



Solar-Geophysical Data prompt reports

Data for July and August 2003

Explanation of Data Reports Issued as Number 515 (Supplement) July 1987

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NATIONAL ENVIRONMENTAL SATELLITE,
DATA, AND INFORMATION SERVICE

NATIONAL GEOPHYSICAL
DATA CENTER

BOULDER,
COLORADO



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SEPTEMBER 2003 NUMBER 709 - Part I

Solar-Geophysical Data prompt reports

Data for July and August 2003

International Standard Serial Number: 0038-0911

Library of Congress Catalog Number: 79-640375 //r81

NATIONAL GEOPHYSICAL DATA CENTER

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Subscription information is on the inside back cover.

SOLAR-GEOPHYSICAL DATA

Number 709

(Issued in Two Parts)

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A.6c	Stanford Solar Mag Field Synoptic Map	703A 38	704A 42	705A 40	706A 40	707A 42	708A 42	709A 38	
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A.8ac	2800 MHz- Adj. Solar Flux (Penticton)	702A 29	703A 25	704A 28	705A 25	706A 25	707A 24	708A 26	709A 26
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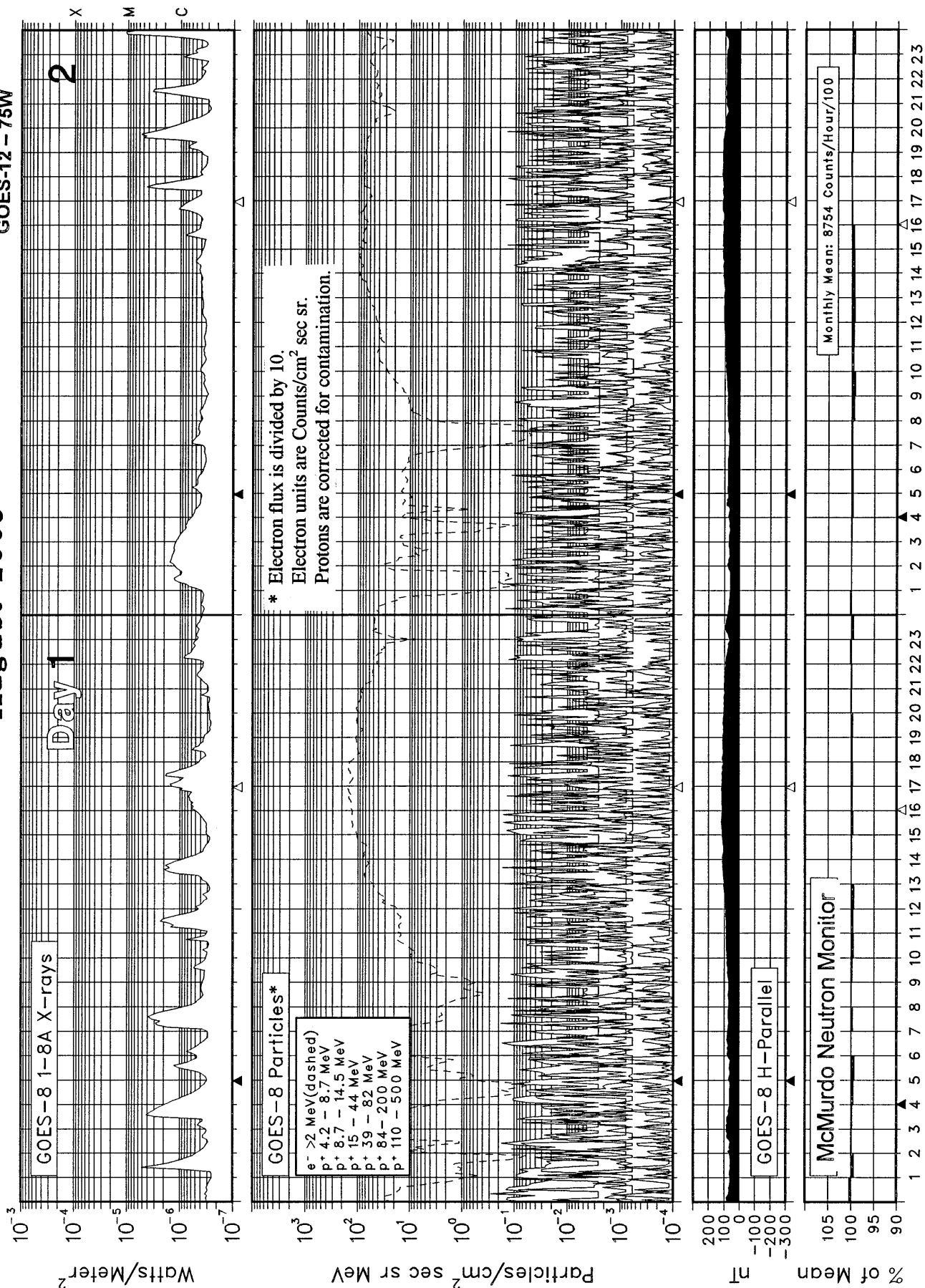
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SOLAR-TERRESTRIAL ENVIRONMENT

August 2003

Satellite positions:
GOES-8 - 75W
GOES-11 - 113W
GOES-12 - 75W



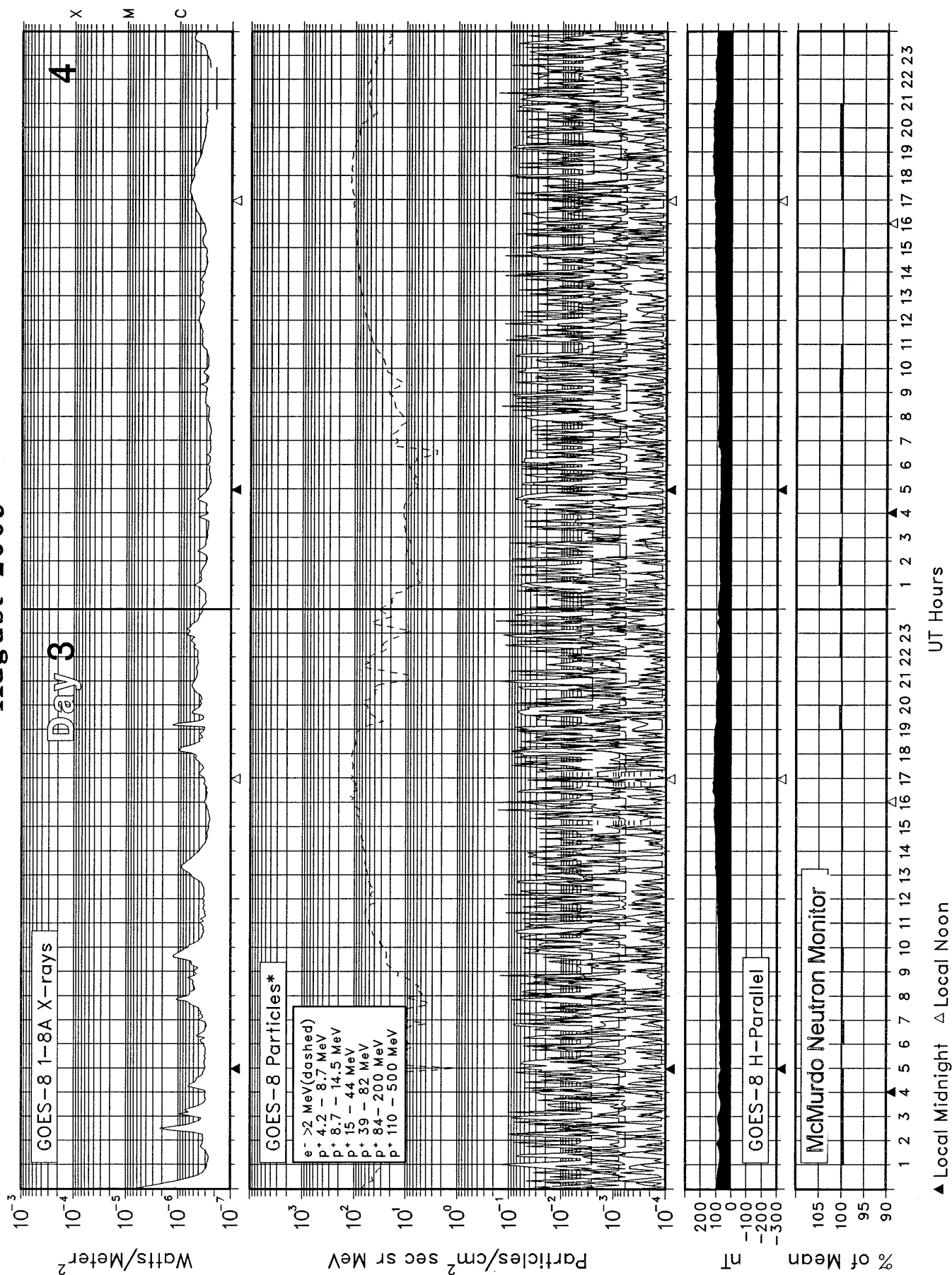
▲ Local Midnight △ Local Noon

GOES-12 data replace GOES-8 X-rays, electrons
and magnetometer data after May 2003.

GOES 11 protons replace GOES-8 protons after June 19, 2003.

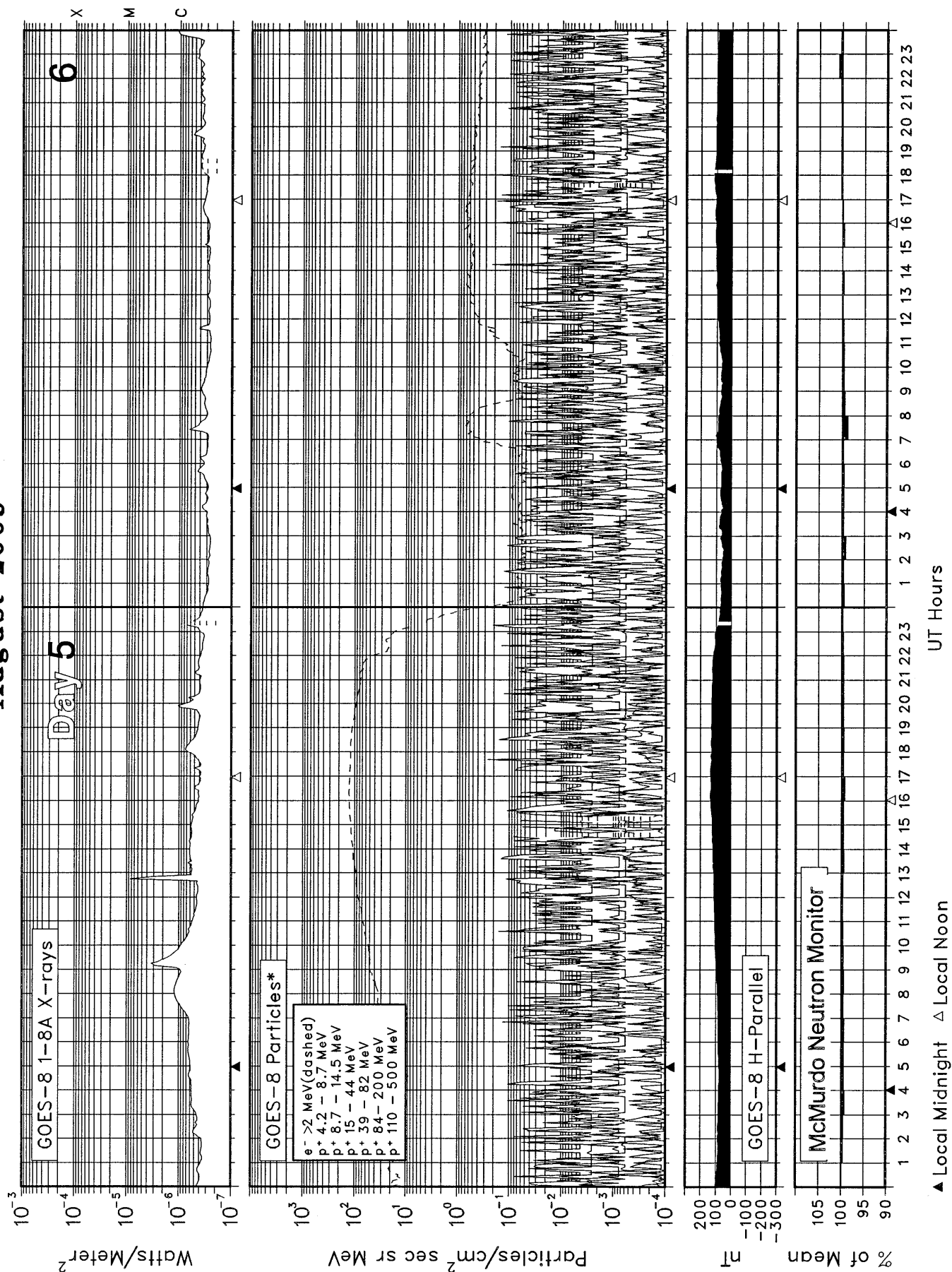
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August 2003



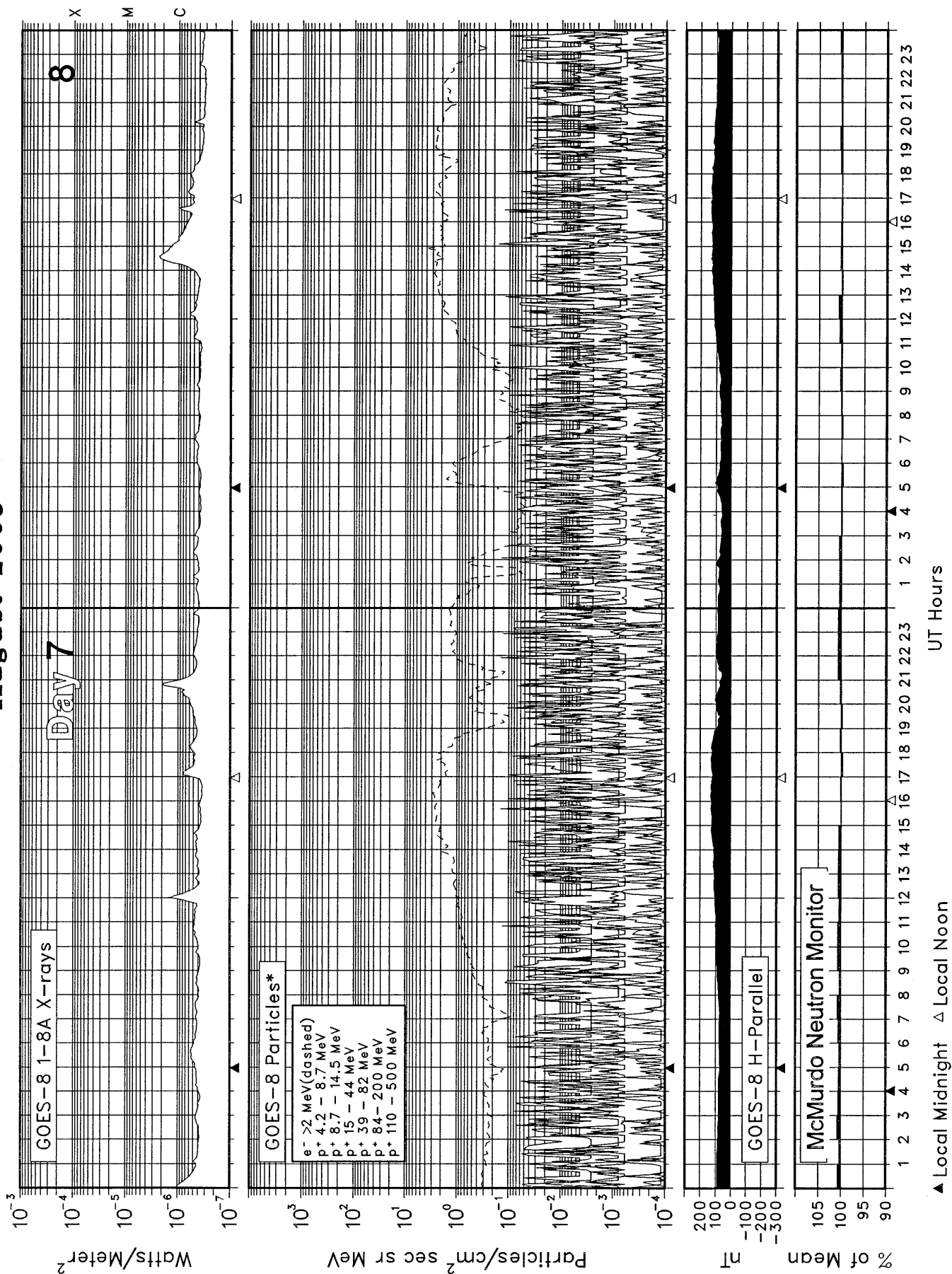
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August 2003



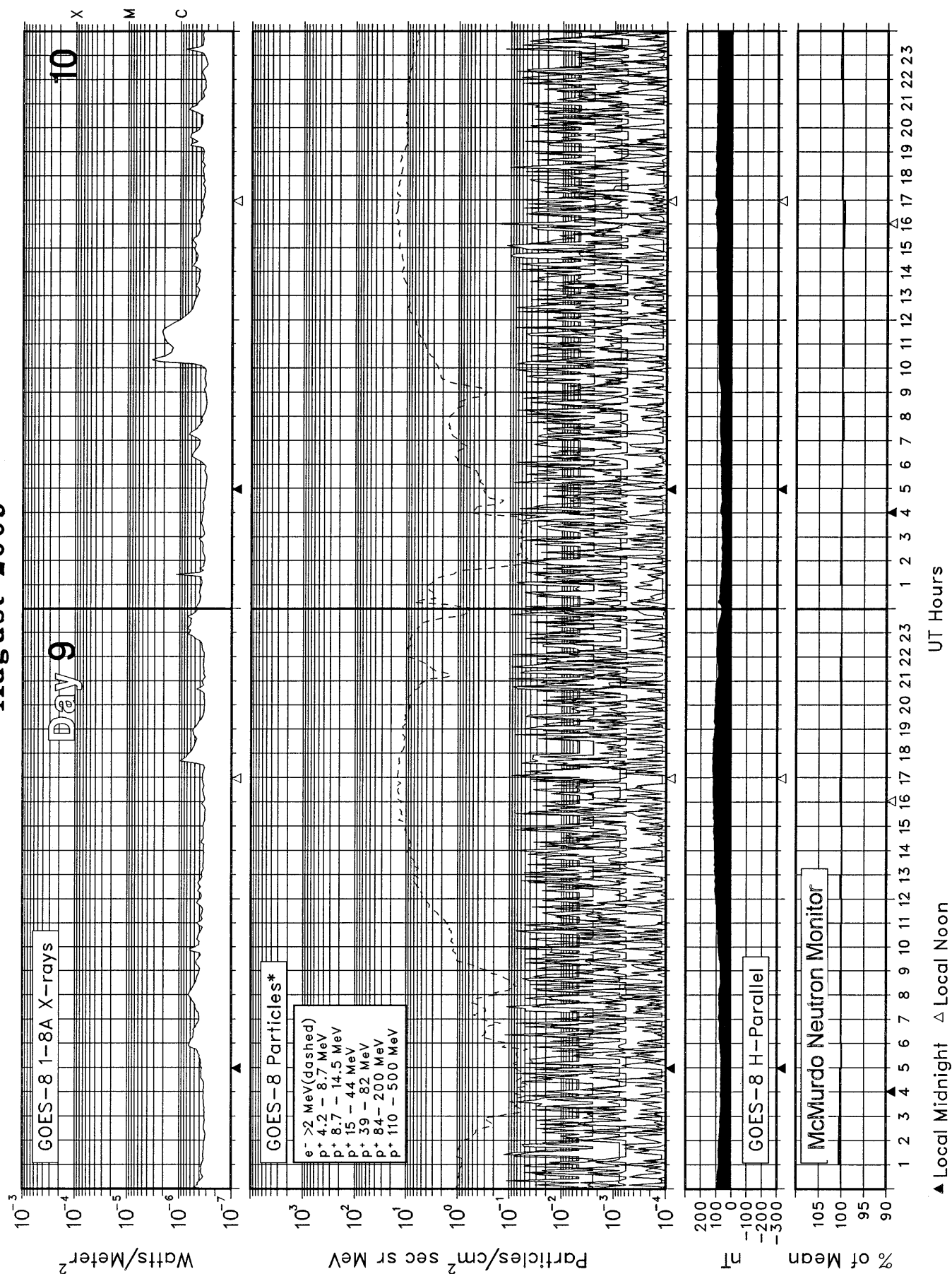
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August 2003



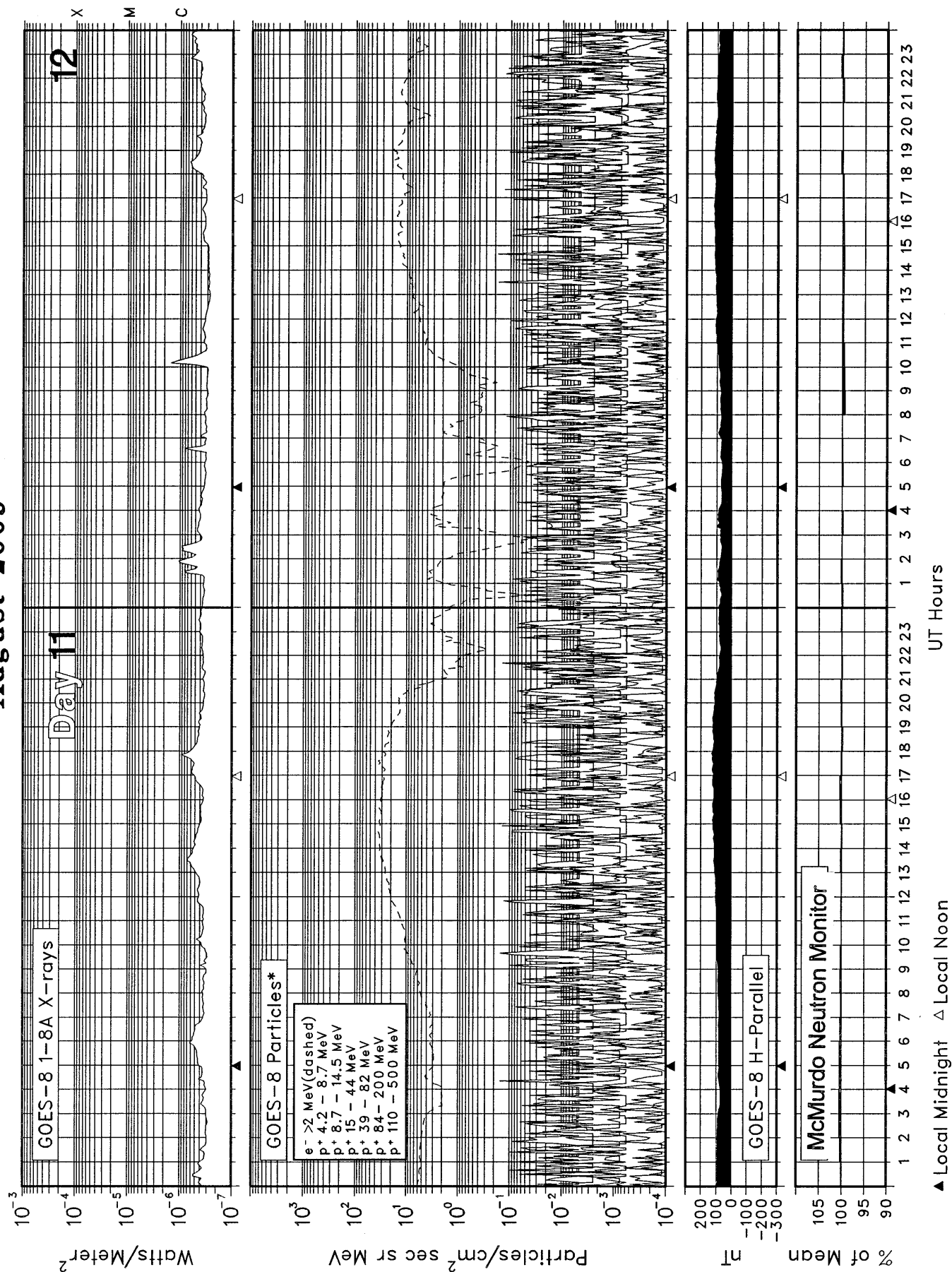
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August 2003



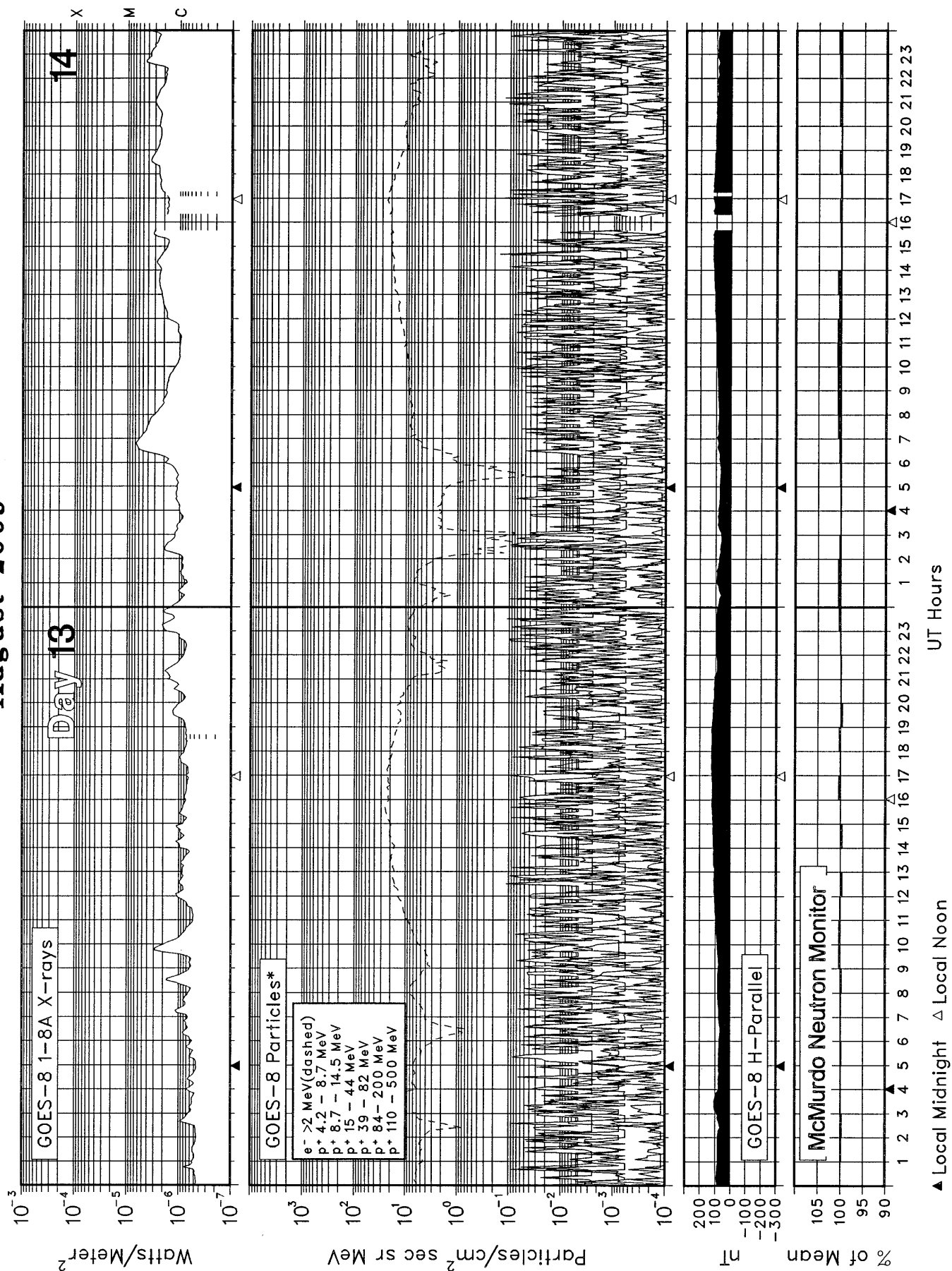
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August 2003



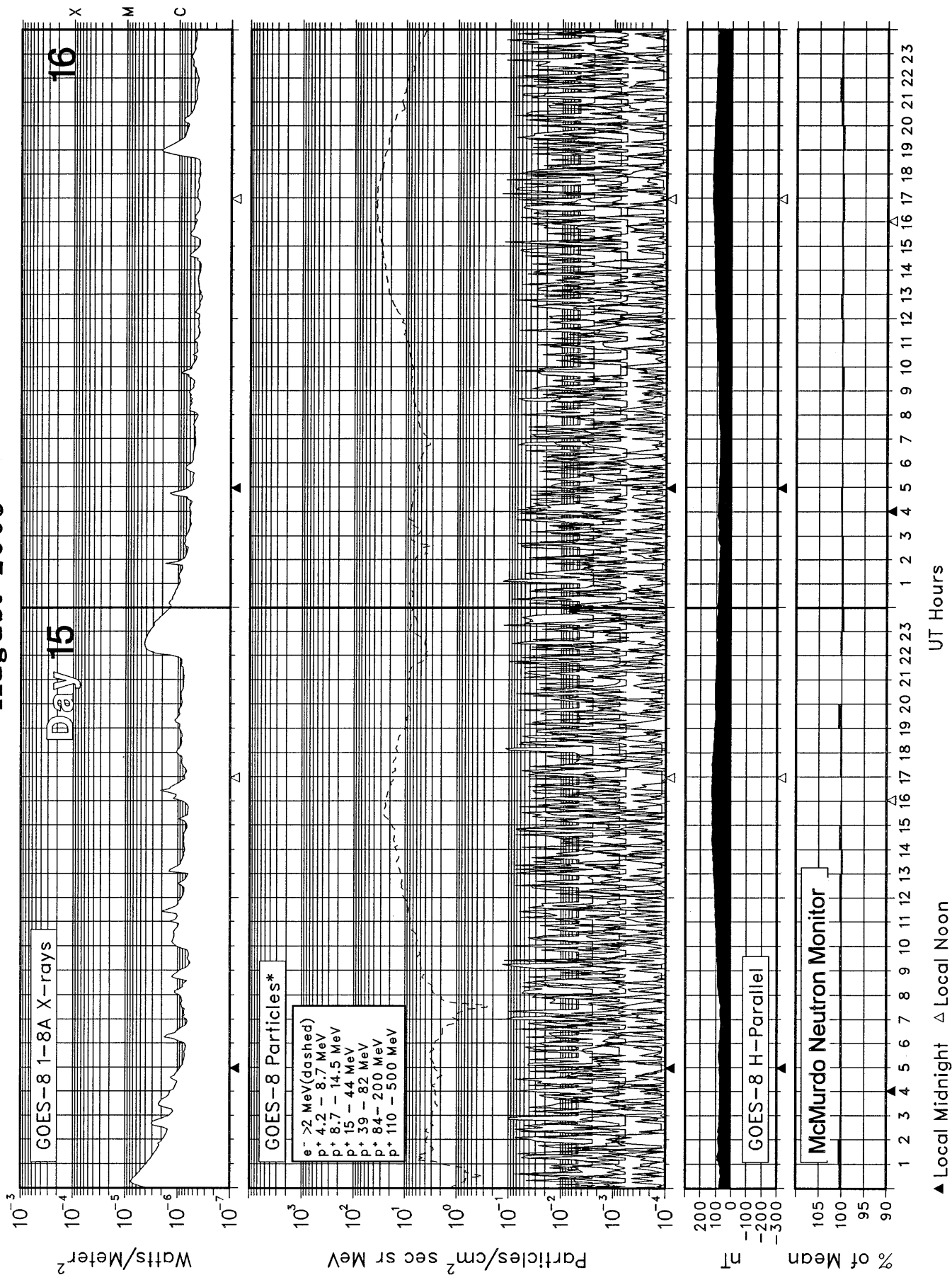
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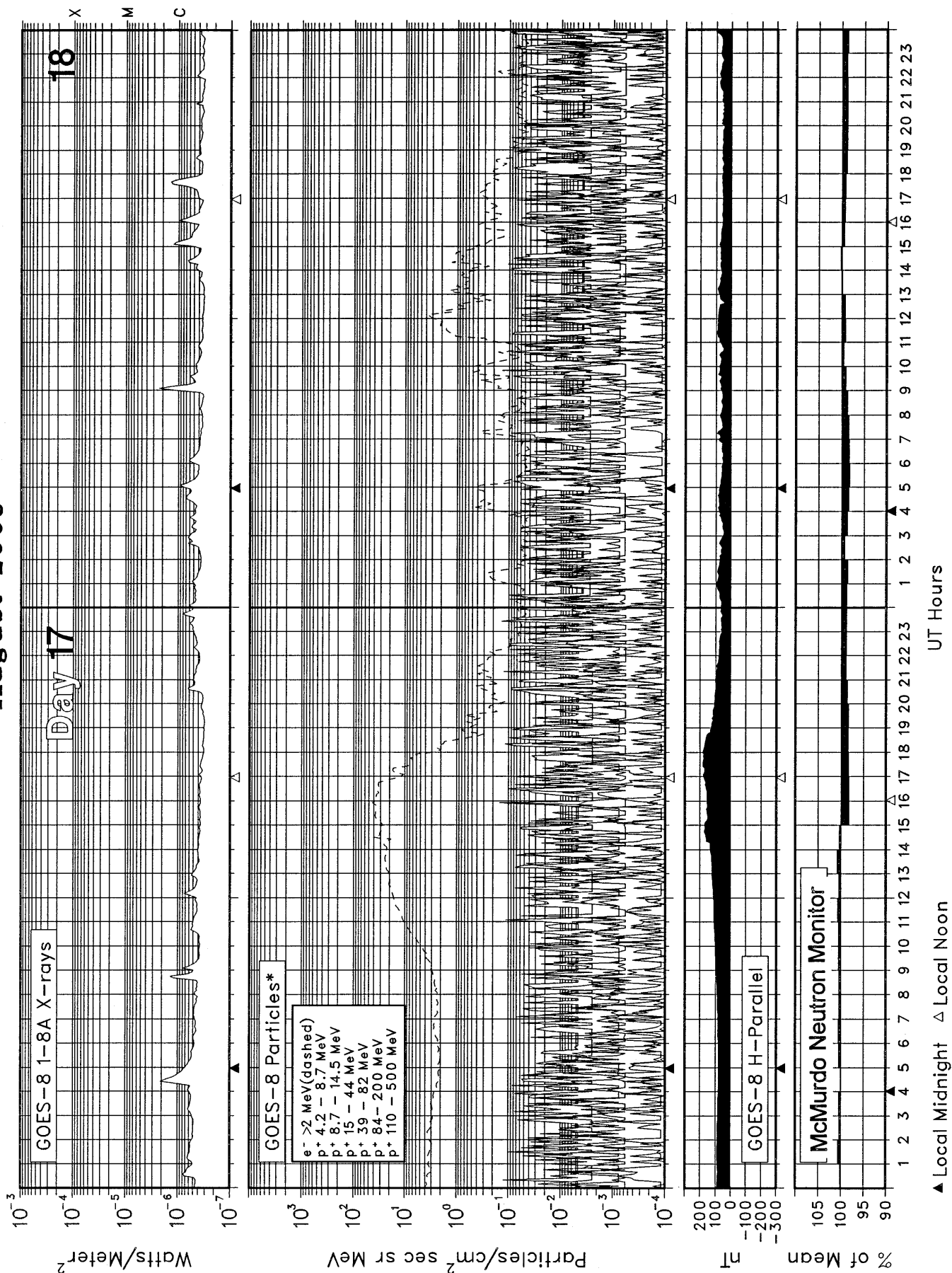
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August 2003



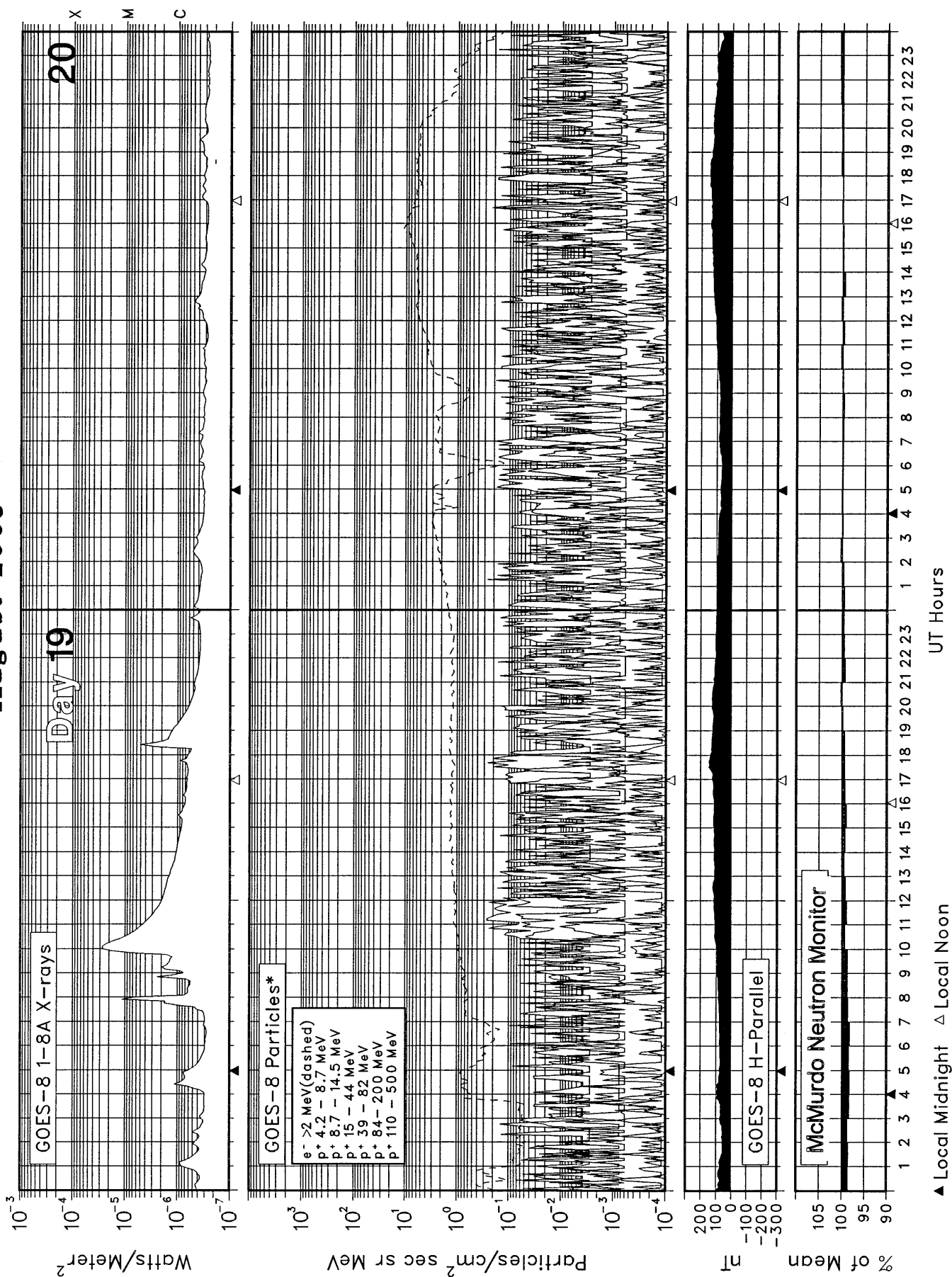
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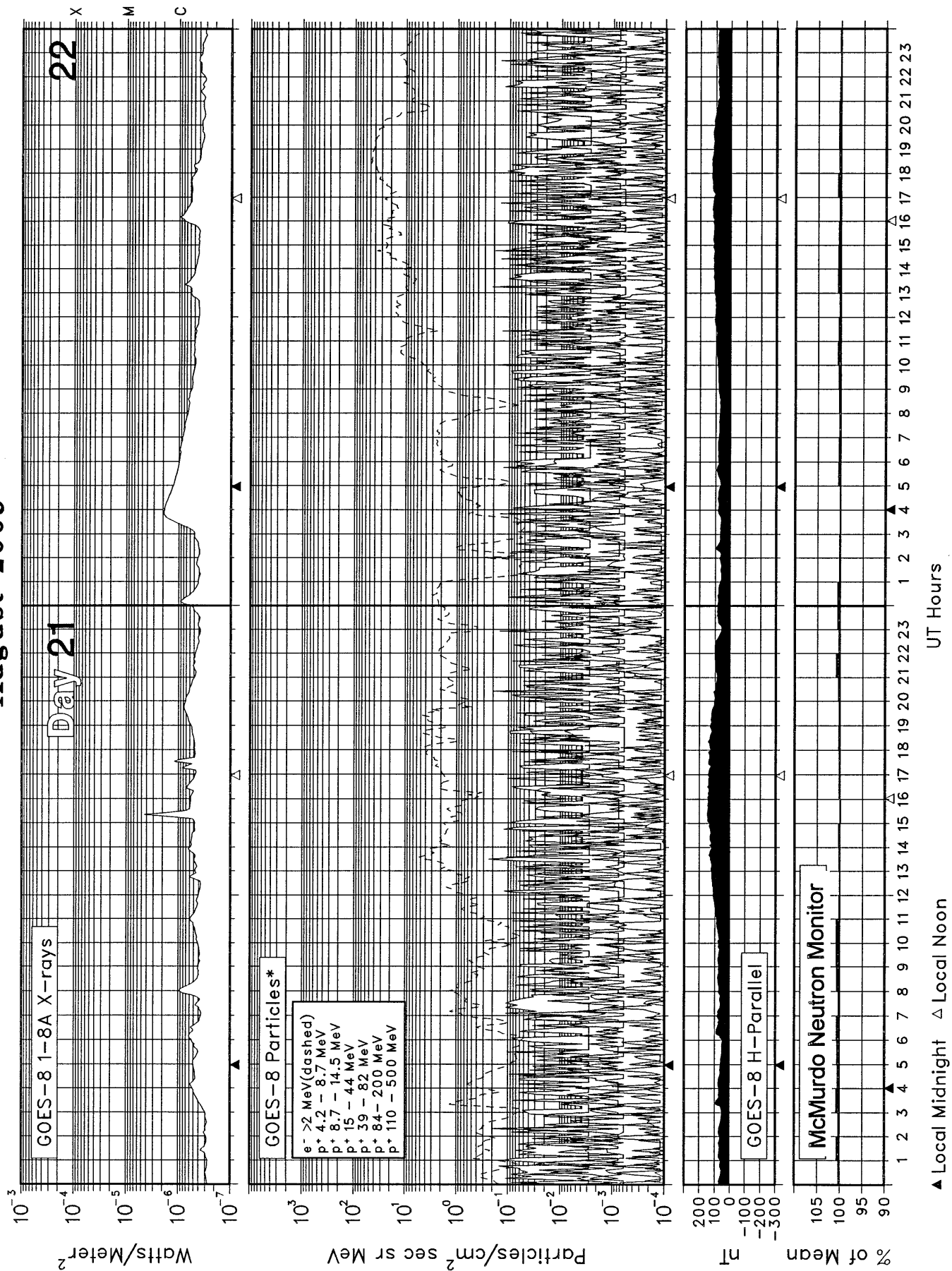
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August 2003



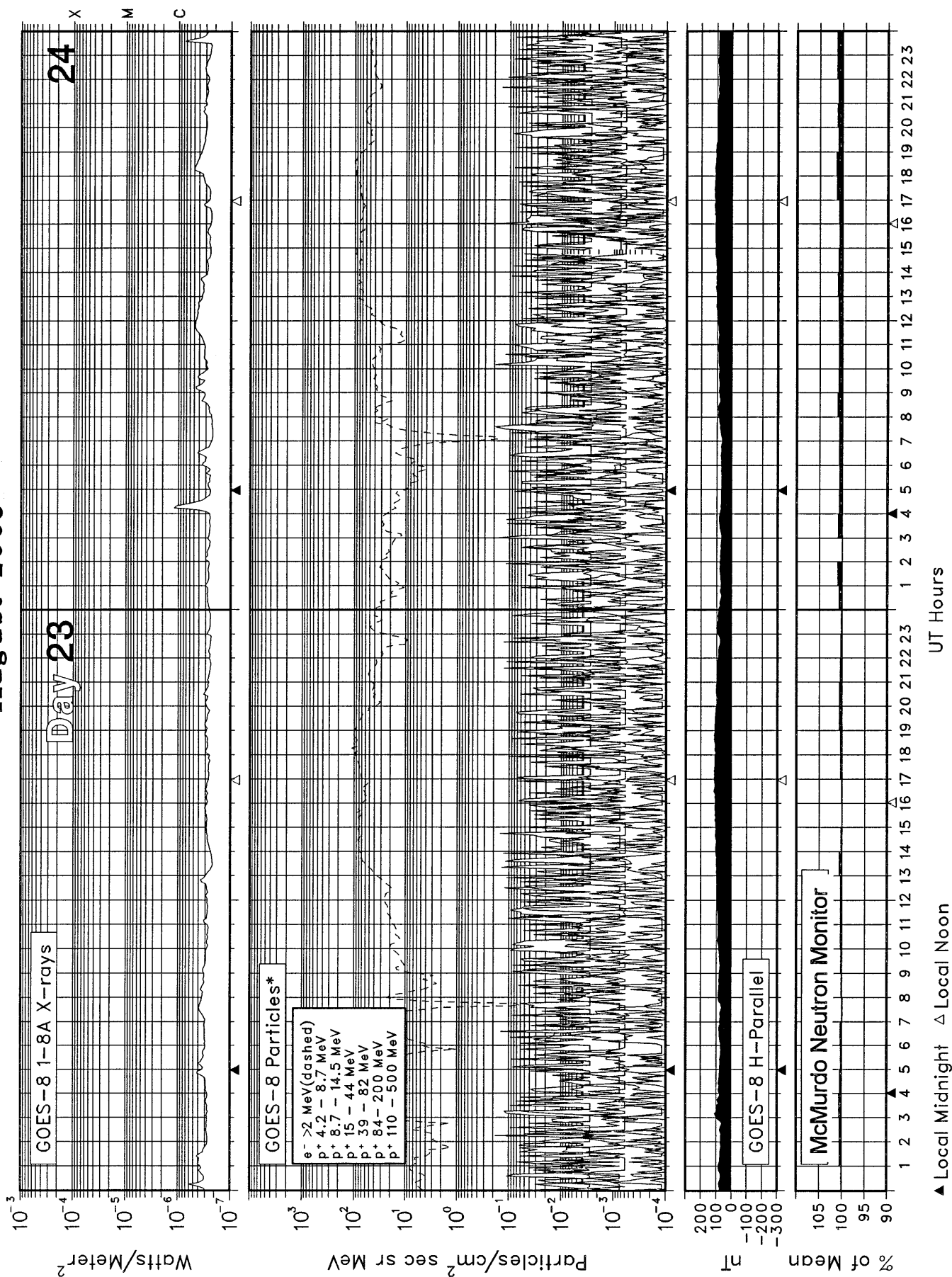
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August 2003



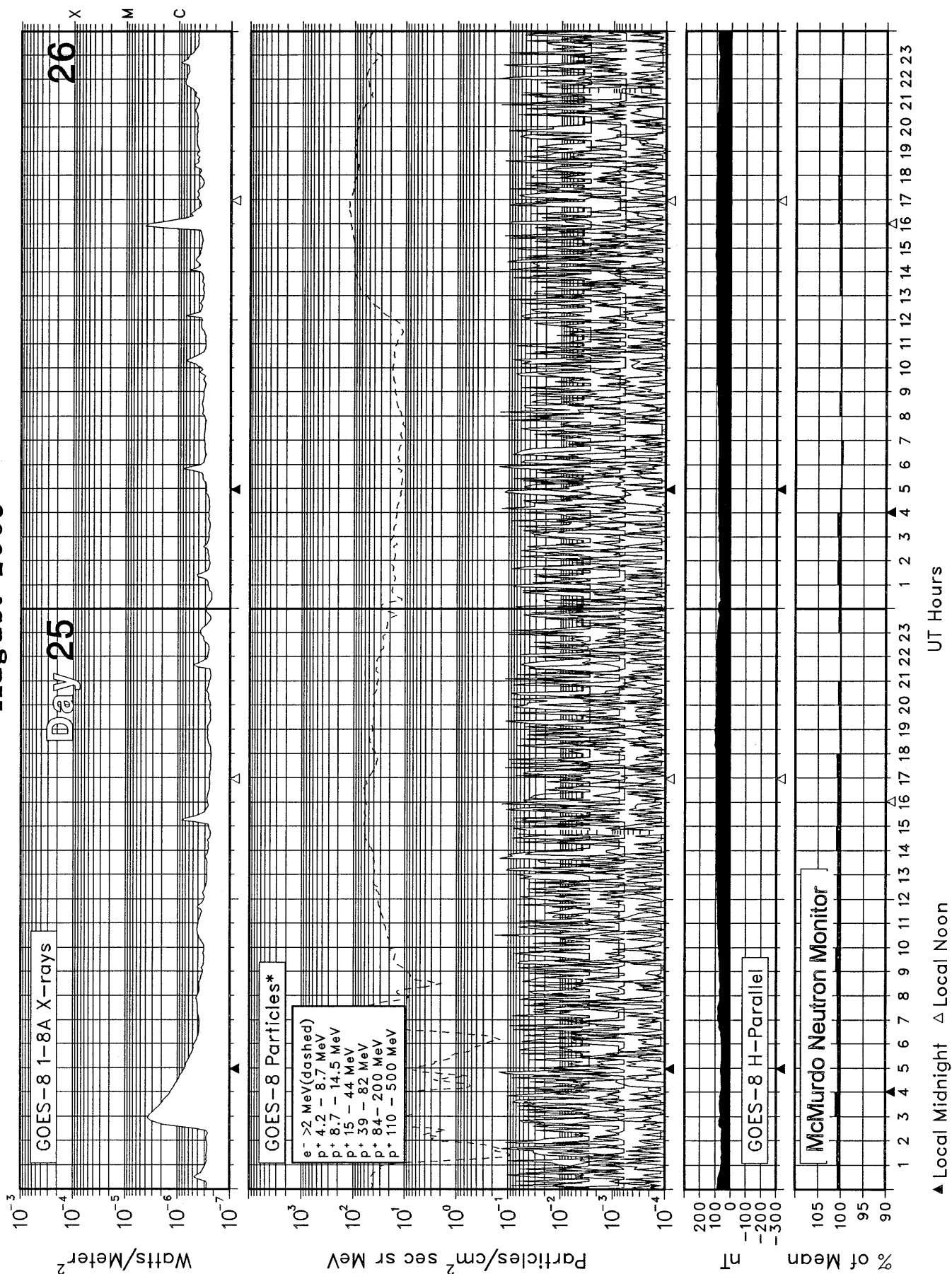
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August 2003



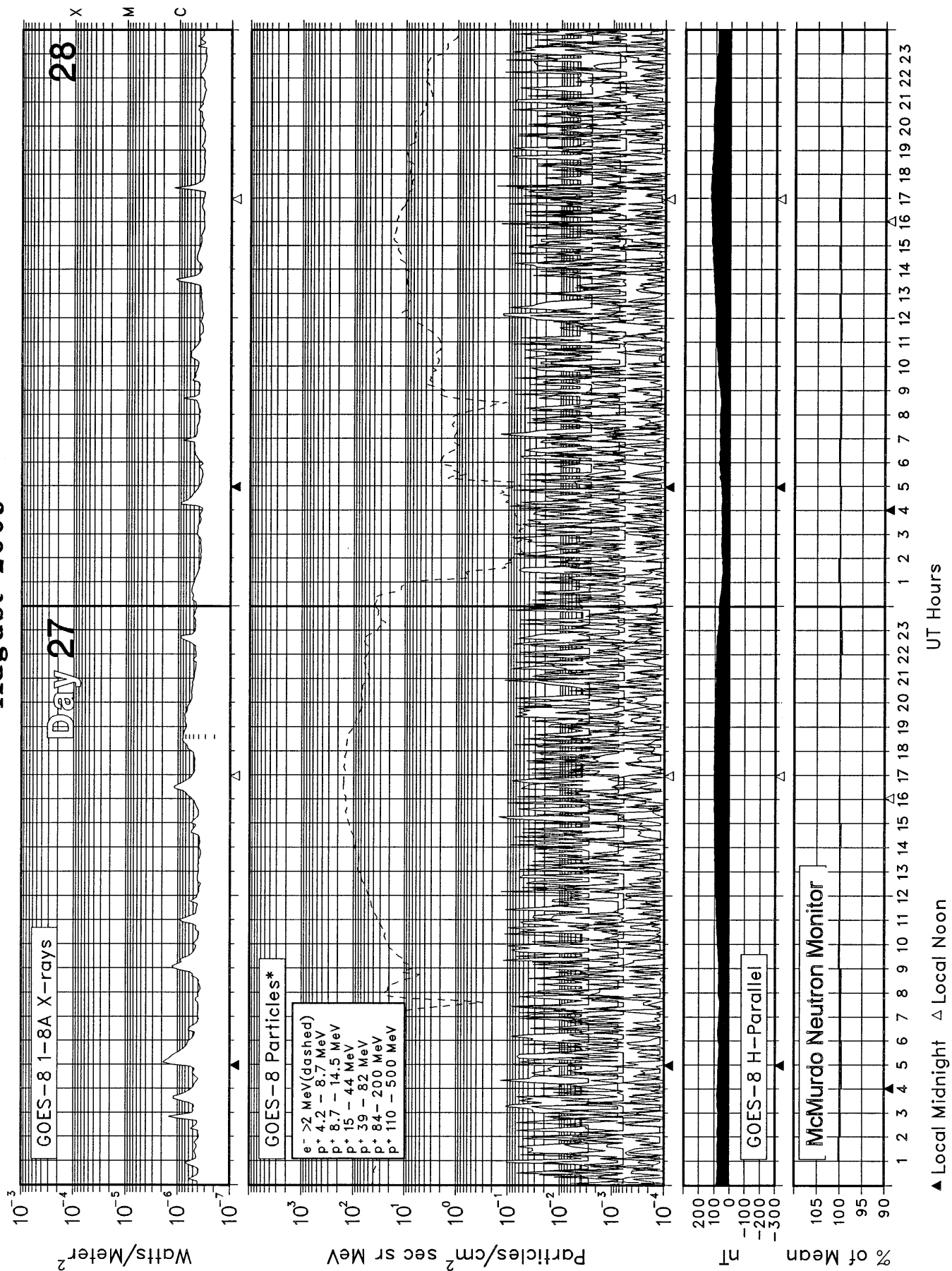
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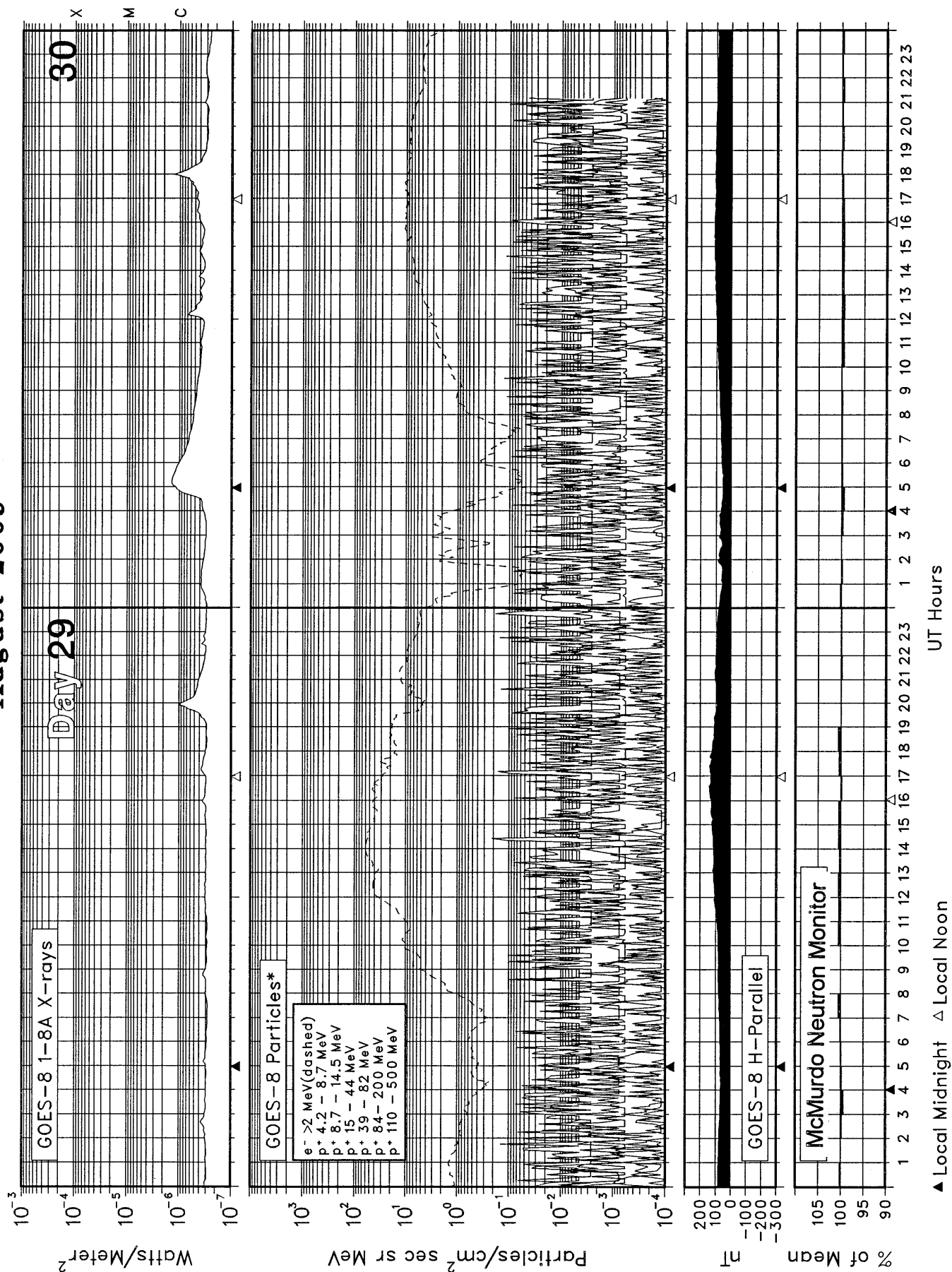
SOLAR-TERRESTRIAL ENVIRONMENT

August 2003



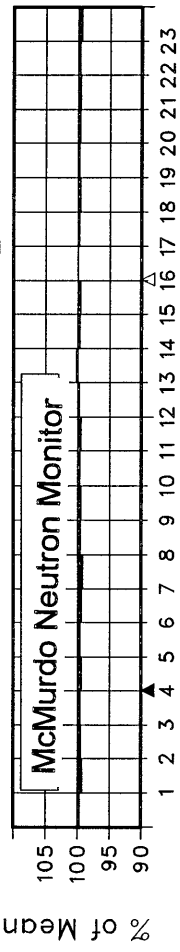
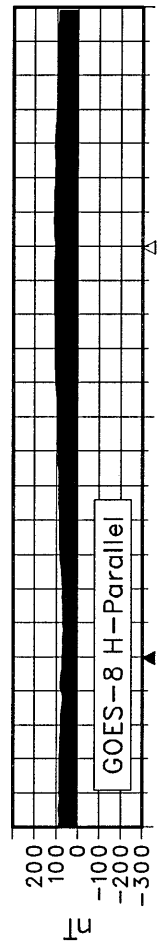
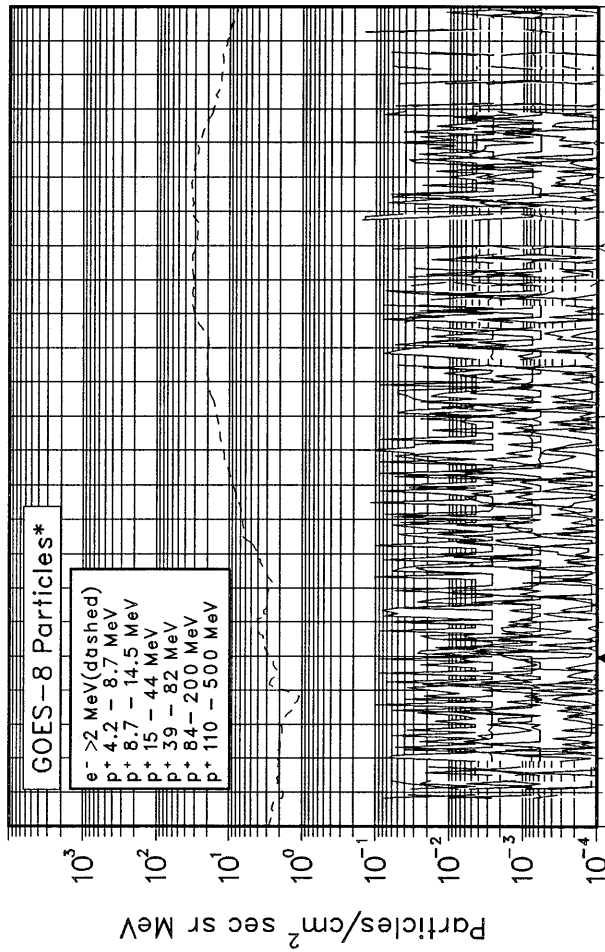
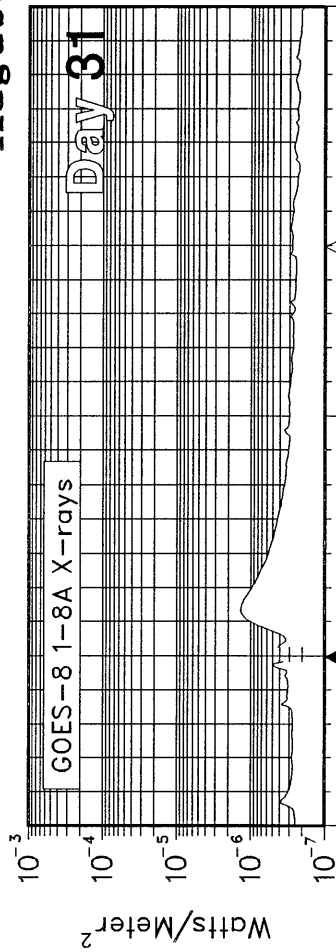
SOLAR-TERRESTRIAL ENVIRONMENT

August 2003



SOLAR-TERRESTRIAL ENVIRONMENT

August 2003



▲ Local Midnight ▲ Local Noon UT Hours

GOES-12 data replace GOES-8 X-rays, electrons and magnetometer data after May 2003.
GOES 11 protons replace GOES-8 protons after June 19, 2003.

Satellite positions:
GOES-8 -- 75W
GOES-11 -- 113W
GOES-12 -- 75W

* Electron flux is divided by 10.
Electron units are Counts/cm² sec sr.
Protons are corrected for contamination.

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Aug 03

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

AUGUST 2003

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location		Flares			Date of Fcst	Region Fcst(1)	Geoadvice(1)
							Lat	Lon	Opt	M	X			
213	01	31	65	102	33	420	N11	W15	0	0	0	01	Q	SOL: Eruptive
						421	S08	E28	0	0	0	01	E	MAG: Active
						422	N14	W80	1	0	0	01	E	PRO: Quiet
						423	S19	W03	0	0	0	01	Q	
214	02	01	85	107	36	420	N11	W30	0	0	0	02	Q	SOL: Eruptive
						421	S08	E15	0	0	0	02	Q	MAG: Active
						422	N15	W93	0	0	0	02	Q	PRO: Quiet
						423	S18	W17	0	0	0	02	Q	
						424	S18	E77	0	0	0	02	Q	
215	03	02	95	111	24	420	N11	W43	0	0	0	03	Q	SOL: Eruptive
						421	S08	E01	0	0	0	03	Q	MAG: Active
						423	S17	W32	0	0	0	03	Q	PRO: Quiet
						424	S18	E64	12	1	0	03	E	
						425	S08	E61	0	0	0	03	Q	
						426	S12	E32	0	0	0	03	Q	
216	04	03	144	120	15	420	N11	W57	0	0	0	04	Q	SOL: Eruptive
						421	S08	W14	0	0	0	04	Q	MAG: Quiet
						423	S15	W38	0	0	0	04	Q	PRO: Quiet
						424	S18	E52	11	0	0	04	E	
						425	S08	E50	0	0	0	04	Q	
						426	S12	E18	0	0	0	04	Q	
						427	N04	W16	1	0	0	04	Q	
217	05	04	138	123	17	420	N11	W71	0	0	0	05	Q	SOL: Eruptive
						421	S07	W30	0	0	0	05	Q	MAG: Quiet
						423	S15	W49	0	0	0	05	Q	PRO: Quiet
						424	S18	E39	0	0	0	05	E	
						425	S09	E36	0	0	0	05	Q	
						426	S12	E03	0	0	0	05	Q	
						427	N05	W30	0	0	0	05	Q	
						428	N16	W10	0	0	0	05	Q	
218	06	05	136	131	10	420	N11	W83	0	0	0	06	Q	SOL: Eruptive
						421	S07	W43	1	0	0	06	Q	MAG: Quiet
						424	S18	E26	2	1	0	06	E	PRO: Quiet
						425	S09	E23	0	0	0	06	E	
						426	S12	W11	0	0	0	06	Q	
						427	N05	W44	0	0	0	06	Q	
						428	N16	W24	0	0	0	06	Q	
						429	S24	E55	0	0	0	06	Q	
219	07	06	155	129	45	420	N12	W97	0	0	0	07	Q	SOL: Eruptive
						421	S07	W58	0	0	0	07	Q	MAG: Active
						424	S18	E13	0	0	0	07	E	PRO: Quiet
						425	S09	E10	0	0	0	07	Q	
						426	S12	W25	0	0	0	07	Q	
						427	N05	W60	0	0	0	07	Q	
						428	N16	W38	0	0	0	07	Q	
						429	S24	E43	0	0	0	07	Q	
220	08	07	121	137	15	421	S07	W72	1	0	0	08	Q	SOL: Eruptive
						424	S18	W01	0	0	0	08	E	MAG: Active
						425	S09	W04	0	0	0	08	Q	PRO: Quiet
						427	N05	W77	0	0	0	08	Q	
						428	N14	W54	0	0	0	08	Q	
						429	S24	E30	0	0	0	08	Q	
						430	S08	W13	0	0	0	08	Q	
221	09	08	111	133	33	421	S07	W84	0	0	0	09	Q	SOL: Eruptive
						424	S18	W14	0	0	0	09	E	MAG: Active
						425	S09	W17	1	0	0	09	Q	PRO: Quiet
						427	N66	W91	0	0	0	09	Q	
						429	S24	E17	0	0	0	09	Q	
						430	S08	W29	0	0	0	09	Q	

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

AUGUST 2003

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A- index	Rgn No.	Location		Flares			Date of Fcst	Region Fcst(1)	Geoadvice(1)
							Lat	Lon	Opt	M	X			
222	10	09	107	130	15	424	S18	W28	1	0	0	10	E	SOL: Eruptive
						425	S09	W31	0	0	0	10	Q	MAG: Active
						429	S24	E04	0	0	0	10	Q	PRO: Quiet
						430	S08	W43	0	0	0	10	Q	
						431	S12	E68	0	0	0	10	E	
223	11	10	112	131	12	424	S18	W41	1	0	0	11	Q	SOL: Eruptive
						425	S09	W43	1	0	0	11	Q	MAG: Quiet
						429	S24	W08	0	0	0	11	Q	PRO: Quiet
						430	S08	W56	0	0	0	11	Q	
						431	S13	E56	1	0	0	11	E	
224	12	11	118	129	11	424	S18	W54	0	0	0	12	E	SOL: Eruptive
						425	S09	W56	0	0	0	12	Q	MAG: Active
						429	S24	W21	0	0	0	12	Q	PRO: Quiet
						430	S08	W66	0	0	0	12	Q	
						431	S13	E43	0	0	0	12	E	
225	13	12	114	123	25	424	S18	W67	1	0	0	13	E	SOL: Eruptive
						425	S09	W71	0	0	0	13	Q	MAG: Active
						429	S24	W34	0	0	0	13	Q	PRO: Quiet
						430	S08	W79	0	0	0	13	Q	
						431	S13	E30	2	0	0	13	E	
226	14	13	112	131	19	424	S18	W80	1	0	0	14	Q	SOL: Eruptive
						425	S09	W86	0	0	0	14	Q	MAG: Active
						429	S24	W47	0	0	0	14	Q	PRO: Quiet
						431	S13	E17	3	0	0	14	E	
						432	S05	E71	0	0	0	14	Q	
227	15	14	108	130	19	424	S18	W93	0	0	0	15	Q	SOL: Eruptive
						429	S24	W60	0	0	0	15	Q	MAG: Active
						431	S13	E03	2	0	0	15	E	PRO: Quiet
						432	S05	E57	0	0	0	15	Q	
						433	S23	E18	0	0	0	15	Q	
228	16	15	86	131	15	431	S11	W13	5	0	0	16	E	SOL: Eruptive
						432	S04	E43	0	0	0	16	Q	MAG: Quiet
						433	S19	E10	0	0	0	16	Q	PRO: Quiet
						434	S23	E02	0	0	0	16	Q	
229	17	16	92	127	13	431	S12	W26	1	0	0	17	E	SOL: Eruptive
						432	S04	E29	0	0	0	17	Q	MAG: Quiet
						433	S20	W04	0	0	0	17	Q	PRO: Quiet
						434	S23	W10	0	0	0	17	Q	
						435	S18	W41	0	0	0	17	Q	
230	18	17	113	119	14	431	S10	W38	1	0	0	18	E	SOL: Eruptive
						432	S04	E18	0	0	0	18	Q	MAG: Quiet
						433	S20	W16	0	0	0	18	Q	PRO: Quiet
						434	S23	W20	0	0	0	18	Q	
						435	S18	W52	0	0	0	18	Q	
						436	N07	E69	0	0	0	18	Q	
231	19	18	104	116	65	431	S10	W52	3	0	0	19	E	SOL: Eruptive
						432	S02	E03	0	0	0	19	Q	MAG: Minor
						433	S20	W31	0	0	0	19	Q	PRO: Quiet
						435	S17	W67	0	0	0	19	Q	
						436	N08	E57	0	0	0	19	Q	
232	20	19	77	117	20	431	S11	W67	2	2	0	20	E	SOL: Eruptive
						432	S03	W12	0	0	0	20	Q	MAG: Active
						433	S19	W45	0	0	0	20	Q	PRO: Quiet
						436	N08	E42	1	0	0	20	Q	
						437	S22	W27	0	0	0	20	Q	

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Aug 03

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

AUGUST 2003

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location		Flares			Date of Fcst	Region Fcst(1)	Geoadvice(1)
							Lat	Lon	Opt	M	X			
233	21	20	62	112	17	431	S10	W84	0	0	0	21	E	SOL: Eruptive
						433	S20	W58	0	0	0	21	Q	MAG: Quiet
						436	N07	E29	0	0	0	21	E	PRO: Quiet
						437	S22	W39	0	0	0	21	Q	
234	22	21	86	119	51	436	N07	E17	0	0	0	22	E	SOL: Eruptive
						438	S31	W31	0	0	0	22	Q	MAG: Active
						439	N08	W23	0	0	0	22	Q	PRO: Quiet
						440	S08	E12	0	0	0	22	Q	
						441	N12	E48	0	0	0	22	Q	
235	23	22	126	121	35	436	N07	E03	1	0	0	23	E	SOL: Eruptive
						439	N08	W38	0	0	0	23	Q	MAG: Minor
						440	S07	W06	0	0	0	23	Q	PRO: Quiet
						441	N12	E33	0	0	0	23	Q	
						442	S12	E65	0	0	0	23	Q	
						443	N15	E09	0	0	0	23	Q	
236	24	23	125	120	42	436	N07	W12	0	0	0	24	E	SOL: Eruptive
						439	N07	W51	0	0	0	24	Q	MAG: Minor
						440	S08	W20	0	0	0	24	Q	PRO: Quiet
						441	N11	E19	2	0	0	24	Q	
						442	S12	E54	0	0	0	24	Q	
						444	N09	E60	0	0	0	24	Q	
237	25	24	132	116	25	436	N08	W26	1	0	0	25	E	SOL: Eruptive
						439	N07	W64	0	0	0	25	Q	MAG: Active
						440	S08	W33	0	0	0	25	Q	PRO: Quiet
						441	N12	E06	0	0	0	25	Q	
						442	S12	E43	0	0	0	25	Q	
						444	N09	E44	0	0	0	25	Q	
238	26	25	146	117	22	436	N07	W39	0	0	0	26	E	SOL: Eruptive
						439	N07	W80	0	0	0	26	Q	MAG: Active
						440	S07	W47	0	0	0	26	Q	PRO: Quiet
						441	N12	W07	0	0	0	26	Q	
						442	S13	E30	1	0	0	26	Q	
						443	N14	W30	0	0	0	26	Q	
						444	N12	E39	0	0	0	26	Q	
						445	N04	E38	0	0	0	26	Q	
239	27	26	124	121	21	436	N08	W51	1	0	0	27	E	SOL: Eruptive
						440	S07	W64	0	0	0	27	Q	MAG: Quiet
						441	N12	W20	0	0	0	27	Q	PRO: Quiet
						442	S13	E16	0	0	0	27	Q	
						443	N14	W46	0	0	0	27	Q	
						444	N10	E22	0	0	0	27	Q	
						445	N03	E24	0	0	0	27	Q	
240	28	27	116	126	16	436	N07	W60	2	0	0	28	Q	SOL: Eruptive
						440	S07	W77	0	0	0	28	Q	MAG: Active
						441	N13	W33	0	0	0	28	Q	PRO: Quiet
						442	S13	E04	0	0	0	28	Q	
						444	N10	E08	0	0	0	28	Q	
						445	N03	E10	0	0	0	28	Q	
						446	S22	E36	0	0	0	28	Q	
241	29	28	146	119	21	436	N07	W80	0	0	0	29	Q	SOL: Eruptive
						441	N14	W47	0	0	0	29	Q	MAG: Active
						442	S13	W06	0	0	0	29	Q	PRO: Quiet
						444	N09	W06	0	0	0	29	Q	
						445	N03	W04	2	0	0	29	Q	
						446	S23	E23	0	0	0	29	Q	
						447	N16	W05	0	0	0	29	Q	
						448	N19	E34	0	0	0	29	Q	
						449	S16	E69	0	0	0	29	Q	

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

AUGUST 2003

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A- index	Rgn No.	Location		Flares			Date of Fcst	Region Fcst(1)	Geoadvice(1)
							Lat	Lon	Opt	M	X			
242	30	29	132	116	16	441	N12	W63	0	0	0	30	Q	SOL: Eruptive MAG: Quiet PRO: Quiet
						442	S13	W19	0	0	0	30	Q	
						444	N09	W20	0	0	0	30	Q	
						445	N03	W19	0	0	0	30	Q	
						447	N15	W21	0	0	0	30	Q	
						448	N19	E18	0	0	0	30	Q	
						449	S15	E53	0	0	0	30	Q	
						450	S18	E66	0	0	0	30	Q	
						451	S10	W65	0	0	0	30	Q	
						452	S09	E05	0	0	0	30	Q	
243	31	30	120	114	21	441	N15	W80	0	0	0	31	Q	SOL: Eruptive MAG: Quiet PRO: Quiet
						442	S12	W35	1	0	0	31	Q	
						444	N09	W33	1	0	0	31	Q	
						445	N03	W32	0	0	0	31	Q	
						447	N15	W37	0	0	0	31	Q	
						448	N20	E06	0	0	0	31	Q	
						449	S15	E39	0	0	0	31	Q	
						450	S18	E52	0	0	0	31	Q	
						452	S06	W05	0	0	0	31	Q	

(1) Region Forecast and Flare (SOL) Advice

Q = Quiet (<50% probability of C-class flares)
 E = Eruptive (C-class flares expected, probability >=50%)
 A = Active (M-class flares expected, probability >=50%)
 M = Major (X-class flares expected, probability >=50%)
 P = Proton (Proton flares expected, probability >=50%)
 W = Warning (activity levels are expected to increase, but no numerical forecast given)
 / = No forecast available

Magnetic (MAG) Geoadvice

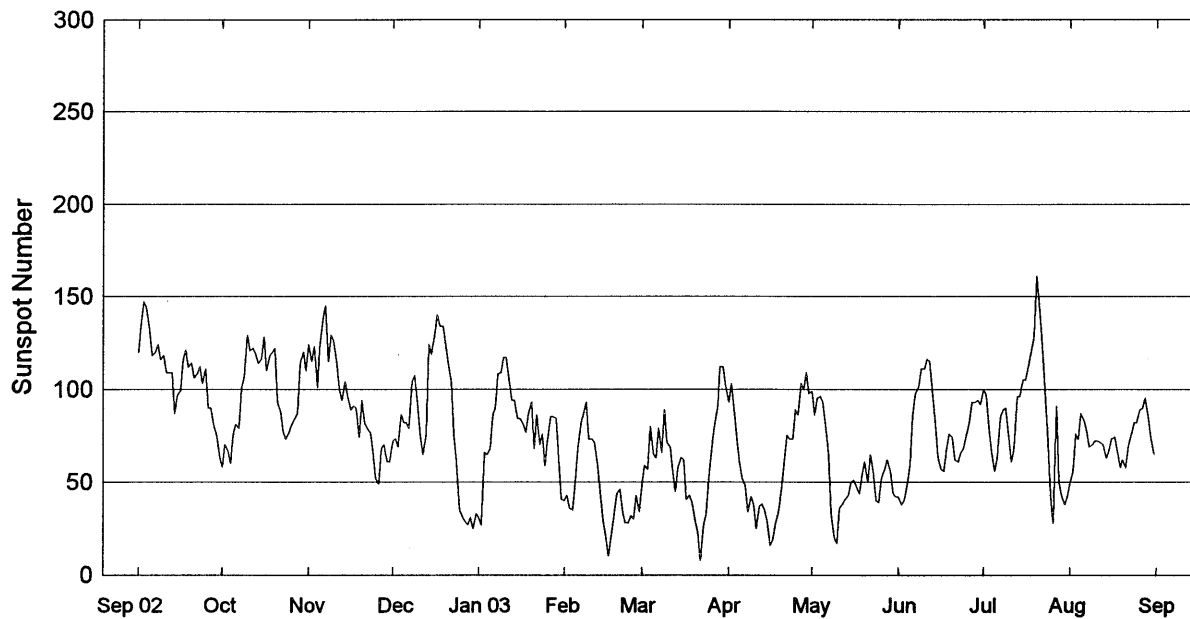
'Quiet'
 'Active' conditions expected (A>=20 or K=4)
 'Minor' storm expected (A>=30 or K=5)
 'Major' storm expected (A>=50 or K=6)
 'Severe' storm expected (A>=100 or K=7)
 'IP' magstorm in progress (A>=30 or K=4)
 'Warning' (activity levels are expected to increase, but no numerical forecast given)
 '/' no forecast available

Proton (PRO) Geoadvice

'Quiet'
 'Proton' event expected (10pfu at >10MeV)
 'Major' proton event expected (100pfu at >100 MeV)
 'IP' proton event in progress (>10 MeV)
 'Warning' (activity levels are expected to increase, but no numerical forecast given)
 '/' no forecast available

STRATWARM ALERTS - NONE

International Relative Sunspot Numbers Sep 2002 - Aug 2003



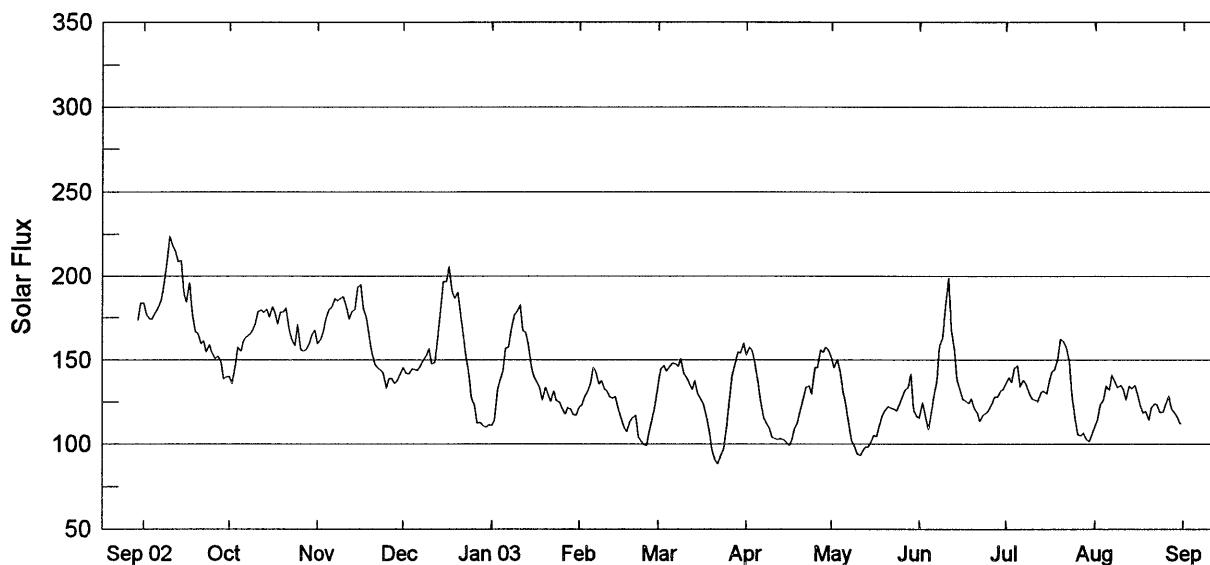
Day	Sep 02	Oct	Nov	Dec	Jan 03	Feb	Mar	Apr*	May*	Jun*	Jul*	Aug*
1	120	58	124	72	31	40	48	93	99	42	100	49
2	136	70	115	66	27	43	59	103	86	38	97	56
3	147	67	123	64	66	36	57	90	95	40	80	76
4	144	60	107	80	65	35	80	72	96	47	67	73
5	132	76	122	82	68	50	65	60	93	59	56	87
6	118	81	137	82	86	68	63	52	78	86	63	83
7	120	79	145	79	90	82	79	48	65	98	85	78
8	124	101	115	98	108	87	66	34	33	101	89	69
9	116	106	129	107	109	93	89	42	20	111	90	70
10	118	129	126	94	117	73	71	38	17	111	74	72
11	109	121	114	74	117	73	69	25	36	116	61	72
12	109	122	100	65	104	71	56	37	38	115	68	71
13	109	119	94	75	94	59	45	38	41	96	96	70
14	87	114	104	124	94	45	58	35	43	81	96	63
15	97	116	102	119	84	31	63	29	50	63	105	67
16	99	128	89	129	84	20	62	16	51	57	105	73
17	116	110	91	140	81	10	41	19	48	56	112	74
18	121	118	83	134	77	20	43	27	44	68	121	67
19	112	120	74	134	87	33	39	34	54	76	128	58
20	114	122	94	124	93	44	29	45	61	74	161	62
21	106	93	82	112	68	46	23	58	50	62	146	58
22	108	88	79	104	86	34	8	75	65	61	123	69
23	112	77	77	75	70	28	27	73	57	66	100	76
24	103	73	67	57	76	28	33	73	40	68	78	82
25	111	77	56	35	59	32	52	89	39	76	43	82
26	90	81	49	32	72	30	70	86	52	82	28	89
27	90	84	68	29	85	43	81	103	57	93	91	90
28	80	87	70	27	85	34	91	100	62	93	50	95
29	76	114	61	31	84		112	109	56	94	43	85
30	64	120	61	29	62		112	98	44	92	38	74
31		110		33	41		102		42		42	65
Mean	109.6	97.5	95.5	80.8	79.7	46.0	61.1	60.0	55.2	77.4	85.0	72.7

* = Provisional.

