



Solar-Geophysical Data prompt reports

Data for October and November 2003

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

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NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION

NATIONAL ENVIRONMENTAL SATELLITE,
DATA, AND INFORMATION SERVICE

NATIONAL GEOPHYSICAL
DATA CENTER

BOULDER,
COLORADO



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DECEMBER 2003 NUMBER 712 - Part I

Solar-Geophysical Data prompt reports

Data for October and November 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 712

(Issued in Two Parts)

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-- MONTHLY PLOTS	

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The entry "706A 46" under Apr 03, for example, means that the sunspot drawings for Apr 03 appear in SOLAR-GEOPHYSICAL DATA No. 706, Part I, and that they begin on page 46. "A" denotes Part I and "B", Part II. Blanks indicate data not yet received and dashes mark unavailable data.

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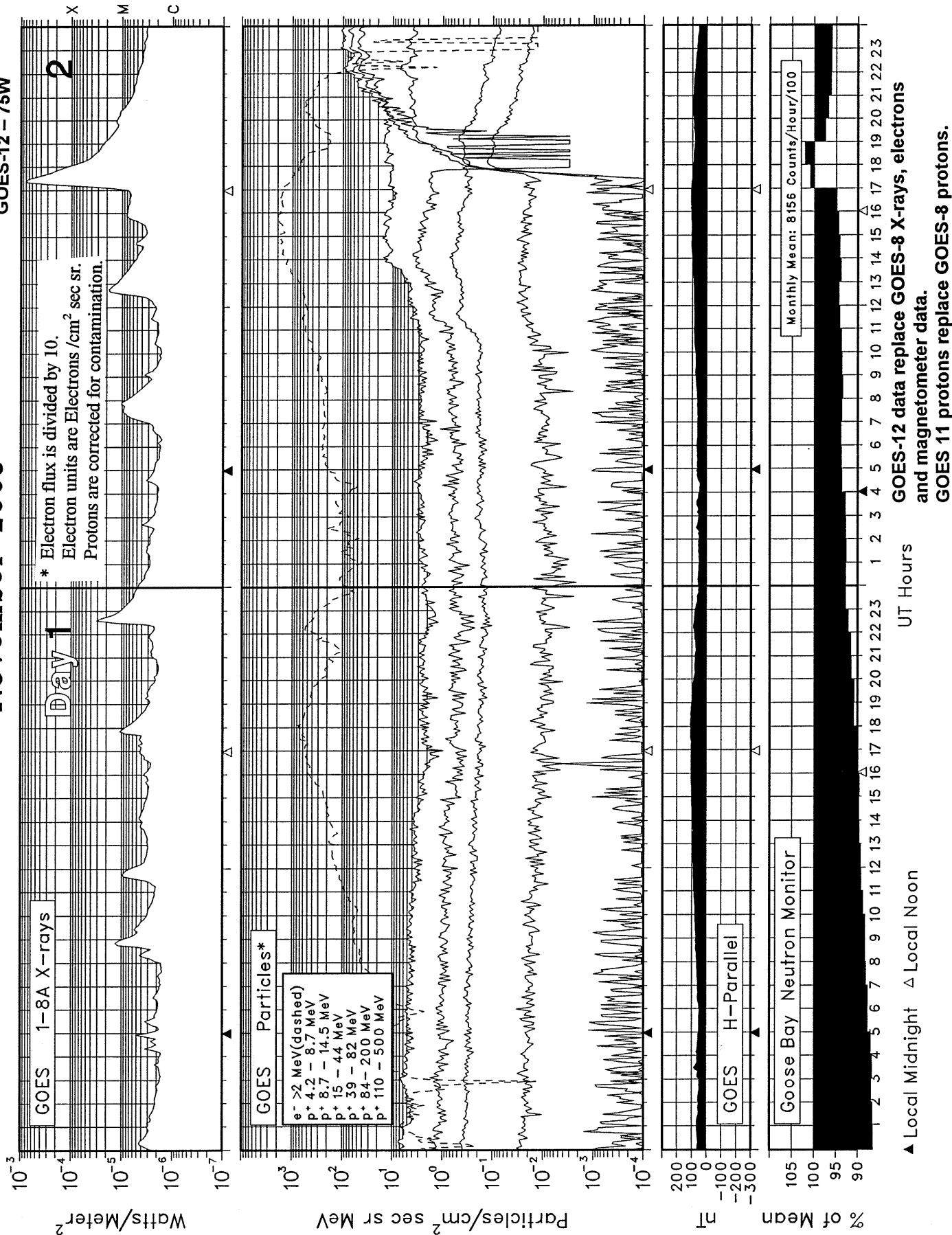
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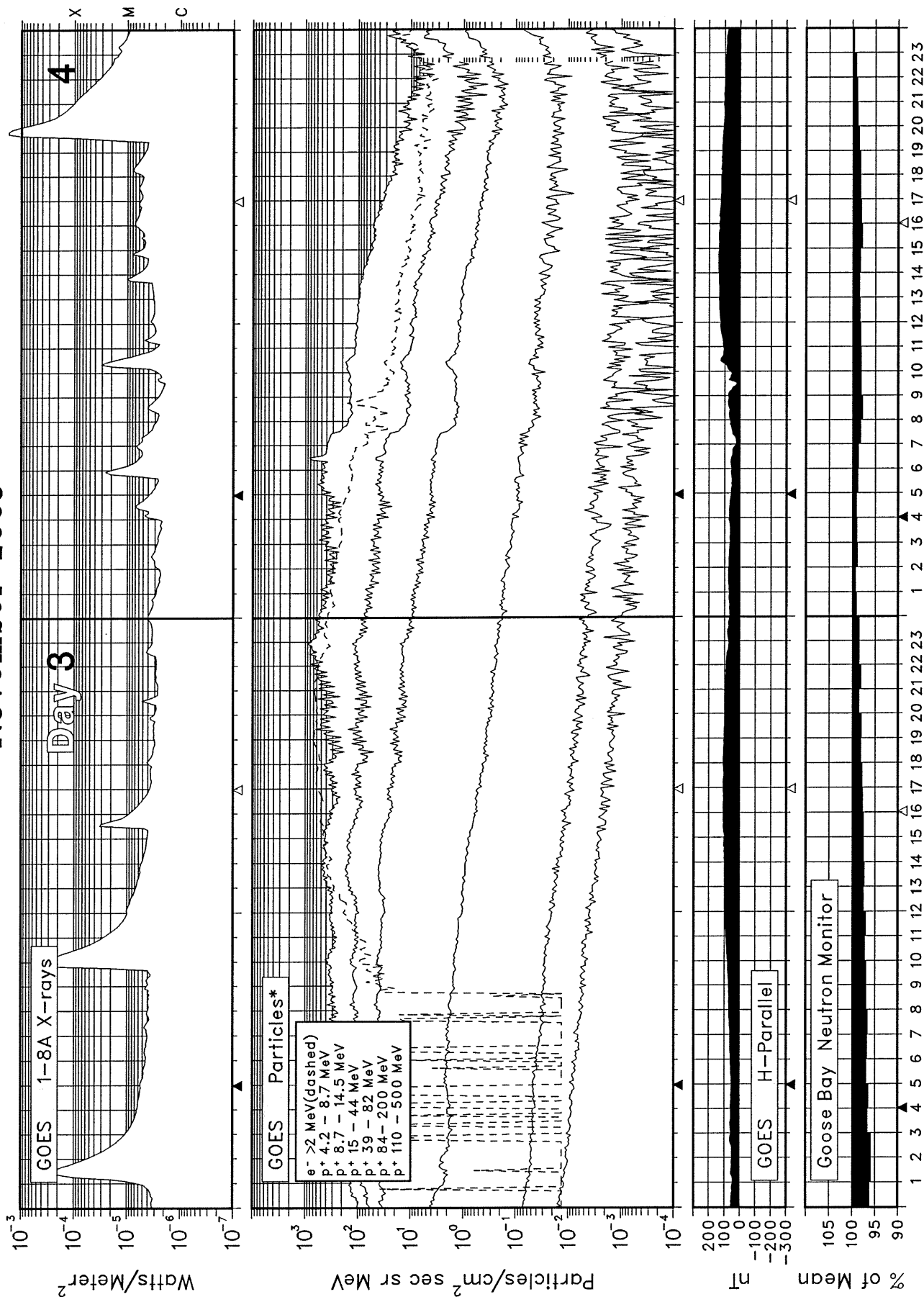
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Satellite positions:
GOES-8 - 75W
GOES-11 - 113W
GOES-12 - 75W



SOLAR-TERRESTRIAL ENVIRONMENT

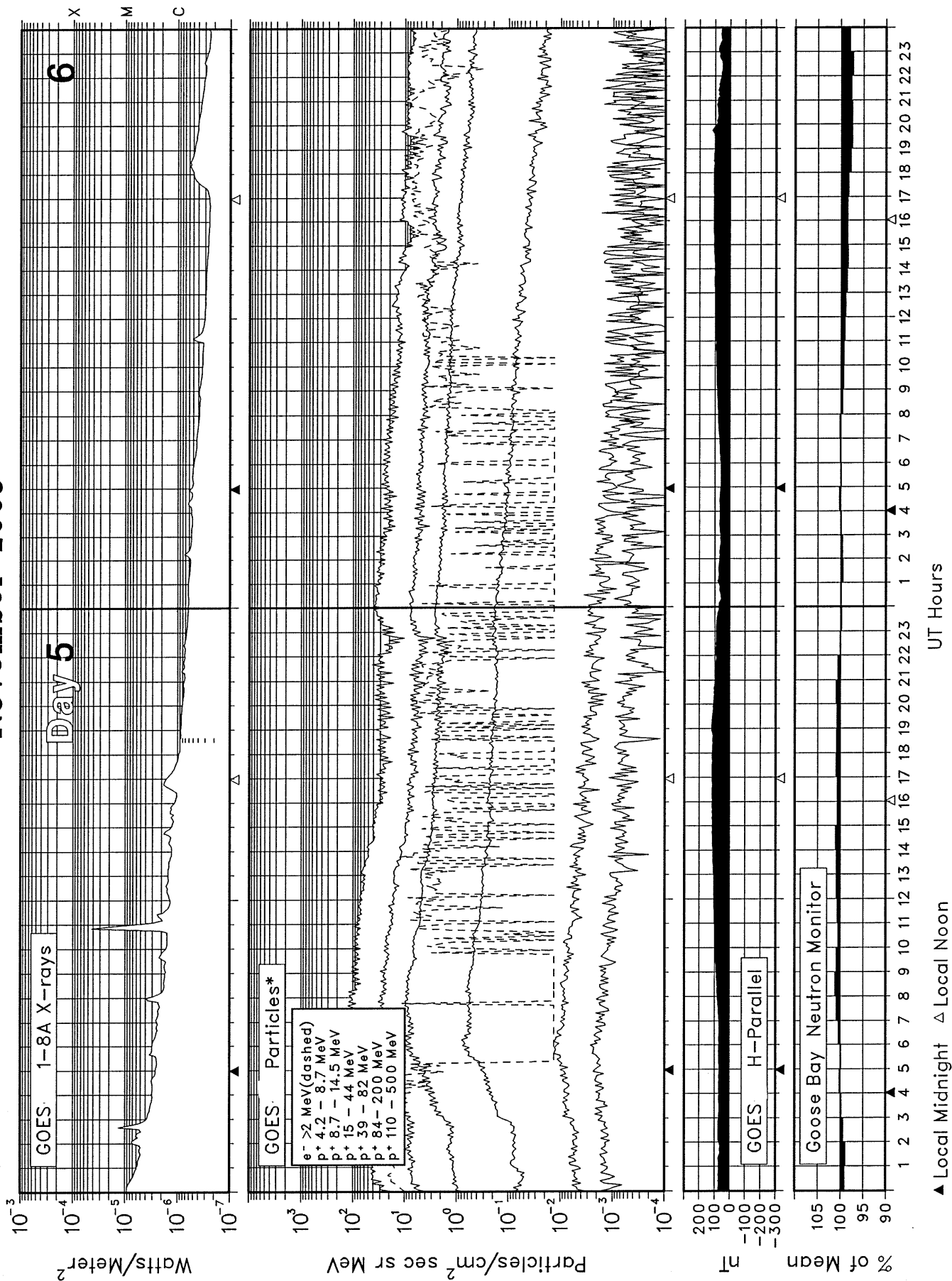
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▲ Local Midnight Δ Local Noon

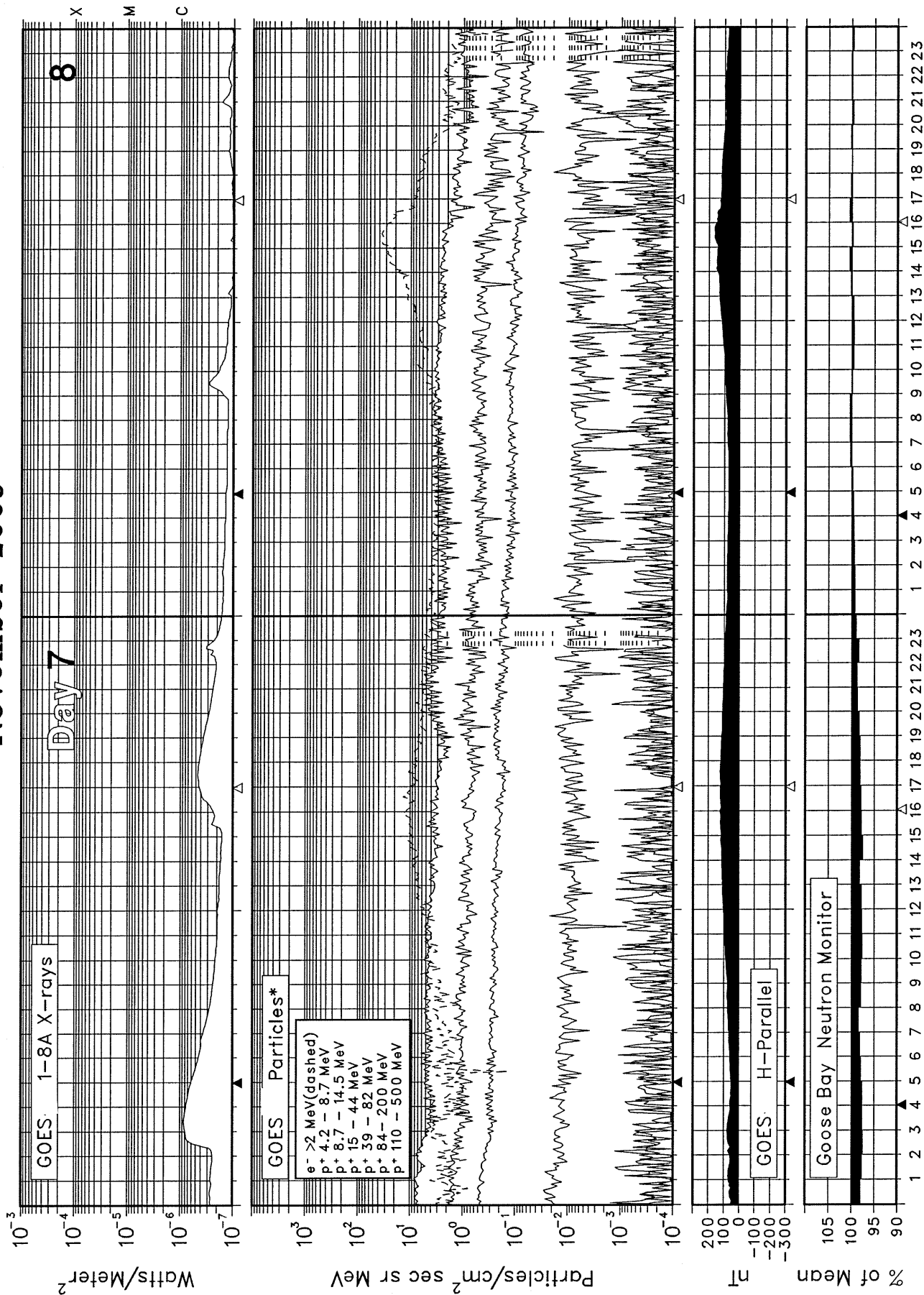
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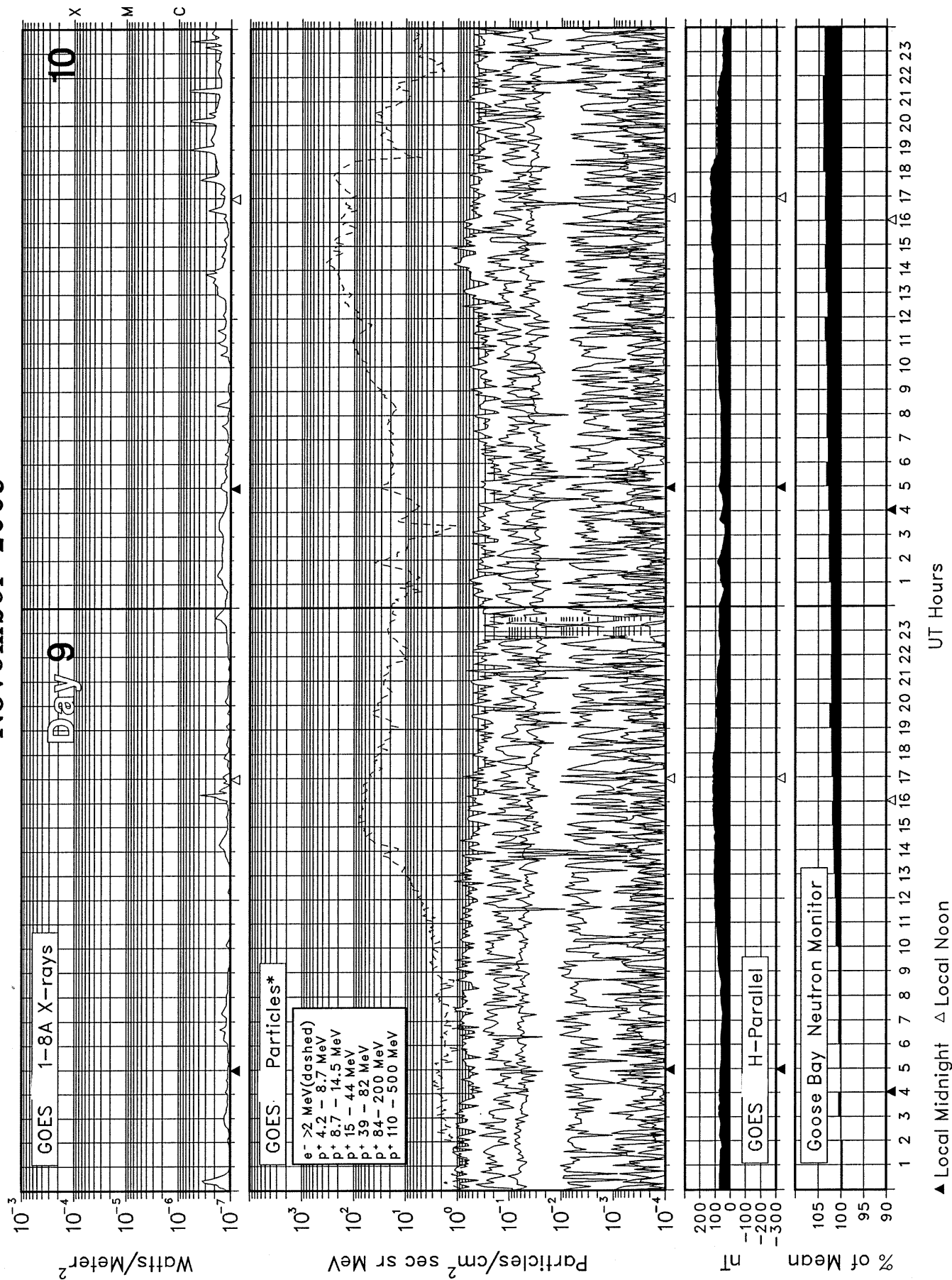


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November 2003

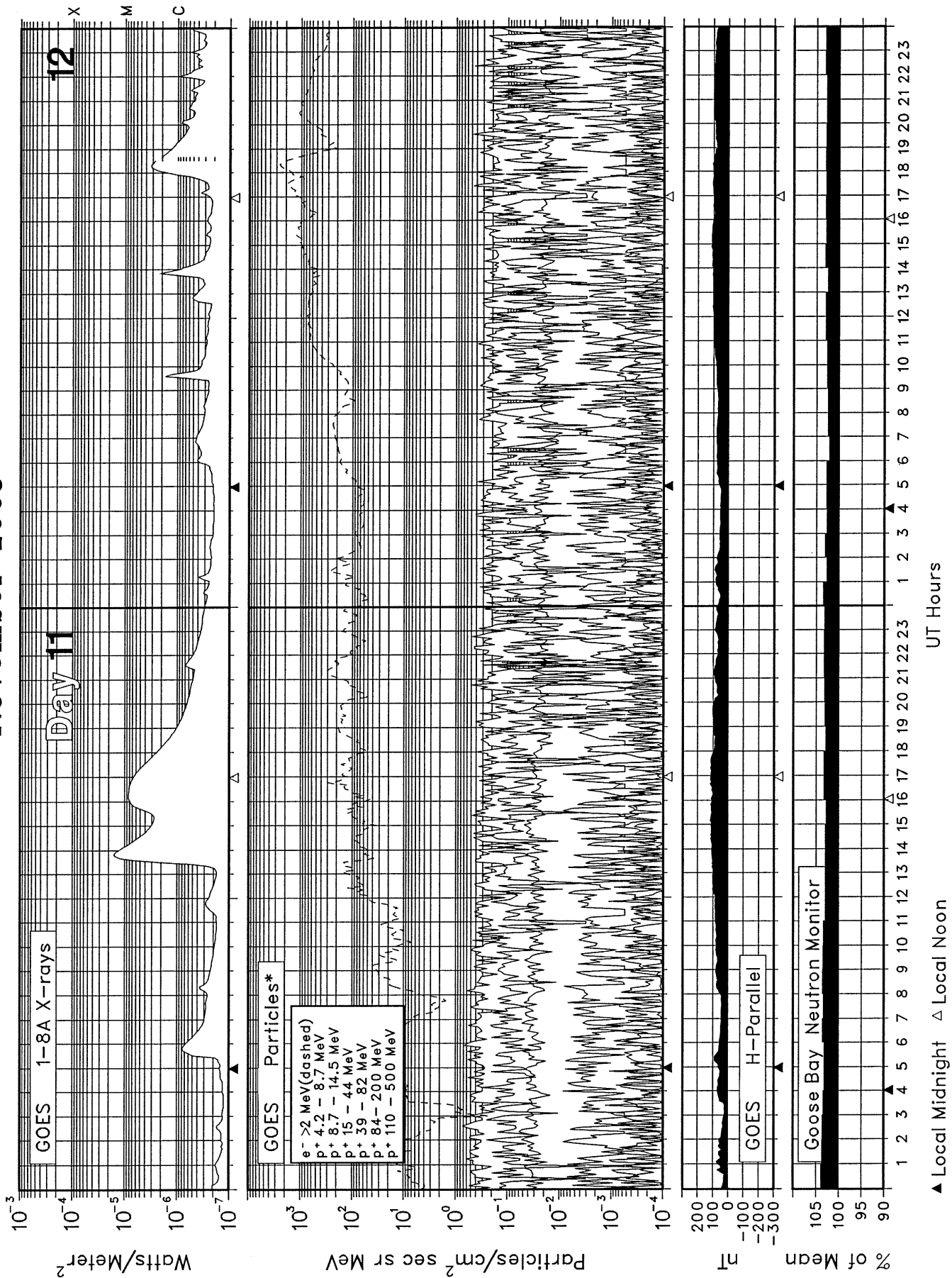


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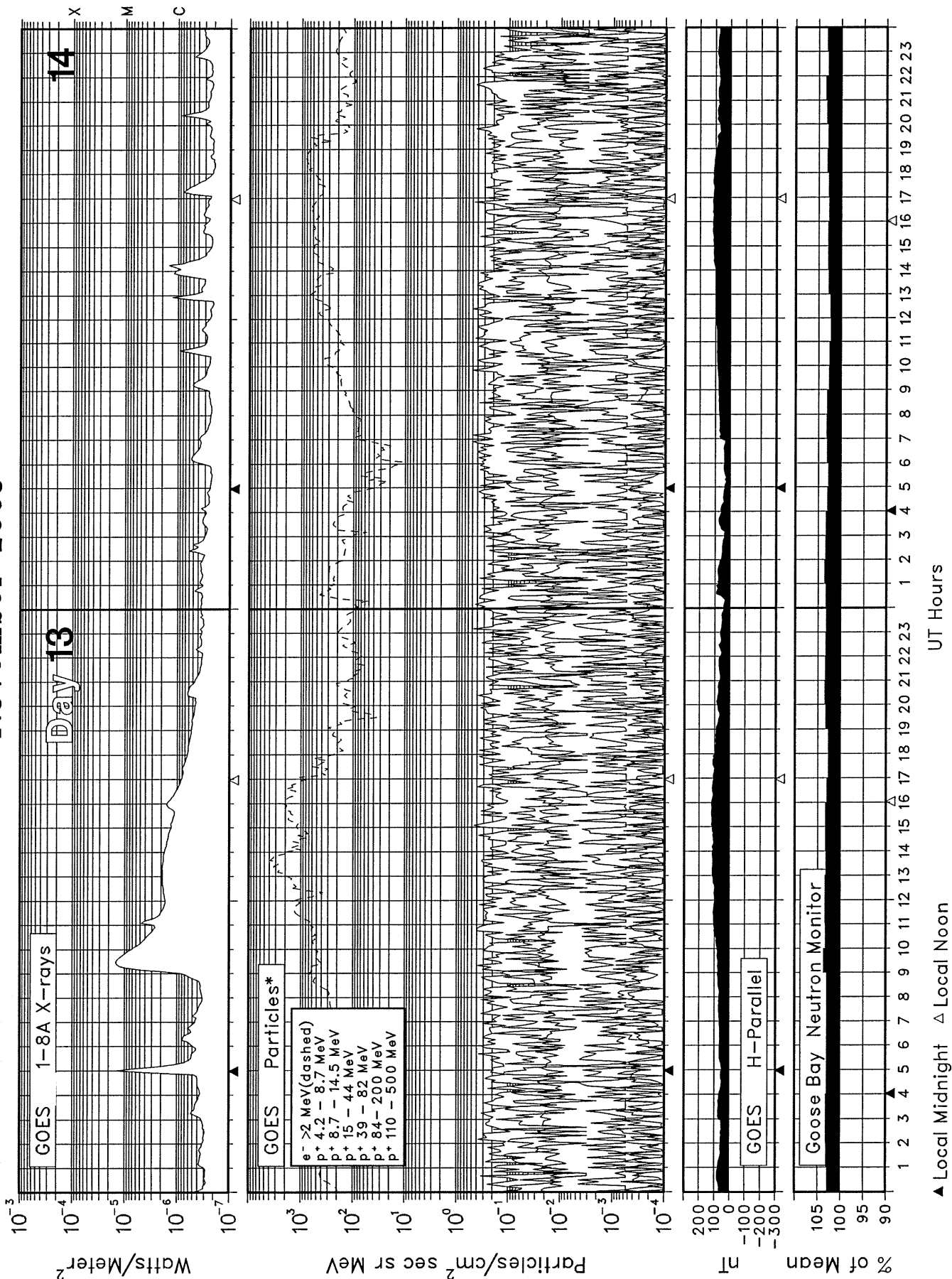


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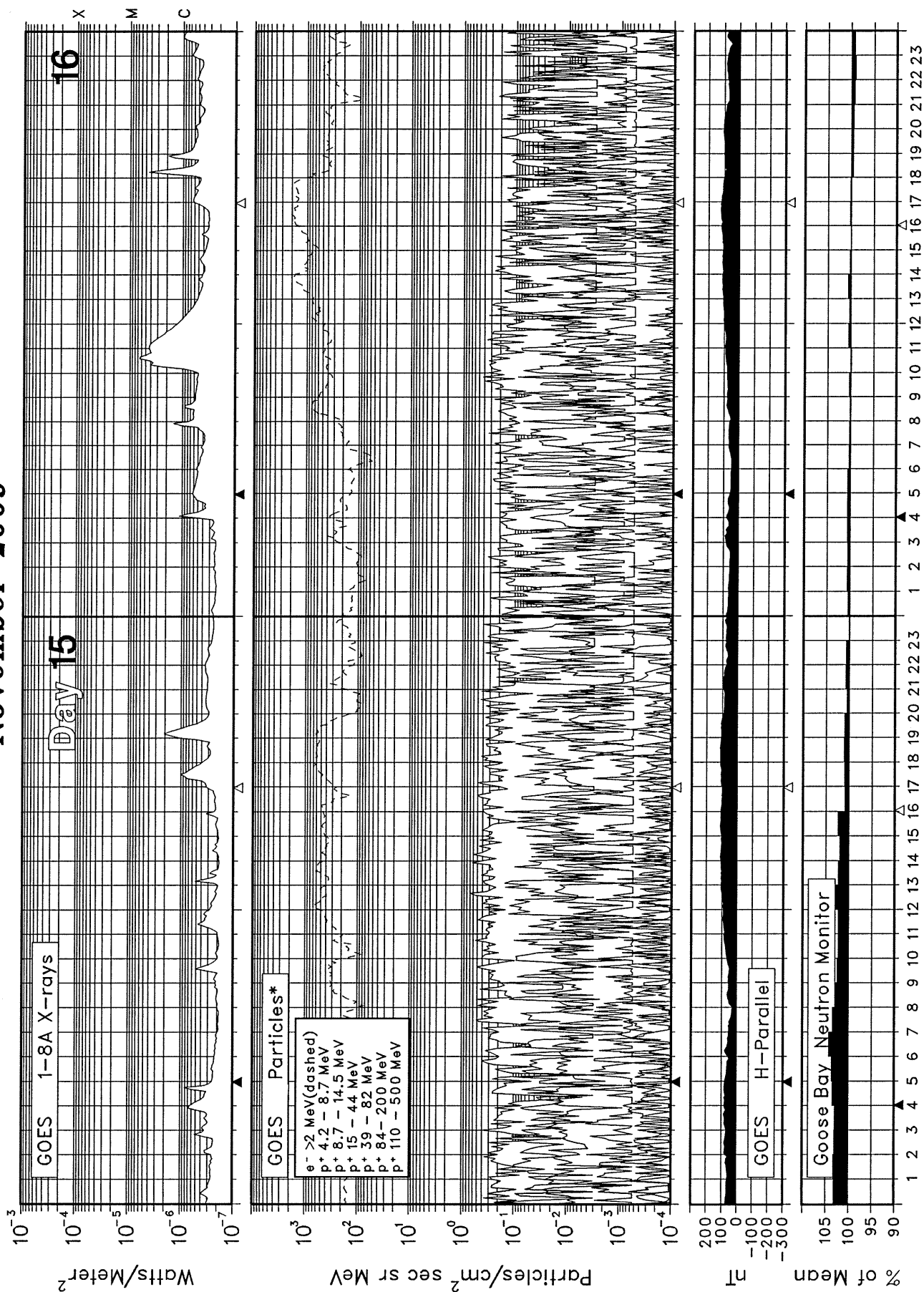


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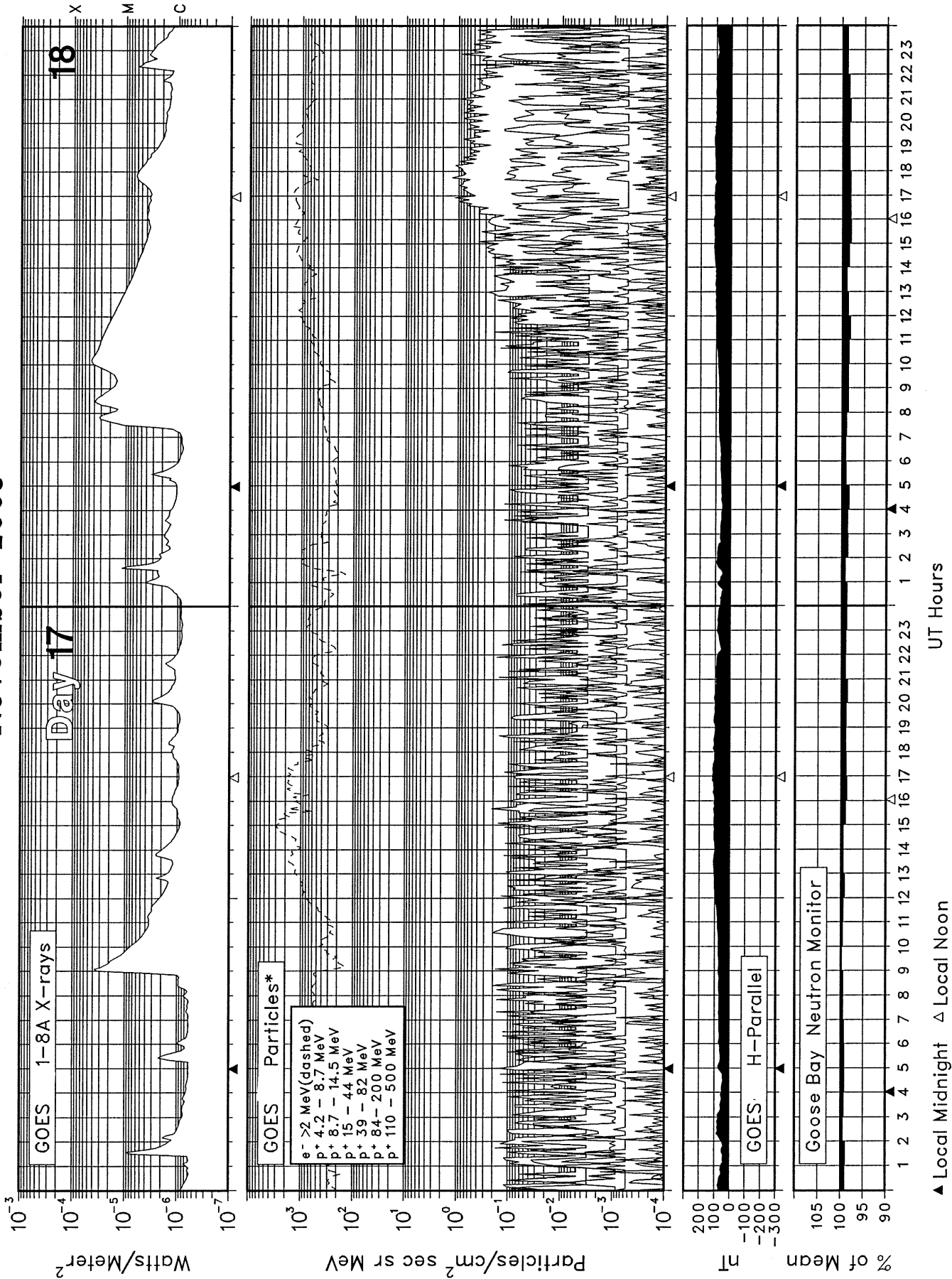


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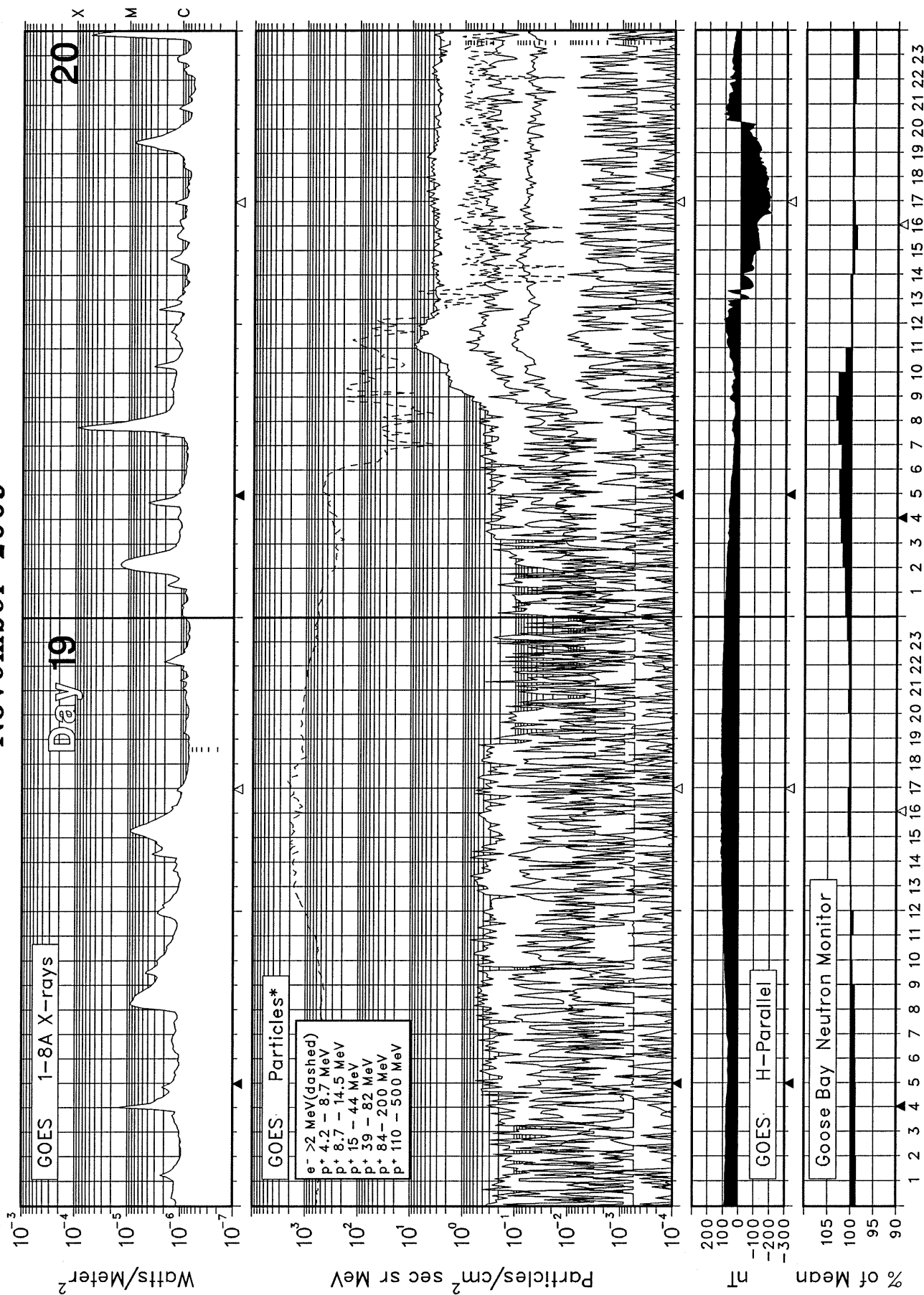
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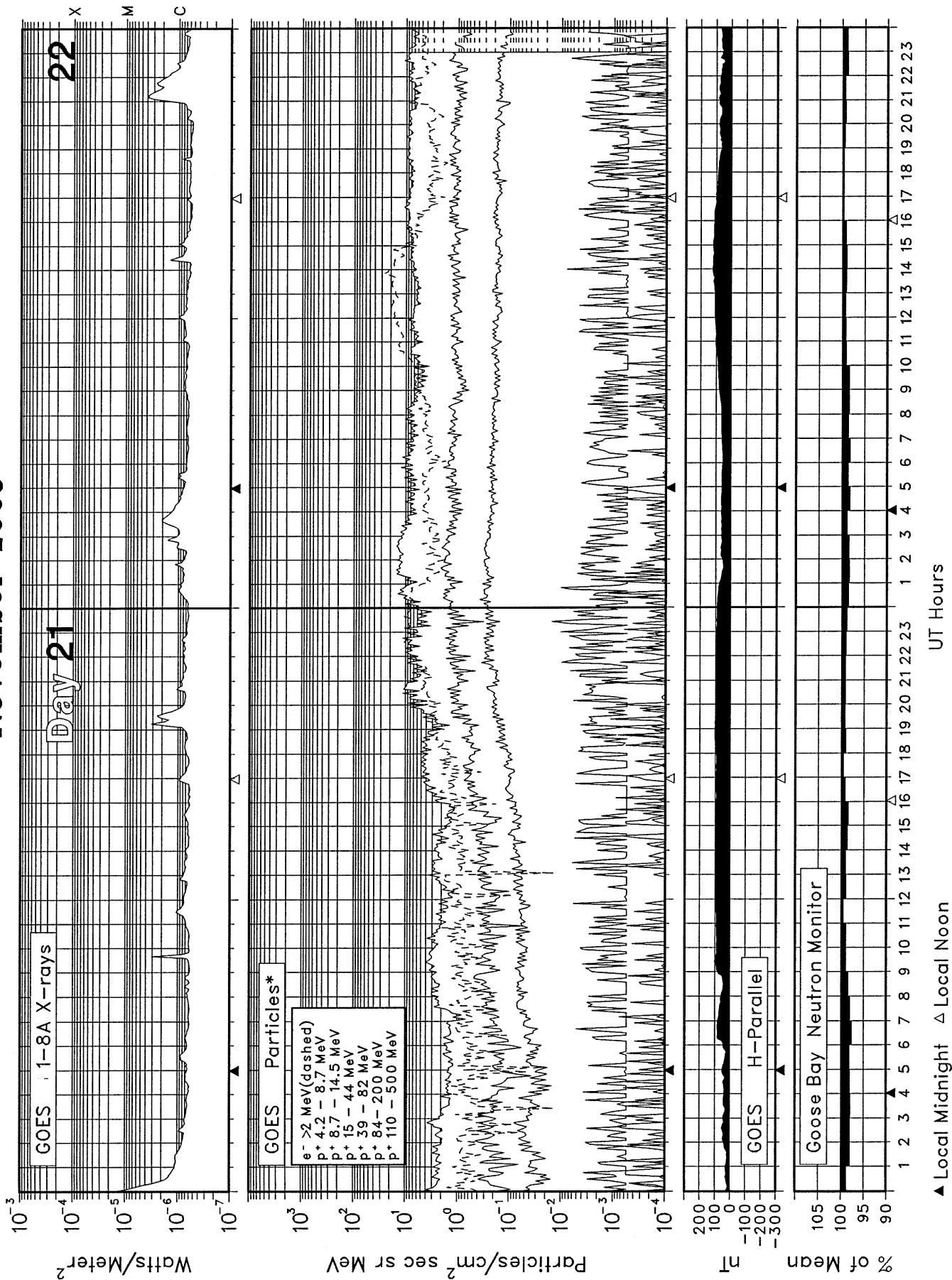
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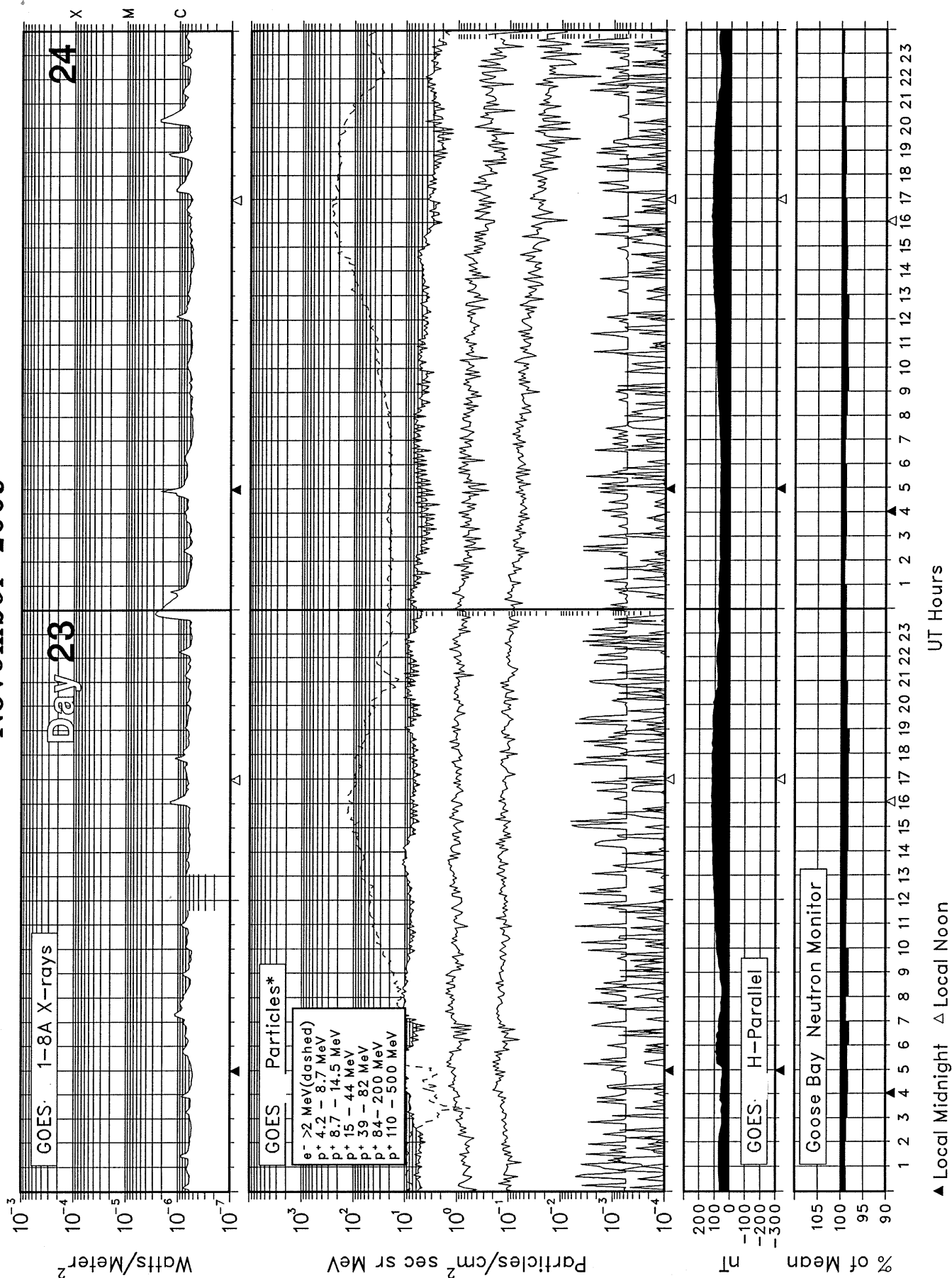
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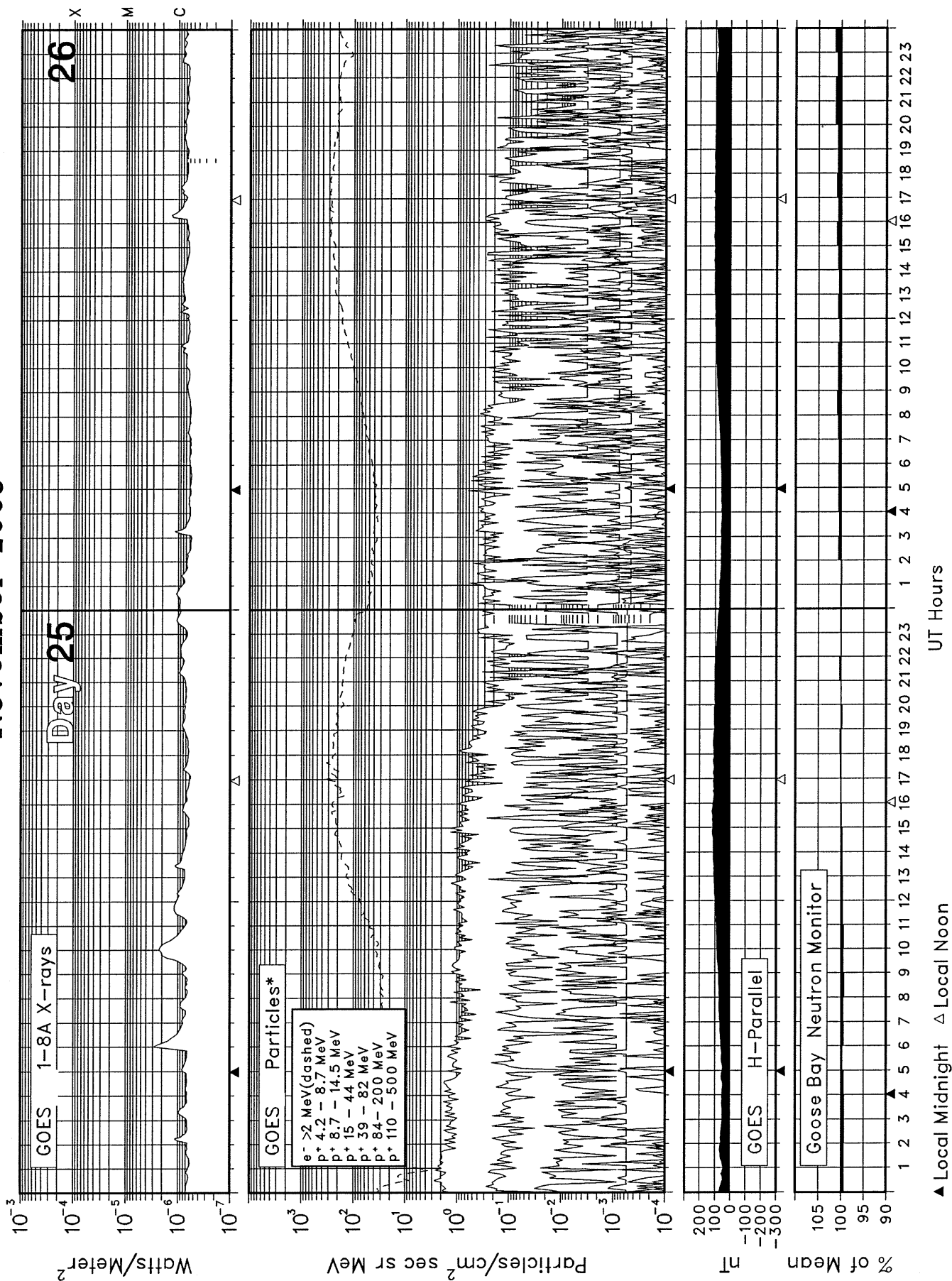
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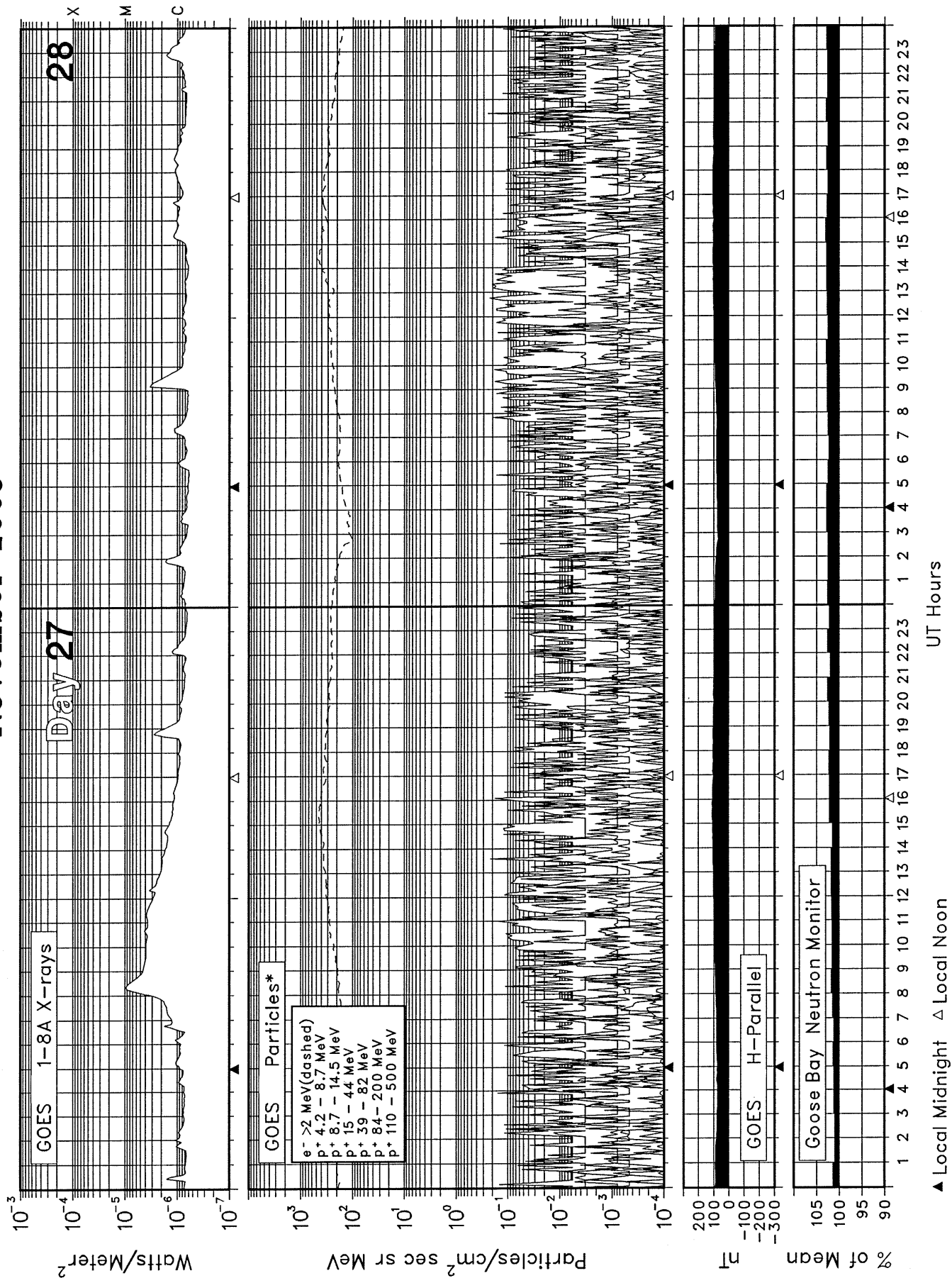


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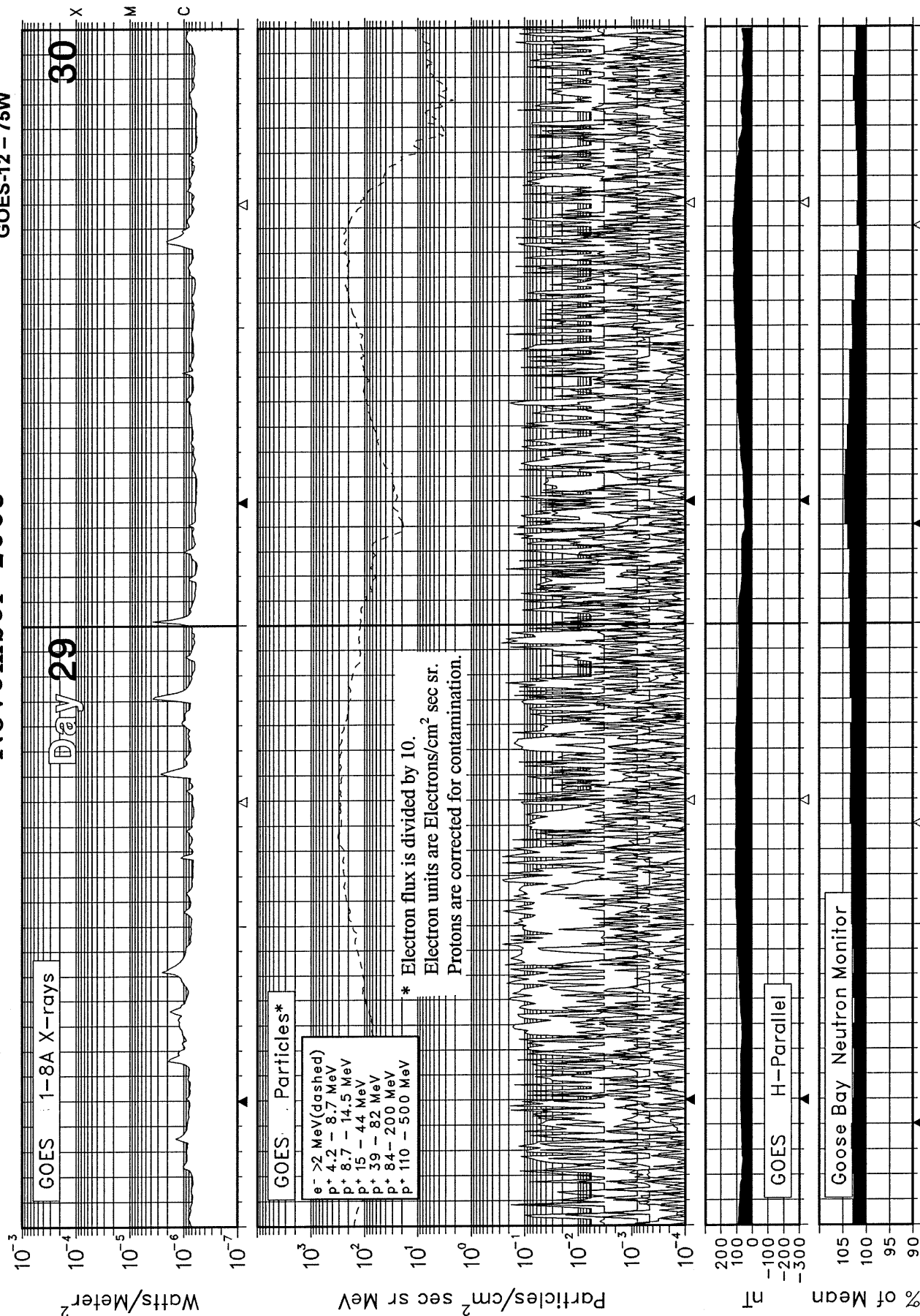
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SOLAR-TERRESTRIAL ENVIRONMENT

November 2003

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



GOES-12 data replace GOES-8 X-rays, electrons
and magnetometer data.
GOES 11 protons replace GOES-8 protons.

A L E R T P E R I O D S

The International Space Environment Service

NOVEMBER 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			
305	01	31	266	249	65	486	S17	W36	3	0	0	01	P	SOL: Major MAG: Major PRO: IP
						487	N12	W08	1	0	0	01	Q	
						488	N08	W42	8	1	0	01	E	
						489	S12	W50	0	0	0	01	Q	
						491	S07	W47	0	0	0	01	Q	
						492	S23	W74	0	0	0	01	Q	
						495	S22	E05	0	0	0	01	Q	
306	02	01	277	210	21	486	S17	W49	6	1	0	02	P	SOL: Active MAG: Major PRO: Warning
						487	N12	W21	0	0	0	02	A	
						488	N08	W55	5	2	0	02	A	
						489	S12	W63	0	0	0	02	A	
						491	S07	W60	0	0	0	02	A	
						492	S23	W87	0	0	0	02	A	
						495	S22	W08	0	0	0	02	A	
307	03	02	174	190	24	486	S17	W62	4	1	1	03	P	SOL: Major MAG: Severe PRO: IP
						487	N12	W34	0	0	0	03	A	
						488	N08	W68	3	1	1	03	A	
						489	S12	W76	0	0	0	03	A	
						491	S08	W73	0	0	0	03	A	
						495	S22	W21	0	0	0	03	A	
308	04	03	76	167	12	486	S17	W75	5	1	0	04	P	SOL: Major MAG: Severe PRO: IP
						487	N12	W48	0	0	0	04	A	
						488	N08	W82	3	0	2	04	A	
						495	S22	W35	0	0	0	04	A	
309	05	04	79	168	22	486	S17	W89	2	1	1	05	P	SOL: Active MAG: Minor PRO: IP
						487	N12	W61	0	0	0	05	A	
						488	N08	W95	0	1	0	05	A	
						495	S22	W48	0	0	0	05	A	
						497	N10	W45	0	0	0	05	A	
310	06	05	32	114	6	495	N11	W73	0	0	0	06	Q	SOL: Active MAG: Active PRO: IP
						495	S22	W60	0	0	0	06	Q	
									0	0	0	06		
311	07	06	12	98	14	495	S21	W76	0	0	0	07	Q	SOL: Quiet MAG: Active PRO: IP
									0	0	0	07		
									0	0	0	07		
312	08	07	11	91	7	495	S18	W89	0	0	0	08	Q	SOL: Quiet MAG: Active PRO: Quiet
									0	0	0	08		
									0	0	0	08		
313	09	08	29	93	7	499	S03	W26	0	0	0	09	Q	SOL: Quiet MAG: Quiet PRO: Quiet
						499	S17	W19	0	0	0	09		
									0	0	0	09		
314	10	09	47	93	29	498	S04	W39	0	0	0	10	Q	SOL: Eruptive MAG: Active PRO: Quiet
						499	S16	W33	0	0	0	10		
						500	S08	W22	0	0	0	10		
315	11	10	47	95	27	498	S04	W49	1	0	0	11	Q	SOL: Eruptive MAG: Active PRO: Quiet
						499	S17	W46	0	0	0	11		
						500	S09	W36	1	0	0	11		
316	12	11	43	96	51	498	S04	W67	1	1	0	12	Q	SOL: Eruptive MAG: Minor PRO: Quiet
						499	S18	W62	0	0	0	12		
						500	S09	W50	0	0	0	12		
317	13	12	39	99	30	498	S02	W80	0	0	0	13	E	SOL: Active MAG: Minor PRO: Quiet
						499	S16	W74	0	0	0	13		
						500	S07	W61	0	0	0	13		

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Nov 03

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

NOVEMBER 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			
318	14	13	25	102	36	501	S02	W91	0	0	0	14	E	SOL: Active
						501	N05	E65	0	2	0	14	E	MAG: Minor
									0	0	0	14		PRO: Quiet
319	15	14	34	99	38	502	N04	E61	0	0	0	15	E	SOL: Eruptive
						502	N05	E41	0	0	0	15	Q	MAG: Active
									0	0	0	15		PRO: Quiet
320	16	15	52	98	35	501	N03	E48	1	0	0	16	E	SOL: Eruptive
						502	N04	E27	0	0	0	16	Q	MAG: Minor
						503	N17	E09	0	0	0	16	Q	PRO: Quiet
321	17	16	54	104	34	501	N03	E35	2	0	0	17	E	SOL: Eruptive
						503	N17	W05	0	0	0	17	Q	MAG: Minor
						504	N04	W51	0	0	0	17	Q	PRO: Quiet
322	18	17	72	121	31	501	N03	E22	1	1	0	18	E	SOL: Eruptive
						502	N07	E04	0	0	0	18	Q	MAG: Minor
						503	N17	W18	0	0	0	18	Q	PRO: Quiet
						505	S22	E58	0	0	0	18	Q	
323	19	18	90	144	23	501	N03	E09	3	3	0	19	A	SOL: Eruptive
						504	N04	W73	0	0	0	19	A	MAG: Minor
						505	S22	E45	0	0	0	19	A	PRO: Quiet
						506	S23	E72	0	0	0	19	A	
						507	N10	E78	1	0	0	19	A	
324	20	19	114	155	14	501	N03	W05	3	1	0	20	E	SOL: Active
						504	N05	W85	0	0	0	20	Q	MAG: Minor
						505	S22	E32	0	0	0	20	Q	PRO: Quiet
						506	S21	E59	0	0	0	20	E	
						507	N10	E62	0	0	0	20	E	
						508	S17	E75	0	0	0	20	E	
325	21	20	118	175	103	501	N02	W18	3	2	0	21	E	SOL: Major
						505	S23	E19	0	0	0	21	Q	MAG: Minor
						506	S23	E44	0	0	0	21	Q	PRO: Warning
						507	N07	E49	1	0	0	21	E	
						508	S20	E58	1	0	0	21	E	
326	22	21	131	177	32	501	N04	W32	0	0	0	22	E	SOL: Major
						505	S22	E07	0	0	0	22	Q	MAG: Minor
						506	S21	E32	1	0	0	22	Q	PRO: Warning
						507	N09	E36	2	0	0	22	E	
						508	S18	E47	0	0	0	22	E	
327	23	22	123	176	16	501	N03	W44	2	0	0	23	E	SOL: Active
						505	S22	W06	0	0	0	23	Q	MAG: Active
						506	S21	E18	0	0	0	23	Q	PRO: Warning
						507	N09	E22	1	0	0	23	E	
						508	S17	E34	0	0	0	23	E	
328	24	23	158	178	21	501	N03	W57	1	0	0	24	E	SOL: Active
						505	S22	W21	0	0	0	24	Q	MAG: Active
						506	S22	E05	1	0	0	24	Q	PRO: Quiet
						507	N09	E10	0	0	0	24	E	
						508	S17	E20	2	0	0	24	E	
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						506	S23	W07	0	0	0	25	Q	MAG: Active
						507	N09	W03	0	0	0	25	E	PRO: Quiet
						508	S17	E08	1	0	0	25	E	
						509	S10	E56	1	0	0	25	Q	
						510	S22	E62	0	0	0	25	Q	
330	26	25	202	171	14	501	N04	W85	0	0	0	26	Q	SOL: Eruptive

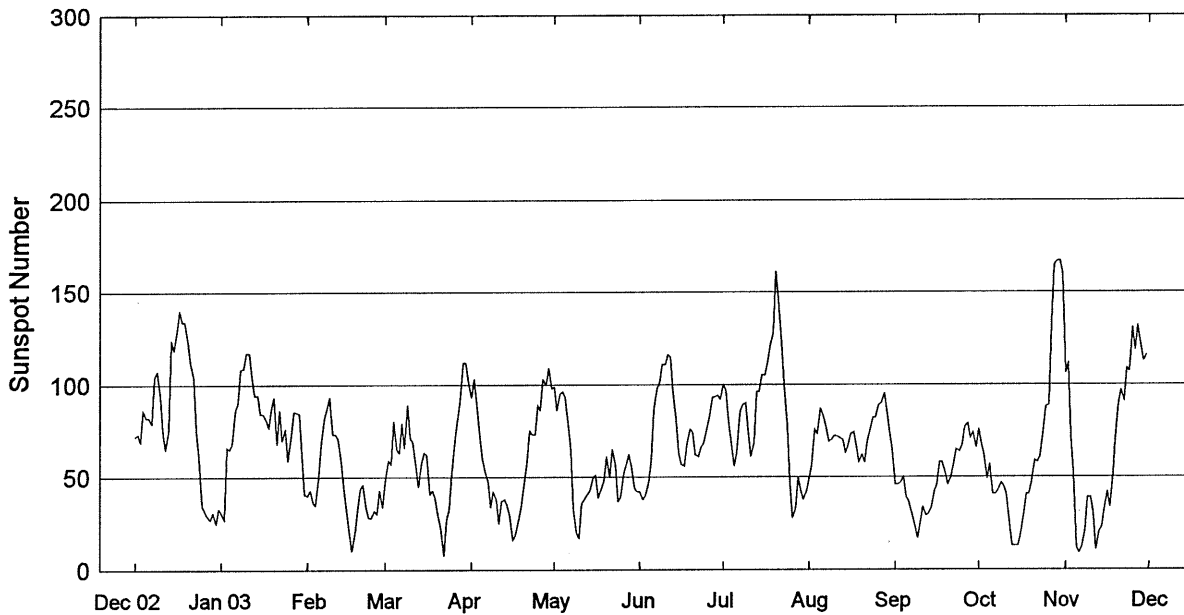
A L E R T P E R I O D S The International Space Environment Service

NOVEMBER 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			
						506	S22	W18	0	0	0	26	Q	MAG: Quiet PRO: Quiet
						507	N09	W14	0	0	0	26	E	
						508	S16	W06	1	0	0	26	E	
						509	S10	E43	0	0	0	26	Q	
						510	S22	E50	0	0	0	26	Q	
						511	S14	E24	0	0	0	26	Q	
						512	N06	E31	0	0	0	26	Q	
331	27	26	209	171	6	507	N08	W30	0	0	0	27	E	SOL: Eruptive MAG: Quiet PRO: Quiet
						508	S18	W18	2	0	0	27	E	
						509	S11	E28	0	0	0	27	Q	
						510	S23	E36	0	0	0	27	Q	
						511	S14	E11	0	0	0	27	Q	
						512	N06	E18	0	0	0	27	Q	
						513	N09	E71	0	0	0	27	Q	
332	28	27	154	175	8	506	S23	W43	0	0	0	28	Q	SOL: Eruptive MAG: Quiet PRO: Quiet
						507	N07	W43	0	0	0	28	E	
						508	S19	W31	3	0	0	28	Q	
						509	S11	E15	1	0	0	28	Q	
						510	S23	E24	0	0	0	28	Q	
						511	S15	W02	0	0	0	28	Q	
						512	N06	E04	0	0	0	28	Q	
						513	N13	E58	0	0	0	28	Q	
						514	S16	W46	0	0	0	28	Q	
333	29	28	185	168	6	507	N07	W56	0	0	0	29	E	SOL: Eruptive MAG: Quiet PRO: Quiet
						508	S19	W44	1	0	0	29	E	
						509	S11	E02	0	0	0	29	Q	
						510	S23	E11	0	0	0	29	E	
						511	S15	W15	0	0	0	29	Q	
						512	N06	W09	0	0	0	29	Q	
						513	N13	E45	0	0	0	29	Q	
						514	S15	W59	0	0	0	29	Q	
						515	S02	E68	0	0	0	29	Q	
						516	S17	E70	0	0	0	29	Q	
334	30	29	177	166	8	507	N07	W69	0	0	0	30	E	SOL: Eruptive MAG: Quiet PRO: Quiet
						508	S19	W57	0	0	0	30	E	
						509	S11	W11	0	0	0	30	Q	
						510	S23	W02	3	0	0	30	E	
						511	S15	W30	0	0	0	30	Q	
						512	N06	W22	0	0	0	30	Q	
						513	N13	E32	0	0	0	30	Q	
						515	S02	E55	0	0	0	30	Q	
						516	S17	E57	0	0	0	30	Q	

STRATWARM ALERTS - NONE

International Relative Sunspot Numbers Dec 2002- Nov 2003



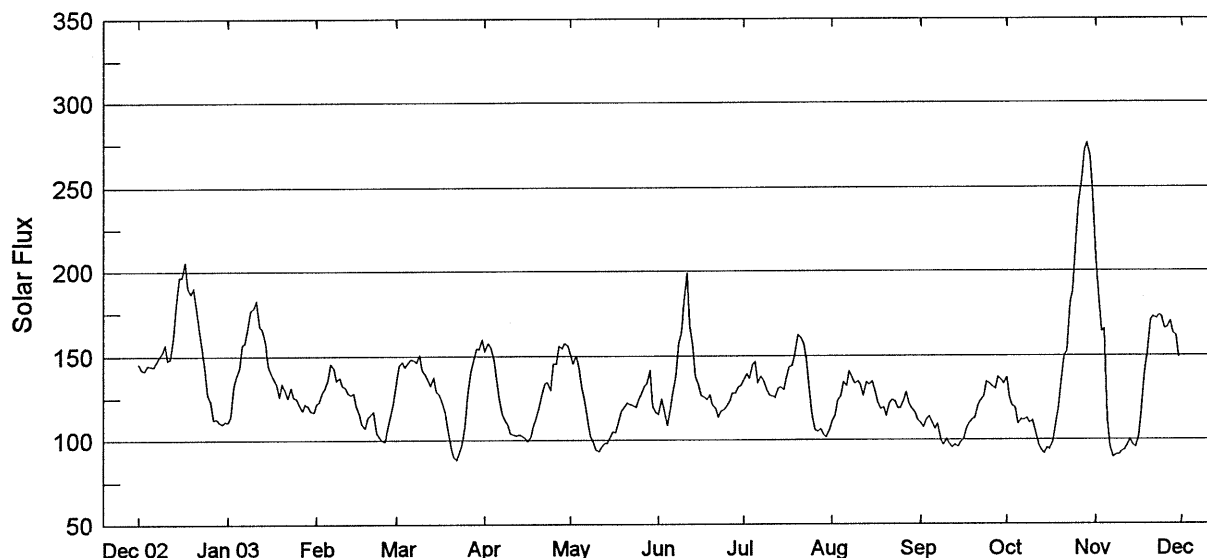
Day	Dec 02	Jan 03	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct*	Nov*
1	72	31	40	48	93	99	42	100	49	46	76	106
2	66	27	43	59	103	86	38	97	56	46	68	112
3	64	66	36	57	90	95	40	80	76	47	62	72
4	80	65	35	80	72	96	47	67	73	50	49	52
5	82	68	50	65	60	93	59	56	87	39	57	12
6	82	86	68	63	52	78	86	63	83	37	41	9
7	79	90	82	79	48	65	98	85	78	30	41	12
8	98	108	87	66	34	33	101	89	69	25	43	21
9	107	109	93	89	42	20	111	90	70	17	47	39
10	94	117	73	71	38	17	111	74	72	25	45	39
11	74	117	73	69	25	36	116	61	72	34	41	30
12	65	104	71	56	37	38	115	68	71	29	25	11
13	75	94	59	45	38	41	96	96	70	30	13	21
14	124	94	45	58	35	43	81	96	63	33	13	23
15	119	84	31	63	29	50	63	105	67	42	13	33
16	129	84	20	62	16	51	57	105	73	46	19	42
17	140	81	10	41	19	39	56	112	74	58	30	34
18	134	77	20	43	27	44	68	121	67	58	41	52
19	134	87	33	39	34	48	76	128	58	52	41	70
20	124	93	44	29	45	61	74	161	62	46	47	90
21	112	68	46	23	58	50	62	146	58	50	59	97
22	104	86	34	8	75	65	61	123	69	57	58	91
23	75	70	28	27	73	57	66	100	76	65	61	109
24	57	76	28	33	73	37	68	78	82	64	75	107
25	35	59	32	52	89	39	76	47	82	67	88	131
26	32	72	30	70	86	52	82	28	89	77	89	119
27	29	85	43	81	103	57	93	33	90	79	133	132
28	27	85	34	91	100	62	93	50	95	71	165	121
29	31	84		112	109	56	94	43	85	74	167	113
30	29	62		112	98	44	92	38	74	66	167	116
31	33	41		102		42		42	65		160	
Mean	80.8	79.7	46.0	61.1	60.0	54.6	77.4	83.3	72.7	48.7	65.6	67.2

* = Provisional.

Penticton 2800 MHz (10.7cm) Solar Flux Dec 2002 - Nov 2003

23
Nov 03

Adjusted to 1 AU



Day	Dec 02	Jan 03	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	145.5	111.2	122.1	135.6	152.8	151.0	115.5	135.6	110.6	110.1	137.1	207.2
2	142.0	114.4	123.0	144.7	157.3	145.3#	124.8	139.3	114.7	107.6	125.0	187.4
3	141.8	133.1	128.7	146.5	155.7	150.1	117.8	136.7	123.6	112.4	120.3	164.2
4	144.5	138.2	131.0	143.6	148.8#	144.4	108.7	144.8	126.0	114.1	119.0	165.6#
5	144.4	143.2	136.2	146.2	137.5	131.1	117.0	146.7	134.4	109.8	109.6	112.1
6	143.9	156.8	145.4	147.9	126.1	124.1	129.4	134.0	132.4	106.6	112.0	96.1
7	146.6	157.8	143.3	147.6	115.9	112.2	137.2	137.8	140.9	109.4	111.8	89.4
8	149.8	168.0	135.4	146.2	112.6	102.8	158.0	135.7	136.6	100.3	113.1	91.0
9	151.6	176.9	137.6	150.6	109.7	98.9	163.1	130.2	133.6	97.3	110.5	91.2
10	156.5	178.7	132.6	141.7	104.1	94.5	182.0	126.9	134.7	100.6	111.4	92.8
11	147.7	182.6	131.4	139.7	103.0	93.4	198.9	126.1	132.7	98.0	105.4	93.7
12	148.4	167.7	128.2	136.2	102.6	95.8	168.6	125.5	126.6	95.6	97.4	96.7
13	161.8	166.2	127.3	132.5	103.0	98.1	155.8	130.7	134.3	97.3	94.0	100.0
14	180.1	158.6	128.1	137.3	102.6	98.3	137.7	131.4	133.1	95.8	91.9	96.8
15	196.6	145.0	120.6	129.3	101.1	101.4	132.8	129.9	134.7	98.4	95.3	95.6
16	196.5	139.9	115.7	127.2	99.2	104.9	126.5	137.5	130.1	100.4	94.6	102.0
17	205.8	137.1	109.4	123.1#	101.8	104.7	125.8	143.2	122.3	107.0	98.1	118.2
18	190.6	133.0	107.4	117.3	108.7	111.5	124.3	144.3	118.7	110.2	107.8	141.0
19	186.7	126.1	113.6	107.2	113.1	117.4	126.8	150.8	119.5	112.1	119.4	151.5
20	190.3	133.7	115.7	96.6	119.7	120.0	120.8	162.4	114.5	112.9	133.9	171.0
21	177.9	129.4	117.0	90.3	127.0	122.2	118.8	160.7	122.0	120.9	150.2	172.8
22	166.4	125.4	104.3	88.3	133.8	121.3	113.9	157.4	123.7	123.5	152.0#	171.9
23	153.7	131.6	101.8	92.4	134.3	120.9	117.2	148.7	122.9	125.7	181.3#	173.8
24	142.5	125.8	99.9	97.3	129.8	119.8	118.3	129.2	119.0	134.3	188.5	172.8
25	127.6	124.9	99.5	108.2	145.3	124.3	120.2	115.1	119.0	133.4	219.0	166.3
26	123.2	121.2	107.2	126.6	145.5	128.4	122.9	105.9	123.4	131.8	240.6*	166.5
27	112.7	117.7	115.4	140.5	156.1	132.3	128.1	104.9	128.3	130.3	254.0	170.1
28	113.1	121.8	122.6	146.4	154.3	133.7	128.1	106.6	121.1	137.6	270.9	163.2
29	111.0	120.7		154.6	157.4	141.6	131.6	103.0	118.7	135.6	275.4#	161.4
30	110.1	117.6		154.2	155.8	120.4	132.5	101.7	116.2	133.3	267.6	148.6
31	111.3	116.9		159.8		116.3		105.2	111.8		245.2	
Mean	152.3	139.4	121.4	130.8	127.2	118.7	133.4	131.9	125.2	113.4	150.1	137.7

NOTE: #- 1700 or 1800UT reading, burst in progress at 2000UT. *-2300UT reading, burst in progress.

24
Nov 03

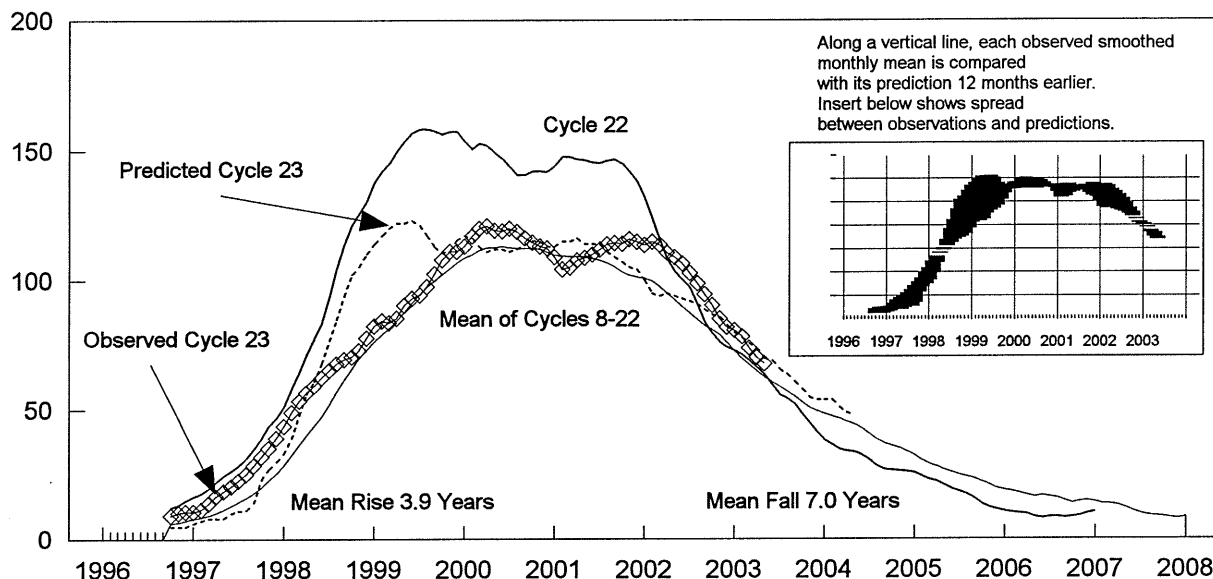
DAILY SOLAR INDICES

November 2003

	Day of Year	Bartels Cycle	Sunspot Numbers		Obs Flux		-----Solar Flux Adjusted to 1 Astronomical Unit-----							
Day	Year	Day	Int	Amer	Penticton (2800)	SGMR (15400)	SGMR (8800)	SGMR (4995)	Penticton (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
1	305	3	106	122	210.4	601	414	312	207.2	195	111	59	65	---
2	306	4	112	102	190.4	---	---	---	187.4	---	---	---	---	---
3	307	5	72	71	166.9	572	344	234	164.2	165	98	54	51	31
4	308	6	52	38	168.4#	531	340	231	165.6#	152	94	50	55	86
5	309	7	12	18	114.0	488	253	157	112.1	109	72	37	30	14
6	310	8	9	13	97.8	519	249	141	96.1	92	62	37	30	12
7	311	9	12	8	91.0	522	238	135	89.4	84	58	38	30	13
8	312	10	21	22	92.7	519	252	132	91.0	85	56	38	30	14
9	313	11	39	38	93.0	517	257	141	91.2	88	57	38	30	14
10	314	12	39	41	94.6	508	252	139	92.8	86	58	37	30	13
11	315	13	30	28	95.6	521	262	152	93.7	96	61	40	33	20
12	316	14	11	14	98.7	504	254	143	96.7	88	58	34	31	19
13	317	15	21	19	102.1	528	255	148	100.0	97	63	39	30	27
14	318	16	23	21	98.9	523	244	153	96.8	90	60	36	29	16
15	319	17	33	28	97.8	525	266	146	95.6	92	62	39	31	16
16	320	18	42	30	104.4	512	264	149	102.0	99	67	42	34	27
17	321	19	34	30	121.0	497	268	164	118.2	112	73	47	47	---
18	322	20	52	42	144.3	548	299	200	141.0	139	86	48	44	---
19	323	21	70	64	155.1	523	296	202	151.5	146	85	46	43	43
20	324	22	90	76	175.2	494	308	219	171.0	157	91	47	38	30
21	325	23	97	80	177.0	508	303	214	172.8	163	96	46	37	18
22	326	24	91	87	176.2	532	300	212	171.9	165	103	48	35	19
23	327	25	109	91	178.2	541	297	203	173.8	173	107	49	33	18
24	328	26	107	94	177.3	518	286	201	172.8	165	106	52	36	19
25	329	27	131	110	170.7	540	289	197	166.3	155	108	49	39	22
26	330	1	119	111	170.9	537	295	203	166.5	163	109	51	45	---
27	331	2	132	111	174.7	514	283	196	170.1	169	111	51	39	19
28	332	3	121	116	167.7	431	240	181	163.2	157	103	45	35	16
29	333	4	113	111	165.9	531	282	192	161.4	154	99	52	35	15
30	334	5	116	90	152.8	533	280	185	148.6	146	94	44	36	17
31														
MEAN			67.2	60.9	140.8	521	281	182	137.7	130	83	44	37	22

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

- 1800UT Reading, burst in progress at 2000UT.



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	74	70	68	66	64	62	60	57	55	54	66
						(3)	(5)	(8)	(10)	(13)	(15)	(17)	(6)
2004	53	52	51	50	48	47	45	42	40	39	38	37	45
	(18)	(19)	(19)	(20)	(20)	(20)	(20)	(21)	(22)	(23)	(23)	(23)	(21)
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.

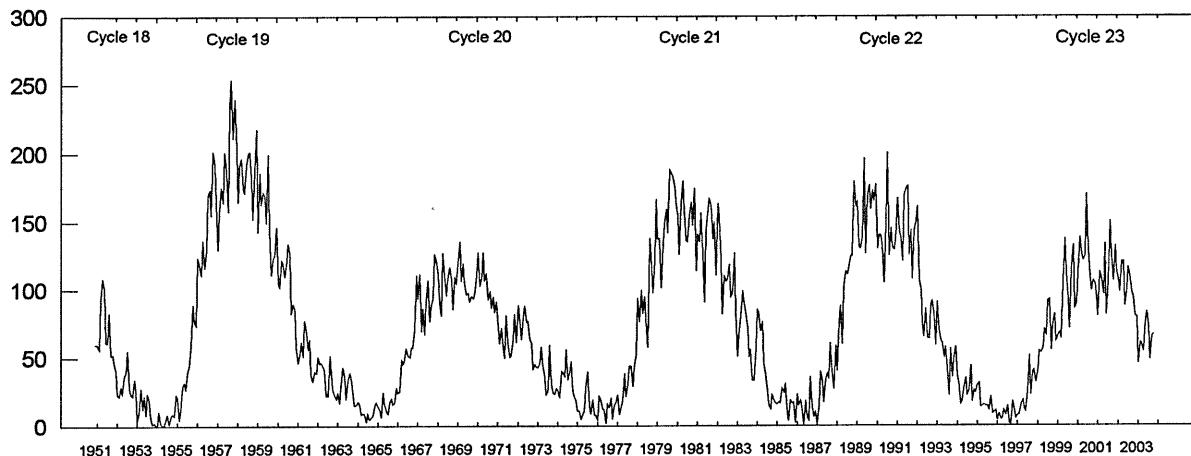
+ April 2000 marks Cycle 23 maximum.

