SEPTEMBER 2002 NUMBER 697 - Part I

Solar-Geophysical Data prompt reports

Data for July and August 2002
Explanation of Data Reports Issued as Number 515 (Supplement) July 1987

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Data for July and August 2002

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SOLAR-GEOPHYSICAL DATA

Number 697

(Issued in Two Parts)

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-- MONTHLY PLOTS

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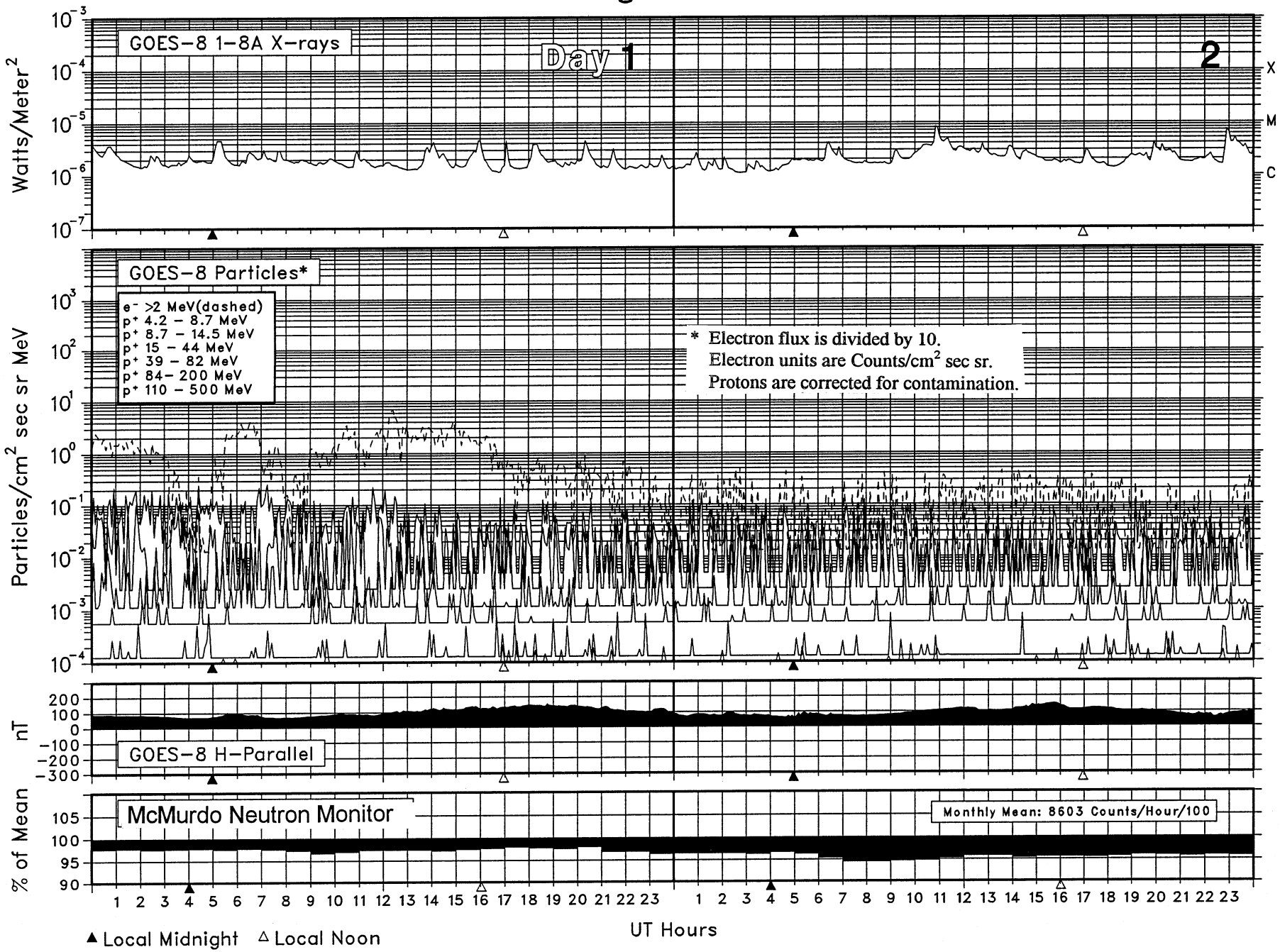

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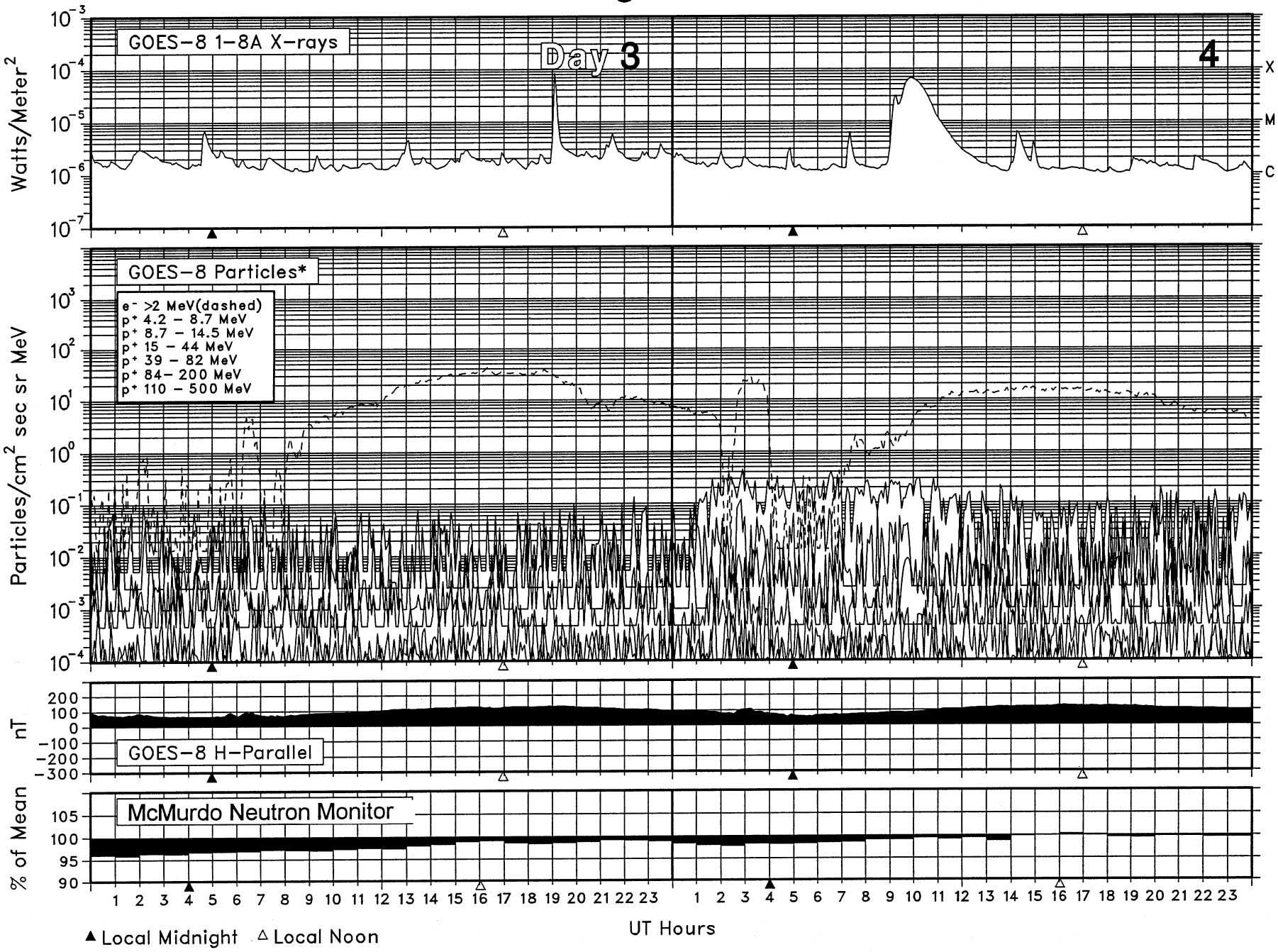
August 2002



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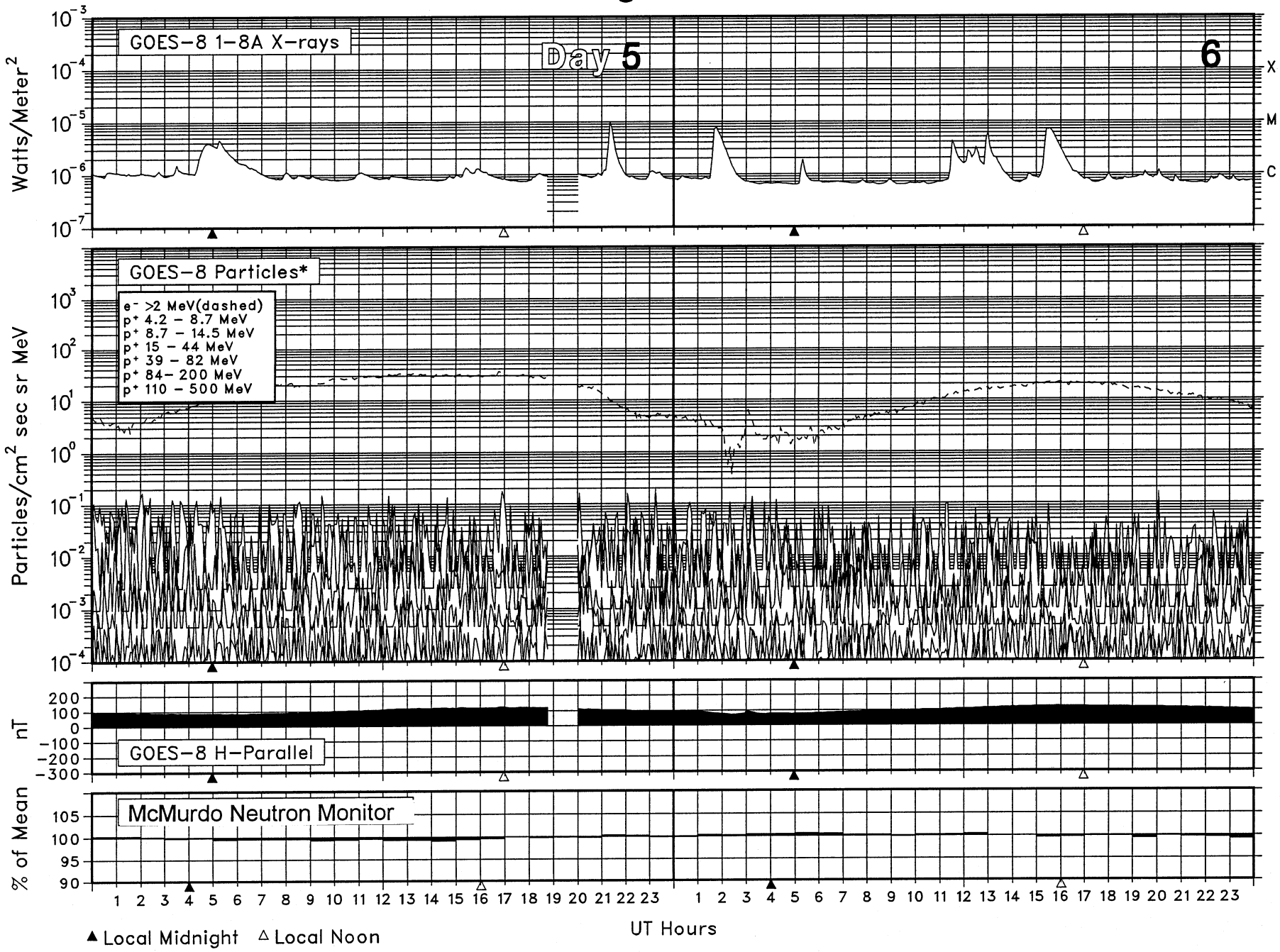

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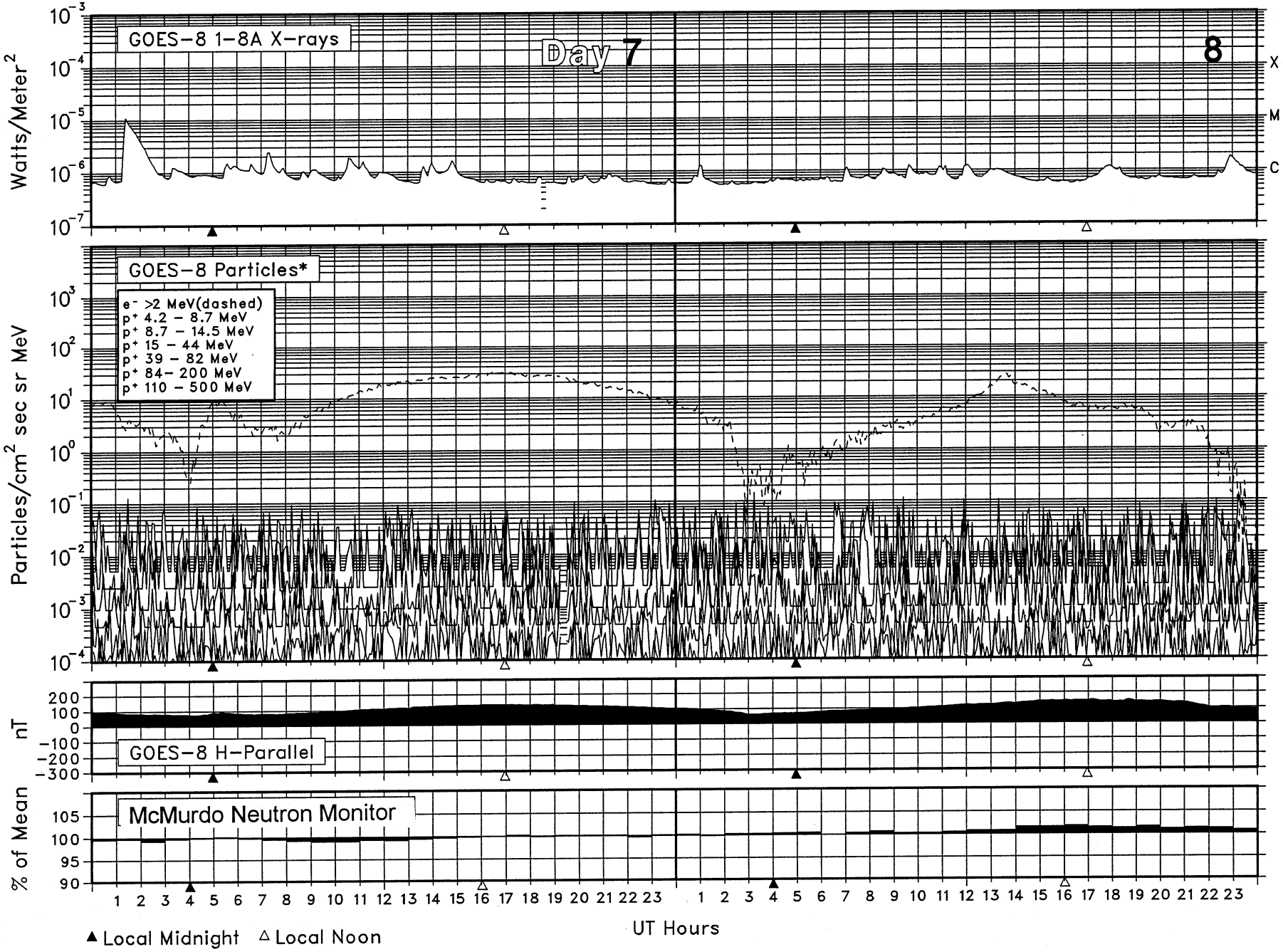
August 2002



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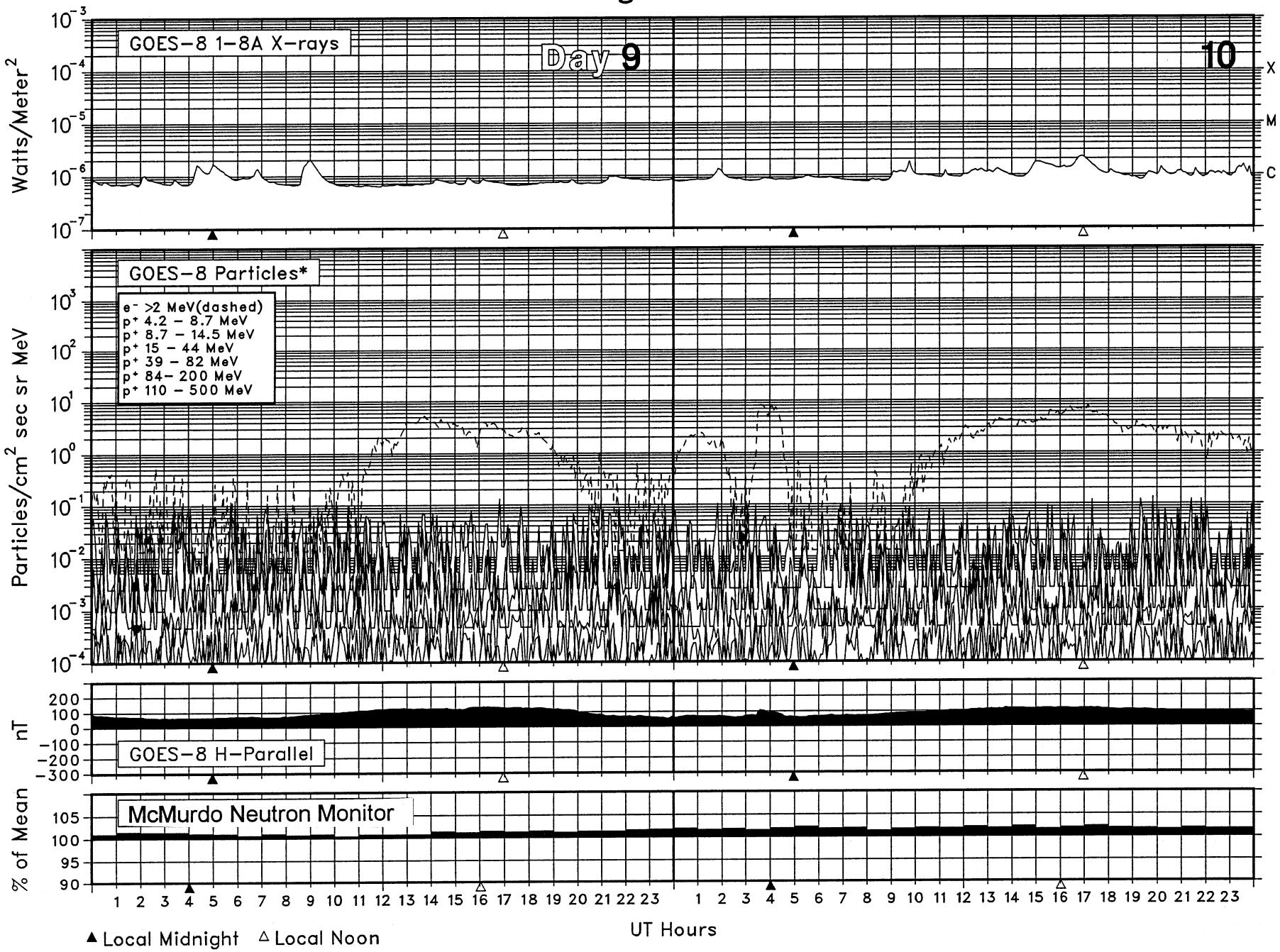

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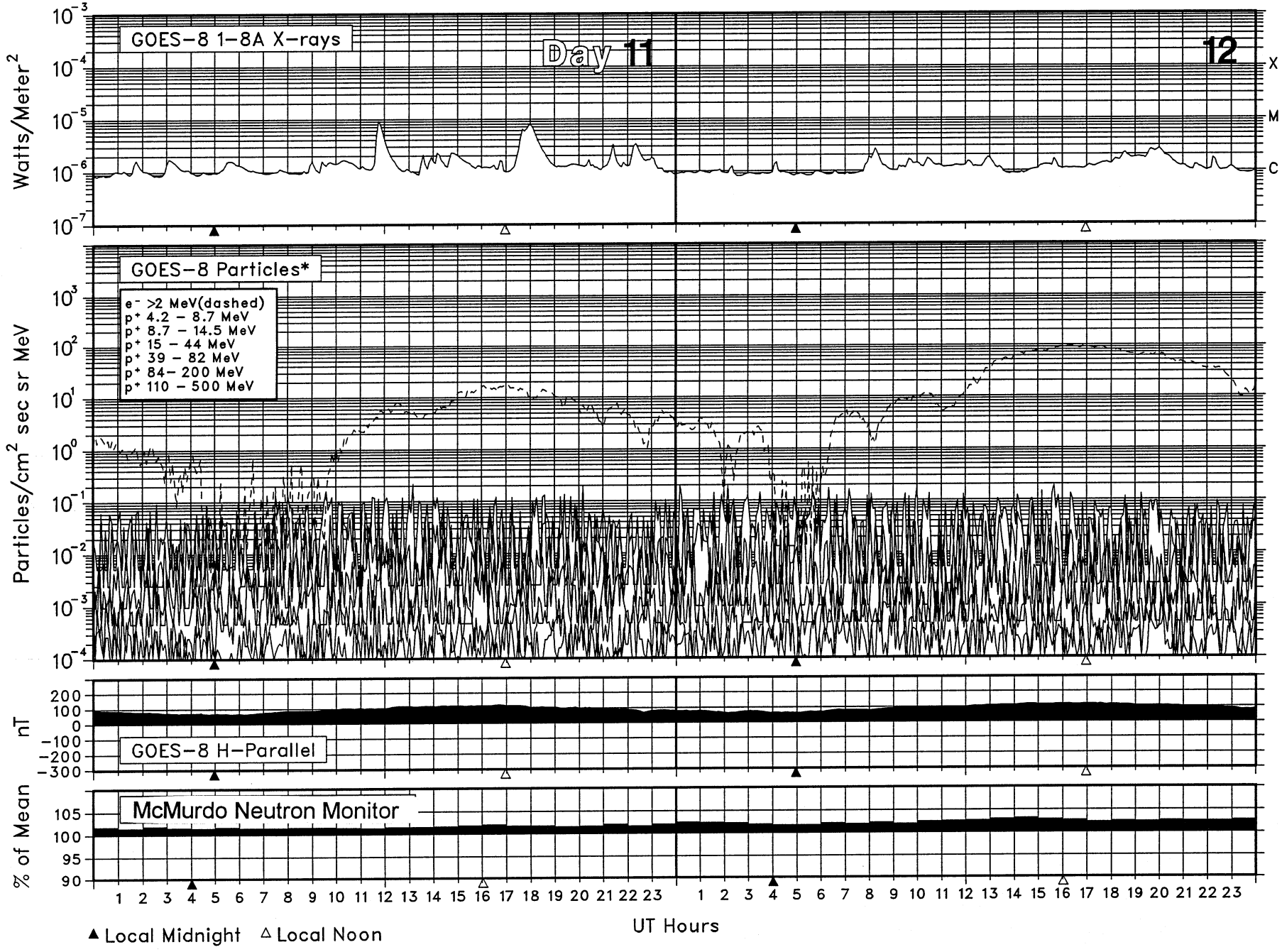

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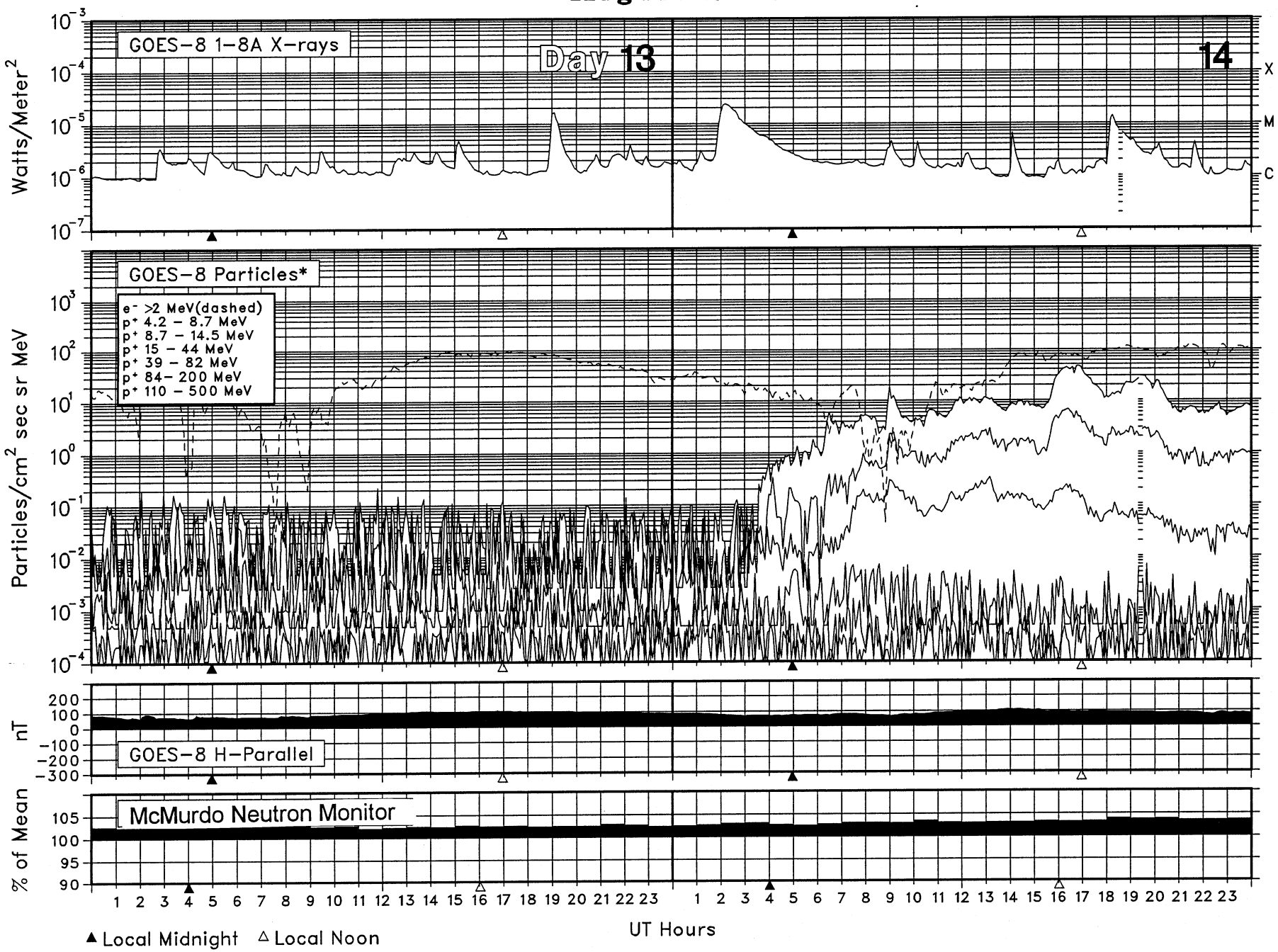

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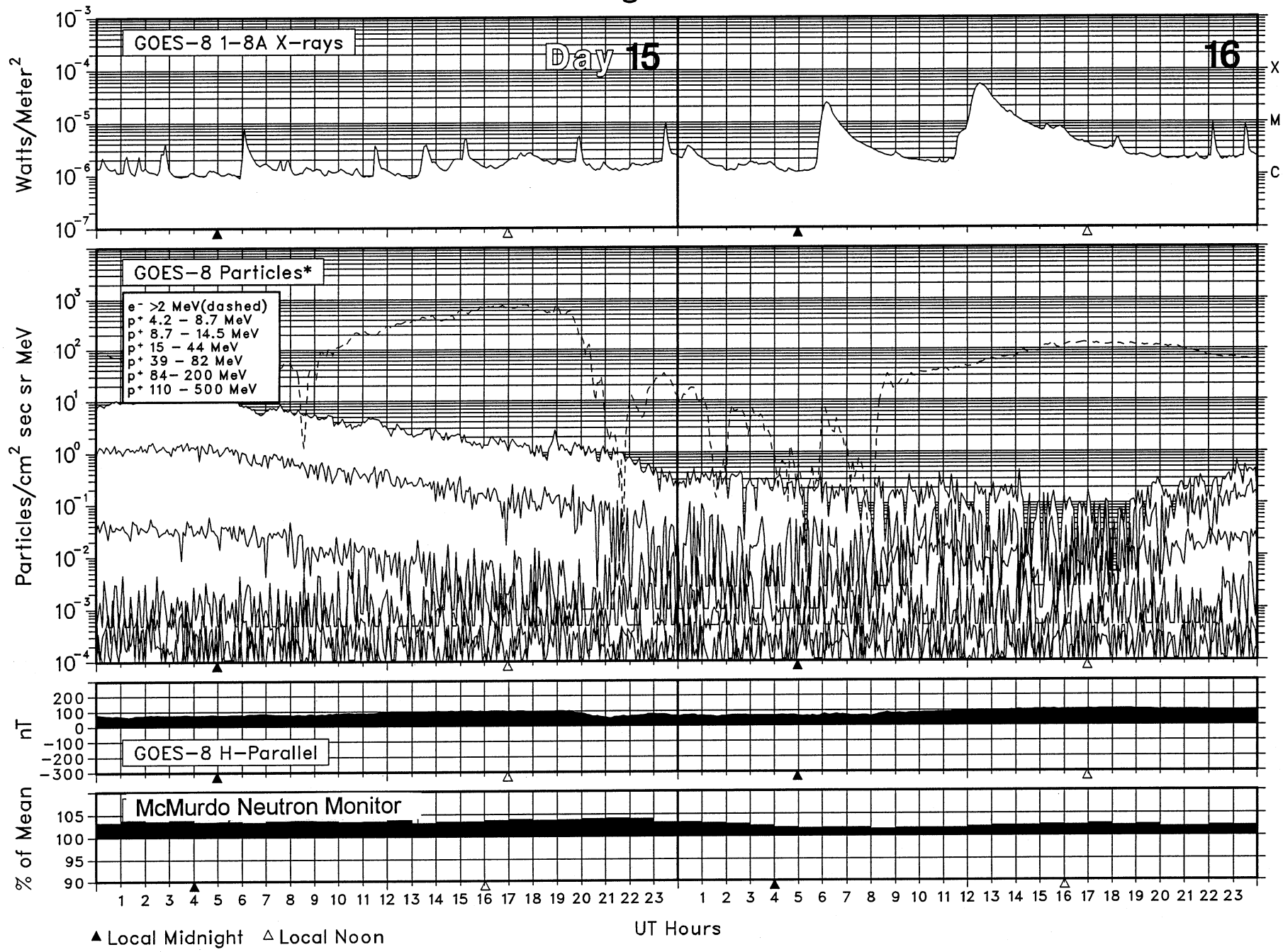

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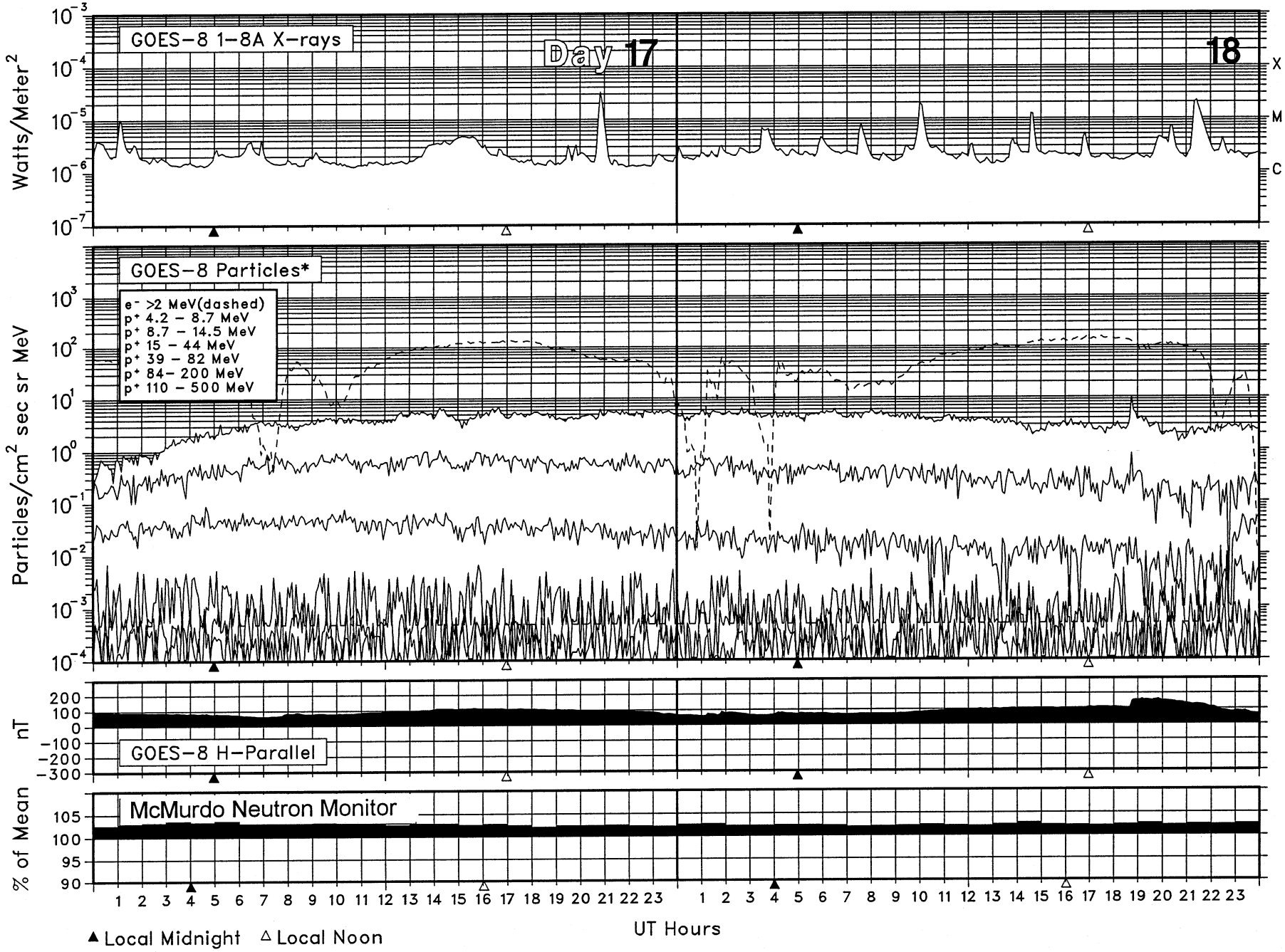

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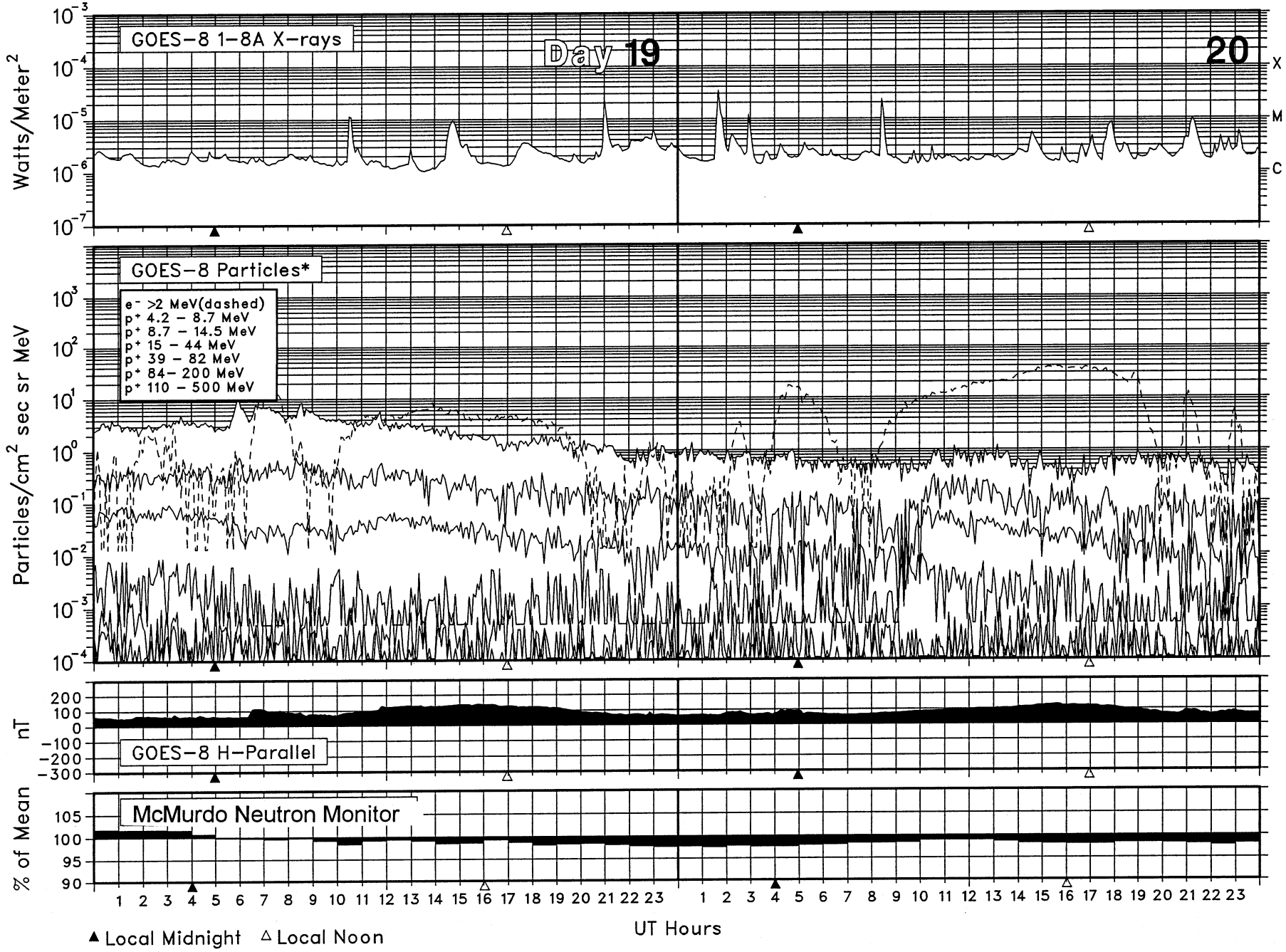
August 2002



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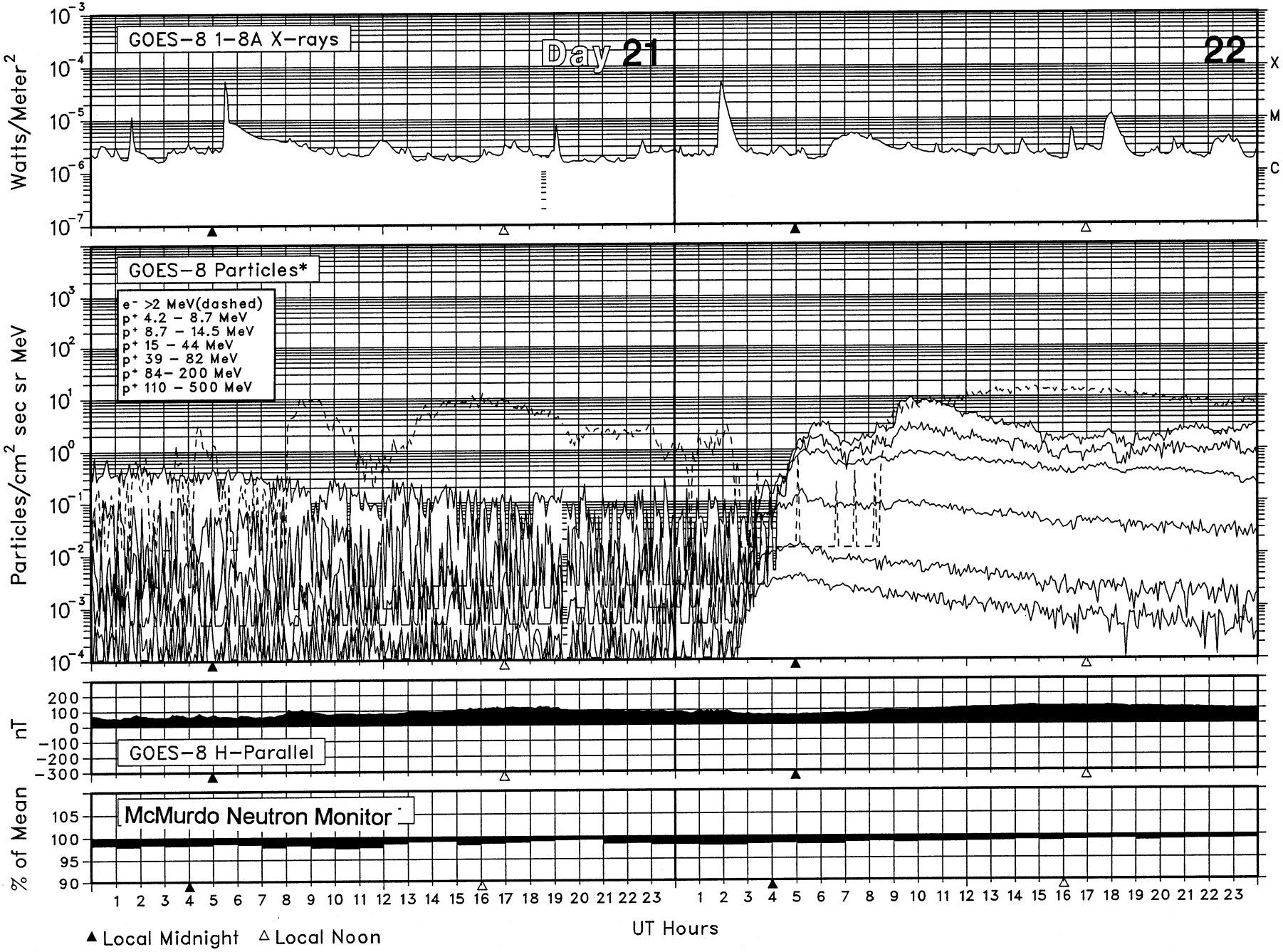

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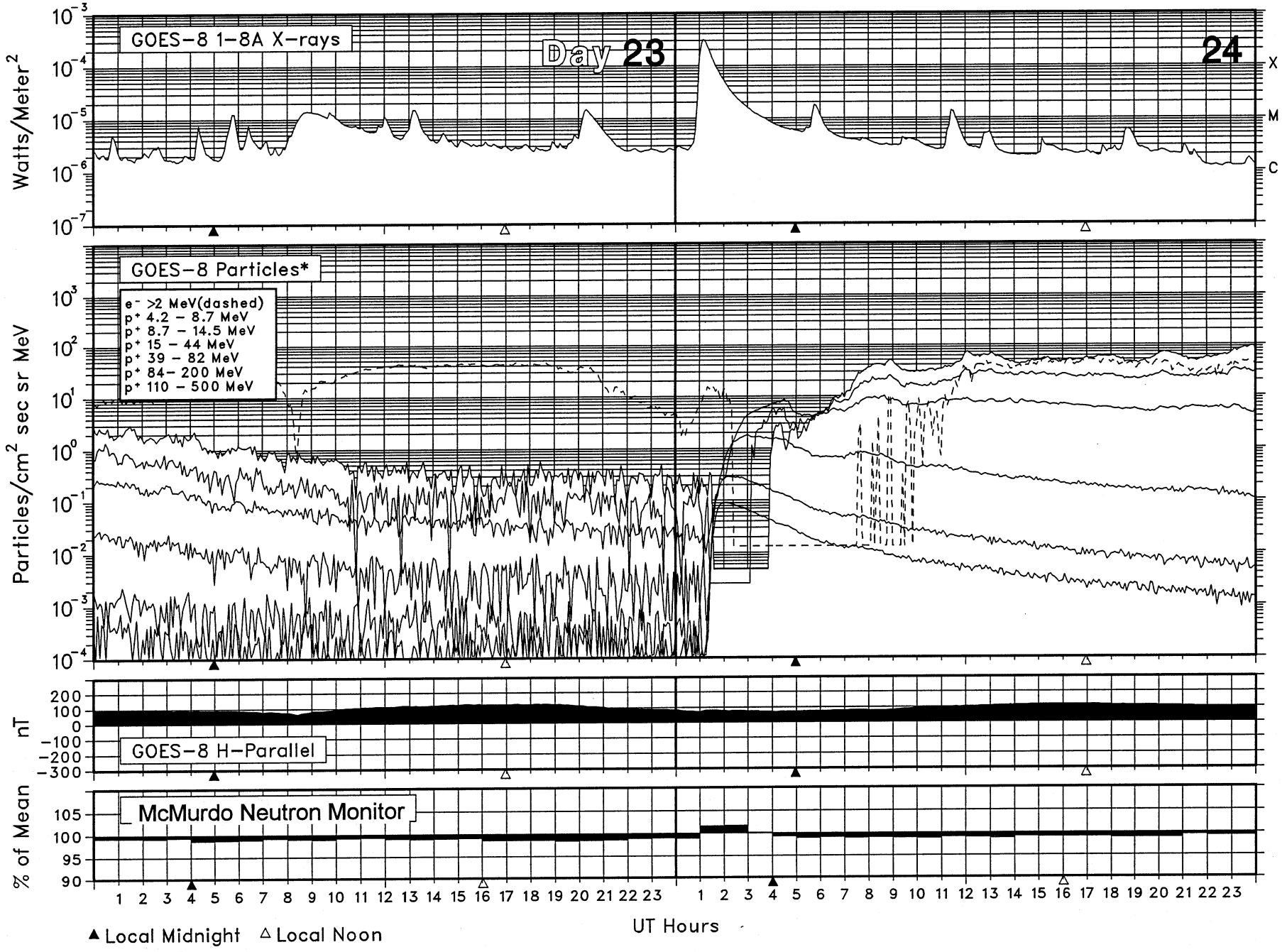

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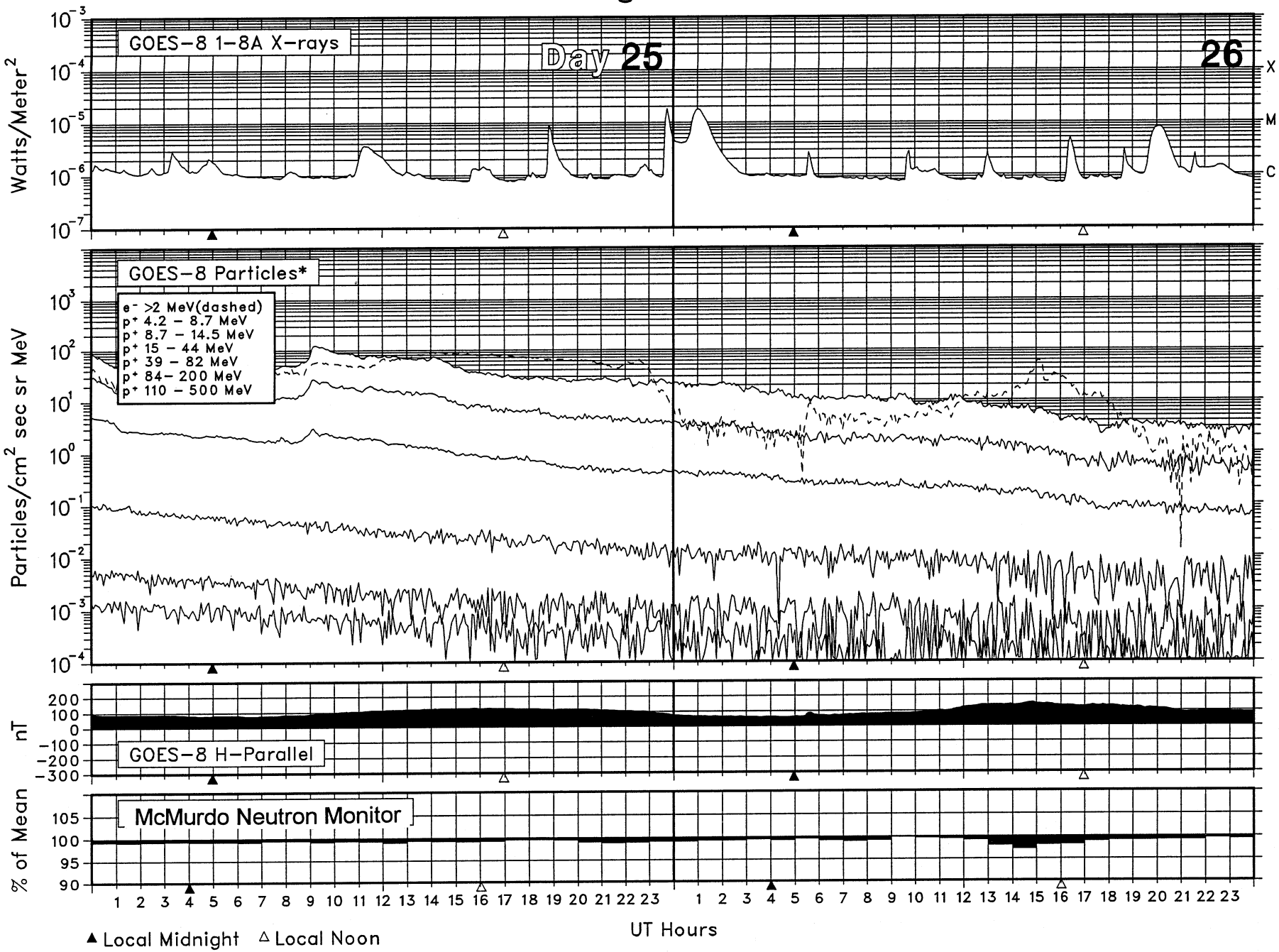

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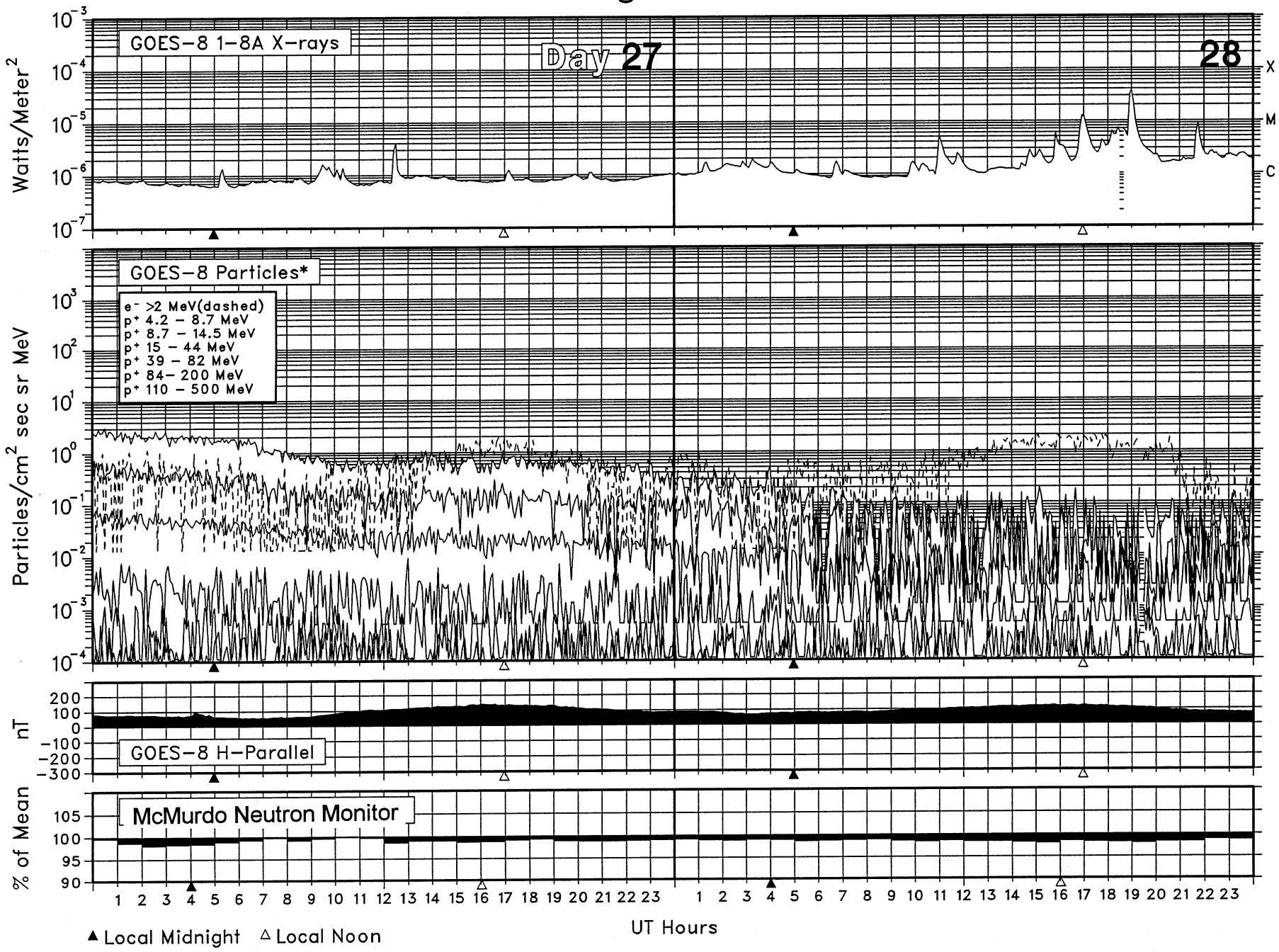

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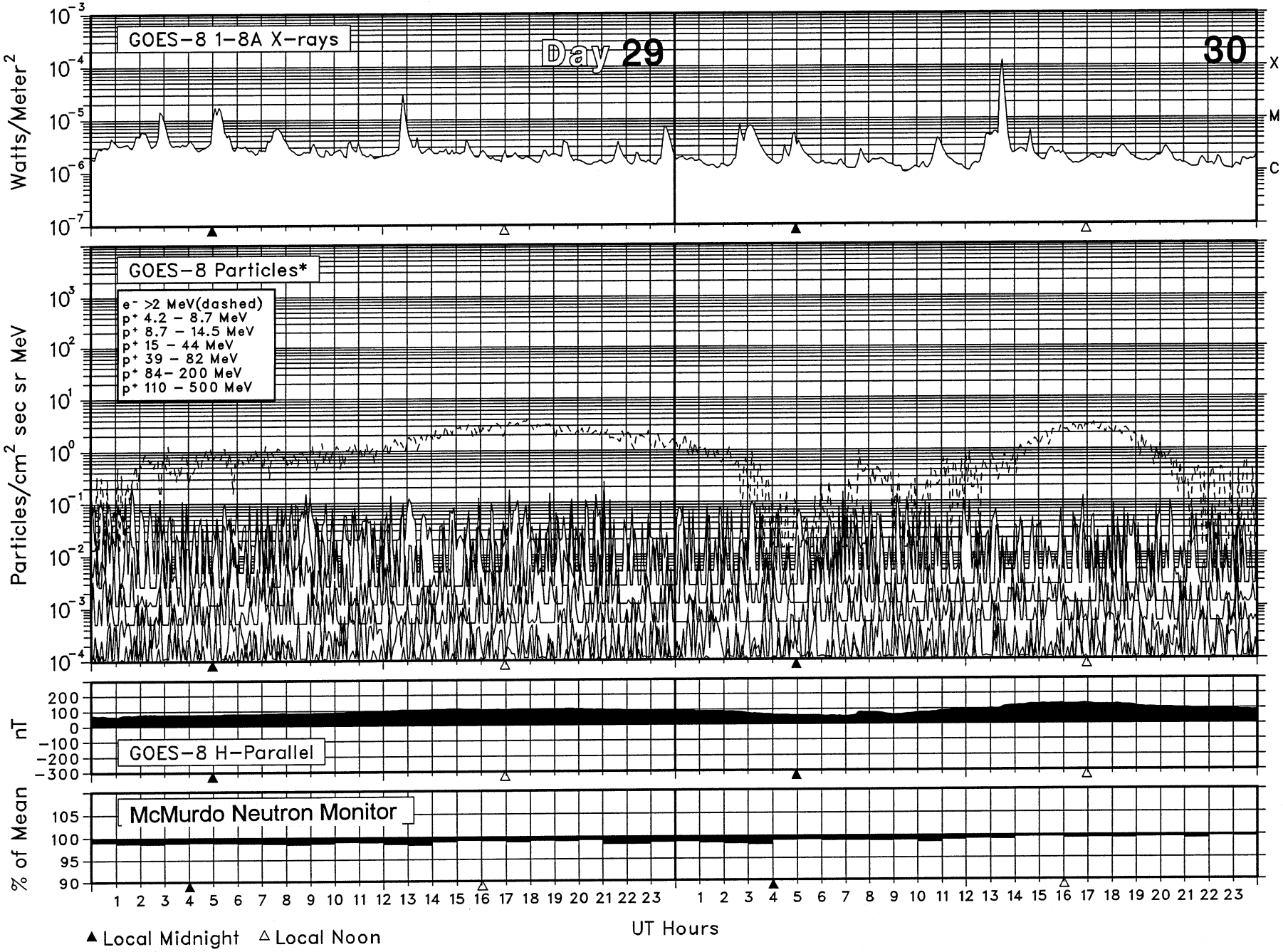

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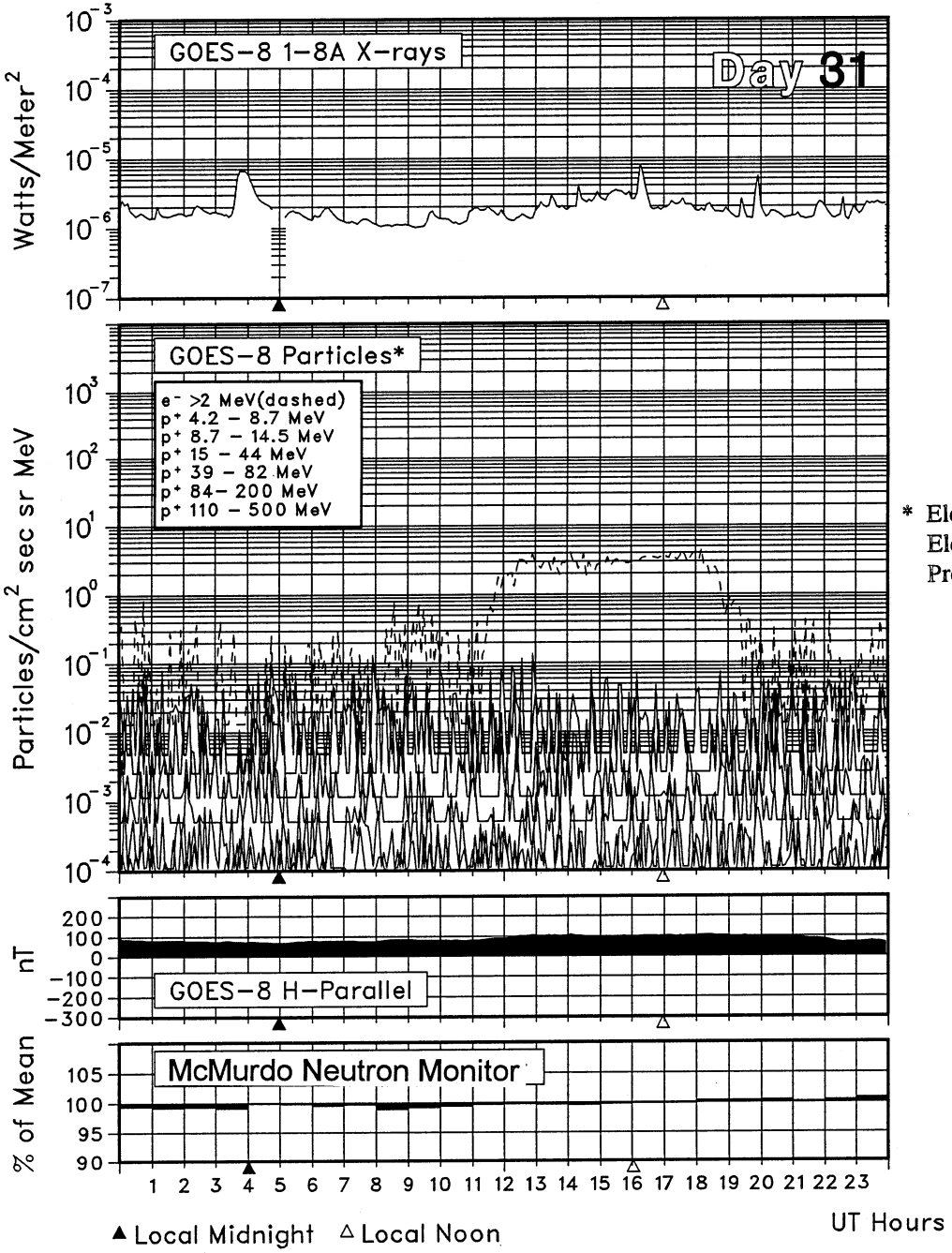

* Electron flux is divided by 10.
Electron units are Counts/cm^2 sec sr.
Protons are corrected for contamination.

A L E R T P E R I O D S
The International Space Environment Service

AUGUST 2002

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
213	01	31	265	209	9	39	S15	W44	2	1	0	01	E	SOL: Active
						43	N12	W53	0	0	0	01	Q	MAG: Quiet
						44	S21	W49	5	0	0	01	E	PRO: Quiet
						48	N19	W14	1	0	0	01	Q	
						50	S08	W32	11	0	0	01	E	
						51	S17	E15	0	0	0	01	Q	
						54	S22	E27	0	0	0	01	Q	
						55	N14	E51	0	0	0	01	Q	
						56	N04	E49	0	0	0	01	Q	
214	02	01	259	193	23	39	S15	W58	7	0	0	02	A	SOL: Active
						43	N13	W66	0	0	0	02	A	MAG: Active
						44	S21	W62	5	0	0	02	A	PRO: Quiet
						50	S08	W45	14	0	0	02	A	
						51	S16	E01	0	0	0	02	A	
						54	S22	E13	0	0	0	02	A	
						55	N14	E38	0	0	0	02	A	
						56	N05	E36	0	0	0	02	A	
						57	S08	E02	0	0	0	02	A	
						58	S05	E72	0	0	0	02	A	
215	03	02	220	180	30	39	S15	W70	9	1	0	03	A	SOL: Active
						44	S21	W76	0	0	0	03	A	MAG: Active
						48	N21	W38	0	0	0	03	A	PRO: Quiet
						50	S08	W59	2	0	0	03	A	
						51	S16	W12	0	0	0	03	A	
						54	S22	W01	0	0	0	03	A	
						55	N15	E26	0	0	0	03	A	
						56	N05	E22	0	0	0	03	A	
						57	S08	W10	3	0	0	03	A	
						58	S07	E57	0	0	0	03	A	
						59	N14	E67	0	0	0	03	A	
216	04	03	218	168	18	39	S16	W83	2	0	1	04	E	SOL: Active
						44	S24	W88	1	0	0	04	E	MAG: Quiet
						50	S08	W73	2	0	0	04	E	PRO: Quiet
						51	S16	W25	0	0	0	04	Q	
						55	N14	E13	0	0	0	04	Q	
						57	S08	W25	7	0	0	04	E	
						58	S06	E43	0	0	0	04	Q	
						59	N15	E54	0	0	0	04	Q	
						60	S28	W26	0	0	0	04	Q	
						61	N08	E77	0	0	0	04	Q	
217	05	04	150	151	15	50	S08	W87	0	0	0	05	E	SOL: Active
						51	S15	W38	0	0	0	05	Q	MAG: Quiet
						55	N13	W01	0	0	0	05	Q	PRO: Quiet
						57	S08	W39	0	0	0	05	E	
						58	S07	E28	0	0	0	05	Q	
						59	N15	E41	0	0	0	05	Q	
						60	S28	W41	0	0	0	05	Q	
						61	N08	E65	0	0	0	05	Q	
218	06	05	144	142	8	51	S16	W51	0	0	0	06	Q	SOL: Eruptive
						55	N14	W16	0	0	0	06	Q	MAG: Quiet
						57	S07	W53	2	0	0	06	E	PRO: Quiet
						58	S06	E15	0	0	0	06	Q	
						59	N15	E28	0	0	0	06	Q	
						60	S27	W52	0	0	0	06	Q	
						61	N07	E53	0	0	0	06	Q	
						62	S05	W23	0	0	0	06	Q	
219	07	06	135	145	5	51	S14	W65	0	0	0	07	Q	SOL: Eruptive
						55	N14	W29	0	0	0	07	Q	MAG: Quiet
						57	S07	W66	3	0	0	07	E	PRO: Quiet
						58	S06	E03	1	0	0	07	Q	
						59	N13	E14	0	0	0	07	Q	

A L E R T P E R I O D S
The International Space Environment Service

AUGUST 2002

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
						61	N08	E41	2	0	0	07	E	
						63	N15	E75	2	0	0	07	E	
220	08	07	141	136	7	51	S16	W77	0	0	0	08	Q	SOL: Eruptive
						55	N12	W44	0	0	0	08	Q	MAG: Quiet
						57	S08	W79	0	1	0	08	E	PRO: Quiet
						58	S06	W08	0	0	0	08	Q	
						59	N13	E00	0	0	0	08	Q	
						61	N09	E27	1	0	0	08	E	
						63	N17	E66	1	0	0	08	E	
						64	S20	E13	0	0	0	08	Q	
221	09	08	150	135	6	51	S15	W91	0	0	0	09	Q	SOL: Eruptive
						55	N13	W58	0	0	0	09	Q	MAG: Quiet
						57	S08	W91	1	0	0	09	E	PRO: Quiet
						58	S06	W22	0	0	0	09	Q	
						59	N13	W15	0	0	0	09	Q	
						61	N08	E14	1	0	0	09	E	
						63	N18	E51	0	0	0	09	E	
						64	S20	W02	0	0	0	09	Q	
						65	S10	E55	0	0	0	09	Q	
222	10	09	164	140	15	58	S07	W35	0	0	0	10	Q	SOL: Eruptive
						59	N14	W26	0	0	0	10	Q	MAG: Active
						61	N08	E00	1	0	0	10	E	PRO: Quiet
						63	N17	E38	0	0	0	10	E	
						64	S20	W14	0	0	0	10	Q	
						65	S09	E41	0	0	0	10	Q	
						66	N14	E70	0	0	0	10	Q	
223	11	10	140	148	14	58	S06	W48	0	0	0	11	Q	SOL: Eruptive
						59	N15	W39	0	0	0	11	Q	MAG: Quiet
						61	N08	W15	0	0	0	11	E	PRO: Quiet
						63	N17	E26	0	0	0	11	Q	
						65	S09	E26	0	0	0	11	Q	
						66	N13	E57	0	0	0	11	Q	
						67	N09	E71	0	0	0	11	Q	
						68	S07	E71	0	0	0	11	Q	
224	12	11	180	172	12	58	S05	W61	1	0	0	12	Q	SOL: Eruptive
						61	N07	W28	2	0	0	12	E	MAG: Quiet
						63	N17	E13	0	0	0	12	Q	PRO: Quiet
						66	N13	E42	1	0	0	12	Q	
						67	N09	E58	0	0	0	12	Q	
						68	S08	E60	0	0	0	12	Q	
						69	S08	E77	1	0	0	12	E	
						70	N05	W05	0	0	0	12	Q	
						71	N11	E68	0	0	0	12	Q	
						72	S18	W23	0	0	0	12	Q	
225	13	12	230	184	13	58	S06	W75	5	0	0	13	Q	SOL: Eruptive
						61	N08	W41	0	0	0	13	Q	MAG: Active
						63	N16	E00	0	0	0	13	Q	PRO: Quiet
						66	N15	E30	0	0	0	13	Q	
						67	N10	E44	0	0	0	13	Q	
						68	S07	E47	0	0	0	13	Q	
						69	S07	E65	0	0	0	13	E	
						70	N08	W16	0	0	0	13	Q	
						71	N11	E56	0	0	0	13	Q	
						72	S18	W35	0	0	0	13	Q	
						73	N16	W13	0	0	0	13	Q	
						74	N24	W01	0	0	0	13	Q	
						75	S09	E32	0	0	0	13	Q	
						76	N12	E75	0	0	0	13	Q	
226	14	13	214	192	13	58	S07	W89	3	0	0	14	Q	SOL: Eruptive
						61	N09	W55	1	0	0	14	Q	MAG: Active

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Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
						63	N18	W14	0	0	0	14	Q	PRO: Quiet
						66	N14	E16	0	0	0	14	Q	
						67	N11	E33	3	0	0	14	Q	
						68	S07	E34	0	0	0	14	Q	
						69	S07	E50	1	1	0	14	E	
						71	N10	E42	0	0	0	14	Q	
						72	S18	W48	0	0	0	14	Q	
						75	S10	E17	0	0	0	14	Q	
						76	N12	E64	0	0	0	14	Q	
						77	S18	E48	0	0	0	14	Q	
227	15	14	254	208	13	61	N08	W69	2	1	0	15	Q	SOL: Active
						63	N18	W26	0	0	0	15	Q	MAG: Active
						65	S07	W26	0	0	0	15	Q	PRO: IP
						66	N13	E03	2	0	0	15	Q	
						67	N11	E20	6	1	0	15	Q	
						68	S08	E21	0	0	0	15	Q	
						69	S08	E37	5	0	0	15	E	
						72	S17	W60	1	0	0	15	Q	
						75	S12	E04	0	0	0	15	Q	
						76	N12	E51	0	0	0	15	Q	
						77	S17	E33	0	0	0	15	Q	
						78	S13	W12	0	0	0	15	Q	
						79	S20	E55	0	0	0	15	Q	
						80	N16	E69	0	0	0	15	Q	
228	16	15	281	210	21	61	N06	W85	0	0	0	16	Q	SOL: Active
						63	N17	W39	1	0	0	16	Q	MAG: Active
						66	N14	W10	1	1	0	16	Q	PRO: Quiet
						67	N12	E07	0	0	0	16	Q	
						68	S07	E07	0	0	0	16	Q	
						69	S07	E24	6	1	0	16	E	
						72	S18	W78	0	0	0	16	Q	
						75	S11	W11	0	0	0	16	Q	
						76	N12	E38	0	0	0	16	Q	
						78	S13	W26	4	0	0	16	Q	
						79	S19	E42	0	0	0	16	Q	
						80	N16	E55	0	0	0	16	Q	
229	17	16	247	214	19	61	N06	W98	1	1	0	17	Q	SOL: Active
						63	N17	W51	0	0	0	17	Q	MAG: Active
						66	N14	W23	1	1	0	17	E	PRO: Quiet
						67	N12	W06	0	0	0	17	E	
						68	S07	W06	2	0	0	17	Q	
						69	S07	E11	7	2	0	17	E	
						72	S18	W91	0	0	0	17	Q	
						76	N12	E25	0	0	0	17	Q	
						78	S13	W39	1	0	0	17	Q	
						79	S19	E29	0	0	0	17	Q	
						80	N16	E42	0	0	0	17	Q	
						81	N17	E61	0	0	0	17	Q	
230	18	17	270	227	11	63	N18	W62	0	0	0	18	Q	SOL: Active
						66	N13	W36	2	0	0	18	Q	MAG: Minor
						67	N12	W20	0	0	0	18	E	PRO: Warning
						68	S08	W20	1	0	0	18	Q	
						69	S07	W03	18	1	0	18	E	
						76	N12	E11	0	0	0	18	Q	
						78	S14	W53	0	0	0	18	Q	
						79	S21	E18	1	0	0	18	Q	
						80	N16	E30	0	0	0	18	Q	
						81	N17	E47	1	0	0	18	Q	
						82	N21	E06	0	0	0	18	Q	
						83	S18	E67	1	1	0	18	Q	
231	19	18	308	241	15	63	N18	W75	0	0	0	19	Q	SOL: Active
						66	N14	W48	3	0	0	19	Q	MAG: Minor

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Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
						67	N12	W34	0	0	0	19	Q	PRO: Warning
						68	S08	W39	0	0	0	19	Q	
						69	S08	W18	12	3	0	19	E	
						76	N12	W02	0	0	0	19	Q	
						79	S22	E04	6	0	0	19	E	
						80	N16	E17	0	0	0	19	Q	
						81	N18	E34	0	0	0	19	Q	
						82	N20	W07	0	0	0	19	Q	
						83	S18	E52	3	0	0	19	Q	
						84	S16	E64	0	0	0	19	Q	
232	20	19	247	237	22	63	N17	W88	0	0	0	20	Q	SOL: Active
						66	N14	W60	1	0	0	20	Q	MAG: Active
						67	N10	W48	0	0	0	20	Q	PRO: Quiet
						68	S08	W53	0	0	0	20	Q	
						69	S08	W30	12	2	0	20	E	
						76	N12	W15	0	0	0	20	Q	
						79	S22	W08	3	0	0	20	E	
						80	N16	E03	0	0	0	20	Q	
						83	S18	E36	0	0	0	20	Q	
						84	S16	E50	1	0	0	20	Q	
						85	S11	E69	0	0	0	20	Q	
233	21	20	209	228	15	66	N15	W73	2	0	0	21	Q	SOL: Active
						67	N10	W62	0	0	0	21	Q	MAG: Quiet
						69	S08	W44	15	3	0	21	E	PRO: Quiet
						76	N13	W29	0	0	0	21	Q	
						79	S22	W22	1	0	0	21	E	
						80	N16	W10	0	0	0	21	Q	
						83	S17	E25	1	0	0	21	Q	
						84	S17	E39	0	0	0	21	Q	
						85	S11	E56	3	1	0	21	Q	
234	22	21	238	220	34	66	N15	W85	0	0	0	22	Q	SOL: Active
						67	N11	W73	1	0	0	22	Q	MAG: Active
						69	S08	W58	13	1	1	22	E	PRO: Warning
						71	N10	W68	0	0	0	22	Q	
						76	N13	W43	0	0	0	22	Q	
						79	S22	W35	0	0	0	22	E	
						80	N15	W23	0	0	0	22	Q	
						83	S18	E11	2	0	0	22	Q	
						84	S16	E26	1	0	0	22	Q	
						85	S11	E42	1	0	0	22	Q	
235	23	22	205	220	9	67	N10	W84	0	0	0	23	Q	SOL: Active
						69	S07	W71	12	1	0	23	E	MAG: Active
						79	S21	W52	5	0	0	23	E	PRO: No Fcst
						80	N15	W33	1	0	0	23	Q	
						83	S18	W03	1	0	0	23	E	
						84	S17	E12	0	0	0	23	Q	
						85	S10	E29	7	0	0	23	E	
						86	S21	E29	0	0	0	23	Q	
						87	S07	E74	3	1	0	23	E	
236	24	23	207	210	10	67	N11	W92	0	0	0	24	Q	SOL: Active
						69	S08	W85	21	2	0	24	E	MAG: Quiet
						79	S21	W65	1	0	0	24	E	PRO: Quiet
						80	N14	W45	0	0	0	24	Q	
						83	S19	W15	6	1	0	24	E	
						84	S15	E00	3	0	0	24	Q	
						85	S09	E16	4	1	0	24	E	
						86	S23	E17	0	0	0	24	Q	
						87	S07	E60	7	1	0	24	E	
						88	S22	W28	1	0	0	24	Q	
237	25	24	199	196	7	69	N08	W95	1	0	1	25	P	SOL: Active
						79	S22	W82	1	0	0	25	Q	MAG: Active

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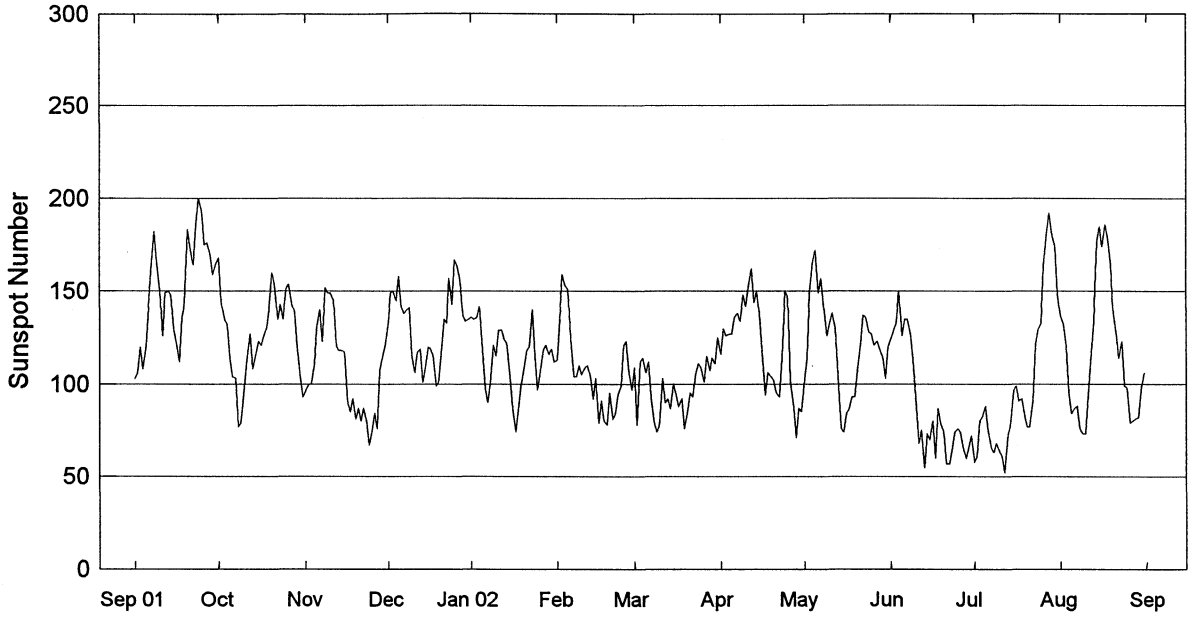
Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
						83	S18	W27	2	0	0	25	E	PRO: IP
						84	S16	W12	0	0	0	25	Q	
						85	S09	E03	4	0	0	25	E	
						86	S26	E02	0	0	0	25	Q	
						87	S07	E47	2	1	0	25	E	
						88	S22	W41	0	0	0	25	E	
						89	S16	E62	0	0	0	25	Q	
238	26	25	136	179	8	80	N14	W70	2	0	0	26	Q	SOL: Active
						83	S17	W41	2	2	0	26	E	MAG: Active
						84	S16	W26	0	0	0	26	Q	PRO: IP
						85	S08	W09	0	0	0	26	Q	
						87	S07	E34	0	0	0	26	E	
						88	S23	W54	1	0	0	26	Q	
						89	S16	E47	0	0	0	26	Q	
239	27	26	105	169	21	80	N12	W83	0	0	0	27	Q	SOL: Active
						83	S19	W56	3	1	0	27	E	MAG: Active
						84	S17	W39	0	0	0	27	Q	PRO: Quiet
						85	S09	W19	6	0	0	27	E	
						87	S08	E21	0	0	0	27	E	
						88	S23	W68	0	0	0	27	Q	
						90	S03	E48	0	0	0	27	Q	
240	28	27	133	161	14	83	S18	W71	1	0	0	28	E	SOL: Eruptive
						84	S17	W53	0	0	0	28	Q	MAG: Quiet
						85	S08	W37	0	0	0	28	E	PRO: Quiet
						87	S08	E06	1	0	0	28	E	
						88	S22	W83	0	0	0	28	Q	
						90	S04	E33	0	0	0	28	Q	
						91	N06	E37	0	0	0	28	Q	
						92	S19	E04	0	0	0	28	Q	
241	29	28	87	163	10	83	S18	W84	4	1	0	29	E	SOL: Eruptive
						84	S17	W66	0	0	0	29	Q	MAG: Quiet
						85	S08	W50	0	0	0	29	E	PRO: Quiet
						87	S08	W07	0	0	0	29	E	
						90	S04	E20	2	1	0	29	E	
						92	S19	W09	0	0	0	29	Q	
242	30	29	146	169	8	84	S17	W79	0	0	0	30	Q	SOL: Active
						85	S08	W63	1	0	0	30	Q	MAG: Quiet
						87	S08	W20	3	0	0	30	E	PRO: Quiet
						90	S04	E07	1	0	0	30	Q	
						92	S19	W22	0	0	0	30	Q	
						93	S16	E13	0	0	0	30	Q	
						94	S17	E67	3	0	0	30	Q	
						95	N07	E76	5	1	0	30	E	
243	31	30	150	170	10	85	S08	W76	1	0	0	31	Q	SOL: Active
						87	S08	W33	3	0	0	31	E	MAG: Quiet
						90	S04	W06	0	0	0	31	Q	PRO: Quiet
						92	S19	W35	1	0	0	31	Q	
						94	S17	E54	0	0	0	31	Q	
						95	N07	E65	10	0	1	31	E	
						96	S14	E75	0	0	0	31	Q	

STRATWARM ALERTS - NONE

International Relative Sunspot Numbers
Sep 2001 - Aug 2002

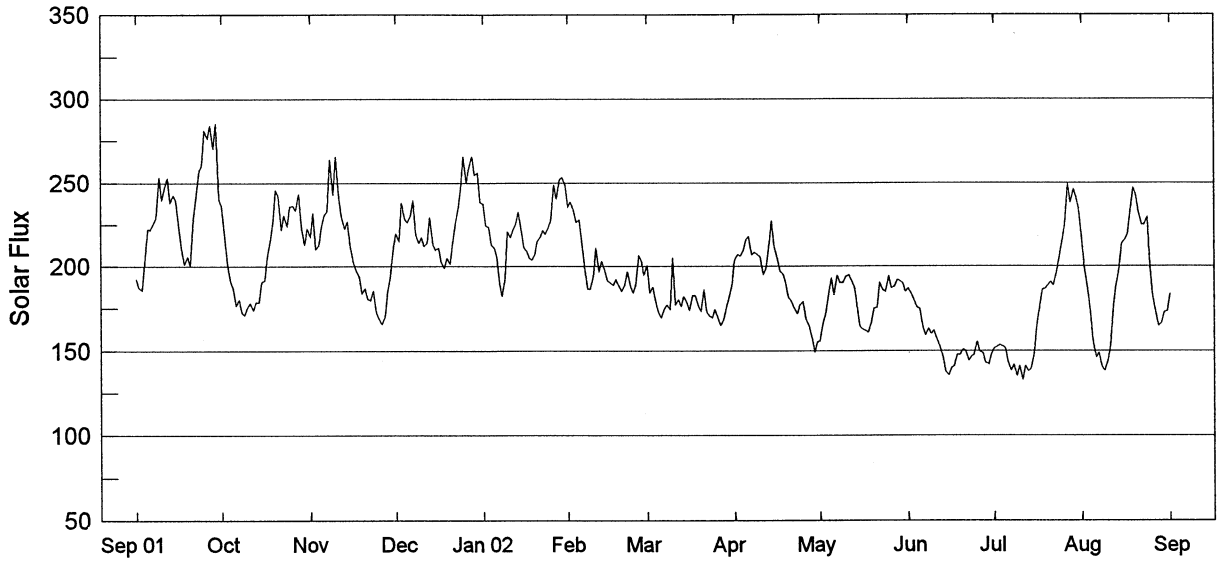


Day	Sep 01	Oct	Nov	Dec	Jan 02	Feb	Mar	Apr	May	Jun	Jul*	Aug*
1	103	168	96	133	136	113	109	116	102	124	58	137
2	106	144	100	149	135	135	78	130	114	129	61	132
3	120	135	100	150	136	159	112	126	149	133	80	121
4	108	132	111	145	142	153	114	127	166	150	82	95
5	120	114	130	158	118	151	106	127	172	126	88	84
6	141	104	140	142	98	125	112	136	149	135	75	87
7	166	103	123	138	90	104	93	138	157	135	66	88
8	182	77	152	140	100	104	79	134	142	127	63	76
9	166	79	149	141	121	110	74	148	126	113	68	73
10	150	98	149	115	115	105	78	142	133	88	64	73
11	126	113	145	106	129	109	103	152	138	68	61	99
12	149	127	121	117	129	110	90	162	130	75	52	117
13	150	108	118	119	124	104	92	144	104	55	72	134
14	148	115	118	101	122	92	87	150	76	73	78	177
15	130	123	117	108	104	103	100	138	74	70	96	185
16	121	121	90	120	87	79	94	113	84	80	99	174
17	112	126	85	119	74	91	88	94	86	60	91	186
18	136	131	92	115	86	80	92	106	93	87	92	179
19	143	143	81	99	99	78	76	104	93	79	83	164
20	183	160	87	101	109	95	85	102	107	74	77	140
21	173	154	80	120	118	81	95	95	121	57	77	127
22	164	135	87	135	120	84	93	93	137	57	91	114
23	186	143	80	133	140	94	106	114	136	65	121	123
24	200	135	67	157	115	99	111	150	128	74	129	99
25	193	151	73	143	97	121	109	147	127	76	133	98
26	175	154	84	167	106	123	101	101	121	74	164	79
27	176	143	76	164	118	107	115	88	123	66	182	80
28	170	139	107	156	121	97	107	71	119	60	192	81
29	159	120	115	137	116		114	87	114	66	181	82
30	165	103	121	134	119		111	85	103	72	174	97
31		93		135	112		125		120		148	106
Mean	150.7	125.5	106.5	132.2	114.1	107.4	98.4	120.7	120.8	88.3	99.9	116.4

* = Provisional.

Penticton 2800 MHz (10.7cm) Solar Flux
Sep 2001 - Aug 2002

Adjusted to 1 AU



Day	Sep 01	Oct	Nov	Dec	Jan 02	Feb	Mar	Apr	May	Jun	Jul	Aug
1	187.4	216.9	232.0	215.1	224.5	238.5	184.3	206.7	164.9	183.9	152.3	198.3
2	185.7	201.1	210.1	238.1	223.5	233.7	187.6	205.9	171.7	180.0	153.5	185.7
3	202.1	191.8	212.5	228.3	213.0	226.3	179.6	209.4	182.0	175.4	152.4#	172.7
4	222.1	186.5	223.5	226.6	211.0	228.1	172.0	216.3	192.7	174.7	151.3	155.3
5	221.8	176.8	230.6	230.1	205.2	214.5	169.4	217.6	183.2	163.7	143.5	146.0
6	225.6	180.2	233.2	239.5	190.1	196.9	175.0	206.7	194.3	159.1	138.0	148.8
7	229.5	172.4	263.9	219.3	182.4	186.6	177.0	208.4	190.3	163.1	141.5	140.1
8	253.1	170.8	243.1	213.9	192.6	186.4	174.2	206.8	190.2	159.9	135.3	138.3
9	239.5	175.9	265.6	217.5	220.9	194.1	204.8x	205.8	193.7	161.9	140.9	144.0
10	247.8	178.1	241.0	212.3	217.3	210.9	176.9	195.1	194.8	156.2	133.1	152.4
11	252.9	174.1	229.3	213.9	221.4	196.6	180.0	198.3	191.8	152.4	141.0	176.9
12	238.1	178.5	222.6	229.4	225.7	203.1	176.2	213.0	187.1	146.2	137.7	188.8
13	242.6	178.6	226.8	213.4	232.9	198.5	182.1	227.3	175.6	137.6	139.4	196.8
14	239.3	190.8	212.6	209.9#	221.6	191.3	178.6	211.6	164.2	135.6	148.6	213.5
15	221.7	191.7	202.4	211.0	211.2	190.3	174.0	204.7	162.7	139.7	164.8#	215.7
16	209.3	205.8	197.6	202.5	209.1	188.9	182.7	197.2	162.0	141.0	177.2	219.1
17	201.1	215.8	194.0	199.0	205.0	192.0	182.7	195.0	160.7	147.5	185.9	232.3
18	205.7	226.9	183.8	205.0	203.8	188.4	176.5	189.8	166.8	147.5	186.6	246.9
19	200.6	245.6	186.8	201.6	206.9	185.1	173.3	181.4	175.0	150.5	188.3	242.6
20	228.7	242.5	180.6	214.0	215.2	189.1	186.3	179.0	175.4	149.8	190.7	232.8
21	240.5	222.0	179.7	226.7	217.5	196.7	172.8	175.1	190.4	144.2	188.7	225.0
22	257.0	230.4	185.3#	234.9	221.5	187.9	170.4	171.7	185.6	146.6	195.8	225.1
23	260.2	224.1	172.9	246.3	219.4	184.2	169.4	177.2	184.8	147.5	204.6	229.5
24	281.0	236.0	168.6	265.5	223.6	188.9	174.3	178.9	193.9	155.3	215.0	199.8
25	276.6	236.1	165.6	250.3	227.6	206.4	169.1	169.3	187.4	149.5	224.5	182.4
26	284.0	233.6	170.3	259.0	248.7	203.5	164.9	164.7	188.0	148.6	249.1	172.2
27	270.6	243.4	185.3	265.6	240.5	194.9	168.4	159.0	191.6	143.2	238.0	164.7
28	285.5	224.2	193.1	254.6#	252.0	200.4	175.6	149.2	191.4	141.9	246.2	166.4
29	240.2	212.8	210.5	255.7	253.2		180.8	155.2	189.8	147.5	241.1	172.6
30	236.3	222.7	219.6	238.5	248.8		188.2	155.6	185.1	151.4	234.1	173.5#
31		217.8		237.5	235.5		204.0		187.0		214.8	183.7
Mean	236.2	206.6	208.1	228.2	220.1	200.1	178.4	191.1	182.4	153.4	179.2	188.4

NOTE: # 1700 or1800UT reading - burst in progress (IP) at 2000UT; x Burst IP at 2000UT.

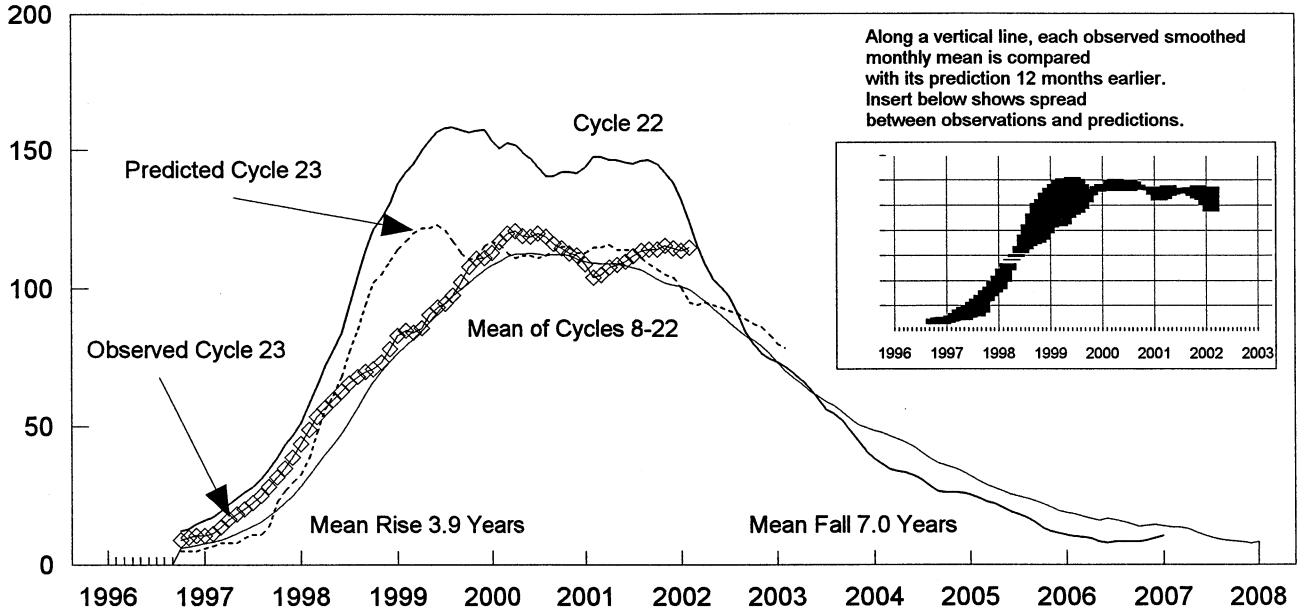
DAILY SOLAR INDICES

August 2002

Day	Day of Year	Bartels Cycle Day	Sunspot Numbers Int	Sunspot Numbers Amer	Obs Flux Penticton (2800)	SGMR (15400)	-----Solar Flux Adjusted to 1 Astronomical Unit-------- SGMR (8800)	SGMR (4995)	Penticton (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
1	213	5	137	147	192.6	586	356	244	198.3	200	141	57	40	40
2	214	6	132	128	180.3	584	340	240	185.7	175	118	55	51	95
3	215	7	121	123	167.8	588	326	199	172.7	164	111	55	43	46
4	216	8	95	96	150.9	574	321	186	155.3	153	105	51	38	35
5	217	9	84	88	141.9	553	311	170	146.0	139	100	46	31	22
6	218	10	87	98	144.6	567	312	179	148.8	134	98	46	32	33
7	219	11	88	96	136.2	563	300	176	140.1	128	100	52	38	30
8	220	12	76	69	134.6	566	306	177	138.3	131	97	48	34	32
9	221	13	73	70	140.1	552	304	194	144.0	138	102	53	37	52
10	222	14	73	82	148.4	568	312	200	152.4	144	107	51	34	28
11	223	15	99	104	172.3	592	338	211	176.9	162	118	55	36	29
12	224	16	117	136	183.9	583	364	238	188.8	177	126	56	34	23
13	225	17	134	138	191.8	577	387	251	196.8	187	133	59	36	22
14	226	18	177	180	208.1	601	411	276	213.5	197	138	62	37	20
15	227	19	185	191	210.3	598	409	270	215.7	213	143	60	37	20
16	228	20	174	175	213.8	611	456	296	219.1	219	153	88	157	---
17	229	21	186	182	226.7	621	479	306	232.3	219	146	64	70	---
18	230	22	179	171	241.0	602	457	306	246.9	239	153	64	40	36
19	231	23	164	158	237.0	609	432	295	242.6	233	151	63	41	32
20	232	24	140	133	227.5	628	460	298	232.8	215	150	59	46	47
21	233	25	127	120	219.9	619	418	288	225.0	218	152	116	52	95
22	234	26	114	117	220.1	615	422	293	225.1	208	151	70	60	49
23	235	27	123	117	224.5	603	419	279	229.5	214	163	72	64	---
24	236	1	99	104	195.6	572	397	255	199.8	198	143	62	53	76
25	237	2	98	93	178.6	575	377	235	182.4	175	129	57	42	35
26	238	3	79	84	168.6	568	353	216	172.2	162	121	52	54	55
27	239	4	80	76	161.4	569	359	214	164.7	155	115	57	40	41
28	240	5	81	79	163.2	568	359	212	166.4	159	113	53	36	29
29	241	6	82	82	169.3	497	320	199	172.6	171	113	51	36	35
30	242	7	97	102	170.2#	588	366	219	173.5#	167	115	57	37	20
31	243	8	106	111	180.3	644	436	253	183.7	184	231	---	48	---
MEAN			116.4	117.7	183.9	585	374	237	188.4	179	130	60	46	39

The International and American sunspot numbers shown are preliminary values.
NOTE: Radio flux values are from Sagamore Hill, Massachusetts, USA.
- 1700UT reading, burst in progress at 2000UT.

Cycle 23 Smoothed Sunspot Numbers: Observed and Predicted



Smoothed Sunspot Numbers (Observed and Predicted) for Parts of Solar Cycles 22 and 23

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
1994	37	35	34	34	33	31	29	27	27	27	26	26	31
1995	24	23	22	21	19	18	17	15	13	12	11	11	17
1996	10	10	10	9	8*	9	8	8	8	9**	10	10	8
1997	11	11	14	17	18	20	23	25	28	32	35	39	23
1998	44	49	53	57	59	63	65	68	69	71	73	78	62
1999	83	85	84	85	90	93	94	98	102	108	111	111	95
2000	113	117	120	121+	119	119	120	119	116	115	113	112	107
2001	109	104	105	108	109	110	112	114	114	114	115	115	111
2002	114	115	112	109	106	103	101	98	94	92	87	85	101
			(4)	(7)	(10)	(11)	(11)	(11)	(12)	(14)	(14)	(12)	(9)
2003	81	78	75	73	70	67	65	63	61	58	56	55	67
	(10)	(10)	(10)	(11)	(11)	(12)	(12)	(13)	(14)	(15)	(17)	(19)	(13)

Solar Cycle 22 | Solar Cycle 23 | Min, Max, and Predic

*** May 1996 marks Cycle 22's mathematical minimum. ** October 1996 marks the consensus minimum**

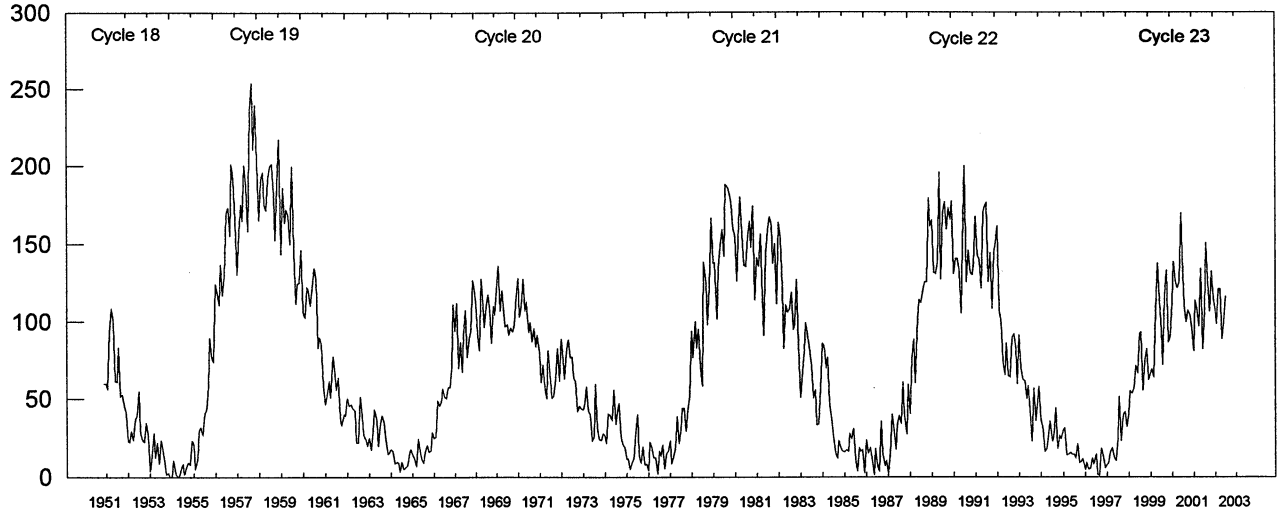
+ April 2000 marks Cycle 23 maximum.

Observed and Predicted Numbers. For the end of Cycle 22, and the rise and decline of Cycle 23, the table above lists observed smoothed sunspot numbers up to the one that includes the most recent monthly mean. We based these smoothed values on final monthly means through June 2002 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 Jul 1987 supplement to *Solar-Geophysical Data.*) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval. Subtracting the number from the predicted value generates the lower limit. Consider, for example, the February 2003 prediction. There exists a 90% chance that in February 2002, the actual smoothed number will fall somewhere between 68 and 88.

Points to Ponder. The McNish-Lincoln prediction method generates useful estimates of smoothed, monthly mean sunspot numbers for no more than 12 months ahead. Beyond 12 months, the predictions regress toward the mean of all 15 cycles of observations used in the computation. Moreover, the method remains very sensitive to the date defining the onset of the current cycle, that is, to the date of the most recent sunspot minimum. The new cycle predictions tabulated above are based on the consensus minimum value of 8.8 that occurred in October 1996.

Note: Please visit http://www.sec.noaa.gov for solar minimum and Cycle 23 discussions.