Penticton 2800 MHz (10.7cm) Solar Flux Sep 2002 - Aug 2003

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Aug 03

Adjusted to 1 AU



Day	Sep 02	Oct	Nov	Dec	Jan 03	Feb	Mar	Apr	May	Jun	Jul	Aug
1	183.8	140.1	159.7	145.5	111.2	122.1	135.6	152.8	151.0	115.5	135.6	110.6
2	176.9	136.0	162.1	142.0	114.4	123.0	144.7	157.3	145.3#	124.8	139.3	114.7
3	174.4	146.1	166.5	141.8	133.1	128.7	146.5	155.7	150.1	117.8	136.7	123.6
4	174.2	157.6	174.4	144.5	138.2	131.0	143.6	148.8#	144.4	108.7	144.8	126.0
5	178.1	155.1	180.0	144.4	143.2	136.2	146.2	137.5	131.1	117.0	146.7	134.4
6	180.9	161.6	181.2	143.9	156.8	145.4	147.9	126.1	124.1	129.4	134.0	132.4
7	185.6	163.5	186.4	146.6	157.8	143.3	147.6	115.9	112.2	137.2	137.8	140.9
8	194.4	165.1	185.5	149.8	168.0	135.4	146.2	112.6	102.8	158.0	135.7	136.6
9	209.0	166.8	187.0	151.6	176.9	137.6	150.6	109.7	98.9	163.1	130.2	133.6
10	223.5	171.4	187.7	156.5	178.7	132.6	141.7	104.1	94.5	182.0	126.9	134.7
11	219.0	178.7	181.0	147.7	182.6	131.4	139.7	103.0	93.4	198.9	126.1	132.7
12	215.1	179.7	174.6	148.4	167.7	128.2	136.2	102.6	95.8	168.6	125.5	126.6
13	208.6	178.3	178.6	161.8	166.2	127.3	132.5	103.0	98.1	155.8	130.7	134.3
14	209.2	180.2	180.2	180.1	158.6	128.1	137.3	102.6	98.3	137.7	131.4	133.1
15	189.9	175.7	193.2	196.6	145.0	120.6	129.3	101.1	101.4	132.8	129.9	134.7
16	184.5	181.4	194.8	196.5	139.9	115.7	127.2	99.2	104.9	126.5	137.5	130.1
17	195.9	177.7	180.5	205.8	137.1	109.4	123.1#	101.8	104.7	125.8	143.2	122.3
18	178.4	171.3	174.8	190.6	133.0	107.4	117.3	108.7	111.5	124.3	144.3	118.7
19	166.7	178.1	164.3	186.7	126.1	113.6	107.2	113.1	117.4	126.8	150.8	119.5
20	165.8	178.7	155.3	190.3	133.7	115.7	96.6	119.7	120.0	120.8	162.4	114.5
21	159.8	180.8	147.2	177.9	129.4	117.0	90.3	127.0	122.2	118.8	160.7	122.0
22	161.1	167.7	145.5	166.4	125.4	104.3	88.3	133.8	121.3	113.9	157.4	123.7
23	154.8	161.9	143.8	153.7	131.6	101.8	92.4	134.3	120.9	117.2	148.7	122.9
24	158.9	158.5	142.5	142.5	125.8	99.9	97.3	129.8	119.8	118.3	129.2	119.0
25	154.2	170.9	133.2	127.6	124.9	99.5	108.2	145.3	124.3	120.2	115.1	119.0
26	150.6	156.1	138.5	123.2	121.2	107.2	126.6	145.5	128.4	122.9	105.9	123.4
27	152.2	155.2	138.8	112.7	117.7	115.4	140.5	156.1	132.3	128.1	104.9	128.3
28	149.1	156.3	136.0	113.1	121.8	122.6	146.4	154.3	133.7	128.1	106.6	121.1
29	138.6	159.4	137.5	111.0	120.7		154.6	157.4	141.6	131.6	103.0	118.7
30	140.1	165.3	142.1	110.1	117.6		154.2	155.8	120.4	132.5	101.7	116.2
31		167.7		111.3	116.9		159.8		116.3		105.2	111.8
Mean	177.8	165.9	165.1	152.3	139.4	121.4	130.8	127.2	118.7	133.4	131.9	125.2

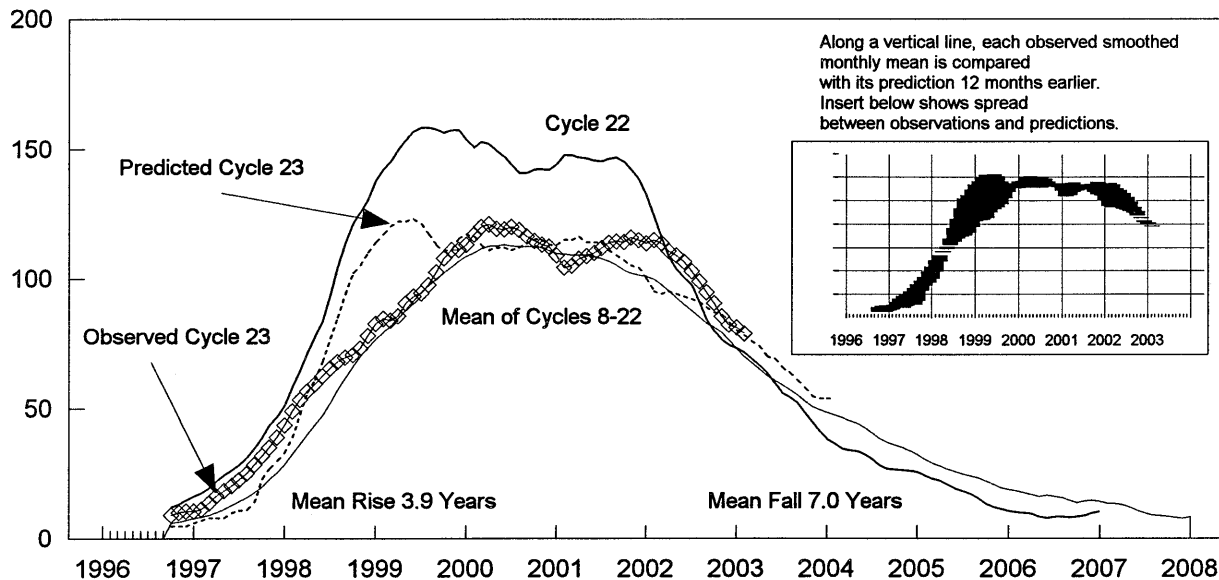
NOTE: # 1700 or 1800UT reading - burst in progress (IP) at 2000UT.

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DAILY SOLAR INDICES August 2003

Day	Day of Year	Bartels Cycle	Sunspot Numbers		Obs Flux		-----Solar Flux Adjusted to 1 Astronomical Unit-----							
			Int	Amer	Penticton (2800)	SGMR (15400)	SGMR (8800)	SGMR (4995)	Penticton (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
1	213	19	49	49	107.3	495	231	149	110.6	103	75	43	32	12
2	214	20	56	61	111.4	525	264	170	114.7	110	75	44	35	12
3	215	21	76	80	120.0	530	251	161	123.6	121	80	43	31	20
4	216	22	73	81	122.5	396	251	142	126.0	115	76	43	36	23
5	217	23	87	90	130.6	534	264	177	134.4	126	83	41	32	14
6	218	24	83	81	128.7	537	278	180	132.4	125	80	44	34	15
7	219	25	78	79	137.0	531	284	194	140.9	130	83	46	35	19
8	220	26	69	73	132.9	535	279	196	136.6	129	80	47	33	13
9	221	27	70	76	130.0	532	268	178	133.6	130	79	43	32	13
10	222	1	72	79	131.1	532	267	182	134.7	129	82	42	30	16
11	223	2	72	77	129.2	520	263	176	132.7	130	83	40	29	11
12	224	3	71	70	123.3	520	246	156	126.6	122	78	41	29	12
13	225	4	70	68	130.8	536	262	179	134.3	127	80	41	27	11
14	226	5	63	69	129.7	547	263	181	133.1	130	84	45	33	29
15	227	6	67	70	131.4	538	241	173	134.7	123	81	47	31	10
16	228	7	73	79	126.9	535	256	169	130.1	120	78	45	31	11
17	229	8	74	77	119.3	535	257	159	122.3	116	74	43	29	13
18	230	9	67	70	115.9	535	252	156	118.7	115	76	42	30	13
19	231	10	58	60	116.7	540	248	155	119.5	115	76	44	31	13
20	232	11	62	56	111.8	534	255	152	114.5	108	76	44	31	13
21	233	12	58	63	119.2	540	261	162	122.0	115	79	44	31	16
22	234	13	69	75	120.9	534	258	163	123.7	124	80	49	35	16
23	235	14	76	88	120.2	546	259	164	122.9	114	78	47	32	20
24	236	15	82	89	116.4	536	247	151	119.0	120	78	41	31	26
25	237	16	82	86	116.5	531	254	153	119.0	110	79	43	30	14
26	238	17	89	91	120.8	525	244	151	123.4	116	78	46	31	12
27	239	18	90	93	125.7	547	256	165	128.3	120	84	44	32	17
28	240	19	95	93	118.7	543	264	160	121.1	115	81	49	35	14
29	241	20	85	86	116.3	536	262	158	118.7	110	80	48	34	13
30	242	21	74	72	114.0	529	243	149	116.2	111	83	45	32	14
31	243	22	65	60	109.7	538	247	152	111.8	104	80	45	32	14
MEAN			72.7	75.5	122.1	528	257	164	125.2	118	79	44	31	15

NOTE: Radio flux values are from Sagamore Hill, Massachusetts, USA.



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	120.8+	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	113	111	109	106	103	99	95	91	85	82	102
2003	81	79	76	74	70	68	66	64	62	59	57	56	68
			(3)	(6)	(7)	(9)	(9)	(11)	(13)	(15)	(16)	(18)	(9)
2004	55	54	53	52	50	48	46	43	41	40	39	37	47
	(20)	(21)	(21)	(21)	(22)	(22)	(22)	(23)	(24)	(25)	(25)	(25)	(23)

Solar Cycle 22

Solar Cycle 23

Min, Max, and Predictions

* May 1996 marks Cycle 22's mathematical minimum. ** October 1996 marks the consensus minimum NGDC is now using.

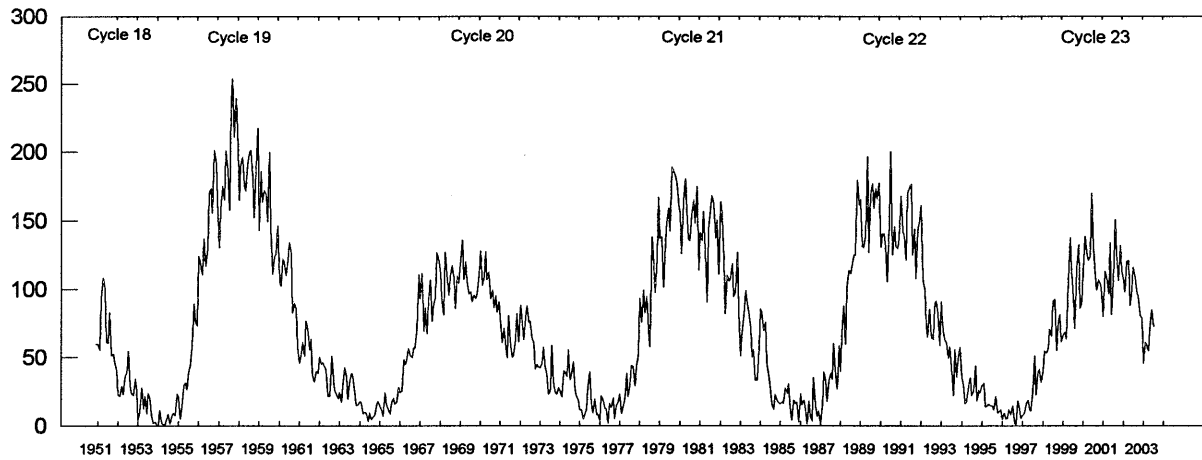
+ April 2000 marks Cycle 23 maximum.

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 Mar 2003 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 2004 prediction. There exists a 90% chance that in February 2004, the actual smoothed number will fall somewhere between 33 and 75.

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 2003



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	109.3	97.5	95.5	80.8	104.0
2003	79.5	46.2	61.5	60.0	55.2	77.4	85.0	72.7					67.2

Values are preliminary after Mar 03. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

H α SOLAR FLARES

AUGUST 2003

Sta	Day	Start	Max	End	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
		(UT)	(UT)	(UT)											Time (UT)	Apparent (10 ⁻⁶ Disk)	Corr (Sq Deg)	
GOES	01	0119	0126	0132			10424			13		C	5.6					2.4E-03
GOES		0327	0334	0357						30		C	4.5					5.5E-03
GOES		0523	0535	0542			10424			19		C	1.3					1.1E-03
GOES		0607	0610	0616			10424			9		B	7.6					3.7E-04
GOES		0706	0736	0750			10424			44		C	3.9					7.0E-03
GOES		0934	0937	0942			10424			8		B	6.7					2.6E-04
GOES		1042	1046	1050			10424			8		B	8.8					2.9E-04
GOES		1110	1132	1144			10424			34		C	2.3					3.2E-03
GOES		1321	1336	1357						36		C	2.0					3.2E-03
GOES		1648	1652	1659			10424			11		C	1.0					6.0E-04
GOES		1659	1703	1710						11		C	1.7					9.5E-04
GOES		1724	1728	1732			10424			8		C	2.6					8.9E-04
GOES		1827	1833	1839			10424			12		B	6.1					3.8E-04
GOES		2044	2047	2050						6		B	4.3					1.4E-04
GOES		2211	2219	2229						18		B	8.9					7.8E-04
LEAR	02	0043	0046	0047	S18	E77	10424	08	7.9	4	SF		3	E		30		
GOES		0106	0212	0312						126		C	1.7					9.0E-03
LEAR		0227	0230	0235	S17	E75	10424	08	7.8	8	SF		3	E		18		
LEAR		0244	0245	0248	S18	E75	10424	08	7.8	4	SF		3	E		17		
LEAR		0327	0339	0344	S18	E74	10424	08	7.8	17	SF		3	E		41		
LEAR		0349	0354	0401	S18	E74	10424	08	7.8	12	SF		3	E		73		
LEAR		0702	0710	0715	S18	E72	10424	08	7.8	13	SF		3	E		28		
GOES		0703	0709	0723	S18	E72	10424			20	SF	B	6.2					6.6E-04
GOES		1529	1537	1545	S17	E71	10424			16	SF	B	8.1					6.3E-04
HOLL		1533	1534	1553	S17	E71	10424	08	8.0	20	SF		3	E		36		
HOLL		1604	1609	1617	S18	E70	10424	08	8.0	13	SF		3	E		15		
HOLL		1625	1650	1726	S18	E68	10424	08	7.9	61	SF		3	E		40		
GOES		1637	1642	1650	S18	E68	10424			13	SF	C	1.1					7.6E-04
GOES		1727	1736	1744	S17	E68	10424			17	1F	C	4.5					3.1E-03
HOLL		1730	1734	1759	S17	E68	10424	08	7.9	29	1F		3	E		105		
GOES		1905	1918	1925	S17	E67	10424			20	SF	B	7.1					7.5E-04
HOLL		1917	1936	2005	S17	E67	10424	08	7.9	48	SF		3	E		33		
GOES		1930	1946	1954			10424			24		C	5.9					5.9E-03
GOES		2112	2134	2140	S17	E66	10424			28	SF	C	3.8					3.1E-03
HOLL		2116	2132	2156	S17	E66	10424	08	7.9	40	SF		3	E		69		
GOES		2249	2256	2303			10424			14		B	9.0					5.9E-04
GOES		2341	2354	2402	S17	E63	10424			21	1F	M	1.3					8.5E-03
LEAR		2345	2351	2431	S17	E63	10424	08	7.8	46	1F		3	E		157		F
LEAR	03	0135	0141	0153	S18	E62	10424	08	7.8	18	SF		3	E		30		
GOES		0220	0231	0236	S18	E62	10424			16	SF	C	2.5					1.4E-03
LEAR		0223	0230	0250	S18	E62	10424	08	7.8	27	SF		3	E		75		F
LEAR		0258	0305	0315	S18	E62	10424	08	7.8	17	1F		3	E		110		F
GOES		0301	0305	0310	S18	E62	10424			9	1F	C	1.1					4.4E-04
GOES		0410	0418	0426						16		B	6.5					5.5E-04
LEAR		0438	0450	0457	S18	E61	10424	08	7.8	19	SF		3	E		40		F
LEAR		0514	0517	0523	S18	E60	10424	08	7.8	9	SF		3	E		41		F
LEAR		0531	0531	0534	S18	E60	10424	08	7.8	3	SF		3	E		40		F
SVTO		0608	0609	0612	S19	E58	10424	08	7.7	4	SF		3	E		21		
GOES		0618	0622	0626			10427			8		B	4.7					2.0E-04
SVTO		0701	0702	0705	S18	E59	10424	08	7.8	4	SF		3	E		27		
GOES		0749	0754	0756	N04	W08	10427			7	SF	C	1.5					4.7E-04
LEAR		0752	0754	0758	N04	W08		08	2.7	6	SF		3	E		41		
SVTO		0752	0754	0758	N04	W07		08	2.8	6	SF		3	E		69		
SVTO		0810	0811	0814	S18	E58	10424	08	7.7	4	SF		3	E		28		
GOES		0931	0939	0950	S22	E60	10424			19	SF	C	1.3					1.3E-03
SVTO		0934	0936	0948	S22	E60	10424	08	8.0	14	SF		3	E		27		
GOES		1308	1321	1341			10427			33		B	8.8					4.2E-03
GOES		1801	1809	1819			10424			18		C	1.0					9.2E-04
GOES		1909	1914	1916	S16	E53	10424			7	SF	C	2.6					5.8E-04
HOLL		1912	1914	1920	S16	E53	10424	08	7.8	8	SF		3	E		25		
GOES		1938	1943	1950			10424			12		B	6.2					3.8E-04
GOES		2254	2259	2302			10424			8		B	8.4					3.3E-04
GOES	04	0346	0349	0352						6		B	5.5					1.5E-04
GOES	05	0907	0914	0923	S05	W34	10421			16	SF	C	3.5					2.6E-03

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Aug 03

H α SOLAR FLARES

AUGUST 2003

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
SVTO	05	0912	0916	0927	S05	W34	10421	08	2.8	15	SF		3	E		48		F
GOES		1243	1249	1251	S16	E33	10424			8	SN	M 1.7						3.4E-03
SVTO		1246	1249	1254	S16	E33	10424	08	8.0	8	SN		3	E		97		Z
GOES		1717	1721	1723			10424			6		B 5.9						1.8E-04
GOES		1947	1955	2002	S15	E29	10424			15	SF	C 1.1						7.9E-04
HOLL		1951	1951	1959	S15	E29	10424	08	8.0	8	SF		3	E		13		F
GOES		2012	2016	2019			10424			7		B 7.1						2.7E-04
GOES		2313	2318	2324			10424			11		B 8.5						4.6E-04
GOES	06	0721	0728	0734						13		B 6.6						4.3E-04
GOES		1134	1138	1142						8		B 5.0						2.0E-04
GOES		2342	2401	2419						37		C 1.0						2.0E-03
GOES	07	1149	1203	1210						21		C 1.3						1.2E-03
GOES		1700	1706	1723	S05	W64	10421			23	SF	B 7.9						9.6E-04
HOLL		1703	1705	1716	S05	W64	10421	08	2.9	13	SF		3	E		19		
GOES		2042	2050	2056						14		C 2.1						1.4E-03
GOES	08	1210	1213	1216			10424			6		B 7.1						2.3E-04
GOES		1344	1436	1542						118		C 2.3						8.3E-03
GOES		1624	1636	1639	S10	W14	10425			15	SF	C 1.0						7.2E-04
SVTO		1634	1635	1639	S10	W14	10425	08	7.6	5	SF		3	E		11		F
GOES		2008	2013	2016						8		B 5.6						2.3E-04
GOES	09	0001	0005	0009	S18	W14	10424			8	SF	B 5.7						2.4E-04
HOLL		0003	0005	0009	S18	W14	10424	08	7.9	6	SF		3	E		19		F
GOES		1736	1743	1758						22		B 9.9						1.0E-03
GOES		2255	2259	2302						7		B 7.8						2.9E-04
GOES	10	0124	0127	0129	S14	E64	10431			5	SF	C 1.8						3.5E-04
LEAR		0126	0127	0133	S14	E64	10431	08	14.9	7	SF		3	E		20		
GOES		1011	1020	1031	S06	W36	10425			20	SF	C 3.5						2.9E-03
SVTO		1016	1021	1024	S06	W36	10425	08	7.7	80	SF		3	E		52		F
SVTO		1026E	1026	1034	S06	W35	10425	08	7.8	80	SF		3	E		32		F
GOES		1057	1128	1144			10425			47		C 2.1						5.5E-03
GOES		1914	1918	1923			10424			9		B 7.9						3.5E-04
GOES		2036	2047	2055			10431			19		B 7.1						6.8E-04
GOES		2310	2316	2320	S17	W47	10424			10	SF	B 8.8						4.0E-04
HOLL		2315	2315	2319	S17	W47	10424	08	7.4	4	SF		3	E		16		
GOES	11	0023	0027	0036			10424			13		B 5.7						4.0E-04
GOES		0907	0910	0913			10431			6		B 4.3						1.4E-04
GOES		1746	1750	1755			10429			9		B 9.6						4.7E-04
GOES	12	0123	0129	0133			10431			10		C 1.0						4.5E-04
GOES		0142	0154	0202			10431			20		C 1.1						1.0E-03
GOES		0216	0232	0236	S10	E35	10431			20	SF	B 9.5						1.0E-03
LEAR		0217	0220	0236	S10	E35	10431	08	14.7	19	SF		3	E		15		F
GOES		0630	0635	0638	S18	W59	10424			8	SF	C 1.1						3.7E-04
LEAR		0633	0634	0645	S18	W59	10424	08	7.8	12	SF		3	E		55		F
SVTO		0634	0636	0639	S16	W57	10424	08	7.9	5	SF		3	E		13		F
GOES		0704	0708	0711			10424			7		B 4.7						1.7E-04
GOES		1005	1012	1020	S14	E32	10431			15	SF	C 1.6						9.7E-04
SVTO		1009	1012	1020	S14	E32	10431	08	14.8	11	SF		3	E		20		
GOES	13	0043	0047	0050	S16	W72	10424			7	SF	B 8.4						3.1E-04
LEAR		0046	0046	0053	S16	W72	10424	08	7.6	7	SF		3	E		22		
GOES		0234	0241	0250			10431			16		C 1.0						7.8E-04
GOES		0615	0619	0623			10431			8		B 9.4						3.9E-04
GOES		0709	0714	0723			10431			14		C 1.2						9.1E-04
GOES		0829	0833	0838			10431			9		C 2.0						9.2E-04
GOES		0937	0949	1002	S11	E23	10431			25	SF	C 3.0						3.5E-03
SVTO		0941	0945	1025	S11	E23	10431	08	15.1	44	SF		3	E		63		F
GOES		1412	1415	1418	S12	E19	10431			6	SF	C 1.1						3.9E-04
HOLL		1413	1415	1429	S12	E19	10431	08	15.0	16	SF		3	E		34		F
GOES		1436	1438	1440	S11	E23	10431			4	SF	B 9.8						2.2E-04
HOLL		1436	1438	1446	S11	E23	10431	08	15.3	10	SF		3	E		25		F
GOES		1448	1453	1455			10431			7		C 1.2						4.3E-04

H α SOLAR FLARES

AUGUST 2003

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
															Time (UT)	Apparent (10 ⁻⁶ Disk)	Corr (Sq Deg)	
GOES	13	2258	2315	2324						26		C 2.1						3.0E-03
LEAR		2344	2356	2415	S14	E11	10431	08	14.8	31	SF		3	E		49		F
HOLL		2347	2349	2402	S08	E12	10431	08	14.9	15	SF		3	E		19		FH
GOES	14	0212	0224	0247	S14	E10	10431			35	SF	C 1.9						3.5E-03
LEAR		0213	0223	0236	S14	E10	10431	08	14.8	23	SF		3	E		35		FH
GOES		0611	0651	0734	S14	E08	10431			83	SF	C 6.8						2.4E-02
LEAR		0630	0639	0719	S14	E08	10431	08	14.9	49	SF		3	E		33		F
GOES		2229	2244	2317			10431			48		C 4.6						1.0E-02
GOES		2354	2418	2445			10431			51		C 7.7						1.7E-02
GOES	15	0233	0242	0251						18		C 3.1						3.1E-03
LEAR		0608	0621	0633	S08	W05	10431	08	14.9	25	SF		3	E		37		F
GOES		0614	0617	0622	S08	W05	10431			8	SF	C 2.0						8.3E-04
SVTO		0616	0617	0624	S08	W04	10431	08	15.0	8	SF		3	E		27		F
GOES		0839	0844	0857	S10	W03	10431			18	SF	C 1.4						1.2E-03
LEAR		0842	0844	0855	S10	W03	10431	08	15.1	13	SF		3	E		34		F
GOES		1058	1101	1105	S10	W08	10431			7	SF	C 1.5						5.4E-04
SVTO		1101	1102	1104	S10	W08	10431	08	14.8	3	SF		3	E		12		
GOES		1123	1128	1131	S08	W09	10431			8	SF	C 2.3						8.8E-04
SVTO		1126	1127	1131	S08	W09	10431	08	14.8	5	SF		3	E		24		
GOES		1305	1308	1311			10431			6		C 2.3						5.7E-04
GOES		1512	1515	1520			10431			8		C 1.0						4.4E-04
GOES		1622	1627	1630						8		C 2.3						9.2E-04
HOLL		1632	1635	1642	S08	W10	10431	08	14.9	10	SF		3	E		12		F
GOES		2201	2234	2326						85		C 4.3						1.8E-02
GOES	16	0148	0151	0153			10431			5		C 3.1						5.1E-04
GOES		0438	0444	0450			10431			12		C 1.6						9.3E-04
GOES		0541	0544	0548						7		B 8.7						3.0E-04
GOES		0807	0859	0906						59		B 6.7						2.1E-03
GOES		0946	0949	0951			10431			5		C 1.4						3.0E-04
GOES		1434	1438	1446						12		B 6.7						4.4E-04
GOES		1842	1900	1916	S14	W26	10431			34	SF	C 2.2						3.1E-03
HOLL		1851E	1854U	1906	S14	W26	10431	08	14.8	15D	SF		3	E		12		
GOES	17	0029	0034	0042						13		B 8.2						5.7E-04
GOES		0419	0426	0436			10431			17		C 2.1						1.6E-03
GOES		0839	0844	0848	S14	W34	10431			9	SF	C 1.9						7.1E-04
SVTO		0843	0843	0847	S07	W32	10431	08	15.0	4	SF		3	E		10		
LEAR		0844	0844	0856	S14	W34	10431	08	14.8	12	SF		3	E		55		F
GOES		0902	0906	0911						9		B 8.4						3.8E-04
GOES		1205	1211	1218						13		B 7.6						5.1E-04
GOES		2033	2038	2045						12		B 7.0						4.3E-04
GOES		2339	2344	2351	S14	W42	10431			12	SF	B 8.8						5.3E-04
LEAR		2341	2342	2407	S14	W42	10431	08	14.8	26	SF		3	E		36		F
GOES	18	0002	0005	0008						6		B 6.8						2.2E-04
LEAR		0240	0240	0251	S14	W44	10431	08	14.8	11	SF		3	E		23		F
LEAR		0253	0254	0257	S14	W44	10431	08	14.8	4	SF		3	E		18		F
GOES		0430	0434	0443						13		B 7.8						5.4E-04
GOES		0859	0906	0911	S11	W49	10431			12	SF	C 2.4						1.3E-03
LEAR		0902	0902	0917	S14	W47	10431	08	14.8	15	SF		2	E		47		F
SVTO		0902	0905	0914	S11	W49	10431	08	14.7	12	SF		3	E		16		F
GOES		1418	1425	1430			10431			12		B 7.0						4.5E-04
GOES		1500	1507	1517			10431			17		C 1.3						1.0E-03
GOES		1559	1605	1611			10431			12		C 1.1						5.9E-04
GOES		1732	1742	1748			10431			16		C 1.4						1.2E-03
GOES		2054	2057	2059						5		B 5.4						1.4E-04
GOES	19	0222	0225	0232						10		B 5.4						2.9E-04
GOES		0422	0427	0431						9		C 1.1						5.3E-04
GOES		0738	0759	0801	S12	W63	10431			23	1N	M 2.0						6.3E-03
LEAR		0756	0758	0811	S12	W64	10431	08	14.5	15	2B		3	E		260		F
SVTO		0756	0759	0808	S12	W63	10431	08	14.6	12	1N		3	E		202		H
GOES		0846	0852	0855						9		C 2.8						9.6E-04
GOES		0906	0915	0933						27		C 2.0						2.5E-03
GOES		0945	1006	1025	S10	W57	10431			40	2F	M 2.7						4.3E-02

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Aug 03

H α SOLAR FLARES

AUGUST 2003

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Time (UT)	Area Measurement		Remarks
																Apparent (10-6 Disk)	Corr (Sq Deg)	
SVTO	19	0950	0957	1043	S10	W57	10431	08	15.1	53	2F		3	E		294		F
GOES		1743	1746	1748						5		C 1.0						2.6E-04
GOES		1819	1826	1831	N12	E53	10436			12	SF	C 5.6						2.7E-03
HOLL		1821	1824	1837	N12	E53	10436	08	23.7	16	SF		3	E		56		F
GOES	21	1515	1522	1525			10431			10		C 4.9						1.8E-03
GOES		1624	1628	1637			10431			13		B 7.6						5.2E-04
GOES		1713	1718	1722						9		B 9.6						4.1E-04
GOES		1727	1731	1737			10431			10		C 1.4						6.4E-04
GOES	22	0326	0350	0458			10436			92		C 1.9						8.9E-03
HOLL		1607	1610	1619	N11	E07	10436	08	23.2	12	SF		3	E		31		H
GOES	23	0011	0016	0019	N12	E40	10441			8	SF	B 6.9						2.6E-04
LEAR		0014	0014	0020	N12	E40	10441	08	26.0	6	SF		3	E		13		F
HOLL		0016	0016	0026	N12	E33	10441	08	25.5	10	SF		3	E		40		
GOES	24	0410	0417	0426	N08	W21	10436			16	1F	C 1.2						8.8E-04
LEAR		0413	0415	0436	N08	W21	10436	08	22.6	23	1F		3	E		103		F
GOES		2332	2337	2339			10436			7		C 1.1						2.6E-04
GOES	25	0230	0259	0335	S11	E41	10442			65	1F	C 3.6						9.7E-03
LEAR		0246	0250	0340	S11	E41	10442	08	28.2	54	1F		3	E		105		FS
GOES		1509	1518	1525						16		B 8.5						6.2E-04
GOES		2133	2140	2147			10442			14		B 5.5						3.7E-04
GOES	26	0545	0551	0556			10442			11		B 8.5						4.5E-04
GOES		0946	0949	0955			10436			9		B 4.2						2.1E-04
GOES		1208	1213	1215			10442			7		B 9.0						2.8E-04
GOES		1401	1405	1411			10436			10		B 6.5						3.2E-04
GOES		1549	1559	1606	N08	W54	10436			17	1N	C 4.6						3.3E-03
HOLL		1552	1553	1623	N08	W54	10436	08	22.6	31	1N		3	E		201		F
GOES	27	0013	0017	0022						9		B 6.2						3.0E-04
GOES		0050	0054	0100						10		B 8.4						4.1E-04
GOES		0219	0223	0226						7		B 5.9						2.3E-04
GOES		0244	0250	0255			10444			11		C 1.6						7.9E-04
LEAR		0334E	0338U	0346	N08	W56	10436	08	23.0	12D	SF		3	E		36		F
GOES		0456	0508	0526	N08	W56	10436			30	SF	C 1.9						2.6E-03
LEAR		0500	0503	0512	N08	W56	10436	08	23.0	12	SF		3	E		43		F
GOES		1052	1101	1107						15		B 9.3						7.3E-04
GOES		1433	1436	1449	N18	E52				16	SF	B 5.9						5.1E-04
HOLL		1436	1437	1454	N18	E52		08	31.6	18	SF		3	E		10		F
GOES		1609E	1632U	1639D			10442			30D		C 1.2						1.6E-03
GOES		2241	2245	2247			10436			6		C 1.1						3.6E-04
GOES	28	0411	0417	0428	N03	E08	10445			17	SF	B 9.6						7.8E-04
LEAR		0415	0418	0427	N03	E08	10445	08	28.8	12	SF		3	E		19		F
GOES		0654	0658	0700			10449			6		B 9.6						2.9E-04
GOES		0838	0842	0844	S16	E68	10449			6	SF	C 1.0						2.7E-04
LEAR		0842	0842	0846	S16	E68		09	2.5	4	SF		3	E		45		
GOES		1324	1335	1340						16		C 1.3						8.5E-04
GOES		1720	1726	1730			10445			10		C 1.4						5.5E-04
HOLL		1743	1744	1755	N04	E02	10445	08	28.9	12	SF		3	E		16		
GOES		2318	2323	2325						7		B 5.2						1.8E-04
GOES	29	1924	1959U	2007			10450			43		C 1.0						1.6E-03
GOES	30	0432	0514	0616	S12	W27	10442			104	SF	C 1.4						6.8E-03
LEAR		0447	0450	0517	S12	W27	10442	08	28.2	30	SF		3	E		28		F
GOES		1206	1213	1224			10444			18		B 6.9						6.5E-04
GOES		1755	1802	1807	N09	W30	10444			12	SF	C 1.2						7.9E-04
HOLL		1756	1801	1809	N09	W30	10444	08	28.5	13	SF		3	E		13		F
GOES	31	0440	0444	0450						10		B 5.4						2.9E-04
GOES		0530	0622	0715	S10	W42	10442			105	SF	C 1.3						6.1E-03
LEAR		0604	0617	0647	S10	W42	10442	08	28.1	43	SF		3	E		32		F
SVTO		0615	0630U	0638	S10	W44	10442	08	27.9	23	SF		3	E		22		

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

Selected Fixed Frequency Events

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Aug 03

AUGUST 2003

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Mean	Int	Remarks
05	8800	SGMR	4 S/F	1245.0	1247.0	3.0	120.0			QL=4 ST=2 TYP=3
	2695	SGMR	4 S/F	1245.0	1247.0	3.0	44.0			QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	1245.0	1247.0	3.0	130.0			QL=4 ST=2 TYP=3
	2695	SVTO	4 S/F	1245.0	1247.0	3.0	40.0			QL=4 ST=2 TYP=3
07	2695	PALE	8 S	1752.0	1752.0	U	220.0			QL=4 ST=2 TYP=3
14	8800	LEAR	8 S	0634.0	0634.0	U	55.0			QL=4 ST=2 TYP=3
	8800	SVTO	8 S	0634.0	0634.0	U	79.0			QL=4 ST=2 TYP=3
18	8800	SVTO	8 S	0901.0	0902.0	1.0	79.0			QL=4 ST=2 TYP=3
19	2695	SVTO	8 S	0755.0	0755.0	1.0	39.0			QL=4 ST=3 TYP=3
	2695	SVTO	4 S/F	0947.0	0952.0	32.0	230.0			QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	0950.0	0952.0	9.0	55.0			QL=4 ST=2 TYP=3
	2695	SGMR	4 S/F	1107.0	1112.0	29.0	50.0			QL=4 ST=2 TYP=3
	2695	SVTO	20 GRF	1111.0E	1115.0U	20.0D	50.0			QL=4 ST=2 TYP=2
21	2695	SGMR	4 S/F	1517.0	1519.0	8.0	110.0			QL=4 ST=2 TYP=3
	2695	SVTO	4 S/F	1518.0	1519.0	3.0	110.0			QL=4 ST=2 TYP=3
22	2695	SGMR	8 S	1615.0	1615.0	2.0	50.0			QL=4 ST=2 TYP=3
	2695	SVTO	8 S	1615.0	1615.0	1.0	49.0			QL=4 ST=2 TYP=3
25	2695	LEAR	8 S	0249.0	0250.0	2.0	26.0			QL=4 ST=2 TYP=3
26	8800	SVTO	4 S/F	1550.0	1552.0	5.0	130.0			QL=2 ST=2 TYP=3
	8800	SGMR	8 S	1552.0	1552.0	1.0	140.0			QL=4 ST=2 TYP=3
	2695	SGMR	8 S	1552.0	1552.0	1.0	31.0			QL=4 ST=2 TYP=3
	2695	SVTO	8 S	1552.0	1553.0	1.0	38.0			QL=2 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 Precursor	41 Group of Bursts	47 Great Burst
6 Minor	23 Simple 3AF	29 Post Burst Increase	42 Series of Bursts	48 Major
1A Simple 1A	4A Simple 2AF	24PF Post Rise F	27F Rise and Fall F	
3A Simple 2A	40 Rise Only	16A Fall A	27AF Rise and Fall AF	
21A Simple 3A GRF	40F Rise Only F	260 Fall Only	31A Post Burst Decrease A	
2A Simple 1AF	4P Post Rise	26F Fall F	32A Absorption A	

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

STANFORD MEAN SOLAR MAGNETIC FIELD

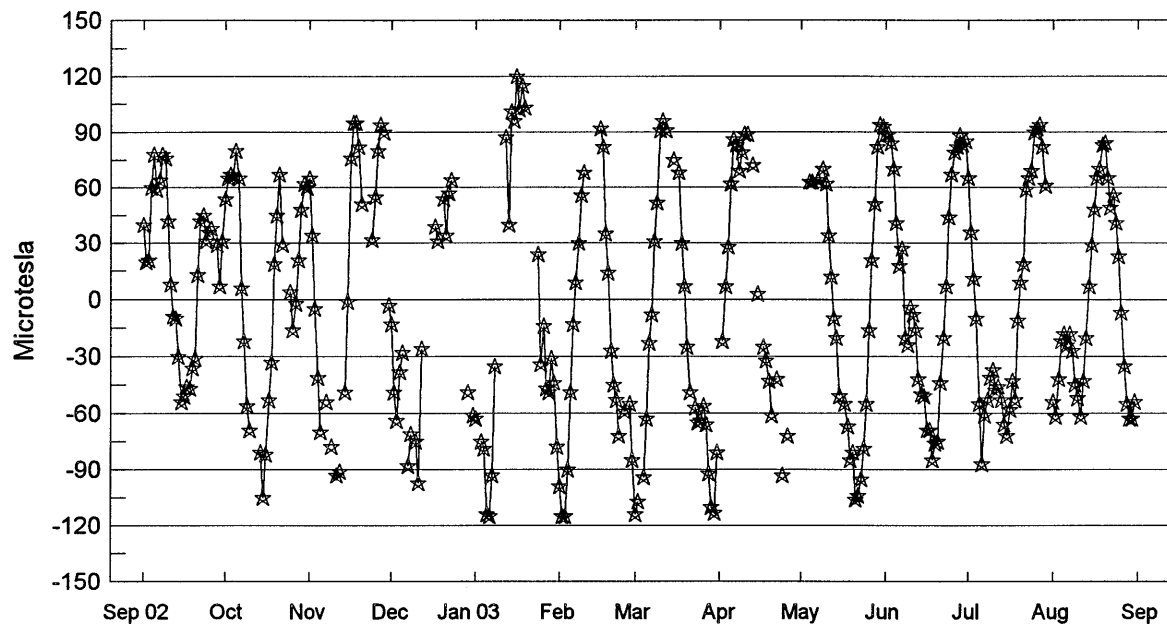
Rot	Date	1	5	10	15	20	25
2302	MAR 10	■	■	■	■	■	■
2303	APR 6	□	■	■	■	■	■
2304	MAY 3	■	■	■	■	■	■
2305	MAY 30	■	■	■	■	■	■
2306	JUN 26	■	■	■	■	■	■
2307	JUL 23	■	■	■	■	■	■
2308	AUG 19	■	■	■	■	■	■
2309	SEP 15	■	■	■	■	■	■
2310	OCT 12	■	■	■	■	■	■
2311	NOV 8	■	■	■	■	■	■
2312	DEC 5	■	■	■	■	■	■
2313	JAN 1	■	■	■	■	■	■
2314	JAN 28	■	■	■	■	■	■
2315	FEB 24	■	■	■	■	■	■
2316	MAR 23	■	■	■	■	■	■
2317	APR 19	■	■	■	■	■	■
2318	MAY 16	■	■	■	■	■	■
2319	JUN 12	■	■	■	■	■	■
2320	JUL 9	■	■	■	■	■	■
2321	AUG 5	■	■	■	■	■	■
2322	SEP 1	■	■	■	■	■	■

Mean Solar Magnetic Field Polarity: □ = field > 2 microT; ■ = -2 microT ≤ field ≤ 2 microT
■ = field < -2 microT; No box = no data available

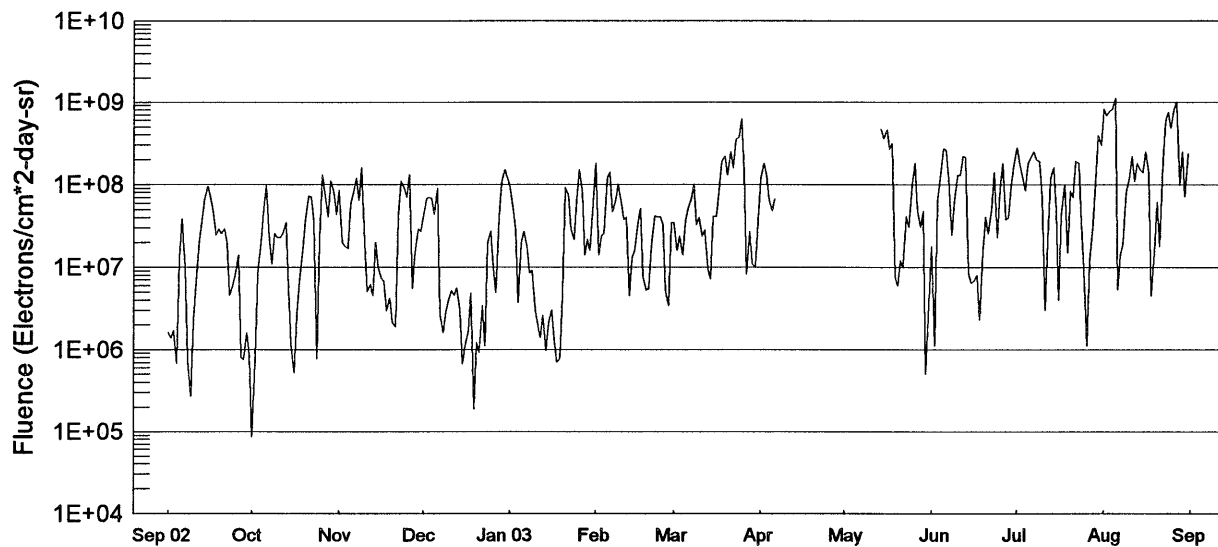
Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates are five days earlier, to mark times of occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

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

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Aug 03



Day	Sep 02	Oct	Nov	Dec	Jan 03	Feb	Mar	Apr	May	Jun	Jul	Aug
1	40	54	65	-13	-63	-99	-114	—	—	89	65	-54
2	20	65	34	-49	—	-115	-107	-22	—	89	36	-62
3	21	67	-5	-64	-75	-115	—	7	—	84	11	-42
4	60	66	-41	-38	-79	-90	-94	28	63	70	-10	-22
5	78	80	-70	-28	-114	-49	-63	62	63	41	-55	-18
6	59	65	—	—	-115	-13	-23	86	—	18	-87	-24
7	64	6	-54	-88	-93	9	-8	83	64	27	-61	-18
8	78	-22	—	-71	-35	30	31	69	—	-20	-53	-27
9	76	-56	-78	—	—	56	52	79	70	-24	-41	-45
10	42	-69	—	-75	—	68	91	89	62	-4	-37	-52
11	8	—	-93	-97	—	—	96	89	34	-8	-48	-62
12	-9	—	-91	-26	87	—	91	—	12	-16	-46	-43
13	-10	—	—	—	40	—	—	72	-10	-42	-53	-20
14	-30	-81	-49	—	101	—	—	—	-20	-50	-66	7
15	-54	-105	-1	—	96	—	75	3	-51	-51	-72	29
16	-51	-82	76	—	120	92	—	—	—	-69	-58	48
17	-46	-53	95	39	102	82	68	-25	-55	-69	-43	65
18	-47	-33	95	31	115	35	30	-32	-67	-85	-53	70
19	-36	19	82	—	103	14	7	-43	-85	-76	-11	83
20	-31	45	51	54	—	-27	-25	-61	-81	-75	9	84
21	13	67	—	34	—	-45	-49	—	-106	-44	19	65
22	42	29	—	57	—	-53	—	-42	-104	-20	59	49
23	45	—	—	64	—	-72	-57	—	-95	7	65	56
24	31	—	32	—	24	—	-65	-93	-79	44	69	41
25	36	4	55	—	-34	-59	-64	—	-55	67	90	23
26	38	-16	80	—	-14	—	-56	-72	-16	79	92	-7
27	—	-2	94	—	-47	-55	-66	—	21	82	94	-35
28	29	21	90	—	-49	-85	-92	—	51	88	82	-55
29	7	48	—	-49	-31	—	-110	—	82	83	61	-63
30	31	62	-3	—	-44	—	-113	—	94	85	—	-63
31	60	—	—	-61	-78	—	-81	—	93	—	—	-54

GOES Daily Electron Fluence
Sep 2002 - Aug 2003

Day	Sep 02	Oct	Nov	Dec	Jan 03	Feb	Mar	Apr	May	Jun	Jul	Aug
1	1.6E+06	8.7E+04	8.5E+07	4.2E+07	9.5E+07	1.8E+08	3.5E+07	4.5E+08	--	1.8E+07	2.8E+08	8.1E+08
2	1.4E+06	7.4E+05	2.0E+07	6.7E+07	5.1E+07	1.4E+07	1.6E+07	6.3E+08	sensor	1.1E+06	1.8E+08	6.8E+08
3	1.7E+06	8.5E+06	1.8E+07	7.0E+07	2.9E+07	2.4E+07	2.4E+07	3.0E+08	problems	6.5E+07	1.2E+08	7.7E+08
4	6.8E+05	2.0E+07	1.7E+07	6.8E+07	3.7E+06	2.6E+07	1.4E+07	1.4E+08	--	1.2E+08	8.5E+07	8.2E+08
5	1.3E+07	5.1E+07	5.9E+07	4.4E+07	2.0E+07	1.2E+08	3.6E+07	1.7E+08	--	2.7E+08	1.8E+08	1.1E+09
6	3.9E+07	9.6E+07	7.8E+07	8.9E+07	2.7E+07	1.4E+08	5.2E+07	1.6E+08	--	2.6E+08	2.2E+08	5.4E+06
7	1.0E+07	2.1E+07	1.2E+08	2.7E+06	1.8E+07	4.7E+07	6.8E+07	1.7E+08	sensor	1.2E+08	2.5E+08	1.4E+07
8	7.5E+05	1.1E+07	6.5E+07	1.6E+06	8.6E+06	6.3E+07	9.9E+07	--	problems	2.5E+07	2.0E+08	1.9E+07
9	2.7E+05	2.6E+07	1.6E+08	2.8E+06	9.2E+06	1.0E+08	3.3E+07	--	--	6.4E+07	1.9E+08	8.3E+07
10	2.3E+06	2.3E+07	2.0E+07	3.9E+06	3.1E+06	6.1E+07	4.0E+07	--	--	1.3E+08	7.0E+07	1.1E+08
11	6.4E+06	2.3E+07	5.1E+06	5.2E+06	2.0E+06	3.8E+07	2.4E+07	--	--	1.3E+08	3.0E+06	2.2E+08
12	2.1E+07	2.6E+07	6.2E+06	4.6E+06	1.4E+06	4.0E+07	2.8E+07	sensor	--	2.2E+08	2.1E+07	1.1E+08
13	3.7E+07	3.5E+07	4.5E+06	5.6E+06	2.6E+06	4.5E+06	9.7E+06	problems	--	2.1E+08	1.2E+08	1.8E+08
14	6.8E+07	5.4E+06	2.0E+07	3.0E+06	9.8E+05	1.3E+07	7.2E+06	--	4.6E+08	8.3E+06	1.6E+08	1.5E+08
15	9.5E+07	1.1E+06	1.0E+07	6.7E+05	2.1E+06	1.6E+07	4.2E+07	--	3.6E+08	6.4E+06	5.0E+07	1.4E+08
16	7.2E+07	5.2E+05	7.3E+06	1.2E+06	3.0E+06	3.4E+07	4.2E+07	--	4.5E+08	6.9E+06	4.0E+06	2.5E+08
17	4.4E+07	2.7E+06	6.8E+06	1.6E+06	1.3E+06	5.2E+07	8.4E+07	sensor	2.7E+08	8.0E+06	4.5E+07	1.4E+08
18	2.5E+07	6.9E+06	3.0E+06	4.8E+06	7.1E+05	7.7E+06	1.9E+08	problems	3.1E+08	2.3E+06	9.9E+07	4.5E+06
19	2.9E+07	1.6E+07	4.2E+06	1.9E+05	7.7E+05	5.3E+06	2.2E+08	--	7.4E+06	1.6E+07	1.5E+07	1.5E+07
20	2.6E+07	3.8E+07	2.1E+06	1.2E+06	4.7E+06	5.5E+06	1.3E+08	--	6.0E+06	4.1E+07	8.4E+07	6.2E+07
21	2.9E+07	7.2E+07	1.9E+06	9.3E+05	9.1E+07	1.8E+07	2.5E+08	--	1.2E+07	2.6E+07	7.1E+07	1.8E+07
22	2.0E+07	7.1E+07	4.3E+07	3.4E+06	7.6E+07	4.2E+07	1.6E+08	sensor	1.0E+07	4.9E+07	1.9E+08	1.9E+08
23	4.6E+06	3.7E+07	1.1E+08	1.1E+06	2.9E+07	4.1E+07	3.5E+08	problems	4.2E+07	1.4E+08	1.8E+08	6.0E+08
24	6.0E+06	7.7E+05	9.1E+07	2.0E+07	2.2E+07	4.1E+07	3.7E+08	--	3.1E+07	2.3E+07	3.5E+07	7.5E+08
25	8.4E+06	2.2E+07	7.1E+07	2.7E+07	6.5E+07	3.3E+07	6.3E+08	--	9.9E+07	8.7E+07	9.4E+06	4.9E+08
26	1.4E+07	1.3E+08	1.3E+08	1.0E+07	1.5E+08	5.2E+06	1.4E+08	--	1.8E+08	1.8E+08	1.1E+06	8.2E+08
27	8.0E+05	6.9E+07	5.6E+06	4.9E+06	8.1E+07	3.4E+06	8.3E+06	sensor	5.1E+07	3.8E+07	1.2E+07	1.0E+09
28	7.6E+05	4.1E+07	1.5E+07	4.1E+07	1.4E+07	3.5E+07	2.7E+07	problems	3.1E+07	4.0E+07	3.2E+07	1.0E+08
29	1.6E+06	1.1E+08	2.9E+07	1.1E+08	2.2E+07		1.1E+07	--	4.8E+07	9.4E+07	1.1E+08	2.5E+08
30	8.5E+05	8.0E+07	2.7E+07	1.5E+08	1.6E+07		1.0E+07	--	5.0E+05	1.7E+08	3.9E+08	7.2E+07
31		4.4E+07		1.2E+08	6.1E+07		3.7E+07		3.6E+06		3.0E+08	2.4E+08

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. GOES12 is primary satellite as of 15 May 2003.

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Number 709 Part I

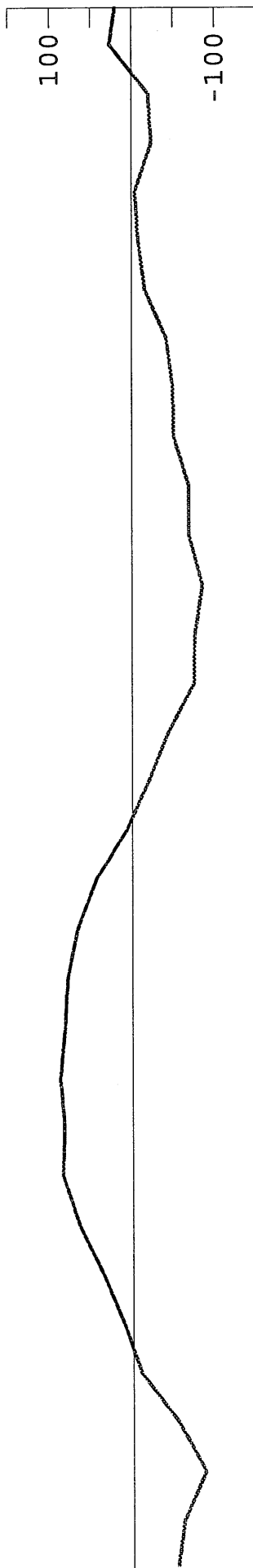
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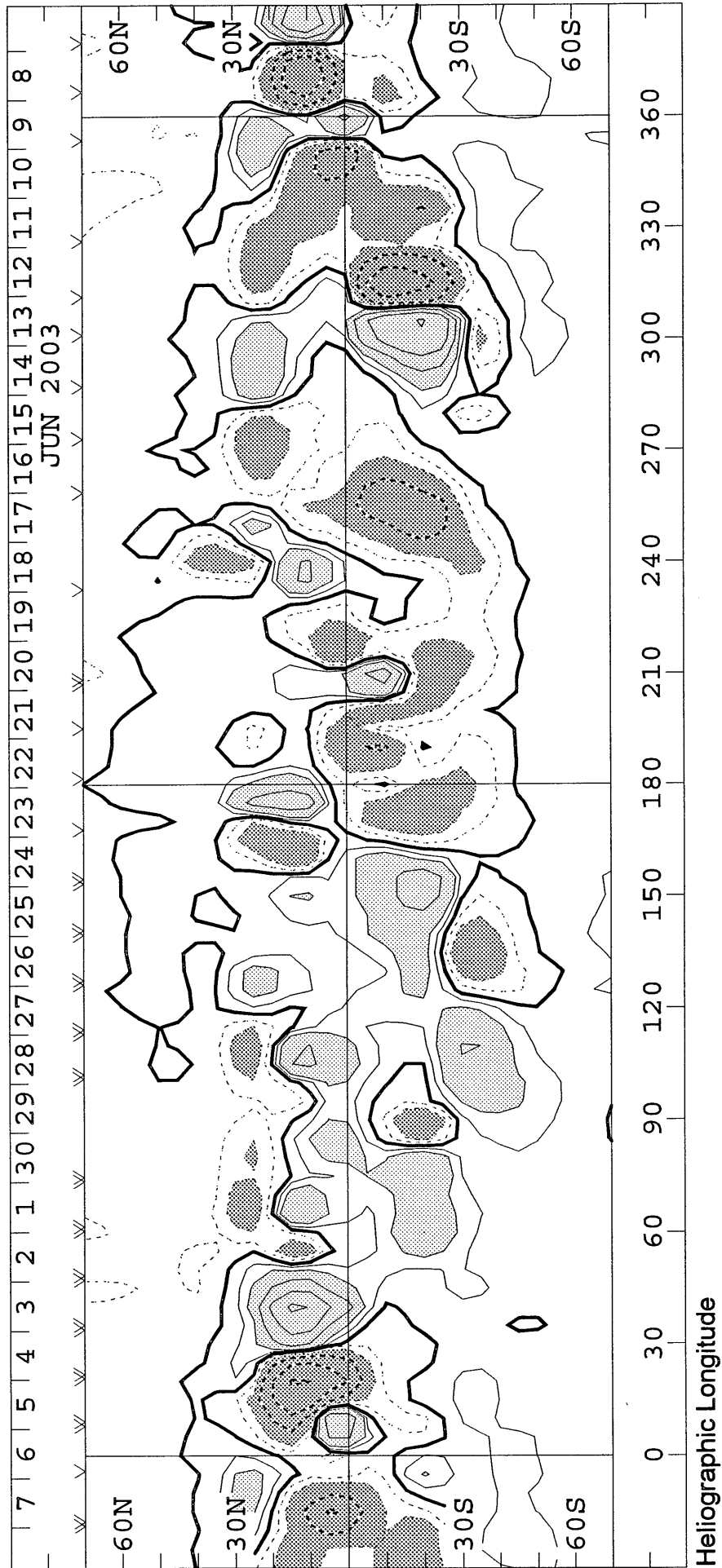
SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION NUMBER 2004
(9 June to 6 July 2003)

WILCOX SOLAR OBSERVATORY

Mean Field



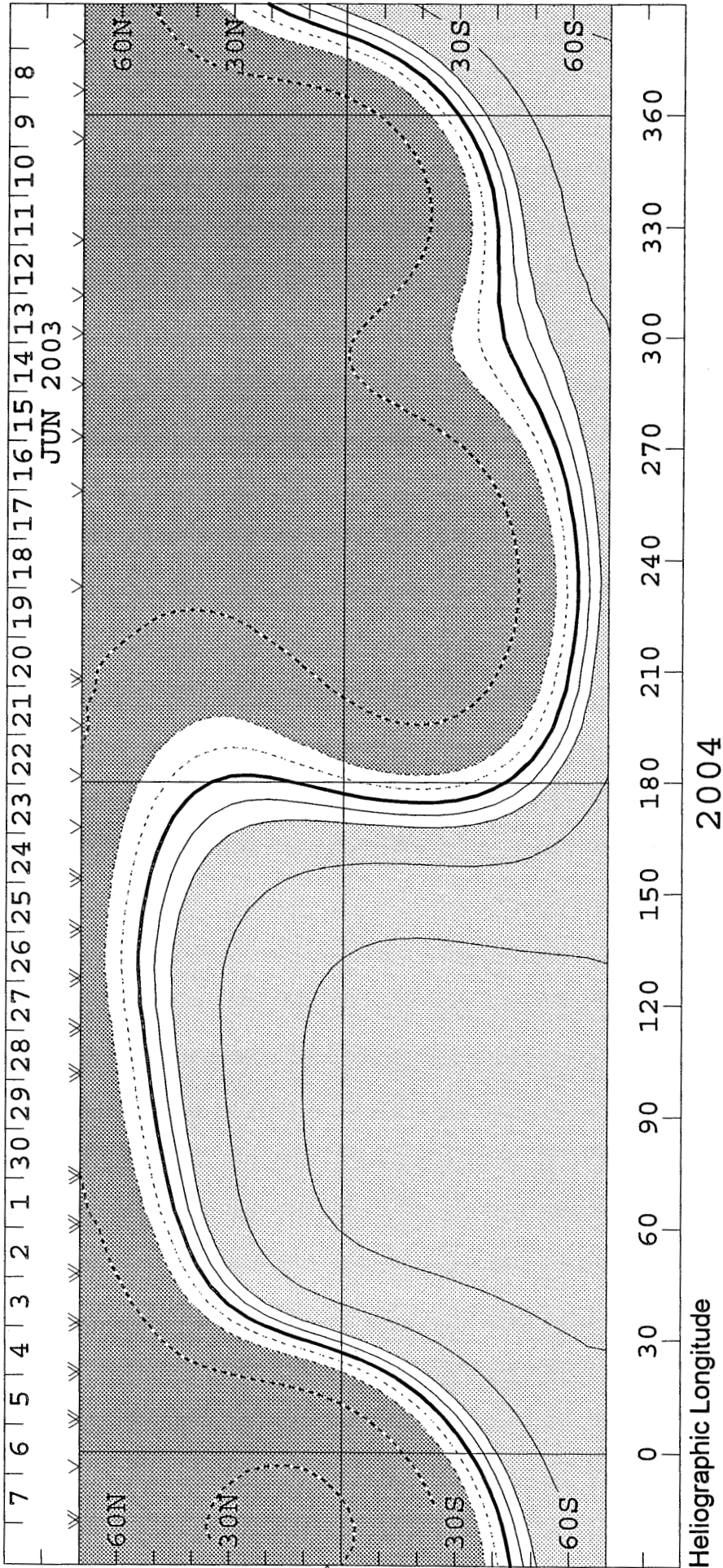
WSO - Photospheric Magnetic Field 0, +100, 200, 500, 1000, 2000 MicroTesla



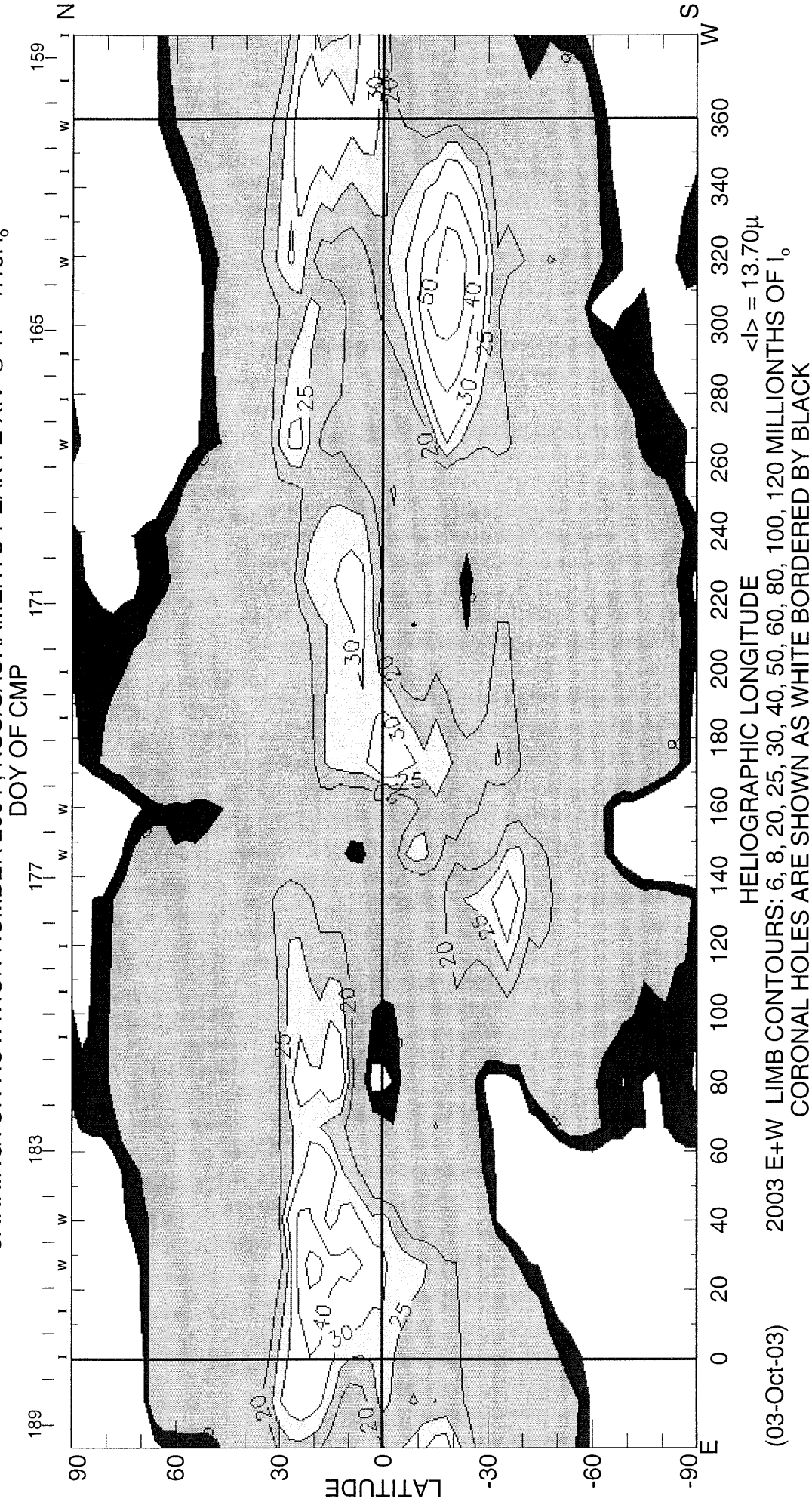
SOLAR MAGNETIC FIELD SYNOPTIC CHART **SOURCE SURFACE FIELD** **CARRINGTON ROTATION NUMBER 2004** **(9 June to 6 July 2003)**

Wilcox Solar Observatory

0, ± 1 , 2, 5, 10, 20 microTesla



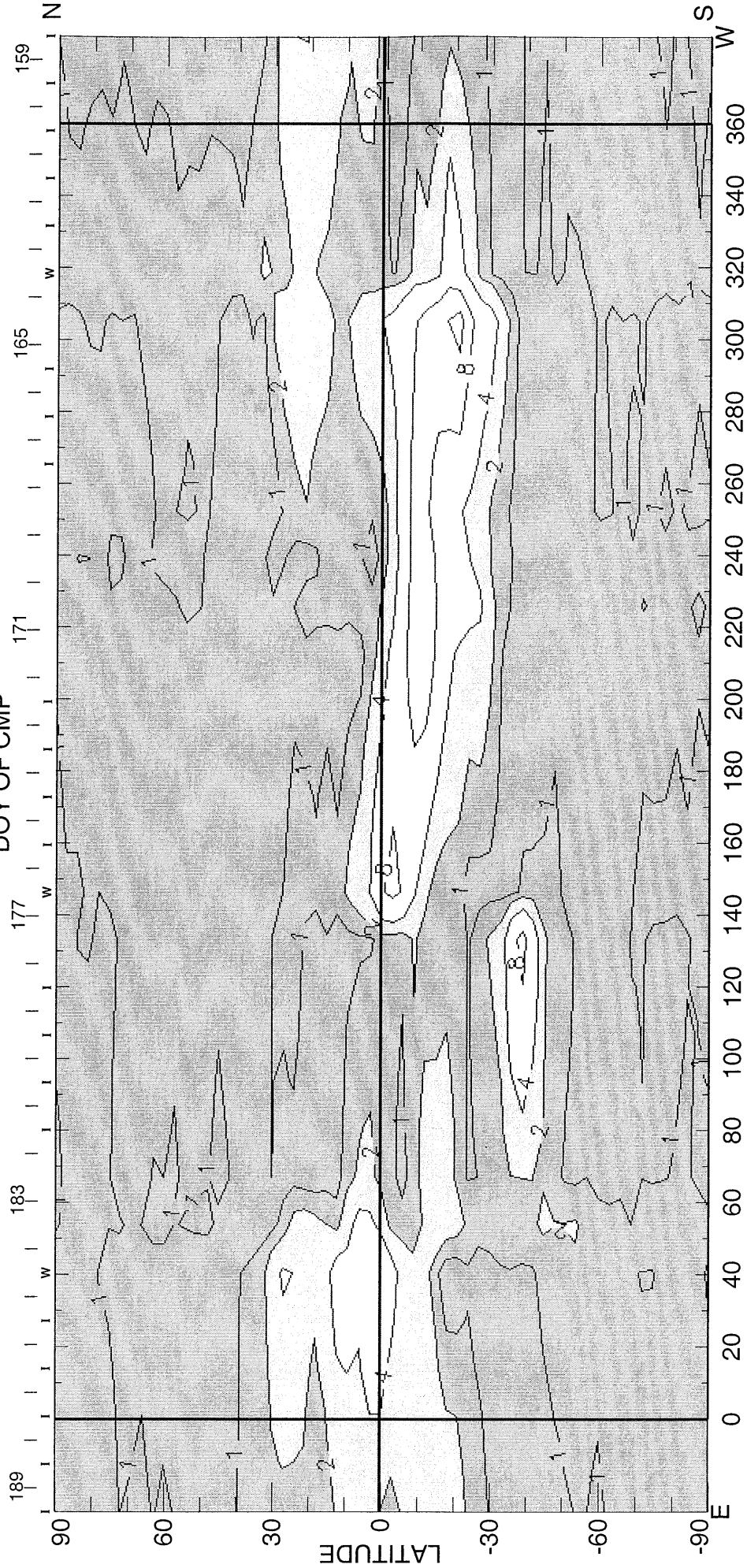
CARRINGTON ROTATION NUMBER 2004 ; NSO/SACRAMENTO PEAK FE XIV @ $R = 1.15R_{\odot}$



(03-Oct-03) 2003 E+W LIMB CONTOURS: 6, 8, 20, 25, 30, 40, 50, 60, 80, 100, 120 MILLIONTHS OF $I_{\odot}$

CORONAL HOLES ARE SHOWN AS WHITE BORDERED BY BLACK

CARRINGTON ROTATION NUMBER 2004 ; NSO/SACRAMENTO PEAK FE X @ $R = 1.15R_{\odot}$
DOY OF CMP

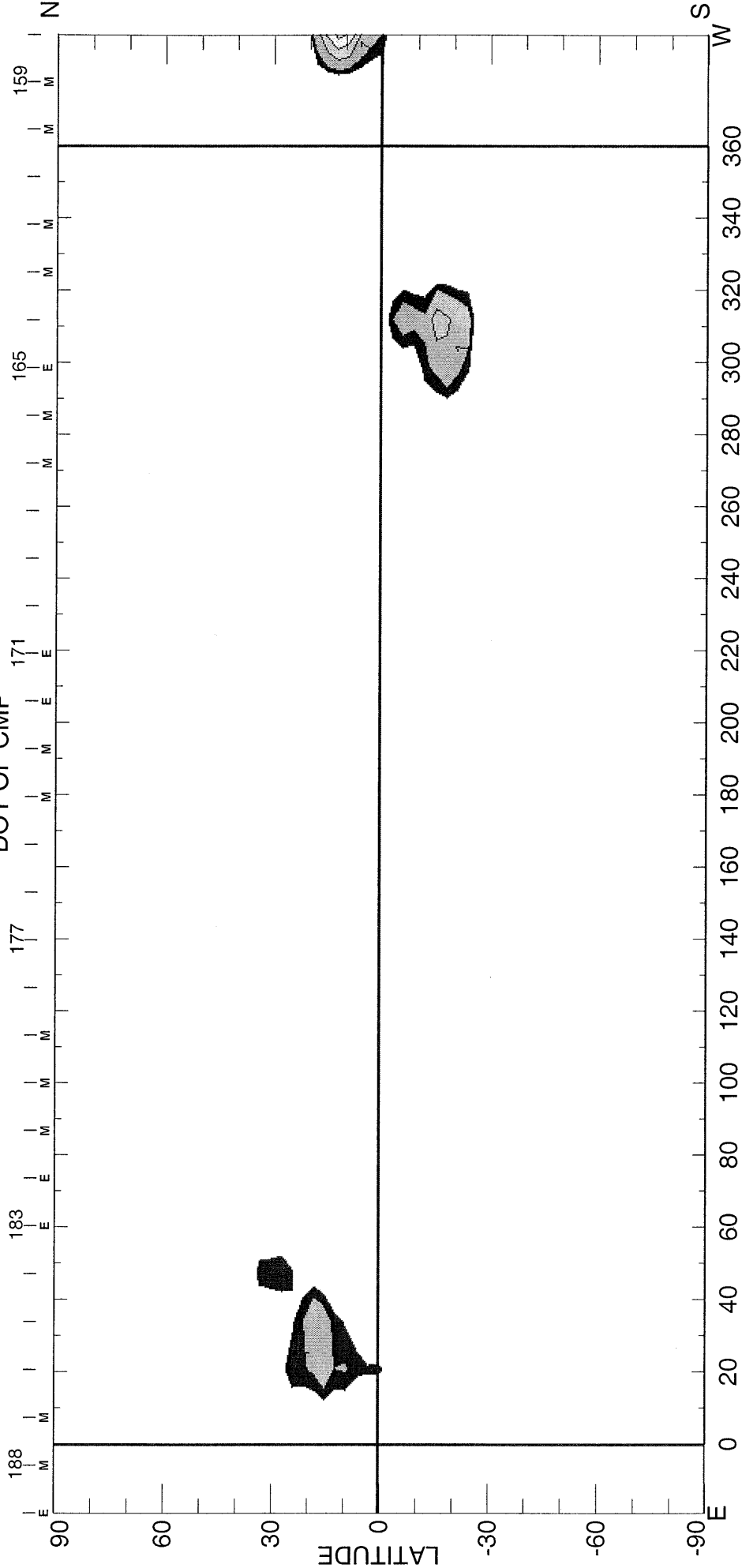


HELIOGRAPHIC LONGITUDE
2003 E+W LIMB CONTOURS: 1, 2, 4, 8, 12, 16, 32, 48 MILLIONTHS OF $I_{\odot}$
 $\langle I \rangle = 1.55\mu$

(04-Sep-03)

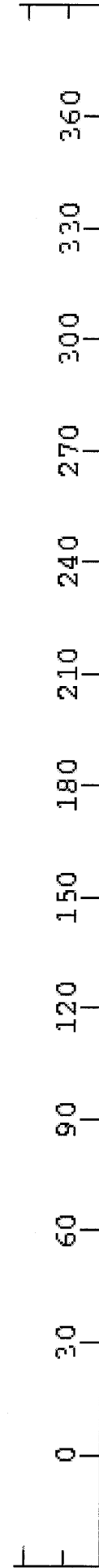
CARRINGTON ROTATION NUMBER 2004 ; NSO/SACRAMENTO PEAK CA XV @ $R = 1.15R_{\odot}$

DOY OF CMP



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION NUMBER 2004
(9 June to 6 July 2003)

National Solar Observatory/Kitt Peak



Heliographic Longitude

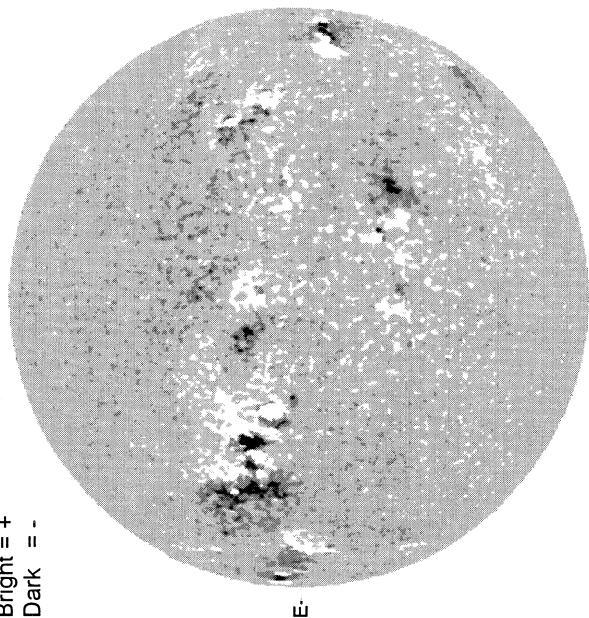
JULY 1, 2003 (P= -2.89, Bo = 2.82, Lo = 73.41)

44
Jul 03

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



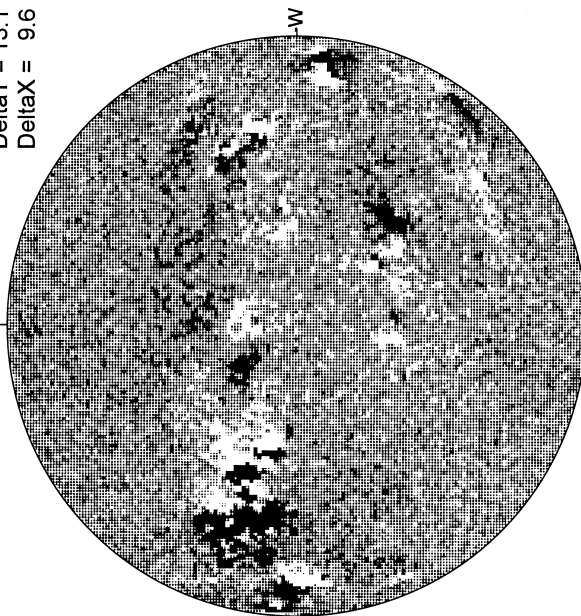
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



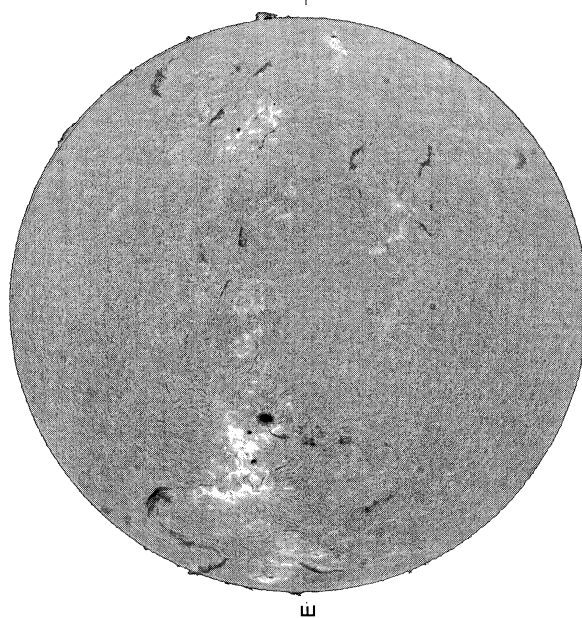
MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



White= +7.5G
Black = -7.5G

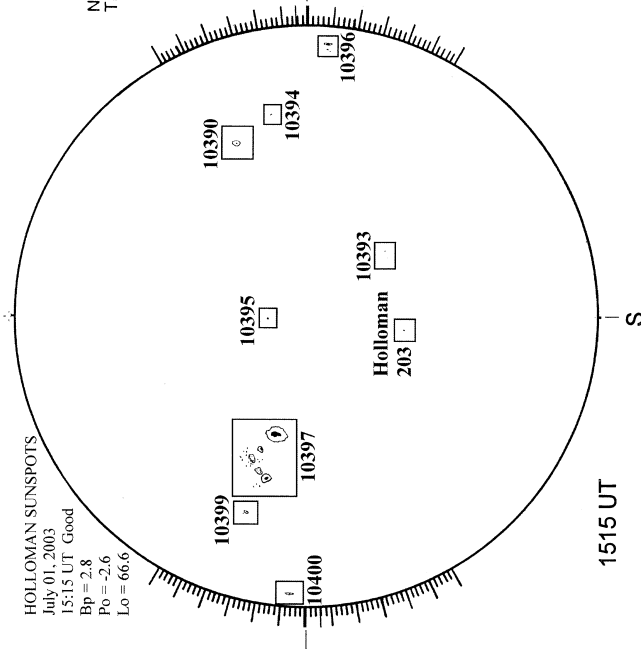
BIG BEAR H-ALPHA



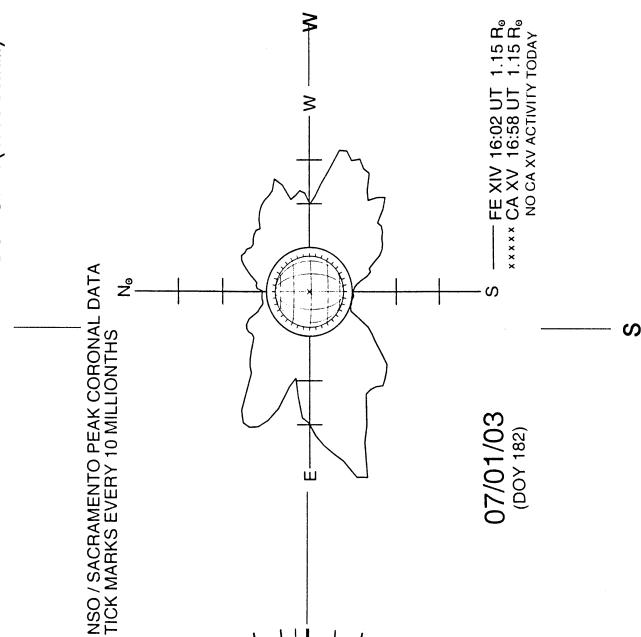
HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS

July 01, 2003
15:15 UT Good
Bp = 2.8
Po = -2.6
Lo = 66.6



SACRAMENTO PEAK CORONA (1.15 Radii)----



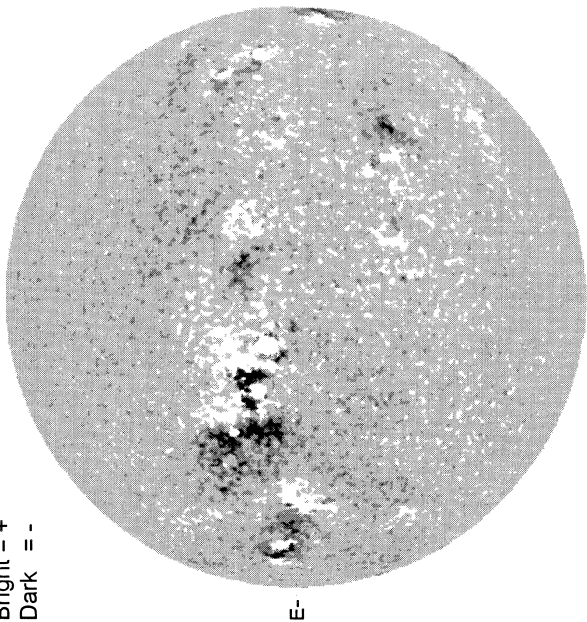
FE XIV 16:02 UT 1.15 R₀
CA XV 16:38 UT 1.15 R₀
NO CA XV ACTIVITY TODAY

JULY 2, 2003 (P= -2.44, Bo = 2.93, Lo = 60.17)

KITT PEAK MAGNETOGRAM

868.8 nm

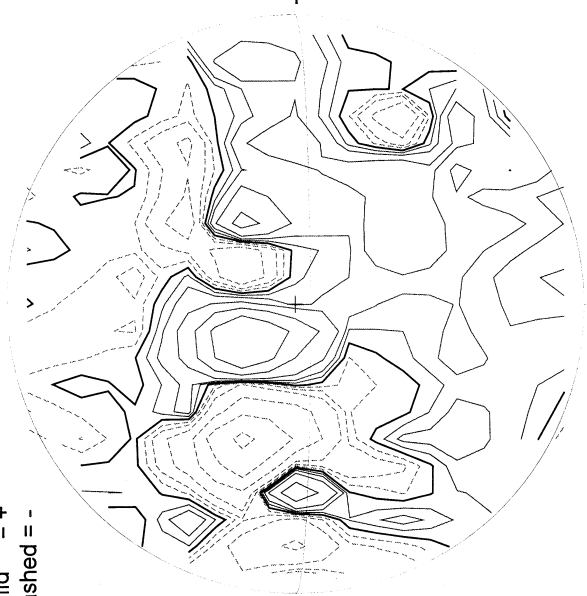
Bright = +
Dark = -



1749 UT

STANFORD MAGNETOGRAM

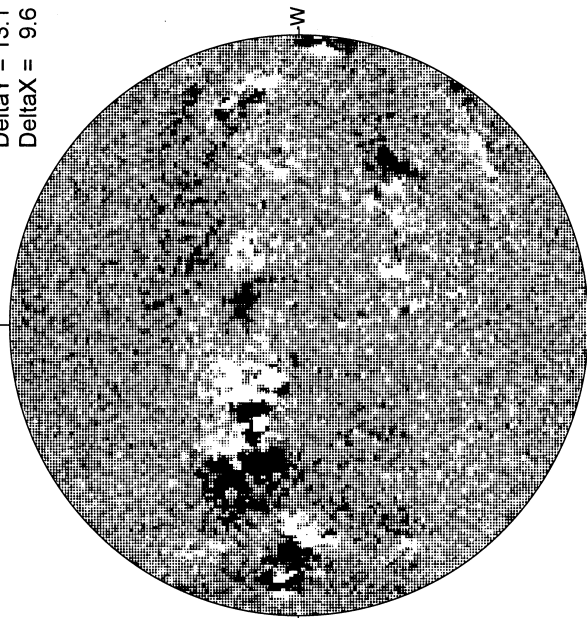
Solid = +
Dashed = -



2126 UT

MT. WILSON MAGNETOGRAM

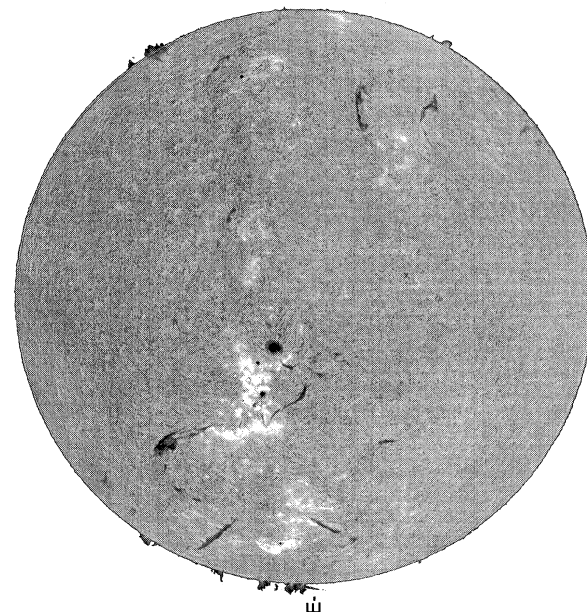
DeltaY = 13.1
DeltaX = 9.6



16.44 -
17.36 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



1628 UT

HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS

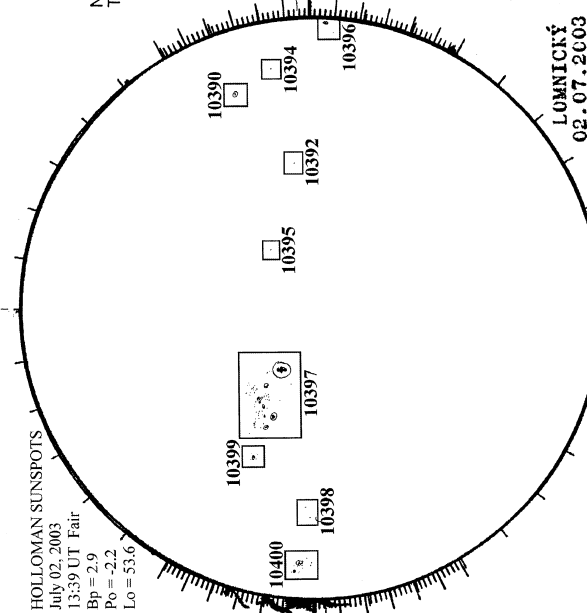
July 02, 2003

13:39 UT Fair

Bp = 2.9

Po = -2.2

Lo = 53.6

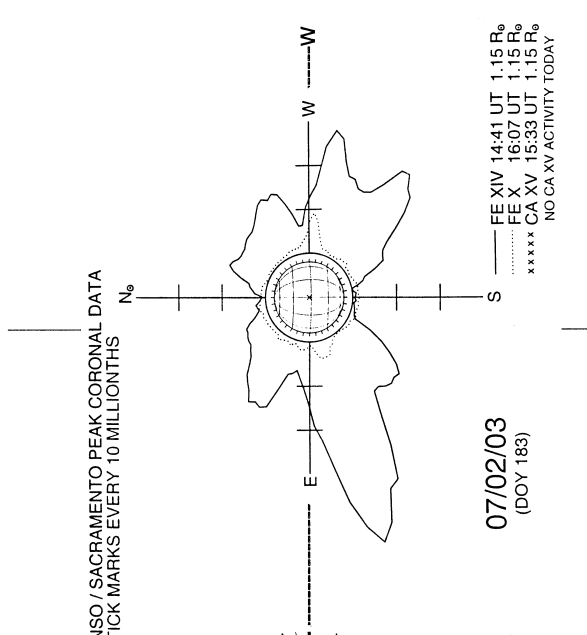


1339 UT

0916 UT LOMN Prom S

LOMNICKÝ
02.07.2003
09.16 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----



07/02/03
(DOY 183)

--- EE XIV 14:41 UT 1.15 R_o
... EE X 16:07 UT 1.15 R_o
xxxxx CA XV 15:33 UT 1.15 R_o
NO CA XV ACTIVITY TODAY

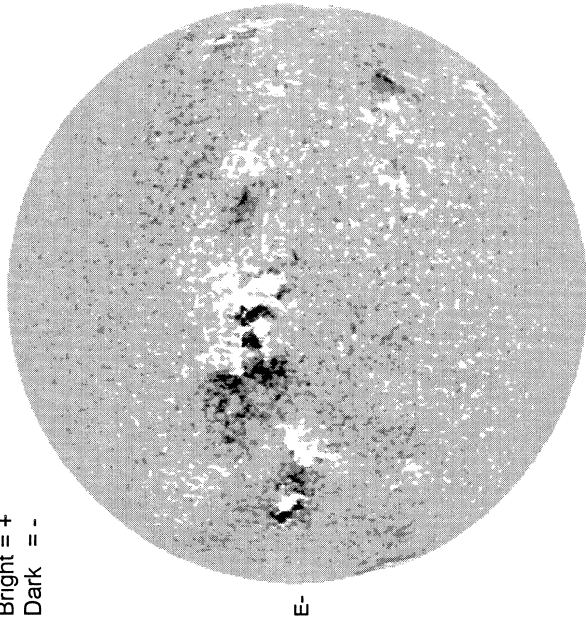
46
Jul 03

JULY 3, 2003 (P= -1.99, Bo = 3.04, Lo = 46.94)

