JANUARY 2003 NUMBER 701 - Part I

Solar-Geophysical Data prompt reports

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

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JANUARY 2003 NUMBER 701 - Part I

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Data for November and December 2002

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SOLAR-GEOPHYSICAL DATA

Number 701

(Issued in Two Parts)

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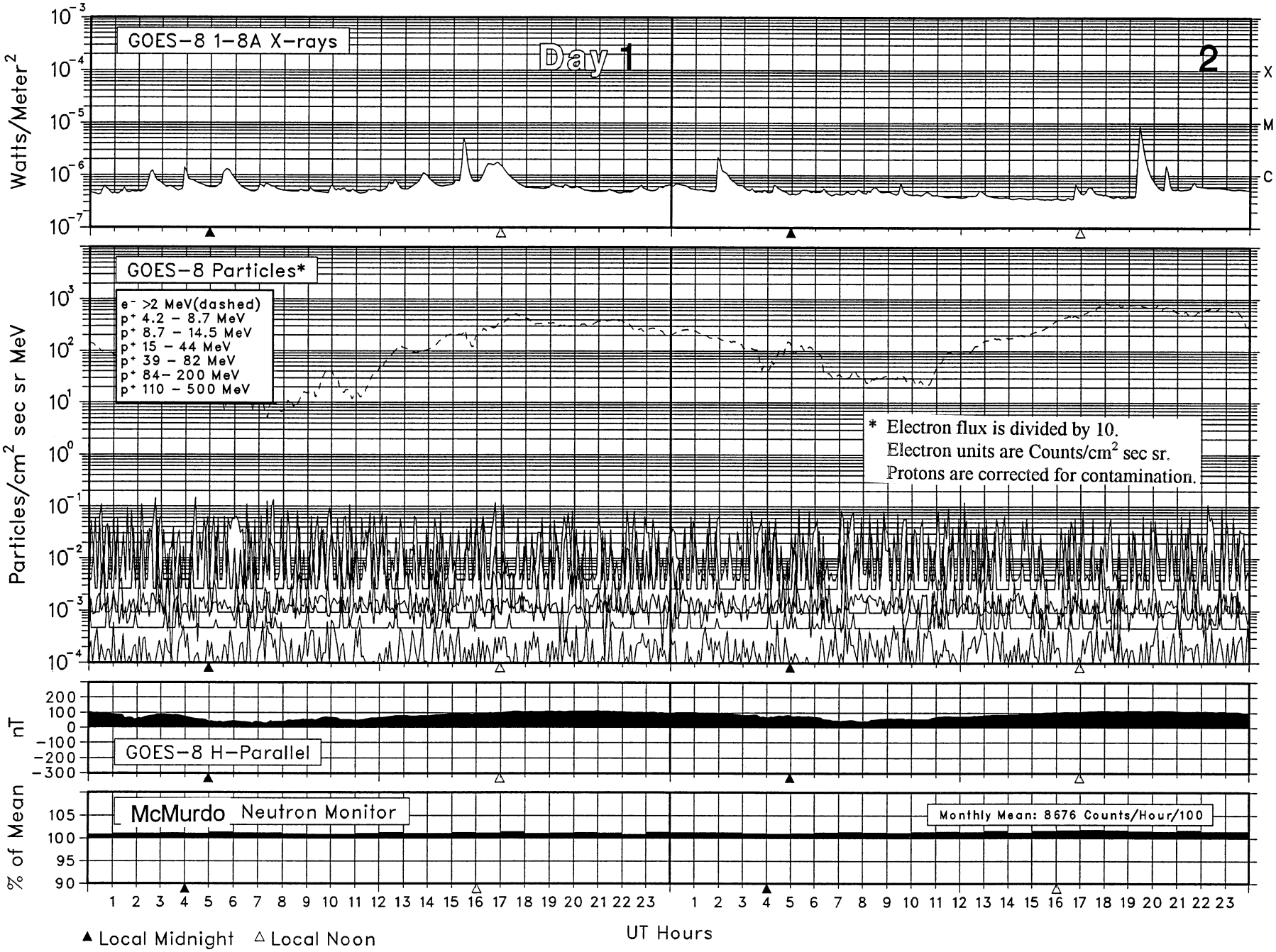

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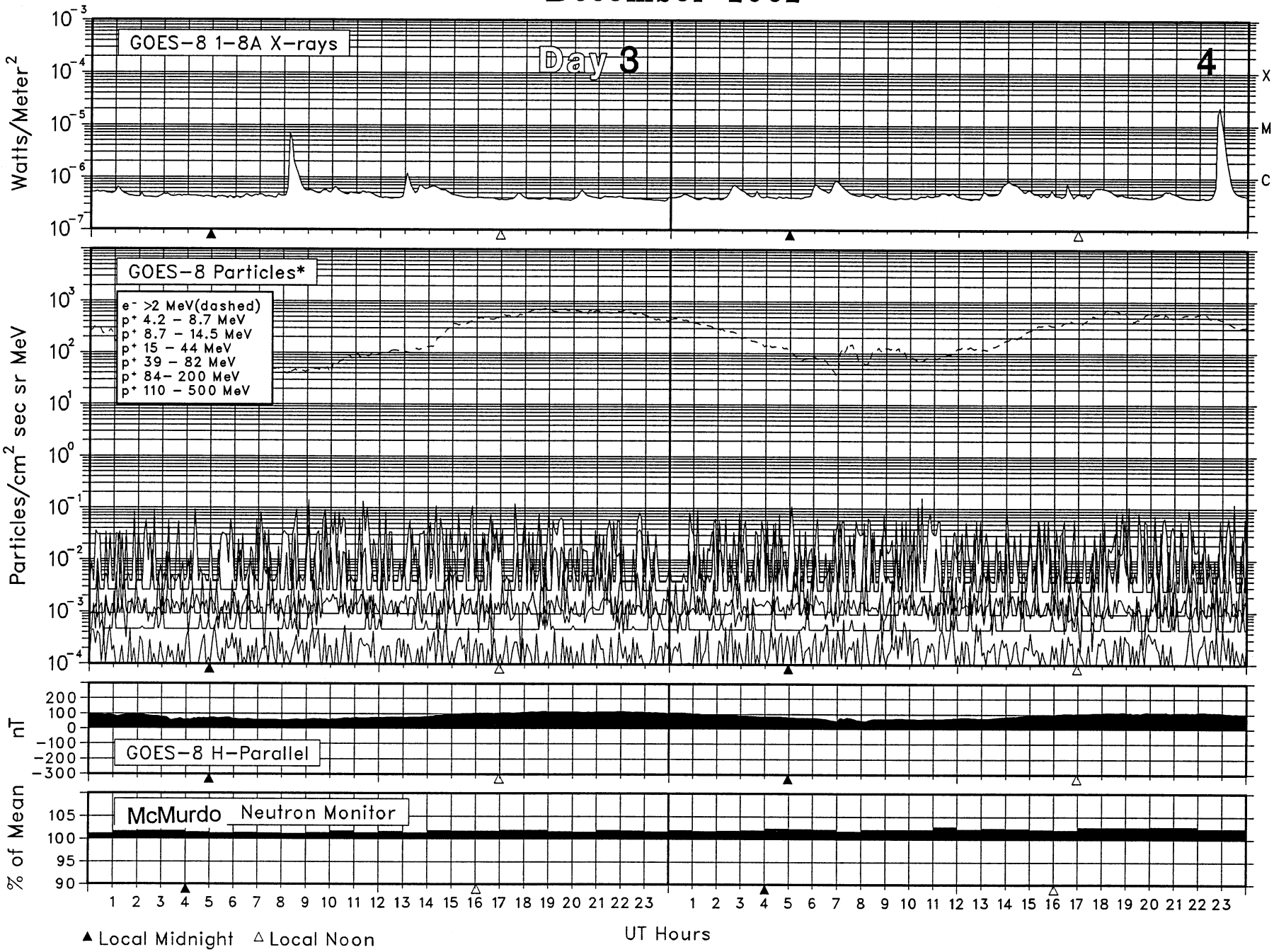

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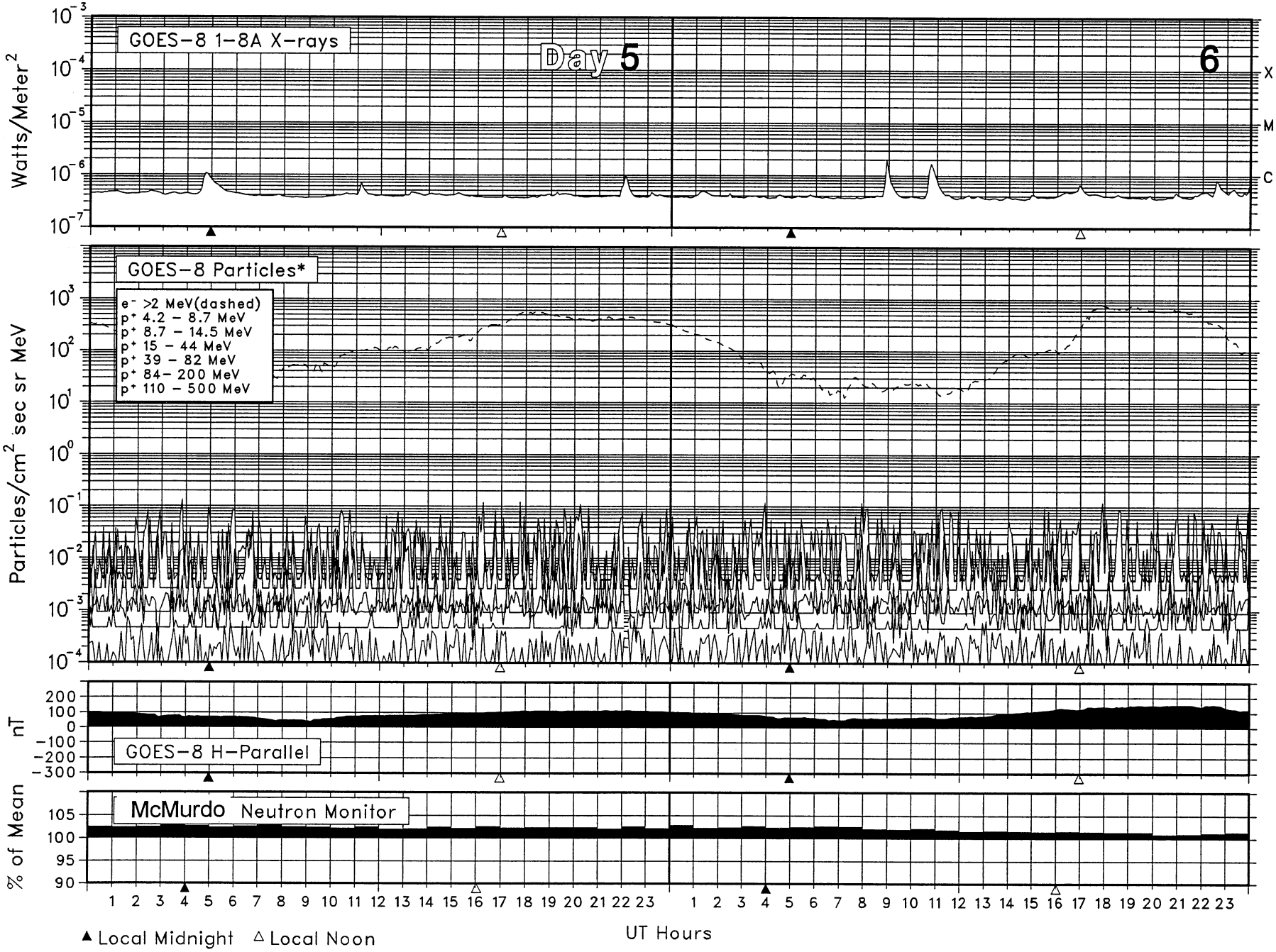

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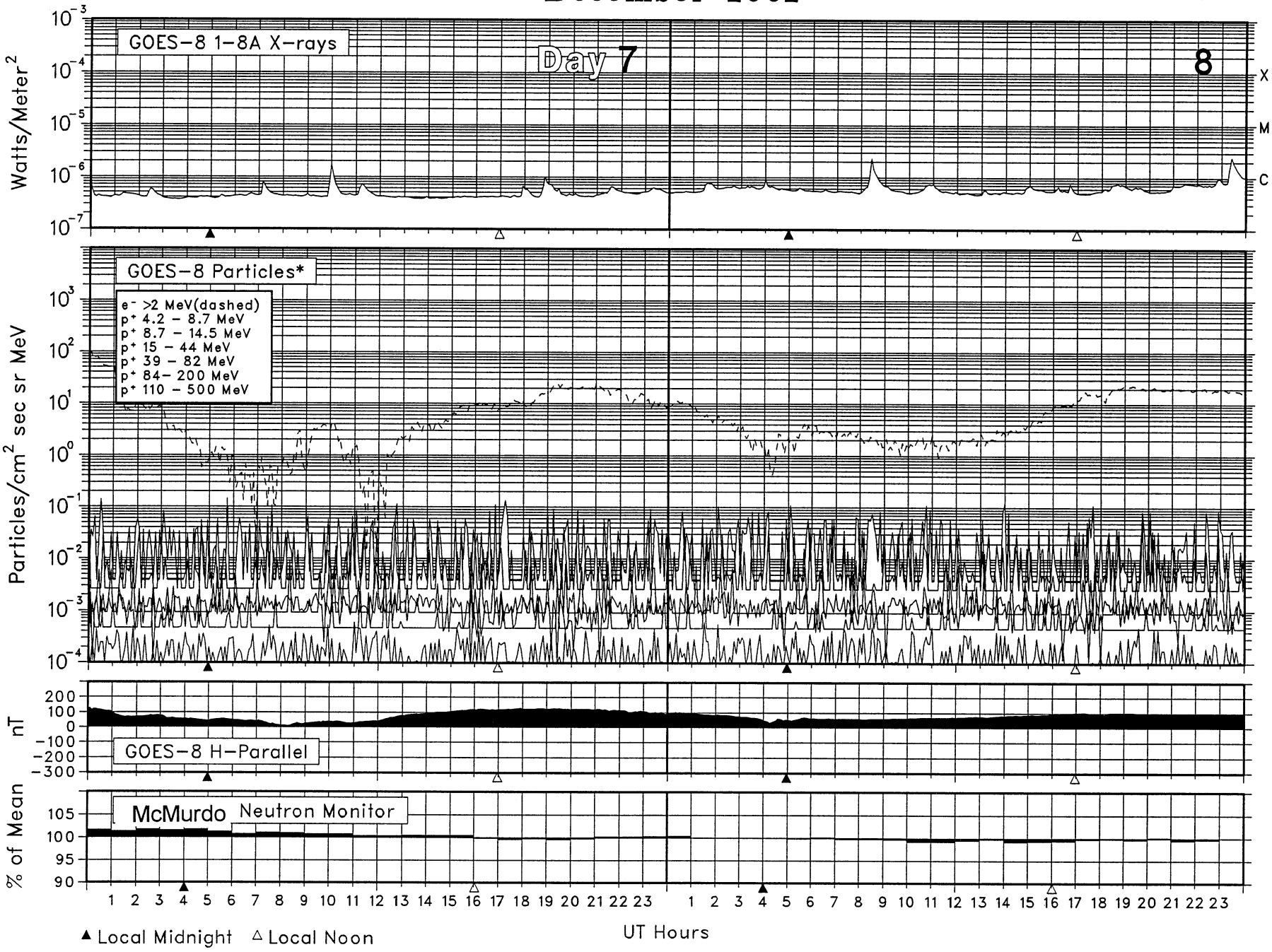

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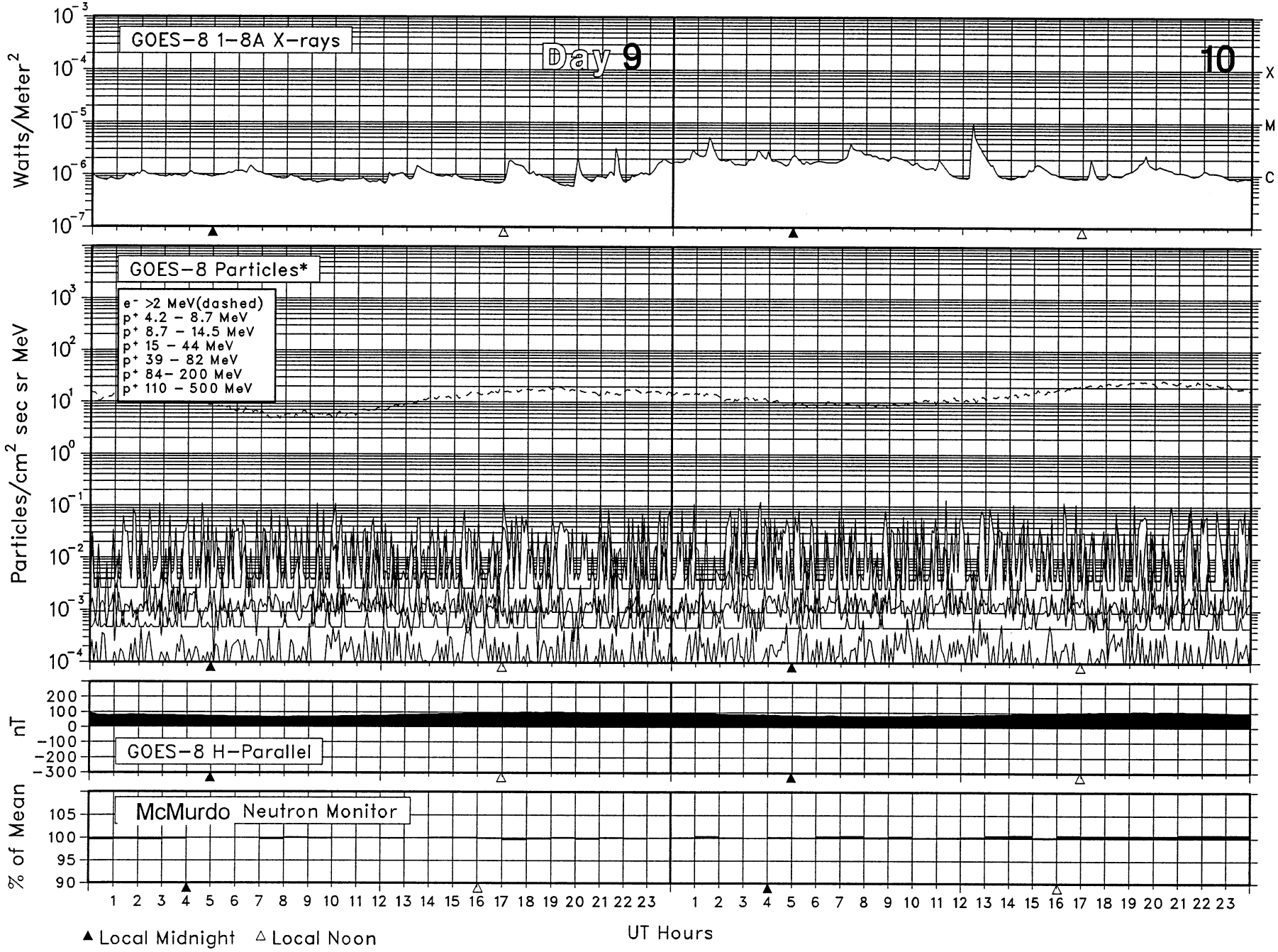

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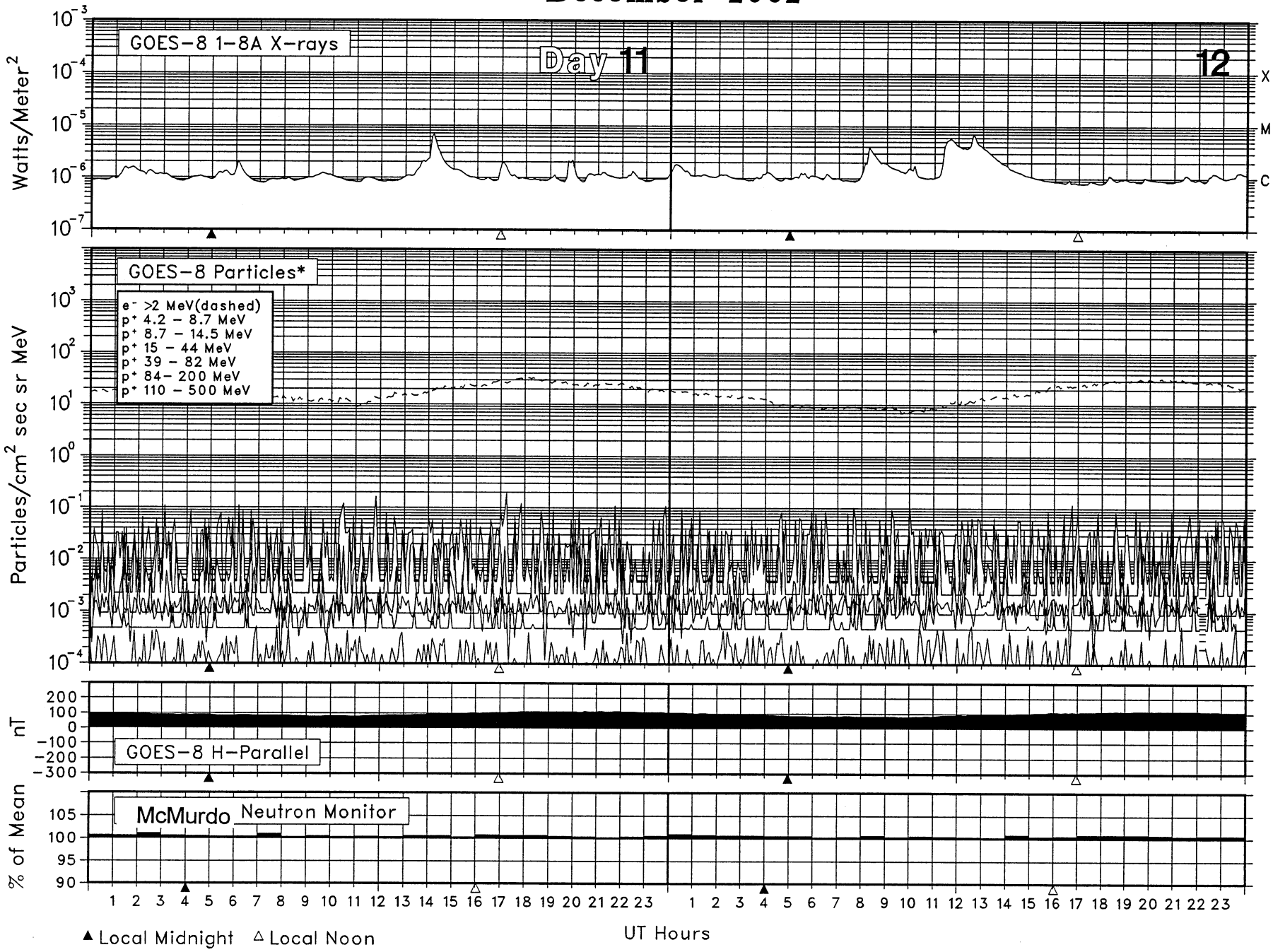

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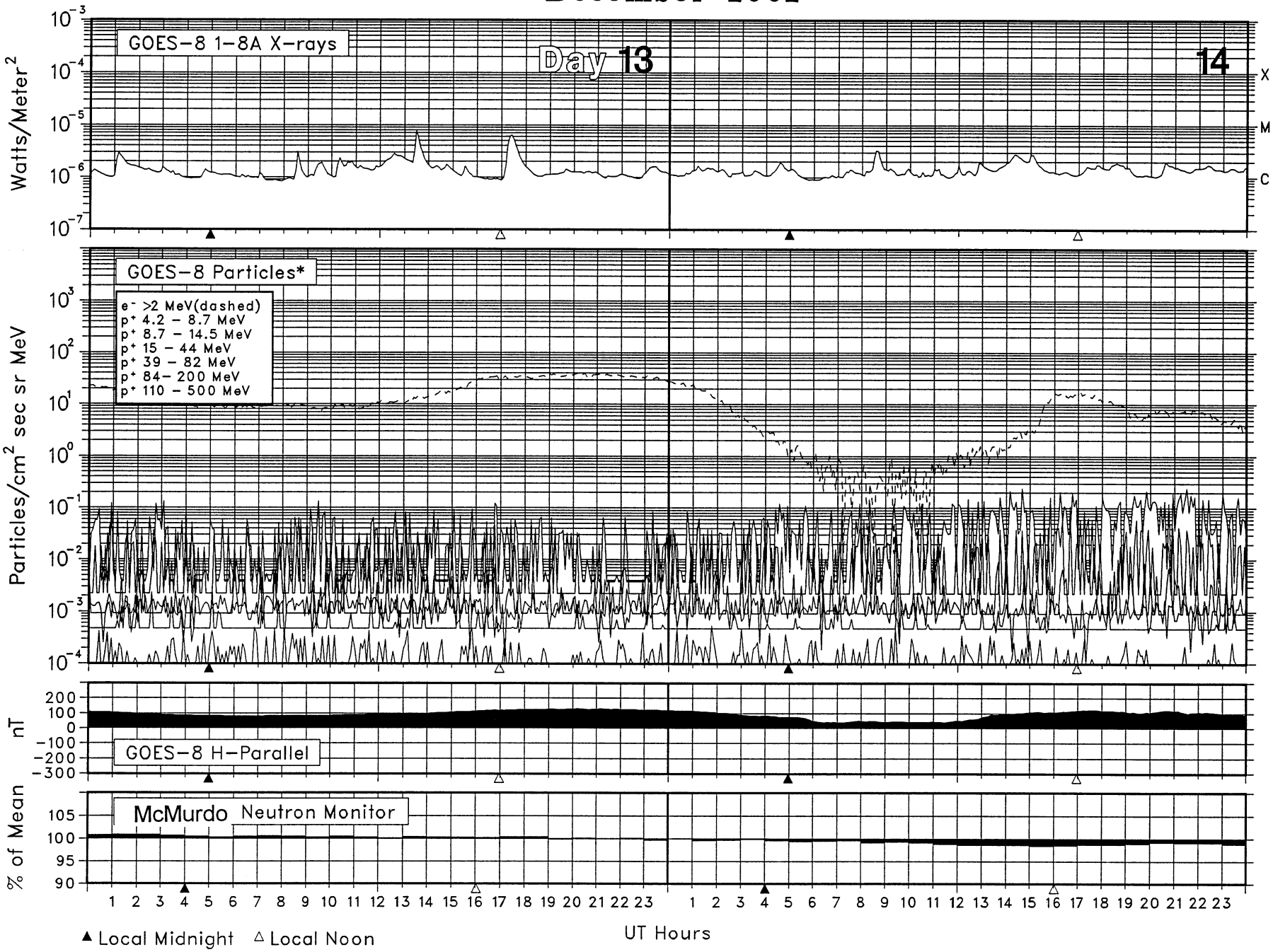

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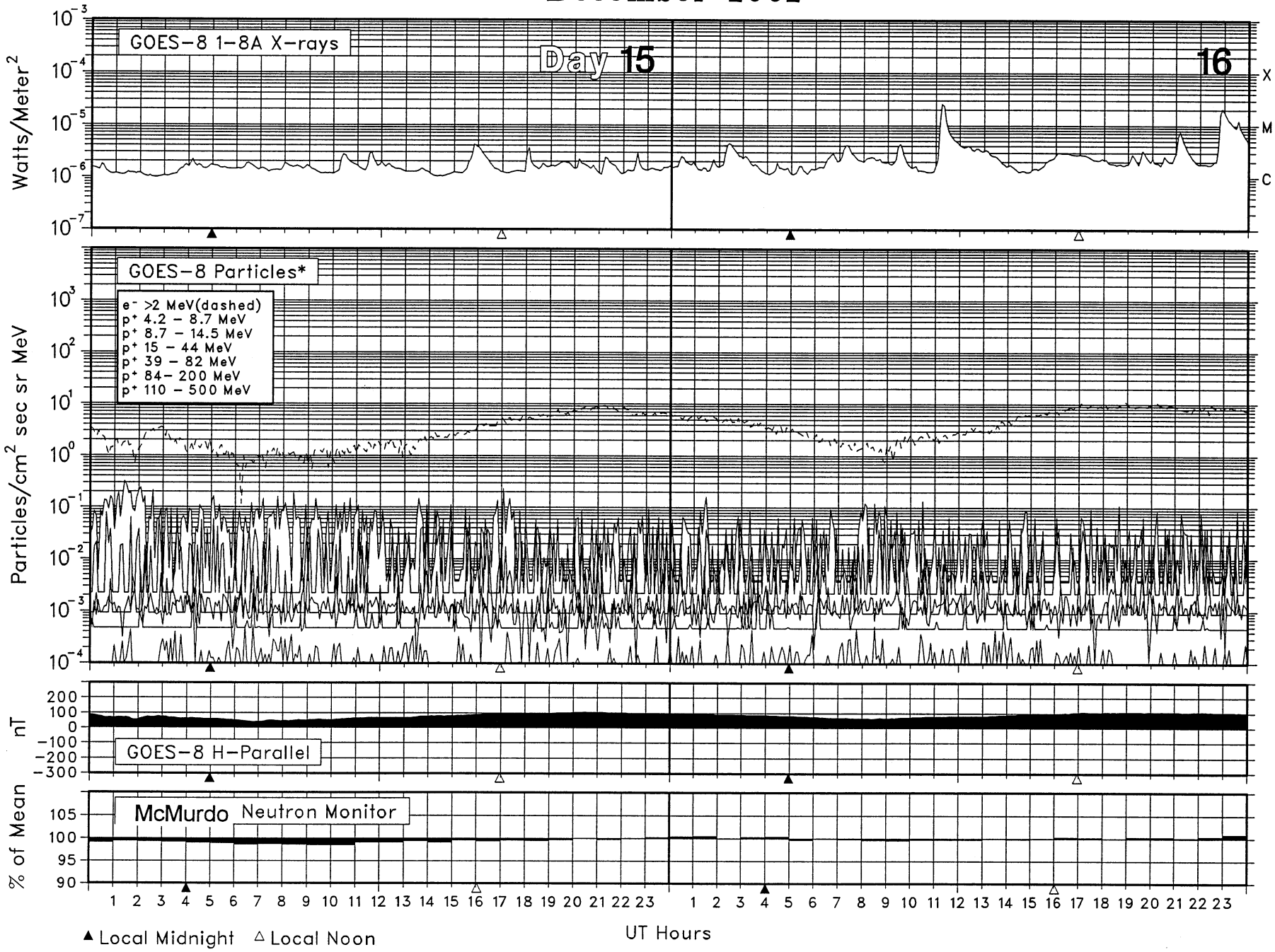

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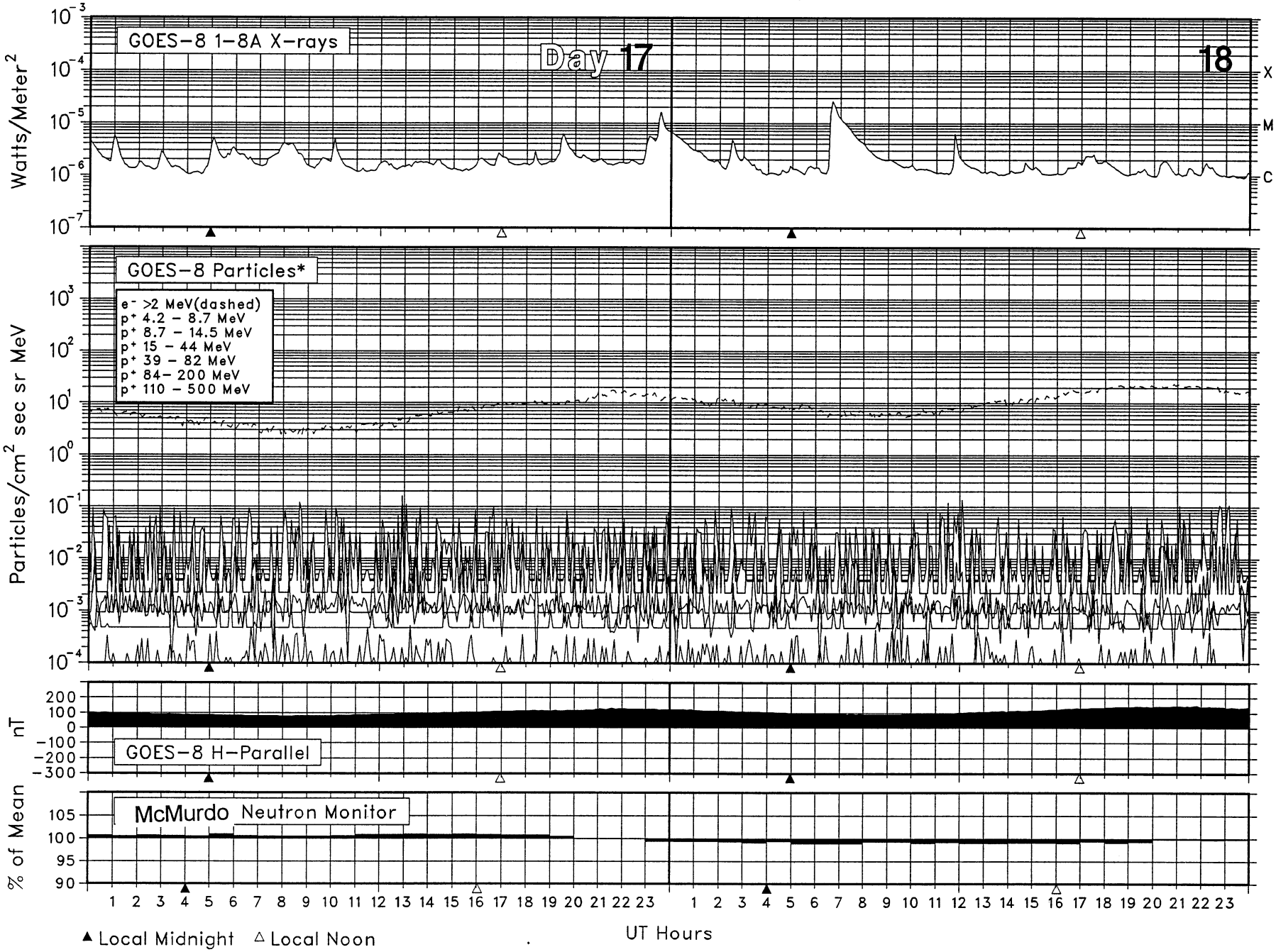

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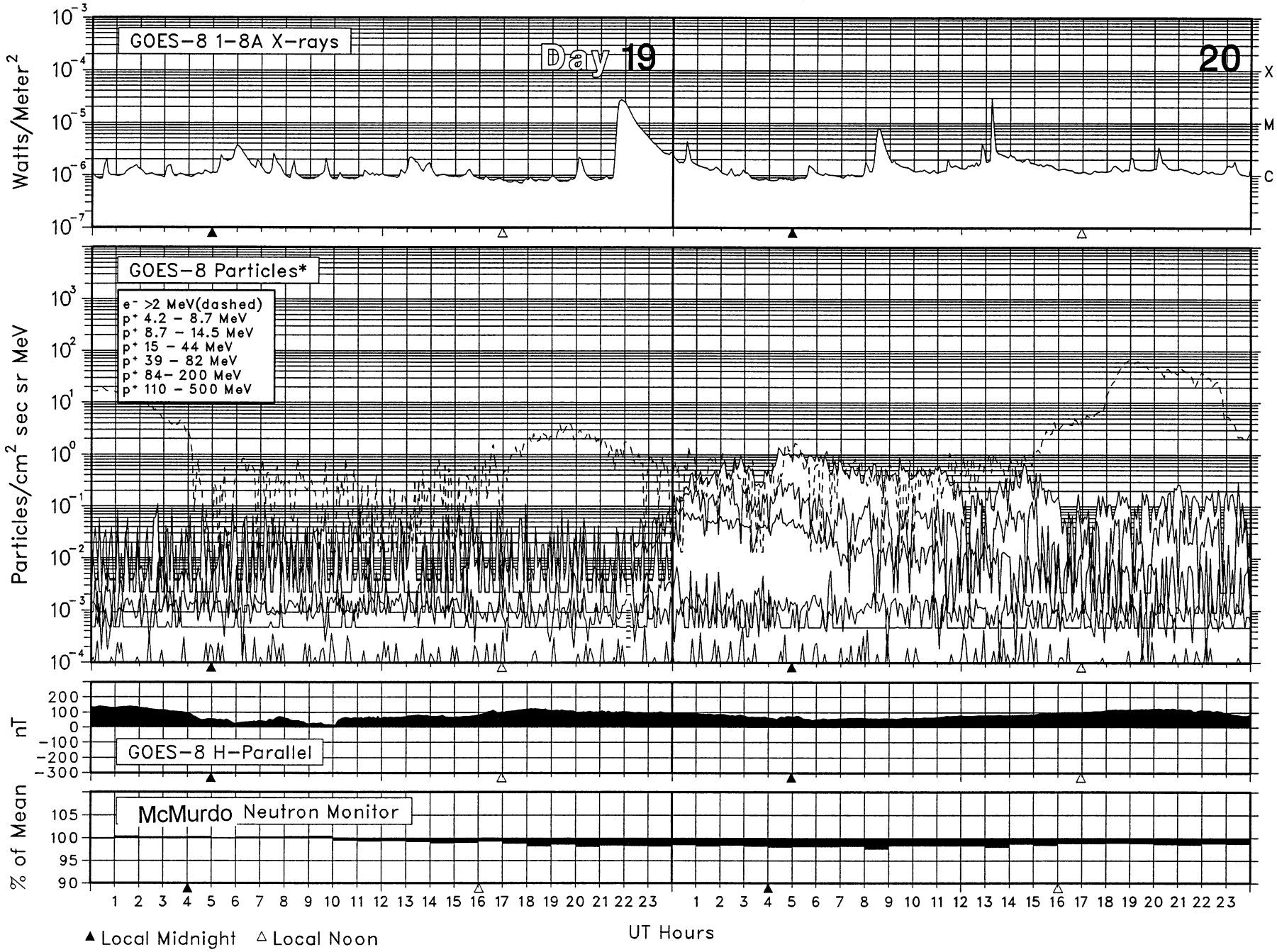

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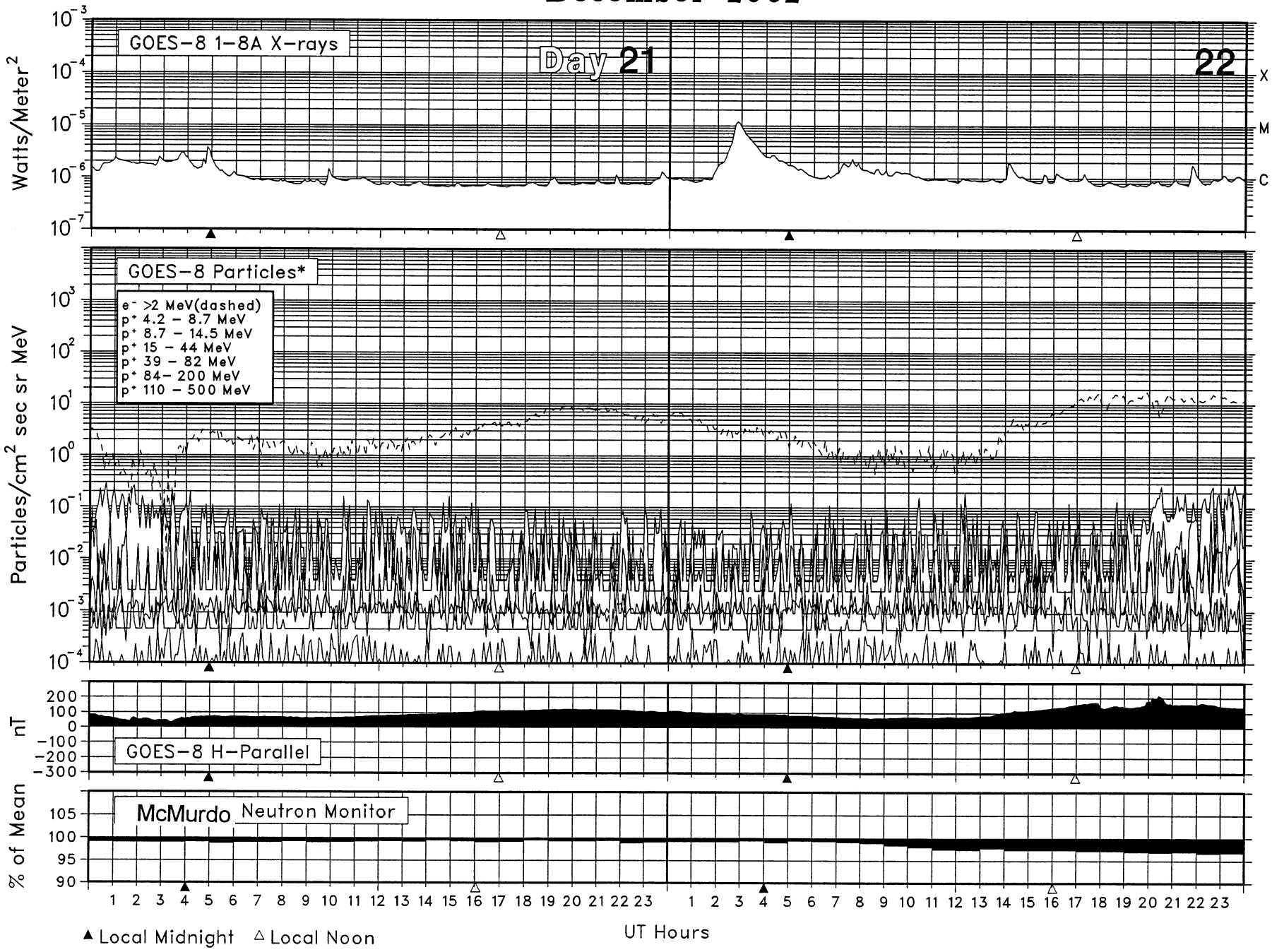

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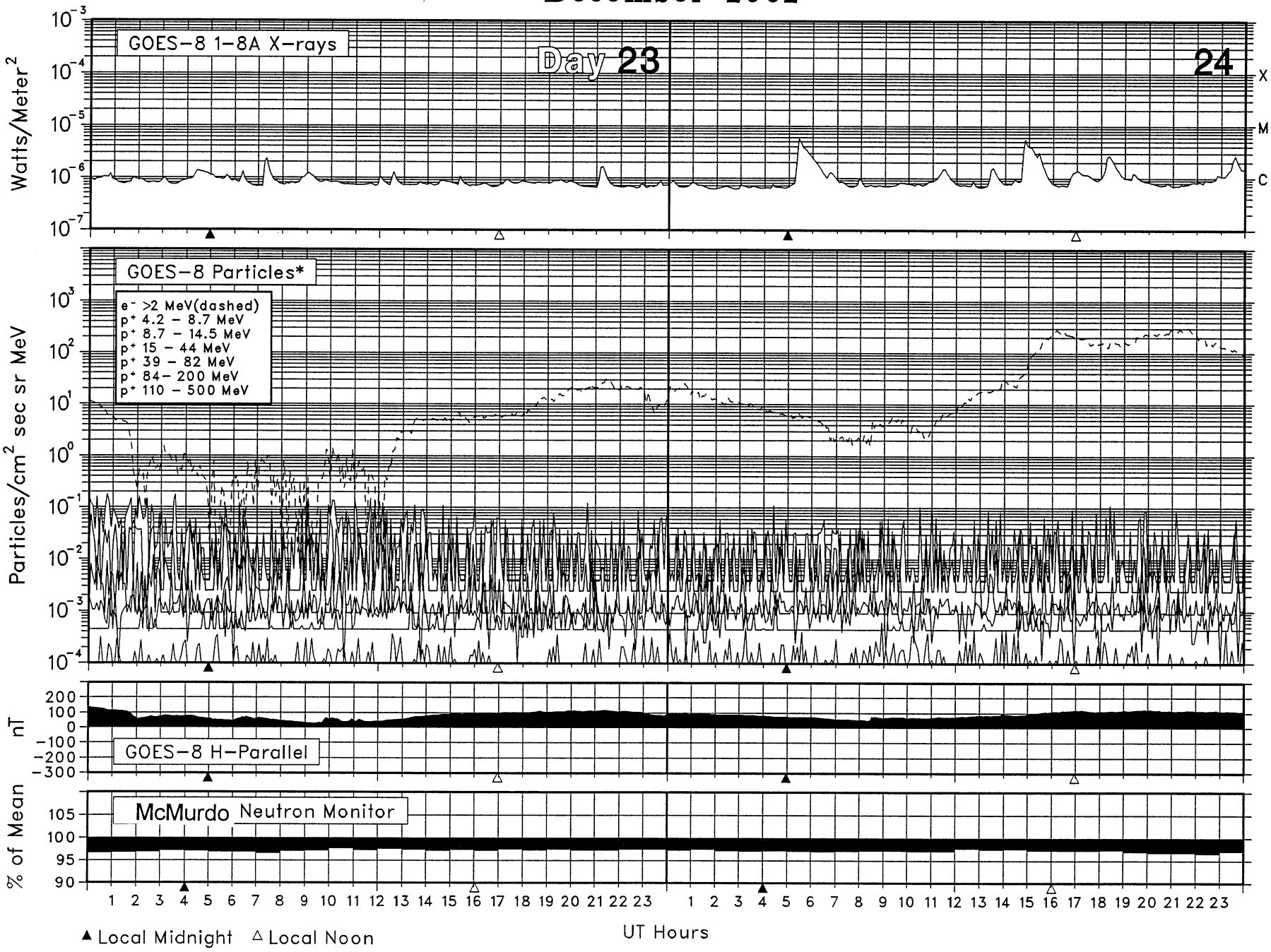

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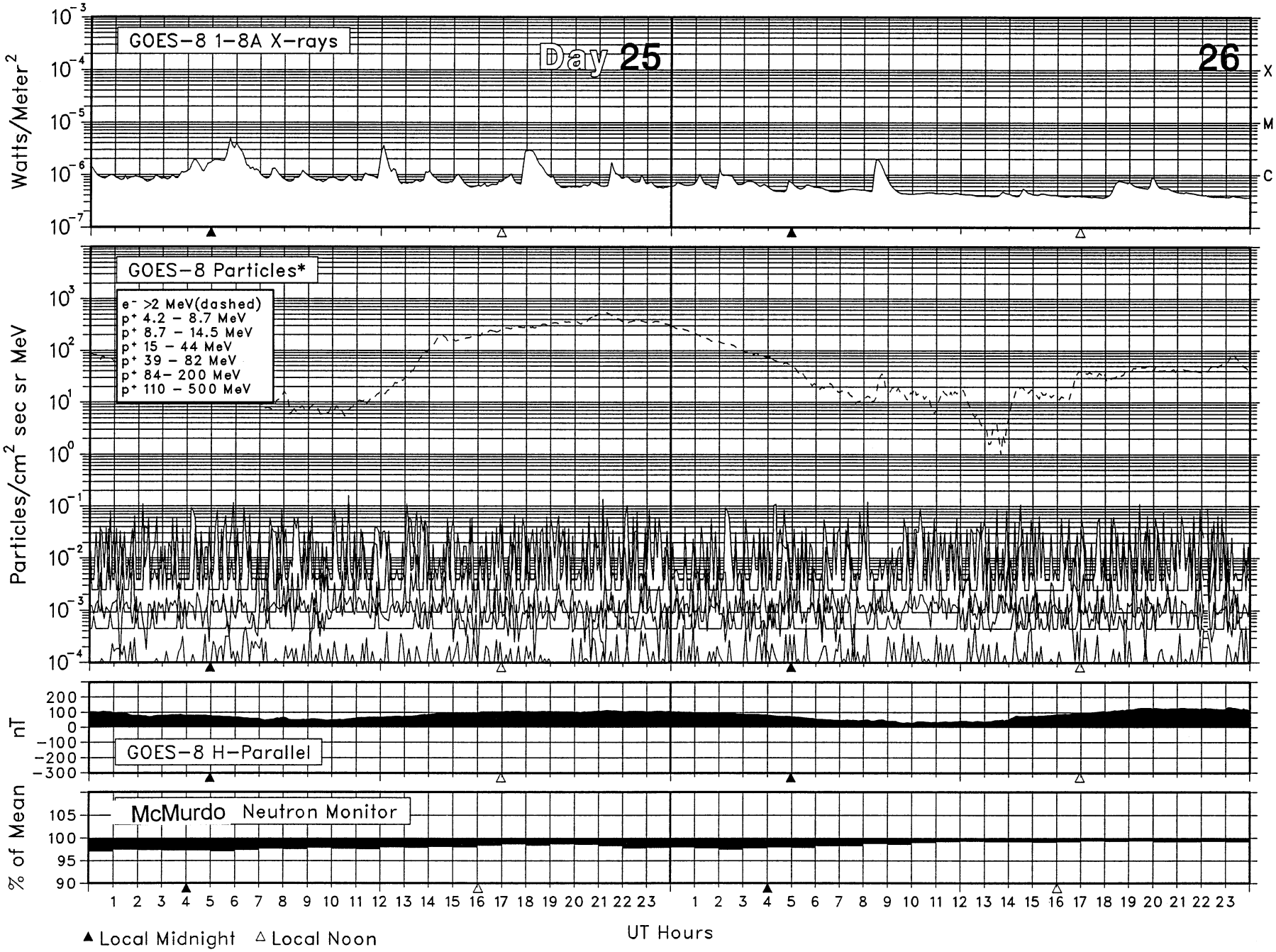

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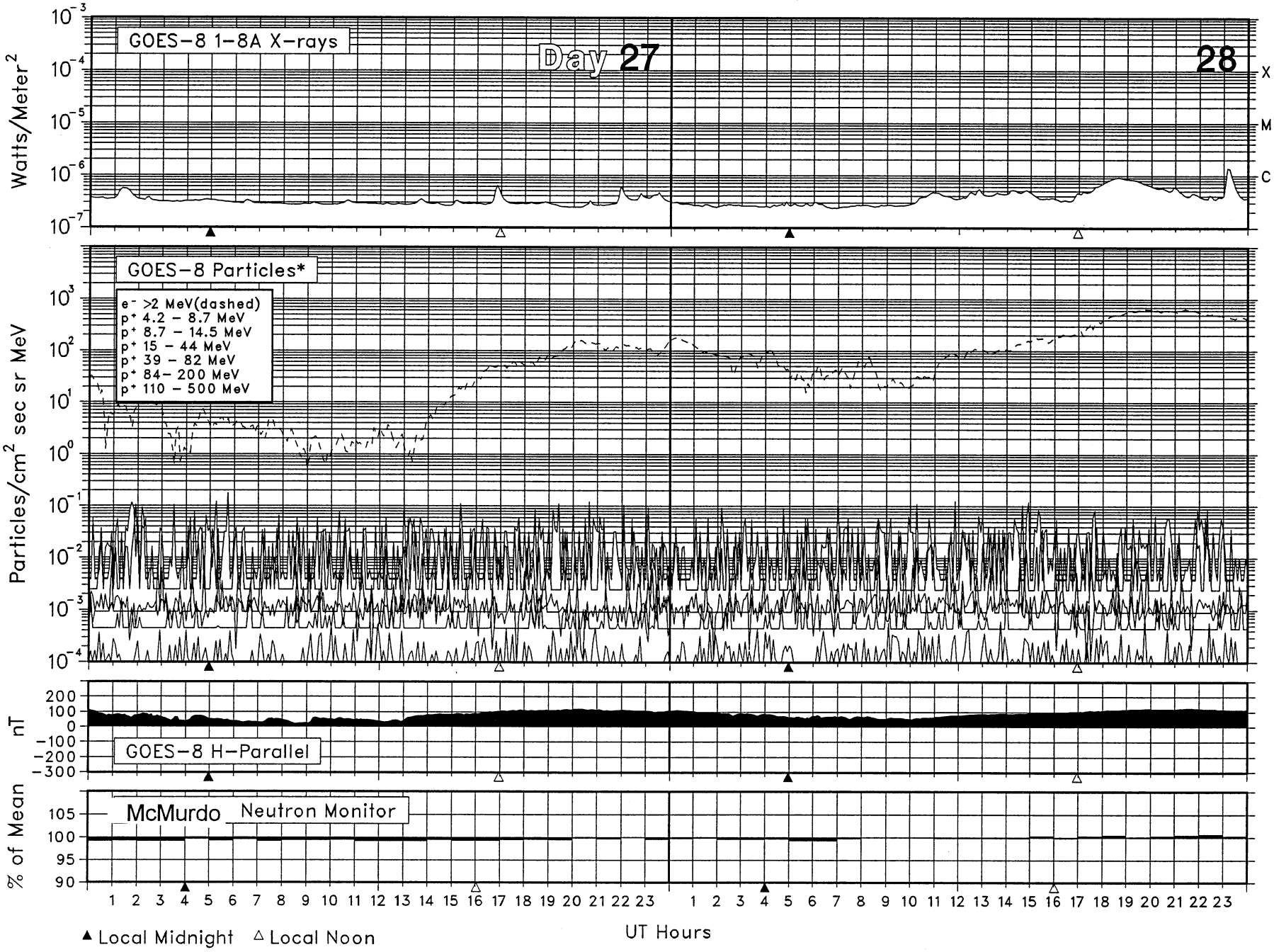

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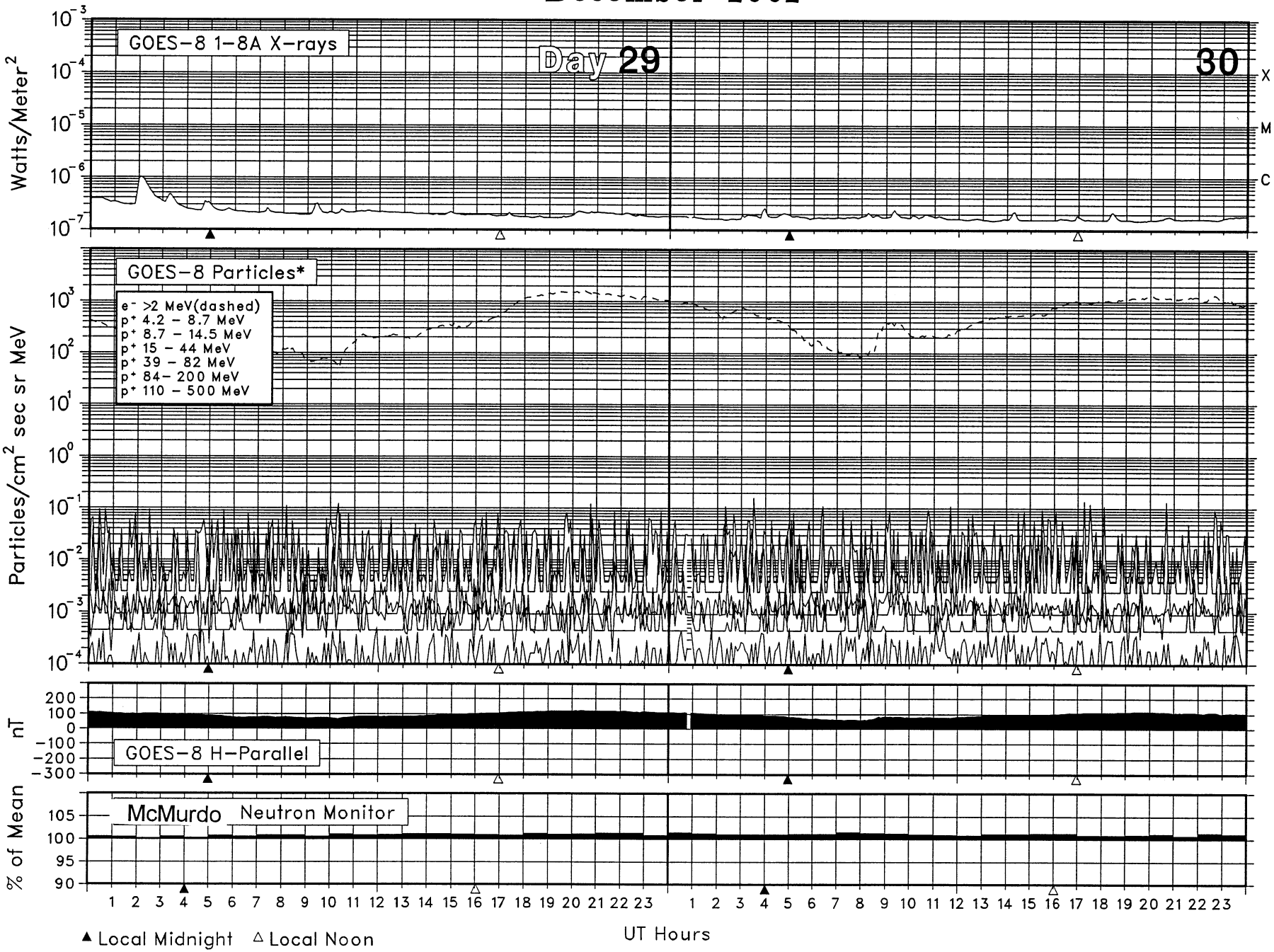

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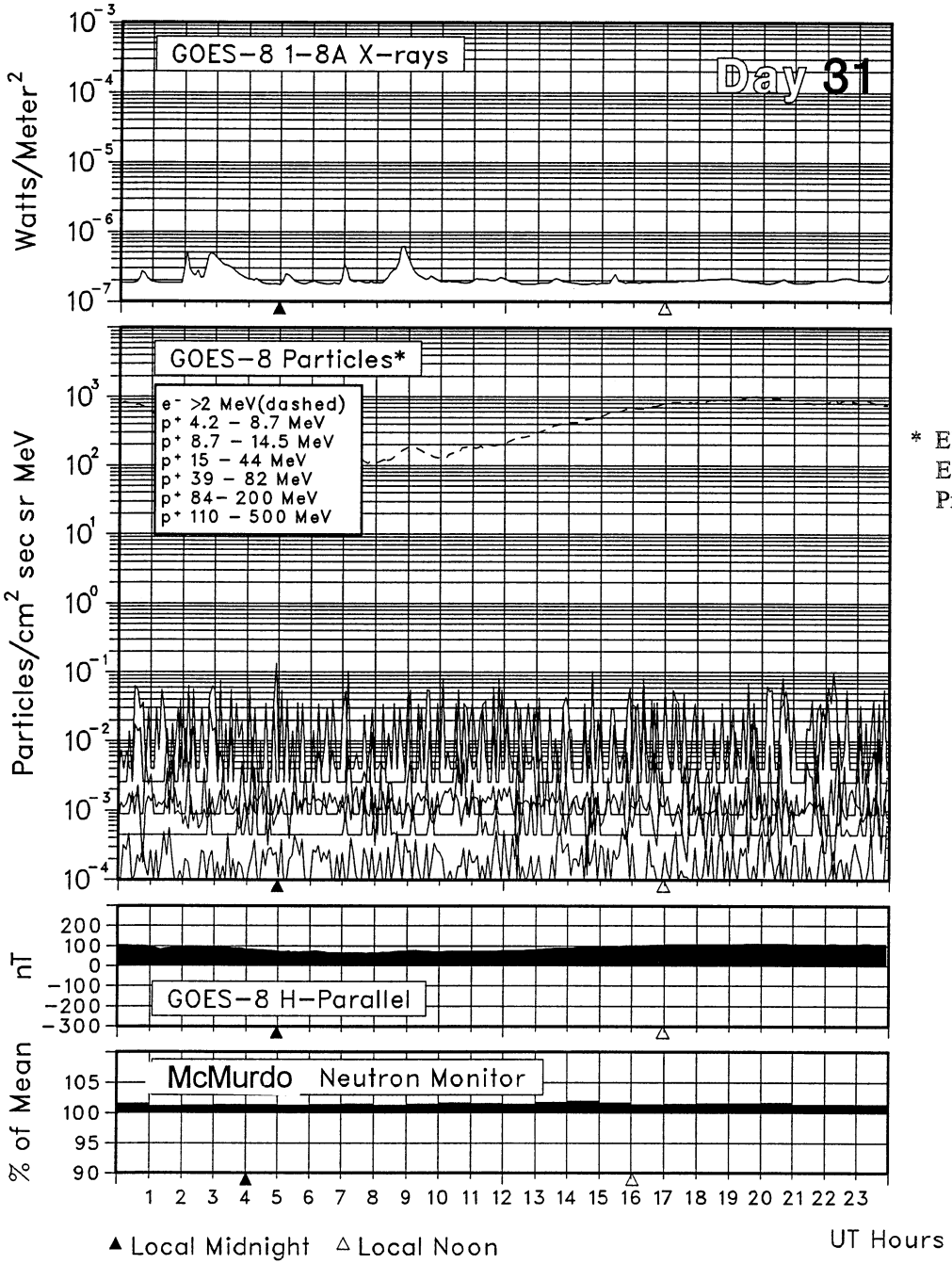

* Electron flux is divided by 10.
Electron units are Counts/cm^2 sec sr.
Protons are corrected for contamination.

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

DECEMBER 2002

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
335	01	30	150	146	15	200	S03	W67	0	0	0	01	Q	SOL: Eruptive
						202	N15	W16	0	0	0	01	Q	MAG: Active
						203	N09	E17	0	0	0	01	Q	PRO: Quiet
						204	N20	W02	0	0	0	01	Q	
						205	N19	E23	0	0	0	01	Q	
						207	S19	E31	0	0	0	01	Q	
						208	N10	E63	0	0	0	01	Q	
						209	S20	E62	1	0	0	01	Q	
						210	S09	W77	0	0	0	01	Q	
336	02	01	97	150	14	205	N19	E10	0	0	0	02	Q	SOL: Eruptive
						207	S19	E20	0	0	0	02	E	MAG: Active
						208	N10	E49	2	0	0	02	E	PRO: Quiet
						209	S21	E48	1	0	0	02	E	
						210	S08	W87	0	0	0	02	Q	
337	03	02	155	146	11	202	N13	W40	0	0	0	03	Q	SOL: Eruptive
						204	N16	W26	0	0	0	03	Q	MAG: Active
						205	N19	W03	0	0	0	03	Q	PRO: Quiet
						207	S20	E06	1	0	0	03	Q	
						208	N10	E35	2	0	0	03	E	
						209	S20	E35	0	0	0	03	E	
						211	S08	E04	0	0	0	03	Q	
						212	N13	E75	0	0	0	03	Q	
338	04	03	135	146	11	202	N12	W51	0	0	0	04	Q	SOL: Eruptive
						205	N20	W16	0	0	0	04	Q	MAG: Quiet
						207	S19	W06	2	0	0	04	Q	PRO: Quiet
						208	N11	E22	2	0	0	04	E	
						209	S19	E20	0	0	0	04	Q	
						212	N14	E62	0	0	0	04	Q	
						213	N15	E79	1	0	0	04	Q	
339	05	04	144	149	10	203	N07	W34	0	0	0	05	Q	SOL: Eruptive
						205	N20	W29	0	0	0	05	Q	MAG: Quiet
						207	S19	W21	1	0	0	05	Q	PRO: Quiet
						208	N10	E08	1	0	0	05	E	
						209	S19	E07	0	0	0	05	Q	
						212	N13	E49	1	0	0	05	Q	
						213	N14	E64	1	1	0	05	Q	
340	06	05	153	149	8	205	N20	W41	0	0	0	06	Q	SOL: Eruptive
						207	S20	W34	0	0	0	06	Q	MAG: Quiet
						208	N10	W06	0	0	0	06	E	PRO: Quiet
						209	S20	W07	0	0	0	06	Q	
						212	N12	E35	0	0	0	06	Q	
						213	N14	E50	0	0	0	06	E	
						214	N12	W27	0	0	0	06	Q	
						215	S18	E74	0	0	0	06	Q	
341	07	06	112	148	7	207	S20	W50	0	0	0	07	Q	SOL: Eruptive
						208	N09	W24	0	0	0	07	Q	MAG: Quiet
						209	S19	W26	0	0	0	07	Q	PRO: Quiet
						212	N12	E21	1	0	0	07	Q	
						213	N14	E38	0	0	0	07	Q	
						214	N12	W41	1	0	0	07	Q	
						215	S19	E59	0	0	0	07	Q	
342	08	07	106	151	15	207	S18	W67	0	0	0	08	Q	SOL: Eruptive
						208	N09	W38	0	0	0	08	Q	MAG: Quiet
						209	S20	W39	0	0	0	08	Q	PRO: Quiet
						212	N13	E08	0	0	0	08	Q	
						213	N14	E24	0	0	0	08	Q	
						214	N13	W55	0	0	0	08	Q	
						215	S18	E46	0	0	0	08	Q	
343	09	08	150	154	10	205	N18	W78	0	0	0	09	Q	SOL: Eruptive

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

DECEMBER 2002

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
						207	S17	W81	0	0	0	09	Q	MAG: Active
						208	N11	W51	0	0	0	09	Q	PRO: Quiet
						209	S18	W52	0	0	0	09	Q	
						212	N14	W05	0	0	0	09	Q	
						213	N14	E14	0	0	0	09	Q	
						214	N13	W70	1	0	0	09	Q	
						215	S18	E32	0	0	0	09	Q	
						216	S24	W39	0	0	0	09	Q	
						217	N12	E56	0	0	0	09	Q	
						218	S20	E68	1	0	0	09	Q	
344	10	09	189	156	5	205	N20	W88	0	0	0	10	Q	SOL: Eruptive
						207	S17	W94	0	0	0	10	Q	MAG: Quiet
						209	S18	W65	0	0	0	10	Q	PRO: Quiet
						212	N14	W18	0	0	0	10	Q	
						213	N14	E01	0	0	0	10	Q	
						214	N13	W83	0	0	0	10	Q	
						215	S18	E19	0	0	0	10	Q	
						216	S24	W52	0	0	0	10	Q	
						217	N12	E43	0	0	0	10	Q	
						218	S20	E55	0	0	0	10	Q	
						219	S05	W25	1	0	0	10	Q	
						220	S12	E47	0	0	0	10	E	
						221	N22	E61	0	0	0	10	Q	
345	11	10	142	161	7	209	S17	W79	0	0	0	11	Q	SOL: Eruptive
						212	N14	W31	0	0	0	11	Q	MAG: Quiet
						213	N15	W12	1	0	0	11	Q	PRO: Quiet
						215	S18	E04	0	0	0	11	Q	
						216	S23	W66	0	0	0	11	Q	
						217	N12	E29	0	0	0	11	Q	
						218	S18	E42	1	0	0	11	Q	
						219	S06	W38	0	0	0	11	Q	
						220	S12	E33	3	0	0	11	E	
						221	N23	E48	0	0	0	11	Q	
346	12	11	171	152	6	209	S17	W90	0	0	0	12	Q	SOL: Eruptive
						212	N13	W46	0	0	0	12	Q	MAG: Quiet
						213	N16	W28	0	0	0	12	Q	PRO: Quiet
						215	S18	W07	0	0	0	12	Q	
						217	N12	E17	0	0	0	12	Q	
						218	S19	E30	0	0	0	12	Q	
						219	S05	W51	0	0	0	12	Q	
						220	S12	E21	0	0	0	12	E	
						221	N23	E35	0	0	0	12	Q	
						222	S06	W03	0	0	0	12	Q	
347	13	12	129	153	6	213	N17	W41	0	0	0	13	Q	SOL: Eruptive
						215	S17	W21	0	0	0	13	Q	MAG: Quiet
						217	N14	E04	0	0	0	13	Q	PRO: Quiet
						218	S19	E17	0	0	0	13	Q	
						220	S12	E07	0	0	0	13	E	
						221	N23	E22	0	0	0	13	Q	
						222	S12	W16	0	0	0	13	Q	
						223	N23	E71	1	0	0	13	Q	
						224	S16	E70	0	0	0	13	E	
348	14	13	176	167	4	213	N18	W53	0	0	0	14	Q	SOL: Eruptive
						218	S18	E03	0	0	0	14	Q	MAG: Quiet
						220	S12	W06	1	0	0	14	E	PRO: Quiet
						221	N20	E12	0	0	0	14	Q	
						222	S13	W28	0	0	0	14	Q	
						223	N24	E60	2	0	0	14	E	
						224	S17	E61	2	0	0	14	E	
						225	N17	E66	0	0	0	14	E	
						226	S28	E51	8	0	0	14	Q	
						227	N05	E34	0	0	0	14	Q	

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Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
349	15	14	214	186	10	215	S18	W48	0	0	0	15	Q	SOL: Eruptive
						218	S18	W11	0	0	0	15	Q	MAG: Quiet
						220	S13	W18	1	0	0	15	E	PRO: Quiet
						221	N20	W01	0	0	0	15	Q	
						223	N23	E46	2	0	0	15	Q	
						224	S18	E49	1	0	0	15	E	
						225	N17	E51	3	0	0	15	E	
						226	S28	E39	10	0	0	15	E	
						227	N06	E21	0	0	0	15	Q	
						228	S14	E65	1	0	0	15	Q	
						229	N15	E63	4	0	0	15	E	
350	16	15	217	203	6	218	S18	W25	0	0	0	16	Q	SOL: Eruptive
						220	S12	W33	0	0	0	16	Q	MAG: Quiet
						223	N24	E34	0	0	0	16	Q	PRO: Quiet
						224	S18	E36	0	0	0	16	E	
						225	N16	E38	1	0	0	16	Q	
						226	S28	E25	5	0	0	16	E	
						227	N06	E08	0	0	0	16	Q	
						228	S15	E52	0	0	0	16	Q	
						229	N17	E51	3	0	0	16	E	
351	17	16	194	203	5	218	S17	W39	0	0	0	17	Q	SOL: Eruptive
						220	S12	W50	0	0	0	17	Q	MAG: Quiet
						223	N24	E21	0	0	0	17	Q	PRO: Quiet
						224	S15	E22	0	0	0	17	Q	
						225	N17	E23	1	1	0	17	E	
						226	S28	E12	8	1	0	17	E	
						227	N07	W07	2	1	0	17	E	
						228	S17	E37	0	0	0	17	Q	
						229	N18	E37	3	0	0	17	E	
352	18	17	252	213	4	218	S18	W49	0	0	0	18	Q	SOL: Active
						220	S13	W64	0	0	0	18	Q	MAG: Quiet
						223	N25	E08	1	0	0	18	Q	PRO: Quiet
						224	S14	E06	0	0	0	18	Q	
						225	N17	E11	1	0	0	18	E	
						226	S28	W01	7	1	0	18	E	
						227	N07	W20	6	0	0	18	E	
						229	N19	E24	1	0	0	18	E	
						230	S08	E59	0	0	0	18	Q	
353	19	18	261	197	4	218	S18	W63	0	0	0	19	Q	SOL: Active
						220	S13	W78	0	0	0	19	Q	MAG: Active
						223	N25	W06	0	0	0	19	Q	PRO: Quiet
						224	S14	W08	2	0	0	19	E	
						225	N17	W03	0	0	0	19	Q	
						226	S28	W15	5	1	0	19	E	
						227	N07	W34	0	0	0	19	Q	
						228	S17	E10	0	0	0	19	Q	
						229	N19	E12	0	0	0	19	E	
						230	S08	E45	1	0	0	19	Q	
354	20	19	225	193	18	218	S18	W79	0	0	0	20	Q	SOL: Active
						220	S13	W91	0	0	0	20	Q	MAG: Active
						223	N25	W19	1	0	0	20	Q	PRO: Quiet
						224	S14	W21	0	0	0	20	Q	
						225	N17	W18	0	0	0	20	Q	
						226	S28	W28	8	0	0	20	E	
						227	N07	W47	0	0	0	20	Q	
						228	S17	W03	0	0	0	20	Q	
						229	N19	W03	2	1	0	20	E	
						230	S08	E32	1	0	0	20	Q	
						231	S25	E13	0	0	0	20	Q	
355	21	20	203	197	13	223	N25	W32	0	0	0	21	Q	SOL: Active

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Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
						224	S14	W32	0	0	0	21	Q	MAG: Active
						225	N17	W33	0	0	0	21	Q	PRO: Quiet
						226	S28	W41	8	1	0	21	E	
						227	N07	W63	0	0	0	21	Q	
						228	S17	W16	0	0	0	21	Q	
						229	N19	W16	0	0	0	21	E	
						230	S08	E19	3	0	0	21	E	
						231	S25	E00	0	0	0	21	Q	
356	22	21	199	184	19	223	N25	W45	0	0	0	22	Q	SOL: Active
						224	S14	W45	0	0	0	22	Q	MAG: Active
						225	N17	W46	0	0	0	22	Q	PRO: Quiet
						226	S28	W54	6	0	0	22	E	
						227	N07	W76	0	0	0	22	Q	
						229	N19	W29	2	0	0	22	Q	
						230	S08	E06	0	0	0	22	E	
						231	S25	W13	0	0	0	22	Q	
						232	N13	W08	0	0	0	22	Q	
357	23	22	168	172	11	223	N25	W58	1	1	0	23	Q	SOL: Active
						224	S14	W58	1	0	0	23	Q	MAG: Active
						226	S28	W67	0	0	0	23	E	PRO: Quiet
						229	N19	W42	0	0	0	23	Q	
						230	S08	W07	0	0	0	23	E	
						231	S25	W26	0	0	0	23	Q	
						232	N13	W21	0	0	0	23	Q	
358	24	23	160	159	21	223	N22	W67	0	0	0	24	Q	SOL: Eruptive
						224	S15	W68	2	0	0	24	Q	MAG: Active
						225	N18	W62	0	0	0	24	Q	PRO: Quiet
						226	S28	W78	1	0	0	24	E	
						229	N22	W51	2	0	0	24	Q	
						230	S09	W21	0	0	0	24	E	
						231	S25	W39	1	0	0	24	Q	
						233	N11	E42	0	0	0	24	Q	
359	25	24	119	147	17	223	N24	W83	0	0	0	25	Q	SOL: Eruptive
						224	S14	W81	4	0	0	25	Q	MAG: Quiet
						226	S28	W89	0	0	0	25	E	PRO: Quiet
						229	N25	W63	0	0	0	25	Q	
						230	S08	W34	3	0	0	25	E	
						231	S25	W53	0	0	0	25	Q	
						233	N13	E27	0	0	0	25	Q	
						234	N18	E73	0	0	0	25	Q	
360	26	25	77	132	14	224	S14	W92	0	0	0	26	Q	SOL: Eruptive
						229	N26	W75	0	0	0	26	Q	MAG: Quiet
						230	S08	W50	1	0	0	26	Q	PRO: Quiet
						231	S25	W62	0	0	0	26	Q	
						234	N17	E58	0	0	0	26	Q	
						235	N13	E28	0	0	0	26	Q	
361	27	26	62	127	14	229	N27	W90	0	0	0	27	Q	SOL: Eruptive
						230	S07	W63	2	0	0	27	E	MAG: Quiet
						231	S24	W77	0	0	0	27	Q	PRO: Quiet
						234	N17	E45	0	0	0	27	Q	
						235	N14	E15	2	0	0	27	Q	
362	28	27	63	117	26	230	S08	W77	1	0	0	28	Q	SOL: Eruptive
						231	S25	W89	0	0	0	28	Q	MAG: Active
						234	N18	E32	0	0	0	28	Q	PRO: Quiet
						235	N13	E05	1	0	0	28	Q	
						236	N17	W27	1	0	0	28	Q	
363	29	28	70	117	17	230	S08	W91	0	0	0	29	Q	SOL: Quiet
						234	N19	E19	0	0	0	29	Q	MAG: Active
						236	N16	W41	0	0	0	29	Q	PRO: Quiet

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Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
						237	S26	E00	0	0	0	29	Q	
						238	N09	E15	0	0	0	29	Q	
364	30	29	51	115	12	234	N18	E05	0	0	0	30	Q	SOL: Eruptive
						235	N14	W22	0	0	0	30	Q	MAG: Quiet
						236	N16	W53	0	0	0	30	Q	PRO: Quiet
						239	S10	E37	0	0	0	30	Q	
365	31	30	44	114	14	234	N18	W08	1	0	0	31	Q	SOL: Quiet
						235	N14	W35	0	0	0	31	Q	MAG: Quiet
						239	S10	E24	0	0	0	31	Q	PRO: Quiet

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

Magnetic (MAG) Geoadvice

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

Proton (PRO) Geoadvice

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

STRATWARM ALERTS

STRATALERT BERLIN 13 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
COLD CONDITIONS IN THE LOWER STRATOSPHERE OVER THE ATLANTIC SECTOR. MINOR WARMING IN THE UPPER STRATOSPHERE. TEMPERATURE INCREASE AT 3HPA FROM -34C TO +2C OVER THE CASPIAN SEA WITHIN ONE WEEK.

STRATALERT BERLIN 14 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
COLD CONDITIONS IN THE LOWER STRATOSPHERE OVER THE ATLANTIC SECTOR.
MINOR WARMING IN THE UPPER STRATOSPHERE, CONTINUING.

STRATALERT BERLIN 15 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
COLD CONDITIONS IN THE LOWER STRATOSPHERE OVER GREENLAND AND NORTHERN EUROPE.
MINOR WARMING IN THE UPPER STRATOSPHERE, CONTINUING.

STRATALERT BERLIN 16 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
COLD CONDITIONS IN THE LOWER STRATOSPHERE OVER GREENLAND AND NORTHERN EUROPE.
MINOR WARMING IN THE UPPER STRATOSPHERE, CONTINUING.

STRATALERT BERLIN 17 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
COLD CONDITIONS IN THE LOWER STRATOSPHERE OVER GREENLAND AND NORTHERN EUROPE.
MINOR WARMING IN THE UPPER STRATOSPHERE, CONTINUING.

STRATALERT BERLIN 18 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
COLD CONDITIONS PREVAIL IN THE LOWER STRATOSPHERE. PSCS MAY FORM FROM SOUTHEAST GREENLAND TO SCANDANAVIA.

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STRATALERT BERLIN 19 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
TEMPERATURE GRADIENT AT 1 HPA REVERSED. COLD CONDITIONS IN THE LOWER STRATOSPHERE PREVAIL.

STRATALERT BERLIN 20 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
MINOR WARMING IN THE UPPERMOST LEVEL, TEMPERATURE GRADIENT AT 1 HPA REVERSED. COLD CODITIONS IN THE LOWER STRATOSPHERE PREVAIL.

STRATALERT BERLIN 21 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
COLD CONDITIONS IN THE LOWER STRATOSPHERE, BUT MINOR WARMING IN THE UPPER LEVELS, TEMPERATURE GRADIENT AT 1 HPA REVERSED.

STRATALERT BERLIN 22 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
COLD CONDITIONS IN THE LOWER STRATOSPHERE, BUT MINOR WARMING IN THE UPPER LEVELS.

STRATALERT BERLIN 23 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
COLD CONDITION CONTINUES IN THE LOWER STRATOSPHERE, INTENSE WARMING DEVELOPS IN THE UPPER STRATOSPHERE.

STRATALERT BERLIN 24 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
COLD CONDITIONS CONTINUE IN THE LOWER STRATOSPHERE, CENTERED OVER THE EUROPEAN ARCTIC; INTENSE WARMING CONTINUES IN THE UPPER STRATOSPHERE CENTERED OVER THE NORTH ATLANTIC/EAST GREENLAND. THE NEXT ALERT WILL BE AVAILABLE ON 26 DECEMBER.

STRATALERT BERLIN 26 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
COLD CONDITIONS OVER THE EUROPEAN ARCTIC CONTINUE IN THE LOWER STRATOSPHERE. INTENSE WARMING CONTINUES IN THE UPPER STRATOSPHERE CENTERED OVER THE NORTH ATLANTIC/EUROPE. AT 10 HPA AND ABOVE A TEMPERATURE INCREASE OF MORE THAN 40 KELVIN DURING ONE WEEK IS OBSERVED OVER THE URAL (10 HPA) AND NORTHERN EUROPE; REVERSED TEMPERATURE GRADIENT BETWEEN 60N AND THE NORTH POLE EXPECTED WITHIN THE NEXT 5 DAYS.

STRATALERT BERLIN 27 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
STILL COLD CONDITIONS OVER THE EUROPEAN ARCTIC IN THE LOWER STRATOSPHERE. INTENSE WARMING CONTINUES IN THE UPPER STRATOSPHERE CENTERED OVER THE NORTH ATLANTIC/EUROPE. REVERSED TEMPERATURE GRADIENT BETWEEN THE NORTH POLE AND 60N EXPECTED WITHIN THE NEXT 5 DAYS.

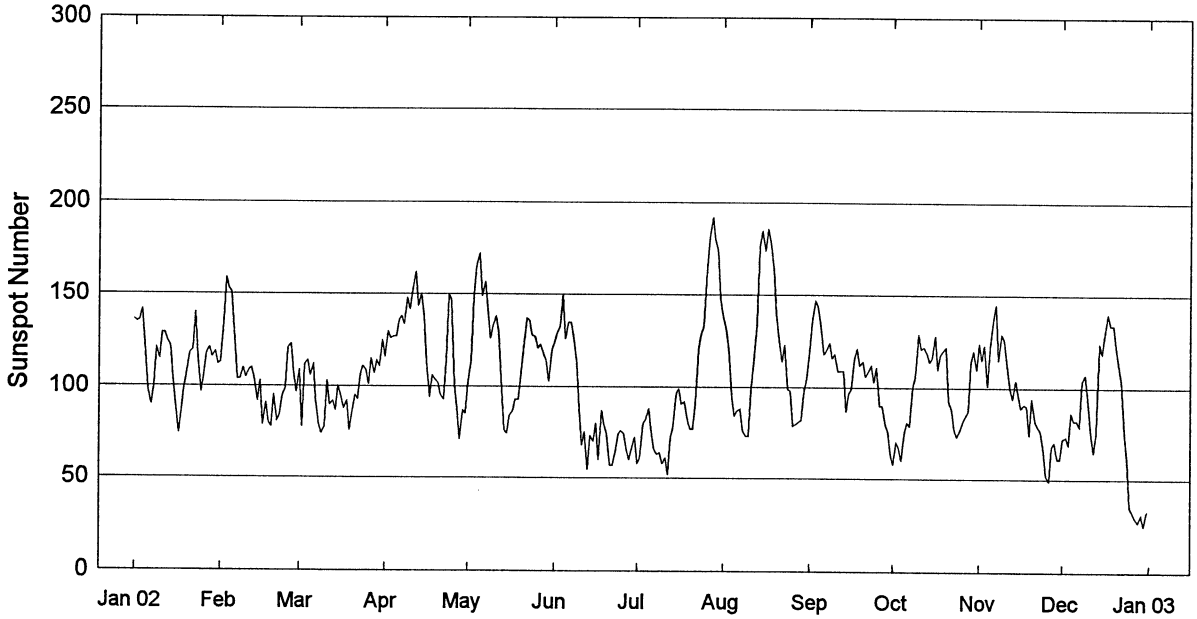
STRATALERT BERLIN 28 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
STILL COLD CONDITIONS OVER THE EUROPEAN ARCTIC IN THE LOWER STRATOSPHERE. INTENSE WARMING CONTINUES IN THE UPPER STRATOSPHERE CENTERED OVER THE NORTH ATLANTIC/EUROPE. REVERSED TEMPERATURE GRADIENT BETWEEN THE NORTH POLE AND 60N AT 1 HPA AND EXPECTED TO EXTEND FROM 10 TO 1 HPA WITHIN THE NEXT 5 DAYS.

STRATALERT BERLIN 29 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
INTENSE WARMING CONTINUES IN THE UPPER AND MID STRATOSPHERE, LOWER STRATOSPHERE REMAINS COLD. WITHIN THE NEXT THREE DAYS: EASTERLY WINDS AT 60N IN 1 HPA; AN ELONGATION OF THE POLAR VORTEX WITH TWO CENTRES IN THE LOWER AND MID-STRATOSPHERE.

STRATALERT BERLIN 30 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
VERY STRONG WARMING CONTINUES IN THE UPPER AND MIDDLE STRATOSPHERE. TEMPERATURE GRADIENT BETWEEN 60N AND THE POLE REVERSED DOWN TO 10 HPA AND NET EASTERLY WINDS AT 60N AT 1 HPA.

STRATALERT BERLIN 31 DECEMBER 2002 1400 UTC STRATALERT EXISTS.
VERY STRONG WARMING CONTINUES IN THE UPPER AND MIDDLE STRATOSPHERE. TEMPERATURE GRADIENT BETWEEN 60N AND THE POLE REVERSED DOWN TO ALMOST 20 HPA AND NET EASTERLY WINDS AT 60N AT 1 HPA.

International Relative Sunspot Numbers
Jan 2002 - Dec 2002

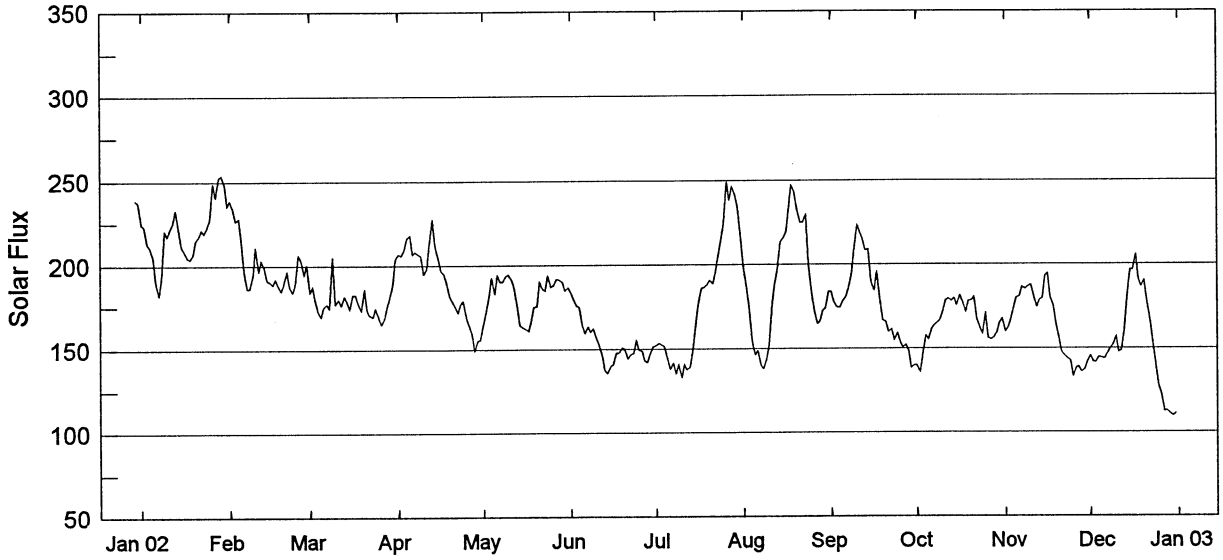


Day	Jan 02	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct*	Nov*	Dec*
1	136	113	109	116	102	124	58	137	120	58	124	72
2	135	135	78	130	114	129	61	132	136	70	115	73
3	136	159	112	126	149	133	80	121	147	67	123	69
4	142	153	114	127	166	150	82	95	144	60	101	86
5	118	151	106	127	172	126	88	84	132	76	122	82
6	98	125	112	136	149	135	75	87	118	81	137	82
7	90	104	93	138	157	135	66	88	120	79	145	79
8	100	104	79	134	142	127	63	76	124	101	115	104
9	121	110	74	148	126	113	64	73	116	106	129	107
10	115	105	78	142	133	88	58	73	118	129	126	94
11	129	109	103	152	138	68	61	99	109	121	114	74
12	129	110	90	162	130	75	52	117	109	122	100	65
13	124	104	92	144	104	55	72	134	109	119	94	75
14	122	92	87	150	76	73	78	177	87	114	104	124
15	104	103	100	138	74	70	96	185	97	116	96	119
16	87	79	94	113	84	80	99	174	99	128	89	129
17	74	91	88	94	86	60	91	186	116	110	91	140
18	86	80	92	106	93	87	92	179	121	118	90	134
19	99	78	76	104	93	79	83	164	112	120	74	134
20	109	95	85	102	107	74	77	140	114	122	94	124
21	118	81	95	95	121	57	77	127	106	93	82	112
22	120	84	93	93	137	57	91	114	108	88	79	104
23	140	94	106	114	136	65	121	123	112	77	77	75
24	115	99	111	150	128	74	129	99	103	73	67	61
25	97	121	109	147	127	76	133	98	111	77	52	35
26	106	123	101	101	121	74	164	79	90	81	49	32
27	118	107	115	88	123	66	182	80	90	84	68	29
28	121	97	107	71	119	60	192	81	80	87	70	27
29	116		114	87	114	66	181	82	76	114	61	31
30	119		111	85	103	72	174	97	64	120	61	25
31	112		125		120		148	106		110		33
Mean	114.1	107.4	98.4	120.7	120.8	88.3	99.6	116.4	109.6	97.5	95.0	81.6

* = Provisional.