Mean Monthly Sunspot Numbers
Jan 1951 - Aug 2002



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8	69.4
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3	31.5
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5	13.9
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6	4.4 m
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9	38.0
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1	141.7
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4	190.2 M
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6	184.8
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0	159.0
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6	122.3
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.8	63.6	37.7	32.6	39.9	53.9
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2	37.6
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9	27.9
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1	10.2 m
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0	15.1
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4	47.0
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4	93.8
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8	105.9 M
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9	105.5
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5	104.5
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2	66.6
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3	68.9
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3	38.0
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5	34.5
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8	15.5
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3	12.6 m
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	27.5
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	92.5
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	155.4 M
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4	154.6
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	140.4
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.7	98.1	127.0	115.9
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.8	33.3	33.4	66.6
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7	45.9
1985	16.5	15.9	17.2	16.2	27.5	24.2	30.7	11.1	3.9	18.6	16.2	17.3	17.9
1986	2.5	23.2	15.1	18.5	13.7	1.1	18.1	7.4	3.8	35.4	15.2	6.8	13.4 m
1987	10.4	2.4	14.7	39.6	33.0	17.4	33.0	38.7	33.9	60.6	39.9	27.1	29.4
1988	59.0	40.0	76.2	88.0	60.1	101.8	113.8	111.6	120.1	125.1	125.1	179.2	100.2
1989	161.3	165.1	131.4	130.6	138.5	196.2	126.9	168.9	176.7	159.4	173.0	165.5	157.6 M
1990	177.3	130.5	140.3	140.3	132.2	105.4	149.4	200.3	125.2	145.5	131.4	129.7	142.6
1991	136.9	167.5	141.9	140.0	121.3	169.7	173.7	176.3	125.3	144.1	108.2	144.4	145.7
1992	150.0	161.1	106.7	99.8	73.8	65.2	85.7	64.5	63.9	88.7	91.8	82.6	94.3
1993	59.3	91.0	69.8	62.2	61.3	49.8	57.9	42.2	22.4	56.4	35.6	48.9	54.6
1994	57.8	35.5	31.7	16.1	17.8	28.0	35.1	22.5	25.7	44.0	18.0	26.2	29.9
1995	24.2	29.9	31.1	14.0	14.5	15.6	14.5	14.3	11.8	21.1	9.0	10.0	17.5
1996	11.5	4.4	9.2	4.8	5.5	11.8	8.2	14.4	1.6	0.9	17.9	13.3	8.6 m
1997	5.7	7.6	8.7	15.5	18.5	12.7	10.4	24.4	51.3	22.8	39.0	41.2	21.5
1998	31.9	40.3	54.8	53.4	56.3	70.7	66.6	92.2	92.9	55.5	74.0	81.9	64.3
1999	62.0	66.3	68.8	63.7	106.4	137.7	113.5	93.7	71.5	116.7	133.2	84.6	93.2
2000	90.1	112.9	138.5	125.5	121.6	124.9	170.1	130.5	109.7	99.4	106.8	104.4	119.6 M
2001	95.6	80.6	113.5	107.7	96.6	134.0	81.8	106.4	150.7	125.5	106.5	132.2	111.0
2002	114.1	107.4	98.4	120.7	120.8	88.3	99.9	116.4					108.3

Values are preliminary after Jun 02. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

Hα SOLAR FLARES

AUGUST 2002

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 Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
GOES	01	0028	0044	0054						26		C 3.9						5.1E-03
LEAR		0049E	0049U	0058	S14	W47	10039	07	28.6	9D	SF		2	E		23		F
HOLL		0050	0054	0111	S11	W46	10039	07	28.7	21	SF		3	E		55		
GOES		0221	0226	0236	S08	W36	10050			15	SF	C 2.5						2.0E-03
LEAR		0224	0224	0236	S08	W36	10050	07	29.5	12	SF		3	E		14		UF
GOES		0239	0242	0247	S21	W45	10044			8	SF	C 2.6						1.2E-03
LEAR		0241	0242	0252	S21	W45	10044	07	28.8	11	SF		3	E		57		F
LEAR		0335	0336	0340	S08	W36	10050	07	29.5	5	SF		3	E		34		F
GOES		0344	0403	0409	S10	E12	10000			25	SF	C 2.5						3.0E-03
LEAR		0358	0401	0413	S10	E12		08	2.1	15	SF		3	E		41		FH
LEAR		0434	0438	0444	S09	W41	10050	07	29.2	10	SF		3	E		24		F
GOES		0501	0520	0526	S07	W36	10050			25	SF	C 5.0						6.1E-03
LEAR		0503	0519	0533	S07	W36	10050	07	29.6	30	SF		3	E		76		F
LEAR		0609	0609	0614	S08	W39	10050	07	29.4	5	SF		3	E		28		F
LEAR		0615	0617	0619	S15	W53	10039	07	28.3	4	SF		3	E		11		
LEAR		0617	0617	0623	S08	W37	10050	07	29.6	6	SF		3	E		16		F
SVTO		0622	0630	0652	S19	W51	10044	07	28.5	30	SF		2	E		35		F
GOES		0623	0631	0645	S18	W54	10044			22	SF	C 2.9						3.5E-03
LEAR		0624	0647	0656	S18	W54	10044	07	28.2	32	SF		3	E		30		F
GOES		0703	0706	0710	S09	W42	10050			7	SF	C 3.3						1.2E-03
LEAR		0705	0706	0714	S09	W42	10050	07	29.2	9	SF		3	E		48		F
SVTO		0734E	0743U	0749	S13	W55	10039	07	28.3	15D	SF		2	E		29		F
GOES		0739	0743	0747			10050			8		C 4.1						1.5E-03
LEAR		0742	0744	0748	S15	W54	10039	07	28.3	6	SF		3	E		52		F
LEAR		0744	0746	0749	S08	W40	10050	07	29.4	5	SF		3	E		20		F
SVTO		0946	0948	1003	S07	W35	10050	07	29.9	17	SF		3	E		18		F
GOES		1047	1055	1059	S08	W43	10050			12	SF	C 3.5						1.8E-03
SVTO		1049	1055	1104	S08	W43	10050	07	29.3	15	SF		3	E		78		
SVTO		1206	1206	1214	S18	W56	10044	07	28.3	8	SF		3	E		16		
GOES		1343	1350	1358	S08	W43	10050			15	SF	C 3.7						2.7E-03
SVTO		1346	1347	1359	S08	W43	10050	07	29.4	13	SF		3	E		21		F
GOES		1400	1407	1411	S08	W45	10050			11	SF	C 4.6						2.6E-03
SVTO		1403	1407	1412	S08	W45	10050	07	29.3	9	SF		3	E		31		F
SVTO		1410	1411	1414	S12	W58	10039	07	28.3	4	SF		3	E		20		
SVTO		1429	1430	1435	S08	W43	10050	07	29.5	6	SF		3	E		53		F
HOLL		1430	1430	1433	S09	W41	10050	07	29.6	3	SF		3	E		32		F
GOES		1541	1544	1548						7		C 3.4						1.2E-03
GOES		1551	1559	1603						12		C 6.0						3.1E-03
GOES		1704	1707	1709	S18	W58	10044			5	SF	C 6.0						1.3E-03
SVTO		1706E	1706U	1713D	S14	W55	10039	07	28.6	7D	SF		1	E		19		F
HOLL		1706	1707	1711	S18	W58	10044	07	28.4	5	SF		3	E		24		F
HOLL		1801	1814	1846	S17	W54	10044	07	28.7	45	SF		3	E		94		FH
GOES		1809	1814	1825	S17	W54	10044			16	SF	C 4.6						3.7E-03
HOLL		1819	1823	1828	S12	W60	10039	07	28.3	9	SF		3	E		17		FH
GOES		1930	1933	1935						5		C 2.2						5.3E-04
GOES		2015	2022	2027						12		C 4.8						2.7E-03
GOES		2126	2131	2134	S10	W48	10050			8	SF	C 3.6						1.4E-03
HOLL		2129	2131	2135	S10	W48	10050	07	29.4	6	SF		3	E		20		F
GOES		2326	2331	2337	S20	W52	10039			11	SF	C 2.4						1.4E-03
HOLL		2330E	2331U	2341	S20	W52	10039	07	29.1	11D	SF		2	E		14		F
HOLL	02	0046E	0048U	0104D	S10	W50	10050	07	29.4	18D	SF		2	E		40		F
GOES		0137	0141	0145			10055			8		C 2.1						9.0E-04
GOES		0203	0207	0211	S09	W52	10050			8	SF	C 2.4						9.6E-04
LEAR		0206	0206	0212	S09	W52	10050	07	29.3	6	SF		2	E		27		F
GOES		0304	0307	0312			10057			8		C 1.7						7.3E-04
GOES		0325	0328	0332			10057			7		C 2.2						8.0E-04
GOES		0617	0625	0635			10044			18		C 4.2						3.7E-03
GOES		0649	0653	0655	S16	W68	10039			6	SF	C 4.2						1.2E-03
LEAR		0652	0652	0656	S16	W68	10039	07	28.2	4	SF		3	E		25		
SVTO		0652	0653	0657	S15	W67	10039	07	28.3	5	SF		3	E		28		
GOES		0907	0915	0920						13		C 3.1						2.1E-03
GOES		1048	1053	1058	S15	W62	10039			10	SF	M 1.0						4.7E-03
SVTO		1051	1051	1134	S15	W62	10039	07	28.8	43	SF		3	E		37		
GOES		1244	1247	1250	S15	W65	10039			6	SF	C 4.2						1.3E-03
SVTO		1244	1247	1251	S15	W65	10039	07	28.7	7	SF		3	E		21		
SVTO		1255	1256	1303	S16	W65	10039	07	28.7	8	SF		3	E		11		
GOES		1347	1355	1406			10039			19		C 3.6						3.7E-03

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
SVTO	02	1353	1356	1359	S14	W66	10039	07	28.7	6	SF		3	E		12		
GOES		1423	1436	1451	S07	W08	10057			28	SF	C 2.8						4.3E-03
SVTO		1424	1426	1455	S07	W08	10057	08	2.0	31	SF		3	E		51		UF
GOES		1424	1436	1449	S10	W69	10039			25	SF	C 2.8						3.9E-03
SVTO		1432	1436	1442	S10	W69	10039	07	28.5	10	SF		3	E		19		
GOES		1701	1707	1714			10057			13		C 3.1						2.1E-03
HOLL		1925	1925	1934	S08	W06	10057	08	2.3	9	SF		3	E		18		F
HOLL		1936	1936	1942	S15	W69	10039	07	28.7	6	SF		3	E		23		
GOES		1950	1957	2002	S08	W07	10057			12	SF	C 4.4						2.5E-03
HOLL		1953	1958	2010	S08	W07	10057	08	2.3	17	SF		3	E		27		F
HOLL		2004	2006	2011D	S16	W70	10039	07	28.6	7D	SF		3	E		14		
GOES		2015	2018	2020			10039			5		C 4.2						1.1E-03
HOLL		2032	2034	2040	S16	W71	10039	07	28.6	8	SF		3	E		19		
GOES		2250	2301	2304	S09	W10	10057			14	SF	C 8.3						4.9E-03
HOLL		2252	2253	2258D	S09	W10	10057	08	2.2	6D	SF		3	E		81		
GOES		2358	2401	2404			10044			6		C 3.2						1.1E-03
LEAR	03	0149	0150	0154	S18	W88	10044	07	27.5	5	SF		3	E		32		
GOES		0432	0440	0449	S09	W14	10057			17	SF	C 7.5						5.5E-03
LEAR		0435	0437	0455	S09	W14	10057	08	2.1	20	SF		3	E		55		F
SVTO		0437E	0438U	0456D	S07	W15	10057	08	2.1	19D	SF		2	E		53		F
SVTO		0518	0519	0529	S29	W14		08	2.1	11	SF		3	E		19		F
LEAR		0519	0520	0525	S30	W16		08	2.0	6	SF		3	E		15		
LEAR		0534	0539	0549	S12	W79	10039	07	28.4	15	SF		3	E		77		F
SVTO		0535	0539	0548	S11	W74	10039	07	28.8	13	SF		3	E		52		
GOES		0611	0615	0619						8		C 2.1						9.5E-04
SVTO		0729	0731	0733	S07	W18	10057	08	2.0	4	SF		3	E		11		
SVTO		0839	0839	0844	S31	W20		08	1.8	5	SF		3	E		21		
GOES		0915	0919	0926	S08	W68	10050			11	SF	C 2.7						1.4E-03
SVTO		0918	0919	0923	S08	W68	10050	07	29.4	5	SF		3	E		25		
GOES		1022	1025	1027						5		C 1.7						4.6E-04
GOES		1259	1304	1309						10		C 5.3						2.6E-03
GOES		1513	1528	1539						26		C 2.9						4.1E-03
GOES		1652	1656	1704	S09	W73	10050			12	SF	C 2.7						1.6E-03
HOLL		1654	1655	1702	S09	W73	10050	07	29.3	8	SF		3	E		35		
HOLL		1722	1726	1743	S19	W49	10052	07	31.0	21	SF		3	E		25		
HOLL		1734	1734	1745	S08	W19	10057	08	2.3	11	SF		3	E		11		
GOES		1827	1833	1841						14		C 2.4						1.9E-03
GOES		1859	1907	1911	S16	W76	10039			12	SF	X 1.0						3.3E-02
HOLL		1910	1910	1916	S16	W76	10039	07	29.1	6	SF		3	E		59		
HOLL		1949	1953	1956	S08	W21	10057	08	2.2	7	SF		3	E		12		
HOLL		2107	2115	2139	S08	W22	10057	08	2.2	32	SF		3	E		47		F
GOES		2111	2117	2124	S08	W22	10040			13	SF	C 3.7						2.6E-03
GOES		2125	2132	2137			10044			12		C 6.1						3.5E-03
HOLL		2212	2213	2216	S07	W24	10057	08	2.1	4	SF		3	E		13		
GOES		2325	2332	2338	S08	W28	10057			13	SF	C 3.8						2.6E-03
HOLL		2327	2328	2343	S08	W28	10057	08	1.9	16	SF		3	E		25		
GOES	04	0155	0200	0206						11		C 2.8						1.5E-03
GOES		0255	0259	0302						7		C 2.4						9.2E-04
GOES		0444	0450	0454						10		C 3.8						1.7E-03
GOES		0714	0720	0725						11		C 7.4						3.0E-03
GOES		0858	0955	1033						95		M 6.6						2.3E-01
GOES		1410	1418	1428						18		C 6.9						5.3E-03
GOES		1452	1458	1502						10		C 4.8						2.0E-03
GOES		1901	1905	1922						21		C 2.1						2.2E-03
GOES		2139	2143	2148						9		C 2.6						1.1E-03
GOES	05	0327	0331	0335	S07	W45	10057			8	SF	C 1.5						6.8E-04
LEAR		0329	0329	0336	S07	W45	10057	08	1.8	7	SF		3	E		22		
GOES		0421	0517	0533	S10	W43	10057			72	SF	C 4.8						1.5E-02
LEAR		0515	0517	0528	S10	W43	10057	08	2.0	13	SF		3	E		44		
SVTO		0515	0521	0528	S06	W46	10057	08	1.8	13	SF		3	E		14		F
GOES		2114	2122	2130			10063			16		M 1.0						6.6E-03
GOES	06	0133	0144	0202	S07	W57	10057			29	1F	C 8.3						9.6E-03
LEAR		0138	0143	0213	S07	W57	10057	08	1.8	35	1F		1	E		183		FH
GOES		0514	0520	0525	N18	E84				11	SF	C 2.1						1.0E-03

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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 Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
LEAR	06	0517	0518	0527	N18	E84		08	12.6	10	SF		3	E		34		
SVTO		0517	0520	0533	N18	E84		08	12.6	16	SF		3	E		35		
GOES		1126	1131	1142	S08	W58	10057			16	SF	C 4.3						3.0E-03
RAMY		1129	1130	1140	S08	W58	10057	08	2.1	11	SF		3	E		43		F
GOES		1206	1212	1221	N09	E51	10061			15	SF	C 2.8						2.1E-03
RAMY		1210	1210	1223	N09	E51	10061	08	10.3	13	SF		3	E		11		F
GOES		1226	1231	1236	N09	E51	10061			10	SF	C 3.3						1.7E-03
RAMY		1231	1232	1242	N09	E51	10061	08	10.3	11	SF		3	E		20		F
RAMY		1246	1258	1310	N17	E80		08	12.6	24	1N		3	E		219		FH
GOES		1253	1259	1304	N17	E80	10063			11	1N	C 7.9						3.3E-03
HOLL		1255E	1255U	1313	N16	E75		08	12.2	18D	2N		2	E		573		
SVTO		1300E	1303U	1311D	N16	E75		08	12.2	11D	SF		1	E		57		FH
HOLL		1441	1444	1447	S05	E08	10058	08	7.2	6	SF		3	E		39		F
GOES		1516	1527	1552	S06	W66	10057			36	SF	C 7.6						1.2E-02
HOLL		1521	1524	1602	S06	W66	10057	08	1.7	41	SF		4	E		51		U
SVTO		1522	1524U	1605	S07	W66	10057	08	1.7	43	SF		2	E		41		
RAMY		1523	1524	1529	S08	W67	10057	08	1.6	6	SF		3	E		19		
RAMY		1531	1534	1545	S07	W66	10057	08	1.7	14	SF		3	E		31		
GOES		2005	2009	2011	N09	E66	10000			6	SF	C 1.3						4.2E-04
RAMY		2007	2007	2011	N09	E66		08	11.8	4	SF		3	E		24		
HOLL		2235	2236	2243	N18	E76	10063	08	12.7	8	SF		3	E		30		
GOES	07	0118	0126	0148			10057			30		M 1.1						1.3E-02
GOES		0318	0324	0344						26		C 1.3						1.8E-03
GOES		0529	0535	0547						18		C 1.5						1.4E-03
GOES		0633	0636	0641	N18	E61	10063			8	SF	C 1.5						6.7E-04
LEAR		0635	0636	0651	N18	E61	10063	08	11.9	16	SF		3	E		41		F
GOES		0711	0719	0726						15		C 2.6						1.9E-03
GOES		1007	1010	1012						5		B 9.8						2.6E-04
GOES		1033	1038	1046						13		C 1.9						1.4E-03
GOES		1333	1340	1348	N09	E35	10061			15	SF	C 1.3						9.8E-04
RAMY		1336	1336	1348	N09	E35	10061	08	10.2	12	SF		3	E		15		FH
GOES		1354	1400	1409						15		C 1.4						1.2E-03
GOES		1935	1939	1944						9		B 8.8						4.4E-04
GOES	08	0100	0104	0107						7		C 1.9						5.9E-04
GOES		0659	0705	0711	N10	E27	10061			12	SF	C 1.1						7.4E-04
SVTO		0701E	0702U	0711D	N10	E27	10061	08	10.3	10D	SF		2	E		15		
GOES		0934	0941	0951						17		C 1.2						1.1E-03
GOES		1108	1111	1113	S08	W83	10057			5	SF	C 1.4						3.5E-04
RAMY		1110	1112	1115	S08	W83	10057	08	2.2	5	SF		3	E		23		H
GOES		1155	1159	1204						9		C 1.3						6.4E-04
GOES	09	0416	0422	0434						18		C 1.6						1.6E-03
GOES		0636	0650	0657	N09	E08	10061			21	SF	C 1.4						1.5E-03
LEAR		0648E	0648U	0657	N09	E08	10061	08	9.9	9D	SF		3	E		14		
GOES		0838	0900	0919						41		C 2.0						4.0E-03
GOES	10	0941	0945	0949						8		C 2.0						7.8E-04
GOES		2007	2010	2017						10		C 1.4						7.8E-04
GOES	11	0855	0859	0907						12		C 1.5						1.1E-03
GOES		0923	0928	0932						9		C 1.8						8.0E-04
GOES		1137	1147	1158						21		C 9.5						8.2E-03
GOES		1330	1334	1341	N13	E47	10066			11	SF	C 2.2						1.2E-03
RAMY		1336	1338	1349	N13	E47	10066	08	15.1	13	SF		3	E		40		H
GOES		1350	1357	1403						13		C 1.9						1.3E-03
GOES		1407	1413	1420	S05	E79	10069			13	SF	C 2.3						1.6E-03
RAMY		1409	1410	1422	S04	E80		08	17.6	13	SF		3	E		67		H
HOLL		1409	1411	1425	S05	E79		08	17.5	16	SF		3	E		81		H
GOES		1439	1450	1510	N09	W18	10061			31	SF	C 2.3						3.8E-03
HOLL		1441	1443	1513	N10	W20	10061	08	10.1	32	SF		3	E		32		F
RAMY		1441	1443	1517	N09	W18	10061	08	10.3	36	SF		3	E		51		
HOLL		1631	1631	1635	N10	W21	10061	08	10.1	4	SF		3	E		15		
GOES		1645	1649	1651						6		C 3.0						6.7E-04
GOES		1735	1801	1813						38		C 7.9						1.5E-02
GOES		2022	2026	2029						7		C 1.7						6.6E-04
HOLL		2119	2119	2126	S03	W60	10058	08	7.4	7	SF		3	E		14		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	11	2122	2126	2129	S03	W60	10058			7	SF	C 3.6						1.2E-03
GOES		2210	2222	2231						21		C 3.3						3.6E-03
GOES	12	0216	0219	0223						7		C 1.4						5.2E-04
GOES		0405	0409	0412	S03	W64	10058			7	1F	C 1.8						6.2E-04
LEAR		0405	0410	0420	S03	W64	10058	08	7.4	15	1F		2	E		147		F
LEAR		0443	0443	0447	S04	W65	10058	08	7.3	4	SF		3	E		14		F
LEAR		0630	0637	0640	S04	W65	10058	08	7.4	10	SF		3	E		41		
GOES		0749	0817	0826	S06	W70	10058			37	SF	C 2.7						4.1E-03
LEAR		0803	0804	0808	S06	W70	10058	08	7.1	5	SF		3	E		32		
LEAR		0835	0836	0839	S04	W67	10058	08	7.3	4	SF		3	E		18		
GOES		1539	1543	1547						8		C 2.0						7.9E-04
GOES		2213	2217	2224						11		C 1.8						1.0E-03
GOES	13	0243	0248	0259	N13	E29	10066			16	SF	C 4.6						2.9E-03
LEAR		0246	0247	0254	N13	E29	10066	08	15.3	8	SF		3	E		23		F
LEAR		0248	0248	0252	S06	W80	10058	08	7.1	4	SF		3	E		18		
GOES		0443	0455	0520	S04	W81	10058			37	1F	C 3.1						5.7E-03
LEAR		0447	0450	0516	S04	W81	10058	08	7.1	29	1F		4	E		124		FE
GOES		0546	0550	0553						7		C 2.3						8.4E-04
GOES		0707	0715	0721						14		C 1.9						1.4E-03
LEAR		0708	0709	0712	S05	W84	10058	08	7.0	4	SF		4	E		17		H
LEAR		0746	0747	0750	N08	W46	10061	08	9.9	4	SF		3	E		15		
LEAR		0756	0757	0805	S06	W85	10058	08	7.0	9	SF		3	E		36		F
GOES		0818	0827	0835						17		C 1.6						1.5E-03
GOES		0921	0929	0939						18		C 3.3						2.9E-03
GOES		1229	1322	1335						66		C 3.0						8.8E-03
GOES		1406	1417	1425						19		C 3.0						2.9E-03
GOES		1503	1510	1522	N12	E41	10067			19	SF	C 4.8						4.4E-03
RAMY		1506	1507	1648	N12	E37	10067	08	16.4	102	SF		3	E		63		F
HOLL		1506	1514	1532	N12	E41	10067	08	16.7	26	SF		3	E		54		F
GOES		1852	1904	1918	S08	E55	10069			26	1F	M 1.8						1.8E-02
HOLL		1855	1902	1932	S08	E55	10069	08	17.9	37	1F		3	E		169		UF
GOES		2045	2052	2053	N12	E39	10067			8	SF	C 3.1						1.1E-03
HOLL		2046	2052	2101	N12	E39	10067	08	16.8	15	SF		3	E		38		
GOES		2120	2147	2205						45		C 2.7						6.3E-03
HOLL		2206	2214	2226	N12	E38	10067	08	16.8	20	SF		3	E		41		
GOES		2210	2215	2219	N12	E38	10067			9	SF	C 5.0						1.8E-03
GOES		2250	2255	2259						9		C 2.5						1.2E-03
GOES	14	0055	0110	0120	N12	E36	10067			25	SF	C 3.4						3.4E-03
LEAR		0108	0110	0116	N12	E36	10067	08	16.7	8	SF		2	E		14		F
LEAR		0147	0201	0343	N09	W54	10061	08	10.0	116	1N		2	E		216		FE
GOES		0147	0212	0246	N09	W54	10061			59	1N	M 2.3						6.0E-02
LEAR		0152	0156	0300	N17	E08	10066	08	14.7	68	SF		2	E		74		FH
LEAR		0212	0215	0227	S17	W52	10072	08	10.1	15	SF		2	E		55		
LEAR		0349	0352	0356	N07	W55	10061	08	10.0	7	SF		2	E		22		F
GOES		0850	0905	0912			10069			22		C 5.0						4.6E-03
LEAR		0854	0854	0902	N12	E29	10067	08	16.5	8	SF		3	E		15		F
LEAR		0904	0906	0911	S07	E45	10069	08	17.7	7	SF		2	E		11		F
LEAR		0912	0912	0915	S06	E47	10069	08	17.9	3	SF		2	E		19		F
GOES		1004	1011	1015						11		C 4.9						2.3E-03
GOES		1202	1217	1223			10066			21		C 2.6						2.8E-03
RAMY		1205	1206	1210	N13	E28	10067	08	16.6	5	SF		3	E		13		F
RAMY		1210	1212	1220	N14	E10	10066	08	15.3	10	SF		3	E		14		F
GOES		1401	1407	1412	N13	E28	10067			11	SF	C 7.5						3.1E-03
HOLL		1404	1407	1423	N13	E28	10067	08	16.7	19	SF		3	E		52		F
SVTO		1405	1405	1411	N09	E28	10067	08	16.7	6	SF		3	E		24		F
GOES		1804	1815	1830	N10	E23	10067			26	1F	M 1.4						1.5E-02
HOLL		1807	1814	1901	N10	E23	10067	08	16.5	54	1F		3	E		232		F
HOLL		1907	1907	1915	S08	E44	10069	08	18.1	8	SF		3	E		13		
HOLL		1959	2002	2018	S05	E41	10069	08	17.9	19	SF		3	E		20		F
GOES		2133	2140	2147	N13	E25	10069			14	SF	C 4.7						2.8E-03
HOLL		2136	2136	2145	N13	E25	10067	08	16.8	9	SF		4	E		15		F
HOLL		2138	2138	2153	S05	E40	10069	08	17.9	15	SF		3	E		16		
GOES		2219	2222	2225	S07	E43	10069			6	SF	C 1.6						4.8E-04
HOLL		2221	2222	2226	S07	E43	10069	08	18.1	5	SF		3	E		28		F
GOES	15	0012	0017	0023						11		C 2.2						1.3E-03

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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 Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
GOES	15	0109	0115	0119					10		C 2.7						1.3E-03
GOES		0140	0145	0149					9		C 2.7						1.1E-03
GOES		0236	0251	0255					19		C 4.7						3.2E-03
LEAR		0437	0439	0441	N11	W26	10063	08 13.2	4	SF		2	E		22		F
GOES		0601	0605	0609	N13	E01	10066		8	SF	M 1.0						3.0E-03
LEAR		0604	0605	0630	N12	E01	10066	08 15.3	26	SN		2	E		77		F
SVTO		0608	0608	0614	N13	E01	10066	08 15.3	6	SF		3	E		43		F
GOES		0731	0735	0738					7		C 2.3						8.0E-04
LEAR		0748	0749	0750	S03	E28	10069	08 17.4	2	SF		2	E		11		
GOES		0750	0754	0758	S06	E27	10069		8	SF	C 2.4						9.7E-04
LEAR		0751	0753	0816	S05	E28	10069	08 17.4	25	1F		2	E		119		FH
SVTO		0752	0753	0808	S06	E27	10069	08 17.3	16	SF		3	E		68		FH
GOES		1127	1134	1138	S14	W17	10078		11	SF	C 4.5						2.0E-03
RAMY		1136	1136	1146	S14	W17	10078	08 14.2	10	SF		3	E		31		F
GOES		1322	1335	1345	S04	E25	10069		23	SF	C 3.9						4.0E-03
RAMY		1324	1333	1411	S04	E25	10069	08 17.4	47	SF		3	E		81		F
HOLL		1326	1333	1405	S02	E26	10069	08 17.5	39	SF		3	E		56		F
HOLL		1438	1442	1453	S02	E25	10069	08 17.5	15	SF		3	E		20		F
GOES		1509	1514	1518	S14	W21	10078		9	SF	C 6.9						2.7E-03
RAMY		1511	1514	1524	S14	W21	10078	08 14.0	13	SF		3	E		49		F
RAMY		1641	1642	1659	S06	E24	10069	08 17.5	18	SF		3	E		16		F
GOES		1725	1732	1736	S06	E23	10069		11	SF	C 2.7						1.7E-03
RAMY		1729	1729	1734	S06	E23	10069	08 17.4	5	SF		3	E		17		F
GOES		1948	1954	1959	S14	W22	10078		11	SF	C 7.0						3.2E-03
HOLL		1952	1959	2008	S14	W22	10078	08 14.2	16	SF		3	E		27		
GOES		2323	2333	2336	S13	W26	10078		13	SF	M 1.0						5.6E-03
LEAR		2327	2329	2347	S13	W26	10078	08 14.0	20	SF		2	E		54		FH
LEAR		2331	2335	2340	S04	E25	10069	08 17.8	9	SF		2	E		41		F
LEAR	16	0013	0027	0106	S07	E19	10069	08 17.4	53	1F		2	E		134		UF
LEAR		0055	0055	0101	S06	E04	10068	08 16.3	6	SF		2	E		24		F
LEAR		0101	0104	0107	S06	E04	10068	08 16.3	6	SF		2	E		38		F
LEAR		0257	0259	0301	S14	W30	10078	08 13.8	4	SF		3	E		13		
GOES		0546	0611	0631	N07	W83	10061		45	SF	M 2.4						4.1E-02
LEAR		0603	0611	0637	N07	W83	10061	08 10.0	34	SF		3	E		50		
LEAR		0618	0620U	0635	S07	E16	10069	08 17.5	17	1N		3	E		244		EF
LEAR		0855	0912	0915	S06	E14	10069	08 17.4	20	SF		3	E		57		F
SVTO		1050	1051	1056	S07	E12	10069	08 17.3	6	SF		3	E		36		
SVTO		1111	1213	1409	S14	E20	10069	08 18.0	178	2N		3	E		286		FH
GOES		1132	1232	1307	S14	E20	10069		95	2N	M 5.2						1.6E-01
SVTO		1220	1227	1242	N15	W16	10066	08 15.3	22	SF		3	E		30		F
SVTO		1513	1551	1626	S07	E10	10069	08 17.4	73	1F		3	E		133		F
GOES		1804	1815	1820					16		C 5.2						4.2E-03
GOES		2207	2212	2215			10069		8		M 1.2						3.6E-03
GOES		2329	2333	2335	S05	E06	10069		6	SF	M 1.7						3.2E-03
HOLL		2331	2333	2344	S05	E06	10069	08 17.4	13	SF		3	E		63		F
LEAR		2331	2333	2345	S06	E05	10069	08 17.3	14	SN		2	E		88		F
GOES	17	0002	0014	0031	S07	E05	10069		29	SF	C 4.1						6.0E-03
HOLL		0008	0012	0041	S05	E06	10069	08 17.4	33	SF		3	E		22		
LEAR		0008	0013	0038	S07	E05	10069	08 17.4	30	SF		3	E		56		F
LEAR		0039	0040	0043	S07	E05	10069	08 17.4	4	SF		3	E		29		F
LEAR		0048	0049	0052	S05	E05	10069	08 17.4	4	SF		3	E		30		F
GOES		0058	0108	0114	S19	E77	10083		16	SF	M 1.1						7.0E-03
LEAR		0105	0105	0109	S19	E77		08 22.9	4	SF		3	E		37		
LEAR		0247	0248	0253	S03	E06	10069	08 17.6	6	SF		3	E		30		F
LEAR		0301	0303	0305	S08	E04	10069	08 17.4	4	SF		3	E		21		
LEAR		0302	0303	0308	S05	W10	10068	08 16.4	6	SF		3	E		12		
GOES		0500	0505	0508	S06	E02	10069		8	SF	C 3.2						1.3E-03
LEAR		0504	0505	0509	S06	E02	10069	08 17.4	5	SF		2	E		16		F
LEAR		0606	0627	0639	N16	E59	10081	08 21.7	33	SF		2	E		14		F
GOES		0619	0627	0629	S03	E05	10069		10	1N	C 4.3						2.2E-03
LEAR		0621	0627	0642	S03	E05	10069	08 17.6	21	1N		2	E		108		FE
SVTO		0622E	0622U	0631D	S04	E05	10069	08 17.6	9D	SF		2	E		23		
LEAR		0622	0622	0632	N13	W27	10066	08 15.2	10	SF		3	E		16		
GOES		0630	0633	0635	S08	E05	10069		5	SF	C 4.6						1.2E-03
SVTO		0632E	0632U	0636D	S08	E05	10069	08 17.6	4D	SF		2	E		57		
GOES		0653	0657	0700	S08	E02	10069		7	SF	C 5.0						1.6E-03

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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 Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
LEAR	17	0655	0657	0705	S08	E02	10069	08 17.4	10	SF		2	E		40		F
SVTO		0655E	0658	0706	S07	E02	10069	08 17.4	11D	SF		3	E		44		F
LEAR		0803	0805	0812	N13	W28	10066	08 15.2	9	SF		2	E		23		F
GOES		0844	0858	0903	S03	W01	10069		19	SF	C 2.1						2.1E-03
LEAR		0845	0848	0856	S03	W01	10069	08 17.3	11	SF		2	E		25		F
GOES		0903	0911	0917	S05	E00	10069		14	SF	C 2.5						1.8E-03
LEAR		0905	0912	0918	S05	E00	10069	08 17.4	13	SF		2	E		53		F
SVTO		1120	1124U	1133	S19	E20	10079	08 19.0	13	SF		3	E		27		
RAMY		1329	1330	1332	S05	W01	10069	08 17.5	3	SF		3	E		26		F
GOES		1334	1411	1422	S04	W04	10069		48	SF	C 3.6						9.2E-03
SVTO		1337	1444	1620	S04	W04	10069	08 17.3	163	SF		3	E		90		F
RAMY		1343	1423U	1545	S05	W03	10069	08 17.3	122	SF		3	E		82		F
HOLL		1400	1406	1407	S04	W03	10069	08 17.3	7	SF		3	E		28		F
HOLL		1415	1415	1421	S04	W03	10069	08 17.4	6	SF		3	E		27		
GOES		1421	1427	1432	S04	W03	10069		11	SF	C 4.1						2.5E-03
HOLL		1439	1442	1455	S02	W02	10069	08 17.5	16	SF		3	E		32		F
GOES		1441	1513	1530	S02	W02	10069		49	SF	C 4.9						1.3E-02
GOES		1530	1538	1542	S05	W03	10069		12	SF	C 4.8						3.3E-03
RAMY		1545	1547	1559	S05	W03	10069	08 17.4	14	SF		3	E		34		F
GOES		1639	1643	1648					9		C 3.0						1.5E-03
GOES		1927	1931	1937					10		C 3.4						1.7E-03
GOES		1945	1950	1954					9		C 4.0						1.6E-03
GOES		2039	2051	2057	S06	W05	10069		18	SF	M 3.4						1.8E-02
HOLL		2047	2049	2108	S06	W05	10069	08 17.5	21	SF		3	E		76		F
GOES	18	0003	0008	0011	S11	W06	10069		8	SF	C 3.3						1.3E-03
HOLL		0007	0008	0012	S11	W06	10069	08 17.5	5	SF		3	E		37		
HOLL		0037	0037	0042	S17	E61	10083	08 22.7	5	SF		3	E		17		
LEAR		0123	0129	0137	S06	W09	10069	08 17.4	14	SF		2	E		75		F
GOES		0143	0149	0157	S06	W10	10069		14	SF	C 3.2						2.4E-03
LEAR		0145	0149	0203	S06	W10	10069	08 17.3	18	SF		2	E		36		FH
LEAR		0209	0210	0219	S17	E61	10083	08 22.7	10	SF		2	E		13		F
LEAR		0245	0314	0321	S03	W11	10069	08 17.3	36	1F		2	E		110		FH
GOES		0328	0334	0337	S11	W10	10069		9	1F	C 8.4						3.3E-03
LEAR		0328	0336	0342	S11	W10	10069	08 17.4	14	1F		2	E		102		FH
LEAR		0334	0342	0351	N13	W38	10066	08 15.3	17	SF		2	E		33		F
LEAR		0438	0445	0453	S19	E13	10079	08 19.2	15	1F		3	E		117		H
GOES		0546	0558	0611	S19	E10	10079		25	SF	C 4.5						5.5E-03
LEAR		0551	0559	0622	S19	E10	10079	08 19.0	31	SF		3	E		47		
LEAR		0553	0554	0605	N13	W40	10066	08 15.2	12	SF		3	E		17		F
LEAR		0606	0607	0609	S07	W11	10069	08 17.4	3	SF		3	E		37		
GOES		0728	0736	0744	S07	W12	10069		16	SF	C 8.0						5.9E-03
LEAR		0730	0731	0813	S07	W12	10069	08 17.4	43	SF		3	E		42		F
LEAR		0910	0924	0936	N16	W40	10066	08 15.3	26	SF		3	E		34		F
GOES		0921	0927	0939	N16	W40	10066		18	SF	C 3.0						3.0E-03
GOES		0954	1005	1009			10069		15		M 2.3						1.3E-02
GOES		1205	1209	1213					8		C 4.1						1.6E-03
RAMY		1244	1247	1257	S21	E14	10079	08 19.6	13	SF		3	E		44		F
GOES		1343	1350	1354	S05	W19	10069		11	SF	C 4.9						2.3E-03
HOLL		1348	1349	1359	S05	W19	10069	08 17.1	11	SF		3	E		43		
RAMY		1349	1349	1404	S06	W19	10069	08 17.1	15	SF		3	E		56		
GOES		1433	1439	1443	S06	W15	10069		10	SF	M 1.9						7.1E-03
HOLL		1436	1437	1509	S06	W15	10069	08 17.5	33	SF		3	E		58		F
RAMY		1458	1458	1503	S08	W15	10069	08 17.5	5	SF		3	E		28		F
GOES		1642	1650	1655	S20	E61	10083		13	SF	C 6.0						3.3E-03
HOLL		1645	1650	1701	S20	E61	10083	08 23.4	16	SF		3	E		45		F
GOES		1935	1956	2018	S20	E11	10079		43	SF	C 4.5						9.0E-03
HOLL		1943	1947	2002	S20	E11	10079	08 19.7	19	SF		3	E		45		F
RAMY		2008	2008	2010	S19	E08	10079	08 19.4	2	SF		3	E		22		
GOES		2018	2024	2029	S07	W20	10069		11	SF	C 8.7						4.3E-03
RAMY		2021	2036	2043	S07	W20	10069	08 17.3	22	SF		3	E		38		F
HOLL		2022	2022	2039	S06	W19	10069	08 17.4	17	SF		3	E		52		
RAMY		2036	2036	2040	S21	E07	10079	08 19.4	4	SF		3	E		42		F
RAMY		2111	2121	2206	S12	W19	10069	08 17.4	55	1B		3	E		130		FH
GOES		2112	2125	2137	S12	W19	10069		25	1B	M 2.2						2.2E-02
HOLL		2114	2121	2155	S07	W20	10069	08 17.4	41	1F		3	E		128		
GOES		2228	2231	2236					8		C 4.3						1.9E-03
GOES	19	0105	0133	0142	S18	E00	10079		37	SF	C 2.4						4.9E-03

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	19	0126	0130	0139	S18	E00	10079	08	19.0	13	SF		2	E		15		F
GOES		0346	0401	0416	S06	W24	10069			30	SF	C 2.6						3.8E-03
LEAR		0354	0358	0408	S06	W24	10069	08	17.4	14	SF		2	E		22		F
GOES		0442	0446	0452						10		C 2.6						1.4E-03
LEAR		0501	0510	0521	N13	W53	10066	08	15.2	20	SF		3	E		16		
LEAR		0614	0615	0620	S18	E61	10084	08	23.9	6	SF		2	E		25		
LEAR		0625	0626	0629	S13	E63		08	24.0	4	SF		2	E		31		
GOES		0630	0634	0637	S13	E63	10000			7	SF	C 2.4						8.8E-04
GOES		0747	0807	0820	S20	E00	10079			33	SF	C 2.3						4.0E-03
LEAR		0806	0807	0816	S20	E00	10079	08	19.3	10	SF		3	E		24		F
GOES		1028	1034	1038	S12	W25	10069			10	SF	M 2.0						6.4E-03
SVTO		1031	1034	1050D	S09	W27	10069	08	17.4	19D	2N		3	E		267		H
RAMY		1031	1041	1103	S12	W25	10069	08	17.5	32	SF		3	E		91		F
GOES		1121	1124	1128	S09	W26	10069			7	SF	C 1.9						7.2E-04
RAMY		1124	1124	1148	S09	W26	10069	08	17.5	24	SF		3	E		19		F
RAMY		1148	1151	1154	S09	W27	10069	08	17.5	6	SF		3	E		16		F
RAMY		1205	1207	1212	S09	W27	10069	08	17.5	7	SF		3	E		11		
RAMY		1215	1217	1220	S07	W28	10069	08	17.4	5	SF		3	E		12		F
GOES		1257	1301	1303	S09	W28	10069			6	SF	C 3.5						8.7E-04
RAMY		1258	1301	1309	S09	W28	10069	08	17.4	11	SF		3	E		40		F
SVTO		1301	1301	1303	S06	W28	10069	08	17.4	2	SF		3	E		33		
RAMY		1417	1417	1426	S17	W04	10079	08	19.3	9	SF		3	E		11		FH
HOLL		1417E	1433U	1513	S14	W32	10069	08	17.2	56D	SF		3	E		31		F
RAMY		1425	1433	1509	S13	W30	10069	08	17.3	44	SF		3	E		65		F
GOES		1427	1446	1459	S13	W30	10069			32	SF	C 9.5						1.3E-02
HOLL		1520	1520	1527	S12	W28	10069	08	17.5	7	SF		3	E		17		F
RAMY		1521	1523	1529	S12	W29	10069	08	17.4	8	SF		3	E		22		FH
GOES		1710	1741	1822						72		C 3.6						1.2E-02
GOES		2038	2041	2045						7		C 2.4						9.3E-04
RAMY		2052E	2102U	2122D	S11	W33	10069	08	17.4	30D	1B		1	E				F
GOES		2056	2102	2106	S11	W33	10069			10	1B	M 3.1						9.2E-03
GOES		2259	2302	2305						6		C 7.0						2.2E-03
LEAR		2349E	2354U	2413	S07	W32	10069	08	17.6	24D	SF		3	E		34		F
GOES	20	0133	0140	0143	S11	W35	10069			10	1N	M 5.0						1.2E-02
LEAR		0135	0144	0217	S11	W35	10069	08	17.4	42	1N		2	E		156		FE
GOES		0208	0214	0225			10069			17		C 5.5						4.5E-03
GOES		0253	0257	0301	S10	W36	10069			8	1N	M 1.4						4.7E-03
LEAR		0255	0256	0314	S10	W36	10069	08	17.4	19	1N		2	E		127		FE
LEAR		0334	0336	0337	S08	W36	10069	08	17.4	3	SF		2	E		41		
GOES		0334	0343	0348	S08	W36	10069			14	SF	C 2.6						1.9E-03
LEAR		0409	0410	0419	N12	W68	10066	08	15.0	10	SF		2	E		27		F
LEAR		0444	0455	0510	S18	W15	10079	08	19.0	26	SF		3	E		19		F
LEAR		0445	0454	0502	N12	W66	10066	08	15.2	17	SF		3	E		13		F
LEAR		0511	0514	0523	S07	W37	10069	08	17.4	12	SF		3	E		61		FE
GOES		0511	0515	0518	S07	W37	10069			7	SF	C 4.0						1.4E-03
LEAR		0529	0532	0548	S03	W37	10069	08	17.5	19	SF		3	E		52		F
GOES		0617	0620	0623			10079			6		C 2.7						8.7E-04
LEAR		0641	0645	0649	S10	E63	10085	08	25.0	8	SF		3	E		46		H
LEAR		0805	0807	0809	S07	W40	10069	08	17.3	4	SF		2	E		44		F
LEAR		0816	0818	0833	S11	E52	10085	08	24.2	17	SF		2	E		36		FH
GOES		0822	0826	0830	S10	W38	10069			8	1B	M 3.4						8.7E-03
LEAR		0825	0826	0837	S10	W38	10069	08	17.5	12	1B		2	E		124		FE
SVTO		0825E	0826U	0841D	S10	W39	10069	08	17.4	16D	1N		2	E		189		
GOES		0933	0936	0938						5		C 1.9						5.1E-04
GOES		0944	0947	0950			10079			6		C 2.6						8.2E-04
GOES		1003	1006	1011			10079			8		C 2.0						8.9E-04
GOES		1026	1031	1034			10079			8		C 3.3						1.2E-03
RAMY		1125	1125	1131	S12	W39	10069	08	17.5	6	SF		3	E		14		F
RAMY		1313	1314	1316	S06	W41	10069	08	17.5	3	SF		3	E		15		F
GOES		1429	1437	1446	S17	E35	10083			17	SF	C 5.4						4.5E-03
SVTO		1429	1438	1503D	S20	E35	10083	08	23.3	34D	SF		2	E		86		UF
HOLL		1429	1438	1508	S17	E35	10083	08	23.3	39	SF		3	E		77		FH
GOES		1547	1552	1555			10081			8		C 3.0						1.1E-03
HOLL		1558	1600	1616	N17	E13	10081	08	21.6	18	SF		3	E		23		F
GOES		1634	1640	1647	S06	E62	10085			13	SF	C 3.3						2.1E-03
HOLL		1639E	1641U	1719D	S06	E62	10085	08	25.3	40D	SF		3	E		13		F
GOES		1655	1706	1711	S08	W44	10069			16	SF	C 5.2						3.3E-03

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
RAMY	20	1702	1714	1724	S08	W44	10069	08 17.4	22	SF		3	E		16		F
GOES		1734	1755	1800	S07	W45	10069		26	SF	C 9.9						9.4E-03
HOLL		1759E	1759U	1812D	S07	W45	10069	08 17.4	13D	SF		3	E		39		F
GOES		1821	1828	1838			10069		17		C 3.3						3.0E-03
HOLL		2044	2112	2144	S10	E45	10085	08 24.2	60	1F		3	E		245		UF
GOES		2053	2114	2124	S10	E45	10085		31	1F	M 1.2						1.1E-02
HOLL		2114	2115	2129	S09	W44	10069	08 17.6	15	1F		3	E		112		F
GOES		2206	2211	2213					7		C 3.5						1.1E-03
GOES		2221	2228	2230	S09	W45	10069		9	SF	C 6.2						2.1E-03
HOLL		2225	2229	2238	S09	W45	10069	08 17.5	13	SF		3	E		58		F
GOES		2242	2245	2247	S07	W48	10069		5	SF	C 5.4						1.2E-03
HOLL		2243	2253	2258	S07	W48	10069	08 17.3	15	SF		3	E		19		
GOES		2308	2313	2317	S12	W45	10069		9	SF	C 6.4						2.7E-03
HOLL		2311	2311	2317	S12	W45	10069	08 17.6	6	SF		3	E		31		
GOES	21	0057	0101	0106			10069		9		C 3.3						1.6E-03
GOES		0135	0141	0145	S11	W47	10069		10	SF	M 1.4						4.7E-03
LEAR		0139	0140	0148	S11	W47	10069	08 17.5	9	SF		3	E		18		FH
LEAR		0408	0416	0445	S10	E40	10084	08 24.2	37	1F		3	E		113		F
GOES		0447	0451	0454			10083		7		C 3.6						1.4E-03
GOES		0528	0534	0536	S12	W51	10069		8	1B	X 1.0						2.3E-02
LEAR		0530	0532	0551	S12	W51	10069	08 17.4	21	1B		3	E		233		FH
SVTO		0531	0533	0607	S07	W51	10069	08 17.4	36	1N		3	E		200		FH
LEAR		0554	0555	0558	S08	W53	10069	08 17.3	4	SF		3	E		23		F
LEAR		0618	0621	0626	S08	W53	10069	08 17.3	8	SF		3	E		53		F
SVTO		0930	0930	0932	S07	W51	10069	08 17.6	2	SF		3	E		12		
SVTO		1142E	1142U	1153D	S19	E16	10083	08 22.7	11D	SF		2	E		13		
RAMY		1205	1205	1241	S18	E17	10083	08 22.8	36	SF		3	E		21		F
RAMY		1205	1206	1236	S10	W54	10069	08 17.4	31	SF		3	E		33		F
GOES		1245	1248	1251	S10	W54	10069		6	SF	C 3.3						1.0E-03
RAMY		1246	1248	1258	S10	W54	10069	08 17.5	12	SF		3	E		39		F
GOES		1258	1303	1309	S10	W55	10069		11	SF	C 3.1						1.9E-03
RAMY		1300	1309	1311	S10	W55	10069	08 17.4	11	SF		3	E		11		F
GOES		1349	1353	1359					10		C 2.5						1.4E-03
HOLL		1435	1436	1442	N10	W61	10067	08 17.0	7	SF		3	E		30		
RAMY		1436	1436	1441	N08	W62	10067	08 16.9	5	SF		3	E		13		
SVTO		1436	1437	1440	S14	E45	10085	08 25.0	4	SF		3	E		19		
HOLL		1436	1437	1441	S11	E45	10085	08 25.0	5	SF		3	E		36		
RAMY		1437	1437	1441	S10	E45	10085	08 25.0	4	SF		3	E		48		
RAMY		1443	1445	1449	S12	W55	10069	08 17.5	6	SF		3	E		16		
RAMY		1606	1612	1616	S09	W56	10069	08 17.5	10	SF		3	E		36		
GOES		1609	1612	1614	S09	W56	10069		5	SF	C 3.0						8.1E-04
GOES		1658	1702	1711	S14	W58	10069		13	SF	C 3.6						2.4E-03
RAMY		1701	1701	1705	S14	W58	10069	08 17.3	4	SF		3	E		23		F
GOES		1720	1725	1727	S11	W60	10069		7	SF	C 4.8						1.7E-03
RAMY		1722	1722	1730	S11	W60	10069	08 17.2	8	SF		3	E		56		F
GOES		1903	1907	1911			10069		8		C 8.9						3.1E-03
RAMY		2102	2102	2105	S12	W64	10069	08 17.0	3	SF		3	E		27		
GOES		2236	2240	2243			10069		7		C 4.4						1.5E-03
GOES		2323	2326	2329			10069		6		C 3.5						1.1E-03
GOES		2357	2401	2403	S08	W61	10069		6	SF	C 3.1						1.0E-03
LEAR		2358	2359	2408	S08	W61	10069	08 17.4	10	SF		2	E		38		
GOES	22	0013	0016	0019					6		C 3.4						1.0E-03
LEAR		0037	0038	0040	S07	W61	10069	08 17.4	3	SF		3	E		17		
LEAR		0053	0054	0057	S10	W66	10069	08 17.1	4	SF		3	E		35		FH
LEAR		0105	0113	0119	S08	W62	10069	08 17.4	14	SF		3	E		77		F
GOES		0138	0142	0144	S18	E07	10083		6	SF	C 3.3						9.9E-04
LEAR		0144	0159	0208	S18	E07	10083	08 22.6	24	SF		3	E		24		
GOES		0147	0157	0205	S07	W62	10069		18	2B	M 5.4						3.3E-02
LEAR		0151	0153	0225	S07	W62	10069	08 17.4	34	2B		3	E		256		FE
GOES		0306	0309	0313	S13	W60	10069		7	SF	C 3.1						1.1E-03
LEAR		0309	0309	0312	S13	W60	10069	08 17.6	3	SF		3	E		38		F
LEAR		0329	0330	0332	S07	W64	10069	08 17.3	3	SF		3	E		23		
LEAR		0359	0402	0406	S11	E41	10085	08 25.2	7	SF		2	E		42		
LEAR		0409	0411	0427	S09	E37	10085	08 24.9	18	SF		2	E		24		F
GOES		0513	0517	0524	S06	E41	10085		11	SF	C 2.8						1.7E-03
LEAR		0514	0517	0522	S06	E41	10085	08 25.3	8	SF		3	E		56		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 Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
GOES	22	0618	0734	0801	S21	W41	10079		103	1F	C 5.6						2.6E-02
LEAR		0621	0741	0908	S21	W41	10079	08 19.1	167	1F		3	E		115		F
LEAR		0622	0622	0630	N15	W27	10080	08 20.2	8	SF		3	E		22		F
SVTO		0628	0631	0633	S18	W36	10079	08 19.5	5	SF		3	E		40		F
SVTO		0638	0733	0817	S17	W39	10079	08 19.3	99	SF		3	E		42		F
LEAR		0652	0656	0659	S06	E40	10085	08 25.3	7	SF		3	E		24		
LEAR		0716	0716	0726	S06	E39	10085	08 25.2	10	SF		3	E		19		F
LEAR		0745	0749	0752	S10	W67	10069	08 17.3	7	SF		3	E		18		
GOES		0802	0805	0807	S07	W62	10069		5	SF	C 5.7						1.5E-03
SVTO		0803	0805	0807	S07	W62	10069	08 17.7	4	SF		3	E		50		
LEAR		0803	0805	0809	S13	W65	10069	08 17.4	6	SF		2	E		59		
GOES		1044	1048	1051	S09	E38	10085		7	SF	C 4.1						1.3E-03
SVTO		1047	1048	1056	S09	E38	10085	08 25.3	9	SF		3	E		71		
RAMY		1048	1049	1102	S05	E36	10085	08 25.1	14	SF		2	E		56		F
RAMY		1140	1140	1150	S07	E37	10085	08 25.2	10	SF		3	E		14		
RAMY		1157	1157	1204	S03	W66	10069	08 17.6	7	SF		3	E		18		
GOES		1317	1320	1328	S04	W67	10069		11	SF	C 2.9						1.8E-03
RAMY		1322	1322	1329	S04	W67	10069	08 17.5	7	SF		3	E		19		
GOES		1415	1419	1423			10069		8		C 4.8						1.8E-03
RAMY		1458	1500	1503	S09	W73	10069	08 17.1	5	SF		3	E		10		
GOES		1616	1624	1630	S22	W48	10079		14	SF	C 7.0						4.4E-03
HOLL		1619	1622	1631	S22	W48	10079	08 19.0	12	SF		3	E		50		
RAMY		1619	1624	1632	S22	W50	10079	08 18.8	13	SF		3	E		45		F
SVTO		1622E	1624U	1634D	S22	W49	10079	08 18.9	12D	SF		2	E		36		
GOES		1655	1658	1703			10087		8		C 3.4						1.5E-03
HOLL		1720	1721	1724	S05	E77		08 28.5	4	SF		3	E		16		
HOLL		1739	1751	1842	S05	E76	10087	08 28.4	63	1N		3	E		103		F
GOES		1739	1802	1815	S05	E76	10087		36	1N	M 1.2						1.9E-02
RAMY		1746	1802	1821	S04	E73	10087	08 28.2	35	1F		3	E		107		FH
HOLL		1813	1820	1838	S06	E30	10085	08 25.0	25	SF		3	E		17		
HOLL		1829	1831	1838	S21	W44	10079	08 19.4	9	SF		3	E		23		
RAMY		1830	1830	1850	S22	W44	10079	08 19.4	20	SF		3	E		30		
RAMY		1831	1831	1835	S05	E71	10087	08 28.1	4	SF		3	E		14		
GOES		1951	1956	1958					7		C 3.0						1.2E-03
GOES		2033	2037	2041	S12	W70	10069		8	SF	C 4.3						1.7E-03
HOLL		2035	2038	2044	S12	W70	10069	08 17.6	9	SF		3	E		20		F
HOLL		2054	2055	2103	S21	W46	10079	08 19.3	9	SF		3	E		31		F
GOES		2209	2250	2300			10069		51		C 4.5						1.1E-02
GOES	23	0040	0046	0057	S08	W75	10069		17	SF	C 5.0						4.1E-03
HOLL		0043	0045	0056	S07	W74	10069	08 17.5	13	SF		3	E		43		F
LEAR		0043	0046	0049	S08	W75	10069	08 17.4	6	SF		3	E		68		F
LEAR		0043	0046	0123	S06	E26	10085	08 25.0	40	SF		3	E		45		F
HOLL		0043	0048	0057D	S07	E26	10085	08 25.0	14D	SF		3	E		20		
LEAR		0147	0203	0206	S07	W76	10069	08 17.4	19	SF		3	E		64		
GOES		0236	0239	0244					8		C 3.6						1.6E-03
LEAR		0319	0320	0322	S18	W07	10083	08 22.6	3	SF		3	E		13		
LEAR		0355	0356	0400	S03	E69	10087	08 28.3	5	SF		3	E		15		
GOES		0414	0420	0424	S07	W77	10069		10	SF	C 9.4						3.4E-03
LEAR		0418	0420	0430	S07	W77	10069	08 17.4	12	SF		3	E		48		
LEAR		0432	0436	0440	S12	E12	10084	08 24.1	8	SF		3	E		64		F
LEAR		0518	0519	0523	S13	E12	10084	08 24.1	5	SF		3	E		19		
GOES		0531	0549	0554	S04	E22	10085		23	2N	M 1.7						1.3E-02
LEAR		0537	0549	0628	S04	E22	10085	08 24.9	51	2N		3	E		467		FE
LEAR		0541	0543	0606	S10	W80	10069	08 17.2	25	SN		3	E		87		EH
LEAR		0544	0546	0548	S03	E66	10087	08 28.2	4	SF		3	E		49		
LEAR		0544	0548	0552	S13	E11	10084	08 24.1	8	SF		3	E		34		F
SVTO		0546E	0550U	0603D	S11	E23	10085	08 25.0	17D	SF		2	E		85		F
LEAR		0548	0548	0551	S08	E73	10087	08 28.7	3	SF		3	E		79		
LEAR		0604	0608	0613	S17	W09	10083	08 22.6	9	SF		3	E		16		F
LEAR		0619	0623	0712	S03	E67	10087	08 28.3	53	SN		3	E		39		FH
GOES		0622	0625	0629	S03	E67	10087		7	SN	C 8.6						2.9E-03
LEAR		0624	0625	0631	S09	W81	10069	08 17.2	7	SN		3	E		33		E
SVTO		0630E	0632U	0718D	S08	E72	10087	08 28.7	48D	SF		3	E		38		
LEAR		0711	0712	0716	S09	W82	10069	08 17.1	5	SF		3	E		14		
LEAR		0720	0721	0724	S09	E22	10085	08 24.9	4	SF		3	E		14		H
GOES		0728	0731	0733					5		C 3.4						8.8E-04
LEAR		0748	0750	0753	S18	W09	10083	08 22.6	5	SF		3	E		23		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 Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
GOES	23	0800	0946	1014			10069			134		M 1.5						8.8E-02
LEAR		0805	0805	0813	S18	W13	10083	08	22.3	8	SF		3	E		14		
LEAR		0823	0823	0827	S18	W58	10079	08	18.9	4	SF		2	E		21		F
LEAR		0824	0832	0905	S08	E73	10087	08	28.8	41	SF		2	E		52		FH
LEAR		0837	0841	0843	S09	W83	10069	08	17.1	6	SF		2	E		24		
LEAR		0853	0901	0908	S09	W85	10069	08	17.0	15	SF		2	E		70		
SVTO		0855	0856	0858	S04	W77	10068	08	17.6	3	SF		3	E		30		
SVTO		0900	0900	0904	S07	W74	10069	08	17.8	4	SF		3	E		37		
LEAR		0907	0912	0914	S07	E72	10087	08	28.8	7	SF		1	E		25		
LEAR		0916	0918	0921	S09	W86	10069	08	16.9	5	SF		1	E		38		
RAMY		1106	1106	1111	S14	E09	10084	08	24.1	5	SF		3	E		29		
RAMY		1106	1106	1113	S11	W87	10069	08	16.9	7	SF		3	E		54		H
GOES		1142	1146	1154	S04	W78	10000			12	SF	C 8.1						5.3E-03
SVTO		1145	1151	1201	S04	W78	10069	08	17.6	16	SF		3	E		86		
GOES		1156	1200	1210	S07	W75	10069			14	SF	M 1.2						8.3E-03
SVTO		1204	1205	1208	S07	W75	10069	08	17.9	4	SF		3	E		22		
RAMY		1248	1315	1407	S03	E64	10087	08	28.3	79	2N		3	E		325		UF
GOES		1305	1314	1324	S03	E64	10087			19	2N	M 1.5						1.5E-02
RAMY		1307	1307	1311	S07	W82	10069	08	17.4	4	SF		3	E		13		
HOLL		1323	1323	1412	S05	E61	10087	08	28.1	49	2F		3	E		413		F
HOLL		1400	1401	1411	S08	W81	10069	08	17.5	11	SF		3	E		35		
RAMY		1401	1401	1406	S10	W89	10069	08	16.9	5	SF		3	E		25		H
HOLL		1416	1426	1442	S08	W83	10069	08	17.4	26	SN		3	E		99		H
RAMY		1418	1426	1440	S09	W81	10069	08	17.5	22	SN		3	E		83		H
SVTO		1426	1427	1430D	S05	W83	10069	08	17.4	4D	SF		2	E		70		
SVTO		1433	1436	1439	S05	W80	10069	08	17.6	6	SF		3	E		51		
HOLL		1444	1448	1456	S09	W79	10069	08	17.7	12	SF		3	E		30		
RAMY		1447	1448	1453	S10	W89	10069	08	16.9	6	SF		3	E		25		H
HOLL		1506	1506	1527	S23	W07	10083	08	23.1	21	SF		3	E		26		FH
RAMY		1506	1507	1523	S23	W07	10083	08	23.1	17	SF		3	E		34		FH
SVTO		1507	1507	1512	S21	W09	10083	08	22.9	5	SF		3	E		21		
RAMY		1523	1524	1528	S10	W89	10069	08	16.9	5	SF		3	E		22		
HOLL		1523	1524	1528	S09	W82	10069	08	17.5	5	SF		3	E		36		
RAMY		1542	1542	1547	S10	W89	10069	08	17.0	5	SF		3	E		29		
HOLL		1543	1544	1549	S09	W89	10069	08	17.0	6	SF		3	E		16		
HOLL		1751	1752	1756	S09	W84	10069	08	17.4	5	SF		3	E		26		
GOES		1852	1858	1905	S14	E23	10085			13	SF	C 3.7						2.6E-03
HOLL		1854	1856	1903	S14	E23	10085	08	25.5	9	SF		3	E		22		F
GOES		1914	1917	1920						6		C 3.8						1.2E-03
HOLL		2004	2004	2019	S04	E60	10087	08	28.3	15	SF		3	E		19		
HOLL		2005	2023	2105	S17	W12	10083	08	22.9	60	1F		3	E		100		UF
RAMY		2007	2007	2027	S03	E61	10087	08	28.4	20	SF		3	E		47		F
RAMY		2007	2016	2130	S17	W15	10083	08	22.7	83	2F		3	E		270		UH
GOES		2009	2021	2128	S17	W15	10083			79	2F	M 1.4						4.1E-02
RAMY		2026	2031	2034	S22	W29	10088	08	21.6	8	SF		3	E		16		F
RAMY		2140	2140	2143	S07	W87	10069	08	17.4	3	SF		3	E		15		F
LEAR	24	0002	0005	0025	S06	E12	10085	08	24.9	23	SF		3	E		26		F
GOES		0049	0112	0131	S02	W81	10069			42	1F	X 3.1						4.6E-01
LEAR		0055	0103	0123	S02	W81	10069	08	18.0	28	1F		3	E		122		F
LEAR		0517	0520	0524	S07	E10	10085	08	25.0	7	SF		2	E		33		F
LEAR		0536	0546	0648	S05	E54	10087	08	28.3	72	2B		1	E		285		HE
SVTO		0537	0546	0632	S09	E52	10087	08	28.1	55	1N		2	E		246		FH
GOES		0538	0548	0559	S09	E52	10087			21	1N	M 1.8						1.8E-02
LEAR		0617	0621	0623	S08	E11	10085	08	25.1	6	SF		1	E		45		F
SVTO		0925	0928	0938	S06	E07	10085	08	24.9	13	SF		2	E		21		F
GOES		1112	1128	1141						29		M 1.5						1.6E-02
RAMY		1201	1202	1235	S17	W24	10083	08	22.7	34	SF		3	E		10		
GOES		1242	1301	1308						26		C 5.4						7.6E-03
GOES		1508	1512	1515	S24	W71	10079			7	SF	C 4.6						1.5E-03
RAMY		1510	1511	1515	S25	W77	10079	08	18.7	5	SF		3	E		22		H
HOLL		1511	1512	1515	S24	W71	10079	08	19.1	4	SF		3	E		19		
GOES		1738	1743	1748						10		C 2.9						1.6E-03
HOLL		1754	1757	1801	S04	E48	10087	08	28.3	7	SF		3	E		13		F
GOES		1832	1842	1859	S18	W27	10083			27	SF	C 6.0						8.7E-03
HOLL		1839	1839	1842	S18	W27	10083	08	22.7	3	SF		3	E		13		
GOES		2103	2108	2114						11		C 3.1						1.9E-03
GOES	25	0315	0321	0330						15		C 3.1						2.2E-03

Hα SOLAR FLARES

AUGUST 2002

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 Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
SVTO	25	1038	1039	1042	S19	W49	10088	08	21.7	4	SF		3	E		30		
GOES		1059	1118	1152						53		C 3.6						9.7E-03
RAMY		1257	1259	1304	N14	W62	10080	08	20.8	7	SF		3	E		18		F
GOES		1538	1613	1630	N16	W65	10080			52	SF	C 1.4						4.1E-03
SVTO		1604	1605	1616	N16	W65	10080	08	20.7	12	SF		3	E		16		
GOES		1756	1759	1804						8		C 1.1						4.8E-04
GOES		1845	1853	1858	S17	W40	10083			13	SF	M 1.1						4.8E-03
HOLL		1851	1855	1910	S17	W40	10083	08	22.7	19	SF		3	E		60		FH
GOES		2338	2346	2353	S18	W42	10083			15	SF	M 1.9						1.2E-02
HOLL		2340	2345	2409	S18	W42	10083	08	22.8	29	SF		3	E		54		F
GOES	26	0039	0103	0125	S19	W45	10083			46	SF	M 1.8						3.7E-02
HOLL		0043	0107	0121	S19	W45	10083	08	22.6	38	SF		3	E		46		F
GOES		0532	0537	0543	S05	W14	10085			11	SF	C 2.9						1.4E-03
SVTO		0535E	0538	0549	S05	W14	10085	08	25.2	14D	SF		3	E		40		FH
GOES		0939	0945	0948	S05	W15	10085			9	1F	C 4.0						1.4E-03
SVTO		0942	0944	1016	S05	W15	10085	08	25.3	34	1F		3	E		125		F
GOES		1251	1300	1309	S07	W15	10085			18	SF	C 2.5						2.0E-03
RAMY		1254	1301	1316	S07	W15	10085	08	25.4	22	SF		3	E		60		F
RAMY		1341	1342	1344	S07	W19	10085	08	25.1	3	SF		3	E		16		
GOES		1615	1624	1628	S19	W53	10083			13	SF	C 7.6						2.6E-03
RAMY		1623	1623	1646	S19	W53	10083	08	22.6	23	SF		3	E		45		F
HOLL		1623	1626	1645	S19	W53	10083	08	22.6	22	SF		3	E		45		F
GOES		1835	1842	1845	S07	W24	10085			10	SF	C 3.4						1.3E-03
RAMY		1839	1842	1849	S08	W23	10085	08	25.0	10	SF		3	E		75		FH
HOLL		1840	1842	1847	S07	W24	10085	08	25.0	7	SF		3	E		47		FH
GOES		1936	2011	2029	S18	W56	10083			53	SF	C 7.8						1.9E-02
RAMY		1939	2000	2034	S18	W56	10083	08	22.5	55	SF		3	E		82		F
HOLL		1944	1958	2023	S18	W52	10083	08	22.9	39	SF		3	E		52		F
HOLL		2024	2026	2030	S20	W56	10083	08	22.6	6	SF		3	E		10		
GOES		2131	2135	2137	S08	W25	10085			6	SF	C 3.8						8.0E-04
HOLL		2134	2135	2138	S08	W25	10085	08	25.0	4	SF		3	E		52		H
GOES	27	0515	0519	0523						8		C 1.8						6.3E-04
GOES		0818	0821	0823						5		C 1.0						2.6E-04
SVTO		0926E	0932U	0949D	S10	E17	10087	08	28.7	23D	SF		2	E		30		
GOES		1004	1007	1011						7		C 1.4						5.3E-04
GOES		1018	1022	1025						7		C 1.5						5.3E-04
GOES		1225	1229	1232						7		C 9.0						1.8E-03
HOLL		1857	1858	1900	S18	W65	10083	08	22.8	3	SF		3	E		15		
GOES		2030	2033	2039						9		C 1.2						6.0E-04
GOES	28	0115	0119	0123						8		C 2.0						8.2E-04
GOES		0250	0253	0255						5		C 2.0						5.3E-04
GOES		0311	0315	0325						14		C 2.0						1.5E-03
GOES		0638	0647	0653						15		C 1.7						1.3E-03
GOES		0705	0708	0712						7		C 1.3						5.0E-04
GOES		1057	1100	1110	S15	W79	10083			13	SF	C 5.7						3.3E-03
SVTO		1059	1100	1105	S15	W79	10083	08	22.5	6	SF		3	E		82		
GOES		1141	1148	1156						15		C 2.4						1.9E-03
GOES		1424	1427	1432						8		C 1.6						7.1E-04
GOES		1440	1448	1453						13		C 2.9						1.9E-03
GOES		1548	1552	1555						7		C 8.1						2.2E-03
GOES		1645	1658	1709			10083			24		M 1.3						1.3E-02
HOLL		1735	1739	1743	S09	E01	10087	08	28.8	8	SF		3	E		16		F
GOES		1741	1748	1754	S18	W78	10083			13	SF	C 4.4						3.0E-03
RAMY		1743	1749	1756	S18	W78	10083	08	22.8	13	SF		3	E		88		H
GOES		1806	1812	1819						13		C 6.6						4.3E-03
RAMY		1841	1842	1847	S17	W81	10083	08	22.6	6	SF		3	E		32		H
HOLL		1847	1848	1855	S03	E23	10090	08	30.5	8	SF		3	E		59		F
GOES		1852	1859	1906	S03	E23				14	SF	M 4.6						2.5E-02
HOLL		1908	1916	1925	S03	E27	10090	08	30.8	17	SF		3	E		14		
HOLL		2017	2023	2030	S18	W79	10083	08	22.8	13	SF		3	E		25		
GOES		2138	2145	2149						11		M 1.1						4.5E-03
GOES	29	0014	0052	0108						54		C 4.7						1.1E-02
GOES		0245	0253	0302						17		M 1.6						1.1E-02
GOES		0456	0506	0526						30		M 1.8						2.3E-02

Hα SOLAR FLARES

AUGUST 2002

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	29	0713	0742	0755						42		C 7.2						1.4E-02
GOES		1033	1039	1045	S11	W49	10085			12	SF	C 4.5						2.6E-03
RAMY		1038E	1038U	1059	S11	W49	10085	08	25.7	21D	SF		3	E		67		F
GOES		1058	1102	1106						8		C 3.8						1.6E-03
RAMY		1215	1215	1227	S17	E73		09	4.0	12	SF		3	E		22		
RAMY		1242	1248	1259	S18	E73		09	4.1	17	SF		3	E		28		
GOES		1242	1252	1256	S18	E73	10095			14	SF	M 3.2						1.5E-02
GOES		1321	1326	1330						9		C 4.9						2.2E-03
SVTO		1356E	1357U	1401	S03	W16	10087	08	28.4	5D	SF		2	E		10		
HOLL		1423	1425	1440	S04	W16	10087	08	28.4	17	SF		3	E		79		
HOLL		1427	1431	1440	S04	E12	10090	08	30.5	13	SF		3	E		30		
GOES		1447	1450	1453						6		C 2.9						9.3E-04
GOES		1522	1528	1531						9		C 4.4						2.0E-03
GOES		1655	1700	1704						9		C 2.8						1.3E-03
HOLL		1742E	1815U	1817	S23	E73	10094	09	4.4	35D	SF		3	E		31		
HOLL		1823	1829	1837	S17	E69	10094	09	4.0	14	SF		3	E		36		
GOES		1925	1928	1932						7		C 5.2						1.7E-03
HOLL		1934	1938	1941	S11	W21	10087	08	28.2	7	SF		3	E		22		
GOES		2140	2143	2145						5		C 4.7						1.2E-03
HOLL		2147	2148	2151	N08	E83	10095	09	5.1	4	SF		3	E		10		
HOLL		2148	2152	2156	S16	E67	10094	09	4.0	8	SF		3	E		14		
HOLL		2151	2156	2158	N07	E87	10095	09	5.4	7	SF		3	E		34		
GOES		2329	2337	2349	N08	E83	10095			20	1F	C 7.3						6.8E-03
HOLL		2331	2334	2349	N08	E83	10095	09	5.2	18	1F		3	E		149		
GOES	30	0234	0241	0247						13		C 8.5						4.5E-03
GOES		0252	0309	0320						28		C 7.4						1.1E-02
GOES		0427	0431	0436						9		C 3.4						1.4E-03
GOES		0447	0455	0458						11		C 5.7						3.0E-03
GOES		0501	0505	0511						10		C 3.9						2.1E-03
GOES		0735	0741	0748						13		C 2.6						1.7E-03
GOES		1032	1053	1105	S19	W29	10092			33	SF	C 4.3						5.5E-03
SVTO		1052E	1054U	1107	S17	W30	10092	08	28.2	15D	SF		3	E		23		
RAMY		1059	1100	1108	S19	W29	10092	08	28.2	9	SF		3	E		23		
RAMY		1130	1134	1145	N09	E76	10095	09	5.2	15	SF		3	E		31		
RAMY		1154	1155	1157	N09	E75	10095	09	5.1	3	SF		3	E		11		
RAMY		1226	1328	1349	N15	E74	10095	09	5.1	83	SN		3	E		89		FH
SVTO		1236E	1312U	1312D	N02	E73	10095	09	5.0	36D	SF		3	E		58		F
GOES		1247	1329	1335	N15	E74	10095			48	SN	X 1.5						7.0E-02
RAMY		1306	1322	1332	S06	W26	10087	08	28.6	26	SF		3	E		16		
RAMY		1315	1319	1322	S11	W70	10085	08	25.3	7	SF		3	E		10		
RAMY		1415	1418	1424	N08	E76	10095	09	5.3	9	SF		3	E		24		
HOLL		1427	1431	1436	N08	E75	10095	09	5.2	9	SF		3	E		29		F
GOES		1435	1440	1443	N08	E75	10095			8	SF	C 8.4						2.4E-03
HOLL		1441	1443	1456	N09	E77	10095	09	5.4	15	SF		3	E		33		
GOES		1518	1527	1529						11		C 2.4						1.3E-03
HOLL		1525	1527	1530	N07	E81	10095	09	5.7	5	SF		3	E		28		F
GOES		1531	1534	1537	N09	E78	10095			6	SF	C 2.8						9.9E-04
HOLL		1534	1539	1542	N09	E78	10095	09	5.5	8	SF		3	E		18		
HOLL		1552	1555	1601	N08	E77	10095	09	5.4	9	SF		3	E		33		
HOLL		1744	1744	1749	N06	E81	10095	09	5.8	5	SF		3	E		12		F
HOLL		1822	1827	1834	N08	E70	10095	09	5.0	12	SF		3	E		11		
HOLL		1824	1825	1827	S11	W29	10087	08	28.6	3	SF		3	E		15		
HOLL		2029	2030	2033	S11	W30	10087	08	28.6	4	SF		3	E		12		
GOES	31	0002	0005	0007						5		C 3.2						7.6E-04
GOES		0110	0114	0116						6		C 2.6						7.3E-04
GOES		0336	0347	0410						34		C 6.7						1.2E-02
GOES		0509	0527	0600						51		C 1.8						4.8E-03
GOES		1328	1332	1337	N10	E60	10095			9	SF	C 3.0						1.5E-03
RAMY		1330	1330	1335	N10	E60	10095	09	5.1	5	SF		3	E		16		
GOES		1418	1422	1425						7		C 4.7						1.5E-03
GOES		1526	1529	1533	N08	E60	10095			7	SF	C 3.8						1.5E-03
HOLL		1529	1529	1533	N08	E60	10095	09	5.1	4	SF		3	E		10		F
GOES		1611	1619	1623	N11	E61	10095			12	SF	C 8.8						4.6E-03
RAMY		1614	1615	1619	N11	E61	10095	09	5.3	5	SF		3	E		13		
HOLL		1622	1623	1625	S14	E65	10096	09	5.6	3	SF		3	E		21		
HOLL		1623	1624	1627	N09	E60	10095	09	5.2	4	SF		3	E		18		F

Hα SOLAR FLARES

AUGUST 2002

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	31	1924	1928	1930						6		C 3.4						9.0E-04
GOES		1948	1956	1958	N10	E60	10095			10	SF	C 9.1						2.6E-03
HOLL		1955	1955	2003D	N10	E60	10095	09	5.3	8D	SF		3	E		12		
GOES		2251	2257	2303						12		C 2.0						1.3E-03

"Remarks"

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

Observation Type: C=Cinematographic, E=Electronic, P=Photographic, V=Visual

NOTE: Beginning July 1997, the times of all GOES X-ray events are now included in this table.

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

AUGUST 2002

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
01	2695	LEAR	4	S/F	0030.0	0032.0	7.0	130.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0031.0	0033.0	4.0	36.0			QL=4 ST=2 TYP=3
	2695	PALE	48	C	0031.0	0033.0	5.0	130.0			QL=4 ST=2 TYP=8
	8800	PALE	48	C	0032.0	0034.0	4.0	60.0			QL=4 ST=2 TYP=8
	2695	SVTO	4	S/F	0623.0	0625.0	3.0	42.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0624.0	0625.0	2.0	44.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0625.0	0626.0	1.0	26.0			QL=4 ST=2 TYP=3
	8800	LEAR	48	C	0741.0	0741.0	1.0	100.0			QL=4 ST=2 TYP=8
	2695	LEAR	8	S	0741.0	0741.0	2.0	46.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	0741.0	0742.0	3.0	47.0			QL=4 ST=3 TYP=3
	8800	SVTO	4	S/F	0741.0	0742.0	5.0	88.0			QL=4 ST=3 TYP=3
	8800	LEAR	8	S	0850.0	0850.0	U	55.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0850.0	0850.0	2.0	56.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1122.0	1122.0	U	21.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1705.0	1706.0	6.0	220.0			QL=4 ST=3 TYP=3
	8800	SVTO	8	S	1705.0	1706.0	1.0	170.0			QL=4 ST=3 TYP=3
	2695	PALE	4	S/F	1706.0	1706.0	3.0	270.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1706.0	1706.0	U	250.0			QL=4 ST=2 TYP=3
02	8800	LEAR	8	S	0619.0	0620.0	2.0	180.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0620.0	0620.0	U	29.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0620.0	0620.0	1.0	170.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0908.0	0909.0	2.0	52.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0909.0	0909.0	U	43.0			QL=2 ST=2 TYP=3
03	8800	SGMR	48	C	1300.0	1302.0	7.0	450.0			QL=4 ST=2 TYP=8
	2695	SGMR	46	C	1301.0	1302.0	6.0	29.0			QL=4 ST=2 TYP=8
	8800	SGMR	48	C	1903.0	1906.0	5.0	540.0			QL=4 ST=2 TYP=8
	8800	PALE	48	C	1904.0	1907.0	4.0	270.0			QL=4 ST=2 TYP=8
	2695	SGMR	4	S/F	1904.0	1904.0	3.0	85.0			QL=4 ST=2 TYP=3
	2695	PALE	48	C	1905.0	1905.0	2.0	80.0			QL=4 ST=2 TYP=8
	8800	PALE	8	S	2125.0	2126.0	1.0	130.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	2125.0	2125.0	U	91.0			QL=4 ST=2 TYP=3
04	8800	SVTO	8	S	0446.0	0446.0	2.0	39.0			QL=4 ST=2 TYP=3
	8800	LEAR	48	C	0907.0	0912.0	14.0	1300.0			QL=4 ST=2 TYP=8
	8800	SVTO	49	GB	0907.0	0913.0	83.0	1100.0			QL=4 ST=2 TYP=6
	2695	LEAR	4	S/F	0909.0	0913.0	14.0	930.0			QL=4 ST=2 TYP=3
	2695	SVTO	49	GB	0909.0	0913.0	29.0	710.0			QL=4 ST=2 TYP=6
	2695	LEAR	8	S	0933.0	0933.0	U	51.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1453.0	1457.0	6.0	28.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	1453.0	1457.0	6.0	51.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1456.0	1457.0	1.0	58.0			QL=4 ST=2 TYP=3
06	2695	SGMR	4	S/F	1255.0	1256.0	4.0	190.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1256.0	1256.0	1.0	37.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1256.0	1257.0	2.0	33.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1256.0	1257.0	3.0	150.0			QL=4 ST=2 TYP=3
11	8800	SGMR	4	S/F	1140.0	1140.0	3.0	210.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	1140.0	1141.0	4.0	210.0			QL=4 ST=2 TYP=3
12	8800	LEAR	4	S/F	0216.0	0217.0	3.0	92.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0217.0	0217.0	U	86.0			QL=4 ST=2 TYP=3
13	8800	LEAR	48	C	0244.0	0247.0	9.0	79.0			QL=4 ST=2 TYP=8
	8800	LEAR	8	S	0707.0	0707.0	1.0	53.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	0707.0	0708.0	3.0	63.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0924.0	0924.0	1.0	56.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1314.0	1314.0	1.0	88.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1315.0	1315.0	2.0	84.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1413.0	1414.0	3.0	140.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	1414.0	1414.0	3.0	130.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1505.0	1505.0	1.0	40.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	1856.0	1859.0	3.0	140.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1856.0	1859.0	20.0	140.0			QL=4 ST=2 TYP=3
14	2695	LEAR	48	C	0144.0	0202.0	1336.0	140.0			QL=4 ST=1 TYP=8
	2695	LEAR	48	C	0146.0	0202.0	62.0	140.0			QL=4 ST=2 TYP=8

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

AUGUST 2002

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
14	2695	PALE	48	C	0149.0	0202.0	29.0	140.0			QL=4 ST=2 TYP=8
	8800	LEAR	4	S/F	0200.0	0202.0	1320.0	30.0			QL=4 ST=1 TYP=3
	8800	PALE	4	S/F	0201.0	0209.0	9.0	46.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	0232.0	0235.0	14.0	70.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	0232.0	0235.0	14.0	170.0			QL=4 ST=2 TYP=3
	8800	LEAR	46	C	0305.0	0307.0	2.0	34.0			QL=4 ST=2 TYP=8
	8800	LEAR	8	S	0621.0	0621.0	U	30.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0622.0	0622.0	U	27.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0720.0	0720.0	1.0	84.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0721.0	0721.0	U	80.0			QL=4 ST=3 TYP=3
	8800	SVTO	8	S	0838.0	0839.0	1.0	39.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	0900.0	0904.0	9.0	110.0			QL=4 ST=2 TYP=3
	8800	LEAR	48	C	0904.0	0904.0	U	51.0			QL=4 ST=2 TYP=8
	8800	SVTO	8	S	1011.0	1011.0	1.0	55.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1216.0	1217.0	1.0	52.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1217.0	1217.0	1.0	51.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1417.0	1417.0	1.0	39.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1418.0	1418.0	U	31.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1906.0	1906.0	3.0	110.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2137.0	2138.0	1.0	53.0			QL=4 ST=2 TYP=3
15	8800	LEAR	8	S	0111.0	0111.0	1.0	67.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0603.0	0604.0	3.0	130.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0604.0	0604.0	2.0	140.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0604.0	0604.0	2.0	110.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0604.0	0605.0	2.0	140.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0754.0	0759.0	6.0	48.0			QL=4 ST=2 TYP=3
16	2695	SVTO	4	S/F	0555.0	0556.0	6.0	46.0			QL=4 ST=2 TYP=3
	2695	LEAR	46	C	0556.0	0556.0	U	46.0			QL=4 ST=2 TYP=8
	2695	SVTO	48	C	0607.0	0629.0	31.0	80.0			QL=2 ST=2 TYP=8
	8800	LEAR	46	C	0613.0	0621.0	12.0	46.0			QL=4 ST=2 TYP=8
	8800	SVTO	46	C	0615.0	0620.0	26.0	38.0			QL=4 ST=2 TYP=8
	2695	LEAR	46	C	0616.0	0621.0	11.0	47.0			QL=4 ST=2 TYP=8
	8800	SGMR	48	C	1132.0	1135.0	11.0	240.0			QL=4 ST=2 TYP=8
	8800	SVTO	48	C	1132.0	1213.0	176.0	1900.0			QL=4 ST=3 TYP=8
	2695	SGMR	4	S/F	1133.0	1136.0	10.0	89.0			QL=4 ST=2 TYP=3
	2695	SVTO	48	C	1134.0	1214.0	172.0	1600.0			QL=4 ST=3 TYP=8
	8800	SGMR	8	S	1807.0	1807.0	1.0	56.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	2210.0	2210.0	1.0	37.0			QL=4 ST=2 TYP=3
17	8800	LEAR	8	S	0503.0	0503.0	U	76.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0503.0	0503.0	U	64.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	0632.0	0633.0	7.0	44.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	0632.0	0636.0	5.0	28.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0856.0	0856.0	U	71.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0856.0	0856.0	U	36.0			QL=4 ST=2 TYP=3
	8800	LEAR	48	C	0905.0	0907.0	4.0	68.0			QL=4 ST=2 TYP=8
	8800	SGMR	4	S/F	2045.0	2048.0	14.0	360.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	2047.0	2049.0	3.0	180.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2308.0	2308.0	U	51.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	2354.0	2354.0	U	43.0			QL=4 ST=3 TYP=3
	8800	PALE	8	S	2354.0	2354.0	U	63.0			QL=4 ST=2 TYP=3
18	8800	LEAR	4	S/F	0143.0	0145.0	6.0	65.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	0144.0	0145.0	5.0	100.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0328.0	0332.0	7.0	46.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0730.0	0730.0	8.0	590.0			QL=4 ST=2 TYP=3
	8800	SVTO	49	GB	0730.0	0730.0	13.0	620.0			QL=4 ST=2 TYP=6
	8800	SVTO	48	C	0949.0	0958.0	29.0	280.0			QL=4 ST=2 TYP=8
	2695	SVTO	4	S/F	1002.0	1003.0	11.0	61.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1206.0	1207.0	2.0	78.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	1206.0	1206.0	3.0	76.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	1432.0	1436.0	17.0	110.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1436.0	1437.0	2.0	59.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	2020.0	2020.0	5.0	130.0			QL=4 ST=2 TYP=3
	8800	SGMR	49	GB	2113.0	2121.0	21.0	2600.0			QL=4 ST=2 TYP=6
	2695	SGMR	48	C	2114.0	2121.0	16.0	680.0			QL=4 ST=2 TYP=8
	8800	PALE	49	GB	2115.0	2121.0	12.0	1200.0			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

AUGUST 2002

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
18	2695	PALE	48	C	2115.0	2121.0	13.0	610.0			QL=4 ST=2 TYP=8
	8800	PALE	4	S/F	2215.0	2230.0	17.0	84.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2247.0	2247.0	1.0	260.0			QL=4 ST=2 TYP=3
19	8800	SVTO	49	GB	1030.0	1032.0	7.0	880.0			QL=4 ST=2 TYP=6
	2695	SVTO	8	S	1031.0	1032.0	1.0	77.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1239.0	1240.0	1.0	52.0			QL=4 ST=2 TYP=3
	8800	SGMR	48	C	1429.0	1442.0	29.0	140.0			QL=4 ST=2 TYP=8
	8800	SVTO	48	C	1429.0	1442.0	24.0	120.0			QL=4 ST=2 TYP=8
	2695	SVTO	4	S/F	1430.0	1432.0	17.0	52.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1431.0	1432.0	8.0	48.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2100.0	2101.0	1.0	240.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	2100.0	2101.0	1.0	220.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	2101.0	2101.0	U	21.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2241.0	2241.0	U	46.0			QL=4 ST=2 TYP=3
20	8800	LEAR	8	S	0139.0	0140.0	2.0	100.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	0139.0	0139.0	U	58.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0139.0	0140.0	2.0	95.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0145.0	0146.0	1.0	65.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0149.0	0149.0	U	54.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0208.0	0209.0	3.0	110.0			QL=4 ST=2 TYP=3
	8800	LEAR	48	C	0208.0	0209.0	2.0	130.0			QL=4 ST=2 TYP=8
	2695	PALE	8	S	0208.0	0209.0	2.0	120.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0208.0	0209.0	2.0	140.0			QL=4 ST=2 TYP=3
	8800	LEAR	48	C	0255.0	0257.0	3.0	72.0			QL=4 ST=2 TYP=8
	8800	LEAR	49	GB	0824.0	0825.0	3.0	1200.0			QL=4 ST=2 TYP=6
	8800	SVTO	49	GB	0824.0	0825.0	7.0	950.0			QL=4 ST=2 TYP=6
	2695	LEAR	8	S	0825.0	0825.0	1.0	160.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0825.0	0825.0	1.0	160.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1028.0	1029.0	3.0	410.0			QL=2 ST=2 TYP=3
	8800	SVTO	4	S/F	1028.0	1029.0	3.0	320.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1427.0	1429.0	4.0	42.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1600.0	1601.0	2.0	140.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1601.0	1601.0	U	150.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1737.0	1737.0	U	70.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1758.0	1758.0	U	70.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1758.0	1758.0	1.0	100.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1923.0	1923.0	U	53.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2113.0	2113.0	1.0	240.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	2113.0	2113.0	1.0	230.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	2118.0	2119.0	3.0	150.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	2118.0	2119.0	3.0	150.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2209.0	2209.0	U	69.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2224.0	2224.0	U	52.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	2227.0	2227.0	3.0	100.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2245.0	2245.0	U	100.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	2307.0	2310.0	4.0	63.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2314.0	2315.0	2.0	150.0			QL=4 ST=2 TYP=3
21	8800	LEAR	48	C	0138.0	0138.0	4.0	310.0			QL=4 ST=2 TYP=8
	2695	LEAR	8	S	0138.0	0139.0	2.0	160.0			QL=4 ST=2 TYP=3
	8800	PALE	48	C	0138.0	0138.0	4.0	420.0			QL=4 ST=2 TYP=8
	2695	PALE	8	S	0138.0	0139.0	2.0	160.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0531.0	0531.0	2.0	450.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0531.0	0531.0	3.0	1700.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	0531.0	0531.0	9.0	450.0			QL=4 ST=2 TYP=3
	8800	SVTO	49	GB	0531.0	0531.0	6.0	1800.0			QL=4 ST=2 TYP=6
	2695	PALE	8	S	1722.0	1722.0	U	43.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1722.0	1722.0	U	53.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1905.0	1905.0	U	48.0			QL=4 ST=2 TYP=3
22	2695	LEAR	48	C	0150.0	0152.0	8.0	260.0			QL=4 ST=2 TYP=8
	2695	PALE	48	C	0150.0	0152.0	9.0	270.0			QL=4 ST=2 TYP=8
	8800	PALE	48	C	0151.0	0156.0	7.0	160.0			QL=4 ST=2 TYP=8
	8800	LEAR	48	C	0151.0	0156.0	15.0	230.0			QL=4 ST=2 TYP=8
	8800	SVTO	8	S	0804.0	0804.0	1.0	56.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1409.0	1409.0	U	40.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1409.0	1409.0	U	33.0			QL=4 ST=2 TYP=3

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

AUGUST 2002

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
22	8800	SGMR	48	C	1618.0	1622.0	9.0	120.0			QL=4 ST=2 TYP=8
	8800	SVTO	48	C	1618.0E	1622.0	8.0D	96.0			QL=4 ST=2 TYP=8
	2695	SGMR	4	S/F	1619.0	1625.0	6.0	40.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1655.0	1655.0	2.0	70.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1747.0	1747.0	2.0	51.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1754.0	1756.0	6.0	60.0			QL=4 ST=2 TYP=3
23	8800	LEAR	8	S	0420.0	0420.0	U	54.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0534.0	0534.0	U	27.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0542.0	0542.0	U	51.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	0542.0	0548.0	7.0	42.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	0544.0	0548.0	6.0	64.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0548.0	0548.0	1.0	74.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0548.0	0548.0	1.0	58.0			QL=4 ST=2 TYP=3
	8800	SVTO	48	C	0758.0	0845.0	116.0	120.0			QL=4 ST=2 TYP=8
	2695	LEAR	4	S/F	0830.0	0833.0	7.0	69.0			QL=4 ST=2 TYP=3
	2695	SVTO	48	C	0830.0	0846.0	84.0	100.0			QL=4 ST=2 TYP=8
	2695	LEAR	4	S/F	0842.0	0845.0	8.0	97.0			QL=4 ST=2 TYP=3
	8800	LEAR	48	C	0843.0	0849.0	7.0	61.0			QL=4 ST=2 TYP=8
	2695	SGMR	4	S/F	1304.0	1304.0	4.0	50.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1304.0	1304.0	656.0	46.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1425.0	1425.0	U	68.0			QL=4 ST=3 TYP=3
	8800	SVTO	8	S	1425.0	1425.0	U	65.0			QL=4 ST=2 TYP=3
24	2695	PALE	48	C	0050.0	0102.0	77.0	1200.0			QL=4 ST=2 TYP=8
	8800	PALE	48	C	0051.0	0104.0	79.0	9700.0			QL=4 ST=2 TYP=8
	8800	LEAR	48	C	0051.0	0104.0	88.0	13000.0			QL=4 ST=2 TYP=8
	2695	LEAR	48	C	0056.0	0114.0	55.0	790.0			QL=4 ST=2 TYP=8
	8800	PALE	8	S	0307.0	0307.0	U	53.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	0307.0	0307.0	8.0	41.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0544.0	0545.0	2.0	87.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0545.0	0545.0	1.0	73.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	1108.0	1114.0	11.0	200.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1114.0	1115.0	2.0	150.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1123.0	1124.0	4.0	290.0			QL=4 ST=2 TYP=3
25	2695	SGMR	8	S	1845.0	1846.0	1.0	46.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1846.0	1846.0	U	40.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2347.0	2347.0	U	66.0			QL=4 ST=2 TYP=3
27	2695	SVTO	8	S	0829.0	0829.0	U	63.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1228.0	1228.0	U	67.0			QL=4 ST=2 TYP=3
28	8800	SVTO	8	S	1058.0	1059.0	2.0	270.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1059.0	1059.0	1.0	280.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1059.0	1059.0	U	48.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1550.0	1550.0	1.0	64.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1648.0	1648.0	U	54.0			QL=4 ST=2 TYP=3
	2695	PALE	49	GB	1854.0	1855.0	5.0	700.0			QL=4 ST=2 TYP=6
	8800	PALE	49	GB	1854.0	1855.0	2.0	850.0			QL=4 ST=2 TYP=6
	8800	SGMR	49	GB	1854.0	1854.0	4.0	1300.0			QL=4 ST=2 TYP=6
	2695	SGMR	49	GB	1854.0	1854.0	6.0	930.0			QL=4 ST=2 TYP=6
	8800	SGMR	8	S	2142.0	2143.0	1.0	70.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	2142.0	2143.0	3.0	200.0			QL=4 ST=2 TYP=3
29	8800	LEAR	8	S	0250.0	0251.0	2.0	100.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0251.0	0251.0	1.0	100.0			QL=4 ST=2 TYP=3
	2695	SGMR	49	GB	1247.0	1249.0	7.0	720.0			QL=4 ST=2 TYP=6
	8800	SGMR	49	GB	1248.0	1249.0	4.0	510.0			QL=4 ST=2 TYP=6
	2695	SGMR	8	S	1420.0	1421.0	1.0	66.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1421.0	1421.0	U	58.0			QL=4 ST=2 TYP=3
30	2695	SVTO	49	GB	1327.0	1328.0	7.0	780.0			QL=4 ST=2 TYP=6
	8800	SVTO	49	GB	1327.0	1328.0	633.0	1200.0			QL=4 ST=1 TYP=6
	8800	SGMR	8	S	1437.0	1437.0	2.0	82.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1437.0E	1437.0	2.0D	43.0			QL=2 ST=2 TYP=3
	2695	SGMR	8	S	1439.0	1439.0	1.0	63.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1439.0	1439.0	1.0	45.0			QL=4 ST=2 TYP=3

SOLAR RADIO EMISSION
Selected Fixed Frequency Events

AUGUST 2002

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
31	2695	LEAR	8	S	0342.0	0343.0	2.0	100.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	0342.0	0343.0	2.0	150.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1001.0	1001.0	U	120.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1352.0	1353.0	1.0	83.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1352.0	1353.0	1.0	78.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1353.0	1353.0	U	43.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1353.0	1353.0	U	40.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1422.0	1422.0	1.0	200.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1422.0	1422.0	4.0	210.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1422.0	1422.0	1.0	190.0			QL=4 ST=3 TYP=3
	2695	SVTO	4	S/F	1422.0	1423.0	4.0	180.0			QL=4 ST=3 TYP=3
	2695	SGMR	8	S	1521.0	1521.0	U	33.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1521.0	1521.0	U	21.0			QL=4 ST=3 TYP=3
	2695	SVTO	8	S	1550.0	1550.0	U	21.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1615.0	1615.0	1.0	30.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1615.0	1615.0	1.0	72.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1626.0	1627.0	2.0	48.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1736.0	1736.0	U	43.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1927.0	1927.0	U	30.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1951.0	1952.0	2.0	210.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	1952.0	1952.0	2.0	120.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1952.0	1952.0	1.0	170.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1952.0	1952.0	3.0	120.0			QL=4 ST=2 TYP=3

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

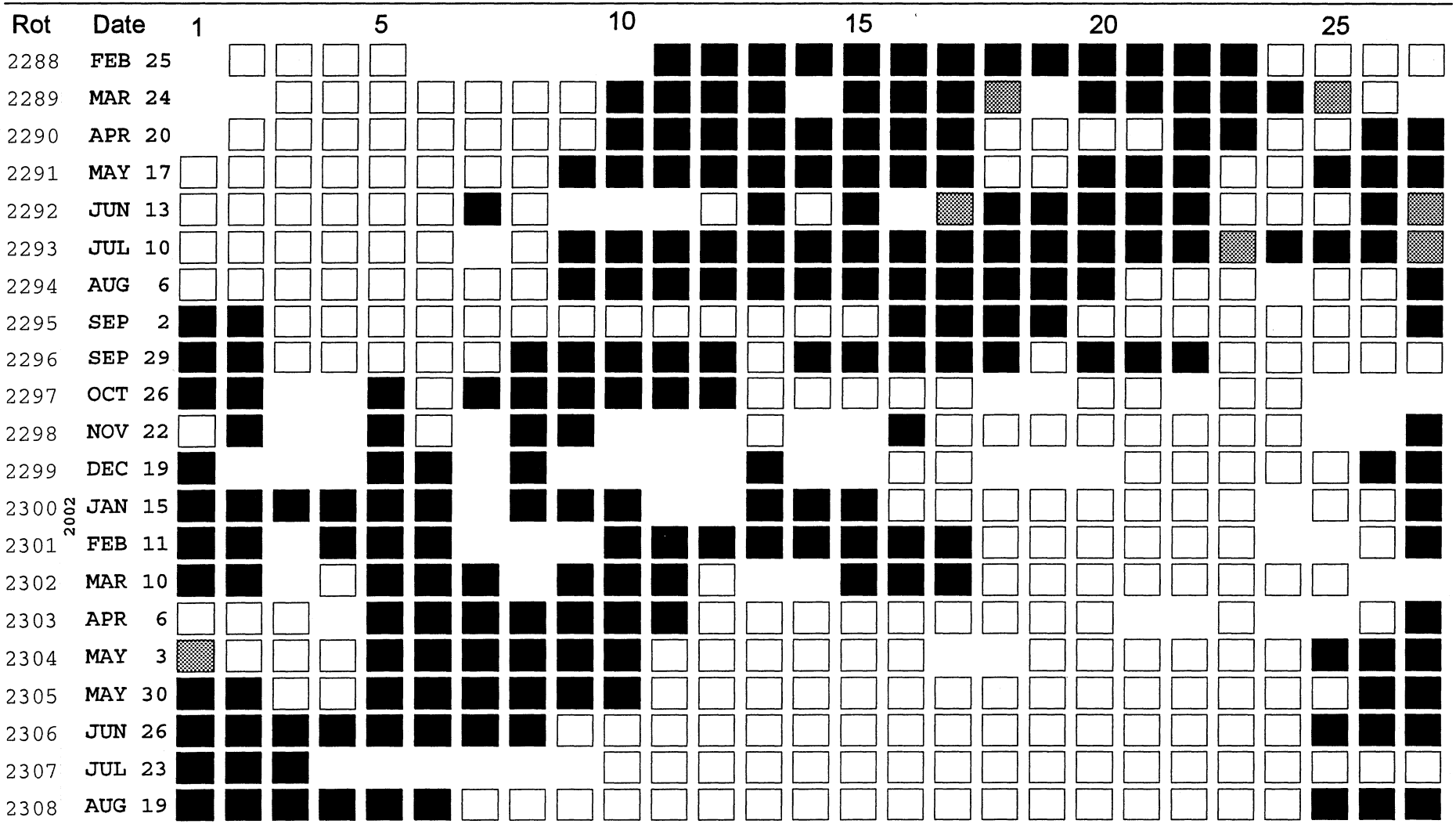
Explanation of Type Code:

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

1A Simple 1A	4A Simple 2AF	24PF Post Rise F	27F Rise and Fall F
3A Simple 2A	4O Rise Only	16A Fall A	27AF Rise and Fall AF
21A Simple 3A GRF	4OF Rise Only F	26O 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; Penticton, Canada 2800 MHz; and Hiraiso, Japan 500 and 200 MHz.

STANFORD MEAN SOLAR MAGNETIC FIELD

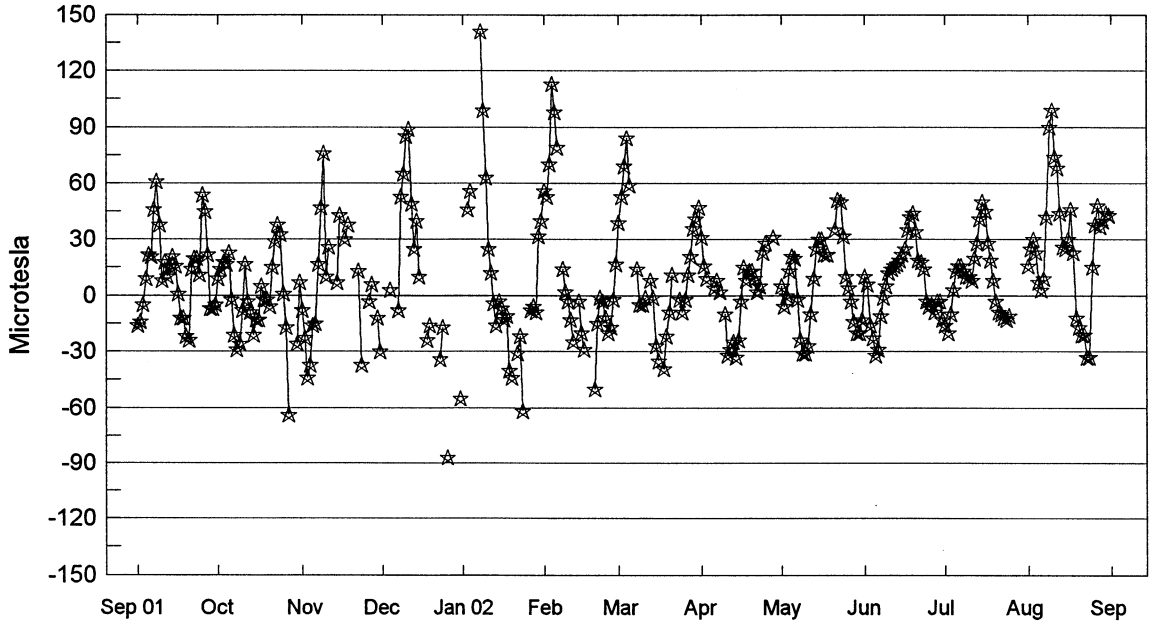


Mean Solar Magnetic Field Polarity: = field > 2 microT; = -2 microT ≤ field ≤ 2 microT

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

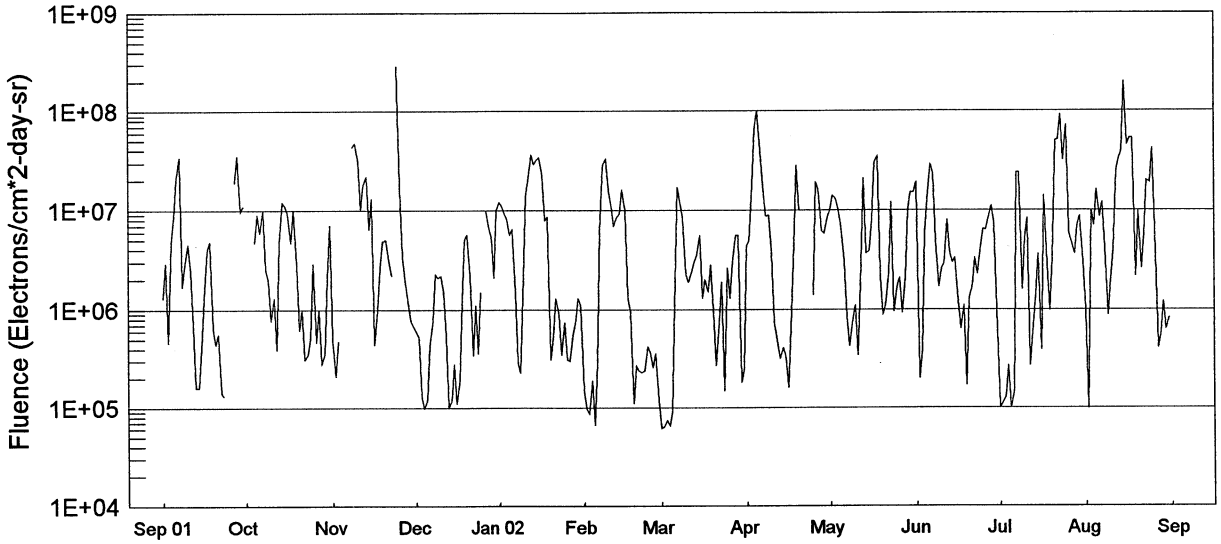
Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates are five days earlier, to mark times of occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

Stanford Mean Solar Magnetic Field (Microtesla)
"Sun-As-A-Star"



Day	Sep 01	Oct	Nov	Dec	Jan 02	Feb	Mar	Apr	May	Jun	Jul	Aug
1	-16	9	-8	---	---	56	39	31	5	10	-16	16
2	-14	14	-23	---	---	53	53	16	-6	6	-20	25
3	-5	18	-44	---	46	70	69	9	0	-16	-10	30
4	9	17	-37	3	56	113	84	---	13	-23	3	23
5	22	23	-16	---	---	98	59	---	21	-32	13	7
6	21	-2	-15	---	---	79	---	4	20	-29	16	3
7	46	-21	17	-8	---	---	---	8	-2	-11	16	9
8	61	-29	47	53	141	14	14	2	-24	-1	13	42
9	38	-26	76	65	99	2	-5	---	-31	5	10	90
10	8	-8	10	85	63	-3	-5	-10	-31	12	10	99
11	18	17	26	89	25	-13	-1	-32	-27	14	8	74
12	10	-3	---	49	12	-25	---	-29	-10	16	20	68
13	15	-9	---	25	-4	---	8	-25	9	17	28	44
14	21	-21	7	40	-16	-3	-1	-33	25	19	41	26
15	16	-13	43	10	-3	-20	-27	-24	30	22	50	25
16	1	-13	---	---	-7	-29	-35	-3	30	25	45	30
17	-12	5	30	---	-13	---	---	15	22	35	28	46
18	-12	-2	38	-24	-11	---	-39	8	22	42	19	23
19	-22	-2	---	-16	-40	---	-22	13	---	44	8	-12
20	-24	-6	---	---	-44	-50	-9	13	---	34	-3	-17
21	14	15	---	---	---	-15	11	9	35	19	-9	-21
22	20	29	13	---	-31	-1	---	2	51	18	-10	-21
23	20	38	-37	-34	-22	-3	---	5	50	14	-12	-33
24	11	33	---	-17	-62	-12	-2	23	32	-3	-13	-33
25	54	1	---	---	---	-20	-9	28	10	-6	-11	15
26	45	-17	-3	-87	---	-17	-2	---	4	-5	---	38
27	22	-64	6	---	-8	-2	11	---	-3	-9	---	48
28	-7	---	---	---	-6	17	21	31	-14	-3	---	37
29	-7	---	-12	---	-9		36	---	-20	-3	---	40
30	-5	-26	-30	---	32		41	---	-20	-13	---	44
31		7		-55	40		47		-13		---	43

GOES Daily Electron Fluence
Sep 2001 - Aug 2002



Day	Sep 01	Oct	Nov	Dec	Jan 02	Feb	Mar	Apr	May	Jun	Jul	Aug
1	1.3E+06	-999	4.8E+05	6.1E+05	1.2E+07	1.5E+05	6.1E+04	4.4E+06	9.9E+06	1.9E+07	1.0E+05	1.0E+06
2	2.9E+06	-999	2.1E+05	5.2E+05	1.1E+07	9.8E+04	6.3E+04	4.9E+06	1.4E+07	2.0E+05	1.1E+05	9.8E+04
3	4.6E+05	-999	4.8E+05	1.3E+05	9.3E+06	8.6E+04	7.4E+04	1.8E+07	1.3E+07	3.8E+05	1.3E+05	1.0E+07
4	4.8E+06	4.7E+06	-999	9.9E+04	8.3E+06	1.9E+05	6.5E+04	6.7E+07	1.0E+07	5.9E+06	2.7E+05	7.1E+06
5	8.6E+06	9.0E+06	-999	1.2E+05	5.7E+06	6.6E+04	9.2E+04	1.0E+08	6.9E+06	1.3E+07	1.0E+05	1.6E+07
6	2.1E+07	5.9E+06	-999	4.4E+05	6.5E+06	2.9E+05	1.1E+06	3.9E+07	3.1E+06	2.9E+07	1.5E+05	8.6E+06
7	3.4E+07	1.0E+07	-999	7.6E+05	1.5E+06	6.2E+06	1.7E+07	1.7E+07	8.3E+05	2.3E+07	2.4E+07	1.2E+07
8	1.7E+06	2.5E+06	4.3E+07	2.3E+06	2.9E+05	2.8E+07	1.2E+07	8.7E+06	4.3E+05	4.8E+06	2.4E+07	4.2E+06
9	2.8E+06	2.0E+06	4.7E+07	2.1E+06	2.3E+05	3.3E+07	8.3E+06	8.9E+06	7.1E+05	1.7E+06	1.6E+06	8.8E+05
10	4.5E+06	7.7E+05	3.2E+07	2.2E+06	2.1E+06	1.6E+07	2.3E+06	3.8E+06	1.1E+06	2.6E+06	5.3E+06	2.0E+06
11	2.5E+06	1.3E+06	1.0E+07	1.5E+06	1.4E+07	1.1E+07	1.9E+06	7.4E+05	3.4E+05	2.9E+06	8.3E+06	4.0E+06
12	6.9E+05	3.9E+05	1.8E+07	5.4E+05	2.1E+07	7.0E+06	2.4E+06	5.1E+05	1.8E+06	8.0E+06	2.7E+05	2.5E+07
13	1.6E+05	4.7E+06	2.2E+07	1.0E+05	3.6E+07	8.6E+06	3.0E+06	3.2E+05	2.1E+07	3.7E+06	6.9E+05	3.3E+07
14	1.6E+05	1.2E+07	6.5E+06	1.2E+05	2.9E+07	9.1E+06	3.5E+06	4.1E+05	3.7E+06	3.0E+06	1.4E+06	3.9E+07
15	4.1E+05	1.1E+07	1.3E+07	2.8E+05	3.2E+07	1.6E+07	5.6E+06	3.3E+05	3.9E+06	3.3E+06	3.6E+06	2.0E+08
16	1.3E+06	9.2E+06	4.4E+05	1.1E+05	3.4E+07	1.0E+07	1.3E+06	1.6E+05	7.9E+06	1.2E+06	3.9E+05	4.6E+07
17	4.0E+06	4.7E+06	1.0E+06	1.9E+05	2.3E+07	1.3E+06	2.0E+06	6.5E+05	3.0E+07	6.4E+05	1.4E+07	5.3E+07
18	4.8E+06	1.0E+07	2.6E+06	1.2E+06	7.8E+06	9.5E+05	1.5E+06	4.4E+06	3.5E+07	1.1E+06	2.9E+06	5.3E+07
19	6.3E+05	2.8E+06	4.9E+06	5.1E+06	8.5E+06	1.1E+05	2.8E+06	2.8E+07	2.2E+06	1.7E+05	9.8E+05	2.2E+06
20	4.4E+05	6.2E+05	5.0E+06	5.7E+06	3.1E+05	2.7E+05	9.7E+05	9.9E+06	8.9E+05	1.3E+06	3.3E+06	9.7E+06
21	5.6E+05	1.0E+06	3.3E+06	2.2E+06	5.3E+05	2.4E+05	2.7E+05	-999	1.1E+06	1.7E+06	5.0E+07	2.6E+06
22	1.4E+05	3.1E+05	2.2E+06	3.4E+05	1.3E+06	2.3E+05	7.3E+05	-999	2.3E+06	3.3E+06	5.1E+07	5.7E+06
23	1.3E+05	3.5E+05	-999	1.1E+06	9.1E+05	2.4E+05	1.9E+06	-999	1.2E+07	2.3E+06	9.2E+07	2.0E+07
24	-999	5.2E+05	2.9E+08	3.6E+05	3.5E+05	4.2E+05	1.5E+05	-999	9.5E+05	4.3E+06	3.2E+07	1.9E+07
25	-999	2.9E+06	1.7E+07	1.5E+06	7.4E+05	3.6E+05	2.6E+06	1.4E+06	1.7E+06	6.5E+06	7.2E+07	4.2E+07
26	-999	4.7E+05	3.4E+06	-999	3.1E+05	2.6E+05	1.3E+06	1.9E+07	2.1E+06	6.4E+06	5.8E+06	6.2E+06
27	1.9E+07	1.0E+06	2.0E+06	9.9E+06	3.0E+05	3.6E+05	3.0E+06	1.6E+07	9.3E+05	8.3E+06	4.8E+06	4.1E+05
28	3.5E+07	2.8E+05	1.3E+06	7.2E+06	5.7E+05	1.2E+05	5.6E+06	6.2E+06	2.1E+06	1.1E+07	3.7E+06	5.7E+05
29	9.5E+06	3.6E+05	7.6E+05	5.3E+06	7.5E+05		5.6E+06	5.8E+06	1.0E+07	7.3E+06	7.2E+06	1.2E+06
30	1.1E+07	2.1E+06	6.9E+05	2.1E+06	1.3E+06		1.8E+05	8.4E+06	1.5E+07	1.0E+06	8.7E+06	6.4E+05
31		7.1E+06		1.0E+07	1.1E+06		2.5E+05		1.5E+07		3.1E+06	8.3E+05

NOTE: The electron detector responds significantly to protons above 32 MeV; therefore, electron data are contaminated when a proton event is in progress. These days are indicated with '-999' in the table and are not plotted. '--' indicates data not available.

NOTE: GOES9 data began April, 1996 and ended on 26 July, 1998. GOES8 is primary satellite as of 27 July, 1998.