KITT PEAK MAGNETOGRAM

868.8 nm

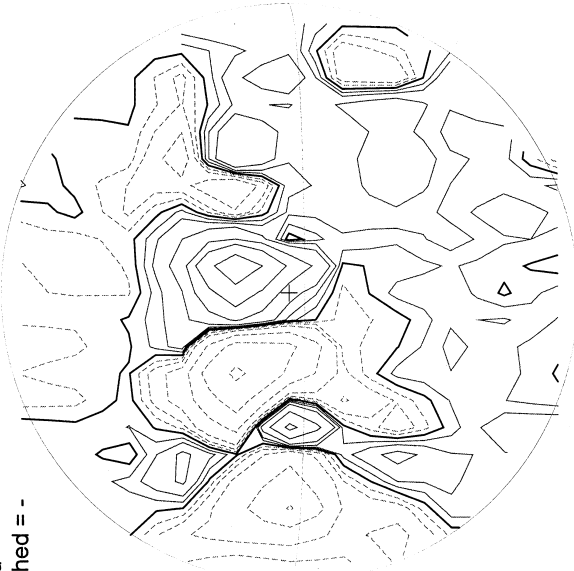
Bright = +
Dark = -



1546 UT

STANFORD MAGNETOGRAM

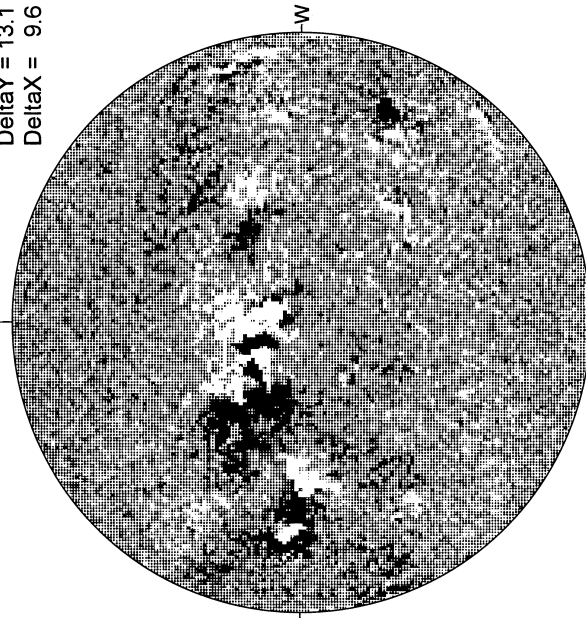
Solid = +
Dashed = -



2121 UT

MT. WILSON MAGNETOGRAM

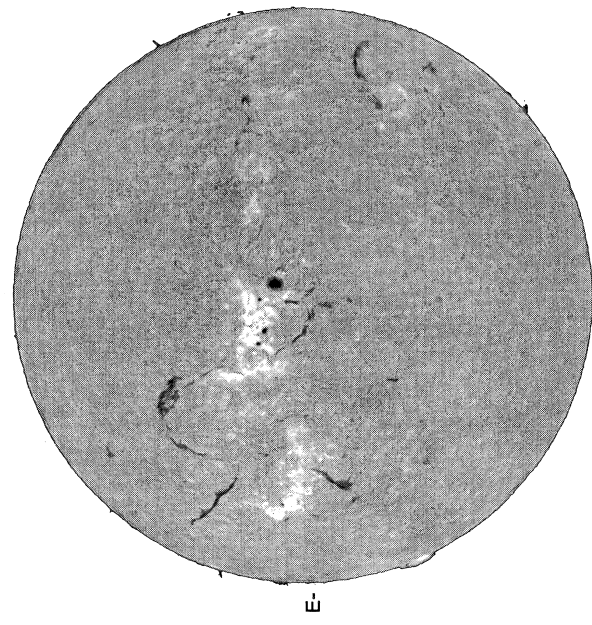
DeltaY = 13.1
DeltaX = 9.6



16.19 -
17.11 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

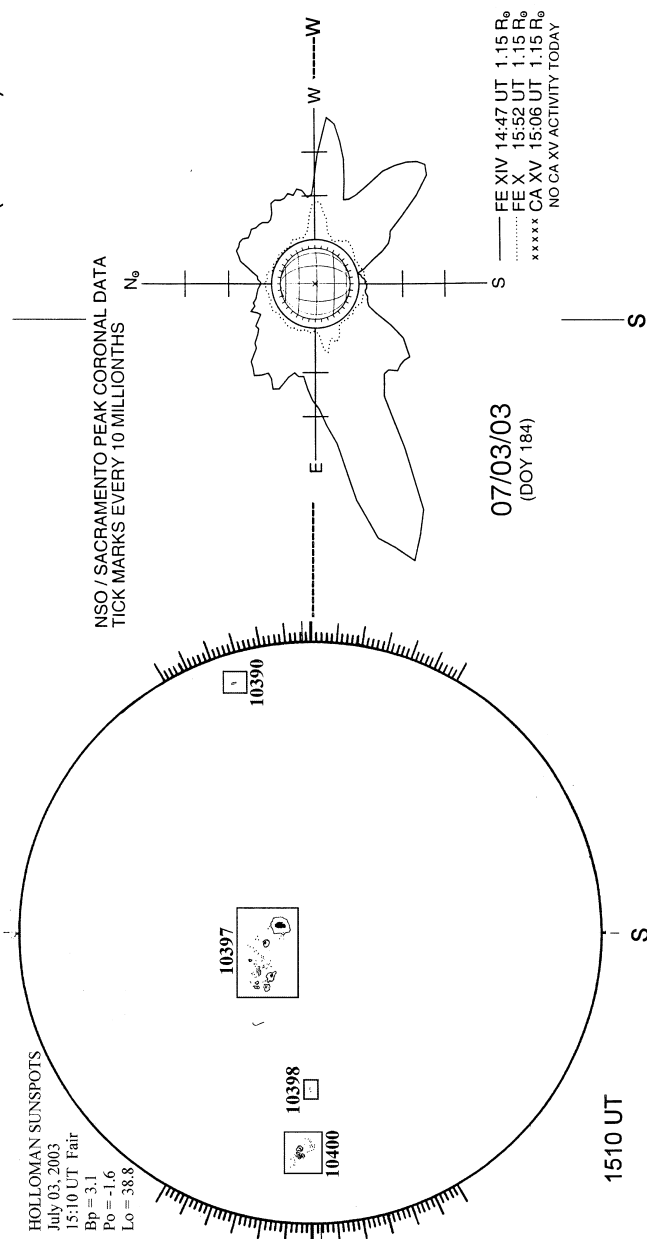


1604 UT

HOLLOMAN SUNSPOTS

July 03, 2003
15:10 UT Fair
Bp = 3.1
Po = -1.6
Lo = 38.8

SACRAMENTO PEAK CORONA (1.15 Radii)----



1510 UT

07/03/03
(DOY 184)

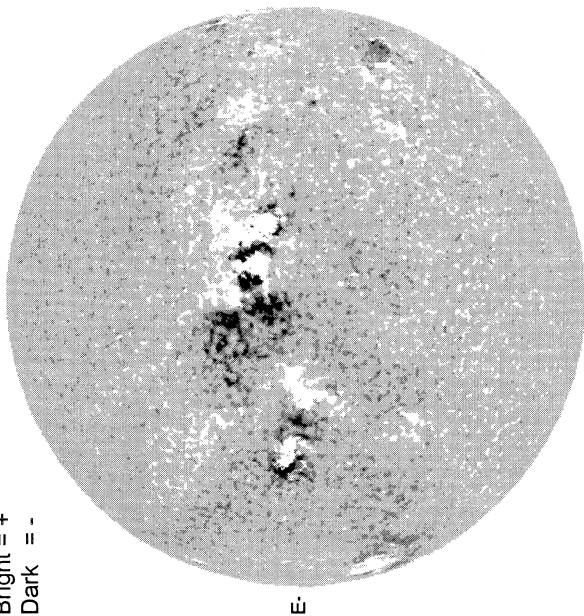
FE XIV 14:47 UT 1.15 R_o
FE X 15:52 UT 1.15 R_o
***** CA XV 15:06 UT 1.15 R_o
NO CA XV ACTIVITY TODAY

JULY 4, 2003 (P= -1.53, Bo = 3.15, Lo = 33.70)

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



1608 UT

STANFORD MAGNETOGRAM

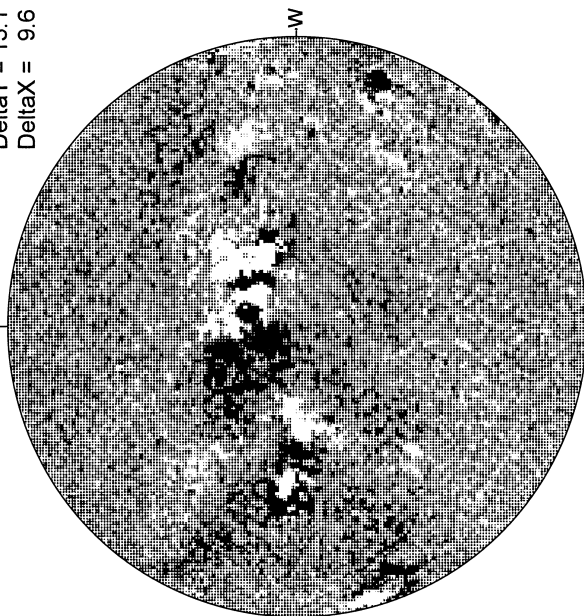
Solid = +
Dashed = -



2123 UT

MT. WILSON MAGNETOGRAM

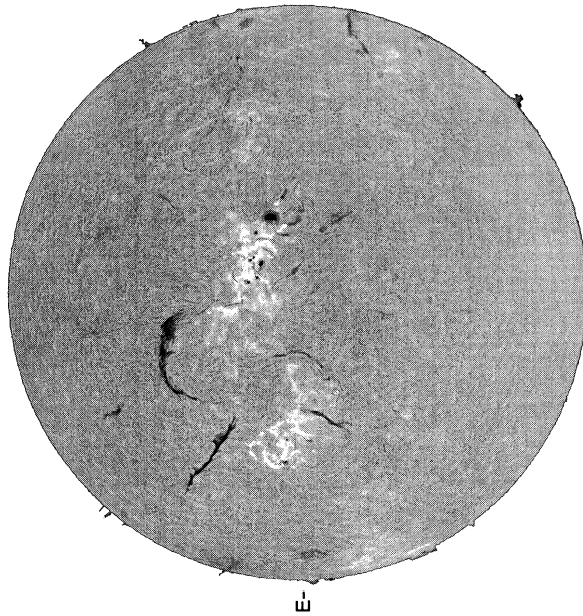
DeltaY = 13.1
DeltaX = 9.6



16.22 -
17.14 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

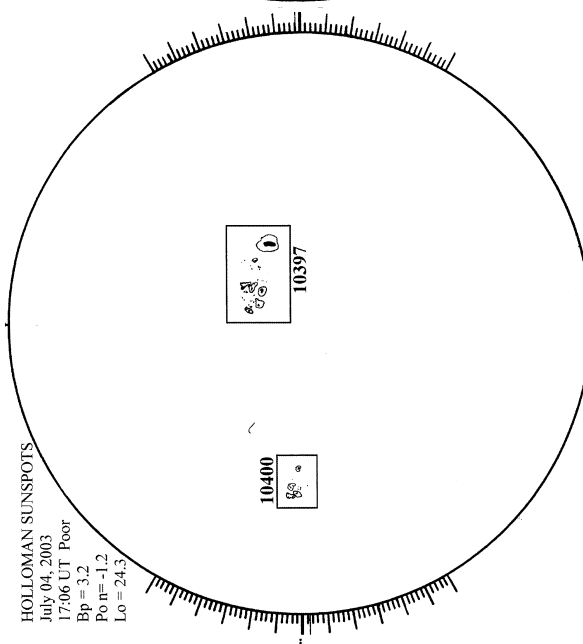


1607 UT

HOLLOMAN SUNSPOT

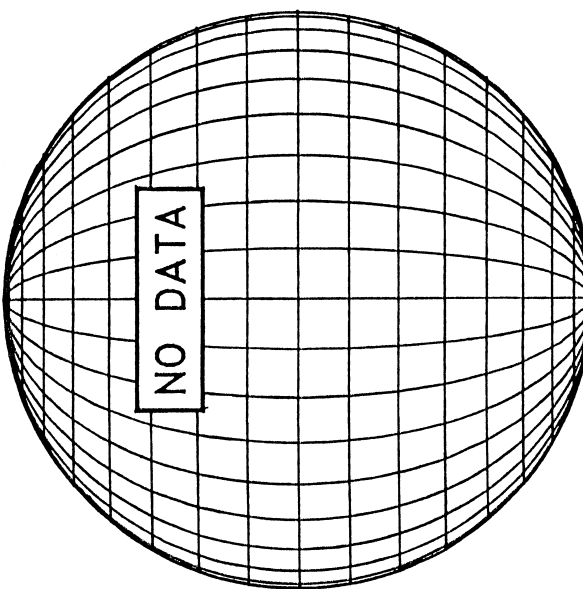
HOLLOMAN SUNSPOTS

July 04, 2003
17:06 UT Poor
Bp = 3.2
Po n= -1.2
Lo = 24.3



1706 UT

LOMNICKY PEAK CORONA (1.04 Radii)----



16.22 -
17.14 UT

47
Jul 03

48
Jul 03



E

1549 UT

Solid = +
Dashed = -

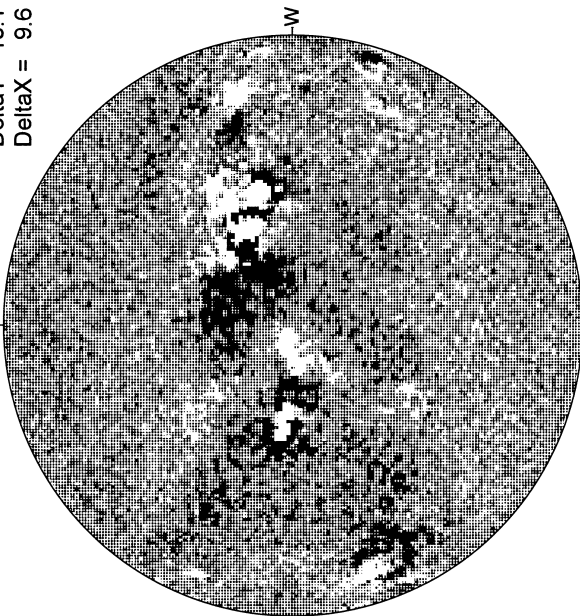
STANFORD MAGNETOGRAM



2029 UT

MT. WILSON MAGNETOGRAM

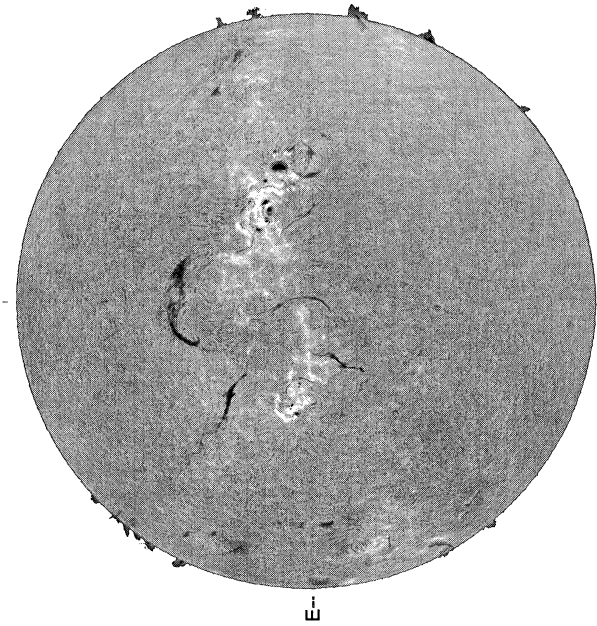
DeltaY = 13.1
DeltaX = 9.6



16.26 -
17.18 UT

White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

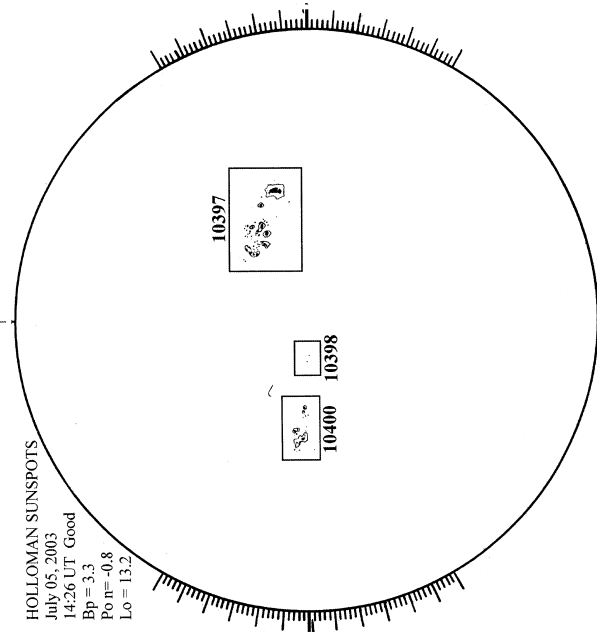


E

1552 UT

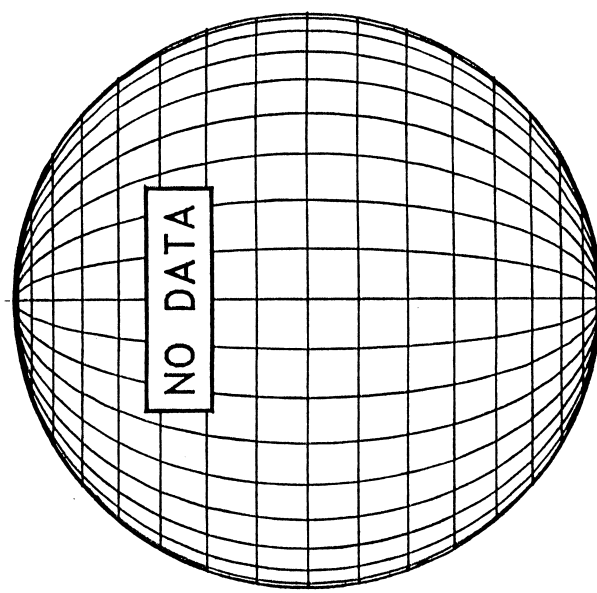
HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS
July 05, 2003
14:26 UT Good
Bp = 3.3
Po n = -0.8
Lo = 13.2



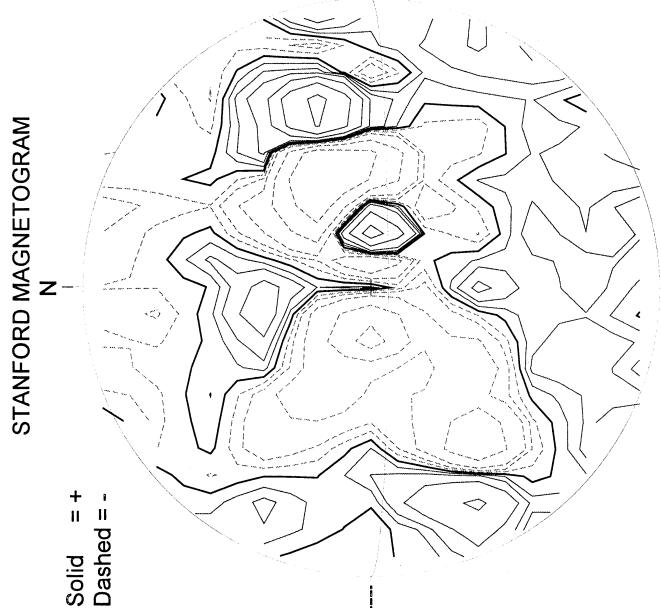
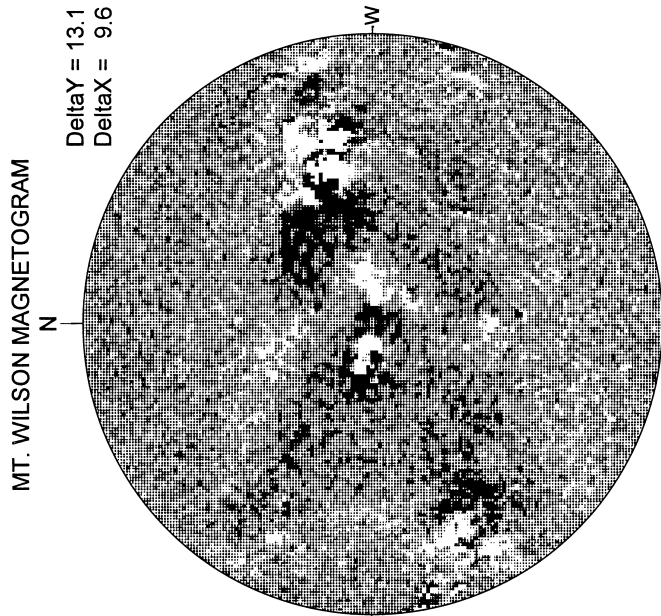
1426 UT

LOMNICKY PEAK CORONA (1.04 Radii)----



S

JULY 6, 2003 (P= -0.62, Bo = 3.37, Lo = 7.23)

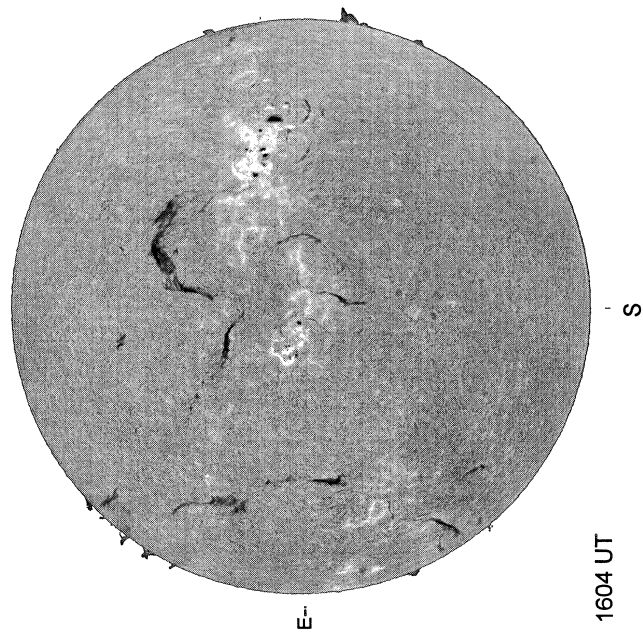


16.21 -
17.13 UT

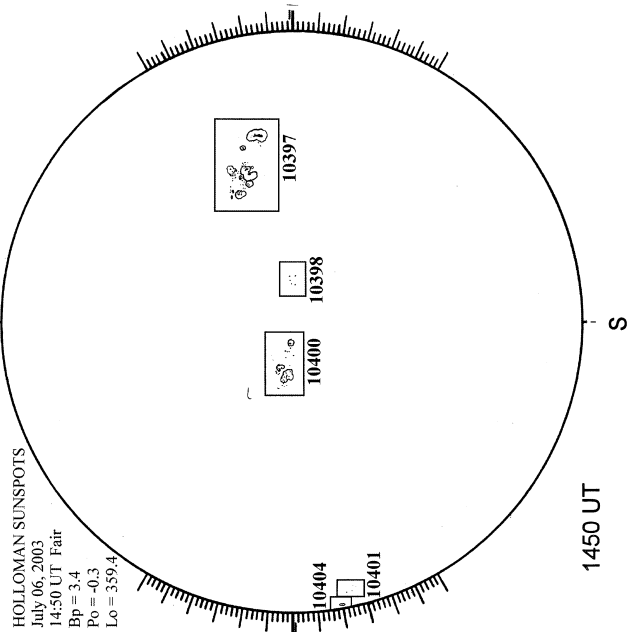
2034 UT

1552 UT

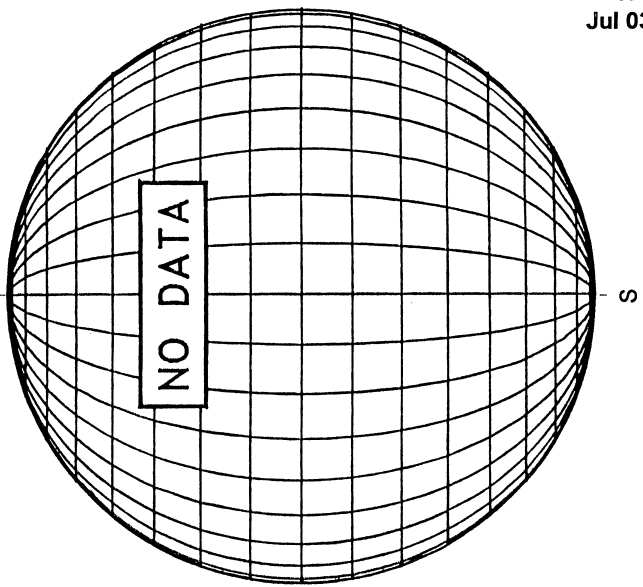
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----



JULY 7, 2003 (P= -0.17, Bo = 3.48, Lo = 354.00)

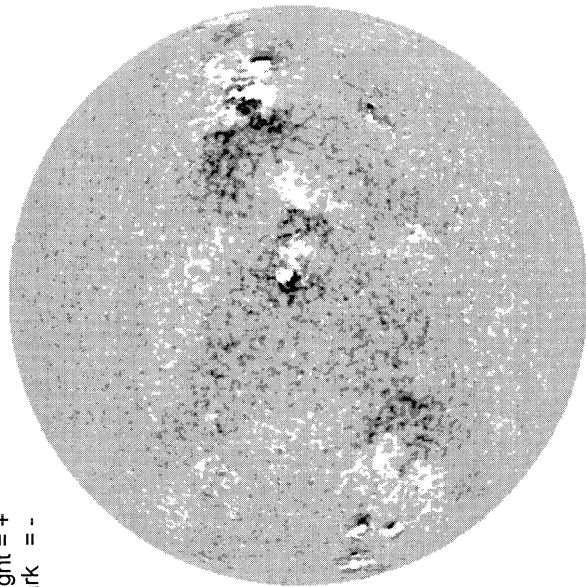
50
Jul 03

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -

N

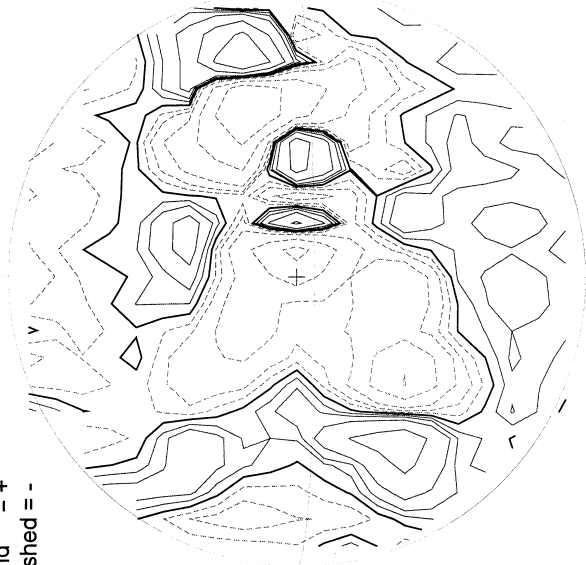


1543 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

N

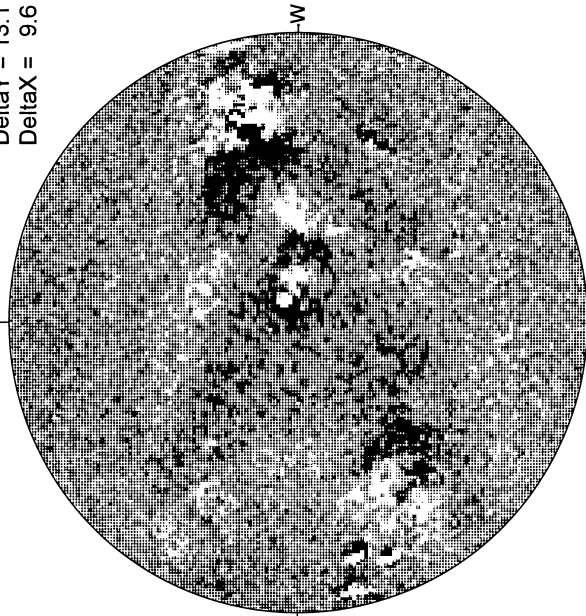


2110 UT

MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6

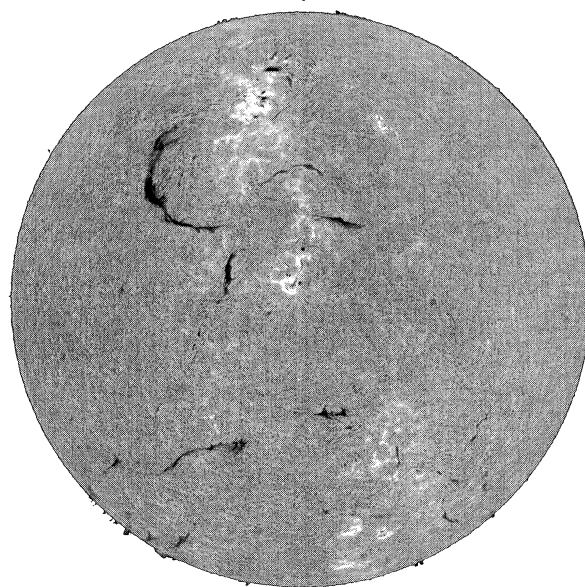
N



16.55 -
17.47 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



1556 UT

HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS

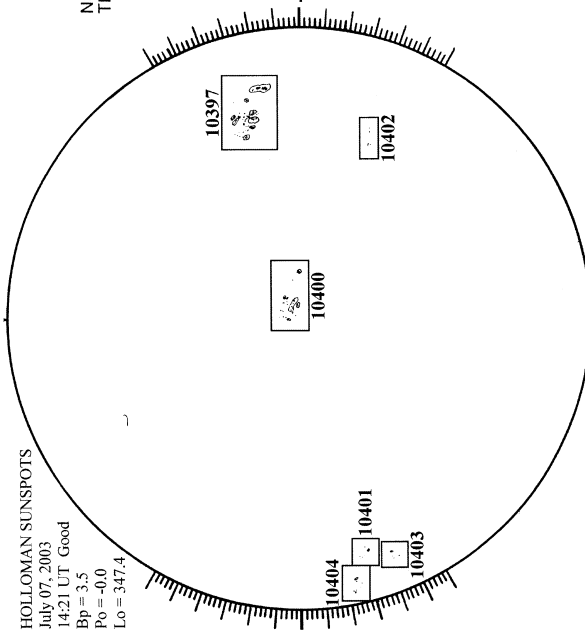
July 07, 2003

14:21 UT Good

Bp = 3.5

Po = -0.0

Lo = 347.4



1421 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS

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07/07/03
(DOY 188)

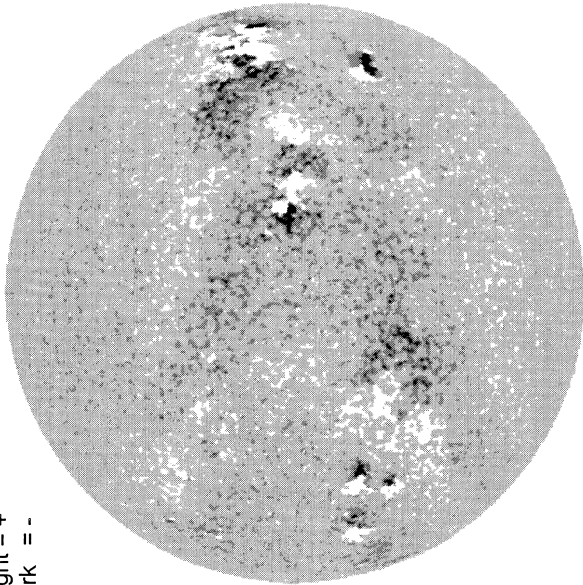
FE XIV 15:26 UT 1.15 R₀

JULY 8, 2003 (P= 0.28, Bo = 3.58, Lo = 340.76)

KITT PEAK MAGNETOGRAM

868.8 nm

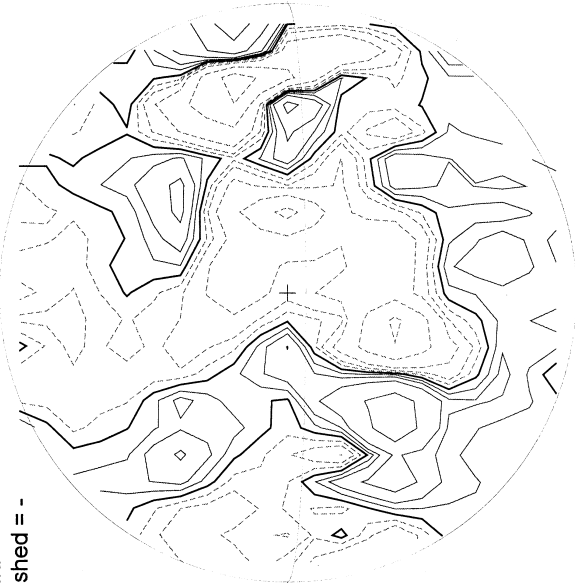
Bright = +
Dark = -



1535 UT

STANFORD MAGNETOGRAM

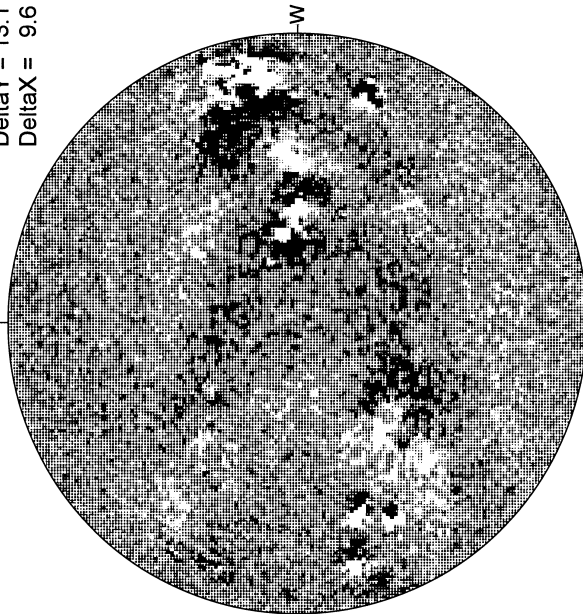
Solid = +
Dashed = -



2135 UT

MT. WILSON MAGNETOGRAM

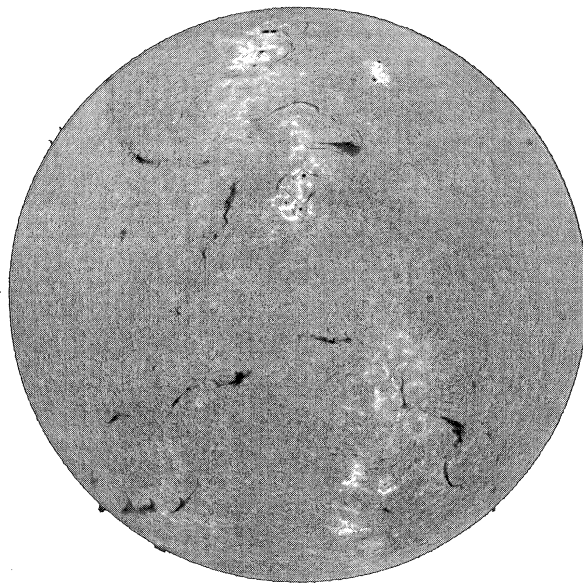
DeltaY = 13.1
DeltaX = 9.6



16.28 -
17.20 UT

White = +7.5G
Black = -7.5G

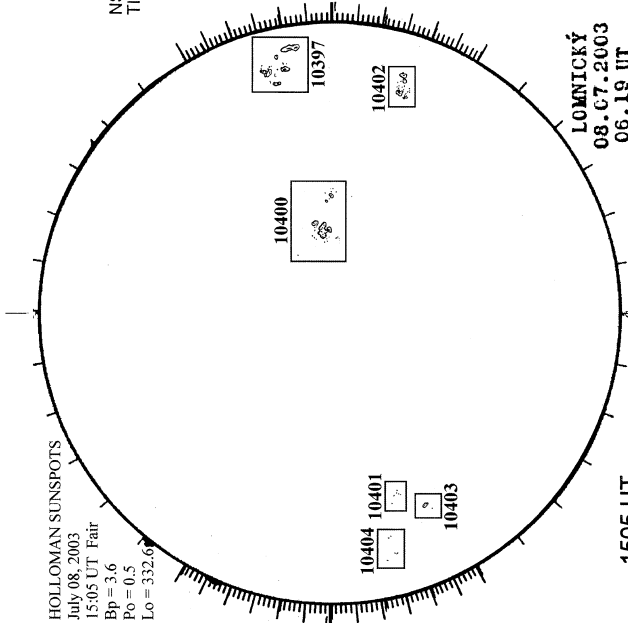
BIG BEAR H-ALPHA



1712 UT

HOLLOMAN SUNSPOT

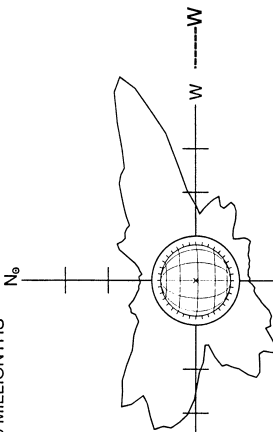
HOLLOMAN SUNSPOTS
July 08, 2003
15:05 UT Fair
Bp = 3.6
Po = 0.5
Lo = 332.6°



1505 UT
0619 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



07/08/03
(DOY 189)

FE XIV 16:30 UT 1.15 R₀

51
Jul 03

LOMNICKÝ
08.07.2003
06.19 UT

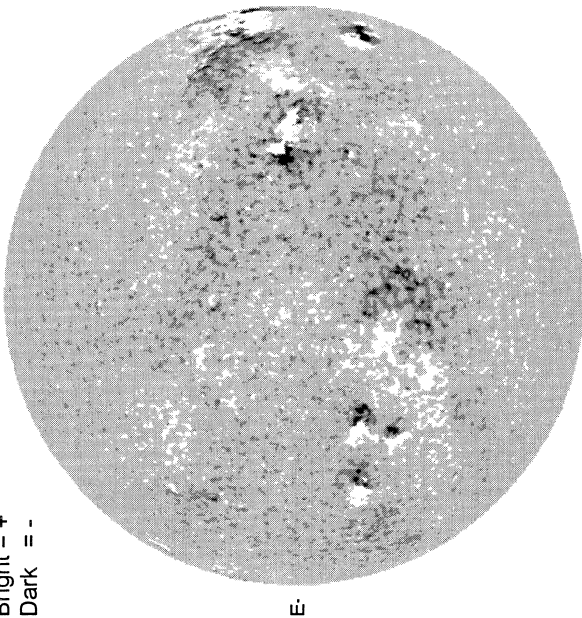
JULY 9, 2003 (P= 0.73, Bo = 3.68, Lo = 327.53)

52
Jul 03

KITT PEAK MAGNETOGRAM

**868.8 nm

Bright = +
Dark = -



1544 UT

STANFORD MAGNETOGRAM

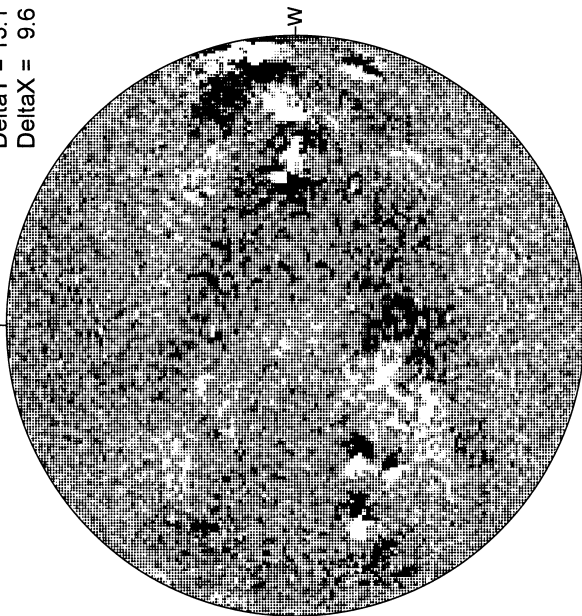
Solid = +
Dashed = -



2131 UT

MT. WILSON MAGNETOGRAM

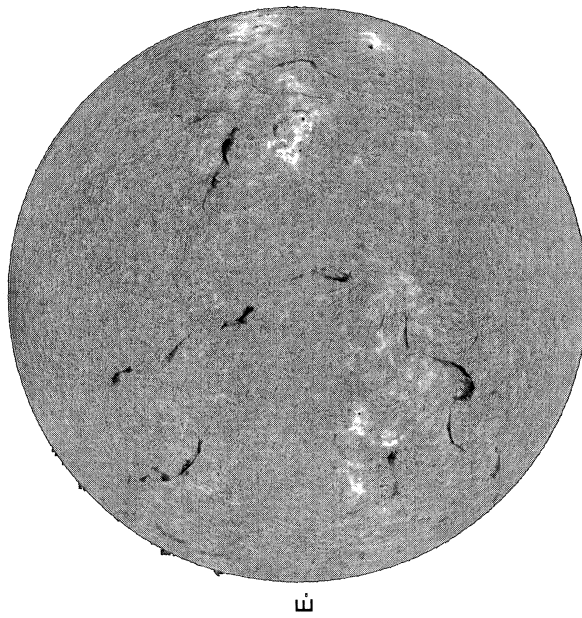
DeltaY = 13.1
DeltaX = 9.6



16.12 -
17.04 UT

White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

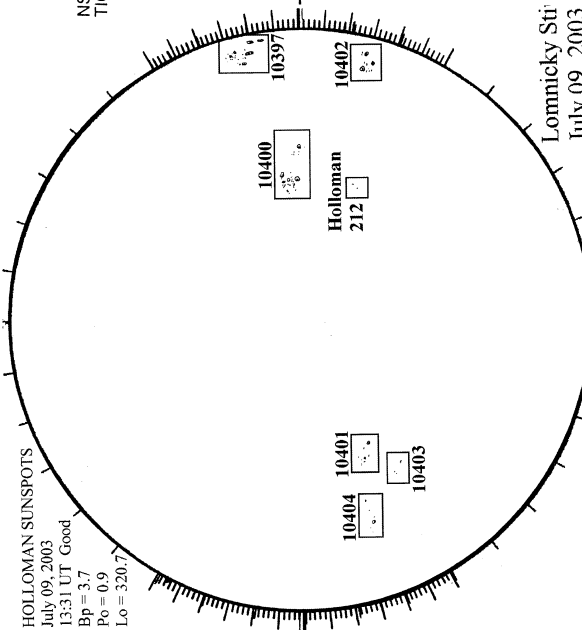


1548 UT

HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS

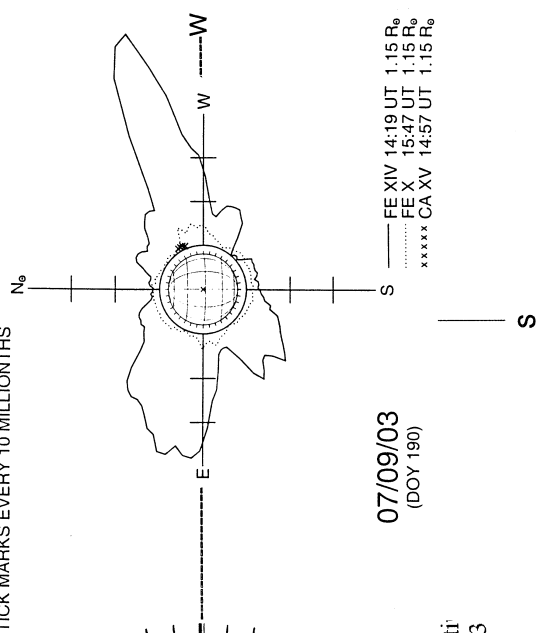
July 09, 2003
13:31 UT Good
Bp = 3.7
Po = 0.9
Lo = 320.7



1331 UT
0531 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



07/09/03
(DOY 190)

Lomnický Str
July 09, 2003
05:31 UT

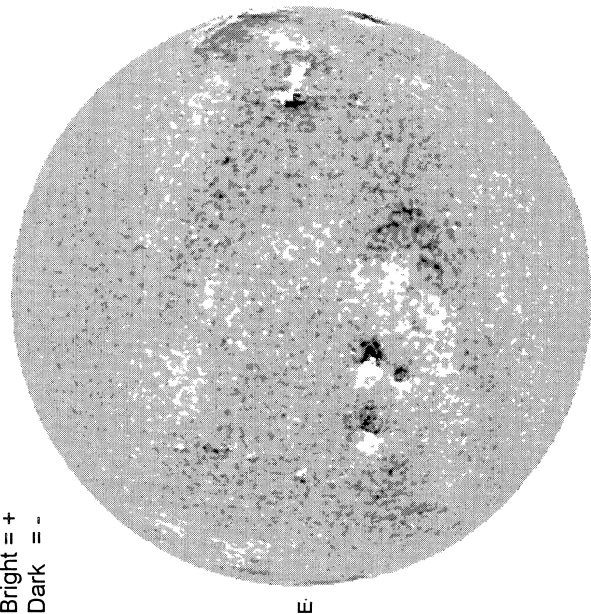
FE XIV 14:19 UT 1.15 R₀
FE X 15:47 UT 1.15 R₀
CA XV 14:57 UT 1.15 R₀

JULY 10, 2003 (P= 1.18, Bo = 3.79 Lo = 314.29)

KITT PEAK MAGNETOGRAM

868.8 nm

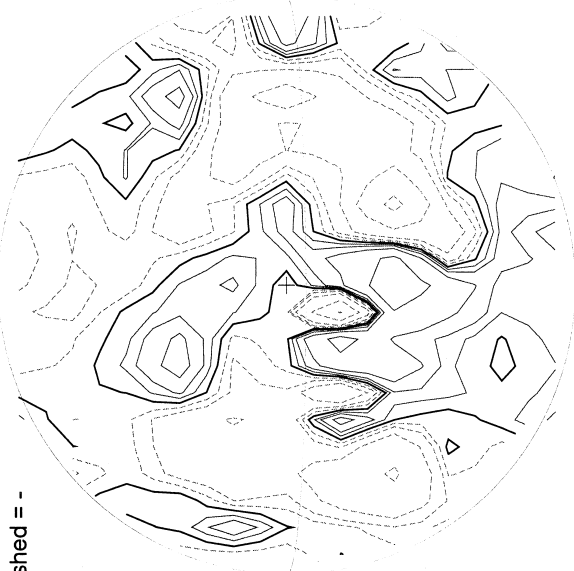
Bright = +
Dark = -



1553 UT

STANFORD MAGNETOGRAM

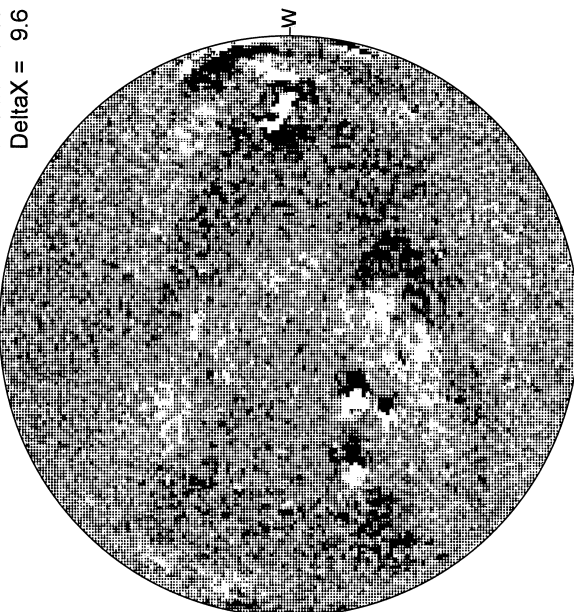
Solid = +
Dashed = -



2119 UT

MT. WILSON MAGNETOGRAM

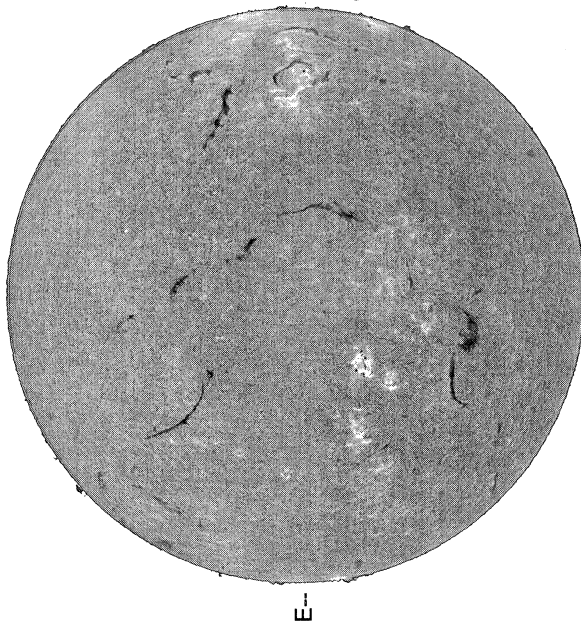
DeltaY = 13.1
DeltaX = 9.6



15.65 -
16.57 UT

White= +7.5G
Black = -7.5G

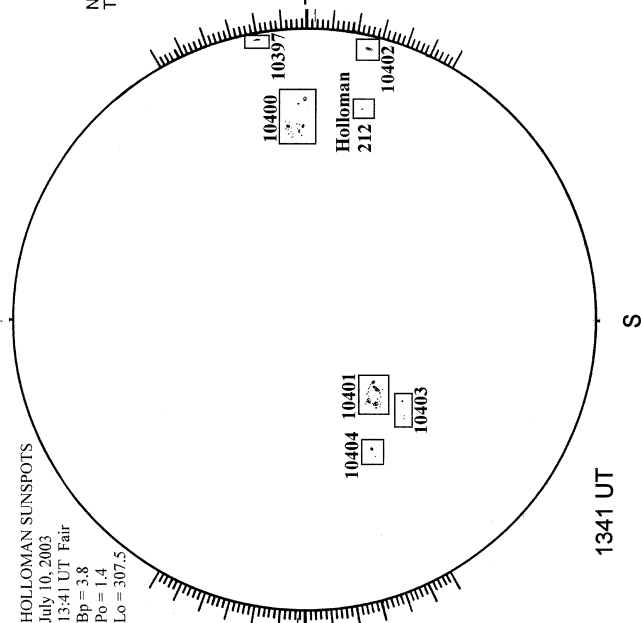
BIG BEAR H-ALPHA



1559 UT

HOLLOMAN SUNSPOTS

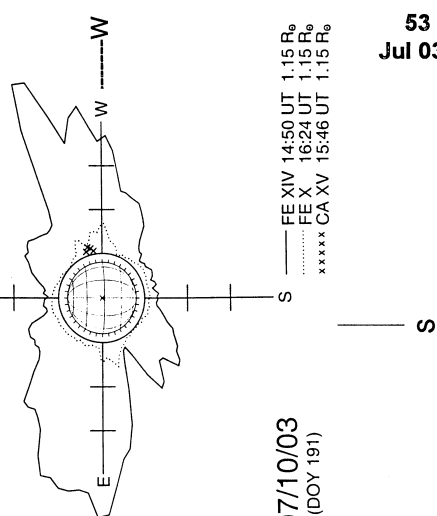
HOLLOMAN SUNSPOTS
July 10, 2003
13:41 UT Fair
Bp = 3.8
Po = 1.4
Lo = 307.5



1341 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



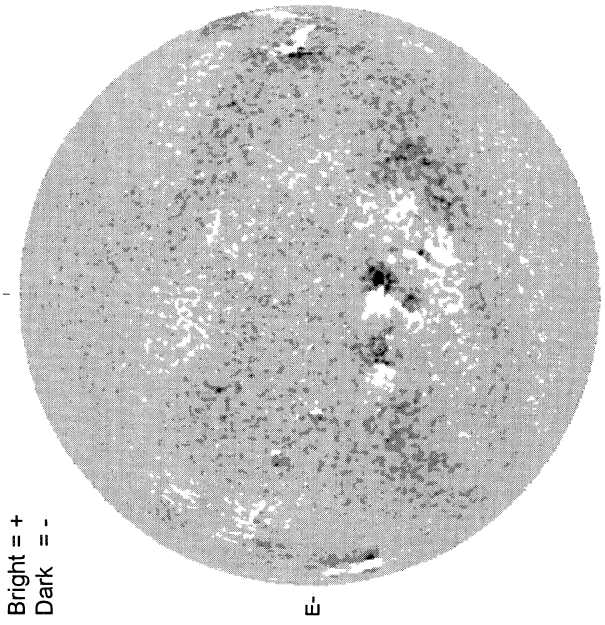
07/10/03
(DOY 191)

FE XIV 14:50 UT 1.15 R_o
FE X 16:24 UT 1.15 R_o
CA XV 15:46 UT 1.15 R_o

54
Jul 03

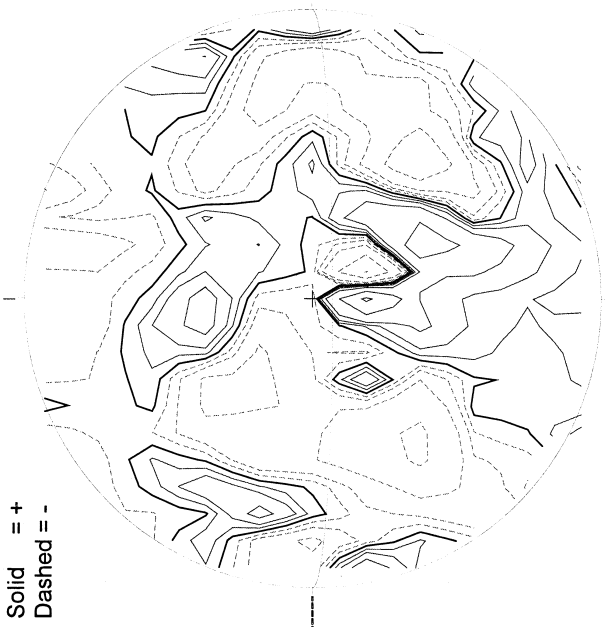
JULY 11, 2003 (P= 1.64, Bo = 3.89, Lo = 301.06)

KITT PEAK MAGNETOGRAM
868.8 nm



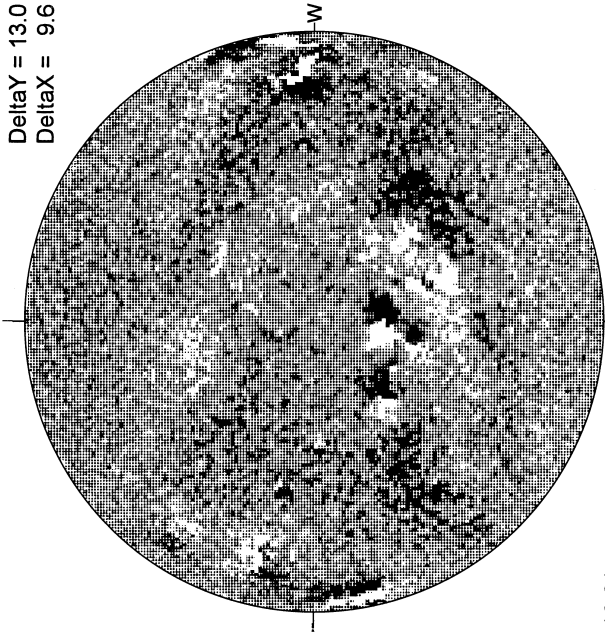
Bright = +
Dark = -

STANFORD MAGNETOGRAM



Solid = +
Dashed = -

MT. WILSON MAGNETOGRAM

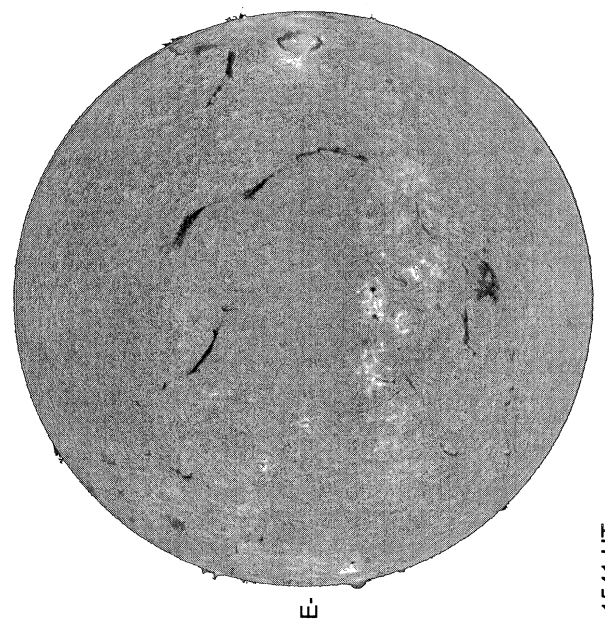


DeltaY = 13.0
DeltaX = 9.6

White = +7.5G
Black = -7.5G

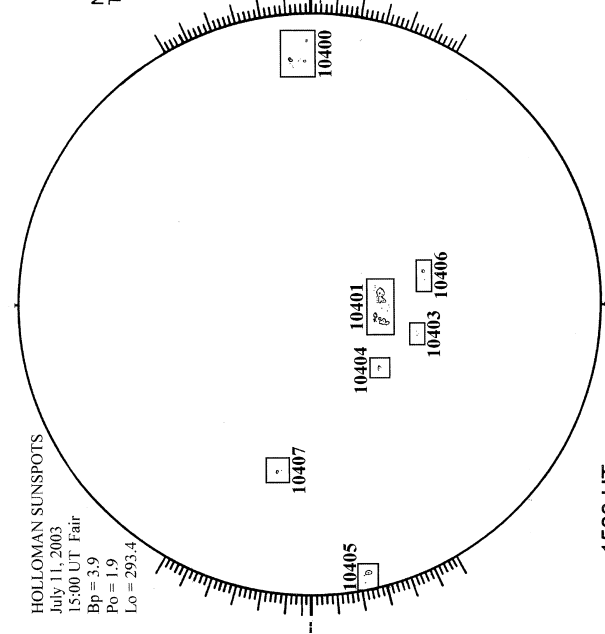
16.01 -
16.93 UT

BIG BEAR H-ALPHA



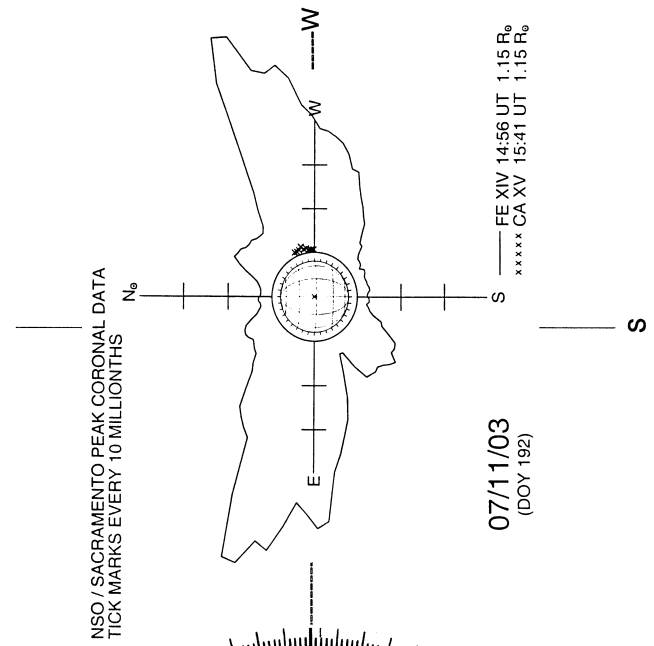
1541 UT

HOLLOMAN SUNSPOTS



HOLLOMAN SUNSPOTS
July 11, 2003
15:00 UT Fair
Bp = 3.9
Po = 1.9
Lo = 293.4

SACRAMENTO PEAK CORONA (1.15 Radii)----

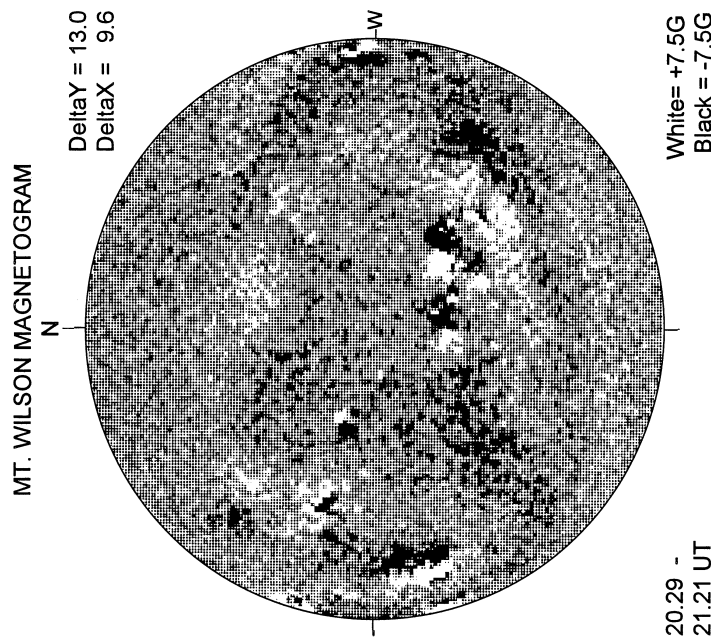


NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS

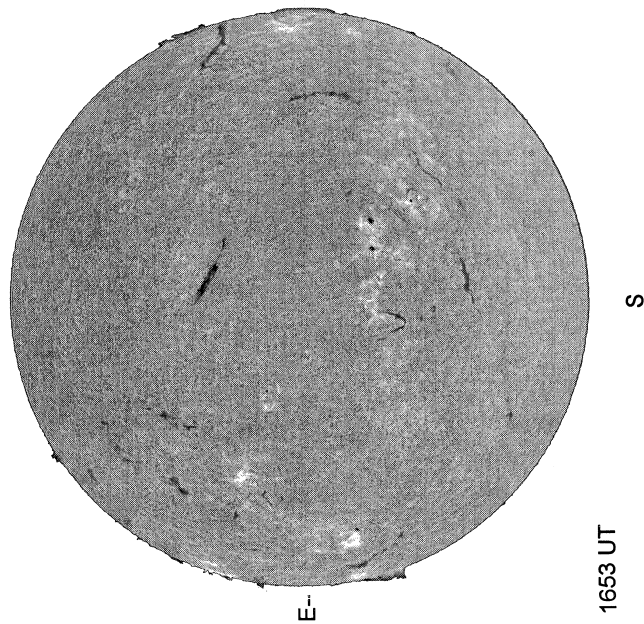
07/11/03
(DOY 192)

FE XIV 14:56 UT 1.15 R_o
CA XV 15:41 UT 1.15 R_o

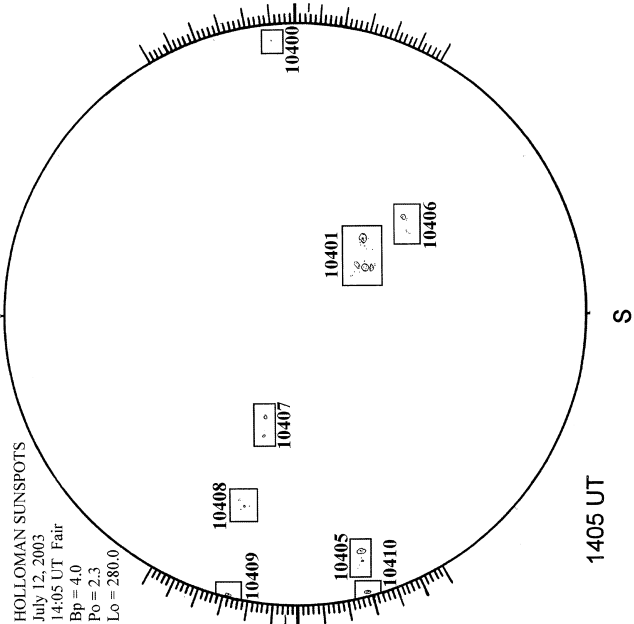
JULY 12, 2003 (P= 2.08, Bo = 3.99, Lo = 287.82)



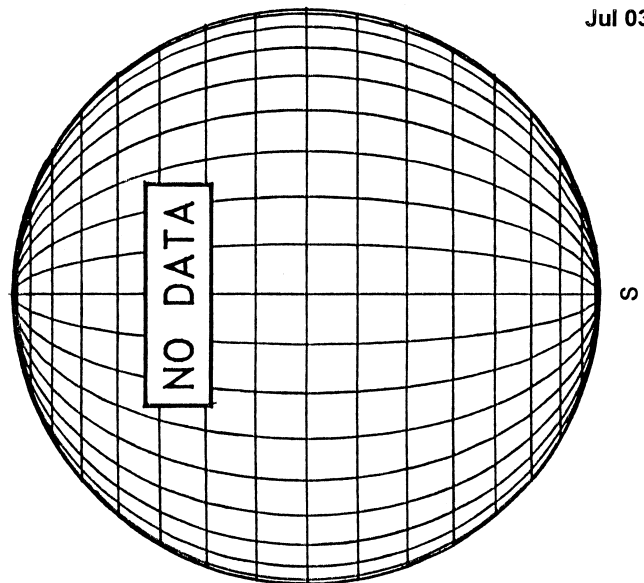
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----

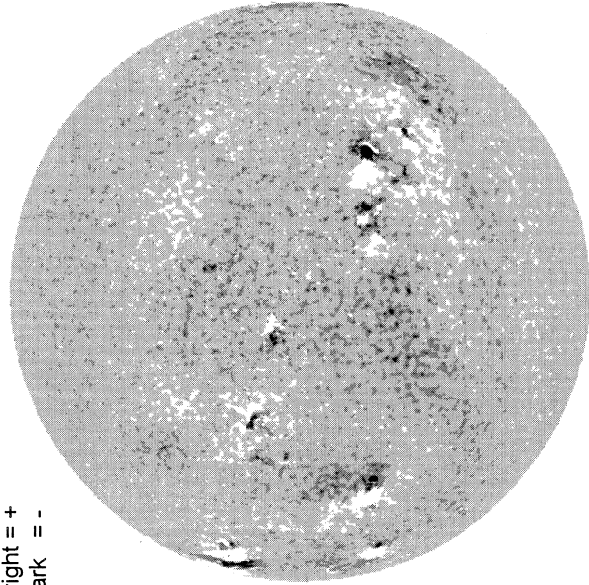


56
Jul 03

KITT PEAK MAGNETOGRAM

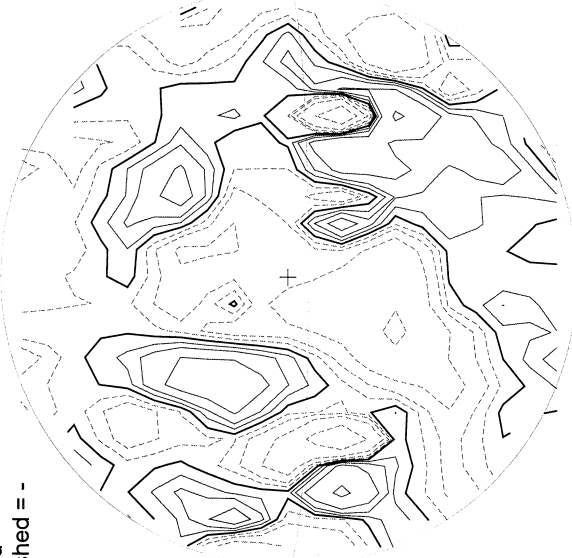
868.8 nm

Bright = +
Dark = -



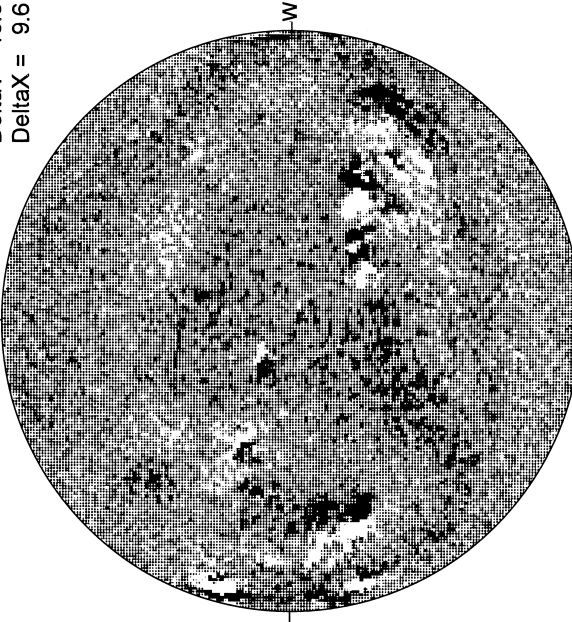
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



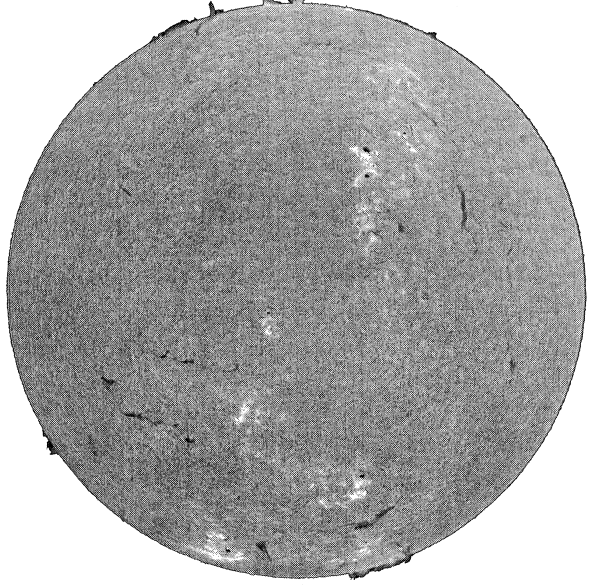
MT. WILSON MAGNETOGRAM

DeltaY = 13.0
DeltaX = 9.6

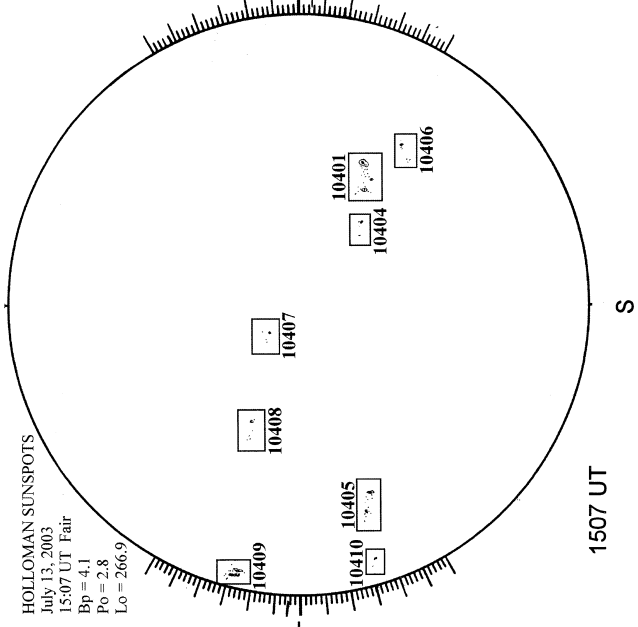


White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

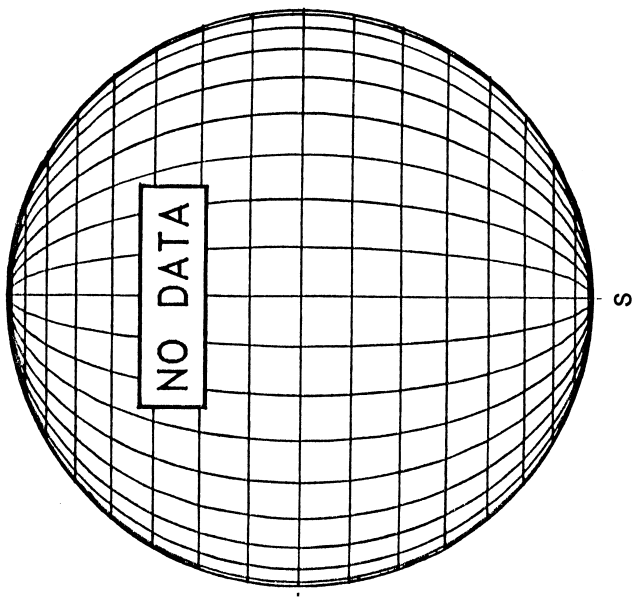


HOLLOMAN SUNSPOT



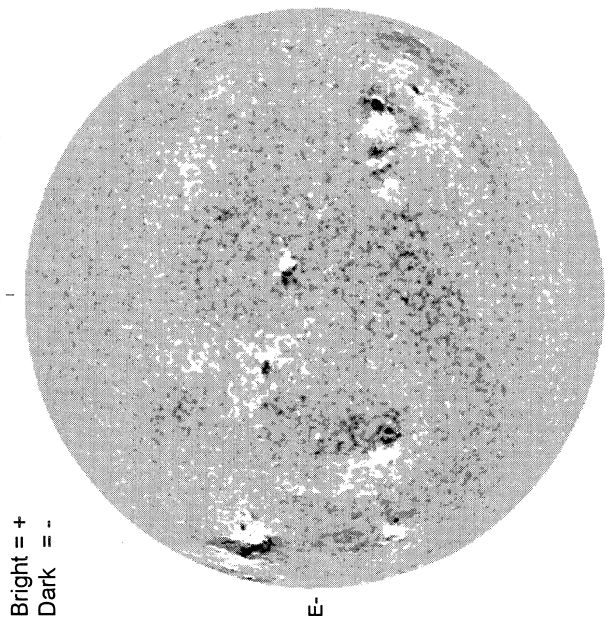
HOLLOMAN SUNSPOTS
July 13, 2003
15:07 UT Fair
Bp = 4.1
Po = 2.8
Lo = 266.9

SACRAMENTO PEAK CORONA (1.15 Radii)----



JULY 14, 2003 (P= 2.98, Bo = 4.19, Lo = 261.36)

KITT PEAK MAGNETOGRAM
868.8 nm



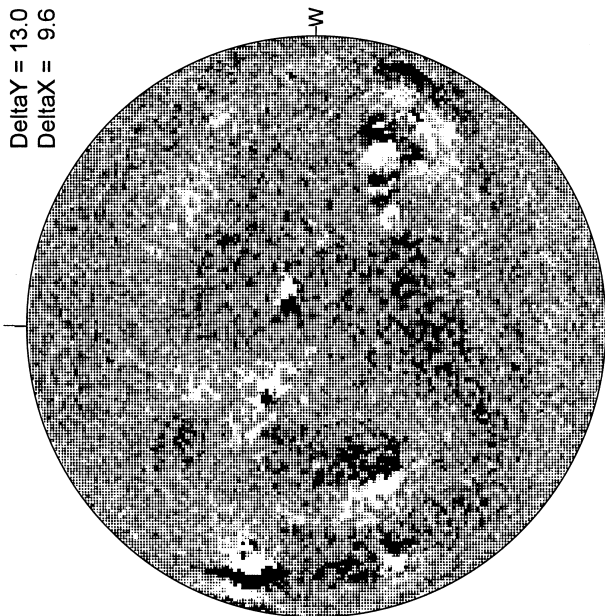
1553 UT

STANFORD MAGNETOGRAM



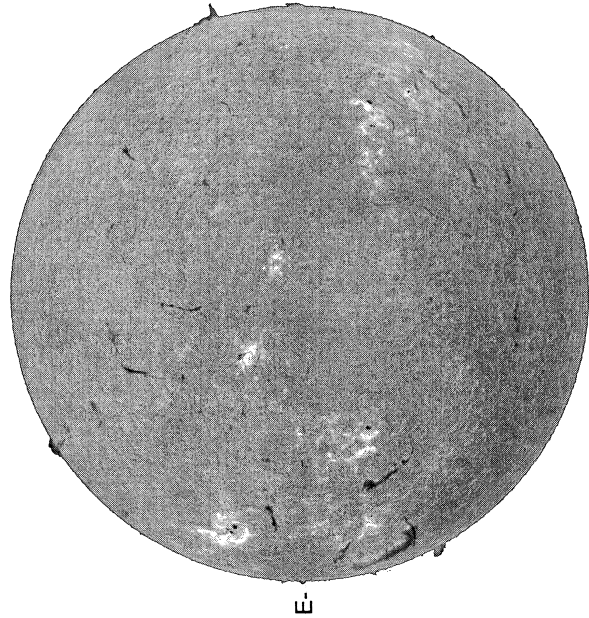
2146 UT

MT. WILSON MAGNETOGRAM



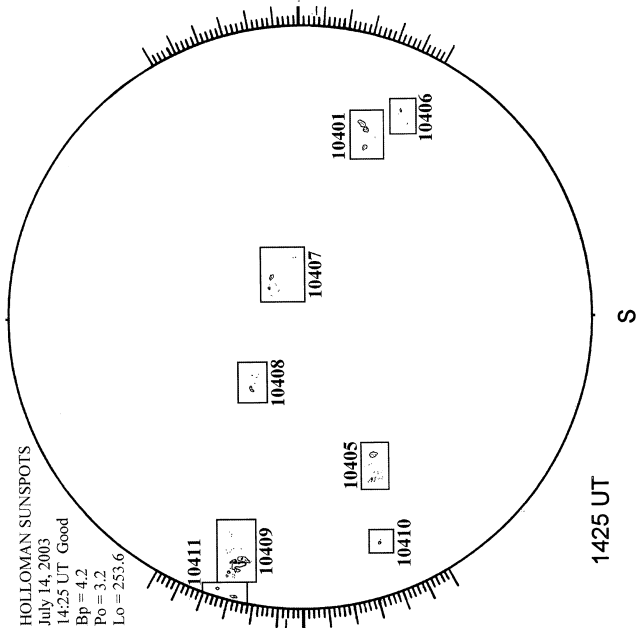
16.13 -
17.06 UT

BIG BEAR H-ALPHA



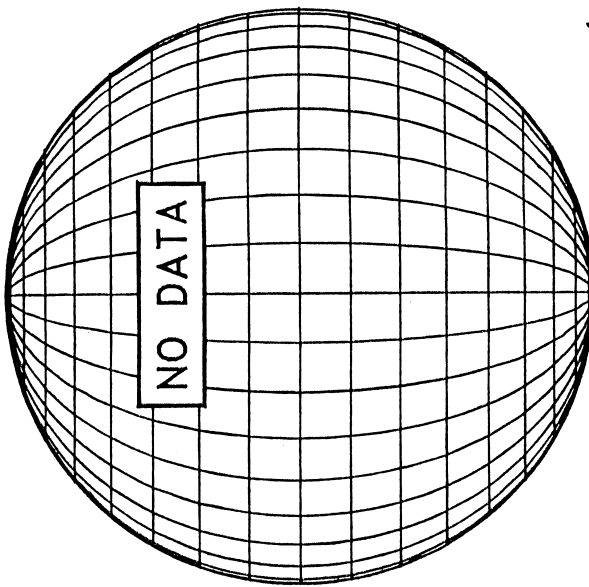
1625 UT

HOLLOMAN SUNSPOT



1425 UT

LOMNICKY PEAK CORONA (1.04 Radii)----



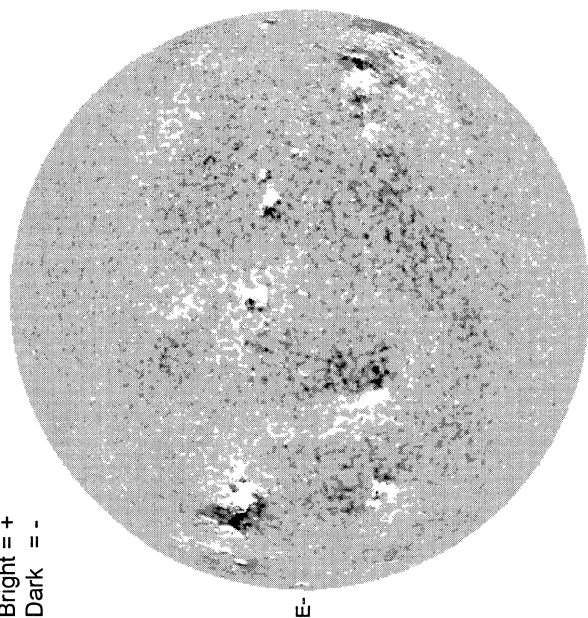
58
Jul 03

JULY 15, 2003 (P= 3.42, Bo = 4.29, Lo = 248.12)

KITT PEAK MAGNETOGRAM

868.8 nm

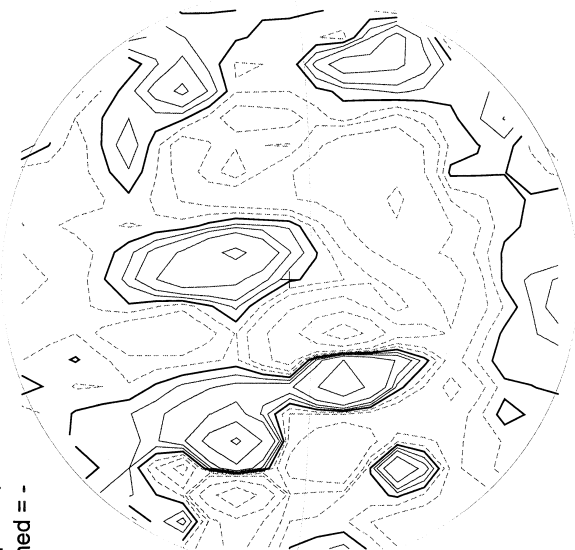
Bright = +
Dark = -



1559 UT

STANFORD MAGNETOGRAM

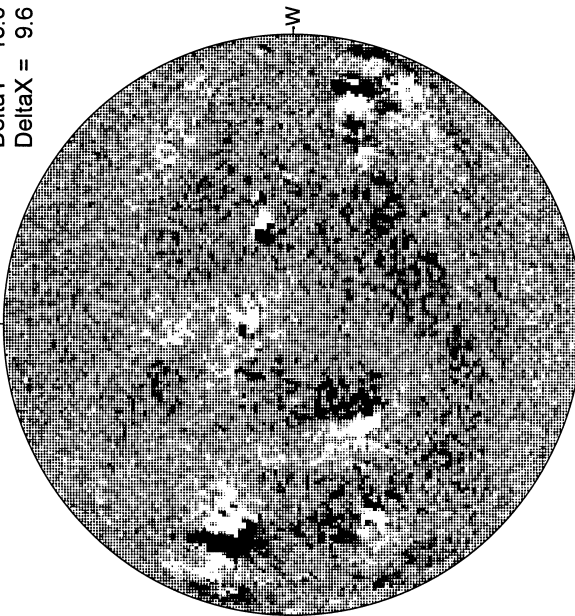
Solid = +
Dashed = -



2117 UT

MT. WILSON MAGNETOGRAM

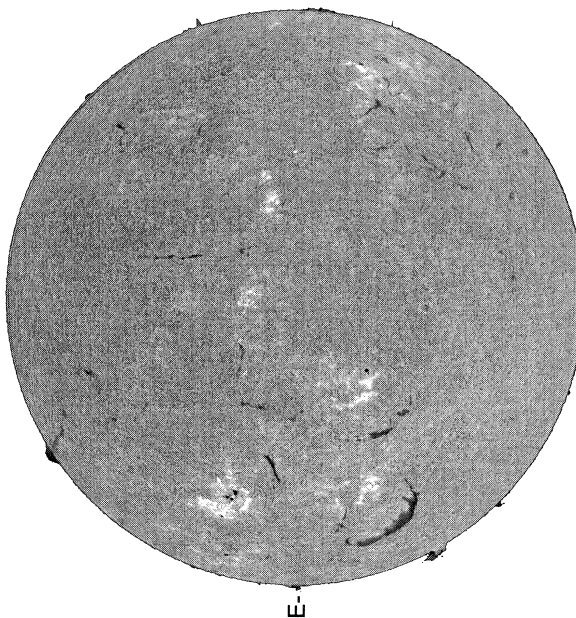
DeltaY = 13.0
DeltaX = 9.6



16.12 -
17.04 UT

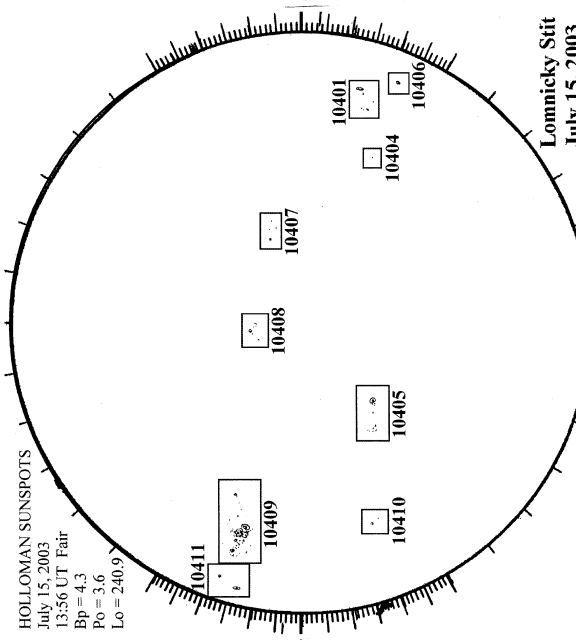
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



