LEAR				0020.0	0037.0	1				S
		PALE				0020.0	0046.0	2				S
		CULG				0045.0	0046.0	2				III
		LEAR				0045.0	0046.0	2				III
		LEAR				0059.0	0100.0	2				III
		PALE				0059.0	0100.0	2				III
		LEAR				0101.0	0102.0	1				III
		LEAR				0141.0	0141.0	1				III
		PALE				0141.0	0143.0	1				III
		LEAR				0142.0	0143.0	2				III
		LEAR				0225.0	0226.0	2				III
		PALE				0225.0	0232.0	3				III
		CULG				0230.0	0231.0	3				V
		LEAR				0230.0	0232.0	3				III
		LEAR				0259.0	0300.0	1				III
		CULG				0300.0	0315.0	1				S
		LEAR				0311.0	0315.0	1				III
		CULG				0353.0	0440.0	1				S
		LEAR				0353.0	0353.0	1				III
		LEAR				0442.0	0442.0	2				III
	0431 1842	WEIS				0442.2	0442.4	1				IIIB
		SVTO				0649.0	0743.0	2				IV
		CULG				0650.0	0655.0	3				II
		LEAR				0650.0	0656.0	3				II
		WEIS				0650.1	0703.3	2				II HB
		CULG				0656.0	0705.0	1				IV
		LEAR				0656.0	0857.0	3				IV
		SVTO				0802.0	0803.0	3				III
		WEIS				0802.5	0803.1	3				IIIG
		LEAR				0803.0	0809.0	3				III
		SVTO				0807.0	0813.0	1				III

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

JULY 1988

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
24		WEIS				0807.7	0810.3	1				IIIG
		WEIS				0813.8	0814.0	1				IIIG,U
		SVTO				0829.0	0832.0	3				III
		WEIS				0829.9	0832.9	3				IIIGG
		LEAR				0830.0	0832.0	3				V
		SVTO				0939.0	0939.0	1				III
		WEIS				0939.4	0939.5	1				IIIB
		SGMR				0951.0	2300.0	1				CONT
		SVTO				1008.0	1008.0	1				III
		WEIS				1008.5	1008.7	2				IIIB
		WEIS				1121.6	1124.4	2				IIIG
		SVTO				1122.0	1130.0	3				S
		WEIS				1129.8	1131.7	3				IIIG
		PALE				1948.0	1950.0	2				V
		SGMR				1948.0	1949.0	2				V
25		LEAR				0306.0	0308.0	2				III
		PALE				0308.0	0308.0	1				III
		LEAR				0428.0	0430.0	1				III
		LEAR				0537.0	0540.0	2				III
		SVTO				0537.0	0539.0	1				III
		LEAR				0543.0	0549.0	1				II
		SVTO				0543.0	0549.0	2				II
	0434	WEIS				0543.1	0548.8	1				II H,HB
		SVTO				0544.0	0549.0	2				II
		SGMR				0951.0	2348.0	1				CONT
		WEIS				0954.9	0957.8	3				IIIGG
		WEIS				0956.4	1010.9	2				II H,HB
		WEIS	0956.5	1006.0	1							Cont
		WEIS	0956.5	1006.0	2							Spikes
		SGMR				1003.0	1009.0	-1				II
		WEIS				1036.9	1038.8	2				IIIG
		SGMR				1328.0	1329.0	3				V
		SVTO				1328.0	1328.0	3				III
	1124	WEIS				1328.2	1329.1	3				IIIG
		WEIS				1344.8	1345.1	2				IIIB
		SGMR				1415.0	1418.0	2				V
		SVTO				1415.0	1418.0	2				V
		WEIS				1415.6	1418.5	2				IIIGG
		WEIS				1452.5	1452.8	1				IIIG
		CULG				2338.0	2340.0	1				III
26		CULG				0153.0	0155.0	3				III
		LEAR				0153.0	0155.0	3				V
		PALE				0153.0	0155.0	2				V
		CULG				0248.0	0254.0	1				III
		CULG				0557.0	0601.0	1				III
	0433	WEIS				0754.5	0754.6	1				IIIB
		SGMR				1058.0	2347.0	1				CONT
		WEIS				1105.0	1111.4	2				IIIG,U
		WEIS				1209.5	1209.8	1				IIIB
		WEIS				1240.9	1241.5	1				IIIB
		SGMR				1243.0	1251.0	1				II
		WEIS				1346.5	1347.0	2				IIIG
		WEIS				1348.4	1349.8	3				IIIG
		WEIS				1531.7	1531.8	2				IIIB
		WEIS				1608.0	1608.4	2				IIIB
		PALE				1836.0	1837.0	1				III
		PALE				1931.0	1931.0	1				III
		PALE				2005.0	2008.0	2				III
		SGMR				2005.0	2008.0	2				III
		CULG				2137.0	2137.0	1				III
		CULG				2232.0	2232.0	1				III
		CULG				2356.0	2356.0	1				III
27		CULG				0004.0	0705.0	1				S
		LEAR				0122.0	0123.0	2				III

JULY 1988

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
27		LEAR				0209.0	0210.0	1				III
		SVTO				0542.0	0542.0	2				III
	0436	1838 WEIS				0542.0	0542.8	2				IIIG
		CULG				0543.0	0543.0	2				III
		WEIS				0804.4	0804.6	1				IIIB
		WEIS				0907.5	0909.2	1				IIIG
		WEIS				1037.5	1037.7	1				IIIB
		SGMR				1201.0	1201.0	1				III
		SVTO				1201.0	1201.0	1				III
		WEIS				1201.4	1201.7	1				IIIB
		SGMR				1324.0	1515.0	1				CONT
		SGMR				1324.0	2346.0	1				CONT
		WEIS				1351.8	1357.5	3				Spikes
		SVTO				1534.0	1746.0	1				CONT
		SGMR				1557.0	1557.0	1				III
		PALE				1928.0	1928.0	2				III
		PALE				1954.0	2006.0	2				S
		PALE				2038.0	2045.0	2				III
		SGMR				2038.0	2042.0	2				III
		CULG				2153.0	2155.0	1				III
		CULG				2156.0	2159.0	2				III
		CULG							2216.0	2216.0	1	III
		CULG							2237.0	2237.0	1	III
		CULG				2345.0	2345.0	1				II
28		CULG				0123.0	0125.0	1				III
		CULG				0128.0	0134.0	1				II
		LEAR				0128.0	0129.0	1				III
		LEAR				0156.0	0157.0	1				III
		CULG				0157.0	0601.0	1				S
		LEAR				0255.0	0255.0	1				III
		LEAR				0417.0	0417.0	1				III
	0435	0537 WEIS										
	0557	1838 WEIS				0739.0	1713.0	2				IIIN
		SGMR				1117.0	1117.0	1				III
		SGMR				1200.0	2345.0	1				CONT
		SGMR				1310.0	1311.0	2				V
		SGMR				1532.0	1532.0	2				V
		SGMR				1539.0	1540.0	2				V
		SGMR				1634.0	1636.0	2				V
		PALE				1656.0	1657.0	2				III
		SGMR				1712.0	1713.0	2				V
		PALE				1808.0	1815.0	1				III
		PALE				2015.0	2015.0	2				III
		PALE				2055.0	2110.0	1				S
		CULG				2147.0	2147.0	2				III
		CULG				2324.0	2326.0	2				III
		PALE				2324.0	2326.0	1				V
29		LEAR				0029.0	0030.0	1				III
		LEAR				0030.0	0030.0	1				III
		PALE				0030.0	0030.0	1				III
		CULG				0103.0	0103.0	1				III
		LEAR				0230.0	0230.0	1				III
		LEAR				0242.0	0243.0	2				III
		PALE				0242.0	0243.0	1				III
		CULG				0243.0	0243.0	2				III
		LEAR				0353.0	0405.0	2				S
		PALE				0353.0	0354.0	1				III
		CULG				0354.0	0355.0	2				III
		CULG				0405.0	0405.0	2				III
		LEAR				0417.0	0418.0	1				III
		LEAR				0420.0	0944.0	1				CONT
		WEIS	0451.1	0551.4	2							Spikes
	0438	1837 WEIS				0455.0	1749.0	2				IS
		LEAR				0519.0	0520.0	2				III
		WEIS				0600.9	0601.5	3				Spikes