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 June 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 May 2004 prediction. There exists a 90% chance that in May 2004, the actual smoothed number will fall somewhere between 28 and 68.

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 - Nov 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	79.7	46.0	61.1	60.0	54.6	77.4	85.0	72.7	48.8	65.6	67.2		65.3

Values are preliminary after September, 2003. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

H α SOLAR FLARES

NOVEMBER 2003

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	(Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
LEAR	01	0127	0128	0137	N13	W47	10488	10	28.6	10	SF		3	E		23		F
[GOES		0417	0422	0426	S17	W40	10486			9	SF	C 3.7						1.6E-03
LEAR		0419	0422	0425	S17	W40	10486	10	29.2	6	SF		3	E		54		FH
GOES		0436	0440	0444						8		C 2.8						1.2E-03
[GOES		0450	0457	0500	N09	W47	10488			10	SF	C 5.6						2.6E-03
LEAR		0457	0457	0500	N09	W47	10488	10	28.8	3	SF		3	E		28		F
LEAR		0502	0502	0508	S14	W33	10486	10	29.8	6	SF		3	E		39		F
LEAR		0518	0530	0546	S14	W38	10486	10	29.4	28	SF		3	E		36		F
[GOES		0526	0530	0534	S14	W38	10486			8	SF	C 3.6						1.6E-03
LEAR		0808	0817	0826	S13	W41	10486	10	29.3	18	SF		3	E		26		F
[GOES		0814	0822	0830	S13	W41	10486			16	SF	C 4.4						3.7E-03
GOES		0839	0852	0906			10488			27		M 1.3						1.6E-02
GOES		1131	1145	1204			10488			33		C 9.7						1.5E-02
HOLL		1552	1554	1609	S16	W45	10486	10	29.3	17	SF		3	E		28		F
GOES		1557	1602	1605	S16	W45	10486			8	SF	C 3.8						1.7E-03
HOLL		1648	1717	1737	N08	W49	10488	10	29.1	49	SF		3	E		25		
[GOES		1653	1658	1701	N08	W49	10488			8	SF	C 4.4						2.0E-03
HOLL		1738	1750	1808	N09	W50	10488	10	29.1	30	SF		3	E		82		F
[GOES		1742	1751	1808	N09	W50	10488			26	SF	M 1.1						1.4E-02
GOES		1912	1916	1918	N06	W55	10488			6	SF	C 3.5						1.2E-03
[HOLL		1915	1915	1920	N06	W55	10488	10	28.8	5	SF		3	E		13		
[GOES		2226	2238	2249	S12	W60	10486			23	1N	M 3.2						2.8E-02
HOLL		2228	2234	2312	S12	W60	10486	10	28.5	44	1N		3	E		203		UF
LEAR		2236E	2248U	2310D	S13	W59	10486	10	28.6	34D	SF		1	E		79		UF
GOES	02	0237	0243	0248	S14	W52	10486			11	SF	C 4.0						2.4E-03
[GOES		0659	0753	0812	S17	W55	10486			73	SF	M 1.0						3.3E-02
LEAR		0718E	0800U	0856D	S17	W55	10486	10	29.2	98D	SF		2	E		48		F
GOES		1230	1247	1312			10488			42		M 1.8						3.5E-02
HOLL		1539	1612	1642	S14	W55	10486	10	29.6	63	SF		3	E		37		F
[GOES		1703	1725	1739	S14	W56	10486			36	2B	X 8.3						9.1E-01
HOLL		1704	1717	1954	S14	W56	10486	10	29.6	170	2B		3	E		365		ZU
HOLL		1716	1717	1719	N06	W62	10488	10	29.2	3	SF		3	E		18		
HOLL		1735	1736	1741	N08	W69	10488	10	28.6	6	SF		3	E		15		
HOLL		2022	2025	2032	N08	W63	10488	10	29.2	10	SF		3	E		68		
HOLL		2026	2026	2033	S19	W53	10486	10	29.9	7	SF		3	E		17		
HOLL		2034	2037	2039	S20	W53	10486	10	29.9	5	SF		3	E		13		
LEAR	03	0029	0029	0033	S20	W63	10486	10	29.3	4	SF		3	E		22		
LEAR		0106	0131	0237	N10	W83	10488	10	27.9	91	2B		3	E		262		FE
[GOES		0109	0130	0145	N10	W83	10488			36	2B	X 2.7						3.6E-01
LEAR		0450	0452	0500	S21	W70	10486	10	28.9	10	SF		3	E		44		F
LEAR		0537	0538	0541	S21	W71	10486	10	28.9	4	SF		3	E		38		
[GOES		0943	0955	1019	N08	W77	10488			36	2F	X 3.9						5.6E-01
LEAR		0948	0949	1006D	N08	W77	10488	10	28.7	18D	2F		2	E		269		F
SVTO		1021E	1053	1109	N09	W79	10488	10	28.6	48D	SF		3	E		46		F
[GOES		1526	1532	1543	S15	W79	10486			17	SF	M 3.9						2.5E-02
HOLL		1530	1530	1543	S15	W79	10486	10	28.8	13	SF		3	E		25		
HOLL		1544	1547	1554	S15	W79	10486	10	28.8	10	SF		3	E		22		
GOES		1951	1954	1957						6		C 4.4						1.5E-03
GOES		2031	2037	2041						10		C 5.4						2.9E-03
GOES		2228	2236	2240						12		C 3.1						2.7E-03
GOES	04	0404	0411	0419						15		C 5.0						4.1E-03
GOES		0543	0556	0607						24		M 2.6						2.5E-02
GOES		0940	0943	0950			10486			10		C 2.8						1.6E-03
GOES		1011	1022	1033			10488			22		M 3.0						2.7E-02
GOES		1115	1119	1125			10486			10		C 5.7						2.6E-03
GOES		1343	1349	1401			10486			18		M 1.1						9.3E-03
[GOES		1929	1950	2006	S19	W83	10486			37	3B	X28.0						2.3E00
HOLL		1932	1957	2049	S19	W83	10486	10	29.6	77	3B		3	E		857		ZF
HOLL		2049	2049	2054	S18	W81	10486	10	29.8	5	SF		3	E		20		
[GOES	05	0237	0241	0245	S19	W89	10486			8	SF	M 1.6						5.2E-03
LEAR		0238	0241	0250	S19	W89	10486	10	29.4	12	SF		3	E		95		Y
GOES		0754	0759	0803						9		C 4.7						2.1E-03
[GOES		1046	1052	1056	S16	W90	10486			10	SF	M 5.3						1.7E-02
SVTO		1051	1051	1058	S16	W90	10486	10	29.7	7	SF		3	E		42		

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H α SOLAR FLARES

NOVEMBER 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	05	1629	1648	1709						40		C 1.9						3.8E-03
GOES	06	1105	1110	1118						13		B 5.2						3.8E-04
GOES		1724	1831	1942						138		B 5.8						3.9E-03
GOES	07	0217	0318	0527						190		B 8.4						8.0E-03
GOES		1517	1726	1939						262		B 4.7						5.6E-03T
GOES	09	0018	0025	0030						12		B 3.8						2.2E-04
GOES		1609	1613	1618						9		B 1.9						9.0E-05
GOES		1629	1634	1637						8		B 2.0						7.7E-05
GOES		1650	1653	1656						6		B 1.7						4.9E-05
GOES		1705	1709	1711						6		B 1.8						5.2E-05
GOES	10	0823	0828	0832						9		B 2.1						9.3E-05
GOES		1029	1032	1035						6		B 1.9						5.4E-05
GOES		1126	1130	1134						8		B 1.9						8.1E-05
GOES		1346	1350	1352						6		B 5.0						1.2E-04
GOES		1623	1633	1636						13		B 2.9						1.7E-04
GOES		1742	1749	1751						9		B 4.3						1.8E-04
GOES		1856	1901	1904						8		B 8.0						2.4E-04
GOES		2011	2014	2016	S10	W38	10500			5	SF	C 1.5						2.7E-04
[HOLL		2013E	2015U	2018	S10	W38	10500	11	8.0	5D	SF		3	E		28		
GOES		2028	2032	2034						6		B 3.2						9.1E-05
GOES		2125	2129	2131						6		C 1.9						3.3E-04
GOES		2239	2242	2244						5		B 2.2						5.7E-05
GOES		2314	2318	2320	N00	W51	10498			6	SF	B 4.0						1.0E-04
[LEAR		2317	2317	2321	N00	W51	10498	11	7.2	4	SF		3	E		27		
GOES		2325	2332	2334						9		B 8.3						2.3E-04
GOES	11	0526	0551	0622						56		B 7.8						2.1E-03
GOES		1321	1351	1417	S03	W61	10498			56	SF	M 1.6						3.2E-02
[SVTO		1335	1347	1426	S03	W61	10498	11	7.0	51	SF		3	E		82		FH
GOES		1523	1615	1717						114		C 8.5						4.6E-02
GOES		2129	2135	2152						23		B 7.1						8.9E-04
GOES	12	0110	0115	0120						10		B 4.1						2.2E-04
GOES		0928	0938	0944						16		C 1.8						1.1E-03
GOES		1238	1250	1312						34		B 5.2						9.0E-04
GOES		1342	1352	1358						16		C 2.3						1.3E-03
GOES		1754	1819	1835						41		C 3.2						6.0E-03
GOES		2124	2128	2132						8		B 6.1						2.7E-04
GOES		2156	2201	2207						11		C 1.0						5.4E-04
GOES		2246	2249	2255						9		B 4.9						2.4E-04
GOES		2258	2301	2306						8		B 5.7						2.5E-04
GOES	13	0454	0501	0506			10501			12		M 1.6						6.3E-03
GOES		0903	0929	1002			10501			59		M 1.4						3.5E-02
GOES		1102	1108	1114						12		C 5.0						3.1E-03
GOES		1544	1600	1615						31		C 1.6						2.6E-03
GOES		2024	2027	2052			10500			28		B 6.6						1.0E-03
GOES	14	0045	0048	0051			10501			6		B 5.8						1.7E-04
GOES		0220	0226	0232			10501			12		B 6.3						3.7E-04
GOES		0237	0240	0245			10501			8		B 5.1						2.2E-04
GOES		0905	0914	0928			10501			23		B 5.0						6.0E-04
GOES		1030	1042	1046			10501			16		C 1.0						6.2E-04
GOES		1248	1257	1301			10501			13		C 1.4						6.8E-04
GOES		1344	1359	1409			10501			25		C 1.4						1.4E-03
GOES		1410	1415	1419			10501			9		C 1.7						7.2E-04
GOES		1708	1715	1732			10501			24		B 8.2						9.0E-04
GOES		2002	2005	2009			10501			7		B 3.4						1.3E-04
GOES		2019	2028	2031			10501			12		B 9.6						4.8E-04
GOES		2249	2253	2255			10501			6		B 6.0						1.7E-04
GOES	15	0245	0250	0254						9		B 6.2						2.6E-04
GOES		0347	0357	0412						25		B 7.0						8.7E-04
GOES		0440	0444	0448			10501			8		C 1.2						3.7E-04

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NOVEMBER 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	15	0930	0936	0943						13	B	5.4						3.3E-04
GOES		1307	1311	1316			10501			9	B	5.6						2.3E-04
GOES		1330	1334	1336			10501			6	B	3.5						1.0E-04
GOES		1552	1557	1600			10501			8	B	3.4						1.4E-04
GOES		1716	1732	1744			10501			28	C	1.0						1.3E-03
GOES		1855	1912	1923	N02	E38	10501			28	SF	C 2.0						2.4E-03
HOLL		1858	1909	1924	N02	E38	10501	11	18.6	26	SF		3	E		41		F
GOES	16	0400	0407	0413						13	C	1.1						6.7E-04
GOES		0749	0754	0758						9	C	1.9						6.9E-04
GOES		0834	0839	0843						9	C	1.0						4.9E-04
GOES		1010	1039	1116	N01	E44	10501			66	SF	C 7.0						1.6E-02
SVTO		1018E	1020U	1034	N01	E44	10501	11	19.7	160	SF		3	E		20		
GOES		1537	1540	1544	N04	E22	10502			7	SF	B 4.7						1.8E-04
HOLL		1538	1539	1546	N04	E22	10502	11	18.3	8	SF		3	E		23		FH
GOES		1656	1659	1725						29	B	6.5						1.1E-03
GOES		1808	1816	1821	N01	E39	10501			13	SF	C 4.9						2.3E-03
HOLL		1811	1814	1838	N01	E39	10501	11	19.7	27	SF		3	E		62		F
GOES		1850	1853	1858			10501			8	C	2.6						8.7E-04
GOES		2335	2348	2405			10501			30	B	9.9						3.0E-03
GOES	17	0128	0134	0139						11	M	1.2						4.8E-03
GOES		0210	0213	0217						7	C	2.2						7.9E-04
GOES		0518	0527	0537						19	C	2.2						2.0E-03
GOES		0855	0905	0919	S01	E33	10501			24	1N	M 4.2						3.7E-02
LEAR		0859	0903	1004D	S01	E33	10501	11	19.8	65D	1N		3	E		185		FH
SVTO		0901E	0915U	1047D	N00	E31	10501	11	19.7	106D	1F		2	E		160		FH
GOES		1247	1252	1257						10	C	2.5						1.3E-03
GOES		1341	1349	1401						20	C	2.5						2.7E-03
GOES		2001	2008	2016						15	C	3.1						2.4E-03
GOES		2130	2145	2154						24	C	1.7						2.1E-03
GOES	18	0053	0102	0110						17	C	4.1						3.3E-03
GOES		0134	0139	0142			10501			8	M	1.8						5.6E-03
GOES		0525	0530	0535	S01	E20	10501			10	SF	C 3.8						1.7E-03
LEAR		0716	0754	0955	N00	E18	10501	11	19.6	159	2N		3	E		270		UF
GOES		0723	0752	0806	N00	E18	10501			43	2N	M 3.2						5.1E-02
SVTO		0729	0748U	0902	N00	E19	10501	11	19.7	93	1F		2	E		224		FH
GOES		0812	0831	0859			10501			47	M	3.9						8.4E-02
GOES		0923	1011	1101						98	M	4.5						1.9E-01
GOES		2144	2149	2152	N10	E90	10507			8	SF	C 2.2						9.5E-04
HOLL		2148	2148	2151	N10	E90	10507	11	25.7	3	SF		3	E		13		
GOES		2215	2222	2237						22	C	6.1						6.1E-03
HOLL		2311	2313	2320	S02	E10	10501	11	19.7	9	SF		3	E		20		F
GOES	19	0106	0116	0123			10501			17	C	2.4						1.9E-03
GOES		0355	0401	0406	N01	E06	10501			11	1N	M 1.7						6.4E-03
LEAR		0358	0402	0419	N01	E06	10501	11	19.6	21	1N		2	E		153		FE
GOES		0759	0817	0849	N03	E01	10501			50	1F	C 8.8						2.0E-02
SVTO		0819E	0819U	0902	N03	E01	10501	11	19.4	43D	1F		3	E		195		UF
GOES		0926	0933	0938			10501			12	C	4.9						2.9E-03
GOES		1146	1158	1243			10506			57	C	2.8						6.8E-03
GOES		1414	1419	1428						14	C	3.9						2.5E-03
HOLL		1447	1512	1611	N03	W03	10501	11	19.4	84	SF		3	E		62		
GOES		1455	1519	1553			10506			58	C	9.1						1.9E-02
GOES		2122	2126	2128			10506			6	C	1.1						3.6E-04
GOES		2205	2210	2219			10506			14	C	2.3						1.5E-03
GOES	20	0115	0119	0128						13	C	2.1						1.3E-03
GOES		0147	0212	0228	N03	W08	10501			41	1N	M 1.4						2.4E-02
LEAR		0148	0152	0238	N03	W08	10501	11	19.5	50	1N		3	E		110		F
GOES		0432	0440	0448	S17	E73	10508			16	SF	C 4.3						3.1E-03
LEAR		0448E	0449U	0452	S17	E73	10508	11	25.7	4D	SF		3	E		17		F
GOES		0725	0728	0730	N03	W12	10501			5	SF	C 3.8						8.2E-04
LEAR		0727	0728	0735	N03	W12	10501	11	19.4	8	SF		3	E		97		F
GOES		0735	0747	0753	N01	W08	10501			18	2B	M 9.6						6.0E-02
LEAR		0738	0740	0836	N01	W08	10501	11	19.7	58	2B		3	E		371		FH
GOES		1013	1018	1023						10	C	4.1						1.8E-03

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Nov 03

H α SOLAR FLARES

NOVEMBER 2003

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	(Min)	Imp Opt	Xray	Obs See	Type	Time (UT)	Area Measurement		Remarks
																Apparent (10-6 Disk)	Corr (Sq Deg)	
GOES	20	1231	1237	1241						10	C 3.5							1.3E-03
[GOES		1418	1442	1449	N09	E59	10507			31	SF C 1.7							2.1E-03
[HOLL		1437	1440	1457	N09	E59	10507	11	25.0	20	SF		3	E		26		6.7E-04
GOES		1654	1658	1702						8	C 1.7							9.2E-03
GOES		1908	1929	1937						29	C 8.6							1.5E-03
GOES		2242	2258	2303						21	C 1.3							2.8E-02
[GOES		2342	2353	2358	N02	W17	10501			16	2B M 5.8							F
[LEAR		2346	2354	2431	N02	W17	10501	11	19.7	45	2B		3	E		279		4.0E-04
GOES	21	0230	0233	0237						7	C 1.0							
LEAR		0436	0436	0446	N12	E46	10507	11	24.6	10	SF		3	E		11		FH
LEAR		0521	0528	0548	N13	E45	10507	11	24.6	27	SF		4	E		45		1.1E-03
[GOES		0937	0943	0945	S23	E36	10506			8	SF C 4.3							
[LEAR		0940	0944	0948	S23	E36	10506	11	24.2	8	SF		3	E		15		4.3E-04
GOES		1249	1253	1257						8	C 1.0							9.8E-04
GOES		1651	1655	1710						19	B 9.2							1.8E-03
GOES		1908	1916	1921						13	C 3.4							4.9E-04
GOES		2039	2043	2047			10508			8	C 1.1							
LEAR	22	0145	0150	0156	N05	W31	10501	11	19.7	11	SF		3	E		18		F
GOES		0249	0253	0256						7	C 2.1							6.6E-04
GOES		0314	0342	0354						40	C 2.0							3.7E-03
[GOES		0522	0525	0528	N03	W37	10501			6	SF C 1.1							3.6E-04
[LEAR		0526	0526	0528	N03	W37	10501	11	19.5	2	SF		3	E		14		F
GOES		1422	1428	1432			10507			10	C 1.7							7.4E-04
[GOES		1833	1836	1838	N07	E26	10507			5	SF C 1.2							2.6E-04
[HOLL		1836	1837	1839	N07	E26	10507	11	24.7	3	SF		3	E		23		5.8E-03
GOES		2058	2113	2131						33	C 3.9							
GOES	23	0010	0014	0016						6	C 1.0							3.0E-04
GOES		0124	0128	0133						9	C 1.0							4.7E-04
GOES		0352	0356	0404						12	B 8.8							5.5E-04
LEAR		0716	0717	0721	S15	E26	10508	11	25.3	5	SF		3	E		13		F
SVTO		0856E	0857U	0908	N00	W51	10501	11	19.6	12D	SF		3	E		16		
GOES		1158	1209	1221						23	C 1.2							1.5E-03
[GOES		1556	1604	1612	S21	E12	10506			16	SF C 1.5							1.2E-03
[HOLL		1602	1602	1610	S21	E12	10506	11	24.6	8	SF		3	E		27		F
GOES		1745	1750	1755			10507			10	C 1.2							6.2E-04
GOES		2210	2215	2220						10	C 1.0							5.5E-04
[GOES		2337	2353	2416	S13	E12	10508			39	SF C 2.8							5.0E-03
[LEAR		2341	2342	2357	S13	E12	10508	11	24.9	16	SF		3	E		20		F
[GOES	24	0044	0047	0049	S19	E14	10508			5	SF C 1.7							4.3E-04
[LEAR		0046	0048	0051	S19	E14	10508	11	25.1	5	SF		2	E		26		F
GOES		0441	0456	0459			10501			18	C 2.6							1.5E-03
GOES		1206	1210	1213			10508			7	C 1.3							4.6E-04
GOES		1717	1722	1742						25	C 1.1							1.6E-03
[GOES		1851	1854	1857	S08	E59	10509			6	SF C 2.3							6.6E-04
[HOLL		1852	1852	1900	S08	E59		11	29.2	8	SF		3	E		34		
GOES		2008	2021	2032			10508			24	C 2.3							2.7E-03
GOES	25	0208	0215	0220			10509			12	C 1.2							7.4E-04
[GOES		0554	0602	0613	S14	W05	10508			19	SF C 3.0							2.5E-03
[LEAR		0558	0600	0610	S14	W05	10508	11	24.9	12	SF		3	E		52		F
GOES		0924	1003	1041						77	C 2.2							7.3E-03
GOES		1325	1329	1333			10508			8	C 1.3							5.4E-04
GOES	26	0310	0316	0320			10508			10	C 1.2							6.3E-04
GOES		1217	1224	1227						10	B 9.4							5.1E-04
[GOES		1614	1618	1624	S13	W14	10508			10	SF C 1.7							7.9E-04
[HOLL		1617	1618	1625	S13	W14	10508	11	25.6	8	SF		3	E		38		F
HOLL		1714	1716	1718	S19	W18	10508	11	25.3	4	SF		3	E		16		
[GOES	27	0023	0029	0031	S12	E26	10509			8	SF C 2.2							7.2E-04
[LEAR		0026	0029	0036	S12	E26	10509	11	29.0	10	SF		3	E		72		
GOES		0159	0202	0206			10508			7	C 1.1							4.3E-04
[GOES		0634	0646	0651	S15	W23	10508			17	SF C 1.9							1.4E-03
[LEAR		0636	0646	0651	S15	W23	10508	11	25.5	15	SF		3	E		39		

H α SOLAR FLARES

NOVEMBER 2003

Sta	Day	Start Time (UT)	Max Time (UT)	End Time (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	(Min)	Imp Opt	Xray	Obs See	Type	Time (UT)	Area Measurement Apparent (10 ⁻⁶ Disk)	Corr (Sq Deg)	Remarks
GOES	27	0741	0820	0848	S14	W27	10508		67		SF	C 9.6						2.3E-02
LEAR		0803	0812	0910	S14	W27	10508	11	25.3	67	SF		3	E		96		F
SVTO		0808E	0826	0859	S13	W30	10508	11	25.1	51D	1F		3	E		144		FH
LEAR		0834	0834	0843	S14	W37		11	24.6	9	SF		3	E		10		F
GOES		1839	1847	1901	S14	W34	10508			22	SF	C 2.7						3.0E-03
HOLL		1841	1844	1854	S14	W34	10508	11	25.2	13	SF		3	E		33		F
GOES		2202	2210	2222			10510			20		C 1.2						1.3E-03
GOES	28	0145	0159	0206	S14	W36	10508			21	SF	C 1.7						1.8E-03
LEAR		0146	0147	0156	S14	W36	10508	11	25.3	10	SF		3	E		16		F
GOES		0546	0555	0608			10507			22		C 1.0						1.2E-03
GOES		0906	0913	0930			10508			24		C 3.6						3.8E-03
GOES	29	0325	0330	0335	S20	E05	10510			10	SF	C 1.5						7.5E-04
LEAR		0330	0331U	0338	S20	E05	10510	11	29.5	8	SF		3	E		21		FH
GOES		0632	0638	0646			10508			14		C 2.0						1.5E-03
GOES		0656	0659	0702			10508			6		C 1.5						5.0E-04
GOES		0830	0834	0841			10507			11		C 1.9						1.1E-03
GOES		1006	1012	1018			10508			12		C 2.6						1.5E-03
GOES		1445	1448	1451			10508			6		C 1.6						4.5E-04
GOES		1757	1806	1814	S23	E02	10510			17	SF	C 2.7						2.1E-03
HOLL		1801	1803	1821	S23	E02	10510	11	29.9	20	SF		3	E		31		F
GOES		2100	2109	2115	S25	E00	10510			15	1F	C 4.2						2.6E-03
HOLL		2106	2107	2119	S25	E00	10510	11	29.9	13	1F		3	E		102		F
GOES	30	0006	0011	0014			10517			8		C 4.6						1.3E-03
GOES		0256	0300	0305			10508			9		C 1.1						5.0E-04
GOES		1007	1011	1013			10508			6		C 1.2						3.7E-04
GOES		1515	1531	1539			10508			24		C 2.1						2.3E-03

"Remarks"

A = Eruptive prominence whose base is less than 90 degrees from central meridian.
 B = Probably the end of a more important flare.
 C = Invisible 10 minutes before.
 D = Brilliant point.
 E = Two or more brilliant points.
 F = Several eruptive centers.
 G = No visible spots in the neighborhood.
 H = Flare accompanied by high-speed dark filament.
 I = Active region very extended.
 J = Distinct variations of plage intensity before or after the flare.
 K = Several intensity maxima.
 L = Existing filaments show signs of sudden activity.
 M = White-light flare.
 N = Continuous spectrum shows effects of polarization.

O = Observations have been made in the H and K lines of Ca II.
 P = Flare shows Helium D3 in emission.
 Q = Flare shows Balmer continuum in emission.
 R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
 S = Brightness follows disappearance of filament in same position.
 T = Region active all day.
 U = Two bright branches, parallel or converging.
 V = Occurrence of an explosive phase; important, expansion within roughly 1 minute that often includes a significant intensity increase.
 W = Great increase in area after time of maximum intensity.
 X = Unusually wide H-alpha line.
 Y = System of loop-type prominences.
 Z = Major sunspot umbra covered by flare.

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

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

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Nov 03

SOLAR RADIO EMISSION

Selected Fixed Frequency Events

NOVEMBER 2003

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Int	Remarks
01	8800	LEAR	8 S	0843.0	0843.0	2.0	150.0		QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	0843.0	0843.0	8.0	130.0		QL=4 ST=2 TYP=3
	8800	SVTO	8 S	1150.0	1150.0	U	53.0		QL=4 ST=2 TYP=3
	8800	SGMR	4 S/F	1744.0	1750.0	6.0	69.0		QL=4 ST=2 TYP=3
	2695	LEAR	4 S/F	2228.0	2232.0	16.0	91.0		QL=4 ST=2 TYP=3
	8800	LEAR	49 GB	2228.0	2230.0	14.0	560.0		QL=4 ST=2 TYP=6
	8800	PALE	48 C	2229.0	2230.0	10.0	510.0		QL=4 ST=2 TYP=8
02	2695	PALE	4 S/F	2230.0	2232.0	4.0	95.0		QL=4 ST=2 TYP=3
	8800	LEAR	4 S/F	0859.0	0900.0	5.0	440.0		QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	0859.0	0900.0	5.0	450.0		QL=4 ST=2 TYP=3
	2695	LEAR	8 S	0900.0	0900.0	1.0	65.0		QL=4 ST=2 TYP=3
	2695	SVTO	8 S	0900.0	0900.0	2.0	84.0		QL=4 ST=2 TYP=3
	8800	SGMR	48 C	1233.0	1247.0	687.0	210.0		QL=4 ST=3 TYP=8
	8800	SVTO	4 S/F	1237.0	1238.0	5.0	100.0		QL=2 ST=2 TYP=3
	2695	SVTO	8 S	1238.0	1238.0	1.0	22.0		QL=2 ST=2 TYP=3
	2695	SVTO	8 S	1246.0	1246.0	1.0	24.0		QL=2 ST=2 TYP=3
	8800	SVTO	8 S	1246.0	1247.0	1.0	65.0		QL=2 ST=2 TYP=3
	8800	SVTO	8 S	1439.0	1439.0	1.0	63.0		QL=2 ST=2 TYP=3
	8800	SGMR	4 S/F	1539.0	1544.0	10.0	140.0		QL=4 ST=2 TYP=3
	2695	PALE	48 C	1703.0	1717.0	55.0	10000.0		QL=4 ST=2 TYP=8
	8800	PALE	48 C	1703.0	1719.0	66.0	17000.0		QL=4 ST=2 TYP=8
	8800	SGMR	48 C	1704.0	1721.0	74.0	20000.0		QL=4 ST=2 TYP=8
	2695	SGMR	48 C	1706.0	1717.0	75.0	7700.0		QL=4 ST=2 TYP=8
03	8800	PALE	48 C	0101.0	0121.0	46.0	520.0		QL=4 ST=2 TYP=8
	8800	LEAR	48 C	0102.0	0121.0	35.0	500.0		QL=4 ST=2 TYP=8
	2695	PALE	4 S/F	0103.0	0121.0	31.0	320.0		QL=4 ST=2 TYP=3
	2695	LEAR	4 S/F	0118.0	0121.0	10.0	240.0		QL=4 ST=2 TYP=3
	8800	LEAR	8 S	0501.0	0501.0	1.0	54.0		QL=4 ST=2 TYP=3
	8800	SVTO	48 C	0946.0	1006.0	89.0	15000.0		QL=4 ST=2 TYP=8
	2695	SVTO	48 C	0947.0	1006.0	99.0	4400.0		QL=4 ST=2 TYP=8
	2695	LEAR	48 C	0948.0	1027.0	43.0	6100.0		QL=4 ST=2 TYP=8
	8800	LEAR	48 C	0948.0	1007.0	43.0	19000.0		QL=4 ST=2 TYP=8
	8800	SGMR	49 GB	1529.0	1531.0	12.0	1000.0		QL=4 ST=2 TYP=6
	2695	SGMR	4 S/F	1530.0	1531.0	11.0	210.0		QL=4 ST=2 TYP=3
04	8800	LEAR	48 C	0545.0	0549.0	14.0	1100.0		QL=4 ST=2 TYP=8
	8800	SVTO	4 S/F	0546.0	0548.0	3.0	460.0		QL=2 ST=2 TYP=3
	2695	LEAR	4 S/F	0549.0	0553.0	5.0	59.0		QL=4 ST=2 TYP=3
	8800	SVTO	48 C	0552.0	0553.0	6.0	700.0		QL=2 ST=2 TYP=8
	8800	SGMR	4 S/F	1344.0	1345.0	8.0	310.0		QL=4 ST=2 TYP=3
	8800	SGMR	8 S	1929.0	1929.0	2.0	60.0		QL=4 ST=2 TYP=3
	2695	SGMR	48 C	1931.0	1941.0	12.0	7500.0		QL=4 ST=2 TYP=8
	8800	SGMR	49 GB	1931.0	1942.0	12.0	13000.0		QL=4 ST=2 TYP=6
	8800	SGMR	48 C	1932.0E	1942.0	51.0D	13000.0		QL=4 ST=3 TYP=8
	2695	SGMR	48 C	1933.0E	1941.0	49.0D	7500.0		QL=4 ST=3 TYP=8
	8800	PALE	48 C	1933.0	1946.0	85.0	30000.0		QL=4 ST=2 TYP=8
05	2695	PALE	49 GB	1933.0	1946.0	103.0	20000.0		QL=4 ST=2 TYP=6
	8800	PALE	8 S	0240.0	0240.0	U	150.0		QL=4 ST=2 TYP=3
11	8800	SVTO	8 S	1050.0E	1050.0U	U	140.0		QL=4 ST=2 TYP=3
	2695	SGMR	48 C	1330.0	1345.0	49.0	1100.0		QL=4 ST=2 TYP=8
12	8800	SGMR	49 GB	1331.0	1339.0	48.0	1600.0		QL=4 ST=2 TYP=6
	2695	SVTO	48 C	1331.0	1345.0	51.0	1300.0		QL=4 ST=2 TYP=8
	8800	SVTO	48 C	1332.0	1339.0	34.0	1200.0		QL=4 ST=2 TYP=8
	2695	SGMR	4 S/F	1759.0	1810.0	30.0	110.0		QL=4 ST=2 TYP=3
13	8800	SGMR	20 GRF	1807.0	1819.0	22.0	64.0		QL=4 ST=2 TYP=2
	2695	PALE	48 C	1809.0	1820.0	22.0	110.0		QL=4 ST=2 TYP=8
	2695	PALE	8 S	1849.0	1849.0	U	55.0		QL=4 ST=2 TYP=3
	2695	LEAR	8 S	0457.0	0458.0	2.0	100.0		QL=4 ST=2 TYP=3
13	8800	LEAR	48 C	0457.0	0458.0	10.0	240.0		QL=4 ST=2 TYP=8
	2695	SVTO	4 S/F	0907.0	0915.0	31.0	130.0		QL=4 ST=2 TYP=3
	2695	LEAR	4 S/F	0910.0	0915.0	10.0	120.0		QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	0910.0	0933.0	28.0	49.0		QL=4 ST=2 TYP=3
	8800	LEAR	8 S	0916.0	0916.0	1.0	51.0		QL=4 ST=2 TYP=3
	8800	LEAR	8 S	0916.0	0916.0	1.0	51.0		QL=4 ST=2 TYP=3

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

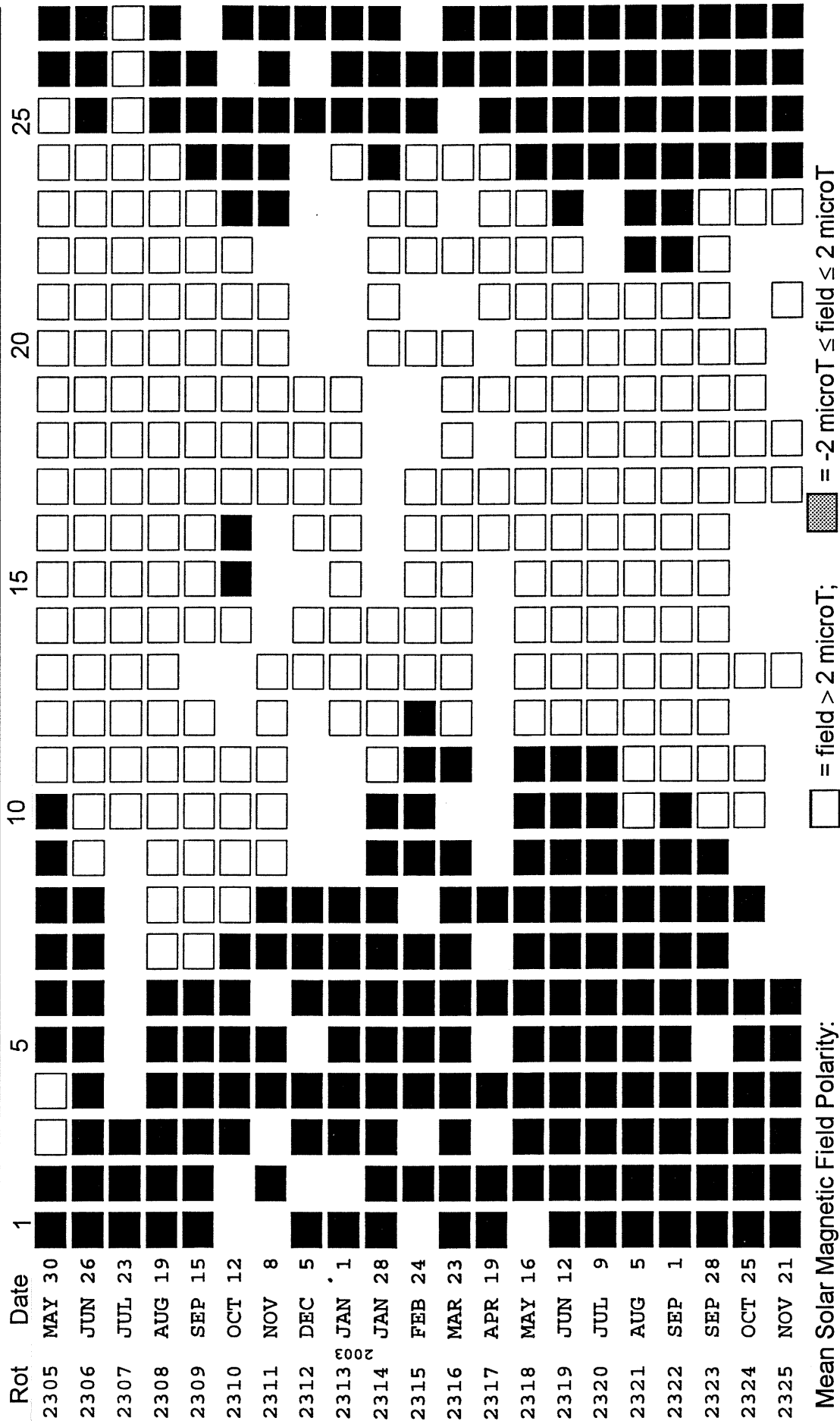
Selected Fixed Frequency Events

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Nov 03

NOVEMBER 2003

Day	Freq Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
						Peak (10 -22 W/m ² Hz)	Mean		
14	2695 SVTO	8 S	1254.0	1254.0	U	29.0			QL=4 ST=2 TYP=3
	8800 SVTO	8 S	1254.0	1254.0	U	35.0			QL=4 ST=2 TYP=3
16	8800 SVTO	8 S	0752.0	0752.0	1.0	34.0			QL=4 ST=2 TYP=3
	8800 SVTO	4 S/F	1012.0	1019.0	9.0	95.0			QL=4 ST=2 TYP=3
	2695 SVTO	4 S/F	1017.0	1020.0	5.0	51.0			QL=4 ST=2 TYP=3
	2695 SVTO	4 S/F	1034.0	1038.0	7.0	50.0			QL=4 ST=2 TYP=3
	8800 SVTO	4 S/F	1034.0	1035.0	7.0	170.0			QL=4 ST=2 TYP=3
	8800 SGMR	4 S/F	1812.0	1813.0	3.0	73.0			QL=4 ST=2 TYP=3
	8800 PALE	8 S	1813.0	1813.0	U	56.0			QL=4 ST=2 TYP=3
17	2695 LEAR	8 S	0132.0	0132.0	U	64.0			QL=4 ST=2 TYP=3
	8800 LEAR	8 S	0132.0	0132.0	U	61.0			QL=4 ST=2 TYP=3
	2695 PALE	8 S	0132.0	0132.0	U	67.0			QL=4 ST=2 TYP=3
	8800 LEAR	48 C	0858.0	0901.0	17.0	2200.0			QL=4 ST=2 TYP=8
	2695 LEAR	48 C	0858.0	0901.0	14.0	650.0			QL=4 ST=2 TYP=8
	8800 SVTO	48 C	0858.0	0901.0	33.0	2100.0			QL=4 ST=2 TYP=8
	2695 SVTO	48 C	0858.0	0901.0	33.0	700.0			QL=4 ST=2 TYP=8
	2695 LEAR	8 S	0923.0	0923.0	U	60.0			QL=4 ST=2 TYP=3
	8800 LEAR	8 S	0135.0	0136.0	1.0	160.0			QL=4 ST=2 TYP=3
	2695 LEAR	8 S	0135.0	0136.0	1.0	100.0			QL=4 ST=2 TYP=3
18	2695 PALE	8 S	0136.0	0136.0	1.0	120.0			QL=4 ST=2 TYP=3
	8800 PALE	49 GB	0136.0	0136.0	2.0	520.0			QL=4 ST=2 TYP=6
	8800 LEAR	8 S	0528.0	0528.0	U	54.0			QL=4 ST=2 TYP=3
	2695 SVTO	48 C	0728.0	0825.0	84.0	1900.0			QL=4 ST=2 TYP=8
	8800 SVTO	48 C	0728.0	0742.0	84.0	1200.0			QL=4 ST=2 TYP=8
	2695 LEAR	48 C	0740.0	0825.0	60.0	1400.0			QL=4 ST=2 TYP=8
	8800 LEAR	48 C	0741.0	0742.0	29.0	950.0			QL=4 ST=2 TYP=8
	8800 LEAR	48 C	0938.0	0956.0	26.0	220.0			QL=4 ST=2 TYP=8
	2695 LEAR	4 S/F	0939.0	0956.0	25.0	110.0			QL=4 ST=2 TYP=3
	8800 SVTO	4 S/F	0943.0	0955.0	34.0	160.0			QL=4 ST=2 TYP=3
	2695 SVTO	20 GRF	0945.0	0956.0	28.0	98.0			QL=4 ST=2 TYP=2
	2695 LEAR	8 S	0359.0	0400.0	2.0	130.0			QL=4 ST=2 TYP=3
	8800 LEAR	4 S/F	0359.0	0400.0	3.0	320.0			QL=4 ST=2 TYP=3
	2695 SVTO	4 S/F	0802.0	0802.0	4.0	25.0			QL=4 ST=2 TYP=3
	2695 SGMR	4 S/F	1456.0	1457.0	5.0	160.0			QL=4 ST=2 TYP=3
19	2695 SVTO	8 S	1456.0	1457.0	2.0	150.0			QL=4 ST=2 TYP=3
	8800 SVTO	8 S	1456.0	1456.0	U	30.0			QL=4 ST=2 TYP=3
	8800 SGMR	8 S	1459.0	1459.0	U	22.0			QL=4 ST=2 TYP=3
	8800 SGMR	8 S	1510.0	1511.0	2.0	73.0			QL=4 ST=2 TYP=3
	2695 SGMR	4 S/F	1510.0	1511.0	4.0	120.0			QL=4 ST=2 TYP=3
	2695 LEAR	4 S/F	0151.0	0152.0	4.0	190.0			QL=4 ST=2 TYP=3
	8800 LEAR	4 S/F	0152.0	0153.0	4.0	160.0			QL=4 ST=2 TYP=3
	2695 LEAR	8 S	0726.0	0726.0	1.0	400.0			QL=4 ST=2 TYP=3
	8800 LEAR	49 GB	0726.0	0726.0	1.0	990.0			QL=4 ST=2 TYP=6
	2695 SVTO	4 S/F	0726.0	0726.0	4.0	480.0			QL=4 ST=2 TYP=3
20	8800 SVTO	49 GB	0726.0	0726.0	5.0	980.0			QL=4 ST=2 TYP=6
	2695 SVTO	49 GB	0736.0	0739.0	13.0	9700.0			QL=4 ST=2 TYP=6
	2695 LEAR	49 GB	0737.0	0739.0	9.0	7300.0			QL=4 ST=2 TYP=6
	8800 SVTO	49 GB	0737.0	0740.0	20.0	2100.0			QL=4 ST=2 TYP=6
	8800 LEAR	49 GB	0738.0	0740.0	15.0	2100.0			QL=4 ST=2 TYP=6
	2695 PALE	4 S/F	1926.0	1928.0	3.0	95.0			QL=4 ST=2 TYP=3
	8800 PALE	8 S	1927.0	1928.0	1.0	57.0			QL=4 ST=2 TYP=3
	2695 SGMR	8 S	1927.0	1928.0	1.0	76.0			QL=4 ST=2 TYP=3
	8800 LEAR	48 C	2346.0	2348.0	9.0	430.0			QL=4 ST=2 TYP=8
	8800 PALE	4 S/F	2346.0	2348.0	14.0	300.0			QL=4 ST=3 TYP=3
	2695 LEAR	49 GB	2347.0	2348.0	7.0	750.0			QL=4 ST=2 TYP=6
	2695 PALE	49 GB	2347.0	2348.0	13.0	740.0			QL=4 ST=3 TYP=6
21	8800 SGMR	49 GB	1651.0	1652.0	1.0	620.0			QL=4 ST=2 TYP=6
22	2695 PALE	8 S	2141.0	2142.0	2.0	83.0			QL=4 ST=2 TYP=3

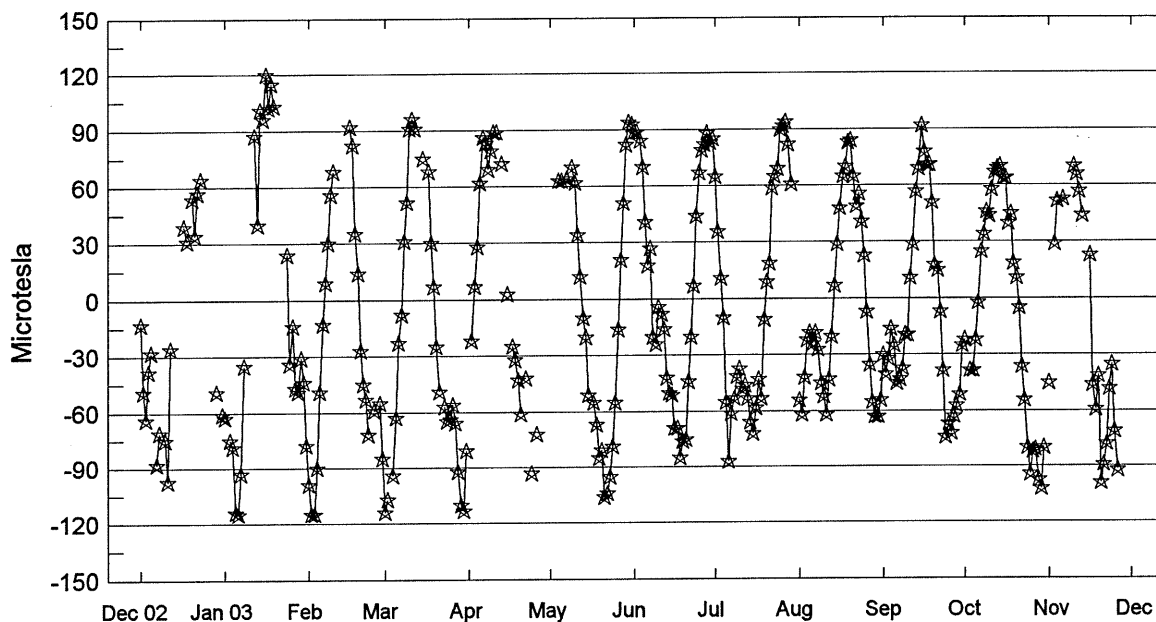
STANFORD MEAN SOLAR MAGNETIC FIELD



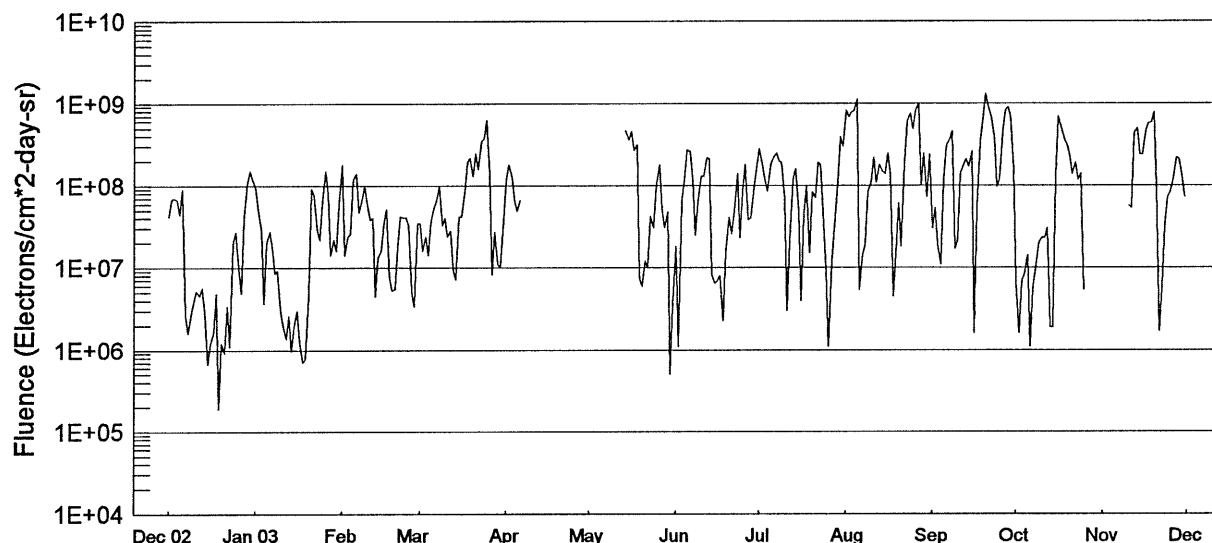
Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates are five days earlier, to mark times of occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

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

35
Nov 03



Day	Dec 02	Jan 03	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	-13	-63	-99	-114	---	---	89	65	-54	-30	-22	-45
2	-49	---	-115	-107	-22	---	89	36	-62	-40	---	---
3	-64	-75	-115	---	7	---	84	11	-42	-32	-38	29
4	-38	-79	-90	-94	28	63	70	-10	-22	-16	-38	52
5	-28	-114	-49	-63	62	63	41	-55	-18	-25	-22	---
6	---	-115	-13	-23	86	---	18	-87	-24	-45	-2	53
7	-88	-93	9	-8	83	64	27	-61	-18	-43	25	---
8	-71	-35	30	31	69	---	-20	-53	-27	-37	34	---
9	---	---	56	52	79	70	-24	-41	-45	-19	46	---
10	-75	---	68	91	89	62	-4	-37	-52	-19	44	70
11	-97	---	---	96	89	34	-8	-48	-62	11	58	66
12	-26	87	---	91	---	12	-16	-46	-43	29	67	57
13	---	40	---	---	72	-10	-42	-53	-20	57	69	44
14	---	101	---	---	---	-20	-50	-66	7	69	70	---
15	---	96	---	75	3	-51	-51	-72	29	92	64	---
16	---	120	92	---	---	---	-69	-58	48	78	64	23
17	39	102	82	68	-25	-55	-69	-43	65	71	40	-46
18	31	115	35	30	-32	-67	-85	-53	70	71	45	-59
19	---	103	14	7	-43	-85	-76	-11	83	51	19	-41
20	54	---	-27	-25	-61	-81	-75	9	84	18	11	-99
21	34	---	-45	-49	---	-106	-44	19	65	15	-5	-89
22	57	---	-53	---	-42	-104	-20	59	49	-7	-36	-78
23	64	---	-72	-57	---	-95	7	65	56	-38	-54	-48
24	---	24	---	-65	-93	-79	44	69	41	-74	-80	-35
25	---	-34	-59	-64	---	-55	67	90	23	-67	-94	-71
26	---	-14	---	-56	-72	-16	79	92	-7	-72	-82	-92
27	---	-47	-55	-66	---	21	82	94	-35	-63	-81	---
28	---	-49	-85	-92	---	51	88	82	-55	-57	-97	---
29	-49	-31	---	-110	---	82	83	61	-63	-51	-102	---
30	---	-44	---	-113	---	94	85	---	-63	-25	-80	---
31	-61	-78	---	-81	---	93	---	---	-54	---	---	---

GOES Daily Electron Fluence
Dec 2002 - Nov 2003

Day	Dec 02	Jan 03	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	4.2E+07	9.5E+07	1.8E+08	3.5E+07	4.5E+08	--	1.8E+07	2.8E+08	8.1E+08	3.0E+07	6.7E+06	-999
2	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	5.4E+07	1.6E+06	-999
3	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	1.9E+07	6.9E+06	-999
4	6.8E+07	3.7E+06	2.6E+07	1.4E+07	1.4E+08	--	1.2E+08	8.5E+07	8.2E+08	1.1E+07	8.2E+06	-999
5	4.4E+07	2.0E+07	1.2E+08	3.6E+07	1.7E+08	--	2.7E+08	1.8E+08	1.1E+09	1.2E+08	1.4E+07	-999
6	8.9E+07	2.7E+07	1.4E+08	5.2E+07	1.6E+08	--	2.6E+08	2.2E+08	5.4E+06	3.0E+08	1.1E+06	-999
7	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	3.6E+08	5.7E+06	-999
8	1.6E+06	8.6E+06	6.3E+07	9.9E+07	--	problems	2.5E+07	2.0E+08	1.9E+07	4.5E+08	1.1E+07	-999
9	2.8E+06	9.2E+06	1.0E+08	3.3E+07	--	--	6.4E+07	1.9E+08	8.3E+07	1.7E+07	2.0E+07	-999
10	3.9E+06	3.1E+06	6.1E+07	4.0E+07	--	--	1.3E+08	7.0E+07	1.1E+08	2.1E+07	2.3E+07	5.6E+07
11	5.2E+06	2.0E+06	3.8E+07	2.4E+07	--	--	1.3E+08	3.0E+06	2.2E+08	1.4E+08	2.3E+07	5.4E+07
12	4.6E+06	1.4E+06	4.0E+07	2.8E+07	sensor	--	2.2E+08	2.1E+07	1.1E+08	1.7E+08	3.0E+07	4.4E+08
13	5.6E+06	2.6E+06	4.5E+06	9.7E+06	problems	--	2.1E+08	1.2E+08	1.8E+08	2.1E+08	1.9E+06	5.0E+08
14	3.0E+06	9.8E+05	1.3E+07	7.2E+06	--	4.6E+08	8.3E+06	1.6E+08	1.5E+08	1.7E+08	1.9E+06	2.4E+08
15	6.7E+05	2.1E+06	1.6E+07	4.2E+07	--	3.6E+08	6.4E+06	5.0E+07	1.4E+08	2.6E+08	1.3E+08	2.4E+08
16	1.2E+06	3.0E+06	3.4E+07	4.2E+07	--	4.5E+08	6.9E+06	4.0E+06	2.5E+08	1.6E+06	6.8E+08	4.6E+08
17	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	5.5E+07	5.0E+08	5.7E+08
18	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	3.5E+08	3.6E+08	5.8E+08
19	1.9E+05	7.7E+05	5.3E+06	2.2E+08	--	7.4E+06	1.6E+07	1.5E+07	1.5E+07	6.5E+08	3.1E+08	7.7E+08
20	1.2E+06	4.7E+06	5.5E+06	1.3E+08	--	6.0E+06	4.1E+07	8.4E+07	6.2E+07	1.3E+09	2.3E+08	9.6E+07
21	9.3E+05	9.1E+07	1.8E+07	2.5E+08	--	1.2E+07	2.6E+07	7.1E+07	1.8E+07	8.7E+08	1.4E+08	1.7E+06
22	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	6.8E+08	1.9E+08	5.8E+06
23	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	3.7E+08	1.2E+08	3.3E+07
24	2.0E+07	2.2E+07	4.1E+07	3.7E+08	--	3.1E+07	2.3E+07	3.5E+07	7.5E+08	9.7E+07	1.4E+08	7.1E+07
25	2.7E+07	6.5E+07	3.3E+07	6.3E+08	--	9.9E+07	8.7E+07	9.4E+06	4.9E+08	1.2E+08	5.3E+06	8.7E+07
26	1.0E+07	1.5E+08	5.2E+06	1.4E+08	--	1.8E+08	1.8E+08	1.1E+06	8.2E+08	4.5E+08	-999	1.2E+08
27	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	8.3E+08	-999	2.2E+08
28	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	8.9E+08	-999	2.1E+08
29	1.1E+08	2.2E+07		1.1E+07	--	4.8E+07	9.4E+07	1.1E+08	2.5E+08	7.0E+08	-999	1.4E+08
30	1.5E+08	1.6E+07		1.0E+07	--	5.0E+05	1.7E+08	3.9E+08	7.2E+07	1.6E+08	-999	7.1E+07
31	1.2E+08	6.1E+07		3.7E+07		3.6E+06		3.0E+08	2.4E+08		-999	

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 712 Part I

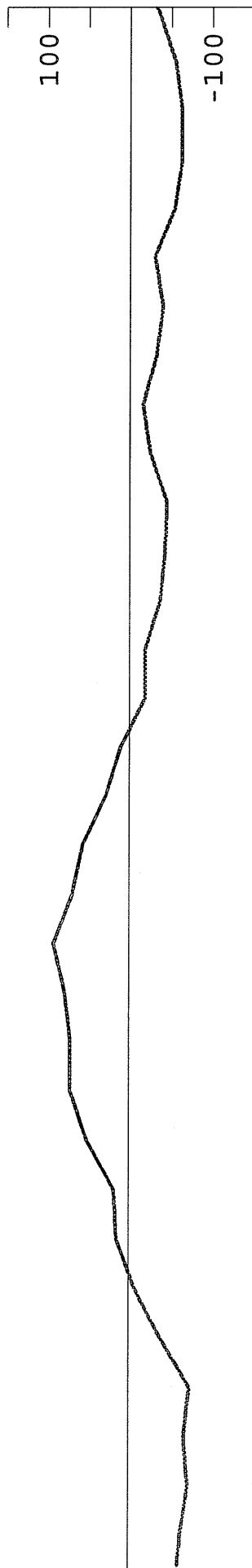
DATA FOR OCTOBER 2003

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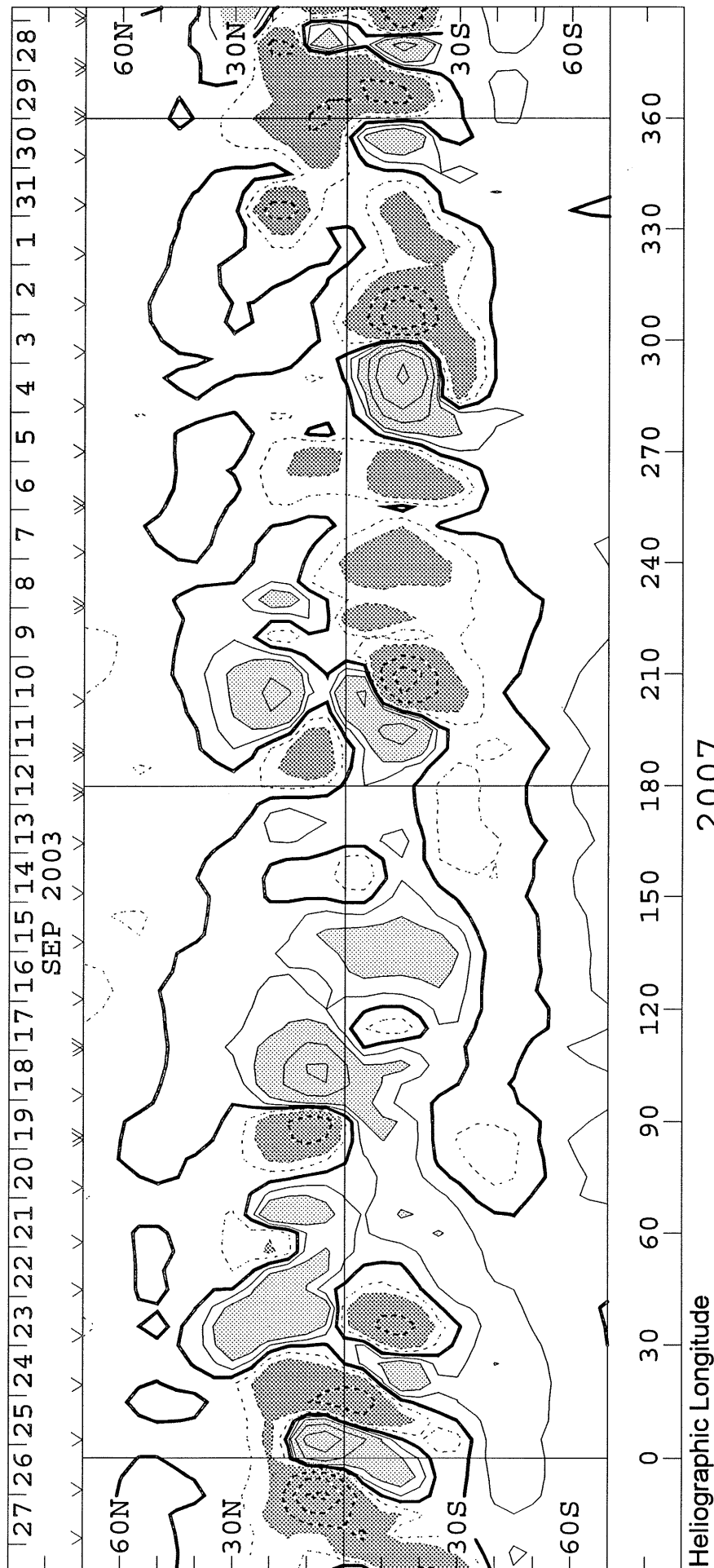
SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION NUMBER 2007
(29 August to 26 September 2003)

WILCOX SOLAR OBSERVATORY

Mean Field



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



SOLAR MAGNETIC FIELD SYNOPTIC CHART

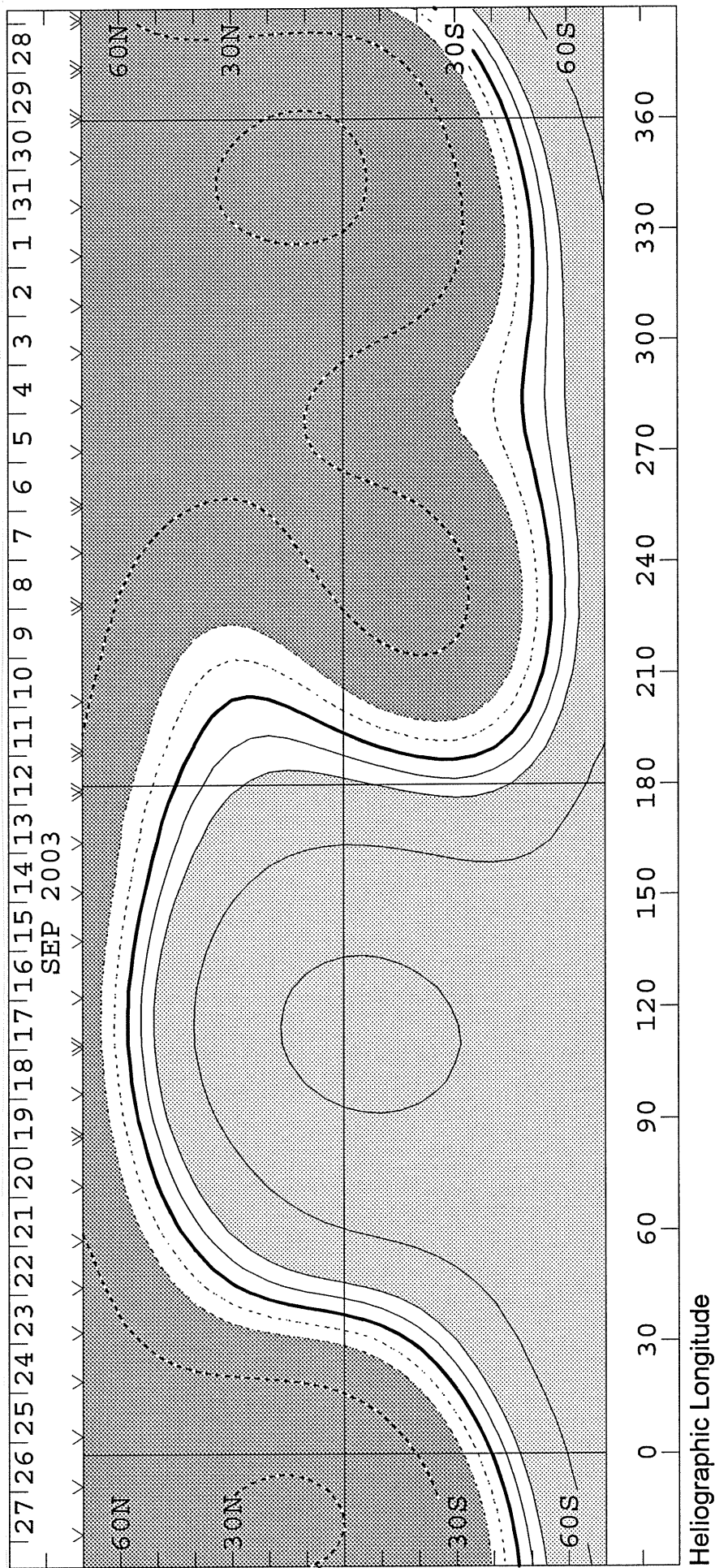
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 2007

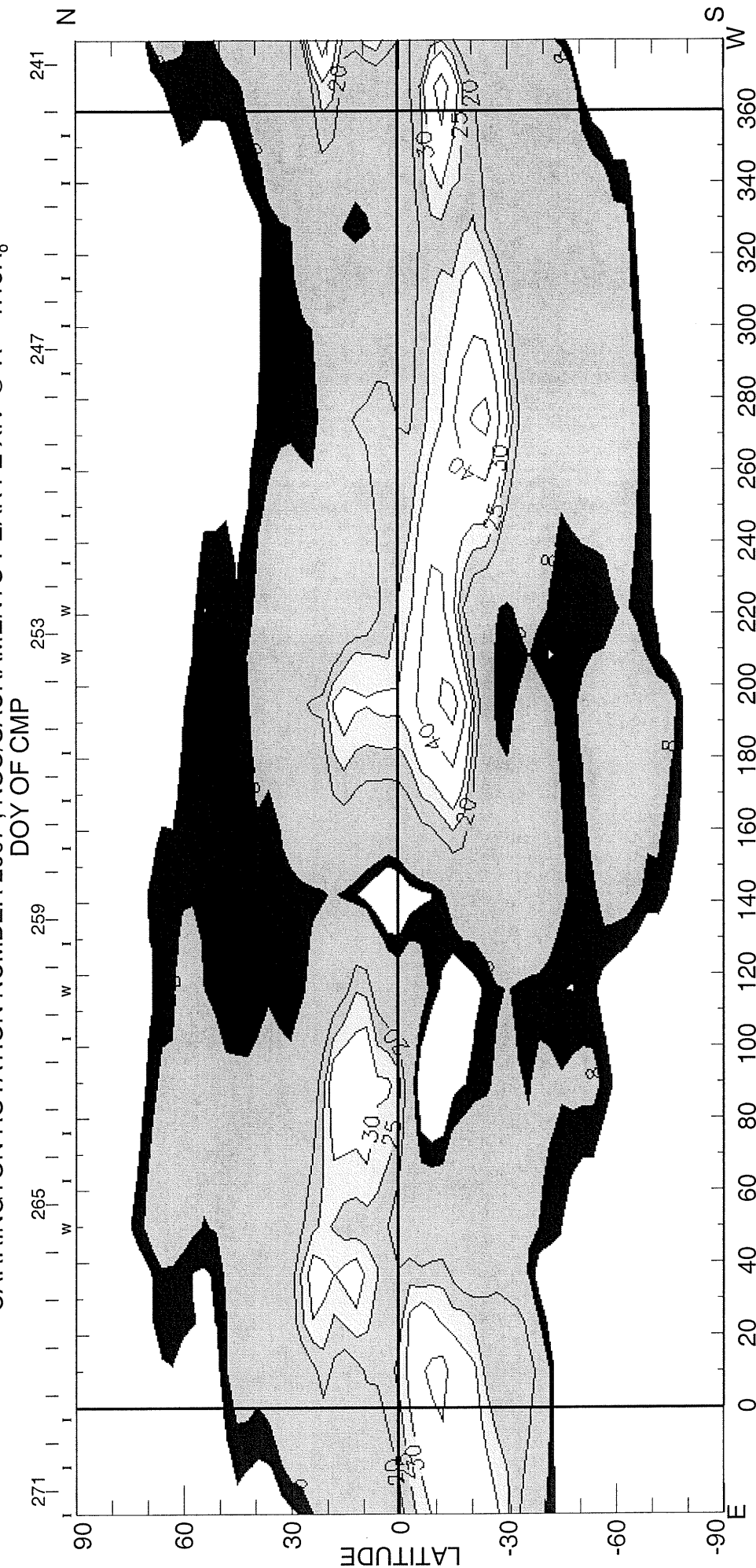
(29 August to 26 September 2003)

Wilcox Solar Observatory

0, +1, 2, 5, 10, 20 microTesla

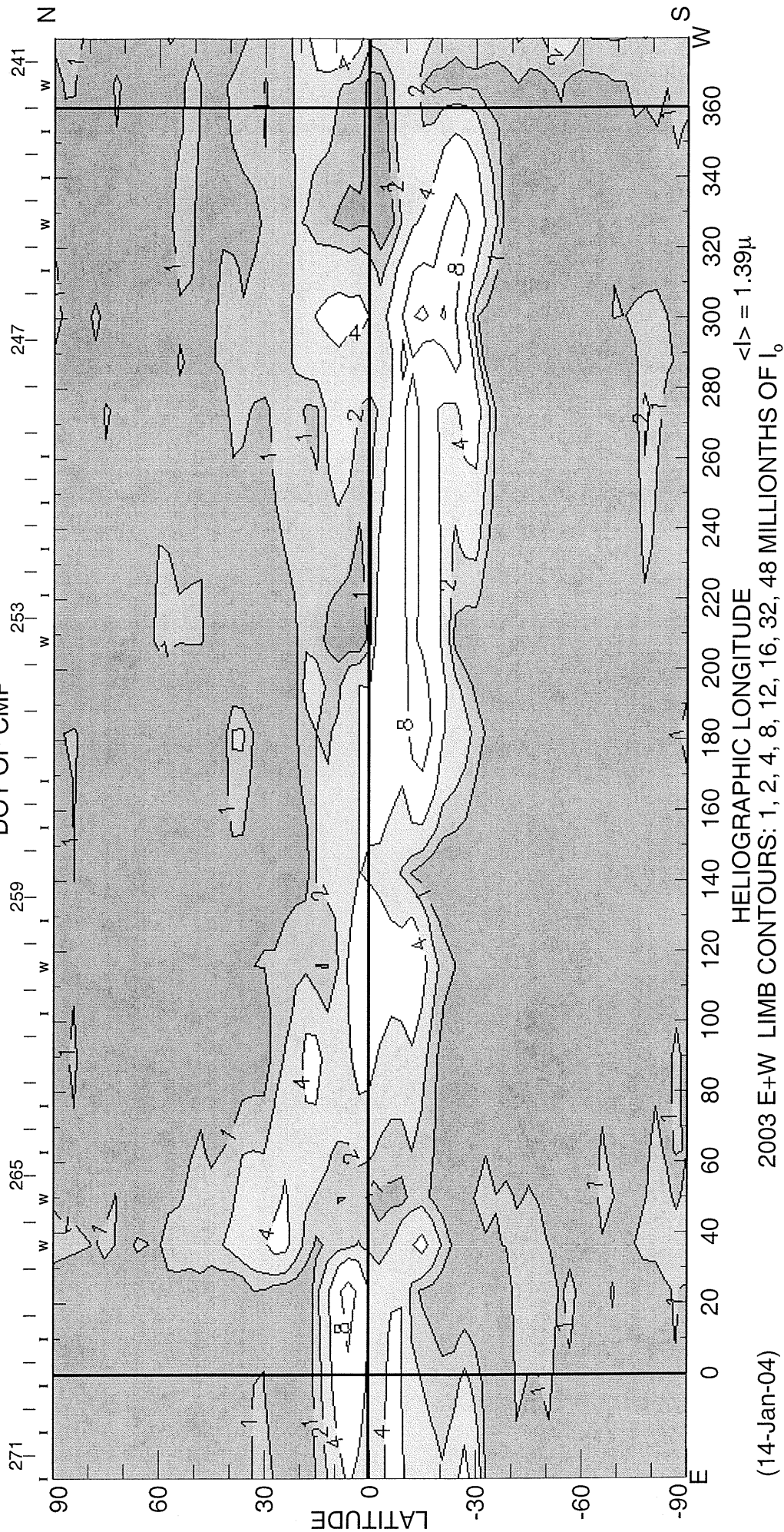


CARRINGTON ROTATION NUMBER 2007 ; NSO/SACRAMENTO PEAK FE XIV @ $R = 1.15R_{\odot}$



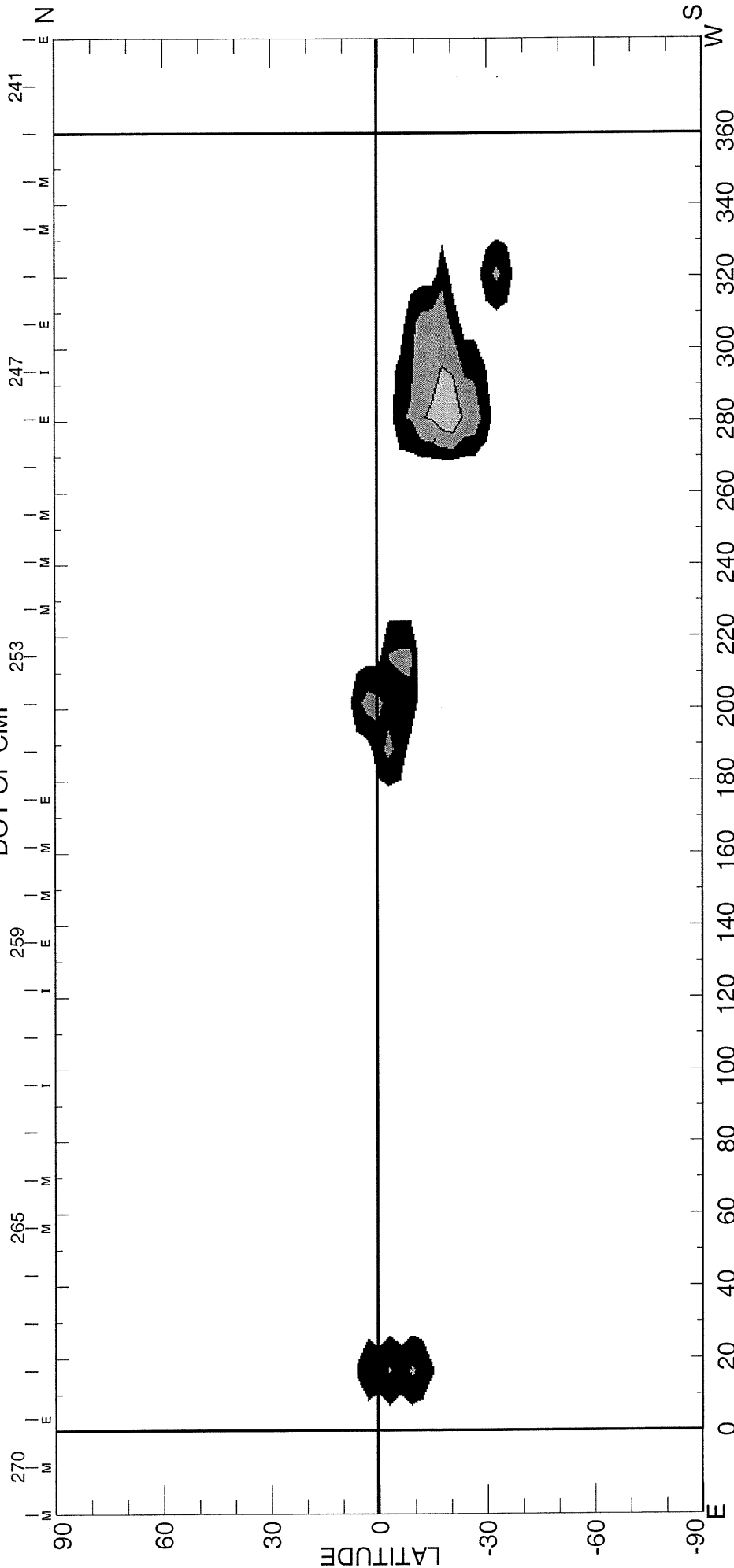
HELIOGRAPHIC LONGITUDE
2003 E+W LIMB CONTOURS: 6, 8, 20, 25, 30, 40, 50, 60, 80, 100, 120 MILLIONTHS OF $I_{\odot}$
 $<I> = 10.51\mu$
CORONAL HOLES ARE SHOWN AS WHITE BORDERED BY BLACK

CARRINGTON ROTATION NUMBER 2007; NSO/SACRAMENTO PEAK FEX @ $R = 1.15R_{\odot}$
DOY OF CMP



(14-Jan-04)

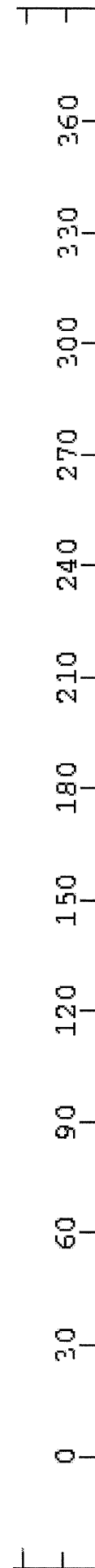
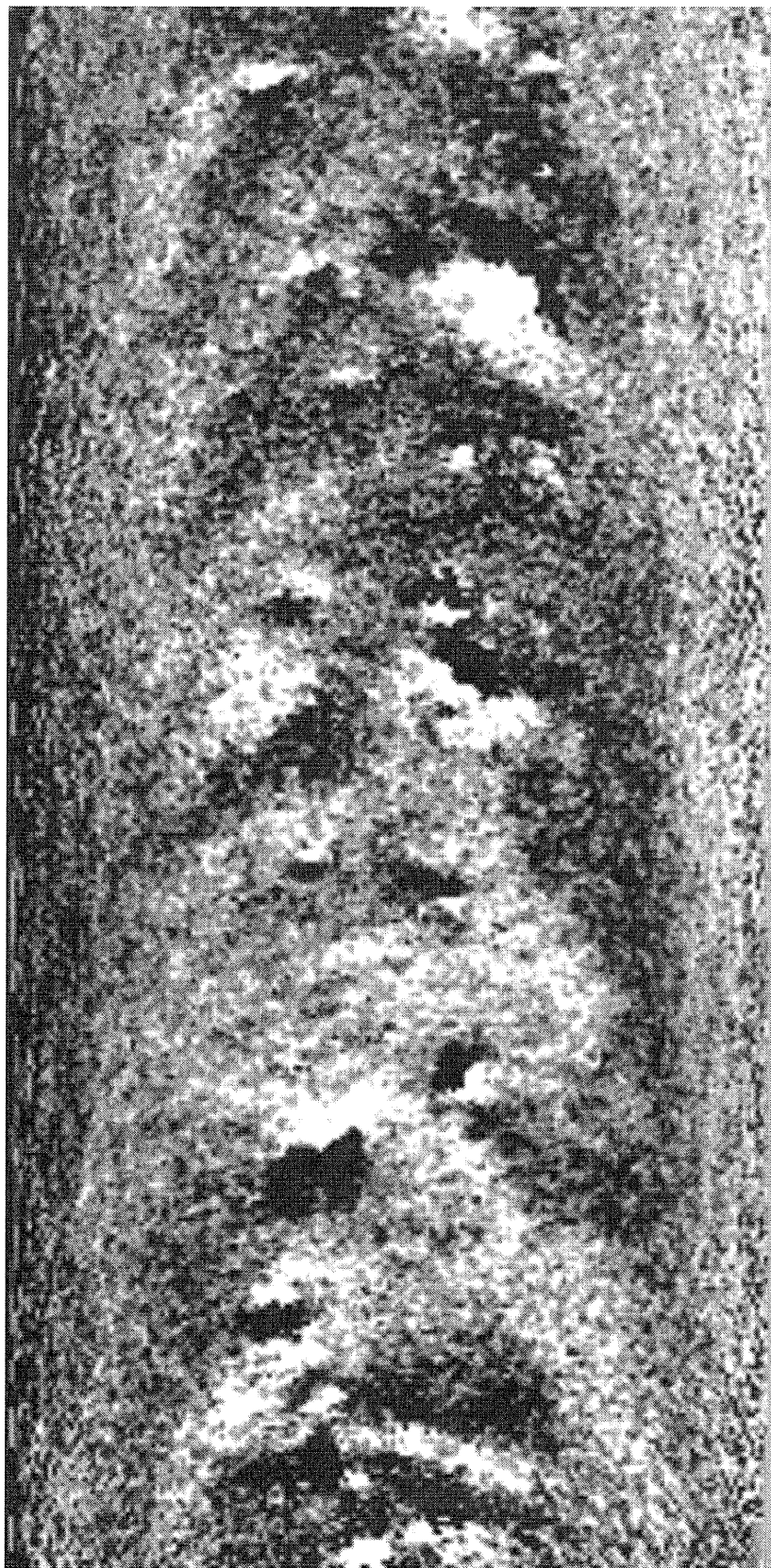
CARRINGTON ROTATION NUMBER 2007 ; NSO/SACRAMENTO PEAK CA XV @ $R = 1.15R_{\odot}$
DOY OF CMP



HELIOGRAPHIC LONGITUDE
2003 W+E LIMB CONTOURS: YELMIN, 1, 2, 3, 4, 6, 8, 10, 12, 14, 16, 18, 20 MILLIONTHS OF I_0
(14-Jan-04)

SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION NUMBER 2007
(29 August to 26 September 2003)

National Solar Observatory/Kitt Peak

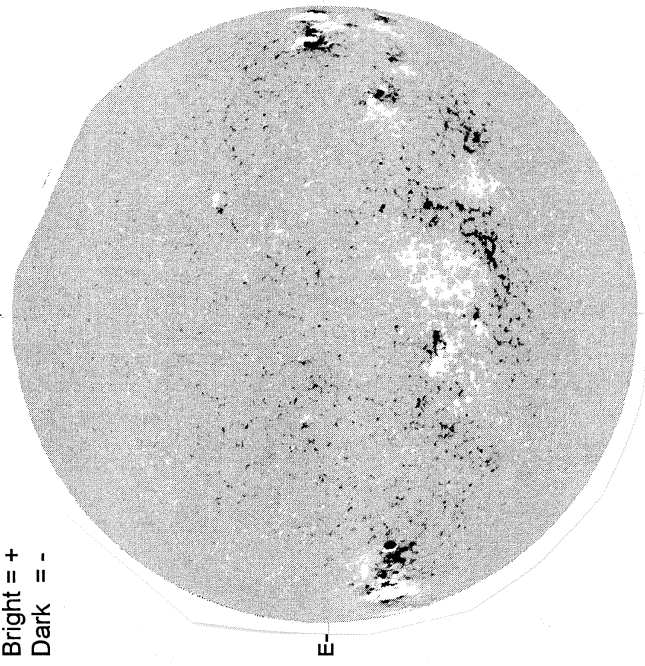


Heliographic Longitude

44
Oct 03

KITT PEAK MAGNETOGRAM--SOLIS
630.2 nm

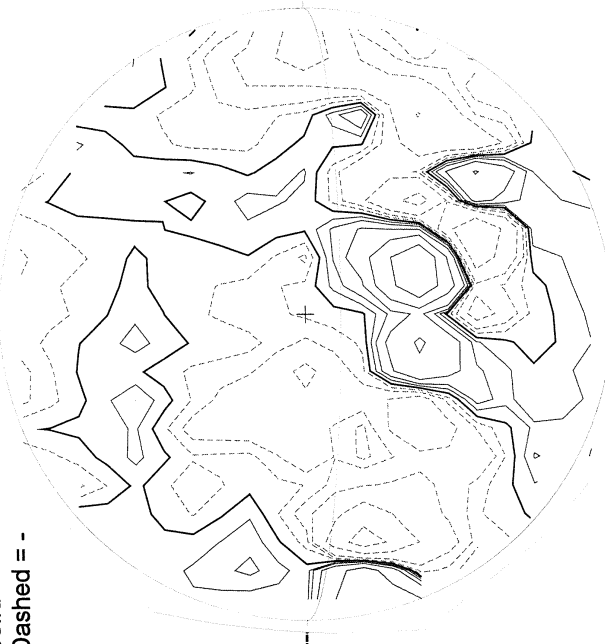
Bright = +
Dark = -



1536 UT

STANFORD MAGNETOGRAM

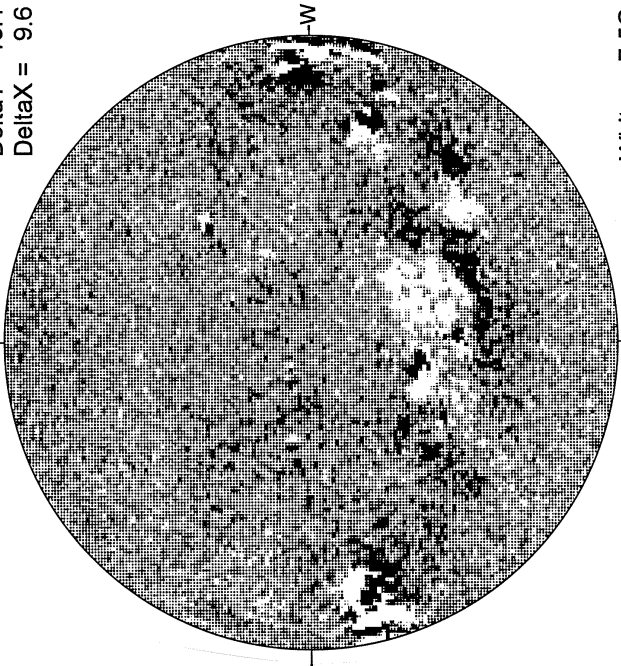
Solid = +
Dashed = -



1915 UT

MT. WILSON MAGNETOGRAM

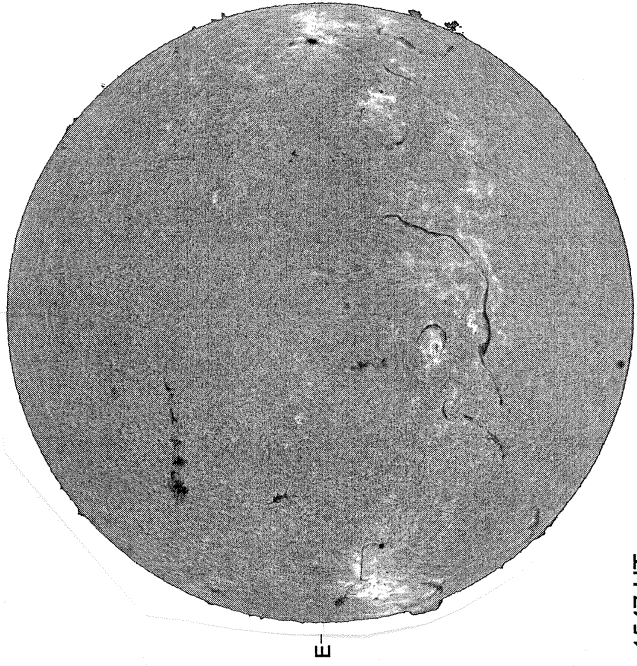
Delta Y = 13.1
Delta X = 9.6



18.24 -
19.19 UT

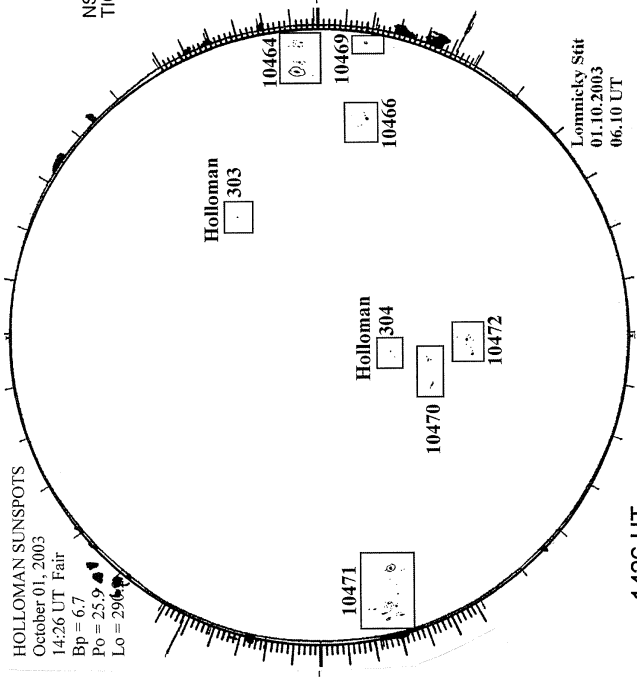
White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