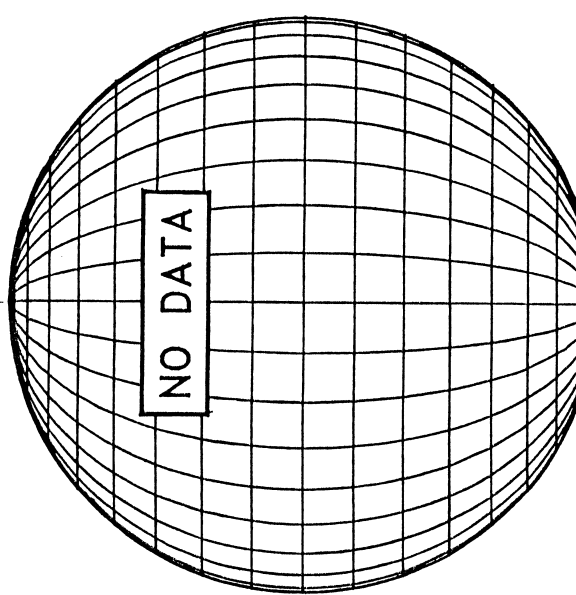
1604 UT

HOLLOMAN SUNSPOT



1356 UT
0525 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



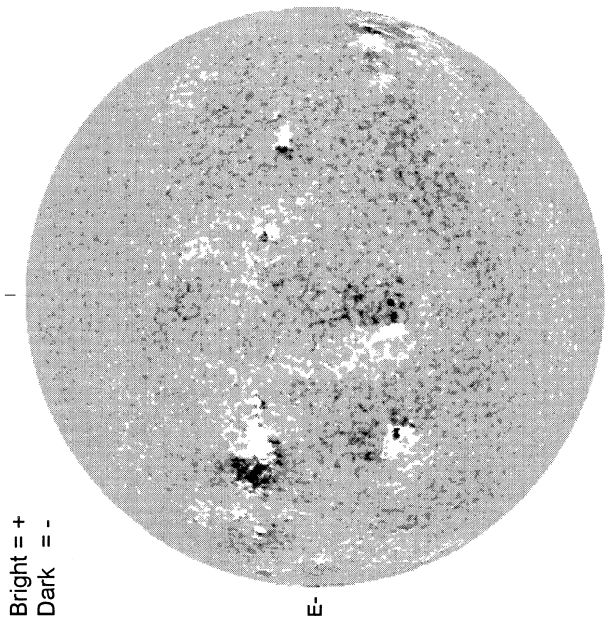
S

HOLLOMAN SUNSPOTS
July 15, 2003
13:56 UT Fair
Bp = 4.3
Po = 3.6
Lo = 240.9

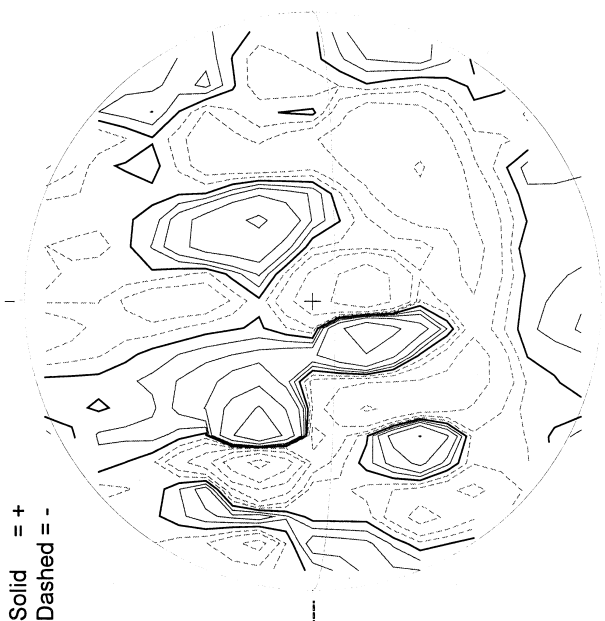
Lomnický Stit
July 15, 2003
05:25 UT

JULY 16, 2003 (P= 3.87, Bo = 4.38, Lo = 234.89)

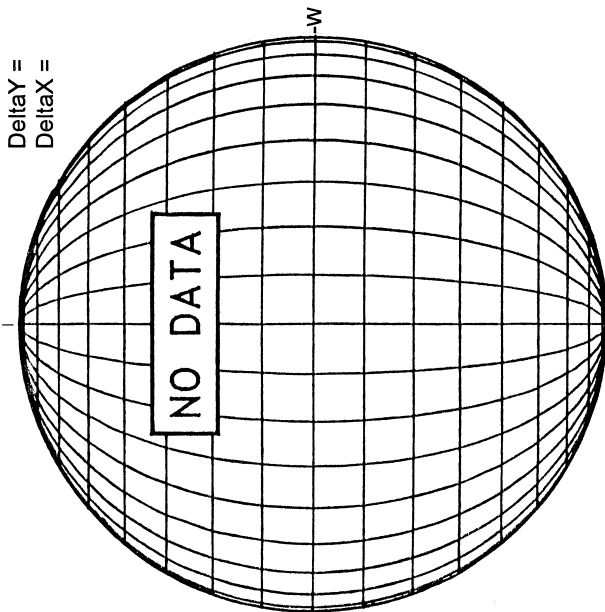
KITT PEAK MAGNETOGRAM
868.8 nm



STANFORD MAGNETOGRAM

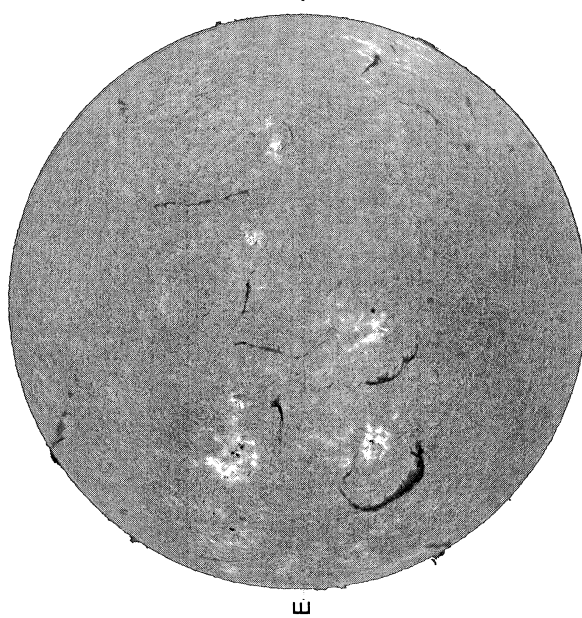


MT. WILSON MAGNETOGRAM

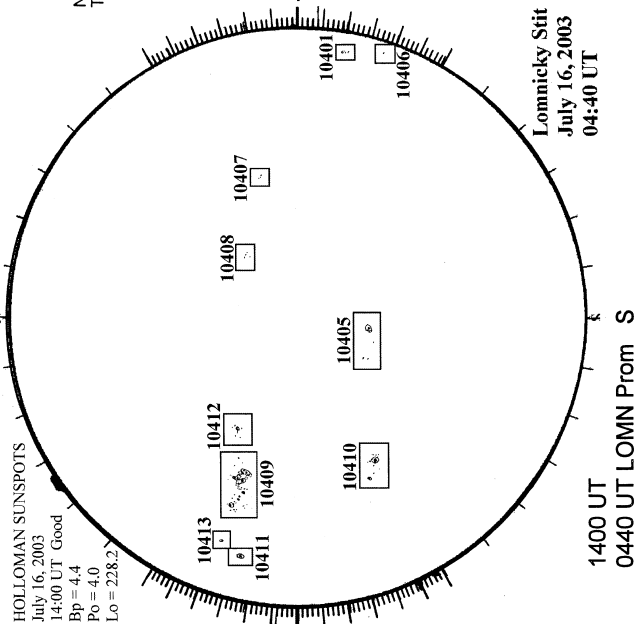


White = +7.5G
Black = -7.5G

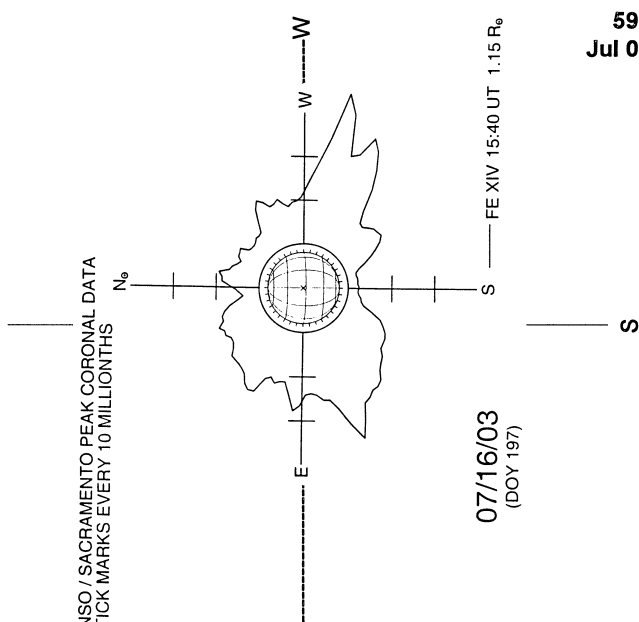
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----

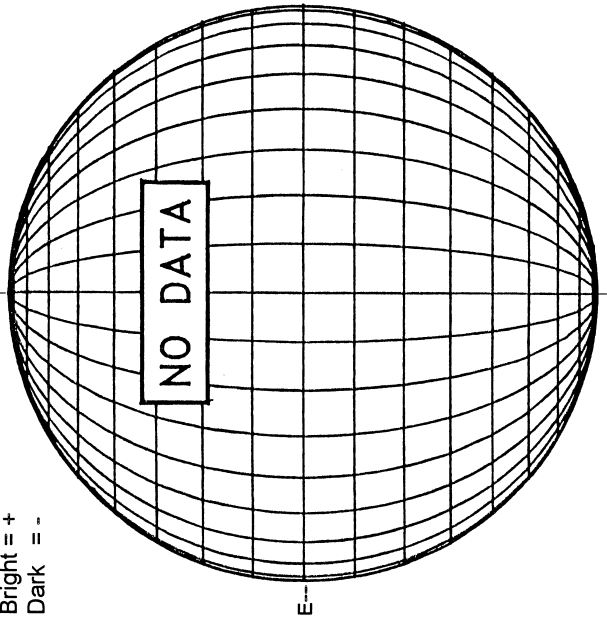


JULY 17, 2003 (P= 4.31, Bo = 4.48, Lo = 221.66)

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



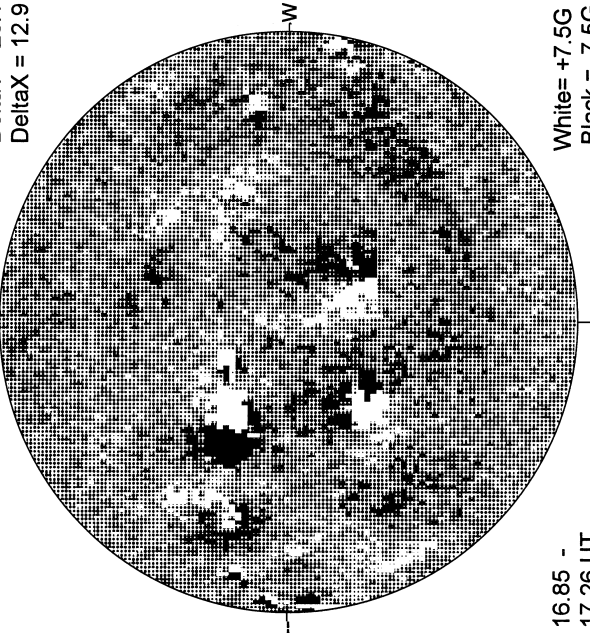
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

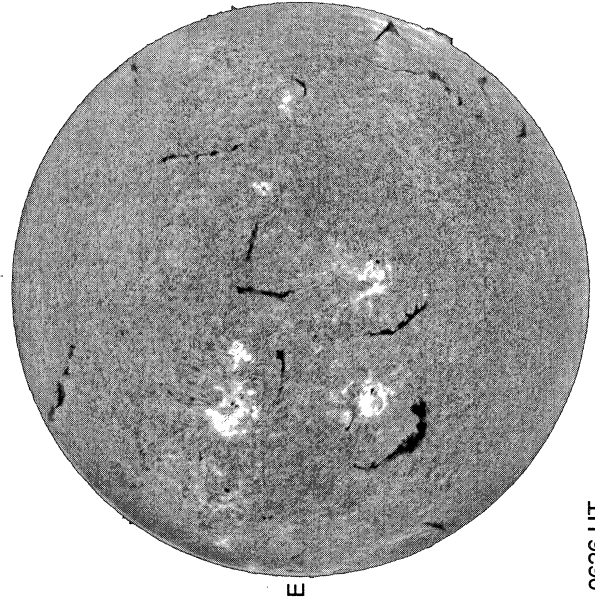
DeltaY = 20.1
DeltaX = 12.9



White = +7.5G
Black = -7.5G

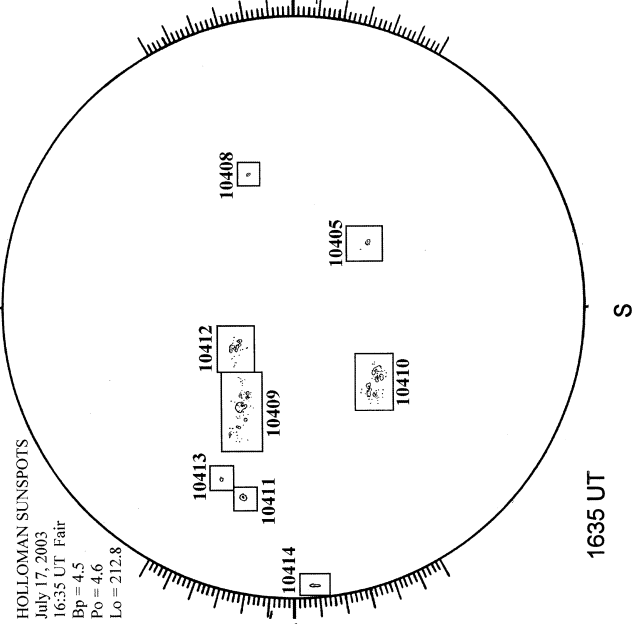
16.85 -
17.26 UT

KANZELHOHE H-ALPHA



0626 UT

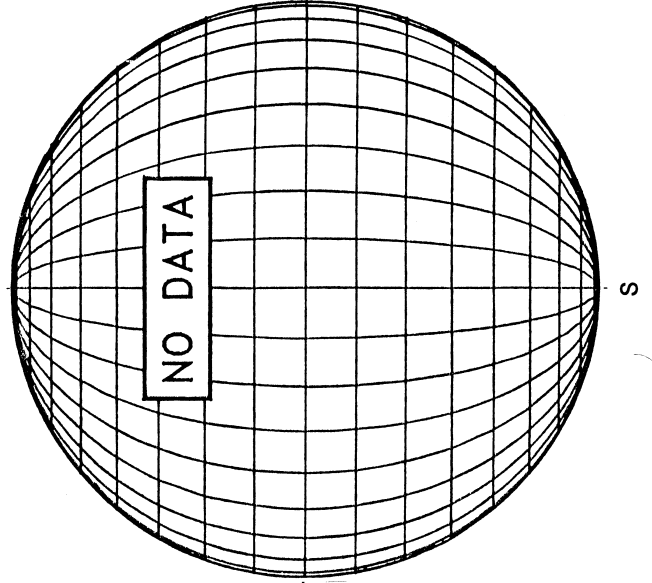
HOLLOMAN SUNSPOT



1635 UT

HOLLOMAN SUNSPOTS
July 17, 2003
16:35 UT Fair
Bp = 4.5
Po = 4.6
Lo = 212.8

LOMNICKY PEAK CORONA (1.04 Radii)----



JULY 18, 2003 (P= 4.75, Bo = 4.57, Lo = 208.42)

KITT PEAK MAGNETOGRAM

868.8 nm

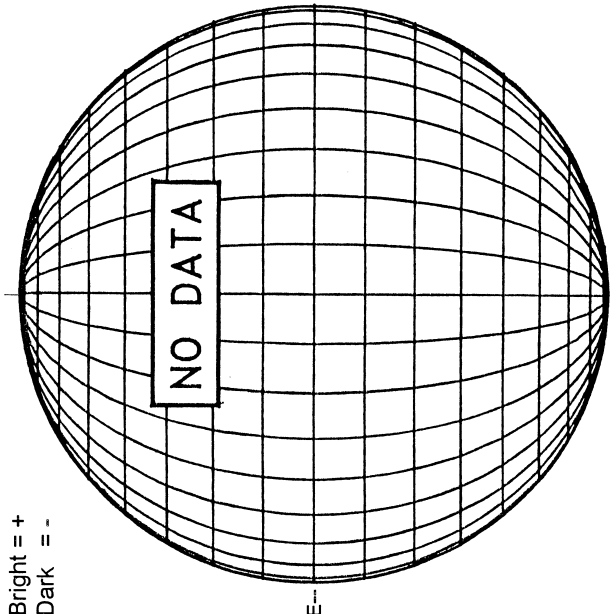
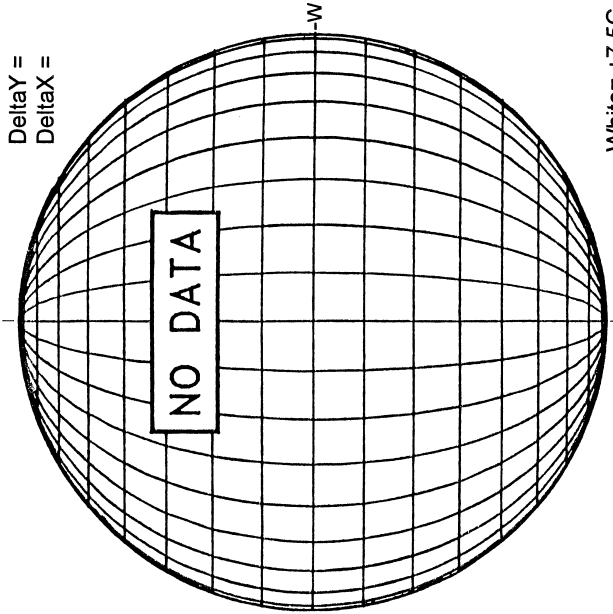
Bright = +
Dark = -

Solid = +
Dashed = -

STANFORD MAGNETOGRAM

MT. WILSON MAGNETOGRAM

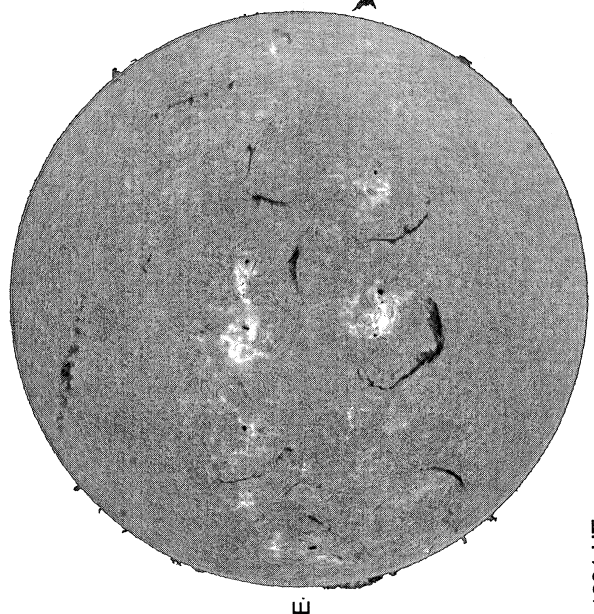
DeltaY =
DeltaX =



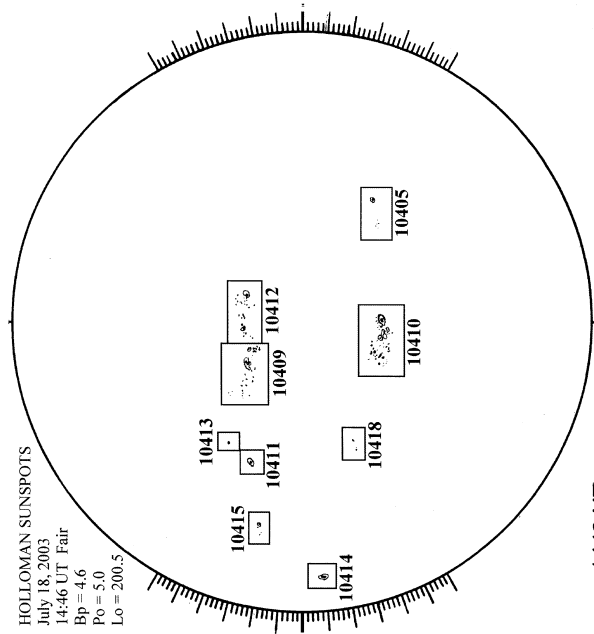
White= +7.5G
Black = -7.5G

JUL 19
0012 UT

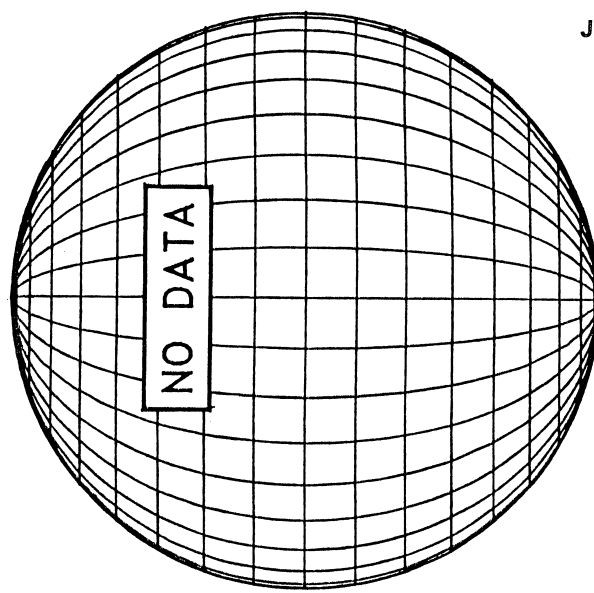
BIG BEAR H-ALPHA



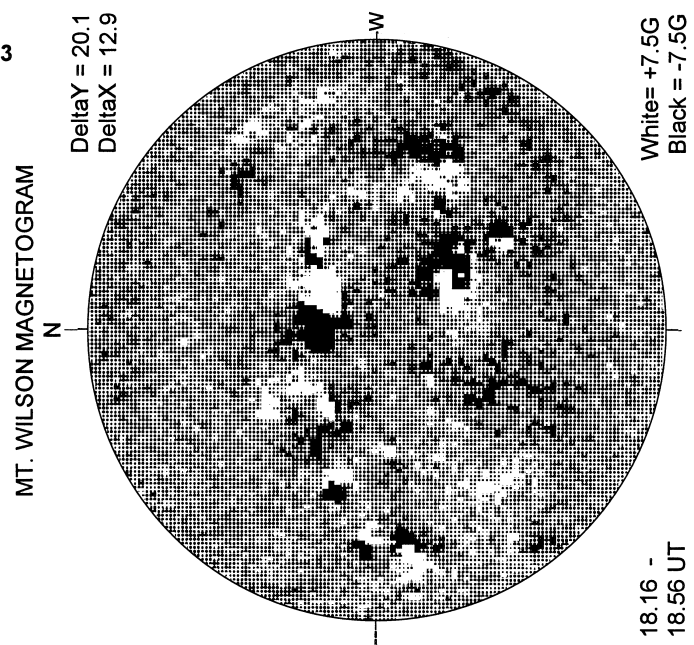
HOLLOMAN SUNSPOTS



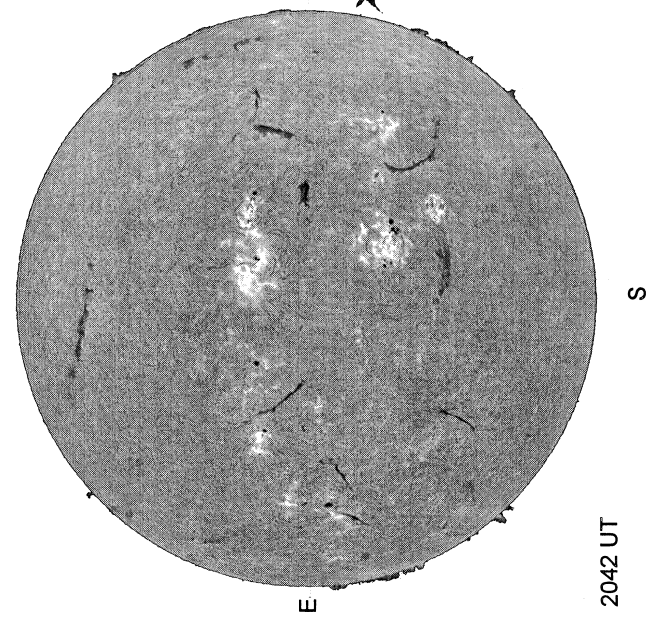
LOMNICKY PEAK CORONA (1.04 Radii)----



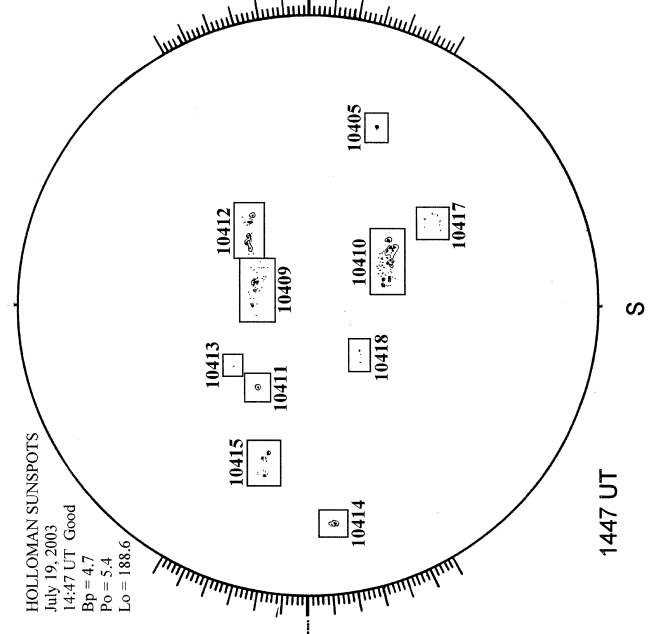
JULY 19, 2003 (P= 5.19, Bo = 4.67, Lo = 195.19)



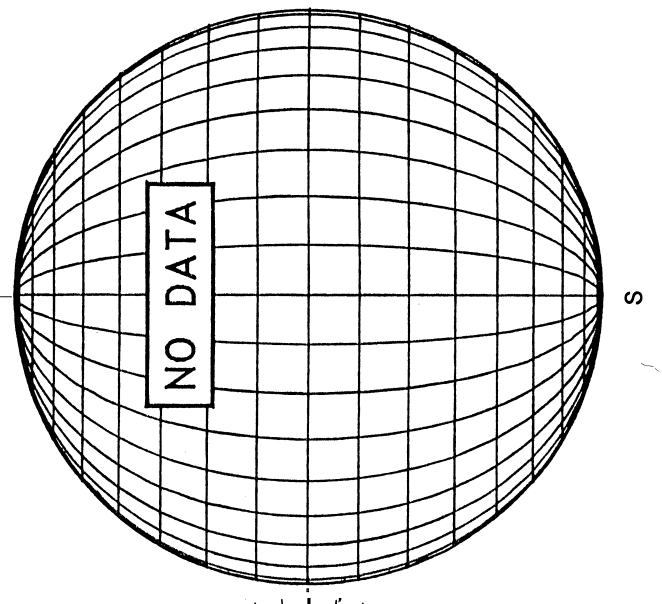
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----



18.16 -
18.56 UT

2121 UT

2042 UT

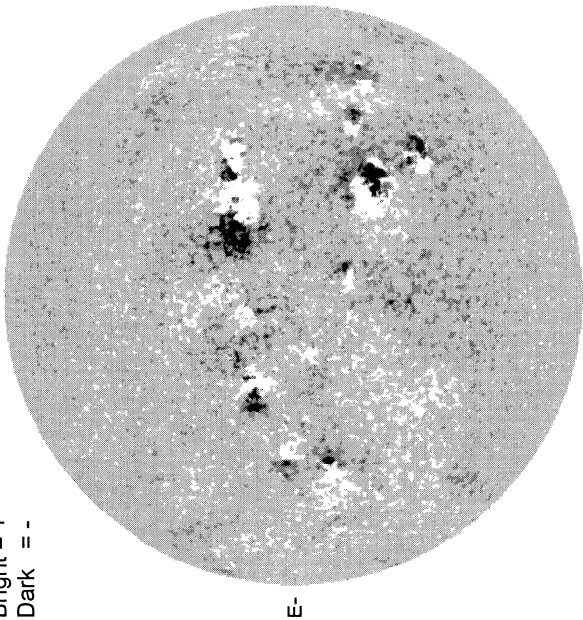
1447 UT

JULY 20, 2003 (P= 5.62, Bo = 4.76, Lo = 181.96)

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



1506 UT

STANFORD MAGNETOGRAM

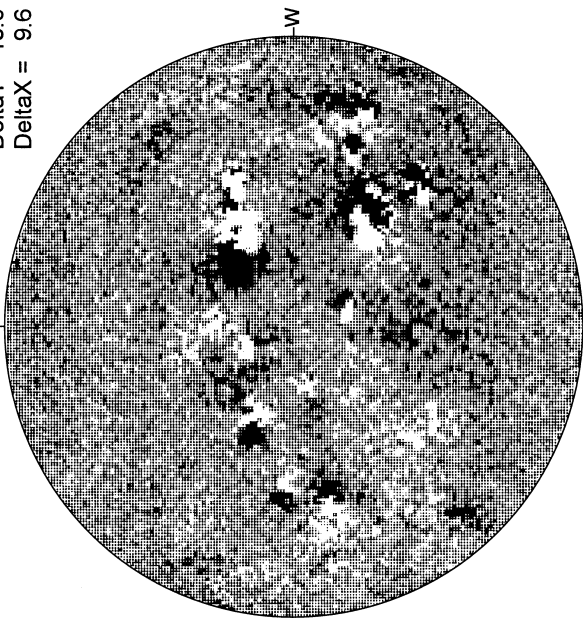
Solid = +
Dashed = -



2024 UT

MT. WILSON MAGNETOGRAM

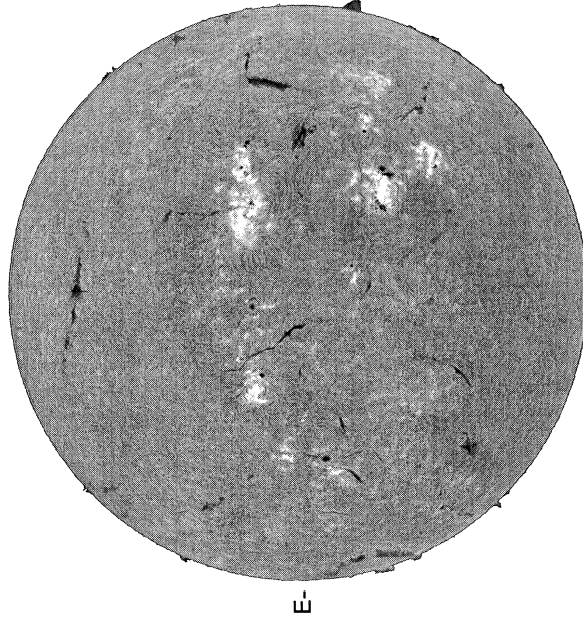
DeltaY = 13.0
DeltaX = 9.6



15.74 -
16.67 UT

White = +7.5G
Black = -7.5G

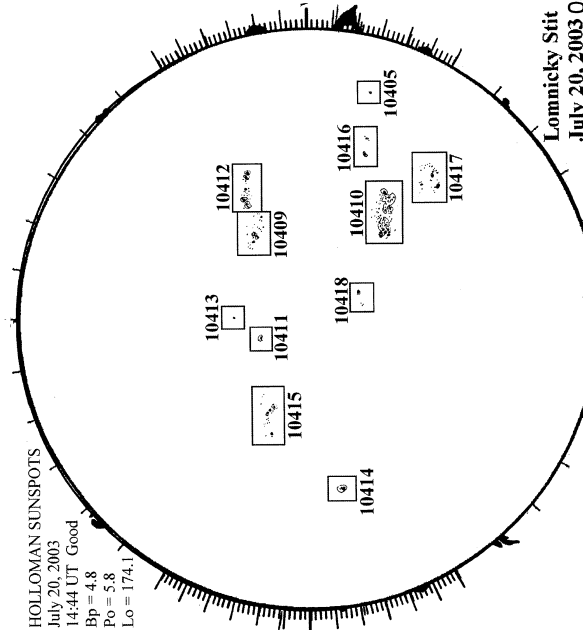
BIG BEAR H-ALPHA



1553 UT

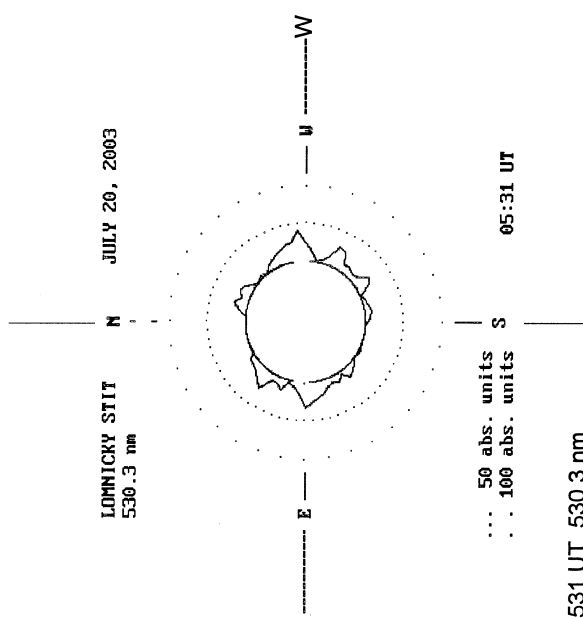
HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS
July 20, 2003
14:44 UT Good
Bp = 4.8
Po = 5.8
Lo = 174.1



1444 UT

LOMNICKY PEAK CORONA (1.04 Radii)----



05:31 UT

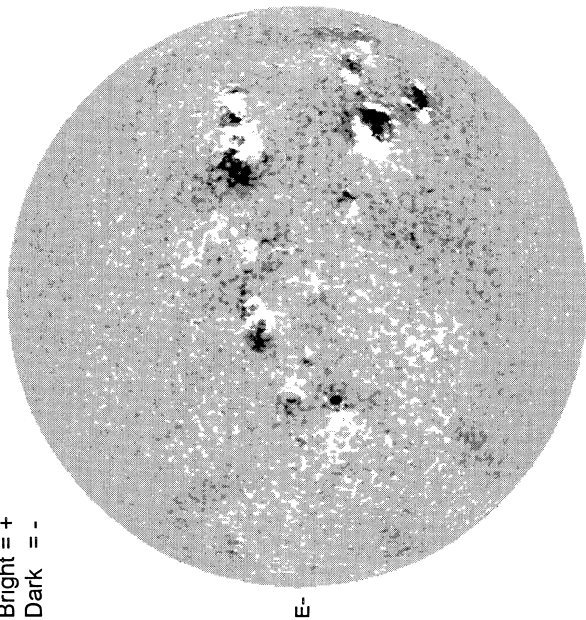
64
Jul 03

JULY 21, 2003 (P= 6.05, Bo = 4.85, Lo = 168.73)

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



1657 UT

STANFORD MAGNETOGRAM

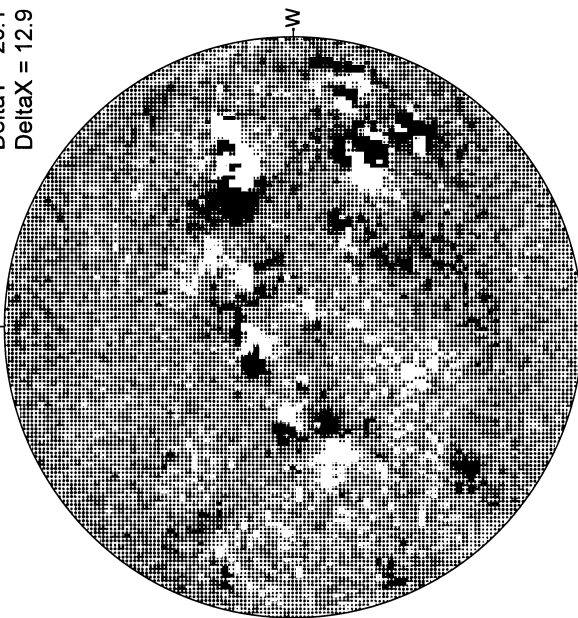
Solid = +
Dashed = -



2153 UT

MT. WILSON MAGNETOGRAM

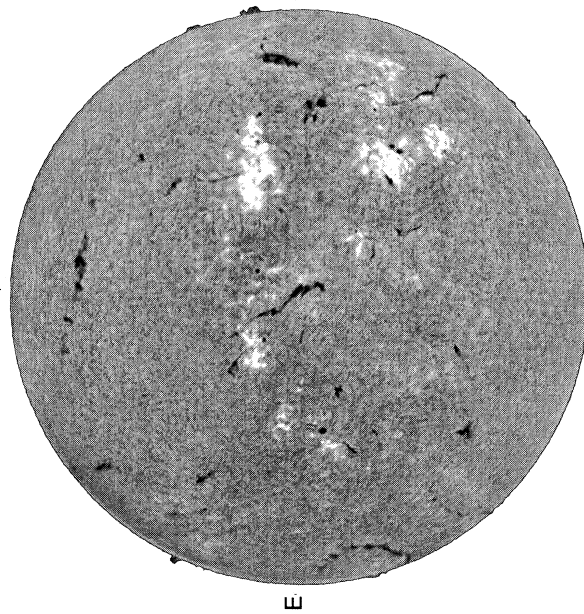
DeltaY = 20.1
DeltaX = 12.9



White = +7.5G
Black = -7.5G

18.93 -
19.33 UT

KANZELHOHE H-ALPHA

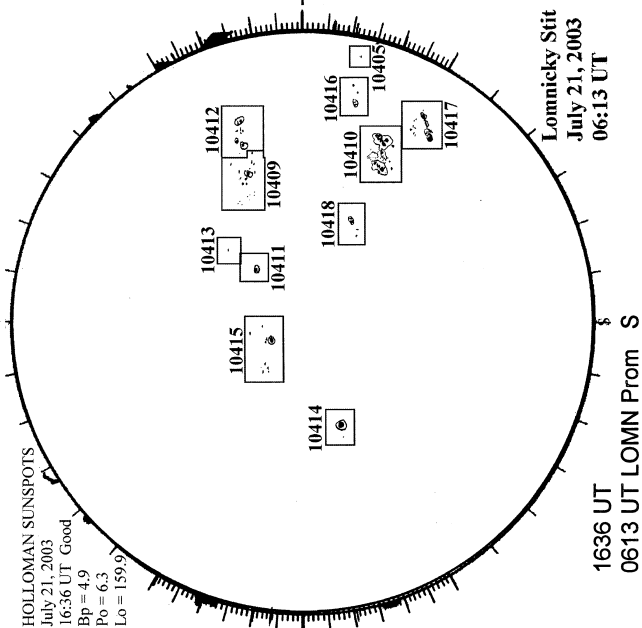


0620 UT

HOLLOMAN SUNSPOT

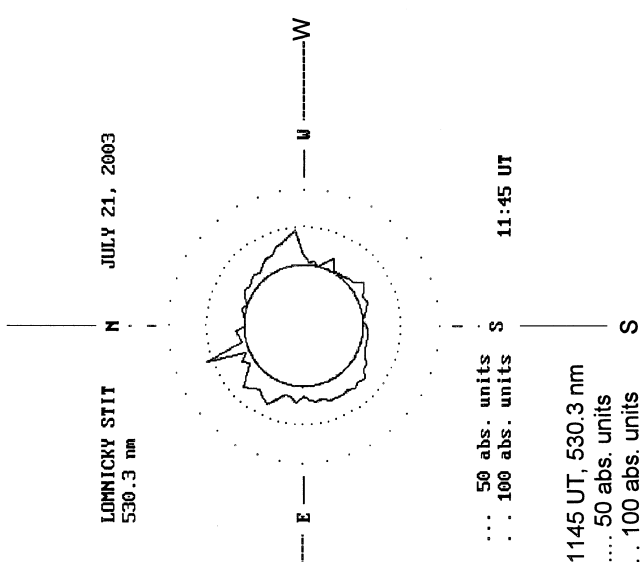
HOLLOMAN SUNSPOTS

July 21, 2003
16:36 UT Good
Bp = 4.9
Po = 6.3
Lo = 159.9



1636 UT
0613 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



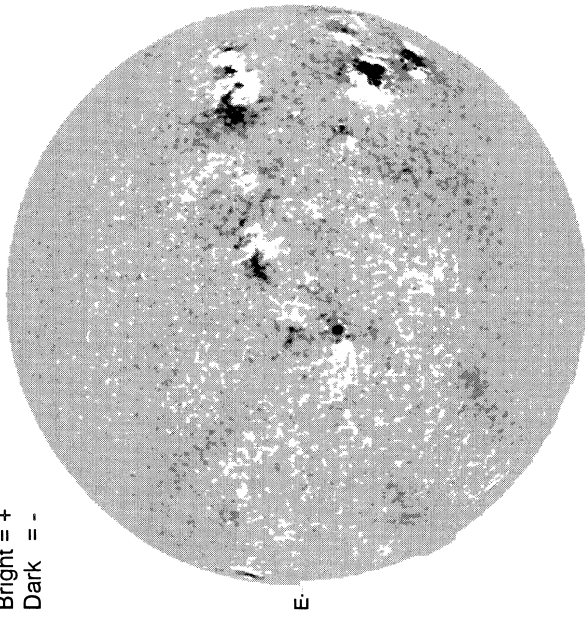
... 50 abs. units
... 100 abs. units
1145 UT, 530.3 nm
... 50 abs. units
... 100 abs. units

JULY 22, 2003 (P= 6.48, Bo = 4.94, Lo = 155.50)

KITT PEAK MAGNETOGRAM

868.8 nm

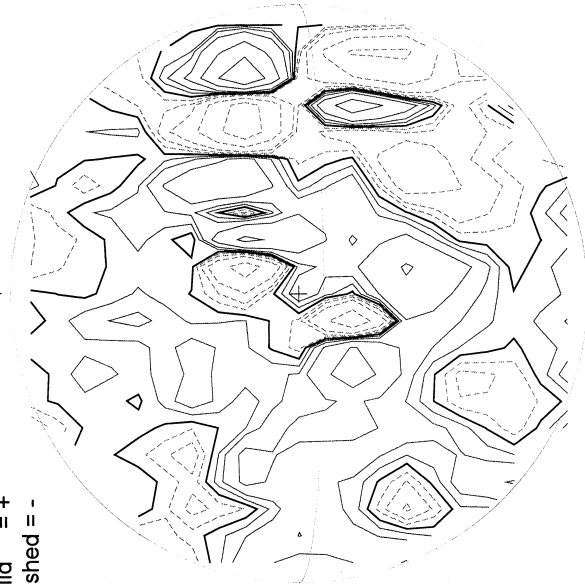
Bright = +
Dark = -



1822 UT

STANFORD MAGNETOGRAM

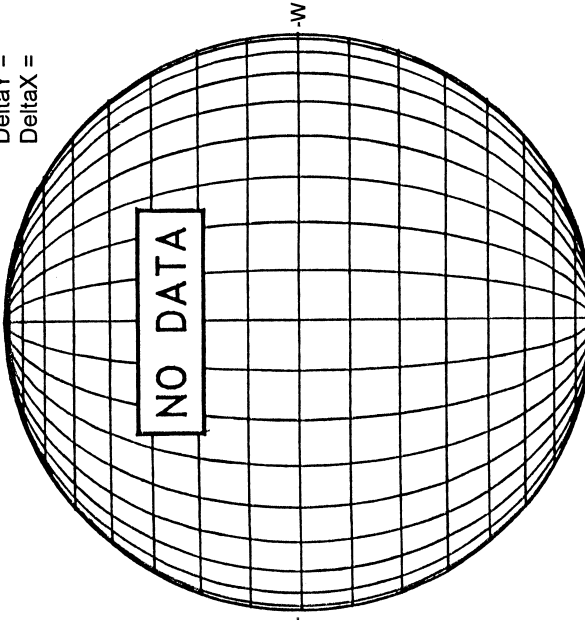
Solid = +
Dashed = -



1807 UT

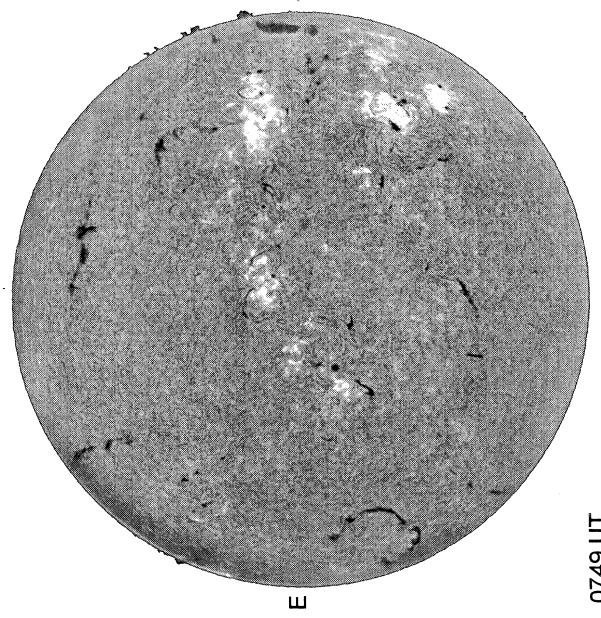
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



White = +7.5G
Black = -7.5G

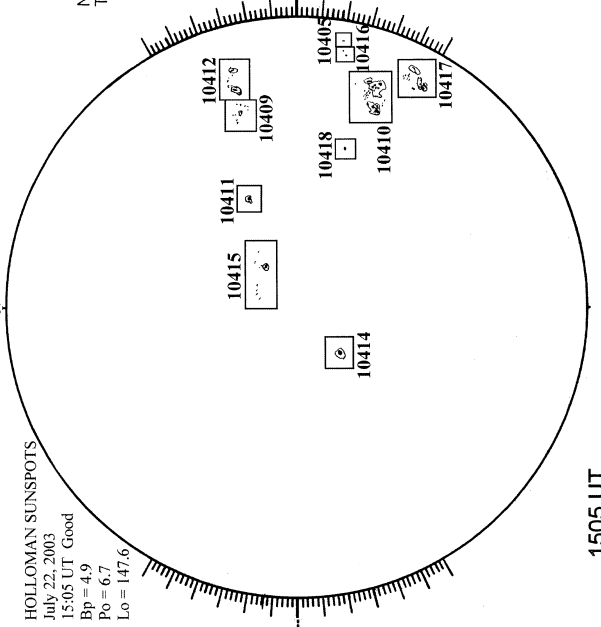
KANZELHOHE H-ALPHA



0749 UT

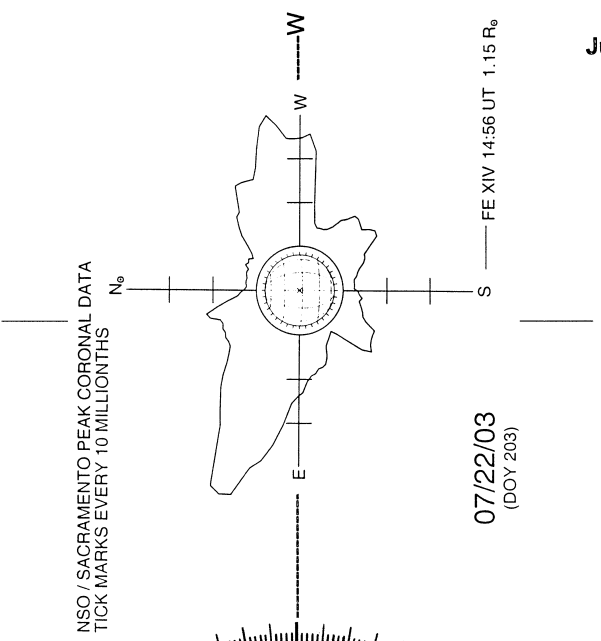
HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS
July 22, 2003
15:05 UT Good
Bp = 4.9
Po = 6.7
Lo = 147.6



1505 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



07/22/03
(DOY 203)

FE XIV 14:56 UT 1.15 R_o

JULY 23, 2003 (P= 6.91, Bo = 5.03, Lo = 142.27)

66
Jul 03

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -

Solid = +
Dashed = -

STANFORD MAGNETOGRAM

MT. WILSON MAGNETOGRAM

DeltaY = 13.0
DeltaX = 9.6

White= +7.5G
Black = -7.5G

15.69 -
16.62 UT

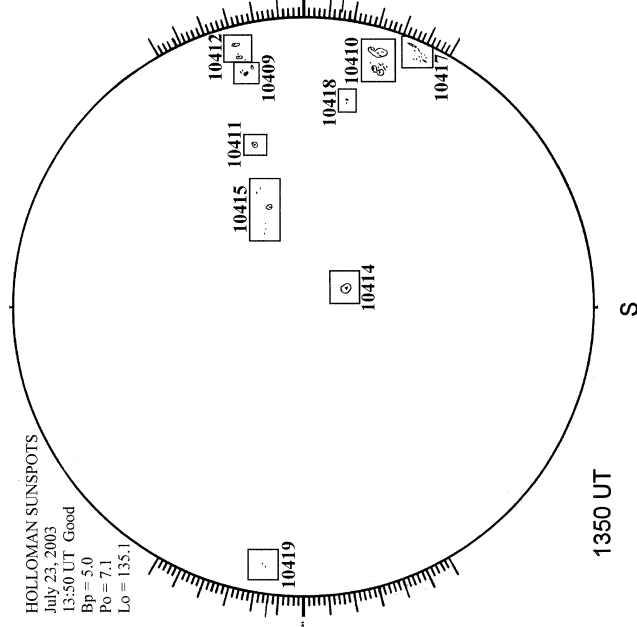
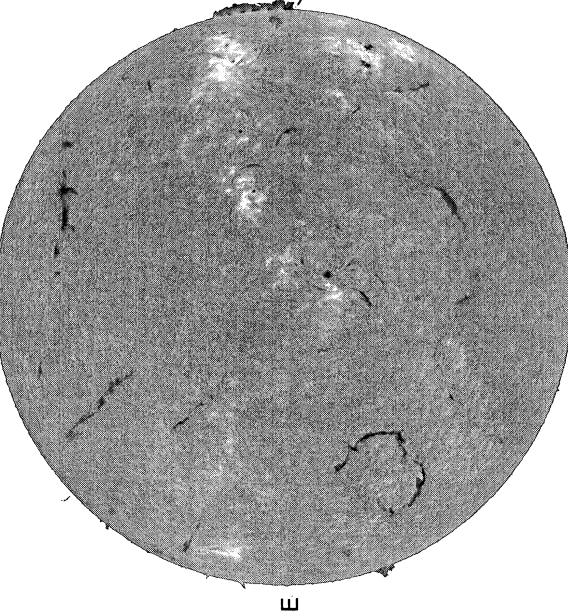
BIG BEAR H-ALPHA

HOLLOMAN SUNSPOT

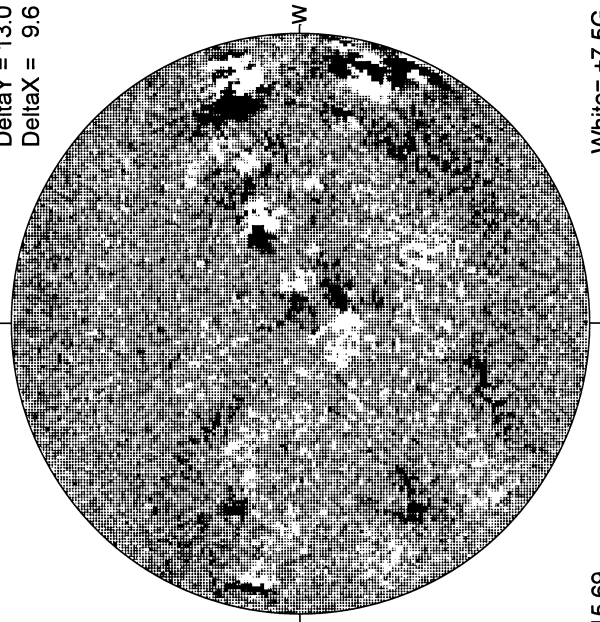
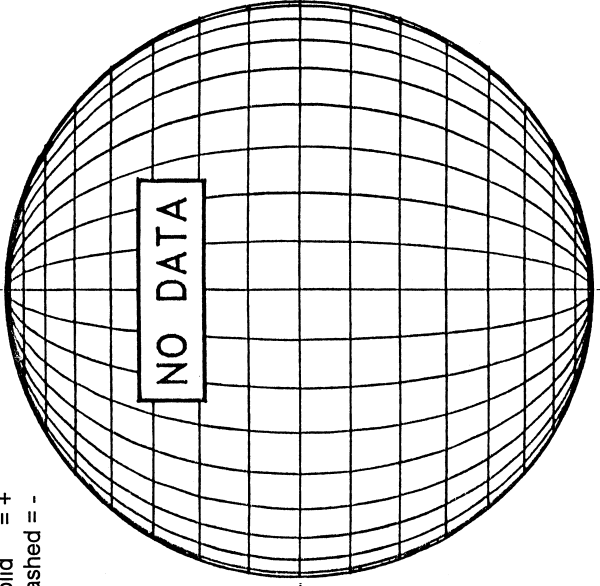
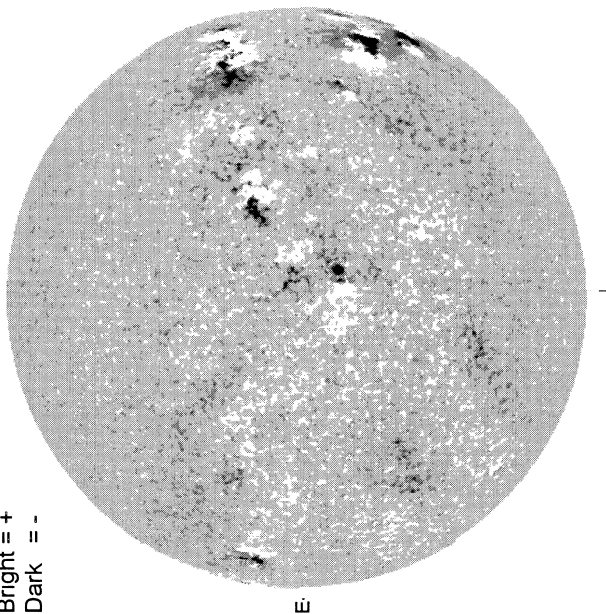
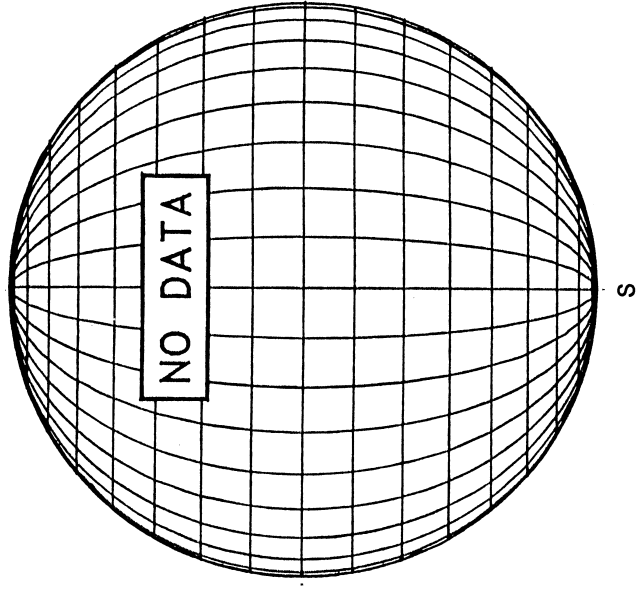
SACRAMENTO PEAK CORONA (1.15 Radii)----

1606 UT

1350 UT



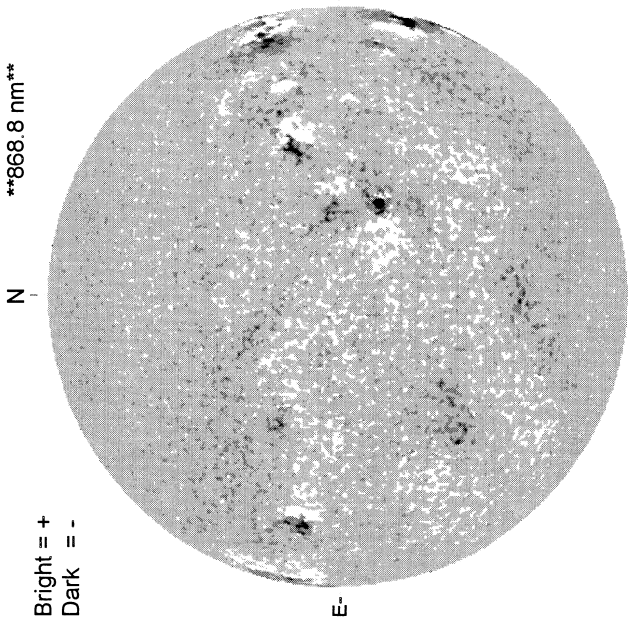
HOLLOMAN SUNSPOTS
July 23, 2003
13:50 UT Good
Bp = 5.0
Po = 7.1
Lo = 135.1



JULY 24, 2003 (P= 7.34, Bo = 5.11, Lo = 129.04)

KITT PEAK MAGNETOGRAM

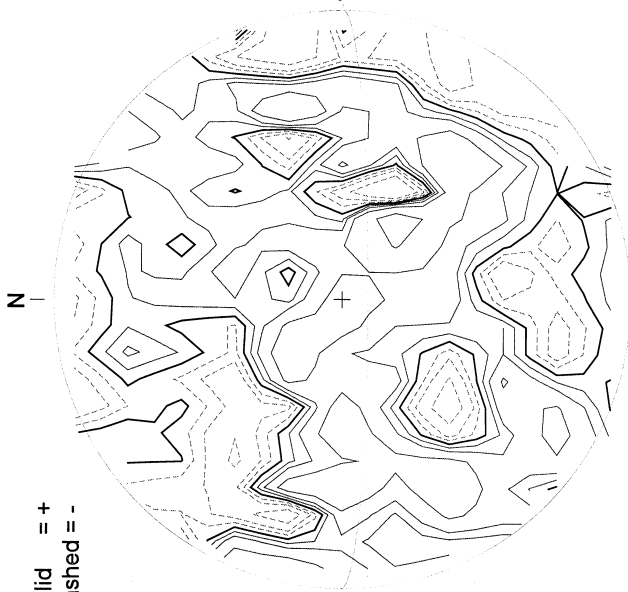
868.8 nm



Bright = +
Dark = -

STANFORD MAGNETOGRAM

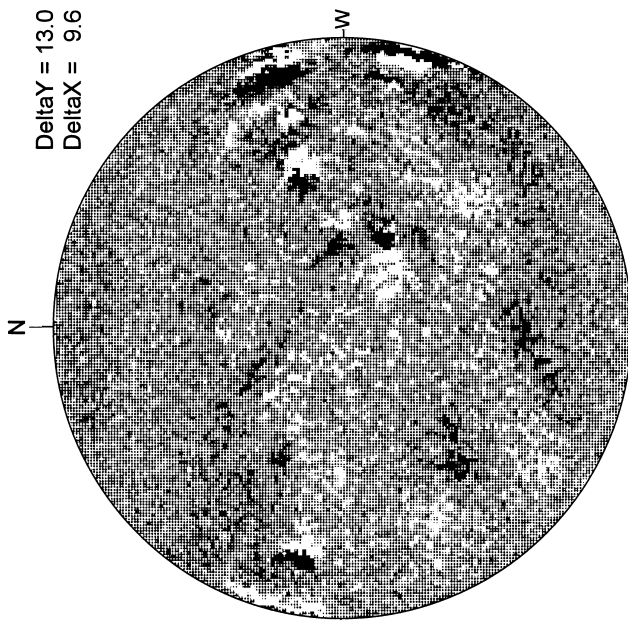
Solid = +
Dashed = -



JUL 25
0024 UT

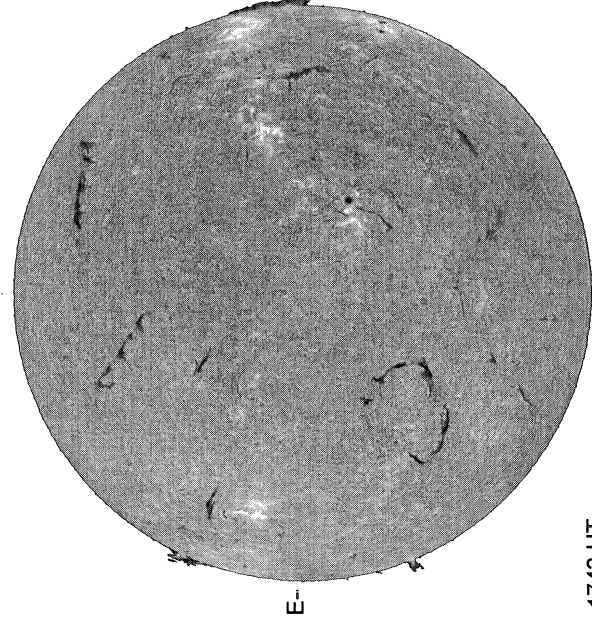
MT. WILSON MAGNETOGRAM

DeltaY = 13.0
DeltaX = 9.6



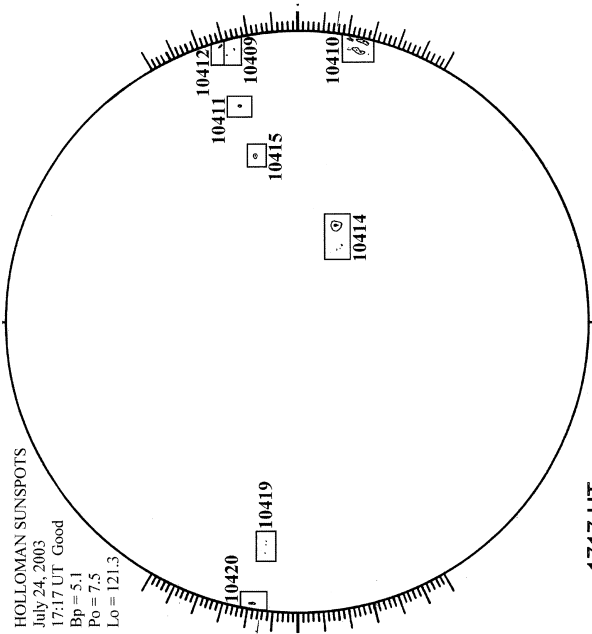
15.90 -
16.82 UT

BIG BEAR H-ALPHA



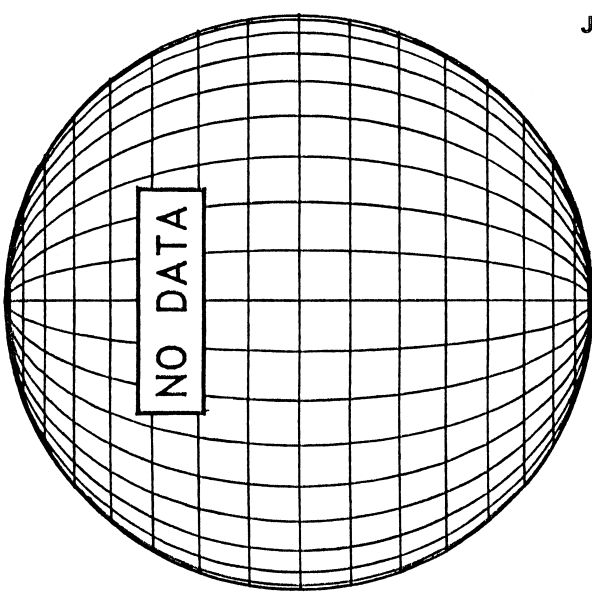
1743 UT

HOLLOMAN SUNSPOT



1717 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



67
Jul 03

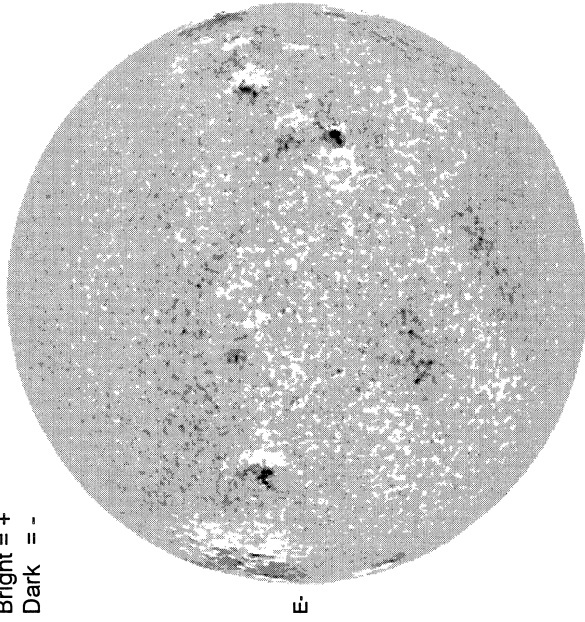
JULY 25, 2003 (P= 7.76, Bo = 5.20, Lo = 115.81)

Jul 03 68

KITT PEAK MAGNETOGRAM

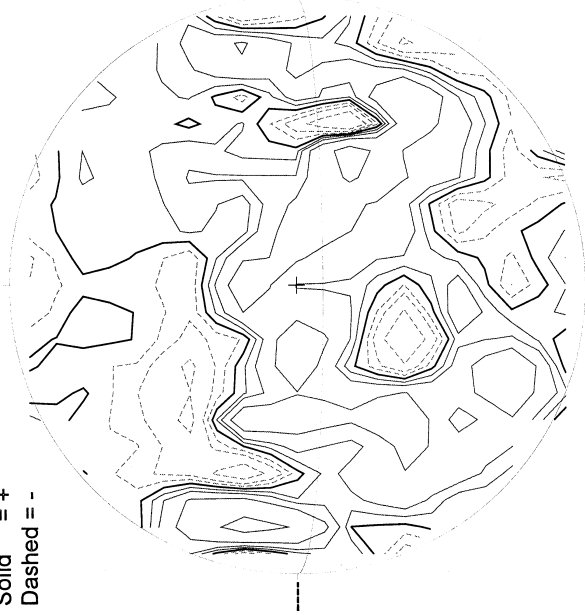
868.8 nm

Bright = +
Dark = -



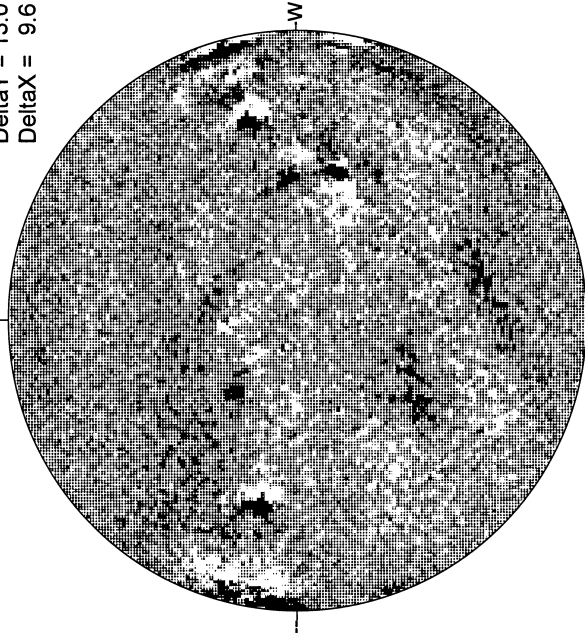
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



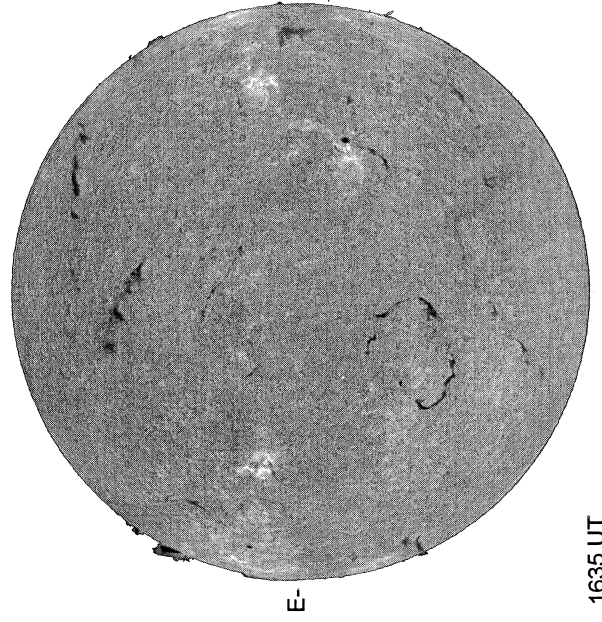
MT. WILSON MAGNETOGRAM

DeltaY = 13.0
DeltaX = 9.6



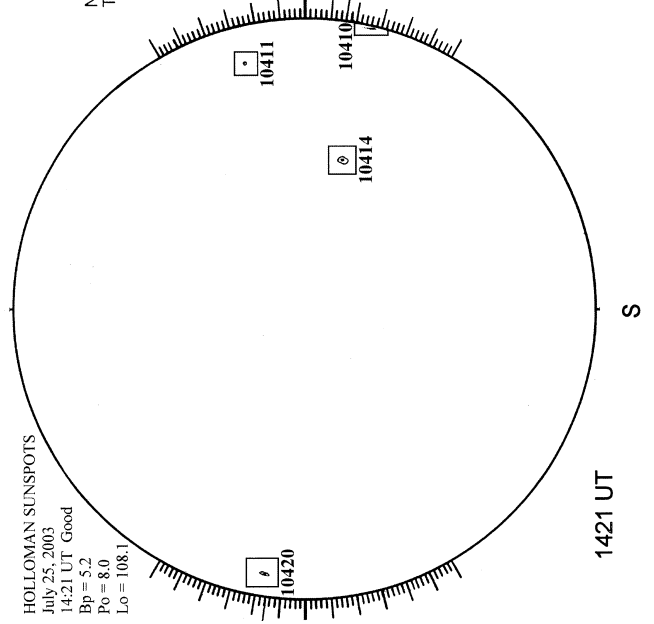
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



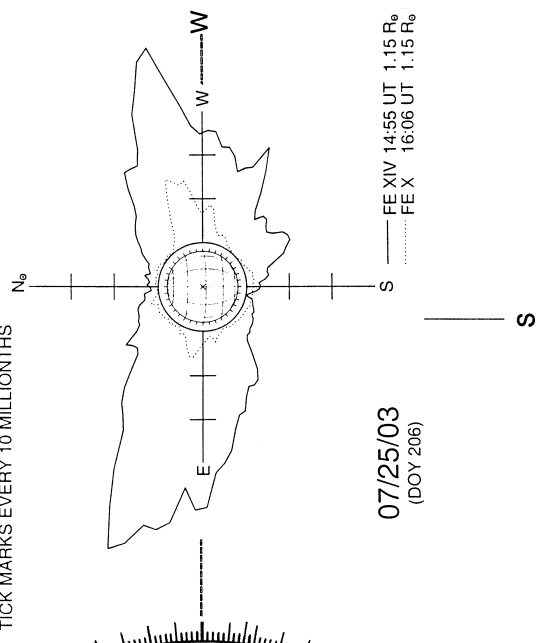
HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS
July 25, 2003
14:21 UT Good
Bp = 5.2
Po = 8.0
Lo = 108.1



SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS

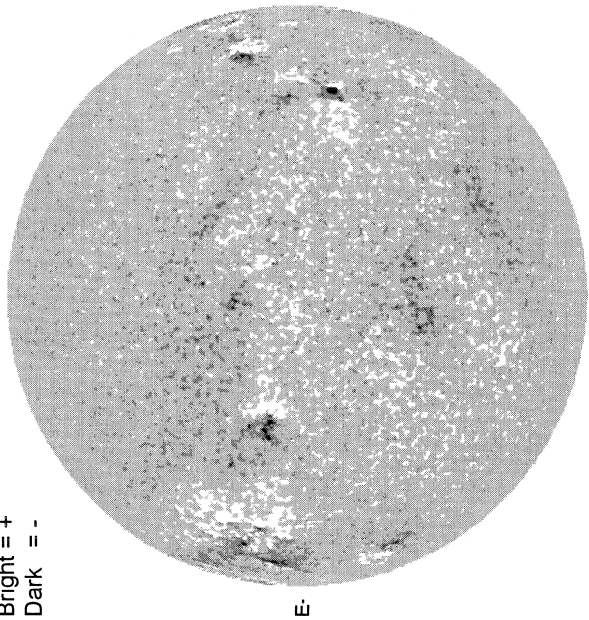


JULY 26, 2003 (P= 8.18, Bo = 5.28, Lo = 102.58)

KITT PEAK MAGNETOGRAM

868.8 nm

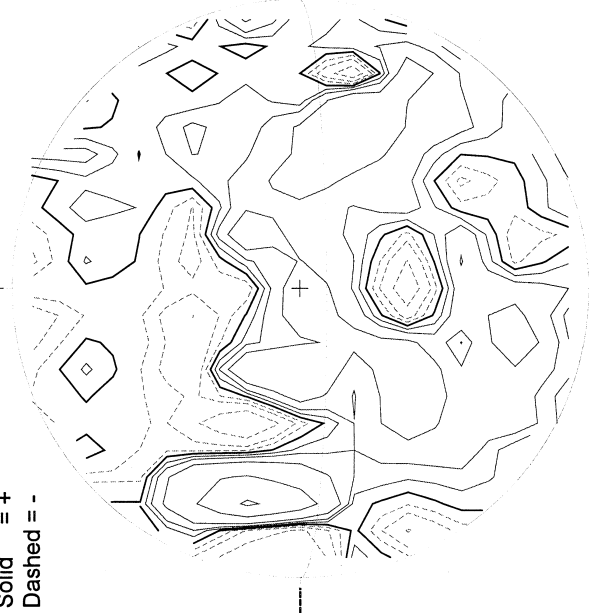
Bright = +
Dark = -



1523 UT

STANFORD MAGNETOGRAM

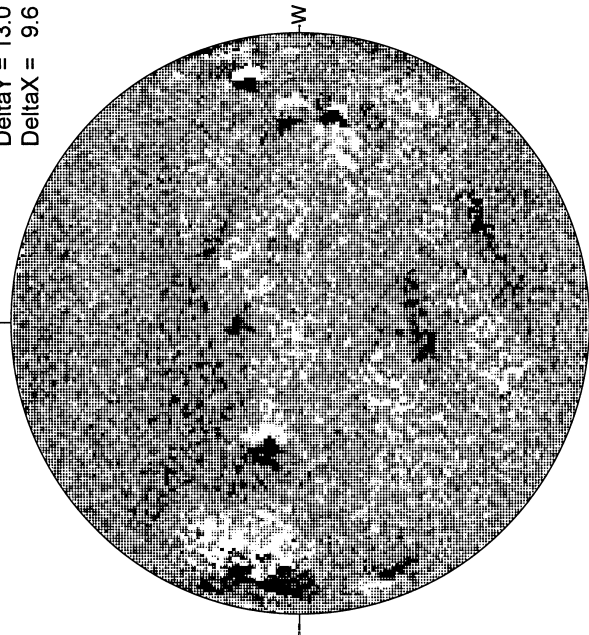
Solid = +
Dashed = -



1941 UT

MT. WILSON MAGNETOGRAM

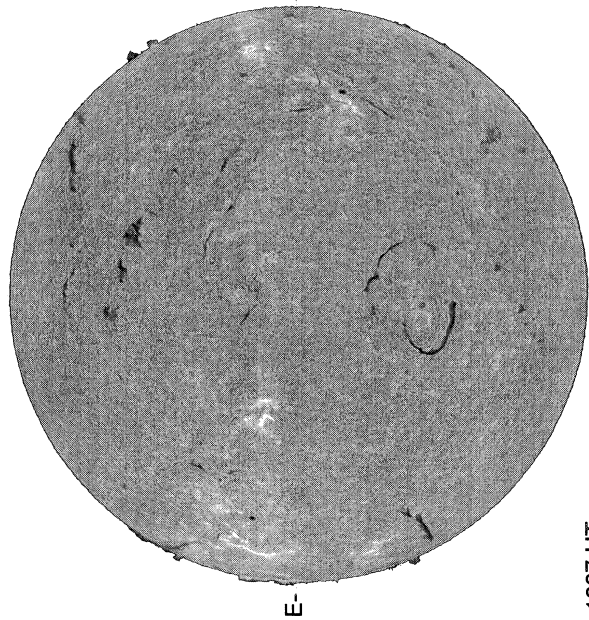
DeltaY = 13.0
DeltaX = 9.6



16 80 -
17 73 UT

White = +7.5G
Black = -7.5G

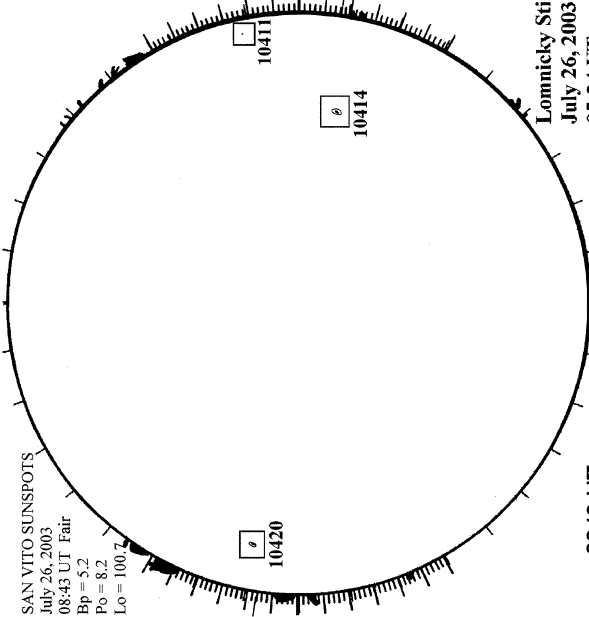
BIG BEAR H-ALPHA



1607 UT

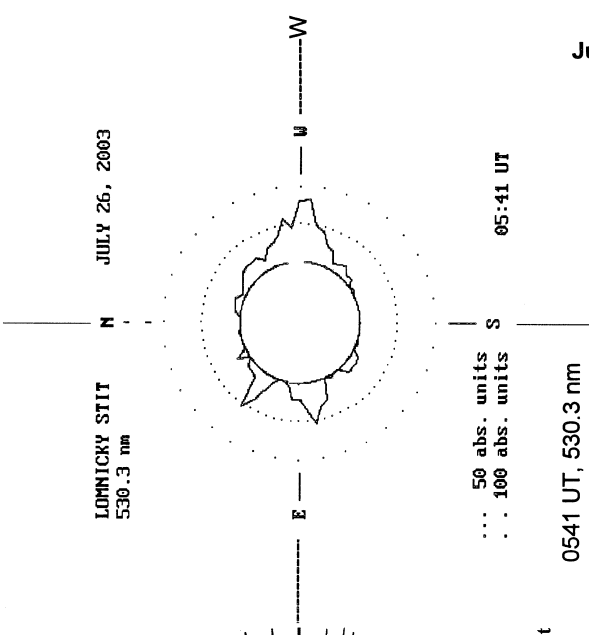
SAN VITO SUNSPOT

SAN VITO SUNSPOTS
July 26, 2003
08:43 UT Fair
Bp = 5.2
Po = 8.2
Lo = 100.2



0843 UT
0524 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



... 50 abs. units
... 100 abs. units
0541 UT, 530.3 nm
... 50 abs. units
... 100 abs. units

69
Jul 03

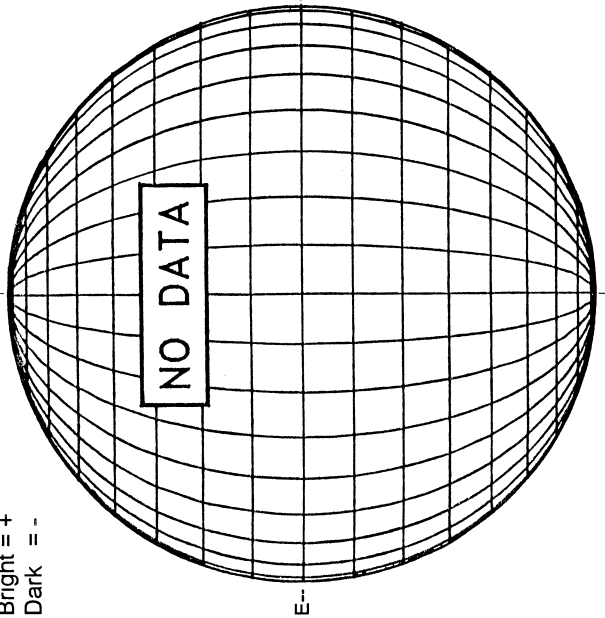
70
Jul 03

JULY 27, 2003 (P= 8.60, Bo= 5.36, Lo= 89.35)

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



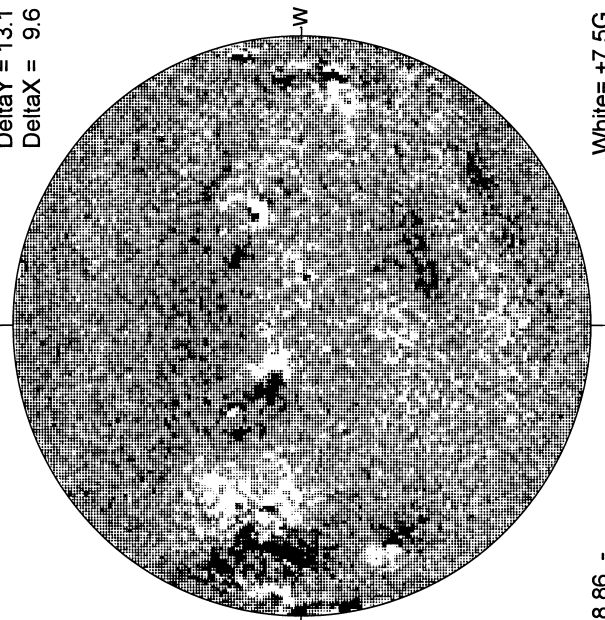
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

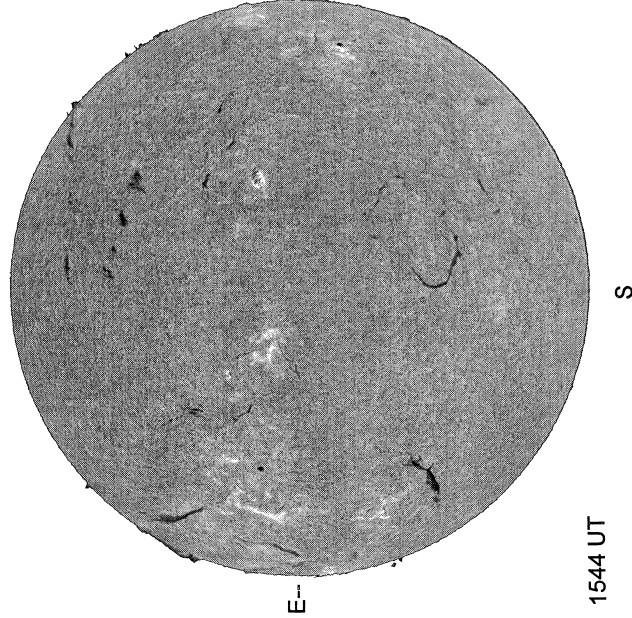
DeltaY = 13.1
DeltaX = 9.6



White= +7.5G
Black = -7.5G

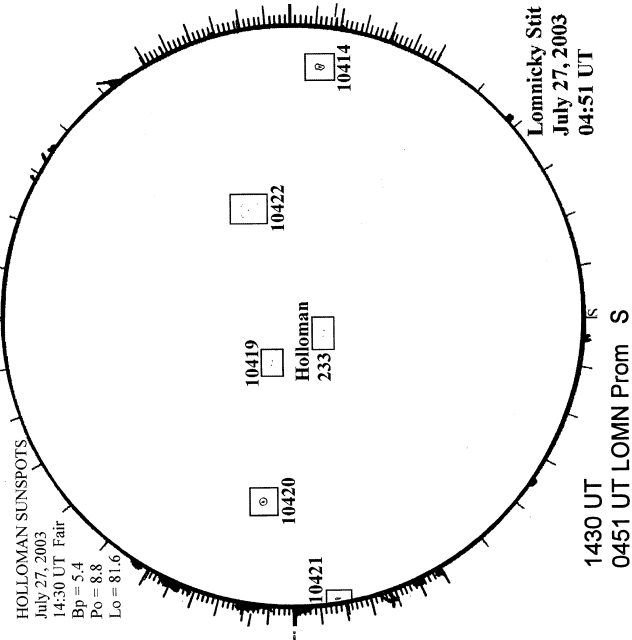
18.86 -
19.79 UT

BIG BEAR H-ALPHA



1544 UT

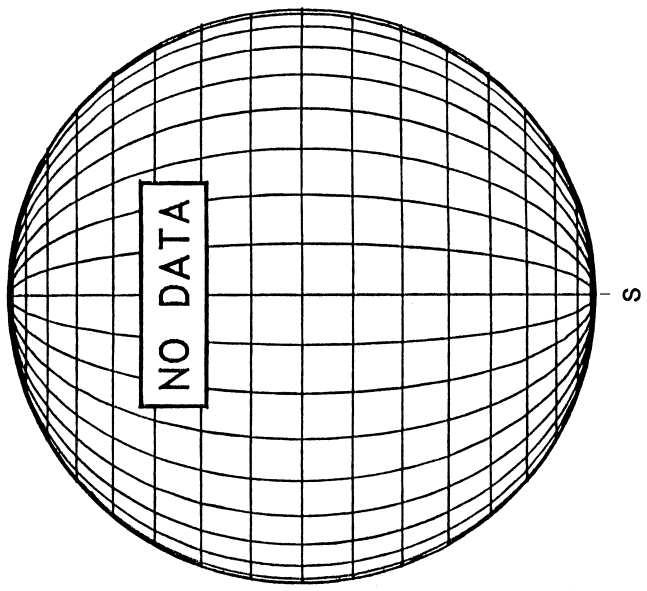
HOLLOMAN SUNSPOT



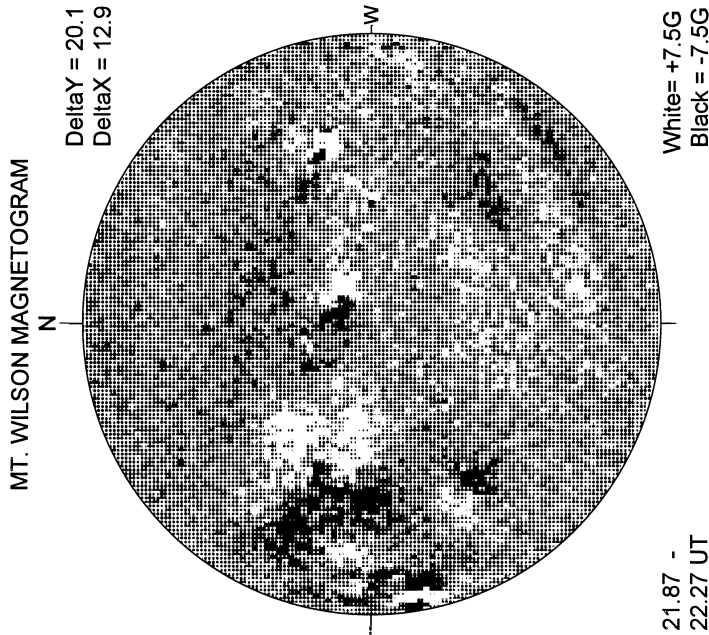
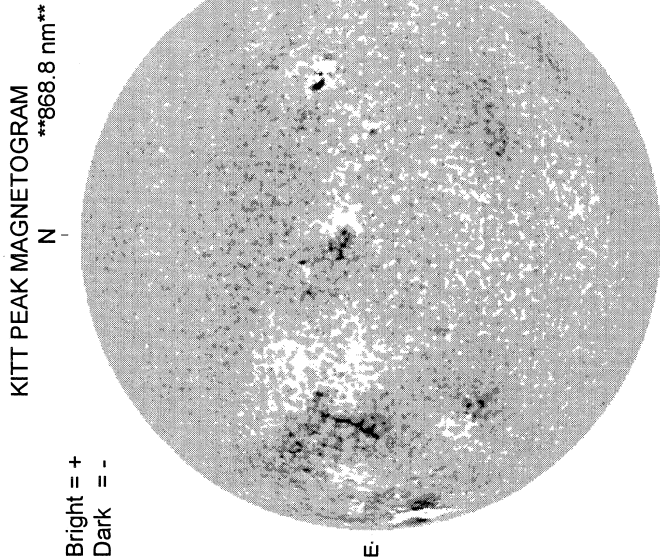
1430 UT
0451 UT LOMN Prom S