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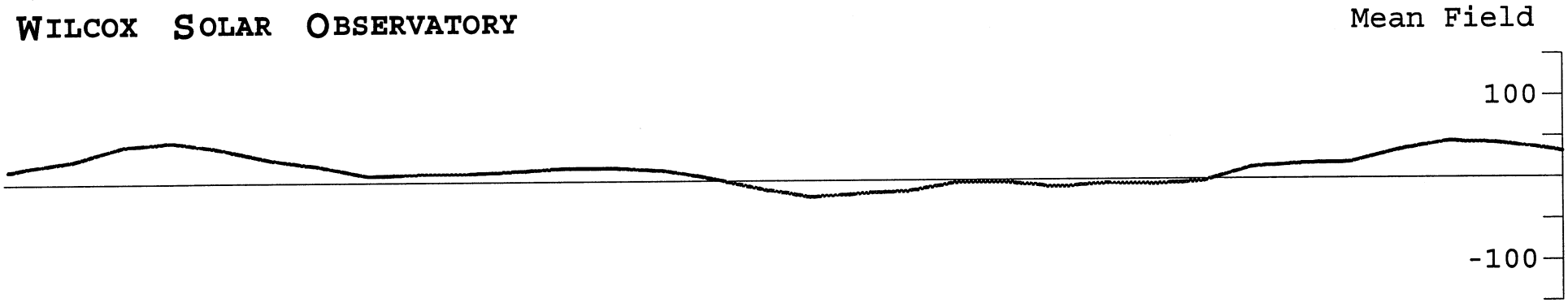
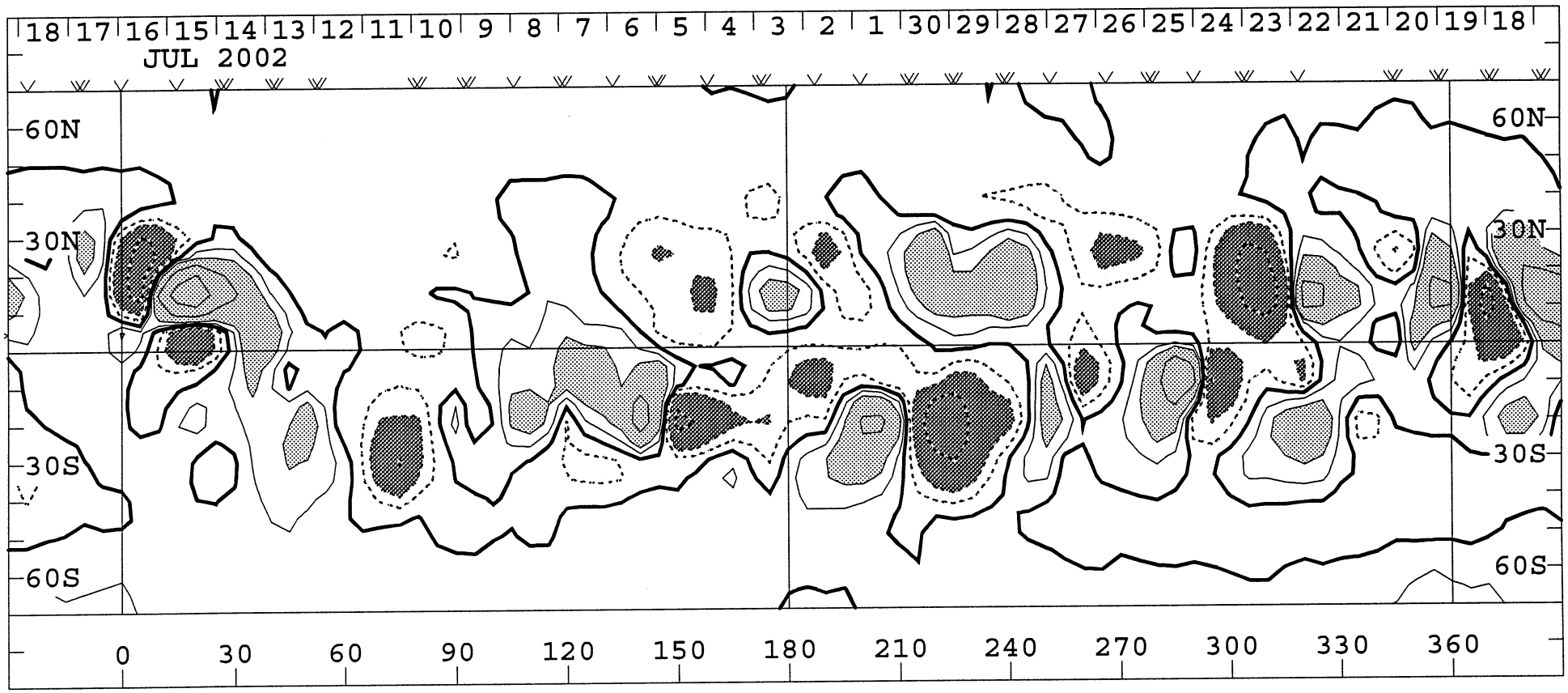
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1991
(19 June to 16 July 2002)

WILCOX SOLAR OBSERVATORY



WSO - Photospheric Magnetic Field 0, ±100, 200, 500, 1000, 2000 MicroTesla



SOLAR MAGNETIC FIELD SYNOPTIC CHART

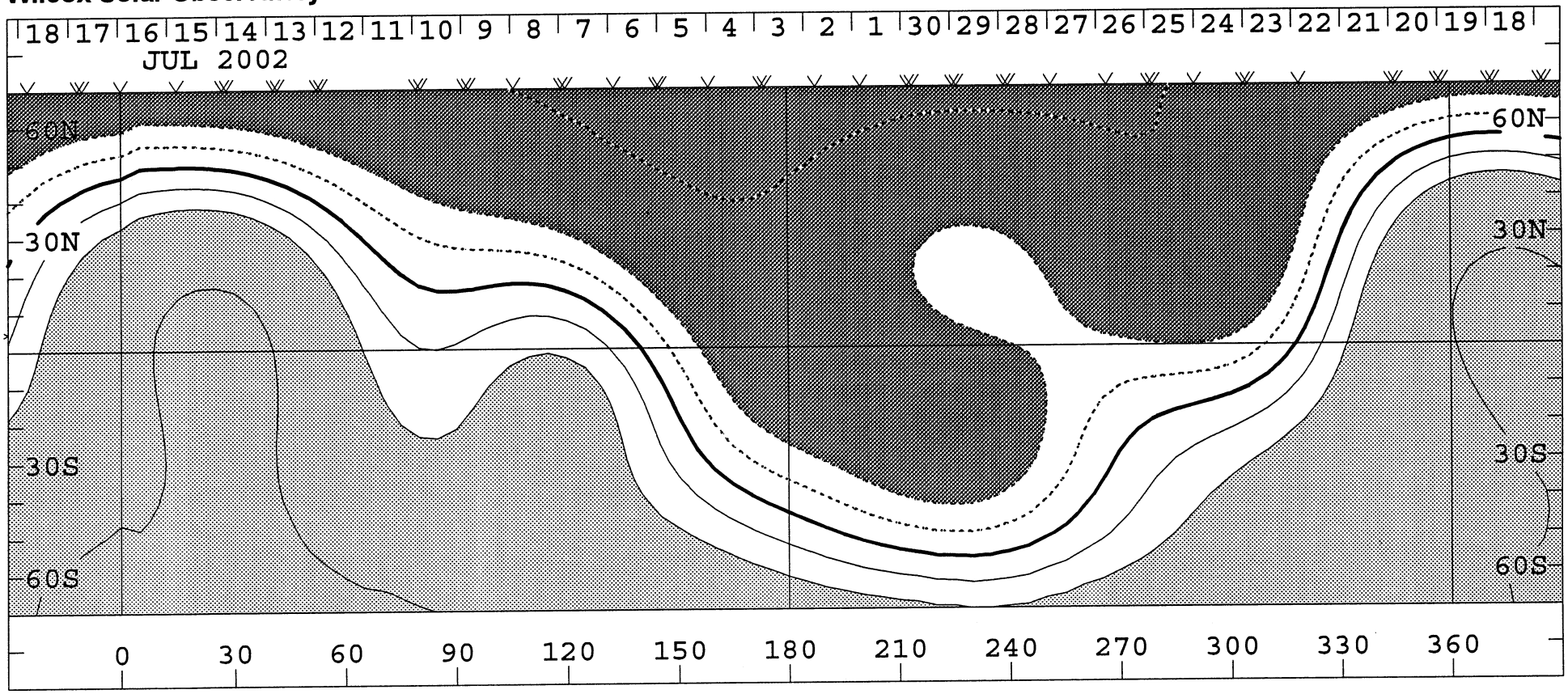
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1991

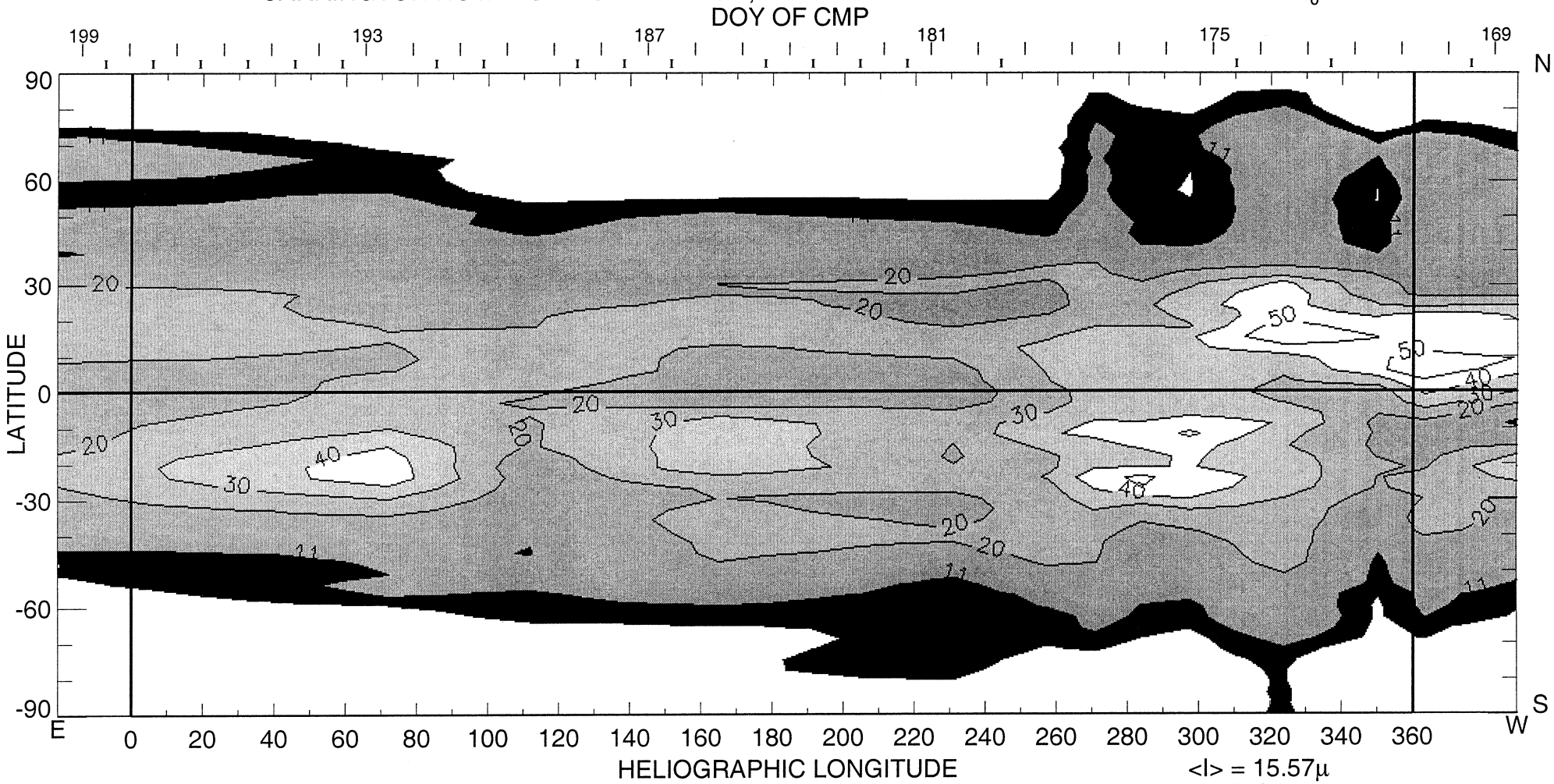
(19 June to 16 July 2002)

Wilcox Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla



CARRINGTON ROTATION NUMBER 1991 ; NSO/SACRAMENTO PEAK FE XIV @ R = 1.15R_o

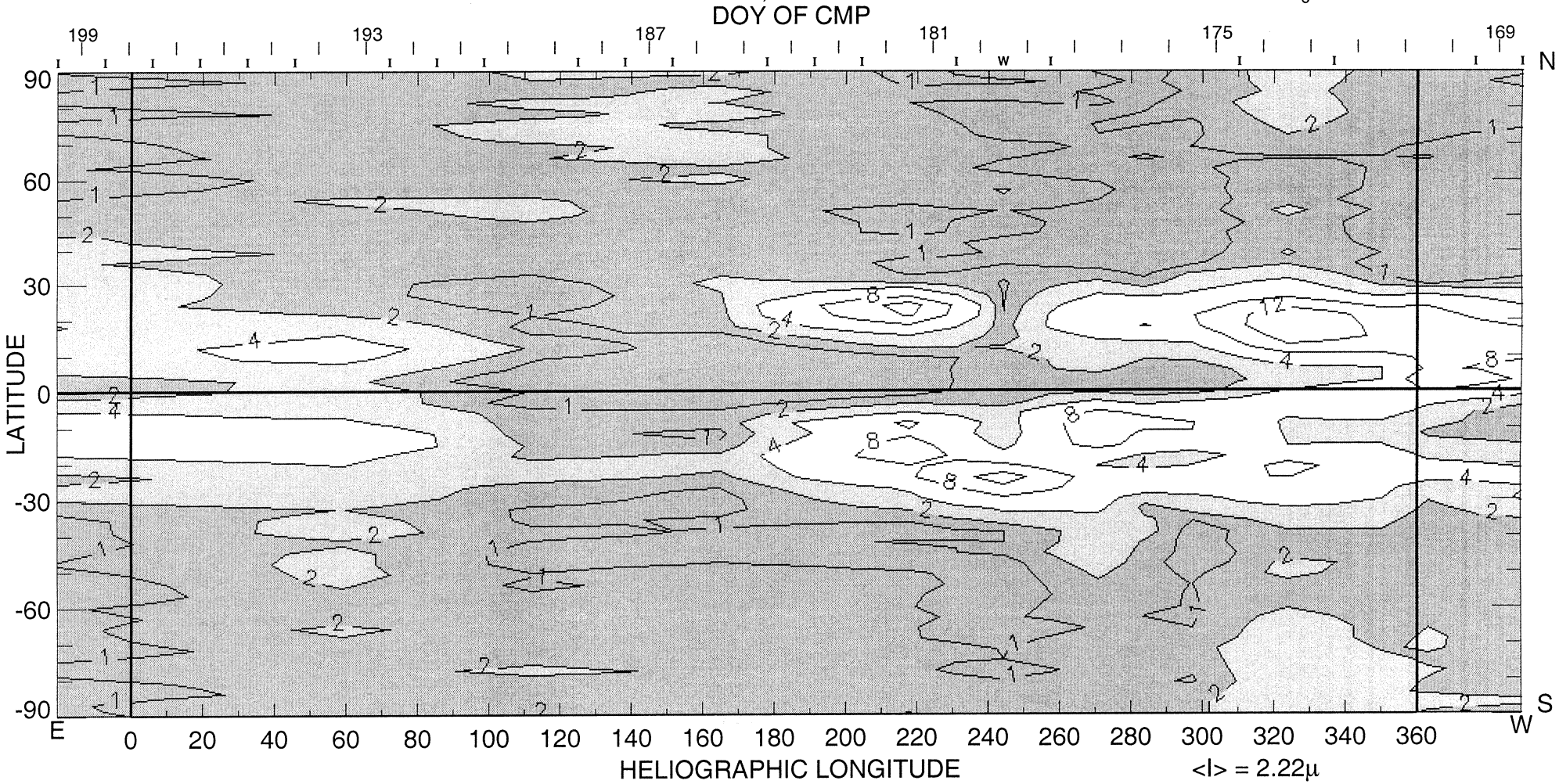


<I> = 15.57μ

(03-Oct-02) 2002 E+W LIMB CONTOURS: 8, 11, 20, 30, 40, 50, 60, 80, 120, 140, 160 MILLIONTHS OF I_o
CORONAL HOLES ARE SHOWN AS WHITE BORDERED BY BLACK

αΣτρογκ Τηυ Οχτ 3 12:14:37 2002

CARRINGTON ROTATION NUMBER 1991 ; NSO/SACRAMENTO PEAK FE X @ R = 1.15R_o

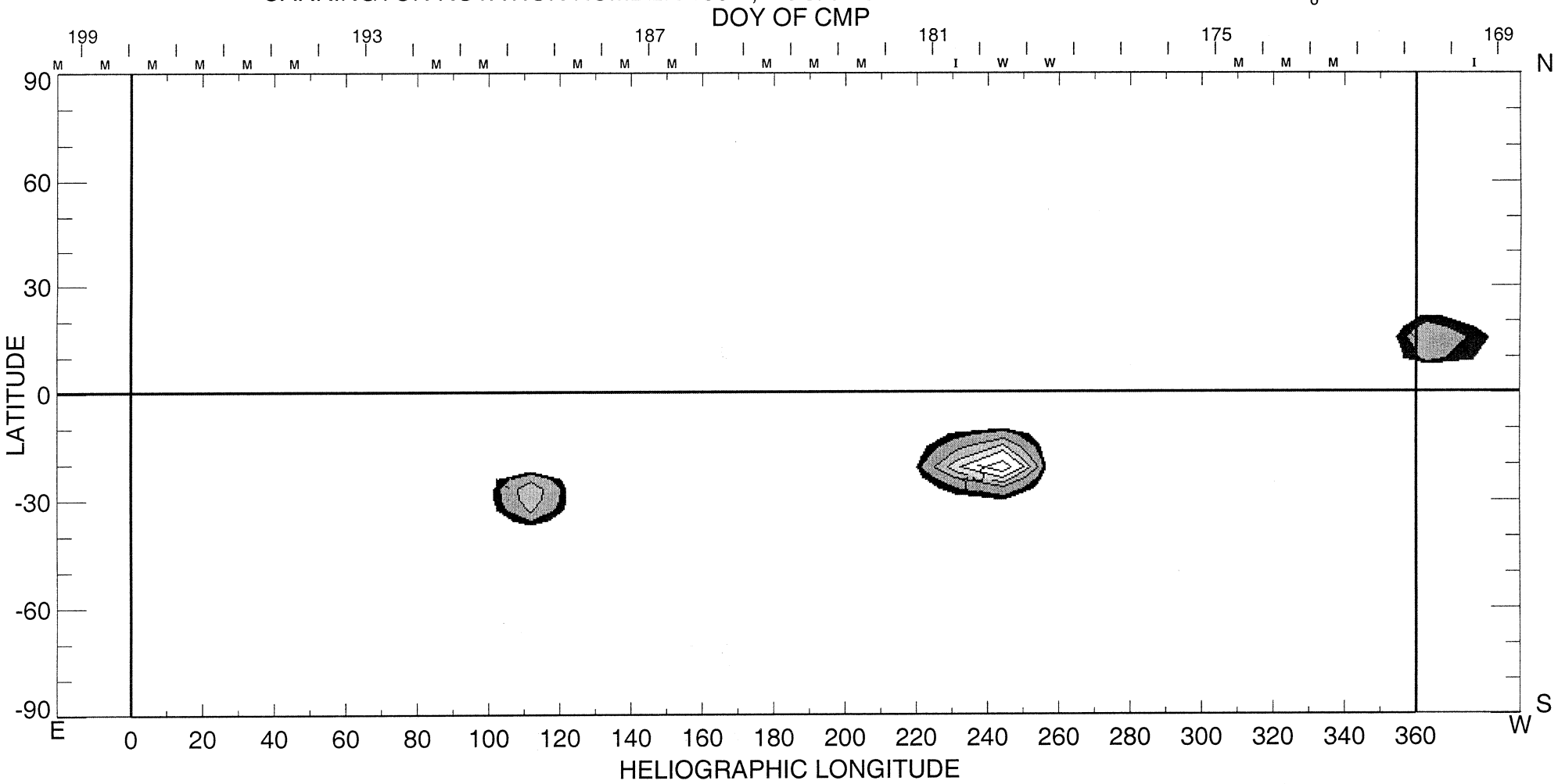


(30-Aug-02)

2002 E+W LIMB CONTOURS: 1, 2, 4, 8, 12, 16, 32, 48 MILLIONTHS OF I_o

τεξ Φρι Αυγ 30 13:42:44 2002

CARRINGTON ROTATION NUMBER 1991 ; NSO/SACRAMENTO PEAK CA XV @ R = 1.15R_o



(30-Aug-02) 2002 E+W LIMB CONTOURS: YELMIN, 1, 2, 3, 4, 6, 8, 10, 12, 14, 16, 18, 20 MILLIONTHS OF I_o

tex Fri Aug 30 13:42:29 2002

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1991

(19 June to 16 July 2002)

National Solar Observatory/Kitt Peak

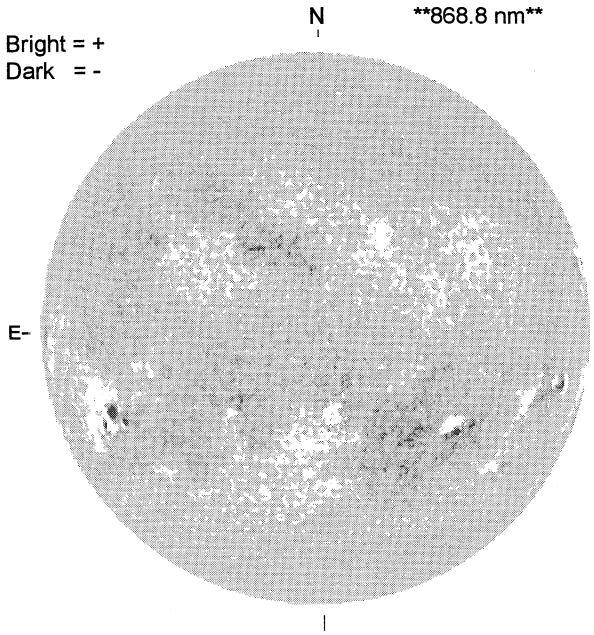
Dates of Observation

PHOTOGRAPHIC DATA UNAVAILABLE AT TIME OF PUBLICATION.

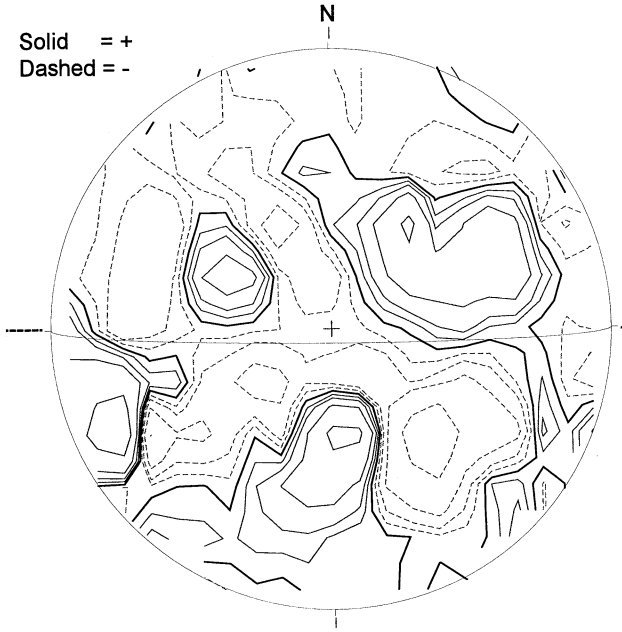
Heliographic Longitude

JULY 1, 2002 (P= -2.79, Bo = 2.85, Lo = 210.95)

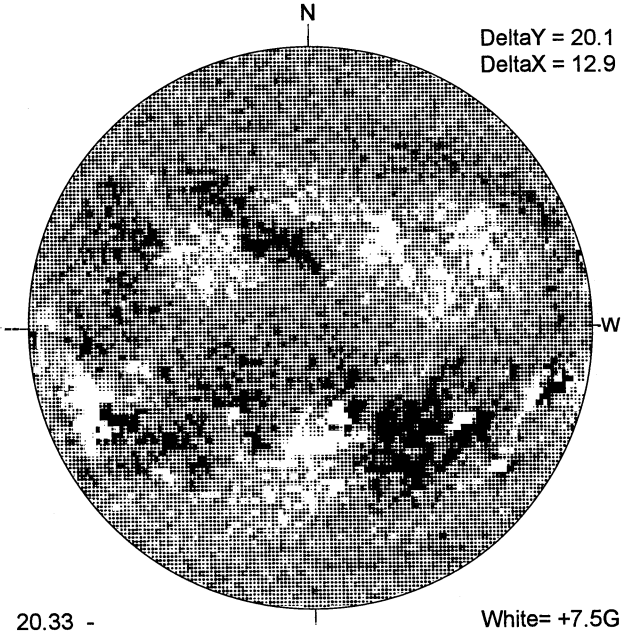
KITT PEAK MAGNETOGRAM



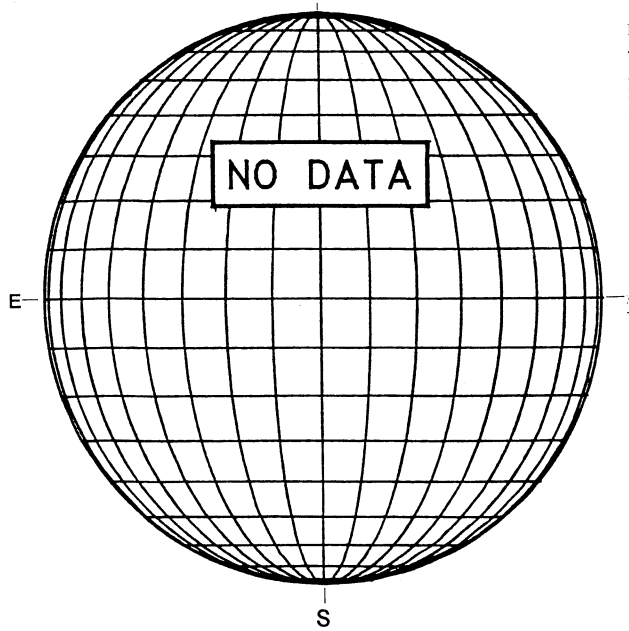
STANFORD MAGNETOGRAM



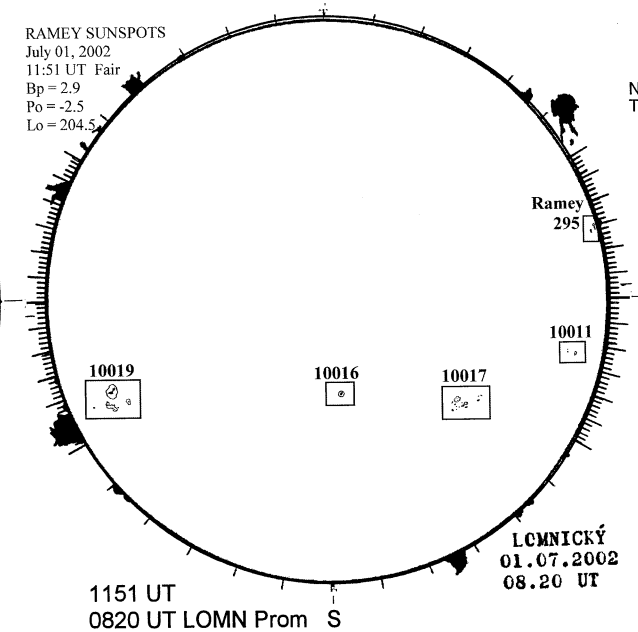
MT. WILSON MAGNETOGRAM



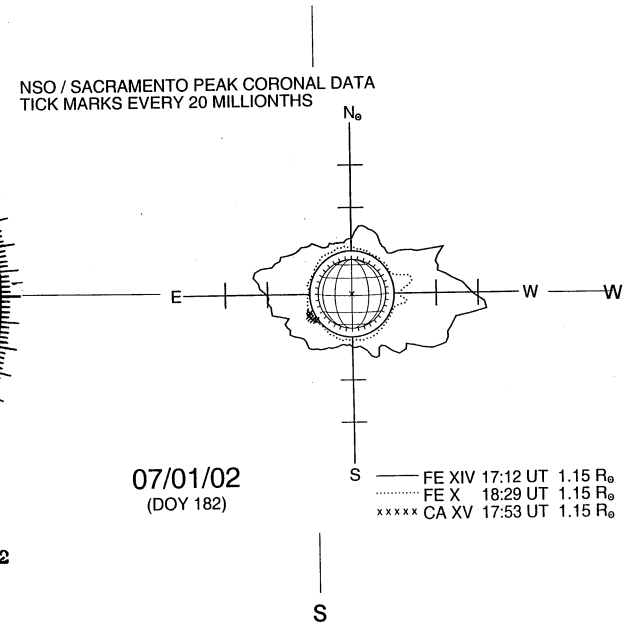
MEUDON H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----

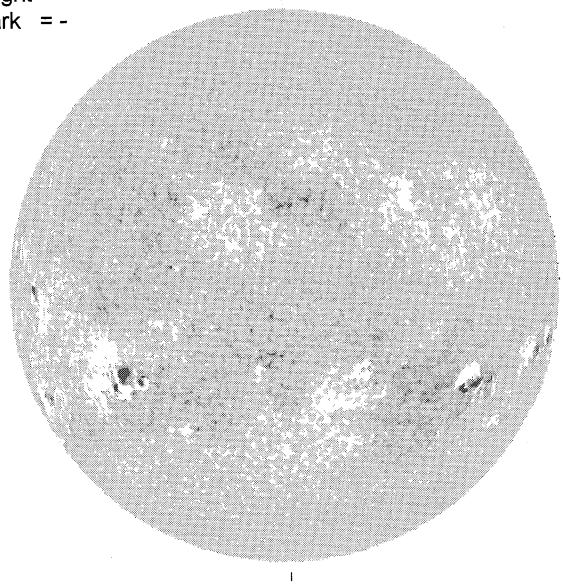


JULY 2, 2002 (P= -2.33, Bo = 2.96, Lo = 197.72)

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



1628 UT

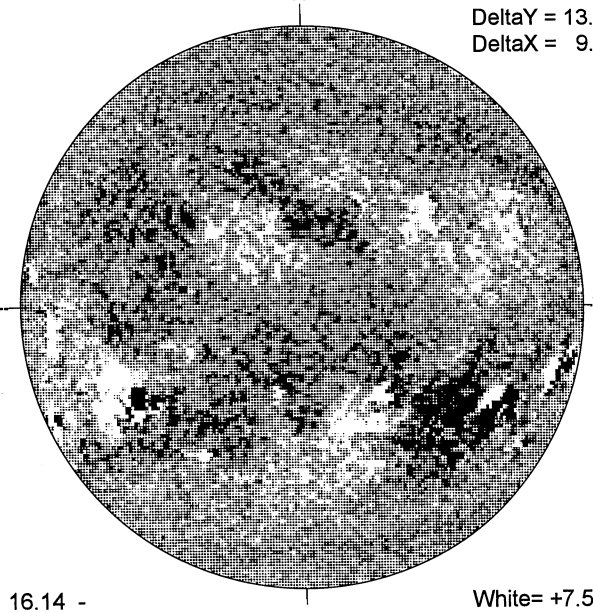
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

1832 UT

MT. WILSON MAGNETOGRAM

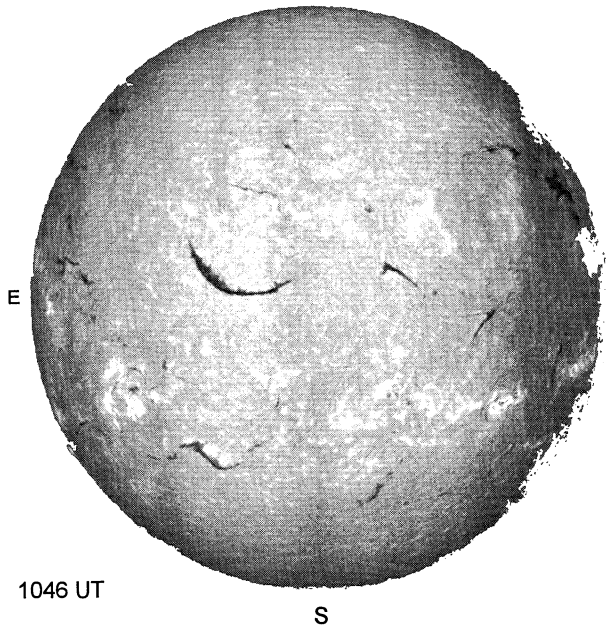
DeltaY = 13.1
DeltaX = 9.6



16.14 -
17.06 UT

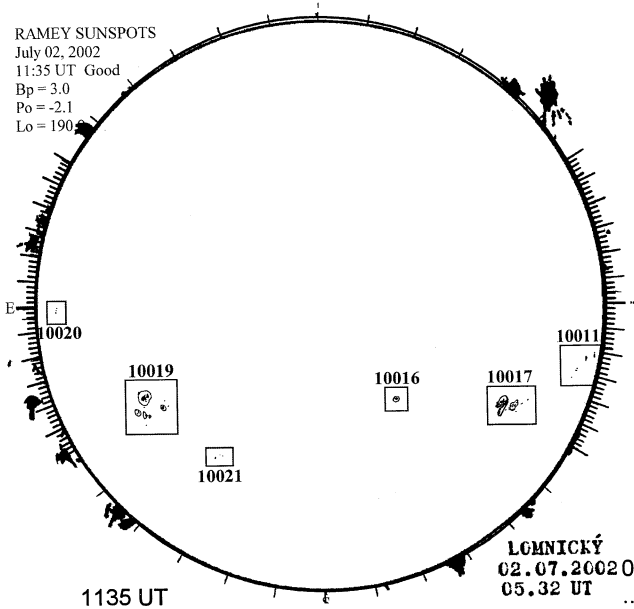
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



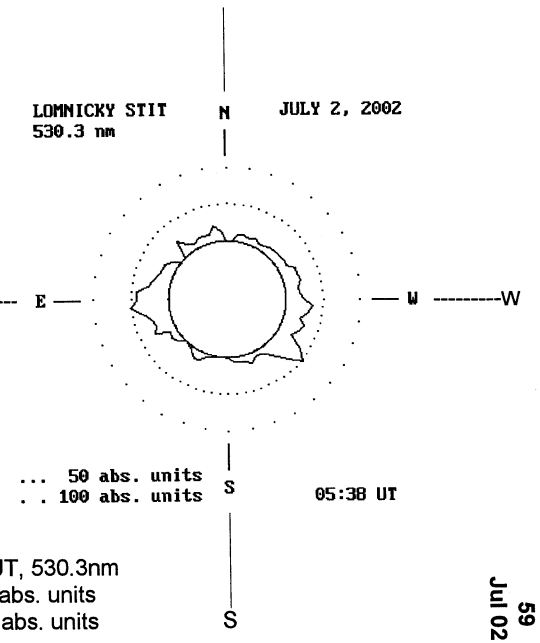
1046 UT

RAMEY SUNSPOT



1135 UT
0532 UT LOMN Prom

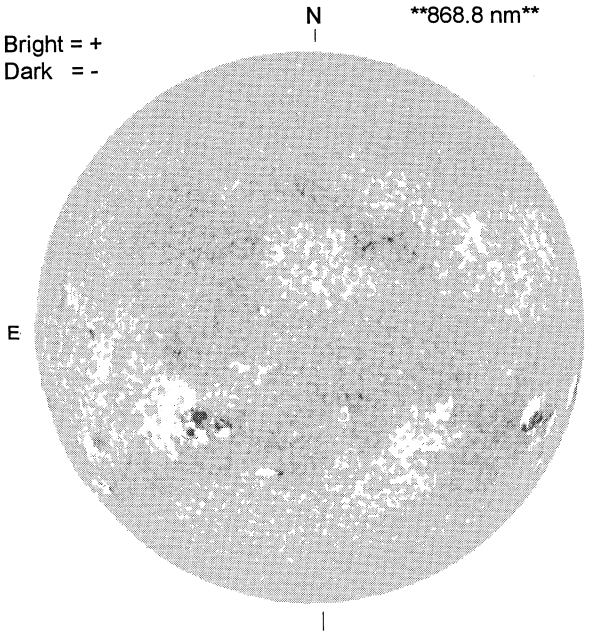
LOMNICKY PEAK CORONA (1.04 Radii)



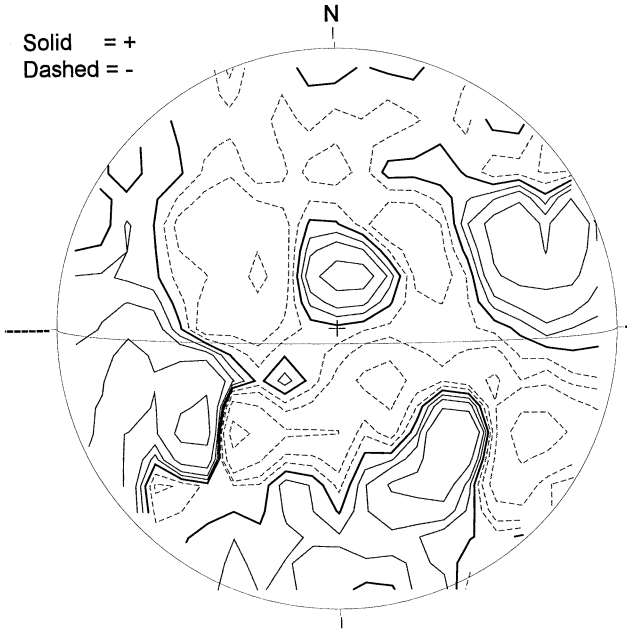
LOMNICKÝ
02.07.2002 0538 UT, 530.3nm
05.32 UT
.... 50 abs. units
. . 100 abs. units

JULY 3, 2002 (P= -1.88, Bo = 3.07, Lo = 184.48)

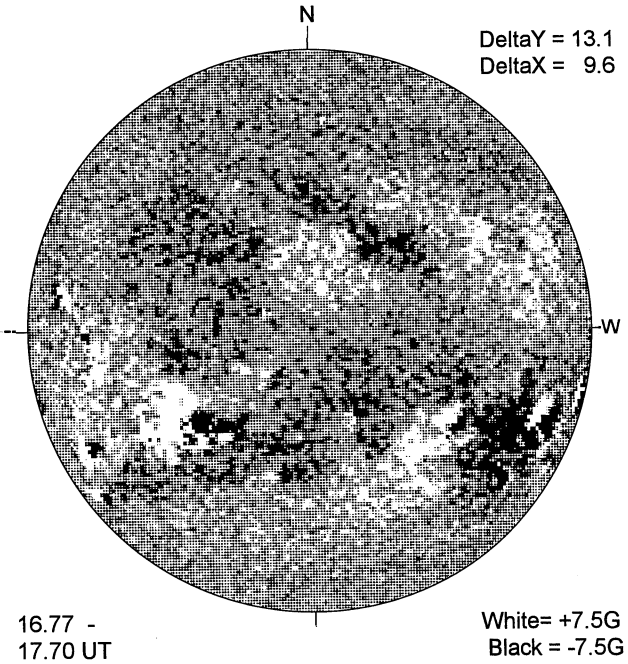
KITT PEAK MAGNETOGRAM



STANFORD MAGNETOGRAM



MT. WILSON MAGNETOGRAM



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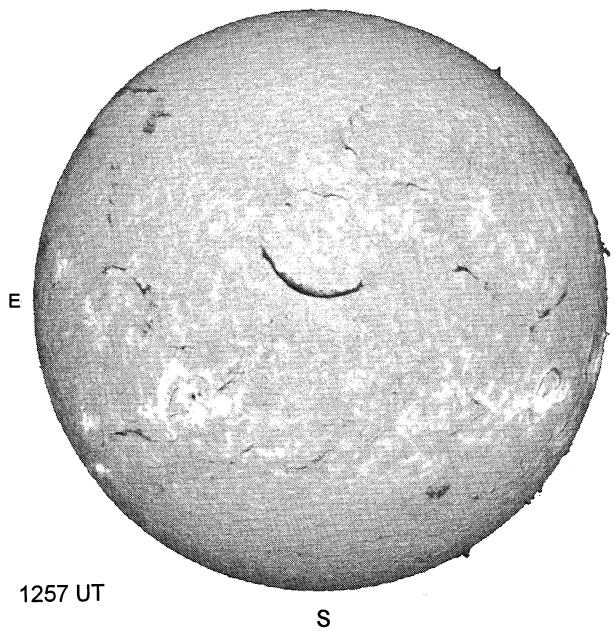
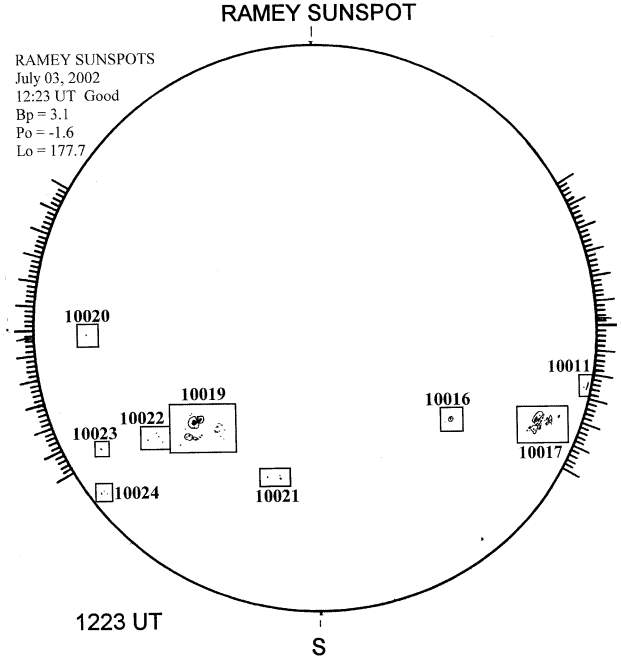
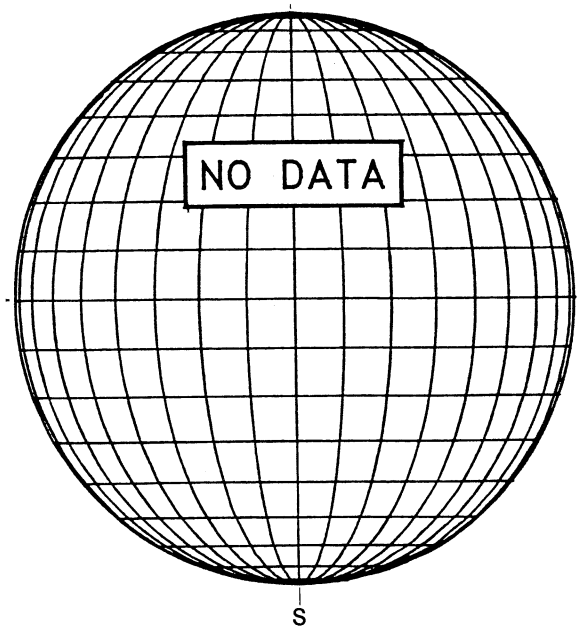


RAMEY SUNSPOT

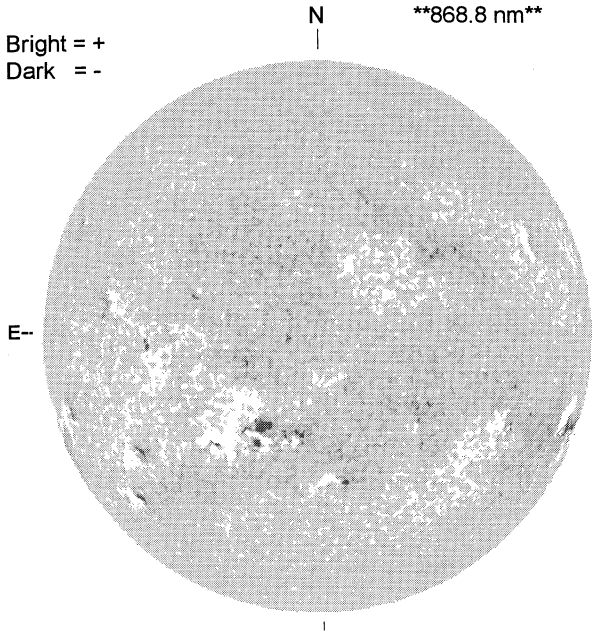


LOMNICKY PEAK CORONA (1.04 Radii)----

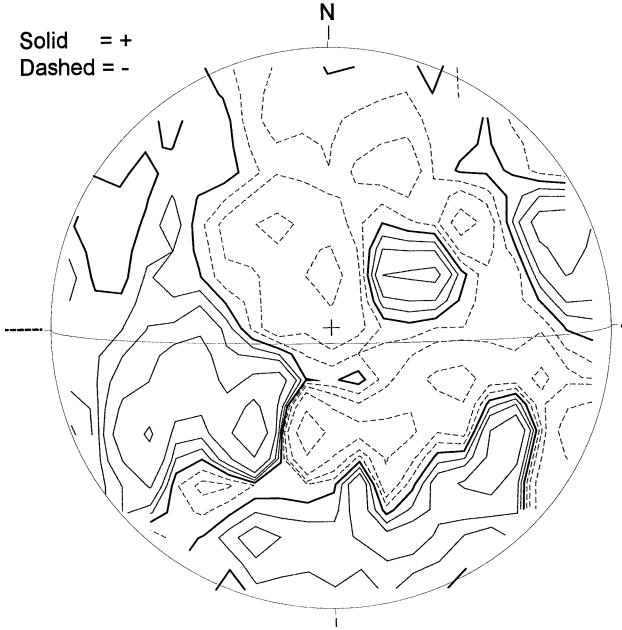


JULY 4, 2002 (P= -1.42, Bo = 3.18, Lo = 171.25)

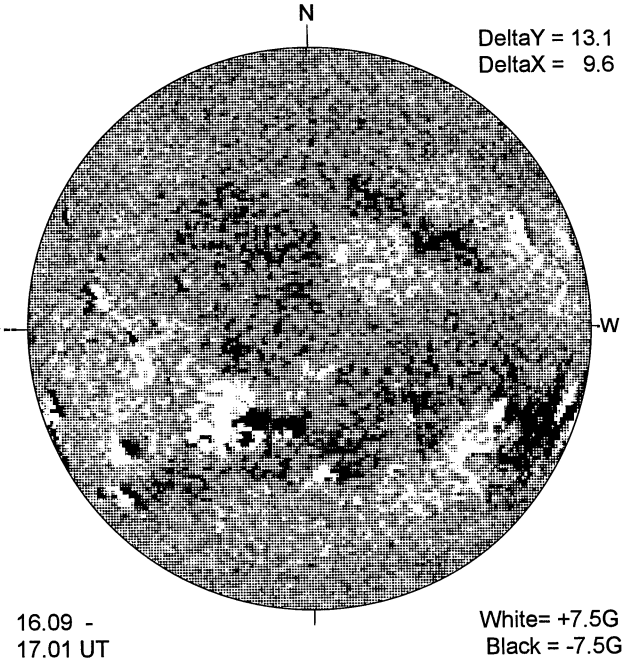
KITT PEAK MAGNETOGRAM



STANFORD MAGNETOGRAM



MT. WILSON MAGNETOGRAM



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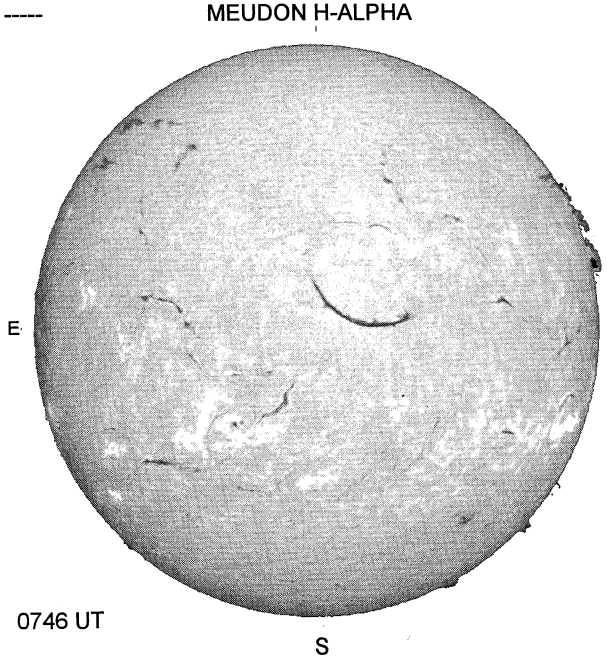
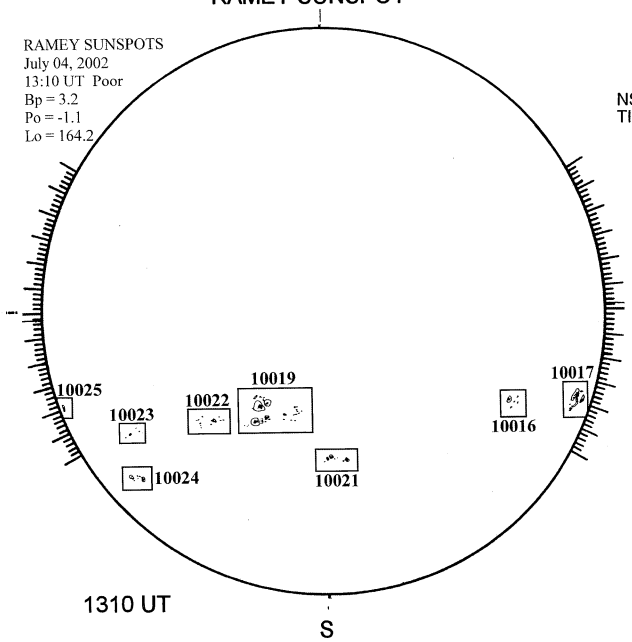
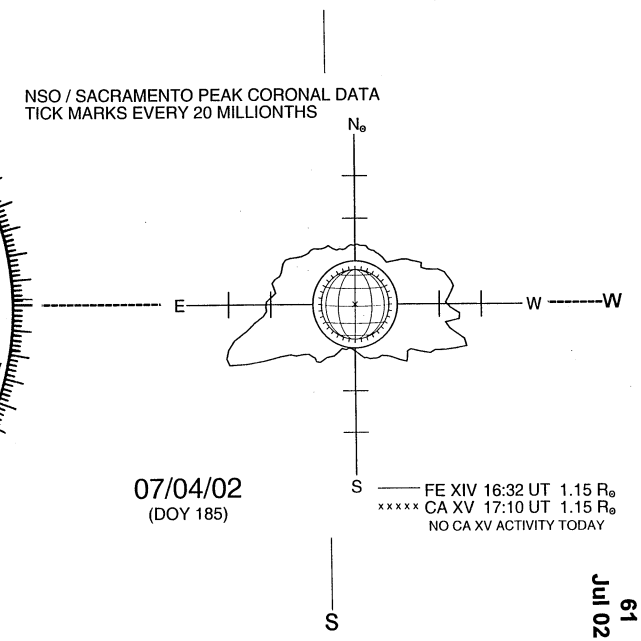


RAMEY SUNSPOT

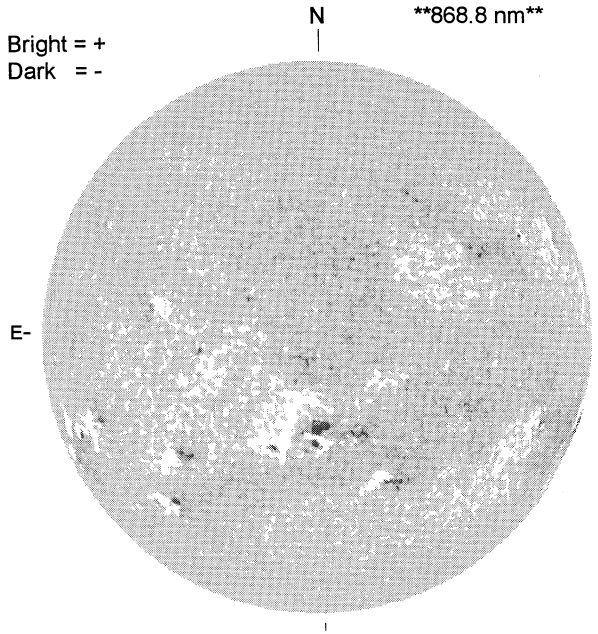


SACRAMENTO PEAK CORONA (1.15 Radii)----

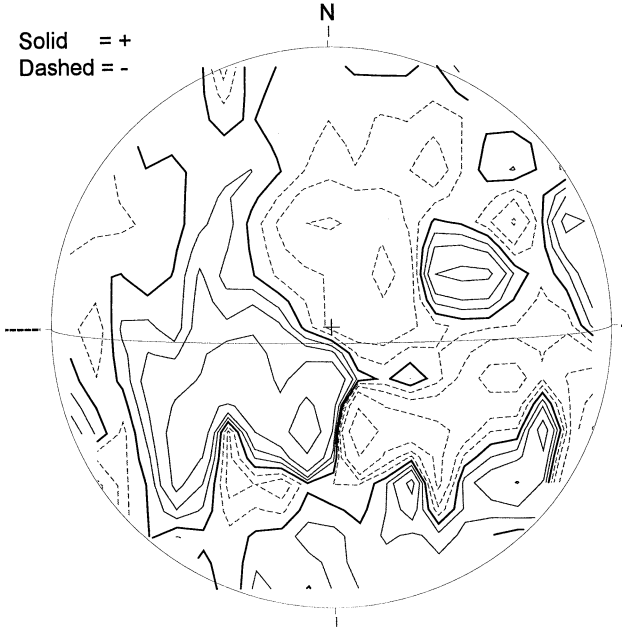


JULY 5, 2002 (P= -0.97, Bo = 3.29, Lo = 158.01)

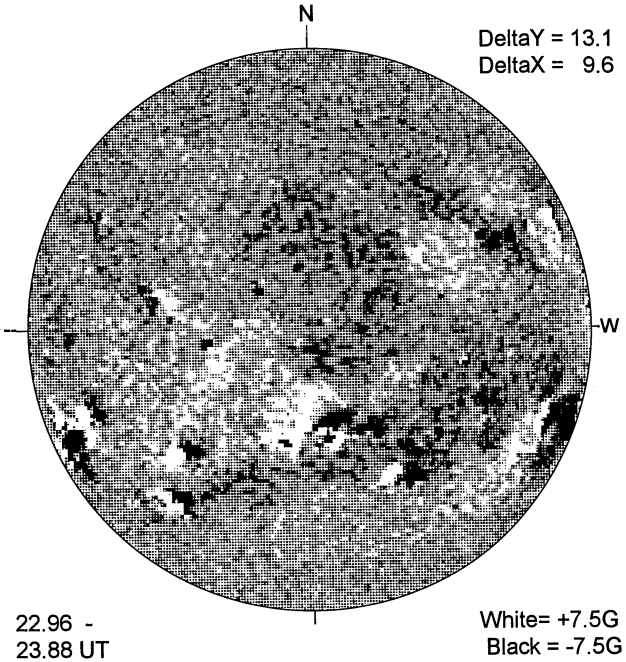
KITT PEAK MAGNETOGRAM



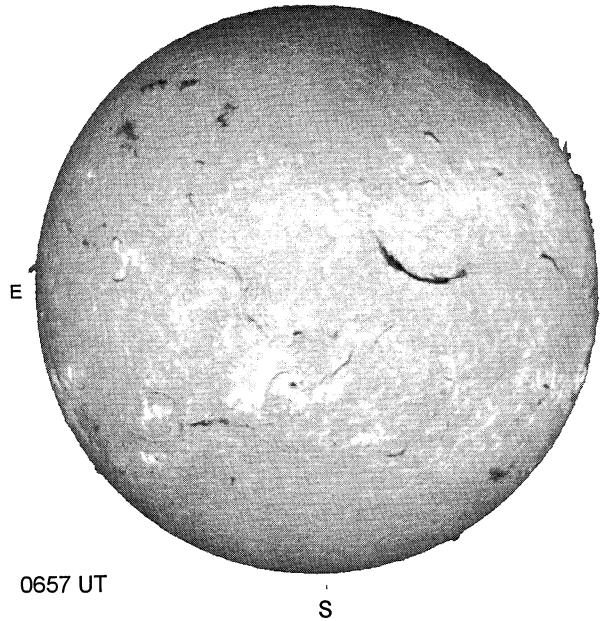
STANFORD MAGNETOGRAM



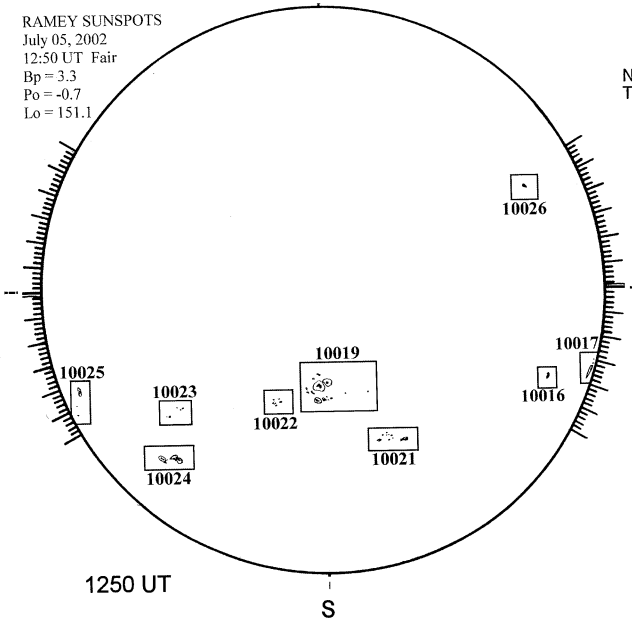
MT. WILSON MAGNETOGRAM



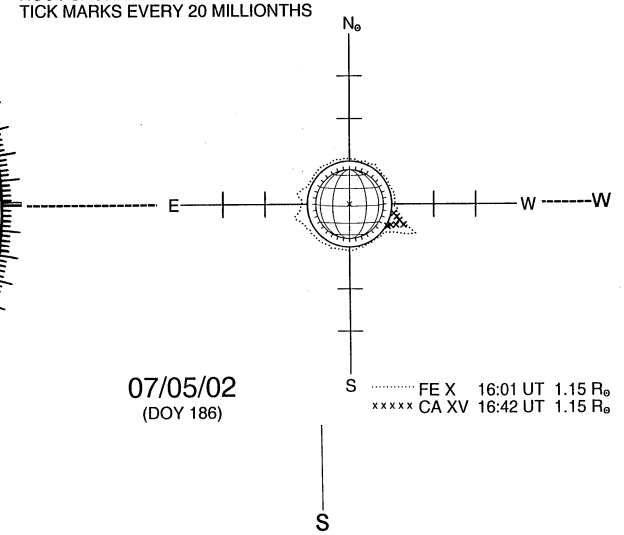
MEUDON H-ALPHA



RAMEY SUNSPOT

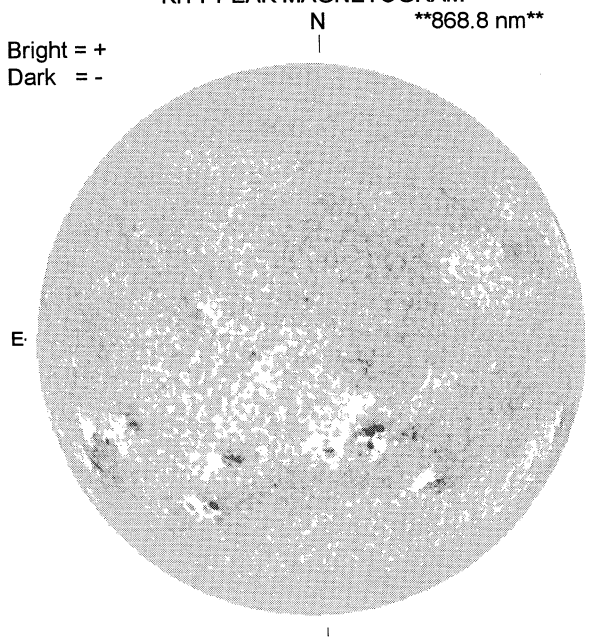


SACRAMENTO PEAK CORONA (1.15 Radii)

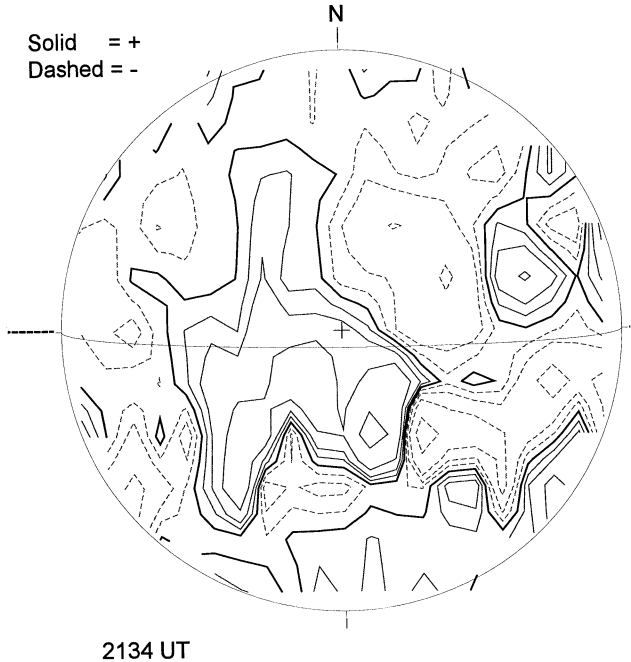


JULY 6, 2002 (P= -0.52, Bo = 3.40, Lo = 144.78)

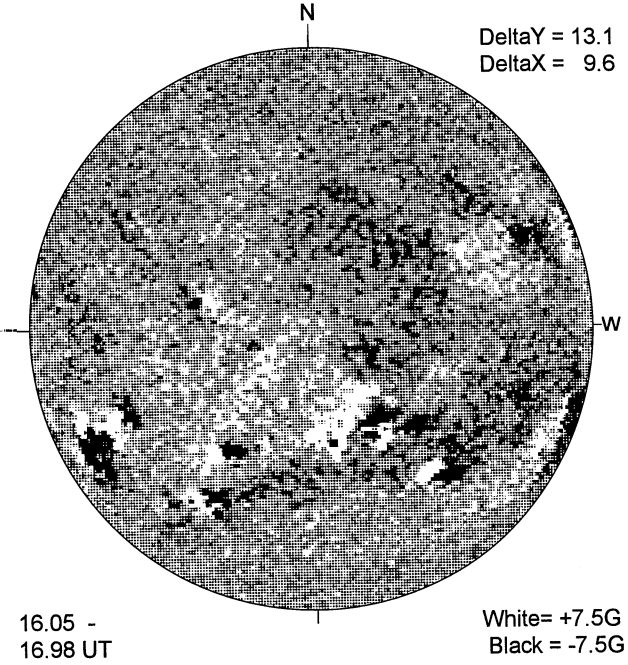
KITT PEAK MAGNETOGRAM



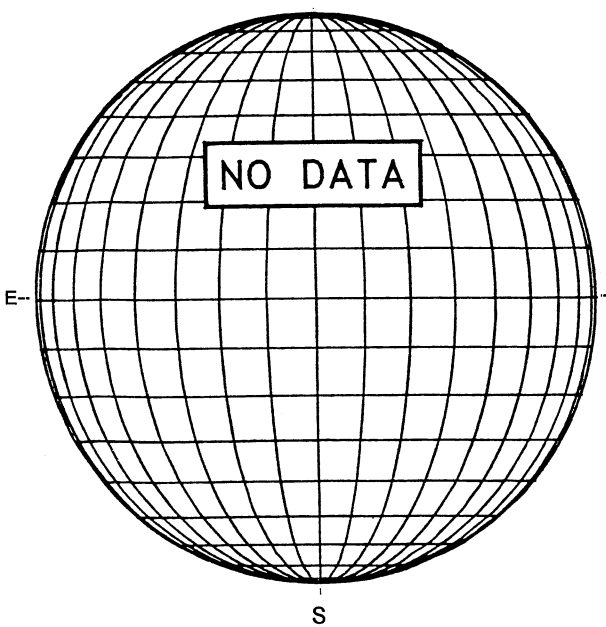
STANFORD MAGNETOGRAM



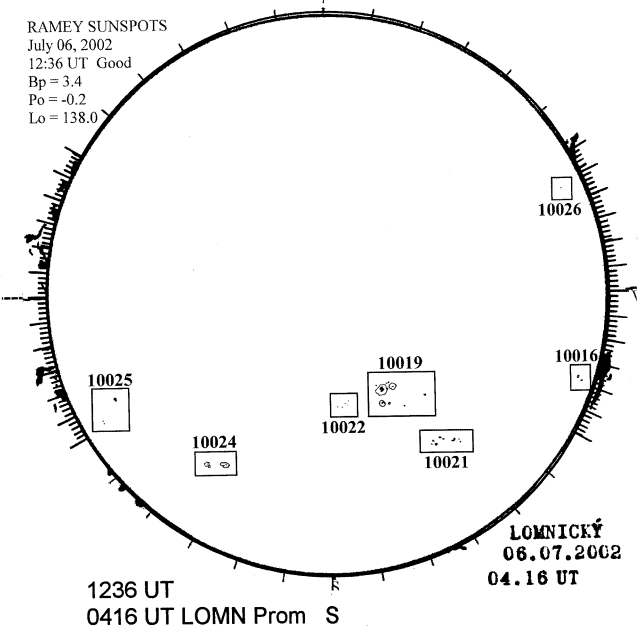
MT. WILSON MAGNETOGRAM



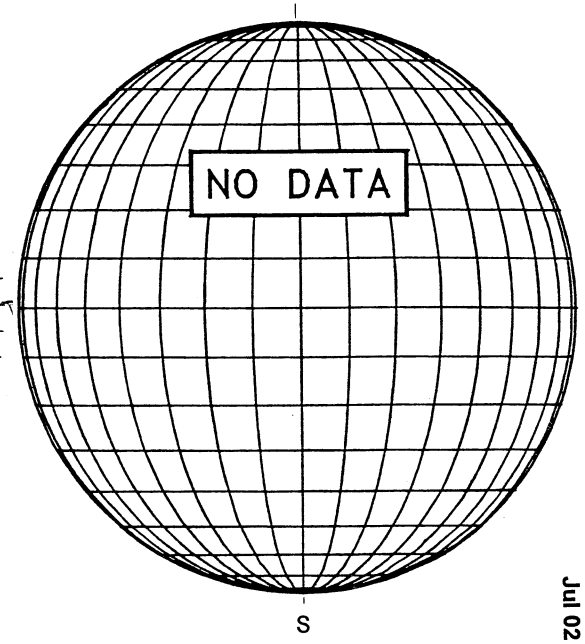
MEUDON H-ALPHA



RAMEY SUNSPOT

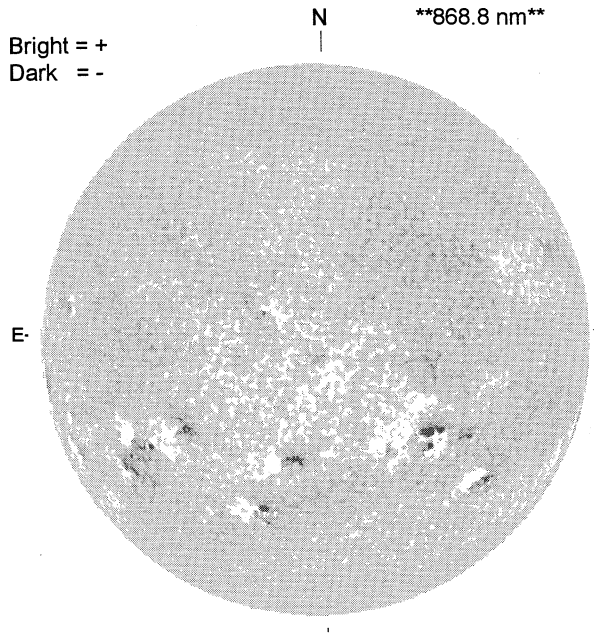


SACRAMENTO PEAK CORONA (1.15 Radii)----



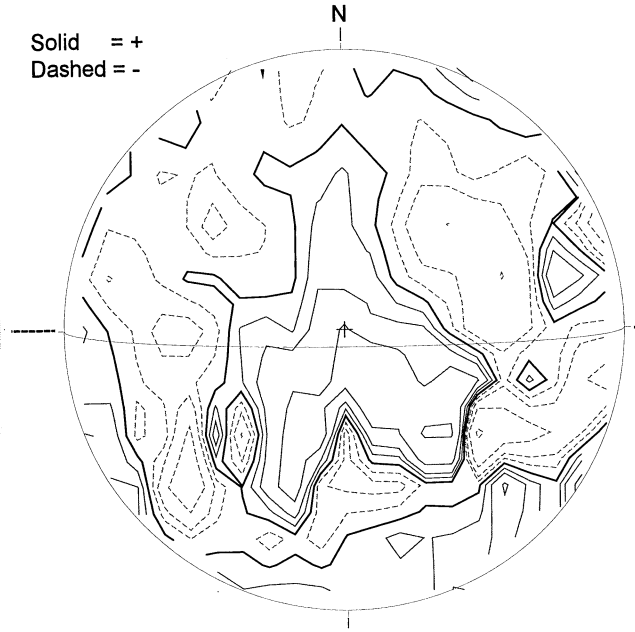
JULY 7, 2002 (P= -0.06, Bo = 3.50, Lo = 131.54)

KITT PEAK MAGNETOGRAM



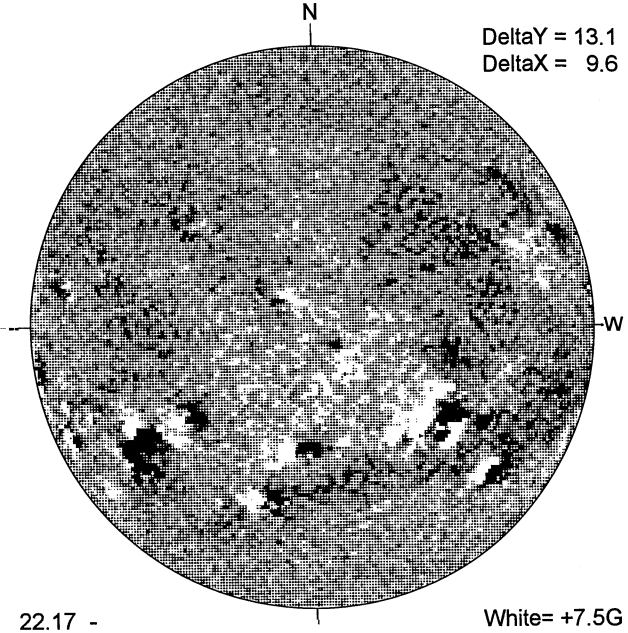
1518 UT

STANFORD MAGNETOGRAM



2317 UT

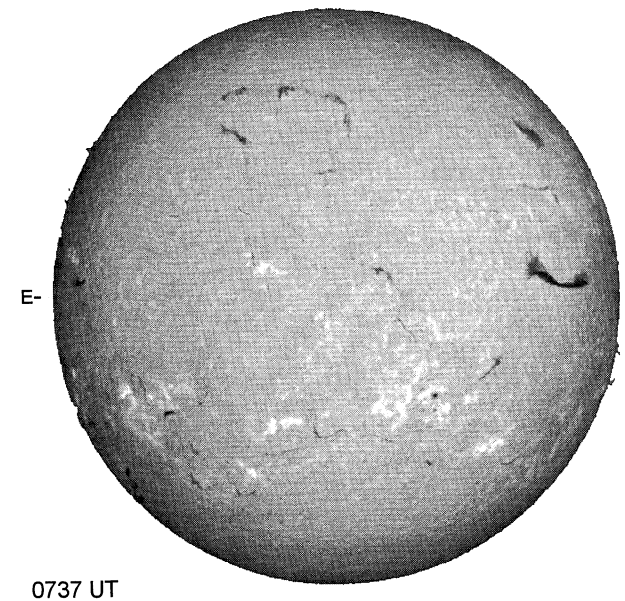
MT. WILSON MAGNETOGRAM



22.17 -
23.09 UT

White= +7.5G
Black = -7.5G

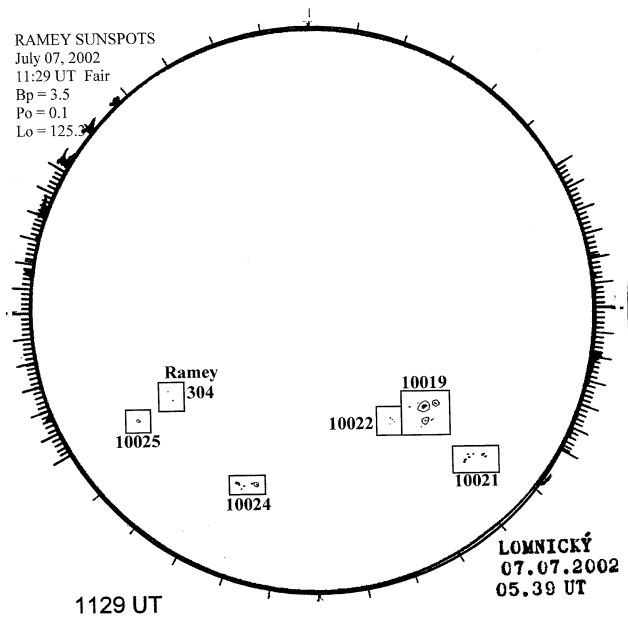
MEUDON H-ALPHA



0737 UT

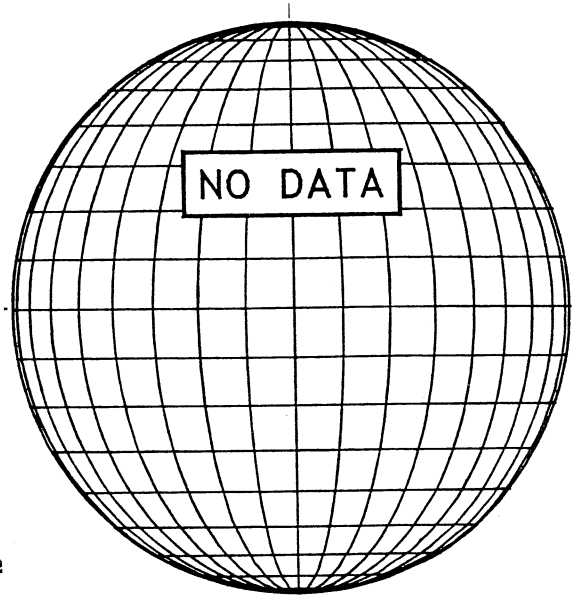
S

RAMEY SUNSPOTS



1129 UT
0539 UT LOMN Prom S

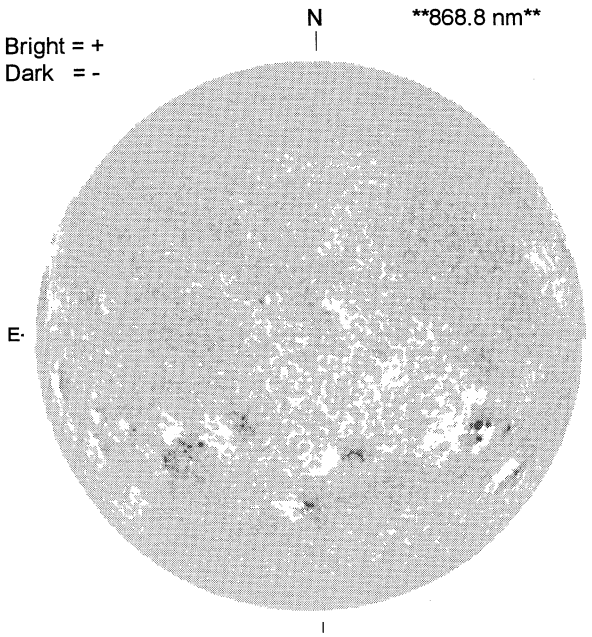
SACRAMENTO PEAK CORONA (1.15 Radii)----



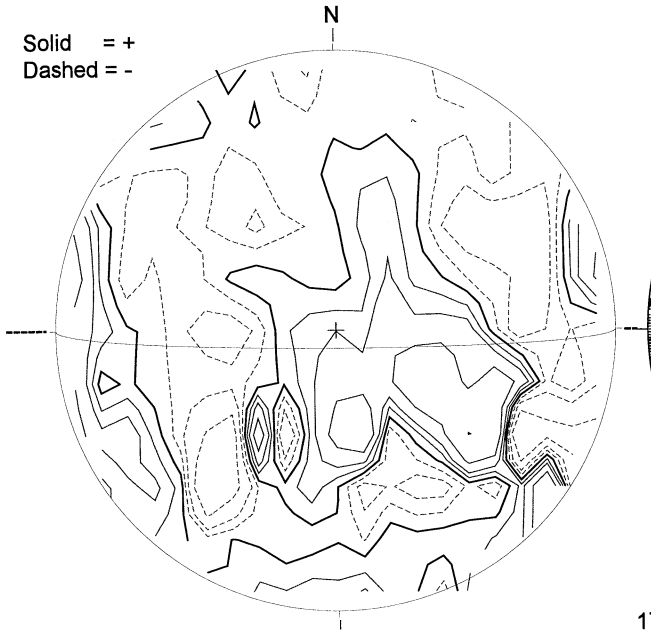
S

JULY 8, 2002 (P= 0.39, Bo = 3.61, Lo = 118.31)

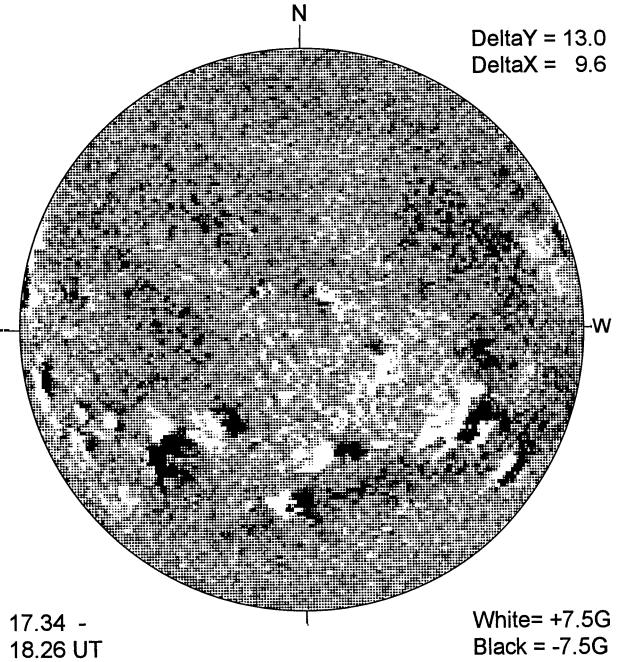
KITT PEAK MAGNETOGRAM



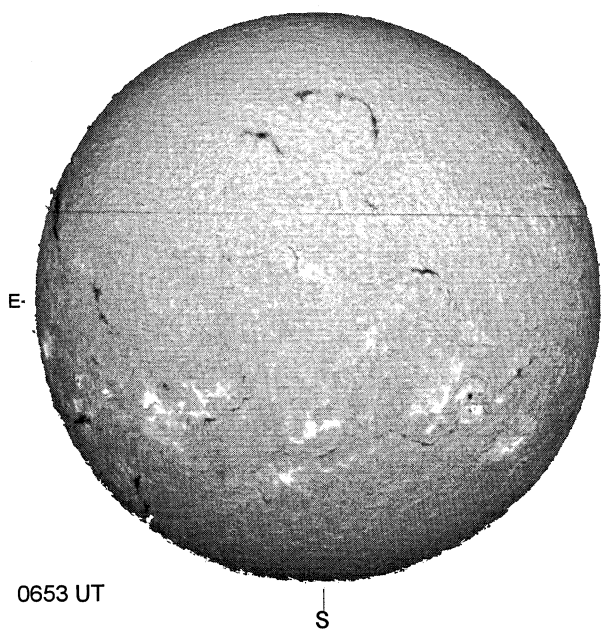
STANFORD MAGNETOGRAM



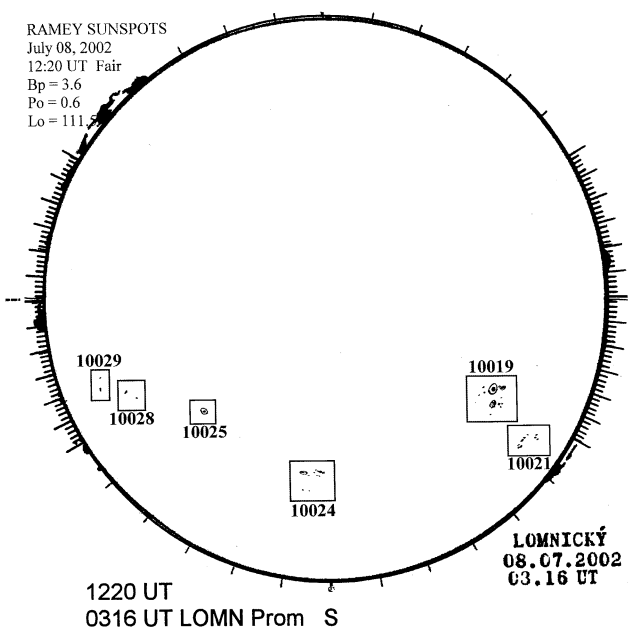
MT. WILSON MAGNETOGRAM



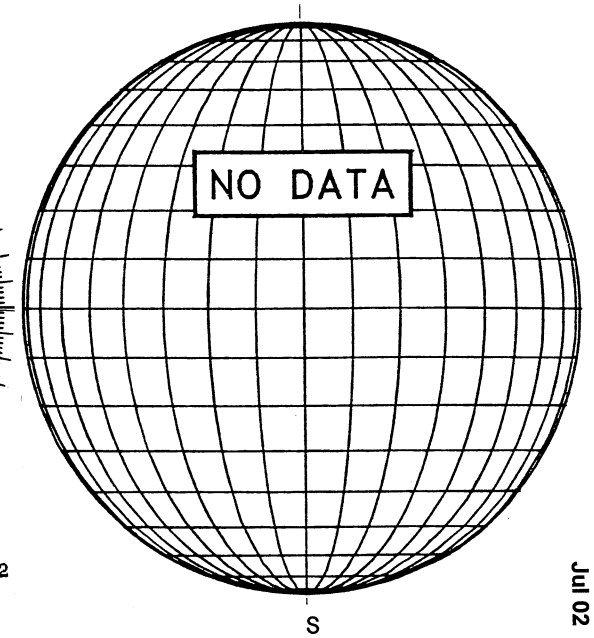
MEUDON H-ALPHA



RAMEY SUNSPOT

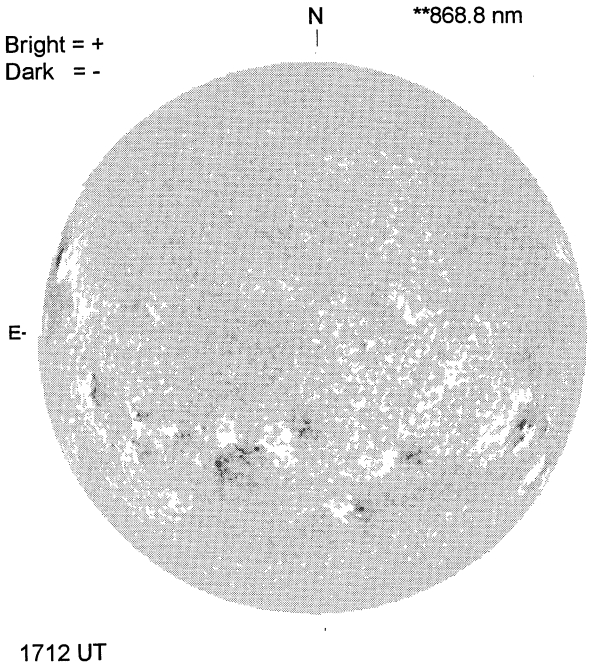


SACRAMENTO PEAK CORONA (1.15 Radii)----

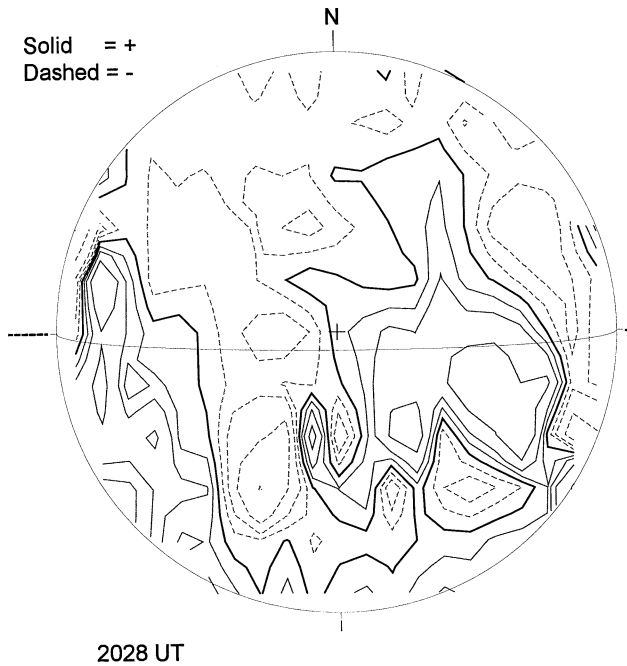


JULY 9, 2002 (P= 0.84, Bo = 3.71, Lo = 105.07)

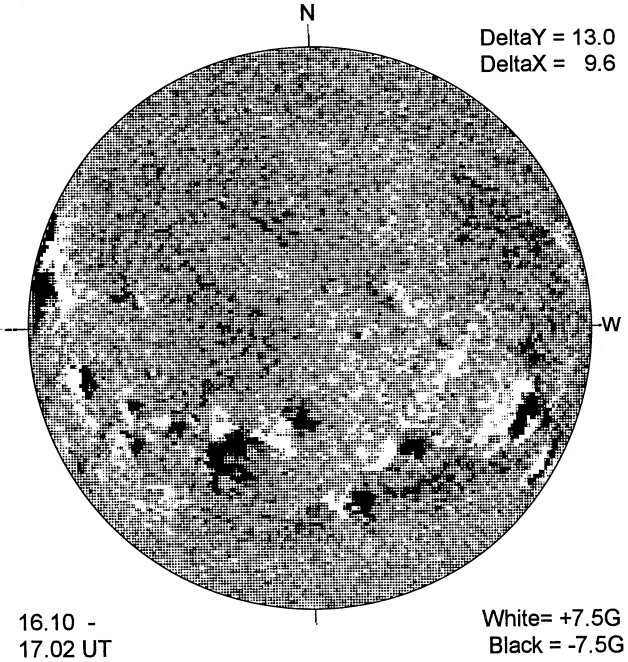
KITT PEAK MAGNETOGRAM



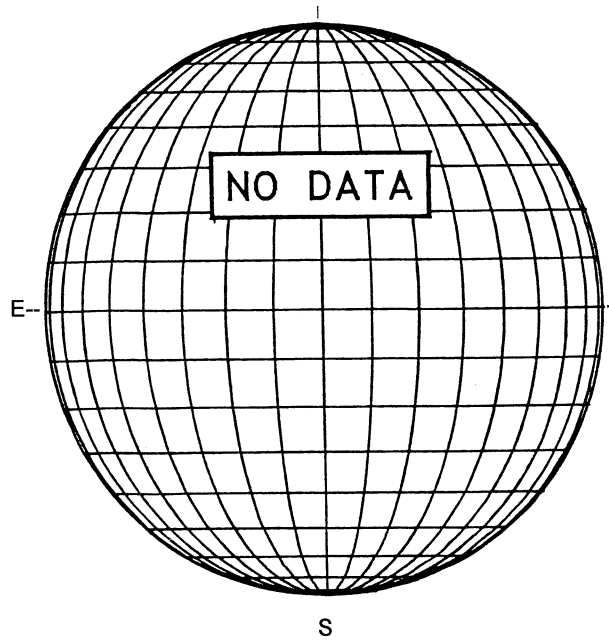
STANFORD MAGNETOGRAM



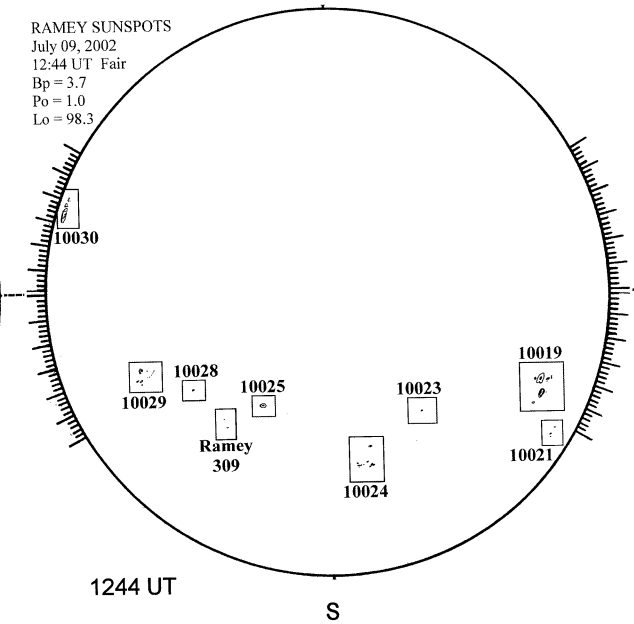
MT. WILSON MAGNETOGRAM



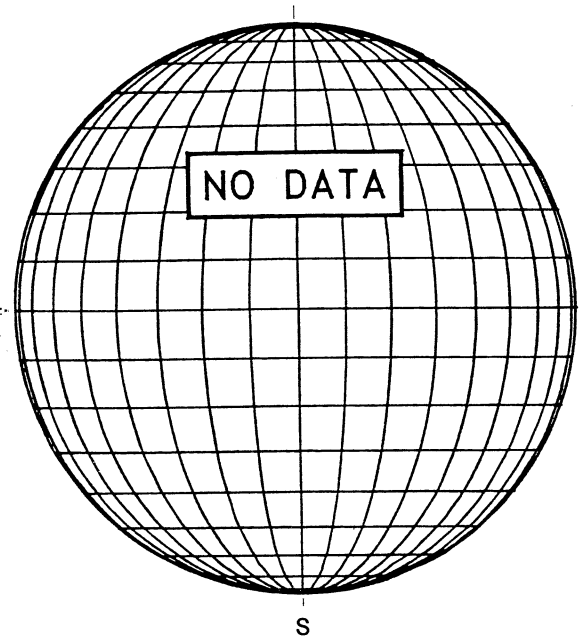
MEUDON H-ALPHA



RAMEY SUNSPOT

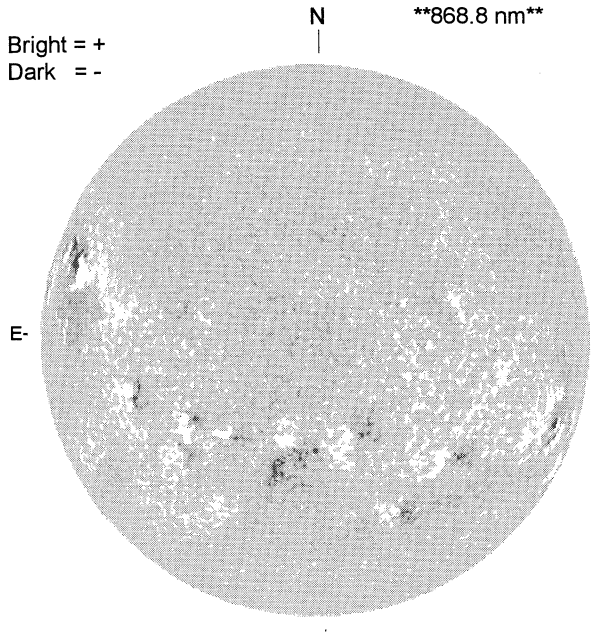


SACRAMENTO PEAK CORONA (1.15 Radii)----



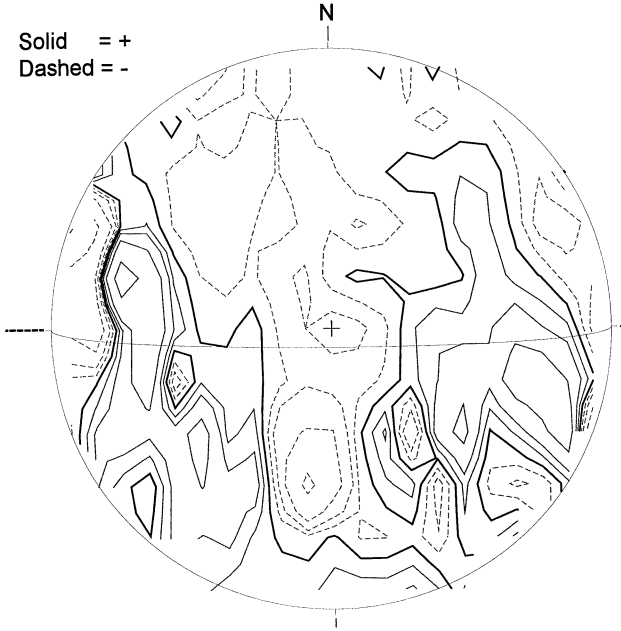
JULY 10, 2002 (P= 1.29, Bo = 3.81 Lo = 91.84)

KITT PEAK MAGNETOGRAM



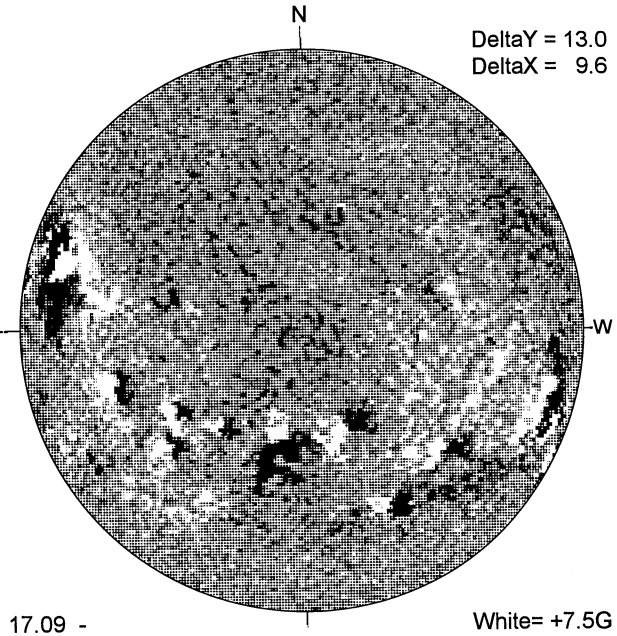
1528 UT

STANFORD MAGNETOGRAM



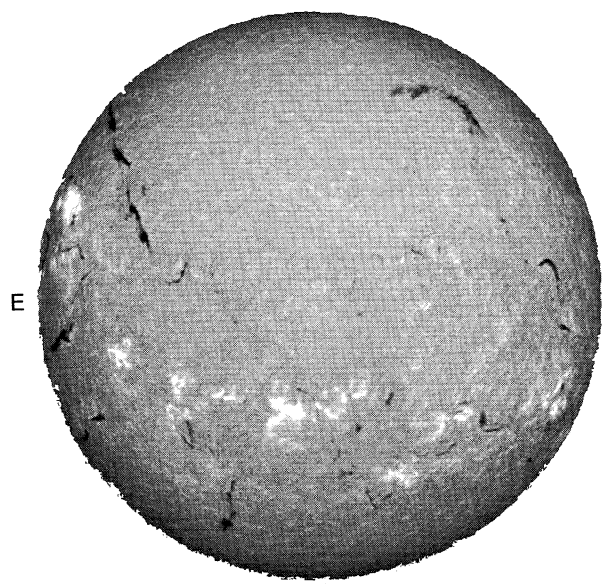
2222 UT

MT. WILSON MAGNETOGRAM



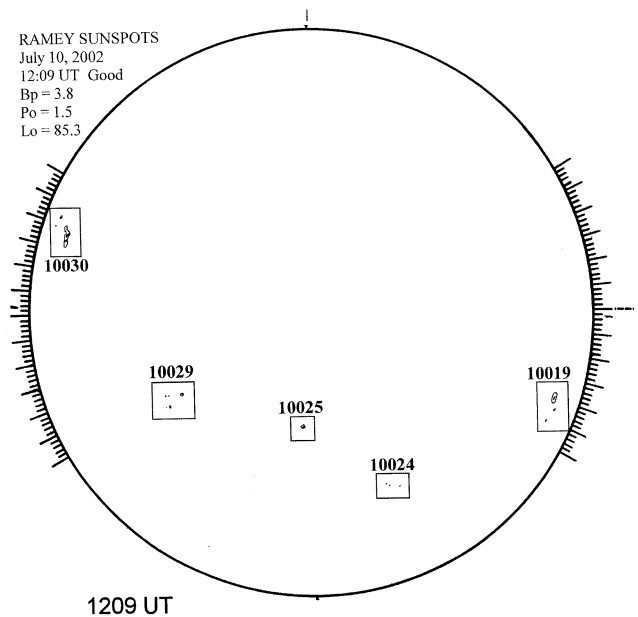
17.09 -
18.02 UT

MEUDON H-ALPHA



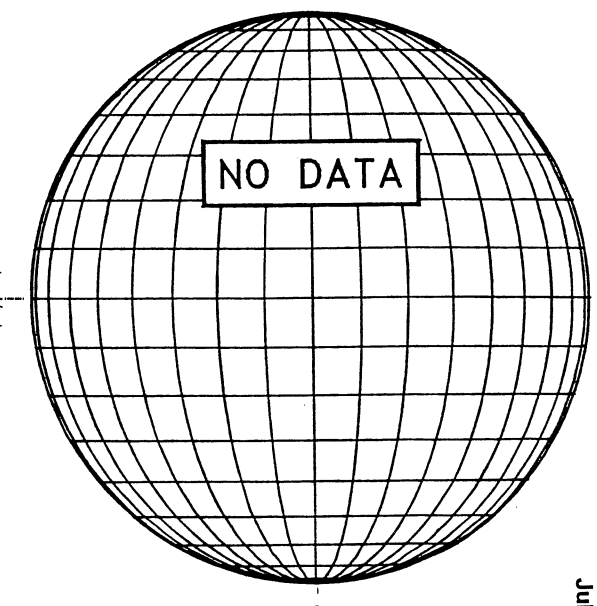
1250 UT S

RAMEY SUNSPOTS



1209 UT S

LOMNICKY PEAK CORONA (1.04 Radii)----



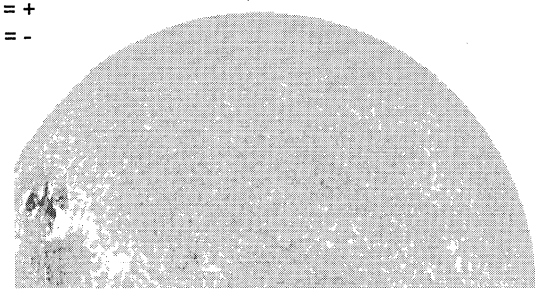
S

JULY 11, 2002 (P= 1.74, Bo = 3.92, Lo = 78.60)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



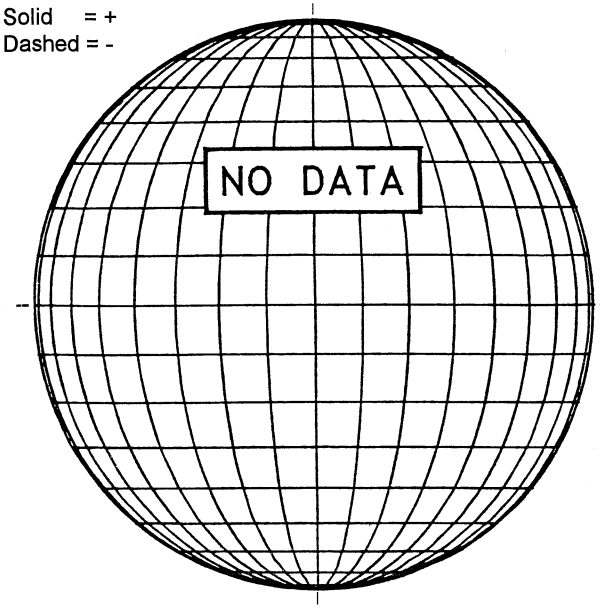
E----

1552 UT

STANFORD MAGNETOGRAM

N

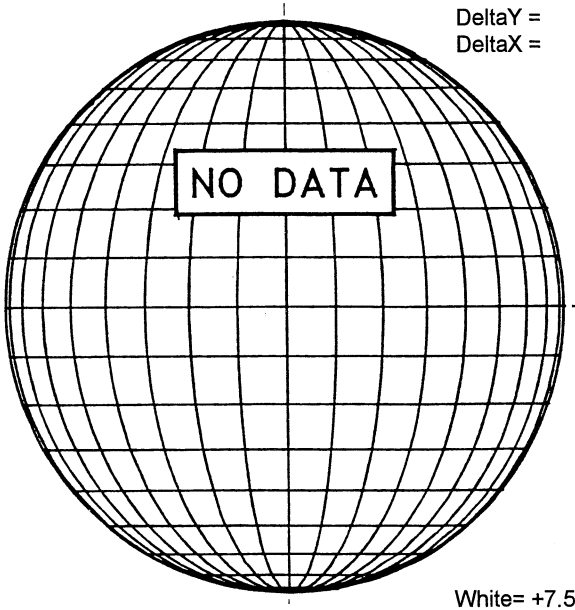
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

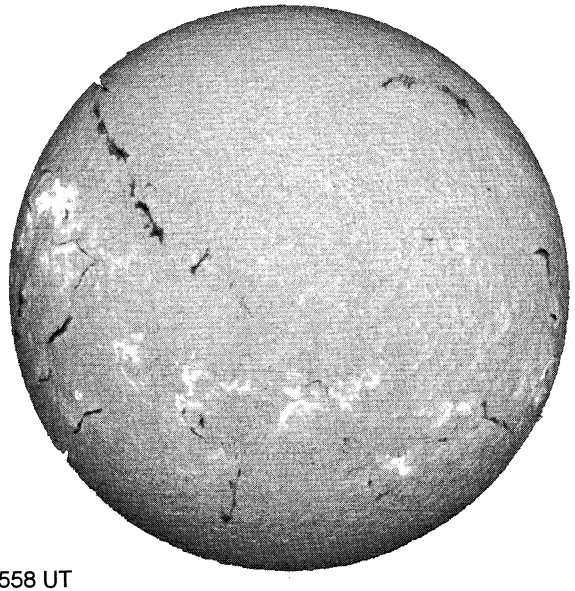
DeltaY =
DeltaX =



-W

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

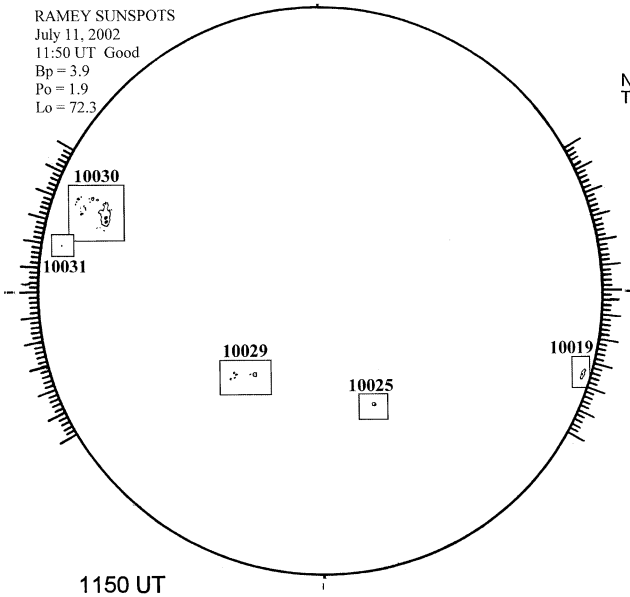


E-

0558 UT

S

RAMEY SUNSPOTS

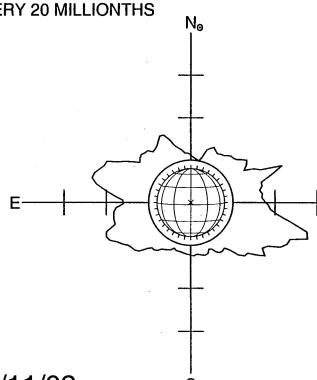


1150 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



-------W

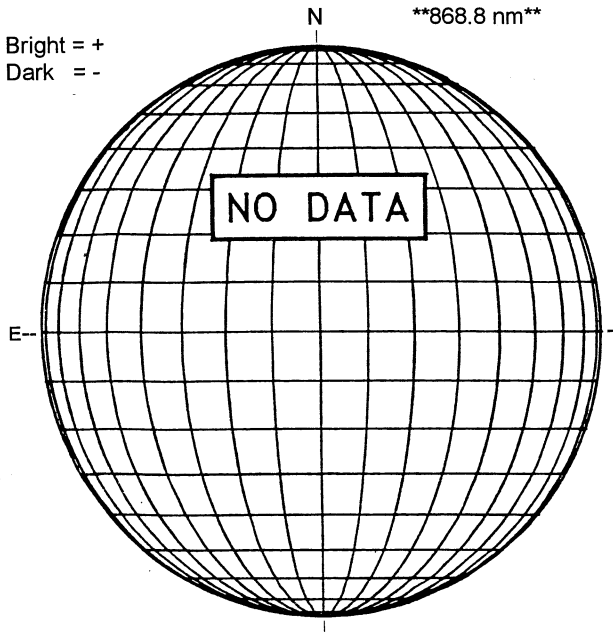
07/11/02
(DOY 192)

FE XIV 15:06 UT 1.15 R⊙

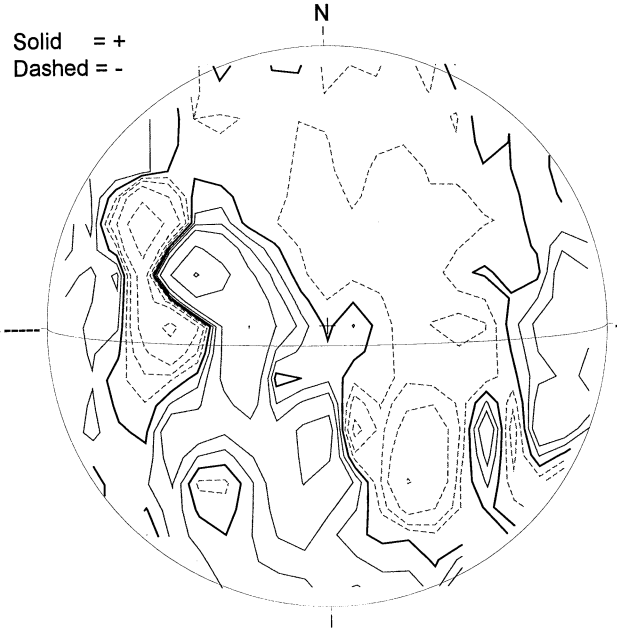
S

JULY 12, 2002 (P= 2.19, Bo = 4.02 Lo = 65.37)