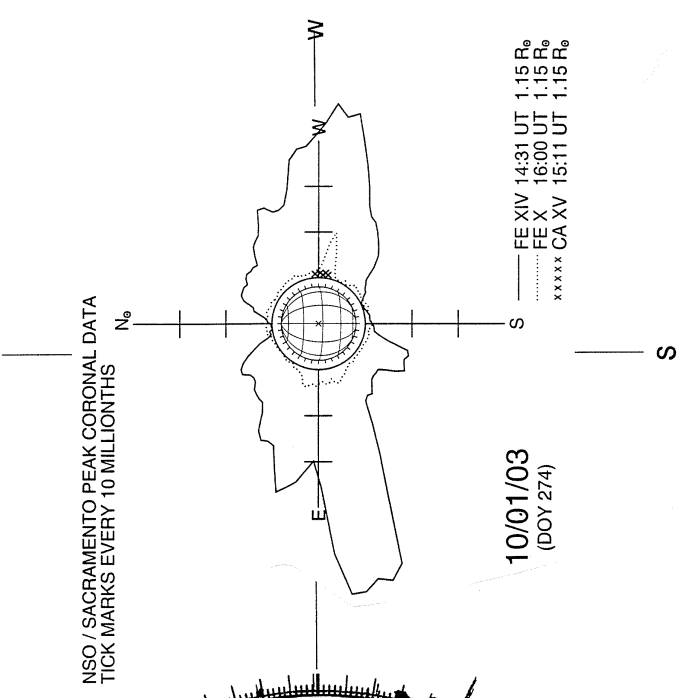
1547 UT

HOLLOMAN SUNSPOTS



1426 UT
0610 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

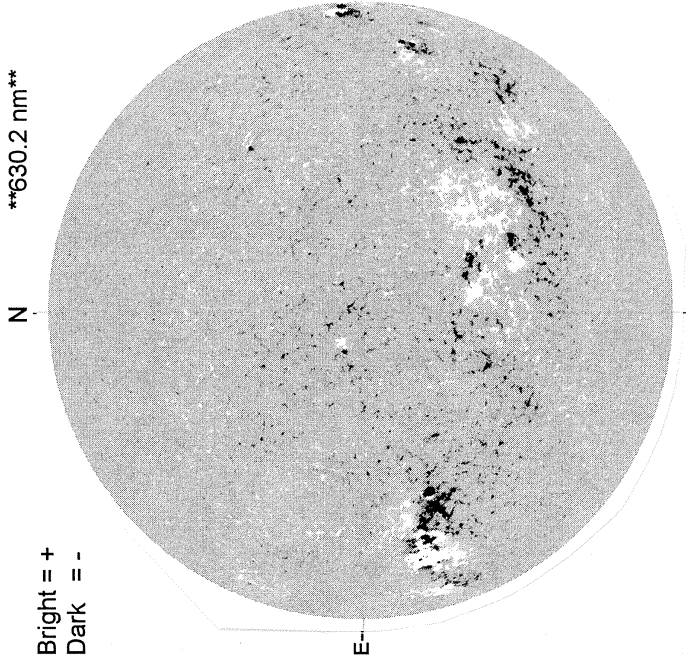


OCTOBER 2, 2003 (P= 26.01, Bo = 6.69, Lo = 284.20)

KITT PEAK MAGNETOGRAM--SOLIS

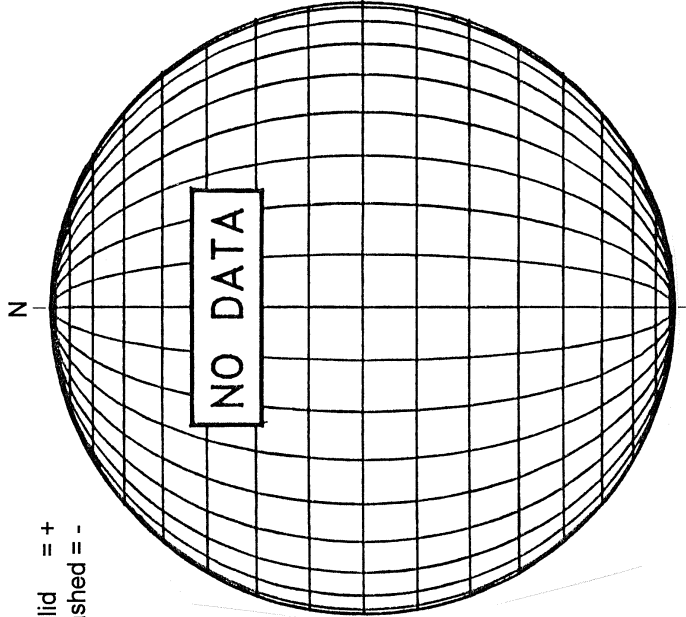
630.2 nm

Bright = +
Dark = -



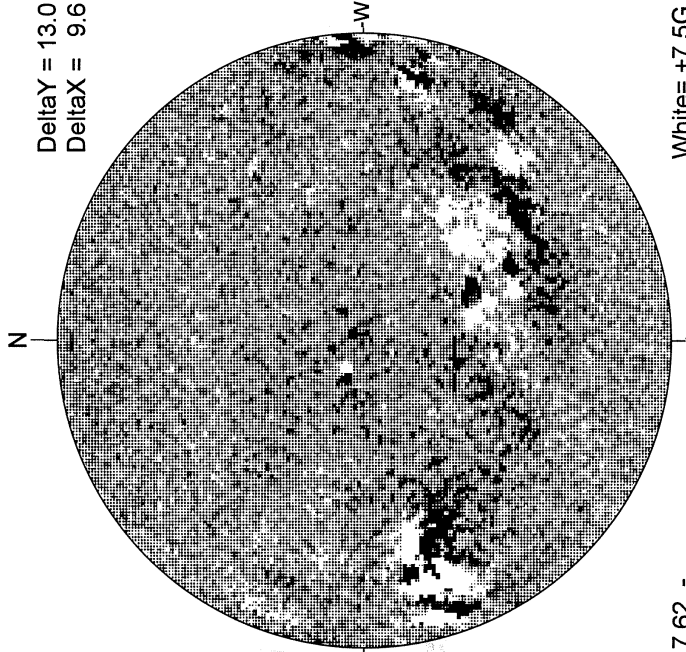
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



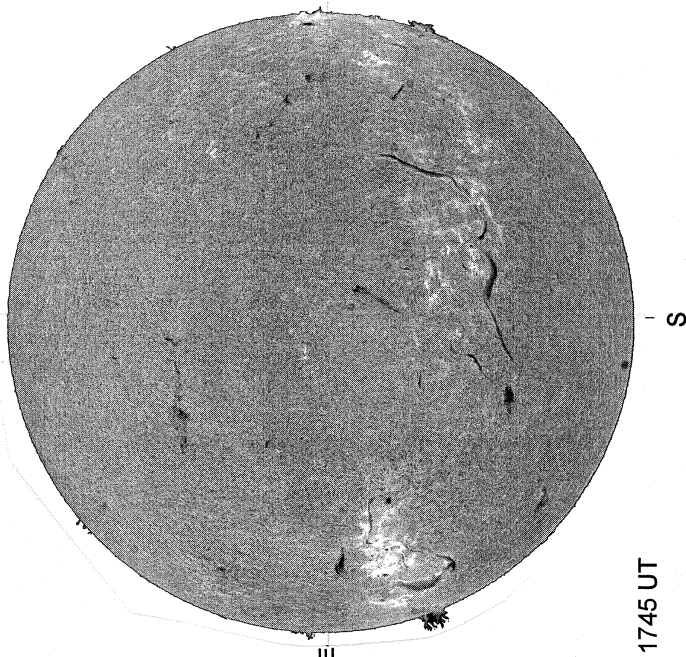
MT. WILSON MAGNETOGRAM

Delta Y = 13.0
Delta X = 9.6



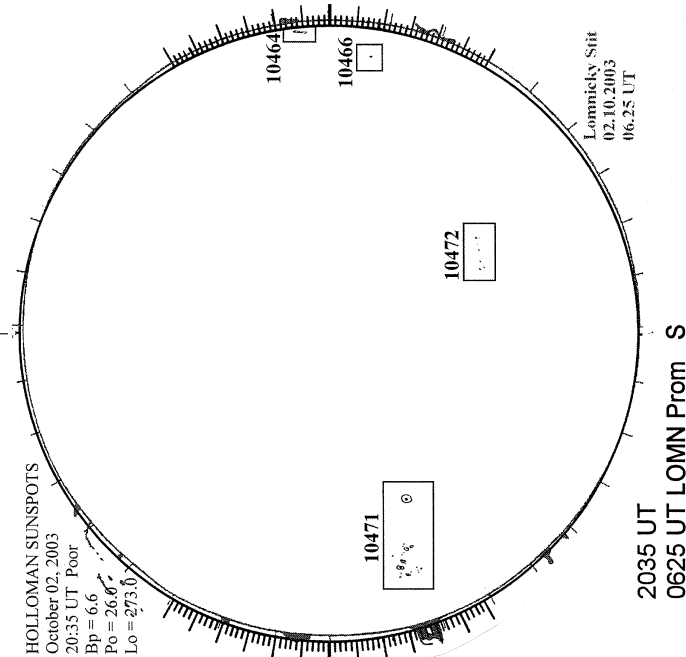
White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

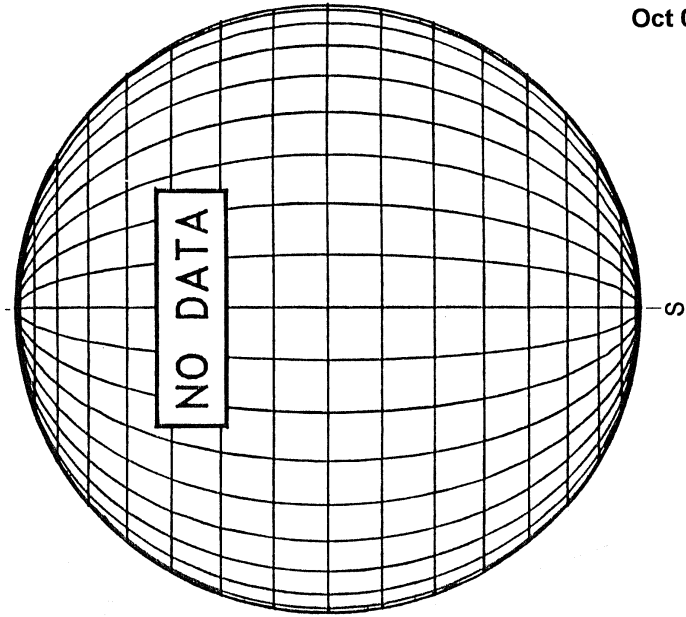


HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS
October 02, 2003
20:35 UT Poor
Bp = 6.6
Po = 26.6
Lo = 273.5



LOMNICKY PEAK CORONA (1.04 Radii)----

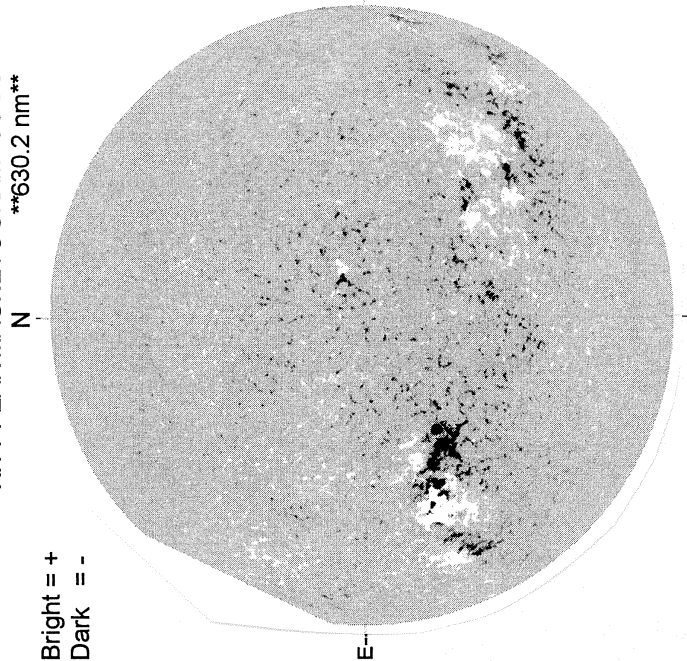


46
Oct 03

KITT PEAK MAGNETOGRAM--SOLIS

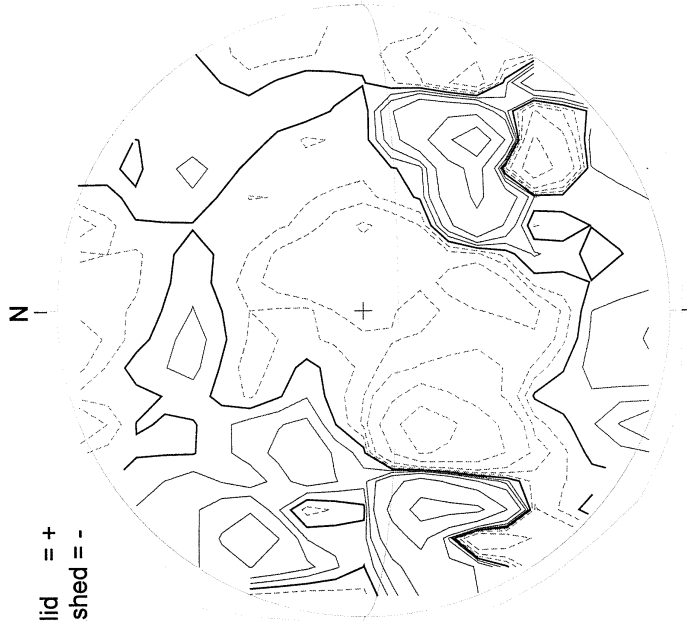
630.2 nm

Bright = +
Dark = -



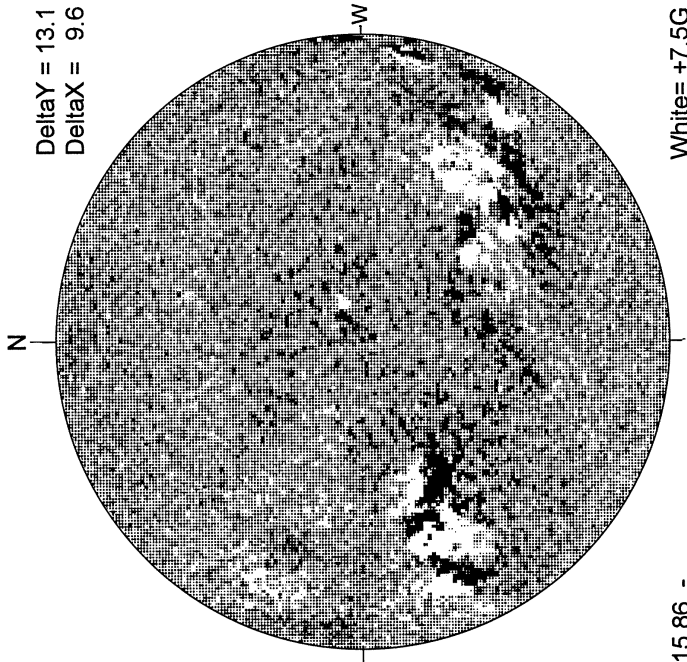
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



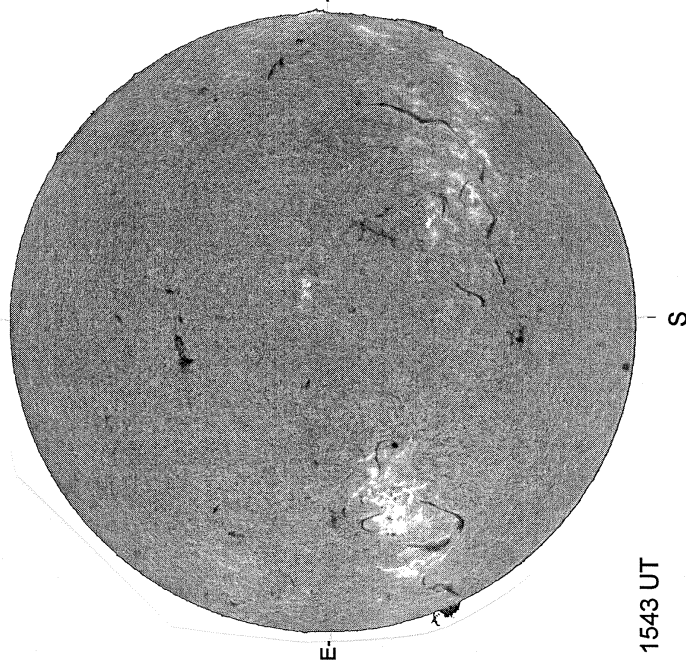
1829 UT

1914 UT

15.86 -
16.81 UT

White = +7.5G
Black = -7.5G

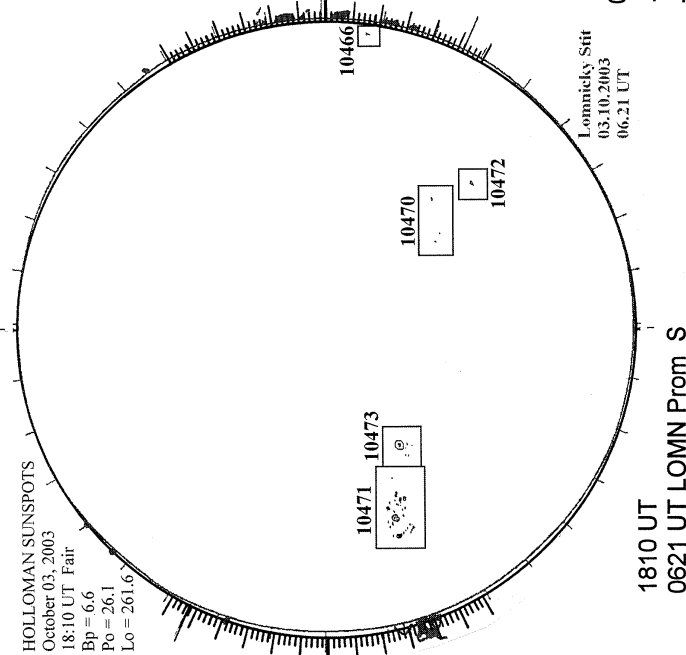
BIG BEAR H-ALPHA



1543 UT

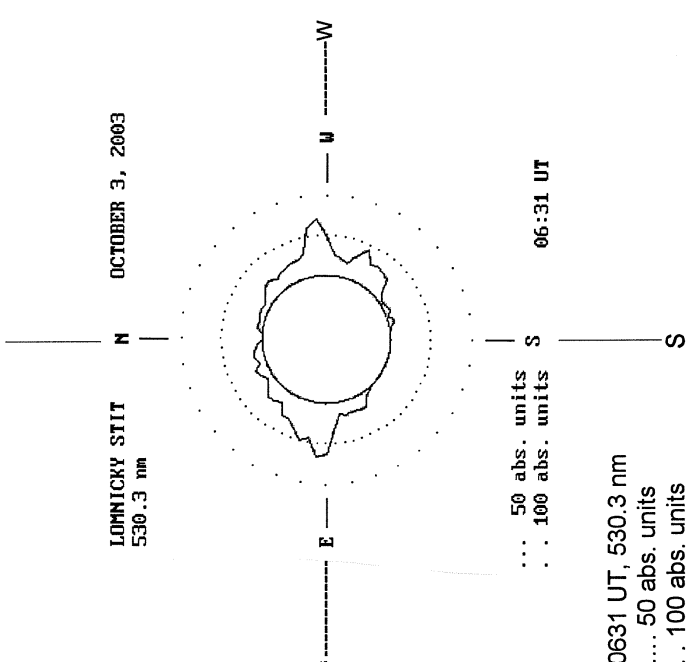
HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS
October 03, 2003
18:10 UT Fair
Bp = 6.6
Po = 26.1
Lo = 261.6



1810 UT
0621 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



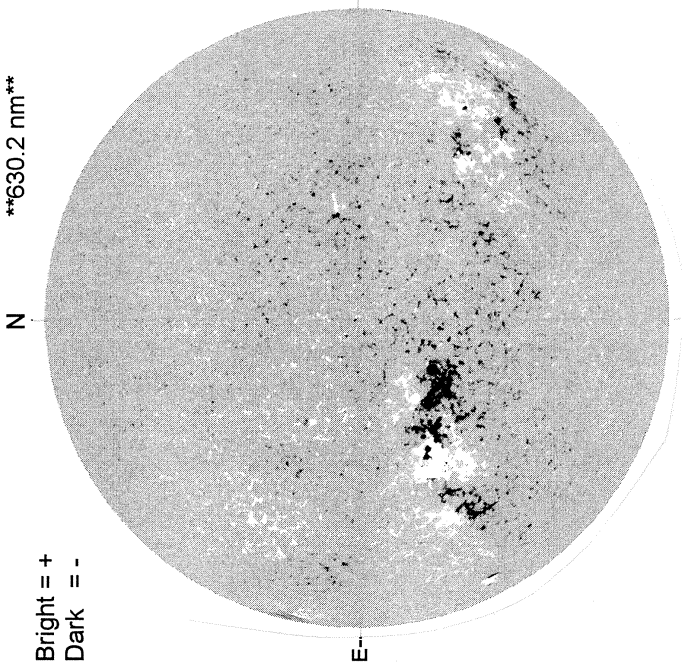
0631 UT, 530.3 nm
... 50 abs. units
.. 100 abs. units

OCTOBER 4, 2003 (P= 26.13, Bo = 6.59, Lo = 257.81)

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

Bright = +
Dark = -



1657 UT

STANFORD MAGNETOGRAM

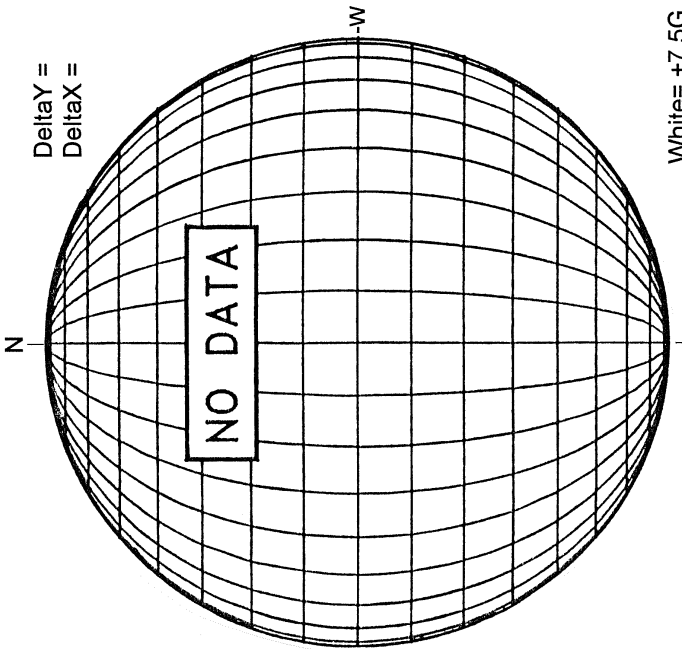
Solid = +
Dashed = -



1915 UT

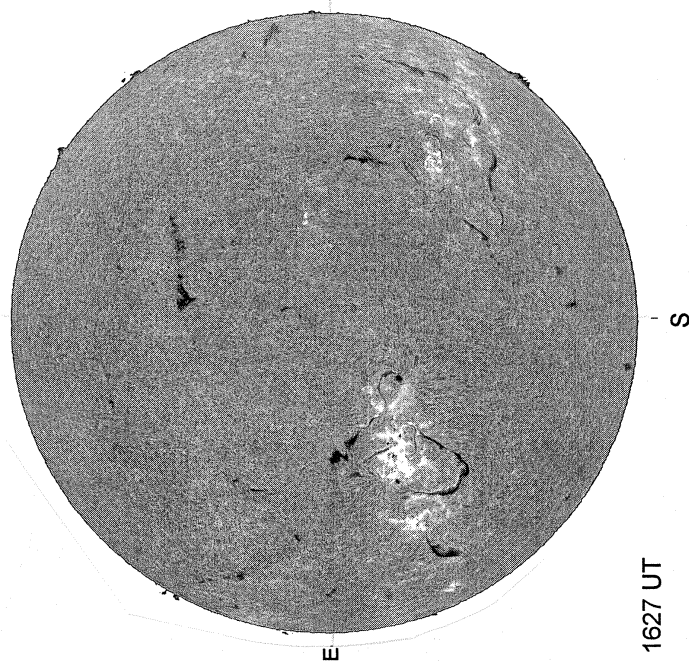
MT. WILSON MAGNETOGRAM

Delta Y =
Delta X =



White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

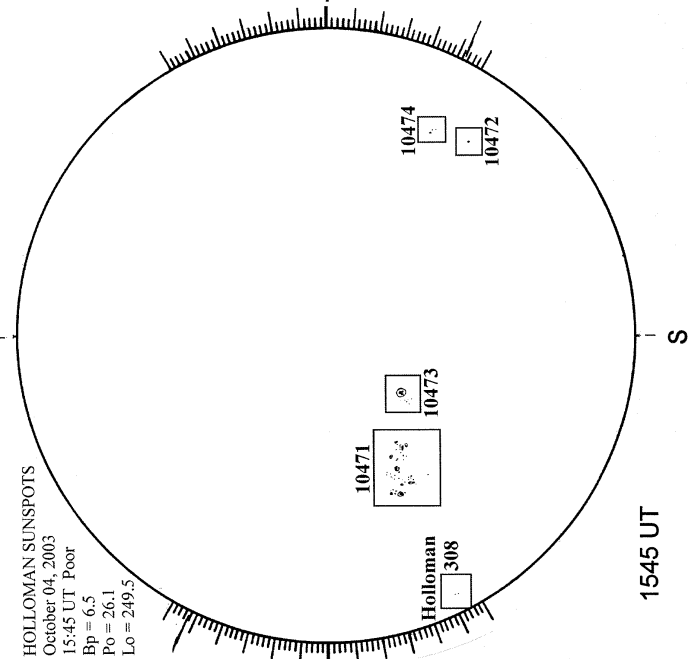


1627 UT

HOLLOMAN SUNSPOT

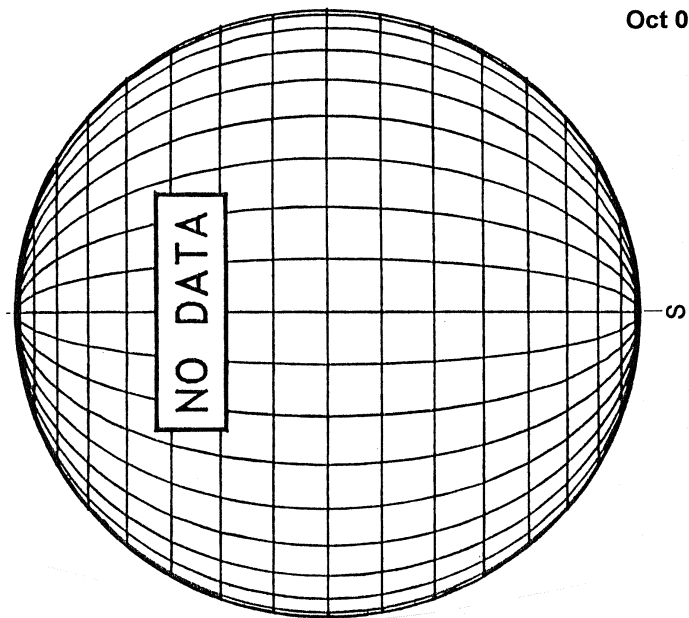
HOLLOMAN SUNSPOTS

October 04, 2003
15:45 UT Poor
Bp = 6.5
Po = 26.1
Lo = 249.5



1545 UT

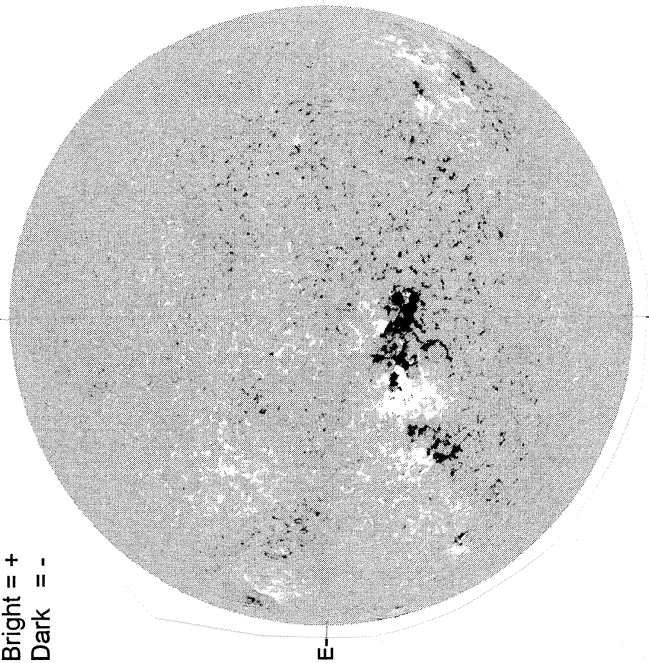
SACRAMENTO PEAK CORONA (1.15 Radii)----



KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

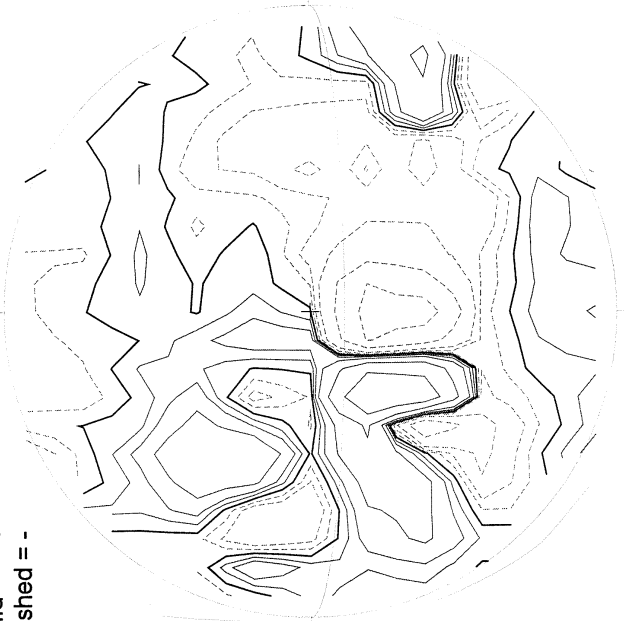
Bright = +
Dark = -



1649 UT

STANFORD MAGNETOGRAM

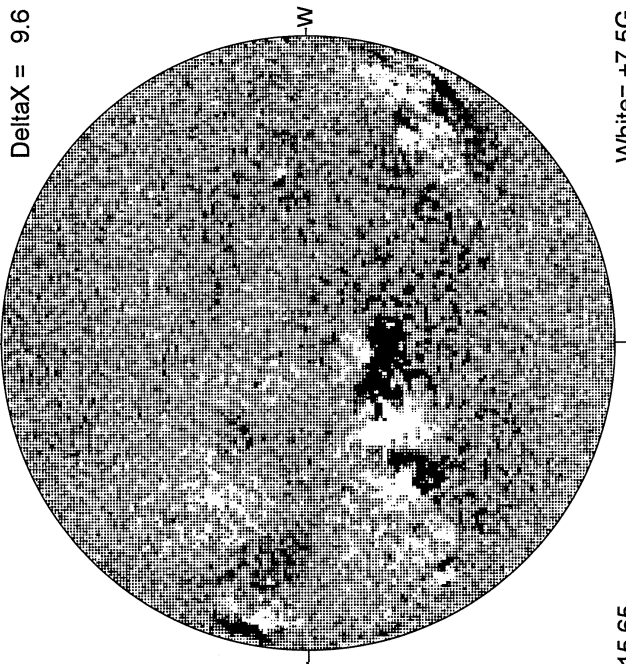
Solid = +
Dashed = -



1919 UT

MT. WILSON MAGNETOGRAM

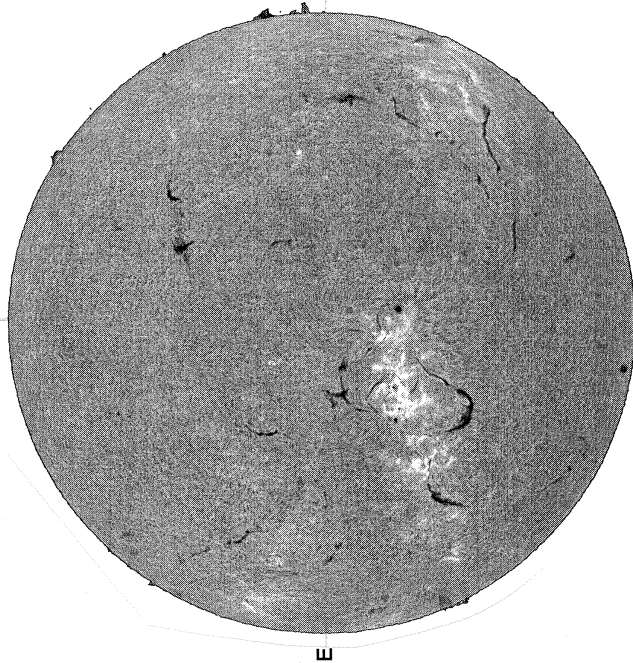
DeltaY = 13.1
DeltaX = 9.6



15.65 -
16.60 UT

White= +7.5G
Black = -7.5G

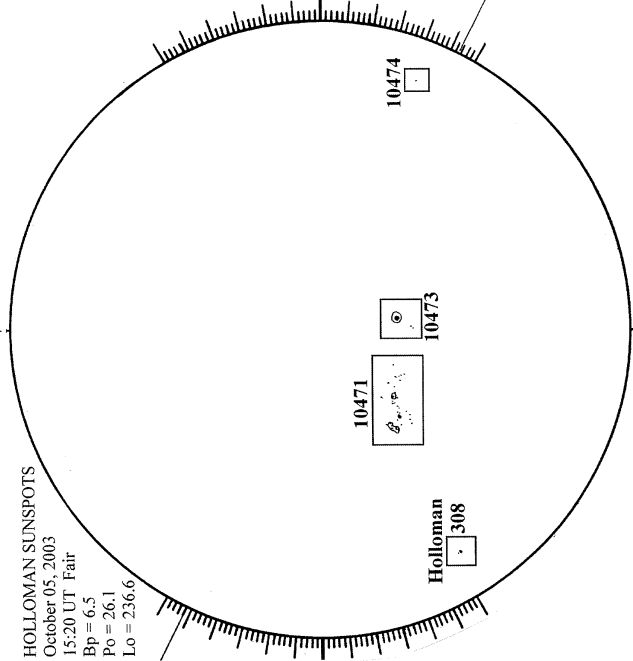
BIG BEAR H-ALPHA



1610 UT

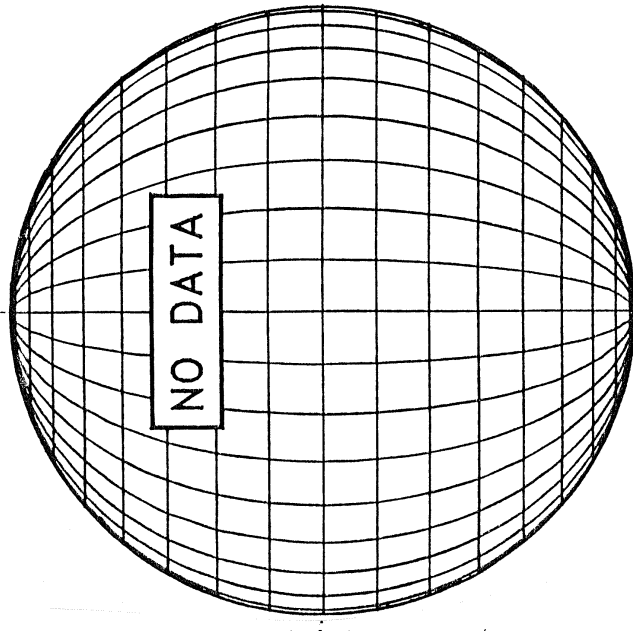
HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS
October 05, 2003
15:20 UT Fair
Bp = 6.5
Po = 26.1
Lo = 236.6



1520 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



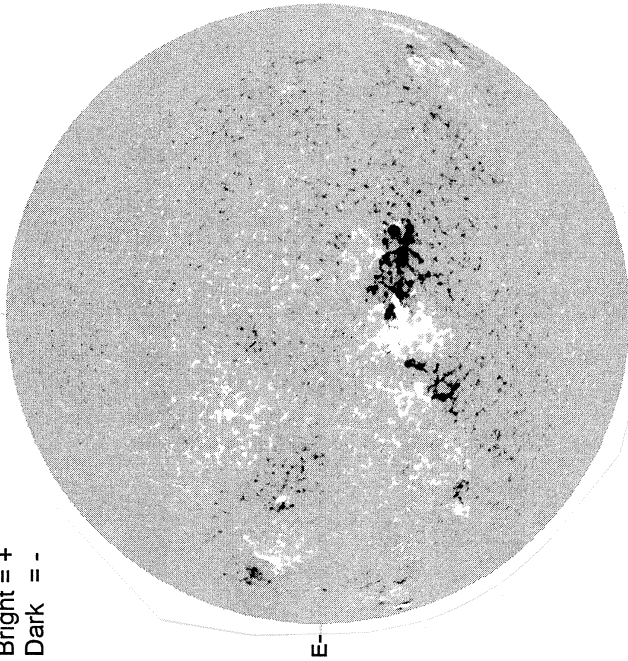
S

OCTOBER 6, 2003 (P= 26.21, Bo = 6.49, Lo = 231.42)

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

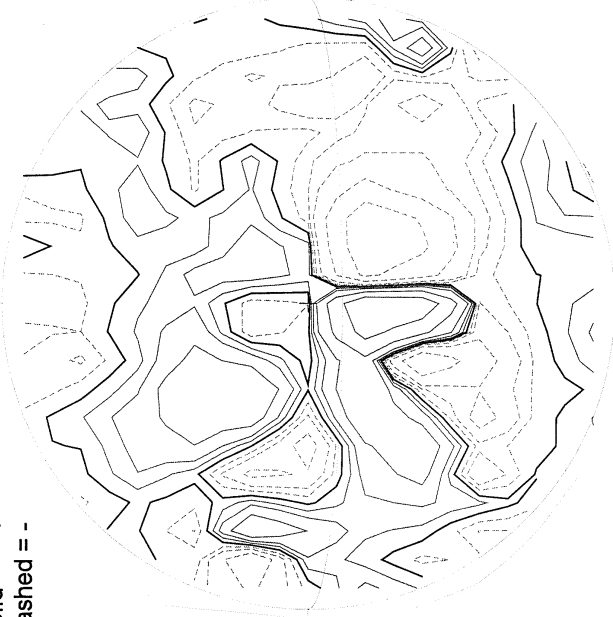
Bright = +
Dark = -



1530 UT

STANFORD MAGNETOGRAM

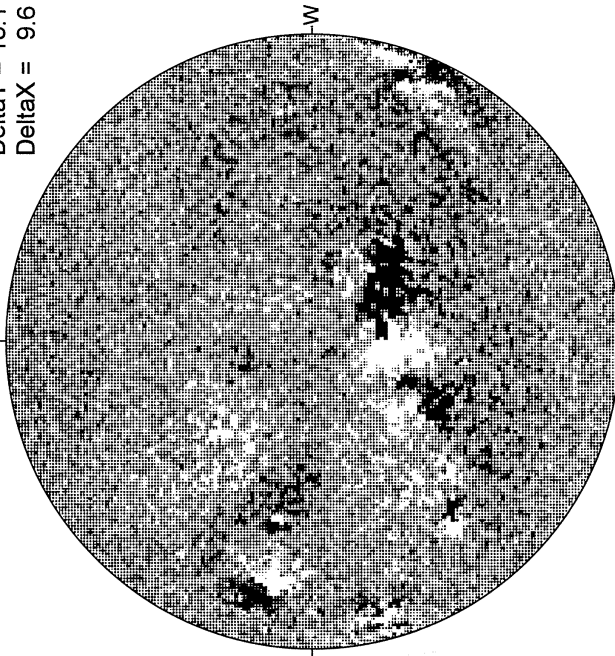
Solid = +
Dashed = -



1807 UT

MT. WILSON MAGNETOGRAM

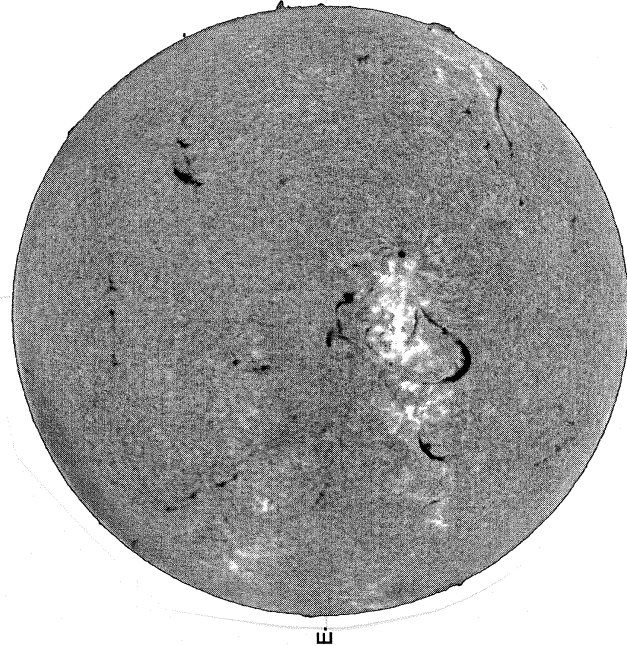
Delta Y = 13.1
Delta X = 9.6



18.76 -
19.71 UT

White = +7.5G
Black = -7.5G

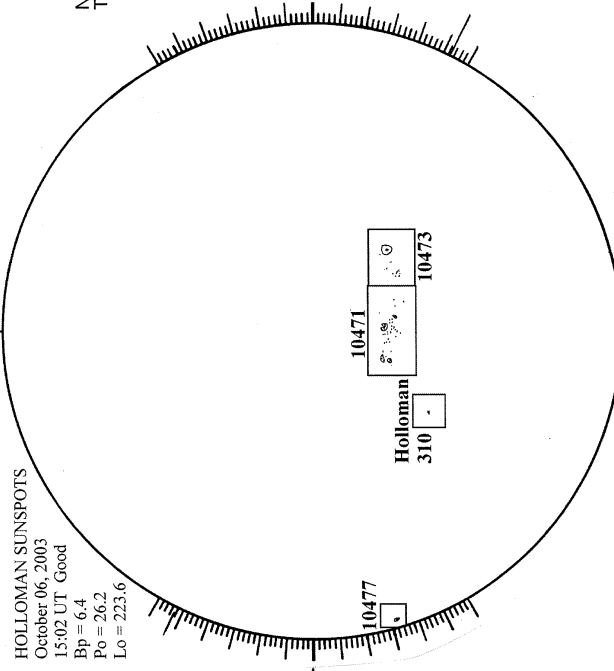
KANZELHOHE H-ALPHA



0914 UT

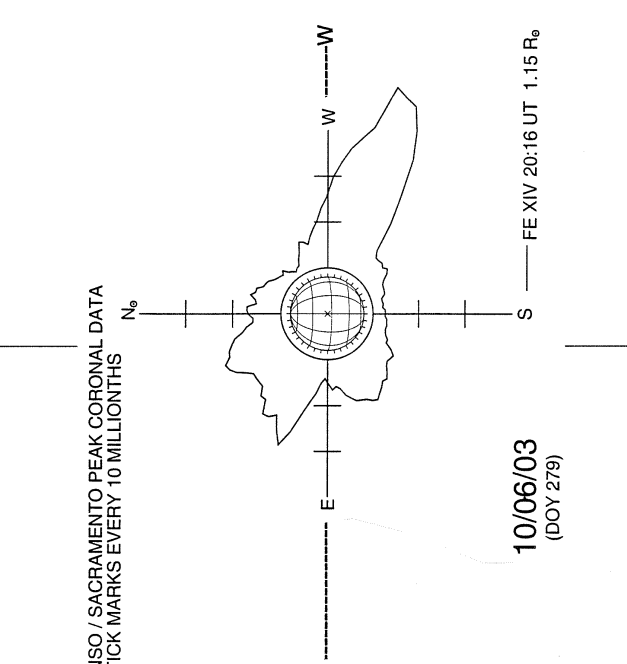
HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS
October 06, 2003
15:02 UT Good
Bp = 6.4
Po = 26.2
Lo = 223.6



1502 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

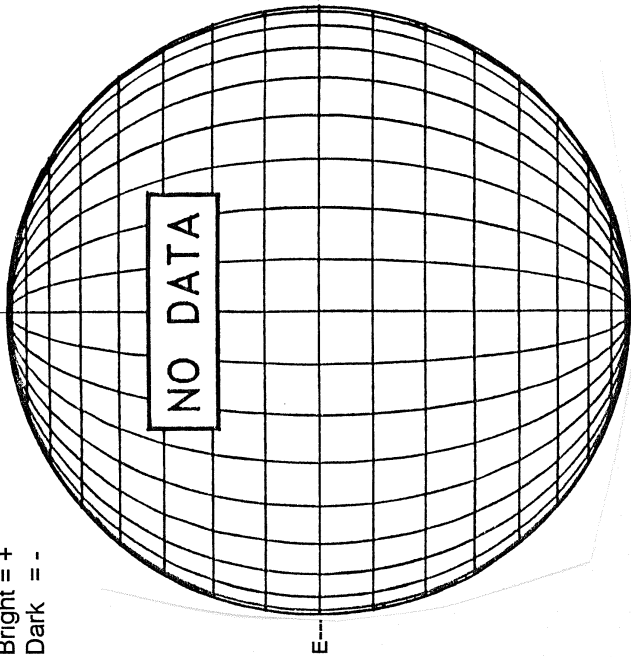


10/06/03
(DOY 279)

OCTOBER 7, 2003 (P= 26.24, Bo = 6.43, Lo = 218.23)

KITT PEAK MAGNETOGRAM--SOLIS
630.2 nm

Bright = +
Dark = -



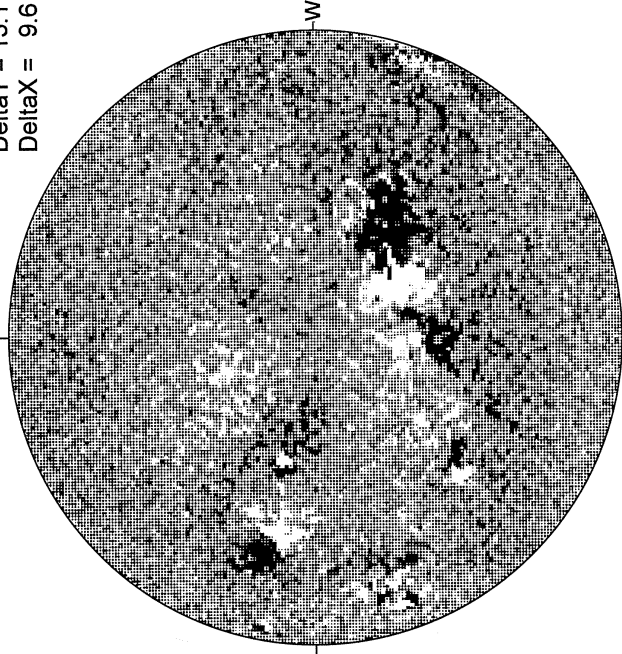
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

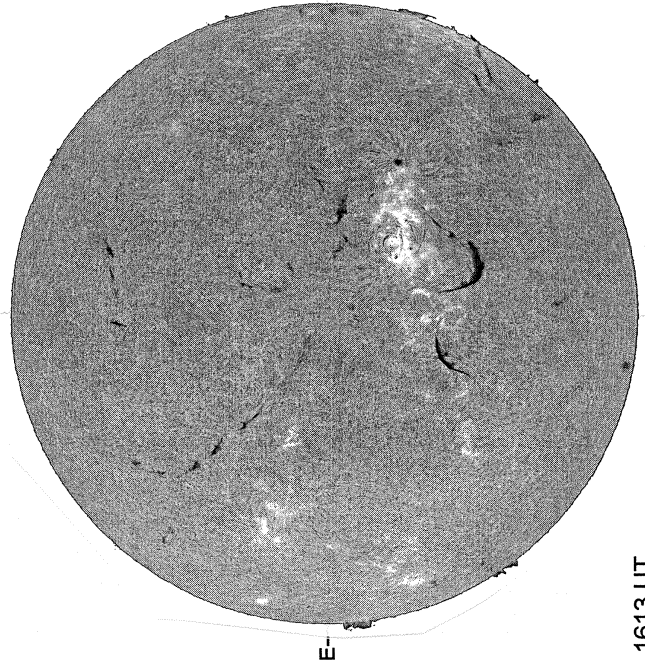
DeltaY = 13.1
DeltaX = 9.6



15.89 -
16.84 UT

White= +7.5G
Black = -7.5G

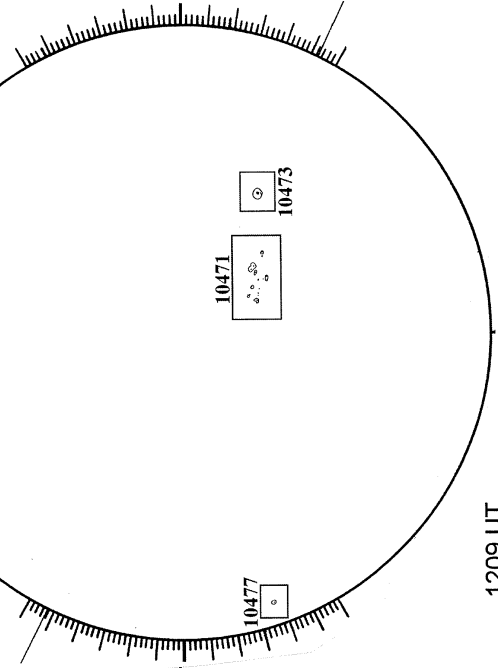
BIG BEAR H-ALPHA



1613 UT

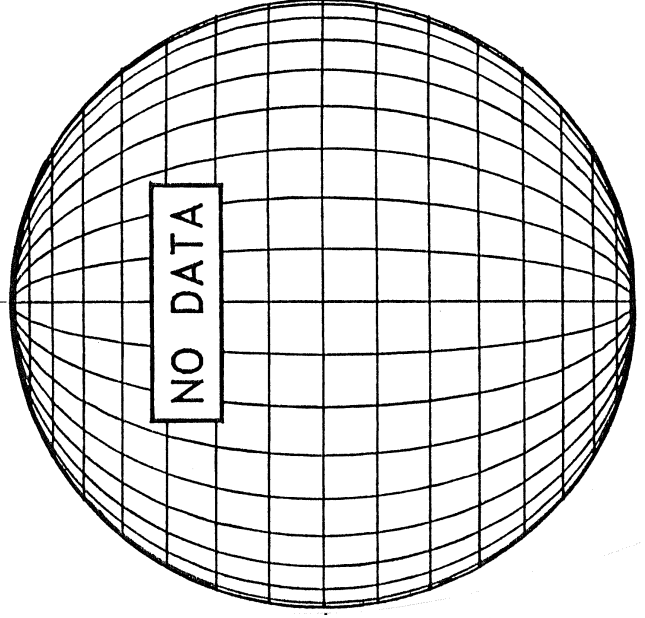
SAN VITO SUNSPOTS

SAN VITO SUNSPOTS
October 07, 2003
12:09 UT Poor
Bp = 6.4
Po = 26.2
Lo = 213.2



1209 UT

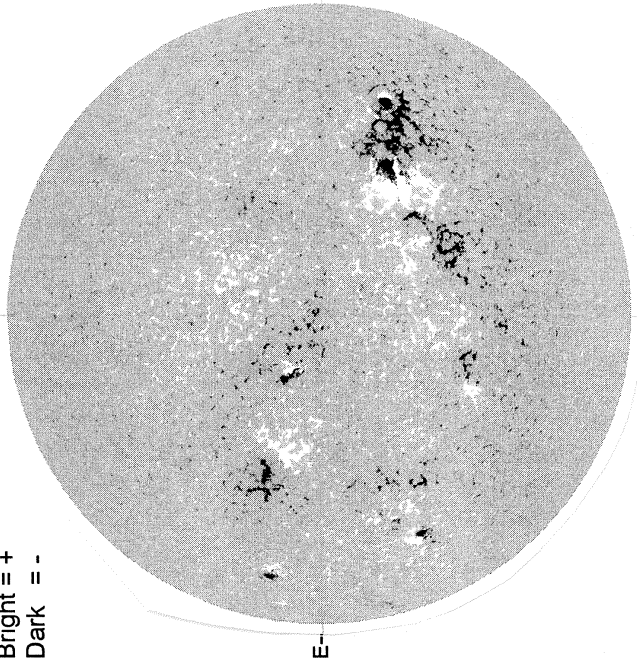
SACRAMENTO PEAK CORONA (1.15 Radii)----



S

KITT PEAK MAGNETOGRAM--SOLIS
630.2 nm

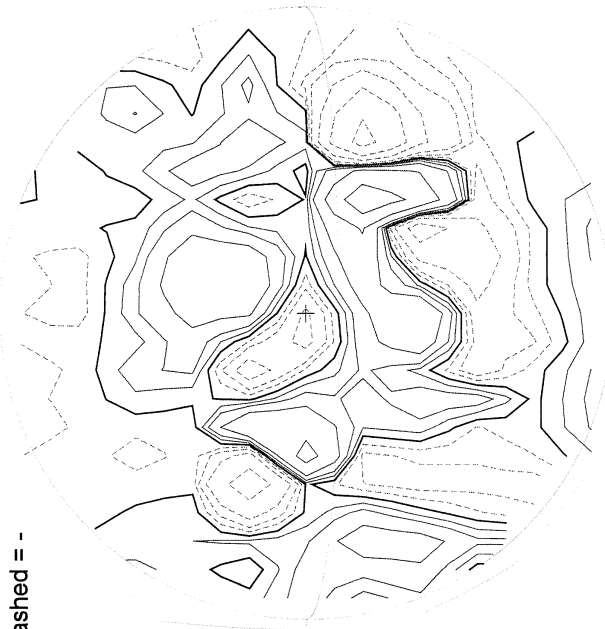
Bright = +
Dark = -



1730 UT

STANFORD MAGNETOGRAM

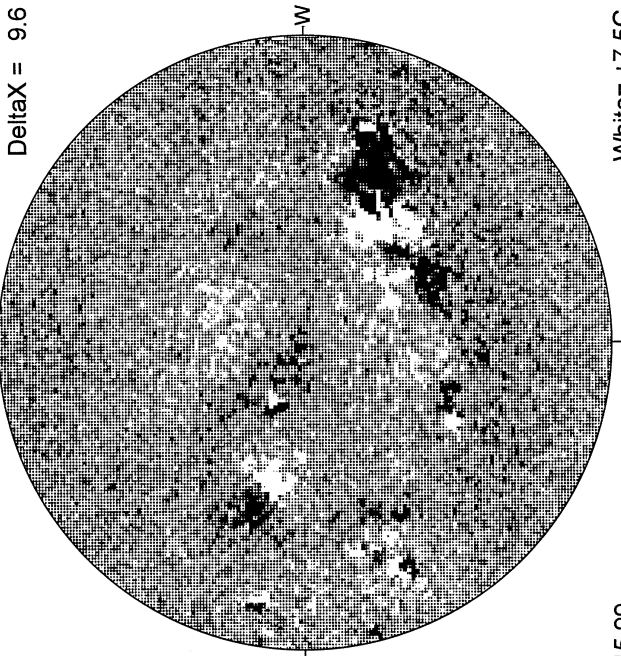
Solid = +
Dashed = -



1858 UT

MT. WILSON MAGNETOGRAM

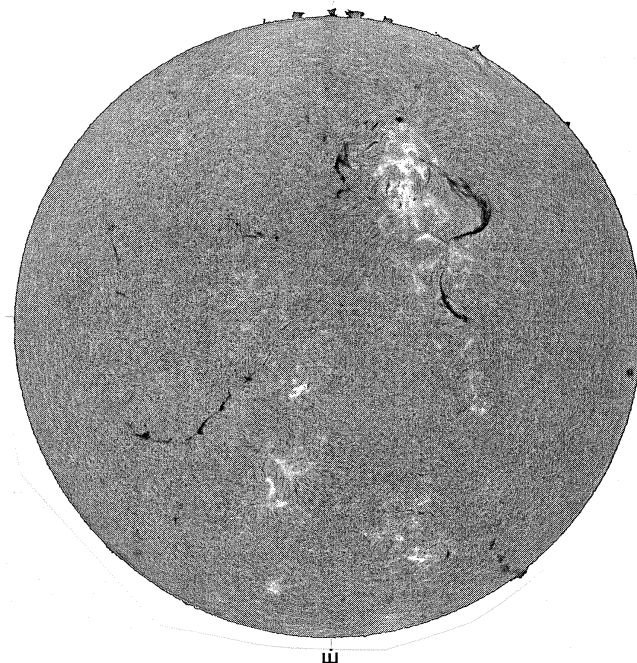
DeltaY = 13.1
DeltaX = 9.6



15.99 -
16.95 UT

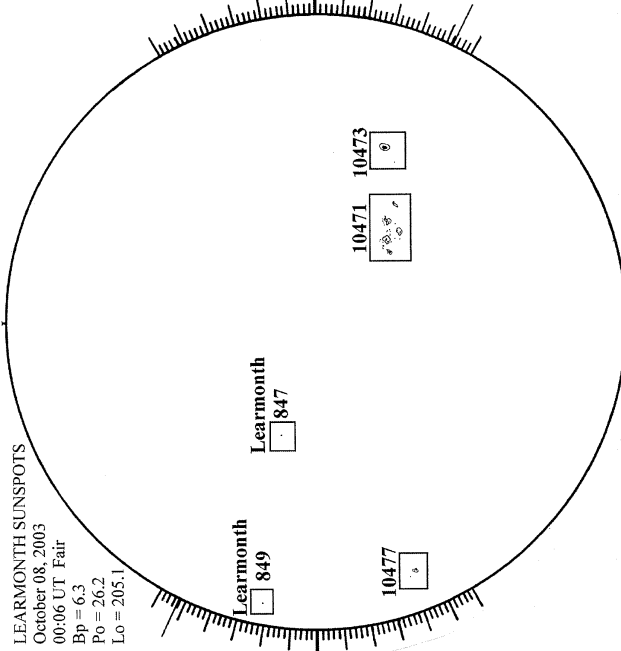
White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



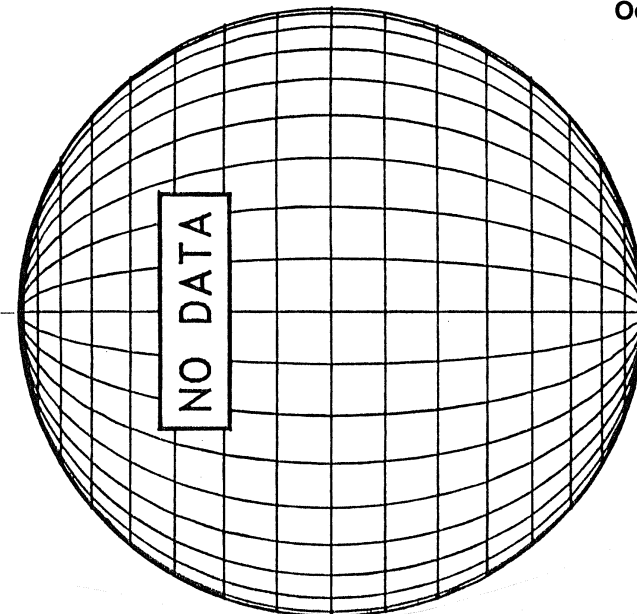
1532 UT

HOLLOMAN SUNSPOT



LEARMONTH SUNSPOTS
October 08, 2003
00:06 UT Fair
Bp = 6.3
Po = 26.2
Lo = 205.1

SACRAMENTO PEAK CORONA (1.15 Radii)----

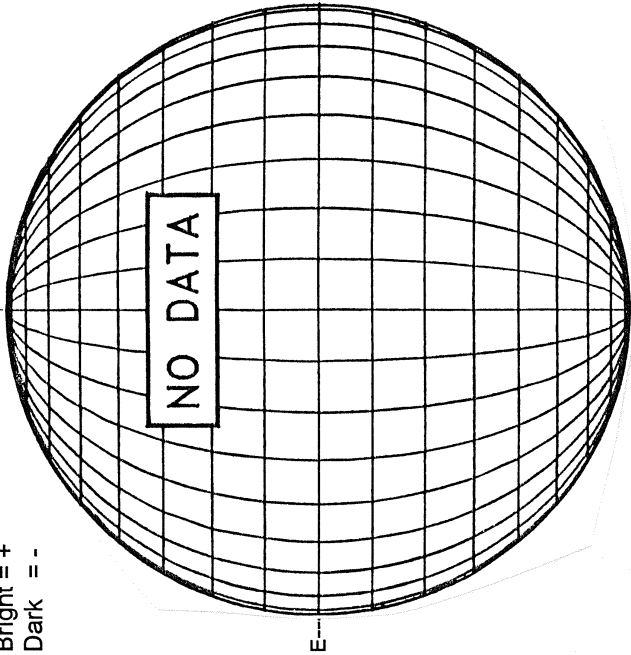


OCTOBER 9, 2003 (P= 26.28, Bo = 6.31, Lo = 191.84)

KITT PEAK MAGNETOGRAM--SOLIS

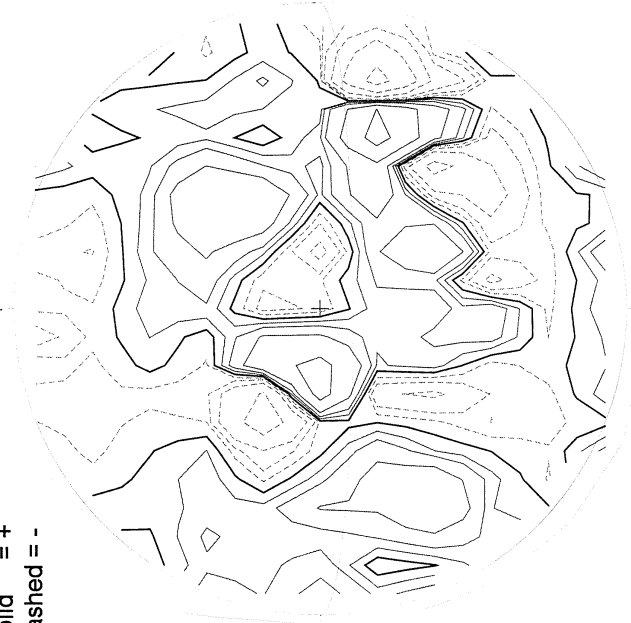
**630.2 nm

Bright = +
Dark = -



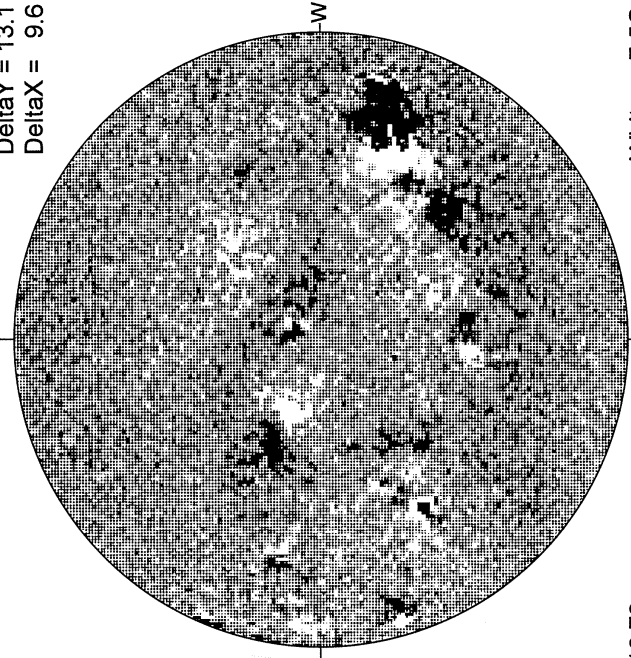
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

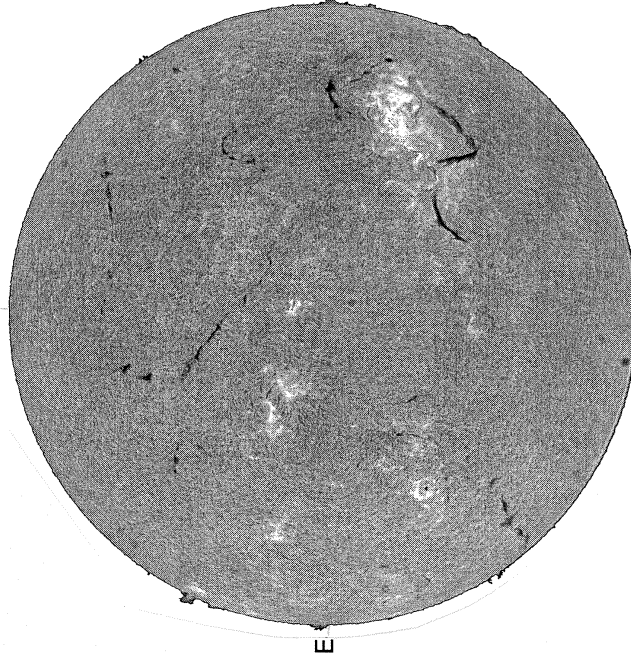
DeltaY = 13.1
DeltaX = 9.6



16.72 -
17.66 UT

White= +7.5G
Black = -7.5G

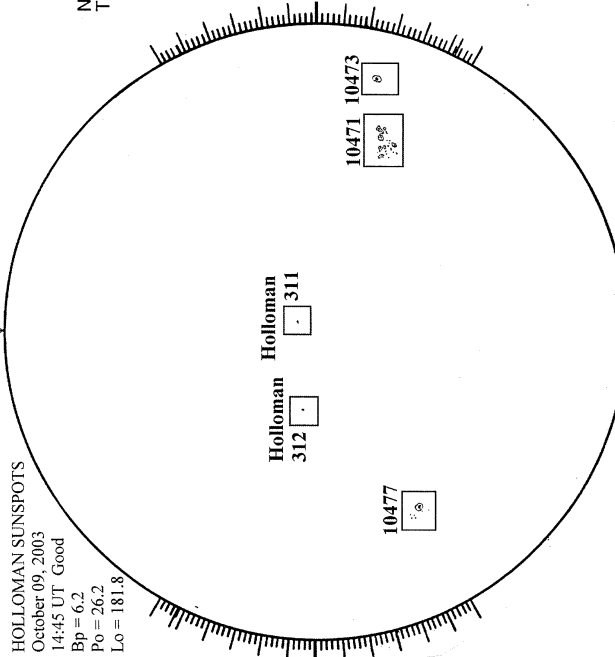
BIG BEAR H-ALPHA



1608 UT

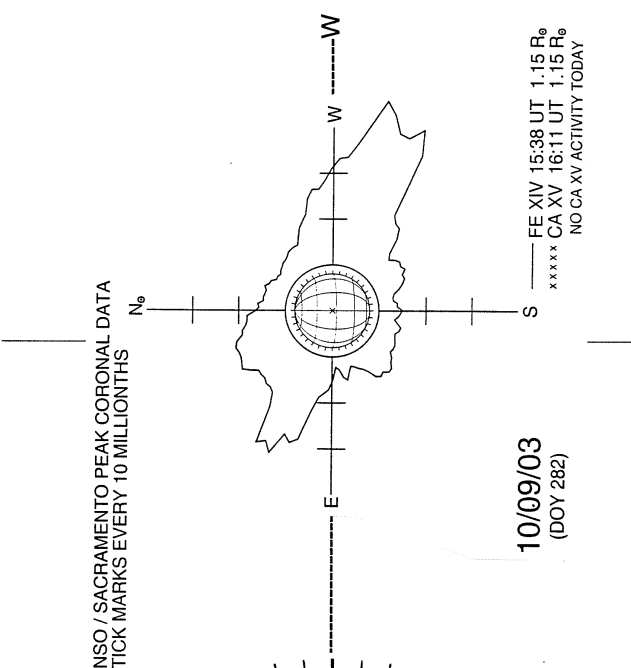
HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS
October 09, 2003
14:45 UT Good
Bp = 6.2
Po = 26.2
Lo = 181.3



1445 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



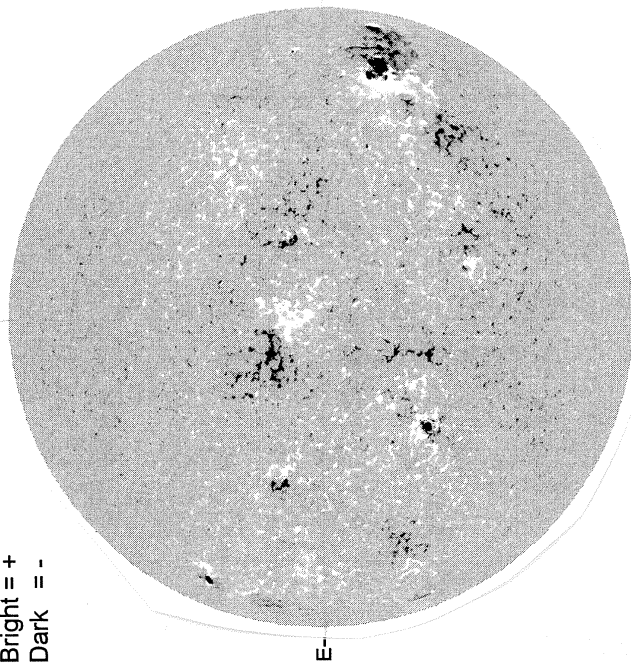
10/09/03
(DOY 282)

FE XIV 15:38 UT 1.15 R_o
CA XV 16:11 UT 1.15 R_o
NO CA XV ACTIVITY TODAY

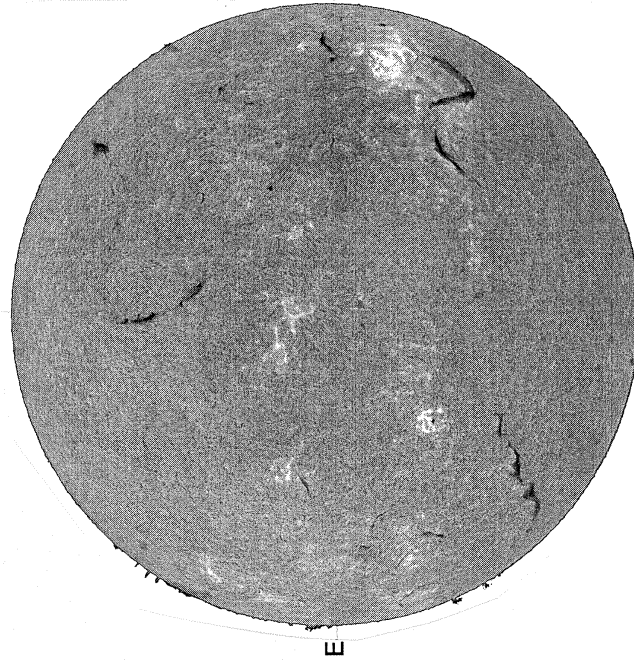
OCTOBER 10, 2003 (P= 26.29, Bo = 6.25 Lo = 178.65)

KITT PEAK MAGNETOGRAM--SOLIS
630.2 nm

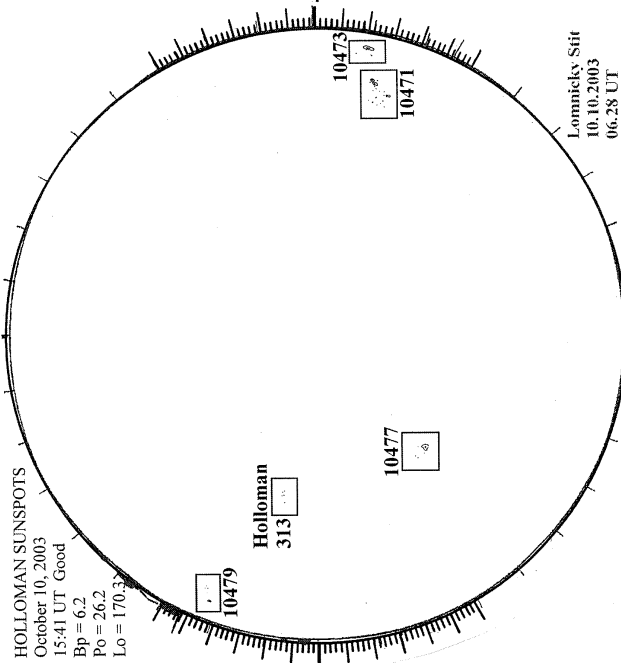
Bright = +
Dark = -



BIG BEAR H-ALPHA

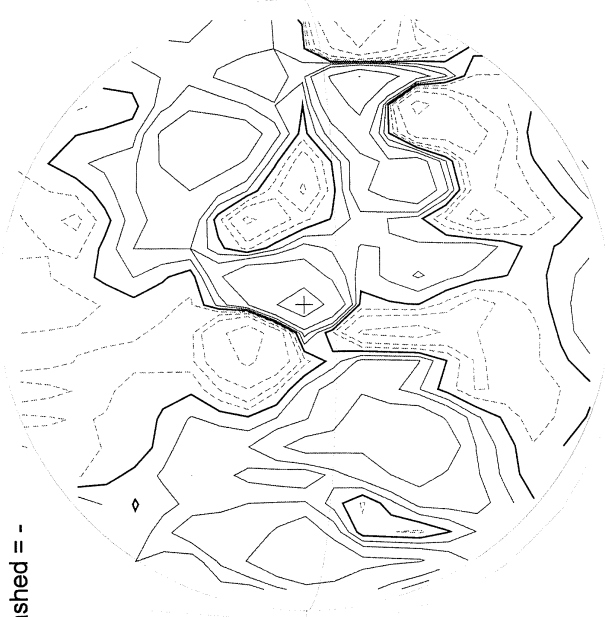


HOLLOMAN SUNSPOTS



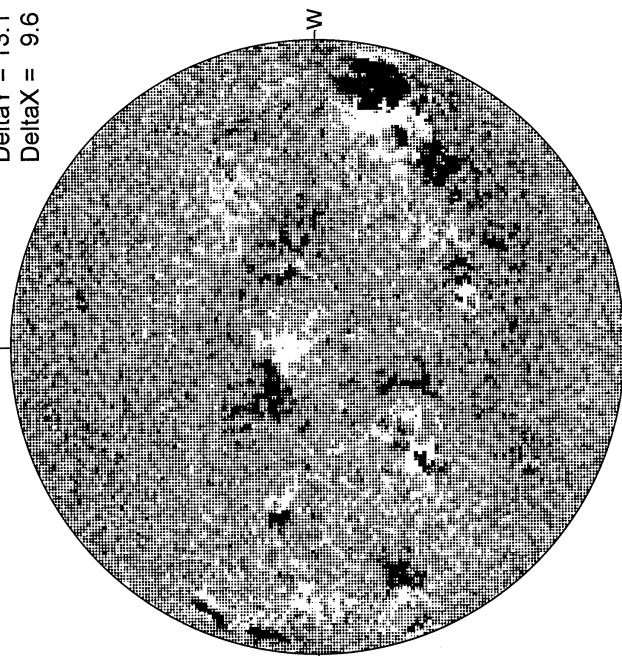
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

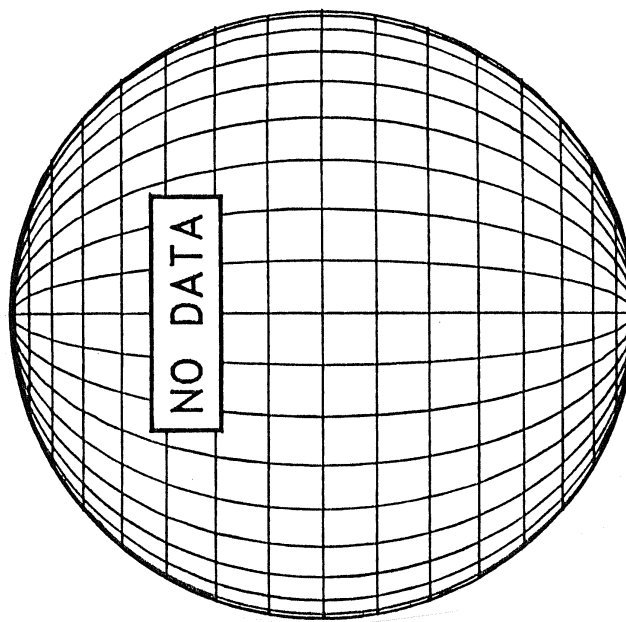
DeltaY = 13.1
DeltaX = 9.6



16.35 -
17.30 UT

White = +7.5G
Black = -7.5G

SACRAMENTO PEAK CORONA (1.15 Radii)----



1841 UT

1541 UT

0628 UT LOMN Drom S

Lomnický Štít
10.10.2003
06.28 UT

S

Oct

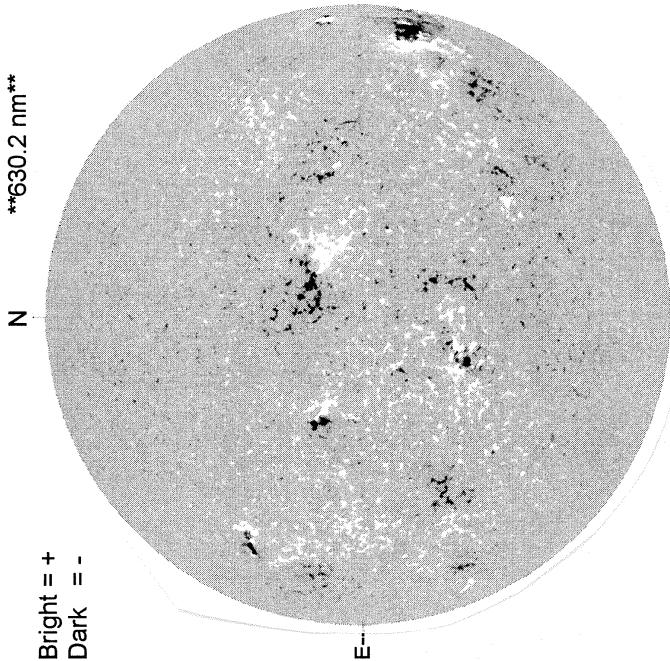
5

OCTOBER 11, 2003 (P= 26.29, Bo = 6.18, Lo = 165.45)

KITT PEAK MAGNETOGRAM--SOLIS

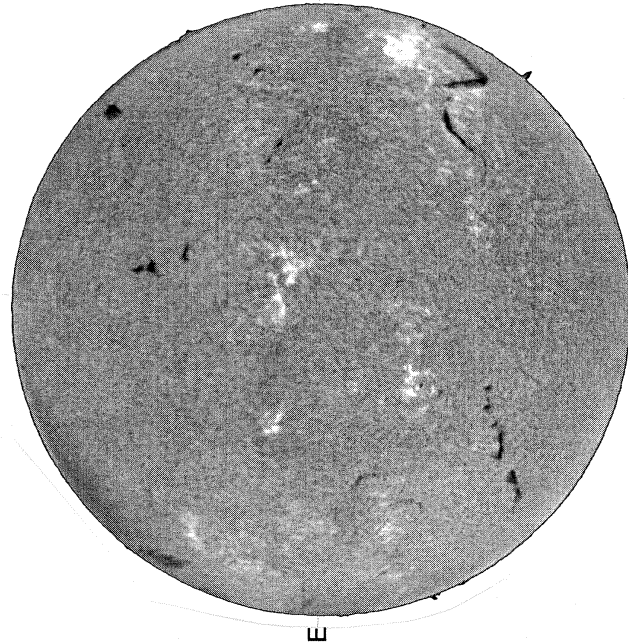
630.2 nm

Bright = +
Dark = -



1601 UT

KANZELHOHE H-ALPHA



0919 UT

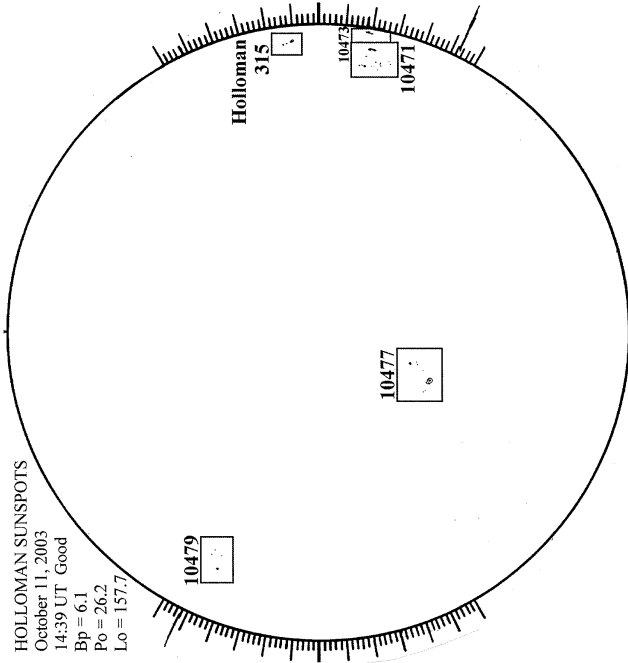
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