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

Adjusted to 1 AU



Day	Jan 02	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	224.5	238.5	184.3	206.7	164.9	183.9	152.3	198.3	183.8	140.1	159.7	145.5
2	223.5	233.7	187.6	205.9	171.7	180.0	153.5	185.7	176.9	136.0	162.1	142.0
3	213.0	226.3	179.6	209.4	182.0	175.4	152.4#	172.7	174.4	146.1	166.5	141.8
4	211.0	228.1	172.0	216.3	192.7	174.7	151.3	155.3	174.2	157.6	174.4	144.5
5	205.2	214.5	169.4	217.6	183.2	163.7	143.5	146.0	178.1	155.1	180.0	144.4
6	190.1	196.9	175.0	206.7	194.3	159.1	138.0	148.8	180.9	161.6	181.2	143.9
7	182.4	186.6	177.0	208.4	190.3	163.1	141.5	140.1	185.6	163.5	186.4	146.6
8	192.6	186.4	174.2	206.8	190.2	159.9	135.3	138.3	194.4	165.1	185.5	149.8
9	220.9	194.1	204.8x	205.8	193.7	161.9	140.9	144.0	209.0	166.8	187.0	151.6
10	217.3	210.9	176.9	195.1	194.8	156.2	133.1	152.4	223.5	171.4	187.7	156.5
11	221.4	196.6	180.0	198.3	191.8	152.4	141.0	176.9	219.0	178.7	181.0	147.7
12	225.7	203.1	176.2	213.0	187.1	146.2	137.7	188.8	215.1	179.7	174.6	148.4
13	232.9	198.5	182.1	227.3	175.6	137.6	139.4	196.8	208.6	178.3	178.6	161.8
14	221.6	191.3	178.6	211.6	164.2	135.6	148.6	213.5	209.2	180.2	180.2	180.1
15	211.2	190.3	174.0	204.7	162.7	139.7	164.8#	215.7	189.9	175.7	193.2	196.6
16	209.1	188.9	182.7	197.2	162.0	141.0	177.2	219.1	184.5	181.4	194.8	196.5
17	205.0	192.0	182.7	195.0	160.7	147.5	185.9	232.3	195.9	177.7	180.5	205.8
18	203.8	188.4	176.5	189.8	166.8	147.5	186.6	246.9	178.4	171.3	174.8	190.6
19	206.9	185.1	173.3	181.4	175.0	150.5	188.3	242.6	166.7	178.1	164.3	186.7
20	215.2	189.1	186.3	179.0	175.4	149.8	190.7	232.8	165.8	178.7	155.3	190.3
21	217.5	196.7	172.8	175.1	190.4	144.2	188.7	225.0	159.8	180.8	147.2	177.9
22	221.5	187.9	170.4	171.7	185.6	146.6	195.8	225.1	161.1	167.7	145.5	166.4
23	219.4	184.2	169.4	177.2	184.8	147.5	204.6	229.5	154.8	161.9	143.8	153.7
24	223.6	188.9	174.3	178.9	193.9	155.3	215.0	199.8	158.9	158.5	142.5	142.5
25	227.6	206.4	169.1	169.3	187.4	149.5	224.5	182.4	154.2	170.9	133.2	127.6
26	248.7	203.5	164.9	164.7	188.0	148.6	249.1	172.2	150.6	156.1	138.5	123.2
27	240.5	194.9	168.4	159.0	191.6	143.2	238.0	164.7	152.2	155.2	138.8	112.7
28	252.0	200.4	175.6	149.2	191.4	141.9	246.2	166.4	149.1	156.3	136.0	113.1
29	253.2		180.8	155.2	189.8	147.5	241.1	172.6	138.6	159.4	137.5	111.0
30	248.8		188.2	155.6	185.1	151.4	234.1	173.5#	140.1	165.3	142.1	110.1
31	235.5		204.0		187.0		214.8	183.7		167.7		111.3
Mean	220.1	200.1	178.4	191.1	182.4	153.4	179.2	188.4	177.8	165.9	165.1	152.3

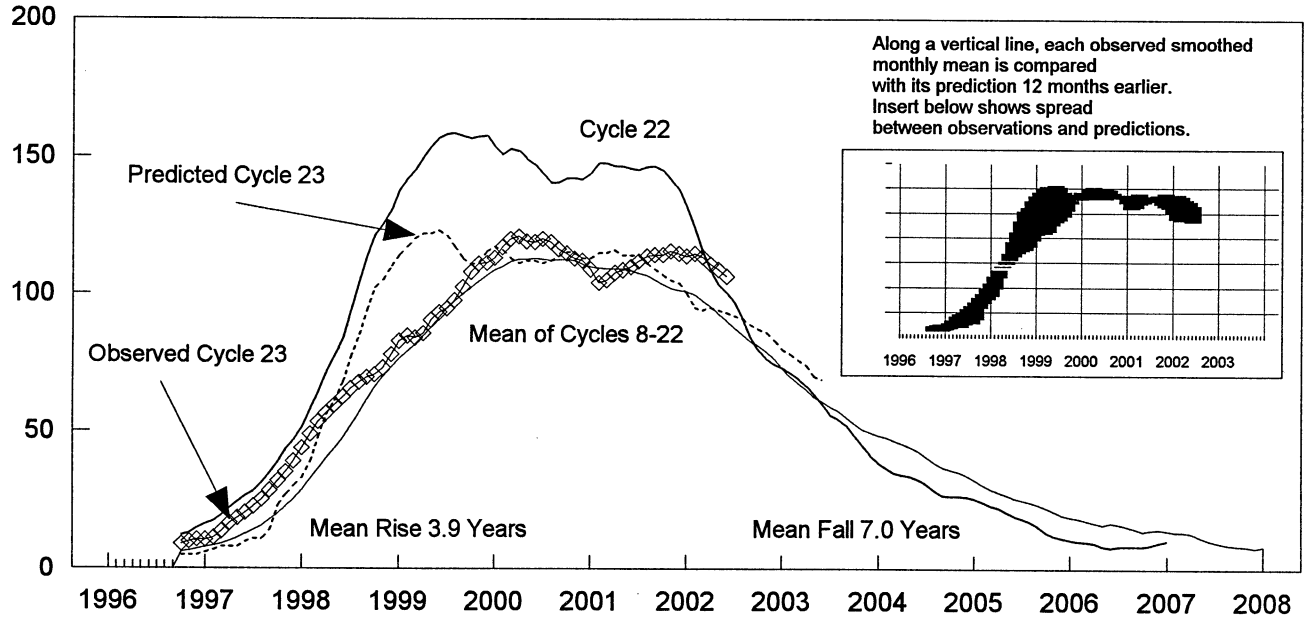
NOTE: # 1700 or1800UT reading - burst in progress (IP) at 2000UT; x Burst IP at 2000UT.

DAILY SOLAR INDICES
December 2002

Day	Day of Year	Bartels Cycle Day	Sunspot Numbers Int	Sunspot Numbers Amer	Obs Flux Penticton (2800)	SGMR (15400)	SGMR (8800)	SGMR (4995)	Penticton (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
							-----Solar Flux Adjusted to 1 Astronomical Unit--------							
1	335	19	72	75	149.6	547	311	192	145.5	138	108	53	35	26
2	336	20	73	74	146.1	532	301	185	142.0	130	107	50	28	22
3	337	21	69	77	145.9	546	319	185	141.8	137	109	52	35	26
4	338	22	86	76	148.7	542	304	185	144.5	141	107	52	34	33
5	339	23	82	83	148.7	526	301	183	144.4	138	112	51	32	27
6	340	24	82	90	148.2	485	292	178	143.9	141	111	51	33	24
7	341	25	79	89	151.1	537	305	185	146.6	137	113	55	37	30
8	342	26	104	102	154.4	544	298	184	149.8	142	112	50	35	27
9	343	27	107	109	156.3	552	325	199	151.6	149	116	52	33	25
10	344	1	94	98	161.4	551	312	196	156.5	150	117	56	36	26
11	345	2	74	66	152.3	532	304	192	147.7	140	113	55	33	25
12	346	3	65	73	153.1	508	304	190	148.4	138	112	49	36	24
13	347	4	75	82	166.9	539	298	197	161.8	146	117	51	38	20
14	348	5	124	124	185.9	474	266	192	180.1	160	121	48	36	20
15	349	6	119	136	203.0	554	323	238	196.6	187	133	56	40	27
16	350	7	129	142	202.9	548	354	246	196.5	202	140	58	42	27
17	351	8	140	156	212.5	567	331	241	205.8	184	140	59	59	---
18	352	9	134	152	196.9	553	325	228	190.6	191	139	54	47	---
19	353	10	134	148	192.9	557	314	218	186.7	176	136	50	44	38
20	354	11	124	151	196.6	507	297	219	190.3	177	135	48	40	---
21	355	12	112	128	183.9	520	301	207	177.9	174	130	52	44	25
22	356	13	104	110	172.0	556	325	215	166.4	163	121	46	32	19
23	357	14	75	86	158.9	539	308	198	153.7	145	105	47	34	19
24	358	15	61	61	147.3	549	307	187	142.5	136	100	48	33	19
25	359	16	35	40	131.9	506	298	182	127.6	122	91	45	32	19
26	360	17	32	33	127.4	466	183	122	123.2	109	75	47	32	17
27	361	18	29	33	116.5	526	284	162	112.7	102	85	45	30	17
28	362	19	27	27	116.9	531	283	156	113.1	103	86	47	30	16
29	363	20	31	36	114.8	532	273	156	111.0	105	86	48	33	20
30	364	21	25	29	113.8	524	291	154	110.1	106	85	48	34	20
31	365	22	33	35	115.1	493	277	154	111.3	105	86	48	34	18
MEAN			81.6	87.7	157.2	530	300	191	152.3	144	111	50	36	23

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

Cycle 23 Smoothed Sunspot Numbers: Observed and Predicted



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

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
1994	37	35	34	34	33	31	29	27	27	27	26	26	31
1995	24	23	22	21	19	18	17	15	13	12	11	11	17
1996	10	10	10	9	8*	9	8	8	8	9**	10	10	8
1997	11	11	14	17	18	20	23	25	28	32	35	39	23
1998	44	49	53	57	59	63	65	68	69	71	73	78	62
1999	83	85	84	85	90	93	94	98	102	108	111	111	95
2000	113	117	120	121+	119	119	120	119	116	115	113	112	107
2001	109	104	105	108	109	110	112	114	114	114	115	115	111
2002	114	115	113	111	109	106	103	100	97	94	91	87	103
							(2)	(5)	(8)	(11)	(11)	(10)	(4)
2003	83	79	77	74	71	69	67	65	63	60	58	57	69
	(9)	(8)	(8)	(9)	(10)	(10)	(11)	(11)	(12)	(13)	(15)	(17)	(11)

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

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

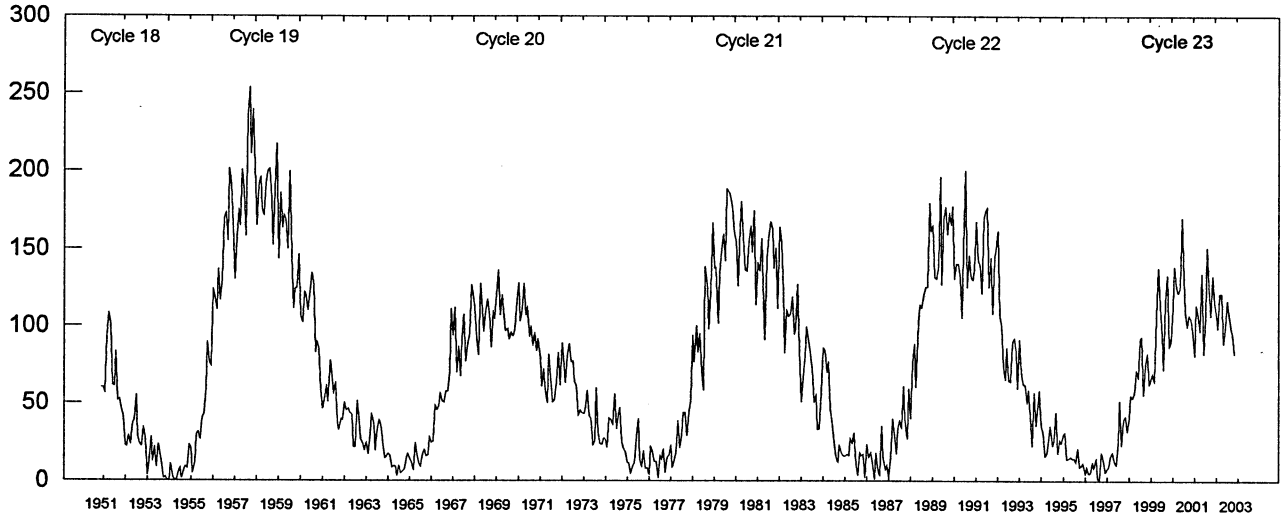
+ April 2000 marks Cycle 23 maximum.

Observed and Predicted Numbers. For the end of Cycle 22, and the rise and decline of Cycle 23, the table above lists observed smoothed sunspot numbers up to the one that includes the most recent monthly mean. We based these smoothed values on final monthly means through Sept 2002 and on provisional numbers thereafter. Table entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 9 in the Jul 1987 supplement to *Solar-Geophysical Data.*) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval. Subtracting the number from the predicted value generates the lower limit. Consider, for example, the June 2003 prediction. There exists a 90% chance that in June 2003, the actual smoothed number will fall somewhere between 59 and 79.

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 - Dec 2002



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8	69.4
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3	31.5
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5	13.9
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6	4.4 m
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9	38.0
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1	141.7
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4	190.2 M
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6	184.8
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0	159.0
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6	122.3
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.8	63.6	37.7	32.6	39.9	53.9
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2	37.6
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9	27.9
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1	10.2 m
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0	15.1
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4	47.0
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4	93.8
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8	105.9 M
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9	105.5
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5	104.5
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2	66.6
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3	68.9
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3	38.0
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5	34.5
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8	15.5
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3	12.6 m
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	27.5
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	92.5
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	155.4 M
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4	154.6
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	140.4
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.7	98.1	127.0	115.9
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.8	33.3	33.4	66.6
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7	45.9
1985	16.5	15.9	17.2	16.2	27.5	24.2	30.7	11.1	3.9	18.6	16.2	17.3	17.9
1986	2.5	23.2	15.1	18.5	13.7	1.1	18.1	7.4	3.8	35.4	15.2	6.8	13.4 m
1987	10.4	2.4	14.7	39.6	33.0	17.4	33.0	38.7	33.9	60.6	39.9	27.1	29.4
1988	59.0	40.0	76.2	88.0	60.1	101.8	113.8	111.6	120.1	125.1	125.1	179.2	100.2
1989	161.3	165.1	131.4	130.6	138.5	196.2	126.9	168.9	176.7	159.4	173.0	165.5	157.6 M
1990	177.3	130.5	140.3	140.3	132.2	105.4	149.4	200.3	125.2	145.5	131.4	129.7	142.6
1991	136.9	167.5	141.9	140.0	121.3	169.7	173.7	176.3	125.3	144.1	108.2	144.4	145.7
1992	150.0	161.1	106.7	99.8	73.8	65.2	85.7	64.5	63.9	88.7	91.8	82.6	94.3
1993	59.3	91.0	69.8	62.2	61.3	49.8	57.9	42.2	22.4	56.4	35.6	48.9	54.6
1994	57.8	35.5	31.7	16.1	17.8	28.0	35.1	22.5	25.7	44.0	18.0	26.2	29.9
1995	24.2	29.9	31.1	14.0	14.5	15.6	14.5	14.3	11.8	21.1	9.0	10.0	17.5
1996	11.5	4.4	9.2	4.8	5.5	11.8	8.2	14.4	1.6	0.9	17.9	13.3	8.6 m
1997	5.7	7.6	8.7	15.5	18.5	12.7	10.4	24.4	51.3	22.8	39.0	41.2	21.5
1998	31.9	40.3	54.8	53.4	56.3	70.7	66.6	92.2	92.9	55.5	74.0	81.9	64.3
1999	62.0	66.3	68.8	63.7	106.4	137.7	113.5	93.7	71.5	116.7	133.2	84.6	93.2
2000	90.1	112.9	138.5	125.5	121.6	124.9	170.1	130.5	109.7	99.4	106.8	104.4	119.6 M
2001	95.6	80.6	113.5	107.7	96.6	134.0	81.8	106.4	150.7	125.5	106.5	132.2	111.0
2002	114.1	107.4	98.4	120.7	120.8	88.3	99.9	116.4	109.3	97.5	95.0	81.6	104.1

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

Hα SOLAR FLARES

DECEMBER 2002

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	01	0352	0358	0402	S21	E61	10209			10	SF	C 1.7						7.2E-04
LEAR		0355	0356	0406	S21	E61	10209	12	5.8	11	SF		3	E		42		
GOES		0528	0541	0554						26		C 1.3						1.9E-03
GOES		0955	0959	1005						10		B 7.1						3.9E-04
RAMY		1229E	1238	1254	N10	E50	10208	12	5.3	25D	SF		3	E		31		F
GOES		1235	1238	1240	N10	E50	10208			5	SF	C 1.0						2.7E-04
GOES		1310	1347	1405						55		C 1.1						2.7E-03
GOES		1519	1528	1533	N10	E49	10208			14	SF	C 5.5						3.0E-03
RAMY		1525E	1533	1539	N10	E49	10208	12	5.3	14D	SF		3	E		60		F
GOES	02	0152	0156	0204	N10	E44	10208			12	1N	C 2.4						1.3E-03
LEAR		0155	0157	0219	N10	E44	10208	12	5.4	24	1N		3	E		102		FE
GOES		0930	0933	0936						6		B 9.4						2.7E-04
GOES		1642	1647	1652						10		B 7.7						3.6E-04
GOES		1919	1927	1933	N09	E32	10208			14	SF	C 9.5						4.5E-03
RAMY		1927E	1929U	1958	N09	E32	10208	12	5.2	31D	SF		3	E		52		F
GOES		2028	2033	2037	S19	E09	10207			9	SF	C 1.8						7.4E-04
RAMY		2041E	2041U	2104D	S19	E09	10207	12	3.5	23D	SF		2	E		21		F
GOES	03	0811	0818	0823	N09	E25	10208			12	SN	C 8.3						3.5E-03
LEAR		0814	0817	0842	N09	E25	10208	12	5.2	28	SN		3	E		92		FE
GOES		1259	1306	1313						14		C 1.2						8.3E-04
RAMY		1317	1319	1323	N16	E83		12	9.8	6	SF		3	E		16		
RAMY		1334	1336	1350	S18	W06	10207	12	3.1	16	SF		3	E		31		F
RAMY		1741	1741	1751	N10	E19	10208	12	5.2	10	SF		3	E		13		F
RAMY		2013	2019	2030	S21	W04	10207	12	3.5	17	SF		3	E		21		
GOES	04	0333	0337	0339	S18	W13	10207			6	SF	B 6.1						2.0E-04
LEAR		0334	0334	0342	S18	W13	10207	12	3.1	8	SF		3	E		27		FH
GOES		0553	0604	0620	N09	E12	10208			27	SF	B 7.8						1.1E-03
LEAR		0555	0557	0614	N09	E12	10208	12	5.1	19	SF		3	E		19		F
GOES		0639	0654	0709						30		B 9.1						1.4E-03
GOES		1627	1632	1636	N16	E54	10212			9	SF	B 8.4						3.8E-04
HOLL		1631	1631	1637	N16	E54	10212	12	8.8	6	SF		3	E		12		F
HOLL		2240	2253	2257D	N16	E61	10213	12	9.6	17D	2N		3	E		363		
GOES		2241	2249	2257	N16	E61	10213			16	2N	M 2.5						1.4E-02
GOES	05	0439	0450	0502						23		C 1.1						1.3E-03
GOES		1108	1112	1116						8		B 7.3						3.2E-04
GOES		2201	2206	2212						11		C 1.0						5.9E-04
LEAR	06	0546	0547	0549	N12	E33	10212	12	8.7	3	SF		4	E		23		F
GOES		0850	0856	0901	N12	W34	10214			11	SF	C 2.1						9.1E-04
LEAR		0854	0855	0903	N12	W34	10214	12	3.8	9	SF		3	E		47		F
GOES		1035	1046	1059						24		C 1.7						1.7E-03
GOES		2230	2237	2246						16		B 8.6						6.9E-04
GOES		2356	2405	2405						9		B 8.4						3.7E-04
GOES	07	0708	0712	0717						9		B 9.1						4.0E-04
GOES		0955	1000	1005						10		C 2.1						8.1E-04
GOES		1106	1116	1129						23		B 7.4						8.9E-04
GOES		1752	1757	1810						18		B 7.1						6.5E-04
GOES		1846	1851	1856						10		C 1.0						5.3E-04
LEAR	08	0040	0041	0050	S13	E76		12	13.8	10	SF		3	E		26		
LEAR		0240	0240	0247	S13	E75		12	13.8	7	SF		3	E		18		
GOES		0357	0401	0404						7		C 1.0						3.7E-04
GOES		0821	0825	0830	N11	W59	10214			9	SF	C 2.5						9.7E-04
LEAR		0824	0825	0838	N11	W59	10214	12	3.9	14	SF		3	E		59		F
LEAR		0915	0916	0922	S12	E70		12	13.6	7	SF		3	E		13		
GOES		1639	1643	1645						6		B 8.4						2.7E-04
GOES		2318	2326	2336	S19	E70	10220			18	SF	C 2.5						2.0E-03
LEAR		2321	2331	2335	S19	E70	10218	12	14.3	14	SF		1	E		17		
LEAR	09	0402	0404	0429	S08	W13		12	8.2	27	SF		3	E		28		FH
GOES		0627	0632	0636						9		C 1.5						7.8E-04
GOES		1212	1217	1302						50		C 1.1						3.1E-03
GOES		1708	1713	1736						28		C 1.9						2.9E-03

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
GOES	09	1955	2000	2006						11		C 2.4						1.1E-03
GOES		2134	2137	2141						7		C 4.1						1.3E-03
LEAR	10	0126	0130	0139	S11	E47	10220	12	13.6	13	SF		3	E		34		FH
GOES		0127	0132	0137	S11	E47	10220			10	SF	C 5.5						2.9E-03
GOES		0353	0359	0401	S11	E46	10220			8	SF	C 2.9						1.3E-03
LEAR		0354	0356	0405	S11	E46	10220	12	13.6	11	SF		3	E		34		
LEAR		0453	0500	0524	S18	E54	10218	12	14.3	31	SF		3	E		45		F
LEAR		0518	0518	0523	N15	W05	10213	12	9.8	5	SF		3	E		10		
GOES		1057	1102	1108						11		C 2.1						1.3E-03
GOES		1219	1226	1231						12		M 1.1						4.8E-03
GOES		1715	1722	1727						12		C 2.1						1.2E-03
GOES		1932	1936	1940	S11	E36	10220			8	SF	C 2.6						1.1E-03
RAMY		1934E	1934U	2015D	S11	E36	10220	12	13.5	41D	SF		3	E		18		F
GOES	11	0600	0607	0614						14		C 2.1						1.5E-03
GOES		1402	1410	1419						17		C 7.1						5.6E-03
GOES		1655	1706	1715						20		C 1.9						2.1E-03
GOES		1941	1955	2002						21		C 2.3						2.4E-03
GOES	12	0802	0817	0832						30		C 4.2						5.1E-03
GOES		1121	1143	1223						62		C 5.8						1.7E-02
GOES		1233	1239	1242						9		C 8.3						3.6E-03
RAMY		1844E	1857	1911	N24	E74	10223	12	18.5	27D	SF		3	E		18		
GOES	13	0103	0110	0128	S12	E08	10220			25	SF	C 3.0						3.6E-03
LEAR		0106	0106	0135	S12	E08	10220	12	13.6	29	SF		3	E		37		F
GOES		0435	0446	0454	N23	E66	10223			19	SF	C 1.5						1.4E-03
LEAR		0436	0442	0447	N23	E66	10223	12	18.3	11	SF		3	E		18		
LEAR		0659	0702	0714	N24	E66	10223	12	18.4	15	SF		3	E		30		
GOES		0832	0836	0841	S16	E63	10224			9	SF	C 3.4						1.4E-03
LEAR		0834	0835	0842	S16	E63	10224	12	18.1	8	SF		3	E		37		FH
GOES		0920	0936	0944						24		C 1.9						2.5E-03
GOES		1013	1021	1030						17		C 2.4						2.0E-03
GOES		1325	1332	1338						13		C 8.0						4.6E-03
GOES		1527	1532	1537						10		C 1.6						9.2E-04
GOES		1710	1725	1738						28		C 6.8						8.2E-03
HOLL		1904	1905	1911	S29	E57	10226	12	18.3	7	SF		3	E		18		
HOLL		1906	1909	1911	S17	E63	10224	12	18.6	5	SF		3	E		12		
HOLL		1924	1925	1946	S28	E57	10226	12	18.3	22	SF		3	E		23		
RAMY		1958E	2009	2014D	S29	E56	10226	12	18.2	16D	SF		2	E		14		
HOLL		2033	2055	2105	S28	E56	10226	12	18.2	32	SF		3	E		21		
HOLL		2210	2233	2234	S28	E53	10226	12	18.1	24	SF		3	E		13		
LEAR		2236	2237	2242	S29	E53	10226	12	18.1	6	SF		3	E		11		
HOLL		2247	2255	2300	S28	E55	10226	12	18.2	13	SF		3	E		18		
GOES		2255	2325	2334	S28	E55	10226			39	SF	C 1.7						3.5E-03
HOLL		2301	2321	2321U	S28	E54	10226	12	18.2	20U	SF		3	E		11		
LEAR		2325	2325	2329	S29	E53	10226	12	18.1	4	SF		3	E		14		
LEAR	14	0245	0246	0257	N15	E59	10225	12	18.6	12	SF		3	E		51		F
LEAR		0247	0247	0250	S29	E49	10226	12	17.9	3	SF		3	E		12		
LEAR		0258	0301	0303	S29	E51	10226	12	18.1	5	SF		3	E		29		
GOES		0414	0438	0448	S28	E48	10226			34	SF	C 1.9						3.2E-03
LEAR		0428	0435	0440	S28	E48	10226	12	17.9	12	SF		3	E		25		
LEAR		0513	0513	0516	S16	E56	10224	12	18.5	3	SF		3	E		28		
LEAR		0640	0648	0652	S12	W09	10220	12	13.6	12	SF		3	E		31		F
GOES		0643	0647	0650	S12	W09	10220			7	SF	C 1.1						4.8E-04
LEAR		0816	0838	0858	S29	E48	10226	12	18.1	42	1F		3	E		155		F
GOES		0827	0843	0846	S29	E48	10226			19	1F	C 3.9						3.2E-03
LEAR		0859	0918	0934	S29	E49	10226	12	18.2	35	SF		3	E		57		F
GOES		1158	1201	1203						5		C 2.0						4.9E-04
HOLL		1444	1458	1504	S28	E45	10226	12	18.1	20	SF		3	E		19		
GOES		1457	1504	1512	S28	E45	10226			15	SF	C 2.9						2.4E-03
HOLL		1459	1502	1508	N16	E69	10225	12	19.8	9	SF		3	E		42		
RAMY		1510E	1510U	1516	N24	E48	10223	12	18.3	6D	SF		2	E		32		F
RAMY		1526E	1526U	1533	S29	E46	10226	12	18.2	7D	SF		2	E		42		F
RAMY		1823E	1823U	1827	N17	E54	10225	12	18.9	4D	SF		3	E		21		F
GOES		2030	2035	2058	S28	E43	10226			28	SF	C 2.1						3.0E-03

Hα SOLAR FLARES

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	14	2032	2034	2058	S28	E43	10226	12	18.2	26	SF		3	E		36		F
HOLL		2037	2040	2043	N21	E67		12	20.0	6	SF		3	E		15		
HOLL		2105	2105	2109	S29	E44	10226	12	18.3	4	SF		3	E		13		
HOLL		2150	2150	2155	S29	E43	10226	12	18.3	5	SF		3	E		15		
HOLL		2206	2208	2212	N21	E66	10229	12	20.0	6	SF		3	E		94		
HOLL		2213	2221	2224	N20	E66	10229	12	20.0	11	SF		3	E		22		
HOLL		2220	2221	2235	S15	E62	10228	12	19.6	15	SF		3	E		37		
LEAR		2222	2232	2247	N16	E65	10229	12	19.9	25	SF		2	E		46		F
LEAR		2356	2357	2402	N23	E43	10223	12	18.3	6	SF		3	E		20		F
GOES	15	0025	0029	0031	N18	E63	10229			6	SF	C 2.1						6.7E-04
LEAR		0028	0029	0033	N18	E63	10229	12	19.8	5	SF		3	E		41		F
LEAR		0129	0131	0133	S29	E39	10226	12	18.1	4	SF		3	E		16		
LEAR		0140	0145	0205	S29	E39	10226	12	18.1	25	SF		3	E		17		F
GOES		0406	0410	0413						7		C 2.5						9.1E-04
LEAR		0425	0425	0432	S29	E38	10226	12	18.2	7	SF		3	E		17		
GOES		0427	0428	0431	S29	E38	10226			4	SF	C 1.8						4.3E-04
LEAR		0626	0626	0638	N17	E62	10229	12	20.0	12	SF		3	E		41		F
GOES		0626	0628	0633	N17	E62	10229			7	SF	C 2.0						8.1E-04
LEAR		0643	0648	0652	N18	E60	10229	12	19.8	9	SF		3	E		53		F
GOES		0753	0801	0809	S28	E33	10226			16	SF	C 2.0						1.6E-03
LEAR		0802	0803	0808	S28	E33	10226	12	17.9	6	SF		3	E		14		
GOES		1017	1029	1041	S27	E31	10226			24	SF	C 2.8						3.4E-03
LEAR		1020	1021	1027D	S27	E31	10226	12	17.8	7D	SF		2	E		27		F
LEAR		1022	1023	1027D	N17	E46	10225	12	18.9	5D	SF		2	E		12		F
GOES		1125	1136	1144						19		C 3.1						3.0E-03
GOES		1546	1553	1608						22		C 4.3						5.1E-03
GOES		1801	1804	1807						6		C 5.9						1.4E-03
GOES		2007	2011	2016						9		C 2.5						1.1E-03
GOES		2109	2118	2131						22		C 2.6						2.8E-03
GOES		2231	2236	2240						9		C 3.1						1.4E-03
GOES	16	0142	0145	0150						8		C 2.3						1.0E-03
GOES		0215	0226	0242						27		C 4.3						6.1E-03
LEAR		0245	0246	0248	N07	E04	10227	12	16.4	3	SF		2	E		26		F
LEAR		0333	0333	0337	N17	E47	10229	12	19.7	4	SF		2	E		15		
GOES		0421	0425	0429						8		C 2.1						8.5E-04
LEAR		0446	0449	0454	S26	E22	10226	12	17.9	8	SF		3	E		11		
GOES		0623	0645	0653	S27	E22	10226			30	SF	C 2.9						4.3E-03
LEAR		0624E	0637	0653	S27	E22	10226	12	18.0	29D	SF		3	E		48		F
LEAR		0654	0656	0700	S29	E24	10226	12	18.2	6	SF		3	E		29		
LEAR		0704	0725	0823	S29	E24	10226	12	18.2	79	SF		3	E		65		F
GOES		0708	0722	0729	S29	E24	10226			21	SF	C 4.1						4.7E-03
LEAR		0837	0844	0855	N21	E47	10229	12	20.0	18	SF		3	E		18		F
GOES		0924	0929	0938	N18	E45	10229			14	1F	C 4.8						3.5E-03
LEAR		0926	0926	0956	N18	E45	10229	12	19.8	30	1F		3	E		158		F
LEAR		0928	0928	0934	S27	E19	10226	12	17.9	6	SF		3	E		11		
GOES		1107	1115	1126	N17	E32	10225			19	1N	M 2.5						2.0E-02
SVTO		1111E	1119U	1137D	N17	E32	10225	12	18.9	26D	1N		1	E		153		F
HOLL		1718	1719	1726	S26	E17	10226	12	18.0	8	SF		3	E		14		H
GOES		1906	1910	1919						13		C 2.9						2.1E-03
GOES		1930	1935	1947	S28	E16	10226			17	SF	C 3.5						2.9E-03
HOLL		1933	1934	1950	S28	E16	10226	12	18.1	17	SF		3	E		24		FH
GOES		2026	2030	2038						12		C 2.7						1.8E-03
GOES		2102	2109	2119						17		C 7.9						6.3E-03
GOES		2245	2255	2320	S27	E10	10226			35	1N	M 1.9						2.9E-02
LEAR		2248	2251	2326	S27	E10	10226	12	17.7	38	1N		2	E		114		FE
HOLL		2308	2308U	2312D	S29	E15	10226	12	18.1	4D	1F		3	E		103		F
LEAR		2330	2338	2407	N06	W08	10227	12	16.4	37	SF		1	E		63		F
GOES		2333	2336	2340	N06	W08	10227			7	SF	M 1.3						4.9E-03
GOES	17	0054	0100	0109	S26	E07	10226			15	SF	C 6.0						4.1E-03
LEAR		0056	0100	0113	S26	E07	10226	12	17.6	17	SF		2	E		53		F
LEAR		0107	0108	0111	N16	E19	10225	12	18.5	4	SF		2	E		14		
GOES		0155	0203	0211	S27	E09	10226			16	SF	C 1.8						1.6E-03
LEAR		0158	0203	0226	S27	E09	10226	12	17.8	28	SF		2	E		37		F
LEAR		0247	0250	0259	S26	E09	10226	12	17.8	12	SF		2	E		15		F
GOES		0251	0258	0306	S26	E09	10226			15	SF	C 2.8						2.3E-03

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	17	0328	0336	0339	S26	E05	10226	12	17.5	11	SF		2	E		17		
LEAR		0445	0445	0451	N06	W10	10227	12	16.4	6	SF		3	E		19		F
LEAR		0454	0505	0530	N06	W10	10227	12	16.4	36	SF		2	E		64		F
GOES		0459	0506	0513	N06	W10	10227			14	SF	C 5.3						3.7E-03
GOES		0549	0554	0603	N19	E25	10229			14	SF	C 3.5						2.6E-03
LEAR		0552	0554	0621	N19	E25	10229	12	19.1	29	SF		2	E		16		
GOES		0634	0637	0639	S27	E07	10226			5	SF	C 2.2						6.6E-04
LEAR		0635	0636	0646	S27	E07	10226	12	17.8	11	SF		2	E		27		
LEAR		0719	0723	0728	N05	W12	10227	12	16.4	9	SF		1	E		26		
GOES		0747	0802	0830	N06	W13	10227			43	SF	C 4.1						9.6E-03
LEAR		0755	0819	0859	N06	W13	10227	12	16.3	64	SF		1	E		59		F
GOES		1000	1006	1009	N05	W14	10227			9	1F	C 5.9						2.2E-03
LEAR		1001	1007	1020D	N05	W14	10227	12	16.4	19D	1F		1	E		114		F
RAMY		1351E	1419U	1430D	N05	W15	10227	12	16.4	39D	SF		2	E		24		F
GOES		1817	1821	1824						7		C 3.1						1.1E-03
RAMY		1917E	1917U	1953	S27	E01	10226	12	17.9	36D	SF		3	E		41		F
GOES		1923	1930	1939	S27	E05	10226			16	SF	C 6.4						5.0E-03
HOLL		1926	1927	1938	S27	E05	10226	12	18.2	12	SF		2	E		48		
HOLL		1929	1933	1938	N20	E17	10223	12	19.1	9	SF		2	E		60		F
GOES		2257	2335	2345	S27	E00	10226			48	SF	M 1.6						2.1E-02
LEAR		2257	2339	2415	S27	E00	10226	12	17.9	78	SF		2	E		74		FH
LEAR	18	0015	0022	0025	S29	E01	10226	12	18.1	10	SF		3	E		24		
LEAR		0025	0033	0045	S28	E02	10226	12	18.2	20	SF		3	E		24		F
GOES		0221	0225	0227	S17	E01	10224			6	SF	C 3.5						8.6E-04
LEAR		0224	0224	0230	S17	E01	10224	12	18.2	6	SF		3	E		36		FH
GOES		0229	0233	0236	S27	E00	10226			7	SF	C 6.9						1.9E-03
LEAR		0231	0232	0241	S27	E00	10226	12	18.1	10	SF		3	E		31		FH
LEAR		0538	0538	0544	S17	E00	10224	12	18.2	6	SF		3	E		32		
GOES		0540	0545	0552	S17	E00	10224			12	SF	C 1.6						1.1E-03
GOES		0631	0642	0656	S28	W03	10226			25	1N	M 2.4						2.4E-02
LEAR		0635	0639	0713	S28	W03	10226	12	18.0	38	1N		3	E		122		F
GOES		1141	1147	1151						10		C 7.1						2.7E-03
GOES		1437	1441	1450						13		C 1.8						1.3E-03
GOES		1727	1731	1740						13		C 2.7						1.8E-03
GOES		1932	1937	1941						9		C 1.4						7.3E-04
GOES		2023	2028	2032						9		C 1.9						1.0E-03
GOES		2125	2128	2133						8		C 1.6						7.1E-04
GOES		2209	2212	2214						5		C 2.0						5.4E-04
LEAR		2223	2224	2236	S27	W16	10226	12	17.7	13	SF		3	E		18		
HOLL		2224	2224	2231	S28	W15	10226	12	17.8	7	SF		3	E		13		
GOES		2354	2358	2402	S10	E45	10230			8	SF	C 1.2						5.7E-04
LEAR		2355	2358	2405	S10	E45	10230	12	22.4	10	SF		3	E		24		
GOES	19	0029	0035	0038	S27	W17	10226			9	SF	C 2.7						9.7E-04
LEAR		0032	0035	0046	S27	W17	10226	12	17.7	14	SF		3	E		85		
LEAR		0128	0144	0146	S23	W16	10226	12	17.8	18	SF		3	E		25		
GOES		0144	0151	0154	S23	W16	10226			10	SF	C 1.6						9.2E-04
GOES		0304	0308	0320	S28	W14	10226			16	SF	C 1.7						1.4E-03
LEAR		0308	0308	0313	S28	W14	10226	12	18.0	5	SF		3	E		40		
LEAR		0344	0348	0350	S28	W17	10226	12	17.8	6	SF		3	E		10		
LEAR		0437	0446	0456	S09	E44	10230	12	22.5	19	SF		3	E		34		F
GOES		0439	0441	0444	S09	E44	10230			5	SF	C 1.3						3.7E-04
GOES		0515	0602	0622						67		C 3.7						9.9E-03
LEAR		0531	0532	0537	S27	W18	10226	12	17.8	6	SF		3	E		29		
GOES		0649	0652	0657						8		C 2.1						9.0E-04
GOES		0727	0732	0736	S27	W23	10226			9	SF	C 2.9						1.2E-03
LEAR		0730	0730	0740	S27	W23	10226	12	17.5	10	SF		2	E		30		F
GOES		0815	0821	0823						8		C 2.3						8.2E-04
LEAR		0935	0940	0946	S29	W16	10226	12	18.1	11	SF		1	E		33		
GOES		0937	0942	0945	S29	W16	10226			8	SF	C 2.3						8.8E-04
GOES		1115	1118	1122						7		C 1.4						5.5E-04
GOES		1301	1310	1330						29		C 2.2						3.4E-03
GOES		2000	2008	2016	S28	W27	10226			16	SF	C 2.3						1.8E-03
HOLL		2005	2007	2017	S28	W27	10226	12	17.7	12	SF		3	E		22		FH
GOES		2134	2153	2217			10229			43		M 2.7						4.8E-02
HOLL		2138	2143	2303	N15	W09	10229	12	19.2	85	2N		3	E		306		ZU
HOLL		2138	2147	2207	N23	W21	10223	12	18.3	29	SF		3	E		10		

Hα SOLAR FLARES

DECEMBER 2002

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
LEAR	19	2219E	2254U	2328	N18	W01	10229	12	19.8	69D	2F		3	E		290		UF
HOLL		2322	2323	2327	N15	W09	10229	12	19.3	5	SF		3	E		27		F
LEAR		2354	2355	2401	S09	E37	10230	12	22.8	7	SF		3	E		25		F
GOES	20	0032	0037	0042	S25	W27	10226			10	SF	C 4.5						2.1E-03
LEAR		0034	0036	0057	S25	W27	10226	12	17.9	23	SF		3	E		48		
GOES		0142	0145	0147	S09	E35	10230			5	SF	C 1.4						4.1E-04
LEAR		0144	0145	0147	S09	E35	10230	12	22.7	3	SF		3	E		12		
LEAR		0225	0227	0232	S27	W32	10226	12	17.6	7	SF		3	E		37		
GOES		0536	0541	0555	S09	E33	10230			19	SF	C 1.6						1.6E-03
LEAR		0539	0541	0554	S09	E33	10230	12	22.7	15	SF		2	E		36		F
GOES		0757	0802	0807	S23	W30	10226			10	SF	C 1.9						9.7E-04
LEAR		0759	0801	0818	S23	W30	10226	12	18.0	19	SF		2	E		30		H
GOES		0820	0833	0845	S24	W31	10226			25	SF	C 8.5						8.6E-03
SVTO		0823	0824	0834	S24	W31	10226	12	17.9	11	SF		3	E		13		F
LEAR		0823	0843	0905	S24	W30	10226	12	18.0	42	SF		3	E		47		
SVTO		0827E	0830U	0850D	S11	E33	10230	12	22.8	23D	SF		3	E		47		
LEAR		0827	0832	0845	S07	E31	10230	12	22.7	18	SF		2	E		50		F
GOES		1125	1128	1130						5		C 2.7						6.4E-04
GOES		1247	1253	1257						10		C 4.2						2.0E-03
GOES		1313	1318	1320	S25	W34	10226			7	SF	M 6.8						8.9E-03
SVTO		1316	1319	1326	S25	W34	10226	12	17.9	10	SF		3	E		70		
RAMY		1322E	1322U	1334	S27	W31	10226	12	18.1	12D	SF		3	E		90		F
GOES		1857	1904	1906						9		C 3.5						1.1E-03
GOES		2010	2014	2016	S29	W35	10226			6	1F	C 7.2						1.3E-03
HOLL		2014	2014	2024D	S29	W35	10226	12	18.1	10D	1F		3	E		104		F
RAMY		2015E	2015U	2026D	S29	W34	10226	12	18.2	11D	1F		3	E		116		F
GOES		2301	2304	2307	S24	W37	10226			6	SF	C 1.7						5.6E-04
LEAR		2304	2308	2311	S24	W37	10226	12	18.1	7	SF		3	E		14		
GOES		2317	2321	2324	S25	W37	10226			7	SF	C 2.0						7.6E-04
LEAR		2319	2321	2326	S25	W37	10226	12	18.1	7	SF		3	E		33		
GOES		2358	2402	2408	S28	W38	10226			10	SF	C 1.7						8.7E-04
LEAR	21	0002	0002	0004	S28	W38	10226	12	18.0	2	SF		3	E		23		
LEAR		0023	0024	0142	N21	W15	10229	12	19.9	79	SF		3	E		24		
LEAR		0028	0032	0035	S26	W37	10226	12	18.1	7	SF		3	E		22		H
GOES		0246	0252	0257	S27	W45	10226			11	SF	C 2.4						1.4E-03
LEAR		0249	0250	0253	S27	W45	10226	12	17.6	4	SF		3	E		13		F
GOES		0339	0349	0356	N19	W19	10229			17	SF	C 2.9						2.8E-03
LEAR		0342	0342	0354	N19	W19	10229	12	19.7	12	SF		3	E		23		
GOES		0438	0441	0445						7		C 2.2						8.5E-04
LEAR		0440	0453	0505	S25	W41	10226	12	18.0	25	1F		3	E		175		FH
GOES		0448	0453	0457	S25	W41	10226			9	1F	C 4.6						1.8E-03
GOES		0946	0951	0954	S25	W44	10226			8	SF	C 1.6						5.9E-04
LEAR		0950	0951	0958	S25	W44	10226	12	18.0	8	SF		2	E		48		
GOES		1856	1910	1917	S25	W49	10226			21	SF	C 1.0						1.2E-03
RAMY		1905	1905	1917	S25	W49	10226	12	18.0	12	SF		3	E		32		FH
GOES		2144	2147	2151						7		C 1.2						4.7E-04
GOES	22	0214	0252	0312	N23	W42	10223			58	2F	M 1.1						2.3E-02
GOES		0732	0736	0740						8		C 2.3						1.0E-03
GOES		1403	1408	1416						13		C 2.2						1.4E-03
GOES		1535	1539	1541						6		C 1.5						4.7E-04
GOES		2141	2149	2154						13		C 1.9						1.2E-03
LEAR		2312	2315	2320	S13	W56	10224	12	18.7	8	SF		3	E		16		F
LEAR	23	0050	0050	0054	S13	W57	10224	12	18.7	4	SF		3	E		20		
LEAR		0541	0543	0550	N21	W43	10229	12	19.9	9	SF		3	E		33		
LEAR		0618	0621	0625	N21	W42	10229	12	20.0	7	SF		2	E		35		F
GOES		0715	0719	0722						7		C 3.8						1.0E-03
LEAR		0917	0919	0923	S17	W63	10224	12	18.6	6	SF		2	E		29		
GOES		1158	1202	1209						11		C 1.1						6.6E-04
GOES		1230	1234	1241						11		C 1.3						7.7E-04
RAMY		1520E	1520U	1530	S25	W31	10231	12	21.2	10D	SF		3	E		18		F
GOES		1520	1524	1526	S25	W31	10231			6	SF	C 1.6						4.1E-04
GOES		2105	2115	2125						20		C 1.7						1.7E-03
LEAR		2339	2339	2342	S26	W78	10226	12	17.9	3	SF		3	E		23		
LEAR	24	0259	0302	0308	S07	W21	10230	12	22.5	9	SF		3	E		16		

Hα SOLAR FLARES

DECEMBER 2002

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
GOES	24	0519	0527	0547	S15	W69	10224			28	SF	C 5.8						6.4E-03
LEAR		0524	0527	0534	S15	W69	10224	12	19.0	10	SF		3	E		53		F
LEAR		0540	0542	0556	S07	W22	10230	12	22.6	16	SF		3	E		65		FH
GOES		1323	1329	1338	S15	W79	10224			15	SF	C 1.6						1.3E-03
RAMY		1326E	1326U	1336	S15	W79	10224	12	18.6	10D	SF		3	E		31		F
GOES		1443	1451	1512	S15	W75	10224			29	SF	C 5.8						6.9E-03
RAMY		1446E	1446U	1539	S15	W75	10224	12	18.9	53D	SF		3	E		84		FH
RAMY		1642E	1642U	1721	S08	W30	10230	12	22.4	39D	SF		3	E		47		F
GOES		1811	1821	1833						22		C 2.7						3.0E-03
HOLL		2046	2047	2051	S15	W86	10224	12	18.3	5	SF		3	E		15		
GOES		2316	2336	2339						23		C 2.7						2.4E-03
GOES	25	0540	0546	0552						12		C 4.8						2.9E-03
GOES		1153	1207	1214						21		C 3.5						3.1E-03
GOES		1749	1809	1829						40		C 2.9						5.8E-03
GOES		2125	2132	2138	S09	W45	10230			13	SF	C 1.7						1.0E-03
HOLL		2129	2137	2143	S09	W45	10230	12	22.5	14	SF		3	E		54		F
GOES		2244	2248	2251						7		C 1.1						4.2E-04
GOES	26	0156	0201	0210	S08	W48	10230			14	SF	C 1.4						8.9E-04
LEAR		0159	0201	0212	S08	W48	10230	12	22.5	13	SF		3	E		36		F
GOES		0448	0452	0504	S09	W50	10230			16	SF	B 8.1						6.9E-04
LEAR		0451	0452	0458	S09	W50	10230	12	22.4	7	SF		2	E		31		
GOES		0823	0835	0851						28		C 1.9						2.6E-03
RAMY		1952	2001U	2011D	N12	E18	10235	12	28.2	19D	SF		3	E		41		
HOLL		1953	1958	2011	N13	E15	10235	12	28.0	18	SF		3	E		34		F
RAMY		2012E	2013U	2018	N12	E18	10235	12	28.2	6D	SF		3	E		15		
RAMY	27	1333E	1333U	1347	S07	W66	10230	12	22.6	14D	SF		3	E		21		F
GOES		1641	1652	1700	N17	W24	10236			19	SF	B 6.5						5.9E-04
RAMY		1646E	1646U	1703	N16	W23		12	25.9	17D	SF		3	E		15		F
HOLL		1649	1651	1656	N17	W24		12	25.9	7	SF		3	E		13		
GOES		2150	2158	2205	N14	E02	10235			15	SF	B 6.3						4.6E-04
HOLL		2154	2154	2207	N14	E02	10235	12	28.1	13	SF		3	E		24		UH
GOES	28	1722	1839	1946						144		B 9.3						6.6E-03
GOES		2304	2314	2323						19		C 1.4						1.2E-03
GOES	29	0155	0205	0226						31		B 9.9						1.5E-03
GOES		0441	0446	0504						23		B 3.5						4.4E-04
GOES	30	0350	0354	0401						11		B 2.7						1.6E-04
GOES		0813	0818	0822						9		B 2.2						1.2E-04
GOES		0915	0921	0924						9		B 2.4						1.2E-04
GOES		1417	1420	1422	N18	E01	10234			5	SF	B 2.5						7.2E-05
RAMY		1418	1418	1427	N18	E01	10234	12	30.7	9	SF		3	E		16		F
GOES		1817	1826	1832						15		B 2.2						1.8E-04
LEAR	31	0043	0044	0053	S12	E22	10239	01	1.7	10	SF		3	E		18		F
GOES		0200	0205	0209	N15	W06	10234			9	SF	B 6.6						2.3E-04
LEAR		0203	0205	0237	N15	W06	10234	12	30.6	34	SF		3	E		54		F
GOES		0222	0225	0230						8		B 3.0						1.3E-04
GOES		0241	0250	0310	N18	W09	10234			29	SF	B 5.0						7.6E-04
LEAR		0242	0246	0307	N18	W09	10234	12	30.4	25	SF		3	E		26		F
GOES		0659	0703	0706	N20	W09	10234			7	SF	B 4.2						1.4E-04
LEAR		0702	0702	0710	N20	W09	10234	12	30.6	8	SF		3	E		18		
GOES		0842	0849	0857						15		B 6.6						5.2E-04
GOES		1521	1525	1527						6		B 2.8						9.1E-05

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

DECEMBER 2002

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
02	8800	SGMR	8	S	1924.0	1924.0	U	29.0			QL=4 ST=2 TYP=3
04	2695	LEAR	4	S/F	2244.0	2247.0	5.0	190.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	2244.0	2247.0	5.0	170.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	2246.0	2247.0	3.0	470.0			QL=4 ST=2 TYP=3
	8800	PALE	49	GB	2246.0	2247.0	4.0	510.0			QL=4 ST=2 TYP=6
10	2695	SVTO	8	S	1223.0	1223.0	2.0	73.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1223.0	1223.0	1.0	63.0			QL=4 ST=2 TYP=3
13	2695	SGMR	8	S	1326.0	1326.0	1.0	36.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1328.0	1328.0	1.0	36.0			QL=4 ST=2 TYP=3
16	2695	SVTO	4	S/F	1109.0	1111.0	7.0	64.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	1110.0	1122.0	24.0	39.0			QL=4 ST=3 TYP=3
18	2695	PALE	8	S	0223.0	0223.0	U	61.0			QL=4 ST=3 TYP=3
	8800	LEAR	8	S	0635.0	0636.0	2.0	260.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0636.0	0636.0	U	68.0			QL=4 ST=2 TYP=3
19	2695	PALE	4	S/F	2138.0	2140.0	11.0	210.0			QL=4 ST=2 TYP=3
	8800	PALE	20	GRF	2139.0	2142.0	27.0	76.0			QL=4 ST=2 TYP=2
20	2695	SVTO	48	C	0823.0	0826.0	9.0	55.0			QL=4 ST=2 TYP=8
	2695	LEAR	8	S	0826.0	0827.0	1.0	69.0			QL=4 ST=2 TYP=3
	8800	SVTO	48	C	0826.0	0831.0	8.0	92.0			QL=4 ST=2 TYP=8
	8800	LEAR	8	S	0830.0	0831.0	1.0	74.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1048.0	1048.0	U	27.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1048.0	1048.0	U	48.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1126.0	1127.0	2.0	130.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1126.0	1127.0	2.0	73.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1222.0	1223.0	1.0	78.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1223.0	1223.0	U	97.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1249.0	1249.0	1.0	50.0			QL=4 ST=2 TYP=3
	8800	SVTO	48	C	1315.0	1318.0	8.0	860.0			QL=4 ST=2 TYP=8
	8800	SGMR	48	C	1315.0	1318.0	10.0	810.0			QL=4 ST=2 TYP=8
	2695	SGMR	48	C	1315.0	1318.0	13.0	750.0			QL=4 ST=2 TYP=8
	2695	SVTO	48	C	1315.0	1318.0	20.0	790.0			QL=4 ST=2 TYP=8
22	2695	PALE	48	C	0234.0	0244.0	35.0	230.0			QL=4 ST=2 TYP=8
	2695	LEAR	48	C	0240.0	0244.0	29.0	200.0			QL=4 ST=2 TYP=8
	8800	PALE	4	S/F	0243.0	0244.0	7.0	110.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0243.0	0244.0	14.0	130.0			QL=4 ST=2 TYP=3

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

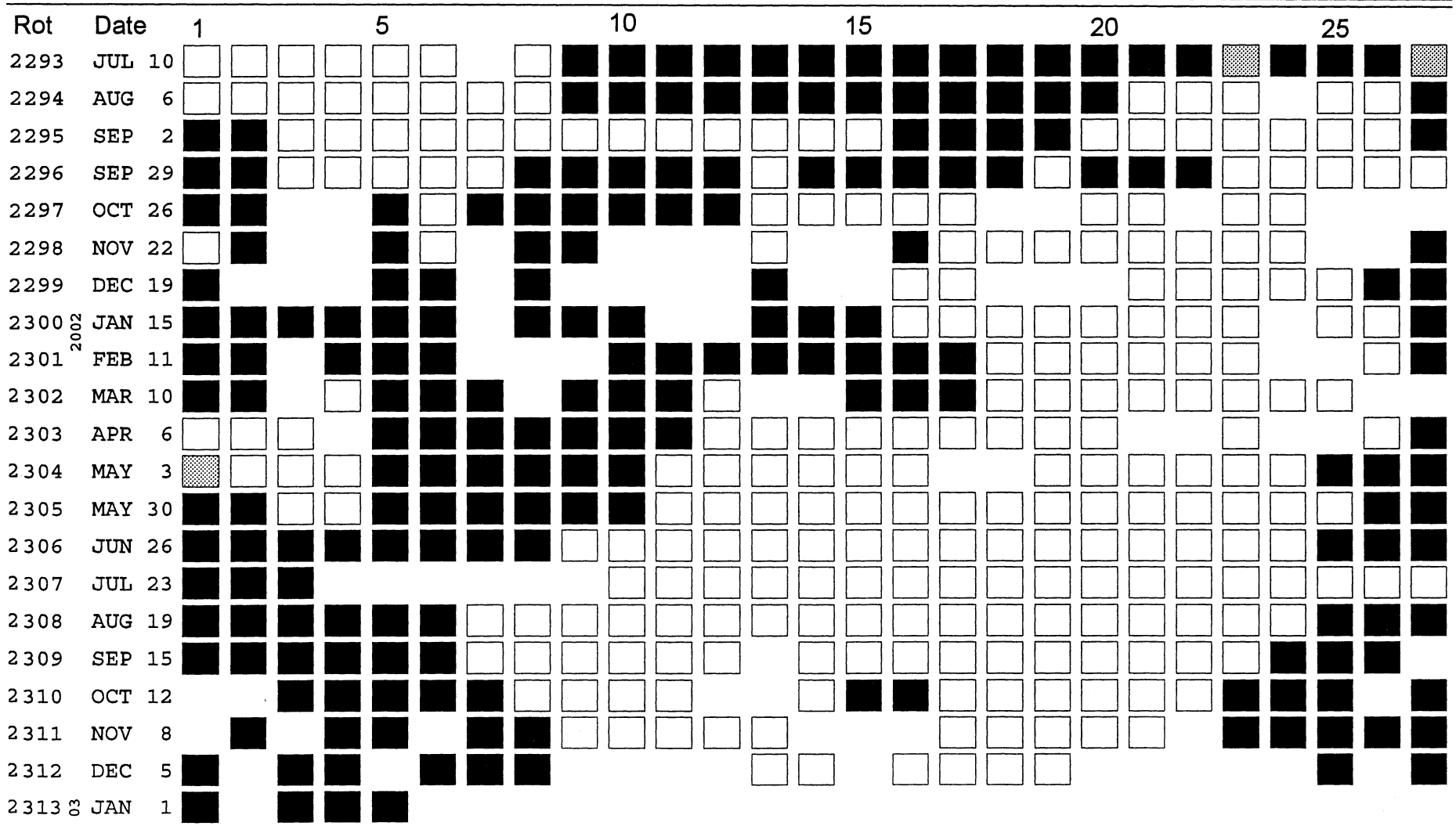
Explanation of Type Code:

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

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

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

STANFORD MEAN SOLAR MAGNETIC FIELD

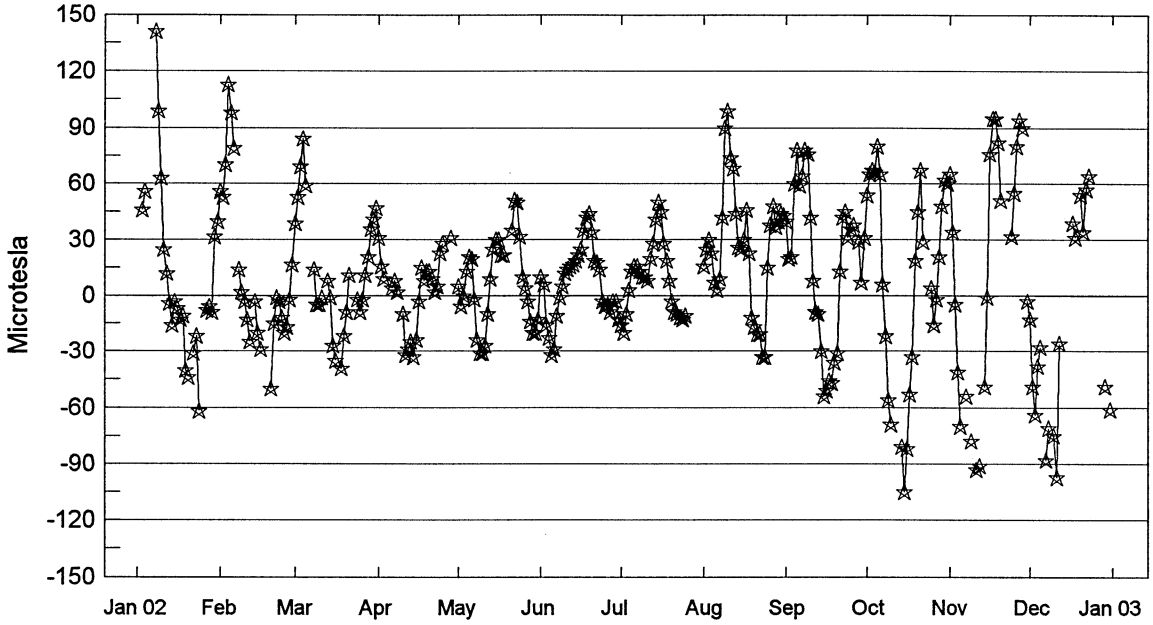


Mean Solar Magnetic Field Polarity: □ = field > 2 microT; ▒ = -2 microT ≤ field ≤ 2 microT

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

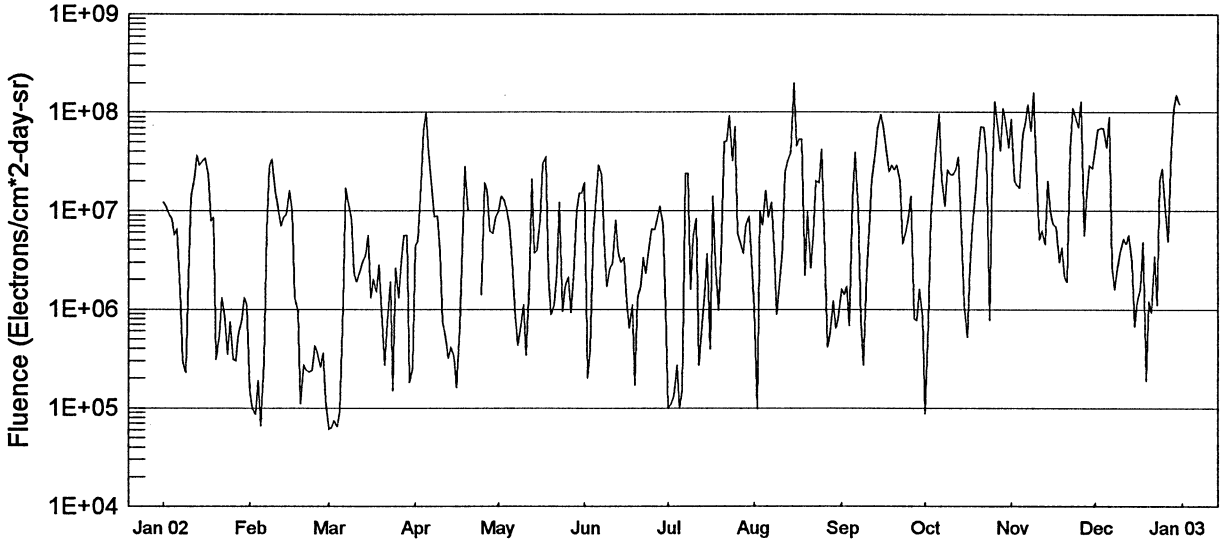
Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates are five days earlier, to mark times of occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

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



Day	Jan 02	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	---	56	39	31	5	10	-16	16	40	54	65	-13
2	---	53	53	16	-6	6	-20	25	20	65	34	-49
3	46	70	69	9	0	-16	-10	30	21	67	-5	-64
4	56	113	84	---	13	-23	3	23	60	66	-41	-38
5	---	98	59	---	21	-32	13	7	78	80	-70	-28
6	---	79	---	4	20	-29	16	3	59	65	---	---
7	---	---	---	8	-2	-11	16	9	64	6	-54	-88
8	141	14	14	2	-24	-1	13	42	78	-22	---	-71
9	99	2	-5	---	-31	5	10	90	76	-56	-78	---
10	63	-3	-5	-10	-31	12	10	99	42	-69	---	-75
11	25	-13	-1	-32	-27	14	8	74	8	---	-93	-97
12	12	-25	---	-29	-10	16	20	68	-9	---	-91	-26
13	-4	---	8	-25	9	17	28	44	-10	---	---	---
14	-16	-3	-1	-33	25	19	41	26	-30	-81	-49	---
15	-3	-20	-27	-24	30	22	50	25	-54	-105	-1	---
16	-7	-29	-35	-3	30	25	45	30	-51	-82	76	---
17	-13	---	---	15	22	35	28	46	-46	-53	95	39
18	-11	---	-39	8	22	42	19	23	-47	-33	95	31
19	-40	---	-22	13	---	44	8	-12	-36	19	82	---
20	-44	-50	-9	13	---	34	-3	-17	-31	45	51	54
21	---	-15	11	9	35	19	-9	-21	13	67	---	34
22	-31	-1	---	2	51	18	-10	-21	42	29	---	57
23	-22	-3	---	5	50	14	-12	-33	45	---	---	64
24	-62	-12	-2	23	32	-3	-13	-33	31	---	32	---
25	---	-20	-9	28	10	-6	-11	15	36	4	55	---
26	---	-17	-2	---	4	-5	---	38	38	-16	80	---
27	-8	-2	11	---	-3	-9	---	48	---	-2	94	---
28	-6	17	21	31	-14	-3	---	37	29	21	90	---
29	-9		36	---	-20	-3	---	40	7	48	---	-49
30	32		41	---	-20	-13	---	44	31	62	-3	---
31	40		47		-13		---	43		60		-61

GOES Daily Electron Fluence
Jan 2002 - Dec 2002



Day	Jan 02	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1.2E+07	1.5E+05	6.1E+04	4.4E+06	9.9E+06	1.9E+07	1.0E+05	1.0E+06	1.6E+06	8.7E+04	8.5E+07	4.2E+07
2	1.1E+07	9.8E+04	6.3E+04	4.9E+06	1.4E+07	2.0E+05	1.1E+05	9.8E+04	1.4E+06	7.4E+05	2.0E+07	6.7E+07
3	9.3E+06	8.6E+04	7.4E+04	1.8E+07	1.3E+07	3.8E+05	1.3E+05	1.0E+07	1.7E+06	8.5E+06	1.8E+07	7.0E+07
4	8.3E+06	1.9E+05	6.5E+04	6.7E+07	1.0E+07	5.9E+06	2.7E+05	7.1E+06	6.8E+05	2.0E+07	1.7E+07	6.8E+07
5	5.7E+06	6.6E+04	9.2E+04	1.0E+08	6.9E+06	1.3E+07	1.0E+05	1.6E+07	1.3E+07	5.1E+07	5.9E+07	4.4E+07
6	6.5E+06	2.9E+05	1.1E+06	3.9E+07	3.1E+06	2.9E+07	1.5E+05	8.6E+06	3.9E+07	9.6E+07	7.8E+07	8.9E+07
7	1.5E+06	6.2E+06	1.7E+07	1.7E+07	8.3E+05	2.3E+07	2.4E+07	1.2E+07	1.0E+07	2.1E+07	1.2E+08	2.7E+06
8	2.9E+05	2.8E+07	1.2E+07	8.7E+06	4.3E+05	4.8E+06	2.4E+07	4.2E+06	7.5E+05	1.1E+07	6.5E+07	1.6E+06
9	2.3E+05	3.3E+07	8.3E+06	8.9E+06	7.1E+05	1.7E+06	1.6E+06	8.8E+05	2.7E+05	2.6E+07	1.6E+08	2.8E+06
10	2.1E+06	1.6E+07	2.3E+06	3.8E+06	1.1E+06	2.6E+06	5.3E+06	2.0E+06	2.3E+06	2.3E+07	2.0E+07	3.9E+06
11	1.4E+07	1.1E+07	1.9E+06	7.4E+05	3.4E+05	2.9E+06	8.3E+06	4.0E+06	6.4E+06	2.3E+07	5.1E+06	5.2E+06
12	2.1E+07	7.0E+06	2.4E+06	5.1E+05	1.8E+06	8.0E+06	2.7E+05	2.5E+07	2.1E+07	2.6E+07	6.2E+06	4.6E+06
13	3.6E+07	8.6E+06	3.0E+06	3.2E+05	2.1E+07	3.7E+06	6.9E+05	3.3E+07	3.7E+07	3.5E+07	4.5E+06	5.6E+06
14	2.9E+07	9.1E+06	3.5E+06	4.1E+05	3.7E+06	3.0E+06	1.4E+06	3.9E+07	6.8E+07	5.4E+06	2.0E+07	3.0E+06
15	3.2E+07	1.6E+07	5.6E+06	3.3E+05	3.9E+06	3.3E+06	3.6E+06	2.0E+08	9.5E+07	1.1E+06	1.0E+07	6.7E+05
16	3.4E+07	1.0E+07	1.3E+06	1.6E+05	7.9E+06	1.2E+06	3.9E+05	4.6E+07	7.2E+07	5.2E+05	7.3E+06	1.2E+06
17	2.3E+07	1.3E+06	2.0E+06	6.5E+05	3.0E+07	6.4E+05	1.4E+07	5.3E+07	4.4E+07	2.7E+06	6.8E+06	1.6E+06
18	7.8E+06	9.5E+05	1.5E+06	4.4E+06	3.5E+07	1.1E+06	2.9E+06	5.3E+07	2.5E+07	6.9E+06	3.0E+06	4.8E+06
19	8.5E+06	1.1E+05	2.8E+06	2.8E+07	2.2E+06	1.7E+05	9.8E+05	2.2E+06	2.9E+07	1.6E+07	4.2E+06	1.9E+05
20	3.1E+05	2.7E+05	9.7E+05	9.9E+06	8.9E+05	1.3E+06	3.3E+06	9.7E+06	2.6E+07	3.8E+07	2.1E+06	1.2E+06
21	5.3E+05	2.4E+05	2.7E+05	-999	1.1E+06	1.7E+06	5.0E+07	2.6E+06	2.9E+07	7.2E+07	1.9E+06	9.3E+05
22	1.3E+06	2.3E+05	7.3E+05	-999	2.3E+06	3.3E+06	5.1E+07	5.7E+06	2.0E+07	7.1E+07	4.3E+07	3.4E+06
23	9.1E+05	2.4E+05	1.9E+06	-999	1.2E+07	2.3E+06	9.2E+07	2.0E+07	4.6E+06	3.7E+07	1.1E+08	1.1E+06
24	3.5E+05	4.2E+05	1.5E+05	-999	9.5E+05	4.3E+06	3.2E+07	1.9E+07	6.0E+06	7.7E+05	9.1E+07	2.0E+07
25	7.4E+05	3.6E+05	2.6E+06	1.4E+06	1.7E+06	6.5E+06	7.2E+07	4.2E+07	8.4E+06	2.2E+07	7.1E+07	2.7E+07
26	3.1E+05	2.6E+05	1.3E+06	1.9E+07	2.1E+06	6.4E+06	5.8E+06	6.2E+06	1.4E+07	1.3E+08	1.3E+08	1.0E+07
27	3.0E+05	3.6E+05	3.0E+06	1.6E+07	9.3E+05	8.3E+06	4.8E+06	4.1E+05	8.0E+05	6.9E+07	5.6E+06	4.9E+06
28	5.7E+05	1.2E+05	5.6E+06	6.2E+06	2.1E+06	1.1E+07	3.7E+06	5.7E+05	7.6E+05	4.1E+07	1.5E+07	4.1E+07
29	7.5E+05		5.6E+06	5.8E+06	1.0E+07	7.3E+06	7.2E+06	1.2E+06	1.6E+06	1.1E+08	2.9E+07	1.1E+08
30	1.3E+06		1.8E+05	8.4E+06	1.5E+07	1.0E+06	8.7E+06	6.4E+05	8.5E+05	8.0E+07	2.7E+07	1.5E+08
31	1.1E+06		2.5E+05		1.5E+07		3.1E+06	8.3E+05		4.4E+07		1.2E+08

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

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

CONTENTS

Prompt Reports

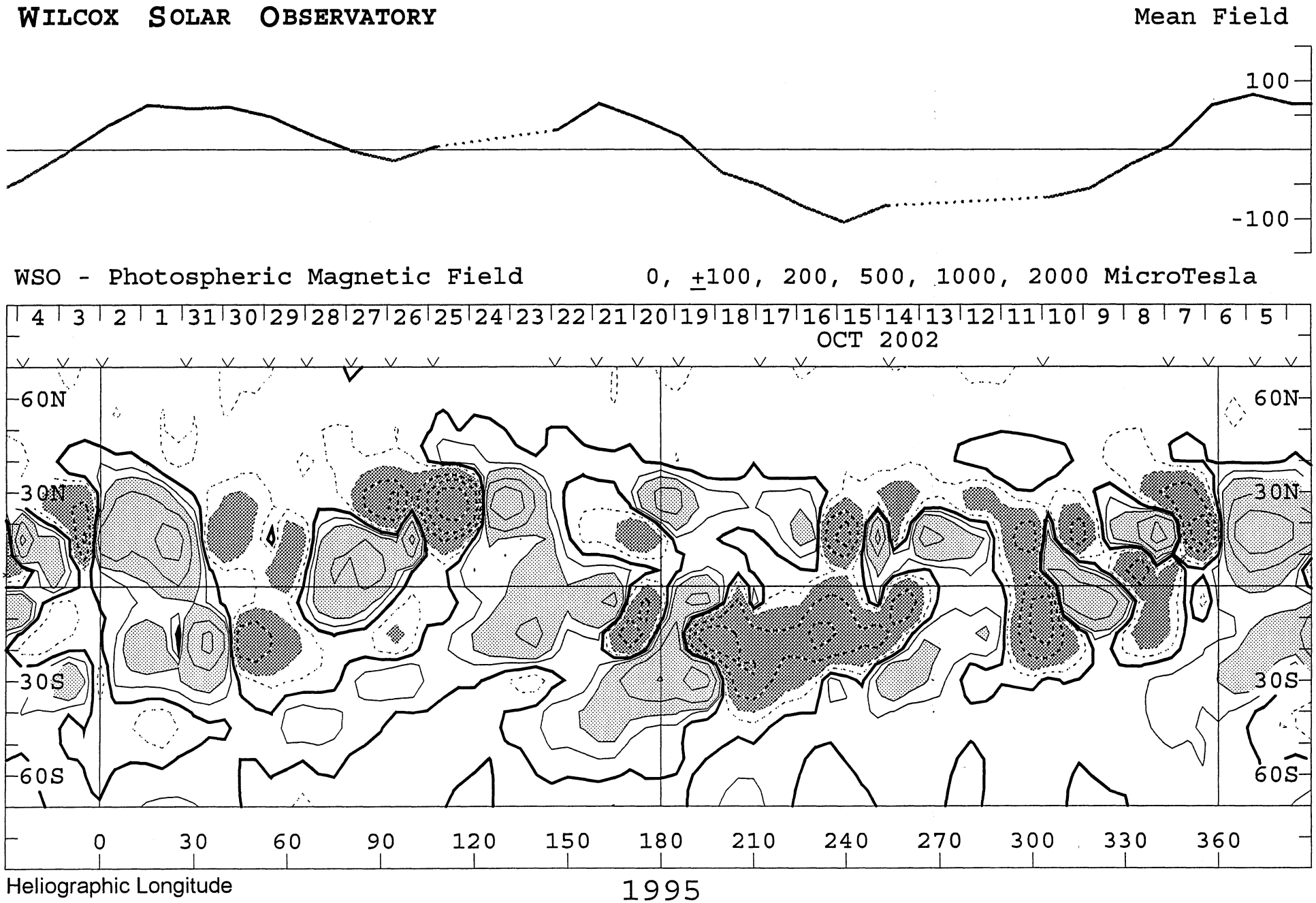
Number 701 Part I

DATA FOR NOVEMBER 2002

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1995
(6 October to 2 November 2002)

WILCOX SOLAR OBSERVATORY



SOLAR MAGNETIC FIELD SYNOPTIC CHART

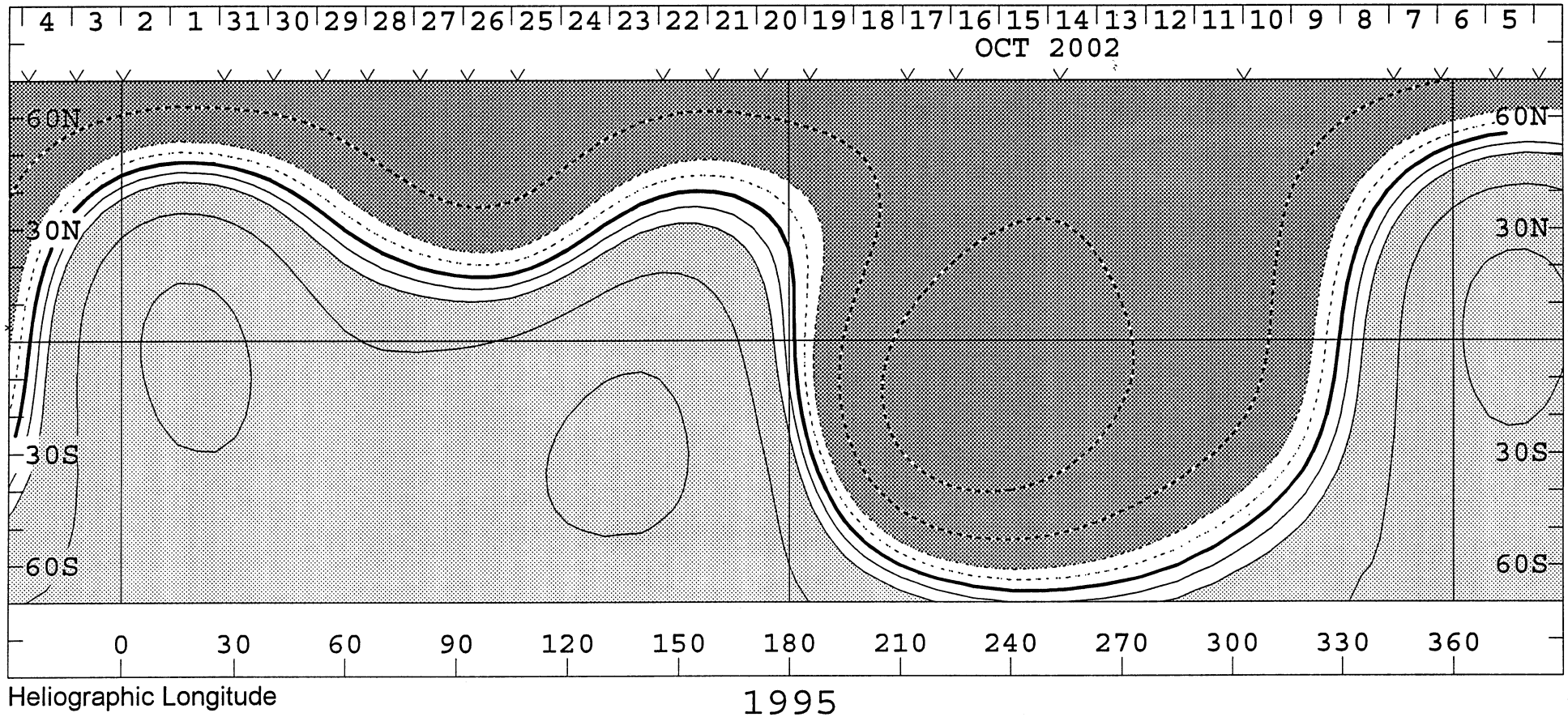
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1995

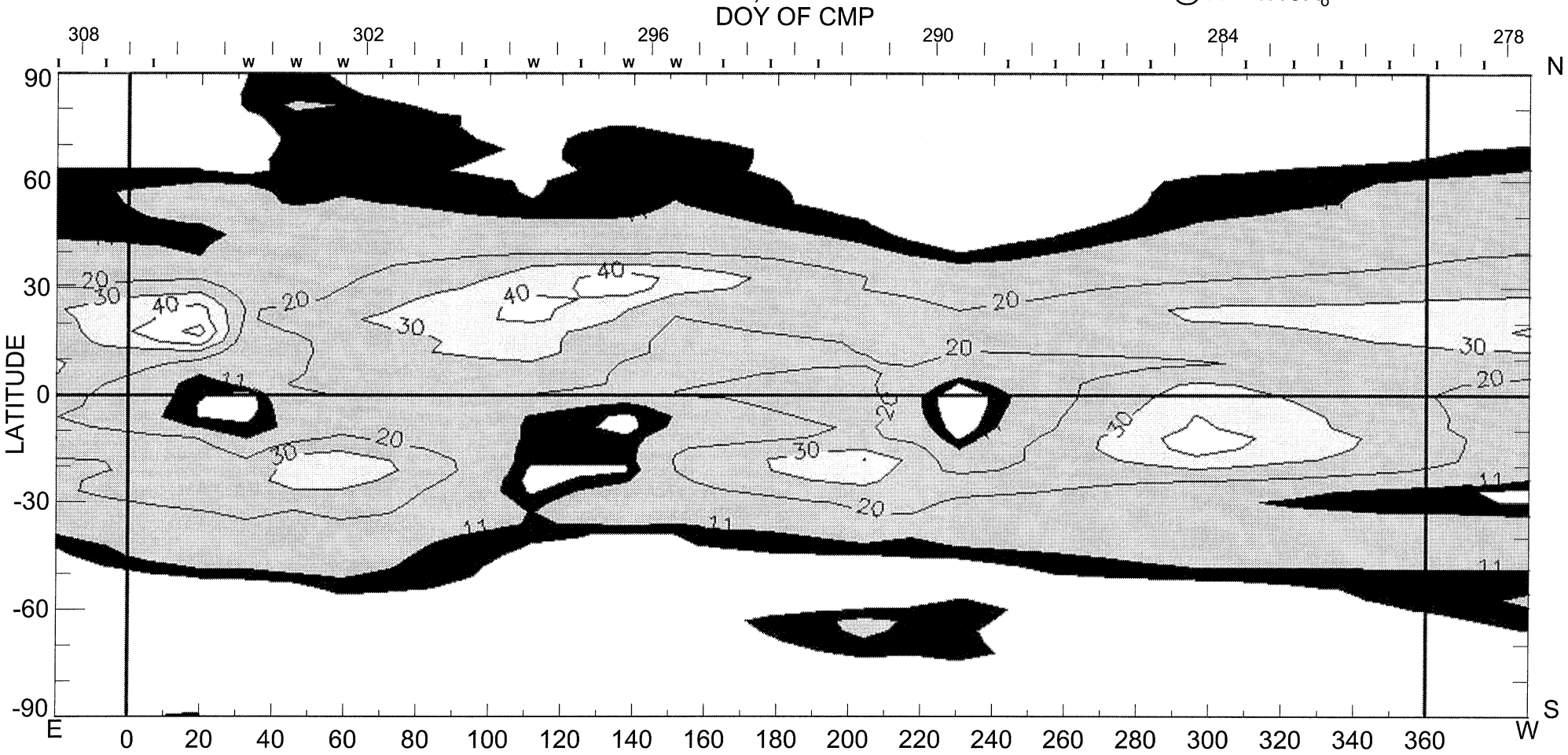
(6 October to 2 November 2002)

Wilcox Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla



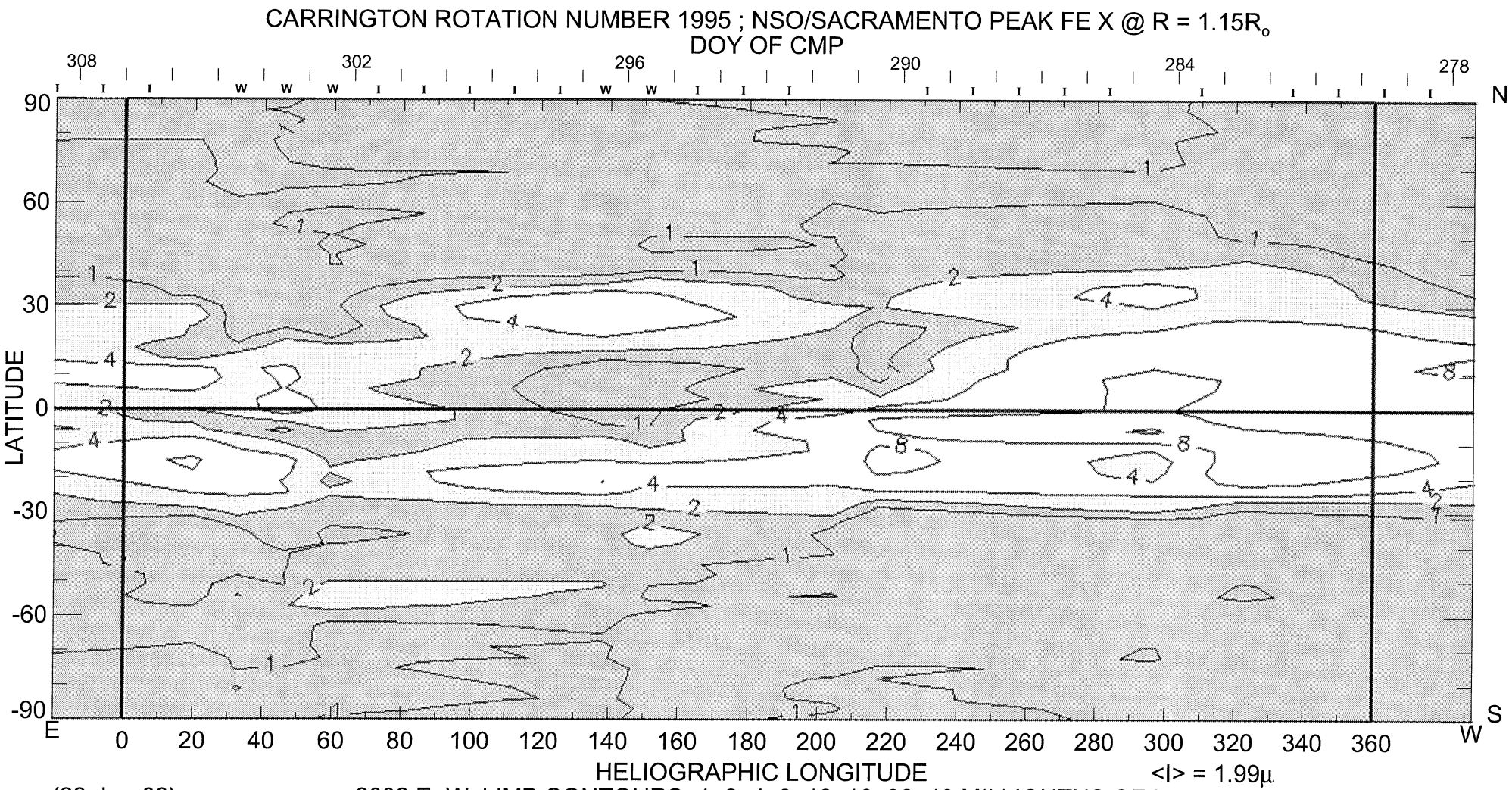
CARRINGTON ROTATION NUMBER 1995 ; NSO/SACRAMENTO PEAK FE XIV @ R = 1.15R_o



<I> = 12.84μ

(29-Jan-03) 2002 E+W LIMB CONTOURS: 8, 11, 20, 30, 40, 50, 60, 80, 100, 120, 140 MILLIONTHS OF I_o
CORONAL HOLES ARE SHOWN AS WHITE BORDERED BY BLACK

tex Wed Jan 29 13:37:32 2003



(29-Jan-03) 2002 E+W LIMB CONTOURS: 1, 2, 4, 8, 12, 16, 32, 48 MILLIONTHS OF I_o

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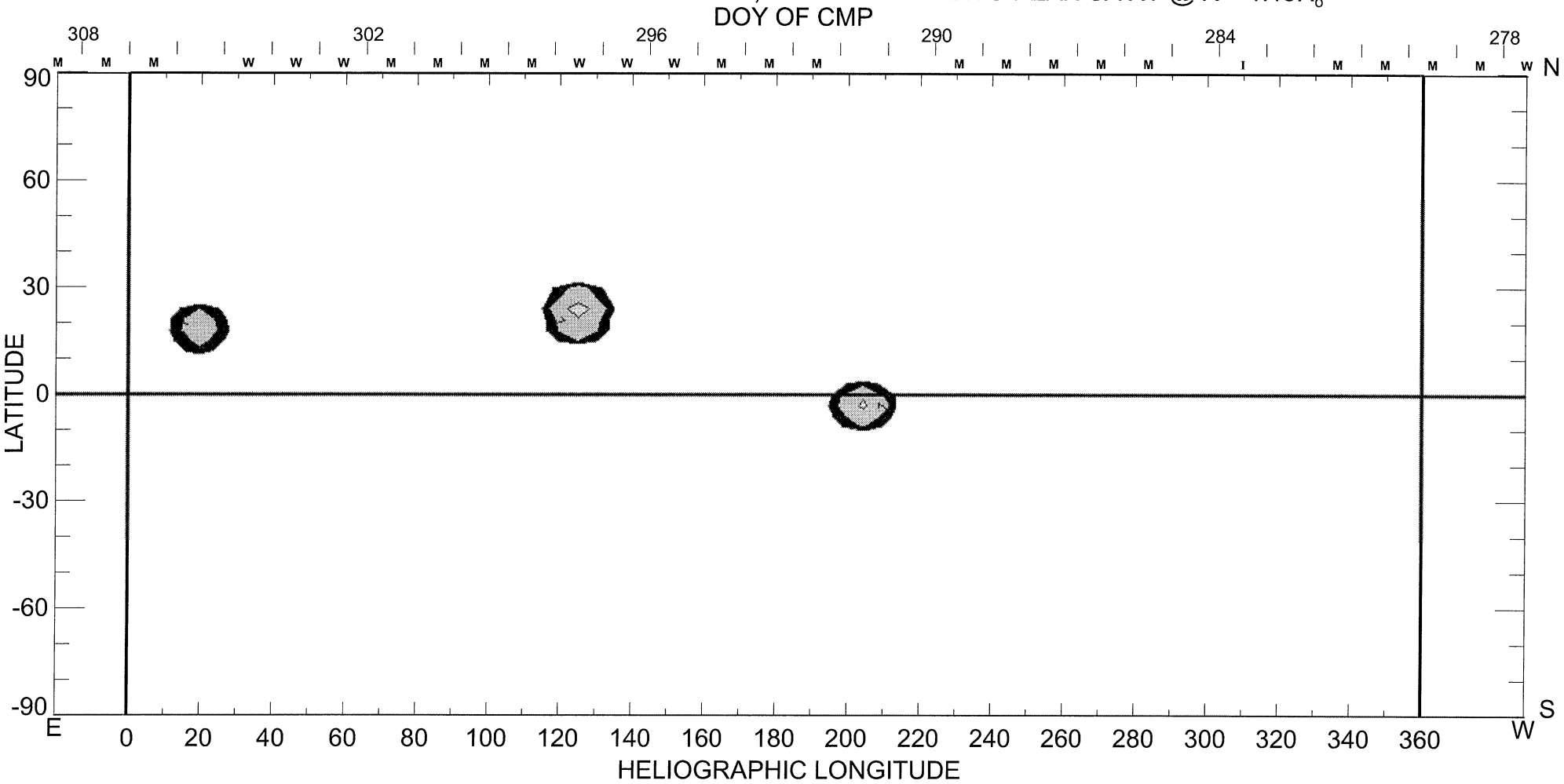
CARRINGTON ROTATION NUMBER 1995 ; NSO/SACRAMENTO PEAK CA XV @ R = 1.15R_o



(29-Jan-03) 2002 E+W LIMB CONTOURS: YELMIN, 1, 2, 3, 4, 6, 8, 10, 12, 14, 16, 18, 20 MILLIONTHS OF I_o

tex Wed Jan 29 13:36:45 2003

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1995

(6 October to 2 November 2002)

National Solar Observatory/Kitt Peak

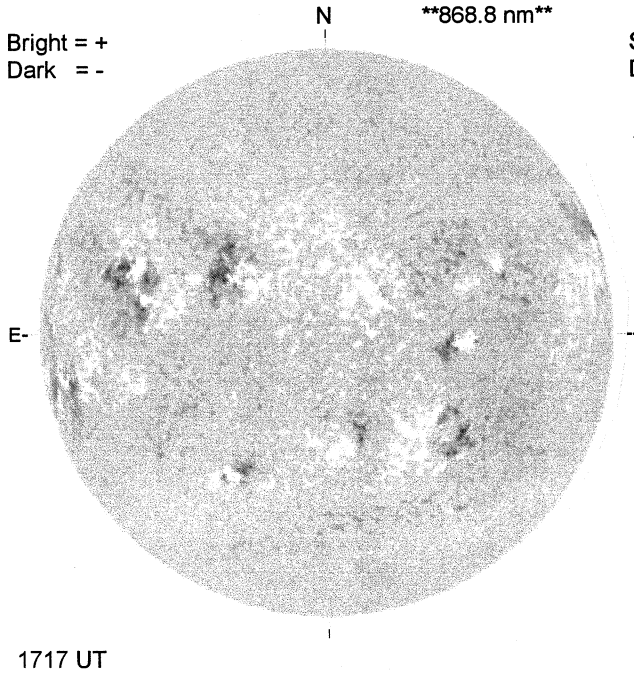
Dates of Observation

PHOTOGRAPHIC DATA UNAVAILABLE AT TIME OF PUBLICATION.