KITT PEAK MAGNETOGRAM

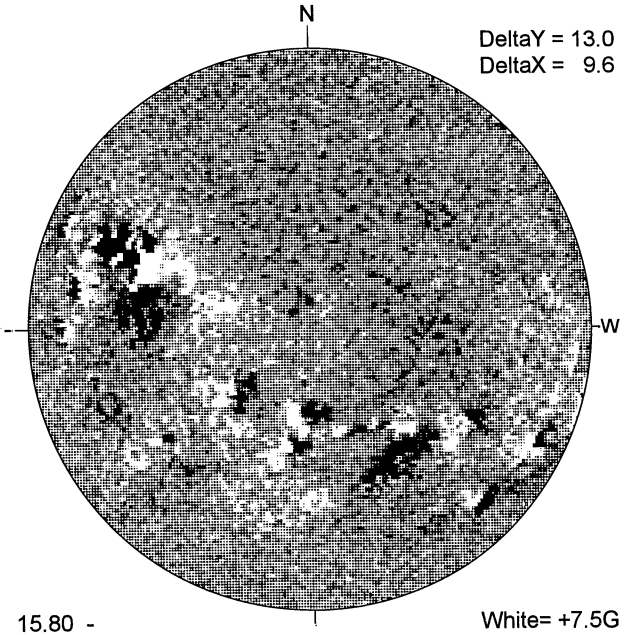


STANFORD MAGNETOGRAM



2117 UT

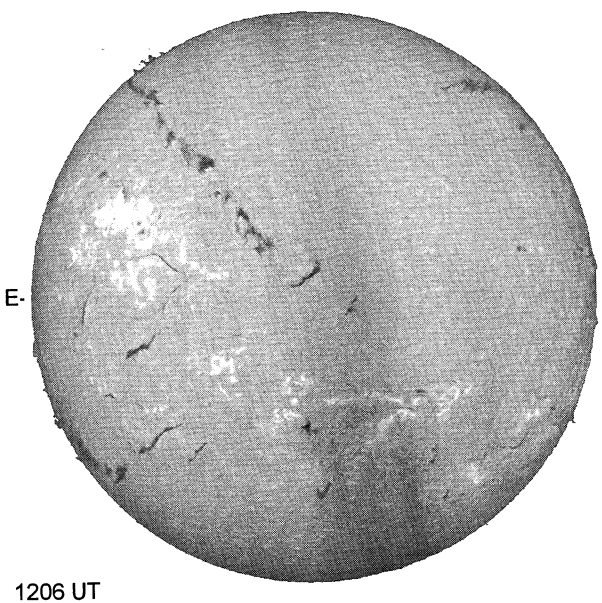
MT. WILSON MAGNETOGRAM



15.80 -
16.72 UT

White= +7.5G
Black = -7.5G

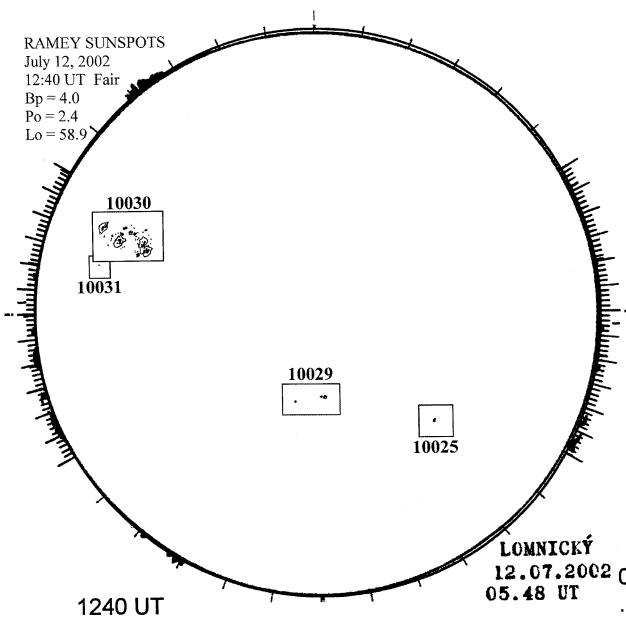
---- MEUDON H-ALPHA



1206 UT

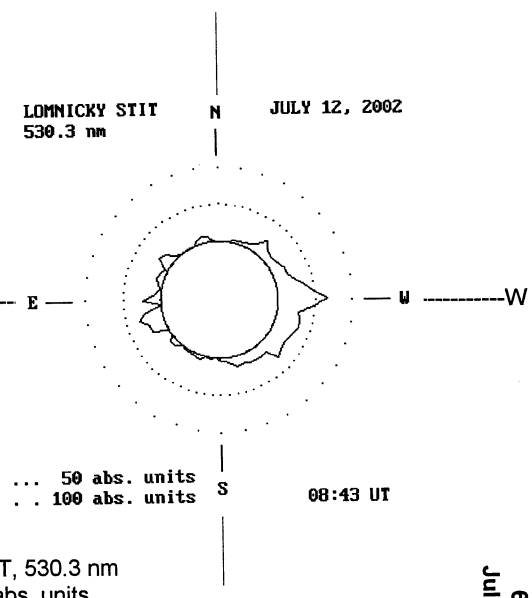
S

RAMEY SUNSPOTS



1240 UT
0548 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



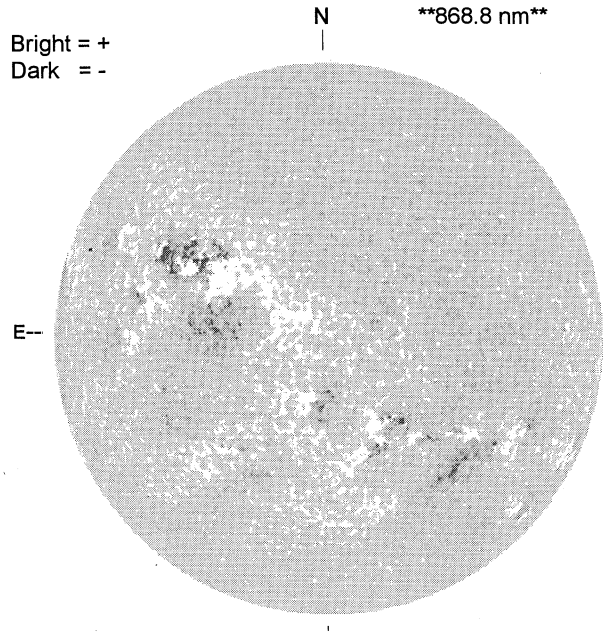
0843 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

69
Jul 02

JULY 13, 2002 (P= 2.64, Bo = 4.12, Lo = 52.14)

KITT PEAK MAGNETOGRAM

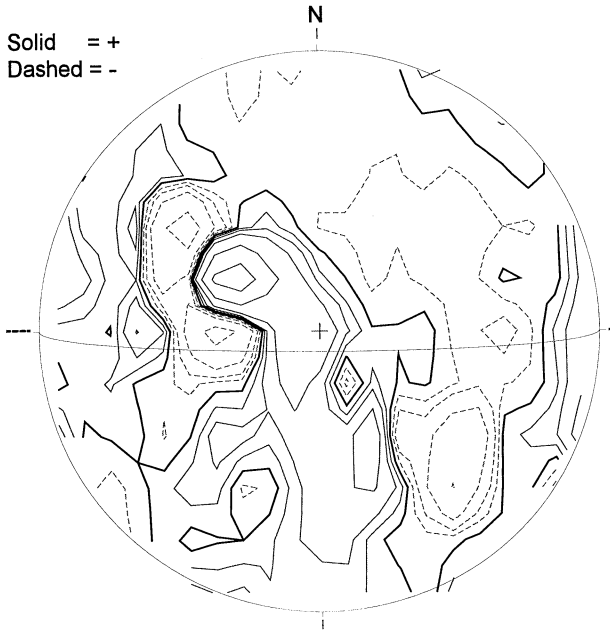
Bright = +
Dark = -



1452 UT

STANFORD MAGNETOGRAM

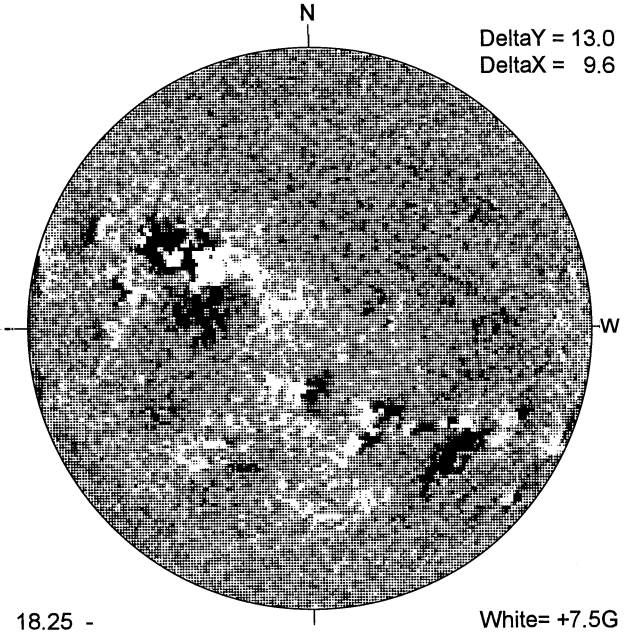
Solid = +
Dashed = -



2044 UT

MT. WILSON MAGNETOGRAM

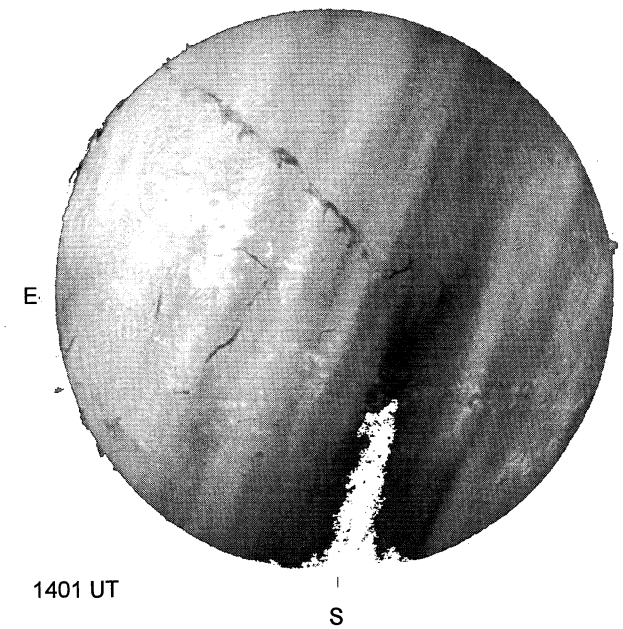
DeltaY = 13.0
DeltaX = 9.6



18.25 -
19.17 UT

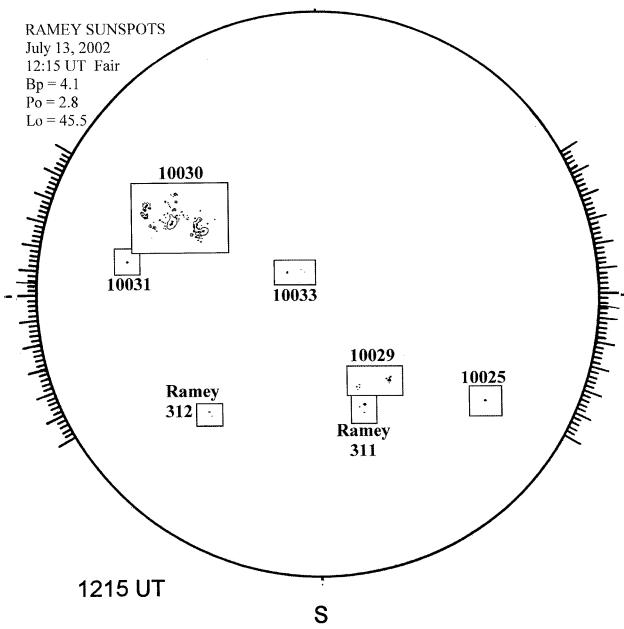
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



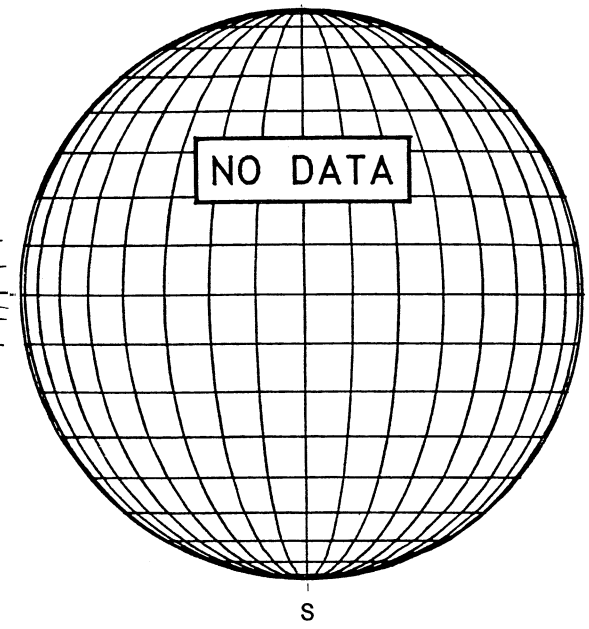
1401 UT

RAMEY SUNSPOT



1215 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



JULY 14, 2002 (P= 3.09, Bo = 4.22, Lo = 38.91)

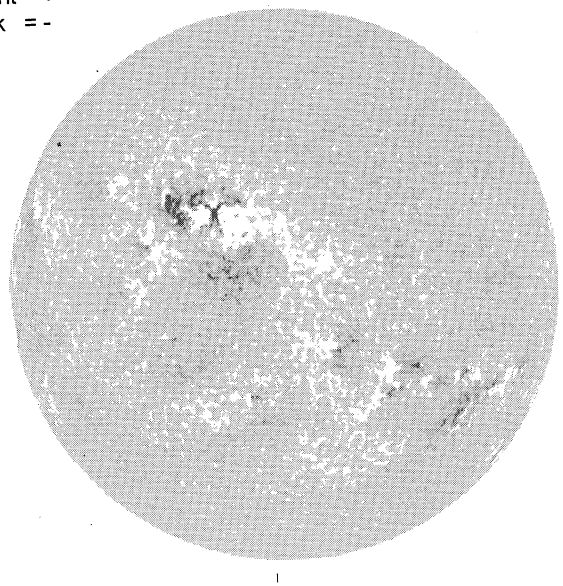
KITT PEAK MAGNETOGRAM

N

868.8 nm

Bright = +
Dark = -

E---



1452 UT

STANFORD MAGNETOGRAM

N

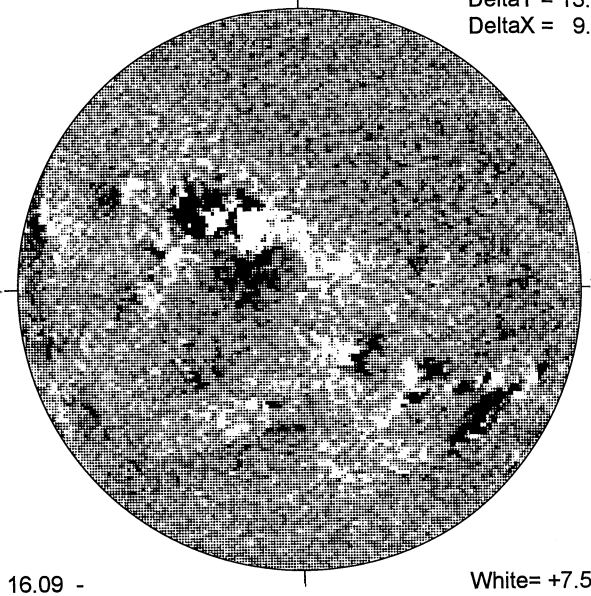
Solid = +
Dashed = -

1932 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.0
DeltaX = 9.6

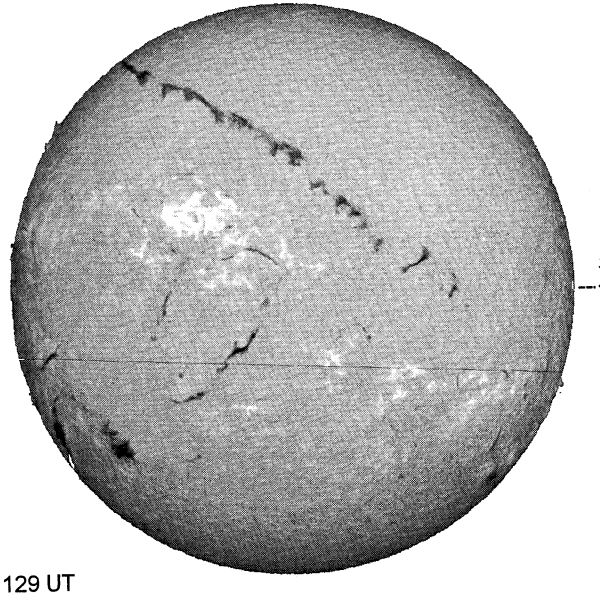


-W

16.09 -
17.01 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



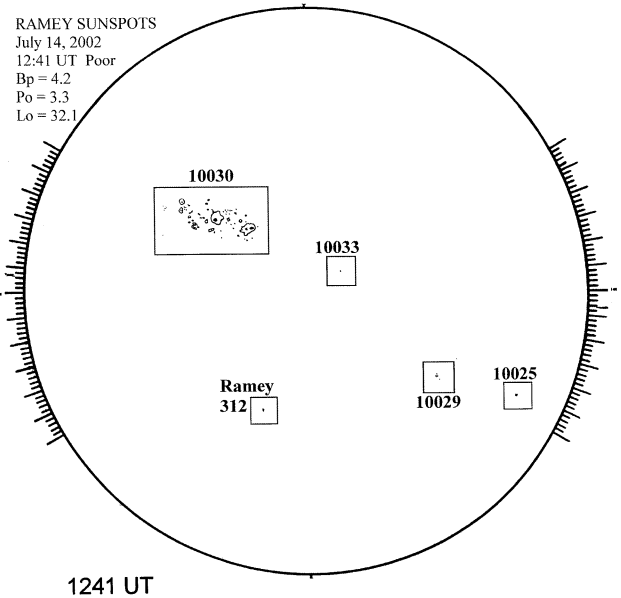
E-

1129 UT

S

RAMEY SUNSPOT

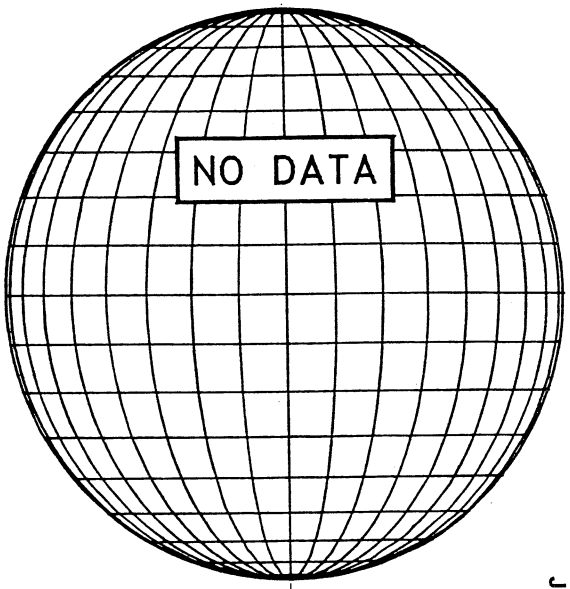
RAMEY SUNSPOTS
July 14, 2002
12:41 UT Poor
Bp = 4.2
Po = 3.3
Lo = 32.1



1241 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



S

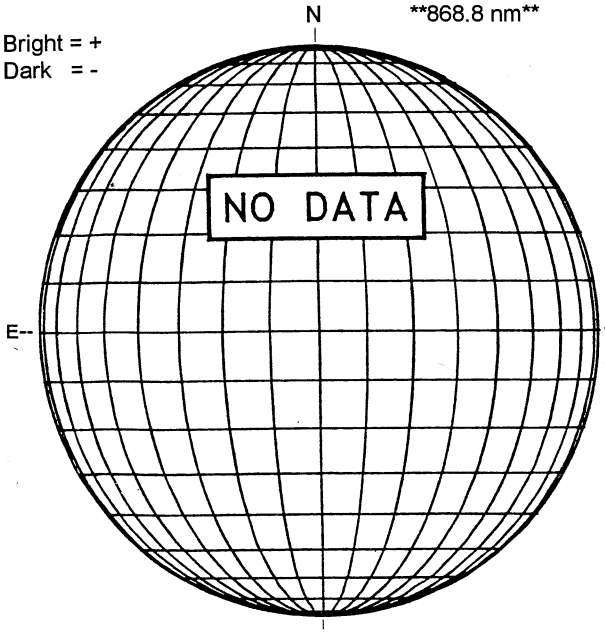
71
Jul 02

JULY 15, 2002 (P= 3.53, Bo = 4.31, Lo = 25.67)

KITT PEAK MAGNETOGRAM

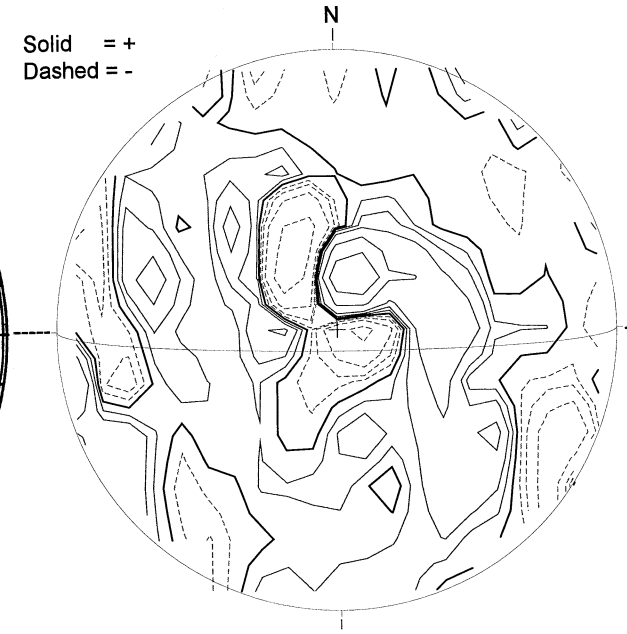
868.8 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

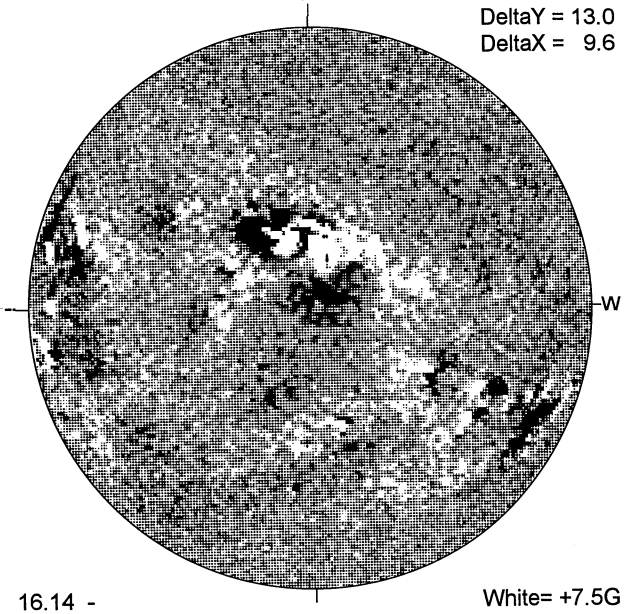
Solid = +
Dashed = -



1935 UT

MT. WILSON MAGNETOGRAM

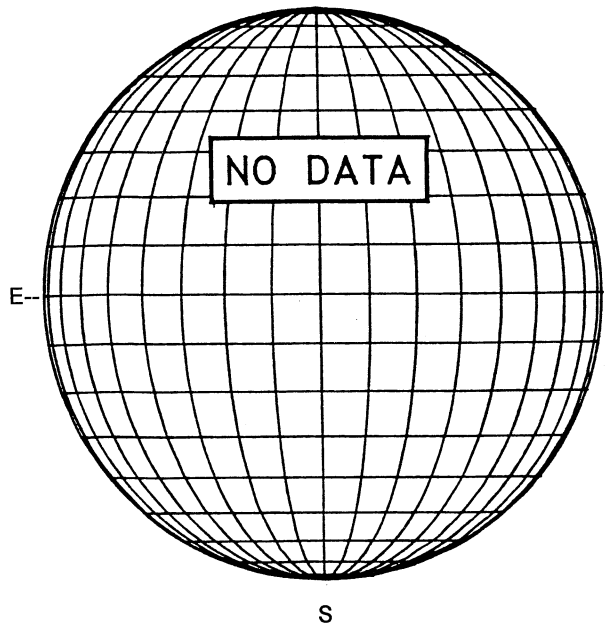
DeltaY = 13.0
DeltaX = 9.6



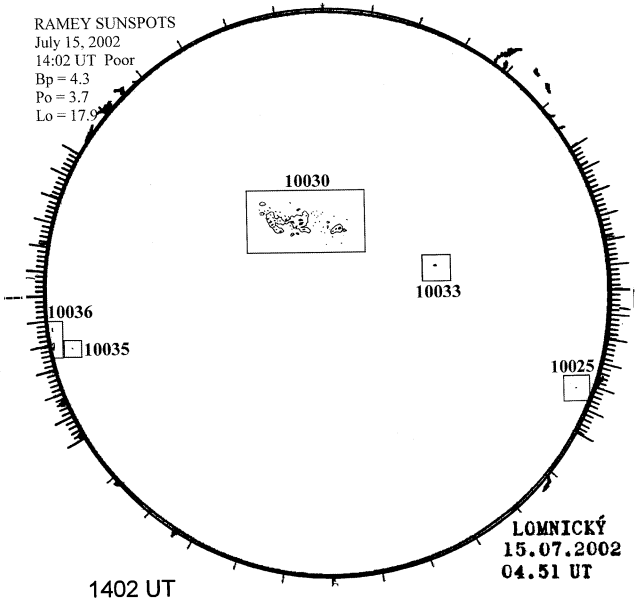
16.14 -
17.06 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

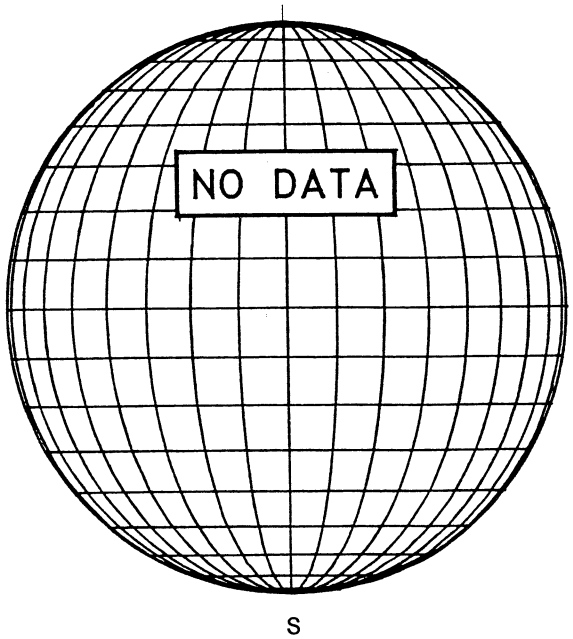


RAMEY SUNSPOT



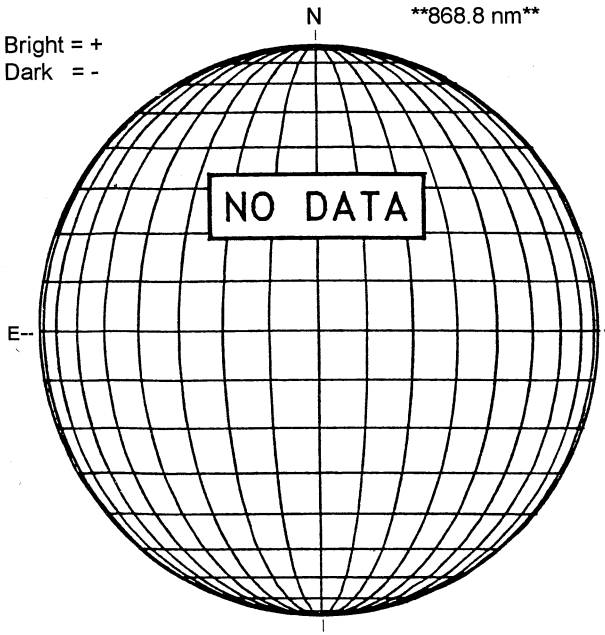
1402 UT
0451 UT LOMN Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

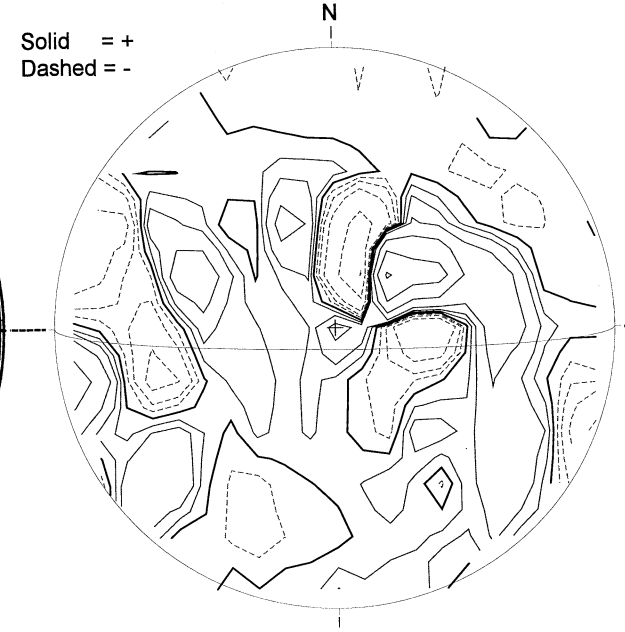


JULY 16, 2002 (P= 3.97, Bo = 4.41, Lo = 12.44)

KITT PEAK MAGNETOGRAM

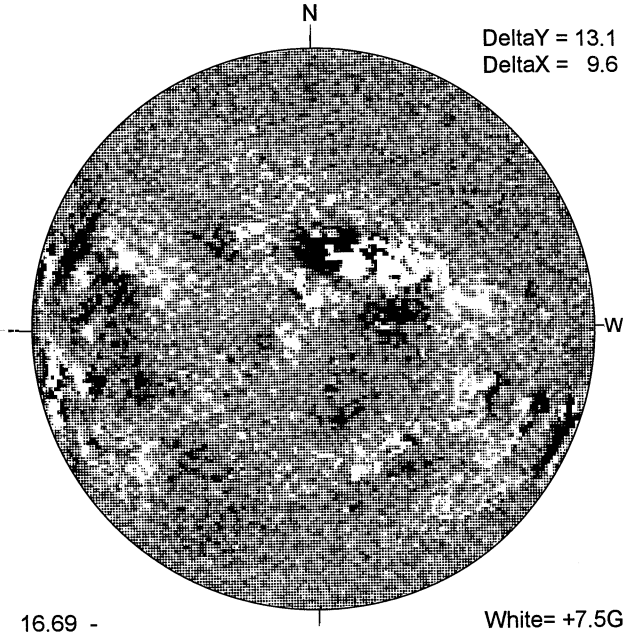


STANFORD MAGNETOGRAM



2243 UT

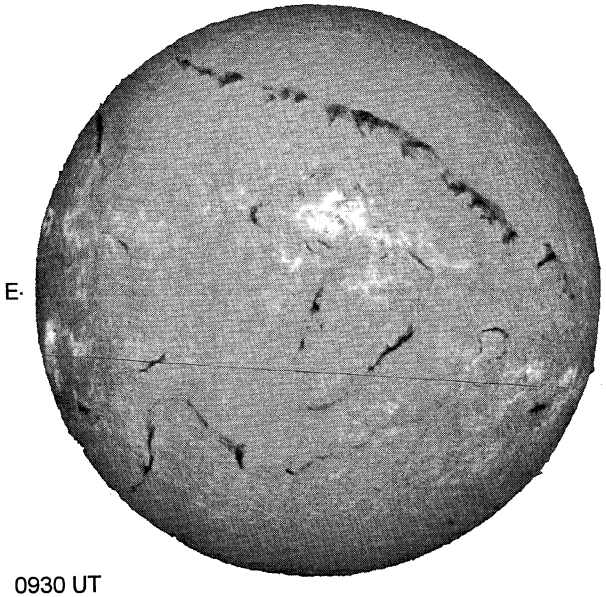
MT. WILSON MAGNETOGRAM



16.69 -
17.61 UT

White= +7.5G
Black = -7.5G

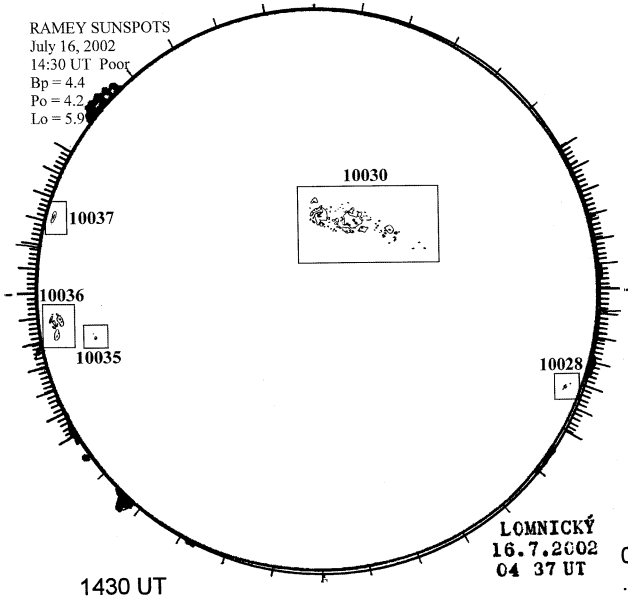
MEUDON H-ALPHA



0930 UT

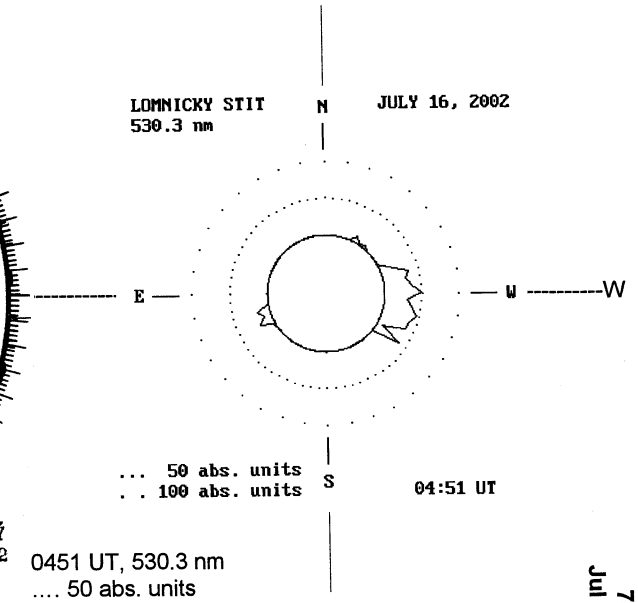
S

RAMEY SUNSPOT



1430 UT
0437 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



0451 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

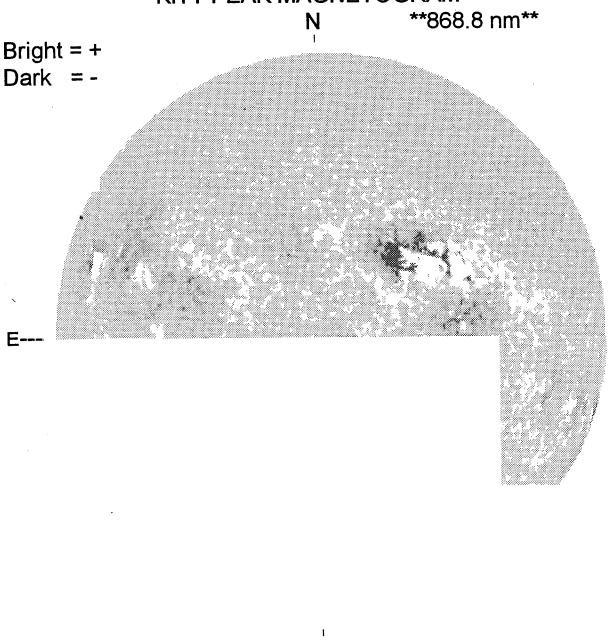
S

JULY 17, 2002 (P= 4.42, Bo = 4.50, Lo = 359.21)

KITT PEAK MAGNETOGRAM

868.8 nm

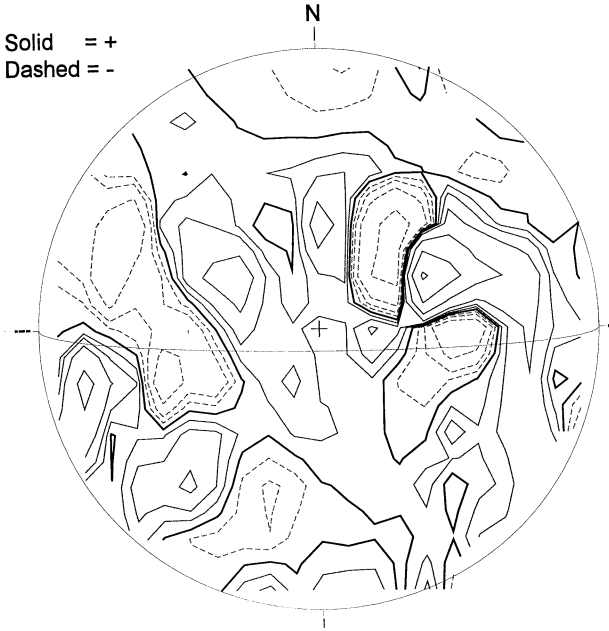
Bright = +
Dark = -



1608 UT

STANFORD MAGNETOGRAM

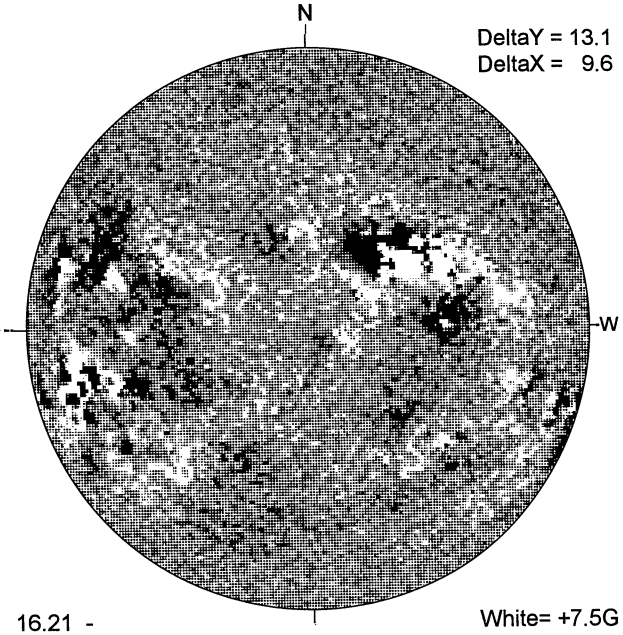
Solid = +
Dashed = -



1932 UT

MT. WILSON MAGNETOGRAM

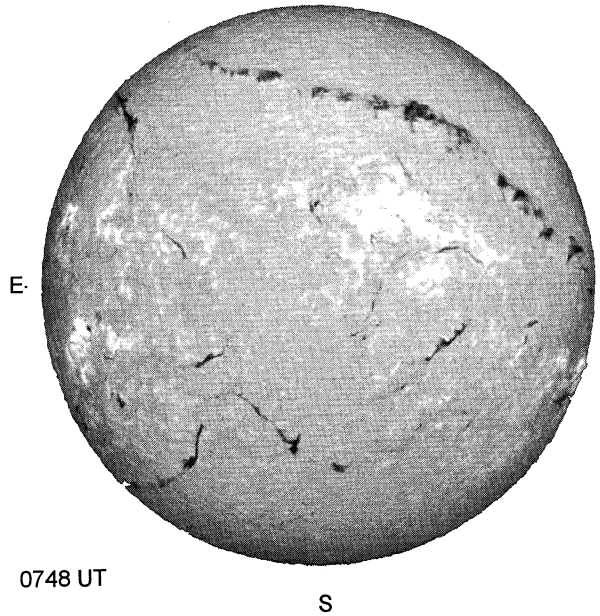
DeltaY = 13.1
DeltaX = 9.6



16.21 -
17.13 UT

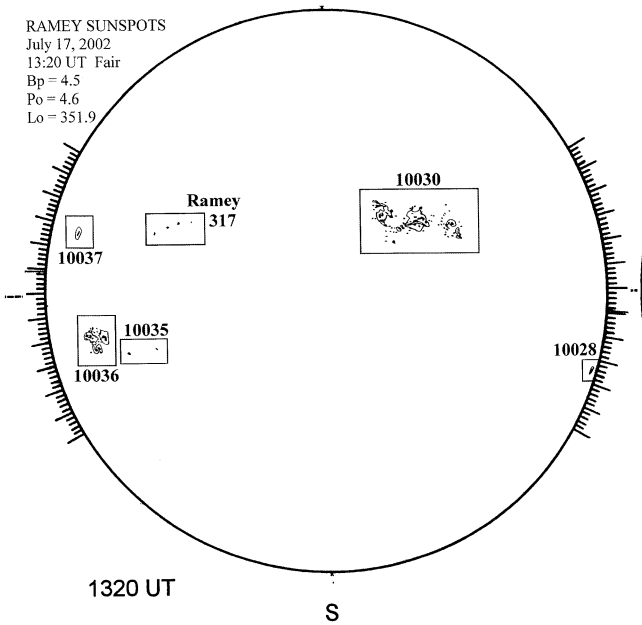
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



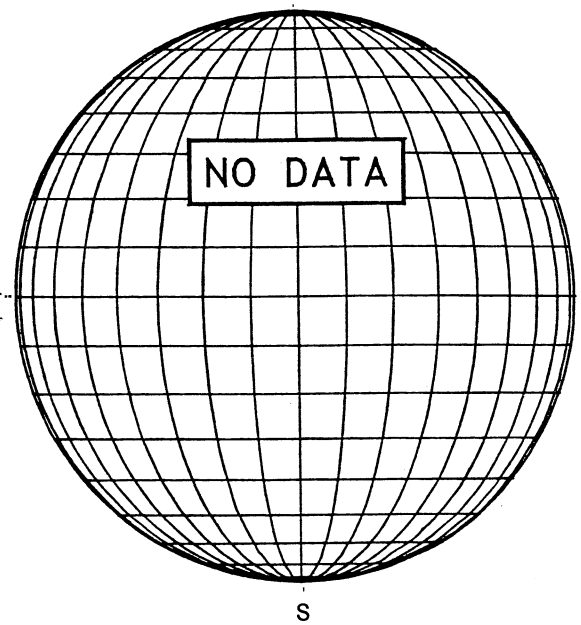
0748 UT

RAMEY SUNSPOT



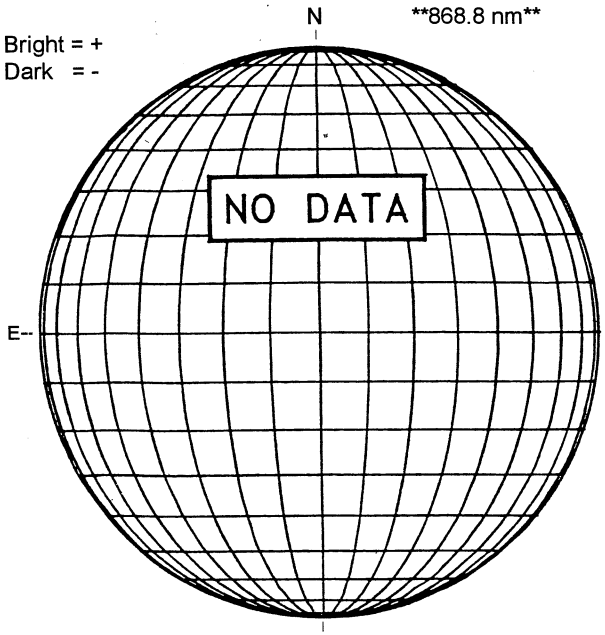
1320 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

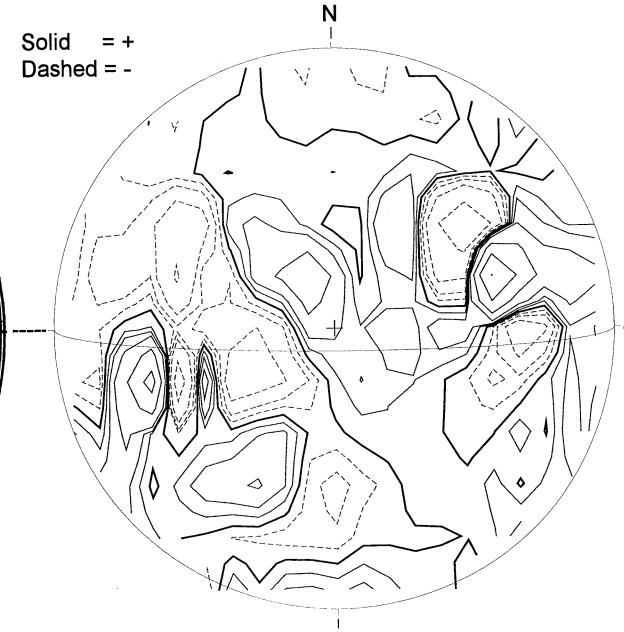


JULY 18, 2002 (P= 4.85, Bo = 4.60, Lo = 345.98)

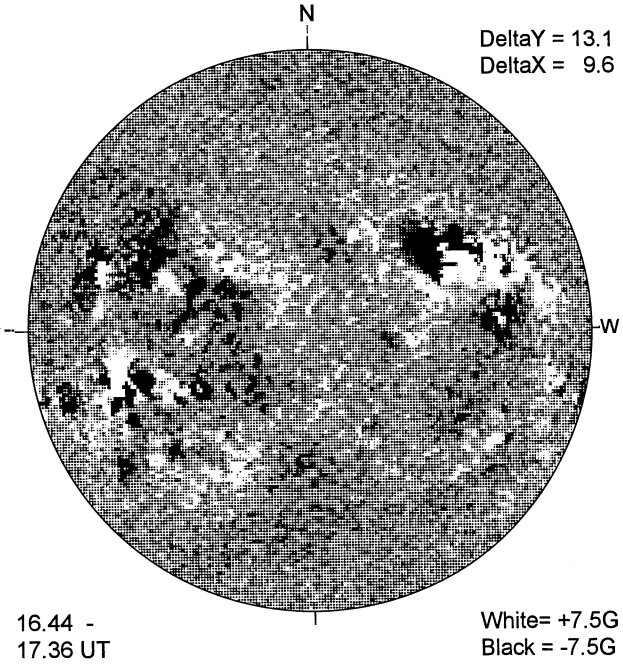
KITT PEAK MAGNETOGRAM



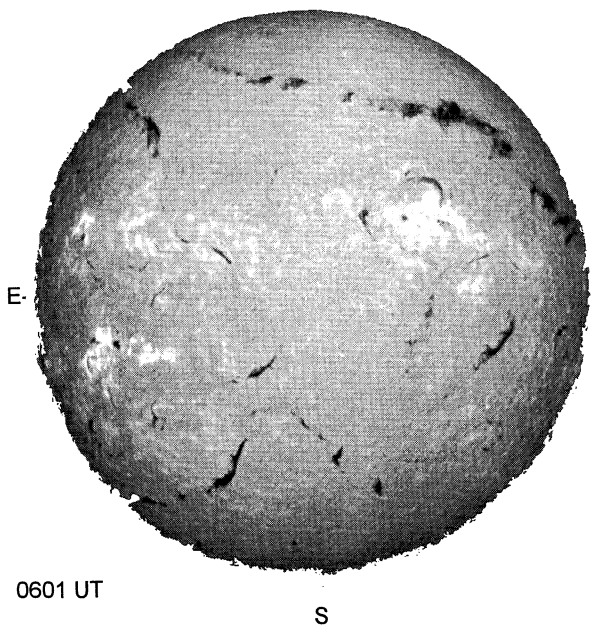
STANFORD MAGNETOGRAM



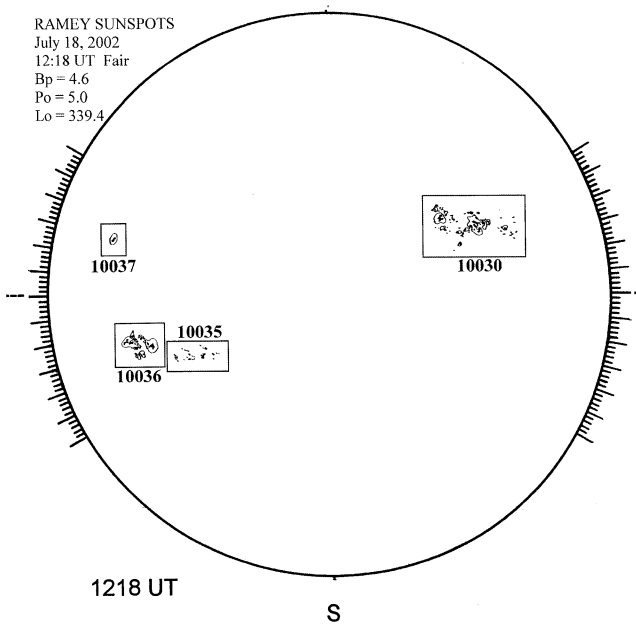
MT. WILSON MAGNETOGRAM



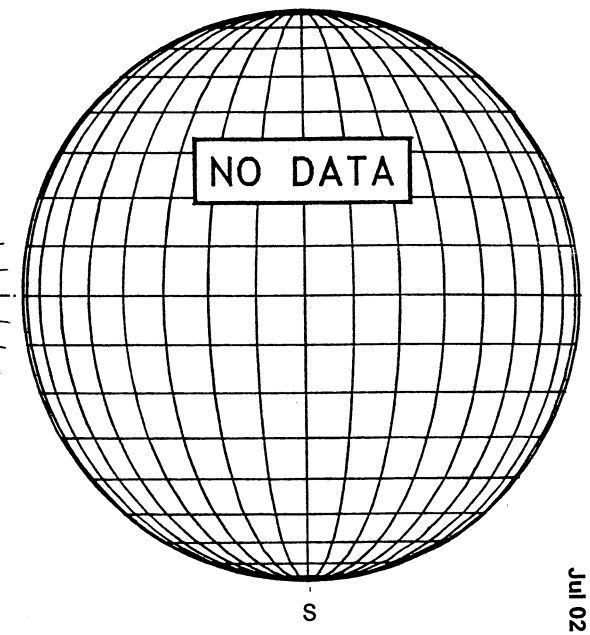
MEUDON H-ALPHA



RAMEY SUNSPOT



LOMNICKY PEAK CORONA (1.04 Radii)----



75
Jul 02

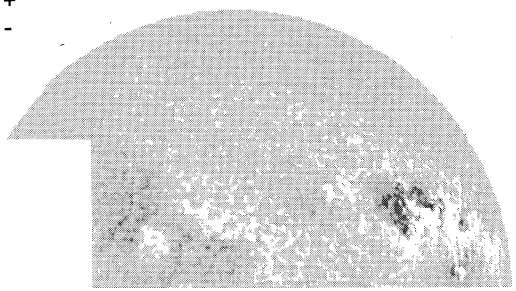
JULY 19, 2002 (P= 5.29, Bo = 4.69, Lo = 332.74)

KITT PEAK MAGNETOGRAM

N

868.8 nm

Bright = +
Dark = -



E--

1516 UT

STANFORD MAGNETOGRAM

N

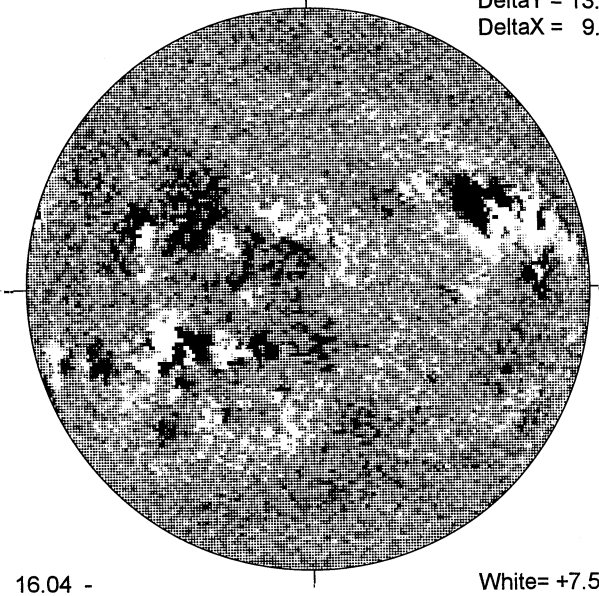
Solid = +
Dashed = -

2238 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

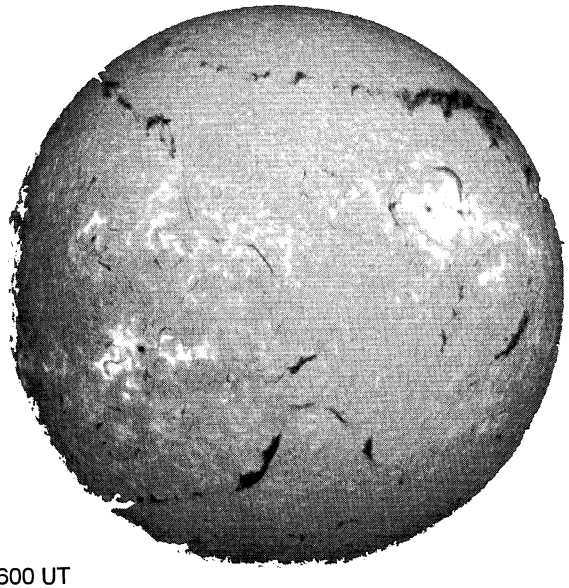


W

16.04 -
16.96 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

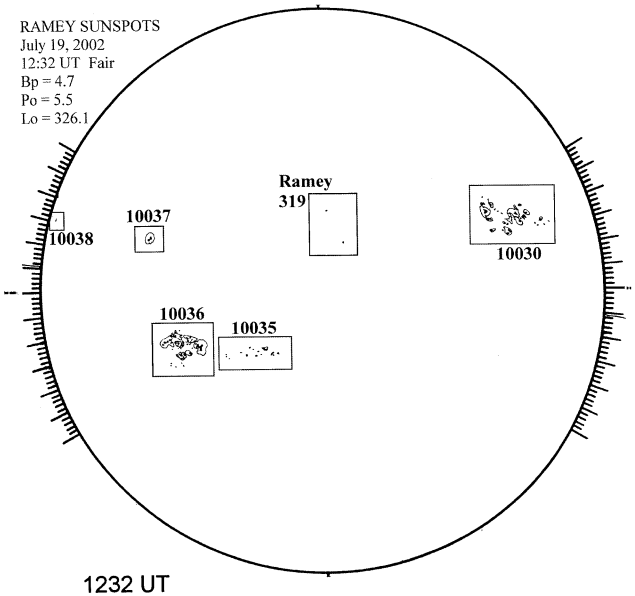


E-

0600 UT

S

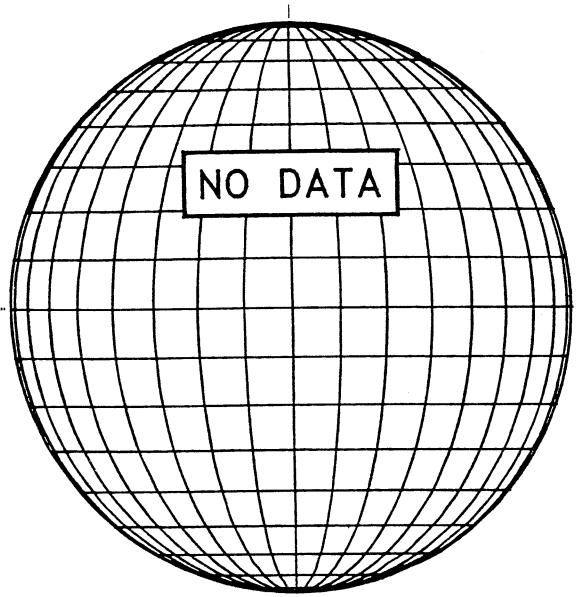
RAMEY SUNSPOT



1232 UT

S

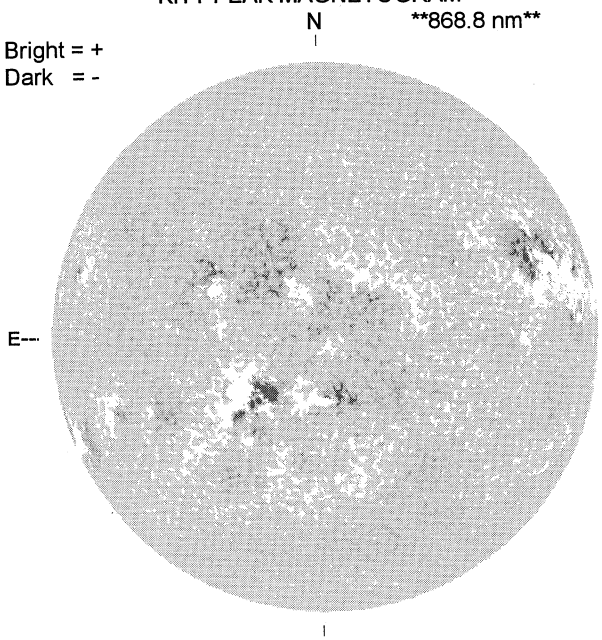
SACRAMENTO PEAK CORONA (1.15 Radii)----



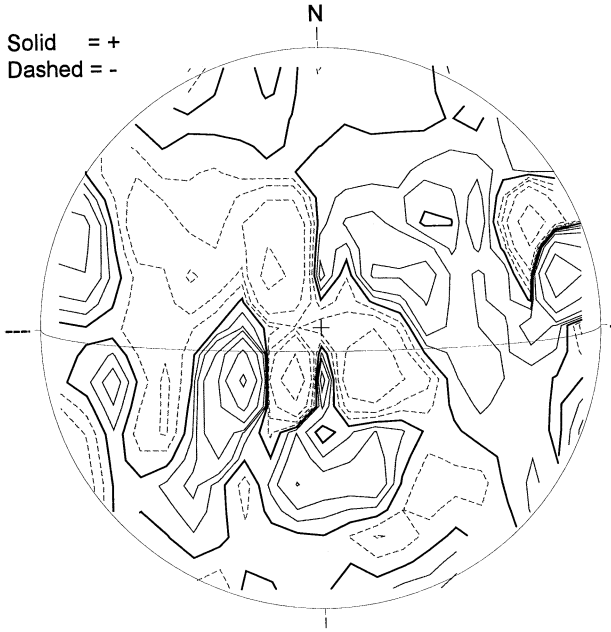
S

JULY 20, 2002 (P= 5.73, Bo = 4.78, Lo = 319.51)

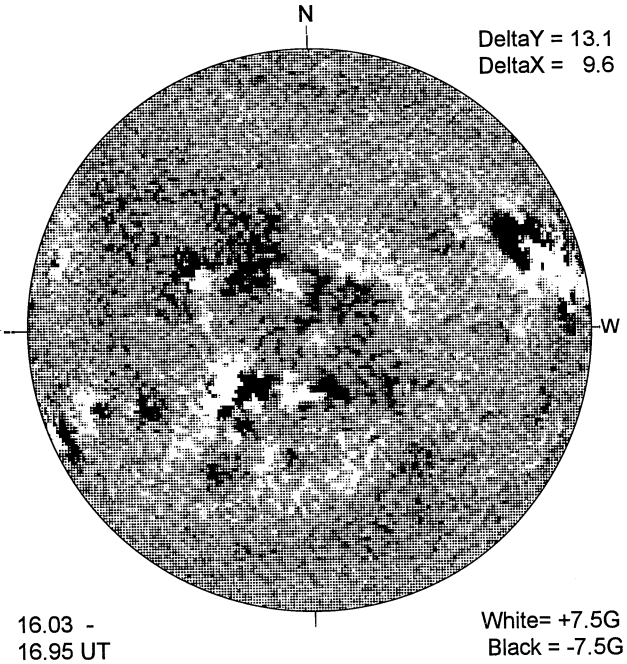
KITT PEAK MAGNETOGRAM



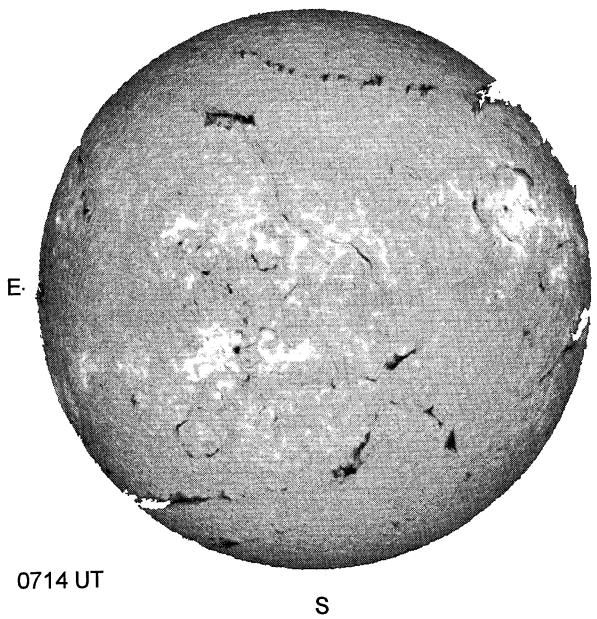
STANFORD MAGNETOGRAM



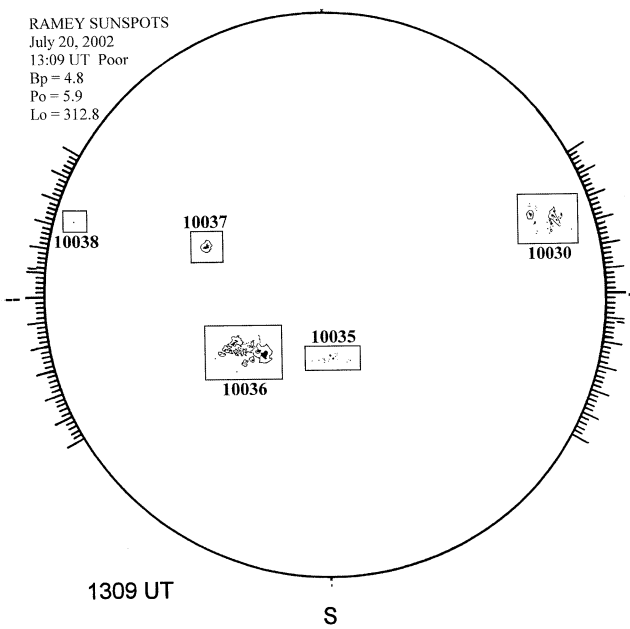
MT. WILSON MAGNETOGRAM



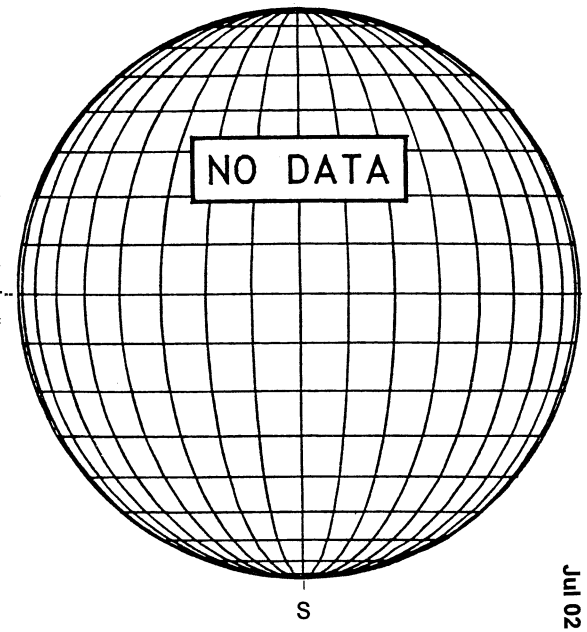
MEUDON H-ALPHA



RAMEY SUNSPOT



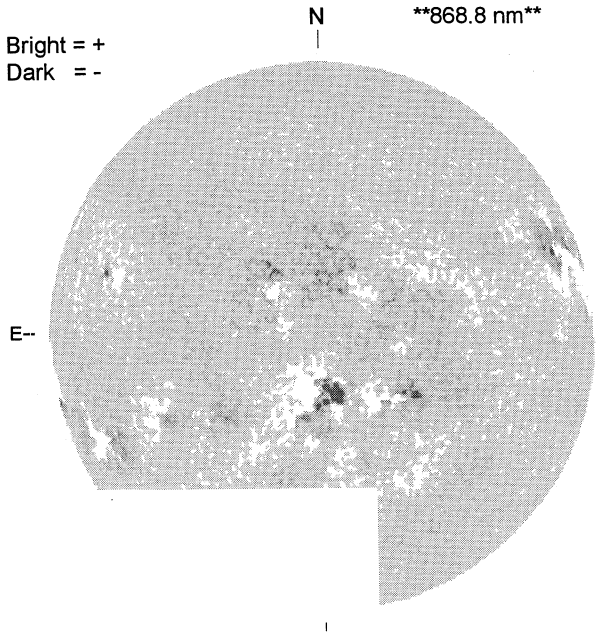
SACRAMENTO PEAK CORONA (1.15 Radii)----



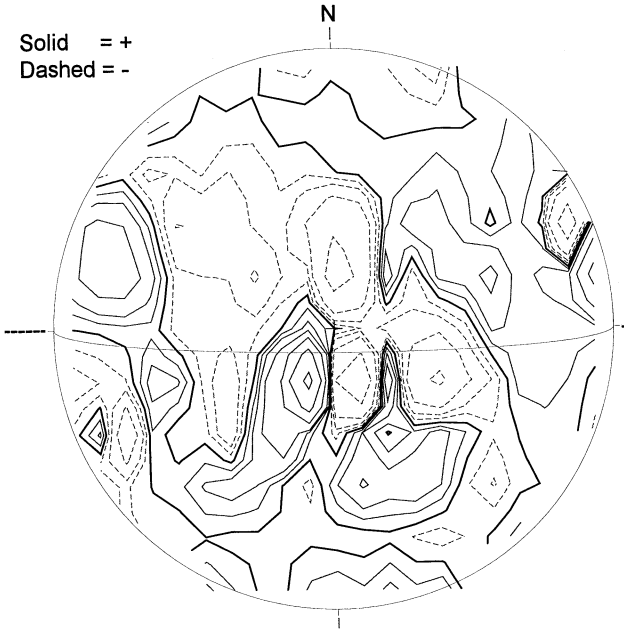
77
Jul 02

JULY 21, 2002 (P= 6.16, Bo = 4.87, Lo = 306.28)

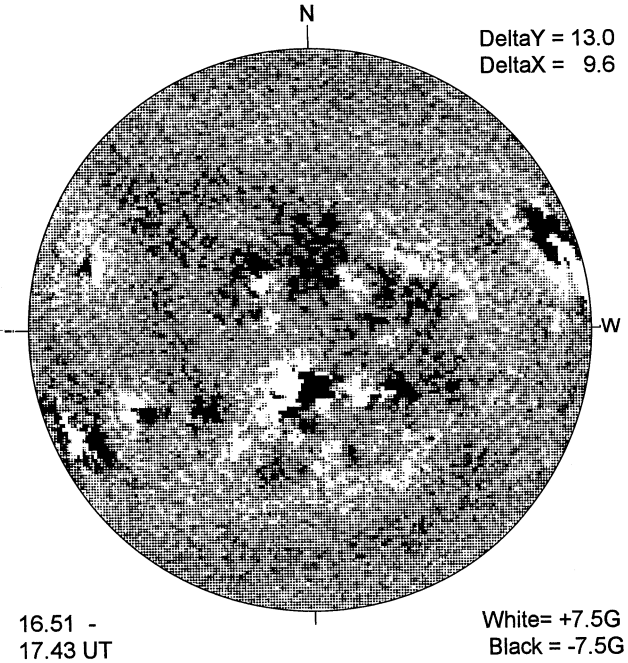
KITT PEAK MAGNETOGRAM



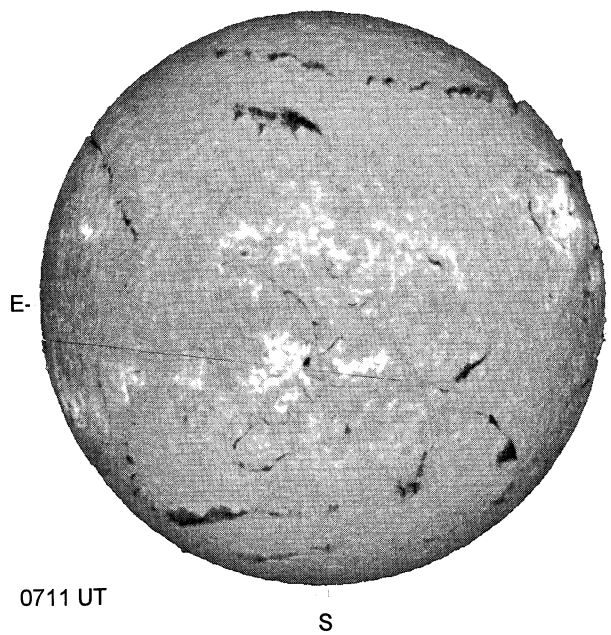
STANFORD MAGNETOGRAM



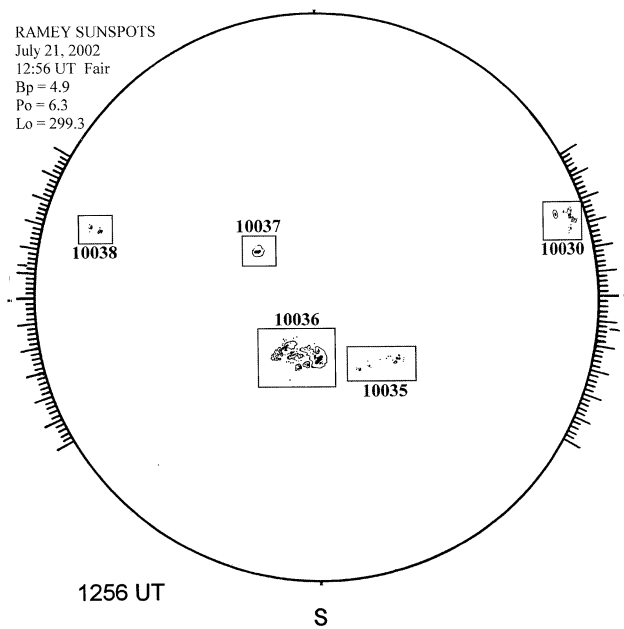
MT. WILSON MAGNETOGRAM



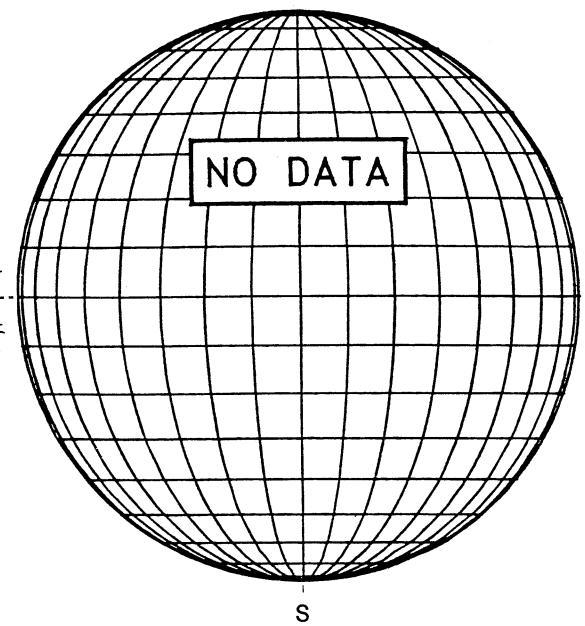
MEUDON H-ALPHA



RAMEY SUNSPOT

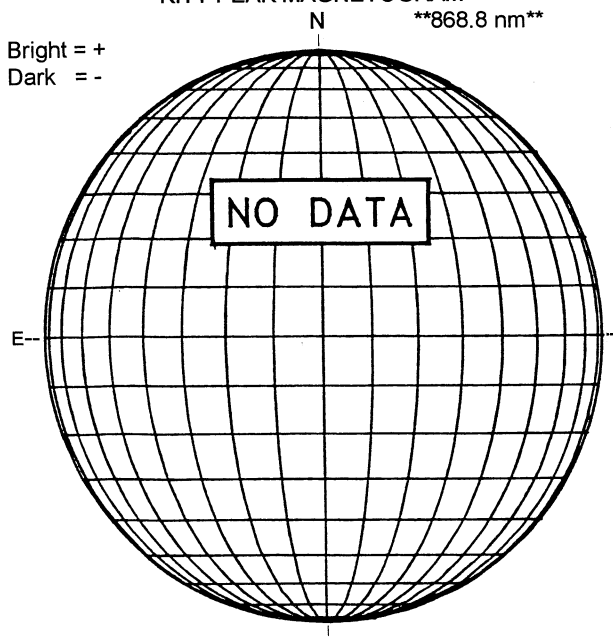


SACRAMENTO PEAK CORONA (1.15 Radii)

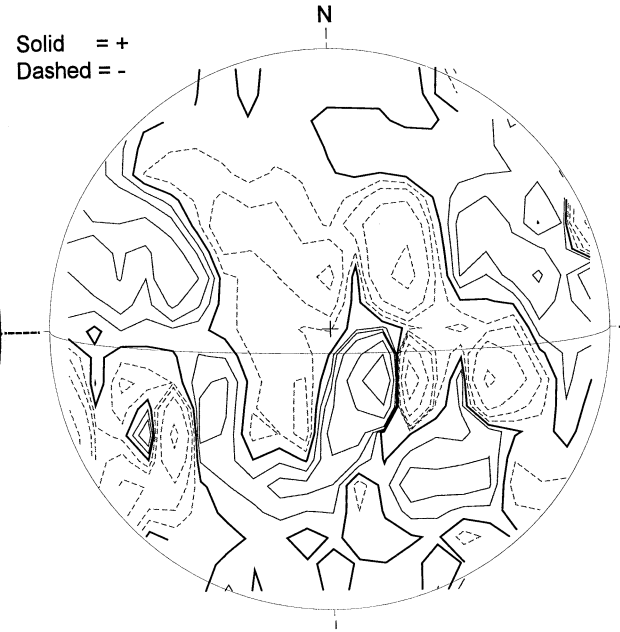


JULY 22, 2002 (P= 6.59, Bo = 4.96, Lo = 293.05)

KITT PEAK MAGNETOGRAM

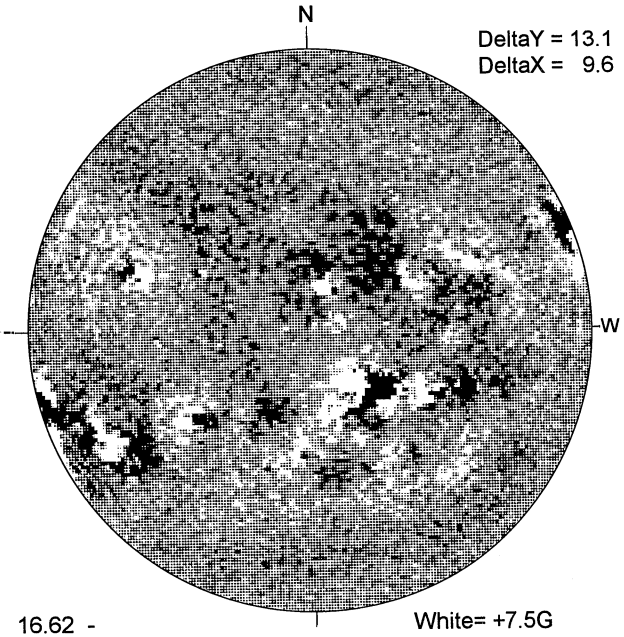


STANFORD MAGNETOGRAM



2043 UT

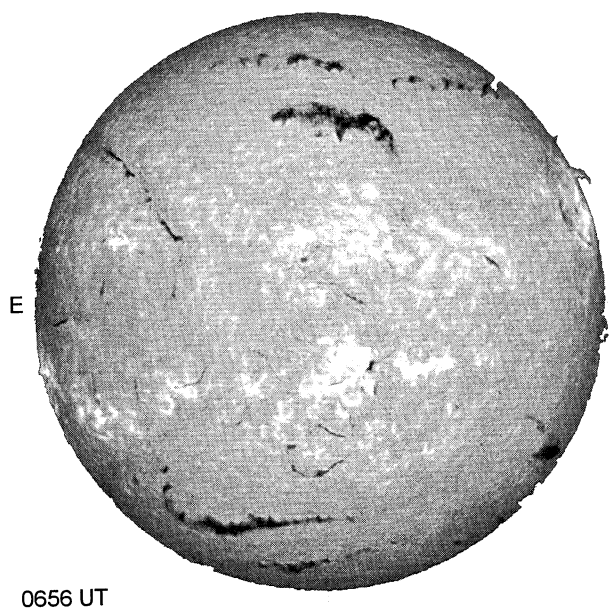
MT. WILSON MAGNETOGRAM



16.62 -
17.54 UT

White= +7.5G
Black = -7.5G

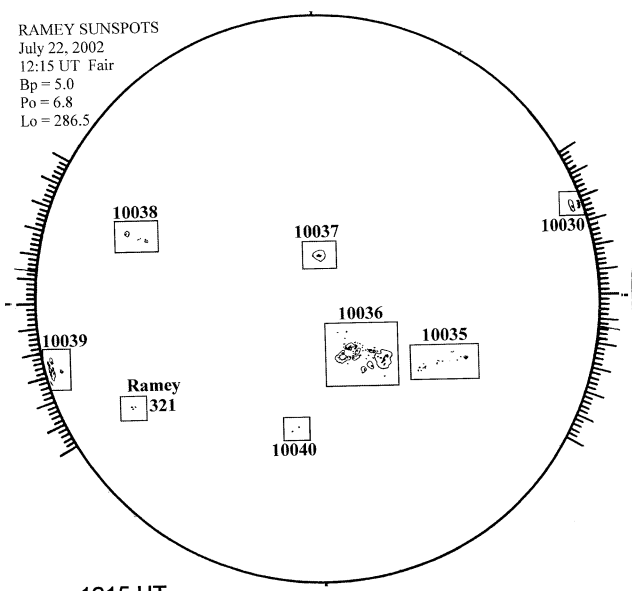
MEUDON H-ALPHA



0656 UT

S

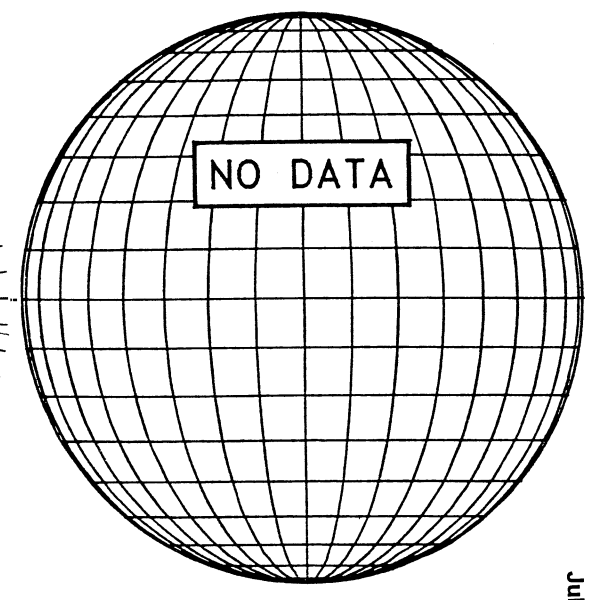
RAMEY SUNSPOT



1215 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



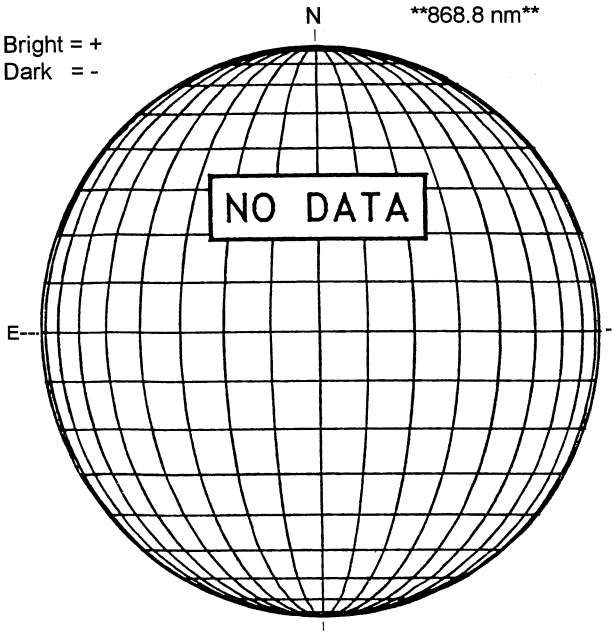
S

79
Jul 02

JULY 23, 2002 (P= 7.02, Bo = 5.05, Lo = 279.82)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



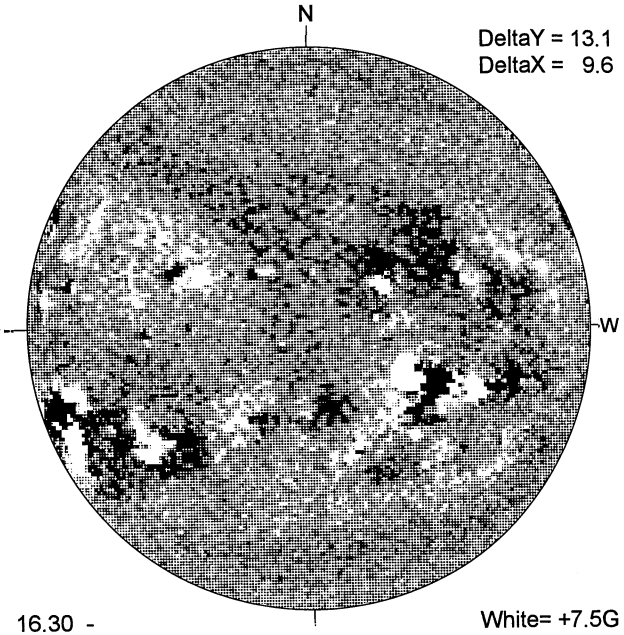
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

2040 UT

MT. WILSON MAGNETOGRAM

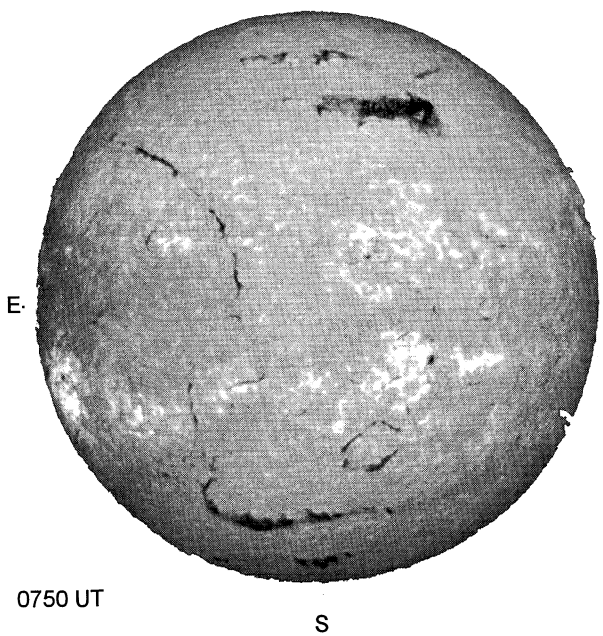
DeltaY = 13.1
DeltaX = 9.6



16.30 -
17.22 UT

White= +7.5G
Black = -7.5G

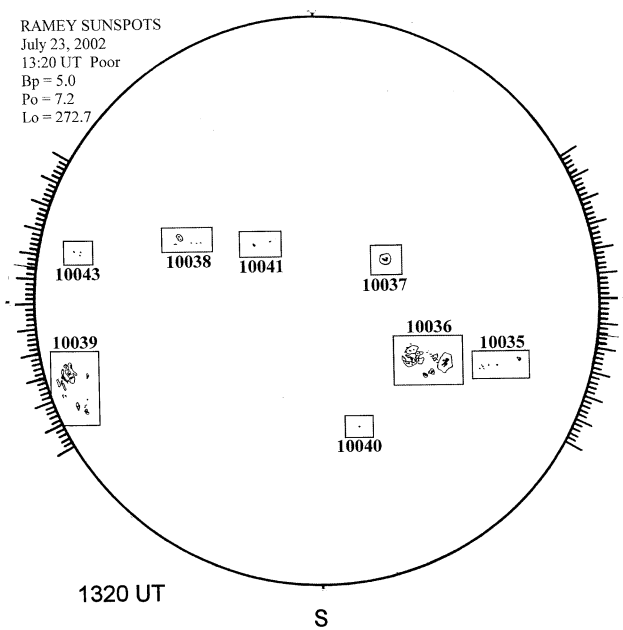
MEUDON H-ALPHA



0750 UT

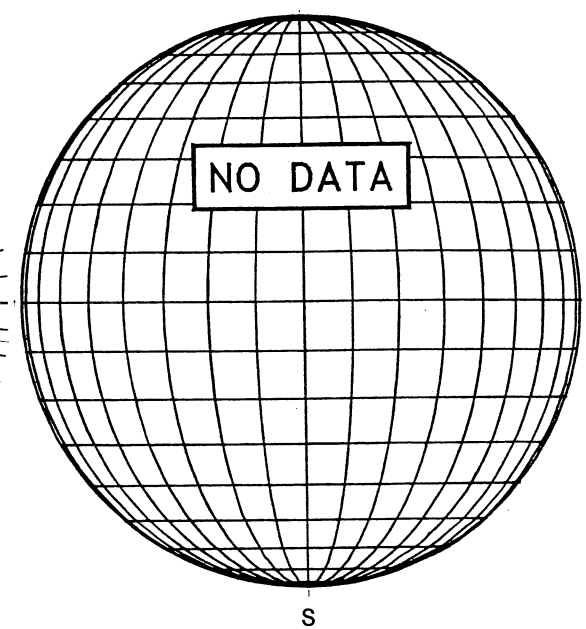
RAMEY SUNSPOT

RAMEY SUNSPOTS
July 23, 2002
13:20 UT Poor
Bp = 5.0
Po = 7.2
Lo = 272.7



1320 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



JULY 24, 2002 (P= 7.44, Bo = 5.13, Lo = 266.59)

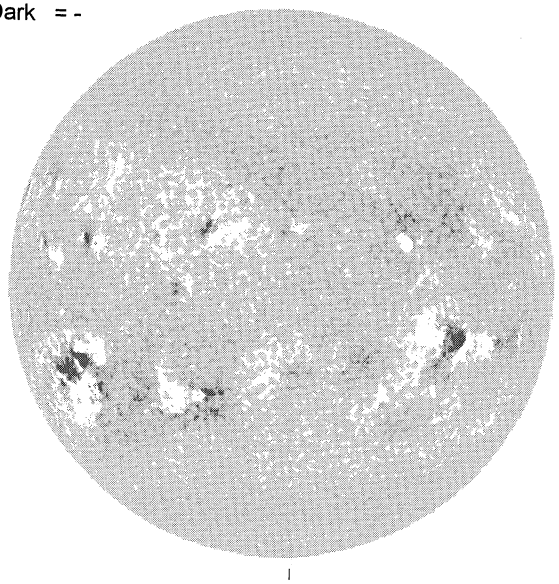
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -

N

868.8 nm

E-



1557 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

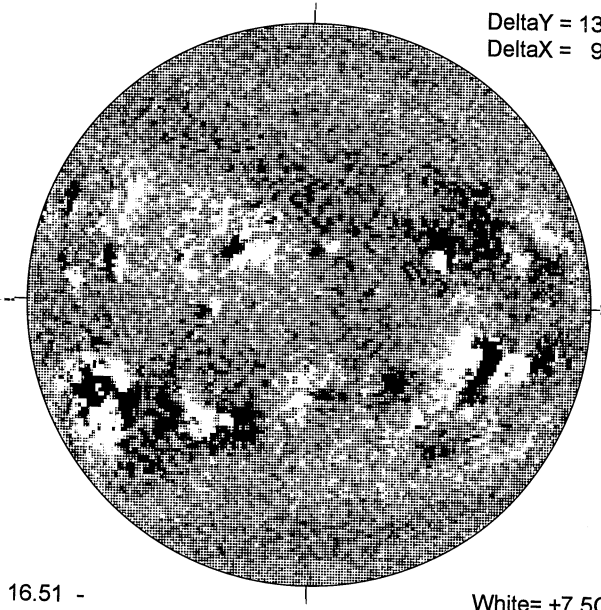
N

1834 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

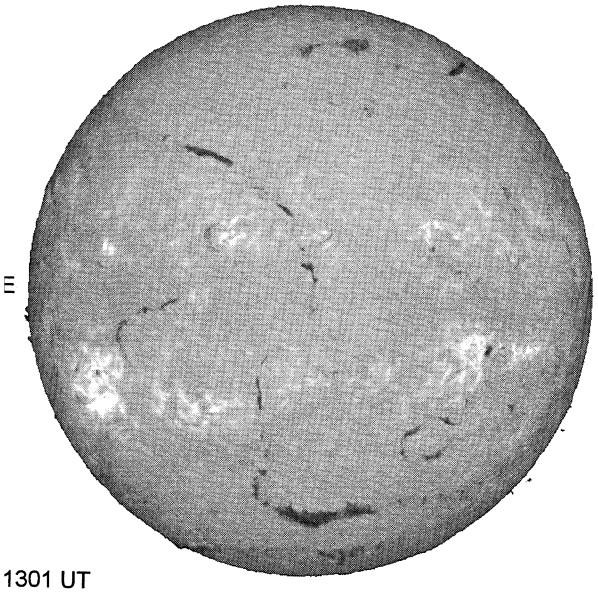


W

16.51 -
17.43 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

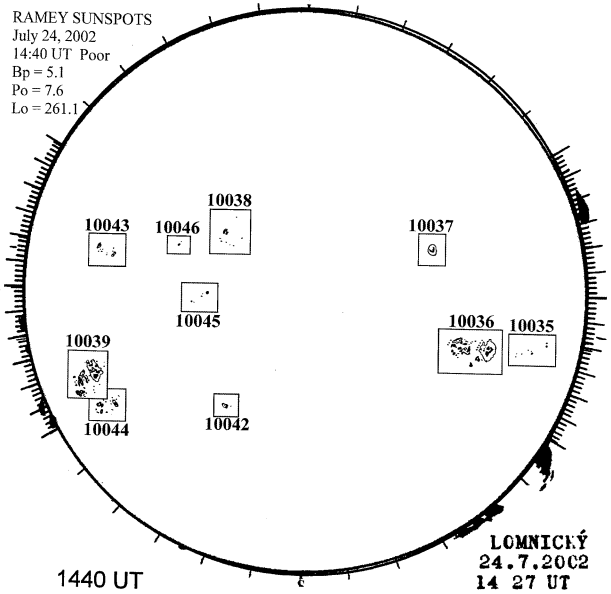


1301 UT

S

RAMEY SUNSPOT

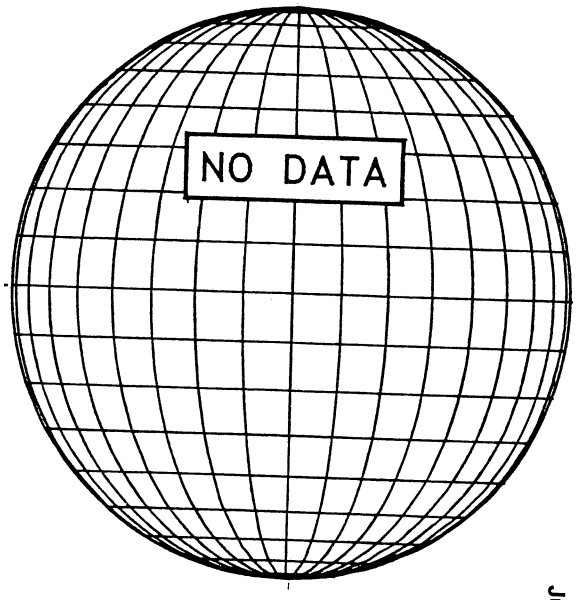
RAMEY SUNSPOTS
July 24, 2002
14:40 UT Poor
Bp = 5.1
Po = 7.6
Lo = 261.1



LOMNICKÝ
24.7.2002
14 27 UT

1440 UT
1427 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----



S

81
Jul 02

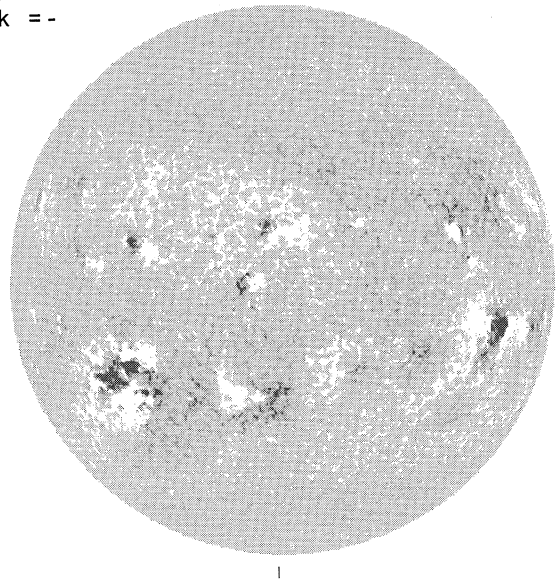
JULY 25, 2002 (P= 7.86, Bo = 5.22, Lo = 253.36)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

E---



1535 UT

STANFORD MAGNETOGRAM

N

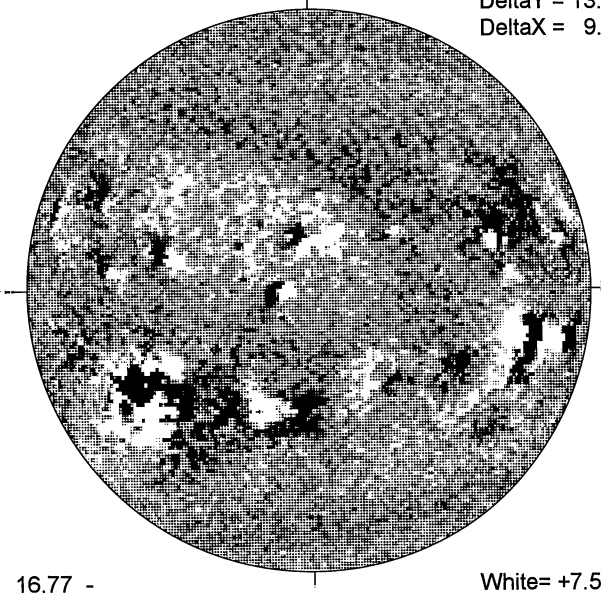
Solid = +
Dashed = -

1744 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6



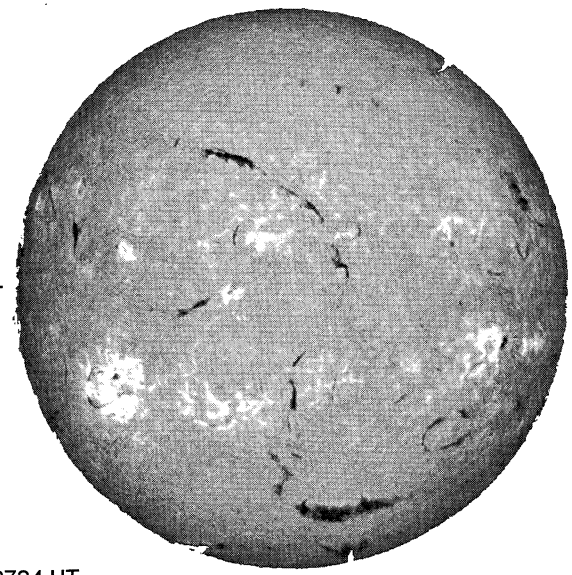
-W

16.77 -
17.69 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

E-

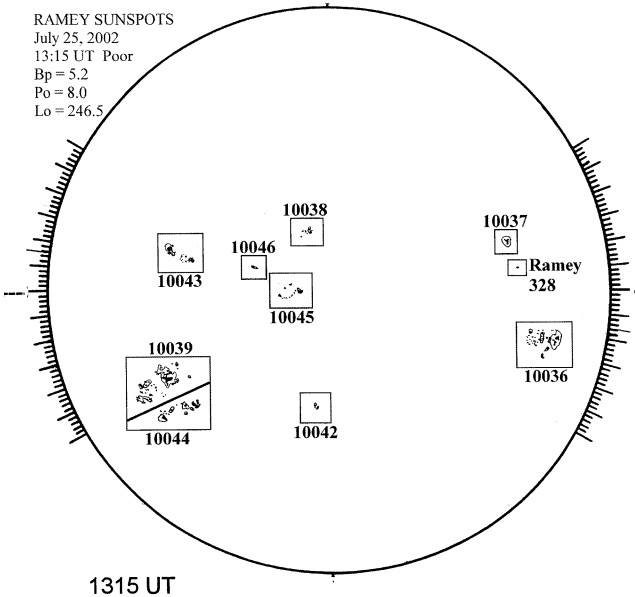


0734 UT

S

RAMEY SUNSPOT

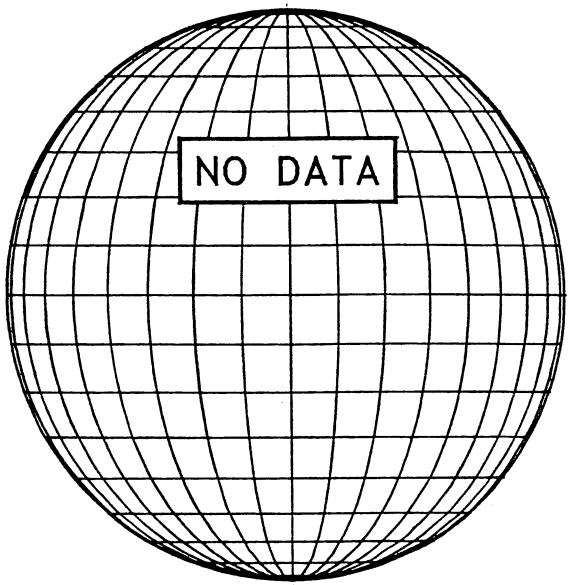
RAMEY SUNSPOTS
July 25, 2002
13:15 UT Poor
Bp = 5.2
Po = 8.0
Lo = 246.5



1315 UT

S

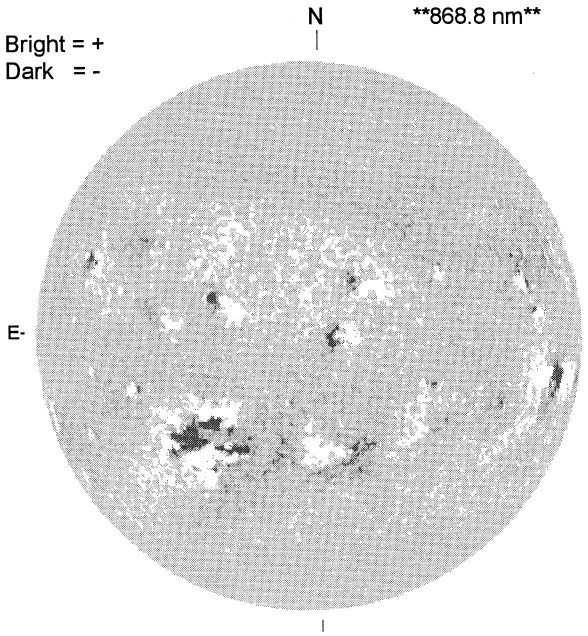
SACRAMENTO PEAK CORONA (1.15 Radii)----



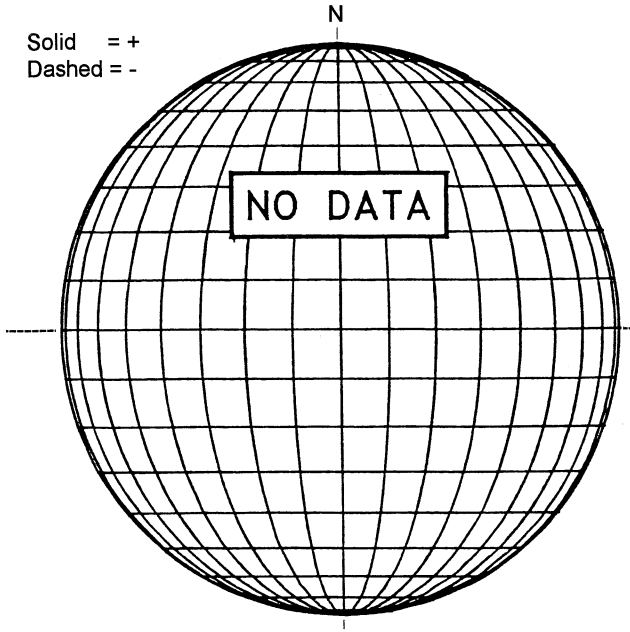
S

JULY 26, 2002 (P= 8.28, Bo = 5.30, Lo = 240.13)

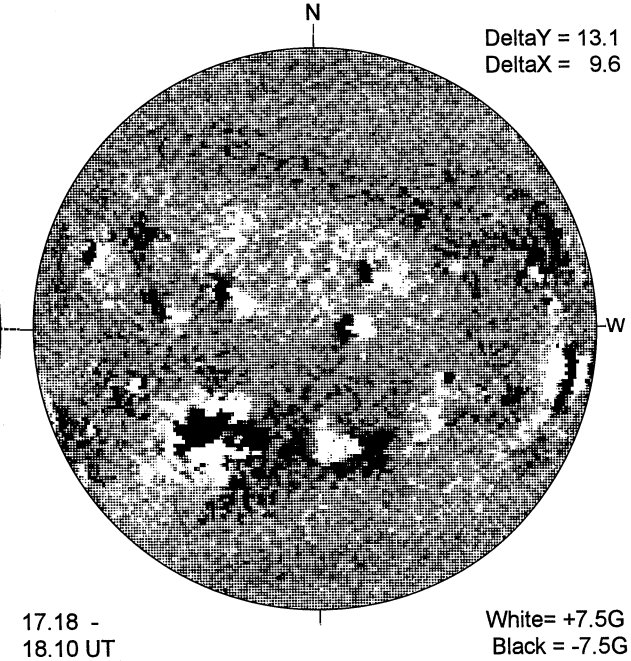
KITT PEAK MAGNETOGRAM



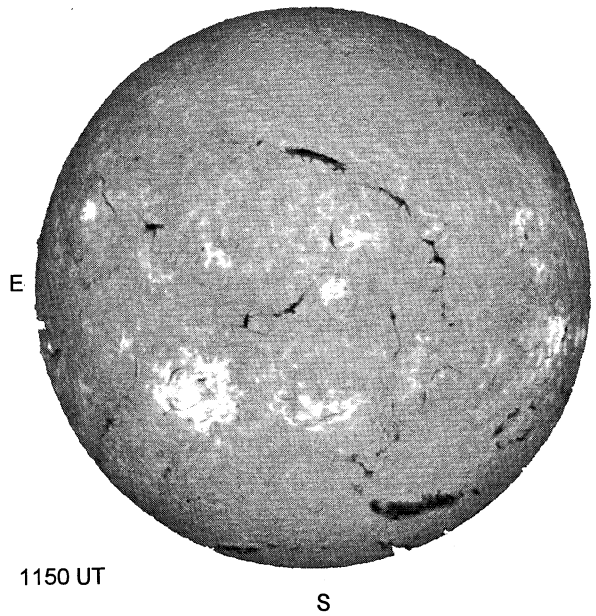
STANFORD MAGNETOGRAM



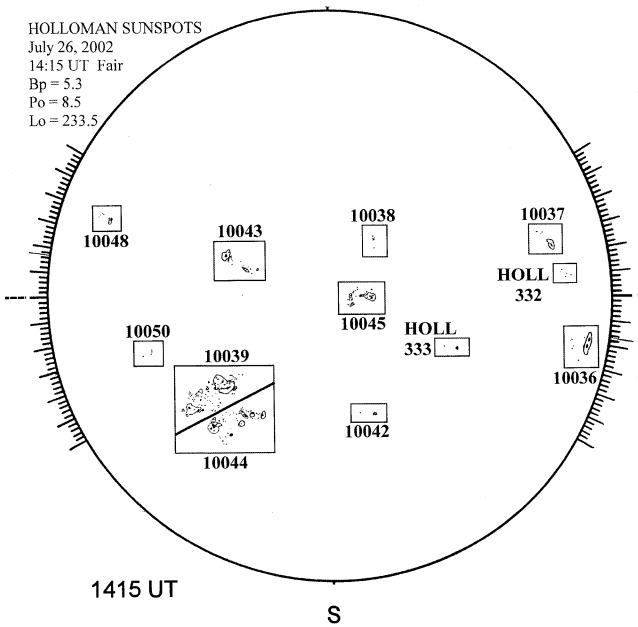
MT. WILSON MAGNETOGRAM



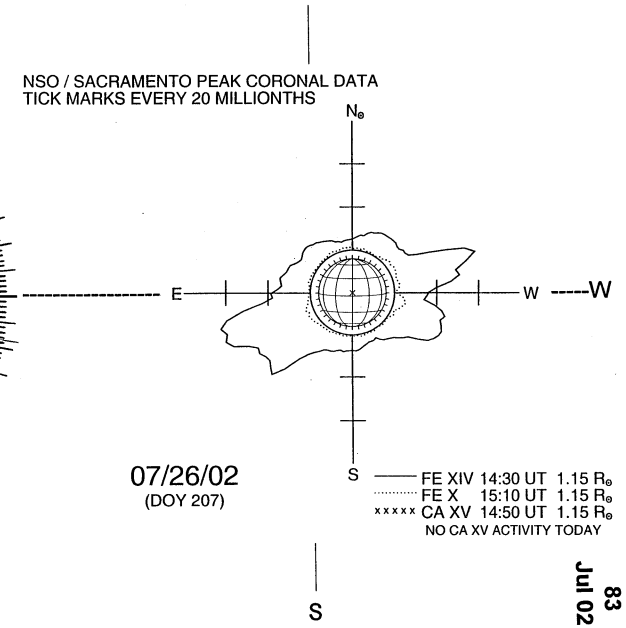
MEUDON H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----

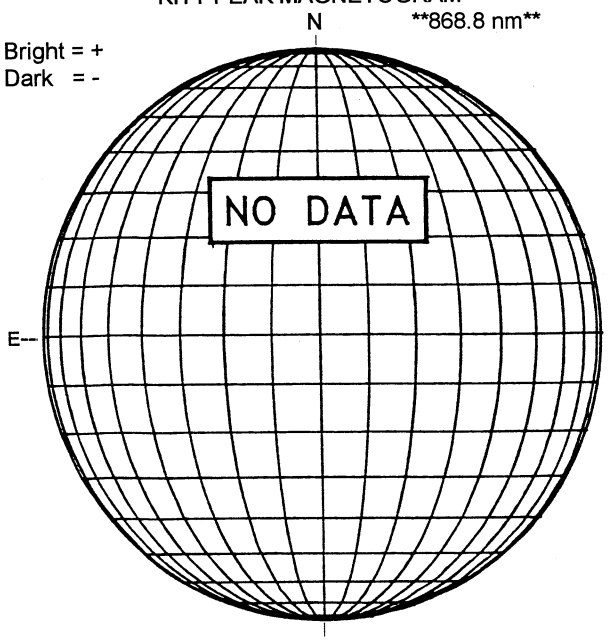


JULY 27, 2002 (P= 8.70, Bo = 5.38, Lo = 226.90)

KITT PEAK MAGNETOGRAM

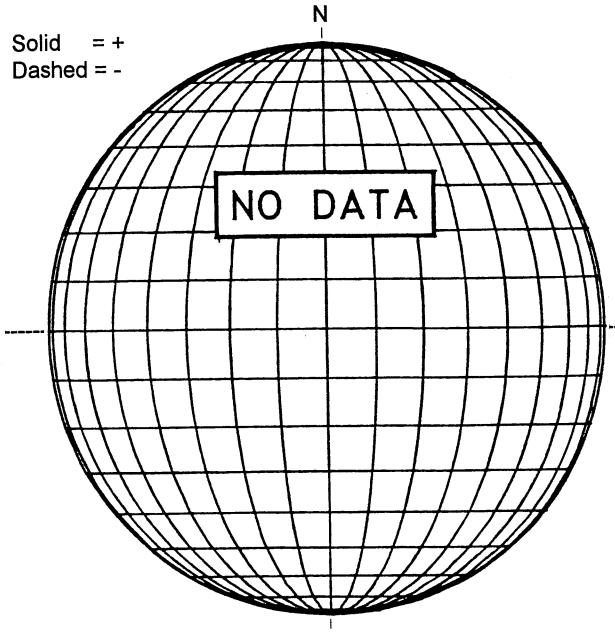
868.8 nm

Bright = +
Dark = -



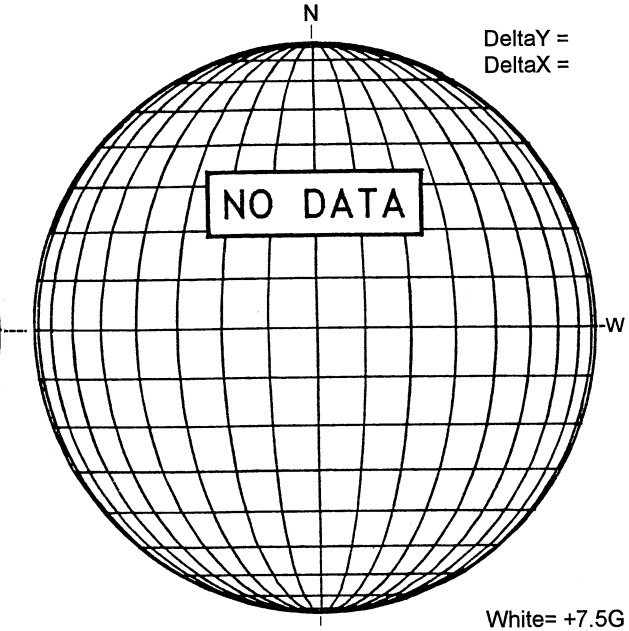
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