2055 UT

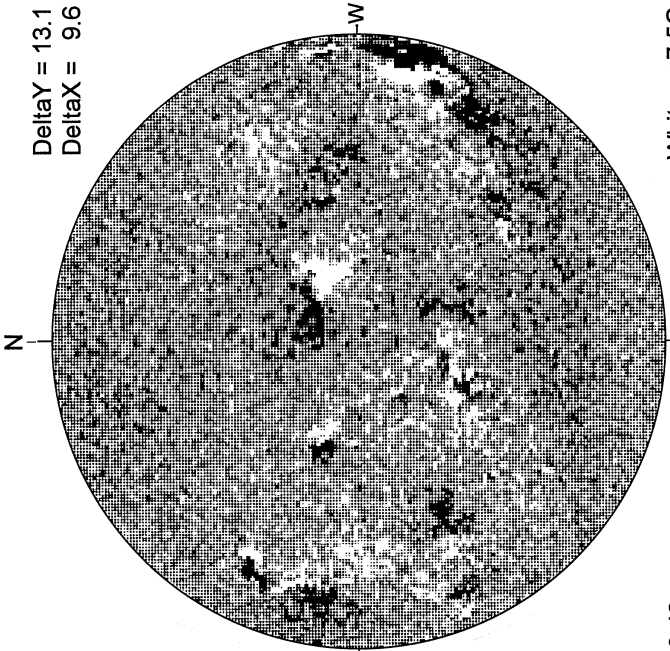
HOLLOMAN SUNSPOTS



1439 UT

MT. WILSON MAGNETOGRAM

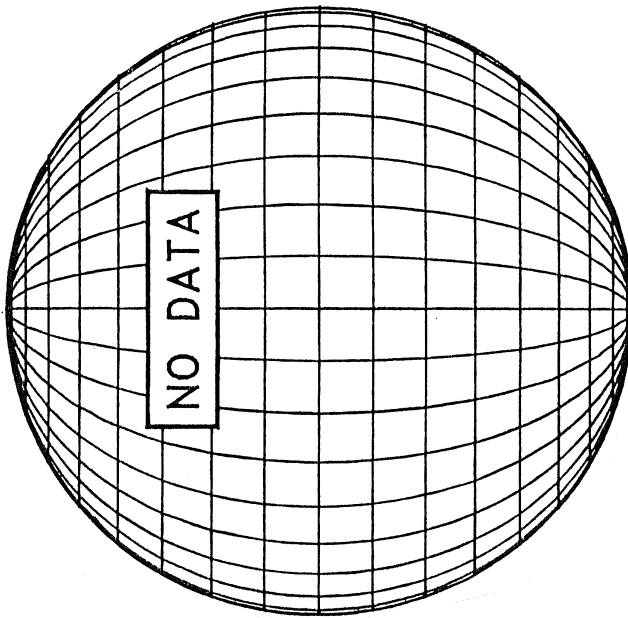
DeltaY = 13.1
DeltaX = 9.6



16.46 -
17.41 UT

White = +7.5G
Black = -7.5G

SACRAMENTO PEAK CORONA (1.15 Radii)----

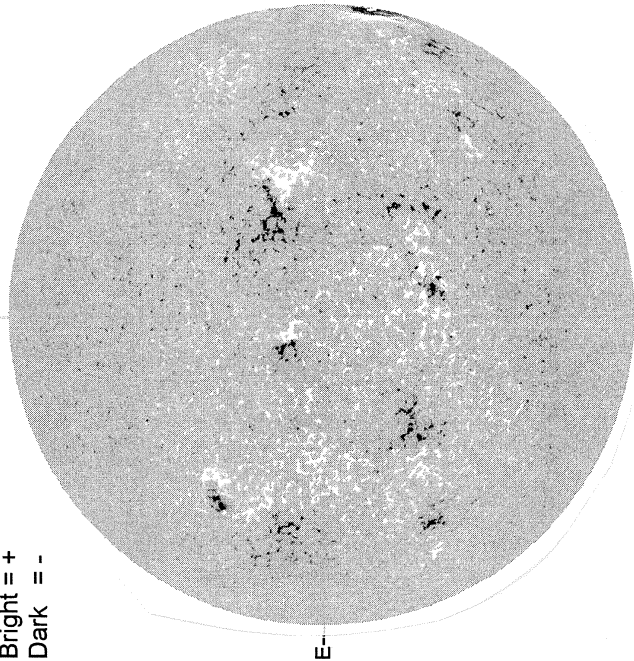


OCTOBER 12, 2003 (P= 26.29, Bo = 6.12, Lo = 152.26)

KITT PEAK MAGNETOGRAM--SOLIS

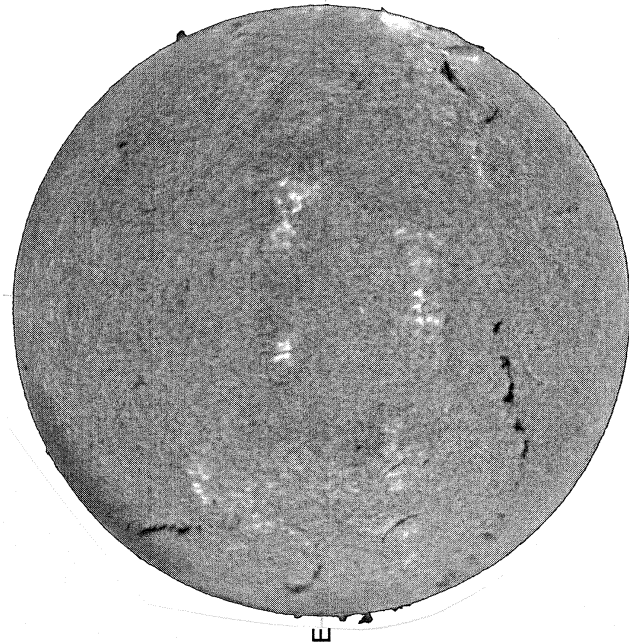
630.2 nm

Bright = +
Dark = -



1758 UT

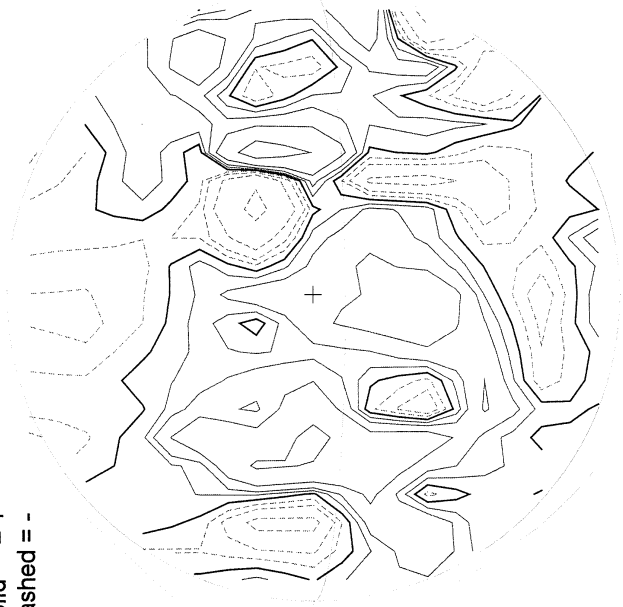
KANZELHOHE H-ALPHA



1138 UT

STANFORD MAGNETOGRAM

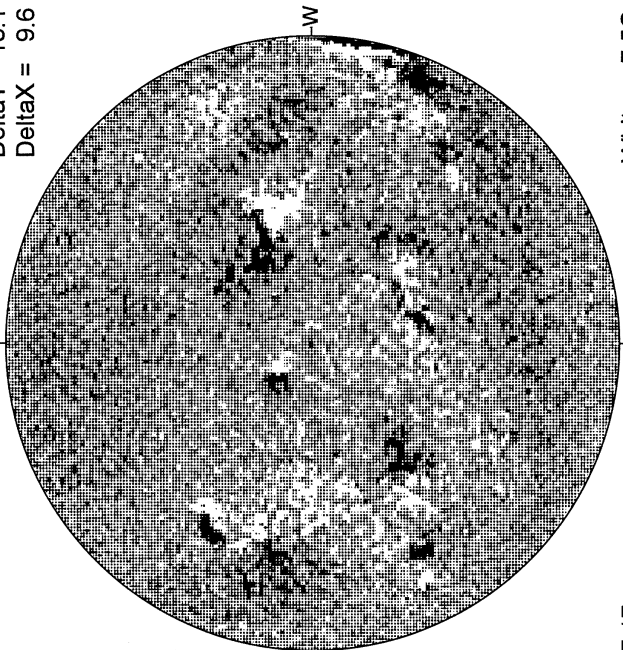
Solid = +
Dashed = -



1931 UT

MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6

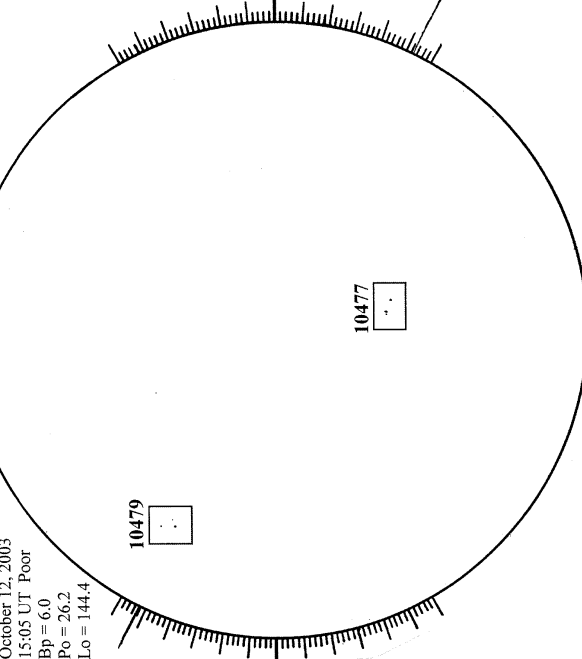


17.17 -
18.12 UT

White= +7.5G
Black = -7.5G

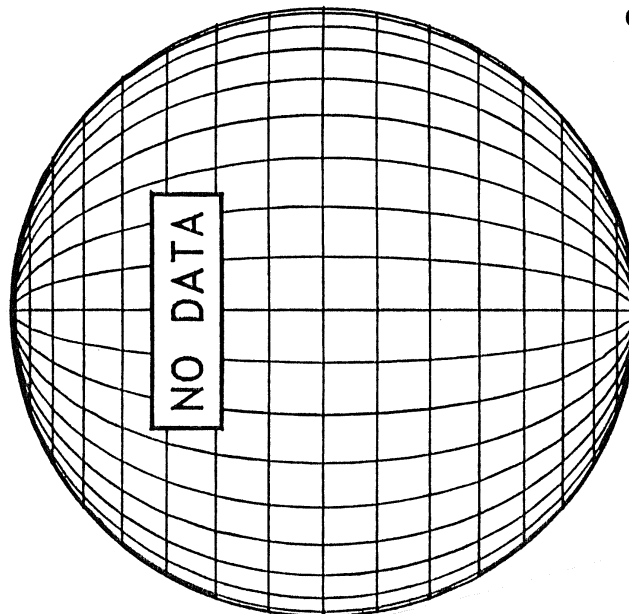
HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS
October 12, 2003
15:05 UT Poor
Bp = 6.0
Po = 26.2
Lo = 144.4



1505 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



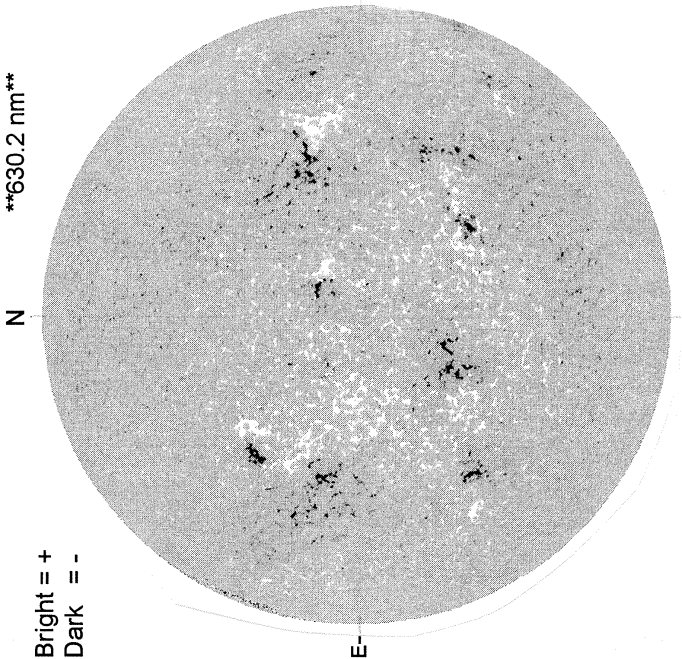
1505 UT

OCTOBER 13, 2003 (P= 26.27, Bo = 6.05, Lo = 139.07)

56
Oct 03

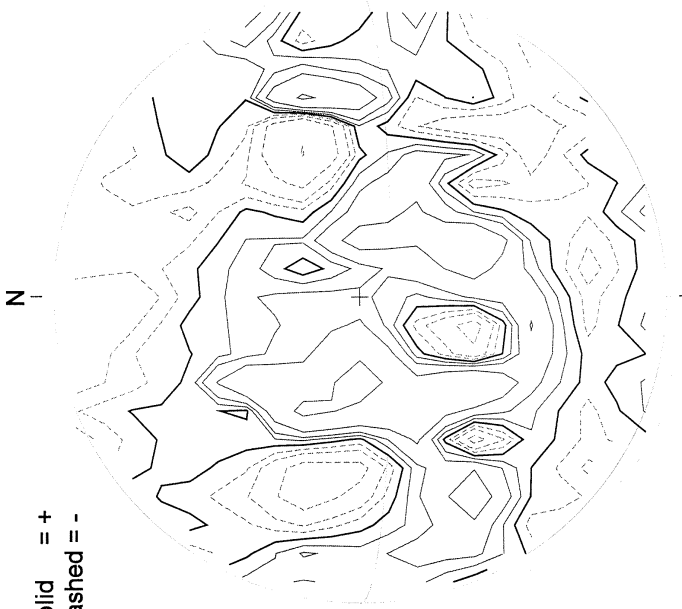
KITT PEAK MAGNETOGRAM--SOLIS
630.2 nm

Bright = +
Dark = -



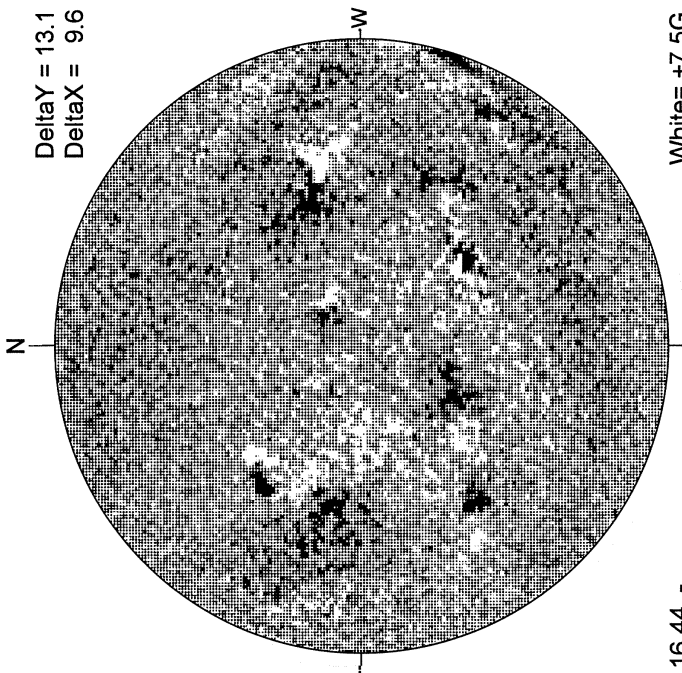
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

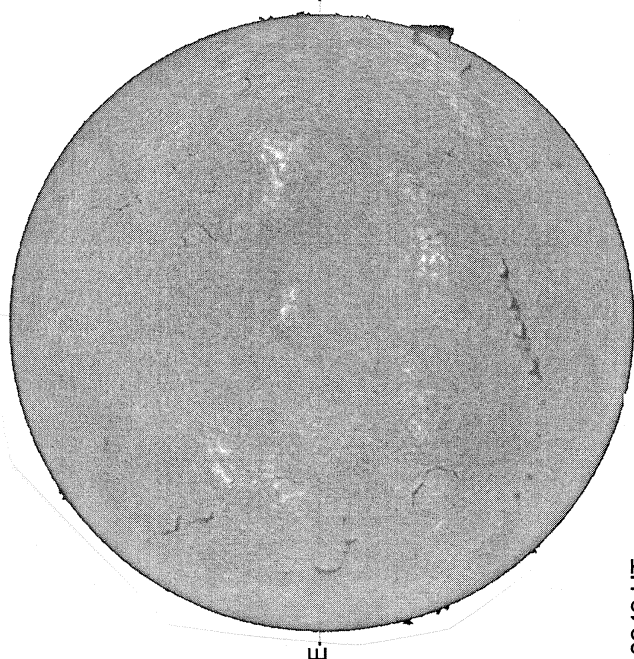
DeltaY = 13.1
DeltaX = 9.6



16.44 -
17.39 UT

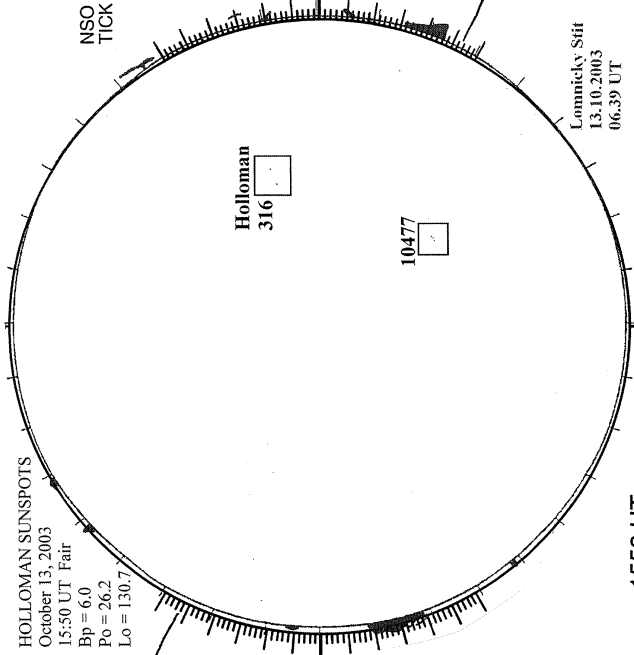
White= +7.5G
Black = -7.5G

CATANIA H-ALPHA



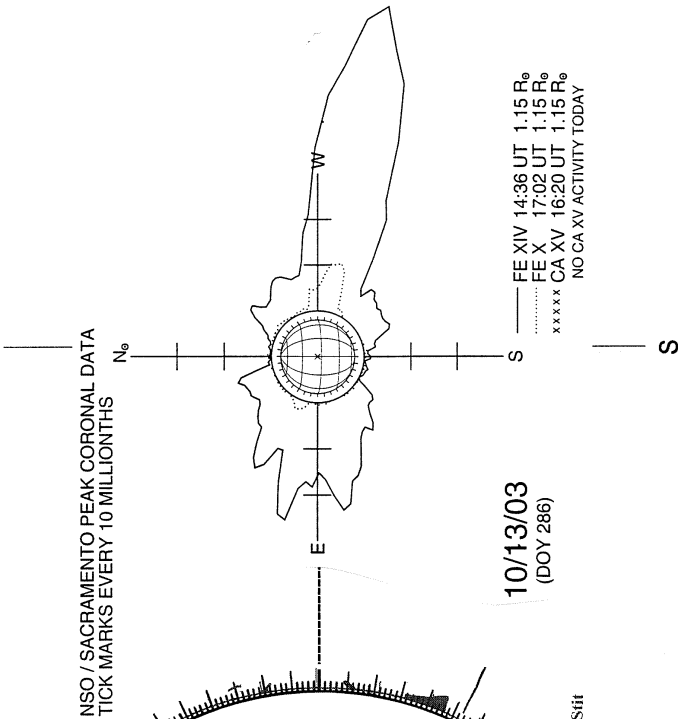
0949 UT

HOLLOMAN SUNSPOT



1550 UT
0639 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----



10/13/03
(DOY 286)

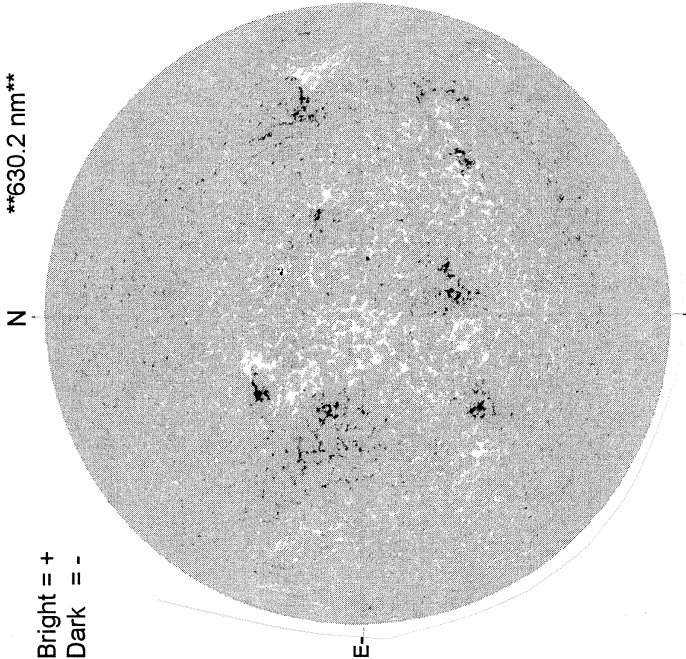
FE XIV 14:36 UT 1.15 R₀
FE X 17:02 UT 1.15 R₀
***** CA XV 16:20 UT 1.15 R₀
NO CA XV ACTIVITY TODAY

OCTOBER 14, 2003 (P= 26.25, Bo = 5.98, Lo = 125.88)

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

Bright = +
Dark = -



1630 UT

STANFORD MAGNETOGRAM

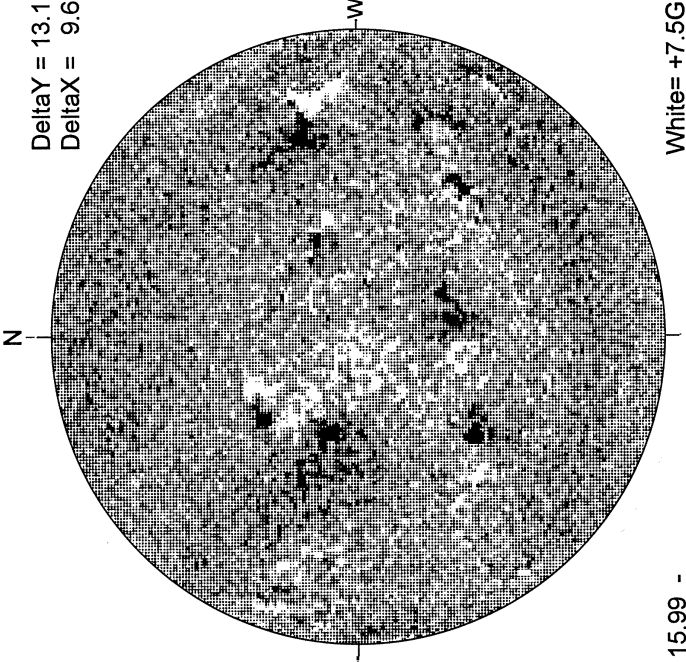
Solid = +
Dashed = -



1921 UT

MT. WILSON MAGNETOGRAM

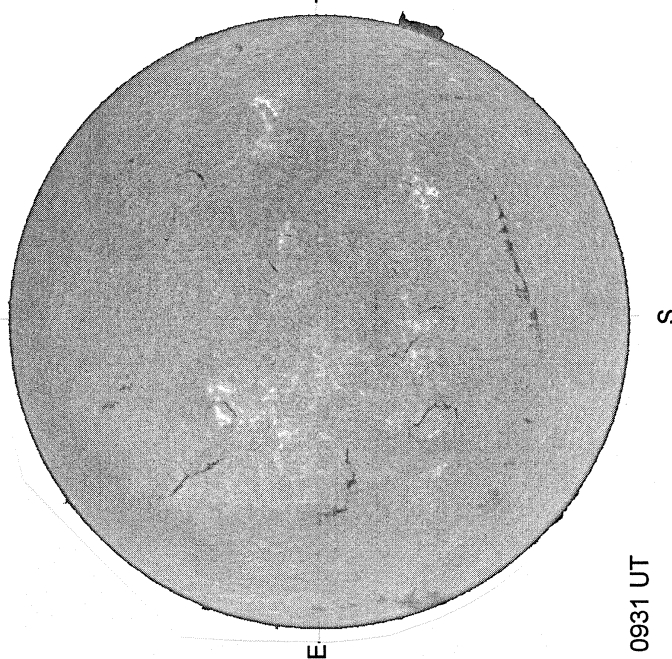
DeltaY = 13.1
DeltaX = 9.6



15.99 -
16.94 UT

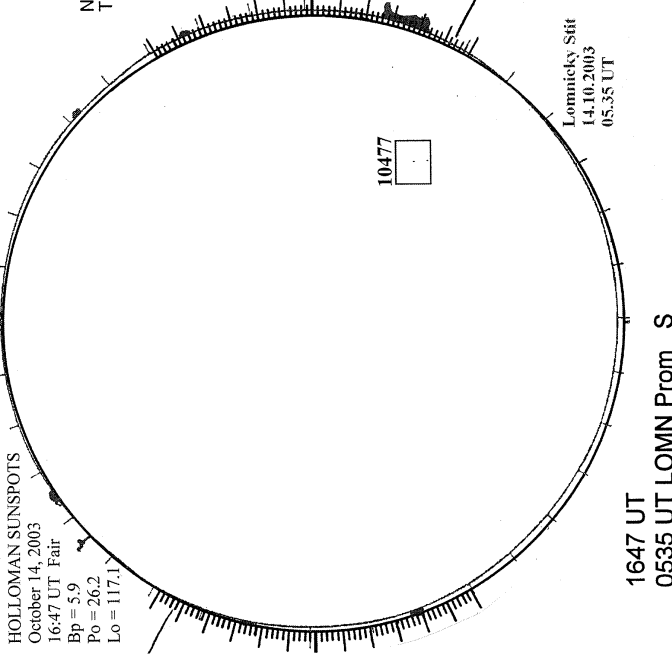
White= +7.5G
Black = -7.5G

CATANIA H-ALPHA



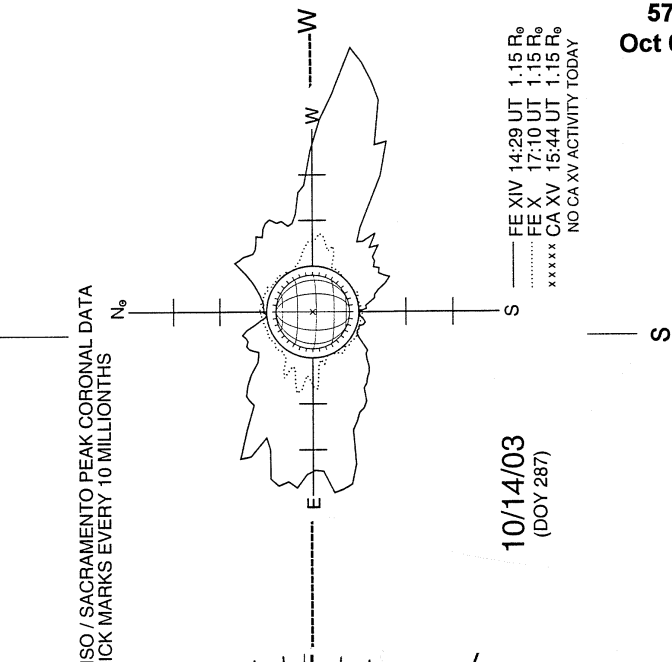
0931 UT

HOLLOMAN SUNSPOTS



1647 UT
0535 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----



10/14/03
(DOY 287)

----- FE XIV 14:29 UT 1.15 R₀
..... FE X 17:10 UT 1.15 R₀
xxxxx CA XV 15:44 UT 1.15 R₀
NO CA XV ACTIVITY TODAY

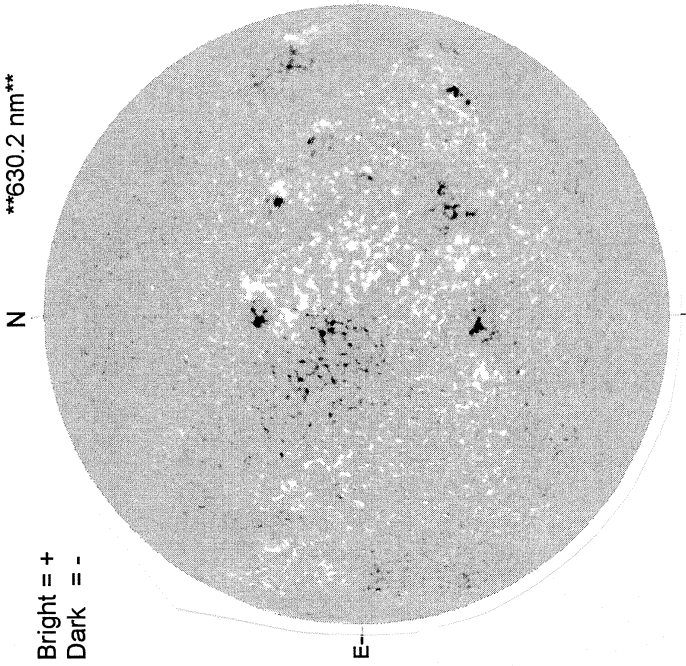
OCTOBER 15, 2003 (P= 26.22, Bo = 5.90, Lo = 112.68)

58
Oct 03

KITT PEAK MAGNETOGRAM--SOLIS

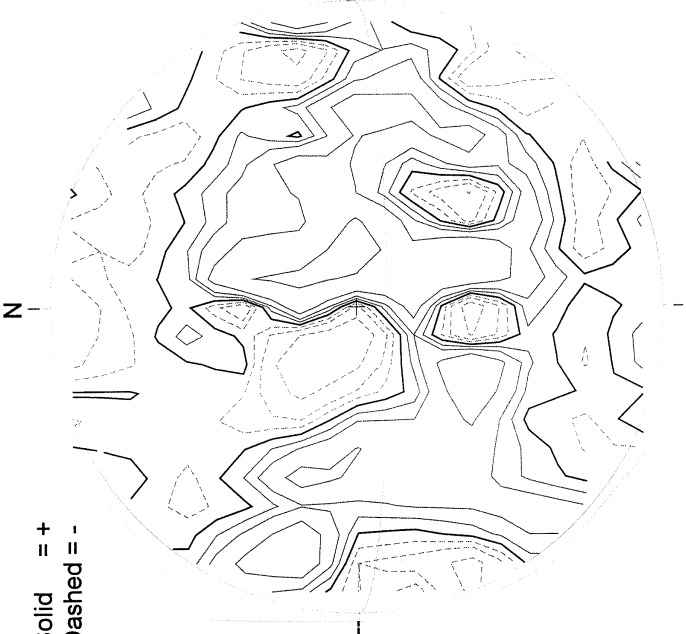
630.2 nm

Bright = +
Dark = -



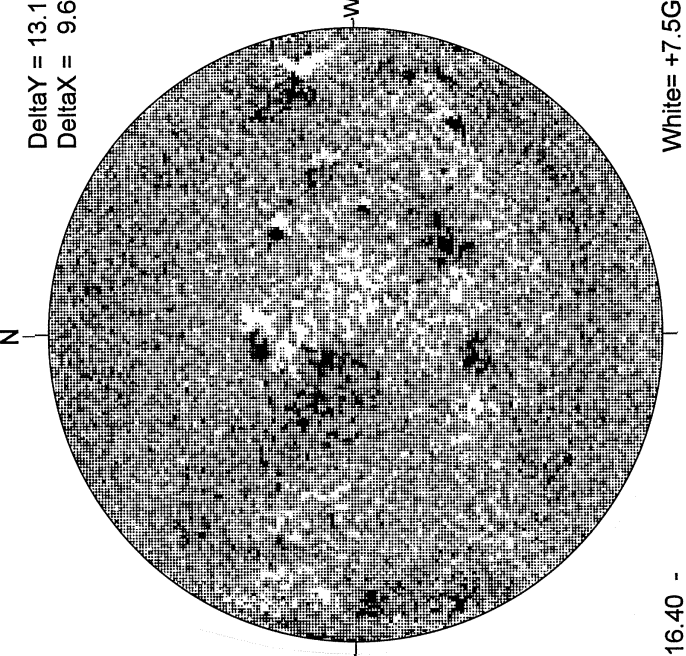
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



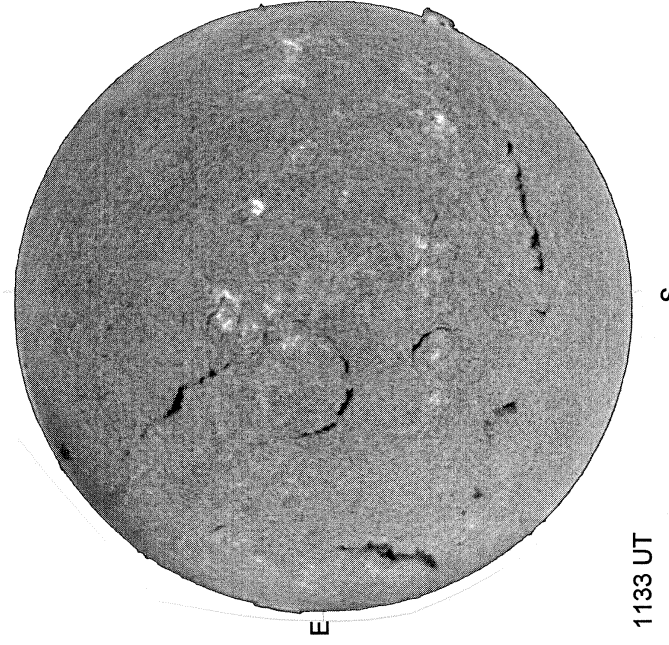
2048 UT

2110 UT

16.40 -
17.35 UT

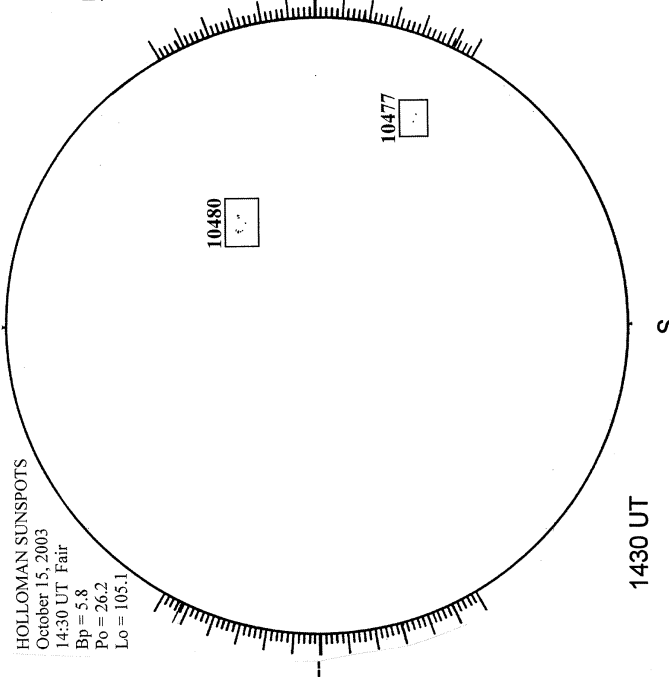
White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA



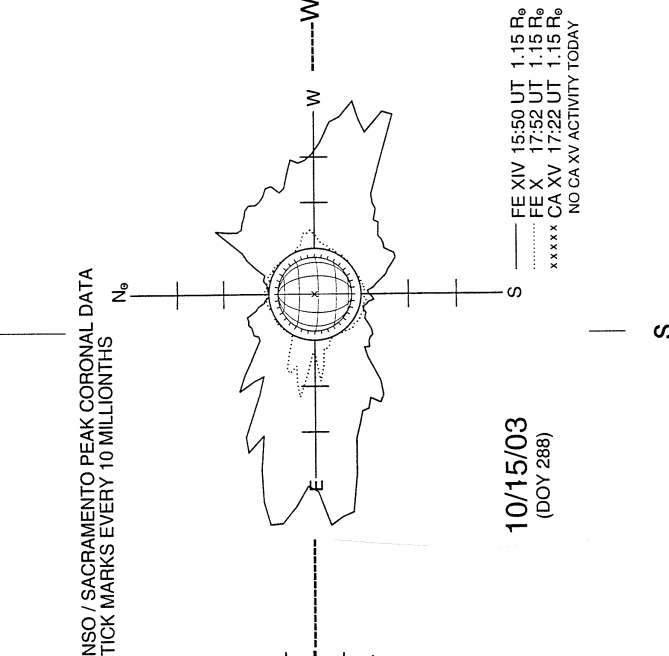
1133 UT

HOLLOMAN SUNSPOT



1430 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



10/15/03
(DOY 288)

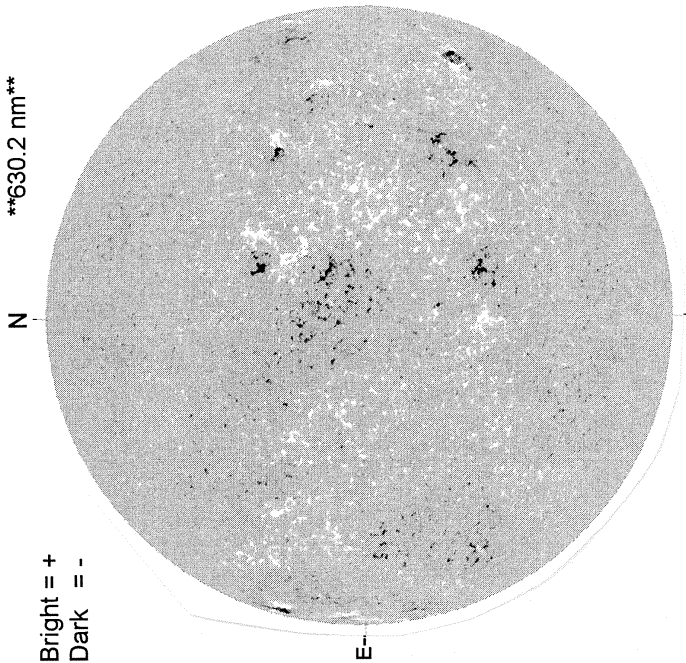
FE XIV 15:50 UT 1.15 R₀
FE X 17:52 UT 1.15 R₀
XXXXX CA XV 17:22 UT 1.15 R₀
NO CA XV ACTIVITY TODAY

OCTOBER 16, 2003 (P= 26.19, Bo = 5.83, Lo = 99.49)

KITT PEAK MAGNETOGRAM--SOLIS

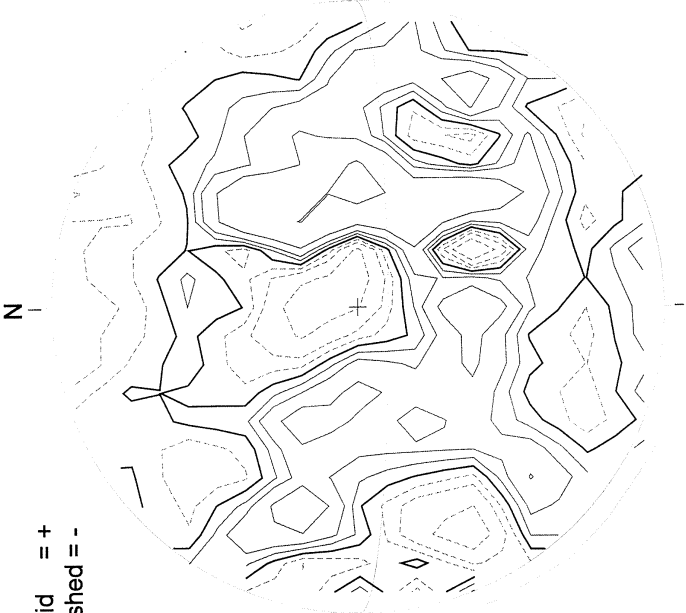
630.2 nm

Bright = +
Dark = -



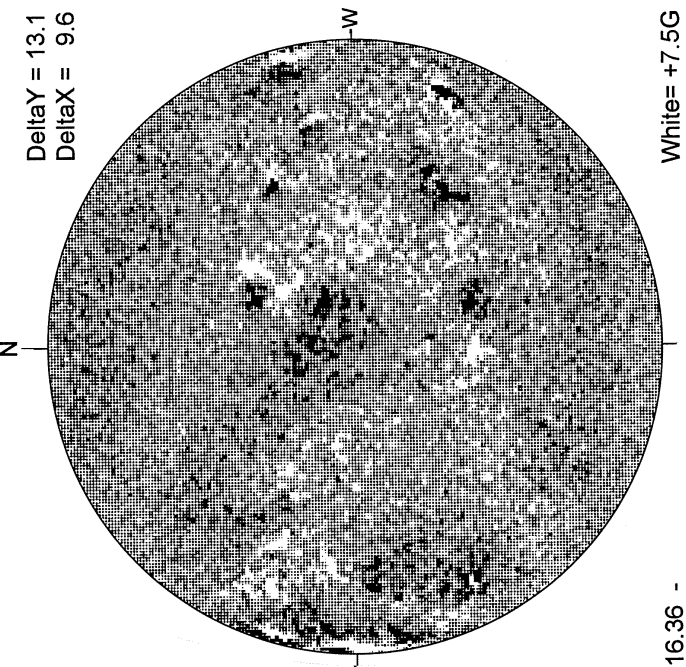
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

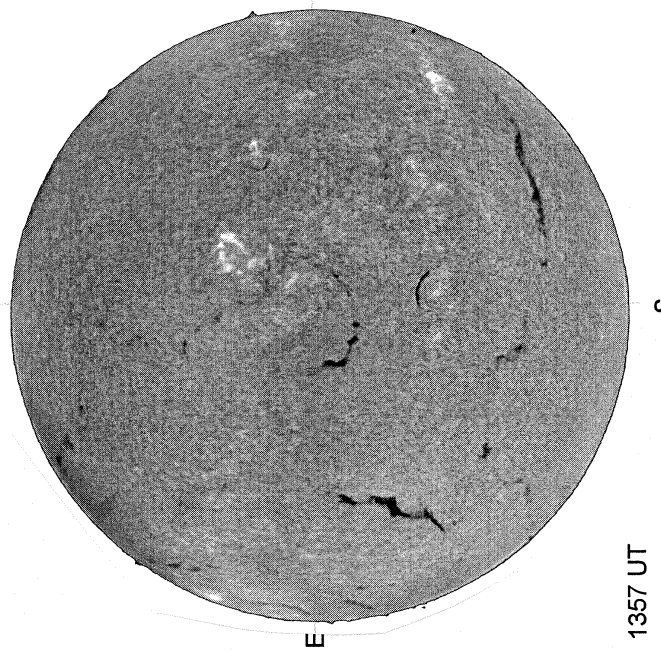
DeltaY = 13.1
DeltaX = 9.6



16.36 -
17.31 UT

White= +7.5G
Black = -7.5G

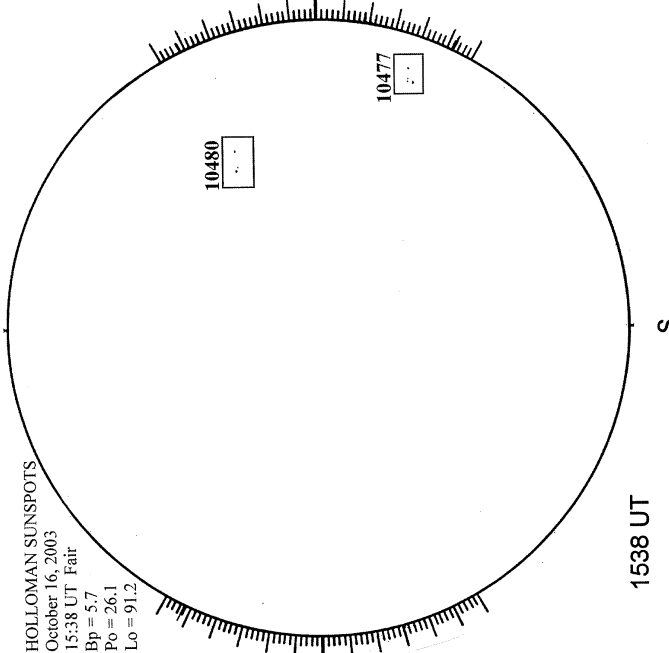
KANZELHOHE H-ALPHA



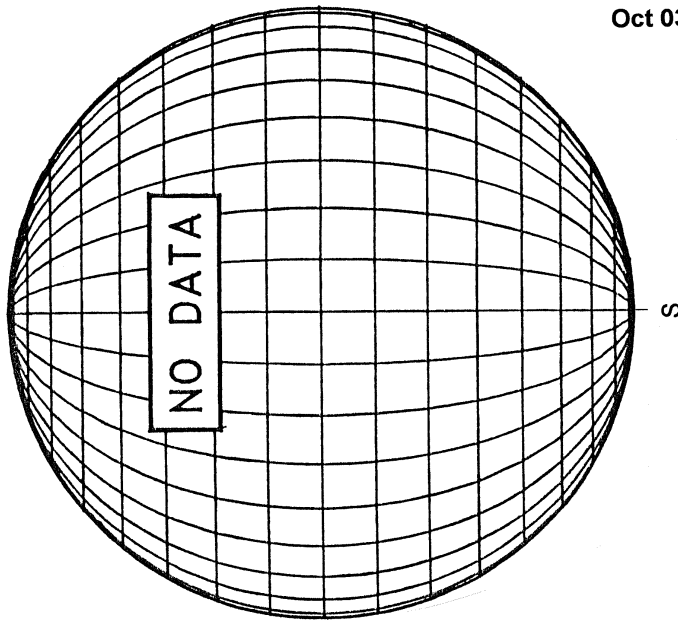
1357 UT

HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS
October 16, 2003
15:38 UT Fair
Bp = 5.7
Po = 26.1
Lo = 91.2



SACRAMENTO PEAK CORONA (1.15 Radii)----



59
Oct 03

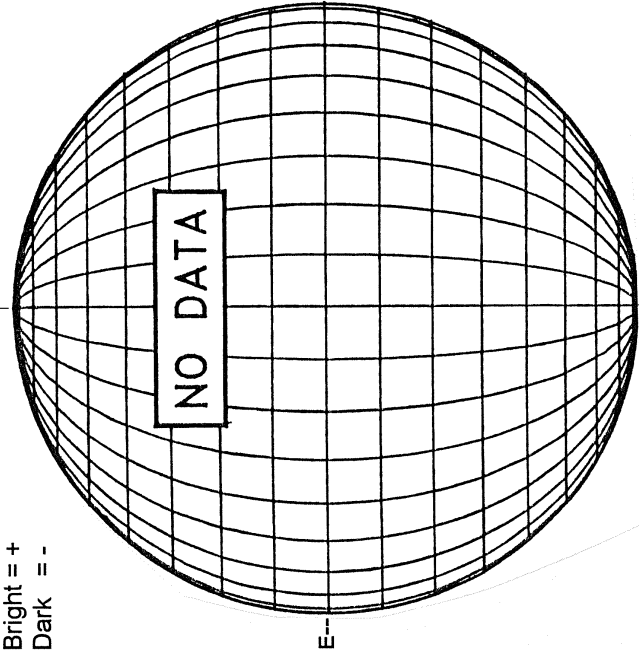
60
Oct 03

OCTOBER 17, 2003 (P= 26.15, Bo = 5.76, Lo = 86.30)

KITT PEAK MAGNETOGRAM--SOLIS

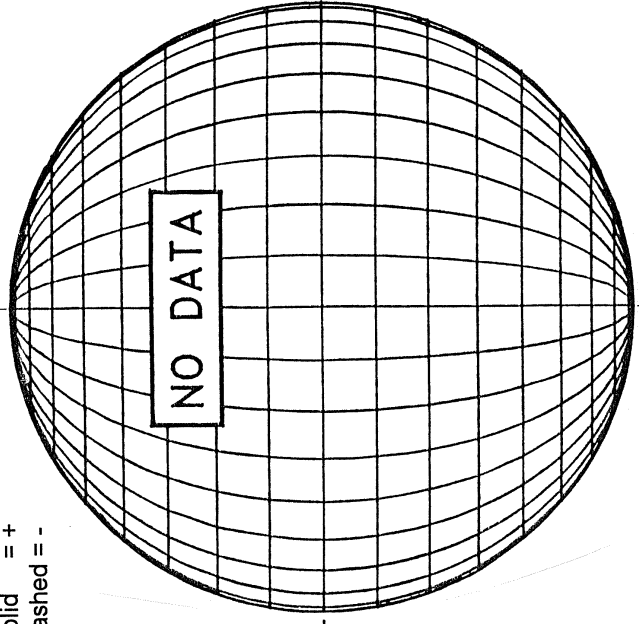
630.2 nm

Bright = +
Dark = -



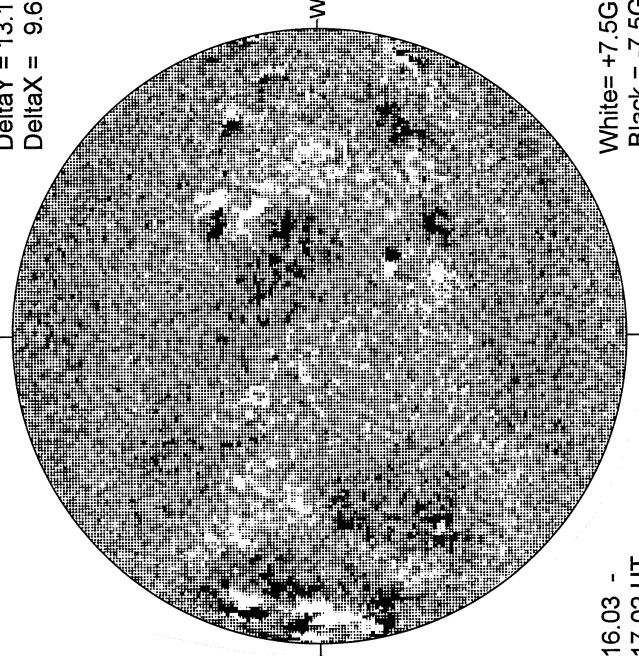
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

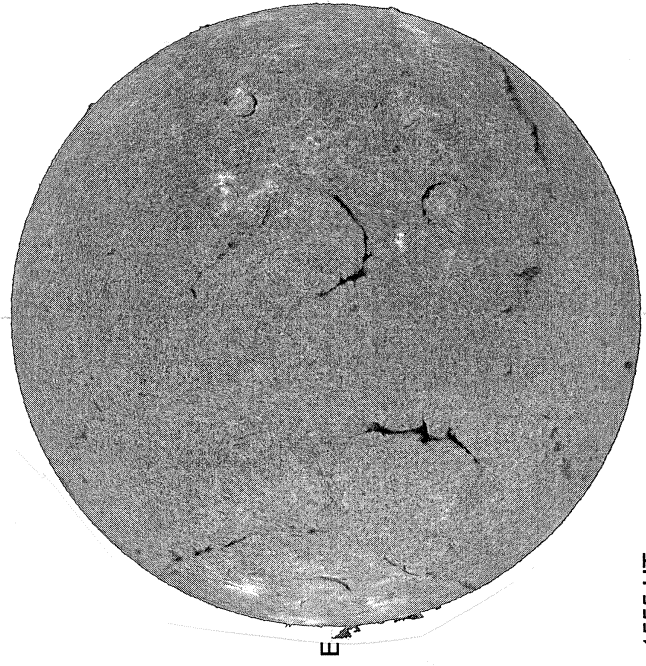
DeltaY = 13.1
DeltaX = 9.6



16.03 -
17.02 UT

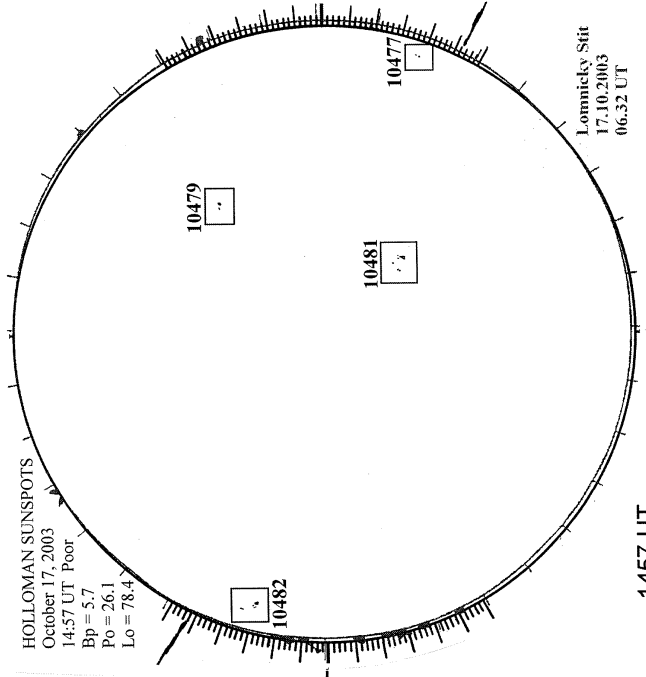
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



1555 UT

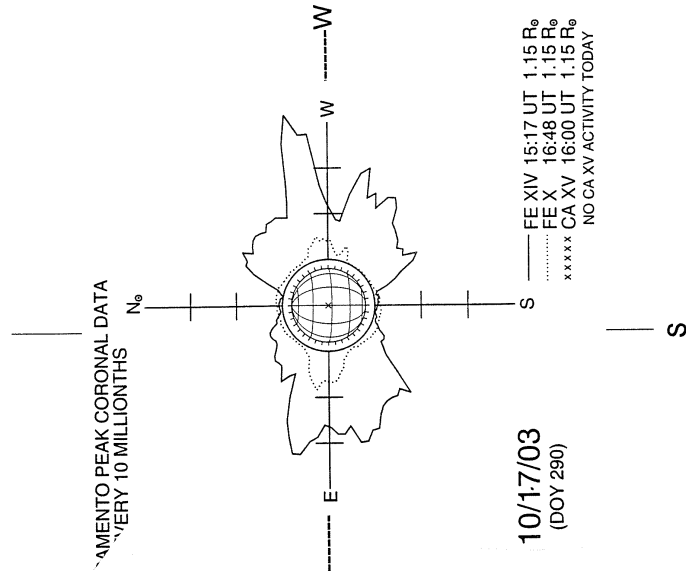
HOLLOMAN SUNSPOT



HOLLOMAN SUNSPOTS
October 17, 2003
14:57 UT Poor
Bp = 5.7
Po = 26.1
Lo = 78.4

Lonmicky Slit
17.10.2003
06.32 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



SACRAMENTO PEAK CORONAL DATA
VERY 10 MILLIONTHS

10/17/03
(DOY 290)

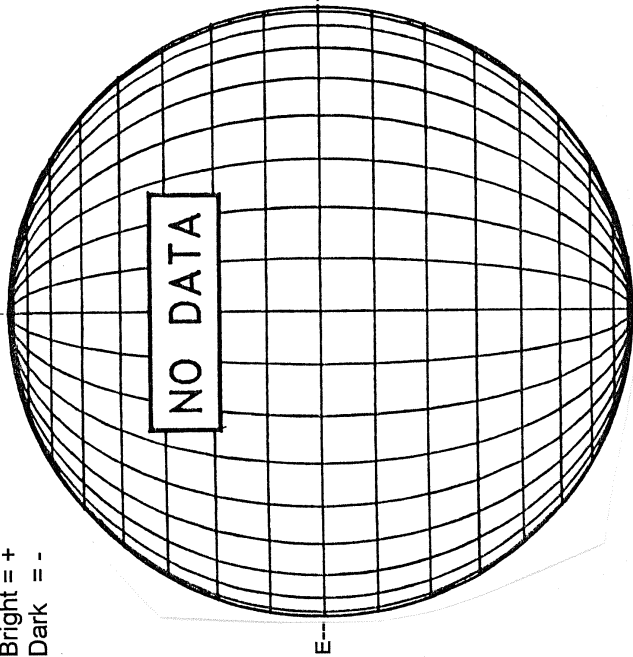
--- EE XIV 15:17 UT 1.15 R₀
..... EE X 16:48 UT 1.15 R₀
xxxxx CA XV 16:00 UT 1.15 R₀
NO CA XV ACTIVITY TODAY

OCTOBER 18, 2003 (P= 26.10, Bo = 5.68, Lo = 73.11)

KITT PEAK MAGNETOGRAM--SOLIS

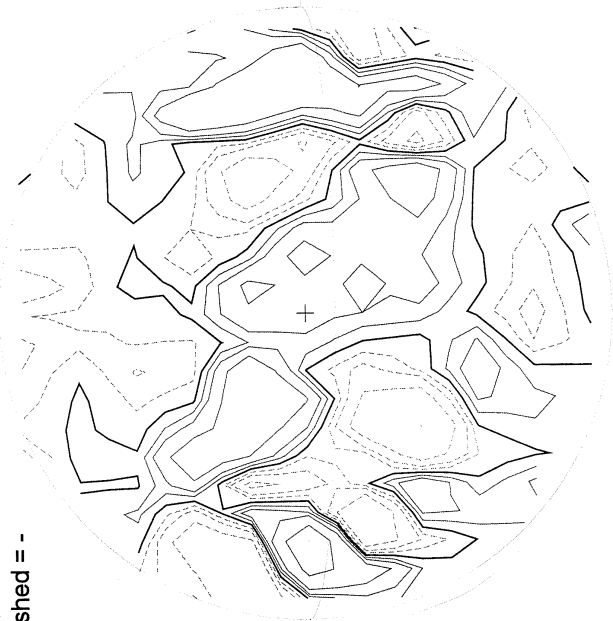
630.2 nm

Bright = +
Dark = -



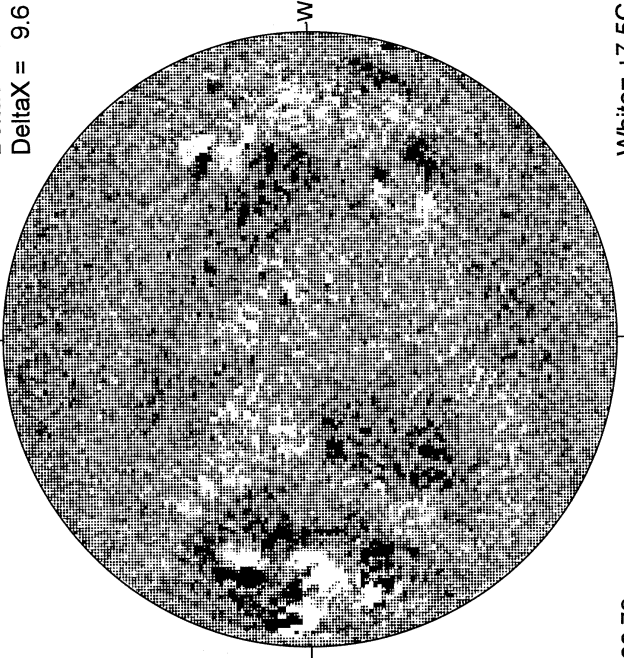
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

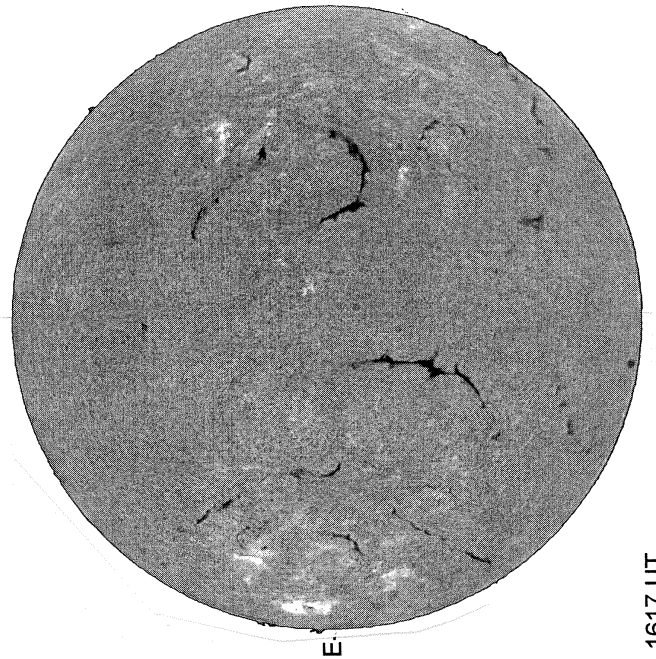
DeltaY = 13.1
DeltaX = 9.6



20.79 -
21.74 UT

White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



1617 UT

HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS

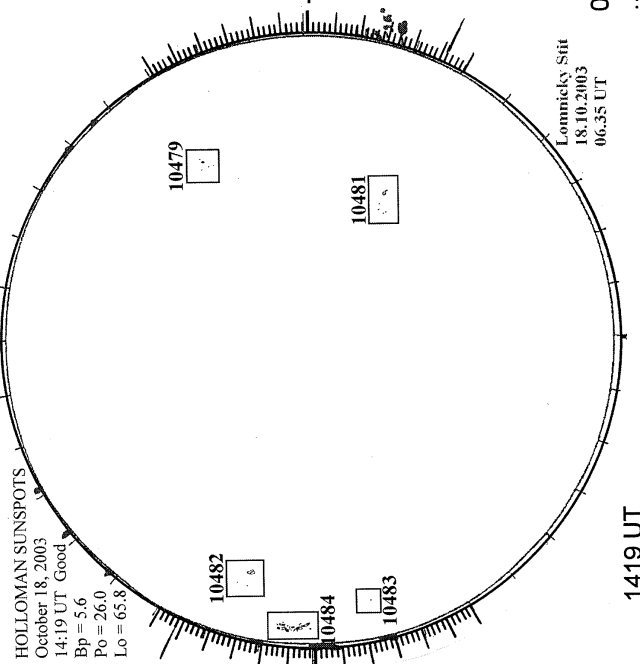
October 18, 2003

14:19 UT Good

Bp = 5.6

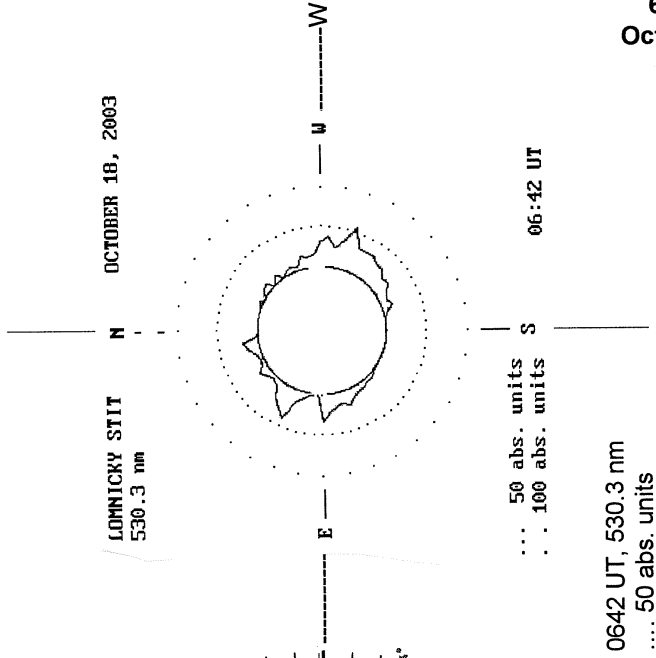
Po = 26.0

Lo = 65.8



1419 UT
0635 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



... 50 abs. units
... 100 abs. units

0642 UT, 530.3 nm
... 50 abs. units
... 100 abs. units

Lomnický Sit
18.10.2003
06:35 UT

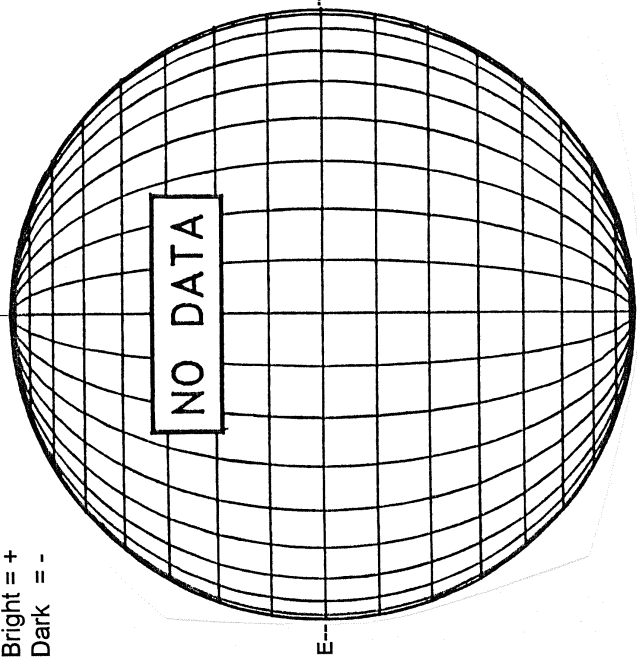
06:42 UT

OCTOBER 19, 2003 (P= 26.04, Bo = 5.60, Lo = 59.92)

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

Bright = +
Dark = -



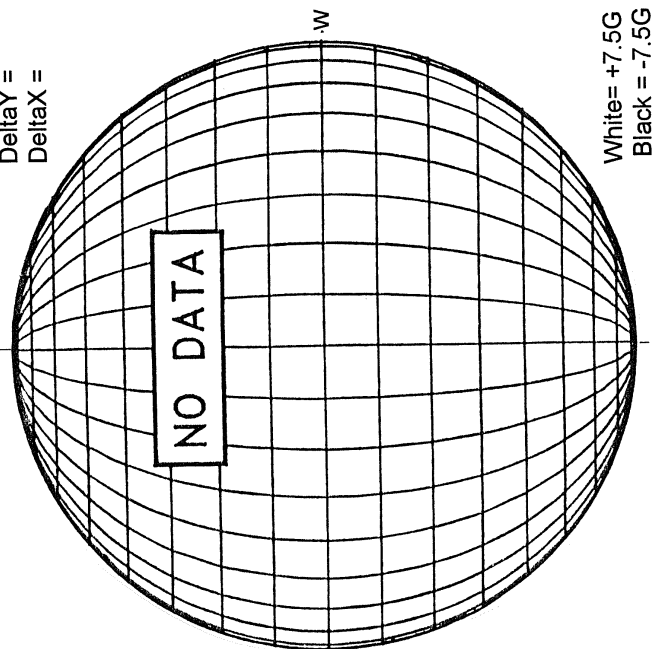
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



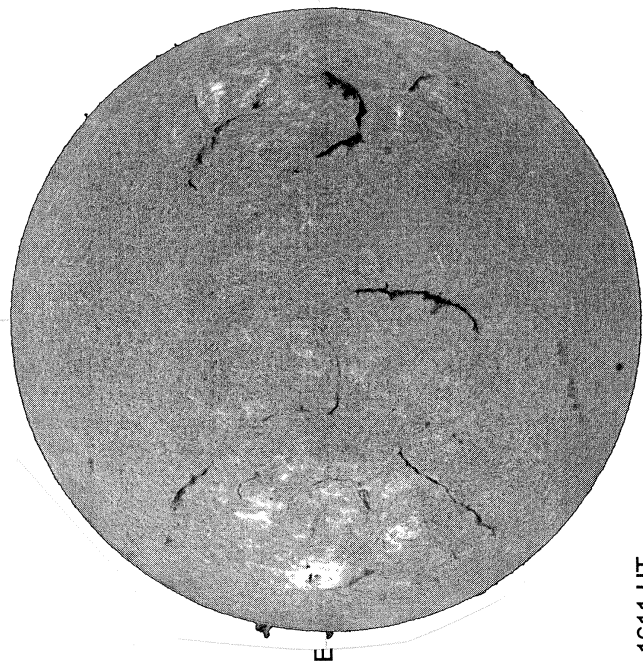
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



White= +7.5G
Black = -7.5G

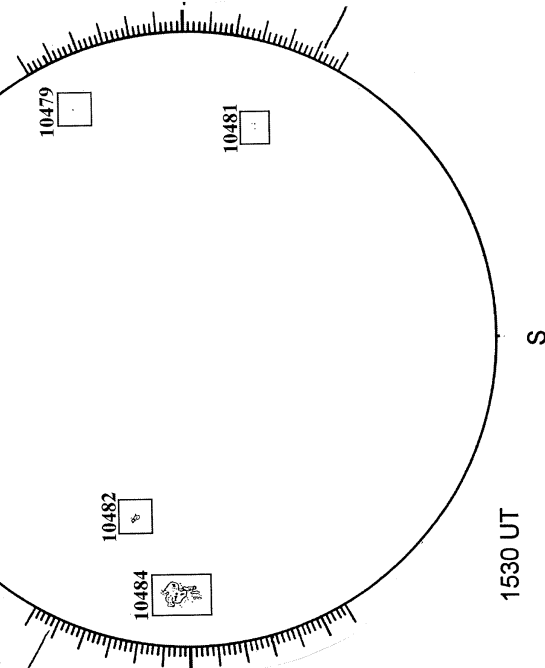
BIG BEAR H-ALPHA



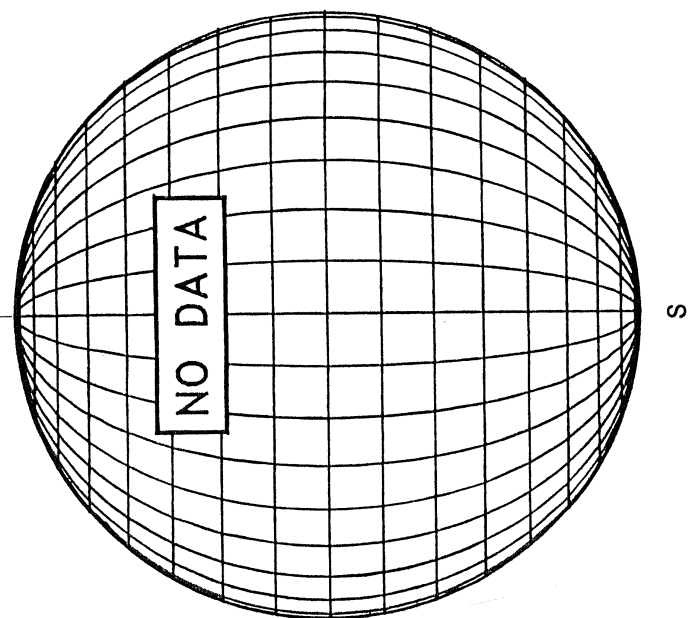
HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS

October 19, 2003
15:30 UT Good
Bp = 5.5
Po = 25.9
Lo = 51.6



LOMNICKY PEAK CORONA (1.04 Radii)----

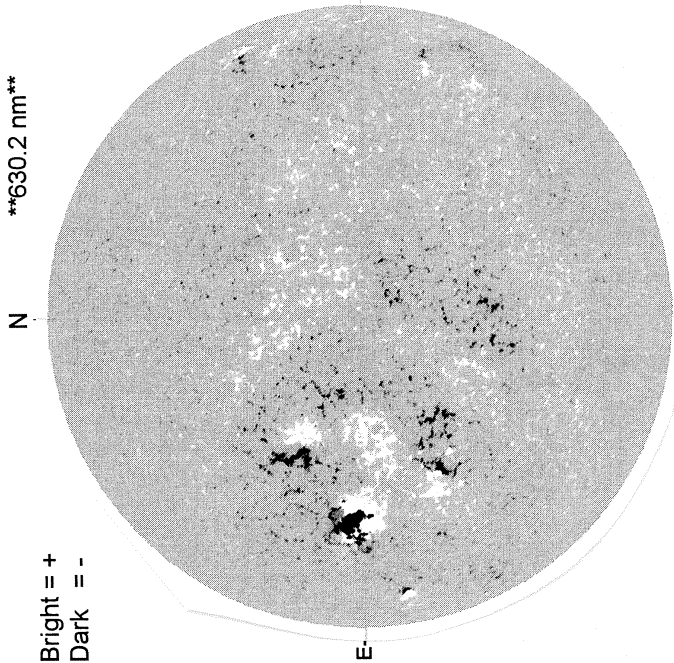


OCTOBER 20, 2003 (P= 25.97, Bo = 5.52, Lo = 46.73)

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

Bright = +
Dark = -



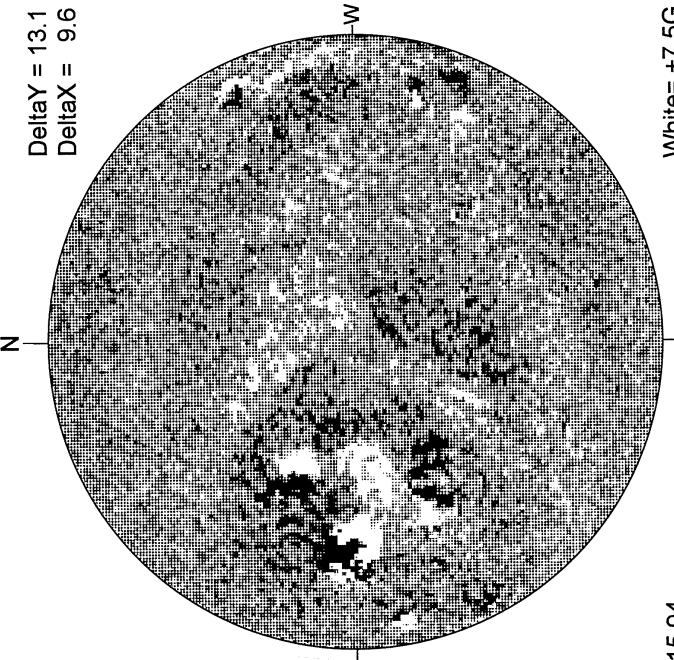
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

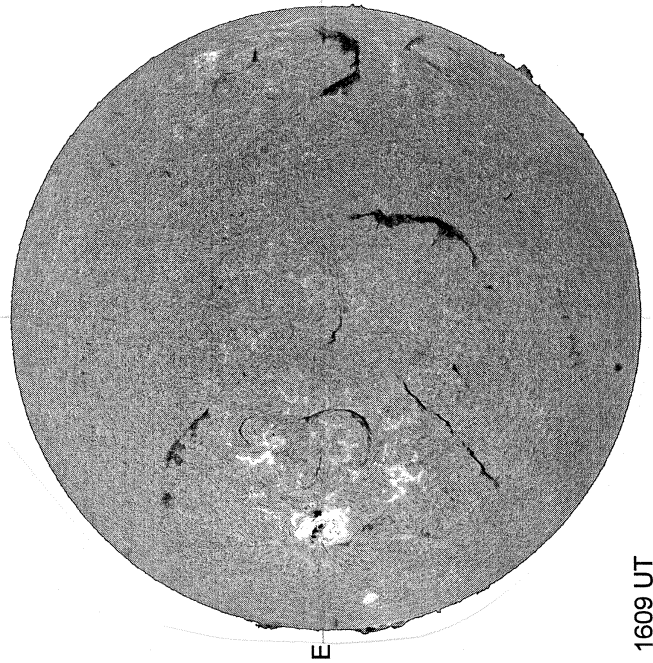
DeltaY = 13.1
DeltaX = 9.6



15.94 -
16.90 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



1609 UT

HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS

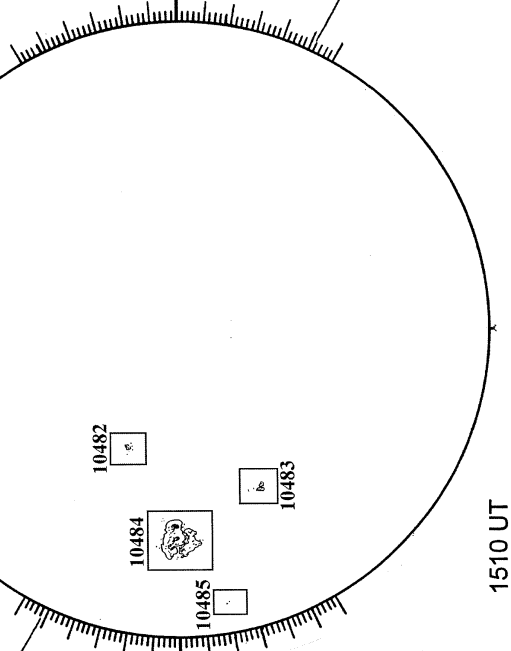
October 20, 2003

15:10 UT Good

Bp = 5.4

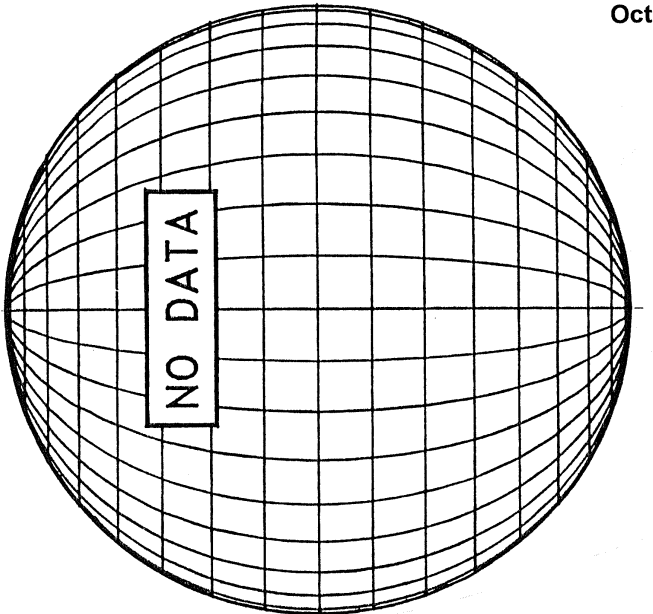
Po = 25.9

Lo = 38.6



1510 UT

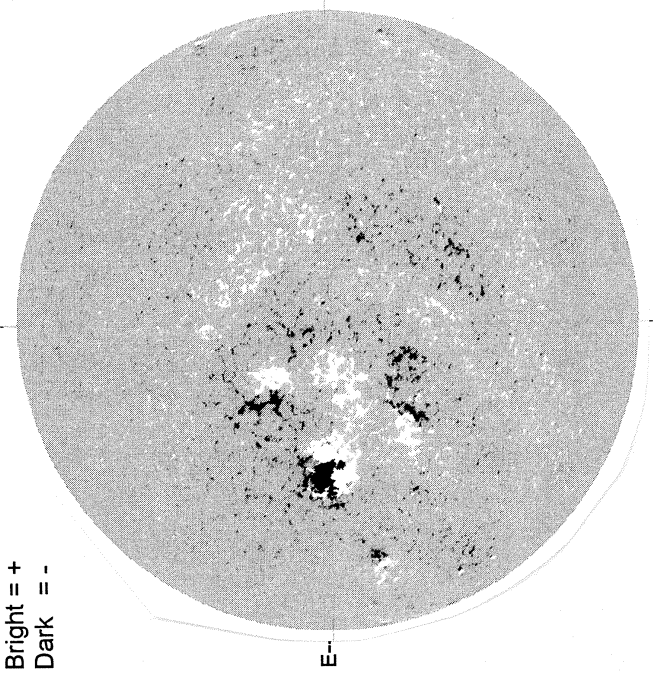
SACRAMENTO PEAK CORONA (1.15 Radii)----



63
Oct 0

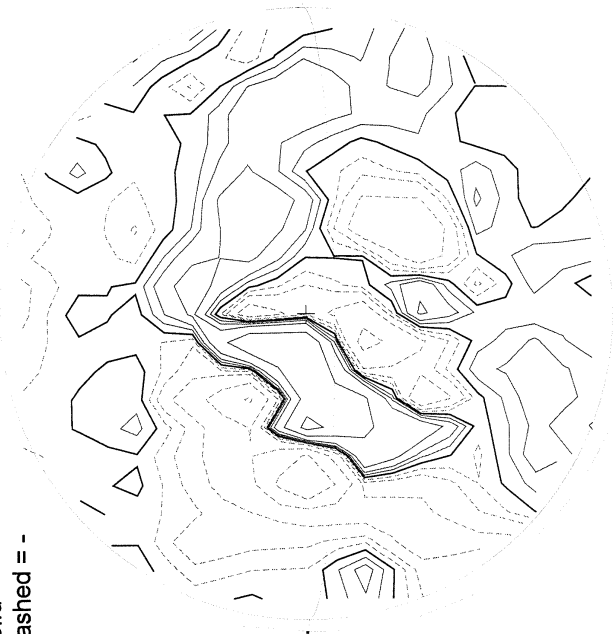
KITT PEAK MAGNETOGRAM--SOLIS
630.2 nm

Bright = +
Dark = -



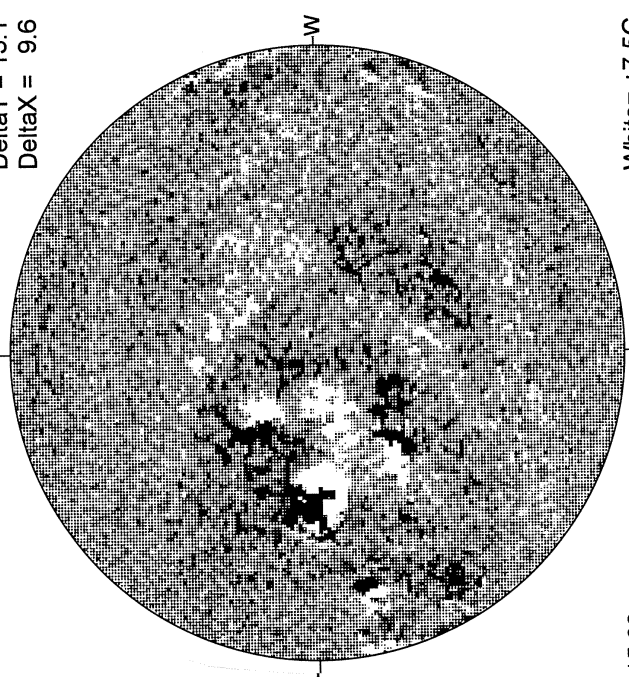
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

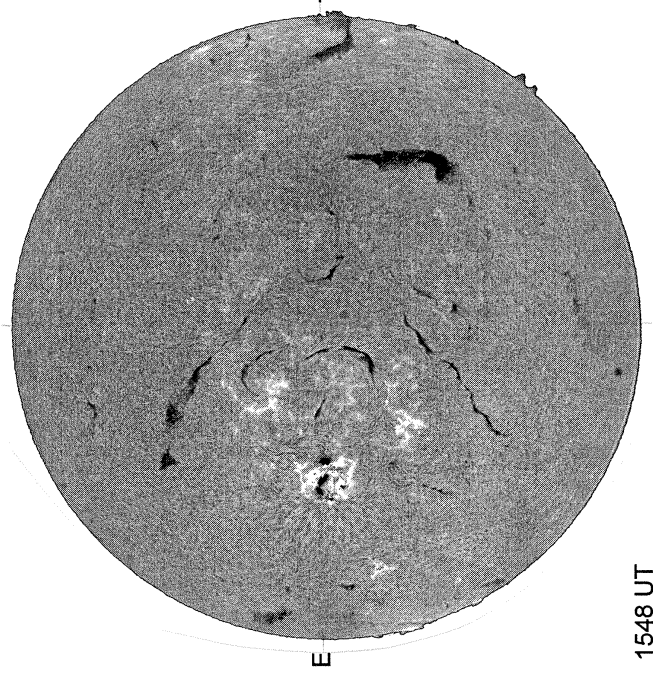
DeltaY = 13.1
DeltaX = 9.6



15.99 -
16.95 UT

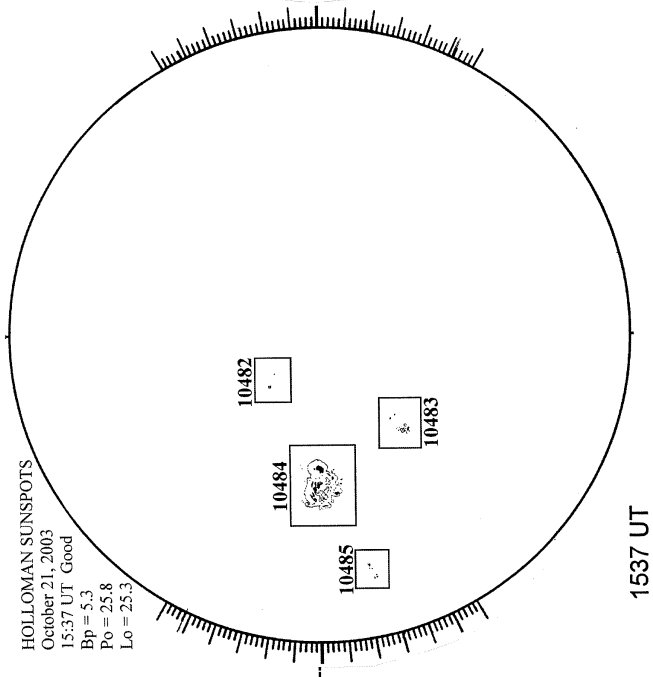
White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



