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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

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JANUARY 1990 NUMBER 545 - Part I

Solar-Geophysical Data prompt reports

Data for December, November 1989, and Late Data

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NATIONAL GEOPHYSICAL DATA CENTER

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Boulder, Colorado

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

NUMBER 545

(Issued in Two Parts)

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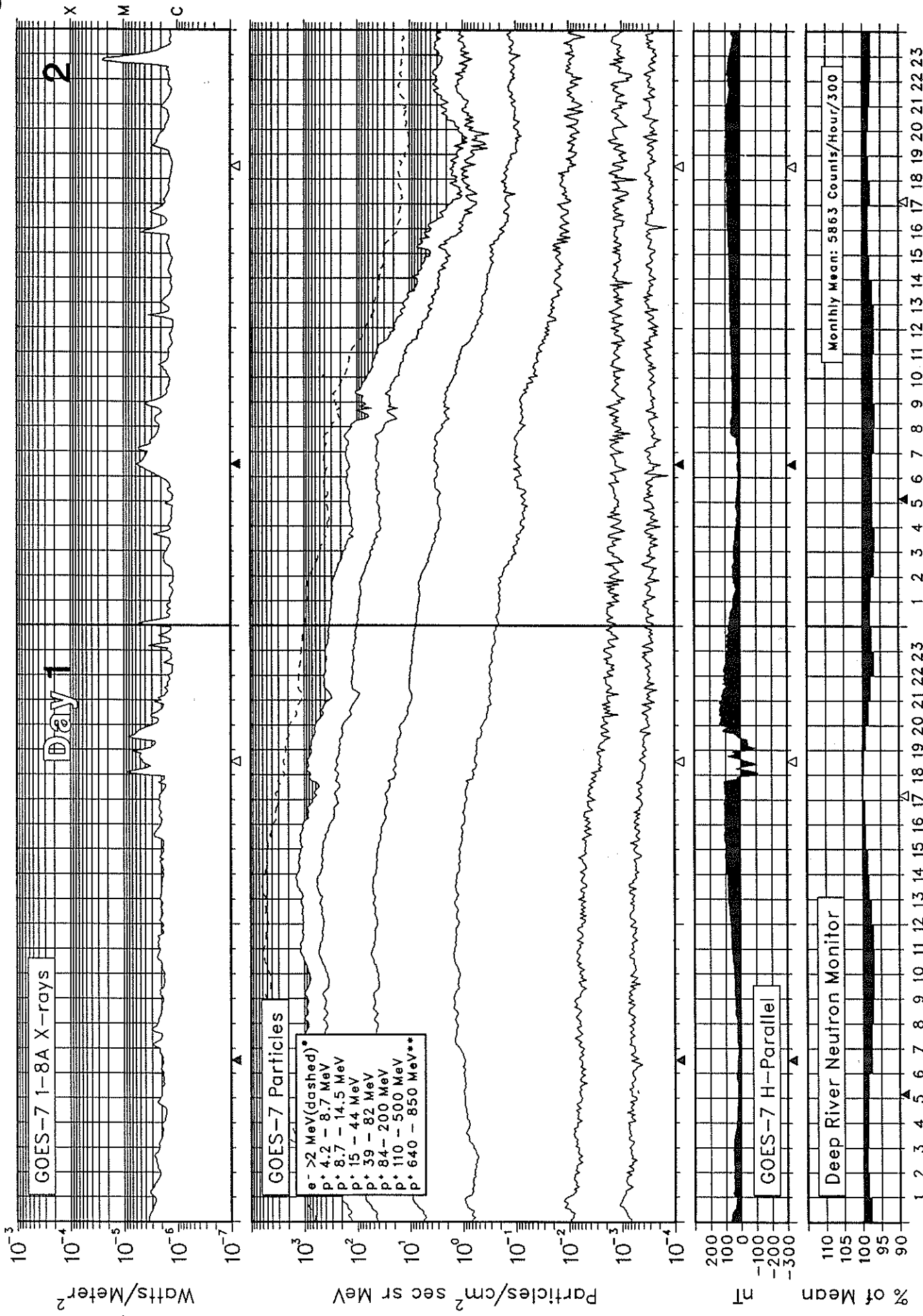
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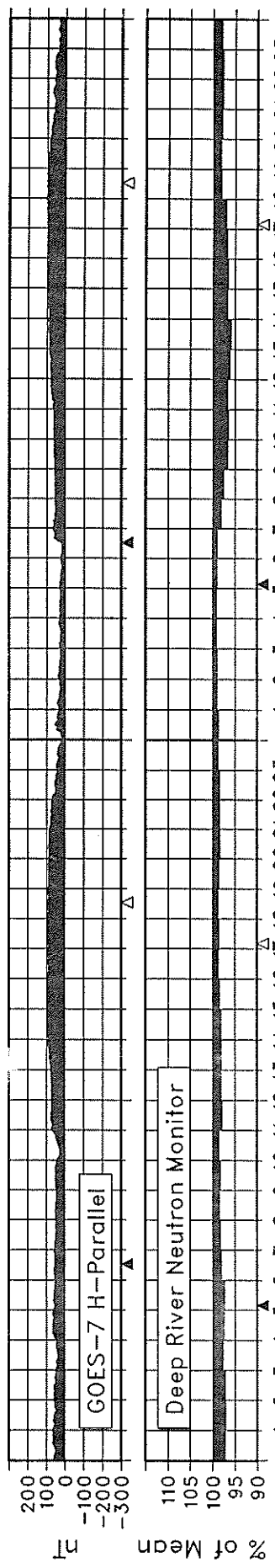
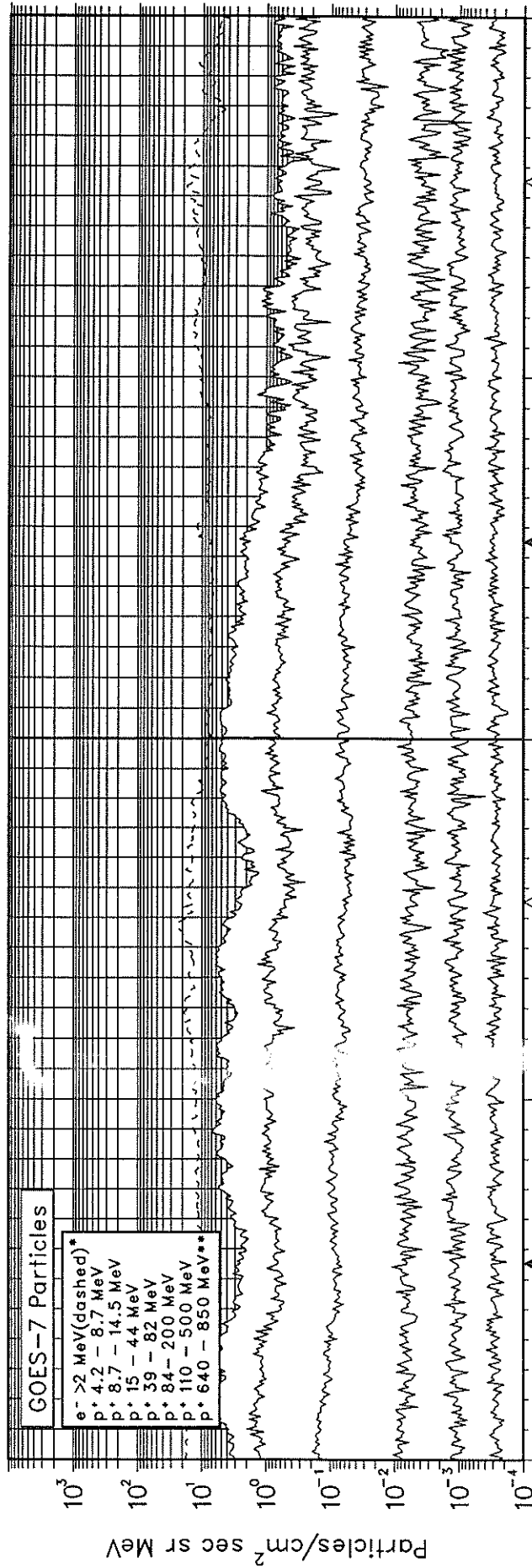
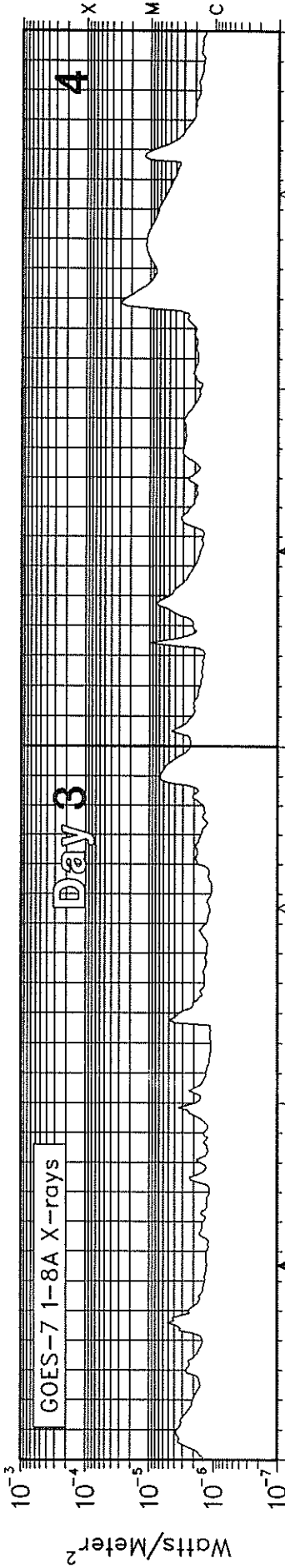
SOLAR-TERRESTRIAL ENVIRONMENT

December 1989



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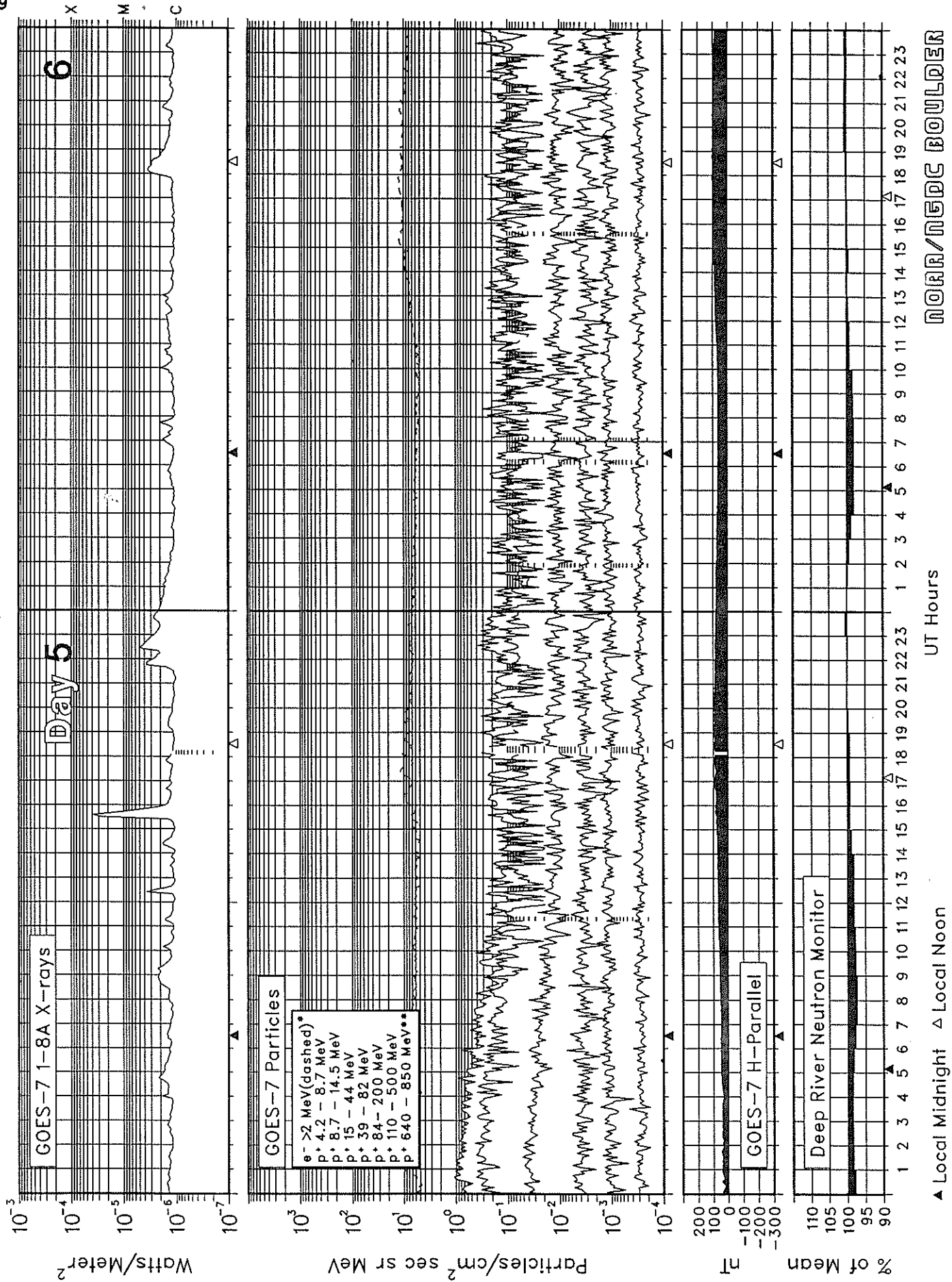
December 1989



SOLAR-TERRESTRIAL ENVIRONMENT

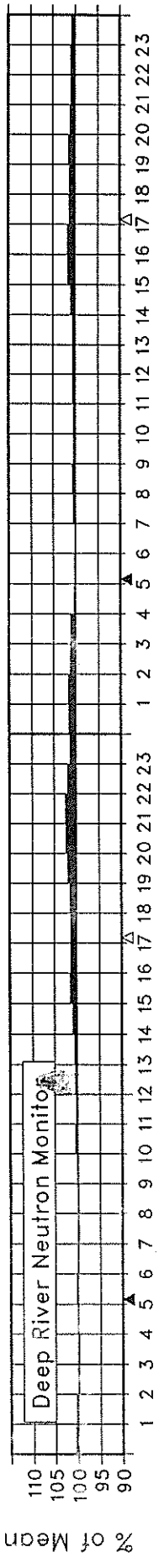
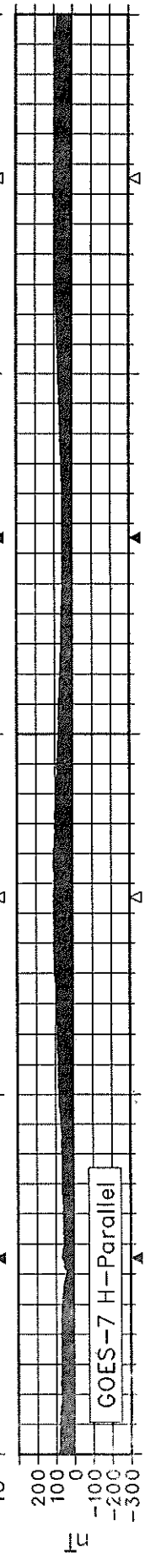
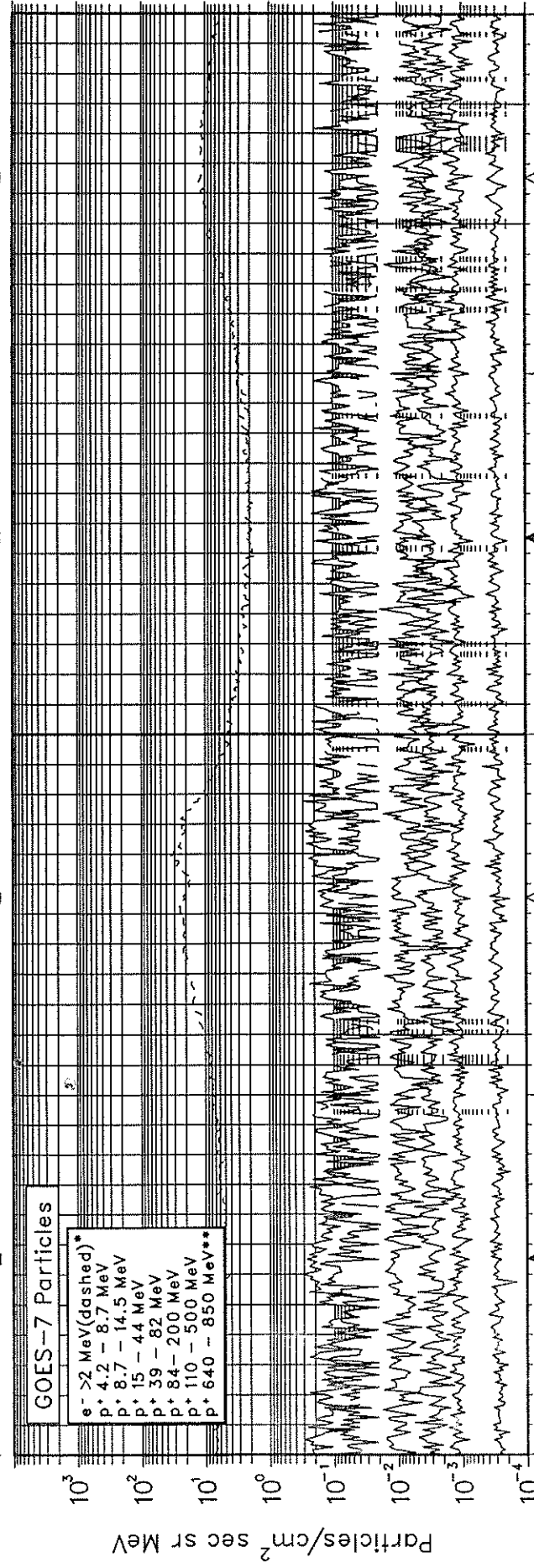
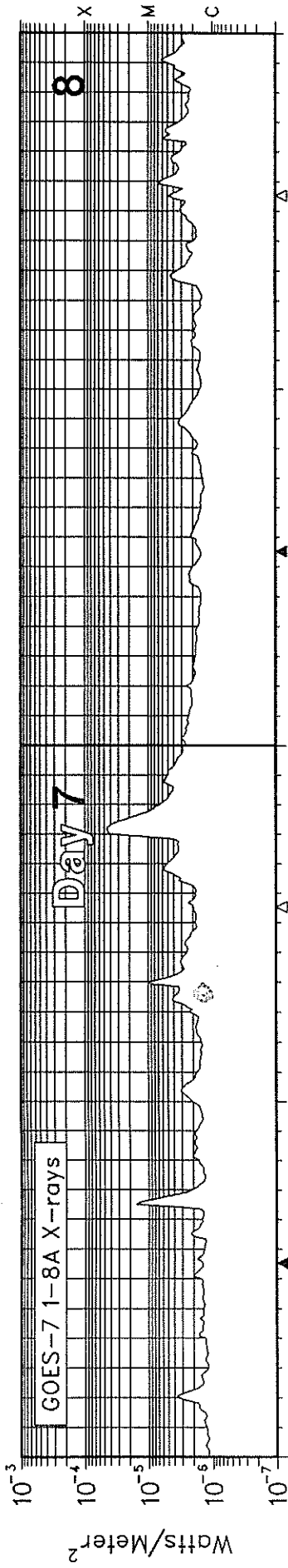
December 1989

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Dec 89



SOLAR-TERRESTRIAL ENVIRONMENT

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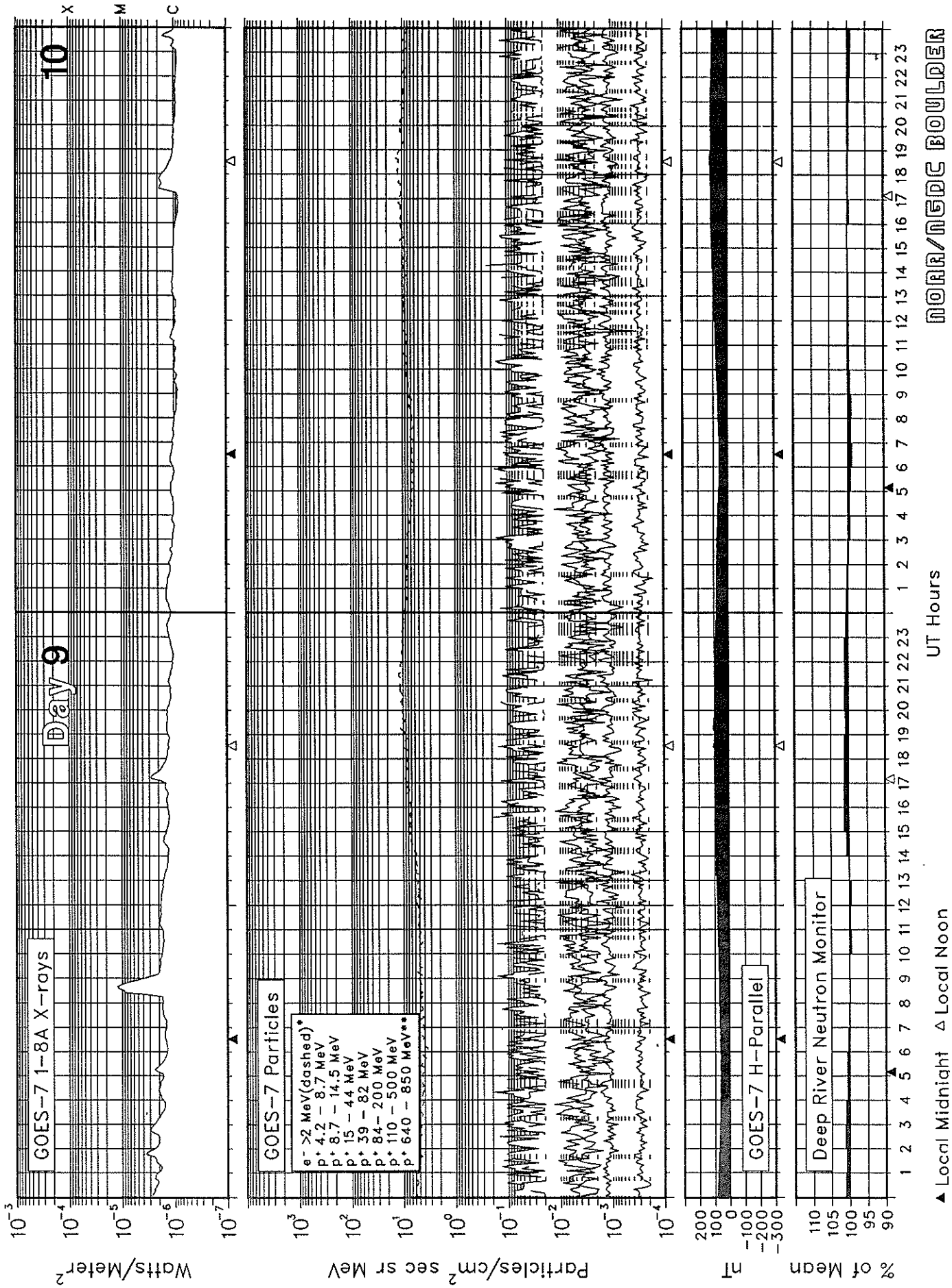


▲ Local Midnight Δ Local Noon

UT Hours

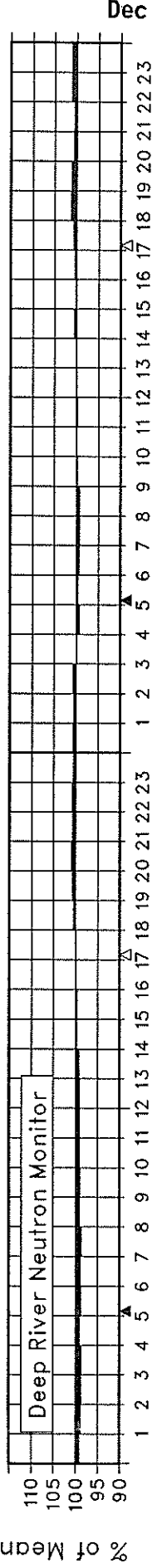
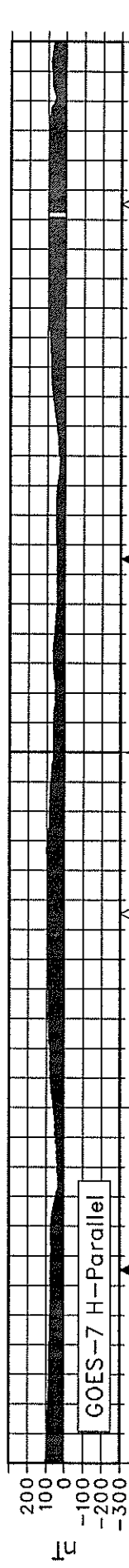
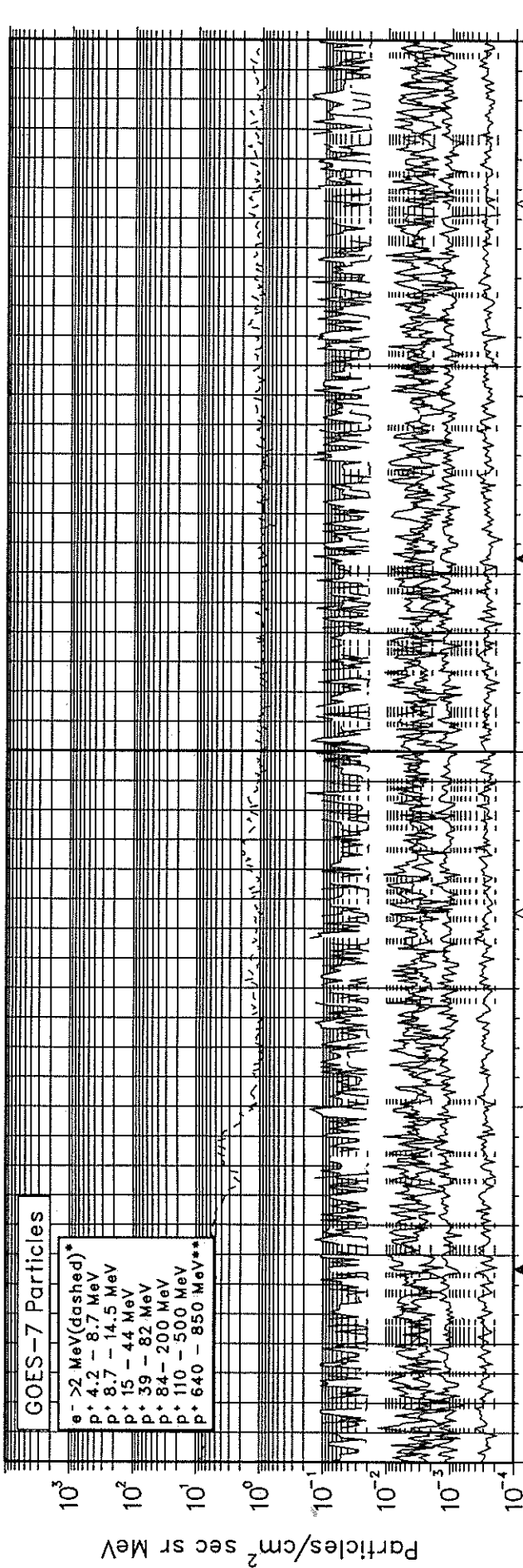
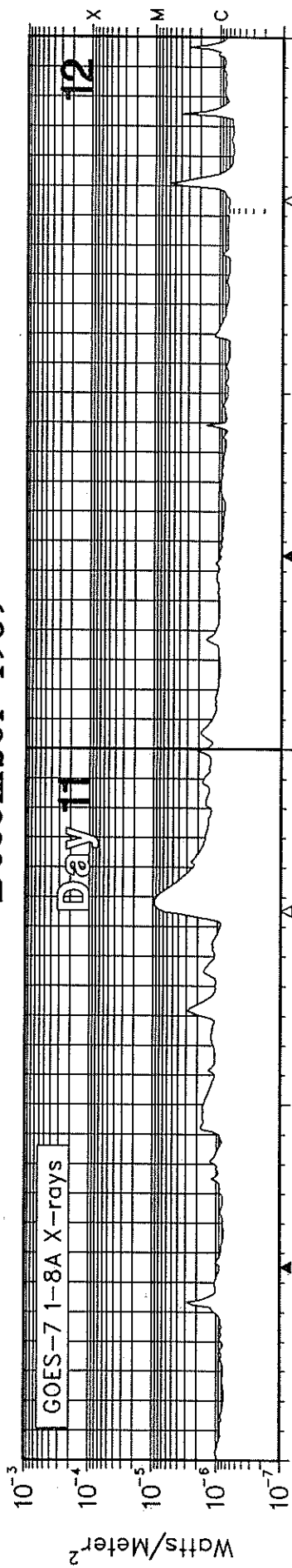
SOLAR-TERRESTRIAL ENVIRONMENT

December 1989



SOLAR-TERRESTRIAL ENVIRONMENT

December 1989



▲ Local Midnight ▲ Local Noon

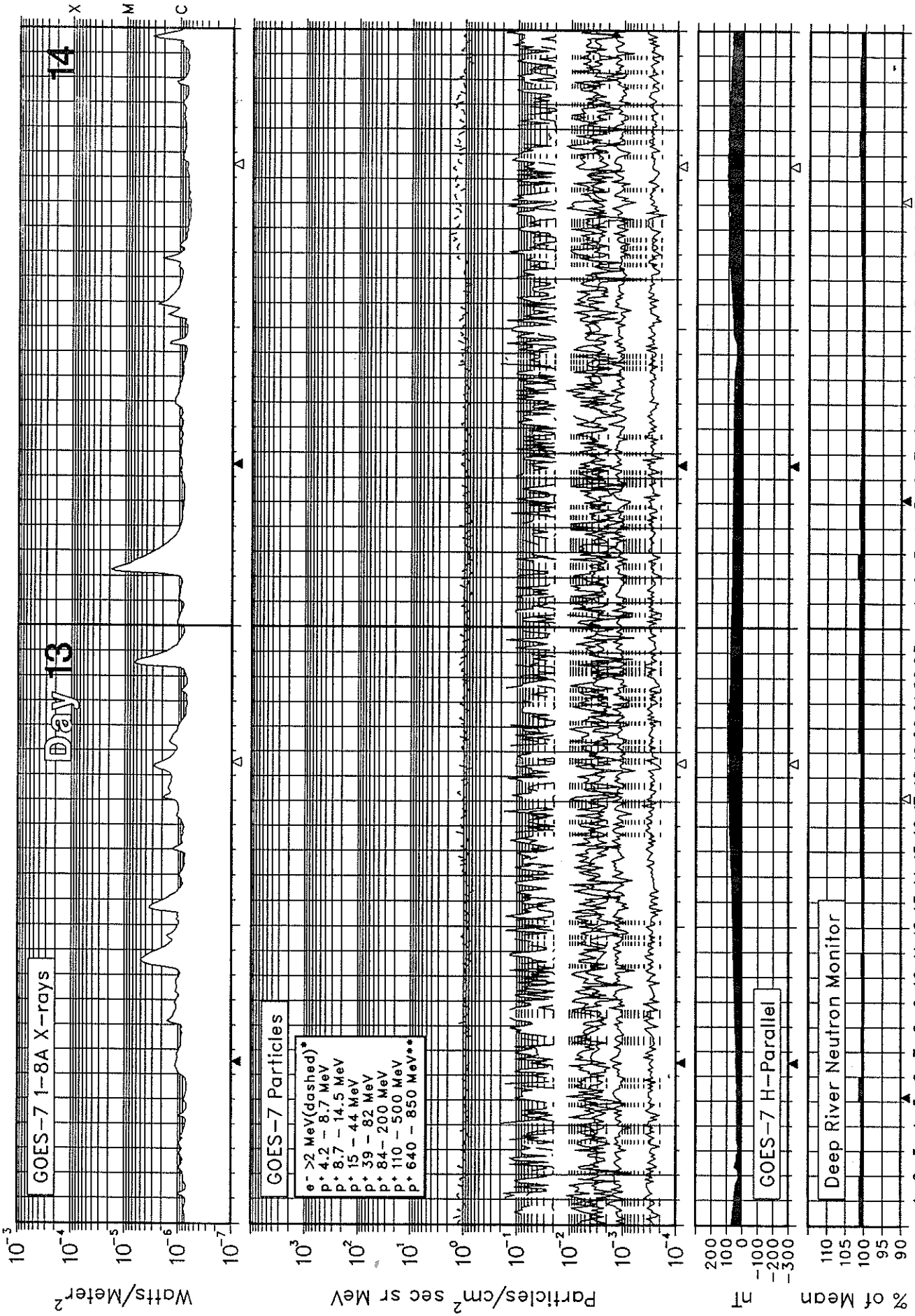
UT Hours

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

NORR/NGDC BOULDER

SOLAR-TERRESTRIAL ENVIRONMENT

December 1989



SOLAR-TERRESTRIAL ENVIRONMENT

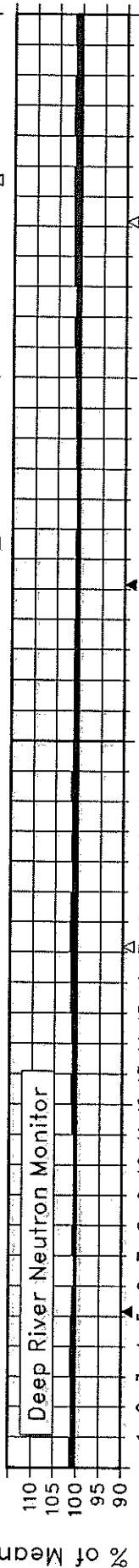
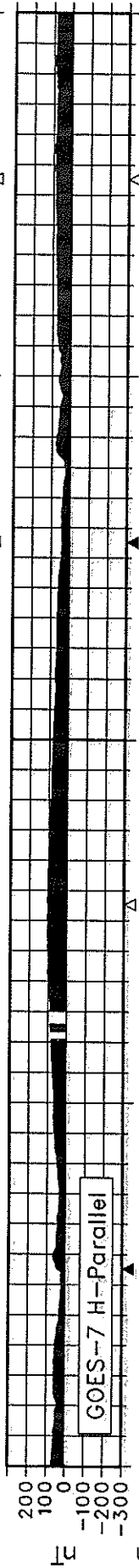
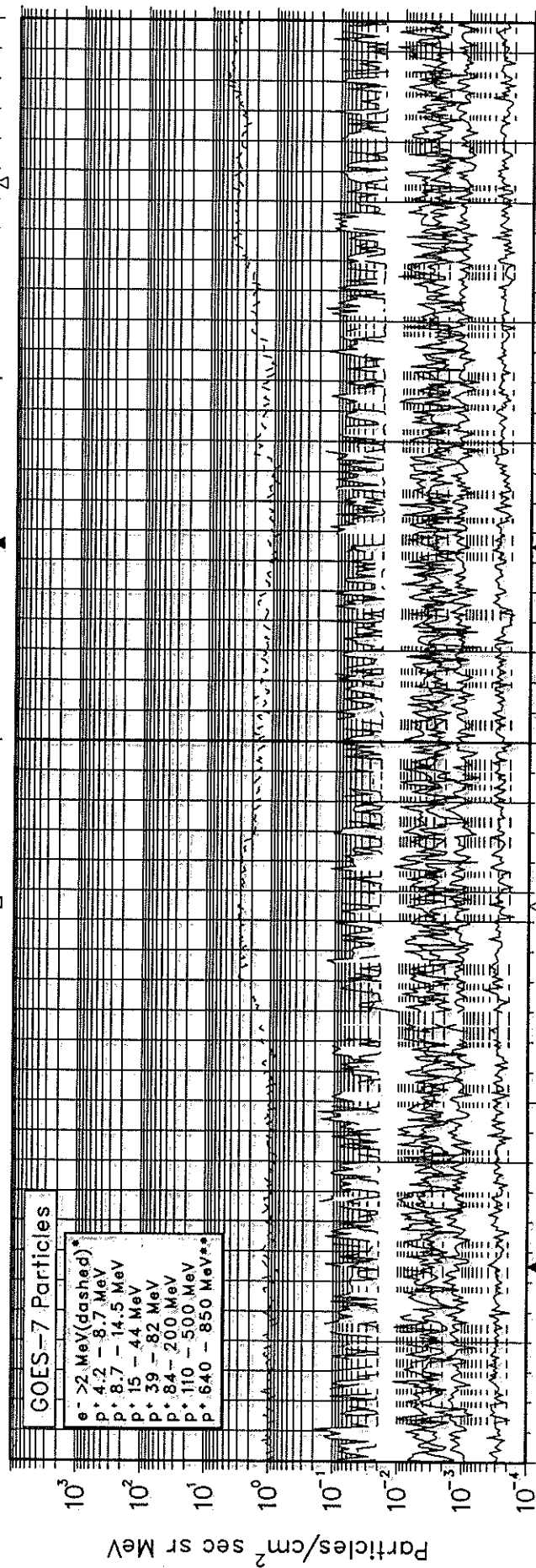
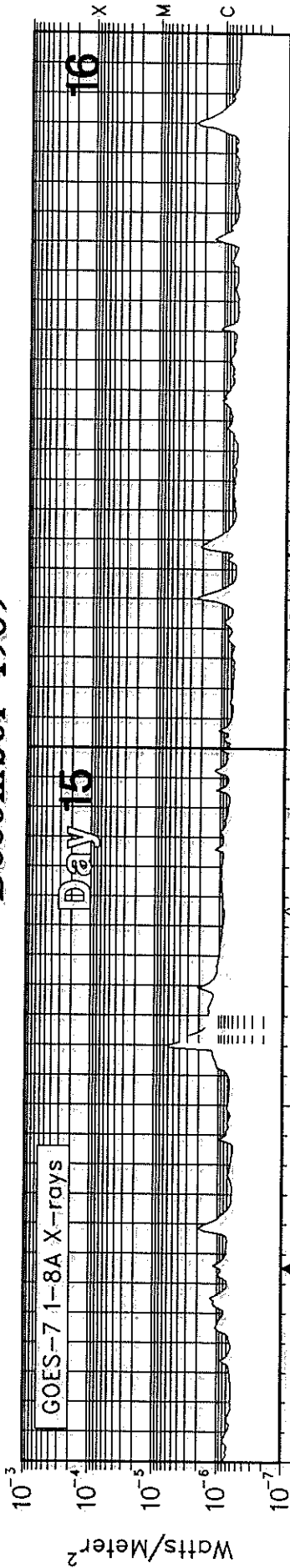
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NORR/NEDC BOULDER

UT Hours

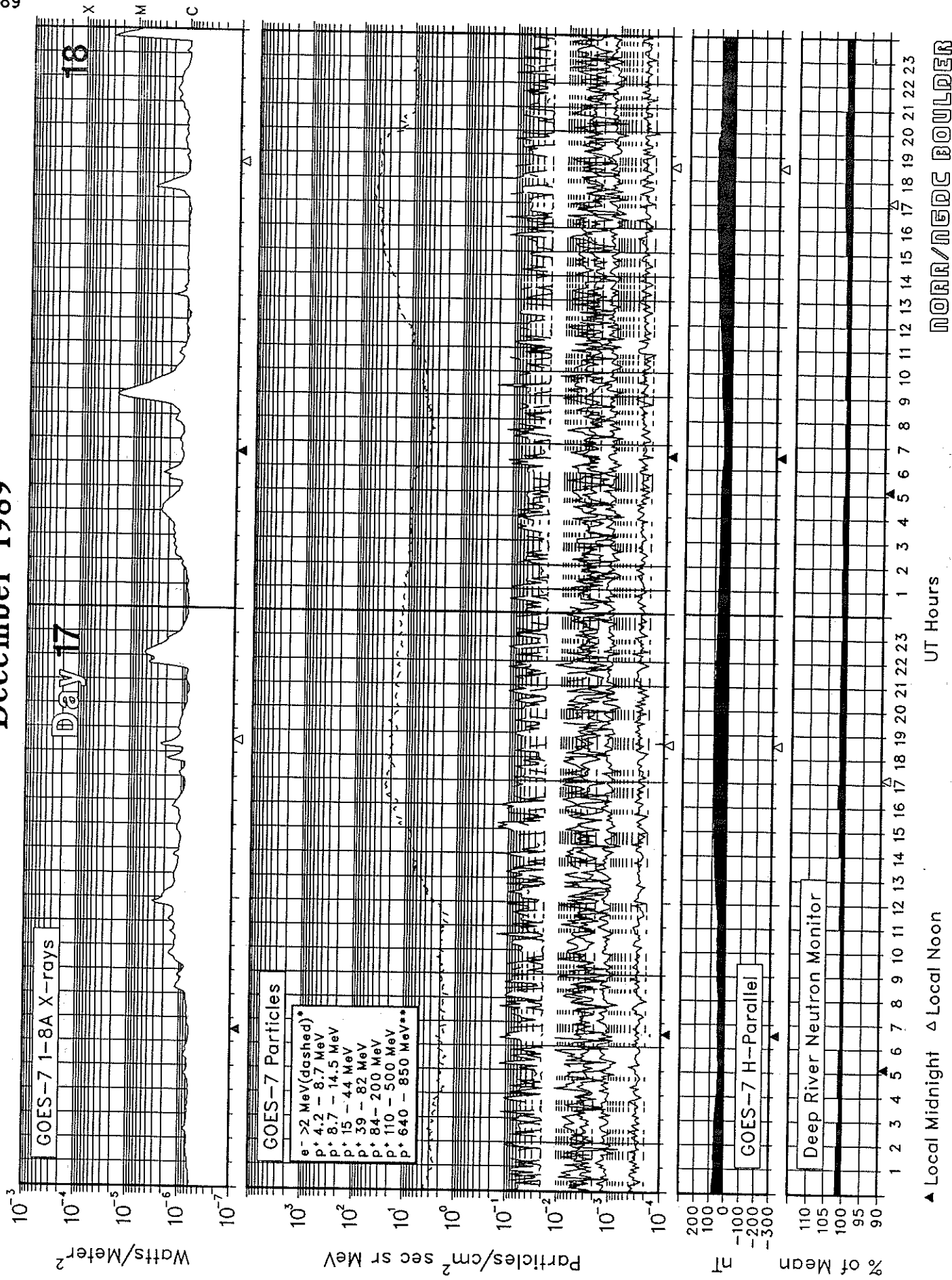
▲ Local Midnight ▲ Local Noon



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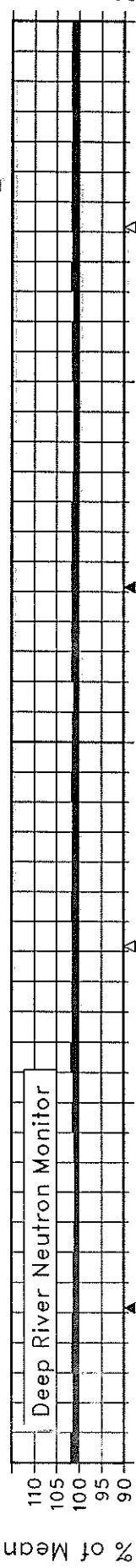
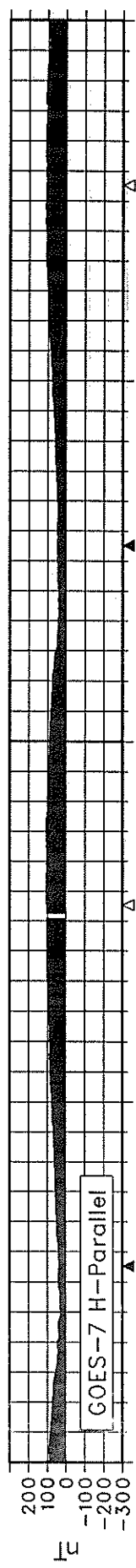
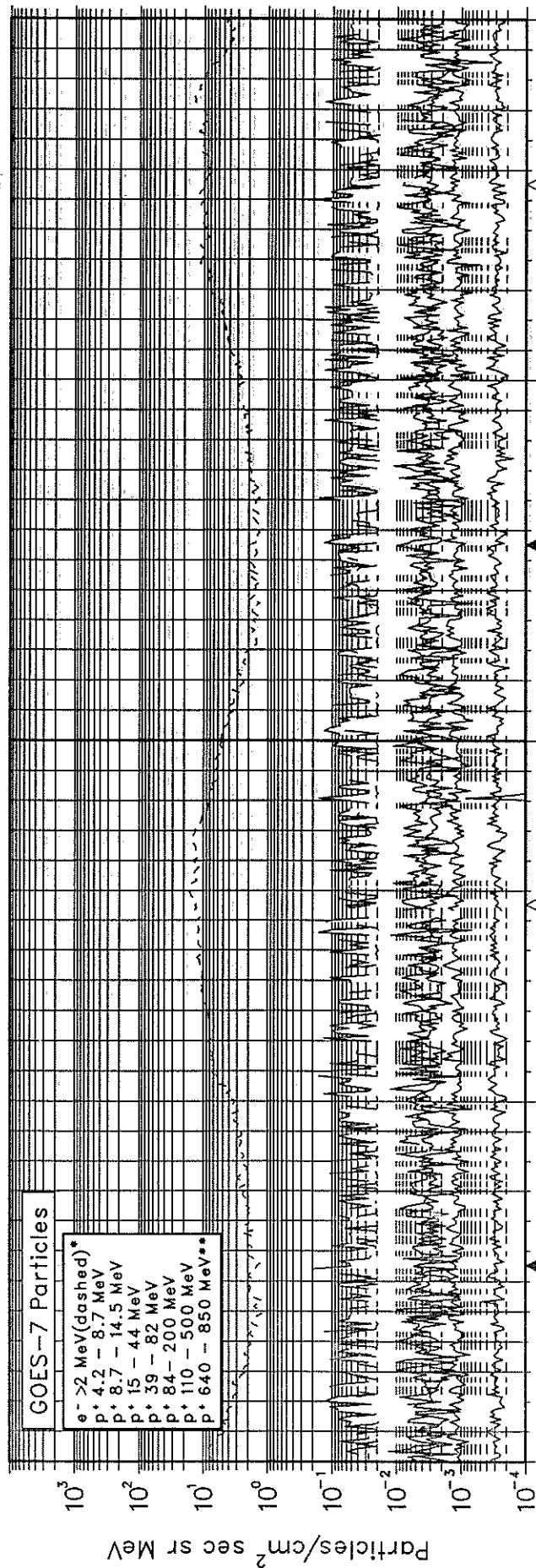
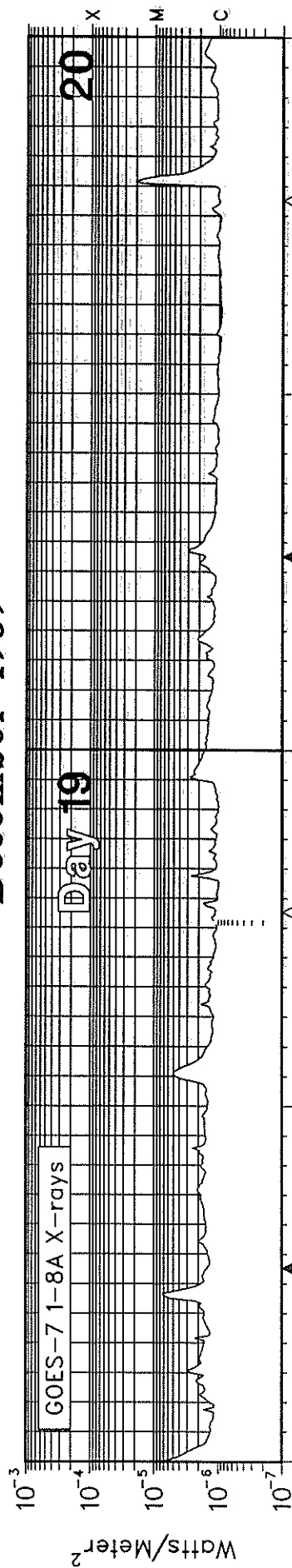
SOLAR-TERRESTRIAL ENVIRONMENT December 1989

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Dec 89



SOLAR-TERRESTRIAL ENVIRONMENT

December 1989



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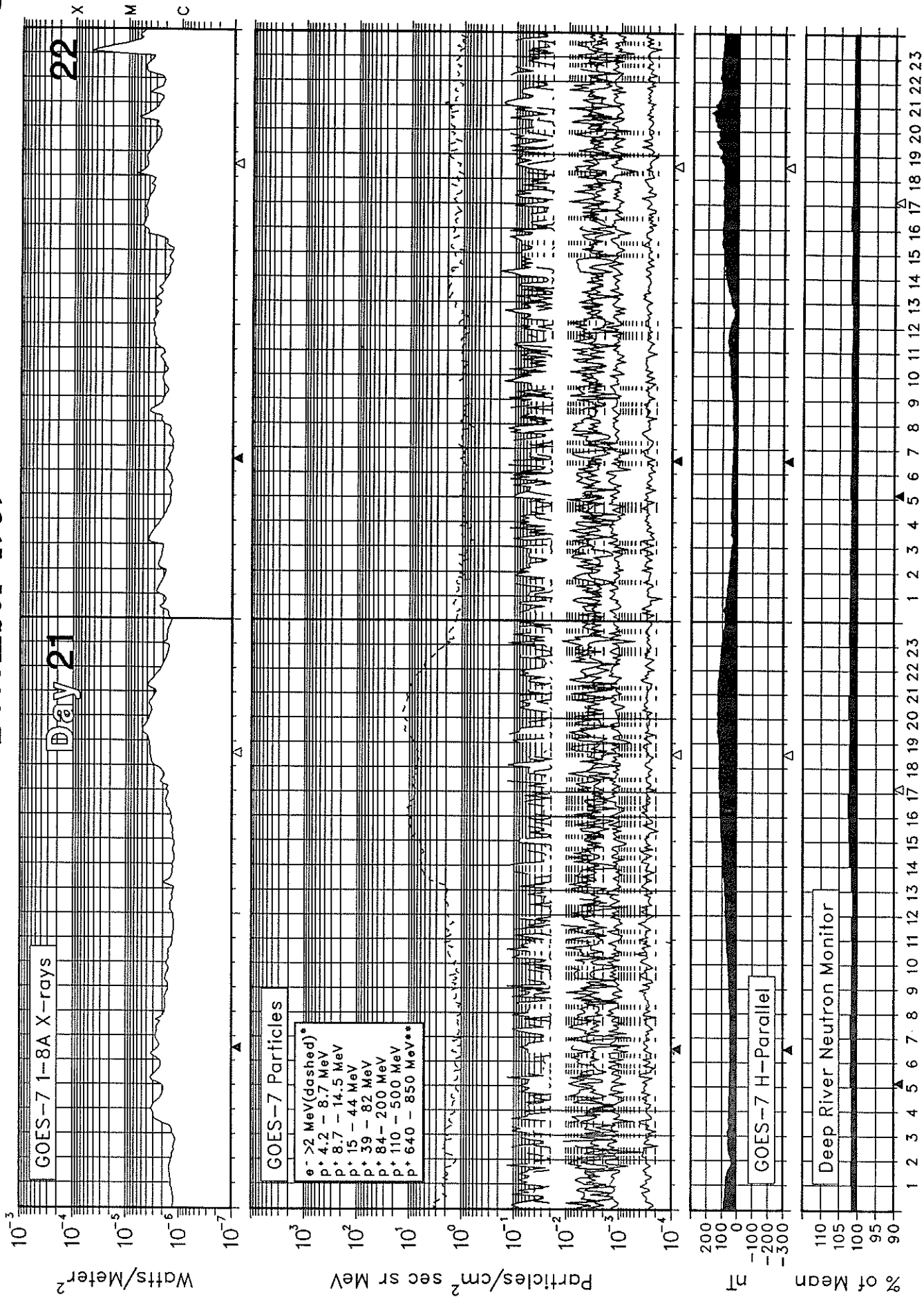
▲ Local Midnight Δ Local Noon

UT Hours

NORR/NSEDC BOULDER

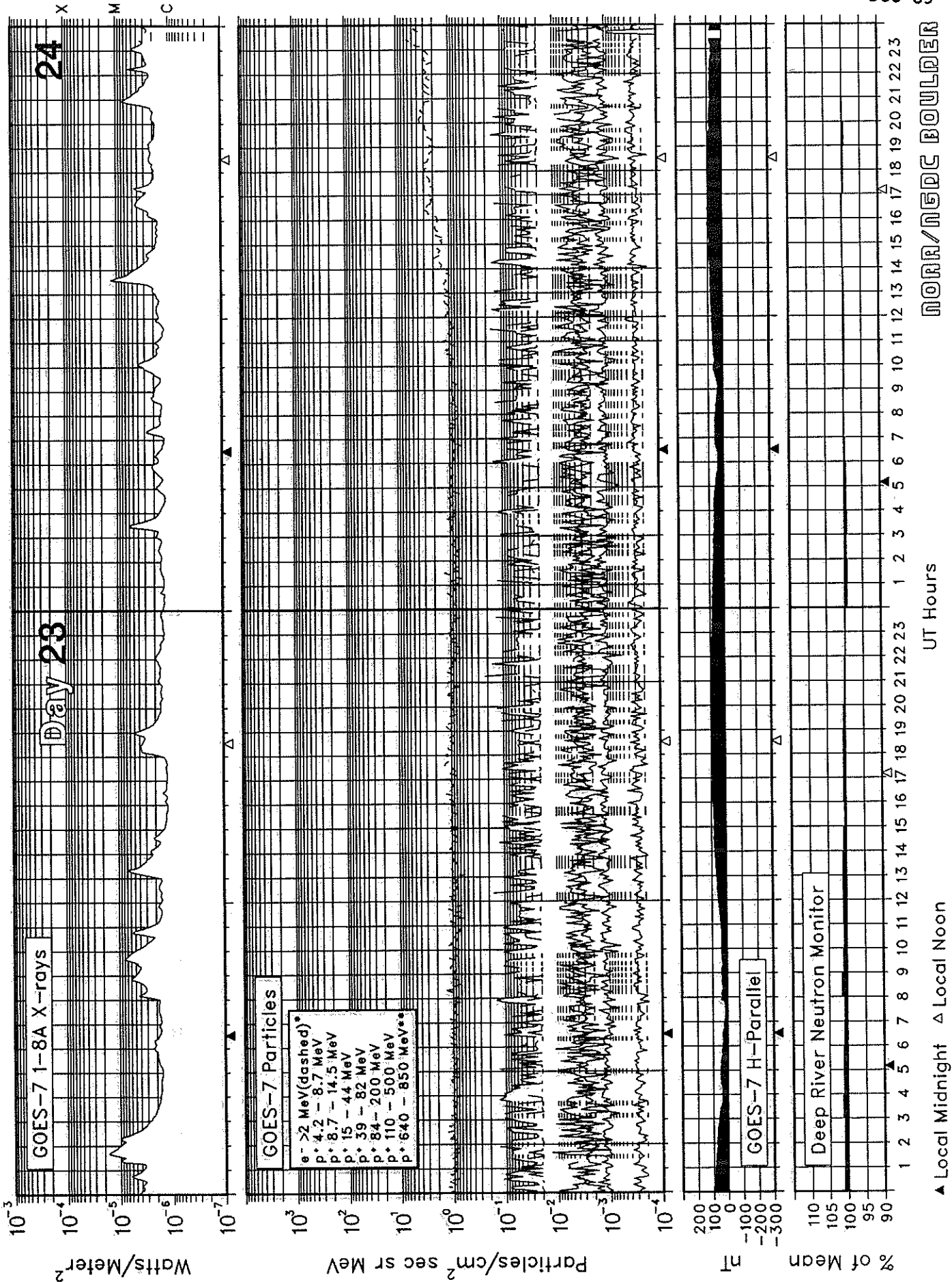
SOLAR-TERRESTRIAL ENVIRONMENT

December 1989



SOLAR-TERRESTRIAL ENVIRONMENT

December 1989

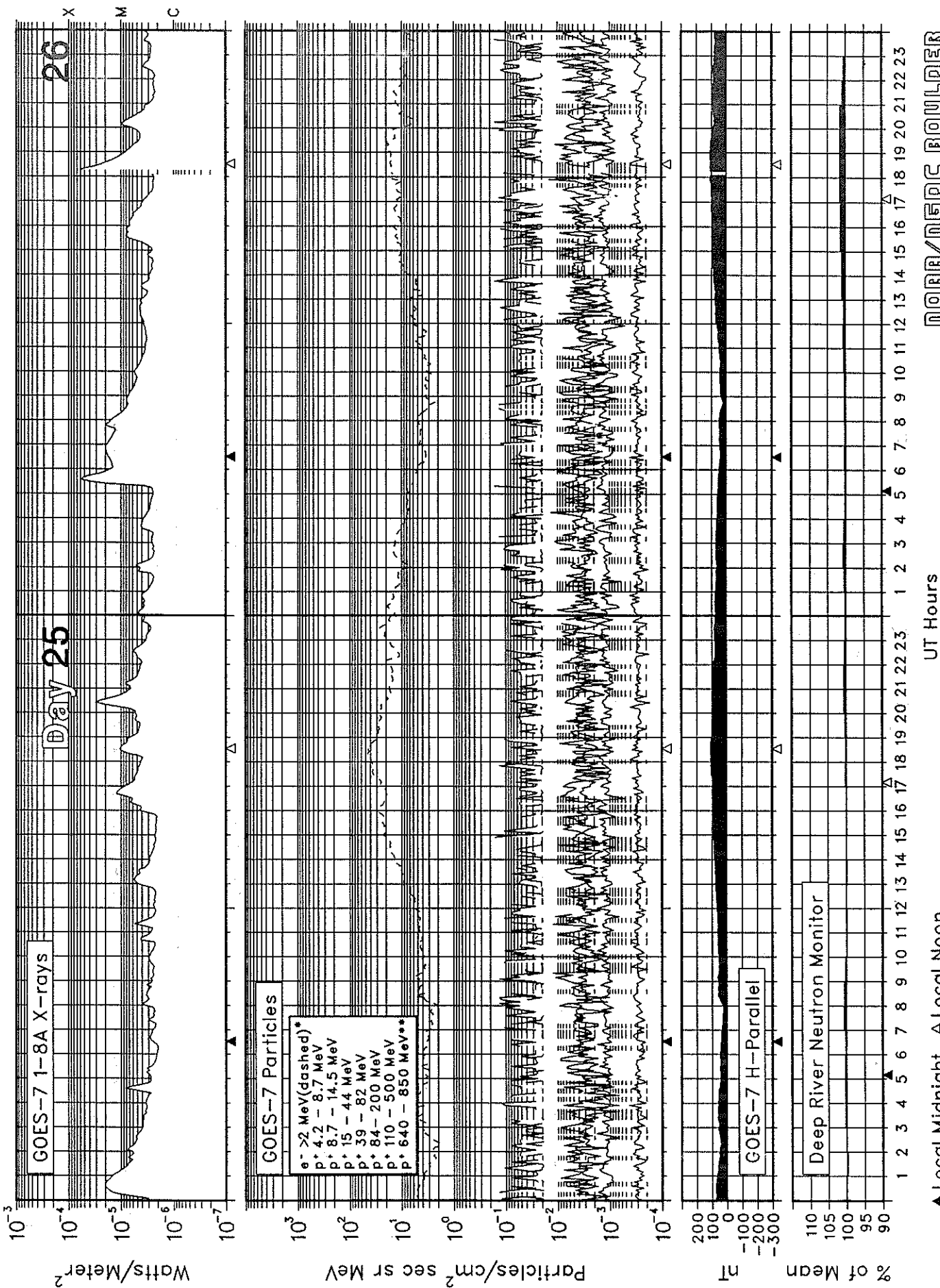


▲ Local Midnight Δ Local Noon

UT Hours

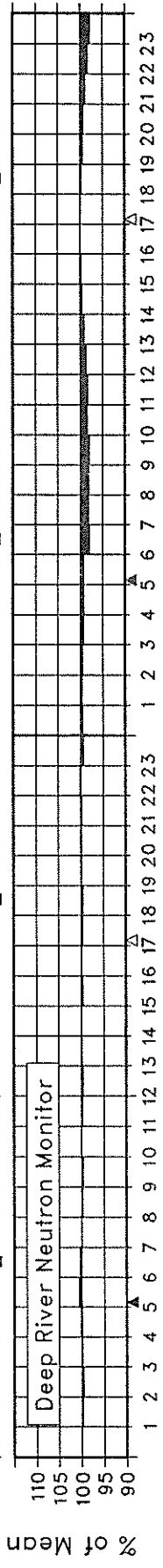
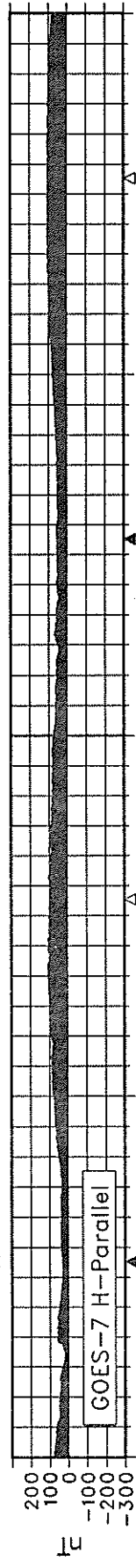
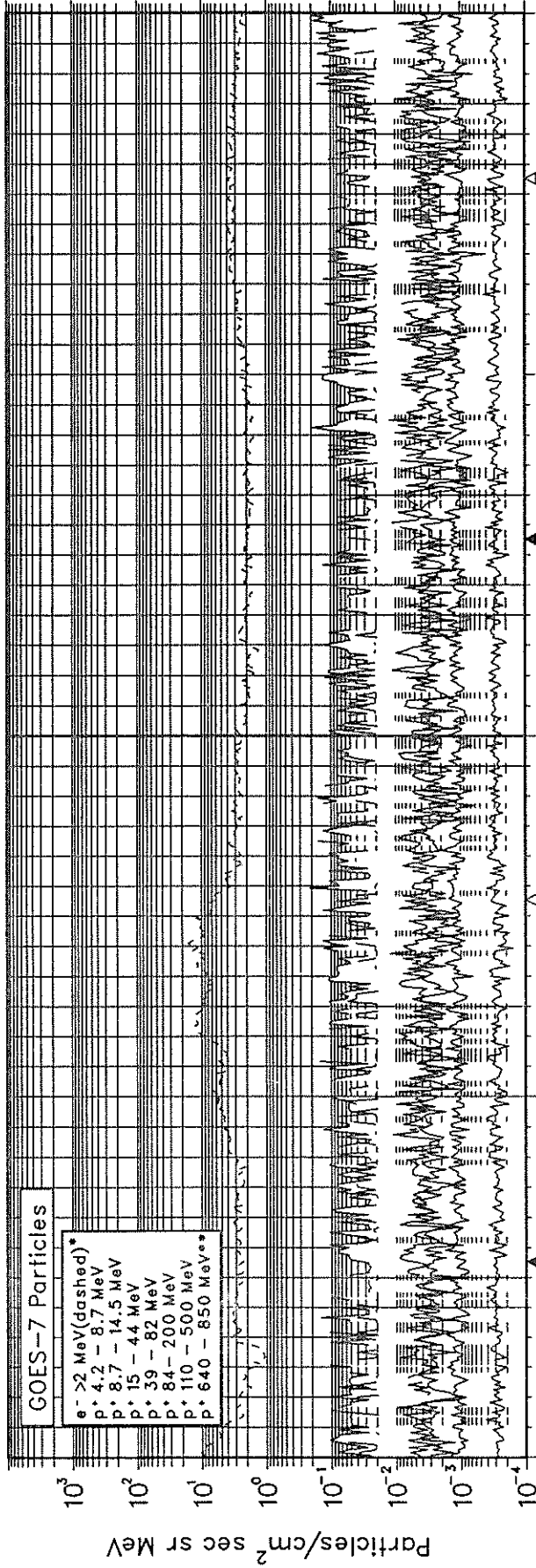
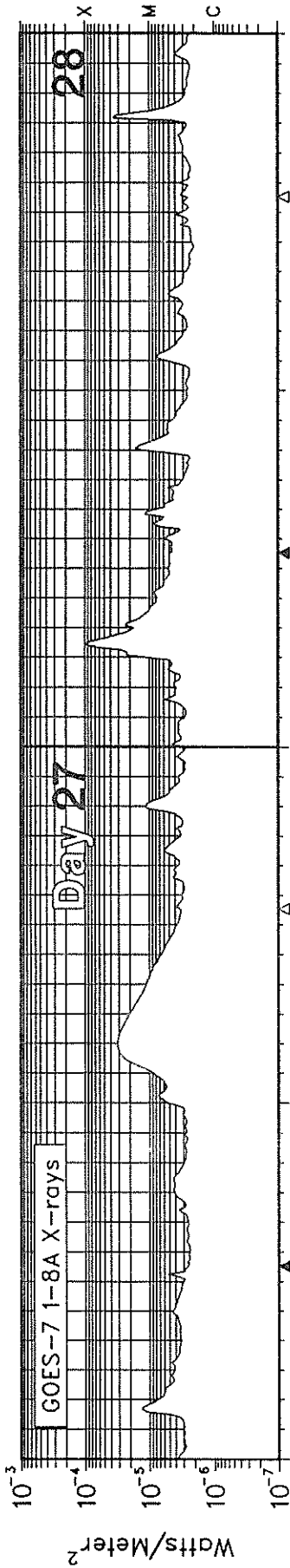
NORR/NEDC BOULDER

SOLAR-TERRESTRIAL ENVIRONMENT December 1989



SOLAR-TERRESTRIAL ENVIRONMENT

December 1989



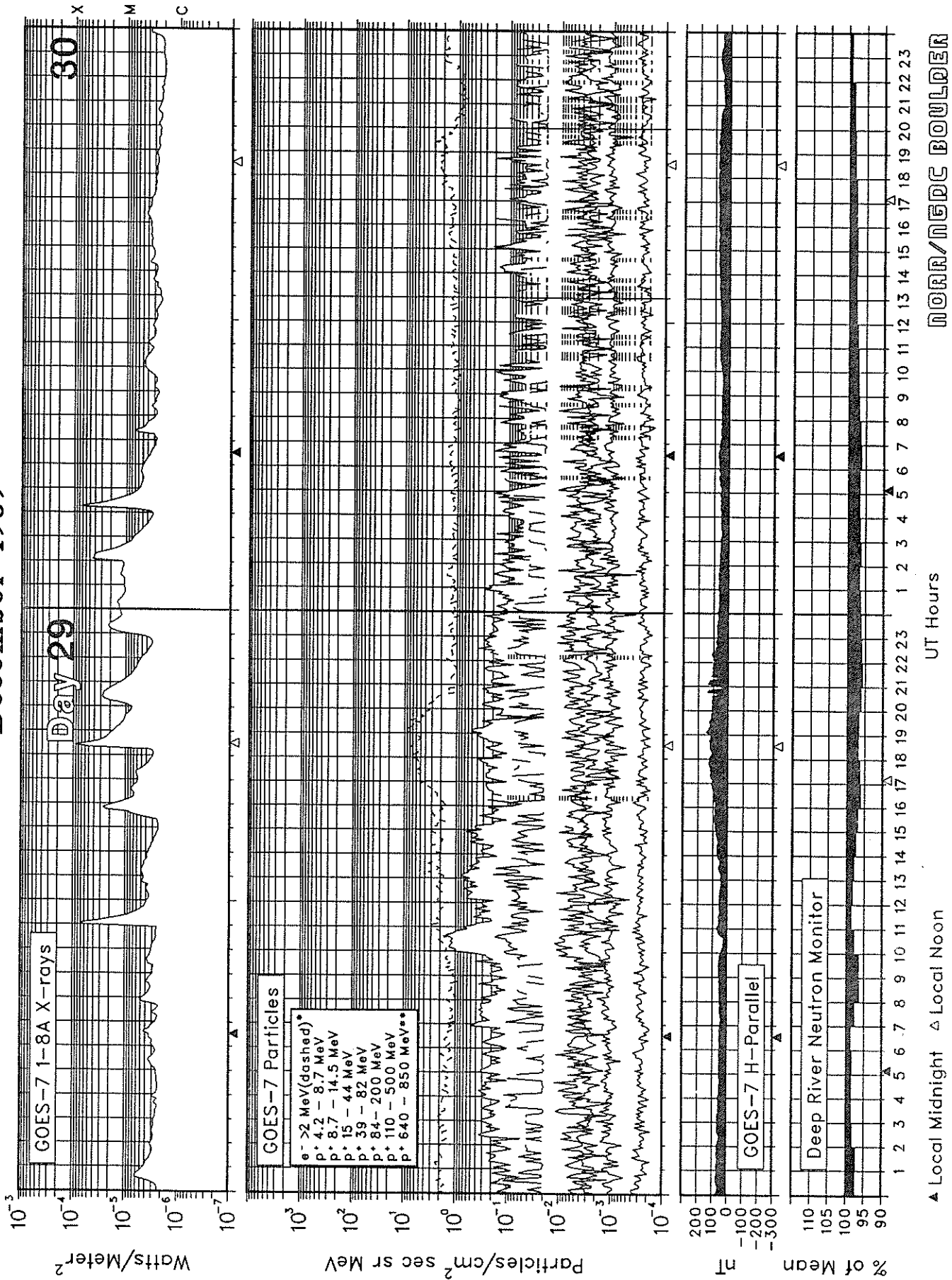
▲ Local Midnight Δ Local Noon

UT Hours

NORR/NEDC BOULDER

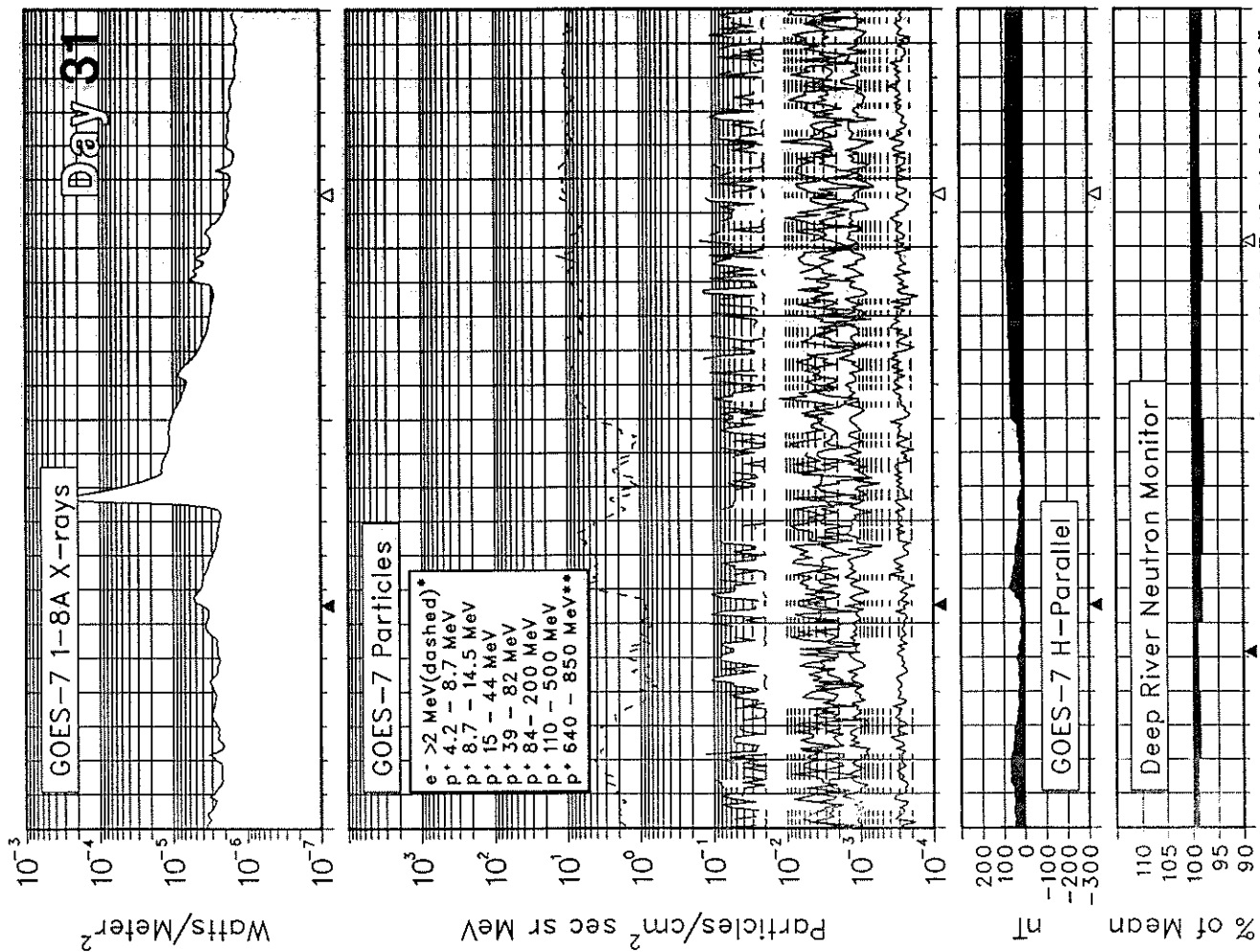
SOLAR-TERRESTRIAL ENVIRONMENT

December 1989



SOLAR-TERRESTRIAL ENVIRONMENT

December 1989



* The y-axis units for the electron flux are Particles/cm² sec sr. Also, the plotted electron values have been divided by 10.

** The 640 - 850 MeV proton data are from the GOES-6 High Energy Proton and Alpha Detector (HEPAD). These data will appear on these charts only during very energetic proton events.

▲ Local Midnight Δ Local Noon UT Hours

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages

DECEMBER 1989

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		
335	01	30	213	249	013	N25	W60	7	0	1	01	N25	W60	A	Solalert 01/XX, Magalert 01/03.
						N42	W51	0	0	0		N42	W51	Q	
						S13	W48	1	0	0		S13	W48	Q	
						N18	W18	2	0	0		N18	W18	E	
						S05	W75	0	0	0		S05	W75	E	
						S18	E16	0	0	0		S18	E16	Q	
						S16	E40	1	0	0		S16	E40	E	
						N15	W08	1	0	0		N15	W08	Q	
						S11	W19	0	0	0		S11	W19	Q	
						N10	E20	1	0	0		N10	E20	Q	
						N12	E51	2	0	0		N12	E51	Q	
						N18	E71	0	0	0		N18	E71	Q	
						Presto: ² Boulder X-ray event X2/3B N23 W52 30/1154 UT duration 68 minutes. Boulder Tenflare 2100 flux units 30/1155 UT duration 89 minutes. Boulder Proton event began 30/1345 UT maximum of 570 particles/cm ² -s-ster at greater than 10 MeV 30/2100 UT.									
336	02	01	248	235	030	N26	W72	7	0	0	02	N26	W72	A	Solalert 02/XX, Magalert 02/XX.
						N42	W63	0	0	0		N42	W63	Q	
						S13	W61	0	0	0		S13	W61	Q	
						N19	W30	5	0	0		N19	W30	E	
						S06	W87	1	0	0		S06	W87	E	
						S18	E03	0	0	0		S18	E03	Q	
						N24	W03	0	0	0		N24	W03	Q	
						S16	E27	1	0	0		S16	E27	Q	
						N17	W20	1	0	0		N17	W20	Q	
						N10	E06	2	0	0		N10	E06	E	
						N12	E39	0	0	0		N12	E39	Q	
						N18	E58	1	0	0		N18	E58	Q	
						S16	E53	0	0	0		S16	E53	Q	
S28	E36	0	0	0	S28	E36	Q								
337	03	02	270	220	015	N26	W84	1	0	0	03	N26	W84	A	Solalert 03/05, Magnil.
						S13	W75	0	0	0		S13	W75	Q	
						N19	W43	8	1	0		N19	W43	E	
						S18	W10	0	0	0		S18	W10	Q	
						N23	W17	0	0	0		N23	W17	Q	
						S16	E13	0	0	0		S16	E13	Q	
						N20	W33	0	0	0		N20	W33	Q	
						S12	W47	1	0	0		S12	W47	Q	
						N10	W07	0	0	0		N10	W07	Q	
						N12	E26	3	0	0		N12	E26	E	
						N19	E45	2	0	0		N19	E45	Q	
						S15	E39	0	0	0		S15	E39	Q	
						S28	E23	0	0	0		S28	E23	Q	
N19	E70	1	0	0	N19	E70	E								
S10	W16	1	0	0	S10	W16	Q								
S10	E24	0	0	0	S10	E24	Q								
S07	E32	0	0	0	S07	E32	Q								
Presto: ² Boulder Boulder Tenflare 660 flux units 02/2234 UT duration 18 minutes.															
338	04	03	267	212	018	N18	W55	5	0	0	04	N18	W55	A	Solalert 04/XX, Magquiet.
						S18	W24	5	0	0		S18	W24	Q	
						N27	W26	0	0	0		N27	W26	Q	
						S16	E01	0	0	0		S16	E01	Q	
						N21	W46	1	0	0		N21	W46	Q	
						S12	W59	0	0	0		S12	W59	Q	
						N10	W20	0	0	0		N10	W20	Q	
						N12	E14	1	0	0		N12	E14	Q	
						N19	E32	0	0	0		N19	E32	Q	
						S15	E26	0	0	0		S15	E26	Q	
						S28	E11	0	0	0		S28	E11	Q	

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						°Lat	°Long	Total	M	X		°Lat	°Long		
338	04	03				N18 E56	5	0	0	04	N18 E56	A			
						S10 W28	1	0	0		S10 W28	Q			
						S10 E10	0	0	0		S10 E10	Q			
339	05	04	262	216	021	N17 W70	2	2	0	05	N17 W70	A	Solalert 05/XX, Magquiet.		
						S18 W39	1	0	0		S18 W39	Q			
						N26 W39	0	0	0		N26 W39	Q			
						S17 W12	1	0	0		S17 W12	Q			
						N20 W62	0	0	0		N20 W62	Q			
						S13 W73	0	0	0		S13 W73	Q			
						N09 W34	0	0	0		N09 W34	Q			
						N11 W02	1	0	0		N11 W02	Q			
						N19 E20	1	0	0		N19 E20	Q			
						S16 E14	0	0	0		S16 E14	Q			
						N19 E43	0	0	0		N19 E43	Q			
						S11 W43	3	0	0		S11 W43	Q			
						N10 E08	0	0	0		N10 E08	Q			
						N16 E27	2	0	0		N16 E27	Q			
						N13 E78	0	0	0		N13 E78	E			
340	06	05	285	214	009	N17 W82	1	1	0	06	N17 W82	A	Solalert 06/XX, Magquiet.		
						S17 W54	1	0	0		S17 W54	Q			
						N26 W50	0	0	0		N26 W50	Q			
						S17 W26	0	0	0		S17 W26	Q			
						S13 W83	0	0	0		S13 W83	Q			
						N09 W41	1	0	0		N09 W41	Q			
						N11 W16	3	0	0		N11 W16	E			
						N19 E07	0	0	0		N19 E07	Q			
						S16 W00	0	0	0		S16 W00	Q			
						N19 E30	2	0	0		N19 E30	Q			
						S12 W55	6	0	0		S12 W55	Q			
						N08 W05	0	0	0		N08 W05	Q			
						N16 E15	1	0	0		N16 E15	Q			
						N14 E66	0	0	0		N14 E66	Q			
						S13 E76	0	0	0		S13 E76	Q			
341	07	06	209	212	004	S17 W67	0	0	0	07	S17 W67	Q	Solnil, Magquiet.		
						S18 W40	0	0	0		S18 W40	Q			
						N09 W61	0	0	0		N09 W61	Q			
						N12 W30	3	0	0		N12 W30	E			
						N18 W08	0	0	0		N18 W08	Q			
						S16 W15	0	0	0		S16 W15	Q			
						N19 E19	0	0	0		N19 E19	Q			
						S12 W69	2	0	0		S12 W69	E			
						N15 E03	0	0	0		N15 E03	Q			
						N14 E54	0	0	0		N14 E54	Q			
						S15 E61	0	0	0		S15 E61	Q			
342	08	07	275	227	009	S14 W82	0	0	0	08	S14 W82	Q		Solquiet, Magquiet.	
						S18 W53	0	0	0		S18 W53	Q			
						N10 W73	0	0	0		N10 W73	Q			
						N12 W44	2	0	0		N12 W44	E			
						N19 W20	0	0	0		N19 W20	Q			
						S16 W27	1	0	0		S16 W27	Q			
						N19 E06	1	0	0		N19 E06	Q			
						S10 W81	4	1	0		S10 W81	E			
						S10 W51	0	0	0		S10 W51	Q			
						N17 W10	0	0	0		N17 W10	Q			
						N13 E41	0	0	0		N13 E41	Q			
						S17 E47	0	0	0		S17 E47	Q			
						N26 W48	7	0	0		N26 W48	E			
						S08 E66	0	0	0		S08 E66	Q			

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						°Lat	°Long	Total	M	X		°Lat	°Long		
343	09	08	267	209	004	S16	W66	0	0	0	09	S16	W66	Q	Solquiet, Magquiet.
						N11	W91	0	0	0		N11	W91	Q	
						N13	W58	2	0	0		N13	W58	E	
						N18	W34	0	0	0		N18	W34	Q	
						S15	W41	0	0	0		S15	W41	Q	
						S28	W53	0	0	0		S28	W53	Q	
						N20	W08	3	0	0		N20	W08	E	
						S11	W93	1	0	0		S11	W93	Q	
						S10	W64	2	0	0		S10	W64	Q	
						N17	W24	0	0	0		N17	W24	Q	
						N13	E29	0	0	0		N13	E29	Q	
						S17	E36	0	0	0		S17	E36	Q	
						N25	W60	3	0	0		N25	W60	Q	
						S08	E55	0	0	0		S08	E55	Q	
						S14	E13	0	0	0		S14	E13	Q	
344	10	09	210	201	004	S17	W81	0	0	0	10	S17	W81	Q	Solquiet, Magquiet.
						N12	W70	0	0	0		N12	W70	E	
						N18	W47	0	0	0		N18	W47	Q	
						S16	W54	0	0	0		S16	W54	Q	
						N19	W21	1	1	0		N19	W21	E	
						S11	W78	0	0	0		S11	W78	Q	
						N14	E15	0	0	0		N14	E15	Q	
						S18	E23	0	0	0		S18	E23	Q	
						N26	W73	0	0	0		N26	W73	Q	
						S09	E43	1	0	0		S09	E43	Q	
						S14	W01	0	0	0		S14	W01	Q	
						N15	E66	0	0	0		N15	E66	Q	
						S23	E39	0	0	0		S23	E39	Q	
345	11	10	232	183	001	S16	W92	0	0	0	11	S16	W92	Q	Solquiet, Magquiet.
						N12	W84	0	0	0		N12	W84	Q	
						N18	W59	0	0	0		N18	W59	Q	
						S16	W66	1	0	0		S16	W66	Q	
						N19	W33	1	0	0		N19	W33	E	
						S10	W90	0	0	0		S10	W90	Q	
						N17	W48	0	0	0		N17	W48	Q	
						N13	E03	2	0	0		N13	E03	E	
						S16	E10	0	0	0		S16	E10	Q	
						N25	W89	0	0	0		N25	W89	Q	
						S09	E30	0	0	0		S09	E30	Q	
						S14	W15	0	0	0		S14	W15	Q	
						N16	E52	0	0	0		N16	E52	Q	
S23	E27	0	0	0	S23	E27	Q								
346	12	11	140	176	004	N17	W74	0	0	0	12	N17	W74	Q	Solquiet, Magquiet.
						N18	W47	4	0	0		N18	W47	E	
						N13	W10	2	0	0		N13	W10	Q	
						S17	W03	0	0	0		S17	W03	Q	
						S09	E17	1	0	0		S09	E17	E	
						S14	W28	0	0	0		S14	W28	Q	
						N16	E39	0	0	0		N16	E39	Q	
						S22	E13	2	0	0		S22	E13	Q	
						S19	E68	0	0	0		S19	E68	Q	
347	13	12	147	167	006	N18	W86	0	0	0	13	N18	W86	Q	Solquiet, Magquiet.
						N19	W58	0	0	0		N19	W58	E	
						N13	W25	2	0	0		N13	W25	Q	
						S09	E04	0	0	0		S09	E04	Q	
						S14	W39	0	0	0		S14	W39	Q	
						N15	E26	0	0	0		N15	E26	Q	
						S22	W00	0	0	0		S22	W00	Q	

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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	Geolerts
						°Lat	°Long	Total	M	X	°Lat		°Long			
347	13	12				S21	E54	0	0	0	13	S21	E54	Q		
						N27	E73	0	0	0		N27	E73	Q		
						N13	E77	1	0	0		N13	E77	E		
348	14	13	154	168	005	N19	W72	0	0	0	14	N19	W72	Q	Solalert, Magquiet.	
						N13	W39	0	0	0		N13	W39	Q		
						S09	W09	1	0	0		S09	W09	Q		
						N16	E13	0	0	0		N16	E13	Q		
						S20	W14	0	0	0		S20	W14	Q		
						S21	E42	0	0	0		S21	E42	Q		
						N26	E58	0	0	0		N26	E58	Q		
						N12	E66	3	0	0		N12	E66	E		
						N10	W69	0	0	0		N10	W69	Q		
						N21	W59	0	0	0		N10	W59	Q		
349	15	14	175	166	007	N19	W83	0	0	0	15	N19	W83	Q	Solnil, Magquiet.	
						N13	W55	0	0	0		N13	W55	Q		
						S09	W24	0	0	0		S09	W24	Q		
						N16	W00	0	0	0		N16	W00	Q		
						S21	E28	0	0	0		S21	E28	Q		
						N27	E45	0	0	0		N27	E45	Q		
						N12	E54	6	1	0		N12	E54	E		
						N20	E70	3	0	0		N20	E70	E		
						N10	W82	0	0	0		N10	W82	Q		
						S29	E14	0	0	0		S29	E14	Q		
						N36	E65	0	0	0		N36	E65	Q		
						S27	W21	0	0	0		S27	W21	Q		
350	16	15	107	170	009	S08	W39	0	0	0	16	S08	W39	Q	Solquiet, Magquiet.	
						N16	W14	1	0	0		N16	W14	Q		
						S21	E15	0	0	0		S21	E15	Q		
						N27	E32	1	0	0		N27	E32	Q		
						N12	E41	4	0	0		N12	E41	E		
						N20	E58	2	0	0		N20	E58	E		
						S05	E75	0	0	0		S05	E75	Q		
351	17	16	157	171	015	S08	W52	0	0	0	17	S08	W52	Q	Solquiet, Magquiet.	
						N15	W27	0	0	0		N15	W27	Q		
						S20	E02	0	0	0		S20	E02	Q		
						N28	E20	0	0	0		N28	E20	Q		
						N12	E26	2	0	0		N12	E26	E		
						N21	E44	1	0	0		N21	E44	Q		
						S05	E64	1	0	0		S05	E64	Q		
						S10	W25	0	0	0		S10	W25	Q		
						S37	E35	0	0	0		S37	E35	Q		
						N19	E67	0	0	0		N19	E67	Q		
						N32	W28	0	0	0		N32	W28	Q		
352	18	17	160	181	011	S21	W10	0	0	0	18	S21	W10	Q	Solquiet, Magquiet.	
						N28	E07	0	0	0		N28	E07	Q		
						N12	E13	0	0	0		N12	E13	E		
						N20	E32	1	0	0		N20	E32	Q		
						S06	E51	0	0	0		S06	E51	Q		
						S10	W39	1	0	0		S10	W39	Q		
						N19	E55	4	0	0		N19	E55	E		
						N33	W42	0	0	0		N33	W42	E		
353	19	18	142	189	006	N28	W05	0	0	0	19	N28	W05	Q	Solquiet, Magquiet.	
						N13	E01	0	0	0		N13	E01	E		
						N20	E20	3	1	0		N20	E20	Q		
						S06	E38	0	0	0		S06	E38	E		

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						°Lat	°Long	Total	M	X		°Lat	°Long		
353	19	18				S10 W52	6	0	0	19	S10 W52	E			
						N19 E42	4	1	0		N19 E42	E			
						N33 W55	6	0	0		N33 W55	E			
			Presto: ²	Boulder	Tenflare	250 flux units	18/0837	UT duration	27 minutes.						
354	20	19	166	193	006	N28 W18	0	0	0	20	N28 W18	Q	Solquiet, Magquiet.		
						N13 W13	0	0	0		N13 W13	E			
						N20 E08	3	0	0		N20 E08	E			
						S06 E25	0	0	0		S06 E25	E			
						S10 W66	7	0	0		S10 W66	E			
						N19 E28	6	0	0		N19 E28	E			
						N34 W69	8	0	0		N34 W69	E			
						N26 E68	0	0	0		N26 E68	E			
						S08 E74	0	0	0		S08 E74	E			
355	21	20	143	194	006	N13 W27	1	0	0	21	N13 W27	E	Solquiet, Magquiet.		
						N20 W05	2	0	0		N20 W05	E			
						S06 E12	0	0	0		S06 E12	E			
						S10 W80	5	0	0		S10 W80	E			
						N19 E13	2	1	0		N19 E13	E			
						N33 W80	1	0	0		N33 W80	E			
						N26 E54	1	0	0		N26 E54	E			
						S09 E62	0	0	0		S09 E62	E			
356	22	21	158	195	005	N13 W41	0	0	0	22	N13 W41	E	Solquiet, Magquiet.		
						N20 W17	3	0	0		N20 W17	E			
						S06 W00	0	0	0		S06 W00	E			
						S10 W91	0	0	0		S10 W91	Q			
						N18 W01	1	0	0		N18 W01	E			
						N32 W90	0	0	0		N32 W90	Q			
						N26 E42	0	0	0		N26 E42	Q			
						S09 E50	3	0	0		S09 E50	E			
						S30 W06	0	0	0		S30 W06	Q			
357	23	22	218	209	020	N13 W57	0	0	0	23	N13 W57	Q	Solalert, Magquiet.		
						N19 W30	1	0	0		N19 W30	E			
						S07 W15	0	0	0		S07 W15	Q			
						N18 W15	0	0	0		N18 W15	Q			
						N26 E29	1	0	0		N26 E29	E			
						S10 E37	0	0	0		S10 E37	E			
						S29 W20	0	0	0		S29 W20	E			
						S45 E02	0	0	0		S45 E02	Q			
						S26 E59	1	0	0		S26 E59	E			
						S10 E69	1	0	0		S10 E69	E			
						N23 E76	2	1	0		N23 E76	E			
						S13 W09	0	0	0		S13 W09	Q			
						S22 E07	0	0	0		S22 E07	Q			
						S14 E78	0	0	0		S14 E78	Q			
			Presto: ²	Toyokawa	Tenflare	118 flux units	22/2300	UT duration	10 minutes.						
358	24	23	248	221	012	N13 W70	0	0	0	24	N13 W70	Q	Solalert 24/XX, Magquiet.		
						N20 W44	1	0	0		N20 W44	E			
						S06 W28	0	0	0		S06 W28	Q			
						N18 W27	0	0	0		N18 W27	Q			
						N26 E16	0	0	0		N26 E16	Q			
						S10 E22	1	0	0		S10 E22	E			
						S30 W34	1	0	0		S30 W34	Q			
						S46 W12	0	0	0		S46 W12	Q			
						S26 E47	2	0	0		S26 E47	E			
						S10 E73	1	0	0		S10 E73	E			
						N23 E65	4	0	0		N23 E65	A			

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						°Lat	°Long	Total	M	X		°Lat	°Long		
358	24	23				S13	W23	0	0	0	24	S13	W23	Q	
						S22	W08	0	0	0		S22	W08	Q	
						S14	E66	2	0	0		S14	E66	E	
359	25	24	252	240	013	N13	W83	0	0	0	25	N13	W83	Q	Solalert 25/XX, Magquiet.
						N21	W57	0	0	0		N21	W57	E	
						S06	W42	0	0	0		S06	W42	Q	
						N19	W31	0	0	0		N19	W31	Q	
						N26	E04	4	0	0		N26	E04	Q	
						S09	E07	0	0	0		S09	E07	Q	
						S29	W48	8	1	0		S29	W48	E	
						S26	E34	1	0	0		S26	E34	E	
						S10	E50	8	0	0		S10	E50	E	
						N24	E54	5	0	0		N24	E54	A	
						S15	W32	0	0	0		S15	W32	Q	
						S21	W24	0	0	0		S21	W24	Q	
						S13	E53	0	0	0		S13	E53	Q	
360	26	25	247	272	013	N21	W72	1	0	0	26	N21	W72	Q	Solalert 26/XX, Magquiet.
						S06	W56	0	0	0		S06	W56	Q	
						N21	W47	1	0	0		N21	W47	Q	
						N27	W09	5	0	0		N27	W09	E	
						S08	W07	0	0	0		S08	W07	Q	
						S29	W61	6	0	0		S29	W61	E	
						S25	E19	9	2	0		S25	E19	A	
						S09	E37	9	1	0		S09	E37	A	
						N24	E42	9	0	0		N24	E42	E	
						S20	W37	1	0	0		S20	W37	Q	
						S13	E38	2	0	0		S13	E38	Q	
						S18	E67	3	0	0		S18	E67	Q	
Presto: ² Toyokawa Tenflare 150 flux units 25/0430 UT duration 4 minutes.															
361	27	26	303	260	017	N22	W85	0	0	0	27	N22	W85	Q	Major Flare Alert 27/XX 20726, Magalert 27/28.
						S06	W69	0	0	0		S06	W69	Q	
						N18	W63	1	0	0		N18	W63	Q	
						N26	W22	0	0	0		N26	W22	E	
						S09	W20	0	0	0		S09	W20	Q	
						S30	W73	2	0	0		S30	W73	E	
						S26	E07	9	2	0		S26	E07	A	
						S08	E33	1	0	0		S08	E33	E	
						N24	E28	6	1	0		N24	E28	A	
						S23	W49	2	9	9		S23	W49	Q	
						S13	E28	0	0	0		S13	E28	Q	
						S18	E55	1	0	0		S18	E55	E	
						N13	E49	0	0	0		N13	E49	Q	
						S09	E18	1	0	0		S09	E18	Q	
Presto: ² Toyokawa Tenflare 750 flux units 26/0523 UT in progress.															
362	28	27	314	285	021	S06	W82	0	0	0	28	S06	W82	Q	Solalert 28/XX, Magalert 28/29.
						N18	W77	0	0	0		N18	W77	Q	
						N26	W34	0	0	0		N26	W34	Q	
						S29	W85	0	0	0		S29	W85	Q	
						S26	W07	7	2	0		S26	W07	A	
						S10	E18	3	0	0		S10	E18	E	
						N24	E14	1	1	0		N24	E14	E	
						S23	W61	0	0	0		S23	W61	Q	
						S13	E15	0	0	0		S13	E15	Q	
						S18	E40	2	0	0		S18	E40	Q	
						S09	E03	0	0	0		S09	E03	Q	
						S23	W28	0	0	0		S23	W28	Q	
						N17	E78	0	0	0		N17	E78	Q	

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

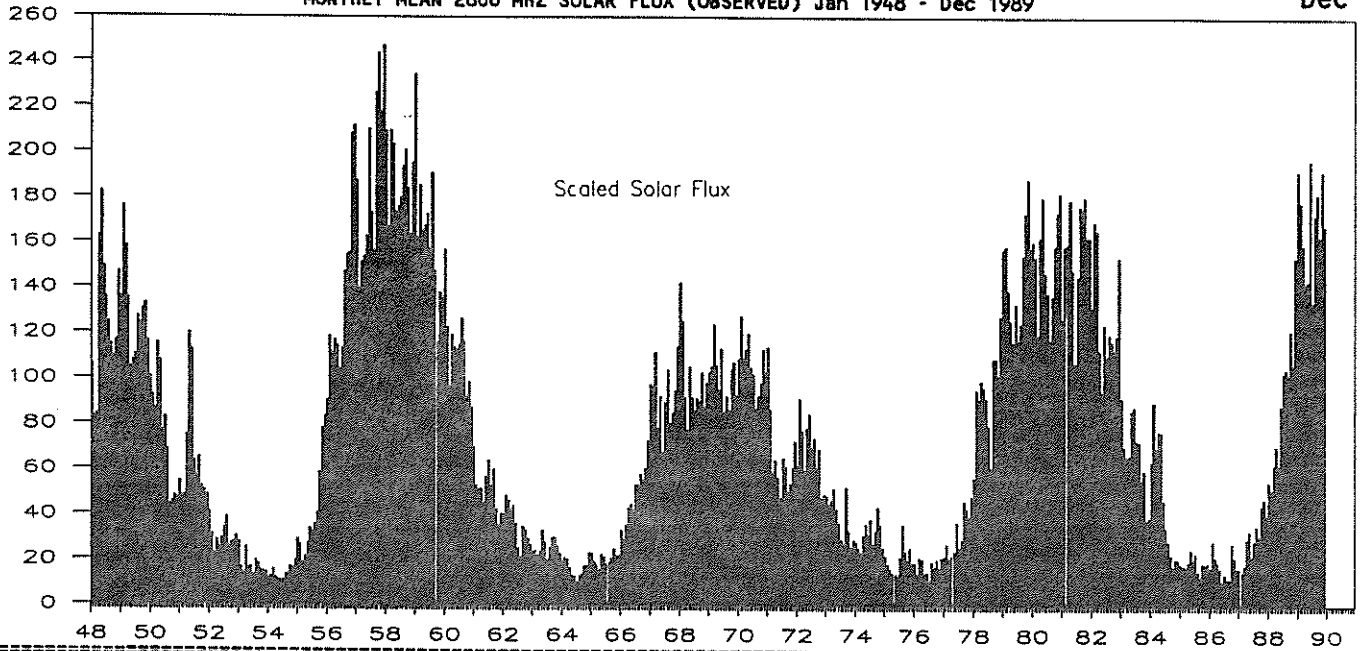
Summary of the Geolert Messages **DECEMBER 1989**

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	Geolerts
						°Lat	°Long	Total	M	X		°Lat	°Long		
363	29	28	281	255	006	S06	W93	0	0	0	29	S06	W93	Q	Solalert 29/XX, Magalert 29/29.
						N19	W87	1	0	0		N19	W87	Q	
						N26	W47	0	0	0		N26	W47	Q	
						S29	W94	0	0	0		S29	W94	Q	
						S26	W19	7	1	0		S26	W19	A	
						S09	E05	2	1	0		S09	E05	E	
						N23	E02	2	0	0		N23	E02	E	
						S22	W72	1	0	0		S22	W72	Q	
						S13	E01	0	0	0		S13	E01	Q	
						S18	E26	4	1	0		S18	E26	Q	
						S09	W07	0	0	0		S09	W07	Q	
						N17	E64	0	0	0		N17	E64	Q	
						N20	W13	0	0	0		N20	W13	Q	
Presto: ² Toyokawa Tenflare 190 flux units 28/0318 UT duration 22 minutes.															
364	30	29	228	269	045	N26	W60	0	0	0	30	N26	W60	Q	Solalert 30/XX, Magalert 30/XX.
						S26	W32	5	3	0		S26	W32	A	
						S09	W07	1	0	0		S09	W07	E	
						N23	W12	1	0	0		N23	W12	E	
						S23	W85	1	0	0		S23	W85	Q	
						S13	W12	0	0	0		S13	W12	Q	
						S18	E13	5	1	0		S18	E13	A	
						S10	W21	0	0	0		S10	W21	Q	
						N16	E53	0	0	0		N16	E53	Q	
						N12	E69	0	0	0		N12	E69	Q	
Presto: ² Boulder Tenflare 360 flux units 29/1102 UT duration 4 minutes. Boulder Tenflare 380 flux units 29/1821 UT duration 24 minutes.															
365	31	30	228	271	024	N26	W72	0	0	0	31	N26	W72	Q	Solalert 31/XX, Magalert 31/01.
						S26	W44	1	0	0		S26	W44	A	
						S09	W19	0	0	0		S09	W19	E	
						N23	W27	3	0	0		N23	W27	E	
						S14	W24	0	0	0		S14	W24	Q	
						S18	E01	6	1	1		S18	E01	A	
						S11	W34	0	0	0		S11	W34	Q	
						N17	E40	0	0	0		N17	E40	Q	
						N14	E58	0	0	0		N14	E58	Q	
						S37	E72	0	0	0		S37	E72	Q	
Presto: ² Boulder X-ray event X1/1N S18 E10 30/0407 UT duration 34 minutes. Toyokawa Tenflare 150 flux units 30/0531 UT duration 10 minutes. Boulder Strong magstorm in progress 30/0900 UT, sudden storm commencement of 20 nanoteslas at 29/0654 UT.															
366	01	31	264	246	025	N26	W85	0	0	0	01	N26	W85	Q	Solalert, Magnil.
						S27	W57	8	0	1		S27	W57	A	
						S09	W33	1	0	0		S09	W33	Q	
						N23	W40	4	0	0		S23	W40	Q	
						S19	W13	4	0	0		S19	W13	E	
						S11	W49	1	0	0		S11	W49	Q	
						N17	E26	0	0	0		N17	E26	Q	
						N14	E44	1	0	0		N14	E44	Q	
						S38	E60	0	0	0		S38	E60	Q	
						N15	W14	0	0	0		N15	W14	Q	
Presto: ² Boulder X-ray event X2/2B S26 W52 31/0931 UT duration 134 minutes. Boulder Tenflare 1600 flux units 31/0934 UT duration 47 minutes.															