Lonmicky Stit
July 27, 2003
04:51 UT

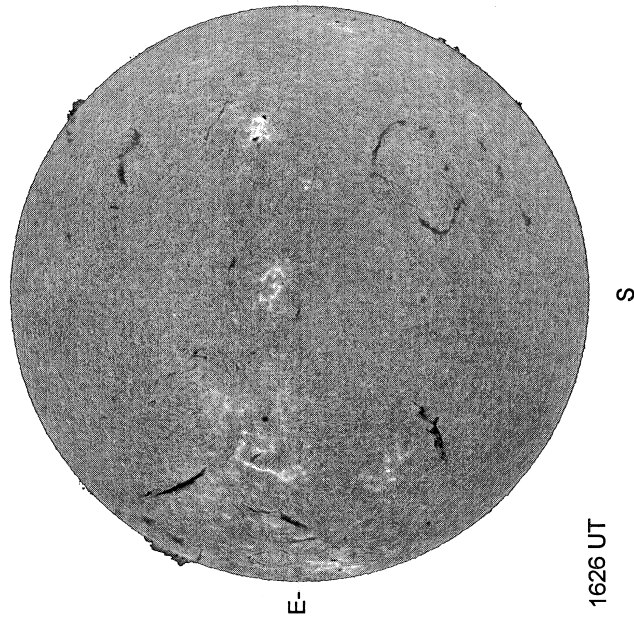
SACRAMENTO PEAK CORONA (1.15 Radii)----



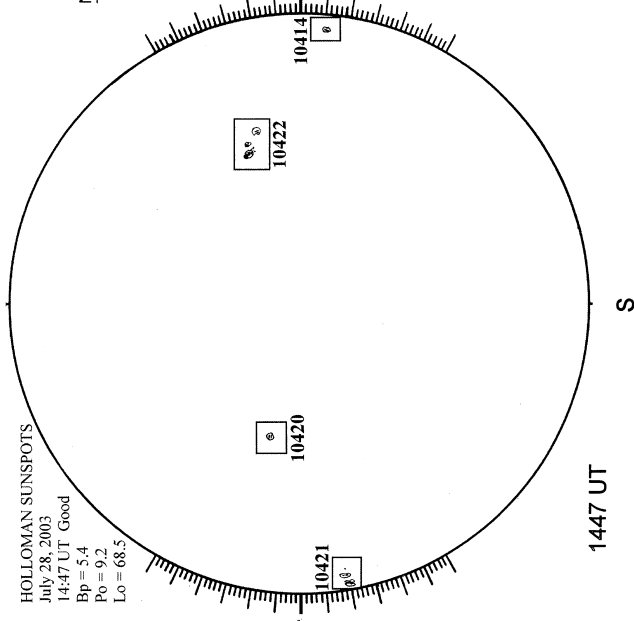
JULY 28, 2003 (P= 9.01, Bo = 5.44, Lo = 76.12)



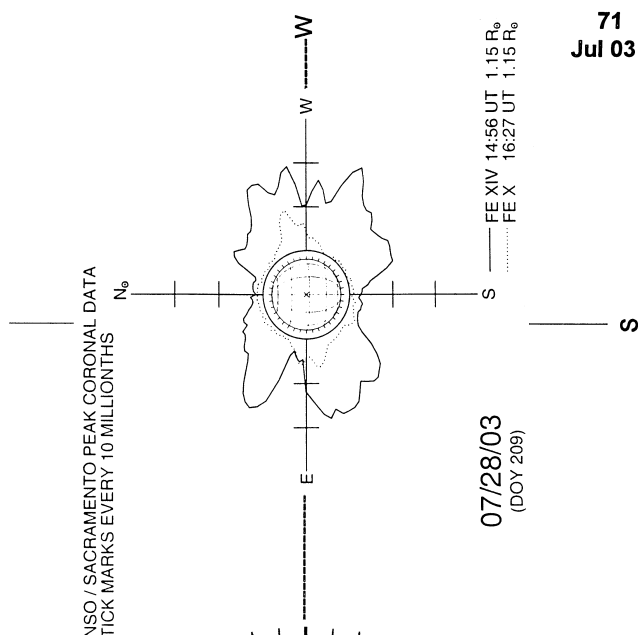
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----

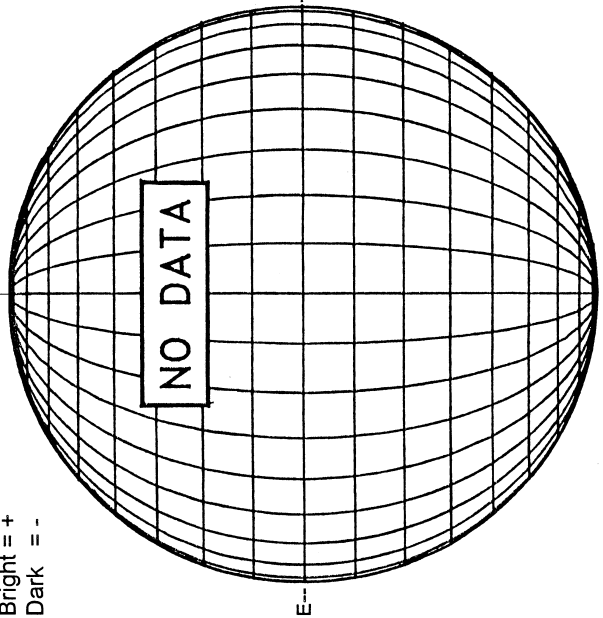


72
Jul 03

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



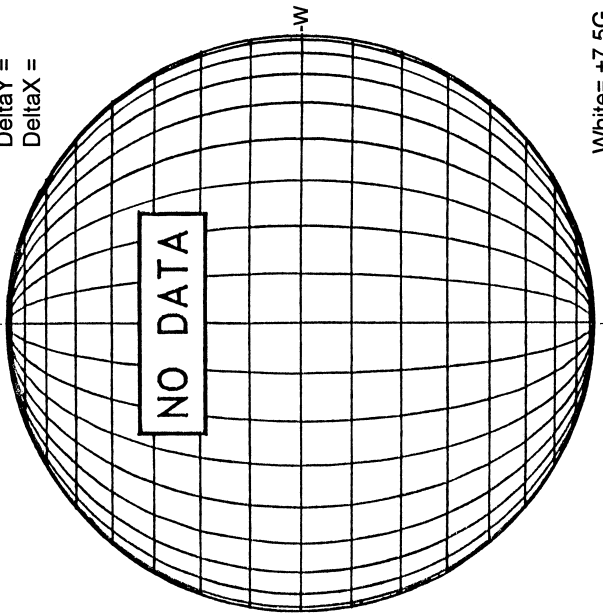
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



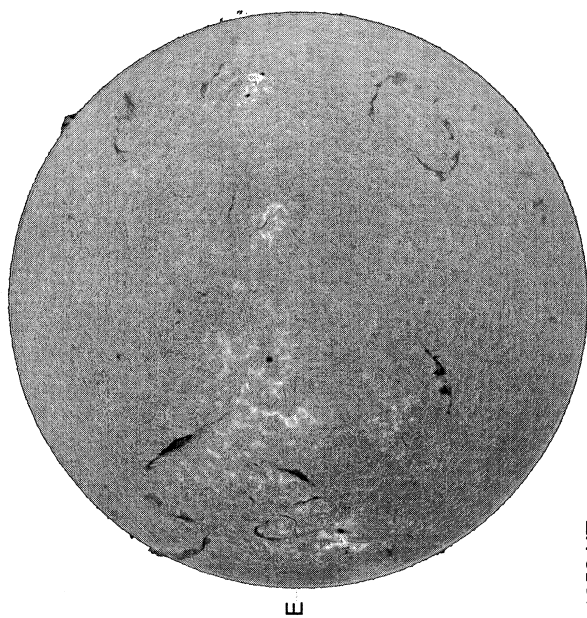
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =

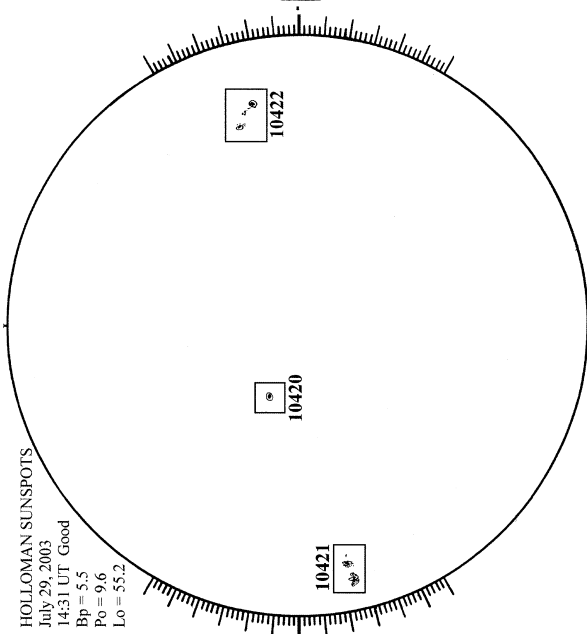


White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

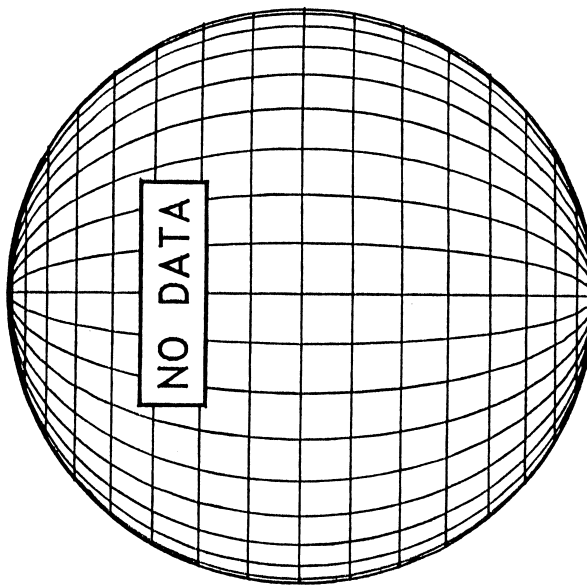


HOLLOMAN SUNSPOT



HOLLOMAN SUNSPOTS
July 29, 2003
14:31 UT Good
Bp = 5.5
Po = 9.6
Lo = 55.2

SACRAMENTO PEAK CORONA (1.15 Radii)----

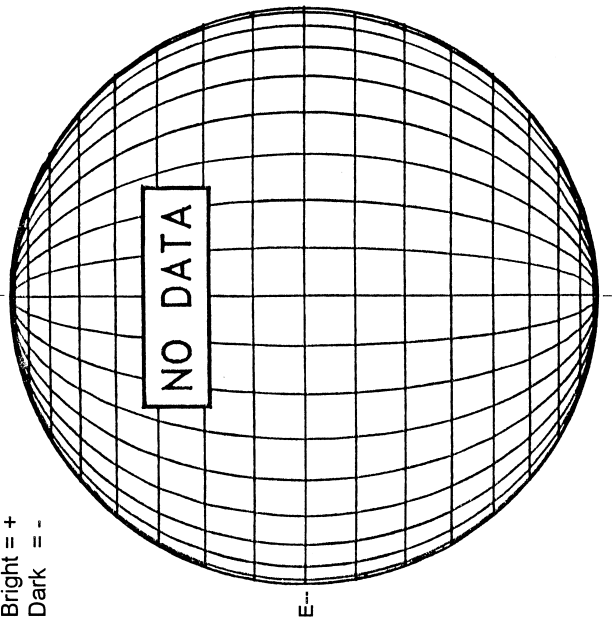


JULY 30, 2003 (P= 9.83, Bo = 5.60, Lo = 49.67)

KITT PEAK MAGNETOGRAM

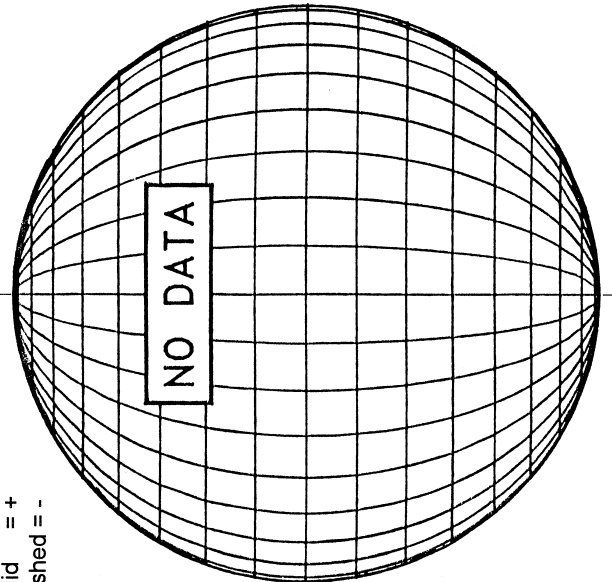
868.8 nm

Bright = +
Dark = -



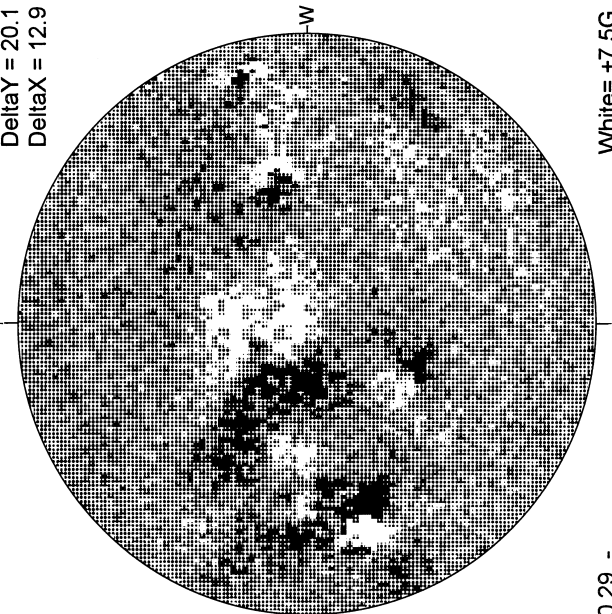
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

DeltaY = 20.1
DeltaX = 12.9



20.29 -
20.70 UT

White = +7.5G
Black = -7.5G

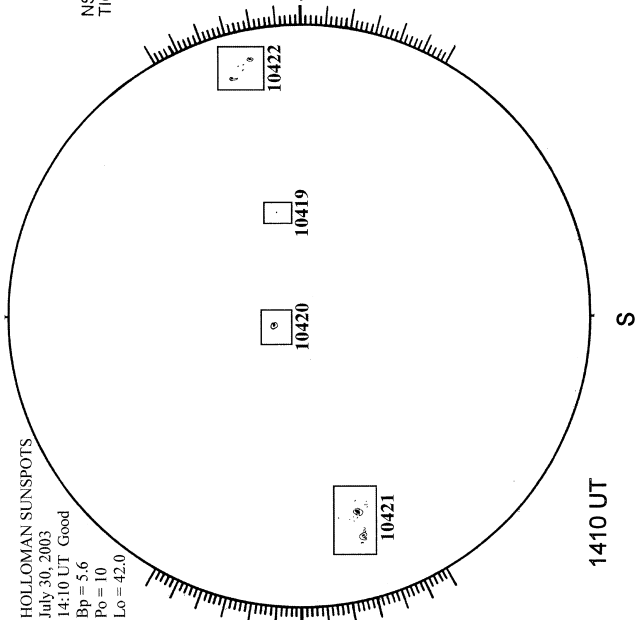
BIG BEAR H-ALPHA



1607 UT

HOLLOMAN SUNSPOT

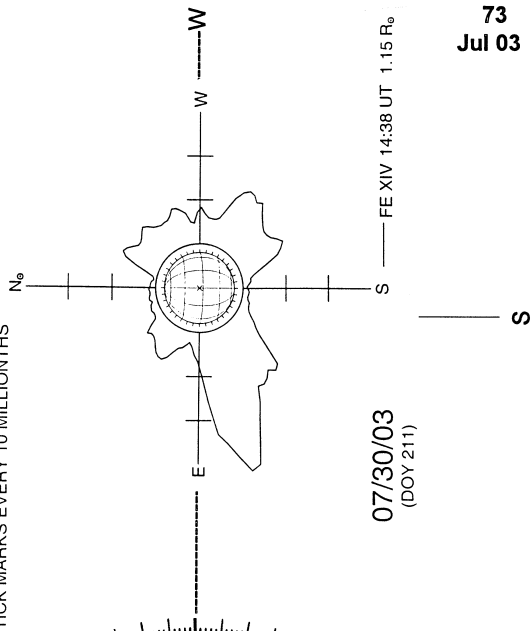
HOLLOMAN SUNSPOTS
July 30, 2003
14:10 UT Good
Bp = 5.6
Po = 10
Lo = 42.0



1410 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



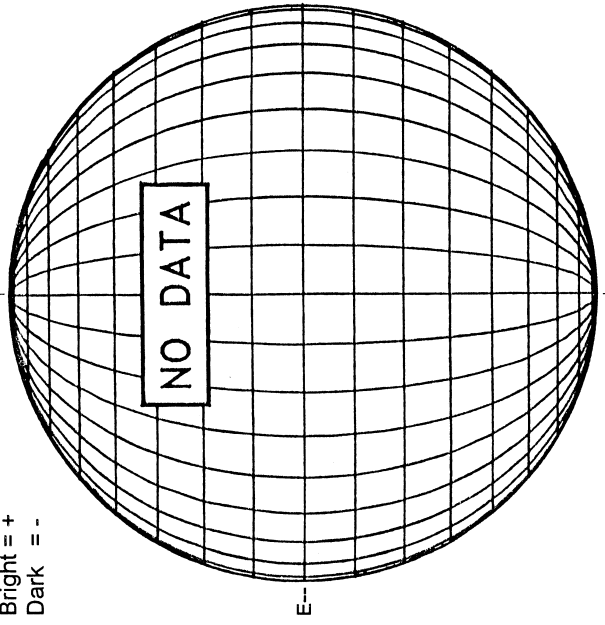
07/30/03
(DOY 211)

FE XIV 14:38 UT 1.15 R_o

KITT PEAK MAGNETOGRAM

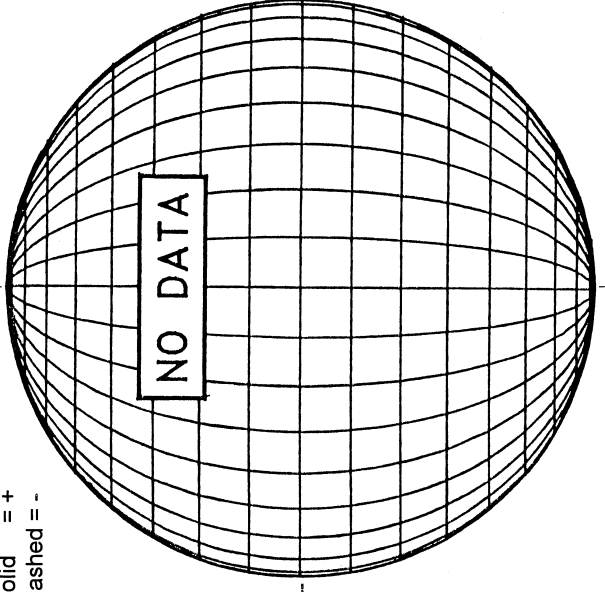
868.8 nm

Bright = +
Dark = -



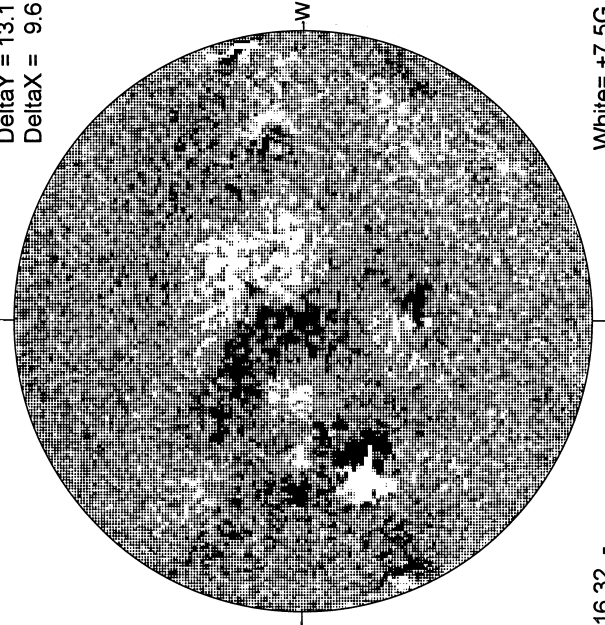
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

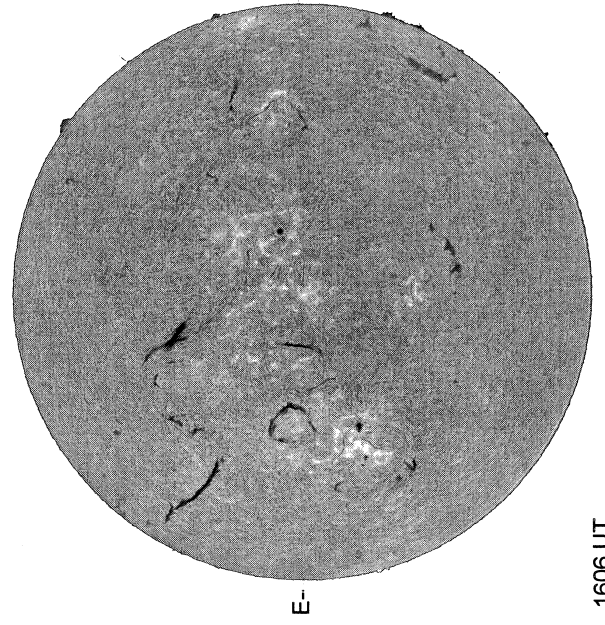
DeltaY = 13.1
DeltaX = 9.6



16.32 -
17.25 UT

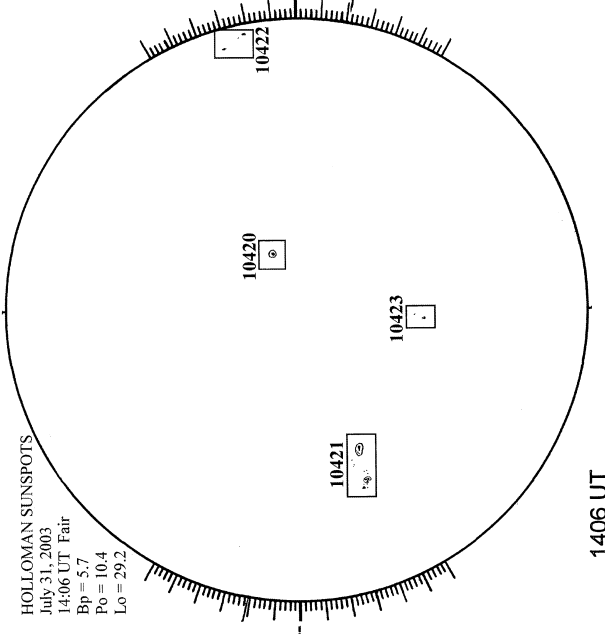
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



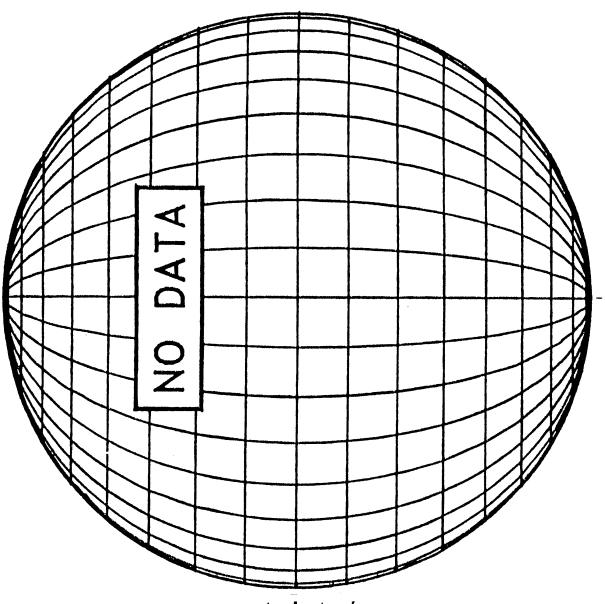
1606 UT

HOLLOMAN SUNSPOT



1406 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



S

HOLLOMAN SUNSPOTS
July 31, 2003
14:06 UT Fair
Bp = 5.7
Po = 10.4
Lo = 29.2

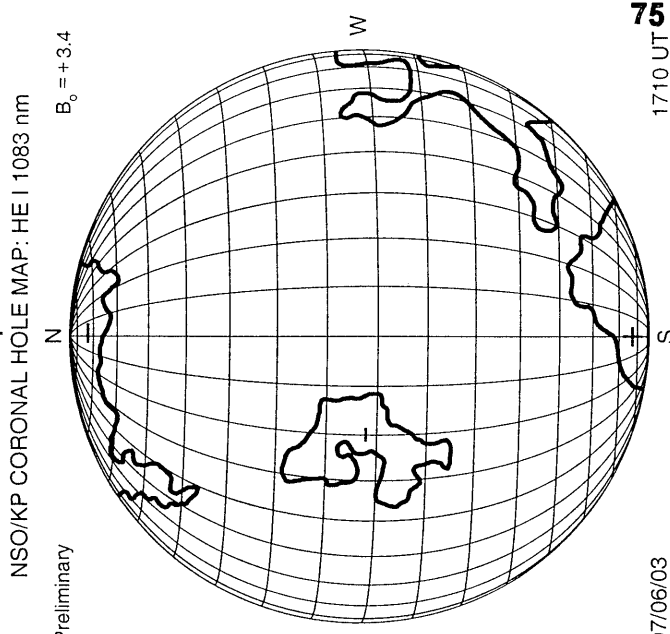
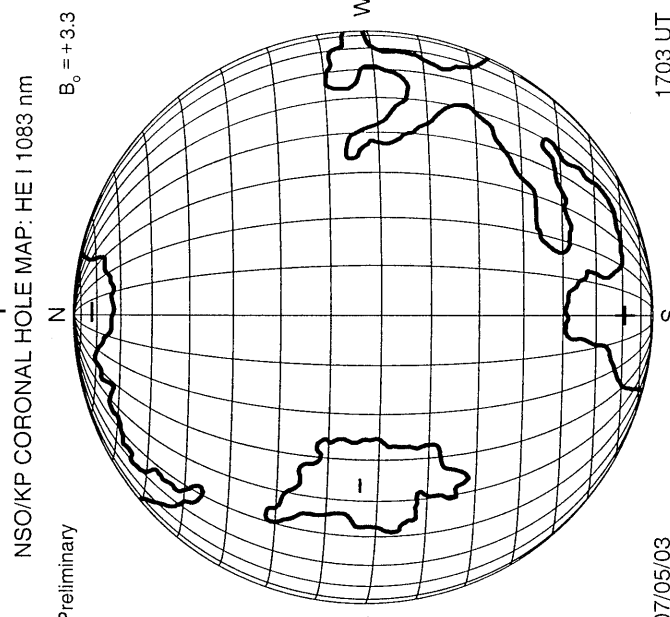
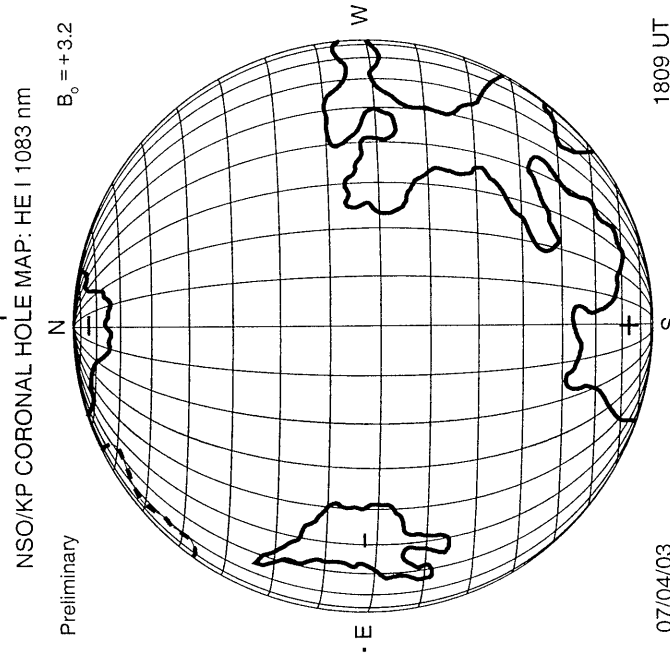
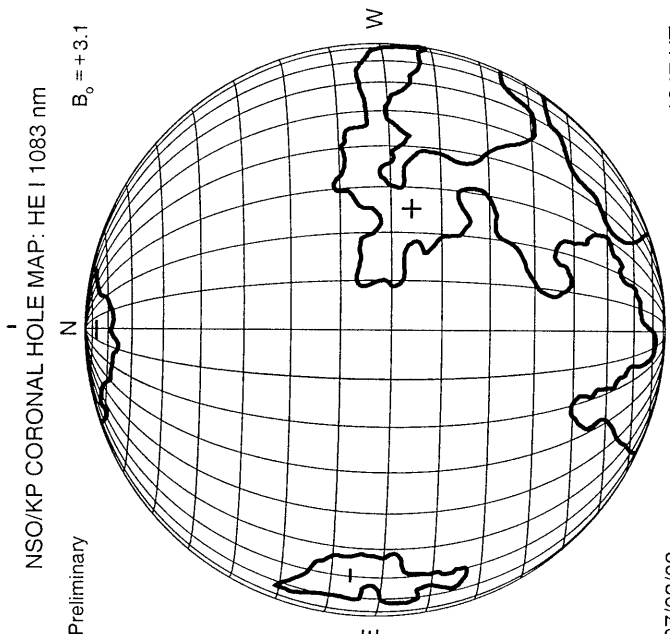
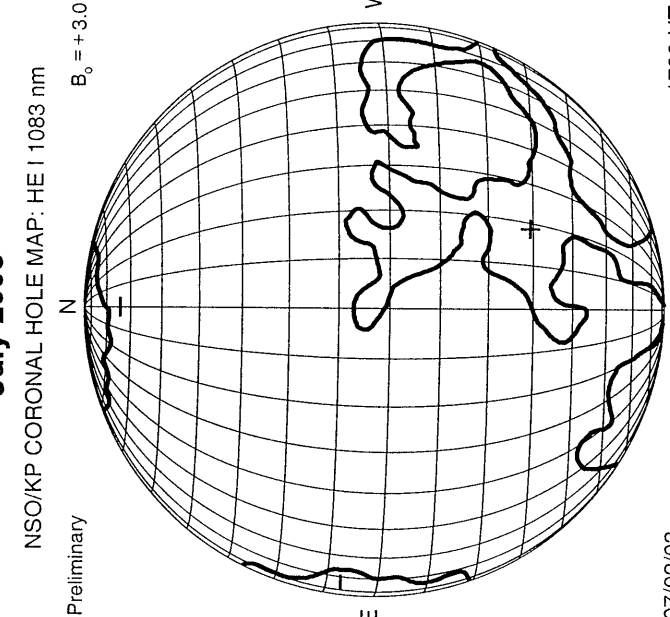
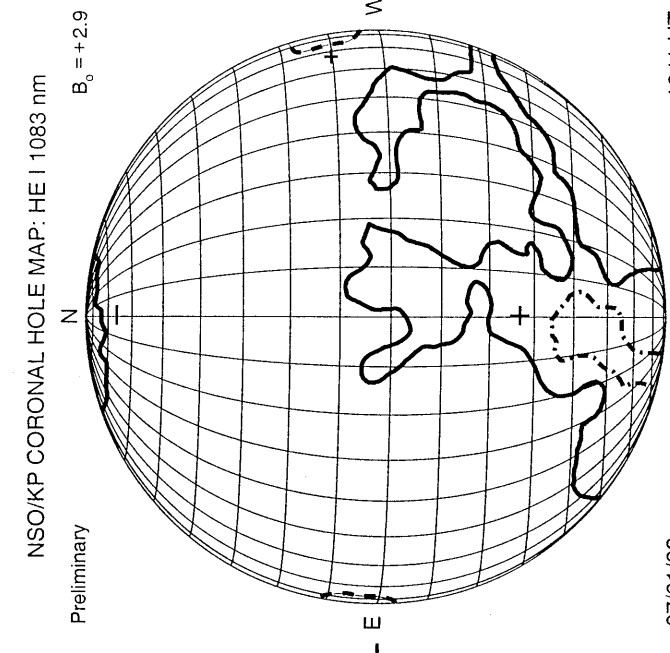
10422

10420

10423

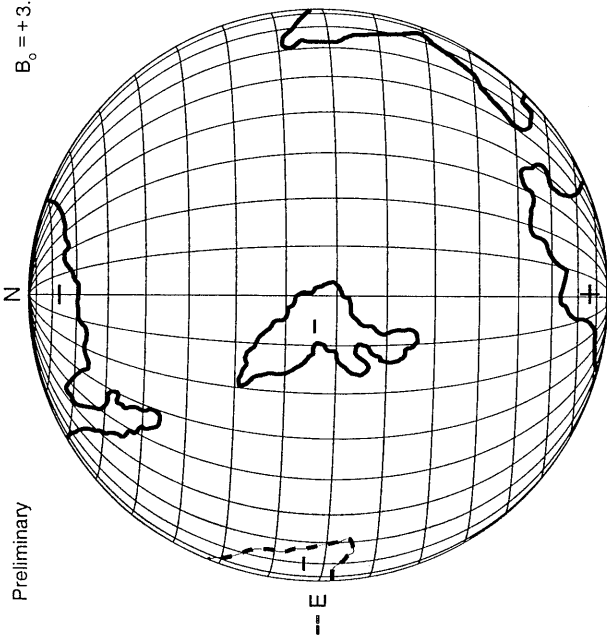
10421

KITT PEAK CORONAL HOLE MAPS HE I 1083 nm July 2003

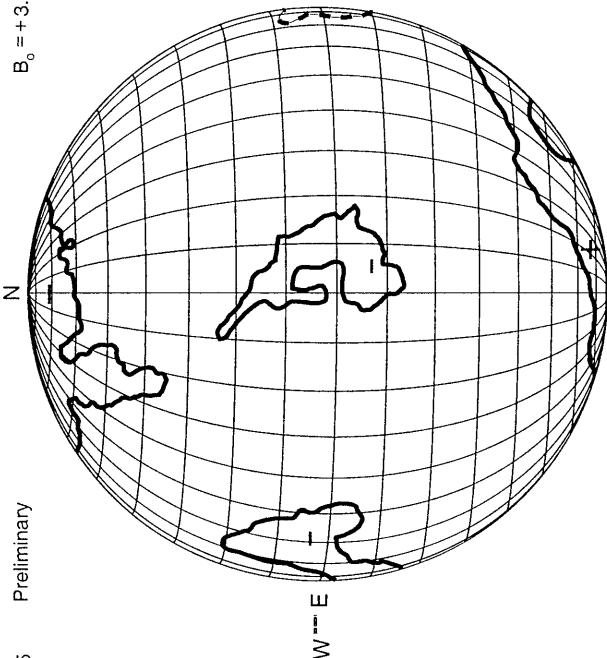


KITT PEAK CORONAL HOLE MAPS HE I 1083 nm July 2003

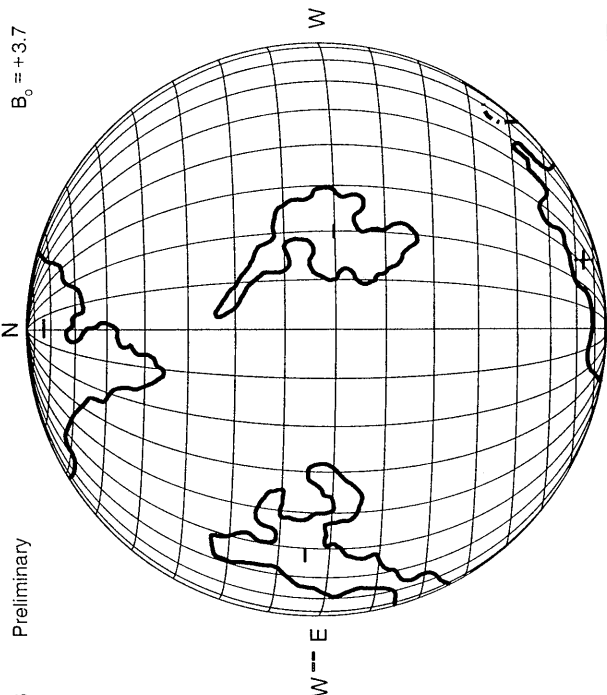
NSO/KP CORONAL HOLE MAP: HE I 1083 nm



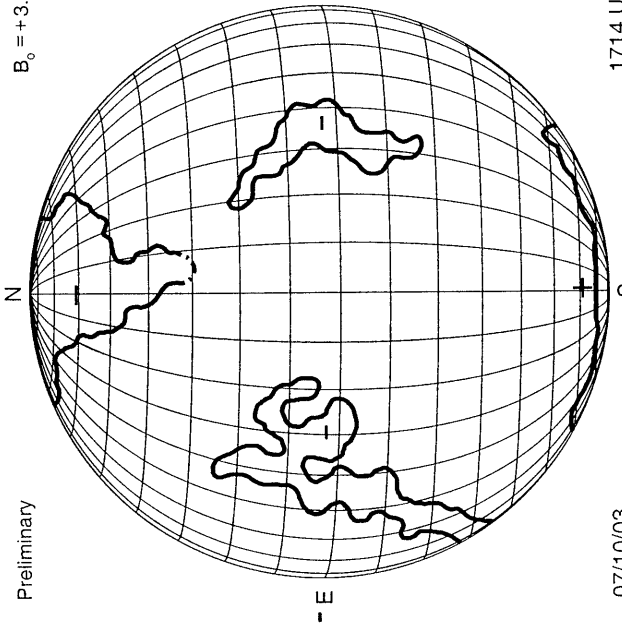
NSO/KP CORONAL HOLE MAP: HE I 1083 nm



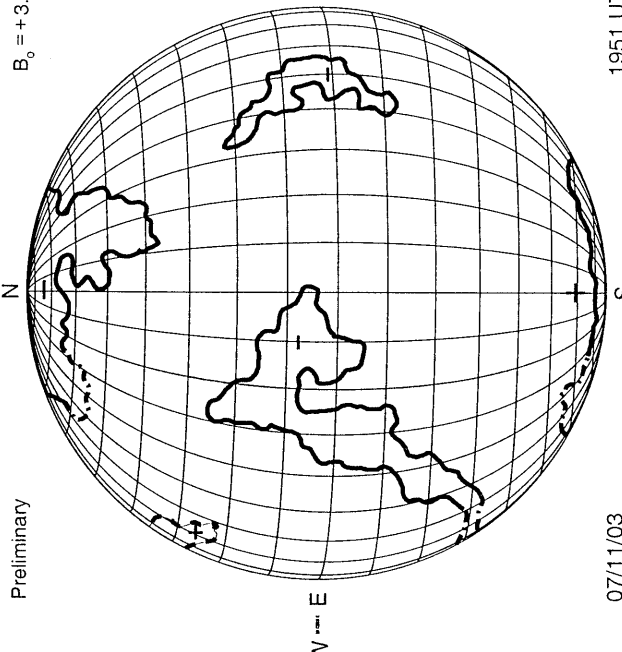
NSO/KP CORONAL HOLE MAP: HE I 1083 nm



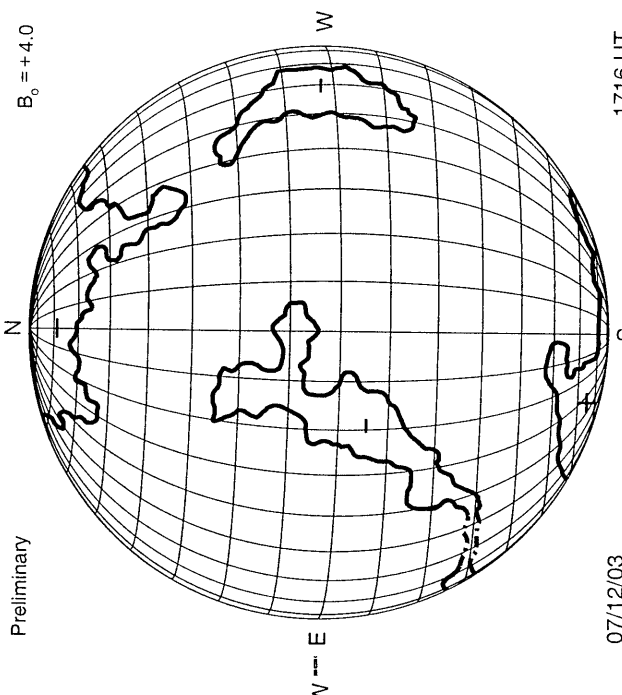
NSO/KP CORONAL HOLE MAP: HE I 1083 nm



NSO/KP CORONAL HOLE MAP: HE I 1083 nm

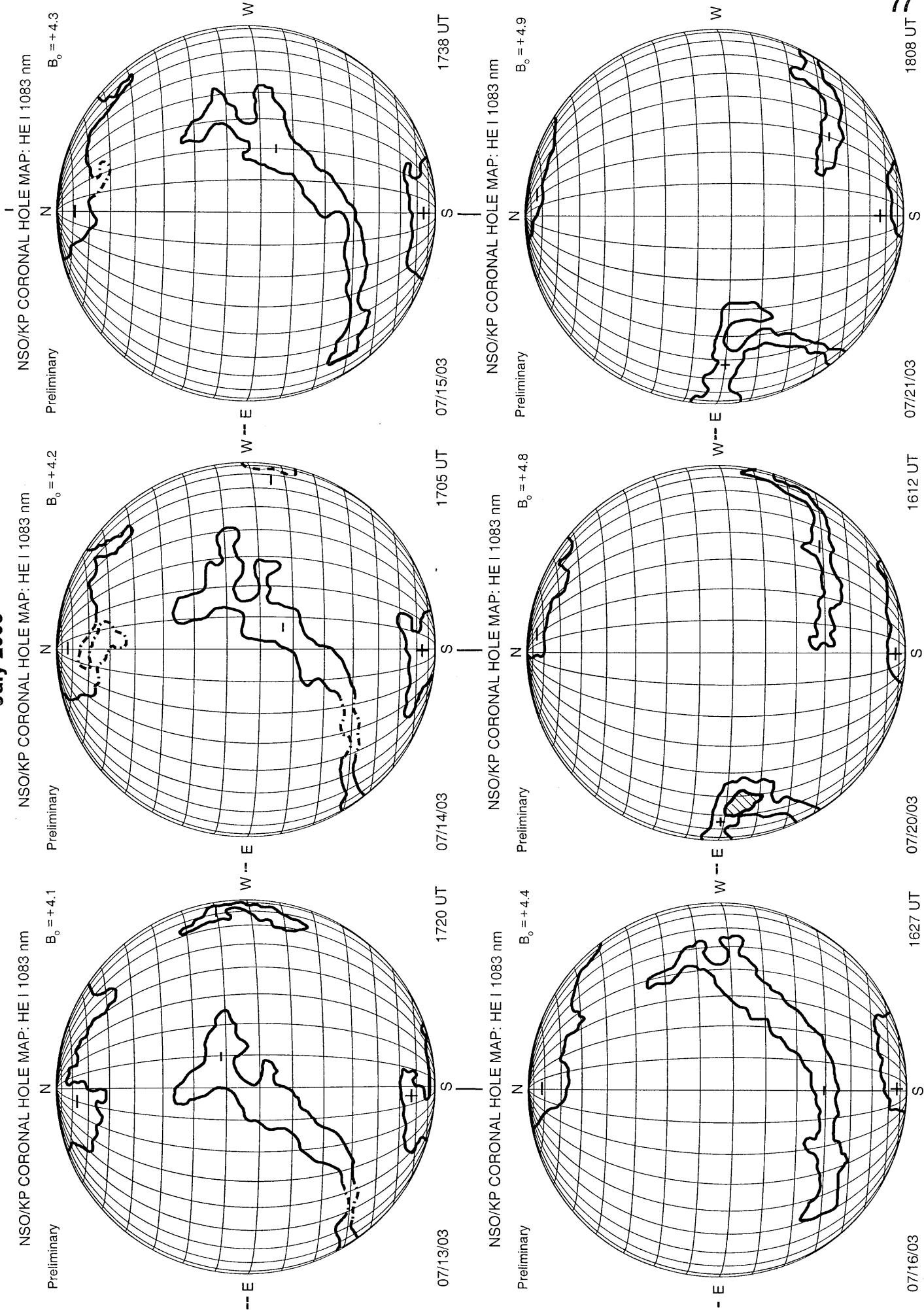


NSO/KP CORONAL HOLE MAP: HE I 1083 nm



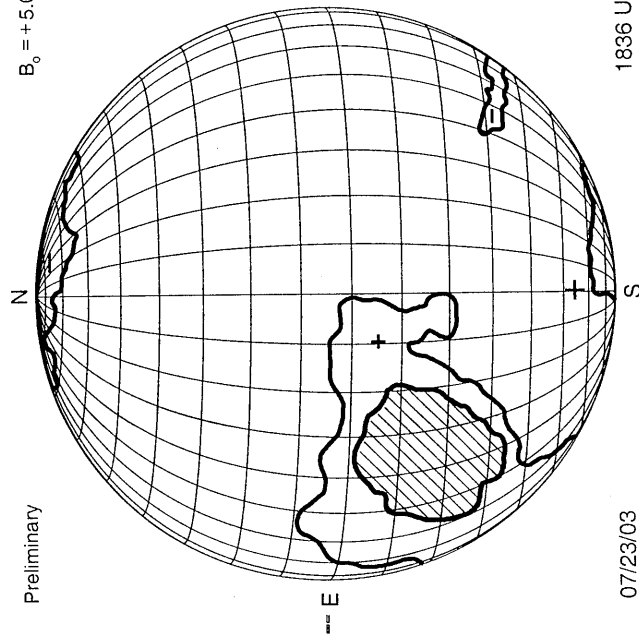
KITT PEAK CORONAL HOLE MAPS HE I 1083 nm

July 2003

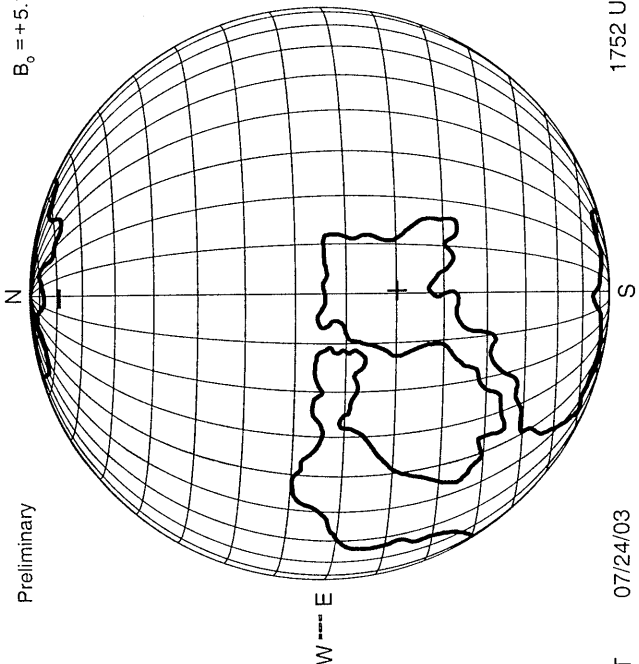


KITT PEAK CORONAL HOLE MAPS HE I 1083 nm July 2003

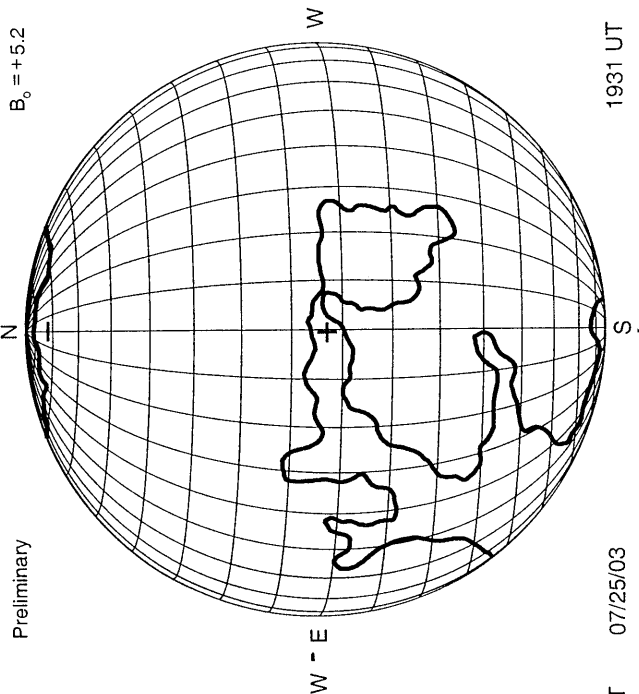
NSO/KP CORONAL HOLE MAP: HE I 1083 nm
Preliminary
 $B_0 = +5.0$



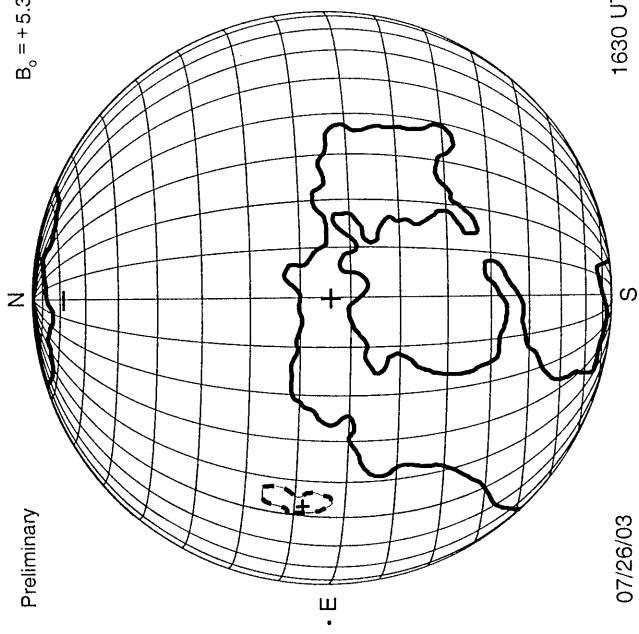
NSO/KP CORONAL HOLE MAP: HE I 1083 nm
Preliminary
 $B_0 = +5.1$



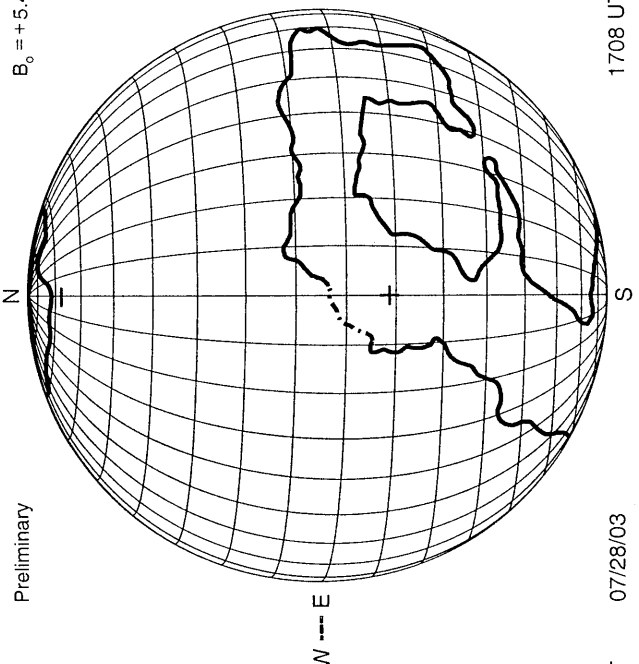
NSO/KP CORONAL HOLE MAP: HE I 1083 nm
Preliminary
 $B_0 = +5.2$



NSO/KP CORONAL HOLE MAP: HE I 1083 nm
Preliminary
 $B_0 = +5.3$



NSO/KP CORONAL HOLE MAP: HE I 1083 nm
Preliminary
 $B_0 = +5.4$



1752 UT

07/25/03

1931 UT

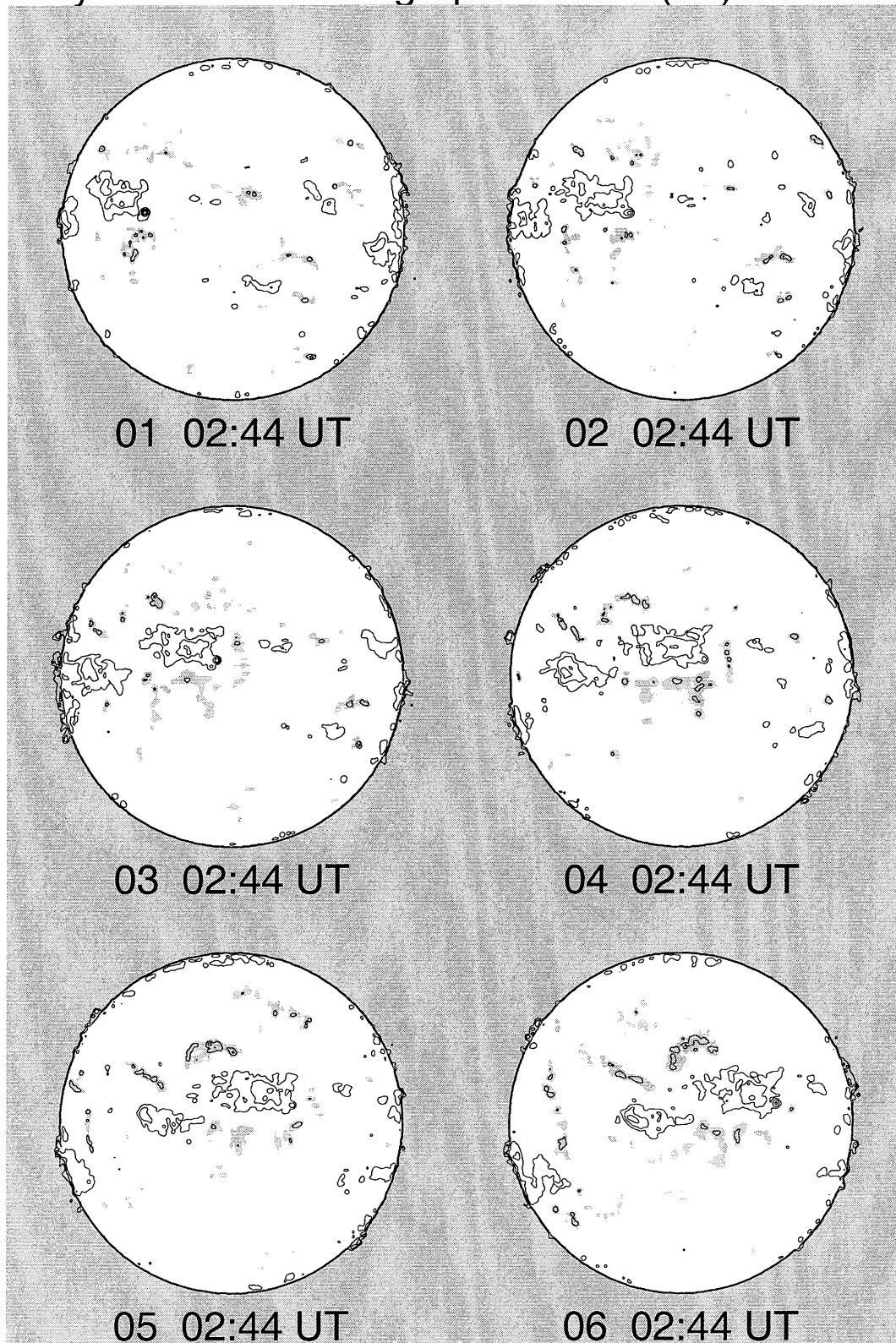
07/26/03

1630 UT

07/28/03

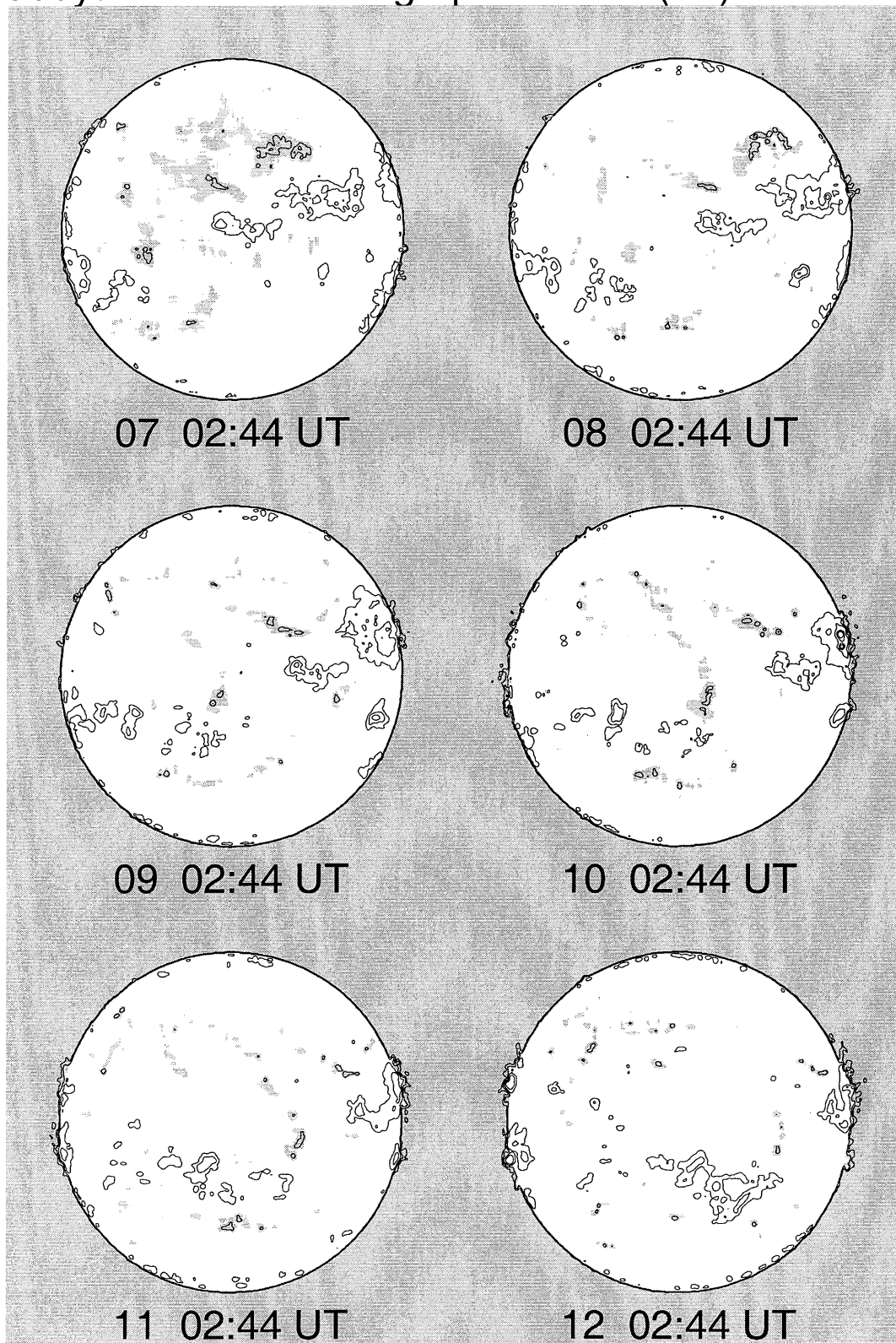
1708 UT

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 July



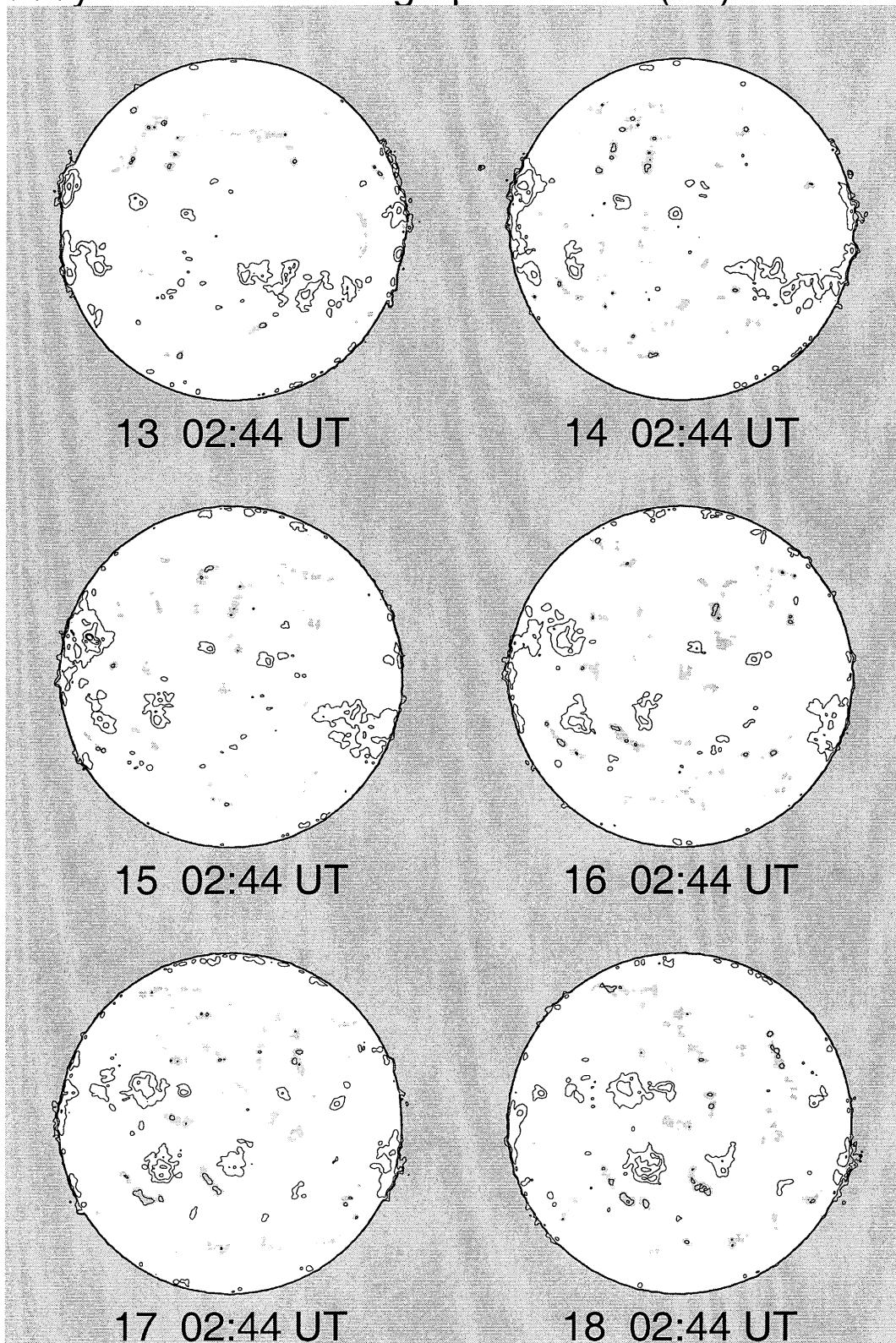
Contour Levels Tb=[5,8,12,20,50,100] x 10³ K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 July



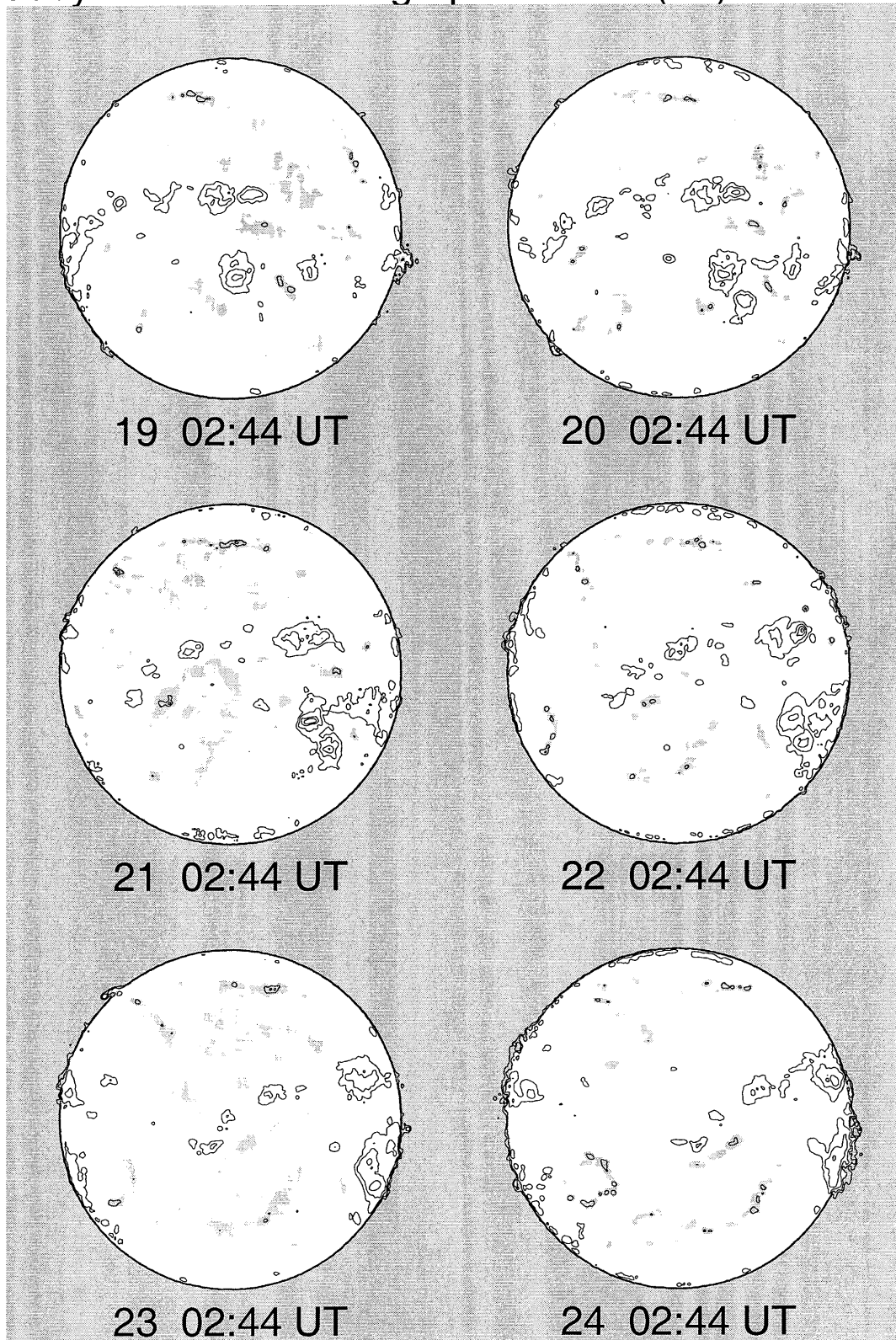
Contour Levels Tb=[5,8,12,20,50,100] x 10³ K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 July



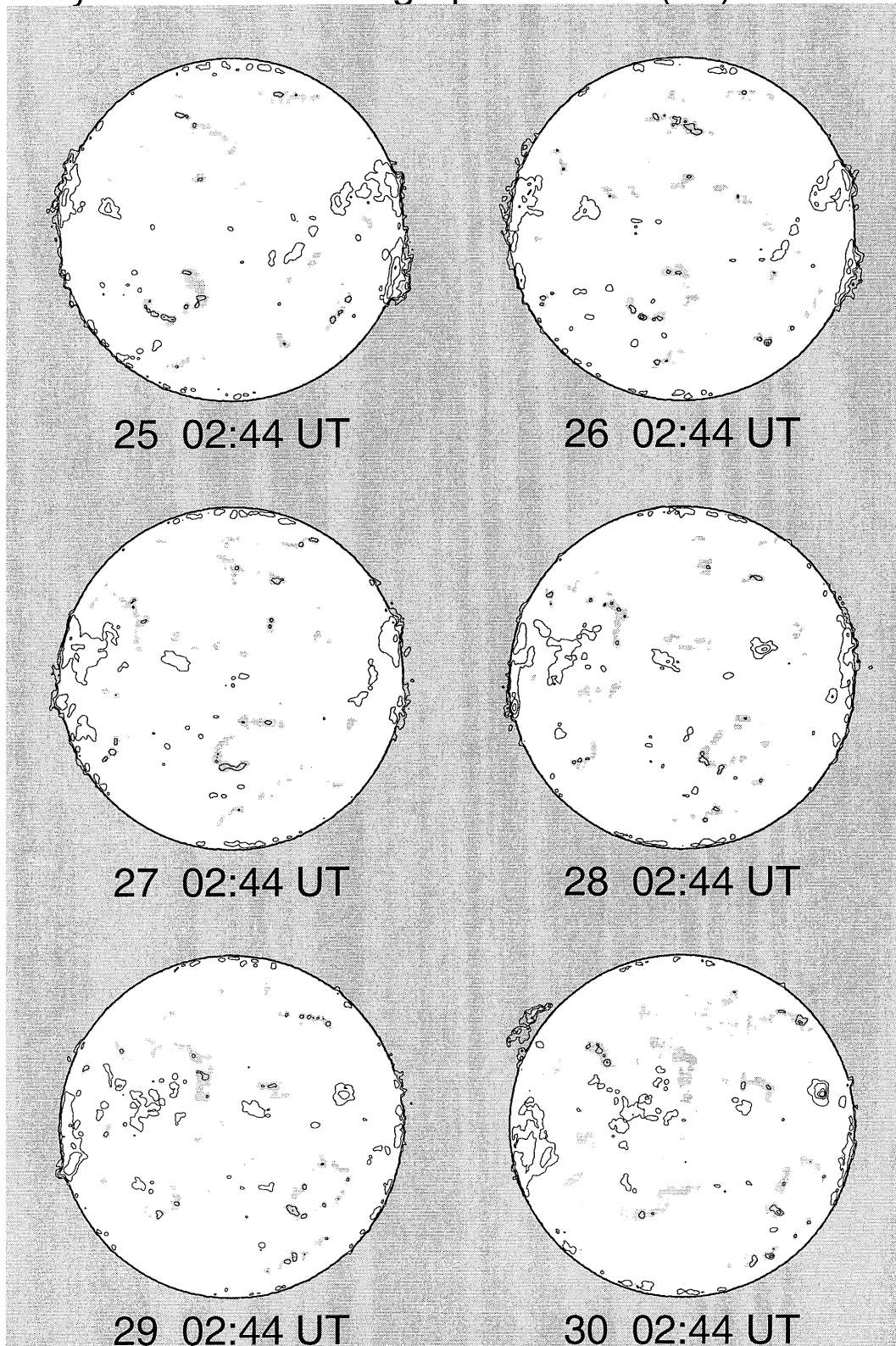
Contour Levels Tb=[5,8,12,20,50,100] x 10³ K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 July



Contour Levels $Tb = [5, 8, 12, 20, 50, 100] \times 10^3 \text{ K}$
Grey level $Tb \leq 9,500 \text{ K}$

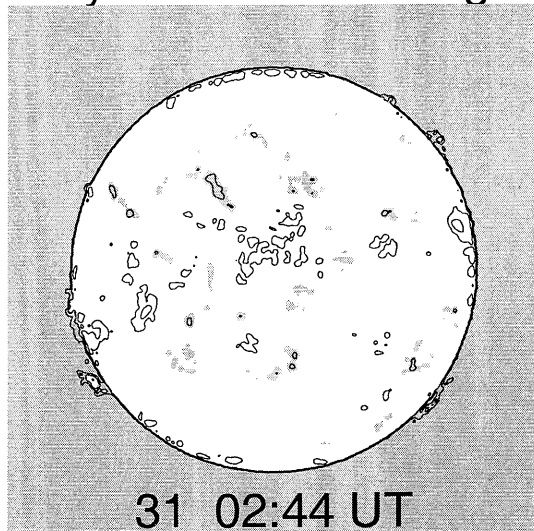
Nobeyama Radio Heliograph 17 GHz (Tb) 2003 July



Contour Levels Tb=[5,8,12,20,50,100] x 10³ K
Grey level Tb ≤ 9,500 K

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Jul 03

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 July



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

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

85
Jul 03

JULY 2003

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10393A		VORO	07	04	0009	S01 W33	07	1.5			AXX	2	1		3
10393A		LEAR	07	04	0019	S01 W33	07	1.5		A	AXX	10	2	1	4
10395		KAND	06	25	0850	N11 E85	07	1.8			HA		1	2	4
10395		HOLL	06	25	1407	N11 E80	07	1.6		A	HSX	50	1	1	3
10395	31773	MWIL	06	25	1430	N10 E80	07	1.6	5	(AP)					
10395		LEAR	06	26	0517	N11 E72	07	1.6		A	HSX	60	1	2	3
10395		VORO	06	26	0534	N11 E71	07	1.6			HAX	81	1		2
10395		SVTO	06	26	0548	N10 E73	07	1.7		A	HSX	60	1	2	3
10395		KAND	06	26	0650	N11 E73	07	1.8			HA		1	2	3
10395		TACH	06	26	0909	N11 E69	07	1.6			HSX	42	1	1	4
10395	31773	MWIL	06	26	1445	N11 E67	07	1.6	5	(AP)					
10395		HOLL	06	26	1730	N09 E65	07	1.6		A	HAX	60	1	1	3
10395		LEAR	06	27	0230	N10 E60	07	1.6		A	HAX	50	1	2	1
10395		SVTO	06	27	0602	N11 E58	07	1.6		A	HSX	40	1	1	3
10395		TACH	06	27	0611	N11 E59	07	1.7			HSX	44	1	1	4
10395		KAND	06	27	0830	N11 E57	07	1.6			HS		1	1	3
10395		HOLL	06	27	1408	N09 E53	07	1.6		A	HAX	50	3	3	3
10395	31773	MWIL	06	27	1445	N11 E54	07	1.7	5	(AP)					
10395		LEAR	06	28	0055	N10 E48	07	1.6		A	HRX	20	4	2	3
10395		SVTO	06	28	0513	N11 E46	07	1.7		B	CSO	30	2	1	3
10395		TACH	06	28	0612	N12 E44	07	1.6			AR	4	2	1	4
10395		KAND	06	28	1150	N11 E42	07	1.6			CSO		2	1	3
10395	31773	MWIL	06	28	1445	N12 E41	07	1.7	4	(B)					
10395		HOLL	06	28	1531	N11 E40	07	1.6		A	HSX	20	2	2	4
10395		SVTO	06	29	0608	N11 E32	07	1.7		A	HSX	10	1	1	3
10395		KAND	06	29	0630	N11 E32	07	1.7			AX		1	1	4
10395		TACH	06	29	0808	N11 E31	07	1.7			AXX	12	1	1	4
10395	31773	MWIL	06	29	1445	N12 E27	07	1.6	4	(AP)					
10395		HOLL	06	29	1610	N11 E26	07	1.6		A	AXX		1	1	3
10395		LEAR	06	30	0022	N12 E25	07	1.9		B	CRO	20	4	9	4
10395		TACH	06	30	0747	N12 E16	07	1.5			AXX	5	1	1	4
10395		KAND	06	30	0838	N11 E17	07	1.6			AX		1		4
10395		SVTO	06	30	0900	N12 E17	07	1.6		A	HRX	20	2	1	3
10395	31773	MWIL	06	30	1445	N11 E14	07	1.7	4	(AP)					
10395		LEAR	07	01	0050	N12 E08	07	1.6		B	BXO	10	2	3	3
10395		SVTO	07	01	0625	N11 E05	07	1.6		A	HRX		1		3
10395		KAND	07	01	0647	N11 E06	07	1.7			AX		1		4
10395		TACH	07	01	0728	N11 E04	07	1.6			AXX	5	1	1	5
10395	31773	MWIL	07	01	1430	N11 E01	07	1.7	5	(BP)					
10395		LEAR	07	02	0045	N06 W06	07	1.6		A	AXX	10	1	1	3
10395		SVTO	07	02	0455	N11 W07	07	1.7		A	HRX	10	1	1	3
10395		KAND	07	02	0730	N11 W08	07	1.7			AX		1		4
10395		TACH	07	02	0845	N11 W10	07	1.6			AXX	3	1	1	4
10395		HOLL	07	02	1339	N11 W12	07	1.7		A	AXX		1	1	3
10395	31773	MWIL	07	02	1445	N10 W13	07	1.6	4	(AP)					
10395		LEAR	07	03	0200	N10 W19	07	1.6		A	AXX	10	1	1	3
10395A		HOLL	07	01	1515	S23 E03	07	1.9		A	AXX		1	1	3
10395B		KAND	07	01	0647	S13 E06	07	1.7			BXO		4	3	4
10395B	31782	MWIL	07	01	1430	S16 E04	07	1.9	4	(BF)					
10397		LEAR	06	27	0230	N09 E80	07	3.1		A	HKX	120	1	5	1
10397		SVTO	06	27	0602	N09 E80	07	3.2		A	HSX	180	1	4	3
10397		TACH	06	27	0611	N04 E80	07	3.2			HHX	289	1	3	4
10397		KAND	06	27	0830	N09 E90	07	4.1			HA		1	2	3
10397		HOLL	06	27	1408	N09 E80	07	3.6		A	HKX	180	2	6	3
10397	31777	MWIL	06	27	1445	N10 E76	07	3.3	5	(AP)					
10397	31778	MWIL	06	27	1445	N13 E80	07	3.6	4	(AP)					
10397		LEAR	06	28	0055	N09 E75	07	3.7		B	EKO	560	6	13	3
10397		SVTO	06	28	0513	N09 E74	07	3.8		B	FHO	420	4	19	3
10397		TACH	06	28	0612	N12 E74	07	3.8			ESI	475	5	12	4
10397		KAND	06	28	1150	N11 E74	07	4.1			FKO		8	20	3
10397	31777	MWIL	06	28	1445	N10 E63	07	3.3	6	(AP)					
10397	31778	MWIL	06	28	1445	N13 E70	07	3.9	5	(B)					
10397		HOLL	06	28	1531	N11 E70	07	3.9		BG	FKC	530	11	17	4
10397		SVTO	06	29	0608	N12 E61	07	3.8		B	FHI	900	8	17	3
10397		KAND	06	29	0630	N11 E63	07	4.0			FHO		7	17	4

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

JULY 2003

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
10397		TACH	06 29 0808	N12 E60	07 3.8			EAI	595	6	13	4
10397	31777	MWIL	06 29 1445	N10 E50	07 3.4	6	(AP)					
10397	31778	MWIL	06 29 1445	N13 E58	07 4.0	5	(BG)					
10397		HOLL	06 29 1610	N11 E57	07 4.0		BG	FHO	680	19	19	3
10397		LEAR	06 30 0022	N12 E54	07 4.1		GD	FHI	980	29	22	4
10397		TACH	06 30 0747	N13 E47	07 3.9			ESI	600	9	11	4
10397		KAND	06 30 0838	N11 E47	07 3.9			FHO		16	16	4
10397		SVTO	06 30 0900	N14 E47	07 3.9		BG	FHI	840	26	16	3
10397		SVTO	06 30 0900	N18 E59	07 4.9		A	HSX	20	5	3	3
10397		HOLL	06 30 1408	N08 E45	07 4.0		BG	FKC	730	34	16	4
10397		HOLL	06 30 1408	N12 E57	07 4.9		A	HSX	40	5	2	4
10397	31777	MWIL	06 30 1445	N09 E38	07 3.5	6	(AP)					
10397	31778	MWIL	06 30 1445	N13 E46	07 4.1	5	(D)					
10397		LEAR	07 01 0050	N12 E38	07 3.9		GD	EKI	830	36	15	3
10397		SVTO	07 01 0625	N13 E35	07 3.9		BG	FKI	910	17	18	3
10397		KAND	07 01 0647	N12 E35	07 3.9			EHO		28	15	4
10397		TACH	07 01 0728	N11 E33	07 3.8			DAI	567	13	10	5
10397	31777	MWIL	07 01 1430	N09 E29	07 3.8	6	(AP)					
10397	31778	MWIL	07 01 1430	N13 E32	07 4.0	5	(D)					
10397		HOLL	07 01 1515	N15 E29	07 3.8		BG	EKI	580	32	15	3
10397		LEAR	07 02 0045	N07 E24	07 3.8		GD	EKI	490	29	14	3
10397		SVTO	07 02 0455	N12 E23	07 3.9		BG	FKI	800	19	19	3
10397		KAND	07 02 0730	N11 E21	07 3.9			FHI		46	15	4
10397		TACH	07 02 0845	N13 E20	07 3.9			EAI	604	17	13	4
10397		HOLL	07 02 1339	N12 E19	07 4.0		BG	FHC	610	56	17	3
10397	31777	MWIL	07 02 1445	N08 E12	07 3.5	6	(BG)					
10397	31778	MWIL	07 02 1445	N12 E20	07 4.1	5	(G)					
10397		LEAR	07 03 0200	N12 E12	07 4.0		BG	EKI	550	32	14	3
10397		SVTO	07 03 0615	N13 E08	07 3.9		BG	FKI	740	42	16	3
10397		TACH	07 03 0707	N11 E11	07 4.1			EAI	586	15	12	3
10397		KAND	07 03 0830	N11 E07	07 3.9			FHI		44	17	5
10397		HOLL	07 03 1510	N12 E04	07 3.9		BG	EKI	680	62	15	3
10397		VORO	07 04 0009	N12 E02	07 4.1			EHI	972	37	13	3
10397		LEAR	07 04 0019	N12 W02	07 3.9		BG	FKC	820	66	17	4
10397		KAND	07 04 0635	N12 W04	07 4.0			EHO		20	15	5
10397		SVTO	07 04 1208	N11 W09	07 3.8		B	FKI	740	27	17	2
10397	31777	MWIL	07 04 1500	N09 W15	07 3.5	6	(AP)					
10397	31778	MWIL	07 04 1500	N11 W06	07 4.2	5	(D)					
10397		HOLL	07 04 1706	N13 W10	07 3.9		BG	FKI	760	36	16	2
10397		SVTO	07 05 0510	N10 W17	07 3.9		BG	FKC	880	27	16	3
10397		TACH	07 05 0630	N11 W19	07 3.8			EAI	823	14	10	5
10397		KAND	07 05 0638	N11 W17	07 4.0			FHO		21	16	3
10397		HOLL	07 05 1426	N12 W20	07 4.1		BG	FKC	890	51	19	4
10397	31777	MWIL	07 05 1500	N09 W28	07 3.5	6	(BG)					
10397	31778	MWIL	07 05 1500	N13 W19	07 4.2	5	(D)					
10397		VORO	07 06 0120	N12 W26	07 4.1			EKI	1226	32	13	3
10397		LEAR	07 06 0317	N12 W28	07 4.0		BGD	FKC	1030	51	17	3
10397		SVTO	07 06 0538	N09 W28	07 4.1		BG	FKC	830	20	17	3
10397		TACH	07 06 0705	N11 W30	07 4.0			EAI	849	16	13	4
10397		KAND	07 06 0847	N12 W30	07 4.1			FKO		19	17	4
10397		HOLL	07 06 1450	N11 W34	07 4.1		BGD	FKC	940	50	16	3
10397	31777	MWIL	07 06 1500	N09 W41	07 3.5	6	(BP)					
10397	31778	MWIL	07 06 1500	N13 W32	07 4.2	5	(D)					
10397		LEAR	07 07 0145	N12 W40	07 4.0		BG	FKC	990	41	17	2
10397		VORO	07 07 0429	N11 W41	07 4.1			EKI	1249	31	13	3
10397		SVTO	07 07 0525	N11 W42	07 4.1		BG	FKC	810	27	18	3
10397		TACH	07 07 0657	N11 W41	07 4.2			EAI	526	9	14	4
10397		KAND	07 07 0720	N11 W43	07 4.1			FKC		32	17	5
10397		HOLL	07 07 1421	N13 W46	07 4.1		BG	FKC	720	45	16	4
10397	31777	MWIL	07 07 1600	N09 W54	07 3.6	6	(AP)					
10397	31778	MWIL	07 07 1600	N13 W43	07 4.4	5	(BG)					
10397		LEAR	07 08 0021	N12 W52	07 4.1		BG	FKI	770	38	16	4
10397		VORO	07 08 0100	N11 W52	07 4.1			EKI	957	22	14	3
10397		KAND	07 08 0620	N10 W56	07 4.0			FKI		13	16	4
10397		SVTO	07 08 0658	N13 W57	07 4.0		BG	FKI	780	19	20	3
10397		TACH	07 08 0703	N13 W56	07 4.1			EAI	651	16	14	4
10397	31777	MWIL	07 08 1445	N09 W67	07 3.6	5	(AP)					
10397	31778	MWIL	07 08 1445	N13 W59	07 4.2	5	(D)					
10397		HOLL	07 08 1505	N12 W60	07 4.1		BG	FKC	840	31	16	3