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

JULY 1988

Observation Day	Start (UT)	End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
29			SGMR				0955.0	2344.0	1				CONT
			WEIS				1009.3	1009.7	2				IIIG
			WEIS				1554.4	1554.6	1				IIIB,DP
			PALE				2005.0	2028.0	1				S
30			LEAR				0325.0	0328.0	1				III
			LEAR				0351.0	0945.0	1				CONT
			LEAR				0432.0	0432.0	2				III
	0457	1431	WEIS				0438.9	0439.7	1				IIIG
			WEIS	0501.5	0501.6	2							Blob
			SVTO				0604.0	0605.0	3				V
			WEIS				0604.7	0605.4	3				IIIG
			LEAR				0605.0	0605.0	3				V
			LEAR				0735.0	0743.0	2				III
			SVTO				0735.0	0748.0	2				S
			WEIS				0735.2	0735.4	2				IIIB
			WEIS				0743.3	0743.7	2				IIIG
			WEIS				0828.5	0828.7	1				IIIB
			SGMR				0956.0	2343.0	1				CONT
			SVTO				1028.0	1029.0	2				III
			WEIS				1028.8	1029.1	3				IIIB
			SVTO				1037.0	1542.0	2				CONT
			WEIS				1114.4	1114.7	2				IIIG
			PALE				1600.0	0455.0	1				CONT
	1441	1834	WEIS				1636.7	1636.9	1				IIIG
31			CULG				0109.0	0148.0	2				III
			LEAR				0300.0	0945.0	1				CONT
			CULG				0343.0	0344.0	1				III
			LEAR				0343.0	0344.0	2				III
			LEAR				0625.0	0625.0	2				III
	0440	1834	WEIS				0652.2	0625.5	1				IIIG
			WEIS	0720.7	0721.0	2							Spikes
			WEIS	0724.3	0725.1	2							Spikes
			SVTO				0729.0	0747.0	3				S
			WEIS				0729.3	0735.5	2				II H,HB,P
			WEIS				0740.8	0746.7	1				II H,HB,P
			WEIS				0747.5	0747.7	1				IIIB
			SGMR				0957.0	2342.0	1				CONT
			WEIS				1246.7	1247.5	2				IIIG
			SGMR				1451.0	1456.0	3				V
			SVTO				1451.0	1456.0	3				III
			WEIS				1451.2	1456.1	3				IIIG,U
			SGMR				1619.0	1620.0	2				V
			WEIS				1619.8	1620.4	1				IIIG
			PALE				1934.0	0455.0	1				CONT
			CULG				2305.0	2313.0	2				III

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

Stations Reporting:

BLEN = Bleien CULG = Culgoora LEAR = Learmonth PALE = Palehua SGMR = Sagamore Hill
SVTO = San Vito WEIS = Weissenau

COSMIC RAY INDICES
(Neutron Monitor)

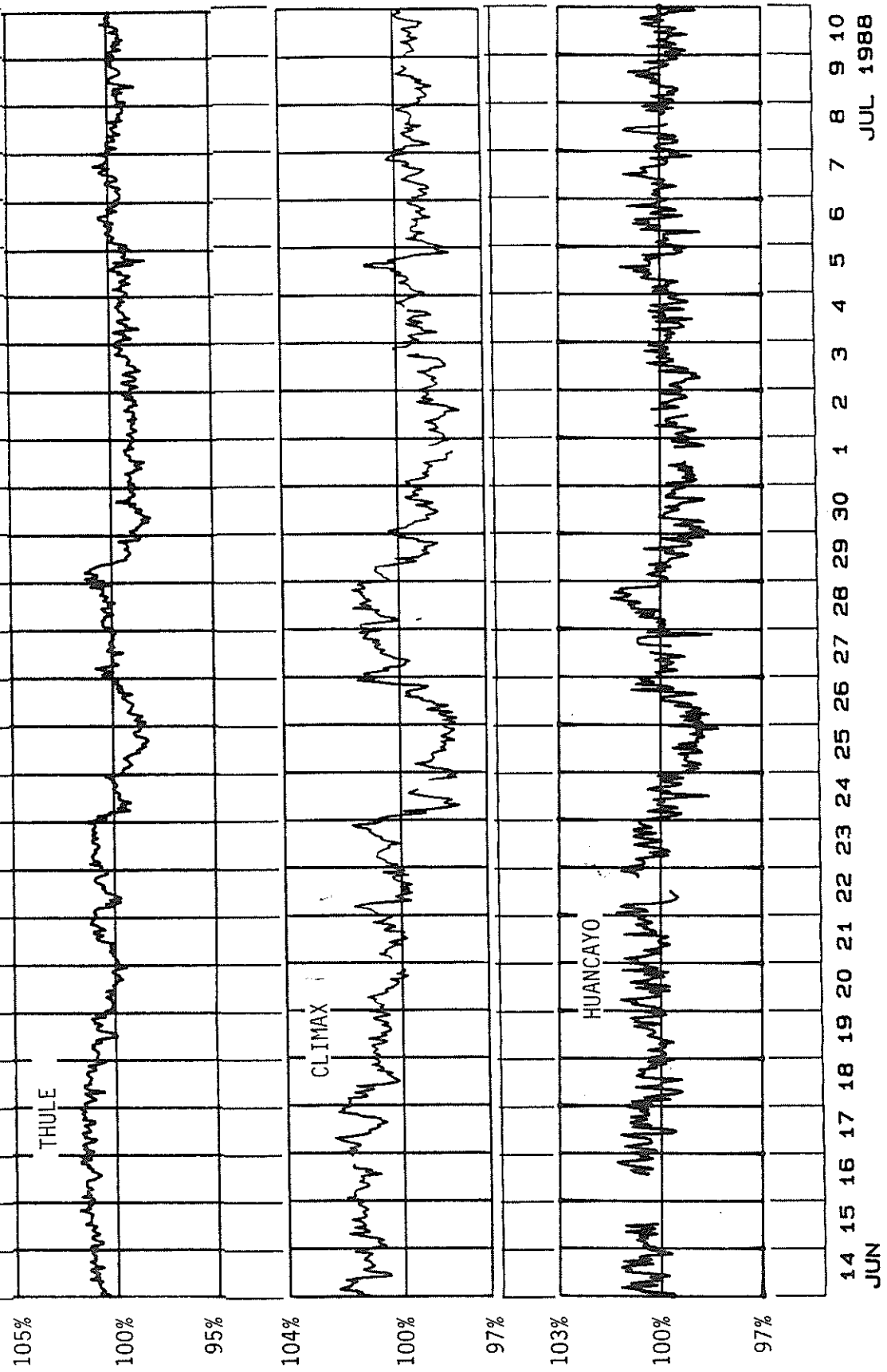
JULY 1988

Day	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/256	HUANCAYO Average (cts/h)/100
1	4274			5962.1	3871.0		1729.0(34)
2	4273			5975.9	3864.9		1734.3
3	4281			5986.9	3871.6(38)		1735.9
4	4290			5979.6	3905.7(12)		1736.9
5	4288			6001.2	3904.5		1743.5
6	4311			5972.9	3886.1		1742.2
7	4315			5996.4	3894.7		1742.9
8	4303			6003.4	3898.6		1742.5
9	4300			6004.1	3890.0		1741.6
10	4306			5981.3	3898.4		1738.7
11	4303			5990.7	3893.5		1735.2
12	4267			5950.3	3872.1		1730.3(14)
13	4232			5903.7	3830.9		1729.2
14	4258			5952.8	3854.0		1729.6
15	4294			5980.3	3874.0		1738.5
16	4282			5979.7	3885.1		1738.4
17	4280			5969.9	3871.6		1738.3
18	4274			5972.6	3880.8		1741.0
19	4293			5984.2	3897.3		1746.3(28)
20	4290			5978.9	3878.3		1738.3
21	4240			5898.7	3833.7		1722.9
22	4230			5870.4	3817.0		1724.2
23	4209			5838.6	3800.7		1720.3
24	4258			5879.6	3806.3		1727.3
25	4276			5934.7	3845.2		1734.5
26	4282			5947.1	3860.4		1734.9
27	4216			5892.1	3823.6		1723.3
28	4220			5878.6	3802.0		1718.9
29	4228			5889.7	3807.7(38)		1718.6
30	4224			5876.5	3805.3		1718.9
31	4232			5866.7	3802.6		1715.8
Mean	4269			5945.1	3858.2		1732.4

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

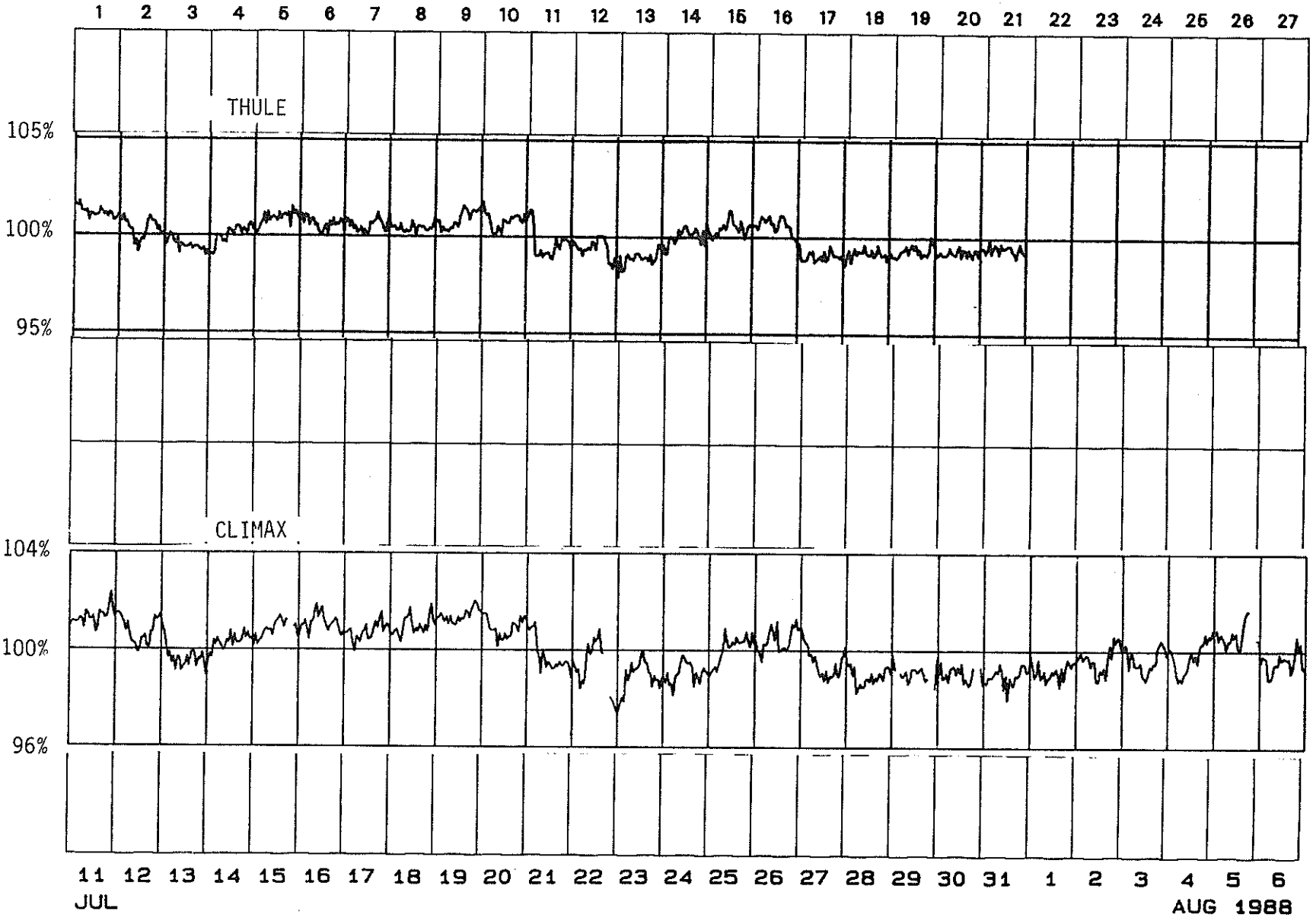
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2116 (June-July 1988)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2117