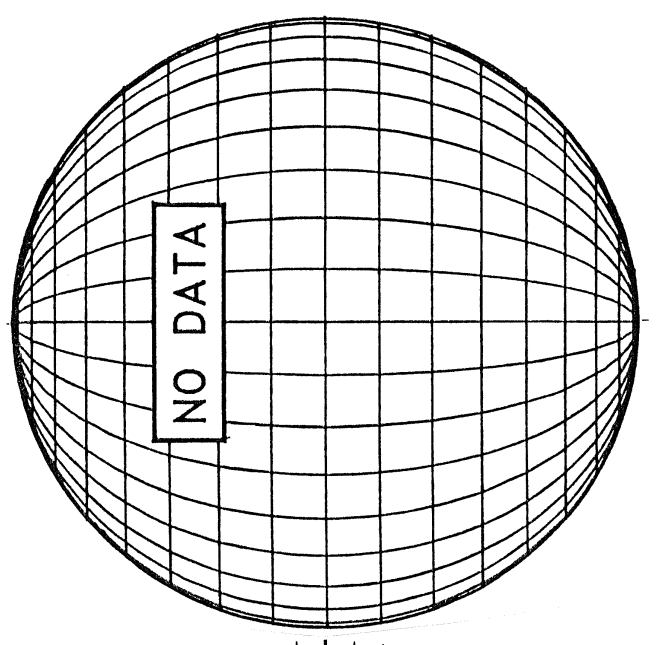
1548 UT

HOLLOMAN SUNSPOT



1537 UT

LOMNICKY PEAK CORONA (1.04 Radii)----



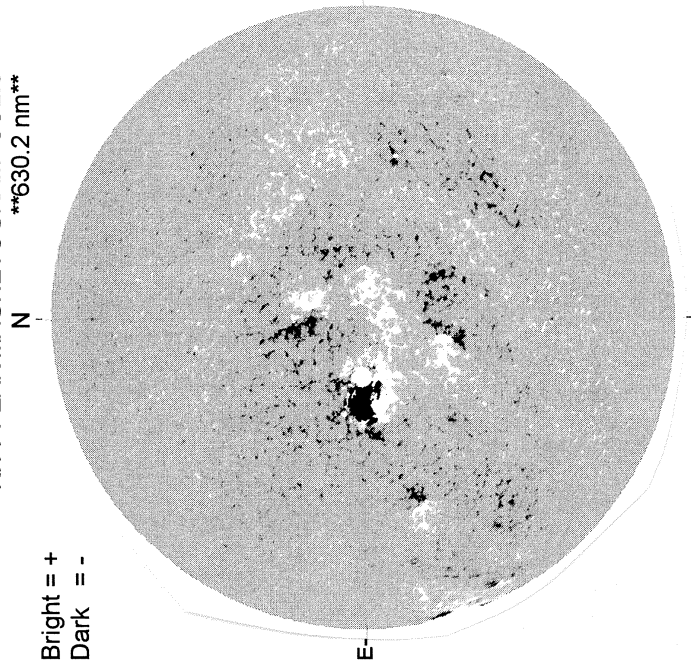
NO DATA

OCTOBER 22, 2003 (P= 25.82, Bo = 5.35, Lo = 20.35)

KITT PEAK MAGNETOGRAM--SOLIS

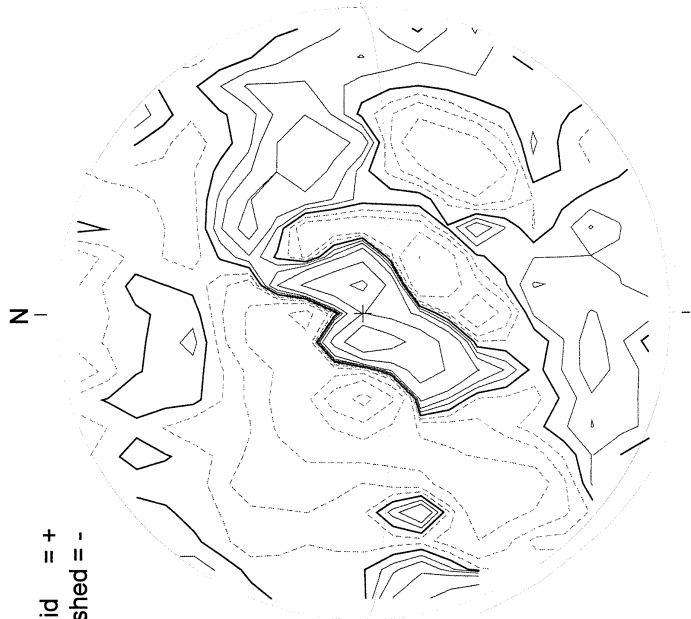
630.2 nm

Bright = +
Dark = -



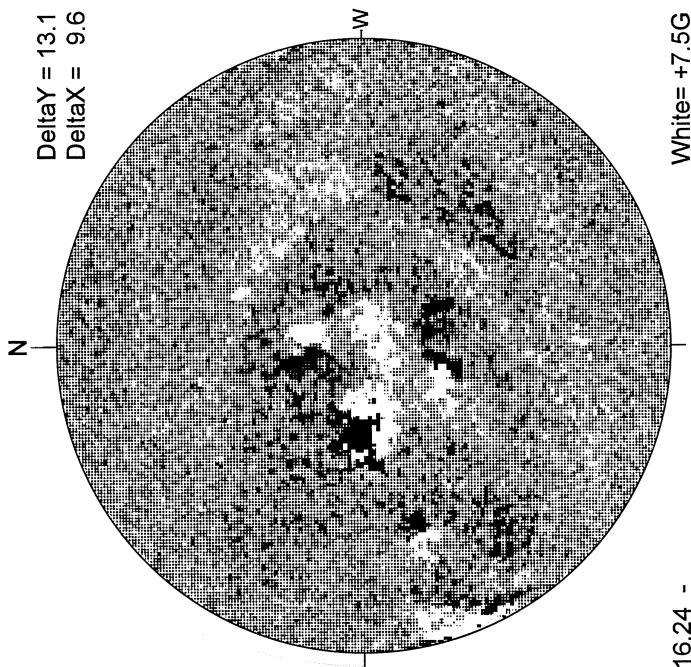
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



1735 UT

2052 UT

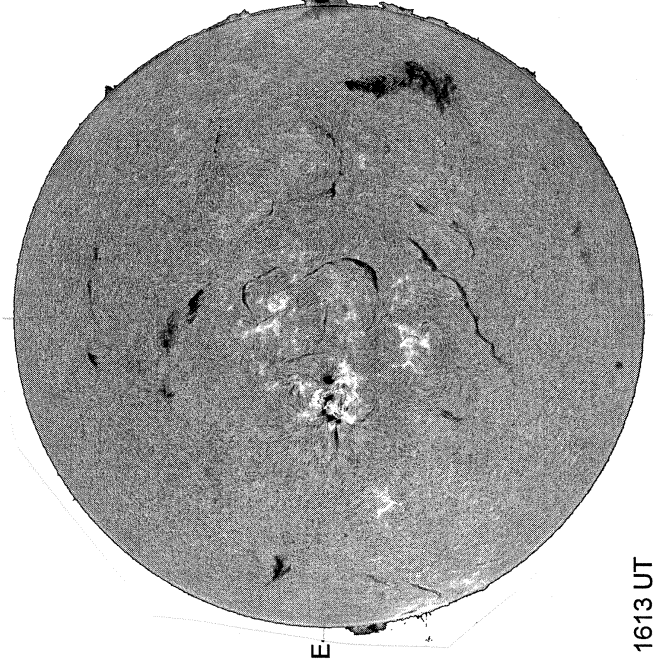
16.24 -
17.20 UT

White= +7.5G
Black = -7.5G

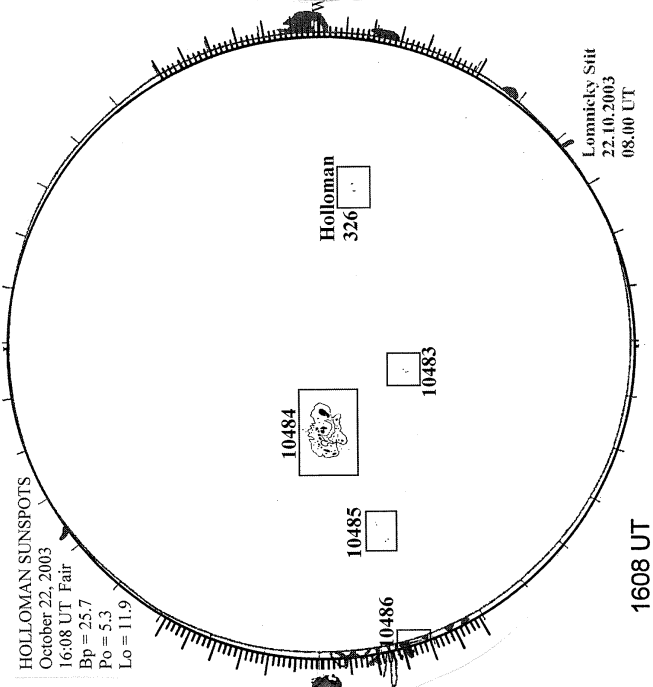
BIG BEAR H-ALPHA

HOLLOMAN SUNSPOT

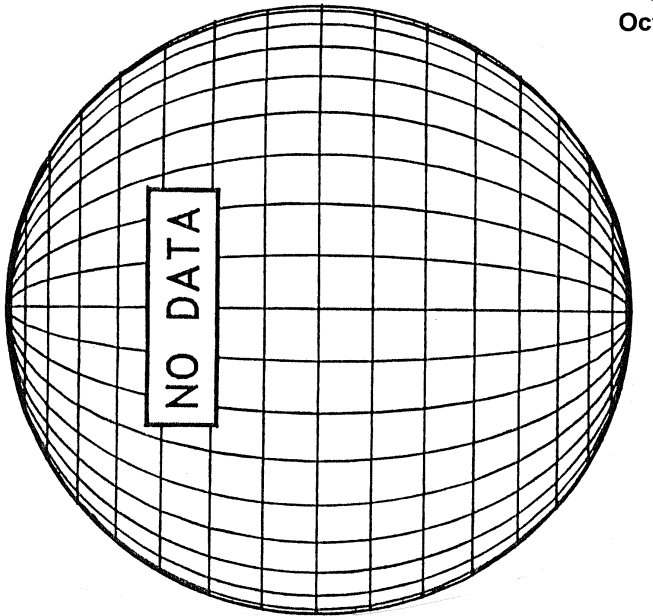
LOMNICKY PEAK CORONA (1.04 Radii)----



1613 UT



1608 UT
0800 UT LOMN Prom S



65
Oct 03

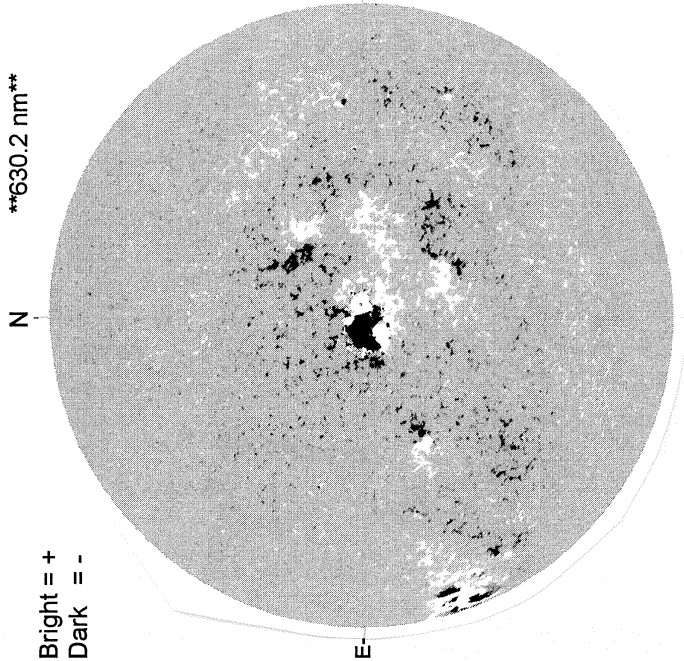
OCTOBER 23, 2003 (P= 25.73, Bo = 5.27, Lo = 7.17)

66
Oct 03

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

Bright = +
Dark = -



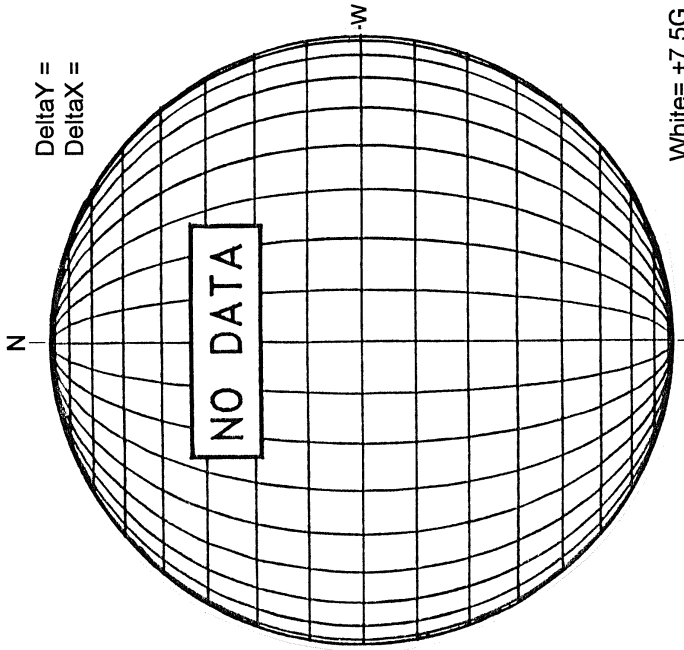
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



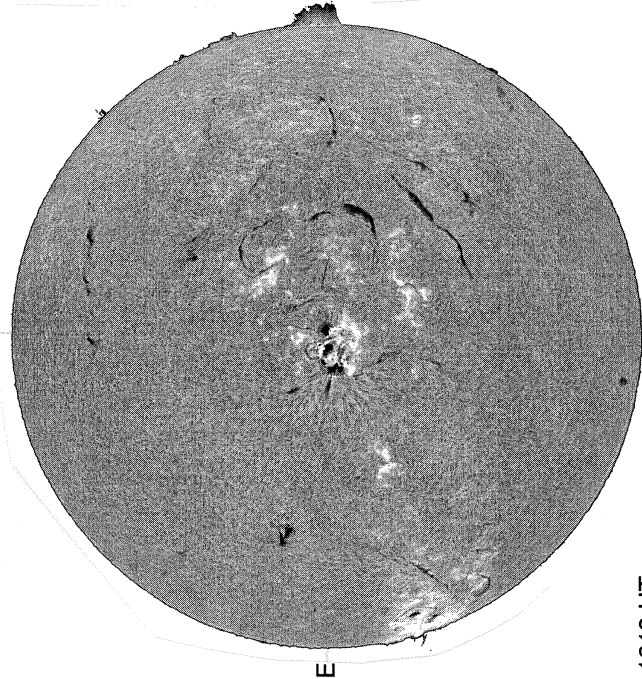
NO DATA

White= +7.5G
Black = -7.5G

1734 UT

2127 UT

BIG BEAR H-ALPHA



1613 UT

HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS

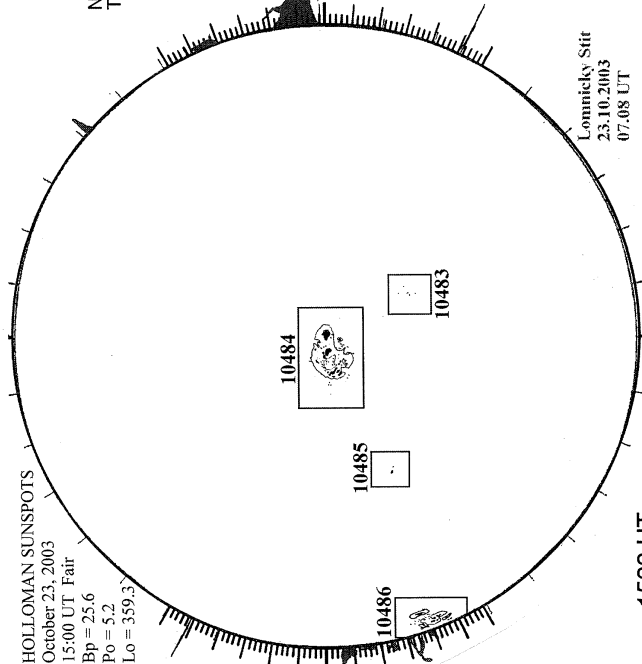
October 23, 2003

15:00 UT Fair

Bp = 25.6

Po = 5.2

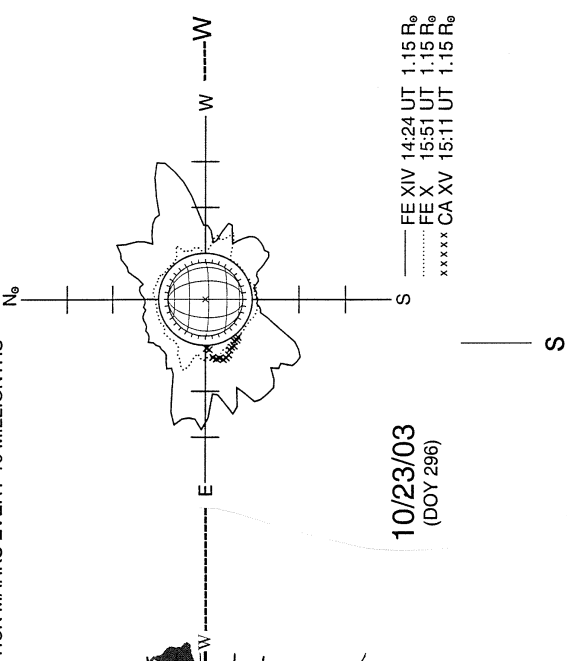
Lo = 359.3



1500 UT
0708 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



10/23/03
(DOY 296)

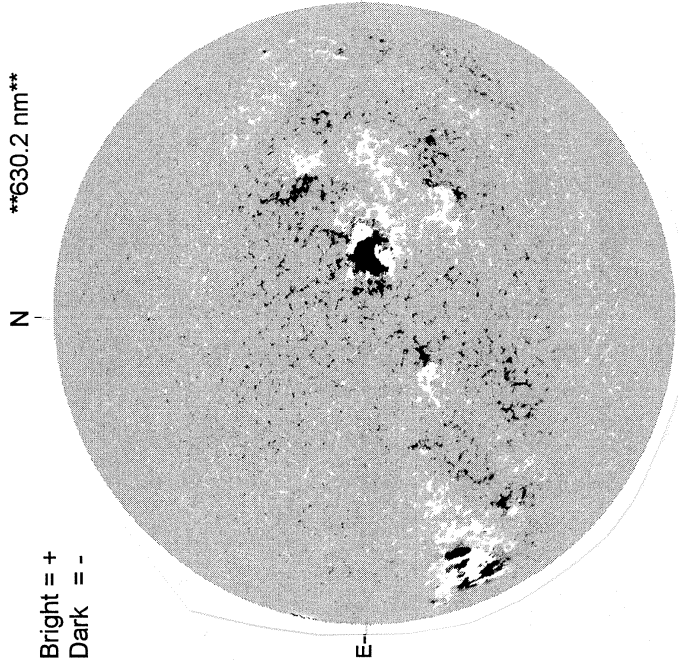
----- FE XIV 14:24 UT 1.15 R_o
..... FE X 15:51 UT 1.15 R_o
xxxxx CA XV 15:11 UT 1.15 R_o

OCTOBER 24, 2003 (P= 25.63, Bo = 5.18, Lo = 353.98)

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

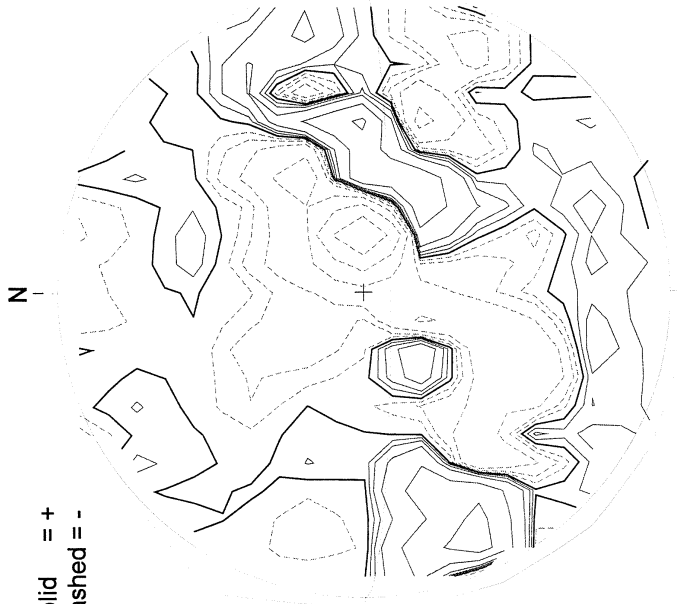
Bright = +
Dark = -



1752 UT

STANFORD MAGNETOGRAM

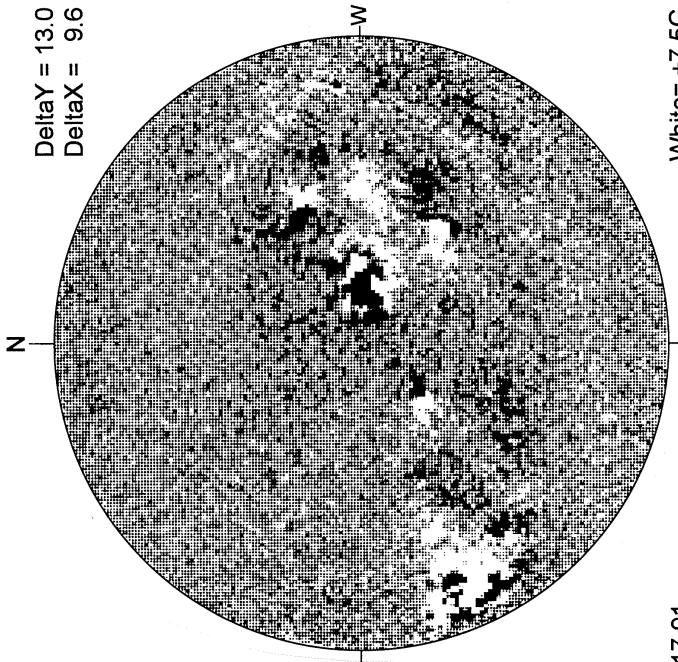
Solid = +
Dashed = -



2108 UT

MT. WILSON MAGNETOGRAM

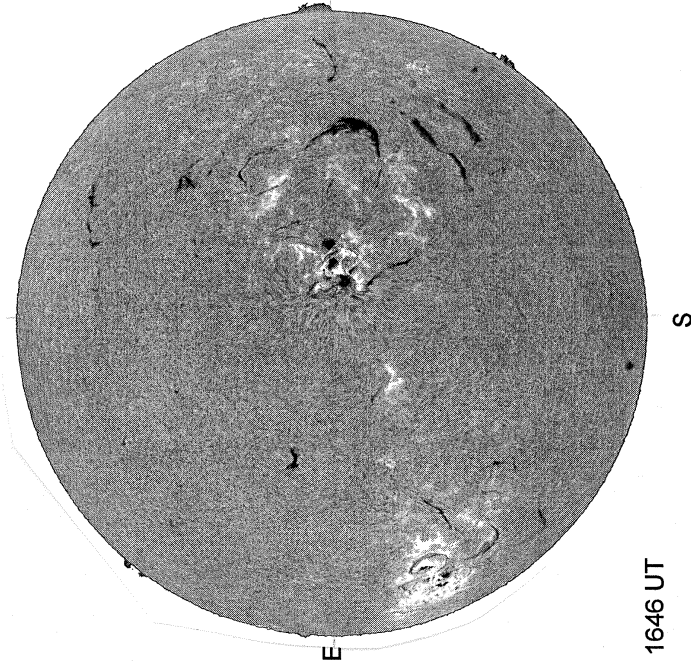
DeltaY = 13.0
DeltaX = 9.6



17.91 -
18.87 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

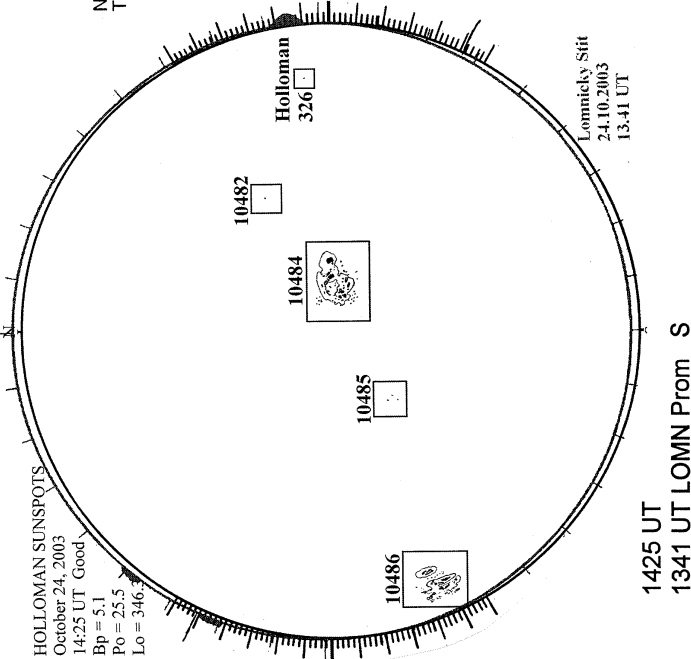


1646 UT

HOLLOMAN SUNSPOT

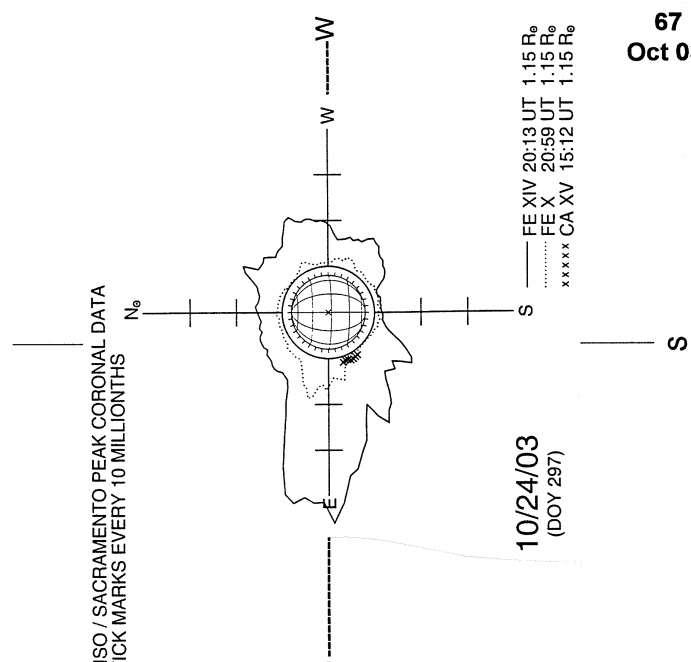
HOLLOMAN SUNSPOTS

October 24, 2003
14:25 UT Good
Bp = 5.1
Po = 25.5
Lo = 346.3



1425 UT
1341 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----



10/24/03
(DOY 297)

----- FE XIV 20:13 UT 1.15 R_o
..... FE X 20:59 UT 1.15 R_o
xxxxxx CA XV 15:12 UT 1.15 R_o

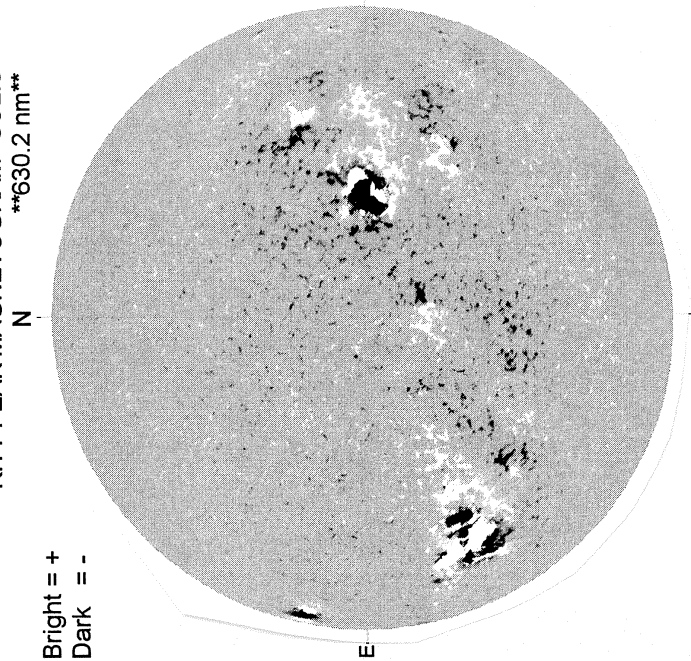
OCTOBER 25, 2003 (P= 25.53, Bo = 5.09, Lo = 340.79)

68
Oct 03

KITT PEAK MAGNETOGRAM--SOLIS

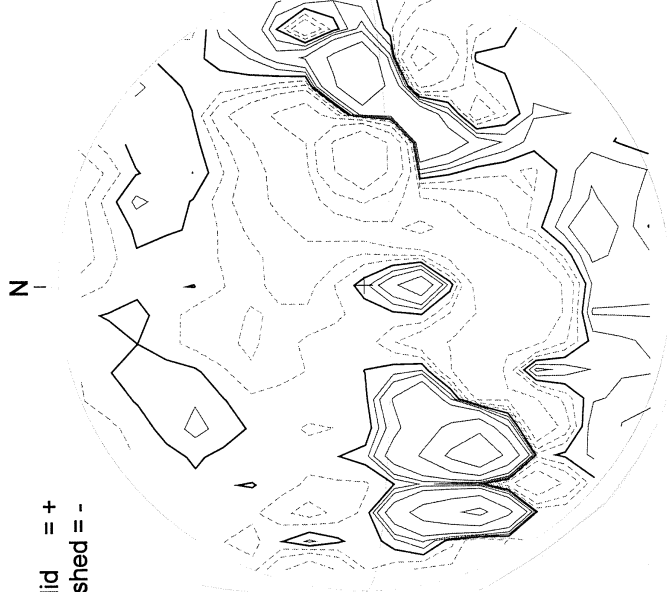
630.2 nm

Bright = +
Dark = -



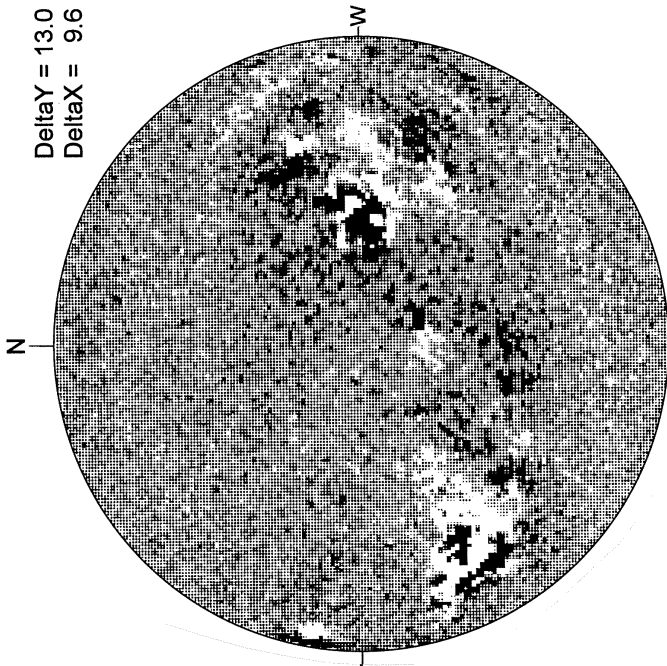
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

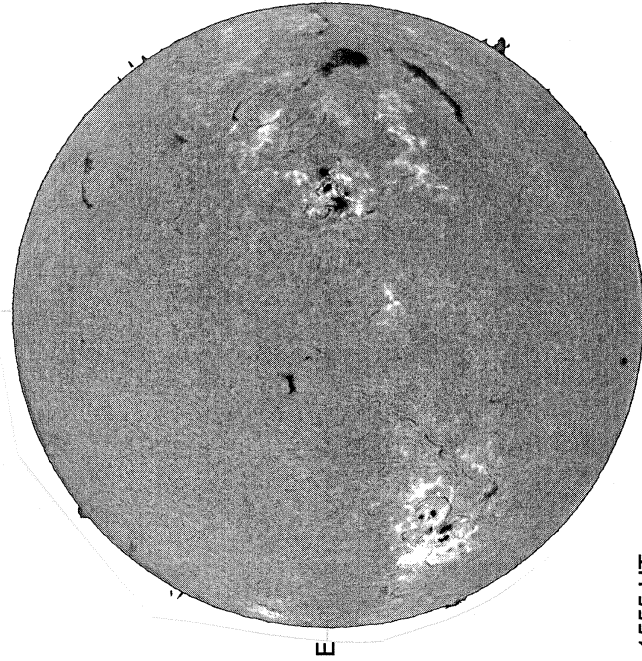
DeltaY = 13.0
DeltaX = 9.6



16.69 -
17.65 UT

White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

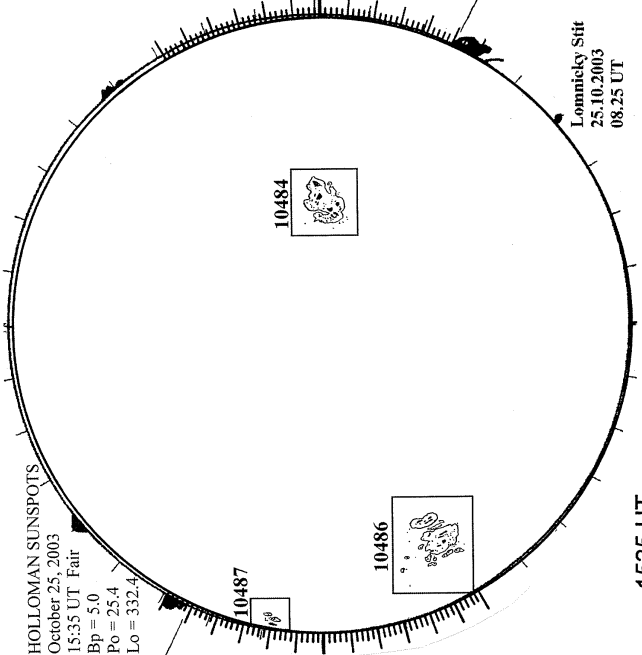


1555 UT

HOLLOMAN SUNSPOT

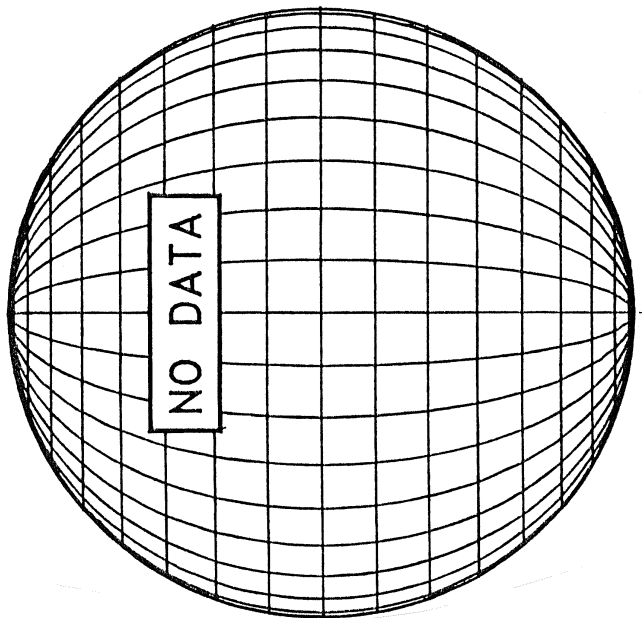
HOLLOMAN SUNSPOTS

October 25, 2003
15:35 UT Fair
Bp = 5.0
Po = 25.4
Lo = 332.4



1535 UT
0825 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



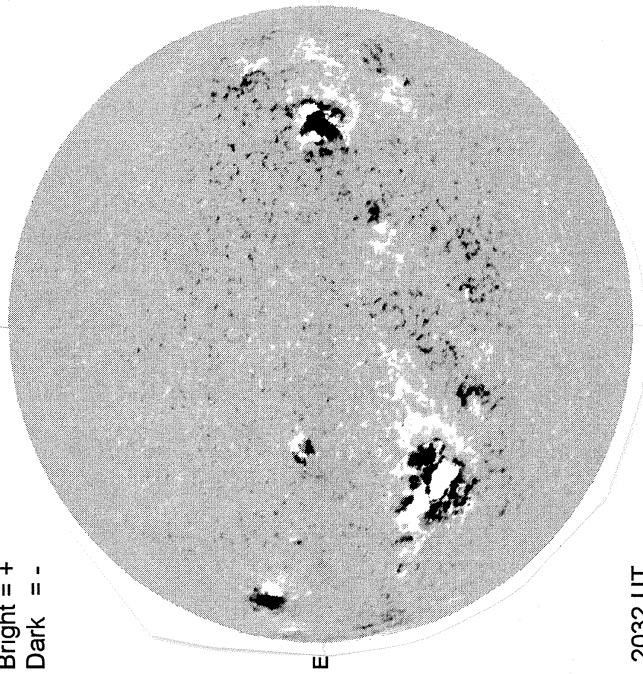
Lomnický Sit
25.10.2003
08:25 UT

OCTOBER 26, 2003 (P= 25.42, Bo = 5.00, Lo = 327.60)

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

Bright = +
Dark = -



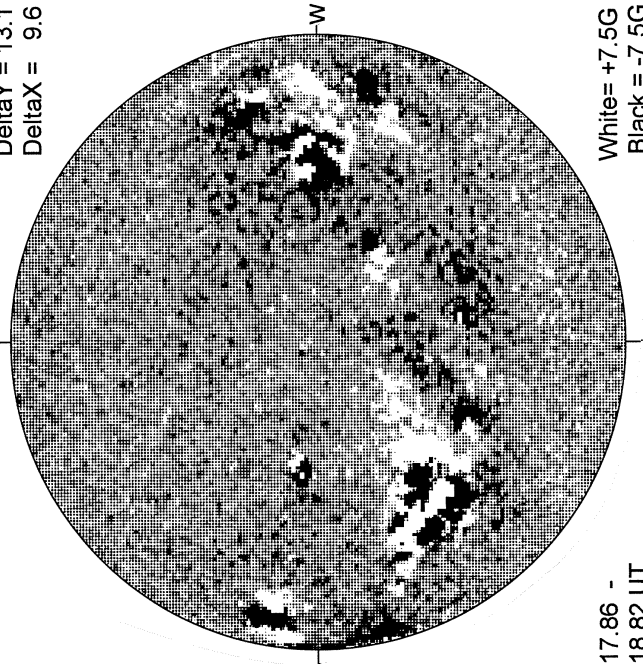
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



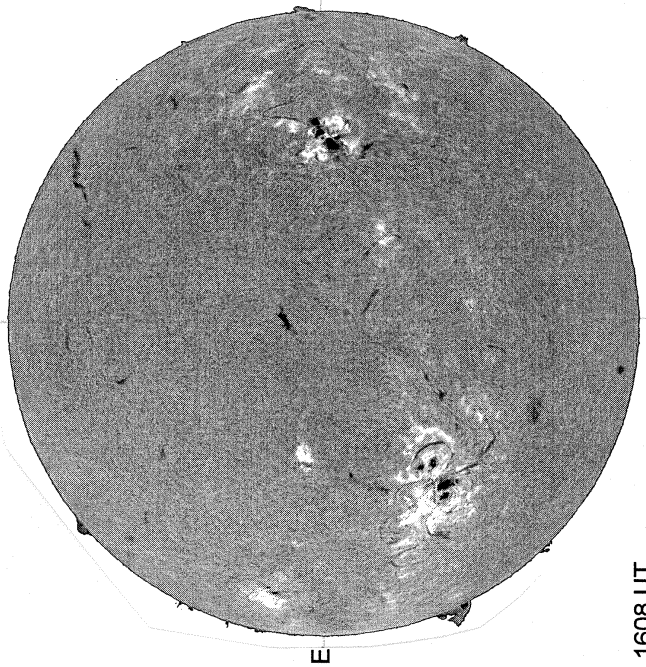
MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



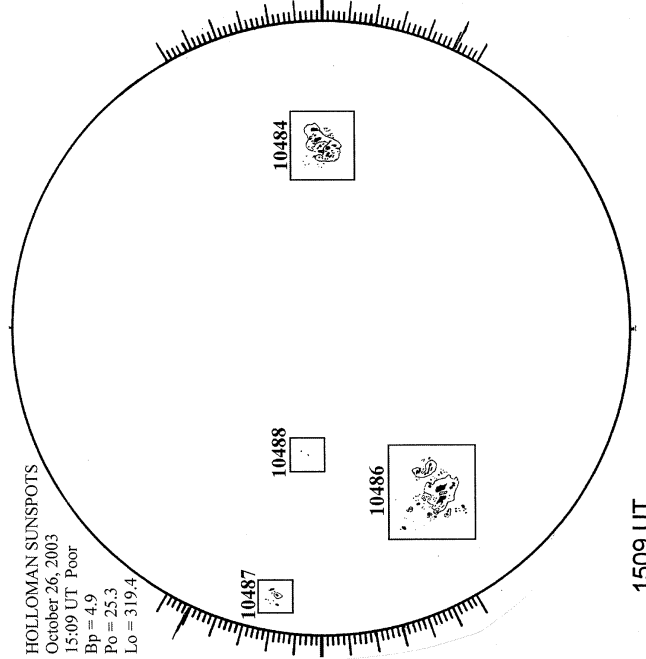
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

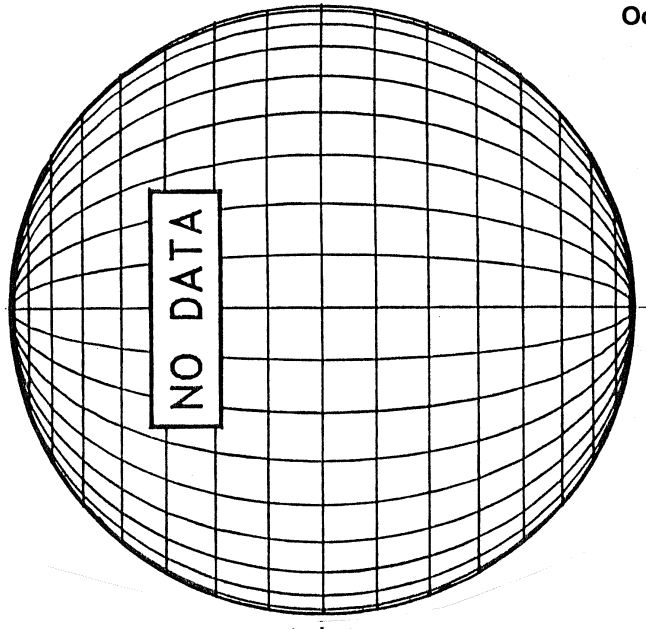


HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS
October 26, 2003
15:09 UT Poor
Bp = 4.9
Po = 25.3
Lo = 319.4



SACRAMENTO PEAK CORONA (1.15 Radii)----

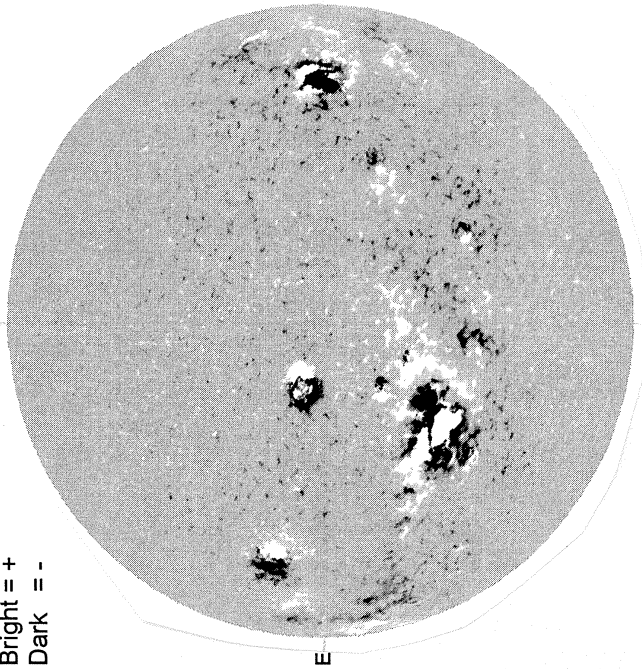


OCTOBER 27, 2003 (P= 25.30, Bo = 4.91, Lo = 314.41)

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

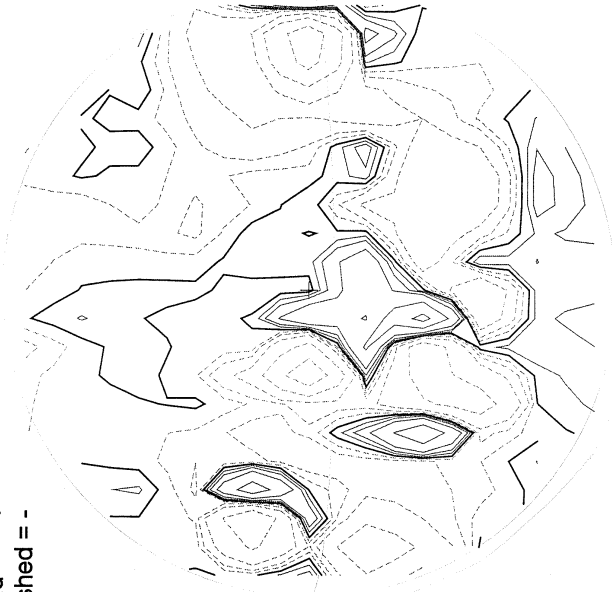
Bright = +
Dark = -



1546 UT

STANFORD MAGNETOGRAM

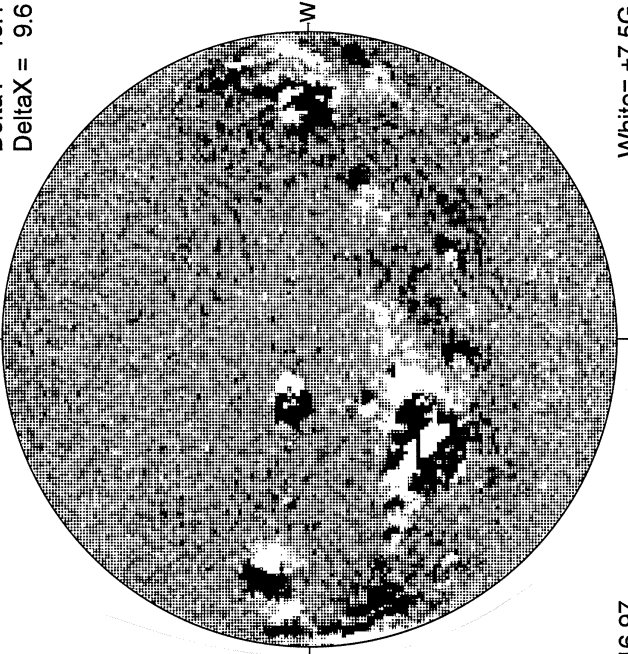
Solid = +
Dashed = -



1825 UT

MT. WILSON MAGNETOGRAM

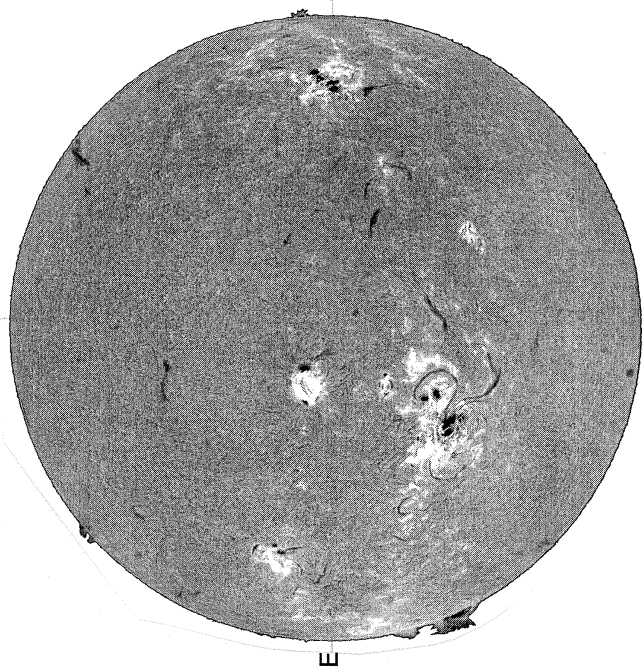
Delta Y = 13.1
Delta X = 9.6



16.97 -
17.93 UT

White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

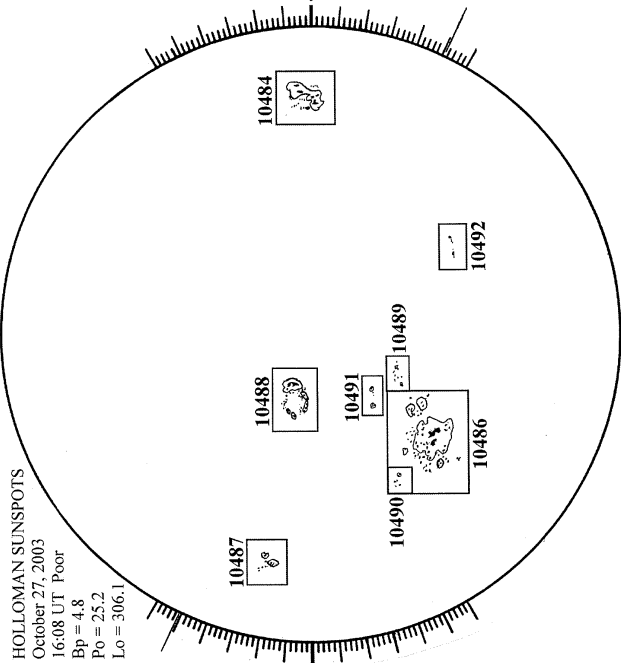


1915 UT

HOLLOMAN SUNSPOT

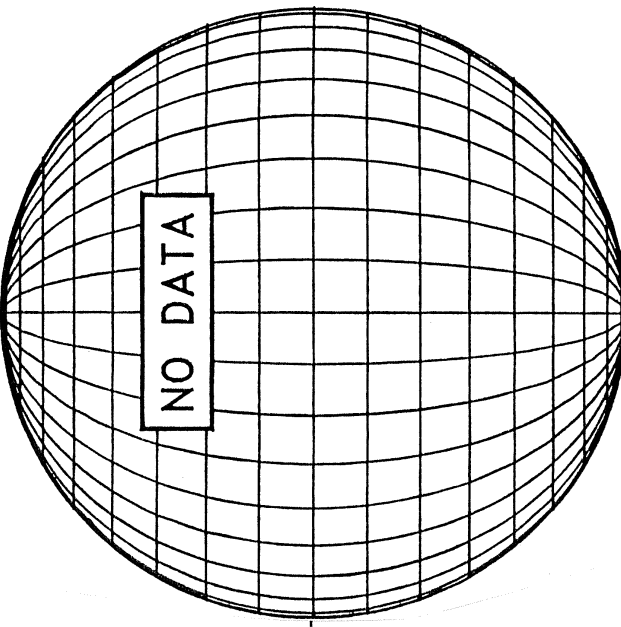
HOLLOMAN SUNSPOTS

October 27, 2003
16:08 UT Poor
Bp = 4.8
Po = 25.2
Lo = 306.1



1608 UT

LOMNICKY PEAK CORONA (1.04 Radii)----

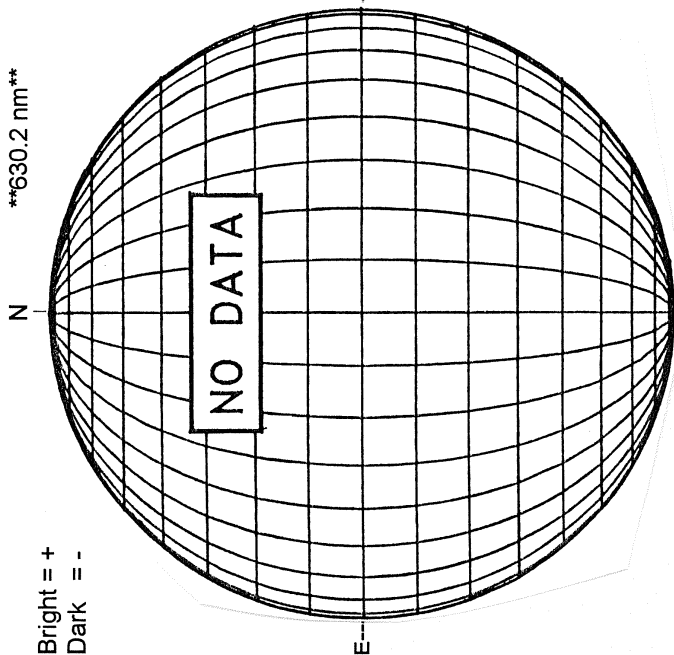


S

OCTOBER 28, 2003 (P= 25.17, Bo = 4.81, Lo = 301.23)

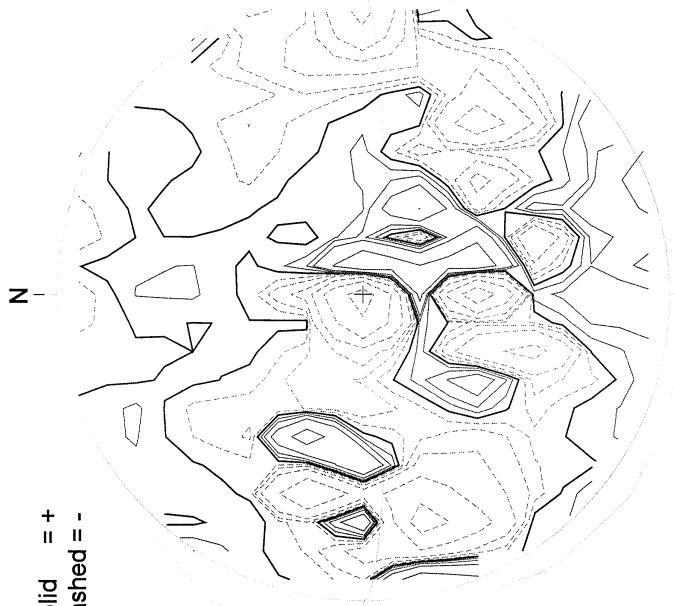
KITT PEAK MAGNETOGRAM--SOLIS
630.2 nm

Bright = +
Dark = -



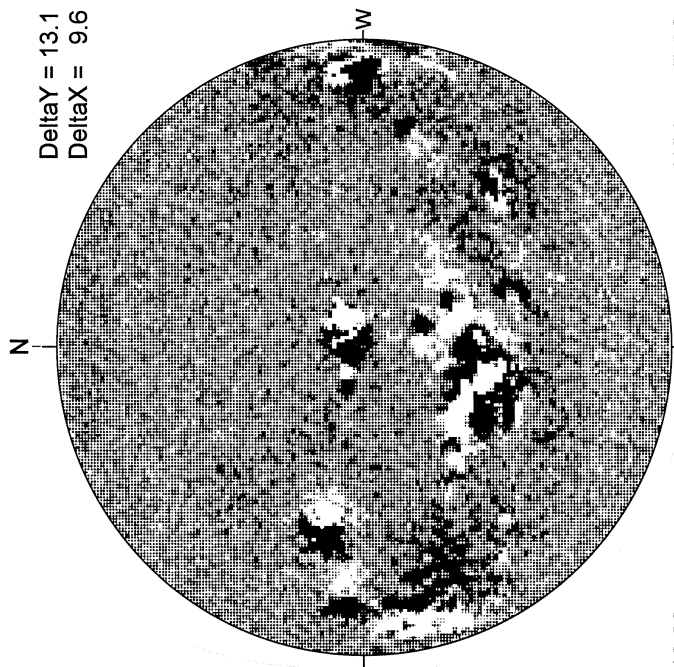
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

Delta Y = 13.1
Delta X = 9.6

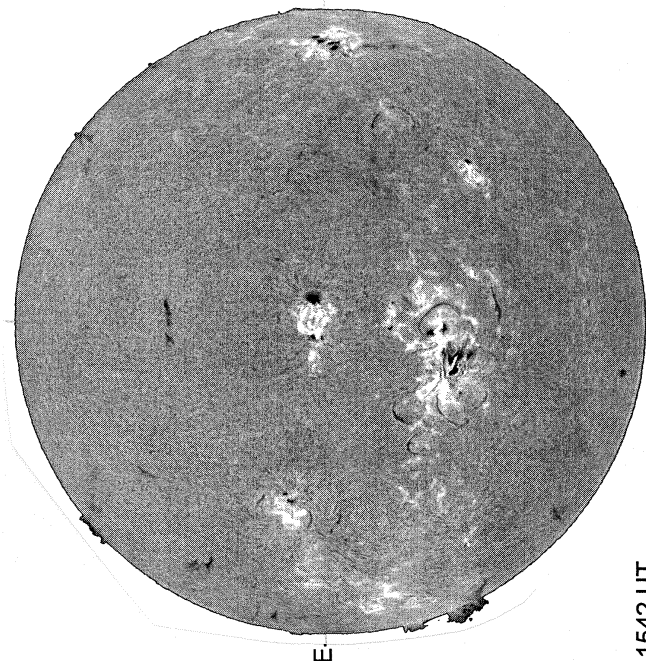


18.32 -
19.28 UT

White = +7.5G
Black = -7.5G

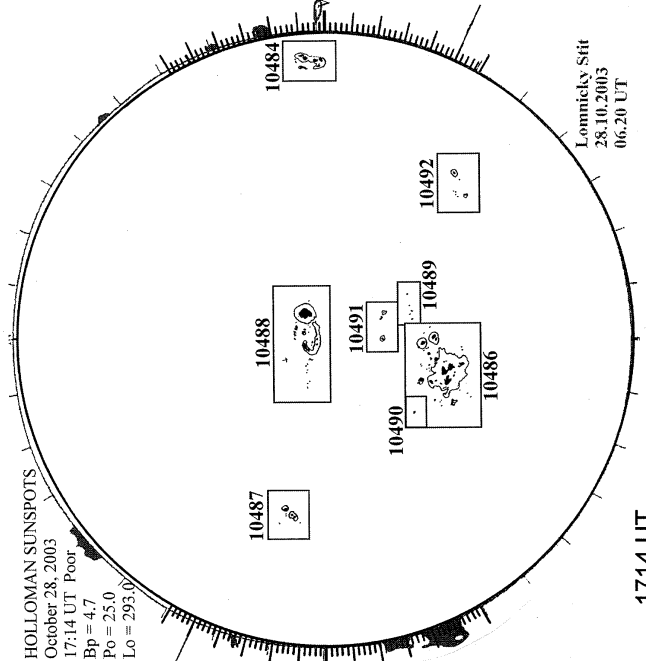
BIG BEAR H-ALPHA

HOLLOMAN SUNSPOTS
October 28, 2003
17:14 UT Poor
Bp = 4.7
Po = 25.0
Lo = 293.0



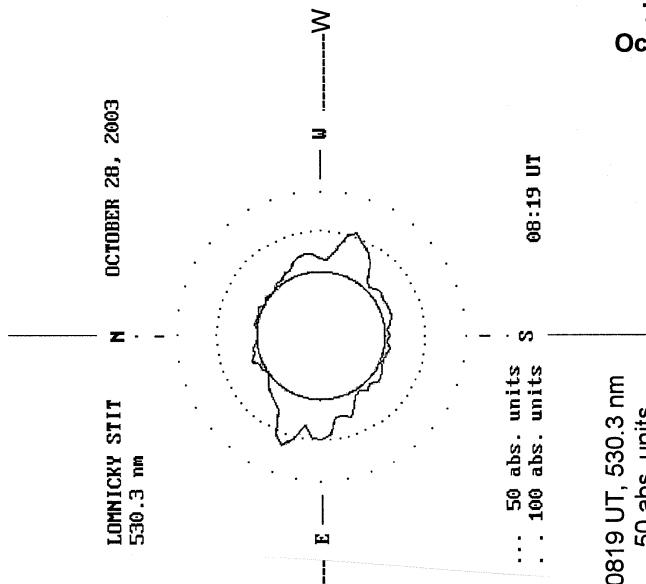
1542 UT

HOLLOMAN SUNSPOT



1714 UT
0620 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



08:19 UT

... 50 abs. units
... 100 abs. units
0819 UT, 530.3 nm
... 50 abs. units
... 100 abs. units

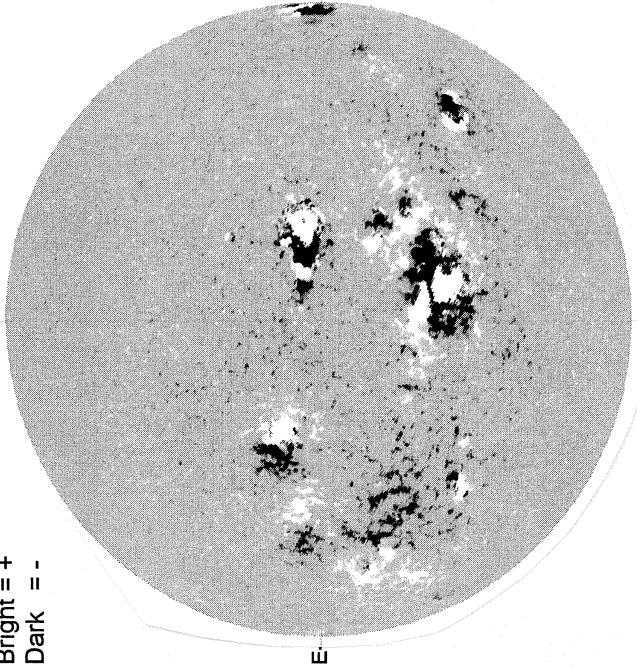
72
Oct 03

OCTOBER 29, 2003 (P= 25.03, Bo = 4.72, Lo = 288.04)

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

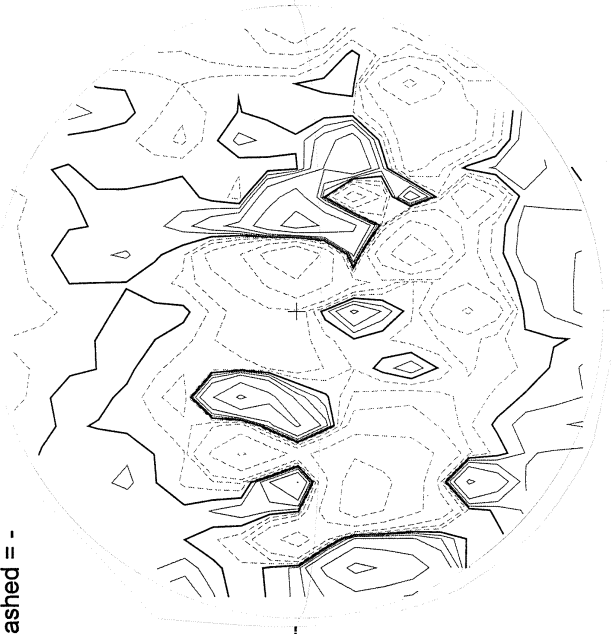
Bright = +
Dark = -



1736 UT

STANFORD MAGNETOGRAM

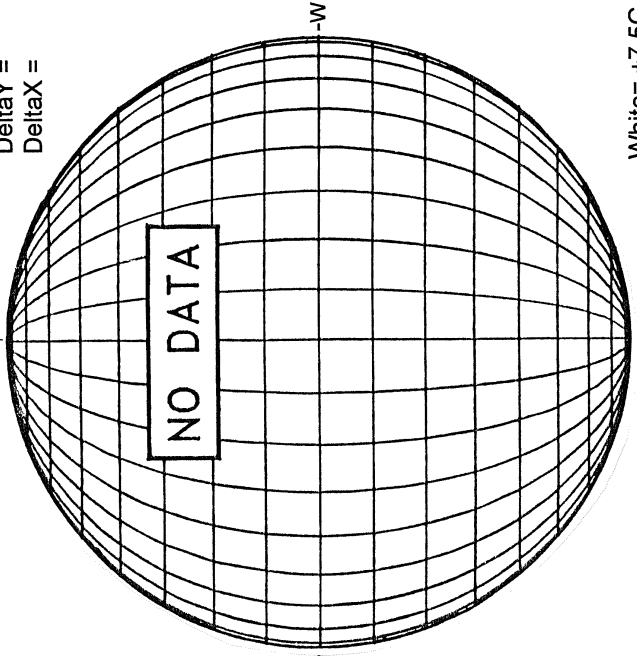
Solid = +
Dashed = -



1824 UT

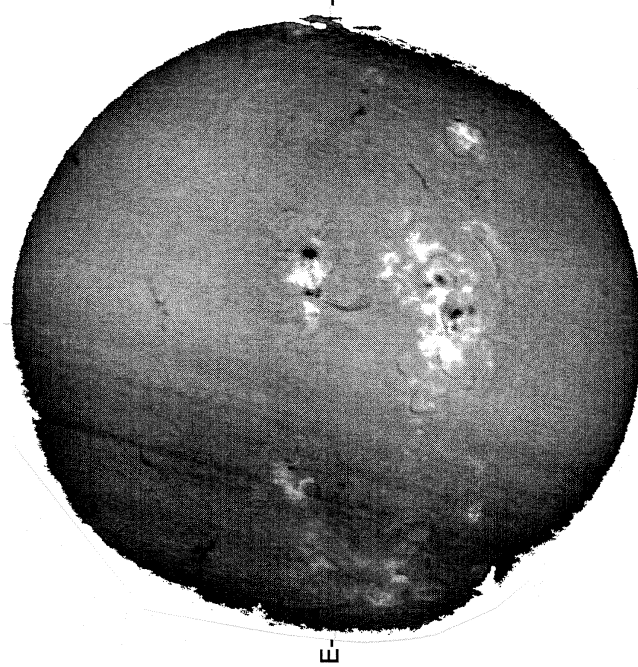
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



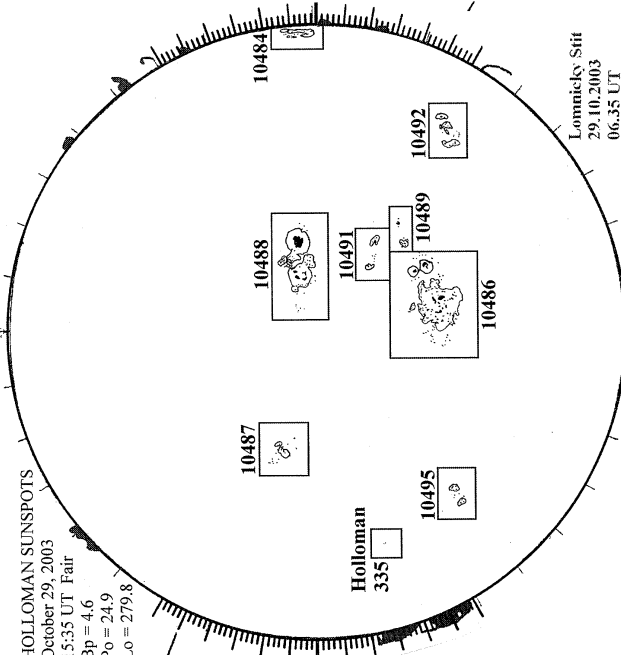
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



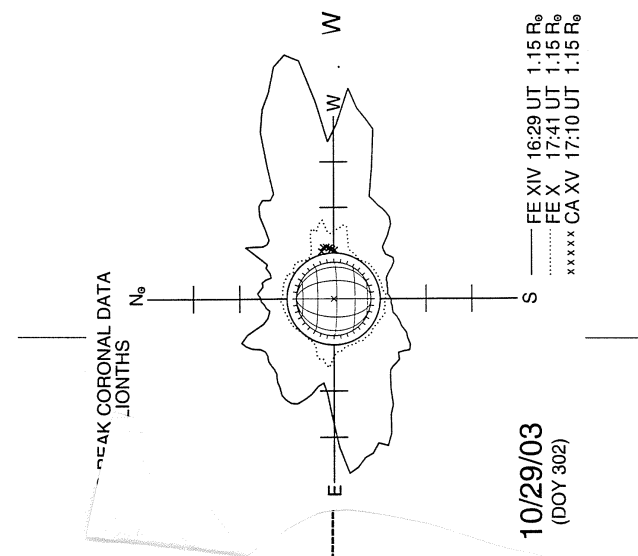
0927 UT

HOLLOMAN SUNSPOT



1535 UT
0635 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----



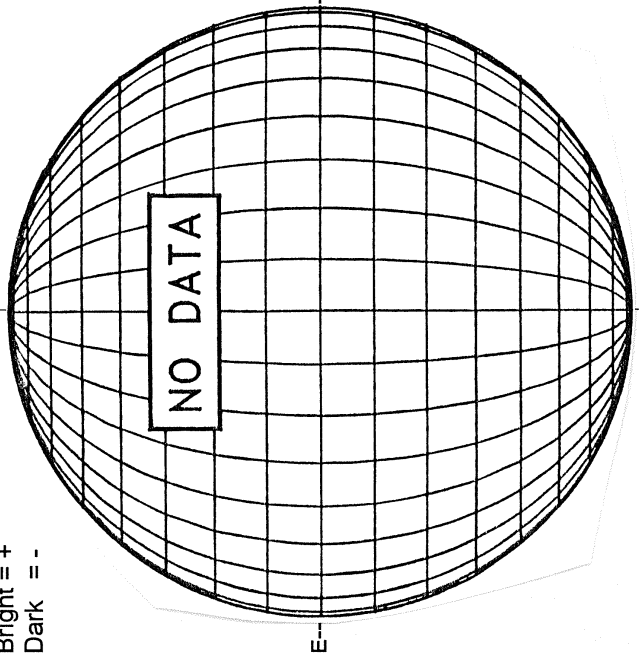
10/29/03
(DOY 302)

FE XIV 16:29 UT 1.15 R₀
FE X 17:41 UT 1.15 R₀
CA XV 17:10 UT 1.15 R₀

OCTOBER 30, 2003 (P= 24.89, Bo = 4.62, Lo = 274.85)

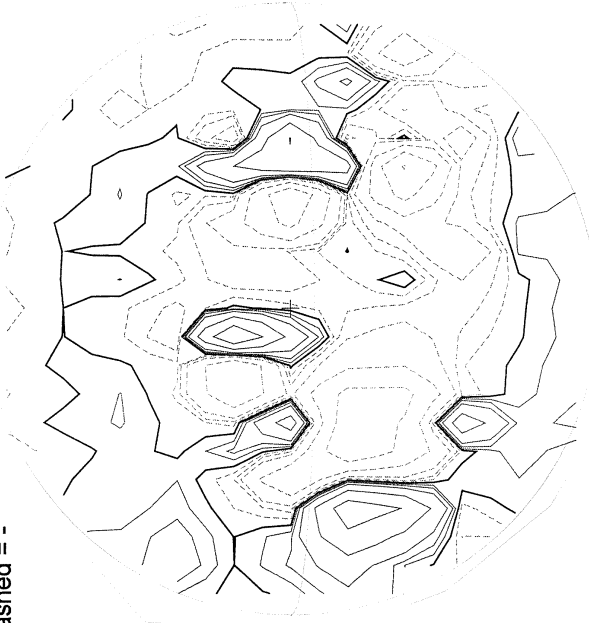
KITT PEAK MAGNETOGRAM—SOLIS
630.2 nm

Bright = +
Dark = -



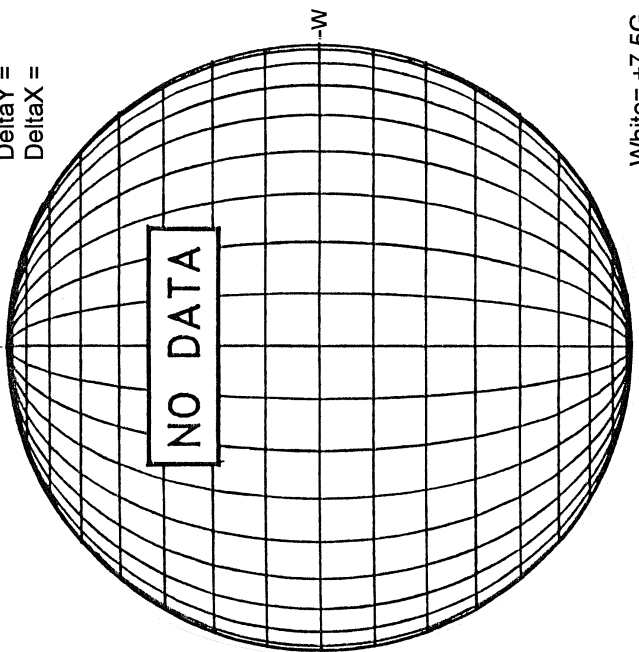
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



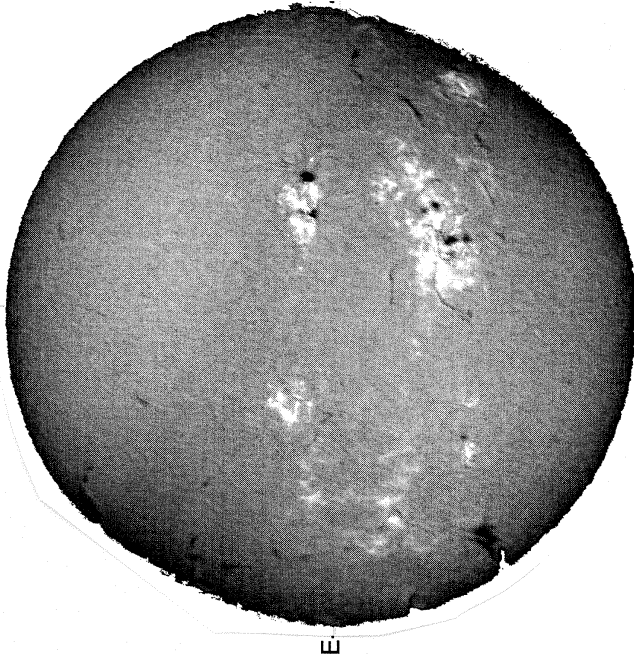
MT. WILSON MAGNETOGRAM

Delta Y =
Delta X =



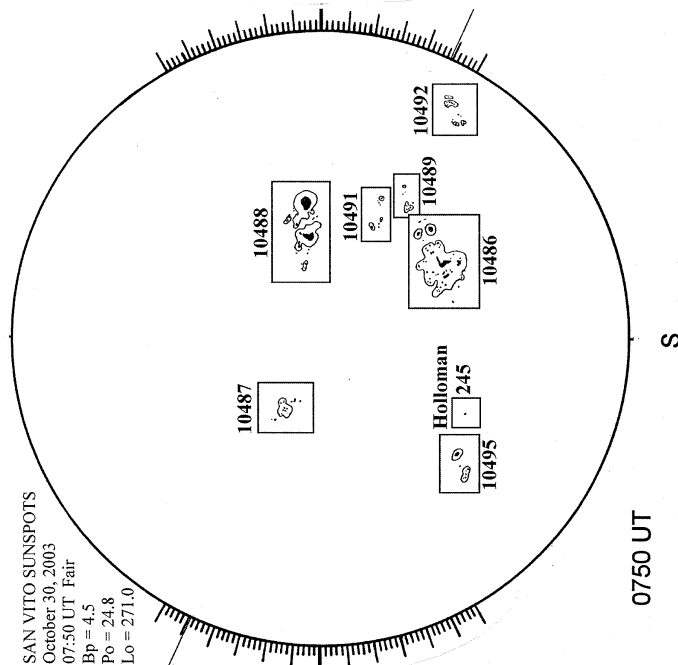
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA

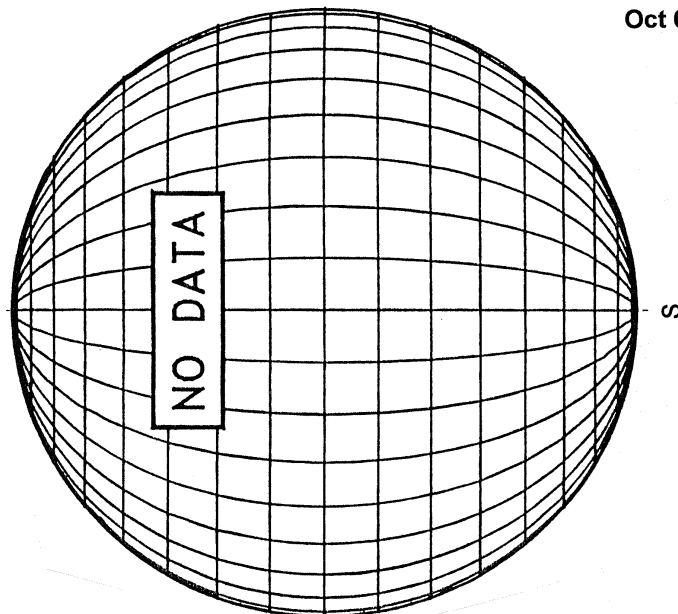


SAN VITO SUNSPOT

SAN VITO SUNSPOTS
October 30, 2003
07:50 UT Fair
Bp = 4.5
Po = 24.8
Lo = 271.0



SACRAMENTO PEAK CORONA (1.15 Radii)----



OCTOBER 31, 2003 (P= 24.74, Bo = 4.52, Lo = 261.67)

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

Bright = +
Dark = -

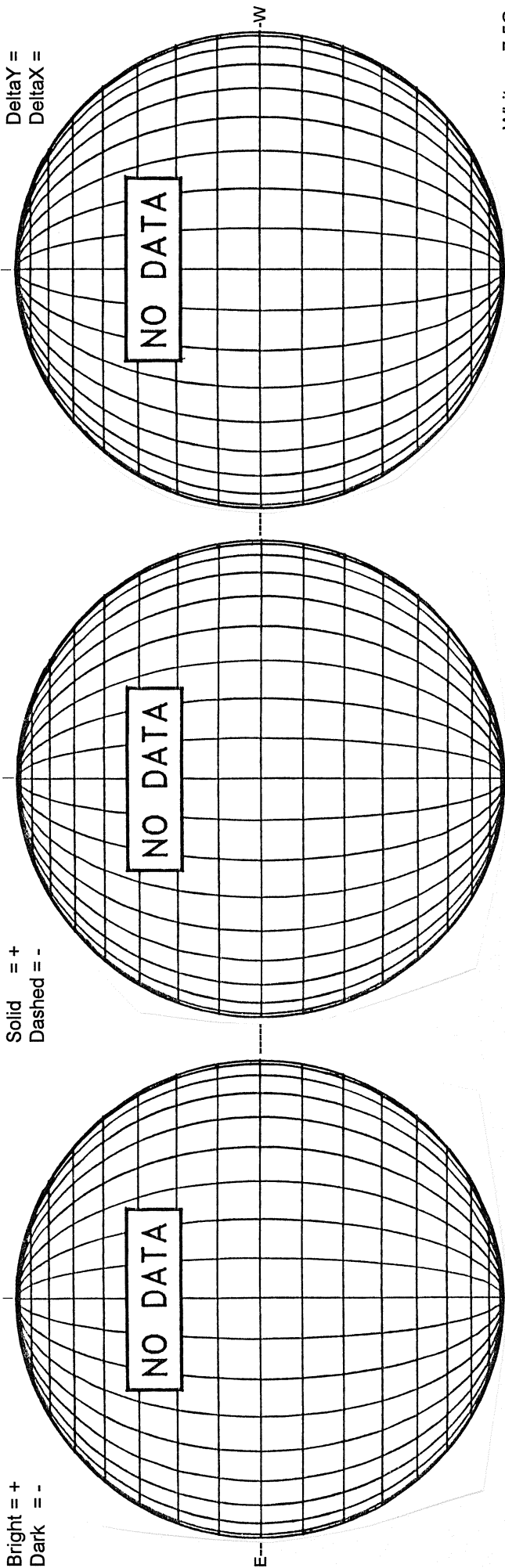
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

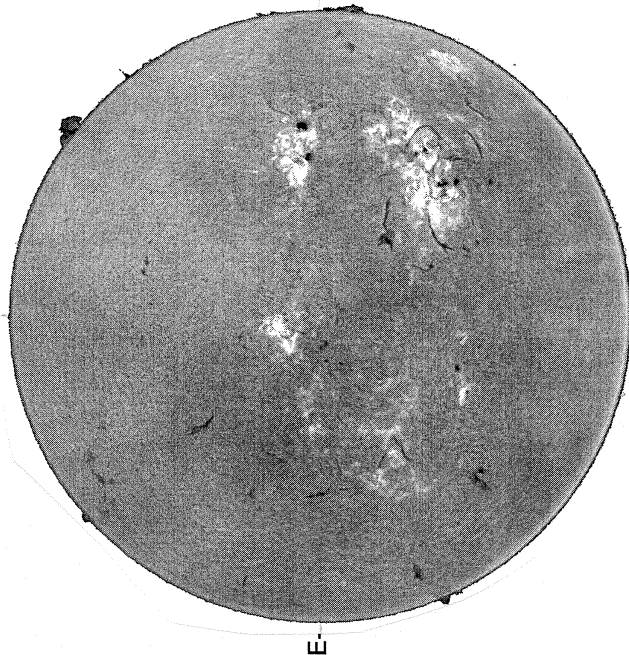
MT. WILSON MAGNETOGRAM

Delta Y =
Delta X =

White = +7.5G
Black = -7.5G

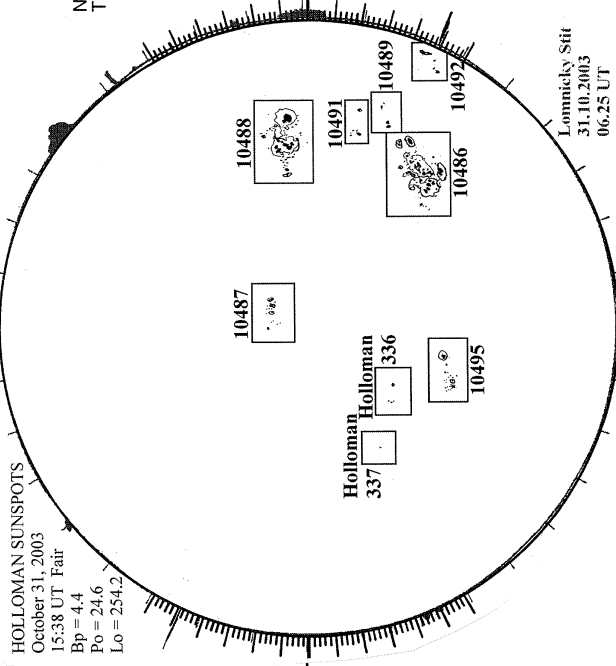


CATANIA H-ALPHA



0709 UT

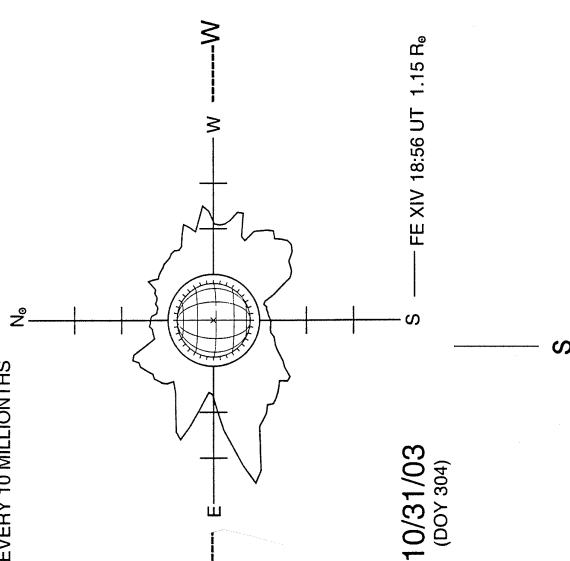
HOLLOMAN SUNSPOT



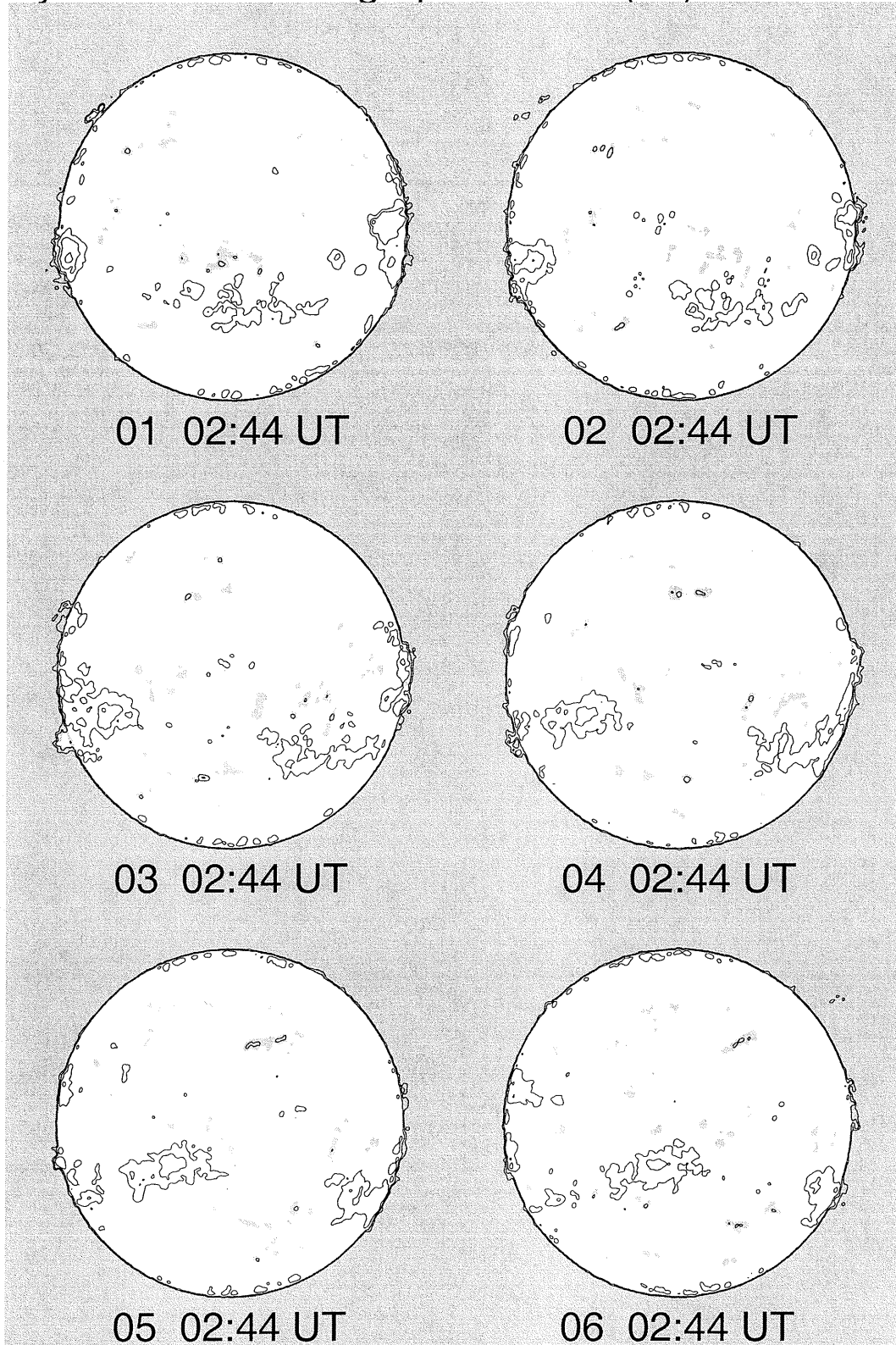
1538 UT
0625 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS