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

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

MONTHLY MEAN 2800 MHZ SOLAR FLUX (OBSERVED) Jan 1948 - Dec 1989



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1948	155.7	134.3	135.5	208.1	226.5	195.5	182.8	172.8	163.7	159.1	165.4	193.3	174.4
1949	183.5	220.2	203.9	182.5	154.9	157.5	159.9	175.2	172.5	178.2	180.4	165.2	177.8
1950	150.7	143.3	137.8	164.3	157.1	128.7	134.1	120.9	98.6	99.9	101.9	101.1	128.2
1951	107.9	101.9	102.5	127.1	168.6	161.7	116.3	109.8	117.8	106.0	104.4	102.4	118.9
1952	95.4	86.2	78.5	84.0	80.9	84.8	88.8	93.3	81.5	82.8	83.4	85.7	85.4
1953	83.2	72.8	70.4	81.0	72.5	73.0	69.8	75.5	74.3	71.9	71.4	70.8	73.9
1954	68.7	69.2	71.9	68.7	68.0	67.3	67.7	69.9	70.1	73.2	72.6	75.5	70.2
1955	84.3	82.0	74.8	77.3	82.8	88.8	87.3	90.7	91.1	111.8	130.0	134.6	95.0
1956	141.2	167.2	160.6	165.9	163.4	154.0	162.8	193.8	200.9	201.6	250.4	253.7	184.6
1957	231.2	186.7	197.8	200.0	208.5	252.1	218.0	202.3	267.1	283.1	259.2	286.5	232.7
1958	251.5	212.2	251.5	245.9	218.6	220.5	224.1	237.0	243.5	228.0	209.2	238.2	231.7
1959	274.5	207.9	229.2	210.6	212.7	217.5	203.0	234.2	194.3	165.1	184.8	182.2	209.7
1960	202.6	170.9	146.8	167.6	162.7	161.9	163.9	174.4	164.5	142.3	148.9	138.1	162.0
1961	122.0	106.4	104.8	105.0	99.3	109.9	116.5	106.2	112.7	96.7	90.3	94.8	105.4
1962	94.9	102.2	100.3	96.2	97.9	91.0	80.7	77.3	89.5	87.8	84.9	82.0	90.4
1963	79.5	79.7	77.8	79.5	87.8	83.5	75.9	80.9	85.1	85.1	81.7	78.4	81.2
1964	75.4	76.8	75.9	72.6	69.5	69.0	67.0	69.3	70.2	73.4	73.7	78.8	72.6
1965	78.6	75.2	74.1	72.0	78.2	77.0	74.3	74.8	76.6	80.2	77.7	77.8	76.4
1966	87.9	84.2	90.3	97.2	98.5	96.3	106.7	106.6	110.9	108.6	113.3	124.6	102.1
1967	147.7	147.0	160.6	129.9	143.0	120.2	140.3	153.7	132.1	136.1	145.3	163.0	143.2
1968	189.1	173.2	142.6	129.5	154.9	142.3	137.2	142.2	141.0	152.5	138.5	148.4	149.3
1969	152.7	155.2	172.3	155.5	145.4	162.2	136.6	143.0	137.3	154.0	156.7	143.6	151.2
1970	158.3	175.4	158.4	162.0	168.4	154.9	152.0	138.2	143.2	148.3	162.0	152.8	156.2
1971	162.6	137.8	111.9	116.7	109.9	101.7	117.4	114.1	104.0	107.2	114.0	124.5	118.5
1972	114.8	141.8	128.5	112.9	129.6	135.4	122.0	125.7	113.6	121.1	101.6	102.9	120.8
1973	102.2	98.7	100.4	105.0	97.0	91.2	84.5	82.9	105.6	87.7	81.5	84.2	93.4
1974	83.1	80.9	79.2	86.1	90.6	86.3	92.5	83.0	87.8	97.6	90.3	81.1	86.5
1975	77.5	74.2	72.4	70.7	70.1	69.7	77.2	90.4	79.6	75.7	80.8	74.6	76.1
1976	74.7	70.5	76.7	76.3	70.6	70.6	67.5	74.8	73.1	75.9	72.9	76.7	73.4
1977	77.4	82.3	76.6	77.6	79.6	91.5	81.1	84.3	99.9	96.9	93.7	102.1	86.9
1978	109.6	145.4	141.8	149.4	146.5	142.2	131.1	114.0	157.9	158.2	151.5	175.5	143.6
1979	203.0	204.1	185.8	173.8	165.2	180.3	165.9	172.7	200.2	217.9	231.7	203.5	192.0
1980	206.2	200.0	168.1	207.9	224.0	193.2	184.8	166.2	183.9	204.2	218.1	225.8	198.5
1981	174.6	204.5	205.3	223.2	194.6	156.9	191.9	220.6	219.5	224.3	207.8	207.8	202.6
1982	179.0	214.2	210.5	161.8	144.7	171.9	159.6	167.9	165.3	161.9	167.4	199.4	175.3
1983	142.3	122.6	118.6	118.9	137.1	138.6	125.0	124.4	109.0	112.4	92.5	93.4	119.6
1984	116.1	140.6	122.0	128.7	128.3	100.3	89.3	83.7	78.1	73.5	76.3	75.9	101.1
1985	74.5	73.7	73.3	75.1	80.2	76.1	78.7	71.5	69.5	74.7	74.2	74.8	74.7
1986	73.2	83.6	77.0	75.1	72.6	67.6	70.2	68.4	68.7	83.0	77.1	72.6	74.1
1987	72.5	71.5	74.0	84.9	87.8	77.9	84.2	90.0	86.1	98.1	101.2	94.4	85.3
1988	108.0	105.0	114.9	122.7	115.2	139.4	152.7	154.2	152.5	169.8	156.2	199.8	141.0
1989	235.4	222.4	205.1	189.6	190.1	239.6	181.9	217.1	225.9	208.7	235.1	213.0	213.5

*Preliminary Graph shows EFFECTIVE sunspot numbers--fluxes scaled by linear regression equation (1.08Flux - 62).

INTERNATIONAL RELATIVE SUNSPOT NUMBERS

Day	Jan 89	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct [†]	Nov [†]	Dec [†]
01	148	141	127	104	93	136	128	171	147	129	153	198
02	173	144	107	122	94	148	149	196	171	143	160	196
03	146	164	103	140	85	158	129	193	180	159	191	203
04	120	133	98	115	97	157	120	213	204	186	216	182
05	155	127	90	106	85	171	101	227	212	209	228	192
06	142	127	103	139	105	145	120	220	230	189	236	177
07	165	132	98	170	134	130	149	215	267	168	233	217
08	155	161	109	185	149	143	141	218	261	166	204	167
09	165	172	133	153	137	168	116	218	296	187	214	161
10	190	192	163	122	123	192	104	200	270	178	203	138
11	211	190	155	106	120	203	136	202	280	191	173	104
12	229	216	140	96	115	218	111	188	264	154	173	105
13	206	219	162	92	129	253	116	207	248	148	153	113
14	189	208	181	103	123	251	116	197	215	159	140	100
15	177	191	165	120	148	264	92	203	207	189	132	77
16	164	195	187	130	154	265	91	177	180	209	124	106
17	155	209	168	144	161	233	99	192	159	206	124	126
18	160	163	164	137	177	216	113	189	155	184	134	108
19	140	164	148	160	191	235	138	202	152	159	124	131
20	126	169	158	165	195	232	149	209	137	140	141	127
21	114	149	155	175	168	187	170	203	111	152	170	111
22	165	142	155	167	156	174	197	160	109	158	162	157
23	171	134	145	128	180	196	195	133	103	145	157	189
24	142	153	155	135	196	215	168	129	75	131	160	183
25	144	189	131	132	173	227	132	105	80	121	175	190
26	152	163	117	125	157	237	111	82	93	109	184	208
27	157	147	102	118	163	206	99	57	101	97	183	240
28	172	128	89	109	130	187	75	50	111	116	183	249
29	169		95	107	121	182	112	70	134	131	179	213
30	157		78	114	122	156	125	94	150	156	182	264
31	140		91		111		132	116		144		186
Mean	161.3	165.1	131.4	130.6	138.5	196.2	126.9	168.9	176.7	158.5	173.0	165.1

[†] = preliminary. The yearly mean sunspot number equaled 100.2 for 1988.

Day	Jan 89	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
01	179.5*	184.8	168.8*	173.8*	180.5	191.6*	204.0	198.5	223.8	198.4	211.4	223.7*
02	193.7	171.2	173.7	183.5	184.5*	208.2*	193.4	201.7	233.3	208.5	216.0	213.7
03	189.2	185.8*	169.0	196.5*	190.6	203.3*	192.5*	220.2	243.0*	222.4	217.6	205.6
04	195.7*	183.4	163.6	188.9	198.2	221.3*	189.8	225.7	245.0	234.1	223.9	212.9
05	201.6	195.1	183.5	191.1	193.7	213.2*	183.4*	241.5	273.3	223.2	235.4	209.7
06	198.7	205.3*	201.1J	196.5	195.9*	212.2*	192.3	240.3	288.4	220.5	255.3	209.7
07	239.5	210.5	190.3*	199.8	200.6	205.3	193.5	240.6	303.4	225.7	207.3*	221.5
08	260.2	243.9	202.6	207.1	212.4	222.9	188.9	233.6	302.1	210.1	270.9	203.6
09	251.3	259.3	204.2*	194.0	205.1*	241.9	188.1	233.9*	311.5	201.9	257.2	194.6
10	250.0	269.8	212.4*	182.3	208.7	250.9*	184.1	232.6	303.3	195.5	246.3*	177.1
11	254.7*	257.0	232.4*	180.7	198.9	270.3	193.2	243.6	299.3	191.5	249.1	171.7
12	263.2	257.3	237.6*	181.3	197.2	285.8*	190.7	256.1*	292.2	203.2	253.5	164.9
13	291.7*	258.4	253.0	185.3*	197.5	319.2	184.0*	263.9	249.3	224.2	240.3	163.2
14	274.9	260.7	263.8J	198.1	193.1*	327.2	183.9	271.3	244.9	225.9	243.0	161.8
15	280.1	241.3	255.8J	199.5	195.8	334.7*	185.7	281.7	226.0	225.4	216.5	165.5
16	292.1	241.1	261.6J	203.9	188.6	320.9*	183.9	259.8	233.7	237.0	216.2	164.1
17	266.7*	233.9*	240.7	210.6*	187.0	303.7*	184.1	262.9	216.2	225.3	215.0	176.0
18	271.2	213.8	234.2	204.1	184.9	271.5	189.2	265.0	208.6	221.3*	221.6J	185.9
19	241.6	214.0	221.1	209.7	188.6	270.6	193.7	249.1	197.0*	214.7J	229.2	188.2
20	222.0*	202.2*	218.2*	192.5	203.1	249.3*	192.4	236.4	173.1	205.4	223.7	189.3
21	198.2*	217.8	213.5*	196.1	211.9*	242.8	195.0	225.7	161.8	206.2	229.4	189.9
22	203.6	213.9	222.5	193.6*	203.9	233.1	200.9	205.4	159.3	217.8	222.0	199.9
23	205.6	214.7*	216.1*	183.1*	212.2	238.7	196.5	191.3	157.5	210.4	213.4	213.8
24	211.0	213.4	193.2*	189.0	210.0	227.6	191.1	182.0	157.0	214.2	208.8	231.0
25	227.3	203.8*	186.2*	179.7	194.6*	221.6	180.4	159.7	166.8	183.3*	216.0	248.0*
26	206.3	190.3*	171.6*	176.9	188.0	233.0	169.8	161.0	182.2*	171.7	234.3	252.6
27	211.1	168.6*	162.6	176.9	176.6	227.5	172.8	159.6	199.4	176.9	239.4	274.8
28	207.1	163.5	157.3	183.2	173.5	227.4	170.7	174.1	194.3	173.0	231.3	246.4
29	200.5		155.8	189.5	173.6	223.0	180.9	180.3*	204.7*	172.0	215.1	242.7*
30	187.3		159.8	180.6	183.0	217.4	185.1	192.0*	202.0	186.3	240.9	258.2*
31	187.5		167.5		194.2		188.2	208.9*		202.0*		236.7
Mean	227.8	217.0	203.0	190.9	194.4	247.2	187.8	222.5	228.4	207.4	230.0	206.3

* = corrected for burst in progress; J = no calibration due to burst; the yearly mean flux equaled 141.1 in 1988.

DAILY SOLAR INDICES

December 1989

Day	Julian Day	Bartels Cycle Day	Sunspot Numbers		Obs Flux Ottawa (2800)	Solar Flux Adjusted to 1 Astronomical Unit								
			Int	Amer		PALE (15400)	PALE (8800)	PALE (4995)	Ottawa (2800)	PALE (2695)	PALE (1415)	PALE (610)	PALE (410)	PALE (245)
01	335	23	198	180	230.1*	592	312	240	223.7*	213	147	82	42	41
02	336	24	196	199	219.9	583	300	226	213.7	204	142	78	39	29
03	337	25	203	195	211.6	588	298	216	205.6	200	141	77	37	28
04	338	26	182	192	219.2	575	305	222	212.9	201	144	76	37	28
05	339	27	192	204	216.0	588	308	230	209.7	205	148	82	43	42
06	340	1	177	171	216.1	577	299	223	209.7	205	144	77	39	45
07	341	2	217	205	228.3	579	314	238	221.5	213	149	84	49	52
08	342	3	167	193	209.8	579	294	215	203.6	201	140	78	42	54
09	343	4	161	163	200.6	549	268	194	194.6	180	135	78	40	36
10	344	5	138	142	182.7	565	278	189	177.1	168	124	76	40	29
11	345	6	104	99	177.2	582	279	185	171.7	165	120	74	37	21
12	346	7	105	105	170.1	572	275	184	164.9	155	117	84	37	23
13	347	8	113	110	168.4	571	282	188	163.2	157	119	76	42	31
14	348	9	100	103	167.0	570	248	178	161.8	154	118	75	38	23
15	349	10	77	90	170.9	580	274	182	165.5	159	120	75	55	23
16	350	11	106	103	169.5	568	272	182	164.1	156	116	75	39	24
17	351	12	126	126	181.8	548	286	199	176.0	175	116	77	43	32
18	352	13	108	110	192.0	575	285	199	185.9	176	124	79	47	44
19	353	14	131	121	194.4	560	291	203	188.2	176	128	78	42	34
20	354	15	127	113	195.5	565	289	203	189.3	181	134	82	51	26
21	355	16	111	104	196.3	556	296	213	189.9	188	134	78	41	30
22	356	17	157	159	206.6	562	308	230	199.9	201	140	79	40	32
23	357	18	189	185	221.0	593	306	238	213.8	209	147	82	40	21
24	358	19	183	189	238.8	582	324	258	231.0	224	154	80	41	44
25	359	20	190	206	256.4*	609	337	276	248.0*	247	173	92	45	38
26	360	21	208	225	261.2	565	309	276	252.6	250	172	75	43	35
27	361	22	240	232	284.1	625	366	300	274.8	248	169	85	44	58
28	362	23	249	218	254.8	604	349	278	246.4	248	174	89	53	62
29	363	24	213	196	250.9*	615	359	288	242.7*	253	186	93	47	61
30	364	25	264	181	267.0*	575	322	251	258.2*	238	168	97	50	37
31	365	26	186	192	244.8	583	321	243	236.7	219	156	86	51	28
Mean			165.1	161.6	213.0	578	301	224	206.3	199	141	80	43	35

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.

Equipment problems produced any gaps in the Air Weather Service's Palehua (PALE) observations.

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	65	71	78	84	94	104	114	121	125	130	138
1989	142	145	150	153	157	158	162 (6)	166 (11)	172 (14)	177 (16)	180 (18)	181 (19)
1990	182 (21)	183 (24)	182 (26)	177 (28)	172 (27)	168 (24)	166 (24)	164 (26)	157 (27)	150 (28)	143 (27)	139 (24)
1991	138 (25)	135 (26)	131 (28)	130 (32)	131 (33)	129 (30)	125 (27)	121 (25)	116 (21)	115 (19)	117 (20)	117 (22)

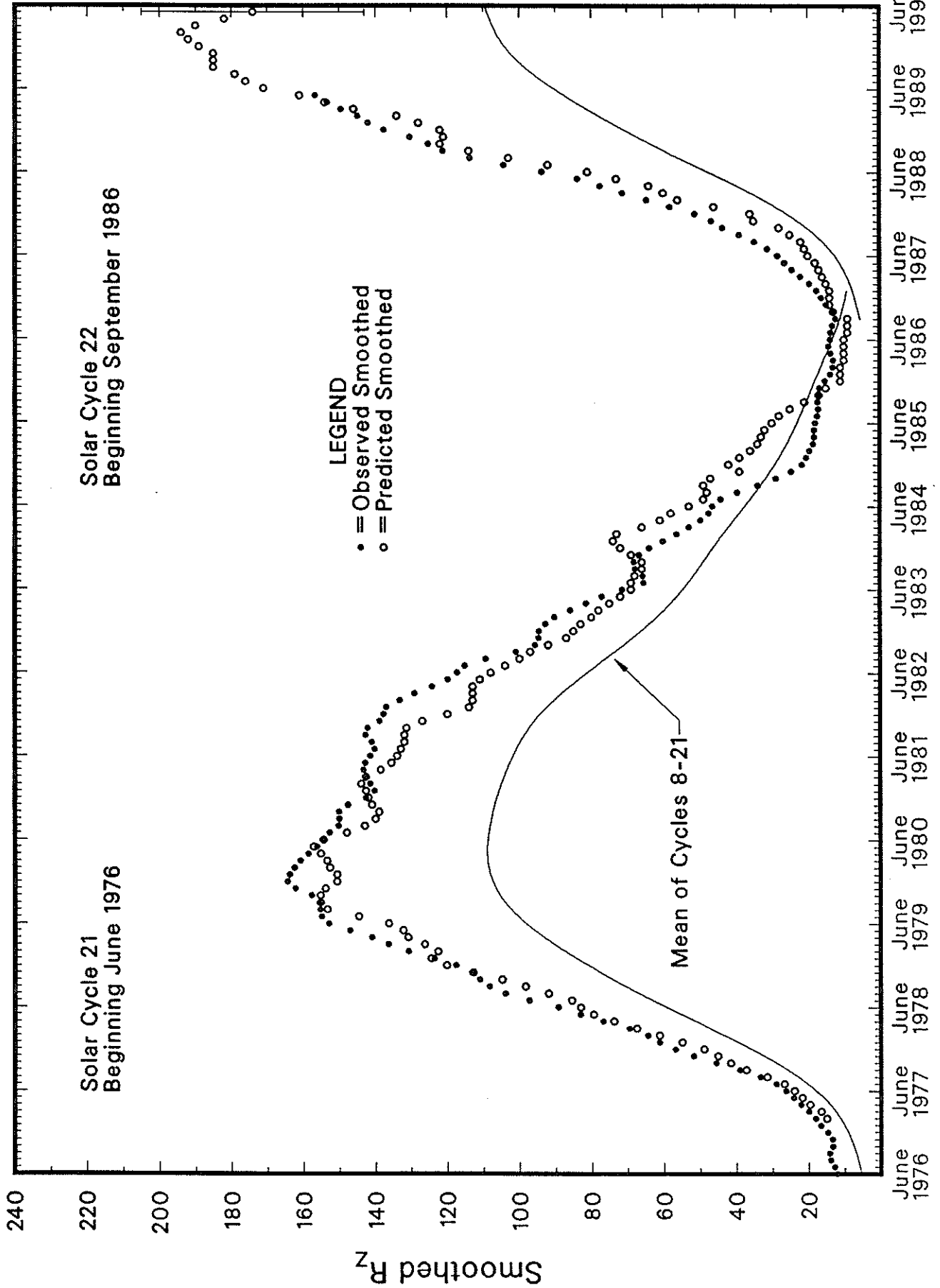
*September 1986 marks the onset of Sunspot Cycle 22.

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 1989 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 June 1990 prediction. There exists a 90% chance that in June 1990 the actual smoothed sunspot number will fall somewhere between 144 and 192.

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 13 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



H α SOLAR FLARES

DECEMBER 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/		Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
							USAF Region	CMP Mo Day						Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
LEAR	01	0705	0710	0723	N16	W21	5806	11	29.8	18	SF	3	E		21		F
SVTO		0705E	0710	0735	N15	W20	5806	11	29.9	30D	SF	3	E		48		F
SVTO		0741	0743	0753	S05	W77	5808	11	25.7	12	SF C 3.5	3	E		28		
SVTO		1129	1129	1137	N23	W67	5800	11	26.4	8	SF	3	E		16		
RAMY		1208	1209	1215	N28	W65	5800	11	26.5	7	SF	3	E		18		
SVTO		1208	1209	1216	N22	W68	5800	11	26.4	8	SF C 2.8	3	E		16		
RAMY		1215	1219	1223	N15	W22	5806	11	29.9	8	SF	3	E		16		
SVTO		1439	1442	1453	N15	W16	5812	11	30.4	14	SF	3	E		38		F
HOLL		1440	1447	1453	N16	W15	5812	11	30.5	13	SF	2	E		22		F
HOLL		1647	1648	1701	N11	E10	5816	12	2.4	14	SF	3	E		11		
RAMY		1701	1701	1704	N20	W28	5806	11	29.7	3	SF	3	E		10		F
HOLL		1701	1701	1711	N19	W28	5806	11	29.7	10	SF	3	E		18		F
GOES		1739	1743	1746						7	C 2.6						
HOLL		1801	1806	1827	N24	W67	5800	11	26.7	26	SF	3	E		74		F
PALE		1801	1807	1815	N17	W74	5800	11	26.2	14	SF	3	E		26		F
RAMY		1801	1807	1816	N24	W69	5800	11	26.5	15	SF C 9.7	3	E		46		
RAMY		1809	1810	1817	N09	E11	5816	12	2.6	8	SF	3	E		12		
RAMY		1829	1831	1845	N19	E77		12	7.6	16	SF	3	E		24		
HOLL		1846	1858	1908	N18	W70	5800	11	26.5	22	SF	3	E		57		F
HOLL		1847	1847	1858	N20	W29	5806	11	29.7	11	SF	3	E		14		
RAMY		1856	1858	1904	N24	W69	5800	11	26.5	8	SF C 8.5	3	E		46		F
PALE		1857	1858	1904	N22	W72	5800	11	26.3	7	SF	3	E		27		
HOLL		1923	1930	2034	N17	W33	5806	11	29.4	71	2N C 8.9	4	E		330		FE
PALE		1926	1930	2005	N17	W31	5806	11	29.5	39	SF C 8.9	3	E		84		F
PALE		1928	1929	1943	N25	W43	5807	11	28.6	15	SF	3	E		41		
RAMY		1930	1931	1945	N23	W38	5807	11	29.0	15	SF	3	E		24		
RAMY		1930	1931	1955	N18	W31	5806	11	29.5	25	SF	3	E		50		F
HOLL		2010	2011	2025	S16	E27	5811	12	3.9	15	SF	3	E		32		
HOLL		2048	2058	2112	N22	W72	5800	11	26.4	24	SF C 2.5	3	E		38		
HOLL		2128	2131	2136	N24	W70	5800	11	26.6	8	SF	3	E		18		
HOLL		2142	2147	2151	N25	W69	5800	11	26.6	9	SF	3	E		12		F
GOES		2229	2234	2237						8	C 1.9						
GOES		2308	2315	2318						10	C 3.8						
GOES		2333	2337	2341						8	C 2.4						
GOES	02	0001	0006	0012						11	C 6.7						
GOES		0336	0342	0346						10	C 3.1						
GOES		0455	0458	0501						6	C 1.9						
LEAR		0629	0631	0640	N21	W36	5806	11	29.6	11	SF	3	E		51		F
GOES		0706	0710	0714						8	C 6.6						
SVTO		0826	0826	0836	N27	W75	5800	11	26.6	10	SF	3	E		14		
RAMY		1228	1230U	1327	N23	W39	5806	11	29.6	59	SF	3	E		70		
SVTO		1228	1231	1247	N21	W43	5806	11	29.3	19	SN C 3.8	3	E		60		F
RAMY		1314	1315	1333	N17	E74		12	8.2	19	SF	3	E		22		
SVTO		1415	1415	1434	N12	E38	5817	12	5.4	19	SF	3	E		13		F
RAMY		1505	1521	1534	N17	W37	5806			29	SF		E		33		K
RAMY		1505	1529	1534	N17	W37	5806	11	29.9	29	SF	3	E		29		
HOLL		1514	1521	1538	N16	W38	5806			24	SF		E		89		K
HOLL		1514	1529	1538	N16	W38	5806	11	29.8	24	SF	3	E		48		F
RAMY		1550	1551	1615	N09	E36	5817	12	5.4	25	1N C 5.6	3	E		146		FH
HOLL		1550	1551	1629	N08	E36	5817	12	5.3	39	1N C 5.6	3	E		205		FH
HOLL		1645	1645	1652	N14	E63	5818	12	7.4	7	SF C 3.3	3	E		13		F
HOLL		1842	1844	1850	N21	W41	5806	11	29.7	8	SF	3	E		12		F
HOLL		1853	1859	1910	S11	W12		12	1.9	17	SF	3	E		21		
HOLL		1859	1908	1911	N10	E32	5817	12	5.2	12	SF	3	E		11		
HOLL		1910	1912	1916	N19	W43	5806	11	29.6	6	SF	3	E		11		
RAMY		1916	1921	1936D	N14	E57	5818	12	7.1	20D	1F	3	E		105		
HOLL		1917	1918	1934	N16	E58	5818	12	7.2	17	1F C 2.9	3	E		126		
HOLL		1921	1938	1949	N15	W42	5806	11	29.7	28	SF	3	E		18		F
RAMY		1928	1937	2012D	N14	W46	5806	11	29.4	44D	SF	2	E		39		H
HOLL		2034E	2054U	2113D	S11	W47	5814	11	29.4	39D	SF	3	E		43		
PALE		2052	2053	2107	S13	W47	5814	11	29.4	15	SF C 2.0	3	E		14		
PALE		2107	2108	2116	N20	W41	5806	11	29.8	9	SF	3	E		17		
HOLL		2154	2207	2330	N15	W43	5806			96	SF		E		38		K
HOLL		2154	2247	2330	N15	W43	5806	11	29.7	96	2B M 3.0	3	E		490		FH
LEAR		2238	2242	2322	N16	W44	5806			44	1B		E		191		K
LEAR		2238	2247	2322	N16	W44	5806	11	29.7	44	1B	3	E		220		F
PALE	03	0013	0028	0039	N20	W46	5806	11	29.6	26	SF	3	E		69		F

H α SOLAR FLARES

DECEMBER 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
PALE	03	0027	0035	0053	S20	W08	5809	12	2.4	26	SF		3	E		47		F
LEAR		0029	0033	0050	S18	W09	5809	12	2.3	21	SF		3	E		26		F
LEAR		0102	0102	0106	N22	W42	5806	11	29.9	4	SF		3	E		21		F
LEAR		0128	0135	0138	N13	E63	5821	12	7.8	10	SF		3	E		10		
PALE		0256	0257	0303	N23	E63	5821	12	8.0	7	SF		3	E		19		
PALE		0319	0320	0325D	S20	E09	5809	12	3.8	6D	SF		1	E		25		
LEAR		0320	0322	0326	S18	W15	5809	12	2.0	6	SF		3	E		22		
LEAR		0418	0421	0431	N17	E65	5821	12	8.1	13	SF	C 5.3	3	E		40		F
LEAR		0421	0421	0426	N14	W52	5806	11	29.3	5	SF		3	E		17		
SVTO		0819	0822	0827	S19	W16	5809	12	2.1	8	SF		3	E		13		
SVTO		0918	0932	0947	N20	W49	5806	11	29.7	29	SN		3	E		95		H
LEAR		0930	0932	0940	N19	W50	5806	11	29.7	10	SF		3	E		75		F
SVTO		1127	1128	1139	N23	E65	5821	12	8.5	12	SF		3	E		14		
SVTO		1146	1152	1206	N24	E64	5821	12	8.4	20	SF		3	E		59		
RAMY		1146	1153	1202	N22	E62	5821	12	8.2	16	SF		3	E		28		
SVTO		1220	1226	1238	S18	W19	5809	12	2.1	18	SF		3	E		63		
RAMY		1220	1229	1237	S19	W19	5809	12	2.1	17	SF		3	E		43		
HOLL		1441	1442	1512	N20	W41	5812	11	30.5	31	SN		3	E		95		FE
RAMY		1441	1443	1514	N20	W41	5812	11	30.5	33	SF		3	E		95		
SVTO		1441	1444	1453	N19	W45	5806	11	30.2	12	1N	C 5.2	3	E		143		
RAMY		1746	1748	1800	S20	W19	5809	12	2.3	14	SF		3	E		21		F
HOLL		1746	1749	1755	S18	W22	5809	12	2.1	9	SF		4	E		18		F
HOLL		1751	1752	1803	N13	E42		12	6.9	12	SF		4	E		29		
RAMY		1752	1755	1807	N14	E41		12	6.8	15	SF		3	E		14		
GOES		2245	2301	2329						44		C 6.9						
GOES	04	0026	0032	0039						13		C 4.7						
LEAR		0322	0327	0356	N15	W58	5806	11	29.8	34	1N	M 1.1	3	E		154		FE
PALE		0323	0324	0344D	N14	W58	5806	11	29.8	21D	SF		3	E		93		FE
SVTO		0848	0905	0929	N16	E40		12	7.4	41	SF		3	E		63		
LEAR		0855	0858	0909	N15	E40		12	7.4	14	SF		3	E		22		F
LEAR		0934	0945	0947	S16	W04	5811	12	4.1	13	SF		3	E		33		
RAMY		1216	1221	1247	S10	W34	5822	12	1.9	31	SF		3	E		14		
HOLL		1406E	1410U	1435	S10	W39	5822	12	1.6	29D	SF		2	E		17		
RAMY		1409	1422U	1525D	S10	W36	5822	12	1.9	76D	SF		3	E		24		
GOES		1437	1453	1848						251		M 2.9						T
HOLL		1446	1449	1456	S09	W38	5822	12	1.8	10	SF		3	E		13		
HOLL		1513	1516	1551	N16	E32		12	7.1	38	SF		3	E		93		F
HOLL		1539	1540	1548	S18	W33	5809	12	2.1	9	SF		3	E		32		F
RAMY		1540	1540	1548	S18	W32	5809	12	2.2	8	SF		3	E		16		F
HOLL		1752	1759	1805	N11	E02	5817	12	4.9	13	SF		3	E		24		
RAMY		1755	1800	1807	N11	E02	5817	12	4.9	12	SF		4	E		33		F
PALE		1940	1948	2012	N14	W69	5806	11	29.7	32	SF	M 1.2	3	E		40		F
LEAR	05	0400	0400	0404	N10	W04	5817	12	4.9	4	SF	C 2.3	3	E		11		
GOES		1007	1011	1016						9		C 1.9						
RAMY		1224	1227	1253	N10	W09	5817	12	4.8	29	SF	C 5.6	3	E		75		FH
HOLL		1406E	1406U	1510D	N20	E35	5821	12	8.3	64D	SF		1	E		51		
RAMY		1417	1425	1447	N22	E37	5821	12	8.4	30	SF		3	E		31		F
HOLL		1452	1453	1457	N08	W41	5816	12	2.5	5	SF		3	E		23		
RAMY		1452	1453	1458	N10	W42	5816	12	2.5	6	SF		3	E		16		
RAMY		1531	1533	1600	N16	W76	5806	11	30.0	29	1B	M 5.6	3	E		248		FH
HOLL		1531	1533	1601	N14	W75	5806	11	30.0	30	2N	M 5.6	3	E		269		UH
RAMY		1643	1644	1648	N10	W11	5817	12	4.9	5	SF		3	E		16		F
HOLL		1832	1833	1843	S13	W50	5822	12	2.0	11	SF		3	E		43		
HOLL		1927	1929	1935	S12	W53	5822	12	1.8	8	SF		3	E		15		
RAMY		1953	1958	2004	S11	W54	5822	12	1.8	11	SF		3	E		12		F
RAMY		2049	2050	2106D	S10	W55	5822	12	1.7	17D	SF		2	E		12		
HOLL		2124	2124	2130	S11	W55	5822	12	1.7	6	SF		3	E		23		
HOLL		2142	2154	2238	N14	E19	5826	12	7.3	56	SN	C 4.1	3	E		79		
PALE		2144E	2146U	2210D	N17	E20	5826	12	7.4	26D	SN		3	E		63		
HOLL		2152	2157	2210	N18	E29	5821	12	8.1	18	SF		3	E		16		
HOLL		2207	2209	2245	S11	W56	5822	12	1.7	38	SF		3	E		22		
HOLL		2223	2224	2314	S22	W46	5809	12	2.4	51	SF	C 4.9	3	E		91		UF
PALE		2223	2225	2236	S23	W44	5809	12	2.5	13	SF	C 4.9	3	E		47		F
LEAR		2226	2239	2308	S22	W46	5809	12	2.4	42	SF		3	E		52		F
LEAR	06	0744	0745	0747	N20	W85	5806	11	29.9	3	SF	C 2.3	3	E		25		

H α SOLAR FLARES

DECEMBER 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	NOAA/USAF			CMP Mo	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement			Remarks
					Region	Lat	Cmd							Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
LEAR	06	0952	0955	1014	S13	W61	5822	12	1.8	22	SF	3	E		15		
LEAR		1000	1001	1007	N10	W20	5817	12	4.9	7	SF C 2.1	3	E		21		
SVTO		1302E	1302U	1307	N13	W21	5817	12	4.9	5D	SF C 2.0	2	E		14		
HOLL		1549	1554	1559	N19	W80	5806	11	30.5	10	SF	3	E		30		
RAMY		1756	1813U	1910D	S12	W66	5822	12	1.8	74D	SF C 3.4	3	E		52		
PALE		1757	1758	1834D	S15	W64	5822	12	1.9	37D	SF	3	E		20		
HOLL		1816	1819U	1900D	S13	W66	5822	12	1.8	44D	1F	2	E		125		
RAMY		1827	1829U	1909D	N10	W22	5817	12	5.1	42D	SF	3	E		51		
PALE		1830E	1830U	1842	N10	W27	5817	12	4.7	12D	SF	3	E		31	F	
HOLL		2246E	2301U	2322D	N21	W72	5812	12	1.4	36D	SF	1	E		29		
HOLL		2308E	2311U	2327	N25	W32		12	4.5	19D	SF	2	E		54		
GOES	07	0250	0305	0315						25	C 4.0						
GOES		0406	0409	0414						8	C 1.8						
GOES		0724	0734	0743						19	C 2.2						
GOES		0828	0834	0850						22	M 1.7						
RAMY		1214	1217	1234	N13	W38	5817	12	4.6	20	SF	3	E		22	F	
RAMY		1221	1247	1253	N20	W74	5810	12	1.8	32	SF	3	E		11		
RAMY		1234	1235	1249	S15	W20	5819	12	6.0	15	SF	3	E		19	F	
RAMY		1239	1242	1245	S10	W75	5822	12	1.9	6	SF	3	E		10		
RAMY		1322	1323	1327	S15	W73	5822	12	2.0	5	SF	3	E		16		
RAMY		1500	1504	1521	N25	W41		12	4.4	21	SF	3	E		30		
HOLL		1501	1501	1512	N25	W41		12	4.4	11	SF C 2.4	2	E		16		
RAMY		1520	1520	1531	N20	W76	5810	12	1.8	11	SF	3	E		12		
RAMY		1523	1524	1528	S11	W77	5822	12	1.8	5	SF	3	E		31		
HOLL		1523	1524	1529	S09	W76	5822	12	1.9	6	SF	2	E		44		
RAMY		1525	1526	1549	N25	W41		12	4.5	24	SF	3	E		21		
GOES		1556E	1558	1611D						15D	M 1.4						
RAMY		1714	1720	1725	N25	W42		12	4.5	11	SF	3	E		13		
RAMY		1728	1730	1732	N20	W78	5810	12	1.8	4	SF	3	E		10		
HOLL		1811	1814	1821	N24	W76	5810	12	1.9	10	SF	3	E		13		
HOLL		1839	1841	1850	N25	W45		12	4.3	11	SF	3	E		22		
RAMY		1840	1840	1849	N25	W43		12	4.4	9	SF	3	E		21		
RAMY		1918	1925	2021	N10	W41				63	SB		E		61		
RAMY		1918	1942	2021	N10	W41	5817	12	4.7	63	SF C 5.9	3	E		53	F	
RAMY		1925	1926	1933	N22	E10	5821	12	8.6	8	SF	3	E		17		
HOLL		1932E	1932U	2033D	S11	W47	5831	12	4.3	61D	SF	2	E		18		
RAMY		1938	1939	1948	N24	W44	5829	12	4.4	10	SF	3	E		25		
PALE		1939	1943	2029	N08	W41	5817	12	4.7	50	SF	3	E		48	F	
RAMY		2031	2031	2033	N12	W42	5817	12	4.7	2	SF	3	E		23	F	
PALE		2042	2047	2052	S12	W82	5814	12	1.7	10	SF	3	E		14		
PALE		2103E	2105U	2147	S15	W80	5822	12	1.8	44D	1M M 4.5	3	E		183	YE	
PALE		2229	2234	2245	N22	W47	5829	12	4.3	16	SF	3	E		17		
PALE		2250	2301	2323	N22	W47	5829	12	4.3	33	SF	3	E		18		
LEAR	08	0016	0017	0021	N16	E03	5821	12	8.2	5	SF	3	E		19		
PALE		0016	0017	0023	N17	E03	5821	12	8.2	7	SF	3	E		51	F	
PALE		0108	0113	0120	N22	W49	5829	12	4.3	12	SF	3	E		15		
PALE		0203	0204	0210	N11	W47	5817	12	4.5	7	SF	3	E		30	F	
LEAR		0203	0205	0208	N13	W45	5817	12	4.7	5	SF	3	E		21		
RAMY		1342	1343	1347	N25	W51	5829	12	4.6	5	SF	3	E		41		
GOES		1537	1553	1605						28	C 4.6						
RAMY		1647	1648	1655	N22	W89	5810	12	1.8	8	SF	3	E		19		
RAMY		1739	1746	1809	N20	W02	5821	12	8.6	30	SF	3	E		15	F	
PALE		1751	1754	1802	N21	W04	5821	12	8.4	11	SF	3	E		54	F	
HOLL		1754E	1758	1824	N21	W03	5821	12	8.5	30D	SF	3	E		38		
RAMY		1757	1757	1803	N22	W89	5810	12	1.9	6	SF	3	E		12		
RAMY		1802	1802	1807	N27	W58	5829	12	4.2	5	SF	3	E		32		
HOLL		1821	1832	1910	N11	W54	5817	12	4.7	49	1F	3	E		141	F	
RAMY		1823	1834	1908	N11	W54	5817	12	4.7	45	1F	3	E		125	F	
PALE		1825	1832	1857	N12	W54	5817	12	4.7	32	SF	3	E		35	F	
RAMY		1829	1837	1839	N22	W89	5810	12	1.9	10	SF	3	E		24		
RAMY		1849	1852	1858	N21	W89	5810	12	2.0	9	SF C 6.9	3	E		48	F	
RAMY		2027	2033	2043D	N23	W90	5810	12	1.9	16D	SF C 6.7	3	E		144		
PALE		2029	2031	2034	N23	W90	5810	12	1.9	5	SF C 6.7	3	E		15		
HOLL		2138	2138	2145	S11	W63	5823	12	4.2	7	SF	3	E		14		
GOES	09	0145	0149	0156						11	C 3.8						

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement		Remarks
															Time (UT)	Apparent (10-6 Disk)		Corr (Sq Deg)
LEAR	09	0822	0840	0920	N21	W12	5821	12	8.4	58	SF	M 1.2	3	E	13		F
HOLL		1643	1646	1657	N15	W33	5826	12	7.2	14	SF		3	E	22		F
RAMY		1707	1710	1739D	S10	E51	5830	12	13.5	32D	SF	C 2.8	3	E	44		
HOLL		1708	1709	1743	S13	E52	5833	12	13.6	35	SF		3	E	66		F
SVTO	10	1208E	1209U	1225D	S18	W59	5819	12	6.0	17D	SF		3	E	19		
RAMY		1217	1217	1221	S16	W58	5819	12	6.1	4	SF		3	E	13		
RAMY		1722	1739	1803	N15	W06		12	10.3	41	SF	C 1.9	3	E	69		F
HOLL		1736E	1740U	1805	N15	W03		12	10.5	29D	1F		2	E	107		F
PALE		2340	2342	2348	N22	W33	5821	12	8.4	8	SF		3	E	15		F
LEAR	11	0516	0517	0532	N20	W37	5821	12	8.4	16	SF	C 3.4	3	E	36		
SVTO		0821	0822	0829	N14	W03	5827	12	11.1	8	SF		3	E	14		
SVTO		1110	1113	1124	S24	E23	5833	12	13.2	14	SF		3	E	24		
SVTO		1308	1309	1322	N20	W43	5821	12	8.2	14	SF		3	E	23		F
RAMY		1308	1309	1324	N21	W40	5821	12	8.5	16	SF		3	E	27		
GOES		1457	1511	1525						28		C 3.0					
RAMY		1833	1834	1912	N19	W44	5821	12	8.4	39	SF		3	E	93		F
HOLL		1836E	1837U	1920D	N20	W45	5821	12	8.3	44D	SN	C 9.7	2	E	76		F
RAMY		2010	2014	2023	S26	E24	5833	12	13.7	13	SF		3	E	19		F
PALE		2012	2013	2019	S23	E19	5833	12	13.3	7	SF		3	E	16		F
HOLL		2245	2248	2255	S10	E19	5830	12	13.4	10	SF		3	E	16		
HOLL		2247	2253	2317	N20	W48	5821	12	8.3	30	SF		3	E	59		F
LEAR		2353	2356	2406	N13	W11	5827	12	11.2	13	SF	C 2.2	3	E	30		F
LEAR	12	0030	0034	0039	N12	W10	5827	12	11.3	9	SF		4	E	10		
GOES		1052	1058	1100						8		C 1.8					
RAMY		1356E	1356U	1536D	N13	W19	5827	12	11.1	100D	SF	C 1.2	2	E	38		FH
GOES		1857	1907	1914						17		C 6.2					
GOES		2121	2127	2130						9		C 5.0					
PALE		2338	2340	2346	N14	E78	5836	12	18.9	8	SF	C 3.3	3	E	18		
PALE	13	0110	0110	0119	N09	E85	5836	12	19.4	9	SF		3	E	20		
GOES		0418	0422	0426						8		C 1.0					
GOES		0806	0811	0819						13		C 1.6					
GOES		1018	1038	1059						41		C 5.0					
RAMY		1133	1133	1147	N10	E74	5836	12	19.0	14	SF		2	E	12		
RAMY		1235	1236	1259	N11	E74	5836	12	19.1	24	SN		3	E	85		FE
SVTO		1235	1237	1305	N14	E73	5836	12	19.0	30	SB	C 3.5	3	E	94		
GOES		1457	1503	1511						14		C 1.3					
RAMY		1655	1659	1724	N20	E90		12	20.6	29	SN	C 2.0	3	E	96		Y
RAMY		1747	1756	1807	N19	E90		12	20.6	20	SF	C 3.0	3	E	58		
PALE		1847	1849	1852	S10	W03	5830	12	13.5	5	SF		3	E	69		
RAMY		1858	1859	1905	N19	E89	5837	12	20.6	7	SF		3	E	27		
RAMY		2003	2003	2009	N19	E89	5837	12	20.6	6	SF		3	E	39		
GOES		2222	2232	2247						25		C 6.7					
LEAR	14	0207	0212	0247	N09	E72	5836	12	19.5	40	1F	M 1.9	3	E	114		F
PALE		0207	0212	0247	N08	E73	5836	12	19.6	40	SF	M 1.9	2	E	91		F
SVTO		1122	1124	1142	N12	E64	5836	12	19.3	20	SF	C 2.1	3	E	28		
SVTO		1227	1228	1240	N10	E65	5836	12	19.4	13	SF	C 1.7	3	E	36		
SVTO		1252	1255	1331	N11	E60	5836	12	19.0	39	1F	C 2.7	3	E	100		
RAMY		1252	1256	1304	N13	E57	5836	12	18.8	12	SF		3	E	19		F
RAMY		1441	1443	1452	N20	E73	5837	12	20.2	11	SF	C 2.3	3	E	28		F
HOLL		1843	1843	1848	N11	E56	5836	12	19.0	5	SF		3	E	13		
HOLL		1857	1858	1908	N14	E54	5836	12	18.9	11	SF		3	E	15		
RAMY		1857	1859	1905	N15	E53	5836	12	18.8	8	SF		3	E	17		
RAMY		1925	1925	1928	N21	E72	5837	12	20.3	3	SF		3	E	21		
GOES		2145	2150	2156						11		C 1.2					
PALE		2337	2338	2352	N20	E74	5837	12	20.6	15	SF	C 3.5	3	E	32		F
GOES	15	0416	0432	0451						35		C 1.1					
GOES		0510	0532	0538						28		C 1.3					
GOES		0609E	0617	0640D						31D		C 1.2					
GOES		0743	0753	0805						22		C 1.9					
GOES		1047	1052	1059						12		C 1.0					
RAMY		1356	1359	1437	N21	E64	5837	12	20.5	41	1M	C 7.9	3	E	121		F
RAMY		1552	1558	1613	N09	E43	5836	12	18.9	21	SF	C 2.2	3	E	94		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
HOLL	15	1839	1842	1849	N16	W09	5832	12	15.1	10	SF		3	E		17		F
HOLL		1936	1939	1954	N11	E49	5836	12	19.5	18	SF		4	E		29		
HOLL		2035E	2039U	2044	N10	E48	5836	12	19.5	9D	SF		2	E		35		F
RAMY		2036	2038	2044	N11	E41	5836	12	18.9	8	SF	C 1.3	3	E		22		
GOES		2230E	2236	2245D						15D		C 1.3						
PALE		2312	2315	2323	N10	E45	5836	12	19.3	11	SF	C 1.3	3	E		21		F
GOES	16	0457	0502	0512						15		C 2.6						
GOES		0637	0648	0704						27		C 2.2						
SVTO		1257	1258	1304	S10	E72	5843	12	21.9	7	SF		3	E		17		
SVTO		1404	1405	1418	N12	E36	5836	12	19.3	14	SF	C 1.1	3	E		22		
RAMY		1404E	1409U	1549D	N11	E37	5836	12	19.4	105D	SF		3	E		21		F
GOES		1657	1709	1718						21		C 1.5						
RAMY		1728	1734	1738	N10	E31	5836	12	19.0	10	SF		2	E		36		
PALE		2057E	2100U	2123D	N21	E45	5837	12	20.3	26D	SF	C 2.8	3	E		35		F
RAMY	17	1130	1152	1220	N19	E63	5846	12	22.3	50	SF	C 3.5	3	E		36		
RAMY		1346	1348	1352	N19	E60	5846	12	22.1	6	SF	C 1.5	3	E		18		F
RAMY		1740	1744	1823	N18	E58	5846	12	22.1	43	SF	C 3.6	3	E		54		F
HOLL		1743E	1744U	1758D	N17	E58	5846	12	22.1	15D	SF		2	E		49		
PALE		1801	1803	1807	N18	E58	5846	12	22.2	6	SF		3	E		20		
PALE		1823	1825	1829	S09	W38	5844	12	14.9	6	SF	C 2.8	3	E		20		
HOLL		2138E	2139U	2221D	N19	E56	5846	12	22.2	43D	SF		2	E		29		F
PALE		2138	2145	2241	N18	E58	5846	12	22.3	63	SF	C 5.3	3	E		58		F
PALE		2243	2246	2258	N18	E32	5837	12	20.4	15	SF		3	E		24		
GOES	18	0345	0400	0423						38		C 2.8						
LEAR		0515	0524	0549	N18	E52	5846			34	SF			E		61		K
LEAR		0515	0535	0549	N18	E52	5846	12	22.2	34	SF	C 2.7	3	E		43		F
LEAR		0743	0745	0749	N17	E48	5846	12	22.0	6	SF		3	E		30		
LEAR		0831	0849	0929	N19	E50	5846	12	22.2	58	1F	M 2.0	3	E		119		UF
SVTO		0902E	0905U	0940D	N19	E44	5846	12	21.7	38D	1F		3	E		151		
LEAR		0923	0924	0927	S09	W44	5844	12	15.1	4	SF		3	E		25		
LEAR		0935	0935	0942	S09	W44	5844	12	15.1	7	SF		3	E		12		
LEAR		0938	0939	0943	N33	W53	5847	12	14.2	5	SF		3	E		16		
SVTO		1033	1036	1042D	S10	W43	5044	12	15.2	9D	SF	C 1.5	3	E		23		
GOES		1259	1303	1306						7		C 2.3						
HOLL		1706	1728U	1728D	S08	W47	5844	12	15.2	22D	1F		3	E		112		F
HOLL		1720	1728	1756	S08	W49	5844	12	15.0	36	1F	C 4.5	3	E		115		F
HOLL		1720	1745	1756	S08	W49	5844			36	SF			E		25		K
HOLL		1738	1740	1747	N32	W52	5847	12	14.6	9	SF		4	E		30		
HOLL		1801	1808	1814	S11	W50	5844	12	15.0	13	SF		4	E		30		
HOLL		1840	1846	1855	N32	W53	5847	12	14.6	15	SF		4	E		17		
PALE		2105	2108	2125	N34	W56	5847	12	14.4	20	SF		3	E		30		F
PALE		2151	2200	2202	N19	E25	5837	12	20.8	11	SF		3	E		14		F
PALE		2306	2308	2315	N34	W57	5847	12	14.4	9	SF	C 1.5	3	E		30		F
PALE		2307	2307	2313	N19	E23	5837	12	20.7	6	SF		3	E		11		
LEAR		2307	2308	2314	N33	W57	5847	12	14.4	7	SF		3	E		26		
PALE		2336	2340	2414	N20	E22	5837	12	20.7	38	2B	M 3.2	3	E		272		FH
LEAR		2337	2340	2405	N19	E23	5837	12	20.7	28	1N	M 3.2	3	E		167		FE
PALE		2344	2348	2354	S07	W52	5844	12	15.1	10	SF		3	E		19		F
LEAR		2344	2349	2358	S08	W52	5844	12	15.1	14	SF		3	E		45		
GOES	19	0145	0149	0151						6		C 2.2						
PALE		0210	0216	0227	N34	W59	5847	12	14.4	17	SF		3	E		39		
LEAR		0213	0215	0222	N33	W56	5847	12	14.6	9	SF		3	E		25		
PALE		0242	0244	0303	N35	W59	5847	12	14.4	21	SF	C 3.3	3	E		70		
LEAR		0250	0253	0258	N33	W56	5847	12	14.7	8	SF		3	E		24		
LEAR		0302	0302	0313	S09	W57	5844	12	14.8	11	SF	C 3.2	3	E		29		
PALE		0303	0303	0311	S07	W56	5844	12	14.9	8	SF		3	E		21		F
GOES		0408	0411	0414						6		C 2.8						
LEAR		0508	0515	0526	S11	W55	5844	12	15.1	18	SF		3	E		35		
LEAR		0527	0542	0557	N20	E18	5837	12	20.6	30	SF	C 7.7	3	E		47		F
SVTO		0824	0829U	0841D	N21	E15	5837	12	20.5	17D	SF		3	E		43		
SVTO		1032	1037U	1053D	N20	E32	5846	12	21.9	21D	SF	C 2.8	3	E		32		
RAMY		1124	1135	1218	N32	W60	5847	12	14.7	54	SF		4	E		33		
RAMY		1248	1313	1437	N18	E35	5846	12	22.2	109	1F		4	E		103		F
RAMY		1354	1401	1420	N33	W65	5847	12	14.4	26	SF		4	E		24		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	NOAA/USAF			CMP Mo Day	Dur (Min)	Imp			Obs Type	Area Measurement			Remarks	
					Lat	CMD	Region			Opt	Xray	See		Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)		
[	RAMY	19	1524	1525	1532	N19	E31	5846	12	22.0	8	SF	C 2.1	4	E		45	
	HOLL		1524	1526	1533	N19	E30	5846	12	21.9	9	SF		3	E		47	
	HOLL		1540	1546	1550	N33	W63	5847	12	14.6	10	SF		3	E		13	
[	HOLL		1559	1605	1613	N32	W64	5847	12	14.6	14	SF	C 1.8	3	E		84	
	RAMY		1603	1603	1613	N32	W65	5847	12	14.5	10	SF	C 1.8	3	E		37	
[	HOLL		1649	1651	1656	N19	E33	5846	12	22.2	7	SF		3	E		29	
	RAMY		1649	1651	1656	N17	E29	5846	12	21.9	7	SF		3	E		10	
	RAMY		1743	1745	1750	S10	W66	5844	12	14.8	7	SF		3	E		18	
	RAMY		1750	1751	1753	N17	E29	5846	12	21.9	3	SF		3	E		10	
	RAMY		1817	1840	1901	S11	W65	5844	12	14.9	44	SF		3	E		29	F
	RAMY		1820	1820	1827	N22	E12	5837	12	20.7	7	SF		3	E		10	F
	RAMY		1845	1851	1856	N17	E27	5846	12	21.8	11	SF	C 2.5	3	E		16	
[	HOLL		1858E	1924U	1945	S09	W63	5844	12	15.1	47D	SF		3	E		29	
	RAMY		1902	1914U	1936D	S10	W67	5844	12	14.7	34D	SF		2	E		41	F
	HOLL		1909	1922	1940	N33	W64	5847	12	14.7	31	SF		3	E		18	
	GOES		1941	1947	1952						11		C 2.9					
	HOLL		1958	1959	2001	N33	W65	5847	12	14.7	3	SF		3	E		27	
[	HOLL		2007	2036	2203	S10	W64	5844			116	SF			E		34	K
	HOLL		2007	2122	2203	S10	W64	5844	12	15.0	116	SF		3	E		56	
	HOLL		2252	2317	2350D	S10	W67	5844	12	14.9	58D	SF		3	E		48	
[	LEAR		2302	2303	2316	N22	E10	5837	12	20.7	14	SF		3	E		63	F
	HOLL		2302	2305	2317	N22	E09	5837	12	20.6	15	1N	C 3.2	4	E		118	E
	LEAR	20	0302	0318	0338	S09	W69	5844	12	14.9	36	SF		3	E		43	F
	LEAR		0341	0344	0410	N17	E26	5846	12	22.1	29	SF		3	E		27	U
	LEAR		0509	0512	0517	N22	E06	5837	12	20.7	8	SF		3	E		32	FH
	LEAR		0609	0615	0625	N12	W10	5836	12	19.5	16	SF		3	E		38	F
	LEAR		0641	0642	0653	N22	E02	5837	12	20.4	12	SF	C 3.2	3	E		19	F
	GOES		0917	0921	0923						6		C 1.7					
	SVTO		1009	1010	1024	N27	E54		12	24.6	15	SF		3	E		17	
	SVTO		1359	1400	1417	N31	W75	5847	12	14.7	18	SF	C 1.4	3	E		16	
	HOLL		1422E	1422U	1535D	S10	W75	5844	12	15.0	73D	SF		3	E		70	H
	HOLL		1714	1724	1732	S09	W76	5844	12	15.0	18	SF		3	E		20	
	HOLL		1808	1809	1824	S09	W77	5844	12	15.0	16	SF	C 1.5	3	E		24	
	HOLL		1903	1906	2008	N21	E19	5846	12	22.2	65	2B	M 2.3	3	E		293	UF
[	RAMY		1903	1909U	1917D	N20	E19	5846	12	22.2	140	2B	M 2.3	3	E		396	UF
	HOLL		1907	1918	1944	S08	W78	5844	12	14.9	37	1N		3	E		178	EH
[	RAMY		1916		1917D	S10	W78	5844	12	14.9	10	SF		2	E		17	
	HOLL		2106	2108	2113	S15	W79	5844	12	14.9	7	SF		3	E		10	F
	LEAR	21	0330	0332	0341	N20	W08	5837	12	20.5	11	SF		3	E		37	F
[	RAMY		1211	1219	1232	N21	E09	5846	12	22.2	21	SF		3	E		16	
	SVTO		1212	1219	1225	N22	E08	5846	12	22.1	13	SF		3	E		14	F
	GOES		1312	1316	1320						8		C 2.1					
	HOLL		1634	1635	1642	N20	W15	5837	12	20.5	8	SF		3	E		22	F
	HOLL		1701	1704	1715	S11	E57	5849	12	26.0	14	SF		3	E		19	
[	HOLL		1906	1912	1927	N20	W14	5837	12	20.7	21	SF		3	E		23	
	RAMY		1911	1911	1926	N21	W17	5837	12	20.5	15	SF		3	E		19	
	HOLL		1943	1943	1946	S10	E55	5849	12	25.9	3	SF		3	E		15	
[	RAMY		2108	2112	2118	S10	E54	5849	12	25.9	10	SF		3	E		22	
	HOLL		2112	2114	2117	S10	E54	5849	12	25.9	5	SF		3	E		13	F
	GOES		2300	2303	2307						7		C 2.2					
	GOES	22	0304	0311	0343						39		C 3.8					
	SVTO		1245	1246	1249	S24	E65		12	27.5	4	SF		3	E		13	
[	SVTO		1257	1304	1400	N24	E38	5848	12	25.5	63	1N		3	E		129	F
	SVTO		1257	1331	1400	N24	E28	5848			63	SN			E		60	K
	RAMY		1257	1331	1401	N23	E40	5848	12	25.6	64	1F		3	E		114	F
	RAMY		1516	1520	1524	N22	E83		12	29.0	8	SF		3	E		16	
	GOES		1539	1602	1711						92		C 5.2					
	GOES		1801	1808	1819						18		C 6.8					
	GOES		2018	2025	2033						15		C 6.8					
[	HOLL		2057	2058	2102	N20	W26	5837	12	20.9	5	SF		2	E		22	
	RAMY		2057	2058	2104	N21	W28	5837	12	20.7	7	SF		3	E		20	
	GOES		2122	2127	2135						13		C 4.1					
[	HOLL		2214	2214	2221	S11	E73	5853	12	28.4	7	SF		2	E		14	
	PALE		2214	2214	2228	S11	E76	5853	12	28.6	14	SF		3	E		16	
[PALE		2307	2309	2337	S11	E78	5853	12	28.8	30	SF		3	E		37	

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DECEMBER 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/	CMP	Dur (Min)	Imp	Obs	Area Measurement		Remarks	
							USAF Region					Mo Day	Opt Xray		See Type	Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)
LHOLL	22	2308	2311	2325	S12	E76	5853	12	28.7	17	SF	1	E	28	
PALE		2314	2314	2320	N21	E71	5854	12	28.4	6	SF M 5.2	3	E	35	YF
PALE	23	0038	0042	0124	S28	E59	5852	12	27.6	46	SF	3	E	70	F
GOES		0118	0125	0135						17	M 1.1				
GOES		0137	0144	0216						39	M 1.7				
GOES		0216	0219	0241						25	M 1.2				
GOES		0805	0813	0826						21	C 4.4				
SVTO		0847	0849	0900	S07	E28	5849	12	25.5	13	SF	4	E	25	
GOES		0847	0853	0903						16	C 6.1				
SVTO		0848	0848	0900	N28	E72		12	29.0	12	SF	4	E	14	H
SVTO		0927	0927	10060	N31	E81		12	29.8	390	SF C 8.2	2	E	49	H
GOES		1040	1049	1058						18	C 5.9				
RAMY		1216	1220	1225	S29	W28	5850	12	21.3	9	SF	3	E	15	FH
RAMY		1307	1309	1324	S12	E69	5857	12	28.7	17	SF	3	E	19	
RAMY		1316	1319	1336	N28	E78	5854	12	29.6	20	1N C 8.0	3	E	175	
HOLL		1627	1628	1635	S09	E23	5849	12	25.4	8	SF	4	E	47	
RAMY		1629	1630	1635	S08	E23	5849	12	25.4	6	SF	3	E	37	
HOLL		1754	1818	1907	S27	E52	5852			73	SN	3	E	48	K
HOLL		1754	1826	1907	S27	E52	5852	12	27.8	73	SF	3	E	92	F
HOLL		1805	1812	1842	S11	E71		12	29.1	37	1F C 5.3	2	E	101	F
RAMY		1807	1809	1857	S27	E47	5852	12	27.4	50	SF	2	E	23	F
PALE		1808	1808	1822	S14	E68	5857	12	28.9	14	SF	3	E	12	F
PALE		1808	1809	1833	S27	E46	5852	12	27.3	25	SF	3	E	26	F
HOLL		1845	1900	1915	S10	E73		12	29.3	30	SF	2	E	72	F
RAMY		1853	1900	1923	S11	E68		12	28.9	30	SF	2	E	71	F
HOLL		1854	1856	1905	N29	E84	5854	12	30.4	11	SF	3	E	27	
PALE		2214	2214	2238	N21	W43	5837	12	20.6	24	SF	3	E	14	
HOLL		2242	2242	2245	N23	E67	5854	12	29.1	3	SF	3	E	23	
PALE	24	0044	0045	0050	S13	E63	5853	12	28.8	6	SF	3	E	41	
PALE		0209	0210	0216	N26	E68		12	29.4	7	SF	3	E	18	
PALE		0325	0326	0337	S11	E63	5853	12	28.9	12	SF C 6.1	3	E	22	
GOES		0716	0723	0731						15	C 2.8				
SVTO		0842	0842	0845	N22	E56	5854	12	28.7	3	SF	3	E	27	F
GOES		0951	1010	1018						27	C 4.1				
SVTO		1036E	1151U	1207D	N24	E60	5854	12	29.1	91D	SF	2	E	71	F
SVTO		1153E	1155U	1214D	S11	E55	5853	12	28.6	21D	SF	2	E	72	F
SVTO		1236E	1339U	1440D	S30	W41	5850	12	21.3	124D	1N	2	E	212	F
SVTO		1250E	1300U	1316D	N22	E54	5854	12	28.7	26D	SF	2	E	73	F
RAMY		1321	1336	1430	S30	W41	5850	12	21.3	69	1F M 1.3	3	E	114	
HOLL		1426E	1526U	1555D	S30	W41	5850	12	21.4	89D	SF	1	E	66	F
HOLL		1608	1616	1644	S09	E61	5853	12	29.2	36	SF	3	E	38	
HOLL		1713	1718	1740	N26	E07	5848	12	25.3	27	1F	3	E	109	F
HOLL		1718	1719	1723	S09	E56	5853	12	28.9	5	SF	3	E	35	
HOLL		1738	1741	1751	S12	E51	5853	12	28.6	13	SF	3	E	38	
PALE		1749	1753	1811D	S30	W44	5850	12	21.3	22D	SF	3	E	19	
HOLL		1750	1753	1804	S30	W44	5850	12	21.3	14	SF	3	E	29	
HOLL		1805	1815	1831	S30	W44	5850	12	21.3	26	SF	3	E	50	
PALE		1814E	1816U	1829D	S28	W45	5850	12	21.2	15D	SF	3	E	33	
HOLL		1908	1913	1923	N25	E06	5848	12	25.3	15	SF	3	E	17	
HOLL		2013	2027	2033	S29	W46	5850	12	21.2	20	SF	3	E	12	
HOLL		2034	2042	2046D	N25	E04	5848	12	25.2	12D	SF	3	E	24	
RAMY		2035	2036	2049	N25	E05	5848	12	25.2	14	SF	3	E	16	
RAMY		2045	2059	2111	S13	E49	5853	12	28.6	26	SF C 7.9	3	E	65	F
RAMY		2046	2049	2117	N23	E55	5854	12	29.1	31	SF	3	E	40	
HOLL		2047E	2049U	2123	N23	E58	5854	12	29.3	36D	SF	2	E	23	F
PALE		2054	2059	2120D	S09	E54	5853	12	28.9	26D	SF	3	E	72	F
HOLL		2058E	2059U	2121	S12	E51	5853	12	28.7	23D	SF	2	E	64	F
HOLL		2109	2110	2113	S29	W46	5850	12	21.3	4	SF	3	E	18	
HOLL		2120	2122	2126	S30	W46	5850	12	21.3	6	SF	3	E	22	
PALE		2141	2143	2149	S09	E54	5853	12	28.9	8	SF	3	E	14	
PALE		2205	2220	2234	S26	E31	5852	12	27.3	29	SF	3	E	27	
PALE		2211	2216U	2232	N26	E04	5848	12	25.2	21	SF	3	E	44	
PALE		2215E	2216U	2222	S26	W47	5850	12	21.3	7D	SF C 7.6	3	E	64	
LEAR		2300	2302	2311	S30	W49	5850	12	21.1	11	SF	3	E	36	F
PALE		2302	2303	2308	S28	W48	5850	12	21.2	6	SF	3	E	19	F
PALE	25	0009	0011	0138	S23	E61	5857	12	29.7	89	1F	3	E	127	

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DECEMBER 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo Day	Dur (Min)	Imp Opt Xray	Obs See Type	Area Measurement		Remarks		
												Time (UT)	Apparent (10-6 Disk)		Corr (Sq Deg)	
PALE 25	0009	0033	0138	S23	E61	5857			89	2F		E	201		K	
LEAR	0010	0011	0130	S18	E57	5857	12	29.3	80	SF		3	E	48		UF
PALE	0010	0015	0059	S11	E52	5853	12	28.9	49	2F M	2.0	3	E	275		
PALE	0010	0033	0059	S11	E52	5853			49	SF			E	54		K
PALE	0202	0205	0231	S26	E32	5852	12	27.6	29	SF		3	E	24		
LEAR	0432	0433	0455	N18	E51	5854	12	29.1	23	SF C	8.7	3	E	33		F
LEAR	0437	0438	0443	S29	W51	5850	12	21.2	6	SF		3	E	19		
LEAR	0723	0724	0728	S27	E32	5852	12	27.8	5	SF C	3.3	3	E	29		
SVTO	0840E	0916U	09260	S22	E27	5852	12	27.4	460	SF		2	E	26		F
SVTO	0900E	0920U	09590	N22	E45	5854	12	28.8	590	SF		2	E	43		F
SVTO	1040E	1040U	1120	S22	E27	5852	12	27.5	400	SF C	5.1	2	E	22		F
GOES	1122E	1126	11300						80	C	6.0					
SVTO	1146	1147	1152	N25	W03	5848	12	25.2	6	SF		3	E	28		F
RAMY	1255	1311	1346	S12	E46	5853	12	29.0	51	SF		3	E	38		F
RAMY	1257	1258	1328	N24	E47	5854	12	29.2	31	SF		3	E	11		F
SVTO	1257	1313	1343	S11	E45	5853	12	28.9	46	SF		3	E	35		F
SVTO	1257	1335	1445	N23	E41	5854	12	28.7	108	SF		3	E	56		F
SVTO	1318	1323	1334	S22	W30	5856	12	23.2	16	SF		3	E	19		
SVTO	1405	1407	1433	N26	W04	5848	12	25.3	28	SF		3	E	21		
RAMY	1436	1436	1440	S26	E23	5852	12	27.4	4	SF		3	E	14		F
HOLL	1538	1546	1656	S29	W56	5850			78	SF			E	20		K
HOLL	1538	1600	1656	S29	W56	5850	12	21.3	78	1N		3	E	111		FE
HOLL	1546	1546	1559	S10	E50	5853	12	29.4	13	SF		3	E	19		F
RAMY	1553	1600	1642	S28	W58	5850	12	21.1	49	SF		3	E	97		F
HOLL	1605	1619	1716	S14	E46	5853	12	29.1	71	SF		3	E	84		F
HOLL	1608	1612	1731	S26	E24	5852			83	SF			E	15		K
HOLL	1608	1640	1731	S26	E24	5852	12	27.5	83	1N M	1.2	3	E	128		UF
HOLL	1614	1616	1632	N24	W01	5848	12	25.6	18	SF		3	E	28		F
HOLL	1614	1622	1654	N23	E48	5854	12	29.4	40	SF		3	E	40		F
RAMY	1615	1620	1714	S19	E44	5857	12	29.0	59	SF		3	E	34		
RAMY	1619	1620	1625	S26	E23	5852	12	27.5	6	SF		3	E	28		
RAMY	1626	1639	1729	S26	E23	5852	12	27.5	63	1F		3	E	111		F
HOLL	1747	1750	1755	N18	W41	5846	12	22.6	8	SF		3	E	13		
PALE	1815	1819	1917	S14	E44	5853	12	29.1	62	SF		3	E	86		F
HOLL	1815E	1824	19150	S16	E45	5853	12	29.2	600	1N		3	E	152		F
RAMY	1826	1826	18550	S16	E44	5853	12	29.1	290	SF		3	E	61		F
PALE	1854	1857	1905	N25	E42	5854	12	29.0	11	SF		3	E	12		
HOLL	1855	1858	1916	S29	W57	5850	12	21.3	21	SF		3	E	36		
HOLL	1855E	1859U	19060	N23	E45	5854	12	29.2	110	SF		3	E	21		
PALE	1900	1906	1909	S30	W54	5850	12	21.5	9	SF		3	E	24		
HOLL	1939	1944	2012	N31	W06	5848	12	25.3	33	SF		3	E	96		F
PALE	1940	1943	1956	N24	W07	5848	12	25.3	16	SF		3	E	58		F
HOLL	1951	2009	2030	S28	W57	5850	12	21.4	39	SF		3	E	19		
HOLL	2009	2010	2014	N25	E46	5854	12	29.4	5	SF		3	E	11		
HOLL	2011	2023	2056	S26	E22	5852	12	27.5	45	1B M	3.1	3	E	166		UF
PALE	2011	2024	2055	S25	E22	5852	12	27.5	44	1N M	3.1	3	E	124		FE
HOLL	2050	2052	2102	S11	E49	5853	12	29.5	12	SF		3	E	31		
HOLL	2057	2058	2103	S26	E19	5852	12	27.3	6	SF		3	E	16		F
HOLL	2105	2106	2111	S28	W57	5850	12	21.4	6	SF		3	E	21		
HOLL	2108	2108	2112	S20	E72	5858	12	31.4	4	SF		3	E	18		
HOLL	2108	2109	2117	S27	E18	5852	12	27.3	9	SF		3	E	26		F
PALE	2108	2110	2116	S25	E19	5852	12	27.3	8	SF		3	E	32		F
PALE	2111	2114	2128	N25	E43	5854	12	29.2	17	SF		3	E	33		F
HOLL	2111	2114	2143	N23	E44	5854	12	29.3	32	SF		3	E	74		F
HOLL	2114	2115	2121	S11	E50	5853	12	29.6	7	SF		3	E	14		
HOLL	2211	2214	2218	S20	E74	5858	12	31.6	7	SF		3	E	22		
PALE	2212	2214	2232	S14	E67	5858	12	31.0	20	SF		3	E	97		
HOLL	2212	2218	2235	S10	E49	5853	12	29.6	23	SF		3	E	53		
HOLL	2212	2219	2227	S13	W49	5855	12	22.2	15	SF		3	E	16		
HOLL	2222	2223	2238	S26	E21	5852	12	27.6	16	SF		3	E	24		F
PALE	2234	2235	2242	N15	E76		12	31.7	8	SF		3	E	17		
HOLL	2245	2246	2249	S14	E67	5858	12	31.0	4	SF		3	E	12		
LEAR	2302	2302	2305	S30	W59	5850	12	21.3	3	SF		3	E	14		
HOLL	2302	2302	2306	S27	W58	5850	12	21.4	4	SF		3	E	19		
HOLL	2305	2305	2311	N22	E42	5854	12	29.2	6	SF		3	E	10		F
HOLL	2316	2317	23310	N20	W67	5837	12	20.8	150	SF		3	E	13		
PALE	2357	2412	2419	N25	E34	5854	12	28.6	22	2F		3	E	411		F
PALE 26	0046	0046	0114	N26	E42	5854	12	29.3	28	SF		3	E	16		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement			Remarks
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
PALE	26	0150	0152	0203	S25	E17	5852	12	27.4	13	SF	C	5.5	3	E	46		F
LEAR		0151	0152	0158	S27	E15	5852	12	27.2	7	SF	C	5.5	3	E	27		
PALE		0158	0201	0204	N25	E39	5854	12	29.1	6	SF			3	E	18		F
PALE		0158	0201	0208	S11	E35	5853	12	28.7	10	SF			3	E	17		F
LEAR		0201	0206	0224	N23	E43	5854	12	29.4	23	SF			3	E	20		F
LEAR		0524	0532	0619	S27	E14	5852			55	1N				E	192		K
LEAR		0524	0539	0619	S27	E14	5852	12	27.3	55	1N	M	5.9	3	E	187		FE
LEAR		0621	0625	0651	S26	E16	5852	12	27.5	30	SF			3	E	42		F
SVTO		0709E	0804	1014	S27	E17	5852	12	27.6	185D	SF			3	E	77		UF
LEAR		0744	0745	0823	N23	E38	5854	12	29.2	39	SF	M	2.0	3	E	42		F
SVTO		0756	0828	0859	S08	E44	5853	12	29.6	63	SF			4	E	41		F
SVTO		0927	1040	1246	N24	E30	5854	12	28.7	199	SF			3	E	21		F
SVTO		1104	1110	1122	S26	E18	5852	12	27.8	18	SF			3	E	27		
SVTO		1215	1223	1241	N13	E65	5859	12	31.4	26	SF			3	E	24		
SVTO		1215	1223	1303	S26	E12	5852			48	SF				E	23		K
SVTO		1215	1250	1303	S26	E12	5852	12	27.4	48	SF			3	E	22		
SVTO		1228	1241	1311	S18	E61	5858	12	31.2	43	SF			3	E	29		
RAMY		1240	1240	1254	S20	E65	5858	12	31.5	14	SF			3	E	20		
SVTO		1254	1258	1323	N17	W53	5846	12	22.5	29	SF			3	E	41		
SVTO		1325	1328	1357	S15	E64	5858	12	31.4	32	SF			3	E	36		
RAMY		1357	1357	1406	S30	W71	5850	12	21.0	9	SF			3	E	17		
SVTO		1358	1359	1407	S31	W68	5850	12	21.2	9	SF			3	E	18		
HOLL		1512E	1611	1725	S26	E10	5852			133D	1F				E	112		K
HOLL		1512E	1615	1725	S26	E10	5852	12	27.4	133D	1F	C	8.2	3	E	127		F
HOLL		1631	1632	1639	N23	E31	5854	12	29.1	8	SF			3	E	13		
HOLL		1722	1722	1725	N24	E27	5854	12	28.8	3	SF			3	E	12		
PALE		1722E	1722U	1736	S24	E13	5852	12	27.7	14D	SF			3	E	48		F
HOLL		1748	1755	1804	S23	W46	5856	12	23.2	16	SF			3	E	29		
PALE		1808	1811	1931	S25	E11	5852	12	27.6	83	1B	M	6.9	3	E	131		
HOLL		1810	1811	1914	S26	E09	5852	12	27.4	64	1B	M	6.9	3	E	154		UF
HOLL		1810	1822	1914	S26	E09	5852			64	1N				E	166		K
RAMY		1843E		2052D	S26	E09	5852	12	27.5	129D	1F			1	E			F
PALE		1939	1944	1952	S24	W45	5856	12	23.3	13	SF			3	E	15		
GOES		1951	2010	2025						34		C	9.8					
RAMY		2053E	2055U	2110D	S09	E35	5860	12	29.5	17D	SF			2	E	22		F
LEAR		2336	2337	2345	N24	E31	5854	12	29.4	9	SF			3	E	11		
LEAR		2359	2402	2405	S28	W65	5850	12	21.9	6	SF			3	E	26		F
LEAR	27	0134	0137	0208	S26	E07	5852	12	27.6	34	SF	M	1.3	3	E	27		FE
LEAR		0613	0614	0622	S14	E26	5853	12	29.2	9	SF	C	6.3	3	E	24		
SVTO		0817	0932	1057	S25	E02	5852	12	27.5	160	SF			3	E	56		F
SVTO		0825	0826	0834	S05	E30	5853	12	29.6	9	SF			3	E	23		
SVTO		0859	0949	1046	N20	E09		12	28.1	107	SF			3	E	45		
RAMY		1155	1210	1231	S27	E00	5852	12	27.5	36	SF			3	E	39		F
RAMY		1158	1205	1212	N14	E44	5859	12	30.8	14	SF			3	E	22		
RAMY		1208	1214	1222	S17	E48	5858	12	31.1	14	SF			3	E	44		
RAMY		1237	1319	1603	S26	W01	5852	12	27.4	206	SN	M	3.1	3	E	87		
RAMY		1342	1342	1346	S12	E27	5853	12	29.6	4	SF			3	E	23		
HOLL		1425E	1425U	1438D	S25	W02	5852	12	27.4	13D	SF			1	E	70		F
PALE		1836	1838	1851	S19	E47	5858	12	31.4	15	SF			3	E	20		
RAMY		1842	1847	1857	S21	E46	5858	12	31.3	15	SF			3	E	23		
RAMY		1918	1919	1932	S27	E00	5852	12	27.8	14	SF			3	E	28		
PALE		1919	1919	1929	S26	E02	5852	12	28.0	10	SF			3	E	15		
HOLL		1929	1937	1946	N18	W71	5846	12	22.4	17	SF			2	E	83		
PALE		2026	2027	2102	S25	W02	5852	12	27.7	36	SF			3	E	27		F
PALE		2146	2155	2309D	N25	E17	5854	12	29.2	83D	1N	M	1.1	3	E	172		UF
LEAR		2216E	2216U	2308	N24	E16	5854	12	29.2	52D	1F			2	E	248		
LEAR	28	0005	0006	0011	S27	W02	5852	12	27.8	6	SF	C	4.8	3	E	23		F
GOES		0131E	0134	0145D						14D		C	6.2					
GOES		0232	0241	0245						13		C	5.3					
LEAR		0338E	0349U	0530	S25	W07	5852	12	27.6	112D	2B	M	9.7	3	E	526		ZU
LEAR		0658	0701	0711	S25	W08	5852	12	27.7	13	SF			3	E	15		
LEAR		0727	0727	0745D	S18	E36	5858	12	31.0	18D	SF	C	9.2	3	E	24		
GOES		0749	0755	0818						29		M	1.3					
GOES		0843	0846	0849						6		C	5.8					
LEAR		0957	1007	1023	S08	E15	5853	12	29.5	26	SF	M	1.6	3	E	39		
RAMY		1205	1205	1213	N18	W76	5846	12	22.7	8	SF			2	E	15		

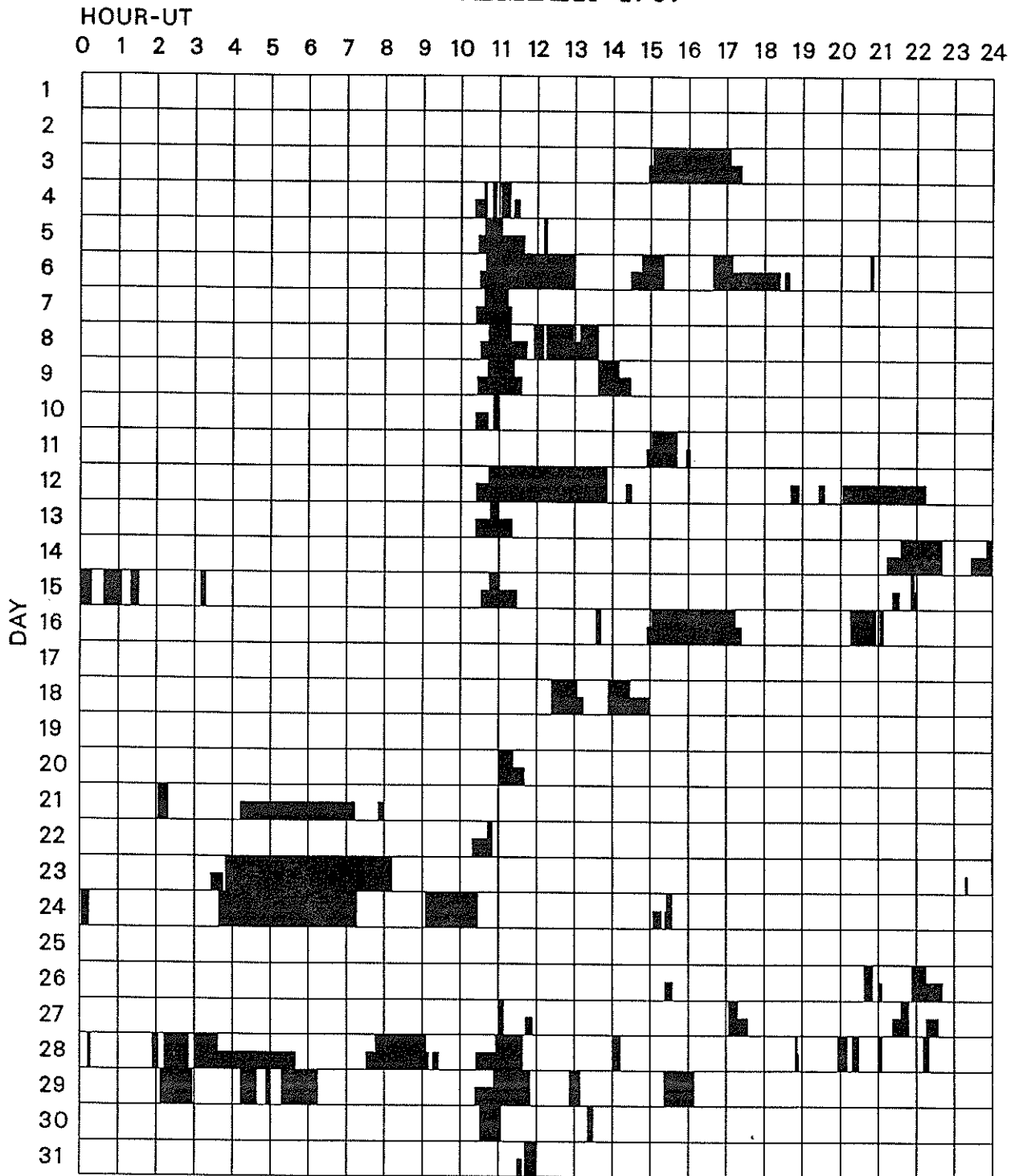
H α SOLAR FLARES

DECEMBER 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/	CMP	Dur	Imp	Obs	Area Measurement			Remarks
							USAF Region					Mo	Day	Time (UT)		Apparent (10-6 Disk)	Corr (Sq Deg)
RAMY	28	1300	1306	1339	S19	E33	5858	12	31.1	39	1F	3	E		
RAMY		1329	1329	1336	S27	W11	5852	12	27.7	7	SF	3	E		F
RAMY		1425	1435	1447	S24	W68	5856	12	23.3	22	SF	3	E		
RAMY		1458	1501	1510	S27	W11	5852	12	27.8	12	SF	3	E		
RAMY		1506	1510	1608	N23	E08	5854	12	29.2	62	SF	3	E		
RAMY		1731	1735	1749	S27	W13	5852	12	27.7	18	SF C 3.6	3	E		F
PALE		1814	1820	1828	N26	E06	5854	12	29.2	14	SF	3	E		F
RAMY		1814	1822	1836	N25	E07	5854	12	29.3	22	SF	3	E		F
PALE		2034E	2040U	2044	S17	E31	5858	12	31.2	10D	SF	3	E		F
HOLL		2108	2115U	2137	S18	E30	5858	12	31.2	29	1B M 4.1	3	E		F UH
LEAR	29	0637	0639	0645	S19	E23	5858	12	31.0	8	SF C 5.4	3	E		
GOES		0723	0723	0729D						6D	C 3.6				
LEAR		0748	0758	0823	S18	E22	5858	12	31.0	35	SF C 5.0	3	E		
LEAR		0924	0928	0944	S08	W01	5853	12	29.3	20	SF	3	E		
GOES		1059	1105	1144						45	M 8.1				
RAMY		1610E	1611U	1649D	S19	E18	5858	12	31.0	39D	SF M 2.8	2	E		F
RAMY		1706	1709	1717	S27	W30	5852	12	27.4	11	SF	2	E		F
PALE		1819E	1829U	1835D	S25	W28	5852	12	27.6	16D	SN	3	E		F
PALE		1828E	1829U	1835D	S19	E21	5858	12	31.4	7D	SF M 9.7	3	E		
RAMY		1836E	1836U	1900D	S25	W31	5852	12	27.4	24D	1F	2	E		FE
PALE		1933	1935	1951	S27	W32	5852	12	27.3	18	SF	3	E		F
PALE		2004	2030	2106	S27	W33	5852	12	27.3	62	SF M 2.8	3	E		F
RAMY		2020E	2021	2050D	S25	W31	5852	12	27.4	30D	1N	2	E		FE
PALE		2249	2306	2640	N24	W14	5854	12	28.9	231	1N	3	E		FT
LEAR		2300	2308	2445	N24	W09	5854	12	29.3	105	SF	3	E		
PALE		2304	2304	2311	S27	W34	5852	12	27.3	7	SF M 2.2	3	E		F
PALE	30	0022	0026	0028	S19	E13	5858	12	31.0	6	SF	3	E		
PALE		0142	0206	0305	S17	E15	5858	12	31.2	83	1N M 5.3	3	E		F
LEAR		0409	0418	0514	S19	E09	5858	12	30.8	65	1N X 1.0	3	E		FE
LEAR		0710	0721	0733	S26	W33	5852	12	27.7	23	SF	3	E		
LEAR		0722	0723	0740	S18	E10	5858	12	31.1	18	SF C 8.8	3	E		F
RAMY		1420	1421	1433	N24	W15	5854	12	29.4	13	SF	3	E		F
HOLL		1918E	1918U	1928D	N23	W24	5854	12	28.9	10D	SF	2	E		
PALE		2038	2040	2046	S19	E04	5858	12	31.2	8	SF	3	E		
HOLL		2127E	2137	2142	N21	W27	5854	12	28.8	15D	SF	2	E		F
PALE		2350	2351	2359	S18	E02	5858	12	31.1	9	SF	3	E		
PALE	31	0005	0006	0017	N15	E68	5864	01	5.1	12	SF	3	E		F
PALE		0023	0025	0035	S30	W41	5852	12	27.8	12	SF	3	E		F
PALE		0057	0057	0110	S17	E03	5858	12	31.3	13	SF C 4.1	3	E		F
PALE		0203	0203	0208	S31	W46	5852	12	27.4	5	SF	3	E		
PALE		0211	0211	0221	S31	W46	5852	12	27.5	10	SF	3	E		
LEAR		0211	0212	0217	S30	W49	5852	12	27.2	6	SF	3	E		
LEAR		0442	0443	0450	S19	W02	5858	12	31.0	8	SF	3	E		
LEAR		0932	0945	1017	S25	W51	5852	12	27.4	45	2B X 2.8	3	E		F
SVTO		0934E	0949	1123	S28	W53	5852	12	27.2	109D	2B	3	E		F
RAMY		1201E	1205	1253	S26	W51	5852	12	27.5	52D	SN	3	E		F
RAMY		1310	1316	1409	N24	W34	5854	12	28.9	59	SN	3	E		FH
RAMY		1522	1523	1526	N23	W40	5854	12	28.5	4	SF	3	E		H
HOLL		1559	1602	1658	S18	W11	5858	12	30.8	59	SF	3	E		F
RAMY		1559	1609	1648	S18	W10	5858	12	30.9	49	SF	3	E		F
RAMY		1610	1620	1702	S09	W26	5853	12	29.7	52	SN	3	E		F
HOLL		1612	1623	1701	S09	W27	5853	12	29.6	49	1N	3	E		F
RAMY		1626	1628	1635	S29	W49	5852	12	27.8	9	SF	3	E		
RAMY		1638	1641	1707	N24	W32	5854	12	29.2	29	SF	3	E		F
HOLL		1638	1641	1713	N24	W31	5854	12	29.3	35	SF	3	E		
RAMY		1650	1652	1701	S29	W49	5852	12	27.8	11	SF	3	E		
HOLL		1650	1652	1710	S29	W50	5852	12	27.8	20	SF	3	E		
HOLL		1723	1727	1801	S11	W46	5860	12	28.3	38	SF	3	E		
RAMY		1724	1726	1731	S10	W39	5860	12	28.8	7	SF	3	E		
HOLL		1914	1914	1925	S26	W53	5852	12	27.7	11	SF C 2.7	4	E		F
PALE		1914	1915	1923	S28	W50	5852	12	27.9	9	SF	3	E		
PALE		1955	1957	2004	S19	W11	5858	12	31.0	9	SF	3	E		F
HOLL		1955	1957	2005	S19	W12	5858	12	30.9	10	SF	4	E		F
PALE		2327	2327	2332	N23	W41	5854	12	28.8	5	SF	3	E		

INTERVALS OF NO FLARE PATROL OBSERVATION FOR PRECEDING SOLAR FLARE TABLE

DECEMBER 1989



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.