121
Jul 88

GEOMAGNETIC ACTIVITY INDICES

July 1988

Day		Kp Three-Hourly Indices 1 2 3 4	5 6 7 8	Sum	Ap	Cp	Km Three-Hourly Indices 1 2 3 4	5 6 7 8	Am	aa Provisional N	S	M	
1		4- 3- 3 3-	3- 2+ 3 3+	23+	14	0.8	3+ 2+ 3- 3-	2+ 2 3 3-	24	35	22	31	26
2		3+ 3- 3- 3-	2 2- 2+ 2-	19	10	0.6	3- 3- 3- 2+	2- 2- 3- 2-	19	27	11	23	15
3		1- 2 1+ 2-	2- 2+ 3- 2	14+	7	0.3	1 2 1+ 2-	2- 2- 2+ 2	12	19	7	9	17 CC
4	Q3	2- 2 1 1-	0+ 1 0+ 0+	7+	4	0.1	2+ 3- 1 0+	0+ 0+ 0+ 0+	7	10	5	9	6 CC
5	Q5	0+ 1- 0+ 0+	1- 2- 3- 2+	9	5	0.2	0 0+ 0+ 0+	1- 2- 2+ 2	7	15	5	5	14 CK
6		3 3 2+ 2	3- 3- 2+ 2+	20+	11	0.6	3- 3- 3- 2+	3- 2+ 2+ 2	21	26	17	22	21
7		2- 2 3 2+	2 1+ 2 2-	16	8	0.4	2- 2+ 3 3-	2+ 1 3- 1+	17	21	18	20	18
8		2+ 2 2+ 2+	3 2 3 2	19	10	0.5	2 2 3 2+	3+ 2- 3 2	20	28	18	21	25
9	Q2	1+ 1- 0+ 0+	0+ 1- 0+ 1+	5+	3	0.1	1+ 0+ 1- 0+	0+ 0+ 0+ 1+	5	12	2	7	7 CK
10	Q9A	2- 1+ 1 1+	2 2+ 3- 2-	14	7	0.3	1+ 2- 1+ 1+	2- 2 2 2-	11	19	7	10	15 C
11	D4	4- 4- 3+ 4	4+ 3+ 3 3-	28	21	1.1	3+ 4- 4- 3+	4 3 3- 3-	35	38	34	33	39
12		3- 3 3+ 3	3+ 2+ 3+ 3	24	15	0.8	3 3+ 4- 3+	3 3- 3 3	32	33	32	31	35
13	Q4	2- 1 1 1-	1- 1+ 1+ 2+	10	5	0.2	2 2- 1- 1-	1- 1 1 2	8	15	5	9	11 C
14		3- 2+ 2 1	1+ 2 2- 2	15	7	0.4	3+ 3+ 2 1+	1 1+ 2 2	17	26	15	23	18
15		3- 3- 1+ 1+	2+ 3+ 3 3	20-	11	0.7	3- 3- 1+ 2-	2+ 3+ 3 3-	22	30	25	17	38
16	D3	3 3+ 4- 4+	5 3- 3 3-	28-	22	1.1	3- 3- 4 4	4+ 2+ 2+ 3-	35	35	35	32	38
17	Q8	2- 2- 1 1+	3- 2- 2- 2	14-	6	0.3	1 2- 1+ 2-	3- 2 1+ 2-	13	21	11	12	19
18		1+ 3 3 3-	2- 2+ 2- 2	18-	9	0.5	1- 3- 3- 3	2- 2 1+ 2-	17	21	15	20	15
19		2- 1+ 3- 3	3- 1 2+ 2-	16+	9	0.5	2- 1+ 3- 3	3- 1+ 2- 1+	15	22	15	20	17
20	Q1	1- 1- 1 1-	0+ 1 1- 1	6	3	0.1	1 1 1+ 1	1- 1 1 1	7	10	2	6	6 C
21	D2	1+ 3+ 6- 5	4+ 3+ 2+ 2	27+	26	1.2	1 3 5- 5-	4- 3- 2 2-	36	41	37	49	30
22	D1	5- 5- 3- 4-	3+ 4 4+ 4	31+	27	1.2	4 4- 3- 3+	3 4- 4- 4-	40	46	34	35	45
23		3 3+ 4- 3+	2 1- 1- 2-	18+	12	0.7	3 3+ 4- 3	2- 1- 1- 2-	22	25	17	30	12
24		2 2+ 2- 2	2- 1+ 2- 2	15-	7	0.3	2- 2+ 2 2-	1+ 1+ 1+ 2	13	18	9	14	13 C
25	Q6	2 2+ 1 1+	1+ 1 2 2-	13-	6	0.3	2- 2- 1- 1	1+ 1+ 2- 1+	9	19	5	11	13 C
26	D5*	3- 2 3- 3	3+ 4- 3+ 4	25-	16	0.9	2+ 2+ 3- 3+	3- 3+ 3 4-	29	36	29	27	39
27		4 3 3+ 2	2 2- 1+ 2+	20-	12	0.7	3+ 3+ 3+ 2	2 1+ 1+ 2+	22	25	18	29	13
28		2 2- 2- 2-	2 3- 4- 4-	19	11	0.6	2+ 1+ 1 1+	2- 3- 3 3	18	30	14	13	32
29	Q10A	2- 1 1 1	1 1 2+ 4-	13-	7	0.4	2 1 1+ 1-	1- 1 2 3	12	20	8	10	18
30	Q7	2+ 2 2 1-	1- 1+ 1+ 2+	13-	6	0.3	2+ 2 2- 1-	1- 1 1+ 2	10	16	5	10	10 C
31		1 3- 3 2	2- 2 2- 2+	16+	8	0.4	1+ 3- 3- 2	2- 1+ 2- 2+	15	22	14	22	13
Mean					10	0.54			18.4	24.6	15.9	20.2	