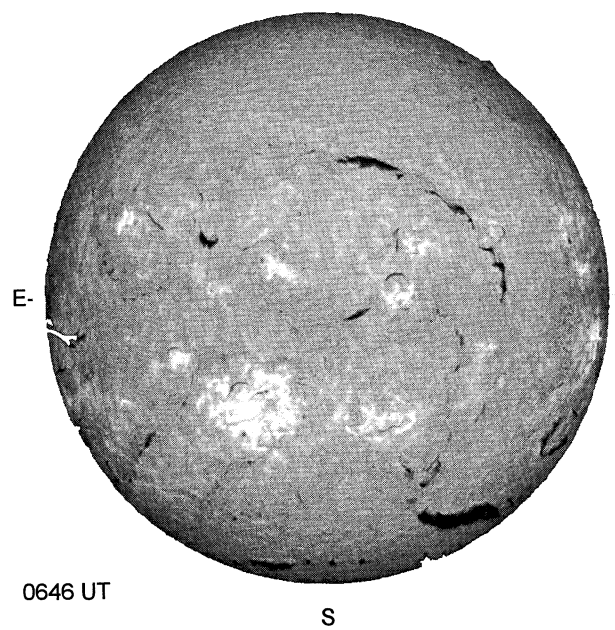
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



White= +7.5G
Black = -7.5G

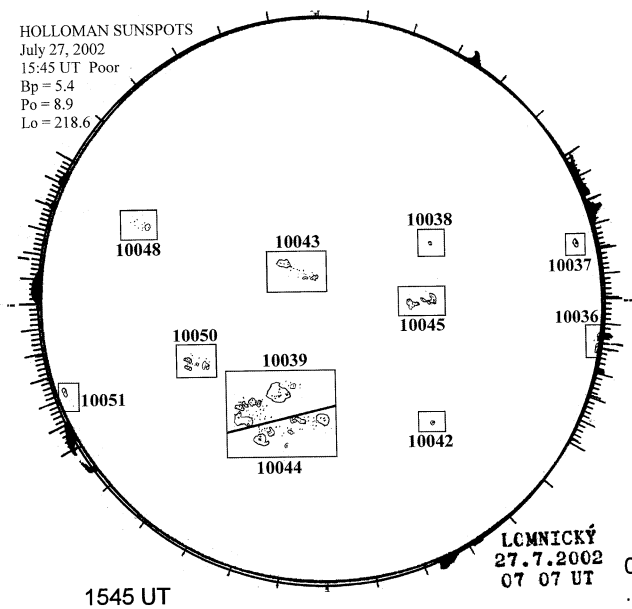
MEUDON H-ALPHA



0646 UT

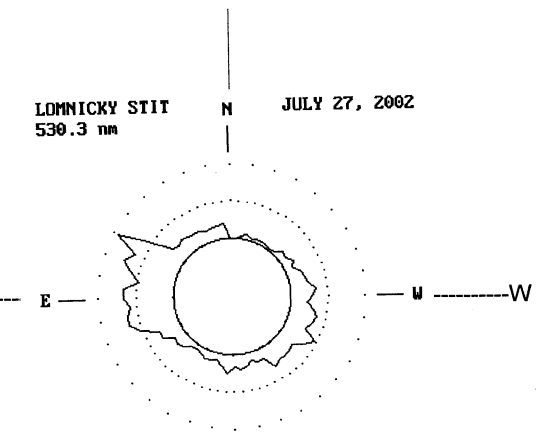
S

HOLLOMAN SUNSPOT



1545 UT
0707 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)

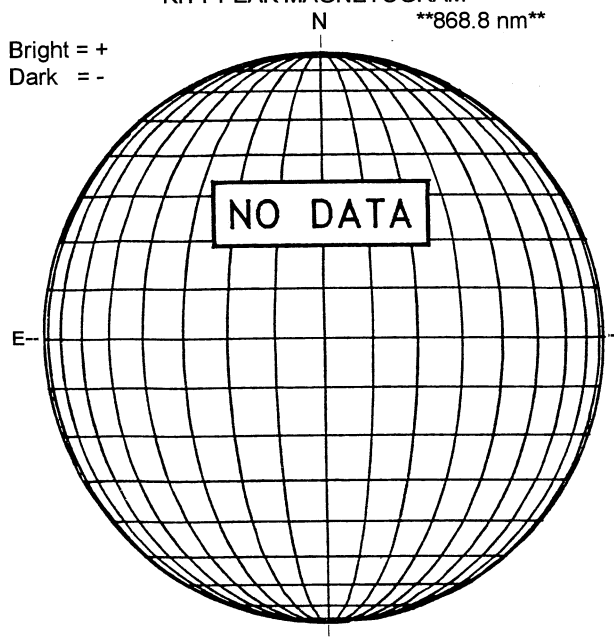


0749 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

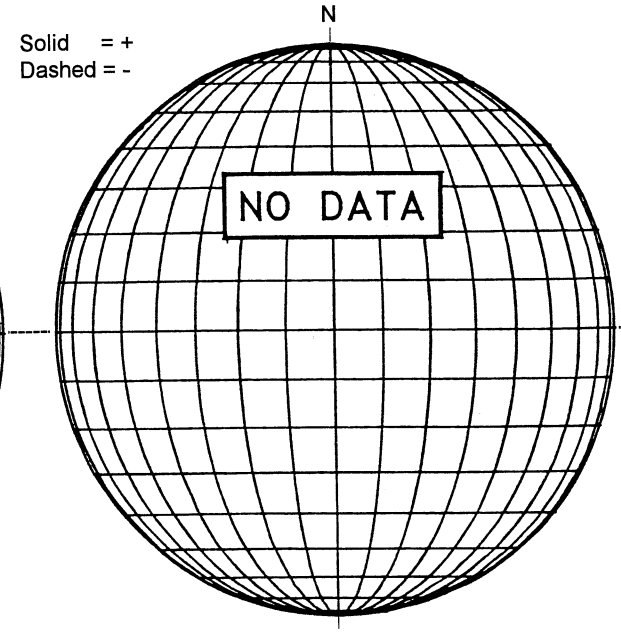
S

JULY 28, 2002 (P= 9.11, Bo = 5.46, Lo = 213.68)

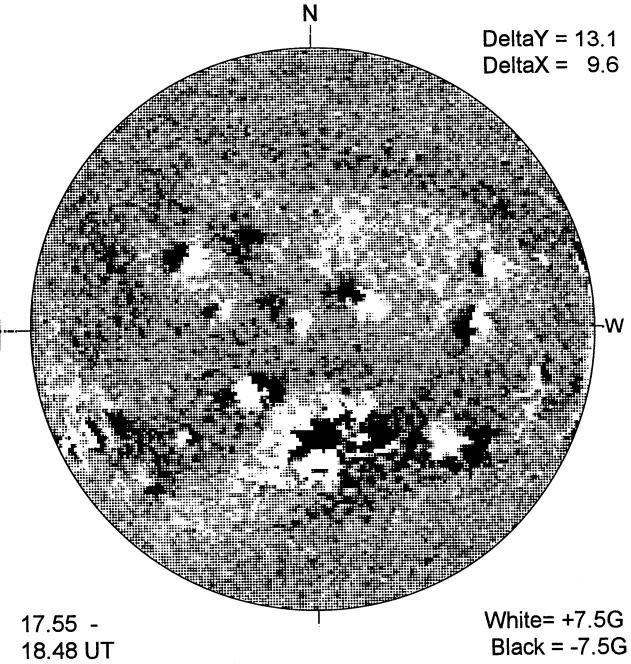
KITT PEAK MAGNETOGRAM



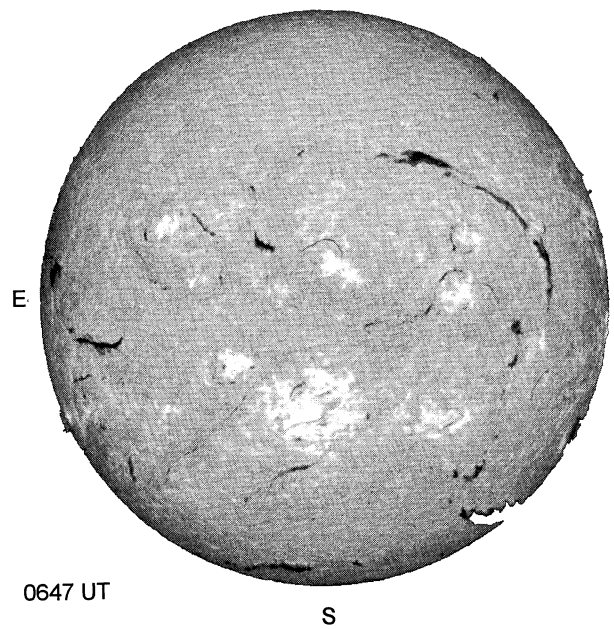
STANFORD MAGNETOGRAM



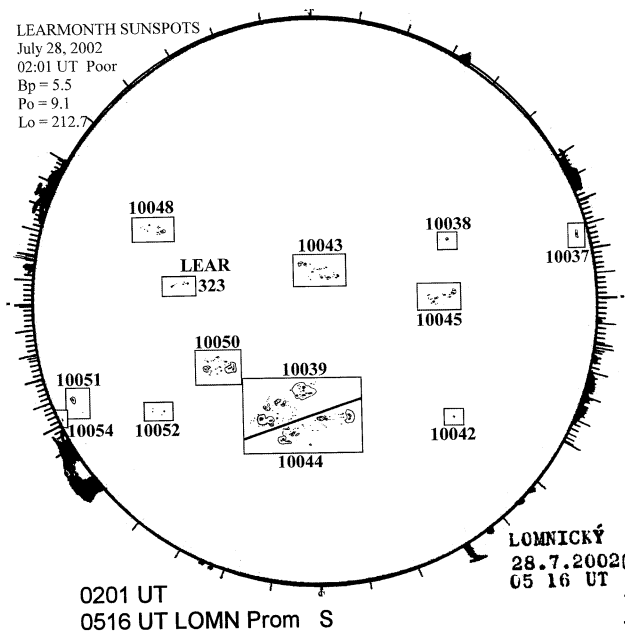
MT. WILSON MAGNETOGRAM



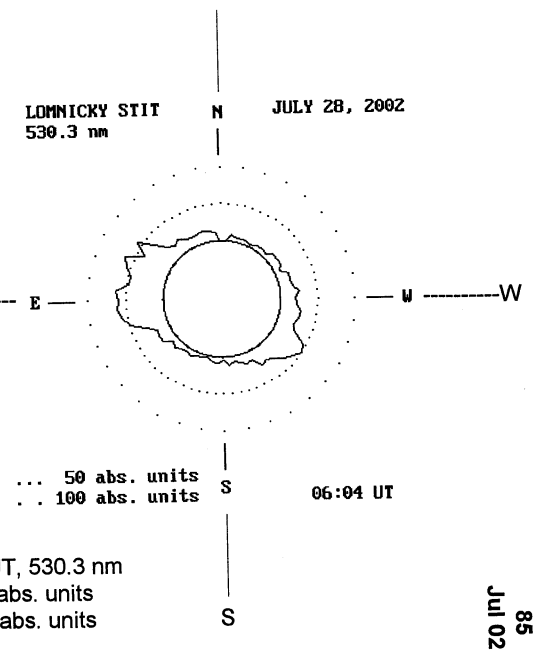
MEUDON H-ALPHA



LEARMONTH SUNSPOT



LOMNICKY PEAK CORONA (1.04 Radii)----



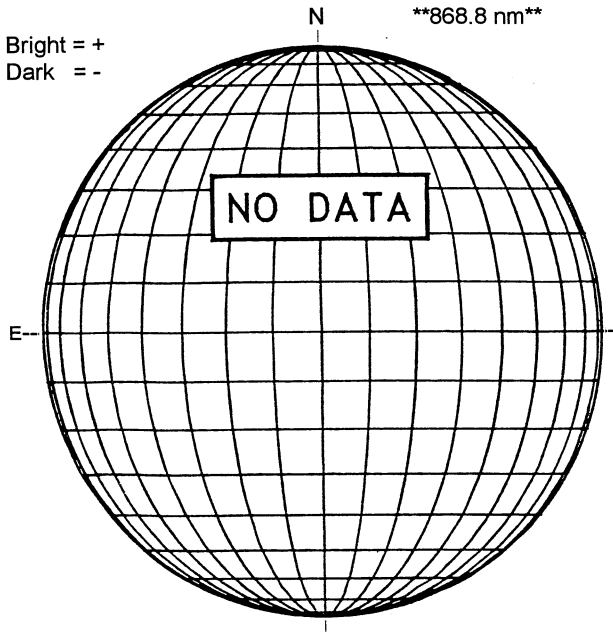
85
Jul 02

JULY 29, 2002 (P= 9.52 Bo = 5.54, Lo = 200.45)

KITT PEAK MAGNETOGRAM

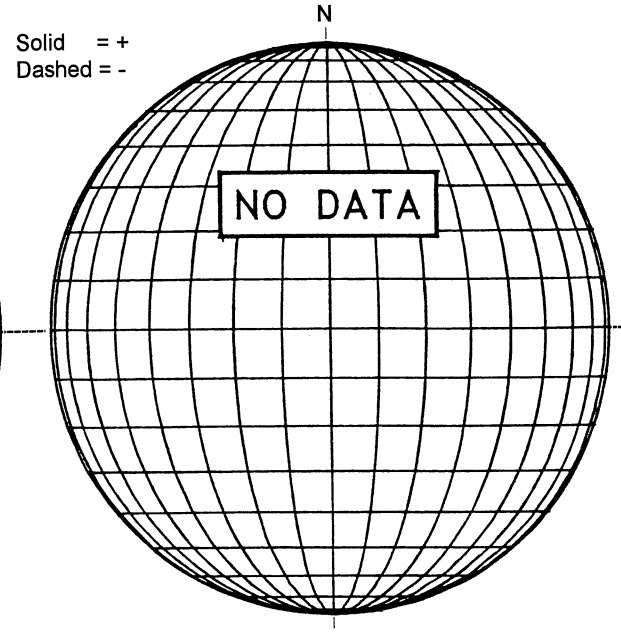
868.8 nm

Bright = +
Dark = -



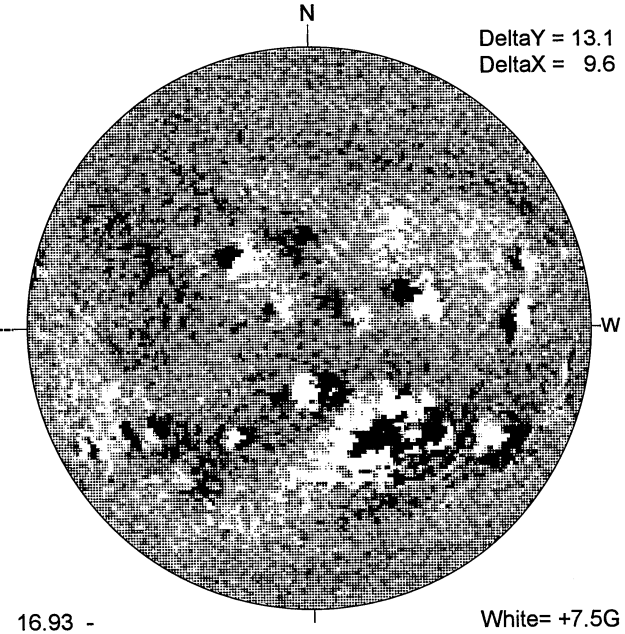
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

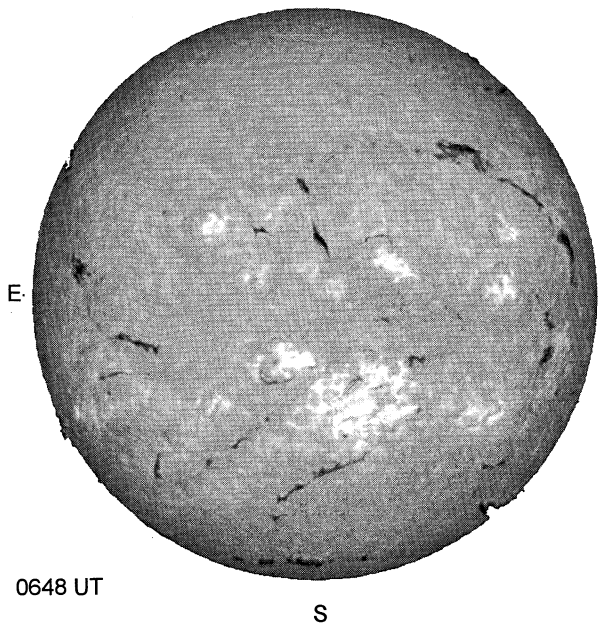
DeltaY = 13.1
DeltaX = 9.6



16.93 -
17.85 UT

White= +7.5G
Black = -7.5G

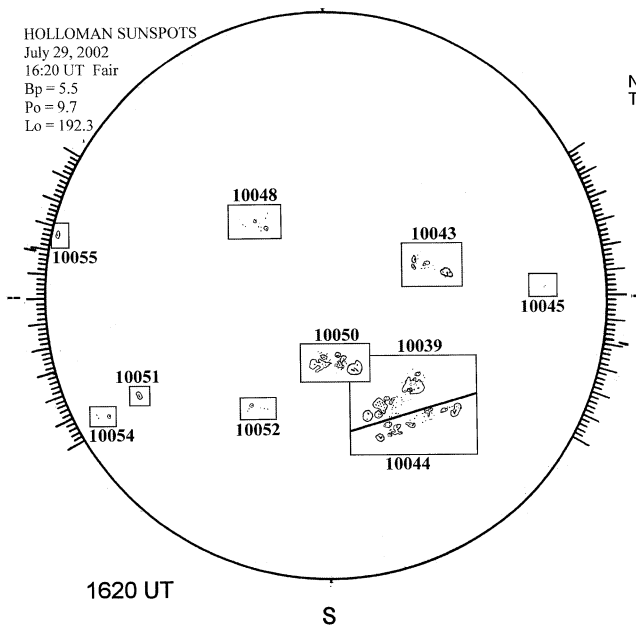
MEUDON H-ALPHA



0648 UT

S

HOLLOMAN SUNSPOT

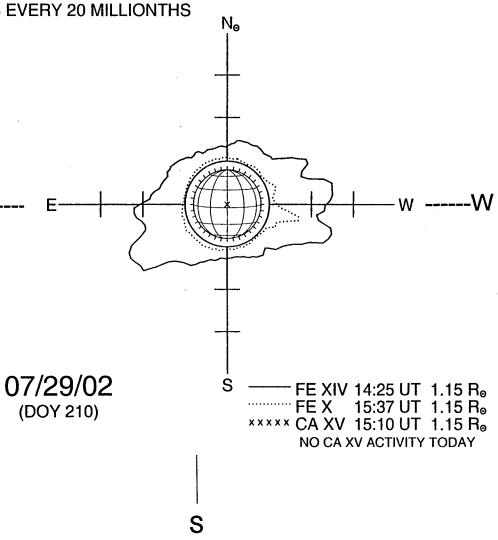


1620 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS

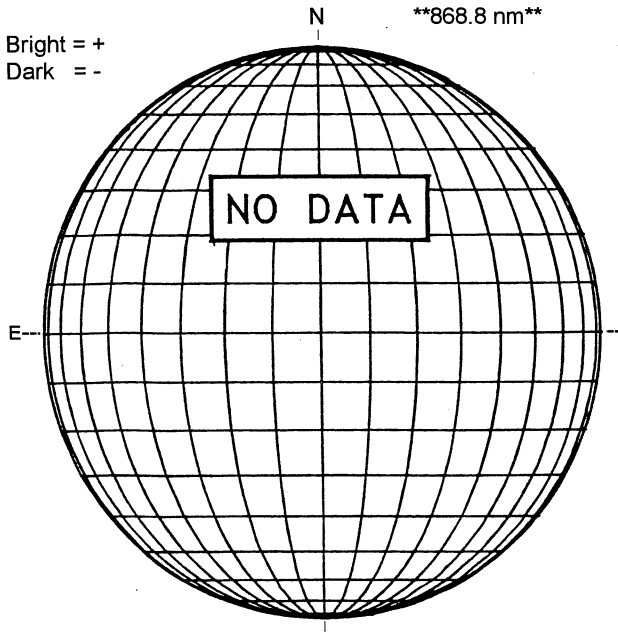


07/29/02
(DOY 210)

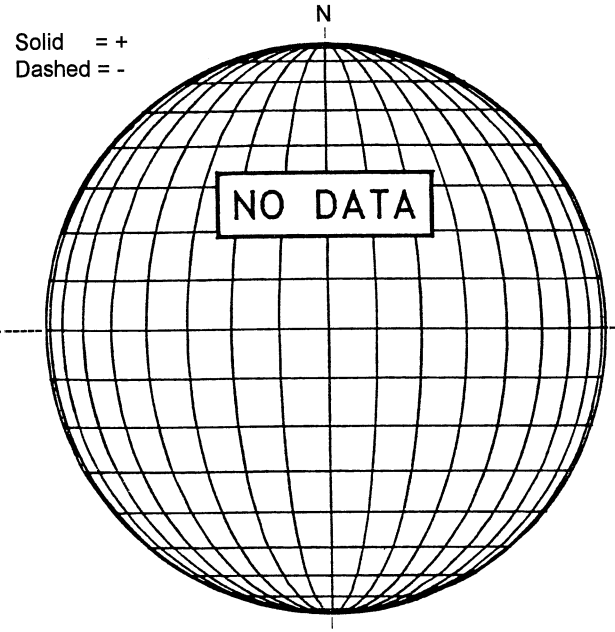
S

JULY 30, 2002 (P= 9.93, Bo = 5.62, Lo = 187.22)

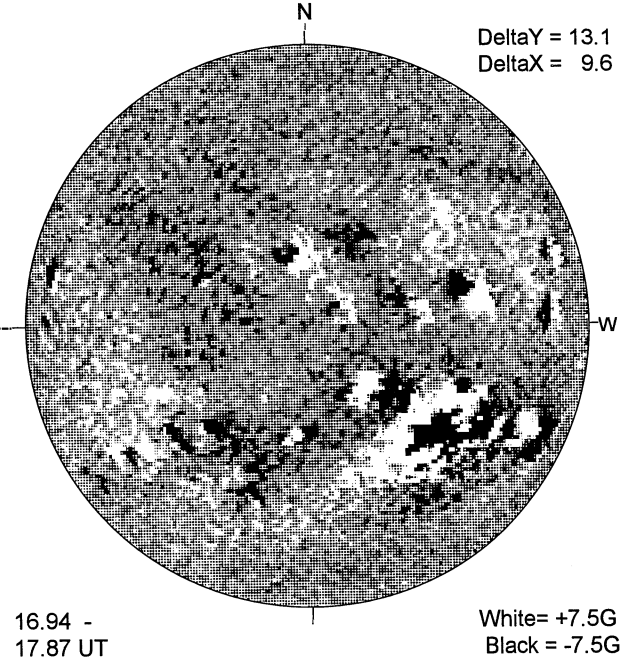
KITT PEAK MAGNETOGRAM



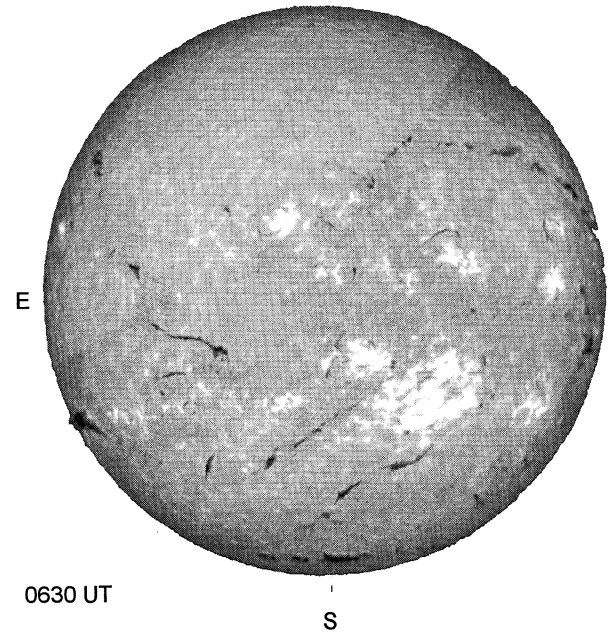
STANFORD MAGNETOGRAM



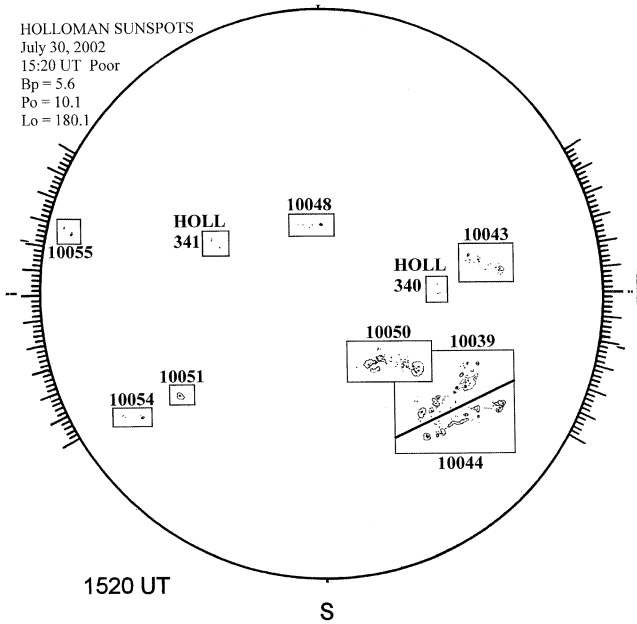
MT. WILSON MAGNETOGRAM



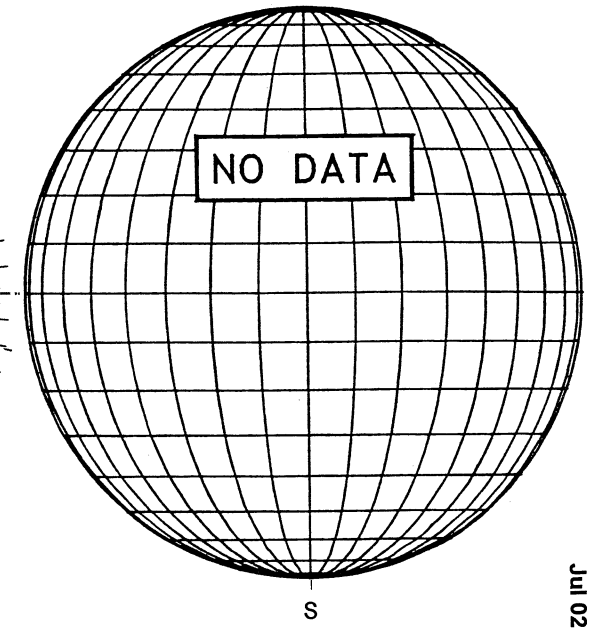
MEUDON H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

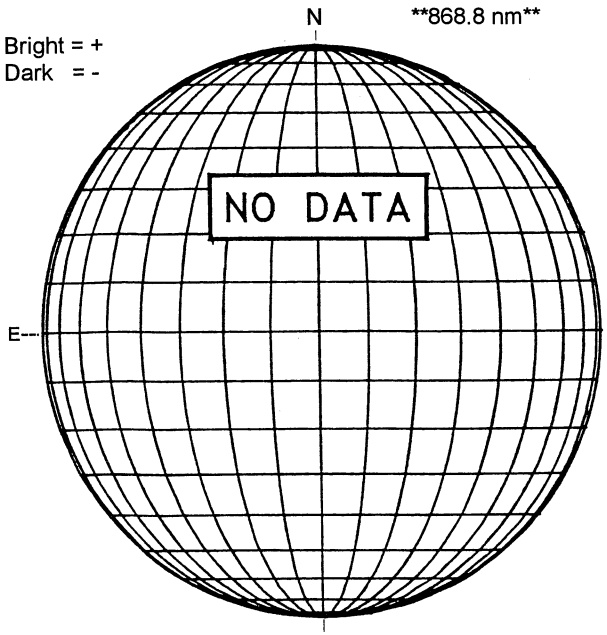


JULY 31, 2002 (P= 10.33, Bo = 5.70, Lo = 173.99)

KITT PEAK MAGNETOGRAM

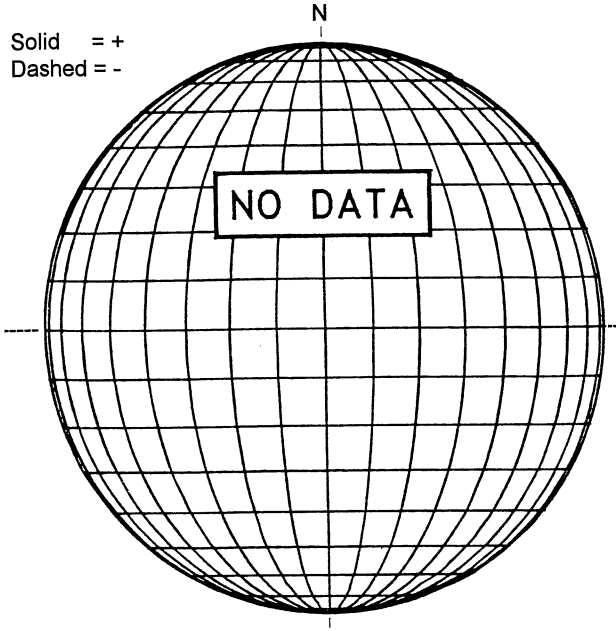
868.8 nm

Bright = +
Dark = -



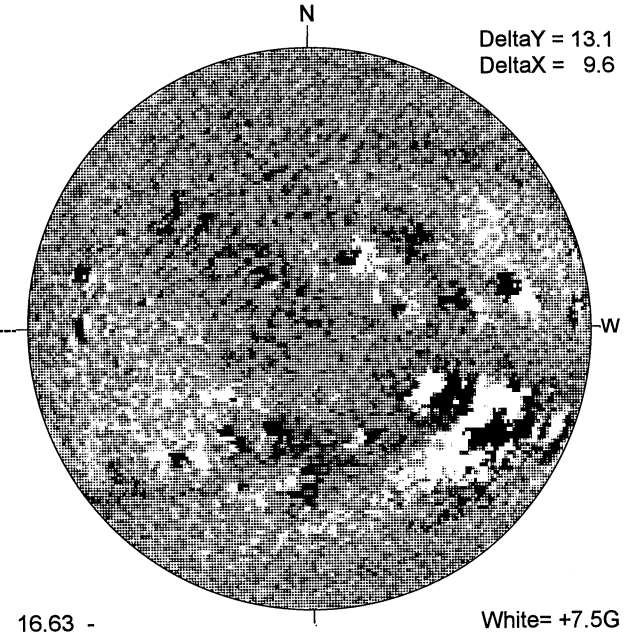
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

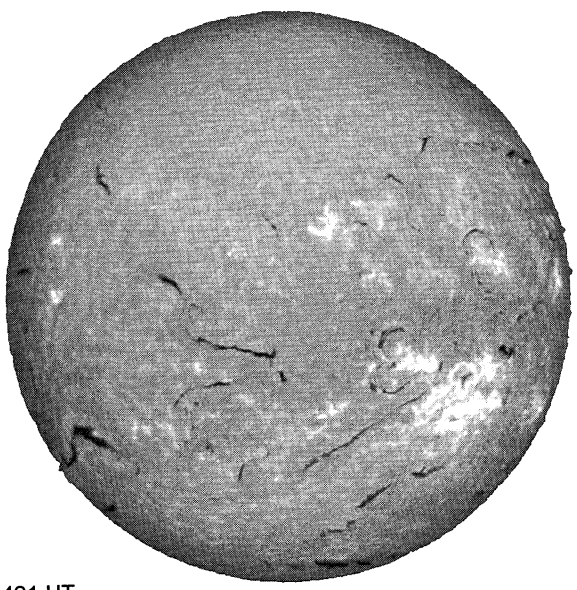
DeltaY = 13.1
DeltaX = 9.6



16.63 -
17.55 UT

White= +7.5G
Black = -7.5G

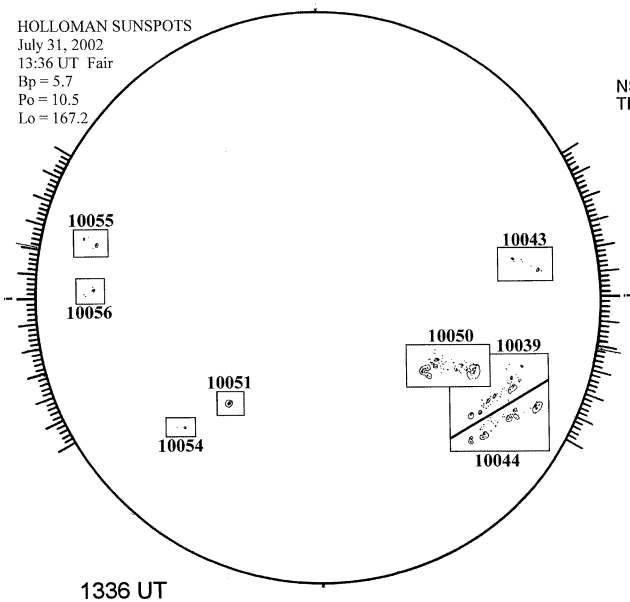
MEUDON H-ALPHA



1401 UT

S

HOLLOMAN SUNSPOT

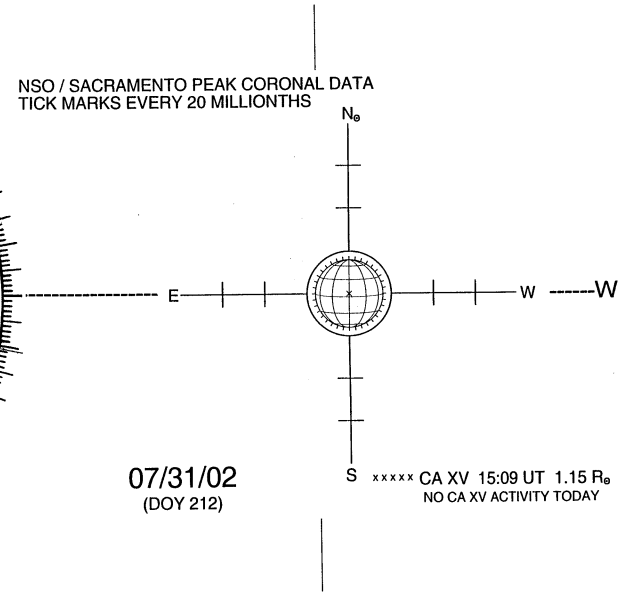


1336 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS

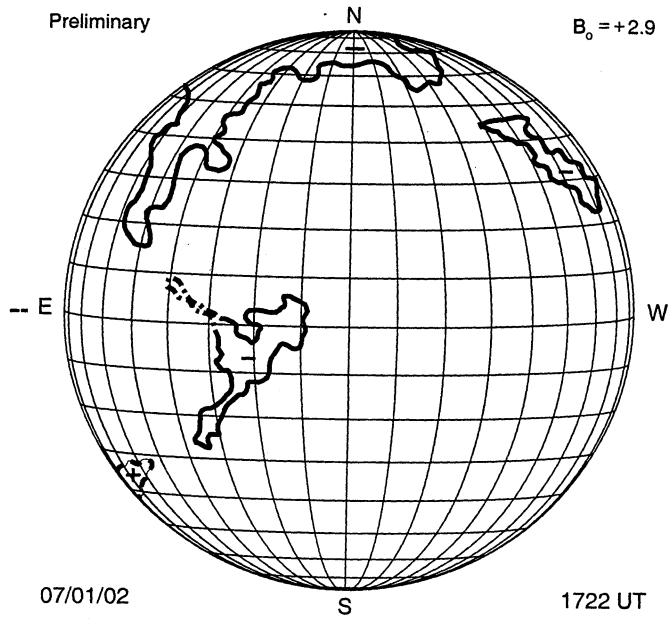


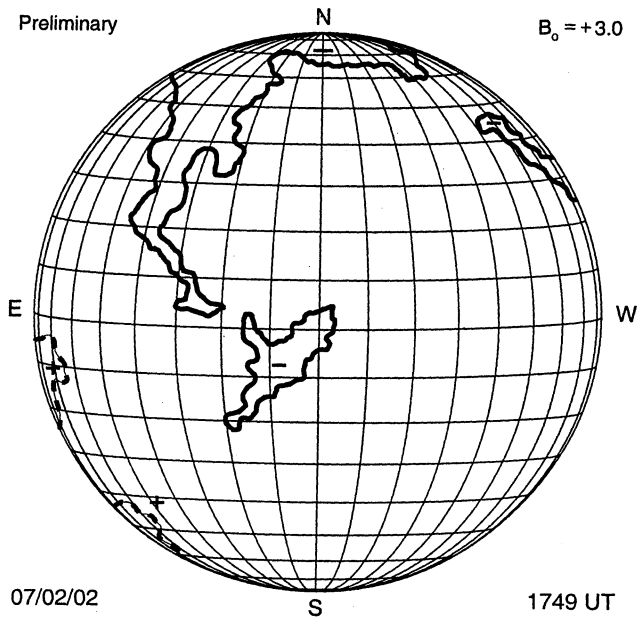
07/31/02
(DOY 212)

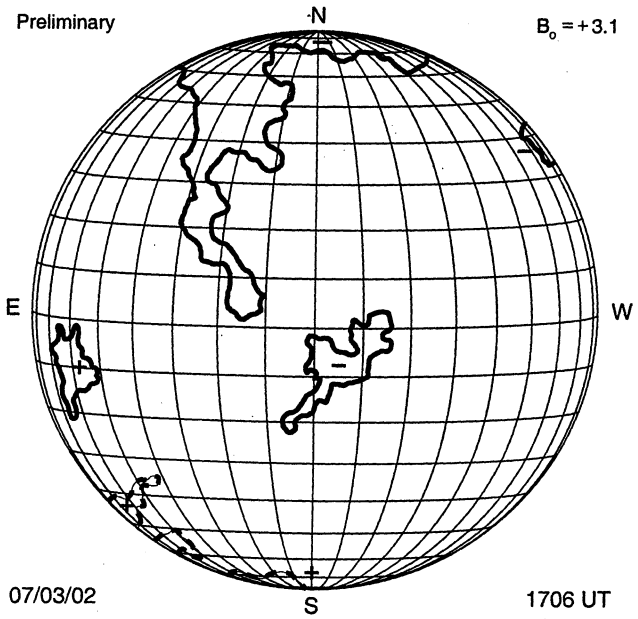
xxxxx CA XV 15:09 UT 1.15 $R_\odot$
NO CA XV ACTIVITY TODAY

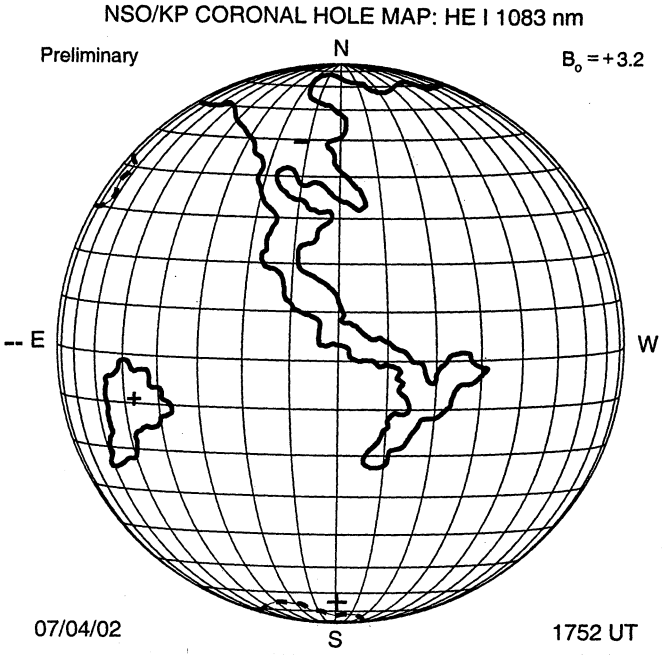
S

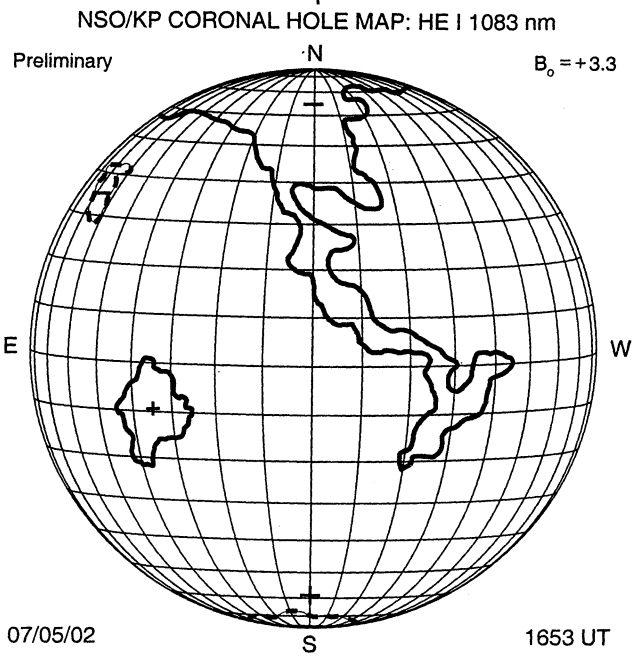
KITT PEAK CORONAL HOLE MAPS HE I 1083 nm
July 2002

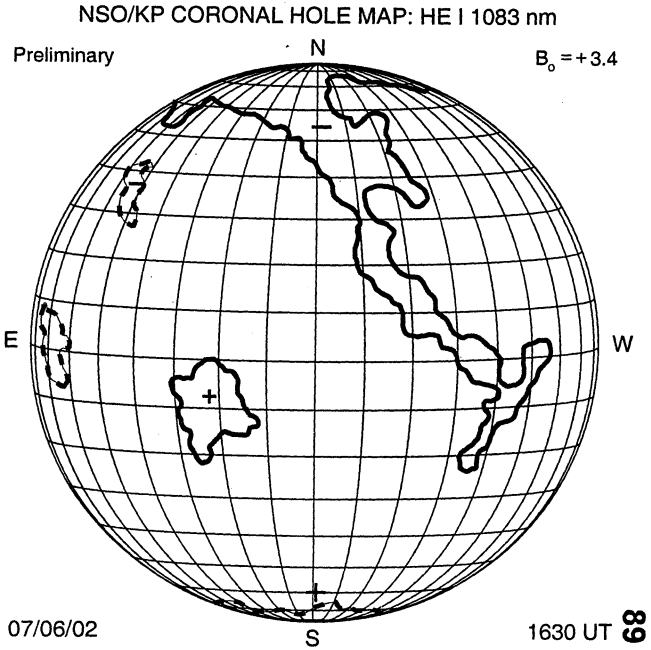




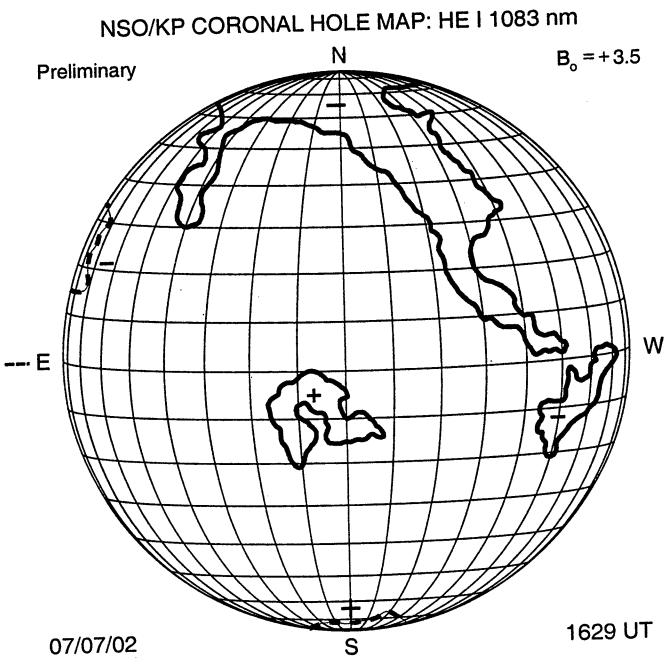


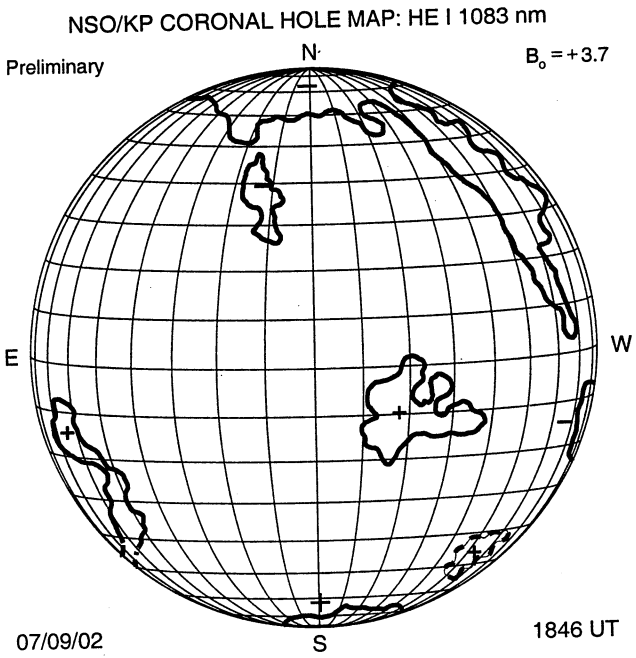


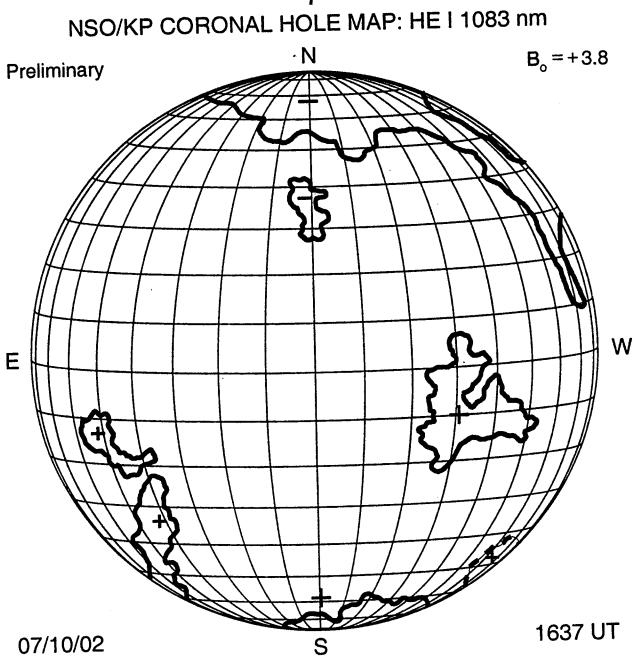


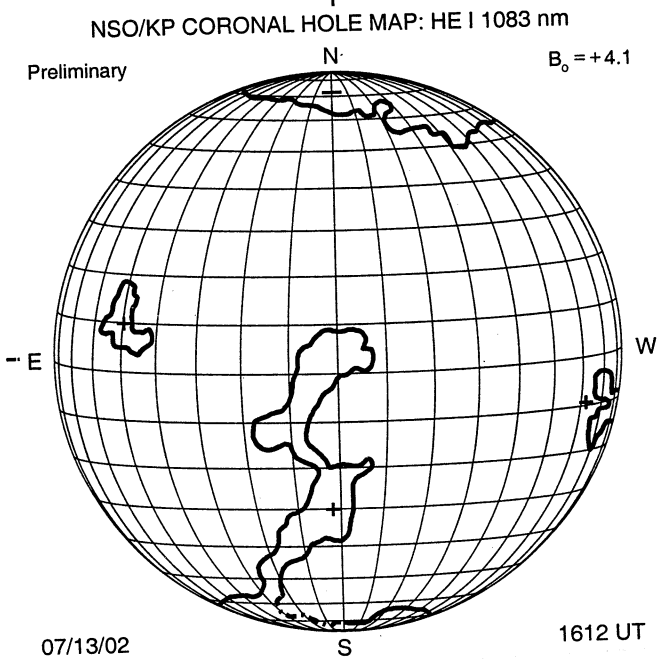


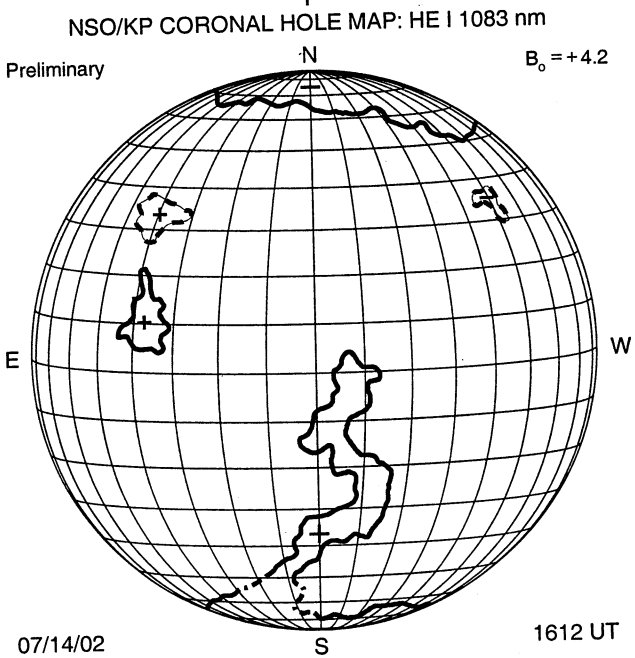
KITT PEAK CORONAL HOLE MAPS HE I 1083 nm
July 2002

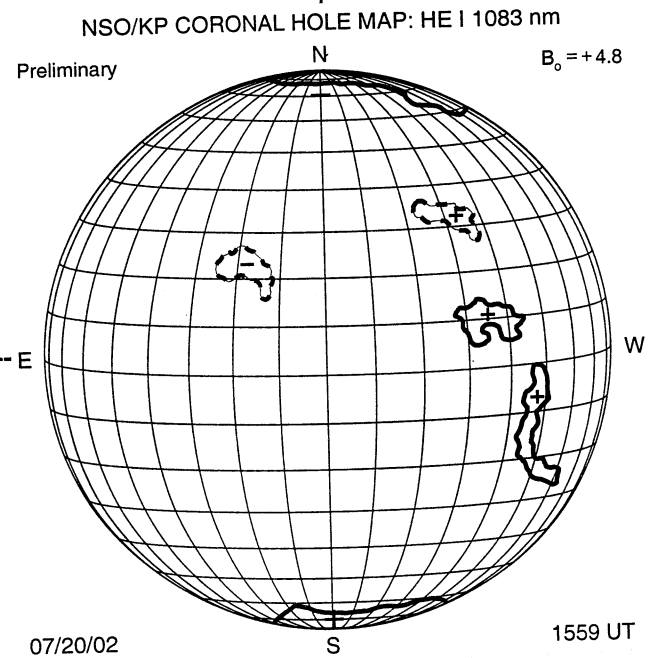




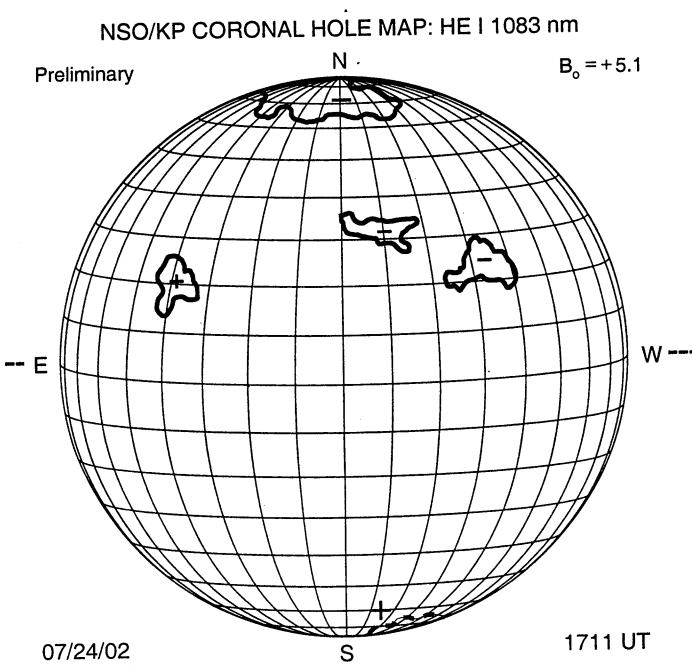


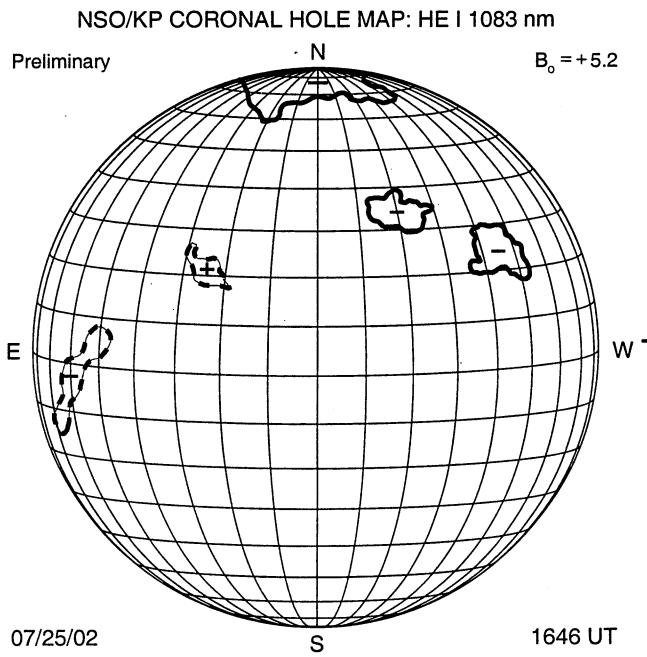




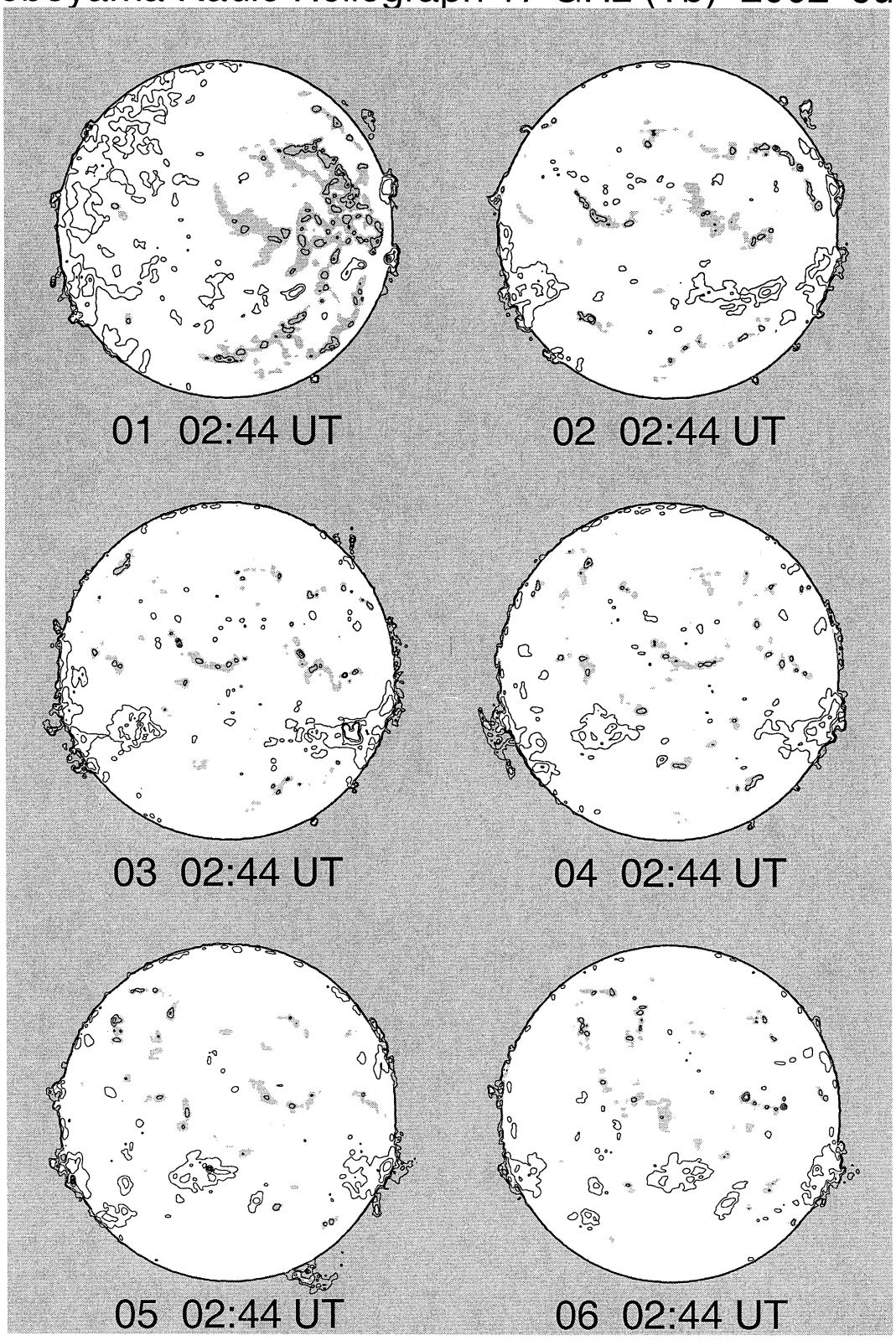


KITT PEAK CORONAL HOLE MAPS HE I 1083 nm
July 2002



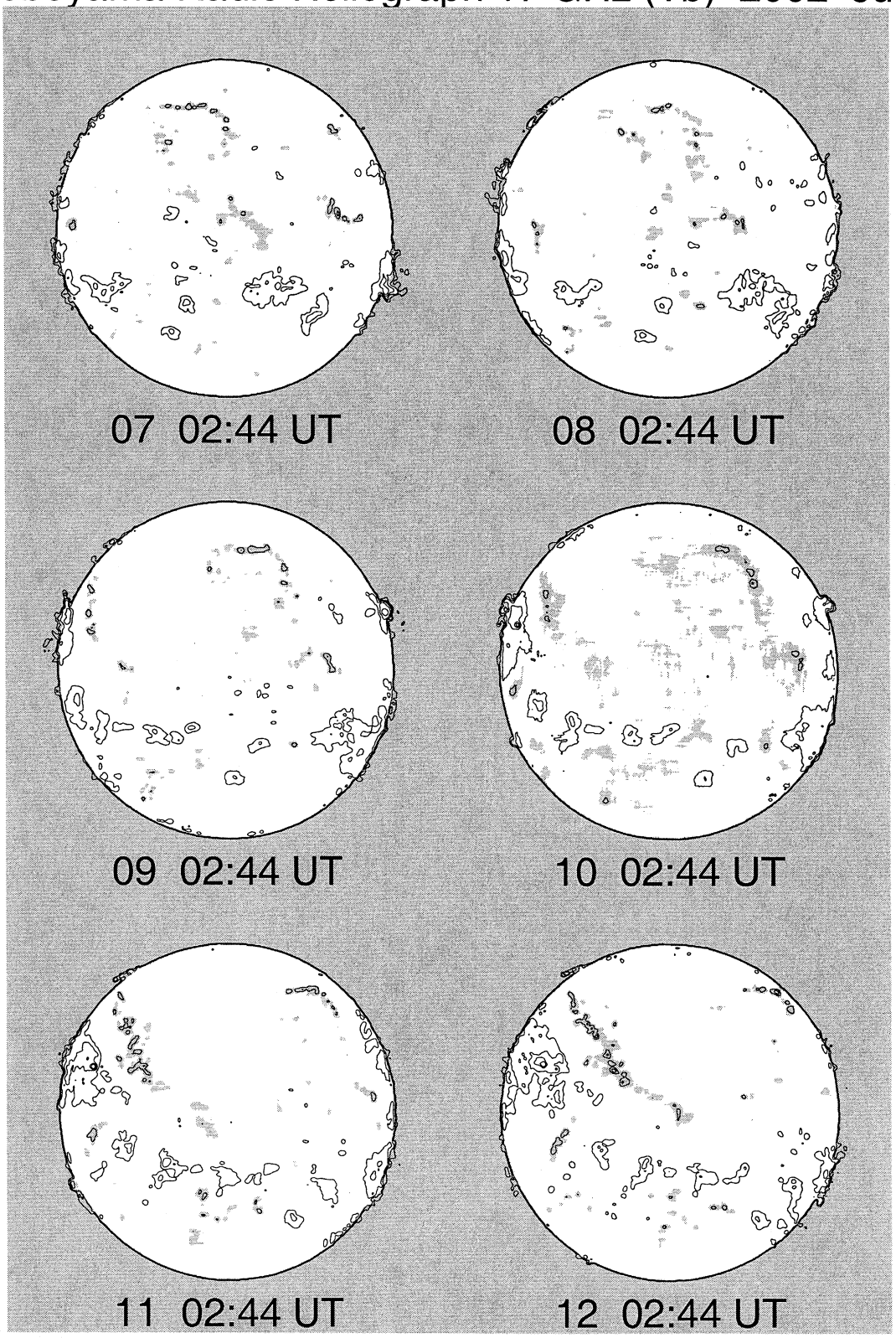


Nobeyama Radio Heliograph 17 GHz (Tb) 2002 July



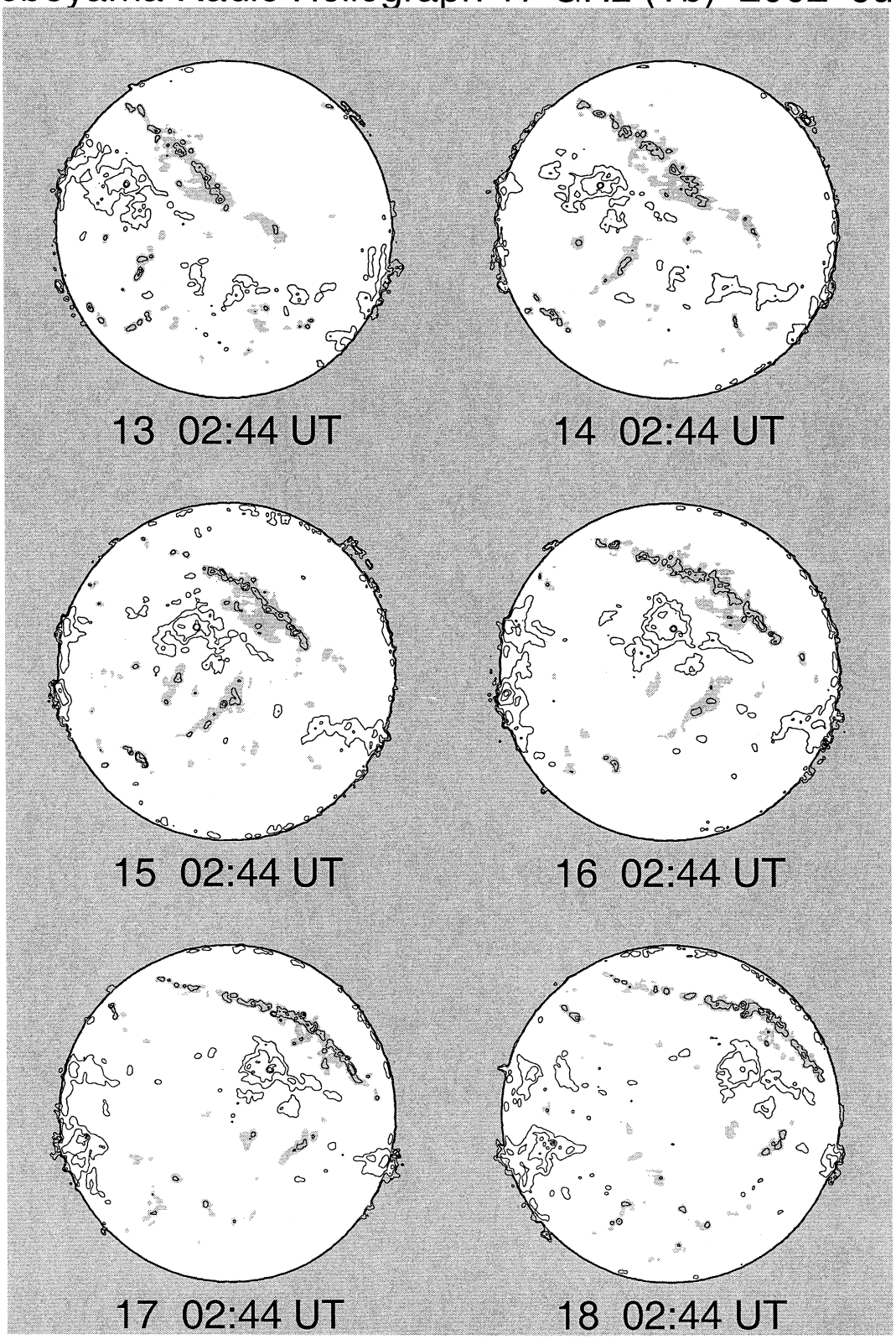
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2002 July



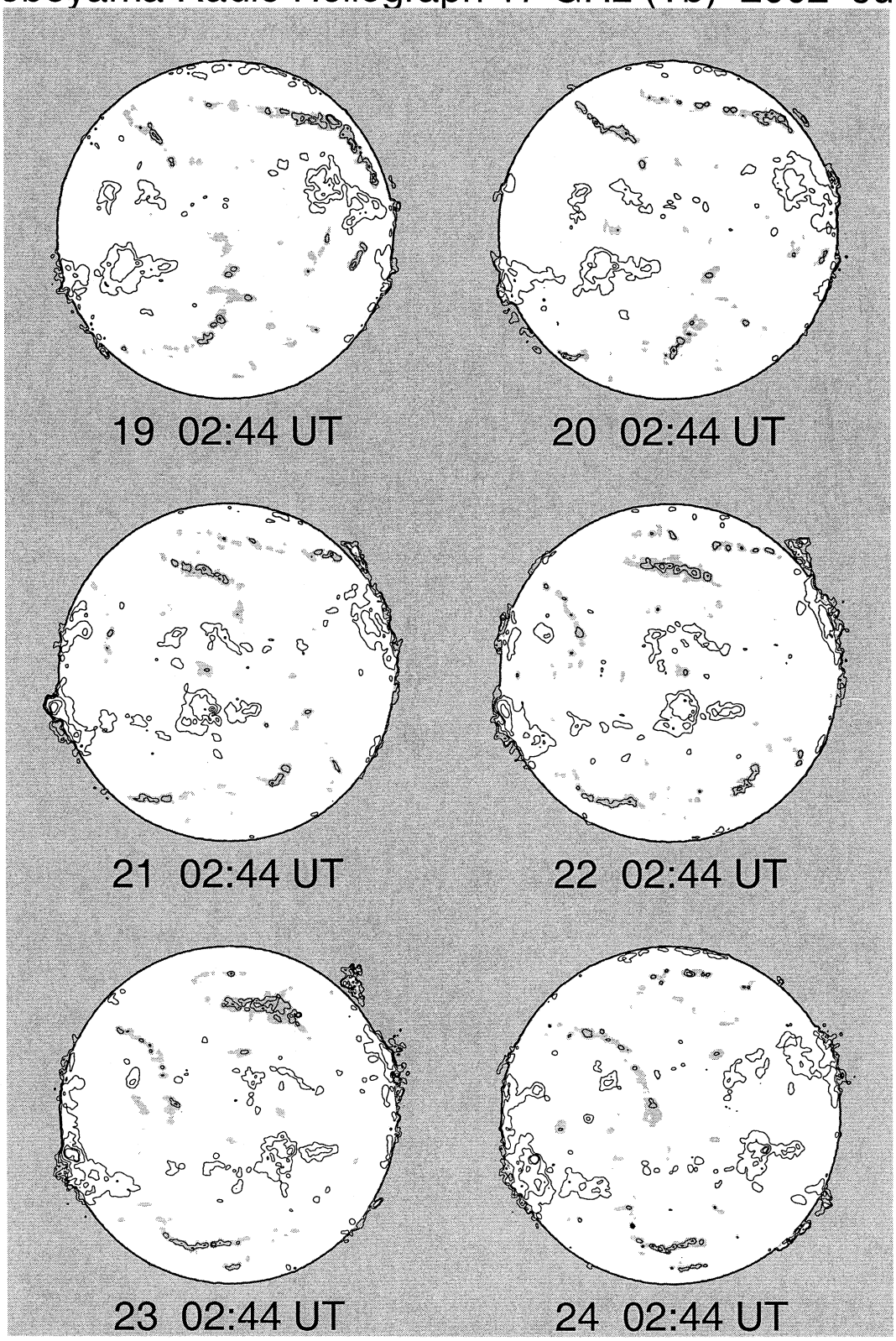
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2002 July



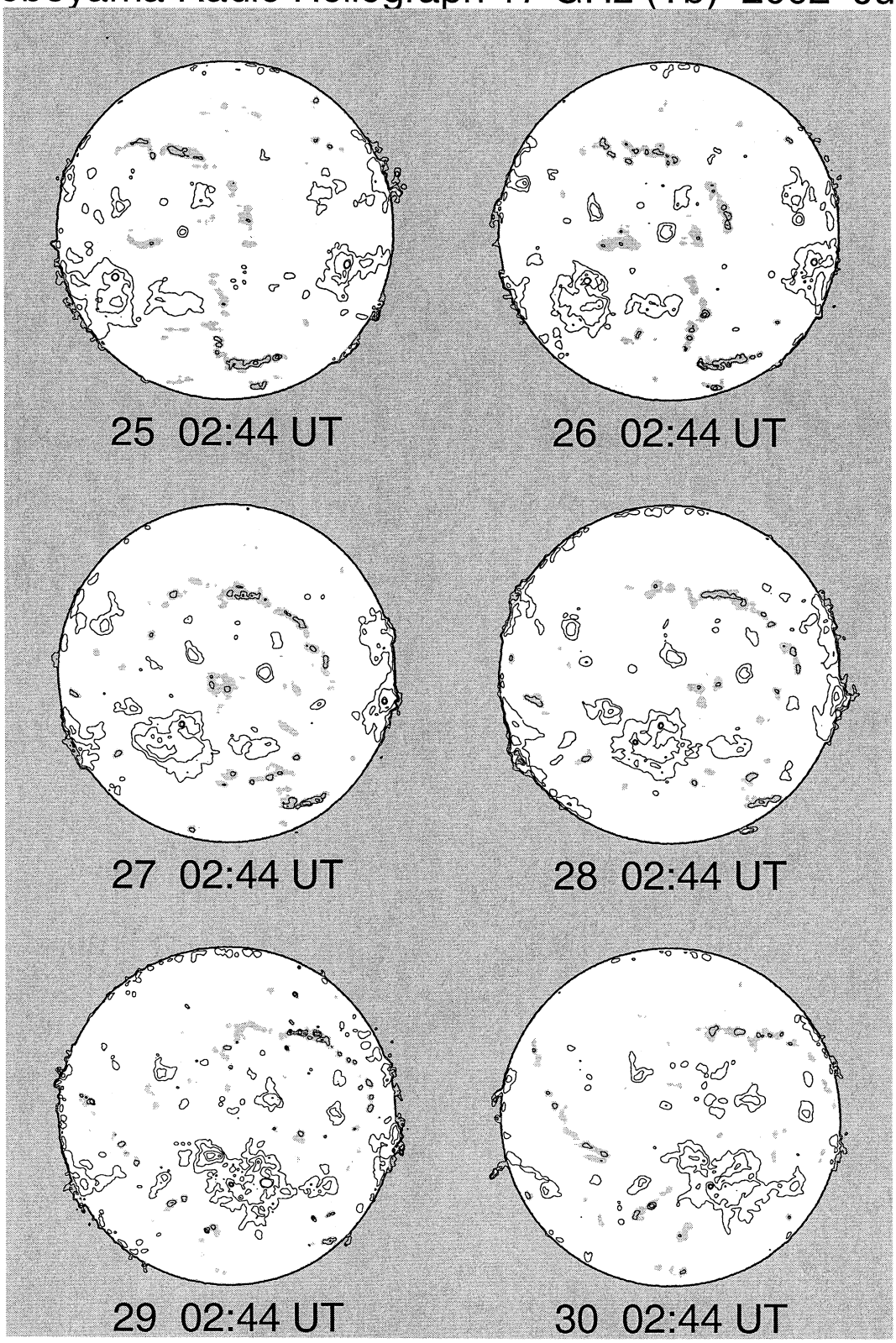
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2002 July



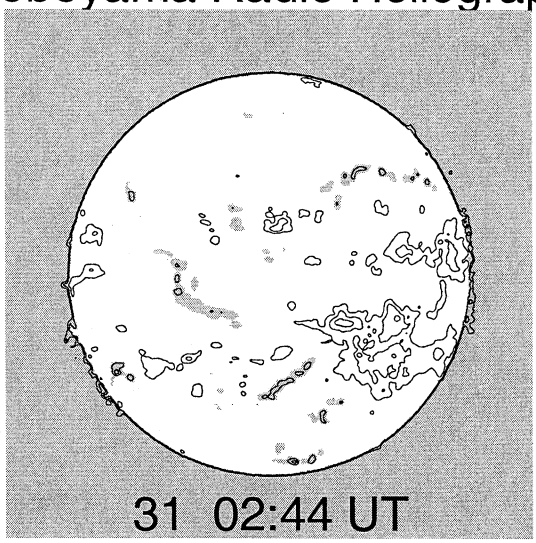
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2002 July



Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2002 July



Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

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

JULY 2002

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
10016		LEAR	06	25	0040	S17	E80	07	1.1		A	HAX	30	1	2	2
10016		KAND	06	25	0730	S19	E80	07	1.4			AX		1		3
10016		SVTO	06	25	0800	S14	E80	07	1.4		A	HSX	60	1	2	3
10016	31283	MWIL	06	25	1430	S16	E74	07	1.2	4	(AF)					
10016		HOLL	06	25	1510	S15	E76	07	1.4		A	HSX	50	1	1	4
10016		LEAR	06	26	0130	S17	E68	07	1.2		A	HSX	50	1	2	2
10016		TACH	06	26	0520	S16	E67	07	1.3			HSX	40	1	1	2
10016		SVTO	06	26	0543	S14	E67	07	1.3		A	HSX	100	1	2	3
10016		KAND	06	26	0645	S17	E66	07	1.3			HS		1	2	3
10016		RAMY	06	26	1222	S15	E62	07	1.2		A	HSX	40	1	2	4
10016	31283	MWIL	06	26	1430	S16	E61	07	1.2	4	(AF)					
10016		HOLL	06	26	1537	S14	E61	07	1.3		A	HSX	90	1	2	3
10016		LEAR	06	27	0010	S17	E55	07	1.2		A	HSX	70	1	1	1
10016		SVTO	06	27	0535	S14	E54	07	1.3		A	HSX	70	1	2	3
10016		TACH	06	27	0704	S14	E49	07	1.0			HSX	35	1	1	2
10016		KAND	06	27	0820	S17	E51	07	1.2			HS		1	2	4
10016	31283	MWIL	06	27	1445	S16	E47	07	1.2	5	(AF)					
10016		HOLL	06	27	1635	S16	E47	07	1.2		A	HSX	60	1	2	4
10016		LEAR	06	28	0008	S17	E42	07	1.2		A	HSX	70	1	2	1
10016		SVTO	06	28	0500	S16	E40	07	1.2		A	HSX	80	1	3	3
10016		KAND	06	28	0710	S17	E39	07	1.3			HA		2	2	4
10016		RAMY	06	28	1245	S16	E37	07	1.3		B	DSO	140	6	6	3
10016	31283	MWIL	06	28	1445	S15	E35	07	1.3	5	(BF)					
10016		HOLL	06	28	1450	S14	E36	07	1.3		B	CAO	80	5	5	3
10016		LEAR	06	29	0035	S15	E30	07	1.3		B	DSO	100	4	5	3
10016		SVTO	06	29	0540	S15	E27	07	1.3		B	CSO	80	3	5	3
10016		TACH	06	29	0623	S12	E23	07	1.0			CSO	59	3	4	2
10016		KAND	06	29	0635	S17	E27	07	1.3			CSO		4	5	2
10016		RAMY	06	29	1300	S16	E23	07	1.3		B	CSO	80	4	4	2
10016		HOLL	06	29	1406	S13	E22	07	1.2		B	CSO	50	7	6	4
10016	31283	MWIL	06	29	1430	S14	E22	07	1.3	5	(BF)					
10016		LEAR	06	30	0020	S15	E16	07	1.2		B	DSO	80	6	6	3
10016		SVTO	06	30	0509	S15	E14	07	1.3		B	CSO	50	2	6	3
10016		KAND	06	30	0745	S16	E13	07	1.3			CSO		4	3	2
10016		RAMY	06	30	1300	S14	E09	07	1.2		B	DSO	60	3	7	2
10016	31283	MWIL	06	30	1445	S15	E09	07	1.3	5	(BF)					
10016		HOLL	06	30	1458	S15	E11	07	1.4		B	CSO	40	2	3	3
10016		LEAR	07	01	0003	S15	E02	07	1.1		B	CSO	60	2	5	3
10016		VORO	07	01	0158	S17	E03	07	1.3			HSX	80	1		3
10016		SVTO	07	01	0505	S16	E01	07	1.3		B	CSO	50	2	3	3
10016		KAND	07	01	0705	S16	E00	07	1.3			HS		1	1	5
10016		RAMY	07	01	1151	S16	W03	07	1.3		A	HSX	40	1	1	3
10016	31283	MWIL	07	01	1445	S15	W03	07	1.4	5	(AF)					
10016		VORO	07	01	2305	S16	W09	07	1.3			HSX	69	1		3
10016		LEAR	07	02	0130	S11	W06	07	1.6		B	CSO	30	2	2	1
10016		TACH	07	02	0650	S14	W14	07	1.2			HSX	48	1	1	3
10016		KAND	07	02	1035	S16	W16	07	1.2			HS		1	1	5
10016		RAMY	07	02	1135	S16	W16	07	1.3		A	HSX	50	1	2	4
10016	31283	MWIL	07	02	1445	S16	W16	07	1.4	5	(BP)					
10016		HOLL	07	02	1524	S16	W17	07	1.3		B	CSO	40	3	4	2
10016		VORO	07	02	2212	S16	W21	07	1.3			HAX	64	1		3
10016		LEAR	07	03	0111	S15	W22	07	1.4		B	CAO	70	5	3	3
10016		TACH	07	03	0508	S16	W25	07	1.3			HSX	35	1	1	3
10016		SVTO	07	03	0640	S16	W25	07	1.4		A	HSX	40	1	2	3
10016		KAND	07	03	0950	S14	W29	07	1.2			HS		1	1	3
10016		RAMY	07	03	1223	S16	W29	07	1.3		A	HSX	40	1	1	4
10016	31283	MWIL	07	03	1500	S16	W30	07	1.3	5	(AF)					
10016		HOLL	07	03	2143	S17	W34	07	1.3		A	HSX	40	1	2	3
10016		LEAR	07	04	0020	S16	W36	07	1.3		B	CSO	50	3	3	3
10016		VORO	07	04	0226	S17	W38	07	1.2			HAX	63	1		2
10016		SVTO	07	04	0601	S18	W38	07	1.3		B	CSO	50	2	4	3
10016		TACH	07	04	0602	S17	W36	07	1.5			CSO	53	2	2	3
10016		KAND	07	04	0835	S15	W42	07	1.2			CSO		3	4	4
10016		RAMY	07	04	1310	S17	W44	07	1.2		B	CSO	80	5	5	2
10016		HOLL	07	04	1403	S17	W44	07	1.2		B	CSO	70	5	4	3
10016	31283	MWIL	07	04	1500	S17	W45	07	1.2	5	(BF)					
10016		VORO	07	05	0020	S16	W50	07	1.2			CAO	46	2	2	2
10016		LEAR	07	05	0055	S17	W50	07	1.2		B	CSO	70	4	4	1
10016		SVTO	07	05	0612	S17	W54	07	1.1		B	CSO	40	3	5	3

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10016		TACH	07	05	0658	S16	W51	07	1.4			HSX	30	1	2	3
10016		KAND	07	05	0840	S15	W54	07	1.3			HS		1	2	5
10016		RAMY	07	05	1250	S18	W57	07	1.2		A	HSX	60	2	2	3
10016		HOLL	07	05	1323	S17	W58	07	1.1		B	CAO	50	2	3	3
10016	31283	MWIL	07	05	1500	S17	W57	07	1.3	4	(AF)					
10016		LEAR	07	06	0319	S17	W63	07	1.3		B	DAO	80	3	5	4
10016		TACH	07	06	0407	S16	W62	07	1.5			DAO	94	3	2	3
10016		KAND	07	06	0535	S16	W67	07	1.1			DAO		3	4	4
10016		SVTO	07	06	0535	S18	W67	07	1.1		B	DSO	60	3	5	3
10016		RAMY	07	06	1236	S17	W69	07	1.3		B	DSO	30	2	3	4
10016	31283	MWIL	07	06	1430	S18	W70	07	1.3	3	(BF)					
10016		HOLL	07	06	1539	S17	W71	07	1.2		B	CAO	50	2	3	2
10016		SVTO	07	07	0540	S18	W82	07	1.0		A	AXX		1		3
10016		TACH	07	07	0656	S16	W76	07	1.5			AXX	23	1	1	3
10016		LEAR	07	07	0736	S17	W77	07	1.5		A	HSX	20	1	1	4
10016	31283	MWIL	07	07	1430	S16	W85	07	1.1	3	AF					
10026		RAMY	07	05	1250	N24	W51	07	1.6		A	HSX	30	1	2	3
10026		HOLL	07	05	1323	N23	W54	07	1.4		B	CAO	30	3	3	3
10026	31298	MWIL	07	05	1500	N23	W54	07	1.5	4	(B)					
10026		LEAR	07	06	0319	N24	W60	07	1.5		B	CRO	20	3	2	4
10026		TACH	07	06	0407	N24	W58	07	1.7			AXX	20	1	1	3
10026		SVTO	07	06	0535	N23	W62	07	1.4		A	HRX	20	9	1	3
10026		RAMY	07	06	1236	N24	W65	07	1.5		A	AXX	10	1		4
10026	31298	MWIL	07	06	1430	N24	W66	07	1.5	3	(B)					
10021		RAMY	07	02	1135	S29	E25	07	4.4		B	BXO		3	3	4
10021		SVTO	07	03	0640	S28	E15	07	4.4		A	AXX	40	4	4	3
10021		KAND	07	03	0950	S28	E11	07	4.3			BXO		3	3	3
10021		RAMY	07	03	1223	S29	E11	07	4.4		B	CRO	10	3	3	4
10021	31294	MWIL	07	03	1500	S29	E08	07	4.2	4	(B)					
10021		HOLL	07	03	2143	S29	E06	07	4.4		B	BXO	30	5	4	3
10021		LEAR	07	04	0020	S29	E04	07	4.3		B	DSO	20	5	5	3
10021		VORO	07	04	0226	S29	E02	07	4.2			BXO	29	5	4	2
10021		SVTO	07	04	0601	S29	E03	07	4.5		B	DSO	40	5	6	3
10021		TACH	07	04	0602	S27	E02	07	4.4			BRO	30	4	3	3
10021		KAND	07	04	0835	S29	W01	07	4.3			DSO		6	7	4
10021		RAMY	07	04	1310	S29	W03	07	4.3		B	DSO	80	7	7	2
10021		HOLL	07	04	1403	S29	W03	07	4.3		B	DSO	50	14	6	3
10021	31284	MWIL	07	04	1500	S29	W03	07	4.4	5	(BF)					
10021		VORO	07	05	0020	S28	W09	07	4.3			CAI	42	12	6	2
10021		LEAR	07	05	0055	S29	W09	07	4.3		B	DAO	70	6	7	1
10021		SVTO	07	05	0612	S28	W12	07	4.3		B	DSO	50	5	7	3
10021		TACH	07	05	0658	S26	W12	07	4.3			BXI	37	5	5	3
10021		KAND	07	05	0840	S28	W14	07	4.3			CAO		9	7	5
10021		RAMY	07	05	1250	S29	W15	07	4.3		B	DAO	100	10	8	3
10021		HOLL	07	05	1323	S29	W17	07	4.2		B	DAO	60	12	7	3
10021	31294	MWIL	07	05	1500	S28	W16	07	4.4	4	(B)					
10021		LEAR	07	06	0319	S29	W24	07	4.2		B	DAO	110	16	8	4
10021		TACH	07	06	0407	S25	W22	07	4.5			BRI	79	9	4	3
10021		KAND	07	06	0535	S28	W25	07	4.3			DSO		9	8	4
10021		SVTO	07	06	0535	S29	W25	07	4.3		B	DSO	90	10	7	3
10021		RAMY	07	06	1236	S29	W28	07	4.3		B	DSO	80	8	8	4
10021	31294	MWIL	07	06	1430	S28	W27	07	4.5	4	(B)					
10021		HOLL	07	06	1539	S29	W28	07	4.4		B	DAO	50	8	7	2
10021		SVTO	07	07	0540	S29	W36	07	4.4		B	DSO	110	8	7	3
10021		TACH	07	07	0656	S26	W37	07	4.4			CAI	81	6	4	3
10021		LEAR	07	07	0736	S28	W38	07	4.3		B	DAO	120	14	7	4
10021		RAMY	07	07	1129	S29	W40	07	4.3		B	DSO	90	7	8	3
10021		KAND	07	07	1155	S28	W42	07	4.2			DAO		8	6	3
10021	31294	MWIL	07	07	1430	S29	W41	07	4.4	4	(BG)					
10021		HOLL	07	07	1620	S31	W41	07	4.4		B	DAO	60	14	8	4
10021		VORO	07	07	2244	S29	W46	07	4.3			BXI	80	11	7	3
10021		TACH	07	08	0506	S27	W46	07	4.6			BRI	22	6	5	3
10021		SVTO	07	08	0620	S29	W49	07	4.4		B	DAO	110	6	8	3
10021		KAND	07	08	0740	S26	W53	07	4.2			CRO		11	7	3
10021		RAMY	07	08	1220	S29	W55	07	4.2		B	DSO	80	10	8	3
10021		HOLL	07	08	1425	S30	W55	07	4.3		B	DAO	60	11	9	3
10021	31294	MWIL	07	08	1430	S29	W54	07	4.4	4	(BG)					

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10021		LEAR	07	09	0145	S28	W60	07	4.4		B	DAO	50	7	8	3
10021		VORO	07	09	0226	S29	W60	07	4.4			BXI	20	4	6	3
10021		TACH	07	09	0517	S30	W58	07	4.6			DAO	27	5	2	2
10021		SVTO	07	09	0545	S28	W65	07	4.1		B	DAO	90	4	9	3
10021		KAND	07	09	0735	S25	W62	07	4.5			AX		2	1	3
10021		RAMY	07	09	1244	S28	W62	07	4.7		B	DSO	80	3	4	3
10021		HOLL	07	09	1500	S29	W67	07	4.4		B	BXO	10	2	6	3
10021	31294	MWIL	07	09	1600	S27	W69	07	4.3	4	(B)					
10021		LEAR	07	10	0105	S28	W75	07	4.2		A	HAX	30	1	1	3
10016A		LEAR	06	29	0035	S08	E73	07	4.5		A	AXX		1		3
10016A		LEAR	06	30	0020	S08	E62	07	4.7		A	AXX		1		3
10021A	31299	MWIL	07	05	1500	S18	W11	07	4.8	3	(AP)					
10021A	31299	MWIL	07	06	1430	S18	W22	07	4.9	3	(AP)					
10019		LEAR	06	29	0035	S17	E88	07	5.7		A	HAX	60	1	2	3
10019		SVTO	06	29	0540	S16	E78	07	5.1		B	DSO	90	2	4	3
10019		KAND	06	29	0635	S20	E84	07	5.7			DKO		2	4	2
10019		RAMY	06	29	1300	S20	E79	07	5.6		B	DAO	300	7	7	2
10019		HOLL	06	29	1406	S17	E77	07	5.4		B	DKO	260	8	8	4
10019	31288	MWIL	06	29	1430	S17	E78	07	5.5	5	BG					
10019		LEAR	06	30	0020	S19	E74	07	5.7		B	DKO	420	6	10	3
10019		SVTO	06	30	0509	S18	E70	07	5.5		B	DHO	450	4	10	3
10019		KAND	06	30	0745	S19	E72	07	5.8			EKO		5	14	2
10019		RAMY	06	30	1300	S18	E65	07	5.5		B	DHO	520	8	10	2
10019	31288	MWIL	06	30	1445	S17	E65	07	5.5	5	(D)					
10019		HOLL	06	30	1458	S16	E68	07	5.8		BG	EKI	420	20	13	3
10019		LEAR	07	01	0003	S18	E62	07	5.7		BG	EKI	540	7	14	3
10019		VORO	07	01	0158	S18	E59	07	5.6			DAI	621	11	8	3
10019		SVTO	07	01	0505	S17	E60	07	5.8		BGD	EHI	610	10	15	3
10019		KAND	07	01	0705	S20	E53	07	5.3			HA		1	1	5
10019		KAND	07	01	0705	S20	E58	07	5.7			DAO		6	7	5
10019		RAMY	07	01	1151	S18	E56	07	5.7		B	DKO	640	9	15	3
10019	31288	MWIL	07	01	1445	S17	E51	07	5.5	5	(D)					
10019		VORO	07	01	2305	S18	E48	07	5.6			DAI	661	11	8	3
10019		LEAR	07	02	0130	S18	E46	07	5.6		BG	DKI	440	8	10	1
10019		TACH	07	02	0650	S16	E37	07	5.1			DAI	488	6	7	3
10019		KAND	07	02	1035	S20	E36	07	5.2			CSO		3	2	5
10019		KAND	07	02	1035	S20	E41	07	5.6			DKO		9	7	5
10019		RAMY	07	02	1135	S18	E40	07	5.5		BG	DKO	580	13	10	4
10019	31288	MWIL	07	02	1445	S18	E38	07	5.5	5	(BG)					
10019		HOLL	07	02	1524	S18	E38	07	5.5		BGD	DKC	420	10	9	2
10019		VORO	07	02	2212	S18	E34	07	5.5			DKI	647	23	10	3
10019		LEAR	07	03	0111	S18	E32	07	5.5		BG	DKI	520	28	10	3
10019		TACH	07	03	0508	S18	E26	07	5.2			DAI	259	14	7	3
10019		SVTO	07	03	0640	S17	E28	07	5.4		B	ESI	260	15	12	3
10019		KAND	07	03	0950	S19	E23	07	5.2			BXO		7	3	3
10019		KAND	07	03	0950	S19	E30	07	5.7			DAO		6	6	3
10019		RAMY	07	03	1223	S18	E26	07	5.5		BG	EKI	400	26	11	4
10019	31288	MWIL	07	03	1500	S18	E27	07	5.7	5	(BG)					
10019		HOLL	07	03	2143	S17	E21	07	5.5		BG	EAC	390	22	12	3
10019		LEAR	07	04	0020	S18	E19	07	5.5		BG	EKI	420	30	12	3
10019		VORO	07	04	0226	S19	E18	07	5.5			DKI	520	16	7	2
10019		SVTO	07	04	0601	S17	E17	07	5.5		B	DKO	400	13	10	3
10019		TACH	07	04	0602	S17	E13	07	5.2			DAI	308	9	6	3
10019		TACH	07	04	0602	S19	E19	07	5.7			AR	16	4	2	3
10019		KAND	07	04	0835	S19	E11	07	5.2			AX		2	1	4
10019		KAND	07	04	0835	S19	E16	07	5.6			DAO		10	5	4
10019		RAMY	07	04	1310	S18	E10	07	5.3		BG	EKI	560	32	14	2
10019		HOLL	07	04	1403	S17	E13	07	5.6		BG	EKC	450	36	13	3
10019	31288	MWIL	07	04	1500	S18	E13	07	5.6	6	(D)					
10019		VORO	07	05	0020	S18	E05	07	5.4			DAI	454	17	11	2
10019		LEAR	07	05	0055	S18	E04	07	5.3		BG	EKI	450	21	13	1
10019		SVTO	07	05	0612	S18	E00	07	5.2		BG	EAO	420	16	14	3
10019		TACH	07	05	0658	S16	W01	07	5.2			DAI	366	10	12	3
10019		KAND	07	05	0840	S18	E03	07	5.6			DKO		12	6	5
10019		KAND	07	05	0840	S18	W04	07	5.0			BXO		4	6	5
10019		RAMY	07	05	1250	S18	W02	07	5.4		BG	EKI	390	14	12	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10019		HOLL	07	05	1323	S17	W03	07	5.3		BG	EKC	440	23	13	3
10019	31288	MWIL	07	05	1500	S18	W01	07	5.5	5	(BG)					
10019		LEAR	07	06	0319	S18	W12	07	5.2		BG	EAI	390	18	14	4
10019		TACH	07	06	0407	S15	W12	07	5.3			DAI	342	7	9	3
10019		KAND	07	06	0535	S17	W09	07	5.5			DAO		6	5	4
10019		SVTO	07	06	0535	S18	W13	07	5.2		BG	ESO	530	11	13	3
10019		RAMY	07	06	1236	S17	W16	07	5.3		BG	EAO	290	10	12	4
10019	31288	MWIL	07	06	1430	S18	W13	07	5.6	5	(BG)					
10019		HOLL	07	06	1539	S17	W14	07	5.6		BG	DKC	370	5	5	2
10019		SVTO	07	07	0540	S18	W25	07	5.3		BG	ESO	350	8	14	3
10019		TACH	07	07	0656	S17	W22	07	5.6			DAO	337	4	3	3
10019		LEAR	07	07	0736	S18	W25	07	5.4		BG	EAI	370	16	14	4
10019		RAMY	07	07	1129	S18	W24	07	5.6		BG	DSO	330	7	7	3
10019		KAND	07	07	1155	S18	W26	07	5.5			DSO		7	6	3
10019	31288	MWIL	07	07	1430	S18	W26	07	5.6	5	(BG)					
10019		HOLL	07	07	1620	S20	W25	07	5.8		BG	DAI	260	8	5	4
10019		VORO	07	07	2244	S17	W31	07	5.6			DAI	444	9	2	3
10019		TACH	07	08	0506	S16	W33	07	5.7			DAI	305	6	3	3
10019		SVTO	07	08	0620	S19	W35	07	5.6		BG	DSI	340	6	9	3
10019		KAND	07	08	0740	S16	W37	07	5.5			DSO		9	6	3
10019		RAMY	07	08	1220	S18	W37	07	5.7		BG	DRO	260	13	7	3
10019		HOLL	07	08	1425	S19	W39	07	5.6		BG	DAI	230	8	5	3
10019	31288	MWIL	07	08	1430	S18	W40	07	5.5	5	(BG)					
10019		LEAR	07	09	0145	S17	W46	07	5.6		BG	DAI	290	9	7	3
10019		VORO	07	09	0226	S18	W46	07	5.6			DAI	361	4	1	3
10019		TACH	07	09	0517	S19	W45	07	5.8			AR	281	2	1	2
10019		SVTO	07	09	0545	S17	W48	07	5.6		BG	DAO	250	7	7	3
10019		KAND	07	09	0735	S15	W49	07	5.6			DSO		4	4	3
10019		RAMY	07	09	1244	S18	W50	07	5.7		BG	DAO	320	12	7	3
10019		HOLL	07	09	1500	S18	W52	07	5.7		BG	DAO	270	12	6	3
10019	31288	MWIL	07	09	1600	S18	W52	07	5.7	5	(BG)					
10019		LEAR	07	10	0105	S18	W58	07	5.6		BG	DKO	230	9	9	3
10019		TACH	07	10	0536	S20	W59	07	5.7			CAI	297	5	2	3
10019		SVTO	07	10	0615	S18	W62	07	5.5		BG	DSO	230	6	8	3
10019		KAND	07	10	0903	S14	W62	07	5.7			DAO		4	6	2
10019		RAMY	07	10	1209	S19	W63	07	5.7		B	DSO	240	3	6	4
10019	31288	MWIL	07	10	1445	S18	W65	07	5.7	5	(BP)					
10019		HOLL	07	10	1447	S19	W65	07	5.6		B	DKO	240	5	8	3
10019		VORO	07	10	2140	S17	W68	07	5.7			CAO	197	2	6	3
10019		LEAR	07	11	0156	S17	W68	07	5.9		B	DSO	230	5	6	3
10019		SVTO	07	11	0533	S16	W71	07	5.8		A	HSX	180	1	6	3
10019		KAND	07	11	0847	S13	W77	07	5.5			HS		1	4	3
10019A	31301	MWIL	07	06	1430	N00	W09	07	5.9	4	(AP)					
10022		KAND	07	01	0705	S23	E70	07	6.7			AX		2	1	5
10022		LEAR	07	03	0111	S21	E43	07	6.3		B	BXO	10	2	2	3
10022		SVTO	07	03	0640	S19	E41	07	6.4		A	AXX	10	3	2	3
10022		KAND	07	03	0950	S21	E39	07	6.4			BXO		3	5	3
10022		RAMY	07	03	1223	S20	E34	07	6.1		B	BXO	10	4	6	4
10022	31295	MWIL	07	03	1500	S19	E36	07	6.4	4	(B)					
10022		HOLL	07	03	2143	S19	E34	07	6.5		B	BXO	30	5	5	3
10022		LEAR	07	04	0020	S20	E32	07	6.5		B	CRO	30	7	6	3
10022		VORO	07	04	0226	S20	E30	07	6.4			BXO	23	7	2	2
10022		SVTO	07	04	0601	S20	E29	07	6.5		B	CSO	20	5	2	3
10022		KAND	07	04	0835	S21	E28	07	6.5			CAO		8	7	4
10022		RAMY	07	04	1310	S19	E24	07	6.4		B	DAO	70	16	8	2
10022		HOLL	07	04	1403	S19	E26	07	6.6		B	CAO	40	18	7	3
10022	31295	MWIL	07	04	1500	S20	E26	07	6.6	4	(BG)					
10022		VORO	07	05	0020	S21	E18	07	6.4			AXX	25	7		2
10022		LEAR	07	05	0055	S20	E18	07	6.4		B	DSO	30	5	3	1
10022		SVTO	07	05	0612	S20	E14	07	6.3		B	DSO	30	6	3	3
10022		TACH	07	05	0658	S18	E12	07	6.2			AR	8	5	1	3
10022		KAND	07	05	0840	S20	E13	07	6.3			BXO		4	3	5
10022		RAMY	07	05	1250	S20	E11	07	6.4		B	CSO	30	7	3	3
10022		HOLL	07	05	1323	S20	E10	07	6.3		B	BXO	20	8	3	3
10022	31295	MWIL	07	05	1500	S20	E09	07	6.3	4	(B)					
10022		LEAR	07	06	0319	S21	E02	07	6.3		B	DRO	20	7	2	4
10022		TACH	07	06	0407	S18	E01	07	6.2			AR	2	2	1	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10022		SVTO	07	06	0535	S20	E01	07	6.3		B	CRO	20	7	3	3
10022		KAND	07	06	0535	S21	E01	07	6.3			AX		1		4
10022		RAMY	07	06	1236	S20	W03	07	6.3		B	BXO	10	5	4	4
10022	31295	MWIL	07	06	1430	S20	W02	07	6.4	3	(BG)					
10022		HOLL	07	06	1539	S20	W04	07	6.3		B	BXO	10	8	3	2
10022		SVTO	07	07	0540	S19	W14	07	6.2		B	BXO	10	4	4	3
10022		TACH	07	07	0656	S18	W14	07	6.2			AXX	6	1	1	3
10022		LEAR	07	07	0736	S19	W14	07	6.2		B	CSO	20	6	3	4
10022		RAMY	07	07	1129	S20	W17	07	6.2		B	BXO	20	4	3	3
10022		KAND	07	07	1155	S19	W19	07	6.0			DAO		8	2	3
10022	31295	MWIL	07	07	1430	S19	W18	07	6.2	3	(AF)					
10022		HOLL	07	07	1620	S21	W19	07	6.2		A	AXX	10	3	2	4
10022		VORO	07	07	2244	S19	W22	07	6.3			AXX	4	1		3
10022		TACH	07	08	0506	S16	W25	07	6.3			AXX	1	1	1	3
10022		SVTO	07	08	0620	S19	W27	07	6.2		A	AXX	10	3	2	3
10022	31295	MWIL	07	08	1430	S19	W31	07	6.2	3	(AF)					
10022		LEAR	07	09	0145	S18	W34	07	6.5		A	AXX		1		3
10022		LEAR	07	10	0105	S18	W47	07	6.5		A	AXX		1		3
10022		TACH	07	11	0556	S17	W69	07	6.0			HSX	85	1	2	3
10020		LEAR	07	02	0130	S01	E75	07	7.7		A	AXX	20	2	1	1
10020		RAMY	07	02	1135	N01	E68	07	7.6		B	BXO	10	3	2	4
10020	31291	MWIL	07	02	1445	N01	E68	07	7.7	4	(BF)					
10020		HOLL	07	02	1524	N01	E68	07	7.7		B	BXO	10	2	3	2
10020		LEAR	07	03	0111	S01	E62	07	7.7		B	CXO	20	2	2	3
10020		RAMY	07	03	1223	N01	E55	07	7.6		A	AXX		1		4
10020	31291	MWIL	07	03	1500	N01	E54	07	7.6	4	(AF)					
10020		HOLL	07	03	2143	N02	E50	07	7.6		A	AXX	10	1	1	3
10020		LEAR	07	04	0020	N00	E48	07	7.6		A	AXX	10	1		3
10023		KAND	07	02	1035	S26	E75	07	8.3			AX		1		5
10023	31292	MWIL	07	02	1445	S23	E70	07	8.0	4	(AP)					
10023		LEAR	07	03	0111	S24	E65	07	8.1		A	HSX	20	1	1	3
10023		SVTO	07	03	0640	S23	E61	07	8.0		A	HRX	20	1	1	3
10023		KAND	07	03	0950	S25	E59	07	8.0			AX		1		3
10023		RAMY	07	03	1223	S23	E57	07	7.9		A	AXX	10	1	1	4
10023	31292	MWIL	07	03	1500	S23	E58	07	8.1	4	(AP)					
10023		HOLL	07	03	2143	S23	E53	07	8.0		A	AXX	10	1	1	3
10023		LEAR	07	04	0020	S23	E53	07	8.1		B	CRO	20	4	8	3
10023		SVTO	07	04	0601	S22	E52	07	8.2		A	AXX	20	2	1	3
10023		TACH	07	04	0602	S22	E48	07	7.9			AR	5	2	1	3
10023		RAMY	07	04	1310	S23	E47	07	8.2		B	CSO	30	5	4	2
10023		HOLL	07	04	1403	S23	E48	07	8.3		B	BXO	30	8	6	3
10023	31292	MWIL	07	04	1500	S23	E47	07	8.2	3	(B)					
10023		LEAR	07	05	0055	S23	E42	07	8.3		B	CRO	20	5	6	1
10023		SVTO	07	05	0612	S22	E38	07	8.2		B	BXO	30	4	5	3
10023		TACH	07	05	0658	S21	E35	07	8.0			CAI	141	8	5	3
10023		KAND	07	05	0840	S23	E37	07	8.2			BXO		5	5	5
10023		RAMY	07	05	1250	S22	E36	07	8.3		B	CSO	40	6	6	3
10023		HOLL	07	05	1323	S23	E35	07	8.2		B	BXO	20	9	7	3
10023	31292	MWIL	07	05	1500	S23	E34	07	8.2	3	(B)					
10023		LEAR	07	06	0319	S24	E30	07	8.4		B	CAO	30	4	2	4
10023		TACH	07	06	0407	S21	E26	07	8.2			AXX	9	1	1	3
10023		SVTO	07	06	0535	S24	E28	07	8.4		A	AXX	10	3	1	3
10023		KAND	07	06	0535	S25	E29	07	8.5			BXO		3	2	4
10023	31292	MWIL	07	06	1430	S22	E22	07	8.3	4	(B)					
10023		SVTO	07	07	0540	S22	E14	07	8.3		B	BXO	10	4	4	3
10023		LEAR	07	07	0736	S24	E12	07	8.2		B	BXO	20	5	5	4
10023		HOLL	07	07	1620	S25	E03	07	7.9		B	BXO	20	4	3	4
10023		SVTO	07	08	0620	S22	W04	07	7.9		A	AXX	20	4	3	3
10023		LEAR	07	09	0145	S21	W14	07	8.0		A	AXX	10	3	2	3
10023		RAMY	07	09	1244	S22	W20	07	8.0		A	HRX	10	1	1	3
10023		HOLL	07	09	1500	S22	W21	07	8.0		A	AXX	10	2	1	3
10023	31304	MWIL	07	09	1600	S21	W21	07	8.0	4	(AP)					
10023		LEAR	07	10	0105	S21	W26	07	8.0		A	AXX	10	2	1	3
10023		SVTO	07	10	0615	S22	W29	07	8.0		A	HRX	10	1	1	3
10023		KAND	07	10	0903	S20	W32	07	7.9			HR		1	1	2
10023	31304	MWIL	07	10	1445	S21	W34	07	8.0	4	(AP)					
10024		LEAR	07	03	0111	S35	E72	07	8.8		A	HRX	10	1		3