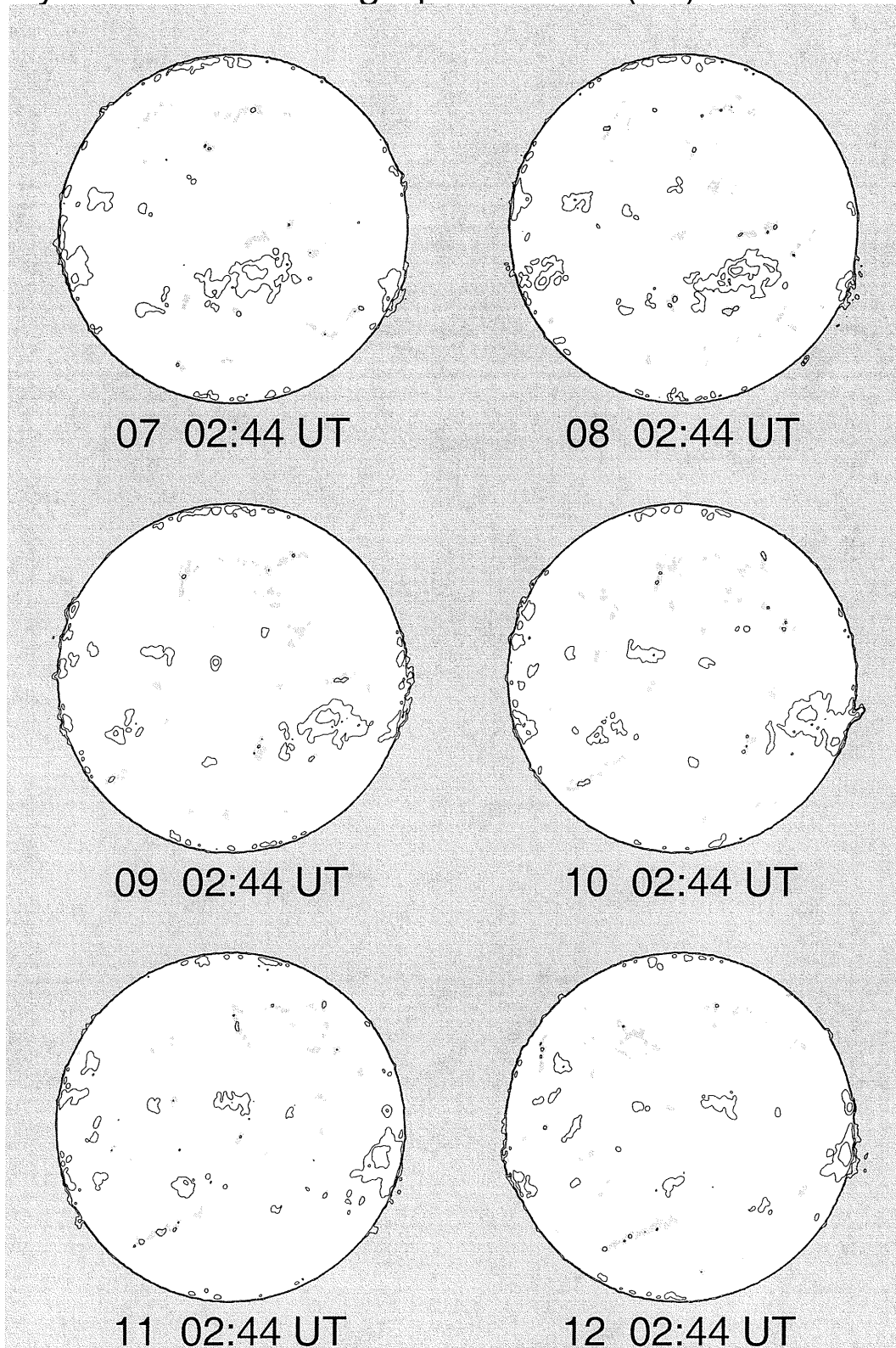


Nobeyama Radio Heliograph 17 GHz (Tb) 2003 October



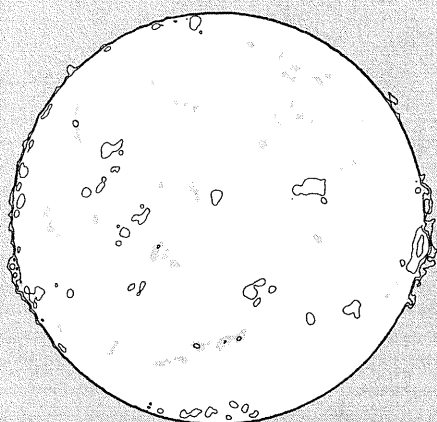
Contour Levels Tb=[5,8,12,20,50,100] x 10³ K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 October

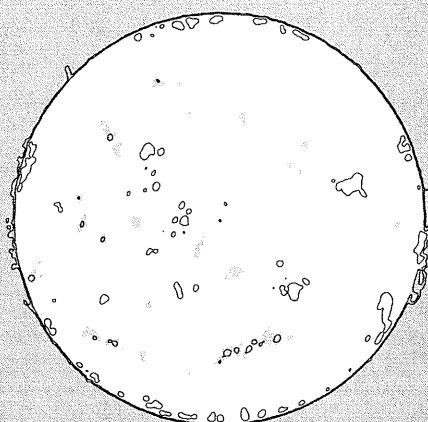


Contour Levels Tb=[5,8,12,20,50,100] x 10³ K
Grey level Tb <= 9,500 K

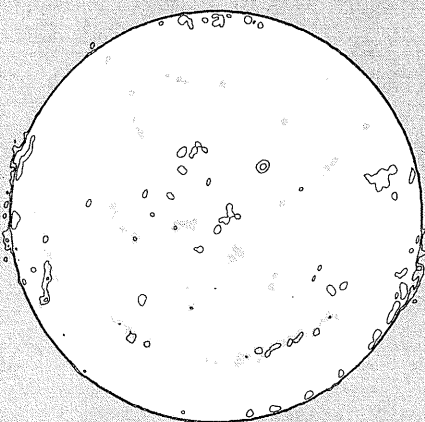
Nobeyama Radio Heliograph 17 GHz (Tb) 2003 October



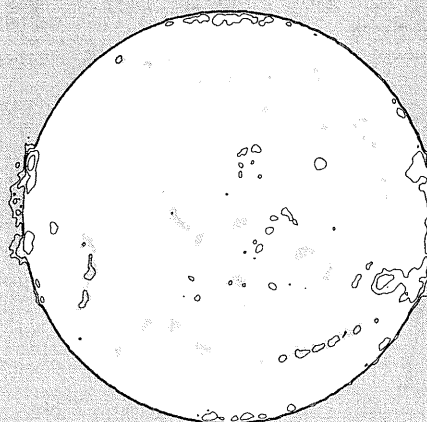
13 02:44 UT



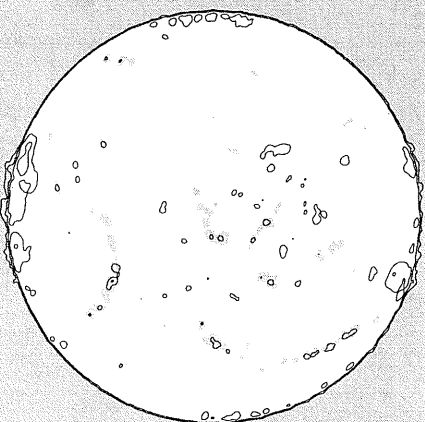
14 02:44 UT



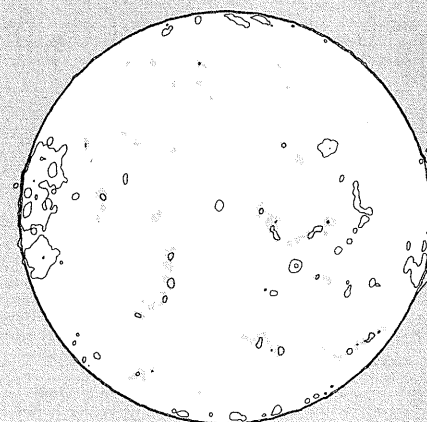
15 02:44 UT



16 02:44 UT



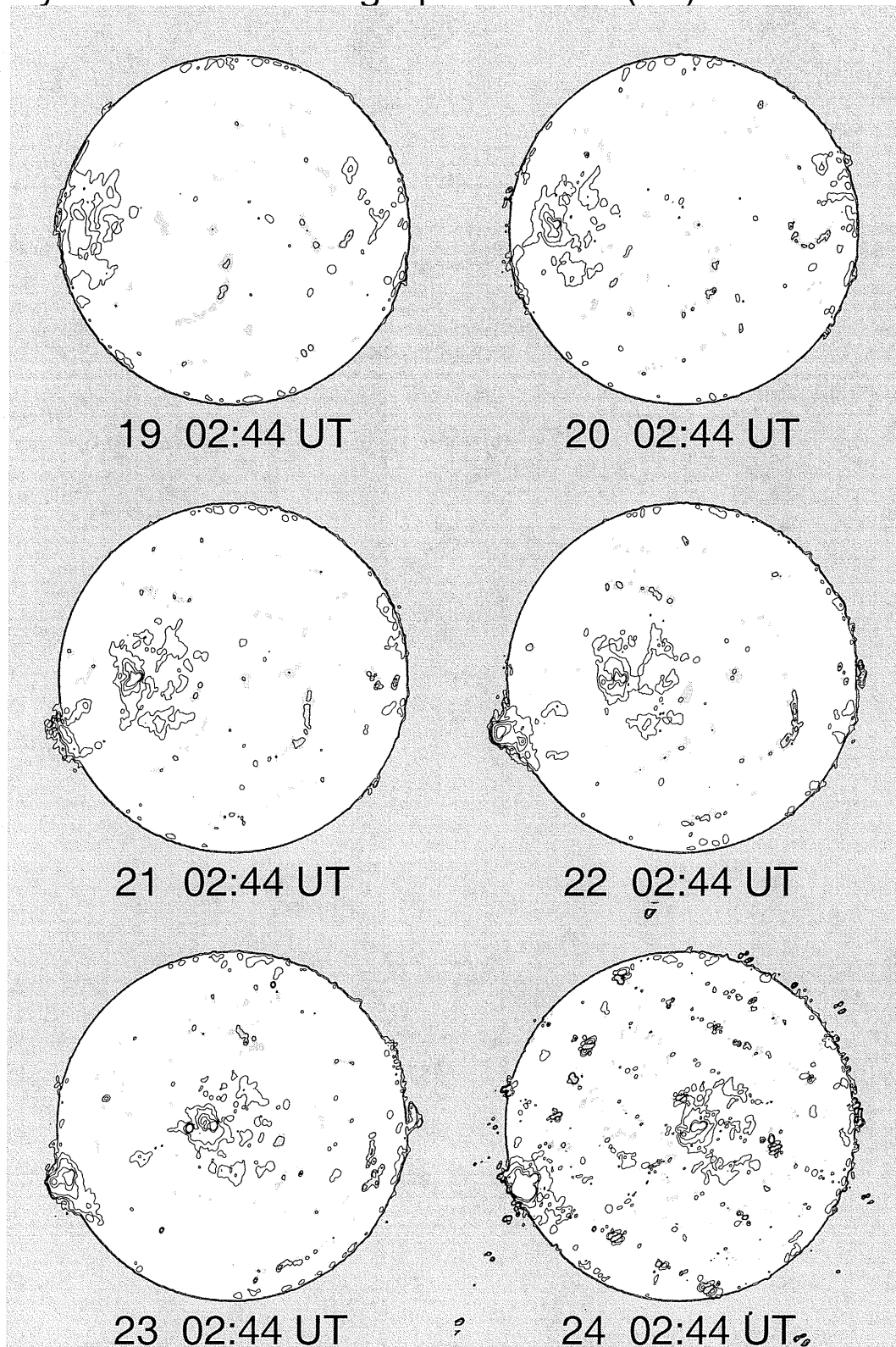
17 02:44 UT



18 02:44 UT

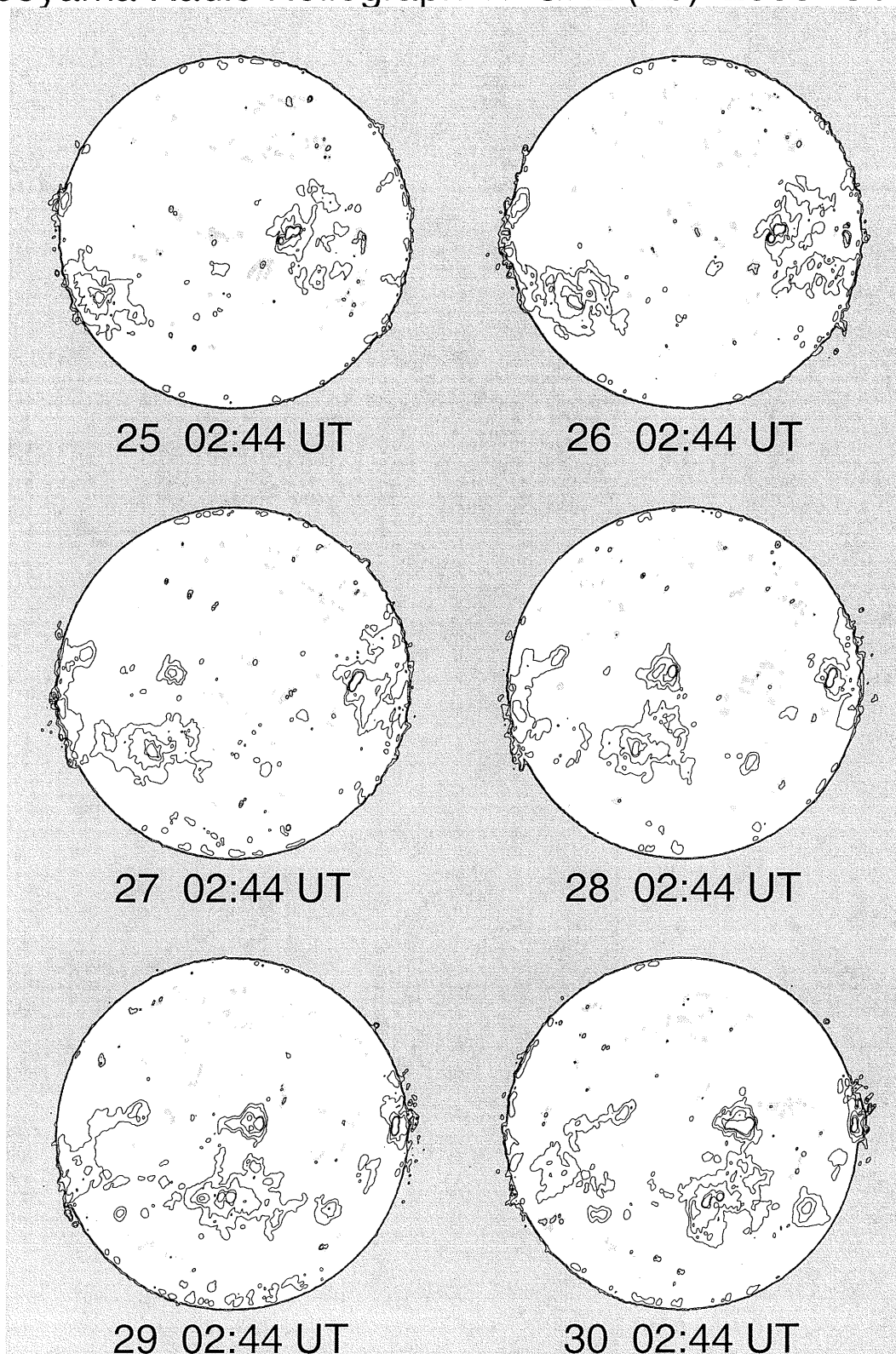
Contour Levels Tb=[5,8,12,20,50,100] x 10³ K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 October



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

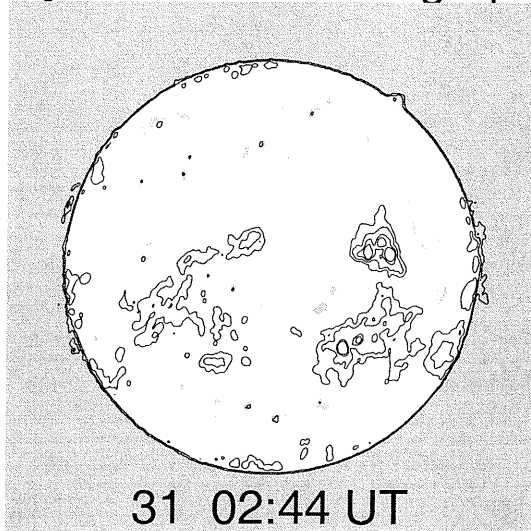
Nobeyama Radio Heliograph 17 GHz (Tb) 2003 October



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

80
Oct 03

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 October



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

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

81
Oct 03

OCTOBER 2003

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
10474	31893	MWIL	10	03	1445	S15	W31	10	1.3	4	(B)					
10474		VORO	10	04	0040	S14	W36	10	1.3			AXX	5	3		3
10474		VORO	10	04	0040	S15	W36	10	1.3			AXX	3	2		3
10474		KAND	10	04	1155	S15	W43	10	1.2			AX		2	1	3
10474	31893	MWIL	10	04	1445	S15	W44	10	1.3	4	(B)					
10474		HOLL	10	04	1545	S14	W45	10	1.2		B	CSO	20	4	6	2
10474		KAND	10	05	0920	S14	W55	10	1.2			AX		1		3
10474	31893	MWIL	10	05	1445	S14	W58	10	1.2	4	(AF)					
10474		HOLL	10	05	1520	S14	W56	10	1.4		A	AXX	10	1	1	3
10472	31886	MWIL	09	29	1430	S19	E25	10	1.5	4	(BG)					
10472		VORO	09	29	2211	S22	E23	10	1.7			AXX	4	1		4
10472		HOLL	09	30	1434	S22	E14	10	1.7		A	AXX		1	1	4
10472	31886	MWIL	09	30	1445	S23	E17	10	1.9	4	(B)					
10472		LEAR	10	01	0010	S23	E10	10	1.8		B	BXO	10	2	2	3
10472		VORO	10	01	0320	S22	E09	10	1.8			DRO	18	3	2	4
10472		TACH	10	01	0608	S23	E08	10	1.9			BXO	9	2	2	3
10472		SVTO	10	01	0817	S23	E07	10	1.9		B	DSO	20	2	3	3
10472		KAND	10	01	1130	S23	E05	10	1.9			BXO		5	4	4
10472		HOLL	10	01	1426	S22	E02	10	1.7		B	DSO	30	10	5	3
10472	31886	MWIL	10	01	1500	S22	E03	10	1.8	5	(B)					
10472		VORO	10	01	2314	S22	W02	10	1.8			DRI	52	6	4	4
10472		LEAR	10	02	0032	S22	W04	10	1.7		B	DAO	50	6	6	2
10472		TACH	10	02	0527	S23	W07	10	1.7			BRO	24	4	4	3
10472		KAND	10	02	0800	S22	W06	10	1.9			CRO		6	7	3
10472		SVTO	10	02	0803	S22	W08	10	1.7		B	DSO	40	5	6	3
10472	31886	MWIL	10	02	1515	S22	W12	10	1.7	5	(B)					
10472		HOLL	10	02	2035	S23	W17	10	1.5		B	BXO	10	7	7	2
10472		VORO	10	02	2232	S22	W15	10	1.8			DRI	48	6	7	3
10472		LEAR	10	03	0211	S21	W18	10	1.7		B	DAO	40	7	7	2
10472		SVTO	10	03	1045	S22	W23	10	1.7		B	CRO	20	2	8	2
10472		KAND	10	03	1055	S21	W27	10	1.4			AX		2	1	4
10472		KAND	10	03	1055	S22	W20	10	1.9			AX		3	2	4
10472	31886	MWIL	10	03	1445	S22	W25	10	1.7	5	(B)					
10472		HOLL	10	03	1810	S22	W31	10	1.4		A	HAX	10	1	1	3
10472		LEAR	10	04	0007	S21	W35	10	1.3		B	CAO	20	2	1	4
10472		VORO	10	04	0040	S22	W35	10	1.3			HRX	17	1		3
10472		SVTO	10	04	1134	S23	W40	10	1.4		A	HRX	10	1	1	2
10472		KAND	10	04	1155	S22	W42	10	1.3			AX		2	1	3
10472	31886	MWIL	10	04	1445	S22	W43	10	1.3	4	(AP)					
10472		HOLL	10	04	1545	S21	W42	10	1.4		A	HSX	20	2	2	2
10472		VORO	10	04	2347	S24	W48	10	1.3			HRX	14	2		3
10472		LEAR	10	05	0033	S24	W50	10	1.2		B	CSO	10	3	1	3
10472A		HOLL	10	01	1426	S07	E03	10	1.8		B	BXO	10	2	3	3
10470	31885	MWIL	09	28	1430	S15	E47	10	2.2	3	(BG)					
10470		VORO	09	28	2214	S14	E45	10	2.3			HRX	12	1		4
10470		LEAR	09	29	0205	S13	E44	10	2.4		A	HSX	20	1	1	2
10470		TACH	09	29	0600	S16	E45	10	2.7			BXO	8	2	7	4
10470		KAND	09	29	0615	S13	E42	10	2.4			AX		2	1	4
10470	31885	MWIL	09	29	1430	S13	E36	10	2.3	4	(B)					
10470		HOLL	09	29	1500	S13	E36	10	2.3		B	DSO	40	6	3	3
10470		VORO	09	29	2211	S13	E31	10	2.3			CRI	29	3	3	4
10470		LEAR	09	30	0122	S13	E30	10	2.3		B	DSO	30	5	4	2
10470		TACH	09	30	0533	S13	E26	10	2.2			BRI	26	5	4	4
10470		HOLL	09	30	1434	S12	E23	10	2.3		B	DSO	40	8	7	4
10470	31885	MWIL	09	30	1445	S13	E22	10	2.3	5	(B)					
10470		LEAR	10	01	0010	S13	E17	10	2.3		B	DSO	30	8	7	3
10470		VORO	10	01	0320	S13	E14	10	2.2			DRI	42	6	6	4
10470		TACH	10	01	0608	S14	E13	10	2.2			BRO	8	4	5	3
10470		SVTO	10	01	0817	S14	E13	10	2.3		B	CSO	30	7	7	3
10470		KAND	10	01	1130	S14	E10	10	2.2			BXO		9	7	4
10470		HOLL	10	01	1426	S13	E07	10	2.1		B	DAO	30	5	7	3
10470	31885	MWIL	10	01	1500	S14	E08	10	2.2	4	(B)					
10470		VORO	10	01	2314	S14	E03	10	2.2			DRI	37	7	6	4
10470		LEAR	10	02	0032	S14	E02	10	2.2		B	CAO	30	5	7	2
10470		TACH	10	02	0527	S14	E02	10	2.4			AR	11	2	1	3
10470		KAND	10	02	0800	S12	E02	10	2.5			AX		2	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 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
10470	31885	SVTO	10 02 0803	S14 E01	10 2.4		A	HSX	20	2	1	3
10470		MWIL	10 02 1515	S14 W06	10 2.2	4	(BF)					
10470		VORO	10 02 2232	S13 W07	10 2.4			AXX	8	4		3
10470		LEAR	10 03 0211	S12 W18	10 1.7		B	DAO	40	7	7	2
10470	31885	MWIL	10 03 1445	S14 W21	10 2.0	4	(B)					
10470	31885	HOLL	10 03 1810	S14 W22	10 2.1		B	CSO	10	3	9	3
10470		MWIL	10 04 1445	S14 W32	10 2.2	4	(AF)					
10470		LEAR	10 05 0033	S13 W37	10 2.2		B	CSO	20	2	3	3
10470A	31887	KAND	09 29 0615	S20 E50	10 3.1			AX		1		4
10470A		MWIL	09 29 1430	S19 E44	10 3.0	4	(B)					
10470B	31891	VORO	10 01 2314	N10 E17	10 3.2			AXX	8	4		4
10470B		LEAR	10 02 0032	N10 E16	10 3.2		A	AXX	10	1	1	2
10470B		KAND	10 02 0800	N11 E11	10 3.2			BXO		3	3	3
10470B		MWIL	10 02 1515	N10 E07	10 3.2	4	(B)					
10470B		VORO	10 02 2232	N10 E04	10 3.2			AXX	4	2		3
10473	31888	TACH	09 29 0600	S07 E76	10 4.9			HSX	69	1	2	4
10473		KAND	09 29 0615	S07 E84	10 5.5			HS		1	2	4
10473		MWIL	09 29 1430	S07 E77	10 5.4	5	(AP)					
10473		HOLL	09 29 1500	S08 E77	10 5.4		A	HAX	120	1	2	3
10473	31888	VORO	09 29 2211	S07 E71	10 5.2			HKX	174	1		4
10473		LEAR	09 30 0122	S07 E72	10 5.4		A	HAX	120	1	3	2
10473		TACH	09 30 0533	S07 E67	10 5.2			HSX	204	1	2	4
10473		HOLL	09 30 1434	S07 E60	10 5.1		B	DSI	230	15	9	4
10473	31888	MWIL	09 30 1445	S07 E64	10 5.4	5	(AP)					
10473		VORO	10 01 0320	S07 E56	10 5.3			HKX	190	1		4
10473		TACH	10 01 0608	S08 E54	10 5.3			HSX	89	1	1	3
10473		KAND	10 01 1130	S08 E53	10 5.4			HS		1	2	4
10473	31888	MWIL	10 01 1500	S07 E50	10 5.4	5	(AP)					
10473		VORO	10 01 2314	S07 E45	10 5.3			HHX	171	4		4
10473		TACH	10 02 0527	S08 E42	10 5.4			HSX	119	1	2	3
10473		KAND	10 02 0800	S07 E41	10 5.4			HS		3	3	3
10473	31888	MWIL	10 02 1515	S07 E37	10 5.4	5	(AP)					
10473		VORO	10 02 2232	S07 E32	10 5.3			HHX	144	2		3
10473		LEAR	10 03 0211	S08 E30	10 5.3		A	HSX	120	1	2	2
10473		SVTO	10 03 1045	S07 E27	10 5.5		A	HSX	100	1	2	2
10473	31888	KAND	10 03 1055	S06 E26	10 5.4			HS		1	2	4
10473		MWIL	10 03 1445	S07 E27	10 5.6	5	(AP)					
10473		HOLL	10 03 1810	S07 E23	10 5.5		B	CSO	90	6	3	3
10473		LEAR	10 04 0007	S10 E19	10 5.4		B	DSO	150	9	4	4
10473	31888	VORO	10 04 0040	S07 E18	10 5.4			HHX	171	5		3
10473		SVTO	10 04 1134	S07 E14	10 5.5		A	HSX	180	1	4	2
10473		KAND	10 04 1155	S07 E12	10 5.4			HS		3	4	3
10473		MWIL	10 04 1445	S07 E12	10 5.5	5	(AP)					
10473	31888	HOLL	10 04 1545	S08 E12	10 5.5		B	CSO	90	9	4	2
10473		VORO	10 04 2347	S07 E06	10 5.4			HHX	169	7		3
10473		LEAR	10 05 0033	S08 E05	10 5.4		B	CSO	150	7	3	3
10473		KAND	10 05 0920	S07 E00	10 5.4			HA		1	2	3
10473	31888	MWIL	10 05 1445	S08 W01	10 5.5	5	(AP)					
10473		HOLL	10 05 1520	S09 W02	10 5.5		B	CHO	100	3	5	3
10473		VORO	10 05 2220	S07 W06	10 5.5			HHX	163	8		4
10473		VORO	10 05 2220	S08 W01	10 5.8			AXX	9	6		4
10473	31888	LEAR	10 06 0050	S09 W05	10 5.6		B	CHO	120	5	10	1
10473		SVTO	10 06 0625	S09 W09	10 5.6		B	CSO	120	3	6	3
10473		KAND	10 06 0705	S08 W10	10 5.5			HS		7	7	3
10473		HOLL	10 06 1502	S09 W12	10 5.7		B	CAO	120	9	6	4
10473	31888	MWIL	10 06 1615	S08 W15	10 5.5	5	(AP)					
10473		VORO	10 06 2228	S08 W20	10 5.4			HHX	135	1		3
10473		LEAR	10 07 0026	S09 W19	10 5.6		B	CSO	120	5	5	2
10473		KAND	10 07 0745	S07 W25	10 5.4			HS		1	2	2
10473	31888	SVTO	10 07 1209	S08 W27	10 5.5		A	HSX	110	1	2	2
10473		MWIL	10 07 1445	S09 W28	10 5.5	5	(AP)					
10473		LEAR	10 08 0006	S09 W33	10 5.5		B	CSO	100	3	4	3
10473		KAND	10 08 0555	S07 W39	10 5.3			HS		1	2	3
10473	31888	TACH	10 08 0559	S08 W37	10 5.5			HSX	162	1	2	3
10473		MWIL	10 08 1445	S08 W41	10 5.5	5	(AP)					
10473		LEAR	10 09 0110	S08 W49	10 5.4		A	HSX	60	1	2	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
10473		TACH	10	09	0535	S08	W51	10	5.4			HSX	166	1	2	4
10473		KAND	10	09	0705	S08	W52	10	5.4			HS		1	2	2
10473		SVTO	10	09	0909	S09	W54	10	5.3		A	HSX	140	1	4	3
10473		HOLL	10	09	1445	S08	W57	10	5.3		A	HHX	60	1	3	4
10473		LEAR	10	10	0115	S08	W62	10	5.4		A	HSX	120	1	3	4
10473		SVTO	10	10	0615	S09	W66	10	5.3		A	HSX	120	1	3	3
10473		KAND	10	10	1235	S08	W70	10	5.3			HS		1	3	3
10473	31888	MWIL	10	10	1500	S07	W69	10	5.4	5	(AP)					
10473		HOLL	10	10	1541	S07	W69	10	5.5		B	CHO	50	3	5	4
10473		LEAR	10	11	0058	S08	W76	10	5.3		A	HHX	120	1	3	3
10473		TACH	10	11	0540	S08	W78	10	5.4			HR	190	2	4	3
10473		SVTO	10	11	0630	S09	W85	10	4.9		A	HSX	60	1	4	3
10473		HOLL	10	11	1439	S08	W90	10	4.9		A	HAX	60	1	1	4
10473	31888	MWIL	10	11	1500	S08	W82	10	5.5	4	(AP)					
10473A		TACH	10	11	0540	N07	W68	10	6.1			HXX	39	1	1	3
10473A		HOLL	10	11	1439	N08	W71	10	6.3		B	CSO	60	3	3	4
10473A	31902	MWIL	10	11	1500	N08	W72	10	6.2	4	(B)					
10473A		LEAR	10	12	0039	N08	W82	10	5.9		A	AXX	30	1	2	2
10473B	31890	MWIL	10	01	1500	S01	E62	10	6.2	4	(AF)					
10471	31889	MWIL	09	30	1445	S08	E79	10	6.5	5	BG					
10471		LEAR	10	01	0010	S08	E65	10	5.9		B	ESI	360	12	23	3
10471		VORO	10	01	0320	S08	E72	10	6.5			EAI	528	18	5	4
10471		TACH	10	01	0608	S07	E68	10	6.3			CAI	233	8	3	3
10471		SVTO	10	01	0817	S06	E61	10	5.9		B	FSO	360	12	24	3
10471		KAND	10	01	1130	S09	E60	10	6.0			EAI		20	12	4
10471		HOLL	10	01	1426	S09	E59	10	6.0		B	FSI	270	37	21	3
10471	31889	MWIL	10	01	1500	S08	E66	10	6.6	5	(BG)					
10471		VORO	10	01	2314	S08	E60	10	6.5			ERI	388	20	11	4
10471		LEAR	10	02	0032	S08	E54	10	6.1		BG	FSO	410	15	20	2
10471		TACH	10	02	0527	S09	E56	10	6.4			CAI	142	19	12	3
10471		KAND	10	02	0800	S08	E58	10	6.7			EAO		16	15	3
10471	31889	SVTO	10	02	0803	S08	E50	10	6.1		BG	FKO	590	16	23	3
10471		MWIL	10	02	1515	S07	E52	10	6.5	5	(BG)					
10471		HOLL	10	02	2035	S09	E50	10	6.6		B	FSO	250	19	21	2
10471		VORO	10	02	2232	S08	E47	10	6.5			EAI	397	18	12	3
10471		LEAR	10	03	0211	S08	E46	10	6.5		BG	EAI	310	41	11	2
10471		SVTO	10	03	1045	S08	E43	10	6.7		B	ESI	170	24	11	2
10471		KAND	10	03	1055	S07	E42	10	6.6			EAO		28	11	4
10471	31889	MWIL	10	03	1445	S07	E40	10	6.6	5	(D)					
10471		HOLL	10	03	1810	S08	E38	10	6.6		BG	EAI	140	29	14	3
10471		LEAR	10	04	0007	S10	E34	10	6.5		BG	EAC	240	31	12	4
10471		VORO	10	04	0040	S08	E34	10	6.6			EAI	367	23	10	3
10471		SVTO	10	04	1134	S07	E29	10	6.6		B	EAI	180	22	15	2
10471		KAND	10	04	1155	S08	E29	10	6.7			ESI		33	12	3
10471	31889	MWIL	10	04	1445	S09	E27	10	6.6	5	(D)					
10471		HOLL	10	04	1545	S07	E27	10	6.7		BG	EAC	170	50	13	2
10471		VORO	10	04	2347	S07	E21	10	6.6			EAI	307	39	11	3
10471		LEAR	10	05	0033	S08	E21	10	6.6		BG	EAI	120	44	14	3
10471		KAND	10	05	0920	S08	E17	10	6.7			EAI		32	13	3
10471	31889	MWIL	10	05	1445	S07	E13	10	6.6	5	(D)					
10471		HOLL	10	05	1520	S08	E12	10	6.5		B	EKI	140	32	14	3
10471		VORO	10	05	2220	S07	E08	10	6.5			CAI	239	31	13	4
10471		LEAR	10	06	0050	S09	E08	10	6.6		BG	DAI	110	22	10	1
10471		SVTO	10	06	0625	S08	E06	10	6.7		BG	EAI	200	15	14	3
10471		KAND	10	06	0705	S08	E07	10	6.8			EAI		26	14	3
10471		HOLL	10	06	1502	S08	E01	10	6.7		BG	EAI	140	35	12	4
10471	31889	MWIL	10	06	1615	S07	E01	10	6.7	5	(BG)					
10471		VORO	10	06	2228	S08	W04	10	6.6			DAI	190	17	9	3
10471		LEAR	10	07	0026	S08	W05	10	6.6		BG	EAI	200	28	11	2
10471		KAND	10	07	0745	S08	W07	10	6.8			EAC		13	11	2
10471		SVTO	10	07	1209	S08	W11	10	6.7		B	DAC	180	15	10	2
10471	31889	MWIL	10	07	1445	S08	W12	10	6.7	5	(BG)					
10471		LEAR	10	08	0006	S08	W18	10	6.6		BG	DAI	270	32	10	3
10471		KAND	10	08	0555	S07	W20	10	6.7			EAC		15	12	3
10471		TACH	10	08	0559	S09	W22	10	6.6			DAI	225	17	8	3
10471	31889	MWIL	10	08	1445	S08	W25	10	6.7	5	(BG)					

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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
10471		LEAR	10	09	0110	S08	W32	10	6.6		BG	DAI	110	19	11	3
10471		TACH	10	09	0535	S09	W35	10	6.6			DAI	203	14	10	4
10471		KAND	10	09	0705	S07	W34	10	6.7			DAO		14	8	2
10471		SVTO	10	09	0909	S09	W36	10	6.7		B	DSI	160	15	8	3
10471		HOLL	10	09	1445	S07	W38	10	6.8		B	DAC	140	22	8	4
10471		LEAR	10	10	0115	S08	W45	10	6.7		B	DAI	140	26	9	4
10471		SVTO	10	10	0615	S08	W47	10	6.7		B	ESI	80	19	11	3
10471		KAND	10	10	1235	S08	W50	10	6.8			DAO		9	9	3
10471	31889	MWIL	10	10	1500	S08	W51	10	6.8	4	(BG)					
10471		HOLL	10	10	1541	S08	W53	10	6.7		B	DAI	50	20	10	4
10471		LEAR	10	11	0058	S08	W57	10	6.8		B	DAO	90	22	9	3
10471		TACH	10	11	0540	S06	W59	10	6.8			DAI	116	12	7	3
10471		SVTO	10	11	0630	S07	W62	10	6.6		B	ESO	120	13	12	3
10471		KAND	10	11	1300	S07	W67	10	6.5			DAO		3	10	1
10471		HOLL	10	11	1439	S07	W64	10	6.8		B	DAO	120	19	9	4
10471	31889	MWIL	10	11	1500	S07	W65	10	6.7	4	(B)					
10471		LEAR	10	12	0039	S07	W71	10	6.7		B	CSO	120	3	7	2
10471		KAND	10	12	0655	S07	W80	10	6.3			HR		1	2	3
10471		TACH	10	12	0705	S08	W79	10	6.4			HXX	28	1	2	3
10471		SVTO	10	12	1030	S09	W80	10	6.4		A	HSX	40	1	1	3
10471	31889	MWIL	10	12	1500	S07	W83	10	6.4	4	AF					
10476	31892	MWIL	10	02	1515	S15	E64	10	7.5	4	(AP)					
10476		HOLL	10	06	1502	S16	E16	10	7.8		A	HAX	10	1	1	4
10476	31895	MWIL	10	06	1615	S17	E15	10	7.8	4	(AP)					
10476		LEAR	10	07	0026	S17	E11	10	7.8		B	BXO	10	2	2	2
10478		LEAR	10	07	0026	N11	E33	10	9.5		B	BXO	10	2	3	2
10478	31897	MWIL	10	07	1445	N11	E25	10	9.5	4	(AP)					
10478		LEAR	10	08	0006	N12	E21	10	9.6		A	AXX	10	1	1	3
10478	31897	MWIL	10	08	1445	N12	E13	10	9.6	4	(B)					
10478		LEAR	10	09	0110	N11	E07	10	9.6		B	BXO	10	3	3	3
10478		TACH	10	09	0535	N14	E06	10	9.7			BRO	13	3	3	4
10478		KAND	10	09	0705	N09	E03	10	9.5			AX		1	1	2
10478		SVTO	10	09	0909	N09	E02	10	9.5		A	HRX	10	1	1	3
10478		HOLL	10	09	1445	N09	W02	10	9.5		A	AXX		1	1	4
10478		LEAR	10	10	0115	N09	W08	10	9.4		A	AXX	10	1	1	4
10478		LEAR	10	11	0058	N12	W19	10	9.6		A	AXX	10	1	1	3
10475		VORO	10	04	0040	S23	E70	10	9.4			HRX	12	1		3
10475	31894	MWIL	10	04	1445	S23	E69	10	9.9	4	(AP)					
10475		HOLL	10	04	1545	S21	E67	10	9.8		A	AXX	10	2	1	2
10475		LEAR	10	05	0033	S22	E58	10	9.5		B	CSO	20	3	2	3
10475		KAND	10	05	0920	S23	E55	10	9.6			AX		1	1	3
10475	31894	MWIL	10	05	1445	S23	E52	10	9.6	4	(B)					
10475		HOLL	10	05	1520	S23	E52	10	9.6		B	CSO	20	2	2	3
10475		VORO	10	05	2220	S22	E46	10	9.5			HRX	13	2		4
10475		LEAR	10	06	0050	S23	E46	10	9.6		B	CSO	20	2	1	1
10475		KAND	10	06	0705	S22	E42	10	9.5			AX		1		3
10475		KAND	10	10	1235	S22	W08	10	9.9			AX		3	1	3
10475	31900	MWIL	10	10	1500	S21	W10	10	9.8	4	(AF)					
10475A		HOLL	10	09	1445	N08	E15	10	10.7		A	AXX		1	1	4
10475A	31899	MWIL	10	10	1500	N12	E03	10	10.8	4	(AP)					
10475B	31903	MWIL	10	11	1500	N15	W00	10	11.6	4	(BF)					
10475B		HOLL	10	13	1550	N15	W31	10	11.3		A	AXX	10	4	3	3
10477		KAND	10	06	0705	S14	E85	10	12.7			HS		1	2	3
10477		HOLL	10	06	1502	S15	E76	10	12.4		A	HSX	60	1	1	4
10477	31896	MWIL	10	06	1615	S15	E75	10	12.3	4	(AP)					
10477		VORO	10	06	2228	S14	E70	10	12.2			HRX	22	1		3
10477		LEAR	10	07	0026	S15	E70	10	12.3		A	HAX	40	4	2	2
10477		KAND	10	07	0745	S15	E68	10	12.5			HA		1	2	2
10477		SVTO	10	07	1209	S14	E67	10	12.6		A	HSX	50	1	2	2
10477	31896	MWIL	10	07	1445	S15	E63	10	12.4	4	(B)					
10477		LEAR	10	08	0006	S15	E58	10	12.4		B	CSO	40	4	3	3
10477		KAND	10	08	0555	S15	E56	10	12.5			CSO		2	3	3
10477		TACH	10	08	0559	S15	E56	10	12.5			BXO	28	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
10477	31896	MWIL	10	08	1445	S14	E50	10	12.4	4	(B)					
10477		LEAR	10	09	0110	S15	E44	10	12.4		B	CSO	30	2	3	3
10477		TACH	10	09	0535	S14	E42	10	12.4			CSO	80	3	3	4
10477		SVTO	10	09	0909	S15	E39	10	12.3		A	HSX	50	1	2	3
10477		HOLL	10	09	1445	S15	E37	10	12.4		B	CHI	70	7	4	4
10477		LEAR	10	10	0115	S15	E31	10	12.4		B	CSO	50	2	2	4
10477		SVTO	10	10	0615	S15	E27	10	12.3		A	HSX	40	1	2	3
10477		KAND	10	10	1235	S15	E24	10	12.3			CSO		2	3	3
10477	31896	MWIL	10	10	1500	S14	E23	10	12.4	5	(B)					
10477		HOLL	10	10	1541	S14	E23	10	12.4		B	CKI	40	5	4	4
10477		LEAR	10	11	0058	S15	E17	10	12.3		B	CSO	50	2	2	3
10477		TACH	10	11	0540	S13	E14	10	12.3			AXX	13	2	1	3
10477		SVTO	10	11	0630	S15	E14	10	12.3		B	CSO	30	2	2	3
10477		KAND	10	11	1300	S15	E10	10	12.3			HS		1	2	1
10477		HOLL	10	11	1439	S12	E08	10	12.2		B	DAO	60	12	7	4
10477	31896	MWIL	10	11	1500	S13	E08	10	12.2	5	(BG)					
10477		LEAR	10	12	0039	S14	E04	10	12.3		B	CSO	60	3	3	2
10477		KAND	10	12	0655	S14	E01	10	12.4			HA		2	2	3
10477		TACH	10	12	0705	S14	E01	10	12.4			AR	13	2	1	3
10477		SVTO	10	12	1030	S14	W01	10	12.4		A	HSX	40	2	2	3
10477	31896	MWIL	10	12	1500	S14	W04	10	12.3	4	(BP)					
10477		HOLL	10	12	1505	S16	W04	10	12.3		B	CSO	20	3	4	2
10477		VORO	10	12	2220	S15	W08	10	12.3			HSX	31	2		2
10477		LEAR	10	13	0004	S15	W09	10	12.3		A	HAX	20	3	2	3
10477		TACH	10	13	0557	S14	W12	10	12.3			AR	7	2	1	4
10477		KAND	10	13	0800	S15	W12	10	12.4			HA		2	2	3
10477	31896	MWIL	10	13	1500	S15	W17	10	12.3	4	(AP)					
10477		HOLL	10	13	1550	S15	W18	10	12.3		A	AXX	10	3	2	3
10477		VORO	10	13	2251	S15	W21	10	12.4			AXX	14	4		3
10477		LEAR	10	14	0000	S15	W22	10	12.3		A	HAX	20	3	1	3
10477		TACH	10	14	0523	S15	W24	10	12.4			AR	8	2	1	3
10477		KAND	10	14	0645	S15	W25	10	12.4			AX		3	2	3
10477		SVTO	10	14	0818	S15	W25	10	12.4		A	HRX	10	2	1	3
10477	31896	MWIL	10	14	1500	S14	W32	10	12.2	4	(AP)					
10477		HOLL	10	14	1647	S14	W33	10	12.2		A	AXX	10	1	1	3
10477		HOLL	10	15	1430	S14	W44	10	12.3		B	BXO	10	2	3	3
10477	31896	MWIL	10	15	1500	S14	W45	10	12.2	4	(B)					
10477		VORO	10	16	0022	S14	W49	10	12.3			CAI	49	6	4	3
10477		LEAR	10	16	0125	S13	W51	10	12.2		B	BXO	40	5	4	2
10477		TACH	10	16	0520	S16	W54	10	12.1			DAO	78	3	5	3
10477		SVTO	10	16	1315	S15	W58	10	12.2		B	DSO	80	6	6	3
10477	31896	MWIL	10	16	1500	S14	W57	10	12.3	4	(B)					
10477		HOLL	10	16	1538	S14	W58	10	12.3		B	BXO	30	4	6	3
10477		VORO	10	16	2244	S14	W61	10	12.3			BXO	14	3	6	3
10477		LEAR	10	17	0033	S14	W65	10	12.1		B	BXO	50	3	8	3
10477		SVTO	10	17	0726	S15	W74	10	11.7		A	HSX	30	1	3	2
10477		HOLL	10	17	1457	S17	W70	10	12.3		A	AXX	30	2	2	2
10477	31896	MWIL	10	17	1500	S14	W73	10	12.1	3	(AP)					
10477A	31898	MWIL	10	07	1445	N12	E73	10	13.1	4	(AP)					
10477A		LEAR	10	08	0006	N12	E68	10	13.1		A	AXX	10	1	1	3
10477A		KAND	10	08	0555	N12	E70	10	13.5			AX		1	1	3
10477A		TACH	10	08	0559	N12	E68	10	13.4			AXX	7	1	1	3
10477A	31898	MWIL	10	08	1445	N13	E62	10	13.3	4	(AF)					
10477A		LEAR	10	09	0110	N12	E57	10	13.3		A	AXX	10	1	1	3
10477A	31898	MWIL	10	10	1500	N12	E33	10	13.1	4	(B)					
10477A		HOLL	10	10	1541	N12	E33	10	13.1		B	BXO		5	4	4
10477A	31898	MWIL	10	11	1500	N12	E20	10	13.1	4	(B)					
10480A		TACH	10	15	0613	N04	W18	10	13.9			AXX	13	1	1	3
10480		VORO	10	14	2358	N19	W13	10	14.0			BXO	10	4	2	3
10480		LEAR	10	15	0008	N20	W13	10	14.0		B	BXO	30	6	3	3
10480		TACH	10	15	0613	N20	W17	10	13.9			BRO	64	4	3	3
10480		KAND	10	15	0805	N20	W17	10	14.0			CAO		6	4	4
10480		HOLL	10	15	1430	N20	W21	10	14.0		B	BXO	30	8	4	3
10480	31904	MWIL	10	15	1500	N20	W22	10	13.9	4	(B)					
10480		VORO	10	16	0022	N20	W26	10	14.0			CRO	37	7	4	3
10480		LEAR	10	16	0125	N21	W27	10	14.0		B	BXO	30	3	5	2

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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
10480		TACH	10 16 0520	N20 W30	10 13.9			CAO	56	3	5	3
10480		SVTO	10 16 1315	N20 W36	10 13.8			DRO	50	3	6	3
10480	31904	MWIL	10 16 1500	N20 W35	10 13.9	4	(B)					
10480		HOLL	10 16 1538	N20 W35	10 14.0		B	BXO	30	3	6	3
10480		VORO	10 16 2244	N20 W36	10 14.2			ARX	12	1		3
10480		LEAR	10 17 0033	N21 W39	10 14.0		A	AXX	10	2	1	3
10479		LEAR	10 10 0115	N24 E74	10 15.8		A	AXX	20	1	1	4
10479		KAND	10 10 1235	N23 E76	10 16.4			HR		1	2	3
10479	31901	MWIL	10 10 1500	N24 E68	10 15.9	4	(BF)					
10479		HOLL	10 10 1541	N24 E67	10 15.8		B	CRO	10	5	7	4
10479		LEAR	10 11 0058	N23 E63	10 15.9		A	HAX	50	1	2	3
10479		TACH	10 11 0540	N24 E59	10 15.8			CSO	109	2	5	3
10479		SVTO	10 11 0630	N24 E63	10 16.1		A	HSX	20	1	1	3
10479		KAND	10 11 1300	N23 E59	10 16.1			HR		1	1	1
10479		HOLL	10 11 1439	N23 E55	10 15.8		B	CSO	20	4	6	4
10479	31901	MWIL	10 11 1500	N23 E55	10 15.9	4	(B)					
10479		LEAR	10 12 0039	N23 E52	10 16.0		A	AXX	30	1	1	2
10479		KAND	10 12 0655	N23 E49	10 16.1			HS		1	1	3
10479		TACH	10 12 0705	N25 E49	10 16.1			AXX	12	1	1	3
10479		SVTO	10 12 1030	N24 E47	10 16.1		A	HSX	10	1	1	3
10479	31901	MWIL	10 12 1500	N23 E43	10 15.9	4	(B)					
10479		HOLL	10 12 1505	N23 E43	10 15.9		B	CSO	20	2	3	2
10479		VORO	10 12 2220	N23 E39	10 15.9			AXX	11	1		2
10479		LEAR	10 13 0004	N23 E39	10 16.0		A	HAX	20	2	1	3
10479		TACH	10 13 0557	N24 E36	10 16.0			AXX	3	1	1	4
10479		VORO	10 13 2251	N21 E28	10 16.1			BXO	12	7	6	3
10479		LEAR	10 14 0000	N24 E19	10 15.5		B	BXO	10	3	2	3
10479		SVTO	10 14 0818	N24 E15	10 15.5		A	HRX	10	1	1	3
10479		HOLL	10 17 1457	N24 W27	10 15.5		A	HAX	10	2	2	2
10479	31906	MWIL	10 17 1500	N26 W28	10 15.4	4	(B)					
10479		LEAR	10 18 0037	N26 W32	10 15.5		B	BXO	10	3	5	3
10479		HOLL	10 18 1419	N24 W40	10 15.5		B	CSO	20	4	3	4
10479	31906	MWIL	10 18 1630	N26 W42	10 15.4	4	(BP)					
10479		LEAR	10 19 0037	N25 W46	10 15.5		B	BXO	10	3	3	3
10479	31906	MWIL	10 19 1500	N25 W55	10 15.4	3	(AP)					
10479		HOLL	10 19 1530	N25 W55	10 15.4		A	AXX	10	1	1	4
10479		LEAR	10 20 0017	N25 W59	10 15.4		B	BXO	10	2	5	3
10479		LEAR	10 21 0014	N25 W72	10 15.4		A	AXX	10	1	1	4
10481		SVTO	10 17 0726	S08 W09	10 16.6		B	DSO	20	3	3	2
10481		HOLL	10 17 1457	S08 W13	10 16.6		B	CAO	30	6	4	2
10481	31907	MWIL	10 17 1500	S08 W14	10 16.6	4	(B)					
10481		VORO	10 17 2252	S09 W18	10 16.6			CAO	30	7	3	3
10481		LEAR	10 18 0037	S08 W19	10 16.6		B	BXO	40	9	3	3
10481		TACH	10 18 0625	S09 W22	10 16.6			CSO	60	2	3	3
10481		HOLL	10 18 1419	S08 W27	10 16.6		B	CSO	30	8	5	4
10481	31907	MWIL	10 18 1630	S08 W28	10 16.6	4	(BP)					
10481		VORO	10 18 2331	S10 W34	10 16.4			HRX	26	1		3
10481		LEAR	10 19 0037	S09 W35	10 16.4		A	HRX	10	3	1	3
10481		TACH	10 19 0709	S09 W40	10 16.3			AXX	7	1	1	4
10481	31907	MWIL	10 19 1500	S09 W45	10 16.2	3	AP					
10481		HOLL	10 19 1530	S09 W45	10 16.3		A	AXX	10	3	2	4
10481		VORO	10 19 2243	S09 W48	10 16.3			AXX	11	1		3
10481		LEAR	10 20 0017	S09 W50	10 16.2		A	AXX	20	1	1	3
10481A		LEAR	10 18 0037	N14 W02	10 17.9		A	AXX	10	1	1	3
10481B		VORO	10 22 2323	S13 W37	10 20.2			AXX	6	1		4
10481B		LEAR	10 23 0245	S15 W39	10 20.2		A	AXX	10	1	1	3
10481B	31916	MWIL	10 23 1600	S13 W47	10 20.1	4	(AP)					
10481C	31912	MWIL	10 22 1500	S02 W30	10 20.4	4	(B)					
10481C		HOLL	10 22 1608	S02 W31	10 20.3		B	BXO	10	2	3	3
10481C		VORO	10 22 2323	S02 W35	10 20.3			AXX	8	2	1	4
10481C		LEAR	10 23 0245	S04 W38	10 20.3		B	BXO	10	2	2	3
10481D		VORO	10 23 2301	N07 W46	10 20.5			BXO	11	3	3	3
10481D		LEAR	10 24 0145	N05 W48	10 20.5		B	CRO	20	3	3	2

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)	Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10481D		TACH	10 24 0555	N06	W53	10 20.3			AXX	12	1	1	3
10481D		HOLL	10 24 1425	N08	W56	10 20.4		A	AXX		1		4
10481D	31917	MWIL	10 24 1600	N07	W57	10 20.4	4	(AF)					
10482B		VORO	10 25 0048	S04	W44	10 21.7			AXX	4	1		3
10482A	31911	MWIL	10 21 1445	N03	E08	10 22.2	4	(AP)					
10482A	31911	MWIL	10 22 1500	N04	W05	10 22.2	4	(AP)					
10482A		TACH	10 24 0555	N04	W25	10 22.4			AXX	8	1	1	3
10482A		KAND	10 24 0825	N04	W26	10 22.4			AX		1		2
10482		SVTO	10 16 1315	N18	E88	10 23.2		A	HSX	40	1	2	3
10482	31905	MWIL	10 16 1500	N17	E85	10 23.1	2	AP					
10482		VORO	10 16 2244	N16	E74	10 22.5			HRX	70	6	0	3
10482		LEAR	10 17 0033	N16	E74	10 22.6		B	BXO	50	3	3	3
10482		SVTO	10 17 0726	N15	E70	10 22.6		B	DSO	70	5	8	2
10482		HOLL	10 17 1457	N16	E67	10 22.7		B	CSO	50	6	5	2
10482	31905	MWIL	10 17 1500	N16	E66	10 22.6	4	(BP)					
10482		VORO	10 17 2252	N16	E62	10 22.6			CAI	80	8	5	3
10482		LEAR	10 18 0037	N16	E63	10 22.8		B	BXO	60	11	8	3
10482		TACH	10 18 0625	N17	E59	10 22.7			CAI	98	5	3	3
10482		HOLL	10 18 1419	N17	E54	10 22.7		B	CAO	70	5	6	4
10482	31905	MWIL	10 18 1630	N16	E52	10 22.6	4	(BP)					
10482		VORO	10 18 2331	N16	E48	10 22.6			CAO	97	5	5	3
10482		LEAR	10 19 0037	N16	E48	10 22.7		B	CAO	70	5	2	3
10482		TACH	10 19 0709	N15	E41	10 22.4			AR	13	2	1	4
10482		SVTO	10 19 1406	N16	E38	10 22.5		B	DSO	60	2	3	2
10482	31905	MWIL	10 19 1500	N14	E37	10 22.4	4	(AP)					
10482		HOLL	10 19 1530	N15	E38	10 22.5		B	DAO	30	6	3	4
10482		VORO	10 19 2243	N15	E32	10 22.4			HAX	43	4		3
10482		LEAR	10 20 0017	N16	E35	10 22.7		B	CAO	50	6	8	3
10482		TACH	10 20 0535	N16	E28	10 22.3			AR	13	2	2	3
10482		KAND	10 20 0830	N16	E28	10 22.5			HS		2	2	3
10482		KAND	10 20 0830	N20	E34	10 22.9			AX		1	1	3
10482		SVTO	10 20 1047	N15	E26	10 22.4		B	CRO	10	2	2	2
10482	31905	MWIL	10 20 1500	N14	E24	10 22.4	4	(AP)					
10482		HOLL	10 20 1510	N14	E23	10 22.4		A	HAX	20	7	2	4
10482		VORO	10 20 2300	N15	E19	10 22.4			HRX	20	4		3
10482		LEAR	10 21 0014	N15	E19	10 22.4		A	HSX	30	5	2	4
10482		KAND	10 21 0845	N14	E14	10 22.4			HS		1	1	3
10482	31905	MWIL	10 21 1445	N15	E13	10 22.6	4	(B)					
10482		HOLL	10 21 1537	N14	E08	10 22.2		B	CRO	10	2	3	4
10482		LEAR	10 22 0021	N15	E05	10 22.4		A	HSX	10	1	1	2
10482		KAND	10 22 0640	N17	E03	10 22.5			HS		1	1	4
10482	31905	MWIL	10 22 1500	N14	E02	10 22.8	3	(AF)					
10482		HOLL	10 24 1425	N17	W26	10 22.6		A	AXX		1		4
10483	31908	MWIL	10 17 1500	S08	E71	10 22.9	3	(AP)					
10483		LEAR	10 18 0037	S09	E68	10 23.1		A	AXX	20	1	1	3
10483		HOLL	10 18 1419	S08	E59	10 23.0		A	AXX		1		4
10483	31908	MWIL	10 18 1630	S08	E57	10 23.0	2	AP					
10483		LEAR	10 19 0037	S09	E52	10 22.9		B	BXO	10	2	5	3
10483		TACH	10 20 0535	S09	E35	10 22.8			AR	6	2	1	3
10483		KAND	10 20 0830	S09	E36	10 23.0			CSO		3	2	3
10483		SVTO	10 20 1047	S10	E33	10 22.9		B	CRO	20	2	2	2
10483	31908	MWIL	10 20 1500	S11	E32	10 23.0	4	(D)					
10483		HOLL	10 20 1510	S11	E31	10 23.0		B	DAO	20	9	4	4
10483		VORO	10 20 2300	S10	E27	10 23.0			HAX	137	16		3
10483		LEAR	10 21 0014	S10	E26	10 23.0		B	CAI	80	10	3	4
10483		KAND	10 21 0845	S11	E23	10 23.1			CAO		4	2	3
10483	31908	MWIL	10 21 1445	S11	E19	10 23.0	5	(BG)					
10483		HOLL	10 21 1537	S10	E17	10 22.9		B	DAC	60	20	4	4
10483		LEAR	10 22 0021	S11	E13	10 23.0		B	DAO	40	8	3	2
10483		TACH	10 22 0517	S11	E10	10 23.0			BRI	6	4	2	4
10483		KAND	10 22 0640	S12	E11	10 23.1			DSO		4	2	4
10483		HOLL	10 22 1608	S11	E05	10 23.0		B	BXO	10	3	2	3
10483		LEAR	10 23 0245	S10	W01	10 23.0		B	BXO	10	2	1	3
10483		HOLL	10 23 1500	S10	W08	10 23.0		B	BXO	10	3	3	3
10483A	31914	MWIL	10 22 1500	N15	E10	10 23.4	3	(AF)					

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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
10484B	31913	MWIL	10	22	1500	S11	E16	10	23.8	4	(B)					
10484	31909	MWIL	10	17	1500	N05	E85	10	24.0	3	B					
10484		VORO	10	17	2252	N05	E79	10	23.9			HKX	306	3		3
10484		LEAR	10	18	0037	N04	E83	10	24.2		B	BXI	210	10	1	3
10484		TACH	10	18	0625	N05	E78	10	24.1			HR	154	4	3	3
10484		HOLL	10	18	1419	N05	E71	10	23.9		B	DAC	260	27	6	4
10484	31909	MWIL	10	18	1630	N05	E70	10	23.9	4	(D)					
10484		VORO	10	18	2331	N06	E65	10	23.8			HKX	961	14		3
10484		LEAR	10	19	0037	N06	E66	10	24.0		BG	DKC	660	16	10	3
10484		TACH	10	19	0709	N05	E62	10	23.9			CAI	613	9	2	4
10484		SVTO	10	19	1406	N06	E58	10	23.9		B	DKI	1040	8	10	2
10484	31909	MWIL	10	19	1500	N05	E56	10	23.8	5	(D)					
10484		HOLL	10	19	1530	N06	E56	10	23.8		BG	DKI	1020	46	9	4
10484		VORO	10	19	2243	N06	E51	10	23.8			HKX	1483	51		3
10484		LEAR	10	20	0017	N06	E53	10	24.0		BGD	DKC	1200	41	9	3
10484		TACH	10	20	0535	N04	E49	10	23.9			DAI	763	10	2	3
10484		KAND	10	20	0830	N05	E48	10	23.9			EKC		26	11	3
10484		SVTO	10	20	1047	N05	E45	10	23.8		B	EKI	1110	11	11	2
10484	31909	MWIL	10	20	1500	N04	E43	10	23.8	5	(D)					
10484		HOLL	10	20	1510	N05	E46	10	24.1		BGD	EKC	1730	67	11	4
10484		VORO	10	20	2300	N06	E38	10	23.8			HKX	2033	67		3
10484		LEAR	10	21	0014	N05	E39	10	23.9		BGD	DKC	1650	51	9	4
10484		KAND	10	21	0845	N05	E34	10	23.9			DKC		25	10	3
10484	31909	MWIL	10	21	1445	N04	E30	10	23.8	5	(D)					
10484		HOLL	10	21	1537	N04	E30	10	23.9		BG	FKC	1780	86	13	4
10484		LEAR	10	22	0021	N05	E25	10	23.9		BGD	DKC	1620	66	10	2
10484		TACH	10	22	0517	N04	E22	10	23.9			DKI	2377	22	8	4
10484		KAND	10	22	0640	N04	E22	10	23.9			EKC		16	11	4
10484	31909	MWIL	10	22	1500	N04	E16	10	23.8	5	(D)					
10484		HOLL	10	22	1608	N05	E15	10	23.8		BGD	EKC	1760	49	11	3
10484		VORO	10	22	2323	N04	E11	10	23.8			HKX	2169	57		4
10484		LEAR	10	23	0245	N05	E10	10	23.9		BGD	DKC	1660	51	10	3
10484		SVTO	10	23	1332	N04	E03	10	23.8		B	EKC	1940	27	15	2
10484		HOLL	10	23	1500	N04	E05	10	24.0		BGD	EKC	1520	56	13	3
10484	31909	MWIL	10	23	1600	N05	E03	10	23.9	6	(D)					
10484		VORO	10	23	2301	N05	W01	10	23.9			HKX	2140	43		3
10484		LEAR	10	24	0145	N04	W03	10	23.8		BGD	EKC	1550	78	12	2
10484		TACH	10	24	0555	N07	W04	10	23.9			CKI	1866	40	6	3
10484		KAND	10	24	0825	N04	W05	10	24.0			EKC		35	10	2
10484		HOLL	10	24	1425	N05	W10	10	23.8		BGD	EKC	1420	61	12	4
10484	31909	MWIL	10	24	1600	N05	W10	10	23.9	6	(D)					
10484		LEAR	10	25	0017	N03	W15	10	23.9		BGD	DKC	1460	62	10	2
10484		VORO	10	25	0048	N03	W16	10	23.8			HKX	2034	71	6	3
10484		TACH	10	25	0611	N07	W16	10	24.0			CKI	1918	36	6	4
10484		SVTO	10	25	0725	N03	W19	10	23.9		B	EKC	1810	32	14	3
10484	31909	MWIL	10	25	1530	N05	W23	10	23.9	6	(D)					
10484		HOLL	10	25	1535	N06	W23	10	23.9		BGD	DKC	1760	65	9	3
10484		VORO	10	25	2313	N04	W28	10	23.9			HKX	1959	53	6	4
10484		LEAR	10	26	0237	N03	W29	10	23.9		BGD	DKC	1380	93	10	3
10484		TACH	10	26	0539	N04	W34	10	23.7			HK	2032	21	8	4
10484		SVTO	10	26	1429	N03	W37	10	23.8		B	EKC	1420	24	11	3
10484		HOLL	10	26	1509	N04	W37	10	23.9		BGD	EKC	1200	53	11	2
10484	31909	MWIL	10	26	2100	N05	W40	10	23.9	5	(D)					
10484		VORO	10	26	2332	N05	W41	10	23.9			HKX	1849	53	6	3
10484		LEAR	10	27	0022	N03	W42	10	23.9		BGD	DKC	1600	44	10	3
10484		KAND	10	27	0820	N04	W47	10	23.8			HK		24	8	4
10484		SVTO	10	27	1020	N02	W48	10	23.8		B	EKC	1510	13	12	2
10484	31909	MWIL	10	27	1530	N05	W50	10	23.9	5	(D)					
10484		HOLL	10	27	1608	N04	W51	10	23.8		BGD	DKC	1120	22	8	2
10484		LEAR	10	28	0108	N02	W55	10	23.9		BGD	DKC	1290	32	9	2
10484		SVTO	10	28	0749	N01	W60	10	23.8		B	EKC	1410	9	11	3
10484		KAND	10	28	0930	N04	W60	10	23.9			DKO		8	9	2
10484	31909	MWIL	10	28	1530	N05	W64	10	23.8	5	(D)					
10484		HOLL	10	28	1714	N06	W65	10	23.8		BGD	DKC	920	8	5	2
10484		LEAR	10	29	0100	N01	W69	10	23.9		BGD	DKC	520	15	7	2
10484		VORO	10	29	0517	N04	W72	10	23.8			HKX	1189	11	4	3
10484		TACH	10	29	0809	N03	W72	10	23.9			DAO	850	6	5	4
10484		KAND	10	29	1125	N03	W73	10	24.0			HK		5	7	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
10484	31909	MWIL	10 29 1530	N05 W78	10 23.8	5	(D)					
10484		HOLL	10 29 1535	N05 W79	10 23.7		BG	EKI	540	13	11	3
10484		VORO	10 29 2317	N04 W82	10 23.8			HKX	592	9	3	4
10484		LEAR	10 30 0125	N01 W83	10 23.9		BG	DAO	210	6	10	2
10484A		VORO	10 22 2323	N41 E15	10 24.2			AXX	10	1		4
10485	31910	MWIL	10 20 1500	S06 E62	10 25.3	4	(AP)					
10485		HOLL	10 20 1510	S06 E63	10 25.3		A	AXX	40	2	1	4
10485		VORO	10 20 2300	S06 E59	10 25.4			CRO	51	6	3	3
10485		LEAR	10 21 0014	S06 E59	10 25.4		B	DSO	40	6	4	4
10485		KAND	10 21 0845	S06 E56	10 25.5			BXO		4	6	3
10485	31910	MWIL	10 21 1445	S06 E51	10 25.4	4	(B)					
10485		HOLL	10 21 1537	S06 E52	10 25.5		B	BXO	10	7	7	4
10485		LEAR	10 22 0021	S06 E46	10 25.4		B	DRO	30	4	6	2
10485		TACH	10 22 0517	S06 E43	10 25.4			BRO	11	3	5	4
10485		KAND	10 22 0640	S07 E42	10 25.4			BXO		3	5	4
10485	31910	MWIL	10 22 1500	S07 E37	10 25.4	4	(B)					
10485		HOLL	10 22 1608	S07 E38	10 25.5		B	BXO	10	4	5	3
10485		VORO	10 22 2323	S06 E32	10 25.4			BXO	27	5	3	4
10485		LEAR	10 23 0245	S06 E33	10 25.6		B	BXO	10	2	1	3
10485		SVTO	10 23 1332	S08 E27	10 25.6		B	CRO	10	2	2	2
10485		HOLL	10 23 1500	S08 E26	10 25.6		A	HSX	10	2	2	3
10485	31910	MWIL	10 23 1600	S07 E24	10 25.5	3	(B)					
10485		VORO	10 23 2301	S08 E20	10 25.4			AXX	11	2	1	3
10485		LEAR	10 24 0145	S07 E21	10 25.6		A	AXX	10	2	1	2
10485		KAND	10 24 0825	S08 E17	10 25.6			AX		1		2
10485		HOLL	10 24 1425	S07 E13	10 25.6		B	BXO		3	2	4
10485	31910	MWIL	10 24 1600	S07 E12	10 25.6	3	(B)					
10485	31919	MWIL	10 25 1530	S05 W05	10 25.3	3	(B)					
10492		VORO	10 26 2332	S21 W09	10 26.3			AXX	9	3	0	3
10492		LEAR	10 27 0022	S22 W08	10 26.4		B	BXO	10	3	3	3
10492		KAND	10 27 0820	S22 W13	10 26.3			AX		1		4
10492	31923	MWIL	10 27 1530	S23 W17	10 26.3	4	(B)					
10492		HOLL	10 27 1608	S22 W17	10 26.4		B	DSO	20	9	4	2
10492		LEAR	10 28 0108	S23 W23	10 26.3		BG	DSO	80	20	5	2
10492		SVTO	10 28 0749	S24 W25	10 26.4		B	DSO	80	5	7	3
10492		KAND	10 28 0930	S21 W28	10 26.2			DSO		4	6	2
10492	31923	MWIL	10 28 1530	S21 W31	10 26.3	4	(B)					
10492		HOLL	10 28 1714	S22 W32	10 26.2		B	DSO	80	8	6	2
10492		LEAR	10 29 0100	S23 W35	10 26.3		B	DAO	180	21	8	2
10492		VORO	10 29 0517	S22 W39	10 26.2			DAI	238	19	6	3
10492		KAND	10 29 1125	S23 W42	10 26.2			DAI		7	9	4
10492	31923	MWIL	10 29 1530	S21 W44	10 26.3	5	(B)					
10492		HOLL	10 29 1535	S22 W45	10 26.2		B	DAI	300	24	10	3
10492		VORO	10 29 2317	S21 W48	10 26.3			DAI	515	19	8	4
10492		LEAR	10 30 0125	S23 W49	10 26.3		B	DAI	350	22	10	2
10492		SVTO	10 30 0750	S23 W55	10 26.1		B	EKO	340	14	12	3
10492		VORO	10 30 2332	S22 W62	10 26.2			DAI	408	9	9	4
10492		LEAR	10 31 0058	S24 W62	10 26.2		B	DAI	360	21	12	4
10492		TACH	10 31 0536	S20 W62	10 26.5			CAI	283	9	9	3
10492		KAND	10 31 0810	S21 W65	10 26.3			CAO		10	11	3
10492		SVTO	10 31 0812	S23 W66	10 26.2		B	ESO	220	8	12	3
10492		HOLL	10 31 1538	S22 W70	10 26.3		B	DKO	220	7	7	3
10492		VORO	11 01 0025	S22 W75	10 26.3			DAI	298	5	9	3
10492		LEAR	11 01 0033	S25 W75	10 26.3		B	EAO	240	5	11	4
10492		LEAR	11 01 0033	S25 W75	10 26.3		B	EAO	240	5	11	4
10492B		TACH	10 29 0809	S12 W39	10 26.4			DAI	127	11	6	4
10489A	31924	MWIL	10 27 1530	S21 E03	10 27.9	2	(AP)					
10489	31920	MWIL	10 25 1530	S12 E35	10 28.3	3	(B)					
10489		LEAR	10 26 0237	S10 E28	10 28.2		A	AXX	10	2	2	3
10489	31920	MWIL	10 26 2100	S12 E20	10 28.4	3	(AF)					
10489		VORO	10 26 2332	S10 E17	10 28.2			BRI	6	4	4	3
10489		LEAR	10 27 0022	S10 E18	10 28.4		B	BXO	30	9	3	3
10489		KAND	10 27 0820	S12 E13	10 28.3			CRO		8	5	3

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10489		KAND	10 27 0820	S16 E13	10 28.3			AX		2	1	3
10489		SVTO	10 27 1020	S10 E12	10 28.3		B	CRO	30	4	4	2
10489	31920	MWIL	10 27 1530	S11 E09	10 28.3	4	(B)					
10489	31925	MWIL	10 27 1530	S15 E08	10 28.2	3	(AF)					
10489		HOLL	10 27 1608	S12 E08	10 28.3		B	DSO	30	9	5	2
10489		LEAR	10 28 0108	S11 E03	10 28.3		BG	DSO	40	11	5	2
10489		SVTO	10 28 0749	S11 E01	10 28.4		B	CRO	20	5	4	3
10489		KAND	10 28 0930	S11 W01	10 28.3			CSO		5	5	2
10489	31920	MWIL	10 28 1530	S11 W05	10 28.3	3	(B)					
10489	31924	MWIL	10 28 1530	S16 W05	10 28.3	3	(AF)					
10489		HOLL	10 28 1714	S11 W06	10 28.3		B	BXO	10	5	5	2
10489		LEAR	10 29 0100	S12 W10	10 28.3		B	DSO	50	10	5	2
10489		VORO	10 29 0517	S11 W13	10 28.2			DAI	48	8	5	3
10489		TACH	10 29 0809	S11 W14	10 28.3			BRI	8	6	4	4
10489		KAND	10 29 1125	S11 W17	10 28.2			DAO		4	6	4
10489	31920	MWIL	10 29 1530	S11 W18	10 28.3	5	(B)					
10489		HOLL	10 29 1535	S12 W18	10 28.3		B	DAO	60	12	6	3
10489		VORO	10 29 2317	S11 W22	10 28.3			DAI	89	11	5	4
10489		LEAR	10 30 0125	S12 W23	10 28.3		B	DAO	80	11	6	2
10489		SVTO	10 30 0750	S12 W28	10 28.2		B	DAO	140	8	6	3
10489		VORO	10 30 2332	S11 W36	10 28.3			DAI	113	10	5	4
10489		LEAR	10 31 0058	S13 W38	10 28.2		B	DAO	140	8	6	4
10489		TACH	10 31 0536	S11 W39	10 28.3			CSI	82	5	4	3
10489		KAND	10 31 0810	S11 W40	10 28.3			CSO		5	7	3
10489		SVTO	10 31 0812	S12 W42	10 28.2		B	DAO	150	6	7	3
10489		HOLL	10 31 1538	S12 W45	10 28.3		B	DSO	60	5	6	3
10489		VORO	11 01 0025	S11 W49	10 28.4			DAO	59	5	6	3
10489		LEAR	11 01 0033	S15 W50	10 28.3		B	DSO	40	4	6	4
10489		SVTO	11 01 1027	S13 W55	10 28.4		B	DRO	30	2	7	2
10489		KAND	11 01 1043	S12 W55	10 28.4			CSO		2	7	3
10489		HOLL	11 01 1615	S12 W60	10 28.2		B	BXO		4	4	3
10489		LEAR	11 02 0221	S14 W65	10 28.3		B	CSO	50	3	6	2
10489		KAND	11 02 0710	S12 W66	10 28.4			BXO		2	7	3
10491		KAND	10 27 0820	S07 E17	10 28.6			DSI		5	4	3
10491		SVTO	10 27 1020	S05 E16	10 28.6		B	DAO	40	2	4	2
10491	31926	MWIL	10 27 1530	S06 E13	10 28.6	4	(B)					
10491		HOLL	10 27 1608	S07 E12	10 28.6		B	DAO	60	4	4	2
10491		LEAR	10 28 0108	S08 E07	10 28.6		BG	DSO	50	12	5	2
10491		SVTO	10 28 0749	S06 E04	10 28.6		B	DSO	60	3	5	3
10491		KAND	10 28 0930	S06 E02	10 28.5			DSO		4	5	2
10491	31926	MWIL	10 28 1530	S06 W02	10 28.5	4	(B)					
10491		HOLL	10 28 1714	S06 W03	10 28.5		B	DAO	50	4	6	2
10491		LEAR	10 29 0100	S07 W07	10 28.5		B	CSO	60	14	6	2
10491		VORO	10 29 0517	S06 W09	10 28.5			DAI	92	9	5	3
10491		TACH	10 29 0809	S06 W10	10 28.6			BRO	47	5	6	4
10491		KAND	10 29 1125	S07 W12	10 28.6			DSO		4	7	4
10491	31926	MWIL	10 29 1530	S05 W14	10 28.6	5	(B)					
10491		HOLL	10 29 1535	S06 W15	10 28.5		B	DAO	120	12	6	3
10491		VORO	10 29 2317	S05 W19	10 28.5			DAI	129	12	6	4
10491		LEAR	10 30 0125	S07 W20	10 28.6		B	DAO	110	14	6	2
10491		SVTO	10 30 0750	S06 W25	10 28.4		B	DSO	120	8	8	3
10491		VORO	10 30 2332	S05 W33	10 28.5			DAI	84	14	6	4
10491		LEAR	10 31 0058	S07 W34	10 28.5		B	DAO	70	18	8	4
10491		TACH	10 31 0536	S05 W36	10 28.5			BRI	48	6	6	3
10491		KAND	10 31 0810	S05 W38	10 28.5			DAO		5	7	3
10491		SVTO	10 31 0812	S06 W38	10 28.5		B	DAO	90	8	7	3
10491		HOLL	10 31 1538	S07 W44	10 28.3		B	DSO	30	7	7	3
10491		VORO	11 01 0025	S05 W47	10 28.6			DAI	52	7	6	3
10491		LEAR	11 01 0033	S09 W48	10 28.5		B	DSO	40	9	5	4
10491		SVTO	11 01 1027	S06 W53	10 28.6		B	DSO	50	4	9	2
10491		KAND	11 01 1043	S06 W53	10 28.6			BXO		5	8	3
10491		HOLL	11 01 1615	S06 W56	10 28.6		B	BXO	10	6	7	3
10491		LEAR	11 02 0221	S09 W62	10 28.5		B	CRO	40	3	7	2
10491		KAND	11 02 0710	S07 W65	10 28.5			BXO		2	8	3
10491		HOLL	11 02 1545	S08 W71	10 28.4		A	AXX	20	2	2	4
10491		VORO	11 03 0028	S06 W71	10 28.8			AXX	14	1		3
10488		HOLL	10 26 1509	N08 E24	10 28.4		B	BXO	10	2	2	2

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10488	31922	MWIL	10 26 2100	N07 E23	10 28.6	4	(B)					
10488		VORO	10 26 2332	N08 E21	10 28.5			DAI	91	17	3	3
10488		LEAR	10 27 0022	N09 E21	10 28.6		B	DAO	110	19	6	3
10488		KAND	10 27 0820	N08 E17	10 28.6			DKO		21	7	3
10488		SVTO	10 27 1020	N09 E16	10 28.6		B	DKO	300	17	9	2
10488	31922	MWIL	10 27 1530	N07 E14	10 28.7	5	(B)					
10488		HOLL	10 27 1608	N08 E13	10 28.6		B	DKI	470	26	9	2
10488		LEAR	10 28 0108	N08 E07	10 28.6		BGD	DKC	580	76	8	2
10488		SVTO	10 28 0749	N09 E03	10 28.5		B	EKC	900	12	11	3
10488		KAND	10 28 0930	N08 E04	10 28.7			DKC		11	8	2
10488	31922	MWIL	10 28 1530	N08 W01	10 28.6	6	(BG)					
10488		HOLL	10 28 1714	N08 E01	10 28.8		BG	DKC	880	24	17	2
10488		LEAR	10 29 0100	N08 W06	10 28.6		BGD	DKC	1200	50	10	2
10488		VORO	10 29 0517	N08 W05	10 28.8			HKX	1658	29	12	3
10488		TACH	10 29 0809	N08 W07	10 28.8			CKI	2169	17	13	4
10488		KAND	10 29 1125	N08 W10	10 28.7			EKC		9	15	4
10488	31922	MWIL	10 29 1530	N08 W14	10 28.6	6	(D)					
10488		HOLL	10 29 1535	N07 W13	10 28.7		BGD	FKC	1640	68	16	3
10488		VORO	10 29 2317	N08 W14	10 28.9			EKC	1574	33	13	4
10488		LEAR	10 30 0125	N08 W16	10 28.8		BGD	FKC	1480	59	17	2
10488		SVTO	10 30 0750	N08 W21	10 28.7		B	FKC	1830	18	17	3
10488		VORO	10 30 2332	N08 W28	10 28.9			EKC	1697	29	13	4
10488		LEAR	10 31 0058	N07 W30	10 28.8		BGD	FKC	1540	56	16	4
10488		TACH	10 31 0536	N10 W30	10 29.0			EKI	2174	39	15	3
10488		KAND	10 31 0810	N09 W34	10 28.8			FKC		30	17	3
10488		SVTO	10 31 0812	N08 W34	10 28.8		B	FKC	1820	25	17	3
10488		HOLL	10 31 1538	N08 W38	10 28.8		BGD	FKC	1360	51	17	3
10488		VORO	11 01 0025	N08 W41	10 29.0			EKC	1806	30	13	3
10488		LEAR	11 01 0033	N05 W44	10 28.8		BGD	FKC	1510	50	17	4
10488		SVTO	11 01 1027	N07 W47	10 29.0		B	FKI	1510	13	19	2
10488		KAND	11 01 1043	N08 W50	10 28.8			FKC		18	16	3
10488		HOLL	11 01 1615	N08 W51	10 28.9		BGD	FKC	1690	36	17	3
10488		LEAR	11 02 0221	N05 W58	10 28.8		BGD	FKC	1440	32	17	2
10488		KAND	11 02 0710	N08 W60	10 28.9			FKO		13	17	3
10488		HOLL	11 02 1545	N08 W65	10 28.9		BGD	FKC	1680	19	16	4
10488		VORO	11 03 0028	N08 W67	10 29.1			HKX	1761	15	13	3
10488		LEAR	11 03 0045	N05 W70	10 28.9		BGD	FKC	1250	11	18	4
10488		KAND	11 03 0730	N07 W75	10 28.8			FKC		9	17	2
10488		SVTO	11 03 1130	N07 W75	10 29.0		B	FKI	1080	5	21	3
10488		HOLL	11 03 1516	N08 W78	10 28.9		BGD	FKC	930	9	17	3
10488		VORO	11 03 2334	N08 W76	10 29.4			HKX	693	6	6	3
10488		LEAR	11 04 0047	N08 W82	10 29.0		BGD	FKC	520	11	16	2
10488		SVTO	11 04 0812	N05 W85	10 29.1		A	HAX	120	1	8	2
10486	31915	MWIL	10 22 1500	S15 E80	10 28.7	4	(AP)					
10486		HOLL	10 22 1608	S16 E85	10 29.1		A	HKX	150	1	5	3
10486		VORO	10 22 2323	S17 E77	10 28.8			HKX	1813	5	4	4
10486		LEAR	10 23 0245	S13 E77	10 28.9		B	EKI	600	5	15	3
10486		SVTO	10 23 1332	S16 E73	10 29.1		B	EKO	900	3	14	2
10486		HOLL	10 23 1500	S17 E74	10 29.2		BGD	EKC	1160	24	13	3
10486	31915	MWIL	10 23 1600	S18 E73	10 29.2	5	BG					
10486		VORO	10 23 2301	S17 E67	10 29.0			EKI	2714	19	9	3
10486		LEAR	10 24 0145	S14 E68	10 29.2		BGD	EKC	1650	38	15	2
10486		TACH	10 24 0555	S18 E65	10 29.2			EKI	2243	24	12	3
10486		KAND	10 24 0825	S18 E65	10 29.3			FKC		21	17	2
10486		HOLL	10 24 1425	S17 E62	10 29.3		BGD	FKC	1490	55	16	4
10486	31915	MWIL	10 24 1600	S18 E60	10 29.2	5	(BG)					
10486		LEAR	10 25 0017	S15 E56	10 29.2		BGD	FKC	2420	52	18	2
10486		VORO	10 25 0048	S17 E53	10 29.1			DKI	3032	39	8	3
10486		TACH	10 25 0611	S14 E52	10 29.2			DKI	2757	47	10	4
10486		SVTO	10 25 0725	S15 E53	10 29.3		B	FKI	1360	25	19	3
10486	31915	MWIL	10 25 1530	S18 E48	10 29.3	5	(D)					
10486		HOLL	10 25 1535	S15 E51	10 29.5		BGD	FKC	2240	74	18	3
10486		VORO	10 25 2313	S17 E40	10 29.0			DKI	3066	55	7	4
10486		LEAR	10 26 0237	S15 E42	10 29.3		BGD	FKC	1980	0	17	3
10486		TACH	10 26 0539	S15 E40	10 29.3			EKI	2728	26	14	4
10486		SVTO	10 26 1429	S16 E35	10 29.2		B	FKC	2460	61	22	3
10486		HOLL	10 26 1509	S15 E36	10 29.3		BGD	FKC	2030	97	17	2
10486	31915	MWIL	10 26 2100	S18 E31	10 29.2	5	(BG)					