Day	Kn Three-Hourly Indices 1 2 3 4	5 6 7 8	An	Ks Three-Hourly Indices 1 2 3 4	5 6 7 8	As	Sa	Prov Ri	Ra	Rs	IMF
1	3+ 3- 3 3-	2+ 2+ 3- 3	25	3 2+ 3- 2+	2 2- 3+ 3-	23	194.4*	139	127	148	-
2	3 3 3- 3-	2- 2 2+ 2	21	3- 3- 3- 2+	1+ 1 3- 1+	17	198.9	145	134	153	-
3	1- 2- 1+ 2	2- 2 3- 2	14	1 2 1 1+	1+ 1+ 2- 2-	11	190.2	142	140	143	-
4	1+ 2 1+ 1	1- 1 1- 0+	7	3- 3 1- 0	0 0 0+ 0+	8	181.0	129	127	133	-
5	0 1- 0+ 0+	1 2 3- 3-	10	0+ 0 0 0	0 1 2- 1+	4	171.2	119	112	123	-
6	3 3 3- 2+	3 3- 3- 2	24	2+ 3- 3- 2+	2 2 2+ 2-	17	156.7	103	100	107	-
7	2- 2+ 3 3-	2+ 2- 3- 1+	18	1+ 2+ 3 3-	2- 1- 3- 1+	16	152.4	103	101	103	-
8	2 2+ 3- 2+	3 2 3 2+	21	2- 1+ 3 3-	4- 1 3- 1+	19	142.4	106	93	92	-
9	1 1 1+ 1	1- 1 1- 2-	7	1+ 0 0 0	0 0 0 0+	2	137.7	82	80	87	-
10	1+ 2- 2- 2-	2 2+ 3- 2	14	1 2- 1 1-	1 1+ 2- 1+	8	138.3	78	80	87	-
11	4- 4- 3+ 4-	4 3 3 3	39	3- 3+ 4- 3	4 3- 2+ 2+	32	137.7*	95	90	87	-
12	2+ 3+ 4- 3+	3 3 3 3-	31	4- 4- 4- 3	3+ 2+ 3 3	34	137.9	100	97	87	-
13	2 1+ 1 1	1+ 1+ 2- 2+	11	2 2- 0+ 0	0 0+ 0+ 2-	6	141.3*	103	101	91	-
14	3 3- 2+ 1+	2- 2 2 2	17	4- 4- 2 1	0+ 1- 2 2	18	150.1	114	108	100	-
15	3- 2+ 2- 2	2+ 3+ 3 3	23	3 3- 1 2-	2+ 3 3+ 2-	21	150.7	111	112	101	-
16	3 3 4+ 4+	5- 3- 3- 3-	42	2+ 2+ 4- 3+	4+ 2+ 2 3-	29	153.3*	111	117	104	-
17	1+ 2 2- 2-	3- 2+ 2- 2	15	1- 1+ 1 1+	2+ 2 1 2-	10	152.8*	116	116	103	-
18	1 3 3 3-	2 2+ 2- 2	19	1- 3- 3- 3+	1+ 2- 1 1+	16	152.3	136	138	102	-
19	2- 1+ 3- 3+	3- 2- 2+ 2-	18	2- 1+ 2+ 3-	2+ 1 1 1-	12	142.1	105	106	91	-
20	1 1 2- 1+	1- 1+ 1+ 1+	8	1 1- 1 1	0+ 1- 1- 1-	5	141.3	106	106	91	-
21	1 3 5- 5	4 3 3- 2	41	1 3- 4+ 4	4- 3- 2- 1+	30	145.8	103	100	95	-
22	4 4 3- 3+	3- 4- 4- 3+	40	4 4- 3- 3+	3+ 3+ 3+ 4	41	141.2	106	103	90	-
23	3- 3+ 3+ 3+	2+ 1 1 2-	22	3 4- 4- 3	1+ 1- 0+ 1+	23	144.6	109	104	94	-
24	2 3- 2 2	2- 2- 2- 2+	15	1+ 2- 2 1+	0+ 1 1+ 2-	10	138.6	81	79	88	-
25	2- 2 1 1+	2- 2- 2 2	12	2- 1+ 0+ 1-	1- 1- 1+ 1	6	140.9	76	79	90	-
26	3- 2+ 3- 3+	3 4- 3 4-	31	2- 2+ 3 3+	3- 3- 3 3+	26	149.7	76	76	100	-
27	3+ 3 3+ 2	2+ 1+ 2- 2+	23	3+ 3+ 3+ 2+	2- 1 1 2	22	161.5	111	101	112	-
28	2+ 2- 1+ 2-	2 3 3 3+	20	3- 1+ 0+ 1+	1+ 2+ 3 3	16	175.4	122	112	127	-
29	2- 1 1+ 1+	1 1+ 3- 3+	14	2+ 1 2- 0+	0+ 1- 2- 3-	11	185.9	157	147	139	-
30	2+ 2 2+ 1	1 2- 1+ 2	13	2+ 2- 1+ 0	0+ 0+ 1- 2+	8	188.3	161	144	141	-
31	1+ 3 3- 2	2 2 2+ 2+	18	1+ 2+ 3- 2-	1+ 0+ 1+ 2+	12	192.5	146	139	146	-
Mean			20.4			16.5	157.6	112.6	108.7	108.2	