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

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Jul 03

JULY 2003

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
10397		LEAR	07 09 0140	N14 W66	07 4.1		BG	FSI	230	16	16	3
10397		TACH	07 09 0447	N11 W66	07 4.2			EAI	473	9	14	3
10397		SVTO	07 09 0650	N14 W67	07 4.2		BG	FSI	500	12	17	3
10397		KAND	07 09 0853	N12 W70	07 4.1			FAC		15	17	3
10397		HOLL	07 09 1331	N13 W71	07 4.2		BG	FAC	360	25	16	4
10397	31777	MWIL	07 09 1445	N10 W80	07 3.6	5	(AP)					
10397	31778	MWIL	07 09 1445	N12 W70	07 4.3	5	(BG)					
10397		LEAR	07 10 0009	N12 W76	07 4.3		B	FAI	540	21	16	3
10397		VORO	07 10 0349	N13 W79	07 4.2			DAO	225	3	1	2
10397		SVTO	07 10 0530	N13 W76	07 4.5		B	DSO	180	4	6	3
10397		TACH	07 10 0609	N12 W77	07 4.4			CSO	105	2	3	3
10397		KAND	07 10 0655	N13 W84	07 3.9			CAO		4	6	3
10397		HOLL	07 10 1341	N11 W80	07 4.5		A	HAX	60	1	1	3
10397	31778	MWIL	07 10 1445	N12 W88	07 4.0	5	AP					
10402A	31786	MWIL	07 06 1500	N21 W26	07 4.6	3	(AP)					
10402		LEAR	07 07 0145	S12 W32	07 4.7		A	HAX	10	1		2
10402		VORO	07 07 0429	S11 W32	07 4.8			AXX	7	1		3
10402		SVTO	07 07 0525	S13 W33	07 4.7		A	HRX	10	1	1	3
10402		HOLL	07 07 1421	S11 W40	07 4.6		B	BXO	20	5	4	4
10402	31789	MWIL	07 07 1600	S11 W39	07 4.7	4	(B)					
10402		LEAR	07 08 0021	S12 W45	07 4.6		B	CRO	60	12	7	4
10402		VORO	07 08 0100	S11 W45	07 4.6			CRI	71	11	5	3
10402		KAND	07 08 0620	S13 W48	07 4.6			DSO		8	8	4
10402		SVTO	07 08 0658	S12 W49	07 4.6		B	DSO	180	12	7	3
10402		TACH	07 08 0703	S11 W48	07 4.7			CAI	75	7	6	4
10402	31789	MWIL	07 08 1445	S12 W52	07 4.7	5	(B)					
10402		HOLL	07 08 1505	S11 W54	07 4.6		B	DAI	210	19	9	3
10402		LEAR	07 09 0140	S12 W59	07 4.6		B	DSO	90	11	11	3
10402		TACH	07 09 0447	S14 W61	07 4.6			DAO	197	4	8	3
10402		SVTO	07 09 0650	S11 W60	07 4.8		BG	DAO	160	8	7	3
10402		KAND	07 09 0853	S11 W63	07 4.6			EAO		5	11	3
10402		HOLL	07 09 1331	S12 W66	07 4.6		BG	ESI	180	10	11	4
10402	31789	MWIL	07 09 1445	S12 W65	07 4.7	5	(B)					
10402		LEAR	07 10 0009	S12 W70	07 4.7		B	DAO	240	12	9	3
10402		VORO	07 10 0349	S12 W74	07 4.6			DAO	220	3	9	2
10402		SVTO	07 10 0530	S12 W74	07 4.6		B	CSO	180	7	12	3
10402		TACH	07 10 0609	S11 W73	07 4.8			CSO	76	2	10	3
10402		KAND	07 10 0655	S11 W76	07 4.6			EAO		2	13	3
10402		HOLL	07 10 1341	S11 W73	07 5.1		A	HAX	90	1	1	3
10402	31789	MWIL	07 10 1445	S10 W76	07 4.9	5	(AF)					
10402		LEAR	07 11 0111	S11 W86	07 4.6		A	HAX	80	3	5	3
10402		VORO	07 11 2151	S11 W91	07 5.1			HAX	198	1		3
10399	31779A	MWIL	06 30 1445	N16 E58	07 5.0	4	(B)					
10399		LEAR	07 01 0050	N15 E52	07 5.0		A	AXX	10	2	2	3
10399		SVTO	07 01 0625	N17 E49	07 5.0		B	DSO	60	4	4	3
10399		KAND	07 01 0647	N17 E50	07 5.1			BXO		5	1	4
10399		TACH	07 01 0728	N15 E48	07 4.9			AR	14	2	1	5
10399	31779	MWIL	07 01 1430	N14 E44	07 4.9	4	(BG)					
10399		HOLL	07 01 1515	N09 E44	07 4.9		B	CAO	30	2	1	3
10399		LEAR	07 02 0045	N10 E38	07 4.9		B	BXO	10	5	3	3
10399		SVTO	07 02 0455	N16 E37	07 5.0		B	CRO	20	3	3	3
10399		KAND	07 02 0730	N15 E36	07 5.0			AX		4	1	4
10399		TACH	07 02 0845	N16 E34	07 4.9			AR	13	2	1	4
10399		HOLL	07 02 1339	N16 E32	07 5.0		B	CAO	30	6	3	3
10399	31779	MWIL	07 02 1445	N14 E31	07 4.9	4	(BG)					
10399		LEAR	07 03 0200	N14 E25	07 5.0		B	BXO	10	3	3	3
10399		SVTO	07 03 0615	N14 E28	07 5.4		B	CRO	20	5	4	3
10399		VORO	07 04 0009	N12 E11	07 4.8			AXX	4	2		3
10399		VORO	07 04 0009	N16 E14	07 5.1			AXX	1	1		3
10399		LEAR	07 04 0019	N14 E12	07 4.9		B	BXO	20	5	5	4
10399		KAND	07 04 0635	N16 E12	07 5.2			AX		2	1	5
10399	31785	MWIL	07 04 1500	N08 E05	07 5.0	4	(AF)					
10399	31779	MWIL	07 04 1500	N16 E05	07 5.0	3	(AF)					
10399		VORO	07 06 0120	N09 W15	07 4.9			AXX	2	1		3
10399	31785	MWIL	07 06 1500	N09 W23	07 4.9	3	(B)					
10399	31785	MWIL	07 07 1600	N12 W37	07 4.9	3	(AP)					

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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
10397B		LEAR	06 30 0022	N02 E79	07 5.9		A	AXX	30	3	2	4
10397B		SVTO	06 30 0900	N07 E72	07 5.8		A	AXX	10	3	1	3
10397B		HOLL	06 30 1408	N03 E70	07 5.8		A	AXX		1	1	4
10398	31780	MWIL	06 30 1445	N04 E71	07 5.9	3	(AP)					
10398		LEAR	07 01 0050	N04 E63	07 5.7		A	AXX	10	1	1	3
10398		SVTO	07 01 0625	N05 E61	07 5.8		A	AXX		1		3
10398		KAND	07 01 0647	N05 E63	07 6.0			AX		1		4
10398	31780	MWIL	07 01 1430	N04 E57	07 5.9	4	(AP)					
10398		LEAR	07 02 0045	N01 E52	07 5.9		B	CSO	10	3	3	3
10398		KAND	07 02 0730	N04 E50	07 6.0			BXO		2	4	4
10398		HOLL	07 02 1339	N03 E45	07 5.9		B	BXO	10	2	3	3
10398	31780	MWIL	07 02 1445	N03 E46	07 6.0	4	(AP)					
10398		LEAR	07 03 0200	N01 E42	07 6.2		B	BXO	10	3	2	3
10398		SVTO	07 03 0615	N04 E39	07 6.2		B	CRO	20	4	4	3
10398		KAND	07 03 0830	N02 E39	07 6.3			BXO		6	4	5
10398		HOLL	07 03 1510	N03 E32	07 6.0		B	BXO	10	3	2	3
10398		VORO	07 04 0009	N02 E29	07 6.2			AXX	2	2		3
10398		LEAR	07 04 0019	N02 E29	07 6.2		A	AXX	10	2	1	4
10398	31780	MWIL	07 04 1500	N03 E20	07 6.1	3	(AP)					
10398		HOLL	07 05 1426	N03 E08	07 6.2		B	BXO	10	2	3	4
10398	31780	MWIL	07 05 1500	N04 E07	07 6.1	3	(AP)					
10398		VORO	07 06 0120	N04 E00	07 6.0			AXX	3	1		3
10398		HOLL	07 06 1450	N03 W09	07 5.9		B	BXO	10	5	2	3
10398	31780	MWIL	07 06 1500	N04 W06	07 6.2	2	(AP)					
10398	31780	MWIL	07 08 1445	N04 W34	07 6.1	4	(AP)					
10398A	31783	MWIL	07 01 1430	S04 E60	07 6.1	4	(AP)					
10400		LEAR	07 01 0050	N05 E80	07 7.0		A	HSX	50	1	1	3
10400		SVTO	07 01 0625	N07 E79	07 7.2		A	HSX	120	1	3	3
10400		KAND	07 01 0647	N06 E83	07 7.5			HS		1	2	4
10400		TACH	07 01 0728	N06 E78	07 7.1			HSX	70	1	2	5
10400	31784	MWIL	07 01 1430	N05 E75	07 7.2	5	(B)					
10400		HOLL	07 01 1515	N02 E74	07 7.2		A	HAX	60	1	1	3
10400		LEAR	07 02 0045	N03 E69	07 7.2		A	HSX	50	2	2	3
10400		SVTO	07 02 0455	N07 E67	07 7.2		A	HSX	100	1	3	3
10400		KAND	07 02 0730	N06 E67	07 7.3			HS		1	3	4
10400		TACH	07 02 0845	N05 E65	07 7.2			HSX	71	1	2	4
10400		HOLL	07 02 1339	N03 E64	07 7.3		B	DAO	110	13	8	3
10400	31784	MWIL	07 02 1445	N05 E62	07 7.2	5	(B)					
10400		LEAR	07 03 0200	N03 E57	07 7.3		B	CSO	50	8	6	3
10400		SVTO	07 03 0615	N08 E52	07 7.1		BG	DSI	150	26	9	3
10400		TACH	07 03 0707	N04 E54	07 7.3			CAI	75	6	4	3
10400		KAND	07 03 0830	N05 E52	07 7.2			DSI		16	7	5
10400		HOLL	07 03 1510	N05 E48	07 7.2		B	EAI	110	32	14	3
10400		VORO	07 04 0009	N05 E43	07 7.2			DAI	259	21	6	3
10400		LEAR	07 04 0019	N04 E44	07 7.3		B	DAO	260	33	9	4
10400		KAND	07 04 0635	N05 E41	07 7.3			DAI		23	9	5
10400		SVTO	07 04 1208	N07 E37	07 7.3		B	DAO	200	12	8	2
10400	31784	MWIL	07 04 1500	N04 E35	07 7.2	5	(B)					
10400		HOLL	07 04 1706	N04 E33	07 7.2		BG	DAO	210	13	9	2
10400		SVTO	07 05 0510	N07 E27	07 7.2		B	DAO	290	7	8	3
10400		TACH	07 05 0630	N05 E26	07 7.2			DAI	267	5	5	5
10400		KAND	07 05 0638	N05 E26	07 7.2			DAO		10	9	3
10400		HOLL	07 05 1426	N04 E23	07 7.3		BG	DKI	280	21	9	4
10400	31784	MWIL	07 05 1500	N05 E22	07 7.3	5	(BD)					
10400		VORO	07 06 0120	N05 E15	07 7.2			DAI	336	14	7	3
10400		LEAR	07 06 0317	N04 E14	07 7.2		BG	EAI	290	25	12	3
10400		SVTO	07 06 0538	N06 E13	07 7.2		B	DAO	290	17	9	3
10400		TACH	07 06 0705	N04 E11	07 7.1			CAI	111	13	6	4
10400		KAND	07 06 0847	N05 E12	07 7.3			DAO		19	10	4
10400		HOLL	07 06 1450	N05 E09	07 7.3		BG	EKI	280	35	11	3
10400	31784	MWIL	07 06 1500	N05 E08	07 7.2	4	(B)					
10400		LEAR	07 07 0145	N04 E02	07 7.2		BG	DAI	280	24	10	2
10400		VORO	07 07 0429	N05 E01	07 7.3			DAI	279	16	9	3
10400		SVTO	07 07 0525	N04 E01	07 7.3		BG	EAI	160	13	11	3
10400		TACH	07 07 0657	N04 W01	07 7.2			DAI	141	6	8	4
10400		KAND	07 07 0720	N04 E01	07 7.4			DAO		21	10	5

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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
10400		HOLL	07 07 1421	N06 W05	07 7.2		BG	EAI	210	22	11	4
10400	31790	MWIL	07 07 1600	N04 W10	07 6.9	5	(AP)					
10400	31784	MWIL	07 07 1600	N05 W04	07 7.4	5	(D)					
10400		LEAR	07 08 0021	N05 W11	07 7.2		BG	DAI	200	29	10	4
10400		VORO	07 08 0100	N05 W12	07 7.1			DAI	262	18	7	3
10400		KAND	07 08 0620	N04 W14	07 7.2			DKO		10	9	4
10400		SVTO	07 08 0658	N05 W14	07 7.2		B	EAI	240	24	11	3
10400		TACH	07 08 0703	N04 W15	07 7.2			DAI	146	14	8	4
10400	31784	MWIL	07 08 1445	N05 W16	07 7.4	5	(D)					
10400	31790	MWIL	07 08 1445	N05 W22	07 7.0	5	(BF)					
10400		HOLL	07 08 1505	N05 W18	07 7.3		BG	EKI	240	32	13	3
10400		LEAR	07 09 0140	N05 W26	07 7.1		BG	ESO	150	23	12	3
10400		TACH	07 09 0447	N05 W28	07 7.1			DAI	230	11	9	3
10400		SVTO	07 09 0650	N06 W27	07 7.3		BG	EAO	150	16	11	3
10400		KAND	07 09 0853	N05 W29	07 7.2			EAO		17	11	3
10400		HOLL	07 09 1331	N05 W31	07 7.2		BG	EAI	150	32	12	4
10400	31790	MWIL	07 09 1445	N04 W37	07 6.8	5	(BG)					
10400	31784	MWIL	07 09 1445	N06 W29	07 7.4	5	(BG)					
10400		LEAR	07 10 0009	N06 W37	07 7.2		BG	EAI	180	40	11	3
10400		VORO	07 10 0349	N05 W39	07 7.2			CRO	102	18	10	2
10400		SVTO	07 10 0530	N05 W42	07 7.1		BG	ESI	80	14	12	3
10400		TACH	07 10 0609	N04 W41	07 7.2			BRI	45	7	8	3
10400		KAND	07 10 0655	N05 W42	07 7.1			EAO		11	11	3
10400		HOLL	07 10 1341	N06 W45	07 7.2		BG	EAI	110	20	12	3
10400	31790	MWIL	07 10 1445	N04 W51	07 6.8	5	(AP)					
10400	31784	MWIL	07 10 1445	N06 W43	07 7.4	4	(B)					
10400		VORO	07 10 2358	N06 W50	07 7.2			CAO	94	13	11	3
10400		LEAR	07 11 0111	N06 W52	07 7.1		B	EAO	170	20	12	3
10400		SVTO	07 11 0635	N05 W55	07 7.2		B	ESO	70	7	11	3
10400		KAND	07 11 0745	N05 W50	07 7.6			CSO		5	11	5
10400	31790	MWIL	07 11 1445	N03 W65	07 6.7	4	(AP)					
10400	31784	MWIL	07 11 1445	N06 W56	07 7.4	4	(BG)					
10400		HOLL	07 11 1500	N05 W62	07 7.0		B	EAI	80	10	11	3
10400		VORO	07 11 2151	N04 W64	07 7.1			BRI	24	5	7	3
10400		LEAR	07 12 0053	N05 W66	07 7.1		B	BXO	50	7	10	3
10400	31784	MWIL	07 12 1445	N06 W68	07 7.5	3	(AP)					
10400A		HOLL	07 09 1331	S08 W28	07 7.5		B	BXO	10	2	3	4
10400A	31792	MWIL	07 09 1445	S07 W28	07 7.5	4	(B)					
10400A		HOLL	07 10 1341	S09 W47	07 7.0		A	AXX		1	1	3
10400C	31793	MWIL	07 09 1445	S28 W02	07 9.4	4	(AF)					
10400B		VORO	07 07 0429	N33 E38	07 10.2			AXX	3	2	2	3
10406	31794	MWIL	07 11 1445	S18 W06	07 11.1	4	(B)					
10406		HOLL	07 11 1500	S19 W07	07 11.1		A	HSX	20	2	2	3
10406		VORO	07 11 2151	S16 W15	07 10.8			AXX	3	1		3
10406		LEAR	07 12 0053	S18 W12	07 11.1		B	CAO	40	7	4	3
10406		TACH	07 12 0507	S17 W12	07 11.3			BXO	20	2	4	4
10406		SVTO	07 12 0604	S18 W15	07 11.1		B	CSO	30	5	4	3
10406	31794	MWIL	07 12 1445	S18 W19	07 11.2	4	(B)					
10406		VORO	07 12 2358	S18 W23	07 11.2			CRO	25	3	3	3
10406		LEAR	07 13 0136	S18 W26	07 11.1		B	CSO	30	5	5	2
10406		TACH	07 13 0509	S18 W27	07 11.1			BRO	20	3	3	3
10406		SVTO	07 13 0617	S18 W29	07 11.0		B	CSO	20	4	2	3
10406		KAND	07 13 0750	S18 W30	07 11.0			CSO		3	3	4
10406	31794	MWIL	07 13 1445	S18 W34	07 11.0	5	(B)					
10406		HOLL	07 13 1507	S18 W34	07 11.0		B	CSO	30	6	6	3
10406		LEAR	07 14 0133	S18 W39	07 11.1		B	DSO	50	5	5	3
10406		TACH	07 14 0437	S18 W40	07 11.1			BXO	18	2	4	5
10406		SVTO	07 14 0552	S18 W43	07 11.0		A	HRX	10	1	1	2
10406		KAND	07 14 0630	S18 W43	07 11.0			CSO		3	4	3
10406		HOLL	07 14 1425	S18 W46	07 11.1		B	CAO	20	3	4	4
10406	31794	MWIL	07 14 1600	S18 W48	07 11.0	5	(B)					
10406		VORO	07 14 2151	S17 W52	07 10.9			HRX	17	1		3
10406		LEAR	07 15 0015	S18 W52	07 11.0		B	CSO	30	3	2	3
10406		TACH	07 15 0539	S17 W56	07 11.0			AXX	5	1	1	4
10406		SVTO	07 15 0720	S18 W58	07 10.9		A	HRX	10	1	1	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10406	31794	KAND	07 15	0720	S18	W59	07 10.8			AX		1	1	4
10406		HOLL	07 15	1356	S17	W60	07 11.0		A	HSX	40	1	1	3
10406		MWIL	07 15	1445	S18	W62	07 10.9	4	(AP)					
10406		VORO	07 15	2147	S17	W66	07 10.9			HRX	11	2		3
10406		LEAR	07 16	0400	S18	W69	07 10.9		A	AXX	10	1	1	3
10406		KAND	07 16	0650	S18	W73	07 10.7			AX		1	1	4
10406	31794	HOLL	07 16	1400	S16	W72	07 11.1		A	AXX	20	1	1	4
10406		MWIL	07 16	1445	S17	W75	07 10.9	4	(AP)					
10401	31787	HOLL	07 06	1450	S10	E71	07 11.9		A	AXX	20	3	2	3
10401		MWIL	07 06	1500	S10	E68	07 11.7	3	(BF)					
10401		LEAR	07 07	0145	S10	E62	07 11.7		B	CRO	20	4	5	2
10401		VORO	07 07	0429	S10	E62	07 11.8			AXX	24	3	0	3
10401	31787	KAND	07 07	0720	S10	E60	07 11.8			BXO		9	5	5
10401		HOLL	07 07	1421	S10	E56	07 11.8		B	CSO	40	7	4	4
10401		MWIL	07 07	1600	S09	E55	07 11.8	4	(B)					
10401		LEAR	07 08	0021	S11	E49	07 11.7		B	BXO	50	11	4	4
10401	31787	VORO	07 08	0100	S09	E50	07 11.8			AXX	15	3	0	3
10401		KAND	07 08	0620	S11	E46	07 11.7			BXO		3	3	4
10401		SVTO	07 08	0658	S09	E46	07 11.7		B	DSO	40	6	6	3
10401		TACH	07 08	0703	S10	E44	07 11.6			AXX	18	1	1	4
10401	31787	MWIL	07 08	1445	S09	E41	07 11.7	4	(BP)					
10401		HOLL	07 08	1505	S10	E41	07 11.7		B	BXO	10	7	2	3
10401		LEAR	07 09	0140	S09	E33	07 11.5		B	CSO	10	5	5	3
10401		TACH	07 09	0447	S10	E33	07 11.7			BRO	17	4	4	3
10401	31787	SVTO	07 09	0650	S09	E32	07 11.7		B	DSO	20	3	4	3
10401		KAND	07 09	0853	S09	E32	07 11.8			BXO		6	5	3
10401		HOLL	07 09	1331	S09	E27	07 11.6		B	DSO	30	9	6	4
10401		MWIL	07 09	1445	S09	E28	07 11.7	5	(B)					
10401	31787	LEAR	07 10	0009	S10	E22	07 11.6		B	DAO	100	26	7	3
10401		VORO	07 10	0349	S09	E20	07 11.7			DAI	104	14	4	2
10401		SVTO	07 10	0530	S09	E18	07 11.6		B	DSO	90	14	7	3
10401		TACH	07 10	0609	S09	E18	07 11.6			BRI	33	8	4	3
10401	31787	KAND	07 10	0655	S09	E20	07 11.8			DAI		16	6	3
10401		HOLL	07 10	1341	S09	E16	07 11.8		B	DAO	110	28	7	3
10401		MWIL	07 10	1445	S10	E14	07 11.7	5	(B)					
10401		VORO	07 10	2358	S10	E09	07 11.7			DAI	238	22	5	3
10401	31787	LEAR	07 11	0111	S10	E08	07 11.6		B	DKO	240	30	8	3
10401		KAND	07 11	0745	S10	E05	07 11.7			DAO		20	8	5
10401		SVTO	07 11	0950	S09	E04	07 11.7		B	DAO	230	10	9	3
10401		MWIL	07 11	1445	S10	E01	07 11.7	5	(B)					
10401	31787	HOLL	07 11	1500	S11	E02	07 11.8		BG	DAI	200	25	8	3
10401		VORO	07 11	2151	S09	W03	07 11.7			DAI	256	20	6	3
10401		LEAR	07 12	0053	S10	W05	07 11.7		B	DAO	210	24	7	3
10401		TACH	07 12	0507	S09	W05	07 11.8			DAI	94	6	6	4
10401	31787	SVTO	07 12	0604	S09	W08	07 11.6		B	DAI	170	15	9	3
10401		MWIL	07 12	1445	S10	W13	07 11.6	5	(B)					
10401		VORO	07 12	2229	S09	W17	07 11.7			DAI	203	19	6	2
10401		LEAR	07 13	0136	S10	W19	07 11.6		BG	DAO	200	22	7	2
10401	31787	TACH	07 13	0509	S10	W21	07 11.6			CAI	126	5	6	3
10401		SVTO	07 13	0617	S11	W22	07 11.6		B	DAO	150	7	8	3
10401		KAND	07 13	0750	S10	W21	07 11.7			DAO		3	7	4
10401		MWIL	07 13	1445	S10	W26	07 11.7	5	(B)					
10401	31787	HOLL	07 13	1507	S10	W27	07 11.6		B	DAI	160	28	8	3
10401		LEAR	07 14	0133	S09	W33	07 11.6		B	DAO	170	19	7	3
10401		TACH	07 14	0437	S10	W33	07 11.7			CAI	77	6	7	5
10401		SVTO	07 14	0552	S11	W35	07 11.6		B	DAO	130	6	9	2
10401	31787	KAND	07 14	0630	S10	W35	07 11.6			DAO		5	8	3
10401		HOLL	07 14	1425	S09	W40	07 11.6		B	DAI	130	14	8	4
10401		MWIL	07 14	1600	S10	W39	07 11.7	5	(B)					
10401		VORO	07 14	2151	S09	W43	07 11.7			DAI	105	8	6	3
10401	31787	LEAR	07 15	0015	S10	W44	07 11.7		B	DSO	130	8	7	3
10401		TACH	07 15	0539	S08	W47	07 11.7			CAI	80	4	7	4
10401		SVTO	07 15	0720	S10	W48	07 11.7		B	DSO	70	5	8	3
10401		KAND	07 15	0720	S10	W49	07 11.6			DAO		6	8	4
10401	31787	HOLL	07 15	1356	S10	W52	07 11.7		B	DAO	100	8	8	3
10401		MWIL	07 15	1445	S10	W53	07 11.6	5	(B)					
10401		VORO	07 15	2147	S09	W57	07 11.6			CRI	38	3	6	3
10401		LEAR	07 16	0400	S11	W62	07 11.5		A	HSX	40	1	2	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10401		TACH	07 16 0635	S09 W65	07 11.4			HSX	62	1	1	4
10401		KAND	07 16 0650	S09 W66	07 11.3			HS		1	1	4
10401		SVTO	07 16 0720	S08 W65	07 11.4		A	HSX	40	1	2	3
10401		HOLL	07 16 1400	S08 W68	07 11.5		B	CRO	30	3	3	4
10401	31787	MWIL	07 16 1445	S09 W69	07 11.4	4	(B)					
10401		VORO	07 16 2159	S09 W73	07 11.4			HRX	38	1		3
10401		LEAR	07 17 0145	S09 W78	07 11.2		A	AXX	30	2	1	3
10403		LEAR	07 07 0145	S18 E66	07 12.1		B	DAO	50	3	3	2
10403		VORO	07 07 0429	S16 E63	07 12.0			HAX	58	4	2	3
10403		SVTO	07 07 0525	S18 E65	07 12.2		B	DSO	70	2	6	3
10403		TACH	07 07 0657	S16 E63	07 12.1			AXX	24	1	1	4
10403		KAND	07 07 0720	S16 E63	07 12.1			CRO		5	4	5
10403		HOLL	07 07 1421	S17 E58	07 12.0		B	CSO	30	4	3	4
10403	31791	MWIL	07 07 1600	S16 E57	07 12.0	5	(B)					
10403		LEAR	07 08 0021	S17 E52	07 12.0		B	CRO	40	5	3	4
10403		VORO	07 08 0100	S16 E51	07 11.9			HRX	26	2		3
10403		KAND	07 08 0620	S17 E50	07 12.1			CSO		2	2	4
10403		SVTO	07 08 0658	S16 E49	07 12.0		A	HSX	40	2	3	3
10403		TACH	07 08 0703	S17 E48	07 11.9			AR	23	2	1	4
10403	31791	MWIL	07 08 1445	S16 E45	07 12.0	4	(B)					
10403		HOLL	07 08 1505	S17 E43	07 11.9		A	HSX	30	3	3	3
10403		LEAR	07 09 0140	S17 E38	07 11.9		B	CSO	30	5	3	3
10403		TACH	07 09 0447	S16 E38	07 12.1			BXO	21	2	3	3
10403		SVTO	07 09 0650	S17 E35	07 11.9		A	HSX	10	1	1	3
10403		KAND	07 09 0853	S16 E35	07 12.0			HR		1		3
10403		HOLL	07 09 1331	S16 E32	07 12.0		B	BXO	10	3	4	4
10403	31791	MWIL	07 09 1445	S16 E30	07 11.9	4	(B)					
10403		LEAR	07 10 0009	S16 E27	07 12.0		B	CRO	20	5	4	3
10403		SVTO	07 10 0530	S16 E22	07 11.9		A	HSX	10	1	1	3
10403		KAND	07 10 0655	S15 E21	07 11.9			HS		1	1	3
10403		HOLL	07 10 1341	S16 E18	07 11.9		B	BXO	10	3	5	3
10403	31791	MWIL	07 10 1445	S16 E18	07 12.0	4	(B)					
10403		LEAR	07 11 0111	S17 E13	07 12.0		A	AXX	10	6	2	3
10403		KAND	07 11 0745	S17 E11	07 12.1			AX		2	1	5
10403		SVTO	07 11 0950	S17 E08	07 12.0		A	AXX		1		3
10403	31791	MWIL	07 11 1445	S17 E06	07 12.1	4	(BG)					
10403		HOLL	07 11 1500	S18 E06	07 12.1		A	AXX	10	4	2	3
10404		HOLL	07 06 1450	S09 E82	07 12.8		A	HSX	30	1	2	3
10404	31788	MWIL	07 06 1500	S08 E78	07 12.5	3	(AP)					
10404		LEAR	07 07 0145	S10 E77	07 12.8		B	DAO	50	2	8	2
10404		VORO	07 07 0429	S09 E70	07 12.4			HAX	43	1		3
10404		VORO	07 07 0429	S09 E79	07 13.1			AXX	14	1		3
10404		SVTO	07 07 0525	S10 E72	07 12.6		A	HSX	30	1	2	3
10404		TACH	07 07 0657	S09 E71	07 12.6			AXX	24	1	1	4
10404		KAND	07 07 0720	S09 E74	07 12.8			CRO		4	10	5
10404		HOLL	07 07 1421	S09 E69	07 12.8		B	DSO	80	8	8	4
10404	31788	MWIL	07 07 1600	S09 E68	07 12.8	4	(B)					
10404		LEAR	07 08 0021	S10 E64	07 12.8		B	DSO	70	6	9	4
10404		VORO	07 08 0100	S09 E59	07 12.5			HRX	27	3		3
10404		VORO	07 08 0100	S10 E66	07 13.0			HAX	40	2	2	3
10404		KAND	07 08 0620	S10 E63	07 13.0			BXO		3	10	4
10404		SVTO	07 08 0658	S09 E60	07 12.8		B	DSO	100	5	11	3
10404		TACH	07 08 0703	S10 E58	07 12.6			DSO	141	2	6	4
10404	31788	MWIL	07 08 1445	S09 E57	07 12.9	4	(B)					
10404		HOLL	07 08 1505	S10 E55	07 12.8		B	BXO	20	6	9	3
10404		LEAR	07 09 0140	S10 E49	07 12.7		B	DSO	30	2	8	3
10404		TACH	07 09 0447	S11 E48	07 12.8			BXO	35	2	5	3
10404		SVTO	07 09 0650	S11 E46	07 12.7		B	DSO	30	3	7	3
10404		KAND	07 09 0853	S10 E46	07 12.8			BXO		2	7	3
10404		HOLL	07 09 1331	S10 E43	07 12.8		B	CSO	40	4	8	4
10404	31788	MWIL	07 09 1445	S10 E43	07 12.8	5	(BP)					
10404		LEAR	07 10 0009	S11 E37	07 12.8		B	DAO	20	4	6	3
10404		VORO	07 10 0349	S09 E32	07 12.6			HRX	14	2		2
10404		SVTO	07 10 0530	S09 E31	07 12.5		A	HSX	10	1	1	3
10404		TACH	07 10 0609	S10 E30	07 12.5			AXX	12	1	1	3
10404		KAND	07 10 0655	S09 E31	07 12.6			HS		1	1	3
10404		HOLL	07 10 1341	S09 E27	07 12.6		B	CSO	20	2	3	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	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
10404	31788	MWIL	07	10	1445	S11	E27	07	12.6	4	(BP)					
10404		VORO	07	10	2358	S09	E21	07	12.6			AXX	6	1		3
10404		LEAR	07	11	0111	S10	E20	07	12.5		A	HSX	10	1		3
10404		KAND	07	11	0745	S09	E17	07	12.6			AX		1	1	5
10404		SVTO	07	11	0950	S09	E15	07	12.5		A	HRX	10	1		3
10404	31788	MWIL	07	11	1445	S10	E13	07	12.6	4	(AP)					
10404		HOLL	07	11	1500	S10	E12	07	12.5		A	HSX	20	2	1	3
10404		VORO	07	11	2151	S09	E09	07	12.6			AXX	4	1		3
10404		LEAR	07	12	0053	S09	E06	07	12.5		A	AXX	10	2	2	3
10404		TACH	07	12	0507	S09	E05	07	12.6			BXO	4	2	2	4
10404	31788	MWIL	07	12	1445	S10	E01	07	12.7	4	(AP)					
10404		LEAR	07	13	0136	S08	W08	07	12.5		B	BXO	10	2	3	2
10404		TACH	07	13	0509	S08	W09	07	12.5			BXO	13	2	3	3
10404		SVTO	07	13	0617	S09	W11	07	12.4		B	DSO	30	2	3	3
10404	31800	MWIL	07	13	1445	S09	W15	07	12.5	4	(B)					
10404	31788	MWIL	07	13	1445	S11	W10	07	12.9	4	(AP)					
10404		HOLL	07	13	1507	S08	W16	07	12.4		B	CSO	20	3	4	3
10404		LEAR	07	14	0133	S08	W22	07	12.4		B	BXO	20	4	4	3
10404		TACH	07	14	0437	S08	W23	07	12.5			BRO	3	3	3	5
10404		SVTO	07	14	0552	S09	W24	07	12.4		B	CRO	10	2	3	2
10404	31800	MWIL	07	14	1600	S09	W29	07	12.5	4	(AP)					
10404		HOLL	07	15	1356	S11	W36	07	12.9		A	AXX		1	1	3
10404A		TACH	07	16	0635	N08	W48	07	12.7			AXX	7	1	1	4
10407A		TACH	07	15	0539	N27	W18	07	13.8			BRO	13	3	4	4
10407	31795	MWIL	07	11	1445	N10	E36	07	14.3	4	(AP)					
10407		HOLL	07	11	1500	N09	E35	07	14.2		A	HSX	10	2	4	3
10407		VORO	07	11	2358	N10	E33	07	14.5			CRO	28	2	3	3
10407		LEAR	07	12	0053	N10	E30	07	14.3		B	CSO	20	4	4	3
10407		TACH	07	12	0507	N11	E29	07	14.4			BXO	20	2	3	4
10407		SVTO	07	12	0604	N11	E28	07	14.3		B	CSO	20	3	4	3
10407	31795	MWIL	07	12	1445	N10	E23	07	14.3	4	(B)					
10407		VORO	07	12	2229	N10	E17	07	14.2			CRO	33	3	4	2
10407		LEAR	07	13	0136	N10	E14	07	14.1		A	HSX	10	1	1	2
10407		TACH	07	13	0509	N10	E14	07	14.3			BRO	14	2	5	3
10407		SVTO	07	13	0617	N09	E12	07	14.2		B	CRO	20	2	2	3
10407		KAND	07	13	0750	N09	E12	07	14.2			CRO		3	5	4
10407	31795	MWIL	07	13	1445	N10	E07	07	14.1	5	(BP)					
10407		HOLL	07	13	1507	N10	E07	07	14.1		B	CSO	10	4	3	3
10407		LEAR	07	14	0133	N10	E01	07	14.1		B	CSO	30	6	4	3
10407		TACH	07	14	0437	N11	W01	07	14.1			BRO	7	3	4	5
10407		SVTO	07	14	0552	N09	W01	07	14.2		B	CSO	20	5	4	2
10407		KAND	07	14	0630	N10	W02	07	14.1			CSO		2	3	3
10407		HOLL	07	14	1425	N08	W08	07	14.0		B	DAO	40	12	8	4
10407	31795	MWIL	07	14	1600	N09	W06	07	14.2	5	(B)					
10407		VORO	07	14	2151	N10	W10	07	14.1			DRI	17	8	3	3
10407		LEAR	07	15	0015	N09	W12	07	14.1		B	DAO	40	8	4	3
10407		KAND	07	15	0720	N09	W16	07	14.1			CSO		7	7	4
10407		HOLL	07	15	1356	N09	W19	07	14.1		B	CSO	10	4	5	3
10407	31795	MWIL	07	15	1445	N08	W20	07	14.1	4	(B)					
10407	31804	MWIL	07	15	1445	N11	W24	07	13.8	4	(B)					
10407		VORO	07	15	2147	N10	W21	07	14.3			HRX	8	3		3
10407		VORO	07	15	2147	N12	W29	07	13.7			AXX	1	1		3
10407		LEAR	07	16	0400	N09	W26	07	14.2		B	CSO	20	3	3	3
10407		KAND	07	16	0650	N10	W26	07	14.3			BXO		2	3	4
10407		SVTO	07	16	0720	N09	W27	07	14.3		B	CRO	10	2	3	3
10407		HOLL	07	16	1400	N11	W30	07	14.3		A	AXX	10	3	1	4
10407	31795	MWIL	07	16	1445	N11	W32	07	14.2	4	(BF)					
10407		KAND	07	17	0635	N09	W42	07	14.1			AX		1	1	5
10408		LEAR	07	12	0053	N14	E48	07	15.7		B	BXO	10	2	4	3
10408	31797	MWIL	07	12	1445	N15	E42	07	15.8	4	(B)					
10408		VORO	07	12	2229	N14	E36	07	15.6			BXI	30	7	4	2
10408		LEAR	07	13	0136	N14	E34	07	15.6		B	CSO	20	4	5	2
10408		TACH	07	13	0509	N15	E30	07	15.5			AXX	9	1	1	3
10408		SVTO	07	13	0617	N13	E33	07	15.7		B	CRO	20	4	5	3
10408		KAND	07	13	0750	N13	E31	07	15.7			CRO		4	4	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
10408	31797	MWIL	07 13 1445	N14 E26	07 15.6	4	(B)					
10408		HOLL	07 13 1507	N13 E27	07 15.7		B	CSO	30	6	5	3
10408		LEAR	07 14 0133	N13 E20	07 15.6		B	CAO	20	3	4	3
10408		TACH	07 14 0437	N15 E20	07 15.7			AXX	11	1	1	5
10408		SVTO	07 14 0552	N14 E21	07 15.8		B	CSO	20	2	3	2
10408		KAND	07 14 0630	N14 E19	07 15.7			HR		1	1	3
10408		HOLL	07 14 1425	N13 E12	07 15.5		B	CAO	20	7	3	4
10408	31797	MWIL	07 14 1600	N14 E14	07 15.7	4	(B)					
10408		VORO	07 14 2151	N14 E10	07 15.7			HRX	7	2		3
10408		LEAR	07 15 0015	N13 E09	07 15.7		B	DAO	20	3	2	3
10408		TACH	07 15 0539	N14 E06	07 15.7			AXX	13	1	1	4
10408		KAND	07 15 0720	N13 E06	07 15.7			CSO		2	2	4
10408		SVTO	07 15 0720	N14 E05	07 15.7		B	CRO	20	2	2	3
10408		HOLL	07 15 1356	N13 E02	07 15.7		B	CSO	20	7	5	3
10408	31797	MWIL	07 15 1445	N14 W00	07 15.6	5	(B)					
10408		VORO	07 15 2147	N14 W03	07 15.7			AXX	5	1		3
10408		LEAR	07 16 0400	N14 W08	07 15.6		B	CSO	20	2	2	3
10408		KAND	07 16 0650	N14 W07	07 15.7			HR		1	1	4
10408		SVTO	07 16 0720	N14 W08	07 15.7		A	HRX	10	1	1	3
10408		HOLL	07 16 1400	N13 W12	07 15.7		B	BXO	10	4	3	4
10408	31797	MWIL	07 16 1445	N14 W14	07 15.5	4	(AP)					
10408		VORO	07 16 2159	N14 W17	07 15.6			ARX	6	3		3
10408		LEAR	07 17 0145	N12 W19	07 15.6		B	CSO	20	2	3	3
10408		KAND	07 17 0635	N13 W19	07 15.8			CSO		2	4	5
10408		TACH	07 17 0809	N12 W23	07 15.6			HSX	27	1	1	4
10408		HOLL	07 17 1635	N13 W28	07 15.6		A	HSX	10	1	1	3
10408		LEAR	07 18 0025	N13 W33	07 15.5		A	HSX	10	1		3
10408		VORO	07 18 0335	N13 W35	07 15.5			AXX	5	1		2
10408A		TACH	07 16 0635	N02 W08	07 15.7			AXX	8	1	1	4
10405		VORO	07 10 2358	S10 E77	07 16.8			HAX	45	2		3
10405		LEAR	07 11 0111	S10 E77	07 16.8		B	DAO	80	6	5	3
10405		SVTO	07 11 0635	S10 E75	07 16.9		A	HSX	60	1	2	3
10405		KAND	07 11 0745	S10 E70	07 16.6			HA		3	2	5
10405	31796	MWIL	07 11 1445	S10 E69	07 16.8	5	(BP)					
10405		HOLL	07 11 1500	S09 E70	07 16.9		A	HAX	100	3	4	3
10405		VORO	07 11 2151	S09 E68	07 17.0			CAO	129	3	6	3
10405		LEAR	07 12 0053	S11 E65	07 16.9		B	CAO	190	3	7	3
10405		TACH	07 12 0507	S09 E60	07 16.7			HSX	63	1	2	4
10405		SVTO	07 12 0604	S09 E59	07 16.7		A	HAX	40	1	1	3
10405	31796	MWIL	07 12 1445	S10 E57	07 16.9	5	(BP)					
10405		VORO	07 12 2229	S10 E53	07 16.9			DAI	214	11	4	2
10405		LEAR	07 13 0136	S11 E52	07 17.0		B	CAO	100	8	7	2
10405		TACH	07 13 0509	S09 E48	07 16.8			CSO	32	2	6	3
10405		SVTO	07 13 0617	S11 E50	07 17.0		B	CSO	80	7	6	3
10405		KAND	07 13 0750	S10 E48	07 16.9			DSO		6	6	4
10405	31796	MWIL	07 13 1445	S10 E45	07 17.0	5	(B)					
10405		HOLL	07 13 1507	S11 E45	07 17.0		B	DAO	90	14	9	3
10405		LEAR	07 14 0133	S11 E38	07 16.9		B	DAO	90	19	7	3
10405		TACH	07 14 0437	S10 E37	07 17.0			CAI	52	4	6	5
10405		SVTO	07 14 0552	S11 E37	07 17.0		B	CSO	70	7	7	2
10405		KAND	07 14 0630	S11 E36	07 17.0			CAO		9	8	3
10405		HOLL	07 14 1425	S11 E34	07 17.1		B	DAO	50	26	8	4
10405	31796	MWIL	07 14 1600	S11 E32	07 17.1	5	(B)					
10405		VORO	07 14 2151	S10 E27	07 16.9			DAI	91	10	7	3
10405		LEAR	07 15 0015	S11 E26	07 17.0		B	DSO	110	16	7	3
10405		TACH	07 15 0539	S10 E22	07 16.9			CSO	36	3	6	4
10405		SVTO	07 15 0720	S10 E22	07 16.9		B	DAO	120	4	7	3
10405		KAND	07 15 0720	S11 E24	07 17.1			CAO		9	7	4
10405		HOLL	07 15 1356	S11 E19	07 17.0		B	DSO	70	13	7	3
10405	31796	MWIL	07 15 1445	S11 E18	07 17.0	5	(B)					
10405		VORO	07 15 2147	S10 E14	07 16.9			DRI	70	7	6	3
10405		LEAR	07 16 0400	S11 E12	07 17.1		B	DSO	30	6	6	3
10405		TACH	07 16 0635	S11 E09	07 16.9			CSO	60	2	6	4
10405		KAND	07 16 0650	S11 E10	07 17.0			CSO		3	8	4
10405		SVTO	07 16 0720	S11 E08	07 16.9		B	CSO	40	3	6	3
10405		HOLL	07 16 1400	S10 E06	07 17.0		B	CAO	60	6	8	4
10405	31796	MWIL	07 16 1445	S10 E04	07 16.9	5	(BP)					

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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
10405		VORO	07 16 2159	S10 W03	07 16.7			HHX	59	2		3
10405		LEAR	07 17 0145	S11 W04	07 16.8		B	CSO	20	3	2	3
10405		KAND	07 17 0635	S11 W06	07 16.8			CAO		2	2	5
10405		TACH	07 17 0809	S12 W08	07 16.7			CAO	47	3	1	4
10405		HOLL	07 17 1635	S09 W12	07 16.8		A	HSX	20	3	2	3
10405		LEAR	07 18 0025	S09 W18	07 16.7		A	HSX	50	1	1	3
10405		VORO	07 18 0335	S10 W19	07 16.7			HAX	31	1		2
10405		TACH	07 18 0519	S10 W20	07 16.7			HSX	55	1	1	4
10405		KAND	07 18 0615	S11 W20	07 16.7			HS		1	2	5
10405		HOLL	07 18 1446	S10 W23	07 16.9		A	HSX	20	6	7	3
10405		LEAR	07 19 0050	S09 W32	07 16.6		A	HSX	30	2	2	3
10405		KAND	07 19 0530	S10 W33	07 16.7			HS		1	1	5
10405		SVTO	07 19 0630	S12 W34	07 16.7		A	HSX	20	1	1	3
10405		TACH	07 19 0709	S11 W34	07 16.7			AXX	16	1	1	4
10405		HOLL	07 19 1447	S09 W38	07 16.8		A	HSX	30	2	2	4
10405	31796	MWIL	07 19 1600	S10 W40	07 16.7	4	(AP)					
10405		LEAR	07 20 0125	S09 W46	07 16.6		A	AXX	10	2	1	2
10405		SVTO	07 20 0530	S13 W47	07 16.7		A	HSX	20	1	1	3
10405		TACH	07 20 0555	S12 W50	07 16.5			AXX	16	1	1	4
10405		HOLL	07 20 1444	S10 W53	07 16.6		A	HSX	20	1	1	4
10405		LEAR	07 21 0050	S10 W59	07 16.6		A	HSX	20	1	1	2
10405		KAND	07 21 0640	S11 W61	07 16.7			AX		1	1	5
10405		TACH	07 21 0641	S11 W62	07 16.6			AXX	6	1	1	4
10405		SVTO	07 21 0740	S14 W64	07 16.5		A	AXX		1		3
10405	31796	MWIL	07 21 1445	S10 W67	07 16.6	4	(AP)					
10405		HOLL	07 21 1636	S09 W68	07 16.6		A	AXX	30	1	1	4
10405		LEAR	07 22 0015	S09 W71	07 16.7		A	HSX	10	1		3
10405		HOLL	07 22 1505	S07 W78	07 16.8		A	AXX	20	1	1	3
10416	31805	MWIL	07 19 1600	S08 W24	07 17.9	4	(B)					
10416		LEAR	07 20 0125	S07 W29	07 17.9		B	BXO	20	5	3	2
10416		SVTO	07 20 0530	S11 W32	07 17.8		B	DSO	40	3	4	3
10416		KAND	07 20 0555	S08 W32	07 17.8			CSO		6	5	5
10416		TACH	07 20 0555	S09 W32	07 17.8			BRO	15	3	4	4
10416		HOLL	07 20 1444	S08 W36	07 17.9		B	DAO	50	6	6	4
10416		LEAR	07 21 0050	S08 W43	07 17.8		B	DSO	50	3	5	2
10416		KAND	07 21 0640	S08 W45	07 17.9			DSO		2	7	5
10416		TACH	07 21 0641	S08 W46	07 17.8			BRO	27	3	6	4
10416		SVTO	07 21 0740	S11 W47	07 17.8		B	DSO	380	4	7	3
10416	31805	MWIL	07 21 1445	S08 W50	07 17.9	4	(B)					
10416		HOLL	07 21 1636	S07 W55	07 17.6		B	CAO	70	4	7	4
10416		LEAR	07 22 0015	S07 W56	07 17.8		B	DSO	50	4	7	3
10416		SVTO	07 22 0530	S08 W59	07 17.8		B	CRO	40	3	8	3
10416		TACH	07 22 0639	S07 W57	07 18.0			AXX	19	1	1	3
10416		KAND	07 22 0730	S07 W58	07 18.0			HS		1	3	3
10416	31805	MWIL	07 22 1430	S07 W64	07 17.8	4	(B)					
10416		HOLL	07 22 1505	S07 W63	07 17.9		B	BXO	20	2	2	3
10416		LEAR	07 23 0131	S07 W70	07 17.8		B	BXO	20	3	6	3
10417	31806	HOLL	07 19 1447	S20 W18	07 18.2		B	BXO	20	8	4	4
10417		MWIL	07 19 1600	S20 W20	07 18.1	4	(BP)					
10417		LEAR	07 20 0125	S20 W25	07 18.1		BG	CSO	100	23	5	2
10417		SVTO	07 20 0530	S23 W26	07 18.2		B	DSO	110	19	7	3
10417		KAND	07 20 0555	S21 W25	07 18.3			CSO		14	8	5
10417		TACH	07 20 0555	S22 W27	07 18.2			BRI	22	12	4	4
10417		HOLL	07 20 1444	S21 W32	07 18.2		B	DSO	120	28	7	4
10417		LEAR	07 21 0050	S21 W37	07 18.2		BG	DSO	110	18	6	2
10417		KAND	07 21 0640	S22 W40	07 18.2			DAC		14	8	5
10417		TACH	07 21 0641	S22 W40	07 18.2			DAI	125	9	7	4
10417		SVTO	07 21 0740	S25 W41	07 18.1		B	DSO	120	26	8	3
10417	31806	MWIL	07 21 1445	S21 W44	07 18.2	4	(BG)					
10417		HOLL	07 21 1636	S19 W45	07 18.2		BGD	DAI	190	14	8	4
10417		LEAR	07 22 0015	S21 W50	07 18.2		BG	DAI	260	22	9	3
10417		SVTO	07 22 0530	S22 W54	07 18.1		BG	EAI	220	16	11	3
10417		TACH	07 22 0639	S21 W54	07 18.1			DAI	323	7	7	3
10417		KAND	07 22 0730	S22 W55	07 18.1			EHO		10	11	3
10417	31806	MWIL	07 22 1430	S22 W58	07 18.1	5	(D)					
10417		HOLL	07 22 1505	S20 W60	07 18.0		BG	DAI	600	15	10	3
10417		LEAR	07 23 0131	S22 W64	07 18.1		BG	EAI	330	19	11	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10417		SVTO	07 23 0630	S22 W67	07 18.1		BG	ESI	310	12	14	3
10417		KAND	07 23 0650	S22 W69	07 18.0			ESO		6	12	4
10417		TACH	07 23 0719	S23 W68	07 18.1			DAI	372	7	8	4
10417		HOLL	07 23 1350	S22 W72	07 18.0		BG	DAI	170	13	9	4
10417	31806	MWIL	07 23 1430	S21 W70	07 18.2	5	(D)					
10417		LEAR	07 24 0137	S21 W75	07 18.3		B	DAO	150	5	10	1
10417		TACH	07 24 0506	S23 W75	07 18.4			HA	122	2	3	4
10417		SVTO	07 24 1015	S18 W85	07 17.9		B	CSO	90	5	9	3
10417	31806	MWIL	07 24 1430	S22 W84	07 18.1	4	(AF)					
10412	31799	MWIL	07 12 1445	N16 E81	07 18.7	4	AP					
10412		VORO	07 12 2358	N18 E76	07 18.8			AXX	9	1		3
10412		KAND	07 13 0750	N18 E74	07 19.0			HS		1	2	4
10412	31799	MWIL	07 13 1445	N17 E66	07 18.6	4	(AP)					
10412		KAND	07 14 0630	N17 E58	07 18.7			AX		2	2	3
10412	31799	MWIL	07 14 1600	N17 E52	07 18.6	4	(AP)					
10412		VORO	07 14 2151	N17 E51	07 18.8			DRI	26	4	7	3
10412		TACH	07 15 0539	N16 E41	07 18.3			AXX	20	1	1	4
10412		KAND	07 15 0720	N16 E42	07 18.5			AX		2	1	4
10412	31799	MWIL	07 15 1445	N16 E37	07 18.4	4	(AP)					
10412		VORO	07 15 2147	N16 E35	07 18.6			BXI	25	5	6	3
10412		TACH	07 16 0635	N15 E27	07 18.3			AXX	11	1	1	4
10412		KAND	07 16 0650	N16 E28	07 18.4			CSO		3	1	4
10412		HOLL	07 16 1400	N16 E24	07 18.4		B	CSO	30	8	4	4
10412	31799	MWIL	07 16 1445	N16 E23	07 18.3	5	(BG)					
10412		VORO	07 16 2159	N15 E22	07 18.6			CRI	36	11	8	3
10412		LEAR	07 17 0145	N16 E16	07 18.3		B	DSI	40	6	2	3
10412		KAND	07 17 0635	N16 E15	07 18.4			CAO		10	4	5
10412		TACH	07 17 0809	N15 E14	07 18.4			BRI	33	5	3	4
10412		HOLL	07 17 1635	N16 E09	07 18.4		B	DAI	70	24	8	3
10412		LEAR	07 18 0025	N16 E05	07 18.4		B	DAI	120	26	7	3
10412		VORO	07 18 0335	N15 E05	07 18.5			DAI	102	14	8	2
10412		TACH	07 18 0519	N16 E02	07 18.4			CAI	42	6	4	4
10412		KAND	07 18 0615	N15 E02	07 18.4			DSO		9	6	5
10412		HOLL	07 18 1446	N18 E00	07 18.6		BG	DAI	70	27	10	3
10412		LEAR	07 19 0050	N17 W07	07 18.5		BG	DAI	110	22	8	3
10412		KAND	07 19 0530	N16 W10	07 18.5			DAO		9	9	5
10412		SVTO	07 19 0630	N16 W12	07 18.4		BG	DAC	110	12	9	3
10412		TACH	07 19 0709	N15 W10	07 18.5			CAI	96	7	6	4
10412		HOLL	07 19 1447	N17 W16	07 18.4		BGD	DAI	200	21	9	4
10412	31799	MWIL	07 19 1600	N16 W16	07 18.4	5	(D)					
10412		LEAR	07 20 0125	N17 W21	07 18.5		BG	DAO	180	15	9	2
10412		SVTO	07 20 0530	N16 W25	07 18.3		BG	DSI	220	13	8	3
10412		TACH	07 20 0555	N15 W24	07 18.4			BRI	82	8	7	4
10412		KAND	07 20 0555	N17 W24	07 18.4			DAO		7	10	5
10412		HOLL	07 20 1444	N17 W28	07 18.5		BG	DAC	190	28	9	4
10412		LEAR	07 21 0050	N16 W35	07 18.4		BG	DSI	170	13	8	2
10412		KAND	07 21 0640	N16 W35	07 18.6			DAO		6	8	5
10412		TACH	07 21 0641	N15 W37	07 18.5			DAI	114	7	8	4
10412		SVTO	07 21 0740	N13 W38	07 18.4		BG	EAO	180	16	11	3
10412	31799	MWIL	07 21 1445	N16 W41	07 18.5	5	(B)					
10412		HOLL	07 21 1636	N17 W44	07 18.3		BG	DAI	180	9	10	4
10412		LEAR	07 22 0015	N16 W47	07 18.4		B	DAO	170	12	10	3
10412		SVTO	07 22 0530	N16 W49	07 18.5		B	DSO	210	8	10	3
10412		TACH	07 22 0639	N16 W50	07 18.5			DAI	110	4	7	3
10412		KAND	07 22 0730	N16 W50	07 18.5			DSO		5	9	3
10412	31799	MWIL	07 22 1430	N16 W54	07 18.5	5	(B)					
10412		HOLL	07 22 1505	N15 W55	07 18.5		BG	DAO	170	8	10	3
10412		LEAR	07 23 0131	N16 W61	07 18.4		B	DAO	190	9	8	3
10412		SVTO	07 23 0630	N16 W64	07 18.4		B	DSO	80	2	8	3
10412		KAND	07 23 0650	N16 W63	07 18.5			DSO		4	8	4
10412		TACH	07 23 0719	N15 W63	07 18.5			DSO	121	2	6	4
10412		HOLL	07 23 1350	N15 W67	07 18.5		B	DAO	140	4	8	4
10412	31799	MWIL	07 23 1430	N15 W68	07 18.4	4	(B)					
10412		LEAR	07 24 0137	N16 W74	07 18.4		B	DSO	120	3	9	1
10412		TACH	07 24 0506	N15 W75	07 18.5			DSO	220	2	4	4
10412		KAND	07 24 0725	N16 W77	07 18.5			DAO		4	10	3
10412		SVTO	07 24 1015	N12 W80	07 18.4		A	HSX	30	1	2	3
10412	31799	MWIL	07 24 1430	N15 W80	07 18.5	4	(B)					

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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
10412		HOLL	07 24	1717	N15 W81	07 18.6		A	HAX	30	1	1	4
10412		LEAR	07 25	0405	N17 W86	07 18.6		A	HSX	30	1	1	4
10410	31798	MWIL	07 12	1445	S13 E78	07 18.5	4	(AP)					
10410		VORO	07 12	2229	S13 E76	07 18.7			CAO	141	3	5	2
10410		LEAR	07 13	0136	S14 E73	07 18.6		B	CAO	60	2	5	2
10410		TACH	07 13	0509	S12 E70	07 18.5			HSX	55	1	1	3
10410		SVTO	07 13	0617	S13 E72	07 18.7		B	CRO	30	2	4	3
10410		KAND	07 13	0750	S13 E70	07 18.6			HS		1	2	4
10410	31798	MWIL	07 13	1445	S13 E67	07 18.7	4	(B)					
10410		HOLL	07 13	1507	S13 E67	07 18.7		B	CSO	40	2	5	3
10410		LEAR	07 14	0133	S13 E61	07 18.7		B	CSO	30	3	5	3
10410		TACH	07 14	0437	S12 E60	07 18.7			CSO	36	2	5	5
10410		SVTO	07 14	0552	S12 E60	07 18.8		B	CSO	20	2	5	2
10410		KAND	07 14	0630	S13 E60	07 18.8			CSO		2	6	3
10410		HOLL	07 14	1425	S14 E53	07 18.6		A	HSX	30	4	4	4
10410	31798	MWIL	07 14	1600	S13 E55	07 18.8	4	(B)					
10410		VORO	07 14	2151	S12 E52	07 18.8			CRI	22	3	6	3
10410		LEAR	07 15	0015	S13 E51	07 18.8		B	DAO	30	4	6	3
10410		TACH	07 15	0539	S11 E48	07 18.8			AR	5	2	2	4
10410		SVTO	07 15	0720	S12 E47	07 18.8		B	BXO	20	3	6	3
10410		KAND	07 15	0720	S13 E47	07 18.8			CSO		3	5	4
10410		HOLL	07 15	1356	S12 E44	07 18.9		B	CSO	20	2	3	3
10410	31798	MWIL	07 15	1445	S12 E45	07 19.0	4	(BG)					
10410		VORO	07 15	2147	S12 E40	07 18.9			CRI	28	8	5	3
10410		LEAR	07 16	0400	S11 E38	07 19.0		BG	DSO	50	4	5	3
10410		TACH	07 16	0635	S12 E36	07 19.0			CAO	67	3	4	4
10410		KAND	07 16	0650	S12 E37	07 19.1			DSO		4	6	4
10410		SVTO	07 16	0720	S12 E36	07 19.0		B	DSO	50	4	5	3
10410		HOLL	07 16	1400	S12 E33	07 19.1		B	DAO	100	14	7	4
10410	31798	MWIL	07 16	1445	S12 E32	07 19.0	5	(D)					
10410		VORO	07 16	2159	S11 E26	07 18.9			DAO	151	17	5	3
10410		LEAR	07 17	0145	S12 E25	07 18.9		BG	DSO	90	13	6	3
10410		KAND	07 17	0635	S12 E22	07 18.9			CAI		23	8	5
10410		TACH	07 17	0809	S12 E21	07 18.9			CAI	141	11	5	4
10410		HOLL	07 17	1635	S11 E15	07 18.8		BG	DAC	230	45	9	3
10410		LEAR	07 18	0025	S11 E12	07 18.9		B	DAI	250	41	9	3
10410		VORO	07 18	0335	S11 E10	07 18.9			DAI	244	29	8	2
10410		TACH	07 18	0519	S12 E10	07 19.0			DAI	278	12	8	4
10410		KAND	07 18	0615	S12 E10	07 19.0			DSC		18	9	5
10410		HOLL	07 18	1446	S11 E03	07 18.8		B	DAI	190	42	10	3
10410		LEAR	07 19	0050	S11 W02	07 18.9		BG	DAI	190	36	10	3
10410		KAND	07 19	0530	S11 W04	07 18.9			EKC		31	11	5
10410		SVTO	07 19	0630	S12 W04	07 19.0		BG	EAC	310	28	11	3
10410		TACH	07 19	0709	S12 W05	07 18.9			DAI	307	15	9	4
10410		HOLL	07 19	1447	S11 W08	07 19.0		BG	EKC	370	46	11	4
10410	31798	MWIL	07 19	1600	S11 W10	07 18.9	5	(D)					
10410		LEAR	07 20	0125	S11 W15	07 18.9		BGD	DKC	700	62	10	2
10410		SVTO	07 20	0530	S13 W16	07 19.0		BG	EAC	570	32	12	3
10410		KAND	07 20	0555	S11 W16	07 19.0			EKO		12	11	5
10410		TACH	07 20	0555	S12 W16	07 19.0			CHI	483	16	7	4
10410		HOLL	07 20	1444	S11 W22	07 18.9		BG	EKC	510	64	12	4
10410		LEAR	07 21	0050	S11 W27	07 19.0		BGD	EKC	530	38	11	2
10410		KAND	07 21	0640	S12 W30	07 19.0			DKC		14	10	5
10410		TACH	07 21	0641	S13 W30	07 19.0			DHI	941	15	8	4
10410		SVTO	07 21	0740	S14 W30	07 19.0		BG	EKC	750	43	11	3
10410	31798	MWIL	07 21	1445	S12 W35	07 19.0	5	(BG)					
10410		HOLL	07 21	1636	S12 W37	07 18.9		BG	DKC	700	30	10	4
10410		LEAR	07 22	0015	S12 W40	07 19.0		B	EKI	830	46	11	3
10410		SVTO	07 22	0530	S13 W44	07 18.9		BG	EKI	850	34	14	3
10410		TACH	07 22	0639	S12 W44	07 19.0			DKI	952	10	9	3
10410		KAND	07 22	0730	S12 W45	07 18.9			DKO		17	10	3
10410	31798	MWIL	07 22	1430	S12 W47	07 19.1	5	(BG)					
10410		HOLL	07 22	1505	S13 W47	07 19.1		B	EKI	710	23	11	3
10410		LEAR	07 23	0131	S12 W54	07 19.0		B	EKI	760	35	11	3
10410		SVTO	07 23	0630	S13 W57	07 19.0		B	EKI	770	17	13	3
10410		KAND	07 23	0650	S12 W56	07 19.1			EKO		7	13	4
10410		TACH	07 23	0719	S13 W56	07 19.1			DAI	772	7	8	4
10410		HOLL	07 23	1350	S13 W60	07 19.0		B	EKI	600	14	11	4

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10410	31798	MWIL	07 23	1430	S12	W60	07 19.1	5	(BG)					
10410		LEAR	07 24	0137	S12	W66	07 19.1		BG	EKO	700	13	12	1
10410		TACH	07 24	0506	S13	W69	07 19.0			DHO	1319	5	9	4
10410		KAND	07 24	0725	S12	W70	07 19.0			EKO		8	15	3
10410		SVTO	07 24	1015	S16	W75	07 18.7		BG	EKO	600	13	14	3
10410	31798	MWIL	07 24	1430	S13	W73	07 19.1	5	(B)					
10410		HOLL	07 24	1717	S12	W75	07 19.1		BG	EKI	540	10	12	4
10410		LEAR	07 25	0405	S12	W80	07 19.1		B	DAO	100	8	5	4
10410		TACH	07 25	0610	S12	W78	07 19.4			HR	118	2	2	3
10410		KAND	07 25	0727	S11	W79	07 19.4			CAO		3	4	3
10410		SVTO	07 25	0745	S14	W85	07 18.9		B	DSO	60	2	10	3
10410		VORO	07 25	0755	S12	W78	07 19.4			HKX	249	3		3
10410		HOLL	07 25	1421	S13	W86	07 19.1		A	HKX	60	1	9	4
10410	31798	MWIL	07 25	1430	S13	W86	07 19.1	4	(AF)					
10409		VORO	07 12	2358	N14	E81	07 19.1			HKX	328	3		3
10409		LEAR	07 13	0136	N15	E76	07 18.8		BG	DAO	200	6	9	2
10409		TACH	07 13	0509	N17	E75	07 18.9			CAO	113	3	6	3
10409		SVTO	07 13	0617	N16	E75	07 18.9		B	ESO	210	7	11	3
10409		KAND	07 13	0750	N15	E80	07 19.4			DAO		2	8	4
10409	31801	MWIL	07 13	1445	N14	E73	07 19.1	5	(B)					
10409		HOLL	07 13	1507	N16	E71	07 19.0		B	EKI	310	17	11	3
10409		LEAR	07 14	0133	N14	E66	07 19.0		BG	EAO	360	22	15	3
10409		TACH	07 14	0437	N16	E62	07 18.9			CAO	270	4	7	5
10409		SVTO	07 14	0552	N16	E64	07 19.1		B	EAO	160	7	14	2
10409		KAND	07 14	0630	N14	E68	07 19.4			EAO		8	15	3
10409		HOLL	07 14	1425	N15	E60	07 19.1		B	FKI	440	32	18	4
10409	31801	MWIL	07 14	1600	N14	E61	07 19.3	5	(BG)					
10409		VORO	07 14	2151	N16	E59	07 19.4			DKI	550	25	9	3
10409		LEAR	07 15	0015	N14	E54	07 19.1		B	FAI	430	25	17	3
10409		TACH	07 15	0539	N14	E53	07 19.2			CAI	448	9	6	4
10409		KAND	07 15	0720	N15	E55	07 19.5			EAO		19	15	4
10409		SVTO	07 15	0720	N16	E49	07 19.0		B	FKC	690	12	18	3
10409		HOLL	07 15	1356	N16	E48	07 19.2		BG	FKC	360	49	19	3
10409	31801	MWIL	07 15	1445	N15	E47	07 19.2	5	(BG)					
10409		VORO	07 15	2147	N15	E46	07 19.4			DKI	530	32	8	3
10409		LEAR	07 16	0400	N16	E43	07 19.4		B	FAI	190	26	20	3
10409		TACH	07 16	0635	N15	E42	07 19.4			DAI	289	9	9	4
10409		KAND	07 16	0650	N15	E40	07 19.3			EKI		15	14	4
10409		SVTO	07 16	0720	N15	E37	07 19.1		B	FKI	440	18	20	3
10409		HOLL	07 16	1400	N16	E37	07 19.4		BG	FKC	280	52	16	4
10409	31801	MWIL	07 16	1445	N15	E36	07 19.3	5	(B)					
10409		VORO	07 16	2159	N15	E32	07 19.3			DAI	450	29	9	3
10409		LEAR	07 17	0145	N15	E30	07 19.3		BG	EAI	230	28	13	3
10409		KAND	07 17	0635	N15	E28	07 19.4			EAI		36	13	5
10409		TACH	07 17	0809	N15	E25	07 19.2			DAI	190	16	12	4
10409		HOLL	07 17	1635	N15	E22	07 19.3		BG	EAI	190	61	14	3
10409		LEAR	07 18	0025	N15	E16	07 19.2		BG	EAI	220	40	12	3
10409		VORO	07 18	0335	N15	E15	07 19.3			DRI	165	14	8	2
10409		TACH	07 18	0519	N14	E15	07 19.3			DAI	129	9	10	4
10409		KAND	07 18	0615	N14	E11	07 19.1			FAO		15	16	5
10409		HOLL	07 18	1446	N15	E10	07 19.4		B	DAO	90	31	9	3
10409		LEAR	07 19	0050	N15	E05	07 19.4		B	EAO	140	35	14	3
10409		KAND	07 19	0530	N16	E01	07 19.3			DAI		14	9	5
10409		SVTO	07 19	0630	N15	W01	07 19.2		B	DSI	100	16	9	3
10409		TACH	07 19	0709	N15	E02	07 19.4			CAI	57	7	4	4
10409		HOLL	07 19	1447	N15	W04	07 19.3		B	EAI	110	35	12	4
10409	31801	MWIL	07 19	1600	N15	W06	07 19.2	5	(BP)					
10409		LEAR	07 20	0125	N16	W10	07 19.3		B	DAO	160	20	6	2
10409		SVTO	07 20	0530	N15	W13	07 19.2		B	DAO	160	12	6	3
10409		TACH	07 20	0555	N14	W08	07 19.6			BRI	30	10	7	4
10409		KAND	07 20	0555	N15	W12	07 19.3			CSO		14	7	5
10409		HOLL	07 20	1444	N15	W18	07 19.2		B	DAO	80	27	8	4
10409		LEAR	07 21	0050	N15	W25	07 19.1		B	DAO	90	16	9	2
10409		KAND	07 21	0640	N15	W25	07 19.4			DAO		18	8	5
10409		TACH	07 21	0641	N16	W26	07 19.3			CAI	72	8	6	4
10409		SVTO	07 21	0740	N13	W28	07 19.2		B	CRO	30	19	5	3
10409	31801	MWIL	07 21	1445	N15	W29	07 19.4	5	(BG)					
10409		HOLL	07 21	1636	N17	W33	07 19.2		B	DAO	70	19	12	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
10409	31801	LEAR	07 22 0015	N15 W35	07 19.4		B	CSO	70	11	7	3
10409		SVTO	07 22 0530	N16 W37	07 19.4		B	CSO	60	13	6	3
10409		TACH	07 22 0639	N15 W39	07 19.3			HSX	29	1	1	3
10409		KAND	07 22 0730	N15 W40	07 19.3			CSO		3	2	3
10409		MWIL	07 22 1430	N14 W44	07 19.3	4	(BG)					
10409		HOLL	07 22 1505	N16 W45	07 19.2		B	DAO	40	10	7	3
10409		LEAR	07 23 0131	N15 W47	07 19.5		B	CAO	90	15	9	3
10409		SVTO	07 23 0630	N15 W54	07 19.2		B	CSO	50	5	4	3
10409		KAND	07 23 0650	N13 W54	07 19.2			CSO		5	4	4
10409		TACH	07 23 0719	N14 W52	07 19.4			HA	46	2	2	4
10409	31801	HOLL	07 23 1350	N14 W56	07 19.3		B	DAO	70	5	9	4
10409		MWIL	07 23 1430	N15 W56	07 19.4	5	(BG)					
10409		LEAR	07 24 0137	N15 W64	07 19.2		B	CSO	50	2	3	1
10409		TACH	07 24 0506	N13 W67	07 19.1			HR	50	2	2	4
10409		KAND	07 24 0725	N14 W67	07 19.2			CAO		5	5	3
10409		SVTO	07 24 1015	N12 W69	07 19.2		B	CSO	60	6	6	3
10409		MWIL	07 24 1430	N14 W70	07 19.3	5	(BG)					
10409		HOLL	07 24 1717	N14 W73	07 19.2		B	CSO	30	2	2	4
10409		LEAR	07 25 0405	N16 W78	07 19.2		A	HRX	20	2	2	4
10409		TACH	07 25 0610	N15 W80	07 19.2			AR	26	2	2	3
10409	31801	KAND	07 25 0727	N16 W76	07 19.5			CRI		7	6	3
10409		VORO	07 25 0755	N15 W80	07 19.3			HRX	40	3		3
10409		MWIL	07 25 1430	N14 W85	07 19.2	4	AP					
10418	31807	HOLL	07 18 1446	S05 E25	07 20.5		A	AXX	10	3	3	3
10418		KAND	07 19 0530	S05 E15	07 20.3			AX		1	1	5
10418		HOLL	07 19 1447	S05 E10	07 20.4		B	BXO	10	3	3	4
10418		MWIL	07 19 1600	S06 E09	07 20.3	4	(AP)					
10418		LEAR	07 20 0125	S05 E03	07 20.3		B	BXO	10	3	3	2
10418		SVTO	07 20 0530	S05 E02	07 20.4		B	CSO	30	3	3	3
10418		KAND	07 20 0555	S05 E01	07 20.3			CRO		3	2	5
10418		TACH	07 20 0555	S06 W00	07 20.2			AR	4	3	2	4
10418		HOLL	07 20 1444	S06 W05	07 20.2		B	CSO	30	5	4	4
10418		LEAR	07 21 0050	S05 W11	07 20.2		B	CSO	30	2	1	2
10418	31807	KAND	07 21 0640	S05 W14	07 20.2			DSO		2	3	5
10418		TACH	07 21 0641	S06 W14	07 20.2			BRO	16	3	3	4
10418		SVTO	07 21 0740	S07 W14	07 20.3		B	CSO	50	8	4	3
10418		MWIL	07 21 1445	S05 W18	07 20.3	4	(B)					
10418		HOLL	07 21 1636	S06 W20	07 20.2		B	CAO	40	4	5	4
10418		LEAR	07 22 0015	S06 W23	07 20.3		B	DAO	30	2	3	3
10418		SVTO	07 22 0530	S05 W27	07 20.2		B	CSO	30	3	3	3
10418		TACH	07 22 0639	S05 W26	07 20.3			BXO	18	2	4	3
10418		KAND	07 22 0730	S05 W28	07 20.2			CSO		3	4	3
10418		MWIL	07 22 1430	S05 W33	07 20.1	4	(B)					
10418	31807	HOLL	07 22 1505	S05 W34	07 20.1		A	AXX	10	1	1	3
10418		LEAR	07 23 0131	S05 W40	07 20.1		A	HSX	20	2	1	3
10418		SVTO	07 23 0630	S05 W42	07 20.1		A	HRX	10	1	1	3
10418		KAND	07 23 0650	S05 W42	07 20.1			HS		1	1	4
10418		TACH	07 23 0719	S06 W42	07 20.2			AXX	3	1	1	4
10418		HOLL	07 23 1350	S05 W46	07 20.1		A	HSX	20	2	2	4
10418		MWIL	07 23 1430	S05 W46	07 20.2	4	(AP)					
10418		LEAR	07 24 0137	S05 W52	07 20.2		A	AXX	10	1	1	1
10418		MWIL	07 24 1430	S06 W60	07 20.1	4	(AP)					
10413	31802	MWIL	07 14 1600	N18 E79	07 20.7	4	(AP)					
10413	31802	VORO	07 14 2151	N18 E75	07 20.6			ARX	18	1		3
10413		KAND	07 15 0720	N18 E72	07 20.8			HS		1	1	4
10413		MWIL	07 15 1445	N18 E66	07 20.6	5	(AP)					
10413		VORO	07 15 2147	N18 E62	07 20.6			ARX	13	1		3
10413	31802	KAND	07 16 0650	N18 E59	07 20.8			HS		1	1	4
10413		MWIL	07 16 1445	N18 E53	07 20.6	4	(AP)					
10413		VORO	07 16 2159	N18 E48	07 20.6			ARX	11	1		3
10413		LEAR	07 17 0145	N18 E46	07 20.6		A	AXX	20	1	1	3
10413	31802	KAND	07 17 0635	N18 E44	07 20.6			HS		1	1	5
10413		LEAR	07 18 0025	N19 E34	07 20.6		A	HSX	10	1	1	3
10413		VORO	07 18 0335	N19 E32	07 20.6			ARX	11	1		2
10413		KAND	07 18 0615	N18 E32	07 20.7			HS		2	1	5
10413	31802	HOLL	07 18 1446	N20 E27	07 20.7		A	AXX	10	1	1	3
10413		LEAR	07 19 0050	N19 E21	07 20.6		A	AXX	10	1	1	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10413	31802	KAND	07 19	0530	N20	E19	07 20.7			HR		1	1	5
10413		SVTO	07 19	0630	N16	E22	07 20.9		A	HSX	40	1	1	3
10413		HOLL	07 19	1447	N20	E12	07 20.5		A	AXX		1	1	4
10413		MWIL	07 19	1600	N20	E12	07 20.6	4	(AP)					
10413		LEAR	07 20	0125	N19	E07	07 20.6		A	AXX	10	1	1	2
10413		SVTO	07 20	0530	N20	E03	07 20.4		A	HRX	10	1	1	3
10413		KAND	07 20	0555	N20	E06	07 20.7			AX		1	1	5
10413		HOLL	07 20	1444	N20	W01	07 20.5		A	AXX		1	1	4
10413		LEAR	07 21	0050	N20	W06	07 20.6		A	HSX	20	1	1	2
10413		KAND	07 21	0640	N20	W10	07 20.5			BXO		2	2	5
10413	31802	SVTO	07 21	0740	N19	W11	07 20.5		A	AXX		1		3
10413		MWIL	07 21	1445	N20	W14	07 20.5	4	(AP)					
10413		HOLL	07 21	1636	N20	W16	07 20.5		A	AXX	10	1	1	4
10413		LEAR	07 22	0015	N20	W19	07 20.5		A	HRX		1		3
10411	31803	HOLL	07 14	1425	N16	E80	07 20.7		B	DAO	90	2	4	4
10411		MWIL	07 14	1600	N14	E85	07 21.1	4	(AP)					
10411		VORO	07 14	2151	N14	E78	07 20.8			HAX	68	1		3
10411		LEAR	07 15	0015	N15	E75	07 20.7		B	DSO	120	2	5	3
10411	31803	TACH	07 15	0539	N15	E71	07 20.6			DSO	105	2	2	4
10411		KAND	07 15	0720	N14	E74	07 20.9			HS		1	2	4
10411		SVTO	07 15	0720	N17	E70	07 20.6		B	CSO	80	2	6	3
10411		HOLL	07 15	1356	N17	E68	07 20.7		B	DAO	120	2	5	3
10411		MWIL	07 15	1445	N14	E70	07 20.9	5	(AP)					
10411		VORO	07 15	2147	N14	E66	07 20.9			HAX	101	1		3
10411		LEAR	07 16	0400	N17	E60	07 20.7		B	DSO	50	2	6	3
10411		TACH	07 16	0635	N15	E60	07 20.8			CSO	77	2	4	4
10411		KAND	07 16	0650	N14	E62	07 21.0			HA		1	2	4
10411		SVTO	07 16	0720	N15	E58	07 20.7		B	DSO	50	2	7	3
10411	31803	HOLL	07 16	1400	N17	E56	07 20.8		B	DSO	90	3	3	4
10411		HOLL	07 16	1400	N18	E54	07 20.7		A	HSX	30	1	1	4
10411		MWIL	07 16	1445	N14	E57	07 20.9	5	(AP)					
10411		VORO	07 16	2159	N14	E52	07 20.8			HHX	114	1		3
10411		LEAR	07 17	0145	N13	E50	07 20.8		A	HSX	30	1		3
10411		KAND	07 17	0635	N14	E49	07 21.0			HA		1	2	5
10411		TACH	07 17	0809	N15	E45	07 20.7			CSO	73	2	5	4
10411		HOLL	07 17	1635	N14	E42	07 20.9		A	HSX	50	1	2	3
10411		HOLL	07 17	1635	N18	E39	07 20.7		A	HSX	20	1	1	3
10411		LEAR	07 18	0025	N14	E38	07 20.9		A	HSX	70	1	2	3
10411	31803	VORO	07 18	0335	N14	E36	07 20.9			HSX	88	1		2
10411		TACH	07 18	0519	N16	E35	07 20.9			CSO	87	2	4	4
10411		KAND	07 18	0615	N14	E34	07 20.8			HS		1	2	5
10411		HOLL	07 18	1446	N15	E30	07 20.9		A	HAX	40	1	2	3
10411		LEAR	07 19	0050	N15	E25	07 20.9		A	HAX	50	2	3	3
10411		KAND	07 19	0530	N15	E23	07 21.0			CSO		2	4	5
10411		SVTO	07 19	0630	N12	E17	07 20.5		A	AXX		1		3
10411		TACH	07 19	0709	N16	E19	07 20.7			CSO	40	2	4	4
10411		HOLL	07 19	1447	N15	E18	07 21.0		A	HSX	40	1	2	4
10411		MWIL	07 19	1600	N14	E16	07 20.9	5	(AP)					
10411	31803	LEAR	07 20	0125	N15	E11	07 20.9		A	HSX	40	1	2	2
10411		SVTO	07 20	0530	N15	E08	07 20.8		A	HSX	60	1	2	3
10411		KAND	07 20	0555	N15	E10	07 21.0			HS		1	2	5
10411		TACH	07 20	0555	N16	E07	07 20.8			CSO	28	2	5	4
10411		HOLL	07 20	1444	N15	E03	07 20.8		A	HSX	40	2	2	4
10411		LEAR	07 21	0050	N15	W03	07 20.8		A	HSX	30	1	2	2
10411		KAND	07 21	0640	N13	W11	07 20.4			AX		1		5
10411		KAND	07 21	0640	N14	W04	07 21.0			HS		1	2	5
10411		TACH	07 21	0641	N16	W07	07 20.7			CSO	33	2	5	4
10411		SVTO	07 21	0740	N14	W07	07 20.8		A	HSX	40	1	1	3
10411	31803	MWIL	07 21	1445	N14	W09	07 20.9	5	(AP)					
10411		HOLL	07 21	1636	N15	W11	07 20.8		A	HSX	40	1	2	4
10411		LEAR	07 22	0015	N14	W15	07 20.9		A	HAX	60	1	1	3
10411		SVTO	07 22	0530	N14	W17	07 20.9		A	HSX	60	1	1	3
10411		TACH	07 22	0639	N14	W18	07 20.9			HSX	43	1	1	3
10411		KAND	07 22	0730	N15	W18	07 20.9			HS		1	2	3
10411		MWIL	07 22	1430	N14	W22	07 20.9	5	(AP)					
10411		HOLL	07 22	1505	N15	W23	07 20.9		A	HAX	60	1	2	3
10411		LEAR	07 23	0131	N14	W28	07 20.9		A	HAX	30	2	1	3
10411		SVTO	07 23	0630	N15	W31	07 20.9		A	HSX	20	1	1	3