Holloman

Learmonth

Palehua

Ramey

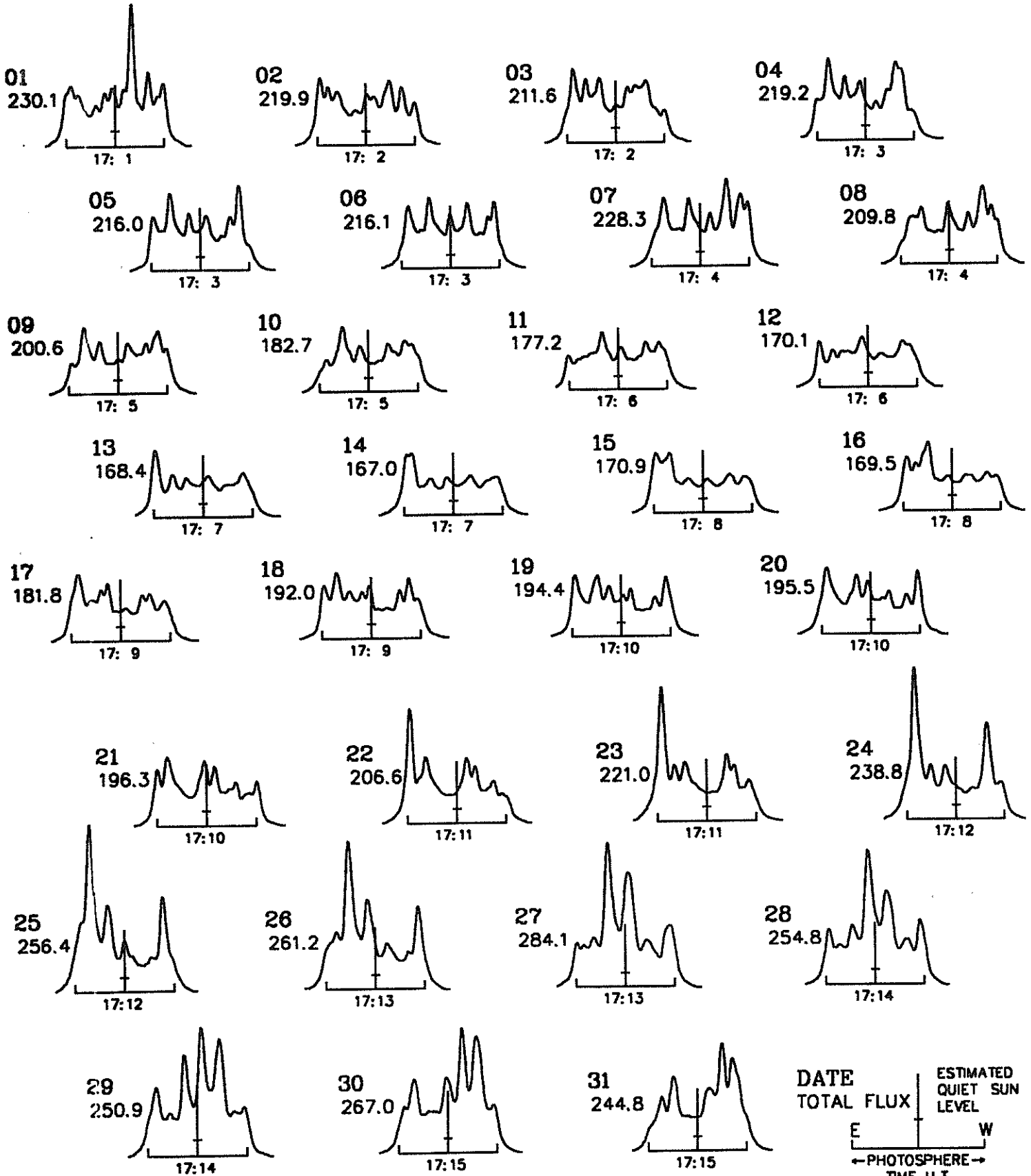
San Vito

Note: All scans taken with 3 dB attenuation. This means all scans are one-half normal height.

EAST - WEST SOLAR SCANS
DECEMBER 1989

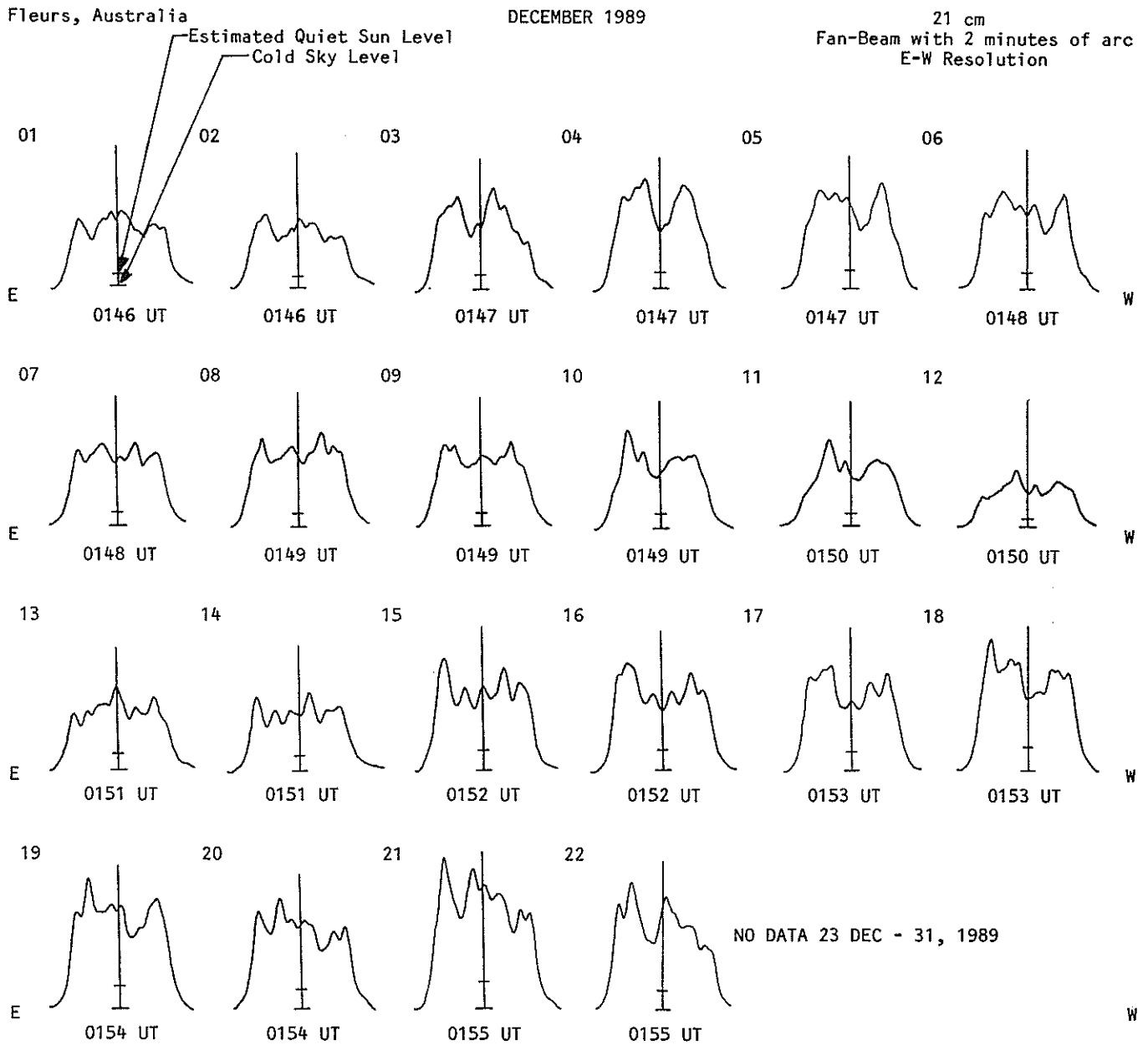
ALGONQUIN RADIO OBSERVATORY
CANADA

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



DATE TOTAL FLUX | ESTIMATED QUIET SUN LEVEL
E | W
← PHOTOSPHERE →
TIME U.T.

EAST - WEST SOLAR SCANS



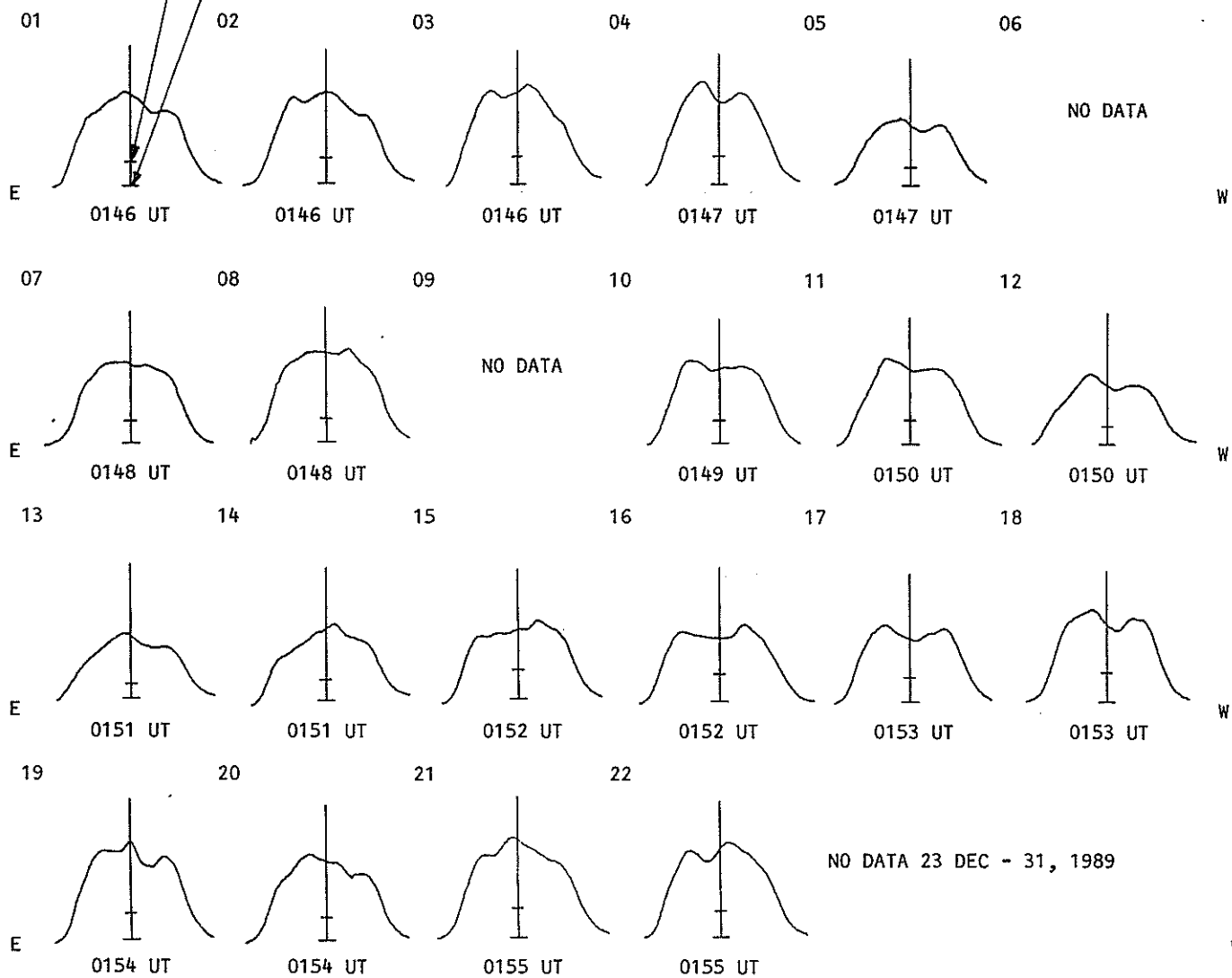
EAST - WEST SOLAR SCANS

Fleurs, Australia

DECEMBER 1989

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

Estimated Quiet Sun Level
Cold Sky Level



46
Dec 89

S O L A R R A D I O E M I S S I O N
Selected Fixed Frequency Events

DECEMBER 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 ⁻²² W/m ² Hz)	Mean		
01	2800	OTTA	4 S/F	1658.3	1700.6	5.0	30.8	6.0		
	2800	OTTA	22 GRF	1739.0	1801.0	87.0	15.8	6.0		
	2800	OTTA	4 S/F	1915.0	1925.0	20.0	66.0	19.0		
	2695	PALE	4 S/F	1924.0E	1924.0	4.00	57.0			QL=4 ST=2 TYP=3
	2800	OTTA	29 PBI	1935.0	1941.0	100.0	16.7	8.0		
02	8800	SVTO	8 S	1227.0E	1228.0	2.00	65.0			QL=4 ST=2 TYP=3
	2800	OTTA	3 S	1549.1	1550.6	20.0	212.4	42.0		
	2800	OTTA	22 GRF	1905.0	1912.0	27.0	27.1	8.0		
	2800	OTTA	32 ABS	1932.0	1944.0	20.0	-6.3	-2.0		
	2695	PENT	4 S/F	2233.0	2247.5	20.00	343.4	69.0		
	2695	PALE	49 GB	2234.0E	2247.0	18.00	660.0			QL=4 ST=2 TYP=7
	2695	LEAR	49 GB	2235.0E	2247.0	18.00	650.0			QL=4 ST=2 TYP=7
	8800	LEAR	49 GB	2237.0E	2247.0	18.00	670.0			QL=4 ST=2 TYP=7
8800	PALE	49 GB	2237.0E	2247.0	24.00	840.0			QL=4 ST=2 TYP=7	
03	2695	LEAR	8 S	0930.0E	0931.0	1.00	31.0			QL=4 ST=2 TYP=3
	8800	LEAR	8 S	0930.0E	0931.0	1.00	120.0			QL=4 ST=2 TYP=3
	2800	OTTA	3 S	1440.5	1442.0	2.5	29.3	8.0		
	2800	OTTA	29 PBI	1443.0	1445.5	23.5	9.6	4.0		
	2800	OTTA	4 S/F	1515.5	1517.5	4.9	12.5	5.0		
04	2800	OTTA	22 GRF	1432.0	1455.0	54.0	9.8	4.0		
	2800	OTTA	22 GRF	1620.0	1631.0	27.0	13.2	4.0		
	2800	OTTA	4 S/F	1939.0	1940.0	10.0	31.2	9.0		
05	2695	PENT	3 S	2141.4	2145.1	9.0	29.5	6.0		
06	2695	PENT	3 S	2038.8	2043.0	9.5	13.6	4.0		
07	2695	LEAR	4 S/F	0826.0E	0828.0	3.00	38.0			QL=4 ST=2 TYP=3
	8800	LEAR	4 S/F	0827.0E	0829.0	5.00	140.0			QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	0828.0E	0829.0	3.00	110.0			QL=2 ST=2 TYP=3
	2695	PENT	24 R	1920.0	2000.0	74.0	14.0	7.0		
	2695	PENT	42 SER	2054.2	2059.5	38.0	136.5	27.0		
	8800	PALE	4 S/F	2057.0E	2059.0	8.00	210.0			QL=4 ST=2 TYP=3
	2695	PALE	4 S/F	2057.0E	2100.0	26.00	160.0			QL=4 ST=2 TYP=3
09	2695	LEAR	4 S/F	0820.0E	0824.0	6.00	81.0			QL=4 ST=2 TYP=3
	2695	SVTO	4 S/F	0821.0E	0824.0	6.00	76.0			QL=2 ST=2 TYP=3
	8800	LEAR	4 S/F	0822.0E	0824.0	4.00	33.0			QL=4 ST=2 TYP=3
11	2695	LEAR	8 S	0515.0E	0516.0	2.00	56.0			QL=4 ST=2 TYP=3
	8800	LEAR	8 S	0515.0E	0516.0	2.00	65.0			QL=4 ST=2 TYP=3
	2800	OTTA	3 S	1813.2	1816.0	13.0	11.8	3.0		
	2695	PALE	8 S	1828.0E	1828.0	1.00	67.0			QL=4 ST=2 TYP=3
	2800	OTTA	3 S	1829.6	1830.0	11.6	74.5	20.0		
12	8800	SVTO	8 S	1054.0E	1054.0	2.00	190.0			QL=4 ST=2 TYP=3
14	2695	LEAR	20 GRF	0208.0E	0213.0	7.00	53.0			QL=4 ST=2 TYP=2
	8800	LEAR	8 S	0210.0E	0210.0	1.00	14.0			QL=4 ST=2 TYP=3
15	2800	OTTA	4 S/F	1354.6	1356.3	3.4	96.3	19.0		
	2695	SGMR	8 S	1355.0E	1356.0	1.00	110.0			QL=2 ST=2 TYP=3
	2695	SVTO	8 S	1355.0E	1356.0	1.00	98.0			QL=4 ST=2 TYP=3
	2800	OTTA	4 S/F	1551.1	1555.9	7.3	13.2	3.0		
17	2695	PENT	3 S	2139.8	2142.0	3.7	15.5	3.0		
	2695	PENT	3 S	2144.5	2145.7	4.3	16.5	3.0		
18	2695	LEAR	8 S	0831.0E	0832.0	2.00	30.0			QL=4 ST=2 TYP=3
	2695	LEAR	4 S/F	0837.0E	0840.0	28.00	260.0			QL=4 ST=2 TYP=3
	2695	SVTO	4 S/F	0837.0E	0840.0	27.00	250.0			QL=4 ST=2 TYP=3
	8800	LEAR	4 S/F	0838.0E	0840.0	10.00	94.0			QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	0838.0E	0841.0	26.00	110.0			QL=4 ST=2 TYP=3
	2695	PALE	4 S/F	2337.0E	2339.0	5.00	160.0			QL=4 ST=2 TYP=3
	8800	LEAR	4 S/F	2337.0E	2339.0	15.00	440.0			QL=4 ST=2 TYP=3
	8800	PALE	49 GB	2337.0E	2339.0	12.00	530.0			QL=4 ST=2 TYP=6

S O L A R R A D I O E M I S S I O N
Selected Fixed Frequency Events

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Dec 89

DECEMBER 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 ⁻²² W/m ² Hz)	Mean		
18	2695	LEAR	4 S/F	2337.0E	2339.0	53.00	180.0			QL=4 ST=2 TYP=3
19	8800	LEAR	8 S	0120.0E	0122.0	2.00	51.0			QL=4 ST=2 TYP=3
	8800	LEAR	8 S	0416.0E	0417.0	1.00	15.0			QL=4 ST=2 TYP=3
	2695	LEAR	8 S	0531.0E	0531.0	1.00	51.0			QL=4 ST=2 TYP=3
20	2800	OTTA	4 S/F	1902.7	1905.7	11.4	169.2	34.0		
	2695	PALE	4 S/F	1904.0E	1905.0	9.00	160.0			QL=4 ST=2 TYP=3
	2695	SGMR	4 S/F	1904.0E	1905.0	10.00	180.0			QL=4 ST=2 TYP=3
	8800	SGMR	20 GRF	1905.0E	1905.0	8.00	100.0			QL=4 ST=2 TYP=2
	8800	PALE	4 S/F	1905.0E	1905.0	13.00	110.0			QL=2 ST=2 TYP=3
	2800	OTTA	29 PBI	1914.1	1914.1	105.0	21.6	10.0		
22	8800	SVTO	4 S/F	1110.0E	1111.0	5.00	87.0			QL=2 ST=2 TYP=3
	8800	LEAR	4 S/F	2300.0E	2301.0	8.00	310.0			QL=4 ST=2 TYP=3
	8800	PALE	4 S/F	2300.0E	2301.0	4.00	350.0			QL=4 ST=2 TYP=3
	2695	LEAR	4 S/F	2301.0E	2301.0	7.00	56.0			QL=4 ST=2 TYP=3
	2695	PALE	8 S	2301.0E	2301.0	2.00	52.0			QL=4 ST=2 TYP=3
23	8800	LEAR	8 S	0215.0E	0216.0	2.00	73.0			QL=4 ST=2 TYP=3
	8800	PALE	8 S	0216.0E	0216.0	1.00	69.0			QL=4 ST=2 TYP=3
	2695	SVTO	8 S	1442.0E	1442.0	1.00	150.0			QL=2 ST=2 TYP=3
	2800	OTTA	22 GRF	1800.0	1822.0	135.0	12.3	6.0		
25	2695	PALE	4 S/F	0009.0E	0012.0	6.00	52.0			QL=4 ST=2 TYP=5
	8800	LEAR	20 GRF	0009.0E	0020.0	11.00	18.0			QL=4 ST=2 TYP=2
	2695	LEAR	4 S/F	0009.0E	0012.0	1431.00	54.0			QL=4 ST=1 TYP=3
	2695	PALE	4 S/F	0019.0E	0021.0	3.00	59.0			QL=4 ST=2 TYP=3
	2695	LEAR	4 S/F	0021.0E	0021.0	21.00	52.0			QL=4 ST=2 TYP=3
	8800	LEAR	20 GRF	0022.0E	0031.0	25.00	40.0			QL=4 ST=2 TYP=2
	2695	LEAR	4 S/F	0430.0E	0431.0	3.00	81.0			QL=4 ST=2 TYP=3
	8800	LEAR	4 S/F	0430.0E	0431.0	6.00	160.0			QL=4 ST=2 TYP=3
	2800	OTTA	40 F	1505.0	1820.0	300.0	20.7	10.0		
	2800	OTTA	3 S	1610.5	1617.5	16.5	18.6	4.0		
	8800	SGMR	4 S/F	1635.0E	1640.0	11.00	130.0			QL=4 ST=2 TYP=3
	2800	OTTA	3 S	1635.5	1640.5	18.5	42.6	9.0		
	2695	SGMR	4 S/F	1639.0E	1640.0	4.00	50.0			QL=4 ST=2 TYP=3
	2800	OTTA	4 S/F	2015.5	2025.1	34.0	284.6	57.0		
	2695	PALE	4 S/F	2017.0E	2024.0	15.00	250.0			QL=4 ST=2 TYP=3
	8800	PALE	49 GB	2017.0E	2024.0	13.00	730.0			QL=4 ST=2 TYP=6
8800	SGMR	4 S/F	2018.0E	2024.0	9.00	450.0			QL=2 ST=3 TYP=5	
2695	SGMR	4 S/F	2022.0E	2025.0	5.00	140.0			QL=4 ST=2 TYP=3	
2695	PALE	4 S/F	2032.0E	2032.0	3.00	56.0			QL=4 ST=2 TYP=3	
26	8800	LEAR	49 GB	0522.0E	0524.0	95.00	1300.0			QL=4 ST=2 TYP=6
	2695	LEAR	49 GB	0523.0E	0524.0	94.00	550.0			QL=4 ST=2 TYP=6
	8800	SVTO	4 S/F	0743.0E	0745.0	8.00	130.0			QL=4 ST=2 TYP=3
	2695	LEAR	8 S	0745.0E	0745.0	U	11.0			QL=4 ST=2 TYP=3
	8800	LEAR	8 S	0745.0E	0745.0	U	55.0			QL=4 ST=2 TYP=3
	2800	OTTA	20 GRF	1340.0	1530.0	260.0	21.0	10.0		
	2695	PALE	8 S	1810.0E	1811.0	2.00	55.0			QL=4 ST=2 TYP=3
	8800	SGMR	49 GB	1810.0E	1811.0	13.00	760.0			QL=4 ST=2 TYP=6
	8800	PALE	49 GB	1810.0E	1810.0	29.00	580.0			QL=4 ST=2 TYP=6
	2800	OTTA	3 S	1810.8	1811.1	2.1	69.1	13.0		
	2695	SGMR	4 S/F	1811.0E	1821.0	13.00	62.0			QL=4 ST=2 TYP=5
	2800	OTTA	29 PBI	1812.9	1812.9	130.0	21.5	10.0		
2800	OTTA	3 S	1817.8	1821.5	10.0	48.8	10.0			
27	8800	PALE	8 S	0136.0E	0137.0	1.00	55.0			QL=4 ST=2 TYP=3
	2695	SGMR	4 S/F	1241.0E	1242.0	679.00	36.0			QL=4 ST=1 TYP=3
	2695	SVTO	20 GRF	1251.0E	1316.0	58.00	150.0			QL=4 ST=3 TYP=2
	2695	SGMR	20 GRF	1304.0E	1315.0	40.00	170.0			QL=4 ST=2 TYP=2
	8800	SVTO	20 GRF	1305.0E	1318.0	44.00	75.0			QL=2 ST=3 TYP=2
	8800	SGMR	4 S/F	1315.0E	1317.0	8.00	65.0			QL=4 ST=2 TYP=3
	2695	PENT	4 S/F	2153.5	2155.2	4.0	49.6	15.0		
	2800	OTTA	3 S	1817.8	1821.5	10.0	48.8	10.0		
28	8800	LEAR	4 S/F	0135.0E	0136.0	5.00	56.0			QL=4 ST=2 TYP=3
	2695	LEAR	8 S	0136.0E	0136.0	U	16.0			QL=4 ST=2 TYP=3
	8800	LEAR	4 S/F	0317.0E	0326.0	20.00	390.0			QL=4 ST=2 TYP=5

S O L A R R A D I O E M I S S I O N
Selected Fixed Frequency Events

DECEMBER 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks		
							Peak (10 -22 W/m ² Hz)	Mean				
28	8800	PALE	4 S/F	0318.0E	0326.0	13.00	380.0			QL=4 ST=2 TYP=5		
		2695	PALE	4 S/F	0323.0E	0325.0	9.00	96.0			QL=4 ST=2 TYP=3	
	2695	LEAR	4 S/F	0954.0E	0958.0	8.00	200.0			QL=2 ST=2 TYP=3		
		8800	LEAR	4 S/F	0955.0E	0959.0	5.00	58.0			QL=2 ST=2 TYP=3	
	2695	SVTO	4 S/F	0955.0E	0958.0	9.00	190.0			QL=4 ST=2 TYP=3		
		8800	SVTO	4 S/F	0956.0E	0959.0	7.00	55.0			QL=2 ST=2 TYP=3	
	2800	OTTA	20 GRF	1506.0	1509.0	54.0	14.7	7.0				
	8800	PALE	4 S/F	2107.0E	2110.0	9.00	370.0				QL=4 ST=2 TYP=3	
		2695	PENT	4 S/F	2107.5	2110.1	15.5	131.8	40.0			
		2695	PALE	4 S/F	2108.0E	2110.0	6.00	130.0				QL=4 ST=2 TYP=3
29	2695	SVTO	4 S/F	1101.0E	1102.0	4.00	360.0				QL=4 ST=2 TYP=3	
		8800	SVTO	4 S/F	1101.0E	1102.0	4.00	320.0				QL=2 ST=2 TYP=3
		2800	OTTA	22 GRF	1530.0	1700.0	145.0	11.3	5.0			
	8800	PALE	4 S/F	1815.0E	1821.0	30.00	440.0				QL=4 ST=2 TYP=5	
		8800	SGMR	49 GB	1817.0E	1821.0	15.00	510.0				QL=4 ST=3 TYP=7
	2800	OTTA	3 S	1820.0	1821.9	5.0	365.8	73.0				
	2695	SGMR	4 S/F	1821.0E	1822.0	4.00	330.0				QL=4 ST=3 TYP=3	
	2695	PALE	4 S/F	1821.0E	1822.0	24.00	380.0				QL=4 ST=2 TYP=3	
	2800	OTTA	29 PBI	1825.0	1825.0	177.0	36.0	17.0				
	2695	LEAR	4 S/F	2255.0E	2303.0	18.00	78.0				QL=4 ST=2 TYP=5	
	8800	LEAR	4 S/F	2300.0E	2303.0	13.00	48.0				QL=4 ST=2 TYP=3	
	2695	PALE	4 S/F	2302.0E	2302.0	6.00	87.0				QL=4 ST=2 TYP=3	
30	8800	LEAR	4 S/F	0204.0E	0205.0	8.00	190.0				QL=4 ST=2 TYP=3	
		2695	LEAR	4 S/F	0205.0E	0205.0	7.00	52.0				QL=4 ST=2 TYP=3
	8800	PALE	4 S/F	0205.0E	0205.0	5.00	160.0				QL=4 ST=2 TYP=5	
		2695	PALE	8 S	0205.0E	0205.0	1.00	56.0				QL=4 ST=2 TYP=3
	8800	LEAR	4 S/F	0414.0E	0415.0	5.00	130.0				QL=4 ST=2 TYP=3	
	2695	LEAR	4 S/F	0415.0E	0417.0	8.00	180.0				QL=4 ST=2 TYP=3	
	8800	SVTO	4 S/F	0720.0E	0724.0	4.00	43.0				QL=2 ST=2 TYP=5	
	2695	LEAR	8 S	0723.0E	0723.0	U	55.0				QL=4 ST=2 TYP=3	
	2695	SVTO	8 S	0724.0E	0724.0	U	54.0				QL=4 ST=2 TYP=3	
	2800	OTTA	4 S/F	1357.5	1358.0	2.0	48.6	15.0				
	2800	OTTA	3 S	1420.0	1420.8	8.0	33.5	7.0				
	2800	OTTA	22 GRF	1607.0	1658.0	70.0	7.1	3.0				
	8800	SGMR	8 S	1852.0E	1852.0	U	57.0				QL=4 ST=2 TYP=3	
	31	8800	LEAR	8 S	0209.0E	0210.0	1.00	16.0				QL=4 ST=2 TYP=3
8800		LEAR	49 GB	0932.0E	0941.0	27.00	2300.0				QL=4 ST=2 TYP=7	
		2695	LEAR	49 GB	0933.0E	0935.0	38.00	1600.0				QL=4 ST=2 TYP=6
8800		SVTO	49 GB	0933.0E	0942.0	867.00	2500.0				QL=2 ST=1 TYP=7	
2695		SVTO	49 GB	0934.0E	0936.0	47.00	1500.0				QL=4 ST=2 TYP=6	
2800		OTTA	3 S	1613.2	1616.8	10.6	16.6	3.0				
2800		OTTA	4 S/F	1639.5	1640.7	6.0	16.6	3.0				

Reports are received routinely from the following observatories:

BERN = Berne

LEAR = Learmonth

PALE = Palehua

SGMR = Sagamore Hill

OTTA = Ottawa

PENT = Penticton

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 Precursor	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	

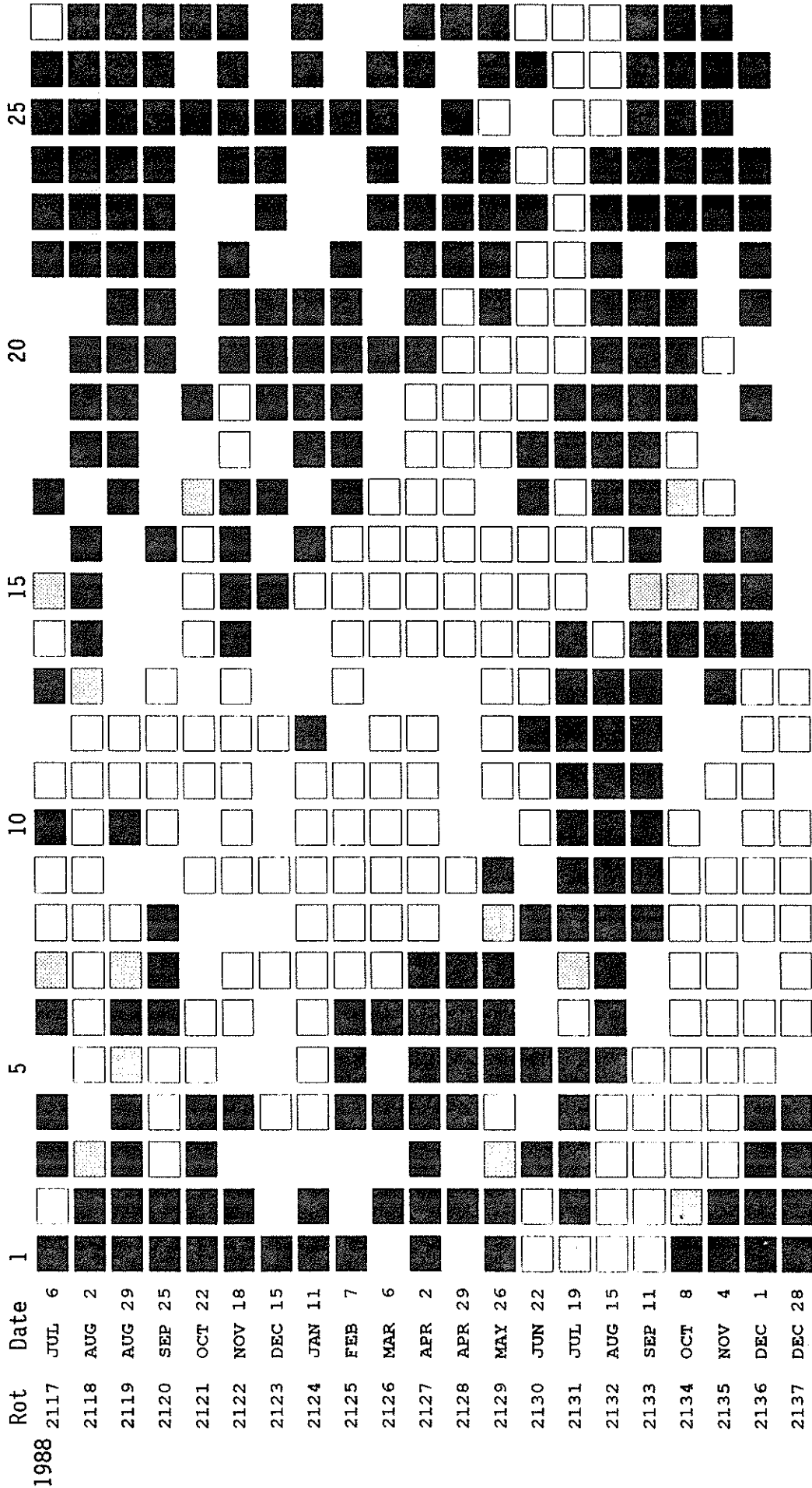
RSTN Site Information: Beginning in April 1986, the RSTN sites LEAR, PALE, SGMR, and SVTO fixed frequency solar radio data are periodically adjusted to several world standard stations. These world standard stations include: Kislovodsk, USSR 15,500 MHz; Ottawa, Canada 2800 MHz; Hiraiso, Japan 500 and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

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

Day	1989											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	.	.	.	.	.	-5	4	-145	-58	-43	-111	-113
2	-19	.	.	-97	-47	-1	51	80	-46	.	-125	-79
3	-22	.	-66	-114	-31	-22	-19	121	-37	-87	-111	-46
4	-41	-65	.	-86	-22	.	3	14	-37	-84	-75	-11
5	.	-46	.	-76	-22	2	71	-51	-46	-35	-11	43
6	-65	-4	.	-62	.	56	69	-65	-30	-22	44	60
7	-85	-13	-10	-28	65	74	25	9	-5	-13	54	.
8	-101	.	.	-15	.	120	-90	145	22	-5	86	84
9	.	.	-58	25	.	145	-79	86	25	0	97	126
10	.	-16	.	71	.	142	106	82	12	2	103	115
11	-16	-6	-16	101	.	.	115	59	23	10	107	79
12	-23	-18	37	78	73	37	84	43	23	38	95	47
13	.	23	39	54	87	34	73	43	43	33	.	7
14	10	34	61	.	75	24	-55	55	44	26	13	-35
15	24	55	63	44	76	-58	22	57	25	31	.	-59
16	23	73	40	11	73	-26	.	66	.	17	-70	-62
17	16	66	32	15	59	-91	-49	33	.	5	-79	.
18	74	.	.	19	53	-6	6	2	-13	.	-86	.
19	101	116	64	29	22	4	0	-10	-22	.	-38	-4
20	120	131	73	27	-37	-67	-138	-20	-20	.	4	.
21	119	94	14	-21	-44	-18	-126	-35	-21	-88	.	-32
22	-29	40	12	-68	-48	35	-57	-41	-26	0	.	-70
23	.	-13	.	-6	-54	15	-25	-29	-31	.	17	-101
24	.	-7	.	-110	.	-15	10	-15	-21	1	.	-113
25	22	-35	-50	.	-44	.	-2	-13	-1	5	.	.
26	-37	-64	.	.	-14	-24	-15	-15	-8	-19	-52	-103
27	.	-108	.	-80	-13	.	-52	-7	-19	-56	-78	.
28	-50	-93	-110	-77	1	.	-27	4	-16	-70	-76	-130
29	-64	.	-105	.	7	-30	-12	.	-24	-100	-92	-108
30	-91	.	-106	-64	-12	.	-44	3	-26	-110	-110	-106
31	-101	.	-100	.	-5	.	-144	-29	.	-104	.	-94

Dot symbol indicates no data available for the day.

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

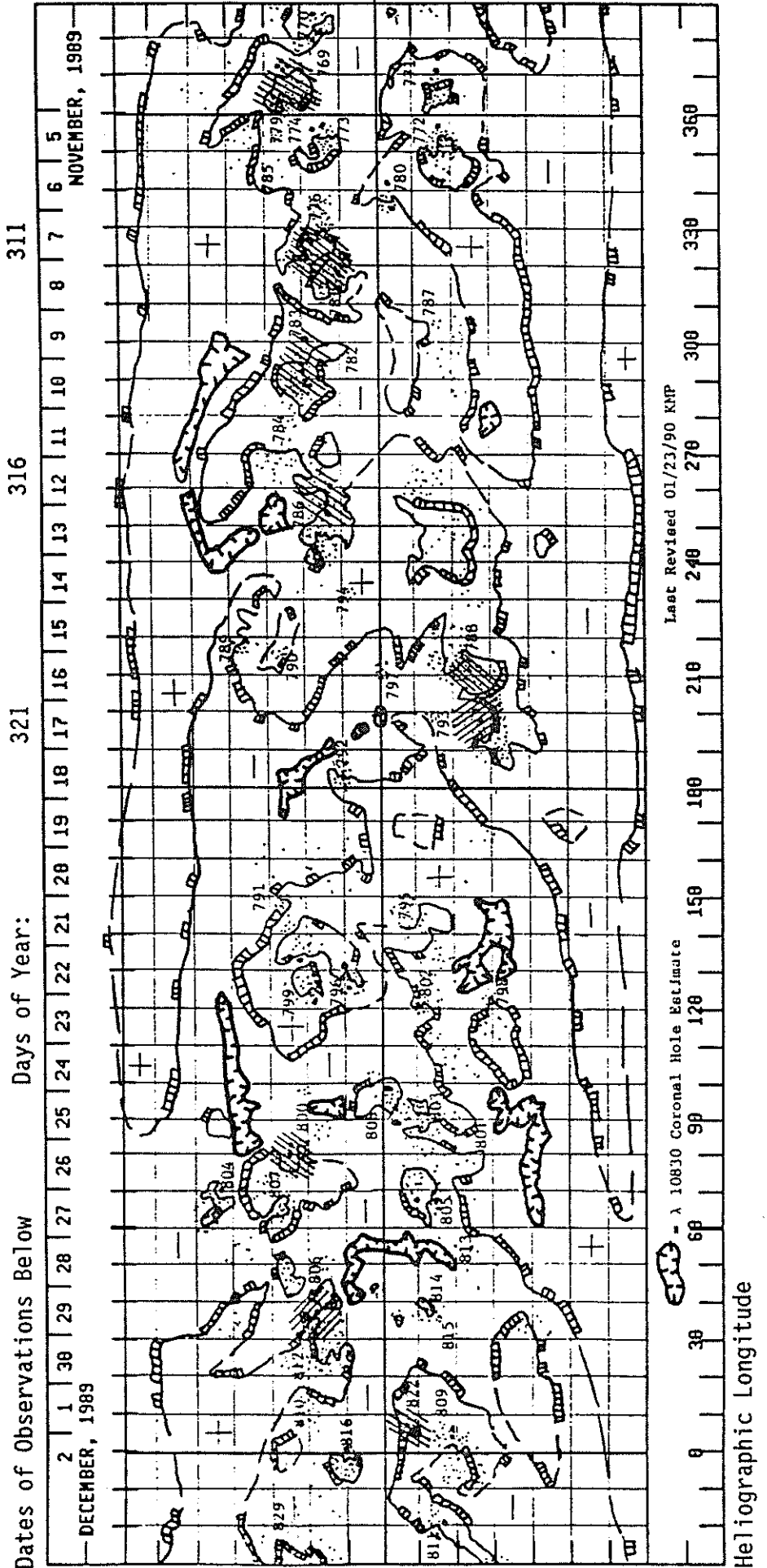
Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates mark times of occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

C O N T E N T S

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*** Data no longer available in SGD because of extremely low usage. Please contact the data center for further information on data availability.	

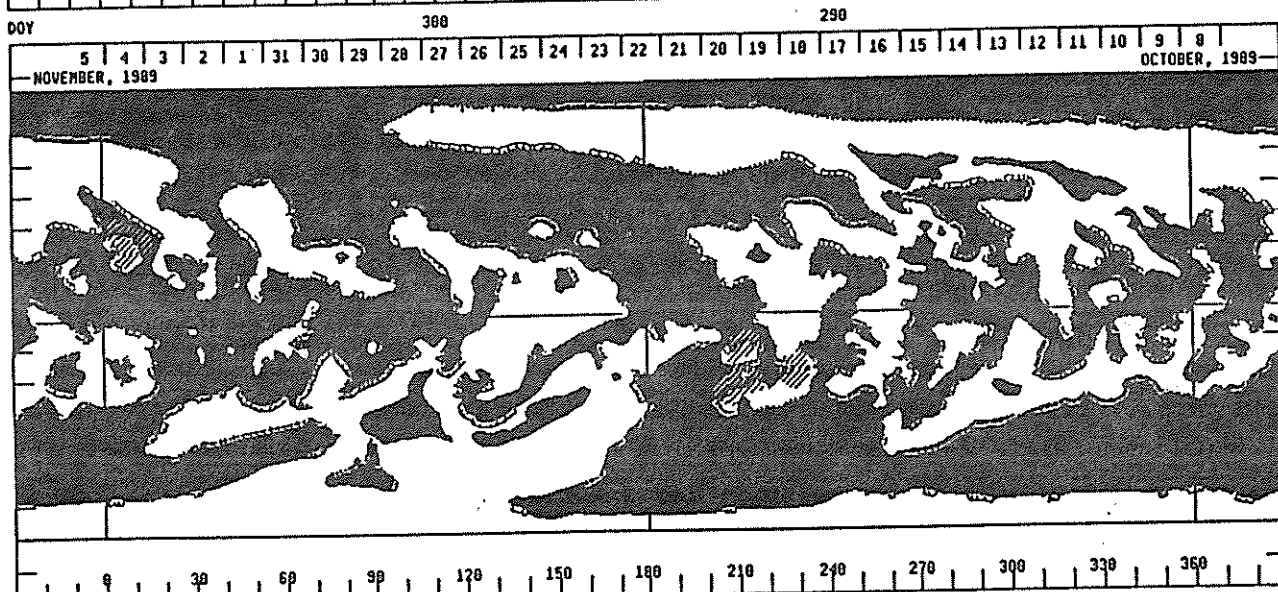
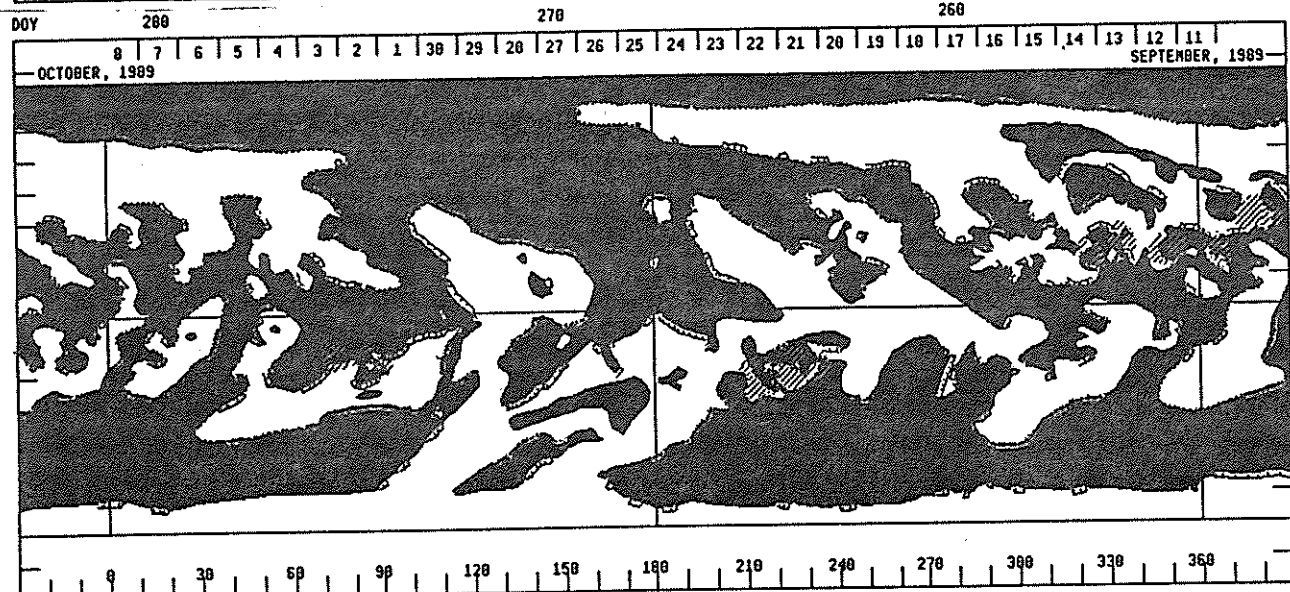
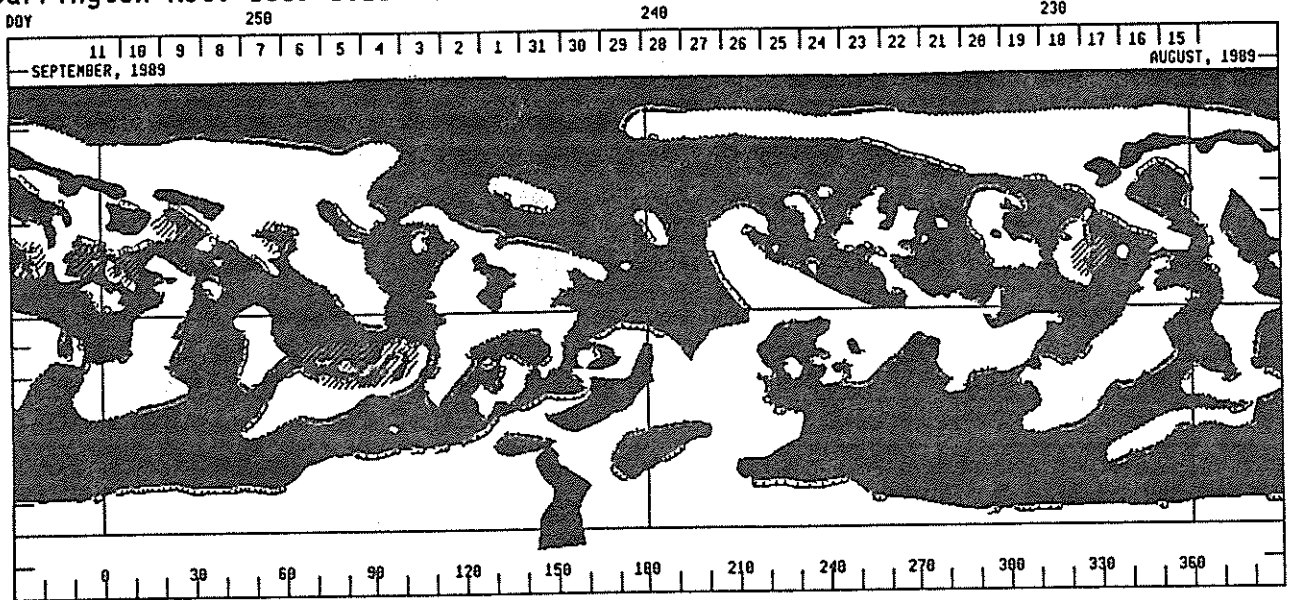
PRELIMINARY H - ALPHA SOLAR SYNOPTIC CHART
 CARRINGTON ROTATION NUMBER 1822
 (5 November to 2 December 1989)



SHADED H-ALPHA SOLAR SYNOPTIC CHARTS

Carrington Rot. 1819-1821

15 August to 5 November 1989



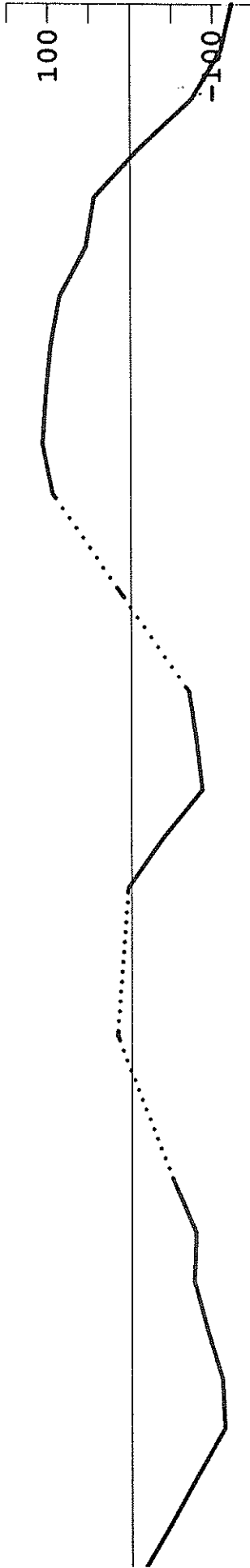
= Positive Polarity
 = Negative Polarity
 = 10830 Coronal Hole Estimate
 = X-Ray Flares > M1

Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION NUMBER 1822
(5 November to 2 December 1989)

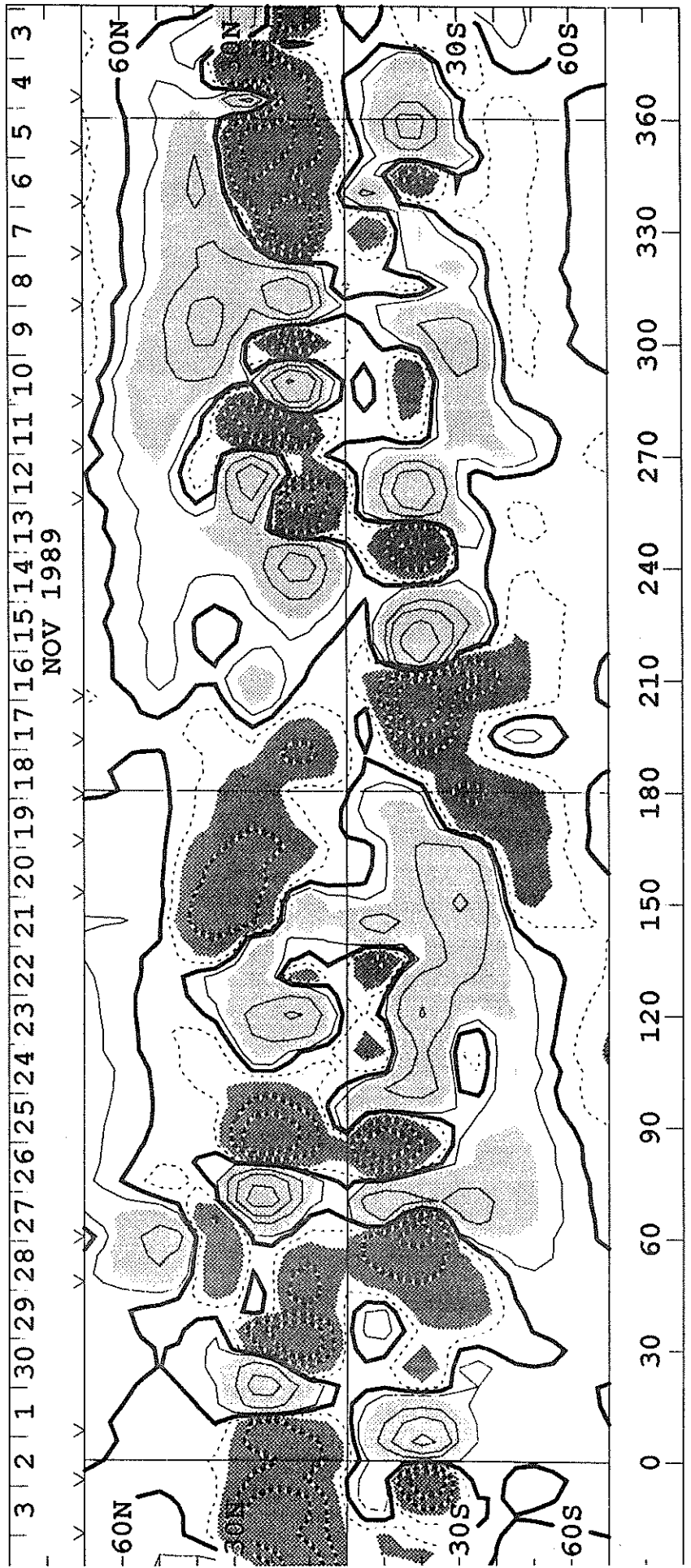
WILCOX SOLAR OBSERVATORY

Mean Field



Photospheric Magnetic Field

0, +100, 500, 1000, 2000 MicroTesla

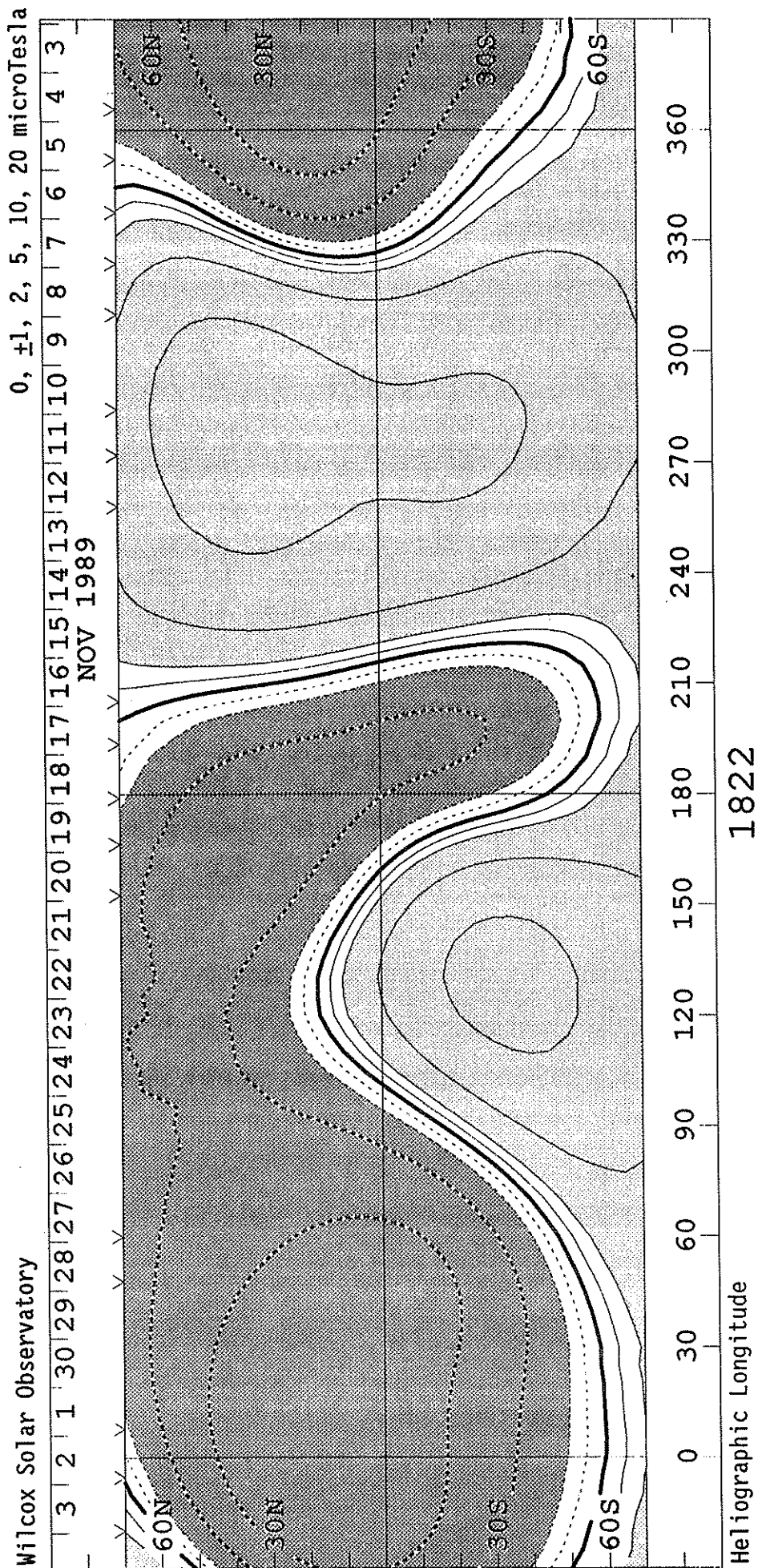


Heliographic Longitude

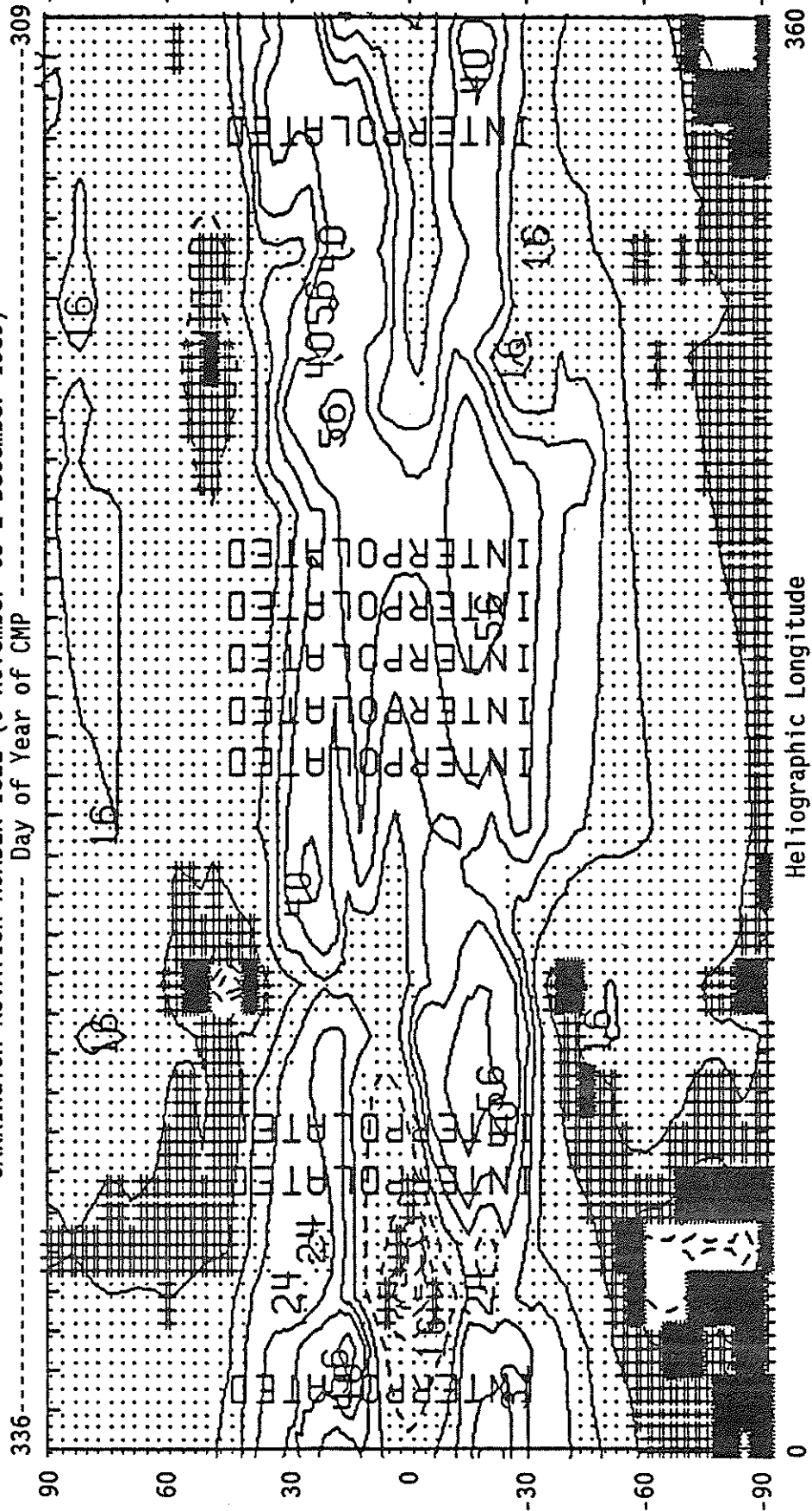
1822

S O L A R M A G N E T I C F I E L D S Y N O P T I C C H A R T

SOURCE SURFACE FIELD
CARRINGTON ROTATION NUMBER 1822
(5 November to 2 December 1989)



SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1822 (5 November to 2 December 1989)

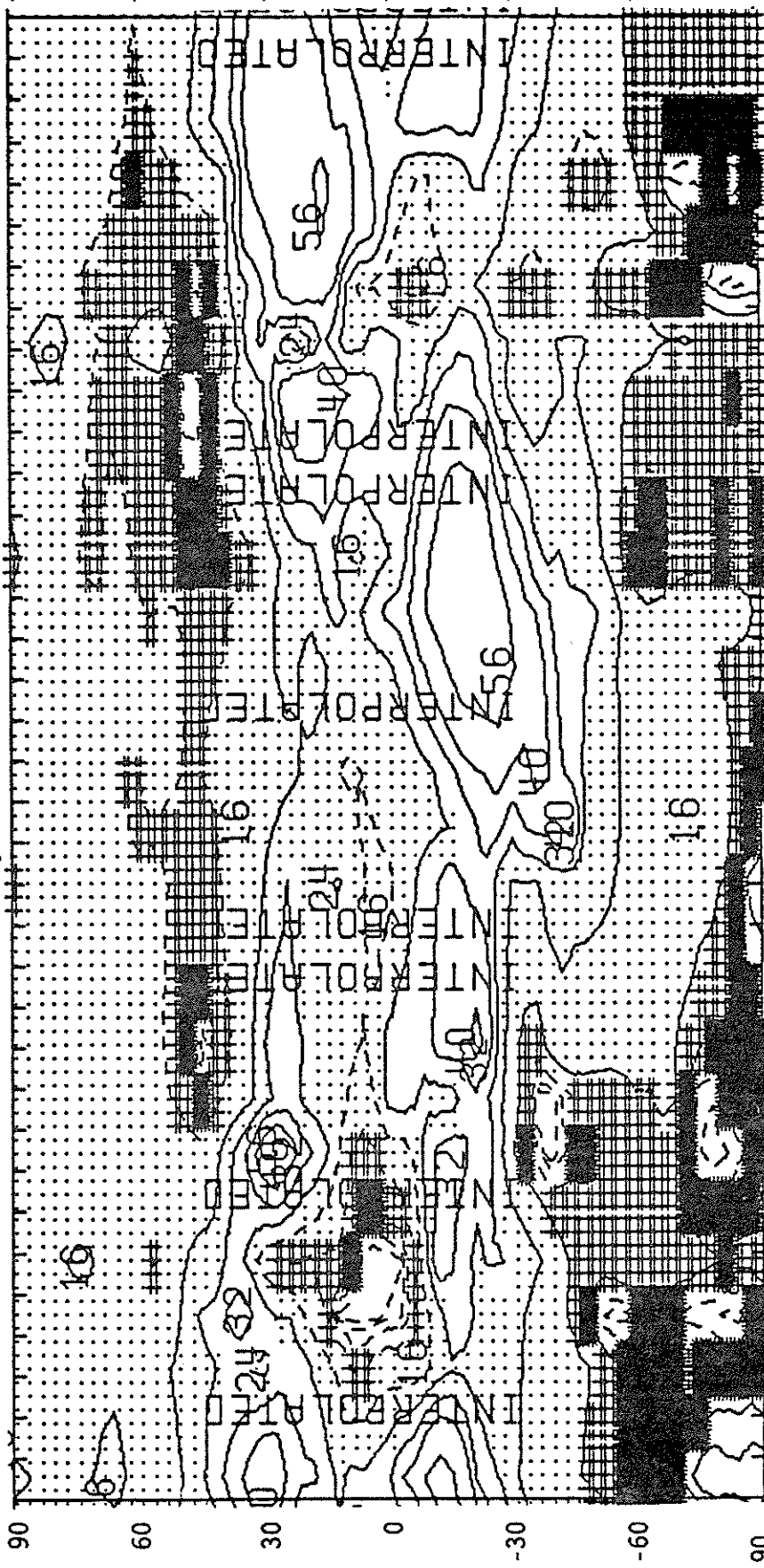


SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1822 (5 November to 2 December 1989)

Day of Year of CMP

309

336

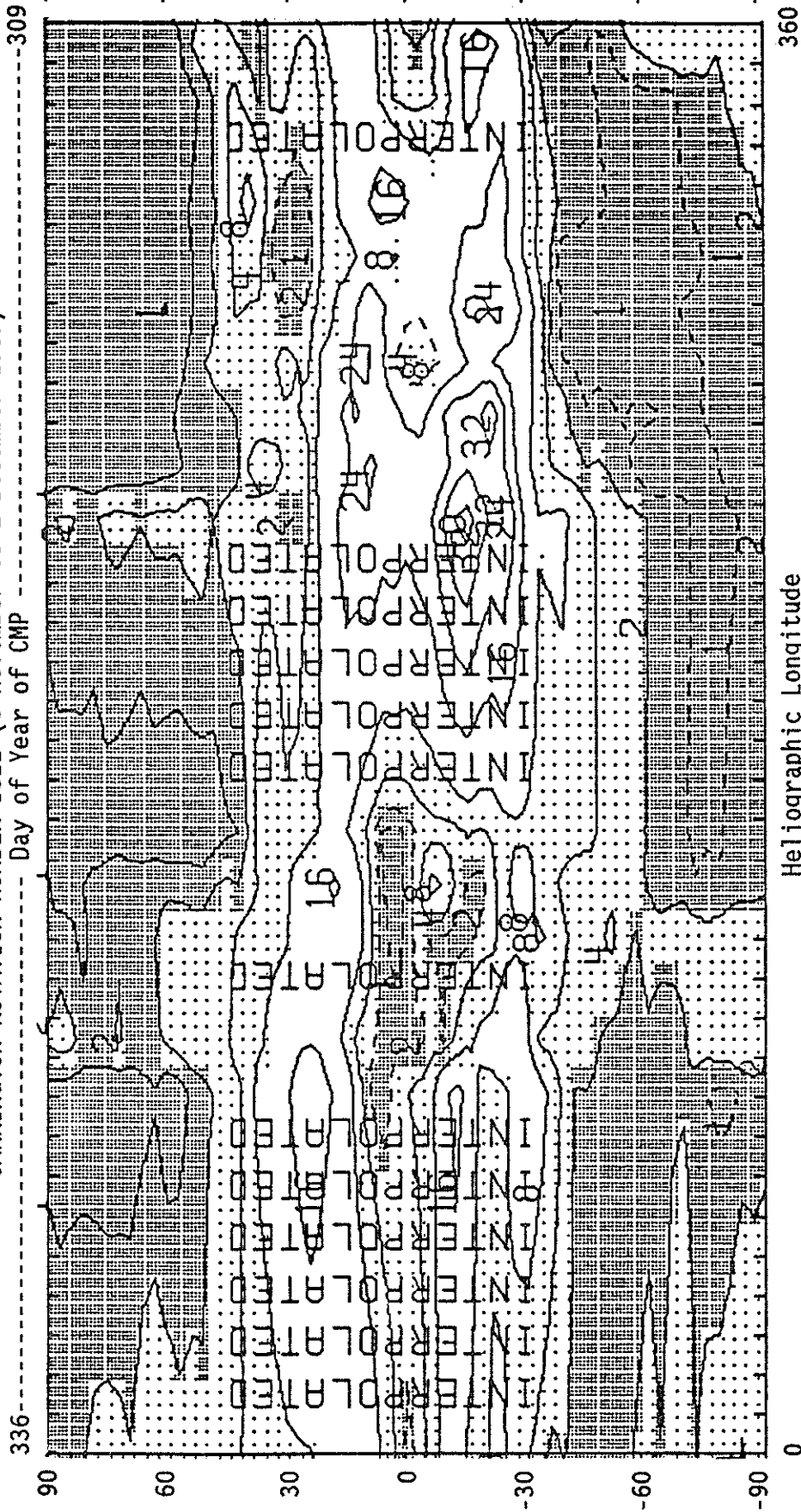


Heliographic Longitude

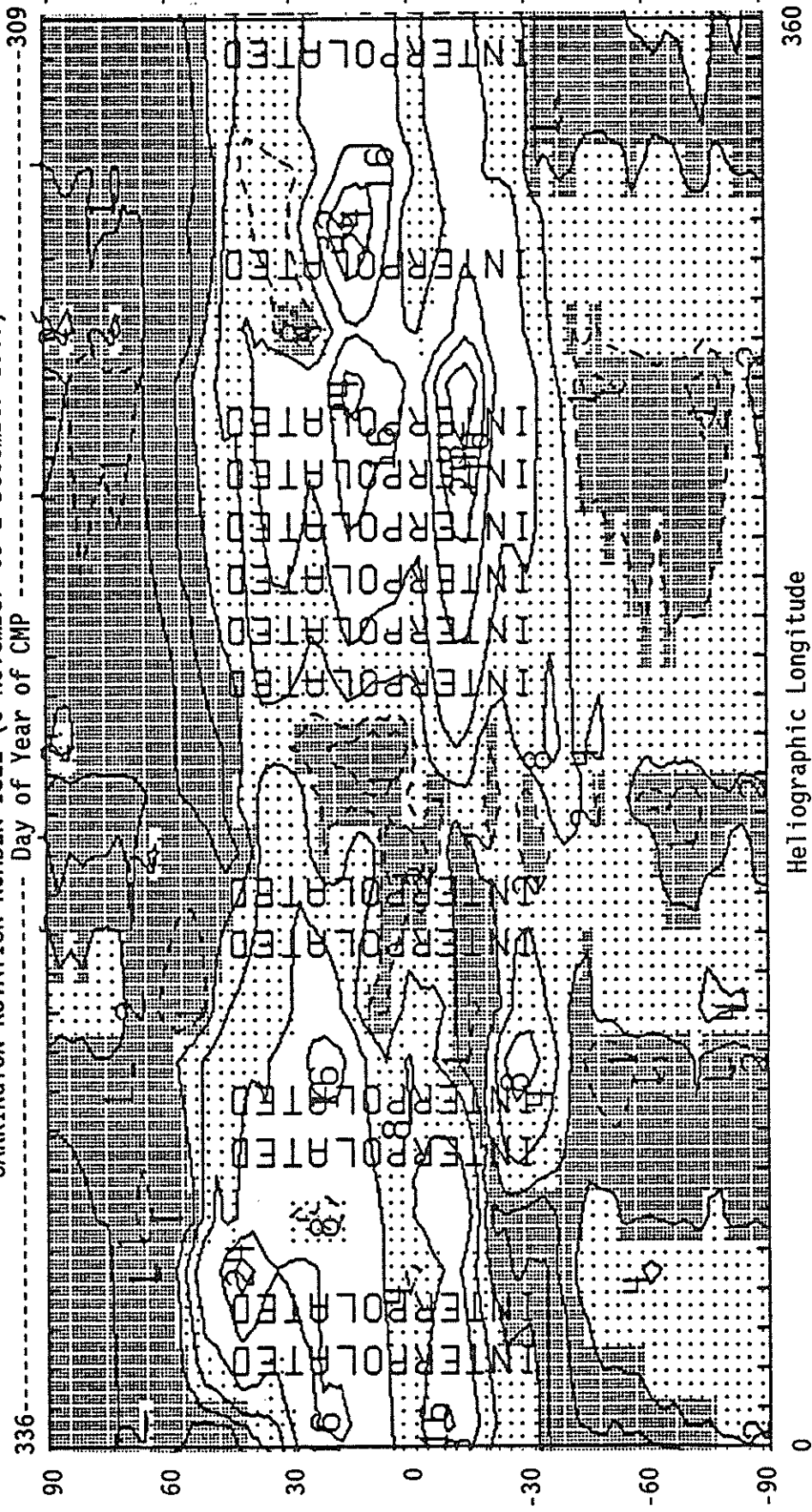
360

0

SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1822 (5 November to 2 December 1989)



SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1822 (5 November to 2 December 1989)



Heliographic Longitude

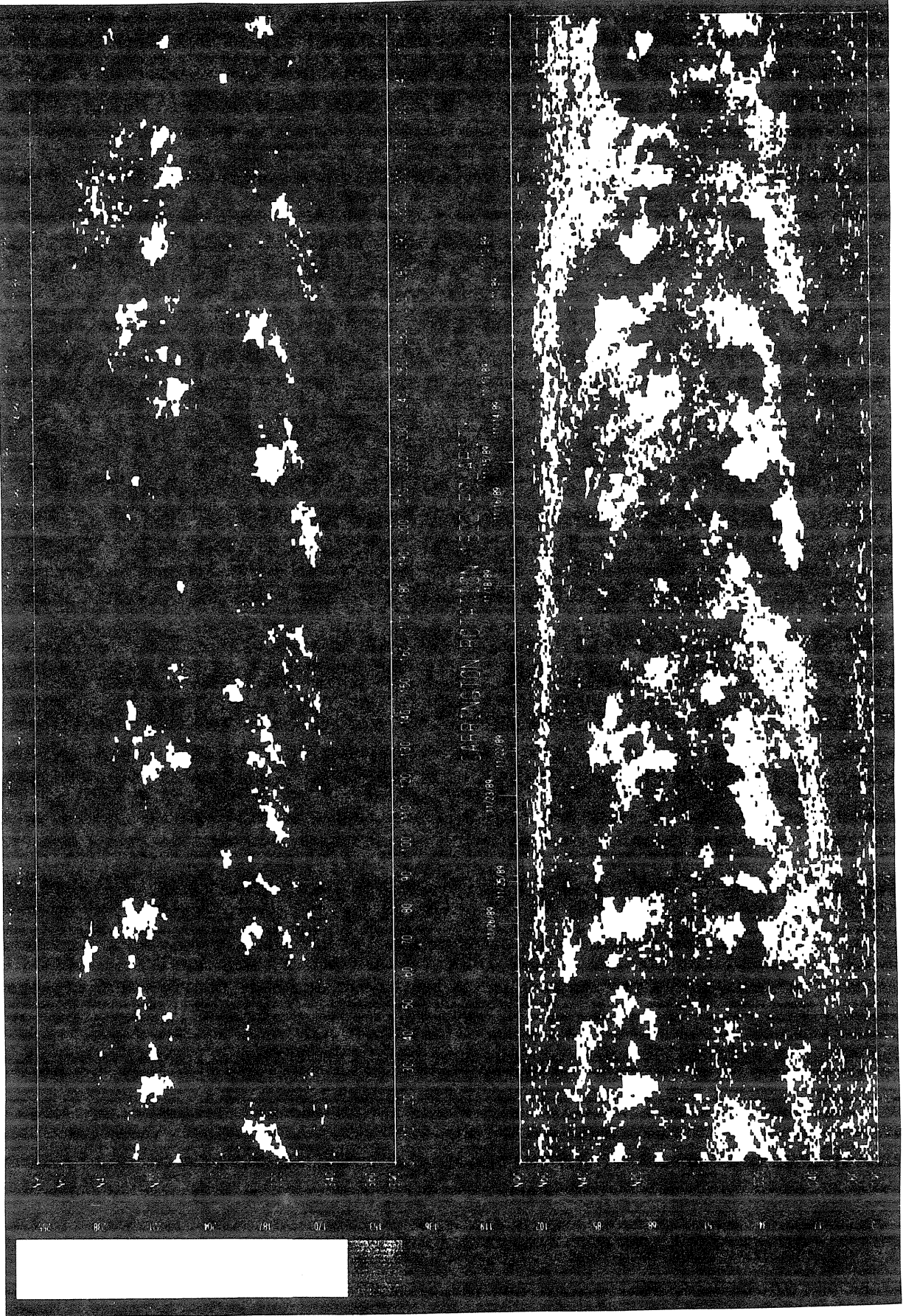
336

360

S O L A R M A G N E T I C F I E L D S Y N O P T I C C H A R T
CARRINGTON ROTATION NUMBER 1822
(5 November to 2 December 1989)

Dates of Observation

Kitt Peak National Observatory

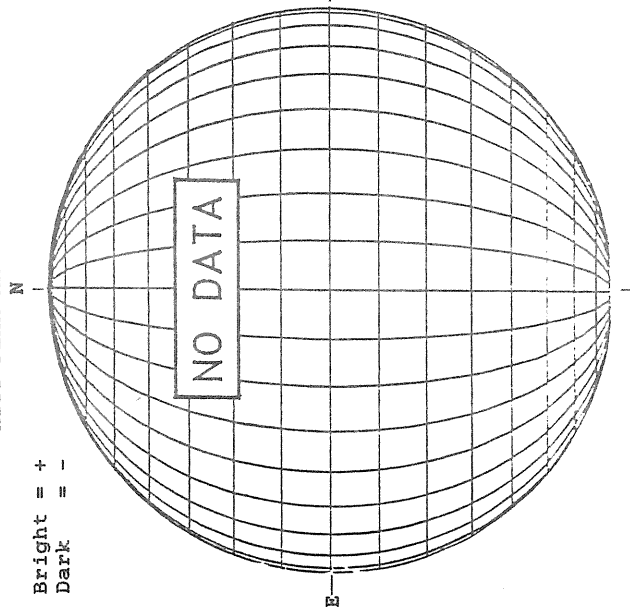


Heliographic Longitude

NOVEMBER 1, 1989 (P= 24.51, B₀ = 4.36, L₀ = 53.93)

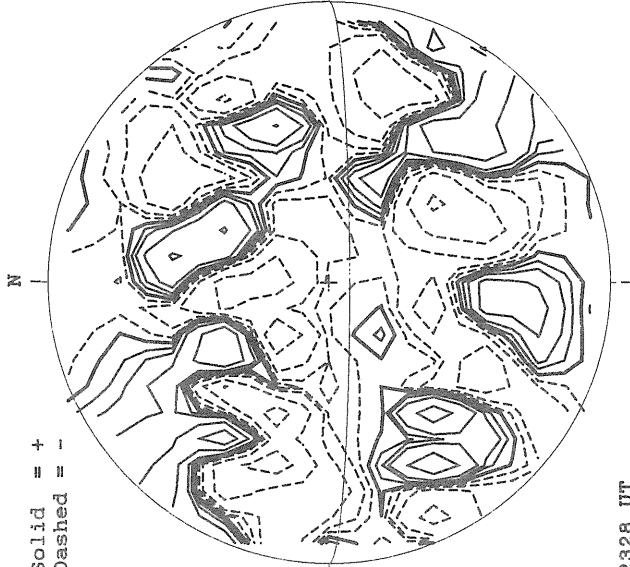
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



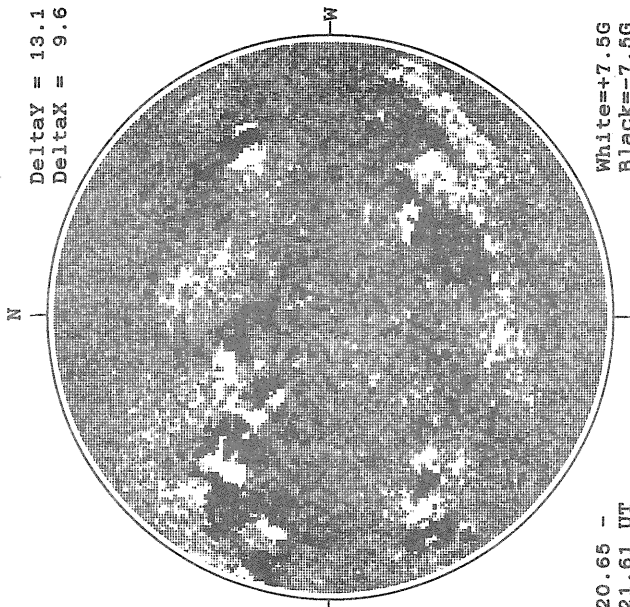
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

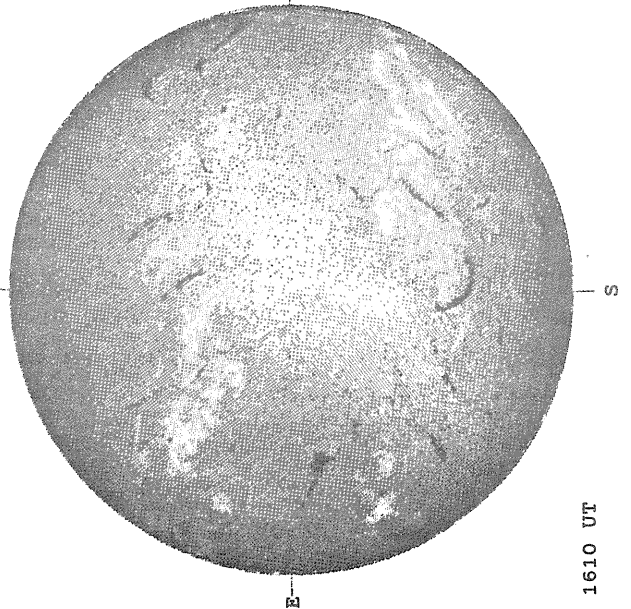
Delta γ = 13.1
Delta α = 9.6



20.65 -
21.61 UT

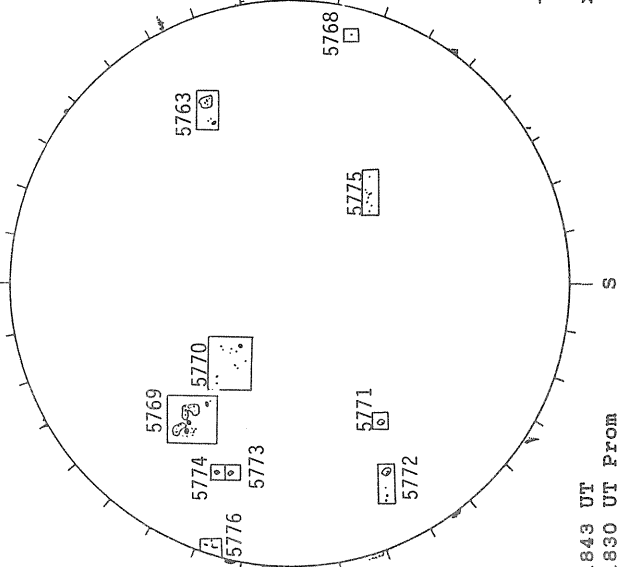
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



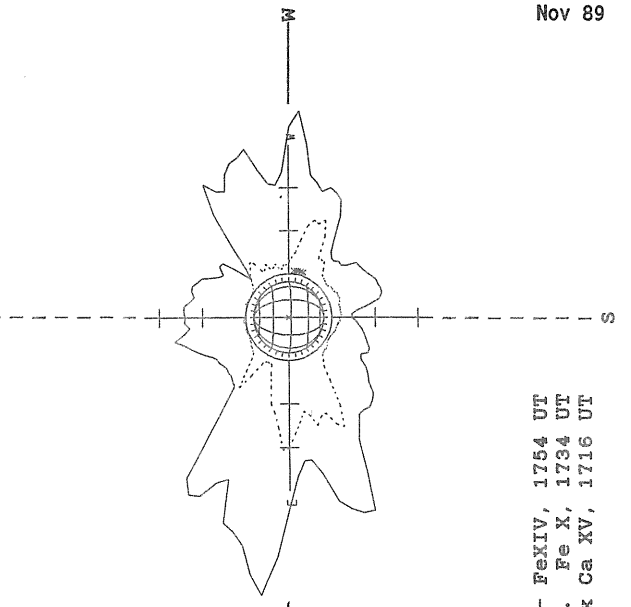
1610 UT

BOULDER SUNSPOT



1843 UT
1830 UT Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

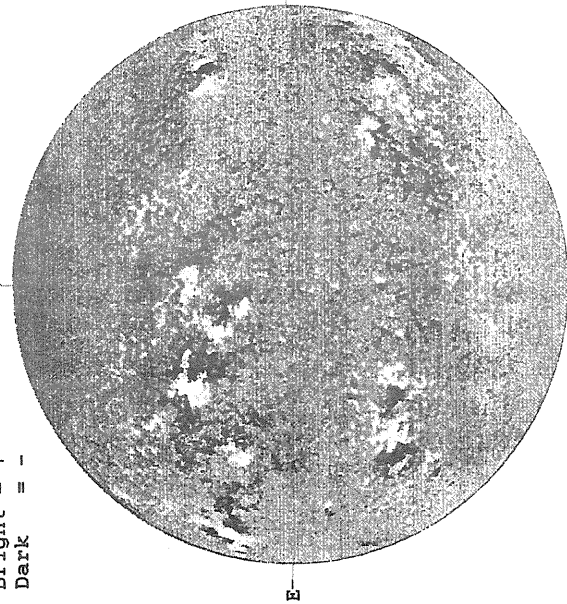


— FeXIV, 1754 UT
... Fe X, 1734 UT
xxxxx Ca XV, 1716 UT

NOVEMBER 2, 1989 (P = 24.34, B₀ = 4.26, L₀ = 40.74)

KITT PEAK MAGNETOGRAM

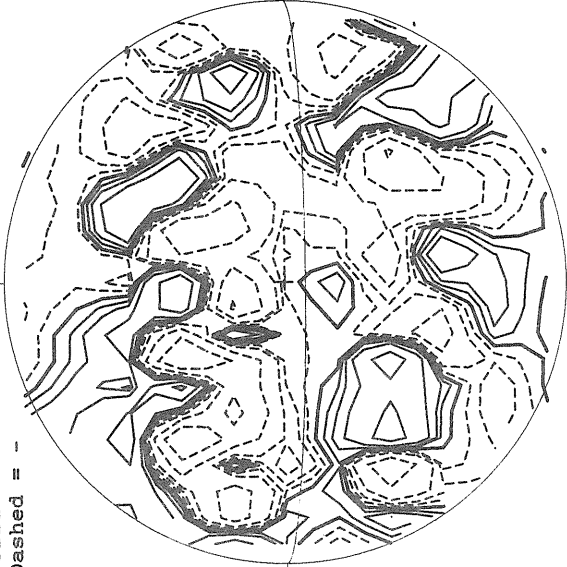
Bright = +
Dark = -



1727 UT

STANFORD MAGNETOGRAM

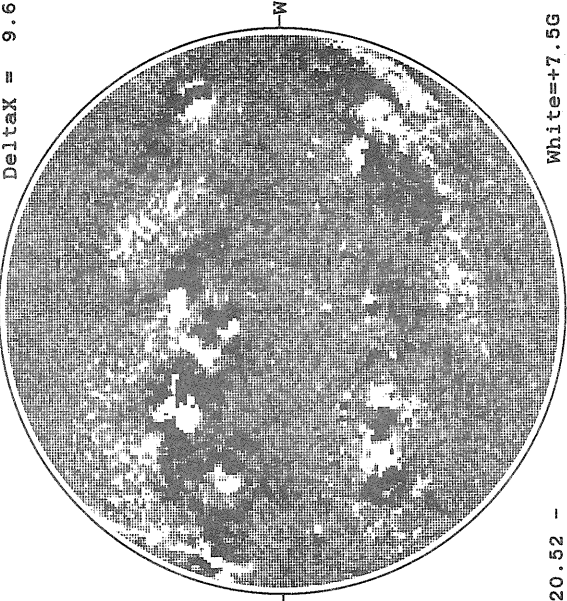
Solid = +
Dashed = -



1840 UT

MT. WILSON MAGNETOGRAM

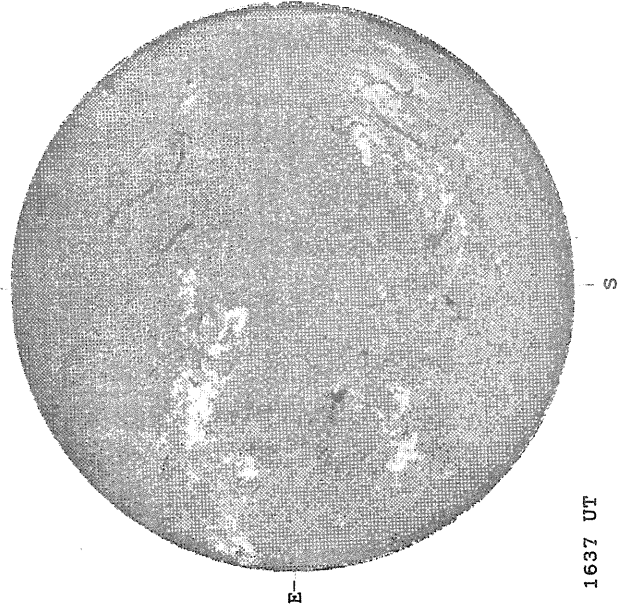
Delta_{ay} = 13.1
Delta_{ax} = 9.6



20.52 -
21.47 UT

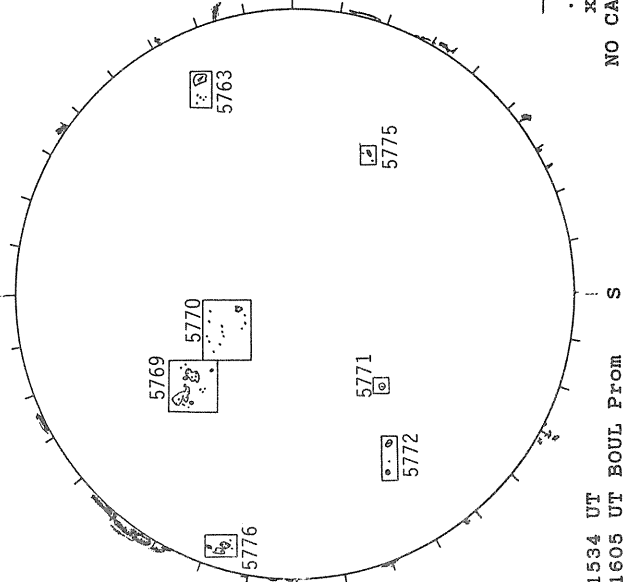
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



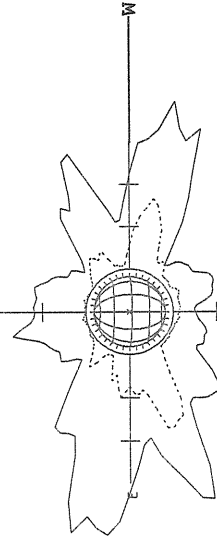
1637 UT

BOULDER SUNSPOT



1534 UT
1605 UT BOUL Prom

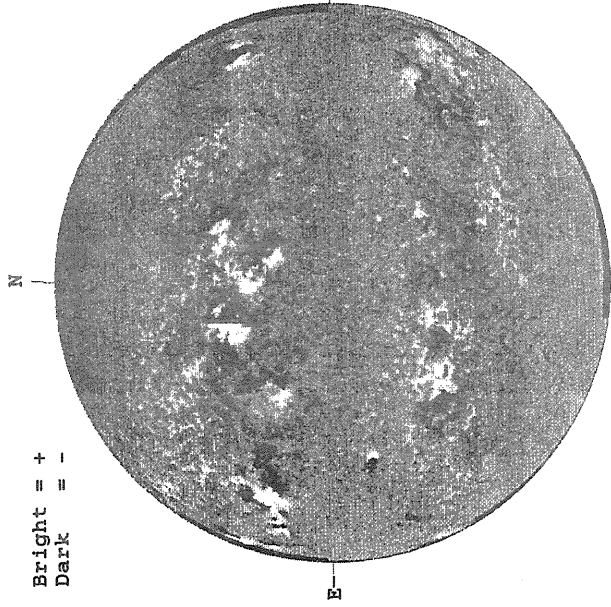
SACRAMENTO PEAK CORONA (1.15 Radii)