DAILY AVERAGE INDICES Ap

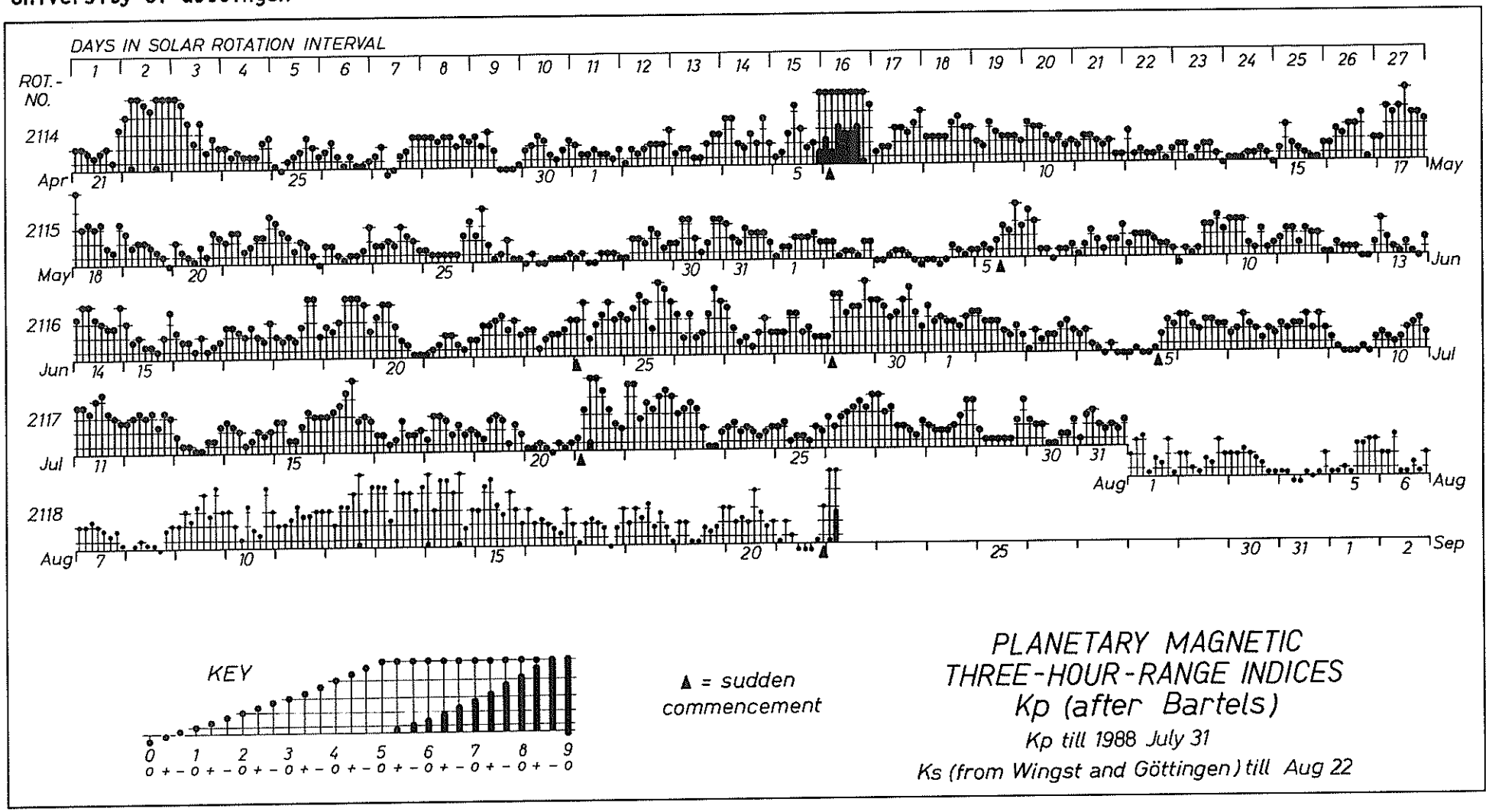
August 1987 to July 1988

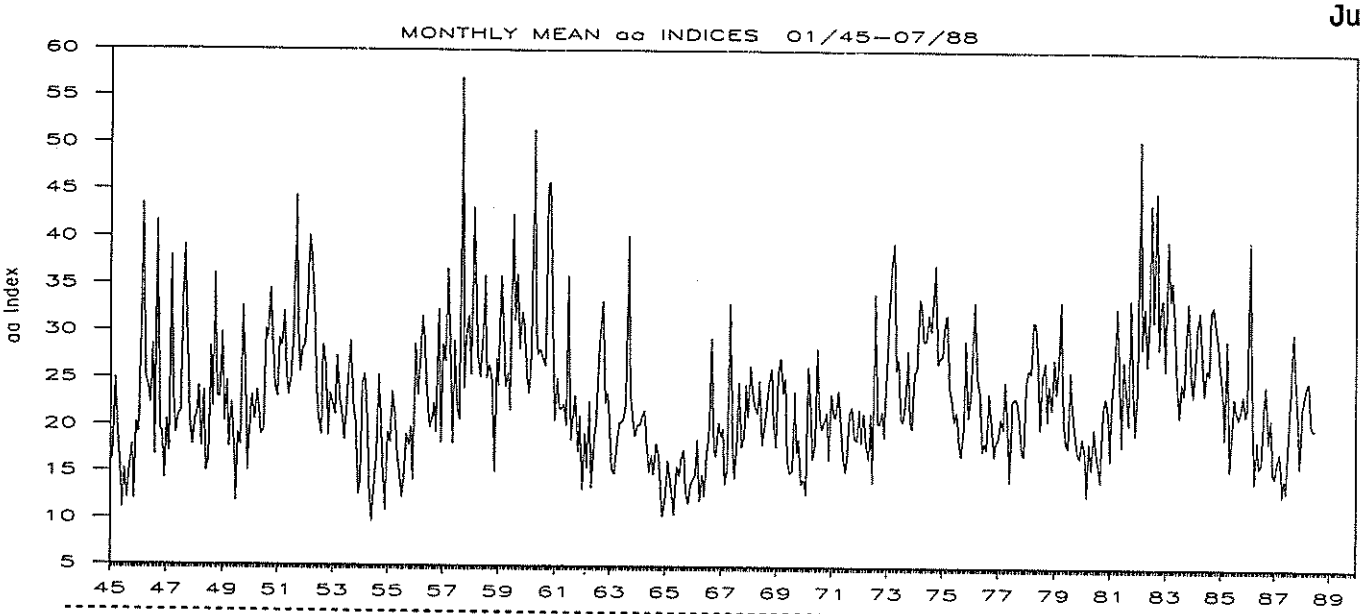
DAY	1987 AUG	SEP	OCT	NOV	DEC	1988 JAN	FEB	MAR	APR	MAY	JUN	JUL
1	10	34	13	7	5	5	2	4	13	5	6	14
2	5	12	9	23	4	29	5	6	19	7	5	10
3	12	4	36	27	12	7	3	10	48	7	2	7
4	7	6	14	9	10	14	7	19	78	13	3	4
5	13	6	6	10	17	14	29	8	24	20	10	5
6	8	9	5	9	8	31	11	19	48	106	8	11
7	4	11	8	5	4	24	6	11	15	13	6	8
8	10	10	8	4	1	19	5	26	7	13	6	10
9	8	10	3	10	6	7	11	13	10	10	8	3
10	4	38	7	11	28	4	13	12	16	11	9	7
11	7	40	28	14	15	11	11	14	9	6	7	21
12	16	22	8	20	9	21	16	9	14	5	4	15
13	23	23	24	27	4	7	14	5	10	5	6	5
14	16	26	31	22	4	48	7	12	9	4	20	7
15	19	29	26	14	11	63	19	20	6	6	9	11
16	12	19	13	8	39	5	15	14	5	11	6	22
17	11	17	18	3	16	7	14	9	5	24	10	6
18	6	7	5	5	8	12	19	7	7	18	14	9
19	9	3	6	12	7	10	7	4	9	6	21	9
20	8	11	8	10	4	12	5	6	7	6	13	3
21	5	10	13	6	10	9	26	2	8	10	5	26
22	7	29	5	7	22	7	97	3	44	8	12	27
23	10	17	11	35	10	2	36	5	21	6	8	12
24	11	14	19	24	6	5	12	5	7	8	17	7
25	39	46	28	12	7	6	14	10	6	6	27	6
26	40	20	11	17	4	8	9	49	5	8	17	16
27	21	11	35	20	1	12	7	34	6	3	9	12
28	15	22	44	9	2	6	5	26	11	3	10	11
29	12	30	19	3	5	4	3	32	6	7	26	7
30	14	43	13	3	3	3		34	7	12	22	6
31	34		11		4	3		11		9		8
MEAN	14	19	16	13	9	13	15	14	16	12	11	10

PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

University of Göttingen

Kp through July 31, 1988





Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1945	16.1	16.4	25.0	19.1	15.4	11.1	15.3	12.1	15.6	17.9	12.0	20.2	16.3
1946	19.2	30.2	43.5	25.0	24.1	22.3	28.6	16.7	41.7	19.6	19.3	14.3	25.4
1947	20.6	17.1	37.9	23.3	19.1	21.1	21.4	32.9	39.1	31.3	20.7	17.9	25.2
1948	20.8	21.0	24.2	17.7	23.7	15.0	16.2	28.3	22.0	36.1	23.1	23.0	22.6
1949	29.8	20.4	24.7	17.6	22.4	17.9	11.8	19.2	17.8	32.7	24.6	15.1	21.2
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	22.5	26.1	29.0	22.4	20.2	12.6	22.2
1954	13.9	24.5	25.5	20.6	12.0	9.7	13.1	16.5	25.4	21.1	14.5	10.9	17.3
1955	19.3	18.2	23.6	21.1	16.7	15.1	12.3	14.3	19.1	17.8	19.9	14.1	17.6
1956	28.7	23.3	27.6	31.7	29.3	23.5	19.8	20.7	22.4	19.3	32.3	18.2	24.7
1957	28.7	26.8	36.7	28.8	18.1	29.1	21.7	20.7	57.0	24.0	29.5	31.7	29.4
1958	25.5	43.2	36.1	27.6	25.2	29.7	36.0	25.1	26.5	24.7	15.0	27.2	28.5
1959	24.3	35.9	29.9	24.2	25.7	21.6	42.5	31.2	36.1	28.2	32.1	30.8	30.2
1960	25.2	23.5	27.6	51.5	31.6	27.6	28.1	27.2	26.4	45.6	45.9	34.5	32.9
1961	20.6	25.1	22.0	21.8	22.3	20.1	36.0	18.5	20.7	23.3	17.3	21.1	22.4
1962	13.2	19.2	15.5	22.6	13.4	18.1	21.0	26.2	29.8	33.3	22.5	23.5	21.5
1963	19.3	15.3	14.9	18.2	20.4	20.5	20.8	22.5	40.2	23.5	20.7	18.9	21.3
1964	20.1	20.1	21.0	21.7	17.5	15.1	16.9	14.8	18.2	16.9	13.8	10.3	17.2
1965	11.8	16.3	14.3	12.6	10.5	15.7	14.7	16.8	17.5	13.1	11.7	13.8	14.1
1966	14.2	14.8	18.6	12.0	14.8	12.5	17.1	20.0	29.4	17.5	16.8	20.5	17.3
1967	18.9	19.8	13.8	15.5	33.1	18.6	14.4	17.5	24.7	17.8	18.9	24.5	19.8
1968	21.1	26.5	23.3	22.2	21.4	24.9	18.0	20.1	22.0	24.8	26.2	20.3	22.6
1969	17.8	25.8	27.3	23.6	25.2	16.7	15.0	15.3	23.8	17.2	18.7	13.8	20.0
1970	14.4	12.7	26.4	23.1	16.6	18.3	28.4	21.0	19.7	20.6	21.6	16.5	19.9
1971	23.5	21.2	21.1	23.9	21.1	17.0	15.2	17.1	21.4	22.2	18.8	18.6	20.1
1972	21.9	18.3	21.5	18.1	16.6	21.5	14.0	34.2	20.4	20.4	21.8	18.9	20.6
1973	26.1	32.7	36.9	39.6	26.1	27.3	20.9	20.6	22.8	28.2	20.7	19.9	26.8
1974	25.8	26.4	33.7	32.9	29.2	29.2	32.0	30.2	33.7	37.3	26.8	27.5	30.4
1975	27.6	31.1	32.0	24.3	22.7	20.7	21.7	18.1	16.9	20.2	29.3	21.1	23.8
1976	23.3	28.5	33.4	25.4	23.7	17.5	18.4	17.7	23.7	20.4	16.9	18.6	22.3
1977	18.7	21.0	19.9	24.9	20.1	14.2	22.9	23.2	23.0	20.9	17.3	17.0	20.3
1978	24.6	26.2	25.9	31.3	31.2	28.3	19.9	25.6	27.0	20.8	24.6	22.0	25.6
1979	27.3	23.7	26.9	33.5	21.0	18.3	17.9	26.0	22.0	19.3	17.1	16.8	22.5
1980	19.0	17.3	12.7	18.4	15.6	20.0	17.0	15.9	14.2	21.9	23.3	21.7	18.1
1981	16.5	23.1	26.6	32.8	26.9	18.0	27.2	24.0	20.4	33.7	24.1	19.3	24.4
1982	24.2	50.6	28.5	32.9	26.7	32.1	43.9	31.4	45.1	28.5	33.0	33.8	34.2
1983	26.2	40.0	33.6	35.7	31.6	24.9	21.3	24.9	23.7	28.3	33.5	26.0	29.1
1984	23.5	26.7	30.7	32.5	27.2	23.7	26.4	25.8	32.6	33.1	31.0	29.0	28.5
1985	25.7	24.1	19.0	29.5	15.6	19.9	23.4	22.0	21.2	22.2	23.7	21.4	22.3
1986	22.4	40.0	21.1	14.3	18.8	15.9	16.3	22.3	24.7	18.6	21.2	15.3	20.9
1987	14.8	16.6	17.6	12.9	14.7	13.2	19.3	24.3	30.3	25.8	22.4	16.0	19.0
1988	22.4	23.4	24.8	25.2	20.5	20.0	20.2						22.4