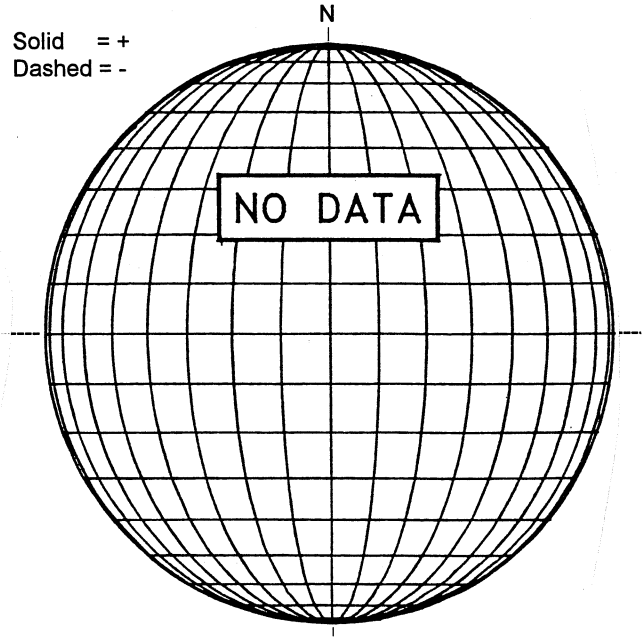
Heliographic Longitude

NOVEMBER 1, 2002 (P= 24.54, Bo = 4.40, Lo = 26.04)

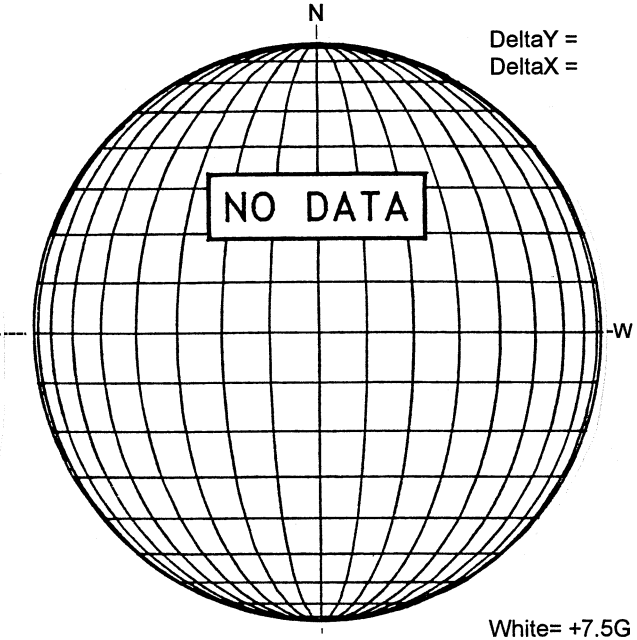
KITT PEAK MAGNETOGRAM



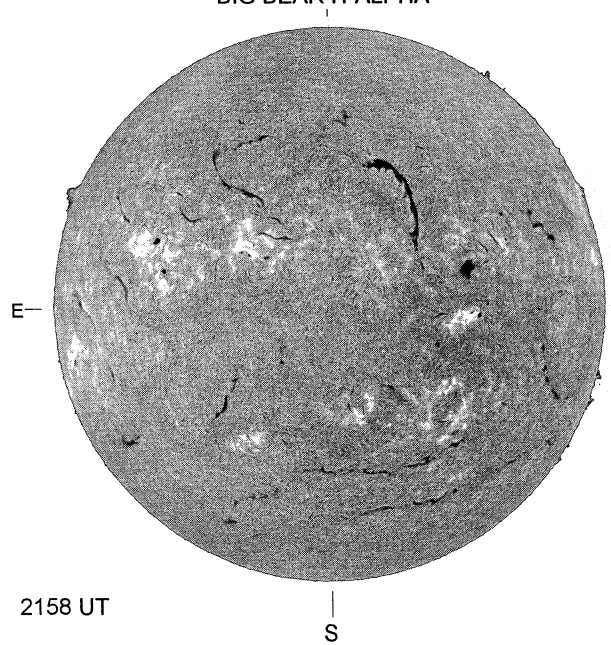
STANFORD MAGNETOGRAM



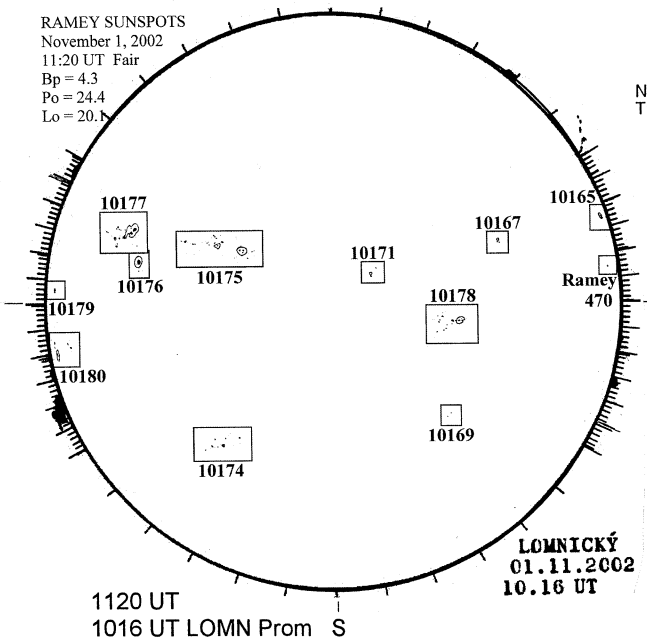
MT. WILSON MAGNETOGRAM



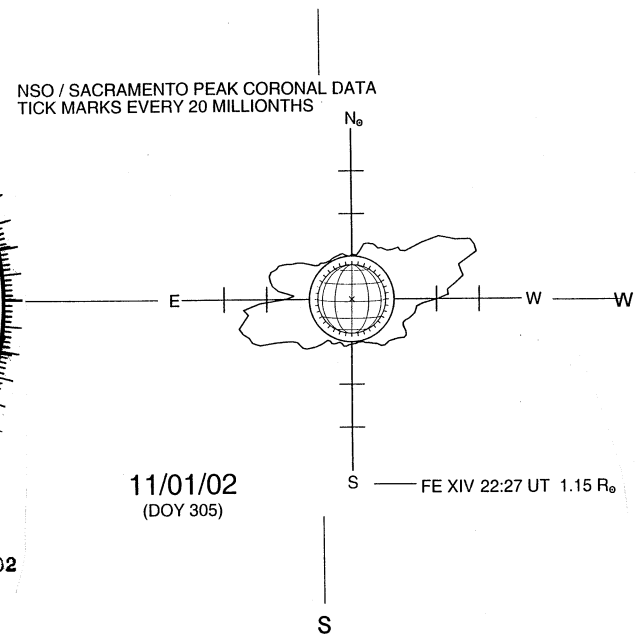
BIG BEAR H-ALPHA



RAMEY SUNSPOT

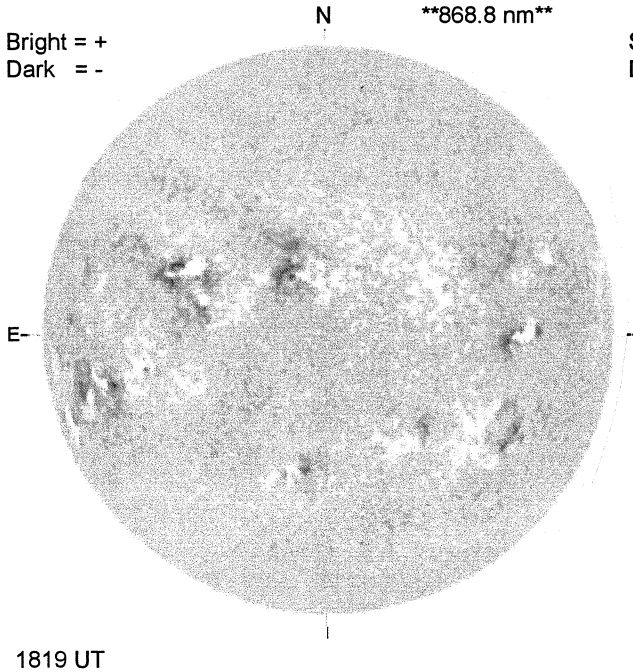


SACRAMENTO PEAK CORONA (1.15 Radii)----



NOVEMBER 2, 2002 (P= 24.37, Bo = 4.30, Lo = 12.86)

KITT PEAK MAGNETOGRAM



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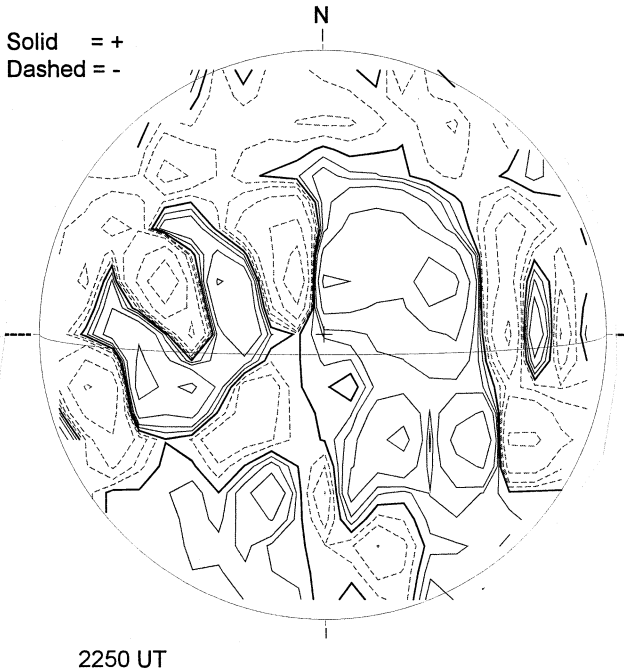

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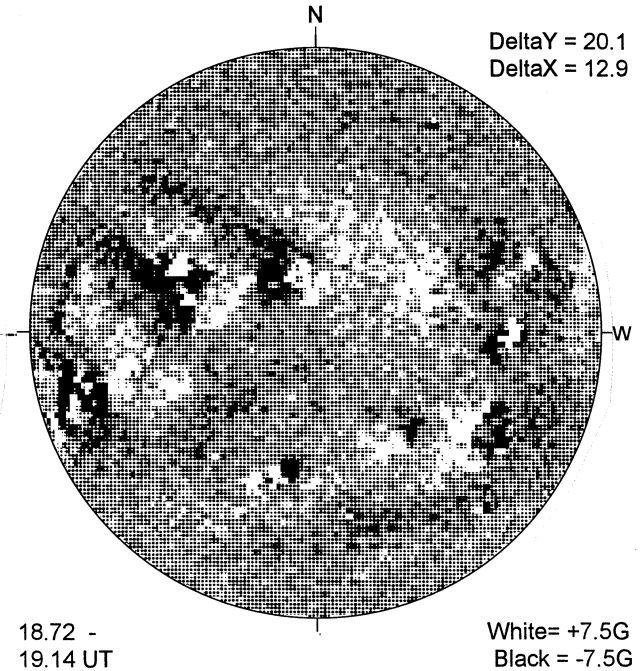
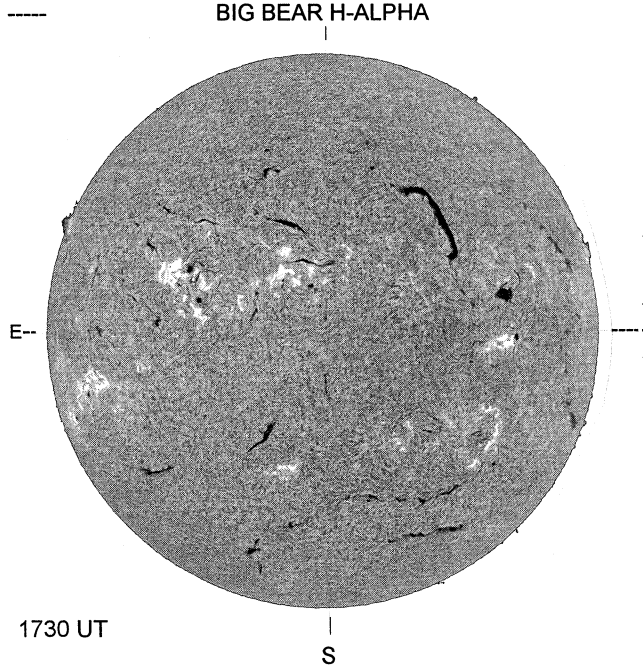
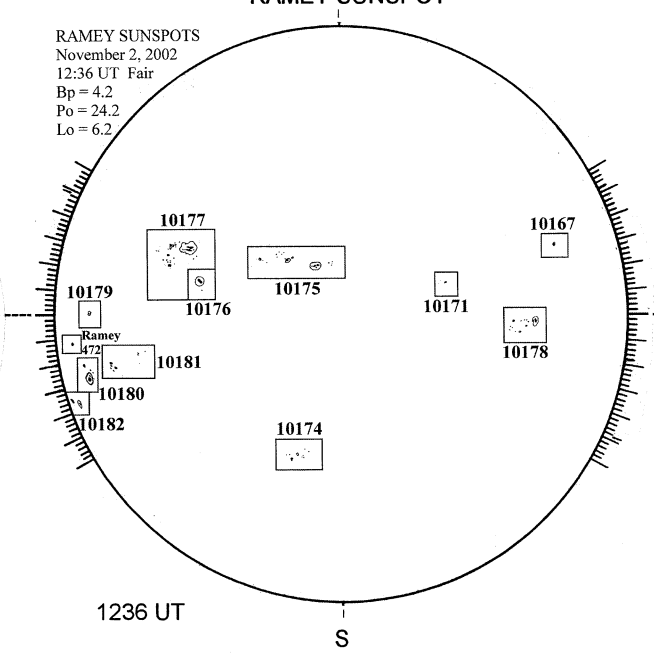


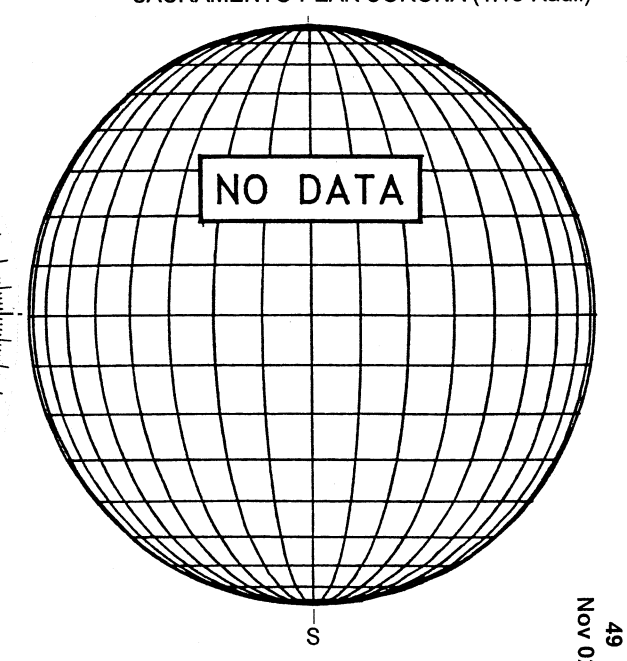
BIG BEAR H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----

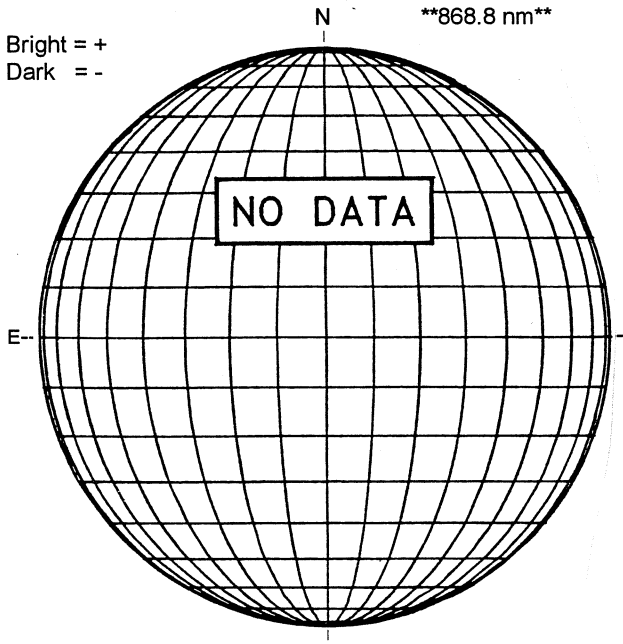


NOVEMBER 3, 2002 (P= 24.19, Bo = 4.19, Lo = 359.67)

KITT PEAK MAGNETOGRAM

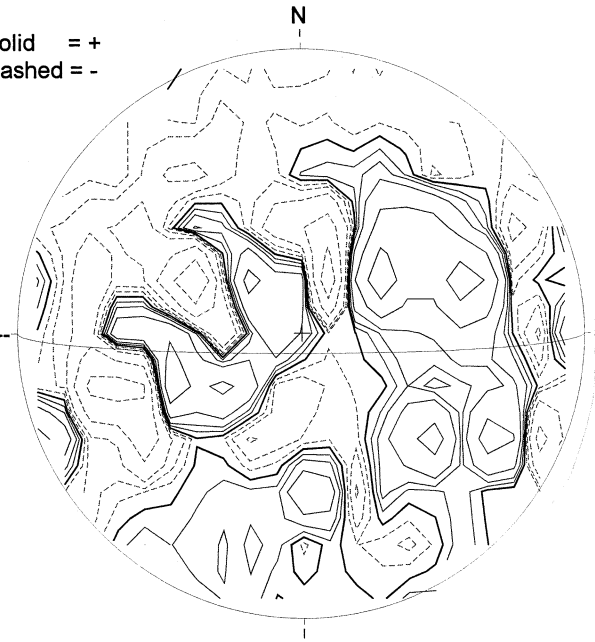
868.8 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

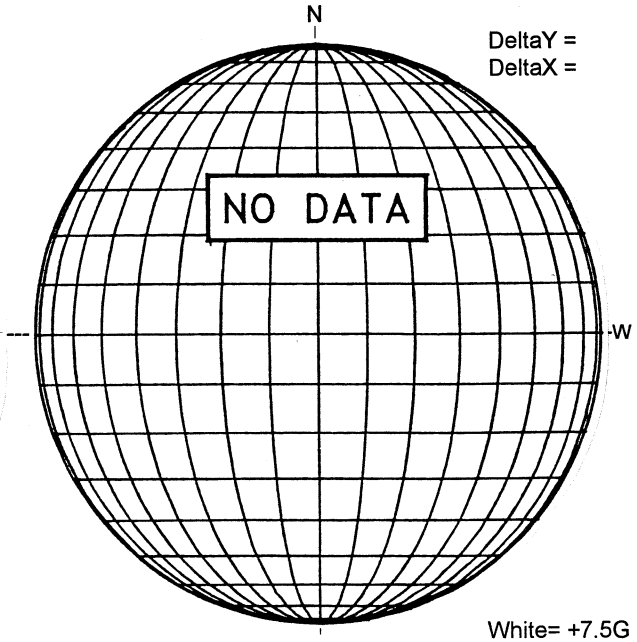
Solid = +
Dashed = -



2136 UT

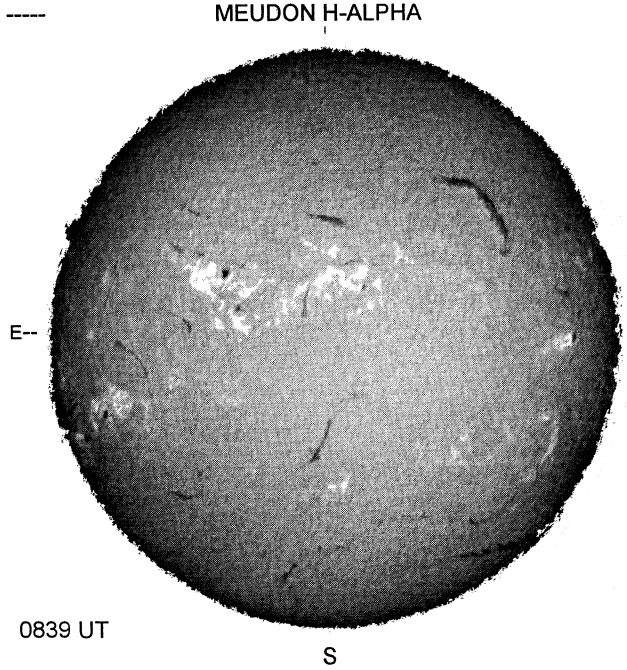
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



White= +7.5G
Black = -7.5G

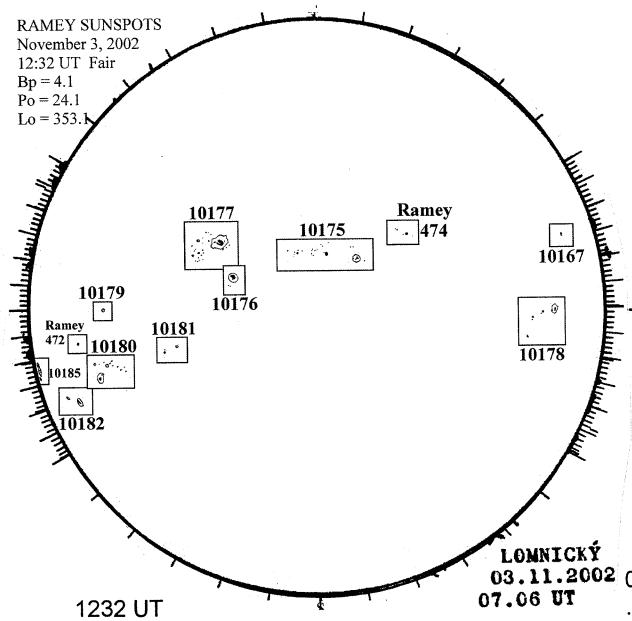
MEUDON H-ALPHA



0839 UT

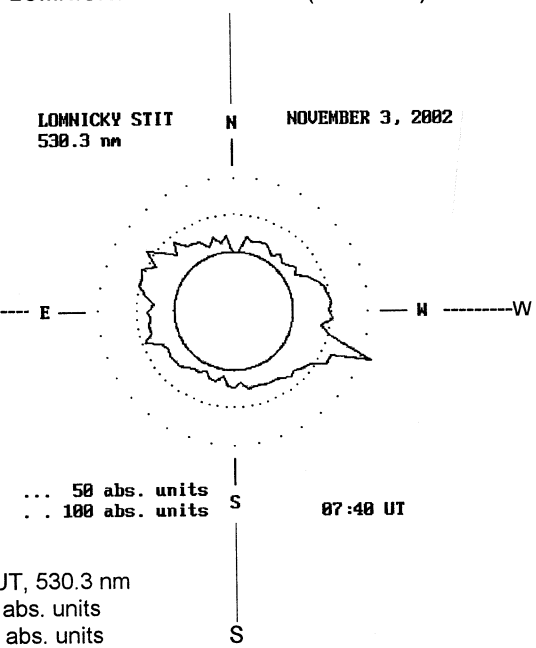
RAMEY SUNSPOT

RAMEY SUNSPOTS
November 3, 2002
12:32 UT Fair
Bp = 4.1
Po = 24.1
Lo = 353.1



1232 UT
0706 UT LOMN Prom

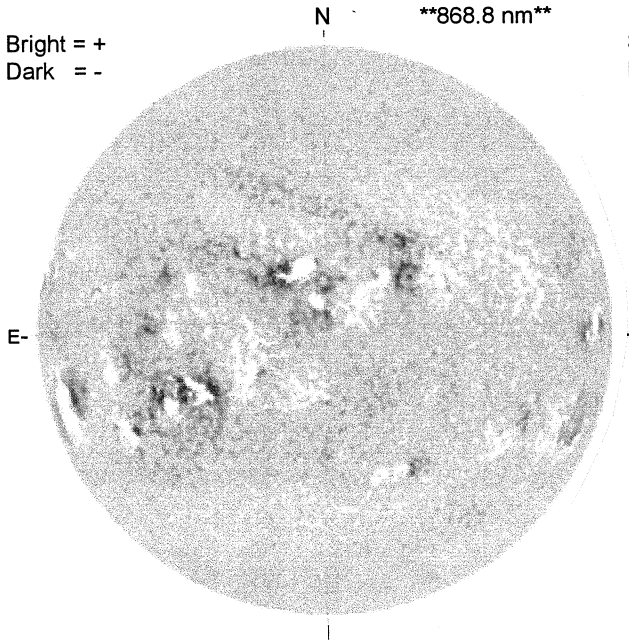
LOMNICKY PEAK CORONA (1.04 Radii)



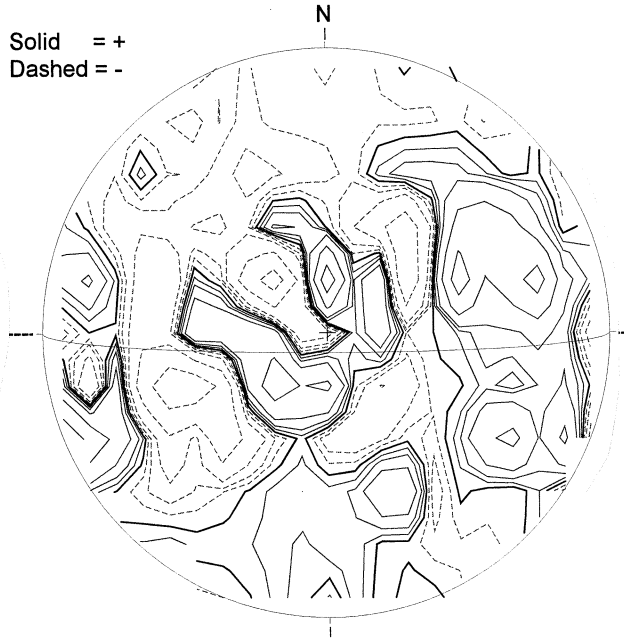
0740 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

NOVEMBER 4, 2002 (P= 24.01, Bo = 4.09, Lo = 346.48)

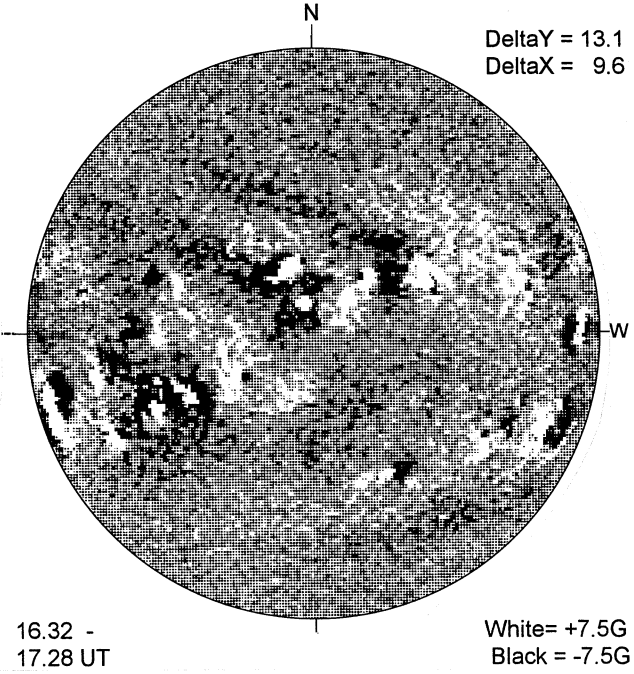
KITT PEAK MAGNETOGRAM



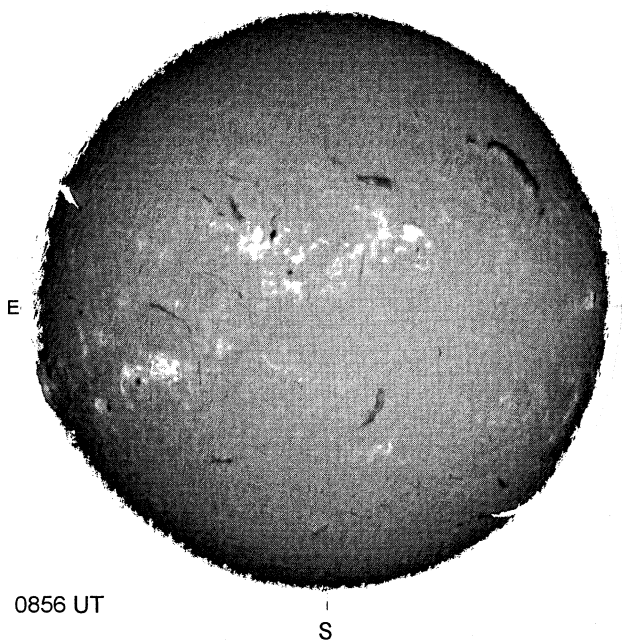
STANFORD MAGNETOGRAM



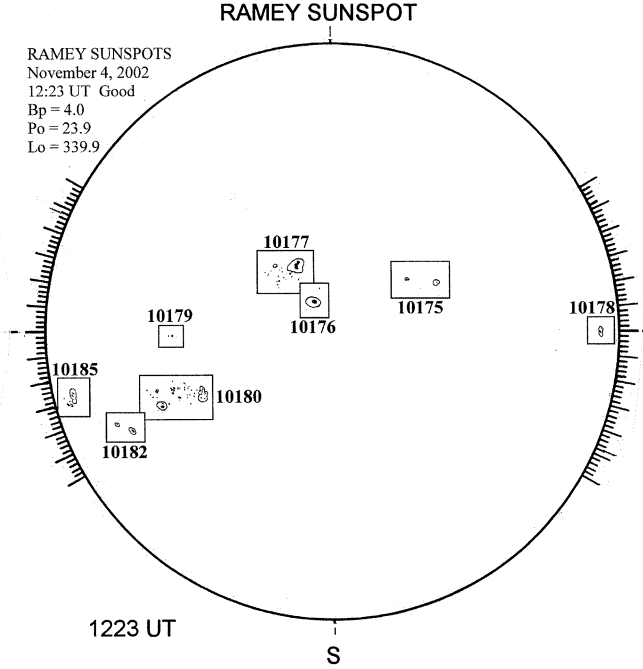
MT. WILSON MAGNETOGRAM



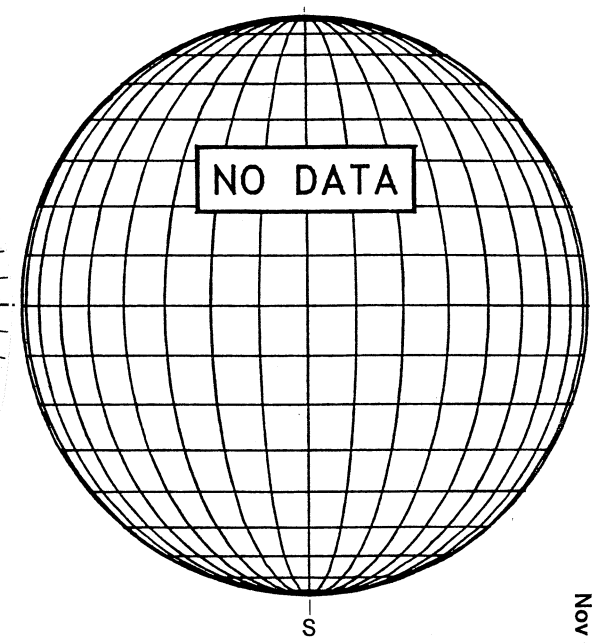
MEUDON H-ALPHA



RAMEY SUNSPOT

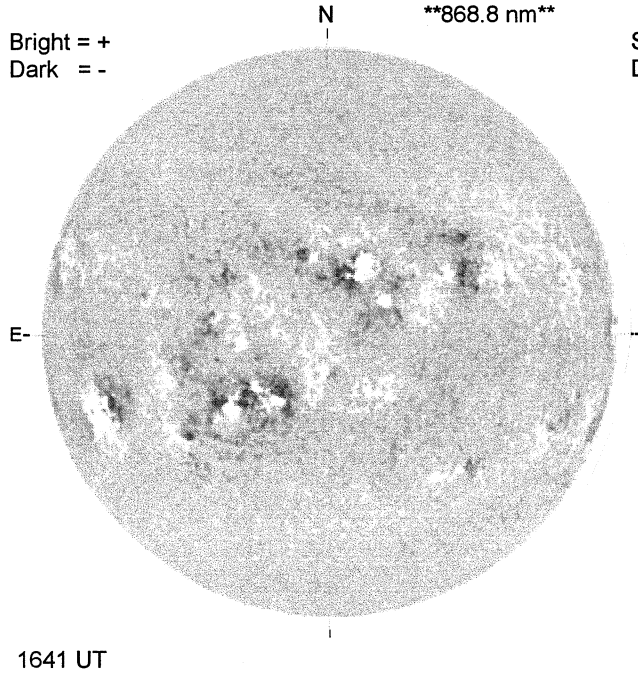


SACRAMENTO PEAK CORONA (1.15 Radii)----

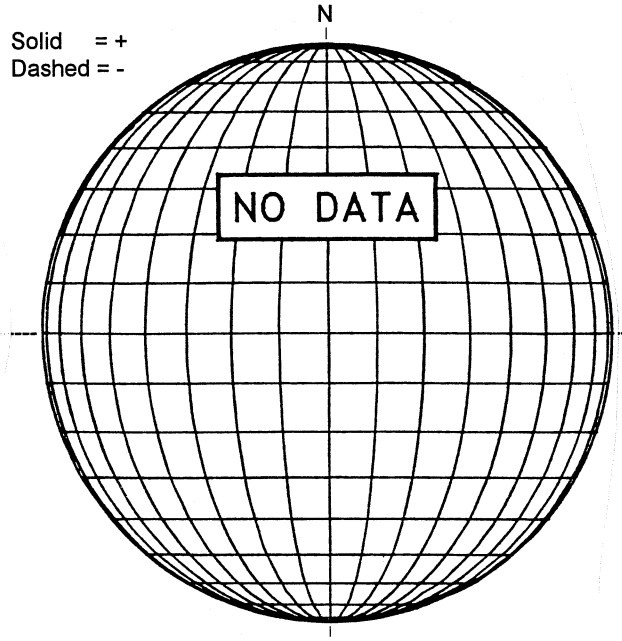


NOVEMBER 5, 2002 (P= 23.82, Bo = 3.98, Lo = 333.30)

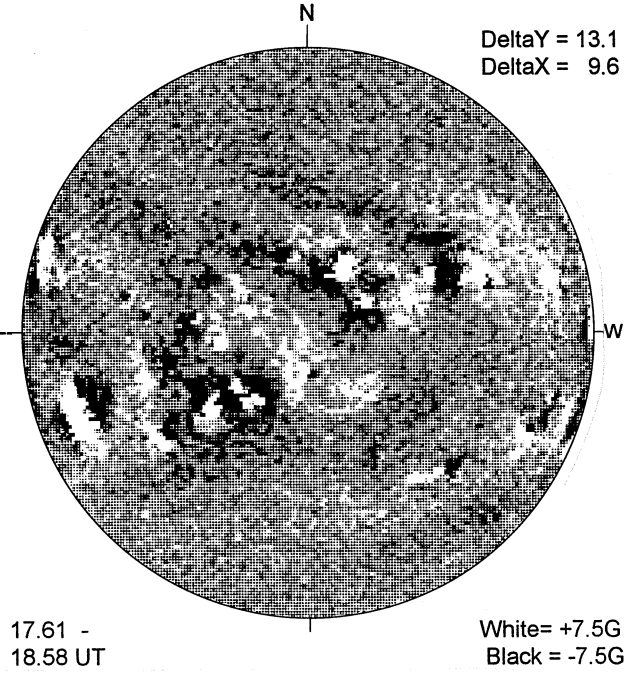
KITT PEAK MAGNETOGRAM



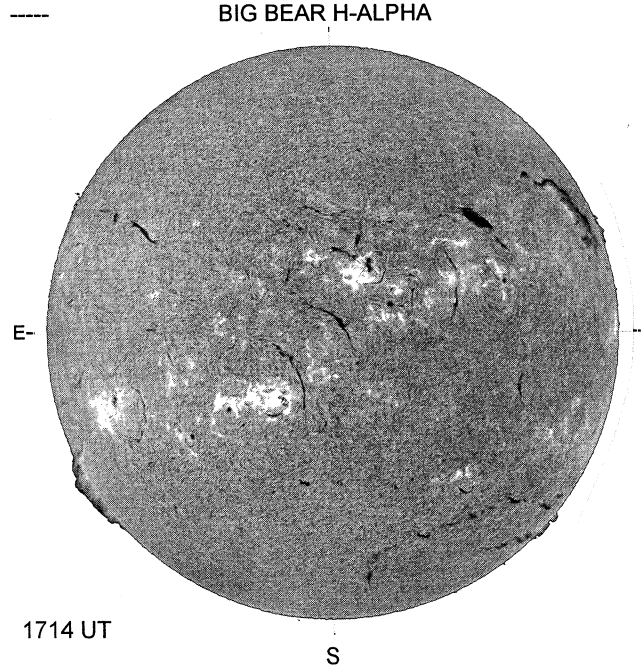
STANFORD MAGNETOGRAM



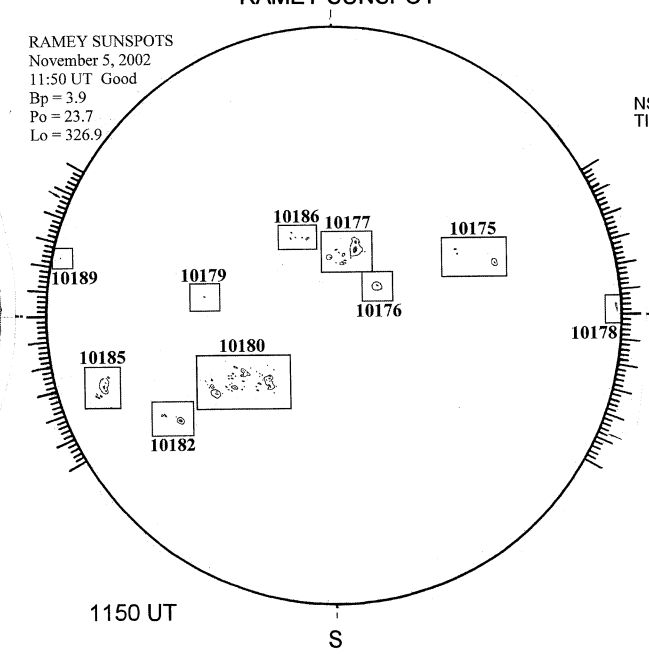
MT. WILSON MAGNETOGRAM



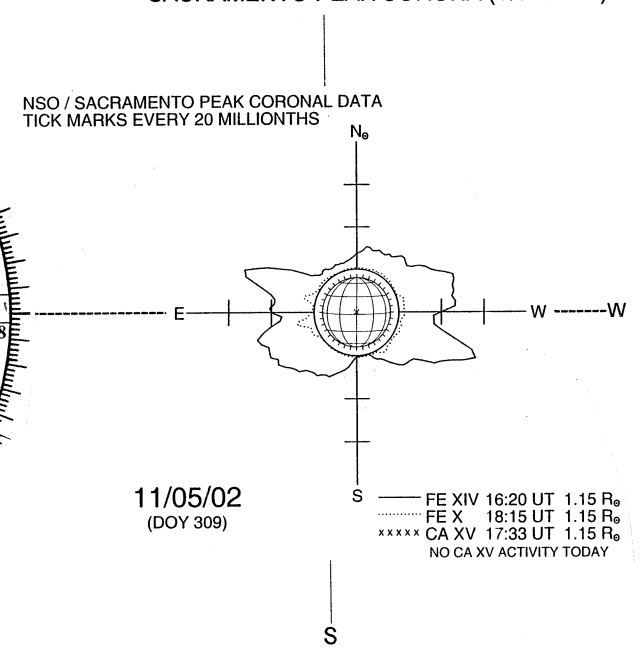
BIG BEAR H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----

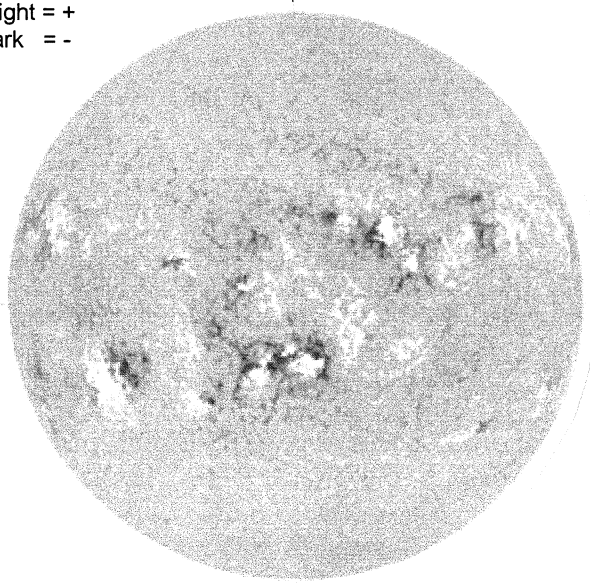


NOVEMBER 6, 2002 (P= 23.62, Bo = 3.88, Lo = 320.11)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



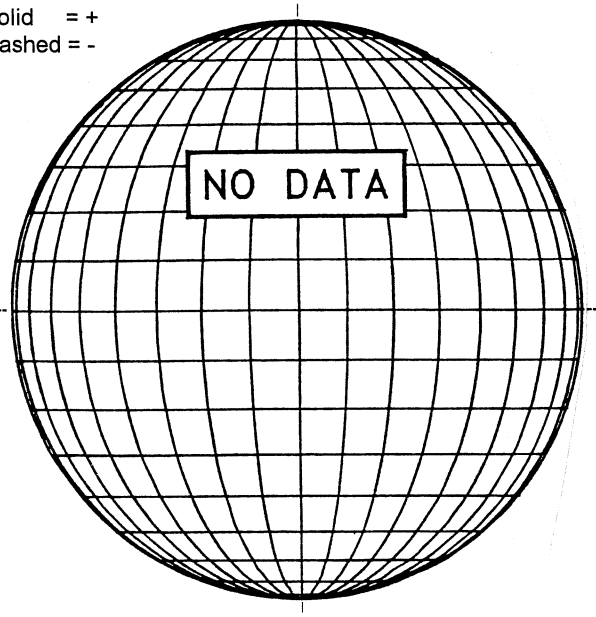
E-

1641 UT

STANFORD MAGNETOGRAM

N

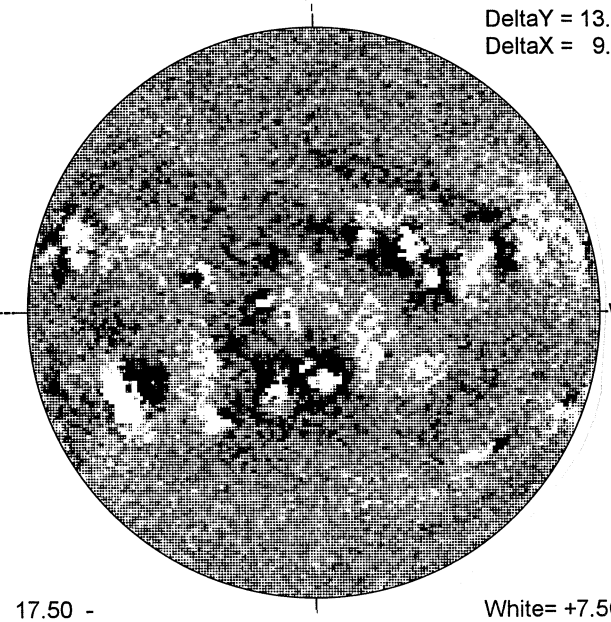
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

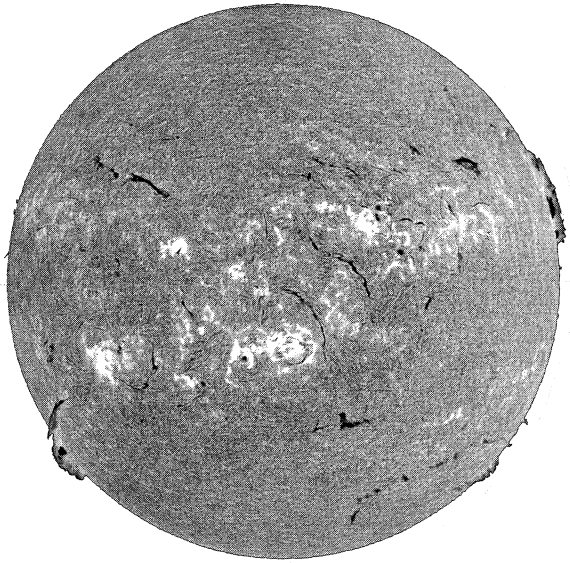


W

17.50 -
18.46 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

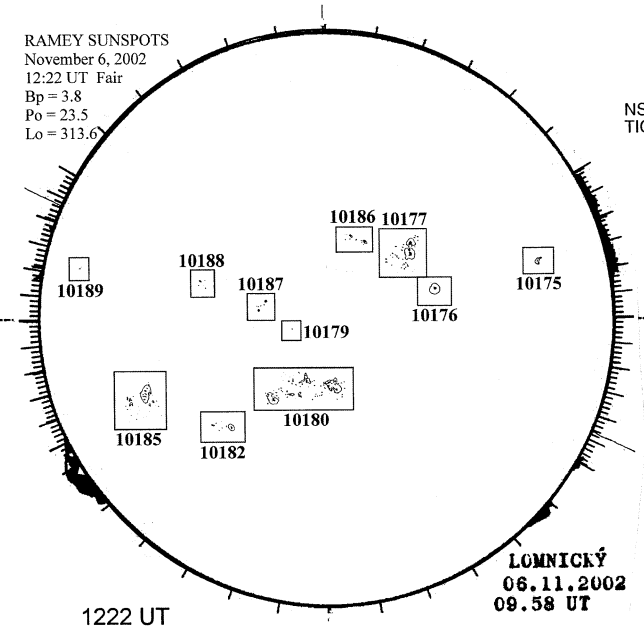


E--

1825 UT

S

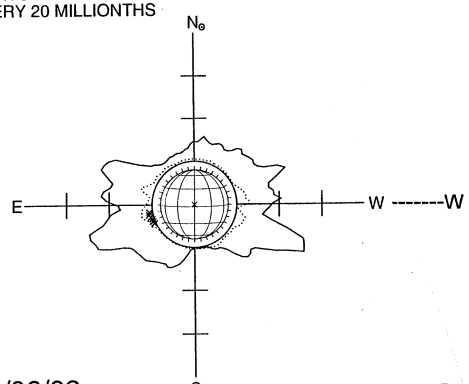
RAMEY SUNSPOT



1222 UT
0958 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



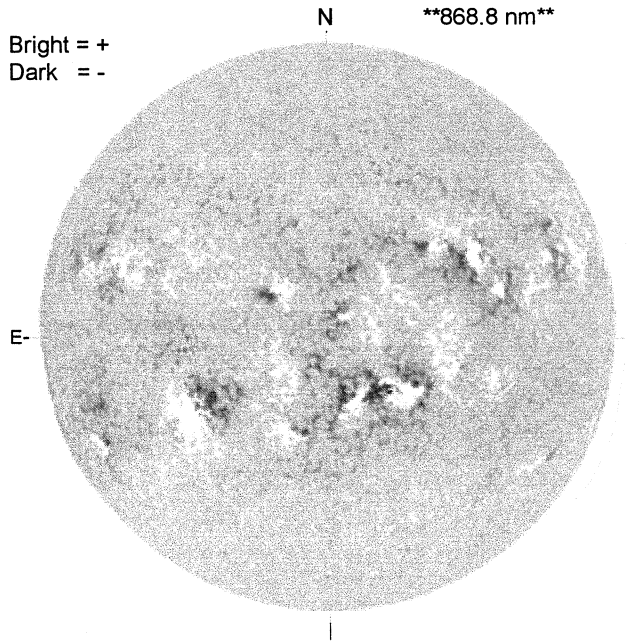
11/06/02
(DOY 310)

FE XIV 16:51 UT 1.15 R☉
FE X 18:01 UT 1.15 R☉
xxxxx CA XV 17:39 UT 1.15 R☉

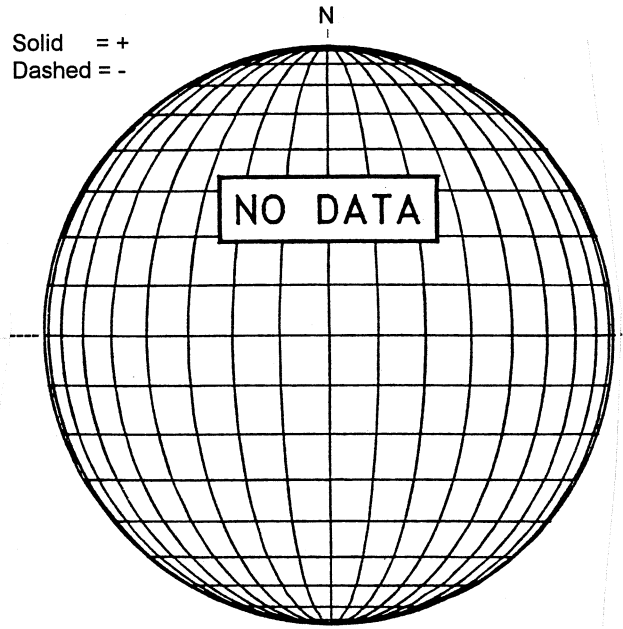
S

NOVEMBER 7, 2002 (P= 23.41, Bo = 3.77, Lo = 306.93)

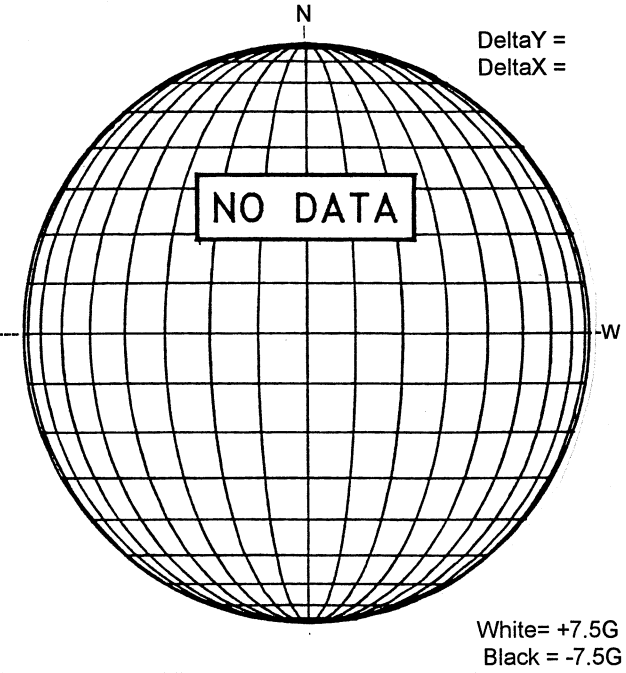
KITT PEAK MAGNETOGRAM



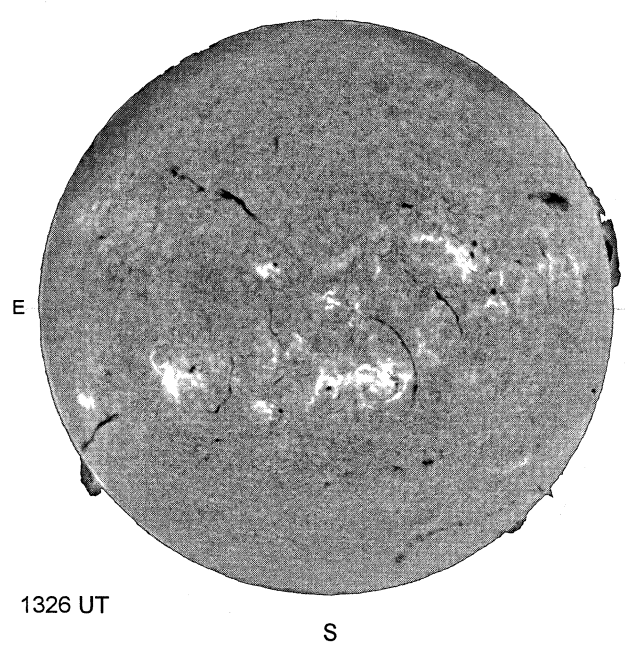
STANFORD MAGNETOGRAM



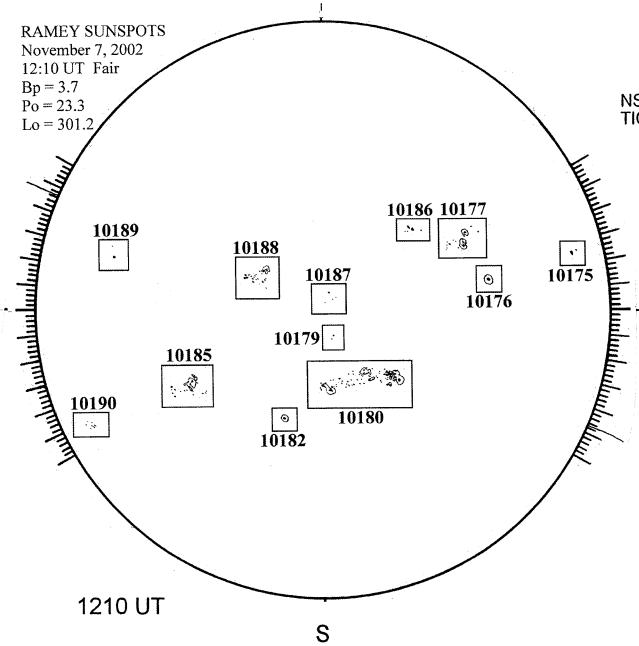
MT. WILSON MAGNETOGRAM



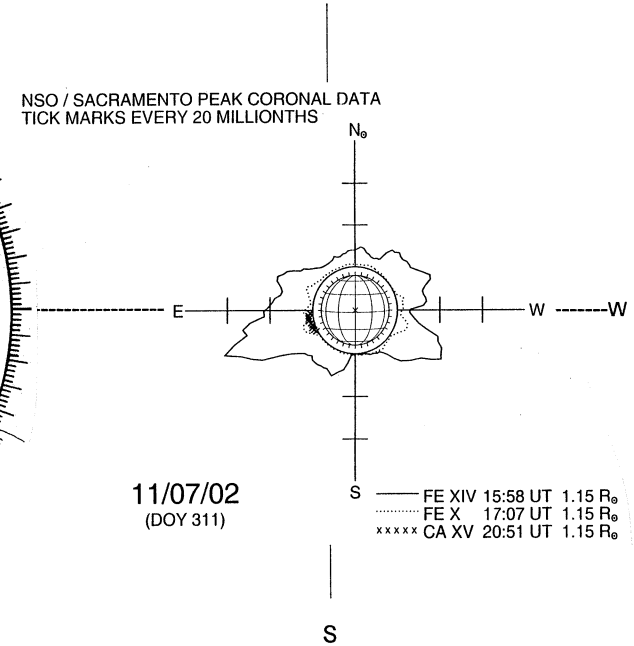
KANZELHOHE H-ALPHA



RAMEY SUNSPOTS

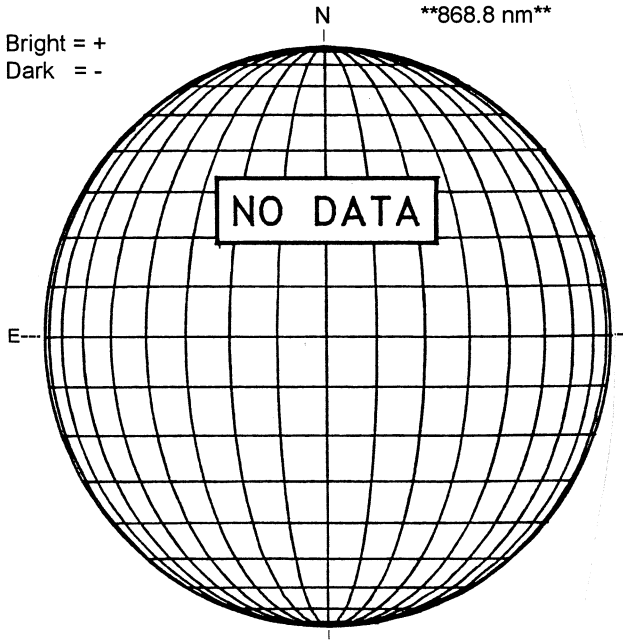


SACRAMENTO PEAK CORONA (1.15 Radii)----

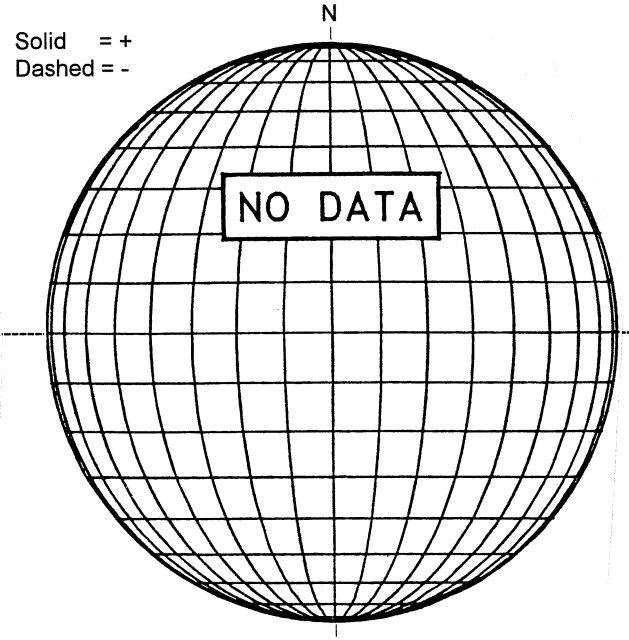


NOVEMBER 8, 2002 (P= 23.19, Bo = 3.66, Lo = 293.75)

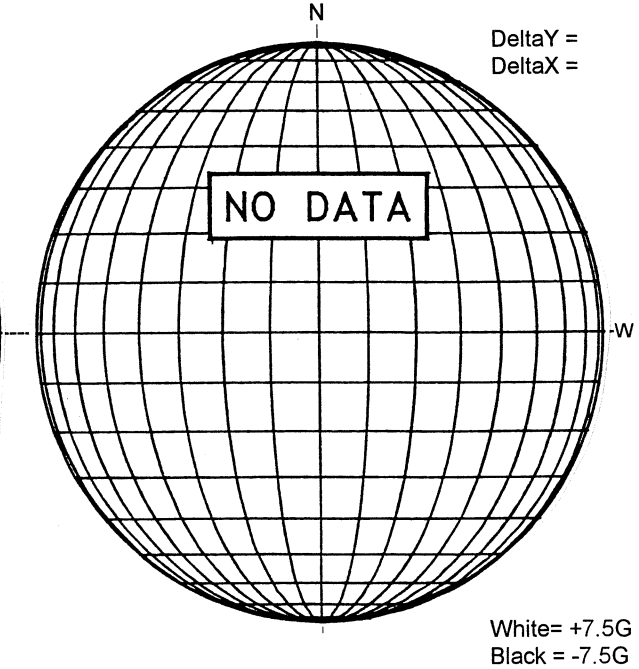
KITT PEAK MAGNETOGRAM



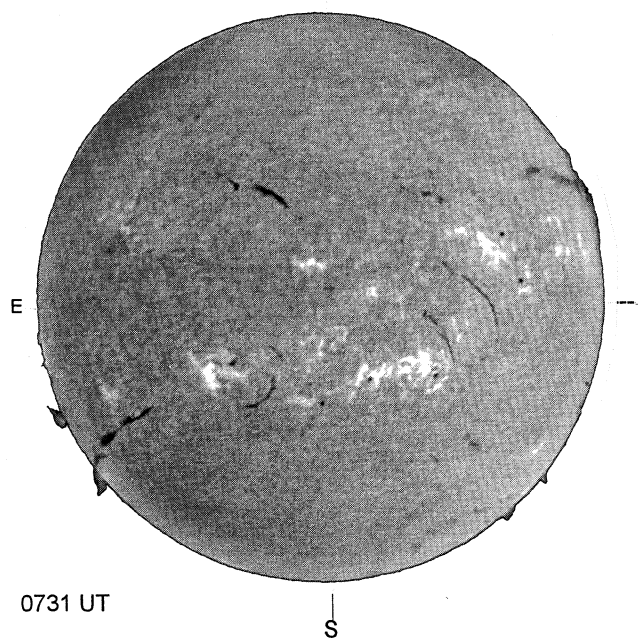
STANFORD MAGNETOGRAM



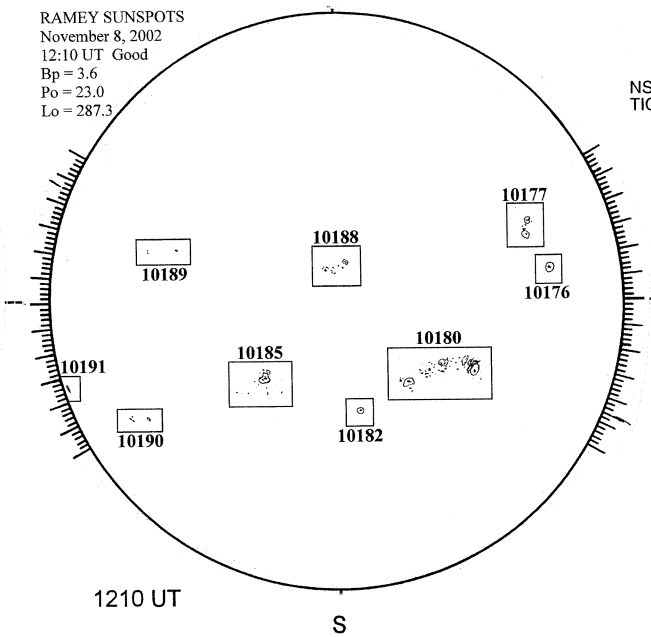
MT. WILSON MAGNETOGRAM



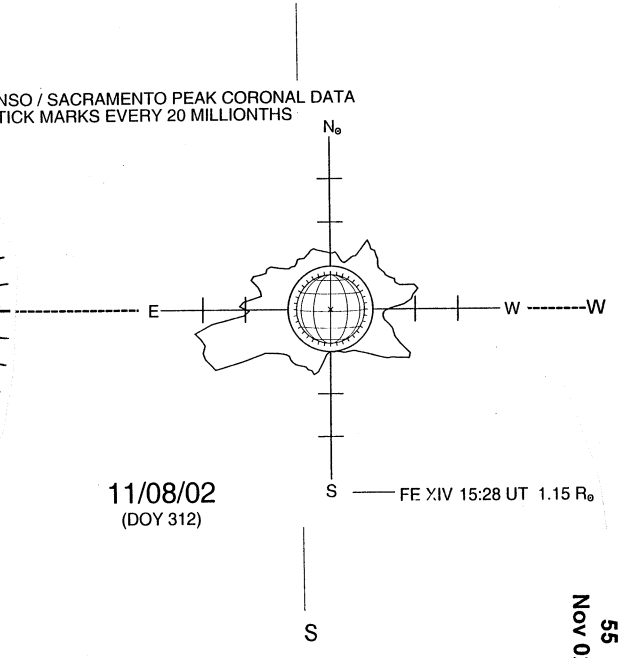
KANZELHOHE H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----



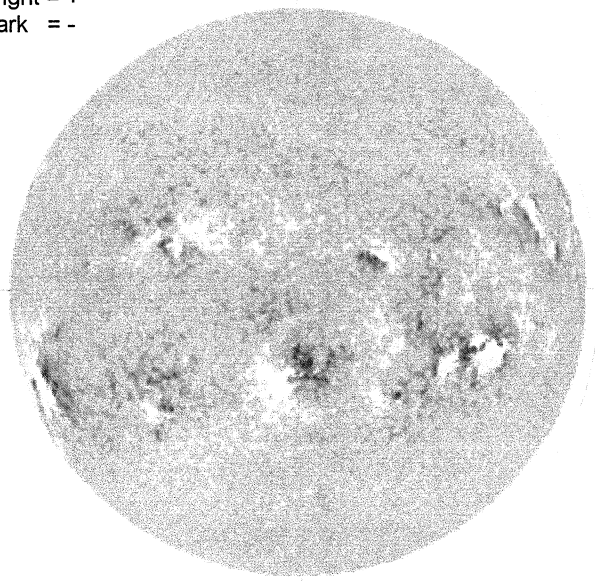
NOVEMBER 9, 2002 (P= 22.97, Bo = 3.55, Lo = 280.56)

KITT PEAK MAGNETOGRAM

N

**868.8 nm

Bright = +
Dark = -



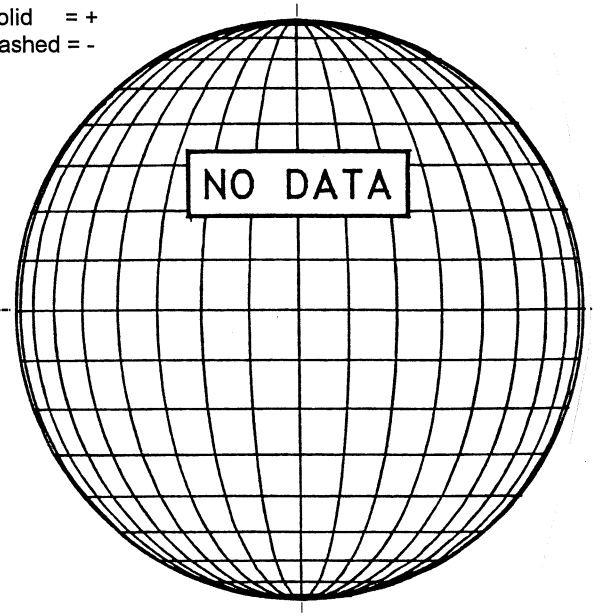
E-

1653 UT

STANFORD MAGNETOGRAM

N

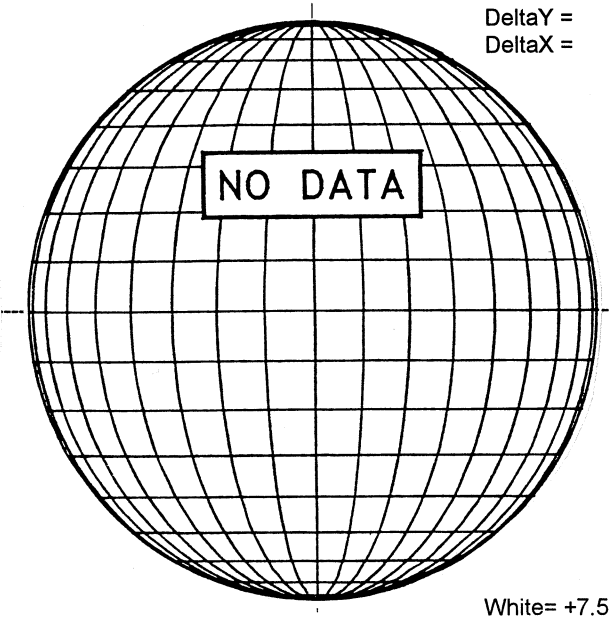
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

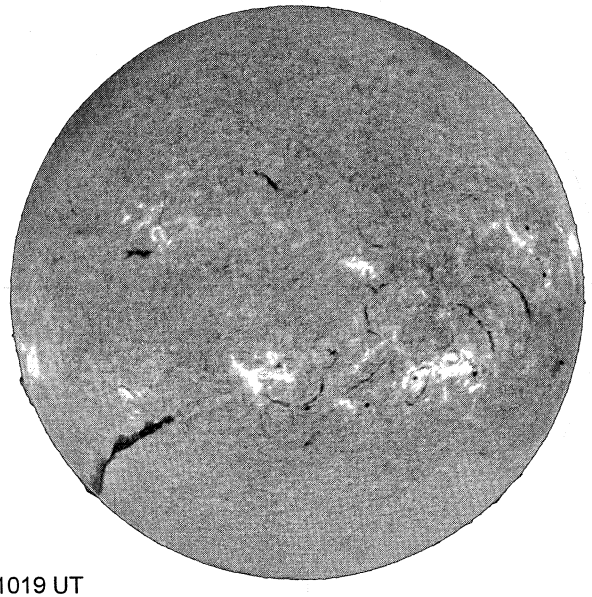
DeltaY =
DeltaX =



-W

White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA

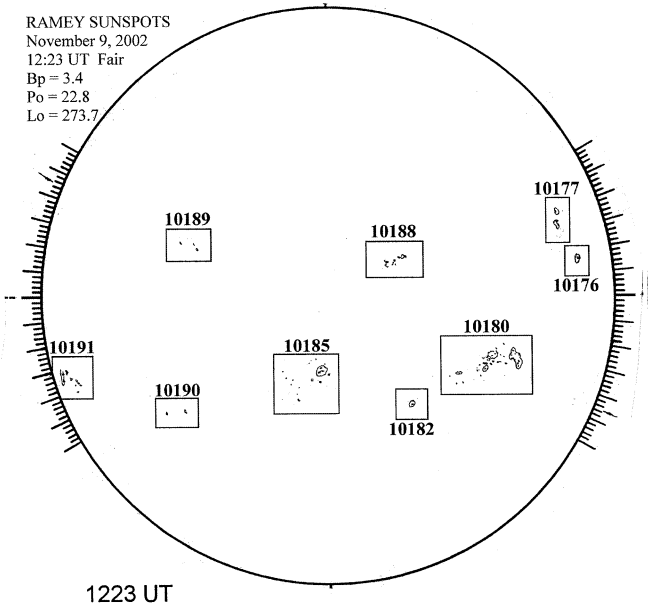


E

1019 UT

S

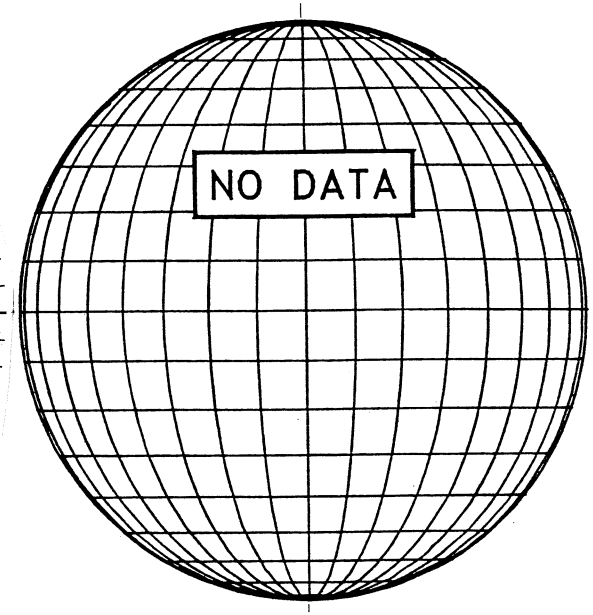
RAMEY SUNSPOT



1223 UT

S

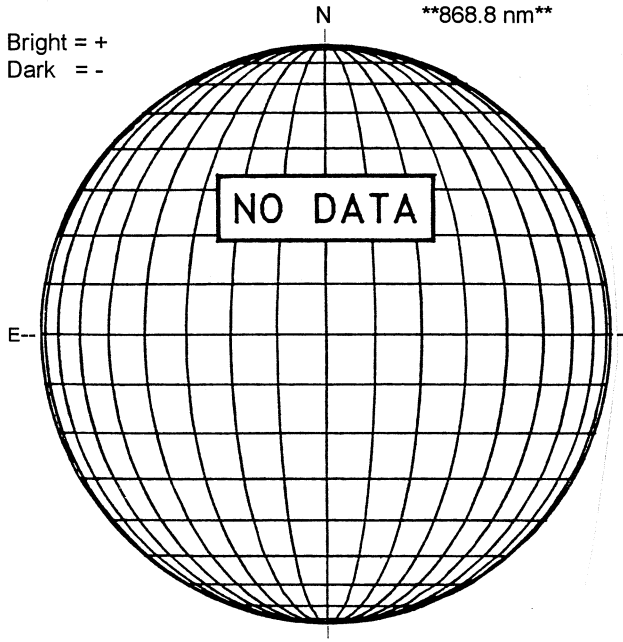
SACRAMENTO PEAK CORONA (1.15 Radii)----



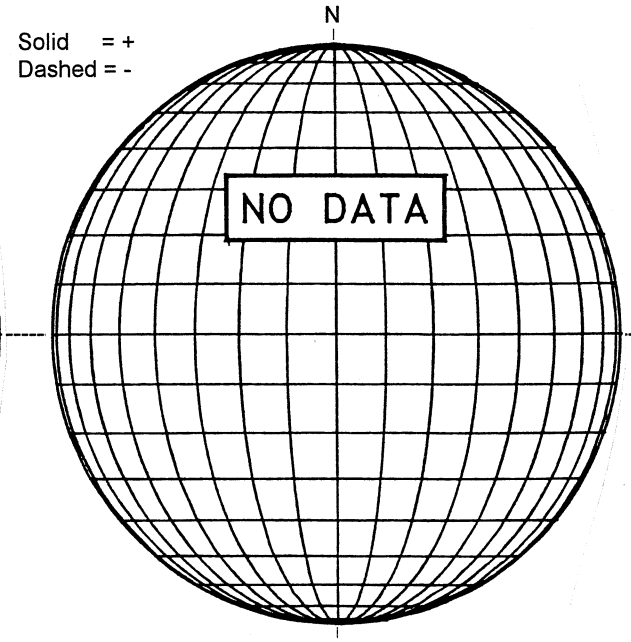
S

NOVEMBER 10, 2002 (P= 22.74, Bo = 3.44 Lo = 267.38)

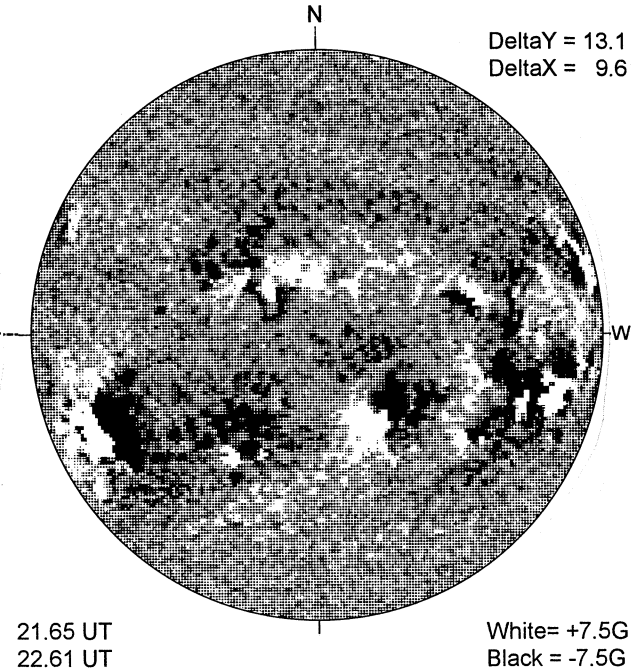
KITT PEAK MAGNETOGRAM



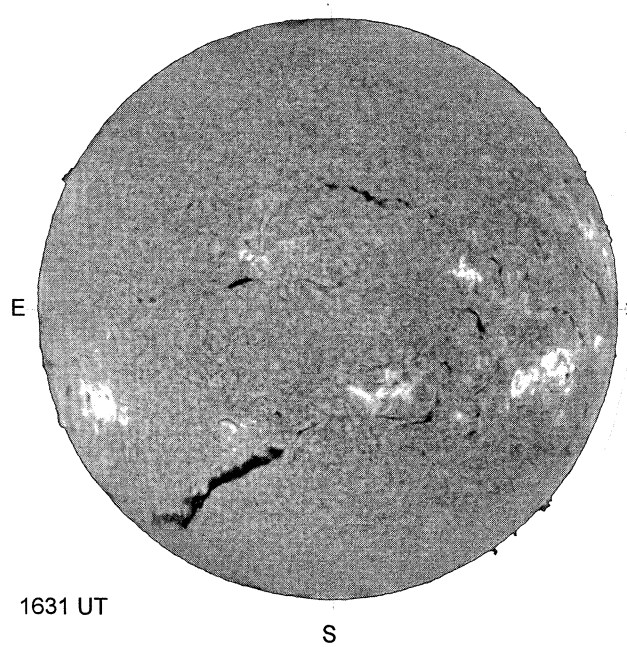
STANFORD MAGNETOGRAM



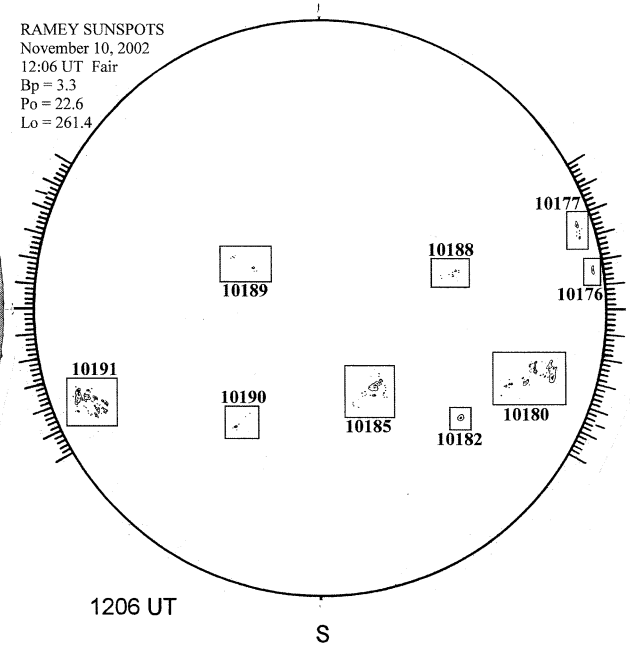
MT. WILSON MAGNETOGRAM



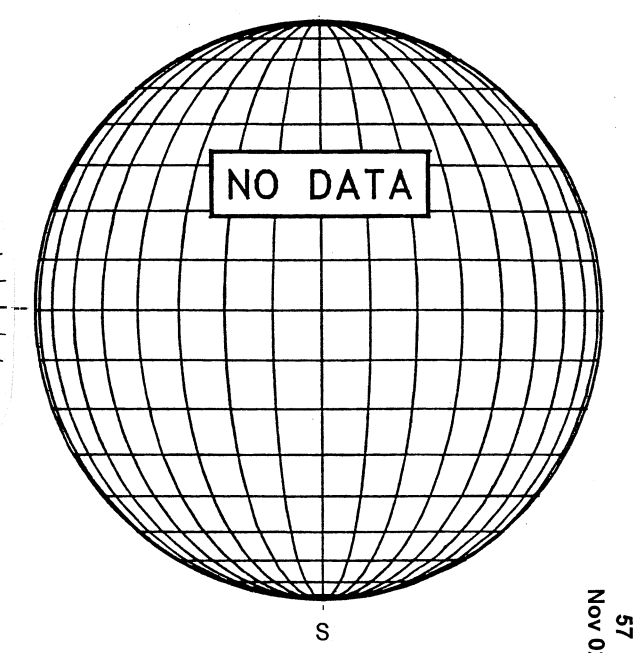
----- BIG BEAR H-ALPHA



RAMEY SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----

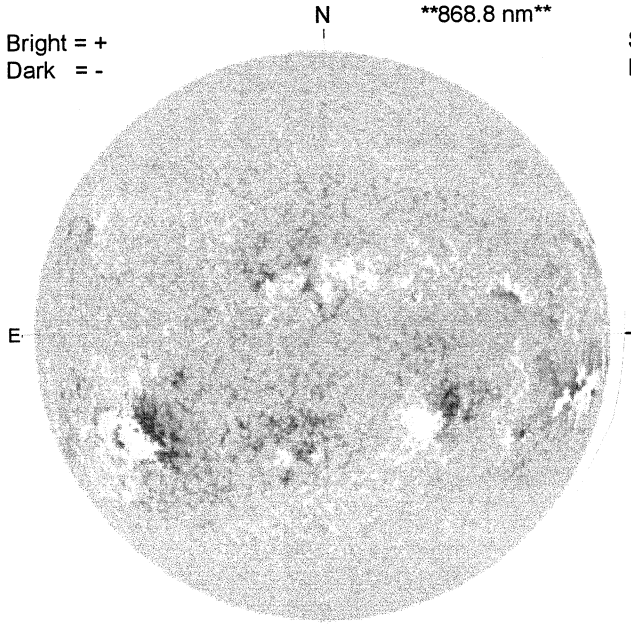


NOVEMBER 11, 2002 (P= 22.50, Bo = 3.33, Lo = 254.19)

KITT PEAK MAGNETOGRAM

868.8 nm

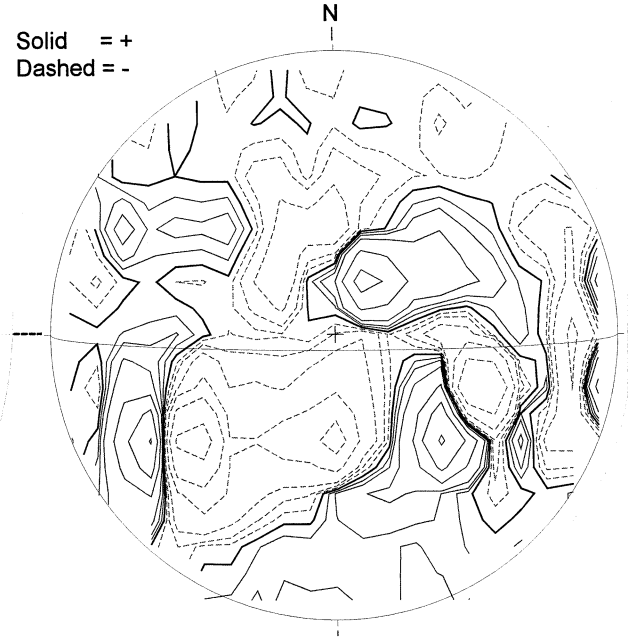
Bright = +
Dark = -



1617 UT

STANFORD MAGNETOGRAM

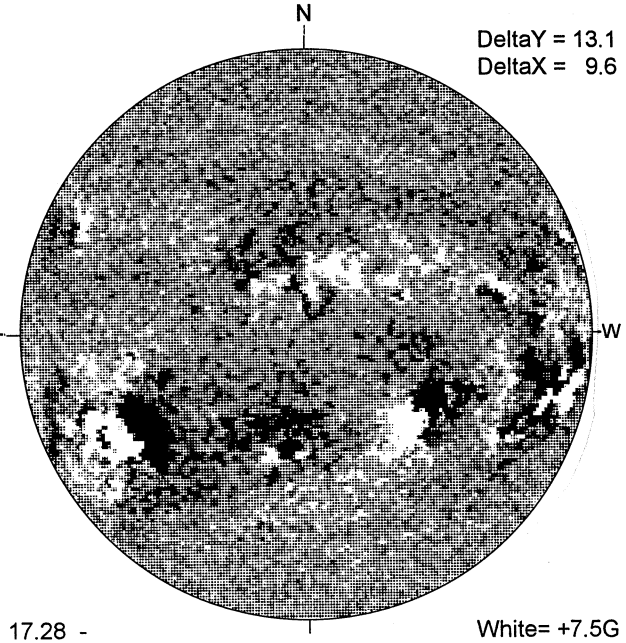
Solid = +
Dashed = -



2113 UT

MT. WILSON MAGNETOGRAM

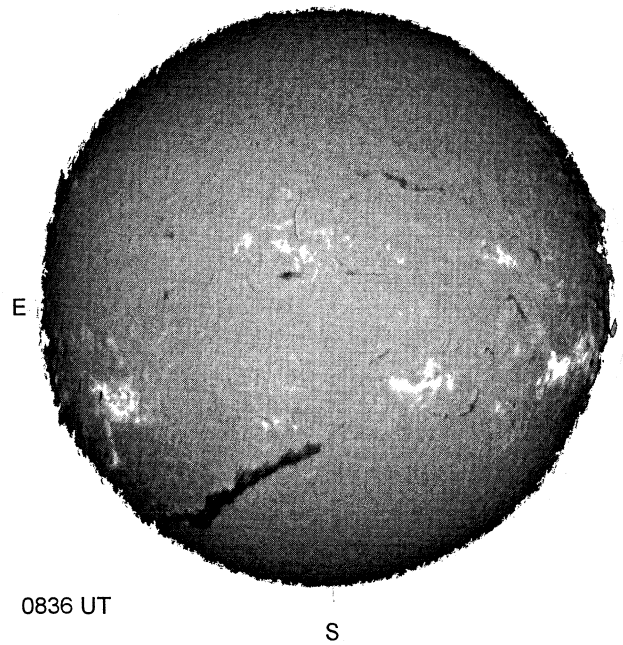
DeltaY = 13.1
DeltaX = 9.6



17.28 -
18.25 UT

White= +7.5G
Black = -7.5G

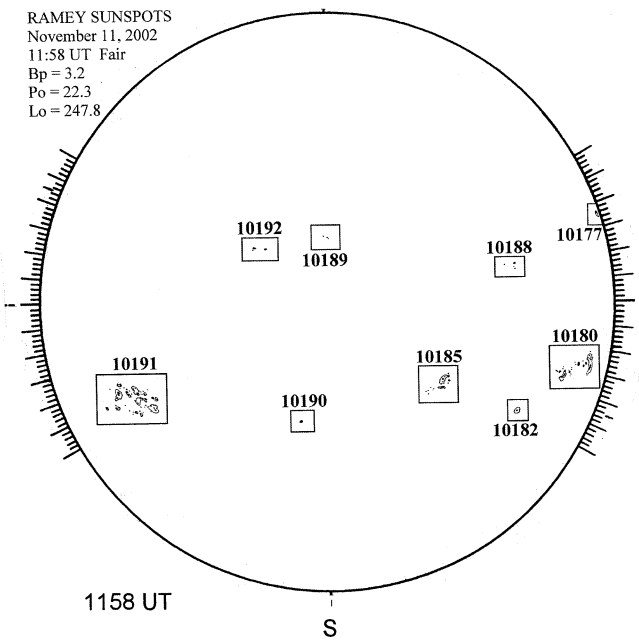
MEUDON H-ALPHA



0836 UT

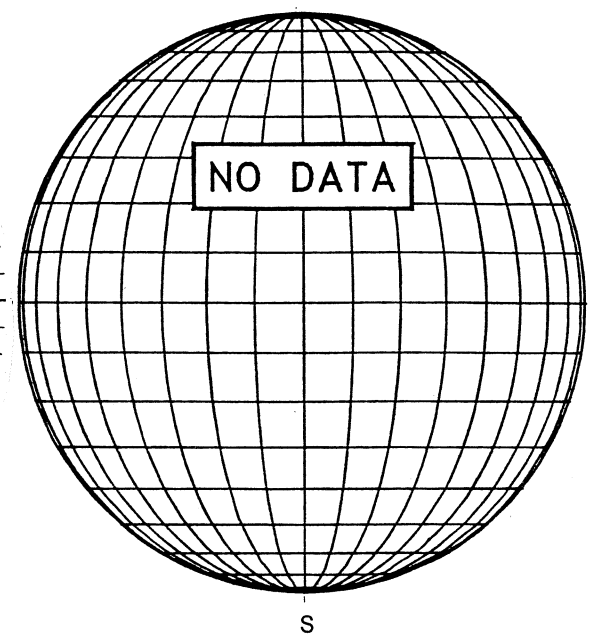
RAMEY SUNSPOTS

RAMEY SUNSPOTS
November 11, 2002
11:58 UT Fair
Bp = 3.2
Po = 22.3
Lo = 247.8



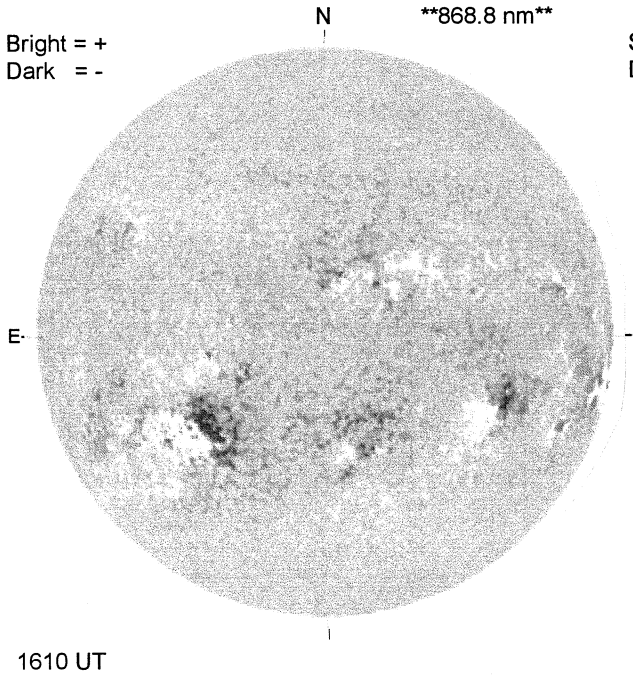
1158 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