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(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10486		VORO	10 26 2332	S17 E29	10 29.2			EKI	2504	69	12	3
10486		LEAR	10 27 0022	S15 E30	10 29.3			BGD FKC	2230	0	18	3
10486		KAND	10 27 0820	S18 E25	10 29.2			FKC		65	18	4
10486		SVTO	10 27 1020	S16 E24	10 29.2			B FKC	2230	36	21	2
10486	31915	MWIL	10 27 1530	S18 E20	10 29.2	5	(BG)					
10486		HOLL	10 27 1608	S16 E22	10 29.3		BGD	FKC	2060	61	17	2
10486		LEAR	10 28 0108	S17 E15	10 29.2		BGD	FKC	2240	78	19	2
10486		SVTO	10 28 0749	S17 E13	10 29.3		B	FKC	2110	42	21	3
10486		KAND	10 28 0930	S17 E11	10 29.2			FKC		24	17	2
10486	31915	MWIL	10 28 1530	S18 E07	10 29.2	5	(D)					
10486		HOLL	10 28 1714	S18 E06	10 29.2		BGD	FKC	2030	52	16	2
10486		LEAR	10 29 0100	S17 E03	10 29.3		BGD	FKC	2500	87	18	2
10486		VORO	10 29 0517	S18 W00	10 29.2			EKC	2688	42	14	3
10486		TACH	10 29 0809	S15 W01	10 29.3			FKI	2808	27	16	4
10486		KAND	10 29 1125	S17 W04	10 29.2			FKC		30	19	4
10486	31915	MWIL	10 29 1530	S18 W06	10 29.2	5	(D)					
10486		HOLL	10 29 1535	S16 W08	10 29.0		BGD	FKC	2680	0	18	3
10486		VORO	10 29 2317	S17 W09	10 29.3			EKC	2232	61	14	4
10486		LEAR	10 30 0125	S17 W11	10 29.2		BGD	FKC	2070	0	17	2
10486		SVTO	10 30 0750	S18 W15	10 29.2		BGD	FKC	2650	45	19	3
10486		VORO	10 30 2332	S16 W27	10 28.9			HKX	2465	70	7	4
10486		LEAR	10 31 0058	S18 W24	10 29.2		BGD	FKC	1890	82	20	4
10486		TACH	10 31 0536	S15 W29	10 29.0			EKI	2700	54	10	3
10486		KAND	10 31 0810	S17 W28	10 29.2			EKC		39	14	3
10486		SVTO	10 31 0812	S17 W28	10 29.2		B	FKC	2360	58	21	3
10486		HOLL	10 31 1538	S16 W33	10 29.1		BGD	FKC	1890	64	18	3
10486		VORO	11 01 0025	S17 W40	10 29.1			HKX	2403	43	8	3
10486		LEAR	11 01 0033	S20 W37	10 29.3		BGD	FKC	1820	0	16	4
10486		SVTO	11 01 1027	S18 W44	10 29.2		B	FKC	1860	22	18	2
10486		KAND	11 01 1043	S19 W44	10 29.2			FKC		28	16	3
10486		HOLL	11 01 1615	S16 W49	10 29.1		BGD	EKC	1900	72	14	3
10486		VORO	11 01 2357	S17 W52	10 29.1			HKX	2236	30	10	3
10486		LEAR	11 02 0221	S20 W54	10 29.1		BGD	FKC	1890	60	16	2
10486		KAND	11 02 0710	S19 W55	10 29.2			FKC		34	16	3
10486		HOLL	11 02 1545	S17 W61	10 29.1		BGD	EKC	2290	47	15	4
10486		VORO	11 03 0028	S18 W65	10 29.2			DKI	2451	36	11	3
10486		LEAR	11 03 0045	S20 W65	10 29.1		BGD	EKC	1350	21	15	4
10486		KAND	11 03 0730	S19 W66	10 29.4			EKC		17	14	2
10486		SVTO	11 03 1130	S18 W71	10 29.2		B	FKC	1380	9	17	3
10486		HOLL	11 03 1516	S18 W73	10 29.2		BGD	EKC	1430	16	15	3
10486		VORO	11 03 2334	S18 W77	10 29.2			DKI	2375	20	10	3
10486		LEAR	11 04 0047	S18 W75	10 29.4		BGD	EKC	1200	22	14	2
10486		SVTO	11 04 0812	S21 W77	10 29.5		A	HKX	1020	5	12	2
10486		HOLL	11 04 1525	S18 W86	10 29.2		BGD	EKC	140	12	13	4
10493		LEAR	10 27 0022	N09 E31	10 29.3		A	AXX	10	1	1	3
10493		LEAR	10 28 0108	N09 E15	10 29.2		B	BXO	20	3	3	2
10493		SVTO	10 28 0749	N09 E13	10 29.3		B	BXO	10	2	4	3
10493	31927	MWIL	10 28 1530	N07 E07	10 29.2	4	B					
10493		LEAR	10 29 0100	N08 E02	10 29.2		B	DRO	30	11	5	2
10493	31927	MWIL	10 29 1530	N08 W07	10 29.1	5	(B)					
10493		LEAR	10 30 0125	N08 W11	10 29.2		B	DAO	70	13	4	2
10490	31918	MWIL	10 24 1600	S13 E65	10 29.6	3	(AF)					
10490		LEAR	10 25 0017	S10 E58	10 29.4		B	CSO	40	3	6	2
10490	31918	MWIL	10 25 1530	S12 E54	10 29.7	4	(B)					
10490		VORO	10 25 2313	S12 E48	10 29.6			DAI	110	9	4	3
10490		LEAR	10 26 0237	S10 E48	10 29.7		B	DAO	90	10	6	3
10490		SVTO	10 26 1429	S10 E44	10 29.9		A	HSX	30	2	2	3
10490		VORO	10 26 2332	S11 E34	10 29.5			DAI	103	8	5	3
10490		LEAR	10 27 0022	S10 E36	10 29.7		B	DAO	90	9	7	3
10490		SVTO	10 27 1020	S10 E32	10 29.8		B	CSO	20	3	2	2
10490		HOLL	10 27 1608	S11 E29	10 29.8		B	CSO	20	5	4	2
10490		LEAR	10 28 0108	S11 E20	10 29.5		B	DAO	90	8	6	2
10490		SVTO	10 28 0749	S11 E21	10 29.9		A	HRX	10	1	1	3
10490		HOLL	10 28 1714	S12 E14	10 29.8		A	AXX	10	2	1	2
10490		LEAR	10 29 0100	S11 E09	10 29.7		B	CRO	10	5	5	2
10490		VORO	10 29 0517	S12 E08	10 29.8			AXX	9	2		3
10490		VORO	10 29 2317	S12 W02	10 29.8			AXX	6	2		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
10490		LEAR	10 30 0125	S12 W02	10 29.9		A	HRX	10	3	1	2
10490A		KAND	10 27 0820	N07 E38	10 30.2			AX		1		4
10487		LEAR	10 25 0017	N15 E86	10 31.5		B	BXO	90	2	8	2
10487		VORO	10 25 0048	N12 E83	10 31.3			HKX	477	3	2	3
10487		TACH	10 25 0611	N12 E81	10 31.4			DAO	448	5	4	4
10487		SVTO	10 25 0725	N14 E79	10 31.3		B	CSO	120	3	5	3
10487	31921	MWIL	10 25 1530	N12 E77	10 31.4	4	(AP)					
10487		HOLL	10 25 1535	N11 E78	10 31.5		B	DAO	240	9	7	3
10487		VORO	10 25 2313	N11 E71	10 31.3			HKX	634	10		4
10487		LEAR	10 26 0237	N15 E71	10 31.5		B	DAO	260	12	6	3
10487		TACH	10 26 0539	N12 E67	10 31.3			CAI	104	5	6	4
10487		SVTO	10 26 1429	N14 E65	10 31.5		B	DAO	280	8	8	3
10487		HOLL	10 26 1509	N12 E65	10 31.5		B	DSO	190	9	12	2
10487	31921	MWIL	10 26 2100	N12 E60	10 31.4	4	(BP)					
10487		VORO	10 26 2332	N11 E58	10 31.3			HHX	286	11		3
10487		LEAR	10 27 0022	N15 E59	10 31.5		B	DAO	330	20	8	3
10487		KAND	10 27 0820	N11 E54	10 31.4			DAI		9	7	4
10487		SVTO	10 27 1020	N14 E53	10 31.4		B	DAO	200	5	6	2
10487	31921	MWIL	10 27 1530	N12 E49	10 31.3	5	(BP)					
10487		HOLL	10 27 1608	N12 E50	10 31.4		B	DAO	150	10	6	2
10487		LEAR	10 28 0108	N14 E43	10 31.3		B	DAO	180	19	7	2
10487		SVTO	10 28 0749	N14 E41	10 31.4		B	DAO	200	5	5	3
10487		KAND	10 28 0930	N12 E40	10 31.4			DSO		5	5	2
10487	31921	MWIL	10 28 1530	N12 E37	10 31.4	4	(BG)					
10487		HOLL	10 28 1714	N11 E35	10 31.3		B	DAO	130	7	5	2
10487		LEAR	10 29 0100	N13 E31	10 31.4		B	CAO	150	14	5	2
10487		VORO	10 29 0517	N11 E28	10 31.3			HAX	196	11	2	3
10487		TACH	10 29 0809	N12 E26	10 31.3			CAO	171	8	6	4
10487		KAND	10 29 1125	N11 E25	10 31.3			DAO		4	4	4
10487	31921	MWIL	10 29 1530	N11 E23	10 31.4	5	(D)					
10487		HOLL	10 29 1535	N11 E24	10 31.4		B	DAO	150	18	6	3
10487		VORO	10 29 2317	N11 E19	10 31.4			DAI	225	17	4	4
10487		LEAR	10 30 0125	N12 E18	10 31.4		B	DAI	180	40	7	2
10487		SVTO	10 30 0750	N12 E14	10 31.4		B	DKO	290	12	7	3
10487		VORO	10 30 2332	N12 E06	10 31.4			DAI	215	17	1	4
10487		LEAR	10 31 0058	N12 E04	10 31.3		B	DAI	150	26	6	4
10487		TACH	10 31 0536	N13 E04	10 31.5			CAI	216	17	5	3
10487		KAND	10 31 0810	N11 E01	10 31.4			DAI		13	6	3
10487		SVTO	10 31 0812	N12 E01	10 31.4		B	DAI	130	14	6	3
10487		HOLL	10 31 1538	N11 W04	10 31.3		B	DAI	110	19	6	3
10487		VORO	11 01 0025	N12 W07	10 31.5			DAI	152	13	2	3
10487		LEAR	11 01 0033	N10 W08	10 31.4		B	DAI	110	26	7	4
10487		SVTO	11 01 1027	N10 W13	10 31.4		B	DAO	140	6	6	2
10487		KAND	11 01 1043	N11 W13	10 31.5			DAO		15	7	3
10487		HOLL	11 01 1615	N10 W18	10 31.3		B	CAO	80	21	7	3
10487		VORO	11 01 2357	N12 W21	10 31.4			CAO	102	10	3	3
10487		LEAR	11 02 0221	N09 W22	10 31.4		B	DAO	110	17	7	2
10487		KAND	11 02 0710	N10 W25	10 31.4			CAO		15	7	3
10487		HOLL	11 02 1545	N10 W31	10 31.3		B	DAO	60	14	3	4
10487		VORO	11 03 0028	N11 W34	10 31.5			HAX	64	9		3
10487		LEAR	11 03 0045	N09 W37	10 31.2		B	DSO	40	10	3	4
10487		KAND	11 03 0730	N10 W37	10 31.5			CSO		2	2	2
10487		SVTO	11 03 1130	N09 W43	10 31.2		B	CSO	30	2	2	3
10487		HOLL	11 03 1516	N10 W43	10 31.4		B	CSO	40	4	3	3
10487		VORO	11 03 2334	N10 W47	10 31.4			HAX	39	5		3
10487		LEAR	11 04 0047	N11 W48	10 31.4		B	CSO	30	4	3	2
10487		SVTO	11 04 0812	N09 W52	10 31.4		A	HSX	30	1	3	2
10487		HOLL	11 04 1525	N11 W58	10 31.3		B	CSO	10	2	3	4
10487		VORO	11 05 0004	N10 W60	10 31.5			AXX	13	4		3
10487		LEAR	11 05 0057	N11 W61	10 31.4		A	AXX	20	7	3	4
10487		VORO	11 05 2327	N10 W72	10 31.6			AXX	42	2		3
10487A		LEAR	10 30 0125	S22 E21	10 31.7		B	CRO	10	3	2	2
10487A		SVTO	10 30 0750	S23 E16	10 31.5		A	AXX	10	1		3

Stations reporting:

HOLL = Holloman
KAND = Kandilli
LEAR = Learmonth

MWIL = Mt. Wilson
PALE = Palehua

RAMY = Ramey
SVTO = San Vito

TACH = Tashkent
VORO = Voroshilov

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SUDDEN IONOSPHERIC DISTURBANCES

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Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF- SPA	SES			
01	0446	0457	0535	2	3					2	0444	M1.4	10464
01	0912	0916	0946	2	1					1	0909	C1.2	
01	1749	1800	1856	2+	1					1	1746	C1.6	10464
02	0353	0359	0418	1	3					2	0351	C2.4	10464
02	0426	0429	0438	1-	1					1	0423	B9.0	10464
02	0604	0606	0626	1	1					1	0600	B8.6	
02	0650	0656	0747	2	5					3	0649	C7.8	10464
02	1005	1018	1036	1	1		1				*		
02	1342	1412	1447	1	1		1				1346	C4.2	
02	1605	1617	1739	2+	1					1	1602	C4.2	10471
03	0335	0341	0357	1	1					1	0333	C2.0	10471
03	0612	0621	0641	1	1					1	0610	C1.0	
03	0642	0644	0658	1-	3					2	0640	C1.4	
03	0756	0800	0818	1	3					2	0753	C1.7	10471
03	1158	1221	1311	2+	1					1	1119	C2.1	
04	0457	0506	0529	1	1					1	0454	C1.7	
04	1312	1319	1405	2	5	1	1	1		6	1309	C2.5	
04	1509	1528	1545D	2	1					1	1515	C1.7	10471
04	1544	1549	1621	1+	5					4	1542	M1.0	10471
04	1756	1800	1815	1	1					2	1753	C1.6	10471
04	1824E	1828	1854	1+	1					1	1822	C1.3	10471
04	1909	1916	2010	2+	1					1	1908	C1.7	
04	2008	2015	2052	2	1					1	No flare		
05	0916	0923	0951	1	5		1			7	0916	C2.6	
05	1240	1245	1250	1-	1					1	1234	B5.2	10471
05	1319	1325	1333	2-	5	1	1	1		4	1319	C4.2	
05	1651	1659	1735	2	1					1	1648	B8.7	10471
06	0716	0736	0806D	2	1		1				No flare		
06	0806	0818	0902	2	1		1				No flare		
06	0910	0933	1002	3	1		1				No flare		
06	1040	1051	1121	1	1		1				No flare		
07	1738D	1743D	1757U	1	1					1	1734	C1.8	10471
08	1003	1014	1034D	1	1		1				*		
08	1034	1041	1109	2	1		1				*		
08	1125	1147	1159	1	1		1				*		
08	1746	1757	1817D	1+	1					1	1743	B6.1	10471
09	0849	0857	0927	1	1		1				0845	B4.1	
09	1041	1121U	1204	1	1		1				No flare		
10	2003	2009	2020	1-	1					1	2002	B7.6	
11	0514	0542	0754	2+	1					1	No flare		
13	0916	0924U	0957	2	1		1				*		
13	1018	1025	1128	1	1		1				*		
14	0927	0934	0957	1	1		1				No flare		
16	0730	0739	0811	1	1		1				0735	B7.8	
16	1426	1455	1514	2	1		1				No flare		
16	1731	1802	1900D	3	1					1	1739	B3.4	
18	0536	0544	0552	1-	3					2	0531	C2.0	10484
18	0853	0900	0938	1+	3		1			5	0849	C3.3	10484
18	0926	0951	1130	3	1		1				*		
18	1450	1520	1530	2+	1					1	1448	C3.3	10484
18	1637	1654	1700	1+	1					2	1628	C4.9	10484
18	1708D	1712D	1727U	1	1					1	1706	C2.6	10484
18	1840D	1854D	1932D	2+	1					1	1836	C3.0	10484
18	1941	1954	2037	2	1					1	No flare		

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

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Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF- SPA	SES			
18	2027D	2040D	2126D	2+	1					1	2026	C3.3	10484
18	2130	2137	2230	2+	1					1	2125	C2.3	10484
18	2215D	2219D	2249D	2	1					1	2214	C6.5	10484
18	2315	2317	2400	2	1					1	No flare		
19	0614	0624	0730	2+	5					3	0608	M1.9	10484
19	1208	1248	1303	1	1		1				*		
19	1630	1648	1746	2+	5					4	1629	X1.1	10484
19	1831E	1855U	2046	3+	1					1	1857		10484
19	1923D	1929D	2021D	2+	1					1	1921	M1.0	10484
19	2023	2027	2115	2+	1					1	2021		10484
19	2245D	2249D	2326D	2	1					1	2245	C3.8	10484
20	0702	0718	0831	2+	5		1			2	0645	M1.9	10484
20	1235	1305	1340	2+	1					1	*		
20	1445	1450	1455	1-	1					1	1445	C3.3	10484
20	1532	1557	1624D	2+	1					1	1551	C3.2	10484
20	1647E	1704	1740	2+	1					1	1649		10484
20	1819	1825	1839	1	1					2	1821	C2.4	10484
20	1954	2003	2028	2-	1					2	1955	C5.9	10484
20	2030	2041	2120	2	1					2	2030	C4.5	10484
20	2058	2101	2130	2-	1					1	2030	C4.5	10484
20	2150	2157	2242	2	1					2	2200	C6.2	10484
20	2300	2303	2400	2+	1					1	2200	C6.2	10484
21	0331	0343	0416	2	3					2	0319	C7.9	10484
21	0446	0455	0527	2	3					2	0451	C6.0	10484
21	0822	0826	0912	1+	3		1			4	0821	M1.0	10484
21	0828	0833	0856	1+	1					1	0821	M1.0	10484
21	1915D	1921D	1921U	1-	1					1	1917	C3.3	
21	2307D	2321D	2356D	2+	1					1	No flare		
22	0328	0335	0408D	2	1					1	0328	M3.7	10486
22	0329	0355	0408	2	1					1	0328	M3.7	10486
22	0832	0844	0906	1+	5		1			4	0830	M1.7	10486
22	0938	0956	1019	2-	5					2	0937	M1.7	10486
22	1140	1145	1200	1	1					1	*		
22	1504	1510	1535	1+	5		1			5	1506	M1.4	10484
22	1545	1548	1615	1+	1					1	1557	M1.2	10484
22	1558	1603	1630	1+	5					4	1557	M1.2	10484
22	1655	1707	1726	1+	1					1	1701		10484
22	1805	1812	1841	2	1					1	1821		10484
22	1946	1958	2051	2	1					2	1947	M9.9	10486
22	2155	2206	2247	2	1					2	2156	M2.1	10486
23	0238	0242	0254	1-	1					1	0235	M2.4	10484
23	0705	0720	0720U	3	5		2	1		3	0702	M3.2	10484
23	0823	0836	1032	3	5	1	2	1		5	0819	X5.4	10486
23	1051	1055	1110	1	3	1	2			4	1049	M2.7	10484
23	1944E	2002U	2204	3+	1					1	1950	X1.1	10486
24	0220	0233	0339	2	1					1	0227	M7.6	10486
24	0505	0510	0541	2-	3					3	0504	M4.2	10486
24	0522	0523	0551	1	1					1	No flare		
24	0604	0608	0633	1+	3					3	0603	C7.5	
24	0744	0755	0819	2-	3					2	0747		10484
24	0831	0836	0851	1-	5					2	0837	C4.8	10484
24	0913	0920	0935	1	5					5	0915	C4.6	
24	0951	1000	1027	2-	5					5	0952	C5.7	
24	1034	1041	1050	2	5	1	1	1		6	1031	C9.1	
24	1539	1549	1624	1	1		1				1523	C8.9	10486
24	1844	1856	2000	3-	1					2	1842	M1.3	10486
24	2020	2027	2058	2-	1					2	2021	C5.3	10484
24	2123	2128	2200	2	1					1	2135	M1.0	10484
24	2133	2143	2209	2	1					2	2135	M1.0	10484
25	0205	0208	0232	1+	1					1	0202	C4.3	
25	0418	0438	0529	2+	1					1	0417	M1.2	10486

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 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			
25	0541	0553	0704	2+	1					1	0544	M1.7	10484
25	0714	0720	0727	1-	1					1	0711		10486
25	0812	0815	0827	1	1					1	No flare		
25	0946	0950	1004	1-	5					2	0938	C3.4	
25	1029	1044	1105	3	5	1	2	1		7	1026	M1.5	10484
25	1126E	1131	1145	1-	1					1	1124	C3.4	
25	1438	1452	1513	1	5		1			2	1438	C4.2	
25	1928D	1935D	2009D	2	1					1	1925	C3.2	
25	2034D	2044D	2114D	2	1					1	2033	C3.3	
25	2227D	2233D	2301D	2	1					1	2226	C7.9	
26	0454	0500	0510	1-	1					1	No flare		
26	0558	0607	0843	2	3					2	0557	X1.2	10486
26	0610	0615	0645	2-	1					1	0557	X1.2	10486
26	0724	0743	0918	1	1		1				No flare		
26	1334	1353	1418	1	1		1				No flare		
26	1420	1424	1443	1+	5		1			5	1415	M1.0	10484
26	1618	1626	1707D	2+	1					1	1618		10486
26	1708D	1733D	2027U	3+	1					1	1721	X1.2	10484
26	1825	1830	1915	2+	1					1	1721	X1.2	10484
26	2131	2141	2231	2+	1					2	2134	M7.6	10484
27	0133	0139	0156	1	1					1	0133	C6.2	10486
27	0244	0251	0308	1	1					1	0248		
27	0323	0349	0413	2	1					1	0339		10484
27	0417	0432	0517	2	1					1	0412	M1.2	10484
27	0615	0622	0641	1	1					1	0613	C9.0	10486
27	0751	0804	0851	2	3					2	0751	M2.7	10484
27	0822E	0825	0923D	2+	1					1	0751	M2.7	10484
27	0907	0917	1004	1+	5					2	0751	M2.7	10484
27	0922	0934	0959	3-	5	1	2	1		6	0921	M5.0	10486
27	1150	1157	1157U	2	1			1			No flare		
27	1214	1219	1219U	2+	5	1	2	1			No flare		
27	1228	1234	1305	3	5	1	2	1		7	1227	M6.7	10486
27	1400	1410	1420	1	1					1	1402	C5.1	10488
27	1455	1502	1530D	2	1					1	1453	C5.7	10488
27	1530E	1606	1618D	2+	1					1	No flare		
27	1618E	1626	1711D	2+	1					1	1611		10488
27	1832	1846	1934	2+	1					2	1834	C7.5	10486
27	1937	1941	2010	1+	3					2	1948	C9.0	10484
27	1951	2005	2053	2+	1					2	1948	C9.0	10484
27	2048	2059	2148	2+	1					1	No flare		
27	2147	2201	2257	2+	1					1	2146	M1.9	10488
27	2248	2253	0000	2+	1					1	No flare		
28	0130	0135	0229	2+	1					1	0127	C7.5	10486
28	0316	0325	0351	2	1					1	0317		10488
28	0401	0416	0442	2	1					1	0353		10488
28	0509	0512	0530	1	3					3	0507	C7.7	10484
28	0554	0558	0617	1	3					3	0553		10484
28	0600	0609	0627	1	1					1	0553		10484
28	0645	0647	0659	1-	3					3	0623		10488
28	0733	0734	0740	1-	1					1	0734		10489
28	0752	0801	0817	1	3					2	0752		10488
28	0817	0825	0838	1	3					2	0819		10486
28	0843	0846	0900	1-	3					2	0835	C8.7	10488
28	0941	0946	0954	1-	3					2	0951	X17.2	10486
28	0953	1018	1018U	3	5	1	1	1		6	0951	X17.2	10486
28	1100	1130	1253	3	5	1	2	1		4	0951	X17.2	10486
28	1540	1609	1630	2	1		1				1601E		10486
29	0145	0154	0218	2	1					1	0026	M1.1	10486
29	0315	0321	0332	1-	1					1	0319E		10486
29	0408	0414	0424	1-	3					3	0408	M3.5	10486
29	0423	0438	0455	1	1					1	0410	C6.2	
29	0432	0457	0642	3+	3					2	0437		10486
29	0710	0715	0734	1	1		1				No flare		
29	0747	0755	0755U	2+	5		2	1		2	No flare		

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

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OCTOBER 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			
29	0930	0936	0951	2	3					3	No flare		
29	1334	1339	1406	2-	5		1			2	*		
29	1336	1412	1421	2	3	1				1	No flare		
29	1416	1422	1458	3-	5		2	1		4	1415	C9.2	10486
29	1650	1659	1731	2	1					2	1649	C8.1	10486
29	1811D	1817D	1839U	1+	1					1	1810	C7.8	10488
29	2037D	2041U	2049U	1-	1					1	2037	X10.0	10486
30	0154	0205	0244	2	3					2	0156	M1.6	10488
30	0833	0838	0920	1+	5					4	0832	C7.7	10492
30	1222	1229	1247	1	5		1			1	1222	C7.6	
30	1247E	1254	1316	1+	1					1	1245	C7.3	10488
30	1259	1310	1334	1	1		1				*		
30	1514	1527	1601	2	5		1			2	1515	M1.5	10486
31	0150	0154	0210	1	1					1	0150	C5.5	10488
31	0229	0239	0307	2	1					1	0239	C5.0	10488
31	0429	0433	0507	2-	3					2	0426	M2.0	
31	0604	0612	0640	2-	3					3	0608	M1.1	10488
31	0747	0749	0810	1	3					3	No flare		
31	1224	1233	1248	1	1					1	1224	C8.5	
31	2025	2038	2217	3-	1					2	2014	C5.1	10488
31	2052D	2105D	2228D	3	1					1	2050	C9.5	10488

* = no flare patrol.

OBSERVATORIES REPORTING FOR OCTOBER 2003

Athens, Greece	SES	Nerja, Spain	SES
Bern, Switzerland	SES	Panska Ves, Czech Republic	SES, SEA, SWF
Calcutta, India	SES	Sofia, Bulgaria	SES
Cambridge, England, UK	SES	Stanford, Connecticut, USA	SES
Edenvale, Rep of S. Africa	SES	Sussex, United Kingdom	SES
Houston, Texas, USA	SES	Upice, Czech Republic	SEA
Isola del Gran Sasso, Italy	SES	Villiersdorp, South Africa	SES
Kirksville, Mississippi, USA	SES		

Observations are not necessarily continuous.

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Oct 03

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

OCTOBER 2003

OBSERVATION			Sta	EVENT		Spectral Class	Event Remarks	Int (1-3)	FREQUENCY		Remarks
Day	Start (UT)	End (UT)		Start (UT)	End (UT)				Lower (MHz)	Upper (MHz)	
01	0000 0750 0000 0823		CULG	0043.0	0047.0	III	G	2	23	180	
			HIRA	0043.0	0043.5	III	B	1	25X	150	
			CULG	0134.0	0134.0	III	B	1	50	150	
			CULG	0141.0	0141.0	III	B	1	90	170	
			CULG	0454.0	0555.0	I	S,C	1	40	180	
			LEAR	0517.0	0517.0	III		1	25	91	
			HIRA	0517.5	0518.0	III	B	1	30	60	
			CULG	0518.0	0518.0	III	B	1	23	160	
	0555 1200 0612 1531		IZMI	0555.0E	1200.00	I	N	1	120	270	
			ONDR								
	0605 1600		CULG	0705.0	0750.00	III	N	1	27	100	
			IZMI	0719.6	0722.8	III	G	1	60	100	
			IZMI	0737.0	0737.3	III	G	1	45	95	
			IZMI	0743.1	0743.2	III	B	1	200	270X	
			SVTO	0953.0	0954.0	III		1	25	39	
			IZMI	1115.5	1116.5	III	G	2	25X	70	
			IZMI	1118.4	1121.2	III	GG	2	160	270X	
			BLEN	1118.4	1121.8	III	GG	2	150	400	
			IZMI	1148.9	1150.9	III	G	2	50	160	
			SVTO	1255.0	1303.0	III		1	25	126	
			HOLL	1507.0	1508.0	III		1	25	92	
			SVTO	1507.0	1514.0	III		1	25	79	
			HOLL	1511.0	1514.0	III		1	25	98	
			HOLL	1600.0	1604.0	III		1	25	131	
			SGMR	1603.0	1604.0	III		1	30	55	
			HOLL	1720.0	1722.0	III		1	25	149	
			PALE	1721.0	1722.0	III		1	25	180	
			SGMR	1721.0	1722.0	III		1	30	80	
			HOLL	1854.0	1856.0	III		1	25	129	
			PALE	1854.0	1854.0	III		1	25	180	
			SGMR	1854.0	1854.0	III		1	30	70	
			PALE	1926.0	1926.0	III		1	25	61	
	2000 2400		CULG	2022.0	2022.0	III	B	1	27	80	
			CULG	2032.0	2032.0	III	B	1	30	90	
			CULG	2050.0	2050.0	III	B	1	20	100	
			CULG	2105.0	2105.0	III	B	1	120	180	
	2032 2400		HIRA	2105.0	2105.5	III	B	2	120	320	
			CULG	2241.0	2247.0	III	G	2	20	140	
			HIRA	2242.0	2246.5	III	G	1	25X	310	
			CULG	2250.0	2253.0	III	G	1	30	80	
02	0000 0750 0000 0821 0602 1200 0630 1600 0613 1529		LEAR	0047.0	0942.0	III	N	1	25	180	
			CULG	0353.0	0358.0	III	G	3	18	90	
			HIRA	0353.5	0359.0	III	G	2	25X	140	
			IZMI	0622.1	0622.5	III	G	1	50	65	
	0613 1529		ONDR	0652.0	0657.4	DCIM	G	2	800X	2000X	
			IZMI	0710.8	0711.0	III	B	2	50	85	
			CULG	0711.0	0711.0	III	B	1	30	90	
			IZMI	0728.7	0729.2	III	G	2	120	270X	
			CULG	0729.0	0729.0	III	G	1	110	180	
			CULG	0734.0	0735.0	III	G	2	30	140	
			HIRA	0734.0	0735.5	III	G	1	30	140	
			SVTO	0734.0	0742.0	III		1	25	147	
			IZMI	0734.3	0735.3	III	GG	2	25X	165	
			IZMI	0806.4	0806.5	III	B	1	130	270X	
			IZMI	0820.1	0821.4	III	G	2	85	270X	
			SVTO	0827.0	0827.0	III		1	25U	41U	
			IZMI	0827.4	0827.6	III	B	1	40	65	
			IZMI	0917.7	0917.8	III	B	1	40	95	
			IZMI	0950.0U	1050.0U	I	N	1	180	270	
			IZMI	1037.1	1037.6	III	G	1	40	65	
			IZMI	1039.7	1041.2	III	G	1	30	85	
			SVTO	1051.0	1052.0	III		1	25U	127U	
			IZMI	1051.4	1053.0	III	G	2	25X	150	
			IZMI	1103.1	1103.1	III	B	1	50	85	
			IZMI	1114.8	1115.3	III	G	2	25X	90	
			SVTO	1115.0	1115.0	III		1	25	83	
			IZMI	1137.8	1137.8	III	B	2	50	65	

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

Spectral Observations

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OCTOBER 2003

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)	
02	0605	1600	SVTO	1338.0	1343.0	III		1	25	148		
			HOLL	1340.0	1341.0	III		1	25	88		
			SGMR	1340.0	1341.0	III		2	30	55		
			ONDR	1345.5	1346.4	DCIM	G	1	800X	1658		
			BLEN	1345.9	1358.2	DCIM	P	2	180	1800		
			SVTO	1451.0	1452.0	III		1	25	157		
			HOLL	1452.0	1452.0	III		1	25	150		
			CULG	2028.0	2028.0	III	B	2	27	160		
			2000	2400	HIRA							
2033	2400	CULG	2331.0	2331.0	III	B	1	30	90			
		CULG	2357.0	2358.0	III	G	1	40	180			
03	0605	0000 0819	HIRA									
		0000 0750	CULG	0226.0	0227.0	III	G	1	40	180		
		0600 1200	IZMI	0615.6	0617.4	III	GG	1	45	85		
			CULG	0616.0	0617.0	III	G	1	23	170		
			IZMI	0635.2	0635.4	III	G	1	50	85		
			IZMI	0734.1	0737.3	III	GG	1	40	195		
			IZMI	0740.9	0741.0	III	G	1	50	155		
			ONDR	0755.5	0756.4	DCIM	G	1	2000X	4500X		
		0615 1527	BLEN	0755.9	0756.9	DCIM	P,C	3	400	4000X		
			ONDR	0756.0	0757.0	DCIM	G	1	800X	2000X		
			IZMI	0921.2	0921.4	III	G	2	40	150		
			HOLL	1511.0	1524.0	III	N	1	25	94		
			SVTO	1511.0	1513.0	III		1	25	81		
			HOLL	1736.0	1743.0	III		1	25	124		
		2034 2400	HIRA									
			2000 2400	CULG	2107.0	2107.0	III	B	2	20	90	
			CULG	2254.0	2254.0	III	B	1	25	90		
			CULG	2356.0	2356.0	III	B	1	27	80		
		04	0700	0000 0750	CULG	0110.0	0111.0	III	G	1	30	180
				CULG	0149.0	0156.0	III	G	3	18	160	
				LEAR	0149.0	0152.0	III		1	25	149	
				0000 0818	HIRA	0149.0	0149.5	III	B	1	25X	140
					HIRA	0152.0	0152.5	III	B	1	25X	160
					CULG	0227.0	0555.0	III	N	1	30	180
					LEAR	0249.0	0551.0	III	N	1	25	180
				0550 1200	IZMI	0550.0E	1115.0U	I	N	1	50	260
IZMI	0551.7				0551.8	III	B	2	40	170		
0617 1524	ONDR											
	IZMI			0703.3	0707.8	I	SS,DC	2	115	160		
	IZMI			0713.0	0713.1	III	B	1	45	90		
	IZMI			0735.3	0735.6	III	G	1	40	90		
	CULG			0736.0	0736.0	III	G	1	25	70		
	IZMI			0813.0	0816.3	III	G	1	40	95		
	IZMI			0824.2	0828.0	III	GG	1	40	160		
	SVTO			0945.0	0950.0	III		1	25	167		
	IZMI			0945.3	0945.7	III	G	2	25X	190		
	IZMI			0947.4	0950.8	III	GG	2	25X	270X		
	IZMI			1007.3	1011.4	III	GG	2	25X	260		
	IZMI			1014.4	1022.8	III	GG	2	25X	270X		
	IZMI			1026.8	1032.0	III	GG	1	40	95		
	IZMI			1033.3	1036.3	III	GG,C	2	25X	165		
	SVTO			1034.0	1136.0	III	N	1	25	166		
	IZMI			1038.7	1039.3	III	G,C	2	25X	215		
	IZMI			1041.1	1049.0	III	GG	2	25X	170		
	SVTO			1308.0	1329.0	III	N	2	25	180		
	0700 1550			SGMR	1311.0	1329.0	III	N	2	30	80	
				BLEN	1311.5	1329.4	III	GG	2	100X	1100	
				HOLL	1325.0	1329.0	III		1	25	165	
				HOLL	1444.0	2001.0	III	N	1	25	127	
				BLEN	1545.3	1547.3	DCIM	C	2	900	4000X	
				PALE	1905.0	0330.0	III	N	1	25	180	
				SGMR	1907.0	1927.0	III	N	1	30	80	
				2000 2400	CULG	2041.0	2400.0D	III	N	1	20	180
CULG				2132.0	2139.0	III	G	2	20	180		
HOLL				2132.0	2308.0	III	N	1	25	174		
CULG	2146.0			2146.0	III	G	3	25	180			

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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)	
04			CULG	2152.0	2157.0	III	G	3	23	180	
			LEAR	2308.0	2308.0	III		1	25	86	
	2035	2400	HIRA	2308.0	2308.5	III	B	1	25X	50	
05	0000	0750	CULG	0000.0E	0750.0D	III	N	1	27	160	
			LEAR	0032.0	0032.0	III		1	25	63	
	0000	0817	HIRA	0032.0	0032.5	III	B	1	25X	60	
			LEAR	0107.0	0138.0	III	N	2	25	180	
			CULG	0110.0	0115.0	III	G	2	18X	180	
			CULG	0126.0	0130.0	III	G	3	18	180	
			HIRA	0126.0	0137.0	III	G	1	25X	140	
			CULG	0136.0	0137.0	III	G	3	18	180	
			CULG	0400.0	0402.0	III	G	2	20	180	
			CULG	0414.0	0417.0	III	G	2	20	160	
			CULG	0439.0	0442.0	III	G	2	20	140	
			CULG	0528.0	0552.0	III	N	2	18	300	
			HIRA	0534.0	0540.0	III	G	1	30	340	
			SVTO	0534.0	0552.0	III	N	1	25	180	
			IZMI	0600.0	0605.6	III	GG	1	40	95	
	0600	1200	IZMI	0600.0E	1200.0D	III	N	1	45	95	
			SVTO	0626.0	0733.0	III	N	1	25	80	
			IZMI	0626.7	0627.0	III	G	1	35	140	
			CULG	0627.0	0648.0	III	N	2	18	160	
			IZMI	0635.6	0637.1	III	GG	2	30	180	
			IZMI	0651.8	0708.5	III	N	2	35	160	
			IZMI	0714.1	0718.6	III	GG	1	30	140	
			IZMI	0731.7	0734.1	III	GG	1	25X	95	
			IZMI	0800.7	0801.1	III	G	1	35	95	
			IZMI	0814.0	0814.1	III	B	1	45	170	
			IZMI	0858.4	0858.4	III	B	2	40	85	
			SVTO	0903.0	0903.0	III		1	25	44	
			IZMI	0903.1	0903.3	III	B	2	30	65	
			ONDR	0918.0	0919.0	DCIM	G	1	1395	2000X	
	0618	1522	ONDR	0918.0	0919.1	DCIM	G	1	2000X	4500X	
	0630	1550	BLEN	0918.1	0919.2	DCIM	C	2	1200	4000X	
			IZMI	0924.8	0924.9	III	B	2	105	170	
			LEAR	0934.0	0935.0	III		1	25	180	
			IZMI	0934.9	0935.8	III	G	3	25X	270X	
			SVTO	0935.0	1352.0	III	N	1	25	180	
			IZMI	0938.6	0938.8	III	B	2	45	270	
			IZMI	0954.1	0957.2	III	G	2	35	140	
			IZMI	0959.4	0959.7	III	G	2	25X	85	
			IZMI	1036.0	1038.1	III	G	1	25X	155	
			IZMI	1041.7	1042.1	III	B	1	25X	85	
			IZMI	1106.2	1106.3	III	B	1	40	85	
			IZMI	1127.3	1131.6	III	GG	2	25X	160	
			IZMI	1139.8	1148.4	III	GG,C,FS	2	25X	270X	
			SVTO	1142.0	1148.0	III		2	25	180	
			ONDR	1143.5	1144.4	DCIM	G	1	800X	1062	
			SGMR	1144.0	1203.0	III	N	2	30	75	
			IZMI	1144.4	1146.7	CONT	FS	2	45U	70U	
			IZMI	1153.3	1200.0D	III	GG,C	2	25X	150	
			ONDR	1322.2	1323.3	DCIM	G	2	2000X	4500X	
			ONDR	1322.3	1323.4	DCIM	G	1	1175	2000X	
			SGMR	1325.0	1335.0	III	N	2	30	50	
			SVTO	1325.0	1328.0	III		1	25	158	
			PALE	1734.0	0225.0	III	N	1	25	180	
			SGMR	1742.0	1742.0	III		1	30	50	
	2000	2400	CULG	2027.0	2205.0	III	N	1	20	170	
	2035	2400	HIRA								
			CULG	2040.0	2041.0	III	G	1	25	90	
			CULG	2053.0	2055.0	III	G	1	20	170	
06			LEAR	0009.0	0218.0	III	N	2	25	180	
	0000	0750	CULG	0010.0	0210.0	III	N	1	23	180	
	0000	0816	HIRA	0102.0	0103.0	III	G	2	100	800	
			HIRA	0110.0	0110.5	III	B	2	60	200	
			CULG	0112.0	0114.0	III	G	3	20	140	
			HIRA	0112.0	0139.0	III	G	3	25X	220	

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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)	
06			CULG	0130.0	0135.0	III	G	3	18X	180	
			CULG	0145.0	0150.0	II	FN	1	45	65	ESS 500
			CULG	0145.0	0150.0	II	SH	1	100	130	
			LEAR	0145.0	0148.0	II		1	47	129	ESS 0501
			LEAR	0401.0	0403.0	III		1	25	160	
			CULG	0403.0	0403.0	III	B	2	20	150	
			HIRA	0403.0	0403.5	III	B	1	40	80	
			CULG	0424.0	0425.0	III	G	3	18	180	
			HIRA	0424.0	0424.5	III	B	1	25X	140	
			LEAR	0424.0	0424.0	III		1	25	174	
			CULG	0438.0	0441.0	III	G	3	20	200	
			HIRA	0438.0	0439.5	III	G	1	30	200	
			LEAR	0438.0	0440.0	III		1	25	180	
			LEAR	0517.0	0521.0	III		1	25	180	
			SVTO	0517.0	0518.0	III		1	25	126	
			HIRA	0517.5	0518.0	III	B	1	30	130	
			CULG	0518.0	0518.0	III	B	3	20	170	
			CULG	0521.0	0522.0	III	G	1	23	90	
	0600	1200	IZMI	0600.0E	1200.00	I	N	1	120	170	
			LEAR	0618.0	0620.0	III		1	25	141	
	0620	1520	ONDR								
			CULG	0620.0	0620.0	III	B	2	20	150	
			HIRA	0620.0	0620.5	III	B	1	60	130	
			SVTO	0620.0	0620.0	III		1	25	82	
			IZMI	0620.3	0620.5	III	B	2	35	160	
	0630	1550	BLN								
			SVTO	0656.0	0659.0	III		1	25	81	
			IZMI	0656.8	0659.8	III	G	2	25X	215	
			CULG	0659.0	0700.0	III	G	3	20	170	
			IZMI	0732.0	0735.2	III	GG	1	45	190	
			CULG	0735.0	0735.0	III	B	1	60	170	
			IZMI	0829.2	0831.9	III	G	1	45	85	
			IZMI	0835.8	0836.5	III	G	1	95	165	
			IZMI	0840.9	0841.2	III	G	2	25X	90	
			LEAR	0841.0	0851.0	III		1	25	151	
			SVTO	0841.0	1014.0	III	N	1	25	145	
			IZMI	0844.9	0845.2	III	G,C	3	25X	160	
			IZMI	0851.1	0851.3	III	G	1	25X	85	
			IZMI	0913.7	0917.4	III	G	2	25X	190	
			LEAR	0915.0	0916.0	III		1	25	98	
			LEAR	0915.0	0944.0	III	N	1	25	98	
			IZMI	0919.7	0920.4	III	G	2	25X	270X	
			IZMI	0926.6	0928.0	III	G	2	45	90	
			IZMI	0948.2	0950.7	III	G	2	25X	90	
			IZMI	1014.4	1014.6	III	B	2	25X	85	
			IZMI	1154.0	1154.1	III	B	1	30	65	
			PALE	1948.0	0100.0	III	N	1	25	90	
	2036	2400	HIRA								
	2000	2400	CULG	2040.0	2040.0	III	B	1	25	90	
			CULG	2236.0	2238.0	III	G	1	27	57	
07	0000	0815	HIRA								
	0000	0750	CULG	0402.0	0402.0	III	B	1	40	90	
	0550	1200	IZMI								
	0622	1517	ONDR								
	0630	1550	BLN								
			SVTO	1312.0	1313.0	III		1	29	82	
			SGMR	1313.0	1313.0	III		3	40	50	
			SVTO	1334.0	1334.0	III		1	75	168	
	2037	2400	HIRA								
	2000	2400	CULG	2234.0	2235.0	III	G	1	23	50	
08	0000	0750	CULG								
	0000	0813	HIRA								
	0623	1515	ONDR								
	0630	1540	BLN								
	0635	1200	IZMI								
	2038	2400	HIRA								
	2000	2400	CULG	2119.0	2120.0	III	G	1	45	100	

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OBSERVATION			Sta	EVENT		Spectral Class	Event Remarks	Int (1-3)	FREQUENCY		Remarks
Day	Start (UT)	End (UT)		Start (UT)	End (UT)				Lower (MHz)	Upper (MHz)	
09	0000	0750	CULG	0250.0	0250.0	III	B	1	20	70	
			CULG	0610.0	0612.0	III	G	2	18	160	
			SVTO	0610.0	0611.0	III		1	25	81	
	0600	1200	IZMI	0610.1	0613.0	III	GG	2	25X	250	
	0000	0811	HIRA	0610.5	0611.5	III	G	1	40	130	
	0625	1513	ONDR								
	0700	1540	BLEN								
	2000	2400	CULG								
	2039	2400	HIRA								
10	0000	0750	CULG								
	0000	0810	HIRA								
	0600	1200	IZMI								
	0627	1510	ONDR								
	0705	1540	BLEN								
	2000	2400	CULG								
	2040	2400	HIRA								
11	0000	0750	CULG								
	0000	0809	HIRA								
			IZMI	0620.3	0620.5	III	G	1	75	175	
	0629	1508	ONDR								
	0710	1540	BLEN								
	2041	2400	HIRA								
	2000	2400	CULG	2122.0	2124.0	III	G	3	20	200	
			CULG	2231.0	2231.0	III	B	2	30	180	
			CULG	2246.0	2246.0	III	B	1	27	150	
			CULG	2302.0	2303.0	III	B	1	23	120	
12			LEAR	0013.0	0014.0	III		1	25	96	
	0000	0750	CULG	0013.0	0014.0	III	G	1	20	80	
	0000	0808	HIRA	0013.5	0014.0	III	B	1	30	70	
			LEAR	0051.0	0053.0	III		2	25	180	
			PALE	0051.0	0052.0	III		1	25	180	
			HIRA	0051.5	0053.0	III	G	2	25X	150	
			CULG	0052.0	0053.0	III	G	3	18X	200	
			LEAR	0104.0	0104.0	III		1	25	94	
			HIRA	0104.5	0105.0	III	B	1	60	110	
			CULG	0105.0	0105.0	III	G	1	30	75	
			CULG	0157.0	0159.0	III	G	2	20	90	
			LEAR	0157.0	0159.0	III		1	25	46	
			LEAR	0234.0	0235.0	III		1	25	130	
			HIRA	0234.5	0235.0	III	B	1	30	80	
			CULG	0235.0	0236.0	III	G	3	18X	150	
			CULG	0238.0	0243.0	III	G	2	18	160	
			LEAR	0537.0	0541.0	III		1	25	99	
			SVTO	0541.0	0541.0	III		1	25	83	
			HIRA	0541.5	0542.0	III	B	1	25X	110	
	0631	1506	ONDR								
	0710	0930	BLEN								
			SVTO	0807.0	0808.0	III		1	27	45	
	0555	1200	IZMI	0807.5	0807.8	III	B	1	35	85	
	2000	2400	CULG								
	2042	2400	HIRA								
13	0000	0750	CULG								
	0000	0806	HIRA								
	0555	1200	IZMI								
	0632	1504	ONDR								
	0710	1530	BLEN								
	2000	2400	CULG								
	2042	2400	HIRA								
14	0000	0750	CULG								
	0000	0805	HIRA								
	0600	1200	IZMI								
	0634	1501	ONDR								
	0710	1530	BLEN								
	2000	2400	CULG								

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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)	
14	2043	2400	HIRA								
15	0000	0803	HIRA								
	0000	0750	CULG	0026.0	0026.0	III	B	1	23	80	
			CULG	0434.0	0434.0	III	B	2	20	45	
	0636	1459	ONDR								
	0710	1530	BLEN								
			CULG	0717.0	0717.0	III	B	2	20	60	
			SVTO	0919.0	0934.0	III		1	28	42	
	0600	1200	IZMI	0919.4	0920.0	III	B	1	25X	65	
			SVTO	1235.0	1235.0	III		1	25	43	
	2000	2400	CULG								
	2044	2400	HIRA								
16	0000	0750	CULG								
	0000	0802	HIRA								
	0550	1200	IZMI								
	0638	1457	ONDR								
	0710	1530	BLEN								
	2045	2400	HIRA								
	2000	2400	CULG	2351.0	2351.0	III	B	1	20	50	
17	0000	0750	CULG								
	0000	0801	HIRA								
	0640	1454	ONDR								
	0600	1200	IZMI	0643.0	0643.2	III	G	1	140	240	
	0710	1530	BLEN								
			IZMI	0713.1	0713.1	III	B	1	55	65	
			HOLL	1553.0	1553.0	III		1	25	85	
	2000	2400	CULG								
	2046	2400	HIRA								
18			LEAR	0015.0	0015.0	III		1	25	100	
	0000	0750	CULG	0016.0	0016.0	III	B	1	20	90	
			CULG	0403.0	0403.0	III	B	2	20	75	
			LEAR	0403.0	0403.0	III		1	25	68	
	0000	0800	HIRA	0403.0	0403.5	III	B	1	25X	60	
			CULG	0525.0	0525.0	III	B	1	20	80	
			LEAR	0525.0	0545.0	III	N	1	25	180	
			CULG	0531.0	0534.0	III	G	2	18	150	
			SVTO	0536.0	0540.0	III		2	25	180	
			HIRA	0536.5	0539.5	III	G	1	25X	100	
			CULG	0537.0	0541.0	III	GG	3	18X	170	
			CULG	0545.0	0545.0	III	B	3	18	160	
			HIRA	0545.0	0545.5	III	B	1	30	100	
			SVTO	0545.0	0545.0	III		2	25	153	
	0606	1200	IZMI	0606.0E	1200.0D	I	S	2	55	270X	
	0642	1452	ONDR								
			IZMI	0747.7	0747.8	III	B	1	130	165	
			IZMI	0819.0U	1015.0U	III	N	2	25X	95U	
			LEAR	0820.0	0947.0	CONT		1	78	180	
			SVTO	0823.0	1546.0	CONT		1	75	180	
			IZMI	0830.6	0831.7	III	GG	2	25X	95	
			LEAR	0851.0	0853.0	III		2	25	180	
			SVTO	0851.0	0854.0	V		3	25	180	
			IZMI	0851.5	0854.8	III	GG,C	2	25X	270X	
	0710	1525	BLEN	0851.6	0958.0	III	GG	2	100X	500	
			IZMI	0852.1	0854.5	V		2	25X	90U	
			LEAR	0854.0	0905.0	III	N	1	25	180	
			IZMI	0855.8	0902.5	III	GG,C	2	25X	270X	
			SVTO	0856.0	0907.0	III	N	2	25	180	
			IZMI	0903.7	0905.9	III	GG	2	25X	180	
			IZMI	0940.4	0940.5	III	B,C	2	40	90	
			SVTO	0958.0	1001.0	III		1	25	170	
			IZMI	0958.9	1001.6	III	GG,FS	2	25	270X	
			IZMI	1133.0	1135.4	I	GG	2	170X	250	
			SVTO	1244.0	1246.0	III		1	25	147	
			HOLL	1353.0	1550.0	III	N	1	25	157	
			SGMR	1353.0	1509.0	III	N	1	30	55	

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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)	
18			SVTO	1353.0	1354.0	III		1	25	153	
			BLEN	1353.3	1359.1	III	G	2	150	500	
			SVTO	1401.0	1546.0	III	N	2	25	168	
			HOLL	1446.0	1922.0	CONT		1	54	180	
			BLEN	1508.6	1511.3	III	GG,RS	2	150	300	
			HOLL	1630.0	1631.0	V		2	25	180	
			SGMR	1630.0	1650.0	III	N	3	30	80	
			HOLL	1633.0	1720.0	III	N	1	25	149	
			PALE	1649.0	1649.0	III		1	25	180	
			2000 2400 CULG	2000.0E	2400.0D	III	S,C	1	18	180	
			LEAR	2159.0	0948.0	CONT		1	37	180	
			CULG	2216.0	2216.0	III	B	3	18	180	
			HOLL	2216.0	2216.0	III		2	25	180	
			LEAR	2216.0	2216.0	III		3	25	180	
			PALE	2216.0	2216.0	III		2	25	180	
			2047 2400 HIRA	2216.0	2216.5	III	B	3	25X	280	
19	0000 0750		CULG	0000.0E	0750.0D	III	S,C	2	18	140	
			SVTO	0523.0	1544.0	CONT		2	25U	180U	
			IZMI	0548.0E	1200.0D	III	N	2	25X	95U	
			0548 1200 IZMI	0548.0E	1200.0D	I	S,C	3	10U	270X	
			IZMI	0618.9	0625.7	III	GG,C	2	25X	270X	
			CULG	0620.0	0622.0	III	G	2	18X	270	
			LEAR	0620.0	0622.0	III		2	25	180	
			SVTO	0620.0	0622.0	III		2	25	180	
			0000 0758 HIRA	0620.5	0623.5	III	G	2	25X	320	
			ONDR	0807.4	0808.5	DCIM	G	2	800X	2000X	
			0710 1520 BLEN	0807.7	0809.0	III	GG,C	3	500	4000X	
			0644 1450 ONDR	0808.3	0808.5	DCIM	G	1	2098	4500X	
			IZMI	1127.3	1128.7	III	G	2	30	215	
			HOLL	1337.0	2012.0	CONT		1	75	180	
			HOLL	1511.0	1830.0	III	N	1	25	180	
			HOLL	1650.0	1702.0	II		1	25	130	ESS 0625
			SGMR	1654.0	1705.0	II		1	30	80	ESS 0630
			PALE	1700.0	1728.0	CONT		1	33	166	
			2000 2400 CULG	2038.0	2400.0D	III	S,C	1	20	180	
			2048 2400 HIRA								
			LEAR	2228.0	0949.0	CONT		1	74	180	
			LEAR	2325.0	0949.0	III	N	1	25	180	
			LEAR	2325.0	2352.0	III	N	1	25	180	
20	0000 0757		HIRA								
			0000 0750 CULG	0000.0E	0750.0D	III	S,C	2	20	200	
			2000 2400 CULG	0000.0E	0750.0D	III	S,C	3	18X	200	
			SVTO	0525.0	1543.0	CONT		2	25	180	
			IZMI	0600.0E	1200.0D	III	N	2	25X	270X	
			0600 1200 IZMI	0600.0E	1200.0D	I	S,C	2	45U	270X	
			0646 1447 ONDR	0709.5	0724.1	DCIM	GG	1	800X	1639	
			0710 1520 BLEN	0710.4X	0724.2	III	GG,RS	1	950	1800	
			IZMI	0844.5	0847.1	III	GG	2	25X	95	
			IZMI	1053.8	1055.4	III	GG	2	25X	65	
			IZMI	1108.1	1109.7	III	G	2	25X	100	
			IZMI	1114.5	1116.2	III	G	2	25X	75	
			SGMR	1231.0	1232.0	III		2	30	70	
			SGMR	1319.0	1328.0	III		2	30	70	
			HOLL	1343.0	0007.0	CONT		1	25	180	
			HOLL	1343.0	0007.0	CONT		1	51	180	
			HOLL	1348.0	1349.0	III		1	25	138	
			HOLL	1415.0	0007.0	III	N	1	25	87	
			2049 2400 HIRA	2130.0	2131.0	III	G	1	25X	230	
			LEAR	2229.0	0949.0	CONT		3	25	180	
			LEAR	2229.0	0949.0	III	N	1	25	180	
21	0000 0750		CULG	0000.0E	0750.0D	III	S,C	3	18X	250	
			CULG	0242.0	0248.0	III	G	1	20	660	
			0000 0756 HIRA	0345.5	0356.0	II		2	30	510	
			CULG	0347.0	0352.0	II	FN	3	20	50	
			CULG	0347.0	0352.0	II	SH	3	40	110	ESS 1000
			LEAR	0347.0	0401.0	II		2	25	97	ESS 1058

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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)		
21	0600	1200	PALE	0355.0	0348.0	III	N	1	25	180			
			PALE	0402.0	0348.0	CONT		1	25	180			
			SVTO	0526.0	1541.0	CONT		2	25	180			
			IZMI	0600.0E	1200.0D	I	S,C	2	25X	270X			
			IZMI	0600.0E	1200.0D	III	S	2	25X	270X			
			IZMI	0615.1	0618.1	III	GG	2	25X	270X			
			IZMI	0639.5	0641.6	CONT	DC	2	25X	40			
			IZMI	0712.7	1715.7	III	GG	2	25X	90			
			IZMI	0806.9	0815.8	III	GG	2	25X	160U			
			0647	1445	ONDR	0823.4	0824.2	DCIM	G	2	2098	4500X	
			0715	1520	BLN	0823.7	0825.3	DCIM	C	1	1900	4000X	
			IZMI	1047.1	1047.2	III	G,C	3	150	270X			
	2000	2400	SGMR	1150.0	2104.0	CONT		2	30	80			
			ONDR	1336.5	1338.0	DCIM	G	1	2332	4500X			
			BLN	1336.7	1338.0	DCIM	C	2	130	4000X			
			HOLL	1345.0	0006.0	CONT		1	75	172			
			HOLL	1345.0	0006.0	III	N	1	25	180			
			SGMR	1627.0	1859.0	III	N	1	30	80			
			CULG	2000.0E	2400.0D	III	S,C	3	18X	200			
			CULG	2127.0	2129.0	III	G	3	18	550			
			2050	2400	HIRA	2127.0	2129.0	III	G	1	25X	230	
			LEAR	2228.0	0950.0	CONT		1	25	180			
			LEAR	2228.0	0950.0	III	N	1	25	180			
			LEAR	2228.0	0959.0	III	N	1	25	180			
22	0000	0750	CULG	0000.0E	0750.0D	III	S,C	3	18X	260			
			HIRA	0247.0	0248.0	III	G	2	25X	110			
			CULG	0331.0	0333.0	III	G	3	18X	660			
			CULG	0414.0	0416.0	III	G	1	20	850			
	0550	1200	HIRA	0414.0	0416.5	III	G	1	200	1000			
			IZMI	0500.0E	1200.0D	III	S	2	25X	60U			
			HIRA	0523.0	0526.0	III	G	2	25X	200			
			SVTO	0527.0	1540.0	CONT		2	25	180			
			IZMI	0550.0E	1200.0D	I	S,C	2	25X	270X			
			0650	1443	ONDR	0716.1	0722.2	DCIM	G	1	800X	1723	
			ONDR	0728.3	0816.3	DCIM	GG	1	800X	2000X			
			0715	1520	BLN	0746.1	0756.7	III	GG,C,S	2	420	4000X	
			SVTO	0805.0	0806.0	III		1	25	46			
			SVTO	0805.0	0806.0	III		1	46	47			
			IZMI	0805.6	0806.0	III	G,C	2	25X	45			
			ONDR	0856.2	0857.0	DCIM	GG	3	800X	1831			
	0715	1520	IZMI	0858.0	0858.2	III	G	2	180	270X			
			SVTO	0938.0	0946.0	II		1	25	43		ESS 0650	
			IZMI	0938.4	0941.7	I	GG,DC	2	30	45			
			SVTO	0942.0	1540.0	III	N	2	25	180			
			IZMI	0942.2	0943.5	III	GG,C	2	25X	270X			
			IZMI	0949.6	0955.1	III	GG,C	2	25X	65			
			ONDR	0955.0	1054.1	DCIM	GG	2	800X	1616			
			IZMI	0955.2	0955.6	III	GG,C	2	25X	270X			
			IZMI	1020.0U	1200.0D	I	S,DC,FS	2	25X	65U			
			IZMI	1027.3	1029.8	III	G	2	25X	270X			
			IZMI	1125.4	1125.6	III	B	2	25X	65			
			SGMR	1138.0	2051.0	CONT		2	30	80			
			SGMR	1215.0	1216.0	III		2	30	80			
			SVTO	1215.0	1216.0	III		2	25	180			
			BLN	1424.0	1424.5	III	G,S	2	400	2000			
			ONDR	1424.0	1424.2	DCIM	G	2	800X	1325			
			BLN	1507.6	1511.7	III	GG	2	130	3200			
			HOLL	1509.0	1510.0	III		2	25	180			
			SVTO	1509.0	1510.0	III		1	25	155			
			HOLL	1559.0	1601.0	III		2	25	180			
			SGMR	1559.0	1601.0	III		3	30	80			
			PALE	1646.0	0345.0	III	N	1	25	180			
			PALE	1646.0	0347.0	CONT		1	25	180			
			PALE	1653.0	2040.0	CONT		1	37	180			
			PALE	1731.0	1732.0	III		1	25	180			
			PALE	1830.0	1833.0	III		1	25	180			
			SGMR	1952.0	2011.0	III	N	2	30	80			
			CULG	2000.0E	2121.0	III	N	3	18X	130			

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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)
22			CULG	2000.0E	2400.0D	III	S,C	1	18	180	
	2000	2400	CULG	2000.0E	2117.0	IV	FS	3	18X	170	
			LEAR	2228.0	0950.0	CONT		1	25	180	
	2050	2400	HIRA	2233.5	2234.0	III	B	1	120	320	
			CULG	2234.0	2234.0	III	B	1	140	330	
			HIRA	2240.0	2245.0	III	G	2	25X	700	
			LEAR	2241.0	2247.0	III		2	25	180	
			CULG	2242.0	2245.0	III	G	3	18X	850	
			LEAR	2311.0	0950.0	III	N	1	25	180	
			HIRA	2342.5	2344.5	III	G	1	25X	70	
			CULG	2343.0	2345.0	III	G	3	18X	180	
23	0000	0750	CULG	0000.0E	0750.0D	III	S,C	2	18X	230	
			CULG	0115.0	0116.0	III	G	3	18X	1400	
			LEAR	0115.0	0116.0	III		2	25	180	
			PALE	0115.0	0116.0	III		2	25	180	
	0000	0753	HIRA	0115.5	0116.5	III	B	1	25X	450	
			HIRA	0123.0	0129.5	III	G	2	25X	100	
			CULG	0128.0	0129.0	III	G	3	18X	250	
			CULG	0230.0	0254.0	III	GG	3	18X	250	
			HIRA	0234.0	0253.5	III	G	3	25X	1300	
			CULG	0238.0	0240.0	III	G	3	18X	1000	
			HIRA	0457.5	0458.0	III	B	1	25X	70	
			CULG	0458.0	0458.0	III	B	3	18X	100	
			CULG	0522.0	0522.0	III	G	3	20	180	
			HIRA	0522.0	0523.0	III	B	1	40	180	
			SVTO	0528.0	1538.0	CONT		2	25	180	
			HIRA	0535.0	0536.0	III	B	2	30	300	
			LEAR	0535.0	0536.0	III		3	25	180	
			SVTO	0535.0	0536.0	III		2	25	180	
			CULG	0536.0	0536.0	III	G	3	18X	310	
			IZMI	0600.0E	1200.0D	III	N	1	25X	90U	
	0600	1200	IZMI	0600.0E	1200.0D	I	S,C	2	40	270X	
			IZMI	0605.3	0607.0	CONT	DC	1	25X	40	
			IZMI	0606.4	0607.0	III	G,C	2	25X	270X	
			CULG	0607.0	0723.0	III	N	3	18X	200	
			IZMI	0610.0	0610.2	III	G	2	40	190	
			SVTO	0624.0	0633.0	III		2	25	180	
			IZMI	0624.3	0633.9	III	GG	2	25	270X	
			CULG	0631.0	0631.0	III	G	3	18X	500	
			IZMI	0640.0	0645.6	III	GG	2	240	270X	
			SVTO	0642.0	1108.0	III	N	2	25	180	
			IZMI	0649.7	0654.1	III	GG,C	2	25X	200	
			HIRA	0650.5	0651.0	III	B	1	25X	50	
			IZMI	0658.3	0711.0	III	GG	2	25X	270X	
			HIRA	0701.0	0708.5	III	G	3	25X	2000	
			SVTO	0704.0	0708.0	III		2	25	180	
	0705	1520	BLEN	0704.0X	0714.3	III	GG	3	100X	4000X	
			CULG	0705.0	0708.0	III	G	3	18X	1500	
	0652	1441	ONDR	0705.1	0708.3	DCIM	GG	2	800X	2000X	
			IZMI	0722.6	0723.7	III	G	2	25X	100	
			IZMI	0813.9	0815.2	III	G	2	25X	65	
			LEAR	0817.0	0834.0	III	N	2	25	180	
			SVTO	0817.0	0850.0	III	N	2	25	180	
			ONDR	0817.4	0820.1	DCIM	G	1	2078	4500X	
			IZMI	0817.6	0818.7	III	G,C	2	30	270X	
			BLEN	0817.7	0828.3	III	GG,RS	3	100X	4000X	
			ONDR	0818.0	1004.1	DCIM	GG,FS	2	800X	2000X	
			ONDR	0823.4	1015.1	DCIM	GG	3	2000X	4500X	
			IZMI	0823.7	0826.7	III	GG,C	2	25X	270X	
			BLEN	0825.0	1110.0	DCIM	P,F	3	100X	4000X	
			SVTO	0826.0	0838.0	II		2	31U	87U	ESS 0885
			IZMI	0826.4	0830.7	II	G,C	2	30	270X	
			BLEN	0826.6	0841.9	II		3	100X	600	
			LEAR	0827.0	0831.0	II		3	33	109	ESS 0967
			IZMI	0832.7	0834.8	III	G,C,FS	2	25X	215	
			IZMI	0848.2	0850.4	III	G,DC	2	25	45	
			IZMI	0857.4	0905.2	III	GG	2	25X	85	
			IZMI	0945.3	0945.6	III	G	2	25X	45	

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OBSERVATION			EVENT		FREQUENCY		Remarks
Start	End	Sta	Start	End	Lower	Upper	
Day (UT)	(UT)		(UT)	(UT)	(MHz)	(MHz)	
23		IZMI	1003.1	1018.3	III	25X	270X
		ONDR	1013.2	1111.0	DCIM	800X	2000X
		IZMI	1026.2	1035.6	III	25X	270X
		ONDR	1027.4	1119.1	DCIM	2000X	4500X
		SVTO	1028.0	1031.0	III	25	180
		IZMI	1037.8	1040.9	III	25X	265
		SVTO	1049.0	1054.0	III	25	180
		IZMI	1049.6	1054.3	III	25X	270X
		SGMR	1126.0	2129.0	CONT	30	80
		HOLL	1354.0	0005.0	CONT	37	180
		HOLL	1400.0	2330.0	III	25	167
		SGMR	1800.0	1943.0	III	30	80
	2000 2400	CULG	2000.0E	2400.0D	III	18X	200
		CULG	2021.0	2028.0	UNCLF	60	1600
	2051 2400	HIRA	2108.5	2109.0	III	25X	220
		CULG	2109.0	2109.0	III	18	300
		CULG	2200.0	2202.0	III	50	280
		HIRA	2203.5	2205.0	III	25X	80
		LEAR	2229.0	0950.0	CONT	25	180
		HIRA	2351.0	2354.5	III	25X	50
		HOLL	2351.0	2355.0	III	25	180
24	0000 0750	CULG	0000.0E	0750.0D	III	18X	200
		CULG	0241.0	0258.0	CONT	120	820
		CULG	0245.0	0250.0	UNCLF	20	50
		PALE	0245.0	0346.0	IV	54	180
		LEAR	0247.0	0336.0	IV	43	180
		CULG	0254.0	0303.0	UNCLF	20	45
		CULG	0508.0	0511.0	III	18X	700
	0504 0751	HIRA	0508.5	0510.0	III	25X	600
		SVTO	0529.0	1537.0	CONT	25	180
		HIRA	0551.5	0552.0	III	25X	70
		IZMI	0555.6E	0558.6	III	25X	90U
		IZMI	0601.7	0602.0	III	25X	150
		CULG	0602.0	0602.0	III	18X	460
	0602 1200	IZMI	0602.0E	1200.0D	III	25X	190U
		IZMI	0602.0E	1200.0D	I	40	270X
		IZMI	0603.9	0604.0	III	30	130
		IZMI	0633.2	0634.2	III	25X	260
		IZMI	0647.1	0649.6	III	25X	95
		IZMI	0657.6	0657.8	III	25X	125
		IZMI	0716.0	0716.2	III	25X	62
		IZMI	0729.9	0733.3	III	120	270
		IZMI	0737.6	0738.2	III	30	90
		IZMI	0744.7	0744.8	III	35	100
		SVTO	0751.0	0752.0	III	25	73
		IZMI	0751.8	0751.9	III	25X	75
	0653 1438	ONDR	0802.2	0802.4	DCIM	1189	1822
		IZMI	0812.2	0812.7	III	25X	160
		IZMI	0824.5	0833.3	III	25X	270X
		ONDR	0827.3	0832.2	DCIM	800X	2000X
	0710 1520	BLEN	0828.0	0831.5	III	100X	2500
		BLEN	0831.4	0840.3	III	100X	1200
		IZMI	0837.2	0841.5	III	25X	270X
		LEAR	0839.0	0840.0	III	25	180
		SVTO	0839.0	0840.0	III	25	180
		IZMI	0929.5	0931.3	III	90	270X
		IZMI	0942.3	0955.5	III	110U	270X
		BLEN	0946.1	1042.0	III	100X	3600
		ONDR	0946.5	1010.3	DCIM	800X	2000X
		IZMI	0947.2	0948.4	III	90	270X
		IZMI	0947.4	0948.1	CONT	25	35
		ONDR	0950.5	1008.0	DCIM	2000X	4500X
		IZMI	1005.6	1011.3	III	25X	270X
		IZMI	1022.1	1024.7	III	25X	270X
		IZMI	1028.6	1039.8	III	25X	270X
		ONDR	1034.1	1037.3	DCIM	800X	2000X
		ONDR	1034.2	1035.1	DCIM	2000X	4500X
		IZMI	1041.0	1048.1	III	25X	270X

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OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	Start End (UT) (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
24	2000 2400	IZMI	1045.8	1046.1	III	G,C	3	25X	270X	
		IZMI	1047.1	1048.7	II	HARM	1	40	65U	
		SGMR	1349.0	2030.0	CONT		1	30	80	
		HOLL	1509.0	1514.0	III		1	25	139	
		SGMR	1509.0	1538.0	III	N	2	30	55	
		HOLL	1536.0	1537.0	III		1	25	180	
		PALE	1905.0	0345.0	III	N	1	28	114	
		CULG	2000.0E	2400.0D	III	S,C	3	18X	230	
		HOLL	2017.0	2034.0	III	N	1	25	136	
		CULG	2022.0	2024.0	III	G	3	18X	1200	
		HOLL	2101.0	2330.0	III	N	2	25	142	
		PALE	2134.0	2140.0	III		3	25	180	
	2052 2400	HIRA	2134.5	2135.5	III	B	3	30	260	
		CULG	2135.0	2145.0	III	GG	3	18X	1200	
		HIRA	2137.5	2144.5	III	G	3	25X	1000	
		LEAR	2230.0	0950.0	CONT		2	25	180	
		LEAR	2249.0	0950.0	III	N	1	25	180	
		LEAR	2351.0	0950.0	III	N	2	25	180	
25	0000 0750	CULG	0000.0E	0750.0D	III	S,C	3	18X	200	
		LEAR	0145.0	0159.0	III	N	2	25	180	
		CULG	0150.0	0159.0	III	G	3	18X	1200	
		PALE	0154.0	0158.0	III		2	25	180	
	0000 0750	HIRA	0154.5	0159.0	III	G	2	25X	730	
		LEAR	0257.0	0312.0	III		2	25	180	
		CULG	0258.0	0301.0	III	G	3	18X	800	
		HIRA	0258.0	0313.0	III	G	2	25X	800	
		CULG	0311.0	0311.0	III	B	3	18X	400	
		LEAR	0336.0	0352.0	III		2	25	180	
		CULG	0337.0	0346.0	III	G	3	18X	700	
		HIRA	0337.0	0346.5	III	G	2	25X	700	
		LEAR	0420.0	0441.0	III		1	25	171	
		HIRA	0421.5	0423.5	III	G	2	30	260	
		CULG	0427.0	0430.0	II	FN	3	30	50	
		CULG	0427.0	0430.0	II	SH	3	60	100	ESS 1200
		LEAR	0439.0	0441.0	III		1	25	163	
		LEAR	0527.0	0528.0	III		1	25	180	
		LEAR	0545.0	0550.0	III		2	25	180	
		HIRA	0546.5	0550.5	III	G	1	25X	500	
		CULG	0547.0	0550.0	III	G	3	18X	820	
		IZMI	0548.0E	0557.6	III	GG,C	2	25X	270X	
		IZMI	0548.0E	0623.0U	III	N	2	25X	270X	
	0558 1200	IZMI	0548.0E	1200.0D	I	S,C	2	45	270X	
		LEAR	0552.0	0602.0	II		1	25	180	ESS 0316
		CULG	0554.0	0600.0	III	G	3	100	1400	
		HIRA	0554.0	0555.0	III	B	1	100	1600	
		LEAR	0602.0	0611.0	III		1	25	180	
		SVTO	0605.0	1535.0	III	N	2	25	180	
		IZMI	0623.0	1200.0D	III	N	2	25X	95U	
		SVTO	0638.0	1535.0	CONT		1	25	180	
		IZMI	0820.5	0824.0	III	GG	2	25X	100U	
		LEAR	0823.0	0824.0	III		1	25	123	
		LEAR	0849.0	0854.0	III		2	25	180	
		IZMI	0849.3	0849.9	III	GG,FS	2	40	270X	
		IZMI	0852.6	0854.6	III	G	2	25X	270X	
		LEAR	0920.0	0922.0	III		2	25	180	
		IZMI	0920.8	0922.2	III	G	2	25X	270X	
		IZMI	0935.3	0936.3	III	GG,C	2	25X	270X	
		IZMI	1000.7	1008.2	III	GG,FS	2	25X	270X	
	0656 1436 0710 1520	ONDR	1002.5	1007.3	DCIM	GG	2	880	2000X	
		BLEN	1002.8	1007.2	III	GG,RS	2	280	4000X	
		BLEN	1028.2	1033.2	DCIM	C,S	3	100X	4000X	
		ONDR	1028.2	1032.5	DCIM	G	2	800X	2000X	
		ONDR	1028.3	1040.0	DCIM	G	2	2000X	4500X	
		IZMI	1028.6	1034.3	III	GG,C	3	80	270X	
		IZMI	1122.2	1126.7	III	GG	2	25X	140	
		IZMI	1151.5	1153.5	III	G,C	2	25X	270X	
		SGMR	1207.0	1643.0	III	N	2	30	70	
		ONDR	1215.4	1217.1	DCIM	GG	2	800X	2000X	

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OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	Start End (UT) (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
25	2000 2400	ONDR	1215.5	1217.2	DCIM	G	1	2000X	4500X	
		BLN	1215.7	1223.8	III	GG,RS	3	400	4000X	
		HOLL	1347.0	0001.0	CONT		1	50	180	
		BLN	1438.7	1444.2	III	GG	2	100X	600	
		PALE	1802.0	1805.0	III		1	25	80	
		HOLL	1904.0	1905.0	III		1	25	113	
		CULG	2000.0E	2400.0D	III	S	1	20	180	
		CULG	2000.0E	2400.0D	I	S,C	2	18	260	
		HOLL	2049.0	2300.0	III	N	1	25	180	
		CULG	2050.0	2050.0	III	G	3	18X	160	
	2053 2400	SGMR	2050.0	2050.0	III		2	30	80	
		HIRA								
		CULG	2102.0	2104.0	III	G	3	18X	150	
		LEAR	2153.0	0632.0	CONT		1	25	180	
26	0000 0750	CULG	0000.0E	0615.0U	I	S,C	1	50	200	
		CULG	0000.0E	0750.0D	III	S	1	20	180	
		LEAR	0120.0	0121.0	III		2	25	180	
		CULG	0121.0	0121.0	III	B	3	20	160	
		CULG	0324.0	0329.0	III	G	3	18	90	
		SVTO	0532.0	0632.0	CONT		1	41	153	
		LEAR	0554.0	0555.0	III		2	25	180	
		CULG	0555.0	0556.0	III	G	3	18	180	
	0000 0749	HIRA	0555.0	0556.0	III	B	1	40	160	
		CULG	0607.0	0607.0	III	B	3	18	100	
		HIRA	0613.0		IV		2	100	2000	
		CULG	0614.0	0750.0D	IV		3	20	1200	
		CULG	0616.0	0624.0	II	FN	3	30	160	
		CULG	0616.0	0624.0	II	SH	3	57	330	ESS 1100
		HIRA	0616.0	0629.0	II		2	40	320	
		SVTO	0616.0	0629.0	II		2	25	180	ESS 0836
		LEAR	0617.0	0632.0	II		2	25	180	ESS 1302
		CULG	0620.0	0632.0	III	GG	3	18X	200	
	0700 1200	LEAR	0620.0	0621.0	III		2	25	180	
		SVTO	0620.0	0621.0	III		1	25	180	
		LEAR	0632.0	0951.0	IV		3	25	180	
		SVTO	0632.0	1534.0	IV		3	25	180	
		CULG	0645.0	0703.0	III	GG	3	18	57	
		IZMI	0700.0E	1200.0D	III	N	2	25X	270X	
		IZMI	0700.0E	1200.0D	I	S,C	2	30	270X	
	0710 1520	BLN	0703.3	0849.5	DCIM	P,S	3	100X	4000X	
		ONDR	0707.0	0820.5	DCIM	GG,SP	3	800X	2000X	
		IZMI	0720.0U	0810.0U	CONT		3	90U	270X	
		ONDR	0745.1	0814.3	DCIM	GG	2	2000X	4500X	
		IZMI	0825.0U	0915.0	CONT		2	50	270X	
		ONDR	0827.2	0909.3	DCIM	G	3	800X	2000X	
		ONDR	0832.2	0853.2	DCIM	G	2	2000X	4500X	
		ONDR	0923.1	0934.4	DCIM	G	1	800X	1639	
		ONDR	0953.5	1047.3	DCIM	GG	3	800X	2000X	
		BLN	0954.6	1029.5	DCIM	P	3	100X	4000X	
	0657 1434	IZMI	0957.0	1125.0	CONT		2	50	270X	
		ONDR	0958.1	1030.4	DCIM	GG	2	2000X	4500X	
		BLN	1112.0	1121.4	DCIM	P	2	100X	2300	
		ONDR	1112.0	1116.5	DCIM	GG	1	800X	2000X	
		IZMI	1115.6	1130.7	III	GG	2	25X	270X	
		BLN	1335.7	1337.1	III	GG,RS	2	100X	3200	
		SGMR	1600.0	2124.0	III	N	2	30	80	
		PALE	1648.0	0344.0	CONT		1	25	180	
		HOLL	1708.0	2359.0	CONT		1	25	180	
		PALE	1735.0	1743.0	II		2	25	33	ESS 0940
	2000 2400	PALE	1735.0	1743.0	II		2	25	100	ESS 0940
		SGMR	1735.0	1743.0	II		2	30	70	ESS 0950
		SGMR	1804.0	1853.0	CONT		1	30	45	
		PALE	1904.0	0344.0	III	N	1	25	180	
		HOLL	1951.0	1959.0	III		1	25	180	
		CULG	2000.0E	2047.0	I	S	1	30	90	
		CULG	2000.0E	2400.0D	III	S,C	1	20	100	
		CULG	2014.0	2029.0	III	G	3	20	80	
		HOLL	2014.0	2238.0	III	N	1	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)
26			CULG	2048.0	2048.0	III	B	3	18	150	
			CULG	2110.0	2111.0	III	G	3	18	100	
	2054	2400	HIRA	2110.0	2111.5	III	G	2	30	70	
			HIRA	2130.5	2131.5	III	G	1	25X	70	
			CULG	2131.0	2132.0	III	G	2	18	90	
			CULG	2141.0	2141.0	III	B	2	20	80	
			HIRA	2141.0	2141.5	III	B	1	25X	100	
			CULG	2215.0	2223.0	III	G	2	18	90	
			LEAR	2215.0	0952.0	III	N	1	25	180	
			LEAR	2225.0	0819.0	CONT		1	42	180	
			CULG	2236.0	2238.0	III	G	3	18X	90	
27	0000	0750	CULG	0000.0E	0750.0D	III	S,C	1	18	100	
			CULG	0121.0	0124.0	III	G	2	18X	100	
	0000	0748	HIRA	0121.0	0124.0	III	G	1	25X	200	
			CULG	0206.0	0206.0	III	B	2	20	90	
			HIRA	0206.0	0206.5	III	B	1	25X	90	
			LEAR	0240.0	0249.0	III		1	25	180	
			CULG	0241.0	0241.0	III	B	3	18	65	
			CULG	0245.0	0252.0	III	GG	3	18X	130	
			HIRA	0245.5	0250.0	III	G	1	25X	310	
			HIRA	0312.5	0313.0	III	B	1	30	80	
			CULG	0313.0	0313.0	III	B	3	18X	75	
			HIRA	0350.5	0352.0	III	G	1	25X	50	
			CULG	0351.0	0352.0	III	G	3	18X	90	
			CULG	0531.0	0532.0	III	G	3	18X	100	
			HIRA	0531.5	0532.5	III	G	1	30	70	
			SVTO	0533.0	0819.0	CONT		1	25	180	
			CULG	0542.0	0556.0	III	GG	2	18	100	
			CULG	0645.0	0655.0	UNCLF		1	50U	700	
			IZMI	0702.0	1200.0D	III	N	2	25X	95U	
	0702	1200	IZMI	0702.0	1200.0D	I	SG	2	50	270X	
			IZMI	0735.6	0735.7	III	B	2	35	90	
			CULG	0736.0	0736.0	III	B	2	20	60	
			IZMI	0743.0	0743.3	III	G	2	170	270X	
			ONDR	0756.0	0839.0	DCIM	GG	2	2000X	4500X	
	0700	1432	ONDR	0756.2	0837.1	DCIM	GG,SP	2	800X	2000X	
			BLEN	0756.6	0852.5	DCIM	Z,P	3	100X	4000X	
	0715	1515	BLEN	0756.6	0815.3	III	GG,S	2	100X	4000X	
			IZMI	0757.9	0759.5	III	GG	2	25X	270X	
			LEAR	0758.0	0807.0	III		2	25	180	
			SVTO	0758.0	0807.0	III		3	25	180	
			IZMI	0801.4	0809.9	III	GG,FS	2	25X	270X	
			IZMI	0803.0	0803.8	III	G	3	25X	270X	
			IZMI	0811.1	0814.2	III	GG	2	25X	270X	
			IZMI	0815.1	0828.9	III	S,C	2	25X	270X	
			SVTO	0819.0	1533.0	IV		1	25	180	
			IZMI	0834.3	0834.4	III	G	2	25X	270X	
			ONDR	0840.1	0923.0	DCIM	GG	2	800X	2000X	
			ONDR	0841.2	0856.3	DCIM	G	2	2000X	4500X	
			IZMI	0841.7	0843.2	CONT	DC	1	40	45	
			IZMI	0853.0	0853.4	III	G	2	40	180	
			ONDR	0917.4	0930.1	DCIM	G	2	2000X	4500X	
			BLEN	0917.6	0926.0	DCIM	C	3	800	4000X	
			LEAR	0922.0	0923.0	III		1	25	180	
			SVTO	0922.0	0922.0	III		2	25U	84U	
			IZMI	0922.3	0923.6	III	G,C	2	25X	155	
			IZMI	0933.4	0937.0	III	G	2	40	90	
			IZMI	1001.5	1001.6	III	B	2	30	95	
			IZMI	1007.6	1008.3	III	G	2	30	95	
			IZMI	1014.1	1015.3	III	G	2	25X	95	
			IZMI	1023.4	1026.4	III	G	1	25X	160	
			IZMI	1054.5	1056.1	III	G	2	30	75	
			IZMI	1123.2	1123.4	III	G	2	25X	100	
			SGMR	1129.0	1959.0	III	N	2	30	80	
			SVTO	1129.0	1135.0	III		2	25	180	
			IZMI	1129.5	1129.9	III	G,C	2	25X	190	
			BLEN	1130.5	1135.6	III	GG	1	100X	800	
			IZMI	1134.8	1135.4	III	G,C	3	25X	270X	