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10024		RAMY	07	03	1223	S34	E67	07	8.8		B	CRO	10	3	4	4
10024	31296	MWIL	07	03	1500	S34	E66	07	8.9	4	(B)					
10024		HOLL	07	03	2143	S33	E64	07	9.0		B	CAO	50	6	6	3
10024		LEAR	07	04	0020	S34	E61	07	8.9		B	DAO	60	5	9	3
10024		VORO	07	04	0226	S35	E58	07	8.7			HAX	59	4		2
10024		SVTO	07	04	0601	S33	E59	07	8.9		B	CSO	70	3	7	3
10024		TACH	07	04	0602	S33	E55	07	8.6			DAO	92	6	5	3
10024		KAND	07	04	0835	S37	E58	07	9.0			DAO		4	7	4
10024		RAMY	07	04	1310	S33	E56	07	9.0		B	DSO	110	13	7	2
10024		HOLL	07	04	1403	S33	E55	07	8.9		B	DAO	110	12	7	3
10024	31296	MWIL	07	04	1500	S34	E54	07	8.9	4	(B)					
10024		VORO	07	05	0020	S34	E50	07	9.0			DAO	147	5	5	2
10024		LEAR	07	05	0055	S34	E48	07	8.9		B	DAO	90	6	8	1
10024		SVTO	07	05	0612	S33	E45	07	8.8		B	DAO	180	5	8	3
10024		TACH	07	05	0658	S32	E43	07	8.7			BRO	15	4	6	3
10024		KAND	07	05	0840	S36	E44	07	8.9			DAO		7	9	5
10024		RAMY	07	05	1250	S32	E43	07	8.9		B	DAO	220	9	7	3
10024		HOLL	07	05	1323	S34	E42	07	8.9		B	DAO	200	9	7	3
10024	31296	MWIL	07	05	1500	S34	E41	07	8.9	5	(B)					
10024		LEAR	07	06	0319	S35	E35	07	8.9		B	DAO	210	6	8	4
10024		TACH	07	06	0407	S32	E32	07	8.7			DAO	188	3	5	3
10024		SVTO	07	06	0535	S34	E33	07	8.9		B	DAO	230	5	7	3
10024		KAND	07	06	0535	S35	E33	07	8.9			DAO		5	7	4
10024		RAMY	07	06	1236	S34	E31	07	9.0		B	DAO	140	3	6	4
10024	31296	MWIL	07	06	1430	S34	E29	07	8.9	4	(B)					
10024		HOLL	07	06	1539	S34	E28	07	8.9		B	DAO	210	3	7	2
10024		SVTO	07	07	0540	S33	E21	07	8.9		B	DSO	170	5	7	3
10024		TACH	07	07	0656	S32	E16	07	8.5			DAO	72	4	4	3
10024		LEAR	07	07	0736	S35	E19	07	8.8		B	DAI	190	9	7	4
10024		RAMY	07	07	1129	S35	E17	07	8.8		B	DSO	100	6	6	3
10024		KAND	07	07	1155	S36	E16	07	8.8			DSO		4	6	3
10024	31296	MWIL	07	07	1430	S34	E15	07	8.8	4	(BG)					
10024		HOLL	07	07	1620	S35	E16	07	9.0		B	DAO	100	9	8	4
10024		VORO	07	07	2244	S35	E12	07	8.9			DAO	100	9	4	3
10024		TACH	07	08	0506	S32	E06	07	8.7			DAO	99	4	4	3
10024		SVTO	07	08	0620	S34	E08	07	8.9		B	DAO	60	9	7	3
10024		KAND	07	08	0740	S34	E05	07	8.7			DAO		7	5	3
10024		RAMY	07	08	1220	S34	E04	07	8.8		B	DSO	130	14	7	3
10024		HOLL	07	08	1425	S35	E03	07	8.8		B	DAO	90	14	8	3
10024	31296	MWIL	07	08	1430	S34	E03	07	8.8	5	(B)					
10024		LEAR	07	09	0145	S34	W04	07	8.7		B	DAO	60	8	6	3
10024		VORO	07	09	0226	S35	W03	07	8.9			CAI	45	5	4	3
10024		TACH	07	09	0517	S33	W04	07	8.9			BRO	28	4	4	2
10024		SVTO	07	09	0545	S35	W06	07	8.7		B	DAO	80	7	6	3
10024		KAND	07	09	0735	S33	W07	07	8.7			DAO		3	4	3
10024		RAMY	07	09	1244	S32	W08	07	8.9		B	DAO	80	10	5	3
10024		HOLL	07	09	1500	S34	W08	07	9.0		B	DAO	70	7	5	3
10024	31296	MWIL	07	09	1600	S34	W09	07	8.9	4	(B)					
10024		LEAR	07	10	0105	S34	W15	07	8.8		B	DAO	40	7	5	3
10024		TACH	07	10	0536	S34	W18	07	8.8			BRO	17	3	3	3
10024		SVTO	07	10	0615	S35	W17	07	8.9		B	DSO	30	5	4	3
10024		KAND	07	10	0903	S33	W20	07	8.8			BXO		4	5	2
10024		RAMY	07	10	1209	S35	W20	07	8.9		B	BXO	10	3	4	4
10024	31296	MWIL	07	10	1445	S34	W20	07	9.0	4	(B)					
10024		HOLL	07	10	1447	S34	W21	07	8.9		B	BXO	20	3	5	3
10024A		LEAR	07	10	0105	N03	W15	07	8.9		B	BXO	10	2	2	3
10024B		KAND	07	05	0840	S17	E59	07	9.8			AX		1	1	5
10024B		LEAR	07	07	0736	S15	E34	07	9.9		B	CAO	30	6	3	4
10024B		RAMY	07	07	1129	S14	E32	07	9.9		A	AXX	10	2	2	3
10024B		HOLL	07	07	1620	S15	E30	07	9.9		B	BXO	10	4	3	4
10025		RAMY	07	04	1310	S19	E80	07	10.6		A	HSX	30	1	1	2
10025		HOLL	07	04	1403	S18	E80	07	10.7		A	HSX	60	1	2	3
10025	31297	MWIL	07	04	1500	S19	E80	07	10.7	3	(AP)					
10025		VORO	07	05	0020	S20	E76	07	10.8			HAX	72	1		2
10025		LEAR	07	05	0055	S19	E74	07	10.7		A	HAX	60	1	2	1
10025		SVTO	07	05	0612	S19	E69	07	10.5		A	HSX	60	1	1	3

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JULY 2002

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
10025		TACH	07	05	0658	S19	E68	07	10.5			HSX	76	1	1	3
10025		KAND	07	05	0840	S21	E69	07	10.6			HA		1	2	5
10025		RAMY	07	05	1250	S21	E71	07	11.0		B	CAO	140	3	5	3
10025		HOLL	07	05	1323	S18	E68	07	10.7		A	HSX	60	1	2	3
10025	31297	MWIL	07	05	1500	S18	E66	07	10.6	4	(AP)					
10025		LEAR	07	06	0319	S23	E64	07	11.1		B	DAO	130	3	7	4
10025		TACH	07	06	0407	S18	E57	07	10.5			HSX	70	1	1	3
10025		KAND	07	06	0535	S21	E59	07	10.7			HS		1	2	4
10025		SVTO	07	06	0535	S23	E62	07	11.0		B	CSO	60	4	11	3
10025		RAMY	07	06	1236	S23	E60	07	11.1		B	CSO	40	3	10	4
10025	31297	MWIL	07	06	1430	S19	E53	07	10.6	4	(AP)					
10025		HOLL	07	06	1539	S18	E53	07	10.7		A	HSX	50	1	1	2
10025		SVTO	07	07	0540	S19	E46	07	10.7		A	HSX	30	1	1	3
10025		TACH	07	07	0656	S19	E40	07	10.3			HSX	35	1	1	3
10025		LEAR	07	07	0736	S24	E48	07	11.0		B	CAO	110	3	9	4
10025		RAMY	07	07	1129	S20	E42	07	10.7		A	HSX	30	1	1	3
10025		KAND	07	07	1155	S22	E41	07	10.6			HA		1	1	3
10025	31297	MWIL	07	07	1430	S20	E40	07	10.7	4	(AP)					
10025		HOLL	07	07	1620	S20	E40	07	10.7		A	HAX	40	1	2	4
10025		VORO	07	07	2244	S20	E36	07	10.7			HSX	50	2		3
10025		TACH	07	08	0506	S18	E28	07	10.3			HSX	49	1	1	3
10025		SVTO	07	08	0620	S19	E33	07	10.8		B	CSO	30	2	3	3
10025		KAND	07	08	0740	S21	E31	07	10.7			CAO		3	4	3
10025		RAMY	07	08	1220	S21	E28	07	10.7		A	HSX	70	1	2	3
10025		HOLL	07	08	1425	S20	E28	07	10.7		B	CSO	20	5	3	3
10025	31297	MWIL	07	08	1430	S20	E26	07	10.6	5	(BG)					
10025		LEAR	07	09	0145	S20	E21	07	10.7		B	CSO	30	4	3	3
10025		VORO	07	09	0226	S20	E20	07	10.6			HSX	39	1		3
10025		TACH	07	09	0517	S19	E17	07	10.5			AXX	14	1	1	2
10025		SVTO	07	09	0545	S20	E18	07	10.6		A	HSX	20	1	1	3
10025		KAND	07	09	0735	S20	E17	07	10.6			HS		1	1	3
10025		RAMY	07	09	1244	S20	E14	07	10.6		A	HSX	40	1	2	3
10025		HOLL	07	09	1500	S19	E14	07	10.7		A	HSX	30	1	2	3
10025	31297	MWIL	07	09	1600	S20	E14	07	10.7	5	(AP)					
10025		LEAR	07	10	0105	S20	E09	07	10.7		A	HSX	40	1	1	3
10025		TACH	07	10	0536	S20	E03	07	10.5			HSX	44	1	1	3
10025		SVTO	07	10	0615	S20	E07	07	10.8		B	CSO	30	3	5	3
10025		KAND	07	10	0903	S20	E03	07	10.6			HS		1	1	2
10025		RAMY	07	10	1209	S20	E03	07	10.7		A	HSX	20	1	1	4
10025	31297	MWIL	07	10	1445	S20	E02	07	10.8	5	(AP)					
10025		HOLL	07	10	1447	S19	E01	07	10.7		A	HSX	30	1	2	3
10025		VORO	07	10	2140	S19	W03	07	10.7			HAX	56	1		3
10025		LEAR	07	11	0156	S19	W07	07	10.5		A	HSX	40	1	2	3
10025		SVTO	07	11	0533	S19	W07	07	10.7		A	HSX	20	1	1	3
10025		TACH	07	11	0556	S20	W07	07	10.7			AXX	17	1	1	3
10025		KAND	07	11	0847	S18	W11	07	10.5			HS		1	1	3
10025		LEAR	07	12	0050	S19	W18	07	10.7		A	HSX	20	1	1	4
10025		TACH	07	12	0454	S18	W19	07	10.7			HSX	29	1	1	3
10025		VORO	07	12	0457	S19	W21	07	10.6			HAX	20	1		3
10025		SVTO	07	12	0504	S19	W21	07	10.6		A	HSX	20	1	1	3
10025		KAND	07	12	1225	S17	W26	07	10.5			HS		1	1	4
10025		RAMY	07	12	1240	S19	W25	07	10.6		A	HAX	20	1	1	3
10025		HOLL	07	12	1345	S19	W25	07	10.7		A	HSX	20	1	1	4
10025	31297	MWIL	07	12	1430	S19	W26	07	10.6	5	(AP)					
10025		VORO	07	12	2200	S19	W30	07	10.6			AXX	13	1		3
10025		TACH	07	13	0455	S20	W32	07	10.7			AXX	23	1	1	3
10025		SVTO	07	13	0700	S19	W35	07	10.6		A	HSX	20	1	1	3
10025		KAND	07	13	1120	S17	W39	07	10.5			AX		1		3
10025		RAMY	07	13	1215	S19	W39	07	10.5		A	HAX	10	1	1	3
10025	31297	MWIL	07	13	1430	S19	W39	07	10.6	4	(AP)					
10025		HOLL	07	13	1515	S19	W40	07	10.6		A	HSX	20	1	2	3
10025		LEAR	07	14	0043	S18	W45	07	10.6		A	HSX	20	1	1	3
10025		TACH	07	14	0511	S17	W47	07	10.6			AXX	1	1	1	4
10025		SVTO	07	14	0525	S19	W48	07	10.6		A	HSX	20	1	1	3
10025		KAND	07	14	0620	S16	W49	07	10.5			AX		1	1	4
10025		RAMY	07	14	1241	S19	W51	07	10.6		A	HSX	10	1	1	2
10025	31297	MWIL	07	14	1430	S20	W52	07	10.6	4	(AP)					
10025		HOLL	07	14	1545	S19	W53	07	10.6		A	HSX	30	1	2	3
10025		LEAR	07	15	0050	S18	W58	07	10.6		A	HSX	20	1	1	4

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10025		TACH	07	15	0551	S19	W59	07	10.7			AXX	11	1	1	3
10025		KAND	07	15	0640	S16	W63	07	10.5			HR		1	1	4
10025		SVTO	07	15	0720	S19	W63	07	10.5		A	HSX	20	1	1	2
10025		RAMY	07	15	1402	S18	W68	07	10.4		A	AXX	10	1		2
10025	31297	MWIL	07	15	1430	S20	W66	07	10.5	4	(AP)					
10025		HOLL	07	15	1615	S20	W68	07	10.5		A	AXX	20	1	1	3
10025		LEAR	07	16	0115	S18	W74	07	10.4		A	AXX		1		2
10025		HOLL	07	16	1929	S18	W82	07	10.6		A	HAX	60	1	2	2
10027B	31305	MWIL	07	09	1600	S18	E22	07	11.3	3	(AF)					
10027A	31300	MWIL	07	05	1500	S24	E74	07	11.3	2	(AP)					
10027A		KAND	07	06	0535	S27	E71	07	11.8			AX		2	3	4
10027A	31300	MWIL	07	06	1430	S24	E61	07	11.3	3	(AP)					
10027A		HOLL	07	07	1620	S25	E50	07	11.5		A	AXX	10	2	2	4
10027A		RAMY	07	09	1244	S24	E23	07	11.3		B	CSO	10	2	3	3
10027A		LEAR	07	10	0105	S25	E17	07	11.4		A	AXX		1		3
10028		SVTO	07	08	0620	S17	E50	07	12.1		A	HRX	10	1	1	3
10028		KAND	07	08	0740	S19	E49	07	12.0			AX		1	1	3
10028		RAMY	07	08	1220	S17	E49	07	12.2		B	CSO	30	2	5	3
10028		HOLL	07	08	1425	S16	E48	07	12.2		B	BXO	10	3	4	3
10028	31302	MWIL	07	08	1430	S16	E46	07	12.1	4	(B)					
10028		LEAR	07	09	0145	S16	E37	07	11.9		B	CRO	20	3	7	3
10028		TACH	07	09	0517	S17	E32	07	11.6			AXX	3	1	1	2
10028		SVTO	07	09	0545	S17	E35	07	11.9		A	HSX	10	1	1	3
10028		KAND	07	09	0735	S18	E34	07	11.9			AX		1	1	3
10028		RAMY	07	09	1244	S17	E31	07	11.9		A	HRX	10	1	1	3
10028		HOLL	07	09	1500	S16	E30	07	11.9		A	AXX	10	1	1	3
10028	31302	MWIL	07	09	1600	S16	E29	07	11.9	4	(AP)					
10028		LEAR	07	10	0105	S16	E23	07	11.8		B	CRO	10	3	5	3
10028		SVTO	07	10	0615	S17	E21	07	11.8		A	AXX		1		3
10028	31307	MWIL	07	10	1445	S16	E20	07	12.1	4	(B)					
10028		LEAR	07	11	0156	S16	E13	07	12.1		B	CRO	20	4	4	3
10028		LEAR	07	12	0050	S16	W01	07	11.9		B	BXO		2	1	4
10028		VORO	07	12	0457	S17	W01	07	12.1			BXO	4	2	3	3
10028		SVTO	07	12	0504	S17	W02	07	12.0		B	BXO	10	2	4	3
10028	31307	MWIL	07	12	1430	S17	W08	07	12.0	4	(AP)					
10028	31309	MWIL	07	13	1430	S17	W27	07	11.5	3	(AP)					
10028		KAND	07	14	0620	S14	W37	07	11.5			AX		1	1	4
10028	31309	MWIL	07	14	1430	S17	W41	07	11.5	4	(B)					
10028		HOLL	07	14	1545	S17	W40	07	11.6		A	AXX	10	1	1	3
10028		LEAR	07	15	0050	S15	W47	07	11.5		B	DAO	30	5	4	4
10028		KAND	07	15	0640	S13	W51	07	11.4			BXO		6	4	4
10028		SVTO	07	15	0720	S16	W52	07	11.4		B	BXO	20	5	4	2
10028	31309	MWIL	07	15	1430	S17	W53	07	11.6	4	(AF)					
10028		HOLL	07	15	1615	S17	W55	07	11.5		A	AXX	20	2	1	3
10028		LEAR	07	16	0115	S15	W60	07	11.5		B	BXO	20	2	1	2
10028		TACH	07	16	0519	S17	W60	07	11.7			HSX	54	1	1	3
10028		KAND	07	16	0605	S13	W64	07	11.4			HR		1	2	4
10028		RAMY	07	16	1430	S19	W66	07	11.6		B	CSO	40	4	4	2
10028	31309	MWIL	07	16	1445	S16	W69	07	11.4	5	(BF)					
10028		LEAR	07	17	0144	S15	W72	07	11.6		A	HSX	110	1	2	3
10028		TACH	07	17	0500	S16	W75	07	11.5			AXX	109	1	2	3
10028		SVTO	07	17	0613	S13	W79	07	11.3		A	HSX	180	1	2	3
10028		KAND	07	17	0720	S13	W79	07	11.3			HS		1	2	5
10028		RAMY	07	17	1320	S17	W80	07	11.5		A	HAX	120	1	2	3
10028	31309	MWIL	07	17	1430	S16	W80	07	11.5	4	(AF)					
10029		RAMY	07	08	1220	S17	E57	07	12.8		B	CSO	30	2	3	3
10029		HOLL	07	08	1425	S15	E58	07	13.0		B	BXO	10	3	3	3
10029	31303	MWIL	07	08	1430	S14	E56	07	12.8	4	(B)					
10029		LEAR	07	09	0145	S15	E49	07	12.8		B	BXO	20	3	3	3
10029		VORO	07	09	0226	S13	E49	07	12.8			BXO	6	2	2	3
10029		TACH	07	09	0517	S13	E43	07	12.5			AXX	2	1	1	2
10029		SVTO	07	09	0545	S15	E48	07	12.9		B	DRO	40	4	5	3
10029		KAND	07	09	0735	S16	E46	07	12.8			BXO		4	4	3
10029		RAMY	07	09	1244	S16	E42	07	12.7		B	DSO	80	10	6	3
10029		HOLL	07	09	1500	S13	E43	07	12.9		B	BXO	30	10	3	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10029	31303	MWIL	07	09	1600	S14	E42	07	12.8	4	(B)					
10029		LEAR	07	10	0105	S15	E37	07	12.8		B	DRO	30	6	5	3
10029		TACH	07	10	0536	S14	E30	07	12.5			BRO	18	3	3	3
10029		SVTO	07	10	0615	S14	E34	07	12.8		B	DAO	40	5	5	3
10029		KAND	07	10	0903	S15	E31	07	12.7			CAO		4	4	2
10029		RAMY	07	10	1209	S14	E30	07	12.8		B	DSO	50	5	4	4
10029	31303	MWIL	07	10	1445	S14	E29	07	12.8	4	(B)					
10029		HOLL	07	10	1447	S14	E29	07	12.8		B	CSO	30	8	6	3
10029		VORO	07	10	2140	S13	E24	07	12.7			BXO	21	5	3	3
10029		LEAR	07	11	0156	S14	E23	07	12.8		B	DAO	60	15	5	3
10029		SVTO	07	11	0533	S13	E22	07	12.9		B	DAO	40	7	6	3
10029		TACH	07	11	0556	S14	E18	07	12.6			BRI	26	7	5	3
10029		KAND	07	11	0847	S14	E18	07	12.7			CSO		7	6	3
10029		LEAR	07	12	0050	S12	E09	07	12.7		B	CSO	20	5	6	4
10029		TACH	07	12	0454	S15	E04	07	12.5			BRI	30	5	7	3
10029		VORO	07	12	0457	S13	E07	07	12.7			CRO	36	4	5	3
10029		SVTO	07	12	0504	S13	E06	07	12.7		B	CSO	40	5	6	3
10029		KAND	07	12	1225	S14	E01	07	12.6			CSO		3	7	4
10029		RAMY	07	12	1240	S13	E02	07	12.7		B	DSO	30	4	6	3
10029		HOLL	07	12	1345	S12	E02	07	12.7		B	CAO	20	3	6	4
10029	31303	MWIL	07	12	1430	S14	E01	07	12.7	4	(B)					
10029		VORO	07	12	2200	S14	W03	07	12.7			CRO	37	5	6	3
10029		TACH	07	13	0455	S14	W07	07	12.7			CAO	35	4	6	3
10029		SVTO	07	13	0700	S14	W08	07	12.7		B	DRO	60	8	8	3
10029		KAND	07	13	1120	S12	W14	07	12.4			HR		5	2	3
10029		RAMY	07	13	1215	S16	W06	07	13.0		B	DAO	40	9	8	3
10029	31303	MWIL	07	13	1430	S14	W14	07	12.5	4	(BP)					
10029		HOLL	07	13	1515	S13	W15	07	12.5		B	CAO	40	4	9	3
10029		LEAR	07	14	0043	S12	W21	07	12.4		A	HAX	30	3	1	3
10029		TACH	07	14	0511	S12	W24	07	12.4			AXX	6	1	1	4
10029		SVTO	07	14	0525	S15	W25	07	12.3		B	DAO	30	3	1	3
10029		KAND	07	14	0620	S12	W26	07	12.3			HA		3	1	4
10029		RAMY	07	14	1241	S14	W28	07	12.4		B	CSO	10	3	3	2
10029	31303	MWIL	07	14	1430	S14	W29	07	12.4	5	(AP)					
10029		HOLL	07	14	1545	S14	W30	07	12.4		A	HAX	20	3	2	3
10029		LEAR	07	15	0050	S12	W35	07	12.4		A	HAX	20	3	2	4
10029		TACH	07	15	0551	S13	W35	07	12.6			AR	12	3	1	3
10029		KAND	07	15	0640	S12	W40	07	12.3			HR		3	1	4
10029		SVTO	07	15	0720	S14	W39	07	12.3		A	HRX	20	3	2	2
10029	31303	MWIL	07	15	1430	S14	W43	07	12.3	4	(AP)					
10029		HOLL	07	15	1615	S14	W44	07	12.3		B	BXO	20	2	2	3
10029		LEAR	07	17	0144	S12	W62	07	12.4		B	BXO	20	2	3	3
10032		TACH	07	13	0455	S21	W06	07	12.7			AR	2	3	1	3
10032		SVTO	07	13	0700	S20	W05	07	12.9		A	AXX	10	3	2	3
10032		RAMY	07	13	1215	S20	W04	07	13.2		B	CSO	20	3	3	3
10032		HOLL	07	13	1515	S19	W11	07	12.8		A	AXX	10	3	2	3
10032		LEAR	07	16	0115	S19	W43	07	12.8		A	AXX		1		2
10032A		LEAR	07	10	0105	S06	E49	07	13.7		A	AXX	10	1	1	3
10033		KAND	07	13	1120	N08	E08	07	14.1			AX		2	1	3
10033		RAMY	07	13	1215	N09	E05	07	13.9		B	CSO	20	2	3	3
10033	31310	MWIL	07	13	1430	N09	E05	07	14.0	4	(AP)					
10033		HOLL	07	13	1515	N08	E05	07	14.0		A	AXX	10	2	2	3
10033		RAMY	07	14	1241	N08	W06	07	14.1		A	AXX		1		2
10033	31310	MWIL	07	14	1430	N08	W08	07	14.0	4	(AP)					
10033		HOLL	07	14	1545	N08	W09	07	14.0		A	AXX	10	1	1	3
10033		LEAR	07	15	0050	N09	W12	07	14.1		B	DAO	20	5	5	4
10033		TACH	07	15	0551	N07	W15	07	14.1			AR	3	2	3	3
10033		KAND	07	15	0640	N10	W16	07	14.1			BXO		3	2	4
10033		SVTO	07	15	0720	N08	W17	07	14.0		B	CRO	10	2	3	2
10033		RAMY	07	15	1402	N08	W23	07	13.9		A	HSX	20	1	1	2
10033	31310	MWIL	07	15	1430	N09	W22	07	13.9	4	(AP)					
10033		HOLL	07	15	1615	N08	W23	07	13.9		A	HRX	30	1	1	3
10033		LEAR	07	16	0115	N09	W29	07	13.9		A	AXX	10	2	1	2
10033		TACH	07	16	0519	N07	W29	07	14.0			AR	10	3	1	3
10033		KAND	07	16	0605	N10	W31	07	13.9			AX		2	1	4
10033	31310	MWIL	07	16	1445	N09	W36	07	13.9	4	(AP)					

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10033A	31313	MWIL	07	15	1430	N13	W14	07	14.5	4	(AP)					
10033A		LEAR	07	16	0115	N13	W17	07	14.8		B	BXO		2	5	2
10033A		TACH	07	16	0519	N12	W16	07	15.0			AXX	2	1	1	3
10033A		KAND	07	16	0605	N14	W17	07	15.0			BXO		3	2	4
10033A	31316	MWIL	07	16	1445	N15	W22	07	14.9	4	(B)					
10033A		HOLL	07	16	1929	N12	W27	07	14.8		A	AXX	10	1		2
10033A		TACH	07	17	0500	N18	W23	07	15.4			CAI	78	15	4	3
10033A		SVTO	07	18	0522	N15	W41	07	15.1		A	AXX	10	2	2	3
10034		LEAR	07	11	0156	S21	E53	07	15.1		B	BXO	20	2	3	3
10034		VORO	07	12	0457	S20	E34	07	14.8			AXX	4	1		3
10034		TACH	07	13	0455	S21	E26	07	15.2			AXX	2	1	1	3
10034		SVTO	07	13	0700	S20	E28	07	15.4		A	HRX	10	2	3	3
10034		RAMY	07	13	1215	S21	E24	07	15.3		A	HRX	10	2	2	3
10034	31311	MWIL	07	13	1430	S20	E23	07	15.4	4	(AF)					
10034		SVTO	07	14	0525	S20	E16	07	15.4		B	CRO	10	2	3	3
10034		KAND	07	14	0620	S20	E14	07	15.3			BXO		2	4	4
10034		RAMY	07	14	1241	S21	E09	07	15.2		A	HSX	10	1		2
10034	31311	MWIL	07	14	1430	S20	E10	07	15.4	4	(BF)					
10034		HOLL	07	14	1545	S20	E08	07	15.3		A	HSX	20	2	1	3
10034		LEAR	07	15	0050	S20	E04	07	15.3		B	DSO	20	7	5	4
10034		SVTO	07	15	0720	S21	W01	07	15.2		A	AXX		1		2
10034	31311	MWIL	07	15	1430	S20	W03	07	15.4	4	(AF)					
10034A	31317	MWIL	07	16	1445	N06	W13	07	15.6	4	(BG)					
10034A		HOLL	07	16	1929	N04	W16	07	15.6		B	BXO	10	3	3	2
10034A		LEAR	07	17	0144	N07	W19	07	15.6		B	CRO	20	7	4	3
10034A		LEAR	07	18	0014	N08	W32	07	15.6		B	CRO	20	5	4	3
10034A		HOLL	07	18	2010	N06	W43	07	15.6		B	BXO	10	2	3	4
10034A	31323	MWIL	07	20	1500	N07	W67	07	15.6	2	(AF)					
10030		LEAR	07	09	0145	N17	E82	07	15.3		A	HKX	150	1	4	3
10030		VORO	07	09	0226	N18	E85	07	15.6			HAX	109	1		3
10030		TACH	07	09	0517	N18	E81	07	15.4			HSX	386	1	4	2
10030		SVTO	07	09	0545	N17	E88	07	15.9		A	HAX	150	3	5	3
10030		KAND	07	09	0735	N15	E84	07	15.7			HK		1	2	3
10030		RAMY	07	09	1244	N19	E79	07	15.5		B	DAO	330	5	4	3
10030		HOLL	07	09	1500	N19	E79	07	15.6		B	CKO	330	5	4	3
10030	31306	MWIL	07	09	1600	N18	E78	07	15.6	5	(BP)					
10030		LEAR	07	10	0105	N18	E74	07	15.7		B	DKO	440	5	10	3
10030		TACH	07	10	0536	N17	E70	07	15.5			HSX	316	2	2	3
10030		TACH	07	10	0536	N21	E76	07	16.1			HA	84	3	3	3
10030		SVTO	07	10	0615	N19	E71	07	15.7		B	EKO	590	6	13	3
10030		KAND	07	10	0903	N16	E71	07	15.8			DKO		6	9	2
10030		RAMY	07	10	1209	N19	E69	07	15.8		B	EKO	340	4	11	4
10030	31306	MWIL	07	10	1445	N19	E67	07	15.7	5	(D)					
10030		HOLL	07	10	1447	N20	E68	07	15.8		BG	DKO	510	6	10	3
10030		VORO	07	10	2140	N19	E64	07	15.8			DKI	743	15	7	3
10030		LEAR	07	11	0156	N18	E61	07	15.7		BGD	FKI	480	27	16	3
10030		SVTO	07	11	0533	N19	E62	07	16.0		BG	FKI	600	15	16	3
10030		TACH	07	11	0556	N18	E54	07	15.3			CAI	379	6	2	3
10030		TACH	07	11	0556	N18	E63	07	16.0			BRI	63	6	4	3
10030		KAND	07	11	0847	N17	E62	07	16.1			FKC		17	17	3
10030		LEAR	07	12	0050	N17	E52	07	16.0		BGD	FKI	490	22	16	4
10030		LEAR	07	12	0050	N17	E52	07	16.0		BGD	FKI	490	22	16	4
10030		TACH	07	12	0454	N19	E44	07	15.6			CAI	363	10	7	3
10030		TACH	07	12	0454	N19	E51	07	16.1			DAI	282	11	6	3
10030		VORO	07	12	0457	N19	E48	07	15.9			DKI	721	30	8	3
10030		VORO	07	12	0457	N21	E59	07	16.7			HAX	244	7		3
10030		SVTO	07	12	0504	N19	E50	07	16.0		BG	FKI	720	17	18	3
10030		KAND	07	12	1225	N16	E46	07	16.0			FKC		25	19	4
10030		RAMY	07	12	1240	N19	E46	07	16.0		BGD	FKC	860	49	19	3
10030		HOLL	07	12	1345	N19	E46	07	16.1		BGD	FKC	580	64	17	4
10030	31308	MWIL	07	12	1430	N14	E51	07	16.4	4	(AP)					
10030	31306	MWIL	07	12	1430	N19	E45	07	16.0	5	(D)					
10030		VORO	07	12	2200	N19	E38	07	15.8			DKI	684	25	8	3
10030		VORO	07	12	2200	N21	E50	07	16.8			HAX	212	10		3
10030		TACH	07	13	0455	N17	E37	07	16.0			DAI	379	16	8	3
10030		TACH	07	13	0455	N19	E31	07	15.6			CAI	350	20	8	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo Day	Time (UT)	Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10030		SVTO	07 13	0700	N20	E37	07 16.1		G	FKI	780	60	20	3
10030		KAND	07 13	1120	N18	E35	07 16.1			FKC		55	18	3
10030		RAMY	07 13	1215	N19	E33	07 16.0		BG	FKC	780	57	19	3
10030	31306	MWIL	07 13	1430	N19	E31	07 16.0	5	(D)					
10030		HOLL	07 13	1515	N19	E31	07 16.0		BGD	FKC	580	80	18	3
10030		LEAR	07 14	0043	N19	E25	07 15.9		BGD	FKC	800	74	20	3
10030		TACH	07 14	0511	N16	E22	07 15.9			CAI	139	11	5	4
10030		TACH	07 14	0511	N20	E23	07 16.0			DAI	190	14	8	4
10030		SVTO	07 14	0525	N20	E25	07 16.1		G	FKI	700	68	21	3
10030		KAND	07 14	0620	N18	E25	07 16.2			FAC		41	19	4
10030		RAMY	07 14	1241	N19	E20	07 16.0		BG	FKC	790	50	17	2
10030	31306	MWIL	07 14	1430	N19	E18	07 16.0	5	(D)					
10030		HOLL	07 14	1545	N19	E17	07 15.9		BGD	FKC	770	85	19	3
10030		LEAR	07 15	0050	N19	E13	07 16.0		BGD	FKC	850	0	18	4
10030		TACH	07 15	0551	N16	E04	07 15.5			CAI	127	25	8	3
10030		TACH	07 15	0551	N19	E11	07 16.1			DAI	511	29	11	3
10030		KAND	07 15	0640	N18	E11	07 16.1			FKC		91	20	4
10030		SVTO	07 15	0720	N18	E08	07 15.9		BG	FKC	1040	68	21	2
10030		RAMY	07 15	1402	N18	E04	07 15.9		BG	FKC	1180	65	19	2
10030	31306	MWIL	07 15	1430	N19	E07	07 16.1	5	(D)					
10030		HOLL	07 15	1615	N18	E03	07 15.9		BGD	FKC	810	88	19	3
10030		LEAR	07 16	0115	N18	E00	07 16.0		BGD	FKC	1400	76	20	2
10030		TACH	07 16	0519	N15	W10	07 15.5			HA	149	8	5	3
10030		TACH	07 16	0519	N18	E01	07 16.3			DAI	1005	20	8	3
10030		KAND	07 16	0605	N18	W01	07 16.2			FKC		60	20	4
10030		RAMY	07 16	1430	N20	W07	07 16.1		BG	FKC	1600	69	22	2
10030	31306	MWIL	07 16	1445	N20	W05	07 16.2	5	(D)					
10030		HOLL	07 16	1929	N18	W11	07 16.0		BGD	FKC	1060	69	19	2
10030		LEAR	07 17	0144	N20	W14	07 16.0		BGD	FKC	1290	0	21	3
10030		TACH	07 17	0500	N20	W12	07 16.3			DAI	639	27	8	3
10030		SVTO	07 17	0613	N22	W14	07 16.2		B	FKI	1430	79	22	3
10030		KAND	07 17	0720	N20	W15	07 16.1			DKC		50	19	5
10030		RAMY	07 17	1320	N16	W22	07 15.9		BGD	FKC	1130	85	21	3
10030	31306	MWIL	07 17	1430	N20	W19	07 16.1	5	(D)					
10030		HOLL	07 17	1910	N18	W26	07 15.8		BGD	FKC	1010	89	20	3
10030		LEAR	07 18	0014	N20	W27	07 15.9		BGD	FKC	1290	0	21	3
10030		TACH	07 18	0515	N14	W34	07 15.6			CAI	55	9	2	3
10030		TACH	07 18	0515	N15	W22	07 16.5			DAI	984	43	7	3
10030		SVTO	07 18	0522	N19	W29	07 16.0		BGD	FKC	980	58	23	3
10030		KAND	07 18	0830	N21	W29	07 16.1			FKC		65	22	4
10030		RAMY	07 18	1218	N16	W30	07 16.2		BGD	FKC	910	65	21	3
10030	31306	MWIL	07 18	1500	N19	W31	07 16.2	5	(D)					
10030		HOLL	07 18	2010	N18	W37	07 16.0		BGD	FKC	820	67	20	4
10030		VORO	07 19	0355	N18	W43	07 15.9			DKI	810	35	11	3
10030		VORO	07 19	0355	N21	W33	07 16.6			HKX	318	15		3
10030		TACH	07 19	0522	N14	W48	07 15.6			BRO	18	5	2	3
10030		TACH	07 19	0522	N15	W35	07 16.6			DAI	761	35	8	3
10030		SVTO	07 19	0550	N16	W45	07 15.8		BGD	FKC	1060	80	23	3
10030		KAND	07 19	0715	N21	W40	07 16.2			FKC		29	22	3
10030		RAMY	07 19	1232	N16	W47	07 15.9		BGD	FKC	910	46	20	3
10030	31306	MWIL	07 19	1445	N19	W46	07 16.1	5	(D)					
10030		HOLL	07 19	2025	N18	W49	07 16.1		BGD	FKC	800	43	20	2
10030		LEAR	07 20	0755	N19	W55	07 16.1		BGD	FKC	500	41	16	2
10030		TACH	07 20	0800	N16	W49	07 16.6			DAI	539	25	9	4
10030		KAND	07 20	1045	N22	W54	07 16.3			FKI		22	16	1
10030		SVTO	07 20	1145	N17	W57	07 16.1		B	FKI	500	32	16	1
10030		RAMY	07 20	1309	N17	W58	07 16.1		BG	FKI	480	32	17	2
10030	31306	MWIL	07 20	1500	N19	W56	07 16.3	5	(D)					
10030		HOLL	07 20	1825	N18	W60	07 16.2		BG	FKI	400	21	16	3
10030		SVTO	07 21	0520	N18	W65	07 16.3		BG	ESI	340	13	15	3
10030		TACH	07 21	0552	N18	W61	07 16.6			DAO	233	7	9	3
10030		KAND	07 21	1150	N23	W69	07 16.2			EAO		3	14	4
10030		RAMY	07 21	1256	N17	W70	07 16.2		BG	EAI	350	17	14	3
10030	31306	MWIL	07 21	1500	N19	W68	07 16.4	5	(B)					
10030		HOLL	07 21	1625	N18	W73	07 16.1		BG	FAO	290	12	16	3
10030		VORO	07 22	0057	N19	W80	07 15.9			DAI	348	10	3	3
10030		VORO	07 22	0057	N20	W71	07 16.6			HAX	192	1		3
10030		LEAR	07 22	0210	N22	W77	07 16.2		BG	EAO	200	2	12	2
10030		TACH	07 22	0552	N20	W73	07 16.7			DAO	238	3	8	4

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10030		SVTO	07	22	0615	N19	W79	07	16.2		B	FAO	180	2	16	3
10030		KAND	07	22	0842	N23	W76	07	16.5			ESO		2	12	3
10030		RAMY	07	22	1215	N20	W79	07	16.5		B	DAO	340	5	9	3
10030		HOLL	07	22	1445	N19	W80	07	16.5		B	DAO	180	2	12	3
10030	31306	MWIL	07	22	1445	N20	W79	07	16.6	4	(BF)					
10030		LEAR	07	23	0119	N20	W85	07	16.5		B	DAO	160	2	8	4
10030		TACH	07	23	0502	N20	W90	07	16.3			HSX	163	1	1	3
10031		LEAR	07	11	0156	N10	E76	07	16.8		A	HRX	20	1	1	3
10031		SVTO	07	11	0533	N11	E75	07	16.9		A	AXX		1		3
10031		TACH	07	11	0556	N11	E71	07	16.6			AXX	5	1	1	3
10031		KAND	07	11	0847	N09	E72	07	16.8			AX		1	1	3
10031		RAMY	07	12	1240	N12	E53	07	16.5		A	AXX		1		3
10031		HOLL	07	12	1345	N14	E51	07	16.4		A	AXX	10	1	1	4
10031		RAMY	07	13	1215	N10	E44	07	16.8		A	HRX	10	1	1	3
10031	31312	MWIL	07	13	1430	N11	E42	07	16.8	4	(AP)					
10031		HOLL	07	13	1515	N11	E41	07	16.7		A	AXX	10	2	2	3
10031		LEAR	07	14	0043	N10	E37	07	16.8		A	AXX		1		3
10031		LEAR	07	15	0050	N09	E23	07	16.8		A	AXX	10	3	2	4
10031		LEAR	07	16	0115	N12	E12	07	16.9		B	BXO		1		2
10031	31318	MWIL	07	16	1445	N11	E03	07	16.8	3	(AP)					
10031D	31324	MWIL	07	20	1500	N21	W30	07	18.3	3	(AF)					
10031A		RAMY	07	19	1232	N18	W03	07	19.3		B	BXO	20	2	4	3
10031A	31322	MWIL	07	19	1445	N16	W05	07	19.2	4	(AP)					
10031B		RAMY	07	17	1320	N18	E36	07	20.3		B	DSO	40	4	9	3
10031B	31321	MWIL	07	17	1430	N18	E35	07	20.3	4	(AP)					
10031B		LEAR	07	18	0014	N19	E28	07	20.1		B	BXO	10	2	3	3
10031C	31320	MWIL	07	17	1430	S17	E34	07	20.2	4	(AF)					
10035		LEAR	07	15	0050	S10	E76	07	20.7		A	HAX	20	1	1	4
10035		KAND	07	15	0640	S11	E74	07	20.8			AX		1	1	4
10035		SVTO	07	15	0720	S08	E70	07	20.5		A	HSX	30	1	1	2
10035		RAMY	07	15	1402	S09	E67	07	20.6		A	AXX		1		2
10035	31314	MWIL	07	15	1430	S08	E68	07	20.7	4	(B)					
10035		HOLL	07	15	1615	S08	E68	07	20.8		B	BXO	30	2	5	3
10035		LEAR	07	16	0115	S10	E63	07	20.8		B	BXO	10	2	6	2
10035		TACH	07	16	0519	S08	E55	07	20.3			AXX	4	1	1	3
10035		KAND	07	16	0605	S11	E57	07	20.5			AX		1	1	4
10035		RAMY	07	16	1430	S07	E52	07	20.5		A	HRX	50	2	2	2
10035	31314	MWIL	07	16	1445	S08	E51	07	20.4	4	(AP)					
10035		HOLL	07	16	1929	S08	E49	07	20.5		A	AXX	10	1		2
10035		LEAR	07	17	0144	S09	E47	07	20.6		B	CSO	30	7	7	3
10035		SVTO	07	17	0613	S12	E46	07	20.7		B	DRO	20	3	9	3
10035		KAND	07	17	0720	S11	E46	07	20.8			BXO		3	8	5
10035		RAMY	07	17	1320	S08	E42	07	20.7		B	CSO	30	2	5	3
10035	31314	MWIL	07	17	1430	S08	E41	07	20.7	4	(BF)					
10035		HOLL	07	17	1910	S08	E36	07	20.5		B	BXO	20	4	3	3
10035		LEAR	07	18	0014	S09	E35	07	20.6		B	DAO	50	9	10	3
10035		TACH	07	18	0515	S08	E30	07	20.5			BRI	5	8	10	3
10035		SVTO	07	18	0522	S07	E34	07	20.8		B	BXO	40	11	10	3
10035		KAND	07	18	0830	S10	E34	07	20.9			BXO		4	4	4
10035		RAMY	07	18	1218	S08	E29	07	20.7		B	DAO	110	27	10	3
10035	31314	MWIL	07	18	1500	S08	E27	07	20.6	4	(BG)					
10035		HOLL	07	18	2010	S08	E25	07	20.7		B	BXI	40	14	10	4
10035		VORO	07	19	0355	S09	E20	07	20.7			BXI	39	14	11	3
10035		TACH	07	19	0522	S09	E17	07	20.5			BRI	5	8	10	3
10035		SVTO	07	19	0550	S08	E19	07	20.7		B	DRO	70	19	13	3
10035		KAND	07	19	0715	S09	E18	07	20.6			BXI		7	11	3
10035		RAMY	07	19	1232	S08	E15	07	20.6		B	EAO	90	16	11	3
10035	31314	MWIL	07	19	1445	S08	E12	07	20.5	4	(BG)					
10035		HOLL	07	19	2025	S07	E08	07	20.4		B	BXO	30	11	8	2
10035		LEAR	07	20	0755	S08	E04	07	20.6		B	EAO	60	25	13	2
10035		TACH	07	20	0800	S08	W01	07	20.2			BRI	7	7	4	4
10035		KAND	07	20	1045	S08	W01	07	20.4			BXO		10	6	1
10035		SVTO	07	20	1145	S09	W01	07	20.4		B	DAO	80	16	8	1

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10035		RAMY	07	20	1309	S09	W01	07 20.5		B	DSO	30	18	8	2
10035	31314	MWIL	07	20	1500	S08	W01	07 20.6	4	(B)					
10035		HOLL	07	20	1825	S08	W03	07 20.5		B	CSO	30	12	7	3
10035		SVTO	07	21	0520	S07	W12	07 20.3		B	DSO	40	7	4	3
10035		TACH	07	21	0552	S08	W12	07 20.3			AR	4	3	2	3
10035		KAND	07	21	1150	S07	W14	07 20.4			DAO		8	10	4
10035		RAMY	07	21	1256	S09	W13	07 20.6		B	DSO	60	20	10	3
10035	31314	MWIL	07	21	1500	S08	W14	07 20.6	4	(BG)					
10035		HOLL	07	21	1625	S08	W15	07 20.5		B	DSO	70	15	10	3
10035		VORO	07	22	0057	S09	W20	07 20.5			BXI	37	13	9	3
10035		LEAR	07	22	0210	S08	W21	07 20.5		B	EAO	50	6	11	2
10035		TACH	07	22	0552	S08	W22	07 20.6			BRI	24	11	10	4
10035		SVTO	07	22	0615	S09	W23	07 20.5		B	ESO	70	13	11	3
10035		KAND	07	22	0842	S07	W25	07 20.5			EAO		10	11	3
10035		RAMY	07	22	1215	S10	W26	07 20.5		B	DAO	100	15	12	3
10035	31314	MWIL	07	22	1445	S08	W27	07 20.6	4	(B)					
10035		HOLL	07	22	1445	S09	W28	07 20.5		B	EAI	90	12	12	3
10035		LEAR	07	23	0119	S08	W34	07 20.5		B	EAO	90	19	11	4
10035		TACH	07	23	0502	S08	W35	07 20.6			BRI	63	7	10	3
10035		SVTO	07	23	0604	S09	W37	07 20.5		B	ESO	80	7	12	3
10035		KAND	07	23	0800	S07	W37	07 20.6			BXO		8	12	4
10035		HOLL	07	23	1404	S09	W42	07 20.4		B	EAI	70	11	12	3
10035	31314	MWIL	07	23	1430	S08	W41	07 20.5	4	(B)					
10035		LEAR	07	24	0110	S08	W47	07 20.5		B	EAO	70	12	11	4
10035		TACH	07	24	0525	S08	W48	07 20.6			BXI	11	4	12	4
10035		KAND	07	24	0805	S05	W51	07 20.5			BXO		4	11	4
10035		HOLL	07	24	1329	S09	W55	07 20.4		B	EAO	80	6	12	4
10035	31314	MWIL	07	24	1430	S08	W54	07 20.5	4	(B)					
10035		RAMY	07	24	1440	S09	W54	07 20.5		B	DSO	30	8	9	2
10035		LEAR	07	25	0130	S08	W61	07 20.5		B	EAO	50	7	11	3
10035		TACH	07	25	0428	S09	W60	07 20.7			BXO	4	3	8	4
10035		SVTO	07	25	1100	S11	W68	07 20.3		B	DAO	50	3	4	2
10035A	31325	MWIL	07	20	1500	N03	W01	07 20.5	3	(AP)					
10036		RAMY	07	15	1402	S07	E80	07 21.6		B	DAO	90	2	3	2
10036	31315	MWIL	07	15	1430	S07	E80	07 21.6	4	(B)					
10036		HOLL	07	15	1615	S07	E80	07 21.7		B	DAO	90	5	4	3
10036		LEAR	07	16	0115	S09	E75	07 21.7		B	DAI	330	7	9	2
10036		TACH	07	16	0519	S09	E74	07 21.8			DAO	544	6	2	3
10036		KAND	07	16	0605	S10	E74	07 21.8			DAI		13	10	4
10036		RAMY	07	16	1430	S05	E70	07 21.8		B	DAO	530	11	9	2
10036	31315	MWIL	07	16	1445	S06	E68	07 21.7	5	(D)					
10036		HOLL	07	16	1929	S07	E66	07 21.7		BG	DKI	510	8	8	2
10036		LEAR	07	17	0144	S08	E61	07 21.6		BG	DKI	580	14	8	3
10036		TACH	07	17	0500	S06	E58	07 21.5			HA	528	6	6	3
10036		SVTO	07	17	0613	S11	E60	07 21.8		B	DKI	700	17	9	3
10036		KAND	07	17	0720	S09	E60	07 21.8			DKO		10	10	5
10036		RAMY	07	17	1320	S08	E58	07 21.9		BG	DKC	730	24	9	3
10036	31315	MWIL	07	17	1430	S07	E55	07 21.7	5	(D)					
10036		HOLL	07	17	1910	S07	E54	07 21.8		BG	DKC	630	14	10	3
10036		LEAR	07	18	0014	S08	E50	07 21.7		BG	DKC	840	37	9	3
10036		TACH	07	18	0515	S08	E44	07 21.5			DAI	781	19	7	3
10036		SVTO	07	18	0522	S05	E48	07 21.8		BG	EKC	870	12	12	3
10036		KAND	07	18	0830	S08	E45	07 21.7			EKC		15	11	4
10036		RAMY	07	18	1218	S07	E43	07 21.7		BG	EKC	860	30	11	3
10036	31315	MWIL	07	18	1500	S07	E42	07 21.8	5	(B)					
10036		HOLL	07	18	2010	S07	E39	07 21.8		B	DKC	780	29	10	4
10036		VORO	07	19	0355	S07	E35	07 21.8			DKC	1185	28	8	3
10036		TACH	07	19	0522	S08	E30	07 21.5			DAI	531	25	7	3
10036		SVTO	07	19	0550	S06	E35	07 21.9		BG	EKC	880	41	15	3
10036		KAND	07	19	0715	S08	E33	07 21.8			EKC		22	12	3
10036		RAMY	07	19	1232	S09	E30	07 21.8		BG	EKC	860	45	12	3
10036	31315	MWIL	07	19	1445	S07	E29	07 21.8	5	(B)					
10036		HOLL	07	19	2025	S06	E25	07 21.7		B	EKC	890	30	11	2
10036		LEAR	07	20	0755	S07	E20	07 21.8		BG	EKC	980	50	13	2
10036		TACH	07	20	0800	S08	E16	07 21.5			DAI	1154	29	7	4
10036		KAND	07	20	1045	S07	E18	07 21.8			EKC		24	11	1
10036		SVTO	07	20	1145	S08	E18	07 21.8		B	EKC	990	35	14	1

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10036		RAMY	07 20	1309	S08 E17	07 21.8		BG	EKC	950	48	13	2
10036	31315	MWIL	07 20	1500	S07 E16	07 21.8	5	(D)					
10036		HOLL	07 20	1825	S05 E13	07 21.7		BG	EKC	1000	47	13	3
10036		SVTO	07 21	0520	S06 E08	07 21.8		BG	EKC	1140	19	13	3
10036		TACH	07 21	0552	S06 E04	07 21.5			DAI	669	17	6	3
10036		KAND	07 21	1150	S07 E05	07 21.9			EKC		26	11	4
10036		RAMY	07 21	1256	S07 E04	07 21.8		BG	EKC	1020	69	13	3
10036	31315	MWIL	07 21	1500	S07 E03	07 21.8	6	(D)					
10036		HOLL	07 21	1625	S05 E02	07 21.8		BG	EKC	1060	54	13	3
10036		VORO	07 22	0057	S07 W01	07 22.0			DKI	1178	63	10	3
10036		LEAR	07 22	0210	S07 W04	07 21.8		BGD	EKC	900	41	12	2
10036		TACH	07 22	0552	S07 W06	07 21.8			DAI	791	34	9	4
10036		SVTO	07 22	0615	S07 W05	07 21.9		B	EKC	910	42	14	3
10036		KAND	07 22	0842	S06 W08	07 21.8			EKC		32	12	3
10036		RAMY	07 22	1215	S08 W09	07 21.8		BG	EKC	1090	54	13	3
10036		HOLL	07 22	1445	S06 W12	07 21.7		BG	EKC	940	62	11	3
10036	31315	MWIL	07 22	1445	S07 W11	07 21.8	5	(BG)					
10036		LEAR	07 23	0119	S07 W16	07 21.8		BG	EKC	860	74	13	4
10036		TACH	07 23	0502	S07 W18	07 21.9			DAI	893	32	6	3
10036		SVTO	07 23	0604	S07 W19	07 21.8		B	EKC	910	29	14	3
10036		KAND	07 23	0800	S06 W20	07 21.8			EKO		31	12	4
10036		HOLL	07 23	1404	S07 W24	07 21.8		BG	EKC	990	68	12	3
10036	31315	MWIL	07 23	1430	S07 W24	07 21.8	5	(B)					
10036		LEAR	07 24	0110	S07 W30	07 21.8		BG	EKC	1020	54	12	4
10036		TACH	07 24	0525	S09 W32	07 21.8			DAI	790	25	7	4
10036		KAND	07 24	0805	S05 W34	07 21.8			EKO		19	13	4
10036		HOLL	07 24	1329	S07 W36	07 21.9		BGD	EKC	590	38	13	4
10036	31315	MWIL	07 24	1430	S07 W37	07 21.8	5	(B)					
10036		RAMY	07 24	1440	S07 W37	07 21.8		BG	EKC	860	47	12	2
10036		LEAR	07 25	0130	S07 W42	07 21.9		BG	EKC	720	61	13	3
10036		TACH	07 25	0428	S09 W42	07 22.0			DAI	778	29	8	4
10036		KAND	07 25	0705	S04 W46	07 21.8			EAC		21	12	4
10036		SVTO	07 25	1100	S08 W48	07 21.8		BG	EKC	620	21	12	2
10036		RAMY	07 25	1315	S08 W50	07 21.8		B	EKC	110	30	12	2
10036		HOLL	07 25	1400	S06 W48	07 22.0		BG	EKC	450	34	13	3
10036	31315	MWIL	07 25	1645	S07 W50	07 21.9	5	(B)					
10036		LEAR	07 26	0040	S07 W56	07 21.8		BG	EKI	560	31	12	2
10036		VORO	07 26	0435	S07 W62	07 21.5			HHX	560	2		2
10036		TACH	07 26	0609	S06 W58	07 21.9			CAI	558	10	10	4
10036		KAND	07 26	0715	S04 W62	07 21.7			CKO		12	11	3
10036		HOLL	07 26	1415	S07 W64	07 21.8		B	CKO	460	8	11	3
10036	31315	MWIL	07 26	1500	S07 W66	07 21.7	5	(BP)					
10036		VORO	07 26	2134	S07 W72	07 21.5			HKX	946	8		3
10036		LEAR	07 27	0150	S06 W72	07 21.7		BG	DKI	390	8	6	2
10036		TACH	07 27	0524	S05 W73	07 21.8			CAI	207	7	6	4
10036		KAND	07 27	0845	S04 W78	07 21.5			CAO		4	3	3
10036		SVTO	07 27	1108	S08 W80	07 21.5		B	FSO	390	8	16	2
10036	31315	MWIL	07 27	1445	S06 W79	07 21.7	4	(B)					
10036		HOLL	07 27	1545	S09 W82	07 21.5		B	DAO	180	3	4	2
10036		VORO	07 27	2219	S07 W83	07 21.7			DAI	155	4	7	3
10047	31326	MWIL	07 21	1500	N08 E10	07 22.4	4	(AP)					
10047		RAMY	07 25	1315	N08 W42	07 22.4		A	AXX	10	1	1	2
10047		HOLL	07 25	1400	N07 W43	07 22.4		B	CSO	20	2	3	3
10047	31337	MWIL	07 25	1645	N08 W43	07 22.5	4	(B)					
10047		LEAR	07 26	0040	N08 W49	07 22.3		B	CSO	40	2	3	2
10047		VORO	07 26	0435	N08 W62	07 21.5			BXO	10	4	4	2
10047		TACH	07 26	0609	N08 W51	07 22.4			BXO	4	2	4	4
10047		KAND	07 26	0715	N11 W53	07 22.3			BXO		3	4	3
10047		HOLL	07 26	1415	N07 W57	07 22.3		B	BXO	20	5	4	3
10047	31337	MWIL	07 26	1500	N08 W57	07 22.3	4	(B)					
10047		LEAR	07 27	0150	N09 W62	07 22.4		B	CAO	30	7	4	2
10037		TACH	07 16	0519	N14 E84	07 22.6			HSX	313	1	3	3
10037		KAND	07 16	0605	N12 E84	07 22.6			HA		1	2	4
10037		RAMY	07 16	1430	N17 E79	07 22.6		A	HSX	180	1	2	2
10037	31319	MWIL	07 16	1445	N14 E78	07 22.5	5	(AP)					
10037		HOLL	07 16	1929	N15 E76	07 22.6		A	HSX	170	1	2	2
10037		LEAR	07 17	0144	N13 E71	07 22.4		A	HSX	170	1	2	3

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10037		TACH	07	17	0500	N16	E68	07	22.4			HSX	198	1	3	3
10037		SVTO	07	17	0613	N11	E70	07	22.5		A	HSX	240	1	4	3
10037		KAND	07	17	0720	N12	E71	07	22.6			HS		1	3	5
10037		RAMY	07	17	1320	N14	E67	07	22.6		A	HSX	160	1	2	3
10037	31319	MWIL	07	17	1430	N15	E65	07	22.5	5	(AP)					
10037		HOLL	07	17	1910	N15	E63	07	22.6		A	HAX	130	2	2	3
10037		LEAR	07	18	0014	N13	E59	07	22.5		A	HSX	160	1	2	3
10037		TACH	07	18	0515	N14	E53	07	22.2			HHX	291	1	2	3
10037		SVTO	07	18	0522	N16	E58	07	22.6		A	HSX	170	1	3	3
10037		KAND	07	18	0830	N13	E56	07	22.6			HS		1	3	4
10037		RAMY	07	18	1218	N14	E52	07	22.4		A	HHX	160	2	3	3
10037	31319	MWIL	07	18	1500	N15	E51	07	22.5	5	(AP)					
10037		HOLL	07	18	2010	N15	E49	07	22.5		A	HSX	120	1	2	4
10037		VORO	07	19	0355	N14	E45	07	22.6			HAX	223	1		3
10037		TACH	07	19	0522	N12	E39	07	22.2			HSX	182	1	1	3
10037		SVTO	07	19	0550	N15	E45	07	22.6		A	HSX	140	1	3	3
10037		KAND	07	19	0715	N12	E43	07	22.5			HS		1	3	3
10037		RAMY	07	19	1232	N14	E40	07	22.5		A	HHX	200	2	3	3
10037	31319	MWIL	07	19	1445	N15	E38	07	22.5	5	(AP)					
10037		HOLL	07	19	2025	N15	E35	07	22.5		A	HSX	180	1	2	2
10037		LEAR	07	20	0755	N15	E29	07	22.5		A	HAX	190	3	3	2
10037		TACH	07	20	0800	N12	E24	07	22.1			HA	221	3	2	4
10037		KAND	07	20	1045	N13	E29	07	22.6			HS		1	2	1
10037		SVTO	07	20	1145	N14	E27	07	22.5		A	HSX	180	1	3	1
10037		RAMY	07	20	1309	N15	E27	07	22.6		A	HAX	170	1	3	2
10037	31319	MWIL	07	20	1500	N15	E25	07	22.5	5	(AP)					
10037		HOLL	07	20	1825	N15	E22	07	22.4		A	HKX	160	2	3	3
10037		SVTO	07	21	0520	N16	E17	07	22.5		A	HAX	200	1	4	3
10037		TACH	07	21	0552	N13	E13	07	22.2			HSX	156	1	1	3
10037		KAND	07	21	1150	N14	E14	07	22.5			HA		2	3	4
10037		RAMY	07	21	1256	N15	E13	07	22.5		A	HAX	60	1	3	3
10037	31319	MWIL	07	21	1500	N14	E12	07	22.5	5	(BP)					
10037		HOLL	07	21	1625	N16	E12	07	22.6		B	CAO	100	3	3	3
10037		VORO	07	22	0057	N14	E07	07	22.6			HSX	200	3		3
10037		LEAR	07	22	0210	N13	E06	07	22.5		B	CSO	120	3	3	2
10037		TACH	07	22	0552	N12	E05	07	22.6			HSX	152	1	1	4
10037		SVTO	07	22	0615	N14	E03	07	22.5		A	HSX	200	1	3	3
10037		KAND	07	22	0842	N14	E02	07	22.5			HS		1	3	3
10037		RAMY	07	22	1215	N13	E00	07	22.5		A	HSX	200	1	2	3
10037		HOLL	07	22	1445	N13	W01	07	22.5		A	HSX	200	1	2	3
10037	31326	MWIL	07	22	1445	N14	W02	07	22.5	5	(AP)					
10037		LEAR	07	23	0119	N17	W07	07	22.5		B	DSO	180	9	7	4
10037		TACH	07	23	0502	N12	W10	07	22.4			HSX	154	1	1	3
10037		SVTO	07	23	0604	N14	W10	07	22.5		A	HSX	200	1	3	3
10037		KAND	07	23	0800	N14	W10	07	22.6			HS		1	2	4
10037		HOLL	07	23	1404	N13	W14	07	22.5		A	HSX	150	1	2	3
10037	31326	MWIL	07	23	1430	N14	W15	07	22.5	5	(AP)					
10037		LEAR	07	24	0110	N15	W20	07	22.5		A	HSX	160	3	2	4
10037		TACH	07	24	0525	N11	W22	07	22.6			HSX	136	1	1	4
10037		KAND	07	24	0805	N15	W23	07	22.6			HS		1	2	4
10037		HOLL	07	24	1329	N13	W27	07	22.5		A	HSX	150	2	2	4
10037	31326	MWIL	07	24	1430	N14	W28	07	22.5	5	(AP)					
10037		RAMY	07	24	1440	N13	W27	07	22.6		A	HSX	110	1	3	2
10037		LEAR	07	25	0130	N16	W31	07	22.7		B	CAO	190	5	6	3
10037		TACH	07	25	0428	N12	W32	07	22.8			HSX	149	1	2	4
10037		KAND	07	25	0705	N16	W36	07	22.6			HA		1	2	4
10037		SVTO	07	25	1100	N13	W38	07	22.6		A	HSX	210	1	2	2
10037		RAMY	07	25	1315	N13	W41	07	22.4		A	HSX	200	1	2	2
10037		HOLL	07	25	1400	N14	W41	07	22.5		A	HSX	100	2	2	3
10037	31326	MWIL	07	25	1645	N14	W41	07	22.6	5	(AP)					
10037		LEAR	07	26	0040	N14	W47	07	22.5		A	HSX	160	1	2	2
10037		VORO	07	26	0435	N14	W48	07	22.6			HSX	192	1		2
10037		TACH	07	26	0609	N14	W48	07	22.6			HSX	112	1	2	4
10037		KAND	07	26	0715	N17	W50	07	22.5			HA		2	2	3
10037		HOLL	07	26	1415	N15	W53	07	22.6		B	CAO	180	4	6	3
10037	31326	MWIL	07	26	1500	N14	W54	07	22.5	5	(AP)					
10037		VORO	07	26	2134	N14	W58	07	22.5			HAX	179	2		3
10037		LEAR	07	27	0150	N14	W60	07	22.5		A	HSX	110	1	3	2
10037		TACH	07	27	0524	N15	W61	07	22.6			HSX	122	1	2	4

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10037		KAND	07	27	0845	N16	W63	07	22.6			HA		2	2	3
10037		SVTO	07	27	1108	N13	W67	07	22.4		A	HSX	120	1	3	2
10037	31326	MWIL	07	27	1445	N14	W67	07	22.5	5	(AP)					
10037		HOLL	07	27	1545	N12	W68	07	22.5		A	HAX	120	1	2	2
10037		VORO	07	27	2219	N14	W73	07	22.4			HSX	200	1		3
10037		LEAR	07	28	0201	N15	W75	07	22.4		A	HSX	100	1	2	2
10037		TACH	07	28	0515	N13	W74	07	22.6			HSX	120	1	3	4
10037		SVTO	07	28	0925	N12	W79	07	22.4		A	HSX	90	1	2	3
10037		KAND	07	28	1305	N18	W80	07	22.4			HS		1	2	4
10037	31326	MWIL	07	28	1445	N14	W80	07	22.6	5	(AP)					
10037		VORO	07	28	2210	N16	W79	07	22.9			HAX	83	1		3
10040		RAMY	07	22	1215	S23	E07	07	23.0		B	BXO	20	2	3	3
10040		HOLL	07	22	1445	S21	E05	07	23.0		A	AXX	10	3	2	3
10040	31330	MWIL	07	22	1445	S22	E04	07	22.9	4	(B)					
10040		LEAR	07	23	0119	S22	W03	07	22.8		A	AXX	10	2	1	4
10040		SVTO	07	23	0604	S22	W04	07	22.9		B	CRO	10	2	2	3
10040		HOLL	07	23	1404	S22	W08	07	23.0		A	AXX	10	1	1	3
10040	31330	MWIL	07	23	1430	S20	W10	07	22.8	4	(B)					
10040		LEAR	07	24	0110	S20	W17	07	22.7		B	CRO	20	6	3	4
10040		LEAR	07	25	0130	S19	W31	07	22.7		B	BXO	10	4	4	3
10041A		HOLL	07	23	1404	N17	E02	07	23.7		B	CAO	10	2	4	3
10041	31331	MWIL	07	22	1445	N16	E26	07	24.6	4	(AF)					
10041		HOLL	07	22	1445	N16	E27	07	24.7		A	AXX	10	1	1	3
10041		LEAR	07	23	0119	N16	E19	07	24.5		B	DAO	30	4	3	4
10041		TACH	07	23	0502	N14	E14	07	24.3			BXO	14	2	3	3
10041		SVTO	07	23	0604	N17	E17	07	24.5		B	CRO	20	2	3	3
10041		KAND	07	23	0800	N16	E17	07	24.6			BXO		2	3	4
10041	31331	MWIL	07	23	1430	N16	E12	07	24.5	4	(B)					
10041		LEAR	07	24	0110	N17	E08	07	24.6		B	CRO	10	2	1	4
10041		LEAR	07	25	0130	N16	W07	07	24.5		B	BXO	10	4	3	3
10049		VORO	07	26	0435	S05	W30	07	23.9			BXI	14	3	3	2
10049		KAND	07	26	0715	S03	W21	07	24.7			BXO		3	2	3
10049		HOLL	07	26	1415	S06	W25	07	24.7		B	CSO	20	2	3	3
10049	31338	MWIL	07	26	1500	S06	W26	07	24.7	4	(B)					
10049		LEAR	07	27	0150	S05	W32	07	24.7		B	DAO	30	10	5	2
10049		TACH	07	27	0524	S08	W33	07	24.7			BRI	4	5	4	4
10049		KAND	07	27	0845	S04	W36	07	24.7			BXO		4	4	3
10038		RAMY	07	19	1232	N16	E80	07	25.6		A	AXX	30	1	1	3
10038		RAMY	07	20	1309	N17	E69	07	25.8		A	AXX	10	1	1	2
10038		HOLL	07	20	1825	N18	E69	07	26.0		A	AXX	20	1	1	3
10038		SVTO	07	21	0520	N17	E62	07	25.9		B	DSO	40	2	4	3
10038		TACH	07	21	0552	N16	E55	07	25.4			BXO	2	2	4	3
10038		KAND	07	21	1150	N14	E57	07	25.8			DAO		3	5	4
10038		RAMY	07	21	1256	N17	E55	07	25.7		B	DAO	60	7	6	3
10038	31327	MWIL	07	21	1500	N16	E55	07	25.8	4	(B)					
10038		HOLL	07	21	1625	N17	E55	07	25.9		B	DAI	90	7	7	3
10038		VORO	07	22	0057	N16	E49	07	25.7			CAI	78	7	5	3
10038		LEAR	07	22	0210	N15	E49	07	25.8		B	DSO	50	5	6	2
10038		TACH	07	22	0552	N16	E41	07	25.3			CAI	56	5	6	4
10038		SVTO	07	22	0615	N17	E46	07	25.7		B	DSO	80	5	7	3
10038		KAND	07	22	0842	N14	E47	07	25.9			CAO		6	7	3
10038		RAMY	07	22	1215	N17	E43	07	25.8		B	DAO	90	6	6	3
10038	31327	MWIL	07	22	1445	N16	E41	07	25.7	4	(B)					
10038		HOLL	07	22	1445	N17	E41	07	25.7		B	CAO	50	9	5	3
10038		LEAR	07	23	0119	N15	E35	07	25.7		B	DSO	90	10	8	4
10038		TACH	07	23	0502	N15	E30	07	25.5			CAI	49	6	4	3
10038		SVTO	07	23	0604	N17	E34	07	25.8		B	DSO	70	8	7	3
10038		KAND	07	23	0800	N15	E35	07	26.0			CAO		7	5	4
10038		HOLL	07	23	1404	N17	E29	07	25.8		B	CAO	80	7	6	3
10038	31327	MWIL	07	23	1430	N16	E28	07	25.7	4	(BF)					
10038		LEAR	07	24	0110	N16	E24	07	25.9		B	DSO	60	12	7	4
10038		TACH	07	24	0525	N14	E16	07	25.4			CAI	55	5	5	4
10038		KAND	07	24	0805	N15	E20	07	25.8			CAO		6	5	4
10038		HOLL	07	24	1329	N17	E17	07	25.8		B	CAO	60	9	6	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
10038	31327	MWIL	07 24	1430	N16 E16	07 25.8	5	(BF)					
10038	31334	MWIL	07 24	1430	N20 E14	07 25.7	4	(AP)					
10038		RAMY	07 24	1440	N18 E17	07 25.9		B	DAO	40	11	5	2
10038		LEAR	07 25	0130	N17 E11	07 25.9		B	CSO	60	13	9	3
10038		TACH	07 25	0428	N14 E08	07 25.8			HXX	36	4	1	4
10038		KAND	07 25	0705	N17 E09	07 26.0			HA		2	1	4
10038		SVTO	07 25	1100	N16 E06	07 25.9		B	DAO	20	5	3	2
10038		RAMY	07 25	1315	N17 E04	07 25.8		B	CAO	60	9	4	2
10038		HOLL	07 25	1400	N16 E04	07 25.9		B	CSO	20	5	4	3
10038	31327	MWIL	07 25	1645	N16 E04	07 26.0	4	(B)					
10038		LEAR	07 26	0040	N16 W03	07 25.8		B	CSO	40	9	7	2
10038		VORO	07 26	0435	N17 W04	07 25.9			AXX	25	2		2
10038		TACH	07 26	0609	N16 W07	07 25.7			AR	3	2	1	4
10038		KAND	07 26	0715	N17 W04	07 26.0			AX		4	1	3
10038		HOLL	07 26	1415	N16 W09	07 25.9		A	AXX	10	6	1	3
10038	31327	MWIL	07 26	1500	N17 W10	07 25.9	4	(AP)					
10038		VORO	07 26	2134	N18 W13	07 25.9			AXX	8	3		3
10038		LEAR	07 27	0150	N17 W16	07 25.9		A	HAX	20	3	2	2
10038		KAND	07 27	0845	N18 W18	07 26.0			HS		1	1	3
10038		SVTO	07 27	1108	N17 W22	07 25.8		A	HSX	10	1	1	2
10038	31327	MWIL	07 27	1445	N17 W23	07 25.9	4	(AF)					
10038		HOLL	07 27	1545	N16 W23	07 25.9		A	HSX	20	1	1	2
10038		VORO	07 27	2219	N18 W27	07 25.9			AXX	6	1		3
10038		LEAR	07 28	0201	N18 W32	07 25.6		B	CSO	20	3	5	2
10038		TACH	07 28	0515	N15 W31	07 25.9			AXX	1	1	1	4
10038		KAND	07 28	1305	N19 W33	07 26.0			AX		1	1	4
10038	31327	MWIL	07 28	1445	N18 W36	07 25.9	4	(AF)					
10038		LEAR	07 29	0130	N18 W43	07 25.8		B	CSO	20	2	2	2
10042	31328	MWIL	07 21	1500	S19 E57	07 26.0	4	(AP)					
10042		RAMY	07 22	1215	S19 E45	07 25.9		A	HRX	40	3	2	3
10042		HOLL	07 22	1445	S18 E42	07 25.8		A	AXX	20	2	2	3
10042	31328	MWIL	07 22	1445	S19 E44	07 26.0	4	(B)					
10042		LEAR	07 23	0119	S20 E38	07 26.0		B	CRO	20	5	5	4
10042		SVTO	07 23	0604	S19 E36	07 26.0		B	BXO	10	3	3	3
10042		KAND	07 23	0800	S20 E34	07 25.9			AX		2	3	4
10042		HOLL	07 23	1404	S18 E31	07 25.9		B	BXO	10	3	3	3
10042	31328	MWIL	07 23	1430	S19 E29	07 25.8	3	(AP)					
10042		LEAR	07 24	0110	S20 E24	07 25.9		B	CRO	20	7	3	4
10042		KAND	07 24	0805	S21 E21	07 25.9			AX		3	1	4
10042		HOLL	07 24	1329	S19 E18	07 25.9		A	HAX	40	1	2	4
10042	31328	MWIL	07 24	1430	S19 E17	07 25.9	4	(AP)					
10042		RAMY	07 24	1440	S20 E16	07 25.8		B	CAO	30	4	3	2
10042		LEAR	07 25	0130	S20 E10	07 25.8		B	CAO	40	5	3	3
10042		TACH	07 25	0428	S18 E06	07 25.6			AR	5	3	1	4
10042		KAND	07 25	0705	S19 E07	07 25.8			AX		2	1	4
10042		SVTO	07 25	1100	S20 E05	07 25.8		B	DSO	30	2	2	2
10042		RAMY	07 25	1315	S19 E05	07 25.9		B	DAO	40	2	3	2
10042		HOLL	07 25	1400	S19 E03	07 25.8		A	HAX	30	2	1	3
10042	31328	MWIL	07 25	1645	S19 E03	07 25.9	4	(AP)					
10042		LEAR	07 26	0040	S19 W03	07 25.8		B	CSO	20	3	2	2
10042		VORO	07 26	0435	S19 W06	07 25.7			AXX	6	2		2
10042		TACH	07 26	0609	S16 W08	07 25.6			AXX	1	1	1	4
10042		KAND	07 26	0715	S18 W08	07 25.7			AX		3	1	3
10042		HOLL	07 26	1415	S19 W07	07 26.0		B	CAO	30	3	3	3
10042	31328	MWIL	07 26	1500	S19 W08	07 26.0	4	(B)					
10042		VORO	07 26	2134	S19 W14	07 25.8			AXX	19	3		3
10042		LEAR	07 27	0150	S21 W17	07 25.8		A	HSX	20	6	5	2
10042		TACH	07 27	0524	S16 W19	07 25.8			AR	2	2	1	4
10042		KAND	07 27	0845	S19 W19	07 25.9			CSO		5	6	3
10042		SVTO	07 27	1108	S21 W22	07 25.8		A	HRX	10	1	1	2
10042	31328	MWIL	07 27	1445	S19 W24	07 25.8	4	(B)					
10042		HOLL	07 27	1545	S21 W24	07 25.8		A	HSX	20	1	1	2
10042		VORO	07 27	2219	S20 W28	07 25.8			AXX	3	1		3
10042		LEAR	07 28	0201	S19 W31	07 25.7		A	HRX	10	1	1	2
10042		TACH	07 28	0515	S18 W32	07 25.8			AXX	1	1	1	4
10042	31328	MWIL	07 28	1445	S20 W38	07 25.7	4	(AP)					
10042		LEAR	07 30	0250	S20 W55	07 25.9		B	DSO	20	2	2	1
10042		SVTO	07 30	0630	S23 W55	07 26.0		A	AXX	10	1	1	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo Day	Time (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10045		LEAR	07 24	0110	N04 E29	07 26.2		B	DAO	30	4	4	4
10045		TACH	07 24	0525	N02 E23	07 25.9			BXO	11	2	4	4
10045		KAND	07 24	0805	N02 E25	07 26.2			BXO		2	4	4
10045		HOLL	07 24	1329	N04 E23	07 26.3		B	CAO	20	3	4	4
10045	31335	MWIL	07 24	1430	N03 E22	07 26.2	4	(B)					
10045		RAMY	07 24	1440	N03 E22	07 26.2		B	CSO	20	5	4	2
10045		LEAR	07 25	0130	N04 E16	07 26.2		B	DAO	30	8	5	3
10045		TACH	07 25	0428	N02 E11	07 26.0			BRI	17	5	4	4
10045		KAND	07 25	0705	N04 E13	07 26.3			BXO		5	4	4
10045		SVTO	07 25	1100	N04 E08	07 26.0		B	CAO	40	6	5	2
10045		RAMY	07 25	1315	N05 E09	07 26.2		B	DSO	110	13	6	2
10045		HOLL	07 25	1400	N05 E07	07 26.1		B	CSO	30	10	6	3
10045	31335	MWIL	07 25	1645	N04 E07	07 26.2	4	(B)					
10045		LEAR	07 26	0040	N05 E02	07 26.2		B	DAO	90	18	5	2
10045		VORO	07 26	0435	N05 W00	07 26.2			DAI	135	10	3	2
10045		TACH	07 26	0609	N05 W04	07 25.9			CAI	49	8	3	4
10045		KAND	07 26	0715	N05 W01	07 26.2			CAO		21	7	3
10045		HOLL	07 26	1415	N05 W06	07 26.1		B	DAI	220	22	6	3
10045	31335	MWIL	07 26	1500	N05 W06	07 26.2	5	(B)					
10045		VORO	07 26	2134	N05 W10	07 26.1			DSI	237	25	5	3
10045		LEAR	07 27	0150	N06 W13	07 26.1		B	DAI	190	26	6	2
10045		TACH	07 27	0524	N06 W14	07 26.2			CAI	98	9	4	4
10045		KAND	07 27	0845	N06 W16	07 26.2			DAO		22	6	3
10045		SVTO	07 27	1108	N05 W18	07 26.1		B	DAO	120	9	6	2
10045	31335	MWIL	07 27	1445	N05 W20	07 26.1	5	(B)					
10045		HOLL	07 27	1545	N05 W22	07 26.0		B	DAI	180	12	6	2
10045		VORO	07 27	2219	N05 W23	07 26.2			CAI	152	19	5	3
10045		LEAR	07 28	0201	N07 W28	07 26.0		B	DAO	120	17	6	2
10045		TACH	07 28	0515	N04 W29	07 26.0			BRI	11	8	5	4
10045		SVTO	07 28	0925	N04 W31	07 26.1		B	DAO	110	8	6	3
10045		KAND	07 28	1305	N07 W32	07 26.1			CSO		11	6	4
10045	31335	MWIL	07 28	1445	N05 W34	07 26.1	5	(B)					
10045		VORO	07 28	2210	N07 W38	07 26.1			CRI	75	10	5	3
10045		LEAR	07 29	0130	N06 W40	07 26.1		B	DAO	70	9	8	2
10045		KAND	07 29	0800	N08 W43	07 26.1			BXO		2	5	4
10045		SVTO	07 29	1333	N06 W47	07 26.0		B	BXO	10	4	5	3
10045	31335	MWIL	07 29	1430	N06 W49	07 25.9	4	(AP)					
10045		HOLL	07 29	1620	N06 W51	07 25.9		A	AXX	10	2	1	3
10046		HOLL	07 24	1329	N14 E27	07 26.6		B	BXO	10	2	3	4
10046	31336	MWIL	07 24	1430	N14 E27	07 26.6	4	(AP)					
10046		RAMY	07 24	1440	N13 E28	07 26.7		B	CSO	10	2	3	2
10046		LEAR	07 25	0130	N14 E22	07 26.7		B	CAO	10	3	3	3
10046		TACH	07 25	0428	N12 E16	07 26.4			AXX	1	1	1	4
10046		SVTO	07 25	1100	N14 E16	07 26.7		A	AXX		1		2
10046		RAMY	07 25	1315	N10 E16	07 26.7		A	HAX	20	1	2	2
10046		HOLL	07 25	1400	N16 E13	07 26.6		A	AXX	10	1	1	3
10046A		TACH	07 22	0552	S13 E71	07 27.6			AXX	33	1	1	4
10046A		TACH	07 23	0502	S13 E58	07 27.6			AXX	25	1	1	3
10046A		KAND	07 23	0800	S15 E61	07 27.9			AX		1	1	4
10046A		TACH	07 24	0525	S13 E43	07 27.5			AXX	2	1	1	4
10046A		TACH	07 26	0609	S16 E20	07 27.8			DAI	869	18	5	4
10046A		KAND	07 26	0715	S17 E10	07 27.1			AX		2		3
10043		LEAR	07 23	0119	N11 E68	07 28.2		A	AXX	20	2	2	4
10043		HOLL	07 23	1404	N13 E60	07 28.1		B	BXO	20	5	4	3
10043	31332	MWIL	07 23	1430	N13 E59	07 28.0	4	(B)					
10043		LEAR	07 24	0110	N11 E53	07 28.0		B	DAO	60	6	5	4
10043		TACH	07 24	0525	N10 E46	07 27.7			CAO	64	5	5	4
10043		KAND	07 24	0805	N09 E50	07 28.1			CSO		11	6	4
10043		HOLL	07 24	1329	N13 E46	07 28.0		B	DSO	110	11	7	4
10043	31332	MWIL	07 24	1430	N12 E46	07 28.1	4	(B)					
10043		RAMY	07 24	1440	N11 E46	07 28.1		B	DAO	80	11	6	2
10043		LEAR	07 25	0130	N11 E40	07 28.1		B	DAO	120	15	8	3
10043		TACH	07 25	0428	N10 E34	07 27.7			CAI	100	10	6	4
10043		KAND	07 25	0705	N10 E39	07 28.2			DAO		9	7	4
10043		SVTO	07 25	1100	N12 E35	07 28.1		B	DAO	110	10	8	2
10043		RAMY	07 25	1315	N12 E33	07 28.0		B	DAO	200	23	8	2

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10043		HOLL	07	25	1400	N12	E34	07	28.1		B	DAI	130	18	8	3
10043	31332	MWIL	07	25	1645	N12	E33	07	28.2	4	(B)					
10043		LEAR	07	26	0040	N12	E27	07	28.1		B	DAO	150	20	8	2
10043		VORO	07	26	0435	N11	E25	07	28.1			CAI	222	8	5	2
10043		TACH	07	26	0609	N11	E20	07	27.8			CAI	89	7	5	4
10043		KAND	07	26	0715	N11	E25	07	28.2			CAO		25	8	3
10043		HOLL	07	26	1415	N12	E19	07	28.0		B	DAO	170	20	8	3
10043	31332	MWIL	07	26	1500	N11	E20	07	28.1	5	(B)					
10043		VORO	07	26	2134	N12	E14	07	27.9			DAO	187	18	7	3
10043		LEAR	07	27	0150	N12	E13	07	28.0		B	DAO	140	18	9	2
10043		TACH	07	27	0524	N12	E08	07	27.8			CAI	133	7	5	4
10043		KAND	07	27	0845	N11	E10	07	28.1			CAO		18	9	3
10043		SVTO	07	27	1108	N13	E07	07	28.0		B	DAO	140	11	10	2
10043	31332	MWIL	07	27	1445	N11	E06	07	28.1	4	(B)					
10043		HOLL	07	27	1545	N11	E04	07	27.9		B	DAI	210	23	9	2
10043		VORO	07	27	2219	N12	E02	07	28.1			DAI	135	24	8	3
10043		LEAR	07	28	0201	N12	W02	07	27.9		B	DAO	150	25	9	2
10043		TACH	07	28	0515	N10	W06	07	27.8			CAI	45	10	7	4
10043		SVTO	07	28	0925	N12	W05	07	28.0		B	DAI	170	16	10	3
10043		KAND	07	28	1305	N12	W05	07	28.2			DAI		26	9	4
10043	31332	MWIL	07	28	1445	N12	W08	07	28.0	5	(BG)					
10043		VORO	07	28	2210	N12	W12	07	28.0			DAI	231	24	8	3
10043		LEAR	07	29	0130	N13	W14	07	28.0		B	DAI	180	28	8	2
10043		KAND	07	29	0800	N13	W16	07	28.1			DAO		18	10	4
10043		SVTO	07	29	1333	N12	W21	07	28.0		B	DAO	190	25	10	3
10043	31332	MWIL	07	29	1430	N12	W20	07	28.1	5	(B)					
10043		HOLL	07	29	1620	N10	W22	07	28.0		B	DAI	200	17	9	3
10043		LEAR	07	30	0250	N13	W27	07	28.1		B	DAI	140	18	8	1
10043		SVTO	07	30	0630	N12	W30	07	28.0		B	DSI	90	25	10	3
10043		KAND	07	30	0840	N13	W32	07	27.9			DAI		12	9	3
10043	31332	MWIL	07	30	1445	N12	W34	07	28.0	5	(B)					
10043		VORO	07	30	2233	N12	W39	07	28.0			DAI	164	14	8	3
10043		LEAR	07	31	0104	N12	W40	07	28.0		B	DAO	110	18	9	3
10043		TACH	07	31	0545	N10	W40	07	28.2			BRI	51	13	7	3
10043		KAND	07	31	0725	N14	W45	07	27.9			CRO		13	10	4
10043		SVTO	07	31	0800	N12	W46	07	27.9		B	DSO	90	6	10	2
10043		HOLL	07	31	1336	N11	W48	07	27.9		B	DAO	60	7	9	3
10043	31332	MWIL	07	31	1445	N12	W47	07	28.1	4	(B)					
10043		VORO	07	31	2215	N11	W53	07	27.9			BXO	74	5	8	3
10043		LEAR	08	01	0113	N13	W55	07	28.0		B	DAO	40	8	10	3
10043		SVTO	08	01	0850	N12	W58	07	28.1		B	BXO	10	4	10	2
10043	31332	MWIL	08	01	1500	N11	W62	07	28.1	4	(B)					
10044		TACH	07	23	0502	S17	E72	07	28.7			DAI	724	19	10	3
10044		TACH	07	23	0502	S21	E66	07	28.3			AXX	37	1	1	3
10044		KAND	07	23	0800	S23	E66	07	28.4			BXO		3	4	4
10044		HOLL	07	23	1404	S19	E62	07	28.3		B	DAO	140	8	6	3
10044	31333	MWIL	07	23	1430	S20	E61	07	28.3	5	(B)					
10044		LEAR	07	24	0110	S21	E55	07	28.3		B	DAO	140	12	8	4
10044		TACH	07	24	0525	S21	E50	07	28.0			DAO	161	8	6	4
10044		KAND	07	24	0805	S23	E52	07	28.3			DSO		11	8	4
10044		HOLL	07	24	1329	S19	E48	07	28.2		B	DSO	110	14	8	4
10044	31333	MWIL	07	24	1430	S21	E48	07	28.3	5	(B)					
10044		RAMY	07	24	1440	S21	E49	07	28.4		B	DAO	100	18	9	2
10044		LEAR	07	25	0130	S22	E42	07	28.3		B	EAI	180	27	11	3
10044		TACH	07	25	0428	S20	E37	07	28.0			DAI	304	20	7	4
10044		KAND	07	25	0705	S23	E40	07	28.4			DAO		12	10	4
10044		SVTO	07	25	1100	S21	E37	07	28.3		B	DAO	120	14	11	2
10044		RAMY	07	25	1315	S21	E36	07	28.3		B	EKI	420	18	13	2
10044		HOLL	07	25	1400	S21	E34	07	28.2		BG	EAI	220	23	11	3
10044	31333	MWIL	07	25	1645	S21	E35	07	28.4	5	(B)					
10044		LEAR	07	26	0040	S20	E29	07	28.2		B	EAI	240	26	12	2
10044		VORO	07	26	0435	S21	E27	07	28.3			DAI	644	23	11	2
10044		TACH	07	26	0609	S18	E29	07	28.5			DAI	432	23	7	4
10044		KAND	07	26	0715	S22	E26	07	28.3			EAI		43	14	3
10044		HOLL	07	26	1415	S22	E22	07	28.3		BG	EKI	550	53	14	3
10044	31333	MWIL	07	26	1500	S21	E22	07	28.3	5	(BG)					
10044		VORO	07	26	2134	S21	E17	07	28.2			DKI	672	64	13	3
10044		LEAR	07	27	0150	S23	E14	07	28.1		BGD	FKI	520	61	17	2

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10044		TACH	07	27	0524	S18	E09	07	27.9			EAI	564	23	12	4
10044		KAND	07	27	0845	S21	E10	07	28.1			FKI		58	16	3
10044		SVTO	07	27	1108	S21	E10	07	28.2		BG	FKI	650	29	18	2
10044	31333	MWIL	07	27	1445	S21	E08	07	28.2	5	(BG)					
10044		HOLL	07	27	1545	S21	E08	07	28.3		BG	FKI	590	45	16	2
10044		VORO	07	27	2219	S21	E03	07	28.1			DAI	620	43	15	3
10044		LEAR	07	28	0201	S20	E00	07	28.1		BGD	FKI	480	59	17	2
10044		TACH	07	28	0515	S19	W05	07	27.8			EAI	296	18	13	4
10044		SVTO	07	28	0925	S22	W03	07	28.2		BG	FKI	570	33	19	3
10044		KAND	07	28	1305	S20	W06	07	28.1			FAI		38	18	4
10044	31333	MWIL	07	28	1445	S20	W06	07	28.1	5	(D)					
10044		VORO	07	28	2210	S21	W10	07	28.1			DAI	760	23	16	3
10044		LEAR	07	29	0130	S20	W14	07	28.0		BGD	FKI	500	52	18	2
10044		KAND	07	29	0800	S20	W17	07	28.0			FKC		41	19	4
10044		SVTO	07	29	1333	S21	W19	07	28.1		BG	FAI	730	39	20	3
10044	31333	MWIL	07	29	1430	S20	W18	07	28.2	5	(BG)					
10044		HOLL	07	29	1620	S21	W18	07	28.3		BG	FAI	480	38	19	3
10044		LEAR	07	30	0250	S21	W27	07	28.0		BG	FAI	480	33	18	1
10044		SVTO	07	30	0630	S20	W32	07	27.8		BG	FKI	350	61	24	3
10044		KAND	07	30	0840	S18	W29	07	28.1			FAC		32	20	3
10044	31333	MWIL	07	30	1445	S20	W31	07	28.2	5	(BG)					
10044		VORO	07	30	2233	S21	W36	07	28.2			EAI	1135	52	17	3
10044		LEAR	07	31	0104	S20	W39	07	28.1		BG	FKC	560	73	21	3
10044		TACH	07	31	0545	S20	W38	07	28.3			EAI	589	33	16	3
10044		KAND	07	31	0725	S18	W42	07	28.1			FAC		30	21	4
10044		SVTO	07	31	0800	S21	W41	07	28.2		BG	FAC	690	28	23	2
10044		HOLL	07	31	1336	S23	W44	07	28.2		BG	FKC	640	39	18	3
10044	31333	MWIL	07	31	1445	S20	W44	07	28.2	5	(D)					
10044		VORO	07	31	2215	S21	W50	07	28.1			EAI	1447	25	19	3
10044		LEAR	08	01	0113	S20	W51	07	28.2		BG	FKC	790	55	21	3
10044		TACH	08	01	0519	S19	W54	07	28.2			EAI	723	7	15	3
10044		SVTO	08	01	0850	S21	W52	07	28.5		BG	FAC	820	22	22	2
10044		HOLL	08	01	1421	S23	W56	07	28.4		BG	FKC	710	35	20	2
10044	31333	MWIL	08	01	1500	S20	W59	07	28.2	5	(D)					
10044		LEAR	08	02	0121	S20	W61	07	28.5		BG	FKI	750	35	19	2
10044		SVTO	08	02	0540	S21	W68	07	28.1		BG	FKI	800	15	25	3
10044		TACH	08	02	0633	S21	W68	07	28.1			EAI	671	5	14	3
10044		LEAR	08	03	0034	S21	W72	07	28.6		BG	FKI	550	21	16	3
10044		VORO	08	03	0225	S23	W75	07	28.4			DAI	921	8	13	3
10044		TACH	08	03	0547	S24	W69	07	29.0			HR	44	2	4	4
10044		SVTO	08	03	0645	S25	W76	07	28.5		B	DSO	200	4	11	3
10044		HOLL	08	03	1723	S25	W78	07	28.8		B	DAO	90	2	6	3
10043A		TACH	07	27	0524	N22	E13	07	28.2			AXX	3	1	1	4
10039	31329	MWIL	07	21	1500	S13	E85	07	28.0	4	AP					
10039		VORO	07	22	0057	S12	E86	07	28.5			HAX	161	1		3
10039		VORO	07	22	0057	S14	E81	07	28.2			DAO	131	2	5	3
10039		LEAR	07	22	0210	S14	E78	07	28.0		B	DAO	120	3	8	2
10039		TACH	07	22	0552	S13	E79	07	28.2			DAO	499	5	5	4
10039		SVTO	07	22	0615	S12	E80	07	28.3		B	DSO	120	3	9	3
10039		KAND	07	22	0842	S15	E81	07	28.5			EKO		5	13	3
10039		RAMY	07	22	1215	S12	E72	07	27.9		B	DAO	540	10	10	3
10039		HOLL	07	22	1445	S12	E74	07	28.2		BG	EAC	480	10	15	3
10039	31329	MWIL	07	22	1445	S13	E75	07	28.3	4	(BG)					
10039		LEAR	07	23	0119	S17	E70	07	28.4		BGD	FKC	950	23	18	4
10039		SVTO	07	23	0604	S14	E69	07	28.5		BG	FKC	860	9	20	3
10039		KAND	07	23	0800	S17	E70	07	28.6			EKC		21	15	4
10039		HOLL	07	23	1404	S14	E65	07	28.5		BG	FKC	1000	33	16	3
10039	31329	MWIL	07	23	1430	S14	E63	07	28.4	5	(D)					
10039		LEAR	07	24	0110	S16	E59	07	28.5		BGD	FKC	960	33	19	4
10039		TACH	07	24	0525	S17	E56	07	28.5			DAI	1058	23	9	4
10039		KAND	07	24	0805	S17	E57	07	28.7			EKO		24	15	4
10039		HOLL	07	24	1329	S14	E54	07	28.6		BG	EKC	940	44	12	4
10039	31329	MWIL	07	24	1430	S14	E51	07	28.4	5	(D)					
10039		RAMY	07	24	1440	S15	E52	07	28.5		BG	EKC	910	42	13	2
10039		LEAR	07	25	0130	S16	E46	07	28.5		BGD	EKC	900	61	15	3
10039		TACH	07	25	0428	S16	E43	07	28.4			DAI	749	33	9	4
10039		KAND	07	25	0705	S18	E44	07	28.6			EKI		23	15	4

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo Day	Time (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10039		SVTO	07 25	1100	S16 E39	07 28.4		BG	FKI	760	30	18	2
10039		RAMY	07 25	1315	S16 E38	07 28.4		BGD	FKC	850	50	18	2
10039		HOLL	07 25	1400	S15 E41	07 28.7		BGD	FKC	870	60	16	3
10039	31329	MWIL	07 25	1645	S14 E38	07 28.6	5	(D)					
10039		LEAR	07 26	0040	S15 E34	07 28.6		BGD	FKC	800	46	16	2
10039		VORO	07 26	0435	S16 E33	07 28.7			DKI	1250	31	9	2
10039		KAND	07 26	0715	S16 E30	07 28.6			FKC		85	16	3
10039		HOLL	07 26	1415	S16 E27	07 28.6		BGD	FKC	1030	90	16	3
10039	31329	MWIL	07 26	1500	S16 E28	07 28.7	5	(D)					
10039		VORO	07 26	2134	S16 E24	07 28.7			DKI	1115	68	9	3
10039		LEAR	07 27	0150	S16 E19	07 28.5		BGD	FKI	810	78	18	2
10039		TACH	07 27	0524	S13 E12	07 28.1			EHI	629	30	14	4
10039		KAND	07 27	0845	S16 E16	07 28.6			EKC		66	15	3
10039		SVTO	07 27	1108	S15 E14	07 28.5		BG	FKI	1000	51	18	2
10039	31329	MWIL	07 27	1445	S16 E14	07 28.7	5	(D)					
10039		HOLL	07 27	1545	S15 E14	07 28.7		BGD	EKC	900	57	15	2
10039		VORO	07 27	2219	S16 E10	07 28.7			DKI	1132	50	9	3
10039		LEAR	07 28	0201	S15 E07	07 28.6		BGD	FKI	880	57	16	2
10039		TACH	07 28	0515	S14 E01	07 28.3			DHI	772	15	8	4
10039		SVTO	07 28	0925	S15 E04	07 28.7		BG	FKI	950	42	18	3
10039		KAND	07 28	1305	S15 E01	07 28.6			EKI		63	13	4
10039	31329	MWIL	07 28	1445	S15 E01	07 28.7	5	(D)					
10039		VORO	07 28	2210	S16 W04	07 28.6			DKI	1321	40	11	3
10039		LEAR	07 29	0130	S14 W08	07 28.4		BGD	EKI	780	54	13	2
10039		KAND	07 29	0800	S16 W10	07 28.6			EKC		44	13	4
10039		SVTO	07 29	1333	S14 W13	07 28.6		BGD	FKC	920	59	18	3
10039	31329	MWIL	07 29	1430	S15 W12	07 28.7	5	(D)					
10039		HOLL	07 29	1620	S17 W14	07 28.6		BGD	EKC	940	58	13	3
10039		LEAR	07 30	0250	S16 W21	07 28.5		BGD	EKC	520	41	13	1
10039		SVTO	07 30	0630	S14 W21	07 28.7		BGD	FKI	650	70	19	3
10039		KAND	07 30	0840	S13 W25	07 28.5			EKI		31	13	3
10039	31329	MWIL	07 30	1445	S15 W27	07 28.6	5	(D)					
10039		VORO	07 30	2233	S13 W33	07 28.4			DKI	996	48	12	3
10039		LEAR	07 31	0104	S13 W33	07 28.5		BGD	FKC	640	70	16	3
10039		TACH	07 31	0545	S13 W33	07 28.7			EAI	426	35	11	3
10039		KAND	07 31	0725	S13 W37	07 28.5			EKC		31	13	4
10039		SVTO	07 31	0800	S14 W36	07 28.6		BGD	FKC	710	33	18	2
10039		HOLL	07 31	1336	S17 W39	07 28.6		BG	EKC	410	44	15	3
10039	31329	MWIL	07 31	1445	S15 W40	07 28.6	5	(D)					
10039		VORO	07 31	2215	S13 W47	07 28.4			DKI	650	24	12	3
10039		LEAR	08 01	0113	S14 W46	07 28.7		BG	FAI	420	51	17	3
10039		TACH	08 01	0519	S12 W48	07 28.7			EAI	291	13	12	3
10039		SVTO	08 01	0850	S14 W50	07 28.7		BG	FAI	490	31	17	2
10039		HOLL	08 01	1421	S16 W54	07 28.6		BG	EAC	400	26	13	2
10039	31329	MWIL	08 01	1500	S15 W54	07 28.6	5	(BG)					
10039		LEAR	08 02	0121	S14 W58	07 28.8		BG	FAI	490	19	16	2
10039		SVTO	08 02	0540	S16 W60	07 28.8		BG	EAI	480	16	15	3
10039		TACH	08 02	0633	S14 W61	07 28.8			EAI	233	7	11	3
10039		LEAR	08 03	0034	S14 W71	07 28.7		BG	EAI	470	17	14	3
10039		VORO	08 03	0225	S16 W73	07 28.7			DRI	615	14	10	3
10039		TACH	08 03	0547	S15 W74	07 28.7			EAI	101	7	12	4
10039		SVTO	08 03	0645	S16 W75	07 28.7		BG	FSO	420	8	21	3
10039		HOLL	08 03	1723	S18 W78	07 28.9		A	HAX	90	1	2	3
10039A	31341	MWIL	07 27	1445	N06 E17	07 28.9	4	(AP)					
10039A		KAND	07 30	0840	N08 W20	07 28.9			BXO		2	2	3
10039A	31348	MWIL	07 30	1445	N06 W24	07 28.8	4	(AP)					
10039A		LEAR	07 31	0104	N07 W30	07 28.8		A	AXX	10	1		3
10050		HOLL	07 26	1415	S07 E41	07 29.7		B	BXO	10	4	3	3
10050	31339	MWIL	07 26	1500	S08 E40	07 29.6	4	(B)					
10050		VORO	07 26	2134	S08 E37	07 29.7			BXO	30	4	3	2
10050		LEAR	07 27	0150	S08 E34	07 29.6		B	DSO	40	8	4	2
10050		TACH	07 27	0524	S06 E28	07 29.3			BRI	13	6	5	4
10050		KAND	07 27	0845	S09 E30	07 29.6			BXI		24	5	3
10050		SVTO	07 27	1108	S06 E29	07 29.6		B	DSO	70	11	5	2
10050	31339	MWIL	07 27	1445	S08 E27	07 29.6	5	(B)					
10050		HOLL	07 27	1545	S08 E28	07 29.7		B	DAI	160	21	6	2
10050		VORO	07 27	2219	S08 E23	07 29.6			DAI	246	25	5	3

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10050		LEAR	07	28	0201	S07	E21	07	29.6		B	DAO	270	33	7	2
10050		TACH	07	28	0515	S07	E13	07	29.2			DAI	273	14	6	4
10050		SVTO	07	28	0925	S07	E17	07	29.7		B	DAO	310	17	9	3
10050		KAND	07	28	1305	S08	E15	07	29.7			DAI		23	9	4
10050	31339	MWIL	07	28	1445	S07	E13	07	29.6	5	(BG)					
10050		VORO	07	28	2210	S08	E09	07	29.6			DAI	715	26	7	3
10050		LEAR	07	29	0130	S07	E06	07	29.5		B	DAO	350	29	10	2
10050		KAND	07	29	0800	S08	E03	07	29.5			DKC		28	10	4
10050		SVTO	07	29	1333	S07	W01	07	29.5		BG	EKI	650	37	12	3
10050	31339	MWIL	07	29	1430	S08	W00	07	29.6	5	(D)					
10050		HOLL	07	29	1620	S08	W02	07	29.5		BG	DKC	640	27	9	3
10050		LEAR	07	30	0250	S07	W08	07	29.5		BG	DKI	420	20	10	1
10050		SVTO	07	30	0630	S09	W10	07	29.5		BG	EKI	580	43	12	3
10050		KAND	07	30	0840	S07	W12	07	29.5			EKI		26	12	3
10050	31339	MWIL	07	30	1445	S08	W14	07	29.6	5	(BG)					
10050		VORO	07	30	2233	S09	W19	07	29.5			DAI	1063	35	10	3
10050		LEAR	07	31	0104	S08	W21	07	29.5		BG	EKI	690	45	13	3
10050		TACH	07	31	0545	S08	W21	07	29.7			EHI	650	30	11	3
10050		KAND	07	31	0725	S06	W25	07	29.4			EKC		47	13	4
10050		SVTO	07	31	0800	S08	W25	07	29.4		B	EKC	860	37	13	2
10050		HOLL	07	31	1336	S09	W26	07	29.6		BG	FKC	690	46	16	3
10050	31339	MWIL	07	31	1445	S07	W27	07	29.6	5	(BG)					
10050		VORO	07	31	2215	S09	W33	07	29.4			DAI	1158	32	12	3
10050		LEAR	08	01	0113	S07	W34	07	29.6		BG	EKC	710	69	15	3
10050		TACH	08	01	0519	S06	W35	07	29.7			DAI	251	18	10	3
10050		SVTO	08	01	0850	S08	W37	07	29.7		BG	EKI	660	37	14	2
10050		HOLL	08	01	1421	S08	W39	07	29.8		BG	FKC	640	43	16	2
10050	31339	MWIL	08	01	1500	S08	W41	07	29.6	6	(B)					
10050		LEAR	08	02	0121	S08	W48	07	29.5		BGD	EKI	520	42	15	2
10050		SVTO	08	02	0540	S08	W49	07	29.7		BG	FKI	610	32	20	3
10050		TACH	08	02	0633	S08	W49	07	29.7			DAI	413	8	12	3
10050		LEAR	08	03	0034	S08	W61	07	29.5		BG	FHO	540	35	16	3
10050		VORO	08	03	0225	S08	W62	07	29.5			DAI	870	25	12	3
10050		TACH	08	03	0547	S07	W63	07	29.6			EAI	648	11	14	4
10050		SVTO	08	03	0645	S08	W63	07	29.6		BG	FKI	460	23	18	3
10050		HOLL	08	03	1723	S08	W70	07	29.6		BG	FKI	420	17	16	3
10050		TACH	08	04	0507	S06	W75	07	29.7			CSI	207	4	12	4
10050		SVTO	08	04	0820	S09	W79	07	29.5		B	FHO	590	7	19	2
10050		RAMY	08	04	1300	S08	W78	07	29.8		B	CAO	90	5	4	3
10053	31342	MWIL	07	27	1445	N08	E34	07	30.2	3	(AP)					
10053		VORO	07	27	2219	N09	E31	07	30.2			BXI	11	3	3	3
10053		LEAR	07	28	0201	N09	E29	07	30.3		B	DAO	40	7	4	2
10053		TACH	07	28	0515	N08	E21	07	29.8			BRO	2	3	4	4
10053		SVTO	07	28	0925	N09	E25	07	30.3		B	CRO	20	3	5	3
10053		KAND	07	28	1305	N08	E22	07	30.2			AX		3	1	4
10053	31342	MWIL	07	28	1445	N10	E22	07	30.3	4	(B)					
10053		VORO	07	28	2210	N09	E18	07	30.3			BXI	13	2	4	3
10053		LEAR	07	29	0130	N10	E13	07	30.0		B	CRO	30	3	2	2
10053		SVTO	07	29	1333	N09	E07	07	30.1		B	BXO		2	3	3
10053		SVTO	07	30	0630	N07	W08	07	29.7		B	CRO	20	3	3	3
10053	31342	MWIL	07	30	1445	N10	W04	07	30.3	4	(AF)					
10052	31343	MWIL	07	27	1445	S18	E43	07	30.9	4	(B)					
10052		VORO	07	27	2219	S17	E39	07	30.9			BXO	6	2	3	3
10052		LEAR	07	28	0201	S18	E37	07	30.9		B	CRO	20	4	4	2
10052		TACH	07	28	0515	S16	E28	07	30.3			AXX	1	1	1	4
10052		SVTO	07	28	0925	S17	E32	07	30.8		A	HRX		1		3
10052		KAND	07	28	1305	S19	E30	07	30.8			BXO		3	5	4
10052	31343	MWIL	07	28	1445	S17	E30	07	30.9	4	(B)					
10052		LEAR	07	29	0130	S17	E23	07	30.8		B	DAO	20	4	4	2
10052		KAND	07	29	0800	S18	E20	07	30.8			AX		2	1	4
10052		SVTO	07	29	1333	S17	E16	07	30.8		B	CRO	20	4	4	3
10052	31343	MWIL	07	29	1430	S17	E16	07	30.8	4	(B)					
10052		HOLL	07	29	1620	S18	E17	07	31.0		B	CSO	20	6	4	3
10052		LEAR	07	30	0250	S17	E09	07	30.8		B	CSO	20	2	1	1
10052		LEAR	08	01	0113	S15	W20	07	30.6		A	AXX		1		3
10048		LEAR	07	26	0040	N19	E63	07	30.8		B	BXO	10	2	1	2

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

JULY 2002

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
10048		VORO	07 26	0435	N19 E62	07 30.9			CAO	48	4	2	2
10048		TACH	07 26	0609	N19 E58	07 30.7			BRO	26	3	4	4
10048		KAND	07 26	0715	N16 E64	07 31.1			BXO		5	4	3
10048		HOLL	07 26	1415	N18 E57	07 30.9		B	CAO	50	7	6	3
10048	31340	MWIL	07 26	1500	N19 E56	07 30.9	5	(B)					
10048		VORO	07 26	2134	N20 E53	07 30.9			CAI	70	8	4	3
10048		LEAR	07 27	0150	N19 E51	07 31.0		B	DAO	80	9	5	2
10048		TACH	07 27	0524	N19 E44	07 30.6			CAI	61	6	6	4
10048		KAND	07 27	0845	N17 E47	07 30.9			CAO		11	6	3
10048		SVTO	07 27	1108	N21 E45	07 30.9		B	CSO	40	7	6	2
10048	31340	MWIL	07 27	1445	N19 E43	07 30.9	5	(B)					
10048		HOLL	07 27	1545	N20 E41	07 30.8		B	CSO	40	10	6	2
10048		VORO	07 27	2219	N20 E39	07 30.9			CAI	75	12	4	3
10048		LEAR	07 28	0201	N20 E37	07 30.9		B	DAO	70	14	7	2
10048		TACH	07 28	0515	N19 E29	07 30.4			CAO	31	4	6	4
10048		SVTO	07 28	0925	N21 E33	07 30.9		B	DSO	120	8	8	3
10048		KAND	07 28	1305	N17 E32	07 31.0			CSO		11	7	4
10048	31340	MWIL	07 28	1445	N20 E30	07 30.9	5	(B)					
10048		VORO	07 28	2210	N20 E26	07 30.9			CAI	71	9	5	3
10048		LEAR	07 29	0130	N20 E24	07 30.9		B	DSO	100	10	7	2
10048		KAND	07 29	0800	N18 E21	07 30.9			CSO		6	6	4
10048		SVTO	07 29	1333	N21 E17	07 30.9		B	DSO	40	10	6	3
10048	31340	MWIL	07 29	1430	N21 E17	07 30.9	4	(B)					
10048		HOLL	07 29	1620	N19 E15	07 30.8		B	DSO	40	10	5	3
10048		LEAR	07 30	0250	N21 E09	07 30.8		B	DSO	30	3	3	1
10048		SVTO	07 30	0630	N21 E09	07 31.0		B	DRO	40	9	6	3
10048		KAND	07 30	0840	N19 E07	07 30.9			DRO		5	6	3
10048	31340	MWIL	07 30	1445	N20 E03	07 30.8	4	(B)					
10048		VORO	07 30	2233	N20 W03	07 30.7			AXX	17	3		3
10048		LEAR	07 31	0104	N19 W02	07 30.9		B	CSO	20	9	6	3
10048		LEAR	08 02	0121	N21 W26	07 31.1		B	CRO	20	3	4	2

Stations reporting:

HOLL = Holloman
KAND = Kandilli
LEAR = Learmonth
MWIL = Mt. Wilson
PALE = Palehua
RAMY = Ramey
SVTO = San Vito
TACH = Tashkent
VORO = Voroshilov

JULY 2002

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
01	0648	0707	0959	2	1		1				0904	C1.6	10017
02	0932	0935	0951	1	1		1				0938	C1.1	
02	1408	1421	1442	1+	3					2	1408	C2.3	10019
02	1955	2001	2020	2	3					3	1946	C5.2	10017
02	2020	2030	2122	2+	3					5	2019	M1.5	10017
02	2248	2251	2312	1+	1					1	2235	C4.9	
03	0759	0809	0848	2-	5		1			3	0757	C3.4	10019
03	1148	1155	1224	3-	5	1	1	1		4	1143	C7.3	10019
03	1204	1230	1314	1	1		1				No flare		
03	1805	1809	1834	1+	5					6	1803	C3.0	10017
03	1942	1945	1958	1-	5					2	1941	M1.1	
03	2003	2010	2051	2	5					5	2000	M5.3	
03	2320	2327	2354	2+	5					2	2318	C7.9	10017
04	0127	0131	0151	1	3					2	0124	C4.7	10017
04	0612	0630	0708	2-	3		1			2	0614	C2.8	10017
04	0730	0737	0755	3	5	1		1		3	0727	M1.1	10017
04	1045	1055	1134	2+	1					1	1045	C2.6	10017
04	1221	1239	1326	2+	3					2	1222	C2.3	
04	1328	1336	1400	1+	5					4	1326	C3.0	10017
04	1453	1457	1510	3-	5	1		1		7	1450	C7.1	10017
04	1510	1513	1545	2	1					1	No flare		
04	1612	1613	1622	1-	1					1	1607	C2.2	10017
04	1622	1629	1705	2	3					4	1621		10019
04	1742	1744	1810	1+	3					2	1741	C2.4	10019
04	1843	1849	1917	1+	3					5	1834	C5.3	10017
05	0736	0752	0818	1+	3		1			1	0731	C2.6	10017
05	0801	0806	0850	3	5	1	1	1		4	0756	C7.8	
05	1314	1323	1404	3	5	1	2	1		11	1310	M3.2	10017
05	1551	1600	1616	2	5	1	1	1		3	1550	C6.3	10019
05	1811	1816	1900	2+	1					1	1811		10021
05	2030	2035	2050D	1	1					1	2025	C2.0	10021
05	2050	2052	2145	2+	1					1	2047	C3.6	10021
06	0329	0333	0400	1+	1					1	0328	M1.8	
06	0932	0939	1013	2+	5	1	2	1		5	0927	C6.0	10019
06	1547	1557	1626	2-	5		1			4	No flare		
07	0546	0555	0638	1+	3		1			2	0541	C1.2	
07	1115	1136	1409	3	5	1		1		6	1115	M1.0	
08	0638	0658U	0716	1	1		1				No flare		
08	0740	0810	0848	1	1		1				No flare		
08	0915	0925	1018	3	5	1	2	1		5	0910	M1.6	
08	1634	1639	1658	1	1					1	No flare		
08	1958	2015	2145	3	1					1	2017	C1.2	
08	2312	2319	2355	2-	3					2	2309	M2.3	
09	0411	0417	0528	1	1		1				0359	C8.6	
09	0713	0719	0752	2	5	1	2	1		2	0711	C2.5	
09	0859	0908	1024	3	5	1	2	1		5	0855	M1.0	
09	1427	1437	1502	2	3					2	1428	C1.1	
09	1514	1518	1545	1+	1					1	1511	C1.2	
10	1321	1334	1408	2	3					3	1323	C2.7	10025
11	1034	1039	1056	1+	5					2	1032	C2.1	10030
11	1112	1123	1150	2	3					2	1107	C4.0	
11	1204	1208	1231	1	5					3	1204	C2.5	
11	1234	1235	1257	1	1					1	1236	C1.7	10030
11	1304	1323	1348	2	3					2	No flare		
11	1350	1352	1413	1	1					1	No flare		
11	1417	1421	1442	2	5	1		1		9	1415	M1.0	10030
11	1446	1453	1524	3	5	1		1		11	1444	M5.8	10030
11	1456	1506	1545	2+	1					1	No flare		

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

JULY 2002

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
12	0000	0028	0115	2+	1					1	0021	C1.1	
12	0925	0930	1000	1-	1					1	No flare		
12	1331	1344	1414	2	1					1	1327	C1.8	10030
12	1333	1412	1507	1	1		1				No flare		
12	1632	1704	1814	1	1		1				No flare		
12	2358	2407	2447	2+	1					1	2354	M1.1	10030
13	0732	0748	0806	1	1		1				0750	C1.6	10030
14	0706	0726	0800	2	1		1				0712	B9.2	
15	0506	0509	0541	1	3					3	0503	C3.8	10030
15	0934	0949	1025	1	1		1				No flare		
15	1141	1153	1234	3	5	1	2	1		7	1139	C9.1	10030
15	1334	1355	1438	2-	5		1			1	No flare		
15	1403	1405	1422	1-	1					1	1400	C3.6	10030
15	1641	1650	1725	1	1		1				No flare		
15	1951	2006	2123	2+	5					6	1959	X3.0	10030
15	2008	2026	2130	2+	1					1	2103	M1.8	10030
16	0634	0648	0731	2+	5					3	0637	C6.5	10030
16	1140	1145	1220	2	5			1		3	1138	C3.5	10036
16	1333	1342	1355	1	3					4	1331	C8.5	10030
16	1359	1411	1447	3	5	1		1		3	1331	C8.5	10030
16	2130	2139	2206	2-	3					2	2122	C2.6	10030
17	0328	0330	0400	1+	1					1	*		
17	0548	0550	0607	1-	3					3	0545	C4.0	10030
17	0648	0649	0656	1-	1					1	0650		10036
17	0700	0707	0740	3	5	2	1	1		4	0658	M8.5	10030
17	1947	1952	2017	1+	5					6	1943	C3.4	
18	0331	0335	0416	1+	3					2	0322	M2.2	10030
18	0552	0559	0620	1	1		1				*		
18	0651	0654	0711	1	1					1	0649	C1.7	10030
18	0741	0747	0822	3	5	1	2	1		6	0724	X1.8	10030
18	1153	1157	1208D	1-	1					1	1151	C2.7	10037
18	1349	1357	1434	2-	3					3	1348	C5.4	
18	1745	1748	1810	1	3					3	1742	C1.7	10030
18	1952	1956	2016	1	1					1	1952	C2.1	
18	2014	2019	2049	2-	3					3	2016	C3.3	10036
18	2035	2037	2115	2	1					1	No flare		
18	2202	2207	2245	2	1					1	*		
18	2311	2320	2406	2+	1					1	2308	C8.2	
19	1027	1037U	1111	1	1		1				No flare		
19	1459	1510	1557	1	1		1				No flare		
19	1842	1848	1930	2+	1					1	1846	C3.9	10030
19	1905	1908	1925	1	1					1	1907		10030
19	1933	1943	2030	2+	1					1	1934		10030
20	0945	0958	1124	2	1		1				No flare		
20	1240	1245	1306	3	5	1	2	1		10	1237	C9.6	10030
20	2014	2028	2134	2+	5					4	No flare		
20	2105	2112	2207	3-	5					3	2104	X3.3	
21	0310	0311	0315	1-	1					1	0307	C7.9	
21	0607	0615	0708	2	5		1			3	0605	C6.7	
21	0736	0749	0820	3-	5	1	2	1		4	0735	C6.7	
21	1416	1421	1447	1+	5					6	1414	C3.4	
22	0721	0732	0809	2+	1	1	1	1			No flare		
22	0933	0943	0958	1	1		1				0927	C2.3	10036
22	1153	1201	1300	2	5		2	1		3	1151	C2.7	
22	1324	1404	1454	1	1		1				No flare		
22	1549	1557U	1629	1	1		1				No flare		

* = no flare patrol.