PRINCIPAL MAGNETIC STORMS

JULY 1988

Sta	Geomag Lat	Commencement Day	Commencement Time (UT)	Type	SC Amplitudes D (Min)	SC Amplitudes H (Gamma)	SC Amplitudes Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges K	Ranges D (Min)	Ranges H (Gamma)	Ranges Z (Gamma)	End Day	End Hour (UT)
HYB	07.6N	05	1500	..	..	..	..	05(6) 06(1,2)	3	7	92	27	06	23
HYB	07.6N	10	1700	..	..	..	..	11(5)	5	6	123	31	12	23
GUA	04.0N	11	0055	..	..	..	..	11(1)	5	--	140	30	11	18
GUA	04.0N	12	00--	..	..	..	..	12(1)	5	--	60	20	12	17
FRD	49.6N	15	21--	..	..	..	..	16(3,4)	5	14	110	44	16	--
HYB	07.6N	15	0800	..	..	..	..	16(5)	5	6	153	21	16	23
COL	64.6N	21	0317	SC*	17	125	14	21(3,4,5)	6	212	1280	535	23	15
SIT	60.0N	21	0317	SC*	- 4 *	48 *	- 5 *	21(3)	7	100	--	720	23	11
FRD	49.6N	21	0317	SC	3	22	- 6.3	21(4)	6	27	135	98	23	--
BJI	28.5N	21	0317	SC	.9	24	..	21(3)	5	7	68	35	21	21
HYB	07.6N	21	0317	SC	- .5	18	- 1	21(3)	5	6	136	34	22	24
GUA	04.0N	21	0316	..	..	..	..	21(3)	5	--	130	10	21	19
HER	33.7S	21	0316	SC	2	19	14	21(4)	5	12	90	53	21	15
KGL	56.5S	21	0317	SC	..	8	8	22(4) 22(1,2,6,7)	4	12	64	16	23	09
GUA	04.0N	22	0030	..	..	..	..	22(1)	6	--	110	20	22	18
HER	33.7S	22	00--	..	..	..	..	22(2)	5	25	80	61	23	11
HYB	07.6N	25	1200	..	..	..	..	26(6)	4	7	77	38	27	09

Stations Reporting:

BJI = BEIJING
CNB = CANBERRA
COL = COLLEGE
FRD = FREDERICKSBURG
GNA = GNANGARA
GUA = GUAM
HER = HERMANUS
HON = HONOLULU
HYB = HYDERABAD
KGL = KERGUELEN
SIT = SITKA

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

JULY 1988

Storm Sudden Commencements (ssc)

Day	Time	Quality: Station Group*
05	1558	B: WNG* COI SPT* PEN QUE MPO
		C: NGK* BDV* CLF* NAG* EBR TEN
21	0317	A: WNG* CLF NAG* COI SPT PEN TEN MPO
		B: COL* NGK* BDV* GCK* MMB* EBR* KAK KNY LNP GNA* CZT KGL
		C: BJI FRD CNB

Solar Flare Effects (sfe)

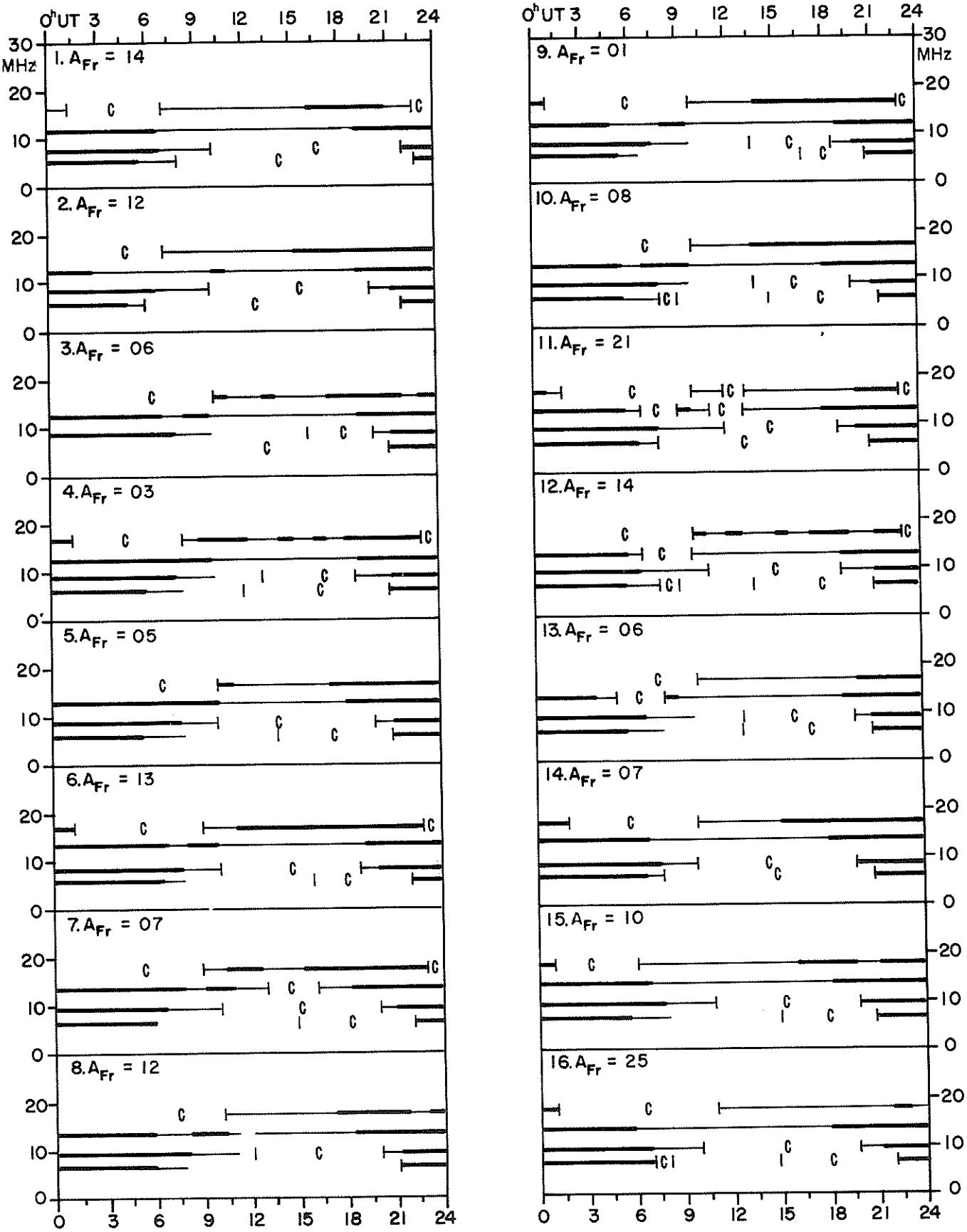
Day	Begin-End	Station(s)
03	1417-1433	TEN
07	0721-0733	WNG BDV MMB KAK KNY LNP
08	0336-0339	LNP
13	0736-0748	MPO
19	1513-1520	QUE
27	0740-0756	BDV LNP
28	0925-0940	MPO
30	0845-0855	LNP MPO

Reporting Observatories: (up to the 5th of November)

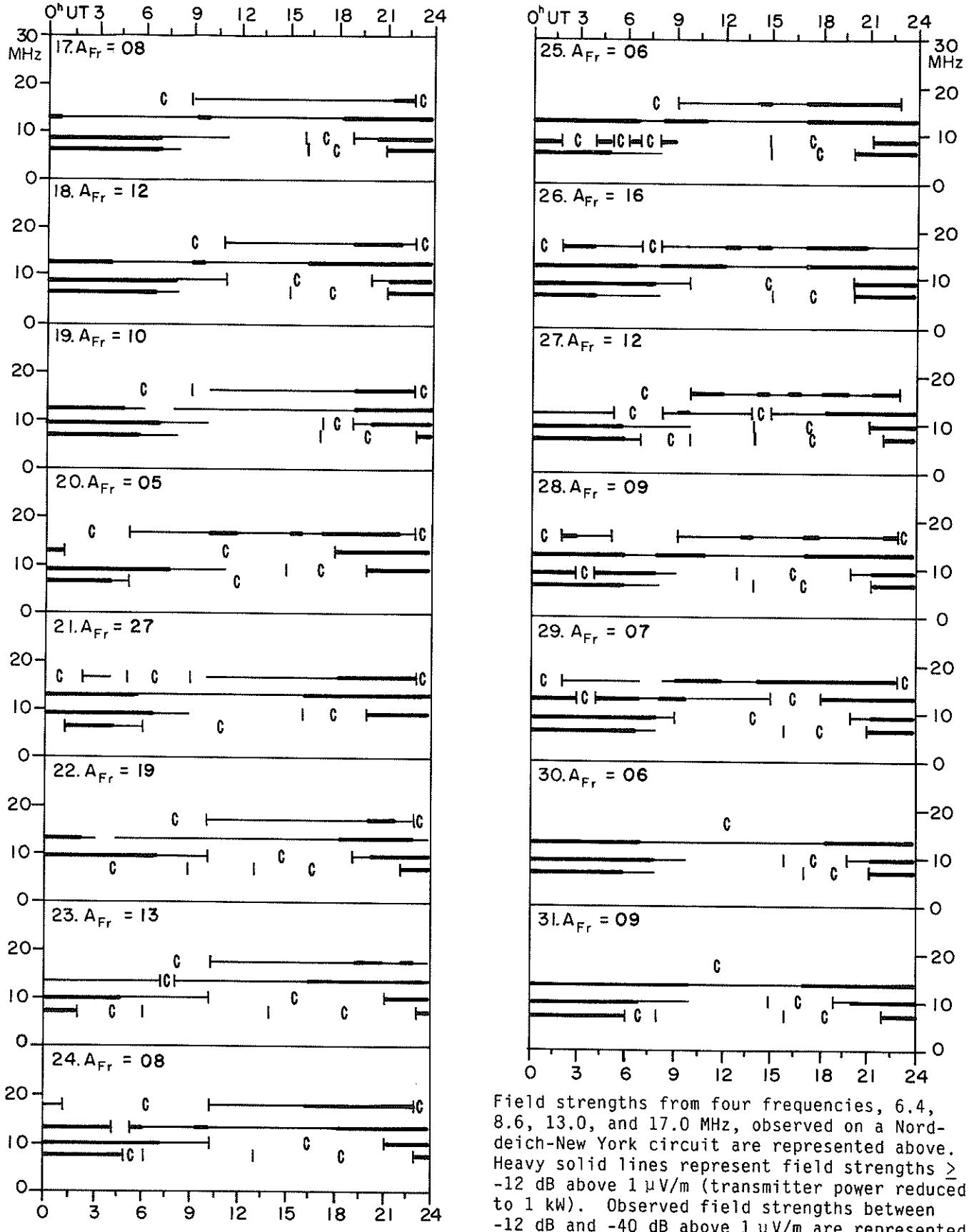
SOD COL DOB NUR WNG NGK BDV CLF NAG GCK MMB EBR COI BJI
SPT FRD KAK KNY QUE TEN LNP MPO GNA CNB AMB CZT KGL DUM