— Fe XIV, 1511 UT
... Fe X, 1448 UT
XXXX Ca XV, 1433 UT
NO CA XV ACTIVITY TODAY

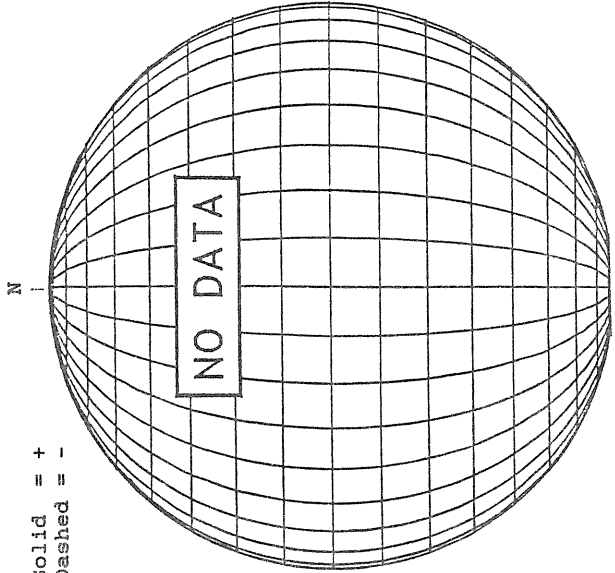
NOVEMBER 3, 1989 (P = 24.17, B₀ = 4.15, L₀ = 27.56)

KITT PEAK MAGNETOGRAM

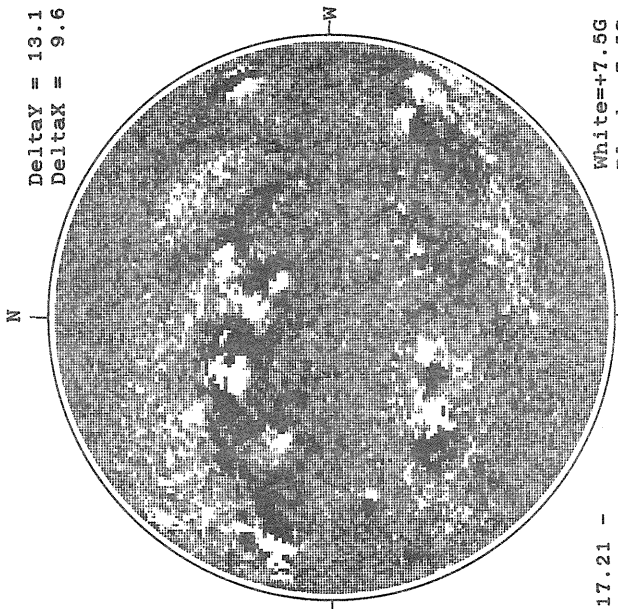


1708 UT

STANFORD MAGNETOGRAM

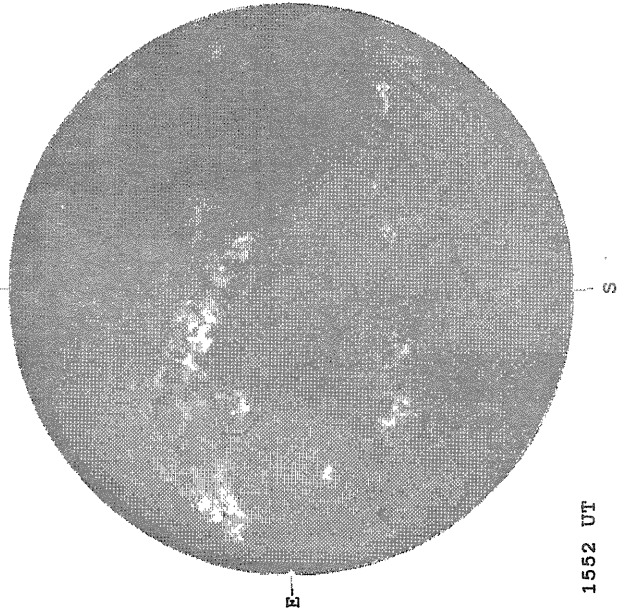


MT. WILSON MAGNETOGRAM



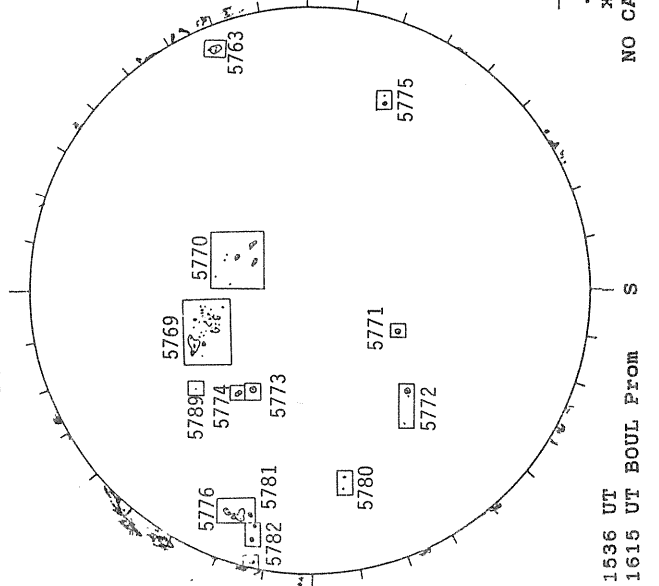
17.21 -
18.17 UT

HOLLOMAN H-ALPHA



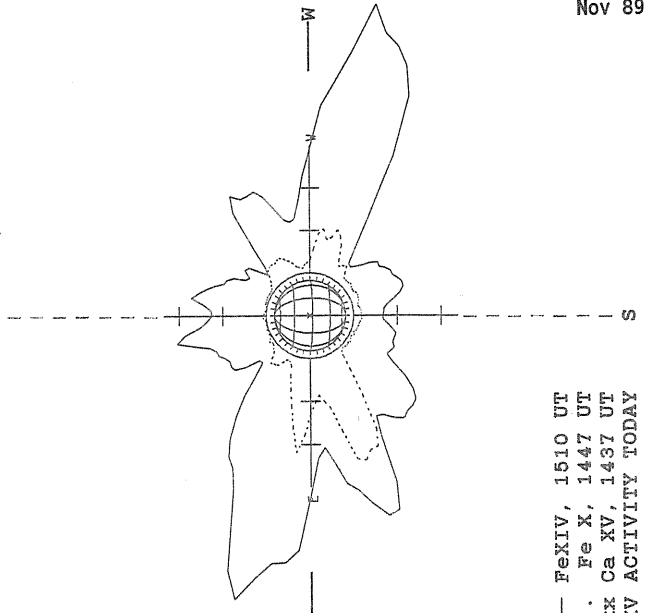
1552 UT

BOULDER SUNSPOT



1536 UT
1615 UT BOUL FROM

SACRAMENTO PEAK CORONA (1.15 Radii)

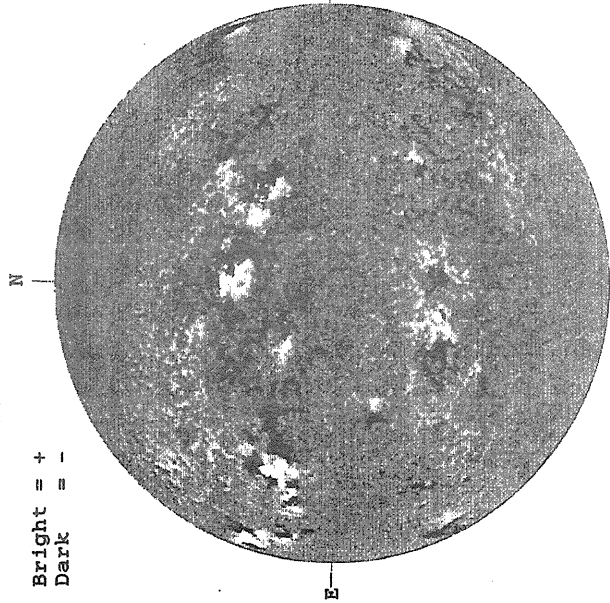


— Fe XIV, 1510 UT
... Fe X, 1447 UT
.... Ca XV, 1437 UT
NO CA XV ACTIVITY TODAY

NOVEMBER 4, 1989 (P= 23.96, B₀ = 4.05, L₀ = 14.37)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1703 UT

STANFORD MAGNETOGRAM

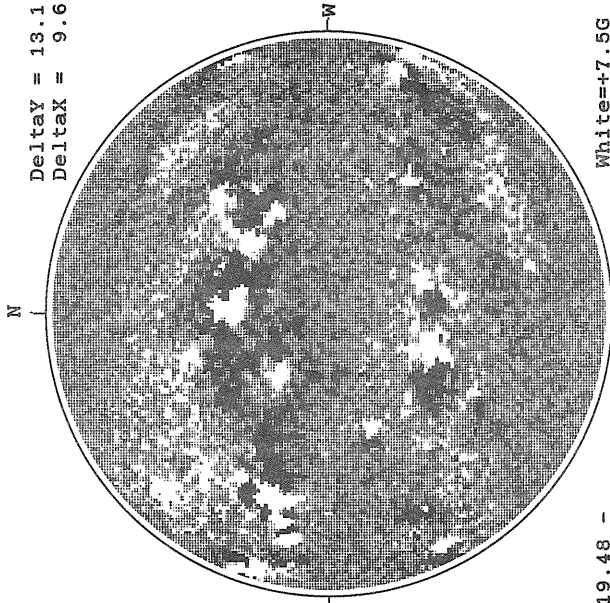
Solid = +
Dashed = -



1809 UT

MT. WILSON MAGNETOGRAM

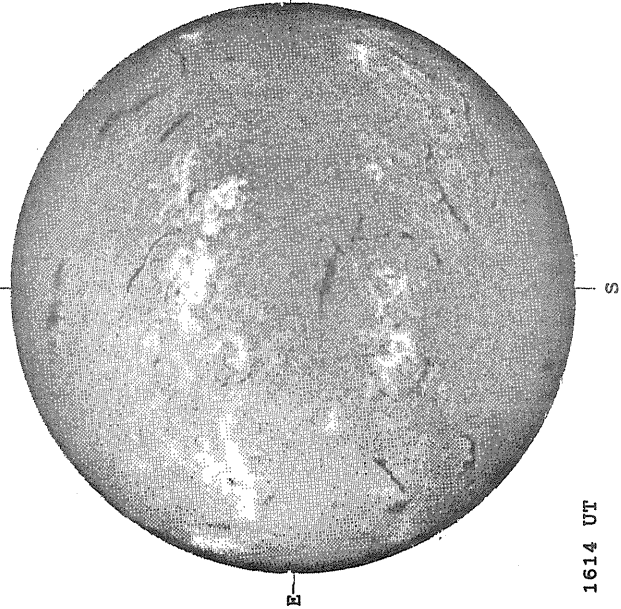
Delta γ = 13.1
Delta α = 9.6



19.48 -
20.44 UT

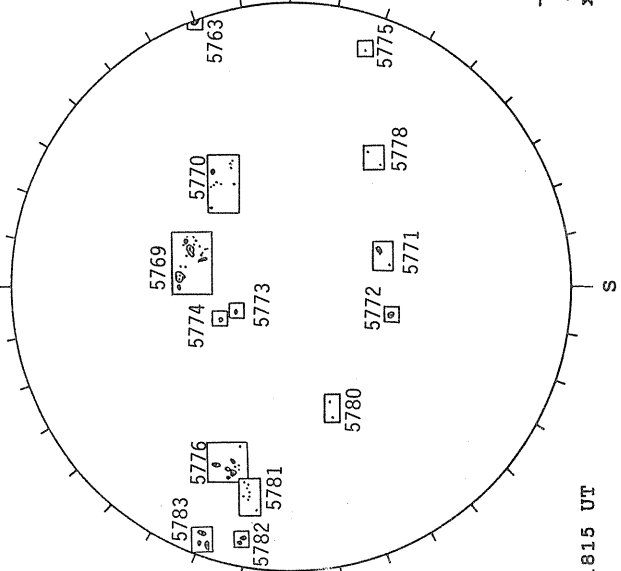
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



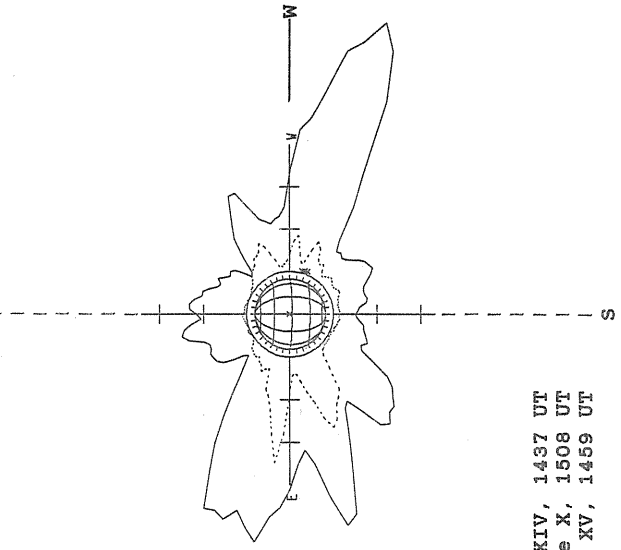
1614 UT

BOULDER SUNSPOT



1815 UT

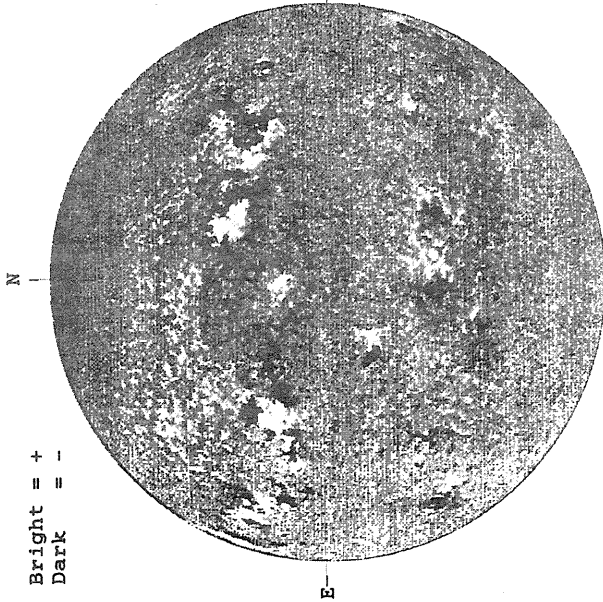
SACRAMENTO PEAK CORONA (1.15 Radii)



— Fe XIV, 1437 UT
.... Fe X, 1508 UT
xxxxx Ca XV, 1459 UT

NOVEMBER 5, 1989 (P= 23.78, B₀ = 3.94, L₀ = 1.19)

KITT PEAK MAGNETOGRAM



Bright = +
Dark = -

1643 UT

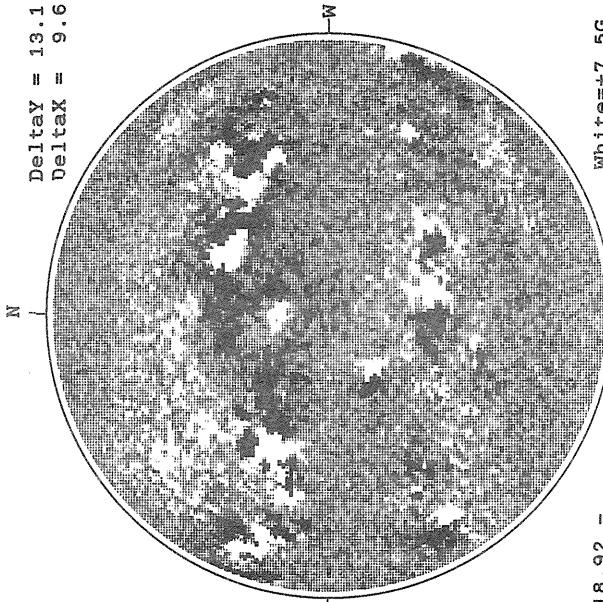
STANFORD MAGNETOGRAM



Solid = +
Dashed = -

1910 UT

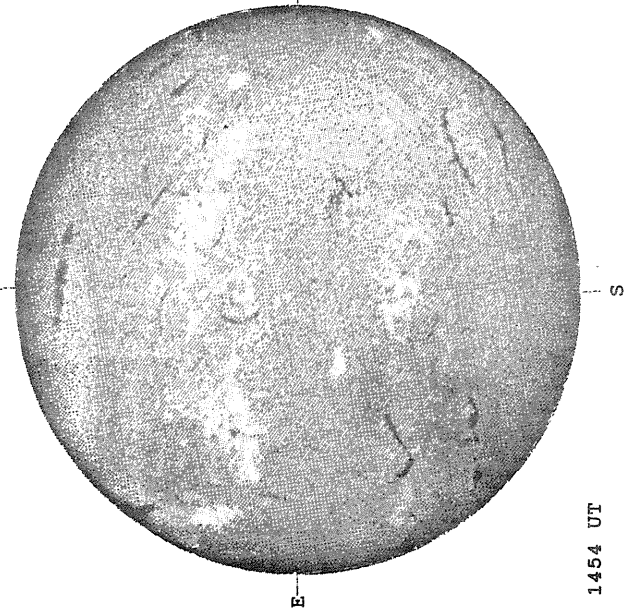
MT. WILSON MAGNETOGRAM



Delta I = 13.1
Delta K = 9.6

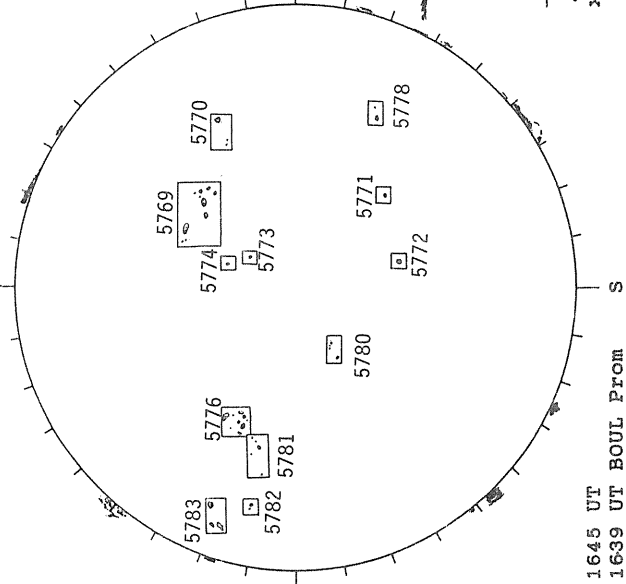
White = +7.5G
Black = -7.5G
18.92 -
19.88 UT

HOLLOMAN H-ALPHA



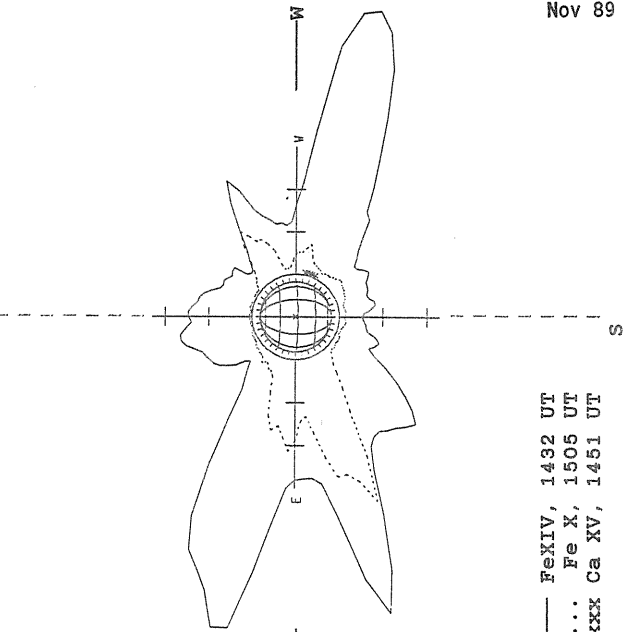
1454 UT

BOULDER SUNSPOT



1645 UT
1639 UT BOUL Prom

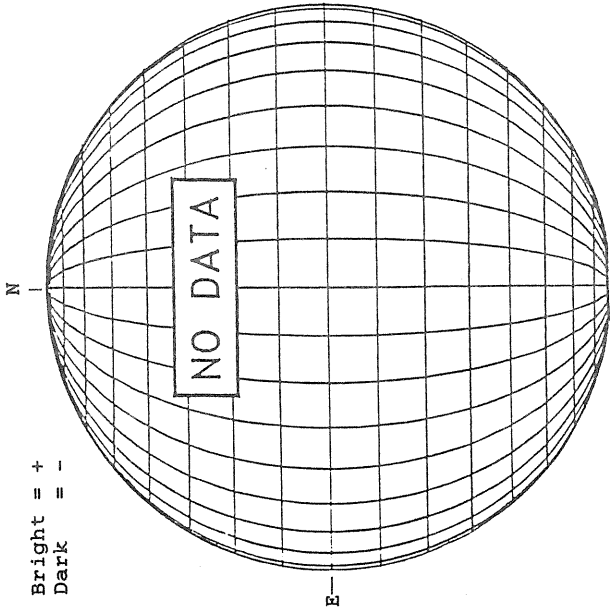
SACRAMENTO PEAK CORONA (1.15 Radii)



— Fe XIV, 1432 UT
.... Fe X, 1505 UT
xxxx Ca XV, 1451 UT

NOVEMBER 6, 1989 (P= 23.58, B₀ = 3.84, L₀ = 348.00)

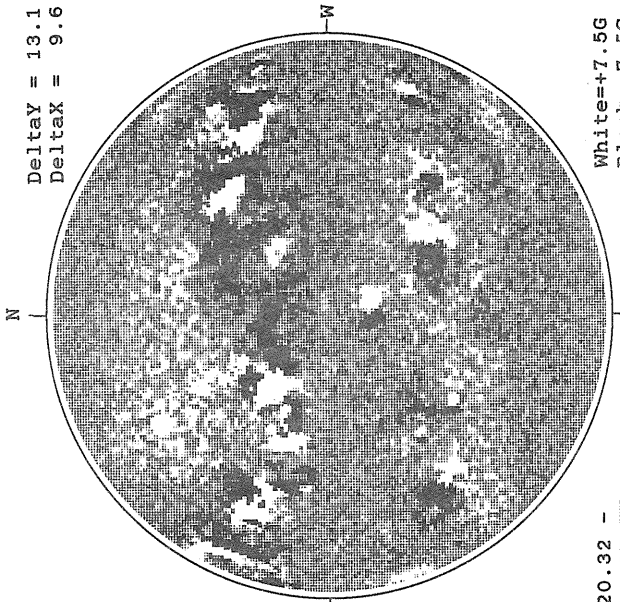
KITT PEAK MAGNETOGRAM



STANFORD MAGNETOGRAM

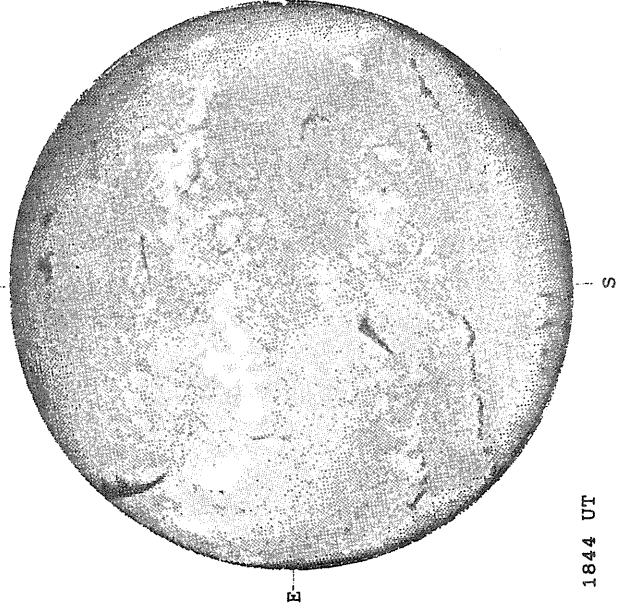


MT. WILSON MAGNETOGRAM

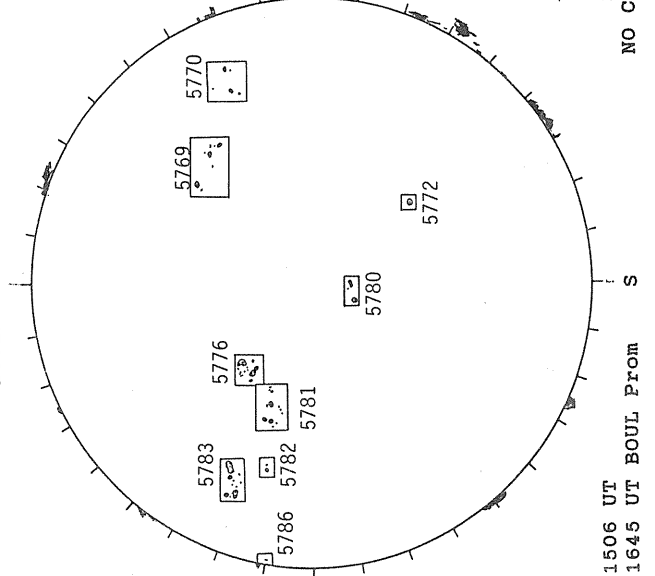


20.32 -
21.27 UT

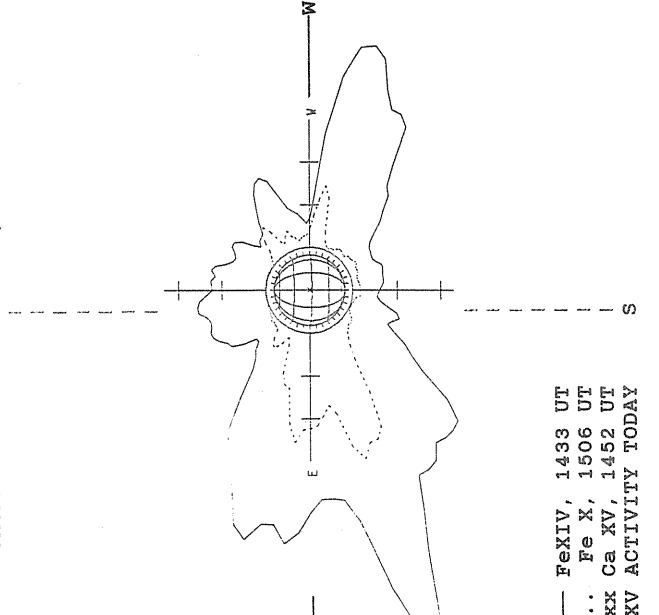
HOLLOMAN H-ALPHA



BOULDER SUNSPOT

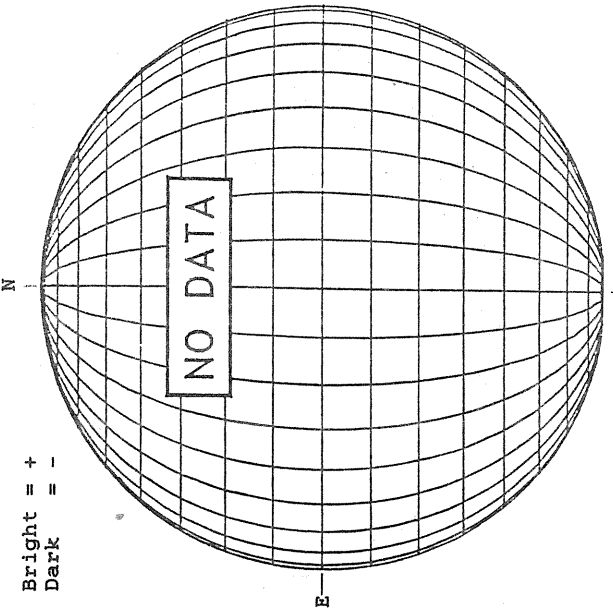


SACRAMENTO PEAK CORONA (1.15 Radii)



NOVEMBER 7, 1989 (P= 23.37, B₀ = 3.73, I₀ = 334.82)

KITT PEAK MAGNETOGRAM



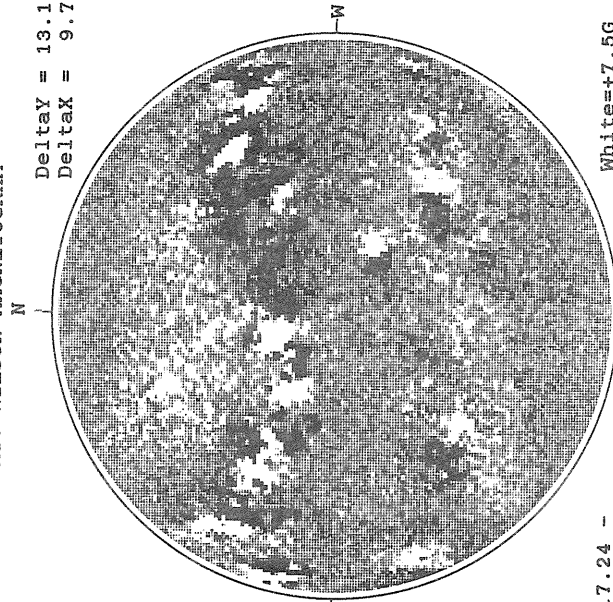
Bright = +
Dark = -

STANFORD MAGNETOGRAM



Solid = +
Dashed = -

MT. WILSON MAGNETOGRAM

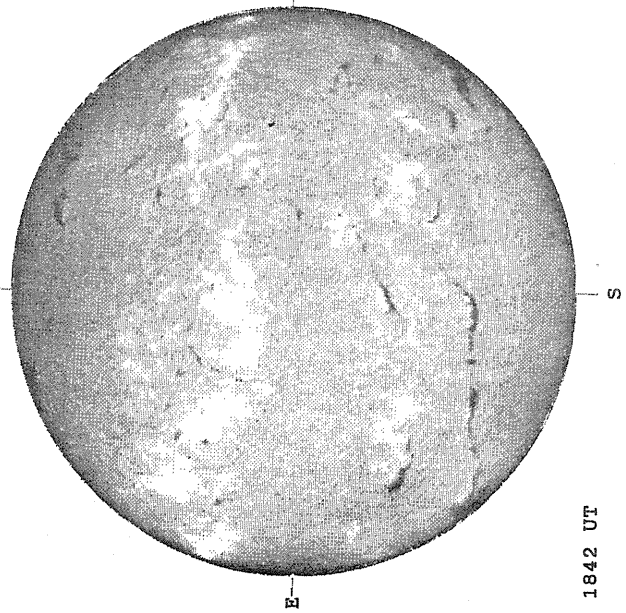


DeltaY = 13.1
DeltaX = 9.7

17.24 -
18.20 UT

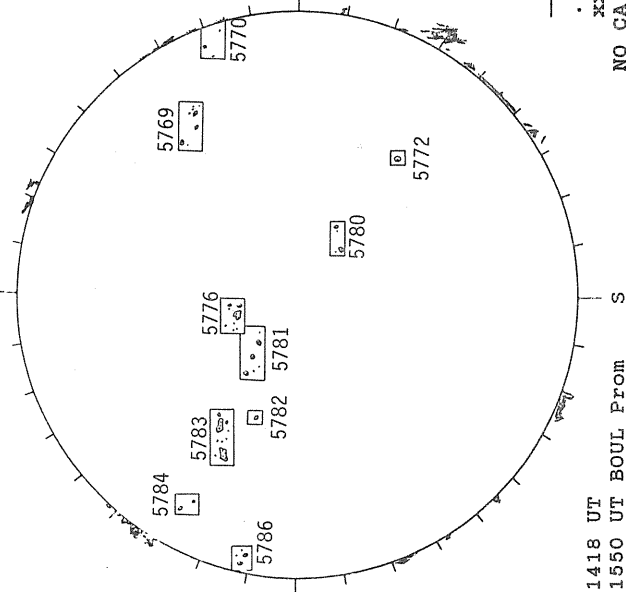
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



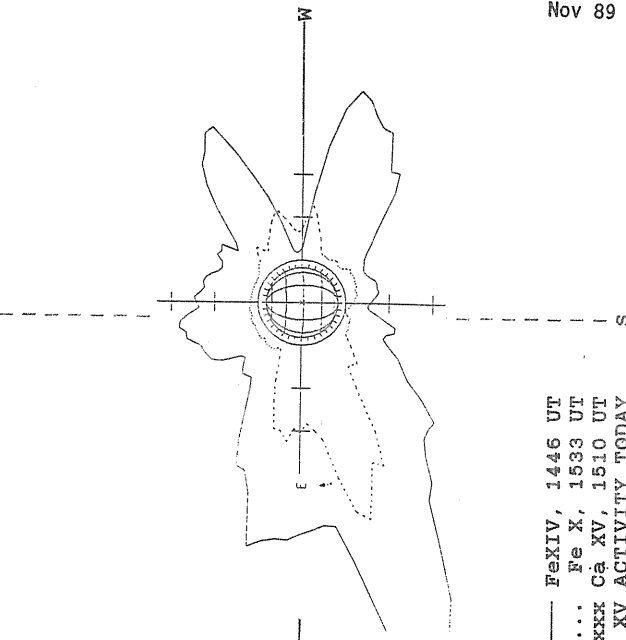
1842 UT

BOULDER SUNSPOT



1418 UT
1550 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

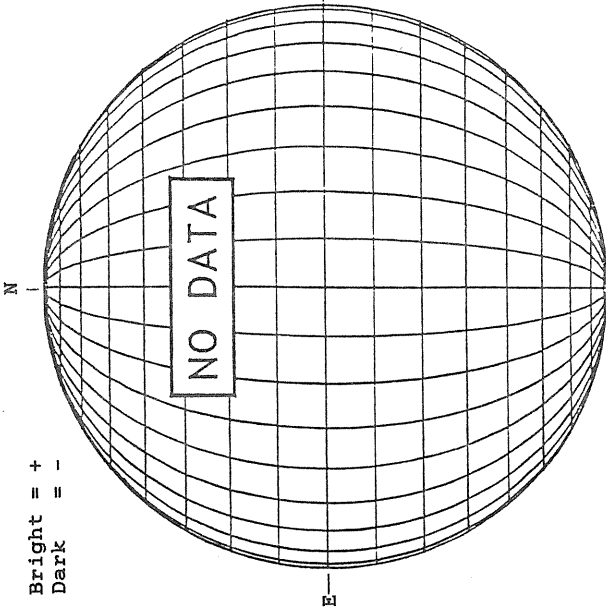


— FeXIV, 1446 UT
.... Fe X, 1533 UT
XXXX Ca XV, 1510 UT
NO CA XV ACTIVITY TODAY

NOVEMBER 8, 1989 (P= 23.16, B₀ = 3.62, L₀ = 321.63)

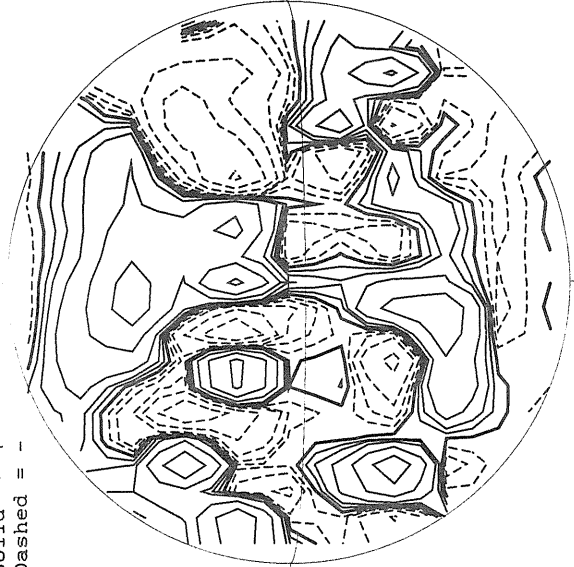
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



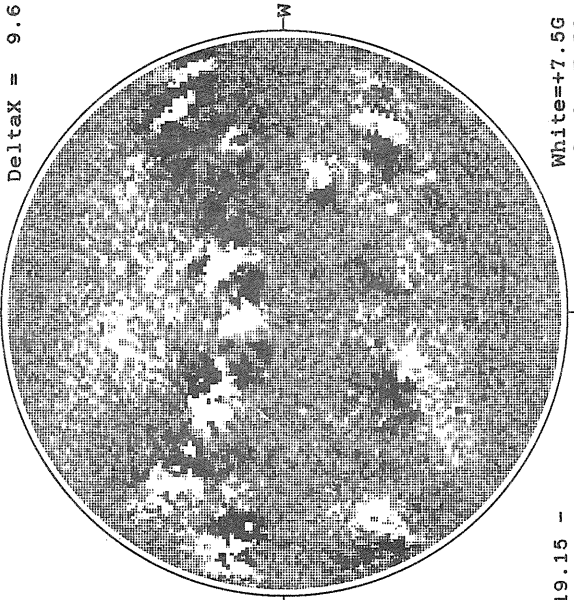
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

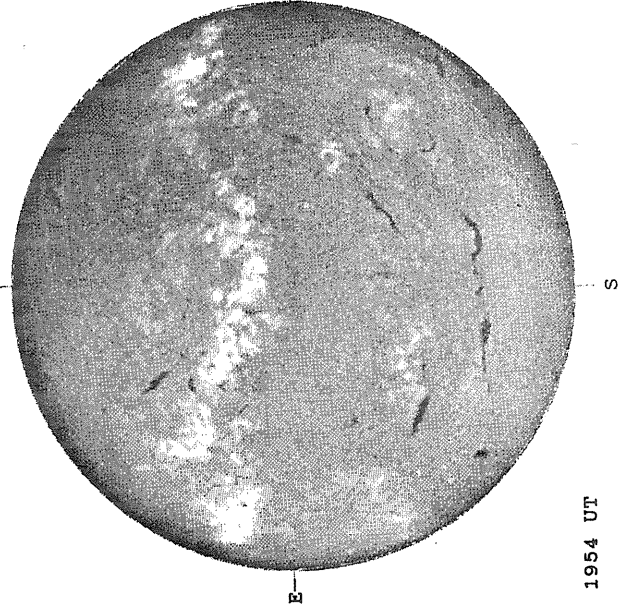
Delta γ = 13.1
Delta α = 9.6



White=+7.5G
Black=-7.5G

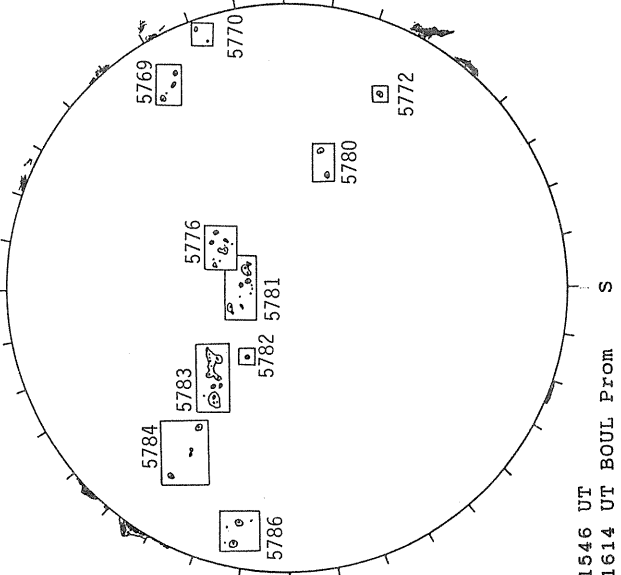
19.15 -
20.11 UT

HOLLOMAN H-ALPHA



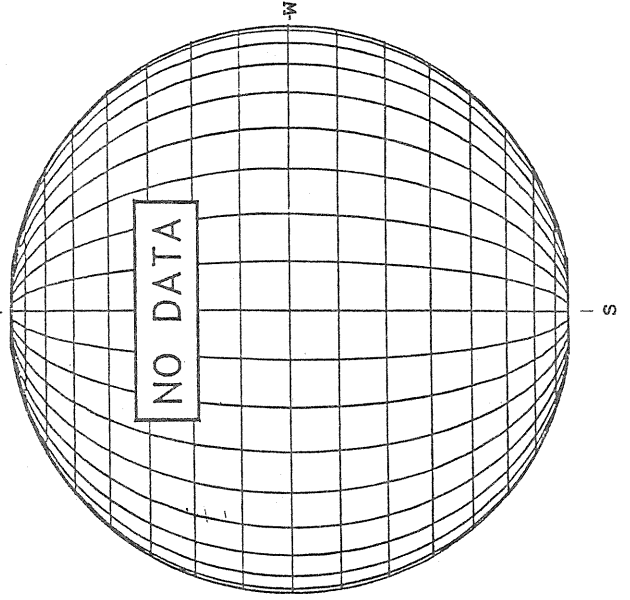
1954 UT

BOULDER SUNSPOT



1546 UT
1614 UT BOUL Prom

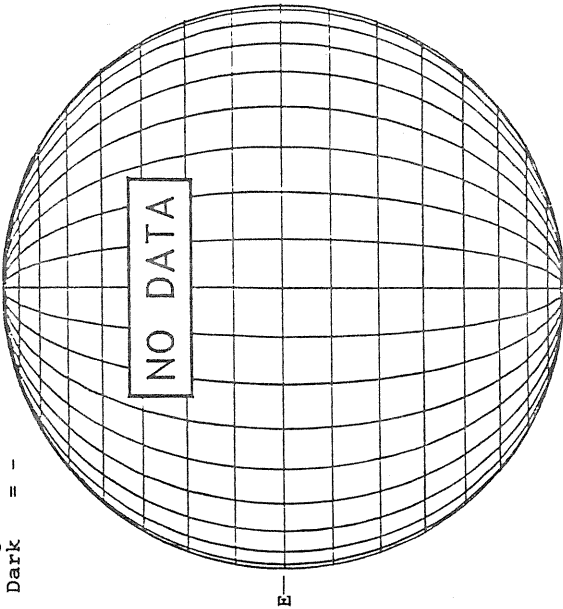
SACRAMENTO PEAK CORONA (1.15 Radii)



NOVEMBER 9, 1989 (P= 22.93, B₀ = 3.51, L₀ = 308.45)

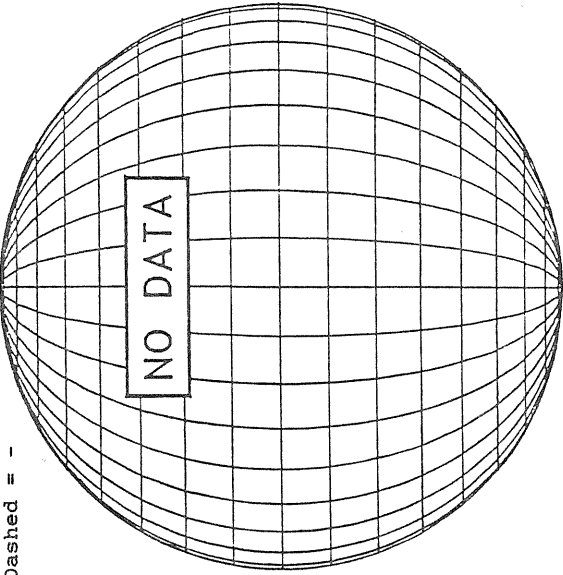
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



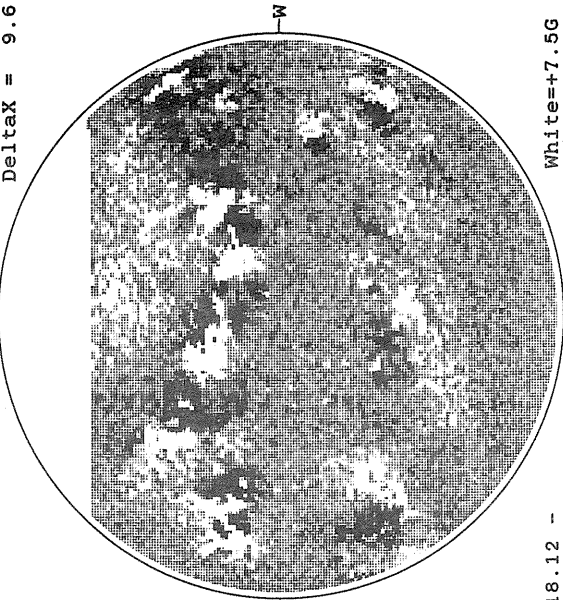
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

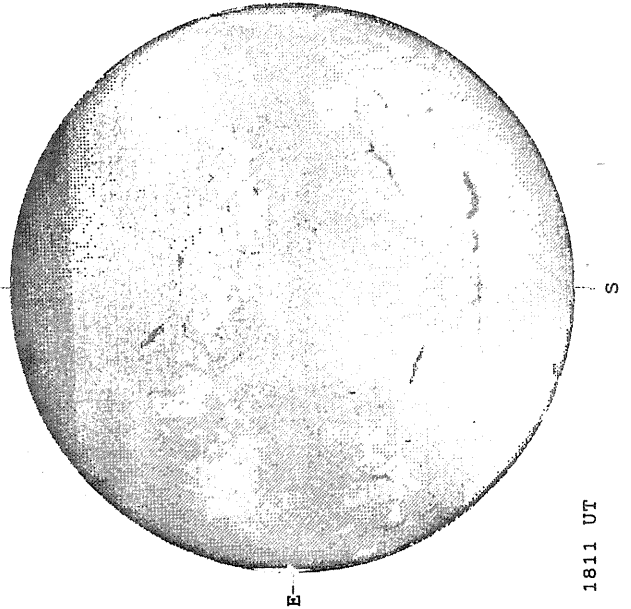
DeltaY = 13.1
DeltaX = 9.6



18.12 -
18.97 UT

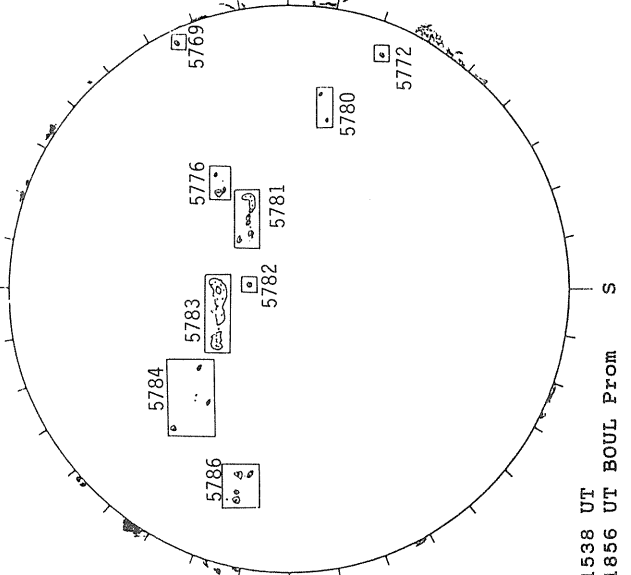
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



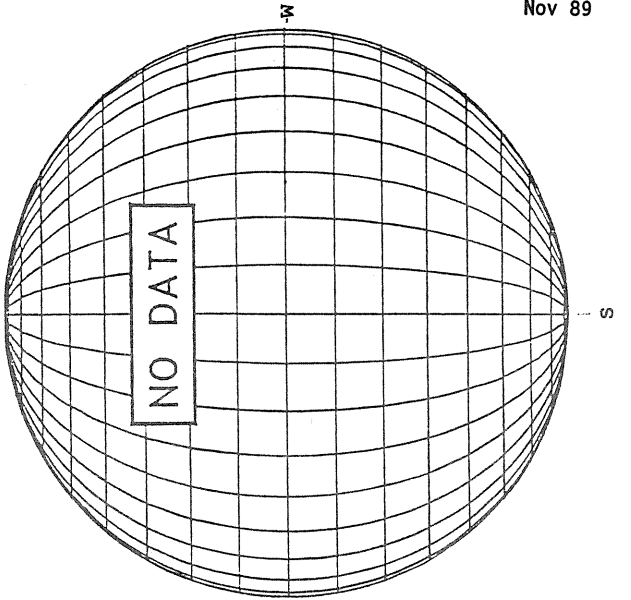
1811 UT

BOULDER SUNSPOT



1538 UT
1856 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

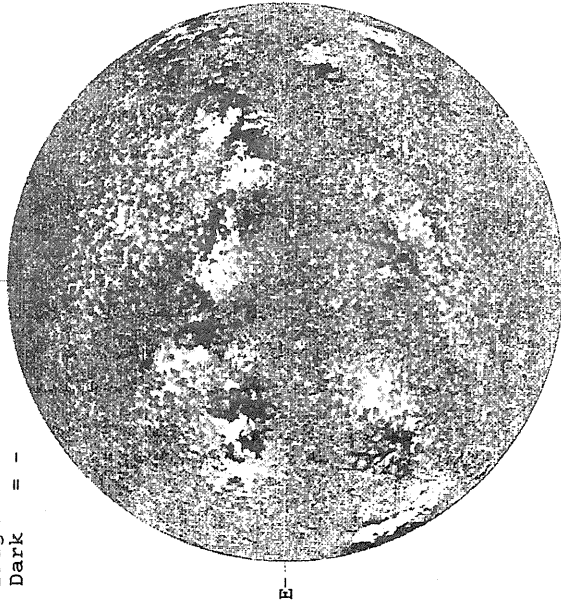


S

NOVEMBER 10, 1989 (P= 22.70, B₀ = 3.40, L₀ = 295.26)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1633 UT

STANFORD MAGNETOGRAM

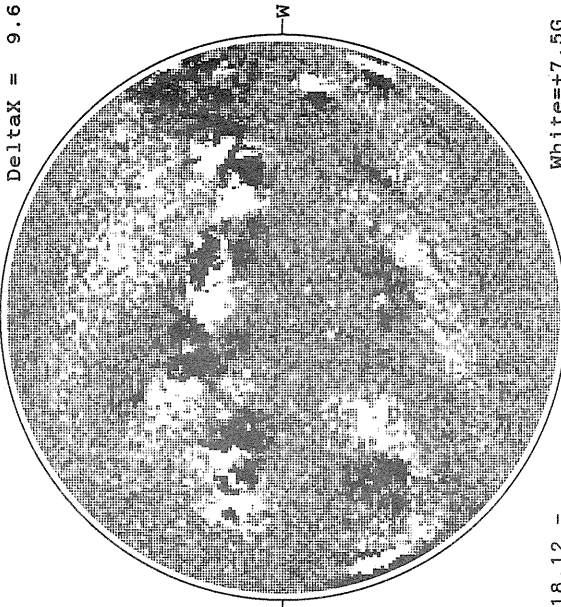
Solid = +
Dashed = -



2203 UT

MT. WILSON MAGNETOGRAM

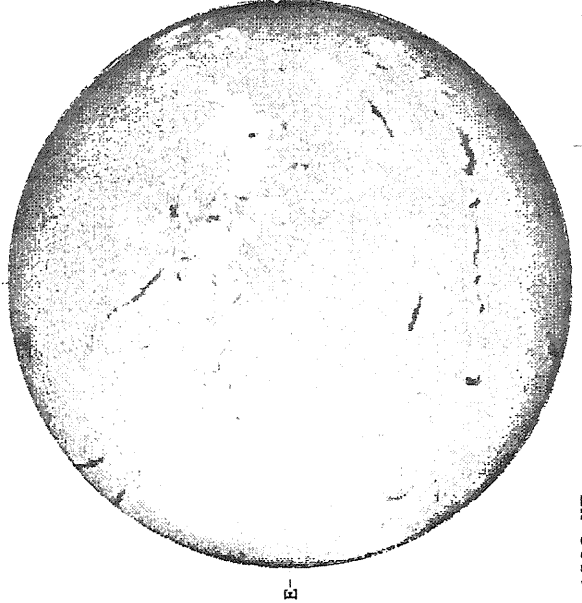
DeltaY = 13.1
DeltaX = 9.6



18.12 -
19.08 UT

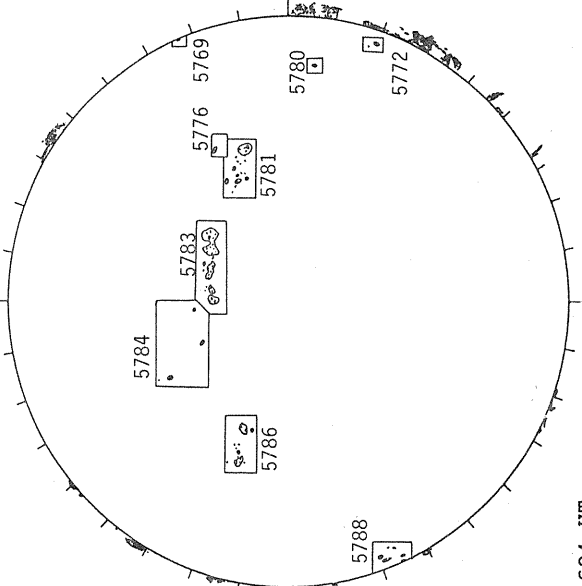
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



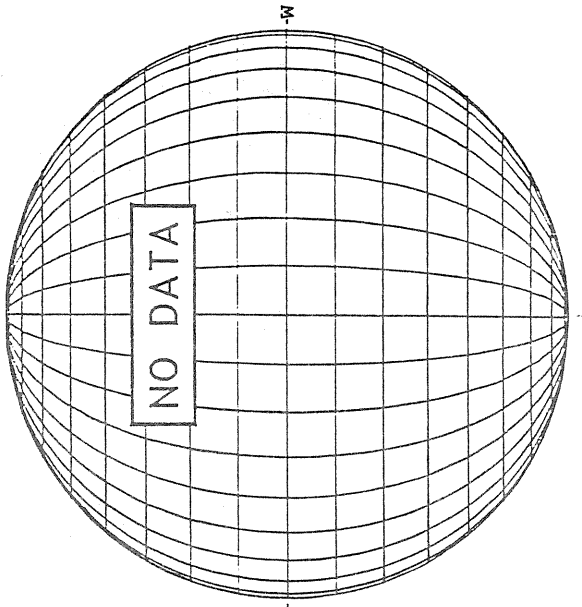
1526 UT

BOULDER SUNSPOT



1604 UT
1630 UT BOUL From

SACRAMENTO PEAK CORONA (1.15 Radii)

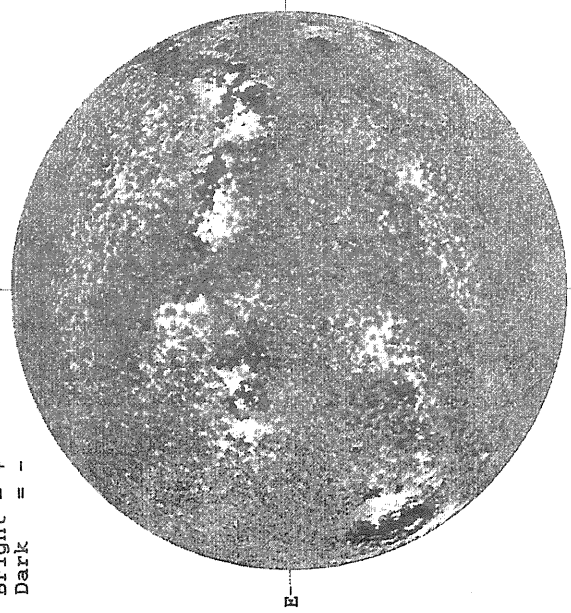


S

NOVEMBER 11, 1989 (P = 22.46, B₀ = 3.29, I₀ = 282.08)

KITT PEAK MAGNETOGRAM

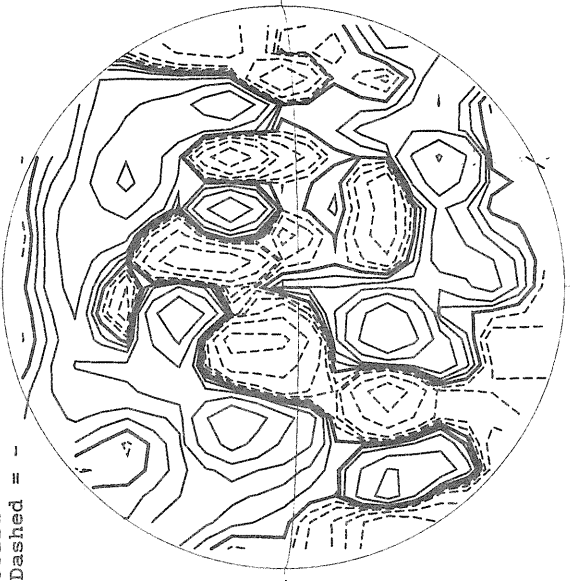
Bright = +
Dark = -



1623 UT

STANFORD MAGNETOGRAM

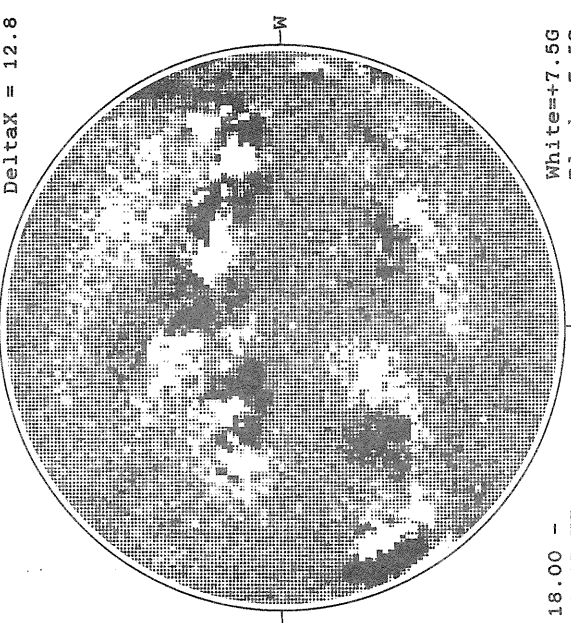
Solid = +
Dashed = -



2026 UT

MT. WILSON MAGNETOGRAM

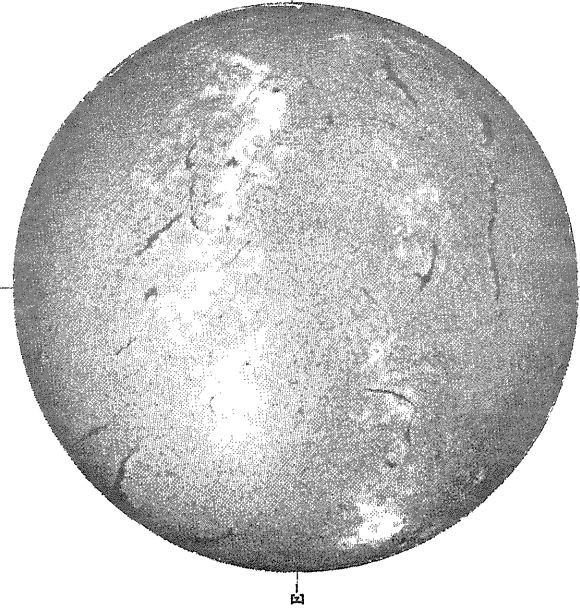
Delta_Y = 19.8
Delta_X = 12.8



18.00 -
18.35 UT

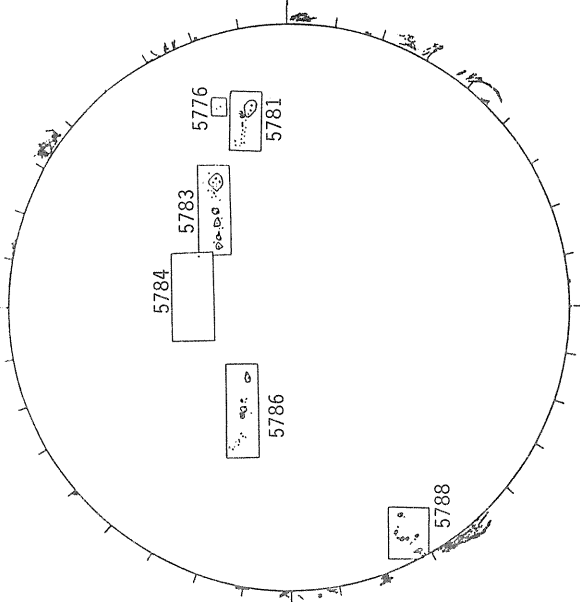
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



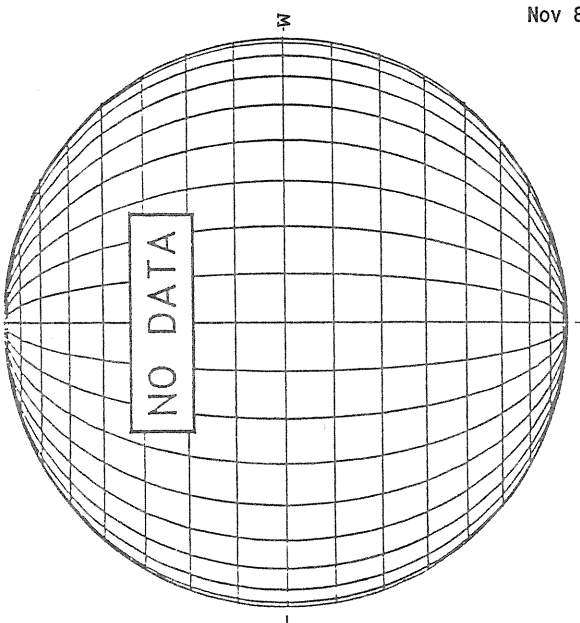
1436 UT

BOULDER SUNSPOT



1528 UT
1625 UT BOUL FROM

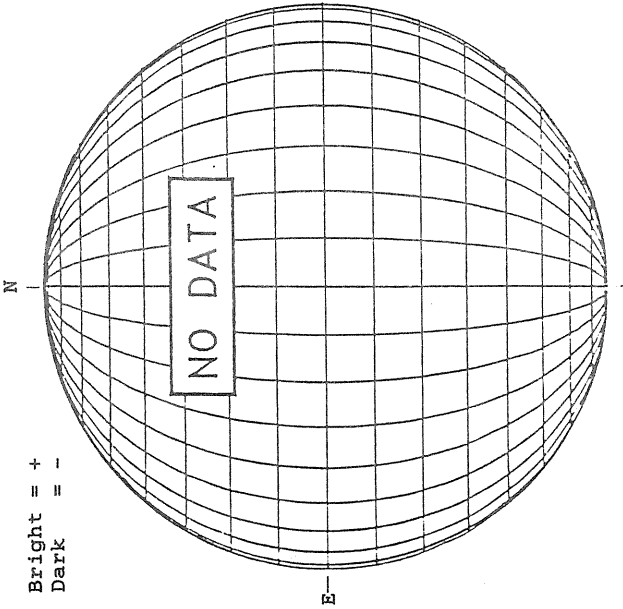
SACRAMENTO PEAK CORONA (1.15 Radii)



NOVEMBER 12, 1989 (P = 22.21, B₀ = 3.17, L₀ = 268.89)

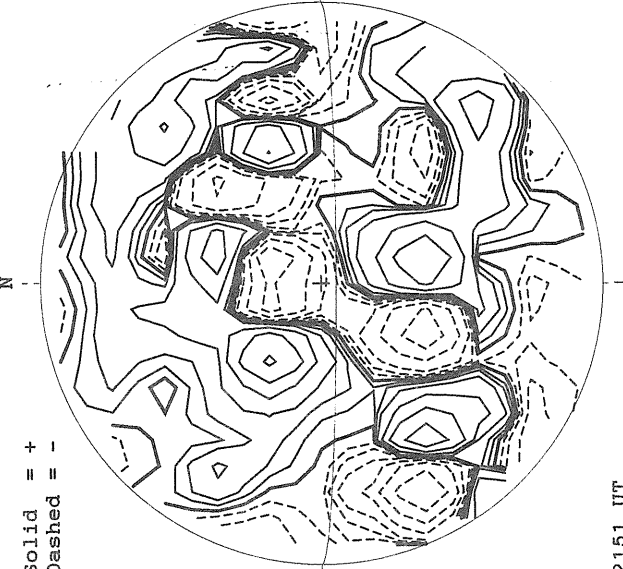
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



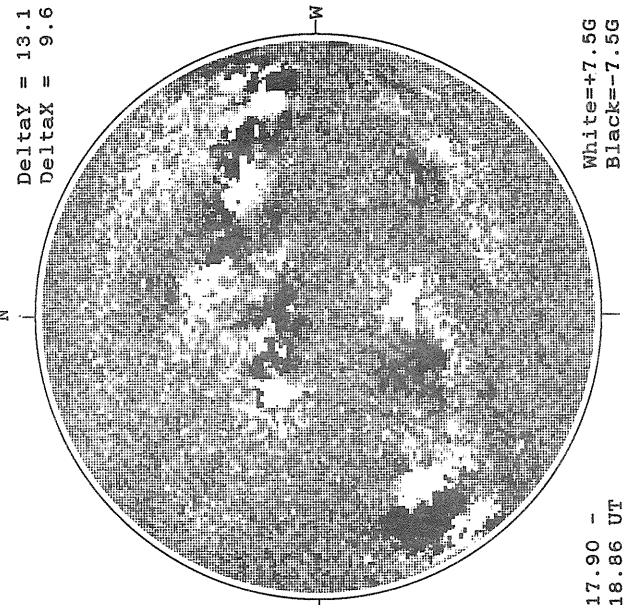
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

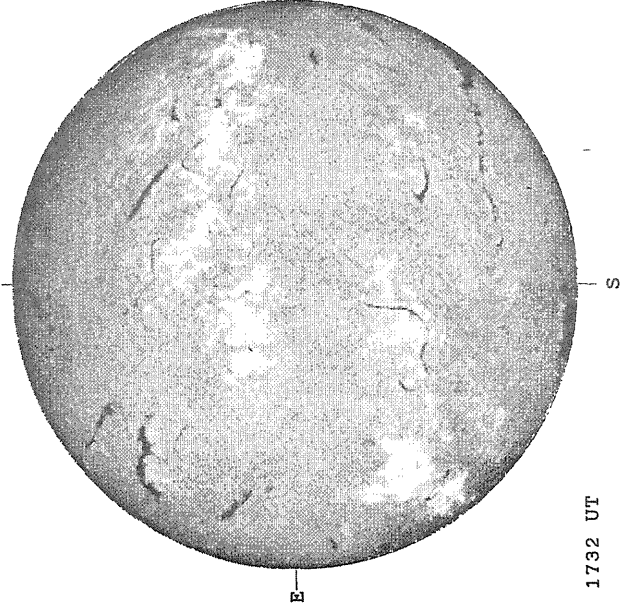
Delta τ = 13.1
Delta τ = 9.6



17.90 ~
18.86 UT

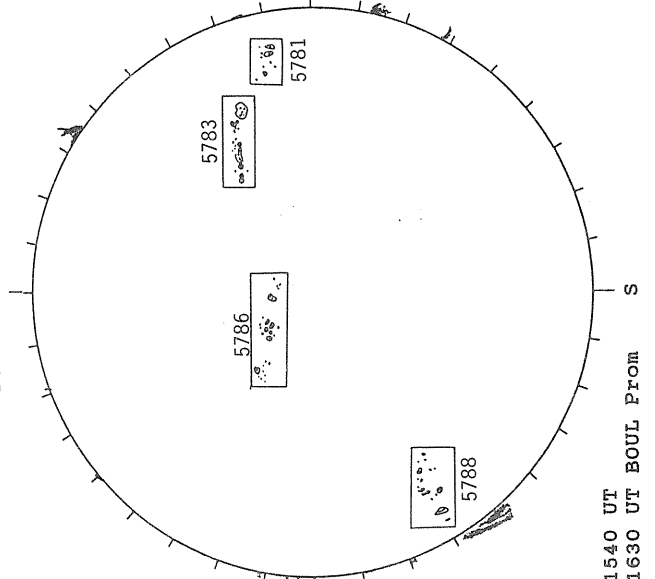
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



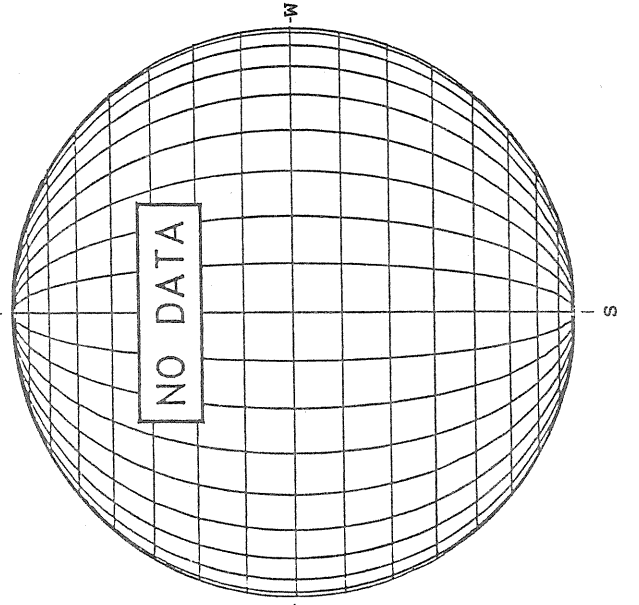
1732 UT

BOULDER SUNSPOT



1540 UT
1630 UT BOUL PROM

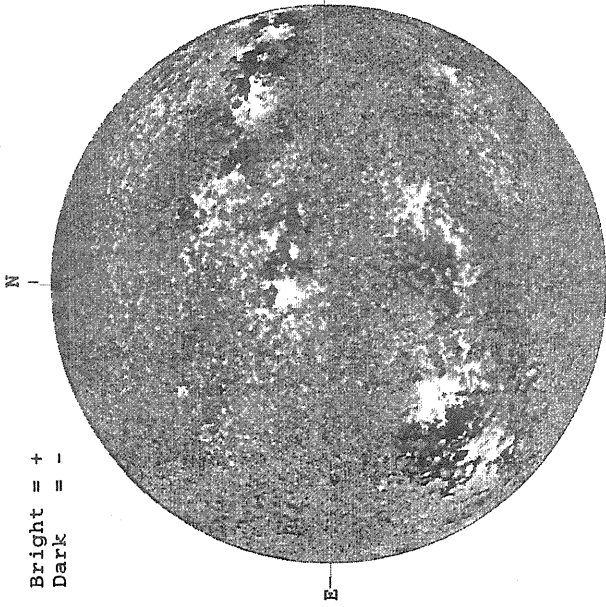
SACRAMENTO PEAK CORONA (1.15 Radii)



NOVEMBER 13, 1989 (P= 21.95, B₀ = 3.06, I₀ = 255.71)

KITT PEAK MAGNETOGRAM

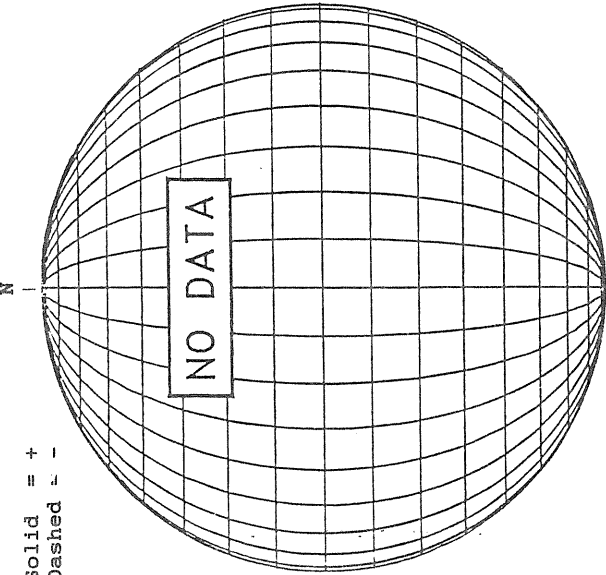
Bright = +
Dark = -



1657 UT

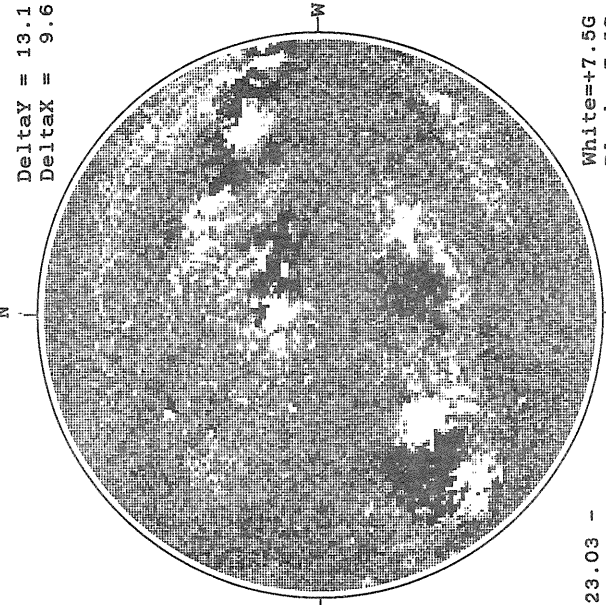
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

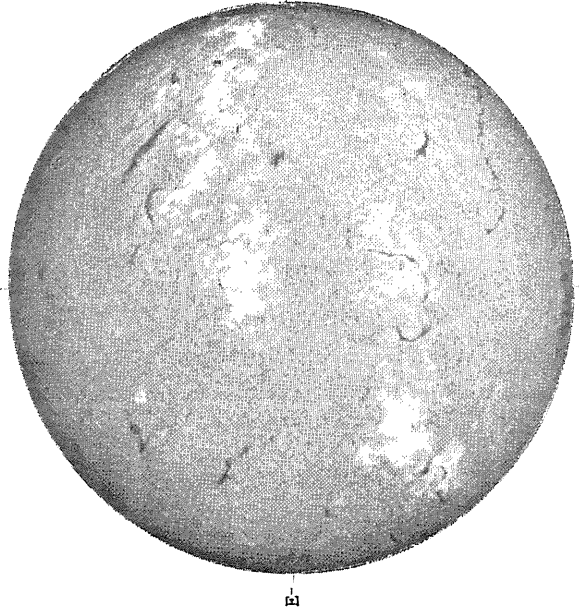
Delta_Y = 13.1
Delta_X = 9.6



23.03 -
23.99 UT

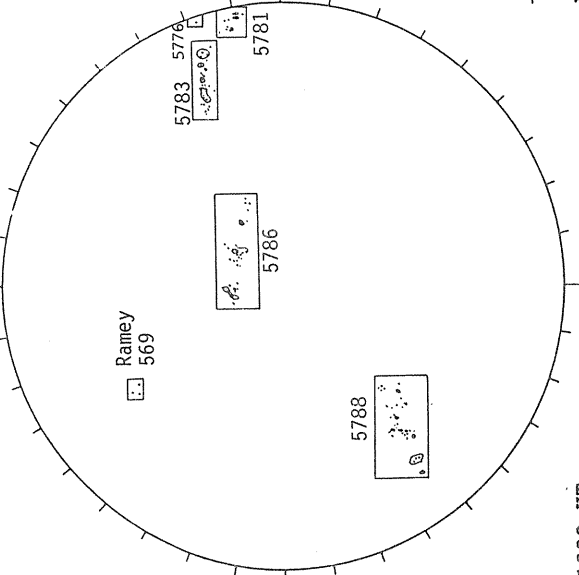
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



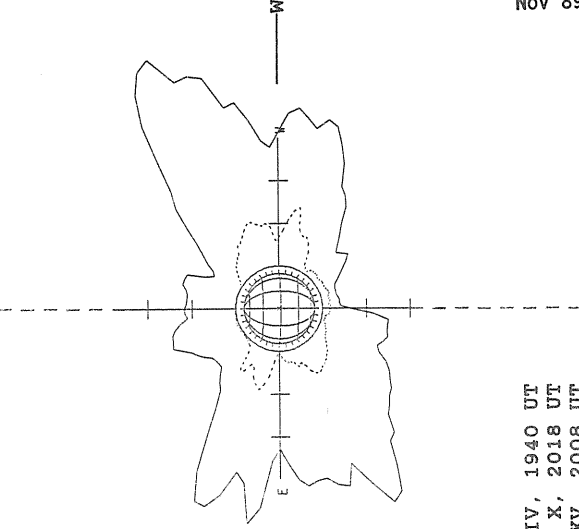
1612 UT

RAMEY SUNSPOT



1830 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

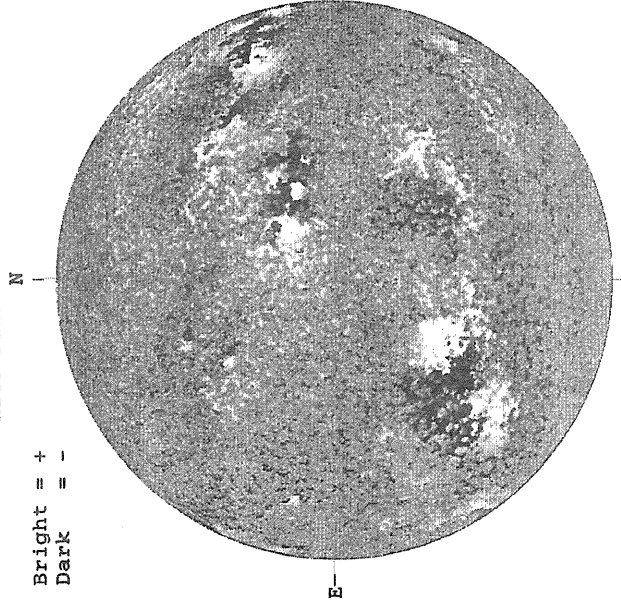


— FeXIV, 1940 UT
... Fe X, 2018 UT
xxxx Ca XV, 2008 UT
NO CA XV ACTIVITY TODAY

NOVEMBER 14, 1989 (P = 21.69, B₀ = 2.94', L₀ = 242.53)

KITT PEAK MAGNETOGRAM

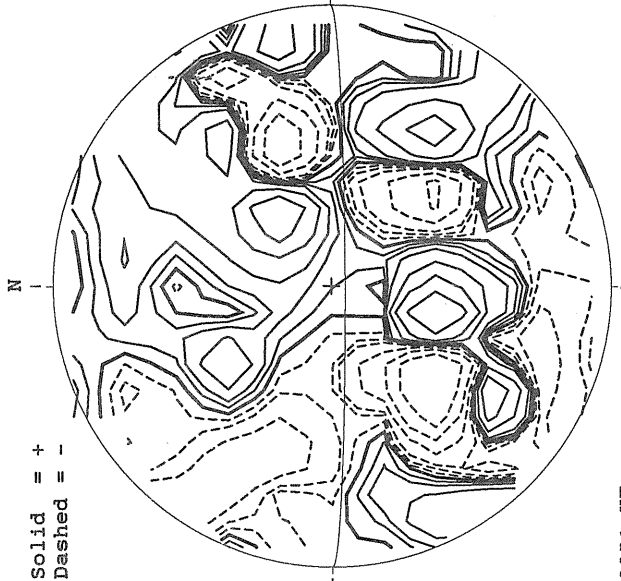
Bright = +
Dark = -



1625 UT

STANFORD MAGNETOGRAM

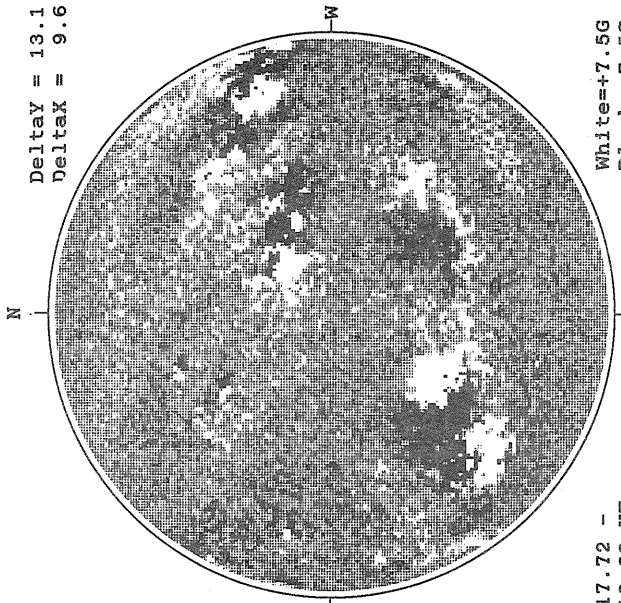
Solid = +
Dashed = -



2251 UT

MT. WILSON MAGNETOGRAM

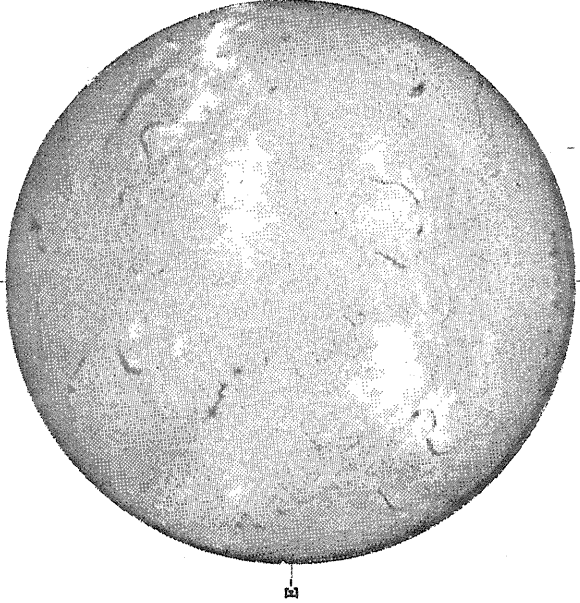
Delta_{ay} = 13.1
Delta_{ax} = 9.6



17.72 -
18.68 UT

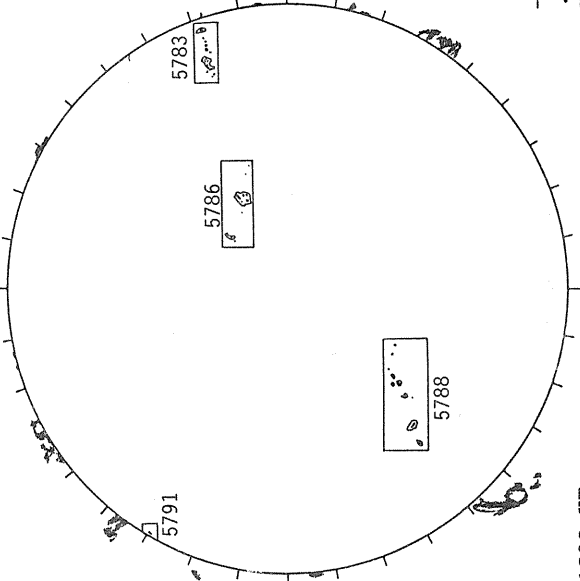
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



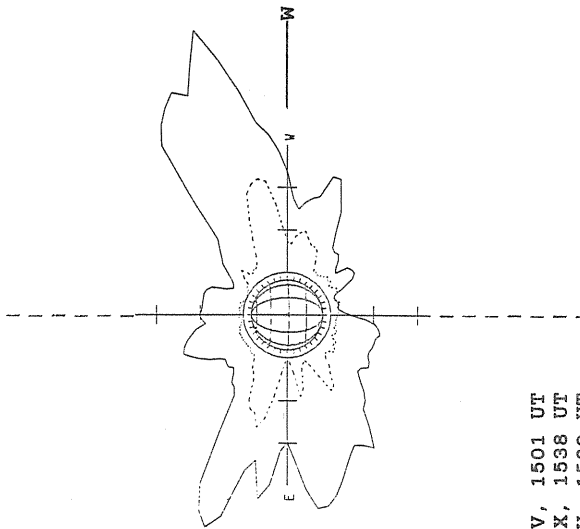
1730 UT

BOULDER SUNSPOT



1628 UT
1717 BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

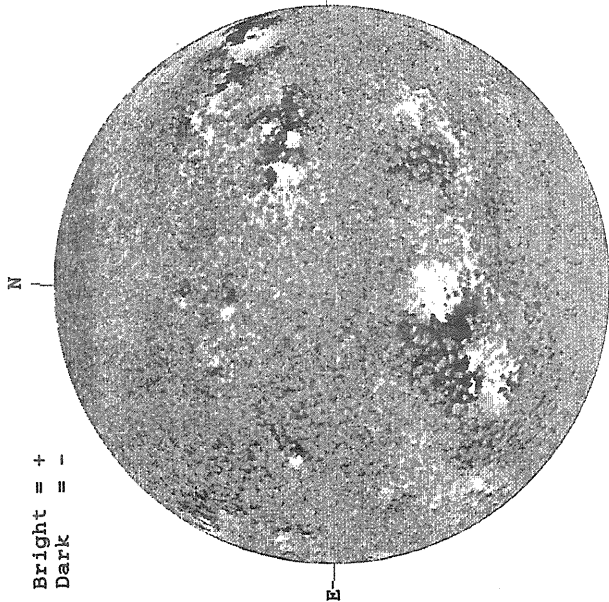


— Fe XIV, 1501 UT
.... Fe X, 1538 UT
xxxxx Ca XV, 1520 UT
NO CA XV ACTIVITY TODAY

NOVEMBER 15, 1989 (P= 21.42, B₀ = 2.83, I₀ = 229.34)

KITT PEAK MAGNETOGRAM

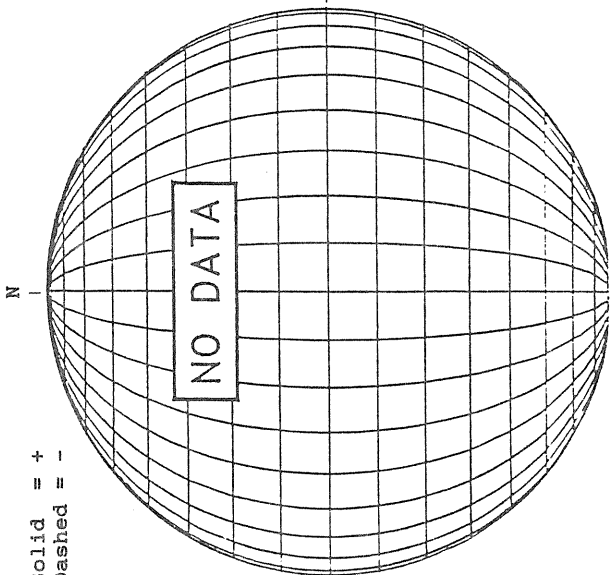
Bright = +
Dark = -



1641 UT

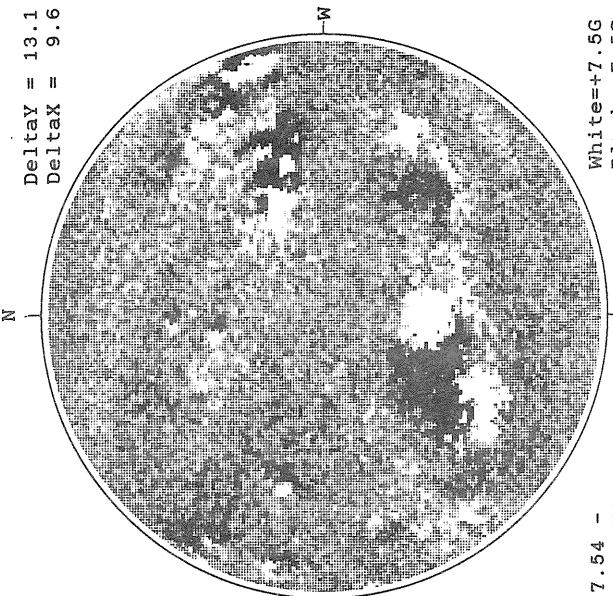
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

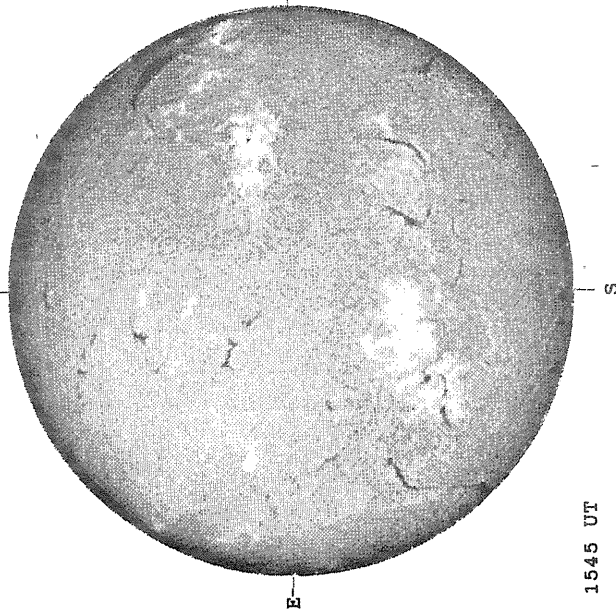
DeltaY = 13.1
DeltaX = 9.6



17.54 -
18.51 UT

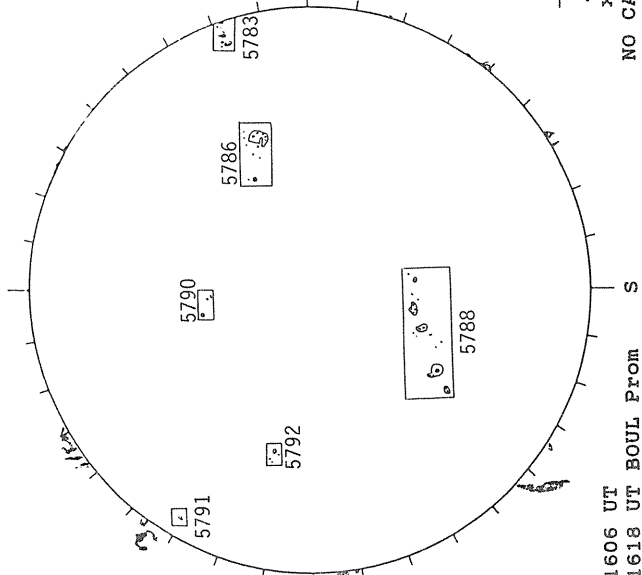
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



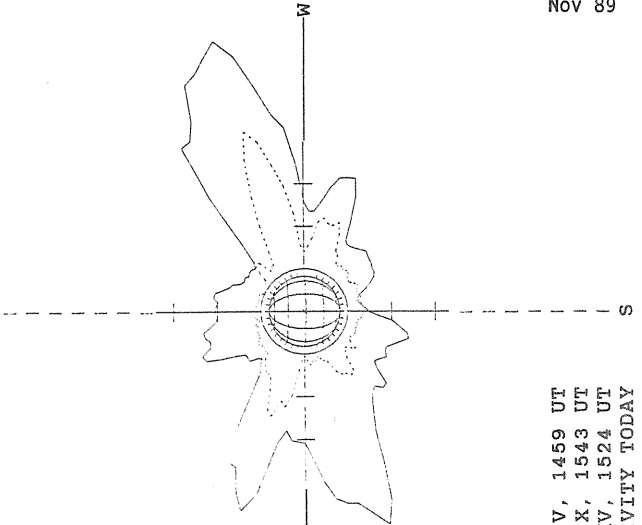
1545 UT

BOULDER SUNSPOT



1606 UT
1618 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

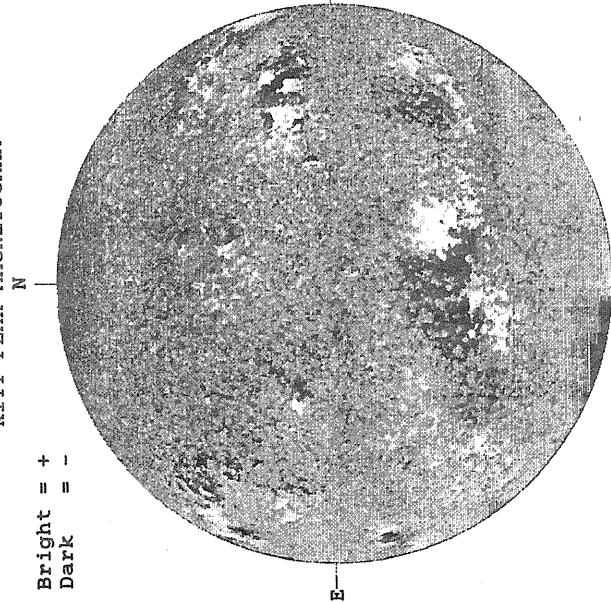


— FeXIV, 1459 UT
.... Fe X, 1543 UT
.... Ca XV, 1524 UT
xxxx Ca XV, 1524 UT
NO CA XV ACTIVITY TODAY

NOVEMBER 16, 1989 (P= 21.14, B₀ = 2.71, L₀ = 216.16)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1622 UT