JULY 2002

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
23	0022	0029	0119	2-	3					2	0018	X4.8	10039
23	0618	0631	0819	1	1		1				0620		10036
23	0838	0848	0900	1	1		1				0840	C4.0	10035
23	0904	0912	0955	1	1		1				0840	C4.0	10035
23	1002	1014U	1029	1	1		1				No flare		
23	1057	1107	1146	2-	5		2	1		1	1050	C2.8	10036
23	1219	1226	1320	1+	5		2	1		4	1218	C2.9	10036
23	1556	1605U	1627	1	1		1				No flare		
23	1719	1732	1749	1	1		1				No flare		
23	2035	2045	2127	2+	3					2	2034	C3.0	10036
24	0320	0322	0330	1-	1					1	0317	C4.5	10039
24	1244	1251	1348	2+	5		2	1		4	1231	C6.1	10039
24	1526	1537	1627	2	5	1	1	1		7	1524	M1.2	10039
24	1810	1812	1837	1+	3					2	1811	C3.2	10039
24	1911	1912	1931	1	1					1	1913	C2.3	10039
25	0903	0920	1007	1	3		1			1	0914	C2.9	10039
25	1420	1427	1503	2-	3					5	1419	C2.7	10036
25	1551	1557	1622	1+	3					4	1551	C2.6	10036
25	2106	2113	2138	1+	1					1	2107	C2.8	10044
25	2156	2202	2230	2	1					1	2155	C3.1	10044
25	2240	2252	2335	2+	1					1	2254	C6.7	10044
25	2300	2309	2400	2+	1					1	2254	C6.7	10044
26	0006	0013	0058	2+	1					1	0004	M4.9	10044
26	0639	0643	0723	2	5	1	1	1		3	0628	M1.1	10044
26	0650	0659	0736	1+	3		1			1	0657		10039
26	0801	0813	0813	1+	3		1			1	0804	M1.3	10044
26	0807	0834	1000	3	5	1	2	1		1	0804	M1.3	10044
26	0918	0923	0955	1	3					2	0920		10044
26	1310	1316	1333D	1	1					1	1255	C2.7	10044
26	1336	1340	1410	2-	3					2	1336	C3.0	10044
26	1528	1531	1601	1+	3					4	1528	C4.2	10044
26	1614	1617	1631	1-	3					3	1610	C3.8	10044
26	1627	1628	1700	2	1					1	No flare		
26	1810	1828	1858	2	5					6	1803	C9.5	10044
26	1858	1903	1953	2	5					6	1857	M1.0	10044
26	2046	2103	2153	2	5					6	2051	M8.7	10044
26	2115	2200	2330	3+	1					1	2051	M8.7	10044
26	2207	2215	2309	2	3					4	2203	M5.3	
27	1819	1826	1910	2	5					6	1818	C5.5	
28	0019	0040	0124	2+	1					1	0018	M2.3	10039
28	0554	0600	0635	1+	3		1			2	0552	C3.6	10044
28	0640	0642	0715	2	1					1	0635	C2.5	10039
28	0842	0852	0904	2-	5		2	1		2	0838	C3.6	10044
28	1102	1108	1203	3	5	1	2	1		5	1101	C7.6	
28	1454	1459U	1511U	1+	1					1	1455	C2.3	10039
28	1548	1555	1628	2-	5					4	1541	C2.9	
28	1629	1636	1725	1	1		1				*		
28	1658	1705	1733	1+	5					4	1659	C4.0	
28	1750	1800	1845D	2+	1					1	*		
28	1845	1854	1934	2	5					5	1849	C7.1	
28	2004	2011	2036	2-	5					4	2002	C6.4	
28	2040	2046	2116	2-	5					4	2037	C5.1	10043
28	2301	2311	0001	2	5					3	2258	M2.2	
29	0022	0025	0042	1	1					1	0019	M1.4	
29	0236	0240	0310	2-	3					2	0229	M4.8	
29	1028	1051	1303	3	5	1	2	1		6	1027	M4.7	
29	1513	1543	1559	1	1		1				1521		10050
29	1626	1628	1642	1	1		1				1626		10039
29	1754	1758	1827	2	1					1	1753	C3.8	
29	1935	1941	2032	2	5					4	1934	C8.6	10050
29	2030	2035	2056	1+	1					1	2031	C3.1	10038

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

JULY 2002

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
29	2103	2112	2151	2+	5					3	2101	C6.5	10050
29	2240	2249	2326	2+	1					1	2238	C4.2	
30	0715	0725	0819	2	5			1		1	0712	C3.4	10039
30	1439	1444U	1511	1	1		1				*		
31	0142	0155	0217	2	1					1	0139	M1.2	10039
31	0850	0854	0905	1-	1					1	0849	C2.4	
31	0952	0956	1050	3	5	1	2	1		3	0950	C9.6	
31	1449	1450	1500	1-	1					1	1449	C2.3	
31	1522	1525	1545	1	1					1	1523	C2.6	10050
31	1959	2000	2018D	1	1					1	1958	C2.8	10048
31	2019	2024	2042	1	5					2	2018	C3.3	
31	2252	2259	2313	1	1					1	2250	C3.0	

* = no flare patrol.

OBSERVATORIES REPORTING FOR JULY 2002

Alberta, Canada	SES	Milan, Italy	SES
Bedford, Massachusetts, USA	SES	Nerja, Spain	SES
Bern, Switzerland	SES	Panska Ves, Czech Republic	SES, SEA, SWF
Brookline, Massachusetts, USA	SES	Sofia, Bulgaria	SES
Edenvale, Rep of S. Africa	SES	Sussex, United Kingdom	SES
Houston, Texas, USA	SES	Torrington, Connecticut, USA	SES
Isola del Gran Sasso, Italy	SES	Upice, Czech Republic	SEA
Marlborough, Massachusetts, USA	SES	Villiersdorp, South Africa	SES

Observations are not necessarily continuous.

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

JULY 2002

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
01	0000	0640	CULG	0055.0	0140.0	III	N	1	57X	150	
			LEAR	0110.0	0111.0	III		1	25	180	
			PALE	0110.0	0111.0	III		1	25	54	
			CULG	0203.0	0203.0	III	B	1	57X	120	
			CULG	0302.0	0309.0	III	G	1	57X	160	
	0000	1000	HIRA	0308.5	0309.0	III	B	1	40	130	
	0336	1830	POTS	0435	0511 U	I	S,DC,N	1	120	230	
			POTS	0511 U	0653 U	I	S,N	1	140	350	
			CULG	0526.0	0531.0	III	G	1	57X	160	
			CULG	0633.0	0633.0	III	B	1	57X	110	
			HIRA	0633.0	0633.5	III	B	1	50	120	
			IZMI	0633.1	0633.3	III	B	1	45	90	
			HIRA	0738.0	0738.5	III	B	1	50	150	
			LEAR	0738.0	0738.0	III		1	52	180	
			SVTO	0738.0	0738.0	III		1	45U	80U	
			IZMI	0738.1	0738.3	III	G,HARM	2	45	180	
			POTS	0738.1	0738.5	III	G	2	40X	170U	
			POTS	0823 U	0940 U	I	S,N	1	110	300	
			IZMI	0836.1	0837.4	III	GG	1	45	100	
			IZMI	0857.2	0857.3	III	G	1	45	65	
			POTS	1117 U	1257 U	I	S,N	1	130	350	
			ONDR	1145.1	1147.0	DCIM	G	1	800X	2000X	
	0418	1753	ONDR	1145.1	1146.5	DCIM	G	1	2000X	4500X	
			POTS	1538 U	1627 U	I	S,N	1	250	400U	
			POTS	1735	1828 U	I	S,N	1	110	400U	
	1922	2400	HIRA								
	2110	2400	CULG								
02	0000	1000	HIRA								
			LEAR	0118.0	0119.0	III		1	60	180	
	0000	0640	CULG	0119.0	0119.0	III	B	1	57X	170	
	0336	1830	POTS	0528	0752 U	I	S,DC,C	2	240	380	
	0600	1200	IZMI	0719.0	0920.0	III	S	1	40	90	
			POTS	0722.2	0728.3	III	GG	1	110	140	
			IZMI	0730.8	0731.0	III	B	2	45	90	
			POTS	0758 U	1158 U	I	S,N	1	110	380	
			IZMI	0940.4	0940.7	III	G	1	120	160	
			IZMI	0944.4	0945.6	III	GG	1	45	220	
			POTS	0944.4	0948.9	III	GG	2	40X	340	
			POTS	1327.7	1330.8	I	DC	1	270	330	
			POTS	1340.2	1340.4	UNCLF		1	150	270	
			POTS	1402.3	1402.4	UNCLF		2	150	230	
	0419	1753	ONDR	1410.0	1416.4	DCIM	G	1	2195	4500X	
			POTS	1413.9	1418.4	III	GG	2	40X	360	
			HOLL	1414.0	1415.0	III		1	25	120	
			SGMR	1414.0	1415.0	III		1	30	63	
			SVTO	1414.0	1416.0	III		1	25	126	
			HOLL	1654.0	1654.0	III		1	25	56	
			PALE	1654.0	1654.0	III		1	25	49	
			SVTO	1654.0	1654.0	III		1	25	49	
			HOLL	1818.0	1818.0	III		1	25	38	
			HOLL	1955.0	1958.0	III		1	25	175	
			PALE	1955.0	1959.0	III		1	25	158	
	1922	2400	HIRA	1955.5	1959.0	III	G	1	30	190	
			HIRA	2014.5	2017.5	III	G	1	40	200	
			LEAR	2338.0	2340.0	III		1	25	180	
			LEAR	2353.0	0024.0	III	N	1	25	180	
	2110	2400	CULG	2358.0	2358.0	III	B	1	57X	110	
03	0000	0640	CULG	0002.0	0003.0	III	G	1	57X	90	
			CULG	0011.0	0020.0	III	GG	1	57X	180	
	0000	1000	HIRA	0011.5	0013.0	III	G	1	25X	120	
			CULG	0132.0	0133.0	III	G	1	500	750	
			CULG	0214.0	0227.0	III	GG	1	57X	100	
			HIRA	0214.0	0216.0	III	G	1	25X	100	
			LEAR	0214.0	0216.0	III		1	25	94	
			PALE	0214.0	0216.0	III		1	25	92	
			CULG	0330.0	0640.0D	III	S,C	1	57X	150	
			LEAR	0334.0	0351.0	IV		1	58	106	

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

JULY 2002

OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
03			LEAR	0334.0	0432.0	IV		1	58	106	
	0336	1800	POTS	0429.4	0430.5	I	S,DC	1	200U	320	
			POTS	0457	0550 U	I	S,N	1	120	160	
			LEAR	0501.0	0732.0	CONT		1	53	180	
			SVTO	0515.0	0732.0	CONT		1	47U	138U	
			POTS	0535.3	0537.2	III	G	2	200U	310	
	0608	1200	IZMI	0608.0E	0702.0U	III	S,C	2	45	90	
			POTS	0630.6	0631.0	DCIM		2	530	680	
			POTS	0717.1	0717.5	DCIM		2	520	670	
			IZMI	0726.0U	0827.0U	III	N	2	45	90	
			POTS	0754 U	0814 U	I	S,N	1	110	360	
	0419	1753	ONDR	0759.1	0802.4	DCIM	G,W	1	2000X	4061	
			POTS	0759.7	0818.8	III	GG,N	2	40X	170U	
			LEAR	0800.0	0832.0	III	N	1	25	180	
			SVTO	0800.0	0811.0	III	N	1	25	152	
			IZMI	0800.2	0801.0	III	GG	2	50	155	
			HIRA	0807.0	0811.5	III	G	1	30	140	
			IZMI	0807.6	0812.2	III	GG	2	25	160	
			POTS	0857.1	0857.6	III	G	1	40X	170U	
			IZMI	0857.4	0857.6	III	B	1	45	90	
			IZMI	1023.9	1025.0	III	G	2	25X	65	
			POTS	1023.9	1025.3	III	G	2	40X	160	
			SVTO	1024.0	1025.0	III		1	28U	47U	
			IZMI	1113.2	1115.1	III	G	1	25X	90	
			IZMI	1117.8	1118.0	III	B	1	25X	140	
			IZMI	1144.7	1149.4	III	GG	2	25X	245	
			POTS	1145.2	1149.8	III	GG	2	40X	270	
			SVTO	1148.0	1149.0	III		1	28U	50U	
			POTS	1236.7	1237.2	DCIM		2	540	760	
			POTS	1429.9	1431.5	I	S,DC	1	270	390	
			POTS	1513.2	1513.4	III	B	1	120	170U	
			POTS	1537.4	1540.9	III	G,N	2	120	300	
			POTS	1706	1710	I	S,N	1	270	330	
			HOLL	1826.0	1914.0	III	N	1	25	57	
			PALE	1826.0	0500.0	III	N	1	25	180	
			SGMR	1826.0	2017.0	III	N	1	30	50	
	2110	2400	CULG	2110.0E	2159.0	III	S,C	1	57X	180	
			CULG	2207.0	2207.0	III	B	3	60	280	
			HOLL	2207.0	2207.0	III		1	66	180	
	1923	2400	HIRA	2207.0	2207.5	III	B	3	60	270	
			CULG	2233.0	2234.0	III	G	1	70	180	
			HIRA	2233.0	2234.5	III	G	1	70	270	
04			LEAR	0017.0	0017.0	III		1	62	180	
	0000	0640	CULG	0017.0	0017.0	III	B	1	60	180	
	0000	1000	HIRA	0017.0	0017.5	III	B	1	70	260	
			CULG	0224.0	0224.0	III	B	1	80	180	
			HIRA	0224.0	0224.5	III	B	1	80	240	
			LEAR	0224.0	0224.0	III		1	76	180	
			CULG	0335.0	0335.0	III	B	1	57X	170	
			HIRA	0335.0	0335.5	III	B	1	60	110	
	0336	1800	POTS	0338.9	0341.2	III	G	1	200U	350	
			HIRA	0339.0	0346.0	III	G	1	25X	330	
			CULG	0342.0	0346.0	III	G	1	57X	300	
			CULG	0443.0	0500.0	III	N	1	57X	180	
			SVTO	0448.0	0456.0	III		2	25	180	
			POTS	0448.3	0500.2	III	GG,RS	3	40X	430	
			LEAR	0454.0	0457.0	III		1	25	180	
			HIRA	0454.5	0458.0	III	G	2	25X	310	
			CULG	0455.0	0458.0	III	G	2	57X	300	
			SVTO	0511.0	0514.0	II		1	30U	80U	ESS 0343
			CULG	0512.0	0519.0	III	GG	1	57X	90	
			LEAR	0512.0	0723.0	III	N	1	25	180	
			SVTO	0513.0	0514.0	II		1	30U	80U	ESS 0343
			SVTO	0515.0	0518.0	III		1	25	134	
			HIRA	0515.5	0516.5	III	B	1	30	160	
			CULG	0516.0	0517.0	III	G	2	57X	180	
			POTS	0516.2	0516.9	III	G	2	40X	170U	
			POTS	0546	0552	I	S	1	130	300	

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

JULY 2002

OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
04	0600	1200	IZMI	0611.4	0611.7	III	G	1	185	270X	
			POTS	0611.9	0612.5	III	GG	2	200U	340	
			POTS	0644	0729 U	I	S,N	1	240	400	
			IZMI	0730.5	0733.4	III	GG,C	2	25X	270X	
			HIRA	0731.0	0733.0	III	G	3	30	300	
			LEAR	0731.0	0733.0	III		2	25	180	
			SVTO	0731.0	0733.0	III		2	25	180	
	0420	1753	ONDR	0731.3	0733.0	DCIM		1	800X	2000X	
			POTS	0731.8	0735.3	III	GG,RS	3	40X	420	
			POTS	0733.0	0734.3	V	G	3	40X	80	
			IZMI	0733.6	0734.5	III	G	1	200	270X	
			SVTO	0800.0	0803.0	III		1	25	120	
			IZMI	0800.7	0803.4	III	G	2	25X	95	
			HIRA	0801.0	0802.0	III	B	1	30	130	
			IZMI	0801.0	0801.9	III	B	1	230	270	
			LEAR	0801.0	0801.0	III		1	75	95	
			POTS	0801.7	0803.1	III	G	2	40X	350	
			POTS	0906	1110 U	I	S,N	1	140	400	
			IZMI	0927.1	0927.2	III	B	1	50	65	
			POTS	1133 U	1155 U	I	S,N	1	210	330	
			POTS	1202.2	1204.5	III	GG	2	40X	330	
			SGMR	1203.0	1203.0	III		1	30	60	
			SVTO	1203.0	1205.0	III		2	25	158	
			POTS	1225 U	1244 U	I	S,N	1	200U	370	
			POTS	1254.4	1255.5	III	G	2	40X	270	
			POTS	1254.8	1255.2	V	B	2	40X	70	
			HOLL	1255.0	1256.0	III		1	25	84	
			SGMR	1255.0	1256.0	III		1	30	60	
			SVTO	1255.0	1256.0	III		2	25	171	
			POTS	1308 U	1325 U	I	S,N	1	270	330	
			POTS	1359.8	1400.4	III	G	2	200U	330	
			POTS	1514.2	1514.5	I	DC	1	330	400U	
			POTS	1517.2	1517.3	III	B	1	120	170U	
			SVTO	1539.0	1546.0	III		1	27U	156U	
			POTS	1540.9	1544.3	III	G,N	2	120	330	
			HOLL	1541.0	1541.0	III		1	25	55	
			POTS	1556.9	1558.6	III	G,N	2	120	400U	
			HOLL	1611.0	1618.0	III		1	25	84	
			SVTO	1611.0	1618.0	III		1	30U	83U	
			POTS	1615.5	1617.2	III	G	2	120	220	
			SGMR	1742.0	1749.0	V		1	30	50	
			HOLL	1744.0	1749.0	III		1	25	162	
			SVTO	1744.0	1748.0	III		1	64	172	
			POTS	1744.2	1748.2	III	GG	2	120	380	
			HOLL	1837.0	1838.0	III		1	25	132	
			PALE	1837.0	1837.0	III		1	25	84	
			SGMR	1837.0	1838.0	III		1	30	50	
			HOLL	2037.0	2037.0	III		1	25	144	
			SGMR	2037.0	2037.0	III		1	30	60	
	1924	2400	HIRA	2037.0	2037.5	III	B	1	30	140	
			HIRA	2325.0	2325.5	III	B	1	30	110	
	2110	2400	CULG	2325.0	2325.0	III	B	1	57X	90	
			HIRA	2339.0	2339.5	III	B	1	25X	100	
			CULG	2345.0	2348.0	III	G	1	80	180	
05	0000	0640	CULG	0350.0	0350.0	III	B	1	57X	150	
	0336	1800	POTS	0404	0440	I	S,N,DC	2	130	380	
			POTS	0409.8	0411.0	III	GG,U	3	130	370	
			LEAR	0410.0	0410.0	III		1	131	180	
			SVTO	0410.0	0410.0	III		1	142	180	
	0000	1000	HIRA	0410.0	0410.5	III	B	1	120	310	
			CULG	0411.0	0411.0	III	G	1	120	280	
			CULG	0412.0	0442.0	I	S	1	120	180	
			POTS	0523.9	0524.1	III	B	2	160	380	
			POTS	0531 U	0700 U	I	S,N,DC	2	120	400	
			CULG	0610.0	0640.0D	III	N	1	100	180	
			CULG	0620.0	0622.0	III	G	1	57X	180	
			LEAR	0620.0	0621.0	III		1	25	180	
			SVTO	0620.0	0621.0	III		1	70	180	

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

JULY 2002

Day	OBSERVATION Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
05	0555	1200	IZMI	0620.7	0621.2	III	G	1	55	160	
			POTS	0620.9	0622.2	III	GG,RS	2	120	400	
			HIRA	0621.0	0621.5	III	B	1	80	400	
			POTS	0832	0846 U	I	S,N	1	200U	370	
			POTS	0951	1405 U	I	S,N	2	140	400	
			IZMI	1106.0U	1108.4	III	GG	1	40	270X	
			SVTO	1107.0	1108.0	III		1	25U	82U	
			IZMI	1117.0	1131.0	I	N	1	220	270	
			POTS	1312.0	1317.5	DCIM		2	240	800X	
	0420	1752	ONDR	1313.3	1324.3	DCIM	G	2	2000X	4500X	
			POTS	1318.3	1323.3	III	GG	3	40X	640	
			HOLL	1319.0	1323.0	III		1	25	180	
			SVTO	1319.0	1321.0	V		1	25	180	
			SGMR	1320.0	1337.0	III	N	1	30	80	
			POTS	1325.5	1336.5	II	F,H	2	40X	130	
			HOLL	1326.0	1337.0	II		1	27	132	ESS 0605
			SVTO	1326.0	1344.0	II		1	25	132	ESS 0546
			SGMR	1328.0	1331.0	II		1	45	75	ESS 0550
			ONDR	1336.1	1337.4	DCIM	W	1	2000X	4500X	
			HOLL	1353.0	1453.0	IV		1	25	141	
			SGMR	1354.0	1512.0	IV		1	30	60	
			SVTO	1404.0	1453.0	IV		1	25U	82U	
			ONDR	1405.2	1421.2	DCIM	G	1	2000X	4500X	
			POTS	1408 U	1539 U	I	S,N	2	40X	400	
			POTS	1415.8	1416.2	III	B	2	40X	130	
			HOLL	1416.0	1416.0	III		1	25	79	
			SVTO	1416.0	1416.0	III		1	25	72	
			POTS	1434.6	1440.0	III	GG	2	200U	350	
			POTS	1505.1	1505.3	III	B	2	120	370	
			POTS	1545.6	1552.0	III	GG	3	60	620	
			HOLL	1547.0	1551.0	III		1	25	180	
			SVTO	1547.0	1551.0	III		1	25	180	
			ONDR	1547.2	1600.1	DCIM	G	1	2000X	4500X	
			SGMR	1548.0	1549.0	III		1	30	50	
			POTS	1552	1644 U	IV		3	100	420	
			HOLL	1556.0	1601.0	II		1	39	126	ESS 0648
			SGMR	1556.0	1558.0	II		1	30	53	ESS 0600
			SVTO	1556.0	1601.0	II		1	38	125	ESS 0642
			POTS	1556.2	1603.7	DCIM		3	450	740	
			HOLL	1601.0	1717.0	IV		1	35	154	
			POTS	1646 U	1800 U	I	S,N	2	120	330	
			HOLL	1924.0	1925.0	III		1	25	86	
			HOLL	1948.0	1953.0	III		1	25	180	
	1924	2400	HIRA	1952.0	1953.0	III	B	1	30	210	
			HIRA	2000.0	2001.0	III	B	1	70	220	
			HOLL	2000.0	2001.0	III		1	59	180	
			HOLL	2023.0	2230.0	III	N	1	25	180	
			HIRA	2030.0	2043.0	III	G	1	25X	300	
	2110	2400	CULG	2110.0E	2128.0	I	S	1	110	180	
			CULG	2153.0	2154.0	III	G	1	150	260	
			CULG	2204.0	2206.0	III	G	1	100	240	
06			LEAR	0002.0	0319.0	III	N	1	25	180	
	0000	0640	CULG	0008.0	0008.0	III	G	1	150	200	
			CULG	0031.0	0057.0	III	N	1	57X	180	
			HOLL	0032.0	0032.0	III		1	25	88	
	0000	1000	HIRA	0032.0	0032.5	III	B	1	25X	200	
			CULG	0144.0	0146.0	III	G	1	57X	180	
			CULG	0208.0	0309.0	III	N	1	100	180	
	0336	1800	POTS	0412 U	0720 U	I	S,N,DC	2	110	400U	
			HIRA	0440.0	0440.5	III	B	1	100	230	
			LEAR	0440.0	0712.0	III	N	1	25	180	
			SVTO	0440.0	0440.0	III		1	114U	164U	
			POTS	0440.4	0509.3	III	GG,N	2	40X	400	
			CULG	0441.0	0538.0	III	N	1	57X	180	
			SVTO	0507.0	0510.0	III		2	25U	82U	
			HIRA	0507.5	0508.0	III	B	2	25X	70	
			SVTO	0514.0	0630.0	III	N	1	25	180	
			POTS	0519.4	0519.6	III	B	2	120	280	

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06			POTS	0525.4	0537 U	III	GG	3	120	400	
			HIRA	0526.0	0537.0	III	G	1	70	350	
			CULG	0528.0	0528.0	III	B	1	57X	380	
	0600	1200	IZMI	0600.0E	0920.0U	I	N	2	70	270X	
			IZMI	0616.2	0617.4	III	G	1	55	150	
			POTS	0616.7	0617.4	III	G,RS	2	110	230	
			CULG	0617.0	0617.0	III	B	1	57X	170	
			POTS	0720 U	0922 U	I	S,N,DC	1	200U	350	
			POTS	0810.7	0811.1	III	G	2	150	400	
			HIRA	0830.0	0830.5	III	B	1	80	200	
			LEAR	0830.0	0833.0	III		1	50	180	
			SVTO	0830.0	0833.0	III		1	25U	82U	
			IZMI	0830.1	0830.6	III	G	1	45	210	
			POTS	0830.1	0833.9	III	GG	2	40X	300	
			IZMI	0832.7	0833.8	III	GG	1	45	145	
			SVTO	0922.0	0923.0	III		1	25U	82U	
			POTS	0922.4	0939.3	III	GG	3	40X	800X	
			HIRA	0922.5	0923.0	III	B	1	50	250	
			IZMI	0922.7	0923.7	III	GG	1	45	270X	
			POTS	0923	1020 U	IV		2	70	400	
			IZMI	0924.0	1137.0U	I	N	2	110	270X	
			IZMI	0929.3	0933.6	III	GG,C,FS	2	25X	270X	
			HIRA	0930.0	0939.0	III	G	2	30	2000	
			LEAR	0930.0	0932.0	III		1	25	180	
			SVTO	0930.0	0933.0	III		2	25	180	
	0421	1752	ONDR	0930.5	0939.3	DCIM	G	2	2000X	4500X	
			IZMI	0932.1	0933.1	I	GG,DC	2	50	65	
			SVTO	0935.0	0939.0	III		2	25	180	
			IZMI	0935.7	0939.3	III	GG,FS	2	25X	270X	
			SVTO	0937.0	0943.0	II		1	31	180	ESS 0445
			SVTO	0937.0	0958.0	II		1	31	180	ESS 0445
			HIRA	0937.5	0943.5	II		1	80	190	
			IZMI	0937.8	0946.7	II	HARM	2	45	210	
			POTS	0938	0958.5	II	F,H	3	40X	220	
			SVTO	0951.0	0955.0	III		1	25	180	
			POTS	1020 U	1055 U	I	S,N	1	130	340	
			SVTO	1022.0	1024.0	III		2	25U	82U	
			POTS	1022.4	1024.6	DCIM		2	460	700	
			IZMI	1022.5	1024.7	III	G	2	25X	100	
			POTS	1022.5	1024.7	III	G	2	40X	90	
			SVTO	1059.0	1059.0	III		1	25	54	
			POTS	1118 U	1333 U	I	S,N	1	200U	280	
			POTS	1201.2	1205.7	III	GG	1	140	400	
			POTS	1241.9	1242.8	III	G,U	1	130	380	
			ONDR	1242.2	1242.4	DCIM	GG	2	2000X	3416	
			POTS	1242.2	1242.6	DCIM		1	520	730	
			POTS	1303.0	1303.3	III	B	2	40X	90	
			SVTO	1303.0	1303.0	III		1	25	82	
			POTS	1433	1447	I	S,N	1	130	340	
			HOLL	1447.0	1448.0	III		1	37	144	
			SVTO	1447.0	1448.0	III		1	38	135	
			POTS	1447.7	1448.7	III	G	2	40X	170U	
			HOLL	1556.0	1556.0	III		1	25	146	
			SGMR	1556.0	1556.0	V		1	30	40	
			SVTO	1556.0	1556.0	III		1	25U	82U	
			POTS	1556.3	1557.1	UNCLF		2	110	150	
			POTS	1658	1702	I	S,N	1	130	340	
			HOLL	1935.0	1936.0	III		1	25	130	
			PALE	1935.0	1939.0	III		1	25	118	
			SGMR	1936.0	1936.0	III		1	30	60	
	1924	2400	HIRA	1936.0	1936.5	III	B	1	25X	70	
			PALE	2030.0	0210.0	III	N	1	25	180	
			HIRA	2047.0	2047.5	III	B	1	25X	130	
			HOLL	2047.0	2047.0	III		1	25	70	
			PALE	2047.0	2047.0	III		1	25	87	
	2110	2400	CULG	2307.0	2308.0	III	G	1	57X	140	
			HOLL	2316.0	2316.0	III		1	25	72	
			PALE	2316.0	2316.0	III		1	25	66	

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07			LEAR	0336.0	0344.0	III		1	25	180	
			PALE	0336.0	0337.0	III		1	25	66	
	0000	0640	CULG	0336.0	0338.0	III	G	1	57X	100	
	0000	1000	HIRA	0336.5	0337.0	III	B	1	25X	90	
			HIRA	0341.5	0343.5	III	G	1	80	300	
			CULG	0342.0	0344.0	III	G	1	65	180	
			CULG	0358.0	0400.0	III	G	3	57X	360	
			HIRA	0358.0	0405.5	III	G	3	25X	420	
			LEAR	0358.0	0400.0	V		2	25	180	
			PALE	0358.0	0405.0	V		2	25	180	
			SVTO	0358.0	0359.0	V		2	25	180	
	0336	1800	POTS	0358.0	0429.8	III	GG,N	2	40X	600	
			CULG	0400.0	0406.0	III	G	2	57X	340	
			LEAR	0401.0	0405.0	III		1	25	180	
			SVTO	0401.0	0406.0	III		1	74U	180U	
			CULG	0409.0	0459.0	III	S	1	57X	180	
			LEAR	0412.0	0532.0	III	N	1	52	180	
	0422	1751	ONDR								
			POTS	0431	0502	I	S,N	2	110	270	
			POTS	0547.5	0547.8	DCIM		2	330	630	
			POTS	0642 U	0717 U	I	S,N	1	200U	280	
			POTS	0737 U	0949 U	I	S,N	1	200U	330	
			POTS	0933.9	0938.3	III	GG	2	200U	280	
			POTS	1037.8	1039.0	III	GG	2	110U	170U	
			POTS	1044 U	1049 U	I	S,N	1	120	350	
	0600	1200	IZMI	1046.8	1046.9	III	B	1	50	100	
			IZMI	1105.6	1121.0	III	N	1	45	90	
			POTS	1110 U	1145 U	I	S,N	1	130	320	
			POTS	1111.8	1119.1	III	GG	2	40X	350	
			IZMI	1112.8	1117.9	III	GG,FS	2	25X	270X	
			SVTO	1114.0	1117.0	III		1	25	180	
			SGMR	1117.0	1117.0	III		1	30	55	
			IZMI	1122.0	1137.0	I	S	2	45	90	
			POTS	1123.4	1126.7	III	GG	1	60	90	
			IZMI	1152.0	1158.0	III	N	1	45	90	
			POTS	1152.3	1154.0	III	G	1	40X	60	
			SVTO	1243.0	1244.0	III		1	25	50	
			POTS	1243.6	1243.9	III	B	2	40X	65	
			POTS	1323	1328	I	S,DC	1	240	330	
			POTS	1450	1500	I	S,N	1	240	280	
			POTS	1613.8	1614.4	III	G	2	120	230	
			HOLL	1759.0	1759.0	III		1	48	93	
			HOLL	1817.0	1817.0	III		1	25	39	
	1925	2400	HIRA	2026.5	2027.0	III	G	1	50	210	
			HIRA	2314.5	2315.0	III	B	1	130	420	
	2110	2400	CULG	2315.0	2315.0	III	B	1	160	280	
08			HOLL	0026.0	0026.0	III		1	49	147	
			LEAR	0026.0	0026.0	III		1	68	180	
	0000	0640	CULG	0026.0	0026.0	III	B	2	57X	180	
	0000	1000	HIRA	0026.0	0026.5	III	B	1	60	120	
			CULG	0049.0	0051.0	III	G	2	57X	180	
			HIRA	0049.0	0050.0	III	B	1	40	230	
			HOLL	0049.0	0050.0	III		1	29	167	
			LEAR	0049.0	0055.0	III		1	25	180	
			PALE	0049.0	0050.0	III		1	25	180	
			CULG	0055.0	0055.0	III	G	1	57X	160	
			HIRA	0055.0	0056.0	III	B	1	50	150	
	0423	1751	ONDR								
	0336	1800	POTS	0650.9	0651.1	III	B	2	110	230	
	0555	1200	IZMI	0650.9	0651.5	III	G	1	75	170	
			IZMI	0716.7	0720.1	III	G	1	45	90	
			POTS	0716.8	0717.8	III	G	2	40X	120	
			HIRA	0734.0	0735.0	III	B	1	50	200	
			LEAR	0734.0	0735.0	III		1	25	180	
			SVTO	0734.0	0735.0	III		1	25	180	
			IZMI	0734.3	0735.8	III	GG,C,FS	2	45	255	
			POTS	0734.3	0735.2	III	G	3	40X	300	
			IZMI	0738.0	0738.0	III	B	1	45	85	

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08			IZMI	0749.8	0752.7	III	G	1	45	90	
			IZMI	0801.7	0802.0	III	G	1	45	90	
			POTS	0806	0812	I	S,C	2	200U	380	
			IZMI	0807.4	0811.0	III	GG,C,FS	2	25X	270X	
			POTS	0808.8	0811.1	III	GG	3	40X	330	
			HIRA	0809.0	0810.5	III	G	1	50	240	
			LEAR	0809.0	0811.0	III		1	25	180	
			SVTO	0809.0	0811.0	III		1	25	180	
			IZMI	0822.5	0825.7	III	G	2	40	145	
			POTS	0822.5	0831.6	III	G,N	2	40X	330	
			IZMI	0831.2	0832.4	III	G,C	2	50	90	
			POTS	0853.5	0853.7	III	B	2	110	170U	
			POTS	0857.7	0858.5	I	DC	2	150	170U	
			LEAR	0911.0	0914.0	III		1	38	165	
			IZMI	0911.2	0917.1	III	GG,C,FS	2	25X	145	
			POTS	0911.2	0922.7	III	GG,N	3	40X	360	
			HIRA	0913.0	0915.5	III	G	1	25X	110	
			SVTO	0913.0	0917.0	III		2	25U	84U	
			SVTO	0913.0	0917.0	V		2	25U	84U	
			IZMI	0920.7	0922.7	III	G,FS	2	40	130	
			LEAR	0921.0	0922.0	III		1	58	136	
			SVTO	0921.0	0923.0	III		1	25U	82U	
			HIRA	0921.5	0922.5	III	B	1	50	120	
			POTS	1001.4	1010.1	I	S,N	2	140	330	
			POTS	1002.1	1002.3	III	G	2	150	370	
			POTS	1032.3	1032.6	III	G	1	130	280	
			POTS	1032.5	1041 U	I	S,N	1	200U	280	
			POTS	1103.5	1109.0	III	GG	1	120	300	
			POTS	1125	1208	I	S,N	2	130	300	
			IZMI	1131.0U	1200.0D	I	S	1	140	270	
			SVTO	1139.0	1140.0	III		1	124U	180U	
			POTS	1139.8	1140.2	III	GG	2	110	330	
			IZMI	1139.9	1140.1	III	G	2	110	270X	
			IZMI	1155.0	1155.4	III	G	1	25X	270X	
			SVTO	1155.0	1155.0	III		1	25	49	
			POTS	1243	1503	I	S,N,DC	2	120	300	
			SGMR	1251.0	1256.0	III		1	42	55	
			SVTO	1251.0	1256.0	III		1	25U	46U	
			POTS	1251.3	1256.3	III	G	3	40X	170U	
			HOLL	1255.0	1256.0	III		1	25	88	
			POTS	1317.8	1318.1	III	G,RS	2	120	170U	
			HOLL	1456.0	1457.0	III		1	25	89	
			POTS	1456.4	1458.0	III	G	2	45	280	
			HOLL	1619.0	1822.0	III	N	1	25	88	
			SVTO	1619.0	1619.0	III		1	25	83	
			POTS	1619.1	1619.7	III	G	2	110	720	
			POTS	1621	1626	I	S,N	1	240	280	
			POTS	1629.6	1630.6	III	G	1	110	240	
			POTS	1704.9	1705.4	III	G	2	120	270	
			SGMR	1705.0	1705.0	III		1	30	40	
			SVTO	1705.0	1705.0	III		1	25	48	
			POTS	1755	1800 U	I	S,N	2	110	300	
			HOLL	1917.0	1917.0	III		1	25	49	
			PALE	1917.0	1917.0	III		1	25	54	
			SGMR	1917.0	1917.0	III		1	30	40	
			PALE	2019.0	2021.0	III		1	25	74	
			SGMR	2019.0	2021.0	III		1	30	60	
	1925	2400	HIRA	2019.0	2021.0	III	G	1	25X	120	
	2110	2400	CULG	2317.0	2321.0	II	UE	1	140	260	
09			LEAR	0058.0	0059.0	III		1	25	180	
			HOLL	0059.0	0059.0	III		1	25	139	
	0000	0959	HIRA	0059.0	0059.5	III	B	2	50	110	
			PALE	0214.0	0429.0	III	N	1	25	180	
			HIRA	0215.0	0215.5	III	B	1	25X	70	
	0000	0640	CULG	0215.0	0219.0	III	G	1	57X	180	
			CULG	0231.0	0232.0	III	G	1	57X	200	
			LEAR	0231.0	0231.0	III		1	25	180	
			HIRA	0231.5	0232.0	III	B	1	25X	220	

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09			CULG	0332.0	0332.0	III	B	1	100	180	
			CULG	0338.0	0339.0	III	G	1	57X	130	
			LEAR	0401.0	0404.0	III		1	25	180	
			HIRA	0401.5	0403.5	III	G	1	25X	220	
			CULG	0402.0	0404.0	III	G	2	57X	180	
			SVTO	0402.0	0403.0	III		1	25	163	
	0336	1800	POTS	0402.3	0403.0	III	G	2	40X	240	
	0423	1751	ONDR								
			CULG	0503.0	0503.0	III	B	1	100	180	
			POTS	0503.0	0503.8	III	G	2	120	280	
			POTS	0816	0818	I	S	1	220	280	
			SVTO	0828.0	0830.0	III		1	25U	81U	
			POTS	0828.3	0830.0	III	G	2	40X	130	
	0604	1200	IZMI	0828.3	0828.6	III	G	2	45	95	
			LEAR	0829.0	0829.0	III		1	25	106	
			IZMI	0829.4	0830.0	III	G,C	2	25X	95	
			IZMI	0846.5	0846.8	III	G	1	160	225	
			POTS	0846.5	0846.8	III	G	2	140	400	
			POTS	0908.4	0909.7	II	UE	2	130	170U	
			POTS	1147.7	1147.9	III	G	1	130	270	
			POTS	1200.7	1201.0	III	G	1	200U	270	
			HOLL	1430.0	1434.0	III		1	25	89	
			SGMR	1430.0	1431.0	III		1	30	60	
			POTS	1430.4	1430.7	III	B	3	40X	90	
			POTS	1430.6	1431.0	V	B	3	40X	60	
			POTS	1520.7	1521.7	I	DC	2	220	280	
			HOLL	1831.0	2035.0	III	N	1	25	85	
			SGMR	1833.0	1946.0	III	N	1	30	80	
	1926	2400	HIRA								
	2110	2400	CULG	2305.0	2307.0	III	G	1	57X	130	
10			HOLL	0129.0	0130.0	V		1	25	180	
			LEAR	0129.0	0131.0	V		1	25	131	
	0000	0640	CULG	0129.0	0131.0	III	G	2	57X	200	
	0000	0955	HIRA	0129.5	0131.0	III	B	2	25X	80	
			CULG	0418.0	0420.0	III	G	3	57X	180	
			HIRA	0418.0	0420.0	III	G	3	25X	150	
			LEAR	0418.0	0419.0	V		2	25	180	
			PALE	0418.0	0419.0	III		1	25	180	
			SVTO	0418.0	0419.0	V		2	25	144	
	0336	1800	POTS	0418.3	0419.5	III	G	3	40X	170U	
	0424	1750	ONDR								
			SVTO	0708.0	0708.0	III		1	40	50	
			LEAR	0733.0	0734.0	III		1	25	88	
			SVTO	0733.0	0734.0	III		1	25	66	
			HIRA	0733.5	0734.0	III	B	1	25X	80	
			POTS	0733.6	0734.1	III	B	2	40X	85	
	0602	1200	IZMI	0733.7	0734.0	III	G,C	2	25X	90	
			SVTO	0809.0	0817.0	III		1	25U	82U	
			IZMI	0809.5	0809.7	III	B	1	50	65	
			POTS	0809.5	0819.2	III	G,N	2	40X	150	
			LEAR	0815.0	0822.0	III		1	25	117	
			IZMI	0815.2	0817.1	III	GG	2	25X	135	
			HIRA	0815.5	0816.0	III	B	1	50	110	
			SVTO	0859.0	0908.0	III		1	25	56	
			POTS	0908.0	0908.4	III	B	1	40X	80	
			IZMI	0933.6	0934.5	III	G	1	50	95	
			POTS	0933.7	0934.8	III	G,U	2	50	85	
			IZMI	0938.0	0938.1	III	B	1	50	65	
			IZMI	1034.5	1037.2	III	G,C	2	25X	165	
			POTS	1034.6	1046.1	III	GG,U	3	40X	400U	
			POTS	1034.8	1035.2	V	B	2	40X	70	
			SVTO	1035.0	1037.0	III		1	25	57	
			IZMI	1035.5	1037.5	III	GG	1	200	270X	
			SVTO	1037.0	1039.0	V		2	25	140	
			IZMI	1037.6	1038.7	III	G	2	25X	175	
			SGMR	1038.0	1039.0	III		2	30	60	
			IZMI	1038.1	1039.5	V	G,HARM	2	25X	95	
			POTS	1038.2	1039.9	V	G	3	40X	80	

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10			IZMI	1042.9	1043.9	III	G	1	25X	95	
			SVTO	1043.0	1046.0	III		1	25U	82U	
			IZMI	1045.6	1046.0	III	G	1	50	90	
			SVTO	1125.0	1126.0	III		1	25	58	
			IZMI	1125.8	1126.1	III	B	1	50	90	
			POTS	1134.7	1136.0	I	S,N	1	200U	300	
			HOLL	1340.0	1409.0	III	N	2	25	180	
			SVTO	1340.0	1340.0	III		1	25U	82U	
			POTS	1340.3	1349.2	III	GG	3	40X	400U	
			SGMR	1343.0	1409.0	III	N	3	30	80	
			SVTO	1343.0	1349.0	III		2	25U	82U	
			SVTO	1352.0	1352.0	III		1	25U	82U	
			SVTO	1352.0	1409.0	III	N	1	25U	82U	
			POTS	1404.2	1409.3	III	GG	3	40X	470	
			HOLL	1407.0	1408.0	III		2	25	180	
			SVTO	1407.0	1408.0	III		3	25	155	
			HOLL	1655.0	1659.0	V		2	25	137	
			PALE	1655.0	1658.0	III		1	25	180	
			SGMR	1655.0	1659.0	III		3	30	80	
			SVTO	1655.0	1659.0	III		2	25	180	
			POTS	1655.4	1658.4	III	G,N	2	40X	170U	
	2110	2400	CULG	2121.0	2121.0	III	G	3	57X	180	
			CULG	2126.0	2126.0	III	G	1	57X	120	
			CULG	2139.0	2139.0	III	B	1	60	75	
			HOLL	2240.0	2241.0	III		1	25	180	
			PALE	2240.0	2244.0	III		1	25	180	
			CULG	2241.0	2244.0	III	G	2	57X	180	
11			LEAR	0048.0	0107.0	III	N	2	25	180	
			HOLL	0049.0	0055.0	III		1	25	180	
			HOLL	0049.0	0107.0	III	N	2	25	180	
			PALE	0049.0	0107.0	III	N	1	25	180	
	0000	0640	CULG	0049.0	0107.0	III	GG	2	57X	180	
	0015	0959	HIRA	0049.0	0104.0	III	G	1	25X	130	
			CULG	0144.0	0145.0	III	G	1	57X	160	
			HIRA	0144.0	0144.5	III	B	1	50	150	
			CULG	0306.0	0308.0	III	G	1	57X	150	
			HIRA	0306.0	0306.5	III	B	1	30	140	
			LEAR	0306.0	0455.0	III	N	1	25	180	
			PALE	0306.0	0306.0	III		1	32	86	
			CULG	0412.0	0414.0	III	G	1	57X	140	
	0336	1848	POTS	0412.3	0412.5	III	G	2	110	140	200-400 MHz no dat
			POTS	0437.8	0438.2	III	G	1	110	170U	
			CULG	0509.0	0513.0	III	G	3	57X	180	
			LEAR	0509.0	0511.0	V		2	25	180	
			SVTO	0509.0	0512.0	III		2	25	147	
			POTS	0509.4	0527.8	III	GG,N	3	40X	170U	
			HIRA	0509.5	0512.5	III	G	2	25X	150	
			LEAR	0512.0	0512.0	III		1	25	180	
			CULG	0517.0	0517.0	III	B	1	57X	140	
			LEAR	0517.0	0650.0	III	N	1	56	180	
			CULG	0528.0	0528.0	III	B	1	57X	140	
			POTS	0553.1	0555.6	UNCLF		2	65	75	
			POTS	0704.0	0943.5	III	GG,N	2	40X	140	
			SVTO	0705.0	0705.0	III		1	35U	68U	
	0555	1200	IZMI	0705.0	1011.0U	III	N	1	25	90	
			IZMI	0713.0	0721.0	III	GG	2	25X	90	
			LEAR	0713.0	0845.0	III	N	1	25	180	
			SVTO	0713.0	0943.0	III	N	1	25U	82U	
			IZMI	0732.4	0742.0	III	GG	2	25	90	
			IZMI	0743.9	0751.4	III	GG	2	45	90	
			IZMI	0747.1	0749.4	III	GG,FS	2	25X	85	
			IZMI	0756.2	0756.8	III	G	2	25X	145	
			IZMI	0834.6	0842.1	III	GG	2	25X	90	
			LEAR	0908.0	0909.0	III		1	25	142	
			IZMI	0908.1	0910.5	III	GG,U	2	25X	155	
			HIRA	0908.5	0909.0	III	B	1	60	110	
			POTS	0942.4	0943.2	I	S,N	1	120	300	
			POTS	1045.6	1046.1	III	G,U	2	40X	130	

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11			IZMI	1045.7	1046.0	III	G	1	25X	65	
			IZMI	1136.8	1142.1	III	GG	1	40	95	
			POTS	1223	1225.3	I	DC,N	1	130	170U	
	0425	1749	ONDR	1445.5	1454.5	DCIM	G	2	2000X	4500X	
			ONDR	1446.0	1453.2	DCIM	GG	2	800X	2000X	
			HOLL	1943.0	2223.0	III	N	1	25	58	
			PALE	2222.0	2224.0	III		1	25	80	
	1927	2400	HIRA	2223.0	2224.0	III	G	1	25X	130	
	2110	2400	CULG	2223.0	2224.0	III	G	1	57X	130	
12	0000	0958	HIRA								
	1928	2400	HIRA	0136.5	0137.5	III	B	1	25X	140	
	0000	0650	CULG	0202.0	0258.0	III	N	1	57X	160	
			LEAR	0216.0	0348.0	III	N	1	25	180	
			CULG	0334.0	0439.0	III	N	1	57X	90	
	0336	1848	POTS	0408.5	0944 U	I	S,N,DC	2	150	350	
	0426	1749	ONDR								
			LEAR	0426.0	0428.0	III		1	38	103	
			CULG	0520.0	0625.0	III	N	1	57X	140	
			LEAR	0531.0	0822.0	III	N	1	25	180	
			SVTO	0531.0	0824.0	III	N	1	25	143	
			POTS	0552.4	0552.7	III	G	2	120	320	
	0555	0712	IZMI	0555.0E	1200.0U	III	N	1	25X	90	
			POTS	0604.5	0830.8	III	GG,N	3	40X	250	
			IZMI	0605.4	0608.1	III	GG	2	30	130	
			IZMI	0611.0	0740.0	III	S	2	25X	90	
			CULG	0625.0	0650.0D	III	S	2	57X	180	
			POTS	0844.3	0850.8	III	G,N	2	40X	70	
			POTS	0923.1	0930.1	III	G,N	1	40X	260	
	0712	1200	IZMI	0924.8	0925.8	III	G	1	45	160	
			POTS	1016.2	1055 U	I	S,N	1	140	300	
			POTS	1016.8	1017.4	III	G	1	40X	140	
			IZMI	1017.0	1017.5	III	G	1	25X	90	
			SVTO	1017.0	1017.0	III		1	28U	55U	
			SVTO	1044.0	1105.0	III	N	1	25U	66U	
			IZMI	1044.3	1044.5	III	B	2	25X	90	
			POTS	1055 U	1123 U	I	S,N	1	50	260	
			IZMI	1104.9	1105.2	III	B	1	25X	65	
			POTS	1150 U	1252 U	I	S,N	1	160	280	
			SVTO	1216.0	1216.0	III		1	28U	82U	
			POTS	1216.5	1217.0	III	B	1	40X	150	
			POTS	1314 U	1452 U	I	S,N	1	150	400	
			POTS	1330.5	1332.6	III	G	2	40X	230	
			HOLL	1331.0	1331.0	III		1	25	133	
			SGMR	1331.0	1331.0	III		2	30	60	
			SVTO	1331.0	1331.0	III		1	25	123	
			HOLL	1403.0	1410.0	III		1	25	89	
			POTS	1403.2	1411.2	III	G,N	2	40X	140	
			SVTO	1404.0	1409.0	III		1	28	141	
			HOLL	1431.0	1433.0	III		1	25	142	
			SGMR	1431.0	1433.0	III		1	30	70	
			SVTO	1431.0	1433.0	III		1	25	150	
			POTS	1431.3	1433.0	III	G	2	40X	320	
			HOLL	1454.0	1637.0	III	N	1	25	72	
			SVTO	1454.0	1521.0	III	N	1	25	81	
			SVTO	1556.0	1758.0	III	N	1	25	141	
			POTS	1605	1641	I	S,N	1	220	330	
			SGMR	1609.0	1609.0	III		1	30	40	
			SGMR	1637.0	1637.0	III		1	30	40	
	2110	2400	CULG	2125.0	2327.0	III	N	1	57X	90	
			CULG	2136.0	2138.0	III	G	1	57X	170	
			HOLL	2136.0	2137.0	III		1	25	86	
			PALE	2136.0	0430.0	III	N	1	25	95	
			PALE	2136.0	2145.0	III	N	1	25	95	
			SGMR	2136.0	2136.0	III		1	30	55	
			CULG	2204.0	2357.0	I	S	1	140	180	
			LEAR	2329.0	2331.0	III		1	25	180	
			CULG	2330.0	2400.0D	III	N	1	57X	180	
			LEAR	2343.0	2347.0	III		1	25	180	

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12			HIRA	2343.5	2348.0	III	G	1	25X	200	
			HOLL	2344.0	2348.0	III		1	25	86	
			HOLL	2359.0	0012.0	III	N	1	25	180	
13	0000	0650	CULG	0000.0E	0012.0	III	N	1	57X	180	
			CULG	0008.0	0008.0	III	B	2	57X	180	
			CULG	0017.0	0650.0D	III	N	1	57X	90	
			LEAR	0327.0	0343.0	III	N	1	25	180	
			CULG	0328.0	0332.0	III	G	1	57X	180	
	0000	0958	HIRA	0328.0	0331.5	III	G	1	30	200	
			CULG	0344.0	0344.0	III	B	1	57X	180	
	0427	1524	ONDR								
	0336	1848	POTS	0558.8	0600.7	I	S,N,DC	1	300	360	
			POTS	0600.2	0610.0	III	G,N	2	120	230	
	0607	1200	IZMI	0607.0	1200.0D	III	N	1	25X	90	
			CULG	0626.0	0630.0	III	G	1	57X	150	
			HIRA	0626.0	0626.5	III	B	1	30	120	
			LEAR	0626.0	0631.0	III		1	25	138	
			POTS	0626.0	0629.4	III	G,N	2	40X	160	
			SVTO	0626.0	0629.0	III		1	25U	83U	
			HIRA	0629.0	0629.5	III	B	1	25X	110	
			IZMI	0629.1	0629.7	III	G	2	25X	100	
			POTS	0655.2	0745.7	III	GG,N	2	40X	80	
			IZMI	0733.7	0733.8	III	B	1	25X	90	
			IZMI	0811.0	0811.1	III	B	1	40	70	
			POTS	0819.3	0828.3	III	G,N	3	40X	270	
			IZMI	0819.5	0820.1	III	G	2	40	150	
			LEAR	0826.0	0827.0	III		1	25	180	
			IZMI	0826.8	0827.5	III	GG,C	2	25X	250	
			HIRA	0827.0	0827.5	III	B	3	30	180	
			SVTO	0827.0	0827.0	III		2	25	180	
			POTS	0859.1	0859.4	III	B	2	40X	140	
			IZMI	1133.9	1134.0	III	B	2	40	90	
			POTS	1133.9	1136.7	III	G	2	40X	130	
			HOLL	1400.0	0151.0	III	N	1	25	180	
			POTS	1457.9	1502.0	III	GG	2	40X	330	
			SGMR	1500.0	1501.0	III		1	30	65	
			SVTO	1500.0	1501.0	III		2	25	180	
			SGMR	1527.0	1610.0	III	N	1	30	40	
			POTS	1715.8	1729 U	III	GG	2	110U	400	
			SGMR	1716.0	1722.0	III		1	30	60	
			SVTO	1716.0	1722.0	III		1	25	180	
	1929	2400	HIRA								
	2110	2400	CULG	2110.0E	2400.0D	III	N	1	57X	120	
			PALE	2247.0	0500.0	III	N	1	25	180	
			CULG	2301.0	2301.0	III	B	1	57X	180	
14	0000	0650	CULG	0000.0E	0112.0	III	N	1	57X	120	
			CULG	0112.0	0650.0D	III	S	1	57X	180	
			LEAR	0112.0	0938.0	III	N	1	25	180	
	0336	1848	POTS	0424.4	0428.3	III	G	2	40X	400U	
			SVTO	0427.0	0428.0	III		1	25U	162U	
	0000	0957	HIRA	0427.5	0428.0	III	B	1	25X	220	
			POTS	0428 U	1848 U	I	S,N,C	2	60	320	
			SVTO	0505.0	0506.0	III		1	25	61	
			CULG	0508.0	0510.0	III	G	3	57X	180	
			HIRA	0508.0	0510.0	III	G	2	25X	280	
			SVTO	0508.0	0510.0	III		2	25	150	
			POTS	0508.4	0519.7	III	GG,N	3	40X	580	
			SVTO	0511.0	1100.0	III	N	1	25	180	
			HIRA	0514.5	0518.0	III	G	3	25X	530	
			CULG	0515.0	0518.0	III	G	3	57X	750	
			LEAR	0516.0	0518.0	V		2	25	180	
			SVTO	0516.0	0517.0	III		2	25	180	
			IZMI	0640.0U	1200.0D	I	S	1	45	170	
	0606	1200	IZMI	0640.0U	1200.0D	III	S	2	25X	90	
			POTS	0649	1449 U	III	GG,N,RS	3	40X	90	
			IZMI	0933.4	0936.8	III	GG	2	25X	270X	
			POTS	0933.6	0935.4	III	GG	3	40X	570	

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14			HIRA	0934.0	0935.0	III	G	1	30	300	
			SVTO	0934.0	0935.0	III		2	25	180	
			IZMI	1012.5	1016.5	III	GG,C	2	25X	160	
			SGMR	1220.0	1225.0	III		1	30	55	
			SVTO	1225.0	1225.0	III		1	25	147	
			POTS	1225.4	1225.7	III	B	3	40X	170U	
			HOLL	1354.0	0040.0	III	N	1	25	82	
			SVTO	1354.0	1355.0	III		1	25U	65U	
			POTS	1354.3	1355.4	III	G	2	40X	350	
			SGMR	1355.0	1355.0	III		1	30	55	
			SGMR	1429.0	2107.0	III	N	2	30	80	
			SVTO	1429.0	1613.0	III	N	2	25U	148U	
			POTS	1449 U	1506 U	III	GG	3	40X	660	
			POTS	1506 U	1529 U	III	GG,N	2	40X	90	
	1930	2400	HIRA								
	2110	2400	CULG	2110.0E	2400.0D	III	S,C	1	57X	180	
			LEAR	2321.0	0939.0	CONT		1	40	180	
15	0000	0650	CULG	0000.0E	0650.0D	III	S,C	1	57X	180	
			LEAR	0042.0	0046.0	II		1	47U	120U	ESS 0375
			CULG	0051.0	0051.0	III	B	1	100	270	
	0000	0957	HIRA	0051.0	0051.5	III	B	3	100	270	
	0336	1848	POTS	0412 U	1809 U	I	S,C,N,DC	2	110U	320	
			SVTO	0453.0	1756.0	III	N	2	25	180	
			LEAR	0507.0	0835.0	III	N	1	25	180	
			IZMI	0555.0E	1200.0D	III	N	2	25X	90U	
	0555	1200	IZMI	0555.0E	1200.0D	I	S,C	2	45	270X	
			POTS	0648 U	1139 U	III	GG,N,U,RS	3	40X	200	
			IZMI	0655.4	0657.4	III	GG,C	2	25X	160	
			HIRA	0655.5	0657.5	III	G	1	30	130	
			IZMI	0728.1	0728.5	III	G	2	25X	160	
			HIRA	0754.0	0754.5	III	B	1	40	300	
			IZMI	0754.0	0754.4	III	G	2	25X	270X	
			POTS	0754.0	0755.0	III	G	3	40X	400U	
			IZMI	1023.9	1026.7	III	GG,F,S	2	25X	90	
			IZMI	1137.7	1149.4	III	S	2	25X	270X	
			IZMI	1137.8	1139.8	II	G	1	120	160	
			POTS	1138.7	1218 U	III	GG	3	40X	800X	
			SGMR	1142.0	1320.0	IV		2	30	80	
			IZMI	1157.6	1201.1	III	GG	2	25X	150	
			POTS	1218 U	1348 U	III	GG	2	40X	260	
			HOLL	1304.0	0017.0	III	N	1	25	180	
			HOLL	1339.0	1800.0	CONT		1	25	90	
			POTS	1348 U	1401 U	III	GG	3	40X	600	
			SGMR	1348.0	1720.0	III	N	2	30	80	
			SVTO	1348.0	1350.0	V		2	25	180	
			POTS	1401 U	1608 U	III	GG	2	40X	260	
			POTS	1615.0	1625 U	III	GG	3	110U	750	
			SVTO	1623.0	1624.0	III		2	25	180	
			PALE	1718.0	1719.0	III		1	25	56	
			PALE	1743.0	2023.0	III	N	3	25	180	
			POTS	1823.9	1824.1	III	B	2	230	330	
			HOLL	1839.0	1839.0	III		1	25	147	
			SGMR	1839.0	1839.0	III		2	30	80	
			POTS	1839.2	1845.9	III	G,N	2	40X	400U	
			SGMR	1911.0	1915.0	III		1	30	60	
			SGMR	1941.0	1945.0	III		1	30	60	
	1930	2400	HIRA	1954.5	2030.0	III	G	3	25X	600	
			SGMR	1955.0	2213.0	IV		3	30	80	
			HOLL	2002.0	2006.0	III		2	25	180	
			HOLL	2012.0	0000.0	IV		1	25	88	
			PALE	2023.0	2319.0	IV		2	25	180	
			HIRA	2027.0		IV		1	70	300	
	2110	2400	CULG	2110.0E	2214.0	IV	FS	3	57X	1500	
			CULG	2214.0	2400.0D	III	S,C	1	57X	180	
			LEAR	2321.0	0355.0	IV		1	25	180	
16	0000	0650	CULG	0000.0E	0650.0D	III	S,C	1	57X	180	
	0000	0956	HIRA	0049.5	0050.0	III	B	1	25X	50	

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16			CULG	0144.0	0144.0	III	G	2	57X	90	
			PALE	0144.0	0421.0	III	N	1	25	180	
			CULG	0149.0	0150.0	III	G	2	57X	90	
			CULG	0328.0	0331.0	III	G	2	57X	140	
			HIRA	0328.0	0331.0	III	G	1	25X	120	
			LEAR	0328.0	0331.0	III		1	25	180	
			SVTO	0413.0	1756.0	CONT		2	25	180	
	0336	1848	POTS	0415 U	1848 U	IV		3	40X	400	
			IZMI	0555.0E	1200.0D	III	N	1	25X	90U	
	0555	1200	IZMI	0555.0E	1200.0D	I	S,C	2	45	260	
			SVTO	0635.0	0637.0	III		1	25	78	
			IZMI	0647.8	0648.1	III	G	2	80	270X	
			IZMI	0709.8	0710.2	III	G	2	25X	65	
			POTS	0810.9	0812.0	III	G	3	40X	280	
			IZMI	0811.0	0811.9	III	GG	2	25X	160	
			SVTO	0900.0	0902.0	III		3	25	164	
			IZMI	0900.8	0901.9	III	GG	2	25X	160	
			POTS	0900.8	0901.9	III	GG	3	40X	500	
			HIRA	0901.0	0902.0	III	G	2	25X	130	
			LEAR	0901.0	0901.0	III		2	25	180	
			POTS	0901.4	0901.8	V	G	3	40X	80	
			IZMI	1024.5	1024.9	III	G	2	25X	90	
			IZMI	1028.8	1030.2	III	GG	2	25X	240	
			SGMR	1111.0	2355.0	CONT		2	30	80	
			IZMI	1112.1	1112.4	III	G	2	25X	160	
			IZMI	1135.1	1135.6	III	G	2	25X	165	
			POTS	1135.2	1135.5	III	G	3	40X	270	
			HOLL	1224.0	0155.0	CONT		1	40	180	
			SVTO	1229.0	1249.0	II		1	33	60	ESS 0368
			HOLL	1350.0	.0	III	N	1	25	180	
			POTS	1351.6	1401.3	III	G	3	40X	450	
			POTS	1351.8	1353.1	DCIM		2	350	570	
			POTS	1409.7	1414.9	III	GG	2	200U	400U	
	1930	2400	HIRA								
	2110	2400	CULG	2110.0E	2400.0D	III	S,C	3	57X	180	
			LEAR	2321.0	0000.0	CONT		1	42	180	
17	0000	0650	CULG	0000.0E	0650.0D	III	S,C	2	57X	180	
	0336	1848	POTS	0350 U	1848 U	IV		2	40X	400U	
			SVTO	0354.0	1755.0	CONT		1	25	180	
			LEAR	0439.0	0439.0	III		1	25	180	
			SVTO	0439.0	1347.0	III	N	2	25	180	
	0000	0956	HIRA	0439.0	0439.5	III	B	1	25X	280	
			IZMI	0558.0E	1200.0D	III	N	1	25X	90U	
	0558	1204	IZMI	0558.0E	1200.0D	I	S,C	2	45	270X	
			POTS	0633.6	0634.2	UNCLF		2	200U	330	
			HIRA	0700.0	0713.5	III	G	3	25X	330	
			LEAR	0700.0	0706.0	V		2	25	180	
			SVTO	0700.0	0705.0	III		3	25	180	
			POTS	0700.2	0722	IV		3	40X	800X	
			IZMI	0700.4	0707.0	III	S,C	2	25X	270X	
			LEAR	0705.0	0712.0	II		1	25U	27U	ESS 1347
			IZMI	0705.2	0708.9	UNCLF	DC	2	25X	45	
			SVTO	0706.0	0710.0	II		2	25U	48U	ESS 0697
			LEAR	0709.0	0714.0	III		2	25	180	
			SVTO	0709.0	0714.0	III		2	25	180	
			IZMI	0709.1	0713.6	III	S,C,F,S	2	25X	270X	
			IZMI	0711.2	0712.8	UNCLF	C	2	190	270X	
			IZMI	0719.4	0721.4	III	G	2	25X	90	
			LEAR	0720.0	0721.0	III		2	25	115	
			SVTO	0720.0	0721.0	V		2	25U	82U	
			HIRA	0720.5	0721.5	III	B	2	25X	50	
			POTS	0740.2	0741.3	DCIM		2	300	500	
			IZMI	0848.6	0851.1	III	G	2	25X	150	
			SVTO	0918.0	0919.0	III		2	25U	82U	
			IZMI	0918.4	0919.7	III	G	2	25X	240	
			HIRA	0918.5	0919.0	III	B	1	30	50	
			POTS	0918.5	0919.7	III	G	3	40X	300	
			IZMI	1006.3	1007.4	III	G	2	25X	175	

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17			IZMI	1020.8	1020.9	III	B	2	25X	65	
			POTS	1049.0	1050.3	III	G	3	40X	90	
			SVTO	1049.0	1050.0	III		1	25U	82U	
			IZMI	1049.1	1051.1	III	GG	2	25X	100	
			POTS	1056	1059	III	G	3	40X	550	
			SVTO	1057.0	1057.0	III		1	25	60	
			IZMI	1057.2	1057.5	III	B	2	25X	65	
			SGMR	1111.0	1705.0	CONT		2	30	65	
			IZMI	1145.7	1145.9	III	B	2	25X	45	
			POTS	1345.8	1347.4	DCIM		2	300	550	
			HOLL	1408.0	1409.0	III		1	25	136	
			SGMR	1408.0	1409.0	III		2	30	80	
			SVTO	1408.0	1409.0	III		2	25U	84U	
			POTS	1408.4	1408.8	III	B	3	40X	170U	
			POTS	1408.7	1409.0	V	B	3	40X	70	
			POTS	1410.1	1410.4	DCIM		2	200U	400U	
			HOLL	1520.0	1643.0	III	N	1	25	122	
			SVTO	1520.0	1533.0	III	N	1	25U	153U	
			PALE	1617.0	0459.0	CONT		2	25	180	
			POTS	1643.6	1647.0	DCIM		2	300	400U	
			SGMR	1911.0	1916.0	III		2	30	80	
			CULG	2110.0E	2400.0D	III	S	1	57X	90	
	2110	2400	CULG	2110.0E	2400.0D	I	S,C	1	60	180	
			HOLL	2139.0	2141.0	III		1	25	180	
	1931	2400	HIRA	2139.5	2141.0	III	G	1	25X	210	
			CULG	2140.0	2141.0	III	G	2	57X	650	
			CULG	2256.0	2258.0	III	G	2	57X	150	
			HOLL	2256.0	2257.0	III		1	25	118	
			HIRA	2256.5	2258.0	III	G	1	25X	120	
			LEAR	2320.0	0809.0	CONT		1	25	180	
18			CULG	0000.0E	0650.0D	III	S	1	57X	180	
	0000	0650	CULG	0000.0E	0650.0D	I	S,C	1	60	180	
			SVTO	0355.0	0821.0	CONT		1	25	180	
	0336	1848	POTS	0409	0740 U	I	S,N,DC	1	110	350	
			POTS	0429.0	0430.3U	DCIM		2	330U	630	
			LEAR	0548.0	0940.0	III	N	1	25	180	
			SVTO	0548.0	1602.0	III	N	1	25	180	
			IZMI	0603.0E	1200.0D	III	N	1	25X	90U	
	0603	1200	IZMI	0603.0E	1200.0D	I	S,C	1	45	270X	
			IZMI	0617.0	0620.9	I	GG,DC	2	180	270X	
			IZMI	0618.0	0620.9	III	GG	1	45	160	
			IZMI	0626.0	0633.3	III	GG	2	25X	145	
			IZMI	0626.7	0627.2	I	GG,DC,R,S	2	120	175	
			CULG	0646.0	0647.0	III	G	3	57X	500	
			IZMI	0646.0	0647.3	III	GG,C	2	25X	270X	
			LEAR	0646.0	0647.0	V		1	25	180	
			SVTO	0646.0	0647.0	V		2	25	180	
	0000	0955	HIRA	0646.0	0651.0	III	G	2	25X	450	
			POTS	0646.1	0653.3	III	GG	3	40X	720	
			IZMI	0647.8	0648.4	III	G,C	2	25X	180	
			IZMI	0648.8	0654.2	III	GG	2	25X	270X	
			IZMI	0706.2	0706.4	III	B,C	2	25X	65	
			POTS	0738	1115 U	IV		3	40X	800X	
			IZMI	0738.0	0744.5	III	GG,C	2	25X	270X	
			POTS	0738.0	0757.6	III	GG	3	40X	800X	
			HIRA	0740.0	0757.0	III	G	3	25X	600	
			LEAR	0741.0	0744.0	V		3	25	180	
			SVTO	0741.0	0744.0	V		3	25	180	
			POTS	0742	0758	II	F,H	3	40X	450	
			SVTO	0744.0	0801.0	II		2	25U	86U	ESS 0913
			IZMI	0744.3	0746.8	UNCLF	DC	2	25X	95	
			IZMI	0744.8	0745.3	I	GG,DC	2	165	270X	
			IZMI	0744.8	0755.7	II	HARM	2	25X	170	
			SVTO	0745.0	0750.0	III		2	25	180	
			IZMI	0745.3	0751.5	III	GG	2	25X	260	
			LEAR	0747.0	0753.0	II		2	25U	92U	ESS 0998
			IZMI	0755.7	0802.4	II		2	50	90	
			IZMI	0755.8	0757.7	III	GG	2	25X	160	

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18			IZMI	0756.0U	1055.0U	IV		2	45	270X	
			SVTO	0756.0	0756.0	III		2	25U	83U	
			LEAR	0809.0	0940.0	IV		1	68	122	
			SVTO	0821.0	0950.0	IV		1	25	180	
			SVTO	0951.0	1755.0	CONT		1	25	180	
			IZMI	1021.6	1022.5	III	G	2	25X	90U	
			IZMI	1044.5	1045.5	III	G	2	25X	155	
			POTS	1044.6	1048.2	III	G	3	40X	350	
			POTS	1115 U	1337 U	I	S,N,C	3	40X	400U	
			IZMI	1142.0	1143.9	III	GG	2	25X	270X	
			POTS	1142.0	1144.0	III	GG	2	40X	360	
			SGMR	1142.0	1143.0	III		2	30	80	
			SVTO	1142.0	1143.0	III		2	25	180	
			POTS	1203.6	1204.7	III	G	2	40X	90	
			POTS	1234.1	1236.4	III	GG	2	40X	90	
			POTS	1234.1	1236.8	DCIM		2	240	520	
			HOLL	1237.0	0200.0	CONT		1	65	131	
			HOLL	1315.0	0006.0	III	N	2	25	180	
			POTS	1339	1442 U	III	GG,N	2	40X	80	
			SGMR	1339.0	1602.0	III	N	3	30	80	
			POTS	1425.8	1426.3	DCIM		2	330	500	
			HOLL	1426.0	1427.0	III		2	25	180	
			SVTO	1426.0	1426.0	III		3	25	180	
			POTS	1426.2	1426.5	III	G	3	40X	500	
			POTS	1426.3	1427.1	V	B	3	40X	70	
			POTS	1440 U	1848 U	I	S,N	1	120	320	
			PALE	1635.0	0442.0	CONT		1	25	180	
			SGMR	1649.0	1836.0	III	N	2	30	80	
			SVTO	1649.0	1651.0	III		1	25	62	
			POTS	1715.0	1716.7	DCIM		2	270	580	
			PALE	1744.0	0459.0	III	N	1	25	180	
			POTS	1820.2	1826.8	DCIM		2	200U	800X	
			HOLL	1911.0	1942.0	II		1	25	180	ESS 0914
			PALE	1912.0	1920.0	II		1	39	180	ESS 0521
			SGMR	1916.0	1917.0	II		3	43	57	ESS 0900
			SGMR	1916.0	1917.0	II		3	43	57	ESS 1700
			HOLL	1920.0	1922.0	III		2	25	148	
			HOLL	1920.0	1922.0	V		2	25	148	
			PALE	1920.0	1950.0	IV		2	25	180	
			SGMR	1920.0	2042.0	III	N	3	30	80	
			HOLL	2033.0	2035.0	III		2	25	180	
			PALE	2033.0	2035.0	V		2	25	180	
	1932	2400	HIRA	2037.0	2039.0	III	B	3	25X	300	
			HIRA	2047.0	2047.5	III	B	1	25X	130	
			CULG	2110.0E	2400.0D	III	N	1	57X	180	
	2110	2400	CULG	2110.0E	2400.0D	I	S	1	110	180	
			CULG	2209.0	2209.0	III	B	1	57X	450	
			CULG	2213.0	2213.0	III	B	1	57X	630	
			HIRA	2213.0	2213.5	III	B	1	25X	650	
			CULG	2253.0	2254.0	III	G	2	57X	480	
			HIRA	2255.5	2256.0	III	B	1	25X	210	
			CULG	2258.0	2258.0	III	B	1	240	760	
			CULG	2305.0	2305.0	III	G	1	57X	500	
			CULG	2315.0	2315.0	III	B	3	57X	440	
19			CULG	0000.0E	0700.0D	III	N	1	57X	180	
	0000	0700	CULG	0000.0E	0700.0D	I	S	1	75	180	
	0000	0955	HIRA	0001.5	0006.5	III	G	2	25X	220	
			CULG	0002.0	0007.0	III	GG	3	57X	250	
			PALE	0016.0	0459.0	III	N	1	25	180	
			HOLL	0056.0	0057.0	III		1	25	49	
			CULG	0102.0	0102.0	III	B	3	57X	120	
			HOLL	0102.0	0102.0	III		1	25	117	
			HIRA	0102.5	0103.0	III	B	2	25X	100	
			HIRA	0135.0	0141.0	III	G	1	25X	200	
			HIRA	0228.5	0229.0	III	B	1	25X	420	
			CULG	0229.0	0229.0	III	B	1	57X	400	
			HIRA	0321.0	0332.0	III	G	3	25X	200	
			SVTO	0355.0	1119.0	III	N	2	25	180	

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19	0336	1848	POTS	0423	1848 U	I	S,N,DC	1	120	420	
			POTS	0434.5	0436.0	DCIM		2	300	520	
			POTS	0437.2	0439.5	III	G	2	110	280	
			CULG	0450.0	0451.0	III	G	2	57X	200	
			HIRA	0450.0	0452.0	III	B	2	25X	210	
			SVTO	0450.0	0452.0	V		2	25	180	
			POTS	0450.1	0451.4	III	G	2	40X	300	
			SVTO	0505.0	0509.0	III		2	25	180	
			POTS	0505.8	0509.0	III	GG	3	40X	630	
			CULG	0506.0	0509.0	III	G	3	57X	680	
			HIRA	0506.0	0509.0	III	G	3	25X	190	
			HIRA	0548.5	0552.0	III	G	1	25X	200	
			POTS	0548.5	0551.2	III	G,N	2	40X	300	
			POTS	0549.1	0551.7	DCIM		2	330	580	
			IZMI	0600.0E	1110.0U	III	N	1	25X	95	
	0600	1200	IZMI	0600.0E	1110.0U	I	N	2	70Y	180	
			IZMI	0600.8	0601.8	III	GG	1	45	100	
			IZMI	0637.8	0639.9	III	GG	2	25X	145	
			POTS	0639.4	0639.8	III	G	2	40X	160	
			HIRA	0639.5	0640.0	III	B	1	25X	120	
			IZMI	0709.1	0710.4	III	GG	2	25X	120	
			POTS	0709.4	0710.4	III	G	2	40X	80	
			HIRA	0710.0	0710.5	III	B	1	25X	70	
			POTS	0735.3	0832.3	III	GG,N	2	40X	80	
			IZMI	0735.4	0736.4	III	GG	1	25X	95	
			IZMI	0743.0	0747.4	III	GG	1	25	120	
			IZMI	0757.1	0757.4	III	G	2	25X	95	
			IZMI	0806.3	0806.5	III	B	1	25	95	
			IZMI	0810.8	0812.7	III	GG,FS	2	40	125	
			IZMI	0816.1	0816.9	III	G	1	25X	90	
			IZMI	0822.1	0826.7	III	GG	1	25X	150	
			IZMI	0832.0	0832.3	III	B	1	25X	90	
			IZMI	0835.9	0840.7	III	GG,C	2	25X	270X	
			POTS	0836.9	0840.8	III	GG	3	40X	600	
			HIRA	0837.0	0840.0	III	G	2	25X	130	
			SVTO	0837.0	0840.0	V		3	25	151	
			IZMI	0847.1	0853.3	III	GG,C	2	25X	270X	
			POTS	0847.2	0852.4	III	GG	3	40X	350	
			HIRA	0851.0	0852.5	III	G	1	25X	120	
			POTS	0903.5	0903.7	DCIM		2	380	620	
			POTS	0915.7	0924.8	III	GG	3	40X	400	
			POTS	0915.7	0925.0	DCIM		2	300U	730	
			IZMI	0915.9	0919.8	III	GG,FS,C	2	25X	270X	
			SVTO	0916.0	0919.0	III		2	25	180	
			HIRA	0918.0	0918.5	III	B	2	25X	260	
			IZMI	1028.2	1028.4	III	G	1	25X	160	
			IZMI	1031.3	1036.7	III	GG	2	25X	270X	
			POTS	1031.3	1036.7	III	G	3	40X	260	
			POTS	1036.3	1036.7	III	G	3	40X	260	
			IZMI	1050.8	1054.9	III	GG	2	25X	125	
			POTS	1050.8	1055.1	III	G,N	2	40X	140	
			POTS	1116.0	1117.4	III	G	2	40X	300	
			IZMI	1116.4	1117.3	III	GG	1	25X	270X	
			SVTO	1158.0	1754.0	III	N	2	25	170	
			IZMI	1159.3	1159.8	III	GG	2	25X	240	
			POTS	1159.4	1159.9	III	G	2	40X	240	
			POTS	1203.0	1206.3	DCIM		2	220	620	
			SGMR	1222.0	2041.0	III	N	3	30	80	
			POTS	1222.5	1223.4	DCIM		2	420	580	
			POTS	1222.7	1238.8	III	G,N	2	40X	270	
			POTS	1233.7	1236.0	DCIM		1	400	580	
			HOLL	1246.0	1250.0	III		2	25	180	
			POTS	1246.0	1250.7	III	GG	3	40X	560	
			SVTO	1246.0	1248.0	III		2	25	180	
			HOLL	1317.0	2041.0	III	N	2	25	180	
			POTS	1317.0	1332.0	III	G,N	2	40X	170U	
			POTS	1347.2	1354.8	III	G,N	2	40X	380	
			POTS	1412.6	1435.2	III	GG,N	3	40X	670	
			SVTO	1421.0	1423.0	V		2	25	172	

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Day	OBSERVATION Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
19			HOLL	1429.0	1433.0	III		2	25	180	
			SVTO	1429.0	1433.0	III		3	25	180	
			POTS	1505.2	1511.8	III	GG,N	3	40X	580	
			POTS	1519.1	1519.4	III	B	2	40X	220	
			POTS	1616.3	1618.9	III	G	1	110	230	
			PALE	1621.0	0012.0	CONT		1	25	180	
			HOLL	1624.0	1715.0	CONT		1	25	83	
			SVTO	1628.0	1657.0	CONT		1	25	42	
			POTS	1636.7	1646.2	III	G	1	40X	670	
			POTS	1743.7	1743.9	III	B	2	110	370	
			POTS	1810.3	1812.2	III	G	2	40X	650	
			POTS	1822.3	1823.3	DCIM		2	300	570	
	2000	2400	HIRA	2011.0	2024.0	III	G	1	25X	400	
	2110	2400	CULG	2149.0	2149.0	III	B	1	57X	90	
			CULG	2212.0	2212.0	III	B	1	120	500	
			HIRA	2212.0	2212.5	III	B	1	110	510	
			CULG	2250.0	2250.0	III	B	1	57X	170	
			HIRA	2250.0	2250.5	III	B	1	25X	140	
			CULG	2255.0	2255.0	III	B	1	57X	140	
20			HOLL	0016.0	0023.0	III		1	25	153	
	0000	0700	CULG	0016.0	0017.0	III	G	1	57X	170	
			CULG	0023.0	0023.0	III	B	2	57X	180	
			LEAR	0023.0	0023.0	III		1	25	180	
	0000	0954	HIRA	0023.0	0023.5	III	B	1	25X	230	
			CULG	0042.0	0044.0	III	G	1	57X	140	
			LEAR	0054.0	0055.0	III		1	25	180	
			HIRA	0054.5	0055.0	III	B	1	25X	230	
			CULG	0055.0	0055.0	III	G	1	57X	150	
			CULG	0117.0	0117.0	III	B	1	57X	80	
			CULG	0153.0	0156.0	III	G	1	57X	100	
			CULG	0207.0	0211.0	III	G	1	57X	180	
			LEAR	0208.0	0212.0	III		1	25	180	
			HIRA	0208.5	0210.5	III	G	1	25X	200	
			CULG	0310.0	0310.0	III	B	1	57X	90	
			CULG	0319.0	0319.0	III	B	1	57X	180	
			CULG	0346.0	0347.0	III	G	1	57X	80	
	0336	1848	POTS	0421.7	0422.2	III	G	1	120	400U	
			CULG	0422.0	0423.0	III	G	1	57X	180	
			POTS	0446 U	0932	I	S,N	1	200U	350	
			CULG	0525.0	0525.0	III	B	1	57X	100	
			SVTO	0532.0	1754.0	III	N	2	25	180	
			CULG	0533.0	0533.0	III	B	1	57X	120	
			CULG	0556.0	0700.0D	III	N	1	57X	180	
	0555	1200	IZMI	0556.5E	0556.5	III	B	2	45	65	
			IZMI	0603.7	0603.8	III	B	1	45	90	
			IZMI	0620.4	0622.8	III	GG	2	25X	230	
			POTS	0620.4	0621.3	III	G	1	40X	220	
			HIRA	0620.5	0621.5	III	G	1	25X	200	
			IZMI	0626.0	0626.4	III	GG	1	45	95	
			IZMI	0710.4	0712.2	III	GG,C	2	25X	270X	
			POTS	0710.4	0711.3	III	G	1	40X	300	
			IZMI	0812.7	0813.3	III	G	2	25X	155	
			POTS	0812.8	0813.4	III	G	1	40X	140	
			IZMI	0842.4	0842.5	III	B	1	60	90	
			IZMI	0854.8	0856.1	III	GG,FS	2	25X	155	
			POTS	0854.8	0856.7	III	G	1	40X	170U	
			IZMI	0942.8	0946.7	III	GG	2	25X	170	
			POTS	0942.9	0946.8	III	GG	2	40X	170U	
			POTS	0959 U	1848	I	S,N	1	200U	350	
			IZMI	1006.6	1007.3	III	G	2	220	270X	
			POTS	1006.7	1007.1	DCIM		2	220	580	
			IZMI	1040.0	1051.0	I	N	2	210	270X	
			IZMI	1125.7	1125.8	III	B	2	190	220	
			POTS	1221.8	1222.0	III	G	1	200U	310	
			SGMR	1223.0	1326.0	III	N	2	30	65	
			SVTO	1223.0	1223.0	III		2	25	180	
			POTS	1223.4	1224.0	III	G	3	40X	380	
			POTS	1239.4	1242.0	DCIM		2	420	770	

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OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
20			HOLL	1249.0	1255.0	III		1	25	140	
			POTS	1249.3	1259.6	III	G,N	2	40X	380	
			POTS	1252.0	1254.8	DCIM		2	280	750	
			HOLL	1320.0	1326.0	III		1	25	180	
			POTS	1321.0	1326.4	III	G,U	2	40X	270	
			POTS	1444.4	1444.7	DCIM		1	360	580	
			POTS	1537.5	1543.8	III	G,N	2	40X	430	
			POTS	1538.6	1539.1	DCIM		1	460	520	
			HOLL	1543.0	1543.0	III		1	25	141	
			SGMR	1543.0	1604.0	III	N	1	30	60	
			HOLL	1603.0	1604.0	III		1	25	180	
			POTS	1644.1	1645.9	DCIM		2	200U	700	
			POTS	1659.3	1702.2	DCIM		1	200U	660	
			HOLL	1701.0	1908.0	III	N	1	25	137	
			PALE	1701.0	1701.0	III		1	25	55	
			SGMR	1701.0	1701.0	III		1	30	60	
			PALE	1811.0	1814.0	III		1	25	180	
			PALE	1811.0	1908.0	III	N	1	25	180	
			SGMR	1811.0	1908.0	III	N	1	30	60	
			POTS	1813.4	1813.8	III	G	1	200U	400U	
			POTS	1834.9	1835.2	DCIM		1	480	720	
			POTS	1837.8	1842.9	III	G	1	200U	320	
			PALE	2027.0	2033.0	III		1	25	180	
			HOLL	2029.0	2032.0	II		1	65	141	ESS 0668
	1933	2400	HIRA	2029.5	2032.0	II		1	70	120	
			HIRA	2033.0	2033.5	III	B	1	25X	80	
			HOLL	2033.0	2033.0	III		1	25	58	
	2105	2400	CULG	2106.0	2107.0	III	G	1	140	450	
			CULG	2107.0	2111.0	III	G	3	57X	330	
			CULG	2107.0	2126.0	IV		1	57X	1300	
			HOLL	2107.0	2129.0	III	N	2	25	180	
			PALE	2107.0	2129.0	II		2	25	180	ESS 0515
			SGMR	2107.0	2129.0	II		2	30	80	
			HIRA	2107.5	2128.0	II		3	30	240	
			CULG	2109.0	2120.0	II	FN	3	57X	180	ESS 400
			HOLL	2109.0	2125.0	II		2	25	180	ESS 0796
			CULG	2110.0	2120.0	II	SH	3	110	400	
			CULG	2120.0U	2120.0	II	UE	2	57X	120	
			CULG	2127.0	2130.0	III	G	2	57X	1700	
			CULG	2128.0E	2152.0	IV		1	60	1700	
			PALE	2130.0	0459.0	CONT		1	25	86	
			HIRA	2131.5	2132.0	III	B	1	50	300	
			CULG	2132.0	2132.0	III	B	1	60	90	
			CULG	2136.0	2136.0	III	B	1	57X	180	
			CULG	2140.0	2213.0	I	S	1	140	180	
			HIRA	2140.5	2141.0	III	B	1	25X	210	
			CULG	2214.0	2214.0	III	B	1	57X	90	
			CULG	2325.0	2325.0	III	B	1	200	300	
			HOLL	2329.0	2330.0	III		1	25	134	
			LEAR	2329.0	2329.0	III		1	25	180	
			HIRA	2329.5	2330.0	III	B	1	25X	400	
			CULG	2330.0	2330.0	III	B	1	57X	180	
21			LEAR	0212.0	0212.0	III		1	41	174	
	0000	0700	CULG	0212.0	0212.0	III	B	1	57X	180	
	0000	0953	HIRA	0212.0	0212.5	III	B	1	60	150	
			CULG	0303.0	0700.0D	III	N	1	57X	180	
	0336	1848	POTS	0346 U	1848 U	I	S,N	2	130	400U	
			LEAR	0413.0	0917.0	III	N	1	25	180	
			CULG	0434.0	0434.0	III	B	1	100	530	
			HIRA	0434.0	0450.0	III	G	1	190	510	
			POTS	0434.0	0452.4	III	G,N	2	120	550	
			CULG	0442.0	0442.0	III	B	1	100	480	
			CULG	0450.0	0450.0	III	G	1	120	300	
			SVTO	0548.0	0549.0	III		1	25	180	
			POTS	0548.4	0550.2	III	GG	2	40X	370	
			HIRA	0548.5	0549.0	III	B	1	25X	230	
			IZMI	0548.5	0549.7	III	G	2	25X	90X	
			IZMI	0555.0E	1145.0U	III	N	1	25X	90	

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21	0555	1205	IZMI	0555.0E	1205.0D	I	N	2	80	270X	
			POTS	0603.7	0604.5	III	GG	2	110U	320	
			IZMI	0603.8	0604.3	III	G	1	45	250	
			IZMI	0625.4	0625.6	III	B	1	45	175	
			POTS	0718.7	0718.9	III	B	2	130	400	
			POTS	0808.6	0813.6	III	GG	2	40X	330	
			IZMI	0808.8	0813.5	III	GG	2	25X	270X	
			HIRA	0810.0	0813.0	III	G	1	50	250	
			SVTO	0810.0	0812.0	III		1	25	180	
			POTS	0853.9	0854.1	III	B	1	200U	430	
			SVTO	0904.0	0904.0	III		1	25U	82U	
			IZMI	0904.2	0904.3	III	B	1	25X	140	
			POTS	0904.2	0904.4	III	B	1	40X	170U	
			POTS	0906.9	0907.1	DCIM		1	320	520	
			IZMI	0910.5	0910.8	III	G	2	200	270X	
			POTS	0910.5	0911.0	III	GG	3	140	400	
			SVTO	0928.0	1130.0	III	N	1	25	125	
			IZMI	0928.1	0928.7	III	G	1	25X	90	
			POTS	0955.1	0958.6	III	GG	2	40X	230	
			IZMI	0955.5	0956.8	III	GG	2	25X	140	
			SVTO	1022.0	1023.0	III		2	25U	82U	
			IZMI	1022.7	1023.2	III	G	2	25X	120	
			POTS	1022.7	1029.9	III	G,U	2	40X	90	
			IZMI	1035.3	1035.5	III	B	2	25X	100	
			IZMI	1056.0	1056.9	III	GG	2	200	270X	
			POTS	1056.0	1056.9	III	GG	2	200U	400	
			IZMI	1115.4	1115.6	III	B	1	25X	90	
			POTS	1242.0	1242.2	III	B	1	40X	70	
			SVTO	1242.0	1242.0	III		1	25U	82U	
			POTS	1244.6	1245.7	DCIM		2	220	670	
			POTS	1314.5	1316.3	III	G	2	240	440	
			POTS	1334.0	1334.5	III	G	2	220	620	
			POTS	1451.3	1454.7	III	G	2	250	400	
			HOLL	1537.0	1753.0	III	N	1	25	126	
			SGMR	1602.0	1628.0	III	N	1	30	80	
			SVTO	1602.0	1635.0	III	N	1	25	180	
			POTS	1602.8	1614.0	III	GG	2	50	570	
	1934	2400	HIRA								
			PALE	2000.0	2000.0	III		1	25	58	
	2110	2400	CULG	2146.0	2156.0	III	G	1	57X	90	
			CULG	2227.0	2237.0	III	G	1	57X	90	
22	0000	0700	CULG	0050.0	0105.0	III	N	1	57X	180	
	0336	1848	POTS	0420 U	1848 U	I	S,N	2	140	400	
			CULG	0545.0	0545.0	III	B	1	57X	100	
			CULG	0547.0	0547.0	III	B	2	57X	150	
			LEAR	0547.0	0547.0	III		1	25	142	
			SVTO	0547.0	0547.0	III		1	25U	82U	
	0000	0953	HIRA	0547.0	0547.5	III	B	1	30	100	
			POTS	0547.4	0547.6	III	B	2	40X	170U	
	0601	1200	IZMI	0601.0E	1200.0D	I	S	1	210	270X	
			LEAR	0747.0	0748.0	III		1	25	140	
			SVTO	0747.0	0804.0	III	N	1	25U	82U	
			HIRA	0747.5	0748.0	III	B	1	25X	120	
			IZMI	0747.6	0748.0	III	B	2	25X	130	
			POTS	0747.6	0747.9	III	B	2	40X	170U	
			IZMI	0757.1	0757.4	III	B	1	45	125	
			IZMI	0803.8	0804.3	III	B	1	25X	125	
			POTS	0803.9	0804.2	III	B	2	40X	170U	
			LEAR	0804.0	0804.0	III		1	25	91	
			LEAR	0915.0	0931.0	III	N	1	76	180	
			HIRA	0915.5	0931.0	III	G	1	120	300	
			IZMI	0915.5	0916.0	III	GG	2	140	270X	
			POTS	0915.6	0952.1	III	GG	2	130	340	
			IZMI	0918.1	0919.4	III	GG	2	130	270X	
			IZMI	0926.6	0929.5	III	GG	2	130	270X	
			IZMI	0944.1	0956.2	III	N	1	45	95	
			IZMI	0951.6	0951.9	III	GG	2	75	270X	
			IZMI	1007.0	1008.4	III	GG	2	25X	270X	

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Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
22			POTS	1007.0	1008.5	III	G	2	40X	350	
			SVTO	1007.0	1007.0	III		1	25	156	
			SVTO	1042.0	1043.0	III		1	25U	82U	
			POTS	1042.2	1055.6	III	GG,N	2	40X	290	
			IZMI	1042.7	1043.9	III	G	2	25X	175	
			SGMR	1148.0	1155.0	III		1	30	60	
			SVTO	1148.0	1200.0	III	N	1	25	180	
			IZMI	1148.5	1149.9	III	GG,C	2	25X	270X	
			POTS	1148.6	1200.8	III	GG,N	3	40X	770	
			IZMI	1154.4	1158.2	III	GG	2	25X	270X	
			HOLL	1452.0	1715.0	III	N	1	25	88	
			SVTO	1455.0	1503.0	III		1	25U	82U	
			POTS	1455.4	1455.9	III	G,RS	2	40X	260	
			POTS	1542.6	1543.7	DCIM		2	320	680	
			POTS	1713.3	1715.8	DCIM		1	450	600	
			POTS	1847.1	1847.4	III	G	2	200U	650	
	1935	2400	HIRA								
	2110	2400	CULG	2238.0	2312.0	I	S	1	120	180	
23	0000	0700	CULG	0025.0	0027.0	III	G	1	150	750	
			CULG	0027.0	0031.0	III	G	1	57X	1300	
			CULG	0028.0	0033.0	II	FN	3	57X	170	FLA
			CULG	0028.0	0046.0	IV		1	57X	1500	
			HOLL	0028.0	0031.0	III		2	25	180	
			CULG	0029.0	0036.0	II	SH	3	57X	280	ESS 950
			HOLL	0029.0	0052.0	II		2	25	180	ESS 0548
			PALE	0029.0	0036.0	II		2	110	180	ESS 0743
	0000	0952	HIRA	0029.0	0053.0	II		3	25X	260	
			LEAR	0032.0	0050.0	II		2	30	180	ESS 0759
			CULG	0034.0	0048.0	II	SH	2	57X	160	ESS 500
			CULG	0038.0	0040.0	III	G	2	57X	300	
			CULG	0046.0	0130.0U	I	S,C	1	75	160	
			CULG	0049.0	0051.0	III	G	1	57X	750	
			LEAR	0050.0	0226.0	IV		1	25	180	
			CULG	0340.0	0340.0	III	B	1	57X	75	
	0336	1848	POTS	0341 U	1848 U	I	S,N,DC	2	120	400	
	0550	1200	IZMI	0550.0E	1200.0D	I	N	2	130	270X	
			CULG	0626.0	0626.0	III	B	1	57X	90	
			HIRA	0626.0	0626.5	III	B	1	50	110	
	0758	1740	ONDR								
			IZMI	0826.3	0826.5	III	B	1	45	110	
			LEAR	0859.0	0900.0	III		1	25	180	
			SVTO	0859.0	0900.0	III		1	25U	82U	
			IZMI	0859.1	0901.6	III	GG,FS	1	45	260	
			POTS	0859.1	0901.9	III	G	2	40X	400	
			POTS	0910.0	0912.1	III	GG	1	40X	400	
			SVTO	0952.0	1151.0	III	N	1	25U	82U	
			IZMI	1118.5	1119.0	III	G	2	25X	160	
			POTS	1118.6	1118.9	III	B	2	40X	370	
			POTS	1225 U	1323 U	III	GG,N	1	100	300U	
			SVTO	1245.0	1246.0	III		1	25	135	
			POTS	1342 U	1417 U	III	GG,N	1	100	300U	
			SVTO	1344.0	1415.0	III	N	1	25U	82U	
			HOLL	1506.0	1514.0	III		1	25	83	
			SVTO	1507.0	1514.0	III		1	25U	82U	
			POTS	1513.8	1514.2	III	G	1	40X	270	
			POTS	1557	1601	III	GG	1	100	270U	
			POTS	1734	1801 U	III	GG,N	1	110	250U	
			HOLL	1741.0	1817.0	III	N	1	25	65	
			HOLL	1957.0	1958.0	III		1	25	88	
			PALE	1957.0	1957.0	III		1	25	82	
	1936	2400	HIRA	1957.5	1958.0	III	B	1	25X	50	
			CULG	2110.0E	2342.0	III	N	1	57X	180	
	2110	2400	CULG	2110.0E	2324.0	I	S,C	1	110	260	
			HOLL	2153.0	2153.0	III		1	25	63	
			PALE	2153.0	2153.0	III		1	25	54	
			HOLL	2341.0	2341.0	III		1	25	75	
24			LEAR	0311.0	0313.0	III		1	25	180	

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24			PALE	0311.0	0313.0	III		1	25	61	
	0000	0700	CULG	0311.0	0313.0	III	G	1	57X	180	
	0000	0951	HIRA	0311.0	0311.5	III	B	1	25X	210	
	0336	1848	POTS	0348 U	1848 U	I	S,N,DC	3	120	400	
			CULG	0418.0	0422.0	III	G	1	57X	180	
			HIRA	0418.0	0418.5	III	B	1	80	130	
	0600	2100	IZMI	0600.0E	0938.0U	I	N	2	110	270X	
			CULG	0611.0	0700.0D	I	S	1	120	180	
	0615	1739	ONDR								
			POTS	0820.2	0820.7	III	G	2	40X	400	
			IZMI	0820.6	0820.7	III	B	1	45	100	
			IZMI	0837.0	0837.2	III	B	1	45	90	
			SVTO	0839.0	1127.0	III	N	1	25	148	
			IZMI	0839.5	0839.8	III	B	2	25X	140	
			POTS	0839.5	0840.1	III	G	2	40X	250U	
			IZMI	0847.2	0847.3	III	B	2	110	155	
			POTS	0847.2	0847.4	III	B	2	110	170U	
			IZMI	0857.5	0857.7	III	G	1	25X	90	
			POTS	0857.6	0857.8	III	B	2	40X	80	
			POTS	0902.2	0904.0	III	G,U	2	120	270	
			IZMI	0932.0	0944.3	III	S	2	25X	160	
			POTS	0932.0	1848 U	III	GG,N,RS	3	40X	400	
			IZMI	0938.0U	1200.0D	I	S,C	2	45	270X	
			IZMI	0944.0U	1020.0U	I	S	2	25X	180	
			IZMI	1004.0U	1200.0D	CONT		2	45U	270X	
			IZMI	1020.0U	1200.0D	III	N	2	25X	90	
			HOLL	1344.0	1347.0	III		1	25	164	
			HOLL	1344.0	1914.0	III	N	1	25	180	
			SVTO	1344.0	1710.0	III	N	2	25	180	
			SGMR	1345.0	1348.0	III		2	30	60	
			SVTO	1345.0	1347.0	III		2	25	180	
			SGMR	1410.0	1451.0	III	N	2	30	70	
			SGMR	1538.0	1841.0	IV		1	30	55	
			SVTO	1553.0	1737.0	IV		1	25	180	
			HOLL	1557.0	1733.0	IV		1	25	127	
			SGMR	1848.0	1848.0	III		1	30	50	
			HOLL	1909.0	2231.0	CONT		1	114	180	
			SGMR	1913.0	1913.0	III		1	30	55	
			CULG	2110.0E	2400.0D	III	N	1	57X	180	
	2110	2400	CULG	2110.0E	2248.0	I	S,C	1	100	180	
			HOLL	2233.0	2241.0	III		2	25	180	
	1937	2400	HIRA	2233.0	2241.5	III	G	2	25X	210	
			SGMR	2235.0	2240.0	III		1	30	80	
			CULG	2250.0	2400.0D	I	S,C	1	60	120	
			HOLL	2252.0	0146.0	CONT		1	25	125	
			LEAR	2318.0	0943.0	CONT		1	43	180	
			PALE	2341.0	2341.0	III		1	25	58	
25			CULG	0000.0E	0700.0D	III	N	1	57X	180	
	0000	0700	CULG	0000.0E	0700.0D	I	S,C	1	60	180	
	0338	1758	POTS	0346 U	1758 U	I	S,N,DC	3	110	400	
			CULG	0356.0	0400.0	III	G	2	57X	180	
			LEAR	0356.0	0400.0	III		1	25	180	
	0000	0950	HIRA	0356.0	0359.5	III	G	2	25X	200	
			POTS	0356.9	0357.2	III	B	2	40X	250	
			SVTO	0400.0	1750.0	CONT		1	75U	180U	
			POTS	0528 U	0557 U	III	GG,N	2	110	270U	
			SVTO	0528.0	1653.0	III	N	1	25	180	
			IZMI	0606.0	1200.0D	III	N	1	45	90	
	0606	1200	IZMI	0606.0E	1200.0D	I	S	1	80	270X	
			IZMI	0609.3	0610.9	III	G	2	45	115	
			HIRA	0610.0	0610.5	III	B	1	50	110	
			LEAR	0610.0	0610.0	III		1	53	141	
	0615	1738	ONDR								
			IZMI	0617.4	0617.5	III	B	1	40	95	
			LEAR	0738.0	0739.0	III		1	25	180	
			IZMI	0748.9	0749.2	III	G	2	25X	95	
			POTS	0748.9	0749.2	III	B	2	40X	90	
			IZMI	0810.8	0814.0	III	G	1	30	90	