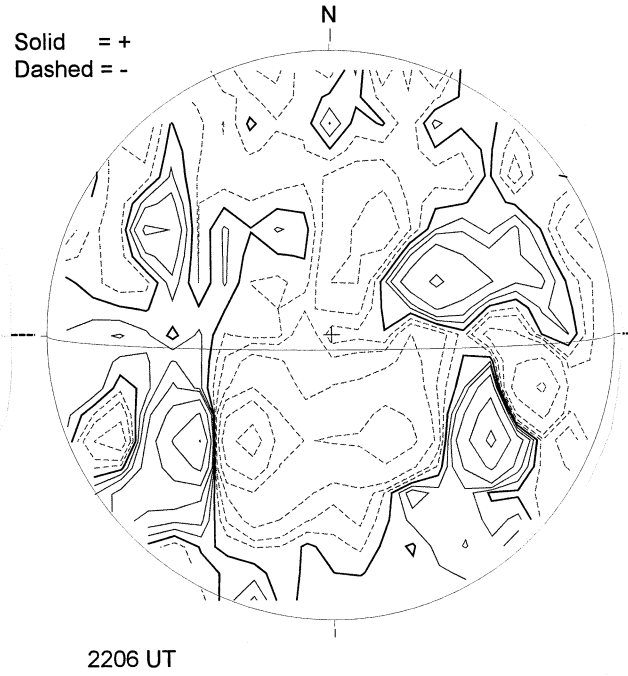


NOVEMBER 12, 2002 (P= 22.25 Bo = 3.21 Lo = 241.01)

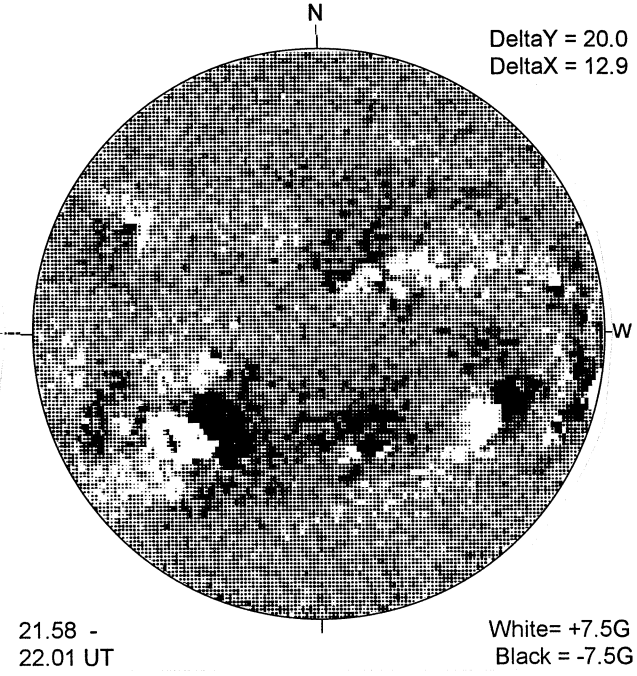
KITT PEAK MAGNETOGRAM



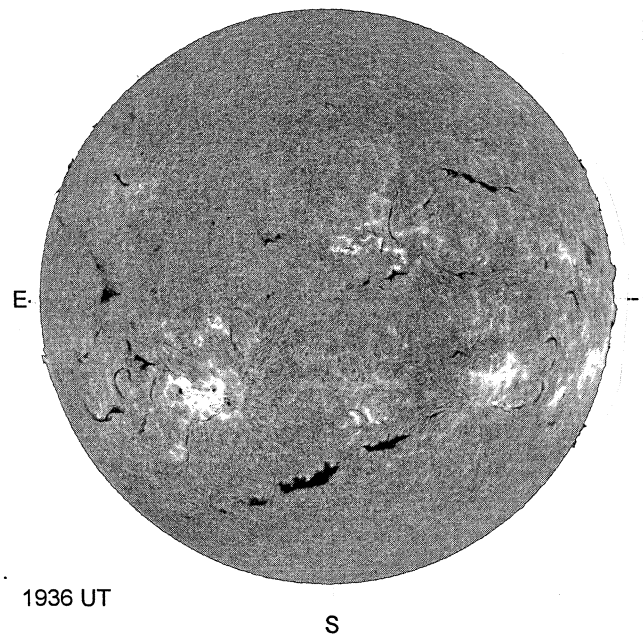
STANFORD MAGNETOGRAM



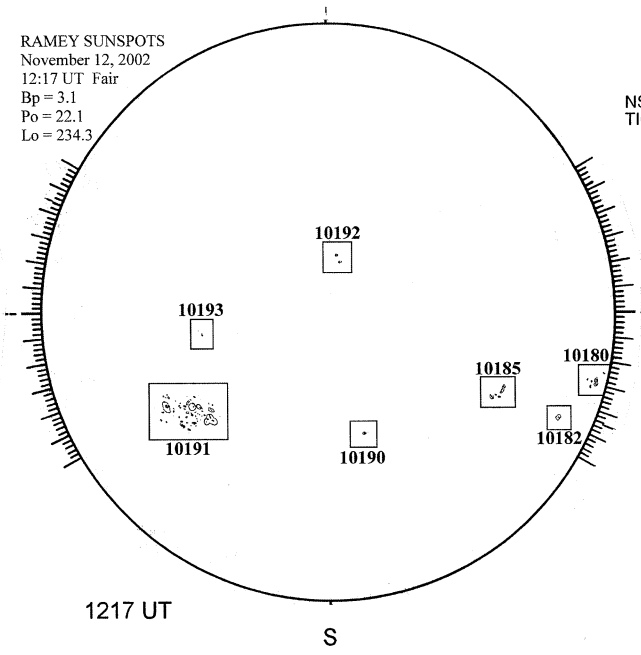
MT. WILSON MAGNETOGRAM



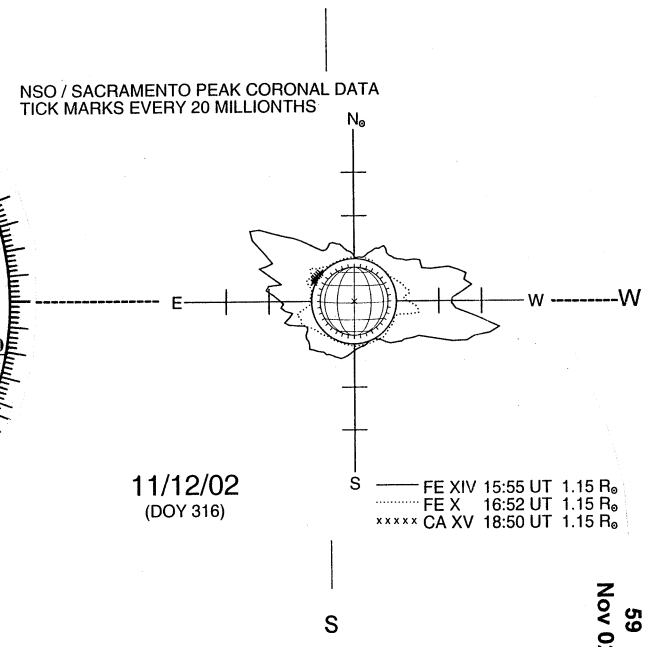
BIG BEAR H-ALPHA



RAMEY SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----

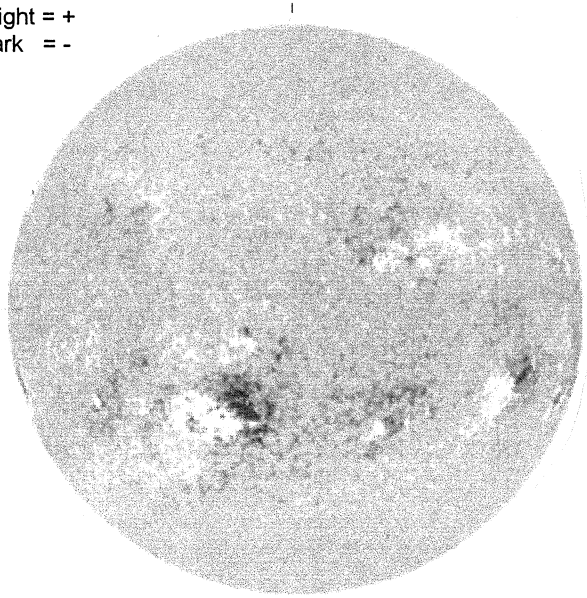


NOVEMBER 13, 2002 (P= 22.00, Bo = 3.10, Lo = 227.83)

KITT PEAK MAGNETOGRAM

868.8 nm

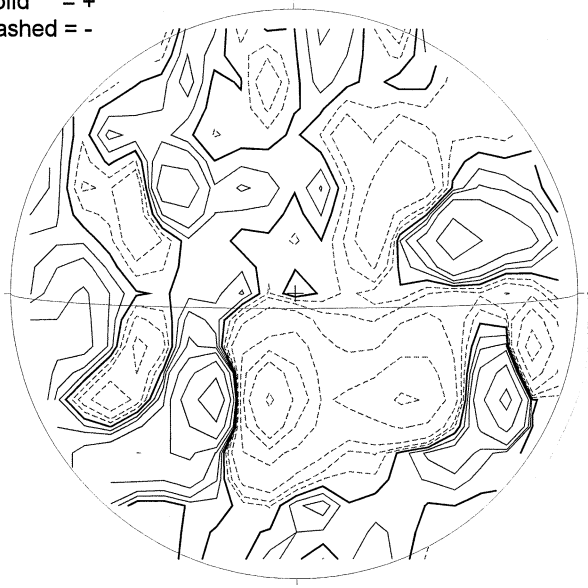
Bright = +
Dark = -



1615 UT

STANFORD MAGNETOGRAM

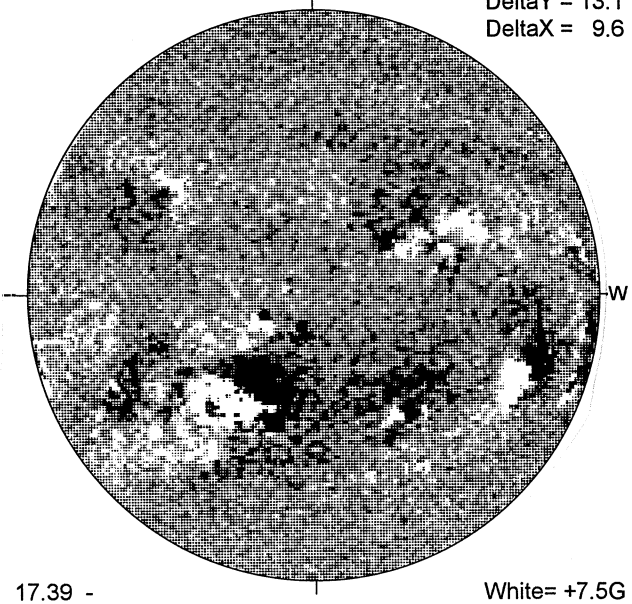
Solid = +
Dashed = -



2304 UT

MT. WILSON MAGNETOGRAM

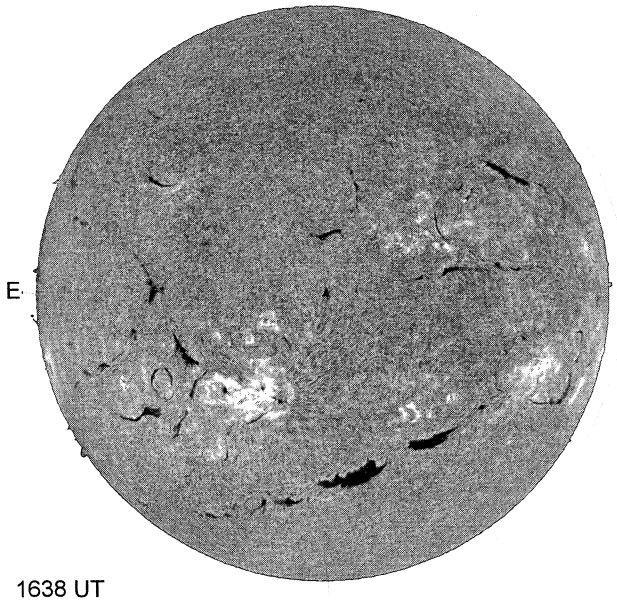
DeltaY = 13.1
DeltaX = 9.6



17.39 -
18.36 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

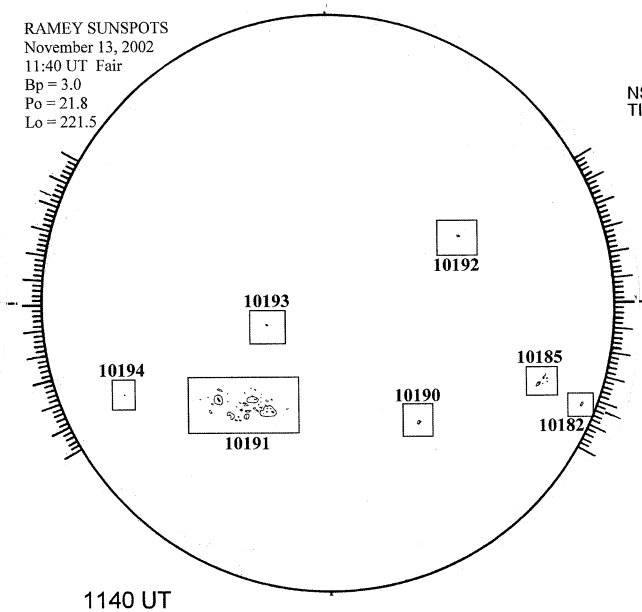


1638 UT

S

RAMEY SUNSPOT

RAMEY SUNSPOTS
November 13, 2002
11:40 UT Fair
Bp = 3.0
Po = 21.8
Lo = 221.5

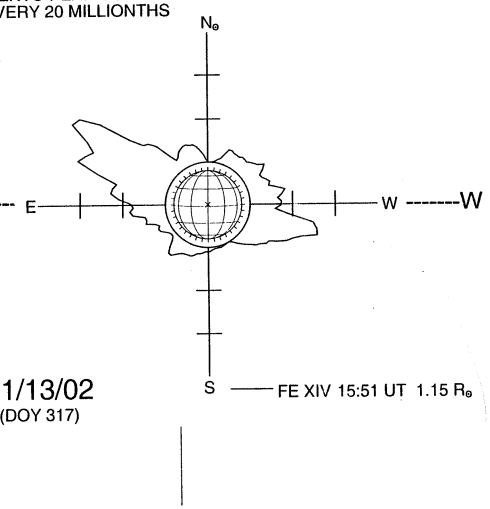


1140 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



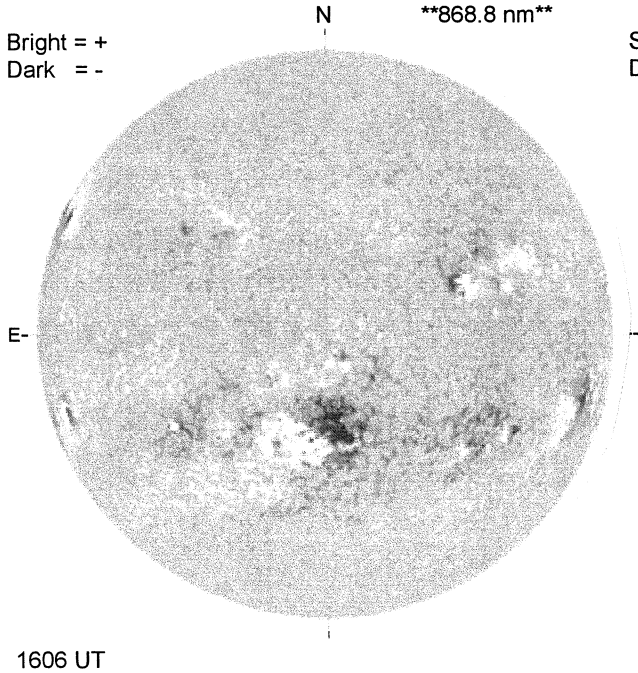
11/13/02
(DOY 317)

FE XIV 15:51 UT 1.15 R☉

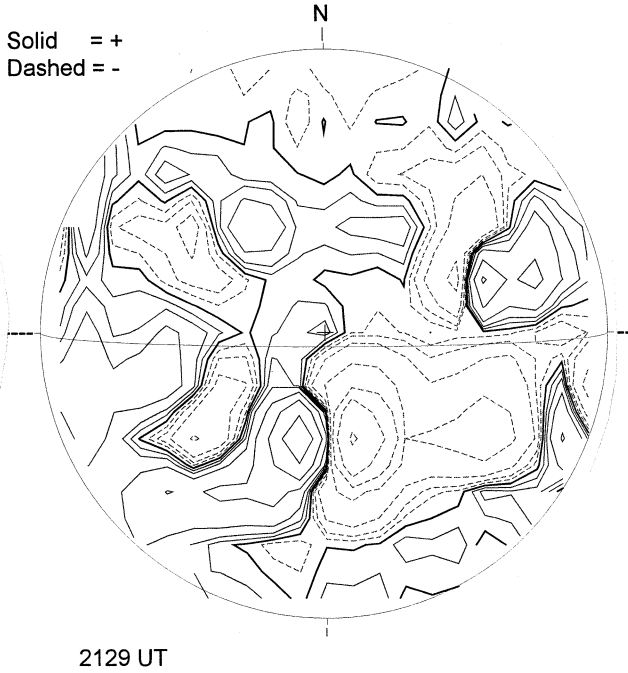
S

NOVEMBER 14, 2002 (P= 21.74, Bo = 2.98, Lo = 214.64)

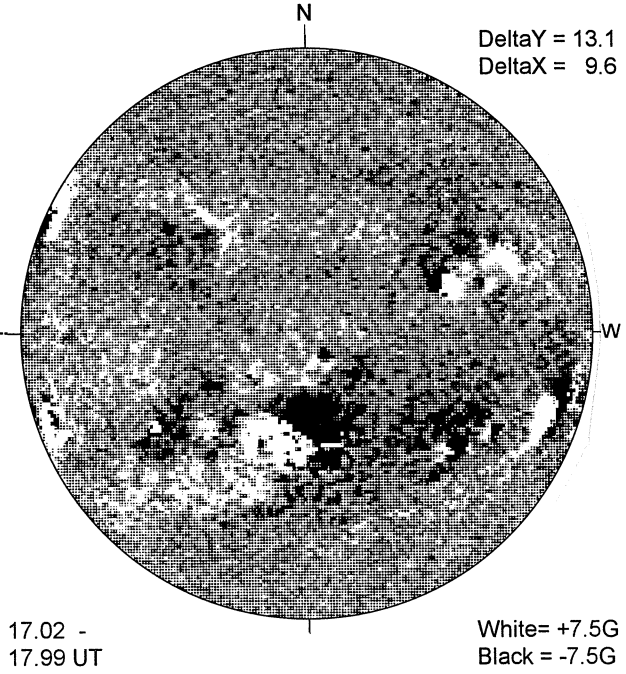
KITT PEAK MAGNETOGRAM



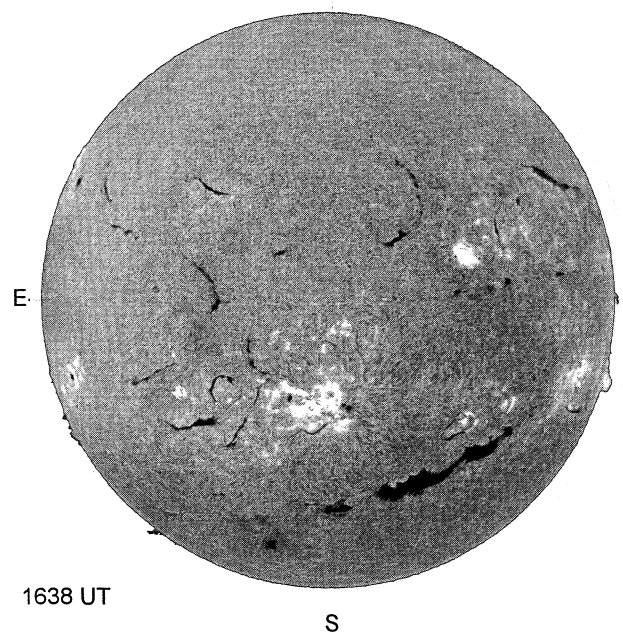
STANFORD MAGNETOGRAM



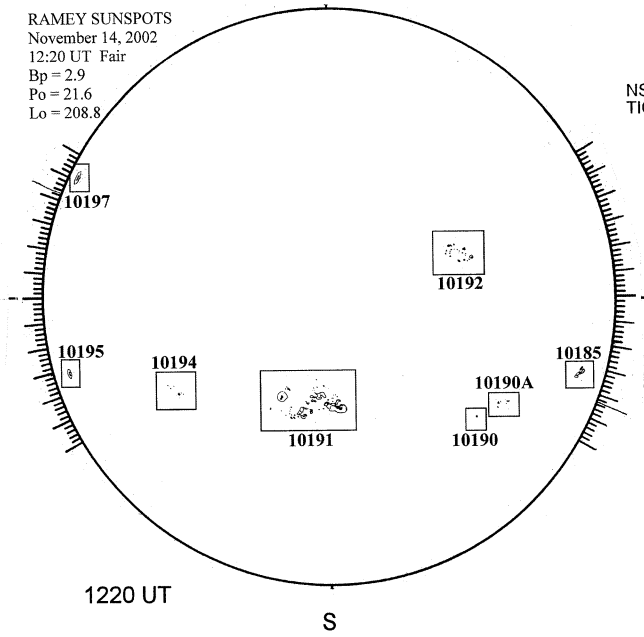
MT. WILSON MAGNETOGRAM



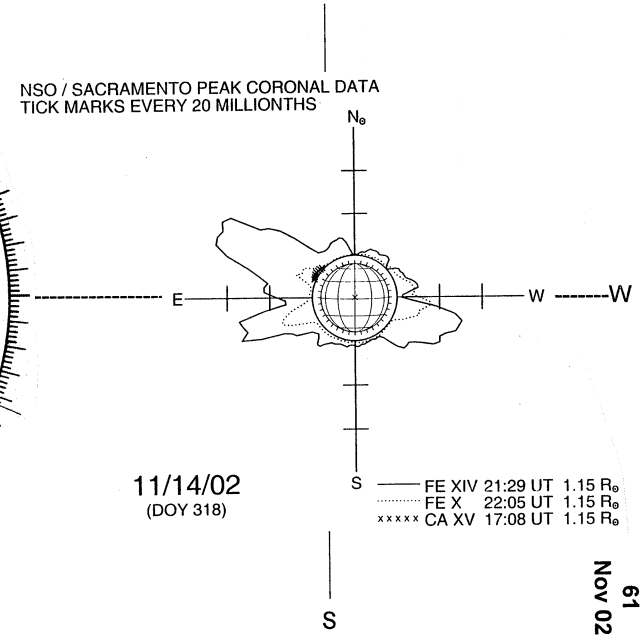
BIG BEAR H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----



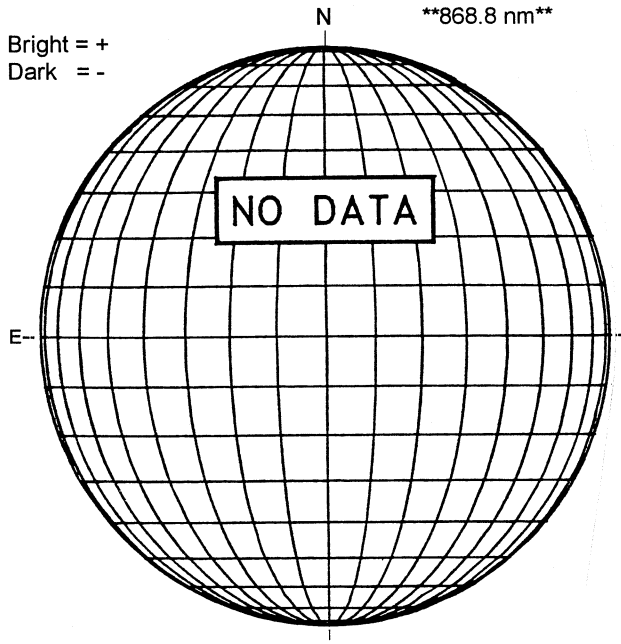
61
Nov 02

NOVEMBER 15, 2002 (P= 21.47, Bo = 2.87, Lo = 201.46)

KITT PEAK MAGNETOGRAM

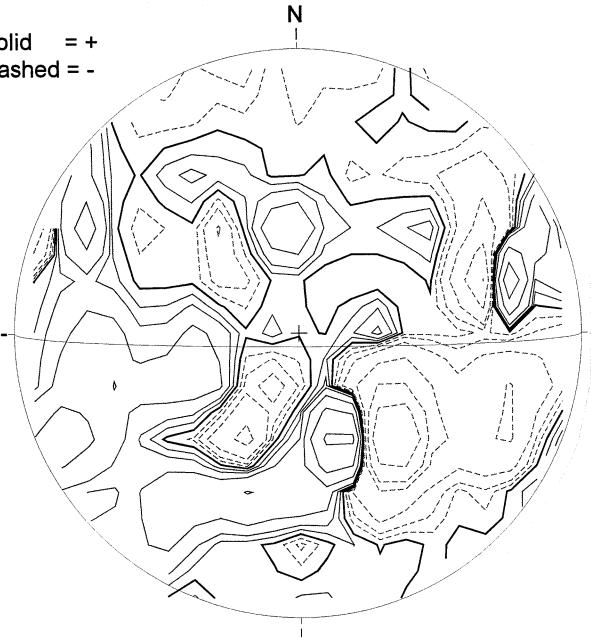
868.8 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

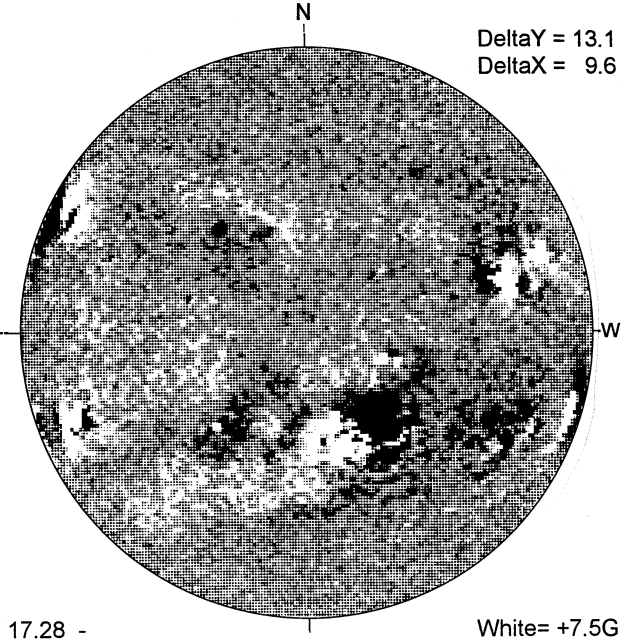
Solid = +
Dashed = -



2124 UT

MT. WILSON MAGNETOGRAM

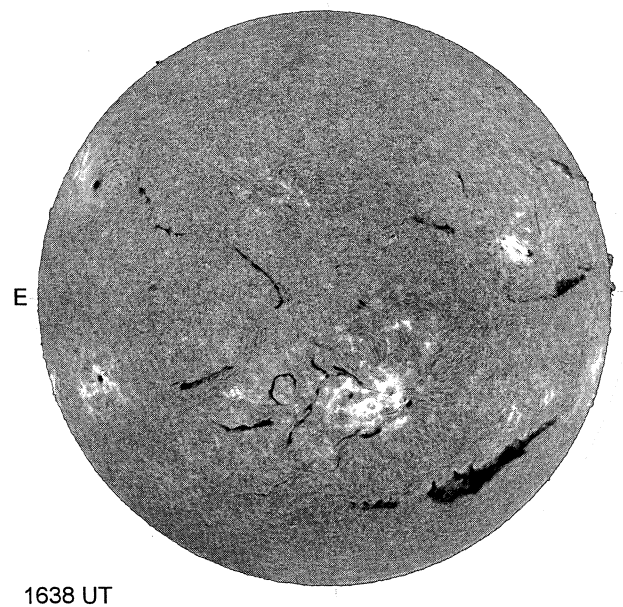
DeltaY = 13.1
DeltaX = 9.6



17.28 -
18.25 UT

White= +7.5G
Black = -7.5G

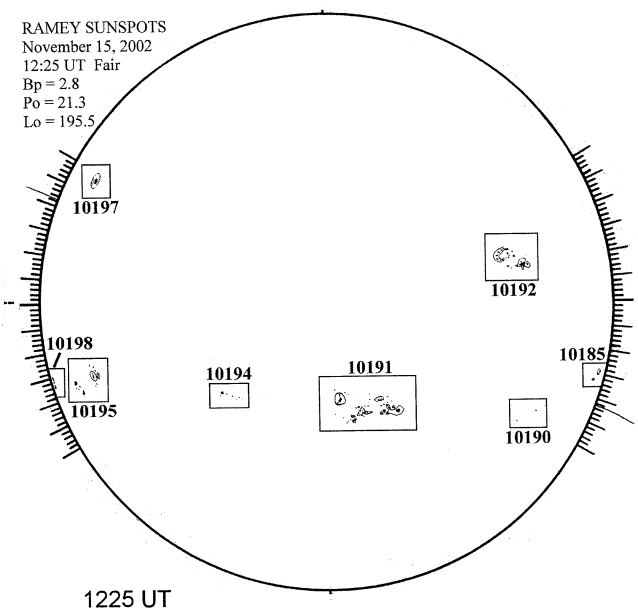
BIG BEAR H-ALPHA



1638 UT

S

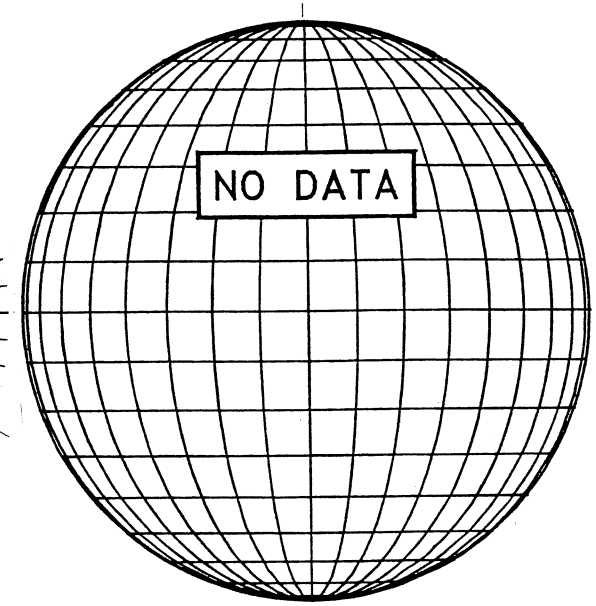
RAMEY SUNSPOT



1225 UT

S

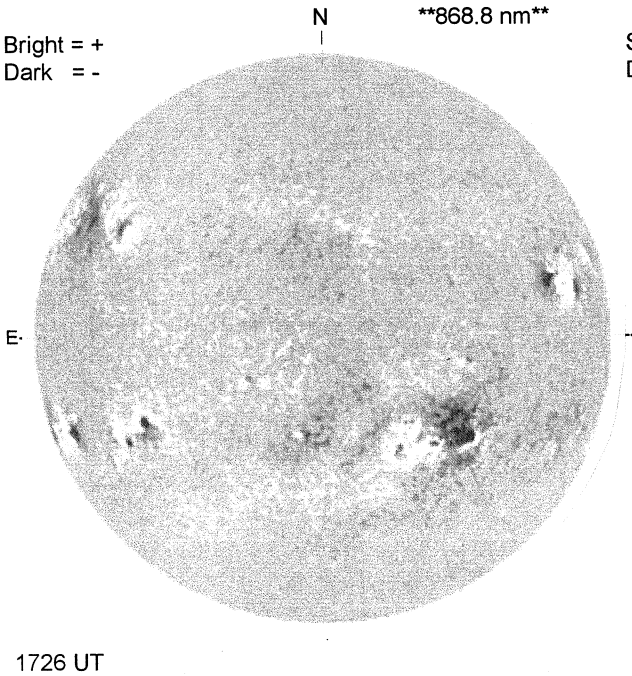
SACRAMENTO PEAK CORONA (1.15 Radii)



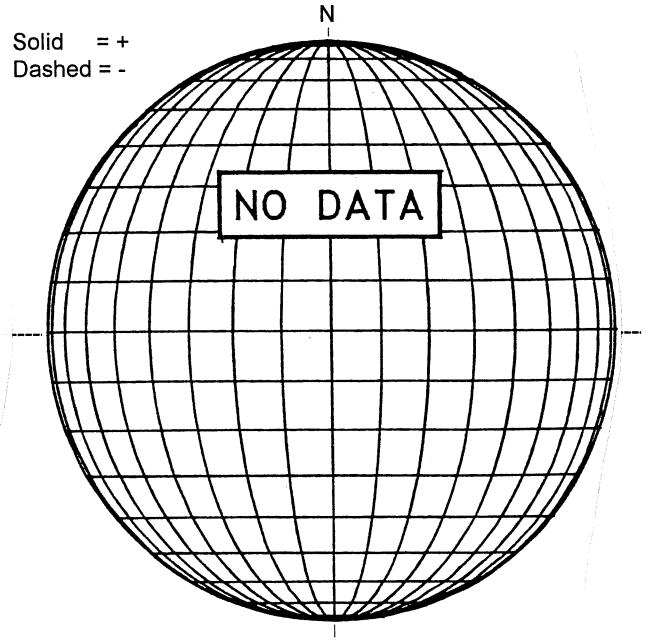
S

NOVEMBER 16, 2002 (P= 21.19, Bo = 2.75, Lo = 188.28)

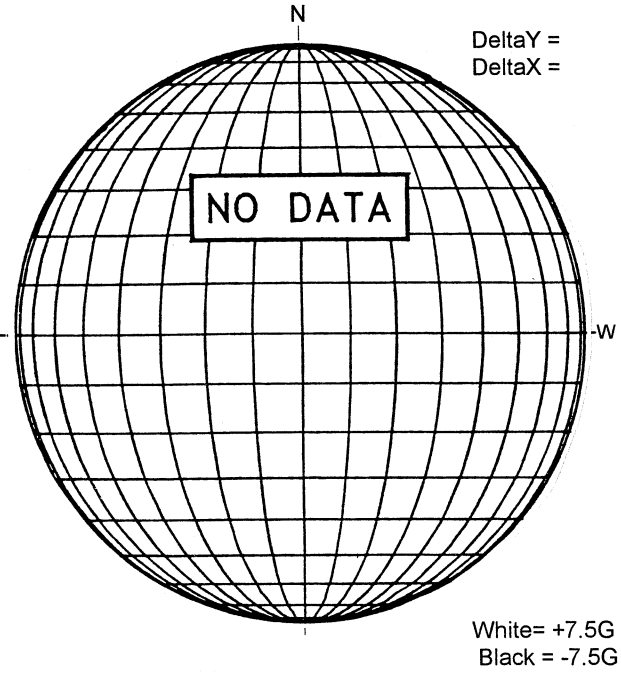
KITT PEAK MAGNETOGRAM



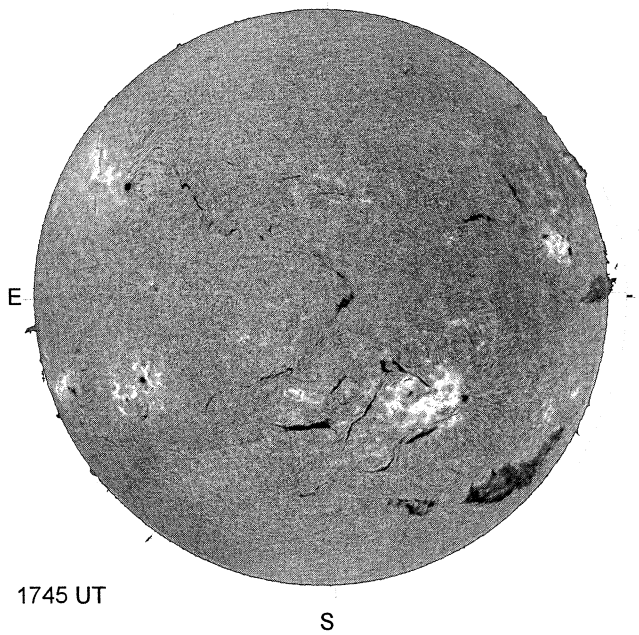
STANFORD MAGNETOGRAM



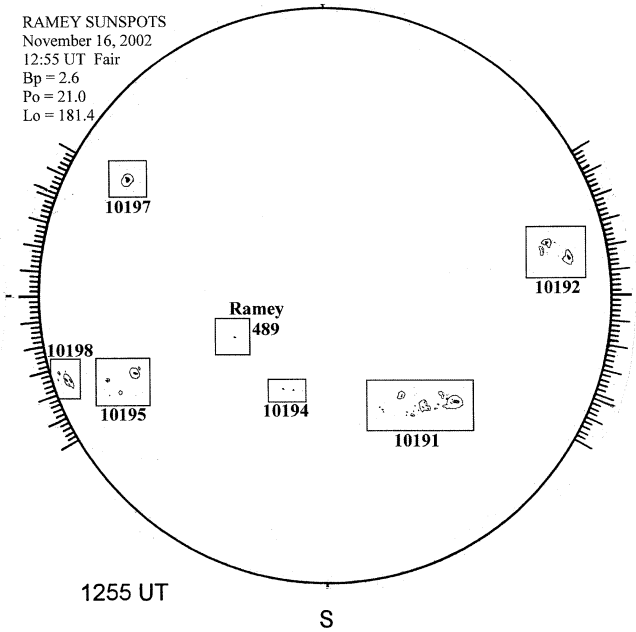
MT. WILSON MAGNETOGRAM



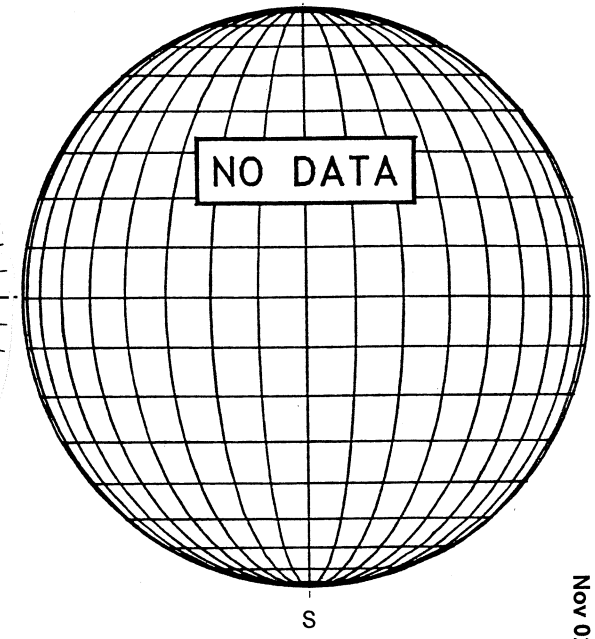
BIG BEAR H-ALPHA



RAMEY SUNSPOT

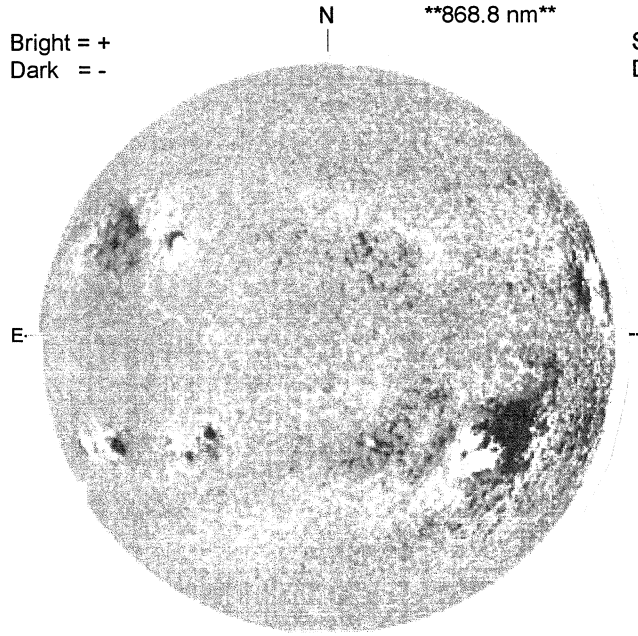


LOMNICKY PEAK CORONA (1.04 Radii)----

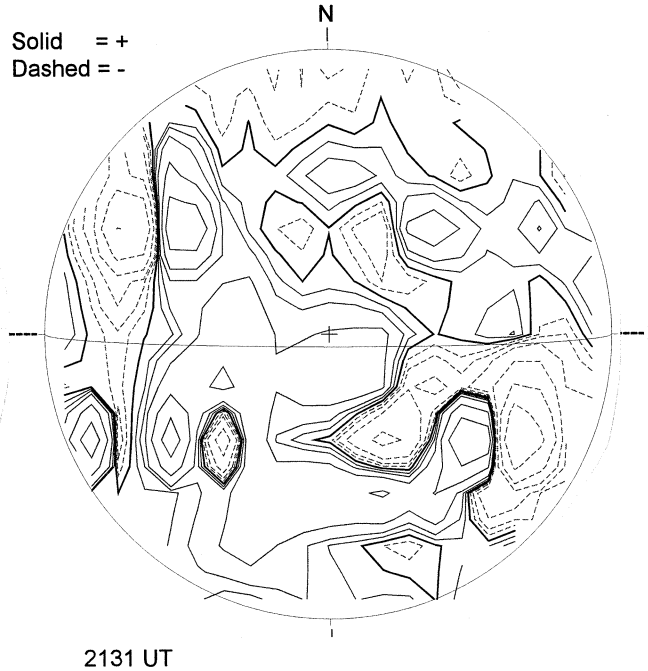


NOVEMBER 17, 2002 (P= 20.90, Bo = 2.63, Lo = 175.09)

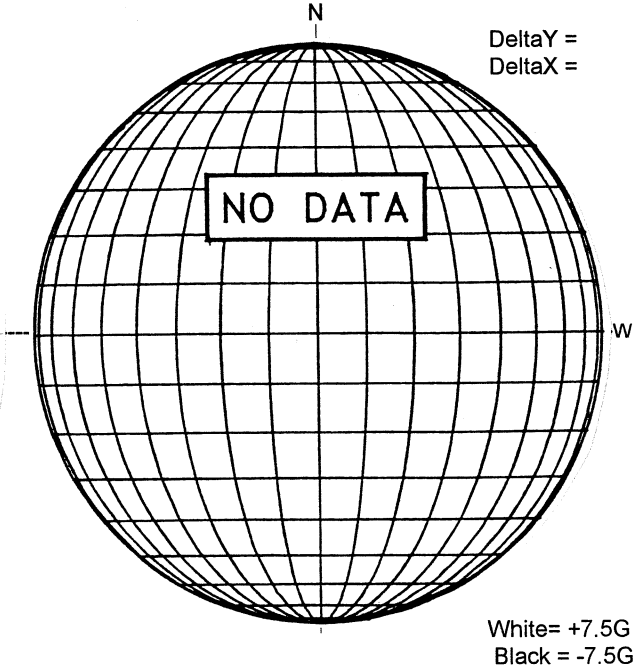
KITT PEAK MAGNETOGRAM



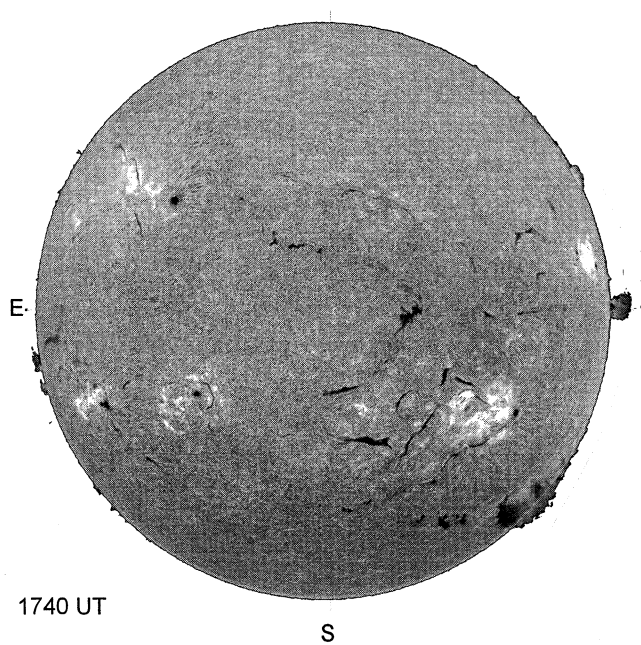
STANFORD MAGNETOGRAM



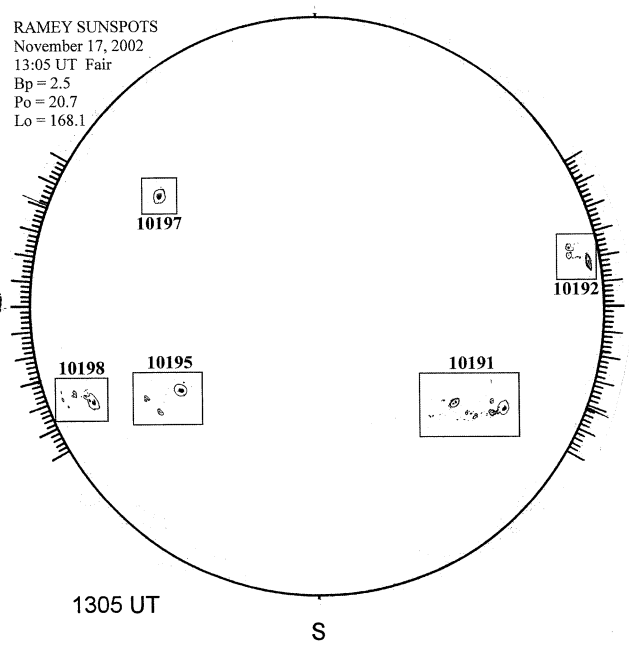
MT. WILSON MAGNETOGRAM



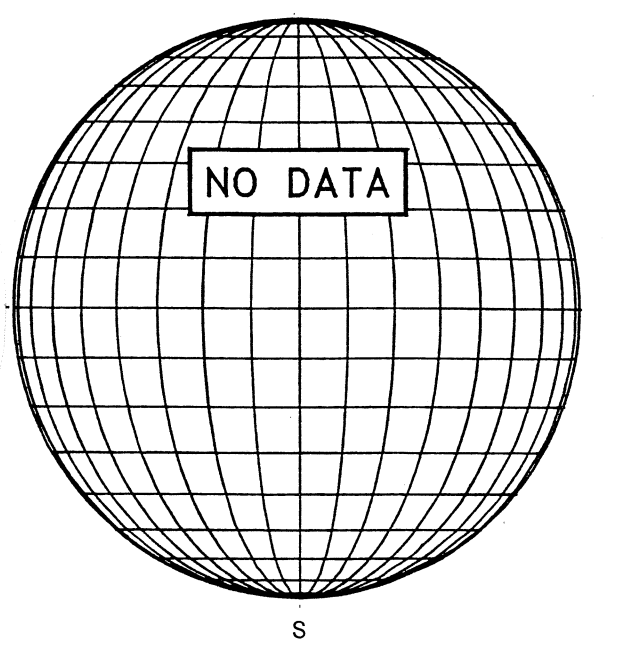
BIG BEAR H-ALPHA



RAMEY SUNSPOT

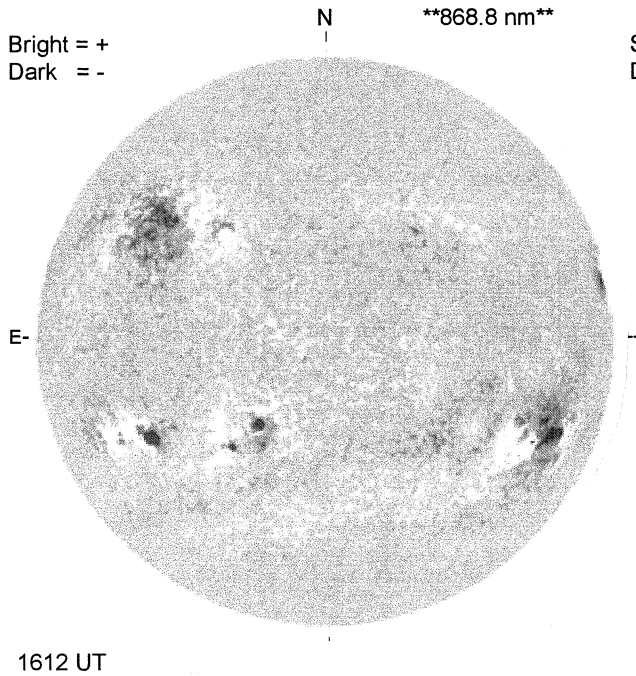


SACRAMENTO PEAK CORONA (1.15 Radii)

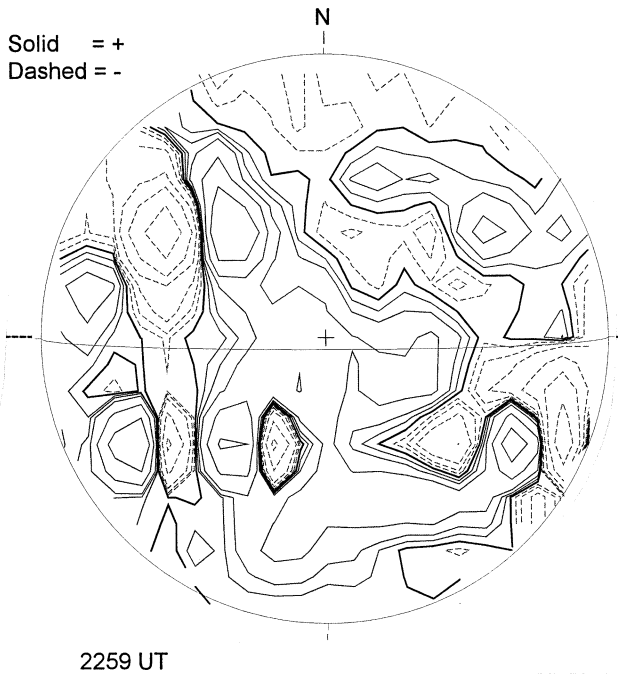


NOVEMBER 18, 2002 (P= 20.61, Bo = 2.51, Lo = 161.91)

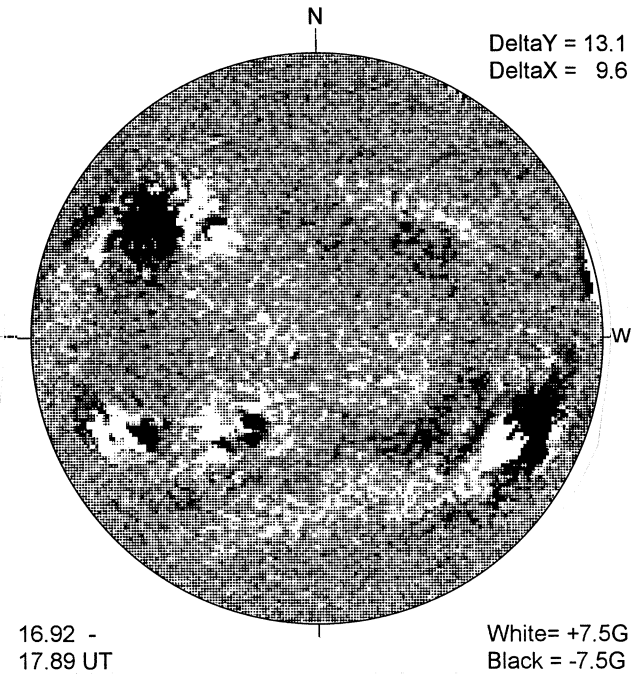
KITT PEAK MAGNETOGRAM



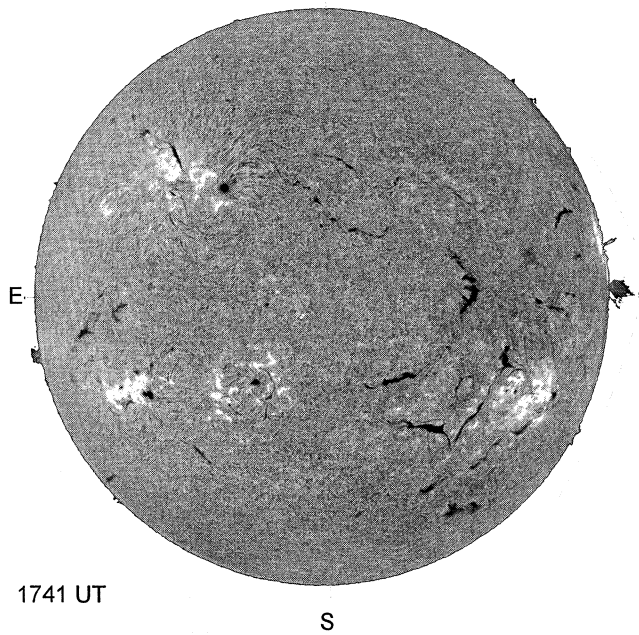
STANFORD MAGNETOGRAM



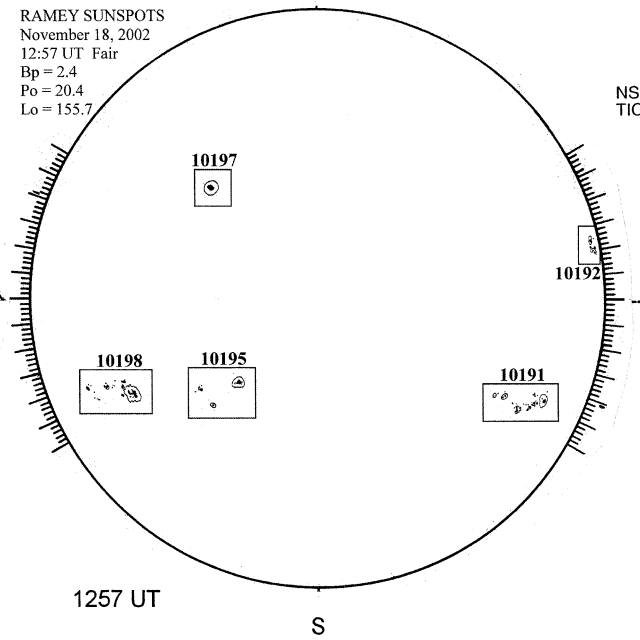
MT. WILSON MAGNETOGRAM



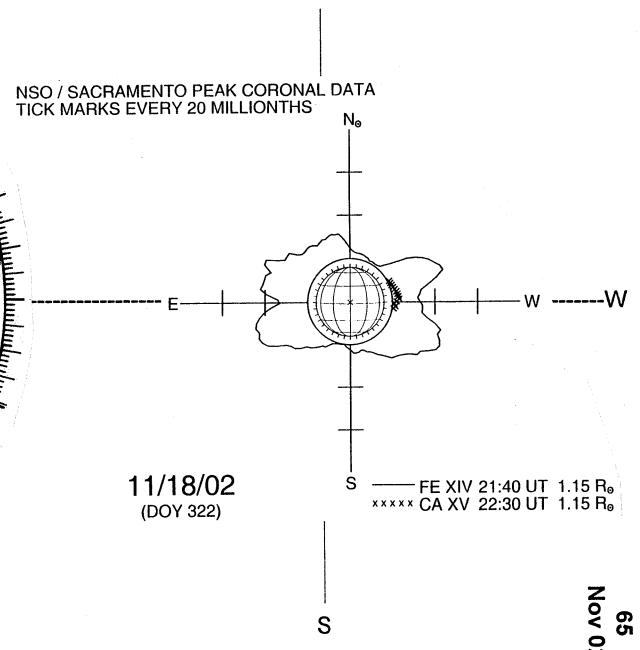
BIG BEAR H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----

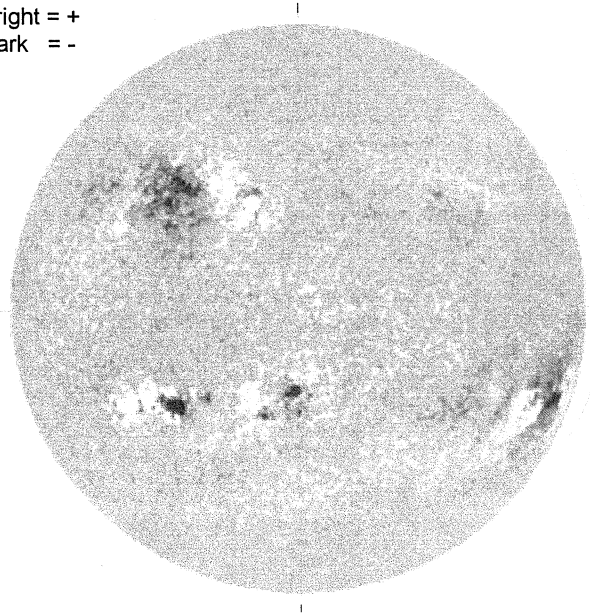


NOVEMBER 19, 2002 (P= 20.31, Bo = 2.39, Lo = 148.73)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



E

1558 UT

STANFORD MAGNETOGRAM

N

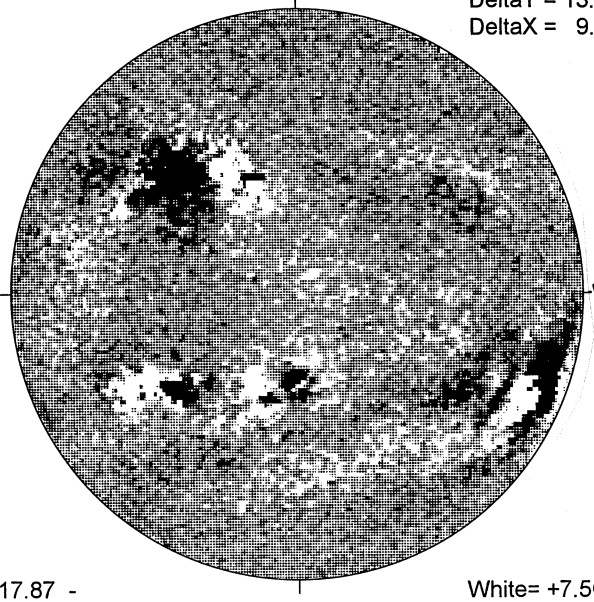
Solid = +
Dashed = -

2106 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

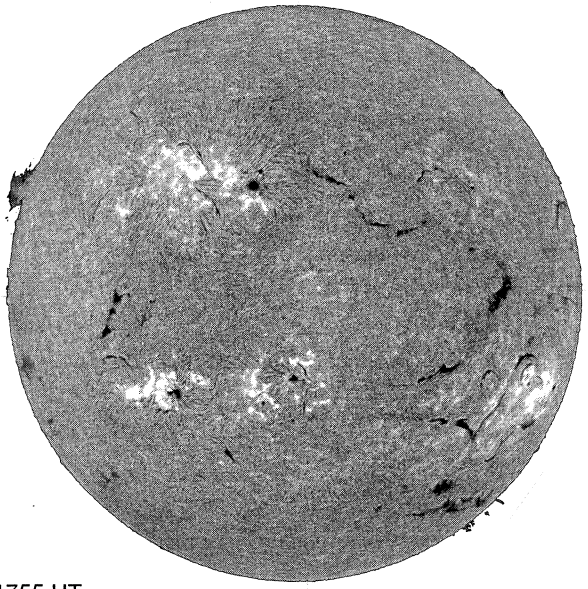


W

17.87 -
18.84 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

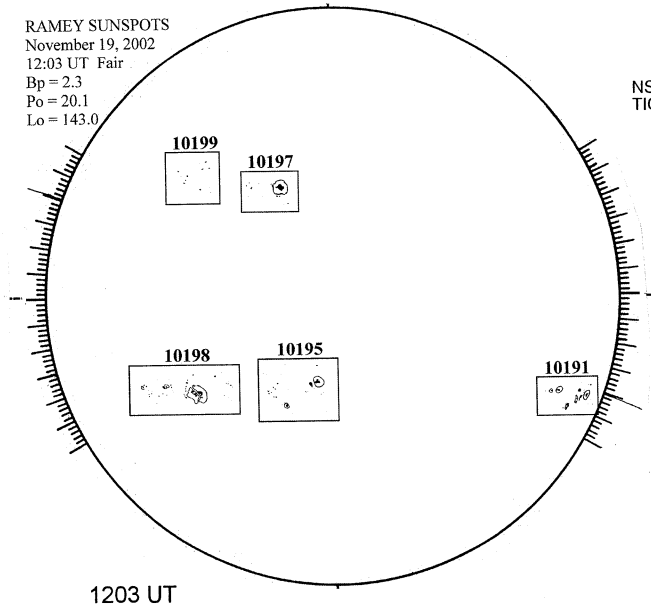


E

1755 UT

S

RAMEY SUNSPOT

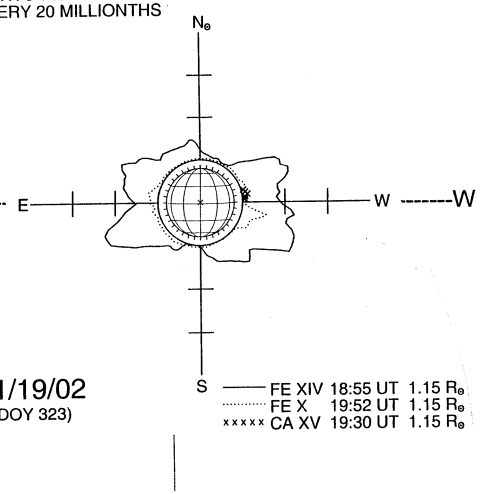


1203 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS

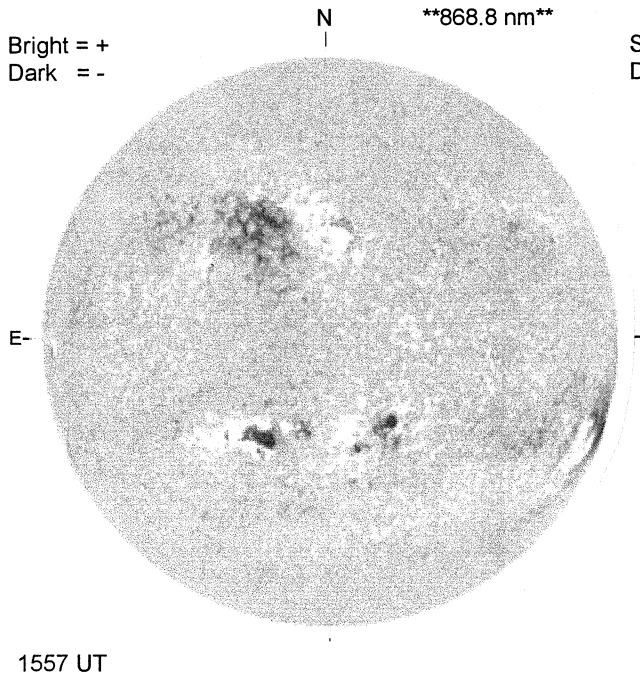


11/19/02
(DOY 323)

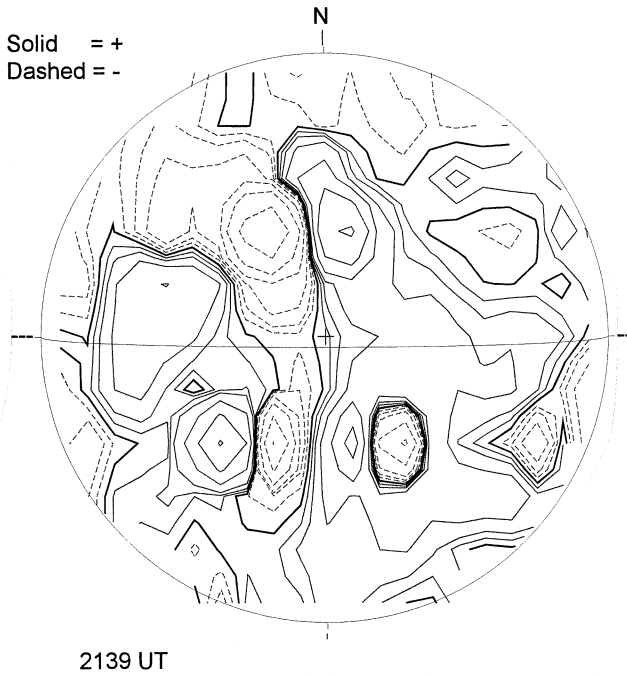
S

NOVEMBER 20, 2002 (P= 20.01, Bo = 2.27, Lo = 135.55)

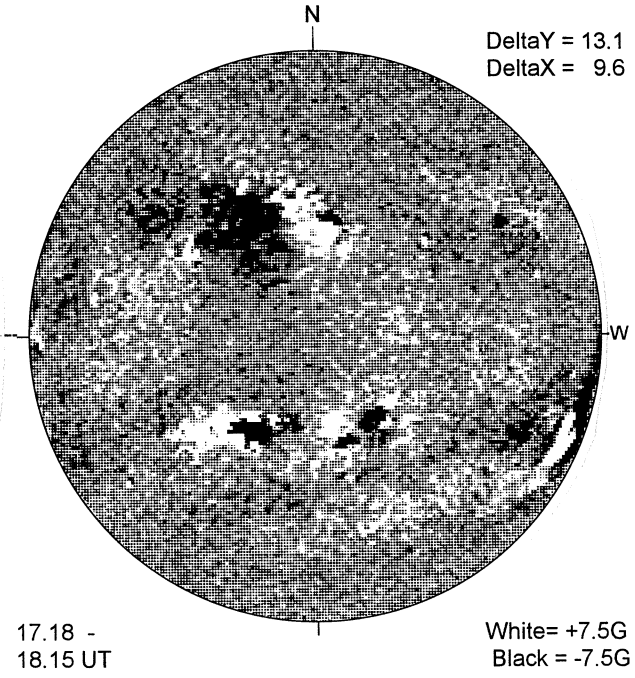
KITT PEAK MAGNETOGRAM



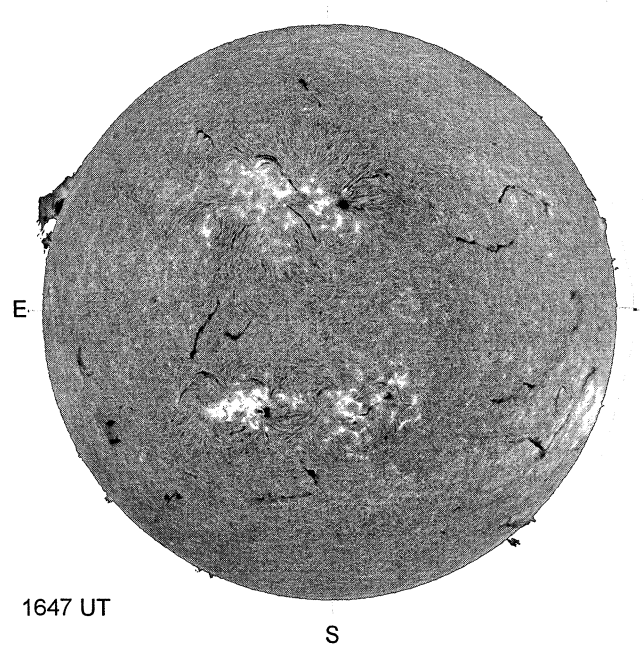
STANFORD MAGNETOGRAM



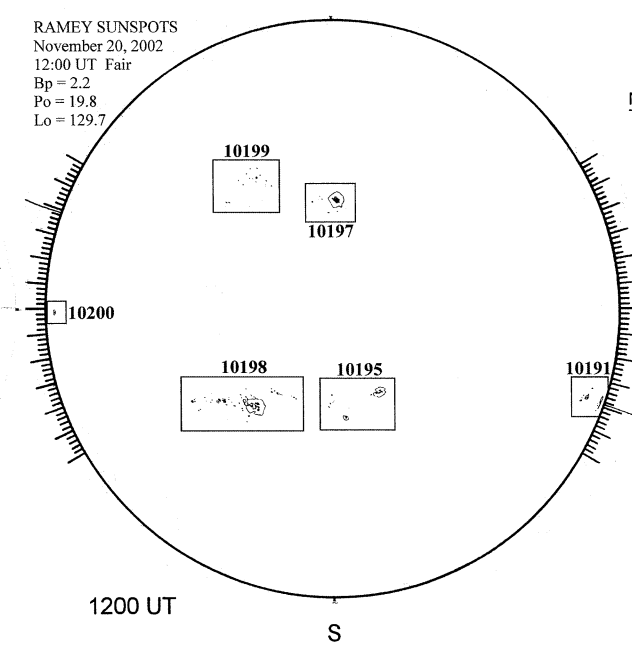
MT. WILSON MAGNETOGRAM



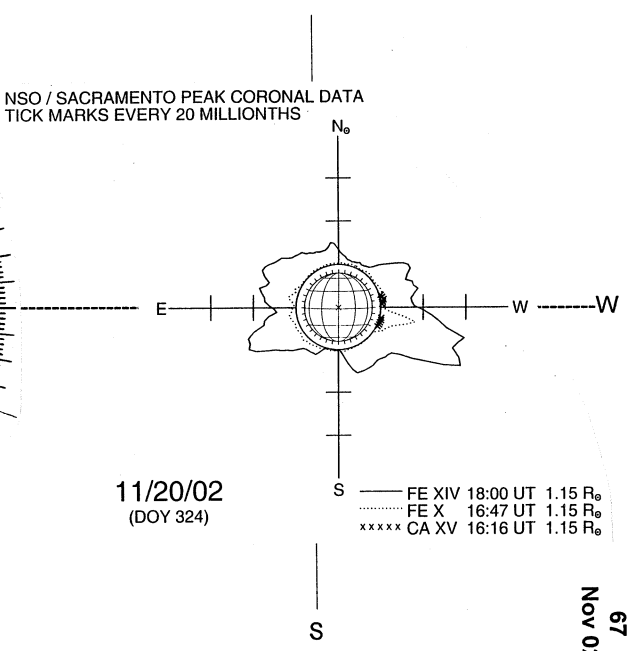
---- BIG BEAR H-ALPHA



RAMEY SUNSPOT

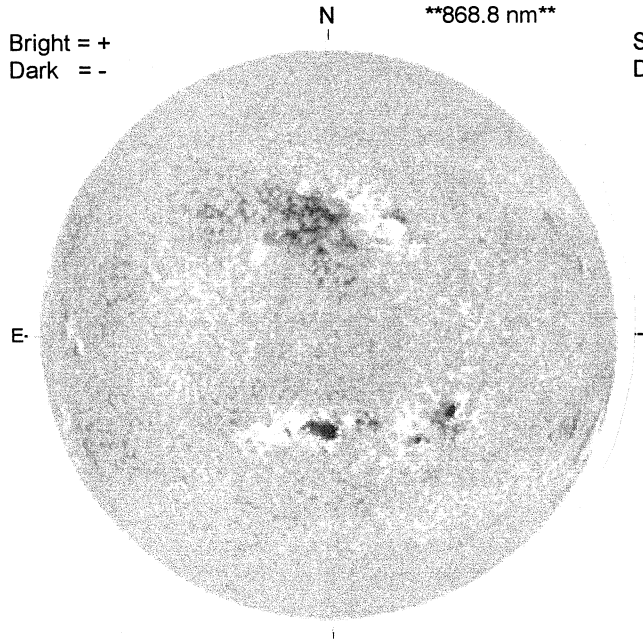


SACRAMENTO PEAK CORONA (1.15 Radii)----

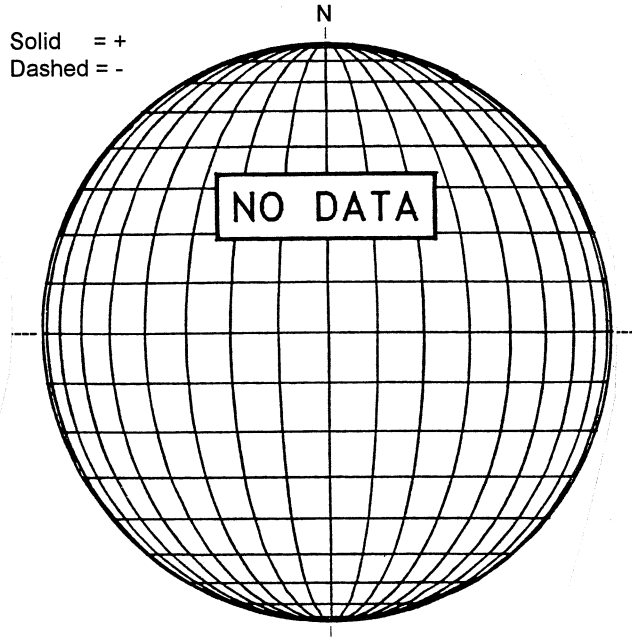


NOVEMBER 21, 2002 (P= 19.69, Bo = 2.15, Lo = 122.36)

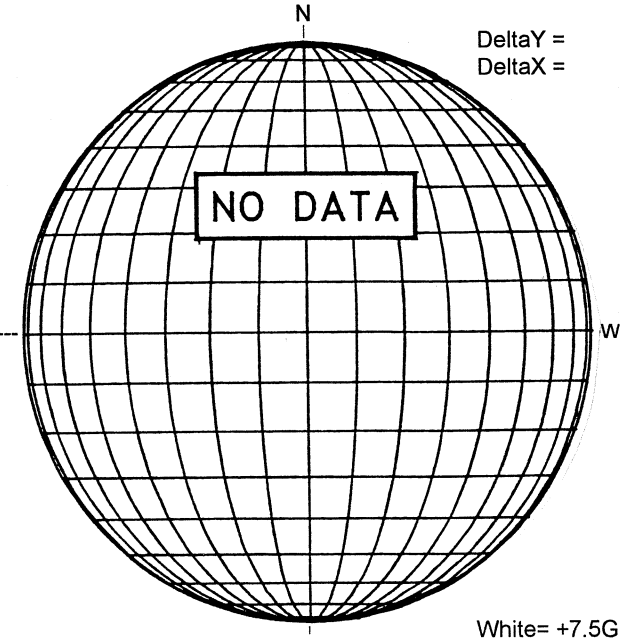
KITT PEAK MAGNETOGRAM



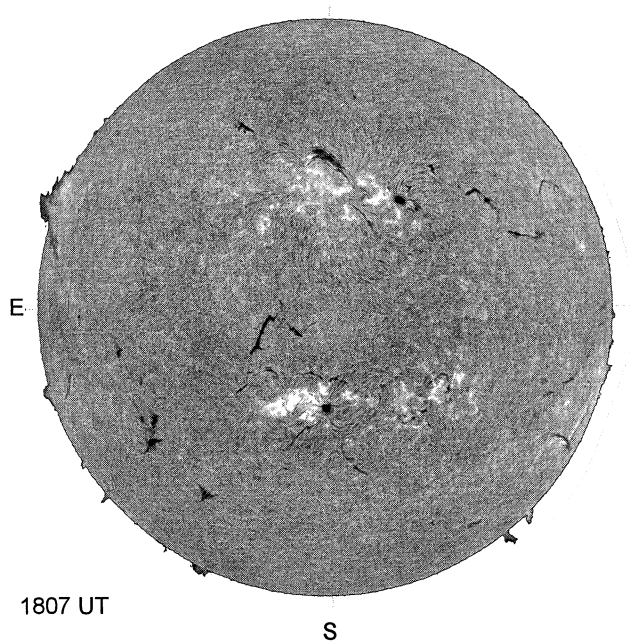
STANFORD MAGNETOGRAM



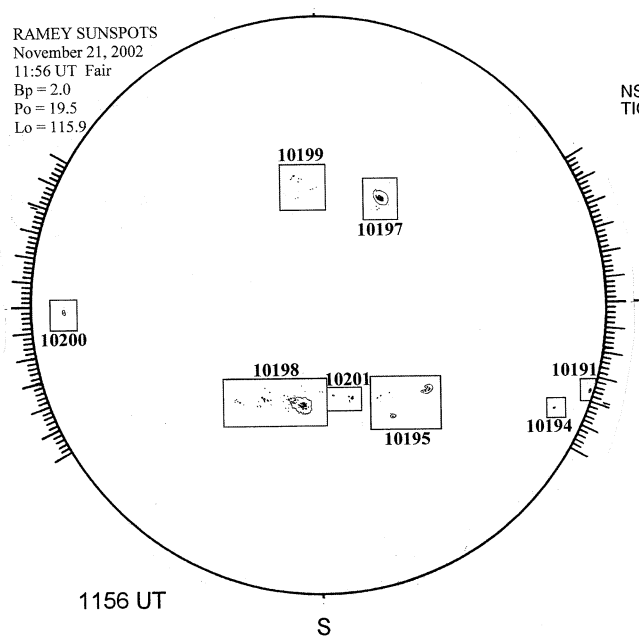
MT. WILSON MAGNETOGRAM



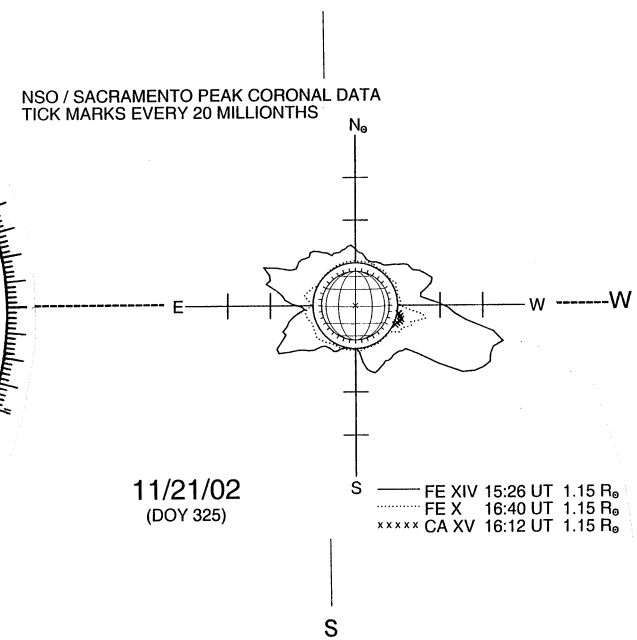
BIG BEAR H-ALPHA



RAMEY SUNSPOT

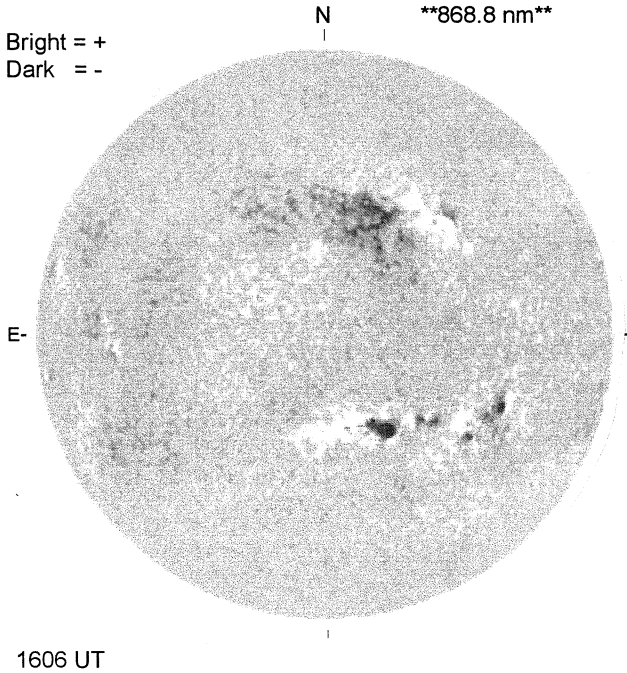


SACRAMENTO PEAK CORONA (1.15 Radii)

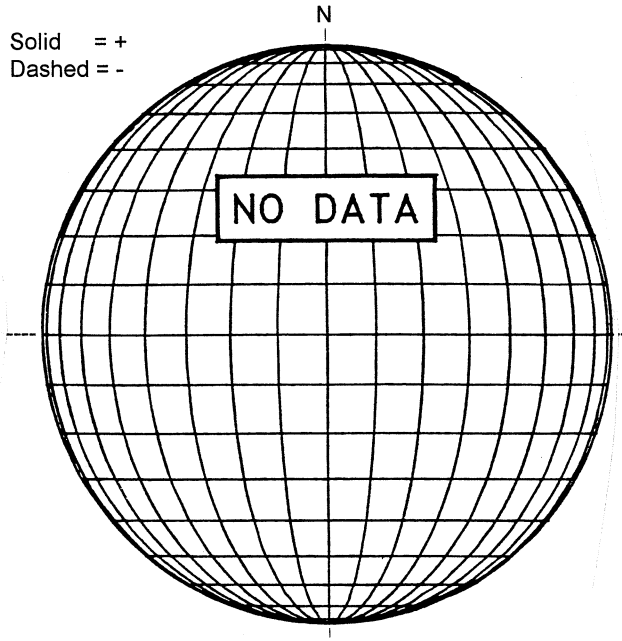


NOVEMBER 22, 2002 (P= 19.37, Bo = 2.03, Lo = 109.18)

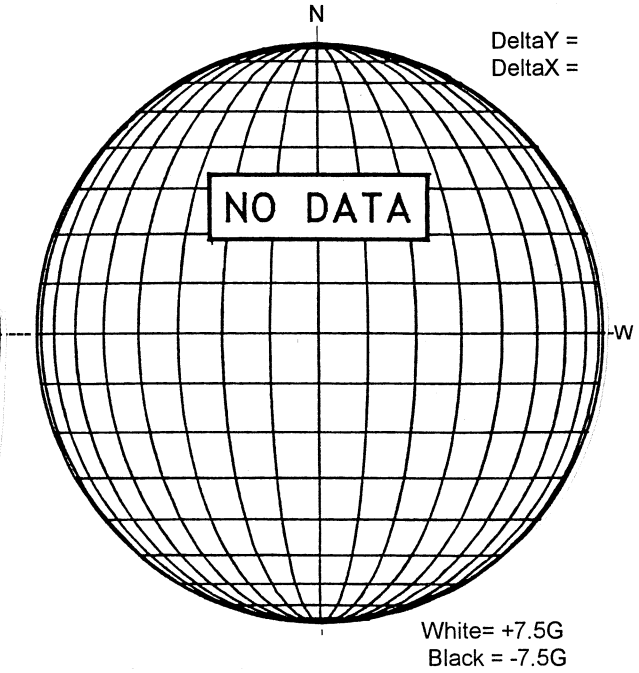
KITT PEAK MAGNETOGRAM



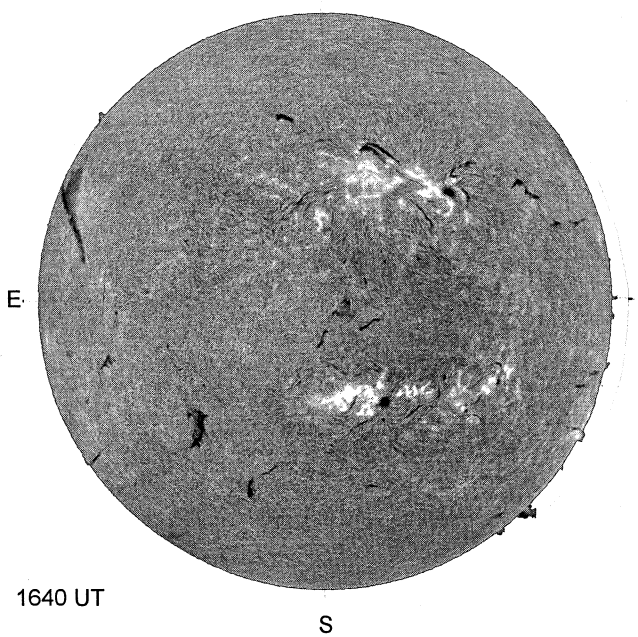
STANFORD MAGNETOGRAM



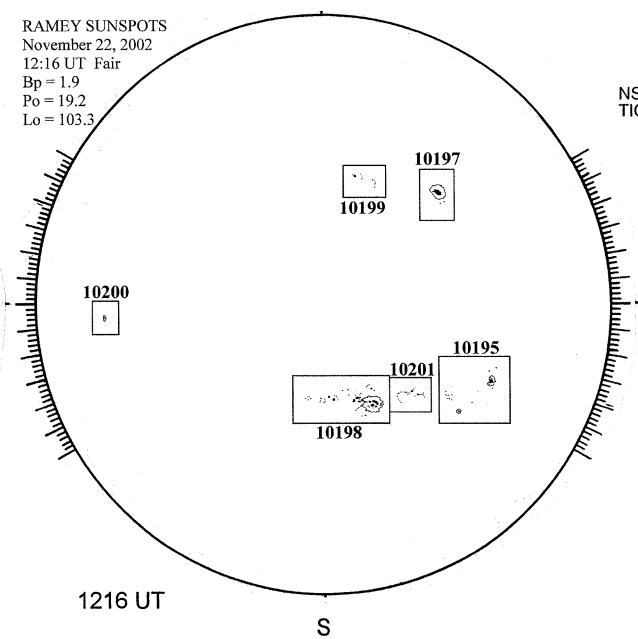
MT. WILSON MAGNETOGRAM



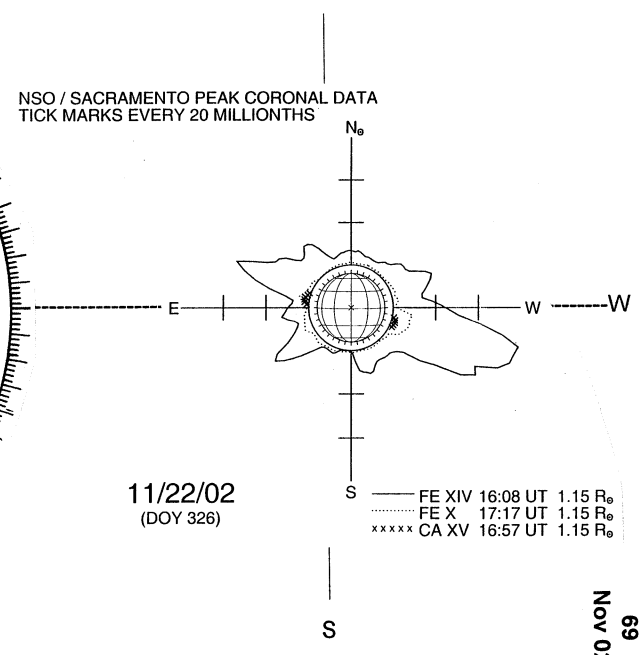
BIG BEAR H-ALPHA



RAMEY SUNSPOT



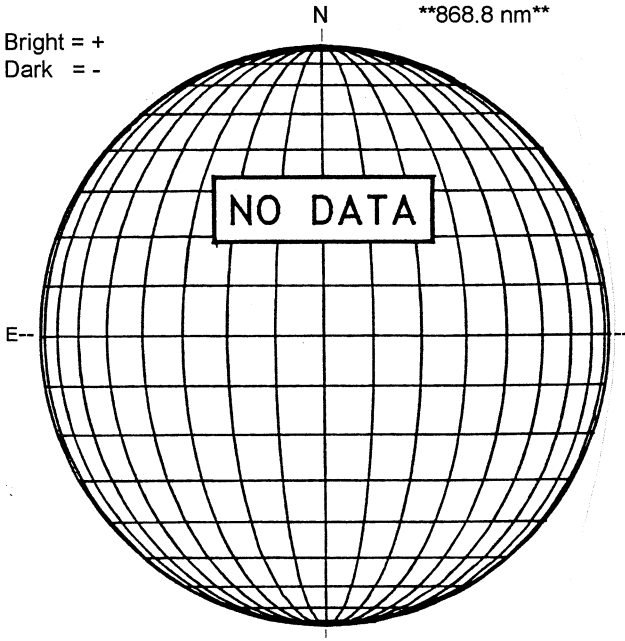
SACRAMENTO PEAK CORONA (1.15 Radii)----



NOVEMBER 23, 2002 (P= 19.04, Bo = 1.91, Lo = 96.00)