STANFORD MAGNETOGRAM

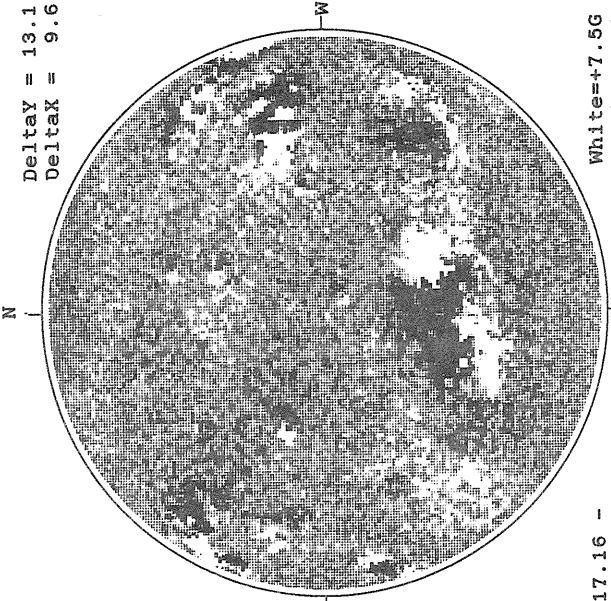
Solid = +
Dashed = -



2145 UT

MT. WILSON MAGNETOGRAM

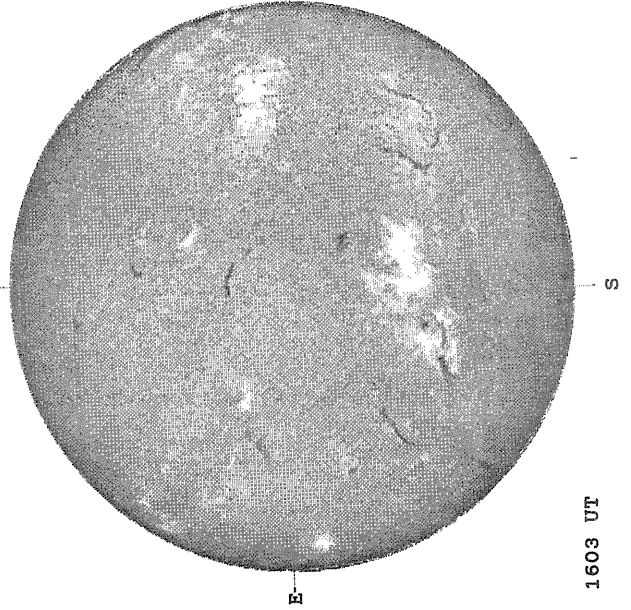
Delta α = 13.1
Delta α = 9.6



17.16 -
18.13 UT

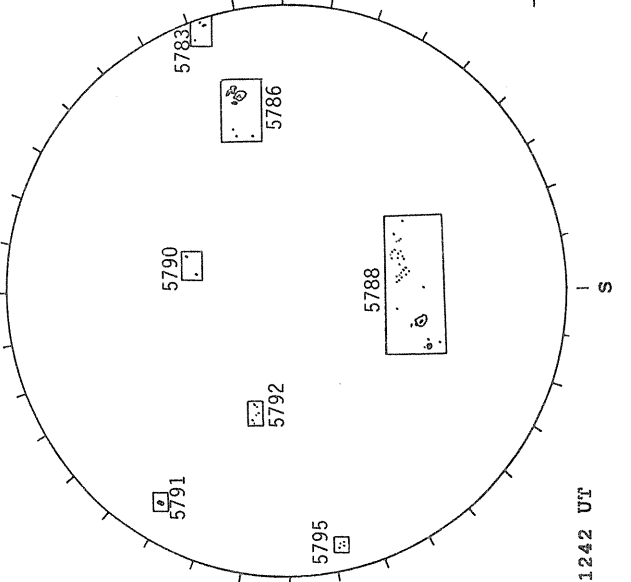
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



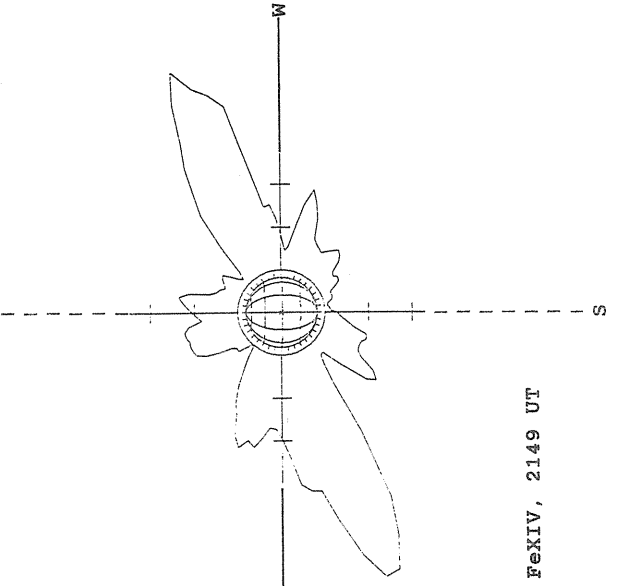
1603 UT

RAMEY SUNSPOT



1242 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

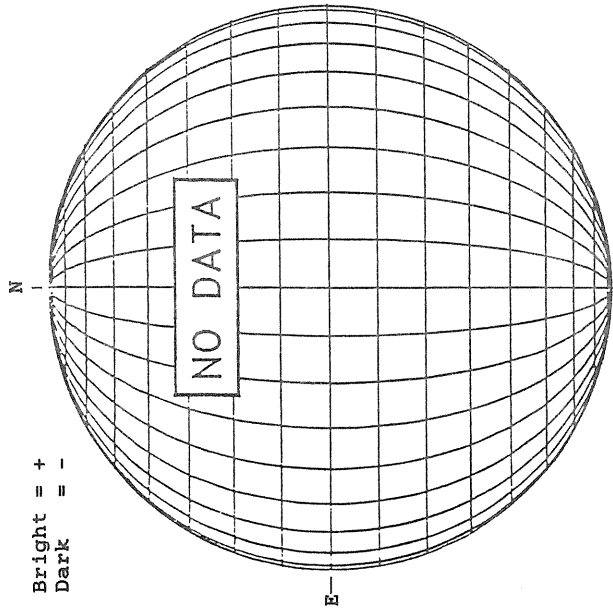


— FeXIV, 2149 UT

NOVEMBER 17, 1989 (P= 20.85, B₀ = 2.59, L₀ = 202.98)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



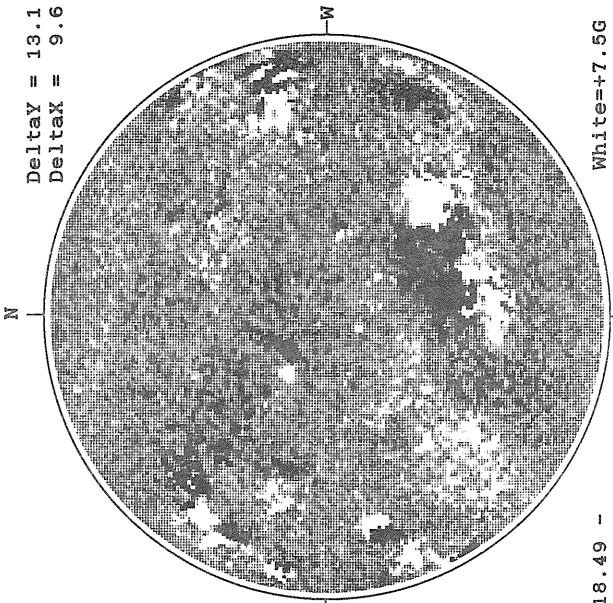
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

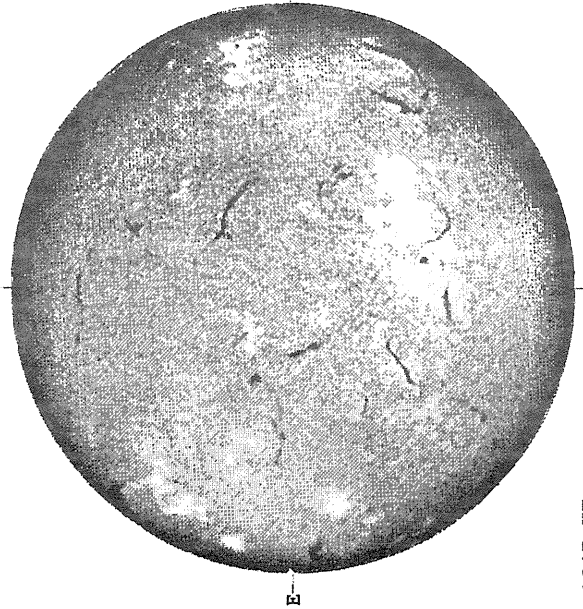
DeltaY = 13.1
DeltaX = 9.6



White=+7.5G
Black=-7.5G

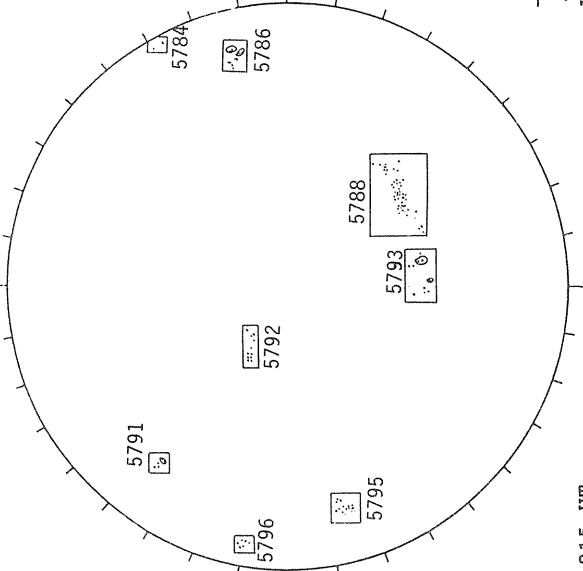
18.49 -
19.45 UT

HOLLOMAN H-ALPHA



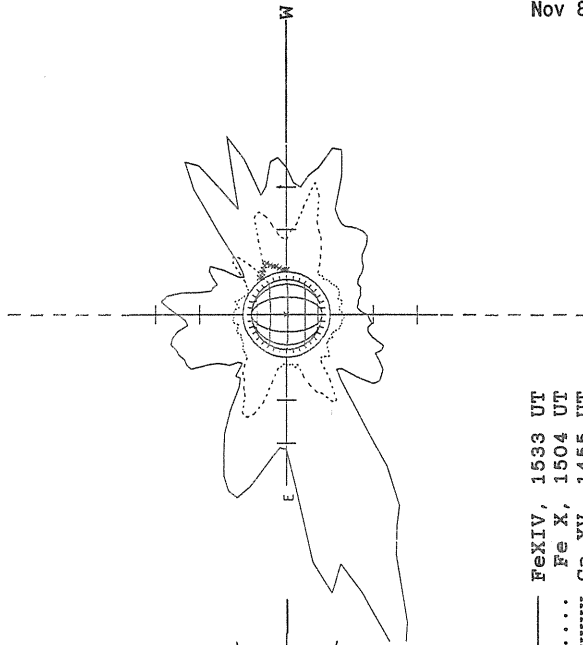
1647 UT

RAMEY SUNSPOT



1215 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

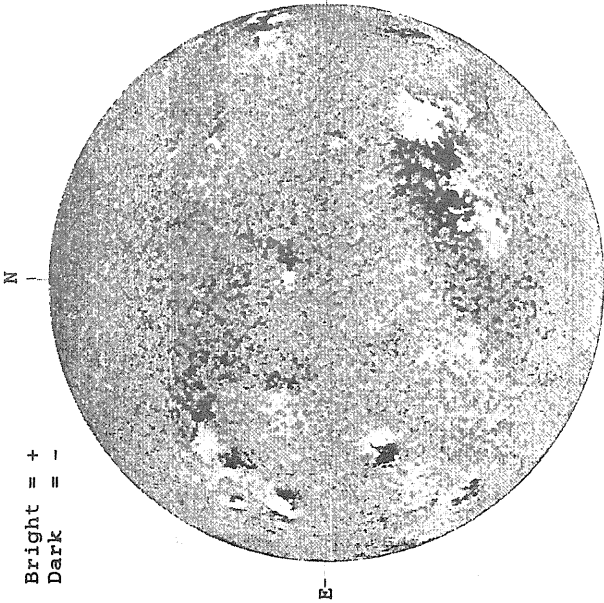


— FeXIV, 1533 UT
.... Fe X, 1504 UT
xxxxx Ca XV, 1455 UT

NOVEMBER 18, 1989 (P= 20.56, B₀ = 2.47, L₀ = 189.80)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1621 UT

STANFORD MAGNETOGRAM

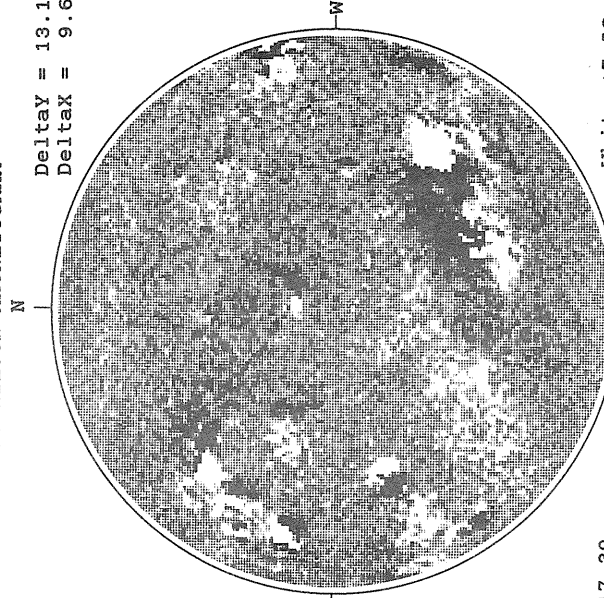
Solid = +
Dashed = -



2135 UT

MT. WILSON MAGNETOGRAM

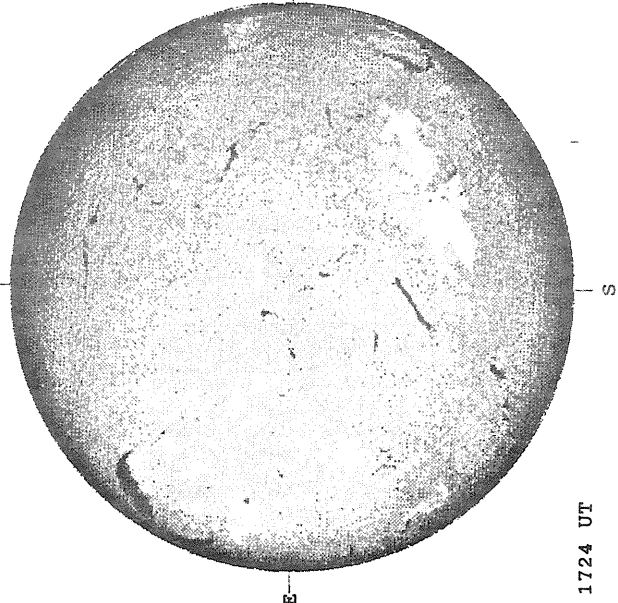
Delta Y = 13.1
Delta X = 9.6



17.39 -
18.35 UT

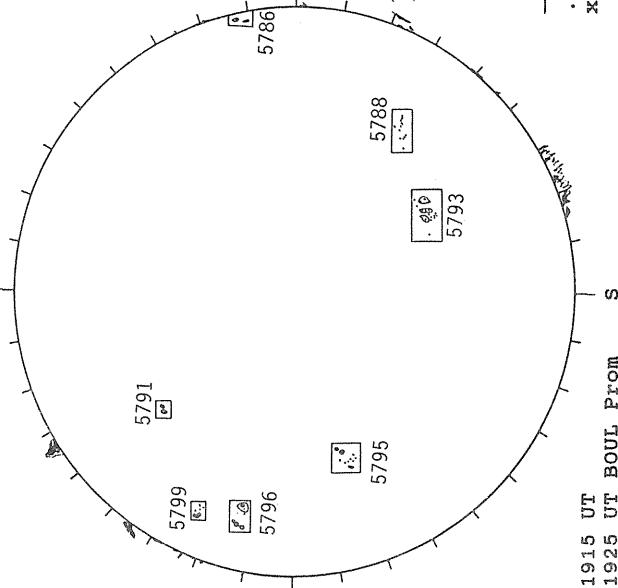
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



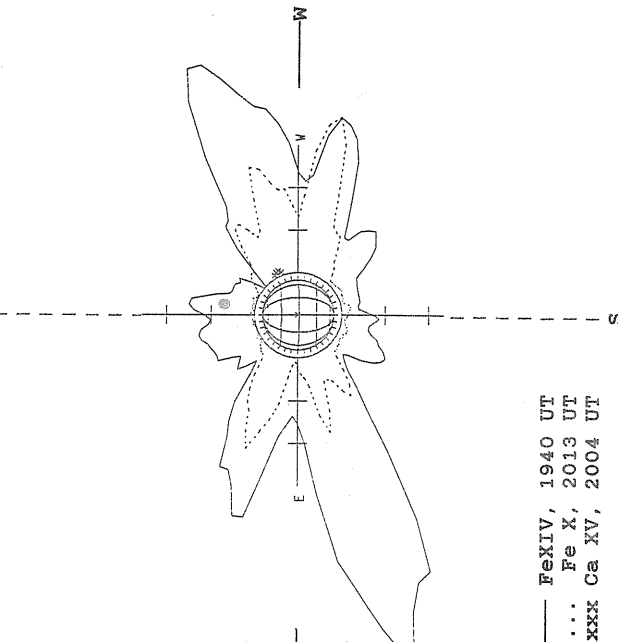
1724 UT

BOULDER SUNSPOT



1915 UT
1925 UT BOUL FROM

SACRAMENTO PEAK CORONA (1.15 Radii)

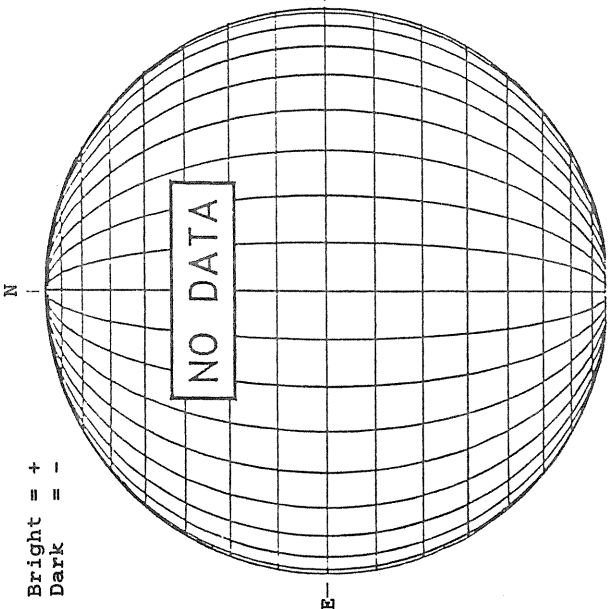


— Fe XIV, 1940 UT
.... Fe X, 2013 UT
xxxx Ca XV, 2004 UT

NOVEMBER 19, 1989 (P= 20.26, B₀ = 2.35, L₀ = 176.61)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



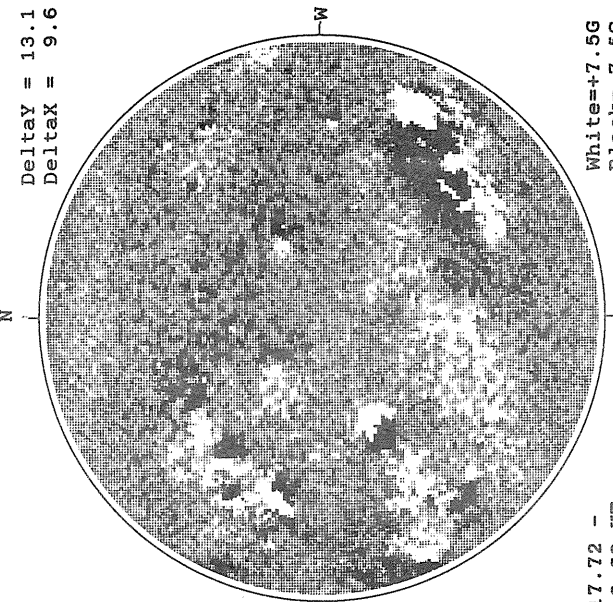
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

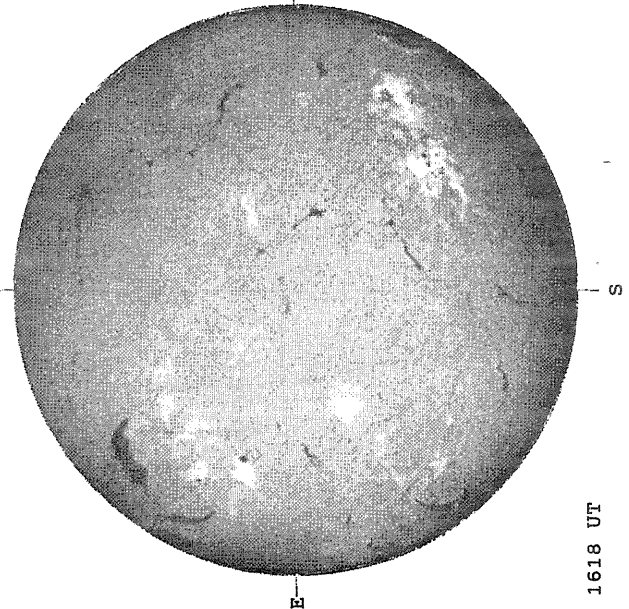
Delta_T = 13.1
Delta_X = 9.6



17.72 -
18.68 UT

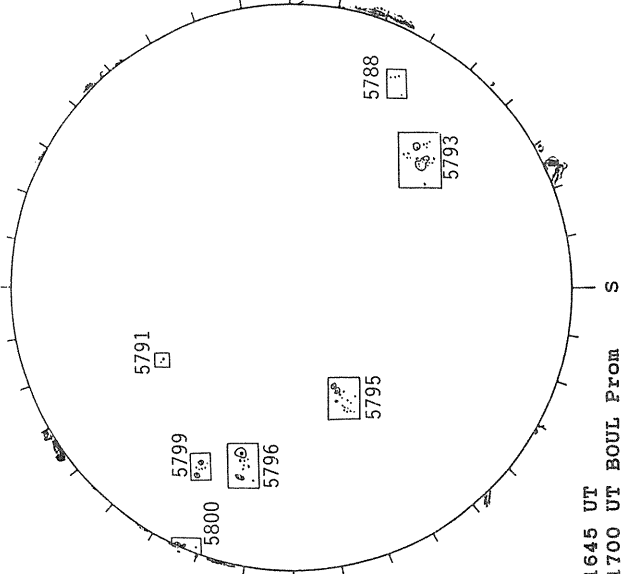
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



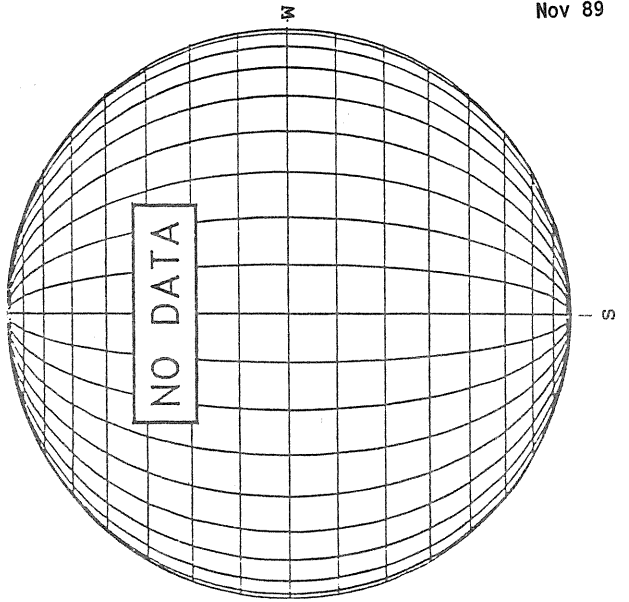
1618 UT

BOULDER SUNSPOT



1645 UT
1700 UT BOUL FROM S

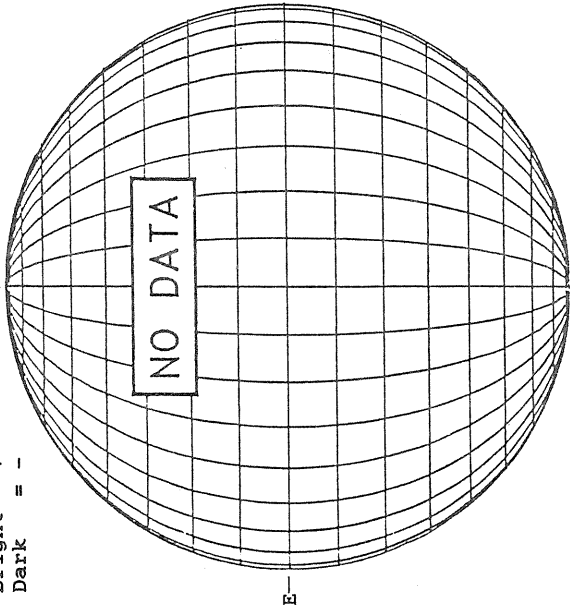
SACRAMENTO PEAK CORONA (1.15 Radii)



NOVEMBER 20, 1989 (P= 19.95, B₀ = 2.23, L₀ = 163.43)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



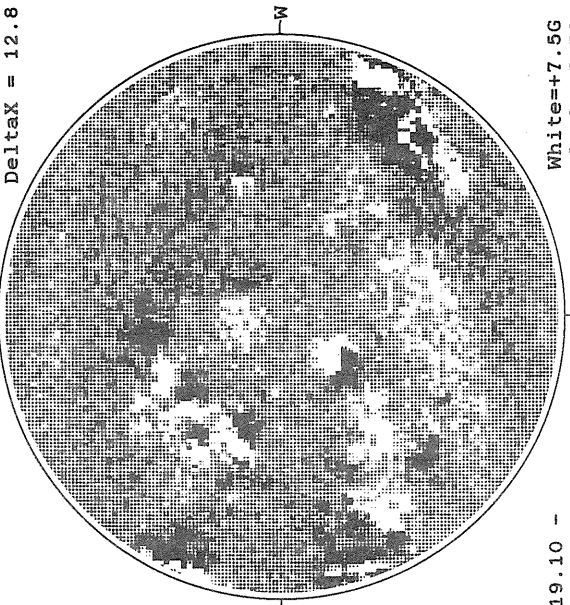
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

Delta γ = 19.8
Delta α = 12.8

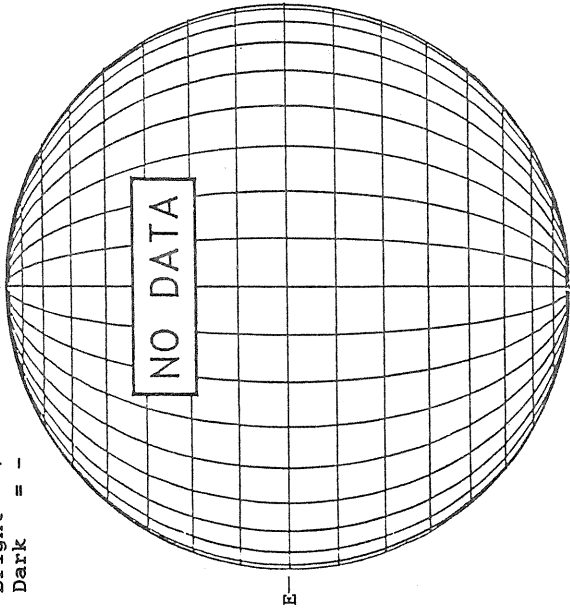


19.10 -
19.46 UT

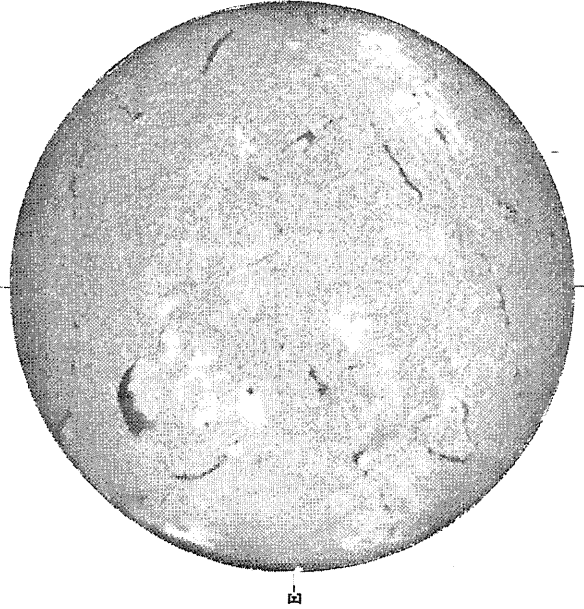
White=+7.5G
Black=-7.5G

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



HOLLOMAN H-ALPHA

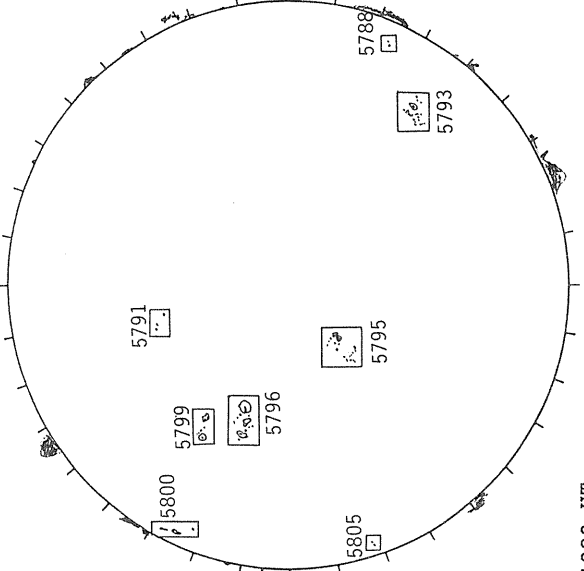


1946 UT

RAMEY SUNSPOT

2144 UT

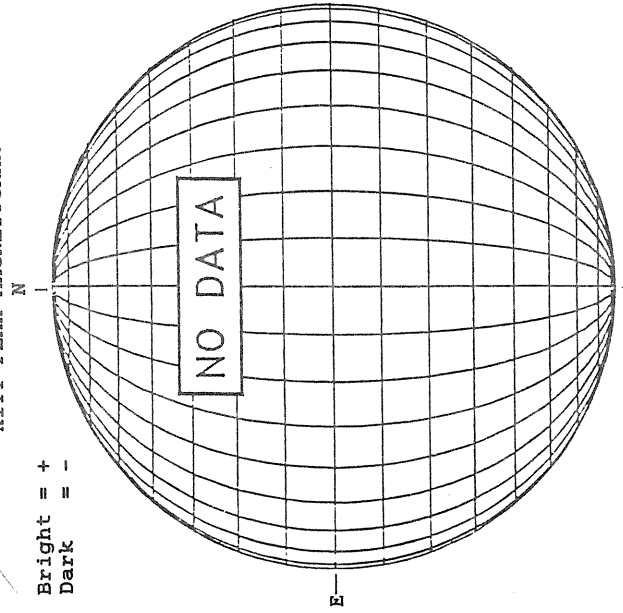
SACRAMENTO PEAK CORONA (1.15 Radii)



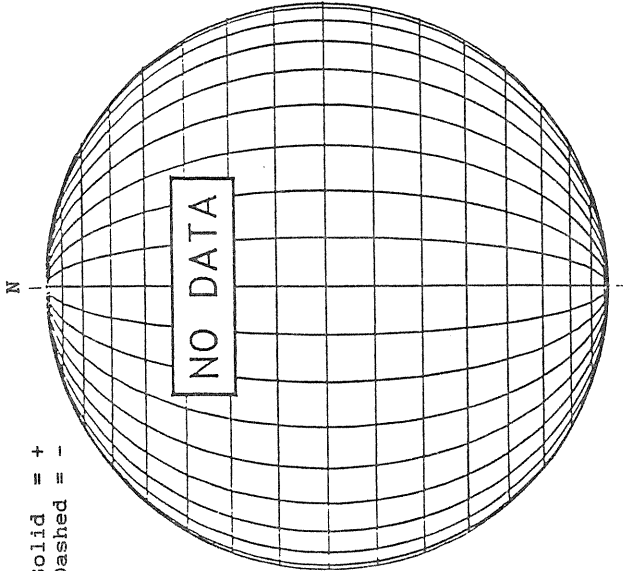
1232 UT
1906 UT BOUL FROM

NOVEMBER 21, 1989 (P= 19.63, B₀ = 2.11, L₀ = 150.25)

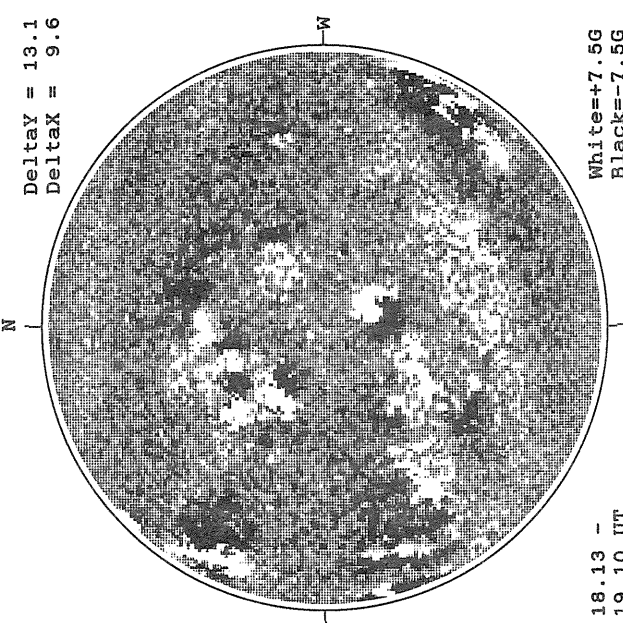
KITT PEAK MAGNETOGRAM



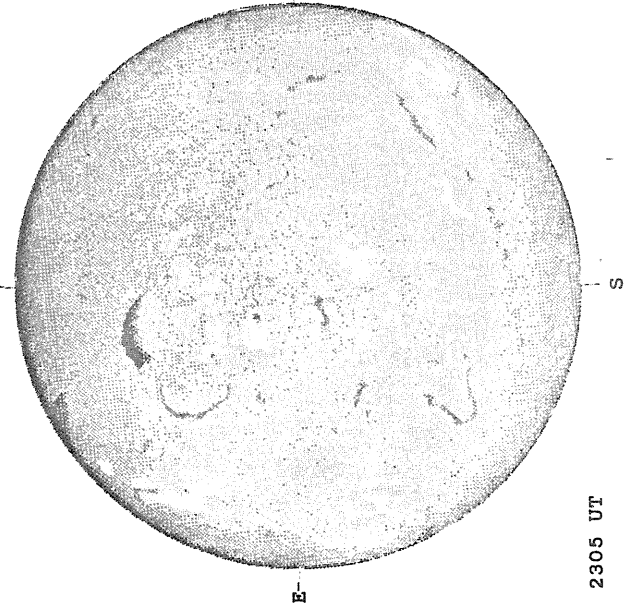
STANFORD MAGNETOGRAM



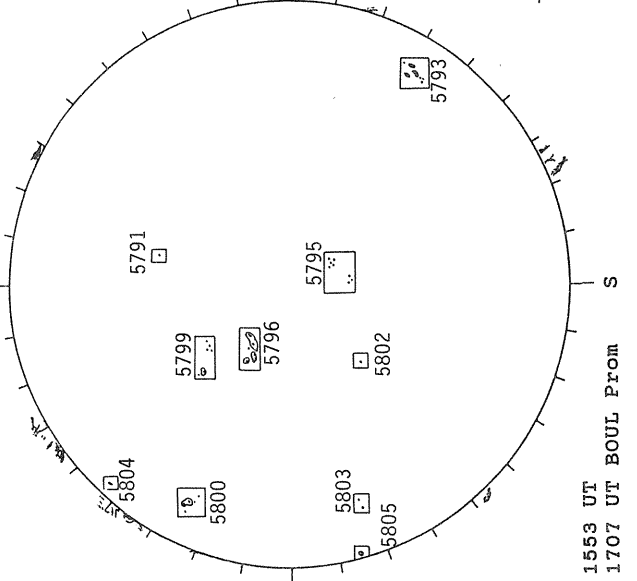
MT. WILSON MAGNETOGRAM



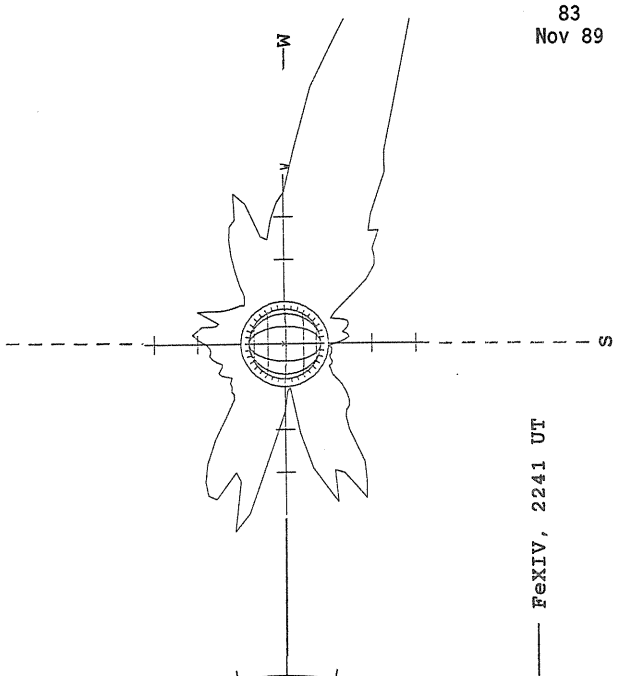
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



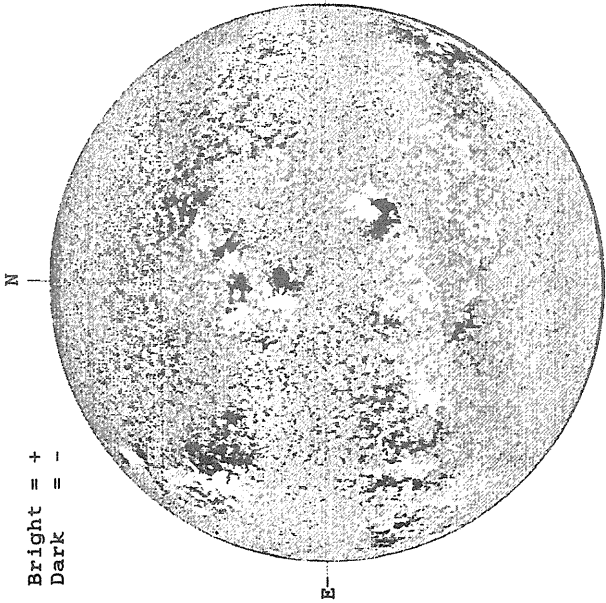
SACRAMENTO PEAK CORONA (1.15 Radii)



NOVEMBER 22, 1989 (P= 19.31, B₀ = 1.99, L₀ = 137.07)

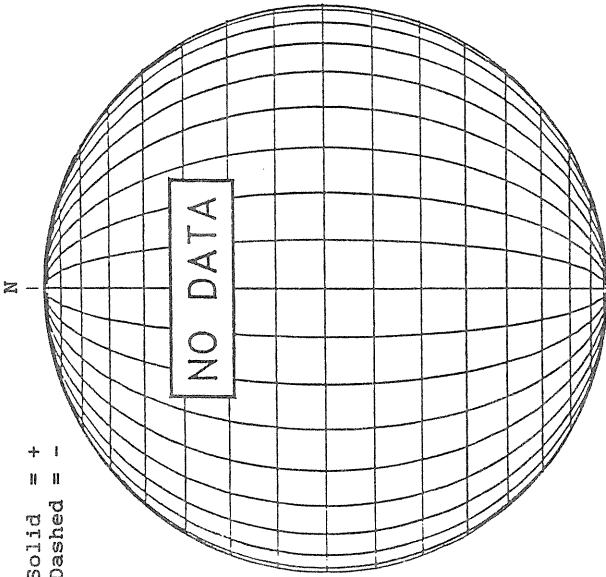
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



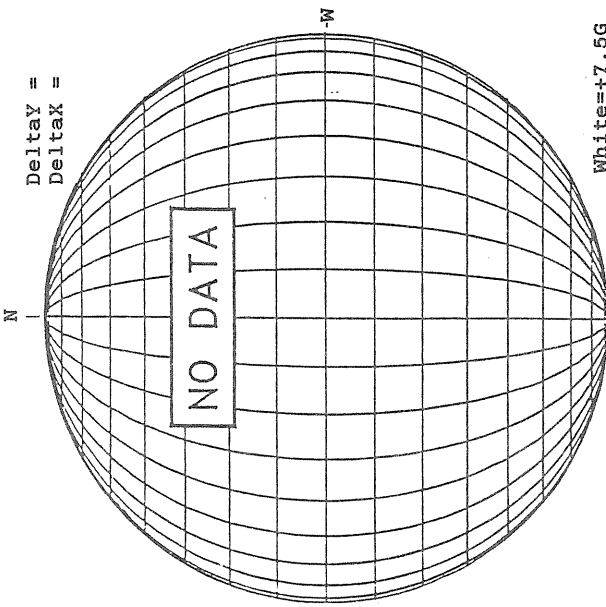
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

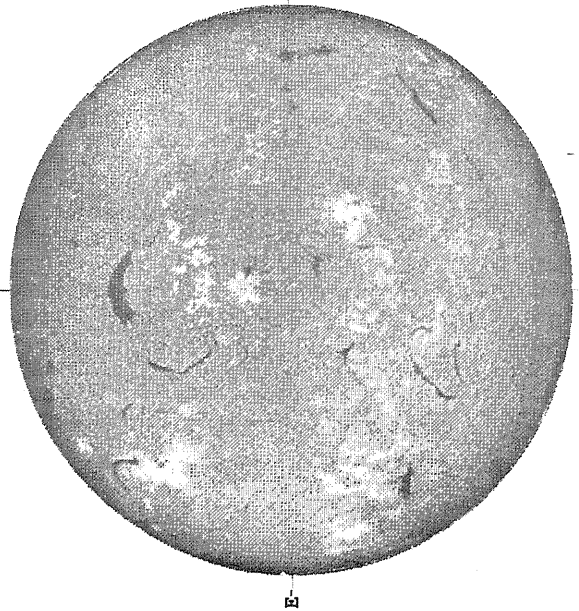
Deltax =
Deltax =



White=+7.5G
Black=-7.5G

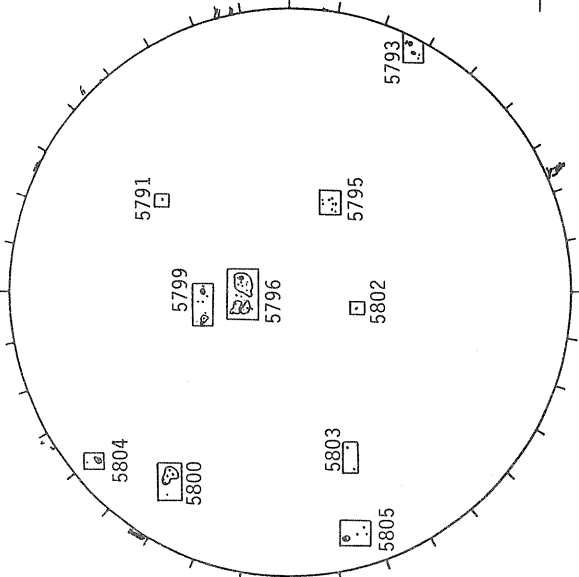
1529 UT

HOLLOMAN H-ALPHA



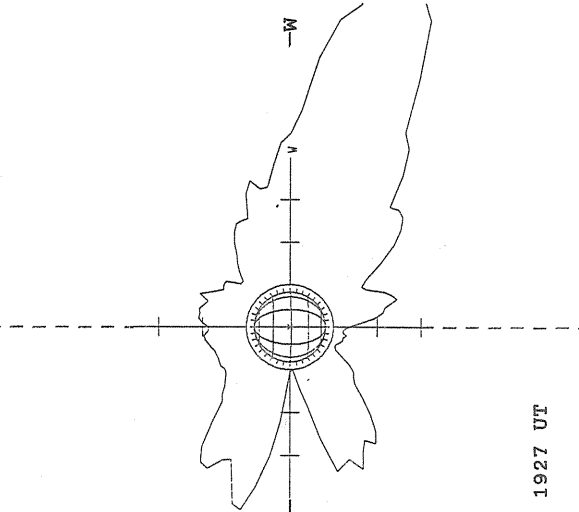
1800 UT

BOULDER SUNSPOT



1557 UT
1604 UT BOUL FROM

SACRAMENTO PEAK CORONA (1.15 Radii)

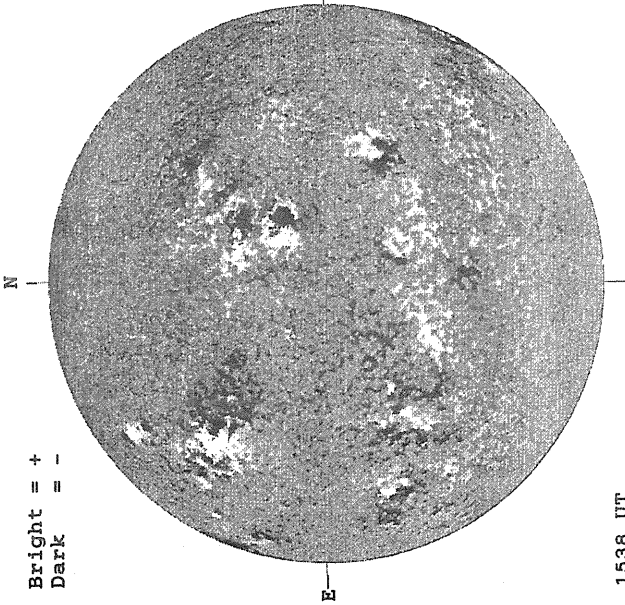


— FeXIV, 1927 UT

NOVEMBER 23, 1989 (P= 18.98, B₀ = 1.87, L₀ = 123.89)

KITT PEAK MAGNETOGRAM

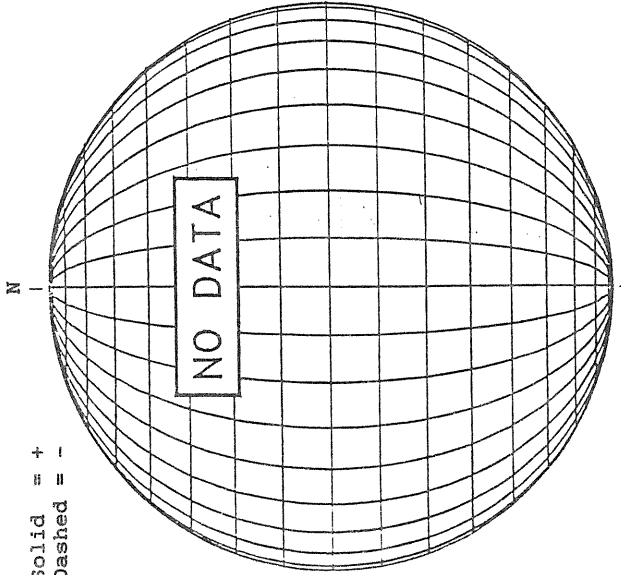
Bright = +
Dark = -



1538 UT

STANFORD MAGNETOGRAM

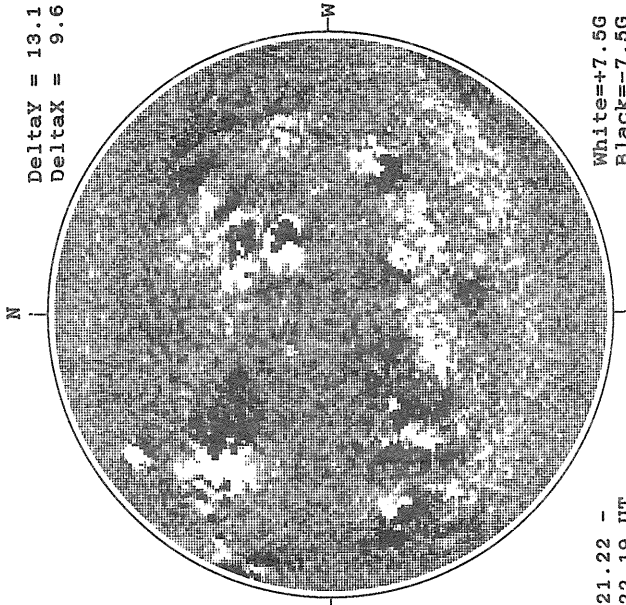
Solid = +
Dashed = -



21.22 -
22.19 UT

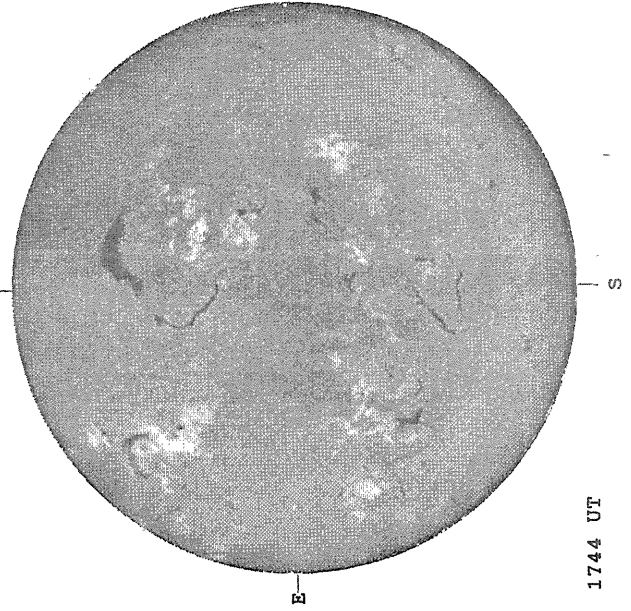
MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



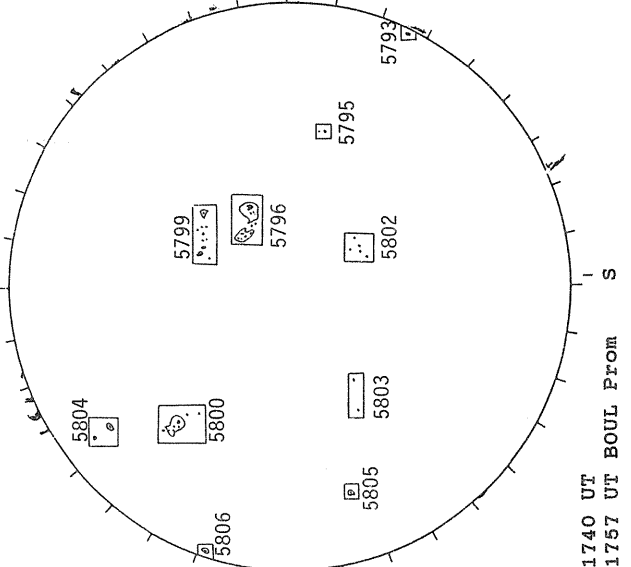
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



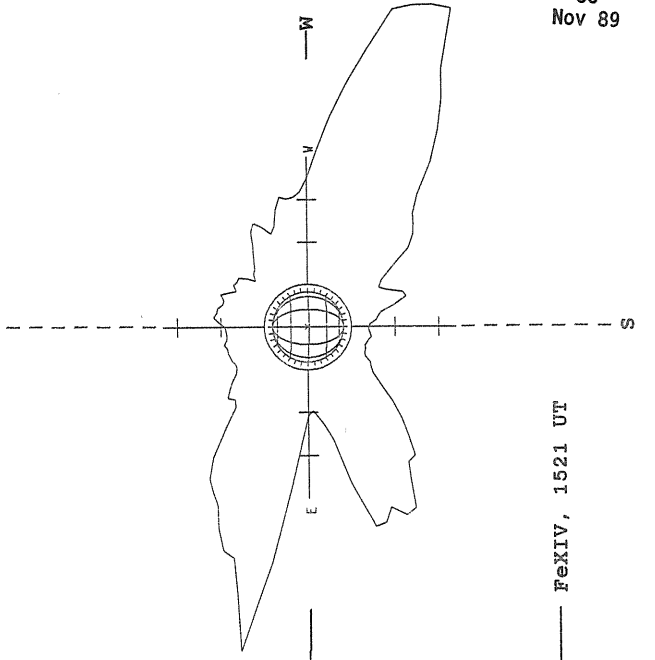
1744 UT

BOULDER SUNSPOT



1740 UT
1757 UT BOUL FROM S

SACRAMENTO PEAK CORONA (1.15 Radii)

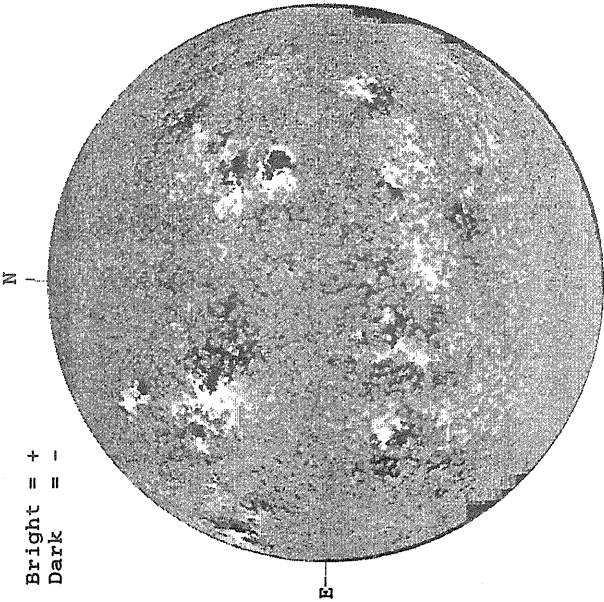


— FeXIV, 1521 UT

NOVEMBER 24, 1989 (P = 18.64, B₀ = 1.74, L₀ = 110.71)

KITT PEAK MAGNETOGRAM

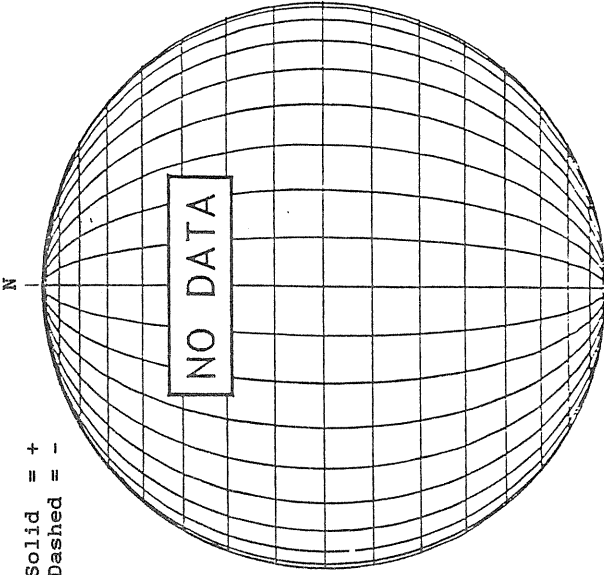
Bright = +
Dark = -



1548 UT

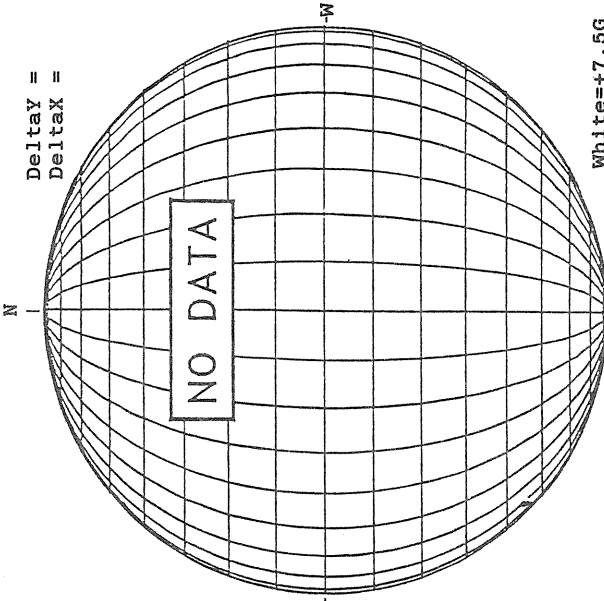
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



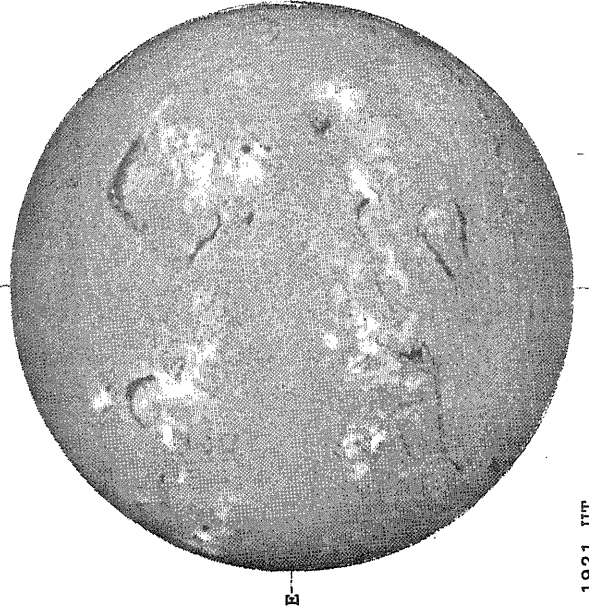
MT. WILSON MAGNETOGRAM

Delta₁ =
Delta₂ =



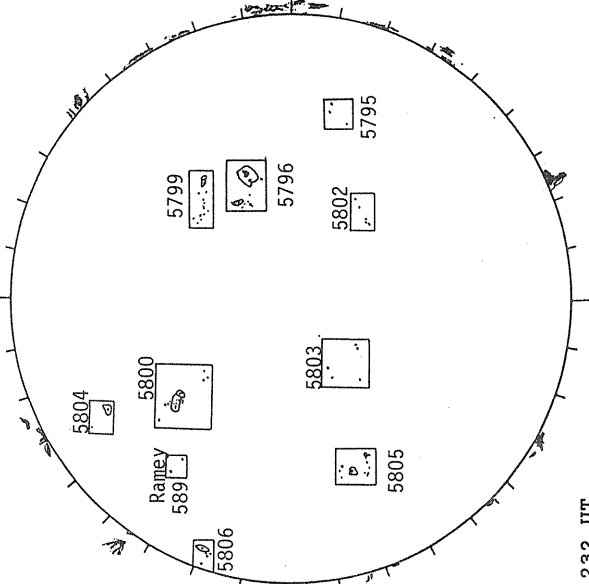
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



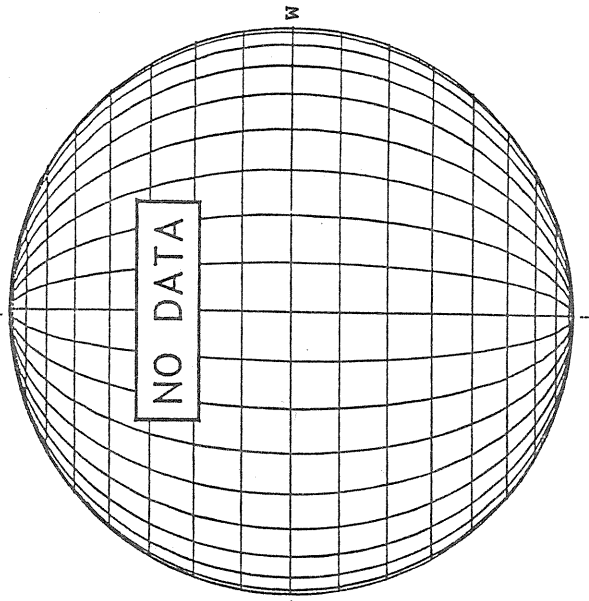
1921 UT

RAMEY SUNSPOT



1232 UT
1705 UT BOUL FROM

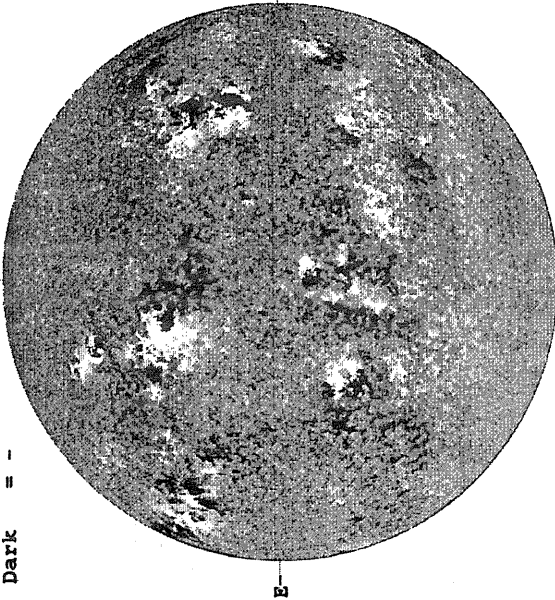
SACRAMENTO PEAK CORONA (1.15 Radii)



NOVEMBER 25, 1989 (P= 18.30, B₀ = 1.62, I₀ = 97.53)

KITT PEAK MAGNETOGRAM

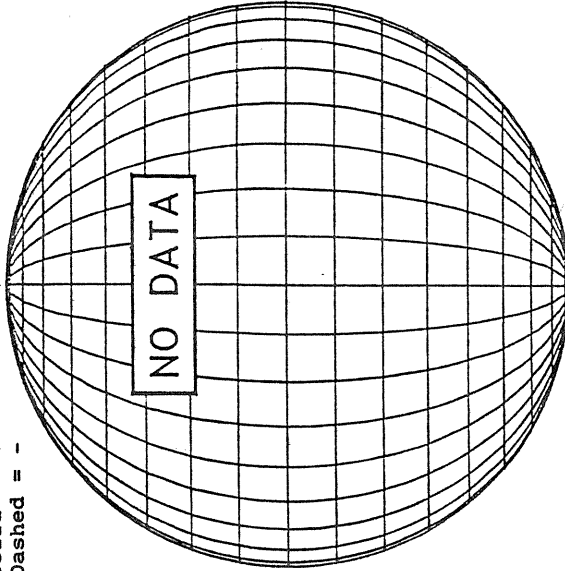
Bright = +
Dark = -



1638 UT

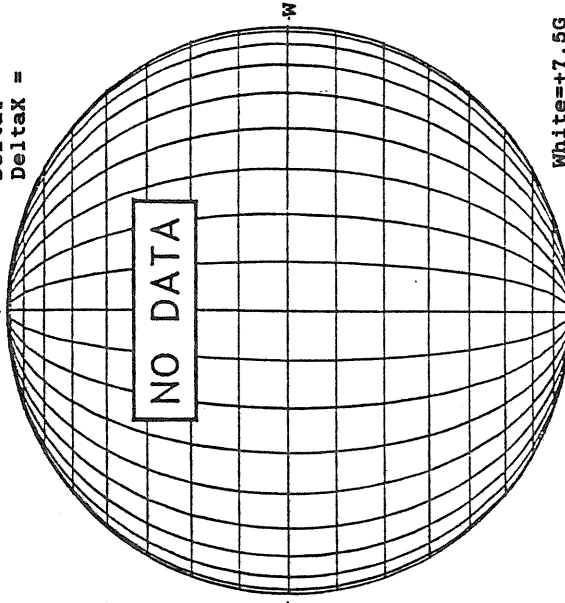
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

Delta α =
Delta α =



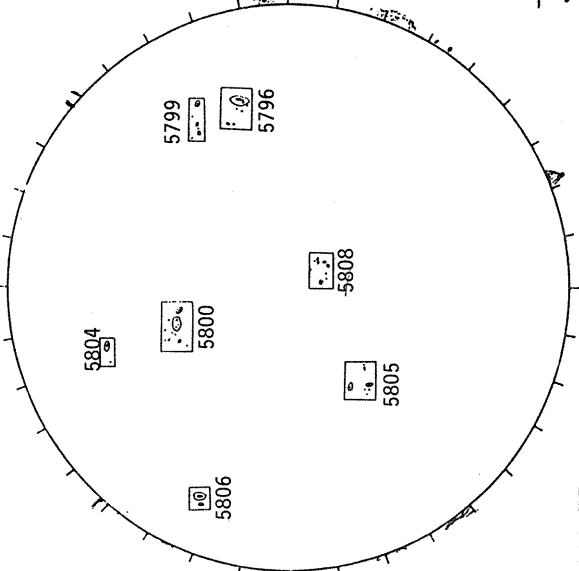
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



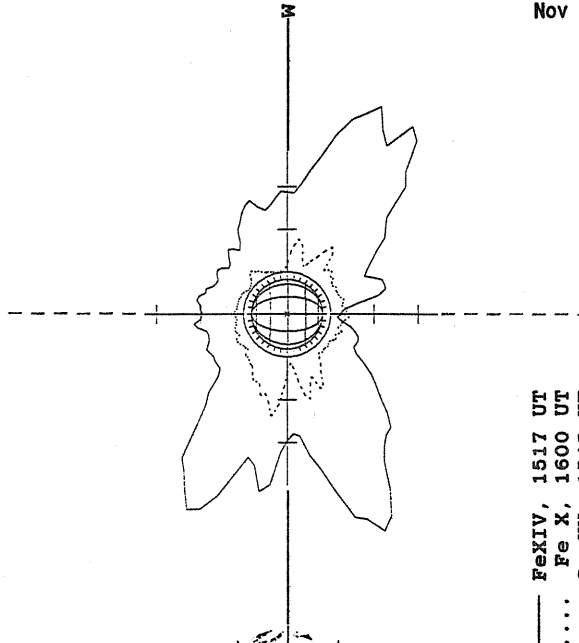
1558 UT

BOULDER SUNSPOT



1638 UT
1642 UT BOUL Prom

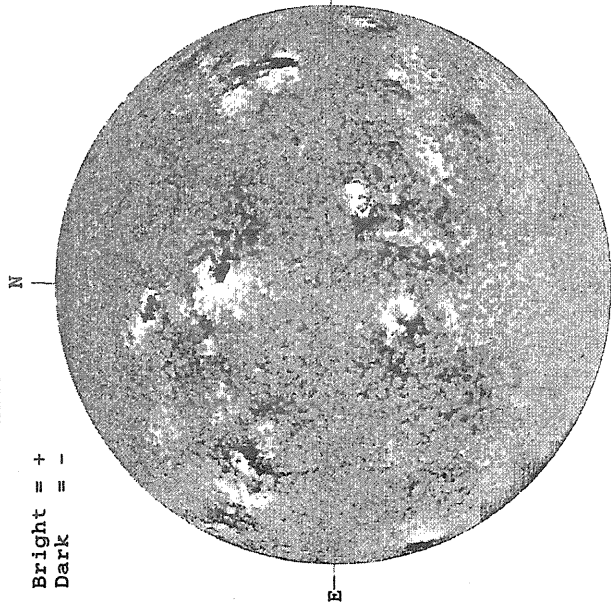
SACRAMENTO PEAK CORONA (1.15 Radii)



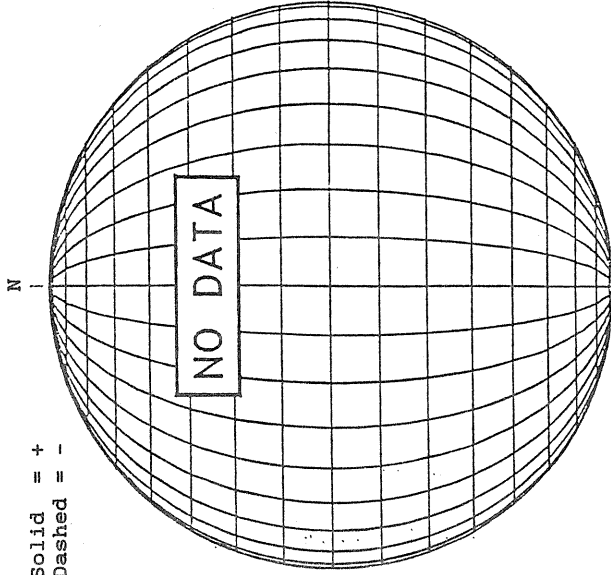
— FeXIV, 1517 UT
.... Fe X, 1600 UT
xxxxx Ca XV, 1545 UT
NO CA XV ACTIVITY TODAY

NOVEMBER 26, 1989 (P= 17.95, B₀ = 1.49, I₀ = 84.35)

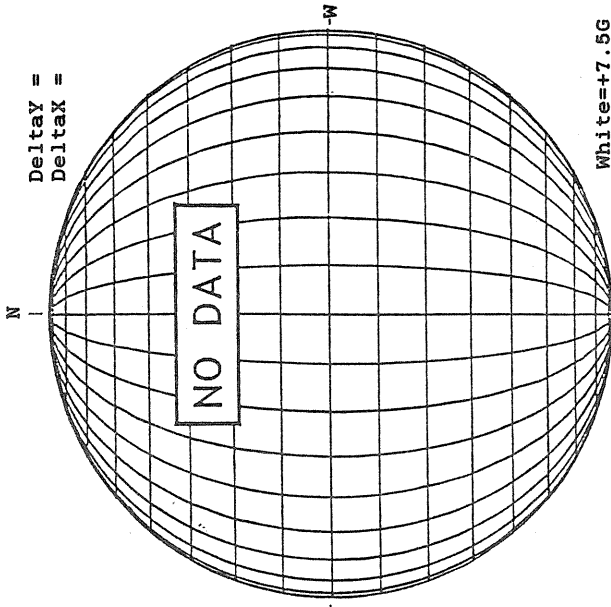
KITT PEAK MAGNETOGRAM



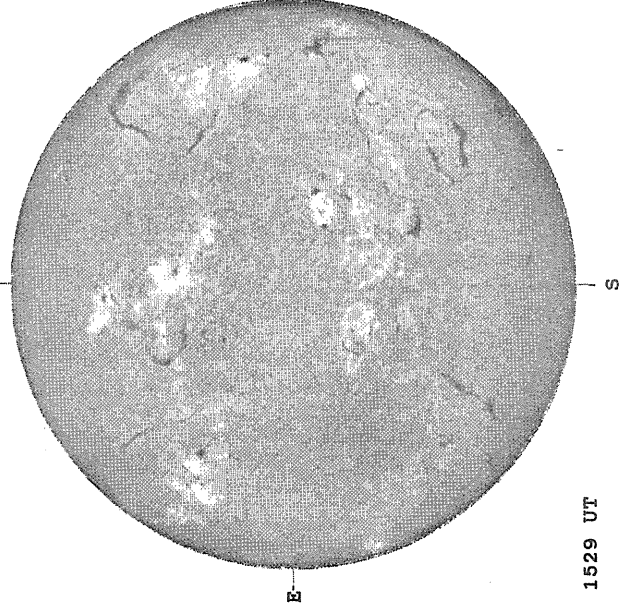
STANFORD MAGNETOGRAM



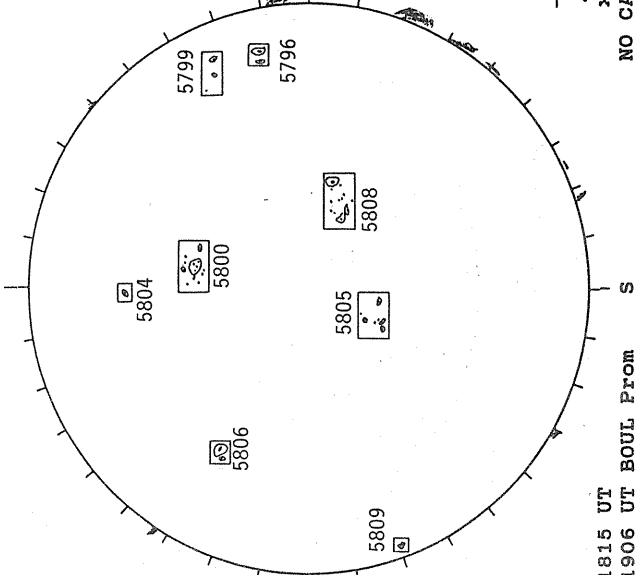
MT. WILSON MAGNETOGRAM



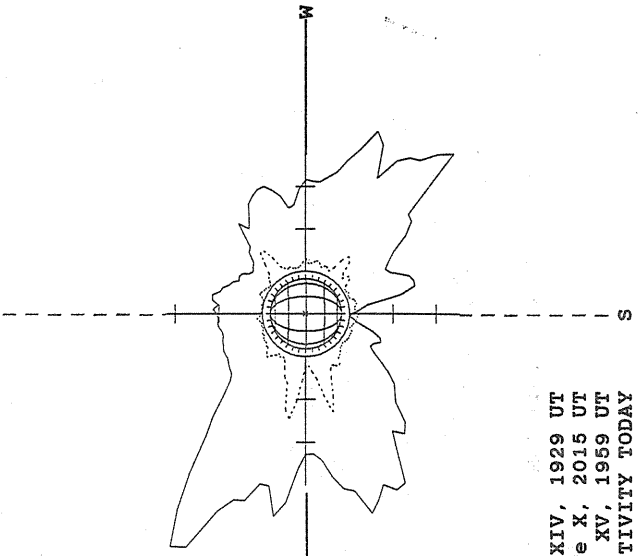
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



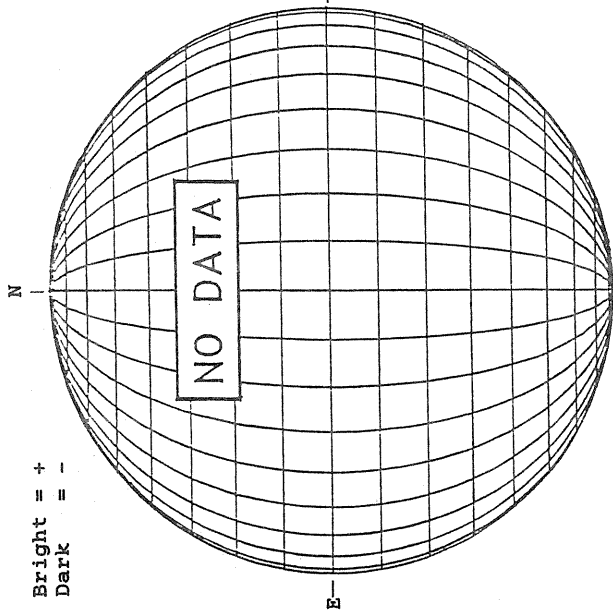
SACRAMENTO PEAK CORONA (1.15 Radii)



NOVEMBER 27, 1989 (P= 17.60, B₀ = 1.37, L₀ = 71.17)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



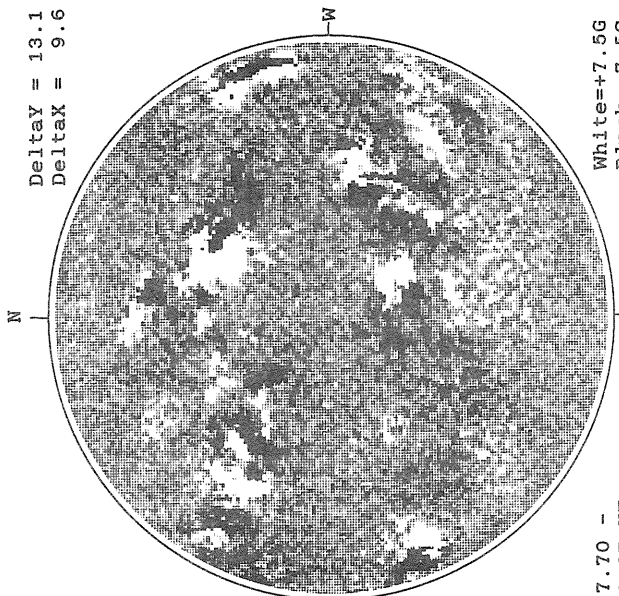
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

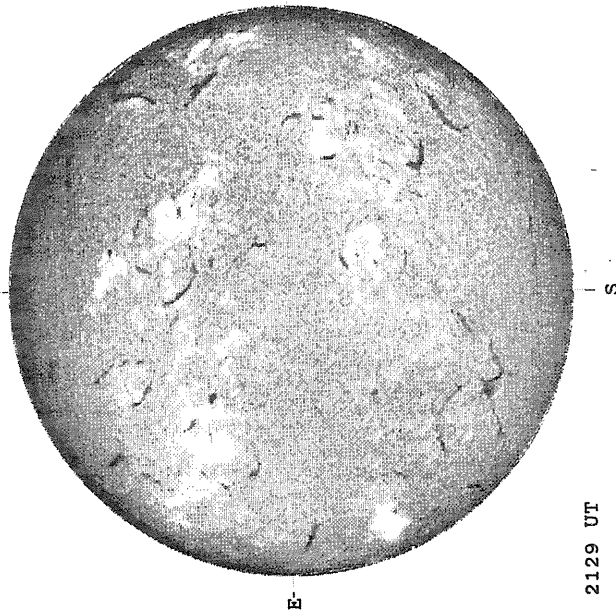
DeltaY = 13.1
DeltaX = 9.6



17.70 -
18.67 UT

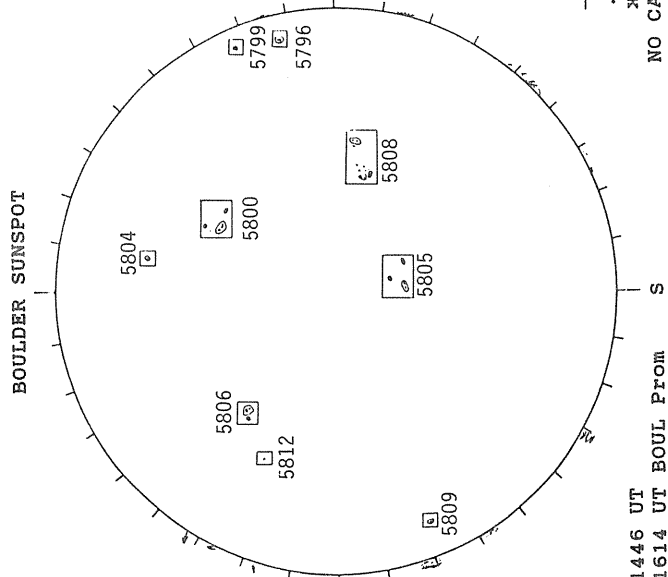
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



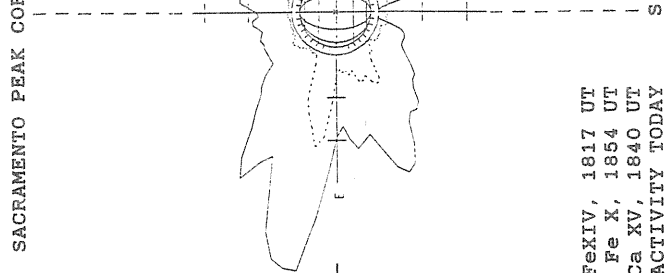
2129 UT

BOULDER SUNSPOT



1446 UT
1614 UT BOUL FROM

SACRAMENTO PEAK CORONA (1.15 Radii)



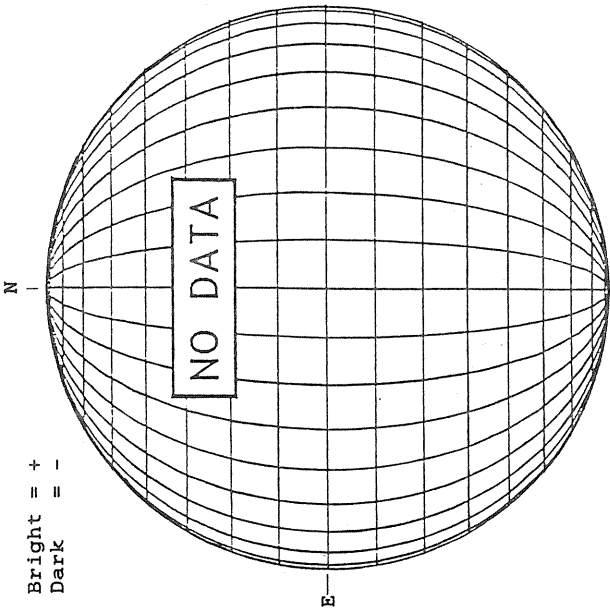
— FeXIV, 1817 UT
.... Fe X, 1854 UT
XXXX Ca XV, 1840 UT
NO CA XV ACTIVITY TODAY

2129 UT

NOVEMBER 28, 1989 (P= 17.23, B₀ = 1.24, L₀ = 57.99)

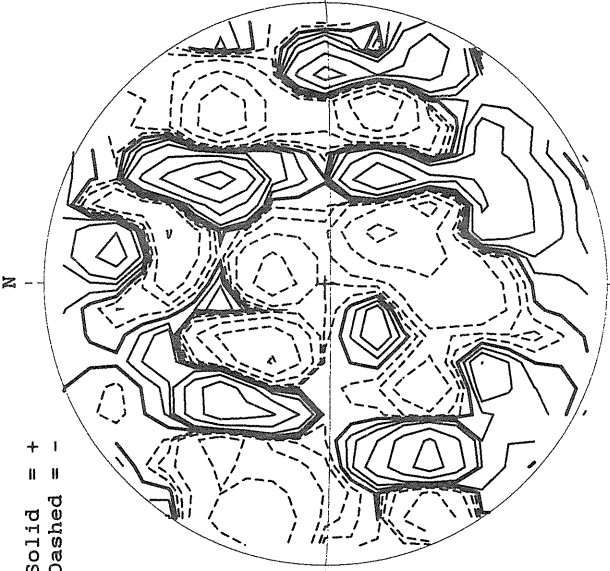
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



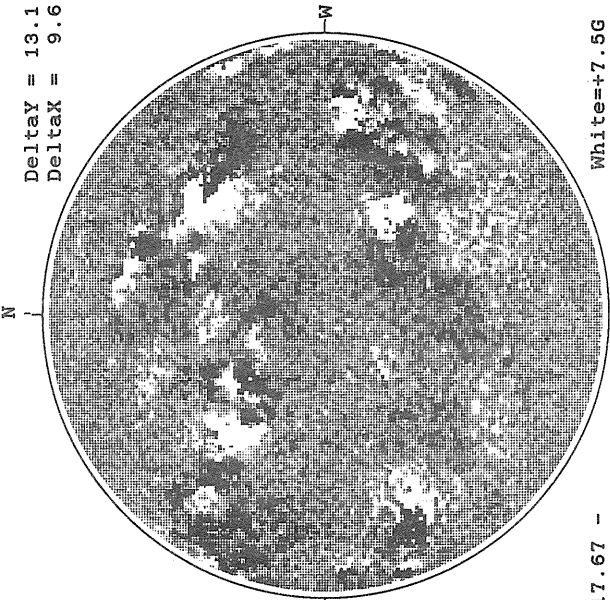
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

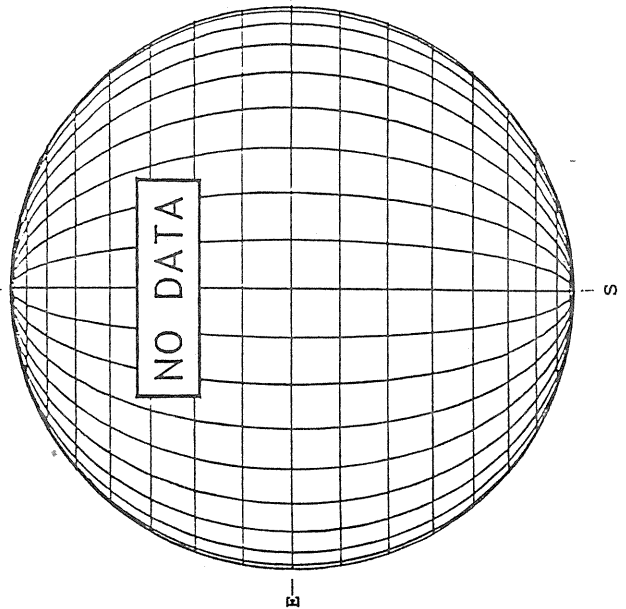
Delta_Y = 13.1
Delta_X = 9.6



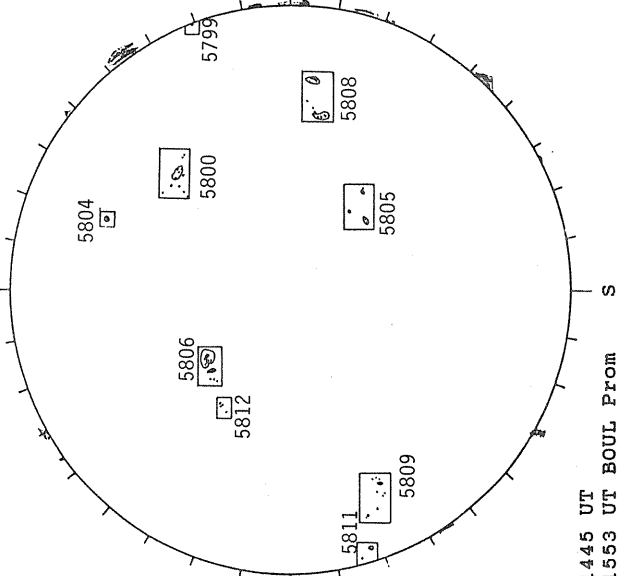
17.67 -
18.64 UT

White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA

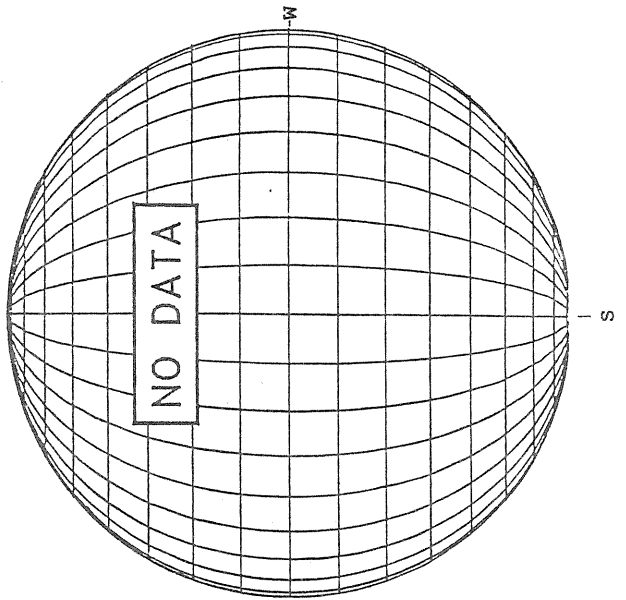


BOULDER SUNSPOT



1445 UT
1553 UT BOUL FROM

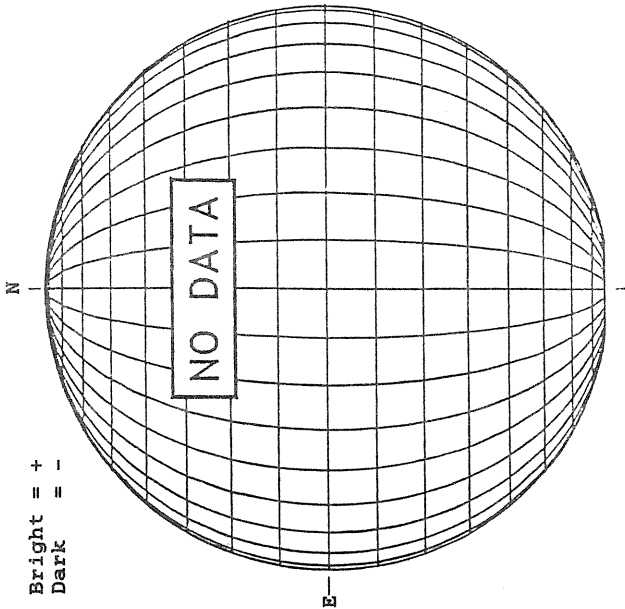
SACRAMENTO PEAK CORONA (1.15 Radii)



NOVEMBER 29, 1989 (P= 16.86, B₀ = 1.12, L₀ = 44.81)

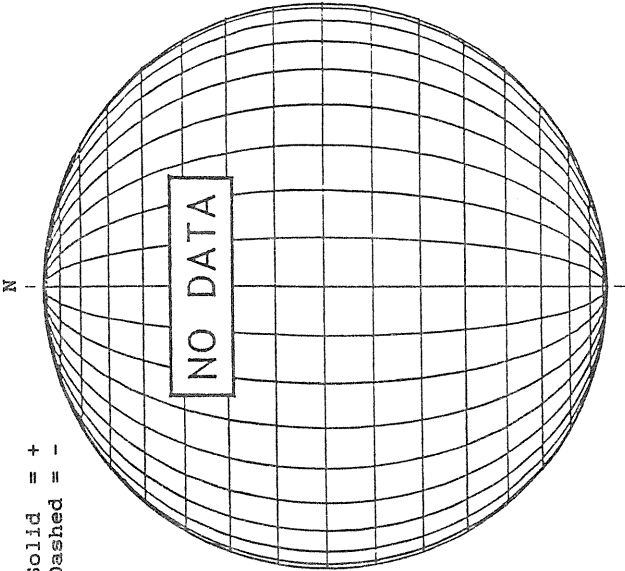
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



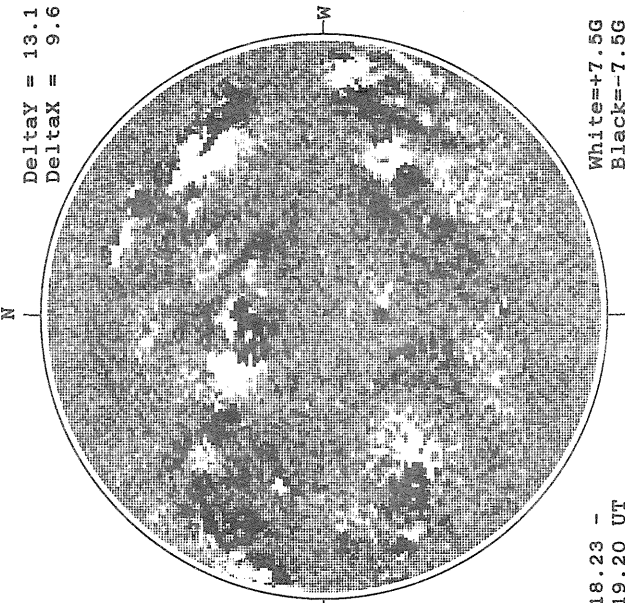
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

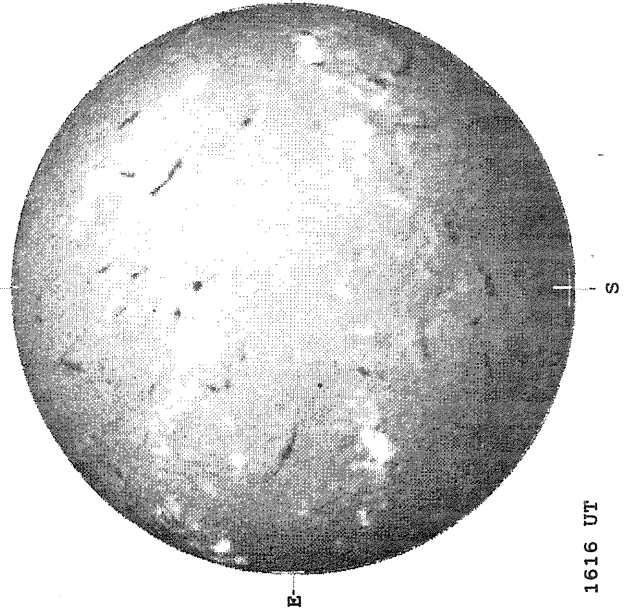
DeltaY = 13.1
DeltaX = 9.6



18.23 -
19.20 UT

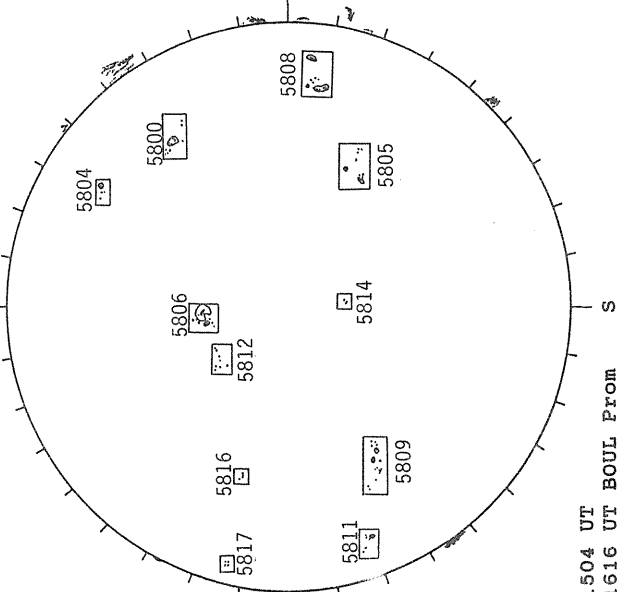
White=+7.5G
Black=-7.5G

BOULDER H-ALPHA



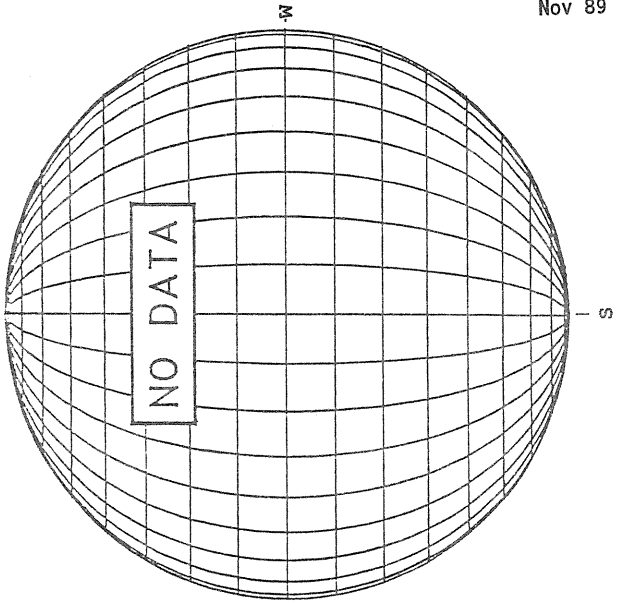
1616 UT

BOULDER SUNSPOT



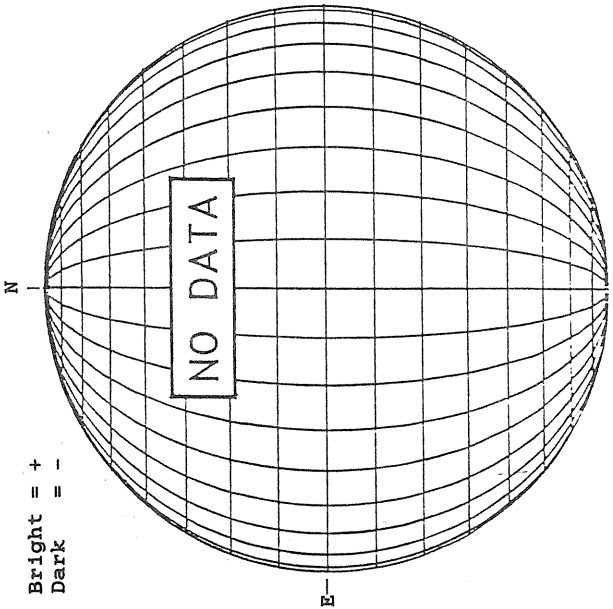
1504 UT
1616 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