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OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Start	End				Spectral	Event		Lower	Upper	
Day	(UT)	(UT)	(UT)	(UT)	Class	Remarks		(MHz)	(MHz)	
27										
		ONDR	1218.1	1244.4	DCIM	G	1	800X	1545	
		BLN	1225.9	1255.5	III	GG,C,S	3	100X	4000X	
		ONDR	1229.1	1236.3	DCIM	G	2	2000X	4500X	
		SVTO	1231.0	1237.0	III		2	25	180	
		ONDR	1314.3	1319.2	DCIM	G	1	800X	1241	
		ONDR	1332.4	1345.5	DCIM	GG	2	800X	2000X	
		BLN	1332.7	1342.2	III	GG,C,S	2	380	4000X	
		HOLL	1352.0	1357.0	III		1	25	180	
		HOLL	1352.0	1539.0	III	N	1	25	180	
		BLN	1415.2	1417.8	III	GG	2	380	2000	
		ONDR	1415.4	1417.3	DCIM	GG	2	800X	1827	
		HOLL	1625.0	2357.0	CONT		1	75	180	
		PALE	1649.0	0343.0	CONT		1	25	180	
		HOLL	1724.0	1726.0	III		1	25	123	
		HOLL	1734.0	1734.0	III		1	25	131	
		PALE	1734.0	1734.0	III		1	25	63	
		PALE	1750.0	0343.0	III	N	1	25	180	
		HOLL	1936.0	2047.0	III	N	1	25	180	
		PALE	1936.0	0245.0	III	N	2	25	180	
2000	2400	CULG	2000.0E	2400.0D	III	N	1	20	100	
		HOLL	2151.0	2152.0	III		1	25	114	
2055	2400	HIRA	2151.5	2152.5	III	B	2	25X	100	
		CULG	2152.0	2152.0	III	B	3	18X	100	
		LEAR	2229.0	0952.0	III	N	2	25	180	
		CULG	2230.0	2230.0	III	B	3	18X	70	
		HIRA	2230.0	2230.5	III	B	1	25X	60	
		HIRA	2241.5	2242.0	III	B	1	25X	70	
		CULG	2242.0	2242.0	III	B	3	18X	100	
		CULG	2340.0	2343.0	III	G	3	18X	80	
		LEAR	2356.0	0003.0	III		1	25	85	
		HIRA	2356.5	2357.0	III	B	1	25X	50	
		CULG	2357.0	2357.0	III	B	3	18X	90	
28	0000	0750								
		CULG	0000.0E	0054.0	III	N	1	20	100	
		CULG	0058.0	0208.0	III	N	3	18X	100	
		LEAR	0058.0	0059.0	III		2	25	121	
0000	0747	HIRA	0058.0	0059.5	III	G	2	25X	100	
		LEAR	0111.0	0114.0	III		2	25	130	
		HIRA	0111.5	0113.5	III	G	1	25X	130	
		HIRA	0136.0	0137.0	III	G	1	40	200	
		HIRA	0146.5	0147.0	III	B	1	40	170	
		HIRA	0153.5	0155.0	III	G	1	30	110	
		CULG	0229.0	0750.0D	III	N	1	18	100	
		CULG	0438.0	0439.0	III	G	3	18X	45	
		CULG	0457.0	0458.0	III	G	3	18X	50	
		CULG	0510.0	0519.0	III	G	3	18X	90	
		HIRA	0510.5	0511.0	III	B	1	40	80	
		SVTO	0534.0	1033.0	CONT		2	25	180	
		CULG	0628.0	0655.0	I	S,C	1	75	170	
		CULG	0646.0	0654.0	III	G	2	20	700	
		IZMI	0652.0E	1200.0D	III	N	1	25X	270X	
0652	1224	IZMI	0652.0E	1224.0D	I	S,C	2	50	270X	
		IZMI	0703.2	0703.7	III	G	2	40	90	
		IZMI	0752.1	0753.2	III	G	2	50	95	
0715	1515	BLN	0753.1	0754.6	III	GG	1	200	700	
		IZMI	0802.2	0805.3	III	GG	2	210	270X	
0701	1430	ONDR	0826.1	0826.3	DCIM	G	1	2693	4500X	
		IZMI	0852.6	0856.5	III	GG,FS	2	30	270X	
		IZMI	0915.8	0917.6	III	G	2	40	125	
		BLN	0949.5	0955.2	III	GG,C	3	400	4000X	
		ONDR	0953.4	0954.2	DCIM	G	1	1391	2000X	
		ONDR	0953.4	0955.2	DCIM	G	2	2000X	4500X	
		BLN	1005.0	1008.3	III	GG,C	2	300	4000X	
		ONDR	1005.3	1007.2	DCIM	GG	2	833	1109	
		ONDR	1005.3	1236.2	DCIM	GG	3	2000X	4500X	
		IZMI	1006.4	1007.6	III	G,C	2	30	50	
		ONDR	1010.2	1057.5	DCIM	GG	2	800X	2000X	
		BLN	1012.0	1515.0X	IV	P,C,F,S	3	100X	4000X	
		IZMI	1013.1	1031.2	III	GG,FS	2	25X	270X	

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OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Start	End				Spectral	Event		Lower	Upper	
Day	(UT)	(UT)	(UT)	(UT)	Class	Remarks		(MHz)	(MHz)	
28		IZMI	1030.0U	1120.0U	III	S	2	50U	270X	
		IZMI	1030.0U	1224.0D	CONT		3	50U	270X	
		SVTO	1033.0	1531.0	IV		3	25	180	
		IZMI	1033.7	1040.3	III	GG,C,FS	2	25X	95	
		IZMI	1047.1	1050.5	II		2	30	45	
		IZMI	1058.4	1111.8	III	GG,C	3	25X	270X	
		ONDR	1058.4	1336.2	DCIM	GG,SP,FS	3	800X	2000X	
		BLN	1100.3	1129.5	II		3	100X	1400	
		SVTO	1102.0	1111.0	II		3	25	180	ESS 1250
		SGMR	1103.0	1110.0	II		2	30	50	ESS 2500
		IZMI	1201.1	1201.5	III	G,C	2	25X	100	
		IZMI	1203.1	1203.7	III	G,C	2	25X	155	
		ONDR	1308.1	1313.4	DCIM	G	1	2000X	4500X	
		ONDR	1337.4	1430.2U	DCIM	GG,SP	2	800X	2000X	
		HOLL	1349.0	2355.0	IV		2	30	180	
		HOLL	1517.0	2355.0	III	N	2	30	135	
		PALE	1650.0	0342.0	IV		2	25	180	
		PALE	1951.0	0342.0	III	N	2	25	180	
	2000 2400	CULG	2000.0E	2400.0D	III	S,C	3	18X	200	
	2056 2400	HIRA	2056.0	2220.0	IV		2	40	200	
		HIRA	2312.5	2315.0	III	G	1	25X	60	
29	0000 0746	HIRA								
	0000 0750	CULG	0000.0E	0750.0D	III	S,C	3	18X	230	
		LEAR	0339.0	0358.0	III	N	3	25	180	
		SVTO	0535.0	1530.0	IV		1	25	180	
		SVTO	0535.0	1530.0	IV		2	25	180	
		IZMI	0700.0E	1200.0D	III	N	1	25X	270X	
	0700 1200	IZMI	0700.0E	1200.0D	I	S,C	2	25X	270X	
	0703 1427	ONDR	0708.4	0733.1	DCIM	GG	1	800X	2000X	
		IZMI	0720.5	0722.9	III	G	2	25X	50	
	0715 1510	BLN	0721.2	0728.6	III	G,C	2	350	2400	
		BLN	0753.3	0758.8	III	GG	2	350	800	
		IZMI	0840.6	0841.1	III	G,C	2	30	60	
		ONDR	0844.3	0849.1	DCIM	G	2	800X	1512	
		IZMI	0926.5	0926.7	III	G	2	25X	270X	
		SGMR	1134.0	1913.0	CONT		2	30	80	
		ONDR	1250.0	1255.0	DCIM	G	1	800X	2000X	
		SGMR	1253.0	1254.0	III		1	30	80	
		SVTO	1253.0	1253.0	III		1	25	180	
		ONDR	1253.3	1254.1	DCIM	G	1	2000X	4500X	
		BLN	1253.6	1254.2	III	S,C	2	100X	4000X	
		HOLL	1348.0	2354.0	IV		1	25	180	
		BLN	1421.1	1423.3	III	S,C	2	800	4000X	
		ONDR	1421.1	1423.0	DCIM	G,W	1	2000X	4500X	
		ONDR	1421.1	1423.0	DCIM	GG	2	800X	1648	
		BLN	1430.5	1439.5	III	C	2	200	4000X	
		PALE	1650.0	2057.0	CONT		2	25	180	
		HOLL	1851.0	2230.0	III	N	1	25	119	
		PALE	1910.0	0341.0	III	N	1	25	180	
	2000 2400	CULG	2000.0E	2400.0D	III	S,C	3	18X	230	
		CULG	2039.0	2400.0D	IV		2	20	1600	FLA
		SGMR	2040.0	2047.0	II		3	30U	80U	
		PALE	2041.0	2044.0	III		3	25	180	
		CULG	2042.0	2044.0	III	G	3	18X	380	
		CULG	2042.0	2050.0U	II	FN	3	60	430	ESS 850
		CULG	2043.0	2049.0	II	SH	2	330	1000	
		HOLL	2043.0	2054.0	II		2	25	180	ESS 0626
		PALE	2044.0	2053.0	II		3	25	180	ESS 0775
		CULG	2049.0	2100.0	III	GG	3	120	1200	
	2057 2400	HIRA	2057	2220.0	IV		3	25X	1200	
		PALE	2057.0	2212.0	IV		2	25	180	
		LEAR	2253.0	0953.0	CONT		2	25	180	
30		CULG	0000.0E	0317.0	IV		1	20U	800	
	0000 0750	CULG	0000.0E	0750.0D	III	S,C	2	18	230	
		CULG	0133.0	0134.0	III	G	3	18X	90	
		CULG	0138.0	0140.0	III	G	3	20	100	
		LEAR	0214.0	0233.0	III	N	2	25	180	

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

Spectral Observations

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OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Start Day	End (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
30	0000 0745	CULG	0215.0	0216.0	III	G	3	18X	170	
		HIRA	0215.5	0216.0	III	G	1	25X	150	
		CULG	0216.0	0218.0	V		3	18	35	
		CULG	0233.0	0234.0	III	G	3	20	80	
		HIRA	0239.0	0239.5	III	B	1	70	130	
		CULG	0427.0	0427.0	III	B	3	18X	90	
		HIRA	0427.0	0427.5	III	B	1	25X	80	
		SVTO	0536.0	1528.0	CONT		1	25	180	
		CULG	0600.0	0602.0	III	G	3	20	100	
		LEAR	0643.0	0644.0	III		1	25	180	
	0655 1200	SVTO	0643.0	0644.0	III		1	25	148	
		HIRA	0643.5	0644.0	III	B	1	50	220	
		CULG	0644.0	0644.0	III	G	3	18X	300	
		CULG	0647.0	0648.0	III	G	3	18	90	
		IZMI	0655.0E	1200.0D	III	N	1	25X	95U	
		IZMI	0655.0E	1200.0D	I	S,C	2	45U	270X	
		LEAR	0720.0	0721.0	III		1	25	180	
		SVTO	0720.0	0721.0	III		1	35	180	
		IZMI	0720.9	0721.3	III	G,FS	2	25X	90	
		CULG	0721.0	0721.0	III	B	3	20	500	
		HIRA	0721.0	0721.5	III	B	1	50	260	
		LEAR	0812.0	0845.0	III	N	1	25	180	
		IZMI	0816.7	0824.1	III	GG,FS	2	25X	90	
		IZMI	0840.5	0845.4	III	GG	1	25X	85	
		LEAR	0856.0	0856.0	III		1	25	180	
		SVTO	0856.0	0856.0	III		2	25	140	
		IZMI	0856.3	0856.7	III	G,C	2	25X	270X	
		IZMI	0906.2	0909.1	III	G	2	40	145	
		IZMI	0912.3	0914.9	III	GG	2	25X	140	
		IZMI	0917.2	0918.9	III	G	1	45	95	
		IZMI	0928.1	0928.2	III	G,FS	2	25X	100	
		IZMI	1001.4	1004.6	III	G	2	30	210	
		SVTO	1009.0	1011.0	III		1	25	180	
		IZMI	1009.7	1012.5	III	GG	2	25X	270X	
		IZMI	1044.4	1200.0D	III	N	2	110	210	
		IZMI	1058.4	1059.7	III	G,C	2	45	190	
		SGMR	1210.0	1441.0	III	N	1	30	80	
		SVTO	1211.0	1340.0	III	N	2	25	180	
		ONDR	1222.0	1233.4	DCIM	GG	2	800X	2000X	
	0705 1425	ONDR	1222.0	1223.4	DCIM	G,W	1	2000X	4500X	
	0715 1510	BLEN	1222.0	1240.2	III	GG,C,RS	3	100X	4000X	
		SVTO	1333.0	1334.0	III		2	25	180	
		ONDR	1333.4	1334.0	DCIM	G	1	2000X	4500X	
		ONDR	1333.4	1334.0	DCIM	GG,SP	2	800X	2000X	
		BLEN	1333.6	1340.6	III	GG,RS,S,V	3	100X	3000	
		BLEN	1503.5	1504.8	III	GG,C	3	100X	4000X	
		HOLL	1511.0	2257.0	III	N	1	29	140	
		SGMR	1549.0	1549.0	III		1	30	70	
		PALE	1835.0	0215.0	CONT		1	44	180	
		HOLL	1918.0	1921.0	III		2	25	180	
		PALE	1918.0	1921.0	III		2	25	180	
		SGMR	1918.0	1921.0	V		3	30	80	
	2000 2400	CULG	2000.0E	2400.0D	III	S,C	2	18	200	
		CULG	2050.0	2051.0	III	G	3	18	100	
		CULG	2053.0	2054.0	III	G	3	18	100	
		CULG	2106.0	2107.0	III	G	3	18	160	
	2058 2400	HIRA	2106.5	2107.0	III	B	1	25X	50	
		PALE	2107.0	0055.0	III	N	1	25	180	
		CULG	2219.0	2220.0	III	G	3	30	400	
		HIRA	2219.0	2220.0	III	G	1	40	400	
		LEAR		2225.0	0954.0	CONT		2	25	180
		LEAR		2225.0	0954.0	III	N	2	25	180
		CULG		2228.0	2230.0	III	G	3	18X	400
		HIRA		2228.0	2229.5	III	G	1	25X	410
31	0000 0750	CULG	0000.0E	0750.0D	III	S,C	1	18	200	
		CULG	0013.0	0013.0	III	B	2	18	180	
	0000 0744	HIRA	0013.0	0013.5	III	B	1	50	170	
		CULG	0209.0	0209.0	III	B	2	18X	160	

OCTOBER 2003

OBSERVATION			EVENT			FREQUENCY			Remarks
Start Day (UT)	End Day (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	
31		HIRA	0427.5	0433.0	III	G	1	30	600
		CULG	0428.0	0428.0	III	B	2	27	600
		LEAR	0428.0	0441.0	III		1	25	180
		CULG	0429.0	0430.0	III	G	3	18X	160
		CULG	0433.0	0433.0	III	G	3	25	150
		CULG	0433.0	0433.0	III	G	3	25	150
		CULG	0437.0	0442.0	III	G	2	18	70
		CULG	0437.0	0442.0	III	G	2	18	70
		CULG	0445.0	0450.00	I	S,C	1	50	180
		CULG	0458.0	0459.0	III	G	3	18	150
		CULG	0511.0	0511.0	III	B	1	100	670
		LEAR	0552.0	0555.0	V		2	25	180
		CULG	0553.0	0554.0	III	G	3	18X	750
		HIRA	0553.0	0554.0	III	G	3	30	300
		SVTO	0553.0	0555.0	III		2	25	180
		SVTO	0553.0	0555.0	V		2	25	180
		CULG	0554.0	0556.0	V		3	18X	35
		SVTO	0610.0	0611.0	III		1	25	54
		CULG	0611.0	0611.0	III	B	3	18X	90
		CULG	0612.0	0707.0	III	N	1	20	140
0652	1200	IZMI	0652.0E	1200.00	III	N	1	25X	95U
		IZMI	0652.0E	1200.00	I	S	2	50	270X
		IZMI	0701.1	0706.4	III	GG	2	40	95
		SVTO	0728.0	1033.0	CONT		1	25	156
		SVTO	0758.0	0800.0	III		1	25	180
		IZMI	0758.7	0759.9	III	G	2	25X	270X
0720	1510	BLEN	0832.2	0840.9	III	GG,C	2	100X	4000X
		IZMI	0840.6	0843.6	III	GG,FS,C	2	25X	270X
		LEAR	0841.0	0843.0	III		1	25	180
		SVTO	0841.0	0844.0	V		2	25	180
		SVTO	1108.0	1110.0	III		1	25	84
		IZMI	1108.1	1109.8	III	G	2	25X	130
		SVTO	1121.0	1125.0	V		3	25	180
		BLEN	1121.3	1128.0	III	GG,RS,V	3	100X	4000X
		IZMI	1121.4	1123.9	III	GG,C	2	25X	270X
		ONDR	1121.4	1135.0	DCIM	G	2	800X	2000X
0708	1423	ONDR	1121.5	1122.2	DCIM	GG	2	2332	4500X
		IZMI	1131.3	1131.4	III	G	1	55	100
		BLEN	1141.7	1144.2	III	G	1	180	450
		IZMI	1141.7	1142.1	III	G,C	2	200	270X
		SGMR	1211.0	1211.0	III		1	30	50
		SVTO	1211.0	1211.0	III		2	25	82
		SVTO	1319.0	1320.0	III		1	25	42
		SVTO	1346.0	1350.0	III		2	25	107
		SGMR	1349.0	1350.0	III		1	30	50
		HOLL	1432.0	1432.0	III		1	25	94
		SVTO	1432.0	1432.0	III		1	29	84
		SGMR	1433.0	1433.0	III		2	30	60
		BLEN	1506.8	1508.9X	III	GG	2	180	400
		PALE	1653.0	2053.0	CONT		1	80	180
		PALE	1831.0	2110.0	III	N	1	25	85
		HOLL	1913.0	1915.0	III		1	25	162
		SGMR	1913.0	1915.0	III		1	30	80
2000	2400	CULG	2000.0E	2400.00	I	S,C	1	65	180
		CULG	2002.0	2007.0	III	G	3	18X	480
		HOLL	2002.0	2003.0	III		1	25	171
		SGMR	2002.0	2003.0	III		1	30	60
		CULG	2029.0	2029.0	III	B	2	25	50
		CULG	2054.0	2353.0	III	N	1	20	150
		CULG	2107.0	2109.0	III	G	3	18X	120
		CULG	2135.0	2135.0	III	B	2	110	200
		CULG	2144.0	2144.0	III	B	3	18	160
		LEAR	2223.0	0318.0	III	N	1	25	141
		LEAR	2223.0	0954.0	CONT		1	25	180
		CULG	2232.0	2234.0	III	G	3	18X	180
2059	2400	HIRA	2233.0	2234.0	III	G	1	30	120
		CULG	2338.0	2338.0	III	G	3	18X	140
		HIRA	2341.5	2344.0	III	G	1	30	110

COSMIC RAY INDICES
(Neutron Monitor)
October 2003

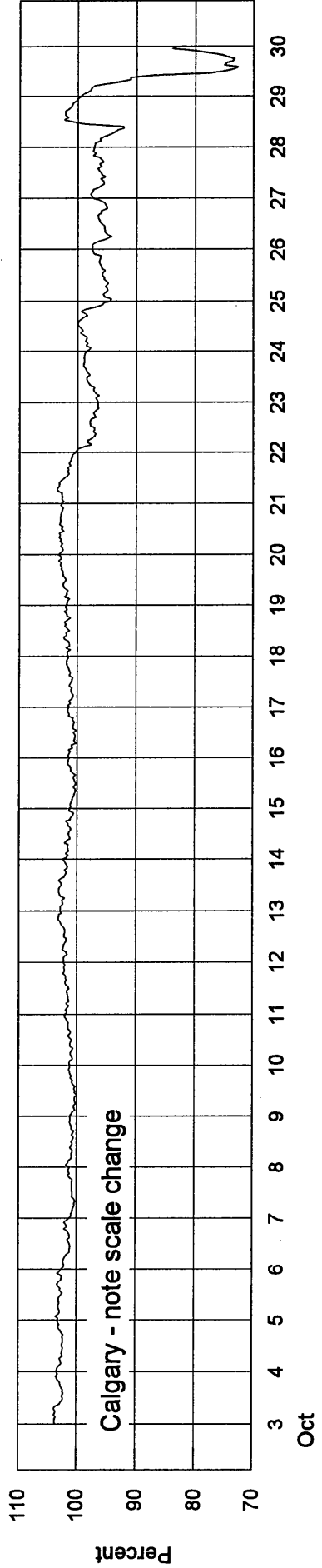
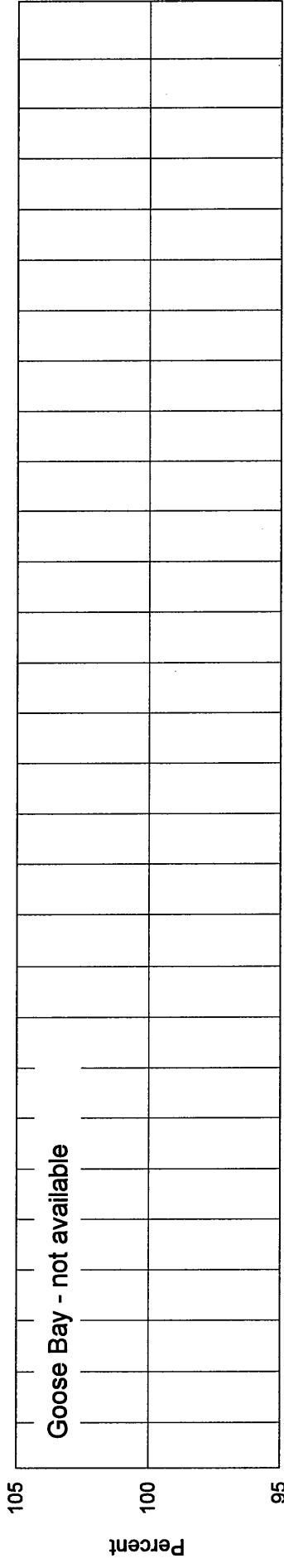
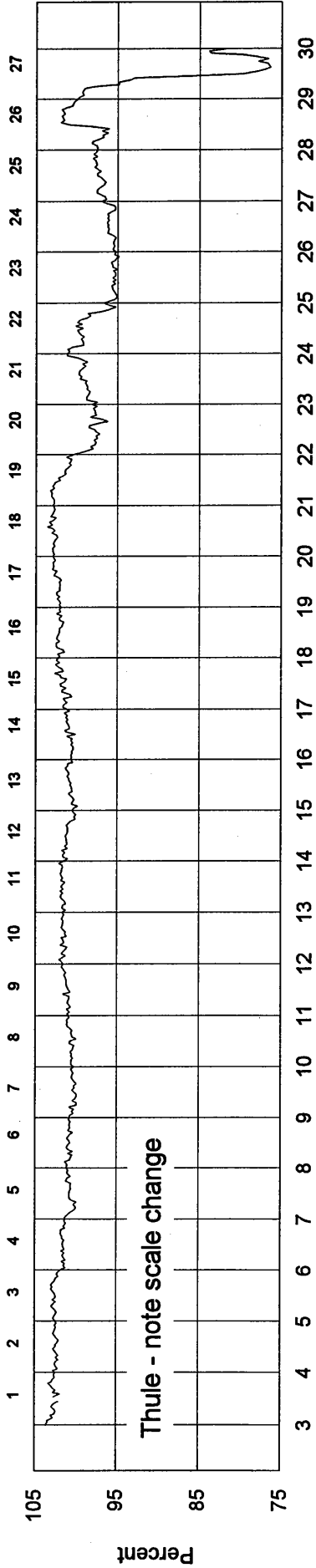
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Day	THULE Average (cts/h)/100	CALGARY Average (cts/h)/300	KIEL Average (cts/h)/100	MOSCOW Average (cts/h)/64	CLIMAX Average (cts/h)/100	BEIJING Average (cts/h)/256	HALEAKALA Average (cts/h)/1000
1	4073.3	3598.5	5729.7	8409.3	3828.2	1946.8	3530.7
2	4109.7	3620.0	5749.5	8461.8	3857.2	1959.2	3529.5
3	4091.8(23)	3610.5	5734.0	8453.0	3858.9	1963.0	3533.8
4	4077.3	3596.3	5748.1	8468.7	3842.2	1957.5	3524.6
5	4084.4	3605.7	5743.3	8445.7	3840.9	1955.6	3525.8
6	4042.7	3562.5	5692.1	8373.3	3791.1	1944.1	3509.0
7	4010.5	3533.5	5668.6	8360.4	3772.6	1944.1	3496.1
8	4015.5	3536.8	5657.8	8327.5	3769.8	1936.2	3485.2
9	3995.0	3526.8	5628.2	8277.7	3754.5	1934.2	3479.4
10	4006.7	3546.2	5617.9	8286.4	3762.0	1934.0	3473.2
11	4026.5	3565.8	5650.0	8298.9	3776.6	1945.5	3488.7
12	4045.2	3584.7	5671.5	8333.7	3802.0	1960.1	3502.5
13	4049.7	3589.8	5694.5	8372.5	3825.5	1970.1	3516.0
14	4024.1	3554.5	5680.0	8324.4	3819.2	1974.8	3510.0
15	4010.8	3532.0	5651.6	8311.0	3792.8	1966.3	3492.7
16	4015.2	3535.0	5663.5	8311.3	3799.1	1963.3	3492.7
17	4049.7	3546.8	5694.5	8339.8	3818.8	1972.0	3497.7
18	4065.2	3564.8	5711.7	8380.1	3812.1	1971.2	3500.6
19	4075.7	3582.7	5734.5	8413.5	3835.8	1974.1	3511.5
20	4095.4	3600.0	5762.2	8452.2	3849.5	1983.8	3520.0
21	4065.7	3578.7	5743.9	8409.0	3835.8	1987.3	3522.0
22	3901.1	3423.3	5523.8	8097.8	3650.8	1938.2	3438.4
23	3945.0	3432.7	5514.0	8087.0	3647.0	1933.5	3434.8
24	3946.5	3453.0	5540.6	8126.0	3652.8	1931.9	3442.6
25	3803.1	3350.2	5393.4	7948.0	3565.2	1893.7	3374.2
26	3816.3	3361.7	5415.9	7976.3	3590.4	1898.2	3380.7
27	3875.1	3381.0	5443.0	8033.1	3588.8	1912.3	3404.0
28	3954.4	3444.7	5406.1	8023.9(21)	3587.1	1897.6	3364.4
29	3483.0	2968.0	4965.6	7256.0	3170.2	1761.5	3133.9
30	3212.3	2764.0	4538.0	6666.0	2923.8	1710.2	3071.5
31	3196.2	2702.2	4482.7	6613.3	2823.0	1701.6	3036.1
Mean	3940.0	3459.8	5543.6	8149.6	3685.1	1926.5	3442.5

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)

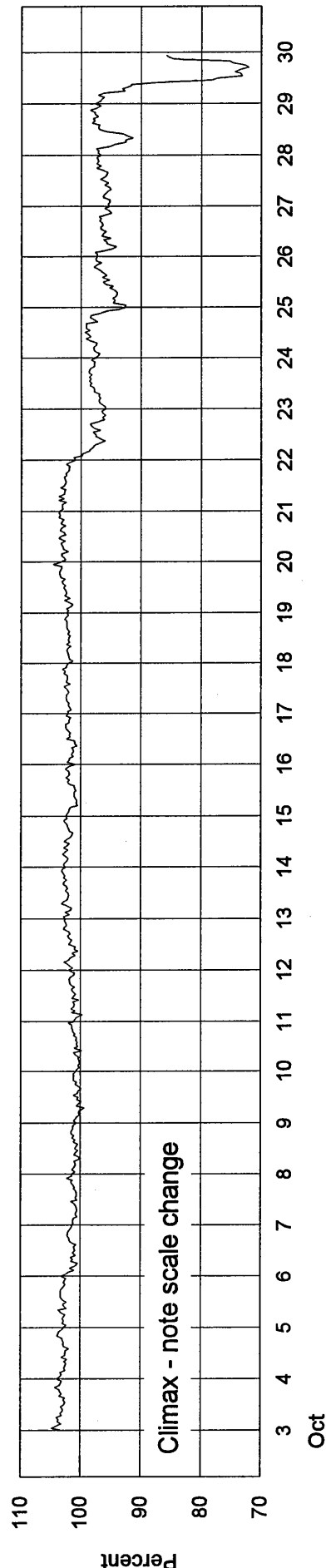
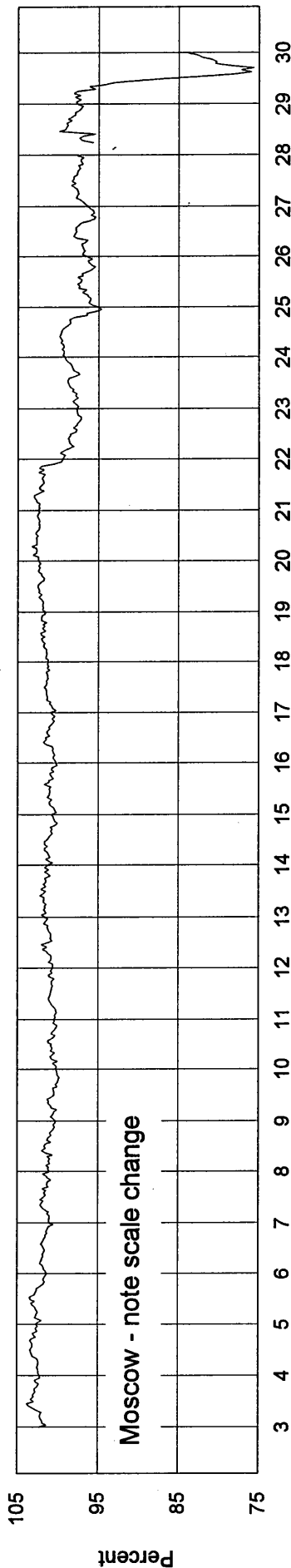
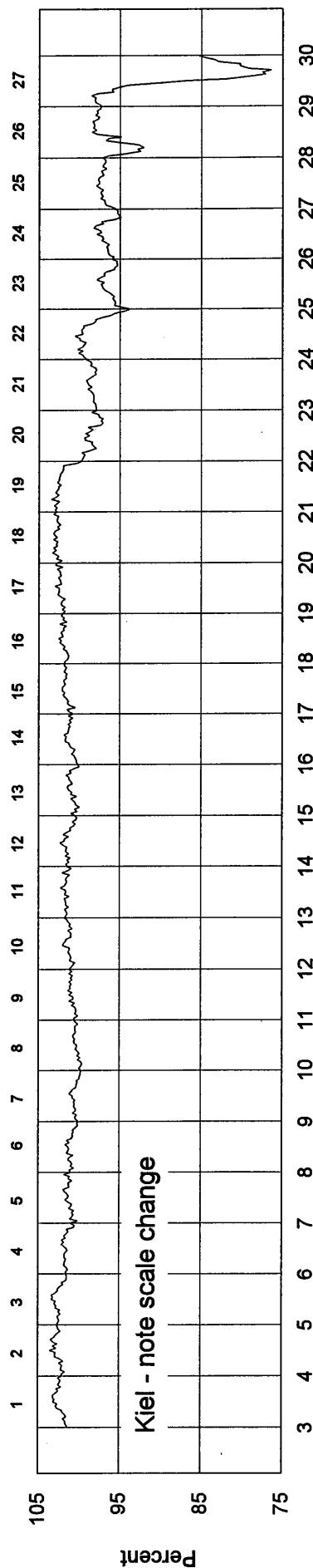
Bartels Rotation 2323 - Beginning 3 Oct 2003



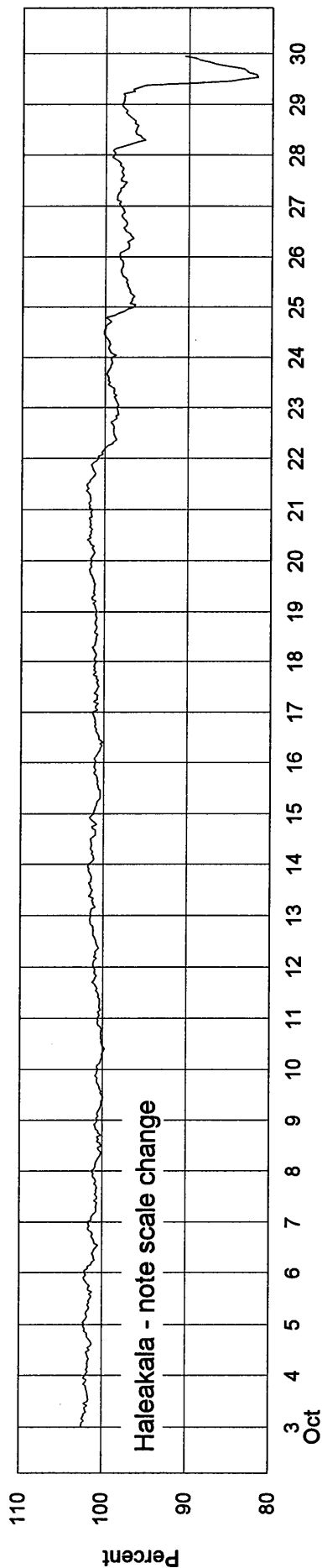
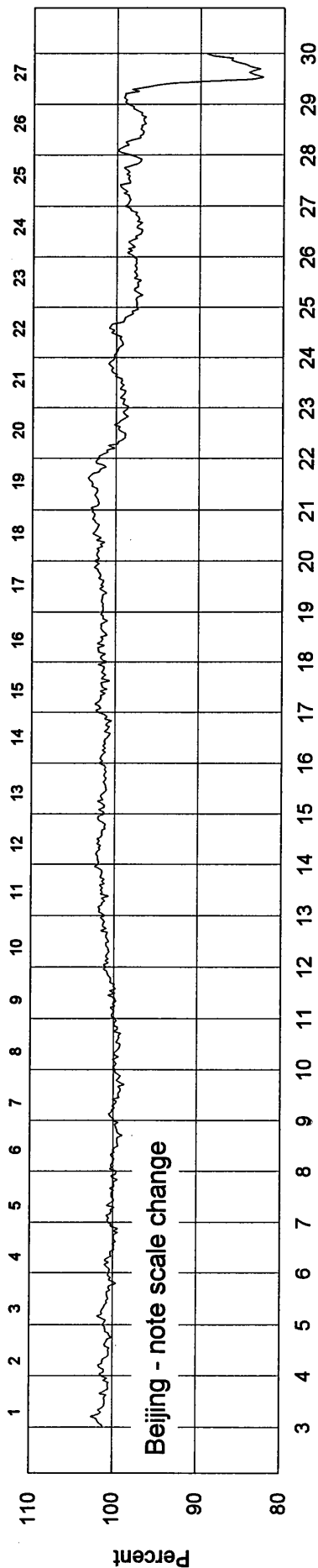
COSMIC RAY INDICES

(Neutron Monitor)

Bartels Rotation 2323 - Beginning 3 Oct 2003

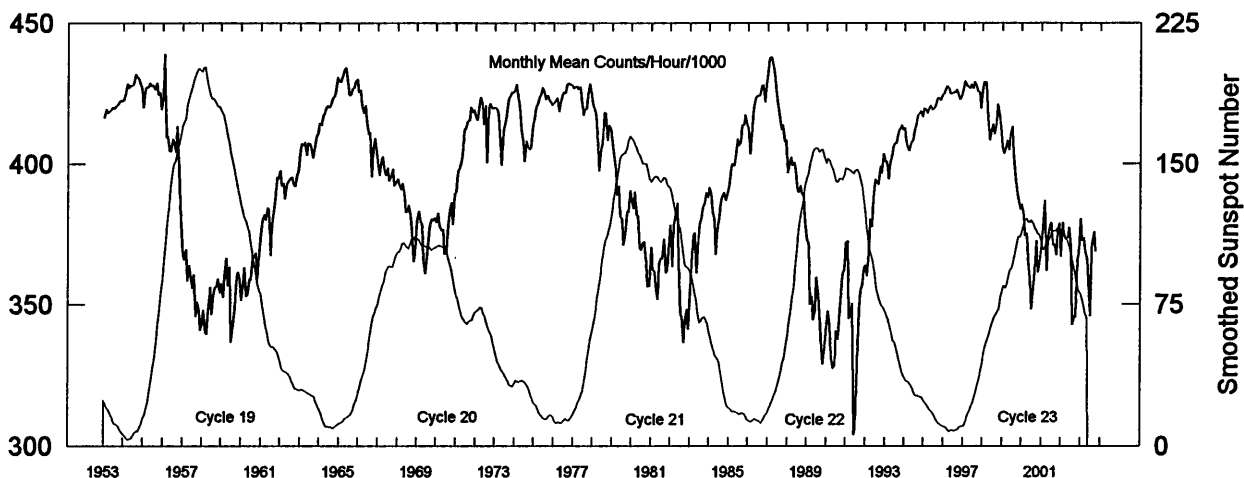


COSMIC RAY INDICES (Neutron Monitor) Bartels Rotation 2323 - Beginning 3 Oct 2003



Climax Neutron Monitor Pressure-Corrected Values Jan 1953 - Oct 2003

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Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1953	4165	4193	4182	4188	4190	4200	4197	4205	4208	4216	4225	4226	4200
1954	4225	4247	4285	4269	4280	4277	4284	4318	4308	4303	4286	4269	4279
1955	4200	4267	4272	4273	4287	4278	4279	4263	4286	4245	4252	4193	4258
1956	4234	4388	4097	4097	4049	4045	4088	4083	4044	4134	3980	3799	4087
1957	3677	3660	3695	3585	3640	3603	3557	3606	3458	3509	3484	3410	3574
1958	3435	3479	3400	3396	3490	3560	3467	3537	3561	3564	3589	3542	3502
1959	3573	3526	3606	3664	3567	3633	3367	3420	3484	3597	3615	3587	3553
1960	3516	3573	3631	3532	3534	3589	3587	3670	3670	3682	3586	3681	3604
1961	3761	3801	3819	3800	3843	3838	3675	3784	3834	3870	3955	3950	3828
1962	3977	3922	3931	3878	3927	3940	3950	3954	3924	3919	3963	3971	3938
1963	4049	4073	4065	4077	4033	4075	4072	4060	4024	4066	4094	4111	4067
1964	4144	4139	4168	4181	4198	4208	4202	4213	4232	4240	4254	4307	4207
1965	4294	4290	4314	4335	4340	4288	4247	4246	4267	4271	4294	4300	4291
1966	4258	4262	4211	4180	4207	4146	4108	4112	3956	4055	4091	4053	4137
1967	3991	3960	4014	4025	3974	3960	3985	3939	3955	3980	3922	3933	3970
1968	3946	3925	3909	3932	3895	3830	3830	3853	3817	3761	3652	3685	3836
1969	3801	3831	3798	3782	3656	3609	3652	3730	3781	3803	3798	3807	3754
1970	3792	3824	3781	3765	3765	3679	3684	3755	3832	3862	3786	3895	3785
1971	3898	3975	3981	4003	4032	4124	4124	4152	4156	4200	4184	4192	4085
1972	4162	4157	4209	4237	4215	4141	4207	4005	4198	4214	4198	4198	4178
1973	4200	4193	4173	4075	3997	4119	4150	4180	4235	4240	4255	4253	4173
1974	4261	4283	4237	4207	4121	4077	4009	4083	4061	4054	4058	4140	4133
1975	4155	4206	4210	4239	4244	4271	4262	4231	4243	4231	4218	4213	4227
1976	4216	4223	4236	4188	4218	4244	4254	4253	4283	4287	4285	4280	4247
1977	4268	4272	4274	4267	4272	4231	4175	4193	4197	4245	4284	4260	4245
1978	4213	4198	4173	4107	3976	4058	4068	4183	4180	4085	4139	4128	4126
1979	4071	4034	3983	3888	3920	3814	3806	3710	3745	3829	3829	3905	3878
1980	3873	3842	3900	3819	3817	3697	3692	3719	3723	3647	3564	3564	3738
1981	3703	3623	3616	3561	3518	3643	3663	3662	3732	3613	3624	3726	3640
1982	3780	3634	3778	3819	3860	3650	3463	3456	3364	3444	3482	3413	3595
1983	3550	3643	3744	3753	3613	3700	3789	3798	3845	3860	3897	3881	3756
1984	3915	3896	3830	3806	3677	3773	3813	3865	3891	3897	3871	3890	3844
1985	3919	3985	4002	3995	4026	4088	4066	4075	4139	4139	4174	4141	4062
1986	4128	4036	4098	4199	4232	4242	4243	4244	4277	4280	4221	4277	4206
1987	4331	4376	4378	4346	4323	4254	4216	4170	4123	4139	4080	4084	4235
1988	3970	3997	4024	3995	4005	3981	3906	3899	3923	3893	3886	3798	3940
1989	3731	3717	3500	3527	3446	3478	3594	3535	3467	3347	3291	3349	3499
1990	3432	3476	3424	3317	3275	3283	3406	3377	3450	3540	3608	3620	3434
1991	3719	3725	3451	3470	3501	3041	3062	3293	3482	3550	3570	3628	3458
1992	3639	3600	3684	3803	3776	3876	3945	3939	3928	3989	3966	4036	3848
1993	4011	4007	3947	4003	4028	4061	4075	4076	4113	4122	4138	4122	4059
1994	4130	4079	4058	4048	4076	4085	4117	4140	4173	4179	4187	4168	4120
1995	4198	4194	4180	4199	4208	4193	4198	4209	4235	4236	4228	4246	4210
1996	4249	4266	4276	4269	4252	4250	4254	4256	4264	4243	4231	4242	4254
1997	4273	4293	4278	4274	4268	4281	4268	4290	4278	4260	4255	4199	4268
1998	4270	4290	4291	4160	4087	4116	4142	4107	4141	4212	4175	4133	4177
1999	4056	4040	4057	4083	4050	4106	4133	4031	3953	3899	3870	3840	4010
2000	3855	3822	3748	3752	3656	3583	3485	3562	3617	3725	3615	3651	3673
2001	3713	3812	3869	3622	3734	3779	3791	3713	3713	3675	3761	3787	3747
2002	3670	3790	3745	3733	3739	3771	3702	3429	3456	3454	3659	3680	3652
2003	3804	3727	3736	3685	3664	3580	3459	3706	3756	3685			3680

Multiply table entries by 100 to obtain hourly counting rate. Climax, Colorado: N39, W106, Alt=3400 m, Cutoff Rigidity=2.99GV (1980).

NOTE: Data may differ from previously reported values due to subsequent cleanup of data and slight changes in the averaging algorithm. See <http://astro.uchicago.edu/home/web/pyle/neutron.html> for latest changes. Sunspot numbers are preliminary after September, 2003.

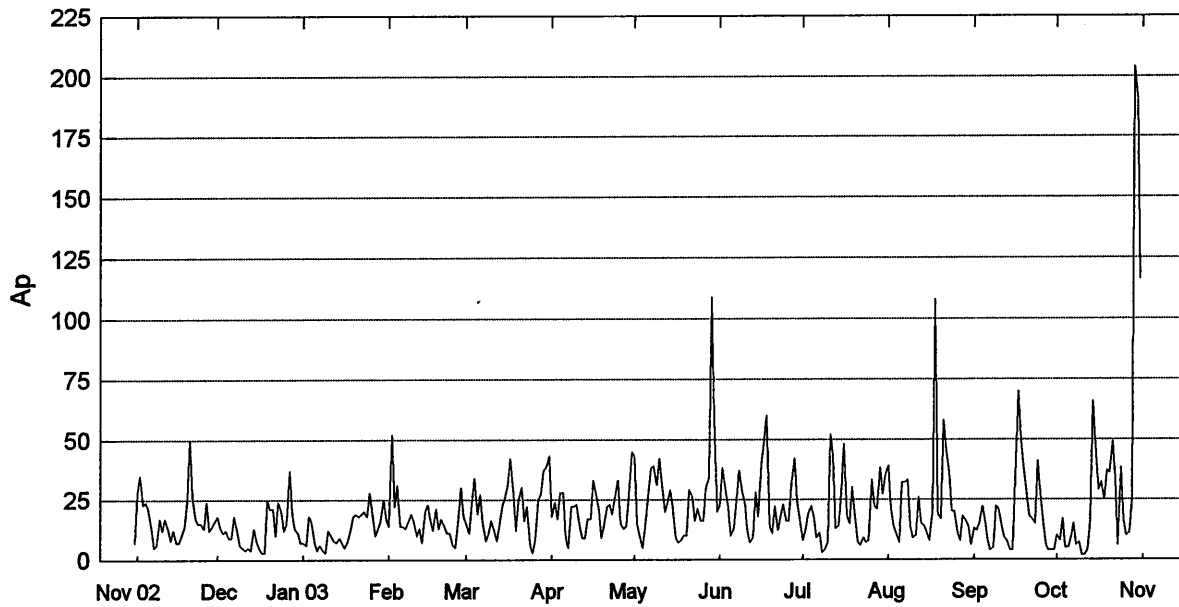
Geomagnetic Activity Indices

October 2003

Day		Kp Three-Hourly Indices								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		3	2	1+	1	1	1	3	4	16+	10	0.6	2+	1+	2-	2-	1+	1+	3-	4-	18	24	12	13	24	
2	Q8A	3-	2+	1+	1-	1+	2-	2+	3-	15	8	0.4	2o	2o	2o	1o	1+	2-	2+	3o	15	18	14	14	18	
3		3+	5-	3	2-	3	4-	3	2	24+	17	0.9	3-	4o	3-	2+	2+	3+	3-	2o	27	37	20	26	31	
4	Q5K	1+	2-	2-	3	1+	2+	0+	0	10	5	0.2	1+	1+	3-	2-	3-	0+	0+	0o	10	12	10	12	10 K	
5	Q6K	0	1-	0+	0	0+	2-	3-	3+	9	5	0.2	0+	1-	1-	0o	0+	2-	2+	3+	10	16	9	4	21 KK	
6	Q10A	2+	1	1	1+	2	2	3+	3+	16+	9	0.5	2-	1o	1o	1+	2+	2o	3o	4-	18	20	21	11	30	
7		4+	2	3-	3+	3-	3+	3-	2+	23+	15	0.8	4o	2-	2+	4-	3-	3o	2+	3-	28	36	28	33	31	
8	Q7	2-	1+	2	2-	2-	1-	2	3-	14-	6	0.3	2-	1+	2-	2o	1+	1-	2-	3+	14	17	12	13	16	
9	Q9A	4	2+	1	1+	1+	1	1-	0+	12	7	0.4	3+	2o	1+	1+	1+	1+	1-	0+	12	16	9	17	9 KK	
10	Q2	0	0	1-	0+	1-	1-	1-	2-	5-	2	0.0	0+	0o	0+	0o	1-	1-	0+	2o	4	7	5	4	8 CC	
11	Q1	1	0	1-	0+	0+	0	0+	1-	3+	2	0.0	1-	0o	1-	0o	0+	0o	0o	1-	2	4	2	3	4 CC	
12	Q3	0+	0+	0+	1	1	1	1+	2-	7	4	0.1	0+	0o	0+	0+	1+	1+	1+	1+	7	8	9	5	12 CK	
13		3+	3	2-	1+	3-	3	4-	5-	23+	16	0.9	3-	2-	2-	2o	3-	3o	3+	5-	28	39	23	20	41	
14	D4	3+	4	6-	5	4+	4+	7+	7+	41+	66	1.7	3o	3o	5-	4o	4+	4o	6-	6o	77	99	62	47	114	
15		3+	4+	6	6-	4	5-	5-	5	38-	44	1.5	3o	4-	5o	5o	4+	4o	4o	4+	62	71	57	67	62	
16		5	3+	3+	5-	4	4+	3+	4+	32+	29	1.3	4o	3o	3o	5-	4-	4-	3+	4+	47	57	37	46	49	
17		5-	5+	6-	4+	4-	2+	3-	4-	32+	32	1.3	4+	4o	4+	4+	4-	2+	3-	3+	47	57	42	68	31	
18		4	5-	4+	3+	4	3+	3	4	31-	25	1.2	4-	4-	4-	3o	4-	3+	3o	3+	39	48	34	39	43	
19		4-	4+	4+	3+	5-	5-	5+	5+	36-	37	1.4	3-	3+	4-	4-	4+	4+	4+	4+	51	60	45	43	63	
20		4-	3	5	4+	4	4+	5	6-	35	36	1.4	3o	3-	4o	4o	4-	4o	5-	5o	54	57	42	40	60	
21	D5	5-	4	5-	5-	5+	5+	5+	6	40	49	1.6	4+	4-	4o	4o	5o	5o	4+	5-	69	71	62	52	80	
22		5-	5+	5	3+	4	5	4-	2-	33	34	1.3	4o	4o	5-	4o	4-	4+	3+	2-	49	58	53	61	50	
23	Q4	3-	1+	2+	2-	1	1	1-	0+	11	6	0.3	3-	1o	2+	2-	1o	1o	1-	1-	10	9	15	19	6 K	
24		0+	1+	2	3-	5-	7-	5	6	29-	38	1.4	1-	1o	2-	3o	4+	6o	5-	6-	61	52	66	15	103	
25		4	3-	3-	2+	4+	4-	1+	3-	24-	16	0.9	4-	3-	2+	2+	4+	4-	2-	3-	31	33	40	31	42	
26		2+	2	2-	2	1	1	3+	4-	17	10	0.5	2-	2-	2-	3-	1+	1+	3+	4-	20	26	20	19	28	
27		4-	3+	3+	2	2	2+	1+	1	19	11	0.6	3o	3-	3+	3-	2-	3-	2-	1o	20	18	16	19	14	
28		3	5-	4-	5-	3-	4	3+	4	30	25	1.2	3-	4-	4-	4+	2+	4-	3+	4o	41	50	35	48	38	
29	D1	5-	4	9	8	8-	8-	9-	9-	58+	204	2.1	4o	3+	9-	7o	7o	7o	9-	8+	299	306	291	281	316	
30	D2	9-	7+	5+	5-	5	7	9	9	56	191	2.1	8o	6+	5-	4o	5-	7-	9-	9-	268	239	222	128	333	
31	D3	8+	8-	7+	7-	7+	5-	4	4+	50+	116	1.9	8o	7o	6+	6-	6o	4o	4-	4o	165	186	173	279	80	
Mean										35	0.94											51.7	56.6	48.0	52.2	
Day		Kn Three-Hourly Indices								An	Ks Three-Hourly Indices								As	Prov				Ra	Rs	IMF
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		Sa	Ri					
1		2o	1+	1+	2-	1+	1o	3o	4-	17	2+	1+	2o	1+	2-	1+	3-	4o	19	137.1	76	75	86			
2		2o	2o	1+	1-	1+	2o	2+	3o	14	2+	2o	2+	1+	1o	2-	2+	3o	15	125.0	68	72	73			
3		3-	4o	3-	3-	2+	3+	3o	2o	29	3o	4-	3-	2o	2+	3o	3-	2o	25	120.3	62	59	68			
4		1+	1+	2+	2-	3-	0+	0o	0o	10	1+	2-	3-	2-	2+	0+	0+	0o	9	119.0	49	60	67			
5		0o	0+	0+	0o	1-	2-	2+	3+	10	1-	1-	1-	0+	0o	1+	2+	3o	10	109.6	57	53	56			
6		2o	1o	1-	1+	2o	2o	3o	4-	17	2-	1o	1o	2-	2+	2o	3o	4o	19	112.0	41	51	59			
7		4-	2-	2+	4-	3o	3o	2+	3o	28	4o	2o	2o	3+	3-	3-	2+	3-	27	111.8	41	50	59			
8		1+	1+	2-	2o	2-	1o	2-	3o	13	2-	2-	2-	2o	1+	1-	2-	3+	15	113.1	43	56	60			
9		3+	2+	1o	1+	1+	1+	1-	0+	12	3+	2o	1+	1+	1+	1o	0+	1-	11	110.5	47	58	57			
10		0o	0o	0o	0o	1o	1o	1-	2o	4	0+	0o	0+	0o	0+	0+	0o	2o	3	111.4	45	50	58			
11		1-	0o	1-	0o	0+	0o	0+	1-	3	0+	0+	1-	0+	0o	0o	0o	1-	2	105.4	41	44	52			
12		0+	0o	0o	1+	1o	1+	1+	2-	6	1-	0o	0+	1o	1+	1+	1+	2-	7	97.4	25	22	43			
13		3-	2-	1+	2+	3-	3o	3+	4o	27	3-	2-	2-	2o	3-	3-	3+	5-	29	94.0	13	12	40			
14		3o	4-	5-	4+	5-	4+	6-	6o	80	3o	3-	4+	4-	4o	4o	6-	6o	73	91.9	13	4	37			
15		3o	4-	5+	5o	5-	4+	4o	4o	68	3o	4-	4+	5-	4o	4o	4o	5-	57	95.3	13	17	41			
16		4+	3o	3o	5-	4o	4o	3+	4o	52	4-	3-	3-	4+	3+	3+	3+	4+	43	94.6	19	24	40			
17		4o	5-	5-	5-	4-	3-	3-	4-	53	4+	3+	4o	4o	3+	2+	3-	3+	41	98.1	30	37	44			
18		4-	4o	4-	3o	4-	4-	4o	3+	41	4-	3+	3+	3-	4-	3o	3o	3+	36	107.8	41	43	54			
19		3-	4-	4o	4o	4+	5-	4+	4o	56	2+	3-	3+	3+	4o	4+	4+	5-	47	119.4	41	43	67			
20		3+	3o	5-	4+	4-	4o	5-	5o	60	3-	3-	3+	4-	3+	4-	4+	5+	49	133.9	47	64	83			
21		4+	4o	4+	4o	5o	5-	4+	5-	71	5-	3o	4-	4-	5o	5o	5-	5o	67	150.2	59	66	100			
22		4o	4+	5o	4+	4-	5-	3+	2-	55	4+	4-	4o	4-	4-	4+	3o	2-	43	152.0#	58	72	102			
23		3-	1-	2o	1+	1o	1o	1o	0+	9	3o	1+	2+	2o	1o	1o	1-	1o	12	181.3#	61	68	134			
24		0+	1-	2-	3o	5-	6o	4+	5+	60	1+	1+	1+	3-	4o	6o	5o	6o	63	188.5	75	81	142			
25		4-	2+	2o	2o	4o	4-	1+	2+	28	4-	3o	3-	3-	5-	3+	2o	3o	34	219.0	88	89	175			
26		2-	1+	1+	2o	1+	1+	4-	3+	18	2-	2o	2+	3-	1o	2-	3o	4-	21	240.6*	89	102	198			
27		3o	3-	3+	3o	1+	3-	2-	1-	21	3o	3-	3o	3-	2o	3-	2-	1+	20	254.0	133	141	212			
28		3-	4-	4-	4o	3-	4-	3+	4o	39	3o	4-	4-	4+	2o	4-	3+	4o	43	270.9	165	161	231			
29		4o	3o	8+	7o	7o	7-	9-	8o	290	4o	4-	9-	7-	7-	7o	9-	9-	308	275.4#	167	167	235			
30		8-	6+	5o	4o	5-	7-	9-	9-	258	8+	6+	4+</													

Daily Average Indices Ap Nov 2002 - Oct 2003

121
Oct 03

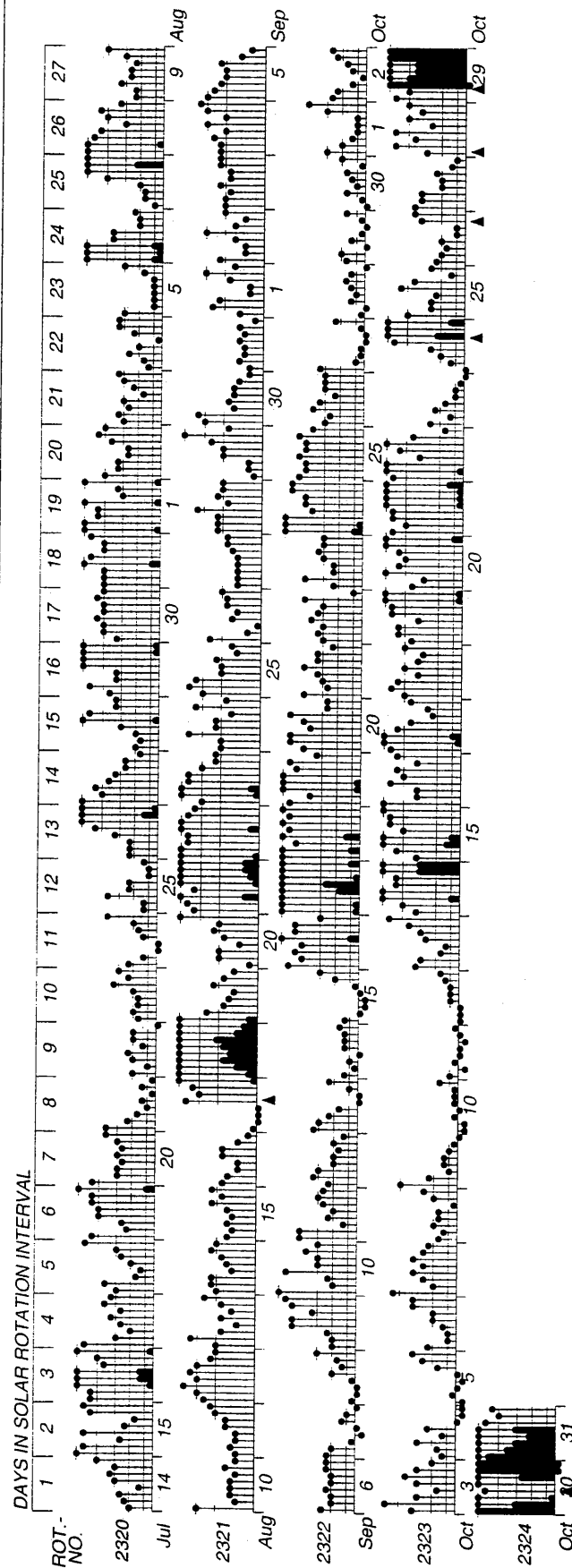


Day	Nov 02	Dec	Jan 03	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1	7	18	7	14	15	18	43	22	8	39	13	10
2	28	13	6	52	11	24	15	38	12	21	12	8
3	35	11	18	22	24	17	9	29	19	14	15	17
4	23	12	16	31	34	28	5	22	22	10	22	5
5	24	9	7	14	19	28	14	10	18	7	16	5
6	21	9	4	14	27	9	28	13	9	32	8	9
7	13	18	6	13	15	5	38	25	11	32	4	15
8	5	12	4	16	8	22	39	37	3	33	5	6
9	6	6	3	19	11	22	31	28	4	14	22	7
10	17	5	12	16	16	23	42	24	7	9	21	2
11	12	4	10	10	12	14	31	12	52	10	14	2
12	17	5	8	13	8	9	20	7	43	26	9	4
13	13	4	7	7	14	9	24	9	13	15	8	16
14	8	13	9	20	23	17	29	28	14	14	4	66
15	12	8	7	23	26	17	22	18	28	11	4	44
16	7	5	5	17	31	33	9	40	48	8	34	29
17	7	3	7	12	42	28	7	49	18	20	70	32
18	10	3	12	21	28	21	8	60	15	108	50	25
19	14	25	18	13	12	9	10	14	30	19	39	37
20	25	21	19	17	25	14	10	11	17	17	27	36
21	50	21	18	14	30	22	29	22	7	58	18	49
22	26	10	19	11	16	23	26	12	6	46	17	34
23	17	24	20	11	22	19	16	18	9	36	15	6
24	15	20	18	6	6	27	21	23	7	20	41	38
25	15	12	28	5	3	33	16	16	8	20	28	16
26	13	15	20	15	8	15	16	16	33	11	15	10
27	24	37	10	30	25	13	30	31	22	8	6	11
28	12	19	13	18	27	14	34	42	21	18	4	25
29	14	13	16		37	27	109	24	38	16	4	204
30	16	11	25		39	45	59	17	27	14	4	191
31		7	17		43		20		35	6		116
Mean	17	13	13	17	21	20	26	24	19	23	18	35

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

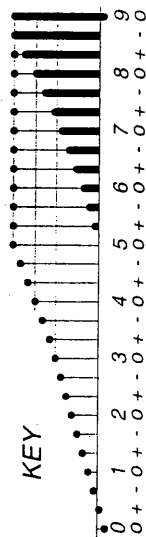
GeoForschungsZentrum Potsdam

Kp through October 31, 2003



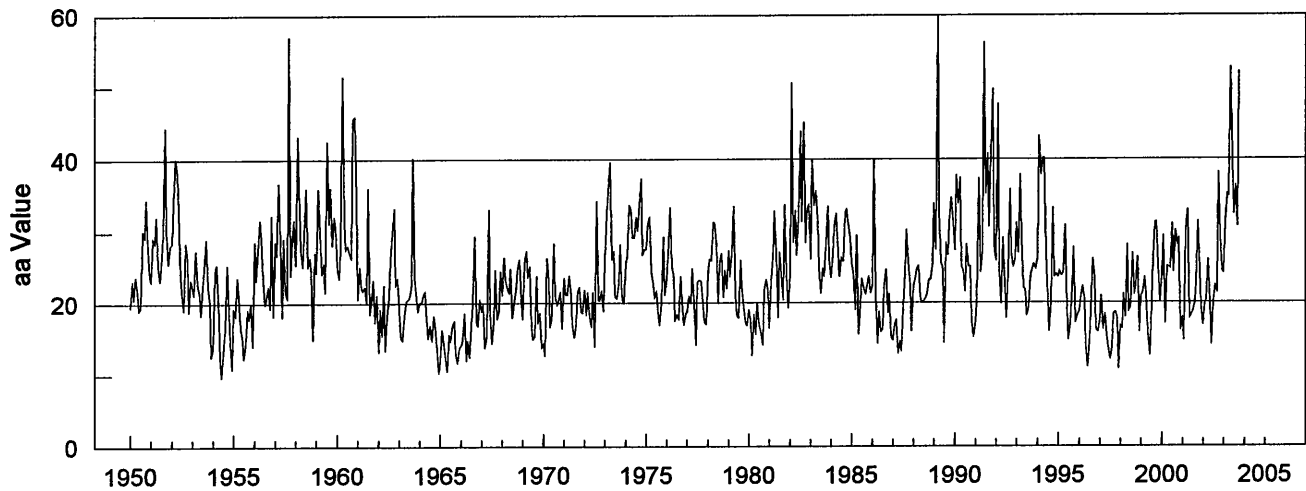
PLANETARY MAGNETIC THREE-HOUR-RANGE INDICES

Kp till 2003 Oct 31



Monthly Mean aa Index Jan 1950 - Oct 2003

123
Oct 03



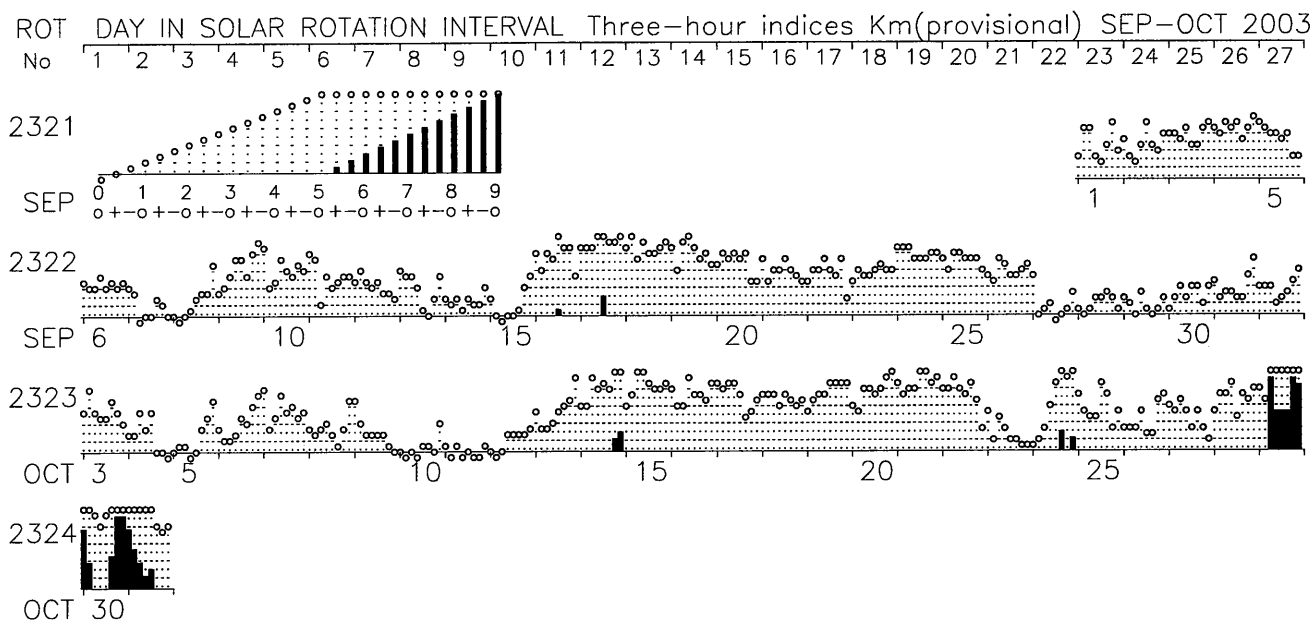
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	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	36.4	30.7	52.2			37.0

PLANETARY GEOMAGNETIC ACTIVITY

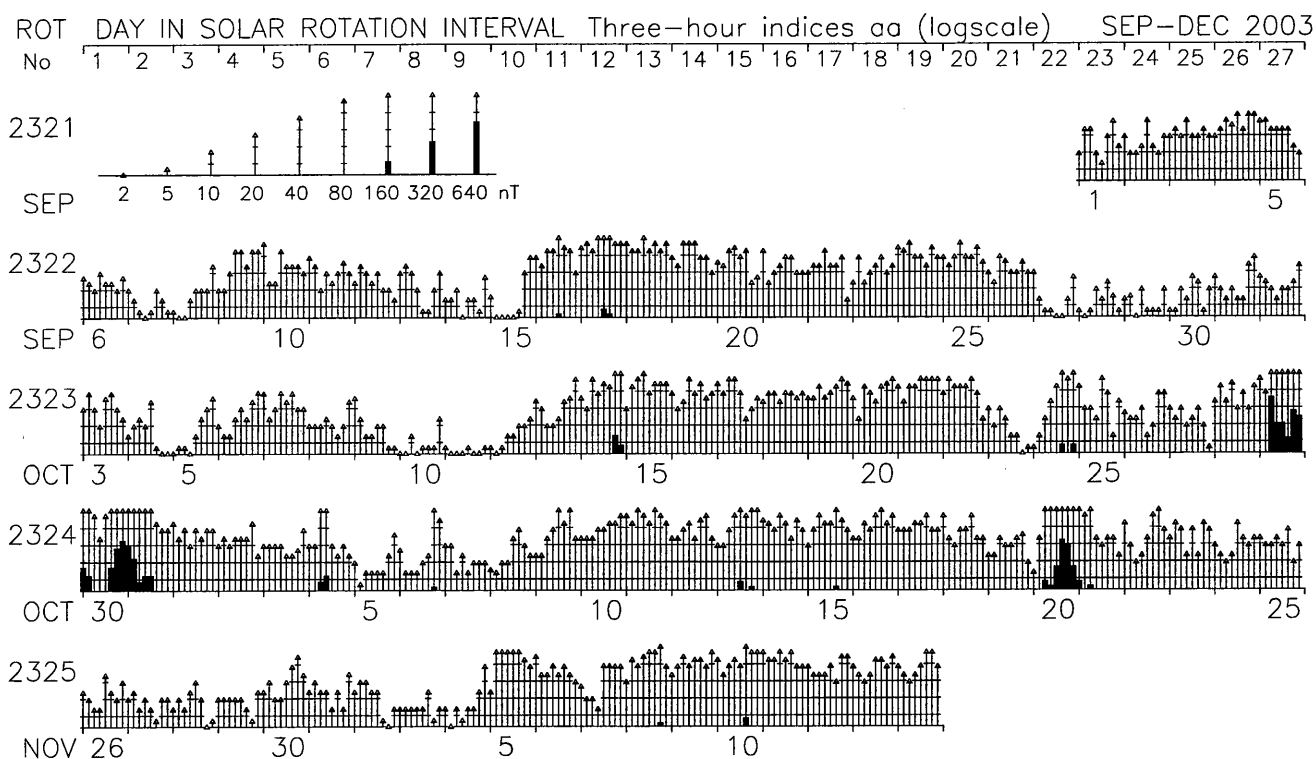
3-HOUR-RANGE INDICES Km AND aa BY 27-DAY SOLAR ROTATION INTERVAL

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

CETP, 4 Avenue de Neptune, F-94107 Saint Maur des Fosses CEDEX – FRANCE



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

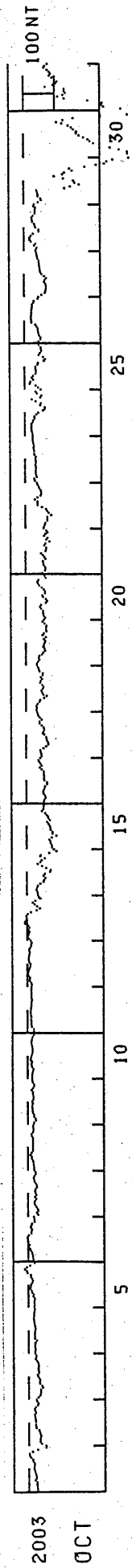


Indices Derivation at C.E.T.P.; Graph Prepared at ISGI Publication Office.

HOURLY EQUATORIAL DST VALUES (PROVISIONAL)

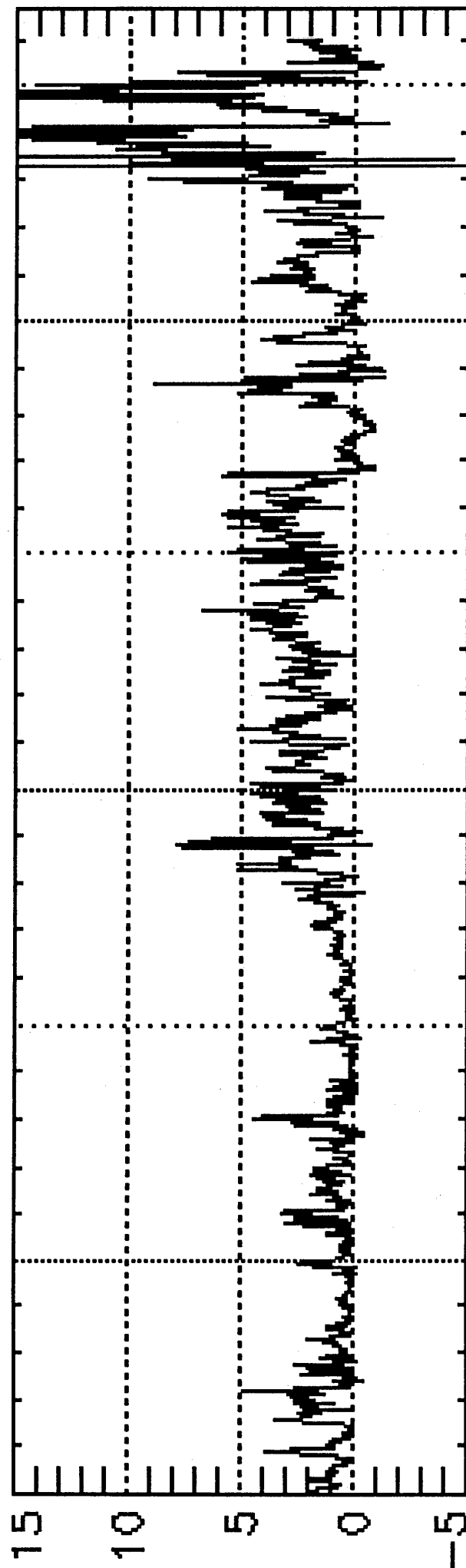
OCTOBER 2003

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	-28	-28	-26	-26	-26	-20	-24	-24	-22	-19	-18	-16	-16	-17	-18	-14	-11	-6	-1	-1	-11	-29	-56	-56
2	-42	-38	-38	-38	-39	-38	-36	-33	-25	-22	-22	-22	-22	-20	-19	-18	-23	-19	-17	-22	-29	-30	-26	-24
3	-30	-38	-40	-39	-39	-46	-43	-37	-36	-37	-35	-31	-29	-32	-33	-31	-30	-32	-31	-27	-23	-24	-24	-21
4	-20	-23	-21	-21	-22	-22	-27	-21	-19	-19	-19	-19	-22	-20	-19	-18	-17	-15	-16	-18	-17	-18	-19	-18
5	-19	-20	-18	-19	-16	-16	-15	-11	-9	-6	-7	-8	-11	-14	-12	-7	-7	4	6	12	5	-5	-19	-19
6	-15	-15	-13	-13	-12	-8	-5	-2	-3	2	2	3	3	-2	-9	-10	-11	-8	-10	-12	-21	-21	-20	-18
7	-32	-29	-33	-30	-26	-22	-21	-22	-26	-23	-27	-25	-23	-24	-28	-28	-25	-19	-19	-18	-20	-25	-24	-21
8	-20	-17	-17	-17	-15	-11	-11	-8	-11	-16	-16	-15	-16	-15	-15	-16	-15	-11	-11	-16	-20	-18	-15	-17
9	-21	-26	-25	-20	-19	-15	-16	-14	-13	-14	-15	-14	-17	-18	-18	-16	-15	-12	-16	-19	-15	-14	-14	-14
10	-13	-13	-15	-15	-17	-14	-12	-12	-13	-10	-9	-11	-14	-15	-15	-15	-14	-11	-12	-12	-13	-16	-19	-22
11	-21	-19	-14	-11	-11	-11	-12	-11	-11	-9	-9	-10	-12	-12	-12	-12	-13	-12	-12	-12	-12	-12	-11	-11
12	-14	-11	-8	-8	-8	-4	-1	-3	-6	-8	-10	-10	-6	-4	-4	-5	-6	-7	-6	-8	-11	-12	-13	-9
13	-6	-1	-3	-5	-8	-4	-7	-4	7	7	4	1	4	-1	-11	-30	-42	-32	-24	-17	-27	-43	-40	-36
14	-35	-32	-31	-32	-34	-44	-53	-57	-60	-53	-58	-76	-78	-62	-49	-34	-43	-48	-58	-44	-45	-73	-96	-88
15	-82	-81	-78	-77	-74	-82	-96	-83	-84	-78	-77	-75	-70	-66	-75	-72	-69	-65	-60	-50	-54	-57	-55	-59
16	-56	-59	-63	-61	-55	-54	-56	-58	-61	-66	-67	-59	-56	-58	-55	-57	-56	-50	-44	-49	-45	-42	-40	-45
17	-49	-48	-47	-45	-56	-65	-71	-70	-67	-66	-65	-59	-54	-55	-58	-56	-50	-44	-44	-50	-44	-40	-37	-34
18	-32	-36	-33	-37	-43	-46	-59	-67	-56	-51	-49	-54	-57	-51	-46	-48	-51	-47	-53	-53	-43	-41	-39	-35
19	-36	-40	-43	-42	-44	-52	-57	-62	-60	-55	-58	-61	-62	-58	-64	-53	-58	-66	-65	-64	-67	-60	-54	-58
20	-62	-59	-56	-56	-55	-50	-46	-49	-64	-69	-65	-55	-53	-62	-63	-58	-52	-44	-39	-37	-42	-65	-60	-54
21	-54	-62	-64	-62	-58	-55	-57	-65	-60	-56	-50	-64	-66	-67	-61	-65	-78	-67	-71	-61	-64	-70	-67	-59
22	-61	-63	-65	-72	-72	-72	-84	-75	-72	-67	-53	-39	-40	-40	-31	-39	-49	-52	-51	-49	-46	-43	-39	-38
23	-31	-29	-37	-34	-33	-33	-35	-36	-33	-35	-34	-33	-35	-31	-29	-29	-28	-26	-28	-27	-25	-24	-24	-24
24	-24	-23	-21	-19	-19	-19	-24	-27	-30	-31	-38	-43	-58	-65	-64	-49	-52	-35	-23	-50	-53	-40	-35	-52
25	-44	-35	-16	-17	-26	-22	-27	-36	-38	-35	-36	-36	-42	-43	-62	-67	-60	-46	-49	-53	-54	-51	-45	-45
26	-46	-51	-52	-47	-46	-43	-43	-44	-40	-35	-23	-22	-21	-21	-22	-23	-22	-22	-24	-24	-29	-31	-44	-45
27	-56	-67	-68	-70	-72	-70	-69	-65	-67	-70	-65	-56	-52	-51	-50	-50	-47	-47	-47	-44	-42	-42	-39	-38
28	-39	-42	-33	-37	-23	-17	-17	-22	-29	-48	-47	-37	-35	-32	-26	-24	-24	-29	-36	-36	-34	-38	-31	-33
29	-46	-57	-53	-45	-45	-44	-41	-132	-152	-180	-166	-161	-128	-98	-126	-133	-157	-149	-200	-239	-265	-273	-293	-345
30	-363	-341	-341	-314	-284	-251	-230	-216	-210	-196	-182	-173	-173	-162	-155	-145	-123	-108	-127	-162	-252	-342	-401	-388
31	-320	-264	-258	-259	-210	-132	-112	-128	-137	-132	-132	-72	-97	-104	-110	-101	-92	-83	-88	-84	-77	-67	-68	-77



WDC C1 for Geomagnetism, Copenhagen
Polar Cap index
Qaanaaq (Thule), THL

2003-10-01



10-01 10-06 10-11 10-16 10-21 10-26 10-31

Date, mm-dd

Data source: Solar-Terrestrial Physics Division
Danish Meteorological Institute

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

OCTOBER 2003

Sta	Geomag Lat	Commencement			SC Amplitudes			Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges			End	
		Day	Time (UT)	Type	D (Min)	H (Gamma)	Z (Gamma)		D (Min)	H (Gamma)	Z (Gamma)	Day	Hour (UT)
HYB	07.6N	05	1500	..	..	..	..	07(6)	4	4	77	07	23
JAI	17.4N	12	2300	..	..	..	..		-	4	114	13	24
NGP	11.3N	12	2300	..	..	..	..		-	2	136	13	24
ABG	09.4N	12	2300	..	..	..	..	13(8)	5	3	129	13	24
PND	02.0N	12	2300	..	..	..	..		-	2	131	13	24
TIR	00.6S	12	2300	..	..	..	..		-	3	168	13	24
HYB	07.6N	13	0600	..	..	..	..	14(7)	6	5	168	15	24
JAI	17.4N	14	0300	..	..	..	..		-	6	124	15	21
KRC	16.4N	14	1400	..	..	..	..	15(7)	7	8	156	15	19
NGP	11.3N	14	0300	..	..	..	..		-	--	--	15	21
ABG	09.4N	14	0300	..	..	..	..	14(7)	6	5	111	15	21
PND	02.0N	14	0300	..	..	..	..		-	4	129	15	21
TIR	00.6S	14	0300	..	..	..	..		-	4	182	15	21
GNA	43.0S	14	0600	..	..	..	..	14(7) 15(4)	6	24	114	18	01
CAN	43.6S	14	0600	..	..	..	..	14(5,7,8) 15(3,4) 16(4) 17(4)	5	21	127	17	18
JAI	17.4N	16	0830	..	..	..	..		-	5	64	17	21
NGP	11.3N	16	0830	..	..	..	..		-	3	--	17	21
ABG	09.4N	16	0830	..	..	..	..	18(5) 19(7)	5	3	60	17	21
HYB	07.6N	16	0600	..	..	..	..	18(5) 19(7)	5	4	90	20	01
PND	02.0N	16	0830	..	..	..	..		-	2	59	17	21
TIR	00.6S	16	0830	..	..	..	..		-	2	93	17	21
GNA	43.0S	19	0600	..	..	..	..	21(5,6) 22(6)	6	21	98	22	21
JAI	17.4N	20	0430	..	..	..	..		-	6	111	22	20
NGP	11.3N	20	0430	..	..	..	..		-	4	--	22	20
ABG	09.4N	20	0430	..	..	..	..	20(7,3) 21(4,5,6,7) 22(6)	5	4	115	22	20
HYB	07.6N	20	0600	..	..	..	..	20(7) 21(5,6,7)	5	4	136	23	19
PND	02.0N	20	0430	..	..	..	..		-	3	122	22	20
TIR	00.6S	20	0430	..	..	..	..		-	4	164	22	20
KRC	16.4N	21	1026	..	..	..	..	21(6)	6	7	110	21	23
JAI	17.4N	24	1300	..	..	..	..		-	7	115	25	18
KRC	16.4N	24	1336	..	..	..	..	24(8)	7	9	124	25	02
NGP	11.3N	24	1300	..	..	..	..		-	6	--	25	18
ABG	09.4N	24	1300	..	..	..	..	24(5,6,8)	6	6	114	25	18
HYB	07.6N	24	1526	SC	- 1.0	58	- 5	24(6,8)	6	5	150	25	23
PND	02.0N	24	1300	..	..	..	..		-	3	176	25	18
TIR	00.6S	24	1300	..	..	..	..		-	4	253	25	18
GNA	43.0S	24	1200	..	..	..	..	24(6)	6	22	116	26	01
CAN	43.6S	24	0000	..	..	..	..	24(6,8)	6	23	120	25	18
HYB	07.6N	26	1907	SC	- 0.3	11	0		-	--	--	--	--
CAN	43.6S	28	2100	..	..	..	..	29(3)	9	51	947	31	21
JAI	17.4N	29	0618	SC	- 0.4	73	- 15		-	11	--	31	21
KRC	16.4N	29	0608	SC	- 55	134	30	29(3) 31(2)	9	25	482	31	21
NGP	11.3N	29	0618	SC	- 0.9	--	- 11		-	15	--	31	21
ABG	09.4N	29	0618	SC	- 0.3	107	- 11	29(3) 31(2)	9	15	535	31	21
HYB	07.6N	29	0613	SC	- 2.0	107	- 11	29(3) 30(7) 31(2)	9	12	510	01	04
PND	02.0N	29	0618	SC	- 0.6	88	63		-	9	568	31	21
TIR	00.6S	29	0618	SC	- 0.7	134	69		-	12	667	31	21

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)

October 2003

Storm Sudden Commencements (SSC)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
24	1524	A: VAL* DOU COI* SPT* GUI HYB	01	0445-0511	MMB+ KAK+ HTY+ KNY+
		B: NGK* BDV* CLF* NAG* GCK*	02	0654-0706	HTY+
		C: HRB EBR	02	0832-0910	GUI HYB
26	1908	B: GUI CNB*	05	1521-1542	GUI
		C: NGK* BDV* CLF NAG* GCK EBR SPT* HYB	06	1042-1109	GUI
		SI: VAL	13	1247-1300	GUI
			14	1910-1940	GUI
28	0206	A: NAG COI	23	1300-1326	GUI
		B: SOD* VAL EBR SPT GUI	24	0506-0531	MMB+ KAK+ HTY+ KNY+
		C: NGK* DOU BDV* CLF GCK	24	1332-1432	GUI
29	0611	A: NUR* NGK* VAL DOU BDV* CLF HRB	26	0610-0710	MMB+ KAK+ HTY+ KNY+ HYB
		NAG* GCK MMB* EBR* COI* SPT* KAK*	26	0624-0635	NGK+
		HTY* KNY* GUI* HYB CNB*	26	0838-0903	SPT
			26	0927-0955	GUI
			27	1226-1315	GUI
			28	1101-1203	NGK+ BDV+

REPORTING OBSERVATORIES (up to the 1st of December 2003):

SOD NUR NGK VAL DOU 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.