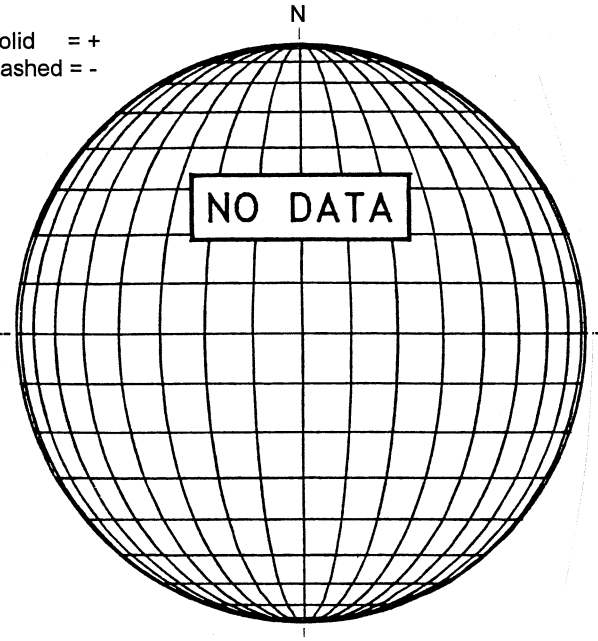
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



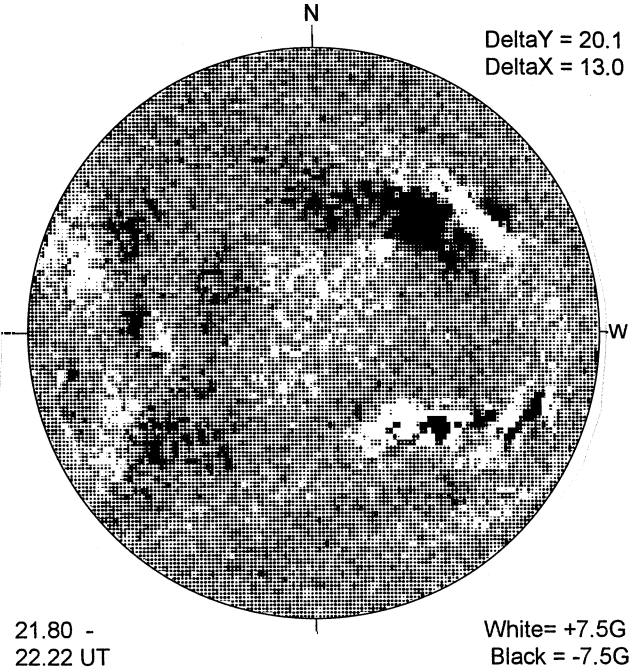
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

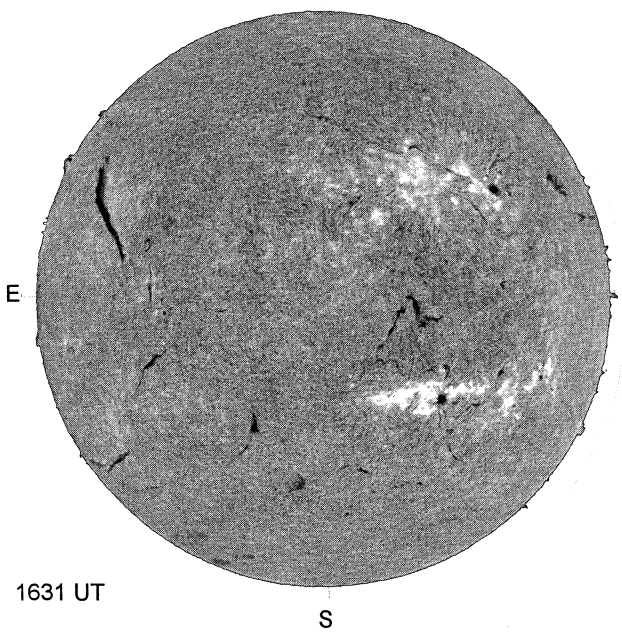
DeltaY = 20.1
DeltaX = 13.0



21.80 -
22.22 UT

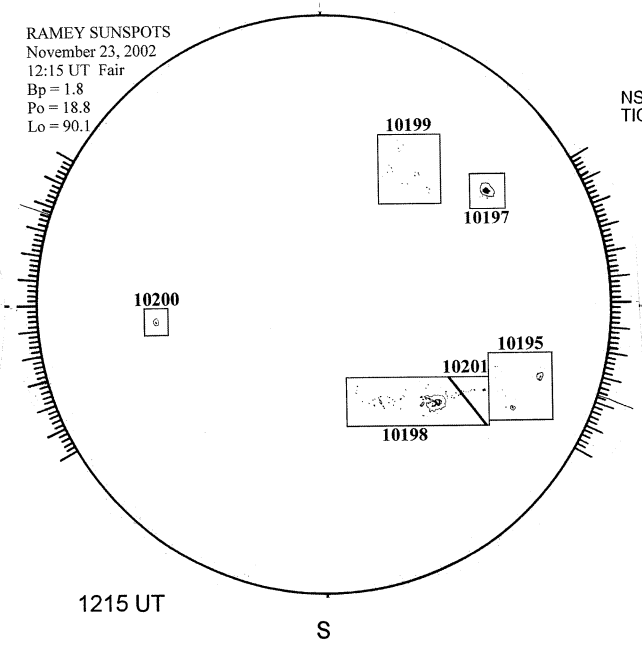
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



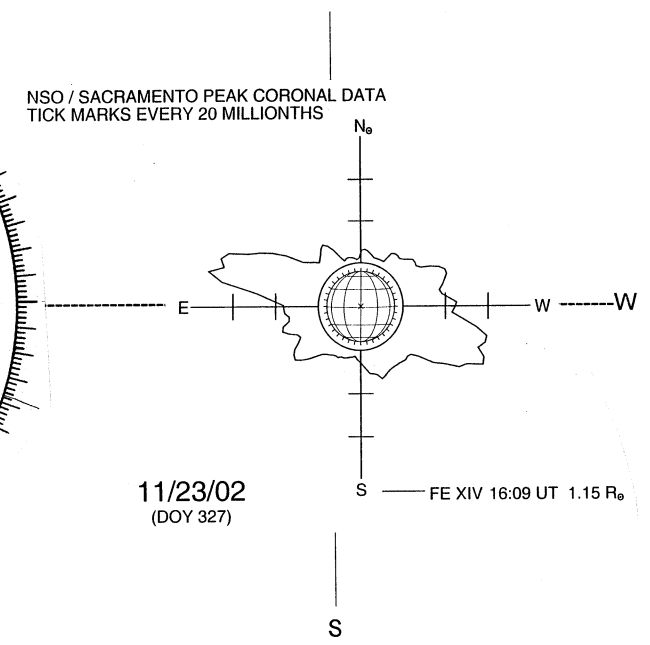
1631 UT

RAMEY SUNSPOT



1215 UT

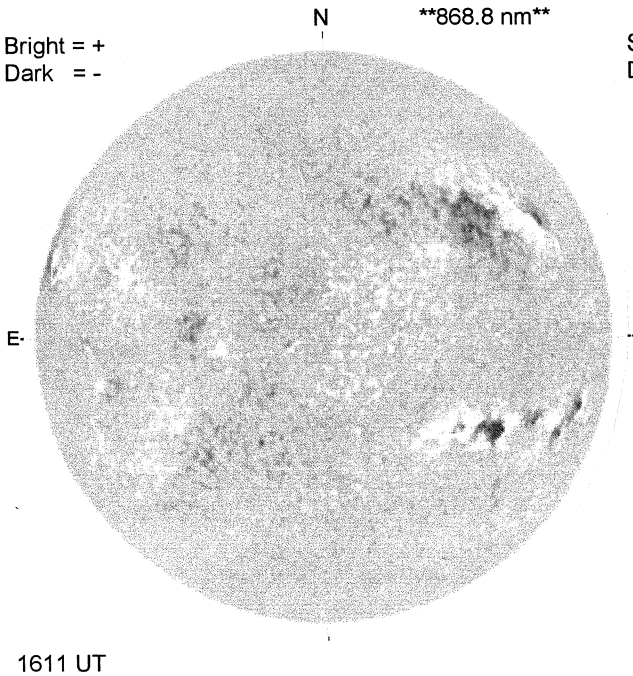
SACRAMENTO PEAK CORONA (1.15 Radii)----



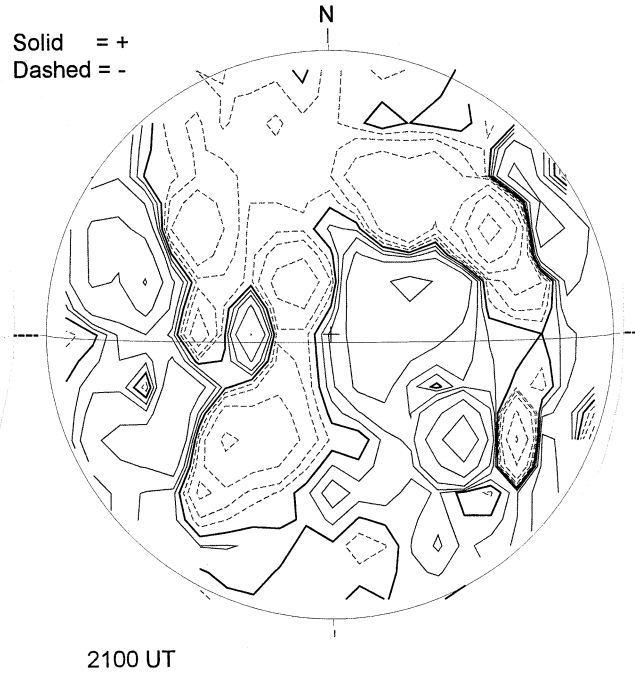
11/23/02
(DOY 327)

NOVEMBER 24, 2002 (P= 18.71, Bo = 1.78, Lo = 82.82)

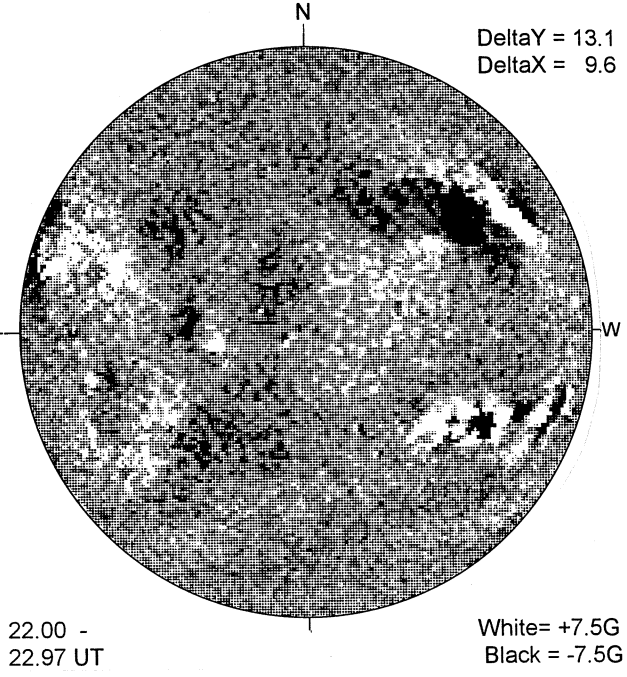
KITT PEAK MAGNETOGRAM



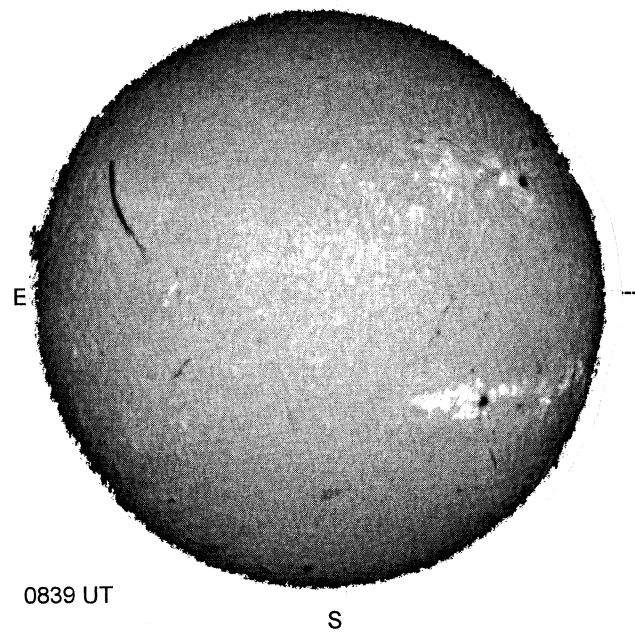
STANFORD MAGNETOGRAM



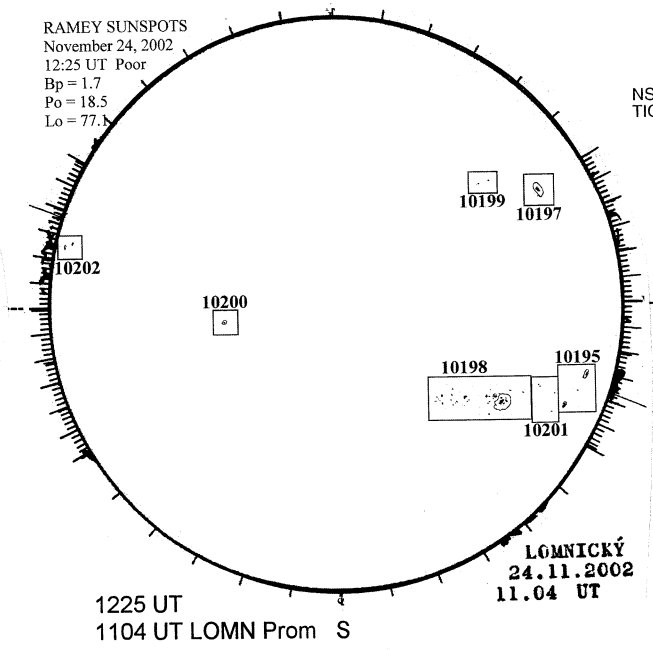
MT. WILSON MAGNETOGRAM



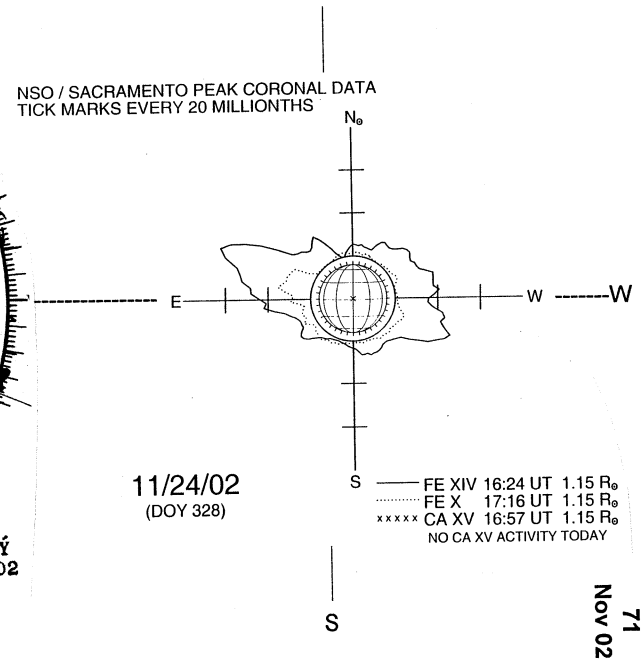
MEUDON H-ALPHA



RAMEY SUNSPOT

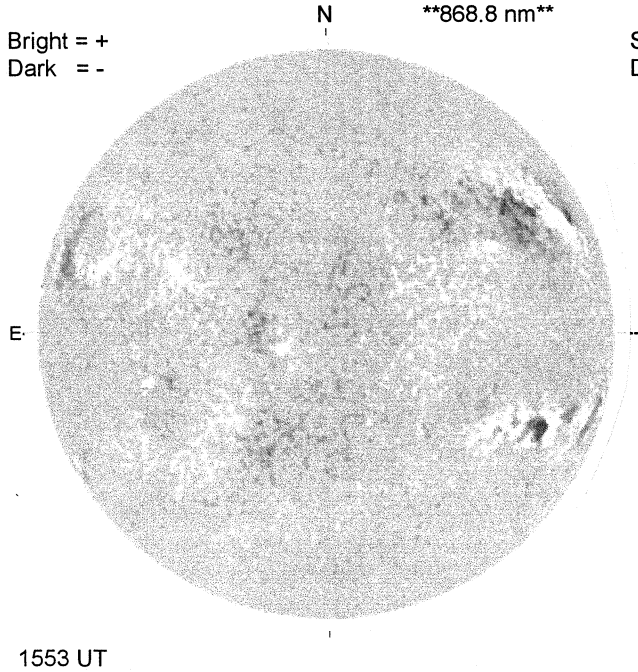


SACRAMENTO PEAK CORONA (1.15 Radii)----

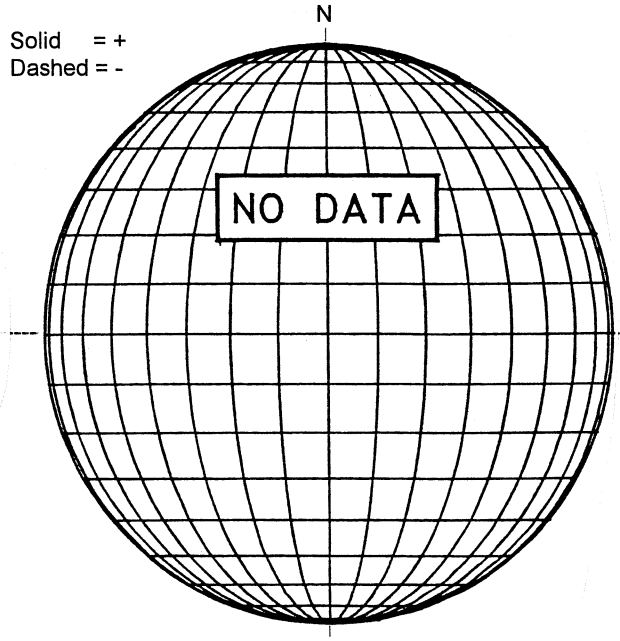


NOVEMBER 25, 2002 (P= 18.37, Bo = 1.66, Lo = 69.64)

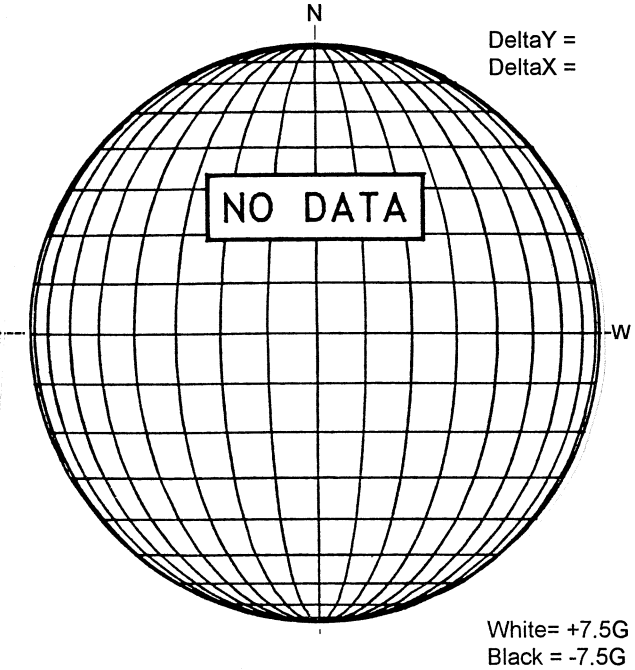
KITT PEAK MAGNETOGRAM



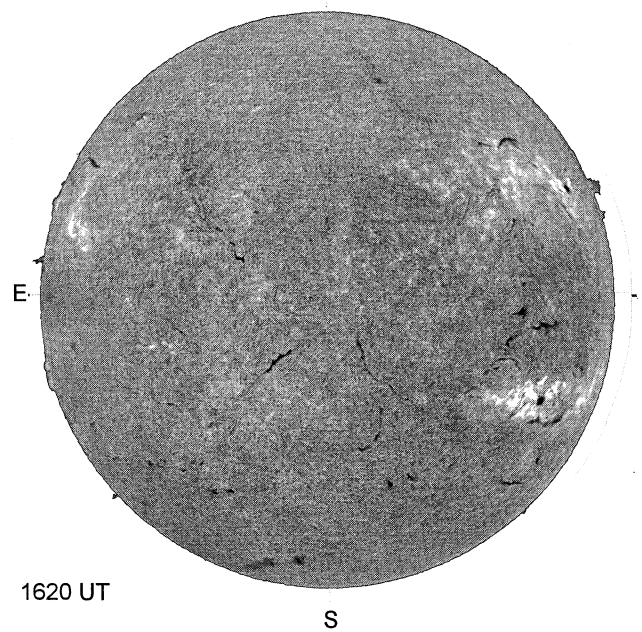
STANFORD MAGNETOGRAM



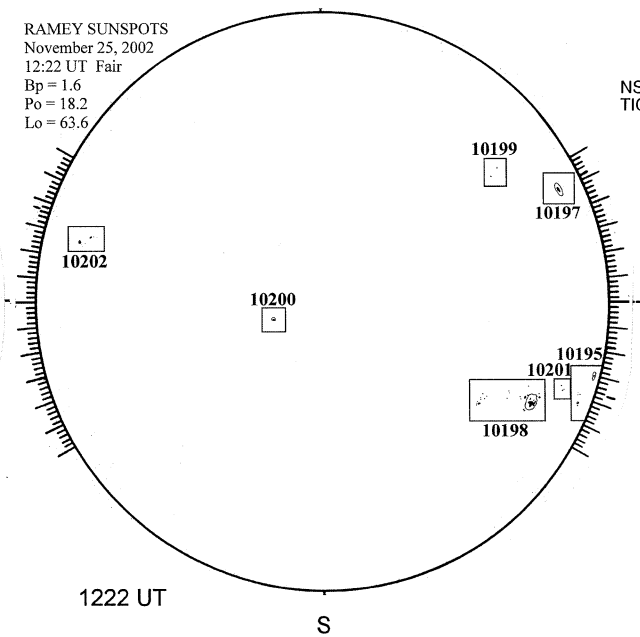
MT. WILSON MAGNETOGRAM



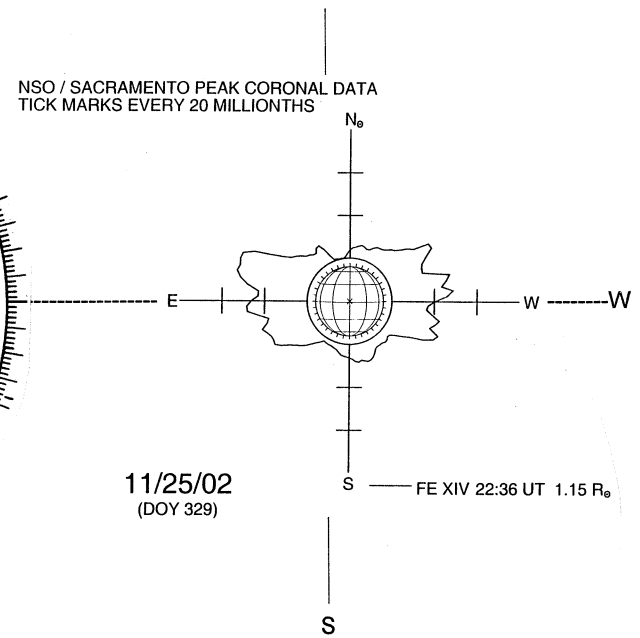
BIG BEAR H-ALPHA



RAMEY SUNSPOT

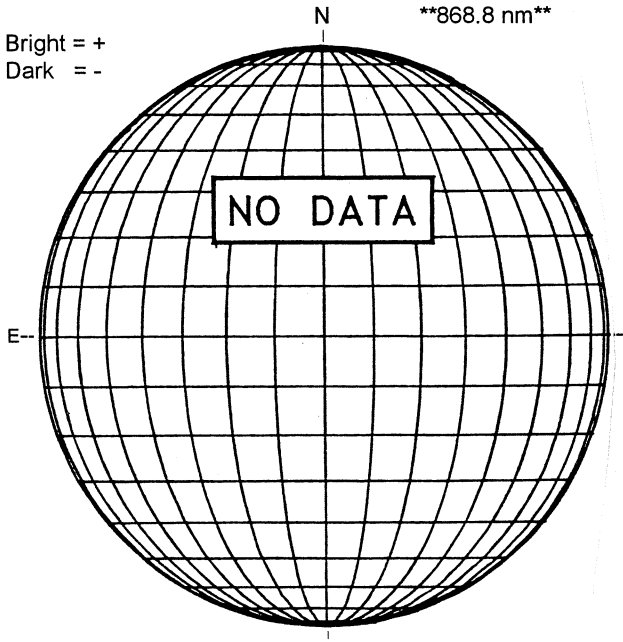


SACRAMENTO PEAK CORONA (1.15 Radii)

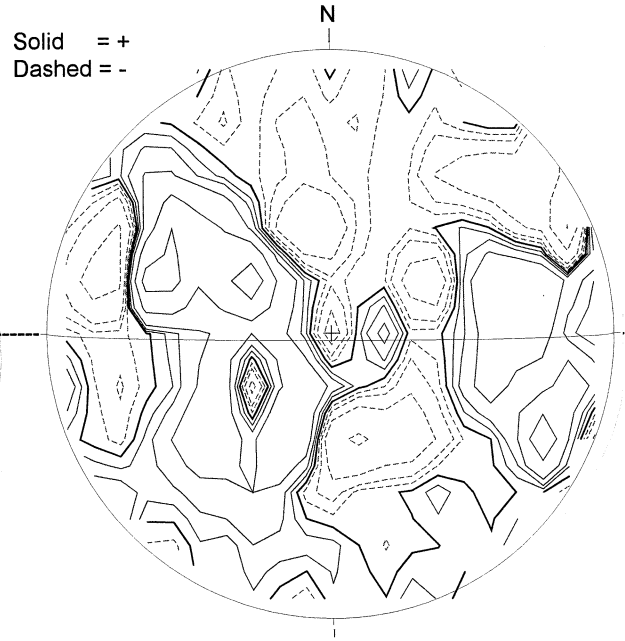


NOVEMBER 26, 2002 (P= 18.02, Bo = 1.53, Lo = 56.46)

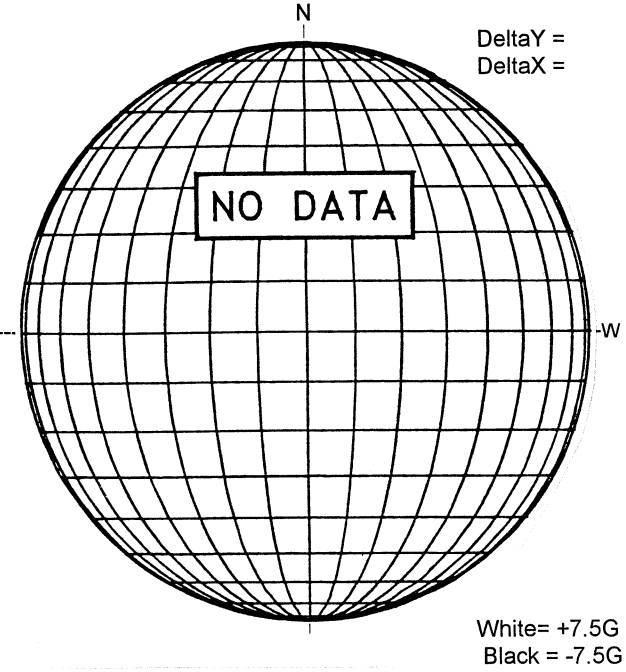
KITT PEAK MAGNETOGRAM



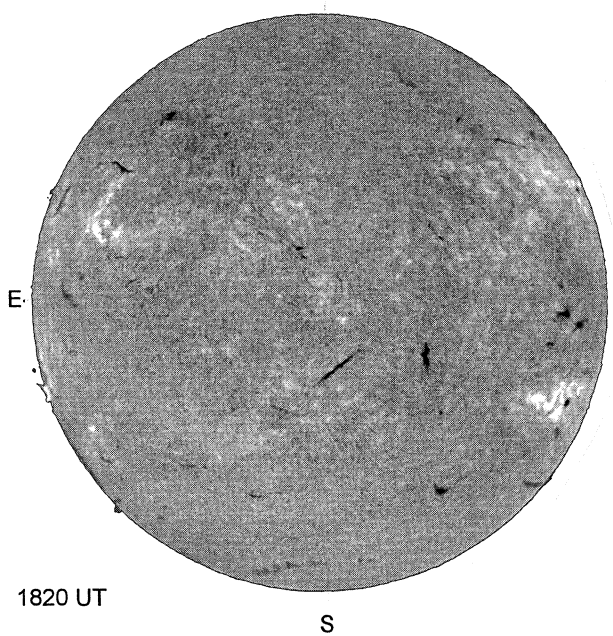
STANFORD MAGNETOGRAM



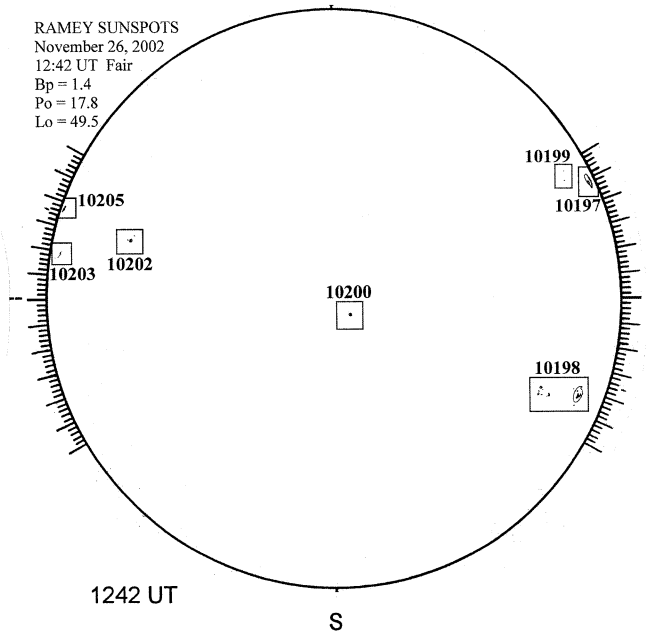
MT. WILSON MAGNETOGRAM



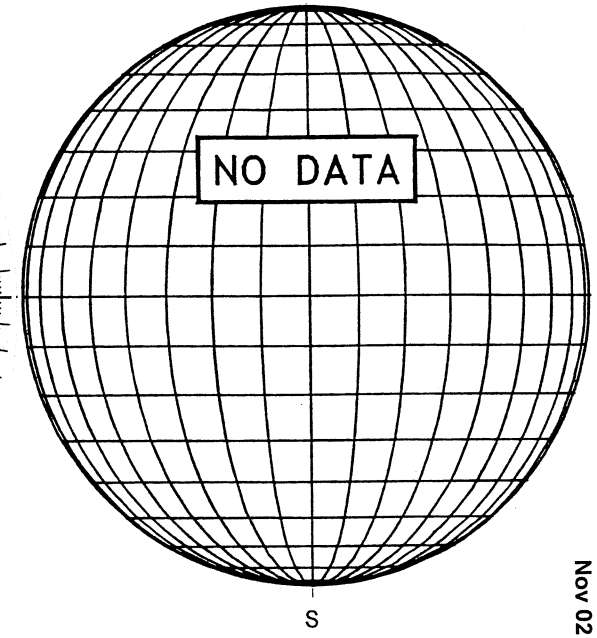
BIG BEAR H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----

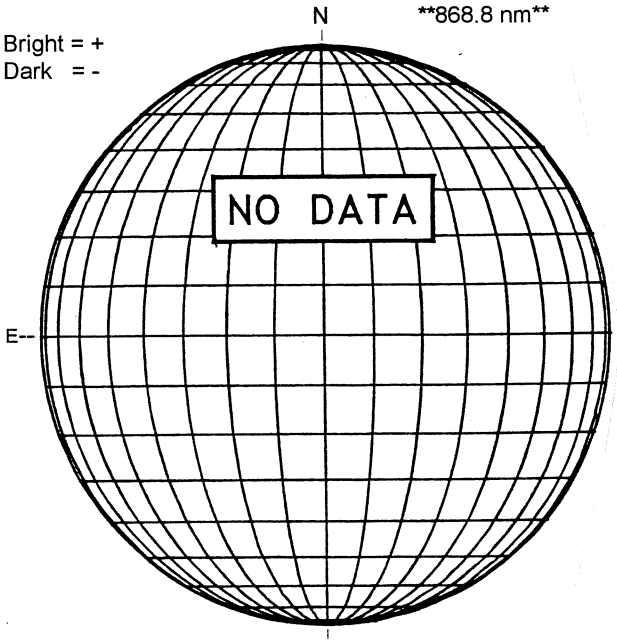


NOVEMBER 27, 2002 (P= 17.66, Bo = 1.41, Lo = 43.28)

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



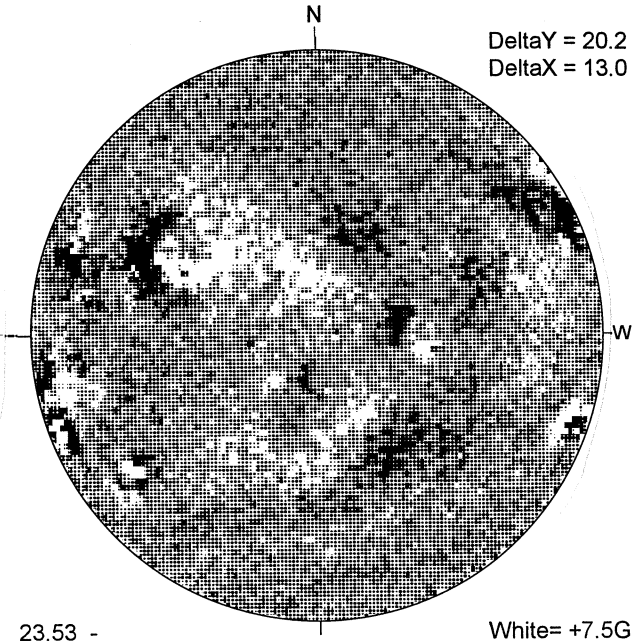
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

2116 UT

MT. WILSON MAGNETOGRAM

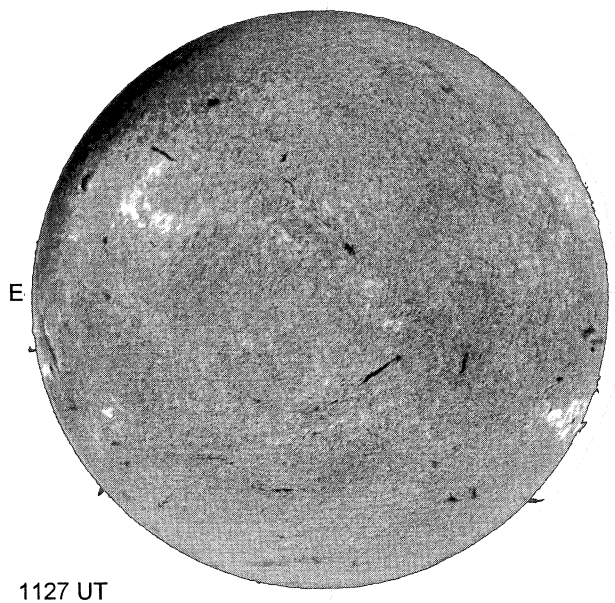
DeltaY = 20.2
DeltaX = 13.0



23.53 -
23.96 UT

White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA

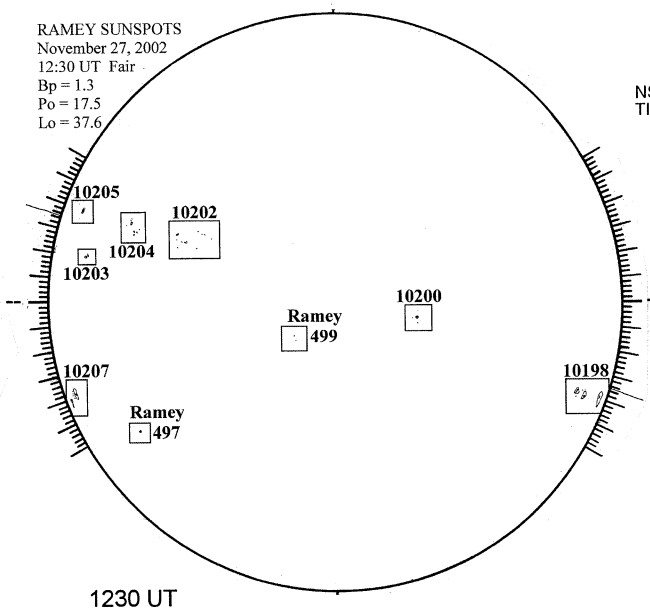


1127 UT

S

RAMEY SUNSPOT

RAMEY SUNSPOTS
November 27, 2002
12:30 UT Fair
Bp = 1.3
Po = 17.5
Lo = 37.6

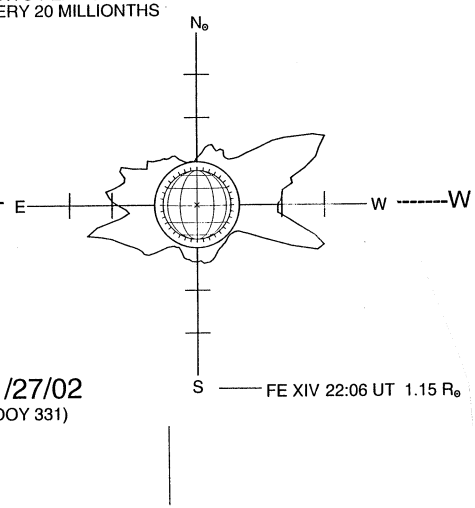


1230 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



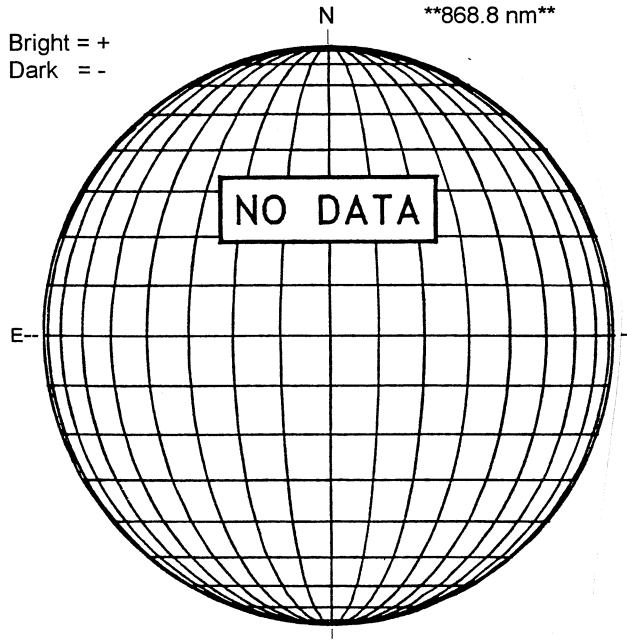
11/27/02
(DOY 331)

FE XIV 22:06 UT 1.15 R⊙

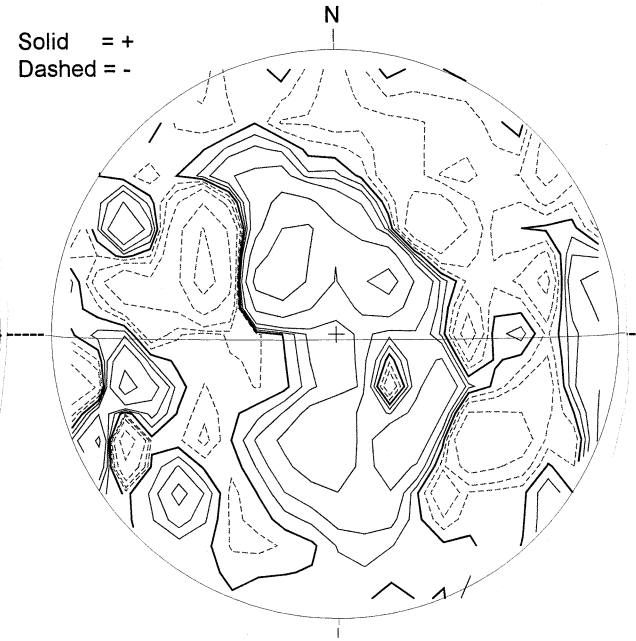
S

NOVEMBER 28, 2002 (P= 17.30, Bo = 1.28, Lo = 30.10)

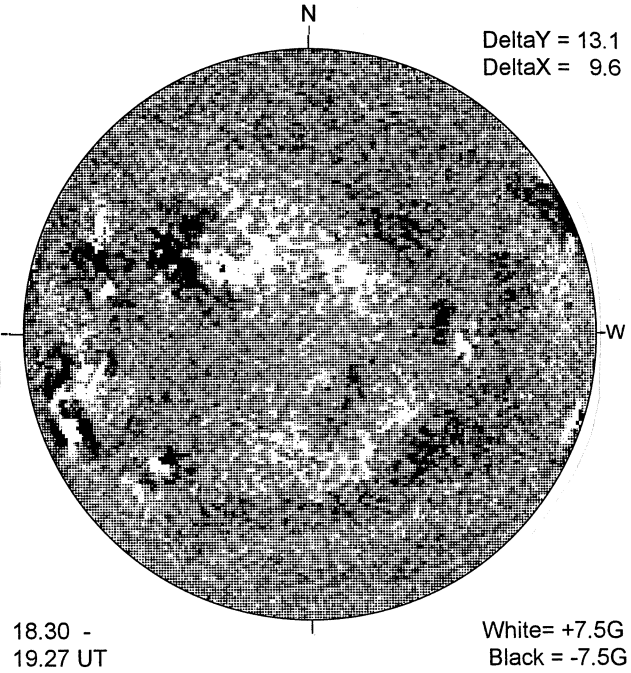
KITT PEAK MAGNETOGRAM



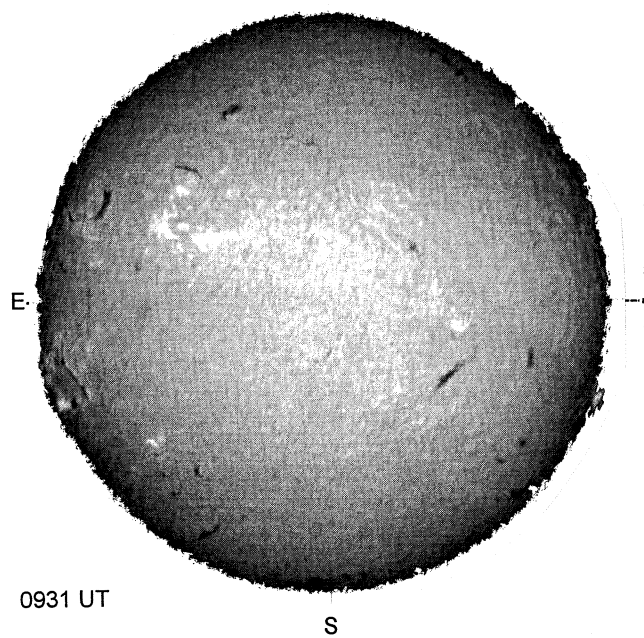
STANFORD MAGNETOGRAM



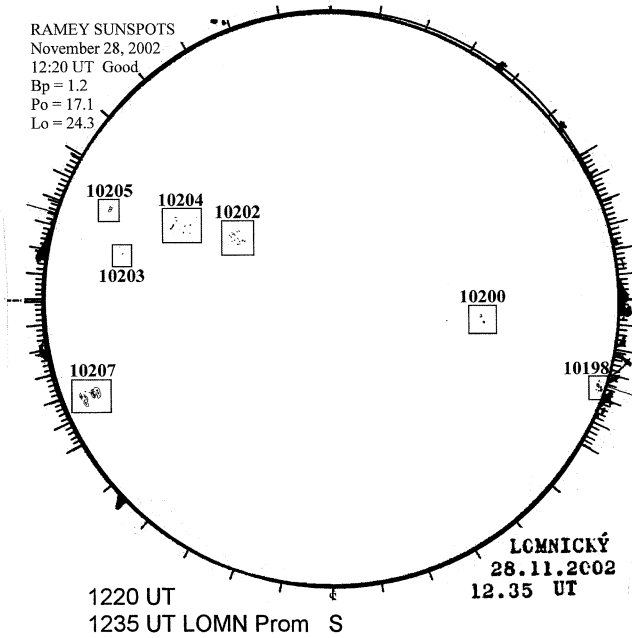
MT. WILSON MAGNETOGRAM



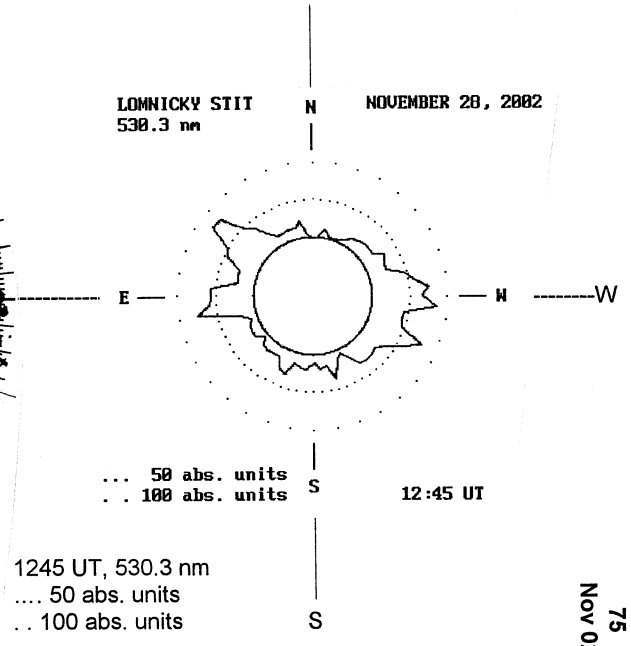
MEUDON H-ALPHA



RAMEY SUNSPOT



LOMNICKY PEAK CORONA (1.04 Radii)----



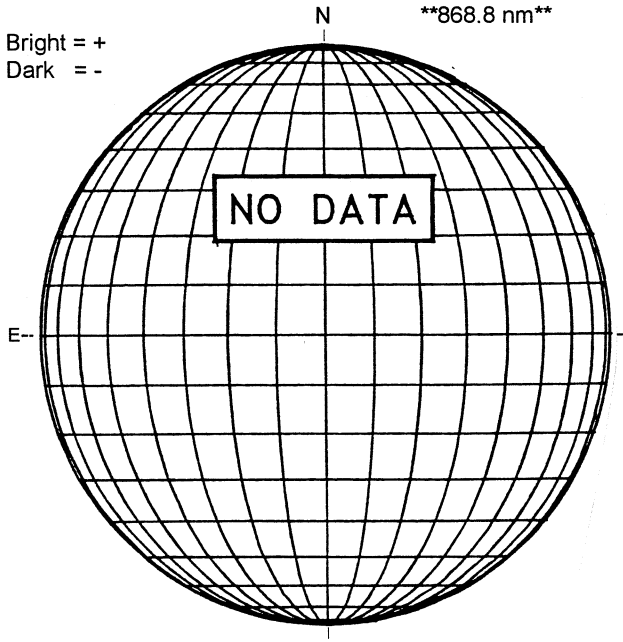
75
Nov 02

NOVEMBER 29, 2002 (P= 16.94, Bo = 1.16, Lo = 16.92)

KITT PEAK MAGNETOGRAM

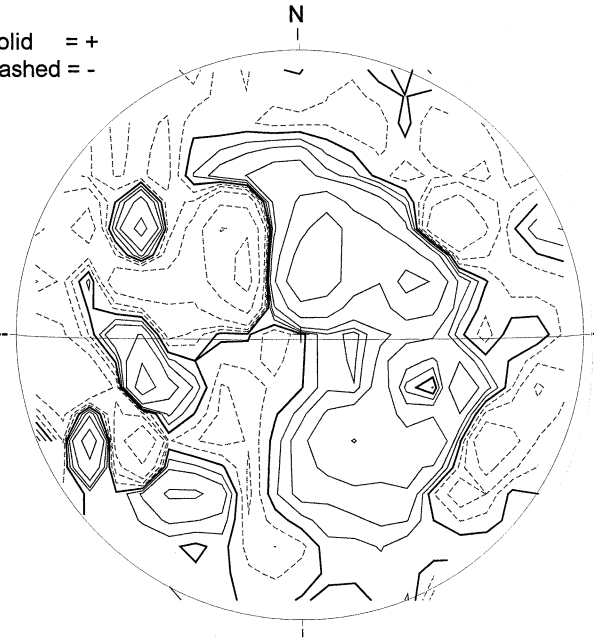
868.8 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

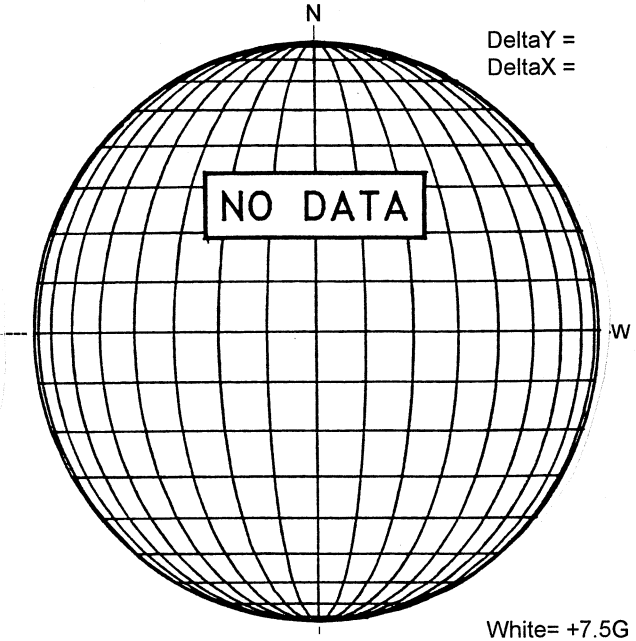
Solid = +
Dashed = -



2252 UT

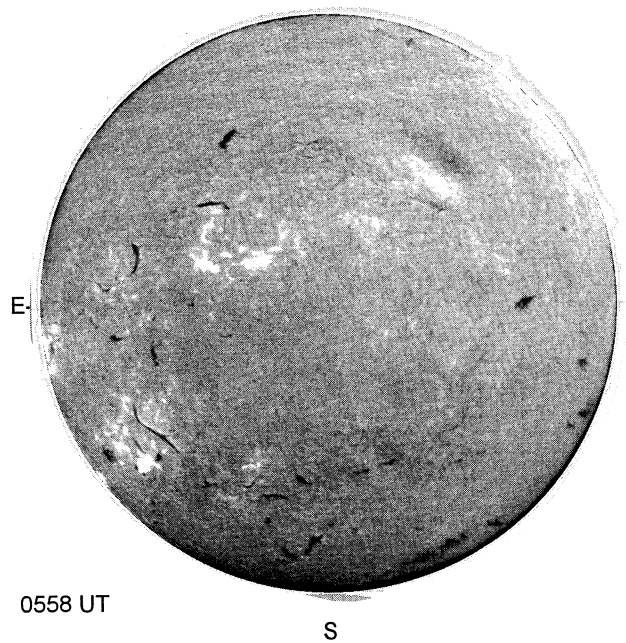
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



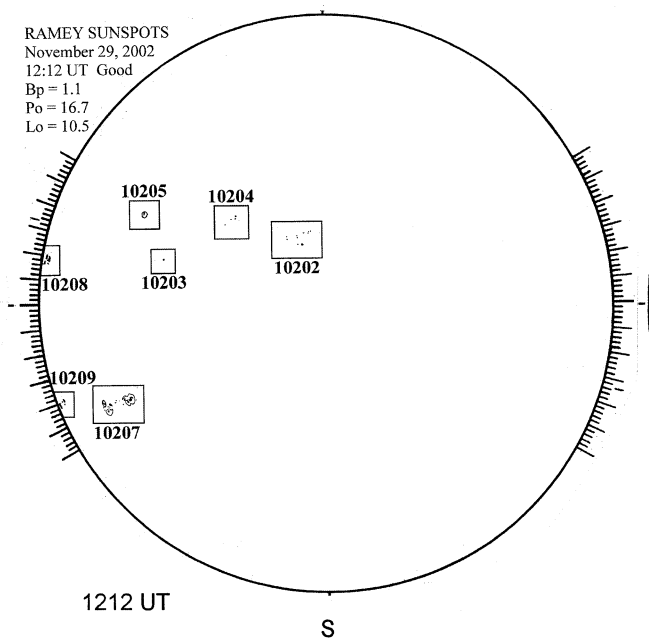
White= +7.5G
Black = -7.5G

HSOS H-ALPHA



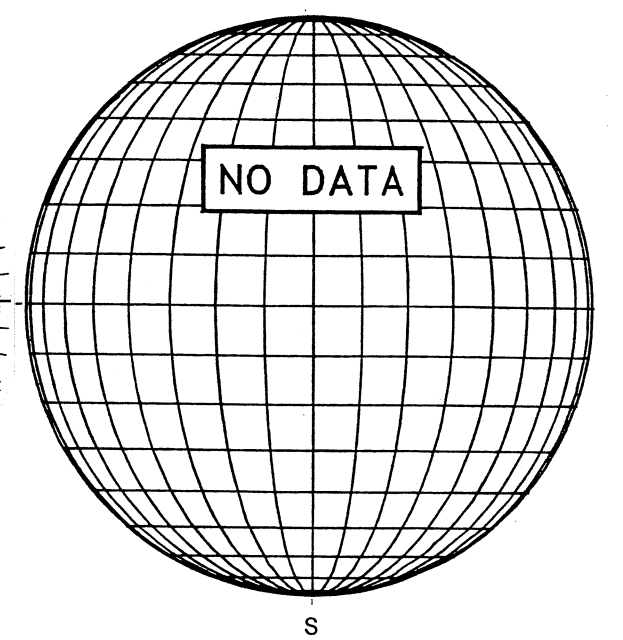
0558 UT

RAMEY SUNSPOT



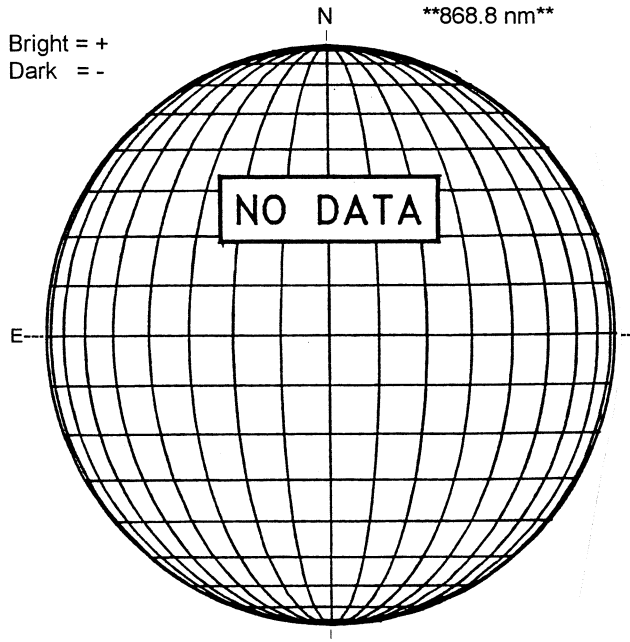
1212 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

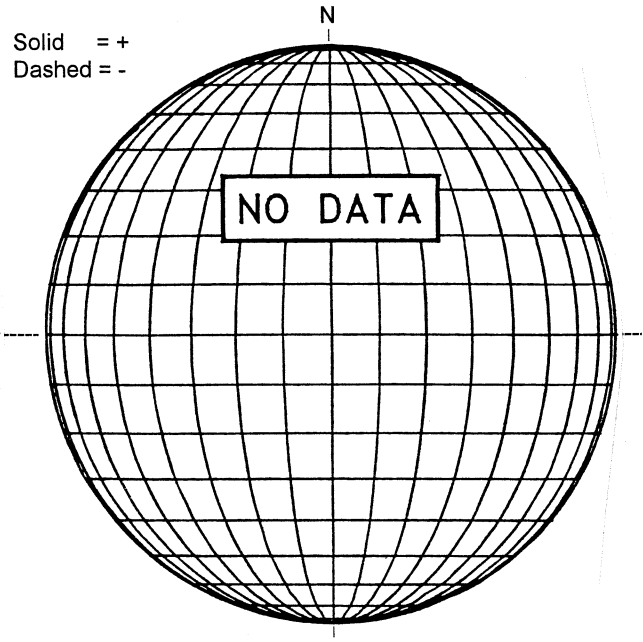


NOVEMBER 30, 2002 (P= 16.56, Bo = 1.03, Lo = 3.74)

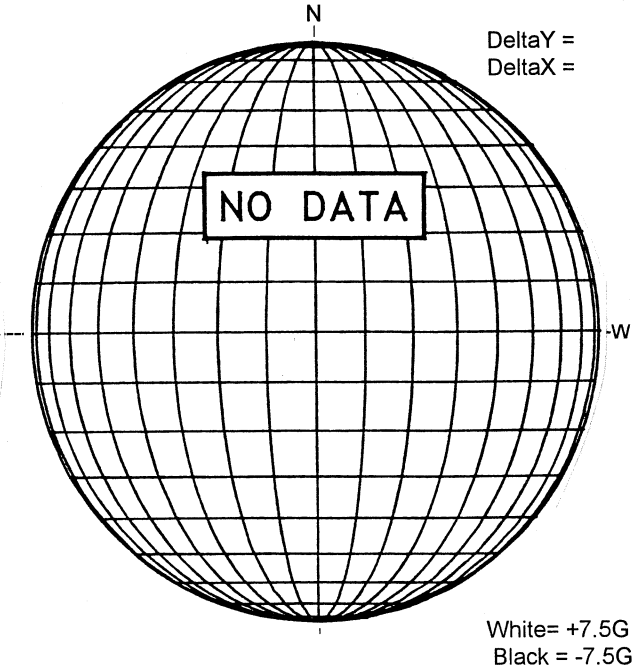
KITT PEAK MAGNETOGRAM



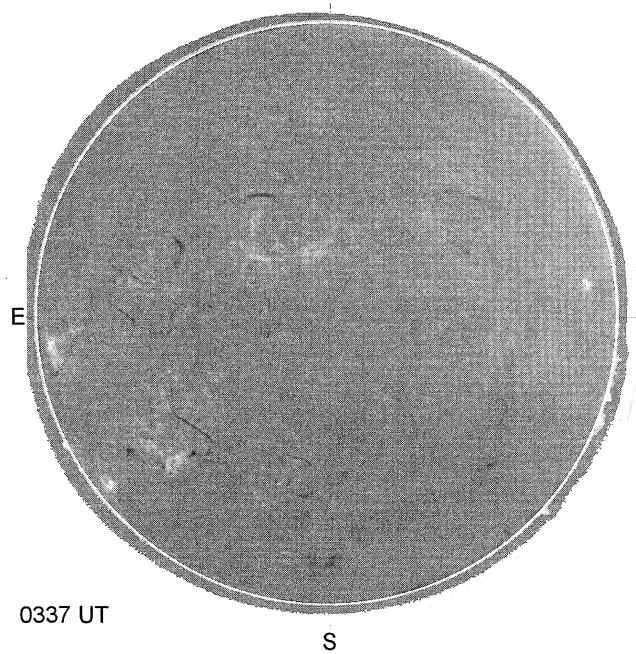
STANFORD MAGNETOGRAM



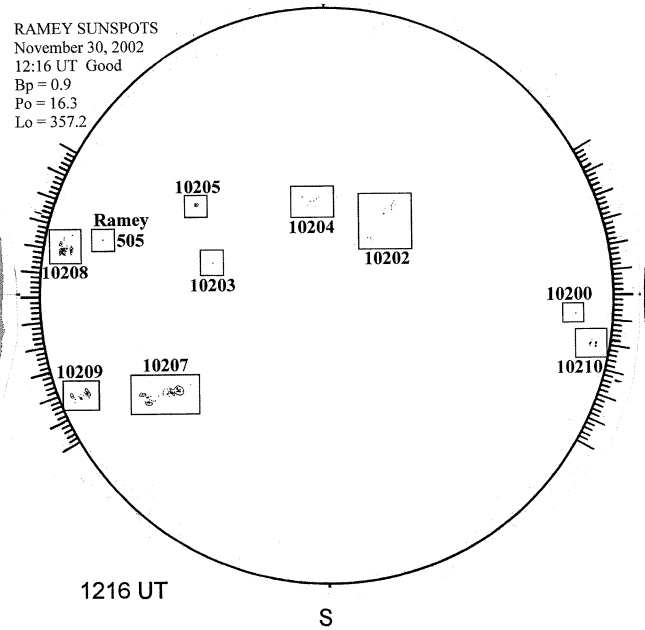
MT. WILSON MAGNETOGRAM



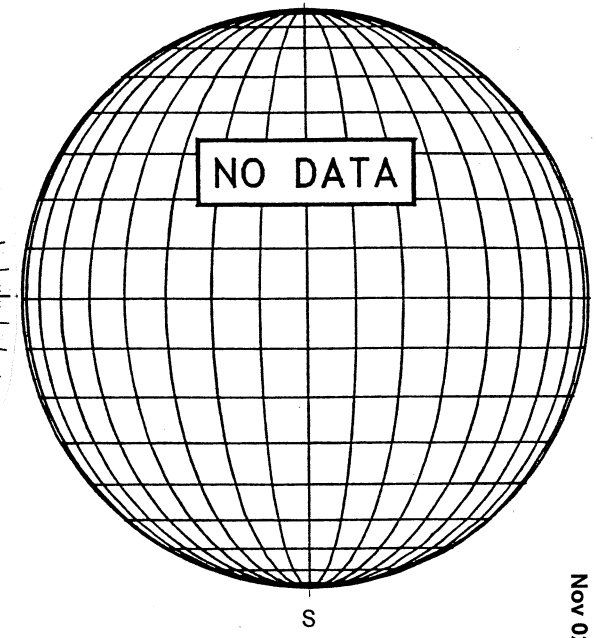
HSOS H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----



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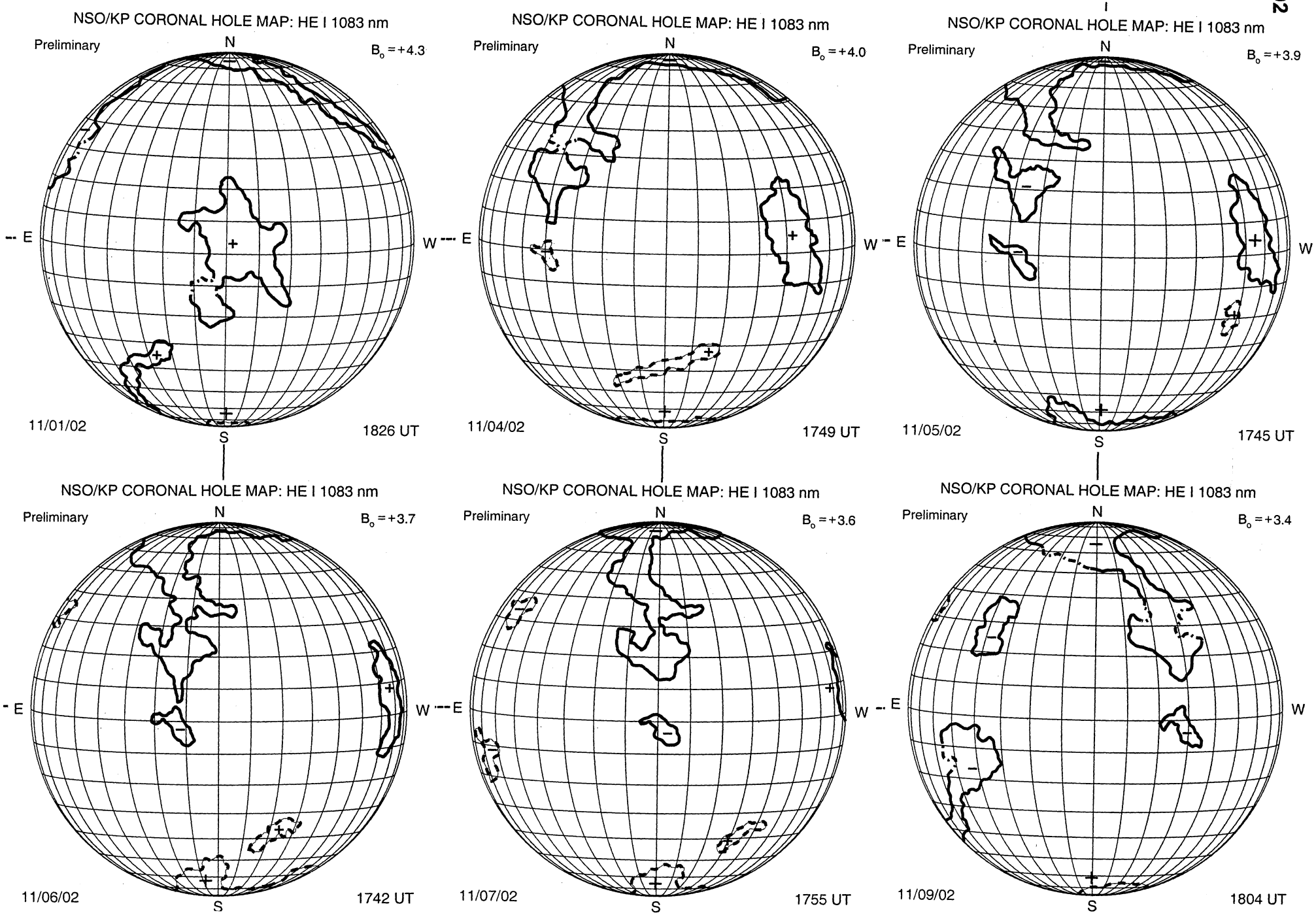
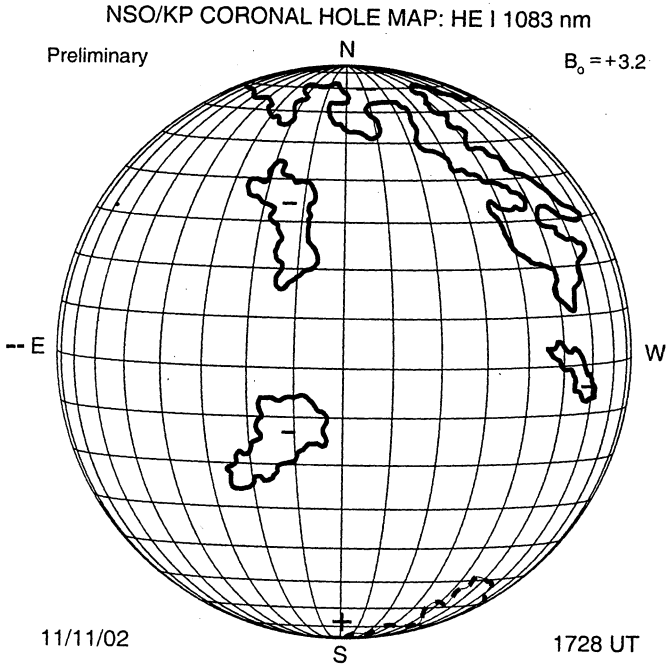
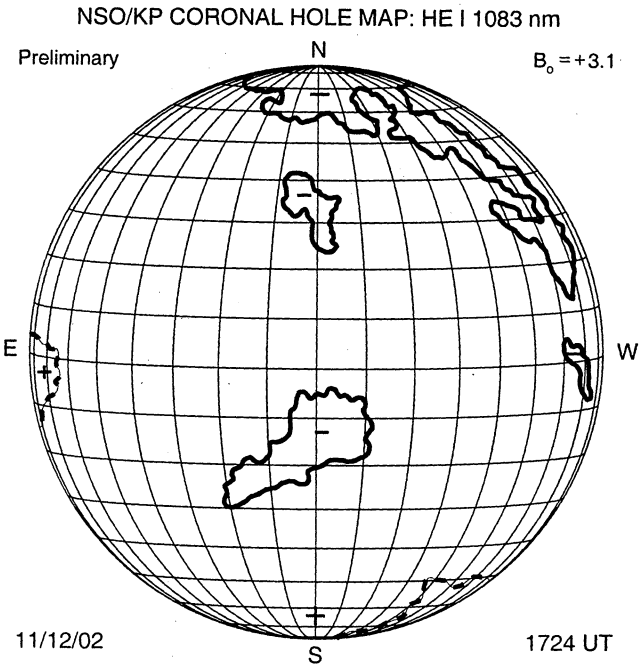
Nov 02

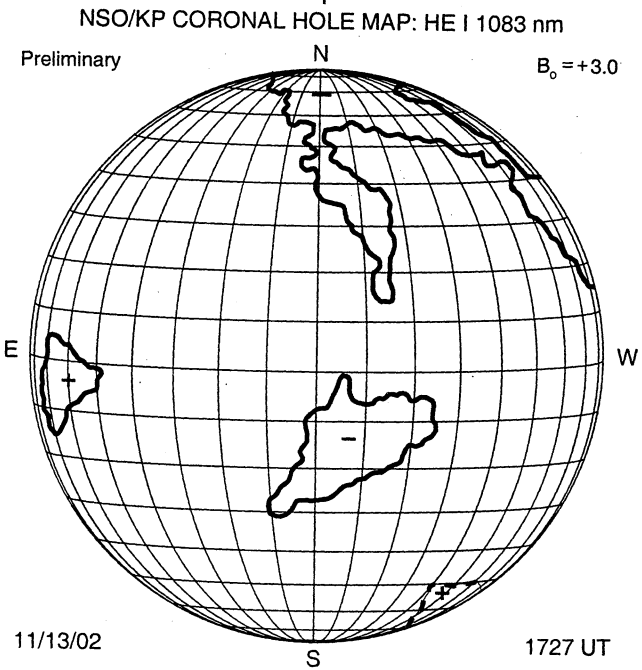
KITT PEAK CORONAL HOLE MAPS HE I 1083 nm
November 2002

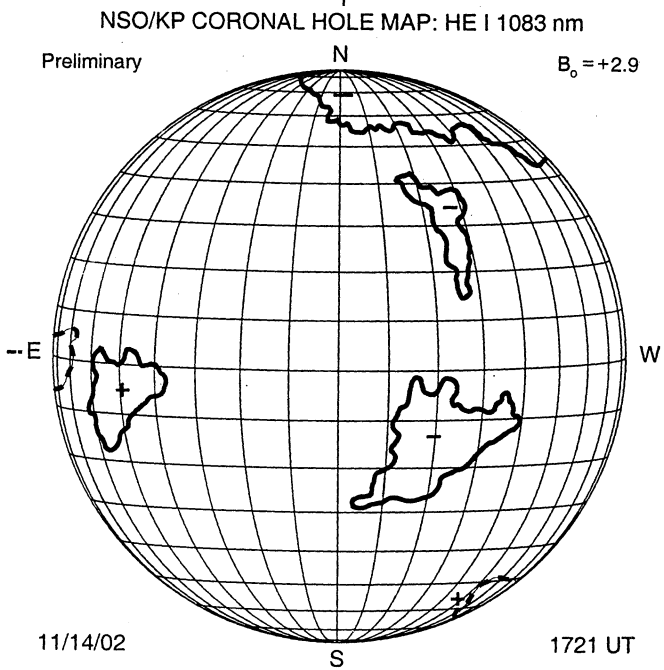


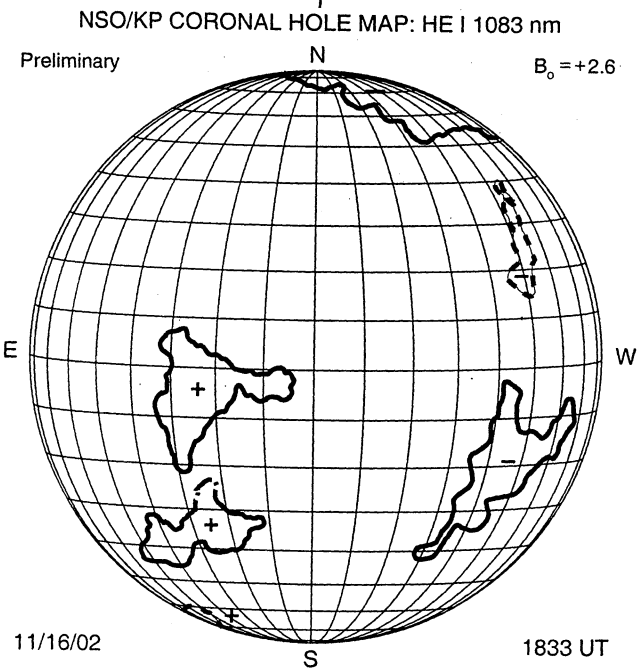
KITT PEAK CORONAL HOLE MAPS HE I 1083 nm
November 2002

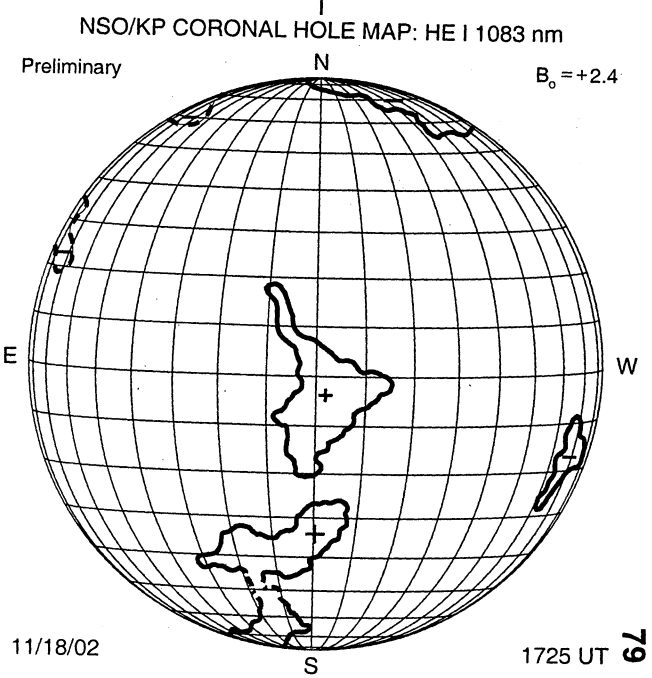




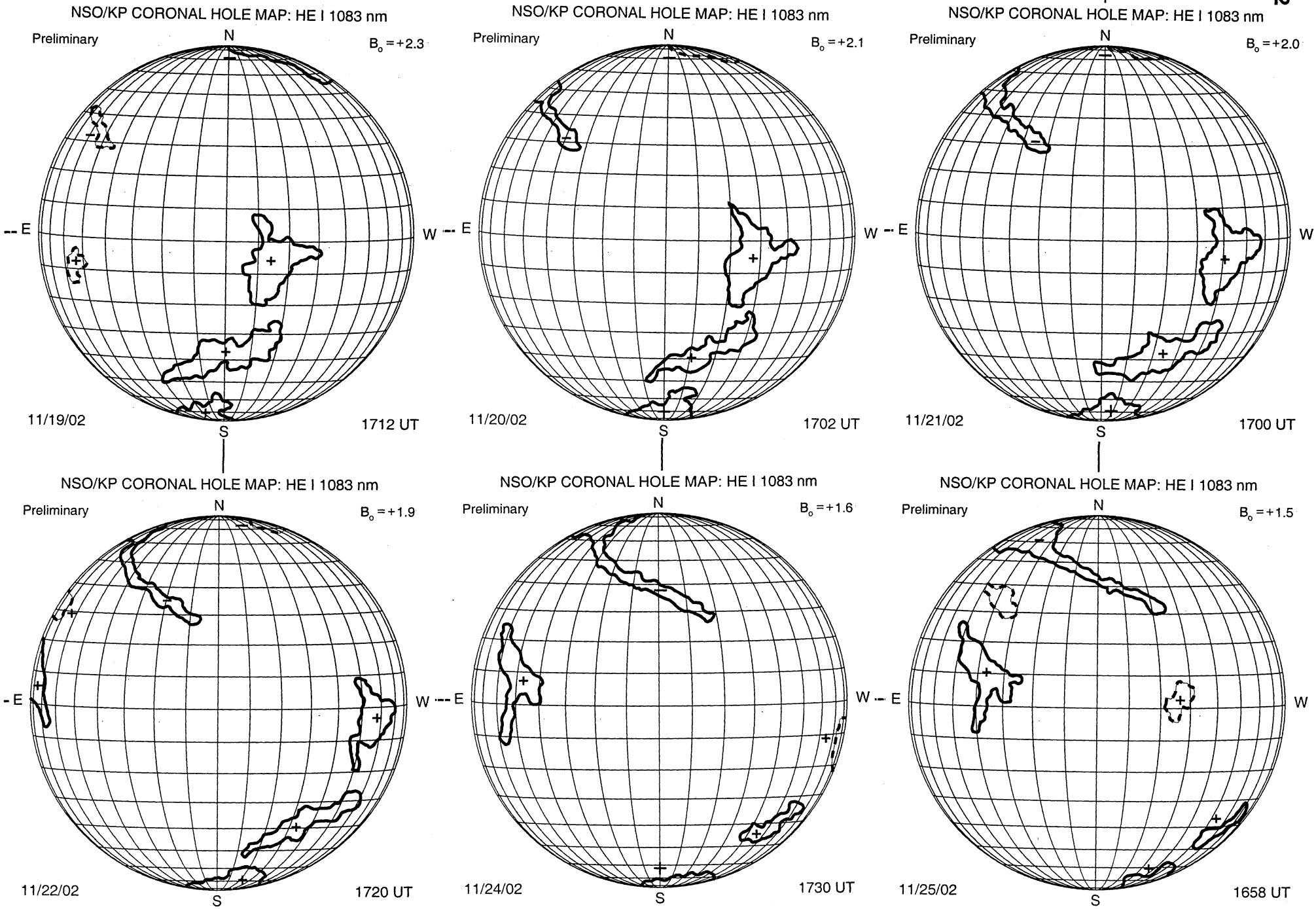




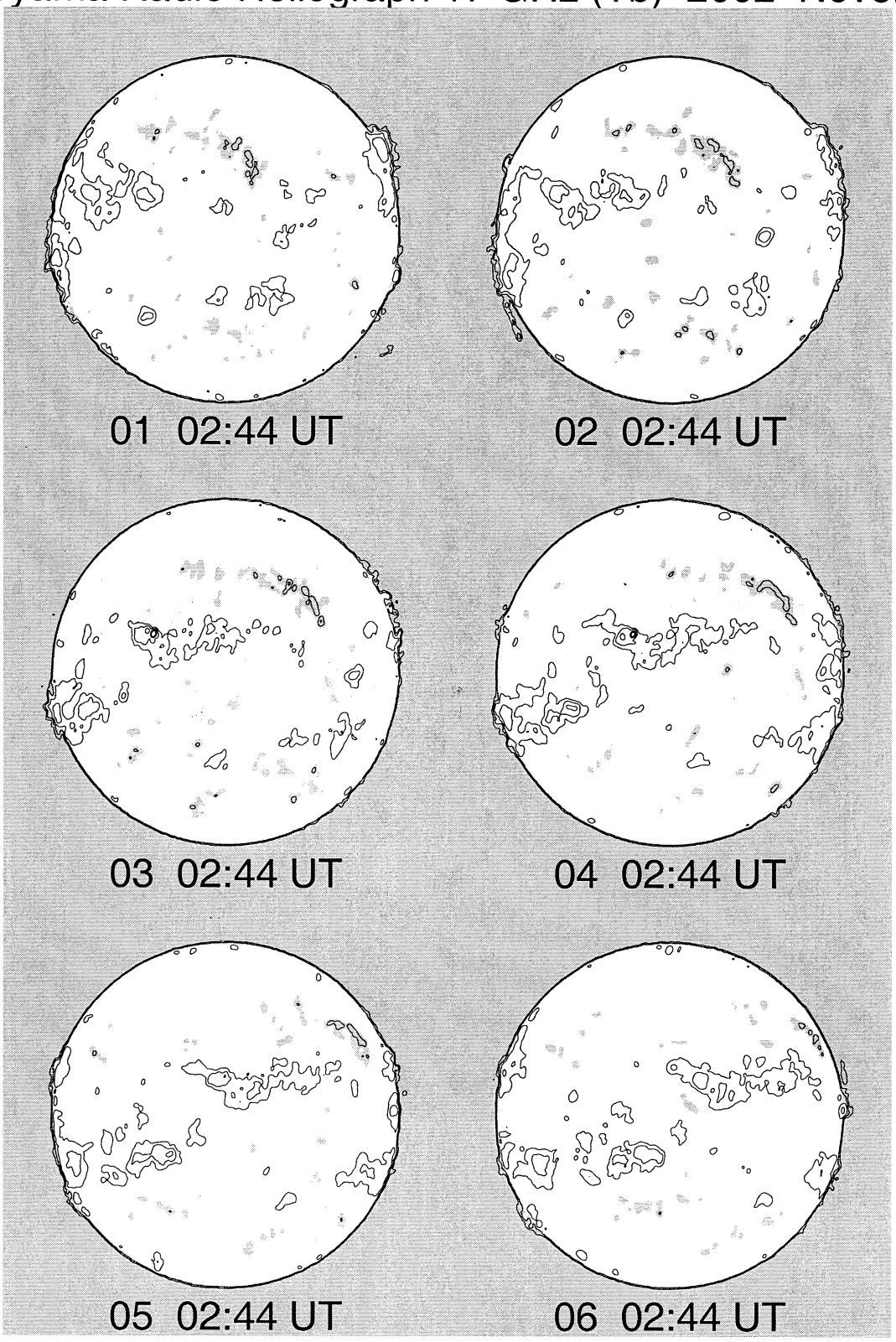




KITT PEAK CORONAL HOLE MAPS HE I 1083 nm
November 2002

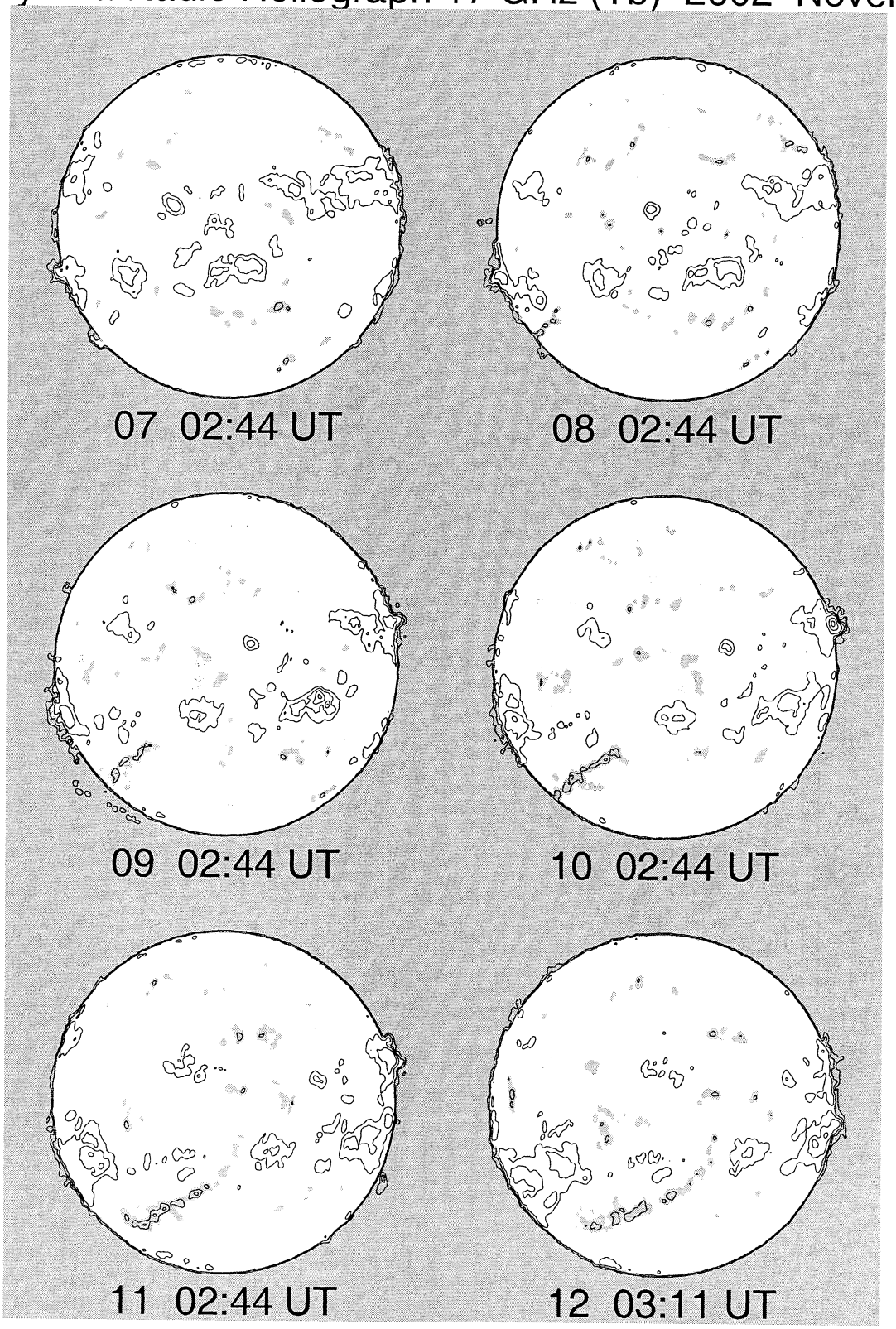


Nobeyama Radio Heliograph 17 GHz (Tb) 2002 November



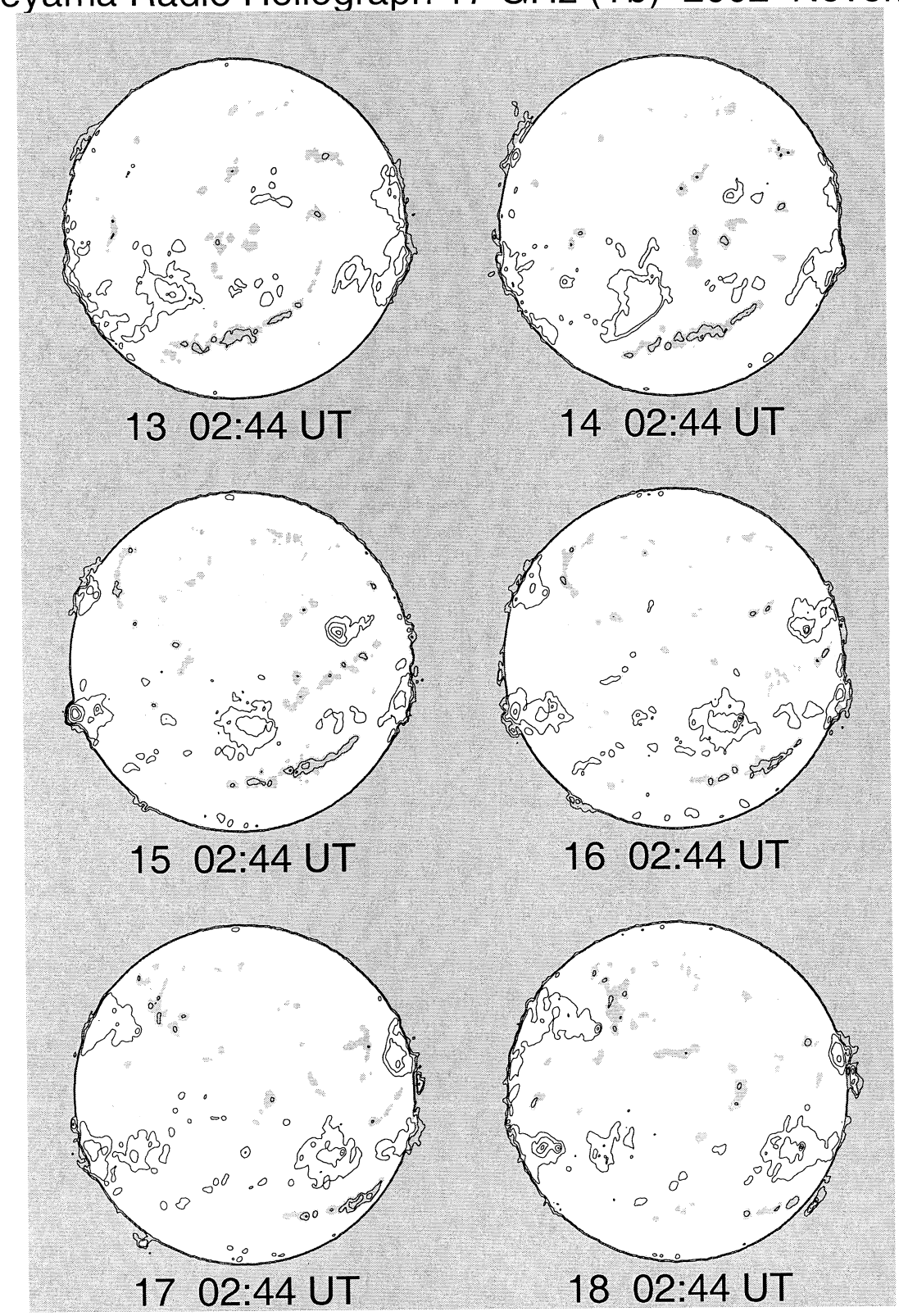
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2002 November