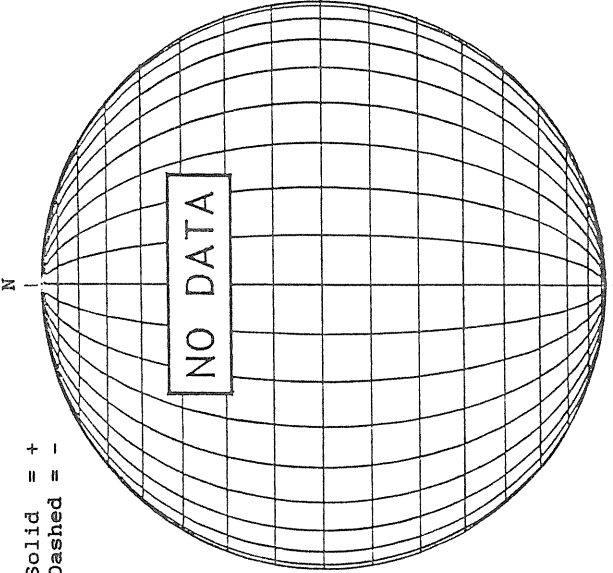


NOVEMBER 30, 1989 (P= 16.49, B₀ = 0.99, L₀ = 31.63)

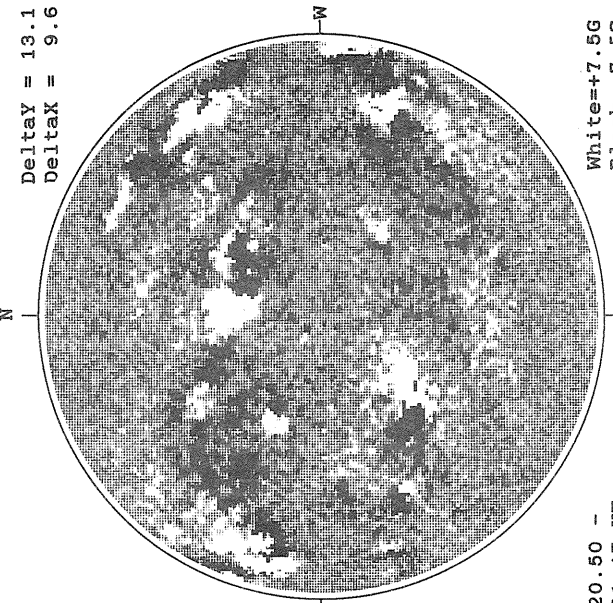
KITT PEAK MAGNETOGRAM



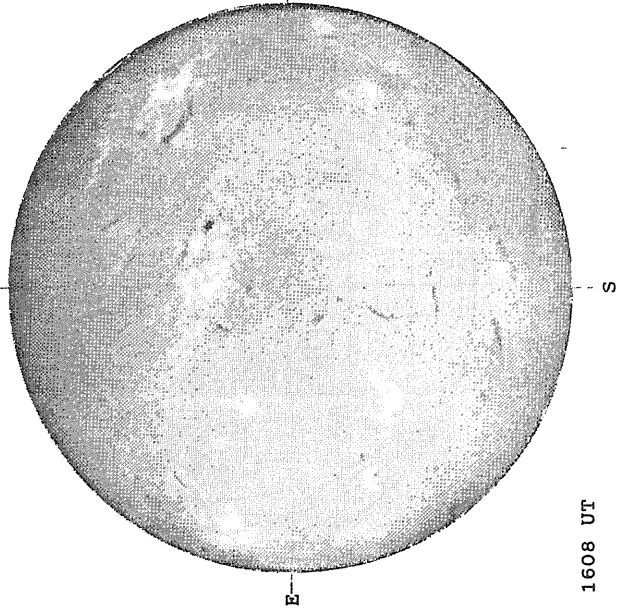
STANFORD MAGNETOGRAM



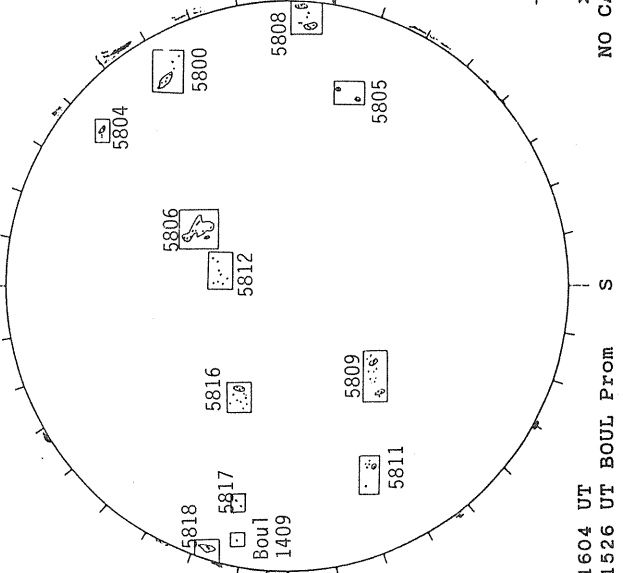
MT. WILSON MAGNETOGRAM



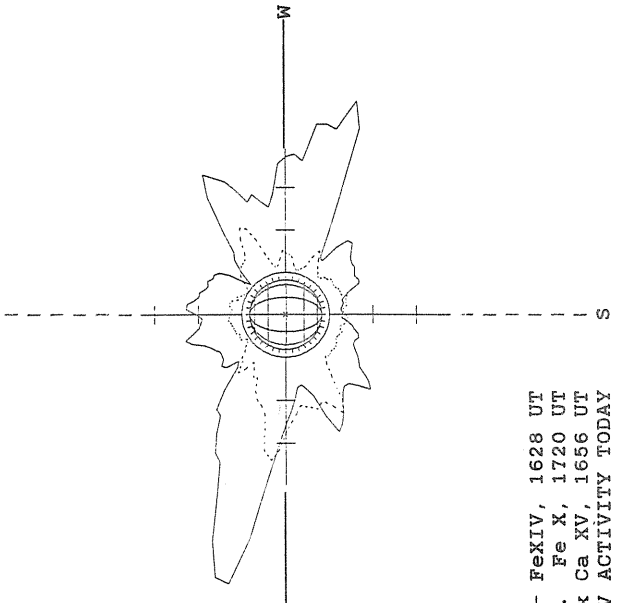
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

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NOVEMBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day												UT
5775A		PALE	10	30	1803	N15 E16	11	1.0		A	AX		1		3
5775A		HOLL	10	30	1825	N16 E16	11	1.0		A	AX		2	2	2
5777		RAMY	11	02	1420	N16 W11	11	1.8		A	AX		1	1	3
5777		HOLL	11	02	1600	N15 W13	11	1.7		B	BXO	10	6	4	3
5777		PALE	11	02	1810	N15 W14	11	1.7		B	BXO	10	3	3	2
5777		CULG	11	03	0325	N17 W20	11	1.6		B	BXO	10	2	3	2
5777		RAMY	11	05	1351	N15 W50	11	1.8		B	BXO	10	3	3	2
5777		PALE	11	05	2251	N14 W55	11	1.8		A	AX	10	4	1	3
5777		LEAR	11	06	0105	N15 W55	11	1.9		B	BXO	20	5	4	3
5777		CULG	11	07	0600	N17 W73	11	1.7		B	DSO	60	4	5	1
5777		RAMY	11	07	1207	N15 W76	11	1.7		B	CAO	70	4	4	2
5777		HOLL	11	07	1710	N15 W78	11	1.8		B	CSO	50	4	9	4
5777		PALE	11	07	2015	N15 W80	11	1.8		A	HA	60	1	2	3
5777		LEAR	11	08	0045	N17 W78	11	2.1		A	HA	30	1	1	3
5777		CULG	11	08	0310	N21 W86	11	1.5		A	HA	30	2	1	3
5777A		HOLL	11	03	1635	S12 W22	11	2.0		B	BXO	10	3	3	3
5764		RAMY	10	26	1458	N26 E87	11	2.4		A	HR	30	1	2	3
5764		PALE	10	26	1912	N24 E85	11	2.4		A	AX		2		3
5764		LEAR	10	27	0110	N25 E80	11	2.2		B	CAO	30	2	3	3
5764		BOUL	10	27	1452	N27 E73	11	2.3		A	HS	60	1	2	1
5764		HOLL	10	27	1720	N25 E71	11	2.2		A	AX	60	3	2	2
5764		PALE	10	27	1936	N24 E70	11	2.2		A	AX	40	3	1	3
5764		LEAR	10	28	0007	N24 E67	11	2.2		B	CAO	70	5	5	3
5764		CULG	10	28	0240	N23 E71	11	2.6		B	CRO	20	2	2	2
5764		RAMY	10	28	1220	N26 E60	11	2.2		A	HA	40	1	1	2
5764		HOLL	10	28	1430	N26 E60	11	2.3		A	HS	20	2	2	3
5764		BOUL	10	28	1550	N25 E60	11	2.3		A	HA	40	1	1	1
5764		PALE	10	28	1930	N25 E59	11	2.4		A	HS	40	1	2	3
5764		LEAR	10	29	0100	N24 E54	11	2.2		B	BXO	30	3	3	2
5764		HOLL	10	29	1630	N24 E46	11	2.2		A	AX	10	2	2	3
5764		RAMY	10	29	1642	N25 E45	11	2.2		A	HR	20	2	1	1
5764		BOUL	10	29	1700	N25 E45	11	2.2		A	AX		2	1	2
5764		PALE	10	29	2045	N26 E45	11	2.4		A	HR	10	2	2	2
5764		CULG	10	30	0335	N23 E39	11	2.1		A	AX	10	3	1	3
5764		BOUL	10	30	1421	N26 E34	11	2.2		A	AX	10	1		1
5764		PALE	10	30	1803	N25 E33	11	2.3		A	AX		2	2	3
5764		HOLL	10	30	1825	N25 E32	11	2.2		A	AX		1		2
5764		LEAR	10	31	0025	N23 E28	11	2.2		B	BXO	10	3	5	3
5764		CULG	11	01	0345	N22 E13	11	2.1		A	AX	10	1	1	3
5764		RAMY	11	01	1328	N23 E08	11	2.2		A	AX	10	3	1	3
5764		PALE	11	01	1805	N22 E04	11	2.1		B	BXO		2	6	3
5764		HOLL	11	01	1850	N24 E06	11	2.2		A	AX		1		3
5764		RAMY	11	02	1420	N24 W04	11	2.3		B	BXO	10	2	3	3
5778		RAMY	11	02	1420	S14 E03	11	2.8		B	BXO	10	2	2	3
5778		HOLL	11	02	1600	S13 E01	11	2.7		A	AX	10	2	1	3
5778		PALE	11	02	1810	S13 E01	11	2.8		A	AX		2		2
5778		RAMY	11	03	1220	S13 W15	11	2.4		B	BXO	10	7	10	3
5778		HOLL	11	03	1635	S13 W13	11	2.7		B	BXO	10	2	3	3
5778		PALE	11	03	2003	S14 W13	11	2.8		B	BXO		3	4	3
5778		LEAR	11	04	0108	S14 W17	11	2.8		B	BXO	10	5	3	3
5778		CULG	11	04	0225	S13 W19	11	2.7		B	BXO	10	6	3	3
5778		RAMY	11	04	1310	S14 W23	11	2.8		B	CRO	20	6	6	3
5778		HOLL	11	04	1615	S13 W25	11	2.8		B	BXO	10	6	6	4
5778		BOUL	11	04	1815	S14 W27	11	2.7		B	BXO		2	4	1
5778		LEAR	11	05	0047	S13 W31	11	2.7		B	BXO	20	7	5	3
5778		CULG	11	05	0140	S13 W31	11	2.7		B	BXO	10	7	5	2
5778		RAMY	11	05	1351	S15 W37	11	2.8		B	CAO	40	6	6	2
5778		BOUL	11	05	1645	S14 W39	11	2.7		B	CSO	10	2	4	1
5778		HOLL	11	05	1745	S14 W40	11	2.7		B	BXO	20	6	4	2
5778		PALE	11	05	2251	S15 W39	11	3.0		B	CRO	30	6	5	3
5778		LEAR	11	06	0105	S14 W43	11	2.8		B	CRO	40	6	4	3
5778		RAMY	11	06	1507	S15 W51	11	2.8		B	BXO	10	5	4	2
5778		HOLL	11	06	1623	S15 W51	11	2.8		B	BXO	30	4	5	2
5778		PALE	11	06	1740	S17 W51	11	2.9		B	BXO	10	4	5	3

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SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

NOVEMBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)	Lat	ChD	ChP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5778A		CULG	11 01 0345	N13	E24	11 3.0		B	CRO	10	2	3	3
5778A		CULG	11 02 0320	N15	E11	11 3.0		B	BXO	10	8	6	2
5777B		CULG	11 01 0345	N17	E26	11 3.1		B	BXO		3	3	3
5770		HOLL	10 29 1630	N18	E61	11 3.3		B	BXO	10	4	3	3
5770		RAMY	10 29 1642	N20	E63	11 3.5		B	DAO	40	3	4	1
5770		BOUL	10 29 1700	N19	E62	11 3.4		B	BXO	10	4	5	2
5770		PALE	10 29 2045	N20	E61	11 3.5		B	CAO	30	2	3	2
5770		CULG	10 30 0335	N18	E56	11 3.4		B	CRO	10	3	5	3
5770		BOUL	10 30 1421	N19	E52	11 3.6		B	BXO	50	3	9	1
5770		PALE	10 30 1803	N18	E49	11 3.5		B	DAO	30	3	5	3
5770		HOLL	10 30 1825	N18	E48	11 3.4		B	DSO	60	9	6	2
5770		LEAR	10 31 0025	N18	E44	11 3.4		B	DAO	50	5	8	3
5770		RAMY	10 31 1355	N18	E35	11 3.2		B	DAO	50	11	8	3
5770		BOUL	10 31 1418	N19	E36	11 3.3		B	BXO	40	3	7	1
5770		HOLL	10 31 1700	N16	E33	11 3.2		B	BXO	30	15	8	2
5770		PALE	10 31 1746	N18	E33	11 3.2		B	CRO	50	9	8	3
5770		LEAR	11 01 0055	N16	E28	11 3.2		B	BXO	30	12	9	2
5770		CULG	11 01 0345	N19	E33	11 3.7		B	DAO	40	6	4	3
5770		RAMY	11 01 1328	N18	E23	11 3.3		B	DAO	170	29	10	3
5770		PALE	11 01 1805	N18	E19	11 3.2		B	DAO	30	16	9	3
5770		BOUL	11 01 1843	N17	E17	11 3.1		B	DAO	50	11	9	3
5770		HOLL	11 01 1850	N17	E21	11 3.4		B	CAO	60	25	16	3
5770		CULG	11 02 0320	N20	E14	11 3.2		B	CRO	10	19	16	2
5770		LEAR	11 02 0730	N18	E12	11 3.2		B	BXO	170	29	11	3
5770		RAMY	11 02 1420	N18	E09	11 3.3		B	EAO	110	22	11	3
5770		BOUL	11 02 1534	N17	E07	11 3.2		B	CAI	70	15	9	2
5770		HOLL	11 02 1600	N17	E08	11 3.3		B	BXO	80	45	12	3
5770		PALE	11 02 1810	N18	E06	11 3.2		B	CAO	80	29	11	2
5770		CULG	11 03 0325	N18	E03	11 3.4		B	DAI	50	26	14	2
5770		RAMY	11 03 1220	N18	W04	11 3.2		B	EAO	100	31	14	3
5770		BOUL	11 03 1536	N19	W07	11 3.1		B	DAO	120	11	9	1
5770		HOLL	11 03 1635	N18	W07	11 3.1		B	EAO	100	26	13	3
5770		PALE	11 03 2003	N19	W09	11 3.1		B	EAI	40	28	12	3
5770		LEAR	11 04 0108	N19	W10	11 3.3		B	EAO	90	24	11	3
5770		CULG	11 04 0225	N18	W12	11 3.2		B	EAO	30	24	12	3
5770		RAMY	11 04 1310	N19	W18	11 3.2		B	EAO	90	28	12	3
5770		HOLL	11 04 1615	N19	W20	11 3.1		B	CAI	70	23	14	4
5770		BOUL	11 04 1815	N17	W22	11 3.1		B	DSO	30	10	9	1
5770		LEAR	11 05 0047	N17	W24	11 3.2		B	ESO	120	26	12	3
5770		CULG	11 05 0140	N19	W25	11 3.2		B	EAO	50	29	13	2
5770		RAMY	11 05 1351	N18	W31	11 3.2		B	EAO	100	17	12	2
5770		BOUL	11 05 1645	N19	W35	11 3.0		B	CSO	20	4	7	1
5770		HOLL	11 05 1745	N18	W33	11 3.2		B	ESO	80	16	13	2
5770		PALE	11 05 2251	N18	W36	11 3.2		B	EAI	90	15	13	3
5770		LEAR	11 06 0105	N18	W37	11 3.2		B	CSO	80	18	13	3
5770		BOUL	11 06 1506	N19	W49	11 2.9		B	DAO	80	5	9	1
5770		RAMY	11 06 1507	N18	W46	11 3.1		B	CAO	100	17	12	2
5770		HOLL	11 06 1623	N17	W47	11 3.1		B	EAI	180	15	13	2
5770		PALE	11 06 1740	N16	W48	11 3.1		B	DAO	30	13	10	3
5770		CULG	11 07 0600	N19	W56	11 3.0		B	EAI	50	15	13	1
5770		RAMY	11 07 1207	N18	W61	11 2.8		B	EAO	70	7	12	2
5770		BOUL	11 07 1418	N19	W60	11 3.0		B	BXO	10	3	16	1
5770		HOLL	11 07 1710	N19	W61	11 3.1		B	EAO	50	10	12	4
5770		PALE	11 07 2015	N18	W64	11 3.0		B	ESO	90	8	12	3
5770		LEAR	11 08 0045	N20	W65	11 3.0		B	EAO	90	9	11	3
5770		CULG	11 08 0310	N22	W71	11 2.7		B	ESO	70	5	15	3
5770		RAMY	11 08 1446	N20	W71	11 3.2		B	EAO	100	6	13	2
5770		BOUL	11 08 1516	N18	W70	11 3.3		B	CSO	80	2	11	1
5770		HOLL	11 08 1715	N19	W75	11 3.0		B	BXO	30	6	17	3
5770		PALE	11 08 1830	N17	W77	11 2.9		B	FAI	140	9	17	4
5770		RAMY	11 09 1512	N18	W83	11 3.3		A	AX	10	2	2	2
5771		PALE	10 28 1930	S16	E86	11 4.3		A	HS	50	1	3	3
5771		LEAR	10 29 0100	S17	E79	11 4.0		A	HS	60	1	2	2
5771		HOLL	10 29 1630	S17	E70	11 4.0		A	HS	70	1	2	3
5771		RAMY	10 29 1642	S15	E70	11 4.0		A	HA	70	1	2	1
5771		BOUL	10 29 1700	S17	E76	11 4.5		A	HS	60	1	2	2

S U N S P O T G R O U P S
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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day (UT)										
5771	PALE	10 29	2045	S15 E76	11	4.6		B	EAO	90	2	15	2	
5771	CULG	10 30	0335	S18 E70	11	4.5		B	FSO	50	2	16	3	
5771	BOUL	10 30	1421	S16 E60	11	4.1		A	HS	50	1	1	1	
5771	PALE	10 30	1803	S18 E63	11	4.5		B	ESO	190	3	11	3	
5771	HOLL	10 30	1825	S16 E58	11	4.2		A	HS	80	1	2	2	
5771	LEAR	10 31	0025	S17 E57	11	4.3		A	HS	40	1	2	3	
5771	RAMY	10 31	1355	S18 E48	11	4.2		A	HA	40	1	2	3	
5771	BOUL	10 31	1418	S16 E47	11	4.2		A	HS	60	1	2	1	
5771	HOLL	10 31	1700	S17 E47	11	4.3		A	HS	60	1	2	2	
5771	LEAR	11 01	0055	S17 E41	11	4.1		A	HS	80	1	2	2	
5771	CULG	11 01	0345	S18 E38	11	4.0		A	HS	40	1	1	3	
5771	RAMY	11 01	1328	S16 E39	11	4.5		B	CAO	80	5	6	3	
5771	PALE	11 01	1805	S16 E33	11	4.2		A	HS	30	2	2	3	
5771	BOUL	11 01	1843	S15 E30	11	4.0		A	HA	70	1	2	3	
5771	HOLL	11 01	1850	S16 E32	11	4.2		A	HS	40	2	2	3	
5771	CULG	11 02	0320	S17 E26	11	4.1		A	HS	30	1	2	2	
5771	LEAR	11 02	0730	S17 E26	11	4.3		A	HS	40	2	2	3	
5771	RAMY	11 02	1420	S16 E25	11	4.5		B	CSO	70	4	7	3	
5771	BOUL	11 02	1534	S14 E19	11	4.1		A	HS	70	1	1	2	
5771	HOLL	11 02	1600	S17 E23	11	4.4		B	CSO	50	4	6	3	
5771	PALE	11 02	1810	S16 E22	11	4.4		B	CSO	40	4	6	2	
5771	CULG	11 03	0325	S16 E13	11	4.1		A	HS	30	1	1	2	
5771	RAMY	11 03	1220	S17 E10	11	4.3		A	HS	30	4	2	3	
5771	BOUL	11 03	1536	S14 E07	11	4.2		A	HS	40	1	1	1	
5771	HOLL	11 03	1635	S15 E08	11	4.3		A	HS	30	3	2	3	
5771	PALE	11 03	2003	S16 E06	11	4.3		A	HS	20	2	2	3	
5771	LEAR	11 04	0108	S16 E02	11	4.2		A	HS	40	2	1	3	
5771	CULG	11 04	0225	S16 E01	11	4.2		A	HS	20	1	1	3	
5771	RAMY	11 04	1310	S16 W04	11	4.2		A	HA	40	3	1	3	
5771	HOLL	11 04	1615	S16 W06	11	4.2		A	HS	40	2	2	4	
5771	BOUL	11 04	1815	S15 W06	11	4.3		B	CSO	20	3	4	1	
5771	LEAR	11 05	0047	S15 W11	11	4.2		A	HA	30	2	2	3	
5771	CULG	11 05	0140	S15 W11	11	4.2		A	HS	10	1	1	2	
5771	RAMY	11 05	1351	S17 W18	11	4.2		B	CAO	20	2	2	2	
5771	BOUL	11 05	1645	S15 W20	11	4.2		A	HS	20	1	1	1	
5771	HOLL	11 05	1745	S18 W19	11	4.3		B	CAO	20	1	8	2	
5771	PALE	11 05	2251	S16 W23	11	4.2		A	HS	20	1	1	3	
5771	LEAR	11 06	0105	S15 W24	11	4.2		A	HA	20	2	2	3	
5771	RAMY	11 06	1507	S15 W32	11	4.2		A	AX	10	2	1	2	
5771	HOLL	11 06	1623	S16 W32	11	4.2		A	AX	20	2	1	2	
5771	PALE	11 06	1740	S18 W32	11	4.3		A	HS	20	1	2	3	
5769	HOLL	10 28	1430	N24 E85	11	4.2		B	CSO	40	3	9	3	
5769	PALE	10 28	1930	N24 E85	11	4.4		B	CAO	40	4	3	3	
5769	LEAR	10 29	0100	N22 E78	11	4.0		BG	CAO	150	5	6	2	
5769	HOLL	10 29	1630	N23 E72	11	4.2		B	DAI	210	22	10	3	
5769	RAMY	10 29	1642	N24 E72	11	4.2		B	DAO	160	10	10	1	
5769	BOUL	10 29	1700	N23 E74	11	4.4		B	DAO	180	7	10	2	
5769	PALE	10 29	2045	N25 E75	11	4.7		B	DAO	140	13	10	2	
5769	CULG	10 30	0335	N23 E66	11	4.2		B	DAI	60	15	8	3	
5769	BOUL	10 30	1421	N24 E61	11	4.3		B	DAO	200	13	7	1	
5769	PALE	10 30	1803	N23 E58	11	4.2		B	DAI	330	24	10	3	
5769	HOLL	10 30	1825	N24 E60	11	4.4		B	EAI	240	29	15	2	
5769	LEAR	10 31	0025	N24 E57	11	4.4		B	DAI	370	24	10	3	
5769	RAMY	10 31	1355	N24 E46	11	4.1		B	DKI	380	21	10	3	
5769	BOUL	10 31	1418	N24 E48	11	4.3		B	DKC	570	14	10	1	
5769	HOLL	10 31	1700	N23 E45	11	4.2		B	EKI	320	57	11	2	
5769	PALE	10 31	1746	N25 E46	11	4.3		B	EKI	680	22	10	3	
5769	LEAR	11 01	0055	N23 E42	11	4.3		B	EKI	520	26	13	2	
5769	CULG	11 01	0345	N24 E41	11	4.3		B	DAI	280	20	9	3	
5769	RAMY	11 01	1328	N23 E35	11	4.2		B	EKI	650	30	12	3	
5769	PALE	11 01	1805	N24 E34	11	4.4		B	EKI	590	29	12	3	
5769	BOUL	11 01	1843	N25 E32	11	4.2		B	EKC	690	37	12	3	
5769	HOLL	11 01	1850	N25 E33	11	4.3		B	EKI	620	41	12	3	
5769	CULG	11 02	0320	N25 E28	11	4.3		B	EKI	420	36	10	2	
5769	LEAR	11 02	0730	N24 E26	11	4.3		B	EKI	590	57	12	3	
5769	RAMY	11 02	1420	N23 E22	11	4.3		B	EKI	600	43	12	3	
5769	BOUL	11 02	1534	N26 E21	11	4.3		B	EKI	550	26	11	2	
5769	HOLL	11 02	1600	N25 E22	11	4.4		B	EAI	480	71	13	3	

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CHP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5769		PALE	11 02 1810	N24 E20	11 4.3		B	EKI	520	58	12	2
5769		CULG	11 03 0325	N24 E15	11 4.3		B	EKI	360	31	12	2
5769		RAMY	11 03 1220	N24 E11	11 4.4		B	FKI	430	67	21	3
5769		BOUL	11 03 1536	N25 E08	11 4.3		B	EKC	650	31	11	1
5769		HOLL	11 03 1635	N25 E09	11 4.4		BG	EKI	540	70	13	3
5769		PALE	11 03 2003	N25 E08	11 4.4		B	EKI	570	39	12	3
5769		LEAR	11 04 0108	N25 E06	11 4.5		BG	EAI	460	54	12	3
5769		CULG	11 04 0225	N26 E05	11 4.5		BG	EAI	270	72	14	3
5769		RAMY	11 04 1310	N25 W02	11 4.4		BG	EKI	490	70	12	3
5769		HOLL	11 04 1615	N26 W04	11 4.4		BG	EKI	550	64	12	4
5769		BOUL	11 04 1815	N24 W05	11 4.4		B	EAI	330	17	11	1
5769		LEAR	11 05 0047	N24 W07	11 4.5		B	EKI	530	50	11	3
5769		CULG	11 05 0140	N24 W08	11 4.4		BG	EKI	340	49	13	2
5769		RAMY	11 05 1351	N23 W16	11 4.3		BG	EAI	450	48	12	2
5769		BOUL	11 05 1645	N24 W16	11 4.5		B	EAI	140	13	12	1
5769		HOLL	11 05 1745	N25 W17	11 4.4		B	EKI	30	55	13	2
5769		PALE	11 05 2251	N25 W20	11 4.4		BG	EKI	450	46	13	3
5769		LEAR	11 06 0105	N24 W21	11 4.4		B	EKI	420	51	13	3
5769		BOUL	11 06 1506	N25 W27	11 4.5		B	EAI	140	12	11	1
5769		RAMY	11 06 1507	N25 W30	11 4.3		BG	EAO	350	25	13	2
5769		HOLL	11 06 1623	N25 W29	11 4.4		BG	EAI	320	38	13	2
5769		PALE	11 06 1740	N23 W32	11 4.3		BG	EKI	440	34	13	3
5769		CULG	11 07 0600	N26 W36	11 4.4		B	EAI	180	40	12	1
5769		RAMY	11 07 1207	N25 W42	11 4.2		BG	EAO	230	28	13	2
5769		BOUL	11 07 1418	N25 W41	11 4.4		B	ESI	80	7	11	1
5769		HOLL	11 07 1710	N25 W42	11 4.5		BG	EAI	180	25	13	4
5769		PALE	11 07 2015	N24 W45	11 4.4		BG	EAI	220	21	11	3
5769		LEAR	11 08 0045	N26 W45	11 4.5		BG	ESO	180	22	12	3
5769		CULG	11 08 0310	N27 W48	11 4.4		B	DAI	110	14	9	3
5769		RAMY	11 08 1446	N25 W56	11 4.3		B	EAO	160	12	12	2
5769		BOUL	11 08 1516	N26 W53	11 4.5		B	DAO	240	5	10	1
5769		HOLL	11 08 1715	N25 W55	11 4.4		B	EAI	120	28	15	3
5769		PALE	11 08 1830	N24 W57	11 4.4		B	DAI	180	19	11	4
5769		LEAR	11 09 0025	N26 W59	11 4.4		B	DAO	130	7	10	2
5769		RAMY	11 09 1512	N25 W67	11 4.4		B	DAO	180	4	10	2
5769		BOUL	11 09 1538	N25 W72	11 4.1		A	HS	120	1	3	1
5769		HOLL	11 09 1550	N25 W65	11 4.6		B	CAO	120	7	16	2
5769		PALE	11 09 1958	N22 W73	11 4.2		B	CAO	50	13	14	3
5769		LEAR	11 10 0005	N24 W72	11 4.4		B	CAO	60	7	9	3
5769		RAMY	11 10 1239	N25 W83	11 4.1		B	CAO	60	2	4	2
5769		HOLL	11 10 1515	N23 W79	11 4.5		A	HA	30	1	2	4
5769		BOUL	11 10 1604	N24 W82	11 4.3		A	AX	30	1	1	2
5769		PALE	11 10 2049	N22 W82	11 4.6		A	AX		2		2
5769		HOLL	11 11 1515	N23 W79	11 5.5		A	HA	30	1	2	4
5772		BOUL	10 30 1421	S17 E76	11 5.4		A	HA	90	1	3	1
5772		HOLL	10 30 1825	S17 E71	11 5.2		B	CSO	120	4	3	2
5772		LEAR	10 31 0025	S18 E70	11 5.3		B	C O	130	4	7	3
5772		RAMY	10 31 1355	S18 E65	11 5.5		B	DAO	180	14	7	3
5772		BOUL	10 31 1418	S18 E61	11 5.2		A	HA	90	1	2	1
5772		HOLL	10 31 1700	S18 E63	11 5.5		B	CSO	150	8	8	2
5772		PALE	10 31 1746	S18 E62	11 5.5		B	CSO	130	3	10	3
5772		LEAR	11 01 0055	S18 E58	11 5.4		B	DAO	140	6	8	2
5772		CULG	11 01 0345	S19 E54	11 5.3		B	CAO	90	4	7	3
5772		RAMY	11 01 1328	S17 E54	11 5.7		B	DAO	130	10	10	3
5772		PALE	11 01 1805	S18 E49	11 5.5		B	DSO	100	4	7	3
5772		BOUL	11 01 1843	S17 E49	11 5.5		B	DAO	140	5	10	3
5772		HOLL	11 01 1850	S18 E50	11 5.6		B	DSO	130	13	9	3
5772		CULG	11 02 0320	S19 E42	11 5.3		B	DSO	80	7	8	2
5772		LEAR	11 02 0730	S18 E43	11 5.6		B	CAO	120	6	8	3
5772		RAMY	11 02 1420	S18 E39	11 5.6		B	DAO	130	5	10	3
5772		BOUL	11 02 1534	S16 E36	11 5.4		B	DSO	120	3	9	2
5772		HOLL	11 02 1600	S18 E39	11 5.6		B	EAO	150	13	13	3
5772		PALE	11 02 1810	S17 E37	11 5.6		B	DAO	150	8	10	2
5772		CULG	11 03 0325	S19 E30	11 5.4		B	CSO	70	3	8	2
5772		RAMY	11 03 1220	S19 E26	11 5.5		B	CSO	100	10	10	3
5772		BOUL	11 03 1536	S16 E24	11 5.5		B	CSO	90	3	7	1
5772		HOLL	11 03 1635	S18 E24	11 5.5		B	CSO	140	10	10	3
5772		PALE	11 03 2003	S18 E23	11 5.6		B	CSO	80	6	10	3

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5772		LEAR	11 04 0108	S19	E19	11	5.5	B	CSO	80	5	9	3
5772		CULG	11 04 0225	S19	E17	11	5.4	B	CSO	70	6	9	3
5772		RAMY	11 04 1310	S19	E12	11	5.5	B	CSO	120	7	8	3
5772		HOLL	11 04 1615	S18	E12	11	5.6	B	CSO	100	4	10	4
5772		BOUL	11 04 1815	S17	E06	11	5.2	A	HS	40	1	1	1
5772		LEAR	11 05 0047	S18	E03	11	5.3	A	HS	90	1	2	3
5772		CULG	11 05 0140	S18	E01	11	5.1	A	HS	60	1	2	2
5772		RAMY	11 05 1351	S17	W01	11	5.5	B	CAO	110	4	8	2
5772		BOUL	11 05 1645	S17	W05	11	5.3	A	HS	40	1	1	1
5772		HOLL	11 05 1745	S17	W02	11	5.6	B	CSO	160	10	10	2
5772		PALE	11 05 2251	S18	W07	11	5.4	B	CSO	60	2	4	3
5772		LEAR	11 06 0105	S18	W07	11	5.5	B	CSO	100	7	8	3
5772		BOUL	11 06 1506	S17	W17	11	5.3	A	HS	40	1	1	1
5772		RAMY	11 06 1507	S17	W18	11	5.3	A	HS	70	1	2	2
5772		HOLL	11 06 1623	S17	W15	11	5.5	B	CSO	100	6	9	2
5772		PALE	11 06 1740	S18	W18	11	5.4	A	HS	70	1	2	3
5772		CULG	11 07 0600	S17	W24	11	5.4	B	CSO	40	2	6	1
5772		RAMY	11 07 1207	S17	W26	11	5.5	B	CSO	80	4	8	2
5772		BOUL	11 07 1418	S17	W30	11	5.3	A	HS	30	1	1	1
5772		HOLL	11 07 1710	S19	W32	11	5.3	A	HS	70	1	2	4
5772		PALE	11 07 2015	S19	W33	11	5.3	A	HS	70	1	2	3
5772		CULG	11 08 0310	S17	W37	11	5.3	B	CSO	50	3	4	3
5772		LEAR	11 08 0845	S17	W37	11	5.5	A	HS	60	1	2	3
5772		RAMY	11 08 1446	S18	W44	11	5.3	A	HS	60	1	2	2
5772		BOUL	11 08 1516	S18	W45	11	5.2	A	HS	90	1	2	1
5772		HOLL	11 08 1715	S18	W45	11	5.3	A	HS	80	1	2	3
5772		PALE	11 08 1830	S20	W45	11	5.3	A	HS	100	1	2	4
5772		LEAR	11 09 0025	S17	W50	11	5.2	A	HS	40	1	2	2
5772		RAMY	11 09 1512	S18	W57	11	5.3	A	HS	70	1	2	2
5772		BOUL	11 09 1538	S18	W61	11	5.0	A	HA	80	1	2	1
5772		HOLL	11 09 1550	S18	W58	11	5.2	A	HS	100	1	2	2
5772		PALE	11 09 1958	S20	W59	11	5.3	B	CAO	60	4	7	3
5772		LEAR	11 10 0005	S17	W62	11	5.3	B	CSO	40	2	5	3
5772		RAMY	11 10 1239	S17	W66	11	5.5	B	CSO	90	4	8	2
5772		HOLL	11 10 1515	S17	W69	11	5.4	B	CAO	60	3	4	4
5772		BOUL	11 10 1604	S17	W71	11	5.3	B	CSO	80	2	3	2
5772		PALE	11 10 2049	S18	W71	11	5.5	B	BXO	20	2	4	2
5772		LEAR	11 11 0012	S17	W72	11	5.5	B	CSO	60	2	6	3
5772		HOLL	11 11 1515	S17	W69	11	6.4	B	CAO	60	3	4	4
5773		PALE	10 29 2045	N16	E89	11	5.6	A	HA	50	1	2	2
5773		CULG	10 30 0335	N15	E79	11	5.1	B	CSO	30	2	4	3
5773		BOUL	10 30 1421	N15	E74	11	5.2	A	HS	60	1	2	1
5773		PALE	10 30 1803	N15	E71	11	5.1	B	DSO	110	2	3	3
5773		HOLL	10 30 1825	N15	E71	11	5.1	A	HA	60	4	2	2
5773		LEAR	10 31 0025	N14	E70	11	5.3	B	CSO	50	3	6	3
5773		RAMY	10 31 1355	N14	E64	11	5.4	B	CAO	70	5	10	3
5773		BOUL	10 31 1418	N15	E61	11	5.2	A	HS	60	1	2	1
5773		HOLL	10 31 1700	N15	E62	11	5.4	B	CSO	70	7	7	2
5773		PALE	10 31 1746	N16	E61	11	5.4	B	CSO	170	4	4	3
5773		LEAR	11 01 0055	N14	E58	11	5.4	B	CSO	70	5	8	2
5773		CULG	11 01 0345	N15	E55	11	5.3	B	DAO	70	3	2	3
5773		RAMY	11 01 1328	N14	E54	11	5.6	B	CAO	90	7	9	3
5773		PALE	11 01 1805	N16	E47	11	5.3	B	CSO	60	3	4	3
5773		BOUL	11 01 1843	N16	E46	11	5.3	B	CAO	60	3	3	3
5773		HOLL	11 01 1850	N14	E48	11	5.4	B	CSO	90	5	10	3
5773		CULG	11 02 0320	N16	E40	11	5.2	B	DSO	60	3	3	2
5773		LEAR	11 02 0730	N14	E38	11	5.2	B	CSO	70	2	3	3
5773		RAMY	11 02 1420	N16	E35	11	5.2	B	CSO	70	2	4	3
5773		HOLL	11 02 1600	N15	E35	11	5.3	B	CSO	60	2	3	3
5773		PALE	11 02 1810	N17	E32	11	5.2	B	CSO	50	2	3	2
5773		CULG	11 03 0325	N15	E27	11	5.2	B	DSO	50	4	3	2
5773		RAMY	11 03 1220	N13	E26	11	5.5	B	CSO	50	4	8	3
5773		BOUL	11 03 1536	N16	E21	11	5.2	B	CSO	50	2	2	1
5773		HOLL	11 03 1635	N14	E23	11	5.4	B	CSO	70	4	8	3
5773		PALE	11 03 2003	N16	E18	11	5.2	B	CSO	30	6	7	3
5773		LEAR	11 04 0108	N14	E16	11	5.2	B	CSO	20	2	3	3
5773		CULG	11 04 0225	N14	E18	11	5.5	B	CSO	20	4	7	3
5773		RAMY	11 04 1310	N14	E12	11	5.4	B	CSO	20	2	8	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	Observation Time (UT)	Lat	ChD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5773		HOLL	11	04	1615	N14	E12	11	5.6		B	CAO	30	3	10	4
5773		BOUL	11	04	1815	N15	E05	11	5.1		A	HS	10	1	1	1
5773		LEAR	11	05	0047	N15	E04	11	5.3		B	CAO	30	4	4	3
5773		CULG	11	05	0140	N16	E03	11	5.3		B	CSO	20	6	4	2
5773		RAMY	11	05	1351	N15	W05	11	5.2		B	CAO	30	3	3	2
5773		BOUL	11	05	1645	N13	W06	11	5.2		A	HS	10	1	1	1
5773		HOLL	11	05	1745	N15	W07	11	5.2		A	AX		1		2
5773		PALE	11	05	2251	N14	W06	11	5.5		B	BXO	10	2	3	3
5773		LEAR	11	06	0105	N15	W09	11	5.4		B	BXO	10	3	4	3
5773		RAMY	11	06	1507	N17	W17	11	5.3		B	BXO	20	13	5	2
5773		HOLL	11	06	1623	N17	W17	11	5.4		B	BXO	40	7	7	2
5773		PALE	11	06	1740	N17	W18	11	5.4		B	CSO	20	7	5	3
5773		RAMY	11	07	1207	N17	W29	11	5.3		A	AX	10	4	2	2
5773		LEAR	11	08	0045	N16	W36	11	5.3		A	AX	10	1	1	3
5774		BOUL	10	30	1421	N18	E76	11	5.4		A	HS	60	1	2	1
5774		HOLL	10	30	1825	N17	E73	11	5.3		A	HA	60	1	2	2
5774		LEAR	10	31	0025	N17	E70	11	5.3		B	CSO	50	3	4	3
5774		RAMY	10	31	1355	N18	E61	11	5.2		A	HS	60	1	2	3
5774		BOUL	10	31	1418	N18	E62	11	5.3		A	HS	60	1	2	1
5774		HOLL	10	31	1700	N18	E61	11	5.3		A	HS	80	2	2	2
5774		LEAR	11	01	0055	N17	E56	11	5.3		A	HS	50	1	2	2
5774		RAMY	11	01	1328	N18	E50	11	5.4		A	HS	60	1	2	3
5774		PALE	11	01	1805	N19	E47	11	5.3		A	HS	60	1	2	3
5774		BOUL	11	01	1843	N18	E45	11	5.2		A	HS	50	1	2	3
5774		HOLL	11	01	1850	N18	E47	11	5.4		A	HS	60	1	2	3
5774		LEAR	11	02	0730	N18	E39	11	5.3		B	CAO	50	4	3	3
5774		RAMY	11	02	1420	N18	E36	11	5.3		A	HS	50	1	2	3
5774		HOLL	11	02	1600	N18	E35	11	5.3		A	HS	50	4	2	3
5774		PALE	11	02	1810	N19	E33	11	5.3		A	HA	50	2	2	2
5774		RAMY	11	03	1220	N18	E23	11	5.3		A	HA	40	1	1	3
5774		BOUL	11	03	1536	N18	E22	11	5.3		A	HS	40	1	1	1
5774		HOLL	11	03	1635	N18	E22	11	5.4		A	HS	30	1	2	3
5774		PALE	11	03	2003	N18	E20	11	5.3		A	HS	20	1	1	3
5774		LEAR	11	04	0108	N18	E18	11	5.4		A	HS	20	1	1	3
5774		CULG	11	04	0225	N18	E17	11	5.4		B	CSO	20	2	3	3
5774		RAMY	11	04	1310	N18	E11	11	5.4		A	HS	20	1	1	3
5774		HOLL	11	04	1615	N18	E08	11	5.3		A	HA	20	2	2	4
5774		BOUL	11	04	1815	N19	E07	11	5.3		A	HS	10	1	1	1
5774		LEAR	11	05	0047	N18	E06	11	5.5		B	CSO	30	3	4	3
5774		CULG	11	05	0140	N18	E06	11	5.5		B	CRO	10	3	5	2
5774		RAMY	11	05	1351	N19	W03	11	5.3		B	CAO	30	4	4	2
5774		BOUL	11	05	1645	N18	W05	11	5.3		A	HS	10	1	1	1
5774		HOLL	11	05	1745	N18	W05	11	5.3		A	AX	10	2	1	2
5774		PALE	11	05	2251	N19	W07	11	5.4		A	AX	10	1		3
5774		LEAR	11	06	0105	N18	W08	11	5.4		B	BXO	20	4	3	3
5779		PALE	11	02	1810	N28	E35	11	5.5		A	AX		1		2
5779		CULG	11	03	0325	N26	E30	11	5.5		A	AX	10	1	1	2
5779		BOUL	11	03	1536	N28	E22	11	5.4		A	AX	10	1		1
5779		HOLL	11	03	1635	N27	E23	11	5.5		B	BXO	10	2	4	3
5779		LEAR	11	04	0108	N27	E20	11	5.6		B	BXO	10	2	3	3
5779		CULG	11	04	0225	N26	E16	11	5.3		B	BXO	10	2	3	3
5779		RAMY	11	06	1507	N26	W15	11	5.5		A	AX		2	1	2
5779		HOLL	11	06	1623	N25	W14	11	5.6		A	AX	20	3	2	2
5779		PALE	11	06	1740	N25	W16	11	5.5		A	AX		1	1	3
5779		PALE	11	08	1830	N28	W14	11	7.7		A	AX		3	2	4
5779A		PALE	11	05	2251	N25	E05	11	6.3		A	AX		1		3
5780		RAMY	11	02	1420	S03	E54	11	6.6		A	AX	20	2	2	3
5780		RAMY	11	03	1220	S05	E41	11	6.6		B	BXO	20	9	4	3
5780		BOUL	11	03	1536	S04	E41	11	6.7		B	BXO	10	2	4	1
5780		HOLL	11	03	1635	S06	E41	11	6.7		B	BXO	10	6	4	3
5780		PALE	11	03	2003	S04	E39	11	6.7		B	BXO	10	8	4	3
5780		LEAR	11	04	0108	S06	E35	11	6.7		B	CRO	20	5	4	3
5780		CULG	11	04	0225	S06	E34	11	6.6		B	BXO	10	5	4	3
5780		RAMY	11	04	1310	S04	E29	11	6.7		B	BXO	20	10	5	3
5780		HOLL	11	04	1615	S05	E27	11	6.7		B	CRO	30	10	5	4

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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
5780		BOUL	11 04 1815	S04 E25	11 6.6		B	BXO		2	5	1
5780		LEAR	11 05 0047	S06 E23	11 6.7		B	CRO	30	10	5	3
5780		CULG	11 05 0140	S05 E21	11 6.6		B	CRO	10	7	5	2
5780		RAMY	11 05 1351	S06 E16	11 6.8		B	DRO	30	14	7	2
5780		BOUL	11 05 1645	S04 E12	11 6.6		B	DSO	20	5	4	1
5780		HOLL	11 05 1745	S04 E12	11 6.6		B	CRO	40	12	6	2
5780		PALE	11 05 2251	S04 E10	11 6.7		B	BXI	70	17	6	3
5780		LEAR	11 06 0105	S06 E09	11 6.7		B	CAO	60	10	4	3
5780		BOUL	11 06 1506	S04 E02	11 6.8		B	DSO	80	7	4	1
5780		RAMY	11 06 1507	S04 E02	11 6.8		B	DAO	100	8	5	2
5780		HOLL	11 06 1623	S05 E01	11 6.7		B	DAO	130	12	6	2
5780		PALE	11 06 1740	S05 E01	11 6.8		B	DAO	130	11	7	3
5780		CULG	11 07 0600	S04 W07	11 6.7		B	DAO	50	10	6	1
5780		RAMY	11 07 1207	S05 W10	11 6.7		B	DAO	90	7	6	2
5780		BOUL	11 07 1418	S04 W11	11 6.8		B	DSO	40	4	5	1
5780		HOLL	11 07 1710	S05 W13	11 6.7		B	DAO	70	9	7	4
5780		PALE	11 07 2015	S05 W14	11 6.8		B	DSO	80	5	7	3
5780		LEAR	11 08 0045	S05 W17	11 6.7		B	DSO	50	5	6	3
5780		CULG	11 08 0310	S03 W20	11 6.6		B	DAO	40	6	5	3
5780		RAMY	11 08 1444	S05 W26	11 6.7		B	DAO	50	4	7	2
5780		BOUL	11 08 1516	S05 W26	11 6.7		B	DSO	110	2	6	1
5780		HOLL	11 08 1715	S05 W27	11 6.7		B	DAO	60	6	8	3
5780		PALE	11 08 1830	S06 W27	11 6.8		B	DSO	70	5	7	4
5780		LEAR	11 09 0025	S07 W31	11 6.7		B	CAO	40	3	7	2
5780		RAMY	11 09 1512	S05 W39	11 6.7		B	CAO	30	4	7	2
5780		BOUL	11 09 1538	S05 W40	11 6.6		B	DSO	60	2	8	1
5780		HOLL	11 09 1550	S06 W40	11 6.7		B	CSO	30	3	7	2
5780		PALE	11 09 1958	S05 W43	11 6.6		B	CSO	50	6	12	3
5780		RAMY	11 10 1239	S04 W55	11 6.4		A	HS	30	1	1	2
5780		HOLL	11 10 1515	S06 W57	11 6.4		A	HR	20	1	2	4
5780		BOUL	11 10 1604	S04 W57	11 6.4		A	HS	20	1	1	2
5780		PALE	11 10 2049	S06 W58	11 6.5		A	AX	20	1	1	2
5780		LEAR	11 11 0012	S04 W60	11 6.5		A	AX	20	1	1	3
5780		RAMY	11 11 1238	S05 W68	11 6.4		A	AX	20	2	1	4
5780		HOLL	11 11 1515	S06 W57	11 7.4		A	HR	20	1	2	4
5776		RAMY	11 01 1328	N17 E86	11 8.1		B	DKO	180	2	10	3
5776		PALE	11 01 1805	N17 E85	11 8.2		B	DAO	80	5	8	3
5776		BOUL	11 01 1843	N17 E77	11 7.6		B	DAO	120	4	6	3
5776		HOLL	11 01 1850	N16 E80	11 7.8		B	EKI	180	7	12	3
5776		CULG	11 02 0320	N15 E74	11 7.7		B	DAO	80	9	7	2
5776		LEAR	11 02 0730	N16 E73	11 7.8		B	CKO	330	10	7	3
5776		RAMY	11 02 1420	N16 E74	11 8.2		B	EKO	400	14	16	3
5776		BOUL	11 02 1534	N17 E68	11 7.8		B	DAC	400	10	10	2
5776		HOLL	11 02 1600	N15 E70	11 8.0		B	CKI	310	28	7	3
5776		PALE	11 02 1810	N17 E70	11 8.1		B	EKO	550	19	16	2
5776		CULG	11 03 0325	N13 E66	11 8.1		B	DAO	130	15	9	2
5776		RAMY	11 03 1220	N13 E58	11 7.9		B	FAO	360	45	17	3
5776		BOUL	11 03 1536	N16 E55	11 7.8		B	DKC	450	14	7	1
5776		HOLL	11 03 1635	N16 E54	11 7.8		B	DKI	440	32	8	3
5776		PALE	11 03 2003	N16 E54	11 7.9		B	EAI	300	18	9	3
5776		LEAR	11 04 0108	N15 E53	11 8.0		BG	DKI	270	24	8	3
5776		CULG	11 04 0225	N16 E49	11 7.8		B	DKI	280	21	9	3
5776		RAMY	11 04 1310	N15 E45	11 7.9		B	DKO	310	25	9	3
5776		HOLL	11 04 1615	N16 E42	11 7.9		B	DKI	430	34	10	4
5776		BOUL	11 04 1815	N17 E39	11 7.7		B	DAI	170	10	9	1
5776		LEAR	11 05 0047	N16 E38	11 7.9		B	DKI	330	28	9	3
5776		CULG	11 05 0140	N16 E36	11 7.8		B	DKI	180	29	9	2
5776		RAMY	11 05 1351	N18 E31	11 7.9		B	DKI	420	22	10	2
5776		BOUL	11 05 1645	N16 E29	11 7.9		B	DAI	130	9	5	1
5776		HOLL	11 05 1745	N16 E29	11 7.9		B	DKO	440	24	8	2
5776		PALE	11 05 2251	N17 E26	11 7.9		B	DKI	410	18	10	3
5776		LEAR	11 06 0105	N16 E26	11 8.0		B	DKC	430	30	7	3
5776		BOUL	11 06 1506	N17 E18	11 8.0		B	DAI	180	20	6	1
5776		RAMY	11 06 1507	N17 E18	11 8.0		B	DAO	280	34	8	2
5776		HOLL	11 06 1623	N17 E17	11 8.0		B	DAI	360	30	6	2
5776		PALE	11 06 1740	N18 E16	11 7.9		B	DKI	520	28	7	3
5776		CULG	11 07 0600	N17 E11	11 8.1		B	DAI	240	40	5	1
5776		RAMY	11 07 1207	N17 E06	11 8.0		B	DAO	190	41	6	2

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SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5776		BOUL	11 07	1418	N17	E04	11 7.9		B	DAI	110	13	6	1
5776		HOLL	11 07	1710	N17	E05	11 8.1		B	CAI	130	43	6	4
5776		PALE	11 07	2015	N16	E03	11 8.1		B	DAI	140	28	7	3
5776		LEAR	11 08	0045	N17	E00	11 8.0		B	DAI	100	17	7	3
5776		CULG	11 08	0310	N17	W02	11 8.0		B	DAI	110	20	6	3
5776		RAMY	11 08	1446	N17	W09	11 7.9		B	DAO	100	37	7	2
5776		BOUL	11 08	1516	N17	W08	11 8.0		B	DAO	170	13	8	1
5776		HOLL	11 08	1715	N17	W11	11 7.9		B	CSI	130	46	10	3
5776		PALE	11 08	1830	N17	W13	11 7.8		B	EAI	70	41	11	4
5776		LEAR	11 09	0025	N17	W15	11 7.9		B	CSI	70	27	8	2
5776		RAMY	11 09	1512	N18	W23	11 7.9		B	BXO	20	20	8	2
5776		BOUL	11 09	1538	N17	W23	11 7.9		B	DAO	120	5	6	1
5776		HOLL	11 09	1550	N17	W22	11 8.0		B	BXO	20	17	10	2
5776		PALE	11 09	1958	N16	W26	11 7.8		B	CAI	30	15	7	3
5776		LEAR	11 10	0005	N18	W28	11 7.9		B	CAO	60	11	5	3
5776		RAMY	11 10	1239	N17	W33	11 8.0		B	BXO	20	9	4	2
5776		HOLL	11 10	1515	N17	W36	11 7.9		B	BXO	30	12	6	4
5776		BOUL	11 10	1604	N17	W35	11 8.0		B	CAO	50	4	3	2
5776		PALE	11 10	2049	N16	W38	11 8.0		B	BXO	10	11	5	2
5776		LEAR	11 11	0012	N17	W37	11 8.2		B	BXO	40	4	4	3
5776		RAMY	11 11	1238	N16	W47	11 8.0		B	BXO	20	7	4	4
5776		HOLL	11 11	1510	N15	W47	11 8.1		B	BXO	10	4	3	3
5776		BOUL	11 11	1528	N16	W47	11 8.1		A	AX		2	1	2
5776		LEAR	11 12	0008	N16	W50	11 8.2		B	BXO	30	5	5	3
5776		RAMY	11 12	1420	N17	W60	11 8.0		A	AX	10	3	2	2
5776		HOLL	11 12	1510	N16	W61	11 8.0		A	AX	10	2	2	3
5776		RAMY	11 13	1830	N17	W75	11 8.1		A	AX	10	1		2
5776A		PALE	11 05	2251	S22	E31	11 8.3		A	AX		3	2	3
5776A		PALE	11 09	1958	S20	W20	11 8.3		A	AX		3	2	3
5781		CULG	11 03	0325	N10	E70	11 8.4		B	BXO	10	2	6	2
5781		BOUL	11 03	1536	N14	E60	11 8.2		B	DSO	60	3	6	1
5781		HOLL	11 03	1635	N13	E63	11 8.4		B	BXO	40	8	9	3
5781		PALE	11 03	2003	N12	E65	11 8.7		A	AX		2		3
5781		LEAR	11 04	0108	N10	E59	11 8.5		B	BXO	20	7	8	3
5781		CULG	11 04	0225	N10	E57	11 8.4		B	BXO	10	8	9	3
5781		RAMY	11 04	1310	N12	E51	11 8.4		B	BXO	40	15	9	3
5781		HOLL	11 04	1615	N12	E50	11 8.4		B	BXO	30	13	7	4
5781		BOUL	11 04	1815	N12	E48	11 8.4		B	BXO	10	8	8	1
5781		LEAR	11 05	0047	N11	E46	11 8.5		B	CAO	50	11	10	3
5781		CULG	11 05	0140	N11	E45	11 8.4		B	BXO	10	10	9	2
5781		RAMY	11 05	1351	N11	E39	11 8.5		B	DAO	70	23	8	2
5781		BOUL	11 05	1645	N11	E37	11 8.5		B	DSO	10	6	9	1
5781		HOLL	11 05	1745	N12	E38	11 8.6		B	CSO	80	27	9	2
5781		PALE	11 05	2251	N14	E35	11 8.6		B	CAI	60	28	10	3
5781		LEAR	11 06	0105	N11	E33	11 8.5		B	DAI	110	29	10	3
5781		BOUL	11 06	1506	N12	E26	11 8.6		B	DAO	120	16	9	1
5781		RAMY	11 06	1507	N12	E26	11 8.6		B	DAO	110	25	10	2
5781		HOLL	11 06	1623	N12	E25	11 8.6		B	EAI	250	25	11	2
5781		PALE	11 06	1740	N14	E23	11 8.5		B	DAO	310	25	10	3
5781		RAMY	11 07	1207	N13	E15	11 8.6		B	EAO	170	33	11	2
5781		BOUL	11 07	1418	N12	E13	11 8.6		B	DAI	60	7	9	1
5781		HOLL	11 07	1710	N12	E12	11 8.6		B	EAI	230	42	11	4
5781		PALE	11 07	2015	N13	E10	11 8.6		B	EAI	260	18	11	3
5781		LEAR	11 08	0045	N12	E08	11 8.6		B	EAI	210	21	12	3
5781		CULG	11 08	0310	N13	E05	11 8.5		B	DAI	140	16	10	3
5781		RAMY	11 08	1446	N12	E00	11 8.6		B	DAO	130	27	10	2
5781		BOUL	11 08	1516	N13	W01	11 8.6		B	DAI	340	12	10	1
5781		HOLL	11 08	1715	N12	W01	11 8.6		B	EAI	240	46	11	3
5781		PALE	11 08	1830	N12	W01	11 8.7		B	DAI	130	42	10	4
5781		LEAR	11 09	0025	N12	W07	11 8.5		B	EAI	180	29	11	2
5781		RAMY	11 09	1512	N12	W14	11 8.6		B	EKI	360	38	13	2
5781		BOUL	11 09	1538	N12	W15	11 8.5		B	DKC	370	13	10	1
5781		HOLL	11 09	1550	N12	W13	11 8.7		BG	EKI	340	41	14	2
5781		PALE	11 09	1958	N12	W17	11 8.5		B	EKI	290	41	12	3
5781		LEAR	11 10	0005	N13	W19	11 8.6		B	EKI	230	36	12	3
5781		HOLL	11 10	1515	N12	W27	11 8.6		B	EKI	420	45	13	4
5781		BOUL	11 10	1604	N13	W28	11 8.5		B	EKI	440	20	11	2

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day											
5781		PALE	11	10	2049	N11 W29	11	8.7		B	EKI	430	32	13	2
5781		LEAR	11	11	0012	N13 W30	11	8.7		B	EKI	550	29	14	3
5781		RAMY	11	11	1238	N11 W39	11	8.6		B	EKI	470	48	14	4
5781		HOLL	11	11	1510	N11 W40	11	8.6		B	FKO	480	35	16	3
5781		BOUL	11	11	1528	N11 W42	11	8.5		B	EKI	400	21	12	2
5781		PALE	11	11	1945	N11 W42	11	8.7		B	EKI	520	19	12	2
5781		LEAR	11	12	0008	N13 W46	11	8.5		B	EAO	380	21	12	3
5781		RAMY	11	12	1420	N10 W56	11	8.4		B	EKO	400	15	12	2
5781		HOLL	11	12	1510	N11 W56	11	8.4		B	EKO	510	26	12	3
5781		BOUL	11	12	1540	N11 W56	11	8.4		B	ESI	240	10	12	2
5781		LEAR	11	13	0120	N12 W60	11	8.5		B	EAO	240	15	11	3
5781		RAMY	11	13	1830	N11 W70	11	8.5		B	ESO	240	9	11	2
5781		LEAR	11	14	0325	N12 W74	11	8.6		B	EAI	150	8	11	2
5781		RAMY	11	14	1428	N11 W78	11	8.7		B	ESO	150	4	11	2
5787		RAMY	11	09	1512	S15 W04	11	9.3		A	AX	10	1	1	2
5787		HOLL	11	09	1550	S16 W04	11	9.3		A	AX	10	1		2
5787		PALE	11	09	1958	S17 W07	11	9.3		A	AX	10	5	2	3
5787		PALE	11	10	2049	S13 W16	11	9.7		A	AX		3	2	2
5782		RAMY	11	03	1220	N11 E80	11	9.5		A	HA	60	3	3	3
5782		BOUL	11	03	1536	N14 E77	11	9.5		A	HA	70	1	2	1
5782		HOLL	11	03	1635	N13 E78	11	9.6		A	HS	110	1	2	3
5782		PALE	11	03	2003	N12 E79	11	9.8		A	HK	60	1	3	3
5782		LEAR	11	04	0108	N10 E73	11	9.5		A	HA	120	2	2	3
5782		CULG	11	04	0225	N10 E73	11	9.6		A	HA	30	2	3	3
5782		RAMY	11	04	1310	N12 E68	11	9.7		B	DAO	90	4	4	3
5782		HOLL	11	04	1615	N12 E66	11	9.6		A	HA	90	2	2	4
5782		BOUL	11	04	1815	N12 E64	11	9.6		B	DSO	40	2	4	1
5782		LEAR	11	05	0047	N11 E62	11	9.7		B	DSO	100	2	4	3
5782		CULG	11	05	0140	N11 E60	11	9.6		A	HA	40	2	3	2
5782		RAMY	11	05	1351	N12 E53	11	9.6		B	DAO	70	2	3	2
5782		BOUL	11	05	1645	N12 E51	11	9.5		B	DSO	30	2	2	1
5782		HOLL	11	05	1745	N12 E52	11	9.6		A	HR	30	2	2	2
5782		PALE	11	05	2251	N13 E50	11	9.7		A	HA	50	2	2	3
5782		LEAR	11	06	0105	N12 E48	11	9.7		A	HA	40	3	3	3
5782		BOUL	11	06	1506	N13 E41	11	9.7		B	CAO	40	2	2	1
5782		RAMY	11	06	1507	N12 E41	11	9.7		B	CSO	30	5	2	2
5782		HOLL	11	06	1623	N12 E40	11	9.7		B	DSO	70	3	3	2
5782		PALE	11	06	1740	N14 E39	11	9.7		B	DAO	80	3	3	3
5782		RAMY	11	07	1207	N12 E29	11	9.7		B	CAO	30	4	2	2
5782		BOUL	11	07	1418	N12 E26	11	9.5		A	HR	10	1	1	1
5782		HOLL	11	07	1710	N12 E27	11	9.7		B	BXO	10	5	3	4
5782		PALE	11	07	2015	N13 E25	11	9.7		B	CAO	30	5	3	3
5782		LEAR	11	08	0045	N12 E23	11	9.8		B	CAO	20	6	3	3
5782		CULG	11	08	0310	N12 E21	11	9.7		B	CRO	10	6	3	3
5782		RAMY	11	08	1446	N12 E14	11	9.7		A	HS	10	1	1	2
5782		BOUL	11	08	1516	N12 E13	11	9.6		A	HS	20	1	1	1
5782		HOLL	11	08	1715	N12 E13	11	9.7		A	AX	10	2	1	3
5782		PALE	11	08	1830	N12 E13	11	9.7		B	BXO	110	3	3	4
5782		RAMY	11	09	1512	N12 E01	11	9.7		A	HS	10	1	1	2
5782		BOUL	11	09	1538	N11 W01	11	9.6		A	HS	30	1	1	1
5782		HOLL	11	09	1550	N11 W01	11	9.6		A	AX	10	1		2
5782		PALE	11	09	1958	N11 W02	11	9.7		A	AX		1		3
5782		LEAR	11	10	0005	N12 W05	11	9.6		A	AX	10	1	1	3
5782		RAMY	11	10	1239	N11 W13	11	9.5		A	AX		3	2	2
5783		HOLL	11	03	1635	N19 E79	11	9.7		B	BXO	20	7	3	3
5783		PALE	11	03	2003	N19 E84	11	10.2		B	BXO	20	5	5	3
5783		LEAR	11	04	0108	N18 E80	11	10.1		B	DAI	240	6	10	3
5783		CULG	11	04	0225	N18 E76	11	9.9		B	DAI	50	10	9	3
5783		RAMY	11	04	1310	N20 E74	11	10.2		B	DAO	230	8	10	3
5783		HOLL	11	04	1615	N19 E71	11	10.1		B	DAI	290	11	9	4
5783		BOUL	11	04	1815	N20 E68	11	10.0		B	DSO	80	3	8	1
5783		LEAR	11	05	0047	N18 E68	11	10.2		B	DAO	190	15	9	3
5783		CULG	11	05	0140	N19 E66	11	10.1		B	DAI	180	11	9	2
5783		RAMY	11	05	1351	N20 E60	11	10.2		B	DAO	380	18	9	2
5783		BOUL	11	05	1645	N19 E58	11	10.1		B	DAO	150	3	9	1
5783		HOLL	11	05	1745	N19 E58	11	10.2		B	DKO	300	19	10	2

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(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation		Lat	CND	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo Day	Time (UT)										
5783		PALE	11 05	2251	N21	E57	11 10.3		B	DAI	390	18	10	3
5783		LEAR	11 06	0105	N18	E53	11 10.1		B	DAO	410	24	9	3
5783		BOUL	11 06	1506	N20	E46	11 10.1		B	DAO	270	15	10	1
5783		RAMY	11 06	1507	N19	E46	11 10.1		B	DAO	580	19	10	2
5783		HOLL	11 06	1623	N19	E46	11 10.2		B	EAI	530	31	11	2
5783		PALE	11 06	1740	N23	E44	11 10.1		B	EKI	780	21	11	3
5783		RAMY	11 07	1207	N20	E35	11 10.2		B	EKO	910	29	11	2
5783		BOUL	11 07	1418	N19	E32	11 10.0		B	EAI	240	14	11	1
5783		HOLL	11 07	1710	N19	E32	11 10.1		B	EAI	610	49	11	4
5783		PALE	11 07	2015	N20	E30	11 10.1		B	EKO	600	32	12	3
5783		LEAR	11 08	0045	N19	E27	11 10.1		B	EKI	460	28	13	3
5783		CULG	11 08	0310	N18	E26	11 10.1		B	EKI	480	30	14	3
5783		RAMY	11 08	1446	N19	E20	11 10.1		B	EKO	570	33	13	2
5783		BOUL	11 08	1516	N19	E18	11 10.0		B	EKI	320	14	15	1
5783		HOLL	11 08	1715	N19	E18	11 10.1		BG	EKI	660	88	12	3
5783		PALE	11 08	1830	N19	E18	11 10.1		B	EKI	580	63	14	4
5783		LEAR	11 09	0025	N19	E15	11 10.2		B	EKC	410	51	13	2
5783		RAMY	11 09	1512	N18	E07	11 10.2		B	FKO	1230	19	14	2
5783		BOUL	11 09	1538	N17	E05	11 10.0		B	FKC	990	20	17	1
5783		HOLL	11 09	1550	N18	E04	11 10.0		BD	EKI	720	92	15	2
5783		PALE	11 09	1958	N19	E05	11 10.2		B	FKI	1150	66	16	3
5783		HOLL	11 10	1515	N18	W08	11 10.0		BGD	FKC	1030	73	17	4
5783		BOUL	11 10	1604	N18	W07	11 10.1		B	FKC	910	43	17	2
5783		PALE	11 10	2049	N18	W10	11 10.1		B	EKI	880	64	15	2
5783		LEAR	11 11	0012	N18	W12	11 10.1		BD	FKC	800	40	17	3
5783		RAMY	11 11	1238	N17	W20	11 10.0		BD	FKI	800	73	19	4
5783		HOLL	11 11	1510	N18	W21	11 10.0		BD	FKI	820	60	18	3
5783		BOUL	11 11	1528	N19	W21	11 10.0		B	FKI	550	35	19	2
5783		PALE	11 11	1945	N18	W23	11 10.1		BD	FKI	920	20	20	2
5783		LEAR	11 12	0008	N18	W28	11 9.9		BD	FKC	270	27	20	3
5783		RAMY	11 12	1420	N18	W34	11 10.0		BD	FKI	730	47	21	2
5783		HOLL	11 12	1510	N18	W34	11 10.0		BD	FKI	700	59	19	3
5783		BOUL	11 12	1540	N17	W34	11 10.1		B	FKI	540	36	20	2
5783		LEAR	11 13	0120	N18	W39	11 10.1		B	FKC	680	41	21	3
5783		RAMY	11 13	1830	N17	W50	11 10.0		B	FKI	780	38	21	2
5783		LEAR	11 14	0325	N18	W53	11 10.1		B	FKC	710	30	20	2
5783		RAMY	11 14	1428	N17	W59	11 10.1		B	FKI	820	29	20	2
5783		HOLL	11 14	1537	N18	W61	11 10.0		B	FKI	540	31	21	3
5783		BOUL	11 14	1628	N17	W61	11 10.0		B	FKI	580	14	24	1
5783		LEAR	11 15	0020	N18	W64	11 10.1		B	FKI	570	22	23	3
5783		RAMY	11 15	1350	N18	W71	11 10.2		B	FKI	720	12	20	2
5783		BOUL	11 15	1606	N18	W73	11 10.1		B	FAI	490	11	17	1
5783		HOLL	11 15	1626	N18	W75	11 10.0		B	FAI	360	10	23	2
5783		LEAR	11 16	0012	N18	W73	11 10.4		B	EKO	270	6	12	3
5783		RAMY	11 16	1242	N19	W79	11 10.5		B	CAO	140	4	18	3
5783		HOLL	11 16	1625	N17	W78	11 10.7		A	HA	70	3	2	3
5783		LEAR	11 17	0008	N18	W84	11 10.6		A	HH	120	2	4	3
5783		HOLL	11 17	1445	N17	W74	11 12.0		B	BXO	60	2	9	2
5783A		LEAR	11 08	0045	S16	E34	11 10.6		A	AX	10	1	1	3
5783A		RAMY	11 09	1512	S16	E12	11 10.5		A	AX		1		2
5783B		CULG	11 08	0310	N20	E38	11 11.0		A	AX		1		3
5784		RAMY	11 05	1351	N23	E78	11 11.6		B	BXO	10	3	2	2
5784		HOLL	11 05	1745	N22	E74	11 11.4		B	BXO	30	2	8	2
5784		PALE	11 05	2251	N21	E77	11 11.8		B	BXO		3	4	3
5784		LEAR	11 06	0105	N21	E69	11 11.3		B	BXO	30	6	5	3
5784		HOLL	11 06	1623	N22	E66	11 11.7		A	AX	10	1	1	2
5784		PALE	11 06	1740	N25	E65	11 11.8		B	BXO	20	4	8	3
5784		RAMY	11 07	1207	N24	E57	11 11.9		B	DAO	80	7	8	2
5784		BOUL	11 07	1418	N25	E55	11 11.8		B	BXO	10	2	7	1
5784		HOLL	11 07	1710	N21	E52	11 11.7		B	BXO	10	5	3	4
5784		PALE	11 07	2015	N23	E49	11 11.6		B	BXO	10	3	3	3
5784		LEAR	11 08	0045	N23	E47	11 11.6		B	ESO	100	8	14	3
5784		CULG	11 08	0310	N23	E49	11 11.9		B	DAO	70	4	7	3
5784		RAMY	11 08	1446	N23	E39	11 11.6		B	EKO	80	9	14	2
5784		BOUL	11 08	1516	N25	E39	11 11.6		B	FAO	170	4	17	1
5784		HOLL	11 08	1715	N24	E37	11 11.6		B	CSO	80	11	17	3

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat	CMD	CMP Mo Day	Max H	Meg Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5784		PALE	11 08 1830	N25	E38	11 11.7		B	ESO	90	11	15	4
5784		LEAR	11 09 0025	N23	E34	11 11.6		B	CAO	70	6	15	2
5784		RAMY	11 09 1512	N22	E27	11 11.7		B	CAO	60	10	14	2
5784		BOUL	11 09 1538	N24	E25	11 11.6		B	FAO	150	6	18	1
5784		HOLL	11 09 1550	N23	E25	11 11.6		B	CAO	70	11	15	2
5784		PALE	11 09 1958	N23	E23	11 11.6		B	CAO	80	14	16	3
5784		HOLL	11 10 1515	N23	E12	11 11.6		B	CAO	30	8	17	4
5784		BOUL	11 10 1604	N25	E10	11 11.4		B	FAO	60	5	16	2
5784		PALE	11 10 2049	N23	E08	11 11.5		B	BXO	20	5	16	2
5784		LEAR	11 11 0012	N23	E11	11 11.8		B	CSO	30	2	9	3
5784		RAMY	11 11 1238	N21	W06	11 11.1		B	BXO	10	5	11	4
5784		HOLL	11 11 1510	N25	W02	11 11.5		B	BXO	20	5	18	3
5784		BOUL	11 11 1528	N23	W03	11 11.4		B	CSO	10	4	17	2
5784		LEAR	11 12 0008	N23	W03	11 11.8		B	CSO	30	7	10	3
5784		HOLL	11 12 1510	N23	W12	11 11.7		B	BXO	10	5	12	3
5784		LEAR	11 13 0120	N22	W18	11 11.7		B	BXO	20	6	7	3
5784C		LEAR	11 17 0008	N28	W68	11 11.7		B	BXO	30	2	3	3
5784C		RAMY	11 17 1215	N29	W77	11 11.5		B	BXO	20	5	3	4
5784A		RAMY	11 06 1507	N26	E70	11 12.1		A	HS	30	1	2	2
5784A		HOLL	11 06 1623	N26	E67	11 11.9		A	AX	20	2	2	2
5784A		PALE	11 06 1740	N30	E69	11 12.2		B	CSO	60	2	3	3
5784A		RAMY	11 07 1207	N26	E57	11 11.9		B	DSO	80	4	7	2
5784A		HOLL	11 07 1710	N26	E54	11 11.9		B	DAO	90	7	8	4
5784A		PALE	11 07 2015	N27	E53	11 12.0		B	DSO	90	2	9	3
5784A		RAMY	11 08 1446	N26	E46	11 12.2		A	HA	60	1	2	2
5784A		PALE	11 11 1945	N27	E06	11 12.3		A	HS	20	1	1	2
5784B		RAMY	11 14 1428	S13	W26	11 12.6		A	AX	10	1	1	2
5784B		HOLL	11 14 1537	S13	W26	11 12.7		A	AX	10	1	1	3
5786		BOUL	11 06 1506	N11	E80	11 12.6		A	HS	30	1	1	1
5786		RAMY	11 06 1507	N11	E81	11 12.7		A	HA	80	2	3	2
5786		HOLL	11 06 1623	N12	E78	11 12.5		B	CSO	110	2	4	2
5786		PALE	11 06 1740	N15	E81	11 12.9		B	CKO	130	2	5	3
5786		RAMY	11 07 1207	N13	E74	11 13.1		B	DAO	190	7	10	2
5786		BOUL	11 07 1418	N12	E73	11 13.1		B	DSO	120	4	10	1
5786		HOLL	11 07 1710	N13	E70	11 13.0		B	EAO	250	11	11	4
5786		PALE	11 07 2015	N13	E69	11 13.0		B	EAO	270	6	12	3
5786		LEAR	11 08 0045	N11	E59	11 12.5		B	EAO	240	7	15	3
5786		CULG	11 08 0310	N10	E65	11 13.0		B	DSO	170	8	10	3
5786		RAMY	11 08 1446	N13	E60	11 13.1		B	EAO	230	9	11	2
5786		BOUL	11 08 1516	N14	E61	11 13.2		B	EAO	340	6	13	1
5786		HOLL	11 08 1715	N12	E58	11 13.1		B	EAO	310	23	12	3
5786		PALE	11 08 1830	N14	E59	11 13.2		B	EAO	290	14	13	4
5786		LEAR	11 09 0025	N11	E54	11 13.1		B	EAO	210	13	12	2
5786		RAMY	11 09 1512	N13	E48	11 13.2		B	EAO	330	22	18	2
5786		BOUL	11 09 1538	N13	E46	11 13.1		B	EAO	400	9	11	1
5786		HOLL	11 09 1550	N13	E49	11 13.3		BG	FAO	250	29	17	2
5786		PALE	11 09 1958	N12	E48	11 13.4		B	FAI	340	23	20	3
5786		HOLL	11 10 1515	N13	E32	11 13.0		B	EKI	310	35	12	4
5786		BOUL	11 10 1604	N12	E31	11 13.0		B	EAI	280	15	12	2
5786		PALE	11 10 2049	N11	E31	11 13.2		B	EAO	150	10	11	2
5786		LEAR	11 11 0012	N12	E34	11 13.6		B	FAI	180	19	19	3
5786		RAMY	11 11 1238	N11	E25	11 13.4		B	FAO	280	55	21	4
5786		HOLL	11 11 1510	N13	E23	11 13.4		B	FSO	140	46	18	3
5786		BOUL	11 11 1528	N13	E22	11 13.3		B	FAI	150	20	17	2
5786		PALE	11 11 1945	N13	E21	11 13.4		B	FAO	250	24	19	2
5786		LEAR	11 12 0008	N12	E20	11 13.5		B	FAI	200	26	20	3
5786		RAMY	11 12 1420	N11	E10	11 13.3		BG	FAO	190	54	22	2
5786		HOLL	11 12 1510	N13	E08	11 13.2		B	EAO	140	35	12	3
5786		BOUL	11 12 1540	N13	E08	11 13.2		B	FAI	150	33	22	2
5786		LEAR	11 13 0120	N12	E03	11 13.3		BG	FAI	240	42	21	3
5786		RAMY	11 13 1830	N13	W07	11 13.2		B	FKO	330	41	22	2
5786		LEAR	11 14 0325	N13	W10	11 13.4		BG	FKI	290	31	20	2
5786		RAMY	11 14 1428	N13	W18	11 13.2		BD	FKO	600	40	17	2
5786		HOLL	11 14 1537	N12	W18	11 13.3		BG	FKO	440	29	19	3
5786		BOUL	11 14 1628	N13	W18	11 13.3		B	FKI	340	11	14	1

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CHP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5786		LEAR	11 15 0020	N13 W23	11 13.3		BGD	FKI	530	46	16	3
5786		RAMY	11 15 1350	N13 W29	11 13.4		BD	FKO	590	26	20	2
5786		BOUL	11 15 1606	N13 W29	11 13.5		B	EKI	420	14	12	1
5786		HOLL	11 15 1626	N12 W29	11 13.5		BD	EKO	510	23	12	2
5786		LEAR	11 16 0012	N13 W36	11 13.3		BGD	EKO	430	27	12	3
5786		RAMY	11 16 1242	N13 W41	11 13.4		BD	EKO	470	11	13	3
5786		HOLL	11 16 1625	N13 W46	11 13.2		BD	DKC	420	19	6	3
5786		PALE	11 16 2312	N12 W52	11 13.0		B	DAO	170	11	6	2
5786		LEAR	11 17 0008	N14 W50	11 13.2		BD	EAO	230	11	11	3
5786		RAMY	11 17 1215	N12 W58	11 13.1		B	DAO	210	10	9	4
5786		HOLL	11 17 1445	N11 W58	11 13.2		B	DAO	180	8	7	2
5786		LEAR	11 18 0018	N12 W65	11 13.1		BD	DHO	180	6	8	3
5786		RAMY	11 18 1245	N12 W70	11 13.2		B	DAO	160	5	5	3
5786		HOLL	11 18 1820	N10 W76	11 13.0		B	CAO	120	7	13	3
5786		BOUL	11 18 1915	N12 W77	11 13.0		B	DAO	100	3	5	2
5786		LEAR	11 19 0047	N13 W75	11 13.4		B	CAO	80	5	6	4
5786A		LEAR	11 16 0012	N07 W16	11 14.8		A	AX	10	1	1	3
5789		LEAR	11 13 0120	N34 E34	11 15.8		A	AX	10	1	1	3
5789		RAMY	11 13 1830	N34 E26	11 15.8		B	BXO	10	3	3	2
5789		LEAR	11 14 0325	N34 E21	11 15.8		A	AX	10	2	2	2
5790		LEAR	11 14 0325	N25 E24	11 16.0		A	AX	10	2	2	2
5790		RAMY	11 14 1428	N24 E19	11 16.1		B	BXO	20	3	3	2
5790		HOLL	11 14 1537	N25 E16	11 15.9		B	BXO	10	2	4	3
5790		LEAR	11 15 0020	N24 E12	11 15.9		B	BXO	20	7	3	3
5790		RAMY	11 15 1350	N25 E05	11 16.0		B	BXO	20	3	4	2
5790		BOUL	11 15 1606	N25 E03	11 15.9		B	CSO	20	3	4	1
5790		HOLL	11 15 1626	N25 E03	11 15.9		B	BXO	20	4	4	2
5790		LEAR	11 16 0012	N24 W01	11 15.9		B	BXO	30	4	4	3
5790		RAMY	11 16 1242	N24 W04	11 16.2		B	BXO	10	2	4	3
5790		HOLL	11 16 1625	N23 W07	11 16.1		B	BXO	10	4	5	3
5790		LEAR	11 17 0008	N27 W11	11 16.1		B	BXO	10	4	6	3
5790A		RAMY	11 11 1238	S43 E55	11 16.0		A	AX	10	1	1	4
5790B		RAMY	11 14 1428	S15 E24	11 16.4		A	AX	10	1	1	2
5790C		RAMY	11 18 1245	S02 W29	11 16.4		A	AX		1	1	3
5788		RAMY	11 09 1512	S22 E83	11 16.0		A	HA	60	2	2	2
5788		PALE	11 09 1958	S22 E84	11 16.3		A	AX		2	1	3
5788		HOLL	11 10 1515	S22 E71	11 16.1		B	FAI	320	24	21	4
5788		BOUL	11 10 1604	S23 E75	11 16.4		B	FAI	370	11	16	2
5788		PALE	11 10 2049	S22 E72	11 16.4		B	CAO	220	13	15	2
5788		LEAR	11 11 0012	S25 E70	11 16.4		B	FAO	340	14	20	3
5788		RAMY	11 11 1238	S24 E65	11 16.5		B	FKO	470	27	26	4
5788		HOLL	11 11 1510	S21 E62	11 16.4		B	FHO	520	27	19	3
5788		BOUL	11 11 1528	S23 E60	11 16.3		B	FAI	240	19	29	2
5788		PALE	11 11 1945	S21 E56	11 16.1		B	FKO	490	23	25	2
5788		LEAR	11 12 0008	S24 E58	11 16.5		B	FAI	320	19	24	3
5788		RAMY	11 12 1420	S23 E51	11 16.5		BG	FKO	410	34	26	2
5788		HOLL	11 12 1510	S23 E50	11 16.5		B	EHO	540	62	14	3
5788		BOUL	11 12 1540	S23 E48	11 16.3		B	FSI	360	24	28	2
5788		LEAR	11 13 0120	S25 E44	11 16.5		BD	FKI	460	37	26	3
5788		RAMY	11 13 1830	S22 E34	11 16.4		B	FKO	460	55	26	2
5788		LEAR	11 14 0325	S24 E31	11 16.5		B	FKI	430	45	27	2
5788		RAMY	11 14 1428	S23 E24	11 16.4		B	FKI	540	46	28	2
5788		HOLL	11 14 1537	S22 E23	11 16.4		B	FKI	340	51	27	3
5788		BOUL	11 14 1628	S23 E23	11 16.4		B	FKI	370	13	25	1
5788		LEAR	11 15 0020	S23 E19	11 16.5		B	FKI	480	30	28	3
5788		RAMY	11 15 1350	S23 E13	11 16.6		B	FKI	660	59	29	2
5788		BOUL	11 15 1606	S23 E10	11 16.4		B	FKI	540	26	28	1
5788		HOLL	11 15 1626	S23 E11	11 16.5		BG	FKI	420	39	29	2
5788		LEAR	11 16 0012	S24 E07	11 16.5		B	FKO	440	42	30	3
5788		RAMY	11 16 1242	S25 E00	11 16.5		BG	FKO	380	51	28	3
5788		HOLL	11 16 1625	S22 W08	11 16.1		BG	FAI	140	36	16	3
5788		PALE	11 16 2312	S21 W15	11 15.8		B	CAI	70	21	13	2

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo Day	Time (UT)										
5788		LEAR	11 17	0008	S20	W12	11 16.1		B	FAI	150	34	18	3
5788		RAMY	11 17	1215	S21	W21	11 15.9		B	FAI	160	68	16	4
5788		HOLL	11 17	1445	S21	W20	11 16.1		B	FRO	130	33	18	2
5788		LEAR	11 18	0018	S21	W29	11 15.8		B	FSO	110	11	16	3
5788		RAMY	11 18	1245	S22	W33	11 16.0		B	EAO	80	17	12	3
5788		HOLL	11 18	1820	S22	W36	11 16.0		B	BXO	40	21	8	3
5788		BOUL	11 18	1915	S20	W37	11 16.0		B	BXO	10	13	8	2
5788		LEAR	11 19	0047	S23	W35	11 16.3		B	BXO	40	14	15	4
5788		RAMY	11 19	1210	S21	W49	11 15.7		B	BXO	60	22	10	4
5788		BOUL	11 19	1645	S21	W50	11 15.9		B	BXO		4	5	2
5788		HOLL	11 19	1655	S22	W53	11 15.6		A	AX	10	3	2	1
5788		PALE	11 19	1805	S22	W51	11 15.8		B	BXO	10	5	4	3
5788		LEAR	11 20	0010	S20	W54	11 15.9		B	BXO	20	5	5	4
5788		RAMY	11 20	1232	S21	W65	11 15.5		A	AX	20	5	2	3
5788		HOLL	11 20	1710	S21	W67	11 15.6		B	BXO	10	2	3	3
5788		PALE	11 20	2215	S22	W77	11 15.0		A	AX	10	2	2	1
5788		LEAR	11 21	0008	S21	W70	11 15.6		A	AX	30	3	2	4
5790D		HOLL	11 16	1625	S13	W02	11 16.5		A	AX		1		3
5793		HOLL	11 16	1625	S25	E09	11 17.4		B	DKO	310	14	8	3
5793		PALE	11 16	2312	S25	E05	11 17.3		B	DKO	260	15	9	2
5793		LEAR	11 17	0008	S25	E05	11 17.4		B	DKO	170	12	8	3
5793		RAMY	11 17	1215	S26	W03	11 17.3		B	EAO	230	25	11	4
5793		HOLL	11 17	1445	S25	W03	11 17.4		B	DHO	190	11	9	2
5793		LEAR	11 18	0018	S25	W09	11 17.3		B	EKO	190	14	11	3
5793		RAMY	11 18	1245	S27	W14	11 17.4		B	EAI	350	24	11	3
5793		HOLL	11 18	1820	S27	W16	11 17.5		BD	EKI	460	31	11	3
5793		BOUL	11 18	1915	S26	W18	11 17.4		B	DAI	300	19	9	2
5793		LEAR	11 19	0047	S26	W22	11 17.3		BGD	DKC	490	29	10	4
5793		RAMY	11 19	1210	S27	W29	11 17.2		BG	EKI	550	47	11	4
5793		BOUL	11 19	1645	S26	W29	11 17.4		B	EAI	260	28	12	2
5793		HOLL	11 19	1655	S28	W31	11 17.3		BG	DKI	460	31	9	1
5793		PALE	11 19	1805	S27	W30	11 17.4		BG	EKI	510	29	12	3
5793		LEAR	11 20	0010	S25	W33	11 17.4		BGD	EKC	590	37	12	4
5793		RAMY	11 20	1232	S25	W42	11 17.3		BG	EKI	570	33	13	3
5793		HOLL	11 20	1710	S26	W44	11 17.3		BGD	EKI	450	29	11	3
5793		PALE	11 20	2215	S27	W47	11 17.3		BG	EKI	290	15	7	1
5793		LEAR	11 21	0008	S26	W48	11 17.3		BG	DAI	430	32	8	4
5793		RAMY	11 21	1310	S25	W54	11 17.4		BG	DAI	400	21	9	4
5793		BOUL	11 21	1553	S27	W56	11 17.3		B	DAO	190	6	6	1
5793		HOLL	11 21	1735	S27	W56	11 17.4		BG	DAI	170	16	10	3
5793		PALE	11 21	1946	S27	W57	11 17.4		BG	DAI	320	30	7	3
5793		LEAR	11 22	0008	S25	W60	11 17.3		B	DAO	290	14	6	2
5793		BOUL	11 22	1557	S26	W70	11 17.2		B	DAO	160	5	8	2
5793		HOLL	11 22	1800	S25	W68	11 17.5		B	DSO	140	2	6	4
5793		RAMY	11 22	1905	S25	W69	11 17.4		B	DAO	220	4	10	2
5793		PALE	11 22	1909	S27	W72	11 17.2		B	DAO	120	5	6	3
5793		LEAR	11 23	0030	S26	W71	11 17.5		B	DAO	120	2	6	2
5793		CULG	11 23	0405	S23	W80	11 17.0		B	DAO	80	3	8	2
5793		RAMY	11 23	1525	S25	W82	11 17.3		B	DAO	120	2	4	2
5793		HOLL	11 23	1612	S24	W80	11 17.5		B	CSO	110	2	6	4
5793		BOUL	11 23	1740	S26	W81	11 17.4		A	HA	60	1	1	1
5793		PALE	11 23	1745	S27	W80	11 17.5		A	HA	60	1	2	3
5792		LEAR	11 15	0020	N09	E47	11 18.5		A	AX	10	2	2	3
5792		RAMY	11 15	1350	N10	E40	11 18.6		B	DAO	80	7	3	2
5792		BOUL	11 15	1606	N11	E36	11 18.4		B	CAO	40	4	3	1
5792		HOLL	11 15	1626	N11	E38	11 18.5		B	CRO	30	6	4	2
5792		LEAR	11 16	0012	N09	E33	11 18.5		B	BXO	50	7	4	3
5792		RAMY	11 16	1242	N10	E27	11 18.5		B	CRO	20	9	6	3
5792		HOLL	11 16	1625	N11	E25	11 18.6		B	CRI	60	13	5	3
5792		PALE	11 16	2312	N10	E21	11 18.5		B	CRO	20	10	5	2
5792		LEAR	11 17	0008	N10	E20	11 18.5		B	BXO	20	12	6	3
5792		RAMY	11 17	1215	N10	E12	11 18.4		B	CRO	20	14	7	4
5792		HOLL	11 17	1445	N11	E10	11 18.4		B	BXO	10	2	4	2
5792		LEAR	11 18	0018	N09	E05	11 18.4		B	CSO	10	2	4	3
5792		RAMY	11 18	1245	N09	W04	11 18.2		B	BXO	10	2	3	3
5792		HOLL	11 18	1820	N09	W07	11 18.2		A	AX		1		3