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25			HIRA	0823.0	0823.5	III	B	1	30	120	
			POTS	0823.0	0829.3	III	G	2	40X	360U	
			IZMI	0823.2	0824.4	III	G	2	40	130	
			HIRA	0828.5	0829.0	III	B	1	25X	100	
			IZMI	0828.5	0829.2	III	G	2	25X	175	
			LEAR	0851.0	0857.0	III		1	25	180	
			HIRA	0851.5	0858.0	III	G	1	30	200	
			IZMI	0851.6	0858.2	III	GG	2	25X	175	
			POTS	0851.7	0901.6	III	GG	3	40X	360U	
			IZMI	0932.0	0932.1	III	B	2	45	95	
			IZMI	0941.9	0942.4	CONT		1	55	65	
			IZMI	0950.9	0952.0	III	GG	1	75	160	
			IZMI	1002.9	1003.2	III	G	2	25X	90	
			POTS	1002.9	1031.5	III	GG,RS	2	40X	400U	
			IZMI	1009.2	1031.0	III	S	2	25X	220	
			POTS	1255.7	1306.7	III	G,N	2	40X	90	
			HOLL	1259.0	1828.0	III	N	1	25	88	
			SGMR	1306.0	1306.0	III		1	30	50	
			POTS	1444.0	1459.5	III	GG,N	1	40X	160	
			POTS	1753.0	1756.5	III	G,N	1	110	170U	
			PALE	1759.0	0457.0	III	N	1	25	180	
	2110	2400	CULG	2302.0	2400.0	I	S	1	100	180	
	1938	2400	HIRA	2311.5	2312.0	III	B	1	30	110	
			CULG	2312.0	2312.0	III	B	1	57X	150	
			LEAR	2348.0	0047.0	III	N	1	25	180	
			HIRA	2348.5	2352.0	III	G	1	50	130	
			CULG	2349.0	2352.0	III	G	1	57X	160	
26	0000	0700	CULG	0037.0	0037.0	III	B	1	57X	90	
			CULG	0040.0	0041.0	III	G	1	57X	180	
	0000	0949	HIRA	0040.0	0047.0	III	G	1	25X	190	
			CULG	0047.0	0047.0	III	B	1	57X	90	
			CULG	0210.0	0217.0	III	G	1	57X	140	
			CULG	0325.0	0325.0	III	B	1	57X	130	
			HIRA	0325.0	0325.5	III	B	1	25X	130	
			LEAR	0325.0	0325.0	III		1	25	155	
			CULG	0400.0	0405.0	III	G	1	57X	130	
			LEAR	0400.0	0401.0	III		1	25	129	
			HIRA	0401.0	0401.5	III	B	1	25X	110	
	0338	1800	POTS	0414 U	1326 U	I	S,N	1	120	400	
			POTS	0459.9	0500.2	III	B	2	110U	170U	
			CULG	0500.0	0500.0	III	B	1	57X	150	
			POTS	0527.7	0532.3	III	G,N	1	110	170U	
			CULG	0528.0	0532.0	III	G	1	57X	90	
			CULG	0633.0	0700.0D	III	N	1	57X	180	
			POTS	0634.1	0634.5	III	G	1	110	170U	
	0557	1200	IZMI	0635.0	1200.0U	I	N	1	80	270X	
			IZMI	0647.0	1200.0D	III	N	1	45	90	
			POTS	0647.4	0718.5	III	GG,N	2	40X	370	
			SVTO	0649.0	0937.0	III	N	1	25U	82U	
			IZMI	0649.3	0649.8	III	G	1		95	
			IZMI	0653.0	0656.9	III	GG	1	45	160	
			IZMI	0700.6	0703.4	III	GG	2	25	270X	
			IZMI	0705.6	0708.3	III	GG	1	45	90	
			IZMI	0713.9	0718.5	III	GG	1	45	140	
			IZMI	0742.8	0743.0	III	G	1	40	95	
			POTS	0743.8	0744.0	III	B	1	40X	75	
			LEAR	0752.0	0759.0	III		1	25	180	
			SVTO	0752.0	0759.0	III		1	25	180	
			HIRA	0752.5	0753.0	III	B	1	30	170	
			IZMI	0752.5	0752.9	III	G	2	25X	160	
			POTS	0753.4	0811.3	III	GG,N	2	40X	600	
			IZMI	0758.0	0800.8	III	GG,FS	2	25X	240	
			HIRA	0759.5	0800.0	III	B	1	40	200	
			IZMI	0803.3	0804.8	III	G	2	45	270X	
			IZMI	0837.0	0841.3	III	GG	2	25X	155	
			POTS	0838.1	0847.4	III	G,N	2	40X	250	
			IZMI	0846.1	0846.3	III	B	2	30	70	
			LEAR	0859.0	0943.0	CONT		1	73	180	

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26			IZMI	0859.3	0911.6	III	GG	2	25X	130	
			POTS	0900.5	0929.7	III	GG,N	2	40X	150	
			IZMI	0915.4	0917.7	III	G	2	25X	115	
	0615	1736	ONDR	0919.0	0926.1	DCIM	GG	2	2000X	4500X	
			IZMI	0927.8	0928.5	III	G	1	25X	90	
			IZMI	0939.7	0939.8	III	B	1	45	65	
			IZMI	0950.5	0951.5	III	G	2	25X	270X	
			SVTO	0951.0	0951.0	III		1	25	180	
			POTS	0952.1	0952.9	III	G	2	40X	350	
			IZMI	1010.8	1011.1	III	G	2	25X	65	
			POTS	1012.2	1025.2	III	GG	3	40X	620	
			SVTO	1015.0	1139.0	III	N	1	25	180	
			IZMI	1015.9	1023.4	III	GG	2	25X	270X	
			IZMI	1030.9	1040.1	III	GG	2	25X	150X	
			POTS	1035.0	1041.7	III	GG	2	40X	170U	
			IZMI	1044.1	1045.6	III	G	2	25X	270X	
			POTS	1045.6	1047.1	III	G	2	40X	380	
			IZMI	1103.7	1112.1	III	GG	2	25X	180	
			POTS	1105.0	1110.0	III	GG	2	40X	230	
			POTS	1127.5	1138.4	III	GG,N	3	40X	400	
			IZMI	1128.7	1132.3	III	G	2	25X	235	
			IZMI	1137.8	1139.7	III	GG	2	25X	270X	
			SGMR	1139.0	1159.0	III	N	2	30	80	
			POTS	1139.3	1139.5	DCIM	U	2	270	800X	
			POTS	1156.9	1159.9	III	GG	3	40X	470	
			POTS	1157.3	1158.7	V	G	3	40X	120	
			POTS	1157.8	1158.2	DCIM		2	520	770	
			SVTO	1158.0	1159.0	V		1	25	180	
			IZMI	1158.2	1159.7	V	G,HARM	2	25X	160	
			IZMI	1158.2	1200.3	III	GG	2	25X	270X	
			POTS	1240.9	1242.0	III	G	2	40X	280	
			POTS	1317.6	1317.9	III	G,U	2	40X	150	
			POTS	1325.8	1329.8	III	GG	3	40X	800X	
			POTS	1326 U	1337 U	I	C,DC	3	140	440	
			HOLL	1326.0	1329.0	III		1	25	132	
			SGMR	1326.0	1329.0	III		2	30	80	
			SVTO	1327.0	1329.0	III		1	25	82	
			POTS	1334.8	1339.5	III	G	2	120	240	
			POTS	1337 U	1800 U	I	S,N	2	130	350	
			POTS	1416.8	1430.7	III	GG	2	40X	300	
			SGMR	1421.0	1434.0	III	N	2	30	80	
			SVTO	1421.0	1434.0	III	N	2	25	180	
			POTS	1431.2	1436.3	III	GG	3	40X	800X	
			ONDR	1606.1	1607.4	DCIM	G	1	2449	4500X	
			SVTO	1650.0	1650.0	III		1	25	134	
	1939	2400	HIRA	2026.0	2026.5	III	B	1	25X	100	
	2110	2400	CULG	2110.0E	2210.0	III	S,C	1	57X	300	
			CULG	2114.0	2131.0	CONT		2	400	750	
			HOLL	2201.0	2202.0	III		1	25	82	
			PALE	2201.0	2209.0	III		3	25	180	
			HIRA	2205.0	2212.0	III	G	3	25X	1200	
			CULG	2206.0	2209.0	III	G	3	57X	1600	
			HOLL	2206.0	2213.0	V		2	25	180	
			SGMR	2206.0	2213.0	V		3	30	80	
			CULG	2209.0	2212.0	V		2	60	1700	
			CULG	2210.0	2248.0	III	S,C	2	57X	180	
			CULG	2223.0	2400.0D	I	S	1	100	180	
			HIRA	2238.0	2240.0	III	G	1	25X	120	
			PALE	2238.0	2240.0	V		1	25	63	
			CULG	2248.0	2400.0D	III	S,C	1	57X	180	
			CULG	2302.0	2311.0	IV		1	340	1300	
			CULG	2313.0	2313.0	III	B	2	57X	180	
			HIRA	2313.0	2325.5	III	G	2	25X	310	
			PALE	2315.0	0457.0	CONT		1	25	180	
			HOLL	2316.0	2318.0	III		1	25	173	
			CULG	2317.0	2319.0	III	G	3	57X	170	
			LEAR	2317.0	0944.0	CONT		1	25	180	
			LEAR	2317.0	0944.0	CONT		1	61	180	
			LEAR	2317.0	2318.0	III		2	25	180	

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26			LEAR	2324.0	2324.0	III		2	25	180	
			CULG	2325.0	2325.0	III	B	3	57X	180	
27			CULG	0000.0E	0026.0	III	S,C	1	57X	180	
	0000	0700	CULG	0000.0E	0700.0D	I	S	1	60	180	
			CULG	0037.0	0700.0D	III	N	1	57X	180	
			HOLL	0103.0	0104.0	III		1	25	168	
			LEAR	0103.0	0105.0	III		2	25	180	
			CULG	0104.0	0105.0	III	G	3	57X	170	
	0000	0949	HIRA	0104.0	0105.0	III	G	3	25X	130	
			CULG	0147.0	0148.0	III	G	1	57X	780	
			LEAR	0157.0	0158.0	III		2	25	180	
			HIRA	0158.0	0158.5	III	B	1	25X	100	
			CULG	0307.0	0308.0	III	G	3	57X	140	
			HIRA	0307.0	0308.0	III	B	1	25X	120	
			LEAR	0307.0	0308.0	III		2	25	180	
	0338	1846	POTS	0415 U	1846 U	I	S,N,DC	2	120	400	
			LEAR	0453.0	0454.0	III		2	25	180	
			SVTO	0453.0	0453.0	III		2	25U	61U	
			HIRA	0453.5	0454.5	III	B	1	25X	70	
			POTS	0456.4	0457.0	III	GG	1	40X	550U	
			IZMI	0600.0E	1200.0D	III	S	2	25X	95U	
	0600	1200	IZMI	0600.0E	1200.0D	I	S,C	2	45U	270X	
			IZMI	0603.1	0606.1	III	GG	2	40	250	
			POTS	0607.7	0610.9	I	DC	3	110	230	
	0615	1735	ONDR								
			LEAR	0702.0	0703.0	III		1	25	124	
			SVTO	0702.0	0703.0	III		1	25U	77U	
			HIRA	0702.5	0703.0	III	B	1	25X	100	
			IZMI	0702.7	0703.2	III	G	2	25X	95	
			POTS	0709.2	0711.2	III	G,N	3	40X	85	
			IZMI	0725.8	0727.9	III	GG	2	25X	95	
			LEAR	0726.0	0727.0	III		2	25	140	
			SVTO	0726.0	0727.0	III		2	25U	82U	
			HIRA	0726.5	0728.0	III	G	1	25X	100	
			POTS	0733.8	0736.8	III	GG	3	40X	670	
			POTS	0740.4	1037 U	III	GG,N	2	40X	90	
			LEAR	0742.0	0746.0	III		2	25	131	
			SVTO	0742.0	0746.0	III		2	25U	82U	
			IZMI	0742.3	0743.1	III	G,C	2	25X	65	
			HIRA	0742.5	0746.5	III	G	1	25X	80	
			IZMI	0745.9	0747.0	III	G,C	2	25X	90	
			IZMI	0820.4	0834.2	III	S	2	25X	180U	
			IZMI	0850.1	0852.7	III	GG	2	40	95	
			POTS	0942.5	0943.1	DCIM		2	280	680	
			IZMI	0945.7	0946.0	III	G	2	180	270X	
			IZMI	0951.1	0952.3	III	GG	2	25X	270X	
			POTS	0959.7	1000.2	DCIM		2	200U	530	
			IZMI	1007.7	1007.8	III	G,HARM	2	55	160	
			SVTO	1022.0	1033.0	III	N	2	25	180	
			IZMI	1022.4	1027.4	III	GG,C	2	25X	270X	
			POTS	1022.5	1022.7	III	B	2	110	170U	
			SGMR	1024.0	1024.0	III		2	30	80	
			SVTO	1024.0	1024.0	V		3	25	180	
			IZMI	1029.0	1033.0	III	GG,C	2	25X	270X	
			POTS	1037.9	1052 U	III	GG	3	40X	770	
			POTS	1052 U	1321 U	III	GG,N	2	40X	170U	
			SGMR	1229.0	1246.0	III	N	1	30	55	
			SVTO	1229.0	1247.0	III	N	1	25U	57U	
			HOLL	1328.0	2245.0	CONT		1	60	180	
			POTS	1335.8	1336.1	III	B,U	2	200U	630	
			POTS	1344.5	1405.0	III	G,N	1	40X	170U	
			POTS	1354.0	1355.0	III	B,U	2	60U	770	
			HOLL	1405.0	0057.0	III	N	1	25	180	
			SGMR	1440.0	1440.0	III		1	30	65	
			SVTO	1440.0	1440.0	III		1	25U	62U	
			POTS	1443 U	1507 U	III	G,N	1	40X	90	
			PALE	1648.0	1649.0	III		1	25	86	
			SGMR	1648.0	1649.0	III		2	30	75	

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OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
27			SVTO	1648.0	1649.0	III		1	25U	64U	
			POTS	1715.5	1716.2	III	G	2	40X	70	
			PALE	1754.0	1754.0	III		1	25	86	
			SGMR	1754.0	1754.0	III		2	30	60	
			SGMR	1957.0	1958.0	III		2	30	45	
	1940	2400	HIRA	1958.0	1958.5	III	B	1	25X	50	
			CULG	2110.0	2110.0	III	B	1	57X	420	
			CULG	2110.0E	2400.0D	I	S	1	60	180	
			HIRA	2110.0	2110.5	III	B	2	25X	450	
			SGMR	2110.0	2110.0	III		2	30	80	
	2110	2400	CULG	2110.0E	2400.0D	III	S,C	1	57X	180	
			LEAR	2305.0	0944.0	CONT		2	25	180	
			CULG	2356.0	2356.0	III	B	2	57X	120	
			HIRA	2356.5	2357.0	III	B	1	25X	160	
28			CULG	0000.0E	0227.0	I	S	1	100	180	
	0000	0700	CULG	0000.0E	0430.0	III	S,C	1	57X	180	
			CULG	0112.0	0116.0	III	G	3	57X	140	
			HOLL	0112.0	0116.0	III		1	25	164	
	0000	0948	HIRA	0112.0	0116.0	III	G	2	25X	160	
			CULG	0231.0	0343.0	I	S,C	2	60	120	
	0339	1844	POTS	0339 U	1844 U	I	S,N,DC	2	40X	400U	
			CULG	0343.0	0412.0	I	S,C	3	60	120	
			SVTO	0403.0	1747.0	CONT		2	25U	180U	
			CULG	0412.0	0700.0D	I	S	1	100	180	
			CULG	0430.0	0700.0D	III	S,C	2	57X	180	
			POTS	0543.7	0545.2	III	GG,RS	2	40X	520	
			IZMI	0549.0E	1200.0D	III	N	2	25X	95U	
	0549	1200	IZMI	0549.0E	1200.0D	I	S,C	2	40U	270X	
	0600	1719	ONDR								
			SVTO	0824.0	0906.0	III	N	1	25U	180U	
			IZMI	0841.1	0843.3	III	G	2	25X	75	
			POTS	1057.7	1129 U	III	GG,N	2	40X	80U	
			IZMI	1059.6	1059.7	III	G,HARM	2	25	65	
			POTS	1156 U	1219 U	III	G,N	1	40X	80U	
			SGMR	1156.0	1156.0	III		1	30	60	
			SVTO	1156.0	1156.0	III		1	25U	82U	
			IZMI	1156.4	1156.8	III	G,RS	2	25X	70	
			HOLL	1231.0	0145.0	CONT		1	65	180	
			POTS	1340 U	1403 U	III	G,N	1	40X	80U	
			HOLL	1340.0	2231.0	III	N	1	25	105	
			SGMR	1340.0	1700.0	III	N	2	30	80	
			SVTO	1340.0	1616.0	III	N	2	25U	180U	
			POTS	1459.3	1459.9	DCIM		1	350	480	
			POTS	1504.7	1505.4	DCIM		1	360	630	
			POTS	1536.1	1536.4	III	B	2	150	450	
			SGMR	1700.0	1937.0	CONT		1	30	80	
			POTS	1708.4	1710.1	III	G	2	150	400	
			POTS	1740.8	1749.8	III	GG,N	2	100U	420	
			CULG	2110.0	2340.0	I	S,C	2	75	170	
	2110	2400	CULG	2110.0	2400.0D	III	S,C	1	57X	180	
			CULG	2136.0	2137.0	III	G	2	57X	100	
	1940	2400	HIRA	2136.0	2137.0	III	B	1	25X	110	
			CULG	2313.0	2335.0	III	N	2	57X	150	
			HOLL	2313.0	0003.0	III	N	1	25	154	
			LEAR	2316.0	0944.0	CONT		1	25	180	
			HIRA	2318.0	2318.5	III	B	2	25X	200	
			HIRA	2335.0	2335.5	III	B	1	25X	130	
			CULG	2340.0	2400.0D	I	S,C	1	140	180	
29			CULG	0000.0E	0700.0D	I	S	1	60	230	
	0000	0700	CULG	0000.0E	0040.0	III	S,C	1	57X	180	
			CULG	0040.0	0220.0	III	S,C	2	57X	180	
			CULG	0220.0	0419.0	III	S,C	3	57X	180	
			CULG	0233.0	0234.0	III	G	1	400	750	
			CULG	0235.0	0238.0	III	G	3	57X	1800	
			LEAR	0235.0	0237.0	V		2	25	180	
	0000	0947	HIRA	0235.0	0237.5	III	G	3	25X	600	
			HIRA	0239.0	0243.0	II		1	80	200	

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29			CULG	0240.0	0241.0	III	G	2	60	360	
			CULG	0240.0	0243.0	II	FN	3	65	130	
			CULG	0240.0	0243.0	II	SH	2	150	260	ESS 600
			HIRA	0240.0	0243.0	II		1	140	280	
			LEAR	0240.0	0245.0	II		1	80	180	ESS 0503
	0339	1756	POTS	0339 U	1100 U	I	S,N,DC	2	40X	400U	1348-1640UT: 170-8
			SVTO	0404.0	0829.0	CONT		2	25	180	
			CULG	0419.0	0534.0	III	S,C	2	57X	180	
			CULG	0534.0	0700.0D	III	S,C	1	57X	180	
			IZMI	0549.0E	1200.0D	III	N	2	25X	100U	
	0549	1200	IZMI	0549.0E	1200.0D	I	S,C	2	40U	270X	
			IZMI	0608.9	0611.6	III	GG	2	40	110	
			IZMI	0630.5	0636.8	III	GG	2	35	100	
			IZMI	0659.7	0740.1	III	GG	2	35	95	
			POTS	0702 U	1125 U	III	GG,N	1	40X	90	
			IZMI	0749.5	0757.6	III	GG	2	30	100	
			LEAR	0813.0	0842.0	III	N	1	25	180	
			IZMI	0813.4	0814.6	III	G,C	2	25X	170	
			HIRA	0813.5	0814.0	III	B	1	25X	150	
			POTS	0813.8	0814.2	III	B	2	40X	220	
			SVTO	0814.0	0814.0	III		2	25	180	
			IZMI	0835.9	0844.2	III	GG	2	25X	160	
			POTS	0836.2	0847.3	III	GG	2	40X	400	
			IZMI	0855.0	0900.7	III	GG	2	25X	130	
			IZMI	0936.8	0936.9	III	B,FS	2	40	95	
			IZMI	1010.3	1014.0	III	GG	2	25X	95	
	0558	1733	ONDR	1030.4	1112.5	DCIM	GG	2	2000X	4500X	
			IZMI	1040.9	1045.7	III	GG	2	25X	95	
			POTS	1041	1108	III	GG	3	40X	730	
			IZMI	1048.0U	1200.0D	III	S	2	25X	95U	
			IZMI	1058.0U	1200.0D	III	S	2	25X	95U	
			SGMR	1058.0	1101.0	III		1	30	60	
			SVTO	1059.0	1747.0	CONT		2	25	180	
			POTS	1100	1756 U	IV		3	40X	400U	
			SGMR	1126.0	2128.0	CONT		2	30	80	
			HOLL	1231.0	0144.0	CONT		1	44	180	
			SVTO	1238.0	1747.0	III	N	2	25	180	
			HOLL	1242.0	0044.0	III	N	1	25	88	
			POTS	1249.8	1250.1	DCIM		2	330U	550	
			POTS	1515.8	1528 U	III	GG	2	40X	170U	
			PALE	1621.0	0000.0	CONT		1	25	180	
			PALE	1628.0	0455.0	CONT		1	25	180	
			POTS	1715.1	1717.4	III	G	2	110U	630	
			POTS	1749.7	1750.0	DCIM		1	460	630	
			POTS	1751.1	1755.0	III	G	2	110U	630	
			SGMR	1937.0	1940.0	III		2	30	80	
			CULG	2110.0E	2400.0D	III	S	1	57X	180	
	2110	2400	CULG	2110.0E	2400.0D	I	S,C	1	60	260	
	1941	2400	HIRA	2232.0	2233.0	III	B	1	25X	120	
			CULG	2233.0	2233.0	III	B	2	57X	130	
			CULG	2310.0	2311.0	III	G	2	57X	120	
			HIRA	2310.0	2311.0	III	G	2	25X	110	
			LEAR	2316.0	0945.0	CONT		1	25	180	
			LEAR	2324.0	2326.0	III		2	25	180	
			CULG	2325.0	2326.0	III	G	3	57X	180	
			HIRA	2325.0	2326.0	III	G	2	25X	220	
			HOLL	2325.0	2326.0	III		2	25	180	
			LEAR	2350.0	2352.0	III		2	25	180	
			CULG	2351.0	2351.0	III	G	3	57X	180	
			HIRA	2351.0	2351.5	III	B	2	25X	300	
30	0000	0947	HIRA								
			CULG	0000.0E	0700.0D	I	S,C	2	70	180	
	0000	0700	CULG	0000.0E	0700.0D	III	S	1	57X	180	
	0339	1846	POTS	0354.3	0354.7	DCIM		2	400U	530	170-400 MHz no dat
			SVTO	0405.0	1746.0	CONT		2	25	180	
			POTS	0430 U	1846 U	I	S,C,DC	2	110U	170U	
			IZMI	0550.0E	1200.0D	III	N	2	25X	90U	
	0550	1200	IZMI	0550.0E	1200.0D	I	S,C	2	45U	270X	

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JULY 2002

OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
30	0619	1732	ONDR								
			POTS	0720 U	1813 U	III	GG,N	2	40X	170U	
			IZMI	0745.4	0747.6	III	GG	2	25X	95	
			IZMI	0755.7	0759.1	III	GG	2	25X	95	
			IZMI	0821.0	0822.3	III	G	2	40	95	
			IZMI	0823.3	0824.7	III	G	2	25X	270	
			IZMI	0825.7	0827.3	III	GG,FS	2	25X	270	
			HOLL	1257.0	0145.0	CONT		1	25	180	
			HOLL	1554.0	1555.0	III		1	25	85	
			SGMR	1558.0	2159.0	CONT		1	30	55	
			PALE	1621.0	0455.0	CONT		1	25	180	
			PALE	1628.0	0455.0	CONT		1	25	180	
			HOLL	1652.0	1653.0	III		1	25	77	
			HOLL	1721.0	1721.0	III		1	25	180	
			SGMR	1721.0	1721.0	III		1	30	55	
			HOLL	1736.0	1738.0	III		1	25	173	
			SGMR	1736.0	1738.0	III		2	30	80	
			POTS	1737.1	1738.2	III	GG	3	40X	800X	
	1941	2400	HIRA								
			CULG	2110.0E	2400.0D	I	S	2	60	180	
	2110	2400	CULG	2110.0E	2400.0D	III	S,C	1	57X	180	
			LEAR	2315.0	0945.0	CONT		1	25	180	
31	0000	0945	HIRA								
			CULG	0000.0E	0700.0D	I	S	1	65	180	
	0000	0700	CULG	0000.0E	0700.0D	III	S,C	1	57X	180	
			SVTO	0405.0	1745.0	CONT		1	40	180	
			IZMI	0604.0E	1200.0D	III	N	1	25X	95	
	0604	1200	IZMI	0604.0E	1200.0D	I	S,C	2	60	270X	
	0340	1844	POTS	0650 U	1844 U	I	S,N,DC	1	60	100U	170-400 MHz no dat
			IZMI	0713.8	0715.2	III	G	2	40	95	
			POTS	0714.8	0920 U	III	GG,N	2	40X	80	
			POTS	0715.2	0726.8	DCIM		1	400U	630	
			IZMI	0722.1	0723.2	III	G	1	30	130	
	0619	1731	ONDR	0733.0	0733.1	DCIM	G	1	2312	4500X	
			POTS	0849.4	0851.6	III	G	2	400U	620	
			IZMI	0901.4	0902.2	III	G,C	2	25X	270X	
			IZMI	0910.4	0912.5	III	G	1	25X	95	
			POTS	0916.9	0918.4	III	G	2	400U	630	
			ONDR	0952.4	0957.0	DCIM	G	1	2000X	4500X	
			IZMI	1052.2	1052.4	III	B	1	25X	95	
			POTS	1126.6	1126.8	III	G	2	400U	540	
			IZMI	1134.2	1138.6	III	GG	1	45	150	
			ONDR	1224.3	1225.3	DCIM	G	1	2000X	4500X	
			HOLL	1245.0	0144.0	CONT		1	25	180	
			HOLL	1622.0	1623.0	III		1	25	80	
			SVTO	1622.0	1623.0	III		1	28U	83U	
			POTS	1723.4	1724.3	III	G	2	115	170U	
			HOLL	1752.0	1753.0	III		1	25	137	
			PALE	1752.0	1753.0	III		1	25	95	
			SGMR	1753.0	1845.0	III	N	2	30	80	
			HOLL	1823.0	1823.0	III		1	25	172	
			HOLL	1842.0	1845.0	III		1	25	87	
			HOLL	2003.0	2136.0	III	N	1	25	165	
			SGMR	2019.0	2019.0	III		1	30	80	
	1942	2400	HIRA	2019.5	2020.0	III	B	1	25X	100	
			SGMR	2058.0	2104.0	III		1	30	80	
	2100	2400	CULG	2100.0E	2400.0D	III	S,C	1	57X	180	
			HIRA	2104.0	2105.0	III	B	1	30	410	
			CULG	2105.0	2105.0	III	B	1	57X	300	
			HOLL	2136.0	2137.0	III		1	25	180	
			SGMR	2136.0	2138.0	III		1	30	80	
			HIRA	2136.5	2138.0	III	B	1	30	310	
			CULG	2137.0	2137.0	III	B	2	57X	180	
			HOLL	2159.0	0050.0	III	N	2	25	180	
			LEAR	2315.0	0946.0	CONT		1	88	180	
			LEAR	2316.0	2321.0	III		1	25	155	
			CULG	2318.0	2320.0	III	G	2	57X	110	
			HIRA	2318.0	2321.0	III	G	2	25X	100	

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Spectral Observations

JULY 2002

OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
31			LEAR	2341.0	2343.0	III		1	25	180	
			HIRA	2342.5	2343.5	III	G	2	25X	420	
			CULG	2343.0	2344.0	III	G	2	57X	750	
			HOLL	2353.0	2356.0	III		2	25	180	
			HIRA	2354.0	2356.5	III	G	3	25X	210	
			CULG	2355.0	2356.0	III	G	3	57X	180	

Event Remarks:

B = Single burst
C = Underlyling continuum (particularly with Type I)
DC = Drifting chains
DP = Drifting pairs
F = Fundamental emission (Type II)
FS = Fine structures (Type IV)
G = Small group of bursts (<10)
GG = Large group of bursts (>10)
H = Herringbone
HARM = Harmonic
N = Intermittent activity in this period
MOV = Moving (Type IV)
MWB = Meter wave burst
RS = Reverse slope burst
S = Storm in the sense of intermittent but apparently connected actively
SH = Secondary harmonic emission
STA = Stationary (Type IV)
U = U-shaped burst of Type III
UE = Uncertain emission (Type II)
W = Weak

Frequency qualifiers:

X = Extends beyond instrument range
U = Uncertain frequency

Remarks:

SWF = Associated short wave fade observed
ESS = Estimated shock speed in km/s (Type II)
FLA = Associated flare observed (class optional)

Stations Reporting:

CULG = Culgoora IZMI = Izmiran LEAR = Learmonth ONDR = Ondrejov
PALE = Palehua POTS = Potsdam SGMR = Sagamore Hill SVTO = San Vito
BLEN = Bleien

NOTE: Beginning June 26, 2001, the Bleien observatory changed to higher frequencies (1-4Ghz).

SOLAR RADIO NOISE STORM AT 164 MHZ

FROM NANÇAY RADIOHELIOGRAPH

JULY 2002

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)
06/07/02	+0.23	-0.96	I	8H25 E	13H18
08/07/02	+0.45	-0.81	II	8H26 E	15H26 D
10/07/02	+0.79	-0.81	I	11H00	13H25
12/07/02	-0.93	+0.40	I	8H26 E	15H26 D
12/07/02	+1.49	-0.68	I	13H12	15H26 D
13/07/02	-0.53	+0.20	I	8H26 E	15H26 D
14/07/02	-0.62	+0.50	II	8H27 E	11H35
14/07/02	-0.17	+0.17	III	8H27 E	15H27 D
15/07/02	+0.08	+0.17	III	8H27 E	15H27 D
16/07/02	+0.28	+0.23	IV	8H27 E	15H27 D
17/07/02	+0.50	+0.22	V	8H27 E	15H27 D
18/07/02	+0.43	+0.42	III	8H27 E	15H27 D
18/07/02	+0.67	+0.22	III	8H27 E	15H27 D
19/07/02	+0.62	-0.36	I	8H27 E	15H27 D
19/07/02	+0.85	+0.50	II	8H27 E	15H27 D
20/07/02	-0.51	-0.28	I	8H27 E	13H17
20/07/02	+1.12	+0.45	I	8H27 E	15H27 D
21/07/02	-0.17	-0.36	II	8H27 E	15H27 D
22/07/02	+0.29	-0.43	I	8H27 E	15H27 D
23/07/02	-0.65	-0.45	III	8H27 E	15H27 D
23/07/02	+0.67	-0.40	III	8H27 E	15H27 D
24/07/02	-0.45	-0.53	IV	8H27 E	15H27 D
24/07/02	+0.85	-0.16	III	8H27 E	15H27 D
25/07/02	-0.22	-0.53	III	10H31 E	15H27 D
25/07/02	-0.85	-0.16	I	10H31 E	13H34
25/07/02	+1.07	-0.29	I	13H00	15H27 D
26/07/02	-0.65	-0.16	I	8H27 E	15H27 D
26/07/02	+0.17	-0.42	II	8H27 E	15H27 D
27/07/02	-0.36	-0.09	III	8H27 E	15H27 D
27/07/02	-0.19	-0.42	IV	8H27 E	15H27 D
28/07/02	+0.14	-0.20	V	8H27 E	15H27 D
29/07/02	+0.17	-0.29	V	8H27 E	15H27 D
30/07/02	+0.53	-0.17	V	8H27 E	15H27 D
31/07/02	+0.91	-0.20	IV	8H39 E	15H27 D
31/07/02	+0.98	+0.25	IV	11H00	12H40

[1] POSITIVE E-W AND S-N COORDINATES CORRESPOND TO THE N-W QUADRANT
[2] IMP1: FLUX< 5 SFU IMP2: 5< FLUX < 20 SFU IMP3: 20< FLUX <100 SFU
IMP4: 100< FLUX <300 SFU IMP5> 300 SFU
[3] E NOISE STORM IN PROGRESS AT THE BEGINNING OF THE NANÇAY OBSERVATIONS
D NOISE STORM IN PROGRESS AT THE END OF THE NANCAY OBSERVATIONS

NOISE STORM AT 327 MHZ
FROM NANÇAY RADIOHELIOGRAPH

JULY 2002

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY					
04/07/02	-0.16	-0.29	I	8H25 E	12H15
05/07/02	-0.02	-0.67	II	8H25 E	15H25 D
06/07/02	-0.50	-0.70	I	12H32	15H25 D
06/07/02	+0.31	-0.67	I	8H25 E	15H25 D
12/07/02	-0.93	+0.39	I	8H26 E	15H26 D
13/07/02	-0.43	+0.20	I	11H00	15H26 D
14/07/02	-0.56	+0.34	I	8H27 E	10H49
14/07/02	-0.16	+0.20	II	8H27 E	15H27 D
15/07/02	+0.09	+0.19	III	8H27 E	15H27 D
16/07/02	+0.28	+0.22	III	8H27 E	15H27 D
17/07/02	+0.51	+0.25	III	8H27 E	15H27 D
18/07/02	-0.95	-0.11	I	11H25	15H27 D
18/07/02	+0.40	+0.47	III	8H27 E	15H27 D
18/07/02	+0.65	+0.43	II	8H27 E	15H27 D
18/07/02	+0.71	+0.28	II	8H27 E	15H27 D
19/07/02	-0.74	-0.22	II	8H27 E	15H27 D
19/07/02	-0.47	-0.23	I	8H27 E	15H27 D
19/07/02	+0.81	+0.53	II	8H27 E	15H27 D
20/07/02	-0.50	-0.26	II	8H27 E	15H27 D
20/07/02	-0.14	-0.25	II	8H27 E	15H27 D
20/07/02	+0.84	+0.33	I	8H27 E	12H15
20/07/02	+1.07	+0.48	I	8H27 E	15H27 D
21/07/02	-0.26	-0.26	III	8H27 E	15H27 D
21/07/02	+0.14	-0.22	III	8H27 E	15H27 D
22/07/02	+0.03	-0.29	I	8H27 E	15H27 D
22/07/02	+0.33	-0.17	I	11H17	15H27 D
22/07/02	+0.40	-0.36	I	8H27 E	15H27 D
23/07/02	+0.68	-0.14	III	8H27 E	15H27 D
23/07/02	+0.68	-0.33	III	8H27 E	15H27 D
23/07/02	+0.29	-0.36	I	8H27 E	15H27 D
24/07/02	-0.16	-0.48	I	8H27 E	15H27 D
24/07/02	+1.02	-0.11	III	8H27 E	15H27 D
24/07/02	+1.05	-0.25	III	8H27 E	15H27 D
25/07/02	-0.17	-0.48	I	10H31 E	15H27 D
25/07/02	+1.01	-0.11	III	10H31 E	15H27 D
25/07/02	+1.04	-0.28	III	10H31 E	15H27 D
26/07/02	+1.09	-0.14	II	8H27 E	15H27 D
26/07/02	+1.18	-0.33	II	8H27 E	15H27 D
27/07/02	-0.33	-0.08	I	8H27 E	15H27 D
27/07/02	-0.08	-0.37	I	8H27 E	15H27 D
27/07/02	+1.26	-0.14	I	8H27 E	15H27 D
28/07/02	+0.17	-0.29	V	8H27 E	15H27 D
29/07/02	+0.26	-0.23	V	8H27 E	15H27 D
30/07/02	+0.48	-0.28	V	8H27 E	15H27 D
31/07/02	+0.33	-0.22	II	8H39 E	15H27 D
31/07/02	+0.73	-0.25	III	8H39 E	15H27 D
31/07/02	+0.76	-0.02	III	8H39 E	15H27 D

01 JULY : NO DATA

OTHERS DAYS: NO DETECTABLE NOISE STORM

- For the days marked by an asterisk, intense ionopheric gravity waves are observed during the whole day. Without a mode detailed analysis leadind to increase uncertainties in the deviation , the positions which are indicated are estimated within 0.2 R.

** Following a large burst

*** importance not well determined due to the proximity off the very strong other source

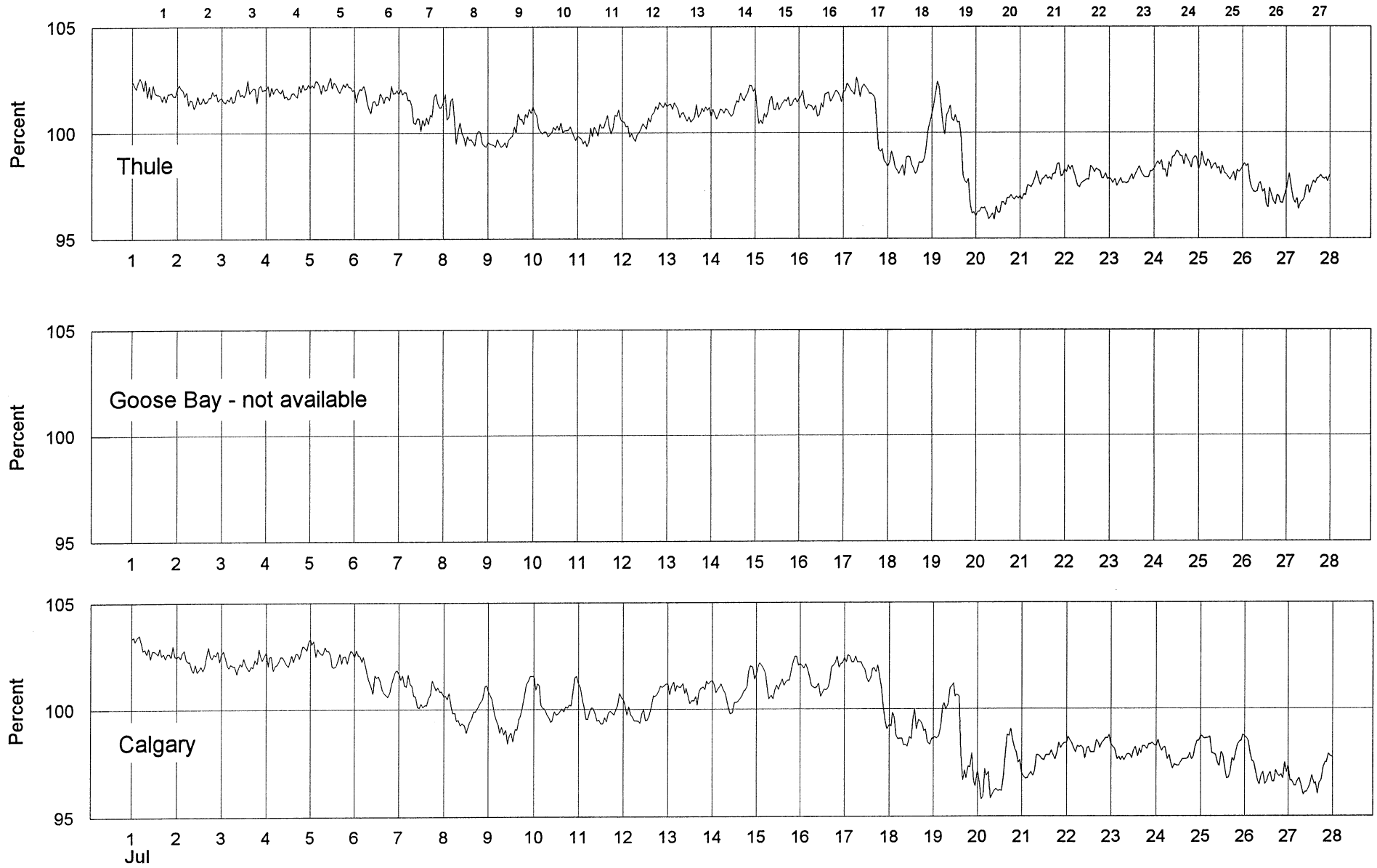
**** no flux measurements available

COSMIC RAY INDICES
(Neutron Monitor)
July 2002

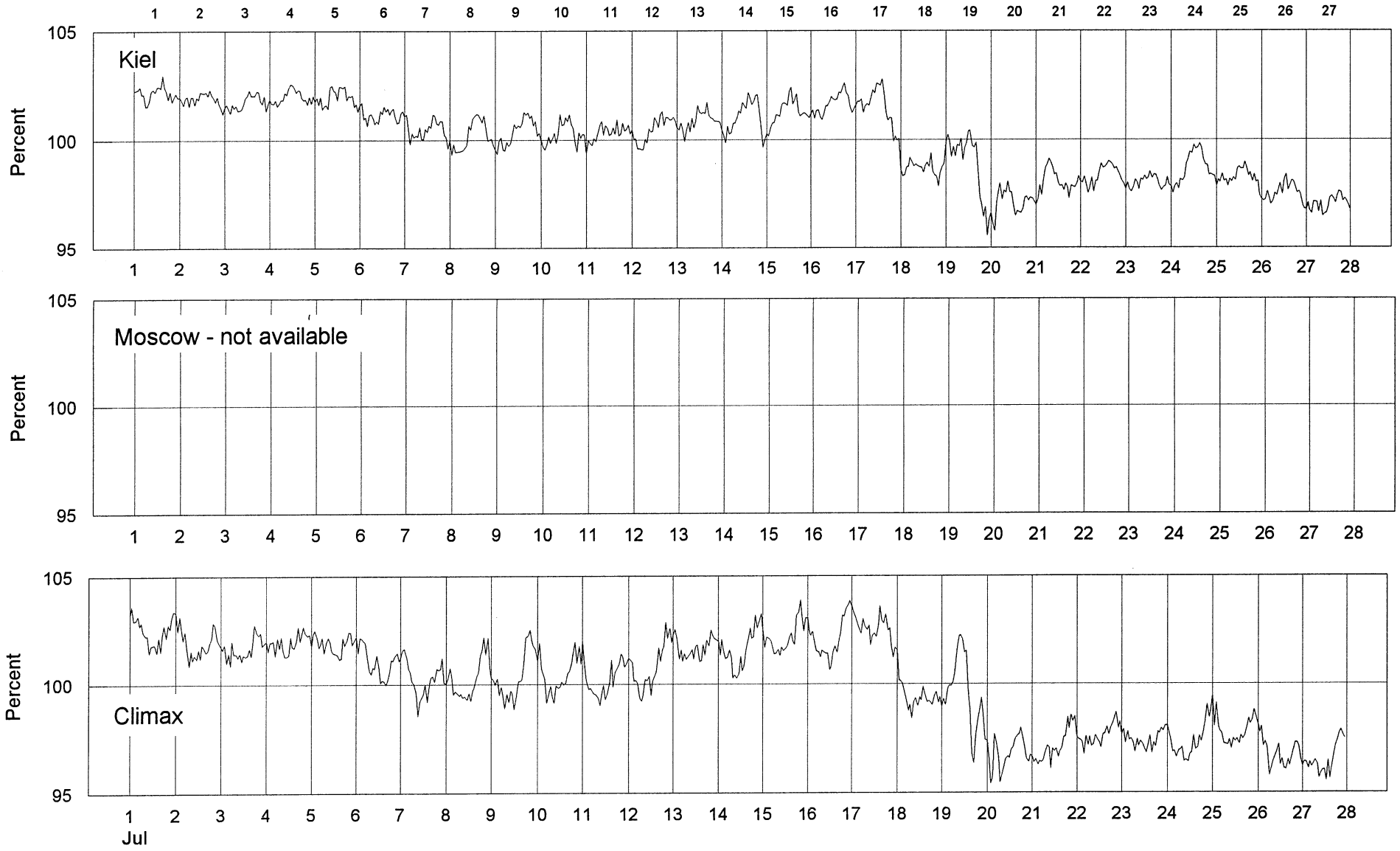
Day	THULE Average (cts/h)/100	GOOSE BAY Average (cts/h)/100	CALGARY Average (cts/h)/300	KIEL Average (cts/h)/100	MOSCOW Average (cts/h)/64	CLIMAX Average (cts/h)/100	BEIJING Average (cts/h)/256	HALEAKALA Average (cts/h)/1000
1	4097.8		3603.3	5717.5		3821.3	1913.7	3486.0
2	4085.4	not	3585.2	5702.0	not	3802.4	1910.0	3486.4
3	4091.7	available	3581.3	5693.2	available	3791.1	1905.7	3497.5
4	4096.5		3589.8	5707.9		3802.3	1903.3	3505.3
5	4106.5		3594.7	5705.2		3799.8	1902.3	3508.2
6	4086.4		3559.3	5661.1		3769.2	1897.5	3503.1
7	4064.1		3533.8	5624.0		3740.6	1883.6	3481.3
8	4025.3		3503.0	5607.8		3739.6	1874.6	3478.3
9	4018.1		3496.3	5617.6		3743.5	1876.5	3481.4
10	4025.9		3514.2	5612.2		3746.8	1871.0	3471.5
11	4024.5		3503.0	5614.2		3739.5	1864.7	3462.3
12	4039.2		3508.8	5623.3		3759.3	1870.6	3482.5
13	4058.3		3535.0	5645.2		3793.0	1879.2	3503.0
14	4070.9		3533.5	5654.0		3790.8	1880.3	3498.2
15	4068.3		3556.0	5668.1		3811.1	1877.9	3499.8
16	4078.2		3558.5	5688.2		3808.0	1879.9	3501.4
17	4071.5		3562.2	5680.9		3826.8	1886.8	3512.4
18	3965.5		3467.5	5524.1		3709.8	1852.3	3438.9
19	4012.4		3465.7	5537.8		3715.9	1850.5	3445.4
20	3877.6		3402.5	5436.3		3610.8	1840.5	3414.8
21	3927.5		3420.0	5488.7		3622.7	1844.3	3428.9
22	3938.6		3444.7	5505.3		3641.8	1850.3	3441.2
23	3933.4		3434.7	5488.1		3634.6	1850.5	3443.5
24	3963.5		3428.7	5525.0		3631.8	1853.4	3453.8
25	3949.3		3433.2	5500.9		3650.6	1855.3	3453.3
26	3910.3		3405.0	5461.1		3612.4	1849.7	3442.1
27	3913.6		3389.5	5432.7		3600.5	1842.9	3429.9
28	3861.9		3346.3	5373.1		3556.0	1831.3	3420.0
29	3832.0		3316.3	5334.1		3511.4	1822.4	3404.0
30	3803.9		3294.7	5287.5		3477.9	1808.6	3393.5
31	3817.5		3293.7	5294.7		3494.6	1827.3(7)	3400.1
Mean	3994.0		3479.4	5561.7		3701.6	1866.4	3463.4

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours, and for Haleakala, whenever the sum of all three sections falls below 60 hours.

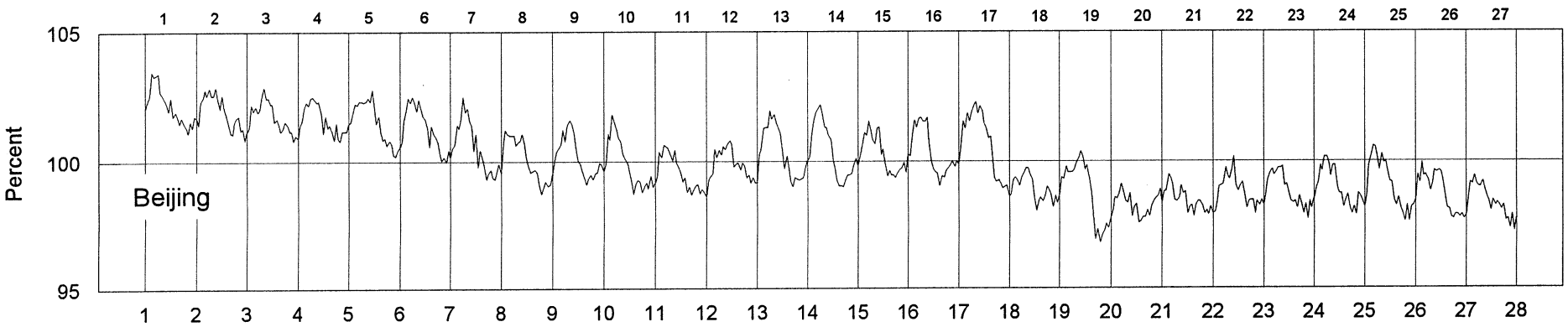
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2306 - Beginning 1 July 2002

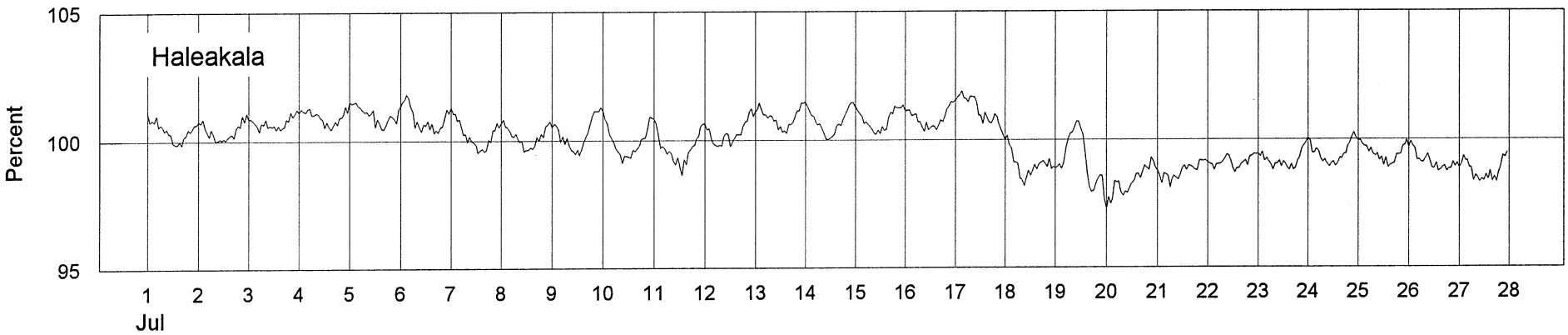


COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2306 - Beginning 1 July 2002

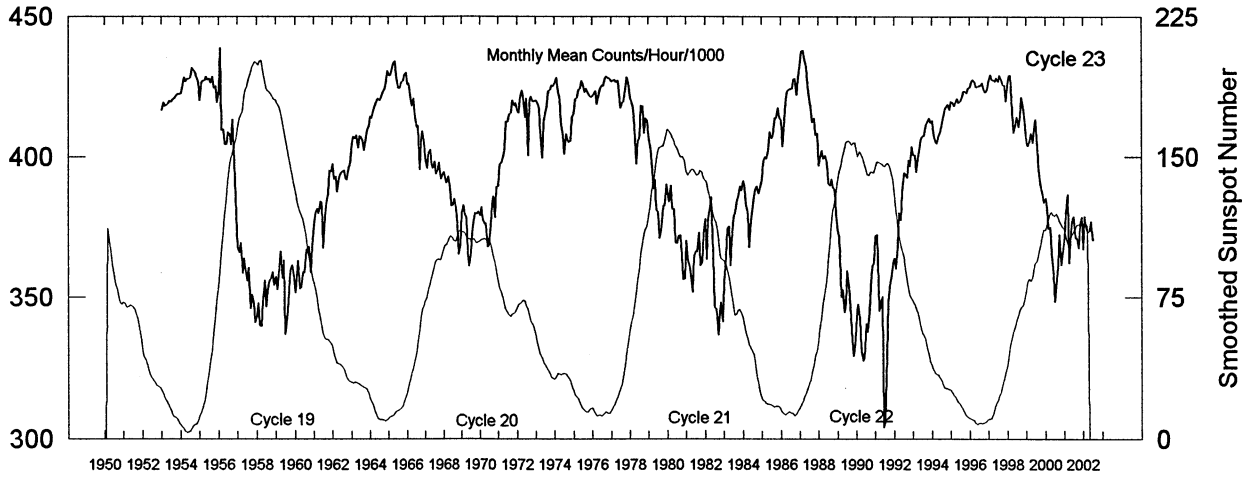


COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2306 - Beginning 1 July 2002





Climax Neutron Monitor Pressure-Corrected Values
Jan 1953 - Jul 2002



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1953	4165	4193	4182	4188	4190	4200	4197	4205	4208	4216	4225	4226	4200
1954	4225	4247	4285	4269	4280	4277	4284	4318	4308	4303	4286	4269	4279
1955	4200	4267	4272	4273	4287	4278	4279	4263	4286	4245	4252	4193	4258
1956	4234	4388	4097	4097	4049	4045	4088	4083	4044	4134	3980	3799	4087
1957	3677	3660	3695	3585	3640	3603	3557	3606	3458	3509	3484	3410	3574
1958	3435	3479	3400	3396	3490	3560	3467	3537	3561	3564	3589	3542	3502
1959	3573	3526	3606	3664	3567	3633	3367	3420	3484	3597	3615	3587	3553
1960	3516	3573	3631	3532	3534	3589	3587	3670	3670	3682	3586	3681	3604
1961	3761	3801	3819	3800	3843	3838	3675	3784	3834	3870	3955	3950	3828
1962	3977	3922	3931	3878	3927	3940	3950	3954	3924	3919	3963	3971	3938
1963	4049	4073	4065	4077	4033	4075	4072	4060	4024	4066	4094	4111	4067
1964	4144	4139	4168	4181	4198	4208	4202	4213	4232	4240	4254	4307	4207
1965	4294	4290	4314	4335	4340	4288	4247	4246	4267	4271	4294	4300	4291
1966	4258	4262	4211	4180	4207	4146	4108	4112	3956	4055	4091	4053	4137
1967	3991	3960	4014	4025	3974	3960	3985	3939	3955	3980	3922	3933	3970
1968	3946	3925	3909	3932	3895	3830	3830	3853	3817	3761	3652	3685	3836
1969	3801	3831	3798	3782	3656	3609	3652	3730	3781	3803	3798	3807	3754
1970	3792	3824	3781	3765	3765	3679	3684	3755	3832	3862	3786	3895	3785
1971	3898	3975	3981	4003	4032	4124	4124	4152	4156	4200	4184	4192	4085
1972	4162	4157	4209	4237	4215	4141	4207	4005	4198	4214	4198	4198	4178
1973	4200	4193	4173	4075	3997	4119	4150	4180	4235	4240	4255	4253	4173
1974	4261	4283	4237	4207	4121	4077	4009	4083	4061	4054	4058	4140	4133
1975	4155	4206	4210	4239	4244	4271	4262	4231	4243	4231	4218	4213	4227
1976	4216	4223	4236	4188	4218	4244	4254	4253	4283	4287	4285	4280	4247
1977	4268	4272	4274	4267	4272	4231	4175	4193	4197	4245	4284	4260	4245
1978	4213	4198	4173	4107	3976	4058	4068	4183	4180	4085	4139	4128	4126
1979	4071	4034	3983	3888	3920	3814	3806	3710	3745	3829	3829	3905	3878
1980	3873	3842	3900	3819	3817	3697	3692	3719	3723	3647	3564	3564	3738
1981	3703	3623	3616	3561	3518	3643	3663	3662	3732	3613	3624	3726	3640
1982	3780	3634	3778	3819	3860	3650	3463	3456	3364	3444	3482	3413	3595
1983	3550	3643	3744	3753	3613	3700	3789	3798	3845	3860	3897	3881	3756
1984	3915	3896	3830	3806	3677	3773	3813	3865	3891	3897	3871	3890	3844
1985	3919	3985	4002	3995	4026	4088	4066	4075	4139	4139	4174	4141	4062
1986	4128	4036	4098	4199	4232	4242	4243	4244	4277	4280	4221	4277	4206
1987	4331	4376	4378	4346	4323	4254	4216	4170	4123	4139	4080	4084	4235
1988	3970	3997	4024	3995	4005	3981	3906	3899	3923	3893	3886	3798	3940
1989	3731	3717	3500	3527	3446	3478	3594	3535	3467	3347	3291	3349	3499
1990	3432	3476	3424	3317	3275	3283	3406	3377	3450	3540	3608	3620	3434
1991	3719	3725	3451	3470	3501	3041	3062	3293	3482	3550	3570	3628	3458
1992	3639	3600	3684	3803	3776	3876	3945	3939	3928	3989	3966	4036	3848
1993	4011	4007	3947	4003	4028	4061	4075	4076	4113	4122	4138	4122	4059
1994	4130	4079	4058	4048	4076	4085	4117	4140	4173	4179	4187	4168	4120
1995	4198	4194	4180	4199	4208	4193	4198	4209	4235	4236	4228	4246	4210
1996	4249	4266	4276	4269	4252	4250	4254	4256	4264	4243	4231	4242	4254
1997	4273	4293	4278	4274	4268	4281	4268	4290	4278	4260	4255	4199	4268
1998	4270	4290	4291	4160	4087	4116	4142	4107	4141	4212	4175	4133	4177
1999	4056	4040	4057	4083	4050	4106	4133	4031	3953	3899	3870	3840	4010
2000	3855	3822	3748	3752	3656	3583	3485	3562	3617	3725	3615	3651	3673
2001	3713	3812	3869	3622	3734	3779	3791	3713	3713	3675	3761	3787	3747
2002	3670	3790	3745	3733	3739	3771	3702						3736

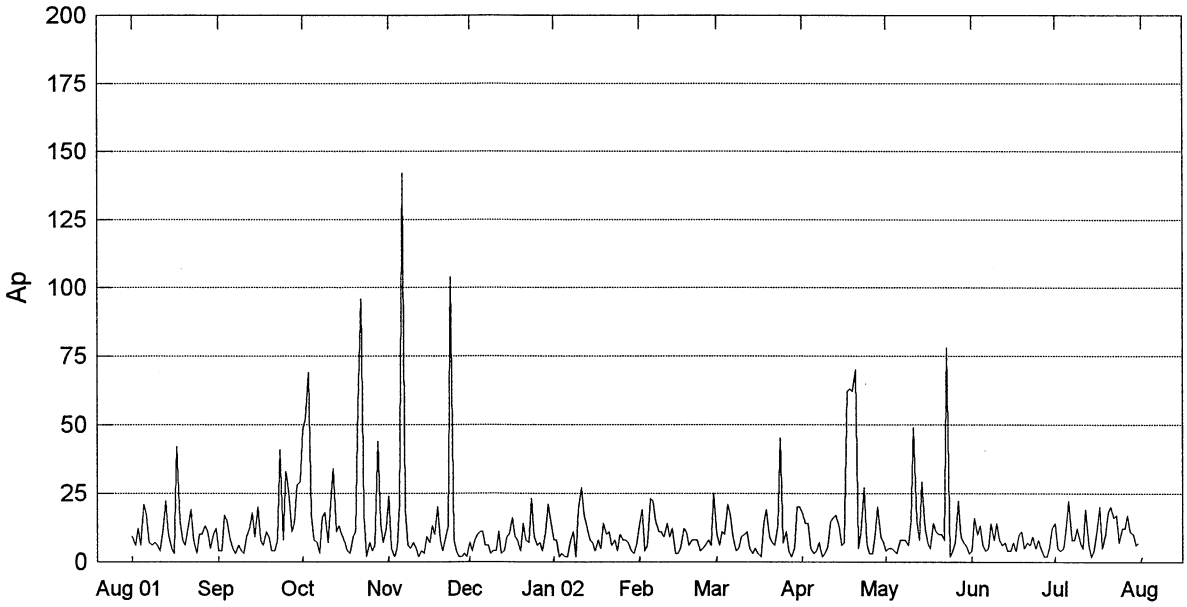
Multiply table entries by 100 to obtain hourly counting rate. Climax, Colorado: N39, W106, Alt=3400 m, Cutoff Rigidity=2.99GV (1980).
NOTE: Data may differ from previously reported values due to subsequent cleanup of data and slight changes in the averaging algorithm. See http://astro.uchicago.edu/home/web/pyle/neutron.html for latest changes. Sunspot numbers are preliminary after September, 2001.

Geomagnetic Activity Indices
July 2002

Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	Am	aa Provisional N	S	M	
1		3	3+	2	3	4-	3	3-	1	22-	14	0.8	3o	4-	2+	3o	3o	2+	2o	1o	25	32	19	26	25	
2	Q4	2+	1	1+	1-	0+	1-	2-	1+	9+	5	0.2	2+	1+	1+	1-	0+	0+	1+	1-	7	11	5	10	5	CK
3	Q2	1-	1-	1-	1	1+	1-	2-	1-	7+	4	0.1	1o	1-	1o	1+	1+	1-	2-	0+	7	8	8	5	11	CC
4	Q5K	1+	1-	1-	0+	1-	0+	1+	3	8+	5	0.2	2-	0+	0+	0+	1-	0+	1o	3-	7	11	4	4	11	CC
5		2	1+	2+	2	2+	3-	4	3+	20	12	0.7	2-	1+	2+	2+	2+	2+	3o	3-	19	29	17	14	33	
6	D1	4	4+	3+	4	3+	4-	3+	3	29	22	1.1	4o	4o	3+	4-	3o	3+	3+	3o	41	42	34	42	33	
7		3+	1+	2-	1+	2	2+	2+	1	15+	8	0.4	3o	2-	2+	2o	2-	3-	2-	1-	16	19	13	17	15	
8		2	1+	1	2-	2	1+	2-	4	15	8	0.5	2+	1+	1-	2o	2-	1+	1+	3+	14	24	12	12	25	
9		3	2+	3-	3-	2+	3	3	3-	22-	12	0.7	3-	3-	3o	3o	2o	3o	3-	3-	24	33	17	27	23	
10		2	2-	2+	2-	2-	1+	2+	2	15	7	0.3	2+	2+	2+	2+	1+	1+	2+	2o	16	16	13	14	15	
11	Q8	1+	0+	1-	1	2-	1	2	3-	11-	5	0.2	2-	0+	1o	1+	2-	1+	2-	3-	11	13	9	7	15	C
12	D4*	2	3-	3	5-	4	4	3	2	25+	19	1.0	2o	2+	3-	4+	4-	3+	3-	2-	30	34	27	32	29	
13	Q7	2	2	1+	1+	2-	2-	2-	1	13-	6	0.3	2+	2o	1+	1+	2-	2-	1+	1-	11	13	9	10	12	C
14	Q1	0+	0+	1-	1-	0+	1-	1-	0+	4	2	0.0	0+	0o	0+	1-	0+	1-	0+	0o	3	4	2	3	4	CC
15	Q3	1-	0+	1+	1-	1	1+	2-	1+	8+	4	0.1	0+	0+	1+	1o	1o	1+	1+	1+	7	10	5	7	9	CC
16		2-	2	1+	2-	3-	3	4	3+	20-	12	0.7	1+	2+	2o	2+	2o	2+	3+	3o	19	26	14	13	28	
17	D2	3-	4-	3	2+	2+	5	4	3	26	20	1.0	3-	3o	3o	3-	3-	4o	3o	2+	30	43	25	28	39	
18	Q6	3-	2-	2-	2-	1-	0+	0+	0+	9+	5	0.2	2+	2-	2-	2o	1+	0+	0o	0o	9	11	6	14	4	C
19		0+	1-	0+	3+	2	3+	2-	4	16-	10	0.6	1-	0+	0o	3+	2o	3-	2-	3+	16	25	13	14	23	
20		4+	4+	3-	2	2-	2+	3	4	24+	18	1.0	4+	4o	3o	2o	1+	2+	3o	4-	34	41	30	42	30	
21	D3	4+	5-	3+	1+	4-	4-	3+	1	25+	20	1.0	4-	4o	4-	2o	3o	3o	3-	1o	33	39	33	40	33	
22		2+	2+	4	4-	3+	3	3-	3	24+	16	0.9	2+	3-	3+	4-	3o	3-	3-	3-	28	38	24	33	29	
23		4-	2	2+	2	3-	3+	4-	5-	24+	17	0.9	3o	2o	2+	2+	2+	3-	3o	4+	27	44	17	23	38	
24	Q10A	3-	2	2-	2-	2	1	2	1+	14+	7	0.3	3-	3-	2+	2o	1+	1o	2o	1+	14	15	9	14	10	C
25		2+	2+	2-	3-	3-	3-	3	4-	21	12	0.7	2o	2o	2o	3-	2+	2o	3-	3+	21	28	13	15	26	
26		3+	3-	2	3-	2	3	3-	3	21+	12	0.7	3-	3-	2o	3o	2-	2+	3-	3-	21	29	17	22	24	
27	D5*	4-	3	2+	3+	4	3+	3	3	26-	17	0.9	4-	3-	2+	3+	3o	2+	3-	3-	29	40	22	29	33	
28		4-	3	2+	2-	2	3-	2	2	19+	11	0.6	4o	3o	3-	2o	2-	2o	2-	2o	22	24	13	23	14	
29		2-	2+	2	1	4+	3	2-	1+	17+	10	0.6	2-	2+	2+	1+	3+	3-	1+	1+	17	29	19	13	34	
30	Q9K	1+	1+	1	1-	1	2	3	2+	13-	6	0.3	1+	2-	1+	1-	1-	2-	3-	2o	11	15	11	8	18	K
31		2-	1	1-	2	2+	3	2	1	14-	7	0.3	2-	1-	1-	2o	3-	3-	2-	1-	13	15	11	9	17	K
Mean											11	0.56									18.8	24.6	15.4	19.9	

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Sa	Prov Ri	Ra	Rs	IMF
1	3-	4-	3-	3+	3+	3-	2+	1+	27	3+	4o	2o	3o	3-	1+	2-	1-	23	152.3	58	63	102	
2	2o	1+	2-	1o	1-	1-	2o	1o	9	2+	1+	1o	0+	0+	0o	0+	0+	6	153.5	61	68	104	
3	1+	1o	1+	1+	1+	1o	2-	1-	8	1-	0o	1-	1o	1-	1-	2-	0o	5	152.4#	80	89	103	
4	1+	0+	1-	0+	1o	1-	2-	3-	9	2o	0+	0+	0o	0+	0o	0+	2+	5	151.3	82	93	101	
5	2o	1+	3-	3-	3-	3-	4-	3o	24	1+	1+	2o	2+	1+	2-	3-	3-	14	143.5	88	94	93	
6	4-	4o	3+	4o	3+	4-	3o	3-	40	4o	4o	3+	4-	3o	3+	3+	3o	42	138.0	75	77	87	
7	3o	2-	2o	2+	2o	3-	2o	1o	17	3+	1+	2+	2o	1+	3-	1o	0+	15	141.5	66	62	91	
8	2o	1+	1o	2+	2o	2-	2o	3+	16	2+	1o	0+	2o	1+	1o	1-	3+	13	135.3	63	70	84	
9	3-	2o	3+	3o	3-	3o	3o	3-	26	3-	3o	3-	3-	1+	3-	3-	3-	22	140.9	68	67	90	
10	2o	2+	3-	3-	2-	1+	2o	2+	17	2+	2+	2o	2+	1o	1o	2+	2o	15	133.1	64	63	82	
11	2-	0+	1+	1+	2-	2-	2-	3-	11	1+	0+	1-	2-	1+	1-	2o	3-	10	141.0	61	63	90	
12	2+	3-	3-	5-	4-	4-	3o	2o	33	2-	2o	3-	4+	3+	3o	2+	1+	26	137.7	52	60	87	
13	2+	2+	1+	1+	2o	2-	2-	1o	12	2+	2-	1+	1o	1+	2-	1-	0o	9	139.4	72	71	89	
14	1-	0+	0+	1+	1o	1o	1-	0+	5	0o	0o	0o	0o	0o	0o	0+	0o	1	148.6	78	84	98	
15	1-	1-	2-	2-	1o	2o	2o	1+	10	0+	0o	1-	0+	1-	1-	0+	1o	4	164.8#	96	95	116	
16	2-	2+	2+	3-	3-	3o	4-	3+	25	1o	2o	2-	2o	1o	1+	3-	3-	14	177.2	99	109	129	
17	3-	3o	3+	3-	3o	4+	3+	3-	35	3o	3o	3-	2+	2o	4-	3-	2o	25	185.9	91	109	139	
18	3-	2-	2-	2+	2-	1-	0o	0o	10	2+	2-	2-	2o	1o	0o	0o	0o	8	186.6	92	101	140	
19	1o	1-	0o	4-	2+	3o	2o	4-	20	0+	0o	0o	3-	2-	2o	1o	3o	12	188.3	83	95	141	
20	4+	5-	3o	3-	2-	2+	3o	3+	37	5-	4-	3o	2-	1+	2+	3o	4-	32	190.7	77	83	144	
21	4-	4-	4o	2o	3+	4-	3-	1o	35	3+	4+	4-	2-	3o	3-	3-	1o	30	188.7	77	88	142	
22	2+	3-	4-	4o	3o	3-	3-	3-	32	3-	3-	3o	3+	3-	2+	3-	3-	25	195.8	91	108	149	
23	3o	2o	3-	2+	3-	3o	3+	4-	29	2+	2-	2o	2o	2-	2o	3-	5-	24	204.6	121	128	159	
24	2+	3-	3-	2+	2o	2-	2o	1+	16	3-	2+	2o	1+	1o	0+	2-	1+	12	215.0	129	146	170	
25	2o	2+	2o	3o	3-	3-	3o	3o	24	2+	2o	2-	2+	2o	1+	2o	3+	18	224.5	133	148	180	
26	3o	3o	2-	3o	2o	3-	3-	3o	25	2+	2+	2+	3-	1o	2+	3-	2+	18	249.1	164	182	207	
27	4-	3-	2o	3+	3+	3-	3o	3-	30	4-	3-	2+	4-	3-	2o	2+	3o	28	238.0	182	198	195	
28	4-	3+	3o	2+	2+	3-	2+	2o	24	4+	3o	2+	2-	1o	1o	1o	2o	20	246.2	192	192	204	
29	2-	2+	3-	1+	4-	3o	2-	1+	20	2-	2+	2o	1o	3o	2o	1o	1o	14	241.1	181	199	198	
30	1+	2o	2-	1o	1+	2+	3-	2-	14	1o	1o	1o	0+	0o	1o	3o	2o	9	234.1	174	190	191	
31	2-	1-	1o	3-	3o	3-	2-	1o	15	2o	0+	0+	1+	2+	3-	2-	0+	10	214.8	148	160	170	
Mean									21.1									16.4	179.2	99.9	108.2	131.5	

Daily Average Indices Ap
Aug 2001 -Jul 2002

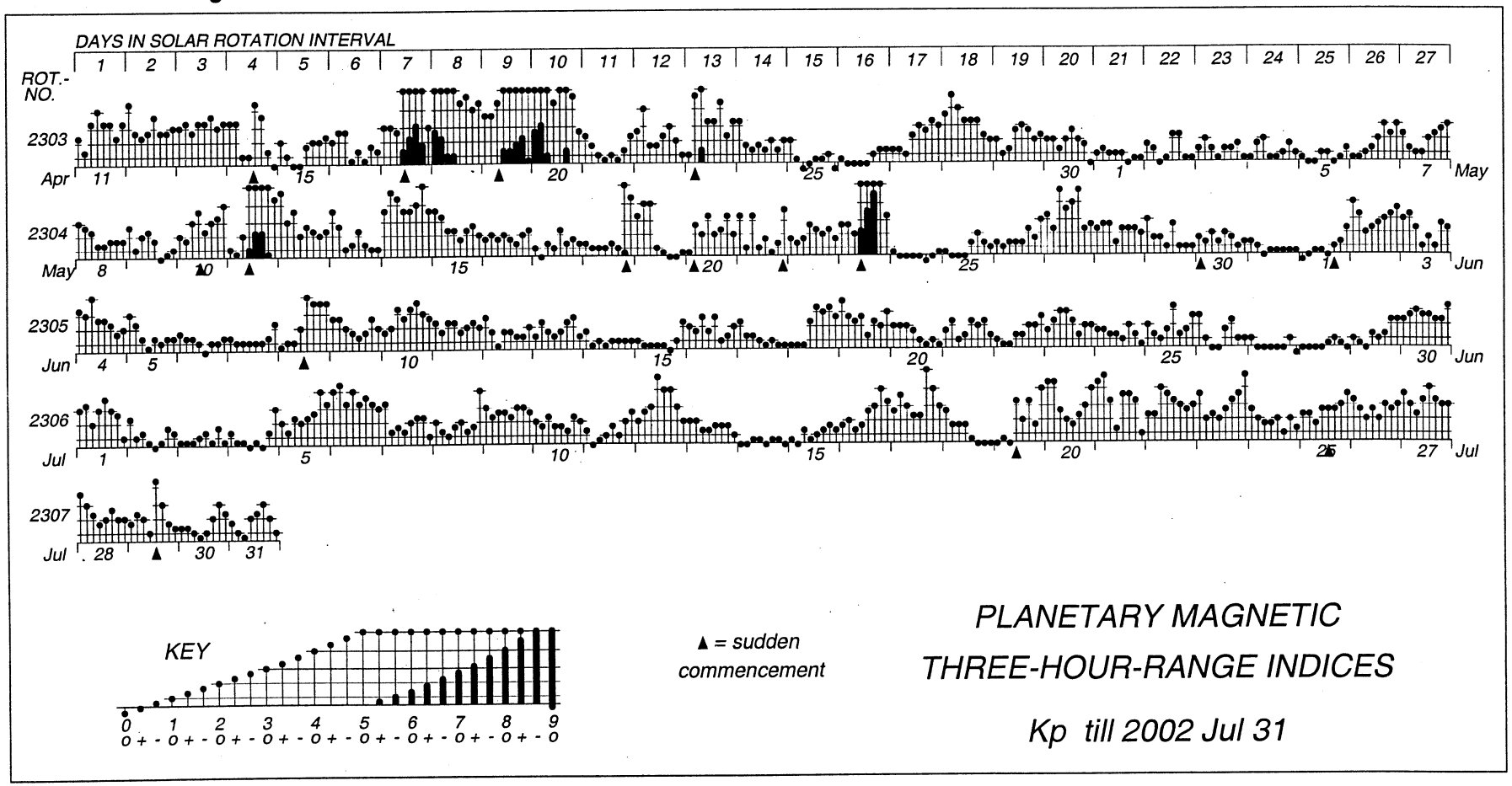


Day	Aug 01	Sep	Oct	Nov	Dec	Jan 02	Feb	Mar	Apr	May	Jun	Jul
1	9	4	48	24	7	8	14	10	18	4	4	14
2	6	4	52	5	4	8	19	6	14	5	16	5
3	12	17	69	2	8	2	4	11	14	5	10	4
4	6	15	17	5	10	3	6	10	5	4	13	5
5	21	8	8	21	11	2	23	21	3	3	6	12
6	17	5	7	142	11	2	22	17	4	8	4	22
7	7	3	3	19	6	7	15	9	7	8	5	8
8	6	6	16	6	6	11	11	4	2	8	14	8
9	7	4	18	5	3	2	11	5	3	6	8	12
10	6	3	7	7	4	19	9	9	5	15	14	7
11	4	9	21	5	4	27	14	10	15	49	8	5
12	12	12	34	2	11	17	9	11	16	15	6	19
13	22	18	11	4	3	13	12	5	17	8	7	6
14	10	9	13	3	4	8	3	3	13	29	4	2
15	5	20	10	9	9	7	3	5	6	12	4	4
16	3	8	7	7	10	4	5	3	7	7	7	12
17	42	6	4	13	16	8	12	2	62	5	4	20
18	15	11	3	10	9	5	11	14	63	14	10	5
19	8	9	9	20	8	14	6	19	62	11	11	10
20	6	4	11	8	4	10	8	9	70	10	5	18
21	13	4	57	4	14	11	8	7	5	10	7	20
22	19	8	96	9	8	6	8	6	11	8	6	16
23	8	41	17	13	7	8	4	13	27	78	9	17
24	3	8	2	104	23	4	5	45	7	2	5	7
25	10	33	7	8	9	10	6	7	3	4	8	12
26	10	26	4	4	6	8	8	11	3	7	5	12
27	13	11	6	2	7	8	6	4	10	22	2	17
28	11	14	44	2	4	7	25	2	20	9	2	11
29	5	28	14	3	11	4		5	9	7	5	10
30	10	29	7	2	21	3		20	7	6	12	6
31	12		12		15	6		20		3		7
Mean	11	13	20	16	9	8	10	10	17	12	7	11

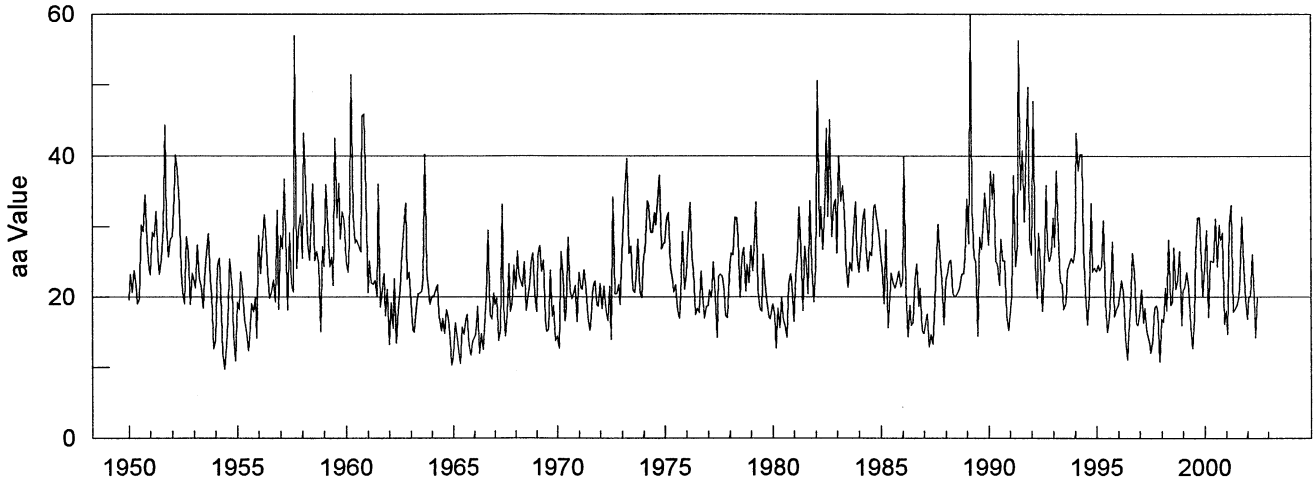
PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

GeoForschungsZentraum Potsdam

Kp through July 31, 2002



Monthly Mean aa Index Jan 1950 - Jul 2002



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	22.5	26.1	29.0	22.4	20.2	12.6	22.2
1954	13.9	24.5	25.5	20.6	12.0	9.7	13.1	16.5	25.4	21.1	14.5	10.9	17.3
1955	19.3	18.2	23.6	21.1	16.7	15.1	12.3	14.3	19.1	17.8	19.9	14.1	17.6
1956	28.7	23.3	27.6	31.7	29.3	23.5	19.8	20.7	22.4	19.3	32.3	18.2	24.7
1957	28.7	26.8	36.7	28.8	18.1	29.1	21.7	20.7	57.0	24.0	29.5	31.7	29.4
1958	25.5	43.2	36.1	27.6	25.2	29.7	36.0	25.1	26.5	24.7	15.0	27.2	28.5
1959	24.3	35.9	29.9	24.2	25.7	21.6	42.5	31.2	36.1	28.2	32.1	30.8	30.2
1960	25.2	23.5	27.6	51.5	31.6	27.6	28.1	27.2	26.4	45.6	45.9	34.5	32.9
1961	20.6	25.1	22.0	21.8	22.3	20.1	36.0	18.5	20.7	23.3	17.3	21.1	22.4
1962	13.2	19.2	15.5	22.6	13.4	18.1	21.0	26.2	29.8	33.3	22.5	23.5	21.5
1963	19.3	15.3	14.9	18.2	20.4	20.5	20.8	22.5	40.2	23.5	20.7	18.9	21.3
1964	20.1	20.1	21.0	21.7	17.5	15.1	16.9	14.8	18.2	16.9	13.8	10.3	17.2
1965	11.8	16.3	14.3	12.6	10.5	15.7	14.7	16.8	17.5	13.1	11.7	13.8	14.1
1966	14.2	14.8	18.6	12.0	14.8	12.5	17.1	20.0	29.4	17.5	16.8	20.5	17.3
1967	18.9	19.8	13.8	15.5	33.1	18.6	14.4	17.5	24.7	17.8	18.9	24.5	19.8
1968	21.1	26.5	23.3	22.2	21.4	24.9	18.0	20.1	22.0	24.8	26.2	20.3	22.6
1969	17.8	25.8	27.3	23.6	25.2	16.7	15.0	15.3	23.8	17.2	18.7	13.8	20.0
1970	14.4	12.7	26.4	23.1	16.6	18.3	28.4	21.0	19.7	20.6	21.6	16.5	19.9
1971	23.5	21.2	21.1	23.9	21.1	17.0	15.2	17.1	21.4	22.2	18.8	18.6	20.1
1972	21.9	18.3	21.5	18.1	16.6	21.5	14.0	34.2	20.4	20.4	21.8	18.9	20.6
1973	26.1	32.7	36.9	39.6	26.1	27.3	20.9	20.6	22.8	28.2	20.7	19.9	26.8
1974	25.8	26.4	33.7	32.9	29.2	29.2	32.0	30.2	33.7	37.3	26.8	27.5	30.4
1975	27.6	31.1	32.0	24.3	22.7	20.7	21.7	18.1	16.9	20.2	29.3	21.1	23.8
1976	23.3	28.5	33.4	25.4	23.7	17.5	18.4	17.7	23.7	20.4	16.9	18.6	22.3
1977	18.7	21.0	19.9	24.9	20.1	14.2	22.9	23.2	23.0	20.9	17.3	17.0	20.3
1978	24.6	26.2	25.9	31.3	31.2	28.3	19.9	25.6	27.0	20.8	24.6	22.0	25.6
1979	27.3	23.7	26.9	33.5	21.0	18.3	17.9	26.0	22.0	19.3	17.1	16.8	22.5
1980	19.0	17.3	12.7	18.4	15.6	20.0	17.0	15.9	14.2	21.9	23.3	21.7	18.1
1981	16.5	23.1	26.6	32.8	26.9	18.0	27.2	24.0	20.4	33.7	24.1	19.3	24.4
1982	24.2	50.6	28.5	32.9	26.7	32.1	43.9	31.4	45.1	28.5	33.0	33.8	34.2
1983	26.2	40.0	33.6	35.7	31.6	24.9	21.3	24.9	23.7	28.3	33.5	26.0	29.1
1984	23.5	26.7	30.7	32.5	27.2	23.7	26.4	25.8	32.6	33.1	31.0	29.0	28.5
1985	25.7	24.1	19.0	29.5	15.6	19.9	23.4	22.0	21.2	22.2	23.7	21.4	22.3
1986	22.4	40.0	21.1	14.3	18.8	15.9	16.3	22.3	24.7	18.6	21.2	15.3	20.9
1987	14.8	16.6	17.6	12.9	14.7	13.2	19.3	24.3	30.3	25.8	22.4	16.0	19.0
1988	22.4	23.4	24.8	25.2	20.5	20.0	20.2	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	31.4	31.0
1990	27.4	37.8	33.9	37.4	25.1	24.6	21.6	28.2	25.1	25.1	17.4	15.2	26.6
1991	17.2	20.1	37.3	24.3	27.3	56.2	35.2	40.8	30.7	44.1	49.7	28.0	34.2
1992	25.9	47.7	24.5	19.8	29.1	24.8	17.9	24.1	35.8	27.0	25.0	26.1	27.3
1993	31.2	27.1	37.9	29.2	22.1	21.8	18.2	19.2	23.8	24.6	25.5	24.8	25.5
1994	26.5	43.2	37.9	40.2	40.2	27.2	20.6	16.0	20.2	33.3	23.6	24.1	29.4
1995	23.6	24.5	23.8	24.2	30.9	19.1	14.9	17.0	22.2	27.9	17.2	18.2	22.0
1996	18.8	20.8	22.3	20.5	14.0	11.1	14.7	18.8	26.2	23.5	16.3	15.9	18.6
1997	17.4	21.0	16.3	18.4	15.1	13.7	12.1	13.7	18.4	18.7	18.0	10.8	16.1
1998	16.8	16.4	21.2	18.0	28.1	18.8	19.3	27.0	21.1	22.4	26.5	15.9	21.0
1999	20.8	21.3	23.5	21.3	15.8	12.7	16.9	26.2	31.2	31.3	25.1	20.1	22.2
2000	24.2	29.4	17.1	25.1	25.0	24.9	31.1	24.3	30.2	28.1	29.1	16.1	25.4
2001	18.0	14.7	30.2	33.0	17.8	18.2	18.7	19.9	22.7	31.4	24.4	19.5	22.4
2002	16.8	20.0	20.2	26.0	19.9	14.2	19.9						19.6

PLANETARY GEOMAGNETIC ACTIVITY

3-HOUR-RANGE INDICES Km AND aa BY 27-DAY SOLAR ROTATION INTERVAL

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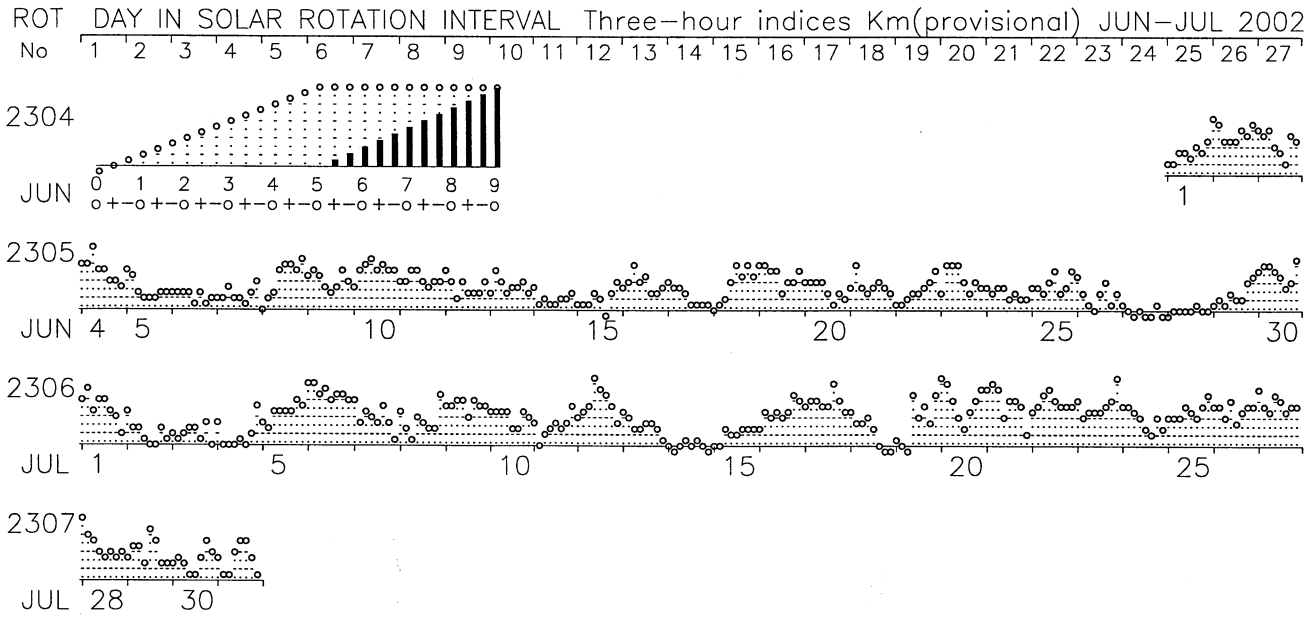
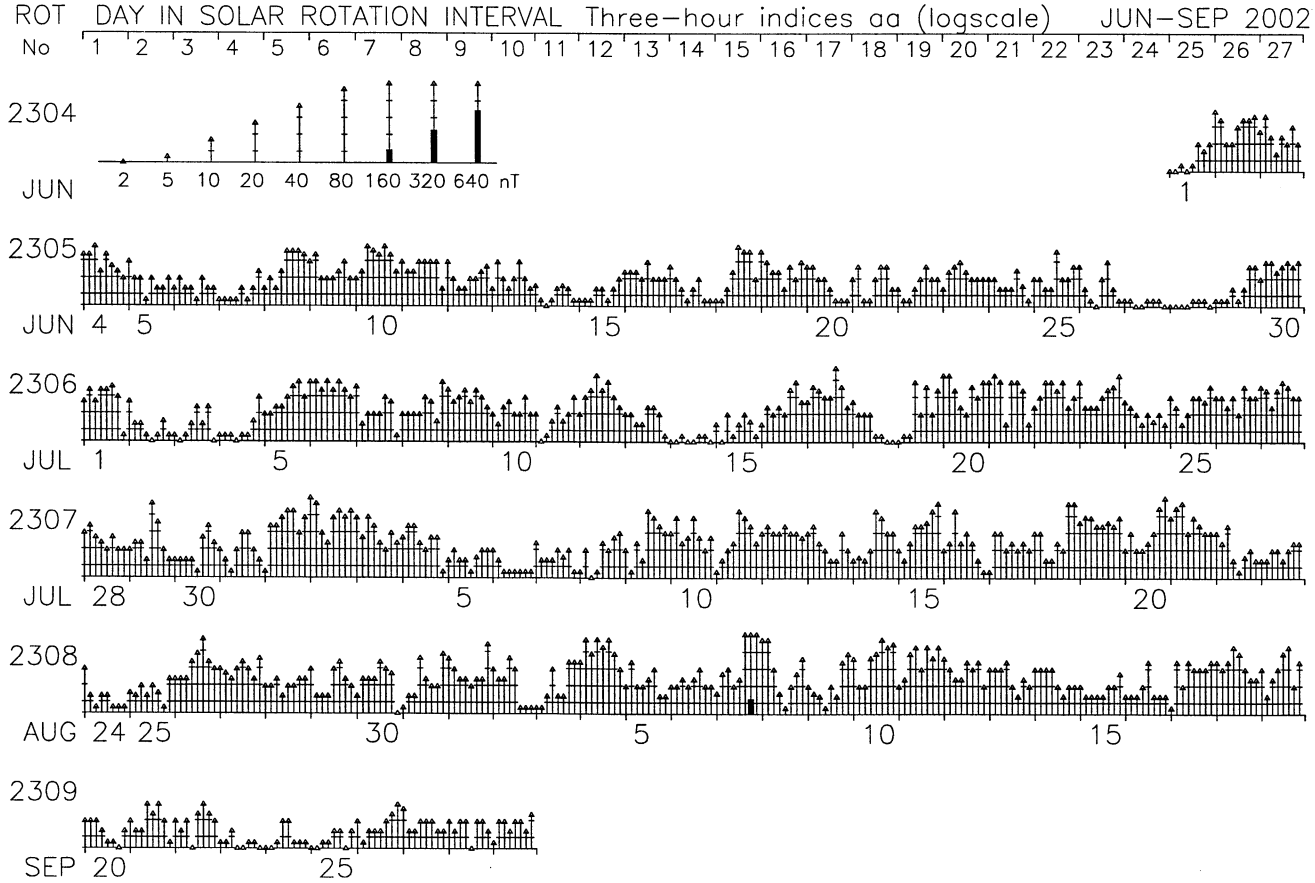


Indices Derivation at C.E.T.P.; Graph Prepared at ISGI Publication Office.



Indices Derivation at C.E.T.P.; Graph Prepared at ISGI Publication Office.

WDC FOR GEOMAGNETISM, KYOTO UNIVERSITY

HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

JULY 2002

UNIT=NT

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24 (U. T.)
1	-12	-5	0	-7	-15	-18	-15	-9	-5	-14	-17	-11	-7	-4	-3	-1	-2	-1	-6	-3	-3	-2	-4	-6
2	-6	-1	-5	-7	-9	-8	-4	-3	0	3	2	1	2	4	6	5	5	7	8	6	1	0	0	0
3	3	6	8	9	9	10	9	7	5	4	3	6	8	9	7	6	3	1	-2	-1	1	5	8	11
4	10	6	5	10	13	15	14	15	12	11	10	7	5	5	7	11	14	16	21	22	25	22	25	27
5	24	22	26	27	30	32	36	36	27	21	23	25	31	24	20	20	18	15	11	1	3	14	18	9
6	4	4	-4	-15	-28	-37	-23	-11	-18	-25	-30	-24	-28	-30	-25	-21	-17	-16	-13	-13	-15	-18	-22	-28
7	-22	-12	-11	-10	-9	-10	-12	-13	-10	-7	-15	-18	-19	-18	-12	-11	-11	-13	-13	-11	-14	-11	-8	-7
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9	2	-2	-9	-12	-5	4	9	1	0	6	2	-2	2	2	3	3	-5	-11	-7	-4	-7	-8	-12	-12
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30	12	13	11	13	15	11	14	13	13	14	14	11	12	12	14	13	10	8	5	7	5	4	8	6
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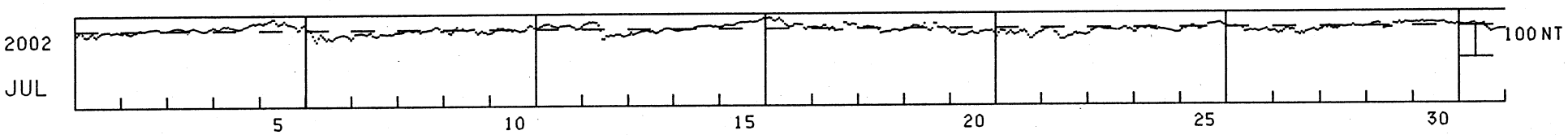
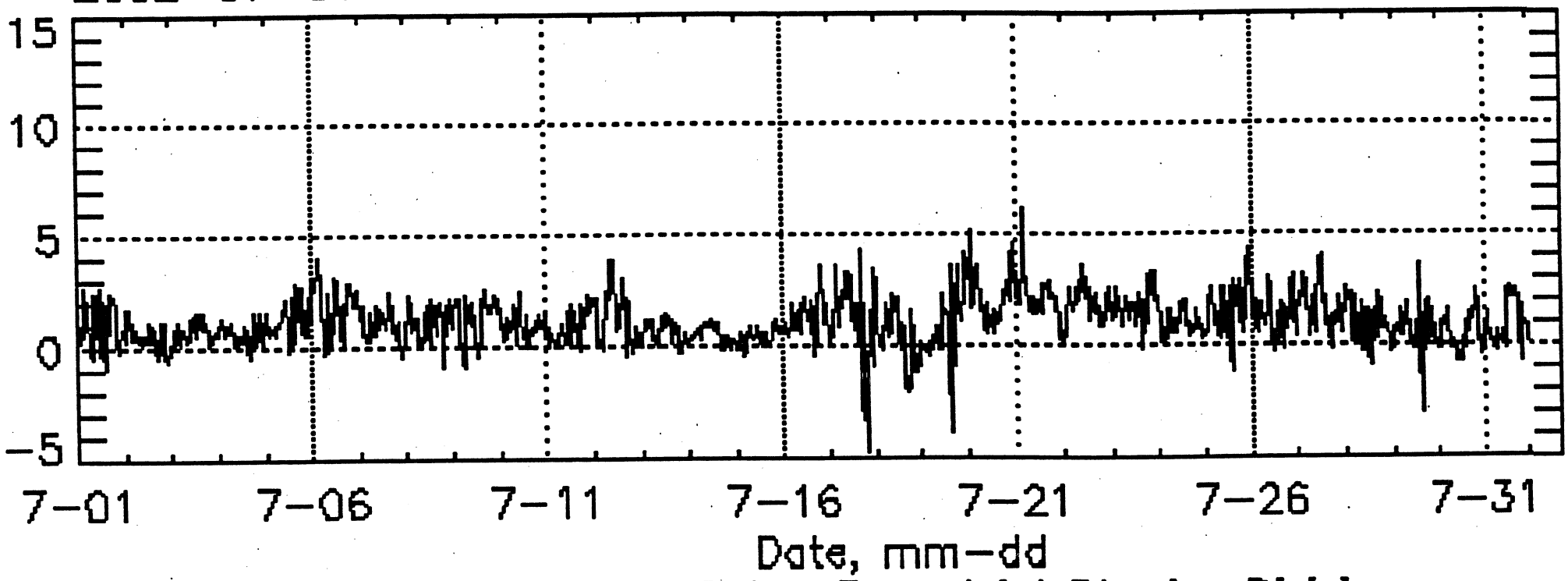


WDC C1 for Geomagnetism, Copenhagen

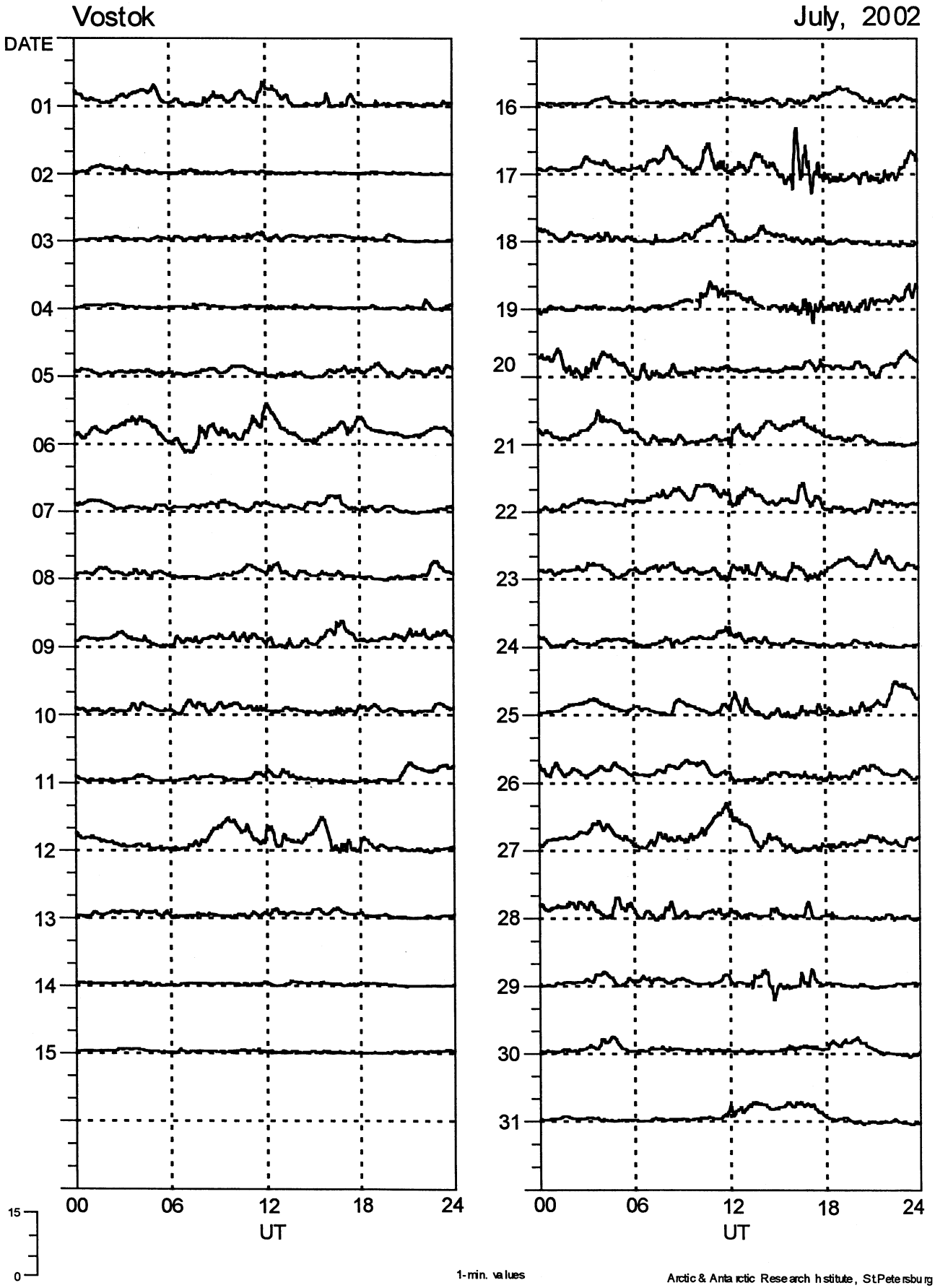
Polar Cap index
Qaanaaq (Thule), THL

2002-07-01



Data source: Solar-Terrestrial Physics Division
Danish Meteorological Institute

PC - INDEX



1-min. values

Arctic & Antarctic Research Institute, St.Petersburg

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

JULY 2002

Sta	Geomag Lat	Commencement Day	Commencement Time (UT)	Type	SC Amplitudes D (Min)	SC Amplitudes H (Gamma)	SC Amplitudes Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	Ranges H (Gamma)	Ranges Z (Gamma)	End Day	End Hour (UT)
UJJ	13.6N	04	2200	..	..	..	..		-	5	114	21	06	18
NGP	11.3N	04	2200	..	..	..	..		-	6	149	22	06	18
ABG	09.4N	04	2200	..	..	..	..	12(4) 17(6)	5	6	144	30	06	18
HYB	07.6N	04	1000	..	..	..	..	06(3,6)	4	7	148	25	07	22
PND	02.0N	04	2200	..	..	..	..		-	4	155	48	06	18
TIR	00.6S	04	2200	..	..	..	..		-	5	199	53	06	18
ETT	00.7S	05	2100	..	..	..	..		-	5	141	50	07	21
ETT	00.7S	08	0100	..	..	..	..		-	4	149	45	10	15
HYB	07.6N	11	0500	..	..	..	..	12(4)	5	5	141	25	13	20
ETT	00.7S	11	0500	..	..	..	..		-	3	202	33	13	16
HYB	07.6N	16	0000	..	..	..	..	17(6)	5	5	94	32	18	03
ETT	00.7S	16	0100	..	..	..	..		-	2	166	68	17	14
HYB	07.6N	17	1603	SC	- 0.6	47	- 1		-	--	--	--	--	--
ETT	00.7S	17	1603	SC	- 0.4	44	48		-	--	--	--	--	--
UJJ	13.6N	19	1008	SC*	- 0.3	15	- 3		-	6	54	28	20	18
NGP	11.3N	19	1008	SC*	--	--	--		-	--	--	--	20	18
ABG	09.4N	19	1008	SC*	- 0.4	13	- 5	19(4,6)	4	6	67	45	20	18
HYB	07.6N	19	1008	SC	- 0.6	9	- 1	19(4,5) 20(1,2)	4	6	86	34	21	22
PND	02.0N	19	1008	SC*	- 0.2	15	16		-	5	64	60	20	18
TIR	00.6S	19	1008	SC*	- 0.4	14	16		-	5	135	58	20	18
ETT	00.7S	19	1008	SC	- 0.4	23	14		-	4	145	63	21	21
HER	33.6S	19	1010	SC	- 2	14	20	20(1)	4	23	68	47	20	16
UJJ	13.6N	21	1203	SC*	- 0.4	15	- 3		-	6	78	33	22	21
NGP	11.3N	21	1203	SC*	--	--	--		-	--	--	--	22	21
ABG	09.4N	21	1203	SC*	- 0.4	13	- 4	20(1,2)	5	7	97	49	22	21
PND	02.0N	21	1203	SC*	- 0.2	13	12		-	4	115	46	22	21
TIR	00.6S	21	1203	SC*	- 0.4	11	14		-	4	185	49	22	21
HYB	07.6N	22	0100	..	..	..	..	22(4)	4	7	104	33	24	03
ETT	00.7S	22	0100	..	..	..	..		-	6	202	80	24	21
HYB	07.6N	25	0500	..	..	..	..	27(4)	4	8	105	40	28	23
ETT	00.7S	25	0100	..	..	..	..		-	6	166	49	29	12
UJJ	13.6N	27	0600	..	..	..	..		-	6	82	38	28	17
NGP	11.3N	27	0600	..	..	..	..		-	--	--	--	28	17
ABG	09.4N	27	0600	..	..	..	..	27(4)	5	6	99	38	28	17
PND	02.0N	27	0600	..	..	..	..		-	6	98	42	28	17
TIR	00.6S	27	0600	..	..	..	..		-	5	160	45	28	17
HYB	07.6N	29	1320	SC	- 0.1	25	- 1		-	--	--	--	--	--
ETT	00.7S	29	1320	SC	- 0.1	20	23		-	--	--	--	--	--

Stations:

ABG = ALIBAG
AMS = MARTIN DE VIVIES
ANN = ANNAMALAINAGAR
BJI = BEIJING
CAN = CANBERRA
CMO = COLLEGE
CZT = PORT ALFRED
DRV = DUMONT D'URVILLE
ETT = ETAIYAPURAM
GNA = GNANGARA
GUA = GUAM
HER = HERMANUS
HON = HONOLULU
HYB = HYDERABAD
JAI = JAIPUR
KRC = KARACHI
NGP = NAGPUR
PAF = PORT AUX FRANCAIS
PMG = PORT MORESBY
PND = PONDICHERRY
SHL = SHILLONG
SIT = SITKA
TIR = TIRUNELVELI
UJJ = UJJAIN

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

July 2002

Storm Sudden Commencements (SSC)

Day	Time	Quality: Station Group*
17	1604	A: HYB
		B: VAL* COI
		C: EBR LIV*
		-: ETT
19	1009	A: VAL*
		B: CLF* HRB NAG* SPT* HER
		C: DOU BDV EBR* HYB
		-: ETT
25	1336	B: SOD* VAL*
		C: NGK* BDV* CLF* COI SPT* LIV*
29	1321	A: VAL* NAG* COI SPT*
		B: SOD* NGK* BDV* CLF* HRB EBR* HYB GNA CNB LIV*
		-: ETT

Solar Flare Effects (sfe)

Day	Begin-End	Station(s)
03	0209-0250	MMB+ KAK+ HTY+ KNY+ HYB ETT GNA+ CNB+
04	0732-0750	MMB+ KAK+ HTY+ KNY+
11	0913-0925	NAG
11	1446-1504	NGK VAL BDV CLF
15	0620-0636	HYB ETT GNA+ CNB+
15	0627-0638	HER
15	2003-2025	MMB+ KAK+ KNY+
18	0332-0350	MMB+ KAK+ HTY+ KNY+
18	0741-0800	NGK BDV CLF MMB+ KAK+ KNY+ HYB ETT GNA+ HER
23	0026-0055	MMB+ KAK+ KNY+
29	0229-0301	HTY+
29	0234-0255	MMB+ KAK+ KNY+
30	1134-1152	NAG

REPORTING OBSERVATORIES (up to the 4th of September 2002):
SOD NUR NGK VAL DOU BDV CLF HRB NAG MMB EBR COI SPT KAK HTY KNY HYB ETT GNA HER CNB LIV

Three-letter codes identify each observatory. Reporting stations have been grouped by the character of the observed event. The letter A means very remarkable; B means fair, but unmistakable; C means very poor, doubtful; and - means no quality figure given. The * means that the SSC, at least in one component, was preceded by a small reversed impulse. SSCs are given only when five or more stations report the event. SFEs include all reports. If an SFE is confirmed by solar or ionospheric events, the name of the station is identified with a plus sign (+).

Note that we have included data of the Antartic Station LIVINGSTONE (62º 39' 44" S, 60º23' 41" W) -- Luis F.