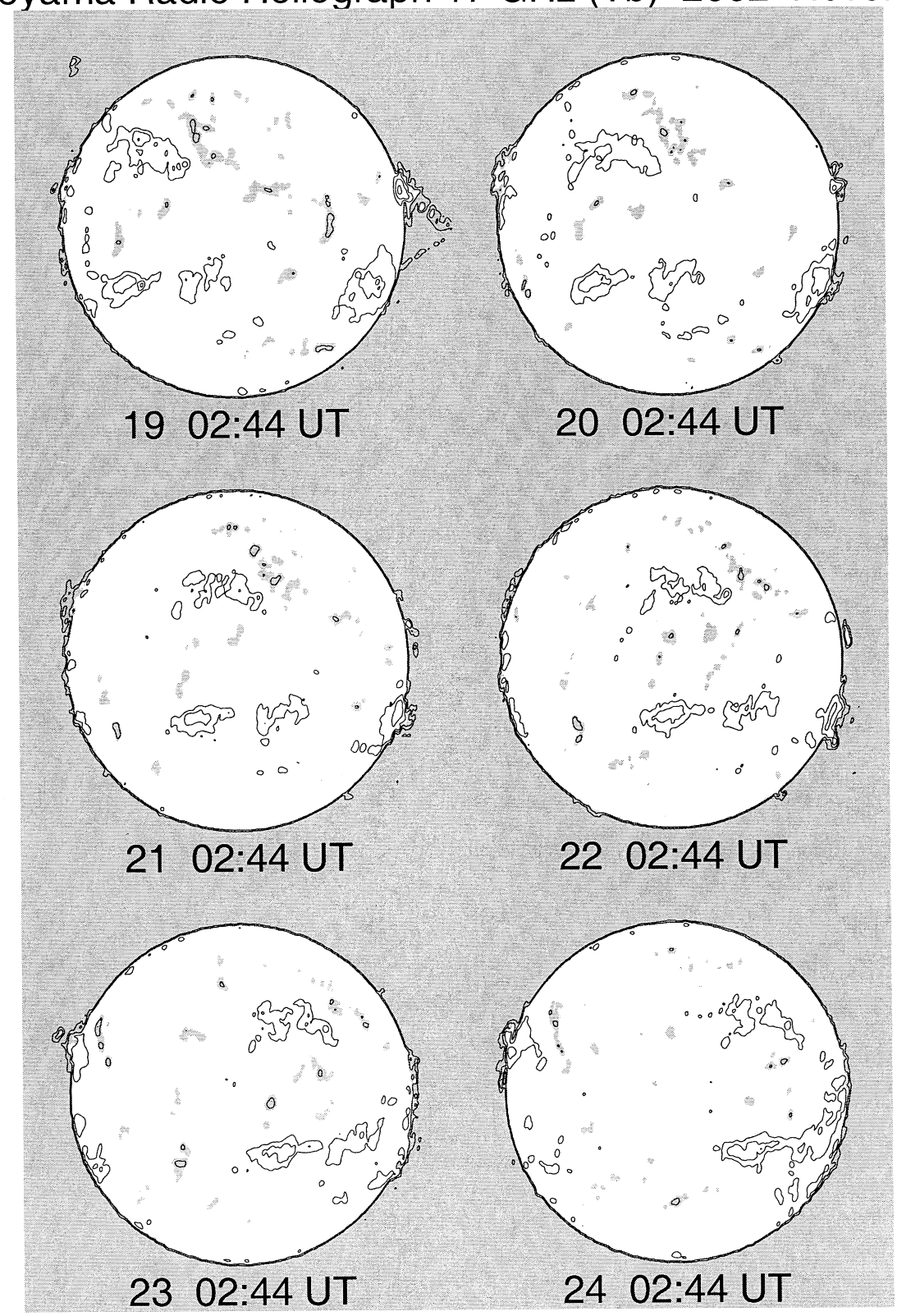
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2002 November



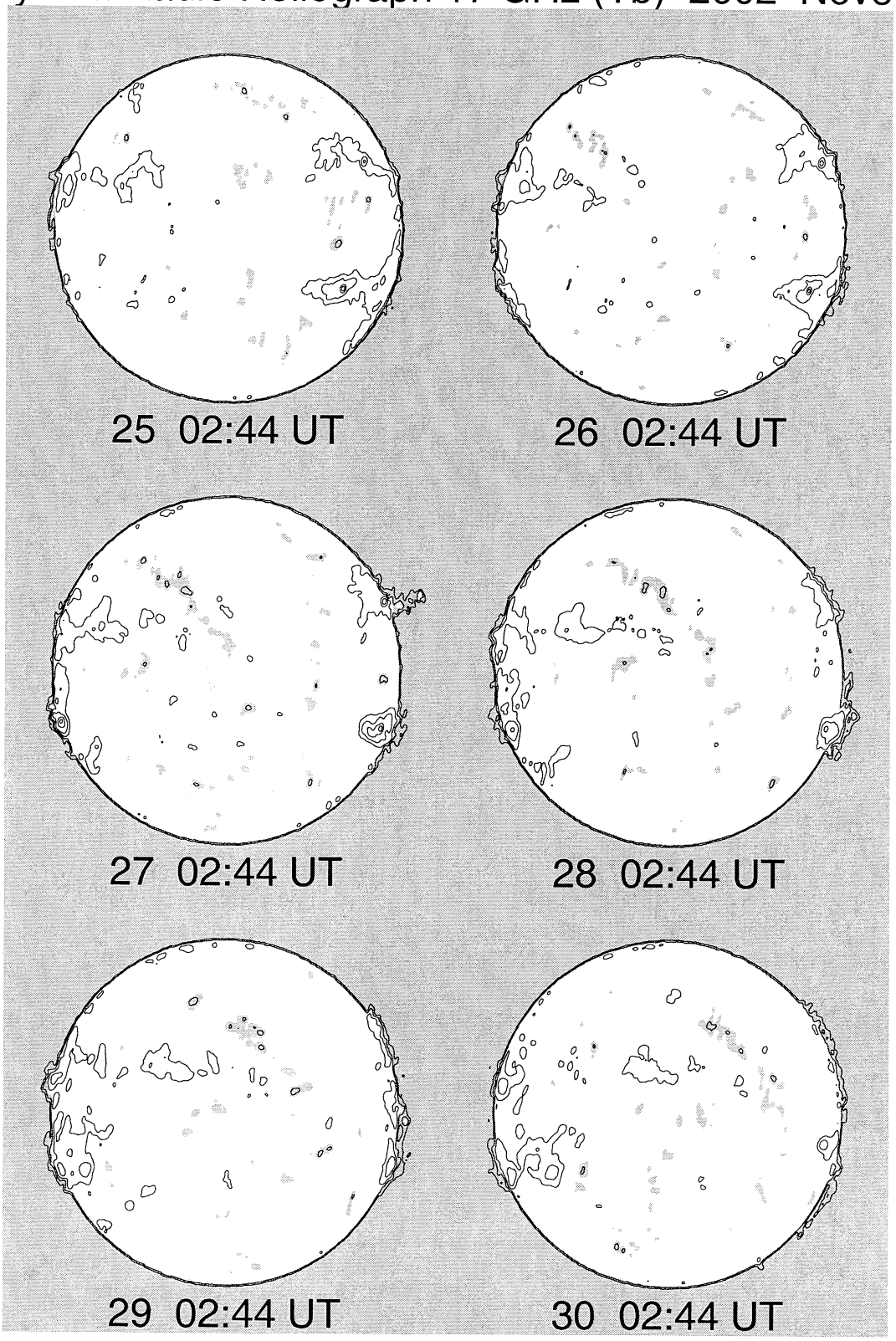
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2002 November



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

Nobeyama Radio Heliograph 17 GHz (Tb) 2002 November



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

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

NOVEMBER 2002

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10171B		TACH	11	01	0503	N10	W03	11	1.0			AR	16	2	1	4
10171A		TACH	10	26	0536	S26	E77	11	1.2			HXX	54	1	1	3
10172		RAMY	10	26	1232	S16	E79	11	1.5		A	HSX	30	1	2	3
10172		LEAR	10	27	0010	S17	E67	11	1.1		A	HAX	30	1	2	2
10172		TACH	10	27	0639	S17	E68	11	1.4			HR	49	2	1	3
10172		SVTO	10	27	0724	S15	E65	11	1.2		A	HSX	20	1	1	3
10172		RAMY	10	27	1230	S16	E62	11	1.2		A	HSX	40	1	2	3
10172		HOLL	10	27	1506	S17	E60	11	1.2		A	HSX	40	1	1	2
10172	31496	MWIL	10	27	1600	S16	E59	11	1.1	3	(AP)					
10172		LEAR	10	28	0057	S18	E55	11	1.2		A	HAX	10	1	1	2
10172		TACH	10	28	0602	S17	E52	11	1.2			AXX	18	1	1	3
10172		SVTO	10	28	0850	S16	E52	11	1.3		A	HRX	10	2	1	2
10172		RAMY	10	28	1213	S16	E50	11	1.3		A	HSX	10	1		3
10172	31496	MWIL	10	28	1500	S17	E47	11	1.2	4	(AP)					
10172		HOLL	10	28	1755	S17	E46	11	1.2		A	HAX	30	3	2	3
10172		LEAR	10	29	0050	S18	E42	11	1.2		A	HSX	20	1	1	3
10172		VORO	10	29	0351	S16	E40	11	1.2			HRX	13	2		2
10172		SVTO	10	29	0700	S14	E39	11	1.2		A	HRX	20	1	1	3
10172		TACH	10	29	0719	S16	E38	11	1.2			AXX	3	1	1	4
10172		RAMY	10	29	1225	S17	E36	11	1.2		A	AXX	10	1	1	3
10172		HOLL	10	29	1452	S17	E34	11	1.2		A	AXX	10	1	1	3
10172	31496	MWIL	10	29	1545	S17	E34	11	1.2	4	(B)					
10172		VORO	10	29	2256	S16	E29	11	1.1			AXX	9	3		2
10172		LEAR	10	30	0030	S17	E29	11	1.2		A	HSX	10	2	1	2
10172		TACH	10	30	0521	S17	E26	11	1.2			AXX	12	1	1	3
10172		SVTO	10	30	0730	S15	E25	11	1.2		A	HSX	20	1	1	3
10172		RAMY	10	30	1223	S17	E22	11	1.2		A	AXX	10	1	1	3
10172		HOLL	10	30	1450	S17	E22	11	1.3		B	CRX	30	4	3	3
10172	31496	MWIL	10	30	1530	S17	E20	11	1.2	4	(AP)					
10183B		TACH	11	01	0503	S18	E10	11	2.0			AXX	1	1	1	4
10183		LEAR	11	03	0022	N20	W12	11	2.1		A	AXX	10	2	2	4
10183		RAMY	11	03	1232	N19	W18	11	2.1		B	CSO	20	4	3	3
10183		HOLL	11	03	1450	N19	W19	11	2.2		B	BXO	10	2	3	3
10183	31509	MWIL	11	03	1545	N19	W19	11	2.2	4	(B)					
10183		LEAR	11	04	0100	N20	W27	11	2.0		B	BXO	20	2	1	1
10183A		VORO	10	29	0351	N12	E58	11	2.5			AXX	15	18		2
10175	31498	MWIL	10	28	1500	N15	E70	11	2.9	4	(AP)					
10175		HOLL	10	28	1755	N15	E69	11	3.0		A	AXX	20	1	1	3
10175		LEAR	10	29	0050	N12	E66	11	3.0		A	AXX	50	7	6	3
10175		VORO	10	29	0351	N14	E70	11	3.4			ARX	5	1		2
10175		VORO	10	29	0351	N16	E70	11	3.5			AXX	2	1		2
10175		SVTO	10	29	0700	N18	E68	11	3.5		A	AXX	30	3	2	3
10175		RAMY	10	29	1225	N16	E63	11	3.3		B	DSO	60	4	7	3
10175		HOLL	10	29	1452	N14	E61	11	3.2		B	CSO	50	6	5	3
10175	31498	MWIL	10	29	1545	N15	E62	11	3.3	5	(BG)					
10175		VORO	10	29	2256	N14	E57	11	3.3			ARX	21	4		2
10175		VORO	10	29	2256	N16	E57	11	3.3			CAI	77	10	5	2
10175		LEAR	10	30	0030	N14	E57	11	3.3		B	DAO	80	9	8	2
10175		TACH	10	30	0521	N14	E54	11	3.3			CAI	114	8	6	3
10175		SVTO	10	30	0730	N18	E54	11	3.4		B	DAO	50	8	9	3
10175		RAMY	10	30	1223	N16	E51	11	3.4		B	DAO	150	8	6	3
10175		HOLL	10	30	1450	N14	E47	11	3.2		B	DAI	180	16	7	3
10175	31498	MWIL	10	30	1530	N14	E49	11	3.3	5	(B)					
10175		LEAR	10	31	0220	N14	E43	11	3.3		B	DAO	150	7	8	1
10175		TACH	10	31	0453	N15	E41	11	3.3			CAI	162	9	7	3
10175		SVTO	10	31	0724	N17	E37	11	3.1		B	DSO	130	4	6	2
10175		RAMY	10	31	1221	N16	E35	11	3.2		B	DSO	210	6	8	3
10175	31498	MWIL	10	31	1530	N14	E34	11	3.2	5	(B)					
10175		HOLL	10	31	1903	N14	E33	11	3.3		B	DAI	170	16	9	3
10175		LEAR	11	01	0015	N13	E32	11	3.4		B	ESO	110	10	14	3
10175		VORO	11	01	0044	N14	E26	11	3.0			HHX	115	8		3
10175		VORO	11	01	0044	N15	E33	11	3.5			DAI	95	13	7	3
10175		TACH	11	01	0503	N15	E30	11	3.5			CAI	143	8	14	4

S U N S P O T G R O U P S
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NOVEMBER 2002

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10175		SVTO	11	01	0840	N15	E26	11	3.3		B	EAO	180	7	15	2
10175		RAMY	11	01	1120	N16	E24	11	3.3		B	FAI	200	25	17	3
10175	31498	MWIL	11	01	1545	N15	E20	11	3.2	5	(BP)					
10175		LEAR	11	02	0020	N14	E17	11	3.3		B	ESO	110	15	14	4
10175		VORO	11	02	0246	N14	E11	11	2.9			HAX	116	7		3
10175		TACH	11	02	0605	N14	E14	11	3.3			EAI	158	15	12	2
10175		SVTO	11	02	0639	N15	E14	11	3.3		B	ESO	110	8	14	3
10175		RAMY	11	02	1236	N14	E10	11	3.3		B	ESO	150	19	15	3
10175	31498	MWIL	11	02	1545	N14	E07	11	3.2	5	(B)					
10175		VORO	11	02	2354	N14	W01	11	2.9			HAX	92	6		3
10175		LEAR	11	03	0022	N15	E05	11	3.4		B	EAO	120	14	13	4
10175		RAMY	11	03	1232	N14	W02	11	3.4		B	ESO	100	23	15	3
10175		SVTO	11	03	1330	N15	W06	11	3.1		B	DSO	80	2	7	2
10175		HOLL	11	03	1450	N16	W05	11	3.2		BG	EAI	120	21	15	3
10175	31498	MWIL	11	03	1545	N14	W05	11	3.3	5	(B)					
10175		LEAR	11	04	0100	N16	W09	11	3.3		B	EAO	90	7	15	1
10175		VORO	11	04	0158	N14	W16	11	2.9			HAX	89	1		3
10175		SVTO	11	04	0855	N14	W17	11	3.1		B	CSO	40	2	8	3
10175		RAMY	11	04	1223	N13	W18	11	3.1		B	DSO	70	2	7	4
10175		VORO	11	05	0008	N14	W28	11	2.9			HAX	67	1		3
10175		LEAR	11	05	0040	N16	W24	11	3.2		B	CSO	70	6	10	4
10175		SVTO	11	05	0828	N15	W28	11	3.2		B	CSO	40	2	10	3
10175		RAMY	11	05	1150	N14	W31	11	3.1		B	DSO	90	3	10	4
10175	31498	MWIL	11	05	1545	N14	W34	11	3.1	5	(BP)					
10175		HOLL	11	05	1550	N14	W33	11	3.2		B	DSO	70	6	10	3
10175		VORO	11	06	0009	N14	W42	11	2.8			HAX	61	2		3
10175		LEAR	11	06	0015	N15	W36	11	3.3		B	EAO	60	7	11	3
10175		TACH	11	06	0437	N14	W45	11	2.8			HSX	53	1	2	3
10175		SVTO	11	06	0800	N13	W47	11	2.8		A	HAX	60	1	1	3
10175		RAMY	11	06	1222	N14	W50	11	2.7		A	HAX	80	2	2	3
10175		HOLL	11	06	1433	N14	W52	11	2.7		B	CAO	60	4	3	4
10175	31498	MWIL	11	06	1530	N15	W51	11	2.8	5	(AP)					
10175		LEAR	11	07	0025	N15	W56	11	2.8		A	HAX	20	1	2	1
10175		TACH	11	07	0459	N14	W58	11	2.8			HA	29	2	2	4
10175		SVTO	11	07	0700	N13	W62	11	2.6		A	HSX	20	1	2	3
10175		RAMY	11	07	1210	N12	W66	11	2.5		B	CSO	40	2	3	3
10175		HOLL	11	07	1515	N15	W65	11	2.7		A	HSX	40	2	1	4
10175		VORO	11	08	0005	N14	W69	11	2.8			AXX	6	1		3
10175		LEAR	11	08	0015	N15	W69	11	2.8		A	HSX	40	1	1	4
10174	31499	MWIL	10	28	1500	S26	E75	11	3.4	4	(AP)					
10174		HOLL	10	28	1755	S25	E73	11	3.4		A	AXX	30	1	1	3
10174		LEAR	10	29	0050	S27	E67	11	3.2		B	DAO	40	2	2	3
10174		VORO	10	29	0351	S26	E66	11	3.3			DRO	55	2	4	2
10174		SVTO	10	29	0700	S23	E64	11	3.2		A	HSX	120	1	2	3
10174		TACH	10	29	0719	S25	E64	11	3.3			HA	98	2	4	4
10174		RAMY	10	29	1225	S26	E61	11	3.2		B	CSO	60	2	4	3
10174		HOLL	10	29	1452	S25	E60	11	3.3		B	CAO	60	3	4	3
10174	31499	MWIL	10	29	1545	S25	E60	11	3.3	5	(B)					
10174		VORO	10	29	2256	S25	E54	11	3.1			CAI	80	9	5	2
10174		LEAR	10	30	0030	S26	E54	11	3.2		B	DSO	60	3	6	2
10174		TACH	10	30	0521	S25	E52	11	3.2			CSO	71	3	5	3
10174		SVTO	10	30	0730	S23	E52	11	3.3		B	CSO	70	5	8	3
10174		RAMY	10	30	1223	S24	E49	11	3.3		B	CSO	70	5	6	3
10174		HOLL	10	30	1450	S25	E45	11	3.1		B	DAO	100	6	8	3
10174	31499	MWIL	10	30	1530	S26	E47	11	3.3	5	(BF)					
10174		LEAR	10	31	0220	S26	E42	11	3.4		B	EAO	80	6	12	1
10174		TACH	10	31	0453	S25	E43	11	3.5			BRI	18	8	11	3
10174		SVTO	10	31	0724	S24	E43	11	3.6		B	CRO	30	3	4	2
10174		RAMY	10	31	1221	S25	E38	11	3.4		B	ESO	90	5	11	3
10174	31499	MWIL	10	31	1530	S26	E36	11	3.4	4	(BG)					
10174		HOLL	10	31	1903	S26	E34	11	3.4		B	CSO	30	9	11	3
10174		LEAR	11	01	0015	S27	E30	11	3.3		B	DAO	50	8	9	3
10174		VORO	11	01	0044	S24	E28	11	3.2			BRI	21	3	4	3
10174		VORO	11	01	0044	S26	E32	11	3.5			DAI	44	5	3	3
10174		TACH	11	01	0503	S24	E28	11	3.4			BRI	10	5	7	4
10174		RAMY	11	01	1120	S26	E25	11	3.4		B	DSO	20	7	7	3
10174	31499	MWIL	11	01	1545	S26	E22	11	3.4	4	(BG)					
10174		LEAR	11	02	0020	S26	E15	11	3.2		B	DSO	30	4	5	4

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NOVEMBER 2002

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10174		VORO	11	02	0246	S26	E17	11	3.4			BXO	15	2	3	3
10174		TACH	11	02	0605	S25	E13	11	3.3			BRI	19	5	5	2
10174		RAMY	11	02	1236	S26	E09	11	3.2		B	DSO	30	9	6	3
10174	31499	MWIL	11	02	1545	S26	E09	11	3.3	4	(B)					
10174		LEAR	11	03	0022	S26	E04	11	3.3		B	BXO	20	4	3	4
10175B		VORO	10	29	0351	N05	E73	11	3.6			AXX	14	14		2
10175A		VORO	10	29	0351	N11	E75	11	3.8			HAX	115	9		2
10175A		VORO	10	29	0351	N16	E79	11	4.1			AXX	50	9		2
10175A	31504	MWIL	11	01	1545	N15	E29	11	3.8	4	(AP)					
10175A	31504	MWIL	11	02	1545	N15	E15	11	3.8	4	(AP)					
10175A	31504	MWIL	11	03	1545	N15	E03	11	3.9	4	(B)					
10175A		TACH	11	06	0437	N16	W22	11	4.5			AXX	1	1	1	3
10176		SVTO	10	29	0700	N14	E84	11	4.6		B	DSO	100	4	5	3
10176		RAMY	10	29	1225	N12	E81	11	4.6		A	HSX	120	1	2	3
10176		HOLL	10	29	1452	N10	E81	11	4.7		A	HSX	60	1	2	3
10176	31500	MWIL	10	29	1545	N10	E80	11	4.7	5	(AP)					
10176		LEAR	10	30	0030	N09	E76	11	4.7		A	HAX	120	1	2	2
10176		TACH	10	30	0521	N10	E73	11	4.7			HSX	272	1	3	3
10176		SVTO	10	30	0730	N14	E72	11	4.7		A	HSX	180	1	3	3
10176		RAMY	10	30	1223	N11	E70	11	4.8		A	HSX	110	1	2	3
10176		HOLL	10	30	1450	N12	E70	11	4.9		B	CHO	120	2	8	3
10176	31500	MWIL	10	30	1530	N10	E68	11	4.7	5	(AP)					
10176		LEAR	10	31	0220	N09	E62	11	4.7		A	HSX	120	1	2	1
10176		TACH	10	31	0453	N10	E61	11	4.8			HSX	112	1	2	3
10176		RAMY	10	31	1221	N12	E56	11	4.7		A	HSX	100	1	2	3
10176	31500	MWIL	10	31	1530	N10	E55	11	4.8	5	(AP)					
10176		HOLL	10	31	1903	N09	E53	11	4.8		B	CAO	130	3	3	3
10176		LEAR	11	01	0015	N08	E50	11	4.7		A	HSX	90	2	2	3
10176		VORO	11	01	0044	N10	E50	11	4.8			HSX	151	4		3
10176		TACH	11	01	0503	N10	E47	11	4.7			HSX	169	1	2	4
10176		SVTO	11	01	0840	N10	E45	11	4.7		A	HAX	80	1	2	2
10176		RAMY	11	01	1120	N11	E43	11	4.7		B	CSO	170	2	4	3
10176	31500	MWIL	11	01	1545	N10	E41	11	4.7	5	(BP)					
10176		LEAR	11	02	0020	N08	E36	11	4.7		B	CSO	60	2	1	4
10176		VORO	11	02	0246	N10	E35	11	4.7			HHX	177	1		3
10176		TACH	11	02	0605	N10	E32	11	4.6			HSX	109	1	2	2
10176		SVTO	11	02	0639	N11	E34	11	4.8		B	CSO	110	2	4	3
10176		RAMY	11	02	1236	N10	E30	11	4.8		B	CSO	110	2	2	3
10176	31500	MWIL	11	02	1545	N10	E28	11	4.8	5	(AP)					
10176		LEAR	11	03	0022	N09	E23	11	4.7		B	CSO	100	3	2	4
10176		RAMY	11	03	1232	N10	E17	11	4.8		B	CSO	100	3	3	3
10176		SVTO	11	03	1330	N15	E17	11	4.8		B	CSO	120	3	4	2
10176		HOLL	11	03	1450	N09	E17	11	4.9		B	CSO	110	3	2	3
10176	31500	MWIL	11	03	1545	N10	E15	11	4.8	5	(B)					
10176		LEAR	11	04	0100	N10	E11	11	4.9		B	CSO	110	2	2	1
10176		VORO	11	04	0158	N10	E09	11	4.7			HHX	198	1		3
10176		SVTO	11	04	0855	N10	E06	11	4.8		A	HSX	80	1	2	3
10176		RAMY	11	04	1223	N12	E03	11	4.7		B	CSO	200	2	3	4
10176		VORO	11	04	2354	N10	W03	11	4.8			HSX	149	3		3
10176		LEAR	11	05	0040	N10	W02	11	4.9		A	HSX	110	1	2	4
10176		SVTO	11	05	0828	N10	W07	11	4.8		A	HSX	120	1	3	3
10176		RAMY	11	05	1150	N10	W08	11	4.9		A	HSX	120	1	2	4
10176	31500	MWIL	11	05	1545	N10	W11	11	4.8	5	(AP)					
10176		HOLL	11	05	1550	N09	W12	11	4.7		A	HSX	80	1	2	3
10176		VORO	11	06	0009	N10	W16	11	4.8			HHX	169	3		3
10176		LEAR	11	06	0015	N10	W15	11	4.9		A	HSX	150	1	2	3
10176		TACH	11	06	0437	N10	W17	11	4.9			HSX	158	1	2	3
10176		SVTO	11	06	0800	N09	W19	11	4.9		A	HSX	120	1	3	3
10176		RAMY	11	06	1222	N09	W23	11	4.8		A	HSX	150	1	2	3
10176		HOLL	11	06	1433	N10	W24	11	4.8		A	HSX	100	1	2	4
10176	31500	MWIL	11	06	1530	N10	W24	11	4.8	5	(AP)					
10176		LEAR	11	07	0025	N11	W28	11	4.9		A	HSX	120	1	2	1
10176		TACH	11	07	0459	N09	W31	11	4.9			HHX	175	1	3	4
10176		SVTO	11	07	0700	N09	W34	11	4.7		A	HSX	120	1	2	3
10176		RAMY	11	07	1210	N09	W37	11	4.7		A	HSX	120	1	2	3
10176		HOLL	11	07	1515	N10	W38	11	4.8		A	HAX	120	2	2	4

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10176		VORO	11	08	0005	N10	W41	11	4.9			HAX	152	3		3
10176		LEAR	11	08	0015	N11	W41	11	4.9		A	HSX	150	1	2	4
10176		RAMY	11	08	1210	N09	W50	11	4.7		A	HSX	130	1	2	4
10176		HOLL	11	08	1502	N10	W50	11	4.9		A	HSX	120	1	2	2
10176		LEAR	11	09	0024	N11	W55	11	4.9		A	HSX	120	1	2	3
10176		VORO	11	09	0028	N10	W54	11	5.0			HAX	154	1		3
10176		TACH	11	09	0605	N09	W57	11	5.0			HSX	119	1	2	3
10176		SVTO	11	09	0706	N11	W59	11	4.8		A	HSX	70	1	2	3
10176		RAMY	11	09	1223	N08	W62	11	4.9		A	HSX	120	1	3	3
10176		HOLL	11	09	1612	N09	W64	11	4.9		A	HSX	100	1	2	2
10176		LEAR	11	10	0032	N10	W68	11	4.9		A	HSX	130	1	2	2
10176		RAMY	11	10	1206	N08	W76	11	4.8		A	HSX	90	1	3	3
10176		LEAR	11	11	0021	N11	W79	11	5.1		A	HSX	100	1	2	3
10177		LEAR	10	30	0030	N14	E82	11	5.2		A	HAX	30	1	2	2
10177		TACH	10	30	0521	N16	E78	11	5.1			HSX	225	1	3	3
10177		SVTO	10	30	0730	N19	E77	11	5.2		A	HSX	60	1	2	3
10177		RAMY	10	30	1223	N17	E74	11	5.1		A	HSX	60	1	1	3
10177		HOLL	10	30	1450	N15	E75	11	5.3		B	CSO	80	2	8	3
10177	31502	MWIL	10	30	1530	N16	E71	11	5.0	5	(BP)					
10177		LEAR	10	31	0220	N15	E69	11	5.3		B	DAO	70	5	8	1
10177		TACH	10	31	0453	N15	E69	11	5.4			CAI	65	5	7	3
10177		SVTO	10	31	0724	N17	E61	11	4.9		B	DAO	150	4	10	2
10177		RAMY	10	31	1221	N17	E64	11	5.4		B	DSO	200	5	10	3
10177	31502	MWIL	10	31	1530	N15	E60	11	5.2	5	(B)					
10177		HOLL	10	31	1903	N15	E60	11	5.3		B	EAI	150	15	12	3
10177		LEAR	11	01	0015	N13	E55	11	5.2		B	DAI	230	14	9	3
10177		VORO	11	01	0044	N15	E57	11	5.3			DHI	361	19	9	3
10177		TACH	11	01	0503	N15	E55	11	5.4			CAI	350	9	11	4
10177		SVTO	11	01	0840	N16	E51	11	5.2		B	DKO	350	10	10	2
10177		RAMY	11	01	1120	N16	E50	11	5.3		BG	EKI	360	18	11	3
10177	31502	MWIL	11	01	1545	N15	E47	11	5.2	5	(BG)					
10177		LEAR	11	02	0020	N14	E45	11	5.4		BG	EKI	380	18	11	4
10177		VORO	11	02	0246	N15	E43	11	5.4			DKI	519	28	8	3
10177		TACH	11	02	0605	N14	E42	11	5.4			DAI	556	16	8	2
10177		SVTO	11	02	0639	N17	E39	11	5.2		B	DKO	380	10	9	3
10177		RAMY	11	02	1236	N16	E37	11	5.3		BG	EKI	350	25	11	3
10177	31502	MWIL	11	02	1545	N14	E36	11	5.4	6	(BG)					
10177		LEAR	11	03	0022	N15	E31	11	5.4		BG	EKI	390	24	11	4
10177		RAMY	11	03	1232	N16	E22	11	5.2		BG	DKI	370	26	9	3
10177		SVTO	11	03	1330	N16	E23	11	5.3		B	DKO	330	10	10	2
10177		HOLL	11	03	1450	N16	E22	11	5.3		BG	DKI	320	26	8	3
10177	31502	MWIL	11	03	1545	N16	E21	11	5.2	6	(BG)					
10177		LEAR	11	04	0100	N16	E17	11	5.3		BG	DKI	300	18	7	1
10177		VORO	11	04	0158	N17	E15	11	5.2			HKX	541	13	4	3
10177		SVTO	11	04	0855	N17	E11	11	5.2		B	CAO	260	4	6	3
10177		RAMY	11	04	1223	N16	E10	11	5.3		B	DKI	400	21	9	4
10177		VORO	11	05	0008	N17	E05	11	5.4			DKI	394	16	6	3
10177		LEAR	11	05	0040	N17	E04	11	5.3		BG	DKI	380	24	7	4
10177		SVTO	11	05	0828	N17	W01	11	5.3		B	DKI	330	10	9	3
10177		RAMY	11	05	1150	N17	W03	11	5.3		BG	DKO	420	13	7	4
10177	31502	MWIL	11	05	1545	N17	W05	11	5.3	6	(D)					
10177		HOLL	11	05	1550	N17	W04	11	5.3		BG	DKI	390	20	9	3
10177		VORO	11	06	0009	N16	W09	11	5.3			DKI	504	34	5	3
10177		LEAR	11	06	0015	N17	W09	11	5.3		BG	DKI	390	32	8	3
10177		TACH	11	06	0437	N16	W10	11	5.4			CAI	368	13	5	3
10177		SVTO	11	06	0800	N17	W13	11	5.3		B	DKI	300	15	9	3
10177		RAMY	11	06	1222	N18	W17	11	5.2		BG	DKI	320	33	9	3
10177		HOLL	11	06	1433	N17	W17	11	5.3		B	DKI	230	27	9	4
10177	31502	MWIL	11	06	1530	N18	W18	11	5.3	5	(BG)					
10177		LEAR	11	07	0025	N18	W23	11	5.3		BG	DSO	190	10	6	1
10177		TACH	11	07	0459	N17	W25	11	5.3			CAI	331	11	9	4
10177		SVTO	11	07	0700	N18	W28	11	5.1		B	DSO	210	8	6	3
10177		RAMY	11	07	1210	N17	W31	11	5.1		BG	DKO	220	17	9	3
10177		HOLL	11	07	1515	N18	W32	11	5.2		B	DAO	210	16	6	4
10177		VORO	11	08	0005	N18	W35	11	5.3			HKX	236	21	3	3
10177		LEAR	11	08	0015	N18	W35	11	5.3		B	DSO	280	10	6	4
10177		RAMY	11	08	1210	N18	W45	11	5.1		BG	DSO	210	6	4	4
10177		HOLL	11	08	1502	N18	W46	11	5.1		B	DAO	130	10	4	2

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10177		LEAR	11	09	0024	N19	W50	11	5.2		B	DAO	220	7	3	3
10177		VORO	11	09	0028	N18	W50	11	5.2			DAI	184	15	1	3
10177		TACH	11	09	0605	N17	W52	11	5.3			DSO	151	3	2	3
10177		SVTO	11	09	0706	N19	W54	11	5.2		B	DSO	140	5	5	3
10177		RAMY	11	09	1223	N17	W59	11	5.0		B	DAO	140	3	3	3
10177		HOLL	11	09	1612	N17	W59	11	5.2		B	DSO	130	5	3	2
10177		LEAR	11	10	0032	N18	W63	11	5.2		B	DSO	140	5	4	2
10177		RAMY	11	10	1206	N17	W71	11	5.1		B	DAO	80	7	4	3
10177		LEAR	11	11	0021	N18	W76	11	5.2		B	CSO	140	5	4	3
10177		TACH	11	11	0809	N19	W79	11	5.3			HSX	75	1	2	3
10177		RAMY	11	11	1158	N18	W85	11	5.0		A	HSX	60	1	6	3
10177		HOLL	11	11	1503	N18	W85	11	5.1		A	HAX	60	1	2	3
10181A	31507	MWIL	11	02	1545	S06	E42	11	5.8	4	(B)					
10181A		VORO	11	02	2354	S04	E39	11	5.9			BXI	23	8	5	3
10181A		RAMY	11	03	1232	S07	E31	11	5.8		B	DSO	40	3	4	3
10181A		HOLL	11	03	1450	S05	E29	11	5.8		B	CSO	20	2	3	3
10181A	31507	MWIL	11	03	1545	S06	E28	11	5.7	4	(B)					
10186		VORO	11	04	2354	N20	E14	11	6.1			BXO	20	8	2	3
10186		LEAR	11	05	0040	N19	E15	11	6.2		B	DAO	30	2	3	4
10186		SVTO	11	05	0828	N20	E09	11	6.0		B	CSO	20	3	3	3
10186		RAMY	11	05	1150	N20	E07	11	6.0		B	DSO	60	5	4	4
10186	31511	MWIL	11	05	1545	N20	E05	11	6.0	5	(B)					
10186		HOLL	11	05	1550	N19	E05	11	6.0		B	CRO	60	9	5	3
10186		VORO	11	06	0009	N20	W00	11	6.0			DAI	62	10	3	3
10186		LEAR	11	06	0015	N20	E01	11	6.1		B	DSO	50	9	5	3
10186		TACH	11	06	0437	N20	W02	11	6.0			CSI	60	3	3	3
10186		SVTO	11	06	0800	N19	W04	11	6.0		B	DSO	40	2	4	3
10186		RAMY	11	06	1222	N20	W07	11	6.0		B	DSO	50	8	5	3
10186		HOLL	11	06	1433	N19	W08	11	6.0		B	DSO	60	6	4	4
10186	31511	MWIL	11	06	1530	N20	W08	11	6.0	5	(B)					
10186		LEAR	11	07	0025	N20	W13	11	6.0		B	DAO	40	5	4	1
10186		TACH	11	07	0459	N20	W14	11	6.1			BRO	6	4	3	4
10186		SVTO	11	07	0700	N20	W18	11	5.9		B	CRO	30	4	4	3
10186		RAMY	11	07	1210	N20	W19	11	6.0		B	DSO	30	5	4	3
10186		HOLL	11	07	1515	N20	W21	11	6.0		B	BXO	20	6	3	4
10186		LEAR	11	08	0015	N20	W24	11	6.2		B	BXO	10	4	4	4
10180		LEAR	11	01	0015	S13	E85	11	7.4		A	HSX	30	1	1	3
10180		VORO	11	01	0044	S10	E82	11	7.2			HAX	136	1		3
10180		TACH	11	01	0503	S09	E74	11	6.8			CSO	75	2	8	4
10180		SVTO	11	01	0840	S11	E78	11	7.2		A	HSX	60	1	4	2
10180		RAMY	11	01	1120	S08	E73	11	6.9		B	EHO	160	3	13	3
10180	31505	MWIL	11	01	1545	S10	E70	11	6.9	4	(B)					
10180		LEAR	11	02	0020	S11	E69	11	7.2		B	DSO	140	3	3	4
10180		VORO	11	02	0246	S10	E69	11	7.3			HAX	241	3	2	3
10180		TACH	11	02	0605	S10	E62	11	6.9			CAI	250	5	10	2
10180		SVTO	11	02	0639	S09	E66	11	7.2		B	DSO	180	2	7	3
10180		RAMY	11	02	1236	S11	E64	11	7.3		B	DSO	190	5	6	3
10180	31505	MWIL	11	02	1545	S10	E56	11	6.9	4	(BG)					
10180		VORO	11	02	2354	S10	E57	11	7.3			HAX	202	5	2	3
10180		LEAR	11	03	0022	S11	E57	11	7.3		B	DSO	140	3	5	4
10180		RAMY	11	03	1232	S10	E46	11	7.0		B	DSO	160	13	10	3
10180		SVTO	11	03	1330	S10	E49	11	7.2		B	DAO	110	6	7	2
10180		HOLL	11	03	1450	S10	E44	11	6.9		BG	EHI	190	31	13	3
10180	31505	MWIL	11	03	1545	S10	E47	11	7.2	5	(BG)					
10180		LEAR	11	04	0100	S11	E42	11	7.2		BG	DAO	90	5	5	1
10180		VORO	11	04	0158	S10	E43	11	7.3			DAO	179	2	1	3
10180		SVTO	11	04	0855	S09	E34	11	6.9		B	EAI	240	12	13	3
10180		RAMY	11	04	1223	S09	E32	11	6.9		BG	EKI	450	38	14	4
10180		VORO	11	05	0008	S10	E31	11	7.3			HAX	193	10	1	3
10180		LEAR	11	05	0040	S10	E28	11	7.1		BG	DAI	290	33	9	4
10180		SVTO	11	05	0828	S09	E24	11	7.1		B	ESI	260	26	12	3
10180		RAMY	11	05	1150	S09	E20	11	7.0		BG	EKI	530	45	15	4
10180	31505	MWIL	11	05	1545	S10	E18	11	7.0	5	(D)					
10180		HOLL	11	05	1550	S10	E16	11	6.9		BGD	EKC	470	44	14	3
10180		VORO	11	06	0009	S12	E18	11	7.4			HKX	331	19		3
10180		LEAR	11	06	0015	S10	E12	11	6.9		BGD	EKC	630	73	15	3

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10180		TACH	11	06	0437	S10	E10	11	6.9			EAI	309	44	12	3
10180		SVTO	11	06	0800	S10	E08	11	6.9		B	FAC	490	22	16	3
10180		RAMY	11	06	1222	S10	E04	11	6.8		BGD	EKI	560	68	15	3
10180		HOLL	11	06	1433	S10	E03	11	6.8		BGD	FKC	570	51	16	4
10180	31505	MWIL	11	06	1530	S09	E04	11	6.9	5	(D)					
10180		LEAR	11	07	0025	S10	W03	11	6.8		BGD	FKC	520	41	16	1
10180		TACH	11	07	0459	S10	W03	11	7.0			EAI	681	53	14	4
10180		SVTO	11	07	0700	S10	W07	11	6.8		BG	FKI	460	49	17	3
10180		RAMY	11	07	1210	S11	W08	11	6.9		BGD	FKI	640	67	18	3
10180		HOLL	11	07	1515	S10	W09	11	6.9		BGD	FKC	700	85	19	4
10180		VORO	11	08	0005	S12	W08	11	7.4			HKX	161	11		3
10180		LEAR	11	08	0015	S10	W15	11	6.9		BGD	FKC	640	69	17	4
10180		RAMY	11	08	1210	S10	W22	11	6.8		BGD	FKI	660	49	18	4
10180		HOLL	11	08	1502	S09	W22	11	7.0		BGD	FKC	390	54	17	2
10180		LEAR	11	09	0024	S10	W28	11	6.9		BGD	FKC	640	61	19	3
10180		VORO	11	09	0028	S11	W21	11	7.4			HAX	73	10		3
10180		TACH	11	09	0605	S11	W31	11	6.9			EAI	592	14	15	3
10180		SVTO	11	09	0706	S09	W32	11	6.9		BGD	FKC	710	16	17	3
10180		RAMY	11	09	1223	S11	W35	11	6.9		BGD	FKI	660	33	18	3
10180		HOLL	11	09	1612	S11	W38	11	6.8		BGD	FKC	460	42	17	2
10180		LEAR	11	10	0032	S10	W44	11	6.7		BGD	FKI	520	36	18	2
10180		RAMY	11	10	1206	S12	W48	11	6.9		BGD	FKI	420	37	18	3
10180		LEAR	11	11	0021	S10	W57	11	6.7		BGD	FKI	510	34	16	3
10180		TACH	11	11	0809	S11	W58	11	7.0			EAI	493	14	12	3
10180		SVTO	11	11	0932	S12	W61	11	6.8		BG	EKI	420	11	15	3
10180		RAMY	11	11	1158	S12	W62	11	6.8		BG	FKI	430	27	16	3
10180		HOLL	11	11	1503	S11	W65	11	6.7		BG	FKI	430	21	16	3
10180		LEAR	11	12	0120	S08	W71	11	6.7		BG	EKI	240	12	15	2
10180		VORO	11	12	0142	S10	W73	11	6.6			DKI	290	9	6	3
10180		SVTO	11	12	1150	S11	W74	11	6.9		B	EKO	360	5	12	2
10180		RAMY	11	12	1217	S13	W73	11	7.0		B	EAO	240	6	11	3
10180		HOLL	11	12	1545	S10	W80	11	6.6		BG	FAI	300	9	17	4
10180	31505	MWIL	11	12	1600	S11	W76	11	6.9	6	(B)					
10180		LEAR	11	13	0010	S11	W79	11	7.1		B	DAO	90	3	5	3
10180		VORO	11	13	0034	S12	W79	11	7.1			HAX	39	6		2
10181		VORO	11	02	0246	S08	E59	11	6.5			BXI	22	7	3	3
10181		RAMY	11	02	1236	S06	E48	11	6.1		B	DSO	30	8	8	3
10181		VORO	11	02	2354	S07	E49	11	6.7			BXI	48	9	6	3
10181		LEAR	11	03	0022	S09	E47	11	6.5		B	DRO	50	9	5	4
10181		LEAR	11	04	0100	S09	E36	11	6.7		B	DSO	80	11	7	1
10181		VORO	11	04	0158	S09	E36	11	6.8			DAI	253	23	6	3
10181		VORO	11	05	0008	S09	E23	11	6.7			DAI	378	48	8	3
10181		LEAR	11	05	0040	S10	E21	11	6.6		B	DAO	230	21	5	4
10181		SVTO	11	05	0828	S09	E16	11	6.5		B	DAO	180	9	6	3
10181		VORO	11	06	0009	S09	E11	11	6.8			DKI	532	55	8	3
10181		VORO	11	08	0005	S09	W16	11	6.8			DKI	539	64	11	3
10181		VORO	11	12	0142	S12	W65	11	7.2			HKX	191	9		3
10179		LEAR	11	01	0015	N01	E85	11	7.3		A	HSX	30	1	1	3
10179		TACH	11	01	0503	N03	E76	11	6.9			AXX	10	1	1	4
10179		RAMY	11	01	1120	N04	E77	11	7.2		B	CSO	30	2	2	3
10179	31506	MWIL	11	01	1545	N02	E74	11	7.2	4	(AP)					
10179		LEAR	11	02	0020	N01	E67	11	7.0		A	HSX	20	1	1	4
10179		VORO	11	02	0246	N02	E67	11	7.1			HRX	29	1		3
10179		TACH	11	02	0605	N02	E66	11	7.2			HSX	48	1	1	2
10179		SVTO	11	02	0639	N03	E66	11	7.2		A	HSX	20	1	1	3
10179		RAMY	11	02	1236	N02	E62	11	7.1		A	HSX	40	1	1	3
10179	31506	MWIL	11	02	1545	N02	E60	11	7.1	4	(AP)					
10179		VORO	11	02	2354	N02	E55	11	7.1			HRX	28	1		3
10179		LEAR	11	03	0022	N01	E55	11	7.1		A	HSX	30	1	1	4
10179		RAMY	11	03	1232	N02	E49	11	7.2		A	HSX	20	1	1	3
10179		SVTO	11	03	1330	N04	E47	11	7.1		A	HSX	10	1	1	2
10179		HOLL	11	03	1450	N02	E47	11	7.1		A	HSX	30	1	1	3
10179	31506	MWIL	11	03	1545	N02	E46	11	7.1	4	(AP)					
10179		LEAR	11	04	0100	N01	E41	11	7.1		A	HSX	20	1	1	1
10179		VORO	11	04	0158	N02	E40	11	7.1			HRX	28	2		3
10179		SVTO	11	04	0855	N02	E36	11	7.1		A	AXX		1		3
10179		RAMY	11	04	1223	N03	E34	11	7.0		B	BXO	20	2	2	4

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10179		VORO	11	05	0008	N02	E27	11	7.0			AXX	11	2		3
10179		LEAR	11	05	0040	N01	E28	11	7.1		A	HAX	20	1	1	4
10179		RAMY	11	05	1150	N07	E27	11	7.5		A	AXX	10	1		4
10179		VORO	11	06	0009	N06	E19	11	7.4			AXX	6	3	0	3
10179		LEAR	11	06	0015	N02	E18	11	7.3		A	AXX	10	3	2	3
10179		RAMY	11	06	1222	N03	E07	11	7.0		A	AXX	10	1	1	3
10179		HOLL	11	06	1433	N03	E06	11	7.0		A	AXX		1		4
10179	31516	MWIL	11	06	1530	N02	E04	11	6.9	4	(AP)					
10179		RAMY	11	07	1210	S01	W02	11	7.3		A	AXX	10	2	1	3
10187		VORO	11	05	0008	N06	E34	11	7.5			AXX	1	1		3
10187	31512	MWIL	11	05	1545	N07	E25	11	7.5	4	(AF)					
10187		HOLL	11	05	1550	N07	E25	11	7.5		A	AXX	10	1	1	3
10187		LEAR	11	06	0015	N06	E20	11	7.5		B	BXO	10	4	3	3
10187		TACH	11	06	0437	N07	E17	11	7.5			AXX	2	1	1	3
10187		SVTO	11	06	0800	N07	E15	11	7.4		B	CRO	10	2	3	3
10187		RAMY	11	06	1222	N06	E12	11	7.4		B	DSO	30	5	3	3
10187		HOLL	11	06	1433	N07	E12	11	7.5		B	CAO	20	6	4	4
10187	31512	MWIL	11	06	1530	N07	E11	11	7.5	4	(BG)					
10187		LEAR	11	07	0025	N07	E06	11	7.5		B	CRO	10	3	2	1
10187		TACH	11	07	0459	N08	E05	11	7.6			AR	3	2	1	4
10187		RAMY	11	07	1210	N07	W02	11	7.3		B	BXO	20	4	4	3
10187		LEAR	11	08	0015	N08	W05	11	7.6		B	BXO	10	4	3	4
10187A	31513	MWIL	11	05	1545	N15	E23	11	7.4	4	(AF)					
10187A		VORO	11	06	0009	N15	E17	11	7.3			AXX	2	1		3
10187A		LEAR	11	06	0015	N15	E18	11	7.4		A	AXX		1		3
10184		RAMY	11	02	1236	S04	E70	11	7.7		A	HSX	20	1	1	3
10184		VORO	11	02	2354	S05	E63	11	7.7			AXX	13	1		3
10184		LEAR	11	03	0022	S07	E63	11	7.7		A	HRX	10	1	1	4
10184		RAMY	11	03	1232	S04	E57	11	7.8		A	HSX	20	1	1	3
10184		HOLL	11	03	1450	S06	E55	11	7.7		A	AXX	10	2	1	3
10184		LEAR	11	08	0015	S05	W02	11	7.9		A	AXX	10	3	2	4
10182		LEAR	11	02	0020	S18	E78	11	7.9		A	HSX	40	1	2	4
10182		VORO	11	02	0246	S17	E80	11	8.2			HAX	168	3	5	3
10182		TACH	11	02	0605	S18	E79	11	8.3			DSO	344	2	4	2
10182		SVTO	11	02	0639	S16	E79	11	8.3		B	DSO	90	2	5	3
10182		RAMY	11	02	1236	S17	E75	11	8.2		B	DSO	120	2	9	3
10182	31508	MWIL	11	02	1545	S17	E72	11	8.1	4	(B)					
10182		VORO	11	02	2354	S17	E68	11	8.2			DAO	188	4	5	3
10182		LEAR	11	03	0022	S18	E67	11	8.1		B	DSO	120	3	7	4
10182		RAMY	11	03	1232	S16	E61	11	8.1		B	DSO	150	2	6	3
10182		SVTO	11	03	1330	S15	E63	11	8.3		B	DAO	90	2	7	2
10182		HOLL	11	03	1450	S17	E61	11	8.2		B	DAO	160	6	9	3
10182	31508	MWIL	11	03	1545	S17	E60	11	8.2	5	(B)					
10182		LEAR	11	04	0100	S18	E55	11	8.2		B	DSO	100	2	7	1
10182		VORO	11	04	0158	S17	E54	11	8.2			DAO	229	2	5	3
10182		SVTO	11	04	0855	S18	E51	11	8.2		B	DAO	90	2	5	3
10182		RAMY	11	04	1223	S17	E50	11	8.3		B	DSO	130	2	4	4
10182		VORO	11	05	0008	S17	E44	11	8.3			DAO	188	9		3
10182		LEAR	11	05	0040	S18	E42	11	8.2		B	DAO	150	5	5	4
10182		SVTO	11	05	0828	S18	E38	11	8.2		B	DSO	80	3	7	3
10182		RAMY	11	05	1150	S18	E37	11	8.3		B	DSO	100	4	6	4
10182	31508	MWIL	11	05	1545	S18	E34	11	8.2	5	(BP)					
10182		HOLL	11	05	1550	S18	E34	11	8.2		B	DAO	90	4	6	3
10182		VORO	11	06	0009	S17	E29	11	8.2			DSI	128	8	4	3
10182		LEAR	11	06	0015	S18	E29	11	8.2		B	DSO	100	5	6	3
10182		TACH	11	06	0437	S17	E27	11	8.2			CSO	67	3	5	3
10182		SVTO	11	06	0800	S18	E25	11	8.2		B	CSO	110	3	5	3
10182		RAMY	11	06	1222	S19	E21	11	8.1		B	DSO	90	6	4	3
10182		HOLL	11	06	1433	S18	E21	11	8.2		B	CAO	90	5	6	4
10182	31508	MWIL	11	06	1530	S18	E20	11	8.2	5	(BP)					
10182		LEAR	11	07	0025	S18	E14	11	8.1		A	HSX	40	1	2	1
10182		TACH	11	07	0459	S18	E14	11	8.3			CSO	84	2	3	4
10182		SVTO	11	07	0700	S18	E09	11	8.0		A	HSX	60	1	2	3
10182		RAMY	11	07	1210	S19	E08	11	8.1		A	HSX	80	1	2	3
10182		HOLL	11	07	1515	S18	E08	11	8.2		A	HAX	80	1	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
10182		VORO	11	08	0005	S18	E01	11	8.1			HAX	78	1		3
10182		LEAR	11	08	0015	S17	E02	11	8.2		B	CSO	90	6	6	4
10182		RAMY	11	08	1210	S18	W05	11	8.1		A	HSX	60	1	1	4
10182		HOLL	11	08	1502	S18	W07	11	8.1		A	HSX	40	1	1	2
10182		LEAR	11	09	0024	S19	W12	11	8.1		A	HSX	70	1	2	3
10182		VORO	11	09	0028	S17	W12	11	8.1			HSX	72	1		3
10182		TACH	11	09	0605	S19	W14	11	8.2			HSX	39	1	2	3
10182		SVTO	11	09	0706	S17	W16	11	8.1		A	HSX	70	1	2	3
10182		RAMY	11	09	1223	S19	W18	11	8.1		A	HSX	40	1	1	3
10182		HOLL	11	09	1612	S19	W21	11	8.1		A	HSX	50	1	1	2
10182		LEAR	11	10	0032	S18	W26	11	8.0		A	HSX	60	1	2	2
10182		RAMY	11	10	1206	S19	W31	11	8.1		A	HSX	50	1	2	3
10182		LEAR	11	11	0021	S18	W38	11	8.1		A	HSX	60	1	2	3
10182		TACH	11	11	0809	S19	W41	11	8.2			HSX	40	1	1	3
10182		SVTO	11	11	0932	S19	W43	11	8.1		A	HSX	30	1	2	3
10182		RAMY	11	11	1158	S20	W44	11	8.1		A	HSX	60	1	3	3
10182		HOLL	11	11	1503	S19	W46	11	8.1		A	HSX	80	1	2	3
10182		LEAR	11	12	0120	S17	W53	11	8.0		A	HAX	40	1	2	2
10182		VORO	11	12	0142	S18	W51	11	8.2			HAX	63	1		3
10182		SVTO	11	12	1150	S18	W58	11	8.1		A	HSX	50	1	2	2
10182		RAMY	11	12	1217	S20	W60	11	7.9		A	HSX	80	1	2	3
10182		HOLL	11	12	1545	S17	W61	11	8.0		A	HAX	80	1	1	4
10182	31508	MWIL	11	12	1600	S18	W59	11	8.2	4	(AP)					
10182		LEAR	11	13	0010	S18	W65	11	8.0		A	HSX	50	1	2	3
10182		VORO	11	13	0034	S18	W64	11	8.1			HAX	110	3		2
10182		SVTO	11	13	0910	S18	W68	11	8.2		A	HSX	50	1	2	2
10182		RAMY	11	13	1140	S20	W70	11	8.1		A	HSX	60	1	2	3
10182		HOLL	11	13	1550	S18	W72	11	8.2		A	HAX	50	1	2	4
10182	31508	MWIL	11	13	1600	S18	W72	11	8.2	4	(B)					
10182		LEAR	11	14	0015	S18	W78	11	8.1		A	HSX	50	1	2	4
10188	31514	MWIL	11	05	1545	N10	E41	11	8.7	4	(B)					
10188		HOLL	11	05	1550	N11	E41	11	8.7		B	BXO	10	2	2	3
10188		VORO	11	05	2354	N11	E35	11	8.6			BXI	23	12	3	3
10188		LEAR	11	06	0015	N10	E36	11	8.7		B	BXO	20	7	4	3
10188		TACH	11	06	0437	N11	E32	11	8.6			AXX	3	1	1	3
10188		SVTO	11	06	0800	N12	E29	11	8.5		A	HRX	10	1	1	3
10188		RAMY	11	06	1222	N11	E27	11	8.5		B	CSO	30	5	3	3
10188		HOLL	11	06	1433	N11	E27	11	8.6		B	CSO	30	7	3	4
10188	31514	MWIL	11	06	1530	N11	E25	11	8.5	4	(BP)					
10188		LEAR	11	07	0025	N10	E21	11	8.6		B	DAO	50	9	4	1
10188		TACH	11	07	0459	N11	E19	11	8.6			CAI	52	12	4	4
10188		SVTO	11	07	0700	N11	E14	11	8.3		B	DSO	90	12	6	3
10188		RAMY	11	07	1210	N11	E13	11	8.5		B	DAO	150	22	7	3
10188		HOLL	11	07	1515	N11	E12	11	8.5		B	DAO	100	16	6	4
10188		VORO	11	08	0005	N11	E07	11	8.5			DAI	133	19	4	3
10188		LEAR	11	08	0015	N10	E07	11	8.5		B	DAI	170	24	8	4
10188		RAMY	11	08	1210	N10	W01	11	8.4		B	DSI	70	12	4	4
10188		HOLL	11	08	1502	N12	W01	11	8.5		B	DSI	60	14	6	2
10188		LEAR	11	09	0024	N10	W07	11	8.5		B	DAI	120	12	6	3
10188		VORO	11	09	0028	N11	W06	11	8.6			DAI	86	17	3	3
10188		TACH	11	09	0605	N10	W09	11	8.6			CAI	38	8	4	3
10188		SVTO	11	09	0706	N11	W10	11	8.5		B	DAO	70	4	6	3
10188		RAMY	11	09	1223	N10	W14	11	8.5		B	DAO	90	10	4	3
10188		HOLL	11	09	1612	N10	W16	11	8.5		B	DAO	60	6	5	2
10188		LEAR	11	10	0032	N10	W21	11	8.4		B	DAO	50	11	5	2
10188		RAMY	11	10	1206	N10	W28	11	8.4		B	DSO	20	9	4	3
10188		LEAR	11	11	0021	N11	W36	11	8.3		B	CAO	20	4	3	3
10188		RAMY	11	11	1158	N10	W41	11	8.4		B	CSO	20	4	4	3
10180B		LEAR	11	09	0024	S28	W03	11	8.8		BGD	FKC	190	64	10	3
10185		RAMY	11	03	1232	S12	E84	11	9.8		B	DSO	180	4	9	3
10185		HOLL	11	03	1450	S12	E81	11	9.7		A	HKX	210	4	3	3
10185	31510	MWIL	11	03	1545	S12	E78	11	9.5	5	(AP)					
10185		LEAR	11	04	0100	S13	E75	11	9.7		A	HSX	200	4	4	1
10185		VORO	11	04	0158	S12	E73	11	9.6			HKX	402	5		3
10185		SVTO	11	04	0855	S13	E69	11	9.6		B	CAO	240	3	4	3
10185		RAMY	11	04	1223	S12	E71	11	9.9		B	DKO	450	7	10	4

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10185		VORO	11	05	0008	S12	E61	11	9.6			HKX	442	16		3
10185		LEAR	11	05	0040	S13	E61	11	9.6		B	DAO	280	12	6	4
10185		SVTO	11	05	0828	S12	E58	11	9.7		B	DAO	210	4	6	3
10185		RAMY	11	05	1150	S12	E57	11	9.8		BG	DKO	450	8	6	4
10185	31510	MWIL	11	05	1545	S13	E54	11	9.7	5	(BP)					
10185		HOLL	11	05	1550	S13	E53	11	9.6		B	DKO	250	9	7	3
10185		VORO	11	06	0009	S13	E49	11	9.7			DKI	393	23	4	3
10185		LEAR	11	06	0015	S13	E49	11	9.7		B	DKI	310	17	8	3
10185		TACH	11	06	0437	S13	E48	11	9.8			CAI	216	8	4	3
10185		SVTO	11	06	0800	S12	E45	11	9.7		B	DAO	240	5	8	3
10185		RAMY	11	06	1222	S12	E41	11	9.6		B	EKO	350	23	11	3
10185		HOLL	11	06	1433	S13	E40	11	9.6		B	DKO	250	11	8	4
10185	31510	MWIL	11	06	1530	S13	E41	11	9.7	5	(BP)					
10185		LEAR	11	07	0025	S13	E35	11	9.6		B	DAO	190	8	5	1
10185		TACH	11	07	0459	S12	E34	11	9.8			CAI	250	15	7	4
10185		SVTO	11	07	0700	S12	E30	11	9.5		B	DAO	160	20	9	3
10185		RAMY	11	07	1210	S12	E29	11	9.7		B	DKO	250	20	9	3
10185		HOLL	11	07	1515	S12	E27	11	9.7		B	DAO	180	21	7	4
10185		VORO	11	08	0005	S11	E21	11	9.6			HKX	180	22		3
10185		LEAR	11	08	0015	S13	E23	11	9.7		B	CAO	190	23	10	4
10185		RAMY	11	08	1210	S12	E16	11	9.7		B	DAO	160	13	10	4
10185		HOLL	11	08	1502	S11	E13	11	9.6		B	DAI	130	9	3	2
10185		LEAR	11	09	0024	S14	E10	11	9.8		B	CAO	180	19	8	3
10185		VORO	11	09	0028	S11	E08	11	9.6			HKX	182	12		3
10185		TACH	11	09	0605	S12	E05	11	9.6			HR	208	3	2	3
10185		SVTO	11	09	0706	S11	E04	11	9.6		B	CAO	110	4	4	3
10185		RAMY	11	09	1223	S14	E05	11	9.9		B	DSO	210	16	10	3
10185		HOLL	11	09	1612	S15	E02	11	9.8		B	DSO	110	10	6	2
10185		LEAR	11	10	0032	S13	W03	11	9.8		B	DAO	200	21	8	2
10185		RAMY	11	10	1206	S13	W10	11	9.7		B	DAI	140	28	8	3
10185		LEAR	11	11	0021	S12	W17	11	9.7		B	CAO	150	24	9	3
10185		TACH	11	11	0809	S13	W20	11	9.8			CAI	90	9	3	3
10185		SVTO	11	11	0932	S13	W23	11	9.7		B	CAO	70	5	4	3
10185		RAMY	11	11	1158	S13	W24	11	9.7		B	DAO	110	15	5	3
10185		HOLL	11	11	1503	S13	W26	11	9.7		B	DAO	140	19	6	3
10185		LEAR	11	12	0120	S12	W32	11	9.6		B	DAO	80	11	4	2
10185		VORO	11	12	0142	S12	W32	11	9.6			HAX	99	11		3
10185		SVTO	11	12	1150	S12	W36	11	9.8		B	DAO	100	6	5	2
10185		RAMY	11	12	1217	S14	W37	11	9.7		B	DAO	100	4	4	3
10185		HOLL	11	12	1545	S12	W40	11	9.6		B	DAI	130	13	4	4
10185	31510	MWIL	11	12	1600	S13	W39	11	9.7	5	(B)					
10185		LEAR	11	13	0010	S12	W44	11	9.7		B	DAO	80	12	6	3
10185		VORO	11	13	0034	S13	W43	11	9.8			HAX	106	11	2	2
10185		SVTO	11	13	0910	S13	W48	11	9.8		B	DSO	60	6	4	2
10185		RAMY	11	13	1140	S14	W50	11	9.7		B	DAO	60	4	3	3
10185		HOLL	11	13	1550	S12	W52	11	9.7		B	DAO	80	7	4	4
10185	31510	MWIL	11	13	1600	S13	W52	11	9.7	4	(BG)					
10185		LEAR	11	14	0015	S12	W57	11	9.7		B	DSO	40	7	4	4
10185		RAMY	11	14	1220	S14	W63	11	9.7		B	DAO	110	6	5	3
10185		HOLL	11	14	1520	S13	W66	11	9.6		B	CAO	80	2	3	3
10185	31510	MWIL	11	14	1545	S13	W66	11	9.7	4	(AP)					
10185		VORO	11	15	0027	S12	W70	11	9.7			HAX	102	12	3	2
10185		LEAR	11	15	0030	S12	W72	11	9.6		B	DAO	140	3	4	2
10185		TACH	11	15	0517	S13	W74	11	9.6			HR	41	2	3	3
10185		RAMY	11	15	1225	S16	W75	11	9.8		B	DAO	90	3	4	3
10185	31510	MWIL	11	15	1545	S12	W79	11	9.7	4	(AP)					
10196		RAMY	11	14	1220	S19	W40	11	11.5		B	DSO	40	5	4	3
10196		HOLL	11	14	1520	S19	W42	11	11.4		B	BXO	30	4	3	3
10196	31524	MWIL	11	14	1545	S18	W41	11	11.5	4	(B)					
10196		VORO	11	15	0027	S18	W46	11	11.5			AXX	9	2	3	2
10196		RAMY	11	15	1225	S22	W49	11	11.7		B	BXO	10	2	5	3
10196		HOLL	11	15	1454	S17	W53	11	11.6		A	AXX	10	1	1	2
10196	31524	MWIL	11	15	1545	S18	W55	11	11.5	4	(B)					
10189		RAMY	11	05	1150	N12	E80	11	11.5		A	AXX	10	1	1	4
10189	31515	MWIL	11	05	1545	N12	E74	11	11.2	4	(AP)					
10189		HOLL	11	05	1550	N12	E74	11	11.2		A	AXX	10	1	1	3
10189		VORO	11	05	2354	N13	E68	11	11.1			AXX	14	1		3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10189		LEAR	11	06	0015	N11	E69	11	11.2		A	AXX	10	1	1	3
10189		TACH	11	06	0437	N12	E67	11	11.2			AXX	13	1	2	3
10189		SVTO	11	06	0800	N14	E66	11	11.3		A	HRX	10	1	1	3
10189		RAMY	11	06	1222	N13	E61	11	11.1		A	AXX	20	1	1	3
10189		HOLL	11	06	1433	N12	E61	11	11.2		A	AXX		1		4
10189	31515	MWIL	11	06	1530	N12	E60	11	11.2	4	(AP)					
10189		LEAR	11	07	0025	N12	E55	11	11.2		A	AXX	10	1	1	1
10189		TACH	11	07	0459	N13	E53	11	11.2			AXX	8	1	1	4
10189		SVTO	11	07	0700	N15	E51	11	11.1		A	HSX	20	2	3	3
10189		RAMY	11	07	1210	N15	E49	11	11.2		B	CSO	30	2	3	3
10189		HOLL	11	07	1515	N13	E48	11	11.2		B	BXO	20	3	3	4
10189		VORO	11	08	0005	N15	E44	11	11.3			BXO	7	2	6	3
10189		LEAR	11	08	0015	N14	E45	11	11.4		B	CAO	20	4	6	4
10189		RAMY	11	08	1210	N13	E38	11	11.4		B	CSO	20	3	9	4
10189		HOLL	11	08	1502	N12	E36	11	11.3		B	DSO	50	4	9	2
10189		LEAR	11	09	0024	N11	E33	11	11.5		B	CSO	40	7	10	3
10189		VORO	11	09	0028	N13	E36	11	11.7			BXI	22	6	3	3
10189		VORO	11	09	0028	N14	E28	11	11.1			AXX	11	2	1	3
10189		SVTO	11	09	0706	N13	E29	11	11.5		B	DSO	20	3	10	3
10189		RAMY	11	09	1223	N12	E30	11	11.8		B	DSO	30	3	3	3
10189		HOLL	11	09	1612	N12	E27	11	11.7		B	CSO	30	4	4	2
10189		LEAR	11	10	0032	N13	E21	11	11.6		B	CAO	50	8	11	2
10189		RAMY	11	10	1206	N12	E15	11	11.6		B	CSO	20	8	7	3
10189		LEAR	11	11	0021	N14	E09	11	11.7		B	BXO	20	6	8	3
10189		RAMY	11	11	1158	N16	E01	11	11.6		B	BXO	10	4	2	3
10189	31517	MWIL	11	12	1600	N16	W15	11	11.5	4	(AP)					
10189		LEAR	11	13	0010	N18	W21	11	11.4		B	CAO	20	5	3	3
10189		SVTO	11	13	0910	N17	W26	11	11.4		A	HRX		1		2
10189		HOLL	11	13	1550	N16	W31	11	11.3		A	AXX		1	1	4
10189	31517	MWIL	11	13	1600	N17	W30	11	11.4	4	(AP)					
10190		TACH	11	07	0459	S22	E65	11	12.2			AXX	4	1	1	4
10190		SVTO	11	07	0700	S22	E60	11	11.9		A	HRX	10	2	1	3
10190		RAMY	11	07	1210	S22	E60	11	12.1		B	BXO	40	7	4	3
10190		HOLL	11	07	1515	S22	E60	11	12.2		A	AXX	30	8	2	4
10190		VORO	11	08	0005	S22	E54	11	12.1			CAI	50	8	5	3
10190		LEAR	11	08	0015	S23	E55	11	12.2		B	CAO	40	5	6	4
10190		RAMY	11	08	1210	S21	E48	11	12.2		B	DAO	30	4	6	4
10190		HOLL	11	08	1502	S21	E46	11	12.1		B	CAO	40	3	7	2
10190		LEAR	11	09	0024	S22	E41	11	12.2		B	DAO	60	7	7	3
10190		VORO	11	09	0028	S21	E40	11	12.1			CRO	28	6	6	3
10190		TACH	11	09	0605	S22	E38	11	12.2			BXO	18	2	6	3
10190		SVTO	11	09	0706	S22	E36	11	12.1		B	DSO	50	2	6	3
10190		RAMY	11	09	1223	S21	E35	11	12.2		B	DAO	30	2	6	3
10190		HOLL	11	09	1612	S21	E33	11	12.2		B	CSO	30	3	7	2
10190		LEAR	11	10	0032	S22	E28	11	12.2		B	DAO	40	5	7	2
10190		RAMY	11	10	1206	S19	E18	11	11.9		B	CSO	20	7	5	3
10190		LEAR	11	11	0021	S21	E11	11	11.8		A	HSX	20	1	1	3
10190		TACH	11	11	0809	S21	E08	11	11.9			AR	14	2	2	3
10190		SVTO	11	11	0932	S22	E07	11	11.9		A	HRX	10	1	1	3
10190		RAMY	11	11	1158	S21	E06	11	11.9		A	HSX	10	1	1	3
10190		HOLL	11	11	1503	S22	E04	11	11.9		A	HSX	20	1	1	3
10190		LEAR	11	12	0120	S21	W03	11	11.8		A	HSX	20	1	1	2
10190		VORO	11	12	0142	S21	W02	11	11.9			HRX	18	1		3
10190		SVTO	11	12	1150	S21	W08	11	11.9		A	HSX	20	2	2	2
10190		RAMY	11	12	1217	S22	W08	11	11.9		A	HSX	20	1	1	3
10190		HOLL	11	12	1545	S21	W10	11	11.9		A	HSX	20	2	1	4
10190	31518	MWIL	11	12	1600	S21	W09	11	12.0	4	(AP)					
10190		LEAR	11	13	0010	S21	W15	11	11.8		A	HSX	20	1	1	3
10190		VORO	11	13	0034	S21	W14	11	11.9			HRX	13	1		2
10190		SVTO	11	13	0910	S21	W18	11	12.0		A	HAX	20	1	1	2
10190		RAMY	11	13	1140	S22	W20	11	11.9		A	HSX	20	1	1	3
10190		HOLL	11	13	1550	S21	W23	11	11.9		A	HSX	20	1	1	4
10190	31518	MWIL	11	13	1600	S21	W22	11	12.0	4	(AP)					
10190		LEAR	11	14	0015	S21	W27	11	11.9		A	AXX	10	1	1	4
10190		RAMY	11	14	1220	S22	W34	11	11.9		A	AXX	10	1	1	3
10190		HOLL	11	14	1520	S22	W36	11	11.9		A	HSX	30	1	1	3
10190	31518	MWIL	11	14	1545	S21	W35	11	12.0	4	(AP)					
10190		VORO	11	15	0027	S20	W40	11	11.9			AXX	13	1		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
10190		LEAR	11	15	0030	S19	W45	11	11.6		B	BXO	20	2	6	2
10190		TACH	11	15	0517	S20	W46	11	11.7			AXX	2	1	1	3
10190A		HOLL	11	11	1503	S28	E09	11	12.3		A	AXX	10	1	1	3
10192		LEAR	11	11	0021	N13	E21	11	12.6		B	BXO	10	4	3	3
10192		TACH	11	11	0809	N13	E18	11	12.7			AR	5	2	2	3
10192		RAMY	11	11	1158	N14	E14	11	12.5		B	CSO	10	4	4	3
10192		HOLL	11	11	1503	N13	E13	11	12.6		B	BXO	10	5	4	3
10192		LEAR	11	12	0120	N14	E07	11	12.6		B	BXO	10	2	4	2
10192		VORO	11	12	0142	N14	E09	11	12.7			AXX	11	2	2	3
10192		RAMY	11	12	1217	N13	W03	11	12.3		B	DSO	20	2	3	3
10192		HOLL	11	12	1545	N14	W03	11	12.4		A	AXX	10	2	2	4
10192	31519	MWIL	11	12	1600	N14	W03	11	12.4	4	(B)					
10192		LEAR	11	13	0010	N14	W09	11	12.3		A	AXX	10	2	1	3
10192		RAMY	11	13	1140	N16	W18	11	12.1		A	HSX	10	1	1	3
10192		LEAR	11	14	0015	N13	W20	11	12.5		B	CRO	20	6	3	4
10192		RAMY	11	14	1220	N12	W28	11	12.4		BG	DSI	130	21	8	3
10192		HOLL	11	14	1520	N13	W29	11	12.4		B	DSI	70	16	8	3
10192	31525	MWIL	11	14	1545	N12	W29	11	12.5	5	(B)					
10192		VORO	11	15	0027	N12	W34	11	12.4			DAI	156	27	6	2
10192		LEAR	11	15	0030	N13	W34	11	12.4		BG	DAI	140	27	7	2
10192		TACH	11	15	0517	N11	W36	11	12.5			CAI	148	10	6	3
10192		RAMY	11	15	1225	N12	W42	11	12.3		B	EKI	510	17	11	3
10192		HOLL	11	15	1454	N14	W42	11	12.4		BG	DAC	320	23	8	2
10192	31525	MWIL	11	15	1545	N12	W43	11	12.4	5	(BG)					
10192		LEAR	11	16	0025	N13	W48	11	12.4		BG	EKO	480	36	11	4
10192		VORO	11	16	0034	N13	W45	11	12.6			DAI	462	23	8	4
10192		SVTO	11	16	0706	N12	W53	11	12.3		B	EAI	420	10	13	3
10192		RAMY	11	16	1255	N10	W56	11	12.3		B	EKO	630	5	11	3
10192		HOLL	11	16	1456	N14	W55	11	12.5		BG	EAC	370	16	12	3
10192	31525	MWIL	11	16	1545	N12	W56	11	12.4	5	(B)					
10192		LEAR	11	17	0033	N13	W61	11	12.4		BG	EKO	590	32	12	3
10192		TACH	11	17	0709	N12	W65	11	12.4			DSI	520	6	10	3
10192		SVTO	11	17	0735	N12	W65	11	12.4		B	FHO	570	7	16	3
10192		RAMY	11	17	1305	N11	W69	11	12.3		B	EKO	530	10	12	3
10192	31525	MWIL	11	17	1545	N12	W69	11	12.4	5	(BG)					
10192		HOLL	11	17	1605	N13	W72	11	12.2		B	EAI	520	11	15	3
10192		VORO	11	18	0016	N12	W74	11	12.4			DAI	879	11	10	3
10192		LEAR	11	18	0030	N13	W75	11	12.4		B	FKI	490	15	16	3
10192		TACH	11	18	0548	N12	W78	11	12.4			DAO	400	4	10	4
10192		SVTO	11	18	1045	N13	W79	11	12.5		B	DAO	170	4	6	2
10192		RAMY	11	18	1257	N11	W80	11	12.5		B	DAO	130	6	6	3
10192	31525	MWIL	11	18	1530	N13	W78	11	12.8	5	(B)					
10192		HOLL	11	18	1635	N13	W80	11	12.6		B	DAO	300	6	7	3
10192		LEAR	11	19	0005	N13	W85	11	12.6		B	DAO	180	4	10	3
10193		SVTO	11	12	1150	S02	E27	11	14.5		A	HRX		1	1	2
10193		RAMY	11	12	1217	S02	E27	11	14.5		A	HSX	10	1		3
10193		HOLL	11	12	1545	S02	E25	11	14.5		A	HSX	20	2	2	4
10193	31520	MWIL	11	12	1600	S02	E25	11	14.5	4	(AP)					
10193		LEAR	11	13	0010	S03	E21	11	14.6		B	CAO	20	7	5	3
10193		VORO	11	13	0034	S01	E20	11	14.5			CRO	15	4	2	2
10193		SVTO	11	13	0910	S02	E14	11	14.4		A	HAX	10	1	1	2
10193		RAMY	11	13	1140	S02	E12	11	14.4		A	HSX	10	1		3
10193		HOLL	11	13	1550	S03	E12	11	14.5		B	BXO	10	2	3	4
10193		LEAR	11	16	0025	S02	W20	11	14.5		A	AXX		1		4
10191		RAMY	11	08	1210	S17	E81	11	14.7		A	HSX	60	1	2	4
10191		HOLL	11	08	1502	S17	E77	11	14.5		B	CAO	50	2	5	2
10191		LEAR	11	09	0024	S18	E75	11	14.7		B	DAI	210	11	10	3
10191		VORO	11	09	0028	S16	E76	11	14.8			DAI	203	12	6	3
10191		TACH	11	09	0605	S16	E75	11	14.9			CAI	146	7	11	3
10191		SVTO	11	09	0706	S17	E71	11	14.7		B	EAO	280	8	14	3
10191		RAMY	11	09	1223	S17	E70	11	14.8		B	EKO	450	9	14	3
10191		HOLL	11	09	1612	S17	E66	11	14.7		BG	EAC	280	16	14	2
10191		LEAR	11	10	0032	S18	E62	11	14.7		B	EKI	540	24	13	2
10191		RAMY	11	10	1206	S18	E58	11	14.9		B	EKC	630	42	15	3
10191		LEAR	11	11	0021	S19	E51	11	14.9		BG	FAI	620	64	17	3

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10191		TACH	11	11	0809	S18	E49	11	15.1			EAI	395	28	12	3
10191		SVTO	11	11	0932	S18	E46	11	14.9		BG	EAC	390	28	15	3
10191		RAMY	11	11	1158	S18	E45	11	14.9		BG	FAC	550	52	17	3
10191		HOLL	11	11	1503	S17	E43	11	14.9		BG	FKC	650	63	18	3
10191		LEAR	11	12	0120	S19	E36	11	14.8		BG	EAC	450	42	14	2
10191		VORO	11	12	0142	S18	E36	11	14.8			DKI	963	60	11	3
10191		SVTO	11	12	1150	S17	E33	11	15.0		B	FKC	400	56	16	2
10191		RAMY	11	12	1217	S17	E32	11	14.9		BG	FAC	850	49	16	3
10191		HOLL	11	12	1545	S19	E28	11	14.8		BG	FKC	670	86	16	4
10191	31521	MWIL	11	12	1600	S18	E29	11	14.9	5	(BG)					
10191		LEAR	11	13	0010	S18	E25	11	14.9		BG	EKC	850	77	15	3
10191		VORO	11	13	0034	S18	E23	11	14.8			DKI	810	80	11	2
10191		SVTO	11	13	0910	S18	E19	11	14.8		B	EKC	800	44	15	2
10191		RAMY	11	13	1140	S18	E18	11	14.8		BG	FAC	720	43	19	3
10191		HOLL	11	13	1550	S18	E18	11	15.0		BG	FKC	830	78	16	4
10191	31521	MWIL	11	13	1600	S18	E16	11	14.9	5	(BG)					
10191		LEAR	11	14	0015	S18	E11	11	14.8		BG	EKC	680	76	14	4
10191		RAMY	11	14	1220	S18	E04	11	14.8		BGD	FKI	750	49	18	3
10191		HOLL	11	14	1520	S18	E05	11	15.0		BG	FKC	440	56	18	3
10191	31521	MWIL	11	14	1545	S18	E03	11	14.9	5	(D)					
10191		VORO	11	15	0027	S17	W03	11	14.8			EKC	668	41	12	2
10191		LEAR	11	15	0030	S18	W04	11	14.7		BGD	EKC	560	54	14	2
10191		TACH	11	15	0517	S18	W04	11	14.9			DKI	493	22	11	3
10191		RAMY	11	15	1225	S18	W09	11	14.8		BG	FKC	690	47	16	3
10191		HOLL	11	15	1454	S17	W11	11	14.8		BG	FKC	420	42	16	2
10191	31521	MWIL	11	15	1545	S18	W11	11	14.8	5	(D)					
10191		LEAR	11	16	0025	S18	W16	11	14.8		BGD	FKI	770	96	17	4
10191		VORO	11	16	0034	S17	W16	11	14.8			EKC	763	44	13	4
10191		SVTO	11	16	0706	S18	W20	11	14.8		B	FKC	580	19	16	3
10191		RAMY	11	16	1255	S19	W22	11	14.8		BG	FKI	680	22	18	3
10191		HOLL	11	16	1456	S17	W24	11	14.8		BG	FKC	530	46	19	3
10191	31521	MWIL	11	16	1545	S18	W24	11	14.8	5	(D)					
10191		LEAR	11	17	0033	S18	W28	11	14.9		BGD	FKI	690	87	19	3
10191		TACH	11	17	0709	S20	W30	11	15.0			EAI	711	17	18	3
10191		SVTO	11	17	0735	S17	W31	11	15.0		B	FKI	590	20	20	3
10191		RAMY	11	17	1305	S18	W35	11	14.9		BG	FKI	550	31	20	3
10191	31521	MWIL	11	17	1545	S18	W38	11	14.8	5	(D)					
10191		HOLL	11	17	1605	S18	W38	11	14.8		BG	FKC	490	25	21	3
10191		VORO	11	18	0016	S17	W37	11	15.2			EKI	566	28	15	3
10191		LEAR	11	18	0030	S18	W41	11	14.9		BG	FKC	570	45	20	3
10191		TACH	11	18	0548	S17	W43	11	15.0			EAI	585	12	17	4
10191		SVTO	11	18	1045	S19	W46	11	14.9		B	FKC	540	12	20	2
10191		RAMY	11	18	1257	S19	W48	11	14.9		BG	FKI	480	25	19	3
10191	31521	MWIL	11	18	1530	S18	W51	11	14.8	5	(BG)					
10191		HOLL	11	18	1635	S18	W55	11	14.5		BG	FAC	560	23	19	3
10191		LEAR	11	19	0005	S18	W55	11	14.8		BG	FKI	470	23	18	3
10191		TACH	11	19	0553	S19	W58	11	14.8			EAI	470	9	13	3
10191		SVTO	11	19	0835	S19	W63	11	14.5		B	FAI	230	9	20	3
10191		RAMY	11	19	1203	S20	W61	11	14.8		BG	FSO	720	11	18	3
10191		HOLL	11	19	1513	S17	W63	11	14.8		BG	FAC	260	19	17	3
10191	31521	MWIL	11	19	1530	S18	W64	11	14.8	5	(B)					
10191		VORO	11	20	0008	S17	W66	11	15.0			EKI	265	10	14	4
10191		LEAR	11	20	0020	S17	W67	11	14.9		BG	FAI	290	9	16	2
10191		TACH	11	20	0449	S17	W70	11	14.9			EAO	316	6	14	4
10191		SVTO	11	20	0708	S19	W72	11	14.8		BG	FSI	170	4	25	3
10191		RAMY	11	20	1200	S19	W77	11	14.6		BG	FAO	240	9	16	3
10191		HOLL	11	20	1430	S16	W72	11	15.1		B	CSO	70	4	4	2
10191	31521	MWIL	11	20	1545	S16	W79	11	14.7	4	(B)					
10191		LEAR	11	21	0015	S15	W76	11	15.2		A	HAX	30	1	2	2
10191		VORO	11	21	0024	S16	W75	11	15.3			HAX	30	1		3
10191		TACH	11	21	0453	S16	W77	11	15.4			HSX	49	1	2	4
10191		SVTO	11	21	1050	S18	W89	11	14.7		A	HSX	30	1	5	3
10191		RAMY	11	21	1156	S18	W86	11	14.9		A	HSX	30	1	4	3
10191A	31529	MWIL	11	16	1545	S20	W15	11	15.5	4	(B)					
10191A	31529	MWIL	11	17	1545	S19	W27	11	15.6	4	(B)					
10191B		LEAR	11	16	0025	S07	E02	11	16.2		A	HRX	10	1		4
10194		RAMY	11	13	1140	S16	E48	11	17.1		A	AXX	10	1		3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10194		HOLL	11	13	1550	S16	E48	11	17.3		A	AXX	10	2	1	4
10194	31522	MWIL	11	13	1600	S18	E46	11	17.2	4	(AP)					
10194		RAMY	11	14	1220	S16	E33	11	17.0		B	CSO	40	7	5	3
10194		HOLL	11	14	1520	S17	E32	11	17.1		B	CSO	10	3	3	3
10194	31522	MWIL	11	14	1545	S17	E33	11	17.2	4	(BP)					
10194		VORO	11	15	0027	S16	E26	11	17.0			AXX	5	2	1	2
10194		LEAR	11	15	0030	S17	E26	11	17.0		B	BXO	10	2	2	2
10194		RAMY	11	15	1225	S16	E21	11	17.1		B	CSO	30	6	5	3
10194		HOLL	11	15	1454	S16	E20	11	17.1		B	CSO	30	4	3	2
10194	31522	MWIL	11	15	1545	S17	E19	11	17.1	4	(B)					
10194		LEAR	11	16	0025	S16	E14	11	17.1		B	DAO	20	7	3	4
10194		VORO	11	16	0034	S16	E15	11	17.2			AXX	14	1		4
10194		SVTO	11	16	0706	S16	E11	11	17.1		B	CSO	20	3	3	3
10194		RAMY	11	16	1255	S16	E08	11	17.1		B	BXO	20	2	3	3
10194		HOLL	11	16	1456	S16	E07	11	17.1		B	CSO	20	4	4	3
10194	31522	MWIL	11	16	1545	S16	E04	11	16.9	4	(B)					
10194		LEAR	11	17	0033	S17	E00	11	17.0		B	CSO	20	3	3	3
10194		RAMY	11	21	1156	S20	W61	11	16.8		A	HSX	20	1	1	3
10194		HOLL	11	21	1640	S19	W68	11	16.5		A	HSX	50	1	1	4
10194A		RAMY	11	16	1255	S06	E18	11	17.9		A	AXX	10	1		3
10194A		HOLL	11	16	1456	S06	E17	11	17.9		A	AXX	10	1	1	3
10194A	31530	MWIL	11	16	1545	S06	E17	11	17.9	4	(AF)					
10195		HOLL	11	13	1550	S15	E82	11	19.9		A	HAX	120	1	2	4
10195	31523	MWIL	11	13	1600	S15	E82	11	19.9	5	AP					
10195		LEAR	11	14	0015	S17	E78	11	19.9		A	HSX	120	1	2	4
10195		RAMY	11	14	1220	S14	E70	11	19.8		A	HSX	110	1	2	3
10195		HOLL	11	14	1520	S15	E70	11	19.9		A	HSX	170	2	3	3
10195	31523	MWIL	11	14	1545	S15	E68	11	19.8	4	AP					
10195		VORO	11	15	0027	S14	E63	11	19.8			HHX	185	1		2
10195		LEAR	11	15	0030	S16	E63	11	19.8		A	HSX	130	2	2	2
10195		TACH	11	15	0517	S16	E67	11	20.3			CSO	119	3	9	3
10195		RAMY	11	15	1225	S14	E60	11	20.0		B	DAO	250	12	10	3
10195		HOLL	11	15	1454	S17	E57	11	19.9		B	DSO	160	6	9	2
10195	31523	MWIL	11	15	1545	S15	E57	11	20.0	5	(BG)					
10195		LEAR	11	16	0025	S17	E53	11	20.0		BG	EAO	410	18	12	4
10195		VORO	11	16	0034	S14	E49	11	19.7			HAX	233	2	2	4
10195		VORO	11	16	0034	S17	E57	11	20.3			DAI	82	6	3	4
10195		SVTO	11	16	0706	S16	E49	11	20.0		B	ESO	260	4	13	3
10195		RAMY	11	16	1255	S15	E48	11	20.2		B	DSO	350	6	10	3
10195		HOLL	11	16	1456	S16	E45	11	20.0		B	EAI	200	11	12	3
10195	31523	MWIL	11	16	1545	S14	E42	11	19.8	5	(BF)					
10195		LEAR	11	17	0033	S18	E41	11	20.1		BG	ESO	350	8	12	3
10195		TACH	11	17	0709	S15	E33	11	19.8			HSX	188	1	2	3
10195		SVTO	11	17	0735	S16	E37	11	20.1		B	ESO	350	5	14	3
10195		RAMY	11	17	1305	S16	E33	11	20.0		B	EHO	340	9	12	3
10195	31523	MWIL	11	17	1545	S14	E28	11	19.8	5	(AP)					
10195		HOLL	11	17	1605	S17	E32	11	20.1		B	EKI	300	11	11	3
10195		VORO	11	18	0016	S14	E23	11	19.7			HHX	212	3		3
10195		LEAR	11	18	0030	S17	E28	11	20.1		B	ESO	330	13	11	3
10195		TACH	11	18	0548	S14	E20	11	19.7			HSX	233	1	3	4
10195		SVTO	11	18	1045	S17	E22	11	20.1		B	ESO	290	3	13	2
10195		RAMY	11	18	1257	S16	E20	11	20.0		B	ESO	230	8	11	3
10195	31523	MWIL	11	18	1530	S15	E15	11	19.8	5	(AP)					
10195		HOLL	11	18	1635	S17	E20	11	20.2		B	DAO	300	16	11	3
10195		LEAR	11	19	0005	S17	E15	11	20.1		B	EAO	280	19	12	3
10195		TACH	11	19	0553	S15	E08	11	19.8			HSX	211	1	3	3
10195		SVTO	11	19	0835	S17	E12	11	20.3		B	EAO	230	4	11	3
10195		RAMY	11	19	1203	S18	E09	11	20.2		B	ESO	240	12	11	3
10195		HOLL	11	19	1513	S17	E05	11	20.0		B	DAO	250	10	8	3
10195	31523	MWIL	11	19	1530	S15	E02	11	19.8	5	(BP)					
10195		VORO	11	20	0008	S14	W03	11	19.8			HHX	213	4		4
10195		LEAR	11	20	0020	S17	E02	11	20.2		BG	EAO	220	6	11	2
10195		TACH	11	20	0449	S14	W05	11	19.8			HA	184	2	3	4
10195		SVTO	11	20	0708	S17	W04	11	20.0		BG	EAO	160	3	11	3
10195		RAMY	11	20	1200	S18	W06	11	20.0		B	EKO	220	8	13	3
10195		HOLL	11	20	1430	S17	W08	11	20.0		B	DAO	140	12	9	2
10195	31523	MWIL	11	20	1545	S15	W12	11	19.7	4	(AP)					