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SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CND	Chp Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5792		LEAR	11 19 0047	N09 W09	11 18.3		B	BXO	10	4	8	4
5792		RAMY	11 19 1210	N09 W18	11 18.1		A	AX		1	1	4
5792		LEAR	11 20 0010	N12 W23	11 18.3		B	BXO	10	3	4	4
5791		RAMY	11 14 1428	N29 E81	11 20.9		A	HS	60	1	1	2
5791		HOLL	11 14 1537	N29 E80	11 20.9		A	HS	20	1	1	3
5791		BOUL	11 14 1628	N29 E80	11 20.9		A	HS	30	1	2	1
5791		LEAR	11 15 0020	N28 E73	11 20.7		A	HS	60	1	2	3
5791		RAMY	11 15 1350	N29 E70	11 21.1		A	HS	60	1	2	2
5791		BOUL	11 15 1606	N29 E67	11 20.9		A	HA	100	1	2	1
5791		HOLL	11 15 1626	N29 E68	11 21.0		A	HS	30	1	2	2
5791		LEAR	11 16 0012	N28 E63	11 20.9		A	HS	90	1	2	3
5791		RAMY	11 16 1242	N29 E58	11 21.1		A	HS	80	1	2	3
5791		HOLL	11 16 1625	N29 E56	11 21.1		A	HA	40	1	2	3
5791		PALE	11 16 2312	N30 E53	11 21.1		A	HS	30	1	1	2
5791		LEAR	11 17 0008	N29 E51	11 21.0		A	HS	70	1	2	3
5791		RAMY	11 17 1215	N29 E45	11 21.0		B	CAO	70	6	6	4
5791		HOLL	11 17 1445	N30 E43	11 21.0		A	HA	60	3	2	2
5791		LEAR	11 18 0018	N28 E38	11 21.0		A	HS	60	2	2	3
5791		RAMY	11 18 1245	N28 E32	11 21.0		B	CAO	50	6	4	3
5791		HOLL	11 18 1820	N29 E28	11 20.9		A	AX	20	5	2	3
5791		BOUL	11 18 1915	N29 E28	11 21.0		B	DSO	40	2	2	2
5791		LEAR	11 19 0047	N27 E26	11 21.0		B	CSO	20	6	4	4
5791		RAMY	11 19 1210	N29 E20	11 21.1		B	BXO	10	7	3	4
5791		BOUL	11 19 1645	N29 E17	11 21.0		B	CSO	10	2	2	2
5791		HOLL	11 19 1655	N28 E17	11 21.0		A	AX	10	1	1	1
5791		PALE	11 19 1805	N29 E17	11 21.1		A	HR	10	2	2	3
5791		LEAR	11 20 0010	N28 E14	11 21.1		B	BXO	20	5	4	4
5791		RAMY	11 20 1232	N29 E08	11 21.1		B	BXO		3	4	3
5791		HOLL	11 20 1710	N29 E04	11 21.0		A	AX		1		3
5791		PALE	11 20 2215	N29 E01	11 21.0		A	AX		1		1
5791		LEAR	11 21 0008	N28 E01	11 21.1		A	AX	10	1	1	4
5791		RAMY	11 21 1310	N29 W04	11 21.2		B	BXO	10	2	2	4
5791		BOUL	11 21 1553	N29 W07	11 21.1		A	AX		1		1
5791		HOLL	11 21 1735	N29 W08	11 21.1		B	BXO		2	3	3
5791		PALE	11 21 1946	N28 W11	11 21.0		A	AX		1		3
5791		LEAR	11 22 0008	N28 W12	11 21.1		A	AX	10	1	1	2
5791		BOUL	11 22 1557	N29 W22	11 20.9		A	AX	10	1		2
5791		HOLL	11 22 1800	N28 W22	11 21.0		A	AX		1		4
5791		RAMY	11 22 1905	N29 W20	11 21.2		B	BXO	10	4	5	2
5791		PALE	11 22 1909	N29 W20	11 21.2		B	BXO	10	4	4	3
5795		RAMY	11 16 1242	S09 E65	11 21.4		A	AX	10	4	2	3
5795		HOLL	11 16 1625	S09 E63	11 21.4		B	CAO	30	3	3	3
5795		LEAR	11 17 0008	S08 E58	11 21.3		B	CRO	40	5	6	3
5795		RAMY	11 17 1215	S10 E52	11 21.4		B	CRO	60	26	6	4
5795		HOLL	11 17 1445	S08 E51	11 21.4		B	CSO	60	14	5	2
5795		LEAR	11 18 0018	S10 E45	11 21.4		B	DSO	60	10	7	3
5795		RAMY	11 18 1245	S10 E40	11 21.5		B	DAO	130	22	5	3
5795		HOLL	11 18 1820	S09 E37	11 21.5		B	DAO	90	25	8	3
5795		BOUL	11 18 1915	S09 E35	11 21.4		B	DAO	70	10	6	2
5795		LEAR	11 19 0047	S11 E33	11 21.5		B	DAO	100	19	7	4
5795		RAMY	11 19 1210	S10 E26	11 21.5		B	DAO	150	32	7	4
5795		BOUL	11 19 1645	S09 E23	11 21.4		B	DAO	70	16	6	2
5795		HOLL	11 19 1655	S08 E25	11 21.6		B	DAO	100	18	7	1
5795		PALE	11 19 1805	S10 E24	11 21.5		B	DAO	110	21	7	3
5795		LEAR	11 20 0010	S10 E19	11 21.4		B	DAI	110	26	7	4
5795		RAMY	11 20 1232	S09 E13	11 21.5		B	CAI	80	39	8	3
5795		HOLL	11 20 1710	S09 E10	11 21.5		B	DSI	110	37	7	3
5795		PALE	11 20 2215	S08 E08	11 21.5		B	DSO	100	16	7	1
5795		LEAR	11 21 0008	S09 E06	11 21.4		B	DAO	150	36	8	4
5795		RAMY	11 21 1310	S09 E01	11 21.6		B	DAO	200	27	8	4
5795		BOUL	11 21 1553	S09 W03	11 21.4		B	BXO	40	8	6	1
5795		HOLL	11 21 1735	S10 W03	11 21.5		B	CRO	30	21	8	3
5795		PALE	11 21 1946	S08 W05	11 21.4		B	DSI	90	51	10	3
5795		LEAR	11 22 0008	S08 W07	11 21.5		B	BXO	110	18	7	2
5795		BOUL	11 22 1557	S06 W18	11 21.3		B	CSO	20	9	3	2
5795		HOLL	11 22 1800	S08 W17	11 21.5		B	BXO	20	9	8	4
5795		RAMY	11 22 1905	S09 W18	11 21.4		B	CAO	30	14	8	2

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)	Lat CMD	Chp Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5795		PALE	11 22 1909	S09 W18	11 21.4		B	BXI	30	21	9	3
5795		LEAR	11 23 0030	S07 W22	11 21.4		B	BXO	50	10	7	2
5795		CULG	11 23 0405	S04 W26	11 21.2		B	BXO	10	2	1	2
5795		RAMY	11 23 1525	S07 W30	11 21.4		B	BXO	10	3	6	2
5795		HOLL	11 23 1612	S08 W29	11 21.5		B	BXO	20	6	10	4
5795		BOUL	11 23 1740	S06 W33	11 21.3		B	CSO	10	2	1	1
5795		PALE	11 23 1745	S07 W32	11 21.3		A	AX	10	4	2	3
5795		LEAR	11 24 0142	S08 W34	11 21.5		B	BXO	20	9	8	3
5795		RAMY	11 24 1232	S07 W42	11 21.4		B	BXO	10	4	5	3
5795		PALE	11 24 1810	S07 W46	11 21.3		B	BXO	10	3	4	3
5795		HOLL	11 24 1835	S07 W47	11 21.2		A	AX	10	1	1	2
5795		LEAR	11 25 0030	S05 W50	11 21.3		A	AX	20	1	1	2
5795		CULG	11 25 0157	S04 W52	11 21.2		A	AX	10	1	1	3
5795		RAMY	11 25 1237	S07 W57	11 21.2		B	BXO	20	6	3	3
5796		RAMY	11 17 1215	N11 E70	11 22.8		B	DAO	60	17	5	4
5796		HOLL	11 17 1445	N12 E68	11 22.7		B	CAO	120	6	6	2
5796		LEAR	11 18 0018	N10 E60	11 22.5		B	DHO	150	4	8	3
5796		RAMY	11 18 1245	N11 E55	11 22.7		B	DAO	490	12	7	3
5796		HOLL	11 18 1820	N12 E52	11 22.7		B	DHO	560	18	8	3
5796		BOUL	11 18 1915	N13 E53	11 22.8		B	DAO	260	8	9	2
5796		LEAR	11 19 0047	N10 E48	11 22.6		B	DHO	380	20	8	4
5796		RAMY	11 19 1210	N10 E42	11 22.7		B	DKO	430	48	9	4
5796		BOUL	11 19 1645	N11 E40	11 22.7		B	DAO	290	15	7	2
5796		HOLL	11 19 1655	N12 E40	11 22.7		B	DHO	400	15	7	1
5796		PALE	11 19 1805	N11 E40	11 22.8		B	DHO	390	25	9	3
5796		LEAR	11 20 0010	N10 E36	11 22.7		B	DSI	410	31	9	4
5796		RAMY	11 20 1232	N10 E30	11 22.8		B	DKO	430	29	8	3
5796		HOLL	11 20 1710	N11 E27	11 22.7		B	DKI	520	30	9	3
5796		PALE	11 20 2215	N11 E24	11 22.7		B	DHI	500	18	9	1
5796		LEAR	11 21 0008	N10 E23	11 22.7		B	DKO	570	27	8	4
5796		RAMY	11 21 1310	N09 E11	11 22.4		B	DKC	760	23	10	4
5796		BOUL	11 21 1553	N10 E14	11 22.7		B	DKC	420	10	7	1
5796		HOLL	11 21 1735	N11 E12	11 22.6		BD	DKC	690	28	9	3
5796		PALE	11 21 1946	N09 E12	11 22.7		BD	DKC	770	38	8	3
5796		LEAR	11 22 0008	N11 E09	11 22.7		B	DKI	700	28	8	2
5796		BOUL	11 22 1557	N12 E00	11 22.7		B	DKC	770	29	9	2
5796		HOLL	11 22 1800	N11 E00	11 22.8		B	DKI	860	35	8	4
5796		RAMY	11 22 1905	N10 W01	11 22.7		B	DKO	760	37	9	2
5796		PALE	11 22 1909	N11 E00	11 22.8		BG	DKI	750	37	9	3
5796		LEAR	11 23 0030	N10 W04	11 22.7		B	DKO	600	15	9	2
5796		CULG	11 23 0405	N11 W06	11 22.7		B	DKI	700	18	8	2
5796		RAMY	11 23 1525	N11 W13	11 22.7		B	DKO	620	19	8	2
5796		HOLL	11 23 1612	N12 W12	11 22.8		B	DKI	630	31	9	4
5796		BOUL	11 23 1740	N10 W14	11 22.7		B	DKC	870	13	8	1
5796		PALE	11 23 1745	N11 W13	11 22.8		B	DKI	720	17	9	3
5796		LEAR	11 24 0142	N12 W17	11 22.8		B	DHO	520	22	8	3
5796		RAMY	11 24 1232	N12 W23	11 22.8		B	DKO	590	14	9	3
5796		PALE	11 24 1810	N11 W28	11 22.6		B	DKO	550	18	9	3
5796		HOLL	11 24 1835	N11 W26	11 22.8		B	DKO	560	10	8	2
5796		LEAR	11 25 0030	N12 W29	11 22.8		B	DHO	410	20	9	2
5796		CULG	11 25 0157	N12 W31	11 22.7		B	DKO	390	16	9	3
5796		RAMY	11 25 1237	N11 W37	11 22.7		B	DKO	450	23	8	3
5796		HOLL	11 25 1600	N12 W38	11 22.8		B	DHO	480	15	8	2
5796		BOUL	11 25 1638	N11 W39	11 22.7		B	DKO	360	7	8	2
5796		PALE	11 25 1845	N11 W39	11 22.8		B	DHO	490	15	8	4
5796		LEAR	11 26 0137	N12 W44	11 22.7		B	DHO	430	16	9	3
5796		CULG	11 26 0207	N13 W45	11 22.7		B	DHO	350	14	9	3
5796		RAMY	11 26 1205	N12 W50	11 22.7		B	CKO	410	12	10	4
5796		HOLL	11 26 1600	N11 W51	11 22.8		B	DHO	440	9	10	3
5796		PALE	11 26 1750	N11 W53	11 22.7		B	DHO	460	11	9	4
5796		BOUL	11 26 1815	N11 W55	11 22.6		B	DHO	310	2	6	1
5796		LEAR	11 27 0012	N12 W55	11 22.9		B	DHO	470	12	7	4
5796		CULG	11 27 0143	N13 W59	11 22.6		B	DKO	340	13	7	3
5796		RAMY	11 27 1223	N12 W63	11 22.8		B	CKO	530	6	7	3
5796		BOUL	11 27 1446	N12 W65	11 22.7		A	HA	180	1	3	1
5796		HOLL	11 27 1600	N12 W65	11 22.8		B	CAO	430	10	10	2
5796		PALE	11 27 1820	N11 W67	11 22.7		B	CKO	440	10	6	4
5796		LEAR	11 28 0013	N11 W69	11 22.8		B	DKO	500	6	4	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

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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
5796		CULG	11 28 0112	N12 W75	11 22.4		B	DKO	30	5	7	2
5796		RAMY	11 28 1330	N11 W74	11 23.0		B	CHO	480	3	7	3
5796		PALE	11 28 1908	N10 W84	11 22.5		B	CKO	180	3	10	3
5796		LEAR	11 29 0050	N11 W83	11 22.8		A	HA	120	1	3	3
5796A		CULG	11 28 0112	S11 W70	11 22.8		A	AX	10	1	1	2
5799		RAMY	11 18 1245	N20 E58	11 23.0		B	CRO	90	8	4	3
5799		HOLL	11 18 1820	N22 E55	11 23.0		B	BXO	40	7	5	3
5799		BOUL	11 18 1915	N21 E56	11 23.1		B	DAO	50	6	6	2
5799		LEAR	11 19 0047	N19 E51	11 22.9		B	CAO	80	11	5	4
5799		RAMY	11 19 1210	N20 E45	11 22.9		B	DAI	210	19	6	4
5799		BOUL	11 19 1645	N20 E43	11 23.0		B	DAO	100	10	6	2
5799		HOLL	11 19 1655	N20 E42	11 22.9		B	DAO	150	10	5	1
5799		PALE	11 19 1805	N20 E42	11 23.0		B	DAO	190	10	6	3
5799		LEAR	11 20 0010	N19 E38	11 22.9		B	DAO	200	12	6	4
5799		RAMY	11 20 1232	N20 E32	11 23.0		B	DAO	170	20	6	3
5799		HOLL	11 20 1710	N20 E29	11 22.9		B	DSO	180	22	8	3
5799		PALE	11 20 2215	N20 E26	11 22.9		B	DSO	140	8	8	1
5799		LEAR	11 21 0008	N19 E24	11 22.8		B	DSO	200	21	7	4
5799		RAMY	11 21 1310	N19 E19	11 23.0		B	DAO	220	19	8	4
5799		BOUL	11 21 1553	N19 E17	11 22.9		B	CAO	80	6	8	1
5799		HOLL	11 21 1735	N20 E15	11 22.9		B	DAO	110	17	9	3
5799		PALE	11 21 1946	N21 E15	11 23.0		B	CSO	130	20	9	3
5799		LEAR	11 22 0008	N20 E11	11 22.8		B	CSO	140	17	9	2
5799		BOUL	11 22 1557	N20 E03	11 22.9		B	DAO	170	13	9	2
5799		HOLL	11 22 1800	N20 E02	11 22.9		B	DAO	150	19	9	4
5799		RAMY	11 22 1905	N20 E01	11 22.9		B	DAO	110	34	10	2
5799		PALE	11 22 1909	N20 E02	11 22.9		B	CKO	120	16	9	3
5799		LEAR	11 23 0030	N19 W02	11 22.9		B	DSO	150	11	9	2
5799		CULG	11 23 0405	N20 W04	11 22.9		B	DAO	80	11	10	2
5799		RAMY	11 23 1525	N20 W11	11 22.8		B	CAO	90	15	10	2
5799		HOLL	11 23 1612	N20 W09	11 23.0		B	EAI	120	29	12	4
5799		BOUL	11 23 1740	N19 W11	11 22.9		B	EAI	130	11	11	1
5799		PALE	11 23 1745	N20 W10	11 23.0		B	EAI	130	18	12	3
5799		LEAR	11 24 0142	N20 W15	11 22.9		B	EAI	130	30	12	3
5799		RAMY	11 24 1232	N20 W24	11 22.7		B	EAO	90	19	12	3
5799		PALE	11 24 1810	N20 W25	11 22.8		B	EAO	140	17	12	3
5799		HOLL	11 24 1835	N21 W26	11 22.8		B	EAO	140	14	11	2
5799		LEAR	11 25 0030	N21 W28	11 22.9		B	EAI	160	14	11	2
5799		CULG	11 25 0157	N23 W30	11 22.8		B	DAO	60	19	10	3
5799		RAMY	11 25 1237	N20 W36	11 22.8		BG	EAO	140	25	11	3
5799		HOLL	11 25 1600	N20 W38	11 22.8		B	CAO	140	29	11	2
5799		BOUL	11 25 1638	N19 W38	11 22.8		B	ESO	80	6	11	2
5799		PALE	11 25 1845	N21 W39	11 22.8		B	DAO	100	19	10	4
5799		LEAR	11 26 0137	N20 W42	11 22.8		B	EAI	110	21	11	3
5799		CULG	11 26 0207	N21 W44	11 22.7		B	EAO	80	18	10	3
5799		RAMY	11 26 1205	N21 W49	11 22.7		B	EAO	100	18	12	4
5799		HOLL	11 26 1600	N20 W50	11 22.8		B	CSO	100	7	11	3
5799		PALE	11 26 1750	N20 W53	11 22.7		B	DAO	100	6	11	4
5799		BOUL	11 26 1815	N21 W53	11 22.7		B	DSO	80	3	12	1
5799		LEAR	11 27 0012	N21 W56	11 22.7		B	EAO	130	9	11	4
5799		CULG	11 27 0143	N22 W56	11 22.8		B	EAO	70	8	11	3
5799		RAMY	11 27 1223	N21 W60	11 22.9		B	CAO	120	10	13	3
5799		BOUL	11 27 1446	N21 W68	11 22.4		A	HS	50	1	2	1
5799		HOLL	11 27 1600	N20 W60	11 23.1		B	CSO	70	6	18	2
5799		PALE	11 27 1820	N20 W63	11 22.9		B	DAO	60	6	15	4
5799		LEAR	11 28 0013	N20 W65	11 23.0		B	DAO	170	4	14	3
5799		CULG	11 28 0112	N22 W67	11 22.9		B	FSO	80	4	21	2
5799		RAMY	11 28 1330	N20 W72	11 23.0		B	EAO	120	8	14	3
5799		BOUL	11 28 1445	N21 W81	11 22.4		A	HS	10	1	2	1
5798		RAMY	11 18 1245	S30 E56	11 22.9		B	BXO	20	4	5	3
5798		HOLL	11 18 1820	S28 E54	11 23.0		A	AX	10	1		3
5798		LEAR	11 19 0047	S31 E49	11 22.9		B	CRO	30	3	4	4
5798		RAMY	11 19 1210	S30 E44	11 23.0		B	BXO	10	4	3	4
5798		HOLL	11 20 1710	S32 E30	11 23.1		B	BXO	10	2	3	3
5802		HOLL	11 20 1710	S12 E32	11 23.1		A	AX		1		3

S U N S P O T G R O U P S
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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
5802		LEAR	11 21 0008	S13 E27	11 23.0		A	AX	10	2	1	4
5802		RAMY	11 21 1310	S12 E20	11 23.0		A	AX		1	1	4
5802		BOUL	11 21 1553	S13 E16	11 22.9		A	AX	10	1		1
5802		HOLL	11 21 1735	S12 E17	11 23.0		A	AX	10	1	1	3
5802		PALE	11 21 1946	S12 E16	11 23.0		A	AX		1		3
5802		LEAR	11 22 0008	S12 E12	11 22.9		A	AX	10	1	1	2
5802		BOUL	11 22 1557	S11 E03	11 22.9		A	AX	10	1	1	2
5802		HOLL	11 22 1800	S12 E04	11 23.0		B	BXO	10	2	3	4
5802		RAMY	11 22 1905	S11 E02	11 22.9		B	BXO	10	2	3	2
5802		PALE	11 22 1909	S12 E04	11 23.1		B	BXO	10	5	3	3
5802		LEAR	11 23 0030	S12 E01	11 23.1		B	BXO	30	6	5	2
5802		CULG	11 23 0405	S11 W03	11 22.9		B	BXO	10	2	3	2
5802		RAMY	11 23 1525	S12 W07	11 23.1		B	BXO	10	5	4	2
5802		HOLL	11 23 1612	S12 W07	11 23.1		B	BXO	10	7	5	4
5802		BOUL	11 23 1740	S12 W08	11 23.1		B	DSO	30	5	4	1
5802		PALE	11 23 1745	S12 W08	11 23.1		B	BXO	10	6	6	3
5802		LEAR	11 24 0142	S12 W12	11 23.2		B	BXO	30	9	6	3
5802		RAMY	11 24 1232	S13 W19	11 23.1		B	BXO	20	5	7	3
5802		PALE	11 24 1810	S13 W22	11 23.1		B	BXO	10	5	7	3
5802		HOLL	11 24 1835	S13 W21	11 23.2		B	BXO	20	5	7	2
5802		LEAR	11 25 0030	S13 W25	11 23.1		B	BXO	20	7	7	2
5802		CULG	11 25 0157	S11 W27	11 23.0		B	BXO	10	5	6	3
5802		RAMY	11 25 1237	S13 W32	11 23.1		B	BXO	10	5	6	3
5802		HOLL	11 25 1600	S13 W33	11 23.2		B	BXO	10	2	6	2
5802		PALE	11 25 1845	S14 W35	11 23.1		B	BXO	10	5	8	4
5802		LEAR	11 26 0137	S13 W38	11 23.2		B	BXO	30	4	7	3
5802		CULG	11 26 0207	S13 W39	11 23.1		B	BXO	10	5	7	3
5802		RAMY	11 26 1205	S12 W45	11 23.1		A	AX		2	1	4
5802		HOLL	11 26 1600	S13 W48	11 23.0		B	BXO	10	3	5	3
5802		PALE	11 26 1750	S14 W49	11 23.0		B	BXO		3	3	4
5802		PALE	11 27 1820	S14 W62	11 23.1		B	BXO		3	6	4
5802		LEAR	11 28 0013	S13 W67	11 22.9		A	AX	30	2	2	3
5802		RAMY	11 28 1330	S14 W77	11 22.7		B	BXO	30	2	2	3
5802		RAMY	11 29 1330	S12 W71	11 24.2		A	AX	10	1	1	3
5802A		HOLL	11 20 1710	S11 E41	11 23.8		B	BXO	10	2	3	3
5802A		LEAR	11 21 0008	S12 E37	11 23.8		B	BXO	10	2	3	4
5802B		PALE	11 25 1845	S20 W17	11 24.5		A	AX	10	2	1	4
5802B		CULG	11 26 0207	S21 W19	11 24.6		A	AX	10	1	1	3
5802C		HOLL	11 25 1600	N21 W03	11 25.4		A	AX		1		2
5803		LEAR	11 21 0008	S11 E79	11 26.9		A	HK	120	1	3	4
5803		RAMY	11 21 1310	S12 E53	11 25.5		B	BXO	20	2	3	4
5803		BOUL	11 21 1553	S13 E52	11 25.6		B	BXO	20	2	3	1
5803		HOLL	11 21 1735	S11 E50	11 25.5		B	BXO	10	2	4	3
5803		PALE	11 21 1946	S11 E50	11 25.6		B	BXO		2	4	3
5803		LEAR	11 22 0008	S13 E46	11 25.5		B	BXO	30	2	4	2
5803		BOUL	11 22 1557	S11 E37	11 25.4		B	BXO	20	2	6	2
5803		HOLL	11 22 1800	S12 E37	11 25.5		B	BXO	10	4	7	4
5803		RAMY	11 22 1905	S12 E37	11 25.6		B	CAO	20	6	6	2
5803		PALE	11 22 1909	S11 E39	11 25.7		B	BXO	10	2	6	3
5803		LEAR	11 23 0030	S15 E33	11 25.5		B	BXO	20	3	6	2
5803		CULG	11 23 0405	S12 E29	11 25.3		B	BXO	10	3	7	2
5803		RAMY	11 23 1525	S11 E24	11 25.4		B	BXO	10	3	6	2
5803		HOLL	11 23 1612	S12 E24	11 25.5		B	BXO	10	4	7	4
5803		BOUL	11 23 1740	S11 E23	11 25.5		B	CSO	30	2	7	1
5803		PALE	11 23 1745	S11 E23	11 25.5		B	BXO	10	5	7	3
5803		LEAR	11 24 0142	S11 E19	11 25.5		B	BXO	20	6	7	3
5803		RAMY	11 24 1232	S08 E14	11 25.6		B	BXO	20	5	7	3
5803		PALE	11 24 1810	S12 E09	11 25.4		B	BXO	10	5	9	3
5803		HOLL	11 24 1835	S11 E10	11 25.5		B	BXO	20	9	9	2
5803		LEAR	11 25 0030	S11 E05	11 25.4		B	BXO	10	3	6	2
5803		CULG	11 25 0157	S10 E03	11 25.3		B	BXO	10	4	6	3
5803		RAMY	11 25 1237	S05 E00	11 25.5		B	CRO	50	25	4	3
5803		HOLL	11 25 1600	S12 W03	11 25.4		B	BXO	10	4	8	2
5803		PALE	11 25 1845	S11 W04	11 25.5		B	BXO		3	10	4
5803		LEAR	11 26 0137	S13 W05	11 25.7		B	BXO	10	2	3	3

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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
5803		CULG	11 26 0207	S12 W06	11 25.6		B	BXO	10	2	3	3
5803		RAMY	11 26 1205	S15 W13	11 25.5		B	EKO	560	39	15	4
5803		LEAR	11 27 0012	S12 W17	11 25.7		B	BXO	20	2	3	4
5803		CULG	11 27 0143	S12 W20	11 25.6		B	BXO	10	3	3	3
5803		LEAR	11 28 0013	S13 W30	11 25.7		A	AX	10	1	1	3
5803		CULG	11 28 0112	S13 W31	11 25.7		A	AX	10	1	1	2
5808		PALE	11 24 1810	S06 E11	11 25.6		B	BXO	10	2	3	3
5808		LEAR	11 25 0030	S06 E07	11 25.5		B	BXO	10	3	4	2
5808		CULG	11 25 0157	S04 E06	11 25.5		B	BXO	10	7	4	3
5808		RAMY	11 25 1237	S05 E00	11 25.5		B	CRO	50	25	4	3
5808		HOLL	11 25 1600	S04 W02	11 25.5		B	DAO	110	27	5	2
5808		BOUL	11 25 1638	S06 W03	11 25.5		B	DSI	90	9	6	2
5808		PALE	11 25 1845	S06 W03	11 25.5		B	DAO	60	22	6	4
5808		LEAR	11 26 0137	S06 W07	11 25.5		B	DAI	260	32	8	3
5808		CULG	11 26 0207	S04 W08	11 25.5		B	DAO	200	26	8	3
5808		RAMY	11 26 1205	S05 W13	11 25.5		B	EKO	560	39	15	4
5808		HOLL	11 26 1600	S04 W17	11 25.4		B	DKO	510	38	10	3
5808		PALE	11 26 1750	S06 W16	11 25.5		B	DHI	530	27	10	4
5808		BOUL	11 26 1815	S05 W18	11 25.4		B	DSI	270	12	10	1
5808		LEAR	11 27 0012	S05 W21	11 25.4		B	EKI	520	30	11	4
5808		CULG	11 27 0143	S04 W23	11 25.3		B	DKO	440	28	10	3
5808		RAMY	11 27 1223	S05 W29	11 25.3		B	EKO	810	23	12	3
5808		BOUL	11 27 1446	S05 W27	11 25.6		B	DAI	30	11	9	1
5808		HOLL	11 27 1600	S05 W30	11 25.4		B	EKI	700	27	11	2
5808		PALE	11 27 1820	S06 W31	11 25.4		B	EKI	720	31	12	4
5808		LEAR	11 28 0013	S06 W34	11 25.5		BG	EKI	850	24	12	3
5808		CULG	11 28 0112	S04 W36	11 25.3		B	EKO	590	25	13	2
5808		RAMY	11 28 1330	S05 W42	11 25.4		B	EKO	780	26	12	3
5808		BOUL	11 28 1445	S05 W41	11 25.5		B	EKO	510	11	12	1
5808		PALE	11 28 1908	S06 W46	11 25.3		B	EKI	640	27	13	3
5808		LEAR	11 29 0050	S06 W49	11 25.4		B	EKI	660	17	13	3
5808		CULG	11 29 0120	S04 W49	11 25.4		B	E O	650	11	13	2
5808		RAMY	11 29 1330	S05 W55	11 25.4		B	EKO	620	13	15	3
5808		BOUL	11 29 1504	S05 W54	11 25.6		B	EKO	430	12	12	1
5808		LEAR	11 30 0013	S05 W60	11 25.5		B	EKO	380	8	14	3
5808		CULG	11 30 0100	S05 W62	11 25.4		B	EKO	400	7	13	3
5808		RAMY	11 30 1240	S05 W69	11 25.4		B	EKO	400	5	16	3
5808		BOUL	11 30 1604	S04 W72	11 25.3		B	EKO	610	9	15	3
5808		HOLL	11 30 1610	S04 W70	11 25.4		B	EKO	370	7	15	2
5808		LEAR	12 01 0030	S06 W73	11 25.6		B	EKO	240	10	14	3
5808		CULG	12 01 0210	S04 W74	11 25.6		B	EKO	240	8	13	3
5808		RAMY	12 01 1241	S05 W80	11 25.6		B	DKO	300	5	10	3
5808		BOUL	12 01 1556	S07 W82	11 25.6		B	DKI	180	1	5	3
5808		HOLL	12 01 1600	S05 W80	11 25.8		B	CSO	170	6	11	3
5808		PALE	12 01 1810	S06 W80	11 25.9		A	HA	120	1	3	3
5808		CULG	12 02 0030	S03 W88	11 25.5		A	HS	150	1	7	2
5808		LEAR	12 02 0047	S05 W85	11 25.8		A	HX	60	1	2	3
5808A		PALE	11 25 1845	N19 W01	11 25.7		B	BXO	10	4	6	4
5808A		PALE	11 26 1750	N18 W14	11 25.7		B	BXO		3	6	4
5808A		PALE	11 27 1820	N18 W27	11 25.7		B	BXO		3	6	4
5808A		PALE	11 28 1908	N19 W41	11 25.7		B	BXO		2	3	3
5808A		RAMY	12 01 1241	N20 W89	11 24.8		A	AX	10	3	2	3
5808A		PALE	12 01 1810	N19 W82	11 25.6		A	AX	10	2	1	3
5800		RAMY	11 19 1210	N24 E80	11 25.7		B	DAO	120	4	7	4
5800		BOUL	11 19 1645	N23 E80	11 25.9		B	DSO	100	3	6	2
5800		HOLL	11 19 1655	N25 E81	11 26.0		B	CSO	80	2	3	1
5800		PALE	11 19 1805	N24 E81	11 26.0		B	CKO	290	3	8	3
5800		LEAR	11 20 0010	N24 E76	11 25.9		B	DKO	240	7	8	4
5800		RAMY	11 20 1232	N25 E72	11 26.1		B	CAO	350	7	9	3
5800		HOLL	11 20 1710	N23 E68	11 25.9		B	CHO	360	5	7	3
5800		PALE	11 20 2215	N24 E65	11 25.9		B	CHO	480	5	10	1
5800		LEAR	11 21 0008	N25 E65	11 26.0		B	EKO	480	13	11	4
5800		RAMY	11 21 1310	N26 E60	11 26.2		B	EKO	460	12	12	4
5800		BOUL	11 21 1553	N23 E57	11 26.0		B	DAO	240	7	9	1
5800		HOLL	11 21 1735	N25 E58	11 26.2		B	DAI	370	12	10	3
5800		PALE	11 21 1946	N26 E57	11 26.2		B	CKO	440	14	14	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

NOVEMBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5800		LEAR	11 22 0008	N24 E52	11 26.0		B	EKO	410	13	13	2
5800		BOUL	11 22 1557	N26 E48	11 26.4		B	CKO	460	10	9	2
5800		HOLL	11 22 1800	N25 E46	11 26.3		B	DKI	490	13	9	4
5800		RAMY	11 22 1905	N25 E50	11 26.7		B	FKO	520	21	21	2
5800		PALE	11 22 1909	N25 E47	11 26.4		B	CKO	430	15	10	3
5800		LEAR	11 23 0030	N23 E43	11 26.3		B	CKO	450	12	21	2
5800		CULG	11 23 0405	N24 E40	11 26.3		B	CKO	390	5	9	2
5800		RAMY	11 23 1525	N25 E31	11 26.0		B	FKO	560	15	21	2
5800		HOLL	11 23 1612	N23 E31	11 26.1		B	CKI	520	31	17	4
5800		BOUL	11 23 1740	N24 E32	11 26.2		B	DKO	470	8	8	1
5800		PALE	11 23 1745	N25 E32	11 26.2		B	CKO	610	14	13	3
5800		LEAR	11 24 0142	N23 E28	11 26.2		B	DKI	530	27	15	3
5800		RAMY	11 24 1232	N24 E23	11 26.3		B	CKO	460	20	17	3
5800		PALE	11 24 1810	N25 E19	11 26.2		B	DKO	550	45	17	3
5800		HOLL	11 24 1835	N24 E17	11 26.1		B	DKO	610	32	16	2
5800		LEAR	11 25 0030	N24 E15	11 26.2		B	EKI	430	27	15	2
5800		CULG	11 25 0157	N24 E13	11 26.1		BG	FAI	340	39	17	3
5800		RAMY	11 25 1237	N26 E11	11 26.4		BG	CKO	500	50	20	3
5800		HOLL	11 25 1600	N25 E09	11 26.4		B	DKI	460	45	10	2
5800		BOUL	11 25 1638	N24 E08	11 26.3		BG	DAI	230	14	8	2
5800		PALE	11 25 1845	N26 E08	11 26.4		B	DKO	480	37	10	4
5800		LEAR	11 26 0137	N25 E05	11 26.4		B	DKI	460	34	10	3
5800		CULG	11 26 0207	N25 E00	11 26.1		BG	FKI	420	32	18	3
5800		RAMY	11 26 1205	N26 E00	11 26.5		BG	EKC	630	59	11	4
5800		HOLL	11 26 1600	N25 W03	11 26.4		BG	DKI	690	31	9	3
5800		PALE	11 26 1750	N26 W05	11 26.3		BG	DKI	520	43	10	4
5800		BOUL	11 26 1815	N26 W05	11 26.4		BG	DKI	360	14	9	1
5800		LEAR	11 27 0012	N25 W07	11 26.5		B	DKI	600	39	10	4
5800		CULG	11 27 0143	N24 W12	11 26.1		BG	FKI	460	48	17	3
5800		RAMY	11 27 1223	N26 W13	11 26.5		BG	EKI	550	33	11	3
5800		BOUL	11 27 1446	N27 W16	11 26.4		B	DKO	250	6	6	1
5800		HOLL	11 27 1600	N26 W15	11 26.5		BG	EHI	430	38	13	2
5800		PALE	11 27 1820	N26 W16	11 26.5		BG	DKI	440	37	10	4
5800		LEAR	11 28 0013	N25 W20	11 26.4		B	EKI	500	34	11	3
5800		CULG	11 28 0112	N26 W26	11 26.0		BG	FKI	320	38	17	2
5800		RAMY	11 28 1330	N26 W28	11 26.4		BG	DKI	550	10	10	3
5800		BOUL	11 28 1445	N26 W26	11 26.6		B	CKI	280	13	8	1
5800		PALE	11 28 1908	N26 W32	11 26.3		B	DKI	300	30	8	3
5800		LEAR	11 29 0050	N25 W33	11 26.5		B	EKI	120	17	11	3
5800		CULG	11 29 0120	N26 W33	11 26.5		B	CKI	260	15	11	2
5800		RAMY	11 29 1330	N26 W40	11 26.4		B	EAO	270	20	12	3
5800		BOUL	11 29 1504	N25 W41	11 26.4		B	CAI	220	18	9	1
5800		LEAR	11 30 0013	N25 W45	11 26.5		B	EKO	240	12	10	3
5800		CULG	11 30 0100	N26 W46	11 26.5		B	EAI	190	12	11	3
5800		RAMY	11 30 1240	N25 W54	11 26.3		B	CKO	370	8	10	3
5800		BOUL	11 30 1604	N25 W56	11 26.3		B	CKO	390	10	10	3
5800		HOLL	11 30 1610	N26 W55	11 26.4		B	EKO	450	14	13	2
5800		LEAR	12 01 0030	N26 W57	11 26.7		B	DKO	300	12	9	3
5800		CULG	12 01 0210	N27 W61	11 26.4		B	DKO	330	15	13	3
5800		RAMY	12 01 1241	N26 W66	11 26.5		B	CKO	490	8	11	3
5800		BOUL	12 01 1556	N26 W68	11 26.5		A	HK	480	9	5	3
5800		HOLL	12 01 1600	N25 W68	11 26.5		B	CKI	260	13	6	3
5800		PALE	12 01 1810	N25 W64	11 26.9		B	CKO	400	11	11	3
5800		CULG	12 02 0030	N27 W73	11 26.4		A	HS	280	1	7	2
5800		LEAR	12 02 0047	N26 W69	11 26.8		A	HX	240	1	3	3
5800		RAMY	12 02 1210	N25 W79	11 26.5		A	HK	300	5	6	4
5800		BOUL	12 02 1548	N26 W79	11 26.6		B	DSO	200	2	5	3
5800		HOLL	12 02 1715	N26 W80	11 26.6		B	CKO	170	5	7	3
5800		PALE	12 02 1820	N24 W78	11 26.8		B	CKO	300	6	6	3
5800		LEAR	12 03 0023	N26 W79	11 27.0		A	HK	180	3	3	3
5801		RAMY	11 20 1232	S16 E71	11 25.9		A	AX		3	1	3
5801		HOLL	11 20 1710	S17 E68	11 25.9		A	AX		1		3
5801		PALE	11 20 2215	S15 E66	11 25.9		A	AX		1		1
5801		LEAR	11 21 0008	S17 E64	11 25.9		A	AX	20	1	1	4
5801		RAMY	11 21 1310	S17 E59	11 26.0		A	AX		1		4
5801		HOLL	11 21 1735	S17 E56	11 26.0		A	AX		2		3
5801		PALE	11 21 1946	S16 E56	11 26.1		A	AX		1		3
5801		PALE	11 26 1750	S20 W08	11 26.1		A	AX		1		4

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(Ordered by Central Meridian Passage Date)

NOVEMBER 1989

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
5801		LEAR	11 27 0012	S20	W11	11 26.2		A	AX	10	1	1	4
5801		CULG	11 27 0143	S19	W13	11 26.1		A	AX	10	1	1	3
5801		PALE	11 27 1820	S21	W21	11 26.1		B	BXO		2	3	4
5801A		CULG	11 28 0112	S27	W14	11 26.9		A	AX	10	1	1	2
5804		RAMY	11 21 1310	N44	E71	11 27.4		B	CAO	80	4	4	4
5804		BOUL	11 21 1553	N41	E69	11 27.3		A	HS	60	1	1	1
5804		HOLL	11 21 1735	N45	E66	11 27.2		B	CSO	60	6	10	3
5804		PALE	11 21 1946	N45	E71	11 27.7		B	CAO	60	3	9	3
5804		LEAR	11 22 0008	N43	E65	11 27.4		B	CAO	160	4	8	2
5804		BOUL	11 22 1557	N45	E60	11 27.6		B	CAO	140	2	7	2
5804		HOLL	11 22 1800	N44	E57	11 27.5		B	DSO	150	5	10	4
5804		RAMY	11 22 1905	N43	E53	11 27.2		B	CAO	130	7	7	2
5804		PALE	11 22 1909	N44	E59	11 27.7		B	CKO	160	6	9	3
5804		LEAR	11 23 0030	N43	E54	11 27.5		B	DAO	150	2	10	2
5804		CULG	11 23 0405	N44	E55	11 27.7		B	CSO	80	2	9	2
5804		RAMY	11 23 1525	N43	E46	11 27.4		B	DAO	200	2	10	2
5804		HOLL	11 23 1612	N44	E46	11 27.5		B	DSO	100	5	10	4
5804		BOUL	11 23 1740	N45	E44	11 27.4		B	DAO	120	2	10	1
5804		PALE	11 23 1745	N46	E45	11 27.5		B	EAO	230	2	11	3
5804		LEAR	11 24 0142	N44	E42	11 27.5		B	DAO	190	5	10	3
5804		RAMY	11 24 1232	N44	E36	11 27.5		B	DAO	180	2	8	3
5804		PALE	11 24 1810	N44	E32	11 27.4		B	CKO	160	3	9	3
5804		HOLL	11 24 1835	N45	E32	11 27.4		B	CHO	210	6	10	2
5804		LEAR	11 25 0030	N43	E30	11 27.5		B	EAO	170	6	11	2
5804		CULG	11 25 0157	N44	E30	11 27.6		B	CSO	150	6	12	3
5804		RAMY	11 25 1237	N42	E23	11 27.4		B	CAO	170	12	13	3
5804		HOLL	11 25 1600	N43	E23	11 27.6		B	CSO	170	8	13	2
5804		BOUL	11 25 1638	N41	E17	11 27.1		B	CSO	80	2	6	2
5804		PALE	11 25 1845	N45	E21	11 27.5		B	CHO	120	4	12	4
5804		LEAR	11 26 0137	N43	E17	11 27.5		B	CAO	130	9	12	3
5804		CULG	11 26 0207	N44	E16	11 27.4		B	CSO	130	4	15	3
5804		RAMY	11 26 1205	N43	E10	11 27.3		B	CSO	160	22	11	4
5804		HOLL	11 26 1600	N42	E08	11 27.3		B	CSO	170	16	11	3
5804		PALE	11 26 1750	N44	E08	11 27.4		B	CSO	160	15	11	4
5804		BOUL	11 26 1815	N42	E02	11 26.9		A	HS	70	1	2	1
5804		LEAR	11 27 0012	N42	E04	11 27.3		B	CAO	180	12	12	4
5804		CULG	11 27 0143	N44	E04	11 27.4		B	CSO	120	13	13	3
5804		RAMY	11 27 1223	N42	W04	11 27.2		B	CAO	120	6	8	3
5804		BOUL	11 27 1446	N42	W09	11 26.9		A	HA	50	1	2	1
5804		HOLL	11 27 1600	N42	W02	11 27.5		B	CSO	120	7	11	2
5804		PALE	11 27 1820	N43	W06	11 27.3		B	CSO	120	5	9	4
5804		LEAR	11 28 0013	N41	W10	11 27.2		B	CSO	160	6	7	3
5804		CULG	11 28 0112	N43	W11	11 27.1		B	CSO	130	3	7	2
5804		RAMY	11 28 1330	N43	W16	11 27.2		B	CAO	120	8	8	3
5804		BOUL	11 28 1445	N42	W19	11 27.0		A	HS	50	1	1	1
5804		PALE	11 28 1908	N41	W22	11 27.0		A	HH	110	1	3	3
5804		LEAR	11 29 0050	N41	W25	11 27.0		B	CAO	80	5	4	3
5804		CULG	11 29 0120	N42	W23	11 27.2		A	HS	120	2	3	2
5804		RAMY	11 29 1330	N42	W30	11 27.1		B	CAO	90	5	6	3
5804		BOUL	11 29 1504	N42	W33	11 26.9		B	CSO	70	5	5	1
5804		LEAR	11 30 0013	N43	W39	11 26.8		B	CAO	100	3	3	3
5804		CULG	11 30 0100	N42	W37	11 27.0		B	CAO	70	6	5	3
5804		RAMY	11 30 1240	N42	W46	11 26.7		B	CAO	80	3	4	3
5804		BOUL	11 30 1604	N42	W46	11 26.9		B	CAO	140	5	5	3
5804		HOLL	11 30 1610	N42	W45	11 27.0		B	CSO	40	4	5	2
5804		LEAR	12 01 0030	N43	W51	11 26.9		B	CAO	80	5	4	3
5804		CULG	12 01 0210	N42	W51	11 27.0		B	BXO	20	5	5	3
5804		RAMY	12 01 1241	N43	W59	11 26.8		A	HA	30	3	2	3
5804		BOUL	12 01 1556	N42	W54	11 27.3		B	BXO	10	4	10	3
5804		HOLL	12 01 1600	N43	W58	11 27.0		B	BXO	20	2	3	3
5804		PALE	12 01 1810	N42	W60	11 26.9		A	AX	20	3	2	3
5805		RAMY	11 21 1310	S12	E79	11 27.5		A	HS	140	1	2	4
5805		BOUL	11 21 1553	S14	E79	11 27.6		A	HS	60	1	2	1
5805		HOLL	11 21 1735	S10	E73	11 27.2		A	HS	50	1	1	3
5805		PALE	11 21 1946	S10	E74	11 27.4		A	HS	120	1	2	3
5805		LEAR	11 22 0008	S11	E68	11 27.1		A	HS	160	1	2	2

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)		Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day											
5805		BOUL	11	22	1557	S12	E61	11	27.3	B	CAO	150	4	3	2
5805		HOLL	11	22	1800	S13	E59	11	27.2	B	DSO	160	7	6	4
5805		RAMY	11	22	1905	S13	E59	11	27.2	B	DAO	90	5	6	2
5805		PALE	11	22	1909	S14	E61	11	27.4	B	CSO	130	8	5	3
5805		LEAR	11	23	0030	S14	E55	11	27.2	B	CSO	130	4	5	2
5805		CULG	11	23	0405	S13	E54	11	27.2	B	CSO	30	2	4	2
5805		RAMY	11	23	1525	S11	E50	11	27.4	A	HS	60	1	2	2
5805		HOLL	11	23	1612	S13	E47	11	27.2	B	CAO	120	7	5	4
5805		BOUL	11	23	1740	S11	E47	11	27.3	A	HA	90	1	2	1
5805		PALE	11	23	1745	S11	E48	11	27.3	A	HA	120	1	2	3
5805		LEAR	11	24	0142	S13	E42	11	27.2	B	CAO	110	14	5	3
5805		RAMY	11	24	1232	S13	E37	11	27.3	B	DSO	120	19	6	3
5805		PALE	11	24	1810	S12	E32	11	27.2	B	DSO	130	15	6	3
5805		HOLL	11	24	1835	S12	E33	11	27.3	B	DSO	100	13	8	2
5805		LEAR	11	25	0030	S12	E29	11	27.2	B	DAO	110	18	8	2
5805		CULG	11	25	0157	S12	E28	11	27.2	B	DAO	70	20	6	3
5805		RAMY	11	25	1237	S13	E23	11	27.3	B	DAO	120	25	8	3
5805		HOLL	11	25	1600	S12	E22	11	27.3	B	DSO	150	24	7	2
5805		BOUL	11	25	1638	S14	E19	11	27.1	B	DSO	60	8	7	2
5805		PALE	11	25	1845	S11	E20	11	27.3	B	DSO	140	25	8	4
5805		LEAR	11	26	0137	S13	E16	11	27.3	B	DAO	160	28	7	3
5805		CULG	11	26	0207	S12	E15	11	27.2	B	DAO	100	20	7	3
5805		RAMY	11	26	1205	S14	E10	11	27.2	B	DKO	250	36	8	4
5805		HOLL	11	26	1600	S13	E08	11	27.3	B	DAI	180	35	7	3
5805		PALE	11	26	1750	S12	E07	11	27.3	B	DAO	240	20	8	4
5805		BOUL	11	26	1815	S12	E06	11	27.2	B	DAO	120	8	7	1
5805		LEAR	11	27	0012	S14	E04	11	27.3	B	DAO	340	24	7	4
5805		CULG	11	27	0143	S12	E02	11	27.2	B	DAO	220	36	8	3
5805		RAMY	11	27	1223	S13	W03	11	27.3	B	DAO	240	18	8	3
5805		BOUL	11	27	1446	S12	W04	11	27.3	B	DAO	130	4	7	1
5805		HOLL	11	27	1600	S13	W06	11	27.2	B	DAI	240	19	9	2
5805		PALE	11	27	1820	S12	W06	11	27.3	B	DAI	220	22	8	4
5805		LEAR	11	28	0013	S14	W11	11	27.2	B	DAO	330	17	8	3
5805		CULG	11	28	0112	S13	W11	11	27.2	BG	DAO	180	21	8	2
5805		RAMY	11	28	1330	S15	W18	11	27.2	B	DAO	430	21	10	3
5805		BOUL	11	28	1445	S12	W17	11	27.3	B	DAO	100	6	7	1
5805		PALE	11	28	1908	S14	W21	11	27.2	B	DKI	170	25	9	3
5805		LEAR	11	29	0050	S14	W24	11	27.2	B	DAO	150	16	9	3
5805		CULG	11	29	0120	S13	W25	11	27.2	B	DAO	170	10	10	2
5805		RAMY	11	29	1330	S13	W30	11	27.3	B	DAO	170	14	8	3
5805		BOUL	11	29	1504	S13	W30	11	27.4	B	DAI	80	11	9	1
5805		LEAR	11	30	0013	S14	W34	11	27.4	B	DAO	70	5	5	3
5805		CULG	11	30	0100	S13	W37	11	27.2	B	DAO	70	5	6	3
5805		RAMY	11	30	1240	S13	W42	11	27.3	B	DAO	80	4	8	3
5805		BOUL	11	30	1604	S12	W44	11	27.3	B	DAO	60	3	5	3
5805		HOLL	11	30	1610	S13	W43	11	27.4	B	DSO	40	4	8	2
5805		LEAR	12	01	0030	S13	W48	11	27.5	B	DAO	30	4	4	3
5805		CULG	12	01	0210	S13	W50	11	27.4	B	DSO	10	2	3	3
5805		RAMY	12	01	1241	S12	W54	11	27.6	B	BXO	20	5	7	3
5805		BOUL	12	01	1556	S13	W56	11	27.5	B	BXO	10	2	3	3
5805		HOLL	12	01	1600	S13	W56	11	27.5	B	BXO	40	2	4	3
5805		PALE	12	01	1810	S14	W59	11	27.4	B	CRO	40	2	3	3
5805		CULG	12	02	0030	S13	W64	11	27.3	B	BXO	20	3	4	2
5805		LEAR	12	02	0047	S15	W60	11	27.6	B	BXO	60	3	4	3
5805		RAMY	12	02	1210	S12	W67	11	27.5	A	AX	10	3	2	4
5805		BOUL	12	02	1548	S12	W70	11	27.5	A	AX	1	1	1	3
5805		PALE	12	02	1820	S14	W72	11	27.4	A	AX	1	1	1	3
5807		HOLL	11	22	1800	N27	E62	11	27.6	B	BXO	10	3	4	4
5807		PALE	11	22	1909	N27	E65	11	27.9	B	BXO	10	3	5	3
5807		HOLL	11	23	1612	N27	E50	11	27.6	B	BXO	10	4	4	4
5807		PALE	11	23	1745	N28	E51	11	27.7	B	BXO	10	3	3	3
5807		RAMY	11	24	1232	N26	E41	11	27.7	B	BXO	10	2	4	3
5807		PALE	11	24	1810	N29	E36	11	27.6	B	BXO	10	2	3	3
5807		HOLL	11	24	1835	N28	E36	11	27.6	A	AX	100	2	2	2
5807		LEAR	11	25	0030	N28	E33	11	27.6	B	BXO	10	5	3	2
5807		CULG	11	25	0157	N28	E32	11	27.6	B	BXO	10	3	3	3
5807		RAMY	11	25	1237	N29	E25	11	27.5	B	BXO	10	2	3	3
5807		HOLL	11	25	1600	N29	E25	11	27.6	B	BXO	10	2	4	2

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

NOVEMBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)	Lat CND	ChP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5807		PALE	11 25 1845	N29 E23	11 27.6		B	BXO		2	4	4
5813		LEAR	11 29 0050	S23 W12	11 28.1		A	AX	10	1	1	3
5813		CULG	11 29 0120	S22 W11	11 28.2		A	AX	10	1	1	2
5813		RAMY	11 29 1330	S22 W19	11 28.1		A	AX		2	1	3
5813A		RAMY	11 30 1240	S36 W12	11 29.6		A	AX	10	2	1	3
5813A		HOLL	11 30 1610	S36 W13	11 29.6		A	AX	10	1		2
5814		LEAR	11 29 0050	S12 E08	11 29.6		B	BXO	20	3	3	3
5814		CULG	11 29 0120	S11 E08	11 29.6		A	AX	20	2	1	2
5814		RAMY	11 29 1330	S11 E02	11 29.7		B	BXO	10	3	3	3
5814		BOUL	11 29 1504	S11 W02	11 29.5		A	AX	10	3	1	1
5814		LEAR	11 30 0013	S12 W05	11 29.6		A	AX	10	2	1	3
5814		CULG	11 30 0100	S11 W06	11 29.6		A	AX	10	2	1	3
5814		CULG	12 01 0210	S10 W22	11 29.5		A	AX	10	2	1	3
5814		CULG	12 02 0030	S10 W34	11 29.6		B	BXO	10	2	3	2
5814		LEAR	12 02 0047	S13 W33	11 29.6		B	BXO	10	2	2	3
5814		RAMY	12 02 1210	S11 W40	11 29.6		B	BXO	20	9	6	4
5814		BOUL	12 02 1548	S11 W43	11 29.5		B	BXO	10	7	5	3
5814		HOLL	12 02 1715	S12 W44	11 29.5		B	BXO	30	5	5	3
5814		PALE	12 02 1820	S14 W43	11 29.6		B	BXO	20	10	7	3
5814		CULG	12 03 0020	S12 W47	11 29.6		B	BXO	10	5	5	3
5814		LEAR	12 03 0023	S12 W47	11 29.6		B	BXO	30	4	4	3
5814		RAMY	12 03 1212	S12 W50	11 29.8		A	AX	10	3	1	4
5814		RAMY	12 04 1350	S13 W64	11 29.8		B	BXO	30	2	3	3
5814		HOLL	12 04 1510	S13 W67	11 29.7		B	BXO	10	2	4	4
5814		PALE	12 04 2004	S15 W74	11 29.3		B	BXO	20	2	6	3
5814		LEAR	12 05 0009	S13 W69	11 29.9		A	AX	10	2	1	3
5814		CULG	12 05 0150	S13 W72	11 29.7		A	AX	10	1	1	1
5814		RAMY	12 05 1230	S13 W77	11 29.8		A	AX	20	1	1	4
5806		CULG	11 23 0405	N18 E88	11 29.9		A	HS	80	1	1	2
5806		RAMY	11 23 1525	N18 E79	11 29.6		A	HA	180	1	2	2
5806		HOLL	11 23 1612	N18 E77	11 29.5		B	CHO	250	3	5	4
5806		BOUL	11 23 1740	N18 E76	11 29.5		A	HA	180	1	4	1
5806		PALE	11 23 1745	N19 E78	11 29.7		A	HK	240	1	3	3
5806		LEAR	11 24 0142	N18 E73	11 29.6		B	DAO	270	1	6	3
5806		RAMY	11 24 1232	N19 E72	11 30.0		B	CAO	310	6	13	3
5806		PALE	11 24 1810	N19 E67	11 29.9		B	CKO	480	6	15	3
5806		HOLL	11 24 1835	N19 E68	11 30.0		B	CKO	480	7	14	2
5806		LEAR	11 25 0030	N20 E66	11 30.1		B	ESO	510	6	13	2
5806		CULG	11 25 0157	N20 E68	11 30.3		B	CHO	340	8	18	3
5806		RAMY	11 25 1237	N20 E59	11 30.0		B	FKO	510	12	16	3
5806		HOLL	11 25 1600	N20 E60	11 30.2		B	EKO	460	6	15	2
5806		BOUL	11 25 1638	N19 E52	11 29.7		B	DSO	290	2	5	2
5806		PALE	11 25 1845	N20 E58	11 30.2		B	EKO	580	7	15	4
5806		LEAR	11 26 0137	N18 E52	11 30.0		B	CKO	480	5	14	3
5806		CULG	11 26 0207	N20 E52	11 30.1		B	CKO	500	8	15	3
5806		RAMY	11 26 1205	N20 E51	11 30.4		B	CKO	660	19	26	4
5806		HOLL	11 26 1600	N18 E41	11 29.8		B	DKO	450	3	6	3
5806		PALE	11 26 1750	N20 E46	11 30.3		B	CHO	530	15	18	4
5806		BOUL	11 26 1815	N19 E37	11 29.6		B	DHO	310	2	5	1
5806		LEAR	11 27 0012	N16 E40	11 30.0		B	CKO	500	6	15	4
5806		CULG	11 27 0143	N19 E39	11 30.0		B	CKO	430	8	14	3
5806		RAMY	11 27 1223	N17 E37	11 30.3		B	CKO	540	13	18	3
5806		BOUL	11 27 1446	N19 E26	11 29.6		B	DHO	210	3	4	1
5806		HOLL	11 27 1600	N19 E28	11 29.8		B	CKO	300	6	6	2
5806		PALE	11 27 1820	N19 E26	11 29.7		B	CKO	430	7	6	4
5806		LEAR	11 28 0013	N17 E22	11 29.7		B	CKO	470	9	6	3
5806		CULG	11 28 0112	N18 E26	11 30.0		B	EKO	380	10	14	2
5806		RAMY	11 28 1330	N18 E19	11 30.0		B	DKO	500	17	7	3
5806		BOUL	11 28 1445	N18 E16	11 29.8		B	DKO	350	12	7	1
5806		PALE	11 28 1908	N18 E13	11 29.8		B	CKO	450	17	7	3
5806		LEAR	11 29 0050	N16 E11	11 29.9		B	DKO	420	12	9	3
5806		CULG	11 29 0120	N14 E10	11 29.8		B	DKO	370	12	7	2
5806		RAMY	11 29 1330	N19 E03	11 29.8		B	DKO	540	19	6	3
5806		BOUL	11 29 1504	N18 E03	11 29.8		B	DKI	360	17	4	1
5806		LEAR	11 30 0013	N18 W04	11 29.7		B	DKO	400	16	6	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

NOVEMBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day											(UT)
5806		CULG	11	30	0100	N18 W03	11	29.8	B	DKO	650	18	6	3
5806		RAMY	11	30	1240	N19 W08	11	29.9	BD	DKO	820	6	7	3
5806		BOUL	11	30	1604	N18 W13	11	29.7	BD	DKC	630	12	6	3
5806		HOLL	11	30	1610	N18 W12	11	29.7	B	DKO	700	13	8	2
5806		LEAR	12	01	0030	N18 W17	11	29.8	B	DKI	700	20	6	3
5806		CULG	12	01	0210	N20 W19	11	29.7	BD	DKI	460	24	6	3
5806		RAMY	12	01	1241	N19 W25	11	29.7	B	DKO	810	13	8	3
5806		BOUL	12	01	1556	N18 W25	11	29.9	B	DKC	740	17	6	3
5806		HOLL	12	01	1600	N18 W26	11	29.8	BD	DKI	470	24	6	3
5806		PALE	12	01	1810	N18 W27	11	29.8	B	DKO	570	18	7	3
5806		CULG	12	02	0030	N19 W29	11	29.9	B	DKI	420	18	6	2
5806		LEAR	12	02	0047	N18 W30	11	29.8	B	CKO	580	10	6	3
5806		RAMY	12	02	1210	N19 W36	11	29.8	B	DKO	480	27	7	4
5806		BOUL	12	02	1548	N18 W37	11	29.9	B	DKI	430	15	7	3
5806		HOLL	12	02	1715	N18 W38	11	29.9	B	DKI	580	21	7	3
5806		PALE	12	02	1820	N17 W40	11	29.8	B	DKI	510	20	7	3
5806		CULG	12	03	0020	N19 W43	11	29.8	B	DKI	560	10	7	3
5806		LEAR	12	03	0023	N18 W42	11	29.9	B	DKO	590	13	8	3
5806		RAMY	12	03	1212	N18 W50	11	29.8	B	DKO	420	13	5	4
5806		HOLL	12	03	1450	N17 W45	11	30.2	B	DKI	360	9	10	3
5806		BOUL	12	03	1554	N17 W51	11	29.9	B	DKI	320	16	6	3
5806		RAMY	12	04	1350	N18 W64	11	29.8	B	DKO	500	8	6	3
5806		HOLL	12	04	1510	N17 W64	11	29.9	B	DKI	380	10	6	4
5806		BOUL	12	04	1640	N17 W66	11	29.8	B	DAO	430	8	6	1
5806		PALE	12	04	2004	N17 W68	11	29.8	B	DKO	470	10	5	3
5806		LEAR	12	05	0009	N17 W68	11	29.9	B	DKO	340	8	5	3
5806		CULG	12	05	0150	N18 W70	11	29.8	B	DAO	170	9	6	1
5806		RAMY	12	05	1230	N18 W76	11	29.8	B	DKO	330	6	10	4
5806		HOLL	12	05	1625	N18 W79	11	29.8	B	CKO	180	6	13	3
5806		BOUL	12	05	1813	N17 W81	11	29.7	B	DAO	180	2	2	1
5806		PALE	12	05	1945	N13 W79	11	30.0	B	DKO	210	5	3	3
5806		CULG	12	06	0230	N11 W88	11	29.6	B	DSO	120	2	5	2
5806A		RAMY	11	29	1330	S16 E11	11	30.4	B	BXO	10	3	3	3
5812		BOUL	11	27	1446	N16 E37	11	30.4	A	AX	10	1		1
5812		HOLL	11	27	1600	N18 E39	11	30.6	B	BXO	10	5	4	2
5812		PALE	11	27	1820	N18 E38	11	30.6	B	CSO	20	5	4	4
5812		LEAR	11	28	0013	N16 E33	11	30.5	B	BXO	70	9	5	3
5812		CULG	11	28	0112	N18 E35	11	30.7	B	BXO	10	4	3	2
5812		RAMY	11	28	1330	N16 E26	11	30.5	B	CAO	80	14	8	3
5812		BOUL	11	28	1445	N15 E24	11	30.4	B	CRO	20	4	3	1
5812		PALE	11	28	1908	N16 E25	11	30.7	B	BXO	20	7	6	3
5812		LEAR	11	29	0050	N13 E19	11	30.5	B	BXO	30	7	4	3
5812		CULG	11	29	0120	N15 E18	11	30.4	B	BXO	10	5	3	2
5812		RAMY	11	29	1330	N18 E12	11	30.5	B	BXO	30	15	11	3
5812		BOUL	11	29	1504	N15 E11	11	30.5	B	BXI	20	9	5	1
5812		LEAR	11	30	0013	N16 E04	11	30.3	B	CAO	50	4	2	3
5812		CULG	11	30	0100	N16 E06	11	30.5	B	BXO	20	12	6	3
5812		RAMY	11	30	1240	N15 W02	11	30.4	B	BXO	20	13	5	3
5812		BOUL	11	30	1604	N14 W03	11	30.4	B	BXI	40	8	6	3
5812		HOLL	11	30	1610	N15 W03	11	30.4	B	BXO	20	9	6	2
5812		LEAR	12	01	0030	N16 W06	11	30.6	B	CRO	30	8	5	3
5812		CULG	12	01	0210	N18 W09	11	30.4	B	BXO	10	8	6	3
5812		RAMY	12	01	1241	N19 W14	11	30.5	B	DAO	40	19	10	3
5812		BOUL	12	01	1556	N17 W15	11	30.5	B	BXI	10	7	5	3
5812		HOLL	12	01	1600	N18 W16	11	30.4	B	BXO	20	13	4	3
5812		PALE	12	01	1810	N16 W17	11	30.5	B	BXO	20	8	4	3
5812		CULG	12	02	0030	N16 W19	11	30.6	B	BXO	10	2	4	2
5812		LEAR	12	02	0047	N16 W20	11	30.5	B	BXO	10	2	3	3
5812		RAMY	12	02	1210	N22 W26	11	30.5	B	BXO	10	8	6	4
5812		BOUL	12	02	1548	N22 W27	11	30.6	B	BXO		4	4	3
5812		HOLL	12	02	1715	N22 W30	11	30.4	B	BXO	20	5	4	3
5812		PALE	12	02	1820	N20 W32	11	30.3	B	BXO	10	2	4	3
5812		CULG	12	03	0020	N20 W33	11	30.5	B	BXO	10	10	4	3
5812		LEAR	12	03	0023	N21 W33	11	30.5	B	BXO	50	8	5	3
5812		RAMY	12	03	1212	N21 W40	11	30.4	B	BXO	10	10	4	4
5812		HOLL	12	03	1450	N21 W40	11	30.5	B	BXO	10	5	4	3
5812		BOUL	12	03	1554	N21 W42	11	30.4	B	BXO		6	5	3

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S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

NOVEMBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation			CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual		
			Mo	Day	Time (UT)									Lat	Lon
5812		RAMY	12	04	1350	N21	W54	11	30.4	A	AX	20	3	2	3
5812		PALE	12	04	2004	N21	W56	11	30.5	A	AX		1		3
5812A		PALE	11	28	1908	S19	E28	11	30.9	A	AX		1		3

Stations reporting:

BOUL = Boulder
CULG = Culgoora

HOLL = Holloman
LEAR = Learmonth

MWIL = Mt. Wilson
PALE = Palehua

RAMY = Ramey
SVTO = San Vito

SUDDEN IONOSPHERIC DISTURBANCES

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Nov 89

NOVEMBER 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF-SPA	SES			
01	0310	0318	0400	1-	3			1	1		0308	C2.6	
01	0609	0630	0714	1-	3			1	1		0606	C3.3	
01	0806	0817	0905	2+	1					1	No flare		
01	1514	1519	1602	1-	5			1		7	1511	C8.4	5772
01	1618	1621	1644	1-	5			1		5	1613E	C7.1	
02	0333	0339	0403	1-	3			1	1		0330E	C2.5	
02	0417	0434	0604	1-	3			1	1		*		
02	0729	0733	0746	1-	1				1		0727E	C3.5	
02	1024	1032	1049	1-	5			1		1	1022	C3.6	
02	1248	1300	1405	2+	5	3	1	1	1	7	No flare		
03	0238	0248	0326	1-	3			1	1		0237	C3.6	
03	0350	0400	0416D	1-	3			1	1		0352	C3.3	
03	0415E	0422	0438D	1-	3			1	1		No flare		
03	0439E	0449	0510	1-	1			1			0435	C3.4	
03	0553	0558	0608	1-	1				1		*		
03	0643	0652	0624	3	5	1		1	1	3	0640	M3.7	
03	0718	0722	0725	1-	1				1		0717	C7.5	
03	1015	1027	1035	1	1		1				No flare		
03	1033	1045	1101	1-	5	1		1	1		1031	C6.2	5776
03	1605	1607	1618	1-	3					2	1602	C2.9	5769
03	1955	2001	2116	2-	5	1		1		2	1953	M3.0	5776
03	2255	2259	2321	1-	1			1			2244		5776
04	0012	0019	0100	1-	1			1			0012	C2.1	5769
04	0308	0314	0345	1-	3			1	1		0309		5769
04	0355	0401	0429	1-	3			1	1		*		
04	0955	1001	1020	1-	5			1	1		0957	C3.2	
04	1720	1728	1805	2	3					4	1720	C4.8	5769
04	2120	2128	2245	1+	5	1		1		1	2118	C9.7	5769
04	2253	2302	0001	1-	1			1			2253	C5.4	5771
05	0536	0555	0620	1-	1			1			0548	C3.8	5763
05	0650	0657	0720D	1-	5			1		1	0648	C4.9	5770
05	0720E	0732	0829	2	5	1	1	1	2	2	0719	M1.0	5769
05	1225	1228	1255	1+	1					1	No flare		
05	1236	1245	1313	1-	5		1	1	1	1	1232	C6.3	5776
05	1322	1342	1420	1	5			1	1	4	1323	C2.8	
05	1558	1607	1645	2+	1					1	No flare		
05	1929	2000	2125	3	3					2	1927E	C2.7	5776
05	2212	2219	2300	1-	1			1			2213	C3.9	5776
06	0014	0020	0056	1-	3			1	1		No flare		
06	0125	0134	0152D	1-	1			1			No flare		
06	0147	0159	0226	1-	1			1			0210		5769
06	0343	0345	0418	1-	3			1	1		0343		5781
06	0710	0715	0749	1-	3			1	1		0711E	C3.7	
06	0820	0825	0843	1-	1			1			0821		5783
06	0910	0927	1007	1	5		1	1	1	2	0912		5783
06	1210	1219	1329	2+	5	3	3	1	1	4	1210	M3.7	5776
06	1336	1355	1534	3	5	3	3	1	1	8	1343	M9.2	5776
06	1838	1846	1930	2	3					5	1838	M1.6	5776
06	2038	2055	2145	2+	5	2		1		5	2041E	M2.5	5776
06	2254	2304	2339	1-	1			1			2257	C3.6	5783
06	2354	2357	0017D	1-	1			1			No flare		
07	0215	0220	0230	1-	1				1		0209		5776
07	0231E	0250	0316D	3-	3	1		1	1		0232	M2.4	5783
07	0316E	0323	0546	3	5	1		1	1	2	0318		5776
07	0547	0604	0707	2+	5			1		1	0610	M1.0	
07	0729E	0737	0816	1-	5			1		1	No flare		
07	1220	1226	1301	1-	1			1			1231		5769
07	1457	1459	1530	2	1					1	1456	C5.8	
07	1645	1659	1800	2+	1					1	1643	M1.0	5783
07	1837	1840	1907	1+	3					3	1837	C9.1	5786
07	1932	1933	1947	1	3	1				6	1930	M2.8	5786

* = No flare patrol.

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NOVEMBER 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF-SPA	SES			
07	2025	2048	2223	2+	5	1		1		4	2034	M8.2	5786
07	2321	2326	2352D	1-	1			1			2316		5776
08	0002	0019	0043D	1-	1			1			*		
08	0044E	0057	0135D	2-	1			1			No flare		
08	0110	0121	0202	1-	3			1	1		0105		5783
08	0134	0140	0150U	1-	1				1		0135	C4.4	5776
08	0229E	0247	0327D	1-	3			1	1		0232		5776
08	0303	0308	0320	1-	1				1		No flare		
08	0327E	0334	0448	1	5			1	1	1	0326	C4.7	5783
08	0512	0529	0558D	1-	5			1	1	1	0515E	C6.4	
08	0558E	0611	0644D	3	5	2		1	1	3	0601E	M3.3	
08	0637	0642	0732	1	1					1	0634E	M1.6	
08	0644E	0654	0707D	2	5	1		1		3	0640		5769
08	0707E	0731	0745D	2	1			1			0725E		5769
08	0745E	0757	0905	2+	1			1			No flare		
08	1418	1420	1432	1-	3					2	1419E	C4.6	5783
08	1726	1731	1811	2	3					6	1726	C9.1	5786
08	1818	1839	1928	2+	3					4	1818	M2.0	5783
08	1901	1921	2007	2	5	1		1		3	1900		5769
08	2019	2026	2048	1-	1			1			2021		5786
08	2055	2108	2135	1-	5	1		1			2054		5783
08	2316	2331	2357D	1+	5	1		1	1		2316	M1.3	
09	0042E	0058	0133D	2-	3			1	1		0036		5786
09	0135E	0143	0243	1-	1			1			0136		5783
09	0214	0221	0233	1-	1				1		No flare		
09	0313	0327	0418D	1	3			1	1		0314		5783
09	0415E	0425	0442D	1	5			1	1	1	0416		5776
09	0442E	0452	0521D	1+	5			1	1	1	No flare		
09	0521E	0526	0612D	1	1			1		1	0521	C5.3	5786
09	0612E	0628	0722D	2-	5			1	1	2	0613		5786
09	0722E	0729	0807	2	5			1	2	3	0722	C9.7	5783
09	0822	0828	0857D	1+	5		1	1	2	4	0820	M1.1	5786
09	0848E	0905	0933D	2	5	2	1	1	1	4	0848	M1.8	5783
09	0933E	0942	1015	1+	5	1	1	1	1	3	0936		5786
09	1027	1034	1113	1	5	2	2	1	1	3	1023		5786
09	1231E	1244	1322	1+	5	1	2	1	1	4	1230	M1.4	5770
09	1401	1411	1439	1-	5		1	1	1	7	1354	C9.9	5783
09	1451	1504	1647	2+	5	3	2	1	1	11	1446	M4.9	5783
09	1553	1557	1638	2	3					6	1554	C7.9	5783
09	1701	1705	1735	1+	3					6	1701		5783
09	1731	1735	1806	1-	5			1		1	1714		5783
09	1745	1751	1831	2	3					3	1742	C5.7	
09	1803	1819	1834	1+	1					1	1751		5783
09	1848	1859	1927	2-	3					6	1838	M1.4	5786
09	1922	1934	2029	2-	3	1				5	1919	M4.8	5783
09	2002	2030	2049D	1	1			1			No flare		
09	2049E	2057	2125	1-	5			1		2	2050	M1.3	5783
09	2131	2143	2205	1-	5	1		1			2136	M1.4	5776
09	2240	2249	2329D	2	5	1		1			2240		5783
09	2330	2337	0026	2	5	1		1			2328	M1.1	
10	0005	0010	0015U	1-	1					1	No flare		
10	0144	0159	0335	3	5	2		1	1		0138	M3.9	5783
10	0340	0343	0458	2-	3	1		1	1	2	0339	M1.4	5783
10	0510E	0523	0602D	1-	5			1	1	1	No flare		
10	0602E	0623	0634D	2-	5			1	1	1	0626E		5783
10	0634E	0641	0745D	2	5			1		1	0634	C6.7	5783
10	0745E	0750	0810D	1-	5	1	1	1	1	4	0744	C5.1	5783
10	0810E	0818	0853	1-	5			1	1	3	0811	C6.4	5783
10	0944	1004	1104	2+	1		1				No flare		
10	1130	1136	1228	1-	5		3	1	1	3	1122E	M1.2	5783
10	1249	1255	1314	1	3					2	1250E		5783

* = No flare patrol.

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Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF-SPA	SES			
10	1254	1307	1324D	1+	5			1	1	1	1255	M1.1	5783
10	1324E	1332	1347	1-	5	1	2	1	1		No flare		
10	1520	1525	1535	1	1				1		1515		5786
10	1555	1601	1635	1-	5			1		5	1558	C8.2	5783
10	1647	1655	1730	1	5	1		1		8	1644	M5.6	5769
10	1944	1949	2012	1	5	1		1		7	1947E	M2.9	5788
10	2159	2202	2226	1-	1			1			No flare		
11	0307	0314	0332	1-	3			1	1		0310		5786
11	0359	0411	0438	1-	3			1	1		No flare		
11	0500	0509	0637D	3	5	1		1	1	2	0500	M5.1	5783
11	0637E	0643	0707D	1-	1			1			0636E	C6.1	5769
11	0707E	0722	0816	2-	5			1		3	0710	C7.2	5783
11	0858	0906	0938	1+	5	2	2	1	1	4	0856	M1.2	
11	1048	1053	1130	2	1					1	No flare		
11	1232	1236	1311	1-	1	1		1	1	1	1228	C4.1	5783
11	1832	1838	1853	1-	5			1		8	1829	M1.6	5781
12	0144	0158	0308	1-	3			1	1		0143		5776
12	0340	0345	0440	1-	1			1	1		No flare		
12	0500	0510	0540	1-	3			1	1		No flare		
12	0558E	0607	0756D	3	5	2		1	1	2	0621E	X1.5	5783
12	0755E	0800	0823	2-	5			1		2	0755	C4.1	5788
12	0905	0920	1042	2	5	2	2	1	1	6	0859	M2.2	5786
12	1112	1116	1116D	1-	3				1	1	1112E		5783
12	1124	1132	1140	1-	3				1	1	1143E		5783
12	1237	1242	1242D	1+	1					1	*		
12	1301	1305	1323	1-	5		1		1	7	1301	C5.9	
12	1741	1743	1756	1-	3					2	1741	C3.6	5783
12	1916	1919	1945	1+	1					1	1912	C3.4	5783
12	2300	2309	2334D	1-	1			1			No flare		
12	2335	2341	2358	1-	1			1			No flare		
13	0340	0351	0435	1-	3			1	1		0338		5781
13	0844	0847	0854	1-	1					1	0845	C2.3	5783
13	1230	1245	1305	2	1					1	1230	C5.0	
13	1419	1425	1435	1-	5		1		1	2	1417	C4.2	
13	2009	2025	2148	1+	5			1		3	2005E	M1.1	5783
13	2207	2210	2237	1-	1			1			2202	C4.7	5783
13	2337	2351	0020	1-	1			1			No flare		
14	0052	0106	0131	1-	1			1			*		
14	0148	0202	0244	1-	3			1	1		0149	C5.2	5784
14	0301	0308	0326D	1-	1			1			No flare		
14	0326E	0332	0408	1-	3			1	1		0332E	C3.6	
14	0641	0652	0746	1-	1			1			0645E		5786
14	1135	1145	1227	1	5	1	3	1	1	3	1133	C8.0	
14	1437	1439	1446	1-	1					1	1429		5783
14	2139	2147	2202D	2	5			1		2	2138	M1.2	5783
14	2202E	2220	2317D	2	5	1		1			No flare		
14	2317E	2321	2340	1-	1			1			2318		5788
15	0034	0040	0058	1-	3			1	1		No flare		
15	0113	0122	0220	1-	3			1	1		0113	C5.4	5783
15	0248	0253	0306	1-	3			1	1		No flare		
15	0357	0404	0444	1-	3			1	1		0357	C5.1	5788
15	0456	0506	0512D	1-	1			1			0445	M1.7	5783
15	0512E	0543	0654D	3	5	1		1	1	3	No flare		
15	0654E	0702	0922	3	5	3	2	1	2	3	0644		5783
15	0923	0926	0930	1-	1				1		0923		5786
15	1036	1040	1055	1-	3		1		1	1	1037		5783
15	1103	1106	1115	1-	3		1		1	2	1102	C6.5	
15	1411	1422	1522	1-	1			1			No flare		
15	1619	1625	1650	2-	3					2	1604		5783
15	1928	1942	2104	2+	5	1		1		7	1920		5786
15	2253	2304	2330D	1-	1			1			2256		5786
15	2330E	2334	2352	1-	1			1			2331		5788

* = No flare patrol.

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Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF-SPA	SES			
16	0002	0022	0057	1-	3			1	1		0007E	C4.7	5783
16	0105	0107	0124	1-	1			1			No flare		
16	0127	0132	0155D	1-	3			1	1		0119	C4.0	5786
16	0155E	0207	0255	1	3			1	1		0200	C4.0	
16	0414	0425	0453D	2+	5	1		1	1	2	0412	M1.2	
16	0453E	0520	0808	3-	5			1	1	2	*		
16	1101	1106	1132	1-	5			1	1	2	1100	C5.6	5788
16	1317	1334	1518	3	5	4	3	1	1	12	1317		5786
16	2235	2243	2354	1+	5	1		1			2234	M1.1	5793
17	0058	0103	0139	1-	1			1			No flare		
17	0326	0336	0400	1-	3			1	1		No flare		
17	0423	0435	0514	1-	3			1	1		0426	C3.7	5788
17	0706	0713	0739	1-	3			1		1	0705		5786
17	0756	0804	0856	2+	5	1	3	1	2	5	0755	M1.6	5793
17	0905	0927	0946	1-	5			1	1	2	0915	C5.7	5786
17	1234	1310	1500	1+	5			1	1	2	1237	M1.5	5793
17	1701	1703	1732	1+	3					2	No flare		
17	1752	1754	1811	1-	3					2	No flare		
17	1847	1849	1902	1-	1					1	No flare		
17	1930	1930	2005	2	1					1	1923	C4.7	
18	0128	0141	0147D	1-	3			1	1		No flare		
18	0156E	0206	0218D	1-	3			1	1		0148	C5.1	5786
18	0218E	0228	0259D	1	3	1		1	1		0236	C9.0	5793
18	0256E	0321	0531D	2	3	1		1	1		No flare		
18	0531E	0536	0630	1-	1			1			No flare		
18	0730	0741	0811	1-	5			1		1	No flare		
18	1045	1052	1120	1-	3				1	1	1046	C3.6	
18	1302	1311	1334	1-	1			1			No flare		
18	1535	1538	1552D	1-	1			1			No flare		
18	1552E	1621	1802	1+	5			1		8	1602E	M7.3	5793
18	2340	2347	0023D	1-	1			1			2340		5793
19	0025	0032	0115	1-	3			1	1		0027		5793
19	0204	0208	0220	1-	3			1	1		No flare		
19	0342	0352	0421	1-	3			1	1		No flare		
19	0436	0440	0450	1-	1				1		No flare		
19	0616	0627	0803	3	5	2		1	1	3	0617		5795
19	0853	0909	0948	1+	1					1	0856		5793
19	1043	1055	1115	1	3	1			1	2	No flare		
19	1124	1138	1220	2-	5	1	2	1	1	2	1123	M1.2	5793
19	1232	1237	1243	2	5	1	1	1	1	2	1232	C5.7	5793
19	1257	1304	1320	0	1		1				No flare		
19	1609	1613	1653	1-	5			1		9	1606	M1.2	5793
19	1917	1928	2000U	2	1					1	*		
20	0034	0045	0219D	3-	5	2		1	1		0035	M2.1	5793
20	0219E	0236	0315	1-	3			1	1		0220	C2.5	
20	0351	0421	0530D	3	3	1		1	1		0350	M1.3	5793
20	0530E	0535	0624	1-	3			1	1		0530	C3.6	
20	0600	0604	0612	1-	1				1		0558	C3.1	5793
20	0900	0925	0955	1-	1			1			0858		5793
20	1405	1435	1620	3-	5	1	2	1	1	6	No flare		
20	2124	2135	2323	3	5	2		1		3	2125	X1.0	5793
21	0253	0306	0351	1-	3			1	1		*		
21	0453	0458	0523D	1-	3			1	1		0453	C2.2	5793
21	0523E	0531	0627	1-	3			1	1		0527	C2.8	5800
21	0733	0745	0841	2	5			1	1	4	0727	C6.5	5793
21	0909	0920	1030	2+	5	3	2	1	1	7	0908	M1.5	5793
21	1050	1100	1130	2	1					1	1048E	C3.3	
21	1315	1319	1345D	1+	1					1	No flare		
21	1342	1353	1459	3	5	4	2	1	1	9	1332	X4.0	5793
21	1541	1555	1622	1	1			1	1		1556		5793
21	1640	1651	1720	2	1			1	1		1637	C2.8	5793
21	2133	2134	2145	1-	1					1	2134		5799

* = No flare patrol.

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Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF-SPA	SES			
22	0249	0257	0303D	1-	5			1	1	1	0247		5793
22	0305E	0313	0451	1+	3			1	1		0303	C5.5	5799
22	0647	0655	0729	1-	1			1			No flare		
22	0836	0847	0920D	2+	5	3	2	1	2	9	0834	M2.0	5793
22	0920E	0924	1017	1	5			1	1	3	0920	C8.9	5793
22	1250	1256	1332D	1-	5		1	1	1	2	1249	C8.8	
22	1332E	1342	1502	2	5	2	2	1	1	7	1320E	M3.8	5793
22	2241	2245	2252	1-	1			1			2232	C3.2	5800
23	0055	0105	9126	1-	3			1	1		0058		5800
23	0130	0137	0202	1-	3			1	1		0131	C3.8	5799
23	0318	0323	0329D	1-	3			1	1		*		
23	0329E	0338	0423	1-	3			1	1		*		
23	0432	0437	0509D	1-	3			1	1		0429	C3.8	
23	0509E	0521	0551	1-	3			1	1		0513	C3.4	
23	0708	0713	0732	1-	1			1			0710E	C4.0	
23	1307	1311	1330	1-	1			1			1259	C4.7	
23	2207	2217	2246	1-	1			1			2207		5805
24	0115	0127	0154D	1-	3			1	1		No flare		
24	0154E	0202	0300	1-	3			1	1		0154	C4.4	5800
24	0555	0613	0722	1-	1			1			0557		5800
24	1245	1320	1335	2+	1					1	1243	C5.6	
24	1356	1415	1456	1-	1			1			No flare		
24	2241	2250	2353	1-	1			1			2242	C5.6	5806
25	0238	0427	0428	2+	5	1		2	1	1	0238	M1.1	
25	0449	0453	0500	1-	5			1	1	1	0440	C2.1	
25	0507	0515	0515D	1-	5			1	1	1	0507	C3.6	5806
25	0710	0721	0741D	1-	1			1			No flare		
25	0741E	0749	0816	1-	1			1			*		
25	1139	1143	1233	1-	1			1			No flare		
25	1247	1303	1332	1-	1			1			1258		5800
25	2249	2337	0503	3	5	2		1			2255E	X1.0	5800
26	0639	0649	0701D	1-	3			1	1		0638		5800
26	0701E	0713	0758	1	5			1	1	1	0657		5800
26	0845	0859	0955	1-	5			1		2	0845	C5.3	5806
26	1005	1013	1050	1-	5			1	1		1004	C4.6	
26	1759	1816	2035	3+	3					6	1756	M4.0	5800
26	1909	1950	2050	1	1	1					1950		5808
26	2147	2156	2248	1-	5	1		1			2148E		5809
26	2213	2219	2254	1-	1			1			No flare		
27	1611	1618	1655	2	1					1	1603E		5800
27	1714	1738	1824	3-	3					3	1713		5805
27	2341	2348	0003	1-	1			1			No flare		
28	0010E	0016	0032D	1-	1			1			No flare		
28	0107E	0112	0141	1-	1			1			0105	C3.6	5809
28	0324	0339	0406	1-	3			1	1		0329	C2.5	
28	0413	0420	0439	1-	1			1			0418		5809
28	0556	0502	0619	1-	1			1			0555	C2.4	
28	1013	1028	1151	2-	5	1	1	1	1	1	1007	C8.8	5800
28	1624	1626	1643	1	5					5	1623	C4.1	
28	1820	1824	1850	1+	3					4	1822	C4.1	5809
29	0106	0111	0138	1-	3			1	1		0105	C2.1	5800
29	0310	0318	0330	1-	1				1		No flare		
29	1211	1223	1248	1-	1			1			No flare		
29	1408	1415	1439	1-	1			1			No flare		
29	2139	2147	2233	1-	1			1			No flare		
30	0012	0021	0055	1-	1			1			No flare		
30	0211	0220	0309	1-	3			1	1		0217	C4.5	5800
30	0312	0320	0342U	1-	1				1		No flare		

* = No flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

NOVEMBER 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF-SPA	SES			
30	1145	1155	1330	2+	1					1	1145	X2.6	5800
30	1155	1220	1540	3	5	1	1	1	1		No flare		
30	1202	1254	1314	3-	5	3	1			2	No flare		
30	2257	2308	0047	2	5	1		1			2256	M2.0	

* = No flare patrol.

OBSERVATORIES REPORTING FOR NOVEMBER 1989

Amherst, New Hampshire, USA	SES	Kuhlungsborn, German Dem Rep	SEA, SPA
Darmstadt, German Fed Rep	SWF	Latrobe, Pennsylvania	SES
Edenvale, Rep of S. Africa	SES	Lintong, People's Rep of China	SPA
Farsta, Sweden	SES	Locust Grove, Georgia, USA	SES
Gainesville, Florida, USA	SES	Mau, Hawaii, USA	SWF
Hiraiso, Japan	SWF	Merja, Spain	SEA
Houston, Texas, USA	SES	Panska Ves, Czechoslovakia	SES, SEA, SWF
Hudson, Ohio, USA	SES	Paterson, New Jersey, USA	SES
Inubo, Japan	SPA	Sofia, Bulgaria	SES
Johannesburg, Rep of S. Africa	SES	Somersworth, New Hampshire, USA	SES
Juliusruh, German Dem Rep	SWF	Valley Cottage, New York, USA	SES
Kandilli, Turkey	SEA		

Observations are not necessarily continuous.