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

JULY 2003

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10411	31803	KAND	07 23	0650	N14	W31	07 20.9			HA		1	1	4
10411		TACH	07 23	0719	N14	W31	07 21.0			HSX	59	1	1	4
10411		HOLL	07 23	1350	N14	W36	07 20.8			HAX	50	1	2	4
10411		MWIL	07 23	1430	N14	W35	07 20.9	5	(AP)					
10411		LEAR	07 24	0137	N14	W42	07 20.9		A	HSX	30	1	2	1
10411		TACH	07 24	0506	N14	W44	07 20.9			HSX	42	1	1	4
10411		KAND	07 24	0725	N14	W44	07 21.0			HS		1	1	3
10411		SVTO	07 24	1015	N11	W48	07 20.8		A	HSX	20	1	1	3
10411		MWIL	07 24	1430	N14	W48	07 21.0	5	(AP)					
10411		HOLL	07 24	1717	N14	W50	07 20.9		A	HSX	30	1	1	4
10411	31803	LEAR	07 25	0405	N14	W56	07 20.9		A	HSX	20	2	1	4
10411		TACH	07 25	0610	N14	W57	07 20.9			HSX	32	1	1	3
10411		KAND	07 25	0727	N14	W58	07 20.9			HR		1		3
10411		SVTO	07 25	0745	N13	W59	07 20.9		A	HRX	10	1	1	3
10411		VORO	07 25	0755	N14	W58	07 20.9			HRX	19	1		3
10411		HOLL	07 25	1421	N14	W62	07 20.9		A	HSX	40	1	1	4
10411		MWIL	07 25	1430	N14	W61	07 21.0	4	(AP)					
10411		LEAR	07 26	0058	N14	W68	07 20.9		A	HAX	50	1	1	3
10411		VORO	07 26	0511	N14	W69	07 21.0			HRX	25	1		3
10411		TACH	07 26	0616	N15	W71	07 20.9			AXX	22	1	1	4
10411	31803	KAND	07 26	0840	N14	W77	07 20.5			HR		1		2
10411		SVTO	07 26	0843	N13	W74	07 20.8		A	HRX	10	1	1	3
10411		MWIL	07 26	1445	N14	W74	07 21.0	4	(AP)					
10415	31808	LEAR	07 18	0025	N12	E54	07 22.1		B	BXO	10	3	1	3
10415		VORO	07 18	0335	N13	E54	07 22.2			BXI	6	3	4	2
10415		KAND	07 18	0615	N12	E52	07 22.2			CRO		2	1	5
10415		HOLL	07 18	1446	N13	E47	07 22.2		B	CSO	30	4	4	3
10415		LEAR	07 19	0050	N12	E42	07 22.2		B	CAO	30	5	4	3
10415		KAND	07 19	0530	N13	E40	07 22.2			CRO		7	6	5
10415		SVTO	07 19	0630	N14	E39	07 22.2		B	CSI	30	7	6	3
10415		TACH	07 19	0709	N11	E38	07 22.1			BRO	26	3	5	4
10415		HOLL	07 19	1447	N12	E35	07 22.2		B	DAO	50	14	6	4
10415		MWIL	07 19	1600	N12	E33	07 22.1	4	(BG)					
10415	31808	LEAR	07 20	0125	N13	E28	07 22.2		B	DSO	120	11	7	2
10415		SVTO	07 20	0530	N13	E26	07 22.2		B	DSO	100	8	7	3
10415		TACH	07 20	0555	N11	E26	07 22.2			BRI	28	7	6	4
10415		KAND	07 20	0555	N12	E26	07 22.2			CSO		16	7	5
10415		HOLL	07 20	1444	N13	E20	07 22.1		B	DSO	100	25	9	4
10415		LEAR	07 21	0050	N12	E17	07 22.3		B	DSO	90	9	10	2
10415		KAND	07 21	0640	N12	E13	07 22.2			DSO		8	8	5
10415		KAND	07 21	0640	N14	E08	07 21.9			BXO		2	3	5
10415		TACH	07 21	0641	N13	E11	07 22.1			BRI	41	8	10	4
10415		SVTO	07 21	0740	N13	E10	07 22.1		B	ESO	60	12	11	3
10415	31808	MWIL	07 21	1445	N12	E06	07 22.1	5	(BG)					
10415		HOLL	07 21	1636	N12	E04	07 22.0		B	DAO	80	10	10	4
10415		LEAR	07 22	0015	N12	E02	07 22.2		B	DAO	90	10	10	3
10415		SVTO	07 22	0530	N12	E01	07 22.3		B	CSO	60	7	9	3
10415		TACH	07 22	0639	N12	W01	07 22.2			CAO	29	3	7	3
10415		KAND	07 22	0730	N12	W01	07 22.2			HS		1	8	3
10415		MWIL	07 22	1430	N12	W06	07 22.1	5	(BP)					
10415		HOLL	07 22	1505	N13	W08	07 22.0		B	CAO	60	8	10	3
10415		LEAR	07 23	0131	N12	W13	07 22.1		B	CAO	60	9	8	3
10415		SVTO	07 23	0630	N12	W18	07 21.9		B	CSO	30	2	5	3
10415	31808	KAND	07 23	0650	N12	W18	07 21.9			CSO		3	5	4
10415		TACH	07 23	0719	N12	W11	07 22.5			BXO	2	2	3	4
10415		TACH	07 23	0719	N12	W19	07 21.9			CSO	26	2	4	4
10415		HOLL	07 23	1350	N12	W20	07 22.1		B	CSO	50	7	10	4
10415		MWIL	07 23	1430	N12	W19	07 22.2	5	(B)					
10415		LEAR	07 24	0137	N12	W27	07 22.0		A	HSX	20	2	1	1
10415		TACH	07 24	0506	N12	W29	07 22.0			HSX	57	1	1	4
10415		KAND	07 24	0725	N12	W30	07 22.0			CAO		3	1	3
10415		SVTO	07 24	1015	N10	W32	07 22.0		A	HSX	30	3	3	3
10415		MWIL	07 24	1430	N12	W34	07 22.0	5	(BP)					
10415		HOLL	07 24	1717	N12	W36	07 22.0		A	HAX	50	2	1	4
10415	31808	LEAR	07 25	0405	N13	W40	07 22.1		B	BXO	10	2	4	4
10415		VORO	07 25	0755	N15	W41	07 22.2			AXX	5	1		3
10414		LEAR	07 17	0145	S02	E82	07 23.2		A	HSX	60	1	4	3

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(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10414		KAND	07 17	0635	S01	E80	07 23.2			HA		1	2	5
10414		HOLL	07 17	1635	S03	E75	07 23.3		A	HAX	120	1	2	3
10414		LEAR	07 18	0025	S02	E70	07 23.2		A	HSX	150	1	2	3
10414		VORO	07 18	0335	S02	E67	07 23.1			HAX	127	1		2
10414		TACH	07 18	0519	S03	E70	07 23.4			HSX	234	1	3	4
10414		KAND	07 18	0615	S02	E68	07 23.3			HS		1	2	5
10414		HOLL	07 18	1446	S02	E63	07 23.3		A	HAX	80	1	2	3
10414		LEAR	07 19	0050	S03	E57	07 23.3		A	HAX	90	1	2	3
10414		KAND	07 19	0530	S02	E55	07 23.3			HS		1	2	5
10414		SVTO	07 19	0630	N01	E54	07 23.3		A	HAX	100	1	2	3
10414		TACH	07 19	0709	S03	E53	07 23.2			HSX	126	1	2	4
10414		HOLL	07 19	1447	S02	E49	07 23.3		B	HAX	120	3	2	4
10414	31809	MWIL	07 19	1600	S02	E47	07 23.2	5	(AP)					
10414		LEAR	07 20	0125	S03	E43	07 23.3		A	HSX	140	1	2	2
10414		SVTO	07 20	0530	S01	E42	07 23.4		A	HSX	130	1	3	3
10414		KAND	07 20	0555	S02	E41	07 23.3			HS		1	2	5
10414		TACH	07 20	0555	S04	E41	07 23.3			HSX	80	1	1	4
10414		HOLL	07 20	1444	S03	E37	07 23.4		A	HSX	100	2	2	4
10414		LEAR	07 21	0050	S03	E30	07 23.3		A	HSX	110	1	2	2
10414		KAND	07 21	0640	S02	E28	07 23.4			HA		1	2	5
10414		SVTO	07 21	0740	S02	E28	07 23.4		A	HSX	110	2	2	3
10414	31809	MWIL	07 21	1445	S03	E22	07 23.2	5	(AP)					
10414		HOLL	07 21	1636	S03	E22	07 23.3		A	HSX	100	2	4	4
10414		LEAR	07 22	0015	S03	E17	07 23.3		A	HSX	110	1	2	3
10414		SVTO	07 22	0530	S03	E15	07 23.4		A	HSX	100	1	3	3
10414		TACH	07 22	0639	S03	E14	07 23.3			HSX	104	1	2	3
10414		KAND	07 22	0730	S02	E14	07 23.3			HS		1	2	4
10414	31809	MWIL	07 22	1430	S03	E09	07 23.3	5	(AP)					
10414		HOLL	07 22	1505	S03	E09	07 23.3		A	HAX	100	1	3	3
10414		LEAR	07 23	0131	S03	E03	07 23.3		A	HSX	140	2	3	3
10414		SVTO	07 23	0630	S03	E01	07 23.3		A	HSX	100	1	3	3
10414		KAND	07 23	0650	S03	E01	07 23.3			HS		1	2	4
10414		TACH	07 23	0719	S04	E01	07 23.4			HSX	101	1	2	4
10414		HOLL	07 23	1350	S03	W03	07 23.3		A	HSX	100	1	2	4
10414	31809	MWIL	07 23	1430	S03	W04	07 23.3	5	(AP)					
10414		LEAR	07 24	0137	S03	W08	07 23.5		B	CSO	120	2	6	1
10414		TACH	07 24	0506	S03	W10	07 23.5			CSO	113	2	5	4
10414		KAND	07 24	0725	S03	W12	07 23.4			CSO		5	6	3
10414		SVTO	07 24	1015	S05	W14	07 23.4		A	HSX	140	2	4	3
10414	31809	MWIL	07 24	1430	S04	W16	07 23.4	5	(BP)					
10414		HOLL	07 24	1717	S03	W17	07 23.4		B	CAO	120	4	6	4
10414		LEAR	07 25	0405	S03	W23	07 23.4		BG	CSO	110	3	6	4
10414		TACH	07 25	0610	S04	W24	07 23.5			CSO	161	2	5	3
10414		KAND	07 25	0727	S03	W27	07 23.3			HS		1	3	3
10414		SVTO	07 25	0745	S04	W26	07 23.4		B	CSO	120	2	5	3
10414		VORO	07 25	0755	S03	W27	07 23.3			HHX	171	3		3
10414		HOLL	07 25	1421	S04	W31	07 23.3		A	HAX	90	1	2	4
10414	31809	MWIL	07 25	1430	S04	W30	07 23.4	5	(AP)					
10414		LEAR	07 26	0058	S03	W37	07 23.3		A	HSX	130	2	3	3
10414		VORO	07 26	0511	S03	W39	07 23.3			HSX	153	2		3
10414		TACH	07 26	0616	S03	W40	07 23.3			HSX	133	1	2	4
10414		KAND	07 26	0840	S03	W42	07 23.2			CSO		3	3	2
10414		SVTO	07 26	0843	S04	W43	07 23.1		A	HSX	80	1	3	3
10414	31809	MWIL	07 26	1445	S05	W43	07 23.4	5	(BP)					
10414		LEAR	07 27	0158	S03	W52	07 23.2		A	HSX	110	1	2	2
10414		SVTO	07 27	0500	S05	W55	07 23.1		A	HSX	160	1	3	3
10414		TACH	07 27	0535	S03	W53	07 23.3			HSX	171	1	2	4
10414		KAND	07 27	0755	S03	W55	07 23.2			HS		1	2	4
10414		HOLL	07 27	1430	S03	W59	07 23.2		A	HAX	110	1	2	3
10414	31809	MWIL	07 27	1445	S04	W58	07 23.3	5	(AP)					
10414		LEAR	07 28	0020	S03	W65	07 23.1		A	HSX	90	1	2	3
10414		SVTO	07 28	0625	S03	W69	07 23.1		A	HSX	100	1	2	3
10414		TACH	07 28	0629	S03	W67	07 23.3			HSX	132	1	2	4
10414		KAND	07 28	0757	S03	W68	07 23.2			HS		1	2	3
10414		HOLL	07 28	1447	S04	W73	07 23.1		A	HAX	120	1	7	3
10414	31809	MWIL	07 28	1600	S03	W72	07 23.3	5	(AP)					
10414		LEAR	07 29	0320	S03	W80	07 23.2		A	HSX	60	1	2	2
10414		TACH	07 29	0607	S03	W82	07 23.1			HXX	78	1	3	5
10414		SVTO	07 29	0615	S04	W85	07 22.9		A	HSX	60	1	5	3

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(Ordered by Central Meridian Passage Date)

JULY 2003

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
10414		KAND	07 29 0700	S03 W81	07 23.2			HA		1		4
10414A		TACH	07 21 0641	S13 E27	07 23.3			HSX	131	1	2	4
10414B		TACH	07 17 0809	N12 E81	07 23.4			HSX	211	1	2	4
10422	31812	LEAR	07 25 0405	N13 E12	07 26.1		A	AXX	10	1	1	4
10422		HOLL	07 27 1430	N14 W22	07 25.9		B	BXO	10	5	3	3
10422		MWIL	07 27 1445	N13 W21	07 26.0	4	(BP)					
10422		LEAR	07 28 0020	N14 W27	07 26.0		BG	DSO	60	9	5	3
10422	31812	SVTO	07 28 0625	N14 W32	07 25.8		B	DAO	120	8	7	3
10422		TACH	07 28 0629	N15 W30	07 26.0			HSX	119	1	2	4
10422		KAND	07 28 0757	N14 W31	07 26.0			DAO		7	7	3
10422		HOLL	07 28 1447	N14 W35	07 26.0		B	DAI	210	10	4	3
10422	31812	MWIL	07 28 1600	N15 W35	07 26.0	5	(BG)					
10422		LEAR	07 29 0320	N15 W42	07 25.9		BG	DAO	180	8	9	2
10422		TACH	07 29 0607	N14 W42	07 26.1			DAO	114	3	7	5
10422		SVTO	07 29 0615	N15 W45	07 25.8		B	DSO	220	5	8	3
10422	31812	KAND	07 29 0700	N13 W43	07 26.0			DAO		6	7	4
10422		HOLL	07 29 1431	N15 W48	07 26.0		B	DAI	130	11	8	3
10422		LEAR	07 30 0232	N16 W55	07 25.9		B	DAO	190	6	8	2
10422		SVTO	07 30 0533	N15 W57	07 25.9		B	DSI	120	7	9	3
10422	31812	TACH	07 30 0548	N15 W56	07 26.0			DAI	108	4	7	4
10422		KAND	07 30 0750	N14 W59	07 25.9			DAO		4	9	3
10422		HOLL	07 30 1410	N14 W64	07 25.7		B	DAO	100	5	8	3
10422		LEAR	07 31 0214	N15 W68	07 25.9		B	DAO	80	8	7	3
10422	31812	TACH	07 31 0645	N14 W71	07 25.9			DSO	82	2	6	4
10422		SVTO	07 31 0732	N14 W73	07 25.8		B	EAO	120	4	14	3
10422		KAND	07 31 0815	N15 W72	07 25.9			CSO		3	9	4
10422		HOLL	07 31 1406	N14 W74	07 26.0		B	DAO	90	3	8	3
10422		LEAR	08 01 0011	N15 W80	07 26.0		B	CSO	40	3	7	3
10422A	31814	LEAR	07 28 0020	N04 W14	07 27.0		B	BXO	10	2	3	3
10422A		SVTO	07 28 0625	N03 W18	07 26.9		A	HSX	10	1	1	3
10422A		TACH	07 28 0629	N04 W18	07 26.9			DAI	193	8	5	4
10422A		MWIL	07 28 1600	N04 W22	07 27.0	4	(AP)					
10422B		HOLL	07 27 1430	S01 E03	07 27.8		A	AXX	10	2	1	3
10419	31810	MWIL	07 22 1430	N10 E79	07 28.5	4	AP					
10419		LEAR	07 23 0131	N10 E73	07 28.5		A	AXX		1		3
10419		KAND	07 23 0650	N10 E72	07 28.7			AX		1	1	4
10419		HOLL	07 23 1350	N10 E67	07 28.6		A	AXX	20	2	2	4
10419	31810	MWIL	07 23 1430	N11 E67	07 28.6	4	(B)					
10419		LEAR	07 24 0137	N10 E62	07 28.7		A	AXX	10	1	1	1
10419		KAND	07 24 0725	N10 E58	07 28.7			BXO		3	4	3
10419		SVTO	07 24 1015	N12 E58	07 28.8		A	AXX	20	3	3	3
10419	31810	MWIL	07 24 1430	N10 E54	07 28.7	4	(BP)					
10419		HOLL	07 24 1717	N10 E52	07 28.6		B	BXO	10	3	4	4
10419		LEAR	07 25 0405	N10 E45	07 28.5		A	AXX	10	3	2	4
10419		MWIL	07 25 1430	N10 E39	07 28.5	4	(AP)					
10419	31810	LEAR	07 26 0058	N11 E34	07 28.6		B	CAO	20	8	8	3
10419		KAND	07 26 0840	N10 E26	07 28.3			AX		1		2
10419		MWIL	07 26 1445	N11 E27	07 28.6	4	(B)					
10419		LEAR	07 27 0158	N09 E17	07 28.3		B	CRO	10	3	2	2
10419	31810	HOLL	07 27 1430	N09 E10	07 28.3		A	AXX	10	2	1	3
10419		MWIL	07 27 1445	N09 E10	07 28.4	3	(B)					
10419		MWIL	07 28 1600	N08 W04	07 28.4	4	(AP)					
10419		HOLL	07 30 1410	N10 W22	07 28.9		A	AXX	10	1	1	3
10419		LEAR	08 02 0014	N10 W53	07 29.1		A	AXX	10	1	1	4
10419A		LEAR	07 28 0020	N18 E14	07 29.1		B	BXO	10	2	3	3
10420	31811	KAND	07 24 0725	N12 E84	07 30.6			HA		1	2	3
10420		SVTO	07 24 1015	N13 E88	07 31.1		A	HSX	20	1	1	3
10420		MWIL	07 24 1430	N11 E82	07 30.8	5	(AP)					
10420		HOLL	07 24 1717	N10 E81	07 30.8		A	HAX	60	1	1	4
10420		LEAR	07 25 0405	N10 E73	07 30.6		A	HSX	60	1	2	4
10420		TACH	07 25 0610	N11 E69	07 30.4			HSX	69	1	1	3

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(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10420		KAND	07 25	0727	N12	E73	07 30.8			HS		1	2	3
10420		SVTO	07 25	0745	N11	E72	07 30.7		A	HSX	50	1	3	3
10420		VORO	07 25	0755	N11	E71	07 30.7			HAX	113	1		3
10420		HOLL	07 25	1421	N10	E69	07 30.8		A	HSX	100	1	2	4
10420	31811	MWIL	07 25	1430	N11	E67	07 30.6	5	(AP)					
10420		LEAR	07 26	0058	N11	E62	07 30.7		A	HSX	120	1	2	3
10420		VORO	07 26	0511	N11	E59	07 30.6			HAX	111	1		3
10420		TACH	07 26	0616	N10	E58	07 30.6			HSX	170	1	2	4
10420		KAND	07 26	0840	N11	E57	07 30.6			HS		1	1	2
10420		SVTO	07 26	0843	N11	E59	07 30.8		A	HSX	70	1	3	3
10420	31811	MWIL	07 26	1445	N11	E54	07 30.7	5	(AP)					
10420		LEAR	07 27	0158	N11	E48	07 30.7		A	HAX	80	1	1	2
10420		SVTO	07 27	0500	N12	E48	07 30.8		A	HSX	60	1	2	3
10420		TACH	07 27	0535	N11	E46	07 30.7			HSX	100	1	2	4
10420		KAND	07 27	0755	N11	E45	07 30.7			HS		1	2	4
10420		HOLL	07 27	1430	N10	E41	07 30.7		A	HSX	70	1	2	3
10420	31811	MWIL	07 27	1445	N11	E41	07 30.7	5	(AP)					
10420		LEAR	07 28	0020	N10	E35	07 30.6		A	HSX	70	1	2	3
10420		SVTO	07 28	0625	N10	E33	07 30.7		A	HSX	90	1	3	3
10420		TACH	07 28	0629	N10	E32	07 30.7			AXX	8	1	1	4
10420		KAND	07 28	0757	N11	E32	07 30.7			HS		1	2	3
10420		HOLL	07 28	1447	N11	E28	07 30.7		A	HSX	60	2	2	3
10420	31811	MWIL	07 28	1600	N11	E28	07 30.8	5	(AP)					
10420		LEAR	07 29	0320	N11	E21	07 30.7		A	HSX	70	1	2	2
10420		TACH	07 29	0607	N11	E19	07 30.7			HSX	80	1	2	5
10420		SVTO	07 29	0615	N12	E19	07 30.7		A	HSX	100	1	3	3
10420		KAND	07 29	0700	N11	E19	07 30.7			HS		1	2	4
10420		HOLL	07 29	1431	N11	E15	07 30.7		A	HSX	60	1	2	3
10420		LEAR	07 30	0232	N11	E08	07 30.7		A	HSX	80	1	2	2
10420		SVTO	07 30	0533	N12	E06	07 30.7		A	HSX	80	1	2	3
10420		TACH	07 30	0548	N11	E07	07 30.8			HSX	61	1	1	4
10420		KAND	07 30	0750	N12	E05	07 30.7			HS		1	2	3
10420		HOLL	07 30	1410	N11	E02	07 30.7		A	HSX	60	1	1	3
10420		LEAR	07 31	0214	N11	W03	07 30.9		B	CSO	100	3	6	3
10420		TACH	07 31	0645	N11	W07	07 30.7			HSX	56	1	1	4
10420		SVTO	07 31	0732	N11	W08	07 30.7		A	HSX	60	1	2	3
10420		KAND	07 31	0815	N11	W08	07 30.7			HS		1	2	4
10420		HOLL	07 31	1406	N11	W11	07 30.7		A	HSX	90	1	2	3
10420		LEAR	08 01	0011	N11	W17	07 30.8		A	HSX	50	3	2	3
10420		KAND	08 01	0740	N11	W21	07 30.8			HS		1	2	3
10420		HOLL	08 01	1430	N11	W25	07 30.8		A	HSX	60	1	2	4
10420	31811	MWIL	08 01	1500	N11	W25	07 30.8	4	(AP)					
10420		LEAR	08 02	0014	N11	W31	07 30.8		A	HSX	60	1	2	4
10420		KAND	08 02	0600	N11	W34	07 30.8			HS		1	2	3
10420		TACH	08 02	0609	N10	W33	07 30.9			HSX	59	1	1	5
10420		HOLL	08 02	1430	N11	W38	07 30.8		A	HAX	60	1	2	3
10420		SVTO	08 02	1459	N11	W39	07 30.8		A	HSX	70	1	2	3
10420	31811	MWIL	08 02	1500	N11	W38	07 30.9	5	(AP)					
10420		LEAR	08 03	0011	N11	W44	07 30.8		A	HSX	60	1	1	4
10420		VORO	08 03	0044	N11	W44	07 30.8			HSX	83	1		3
10420		SVTO	08 03	0600	N11	W48	07 30.7		A	HSX	70	1	2	3
10420		TACH	08 03	0640	N11	W46	07 30.9			HSX	50	1	2	4
10420		KAND	08 03	0925	N11	W49	07 30.8			HS		1	1	4
10420		HOLL	08 03	1400	N12	W51	07 30.8		A	HSX	60	1	1	2
10420	31811	MWIL	08 03	1430	N11	W51	07 30.9	5	(AP)					
10420		VORO	08 03	2136	N11	W55	07 30.9			HAX	76	1		3
10420		LEAR	08 04	0021	N12	W58	07 30.7		A	HSX	70	1	1	3
10420		SVTO	08 04	0553	N10	W63	07 30.6		A	HSX	40	1	2	3
10420		KAND	08 04	0720	N11	W61	07 30.8			HS		1	2	4
10420		TACH	08 04	0837	N11	W61	07 30.9			HSX	61	1	2	3
10420	31811	MWIL	08 04	1415	N11	W65	07 30.8	5	(AP)					
10420		HOLL	08 04	1418	N12	W65	07 30.8		A	HAX	90	1	2	4
10420		VORO	08 04	2145	N11	W69	07 30.8			HSX	75	1		3
10420		LEAR	08 05	0100	N12	W70	07 30.9		A	HSX	60	1	2	2
10420		SVTO	08 05	0547	N09	W76	07 30.6		A	HSX	60	1	2	3
10420		TACH	08 05	0609	N10	W74	07 30.8			HSX	44	1	1	4
10420		KAND	08 05	0710	N11	W74	07 30.8			HA		2	2	3
10420		HOLL	08 05	1350	N12	W77	07 30.9		A	HSX	30	1	1	4
10420	31811	MWIL	08 05	1430	N10	W78	07 30.8	4	(AP)					

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

JULY 2003

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10420		LEAR	08 06	0140	N12	W85	07 30.8		A	HAX	50	1	1	3
10420B		KAND	07 29	0700	N03	E35	07 31.9			AX		1		4
10420B		KAND	08 02	0600	N04	W22	07 31.6			AX		1		3
10423		KAND	07 31	0815	S18	E06	07 31.8			CSO		2	1	4
10423		LEAR	08 01	0011	S19	W05	07 31.6		B	CRO	10	2	3	3
10423		KAND	08 01	0740	S18	W08	07 31.7			BXO		5	2	3
10423		HOLL	08 01	1430	S18	W12	07 31.7		B	BXO	10	4	3	4
10423	31815	MWIL	08 01	1500	S17	W14	07 31.6	4	(AP)					
10423		LEAR	08 02	0014	S17	W19	07 31.6		A	AXX	10	1	1	4
10423		LEAR	08 03	0011	S14	W25	08 1.1		B	DAO	20	2	2	4
10423		VORO	08 03	0044	S14	W25	08 1.1			AXX	5	5		3
10423	31815	MWIL	08 03	1430	S15	W32	08 1.2	3	(AF)					
10423		LEAR	08 04	0021	S15	W36	08 1.3		A	HRX	10	1		3
10423	31815	MWIL	08 04	1415	S15	W45	08 1.2	3	(AF)					
10423		VORO	08 04	2145	S15	W48	08 1.3			AXX	10	1		3
10420A		TACH	07 31	0645	S18	E06	07 31.7			AR	8	2	1	4
10420A		SVTO	07 31	0732	S19	E06	07 31.8		A	HRX	20	1	1	3
10420A		KAND	07 31	0815	S18	E06	07 31.8			CSO		2	1	4
10420A		HOLL	07 31	1406	S19	E01	07 31.7		B	CSO	20	2	2	3

Stations reporting:

HOLL = Holloman
KAND = Kandilli
LEAR = Learmonth

MWIL = Mt. Wilson
PALE = Palehua

RAMY = Ramey
SVTO = San Vito

TACH = Tashkent
VORO = Voroshilov

SUDDEN IONOSPHERIC DISTURBANCES

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Jul 03

JULY 2003

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF- SPA	SES			
02	0704	0714	0805	2-	5		1			2	0706	M3.0	10397
02	0711	0730	0753	3	5	1	2	1		3	0706	M3.0	10397
02	1210	1216	1233	1	1		1				1202	C1.3	
02	1352	1412	1540	1	1		1				No flare		
02	2212	2218	2300	2+	1					1	2206	C5.4	10400
03	0555	0607	0710	1+	3		1			2	0551	C3.8	10397
03	1454	1502	1530	2-	5					2	1449	C3.3	10400
03	1536	1543	1603	1-	1					1	No flare		
04	0524	0530U	0558	1	1		1				0539		10397
04	0541	0557	0723	3	1					1	0602	C1.4	10397
04	0836	0856	0927	1	1		1				*		
04	1441	1445	1516	2	5	1	1	1		6	1435	C7.1	10400
05	0910	0924	1006	1+	3		1			1	0907	C2.3	10397
05	1242	1258	1350	2	5		1	1		1	1236	C2.5	10397
05	1700	1708	1733	1+	1					1	1655	C3.9	10397
06	0705	0730	0805	1	1		1				No flare		
08	0724	0729	0745	2+	5		2	1		3	0721	C5.2	10402
08	1151	1217	1401	1	1		1				1150	B9.3	
08	1614	1639U	1658	1	1		1				1607	C3.2	10402
09	1445	1450	1548	2+	1					1	1439	C2.4	10402
09	1630	1637	1709D	2	1					1	1624	C5.8	10397
09	1634	1655	1750	1	1		1				1624	C5.8	10397
10	0625	0636	0700	1+	3					2	0630	C5.2	
10	0640	0646	0715	2	5	1	1	1		2	0630	C5.2	
10	0857	0919U	0936	1	1		1				0847	C1.3	10397
10	1358	1404	1438	3	5	1	2	1		5	1354	M3.6	10397
10	1620	1626U	1649	1	1		1				1625	C1.4	10397
12	0628	0633	0648	1	3					2	0626	C2.9	
12	0949	1000	1024	1-	5		1			3	0949	C1.9	
12	1318	1326	1341	1	1					1	1319	C1.4	
12	1424	1429	1436	1-	1					1	1424	C1.5	
12	1613	1619	1643	1+	5					4	1612	C2.9	
12	1901	1905	1947	2	1					1	1857	M1.4	
12	2042	2048	2118	2	1					1	2042	C4.6	
13	1218	1227	1251	1+	3					2	1215	C1.5	10409
14	0937	0942	0954	1	1		1				*		
14	1621	1639	1649	1	1		1				1616	B6.3	10409
15	0538	0639	0704	2	1		1				0546	B7.6	
17	0755	0800	0850	3+	1					1	No flare		
17	0819	0827	0927	3	5	1	2	1		6	0817	C9.8	10412
17	0911	0918	0922	1-	1					1	0858	C2.3	10410
17	1340	1358	1402	1	1					1	1338	B8.8	
17	1518	1527	1551	1	5		1			2	1521	C2.6	10410
17	1644	1653	1705	1	1					1	1649	C1.4	10410
18	0739	0806	0824	1	1		1				0735	C1.2	10410
19	0712	0740U	0841	1	1		1				No flare		
19	0928	0932	1003	1+	5					7	0928	C3.4	10410
19	1440	1451	1502	1	1					1	1442	C1.4	
20	0803	0812	0825	1	5					2	No flare		
20	0820	0824	0839	1	5					2	0819	C2.5	
20	0946	0956	1027	1+	5		1			5	0945	C2.4	
20	1200	1225	1244	1	5		1			2	1200	C2.1	

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

JULY 2003

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF- SPA	SES			
20	1443	1453	1517	1+	5					2	1448	C3.7	10410
20	1552	1555	1603	1-	1					1	1549	C1.8	10410
20	1604	1608	1634	2-	5	1		1		2	1601	C5.6	10410
20	1642	1650	1658	1-	1					1	1641	C3.7	10410
21	1411	1417	1433	1	1					1	1411	C1.3	
22	0707	0718	0756	2-	5		1			4	0706	C5.2	10417
22	0817	0823	0912	2-	5					4	0816	C3.6	10417
23	0544	0556	0644	1+	3		1			2	0546	C3.9	10417
23	1130	1139	1207	1+	5					3	1128	C2.3	10417
23	1527	1533	1559	2-	5					2	1524	C2.2	10417
29	0131	0135	0210	2	1					1	0128	M1.3	10421
29	1339	1354	1416	1	1		1				No flare		
30	0406	0409	0503	1+	3					3	0404	M2.5	10422
30	0633	0640	0718	1	1		1				No flare		
30	0651	0656	0706	1-	1					1	0652	B9.5	10422
31	0700	0719	0731	1	1		1				No flare		
31	0757	0807	0856	1	1		1				0759	B3.0	10422

* = no flare patrol.

OBSERVATORIES REPORTING FOR JULY 2003

Athens, Greece	SES	Sofia, Bulgaria	SES
Bern, Switzerland	SES	Sussex, United Kingdom	SES
Edenvale, Rep of S. Africa	SES	Torrington, Connecticut, USA	SES
Houston, Texas, USA	SES	Udine City, Italy	SES
Isola del Gran Sasso, Italy	SES	Upice, Czech Republic	SEA
Nerja, Spain	SES	Villiersdorp, South Africa	SES
Panska Ves, Czech Republic	SES, SEA, SWF		

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

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JULY 2003

OBSERVATION			EVENT				FREQUENCY			Remarks
Start Day	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	Upper (MHz)	
01	0000 0700	LEAR	0025.0	0026.0	III		1	25	50	
		PALE	0025.0	0026.0	III		1	25	52	
		CULG	0040.0	0041.0	III	G	1	50	300	
		CULG	0222.0	0222.0	III	B	1	75	500	
		LEAR	0222.0	0222.0	III		1	153	180	
	0000 1000	HIRA	0222.0	0222.5	III	B	1	130	300	
		ONDR								
	0600 1200	IZMI	0600.0U	1200.0D	III	N	1	25X	95	
		IZMI	0600.0E	1200.0D	I	S	2	110	270X	
		CULG	0613.0	0640.0	III	N	1	40	170	
		LEAR	0622.0	0910.0	CONT		1	66	180	
		IZMI	0622.4	0622.8	III	B	2	45	155	
		IZMI	0632.0	0632.1	III	B	2	45	95	
		IZMI	0649.7	0650.0	III	G	2	125	270X	
		IZMI	0829.2	0829.4	III	B	1	45	160	
		SVTO	0842.0	1800.0	CONT		1	25	180	
		SVTO	0906.0	0906.0	III		1	25	54	
		IZMI	0906.5	0906.8	III	G	1	30	95	
		IZMI	0915.9	0917.6	I	GG,DC	2	210	260	
		IZMI	0916.7	0916.8	III	B	1	50	95	
		IZMI	0924.4	0924.6	III	B	1	45	150	
		IZMI	0941.9	0949.0	III	GG	2	25X	170	
		IZMI	1032.3	1032.4	III	B	2	50	65	
		IZMI	1118.0	1118.2	III	B	2	45	65	
		IZMI	1146.6	1155.4	III	GG	2	25X	95	
		SVTO	1405.0	1449.0	III	N	2	25	180	
		HOLL	1429.0	1449.0	III	N	1	25U	75U	
		SGMR	1430.0	1449.0	III	N	2	30U	80U	
	2110 2400	CULG	2110.0E	2400.0D	I	S,C	1	110	170	
		HIRA	2253.5	2254.0	III	B	1	60	200	
		CULG	2254.0	2254.0	III	B	1	65	180	
		CULG	2311.0	2316.0	III	G	1	30U	250	
		LEAR	2344.0	0910.0	CONT		1	65	180	
02	0000 0700	CULG	0000.0E	0700.0D	I	S	1	100	150	
		HIRA	0128.5	0129.0	III	B	1	80	230	
		CULG	0129.0	0129.0	III	B	1	20	230	
		HIRA	0131.5	0132.0	III	B	1	90	240	
		CULG	0132.0	0132.0	III	B	1	30	140	
	0600 1200	SVTO	0356.0	1800.0	CONT		1	75	180	
		CULG	0525.0	0525.0	III	B	1	60	180	
		IZMI	0600.0E	1200.0D	I	S	2	110U	270X	
		IZMI	0603.1	0605.8	I	GG,DC	2	135	160	
		IZMI	0605.0U	1030.0U	III	N	1	45	95	
		IZMI	0616.9	0623.6	I	GG,DC	2	125	160	
		SVTO	0620.0	0620.0	III		1	25	69	
		IZMI	0620.5	0620.8	III	B	1	25X	95	
		IZMI	0648.1	0648.2	III	B	2	45	65	
		ONDR	0709.4	0720.3	DCIM	G	2	800X	2000X	
	0419 1753	ONDR	0711.3	0718.2	DCIM	G	2	2000X	4500X	
		IZMI	0819.2	0819.7	III	G	2	25X	95	
		SVTO	0846.0	0849.0	III		1	25	48	
		IZMI	0846.6	0849.0	III	G	2	25X	85	
		SVTO	0932.0	1022.0	III	N	1	25	62	
		IZMI	0953.3	0958.1	I	GG,DC	2	160	250	
		IZMI	0956.1	0958.0	III	G	1	50	160	
		IZMI	1022.2	1022.3	III	B	2	40	95	
		SVTO	1318.0	1439.0	III	N	1	25	180	
		HOLL	1327.0	1327.0	III		1	25	75	
		HOLL	1551.0	1828.0	III	N	1	25U	75U	
		SVTO	1551.0	1644.0	III	N	1	25	123	
		HOLL	1858.0	1858.0	III		1	25U	75U	
		PALE	1858.0	1858.0	III		1	25	126	
		SGMR	1858.0	1858.0	III		1	30	50	
	1923 2400	HIRA								
		PALE	2105.0	2105.0	III		1	25	73	
	2110 2400	CULG	2110.0E	2400.0D	III	N	1	25	150	
CULG		2110.0E	2400.0D	I	S,C	1	100	180		
	LEAR	2346.0	0911.0	CONT		1	58	180		

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SOLAR RADIO EMISSION Spectral Observations

JULY 2003

OBSERVATION			Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	Start (UT)	End (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
03	0000	0700	CULG	0000.0E	0339.0	III	N	1	30	130	
			CULG	0000.0E	0342.0	I	S,C	1	100	160	
			CULG	0110.0	0112.0	III	G	1	50	180	
			LEAR	0139.0	0140.0	III		1	52	180	
	0000	1000	HIRA	0139.5	0142.0	III	G	1	100	330	
			CULG	0140.0	0141.0	III	G	1	50	300	
			SVTO	0356.0	1800.0	CONT		1	83	180	
	0419	1753	ONDR								
			SVTO	0432.0	1800.0	CONT		1	80	180	
			CULG	0535.0	0700.0D	III	N	1	20	180	
			SVTO	0552.0	0556.0	III		1	25	81	
			HIRA	0553.5	0554.0	III	B	1	25X	100	
			IZMI	0553.7	0553.9	III	B	2	25X	95U	
			CULG	0554.0	0554.0	III	B	2	23	100	
			IZMI	0602.0E	1202.0D	III	N	1	25X	95	
	0602	1202	IZMI	0602.0E	1202.0D	I	S	2	110	270X	
			SVTO	0615.0	0723.0	III	N	1	25	162	
			CULG	0620.0	0700.0D	I	S,C	1	100	160	
			IZMI	0656.1	0701.3	III	GG	2	25X	95	
			LEAR	0713.0	0721.0	III	N	1	25	180	
			IZMI	0713.6	0721.1	III	GG	2	25X	270X	
			IZMI	0719.9	0720.1	III	G	2	25X	270X	
			HIRA	0815.0	0815.5	III	B	1	30	100	
			IZMI	0815.0	0815.2	III	G,FS	2	25X	95	
			LEAR	0815.0	0815.0	III		1	25	180	
			SVTO	0815.0	0815.0	III		1	25	83	
			IZMI	0854.0	0854.2	III	G	2	25X	95	
			SVTO	0854.0	0854.0	III		1	25	151	
			IZMI	0926.0	0926.9	III	GG,C	1	25X	175	
			IZMI	0927.4	0928.4	III	GG	1	45	165	
			IZMI	1007.0	1009.6	III	GG	1	45	160	
			IZMI	1018.2	1018.3	III	B	2	25	95	
			IZMI	1025.7	1026.9	III	G	2	45	90	
			IZMI	1044.9	1045.3	III	G,FS	1	50	85	
			IZMI	1054.0	1054.5	III	G	2	25X	160	
			SVTO	1054.0	1115.0	III	N	1	25	82	
			IZMI	1114.6	1115.0	III	G	2	25X	95	
			SVTO	1422.0	1712.0	III	N	1	25	180	
			HOLL	1711.0	1711.0	III		1	25	86	
			PALE	1711.0	1711.0	III		1	25	135	
			SGMR	1711.0	1712.0	III		2	30	55	
			PALE	1823.0	1825.0	III		1	25	134	
			HOLL	1824.0	1825.0	III		1	25	87	
			SGMR	1824.0	1826.0	III		2	30	65	
			PALE	2023.0	2023.0	III		1	25	82	
			PALE	2039.0	2039.0	III		1	25	75	
			SGMR	2039.0	2039.0	III		1	30	55	
	1923	2400	HIRA	2039.0	2039.5	III	B	1	25X	110	
			PALE	2057.0	2100.0	III		1	25	92	
			PALE	2109.0	0456.0	III	N	1	25	133	
	2110	2400	CULG	2110.0E	2400.0D	I	S,C	1	60	140	
			CULG	2123.0	2123.0	III	B	1	25	170	
			CULG	2148.0	2400.0D	III	N	1	23	100	
			LEAR	2322.0	0911.0	CONT		1	25	180	
04	0000	0700	CULG	0000.0E	0700.0D	III	N	1	23	100	
			CULG	0000.0E	0700.0D	I	S,C	1	60	140	
			LEAR	0233.0	0234.0	III		1	25	121	
	0000	1000	HIRA	0234.0	0234.5	III	B	1	50	110	
			SVTO	0548.0	1800.0	III	N	1	25	180	
			IZMI	0600.0E	1200.0D	III	N	1	25X	95U	
	0600	1200	IZMI	0600.0E	1200.0D	I	S	2	60U	170X	
			IZMI	0617.6	0618.6	III	G	2	25X	95	
			IZMI	0707.0	0711.9	III	GG	2	180	270X	
			IZMI	0825.5	0826.8	III	GG	2	25X	160	
			IZMI	0906.9	0907.2	III	G	2	50	180	
			IZMI	0908.1	0909.0	III	GG	2	25X	145	
			IZMI	0921.5	0922.1	III	G	2	25X	160	
			IZMI	0945.8	0946.0	III	B	2	50	160	

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OBSERVATION			EVENT				FREQUENCY			Remarks		
Start Day	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	Upper (MHz)			
04		IZMI	0952.5	0953.7	III	GG		1	180	270X		
		IZMI	1002.0	1009.7	III	GG		2	110	270X		
		IZMI	1013.8	1015.9	III	G		2	45	160		
		IZMI	1035.5	1037.3	III	GG		2	45	95		
		IZMI	1047.9	1049.7	III	G		2	25X	145		
		IZMI	1109.0	1111.6	III	GG		2	25X	165		
		IZMI	1126.1	1128.5	III	GG		2	25X	175		
		IZMI	1158.2	1158.2	III	B		2	50	95		
		SVTO	1223.0	1800.0	CONT			2	25	180		
		HOLL	1339.0	1340.0	III			1	25	86		
		SGMR	1339.0	1340.0	III			2	30	80		
		HOLL	1432.0	1447.0	III	N		1	25	180		
	0420	1753	ONDR	1436.4	1444.0	DCIM	G	2	800X	2000X		
		SGMR	1446.0	1509.0	II			3	30	80		
		HOLL	1455.0	1507.0	II			1	25	58	ESS 0359	
		SVTO	1455.0	1509.0	II			2	25	82	ESS 0413	
		SGMR	1545.0	1816.0	CONT			1	30	80		
		ONDR	1637.3	1640.0	DCIM	G		2	800X	2000X		
		PALE	1805.0	1838.0	III	N		1	25	180		
		PALE	1805.0	1838.0	III	N		1	25U	180U		
	1923	2400	HIRA									
		SGMR	2047.0	2135.0	III	N		1	30	80		
		CULG	2110.0E	2400.0D	I	S		2	60	160		
	2110	2400	CULG	2110.0E	2400.0D	III	S,C	1	30	260		
		PALE	2300.0	2332.0	CONT			1	25	180		
		PALE	2300.0	2332.0	CONT			1	25U	180U		
		LEAR	2344.0	0911.0	CONT			1	25	180		
	05	0000	1000	HIRA								
			CULG	0000.0E	0531.0	I	S		2	40	120	
		0000	0700	CULG	0000.0E	0700.0D	III	S,C	1	20	180	
0420		1752	ONDR									
		SVTO	0517.0	0853.0	III	N		1	25	180		
		IZMI	0600.0E	1200.0D	III	S		2	25X	95		
0600		1200	IZMI	0600.0E	1200.0D	I	S,C	2	45	270X		
		IZMI	0614.7	0615.0	III	B		2	35	130		
		IZMI	0646.0	0659.2	I	GG,DC		2	160	240		
		IZMI	0648.9	0652.1	III	GG		2	25X	175		
		SVTO	0650.0	1800.0	CONT			2	25	180		
		IZMI	0708.4	0712.0	I	GG		2	50	160		
		IZMI	0711.1	0712.1	III	G		2	25X	160		
		IZMI	0714.8	0717.1	I	GG,DC		2	80	110		
		IZMI	0718.9	0719.2	III	G		2	25X	65		
		IZMI	0815.0	0819.4	III	G		2	25X	95		
		IZMI	0823.3	0826.2	III	G		2	25X	95		
		IZMI	0840.6	0849.6	III	GG		2	25X	140		
		IZMI	0933.6	0935.9	III	GG		2	25X	95		
		SVTO	0935.0	0935.0	III			1	25	53		
		IZMI	1032.5	1037.0	III	GG		2	25X	95		
		SVTO	1035.0	1800.0	III	N		2	25	160		
		IZMI	1052.0	1200.0D	I	S,DC		2	25X	160		
		IZMI	1102.9	1106.8	III	GG		2	25X	75		
		SGMR	1116.0	2100.0	CONT			2	30	80		
		IZMI	1116.7	1116.9	III	G		2	200	270X		
		IZMI	1135.9	1139.0	III	GG		1	130	250		
		HOLL	1319.0	0153.0	CONT			1	38	162		
		HOLL	1327.0	2050.0	III	N		1	25	151		
		PALE	1612.0	0441.0	CONT			1	25	180		
		SGMR	2220.0	2230.0	III			1	30	80		
1924		2400	HIRA	2220.0	2231.0	III	G	2	25X	150		
		HOLL	2319.0	2321.0	III			2	25	163		
		HIRA	2320.0	2321.0	III	B		2	25X	200		
		SGMR	2320.0	2321.0	III			1	30	80		
	LEAR	2344.0	0912.0	CONT			2	42	180			
06		HOLL	0026.0	0030.0	III			1	25	165		
		LEAR	0026.0	0030.0	III			2	25	180		
	0000	1000	HIRA	0026.5	0030.5	III	G	1	25X	240		
		HIRA	0056.0	0104.5	III	G		2	25X	190		

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OBSERVATION			EVENT			FREQUENCY			Remarks		
Start Day	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)		Upper (MHz)	
06		HOLL	0056.0	0100.0	III			1	25	174	
		LEAR	0154.0	0203.0	III			2	25	180	
		HIRA	0202.0	0203.0	III	G		3	25X	210	
		HIRA	0319.0	0337.5	III	G		2	25X	220	
		LEAR	0319.0	0337.0	III	N		1	25	180	
		SVTO	0355.0	1800.0	CONT			2	25	180	
	0421	1752	ONDR								
			LEAR	0438.0	0912.0	III	N		1	25	180
			SVTO	0438.0	0452.0	III	N		2	25	180
		HIRA	0438.5	0453.0	III	G		3	25X	330	
	0553	1202	IZMI	0553.0E	1202.0D	I	S,C		2	90	270X
			IZMI	0600.6	0600.7	III	B		2	60	130
			IZMI	0604.0U	1202.0D	III	N		1	25X	95U
		SVTO	0640.0	0810.0	III	N		1	25	180	
		IZMI	0640.1	0640.4	III	B		2	45	140	
		IZMI	0658.3	0658.7	III	G,HARM		2	25X	170	
		HIRA	0728.0	0731.0	III	G		1	30	250	
		IZMI	0728.0	0733.2	III	GG		2	35	265	
		IZMI	0744.6	0747.2	III	GG,C		2	25X	190	
		HIRA	0746.5	0747.5	III	G		1	30	200	
		HIRA	0810.0	0810.5	III	B		1	30	220	
		IZMI	0810.0	0811.4	III	G,C		2	25X	270	
		IZMI	0811.9	0813.9	I	GG,DC		2	160	270	
		IZMI	0813.0	0913.7	III	GG		1	50	160	
		IZMI	0820.4	0824.0	I	GG,DC		2	110	250	
		IZMI	0822.6	0823.8	III	G		1	30	180	
		IZMI	0841.6	0841.6	III	B		2	45	95	
		HIRA	0936.5	0938.0	III	G		1	70	130	
		IZMI	0936.8	0937.8	III	GG		2	45	190	
		IZMI	1025.8	1027.6	III	G		2	45	90	
		IZMI	1059.6	1100.5	III	G		1	180	270X	
		IZMI	1101.6	1105.6	III	GG,C		2	25X	250	
		SVTO	1103.0	1105.0	III			2	25	180	
		SGMR	1104.0	1105.0	III			2	30	55	
		HOLL	1326.0	1327.0	III			1	25	61	
		HOLL	1413.0	2045.0	III	N		1	25	126	
	SVTO	1413.0	1800.0	III	N		2	25	180		
1925	2400	PALE	1613.0	2217.0	III	N		1	25	180	
		HIRA	2001.0	2003.5	III	G		2	25X	310	
		HIRA	2147.0	2157.5	III	G		2	25X	200	
		HOLL	2147.0	2157.0	III			1	25	180	
		HOLL	2319.0	2323.0	III			1	25	180	
		PALE	2319.0	2324.0	III			1	25	180	
		HIRA	2322.5	2324.0	III	G		1	25X	260	
07		LEAR	0147.0	0148.0	III			1	25	180	
		PALE	0147.0	0158.0	III			1	25	180	
		LEAR	0157.0	0158.0	III			1	25	180	
	0000	1000	HIRA	0157.0	0157.5	III	B		1	25X	230
			LEAR	0315.0	0912.0	III	N		1	25	180
			HIRA	0355.0	0356.0	III	G		1	30	220
	0422	1752	ONDR								
			HIRA	0435.0	0435.5	III	B		1	30	70
			SVTO	0435.0	0435.0	III			1	25	64
		SVTO	0537.0	0544.0	III			2	25	180	
		HIRA	0537.5	0539.5	III	G		3	25X	240	
		SVTO	0604.0	0606.0	V			2	25	170	
		IZMI	0604.1	0606.2	III	G,C		2	25X	140U	
		HIRA	0605.0	0606.0	III	B		1	25X	210	
		IZMI	0614.6	0614.8	III	B		1	55	95	
	0606	1200	IZMI	0616.0E	1059.0U	III	N		1	45U	95U
			IZMI	0616.0E	1200.0D	I	S		1	75U	270X
			IZMI	0625.0	0625.6	III	G		2	30	95
			SVTO	0625.0	0625.0	III			1	25	66
			IZMI	0705.0	0705.6	III	G		2	160	270X
			IZMI	0747.4	0747.6	III	B		2	45	95
			IZMI	0754.6	0757.8	III	GG		2	35	160
			SVTO	0755.0	0801.0	III			1	25	118
			IZMI	0800.9	0802.1	III	G		2	25X	120

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OBSERVATION			EVENT			FREQUENCY			Remarks
Start Day	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	
07		IZMI	0813.7	0813.8	III	B	2	120	185
			0834.9	0838.7	III	G	2	25X	95
			0835.0	1759.0	III	N	1	25	180
			0842.5	0843.1	III	G	2	25X	95
			0846.4	0852.0	III	GG	2	45	170
			0857.3	0905.1	III	GG	2	25X	165
			0929.5	0930.0	III	G	2	25X	90
			1227.0	1227.0	III		1	30	55
			1304.0	1304.0	III		1	30	55
			1534.0	1537.0	III		1	25	83
			1927.0	1927.0	III		1	25	59
			1927.0	1944.0	III	N	2	30	55
			1927.0	1927.5	III	B	1	25X	50
			2215.0	0006.0	III	N	1	25	90
			2312.5	2314.0	III	G	1	25X	310
08		LEAR	0006.0	0355.0	CONT		1	78	180
			0057.0	0101.0	III		1	25	180
			0058.0	0101.0	III		1	25	178
			0058.0	0105.0	III		1	25	180
			0059.5	0101.5	III	G	2	25X	200
			0225.0	0228.0	V		2	25	180
			0226.0	0228.0	III		2	25	180
			0244.0	0248.0	III		1	25	131
			0245.0	0254.0	III		1	25	180
			0354.0	0403.0	III		1	25	180
			0358.0	0403.0	III		1	25	180
			0359.0	0418.0	III	N	1	25	180
			0702.5	0702.7	III	G	2	110	270X
			0721.0	0722.0	III		1	25	110
			0721.0	0722.0	III		1	25	60
			0721.6	0728.3	III	GG	2	25X	140
			0722.0	0722.5	III	B	1	25X	70
			0727.2	0731.2	DCIM	GG	2	800X	1827
			0727.4	0727.8	III	GG	2	115	270X
			0802.9	0804.2	III	G	1	50	85
			0839.0	0847.0	III		1	25	155
			0839.0	0847.0	III		1	25	83
			0839.3	0842.2	III	G,C	2	25X	240
			0839.5	0840.0	III	B	1	60	110
			0846.9	0848.5	III	G	1	25X	65
			0920.0U	1155.0U	I	N	1	50	160
			0923.3	0923.5	III	G	2	130	240
			0933.8	0935.1	III	GG	2	130	260
			0937.0	0938.0	III		1	61	150
			0937.5	0938.0	III	B	1	80	240
			0937.6	0939.1	III	GG,U	2	60	270X
			1036.7	1036.7	III	B	1	20	265
			1041.7	1043.0	III	G	1	45	95
			1050.0	1050.0	III		1	25	47
			1050.3	1051.2	III	GG,C	1	25X	250
			1116.8	1118.8	III	GG	2	110	270X
			1138.5	1139.0	III	G	1	95	175
			1142.2	1142.3	III	G	1	160	240
			1145.0	1145.0	III		1	25	44
			1145.2	1145.9	III	G	1	160	240
			1151.0	1152.2	I	GG	2	130	160
			1321.0	1322.0	V		1	25	180
			1321.0	1322.0	V		3	30	80
			1321.0	1327.0	V		2	25	180
			1408.0	1409.0	III		1	25	119
			1408.0	1408.0	III		1	25	52
			1428.0	1429.0	III		1	135	180
			1546.0	1805.0	III	N	1	25	180
			1546.0	1641.0	III	N	1	25	180
			1548.0	1641.0	III	N	2	30	80
			1726.0	1733.0	III		2	30	80
			1726.0	1733.0	III		1	25	180
			1736.0	1739.0	III		2	25	180

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OBSERVATION			EVENT				FREQUENCY			Remarks	
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)		Upper (MHz)
08			HOLL	1946.0	2215.0	III	N	1	25	82	
			PALE	2006.0	2009.0	III		1	25	155	
			SGMR	2006.0	2009.0	III		2	30	80	
	1926	2400	HIRA	2006.0	2009.5	III	G	2	25X	200	
09	0000	1000	HIRA								
			LEAR	0506.0	0510.0	III		1	32U	47U	
			SVTO	0506.0	0510.0	III		1	32	43	
	0600	1200	IZMI	0600.0E	0723.0U	I	N	1	120	210	
			IZMI	0715.6	0722.3	I	GG	2	130	150	
			IZMI	1049.4	1050.5	III	GG	2	55	240	
			HOLL	1321.0	1323.0	III		1	25	162	
			SGMR	1321.0	1323.0	III		2	30	80	
			SVTO	1321.0	1325.0	III		2	25	180	
			HOLL	1624.0	1630.0	III		2	25	178	
			SGMR	1625.0	1630.0	V		2	30	80	
			SVTO	1625.0	1632.0	III		2	25	180	
	0423	1151	ONDR	1626.0	1637.0	DCIM	G	1	800X	2000X	
			HOLL	1634.0	1659.0	II		1	25	91	ESS 0434
			SVTO	1635.0	1656.0	II		2	25	143	ESS 0254
			SGMR	1637.0	1700.0	II		2	30	80	ESS 0400
			PALE	1656.0	1714.0	II		1	25	36	ESS 0451
			SGMR	1754.0	1754.0	III		1	30	60	
			HOLL	2054.0	2127.0	III	N	1	25	146	
			PALE	2054.0	0407.0	III	N	1	25	66	
			SGMR	2054.0	2054.0	III		1	30	65	
	1927	2400	HIRA	2054.5	2055.0	III	B	1	25X	320	
			HIRA	2115.5	2120.0	III	G	1	25X	180	
			SGMR	2116.0	2118.0	III		1	30	70	
10			SVTO	0704.0	0705.0	III		1	25	69	
	0555	1205	IZMI	0704.7	0705.4	III	G	2	25X	70	
			LEAR	0728.0	0731.0	III		1	25	180	
			IZMI	0729.0	0731.3	III	G,C	2	25X	125	
			SVTO	0729.0	0731.0	V		2	25	81	
	0000	0959	HIRA	0729.0	0729.5	III	B	1	30	110	
			SVTO	0752.0	0755.0	V		1	25	61	
			IZMI	0753.0	0755.7	III	G,C	2	25X	95	
			IZMI	1036.6	1036.8	III	G	2	195	270X	
			IZMI	1050.5	1050.7	III	B	1	45	65	
			IZMI	1115.5	1119.7	I	GG	2	220	270X	
	0424	1750	ONDR	1356.5	1405.0	DCIM	G	2	800X	2000X	
			HOLL	1357.0	1402.0	III		2	25	159	
			SGMR	1357.0	1404.0	V		3	30	80	
			SVTO	1357.0	1402.0	III		2	25	180	
			SGMR	1402.0	1429.0	II		3	30	80	ESS 1030
			SVTO	1402.0	1429.0	II		2	25	180	ESS 1020
			HOLL	1803.0	1804.0	III		1	25	144	
			SGMR	1803.0	1804.0	III		2	30	80	
	1928	2400	HIRA								
11	0000	0056	HIRA								
	0534	0959	HIRA								
			IZMI	0621.0	0840.0	I	N	2	50	270X	
			SVTO	0621.0	0621.0	III		1	25	68	
	0600	1200	IZMI	0621.2	0621.5	III	G,C	1	45	90	
			SVTO	0648.0	0850.0	CONT		1	36	180	
			IZMI	0649.9	0651.0	III	GG	2	110	160	
			SVTO	0650.0	0650.0	III		1	25	59	
	0425	1750	ONDR	0651.0	0713.0	DCIM	G	1	800X	2000X	
			LEAR	0659.0	0913.0	CONT		1	46	180	
			IZMI	0701.3	0730.0U	III	S	2	45	160	
			IZMI	0707.5	0712.7	III	GG,C	2	45	270X	
			IZMI	0734.3	0735.0	III	G	2	45	160	
			IZMI	0737.4	0738.1	III	G	2	45	125	
			HOLL	1620.0	1621.0	III		1	26	72	
			SGMR	1621.0	1704.0	III	N	2	30	55	
			HOLL	1703.0	1704.0	III		1	25	87	
			SVTO	1703.0	1704.0	III		1	26	125	

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OBSERVATION			Sta	Start		EVENT		Int	FREQUENCY		Remarks
Day	Start (UT)	End (UT)		(UT)	(UT)	Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
11	1928	2400	HIRA								
12	0426	1749	ONDR								
	0000	0959	HIRA	0544.0	0544.5	III	G	1	200	410	
	0555	1200	IZMI	0612.0U	0710.0U	I	N	1	80	180	
			IZMI	0615.1	0616.0	III	G	2	95	260	
			IZMI	0629.0	0632.2	III	GG,FS	2	45	260	
			IZMI	0734.8	0735.5	III	G	2	120	270X	
			IZMI	0855.3	0855.8	III	G	1	25X	90	
			IZMI	0916.1	0916.9	III	G	1	180	270X	
			IZMI	0950.6	0952.1	III	GG	2	125	270X	
			PALE	1906.0	1926.0	II		2	25	180	ESS 0659
			HOLL	1907.0	1923.0	II		1	37	180	ESS 0706
			SGMR	1907.0	1923.0	II		2	30	80	ESS 0600
			HOLL	1908.0	1945.0	III	N	1	25	180	
	1928	2400	HIRA								
			HOLL	2329.0	2329.0	III		1	25	84	
			LEAR	2329.0	2329.0	III		1	25	114	
13	0426	1748	ONDR								
	0600	1200	IZMI	0706.2	0706.4	III	G	2	110	270X	
			LEAR	0810.0	0815.0	III		1	44	180	
			IZMI	0810.3	0812.7	III	GG,FS	2	40	270X	
	0000	0958	HIRA	0810.5	0813.0	III	G	1	80	300	
			SVTO	0811.0	0812.0	III		1	39	180	
			IZMI	0815.4	0815.5	III	G	2	50	120	
			IZMI	0822.5	0828.7	III	GG	2	110	270X	
			IZMI	0831.1	0831.2	III	G	2	85	270X	
			LEAR	0833.0	0833.0	III		1	74	180	
			IZMI	0833.4	0833.6	III	G	2	110	270X	
			IZMI	0859.6	0900.5	III	G	2	185	270X	
			IZMI	0925.9	0928.0	III	G	1	200	270X	
			IZMI	0935.9	0936.2	III	G	1	125	270X	
			IZMI	0942.3	0942.5	III	B	1	100	250	
			IZMI	1043.6	1044.4	III	GG	1	200	270X	
			SVTO	1058.0	1059.0	III		1	25	136	
			IZMI	1058.3	1059.2	III	GG,C	2	25X	95	
			HOLL	1619.0	1620.0	III		1	25	95	
			SVTO	1619.0	1620.0	III		1	31	147	
14	0427	1748	ONDR								
	0555	1200	IZMI	0631.4	0631.6	III	G	1	210	270X	
			IZMI	0642.6	0642.7	III	B	2	45	160	
	0020	0710	CULG	0643.0	0643.0	III	B	1	30	140	
			IZMI	0705.4	0706.3	III	G,C	1	25X	85	
			CULG	0706.0	0706.0	III	G	1	27	80	
			IZMI	0955.6	0955.7	III	B,HARM	1	30	65	
			IZMI	1120.8	1123.0	III	GG,C	2	25X	170	
			SGMR	1121.0	1129.0	III		3	30	80	
			SVTO	1121.0	1133.0	III	N	2	25	180	
			IZMI	1126.1	1126.6	III	G,C	2	30	170	
			IZMI	1127.6	1129.5	III	GG,C	2	25X	270X	
			IZMI	1129.0	1129.8	V		2	45	70	
			SVTO	1218.0	1218.0	III		1	25	180	
			SVTO	1439.0	1514.0	III	N	2	25	82	
			HOLL	1440.0	1449.0	III		1	25	87	
			SGMR	1440.0	1514.0	III	N	3	30	80	
			HOLL	1504.0	1705.0	III	N	1	25	180	
			SGMR	1618.0	1629.0	III	N	1	30	50	
			SVTO	1618.0	1629.0	III	N	1	25	127	
			PALE	1629.0	1645.0	III	N	1	25	85	
			HOLL	1754.0	1905.0	III	N	1	25	141	
			SGMR	1812.0	1837.0	III	N	2	30	80	
			HOLL	1919.0	1919.0	III		1	75	180	
			HOLL	1930.0	1930.0	III		1	25	83	
			SGMR	1930.0	1931.0	III		1	30	80	
			HOLL	2022.0	2023.0	III		1	25	163	
			SGMR	2022.0	2023.0	III		2	30	80	
			HOLL	2101.0	2101.0	III		1	25	125	

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OBSERVATION			Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Start Day	End (UT)	(UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
14	2110	2325	CULG	2136.0	2141.0	III	G	1	40	200	
			CULG	2203.0	2207.0	III	G	1	25	160	
			CULG	2216.0	2216.0	III	B	1	27	90	
15	0020	0710	CULG	0028.0	0029.0	III	G	1	20	160	
			HOLL	0033.0	0034.0	III		1	25	133	
			LEAR	0033.0	0040.0	III		1	25	180	
			PALE	0033.0	0035.0	III		1	25	180	
			CULG	0034.0	0035.0	III	G	2	20	150	
			CULG	0040.0	0041.0	III	G	1	35	150	
			CULG	0131.0	0131.0	III	G	1	35	180	
			CULG	0200.0	0203.0	III	G	1	23	180	
			LEAR	0208.0	0215.0	III		1	25	180	
			CULG	0209.0	0212.0	III	G	3	18X	180	
			PALE	0210.0	0210.0	III		1	25	180	
			CULG	0215.0	0215.0	III	B	1	57	290	
			CULG	0257.0	0259.0	III	G	1	40	180	
			CULG	0320.0	0320.0	III	B	1	60	260	
			CULG	0359.0	0440.0	III	N	1	35	180	
0428	1747		ONDR								
			CULG	0628.0	0630.0	III	G	1	30	160	
0600	1204		IZMI	0628.8	0630.0	III	GG,FS	1	50	95	
			IZMI	0722.6	0722.7	III	B	1	55	65	
			SVTO	0725.0	0725.0	III		1	45	180	
			IZMI	0725.7	0725.9	III	G,C	2	45	270X	
			IZMI	0736.3	0737.5	III	GG,FS	1	45	95	
			IZMI	0829.2	0830.7	III	GG,FS	2	45	195	
			IZMI	0916.3	0916.4	III	B	1	120	250	
			IZMI	0919.6	0919.7	III	B	1	45	65	
			SVTO	0928.0	0934.0	III		1	40	165	
			IZMI	0928.1	0929.3	III	GG,FS,C	2	35	255	
			IZMI	0933.3	0934.7	III	GG,FS	2	45	180	
			IZMI	0958.6	0958.9	III	G,FS	2	40	170	
			IZMI	1011.1	1011.2	III	B	1	120	175	
			IZMI	1036.3	1037.3	III	G	1	55	95	
			IZMI	1038.3	1039.1	III	GG,FS	1	45	160	
			IZMI	1157.4	1157.9	III	G	1	55	65	
			IZMI	1159.2	1203.7	III	GG,FS	2	45	95	
			HOLL	1440.0	1440.0	III		1	25	74	
			SVTO	1529.0	1529.0	III		1	70	152	
			SGMR	1959.0	2005.0	III		1	30	60	
2110	2400		CULG	2224.0	2224.0	III	B	1	20	200	
			CULG	2319.0	2320.0	III	G	1	60	180	
16	0000	0710	CULG								
	0429	1747	ONDR								
			IZMI	1018.1	1018.2	III	G	1	200	270X	
	0555	1202	IZMI	1018.2	1018.2	III	G	1	180	265	
			IZMI	1021.4	1021.5	III	B	1	200	270X	
			IZMI	1030.9	1030.9	III	B	1	245	270X	
	2110	2400	CULG	2238.0	2238.0	III	G	1	20	150	
			CULG	2249.0	2251.0	III	G	1	20	150	
			CULG	2254.0	2400.00	I	S	1	100	180	
17	0000	0710	CULG	0000.0E	0015.0	I	S	1	100	160	
			CULG	0036.0	0038.0	III	G	2	50U	180	
			LEAR	0037.0	0037.0	III		1	61	133	
			CULG	0115.0	0153.0	III	N	1	50U	180	
			LEAR	0123.0	0124.0	III		1	56	180	
	0113	0956	HIRA	0123.5	0124.0	III	G	1	90	270	
			CULG	0124.0	0124.0	III	G	2	40U	250	
			HIRA	0149.0	0158.5	III	G	2	30	390	
			LEAR	0149.0	0158.0	III		1	30	180	
			CULG	0157.0	0159.0	III	G	3	40U	400	
			LEAR	0247.0	0248.0	III		1	55	180	
			HIRA	0248.0	0249.0	III	G	1	80	220	
			CULG	0335.0	0353.0	III	N	1	50U	180	
			CULG	0455.0	0457.0	III	G	1	60	300	
			LEAR	0455.0	0456.0	III		1	73	180	

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OBSERVATION			EVENT			FREQUENCY			Remarks	
Start Day (UT)	End Day (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)		Upper (MHz)
17		SVTO	0455.0	1756.0	III	N	1	50	180	
		SVTO	0455.0	1756.0	III	N	2	25	180	
		HIRA	0456.0	0457.0	III	G	1	80	360	
		CULG	0502.0	0510.0	III	G	1	60	180	
		LEAR	0508.0	0512.0	III		1	74	180	
		CULG	0511.0	0512.0	III	G	2	60	200	
		HIRA	0511.5	0512.5	III	G	2	80	220	
		CULG	0544.0	0545.0	III	G	1	100	180	
		CULG	0554.0	0554.0	III	B	1	25	180	
		LEAR	0607.0	0617.0	III		1	25	178	
0600	1200	IZMI	0607.7	0610.4	III	GG,FS	2	35	270X	
		CULG	0608.0	0639.0	III	N	1	27	650	
		IZMI	0612.4	0613.0	III	G	1	120	160	
		IZMI	0616.5	0617.6	III	G	2	35	270X	
		HIRA	0617.0	0617.5	III	B	1	90	250	
		IZMI	0626.7	0627.6	III	G	1	110	260	
		IZMI	0638.2	0638.6	III	G	1	85	130	
		IZMI	0718.0	0718.4	III	G	2	95	260	
		IZMI	0721.4	0721.6	III	G	1	130	190	
		HIRA	0744.0	0747.0	III	G	1	90	190	
		IZMI	0744.0	0744.8	III	GG,C	2	45	160	
		LEAR	0744.0	0746.0	III		1	87	180	
		IZMI	0746.7	0747.1	III	G	2	115	270X	
		IZMI	0750.4	0750.5	III	B	1	120	150	
		IZMI	0755.1	0801.0	III	GG	1	45	160	
		IZMI	0758.0U	1055.0U	I	N	1	120	160	
		ONDR	0816.5	0824.4	DCIM	GG	2	800X	2000X	
		HIRA	0817.0	0822.0	III	G	3	25X	500	
		LEAR	0817.0	0822.0	III		2	25	180	
		LEAR	0817.0	0829.0	II		2	25	180	ESS 0988
		SVTO	0817.0	0821.0	III		2	25	180	
		IZMI	0817.2	0822.3	III	GG,C,FS	2	25X	270X	
0430	1746	ONDR	0818.4	0823.3	DCIM	G	2	2000X	4500X	
		IZMI	0820.3	0823.7	UNCLF	DS	2	25X	45	
		IZMI	0822.6	0824.8	III	GG,C	2	40	240	
		IZMI	0822.8	0836.5U	II	G,HARM	2	25X	160	
		HIRA	0823.0	0836.0	II		3	25X	200	
		SVTO	0826.0	0843.0	II		3	25	180	ESS 1035
		LEAR	0830.0	0845.0	IV		2	25	164	
		IZMI	0834.3	0846.0	IV		2	45U	250	
		IZMI	0834.3	0847.0	III	GG	1	25X	160	
		IZMI	0838.6	0838.7	III	B	2	95	180	
		IZMI	0841.6	0841.7	III	B	2	90	180	
		IZMI	0903.7	0907.8	III	GG	1	110	210	
		ONDR	0907.3	0910.3	DCIM	G	1	828	2000X	
		HIRA	0937.5	0942.0	III	G	1	25X	270	
		IZMI	0937.5	0947.1	III	GG	2	25X	270X	
		ONDR	0939.4	0941.4	DCIM	G	1	800X	2000X	
		IZMI	0940.9	0943.6	III	G,C,FS	2	25X	190	
		SVTO	0941.0	0943.0	III		2	25	180	
		IZMI	1002.9	1004.0	III	G	2	55	190	
		IZMI	1035.1	1035.6	III	G,C	2	110	240	
		SVTO	1038.0	1040.0	III		1	25	180	
		IZMI	1038.1	1041.5	III	GG	2	25X	270X	
		IZMI	1046.2	1051.8	III	GG	1	45	90	
		IZMI	1101.8	1104.0	III	G,C	2	25X	270X	
		SGMR	1149.0	1207.0	III	N	1	30	60	
		IZMI	1149.2	1151.7	III	GG	2	25X	160	
		IZMI	1155.3	1155.9	III	G	1	45	65	
		HOLL	1338.0	1408.0	III	N	1	25	180	
		SGMR	1338.0	1347.0	III		2	30	80	
		ONDR	1346.2	1346.5	DCIM	GG	2	800X	1297	
		HOLL	1532.0	1532.0	V		1	25	180	
		SGMR	1532.0	1532.0	III		3	30	80	
		ONDR	1533.1	1533.2	DCIM	G	2	1175	1695	
		HOLL	1752.0	1756.0	III		1	25	180	
		PALE	1752.0	1755.0	III		1	25	180	
		SGMR	1752.0	1755.0	III		2	30	60	
		HOLL	1816.0	1818.0	III		1	25	144	

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OBSERVATION			EVENT		FREQUENCY		Remarks
Start	End	Sta	Start	End	Lower	Upper	
Day (UT)	(UT)		(UT)	(UT)	(MHz)	(MHz)	
17		PALE	1816.0	1818.0	III	25	125
		SGMR	1816.0	1818.0	III	30	60
		HOLL	1830.0	1836.0	II	25	56
		PALE	1831.0	1835.0	III	25	61
		SGMR	1831.0	1836.0	II	30	55
1930	2400	HIRA	2044.0	2044.5	III	50	600
2110	2400	CULG	2110.0E	2207.0	I	100	180
		CULG	2151.0	2236.0	III	20	80
		CULG	2244.0	2252.0	III	20	160
		HIRA	2244.0	2248.0	III	25X	140
		HOLL	2244.0	2252.0	III	25	140
		PALE	2244.0	2252.0	III	25	94
		CULG	2355.0	2358.0	III	60	180
18	0000 0710	CULG	0042.0	0606.0	I	100	180
		CULG	0451.0	0543.0	III	25	100
		LEAR	0534.0	0536.0	III	25	180
		SVTO	0534.0	0535.0	III	25	180
	0000 0956	HIRA	0534.0	0537.5	III	30	410
		CULG	0535.0	0537.0	III	18X	450
		CULG	0644.0	0645.0	III	25	180
		HIRA	0644.0	0644.5	III	30	130
		LEAR	0644.0	0644.0	III	25	180
		SVTO	0644.0	0644.0	III	25	84
	0555 1202	IZMI	0644.1	0645.4	III	25X	180
		IZMI	0647.7	0648.3	III	110	160
		CULG	0648.0	0659.0	III	60	160
		HIRA	0739.5	0740.0	III	50	130
		IZMI	0739.8	0740.4	III	55	170
		SVTO	0740.0	0740.0	III	25U	82U
		IZMI	0832.3	0833.9	III	45	120
		IZMI	0838.4	0839.2	III	80	150
		IZMI	0852.5	0852.6	III	45	90
		IZMI	1016.5	1021.0	III	55	160
		IZMI	1033.0U	1202.0D	I	80	270X
		IZMI	1034.4	1052.4	III	55	95
		IZMI	1109.2	1111.8	III	50	135
		IZMI	1120.0	1120.1	III	50	140
		IZMI	1134.8	1140.4	III	50	95
		IZMI	1141.5	1141.9	III	140	270X
		IZMI	1145.6	1148.7	III	111	160
	0431 1745	ONDR	1523.0	1523.5	DCIM	903	1480
		HOLL	1551.0	1552.0	III	25	87
		SGMR	1552.0	1552.0	III	30	60
		SVTO	1552.0	1552.0	III	25	82
1931	2400	HIRA					
2110	2400	CULG	2110.0E	2159.0	I	130	180
19	0000 0710	CULG	0018.0	0445.0	I	80	180
		CULG	0124.0	0124.0	III	35	90
		LEAR	0124.0	0124.0	III	25	117
	0000 0144	HIRA	0124.5	0125.0	III	30	110
		LEAR	0126.0	0445.0	CONT	75	180
		CULG	0134.0	0438.0	III	30U	180
		LEAR	0138.0	0144.0	II	34	105
		CULG	0139.0	0144.0	II	60	100
		PALE	0139.0	0144.0	II	33	90
		CULG	0140.0	0144.0	II	35	50
		LEAR	0318.0	0329.0	III	25	107
		PALE	0319.0	0328.0	III	25	70
		CULG	0325.0	0326.0	III	50	80
	0432 1744	ONDR					
		CULG	0451.0	0451.0	III	50U	300
		CULG	0529.0	0529.0	III	25	160
		CULG	0611.0	0710.0D	I	120	180
	0618 1200	IZMI	0618.0E	1030.0U	I	110	270X
		IZMI	0620.3	0620.5	III	220	270X
		IZMI	0620.4	0620.5	III	110	160
		IZMI	0653.2	0653.3	III	55	95

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OBSERVATION			EVENT				FREQUENCY			Remarks
Start Day	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	Upper (MHz)	
19		SVTO	0740.0	0741.0	III		1	38	82	
		IZMI	0740.5	0741.3	III	G,C	2	40	270X	
		SVTO	0820.0	0915.0	CONT		1	114	180	
		IZMI	0830.3	0835.7	I	GG,DC	2	115	160	
		IZMI	1027.7	1027.8	III	B	1	200	265	
		HOLL	1421.0	1422.0	III		1	25	180	
		SGMR	1422.0	1422.0	III		3	30	80	
		SVTO	1422.0	1422.0	III		2	25	180	
		HOLL	1522.0	1526.0	III		1	25	141	
		SGMR	1522.0	1523.0	III		1	30	55	
		SVTO	1522.0	1523.0	III		1	25U	150U	
		CULG	2110.0E	2221.0	III	S,C	1	50U	130	
	2110 2400	CULG	2110.0E	2400.0D	I	S,C	1	70	180	
		LEAR	2311.0	0917.0	CONT		1	77	180	
20	0000 0710	CULG	0000.0E	0710.0D	I	S,C	1	100	180	
		LEAR	0212.0	0212.0	III		1	25	45	
		CULG	0321.0	0710.0D	III	N	1	20	100	
		SVTO	0405.0	1754.0	CONT		1	110	180	
	0433 1743	ONDR								
	0558 0954	HIRA								
	0600 1200	IZMI	0600.0E	1200.0D	I	S,C	2	80	270X	
		IZMI	0809.0	0809.1	III	B	1	45	155	
		IZMI	0812.9	0813.0	III	B	1	55	85	
		IZMI	0955.7	0955.8	III	G	1	30	130	
		IZMI	0959.6	0959.7	III	B	1	50	90	
		IZMI	1048.8	1049.2	III	G	1	110	260	
		IZMI	1115.2	1115.3	UNCLF	FS	2	50	65	
		IZMI	1124.0	1200.0D	III	N,FS	1	45	95	
		IZMI	1138.1	1138.6	III	G,FS	2	25X	140	
		SVTO	1146.0	1148.0	III		1	25	84	
		IZMI	1146.1	1154.0	III	S,FS	2	25X	170	
		IZMI	1146.6	1148.4	III	G	2	25X	170	
		SGMR	1147.0	1148.0	III		1	30	55	
		SVTO	1216.0	1754.0	III	N	1	25	180	
		HOLL	1418.0	1418.0	III		1	25	77	
		HOLL	1518.0	1829.0	III	N	1	25	93	
	1933 2400	HIRA								
		HOLL	2039.0	2251.0	III	N	1	25	180	
	2110 2400	CULG	2110.0E	2400.0D	I	S,C	1	80	180	
		CULG	2124.0	2400.0D	III	N	1	20	180	
		LEAR	2342.0	0917.0	CONT		1	75	180	
21		CULG	0000.0E	0710.0D	III	N	1	20	100	
	0000 0710	CULG	0000.0E	0710.0D	I	S,C	1	60	180	
		LEAR	0129.0	0129.0	III		1	25	180	
	0000 0953	HIRA	0129.0	0129.5	III	B	1	25X	60	
		SVTO	0400.0	1753.0	CONT		1	75	180	
		LEAR	0456.0	0917.0	III	N	1	25	180	
		CULG	0508.0	0508.0	III	B	3	70	300	
		HIRA	0508.0	0509.0	III	B	2	80	220	
		LEAR	0508.0	0508.0	III		1	72	180	
		SVTO	0508.0	0508.0	III		1	66	180	
		IZMI	0550. E	1206.0D	III	N	2	25X	270X	
		IZMI	0550.0E	1206.0D	I	S,C,DC	2	45U	270X	
		IZMI	0608.8	0610.7	III	GG	2	40	270X	
		SVTO	0609.0	0714.0	III	N	2	25	180	
		HIRA	0609.5	0610.0	III	B	2	120	230	
		CULG	0610.0	0610.0	III	B	3	70	300	
		IZMI	0618.3	0624.1	III	GG,C	2	45	270X	
		CULG	0619.0	0622.0	III	G	3	50U	400	
		HIRA	0619.0	0622.0	III	G	2	60	430	
		LEAR	0619.0	0620.0	III		1	45	180	
		IZMI	0626.3	0627.0	III	GG,C	2	50	270X	
		HIRA	0626.5	0627.0	III	B	1	70	310	
		CULG	0627.0	0627.0	III	B	3	40U	360	
		IZMI	0714.3	0714.5	III	G	2	25X	95	
		IZMI	0725.7	0733.8	III	GG	2	45	95	
	0434 1742	ONDR	0750.0	0750.1	DCIM	G	2	800X	1133	

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OBSERVATION			EVENT			FREQUENCY			Remarks	
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)		Lower (MHz)
21			IZMI	0812.0	0812.5	III	G	2	25X	160
			SVTO	0815.0	0819.0	III		2	25	180
			HIRA	0815.5	0819.5	III	G	1	25X	320
			IZMI	0815.8	0816.6	III	G,C	2	25X	190
			IZMI	0815.9	0816.4	V		2	25X	65
			IZMI	0817.0	0819.7	III	GG	2	25X	270X
			IZMI	0927.4	0927.8	III	G	2	40	160
			IZMI	0956.9	1010.6	III	GG	2	25X	160
			SVTO	1057.0	1057.0	III		1	25	135
			IZMI	1057.2	1057.6	III	B	2	25X	160
			IZMI	1110.7	1116.2	III	GG	2	25X	160
			SGMR	1333.0	1333.0	III		2	30	55
			SVTO	1333.0	1333.0	III		1	25	83
			HOLL	1412.0	1418.0	III		1	25	180
			SGMR	1414.0	1418.0	III		2	30	80
			SVTO	1415.0	1417.0	III		2	25	180
			SVTO	1450.0	1450.0	III		1	25	164
			HOLL	1517.0	1900.0	III	N	1	25	180
			SGMR	1724.0	1730.0	III		1	30	55
			PALE	1813.0	1814.0	III		1	25	180
			SGMR	1813.0	1814.0	III		3	30	80
			HOLL	2000.0	2002.0	III		1	25	134
			PALE	2010.0	2011.0	III		1	25	74
1934	2400		HIRA	2010.5	2011.0	III	B	1	25X	120
			CULG	2100.0E	2400.0D	III	N	1	20	100
2100	2400		CULG	2100.0E	2400.0D	I	S,C	1	70	200
			HOLL	2212.0	2300.0	III	N	1	25	131
			CULG	2225.0	2226.0	III	G	1	40	140
			HIRA	2225.5	2226.0	III	B	1	50	120
			HIRA	2231.5	2233.0	III	G	2	60	300
			CULG	2232.0	2233.0	III	G	1	40	360
			SGMR	2233.0	2252.0	III	N	1	30	50
			HOLL	2310.0	0030.0	III	N	1	25	134
			HIRA	2325.0	2325.5	III	B	1	25X	50
			PALE	2325.0	2325.0	III		1	25	180
22			CULG	0000.0E	0710.0D	III	N	1	30	120
	0000	0710	CULG	0000.0E	0710.0D	I	S,C	2	60	180
			LEAR	0033.0	0918.0	CONT		1	74	180
			CULG	0159.0	0201.0	III	G	3	18X	820
			LEAR	0159.0	0201.0	V		1	25	180
			PALE	0159.0	0201.0	V		2	25	180
	0000	0952	HIRA	0159.5	0201.0	III	G	2	25X	60
			CULG	0353.0	0358.0	III	G	1	18X	130
			HIRA	0354.5	0356.0	III	G	1	25X	70
			SVTO	0400.0	1752.0	CONT		1	25	180
			IZMI	0600.0E	1200.0D	III	N	1	45U	95U
0600	1200		IZMI	0600.0E	1200.0D	I	S,C	2	50U	270X
0435	1741		ONDR	0818.5	0819.1	DCIM	GG	1	1353	1616
1935	2400		HIRA							
			CULG	2100.0E	2254.0	III	N	1	20	100
2100	2400		CULG	2100.0E	2350.0	I	S	1	60	180
			HOLL	2143.0	0100.0	CONT		1	37	136
23	0000	0710	CULG	0034.0	0034.0	III	B	2	40U	140
	0000	0951	HIRA	0034.0	0034.5	III	B	1	25X	100
			CULG	0049.0	0128.0	I	S	1	140	180
			HIRA	0136.0	0141.5	III	G	1	100	460
			CULG	0137.0	0141.0	III	G	2	50U	470
			CULG	0351.0	0620.0	III	N	1	60	180
			HIRA	0412.5	0413.0	III	B	1	320	460
			CULG	0413.0	0413.0	III	B	1	350	470
			HIRA	0417.0	0417.5	III	B	1	120	220
0436	1740		ONDR							
			CULG	0442.0	0710.0D	I	S	1	140	200
			SVTO	0450.0	0801.0	CONT		1	53	180
			SVTO	0532.0	0533.0	III		1	43	180
			CULG	0533.0	0534.0	III	G	2	35	180
			LEAR	0533.0	0534.0	III		1	25	180

OBSERVATION			EVENT				FREQUENCY			Remarks		
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)		Upper (MHz)	
23	0600	1200	HIRA	0533.5	0534.0	III	B	2	50	230		
			IZMI	0600.0E	1200.0D	I	N	2	120	270X		
			IZMI	0610.6	0610.6	III	G	1	160	205		
			IZMI	0614.3	0615.3	III	G	2	110	240		
			IZMI	0719.4	0719.8	III	G	2	115	270X		
			IZMI	0740.1	0740.4	III	G	2	55	270X		
			IZMI	0749.0	0750.0	III	G	2	25X	175		
			SVTO	0749.0	0750.0	III		1	25	77		
			HIRA	0749.5	0750.0	III	B	1	60	130		
			IZMI	0838.6	0839.6	III	GG	2	185	270X		
			IZMI	0926.1	0926.3	III	G	1	200	270X		
			IZMI	0942.0	0942.5	III	G	2	115	270X		
			IZMI	0956.6	0957.2	III	G	1	55	155		
	SVTO	1001.0	1752.0	CONT		1	72	180				
	1936	2400	HIRA									
	2100	2400	CULG	2224.0	2226.0	III	G	2	23	180		
			CULG	2315.0	2315.0	III	B	1	60	180		
			HOLL	2338.0	2338.0	III		1	25	83		
	24	0000	0951	HIRA								
				CULG	0125.0	0710.0D	I	S	1	100	180	
LEAR				0135.0	0919.0	CONT		1	88	180		
LEAR				0242.0	0251.0	II		1	31	60	ESS 0500	
PALE				0242.0	0251.0	II		1	25	28	ESS 0479	
CULG				0243.0	0250.0	II	FN	1	27	50		
CULG				0243.0	0252.0	II	SH	3	50U	100	ESS 500	
SVTO				0425.0	0637.0	CONT		1	75	180		
0437				1739	ONDR							
					CULG	0445.0	0445.0	III	B	1	25	130
0550		1202	IZMI	0550.0E	1202.0D	I	N	2	110U	270X		
			CULG	0609.0	0609.0	III	B	1	40U	140		
			IZMI	0619.3	0920.8	I	GG,DC	2	205	250		
			IZMI	0630.4	0631.1	I	GG	2	195	215		
1937		2400	HIRA									
2100		2400	CULG	2100.0E	2400.0D	I	S	1	60	160		
			CULG	2113.0	2147.0	III	N	1	30	180		
25		0000	0950	HIRA								
				CULG	0000.0E	0635.0	I	S	1	100	180	
	0438			1738	ONDR							
	0555			1200	IZMI	0555.0E	1010.0U	I	N	1	110	250
			IZMI	1010.0	1200.0D	I	S	1	110	240		
	1938	2400	HIRA									
	2100	2400	CULG	2335.0	2335.0	III	B	1	60	150		
	26	0000	0950	LEAR	0035.0	0036.0	III		1	25	180	
HIRA				0035.5	0036.0	III	B	1	60	120		
CULG				0036.0	0036.0	III	G	2	57	180		
C												

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SOLAR RADIO EMISSION Spectral Observations