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10195		LEAR	11	21	0015	S17	W15	11	19.9		B	DAO	150	5	9	2
10195		VORO	11	21	0024	S14	W17	11	19.7			HKX	188	6		3
10195		TACH	11	21	0453	S14	W18	11	19.8			HA	137	4	2	4
10195		SVTO	11	21	1050	S17	W18	11	20.1		B	EAO	130	3	11	3
10195		RAMY	11	21	1156	S18	W19	11	20.0		B	EAO	130	9	12	3
10195		HOLL	11	21	1640	S17	W22	11	20.0		B	DAO	150	5	9	4
10195		LEAR	11	22	0015	S16	W26	11	20.0		B	DAO	130	7	10	3
10195		VORO	11	22	0158	S12	W27	11	20.0			HAX	151	9	7	3
10195		TACH	11	22	0630	S14	W32	11	19.8			HA	93	2	2	3
10195		SVTO	11	22	1045	S17	W34	11	19.9		B	EAO	90	2	11	3
10195		RAMY	11	22	1216	S16	W33	11	20.0		B	EAO	150	16	13	3
10195		HOLL	11	22	1515	S16	W35	11	20.0		BG	EAO	120	11	11	4
10195		TACH	11	23	0555	S14	W46	11	19.8			HSX	362	1	2	2
10195		SVTO	11	23	0730	S17	W44	11	20.0		B	ESO	180	2	11	3
10195		RAMY	11	23	1215	S18	W47	11	19.9		B	DSO	170	11	15	3
10195		VORO	11	24	0439	S14	W58	11	19.8			HAX	138	3		2
10195		TACH	11	24	0535	S14	W59	11	19.8			HSX	81	1	1	3
10195		RAMY	11	24	1225	S17	W61	11	19.9		B	DSO	160	3	10	2
10195		HOLL	11	24	1442	S16	W61	11	20.0		B	DAO	130	7	8	4
10195	31523	MWIL	11	24	1700	S13	W67	11	19.6	5	(AP)					
10195		LEAR	11	25	0010	S16	W66	11	20.0		B	ESO	170	5	11	3
10195		VORO	11	25	0039	S14	W70	11	19.7			HAX	117	2		2
10195		TACH	11	25	0640	S13	W73	11	19.8			HSX	110	1	2	3
10195		RAMY	11	25	1222	S17	W76	11	19.7		B	DSO	120	5	10	3
10195		HOLL	11	25	1736	S14	W80	11	19.7		A	HSX	30	1	1	3
10195		LEAR	11	26	0005	S16	W79	11	20.0		B	CAO	70	4	10	3
10195A	31527	MWIL	11	15	1545	S19	E66	11	20.7	4	(B)					
10195A	31527	MWIL	11	16	1545	S18	E49	11	20.4	5	(D)					
10195A		TACH	11	17	0709	S18	E42	11	20.5			CAO	101	4	4	3
10195A	31527	MWIL	11	17	1545	S18	E36	11	20.4	5	(B)					
10195A		VORO	11	18	0016	S18	E31	11	20.4			DAI	102	5	3	3
10195A		TACH	11	18	0548	S17	E28	11	20.4			BXO	39	2	3	4
10195A	31527	MWIL	11	18	1530	S19	E22	11	20.3	5	(B)					
10195A		TACH	11	19	0553	S18	E15	11	20.4			CSO	36	2	2	3
10195A	31527	MWIL	11	19	1530	S19	E09	11	20.3	4	(BG)					
10195A		VORO	11	20	0008	S18	E05	11	20.4			HAX	58	2	3	4
10195A		TACH	11	20	0449	S17	E03	11	20.4			CSI	56	4	5	4
10195A	31527	MWIL	11	20	1545	S21	W06	11	20.2	5	(B)					
10195A		VORO	11	21	0024	S18	W08	11	20.4			HAX	55	3	4	3
10195A		TACH	11	21	0453	S17	W09	11	20.5			BXI	21	4	3	4
10195A		VORO	11	22	0158	S19	W24	11	20.2			HAX	34	1		3
10195A		TACH	11	22	0630	S19	W24	11	20.4			CSO	28	2	4	3
10195A		TACH	11	23	0555	S20	W39	11	20.3			HSX	42	1	1	2
10195A		VORO	11	24	0439	S20	W52	11	20.2			HAX	42	1		2
10195A		TACH	11	24	0535	S18	W47	11	20.6			BXO	19	2	10	3
10195A	31527	MWIL	11	24	1700	S19	W59	11	20.2	4	(AF)					
10195A		VORO	11	25	0039	S20	W63	11	20.2			HSX	30	1		2
10195A		TACH	11	25	0640	S19	W67	11	20.2			HXX	28	1	1	3
10197		LEAR	11	14	0015	N24	E85	11	20.6		A	HSX	70	1	2	4
10197		RAMY	11	14	1220	N26	E78	11	20.6		A	HHX	240	1	3	3
10197		HOLL	11	14	1520	N25	E78	11	20.7		A	HHX	240	1	3	3
10197	31526	MWIL	11	14	1545	N25	E75	11	20.5	5	(AP)					
10197		VORO	11	15	0027	N25	E70	11	20.4			HHX	310	1		2
10197		LEAR	11	15	0030	N24	E70	11	20.4		A	HHX	300	1	3	2
10197		TACH	11	15	0517	N24	E68	11	20.5			HHX	340	1	3	3
10197		RAMY	11	15	1225	N27	E62	11	20.3		A	HHX	290	1	3	3
10197		HOLL	11	15	1454	N24	E64	11	20.6		A	HKX	220	1	2	2
10197	31526	MWIL	11	15	1545	N25	E62	11	20.4	6	(AP)					
10197		LEAR	11	16	0025	N24	E58	11	20.5		A	HHX	250	1	3	4
10197		VORO	11	16	0034	N25	E57	11	20.4			HHX	342	1		4
10197		SVTO	11	16	0706	N25	E55	11	20.5		A	HKX	310	1	5	3
10197		RAMY	11	16	1255	N27	E51	11	20.5		A	HSX	330	1	3	3
10197		HOLL	11	16	1456	N24	E50	11	20.5		A	HKX	290	1	2	3
10197	31526	MWIL	11	16	1545	N25	E49	11	20.4	6	(AP)					
10197		LEAR	11	17	0033	N23	E45	11	20.5		A	HHX	280	1	3	3
10197		TACH	11	17	0709	N24	E41	11	20.5			HHX	367	1	3	3
10197		SVTO	11	17	0735	N25	E42	11	20.6		A	HHX	260	1	5	3

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10197		RAMY	11	17	1305	N25	E38	11	20.5		A	HHX	310	2	3	3
10197	31526	MWIL	11	17	1545	N25	E36	11	20.4	6	(AP)					
10197		HOLL	11	17	1605	N25	E38	11	20.6		A	HKX	260	1	3	3
10197		VORO	11	18	0016	N25	E31	11	20.4			HHX	359	5		3
10197		LEAR	11	18	0030	N24	E32	11	20.5		A	HHX	300	1	3	3
10197		TACH	11	18	0548	N25	E29	11	20.5			HSX	309	1	3	4
10197		SVTO	11	18	1045	N25	E26	11	20.5		A	HHX	330	1	3	2
10197		RAMY	11	18	1257	N25	E24	11	20.4		A	HHX	330	1	3	3
10197	31526	MWIL	11	18	1530	N24	E23	11	20.4	6	(AP)					
10197		HOLL	11	18	1635	N23	E25	11	20.6		A	HKX	330	2	4	3
10197		LEAR	11	19	0005	N24	E19	11	20.5		A	HHX	330	1	3	3
10197		TACH	11	19	0553	N24	E16	11	20.5			HSX	252	1	3	3
10197		SVTO	11	19	0835	N25	E14	11	20.4		A	HKX	330	1	4	3
10197		RAMY	11	19	1203	N23	E14	11	20.6		B	CKO	320	8	9	3
10197		HOLL	11	19	1513	N23	E11	11	20.5		A	HHX	280	3	5	3
10197	31526	MWIL	11	19	1530	N24	E10	11	20.4	6	(AP)					
10197		VORO	11	20	0008	N24	E06	11	20.5			HHX	411	5		4
10197		LEAR	11	20	0020	N24	E06	11	20.5		A	HHX	300	1	3	2
10197		TACH	11	20	0449	N24	E06	11	20.7			CSO	325	3	6	4
10197		SVTO	11	20	0708	N24	E02	11	20.4		A	HHX	320	1	5	3
10197		RAMY	11	20	1200	N24	E00	11	20.5		B	CKO	320	6	7	3
10197		HOLL	11	20	1430	N24	W03	11	20.4		A	HHX	280	3	4	2
10197	31526	MWIL	11	20	1545	N24	W02	11	20.5	6	(AP)					
10197		LEAR	11	21	0015	N24	W07	11	20.5		A	HHX	300	1	3	2
10197		VORO	11	21	0024	N24	W07	11	20.5			HKX	394	4		3
10197		TACH	11	21	0453	N22	W10	11	20.4			CKO	413	3	4	4
10197		SVTO	11	21	1050	N24	W15	11	20.3		B	CHO	400	2	6	3
10197		RAMY	11	21	1156	N23	W14	11	20.4		B	CKO	330	4	3	3
10197		HOLL	11	21	1640	N24	W16	11	20.4		A	HKX	330	3	4	4
10197		LEAR	11	22	0015	N24	W18	11	20.6		A	HHX	300	1	3	3
10197		VORO	11	22	0158	N24	W20	11	20.5			HKX	389	1		3
10197		VORO	11	22	0158	N28	W12	11	21.1			AXX	7	3		3
10197		TACH	11	22	0630	N24	W22	11	20.6			HSX	290	1	4	3
10197		SVTO	11	22	1045	N25	W25	11	20.5		A	HKX	520	1	5	3
10197		RAMY	11	22	1216	N24	W27	11	20.4		B	CSO	360	3	3	3
10197		HOLL	11	22	1515	N23	W27	11	20.5		A	HHX	300	1	3	4
10197		TACH	11	23	0555	N24	W36	11	20.5			HSX	306	1	4	2
10197		SVTO	11	23	0730	N25	W37	11	20.4		A	HSX	240	1	5	3
10197		RAMY	11	23	1215	N25	W39	11	20.5		B	CSO	360	3	4	3
10197		VORO	11	24	0439	N24	W47	11	20.6			HKX	439	2		2
10197		TACH	11	24	0535	N24	W48	11	20.5			HHX	400	1	4	3
10197		RAMY	11	24	1225	N25	W52	11	20.5		A	HHX	200	1	3	2
10197		HOLL	11	24	1442	N26	W53	11	20.5		A	HHX	170	4	4	4
10197	31526	MWIL	11	24	1700	N25	W55	11	20.4	6	(AP)					
10197		LEAR	11	25	0010	N25	W58	11	20.5		A	HHX	380	1	3	3
10197		VORO	11	25	0039	N24	W58	11	20.5			HKX	397	1		2
10197		TACH	11	25	0640	N25	W62	11	20.5			HHX	466	1	7	3
10197		RAMY	11	25	1222	N24	W66	11	20.4		A	HHX	240	1	3	3
10197		HOLL	11	25	1736	N25	W67	11	20.5		A	HHX	210	1	4	3
10197		LEAR	11	26	0005	N25	W70	11	20.6		A	HHX	310	1	3	3
10197		VORO	11	26	0425	N24	W72	11	20.6			HHX	378	1		2
10197		TACH	11	26	0621	N25	W77	11	20.3			HHX	388	1	3	2
10197		SVTO	11	26	0932	N23	W77	11	20.5		A	HSX	120	1	4	2
10197		RAMY	11	26	1242	N24	W79	11	20.4		A	HHX	240	1	3	3
10197	31526	MWIL	11	26	2100	N25	W82	11	20.5	4	(AP)					
10197		LEAR	11	27	0020	N25	W81	11	20.7		A	HSX	100	1	2	3
10197		VORO	11	27	0106	N24	W82	11	20.7			HAX	97	1		2
10201		TACH	11	19	0553	S15	E28	11	21.4			BXO	5	2	3	3
10201	31532	MWIL	11	19	1530	S15	E22	11	21.3	4	(B)					
10201		VORO	11	20	0008	S15	E16	11	21.2			BXO	30	4	4	4
10201		TACH	11	20	0449	S15	E14	11	21.3			BRI	9	6	4	4
10201	31532	MWIL	11	20	1545	S16	E08	11	21.3	4	(B)					
10201		VORO	11	21	0024	S15	E03	11	21.2			CRI	46	11	6	3
10201		TACH	11	21	0453	S16	E01	11	21.3			BRI	7	7	5	4
10201		RAMY	11	21	1156	S16	W04	11	21.2		B	CSO	10	5	4	3
10201		HOLL	11	21	1640	S16	W05	11	21.3		B	BXO	10	4	4	4
10201		LEAR	11	22	0015	S16	W13	11	21.0		B	BXO		2	5	3
10201		VORO	11	22	0158	S16	W15	11	20.9			AXX	2	1		3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10201		TACH	11	22	0630	S16	W14	11	21.2			AR	4	5	3	3
10201		SVTO	11	22	1045	S16	W18	11	21.1		B	DRO	40	7	5	3
10201		RAMY	11	22	1216	S15	W18	11	21.1		B	CSO	20	22	6	3
10201		HOLL	11	22	1515	S17	W19	11	21.2		B	BXI	80	14	7	4
10201		TACH	11	23	0555	S16	W28	11	21.1			CSO	34	3	3	2
10201		SVTO	11	23	0730	S16	W31	11	21.0		B	CRO	20	4	4	3
10201		RAMY	11	23	1215	S16	W32	11	21.1		B	DSO	40	8	8	3
10201		RAMY	11	24	1225	S16	W50	11	20.7		B	BXO	30	4	8	2
10201		HOLL	11	24	1442	S15	W48	11	21.0		B	BXO	10	2	4	4
10201		LEAR	11	25	0010	S16	W52	11	21.1		A	AXX	10	2	2	3
10201		RAMY	11	25	1222	S16	W61	11	20.9		B	BXO	10	4	3	3
10199	31531	MWIL	11	18	1530	N27	E36	11	21.4	4	(B)					
10199		HOLL	11	18	1635	N25	E45	11	22.2		B	BXO	20	4	5	3
10199		RAMY	11	19	1203	N28	E34	11	22.1		B	BXO	40	8	7	3
10199	31531	MWIL	11	19	1530	N26	E22	11	21.3	4	(BF)					
10199		VORO	11	20	0008	N21	E27	11	22.1			AXX	3	1		4
10199		VORO	11	20	0008	N27	E22	11	21.7			BXI	20	4	4	4
10199		LEAR	11	20	0020	N26	E25	11	21.9		A	AXX	10	4	4	2
10199		TACH	11	20	0449	N27	E21	11	21.8			BRO	9	4	13	4
10199		RAMY	11	20	1200	N27	E20	11	22.0		B	CSO	60	14	9	3
10199		HOLL	11	20	1430	N28	E17	11	21.9		A	AXX	10	1	1	2
10199	31531	MWIL	11	20	1545	N25	E10	11	21.4	4	(BF)					
10199		LEAR	11	21	0015	N27	E12	11	21.9		A	AXX	10	3	2	2
10199		VORO	11	21	0024	N26	E10	11	21.8			AXX	6	5	1	3
10199		TACH	11	21	0453	N27	E12	11	22.1			BXI	9	4	7	4
10199		RAMY	11	21	1156	N28	E04	11	21.8		B	CSO	20	11	5	3
10199		HOLL	11	21	1640	N25	E01	11	21.8		B	CAO	20	6	5	4
10199		LEAR	11	22	0015	N26	W01	11	21.9		B	CSO	20	5	2	3
10199		VORO	11	22	0158	N28	W01	11	22.0			AXX	7	1		3
10199		TACH	11	22	0630	N27	W04	11	21.9			HSX	25	1	1	3
10199		SVTO	11	22	1045	N29	W08	11	21.8		B	CSO	20	2	3	3
10199		RAMY	11	22	1216	N28	W09	11	21.8		B	CSO	20	10	5	3
10199		HOLL	11	22	1515	N24	W12	11	21.7		B	BXO	50	9	9	4
10199		TACH	11	23	0555	N27	W16	11	22.0			AXX	6	1	1	2
10199		SVTO	11	23	0730	N28	W19	11	21.8		A	HRX	10	1	1	3
10199		RAMY	11	23	1215	N28	W20	11	21.9		B	BXO	60	16	9	3
10199		RAMY	11	24	1225	N27	W36	11	21.7		B	BXO	10	2	2	2
10199	31531	MWIL	11	24	1700	N28	W38	11	21.7	3	(AF)					
10199		LEAR	11	25	0010	N28	W44	11	21.6		B	BXO	10	4	5	3
10199		RAMY	11	25	1222	N28	W45	11	22.0		B	BXO	10	2	3	3
10199		RAMY	11	26	1242	N27	W52	11	22.5		B	BXO	10	2	2	3
10198		RAMY	11	15	1225	S16	E86	11	22.0		B	DSO	90	3	3	3
10198		HOLL	11	15	1454	S19	E78	11	21.6		A	HSX	60	1	1	2
10198	31528	MWIL	11	15	1545	S18	E80	11	21.7	5	AP					
10198		LEAR	11	16	0025	S18	E79	11	22.0		B	DKI	390	14	9	4
10198		VORO	11	16	0034	S17	E76	11	21.8			DAI	230	10	3	4
10198		SVTO	11	16	0706	S17	E73	11	21.8		B	DKO	330	3	9	3
10198		RAMY	11	16	1255	S16	E74	11	22.1		B	EHO	540	6	11	3
10198		HOLL	11	16	1456	S18	E69	11	21.9		B	DAO	270	7	8	3
10198	31528	MWIL	11	16	1545	S18	E69	11	21.9	5	(B)					
10198		LEAR	11	17	0033	S19	E67	11	22.1		B	FKI	600	12	19	3
10198		TACH	11	17	0709	S18	E67	11	22.4			CAI	554	6	15	3
10198		SVTO	11	17	0735	S18	E64	11	22.2		B	FKO	590	7	18	3
10198		RAMY	11	17	1305	S18	E63	11	22.3		B	EKO	620	14	14	3
10198	31528	MWIL	11	17	1545	S18	E58	11	22.1	5	(BP)					
10198		HOLL	11	17	1605	S19	E59	11	22.2		B	FKI	460	11	18	3
10198		VORO	11	18	0016	S18	E56	11	22.3			EKI	882	28	14	3
10198		LEAR	11	18	0030	S19	E55	11	22.2		B	FKI	600	17	16	3
10198		TACH	11	18	0548	S17	E53	11	22.3			DAI	689	7	12	4
10198		SVTO	11	18	1045	S17	E53	11	22.5		B	FKI	720	11	19	2
10198		RAMY	11	18	1257	S18	E49	11	22.3		B	FKI	650	24	18	3
10198	31528	MWIL	11	18	1530	S18	E45	11	22.1	5	(D)					
10198		HOLL	11	18	1635	S19	E46	11	22.2		BG	FKI	610	29	17	3
10198		LEAR	11	19	0005	S19	E40	11	22.0		BG	FKC	570	34	24	3
10198		TACH	11	19	0553	S17	E41	11	22.4			DKI	575	9	14	3
10198		SVTO	11	19	0835	S16	E36	11	22.1		B	FKI	330	16	24	3
10198		RAMY	11	19	1203	S17	E34	11	22.1		B	FKI	570	33	21	3

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10198		HOLL	11	19	1513	S18	E34	11	22.2		BG	FKI	600	33	16	3
10198	31528	MWIL	11	19	1530	S17	E32	11	22.1	5	(D)					
10198		VORO	11	20	0008	S17	E30	11	22.3			EKI	789	54	8	4
10198		LEAR	11	20	0020	S18	E27	11	22.1		BG	FKI	520	27	21	2
10198		TACH	11	20	0449	S18	E28	11	22.3			EKI	688	26	13	4
10198		SVTO	11	20	0708	S17	E22	11	22.0		BG	FKI	610	12	25	3
10198		RAMY	11	20	1200	S19	E21	11	22.1		BG	FKC	550	42	23	3
10198		HOLL	11	20	1430	S18	E20	11	22.1		BG	FKC	590	32	19	2
10198	31528	MWIL	11	20	1545	S17	E19	11	22.1	5	(D)					
10198		LEAR	11	21	0015	S18	E12	11	21.9		BG	FKI	570	20	22	2
10198		VORO	11	21	0024	S17	E17	11	22.3			EKI	738	33	14	3
10198		TACH	11	21	0453	S15	E15	11	22.3			CKI	454	15	13	4
10198		SVTO	11	21	1050	S17	E06	11	21.9		B	FKI	690	33	26	3
10198		RAMY	11	21	1156	S19	E06	11	21.9		BG	FKI	540	48	24	3
10198		HOLL	11	21	1640	S17	E01	11	21.8		BG	FKI	500	46	17	4
10198		LEAR	11	22	0015	S18	E00	11	22.0		BG	EKI	470	22	13	3
10198		VORO	11	22	0158	S17	E00	11	22.1			DKI	527	27	9	3
10198		TACH	11	22	0630	S18	W02	11	22.1			CAI	472	16	8	3
10198		SVTO	11	22	1045	S17	W06	11	22.0		B	EKO	580	11	13	3
10198		RAMY	11	22	1216	S18	W04	11	22.2		BG	FKI	500	48	17	3
10198		HOLL	11	22	1515	S18	W06	11	22.2		B	FKI	470	39	17	4
10198		TACH	11	23	0555	S18	W13	11	22.2			CKI	526	25	12	2
10198		SVTO	11	23	0730	S18	W17	11	22.0		B	EKI	410	18	14	3
10198		RAMY	11	23	1215	S19	W19	11	22.1		BG	EKI	620	47	23	3
10198		VORO	11	24	0439	S17	W25	11	22.3			DKI	725	31	15	2
10198		TACH	11	24	0535	S18	W25	11	22.3			EKI	642	14	14	3
10198		RAMY	11	24	1225	S19	W31	11	22.1		BG	FKI	510	28	22	2
10198		HOLL	11	24	1442	S17	W31	11	22.2		BG	FKC	490	40	19	4
10198	31528	MWIL	11	24	1700	S18	W34	11	22.1	5	(BG)					
10198		LEAR	11	25	0010	S17	W36	11	22.3		BG	FKI	460	24	18	3
10198		VORO	11	25	0039	S18	W36	11	22.3			DKI	599	19	15	2
10198		TACH	11	25	0640	S18	W39	11	22.3			EAO	473	7	15	3
10198		RAMY	11	25	1222	S19	W42	11	22.3		B	FKO	400	25	19	3
10198		HOLL	11	25	1736	S18	W45	11	22.3		B	CKO	380	14	20	3
10198		LEAR	11	26	0005	S17	W48	11	22.3		BG	FKI	390	24	19	3
10198		VORO	11	26	0425	S18	W51	11	22.3			EKO	482	12	15	2
10198		TACH	11	26	0621	S19	W54	11	22.1			ESO	664	3	14	2
10198		SVTO	11	26	0932	S18	W54	11	22.3		B	FKO	370	5	16	2
10198		RAMY	11	26	1242	S19	W55	11	22.3		B	FKO	400	12	18	3
10198	31528	MWIL	11	26	2100	S18	W61	11	22.2	5	(B)					
10198		LEAR	11	27	0020	S17	W63	11	22.2		B	EKO	260	9	14	3
10198		VORO	11	27	0106	S18	W62	11	22.3			EHI	400	12	15	2
10198		SVTO	11	27	1032	S19	W66	11	22.4		B	FHO	360	4	20	2
10198		RAMY	11	27	1242	S19	W70	11	22.2		BG	FKO	480	7	19	3
10198	31528	MWIL	11	27	1615	S18	W71	11	22.3	4	(B)					
10198		HOLL	11	27	1621	S18	W70	11	22.3		BG	FKI	360	3	16	3
10198		VORO	11	28	0005	S18	W74	11	22.4			EKI	334	9	14	2
10198		LEAR	11	28	0105	S17	W75	11	22.3		B	EKO	270	10	14	3
10198		SVTO	11	28	0850	S18	W75	11	22.6		B	DAO	120	5	7	3
10198		RAMY	11	28	1220	S18	W79	11	22.5		B	EKO	180	6	12	4
10198		HOLL	11	28	1455	S16	W78	11	22.7		B	CSO	90	3	4	2
10198	31528	MWIL	11	28	1700	S16	W78	11	22.8	4	(BF)					
10198		LEAR	11	29	0015	S16	W85	11	22.6		B	CSO	40	2	10	3
10198		VORO	11	29	0019	S16	W82	11	22.8			HAX	114	2		3
10210		VORO	11	30	0009	S09	W62	11	25.3			BRO	18	4	2	3
10210		LEAR	11	30	0030	S08	W64	11	25.2		B	CAO	20	2	2	2
10210		TACH	11	30	0750	S08	W65	11	25.4			BRO	27	4	5	3
10210		RAMY	11	30	1216	S09	W71	11	25.2		B	DSO	80	5	5	4
10210		HOLL	11	30	1805	S08	W75	11	25.1		B	DSO	60	2	6	1
10210		VORO	12	01	0032	S09	W74	11	25.6			HAX	50	1		3
10210		LEAR	12	01	0115	S08	W75	11	25.5		B	DSO	60	3	4	2
10210		TACH	12	01	0549	S09	W77	11	25.6			HSX	47	1	3	3
10210		RAMY	12	01	1220	S09	W81	11	25.5		A	HAX	60	1	2	3
10200		VORO	11	20	0008	S01	E82	11	26.1			HAX	40	1		4
10200		TACH	11	20	0449	S01	E78	11	26.0			HXX	49	1	2	4
10200		SVTO	11	20	0708	N01	E80	11	26.3		A	HSX	60	1	2	3
10200		RAMY	11	20	1200	N00	E78	11	26.3		A	HSX	60	1	1	3

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10200		HOLL	11	20	1430	S02	E76	11	26.3		A	HAX	60	1	2	2
10200	31533	MWIL	11	20	1545	S01	E75	11	26.2	4	AP					
10200		LEAR	11	21	0015	S03	E68	11	26.1		A	HSX	40	1	2	2
10200		VORO	11	21	0024	S01	E69	11	26.2			HAX	51	1		3
10200		TACH	11	21	0453	S01	E67	11	26.2			HSX	52	1	2	4
10200		SVTO	11	21	1050	N02	E65	11	26.3		A	HAX	90	1	2	3
10200		RAMY	11	21	1156	N00	E63	11	26.2		A	HSX	40	1	2	3
10200		HOLL	11	21	1640	S01	E61	11	26.2		A	HAX	80	1	1	4
10200		LEAR	11	22	0015	S03	E56	11	26.2		A	HSX	40	1	2	3
10200		VORO	11	22	0158	S01	E58	11	26.4			HAX	76	2	5	3
10200		TACH	11	22	0630	S02	E53	11	26.2			HSX	46	1	2	3
10200		SVTO	11	22	1045	S01	E51	11	26.2		A	HSX	50	1	1	3
10200		RAMY	11	22	1216	S01	E50	11	26.2		A	HSX	30	1	1	3
10200		HOLL	11	22	1515	S02	E47	11	26.1		A	HSX	60	1	2	4
10200		TACH	11	23	0555	S02	E39	11	26.1			HSX	64	1	1	2
10200		SVTO	11	23	0730	S01	E39	11	26.2		A	HSX	20	1	1	3
10200		RAMY	11	23	1215	S02	E37	11	26.3		A	HSX	70	1	1	3
10200		VORO	11	24	0439	S01	E27	11	26.2			HSX	60	3		2
10200		TACH	11	24	0535	S01	E27	11	26.2			HSX	28	1	1	3
10200		RAMY	11	24	1225	S02	E23	11	26.2		A	HSX	10	1	1	2
10200		HOLL	11	24	1442	S01	E22	11	26.2		A	HSX	30	1	1	4
10200	31533	MWIL	11	24	1700	S01	E20	11	26.2	4	(AF)					
10200		LEAR	11	25	0010	S01	E17	11	26.3		A	HSX	20	1	1	3
10200		VORO	11	25	0039	S01	E16	11	26.2			HAX	50	2		2
10200		TACH	11	25	0640	S01	E14	11	26.3			AXX	23	1	1	3
10200		RAMY	11	25	1222	S01	E10	11	26.3		A	HSX	20	1	1	3
10200		HOLL	11	25	1736	S02	E07	11	26.2		A	HSX	20	1	1	3
10200		LEAR	11	26	0005	S01	E04	11	26.3		A	HSX	20	2	1	3
10200		VORO	11	26	0425	S01	E02	11	26.3			ARX	16	2		2
10200		TACH	11	26	0621	S02	E01	11	26.3			AXX	8	1	1	2
10200		SVTO	11	26	0932	S02	W02	11	26.2		A	HRX	10	1	1	2
10200		RAMY	11	26	1242	S02	W03	11	26.3		A	HSX	20	1	1	3
10200	31533	MWIL	11	26	2100	S01	W07	11	26.3	4	(AF)					
10200		LEAR	11	27	0020	S02	W09	11	26.3		A	HSX	20	1	1	3
10200		VORO	11	27	0106	S03	W10	11	26.3			HSX	14	3	0	2
10200		SVTO	11	27	1032	S02	W15	11	26.3		A	HSX	10	1	1	2
10200		RAMY	11	27	1242	S03	W17	11	26.2		B	CSO	30	3	3	3
10200	31533	MWIL	11	27	1615	S02	W18	11	26.3	4	(AF)					
10200		HOLL	11	27	1621	S03	W19	11	26.3		B	CSO	20	2	2	3
10200		VORO	11	28	0005	S01	W23	11	26.3			ARX	15	2		2
10200		LEAR	11	28	0105	S02	W23	11	26.3		B	CRO	20	3	2	3
10200		SVTO	11	28	0850	S03	W28	11	26.3		B	DSO	30	2	3	3
10200		RAMY	11	28	1220	S03	W32	11	26.1		B	CSO	20	3	3	4
10200		HOLL	11	28	1455	S02	W32	11	26.2		A	HSX	20	1	1	2
10200	31533	MWIL	11	28	1700	S02	W33	11	26.2	4	(AF)					
10200		LEAR	11	29	0015	S02	W37	11	26.2		A	AXX		2		3
10200		VORO	11	29	0019	S01	W36	11	26.3			HRX	11	3		3
10200		RAMY	11	30	1216	S03	W61	11	25.9		A	AXX		1		4
10200A		LEAR	11	25	0010	N19	E31	11	27.4		A	AXX	10	3	2	3
10200B		RAMY	11	27	1242	S06	E07	11	28.0		A	AXX	10	2	2	3
10200B		RAMY	12	03	1240	S07	W71	11	28.3		A	AXX		1		3
10202		VORO	11	24	0439	N13	E82	11	30.4			DAO	164	2	7	2
10202		TACH	11	24	0535	N13	E78	11	30.1			HXX	25	1	1	3
10202		RAMY	11	24	1225	N13	E73	11	30.0		B	DSO	60	2	7	2
10202		HOLL	11	24	1442	N14	E71	11	30.0		B	CSO	40	2	7	4
10202	31534	MWIL	11	24	1700	N14	E70	11	30.0	4	(AP)					
10202		LEAR	11	25	0010	N13	E66	11	30.0		B	CSO	40	2	5	3
10202		VORO	11	25	0039	N13	E70	11	30.3			HAX	48	2	6	2
10202		TACH	11	25	0640	N14	E64	11	30.1			AXX	17	1	1	3
10202		RAMY	11	25	1222	N13	E58	11	29.9		B	DSO	30	3	5	3
10202		HOLL	11	25	1736	N13	E56	11	29.9		B	BXO	40	4	7	3
10202		LEAR	11	26	0005	N13	E56	11	30.2		B	CSO	50	6	6	3
10202		VORO	11	26	0425	N13	E51	11	30.0			HAX	24	3		2
10202		TACH	11	26	0621	N12	E50	11	30.0			AXX	8	1	1	2
10202		SVTO	11	26	0932	N13	E47	11	29.9		A	AXX		1		2
10202		RAMY	11	26	1242	N13	E46	11	30.0		B	CSO	20	3	3	3

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

NOVEMBER 2002

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10202	31534	MWIL	11	26	2100	N14	E42	11	30.0	4	(AP)					
10202		LEAR	11	27	0020	N12	E39	11	29.9		B	CSO	20	5	4	3
10202		VORO	11	27	0106	N13	E39	11	30.0			HAX	24	3	1	2
10202		SVTO	11	27	1032	N14	E33	11	29.9		B	CSO	20	2	4	2
10202		RAMY	11	27	1242	N13	E32	11	29.9		B	CSO	40	12	8	3
10202	31534	MWIL	11	27	1615	N14	E32	11	30.1	4	(B)					
10202		HOLL	11	27	1621	N14	E32	11	30.1		B	CSO	30	7	5	3
10202		VORO	11	28	0005	N14	E27	11	30.0			CAI	32	21	5	2
10202		LEAR	11	28	0105	N13	E27	11	30.1		B	CRO	20	12	4	3
10202		SVTO	11	28	0850	N14	E22	11	30.0		B	DAO	40	8	4	3
10202		RAMY	11	28	1220	N14	E20	11	30.0		B	DSI	50	16	7	4
10202		HOLL	11	28	1455	N14	E18	11	30.0		B	DSO	70	10	5	2
10202	31534	MWIL	11	28	1700	N14	E17	11	30.0	4	(BP)					
10202		LEAR	11	29	0015	N13	E13	11	30.0		B	BXO	20	10	5	3
10202		VORO	11	29	0019	N14	E12	11	29.9			CAI	20	10	0	3
10202		SVTO	11	29	1000	N14	E06	11	29.9		B	DRO	30	7	6	3
10202		RAMY	11	29	1212	N14	E05	11	29.9		B	CSO	20	10	6	4
10202		VORO	11	30	0009	N14	W02	11	29.8			AXX	9	4	1	3
10202		LEAR	11	30	0030	N13	W02	11	29.9		B	CAO	20	4	5	2
10202		RAMY	11	30	1216	N16	W11	11	29.7		B	BXO	10	9	4	4
10202		RAMY	12	01	1220	N12	W21	11	30.0		B	CSO	40	8	5	3
10202		RAMY	12	02	1225	N13	W34	11	30.0		B	BXO	20	4	4	3
10202		RAMY	12	03	1240	N12	W45	11	30.1		A	AXX		1		3
10204		SVTO	11	27	1032	N15	E47	12	1.0		A	AXX	10	3	2	2
10204		RAMY	11	27	1242	N16	E46	12	1.0		B	DSO	60	8	6	3
10204	31538	MWIL	11	27	1615	N15	E45	12	1.1	4	(B)					
10204		HOLL	11	27	1621	N15	E44	12	1.0		B	CSO	20	5	4	3
10204		VORO	11	28	0005	N16	E39	12	1.0			BXI	45	18	2	2
10204		SVTO	11	28	0850	N17	E35	12	1.0		B	BXO	10	5	5	3
10204		RAMY	11	28	1220	N17	E33	12	1.0		B	DSO	50	10	6	4
10204		HOLL	11	28	1455	N16	E33	12	1.1		B	CSO	30	5	6	2
10204		VORO	11	29	0019	N17	E28	12	1.1			AXX	7	2	0	3
10204		RAMY	11	29	1212	N18	E20	12	1.0		B	BXO	10	4	3	4
10204		RAMY	11	30	1216	N20	E04	11	30.8		B	BXO	10	7	4	4
10204		RAMY	12	02	1225	N14	W20	12	1.0		B	BXO	30	10	8	3
10204		HOLL	12	02	1457	N17	W20	12	1.1		A	AXX	10	1	1	3
10204	31540	MWIL	12	02	1545	N17	W21	12	1.1	4	(AF)					

Stations reporting:

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

SUDDEN IONOSPHERIC DISTURBANCES

NOVEMBER 2002

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
01	0815	0825	0849	1	1		1				No flare		
01	0958	1036	1050	2	3		1			1	No flare		
01	1033	1050	1127	3	5	1	2	1		5	1059	C6.6	10198
01	1258	1307	1328	1	1		1				No flare		
01	1614	1621	1658	2	1					1	1614		10177
01	1924	1932	1947D	1	1					1	1931		
01	1948	1954	2003	1-	1					1	1951	C3.8	10198
02	0545	0600	0700	2+	1					1	0528	C3.9	
02	1000	1100	1130	1	1		1				No flare		
02	1142	1206	1245	1	1		1				No flare		
03	0551	0606	0715	2+	1					1	0551	C6.3	10177
03	0953	0955	1004	1-	3					2	0948	C2.4	10177
03	1246	1254	1259	1-	1					1	1257E		10180
03	1345	1350	1432	3	5		2	1		8	1341	M1.3	10177
04	1336	1350U	1427	1	1		1				No flare		
04	1811	1821	1850	2-	3					3	1813	C4.4	10180
05	1254	1258	1318	3-	5		2	1		6	1253	C7.5	10177
05	1607	1611	1633	1	5					5	1606	C6.4	10177
05	1816	1821	1842	1	3					4	1815	C2.7	10185
06	0515	0527	0652	3-	3					2	0505	C7.2	10180
06	1202	1210	1233	1-	3		1			1	1159	C1.9	
06	1310	1321	1444	1	1		1				No flare		
06	1439	1443	1454	1-	3					3	1433	C2.7	10188
06	1635	1645	1715	2	3					2	1636	C3.7	10180
06	2314	2317	2330	1-	1					1	2308	C7.3	10177
07	0620	0630	0639	1	1					1	0624	C2.5	10177
07	0906	0908	0913	1-	1					1	0901	C2.8	10180
07	0948	0956	1024	1	1		1				No flare		
07	1145	1154	1200	1-	1					1	1140		10180
07	1205	1213	1259	1	5		1			1	1156		10180
08	0832	0843	0859	1	3		1			1	0829	C2.1	10180
08	1000	1009	1024	1	1					1	1001	C2.7	
08	1052	1055	1103	1-	1					1	1051	C1.9	10180
08	1222	1227	1250	1	3		1			4	1219	C5.8	10180
09	0842	0910U	0938	2	1		1				No flare		
09	0946	0957	1017	1	3					3	0944	C4.7	
09	1026	1112	1128	1	1		1				*		
09	1141	1158	1233	2	3		1			2	1144	C6.3	10180
09	1312	1323	1407	3	5	1	2	1		8	1308	M4.6	10180
09	1518	1526	1619	2+	3					3	1519	C4.1	10180
09	1746	1755	1846	2	3					4	1747	C7.9	10191
09	2109	2118	2124	1-	1					1	2109		10180
10	0118	0125	0145	1	1					1	0117	C5.5	
10	0307	0318	0422	2+	3					2	0304	M2.4	10180
10	1107	1113	1126	1-	5					2	1103	C5.5	
10	1133	1138	1148	1	1					1	1133	C5.1	10191
10	1211	1219	1230	2	5	1	2	1			1210	C5.4	10180
10	1338	1347	1416	1	1		1				1335	C4.5	
10	1558	1606	1616	1-	1					1	1556	C2.6	
10	1759	1803	1811	1-	1					1	1756	C1.9	
10	1843	1846	1902	1	1					1	1844	C2.1	
10	2120	2127	2142	1	1					1	2118	C2.3	
11	0727	0731	0759	2+	5		2	1		2	0725	M2.9	10180
11	1141	1153	1205	1	1					1	1135		10180
11	1238	1251	1315	2-	3		1			2	1225	C7.1	10180
11	1335	1339	1355	1	5		1			2	No flare		
11	1435	1445	1507	2-	5					5	1437	C6.5	10180

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

NOVEMBER 2002

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
11	1510	1518	1604	2+	5					2	1511	M1.8	10180
11	1608	1619	1653	2	3					2	1511	M1.8	10180
12	0745	0750	0827	2-	3		1			3	0742	C5.3	10180
12	1807	1813	1830	1	3					3	1758	C9.9	10180
12	1814	1821	1843	1	3					3	1758	C9.9	10180
12	1843	1855	1939	2	3					5	1841	M2.9	10180
13	1004	1008	1017	1-	1					1	1002	C1.9	
13	1054	1058	1136	1-	1					1	No flare		
13	1436	1449	1459	1	1					1	1435	C3.0	10191
14	1009	1015	1035	1+	1					1	1017	C2.6	
14	1110	1114	1142	1	5		1			4	1107	C5.5	
14	1343	1353	1408	3-	5		2	1		8	1340	C8.1	10195
15	0100	0116	0202	2+	3					2	0106	M2.4	
15	0524	0532	0607	2	3					2	0524	C8.9	10192
15	1154	1200	1208	2	5		2	1		3	1152	C6.2	10192
15	1345	1350	1400	1-	5		1			3	1345	C3.2	10192
15	1436	1437	1442	1-	1					1	1438	C1.9	
16	0631	0636	0713	2	3					2	0632	C1.9	10191
16	0959	1003	1008	1-	1					1	No flare		
16	1101	1107	1126	1	5		1			3	1057	C5.4	10192
16	1357	1403	1422	2	5		2	1		8	1354	C8.6	10191
16	1644	1647	1711	1+	1					1	1638		10192
17	0525	0543	0815	3+	1					1	0504	C5.0	
17	0904	0915U	0934	2	1		1				No flare		
17	0945	0956	1026	1+	3					3	0928	C4.2	
17	1218	1234	1257	1+	3		1			3	1229	C7.0	
17	1239	1249	1314	1+	1					1	No flare		
17	1417	1425	1448	1	1		1				1439	M2.0	10198
17	1450	1457	1514	1-	5	1	2			7	1439	M2.0	10198
17	1544	1556	1648	2+	1					1	No flare		
17	2128	2140	2229	2+	1					1	2131	C7.9	10198
18	0707	0712	0739	1	1					1	0706	C2.2	10192
18	0734	0742	0801	1	1		1				No flare		
18	0817	0833	0906	1	1		1				No flare		
18	0912	0955	1047	1	1		1				1005	C2.4	
18	1056	1057	1110	1-	1					1	1005	C2.4	
18	1200	1205	1228	1	1		1				1200	C1.9	
19	0729	0735	0801	1+	3					2	0728	C4.9	
19	1210	1215	1223	1-	1					1	1205	C2.5	
20	1626	1632	1652	1	3					4	1625	C3.8	
20	1716	1728	1749	1+	3					4	1715	M1.4	10198
20	1737	1743	1757	1	1					1	1715	M1.4	10198
20	1801	1806	1835	2-	3					4	1715	M1.4	10198
21	0809	0813	0822	1-	1					1	0807	C2.4	10198
21	0840	0846	0934	1	1		1				*		
21	1101	1106	1128	1	5		1			3	1059	C6.6	10198
21	1643	1647	1712	1+	3					4	1642	C3.8	10198
22	1538	1545	1614	1+	3					3	1536	C3.4	10198
23	0121	0129	0150	1+	1					1	0119	C2.1	
23	0758	0803	0826	2-	3					3	0755	C4.6	
23	0842	0843	0849	1-	1					1	0839	C1.9	10198
23	0909	0927	0952	2	1		1				No flare		
23	1154	1214	1225	1	1		1				1138E		10198
23	1807	1809	1822	1-	1					1	1801	C2.7	

* = no flare patrol.

NOVEMBER 2002

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
24	0810	0837	0901	1+	3		1			2	0815	C4.8	
24	1016	1022	1042	1	1		1				*		
26	1830	1834	1840	1-	1					1	1826	C3.6	10197
27	0905	0908	0916	1-	1					1	0902	C1.4	
27	0935	0943	1019	1	1					1	0933	C2.3	10198
27	1306	1314	1327	1	1		1				No flare		
27	1645	1653	1711	1	5					3	1643	C3.8	10198
28	0807	0817	0845	2	1					1	0806	C4.3	
28	1006	1016	1016U	2-	1					1	1005	C3.4	
28	1051	1101	1101	1	1					1	1047	C8.4	10198
28	1123	1137	1159	1+	5		1			4	1047	C8.4	10198
28	1355	1401	1431	2	5					2	1357	C3.5	10207
28	1403	1412	1438	1	1		1				1357	C3.5	10207
28	1519	1521	1531	1-	3					2	1522	C2.0	10207
28	1646	1651	1706	1	1					1	1656	C1.8	
29	0433	0440	0522	2	3					2	0429	C2.9	
29	0756	0802	0816	1	1		1				No flare		
29	0829	0839	0919	1	1		1				No flare		
29	1054	1108	1127	1	1		1				No flare		
30	1023	1053	1159	2	1		1				1119	B8.0	10209

* = no flare patrol.

OBSERVATORIES REPORTING FOR NOVEMBER 2002

Alberta, Canada	SES	Marlborough, Massachusetts, USA	SES
Allentown, Pennsylvania, USA	SES	Milan, Italy	SES
Amherst, New Hampshire, USA	SES	Nerja, Spain	SES
Athens, Georgia, USA	SES	Panska Ves, Czech Republic	SES, SEA, SWF
Bern, Switzerland	SES	Sofia, Bulgaria	SES
Brookline, Massachusetts, USA	SES	Sussex, United Kingdom	SES
Edenvale, Rep of S. Africa	SES	Torrington, Connecticut, USA	SES
Hoogstraten, Belgium	SES	Upice, Czech Republic	SEA
Isola del Gran Sasso, Italy	SES	Villiersdorp, South Africa	SES

Observations are not necessarily continuous.

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

NOVEMBER 2002

OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
01	0000	0743	HIRA								
	0000	0750	CULG								
			LEAR	0043.0	0124.0	CONT		1	94	180	
	0639	1519	POTS	0653	0808	I	S,N	1	220	400	100-200MHz no data
	0710	1420	ONDR								
	0700	1200	IZMI	0824.6	0825.6	III	GG	1	90	270	
			POTS	0824.7	0828.8	III	GG	3	40X	460	
	0710	1515	BLEN	0827.6	0829.0	III	GG	2	100X	800	
			IZMI	0827.7	0828.7	III	G,C	2	25X	270X	
			LEAR	0828.0	0829.0	III		2	25	180	
			SVTO	0828.0	0829.0	III		2	25	180	
			IZMI	0828.3	0829.3	V	HSRM	2	40U	180	
			POTS	0828.8	0829.4	V	B	3	40X	70	
			POTS	0833	0902 U	I	S,N	1	200U	410	
			IZMI	0837.6	0837.8	III	G	1	50	160	
			LEAR	0843.0	0900.0	III	N	1	25	180	
			SVTO	0856.0	0900.0	III		1	25	180	
			POTS	0856.3	0901.3	III	G	3	40X	260	
			IZMI	0856.8	0858.8	III	GG	2	25X	250	
			IZMI	0858.5	0858.7	UNCLF		2	150	195	
			IZMI	0859.7	0900.4	III	G	2	65	215	
			POTS	0908	0913	I	S,N	2	230	390	
			POTS	0933.2	0934.5	III	G	2	200U	380	
			IZMI	0933.5	0933.8	III	G	2	140	270X	
			IZMI	0944.1	0947.5	III	GG	1	40	95	
			POTS	1056	1129	I	S,N	1	200U	280	
			IZMI	1151.3	1151.4	III	B	1	50	85	
			POTS	1151.4	1151.5	III	B	1	40X	60	
			POTS	1201.7	1201.8	III	B	2	40X	85	
			POTS	1333	1347	I	S,N	1	300	350	
	2100	2400	HIRA								
	2000	2400	CULG	2115.0	2115.0	III	B	1	20	40U	
			CULG	2142.0	2142.0	III	B	1	40U	90	
02			LEAR	0223.0	0224.0	III		1	25	147	
	0000	0742	HIRA	0223.0	0223.5	III	B	1	30	130	
	0000	0750	CULG	0223.0	0225.0	III	G	1	18	150	
			CULG	0309.0	0312.0	III	G	1	50U	180	
			CULG	0636.0	0637.0	III	B	1	23	150	
			HIRA	0636.0	0637.0	III	B	1	50	120	
			LEAR	0636.0	0636.0	III		1	25	180	
			SVTO	0636.0	0636.0	III		1	29U	121U	
	0643	1518	POTS	0643 E	1500 U	I	S,N	1	200U	400	100-200MHz no data
	0700	1200	IZMI	0700.0E	1045.0U	I	N	1	200	270	
	0712	1418	ONDR								
	0715	1510	BLEN								
			POTS	0755.8	0758.5	III	G	1	40X	270	
			POTS	0842.3	0843.0	III	G	1	200U	440	
			IZMI	0842.7	0843.0	III	G	1	85	270X	
			POTS	1342.0	1342.3	III	G	1	40X	60	
	2000	2400	CULG	2203.0	2212.0	III	G	1	35	180	
			LEAR	2206.0	2224.0	III	N	1	25	180	
			HOLL	2207.0	2300.0	III	N	1	25	180	
			PALE	2208.0	0327.0	III	N	1	25	180	
	2101	2400	HIRA	2208.5	2209.5	III	G	1	40	170	
			CULG	2213.0	2218.0	III	GG	2	18X	180	
			HIRA	2213.5	2217.5	III	G	1	25X	190	
			CULG	2222.0	2226.0	III	G	1	30	90	
			CULG	2250.0	2251.0	III	G	1	27	90	
			HIRA	2350.0	2350.5	III	B	1	30	70	
			LEAR	2350.0	2350.0	III		1	25	74	
03	0000	0750	CULG	0014.0	0014.0	III	B	1	190	550	
			CULG	0028.0	0028.0	III	B	1	190	550	
			CULG	0128.0	0130.0	III	G	1	18	150	
			LEAR	0128.0	0130.0	III		1	25	137	
	0000	0741	HIRA	0129.0	0129.5	III	B	1	50	140	
			HIRA	0227.5	0228.0	III	B	1	280	420	
			CULG	0228.0	0228.0	III	B	1	300	500	

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OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
03			SVTO	0552.0	0552.0	III		1	25U	82U	
	0647	1518	POTS	0647 E	1400 U	I	S,DC	2	200U	470	100-200MHz no data
	0700	1200	IZMI	0700.0E	1200.0D	I	S	1	120	270X	
	0714	1416	ONDR								
	0715	1510	BLEN	0720.0X	1510.0X	I	DC	2	140	300	
			IZMI	1012.0	1112.1	III	B	1	110	175	
			IZMI	1031.0	1031.6	III	G	1	60	90	
			POTS	1400 U	1518 U	IV		2	200U	700	
	2000	2400	CULG	2015.0	2015.0	III	B	1	18	180	
			CULG	2038.0	2038.0	III	B	1	18	160	
			CULG	2149.0	2400.0D	I	S	1	100	280	
			LEAR	2156.0	1020.0	CONT		1	96	180	
			CULG	2256.0	2312.0	III	GG	1	20	150	
			LEAR	2259.0	2333.0	III	N	1	25	124	
			PALE	2318.0	0338.0	CONT		1	99	180	
			HOLL	2333.0	2333.0	III		1	25	85	
			PALE	2333.0	2333.0	III		1	25	130	
	2102	2400	HIRA	2333.5	2334.0	III	B	1	30	110	
			CULG	2334.0	2334.0	III	B	1	18X	160	
04	0000	0750	CULG	0000.0E	0750.0D	I	S	1	100	280	
			CULG	0101.0	0103.0	III	G	1	30	90	
			LEAR	0101.0	0103.0	III		1	25	123	
			LEAR	0212.0	0218.0	III		1	25	180	
			CULG	0215.0	0216.0	III	G	1	20	250	
	0000	0740	HIRA	0215.5	0216.5	III	G	1	30	130	
			LEAR	0232.0	0232.0	III		1	25	76	
			CULG	0438.0	0438.0	III	B	1	18	40	
			CULG	0449.0	0449.0	III	B	1	120	360	
			CULG	0518.0	0607.0	III	N	1	18	160	
			LEAR	0527.0	0720.0	III	N	1	25	180	
			HIRA	0529.0	0531.5	III	G	1	50	170	
			HIRA	0556.5	0557.0	III	B	1	80	130	
	0653	1517	POTS	0653 E	1517 U	I	S,DC,C	2	200U	450	100-200MHz no data
	0700	1200	IZMI	0700.0E	1200.0D	I	S,C	2	50	270X	
	0715	1510	BLEN								
	0717	1414	ONDR								
			IZMI	0805.1	0805.2	III	B	2	45	90	
			SVTO	0900.0	0913.0	CONT		1	25U	180U	
			SVTO	0900.0	0913.0	CONT		1	115U	180U	
			POTS	0945.1	0945.3	III	B	1	40X	55	
			IZMI	0958.2	1043.0U	III	N	2	25X	95	
			POTS	1000.3	1011.3	III	GG	1	40X	85	
			POTS	1011.8	1024.0	III	GG	3	40X	250U	
			IZMI	1011.9	1017.9	III	GG	2	40	160	
			SVTO	1019.0	1022.0	III		2	25	180	
			IZMI	1019.6	1021.8	III	GG	2	25X	160	
			IZMI	1022.2	1023.3	III	GG	2	30	185	
			POTS	1024	1043	III	GG,N	2	40X	65	
			IZMI	1056.7	1116.0U	III	N	2	40	95	
			POTS	1058	1119	III	GG,N	1	40X	85	
			IZMI	1105.1	1107.1	III	G	2	30	95	
			IZMI	1131.0	1131.1	III	B	2	55	65	
			POTS	1158.3	1158.5	III	B	1	40X	55	
			POTS	1250.3	1252.6	III	G	2	40X	85	
			POTS	1315	1327	III	G	1	40X	75	
			POTS	1355.3	1400.7	III	G,N	1	40X	85	
			HOLL	1501.0	1544.0	III	N	1	25	162	
			POTS	1501.5	1517 U	III	GG	2	40X	400U	
			SGMR	1506.0	1509.0	III		1	30	80	
			PALE	1949.0	0338.0	III	N	1	25	180	
			HOLL	1951.0	1957.0	III		1	25	168	
	2000	2400	CULG	2000.0E	2107.0	III	N	1	18	90	
			CULG	2036.0	2036.0	III	B	1	27	300	
			HOLL	2146.0	2147.0	III		1	25	146	
	2103	2400	HIRA	2146.5	2147.0	III	B	1	30	270	
			CULG	2147.0	2147.0	III	B	1	20	90	
			LEAR	2155.0	1020.0	CONT		1	25	180	
			LEAR	2213.0	2213.0	III		1	25	180	

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OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
04			HIRA	2213.5	2214.5	III	G	1	50	210	
			LEAR	2235.0	0415.0	III	N	1	25	180	
			HIRA	2235.5	2243.5	III	G	2	30	230	
			CULG	2236.0	2241.0	III	G	1	18	90	
			CULG	2250.0	2253.0	III	G	1	20	60	
			HIRA	2343.5	2344.0	III	B	1	40	210	
05	0000	0750	CULG	0041.0	0158.0	III	N	1	18	90	
	0000	0739	HIRA	0043.5	0044.0	III	B	1	50	120	
			HIRA	0049.0	0049.5	III	B	1	50	110	
			HIRA	0054.5	0056.0	III	G	1	30	210	
			CULG	0117.0	0117.0	III	B	1	200	950	
			HIRA	0117.0	0117.5	III	B	1	80	640	
			LEAR	0155.0	0157.0	III		1	25	180	
			HIRA	0155.5	0157.0	III	G	2	30	140	
			CULG	0248.0	0257.0	III	G	1	23	280	
			CULG	0325.0	0429.0	III	S	1	20	150	
			HIRA	0333.0	0335.5	III	G	3	30	320	
			LEAR	0333.0	0335.0	III		1	25	180	
			CULG	0334.0	0335.0	III	G	2	20	290	
			LEAR	0345.0	0354.0	III		1	25	180	
			HIRA	0345.5	0356.0	III	G	2	25X	210	
			CULG	0346.0	0355.0	III	GG	2	18	320	
			HIRA	0407.0	0408.0	III	B	1	30	110	
			HIRA	0504.5	0505.0	III	B	1	60	200	
			CULG	0505.0	0505.0	III	B	1	25	120	
			HIRA	0512.5	0513.0	III	B	1	60	240	
			CULG	0513.0	0513.0	III	B	1	20	80	
			CULG	0551.0	0555.0	III	G	1	20	730	
			SVTO	0551.0	0552.0	III		1	111U	180U	
			HIRA	0551.5	0555.0	III	G	1	50	600	
			SVTO	0605.0	1520.0	CONT		1	28U	180U	
	0650	1200	IZMI	0650.0E	1200.0	I	N	2	80	270X	
			IZMI	0709.0	0746.0U	III	N	1	45	95	
			IZMI	0726.0	0726.4	III	G	1	45	95	
			IZMI	0730.4	0730.5	III	B	2	40	95	
			CULG	0745.0	0745.0	III	B	1	25	70	
			IZMI	0745.2	0745.4	III	B	2	40	95	
			ONDR	0814.3	0815.3	DCIM	G	1	1006	2000X	
	0719	1412	ONDR	0814.3	0815.0	DCIM	G	1	2000X	3426	
			IZMI	0843.5	0844.0	III	G	2	60	160	
			IZMI	0850.8	0851.0	III	G	1	60	155	
			IZMI	0912.9	0918.3	III	GG,FS	2	30	160	
			IZMI	0920.7	0927.2	III	GG	2	40	270	
			IZMI	0931.6	0946.3	III	S	2	40	270X	
			IZMI	0957.6	0957.8	III	B	2	40	95	
	0550	1200	IZMI	1006.4	1008.4	III	G	1	45	270X	
			IZMI	1034.6	1034.7	III	B	2	50	270X	
			IZMI	1112.1	1112.2	III	B	1	200	270X	
			IZMI	1138.9	1139.4	III	GG,U	2	115	270X	
			SVTO	1139.0	1142.0	III		1	56	180	
			IZMI	1141.3	1143.0	III	G	2	50	180	
			IZMI	1146.7	1147.3	III	GG	2	125	270X	
	0720	1505	BLEN	1254.4	1301.5	III	GG,RS,C	3	100X	4000X	
			ONDR	1255.3	1259.2	DCIM	G	1	800X	4500X	
			ONDR	1255.4	1259.2	DCIM	G	1	2000X	4500X	
			SGMR	1257.0	1258.0	III		1	30	80	
			SVTO	1257.0	1258.0	III		2	28U	180U	
			HOLL	1443.0	1610.0	CONT		1	109	180	
			HOLL	1608.0	1614.0	III		2	25	180	
			SGMR	1609.0	1611.0	III		2	30	80	
			HOLL	1945.0	2047.0	III	N	2	25	180	
			PALE	1956.0	1957.0	III		1	25	66	
	2000	2400	CULG	2001.0	2002.0	III	G	1	20	70	
			CULG	2015.0	2016.0	III	B	1	18	460	
			PALE	2015.0	2015.0	III		1	25	180	
			CULG	2017.0	2020.0	III	G	1	18	45	
			HOLL	2042.0	2047.0	III		2	25	180	
			CULG	2043.0	2048.0	III	G	3	18X	1500	

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OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
05			SGMR	2043.0	2045.0	III		2	30	80	
			PALE	2044.0	2047.0	III		2	25	180	
			PALE	2045.0	2046.0	V		1	25	51	
			HOLL	2222.0	2224.0	III		1	25	149	
	2104	2400	HIRA	2222.5	2224.5	III	G	1	25X	280	
			CULG	2223.0	2225.0	III	G	1	18	90	
			LEAR	2224.0	2224.0	III		1	25	180	
			HIRA	2253.0	2254.0	III	G	1	40	130	
			LEAR	2253.0	2253.0	III		1	25	180	
			PALE	2253.0	2253.0	III		1	66	180	
06			LEAR	0050.0	1020.0	III	N	2	25	180	
			PALE	0050.0	0337.0	III	N	1	25	180	
	0000	0750	CULG	0050.0	0053.0	III	G	1	20	80	
	0000	0738	HIRA	0050.5	0053.0	III	G	1	25X	210	
			CULG	0107.0	0108.0	III	G	2	18X	300	
			HIRA	0107.5	0108.0	III	B	3	25X	300	
			HIRA	0122.5	0123.0	III	B	1	25X	200	
			CULG	0123.0	0123.0	III	B	1	18	70	
			HIRA	0133.5	0135.0	III	G	2	25X	310	
			CULG	0134.0	0135.0	III	G	1	18X	250	
			CULG	0258.0	0259.0	III	G	3	18X	280	
			HIRA	0258.0	0259.0	III	B	3	25X	200	
			CULG	0425.0	0425.0	III	B	1	50	170	
			HIRA	0425.0	0425.5	III	B	1	50	110	
			CULG	0447.0	0447.0	III	B	1	20	140	
			CULG	0519.0	0535.0	CONT		1	380	680	
			CULG	0519.0	0552.0	III	N	1	18	180	
			HIRA	0519.0	0520.0	III	B	1	50	170	
			CULG	0538.0	0548.0	II	SH	1	35	70	ESS 700
			LEAR	0538.0	0546.0	II		2	25	63	ESS 0405
			CULG	0539.0	0544.0	II	FN	1	18	30	
			HIRA	0539.0	0544.0	II		1	30	60	
			LEAR	0547.0	1020.0	CONT		1	25	148	
			SVTO	0606.0	1002.0	CONT		1	25	180	
			SVTO	0630.0	0631.0	III		2	25U	180U	
			CULG	0631.0	0632.0	III	G	1	18	420	
			HIRA	0631.0	0632.0	III	G	1	50	380	
	0654	1200	IZMI	0654.0E	1150.0	I	N	1	120	260	
	0721	1410	ONDR								
			CULG	0728.0	0728.0	III	B	1	25	90	
			IZMI	0728.1	0728.3	III	G	1	40	95	
			CULG	0746.0	0746.0	III	B	1	30	90	
			IZMI	0746.2	0746.4	III	G	1	45	140	
			IZMI	0825.4	0825.8	III	G	2	45	120	
			IZMI	0846.7	0846.8	III	B	1	80	100	
			IZMI	0904.3	0907.7	III	GG	1	45	215	
			SVTO	1344.0	1350.0	III		2	25	180	
	0720	1505	BLEN	1346.7	1350.2	III	GG,RS	1	130	1100	
			BLEN	1437.1	1441.3	III	GG,RS	3	190	1900	
			BLEN	1459.2	1459.8	III	GG	2	270	700	
			HOLL	1517.0	1518.0	III		1	25	180	
			SGMR	1517.0	1518.0	III		2	30	80	
			SVTO	1517.0	1518.0	III		1	52U	180U	
			HOLL	1537.0	1538.0	III		1	25	180	
			HOLL	1640.0	1643.0	III		2	25	180	
			SGMR	1641.0	1643.0	V		3	30	80	
			HOLL	1941.0	1947.0	III		1	25	162	
			PALE	1941.0	1946.0	III		1	25	180	
			SGMR	1942.0	1946.0	III		2	30	60	
	2000	2400	CULG	2020.0	2026.0	III	G	1	18	90	
	2105	2400	HIRA								
			CULG	2136.0	2204.0	III	N	1	18	260	
			CULG	2137.0	2140.0	III	G	1	18	800	
			HOLL	2137.0	2157.0	III	N	1	25	143	
			CULG	2209.0	2337.0	III	S,C	1	20	160	
07			LEAR	0234.0	0234.0	III		1	25	180	
			PALE	0234.0	0234.0	III		1	25	180	

SOLAR RADIO EMISSION
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OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
07	0000	0737	HIRA	0234.0	0235.0	III	G	2	25X	250	
	0000	0750	CULG	0234.0	0235.0	III	G	2	18X	180	
			CULG	0315.0	0317.0	III	G	1	27U	90	
			CULG	0408.0	0411.0	III	G	1	20	160	
			HIRA	0409.0	0409.5	III	B	1	40	130	
			LEAR	0409.0	0410.0	III		1	25	180	
			CULG	0535.0	0535.0	III	B	1	18	180	
			HIRA	0535.0	0535.5	III	B	1	25X	200	
			LEAR	0535.0	1017.0	III	N	1	25	180	
	0723	1408	ONDR								
	0650	1200	IZMI	0749.4	0749.5	III	G	1	110	165	
			IZMI	0830.0	1149.0U	I	S	1	110	270X	
	0720	1505	BLEN	0850.0	1200.0	I	DC	1	120	250	
			SVTO	0858.0	0858.0	III		1	25U	62U	
			IZMI	0858.2	0858.4	III	G	2	25X	220	
			IZMI	0858.4	0858.7	V		2	30	60	
			IZMI	1056.1	1056.3	III	G,C	1	35	90	
			IZMI	1100.4	1100.8	III	G	1	40	95	
			IZMI	1110.0	1110.3	III	G	2	45	120	
			IZMI	1133.8	1134.4	III	G	2	25X	165	
			SGMR	1135.0	1143.0	III		2	30	50	
			IZMI	1142.1	1145.1	III	GG,C	2	25X	270X	
			SVTO	1143.0	1232.0	III	N	2	25	180	
			IZMI	1148.3	1148.4	III	GG	1	40	65	
			IZMI	1154.2	1154.9	III	G	2	35	270X	
			IZMI	1155.5	1158.8	III	GG	2	25X	270X	
			SGMR	1232.0	1232.0	III		1	30	50	
			SGMR	1331.0	1332.0	III		1	30	55	
			SVTO	1331.0	1337.0	III		1	25	180	
			HOLL	1423.0	1425.0	III		1	25	180	
			SVTO	1423.0	1425.0	III		2	34U	180U	
			HOLL	1637.0	1640.0	III		1	25	180	
			HOLL	1724.0	1728.0	III		1	25	138	
			HOLL	2048.0	2048.0	III		1	58	180	
			PALE	2048.0	2048.0	III		1	66	180	
	2000	2400	CULG	2048.0	2049.0	III	G	1	57	180	
			CULG	2146.0	2146.0	III	B	1	57	100	
			HOLL	2146.0	2146.0	III		1	68	86	
	2106	2400	HIRA	2146.0	2147.0	III	B	1	50	100	
			LEAR	2242.0	2330.0	III	N	1	25	180	
			CULG	2313.0	2315.0	III	G	1	57	180	
			HIRA	2313.0	2313.5	III	B	1	60	170	
			CULG	2330.0	2331.0	III	G	1	18X	180	
			HOLL	2330.0	2330.0	III		1	43	162	
			HIRA	2330.5	2331.0	III	B	2	25X	120	
08			LEAR	0151.0	0201.0	III		1	25	162	
	0000	0750	CULG	0201.0	0202.0	III	G	1	18	150	
			CULG	0214.0	0216.0	III	G	1	18	180	
			LEAR	0214.0	0215.0	III		1	25	180	
	0000	0736	HIRA	0214.0	0216.0	III	G	1	25X	200	
			CULG	0503.0	0513.0	III	GG	1	18	180	
			HIRA	0503.0	0512.0	III	G	1	50	200	
			LEAR	0503.0	0512.0	III		1	25	180	
			CULG	0535.0	0537.0	III	G	1	35	170	
			HIRA	0535.0	0537.0	III	G	1	60	190	
			LEAR	0535.0	0537.0	III		1	42	180	
	0650	1200	IZMI	0651.7	1658.4	III	GG	1	45	85	
	0720	1505	BLEN								
	0725	1406	ONDR								
			LEAR	0824.0	0825.0	III		1	25	144	
			SVTO	0824.0	0825.0	III		1	30U	140U	
			IZMI	0824.3E	0825.6	III	GG	2	40	160	
			IZMI	0949.5	0952.0	III	GG	1	110	210	
			SVTO	0957.0	0958.0	III		1	29U	150U	
			IZMI	0957.7	0959.1	III	GG	2	25X	190	
			IZMI	1039.6	1041.1	III	G	1	45	90	
			IZMI	1113.1	1113.2	III	B	2	55	85	
			IZMI	1142.8	1143.0	III	B	1	45	65	

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08			IZMI	1157.2	1157.3	III	G	2	85	140	
			HOLL	1744.0	1745.0	III		1	25	167	
			PALE	1744.0	1848.0	III	N	1	25	180	
			HOLL	1747.0	1813.0	III	N	1	25	152	
	2000	2400	CULG								
	2107	2400	HIRA								
09	0000	0735	HIRA								
	0000	0750	CULG	0526.0	0527.0	III	G	1	18	90	
			CULG	0554.0	0747.0	III	N	1	27	140	
	0650	1200	IZMI	0658.1	0658.2	III	B	1	45	65	
			IZMI	0712.5	0713.1	III	G	1	120	240	
			IZMI	0718.8	0719.1	III	B	1	45	160	
			SVTO	0746.0	0746.0	III		1	25U	83U	
			IZMI	0746.4	0746.7	III	G,C	2	35	160	
			IZMI	0750.5	0750.7	III	B	1	45	90	
			IZMI	0937.5	0937.6	III	B	1	55	95	
			IZMI	1000.6	1006.8	III	B	1	55	90	
	0727	1404	ONDR	1147.5	1148.5	DCIM	G	1	2000X	4500X	
			SVTO	1307.0	1353.0	IV		2	25	180	
			ONDR	1307.2	1330.4	DCIM	GG,FS,SP	2	800X	2000X	
	0720	1505	BLEN	1308.9	1324.6	IV	P,F	3	100X	4000X	
			SGMR	1309.0	1336.0	IV		1	30	80	
			ONDR	1310.1	1328.1	DCIM	GG	2	2000X	4500X	
			SVTO	1317.0	1337.0	II		2	25U	85U	ESS 0707
			SGMR	1322.0	1325.0	II		2	30	65	ESS 0700
			HOLL	1402.0	1405.0	III		1	25	180	
			SVTO	1402.0	1405.0	III		1	44U	180U	
			SGMR	1405.0	1405.0	III		1	30	80	
			HOLL	1955.0	1955.0	III		1	25	137	
	2000	2400	CULG	2024.0	2028.0	III	G	1	27	90	
			LEAR	2307.0	2313.0	III		1	25	180	
			CULG	2309.0	2314.0	III	G	1	20	350	
			HOLL	2309.0	2310.0	III		1	25	180	
			PALE	2309.0	2310.0	III		1	25	180	
	2108	2400	HIRA	2309.0	2313.0	III	G	2	25X	310	
10			LEAR	0037.0	0038.0	III		1	25	180	
	0000	0800	CULG	0037.0	0040.0	III	G	1	23	180	
	0000	0734	HIRA	0037.5	0038.5	III	G	1	30	200	
			LEAR	0306.0	0315.0	III		3	25	180	
			PALE	0306.0	0316.0	III		2	25	180	
			HIRA	0306.5	0314.0	III	G	3	25X	240	
			CULG	0307.0	0313.0	III	GG	3	18X	800	
			CULG	0313.0	0319.0	III	G	1	23	480	
			LEAR	0314.0	0325.0	II		3	25	180	ESS 1035
			HIRA	0314.5	0329.0	II		3	25X	140	
			CULG	0316.0	0323.0	II	SH	3	40	100	ESS 800
			CULG	0317.0	0323.0	II	FN	3	18	50	
			PALE	0319.0	0325.0	II		2	25	180	ESS 0830
			CULG	0320.0	0334.0	II	FN	3	18	80	
			CULG	0320.0	0334.0	II	SH	3	40	160	ESS 600
			PALE	0325.0	0335.0	CONT		1	25	180	
			LEAR	0340.0	0926.0	III	N	1	25	180	
			CULG	0341.0	0341.0	III	B	1	23	90	
			CULG	0351.0	0354.0	III	G	1	20	90	
			CULG	0648.0	0648.0	III	G	1	25	90	
	0720	1505	BLEN								
			LEAR	0740.0	0743.0	III		2	25	180	
			SVTO	0740.0	0743.0	III		2	32U	180U	
	0701	1200	IZMI	0740.8	0741.7	III	GG,C	2	25X	270X	
			CULG	0741.0	0743.0	III	G	3	30	210	
			IZMI	0741.4	0742.5	V		2	45	95	
			IZMI	0742.6	0743.7	III	GG,C,FS	2	40	270X	
	0729	1402	ONDR	0846.3	0916.0	DCIM	GG	1	800X	2000X	
			IZMI	0847.0	0937.0U	I	S	1	150	270X	
			IZMI	0923.6	0923.7	III	B	1	55	90	
			IZMI	1026.1	1026.2	III	B	1	45	95	
			IZMI	1111.8	1111.8	III	B	1	80	95	

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10			SVTO	1145.0	1149.0	III		1	25	180	
			IZMI	1145.6	1149.3	III	GG,C	2	30	270X	
			SVTO	1211.0	1249.0	III	N	1	25	180	
			LEAR	2249.0	0601.0	III	N	1	25	180	
			HOLL	2256.0	2257.0	III		1	25	94	
	2000	2400	CULG	2256.0	2259.0	III	G	1	35	170	
	2109	2400	HIRA	2257.0	2258.0	III	B	1	30	110	
11	0000	0800	CULG	0007.0	0009.0	III	G	1	57	90	
	0000	0733	HIRA	0008.5	0009.0	III	B	1	80	210	
			CULG	0401.0	0403.0	III	G	1	200	450	
			HIRA	0401.5	0403.0	III	G	1	160	500	
	0658	1200	IZMI	0703.0	0703.2	III	B	2	45	95	
			HIRA	0712.5	0713.0	III	B	1	80	140	
			IZMI	0712.5	0712.7	II	G	2	80	175	
	0720	1505	BLEN								
	0731	1400	ONDR								
			CULG	0731.0	0741.0	III	GG	1	23	180	
			LEAR	0731.0	0930.0	III	N	2	25	180	
			IZMI	0731.2	0734.7	III	GG	2	30	270X	
			IZMI	0734.5	0735.4	UNCLF	C	2	55	85	
			SVTO	0735.0	0826.0	III	N	1	25	180	
			IZMI	0735.7	0741.3	III	GG,FS	2	40	270X	
			IZMI	0742.2	0751.0	III	N	1	45	95	
			IZMI	0746.4	0751.0	I	GG,C	2	50	90	
			IZMI	0808.8	0809.0	III	G	1	45	85	
			IZMI	0819.0	0833.5	III	N	1	45	95	
			IZMI	0822.3	0825.5	III	GG	1	45	95	
			IZMI	0926.6	0927.3	III	GG	2	40	155	
			IZMI	0956.1	0956.4	III	B	1	45	85	
			IZMI	1001.8	1002.2	III	G	1	45	90	
	1321	1453	POTS								100-200MHz no data
			HOLL	1518.0	1607.0	III	N	1	25	180	
			SGMR	1525.0	1525.0	III		1	30	80	
			SGMR	1605.0	1618.0	II		3	30	80	ESS 0900
	2135	2400	CULG	2155.0	2155.0	III	B	1	50U	90	
			LEAR	2254.0	2257.0	III		1	25	116	
			CULG	2255.0	2256.0	III	G	1	18	160	
			HOLL	2255.0	2256.0	III		1	25	151	
	2110	2400	HIRA	2256.0	2256.5	III	B	1	25X	110	
12			LEAR	0352.0	0356.0	III		1	25	159	
	0000	0800	CULG	0352.0	0413.0	III	G	1	23	160	
			LEAR	0356.0	0404.0	II		1	100	180	ESS 0547
			CULG	0357.0	0404.0	CONT		1	100	450	
			LEAR	0412.0	0412.0	III		1	46	155	
			CULG	0446.0	0446.0	III	B	1	40U	90	
			CULG	0707.0	0709.0	III	G	1	23	350	
			LEAR	0707.0	0709.0	III		1	25	96	
			SVTO	0707.0	0708.0	III		1	25U	124U	
	0000	0732	HIRA	0707.0	0708.0	III	G	1	50	100	
	0700	1200	IZMI	0707.1	0709.4	III	G,C	2	40	95	
	0650	1452	POTS	0707.2	0716.9	III	G,N	1	40X	85	100-200MHz no data
			CULG	0716.0	0717.0	III	G	1	25	100	
			IZMI	0716.2	0716.8	III	G,C	2	40	95	
	0720	1505	BLEN								
			CULG	0724.0	0726.0	III	G	1	50	100	
			IZMI	0724.3	0728.0	III	G	2	45	100	
	0734	1358	ONDR								
			CULG	0741.0	0743.0	III	G	2	23	140	
			LEAR	0741.0	0742.0	III		1	25	146	
			SVTO	0741.0	0741.0	III		2	25U	131U	
			IZMI	0741.3	0742.4	III	G	2	45	150	
			POTS	0741.3	0742.5	III	G	3	40X	85U	
			IZMI	0741.5	0742.0	V		2	45	70	
			POTS	1033.8	1034.1	III	B	1	40X	55	
			POTS	1202.6	1202.8	III	B	1	40X	60	
			SVTO	1346.0	1346.0	III		1	25U	83U	
			POTS	1346.4	1346.8	III	B	2	40X	85	

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12			SVTO	1420.0	1422.0	III		1	25U	79U	
			POTS	1420.3	1423.1	III	GG	2	40X	430	
			HOLL	1610.0	1611.0	III		1	25	122	
			HOLL	1849.0	1854.0	III		1	25	180	
			HOLL	1900.0	1911.0	II		1	53	85	ESS 0270
	2000	2400	CULG								
	2111	2400	HIRA								
13	0000	0732	HIRA								
			LEAR	0037.0	0037.0	III		1	25	98	
			LEAR	0212.0	0212.0	III		1	25	57	
	0000	0800	CULG	0212.0	0212.0	III	B	1	20	50	
			LEAR	0239.0	0351.0	III	N	1	25	99	
			CULG	0307.0	0307.0	III	B	1	18	80	
	0720	1505	BLEN								
	0737	1356	ONDR								
	0730	1449	POTS	0817.7	0818.9	III	G	1	200U	270	100-200MHz no data
	0650	1200	IZMI	0817.8	0818.0	III	G	1	110	220	
			POTS	0828.0	0828.6	I	S	1	200U	270	
			IZMI	1027.2	1027.6	III	B,C	2	50	90	
			POTS	1027.2	1027.6	III	B	2	50	85	
			IZMI	1037.7	1037.9	III	B	1	55	90	
			POTS	1110.3	1110.6	I	S	1	230	260	
			SVTO	1154.0	1204.0	III		1	33U	161U	
			IZMI	1154.5	1154.8	UNCLF		1	40	270X	
			POTS	1154.5	1155.8	III	G	2	40X	340	
			POTS	1201.3	1201.7	III	G	2	40X	230	
			POTS	1210.4	1210.6	III	B	1	40X	60	
			POTS	1304.7	1304.9	III	B	1	40X	60	
			POTS	1328.5	1328.7	III	B	1	40X	60	
			POTS	1404.8	1405.1	III	B	1	40X	85	
			HOLL	1707.0	1707.0	III		1	53	119	
	2112	2400	HIRA								
	2000	2400	CULG	2126.0	2132.0	III	G	1	25	90	
			LEAR	2350.0	1025.0	CONT		1	25	180	
14			LEAR	0211.0	0247.0	III	N	2	25	140	
	0000	0800	CULG	0211.0	0211.0	III	B	1	18	45	
	0000	0731	HIRA	0243.5	0248.0	III	G	1	25X	130	
			CULG	0244.0	0248.0	III	G	1	18X	90	
			LEAR	0538.0	0859.0	III	N	1	25	57	
			SVTO	0640.0	1511.0	CONT		1	25	180	
			IZMI	0700.0E	0837.0U	III	N	1	40	95	
	0700	1200	IZMI	0700.0E	1145.0U	I	N	1	50	270X	
	0733	1445	POTS	0733 E	1445 U	I	S,DC,C	2	200U	400U	100-200MHz no data
			POTS	0752.5	0752.7	III	B	1	40X	55	
			POTS	0805.4	0810.0	III	G	1	40X	60	
			POTS	0940.2	0942.6	III	B	1	40X	60	
	0738	1355	ONDR	1054.4	1055.5	DCIM	GG	2	800X	1822	
			ONDR	1109.1	1112.2	DCIM	GG,FS	2	800X	2000X	
			ONDR	1109.2	1109.5	DCIM	G	1	2000X	4500X	
	0720	1500	BLEN	1109.3	1110.0	III	GG,C,RS	3	340	4000X	
			BLEN	1111.7	1405.0	I	DC	2	230	550	
			POTS	1334.3	1344.7	DCIM		2	300	620	
			POTS	1342.1	1344.6	III	G	2	200U	430U	
			POTS	1344.6	1409	III	GG,N	2	40X	85U	
			HOLL	1439.0	1730.0	CONT		1	35	180	
			HOLL	1703.0	1722.0	III	N	1	25	180	
			HOLL	1906.0	1908.0	III		1	52	136	
	2113	2400	HIRA								
	2000	2400	CULG	2223.0	2225.0	III	G	1	400	830	
15	0000	0730	HIRA								
			LEAR	0019.0	1026.0	III	N	1	25	180	
	0000	0800	CULG	0119.0	0130.0	CONT		1	200	750	
			CULG	0345.0	0800.0	III	S	1	30	150	
			SVTO	0556.0	1510.0	CONT		1	25	180	
			IZMI	0702.0E	1200.0D	III	N	1	40	95	
	0702	1200	IZMI	0702.0E	1200.0D	I	S	1	60	270X	

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15			IZMI	0709.0	0709.2	III	B	1	45	90	
	0737	1441	POTS	0737 E	1441 U	I	S,DC	2	200U	400U	100-200MHz no data
	0740	1353	ONDR								
			POTS	0744.5	0750.0	UNCLF		1	40X	55	
			POTS	0809.5	1404 U	III	GG,N	2	40X	80	
			IZMI	0816.2	0816.3	III	B	2	40	65	
			IZMI	0844.4	0844.5	III	B	2	40	60	
			IZMI	0856.0	0856.6	III	G	2	30	95	
			SVTO	0856.0	0856.0	V		2	25U	84U	
			IZMI	0907.9	0908.4	III	G	1	55	155	
			IZMI	0954.4	0954.8	III	G,C	1	50	160	
			IZMI	1012.5	1012.7	III	B	2	55	65	
			IZMI	1036.4	1036.7	III	G	2	40	65	
			IZMI	1136.1	1136.5	III	B,C	2	35	65	
	0730	1500	BLEN	1208.7	1209.2	III	G	1	850	1200	
			HOLL	1527.0	2340.0	CONT		1	50	180	
			HOLL	1536.0	1537.0	III		1	25	134	
			PALE	1820.0	2111.0	CONT		1	64	180	
	2000	2400	CULG	2012.0	2048.0	III	N	1	20	50	
	2114	2400	HIRA								
			CULG	2145.0	2145.0	III	B	1	18	50	
			LEAR	2151.0	1026.0	CONT		1	25	180	
			CULG	2204.0	2204.0	III	B	1	18	30	
			CULG	2345.0	2400.0D	III	N	1	18	45	
16	0000	0800	CULG	0000.0E	0006.0	III	N	1	18	35	
			CULG	0152.0	0152.0	III	B	1	18	40	
			CULG	0337.0	0445.0	I	S	1	110	160	
			CULG	0345.0	0345.0	III	B	1	27	90	
			CULG	0505.0	0513.0	III	G	1	18	57	
	0000	0729	HIRA	0616.5	0617.0	III	B	1	50	100	
			CULG	0617.0	0617.0	III	B	1	18	75	
			SVTO	0655.0	1509.0	CONT		1	31U	180U	
			IZMI	0700.0E	1200.0D	I	S	1	120	270X	
	0700	1200	IZMI	0700.0E	1142.0U	III	N	1	40	95	
			IZMI	0701.8	0702.1	III	G	2	40	85	
	0650	0742	POTS	0701.8	0708.3	III	G	2	40X	85U	only 40-100MHz
			CULG	0702.0	0702.0	III	B	1	18	57	
			CULG	0715.0	0735.0	III	N	1	20	50	
			CULG	0716.0	0743.0	UNCLF		1	23	40	
	0742	1438	POTS	0742 E	1438 U	I	S,DC,C	2	200U	470U	100-200MHz no data
			POTS	0824.9	0825.8	III	G	2	40X	70	
			POTS	0848	0859	III	G,N	2	40X	60	
			POTS	0914	1000	III	GG,N	2	40X	80	
			IZMI	0920.7	0924.6	III	G	1	40	95	
			IZMI	0939.2	0943.0	III	G	2	40	100	
			IZMI	0955.2	0956.0	III	G	2	40	220	
			IZMI	0957.3	0959.3	III	G	1	45	65	
			POTS	1015	1034	III	G,N	2	40X	60	
			POTS	1049	1106	III	G,N	2	40X	80	
			IZMI	1052.0	1053.0	III	G	1	45	65	
			POTS	1059.3	1101.2	DCIM	RS	2	320	800X	
	0742	1351	ONDR	1059.4	1102.2	DCIM	G	1	2000X	4500X	
	0750	1450	BLEN	1059.5	1101.7	III	GG,RS,C	3	300	4000X	
			IZMI	1103.3	1105.2	III	G	1	45	65	
			POTS	1125	1155	III	G,N	1	40X	55	
			SVTO	1136.0	1136.0	III		1	29	149	
			IZMI	1136.3	1136.6	III	G	2	35	240	
			POTS	1136.3	1136.8	III	B	3	40X	270U	
			POTS	1145.0	1145.8	DCIM		2	370	500	
			SVTO	1221.0	1222.0	III		2	34U	180U	
			POTS	1221.7	1223.0	III	G	2	40X	450	
			POTS	1343	1358	III	G,N	1	40X	55	
			BLEN	1357.7	1358.7	DCIM	C	2	2200	4000X	
	2000	2400	CULG	2008.0	2008.0	III	B	1	27	45	
			LEAR	2305.0	2315.0	III		1	25	180	
			CULG	2306.0	2306.0	III	B	1	18	40	
			HOLL	2314.0	2314.0	III		1	25	180	
	2115	2400	HIRA	2314.5	2315.0	III	B	2	30	230	