NOVEMBER 1989

SIDs BY NOAA/SESC REGIONS

Reg.	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
5763					1																									
5769		1	4	1	1	1	3				1																			
5770					1					1	1																			
5771				1																										
5772	1																													
5776		3		3	4	3	2	2				1																		
5781						1					1		1																	
5783						3	2	5	12	11	3	5	3	2	5	1														
5784													1																	
5786							3	2	7	1	1	1		1	3	2	2	1												
5788										1		1		1	2	1	1													
5793																1	2	3	5	5	6	4								
5795																			1											
5799																					1	1	1							
5800																					1	1	1	2	2	3	1	1	1	2
5805																						1								
5806																						1	1	1						
5808																										1				
5809																										1		3		

Number of events with X-Ray flares

4	3	8	5	7	6	7	9	14	10	6	6	5	4	4	6	5	4	3	6	7	6	5	3	4	3		6	1	3
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Number of events with no flare reported

1	1	2		2	3	1	3	3	5	2	4	1	2	4	1	5	6	5	1	1	1		2	2	1	1	1	4	4
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Number of events with no flare patrol

1	1	1					1				1		1		1			1		1		2		1					
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Total SID events

5	5	12	7	9	13	12	20	28	18	9	14	7	10	15	9	11	11	12	8	11	8	9	6	8	8	3	8	5	7
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S O L A R R A D I O E M I S S I O N
Spectral Observations

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Nov 89

NOVEMBER 1989

Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type	
	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)		
01			LEAR				0019.0	0024.0	1				III	
			LEAR				0055.0	0055.0	3				III	
			LEAR				0104.0	0104.0	2				III	
			LEAR				0137.0	0138.0	1				III	
			LEAR				0413.0	0413.0	1				III	
			LEAR				0437.0	0439.0	1				III	
		0647 0709	WEIS											
			LEAR				0659.0	0659.0	2					III
			LEAR				0712.0	0713.0	1					III
			LEAR				0727.0	0728.0	1					III
			LEAR				0807.0	0810.0	2					III
			LEAR				0829.0	0836.0	1					III
			LEAR				0910.0	0910.0	1					III
			WEIS				1125.3	1325.4	1					IIIB
			SVTO				1210.0	1224.0	2					CONT
		0925 1541	WEIS				1212.1	1219.1	2					IIIG
			SGMR				1321.0	1322.0	1					III
			WEIS				1321.6	1322.2	3					IIIG
			WEIS				1406.5	1407.4	2					IIIG
			SVTO				1407.0	1407.0	2					III
			WEIS				1435.6	1435.7	1					IIIB
			SGMR				1623.0	1625.0	2					V
			PALE				1822.0	1822.0	2					V
		SGMR				1822.0	1822.0	2					V	
		PALE				2143.0	2145.0	2					V	
		PALE				2156.0	2158.0	1					V	
		LEAR				2241.0	2243.0	1					III	
		LEAR				2333.0	2334.0	2					III	
		LEAR				2337.0	2344.0	2					III	
02			LEAR				0042.0	0043.0	1				III	
			LEAR				0108.0	0111.0	3				III	
			PALE				0108.0	0110.0	2				V	
			LEAR				0318.0	0319.0	1				III	
			LEAR				0335.0	0339.0	1				III	
			LEAR				0416.0	0419.0	2				III	
			LEAR				0724.0	0757.0	2				S	
		0648 1537	WEIS				0724.9	0726.8	2					IIIG,Spikes
			SVTO				0726.0	0726.0	2					III
			WEIS				0730.8	0730.9	1					IIIB
			WEIS				0745.4	0746.4	1					IIIG,Spikes
			WEIS				0809.2	0809.9	2					IIIG,RS,Spikes
			LEAR				0936.0	0948.0	1					S
			WEIS				0936.5	0936.8	2					IIIB
			LEAR				1016.0	1016.0	2					III
			SVTO				1016.0	1017.0	2					III
			WEIS				1016.2	1016.8	3					IIIGG
			WEIS				1019.4	1019.8	3					IIIG
			WEIS	1028.6	1028.7	1								Spikes
			WEIS				1035.5	1035.6	2					IIIB
			WEIS				1054.3	1055.2	2					Spikes
			WEIS				1246.5	1249.8	3					IIIGG,Spikes
			SGMR				1248.0	1258.0	1					S
			WEIS				1250.4	1253.8	1					DCIM
			WEIS				1254.9	1258.7	3					IIIGG,RS
			WEIS				1301.6	1302.7	2					I
			SGMR				1724.0	1725.0	1					V
		SGMR				1850.0	1851.0	1					III	
		PALE				1910.0	1910.0	1					III	
		SGMR				1910.0	1910.0	1					III	
		LEAR				2308.0	2318.0	1					S	
		LEAR				2335.0	2336.0	2					III	
03			LEAR				0000.0	0015.0	2				S	
			LEAR				0124.0	0130.0	2				III	
			LEAR				0217.0	0217.0	1				III	
			LEAR				0241.0	0242.0	1				III	
			LEAR				0332.0	0332.0	2				III	
			LEAR				0349.0	0352.0	3				V	

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S O L A R R A D I O E M I S S I O N
Spectral Observations

NOVEMBER 1989

Observation Start End Day (UT) (UT) Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type		
	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)			
03							0419.0	0454.0	2		S	
							0426.0	0759.0	1		CONT	
							0444.0	0445.0	3		III	
							0535.0	0547.0	2		S	
							0607.0	0608.0	2		III	
							0642.0	0646.0	3		V	
							0645.0	0646.0	2		III	
							0652.0	0706.0	1		II	
	0652	1148	WEIS				0730.1	0730.8	2			III G, Spikes
			WEIS				1034.2	1035.7	3			III G, RS, U
	1156	1537	WEIS									
			SGMR				1550.0	1550.0	1			III
			SGMR				1605.0	1607.0	1			V
			PALE				1955.0	1956.0	3			V
			PALE				2003.0	2007.0	1		II	
			SGMR				2003.0	2011.0	1		II	
		PALE				2015.0	2015.0	1			III	
04							0006.0	0014.0	2		III	
							0113.0	0123.0	2		III	
							0226.0	0226.0	1		III	
							0250.0	0251.0	1		III	
							0308.0	0309.0	1		III	
							0333.0	0344.0	2		S	
							0447.0	0630.0	1		CONT	
							0631.0	0631.0	1		III	
	0652	1536	WEIS				0844.3	0846.1	2			Spikes, DCIM
			WEIS				0917.7	0917.9	2			III G
			WEIS				0919.2	0919.3	1			Spikes
			WEIS				1038.4	1038.6	2			III G, U
			WEIS				1040.4	1041.8	3			III G
			WEIS				1212.4	1212.6	1			Spikes
			WEIS				1319.6	1320.0	3			III G
			WEIS				1323.1	1323.7	1			III G
			WEIS				1331.4	1332.3	3			Spikes, RS
			WEIS	1337.4	1337.7	1						DCIM
			LEAR				2254.0	2255.0	2			III
			PALE				2254.0	2255.0	1			III
		LEAR				2259.0	2324.0	3		II		
		PALE				2300.0	2309.0	2			V	
05							0118.0	0118.0	1		III	
							0351.0	0353.0	1		III	
							0401.0	0406.0	2		III	
							0527.0	0527.0	1		III	
							0554.0	0555.0	1		III	
							0622.0	0628.0	2		III	
							0717.0	0901.0	3		CONT	
	0643	1533	WEIS				0718.2	0733.4	2			III G
			SVTO				0725.0	0725.0	2			III
			WEIS				0731.8	0732.4	3			Spikes
			WEIS				0739.3	0739.8	1			III G
			WEIS				0754.2	0754.5	1			U
			SVTO				0905.0	1500.0	2			CONT
			LEAR				0937.0	0941.0	2			III
			WEIS				0937.2	0937.3	1			III B
			WEIS				0940.7	0942.0	3			III U
			WEIS				0944.6	0945.8	1			III G
			WEIS				1000.7	1000.9	1			III B, U
			SGMR				1213.0	1214.0	2			III
			WEIS				1213.2	1214.3	3			III G
			WEIS				1229.2	1239.3	3			III G, Spikes
			SGMR				1231.0	1630.0	1			CONT
			WEIS				1243.1	1245.7	3			III G
			WEIS				1255.5	1256.2	1			III G
			WEIS				1308.1	1308.2	2			III B
			SGMR				1819.0	1820.0	1			III
		PALE				2004.0	2005.0	2			V	
		PALE				2015.0	2016.0	2			V	

S O L A R R A D I O E M I S S I O N
Spectral Observations

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NOVEMBER 1989

Observation Day (UT)	Start (UT)	End (UT)	Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type	
				Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)		
05			PALE				2028.0	2028.0	1				III	
			SGMR				2104.0	2116.0	2				S	
			LEAR				2300.0	2301.0	1				III	
			LEAR				2329.0	2330.0	1				III	
			LEAR				2347.0	2348.0	1				III	
			LEAR				2357.0	2358.0	1				III	
06			LEAR				0018.0	0022.0	2				III	
			LEAR				0032.0	0134.0	1				CONT	
			LEAR				0130.0	0131.0	2				III	
			LEAR				0156.0	0159.0	1				III	
			LEAR				0303.0	0304.0	1				III	
			LEAR				0312.0	0313.0	3				III	
			LEAR				0331.0	0335.0	2				III	
			LEAR				0342.0	0343.0	1				III	
			LEAR				0347.0	0348.0	1				III	
			LEAR				0449.0	0450.0	2				III	
			LEAR				0539.0	0540.0	3				III	
			LEAR				0636.0	0650.0	2				S	
			SVTO				0642.0	0651.0	2				III	
			SVTO				0700.0	1517.0	1				CONT	
			LEAR				0706.0	0758.0	1				CONT	
	0658	1533		WEIS				0734.6	0737.9	2				IIIG,Spikes
				LEAR				0829.0	0840.0	2				S
				WEIS				0834.0	1434.0	2				IIIN
				LEAR				0843.0	0851.0	1				III
				WEIS				0906.1	0907.2	3				IIIGG
				WEIS				0915.2	0915.6	2				IIIG
				LEAR				0917.0	0921.0	2				III
				SVTO				0917.0	0922.0	2				III
				WEIS				0917.4	0918.8	3				IIIGG,Spikes
				LEAR				0925.0	0932.0	1				II
				SVTO				0925.0	0932.0	2				II
				LEAR				0932.0	0936.0	2				III
				WEIS				0934.0	0946.0	2				I
				LEAR				1010.0	1015.0	2				III
				WEIS				1010.7	1012.6	3				IIIG
				WEIS				1014.1	1015.3	3				IIIGG
				WEIS	1034.4	1034.6	2							Spikes
				WEIS				1039.9	1040.5	3				IIIG
				WEIS				1043.4	1044.3	3				IIIG
			WEIS				1211.4	1212.8	3				IIIGG,U,Spikes,RS	
			WEIS	1211.5	1215.3	2							Cont,cm	
			SGMR				1212.0	1213.0	1				II	
			WEIS				1212.9	1230.5	3				II H,HB	
			SVTO				1216.0	1218.0	3				II	
			SGMR				1218.0	1230.0	2				II	
			SVTO				1221.0	1231.0	2				II	
			SVTO				1241.0	1242.0	2				III	
			SGMR				1243.0	2107.0	1				CONT	
			WEIS				1337.6	1344.5	3				IIIGG,Spikes,DCIM	
			WEIS				1346.9	1347.0	3				II	
			SVTO				1352.0	1359.0	2				II	
			WEIS				1352.5	1402.9	2				II HB	
			PALE				2042.0	2048.0	2				V	
			LEAR				2210.0	2211.0	2				III	
			PALE				2210.0	2211.0	2				III	
			LEAR				2243.0	2248.0	1				III	
			PALE				2346.0	2348.0	1				III	
			LEAR				2358.0	2359.0	1				III	
07			LEAR				0037.0	0046.0	3				III	
			PALE				0043.0	0044.0	2				III	
			LEAR				0050.0	0114.0	2				S	
			LEAR				0129.0	0142.0	3				S	
			PALE				0139.0	0141.0	3				III	
			LEAR				0156.0	0201.0	2				III	
			LEAR				0232.0	0245.0	2				V	

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S O L A R R A D I O E M I S S I O N
Spectral Observations

NOVEMBER 1989

Observation Start End Day (UT) (UT) Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
07	LEAR			0239.0	0245.0	2				II
	LEAR			0252.0	0312.0	3				S
	PALE			0318.0	0324.0	2				V
	LEAR			0337.0	0338.0	3				III
	LEAR			0528.0	1020.0	2				CONT
	SVTO			0547.0	0000.0	2				CONT
0657 1320	WEIS			0810.0	1512.0	2				IN
	WEIS			0902.3	0902.5	1				IIIB
	WEIS			1211.1	1211.2	1				IIIB
	SGMR			1328.0	1330.0	2				III
1348 1531	WEIS			1358.4	1358.5	1				IIIG
	WEIS			1501.3	1501.4	1				IIIB
	SGMR			1504.0	1506.0	1				V
	WEIS			1504.7	1505.6	1				IIIG
	WEIS			1510.8	1514.6	2				Spikes
	SGMR			1555.0	1930.0	1				CONT
	PALE			1653.0	1654.0	1				III
	SGMR			1655.0	1655.0	3				III
	PALE			1658.0	1658.0	1				III
	PALE			1832.0	1832.0	2				III
	PALE			2000.0	2006.0	2				III
	SGMR			2000.0	2007.0	2				III
	PALE			2039.0	2048.0	2				II
	SGMR			2039.0	2047.0	3				II
	LEAR			2252.0	2252.0	1				III
	LEAR			2315.0	2318.0	3				III
	PALE			2315.0	2318.0	3				V
	LEAR			2335.0	2336.0	2				III
	PALE			2352.0	2354.0	2				III
	LEAR			2359.0	1021.0	1				CONT
08	LEAR			0034.0	0038.0	2				III
	PALE			0035.0	0036.0	2				III
	LEAR			0122.0	0146.0	3				S
	PALE			0123.0	0141.0	2				S
	PALE			0221.0	0222.0	2				III
	LEAR			0328.0	0335.0	3				III
	PALE			0329.0	0329.0	1				III
	LEAR			0356.0	0358.0	3				III
	LEAR			0402.0	0419.0	2				S
	LEAR			0423.0	0427.0	3				III
	LEAR			0435.0	0439.0	3				III
	LEAR			0506.0	0508.0	2				III
	LEAR			0519.0	0530.0	3				S
	SVTO			0649.0	0656.0	3				III
0659 1530	WEIS			0717.6	0717.7	1				IIIB
	LEAR			0911.0	0914.0	2				III
	WEIS			1043.3	1043.5	1				IIIB
	WEIS			1043.3	1044.4	1				IIIB
	SVTO			1136.0	1139.0	3				III
	SGMR			1138.0	1138.0	1				III
	WEIS			1138.7	1138.9	2				IIIB
	WEIS			1328.8	1328.9	1				IIIB
	SGMR			1425.0	1451.0	1				S
	WEIS			1425.2	1425.8	1				IIIG
	WEIS			1433.6	1436.7	2				IIIG
	SGMR			1511.0	1511.0	2				III
	WEIS			1511.3	1511.7	3				IIIG
	WEIS			1524.7	1524.8	1				IIIB
	SGMR			1527.0	1528.0	1				III
	WEIS			1527.7	1528.0	2				IIIG
	SGMR			1648.0	1649.0	1				III
	SGMR			1721.0	1727.0	2				III
	PALE			1722.0	1725.0	2				III
	SGMR			1748.0	1749.0	1				III
	SGMR			1824.0	1831.0	1				II
	SGMR			1857.0	1923.0	2				S
	PALE			2024.0	2027.0	1				III
	LEAR			2335.0	2336.0	2				III

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	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
09				0055.0	0245.0	1				CONT
				0223.0	0223.0	1				III
				0232.0	0234.0	2				III
				0240.0	0248.0	3				III
				0245.0	0245.0	2				III
				0253.0	0255.0	1				III
				0305.0	0310.0	1				III
				0330.0	0331.0	2				III
				0416.0	0419.0	2				III
				0656.0	0656.0	2				III
				0726.0	0727.0	3				III
				0726.0	0727.0	2				III
0703 1528				0726.3	0727.2	2				IIIG,Spikes,RS
										DCIM
			0819.3	0821.8	1					Spikes
						0830.9	0831.0	1		Spikes
						0937.8	0938.3	2		Spikes,U
						0941.4	0941.8	2		Spikes
						1002.3	1003.1	2		III
						1003.0	1003.0	2		IIIB
						1003.2	1003.4	2		IIIG,RS
						1014.3	1014.9	3		IIIGG,RS,U
						1027.7	1031.3	3		V
						1028.0	1031.0	2		III
						1043.0	1043.0	2		DCIM
						1154.7	1155.9	1		Spikes,RS
						1158.7	1158.8	2		DCIM,RS
						1223.5	1223.8	1		III
						1228.0	1229.0	1		III
						1305.0	1306.0	1		IIIGG,U
						1310.1	1310.7	2		Spikes,DCIM
						1312.1	1312.2	2		III
						1348.0	1349.0	2		III
						1348.7	1349.4	3		IIIG
						1349.0	1349.0	2		III
						1353.2	1353.9	2		IIIG,Spikes
						1401.4	1402.6	1		IIIB
						1405.3	1405.8	2		IIIG
						1406.0	1406.0	2		III
						1420.0	1420.0	1		III
						1420.2	1420.6	3		IIIG
						1518.7	1518.8	1		IIIG
						1713.0	1714.0	1		III
						1924.0	1926.0	1		V
						1934.0	1941.0	2		V
						1938.0	1947.0	2	II	V
						1956.0	2000.0	2		V
						1956.0	1957.0	2		S
						2135.0	2151.0	3		CONT
						2205.0	0933.0	2		V
						2348.0	2348.0	2		
10						0007.0	0010.0	2		III
						0007.0	0009.0	2		V
						0214.0	0220.0	2		III
						0214.0	0218.0	1		III
						0346.0	0347.0	2		III
						0538.0	0540.0	2		III
						0641.0	0643.0	2		III
						0717.0	0900.0	2		CONT
0702 0745						0722.0	0745.0	2		IIIS
0828 1527						0814.3	0814.6	2		DCIM,RS
						0855.9	0858.3	2		DCIM,Spikes
						0856.0	0856.0	3		III
						0856.1	0856.3	2		IIIB
						1018.0	1513.0	1		CONT
										DCIM,RS
			1120.2	1120.6	1					V
						1650.0	1651.0	2		III
						1749.0	1750.0	2		

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Observation Start End Day (UT) (UT) Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type	
	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)		
11	LEAR			0218.0	0226.0	3				III	
	PALE			0224.0	0224.0	1				III	
	LEAR			0235.0	0237.0	2				III	
	LEAR			0351.0	0355.0	1				III	
	LEAR			0412.0	0417.0	3				III	
	LEAR			0510.0	0511.0	1				III	
	LEAR			0756.0	0759.0	1				III	
	LEAR			0814.0	0815.0	2				III	
	LEAR			0815.0	0815.0	1				III	
	LEAR			0815.0	0818.0	1				II	
	LEAR			0829.0	0829.0	1				III	
	LEAR			0856.0	0901.0	3				III	
	0704 1008	WEIS			0856.3	0900.2	3				IIIGG
		LEAR			0911.0	0915.0	1				III
		LEAR			0915.0	0915.0	1				III
		LEAR			0915.0	0919.0	1				II
	1019 1524	SVTO			0948.0	0949.0	2				II
		WEIS	1024.4	1024.6	1						DCIM
		WEIS				1134.1	1134.2	1			Spikes,U
		WEIS				1209.2	1209.4	2			IIIB,U
WEIS					1236.4	1236.6	2			DCIM,RS,Spike	
WEIS		1239.3	1239.5	2						DCIM,RS	
SGMR					1456.0	1458.0	2			III	
WEIS					1456.7	1457.8	3			IIIB,U	
PALE					1855.0	1855.0	2			III	
SGMR					1855.0	1856.0	1			III	
12	LEAR			0025.0	0027.0	2				III	
	PALE			0026.0	0027.0	1				III	
	LEAR			0114.0	0151.0	1				CONT	
	LEAR			0539.0	0539.0	1				III	
	LEAR			0600.0	0609.0	2				III	
	LEAR			0601.0	0624.0	3				II	
	SVTO			0602.0	0611.0	3				II	
	WEIS			0808.0	0810.7	1				Spikes,DCIM	
	LEAR			0814.0	0815.0	2				III	
	WEIS			0814.2	0814.3	1				IIIB	
	0708 1624	WEIS			0826.0	1501.0	1				IN
		WEIS			0909.2	0909.4	2				IIIG,RS
		SGMR			1216.0	1216.0	1				III
		WEIS			1216.3	1216.7	2				IIIG
		SVTO			1230.0	0000.0	1				CONT
		SGMR			1246.0	1246.0	1				III
		PALE			1912.0	1914.0	2				III
		SGMR			1912.0	1913.0	1				III
		PALE			2018.0	2019.0	1				III
		PALE			2133.0	2134.0	1				III
		LEAR			2344.0	2344.0	2				III
		LEAR			2349.0	2350.0	2				III
		LEAR			2357.0	2357.0	2				III
13		LEAR			0130.0	0130.0	1				III
	LEAR			0215.0	0235.0	2				S	
	LEAR			0526.0	0527.0	2				III	
	LEAR			0626.0	0626.0	1				III	
	LEAR			0825.0	0826.0	1				III	
	0707 1523	WEIS			0842.7	0846.3	3				IIIGG
		LEAR			0843.0	0852.0	3				III
		SVTO			0843.0	0846.0	3				V
		WEIS			0849.1	0849.2	1				IIIB
		LEAR			1016.0	1017.0	1				III
		WEIS			1016.7	1017.2	3				IIIG
		SVTO			1017.0	1017.0	1				III
		SGMR			1224.0	1225.0	1				III
		WEIS			1224.7	1224.9	1				IIIG
		WEIS			1239.9	1240.4	2				IIIG
	SGMR			1240.0	1240.0	1				III	
	SGMR			1447.0	1450.0	1				V	
LEAR			2241.0	2242.0	1				III		

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	Start (UT)	End (UT)		Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)				
14			LEAR				0008.0	0008.0	1				III	
			LEAR				0241.0	0242.0	1				III	
			LEAR				0343.0	0344.0	1				III	
			SVTO				0614.0	0614.0	2				III	
			SVTO				0627.0	0629.0	2				V	
			LEAR				0638.0	0639.0	1				III	
	0709	1141	WEIS											
			LEAR				0807.0	0808.0	2					III
			LEAR				0957.0	0958.0	1					III
			SVTO				1043.0	1047.0	2					III
	1208	1520	WEIS											
		SGMR				1540.0	1541.0	1					III	
15			LEAR				0004.0	0005.0	1				III	
			LEAR				0428.0	1025.0	1				CONT	
			LEAR				0552.0	0603.0	3				S	
			SVTO				0557.0	1508.0	1				CONT	
			LEAR				0655.0	0658.0	3				III	
			SVTO				0656.0	0657.0	3				V	
			SVTO				0657.0	0658.0	3				II	
			LEAR				0658.0	0940.0	3				IV	
			SVTO				0658.0	0725.0	2				IV	
	0712	1520	WEIS				1259.4	1300.6	1				IIIG	
			SGMR				1300.0	1300.0	1				III	
			SGMR				1932.0	1935.0	1				III	
			PALE				1938.0	2002.0	3				IV	
			SGMR				1938.0	0000.0	3				IV	
		LEAR				2211.0	2216.0	1				III		
16	0712	1519	WEIS				1320.1	1323.2	2				II H	
			WEIS				1324.1	1325.6	2				II H	
			SGMR				1326.0	1327.0	2				II	
			SGMR				1326.0	1332.0	2				V	
			SVTO				1326.0	1327.0	3				II	
			SVTO				1327.0	1353.0	2				IV	
			WEIS				1330.2	1335.0	2				IIIG	
			WEIS				1331.0	1348.0	3				IV	
			SGMR				1332.0	1444.0	2				IV	
	17			LEAR				0218.0	0228.0	3				V
			PALE				0222.0	0223.0	2				III	
			LEAR				0341.0	0345.0	1				V	
			LEAR				0540.0	0542.0	1				III	
0714		0742	WEIS											
			SGMR				1452.0	1456.0	1				III	
0814		1516	WEIS				1452.8	1456.2	2				IIIG	
18			LEAR				0048.0	0053.0	1				III	
			LEAR				0308.0	0314.0	2				III	
	0718	1517	WEIS				1444.8	1445.3	1				IIIB	
			SGMR				1624.0	0000.0	1				CONT	
			PALE				2042.0	2042.0	2				III	
			LEAR				2338.0	2342.0	3				III	
			LEAR				2358.0	2359.0	1				III	
19			LEAR				0004.0	0130.0	1				CONT	
			LEAR				0123.0	0124.0	2				III	
			LEAR				0139.0	0139.0	1				III	
			LEAR				0239.0	0242.0	1				III	
			LEAR				0252.0	0254.0	3				III	
			PALE				0252.0	0252.0	1				III	
			LEAR				0253.0	0619.0	1				CONT	
			LEAR				0443.0	0445.0	3				III	
			LEAR				0524.0	0527.0	3				III	
			LEAR				0619.0	0654.0	3				IV	
			SVTO				0621.0	0625.0	3				V	
			SVTO				0630.0	0634.0	2				IV	
			LEAR				0719.0	0721.0	3				III	
	0717	1515	WEIS				0719.9	0720.5	2				IIIG	

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	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
19				0720.0	0721.0	2				V
				0845.0	0932.0	2				CONT
			1047.3 1047.4 2							DCIM,RS
				1127.3	1129.6	2				IIIGG
				1127.8	1129.2	2				DCIM,Spikes
				1128.0	1120.0	2				III
				1128.0	1129.0	2				III
				1131.4	1131.5	1				IIIB
				1235.5	1241.5	3				IIIGG
				1236.0	1245.0	2				V
				1244.0	1245.0	1				III
				1244.5	1245.0	2				IIIG
				1300.0	1301.0	1				III
				1358.7	1359.6	2				IIIG
				1359.0	1400.0	2				III
				1505.0	1512.0	1				III
				1505.3	1505.5	1				IIIG
				1510.3	1512.9	2				IIIG
				1609.0	1617.0	1				V
				1818.0	1828.0	1				V
				1818.0	1826.0	1				V
				2301.0	2303.0	1				III
				2353.0	2353.0	1				III
20				0031.0	0031.0	1				III
				0034.0	0038.0	3				III
				0040.0	0041.0	1				II
				0042.0	0045.0	3				III
				0603.0	1504.0	1				CONT
				0810.0	0816.0	1				III
	0719 1513			0911.0	1434.0	2				IN
				1002.0	1002.0	1				III
				1002.2	1002.3	1				IIIB
				1033.4	1033.6	1				IIIB
				1420.7	1421.2	1				IIIG
				1427.0	1431.9	1				IIIG
				1837.0	1837.0	1				III
				2009.0	2010.0	1				III
				2149.0	2204.0	1				S
21				0025.0	0027.0	3				III
				0026.0	0027.0	2				III
				0111.0	0112.0	1				III
				0132.0	0155.0	2				S
				0233.0	0233.0	1				III
				0501.0	0501.0	1				III
				0507.0	0508.0	2				III
				0613.0	0614.0	1				III
				0726.0	0727.0	2				III
	0723 1205			0726.5	0726.8	2				IIIG
				0727.0	0727.0	2				III
				0802.0	0804.0	2				III
				0802.4	0803.7	2				IIIG
				0803.0	0803.0	1				III
				0907.0	0910.0	1				III
				0907.8	0908.3	2				IIIG
				0908.0	1201.0	1				I
				0912.3	0912.6	3				IIIGG
				1332.0	1336.0	2				III
	1207 1513			1332.0	1336.3	3				IIIGG
				1343.0	1346.0	3				II
				1345.7	1347.2	1				Spikes,DCIM
				1347.3	1402.2	3				II H,HB
				1349.0	1400.0	2				II
				1839.0	1840.0	1				III
				1949.0	1948.0	1				III
				2005.0	2005.0	1				III
				2154.0	2154.0	1				III
				2203.0	2205.0	2				III

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	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)		
21			PALE				2203.0	2204.0	2				III	
			LEAR				2248.0	2254.0	2				III	
			LEAR				2347.0	2348.0	2				III	
22			LEAR				0004.0	0008.0	1				III	
			LEAR				0040.0	0041.0	1				III	
			LEAR				0102.0	0106.0	3				III	
			PALE				0104.0	0105.0	1				III	
			LEAR				0117.0	0117.0	1				III	
			LEAR				0134.0	0134.0	1				III	
			LEAR				0147.0	0148.0	2				III	
			LEAR				0201.0	0202.0	1				III	
			LEAR				0212.0	0222.0	3				III	
			LEAR				0321.0	0326.0	2				III	
			LEAR				0337.0	0346.0	3				III	
			LEAR				0405.0	0405.0	2				III	
			LEAR				0413.0	0415.0	3				III	
			LEAR				0429.0	0433.0	2				III	
			LEAR				0537.0	0538.0	3				III	
			LEAR				0545.0	0545.0	1				III	
			LEAR				0620.0	0623.0	2				III	
			LEAR				0625.0	0635.0	1				III	
			LEAR				0655.0	0655.0	2				III	
		0722	1512	WEIS				0727.0	1439.0	2				IS
				LEAR				0752.0	0753.0	1				III
				LEAR				0834.0	0841.0	3				III
				WEIS				0834.7	0839.4	3				IIIIGG
				SVTO				0835.0	0840.0	3				V
				LEAR				0918.0	0922.0	2				III
				WEIS				0918.7	0920.4	2				IIIIGG
				WEIS				0918.9	0919.4	2				Spikes
				SVTO				0919.0	0926.0	2				V
				WEIS				1302.7	1302.8	1				IIIIB
				WEIS				1304.2	1304.3	1				IIIIB
			WEIS				1331.9	1335.6	3				IIIIGG	
			SVTO				1332.0	1334.0	3				V	
			PALE				1952.0	2006.0	1				S	
			PALE				2045.0	2046.0	2				III	
			LEAR				2300.0	2337.0	2				III	
23			LEAR				0229.0	0230.0	2				III	
			LEAR				0306.0	0316.0	1				III	
			LEAR				0518.0	0519.0	1				III	
			LEAR				0642.0	0647.0	1				III	
		0723	1510	WEIS				0728.0	1321.0	2				IN
				SVTO				0751.0	0751.0	1				III
				WEIS				0751.1	0751.2	1				IIIIG
				LEAR				0752.0	0800.0	2				III
				WEIS				0755.3	0756.7	2				IIIIG
				LEAR				0811.0	0819.0	2				III
				WEIS				0816.1	0819.2	1				IIIIG
				SVTO				1005.0	1005.0	2				III
				WEIS				1005.0	1005.2	2				IIIIB
				WEIS				1255.8	1255.9	1				IIIIB
				WEIS				1257.8	1257.9	1				IIIIB
				WEIS				1259.4	1301.2	2				IIIIG,U
				WEIS				1419.1	1420.0	2				IIIIG
				WEIS				1421.9	1422.6	2				IIIIG
				PALE				1950.0	1950.0	1				III
				PALE				2021.0	2027.0	2				III
			PALE				2107.0	2108.0	1				III	
			PALE				2124.0	2125.0	1				III	
			LEAR				2253.0	2253.0	1				III	
24			LEAR				0050.0	0050.0	1				III	
			LEAR				0150.0	0150.0	1				III	
			SVTO				0338.0	1338.0	2				III	
			LEAR				0523.0	0525.0	1				III	
			LEAR				0634.0	0634.0	1				III	

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Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type	
	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)		
24	0727	0838	WEIS				0831.0	1255.0	2				IN	
			0847	1516	WEIS			0916.7	0917.0	2				IIIG
			LEAR				0917.0	0918.0	2				III	
			SVTO				0917.0	0917.0	2				III	
			SVTO				1146.0	1146.0	2				III	
			WEIS				1201.9	1203.7	3				IIIGG	
			SVTO				1202.0	1204.0	2				III	
			WEIS				1337.3	1337.9	3				IIIG	
			SVTO				1338.0	1338.0	2				III	
			SVTO				1431.0	1434.0	1				III	
			PALE				2037.0	2037.0	2				III	
			LEAR				2234.0	2235.0	2				III	
			PALE				2234.0	2235.0	1				III	
			LEAR				2326.0	2327.0	2				III	
25			LEAR				0058.0	0058.0	1				III	
			LEAR				0152.0	0152.0	2				III	
			LEAR				0158.0	0203.0	3				III	
			PALE				0201.0	0202.0	1				III	
			LEAR				0206.0	0208.0	1				III	
			LEAR				0224.0	0225.0	2				III	
			PALE				0231.0	0232.0	1				III	
			LEAR				0250.0	0252.0	1				III	
			LEAR				0510.0	0512.0	3				III	
			LEAR				0805.0	0814.0	2				III	
		0727	1510	WEIS				0808.4	0809.0	1				IIIG
				LEAR				0921.0	0922.0	2				III
				WEIS				0921.7	0922.2	3				IIIG
				SVTO				0922.0	0922.0	2				III
				WEIS				1017.2	1017.3	1				IIIB
				WEIS				1100.1	1100.6	1				IIIG
				WEIS				1103.0	1103.1	1				IIIB
				WEIS				1134.7	1134.8	1				IIIG
				WEIS				1151.5	1200.6	2				IIIGG
				SVTO				1158.0	1201.0	2				III
				WEIS				1205.2	1205.3	1				IIIB
				WEIS				1243.6	1252.1	1				IIIG
				PALE				2002.0	2002.0	1				III
				PALE				2019.0	2022.0	1				III
	LEAR				2244.0	2330.0	2				CONT			
	PALE				2317.0	0139.0	2				IV			
	LEAR				2330.0	1032.0	3				IV			
26	0728	1507	SVTO				0650.0	1500.0	1				CONT	
			WEIS											
			PALE				1853.0	1901.0	2				V	
			PALE				1901.0	2030.0	2				IV	
			PALE				2049.0	2050.0	1				III	
			LEAR				2311.0	2313.0	1				III	
27			LEAR				0017.0	0017.0	1				III	
			LEAR				0026.0	0027.0	2				III	
			PALE				0026.0	0026.0	1				III	
			LEAR				0059.0	0100.0	3				III	
			PALE				0059.0	0100.0	2				V	
			LEAR				0111.0	0116.0	2				III	
			LEAR				0143.0	0145.0	2				III	
			LEAR				0235.0	0236.0	2				III	
			LEAR				0441.0	0448.0	2				III	
			LEAR				0459.0	0505.0	3				III	
			LEAR				0511.0	0512.0	1				III	
			LEAR				0520.0	0526.0	2				III	
			LEAR				0632.0	0633.0	2				III	
			LEAR				0746.0	0747.0	2				III	
		0722	1508	WEIS				1028.1	1028.2	1				IIIG
				SVTO				1214.0	1215.0	2				III
				WEIS				1214.2	1214.3	2				IIIB
				WEIS				1313.2	1313.3	1				IIIB
				WEIS				1406.7	1406.8	1				RS

S O L A R R A D I O E M I S S I O N
Spectral Observations

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Nov 89

NOVEMBER 1989

Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
	(UT)	(UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
27			WEIS	1415.6	1415.7	1							RS
			WEIS				1440.1	1440.7	1				IIIB
			LEAR				2216.0	2216.0	2				III
			PALE				2216.0	2216.0	1				III
			LEAR				2237.0	2238.0	1				III
			LEAR				2336.0	2336.0	1				III
			LEAR				2345.0	2346.0	1				III
		LEAR				2348.0	0025.0	3				II	
28			LEAR				0110.0	0152.0	1				S
			LEAR				0223.0	0224.0	2				III
			LEAR				0240.0	0240.0	1				III
			LEAR				0349.0	0353.0	2				III
			LEAR				0450.0	0514.0	2				S
			LEAR				0557.0	0557.0	1				III
			LEAR				0625.0	0627.0	3				III
			LEAR				0801.0	0812.0	2				S
			WEIS	0731	1408		0804.2	0804.3	1				IIIB
			WEIS				0806.4	0806.6	2				IIIG
			SVTO				0807.0	0807.0	2				III
			LEAR				0855.0	0856.0	1				III
			WEIS				0856.1	0856.3	1				IIIG
			WEIS				0858.8	0859.1	1				IIIG
			LEAR				1008.0	1009.0	2				III
			WEIS				1008.7	1009.2	2				IIIG,DCIM
			SVTO				1009.0	1009.0	2				III
			SVTO				1352.0	1352.0	2				III
			WEIS	1422	1507								
		PALE				2040.0	2043.0	1				III	
		LEAR				2336.0	2336.0	1				III	
		LEAR				2337.0	2337.0	2				III	
		LEAR				2345.0	2346.0	1				III	
29			LEAR				0012.0	0042.0	2				S
			LEAR				0100.0	0107.0	2				III
			LEAR				0107.0	0945.0	2				CONT
			LEAR				0354.0	0355.0	2				III
			LEAR				0425.0	0425.0	2				III
			LEAR				0526.0	0526.0	2				III
			LEAR				0619.0	0622.0	2				III
			LEAR				0655.0	0657.0	2				III
			WEIS	0733	1505		0735.7	1502.0	2				IN
			LEAR				0949.0	0950.0	1				III
			WEIS				0949.9	0950.2	2				IIIG
			SVTO				0950.0	0950.0	2				III
			SVTO				1035.0	1040.0	2				III
			WEIS				1035.2	1035.3	2				IIIB
			WEIS				1039.9	1040.5	1				IIIG
			WEIS				1102.4	1102.9	2				IIIGG
			PALE				2122.0	2133.0	2				S
			PALE				2148.0	2149.0	1				III
			LEAR				2154.0	2155.0	1				III
		PALE				2154.0	2155.0	2				V	
		LEAR				2312.0	2319.0	2				III	
30			LEAR				0103.0	0105.0	2				III
			LEAR				0132.0	0132.0	3				III
			SVTO				0610.0	1459.0	2				CONT
			WEIS	0736	1506		0737.0	1506.0	3				Cont,P,IS
			WEIS				0847.6	0849.3	2				IIIG
			WEIS				0856.9	0858.1	2				IIIG
			SVTO				0857.0	0859.0	3				V
			WEIS				1203.4	1209.6	2				IIIG
			PALE				1835.0	2045.0	1				CONT
			PALE				2005.0	2005.0	2				III
			PALE				2026.0	2027.0	1				III

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Nov 89

S O L A R R A D I O E M I S S I O N
Spectral Observations

NOVEMBER 1989

Day (UT)	Observation Start End (UT) (UT) Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
30	LEAR				2150.0	2153.0	3				III
	PALE				2155.0	2157.0	2				V
	PALE				2211.0	0000.0	2				CONT
	LEAR				2218.0	1035.0	3				CONT

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

B = Single burst	RS = Reverse slope burst
G = Small group (< 10) of bursts	DP = Drifting pairs
GG = Large group (> 10) of burst	DC = Drifting Chains
C = Underlying continuum (particularly with Type I)	H = Herringbone
S = Storm in the sense of intermittent but apparently connected activity	W = Weak
N = Intermittent activity in this period	P = Pulsations
U = U-shaped burst of Type III	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)

135
Nov 89

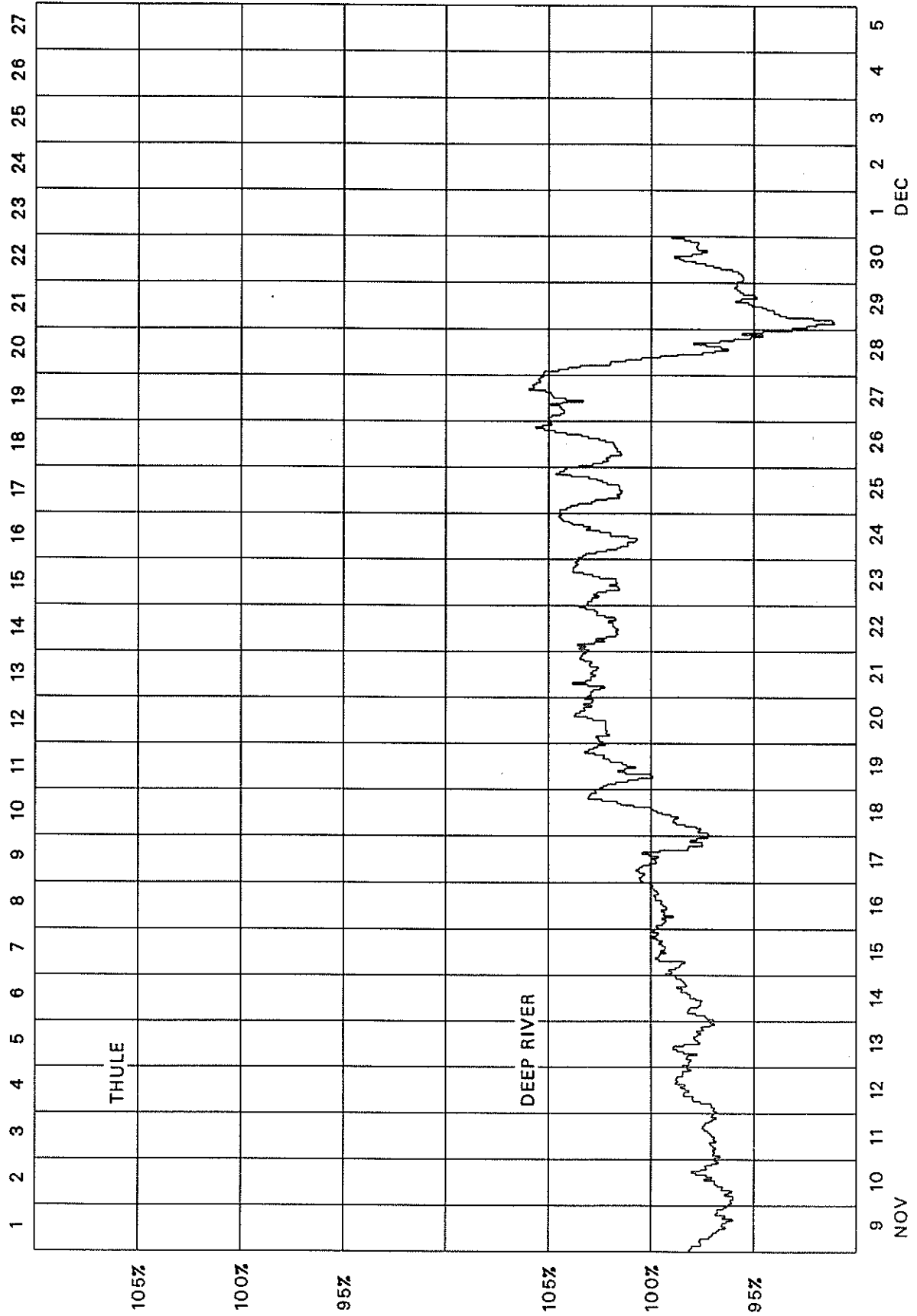
NOVEMBER 1989

Day	THULE 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		5807.3	5204.7		3406.8	
2		5774.2	5187.8		3387.4	
3		5841.4	5226.3		3384.8	
4		5889.9	5279.3		3381.6	
5		5817.7	5220.4		3363.1	
6		5744.1	5176.1		3352.0	
7		5767.6	5170.1		3358.2	
8		5728.0	5160.4		3345.7	
9		5554.9	5006.5		3294.5	
10		5545.6	4985.8		3315.0	
11		5560.0	4989.4		3309.7	
12		5616.7	5031.5		3325.7	
13		5611.1	5022.4		3333.0	
14		5617.2	5076.0		3349.6	
15		5692.3	5123.6		3347.4	
16		5702.7	5159.6		3353.5	
17		5700.0	5113.9		3361.9	
18		5728.1	5163.8		3368.8	
19		5830.5	5262.5		3391.5	
20		5885.5	5293.8		3419.1	
21		5899.2	5327.5		3407.2	
22		5866.0	5257.3		3396.5	
23		5887.3	5271.4		---	
24		5880.8	5296.4		3403.0	
25		5896.0	5307.2		3407.7	
26		5901.5	5297.7		3397.1	
27		6008.3	5359.7		3430.5	
28		5667.6	5132.0		3320.0	
29		5399.6	4867.0		3239.2	
30		5570.5	5040.7		3305.1	
Mean		5746.4	5167.0		3359.5	

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

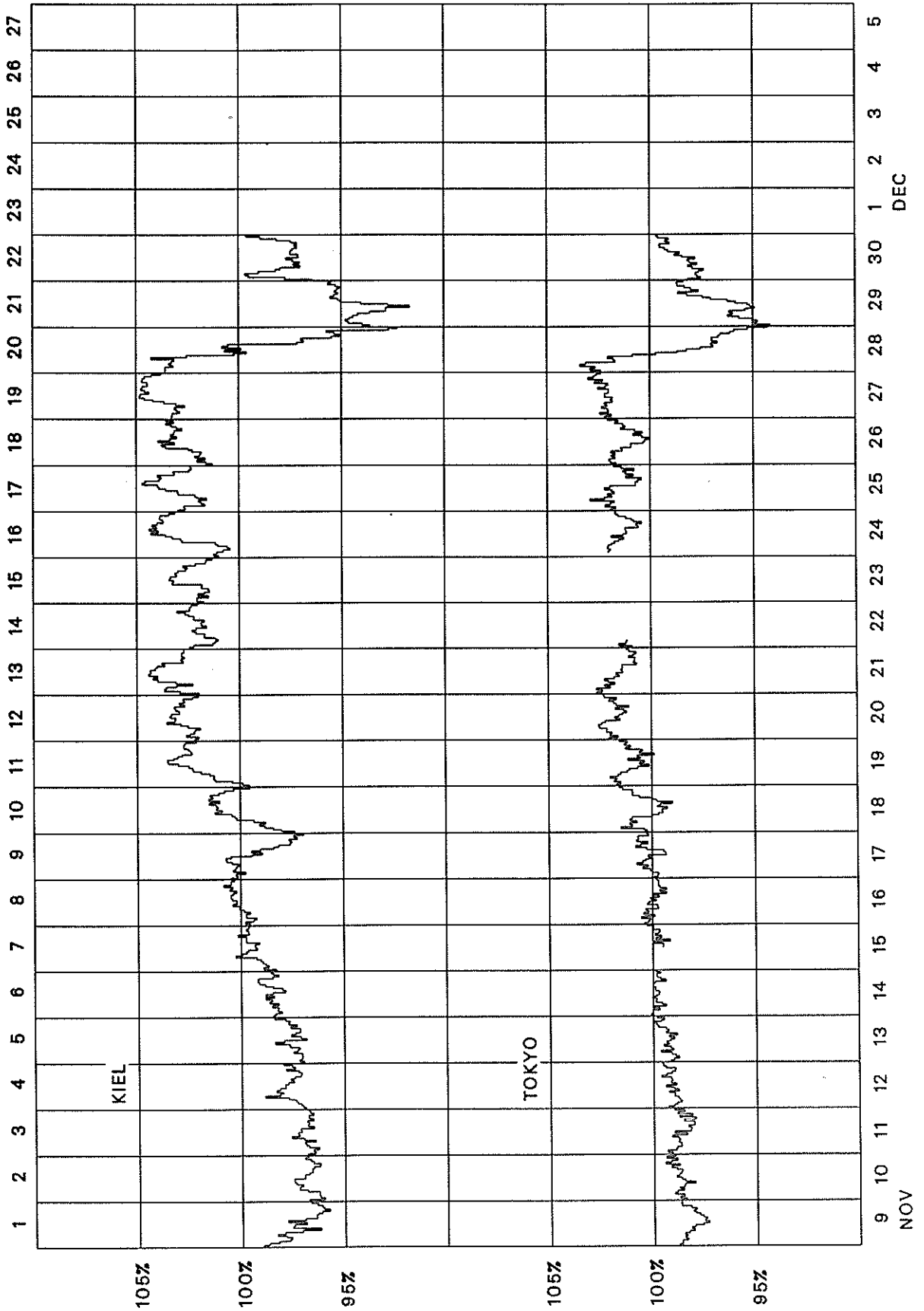
COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2135 (November 1989-December 1989)



COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2135 (November 1989-December 1989)



G E O M A G N E T I C A C T I V I T Y I N D I C E S

November 1989

Day	Kp Three-Hourly Indices								Sum	Ap	Cp	Km Three-Hourly Indices								aa Provisional					
	1	2	3	4	5	6	7	8				1	2	3	4	5	6	7	8	Am	N	S	M		
1	Q7A	2	1+	2-	2-	2	2	2+	3	16	8	0.4	2-	1+	1+	2-	2-	2+	3-	3+	16	17	18	12	23
2		5-	3+	3	1	2+	3	5	4-	26	21	1.1	5-	3	3-	2-	2+	3	4+	4-	38	35	43	38	40
3		4	3+	5-	4+	5-	3+	4-	3	31	26	1.2	4-	3	4+	4	4+	3+	3+	47	43	58	55	47	
4	D5	2+	3-	5	5	4	4	3+	4+	31-	28	1.2	2+	2+	4	4+	4-	4	4+	47	46	55	47	54	
5		4	4	3+	3+	2	2+	4-	4	27-	19	1.0	4	3	3	3	2-	2+	4-	4-	32	34	39	36	38
6		3-	3-	2	2+	3-	3-	3	2+	20+	11	0.6	3-	2+	1+	2	3	3-	3-	3-	20	20	30	24	26
7		4	3+	3	4	4+	2	2+	3+	26+	19	1.0	3	3-	3-	4-	4+	2+	3	3	33	28	32	30	30
8		3-	3	3-	4+	3	3+	3	1-	23-	15	0.9	3-	2+	2+	4-	3-	3	3	1	24	30	24	33	21
9		4	5-	3	2+	3	5	4+	3-	29	25	1.2	4	4	3	3	3+	5	4	3-	46	42	49	37	54
10		2+	4-	2+	2-	2+	2+	2	2+	19	10	0.6	2+	3+	3	2+	2+	3-	2+	3-	23	17	27	28	16
11		4-	3+	3-	3	3-	3+	4	4-	26+	18	1.0	4	3	3	3	3-	3+	4-	4-	38	34	43	37	40
12	Q10A	3+	3	2+	1+	2	1	2-	3	18-	10	0.6	3	3-	3-	1+	2-	2-	2+	3+	20	18	20	20	18
13	D2	4+	5+	5-	3+	5+	5+	5	5-	38	43	1.5	4	5-	4+	4-	5	5-	5	4	71	66	75	63	77
14		4+	3+	3+	3	1+	2-	1+	2+	21-	14	0.8	4-	3-	3+	3	1+	2-	2	3-	25	18	23	29	12
15	Q4K	3	2	1+	1	1-	1+	1	1-	11	6	0.3	2+	2-	2-	1+	1+	1+	2-	1	11	12	11	14	9 CC
16	Q2	1-	1-	1+	2	2-	1+	2-	2	11+	5	0.2	1+	1	2-	2+	2-	2-	2+	2+	13	12	14	11	15 C
17	D1	4-	3	4	7	7-	8-	8	8-	48-	109	1.9	3	3-	3+	7-	7-	8-	8-	7	182	172	178	88	262
18	D3	7	7-	5+	4-	2+	3-	2+	2	32	45	1.5	6	6-	4+	3+	3-	3-	2	2	59	55	62	95	22
19	Q8A	2-	1+	2	2	2-	2	3	3-	16+	8	0.4	2-	1	2+	2+	2-	2	3-	3-	16	21	14	15	20
20	Q9A	2+	3-	2+	2	2+	2-	2	2+	18-	8	0.5	2	2	2	2	2+	2	3-	2	17	18	16	17	17
21		4	2+	4-	3+	2+	1-	0+	1	18-	12	0.7	3	2-	4-	3	3-	1+	1	1	21	17	29	35	12
22	Q5K	1-	0+	1-	2	1+	3	2	2+	12+	6	0.3	1	1-	1-	2-	1+	3-	2+	3-	13	14	12	7	19 KK
23	Q3	3-	2-	1-	2-	1+	1	1+	1	11+	6	0.3	3-	1+	1-	2-	1+	1	1+	1+	10	16	5	12	10 C
24	Q6A	1+	2+	2+	2	2+	2-	2	2+	16+	8	0.4	1	2+	3-	3-	2	2-	2+	2+	17	16	21	19	18
25	Q1	1	2	0+	0	0	0	0	0	3+	2	0.0	1+	2	0+	0	0	0	0+	0+	5	5	9	10	3 CK
26		1-	1-	1+	3-	2-	3+	4	3	17+	11	0.6	1+	1	2-	3	2	3+	4-	3+	24	30	26	12	44
27		2+	2+	2+	3-	3	3-	3-	5	23	16	0.9	3-	2	2	2+	3	3-	3	5-	29	32	35	20	48
28	D4	5-	4+	5-	4-	4	3+	3+	4	32	28	1.2	4	4-	4-	4-	4-	3+	3+	5-	50	45	43	49	39
29		3+	3	3+	3+	3+	4-	4	3	27	19	1.0	3+	3-	3	4-	3+	4-	4	3	37	36	43	34	46
30		4	3+	3+	3	3+	3	4-	4	28-	20	1.0	3	3-	2+	3-	3	3	4-	4	33	40	39	31	48
Mean											19	0.81									33.9	33.0	36.4	34.7	
Day	Kn Three-Hourly Indices								An	Ks Three-Hourly Indices								Prov							
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	As	Sa	Ri	Ra	Rs	IMF		
1	2-	1+	1+	2-	2	2+	3-	3	16	1+	1+	1+	2-	2-	2	3-	4-	17	211.4	153	155	166			
2	4+	3-	3-	1+	3-	3+	4+	3+	35	5	3	3	2	2	2+	4+	4-	40	216.0	160	173	171			
3	3+	3	4+	4	4+	3+	3+	3-	44	4	3	5-	4	4	3+	3+	4-	49	217.6	191	201	173			
4	2	2+	4+	5-	4-	4-	3+	4-	44	3-	3-	4	4	4-	4	4-	5	49	223.9	216	230	180			
5	3	3-	3-	3-	2-	2+	3+	3+	27	5-	3	3	3	2-	2+	4	4-	37	235.4	228	230	192			
6	2+	2	1+	2-	3-	3-	3-	2+	2+	17	3	3-	2-	2+	3	2+	3	3-	23	255.3	236	228	214		
7	3	3-	3-	3+	4	2+	3-	3	30	3	3	3-	4-	4+	2+	3	3	35	207.3*	233	208	162			
8	2+	2	3-	4-	3-	3	3-	1+	24	3-	3-	2+	4-	3-	3	3-	0+	24	270.9	204	204	231			
9	4-	4-	3-	3-	3+	5	4-	2+	42	4+	4+	3	3	3	5-	4+	3-	50	257.2	214	201	216			
10	2	3+	2+	2+	2+	3-	2+	3-	21	3-	3+	3+	2+	2+	2+	3-	3-	26	246.3*	203	188	204			
11	3+	3	3-	3-	3-	3+	3+	3+	31	5-	3+	3	3+	3-	3+	4	4	45	249.1	173	169	207			
12	3-	3-	2	1+	2-	2-	2+	3	17	3	3	3	2-	2	1+	2+	3+	23	253.5	173	154	212			
13	4	4+	4-	4-	5+	5-	5	4	70	4	5-	5-	4-	5	5-	5	4	73	240.3	153	145	198			
14	3+	2+	3	3	1+	2-	2-	2	21	4+	3	4-	3	1+	1+	2	3	29	243.0	140	139	200			
15	2-	2-	1+	1+	1	1+	2-	1-	9	3-	2-	2+	1+	1+	2-	2-	1+	13	216.5	132	130	172			
16	1	1	1+	2+	2-	2-	2-	2	11	2-	1	2-	3-	2	2	2	3-	15	216.2	124	125	171			
17	3	3-	4-	7-	7-	7+	7+	7-	175	3	3	3	7-	7-	8-	8-	7+	189	215.0	124	140	170			
18	5+	6-	5-	3+	3-	3	2	2-	53	6+	6-	4+	3+	3-	3-	2	2+	64	221.6a	134	142	177			
19	1+	1	2-	2	2-	2+	3-	3-	15	2	1	3-	2+	1+	2	3	3-	17	229.2	124	152	186			
20	2	2+	2	2	3-	2-	2+	2	16	2	2	2	2+	2+	2+	3-	2+	18	223.7	141	149	180			
21	3	2-	3	3-	2	0+	0+	1-	15	3	2	4	3+	3	2-	1+	1+	26	229.4	170	181	186			
22	0+	0+	1-	2-	1+	3-	2+	2+	12	1+	1+	1	2	1+	3-	2+	3-	15	222.0	162	160	178			
23	2+	1+	1-	1+	1+	1	1	1	8	3-	1+	1-	2+	1+	1	1+	1+	11	213.4	157	134	168			
24	1	2-	2	3-	2+	2-	2+	2	15	1	2+	3	3-	2	2-	2	3-	18	208.8	160	172	164			
25	1	2-	0	0	0	0+	0+	0+	4	2-	3-	0+	0	0	0	0+	1-	6	216.0	175	180	171			
26	1-	1	1+	3-	2	3+	4-	3	21	2	1	2-	3+	2	3	3+	4	26	234.3	184	184	191			
27	2-	2-	2	2+	3	2+	3-	5-	26	3	2+	2	2+	3	3	3	5-	33	239.4	183	199	197			
28	4-	3+	4-	3+	4-	3+	3+	4+	44	4	4	4	4-	4	4-	4-	5-	55	231.3	183	176	188			
29	3+	2+	3	3+	3+	4-	4	3	36	4-	3-	3	4-	3+	3+	4-	3	37	215.1	179	179	170			
30	3	3-	3-	3-	3	3	4-	3+	31	3	3	2	3-	3+	3	4	4+	35	240.9	182	160	198			
Mean											31.0									36.6	230.0	173.0	172.9	186.4	

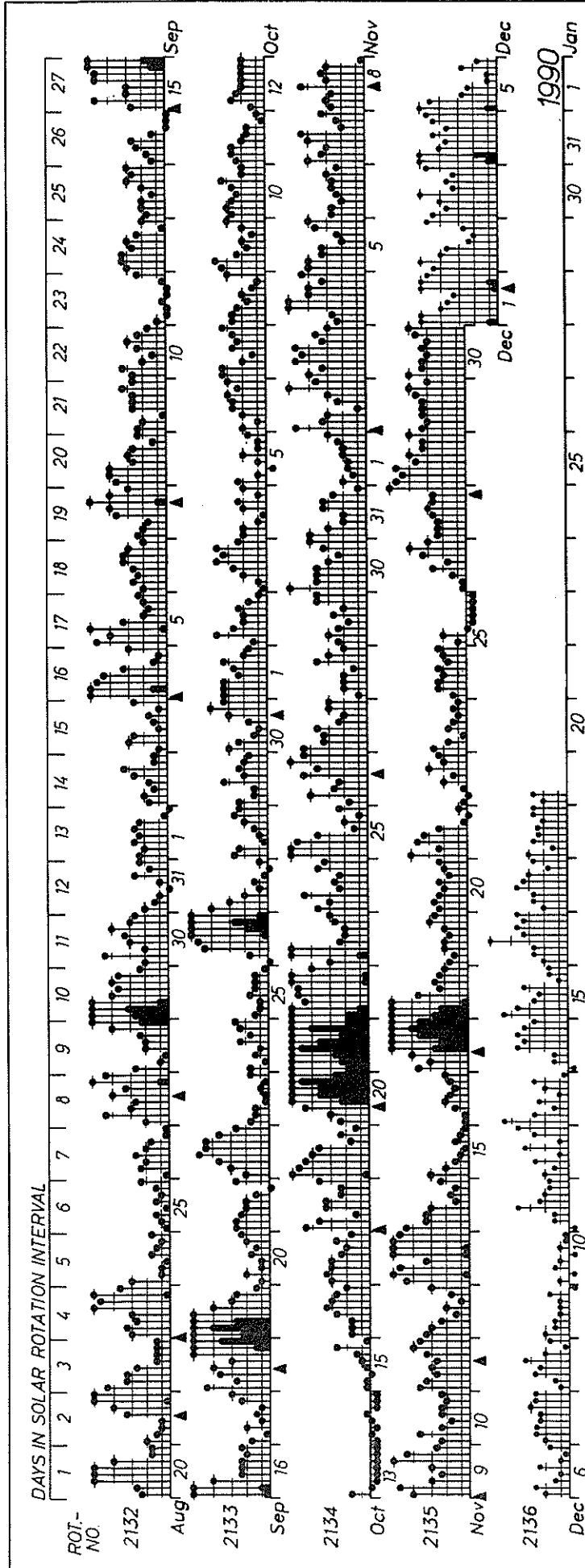
DAILY AVERAGE INDICES Ap

December 1988 to November 1989

DAY	1988 DEC	1989 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	5	15	29	12	42	10	11	26	6	8	13	8
2	15	6	21	25	26	18	19	5	6	8	9	21
3	18	4	44	37	21	12	14	3	5	8	12	26
4	10	9	24	13	46	20	14	3	8	30	6	28
5	4	33	22	30	42	44	7	15	2	21	5	19
6	3	10	23	24	14	14	11	11	8	12	10	11
7	3	10	25	18	27	46	34	8	9	22	12	19
8	5	17	14	24	20	5	23	4	7	16	9	15
9	4	16	19	31	15	5	34	6	10	11	11	25
10	8	12	12	19	8	4	78	11	41	10	12	10
11	17	37	10	17	14	6	22	4	25	3	7	18
12	14	20	14	23	6	11	12	3	8	12	8	10
13	20	11	21	246	17	9	16	7	9	9	1	43
14	13	14	14	158	24	10	50	4	55	5	1	14
15	10	38	14	49	27	13	37	6	77	42	4	6
16	25	43	17	50	20	7	9	2	26	24	10	5
17	35	28	5	34	10	7	5	13	34	7	12	109
18	25	15	9	15	10	6	5	13	29	52	17	45
19	20	7	9	55	6	6	8	4	14	70	24	8
20	7	45	21	14	10	15	28	4	26	6	112	8
21	11	28	11	22	7	8	4	5	21	8	146	12
22	13	30	13	39	7	12	5	7	12	23	51	6
23	4	22	5	36	12	47	5	11	28	4	22	6
24	4	10	9	16	8	68	10	8	6	7	17	8
25	22	12	7	10	34	24	7	6	5	5	23	2
26	25	10	4	14	76	17	8	13	6	54	24	11
27	20	12	6	44	49	16	6	8	26	8	17	16
28	14	13	13	39	39	14	7	9	22	8	9	28
29	20	10		71	28	14	13	10	58	8	13	19
30	11	12		47	17	9	10	7	17	12	23	20
31	12	32		52		13		4	6		14	
MEAN	13	19	15	41	23	16	17	8	20	17	21	19

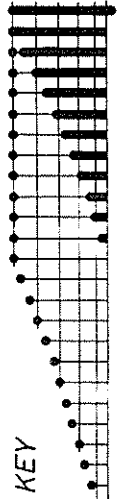
PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

University of Göttingen Kp through November 30, 1989



PLANETARY MAGNETIC
THREE-HOUR-RANGE INDICES
Kp (after Bartels)

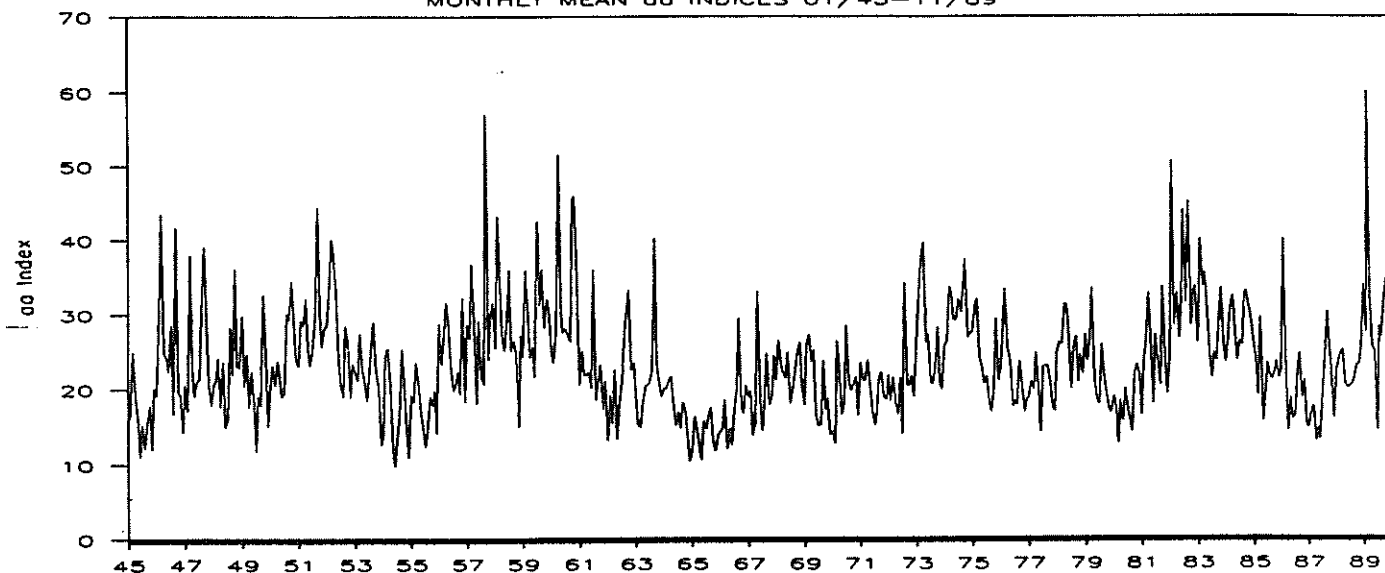
Kp till 1989 November 30
Ks (from Wingst and Göttingen) till Dec 19



With Best Wishes for a Happy New Year

Institut für Geophysik Göttingen

MONTHLY MEAN $\alpha\alpha$ INDICES 01/45-11/89



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	35.9	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	20.6	21.4	23.2	23.3	25.5	22.5
1989	33.9	27.5	60.1	32.8	25.7	24.9	14.4	28.4	26.7	31.4	34.7		31.0

PRINCIPAL MAGNETIC STORMS

NOVEMBER 1989

Sta	Geomag Lat	Commencement		Type	SC Amplitudes			Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges			End Hour Day (UT)
		Time Day (UT)	D (Min)		H (Gamma)	Z (Gamma)	D K (Min)		H (Gamma)	Z (Gamma)		
FRD 49.6N	02	0036	SC*	- .6	32	- 5	04(4)	5	20	104	42	04 --
HYB 07.6N	02	0036	SC	- .3	18	- 2	03(3,5) 04(4)	5	5	175	22	04 24
GUA 04.0N	02	0035	SC*	.6	45	- 14	02(1)	6	--	130	30	02 09
ETT 00.6S	02	0036	SC	- .2	9	12		-	6	217	72	04 21
PMG 18.6S	02	0035	SC	.5	26	23	02(1) 03(5)	5	9	180	80	05 00
KGL 56.5S	02	0035	SC	9	16	- 10	04(8)	7	43	460	272	06 09
UJJ 13.5N	03	0400	..	..	..	..		-	5	137	40	04 24
ABG 09.5N	03	0400	..	..	..	..	03(3,7) 04(5)	5	7	152	43	04 24
GUA 04.0N	03	06--	..	..	..	..	03(5)	5	--	100	20	03 18
ANN 01.5N	03	0400	..	..	..	..		-	4	205	183	04 24
HER 33.7S	04	06--	..	..	..	..	04(8) 05(1)	5	32	80	121	05 03
HER 33.7S	07	09--	..	..	..	..	07(5)	5	18	59	55	07 17
FRD 49.6N	08	1124	SC*	- 9.5	37	- 6	09(6,7)	5	20	103	36	09 21
HYB 07.6N	08	1122	SC	- .6	32	- 3		-	--	--	--	-- --
PMG 18.6S	08	1123	SC	.5	33	27	09(6) 13(5,7)	5	14	220	120	14 16
KRC 16.4N	09	0058	SC	- 1.1	20	10	09(6)	6	5	86	46	09 23
HYB 07.6N	09	0055	SC	- .1	9	- 1	09(6)	5	3	118	32	10 21
GUA 04.0N	09	1722	..	..	..	..	09(6)	5	--	50	10	09 21
GUA 04.0N	09	0054	..	..	..	..	09(1)	5	--	130	40	09 14
ETT 00.6S	09	0055	SC	- .1	3	4		-	3	98	68	09 22
HER 33.7S	09	0055	SC	..	16	10	09(6)	5	28	77	93	09 22
KGL 56.5S	09	0054	SC	4	- 12	- 8	09(1)	5	21	268	144	10 21
BJI 28.5N	11	1409	SC	.7	22	1	13(5)	6	9	171	42	14 16
HYB 07.6N	11	0052	SC	- .3	8	- 1		-	--	--	--	-- --
HYB 07.6N	11	1410	SC	- .3	14	- 2	11(6,7,8)	4	2	116	19	12 15
GUA 04.0N	11	0216	..	..	..	..	11(1)	5	--	130	30	11 10
GUA 04.0N	11	0053	..	..	..	..		-	--	--	--	-- --
ETT 00.6S	11	1900	..	..	..	..		-	10	387	79	14 12
ETT 00.6S	11	1410	SC	- .4	11	12		-	3	211	55	12 15
ETT 00.6S	11	0052	SC	- .4	10	8		-	--	--	--	-- --
HER 33.7S	11	1410	SC*	3	18	16	11(7)	5	17	65	100	12 04
KGL 56.5S	11	1410	SC	4	52	16	11(7)	5	150	844	408	14 15
KRC 16.4N	12	1800	..	..	..	..	13(5,7)	6	7	195	60	14 09
UJJ 13.5N	12	2100	..	..	..	..		-	4	188	45	14 03
ABG 09.5N	12	2100	..	..	..	..	13(7)	6	6	217	59	14 03
HYB 07.6N	12	1900	..	..	..	..	13(5,6,7)	6	5	250	42	14 13
ANN 01.5N	12	2100	..	..	..	..		-	6	152	53	14 03
HER 33.7S	12	20--	..	..	..	..	13(6,7)	5	41	137	154	14 11
GNA 43.2S	12	20--	..	..	..	..	13(1,5,6,7)	5	26	80	170	13 21
COL 64.6N	13	04--	..	..	..	..	13(6)	7	246	1515	950	13 19
SIT 60.0N	13	04--	..	..	..	..	13(5)	7	--	--	--	14 02
FRD 49.6N	13	01--	..	..	..	..	13(2,5,7)	5	21	144	61	14 10
GUA 04.0N	13	00--	..	..	..	..	13(1)	6	--	170	20	13 08
GUA 04.0N	13	09--	..	..	..	..	13(5)	5	10	120	20	14 03
COL 64.6N	17	05--	..	..	..	..	17(7)	8	305	2275	1510	18 11
SIT 60.0N	17	0927	SC	14	-405	-276	17(6)	8	--	--	--	18 11
FRD 49.6N	17	0925	SC*	- 11.7	61	- 8	17(6,7)	7	56	388	214	18 10
BJI 28.5N	17	0925	SC*	3.0	65	4	17(4)	8	25	318	35	18 16
KRC 16.4N	17	0924	SC	- 5.0	80	40	17(4)	8	12	430	110	19 03
UJJ 13.5N	17	0924	SC	- 1.7	67	- 15		-	8	391	53	18 20
ABG 09.5N	17	0924	SC	- 1.9	16	- 23	17(4,6)	7	12	425	69	18 20
HYB 07.6N	17	0925	SC	- 1.2	72	- 9	17(6,7)	9	8	464	42	18 23
GUA 04.0N	17	0924	SC*	.4	56	- 18	17(4)	7	10	260	40	18 14
ANN 01.5N	17	0924	SC	- 3.7	29	132		-	7	--	143	18 20
ETT 00.6S	17	0925	SC*	- .3	120	89		-	9	518	177	18 12
PMG 18.6S	17	0925	SC	.9	68	57	17(4)	8	14	260	120	18 15
HER 33.7S	17	0926	SC	3	82	41	17(4,6,8)	7	87	334	346	18 09
GNA 43.2S	17	0925	SC*	8.2*	86	* 49	* 17(5)	8	41	300	290	18 12
KGL 56.5S	17	0925	SC	- 73	304	80	17(5,6,7,8)	9	358	1793	1048	19 00

P R I N C I P A L M A G N E T I C S T O R M S

NOVEMBER 1989

Sta	Geomag		Commencement		SC Amplitudes			Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges			End Hour	
	Lat	Day	Time (UT)	Type	D (Min)	H (Gamma)	Z (Gamma)		D (Min)	H (Gamma)	Z (Gamma)		Day (UT)
HYB	07.6N	26	1053	SC	- .1	23	- 1	26(6,7)	5	3	116	28	27 15
ETT	00.6S	26	1053	SC	..	19	21		-	4	147	39	27 15
FRD	49.6N	27	2139	SC*	- 2.0	56	- 9	27(8) 28(8)	5	20	111	56	29 --
KRC	16.4N	27	2137	SC	- 2.0	47	23	27(8) 28(8)	6	9	100	58	-- --
UJJ	13.5N	27	2139	SC	- .5	31	- 7		-	5	95	21	29 23
ABG	09.5N	27	2139	SC	- .8	24	- 5	27(8) 28(8)	5	6	108	32	29 23
HYB	07.6N	27	2140	SC	- .3	27	- 2		-	--	--	--	-- --
GUA	04.0N	27	2139	SC*	- .6	23	- 5	28(1)	5	--	80	10	28 06
ANN	01.5N	27	2139	SC	- 1.1	15	31		-	5	116	74	29 23
ETT	00.6S	27	2140	SC	- .4	20	21		-	5	129	54	29 22
PMG	18.6S	27	21--	SC*	- 2.0*	31	16	28(8)	5	11	120	60	29 21
KGL	56.5S	27	2140	SC	9	32	8	27(8) 28(1)	7	63	520	308	30 06
HYB	07.6N	28	0742	SC	- .5	32	- 3	28(8)	5	5	121	21	30 04
GUA	04.0N	28	0743	SC*	- .3	25	- 7	28(4)	5	--	50	20	28 19
GUA	04.0N	28	20--	..	..	..	..	28(8)	5	--	140	30	29 20
ETT	00.6S	28	0742	SC	- 1.2	48	35		-	--	--	--	-- --
HER	33.7S	28	2140	SC	2	28	16	28(8)	5	20	58	81	29 04

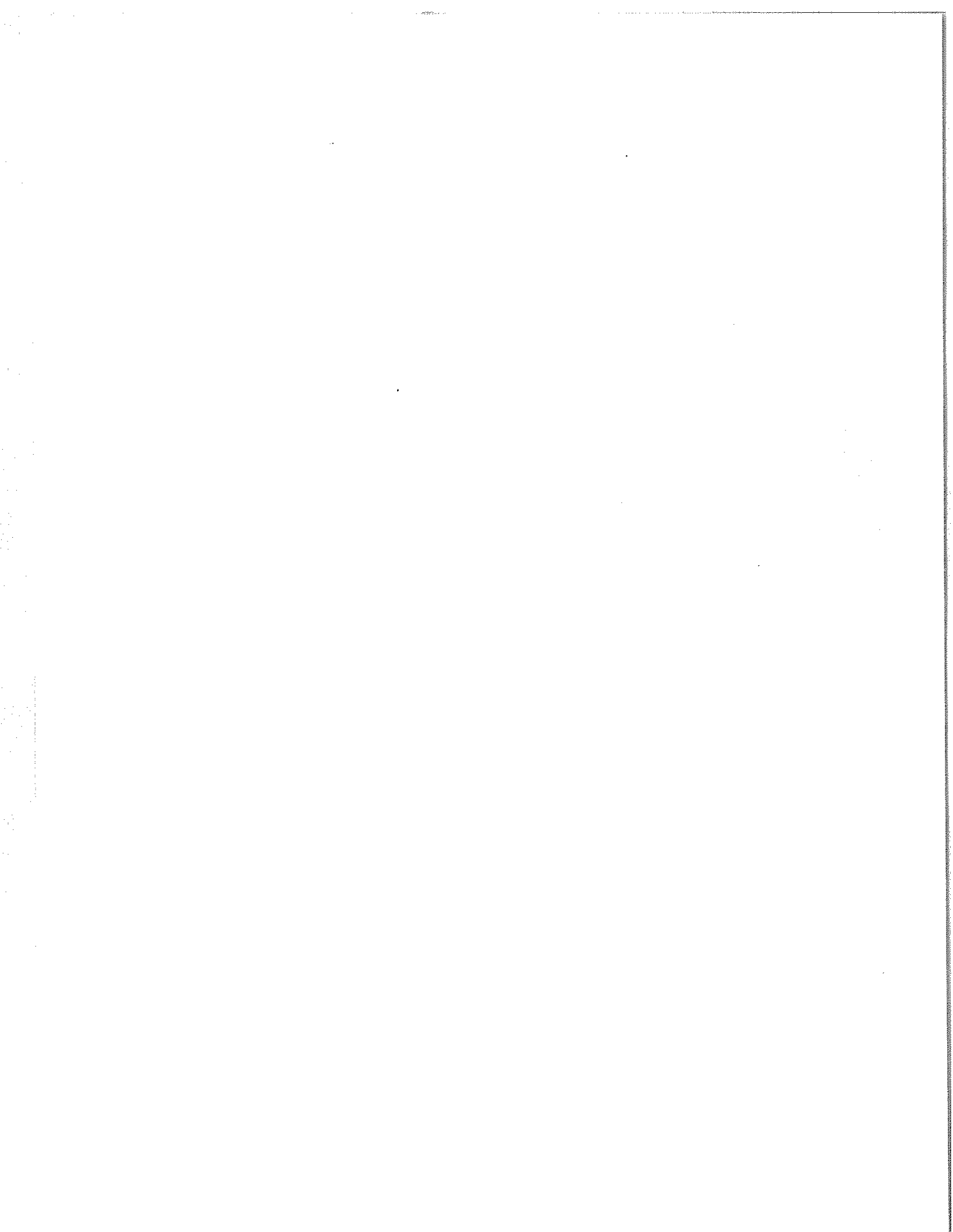
Stations:

ABG = ALIBAG
ANN = ANNAMALAINAGAR
API = APIA
BJI = BEIJING
CNB = CANBERRA
COL = COLLEGE

ETT = ETAIYAPURAM
FRD = FREDERICKSBURG
GNA = GNANGARA
GUA = GUAM
HER = HERMANUS

HON = HONOLULU
HYB = HYDERABAD
JAI = JAIPUR
KGL = KERGUELEN
KRC = KARACHI

PMG = PORT MORESBY
SHL = SHILLONG
SIT = SITKA
TRD = TRIVANDRUM
UJJ = UJJAIN
WIT = WITTEVEEN



C O N T E N T S

Prompt Reports

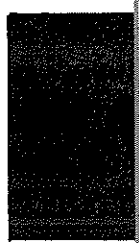
LATE DATA

Number 545 Part I

Page

GEOMAGNETIC INDICES September - October 1989.146-147

SOLAR ACTIVE REGIONS Carrington Rotation 1821 October 1989
Sacramento Peak Ca XV Solar Synoptic Charts.148-149



GEOMAGNETIC ACTIVITY INDICES

September 1989

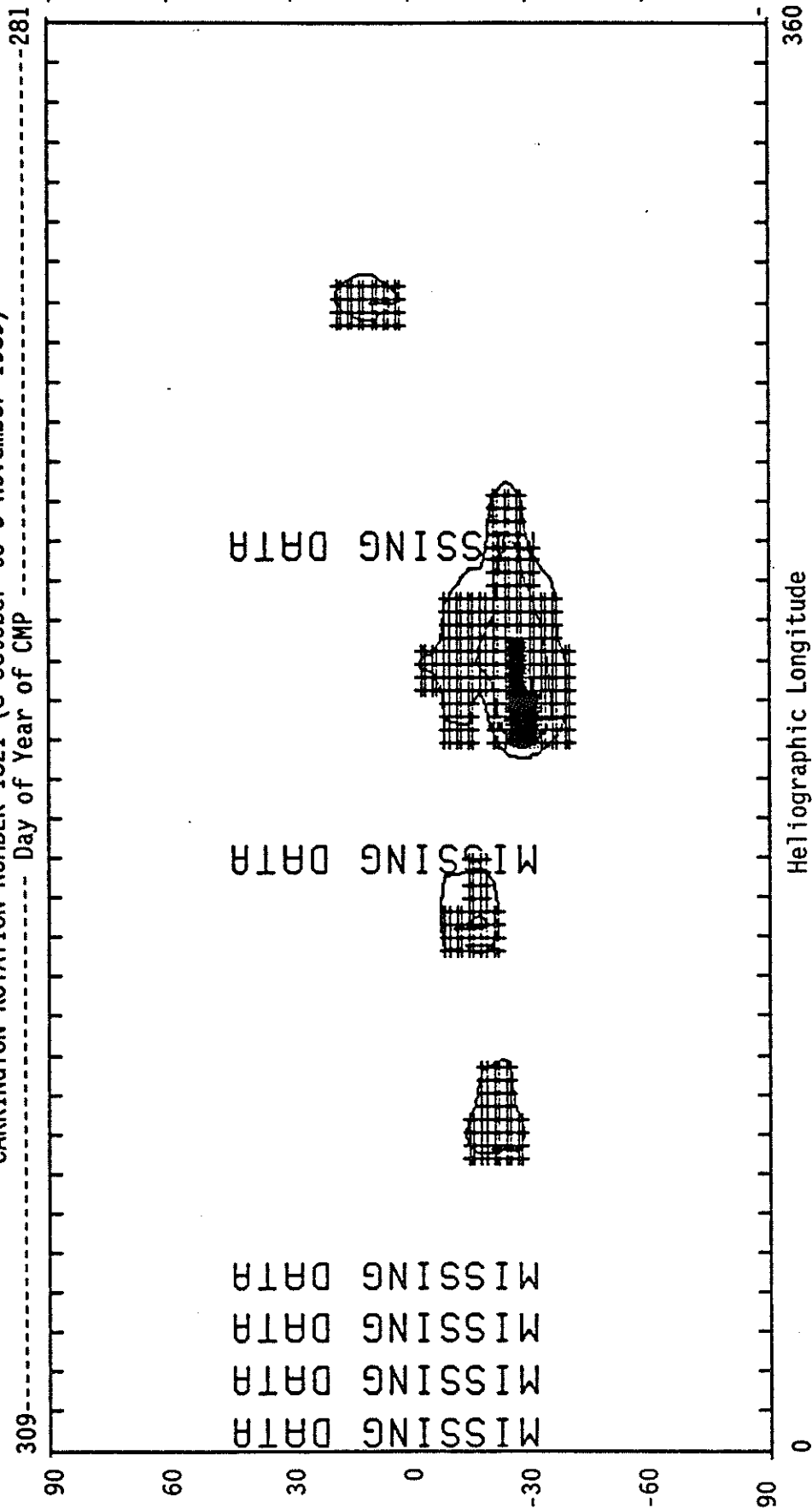
Day	Kp Three-Hourly Indices								Sum	Ap	Cp	Km Three-Hourly Indices								aa Provisional						
	1	2	3	4	5	6	7	8				1	2	3	4	5	6	7	8	Am	N	S	M			
1	2+	2	3-	2+	3-	2+	1-	0+	15+	8	0.4	2-	2+	2+	2+	2+	2-	1-	1-	13	19	11	18	12		
2	2-	2	1+	2-	3-	3+	1+	1+	15+	8	0.4	1+	2	2-	2-	3-	3-	2-	1+	15	15	17	13	19		
3	Q8A	1	3	3-	1	1+	2-	1	14+	8	0.4	1	3	3-	1+	2+	1+	1+	2+	14	12	10	11	10	C	
4	D5	5	6	5-	4+	3+	1+	1	29-	30	1.3	4+	4+	4	4	3	1	1	3-	38	47	33	63	17		
5		5-	4	5+	3+	2	2-	2	25+	21	1.1	4	4	5-	3+	2	1+	2-	2	34	34	33	51	16		
6		2	3-	2+	3-	3+	3+	3	21+	12	0.7	2	3-	2+	2+	3-	3-	3-	2	21	22	22	22	22		
7		2+	2	2-	4-	4	6-	4	26+	22	1.1	2	2-	2-	3	3+	5-	4-	3	32	47	22	17	53		
8		4-	4	4	3-	3	3-	1+	2+	24-	16	0.9	3+	4-	3+	3+	3-	3-	2-	2+	28	37	31	47	21	
9		2+	2	1-	3-	3-	3-	3+	19	11	0.6	2	2	1	2	2+	2+	3+	3-	19	22	15	12	25		
10		3-	3+	2	1+	2+	3	2+	19-	10	0.6	3-	3	2	1+	2+	3	2+	2-	19	24	20	19	24		
11	Q1	1	0+	0+	1-	0+	0+	1-	6	3	0.1	1-	0+	0+	1	1-	1-	1	2+	6	5	5	4	6	C	
12		3	3+	3+	3-	3	2+	1-	20+	12	0.7	3-	3	3	3-	3	2+	1	2	21	30	21	31	19		
13		2-	2	2	1+	2	3	3-	3-	18-	9	0.5	1+	2-	2-	2-	2-	3-	2+	3-	16	23	14	11	26	
14	Q4	1+	2-	2+	3-	1+	0+	0+	10+	5	0.2	1+	1+	2	3-	2-	0+	1-	0+	10	13	10	17	6	K	
15	D4	3-	5-	3	3	5-	5-	6	6+	35	42	1.5	3	4	3-	2+	4	4	5+	5+	58	66	47	75	80	
16		5+	6-	4	2+	2+	2+	2	2+	26+	24	1.2	5-	5-	3+	2+	2	3-	2	2	35	30	25	35	21	
17	Q6A	2-	1-	2	1	1+	1	2+	3	13	7	0.3	1+	1-	2+	1-	1+	1-	2+	3	12	16	7	10	13	C
18	D2	4+	3-	4-	4	3	5	6	8-	36+	52	1.6	4-	3-	3+	4-	3	4+	5+	6	67	79	67	47	100	
19	D1	7-	8	7	5	4	3	3-	1+	38-	70	1.7	6+	6+	6+	5-	3	3-	3	1+	91	85	61	114	32	
20	Q5	1	2	1	1	2-	1+	2	2+	12+	6	0.3	1-	2	1	1	1+	1+	2-	2	10	14	9	8	15	C
21		3-	3-	2+	2	2	1+	0+	3-	16	8	0.4	3-	2+	2+	2+	2-	1+	1-	2+	16	18	16	19	14	
22		2	3	4-	5-	4+	4+	4-	3-	28+	23	1.1	2-	2+	3+	4+	4	4-	3+	2+	36	50	39	47	43	
23	Q2	2-	1+	1+	1-	1-	1	1-	2-	9	4	0.2	1+	1+	1	1-	1-	1	1+	7	12	6	9	9	C	
24	Q7A	2-	1-	1+	1	2+	2-	2+	3-	14-	7	0.3	1+	1-	2-	1+	2+	2-	3-	13	16	13	10	19	C	
25	Q3	1+	1	1	2-	1+	1+	1+	1-	10-	5	0.2	1+	1	1	2-	1+	1+	1+	1	8	12	7	9	10	C
26	D3	0+	2-	4+	5-	5+	6+	7	6-	35+	54	1.6	0+	2-	4+	5-	5	5+	6-	5	75	65	86	39	112	
27	Q10A	4	3	2	1	1+	1-	0+	1	13+	8	0.5	3+	2+	2	1+	2-	1-	1-	1	13	20	8	20	8	
28	Q9A	3-	2+	1-	1	1+	2	3-	2+	15	8	0.4	3-	2-	1-	1+	1+	2+	3-	2	14	19	13	14	18	
29		2+	1+	1+	3+	2	2+	2	2-	16+	8	0.4	2+	2-	1+	2+	2-	2+	2	2-	14	22	11	18	15	
30		3	2+	1+	1	2-	3	4	3+	20-	12	0.7	3-	2	2-	1+	2-	3	4-	3	22	26	20	15	31	
Mean										17	0.71									25.9	30.0	23.4		26.7		
Day	Kn Three-Hourly Indices								An	Ks Three-Hourly Indices								Prov								
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	As	Sa	Ri	Ra	Rs	IMF			
1	2	2	3	3-	2+	2	1-	1	15	2-	2+	2	2	2	2-	1	1-	1-	12	223.8	147	149	180			
2	1+	2-	2-	2-	3-	3-	2	2-	15	2-	2+	1+	2+	3-	3-	2-	1+	16	233.3	171	168	190				
3	1	3	3-	1	2-	2-	1+	2+	14	1	3	2+	1+	2-	1	1	2	13	243.0*	180	198	200				
4	5-	5-	4	4+	3	1+	1+	3-	41	4	4+	4	4-	3	1	1	3-	36	245.0	204	220	203				
5	4-	4-	5	3+	2+	2	2	2+	37	4	4+	4+	3	2-	1-	1+	2-	31	273.3	212	223	233				
6	2-	2+	2	2+	3	3	3	2+	21	2	3	2+	2+	3-	3-	3-	2-	20	288.4	230	243	249				
7	2+	2-	2-	3-	3+	5+	4-	3	36	2-	2-	2-	3	3	4-	3+	3	27	303.4	277	275	266				
8	3	4	3+	3+	3-	3-	2	2+	30	4-	4-	3	3+	2+	2+	1+	2	27	302.1	261	260	264				
9	2-	2	1+	2+	3-	3-	3	3-	19	2+	2-	1-	2-	2	2	3+	3	18	311.5	296	284	274				
10	2+	3	2	1+	2+	3	2+	2	19	3-	3	2	1	2+	3-	3-	1+	19	303.3	270	284	266				
11	1	0+	0+	1-	1-	0+	1	3-	6	1-	0+	0+	1	0+	1-	1	2	6	299.3	264	254	261				
12	3-	3	3	3-	3	3-	1+	2+	23	3-	3	3-	2	3-	2-	1-	2-	19	292.2	264	272	254				
13	2-	2-	2	2	2	3-	2+	3-	18	1+	2-	2-	1+	2-	3-	2+	3-	14	249.3	248	252	207				
14	1+	1+	2	3	2-	0+	1-	0+	11	1	1+	2-	3-	2-	1-	1-	0+	9	244.9	215	213	202				
15	3	4	3-	3-	5-	4+	5	5	58	3+	4+	3-	2	4-	3+	6	5+	59	226.0	207	205	182				
16	4+	5	3+	2+	2	2+	2	2	35	5	4+	3+	2	2+	3-	2	2-	36	233.7	180	192	190				
17	1+	0+	2+	1	1+	1+	2+	3	13	2-	1-	2	0+	1+	0+	2+	3-	11	216.2	159	155	171				
18	4	3-	4-	4	3-	5-	5+	6+	71	4-	3-	3+	4-	3	4-	5+	6	64	208.6	155	144	163				
19	6+	7-	6+	5-	3+	3-	3	1	98	6+	6	6	5-	3	2+	3+	1+	85	197.0*	152	147	151				
20	1-	2-	1	1-	1+	1+	2-	2+	9	1	2+	1	1+	1+	1+	2-	2-	10	173.1	137	120	125				
21	2+	2+	2+	2+	2-	1+	1	3-	16	3-	2+	3-	2+	2	1+	0+	2+	16	161.8	111	102	113				
22	2-	2+	3+	4+	4+	4-	4-	3-	39	1+	3-	4-	4+	4-	3+	3	2+	34	159.3	109	106	110				
23	2-	1+	1	1-	1-	1	1	2-	7	1+	1+	1	1	1-	1	0+	1+	7	157.5	110	110	108				
24	1+	1-	2-	1+	2+	2	2	3-	14	1+	1-	2	2-	2+	1+	2-	2+	12	157.0	85	85	108				
25	1+	1-	1	2-	1+	2-	1+	1	9	1+	1	1	2-	1	1+	1	1-	7	166.8	80	83	118				
26	0+	2-	5-	5-	5+	5	6-	5	75	0+	2-	4+	4+	5-	6-	6-	5+	75	182.2*	93	86	135				
27	3	2+	2	2-	2	1-	1-	1	14	4-	2	2	1+	2-	0+	0+	1	13	199.4	101	104	153				
28	2+	2-	1-	1+	1+	3-	3-	2+	15	3-	2	1-	1+	1+	2+	2+	2-	13	194.3	111	113	148				
29	2	2-	1+	3-	2-	2+	2+	2-	15	2+	2-	1	2+	2-	2	1+	2-	13	204.7*	134	131	159				
30	3-	2	2-	1+	2	3	3+	3+	23	3-	2	2-	2-	2-	3-	4-	3-	22	202.0	142	149	156				
Mean									27.2									24.8	228.4	176.8	177.6	184.7				

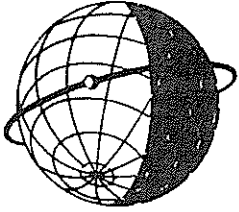
GEOMAGNETIC ACTIVITY INDICES

October 1989

Day	Kp Three-Hourly Indices								Sum	Ap	Cp	Km Three-Hourly Indices								aa Provisional					
	1	2	3	4	5	6	7	8				1	2	3	4	5	6	7	8	Am	N	S	M		
1	3+	3+	3+	2+	3-	3+	2	2-	22	13	0.8	3	3-	3-	3-	3-	3-	2-	2	23	24	19	22	21	
2	Q9A	1+	4-	3-	2	2	2+	2-	17-	9	0.5	2-	4-	3-	2+	2+	2	1+	1	19	15	26	29	12	
3		1-	1	2	3-	4-	3+	4-	2+	19+	12	0.7	1	1+	2+	3	3+	3+	3	23	26	23	16	33	
4	Q5	2	2	1	1-	2	2+	1	2	13	6	0.3	2+	1+	1	1-	1+	2	2-	11	18	10	11	17	
5	Q4	2+	1	0	1	2	1	1	2-	10	5	0.2	2+	1+	0+	1-	1+	1+	1+	9	15	7	10	12 CK	
6	Q10A	2	1	2	3-	3-	3	2+	3	19-	10	0.6	2-	1	2+	3-	2+	3	2	19	23	17	14	25	
7		3+	3+	2	1+	3-	2+	3-	3+	21	12	0.7	3+	3-	2-	2-	2+	2+	2+	22	28	18	20	26	
8	Q8A	3-	3-	2+	2-	2	1+	1	3	17-	9	0.5	2+	2+	2+	2	2	2-	1+	17	16	17	16	17	
9	Q2A	3+	4-	2+	2-	2	1+	2	3	19+	11	0.6	3	3	2+	2-	2	1+	2	19	21	19	22	18	
10	Q6A	3-	3	3-	2+	3-	3+	2	2	21-	12	0.7	3-	3-	2+	2+	2+	3	2-	20	22	14	20	16	
11	Q6A	2+	3-	3-	2	2-	2-	1-	1	15-	7	0.4	2+	2+	3-	2-	2-	2	1	14	14	14	19	9	
12	Q7A	1+	3	2+	2	2	2	2	2	16+	8	0.4	2-	2+	3-	2+	2+	2	2+	18	15	21	19	17 C	
13	Q2	2-	0+	0	0	0	0	0	0	2	1	0.0	2-	1	0	0	0	0	0	3	5	4	6	3 CC	
14	Q1	0	0+	0	0+	1-	0	0	0	1+	1	0.0	0	0+	0	0+	1	0	0+	2	5	4	4	5 CC	
15	Q3	1-	1-	0+	1-	1	1+	3-	1-	8	4	0.2	1-	1	1-	1-	1+	1+	3-	8	11	5	6	11 CC	
16		2-	2-	2-	3-	3+	3	3-	2	19-	10	0.6	2-	2-	2-	3	3	3-	3	21	18	22	16	24	
17		3	3+	3	3	2+	2	3-	2-	21	12	0.7	3-	2+	3-	3-	2+	2-	3-	1+	19	19	18	21	16
18		4+	4-	1+	3+	3+	2+	2+	4-	24+	17	0.9	4-	3	1+	3+	3+	2	3-	29	36	30	34	32	
19	D4	5+	5-	4+	4	4-	2-	2+	1+	27+	24	1.2	4+	4-	4-	4-	3	2-	1+	35	46	29	58	18	
20	D2	2+	3	4+	7-	8-	8-	8+	7	47	112	1.9	2-	3-	4-	6	7-	7	7+	148	130	126	55	202	
21	D1	6+	7-	7	8+	8-	7-	8	6+	57	146	2.0	5+	5+	6-	8	7+	6-	7-	196	154	161	165	151	
22	D3	6+	6-	4+	5-	5-	5+	5+	4	40+	51	1.6	5	4	4	4+	4	5-	5-	67	64	58	56	66	
23		3	6-	5	2+	2	2	3-	3	26-	22	1.1	3	4+	4-	2-	2	2	3-	30	37	30	46	21	
24		4-	3	4+	2+	3-	2+	4-	3+	25+	17	0.9	3+	3-	4-	3-	2+	2+	4-	33	24	35	35	24	
25		5	5	5+	4-	1+	2	1	2+	25	23	1.1	4-	3-	4	3+	2-	2+	1	31	34	23	43	13	
26	D5	2-	4	3-	2+	4+	4-	5	4+	28	24	1.1	1+	3	3-	3-	4	4	4+	38	51	36	27	60	
27		4+	3+	3+	4-	2+	2	3	3	25	17	0.9	4-	3-	3	4-	3-	2	3	29	36	26	38	24	
28		1	2	2	2	1+	4-	3	2	17	9	0.5	1	1+	2-	2+	2	4-	3	18	18	22	12	28	
29		2+	3	2+	2-	3-	2	4-	4-	21+	13	0.7	2-	2+	2+	1+	2+	2	3+	21	30	22	19	33	
30		5	4-	4-	4-	3	2+	3+	4	29-	23	1.1	4	3	3+	3+	3	2+	3+	34	44	34	44	33	
31		4	3	2	2	3+	3+	3-	1	21+	14	0.8	3+	3-	2-	2	4-	3+	3-	1+	25	29	26	23	33
Mean											21	0.76								32.3	33.2	29.7		31.4	
Day	Kn Three-Hourly Indices								An	Ks Three-Hourly Indices								Prov							
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	As	Sa	Ri	Ra	Rs	IMF		
1	3+	3-	3	3-	3-	3	2	2-	24	3	3-	3-	3-	3-	3	3-	1+	2	21	198.4	129	144	152		
2	1+	3+	3-	2+	3-	2	2-	1+	18	2	4	3	2+	2+	2-	1+	1-	1-	20	208.5	143	146	163		
3	1-	1	2	3-	3	4-	3	2+	22	1+	1+	2+	3	3+	3	3	3-	24	222.4	159	161	178			
4	2+	2-	1-	1	2-	2	2-	2	12	2+	1+	1	1-	1+	2-	2-	2	11	234.1	186	186	191			
5	2	1	0	1	2-	1+	1+	2-	9	2+	1+	0+	1-	1+	1+	1+	2-	9	223.2	209	190	179			
6	2-	1+	2	3-	3-	3	2+	3	20	2-	1	2+	3-	2	3-	2-	3-	18	220.5	189	193	176			
7	3-	3-	2-	1+	3-	2+	3-	3+	22	4-	3	2	2-	2	2+	2+	3	22	225.7	168	201	182			
8	2+	2+	2+	2-	2-	2-	1+	3	16	2+	2	2	2+	2+	2-	1+	3	17	210.1	166	177	165			
9	3	3	2+	2-	2-	1+	2+	3-	19	3	3	2+	2-	2	1+	2-	3	20	201.9	187	190	156			
10	3-	2+	2+	2	3-	3	2	2+	20	3-	3-	2	2+	2+	3-	2-	2+	19	195.5	178	196	149			
11	2	2-	2+	2-	1+	2+	1	1	12	3-	3-	3	2-	2-	2-	1-	1+	16	191.5	191	191	145			
12	1+	2+	3-	2	2+	2+	2+	2+	17	2+	3-	3-	2+	2	2-	2+	3-	19	203.2	154	161	157			
13	2-	1-	0	0	0+	0	0	0	3	2-	0	0	0	0	0	0	0	3	224.2	148	157	180			
14	0	0	0	0+	1-	0	0	0	2	0+	0+	0	0+	1	0	0+	0	2	225.9	159	177	182			
15	0+	1	1-	1-	1+	2-	3-	1+	9	1-	1+	1-	1-	1+	1	3-	1	8	225.4	189	188	181			
16	2-	1+	2-	3	4-	3	3-	2	22	2-	2-	2-	3	3-	3-	3	2	20	237.0	209	209	194			
17	3-	2+	3-	3-	3-	2-	3-	1+	20	3-	2+	3-	3-	2	2-	2+	1+	18	225.3	206	195	181			
18	4-	3	1+	3	3+	2+	3-	3+	30	4-	3	1+	3+	3+	2	3-	3+	29	221.3*	184	180	177			
19	4	4-	4-	4-	3	2-	2+	2-	34	5-	4-	4	4-	3	2-	2	1+	36	214.7a	159	160	170			
20	2-	2	4	6	6+	7	7+	6	150	2	3	4-	6	7	7	7	6-	146	205.4	140	142	160			
21	5-	5	6-	8	7+	6-	7-	5+	194	6-	5+	6-	8-	7+	6	7-	6-	198	206.2	152	167	161			
22	5	4+	4	5-	4+	5-	5-	3+	69	5	4	4	4	4	4+	5-	4+	65	217.8	158	149	173			
23	3-	4+	4-	2	2	2+	3-	3-	29	3	4	4	2-	2	2	3	3	31	210.4	145	141	165			
24	3+	3-	3+	3-	2+	2+	3+	3	29	3+	3	4+	3-	2	2+	4	4-	36	214.2	131	133	169			
25	4	4	4	4-	1+	3-	1+	2	33	4+	3+	4	3+	2	2	1	2-	30	183.3*	121	104	136			
26	1+	3+	2+	3-	4+	4	4+	4-	39	1+	3	3-	3-	4-	4-	4+	4	37	171.7	109	98	123			
27	4-	2+	3+	4-	2+	2	3+	3-	29	4-	3-	3-	4-	3-	2	3	2+	28	176.9	97	102	129			
28	1	1+	2-	2+	2	3+	3-	2	18	1	1+	2	2	2-	4-	3	2	19	173.0	116	123	125			
29	2-	2+	2	2-	2+	2-	3+	4-	20	2-	3-	3-	1+	2	2+	3+	3+	22	172.0	131	138	124			
30	4	3	3+	3	3	2+	3+	3+	34	4-	3	3	4-	3	3-	3+	3	34	186.3	156	152	139			
31	3+	2+	2-	2-	3+	3+	3-	1+	23	3+	3-	2	2+	4-	3+	3	1	20	202.0*	144	141	156			
Mean											32.2								32.5	207.4	158.5	161.0	162.0		

SACRAMENTO PEAK CORONAL YELLOW LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1821 (8 October to 5 November 1989)





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

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