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OBSERVATION			EVENT				FREQUENCY			Remarks		
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)		Upper (MHz)	
26			IZMI	0943.1	0943.4	III	G,U	2	55	175		
			IZMI	0947.3	0950.6	III	GG	2	50	190		
			IZMI	0952.4	0954.0	III	G	1	45	85		
			SGMR	1115.0	1115.0	III		2	30	55		
			IZMI	1115.2	1116.0	III	G,C	2	25X	170		
			IZMI	1116.0	1116.9	III	G,C	2	25X	170		
			HOLL	1836.0	2001.0	III	N	1	25	180		
			PALE	1836.0	2005.0	III	N	1	25	180		
			SGMR	1836.0	1912.0	III	N	2	30	80		
	1939	2400	HIRA									
	2100	2400	CULG	2152.0	2153.0	III	G	1	18	57		
			CULG	2253.0	2259.0	III	G	2	20	140		
27	0000	0710	CULG	0024.0	0050.0	III	N	1	20	150		
			HOLL	0029.0	0029.0	III		1	25	78		
	0000	0949	HIRA	0029.0	0029.5	III	B	1	25X	70		
			HOLL	0044.0	0046.0	III		1	25	74		
			HIRA	0044.5	0046.5	III	G	1	25X	60		
	0555	1200	IZMI									
	0440	1736	ONDR	1249.3	1250.0	DCIM	GG	2	800X	2000X		
			HOLL	1722.0	1822.0	III	N	1	25	141		
			PALE	1722.0	1723.0	III		1	25	100		
			SGMR	1722.0	1723.0	III		2	30	75		
			SVTO	1722.0	1722.0	III		1	25	150		
			HOLL	2326.0	2326.0	III		1	25	104		
		PALE	2326.0	2327.0	III		1	25	57			
1940	2400	HIRA	2326.5	2327.0	III	B	1	25X	130			
2100	2400	CULG	2327.0	2328.0	III	G	2	30	180			
28	0000	0700	CULG	0030.0	0030.0	III	B	1	50U	160		
	0441	1735	ONDR									
			CULG	0524.0	0525.0	III	G	1	23	120		
			SVTO	0524.0	0525.0	III		1	25	74		
	0000	0948	HIRA	0524.5	0525.0	III	B	1	25X	70		
			CULG	0614.0	0620.0	III	G	1	20	80		
			SVTO	0614.0	0618.0	III		1	25	68		
	0555	1200	IZMI	0614.0	0619.6	III	G	2	30	95		
			LEAR	0617.0	0618.0	III		1	25	67		
			HIRA	0617.5	0618.0	III	B	1	30	50		
			CULG	0631.0	0631.0	III	B	1	27	75		
			IZMI	0631.2	0631.5	III	B	1	50	95		
			SVTO	0801.0	0802.0	III		1	28U	56U		
			IZMI	0801.1	0802.3	III	G	1	30	90		
			LEAR	0848.0	0849.0	III		1	25	106		
			SVTO	0848.0	0849.0	III		1	28U	81U		
			HIRA	0848.5	0849.0	III	B	1	40	110		
			IZMI	0848.9	0849.1	III	G,HARM	2	25X	130		
			SVTO	1107.0	1112.0	V		2	25	170		
			IZMI	1107.1	1110.8	III	GG,C	2	25X	172		
		SGMR	1108.0	1112.0	V		2	30	80			
		IZMI	1108.9	1110.3	V		2	25X	85			
		IZMI	1111.3	1112.6	III	G,C	2	25X	270X			
1941	2400	HIRA										
2100	2400	CULG										
29	0000	0710	CULG									
	0000	0947	HIRA									
	0443	1734	ONDR									
	0600	1200	IZMI	0710.8	0710.9	III	B	1	45	155		
			IZMI	0715.7	0715.8	III	B	1	45	85		
1941	2400	HIRA										
2100	2400	CULG										
30	0000	0710	CULG									
	0000	0947	HIRA									
	0443	1732	ONDR									
	0555	1202	IZMI									
	1942	2400	HIRA									
2100	2400	CULG	2223.0	2225.0	III	G	1	60	180			

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OBSERVATION					EVENT				FREQUENCY		Remarks
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	Upper (MHz)	
31	0000	0946	HIRA								
	0000	0710	CULG	0103.0	0104.0	III	G	2	57U	180	
	0445	1731	ONDR								
			CULG	0521.0	0532.0	III	N	1	27	180	
			CULG	0659.0	0659.0	III	B	1	50U	90	
	0555	1200	IZMI	0659.2	0659.4	III	G,C	1	50	85	
			IZMI	1116.1	1116.2	III	G	1	110U	175	
			HOLL	1724.0	1726.0	III		1	25	75	
			SGMR	1724.0	1726.0	III		1	30	50	
	2100	2400	CULG	2315.0	2320.0	III	G	2	18	180	
	1942	2400	HIRA	2318.5	2319.0	III	B	1	25X	200	

Event Remarks:

B = Single burst C = Underlying 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
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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	BLEN = Bleien
PALE = Palehua	POTS = Potsdam	SGMR = Sagamore Hill	SVTO = San Vito	

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

SOLAR RADIO NOISE STORM AT 164 MHZ

FROM NANÇAY RADIOHELIOGRAPH

JULY 2003

	HELIOGRAPHICS POSITIONS MEAN VALUES ¹		IMP ²	OBSERVING TIME ³	
DAY	E-W	S-N		START(UT)	END(UT)
01/07/03	-0.29	+0.05	III	8H24 E	15H25 D
02/07/03	-0.08	+0.11	III	8H24 E	15H25 D
03/03/03	+0.08	+0.14	III	8H24 E	15H25 D
03/07/03	+0.34	-0.08	II	8H24 E	15H25 D
04/07/03	+0.37	+0.09	II	8H30 E	15H25 D
04/07/03	+0.54	-0.22	II	8H30 E	15H25 D
05/07/03	-0.48	-0.14	II	8H47 E	15H25 D
05/07/03	+0.65	-0.33	III	8H47 E	15H25 D
06/07/03	-0.17	-0.16	II	8H24 E	15H25 D
06/07/03	+0.99	-0.14	III	8H24 E	15H25 D
07/07/03	+0.06	+0.06	I	8H25 E	15H26 D
07/07/03	+1.18	-0.14	III	8H25 E	15H26 D
08/07/03	+1.50	-0.16	I	9H05 E	15H26 D
09/07/03	+1.61	-0.11	I	8H25 E	15H26 D
17/07/03	-0.14	+0.43	III	8H26 E	15H27 D
18/07/03	-0.33	-0.31	I	8H26 E	15H27 D
18/07/03	+0.08	+0.37	III	8H26 E	15H27 D
19/07/03	+0.06	-0.45	I	8H26 E	10H19
19/07/03	+0.25	+0.51	I	8H26 E	10H11
20/07/03	+0.33	-0.06	IV	8H26 E	15H27 D
20/07/03	+0.48	-0.47	V	8H26 E	15H27 D
21/07/03	+0.02	+0.48	II	8H26 E	11H29
21/07/03	+0.64	-0.17	III	8H26 E	15H27 D
21/07/03	+0.70	+0.68	IV	8H26 E	15H27 D
21/07/03	+0.90	-0.60	III	8H26 E	15H27 D
22/07/03	+1.12	-0.71	III	8H26 E	15H27 D
22/07/03	+1.16	-0.31	III	8H26 E	15H27 D
23/07/03	+1.26	-0.60	III	8H26 E	15H27 D
24/07/03	+1.38	-0.54	III	8H26 E	15H27 D
25/07/03	+1.43	+0.00	III	8H26 E	15H27 D
31/07/03	-0.79	-0.22	I	8H28 E	15H22 D

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 NANÇAY OBSERVATIONS

SOLAR RADIO NOISE STORM AT 327 MHZ

FROM NANÇAY RADIOHELIOGRAPH

JULY 2003

DAY	HELIOGRAPHICS POSITIONS MEAN VALUES ¹		IMP ²	OBSERVING TIME ³	
	E-W	S-N		START(UT)	END(UT)
01/07/03	-0.29	+0.16	III	8H24 E	15H25 D
01/07/03	-0.34	-0.20	II	13H14	15H25 D
02/07/03	-0.22	-0.23	I	8H24 E	15H25 D
02/07/03	-0.20	+0.20	I	8H24 E	15H25 D
02/07/03	+0.03	-0.02	I	8H24 E	15H25 D
03/07/03	-0.03	-0.26	I	8H24 E	15H25 D
03/07/03	+0.05	+0.16	I	8H24 E	15H25 D
04/07/03	+0.29	-0.25	I	8H30 E	15H25 D
04/07/03	+0.33	+0.20	I	8H30 E	15H25 D
04/07/03	+0.33	-0.06	I	8H30 E	15H25 D
05/07/03	-0.43	+0.03	I	8H47 E	15H25 D
05/07/03	+0.37	-0.31	I	8H47 E	15H25 D
05/07/03	+0.45	-0.20	I	8H47 E	15H25 D
05/07/03	+0.53	-0.03	I	8H47 E	15H25 D
06/07/03	-0.17	+0.00	I	8H24 E	15H25 D
06/07/03	+0.85	-0.26	I	8H24 E	15H25 D
06/07/03	+0.95	+0.19	I	8H24 E	15H25 D
07/07/03	+0.06	+0.05	I	8H25 E	11H00
07/07/03	+1.05	-0.05	II	8H25 E	15H26 D
07/07/03	+1.13	-0.20	I	8H25 E	15H26 D
08/07/03	+1.21	+0.00	I	9H05 E	15H26 D
09/07/03	+1.10	-0.19	I	8H25 E	15H26 D
09/07/03	+1.36	-0.02	I	8H25 E	13H00
13/07/03	-0.96	+0.43	I	8H25 E	15H26 D
17/07/03	-0.16	+0.20	III	8H26 E	15H27 D
18/07/03	-0.12	-0.33	I	12H54	15H27 D
18/07/03	+0.09	-0.36	II	8H26 E	15H27 D
18/07/03	+0.11	+0.34	II	8H26 E	15H27 D
19/07/03	-0.06	-0.28	I	8H26 E	15H27 D
19/07/03	+0.22	+0.17	I	8H26 E	15H27 D
19/07/03	+0.28	-0.33	I	8H26 E	15H27 D
20/07/03	+0.19	-0.34	I	8H26 E	15H27 D
20/07/03	+0.50	-0.43	III	8H26 E	15H27 D
20/07/03	+0.50	-0.25	III	8H26 E	15H27 D

Continued – **SOLAR RADIO NOISE STORM** at 327 MHz-NANCAY RADIOHELIOGRAPH

JULY 2003

DAY	HELIOGRAPHICS POSITIONS MEAN VALUES ¹		IMP ²	OBSERVING TIME ³	
	E-W	S-N		START(UT)	END(UT)
21/07/03	+0.48	-0.31	II	8H26 E	15H27 D
21/07/03	+0.78	-0.33	III	8H26 E	15H27 D
22/07/03	+0.68	-0.26	I	8H26 E	15H27 D
22/07/03	+0.79	-0.48	I	8H26 E	15H27 D
22/07/03	+0.95	-0.59	I	8H26 E	15H27 D
22/07/03	+0.96	-0.16	I	8H26 E	15H27 D
22/07/03	+1.05	-0.34	I	8H26 E	15H27 D
23/07/03	+1.10	-0.54	I	8H26 E	15H27 D
23/07/03	+1.15	-0.22	II	8H26 E	15H27 D
24/07/03	+1.12	-0.34	I	8H26 E	15H27 D
24/07/03	+1.24	-0.59	I	8H26 E	15H27 D
25/07/03	+1.26	-0.19	II	8H26 E	15H27 D
25/07/03	+0.57	-0.23	I	13H35	15H27 D

27 JULY : NO DATA

OTHERS DAYS: NO DETECTABLE NOISE STORM

- For the days marked by an asterisk, intense ionospheric gravity waves are observed during the whole day. Without a more detailed analysis leading 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 2003

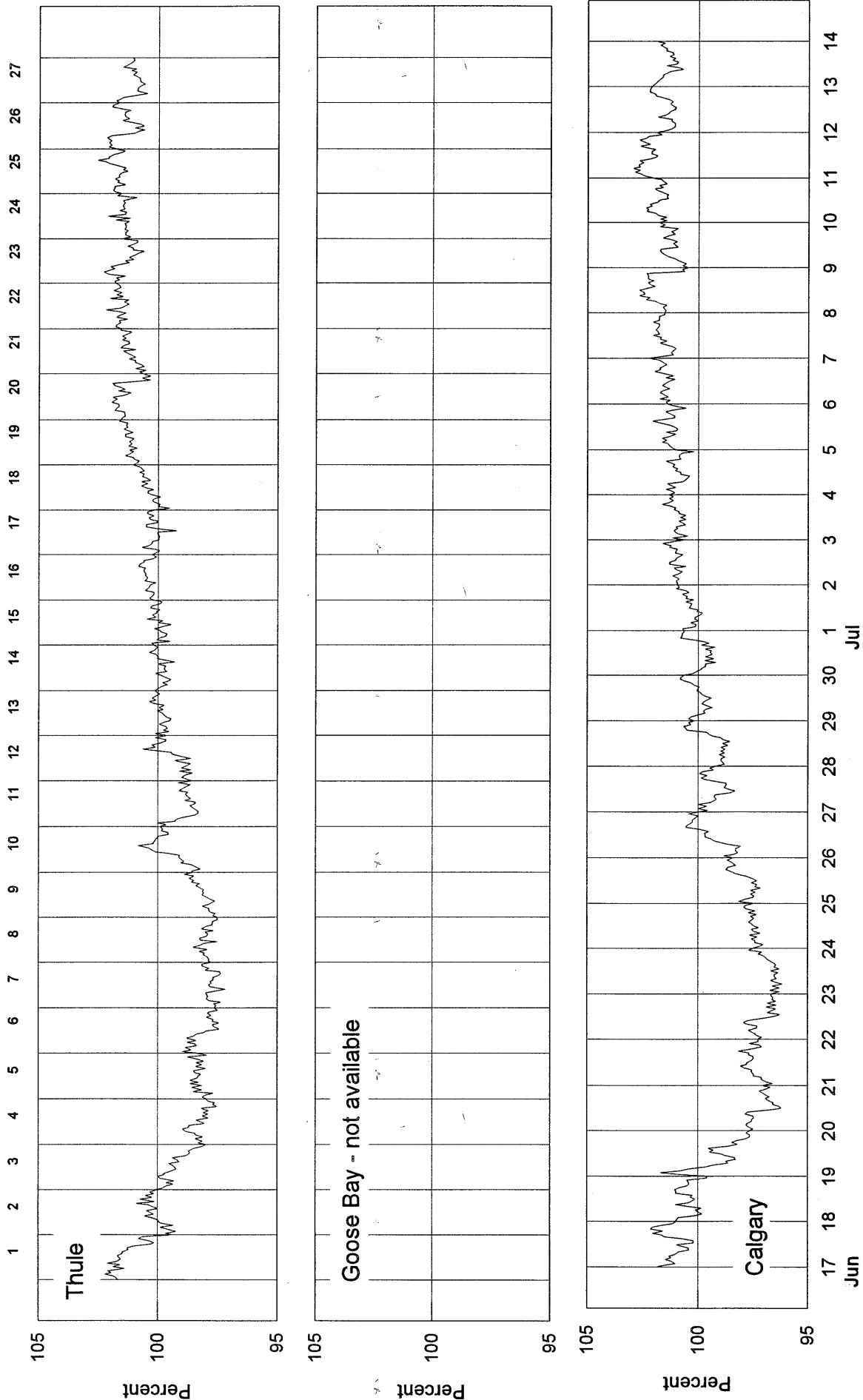
Day	THULE Average (cts/h)/100	CALGARY Average (cts/h)/300	KIEL Average (cts/h)/100	MOSCOW Average (cts/h)/64	CLIMAX Average (cts/h)/100	BEIJING Average (cts/h)/256	HALEAKALA Average (cts/h)/1000
1	3888.1	3398.3	5461.1	8103.5	3592.4	1863.2	3439.8
2	3905.7	3421.0	5493.8	8133.7	3613.6	1866.4	3449.2
3	3895.3	3418.7	5478.7	8051.0	3611.1	1866.3	3444.4
4	3903.0	3418.5	5476.4	8045.6	3616.8	1870.4	3440.0
5	3934.7	3430.0	5505.7	8090.1	3640.3	1873.5	3449.7
6	3945.6	3438.0	5524.8	8110.4	3651.8	1885.5	3464.4
7	3933.1	3441.8	5510.7	8098.2	3655.5	1892.8	3463.0
8	3952.1	3453.3	5528.1	8124.7	3666.0	1885.2	3471.4
9	3944.4	3426.7	5542.4	8145.4	3665.5	1894.4	3464.3
10	3944.7	3446.7	5524.8	8116.2	3649.4	1891.3	3464.0
11	3957.6	3466.8	5544.6	8137.2	3690.3	1898.5	3478.2
12	3947.1	3436.5	5522.7	8096.7	3678.8	1890.9	3469.5
13	3930.4	3435.0	5514.7	8083.1	3657.0	1882.8	3458.5
14	3913.6	3423.0	5496.0	8048.4	3632.8	1882.0	3441.6
15	3917.3	3435.3	5492.8	8022.2	3654.2	1881.7	3451.9
16	3942.0	3458.5	5529.4	8072.1	3684.3	1886.6	3457.0
17	3922.9	3453.7	5525.5	8075.6	3680.7	1882.5	3442.8
18	3952.0	3473.5	5549.2	8118.1	3695.6	1898.9	3463.8
19	3960.0	3480.0	5564.6	8137.0	3696.6	1901.1	3463.4
20	3954.1	3464.5	5555.9	8128.6	3678.7	1895.0	3457.4
21	3944.1	3462.7	5560.4	8137.7	3680.6	1895.2	3460.7
22	3949.7	3463.3	5555.5	8112.3	3681.6	1892.2	3461.3
23	3951.5	3466.0	5571.1	8131.7	3684.7	1890.8	3464.0
24	3955.4	3470.3	5572.2	8139.1	3691.7	1892.3	3462.4
25	3974.4	3485.3	5599.2	8172.9	3693.6	1893.6	3472.7
26	3951.3	3482.3	5566.2	8107.5	3692.9	1891.4	3465.9
27	3922.1	3443.7	5525.3	8068.3(15)	3652.0	1877.4	3448.2
28	3942.3	3465.8	5558.8	8067.3	3679.7	1881.7	3464.1
29	3926.1	3474.7	5549.4	8053.1	3687.2	1870.1	3472.7
30	3926.4	3450.8	5544.5	8048.8(23)	3668.4	1864.4	3460.2
31	3920.8	3462.5	5559.6	8107.0	3681.2	1872.1	3464.8
Mean	3935.0	3449.9	5532.4	8099.5	3664.8	1884.2	3459.1

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.

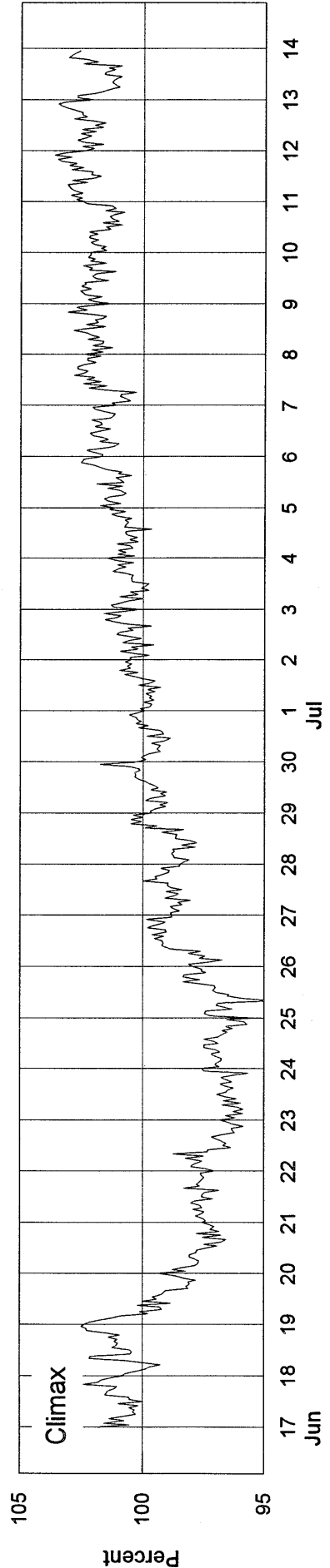
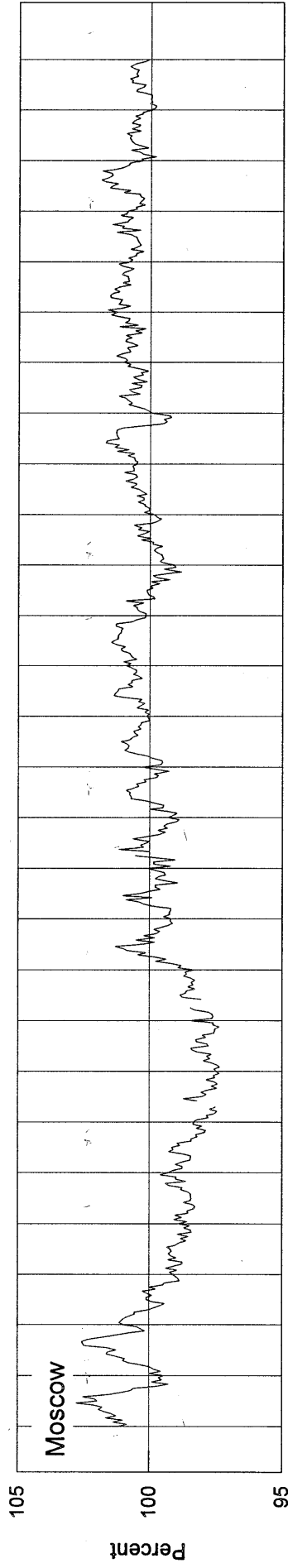
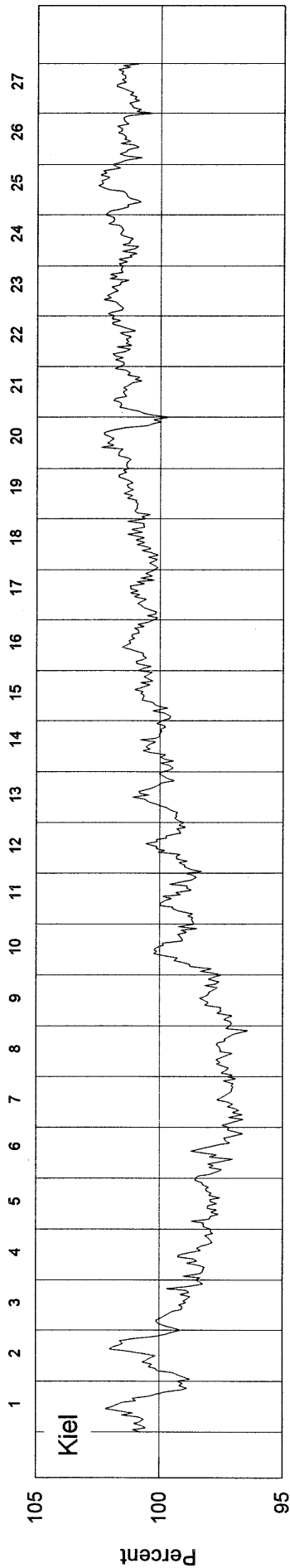
COSMIC RAY INDICES

(Neutron Monitor)

Bartels Rotation 2319 - Beginning 17 Jun 2003

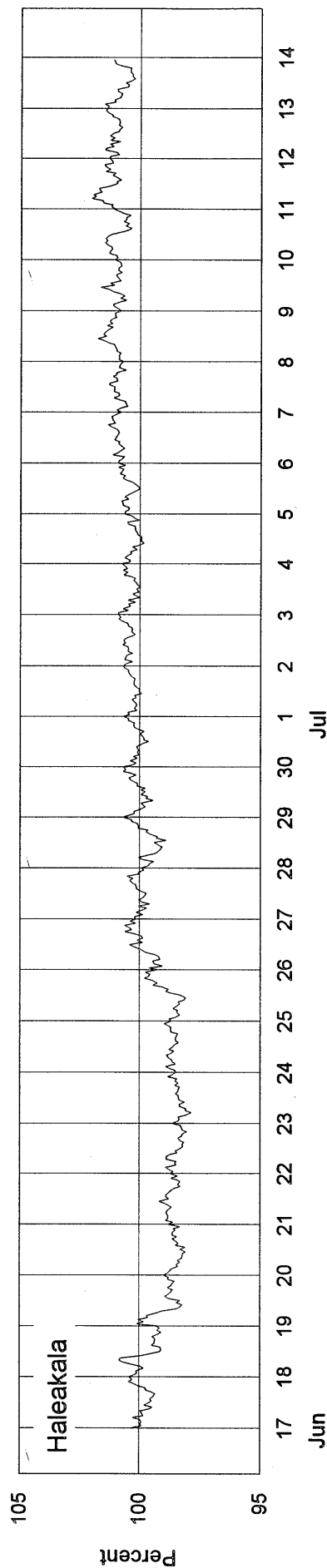
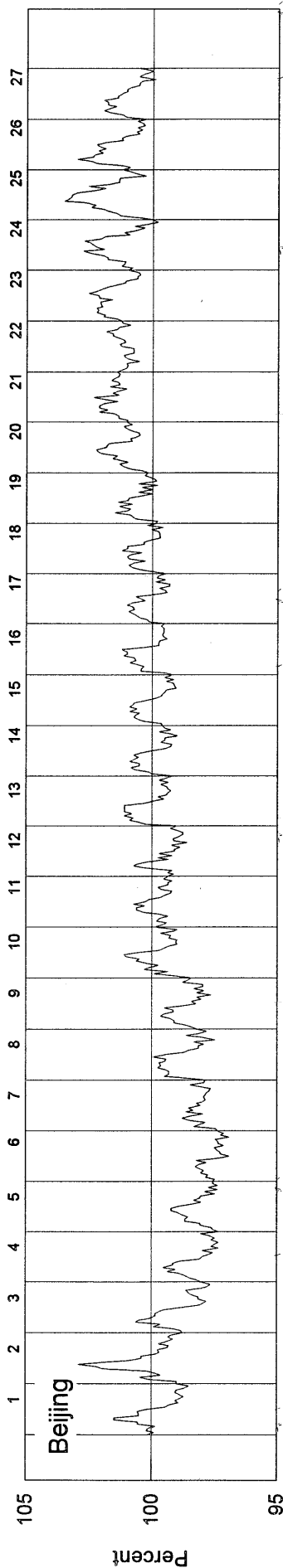


COSMIC RAY INDICES (Neutron Monitor) Bartels Rotation 2319 - Beginning 17 Jun 2003



COSMIC RAY INDICES (Neutron Monitor)

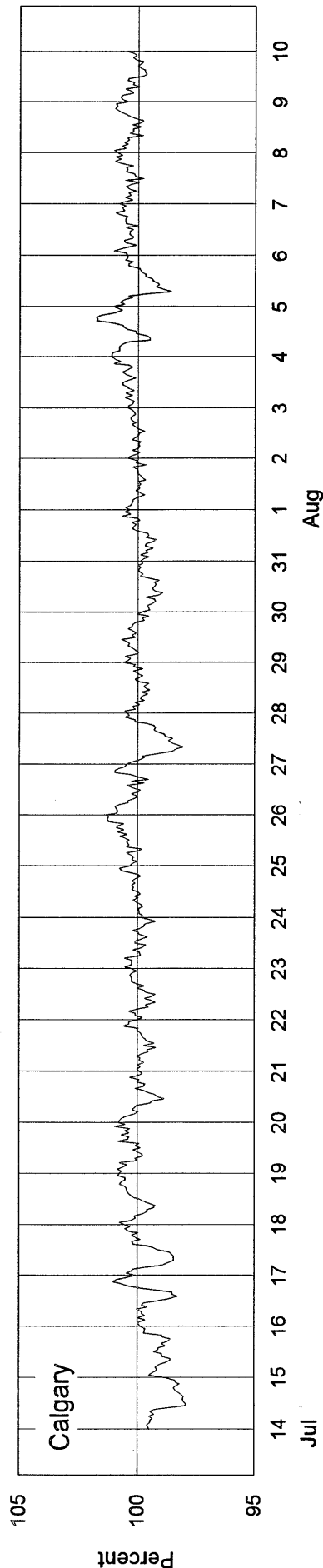
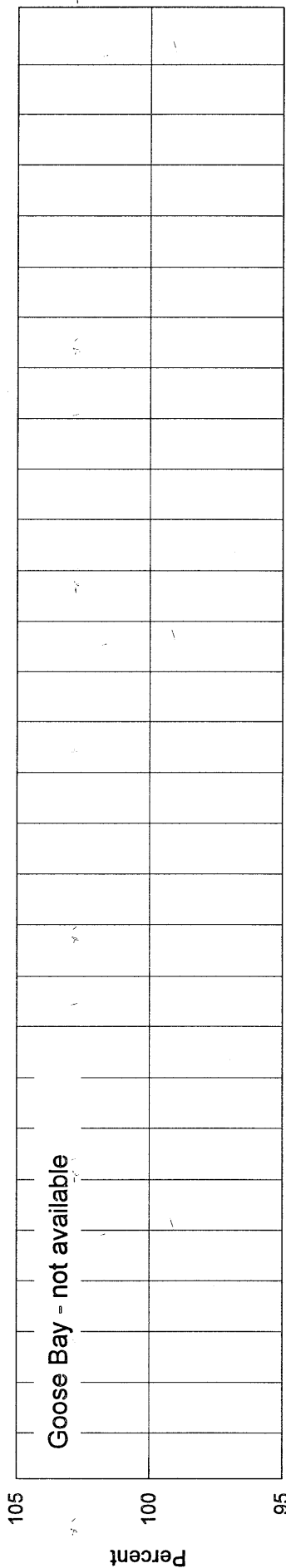
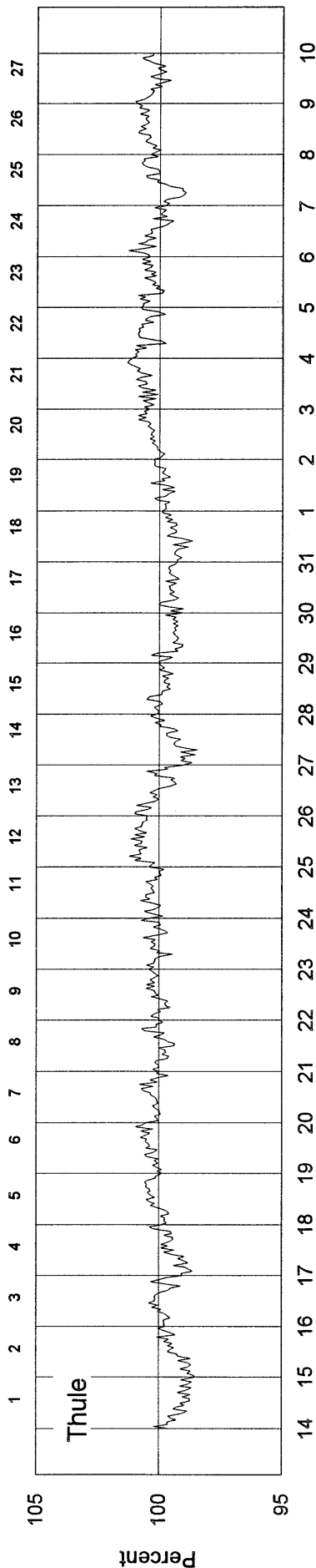
Bartels Rotation 2319 - Beginning 17 Jun 2003



COSMIC RAY INDICES

(Neutron Monitor)

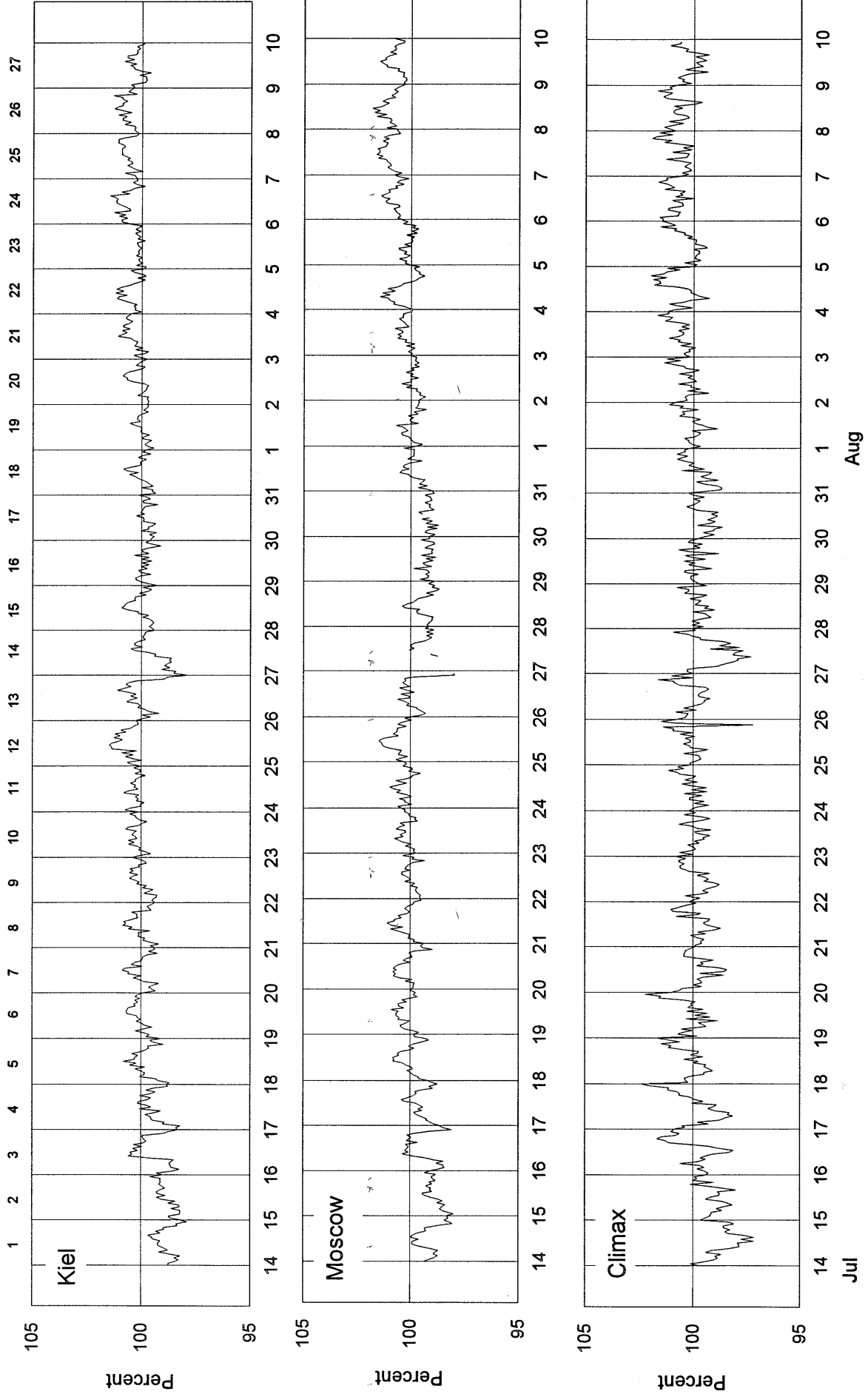
Bartels Rotation 2320 - Beginning 14 July 2003



COSMIC RAY INDICES

(Neutron Monitor)

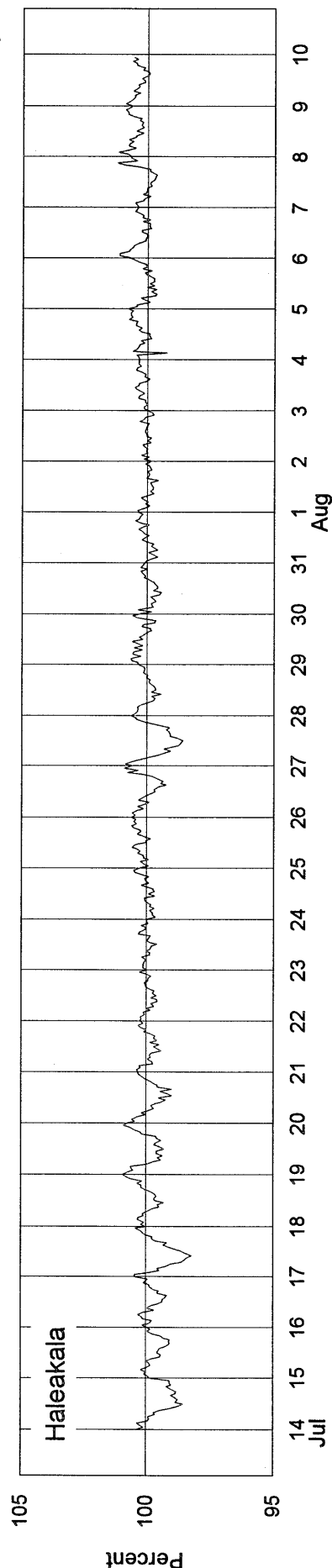
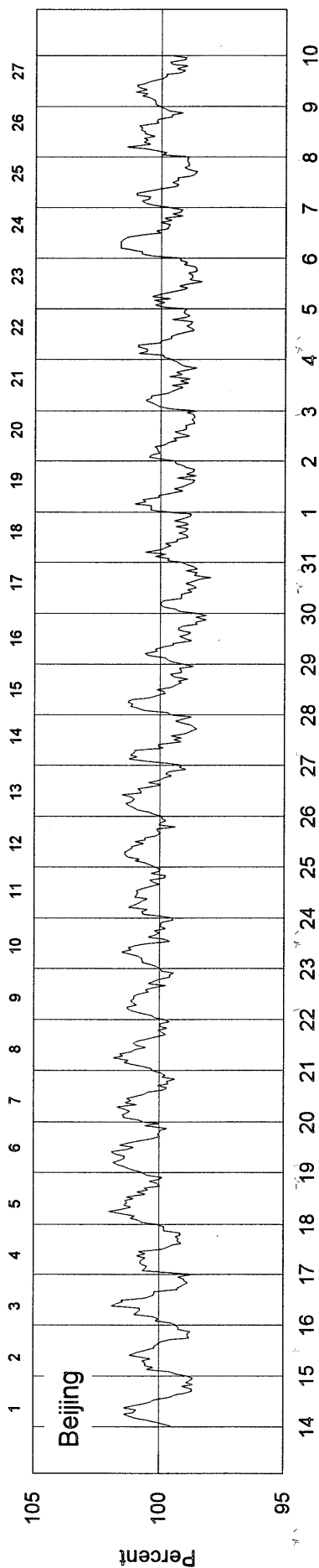
Bartels Rotation 2320 - Beginning 14 July 2003



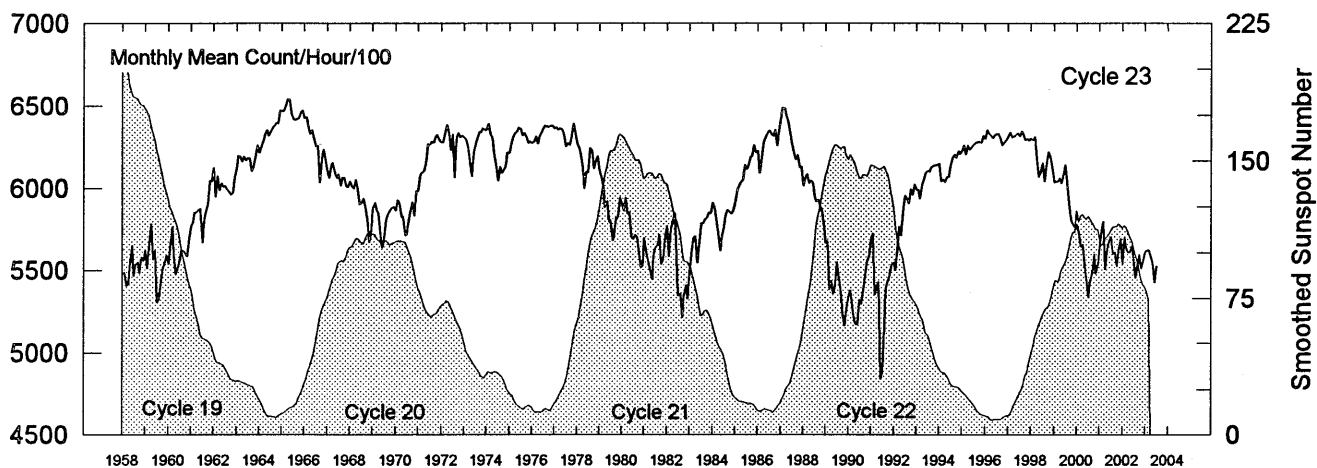
COSMIC RAY INDICES

(Neutron Monitor)

Bartels Rotation 2320 - Beginning 14 July 2003



Kiel Neutron Monitor Pressure-Corrected Values Jan 1958 - Jul 2003



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1958	5481	5488	5409	5417	5523	5651	5466	5538	5553	5485	5584	5561	5513
1959	5623	5515	5659	5783	5569	5625	5307	5328	5420	5518	5536	5593	5540
1960	5539	5628	5764	5596	5480	5509	5557	5628	5620	5607	5586	5692	5601
1961	5766	5793	5853	5856	5872	5874	5672	5804	5859	5898	6046	6041	5861
1962	6122	5949	6072	5989	6030	6010	6013	5991	5982	5963	5971	6052	6012
1963	6125	6197	6191	6163	6194	6168	6185	6182	6103	6133	6197	6260	6175
1964	6215	6253	6287	6331	6355	6321	6347	6366	6383	6399	6393	6475	6344
1965	6474	6469	6506	6542	6545	6451	6424	6420	6423	6424	6467	6475	6468
1966	6433	6432	6375	6330	6353	6300	6258	6258	6033	6168	6236	6172	6279
1967	6101	6061	6139	6155	6088	6061	6086	6016	6064	6063	6014	6009	6071
1968	6041	6011	6001	6048	5997	5901	5910	5937	5878	5805	5673	5739	5912
1969	5876	5909	5872	5845	5686	5640	5700	5812	5843	5864	5879	5887	5818
1970	5863	5928	5906	5830	5831	5716	5719	5803	5885	5915	5832	5985	5851
1971	5985	6081	6094	6103	6151	6268	6265	6286	6275	6314	6322	6288	6203
1972	6281	6278	6351	6387	6344	6232	6328	6065	6306	6334	6313	6318	6295
1973	6309	6298	6250	6155	6074	6220	6271	6296	6341	6340	6365	6360	6273
1974	6353	6391	6331	6308	6201	6139	6047	6132	6090	6113	6139	6215	6205
1975	6217	6267	6308	6334	6341	6370	6363	6320	6334	6313	6272	6286	6310
1976	6275	6281	6314	6269	6325	6331	6370	6380	6379	6375	6383	6380	6339
1977	6366	6371	6355	6366	6357	6322	6254	6272	6263	6317	6391	6355	6332
1978	6271	6242	6215	6113	5998	6101	6095	6241	6232	6117	6167	6193	6165
1979	6104	6063	6006	5883	5923	5794	5806	5682	5723	5820	5827	5942	5881
1980	5905	5862	5942	5850	5854	5702	5690	5717	5704	5611	5522	5528	5741
1981	5697	5600	5569	5517	5447	5600	5642	5650	5717	5539	5564	5702	5604
1982	5772	5586	5755	5799	5848	5582	5347	5362	5217	5349	5414	5329	5530
1983	5481	5606	5702	5711	5549	5659	5787	5785	5814	5820	5852	5849	5718
1984	5911	5880	5799	5740	5622	5706	5753	5837	5867	5856	5844	5864	5807
1985	5911	5986	6016	6038	6049	6142	6114	6135	6193	6192	6260	6220	6105
1986	6229	6093	6176	6280	6308	6336	6350	6331	6315	6356	6259	6359	6283
1987	6429	6489	6484	6443	6410	6319	6273	6217	6171	6198	6131	6131	6308
1988	6013	6064	6085	6030	6047	6033	5945	5922	5931	5880	5872	5761	5965
1989	5673	5678	5385	5441	5360	5407	5552	5460	5378	5228	5167	5241	5414
1990	5348	5381	5313	5197	5177	5173	5324	5297	5382	5471	5563	5584	5351
1991	5696	5726	5355	5405	5431	4841	4882	5162	5390	5443	5466	5540	5361
1992	5553	5500	5624	5766	5713	5869	5956	5942	5905	5994	5960	6024	5817
1993	5996	5992	5937	6026	6061	6094	6108	6099	6129	6137	6142	6141	6072
1994	6150	6042	6052	6067	6070	6068	6129	6189	6203	6183	6226	6209	6132
1995	6225	6260	6205	6260	6234	6250	6267	6279	6281	6285	6279	6319	6262
1996	6301	6354	6330	6324	6306	6325	6332	6331	6303	6262	6277	6294	6312
1997	6313	6337	6313	6314	6324	6336	6317	6347	6319	6295	6301	6289	6317
1998	6305	6293	6312	6177	6069	6101	6154	6042	6149	6220	6190	6124	6178
1999	6034	6040	6041	6062	6032	6100	6140	6023	5898	5805	5780	5765	5977
2000	5778	5729	5650	5661	5537	5441	5339	5425	5487	5602	5481	5542	5556
2001	5629	5736	5800	5509	5631	5678	5707	5602	5614	5527	5637	5694	5647
2002	5540	5701	5628	5613	5610	5651	5562	5455	5556	5599	5512	5558	5582
2003	5613	5624	5624	5588	5543	5428	5532						5565

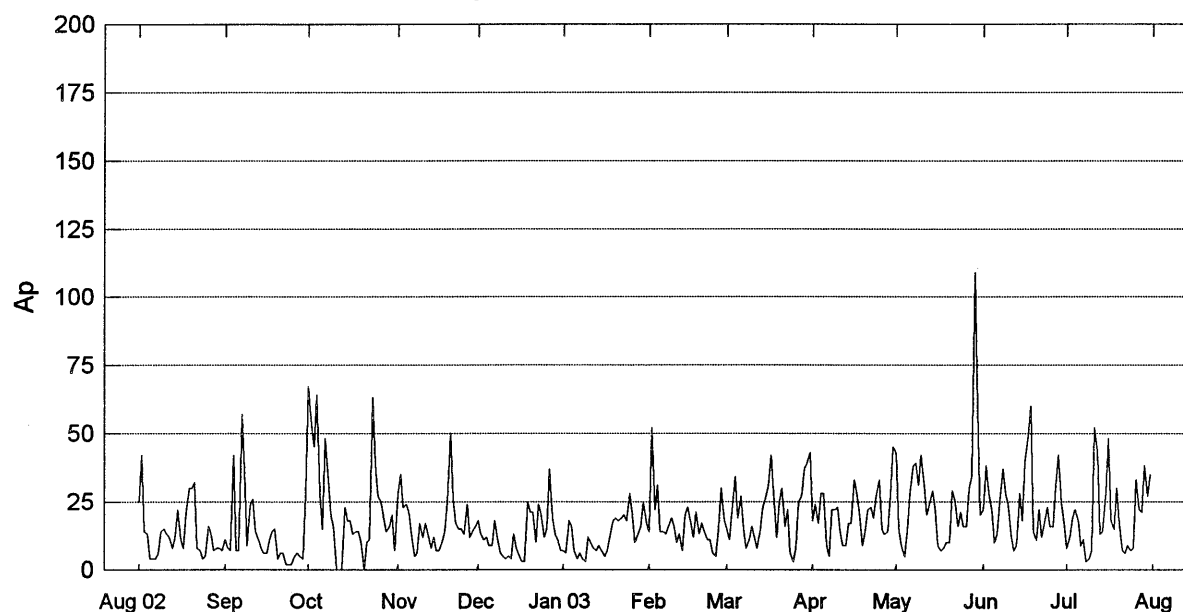
Multiply table entries by 100 to obtain hourly counting rate. Kiel, Germany: N54, E10, Alt= 54 m, Cutoff Rigidity= 2.32GV.

Geomagnetic Activity Indices

July 2003

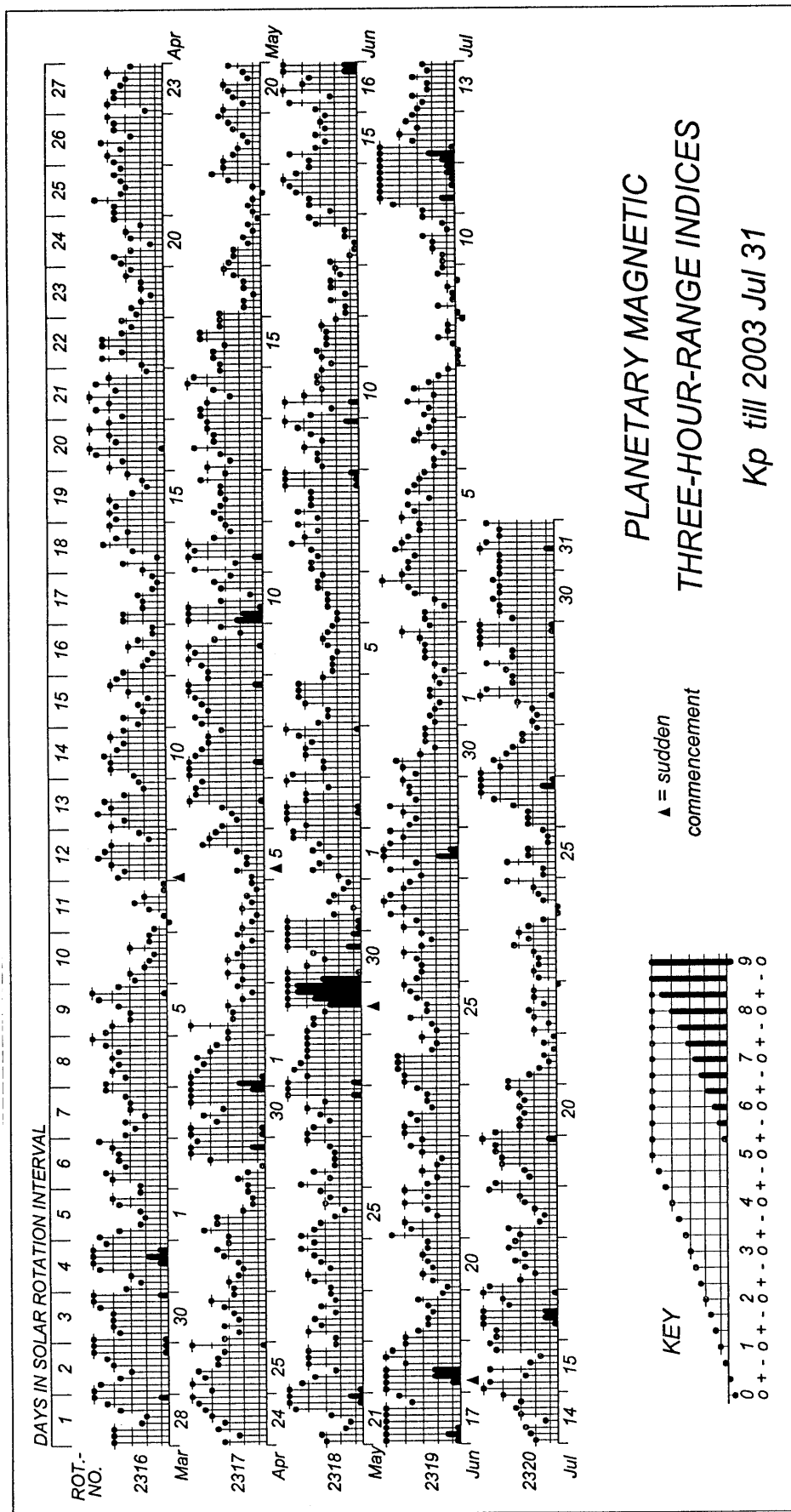
Kp Three-Hourly Indices																											
Day		1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices								Am	aa Provisional					
		1	2	3	4	5	6	7	8				1	2	3	4	5	6	7	8		N	S	M			
1	Q7A	2	2+	2	2-	2+	2+	2-	2	16+	8	0.4	2o	3o	3-	2-	2o	2o	2-	2-	17	15	12	13	14	C	
2		1+	2	3-	3-	3-	3	4	2+	21-	12	0.7	1+	2o	3o	3o	2+	2+	3o	2+	21	29	22	20	32		
3		3-	3-	1+	2	3+	4-	5	4	25-	19	1.0	3-	2o	2-	3-	3-	3o	4-	4-	27	39	19	16	42		
4		4-	4-	3+	4+	4	4-	3	3	29-	22	1.1	4-	4-	3o	4o	3o	3+	2+	3o	36	45	30	43	31		
5		4	3+	4-	2+	4-	3+	3	3-	26	18	1.0	4-	3o	4-	3-	3o	3o	3o	2+	31	38	26	35	29		
6	Q10A	2	2	1+	2	3+	3	2+	2	18	9	0.5	2+	2+	2-	3-	3o	3-	2o	2-	18	20	14	13	21		
7		3-	2+	4-	2	3+	2+	2-	1	19	11	0.6	3-	2o	4-	3-	3+	2+	2-	1o	22	29	27	30	27		
8	Q1	0+	0+	0+	1-	2-	1	1	0	5+	3	0.1	1-	0+	1-	1-	1+	1o	1o	0+	5	8	3	4	7	CK	
9	Q2	0+	2-	1-	1-	1	0+	2-	1+	8-	4	0.1	0o	2-	1o	1o	1+	0+	2-	1o	7	8	5	6	8	CC	
10	Q5A	1+	1+	2	2	3-	1	1+	3-	14+	7	0.4	1+	1o	2o	2o	3-	1+	1+	2+	13	18	12	11	19		
11	D1	3-	4+	6	5	5+	5+	6-	6-	40	52	1.6	3-	4o	5o	5-	4o	4o	4+	6-	71	71	62	63	70		
12	D3	6	7-	5+	3+	4	3	4-	3+	35+	43	1.5	6o	6+	6-	4-	3o	2+	3+	3+	79	64	57	88	33		
13		3	3-	3+	2+	2+	3+	2+	3-	22	13	0.7	3o	3o	3+	3-	2o	3+	2o	3-	26	33	21	28	26		
14		2	2+	3-	1+	3	3+	3	4	22-	14	0.8	2+	2+	3o	2o	2+	3-	3-	4-	25	31	21	18	35		
15		5	5-	3-	5-	2+	2-	4+	5-	30	28	1.2	5-	4o	3-	4+	2+	2-	4-	4+	46	64	38	57	44		
16	D2	4+	4+	5+	6	6	4-	4	5+	39	48	1.6	4o	5-	5o	6o	5+	4-	3+	5-	83	79	69	80	68		
17		5-	3	2	3-	3+	3-	4-	3+	25+	18	1.0	4o	3o	3-	3+	3o	3-	3+	4-	36	42	32	35	39		
18		3	4-	2-	1+	2	3-	3	5-	22	15	0.9	3o	3+	2o	2-	2-	2o	3-	4-	23	40	24	26	38		
19		4+	2+	3-	4	4	4+	4	6-	32-	30	1.3	4-	3-	3o	4o	4-	3+	3o	5-	44	57	43	37	63		
20		4+	3	3	3-	3	3-	3	4-	25+	17	0.9	4+	3+	3o	3-	3-	2+	2+	4-	31	33	32	34	31		
21	Q4A	4-	2+	2-	1	1+	1-	1+	1-	13-	7	0.4	3+	3-	2o	1o	1+	0+	1+	1o	14	14	8	13	9	C	
22	Q3	2	1	2	2+	1+	2	2	0+	13	6	0.3	2+	1o	3-	3-	1+	2-	2o	0+	13	13	10	12	11	CC	
23	Q9A	2-	2	2-	2-	2	3+	2+	3	18-	9	0.5	2-	2o	2+	2+	1+	3o	2+	3-	18	18	14	12	20	K	
24	Q6A	2+	1+	0+	0+	1+	2-	2	4-	13	7	0.4	2+	1o	0+	1-	1+	1+	1+	3+	12	20	10	7	22		
25	Q8A	1+	1+	4-	2+	2+	1	1	1+	14+	8	0.4	1+	1+	4-	3o	2+	1-	1o	1-	16	17	12	17	12		
26		2+	2+	2+	3+	4+	5	6	5+	31	33	1.3	2o	3o	3o	3+	3o	4o	5-	5-	45	52	36	29	59		
27		5	4	4+	4-	3+	3-	3-	2-	27+	22	1.1	5-	4o	4o	4-	3+	3-	2+	2o	41	39	32	46	25		
28		2	2-	2	3	5+	5-	3+	3+	25+	21	1.1	2+	2o	2o	3o	4o	4-	3o	3o	29	29	28	14	44		
29	D4	4-	5-	3+	3+	5	5	5+	5+	36-	38	1.4	3+	4+	4-	4-	4+	4+	5-	5-	60	62	56	54	64		
30		3+	4	4	4+	4	4	4+	4	32	27	1.2	3+	4o	4-	4+	4-	4-	4-	3+	47	52	46	49	49		
31	D5	4	4	4	6-	5-	4	4	5-	35	35	1.4	4o	4-	4o	5-	4-	3+	4-	4-	52	57	48	56	49		
Mean											19	0.87											32.5	36.7	28.1	32.4	
Ks Three-Hourly Indices																											
Day		1	2	3	4	5	6	7	8	An	1	2	3	4	5	6	7	8	As	Sa	Ri	Ra	Rs	IMF			
1		2+	3o	3-	2+	2+	2o	2o	2o	19	2-	3o	3-	1+	2o	2-	2-	1+	15	135.6	100	102	84				
2		1+	2o	3+	3+	3-	3-	3+	3-	24	2-	2o	3-	3-	2+	2o	2+	2o	18	139.3	97	86	88				
3		3-	3-	2o	3o	3+	3+	4-	4o	33	2+	1+	2-	2o	2-	3+	3+	21	136.7	80	75	86					
4		4-	4-	3o	4o	4-	3+	3-	3+	40	4-	4-	3-	4-	3-	3o	2o	3-	31	144.8	67	70	94				
5		4-	3o	4-	3o	3+	3-	3-	2+	32	3+	3o	3+	3-	3-	3+	3o	3-	30	146.7	56	58	96				
6		2o	2+	2-	3-	3+	3o	2+	2-	20	2+	2+	2o	2+	2+	2o	1+	2-	16	134.0	63	65	83				
7		3-	2+	4-	3o	4-	3-	3-	2-	24	3-	1+	4-	3-	3o	2-	2o	1o	20	137.8	85	83	87				
8		1-	0+	1o	1o	2o	1+	1+	1-	7	0+	0+	0+	0+	1o	0+	1o	0o	3	135.7	89	96	85				
9		0+	1+	1o	1o	2-	1-	2+	1+	9	0o	2o	1+	1-	0+	0o	1+	1-	6	130.2	90	90	79				
10		2-	1+	2+	2o	3o	2-	2-	3-	16	1o	1o	1+	2-	2+	1o	1o	2-	10	126.9	74	73	75				
11		3-	4o	5+	5-	4+	5-	4+	5o	72	3-	4o	5-	5-	4o	4-	4o	6o	70	126.1	61	64	74				
12		6-	7-	5o	4-	3+	2+	3+	3o	74	6+	6+	6o	4-	3-	2o	3+	3+	83	125.5	68	68	74				
13		3o	3-	4-	3o	2+	3+	2+	3-	28	3+	3o	3+	3-	2-	3o	2-	2+	25	130.7	96	100	79				
14		2+	2+	3o	2+	3-	3+	3o	4-	27	2+	3-	3-	1+	2o	2+	3-	4o	23	131.4	96	102	80				
15		4+	4o	2+	4o	3-	2-	4-	4o	41	5o	4o	3-	5-	2o	1+	4-	5-	51	129.9	105	107	78				
16		4-	4o	5-	6o	5o	4-	3+	5-	76	4+	5o	5o	6+	6-	4-	3+	5o	90	137.5	105	99	87				
17		4+	3o	3-	3+	3o	3o	4-	3+	36	4o	3o	3-	3+	3o	3-	3o	4o	35	143.2	112	111	93				
18		3-	3o	2o	2-	2o	3-	3o	4-	25	3+	3+	2-	2-	1o	2-	2+	3+	22	144.3	121	119	94				
19		4o	3-	3-	4+	4o	4-	4-	5-	48	4-	3-	3+	4-	3+	3o	3-	5o	41	150.8	128	135	101				
20		4o	3o	3+	3o	3o	2+	3-	3+	32	5-	3+	3-	2+	3-	2o	2-	4-	32	162.4	161	162	113				
21		3+	3o	2-	1+	2o	1-	1+	1o	16	3+	3-	2+	1-	1o	0o	1+	1o	13	160.7	146	143	112				
22		2+	1-	3-	3-	2-	2o	2o	1-	14	2+	1+	2+	2+	1o	1+	2o	0o	12	157.4	123	116	108				
23		2o	2o	2+	3-	2o	3o	2+	3o	20	2-	2+	2+	2o	1o	3-	2+	2+	16	148.7	100	100	99				
24		3-	1+	1-	1-	2-	2o	2o	3o	14	2-	1o	0o	1-	1o	1-	1o	3+	10	129.2	78	76	78				
25		2-	1+	4-	3o	3-	1o	1+	1+	18	1o	1+	4o	3-	2o	0o	1-	0+	15	115.1	43	39	62				
26		2+	3o	3o	3o	4-	4o	5o	5-	49	2-	3o	3+	4-	3-	4o	5-	4+	41	105.9	28	28	52				
27		5-	4o	4o	4-	3+	3-	3-	2-	40	5o	4o	4-	4-	3o	3-	2o	2+	42	104.9	91	30	51				
28		2+	2o	2+	3+	4+	4-	3o	3o	32	2+	2o	2-	3o	3+	3+	3o	3o	26	106.6	50	49	53				
29		3+	4+	4o	4o	4+	5-	5-	5-	64	3+	4+	3+	3+	4o	4+	5-	5-	56	103.0	43	46	49				
30		3+	4+	4o	4+	4o	4-	4-	4-	50	3+	4-	4-	4+													

Daily Average Indices Ap Aug 2002 - Jul 2003

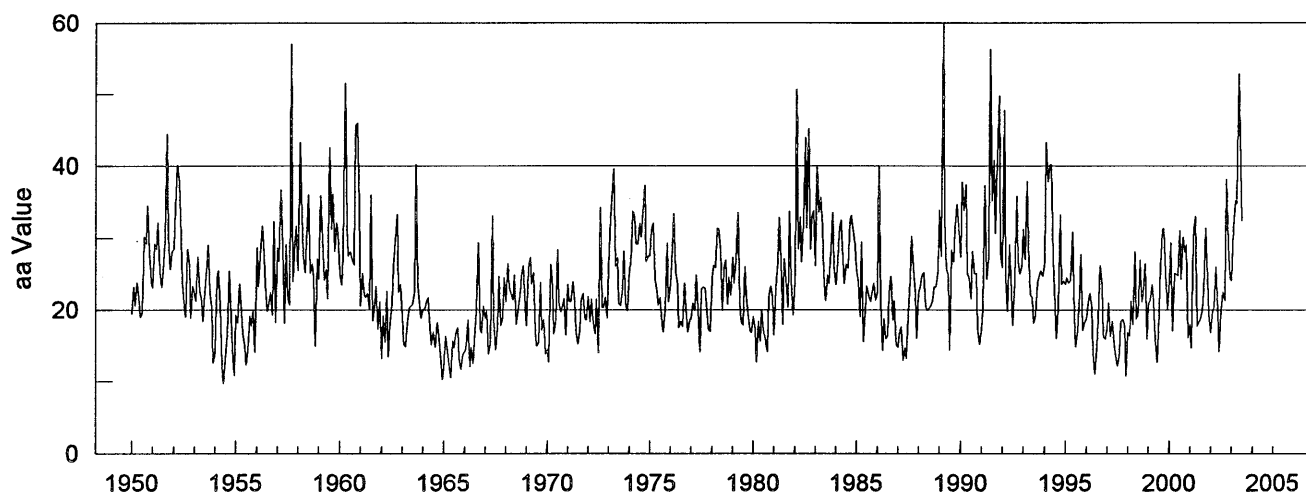


Day	Aug 02	Sep	Oct	Nov	Dec	Jan 03	Feb	Mar	Apr	May	Jun	Jul
1	25	11	67	7	18	7	14	15	18	43	22	8
2	42	8	53	28	13	6	52	11	24	15	38	12
3	14	7	45	35	11	18	22	24	17	9	29	19
4	13	42	64	23	12	16	31	34	28	5	22	22
5	4	7	28	24	9	7	14	19	28	14	10	18
6	4	7	15	21	9	4	14	27	9	28	13	9
7	4	57	48	13	18	6	13	15	5	38	25	11
8	6	36	33	5	12	4	16	8	22	39	37	3
9	14	9	20	6	6	3	19	11	22	31	28	4
10	15	24	16	17	5	12	16	16	23	42	24	7
11	13	26	6	12	4	10	10	12	14	31	12	52
12	12	14	6	17	5	8	13	8	9	20	7	43
13	8	11	5	13	4	7	7	14	9	24	9	13
14	12	8	23	8	13	9	20	23	17	29	28	14
15	22	6	18	12	8	7	23	26	17	22	18	28
16	11	6	18	7	5	5	17	31	33	9	40	48
17	8	11	13	7	3	7	12	42	28	7	49	18
18	21	14	14	10	3	12	21	28	21	8	60	15
19	30	15	14	14	25	18	13	12	9	10	14	30
20	30	4	10	25	21	19	17	25	14	10	11	17
21	32	6	8	50	21	18	14	30	22	29	22	7
22	8	6	10	26	10	19	11	16	23	26	12	6
23	7	2	11	17	24	20	11	22	19	16	18	9
24	4	2	63	15	20	18	6	6	27	21	23	7
25	5	2	39	15	12	28	5	3	33	16	16	8
26	16	5	27	13	15	20	15	8	15	16	16	33
27	13	6	25	24	37	10	30	25	13	30	31	22
28	7	5	19	12	19	13	18	27	14	34	42	21
29	8	4	14	14	13	16		37	27	109	24	38
30	8	28	16	16	11	25		39	45	59	17	27
31	7		20		7	17		43		20		35
Mean	14	13	25	17	13	13	17	21	20	26	24	19

Kp through July 31, 2003



Monthly Mean aa Index Jan 1950 - Jul 2003



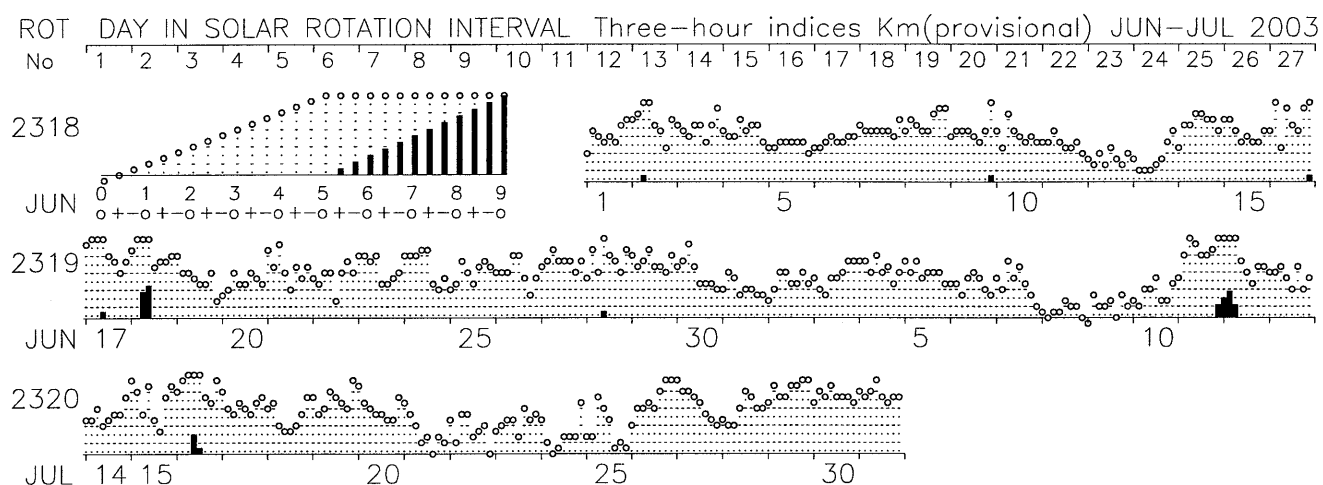
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	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	22.5	21.4	38.1	29.3	24.4	22.7
2003	24.2	31.3	35.2	34.9	52.7	40.2	32.4						35.8

PLANETARY GEOMAGNETIC ACTIVITY

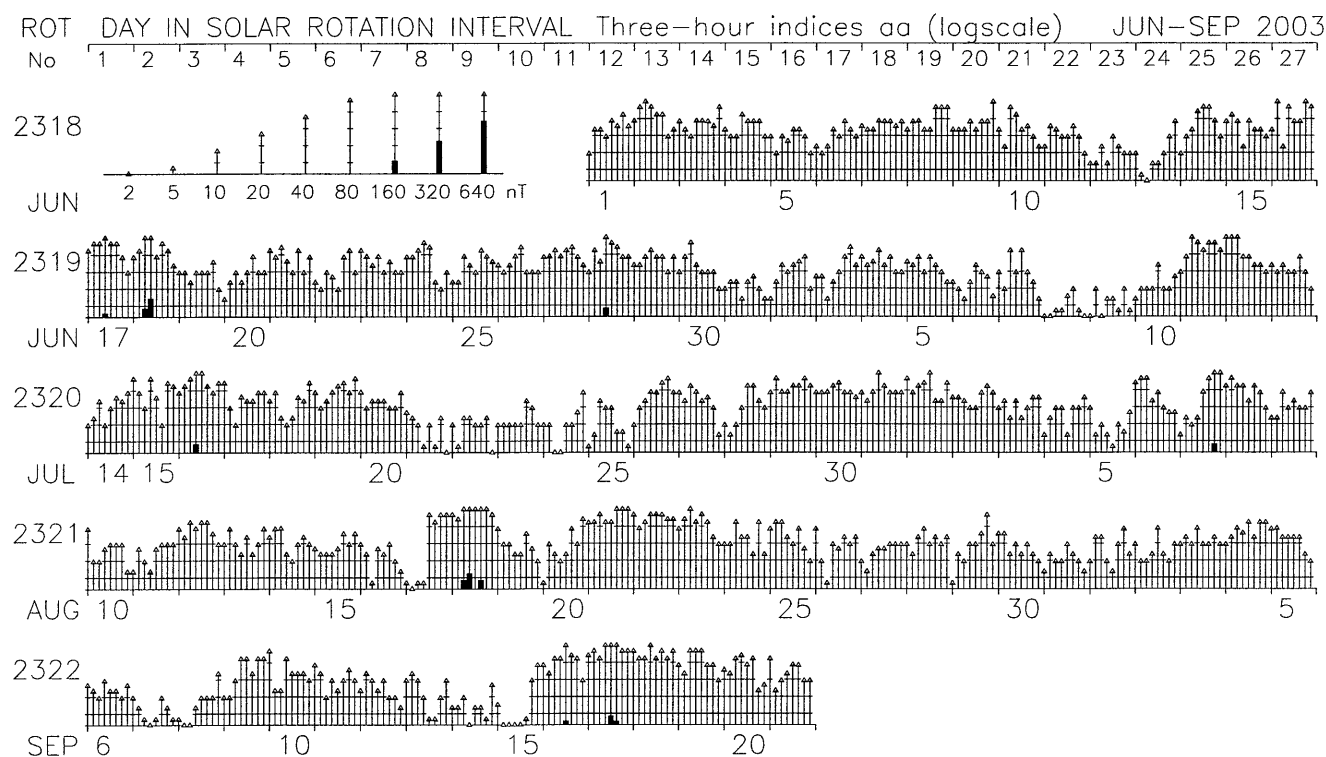
3-HOUR-RANGE INDICES Km AND aa BY 27-DAY SOLAR ROTATION INTERVAL

ISGI PUBLICATION OFFICE – EMail : ISGI.PUBOFF@cetp.ipsl.fr

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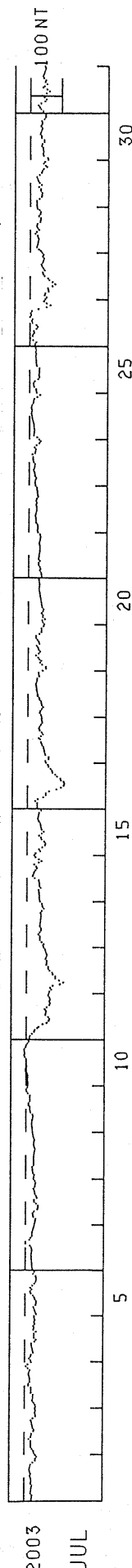


Indices Derivation at C.E.T.P.; Graph Prepared at ISGI Publication Office.

HOURLY EQUATORIAL DST VALUES (PROVISIONAL)

JULY 2003

DAY	UNIT=NT																								U. T.	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	-22	-24	-24	-20	-21	-23	-23	-24	-20	-22	-23	-19	-18	-19	-17	-15	-16	-16	-17	-20	-27	-34	-36	-39	-35	
2	-31	-28	-25	-20	-21	-19	-20	-13	-19	-22	-23	-29	-31	-27	-24	-24	-23	-23	-21	-26	-34	-36	-34	-33	-33	
3	-34	-33	-18	-25	-26	-27	-25	-21	-20	-20	-19	-12	-11	-15	-15	-15	-13	-11	-13	-16	-9	-4	-9	-19		
4	-18	-14	-18	-20	-26	-24	-27	-23	-20	-20	-31	-36	-28	-28	-29	-34	-29	-28	-27	-30	-29	-30	-29	-28		
5	-34	-33	-30	-28	-26	-32	-36	-34	-31	-29	-25	-17	-15	-19	-16	-23	-29	-33	-35	-36	-32	-24	-29	-25		
6	-22	-19	-21	-19	-19	-18	-18	-17	-17	-19	-19	-17	-13	1	1	-11	-15	-21	-21	-20	-23	-25	-26	-27		
7	-28	-31	-30	-24	-23	-23	-27	-38	-40	-39	-32	-27	-26	-34	-33	-28	-28	-26	-24	-28	-28	-31	-25	-25		
8	-25	-26	-23	-22	-21	-20	-24	-25	-24	-24	-25	-25	-26	-26	-29	-27	-24	-25	-24	-26	-25	-23	-22	-27		
9	-20	-19	-18	-17	-18	-19	-20	-23	-19	-14	-12	-12	-11	-8	-8	-11	-12	-11	-12	-5	-2	0	-4	-6		
10	-5	-5	-4	-5	-6	-4	-1	3	1	-1	1	2	2	2	5	7	6	8	8	4	1	-4	-7	-9		
11	-9	-12	-18	-24	-27	-34	-39	-51	-64	-70	-74	-69	-61	-63	-62	-59	-65	-73	-75	-74	-76	-74	-69	-71		
12	-74	-80	-75	-83	-106	-118	-105	-93	-92	-84	-81	-73	-68	-69	-63	-65	-64	-60	-62	-64	-62	-60	-59	-54		
13	-51	-53	-48	-42	-41	-42	-38	-42	-45	-45	-42	-41	-43	-44	-43	-45	-45	-43	-48	-53	-50	-47	-47	-41		
14	-40	-40	-40	-40	-37	-37	-43	-40	-39	-39	-37	-25	-17	-21	-23	-26	-31	-29	-23	-38	-45	-38	-26	-22		
15	-27	-41	-37	-48	-55	-59	-53	-46	-43	-37	-45	-52	-46	-43	-41	-41	-38	-34	-32	-34	-35	-38	-44	-40		
16	-31	-30	-31	-25	-32	-49	-59	-58	-69	-92	-108	-116	-117	-115	-107	-104	-94	-87	-80	-77	-73	-67	-64	-58		
17	-56	-66	-66	-57	-53	-51	-51	-49	-45	-43	-42	-40	-35	-41	-47	-43	-38	-36	-38	-42	-46	-43	-44	-43		
18	-42	-38	-40	-44	-47	-44	-41	-41	-38	-35	-31	-30	-29	-27	-26	-27	-24	-26	-29	-28	-34	-32	-33	-46		
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20	-46	-43	-51	-46	-46	-41	-46	-47	-44	-41	-41	-39	-40	-38	-37	-36	-35	-32	-32	-34	-35	-33	-33	-41		
21	-42	-40	-39	-36	-37	-35	-31	-31	-34	-31	-33	-33	-33	-35	-35	-36	-35	-33	-34	-35	-38	-37	-35	-28		
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23	-18	-18	-20	-22	-18	-18	-15	-13	-15	-17	-18	-14	-12	-12	-11	-9	-18	-21	-20	-16	-23	-31	-36	-30		
24	-25	-13	-13	-15	-15	-14	-13	-14	-11	-10	-8	-8	-6	-5	-8	-5	-6	-8	-11	-11	-14	-24	-32	-23		
25	-19	-19	-14	-11	-11	-16	-26	-30	-29	-29	-31	-31	-31	-23	-20	-19	-20	-20	-17	-19	-18	-19	-18	-13		
26	-16	-19	-10	-2	-7	-10	-14	-12	-19	-24	-21	-8	-5	-7	0	-4	-1	-5	-26	-51	-65	-52	-44	-48		
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28	-33	-26	-21	-22	-25	-24	-27	-25	-22	-15	-21	-26	-22	-19	-22	-31	-32	-33	-26	-30	-33	-28	-23	-21		
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31	-40	-33	-28	-25	-32	-45	-49	-44	-37	-50	-60	-51	-39	-44	-52	-45	-47	-41	-39	-42	-44	-45	-47	-46		

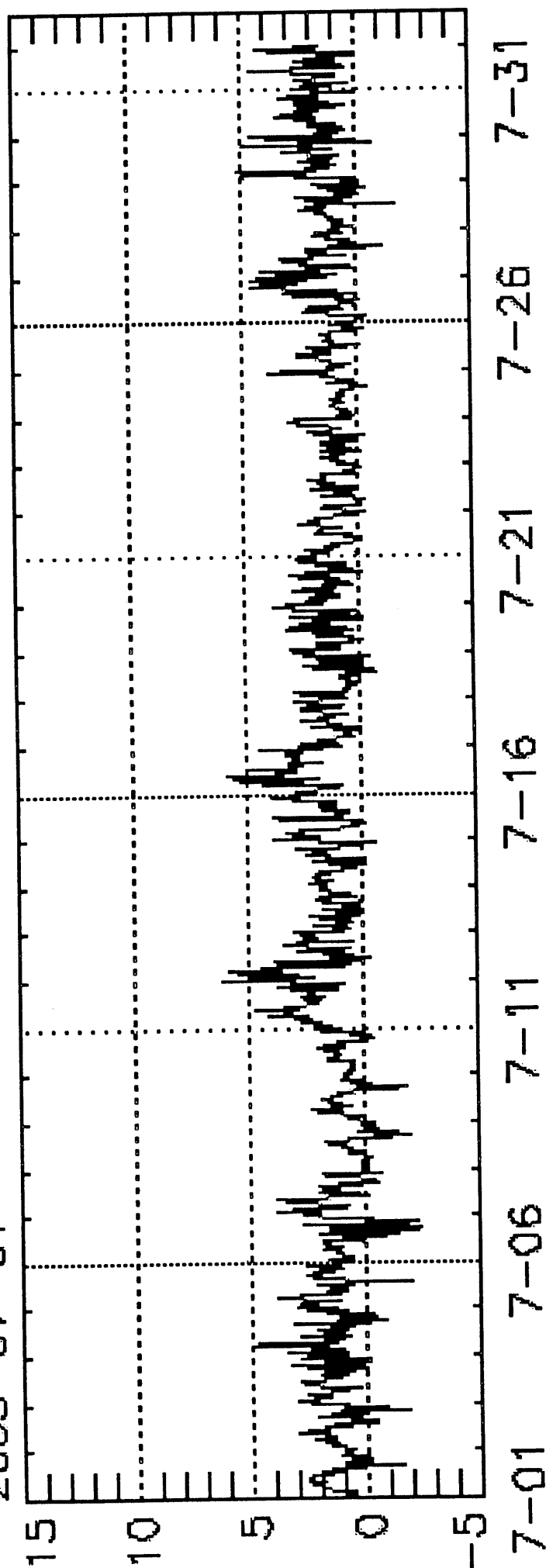


Note: The baselines for the observatories were adjusted for secular change for the Provisional Dst values for July 2003.

WDC C1 for Geomagnetism, Copenhagen

Polar Cap index
Qaanaaq (Thule), THL

2003-07-01



Date, mm-dd

Data source: Solar-Terrestrial Physics Division
Danish Meteorological Institute

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Jul 03

PRINCIPAL MAGNETIC STORMS

JULY 2003

Sta	Geomag Lat	Commencement Time			SC Amplitudes			Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges			End Hour	
		Day	(UT)	Type	D (Min)	H (Gamma)	Z (Gamma)		D K (Min)	H (Gamma)	Z (Gamma)	Day	(UT)
HYB	07.6N	02	0500	..	..	..	..	04(4)	4	8	108	20	05 22
JAI	17.4N	03	1430	..	..	..	..		-	8	67	38	05 17
NGP	11.3N	03	1430	..	..	..	..		-	6	77	27	05 17
ABG	09.4N	03	1430	..	..	..	..	04(4)	5	7	73	37	05 17
PND	02.0N	03	1430	..	..	..	..		-	6	85	45	05 17
TIR	00.6S	03	1430	..	..	..	..		-	5	145	60	05 17
HYB	07.6N	06	1258	SC	- 0.3	10	..		-	--	--	--	-- --
JAI	17.4N	10	2100	..	..	..	..		-	9	126	40	12 20
NGP	11.3N	10	2100	..	..	..	..		-	8	109	29	12 20
ABG	09.4N	10	2100	..	..	..	..	11(3,8) 12(1,2,3)	5	8	112	55	12 20
HYB	07.6N	10	0700	SC	- 0.3	3	..	11(3) 12(2,3)	5	8	170	37	13 22
PND	02.0N	10	2100	..	..	..	..		-	7	129	73	12 20
TIR	00.6S	10	2100	..	..	..	..		-	7	242	111	12 20
KRC	16.4N	11	2336	..	..	..	..	11(2,3,8)	5	8	120	50	12 09
GNA	43.0S	11	0300	..	..	..	..	12(1)	6	26	185	125	12 15
CAN	43.6S	11	0300	..	..	..	..	11(3,4) 12(1,2,3)	5	18	174	73	12 21
HYB	07.6N	14	0100	..	..	..	..	16(4)	7	7	225	27	17 24
JAI	17.4N	15	0930	..	..	..	..		-	10	177	52	17 01
NGP	11.3N	15	0930	..	..	..	..		-	7	--	31	17 01
ABG	09.4N	15	0930	..	..	..	..	16(4)	6	6	215	54	17 01
PND	02.0N	15	0930	..	..	..	..		-	5	240	70	17 01
TIR	00.6S	15	0930	..	..	..	..		-	4	258	93	17 01
GNA	43.0S	15	0600	..	..	..	..	16(4)	6	29	185	201	17 06
CAN	43.6S	15	1800	..	..	..	..	16(4)	6	32	168	65	17 06
HYB	07.6N	18	1500	..	..	..	..	19(3)	4	8	92	32	21 09
HYB	07.6N	21	0658	SC	- 0.2	4	..		-	--	--	--	-- --
JAI	17.4N	26	0500	..	..	..	..		-	7	109	42	27 21
NGP	11.3N	26	0500	..	..	..	..		-	5	138	27	27 21
ABG	09.4N	26	0500	..	..	..	..	26(7)	6	5	133	37	27 21
HYB	07.6N	26	0200	..	..	..	..	26(7)	6	5	131	25	27 22
PND	02.0N	26	0500	..	..	..	..		-	3	148	60	27 21
TIR	00.6S	26	0500	..	..	..	..		-	4	190	85	27 21
JAI	17.4N	28	1100	..	..	..	..		-	6	76	46	30 20
NGP	11.3N	28	1100	..	..	..	..		-	6	84	24	30 20
ABG	09.4N	28	1100	..	..	..	..	29(4,5,6,7)	4	7	74	40	30 20
HYB	07.6N	28	0500	..	..	..	..	31(4)	5	7	111	29	02 24
PND	02.0N	28	1100	..	..	..	..		-	4	79	40	30 20
TIR	00.6S	28	1100	..	..	..	..		-	4	132	48	30 20
CAN	43.6S	28	0900	..	..	..	..	30(5) 31(4) 01(4,5)	5	20	121	53	02 03
GNA	43.0S	29	0300	..	..	..	..	29(5,6,7,8) 30(4)	5	23	125	133	31 21
JAI	17.4N	31	0030	..	..	..	..		-	7	83	29	01 19
NGP	11.3N	31	0030	..	..	..	..		-	--	--	--	01 19
ABG	09.4N	31	0030	..	..	..	..	01(1,3)	5	6	86	39	01 19
PND	02.0N	31	0030	..	..	..	..		-	4	69	50	01 19
TIR	00.6S	31	0030	..	..	..	..		-	4	129	88	07 19

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 2003

Storm Sudden Commencements (SSC)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
None			02	0713-0719	BDV+
			02	0723-0732	NGK+
			17	0740-0748	NGK+
			17	0819-0825	BDV
			30	0408-0415	HTY+

REPORTING OBSERVATORIES (up to the 5th of September 2003):

SOD NUR NGK VAL BDV CLF HRB NAG GCK MMB EBR COI SPT KAK HTY KNY GUI HYB GNA CNB

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 Antarctic Station LIVINGSTONE (62° 39' 44" S, 60°23' 41" W) -- Luis F.

Criterion on Provisional SSC data

From December 2002, we are giving as provisional SSC only the SSC reported by more than 4 observatories. This is a change with respect to the previous criterion according to which we used to give the SSC reported by more than 5 observatories. The change, pending IAGA confirmation, has been provisionally taken because of the decreasing number of reporting observatories in order to keep the homogeneity of the data. The idea is to keep the same minimum percentage of the observatories reporting an SSC, relative to the total number of reporting observatories, to be considered as a probable SSC.