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

TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH
JULY 1988



TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH
JULY 1988



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

RADIO PROPAGATION QUALITY INDICES
JULY 1988

Day	For Circuits from Norddeich to: Bracknell England	Rome Italy	Teheran Iran	New York USA (East)	Tokyo Japan	Canberra Australia
1.	4.6	5.5	5.7	4.8	4.5	5.5
2.	6.3	5.8	5.8	5.3	5.7	6.3
3.	6.0	5.6	6.7	5.9	7.3	5.4
4.	6.3	6.0	6.5	6.3	7.2	6.8
5.	7.1	6.2	6.9	6.5	8.2	6.3
6.	7.2	6.4	6.4	6.9	7.9	7.2
7.	6.5	6.3	5.6	6.6	6.2	6.7
8.	5.6	5.8	5.6	5.6	6.1	6.4
9.	7.0	6.2	5.6	6.2	7.3	6.7
10.	7.0	6.6	5.1	6.2	6.8	6.3
11.	6.2	7.3	5.7	5.6	6.8	6.7
12.	6.0	7.1	5.8	5.9	5.1	5.9
13.	6.8	6.6	4.8	5.8	6.8	5.3
14.	6.7	6.7	6.1	6.4	6.3	6.3
15.	6.4	7.1	6.3	6.1	6.3	6.5
16.	5.6	6.7	6.2	4.5	5.4	6.1
17.	6.1	7.1	6.2	5.3	6.4	6.3
18.	5.0	6.8	6.9	5.8	6.1	6.2
19.	5.8	6.6	6.1	5.1	7.2	6.4
20.	6.8	6.9	6.7	5.7	7.5	6.7
21.	7.0	6.4	5.5	4.8	5.9	5.9
22.	4.7	5.7	4.4	3.2	2.6	5.0
23.	5.0	5.8	4.7	3.9	4.5	5.3
24.	5.4	5.3	5.9	6.0	6.0	5.6
25.	7.0	5.9	6.1	6.2	7.7	6.3
26.	5.8	6.5	6.1	5.9	5.9	5.8
27.	5.4	5.9	5.7	6.1	5.3	5.8
28.	6.6	6.4	6.3	6.3	6.2	5.7
29.	6.7	6.5	6.6	6.5	7.5	4.9
30.	6.2	6.3	6.1	5.9	7.3	6.2
31.	6.5	6.1	6.1	6.6	8.2	6.6
MEAN:	6.2	6.3	5.9	5.7	6.4	6.1

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 0.1 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they respond to the average of the preceeding 27 days.

SCALE FOR QUALITY INDICES:
0.1 - 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

C O N T E N T S

Prompt Reports **LATE DATA** Number 529 Part I

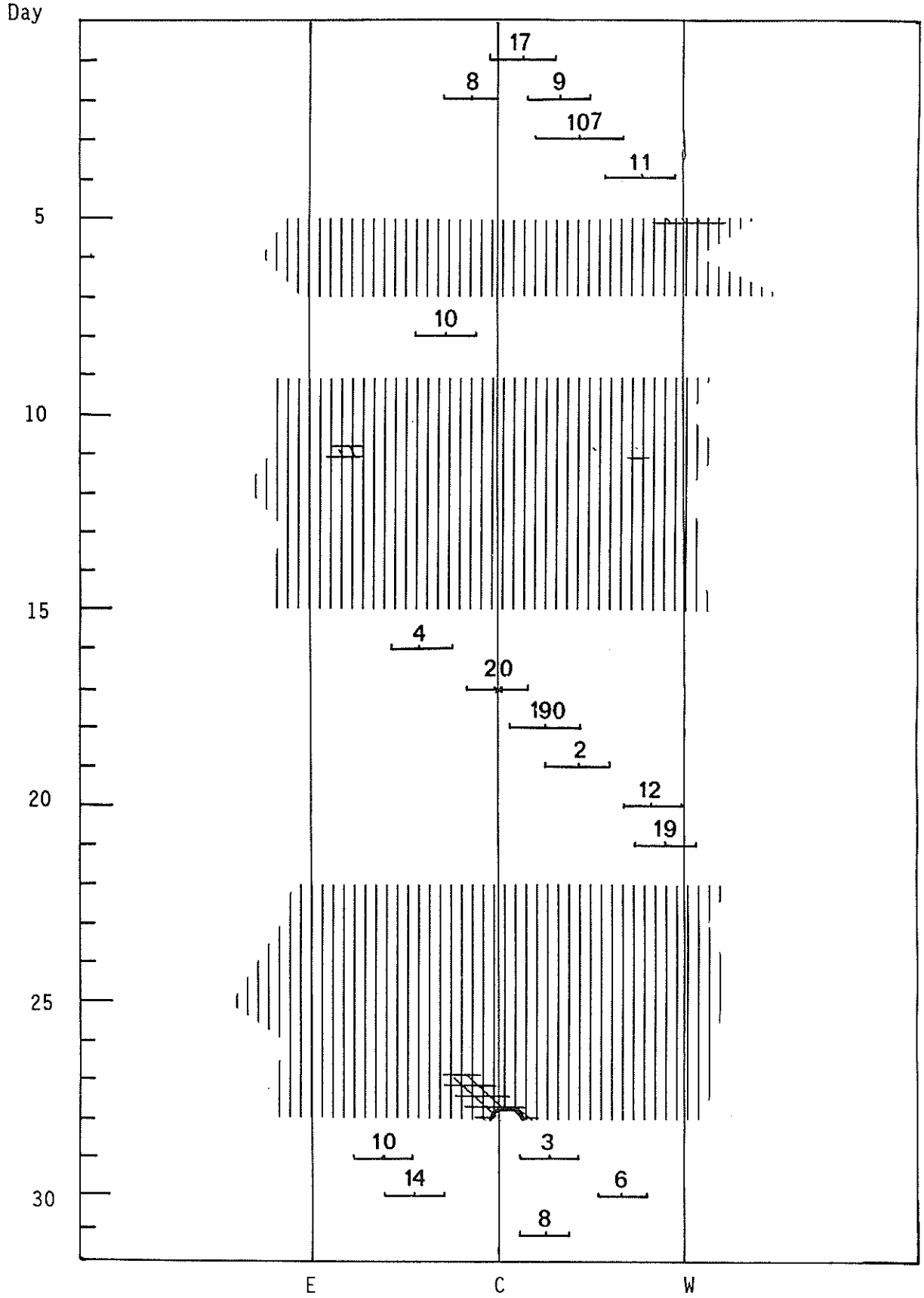
132
Late
Jul 88

SOLAR INTERFEROMETRIC OBSERVATIONS

JULY 1988

Nancay

164 MHz



C O S M I C R A Y I N D I C E S
(Neutron Monitor)

JUNE 1988

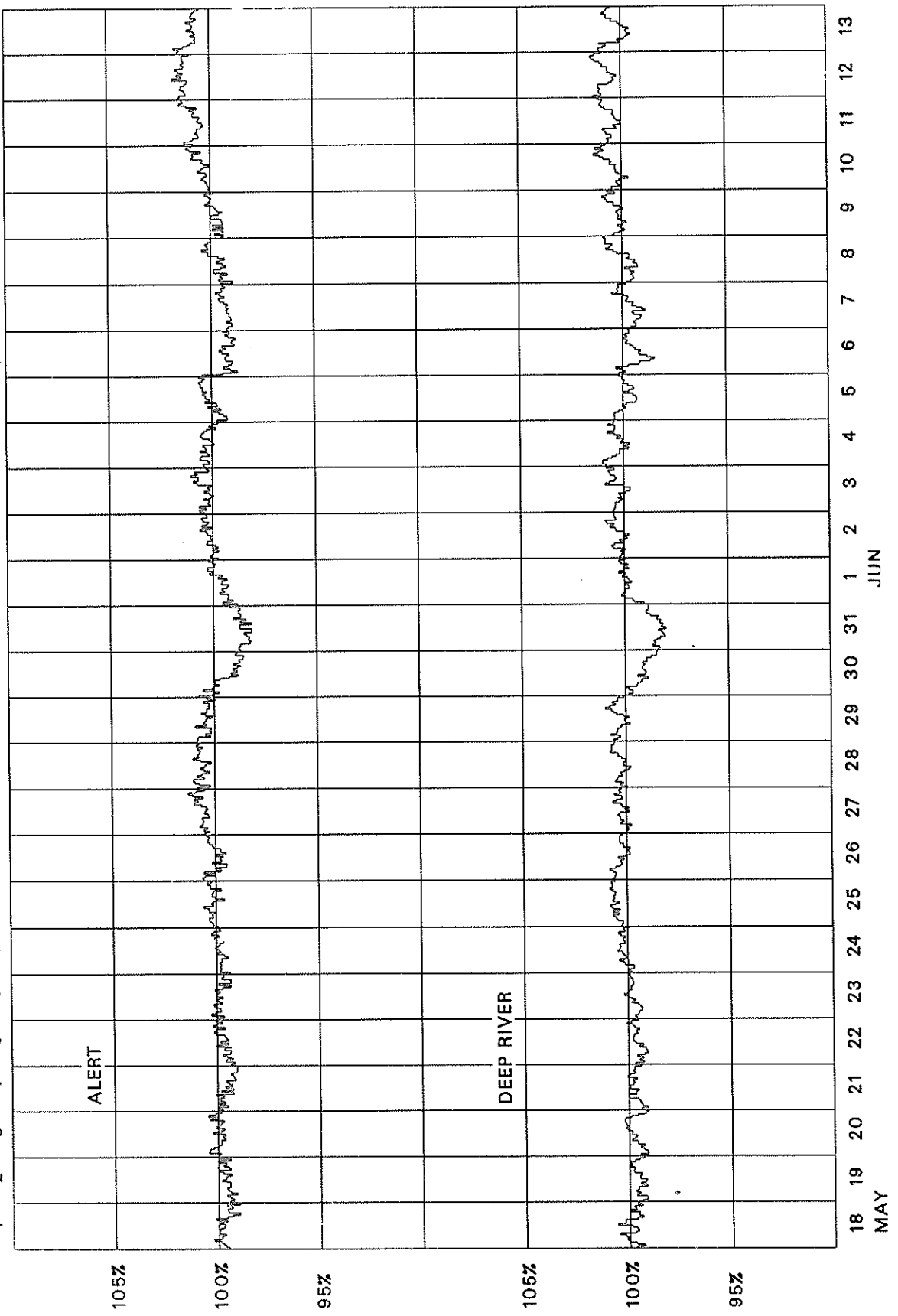
Day	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/256	HUANCAYO Average (cts/h)/100
1	4311	7071.9	6764.3	6024.6	3925.0	3583.4	---
2	4332	7109.5	6792.3	6026.4	3913.7	3578.0	1736.8(18)
3	4330	7127.6	6795.9	6038.7	3924.3	3577.6	1736.4
4	4329	7116.1	6797.0	6027.0	3927.9	3590.4	1736.3(12)
5	4335	7104.7	6763.1	6034.6	3915.3	3583.0	1738.9
6	4295	7044.7	6739.8	5982.9	3930.6	3580.2	1733.2
7	4304	7047.8	6745.6	5981.5	3911.5	3579.5	1731.7
8	4330	7079.6	6768.5	6003.3	3918.0	3587.9	1737.6(38)
9	4326	7080.9	6789.9	6006.5	3921.6	3586.2	1739.9
10	4332	7128.5	6806.1	6027.2	3933.2	3600.3	1744.9
11	4354	7154.0	6810.0	6056.7	3948.4	3600.0	1748.7
12	4378	7193.2	6830.8	6077.2	3976.5	3605.3	1749.5
13	4359	7164.3	6794.2	6053.9	3956.3	3601.9	1742.5
14	4363	7172.1	6804.6	6068.5	3975.6	3616.2	1750.3
15	4374	7187.4	6819.7	6082.0	3972.1	3616.3	1750.6(26)
16	4378	7196.8	6849.9	6100.8	3979.6	3614.9	1754.0(22)
17	4383	7194.5	6854.5	6089.3	3980.0	3611.0	1750.8
18	4373	7181.6	6840.8	6061.7	3959.3	3603.1	1745.3
19	4353	7148.5	6800.7	6061.7	3950.3	3605.8	1745.7
20	4321	7085.2	6766.7	6042.8	3934.7	3599.6	1748.3
21	4341	7126.2	6791.7	6042.5	3933.7	3608.7	1748.2
22	4342	7126.7	6762.2	6037.6	3931.6	3610.7	1748.8(36)
23	4361	7139.7	6806.2	6048.2	3948.0	3611.2	1749.5
24	4316	7066.3	6716.7	5996.0	3882.7	3573.8	1738.9
25	4272	7006.2	6656.0	5940.5	3864.1	3550.8	1726.0
26	4288	7043.0	6694.4	5961.7	3887.7	3568.2	1734.3
27	4322	7089.8	6779.6	6037.2	3943.4	3594.7	1741.9
28	4333	7122.2	6804.1	6059.0	3960.0	3609.5	1751.4
29	4312	7082.5	6752.7	6037.2	3910.9	3583.6	1737.2
30	4265	7010.1	6708.0	5970.1	3892.5	3566.9	1731.8
Mean	4334	7113.4	6780.2	6032.6	3933.7	3593.3	1742.2

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

134
Late
Jun 88

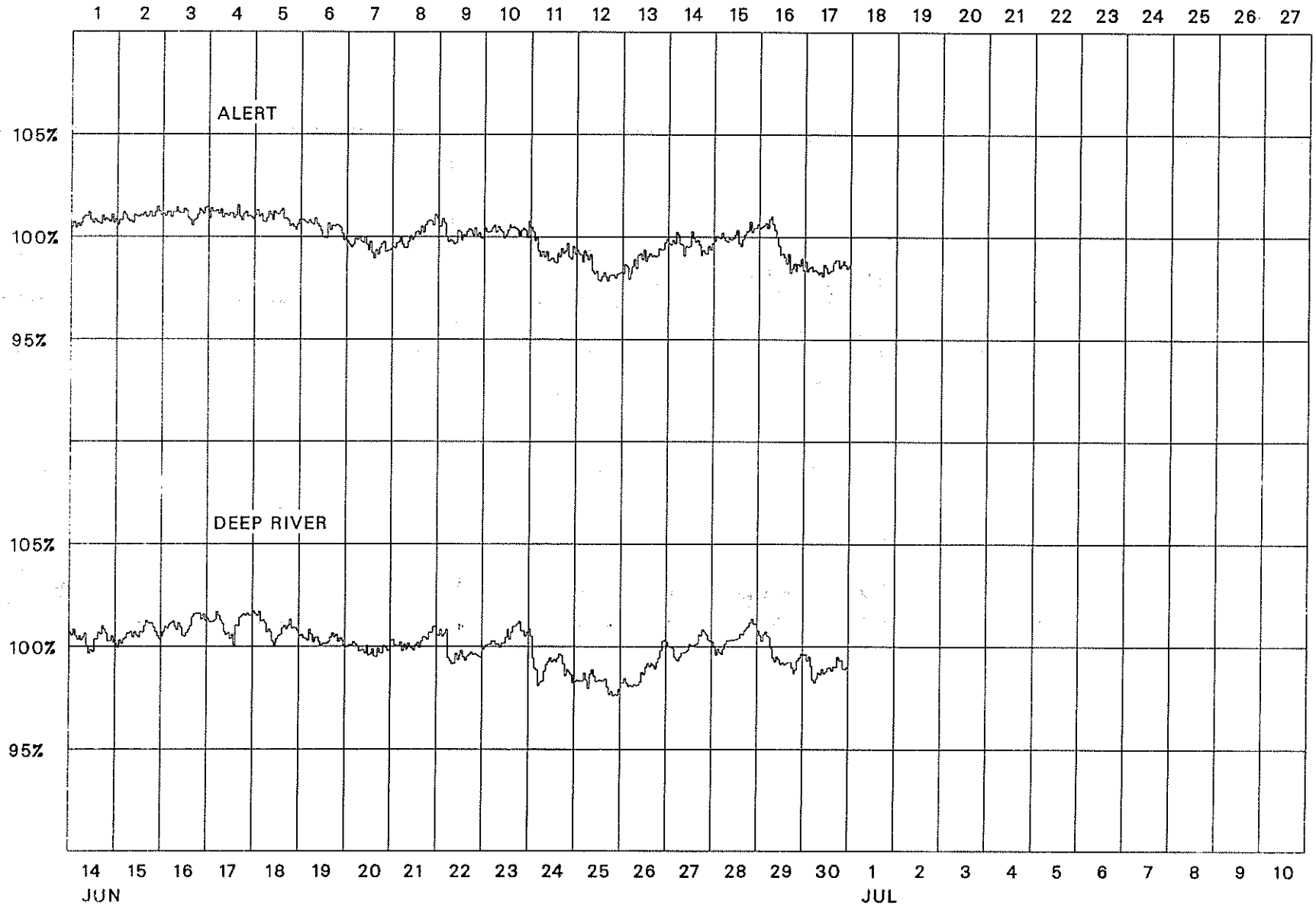
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2115 (May 1988-June 1988)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2116 (June 1988-July 1988)



135
Late
Jun 88

WORLD DATA CENTER A
FOR
SOLAR-TERRESTRIAL PHYSICS

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

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