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16			CULG	2315.0	2315.0	III	B	1	18	57	
17			LEAR	0005.0	0007.0	III		1	28	54	
	0000	0800	CULG	0006.0	0006.0	III	B	1	27	40	
			CULG	0251.0	0252.0	III	G	1	300	500	
			CULG	0416.0	0800.0D	I	S	1	200	280	
			CULG	0503.0	0507.0	III	G	1	18	420	
			LEAR	0503.0	0506.0	III		1	25	180	
	0000	0658	HIRA	0504.0	0507.0	III	G	2	30	380	
			IZMI	0650.0	0654.2	III	GG	1	45	180	
			IZMI	0650.0E	1200.0D	III	N	1	40	95	
	0650	1200	IZMI	0650.0E	1200.0D	I	S,DC,C	2	80	270X	
			IZMI	0707.8	0711.4	III	GG	1	45	180	
	0700	0744	POTS	0709.6	0717.0	III	G,N	1	40X	70	only 40-100MHz
			IZMI	0714.3	0721.8	III	GG	2	40	170	
			SVTO	0724.0	1508.0	CONT		1	75U	180U	
	0744	1159	POTS	0744 E	1159 U	I	S,DC,C	2	200U	450U	100-200MHz no data
	0744	1349	ONDR								
			POTS	0803	0942	III	GG,N	1	40X	75	
			IZMI	0818.6	0818.7	III	B	2	45	65	
			LEAR	0820.0	1027.0	CONT		1	65	180	
			IZMI	0931.7	0933.2	III	GG	1	40	90	
			POTS	0955	1005	DCIM		1	330	530U	
			POTS	1018	1032	III	G,N	1	40X	60	
			IZMI	1026.1	1027.1	III	G	2	25X	220	
			POTS	1026.3	1027.2	III	G	2	40X	240	
			SVTO	1220.0	1220.0	III		2	25	47	
	0750	1450	BLEN	1231.3	1236.8	DCIM	P	3	300	4000X	
			HOLL	1404.0	2100.0	CONT		1	106	180	
			HOLL	1510.0	1510.0	III		1	107	180	
			HOLL	1706.0	1706.0	III		1	122	180	
			PALE	1706.0	1706.0	III		1	87	180	
	2000	2400	CULG	2134.0	2139.0	III	GG	1	100	1000	
			HOLL	2135.0	2135.0	III		1	105	180	
			PALE	2135.0	2135.0	III		1	97	157	
			LEAR	2150.0	1027.0	CONT		1	87	180	
			LEAR	2305.0	2315.0	III		1	25	180	
18			LEAR	0033.0	0320.0	III	N	1	25	75	
	0046	0728	HIRA	0203.5	0206.5	III	G	3	30	300	
			LEAR	0204.0	0206.0	III		3	25	180	
			PALE	0204.0	0205.0	III		2	25	180	
	0000	0800	CULG	0204.0	0210.0	III	GG	1	18	1300	
			CULG	0241.0	0241.0	III	B	1	18	50	
			SVTO	0600.0	1507.0	CONT		1	25	180	
	0702	1200	IZMI	0702.0E	1200.0D	I	S	1	120	270X	
			CULG	0710.0	0710.0	III	B	1	370	620	
	0746	1347	ONDR								
	0748	1431	POTS	0748 E	1431 U	I	S,DC,C	2	200U	400U	100-200MHz no data
			IZMI	0826.7	0826.9	III	B,FS	1	45	90	
			IZMI	1005.2	1005.3	III	B	1	45	85	
			POTS	1005.3	1005.4	III	B	1	40X	75	
			IZMI	1022.8	1023.0	III	B	1	50	65	
			IZMI	1116.3	1116.4	III	B	1	50	85	
			POTS	1116.3	1116.6	III	B	1	40X	60	
	0750	1450	BLEN	1202.3	1207.6	DCIM	P	1	400	1600	
			BLEN	1306.5	1307.0	III	GG,RS,C	2	180	4000X	
			POTS	1306.5	1307.0	III	G	2	50	430	
			POTS	1326.2	1326.4	III	B	2	40X	80	
	2000	2400	CULG	2006.0	2032.0	III	N	1	20	45	
	2122	2205	HIRA								
			LEAR	2330.0	0720.0	CONT		1	76	180	
19			LEAR	0300.0	1028.0	III	N	1	25	180	
	0000	0800	CULG	0308.0	0308.0	III	B	1	18	90	
			CULG	0328.0	0328.0	III	B	1	18	80	
			CULG	0505.0	0505.0	III	B	1	20	45	
			SVTO	0601.0	0700.0	CONT		1	25	168	
	0132	0728	HIRA	0614.5	0616.0	III	G	1	30	120	

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19			CULG	0615.0	0800.0D	III	N	1	18	57	
			SVTO	0702.0	0821.0	III	N	1	25	124	
	0653	1200	IZMI	0702.2	0702.5	III	B	2	25X	100	
	0700	0751	POTS	0702.2	0702.5	III	B	2	40X	85	only 40-100MHz
			POTS	0726.3	0727.7	III	G	2	40X	85	only 40-100MHz
			IZMI	0726.4	0727.6	III	G	2	35	85	
			IZMI	0744.0	0747.5	III	G	2	35	95	
			POTS	0744.0	0744.4	III	G	2	40X	85	only 40-100MHz
	0751	1428	POTS	0751 E	1428 U	I	S,N,DC	2	200U	430	100-200MHz no data
			IZMI	0758.3	0758.4	III	B	1	45	90	
	0800	1450	BLEN								
			IZMI	0801.9	0802.2	III	G	2	40	95	
			POTS	0801.9	0802.4	III	B	2	40X	85	
			IZMI	0821.5	0821.7	I	GG	2	150	175	
			IZMI	0821.6	0821.8	III	G	2	45	90	
	0822	1346	ONDR								
			POTS	0859	0918	III	G,N	2	40X	70	
			IZMI	0859.0	0859.8	III	G	1	45	65	
			IZMI	0903.0	0903.1	III	B	1	30	65	
			SVTO	0903.0	0903.0	III		1	32U	42U	
			IZMI	0905.0U	1200.0D	I	S	1	180	270X	
			IZMI	0911.0	0942.0	III	N	1	45	95	
			IZMI	0916.4	0917.6	III	G	2	40	90	
			IZMI	0947.8	0947.9	III	B	1	45	95	
			SVTO	0955.0	0956.0	III		2	29U	84U	
			POTS	0955.5	0957.6	III	G	3	40X	85U	
			IZMI	0955.7	0957.5	III	GG,C	2	25X	100	
			IZMI	1038.2	1038.2	III	B	1	130	210	
			IZMI	1056.6	1056.9	III	G	1	45	65	
			POTS	1056.6	1057.1	III	G	2	40X	60	
			IZMI	1119.1	1119.2	III	B	2	40	65	
			POTS	1119.1	1119.3	III	B	2	40X	80	
			IZMI	1136.6	1150.2	III	S	2	110	270X	
			SVTO	1138.0	1139.0	V		1	25U	82U	
			IZMI	1138.5	1141.5	III	G	2	30	90	
			POTS	1138.5	1148.2	III	G,N	2	40X	380	
			IZMI	1147.4	1147.4	III	B	1	55	85	
			POTS	1209.1	1211.2	III	G,N	2	40X	85	
			POTS	1305	1322	III	G,N	2	40X	80	
			HOLL	1915.0	1916.0	III		1	25	177	
			PALE	1916.0	1916.0	III		1	69	180	
	2118	2400	HIRA								
	2000	2400	CULG	2122.0	2122.0	III	B	1	20	30	
20			LEAR	0140.0	0140.0	III		1	27	88	
			LEAR	0208.0	0219.0	III	N	1	25	76	
	0000	0800	CULG	0308.0	0308.0	III	G	1	360	470	
			CULG	0331.0	0331.0	III	B	1	100	300	
	0000	0727	HIRA	0331.0	0331.5	III	B	1	200	310	
			SVTO	0603.0	0720.0	III	N	1	25	74	
	0658	1200	IZMI	0658.0E	1200.0D	I	S	1	110	270X	
			LEAR	0708.0	0709.0	III		1	25	78	
			IZMI	0708.6	0708.9	III	G,C	2	40	95	
			CULG	0709.0	0709.0	III	B	1	30	50	
			IZMI	0732.5	0732.8	III	G	1	130	270	
			IZMI	0742.3	0742.8	III	G	2	190	270X	
	0753	1426	POTS	0753 E	1426 U	I	S,N,DC	2	200U	400U	100-200MHz no data
	0757	1344	ONDR								
	0805	1450	BLEN								
			IZMI	0834.0	0834.1	III	B	1	45	85	
			SVTO	0859.0	0900.0	III		1	48U	83U	
			IZMI	0859.9	0900.3	III	B	2	45	90	
			POTS	0859.9	0900.4	III	G	2	40X	85U	
			LEAR	0900.0	0900.0	III		1	48	120	
			SVTO	0950.0	0951.0	III		1	30U	81U	
			IZMI	0950.8	0951.2	III	G,U	2	40	95	
			POTS	0950.8	0951.3	III	B	3	40X	60	
			POTS	1014.4	1014.5	III	B	1	40X	55	
			POTS	1027.0	1027.6	III	B	3	40X	75	

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20			SVTO	1027.0	1356.0	III	N	1	34U	180U	
			IZMI	1027.1	1027.4	III	G,C	2	25X	70	
			IZMI	1030.1	1030.6	III	G	2	120	270X	
			POTS	1030.1	1030.3	III	G,U	2	200U	370	
			POTS	1035.5	1036.6	III	G	2	40X	70	
			IZMI	1035.8	1037.0	III	G	1	30	65	
			IZMI	1048.7	1049.0	III	G	2	40	85	
			POTS	1048.7	1049.1	III	G	2	40X	75	
			IZMI	1058.8	1100.2	III	GG	2	110	270X	
			POTS	1058.8	1100.0	III	GG	3	200U	550	
			IZMI	1110.5	1110.7	III	B	1	60	95	
			IZMI	1117.4	1117.5	III	B	1	160	270X	
			IZMI	1119.2	1121.5	III	G	2	60	220	
			IZMI	1142.5	1142.6	III	B	2	120	175	
			POTS	1212.0	1213.1	III	G	2	40X	85U	
			POTS	1234.1	1234.5	III	B	2	40X	320	
			POTS	1335.0	1335.1	III	B	2	200U	390	
			POTS	1346.6	1346.9	III	B	2	40X	85U	
			HOLL	1446.0	1446.0	III		1	25	86	
	1426	1450	POTS	1446.6	1446.9	III	B	2	40X	80	only 40-100MHz
			HOLL	1821.0	1822.0	III		1	25	90	
			PALE	1822.0	1822.0	III		1	25	82	
			SGMR	1822.0	1822.0	III		1	30	50	
	2000	2400	CULG	2045.0	2046.0	III	G	1	20	40	
			CULG	2102.0	2102.0	III	B	1	20	40	
	2119	2400	HIRA								
21	0000	0727	HIRA								
			LEAR	0117.0	0117.0	III		1	25	95	
	0000	0800	CULG	0208.0	0208.0	III	B	1	20	45	
			CULG	0242.0	0245.0	III	G	1	18	35	
			LEAR	0242.0	0244.0	III		1	25	88	
			CULG	0629.0	0633.0	III	G	1	23	80	
			CULG	0725.0	0726.0	III	G	1	18	75	
	0805	1450	BLEN								
	0650	1200	IZMI	0831.0	0831.0	III	B	1	45	65	
	0754	1423	POTS	0846	0854	I	S,N	1	280	360	100-200MHz no data
			POTS	0913.7	0914.0	III	B	1	40X	55	
			POTS	0929 U	0948	I	S,N	1	240	380	
			POTS	1010	1132 U	I	S,N	1	240	400	
			IZMI	1109.3	1109.7	III	G	1	55	90	
			POTS	1109.4	1109.9	III	B	1	40X	75	
			IZMI	1143.5	1143.6	III	G,U	2	60	215	
			POTS	1143.6	1144.0	III	B	2	40X	320	
			POTS	1158	1242	I	S,N	1	240	350	
	0753	1342	ONDR	1243.0	1244.0	DCIM	G,W	1	2283	4500X	
			ONDR	1243.1	1245.0	DCIM	GG	2	800X	2000X	
			POTS	1256	1420 U	I	S,N,DC	2	200U	420	
			POTS	1349.4	1349.7	III	B	1	40X	55	
	2000	2400	CULG								
	2120	2400	HIRA								
22			LEAR	0001.0	0002.0	III		1	25	180	
	0000	0800	CULG	0002.0	0002.0	III	B	1	23	180	
			CULG	0029.0	0031.0	III	G	1	23	180	
	0000	0727	HIRA	0029.5	0030.5	III	G	1	50	200	
			LEAR	0036.0	0715.0	III	N	1	25	180	
			CULG	0047.0	0047.0	III	B	1	18	160	
			CULG	0139.0	0139.0	III	B	1	20	160	
			HIRA	0436.0	0436.5	III	B	1	40	120	
			CULG	0437.0	0437.0	III	B	1	20	160	
	0704	1200	IZMI	0732.5	0732.7	III	B	1	45	90	
			IZMI	0738.2	0738.3	III	G	1	90	170	
			IZMI	0749.6	0751.0	III	G,C	1	45	85	
	0748	0757	POTS	0749.8	0750.1	III	G	2	40X	85U	only 40-100MHz
			CULG	0750.0	0751.0	III	G	1	25	75	
	0810	1450	BLEN								
			IZMI	0813.4	0815.2	III	G	1	45	85	
			SVTO	0824.0	0830.0	III		1	25U	82U	

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22			IZMI	1047.4	1048.3	III	G	1	110	215	
	0757	1423	POTS	1106.6	1107.0	III	B	2	40X	70	100-200MHz no data
			POTS	1131.7	1132.0	III	B	1	40X	55	
			POTS	1145.8	1146.2	III	B	2	40X	60	
			POTS	1212.8	1213.0	III	B	1	40X	75	
			POTS	1225	1249	DCIM		1	330	600	
			POTS	1225 U	1313	I	S,N	1	200U	380	
			POTS	1229.5	1229.8	III	B	1	45	60	
			POTS	1317.8	1318.1	III	B	1	40X	60	
	0755	1341	ONDR	1329.1	1330.1	DCIM	G,W	1	2410	4500X	
			HOLL	1544.0	1544.0	III		1	25U	86U	
			SGMR	1544.0	1544.0	III		1	30	45	
			HOLL	1649.0	1651.0	III		1	68	131	
			HOLL	1940.0	1943.0	III		1	110	180	
	2000	2400	CULG	2011.0	2012.0	III	G	1	20	30	
	2121	2400	HIRA								
23	0000	0800	CULG	0120.0	0122.0	III	G	1	550	760	
	0000	0726	HIRA	0130.5	0131.0	III	B	2	50	210	
			CULG	0131.0	0131.0	III	G	1	27	200	
			CULG	0224.0	0228.0	III	G	1	18	75	
			CULG	0308.0	0309.0	III	G	1	27	280	
			HIRA	0308.0	0309.0	III	G	1	100	260	
			HIRA	0528.5	0530.5	III	G	1	30	220	
			CULG	0529.0	0532.0	III	G	1	18	200	
			HIRA	0623.0	0623.5	III	B	1	100	170	
	0705	1200	IZMI	0727.0	0749.0	I	N	1	200	270X	
	0758	1423	POTS	0804 U	0822	I	S,N	1	240	400	100-200MHz no data
			POTS	0839.6	0843.6	DCIM		2	310	500	
			ONDR	0841.4	0842.3	DCIM	G	2	800X	2000X	
	0757	1339	ONDR	0841.4	0842.3	DCIM	G,W	1	2000X	4500X	
	0810	1450	BLEN	0841.7	0842.7	III	GG,RS,C	3	300	4000X	
			IZMI	0848.0	0848.6	III	G,FS	2	55	240	
			POTS	0848.0	0849.9	III	G	2	40X	390	
			POTS	0938	1327 U	I	S,N,DC	2	200U	400	
			IZMI	0948.0	0948.1	III	G	1	110	175	
			IZMI	0950.1	0950.6	III	G	1	85	160	
			POTS	1000.0	1000.3	III	B	3	200U	480	
			IZMI	1000.1	1000.3	III	G	2	190	270X	
			POTS	1022.2	1022.4	III	B	2	200U	280	
			IZMI	1022.3	1022.4	III	G	2	95	240	
			IZMI	1027.0	1200.0D	I	S	1	180	270X	
			IZMI	1029.3	1029.4	III	G	1	130	270X	
			POTS	1029.3	1029.5	III	G	2	200U	390	
			POTS	1039.8	1040.1	III	B	1	40X	55	
			SVTO	1318.0	1407.0	III	N	1	34	135	
			POTS	1318.1	1318.5	III	G	2	40X	85	
			POTS	1340	1412 U	I	S,N,DC	2	240	380	
			BLEN	1355.3	1400.0	DCIM	P,C	2	980	4000X	
			HOLL	1529.0	1530.0	III		1	25	180	
	2122	2400	HIRA	2156.5	2157.0	III	B	1	90	200	
	2000	2400	CULG	2157.0	2157.0	III	B	1	100	180	
24	0000	0726	HIRA	0117.0	0117.5	III	B	1	50	200	
	0000	0800	CULG	0117.0	0118.0	III	G	1	50U	170	
			CULG	0246.0	0246.0	III	B	1	100	160	
			CULG	0510.0	0654.0	I	S	1	210	260	
			SVTO	0656.0	1013.0	III	N	1	74U	180U	
	0700	1200	IZMI	0700.0E	1058.0	I	N	2	200	270X	
			CULG	0733.0	0733.0	III	B	1	30	100	
			IZMI	0733.3	0733.7	III	G	2	45	100	
	0733	0759	POTS	0733.4	0733.7	III	B	2	50	85U	only 40-100MHz
			IZMI	0737.3	0737.5	III	G	1	45	95	
	0759	1338	ONDR								
	0759	1420	POTS	0759 E	1420 U	I	S,DC,N	2	200U	440	100-200MHz no data
			IZMI	0812.2	0812.4	III	B	2	45	85	
			POTS	0812.2	0812.4	III	B	1	40X	60	
	0815	1450	BLEN	0815.0X	1450.0X	I	DC	2	150	400	
			SVTO	0836.0	0836.0	III		2	25	180	

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

NOVEMBER 2002

Day	OBSERVATION Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
24			IZMI	0842.4	0842.6	III	G	1	110	190	
			IZMI	0903.5	0903.7	III	G,FS	2	45	190	
			POTS	0903.6	0903.8	III	G	2	40X	80	
			IZMI	0927.6	0927.8	III	G	2	180	270X	
			POTS	0927.6	0927.8	III	B	2	200U	310	
			HOLL	1536.0	1537.0	III		1	25	173	
	2000	2400	CULG	2003.0	2003.0	III	B	1	20	35	
			CULG	2006.0	2016.0	II	UE	1	18	35	
			CULG	2034.0	2036.0	III	G	1	23	75	
	2123	2400	HIRA								
25	0000	0800	CULG	0121.0	0125.0	III	G	1	57	140	
			LEAR	0124.0	0124.0	III		1	25	138	
	0000	0726	HIRA	0124.5	0125.0	III	B	1	50	110	
			CULG	0219.0	0220.0	III	G	2	30	160	
			LEAR	0219.0	0220.0	III		2	25	165	
			HIRA	0219.5	0220.0	III	B	2	50	110	
			CULG	0253.0	0253.0	III	B	1	18	80	
			LEAR	0253.0	0253.0	III		1	25	131	
			CULG	0527.0	0527.0	III	B	1	57	180	
			SVTO	0651.0	0652.0	III		1	25	123	
	0651	1200	IZMI	0651.8	0652.6	III	G	2	40	125	
	0651	0800	POTS	0651.9	0652.3	III	B	2	40X	55U	only 40-100MHz
			CULG	0652.0	0653.0	III	G	1	18	110	
			HIRA	0652.0	0652.5	III	B	1	40	110	
			LEAR	0652.0	0652.0	III		1	25	109	
			IZMI	0743.0	1200.0D	I	S	2	50	270X	
	0800	1418	POTS	0800 E	1418 U	I	S,DC	2	200U	440	100-200MHz no data
			SVTO	0804.0	0804.0	III		1	25U	48U	
			IZMI	0804.3	0804.8	III	G,C	2	35	140	
			POTS	0804.3	0804.7	III	G	2	40X	85	
			SVTO	0820.0	0821.0	III		1	25	180	
			IZMI	1019.3	1019.8	III	GG	1	180	270X	
			POTS	1019.3	1021.7	III	GG	2	200U	420	
			POTS	1037.2	1043.3	III	GG,N	2	200U	450	
			ONDR	1040.4	1043.4	DCIM	GG	2	838	2000X	
	0801	1337	ONDR	1041.4	1042.3	DCIM	GG	2	2000X	3348	
	0815	1445	BLEN	1041.7	1043.8	DCIM	P	2	150	3000	
			IZMI	1042.0	1042.4	III	G,C	2	130	270X	
			POTS	1339	1352	I	S,DC	1	60	80	
	2124	2400	HIRA								
	2000	2400	CULG	2200.0	2200.0	III	B	1	18	180	
			CULG	2210.0	2210.0	III	B	1	18	90	
26	0000	0155	HIRA								
	0000	0800	CULG	0200.0	0352.0	I	S	1	200	400	
			CULG	0307.0	0307.0	III	B	1	57	200	
			CULG	0509.0	0741.0	I	S	1	200	330	
			CULG	0618.0	0623.0	III	G	1	50U	180	
	0534	0725	HIRA	0619.0	0623.0	III	G	1	50	130	
	0700	1200	IZMI	0700.0E	1200.0D	I	S	1	180	270X	
	0802	1417	POTS	0802 E	1417 U	I	S,N	1	200U	350	100-200MHz no data
	0804	1335	ONDR								
	0820	1445	BLEN								
			IZMI	0915.6	0915.8	III	G,HARM	2	55	210	
			LEAR	0921.0	0921.0	III		1	25	180	
			SVTO	0921.0	0921.0	III		2	25U	180U	
			IZMI	0921.4	0922.1	III	GG,C	2	40	270X	
			POTS	0921.4	0922.0	III	G	2	40X	400	
			IZMI	0924.4	0924.6	III	B	1	45	90	
			IZMI	1043.3	1043.5	III	G	1	60	175	
			SVTO	1210.0	1211.0	III		1	25U	83U	
			POTS	1210.2	1211.4	III	G	2	40X	75	
			HOLL	1623.0	1757.0	CONT		1	71	180	
			HOLL	1830.0	2005.0	III		1	70	180	
	2125	2400	HIRA								
	2000	2400	CULG	2143.0	2400.0D	I	S	1	130	230	
27	0000	0800	CULG	0000.0E	0041.0	I	S	1	150	280	

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Spectral Observations

NOVEMBER 2002

OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
27	0000	0725	HIRA	0110.5	0111.0	III	B	1	100	120	
			CULG	0111.0	0111.0	III	B	1	60	180	
			HIRA	0138.5	0139.0	III	B	1	130	210	
			LEAR	0202.0	0204.0	III		1	107	180	
			HIRA	0202.5	0204.5	III	G	2	100	320	
			CULG	0203.0	0205.0	III	G	2	100	340	
			LEAR	0659.0	0659.0	III		1	102	180	
			SVTO	0659.0	0659.0	III		2	112	156	
	0655	1202	IZMI	0659.4	0959.6	III	G,U	2	105	175	
			HIRA	0659.5	0700.0	III	B	2	100	140	
			CULG	0700.0	0700.0	III	B	1	100	170	
			IZMI	0702.4	0702.5	III	B	1	130	170	
			IZMI	0705.0	1202.0D	I	S	1	110	270X	
	0740	0902	POTS	0740 E	0902 U	I	S,N,DC	2	200U	400	100-200MHz no data
	0805	1334	ONDR								
			IZMI	0814.8	0814.9	UNCLF		2	45	65	
	0820	1445	BLEN								
			IZMI	1020.7	1021.1	III	B	2	45	85	
	1130	1416	POTS	1130 U	1416 U	I	S,N,DC	2	200U	450	100-200MHZ no data
			POTS	1323.0	1323.4	III	B	1	40X	70	
	2126	2400	HIRA								
	2000	2400	CULG	2319.0	2321.0	III	G	1	18	180	
28	0000	0800	CULG	0027.0	0027.0	III	B	1	20	30	
			CULG	0032.0	0032.0	III	B	1	400	1400	
			LEAR	0231.0	0231.0	III		1	44	97	
	0000	0725	HIRA	0231.5	0232.0	III	B	1	50	120	
			CULG	0232.0	0232.0	III	B	1	57	130	
			CULG	0248.0	0248.0	III	B	1	18	180	
			LEAR	0709.0	0710.0	III		1	25	121	
			SVTO	0709.0	0710.0	III		1	25U	83U	
			HIRA	0709.5	0710.0	III	B	1	70	110	
	0700	1200	IZMI	0709.6	0710.1	III	G	2	45	165	
	0709	0805	POTS	0709.9	0710.1	III	B	1	50	85U	only 40-100MHz
			CULG	0710.0	0710.0	III	G	1	18X	140	
			IZMI	0806.4	0810.3	III	G	1	45	90	
	0807	1333	ONDR								
			SVTO	0817.0	0818.0	III		1	25	43	
			IZMI	0817.6	0818.0	III	B	1	25	95	
	0820	1445	BLEN								
			IZMI	0824.5	0824.6	III	B	1	45	90	
			IZMI	0855.0	1200.0D	I	S	2	110	270X	
	0805	1418	POTS	0857	1247 U	I	S,DC	2	200U	380	100-200MHz no data
			IZMI	0931.6	0931.8	I	GG,DC	2	180	250	
			IZMI	1006.1	1006.3	III	G	1	45	90	
			POTS	1006.1	1006.3	III	B	1	40X	70	
			POTS	1222.1	1222.3	III	B	1	40X	60	
			POTS	1312	1324	I	S,N	1	250	320	
			POTS	1332.9	1333.2	III	G	1	45	70	
			PALE	1915.0	0310.0	III	N	1	25	180	
			HOLL	1916.0	1917.0	III		1	25	85	
			HOLL	2012.0	2012.0	III		1	25	54	
	2000	2400	CULG	2012.0	2012.0	III	B	1	20	50	
			CULG	2115.0	2115.0	III	B	1	18	75	
			HOLL	2115.0	2115.0	III		1	25	50	
			HOLL	2243.0	2244.0	III		1	25	92	
			LEAR	2243.0	2245.0	III		2	25	98	
			CULG	2244.0	2245.0	III	G	2	18X	260	
	2127	2400	HIRA	2244.0	2245.0	III	B	1	25X	100	
			LEAR	2353.0	2354.0	III		2	26	68	
			CULG	2354.0	2357.0	III	G	1	18	75	
			HIRA	2354.0	2354.5	III	B	1	25X	70	
			LEAR	2356.0	2356.0	III		1	27	62	
29			LEAR	0116.0	0119.0	V		3	25	78	
			PALE	0116.0	0118.0	V		1	25	47	
	0000	0800	CULG	0116.0	0119.0	III	G	2	18X	80	
	0000	0724	HIRA	0116.5	0119.0	III	G	1	25X	80	
			LEAR	0224.0	0229.0	III		1	26	89	

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

NOVEMBER 2002

OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
29			HIRA	0224.5	0228.5	III	G	1	30	100	
			CULG	0225.0	0229.0	III	G	1	18	90	
			CULG	0419.0	0431.0	III	G	1	18	75	
			HIRA	0419.0	0426.0	III	G	1	30	300	
			LEAR	0419.0	0420.0	III		2	25	64	
			LEAR	0420.0	0431.0	III		2	25	180	
	0655	1200	IZMI	0728.0U	1200.0D	I	N	1	200	270X	
	0806	1331	ONDR								
	0805	1413	POTS	0811.6	0811.8	III	B	1	40X	60	100-200MHz no data
	0820	1440	BLEN								
			POTS	0836	0838	I	S	1	200U	290	
			IZMI	0840.1	0840.3	III	G	1	45	270X	
			POTS	0840.1	0840.4	III	G	1	55	300	
			IZMI	0855.4	0855.4	III	B	2	220	270X	
			POTS	0855.4	0855.5	III	G	1	230	320	
			POTS	0913 U	0955	I	S,N	1	200U	320	
			IZMI	0952.6	0952.9	III	G	2	180	270X	
			POTS	0952.6	0953.0	III	G	2	200U	280	
			POTS	1006.5	1008.9	III	G	1	200U	390	
			POTS	1051	1408 U	I	S,N	1	200U	350	
			POTS	1110.8	1111.6	III	G	1	40X	60	
	2000	2400	CULG	2030.0	2030.0	III	B	1	20	35	
			CULG	2034.0	2036.0	III	G	1	18	65	
			PALE	2034.0	2035.0	III		1	25	61	
	2128	2400	HIRA	2323.5	2324.0	III	B	1	170	400	
30	0000	0800	CULG	0015.0	0017.0	III	G	1	50U	140	
			LEAR	0016.0	0016.0	III		1	25	180	
	0000	0723	HIRA	0016.0	0017.0	III	B	1	70	120	
	0700	1200	IZMI	0735.0U	1200.0D	I	N	1	170	270X	
	0807	1413	POTS	0807 E	1259 U	I	S,N	1	200U	350	100-200MHz no data
	0820	1440	BLEN								
	0811	1330	ONDR	1205.4	1206.0	DCIM	G	1	800X	1048	
	2000	2400	CULG								
	2129	2400	HIRA								

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

Frequency qualifiers:
- X = Extends beyond instrument range
- U = Uncertain frequency

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

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

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

SOLAR RADIO NOISE STORM AT 164 MHZ

FROM NANÇAY RADIOHELIOGRAPH

NOVEMBER 2002

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)
03/11/02	-1.09	-0.28	II	8H03 E	15H04 D
04/11/02	-0.03	+0.57	IV	8H03 E	15H04 D
05/11/02*	-0.23	-0.33	I	8H03 E	15H04 D
06/11/02*	+0.14	-0.11	I	8H03 E	15H04 D
07/11/02*	+0.56	-0.14	I	8H03 E	15H04 D
07/11/02*	+1.07	+0.59	I	8H03 E	12H33
14/11/02*	+0.31	-0.19	III	8H20 E	15H05 D
15/11/02*	+0.45	-0.06	III	8H04 E	15H05 D
16/11/02*	-1.09	-0.39	II	13H10	15H05 D
16/11/02*	+0.73	-0.40	II	8H04 E	15H05 D
16/11/02*	+1.15	+0.40	II	8H04 E	15H05 D
17/11/02*	-0.39	+0.37	III	8H05 E	15H06 D
17/11/02*	+0.90	-0.26	III	8H05 E	15H06 D
19/11/02*	+0.26	+0.73	I	8H05 E	15H06 D
19/11/02*	+1.57	+0.71	II	8H05 E	15H06 D
20/11/02*	+0.51	+0.70	I	8H05 E	15H06 D
21/11/02	-0.51	-0.33	I	8H28 E	15H07 D
23/11/02*	+1.29	+0.29	I	11H15	15H08 D
24/11/02*	+1.22	+0.68	III	13H53	15H07 D
25/11/02*	+1.32	+0.39	IV	8H06 E	15H07 D
26/11/02*	+1.12	-0.40	I	8H07 E	15H07 D
26/11/02*	+1.18	+0.88	I	13H42	15H07 D
27/11/02*	+1.35	-0.40	III	8H07 E	15H08 D
28/11/02*	+1.18	-0.78	III	8H08 E	15H09 D
30/11/02	-0.54	-0.14	I	8H08 E	12H50

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

NOISE STORM AT 327 MHZ

FROM NANÇAY RADIOHELIOGRAPH

NOVEMBER 2002

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY					
01/11/02	-0.64	+0.25	I	8H03 E	15H04 D
01/11/02	+0.45	-0.19	I	8H03 E	15H04 D
02/11/02	-0.40	+0.31	I	8H03 E	15H04 D
02/11/02	+0.68	+0.03	I	8H03 E	15H04 D
03/11/02	-0.29	+0.25	III	8H03 E	15H04 D
04/11/02	+0.02	+0.14	IV	8H03 E	15H04 D
05/11/02	-0.28	-0.37	I	8H03 E	15H04 D
05/11/02*	+0.19	+0.19	I	8H03 E	15H04 D
06/11/02*	-0.08	-0.29	I	8H03 E	15H04 D
06/11/02*	+0.48	+0.28	I	8H03 E	15H04 D
07/11/02*	-0.26	+0.03	I	8H03 E	15H04 D
07/11/02*	+0.70	+0.20	I	8H03 E	15H04 D
14/11/02*	+0.14	-0.45	II	8H20 E	15H05 D
15/11/02*	+0.39	-0.43	II	8H04 E	15H05 D
15/11/02*	+0.82	+0.25	II	8H04 E	15H05 D
16/11/02*	-1.09	-0.37	II	8H04 E	15H05 D
16/11/02*	+1.13	+0.14	III	8H04 E	15H05 D
17/11/02*	-0.54	+0.16	IV	8H05 E	15H06 D
19/11/02*	-0.50	-0.45	I	8H05 E	15H06 D
19/11/02*	+0.00	+0.23	I	8H05 E	15H06 D
19/11/02*	+1.27	+0.37	II	8H05 E	15H06 D
20/11/02*	+0.37	+0.29	II	8H05 E	15H06 D
21/11/02	+0.00	-0.23	I	8H28 E	15H07 D
23/11/02*	+0.47	-0.39	I	8H03 E	15H08 D
24/11/02*	+0.78	-0.29	III	8H06 E	15H07 D
24/11/02*	+1.13	+0.53	III	13H51	15H07 D
25/11/02*	+0.93	-0.34	II	8H06 E	15H07 D

25/11/02*	+1.36	+0.43	II	8H06 E	15H07 D
26/11/02*	+1.10	-0.4é	III	8H07 E	15H07 D
26/11/02*	+1.38	+0.68	III	13H11	15H07 D
27/11/02*	+1.21	-0.39	II	8H07 E	15H08 D
28/11/02*	-0.98	-0.51	I	8H08 E	15H09 D
28/11/02*	+1.33	-0.37	III	8H08 E	10H50
29/11/02	-0.91	-0.47	I	8H08 E	15H09 D
30/11/02	-0.62	-0.36	I	8H08 E	15H09 D

18 November : NO DATA

OTHERS DAYS: NO DETECTABLE NOISE STORM

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

** Following a large burst

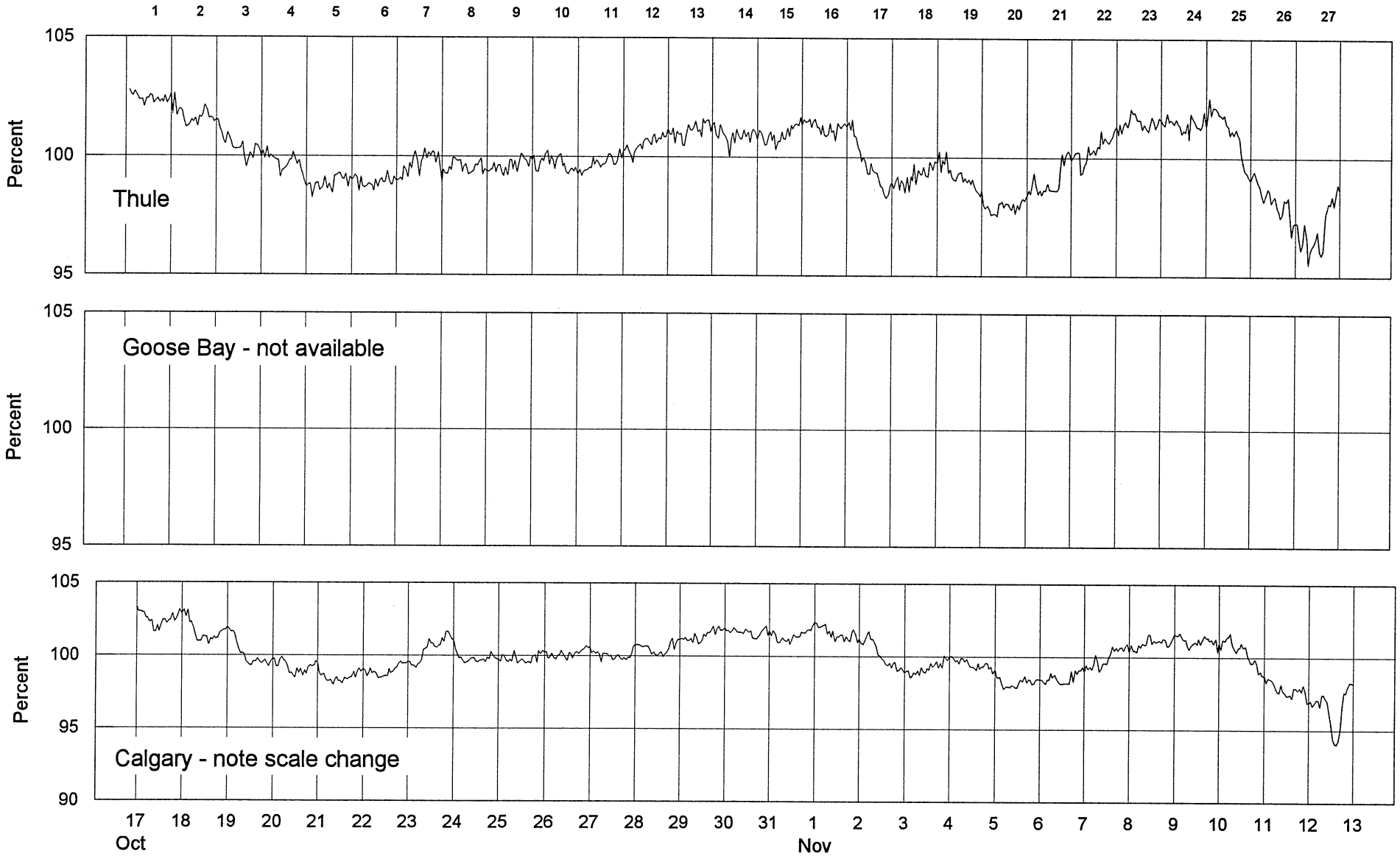
*** importance not well determined due to the proximity off the very strong other source
**** no flux measurements available

COSMIC RAY INDICES
(Neutron Monitor)
November 2002

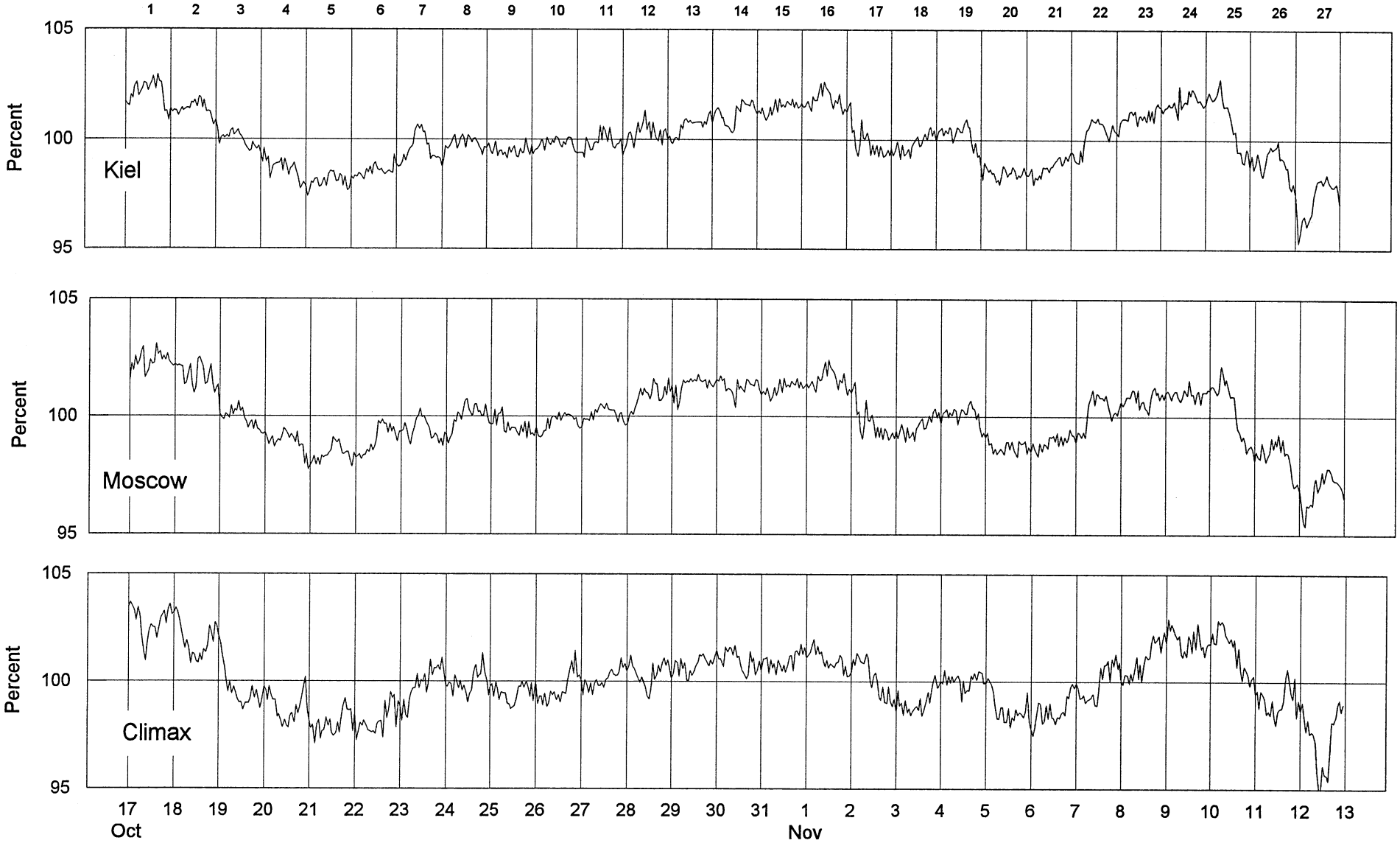
Day	THULE Average (cts/h)/100	CALGARY Average (cts/h)/300	KIEL Average (cts/h)/100	MOSCOW Average (cts/h)/64	CLIMAX Average (cts/h)/100	BEIJING Average (cts/h)/256	HALEAKALA Average (cts/h)/1000
1	3956.1	3446.2	5534.2	8270.3	3704.7	1914.4	3448.1
2	3974.1	3489.5	5607.8	8388.6	3766.6	1935.5	3486.8
3	3923.0	3439.2	5498.8	8266.2	3687.4	1903.7	3437.3
4	3946.9	3451.3	5537.7	8286.5	3703.3	1915.4	3436.3
5	3968.2	3475.8	5586.1	8365.1	3721.0	1928.4	3455.8
6	3991.4	3489.8	5622.8	8410.6	3721.8	1929.2	3460.4
7	4006.7	3515.0	5656.2	8442.7	3775.0	1947.3	3483.2
8	4025.1	3514.8	5666.6	8480.7	3793.6	1946.6	3476.2
9	4021.4	3544.0	5681.7	8516.6	3810.9	1948.9	3486.8
10	4041.8	3563.2	5715.0	8554.2	3841.3	1958.8	3507.7
11	4057.6	3561.5	5716.5	8527.2	3844.8	1955.2	3499.9
12	4061.0	3574.3	5715.1	8547.9	3833.2	1965.2	3508.3
13	4005.6	3539.5	5675.1	8465.8	3791.2	1950.0	3492.9
14	4038.9	3572.2	5726.3	8584.6	3826.4	1959.6	3500.0
15	4059.5	3580.8	5722.0	8603.0	3827.8	1958.0	3474.0
16	4062.7	3562.5	5697.5	8530.7	3814.6	1949.1	3450.0
17	4037.7	3535.0	5662.0	8460.9	3786.0	1938.6	3441.8
18	4008.5	3506.3	5621.6	8413.7	3754.7	1935.1	3431.8
19	3960.2	3454.2	5546.6	8260.2	3671.8	1925.5	3404.9
20	3931.6	3421.7	5474.4	8179.6	3641.0	1915.9	3384.3
21	3897.1	3398.3	5439.1	8136.1	3612.0	1921.2	3377.8
22	3899.2	3412.7	5464.0	8186.4	3617.9	1924.9	3396.1
23	3929.2	3464.2	5521.2	8220.9	3678.5	1943.7	3433.2
24	3923.5	3444.3	5532.4	8268.5	3682.3	1957.2	3434.4
25	3926.6	3442.3	5517.0	8233.9	3664.0	1939.8	3426.8
26	3930.9	3454.2	5534.1	8248.4	3671.9	1933.0	3438.3
27	3929.6	3450.7	5536.4	8276.8	3688.2	1935.5	3449.4
28	3961.9	3467.2	5559.1	8338.4	3698.2	1932.8	3445.3
29	3984.2	3497.8	5576.5	8379.4	3710.9	1938.5	3462.1
30	3978.2	3506.7	5610.0	8376.7	3720.9	1934.0	3468.5
31	3979.0	3498.2	5624.7	8369.1	3719.3	1945.5	3473.3
Mean	3981.0	3492.7	5599.3	8373.9	3734.9	1938.3	3453.9

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.

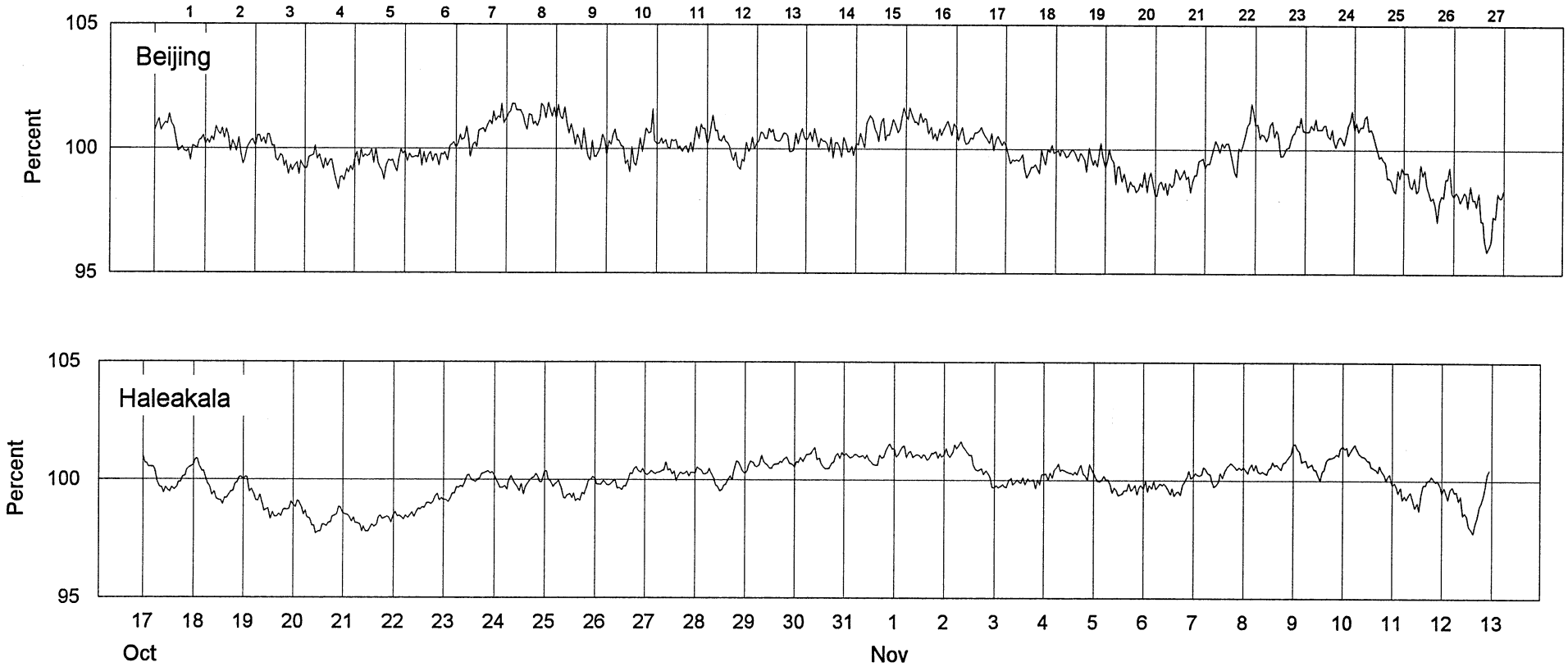
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2310 - Beginning 17 Oct 2002



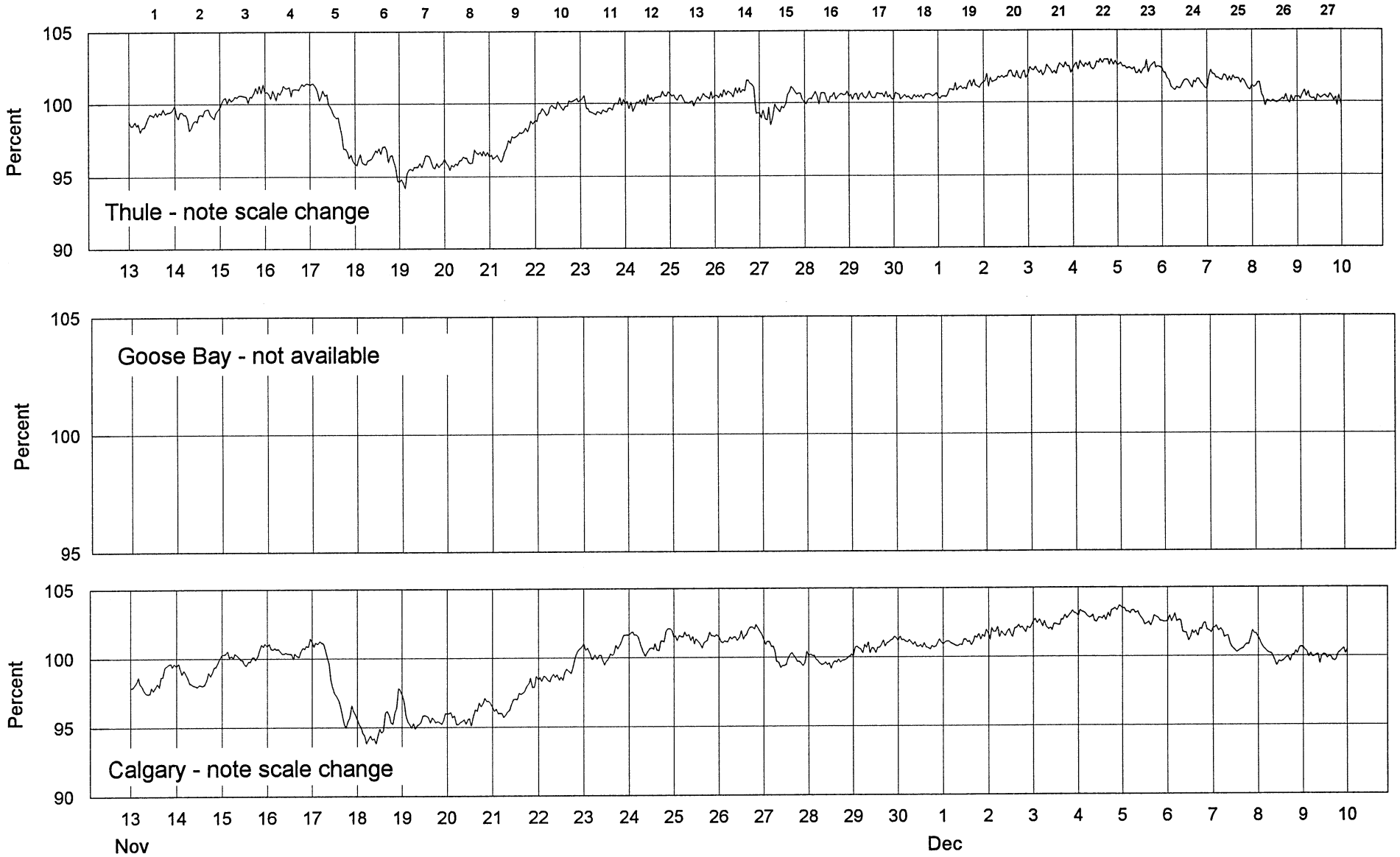
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2310 - Beginning 17 Oct 2002



COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2310 - Beginning 17 Oct 2002



COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2311 - Beginning 13 Nov 2002



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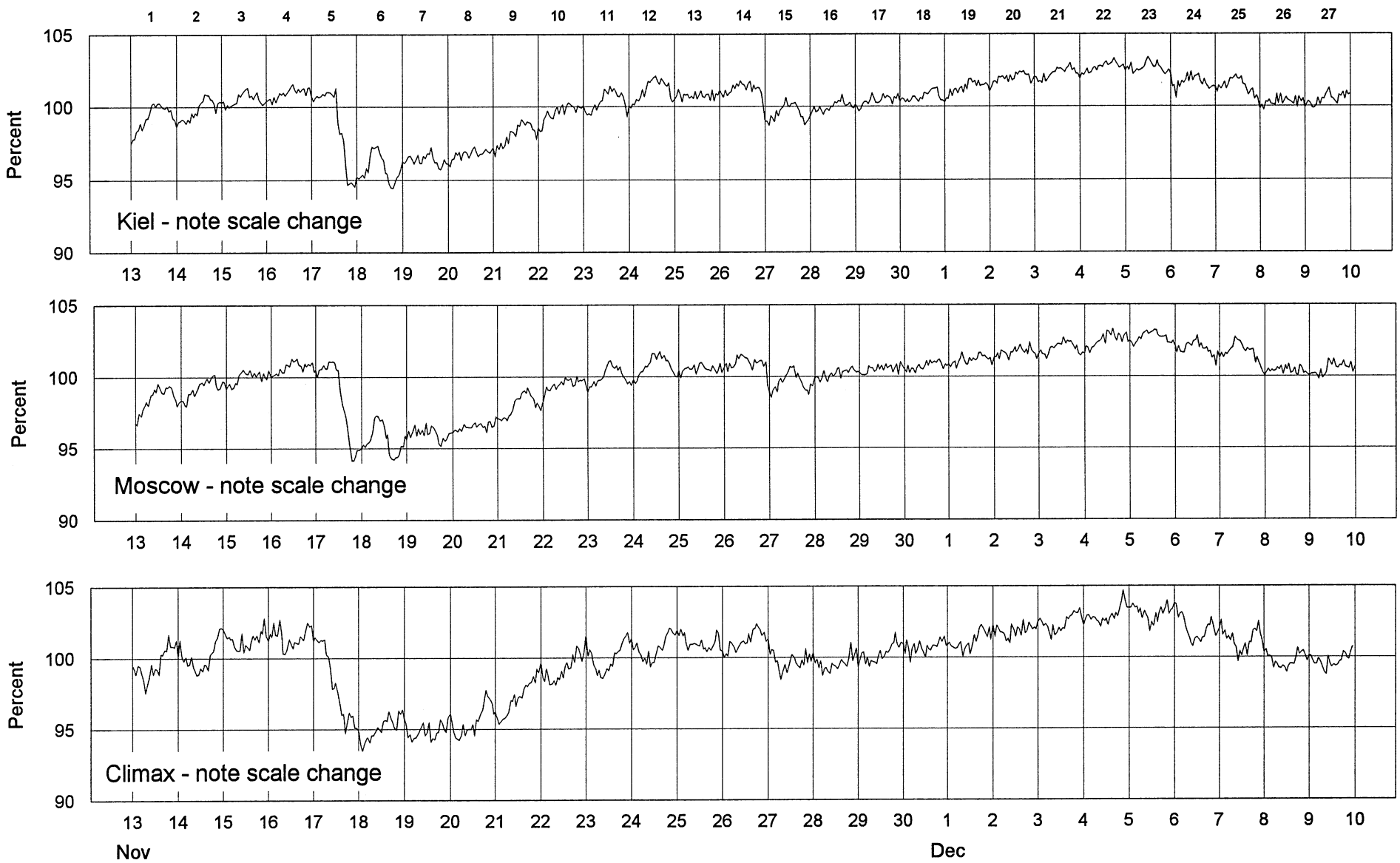
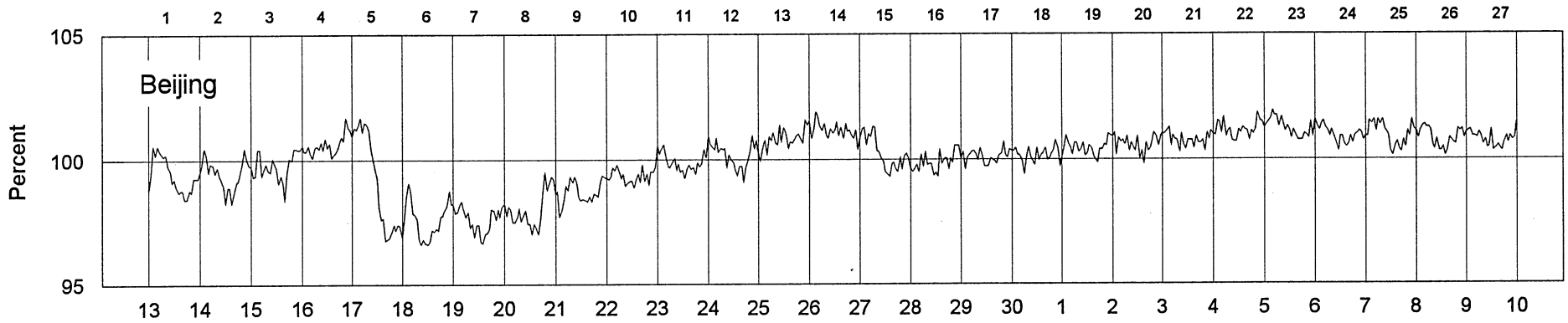
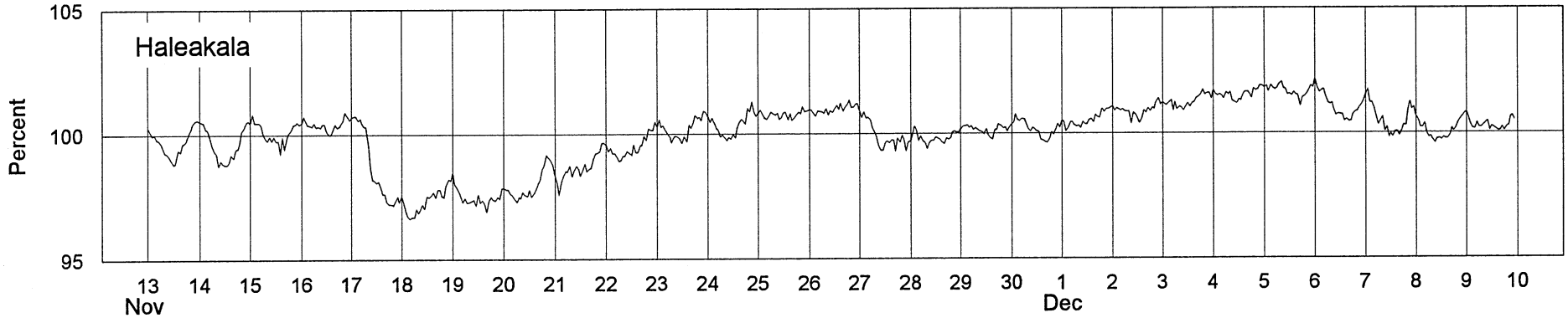
Nov 02

COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2311 - Beginning 13 Nov 2002

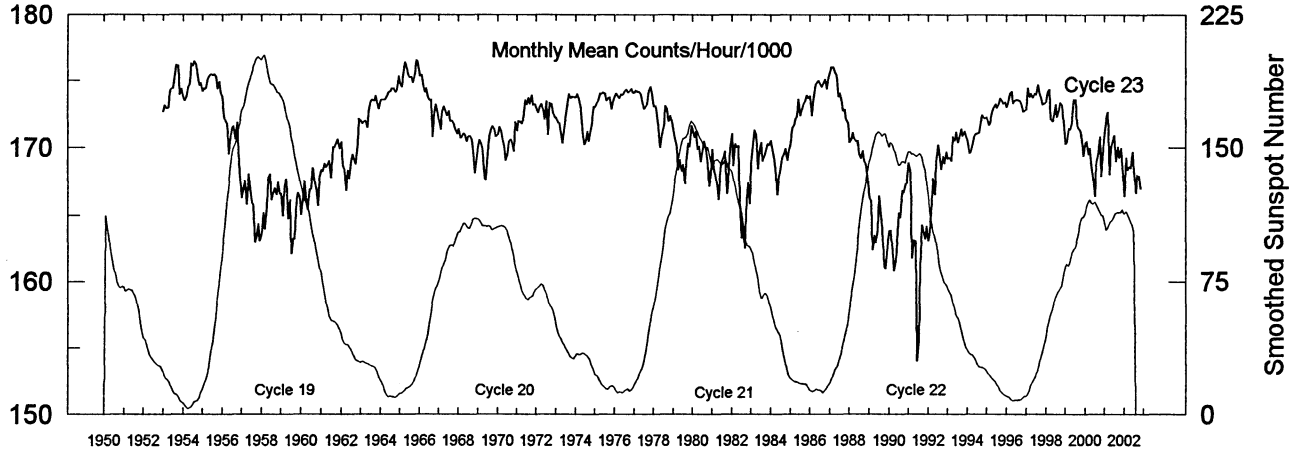


COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2311 - Beginning 13 Nov 2002





Huancayo* Neutron Monitor Pressure-Corrected/Adjusted Values
Jan 1953 - Nov 2002



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1953	1727	1732	1730	1729	1742	1744	1744	1756	1762	1761	1740	1744	1743
1954	1737	1735	1738	1744	1747	1763	1761	1764	1762	1754	1746	1748	1750
1955	1742	1744	1744	1751	1754	1755	1754	1755	1753	1744	1749	1741	1749
1956	1738	1724	1719	1718	1696	1707	1715	1716	1706	1719	1697	1675	1711
1957	1663	1671	1675	1658	1680	1670	1659	1658	1630	1633	1643	1630	1656
1958	1635	1652	1639	1657	1677	1680	1661	1667	1670	1665	1675	1666	1662
1959	1666	1649	1671	1676	1647	1661	1621	1632	1632	1661	1666	1663	1654
1960	1650	1663	1675	1660	1654	1669	1669	1685	1674	1670	1657	1677	1667
1961	1684	1682	1688	1685	1688	1690	1677	1701	1700	1704	1706	1699	1692
1962	1704	1687	1683	1668	1683	1677	1690	1695	1690	1688	1703	1721	1691
1963	1720	1718	1720	1720	1715	1729	1734	1736	1734	1739	1732	1729	1727
1964	1735	1736	1736	1736	1739	1741	1742	1744	1744	1741	1743	1753	1741
1965	1748	1745	1756	1764	1762	1754	1753	1753	1748	1754	1765	1764	1755
1966	1754	1754	1747	1741	1744	1737	1736	1736	1708	1725	1732	1727	1737
1967	1721	1714	1726	1731	1727	1724	1727	1720	1720	1718	1713	1710	1721
1968	1714	1708	1708	1710	1710	1705	1708	1709	1706	1698	1681	1689	1704
1969	1702	1706	1702	1698	1678	1676	1695	1708	1714	1716	1714	1709	1701
1970	1709	1715	1712	1707	1701	1691	1695	1705	1706	1705	1697	1719	1705
1971	1712	1720	1720	1718	1722	1735	1732	1737	1732	1739	1732	1732	1728
1972	1730	1726	1731	1732	1728	1721	1734	1710	1733	1733	1726	1723	1727
1973	1723	1719	1718	1709	1704	1716	1723	1733	1740	1737	1738	1738	1725
1974	1737	1740	1736	1729	1713	1703	1704	1712	1705	1713	1718	1731	1720
1975	1730	1733	1734	1740	1740	1742	1740	1735	1737	1738	1729	1733	1736
1976	1738	1741	1739	1737	1740	1740	1742	1743	1742	1742	1744	1741	1741
1977	1741	1743	1742	1742	1740	1735	1729	1730	1732	1742	1745	1741	1739
1978	1731	1731	1726	1710	1700	1710	1717	1731	1729	1719	1724	1720	1721
1979	1711	1707	1702	1684	1691	1682	1688	1674	1689	1703	1700	1717	1696
1980	1713	1708	1712	1699	1701	1690	1698	1705	1699	1688	1672	1680	1697
1981	1699	1682	1680	1671	1662	1685	1690	1693	1697	1666	1675	1700	1683
1982	1710	1687	1703	1700	1702	1662	1632	1643	1625	1662	1674	1658	1671
1983	1688	1703	1713	1709	1685	1697	1704	1690	1694	1697	1703	1702	1699
1984	1705	1699	1693	1685	1665	1677	1684	1691	1695	1699	1691	1698	1690
1985	1703	1714	1716	1721	1723	1736	1724	1727	1732	1734	1739	1737	1725
1986	1739	1724	1734	1746	1748	1750	1748	1745	1747	1751	1744	1752	1744
1987	1757	1760	1760	1757	1754	1738	1741	1735	1728	1728	1721	1718	1741
1988	1704	1706	1711	1706	1705	1705	1696	1692	1698	1690	1688	1674	1698
1989	1663	1660	1624	1635	1629	1638	1664	1650	1640	1611	1609	1627	1637
1990	1638	1638	1623	1608	1616	1630	1651	1648	1668	1666	1673	1673	1644
1991	1689	1682	1617	1631	1630	1540	1555	1611	1642	1638	1632	1641	1626
1992	1630	1635	1659	1677	1665	1689	1702	1696	1684	1693	1688	1697	1676
1993	1692	1692	1690	1708	1705	1711	1704	1707	1714	1709	1712	1709	1705
1994	1705	1696	1697	1703	1708	1711	1711	1711	1718	1724	1723	1722	1711
1995	1723	1717	1718	1726	1730	1732	1730	1733	1736	1735	1732	1734	1729
1996	1730	1734	1740	1742	1733	1735	1736	1736	1735	1733	1727	1727	1734
1997	1728	1744	1738	1740	1737	1741	1739	1747	1741	1737	1733	1733	1738
1998	1734	1741	1744	1721	1720	1723	1732	1723	1728	1733	1731	1719	1729
1999	1703	1704	1714	1713	1719	1736	1737	1717	1714	1713	1705	1694	1714
2000	1704	1704	1695	1700	1685	1678	1664	1688	1695	1708	1679	1699	1692
2001	1712	1723	1726	1680	1700	1705	1791	1690	1701	1693	1700	1687	1709
2002	1664	1693	1684	1686	1685	1696	1683	1666	1680	1679	1669		1680

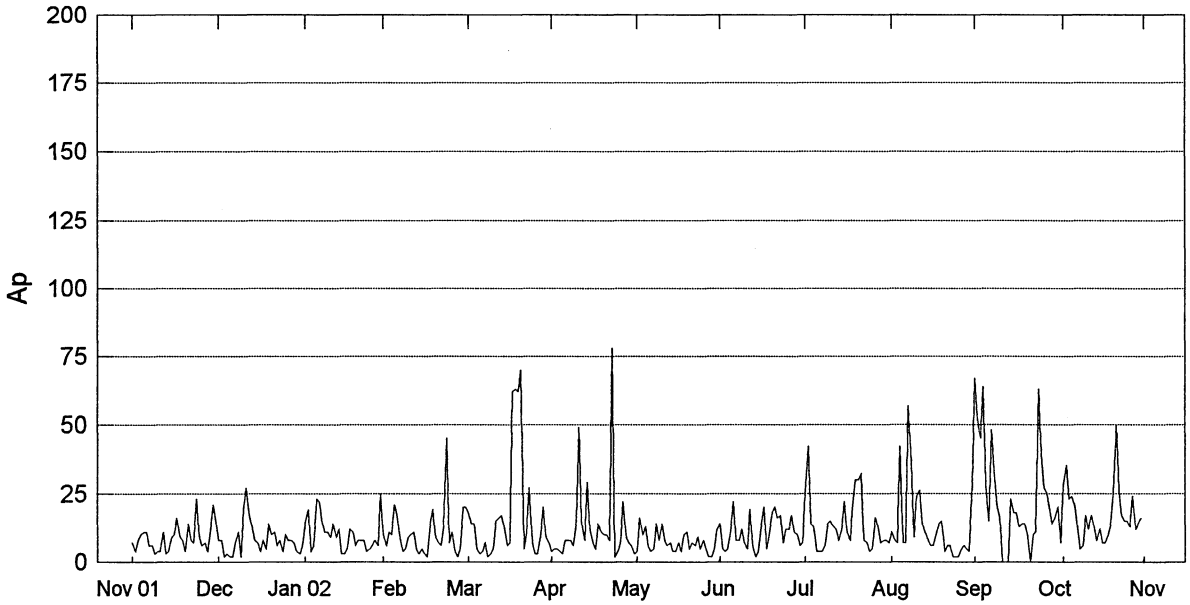
Multiply table entries by 100 to obtain hourly counting rate for Huancayo, Peru: S12 W75, Alt=3400m, Cutoff Rigidity=12.92GV (1980). NOTE: Secular changes in the Earth's magnetic field resulted in a slow lowering of the geomagnetic cutoff rigidity at Huancayo over the 40 year period. This dataset was adjusted by applying a linear time-correction based on the calculated change in response to the change in the vertical cutoff. * Data from Jan 92 on are from the 18-NM64 at Haleakala, Hawaii: N20 W156, Alt=3030m, Cutoff Rigitity=12.91GV (1980). Multiply table entries by 2057.6 to obtain equivalent Haleakala counting rate.

Geomagnetic Activity Indices
November 2002

Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	Am	aa Provisional N	S	M	
1	Q4A	2	1+	2	2-	1	2+	2	2+	15-	7	0.3	2o	1+	2-	2o	1+	2+	2-	2o	13	16	10	11	15	C
2	D3	5-	3	3+	4	4-	4-	5	4+	32-	28	1.2	3+	2+	3o	4-	3+	4-	4+	4-	41	54	33	42	44	
3	D2	4-	5-	4	4	4+	5+	5-	5-	35+	35	1.4	3o	3+	4-	4-	4+	4+	4+	4-	48	68	35	40	63	
4		4	4	4-	3+	3-	4	3	5-	29+	23	1.1	3o	3o	3o	3o	3o	4o	3+	4+	37	40	35	31	44	
5	D5	3+	5-	4-	4	4	3+	3	4-	30-	24	1.1	3o	4-	3+	4-	4-	3o	3o	3+	38	45	39	45	39	
6		4	3+	3+	3+	3+	3+	4+	4-	29-	21	1.1	4-	3-	3-	3o	3o	3+	4-	4-	35	38	30	30	39	
7		4-	3+	2+	3	2+	3-	3-	2-	22-	13	0.7	3+	3-	2o	3-	2+	2+	3-	1+	21	28	17	29	17	
8	Q1	1	1+	1+	2-	1+	1-	2	0+	10-	5	0.2	1o	1+	1+	2-	1+	1o	2o	0+	9	14	9	11	12	CC
9	Q2K	1-	0	1	1-	1-	2-	3-	3	10+	6	0.3	1-	0o	1o	1o	1-	2-	3-	3+	12	15	15	8	23	
10		4-	4+	5	2-	2	2	2-	2+	23-	17	0.9	4-	3+	4o	2-	2-	2-	1+	2+	25	24	28	37	15	
11	Q9A	2	2	3	3+	4-	1+	2+	3-	20+	12	0.7	2+	2o	3o	3o	4-	2-	3-	3-	24	28	24	28	24	
12		2	3-	2+	4	3+	2-	4	4	24	17	0.9	2+	3-	3-	3+	4-	2-	3+	4-	30	30	31	31	30	
13		4	4-	2+	3-	3	2-	2-	2	21	13	0.7	4-	3+	3-	3-	3+	2o	2-	2+	27	26	24	33	17	
14	Q6A	3	2	1+	2-	2	3-	2	2	17-	8	0.4	2+	2o	1+	2-	2o	3-	2+	2+	16	21	17	17	21	
15	Q8A	3	3-	3-	3	2+	2	2+	3	21	12	0.7	3-	2-	2+	3-	2+	2-	3-	3-	20	24	23	26	21	
16	Q3A	3	1+	1	0+	1	1-	2-	3+	12+	7	0.4	3-	1+	1o	1-	1+	1o	2-	3o	12	18	14	13	19	
17	Q5A	4-	2+	1	0+	1-	2-	1	2	13-	7	0.4	3o	2+	1+	1-	1+	2o	2-	2o	14	17	12	18	11	
18	Q7A	3	2	2-	1+	2+	2	3	3	18+	10	0.6	3-	2-	2-	2+	2+	2+	3o	3o	20	18	23	16	25	
19		3	3+	3+	2	2	2-	3+	4	23-	14	0.8	3-	3-	3-	2o	2-	2-	3+	3+	23	30	20	22	29	
20		3+	3-	1+	2+	1	4	6	5	26-	25	1.2	3o	2o	1+	3-	1+	4o	5+	4+	41	70	34	20	85	
21	D1	4+	5+	7-	5+	5-	4+	5-	4+	40-	50	1.6	4o	5-	6-	6-	5o	4o	4+	4-	82	66	78	90	54	
22	D4	5-	4-	3+	4-	5-	4	3	4-	31-	26	1.2	4o	3o	3-	4-	4o	4-	3-	3o	39	50	28	37	41	
23		4	4+	3	3-	3-	3+	3-	2	25-	17	0.9	3o	4o	3-	3-	3-	3+	3-	2o	28	28	24	28	24	
24		3	3+	3-	3	2+	4-	3	3	24	15	0.9	2+	3-	2o	3-	3o	4-	3o	3-	26	37	18	22	33	
25		3-	3-	3	3+	3+	4-	2	3+	24	15	0.9	2o	2+	3-	3+	3-	3+	2+	3o	26	29	26	26	29	
26	Q10A	3	2+	1	1+	2	2-	2+	5	19-	13	0.7	2+	1+	1o	1+	2o	2o	3-	5o	24	28	26	13	42	
27		5	5	4+	3-	3+	2	3-	3-	28-	24	1.1	4+	4o	3+	3o	3+	2o	3-	3-	35	38	29	46	21	
28		3-	3	3	2-	3-	3	3+	2	21+	12	0.7	3-	3-	3-	2+	3-	3o	4-	2+	25	23	22	16	29	
29		3-	2+	3	2	3-	3+	3+	3+	23-	14	0.8	2+	2o	3-	2o	3-	4-	3o	3o	26	29	26	22	33	
30		3+	4-	4-	3	3	3-	2+	3	25-	16	0.9	3-	3o	3o	3o	3o	3o	3-	3-	28	28	26	28	26	
Mean											17	0.83									28.2	32.7	26.1		29.3	

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Sa	Prov Ri	Ra	Rs	IMF
1	1+	1+	2-	2+	2-	3-	2-	2o	13	2+	1+	2-	2-	1+	2+	2-	2o	13	159.7	124	123	110	
2	4-	2+	3+	4o	4-	4-	5-	4-	47	3+	2+	3o	3o	3+	3+	4+	4-	37	162.1	115	122	113	
3	3o	4-	4-	3+	5-	5-	4o	4-	50	3-	3+	4-	4-	4o	4o	4+	4-	47	166.5	123	119	118	
4	3o	3o	3o	3o	3+	4-	3+	4+	40	3o	3-	3o	3-	3o	4o	3+	4o	35	174.4	101	114	126	
5	3o	4-	4-	4o	4o	3o	3-	3+	39	3o	3+	3+	4-	3+	3o	3o	3+	35	180.0	122	128	132	
6	3+	2+	3-	3+	3o	4-	4-	3+	35	4-	3o	3-	3-	3-	3o	4-	4-	35	181.2	137	143	134	
7	3+	3o	2o	3o	2+	2+	2+	1+	22	3+	3-	2o	3-	2+	2o	3-	2-	21	186.4	145	140	139	
8	1-	1+	1o	2-	2-	1o	2o	0o	9	1+	1+	1+	2o	1o	1-	2-	1o	9	185.5	115	132	138	
9	0+	0o	0+	1-	1-	2o	2+	3o	10	1o	0+	1+	1+	1-	2-	3-	4-	13	187.0	129	134	140	
10	3+	3+	4o	1+	2-	2-	1+	2+	24	4-	4-	4o	2o	2-	2o	2-	3-	27	187.7	126	130	141	
11	1+	2-	3o	3o	4-	2-	2+	2+	22	3o	2o	3o	3o	4-	2-	3-	3o	26	181.0	114	112	133	
12	2-	2+	2+	3o	3o	2-	3+	3+	25	3-	3-	3o	3+	4o	2-	4-	4-	34	174.6	100	100	127	
13	3+	3o	2o	2+	3+	2-	1+	2-	21	4o	4-	3-	3o	4-	2o	2o	3-	32	178.6	94	91	131	
14	2+	2-	1+	1+	2-	2+	2o	2o	14	2+	2o	1+	2-	2+	3-	3-	3-	18	180.2	104	114	133	
15	2+	2-	2+	3-	2+	2-	3-	3-	18	3o	2o	3-	3o	2+	2-	3-	3o	22	193.2	96	109	147	
16	2+	1-	1-	0+	1+	1o	1+	3-	10	3-	2-	1+	1o	1+	1o	2-	3+	15	194.8	89	110	148	
17	3o	2o	1-	1-	1+	2-	1+	2-	12	3-	2+	2o	1o	1o	2o	2o	2o	15	180.5	91	98	133	
18	3-	1+	2o	2o	3-	2+	3o	3o	21	3-	2-	1+	2+	2o	2+	3+	3o	20	174.8	90	85	127	
19	2+	3-	3o	2o	1+	2-	3+	3+	23	3o	3-	2o	2o	2-	2-	3+	4-	24	164.3	74	83	115	
20	3-	2-	1o	2o	1+	4+	6-	4-	37	3o	3-	2-	3o	2-	4o	5+	5o	45	155.3	94	88	106	
21	4-	4+	6o	6-	5o	4o	4+	4-	81	5-	5o	5+	6-	5o	4o	4o	4o	83	147.2	82	81	97	
22	4o	3+	3o	4-	4+	4o	3-	3o	42	4o	3-	2+	3+	4-	4-	3o	3+	36	145.5	79	81	95	
23	3+	4+	3o	3-	3-	3+	3-	2-	32	3o	4-	2+	2o	2o	3o	2+	2+	24	143.8	77	82	93	
24	2+	3o	2o	3o	3+	4-	3o	3-	29	3-	2+	2o	2+	3-	3+	3-	3-	23	142.5	67	74	92	
25	2-	2+	3-	3+	3o	4-	2o	3-	26	2+	2+	2+	3+	2+	3o	2+	3+	26	133.2	52	57	82	
26	2o	1+	1+	1+	2+	2-	3-	5-	23	2+	2-	1o	1+	2-	2o	3-	5+	26	138.5	49	51	88	
27	4+	4o	3+	3+	4-	2o	2+	3-	37	4o	4o	3o	3o	3o	2o	3-	3-	34	138.8	68	70	88	
28	3-	3-	3o	2-	3-	3+	4o	2-	27	3-	2+	2+	3-	3-	3-	3+	2+	23	136.0	70	61	85	
29	2+	2o	3o	2-	3-	4-	3o	3o	25	2+	2o	2+	2+	3-	4-	3o	3o	26	137.5	61	61	87	
30	3-	3+	3+	3o	3o	3+	3-	3-	29	3-	3-	3o	3o	3o	3-	3-	3o	27	142.1	61	71	91	
Mean									28.1									28.4	165.1	95.0	98.7	116.3	

Daily Average Indices Ap
Dec 2001 - Nov 2002

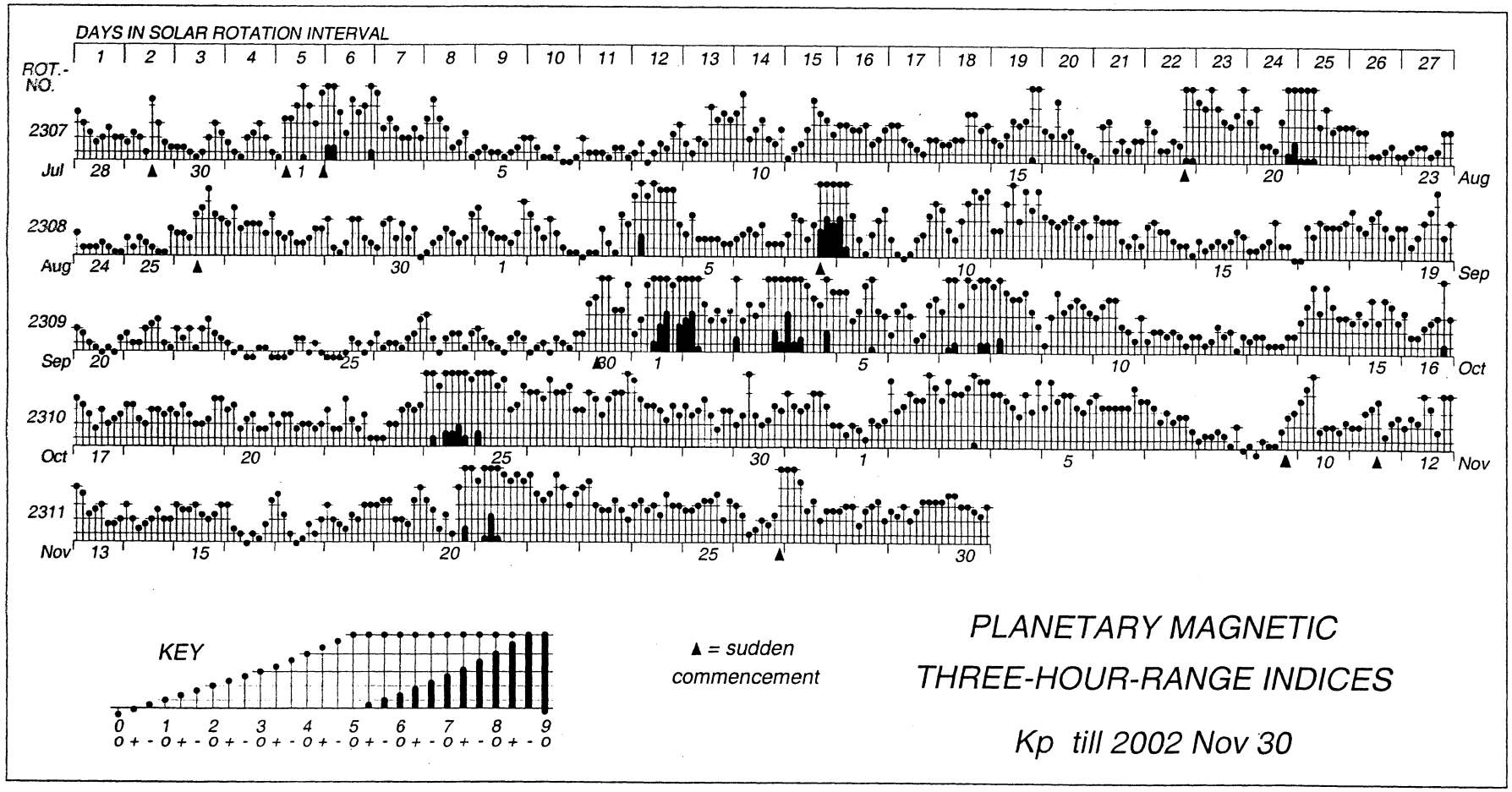


Day	Dec 01	Jan 02	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	7	8	14	10	18	4	4	14	25	11	67	7
2	4	8	19	6	14	5	16	5	42	8	53	28
3	8	2	4	11	14	5	10	4	14	7	45	35
4	10	3	6	10	5	4	13	5	13	42	64	23
5	11	2	23	21	3	3	6	12	4	7	28	24
6	11	2	22	17	4	8	4	22	4	7	15	21
7	6	7	15	9	7	8	5	8	4	57	48	13
8	6	11	11	4	2	8	14	8	6	36	33	5
9	3	2	11	5	3	6	8	12	14	9	20	6
10	4	19	9	9	5	15	14	7	15	24	16	17
11	4	27	14	10	15	49	8	5	13	26	6	12
12	11	17	9	11	16	15	6	19	12	14	6	17
13	3	13	12	5	17	8	7	6	8	11	5	13
14	4	8	3	3	13	29	4	2	12	8	23	8
15	9	7	3	5	6	12	4	4	22	6	18	12
16	10	4	5	3	7	7	7	12	11	6	18	7
17	16	8	12	2	62	5	4	20	8	11	13	7
18	9	5	11	14	63	14	10	5	21	14	14	10
19	8	14	6	19	62	11	11	10	30	15	14	14
20	4	10	8	9	70	10	5	18	30	4	10	25
21	14	11	8	7	5	10	7	20	32	6	8	50
22	8	6	8	6	11	8	6	16	8	6	10	26
23	7	8	4	13	27	78	9	17	7	2	11	17
24	23	4	5	45	7	2	5	7	4	2	63	15
25	9	10	6	7	3	4	8	12	5	2	39	15
26	6	8	8	11	3	7	5	12	16	5	27	13
27	7	8	6	4	10	22	2	17	13	6	25	24
28	4	7	25	2	20	9	2	11	7	5	19	12
29	11	4		5	9	7	5	10	8	4	14	14
30	21	3		20	7	6	12	6	8	28	16	16
31	15	6		20		3		7	7		20	
Mean	9	8	10	10	17	12	7	11	14	13	25	17

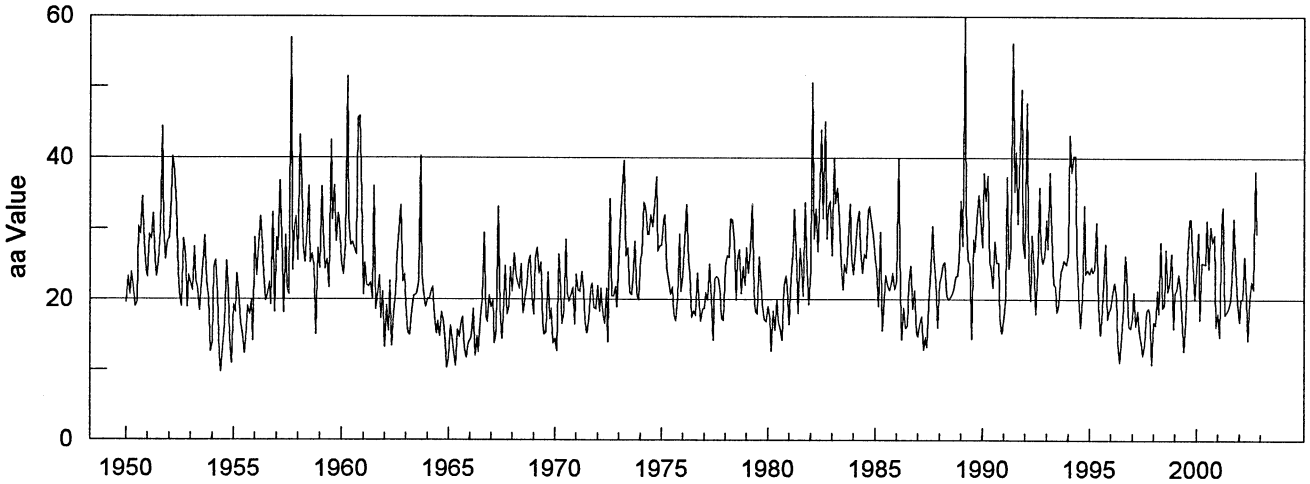
PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

GeoForschungsZentraum Potsdam

Kp through November 30, 2002



Monthly Mean aa Index Jan 1950 - Nov 2002



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	22.5	26.1	29.0	22.4	20.2	12.6	22.2
1954	13.9	24.5	25.5	20.6	12.0	9.7	13.1	16.5	25.4	21.1	14.5	10.9	17.3
1955	19.3	18.2	23.6	21.1	16.7	15.1	12.3	14.3	19.1	17.8	19.9	14.1	17.6
1956	28.7	23.3	27.6	31.7	29.3	23.5	19.8	20.7	22.4	19.3	32.3	18.2	24.7
1957	28.7	26.8	36.7	28.8	18.1	29.1	21.7	20.7	57.0	24.0	29.5	31.7	29.4
1958	25.5	43.2	36.1	27.6	25.2	29.7	36.0	25.1	26.5	24.7	15.0	27.2	28.5
1959	24.3	35.9	29.9	24.2	25.7	21.6	42.5	31.2	36.1	28.2	32.1	30.8	30.2
1960	25.2	23.5	27.6	51.5	31.6	27.6	28.1	27.2	26.4	45.6	45.9	34.5	32.9
1961	20.6	25.1	22.0	21.8	22.3	20.1	36.0	18.5	20.7	23.3	17.3	21.1	22.4
1962	13.2	19.2	15.5	22.6	13.4	18.1	21.0	26.2	29.8	33.3	22.5	23.5	21.5
1963	19.3	15.3	14.9	18.2	20.4	20.5	20.8	22.5	40.2	23.5	20.7	18.9	21.3
1964	20.1	20.1	21.0	21.7	17.5	15.1	16.9	14.8	18.2	16.9	13.8	10.3	17.2
1965	11.8	16.3	14.3	12.6	10.5	15.7	14.7	16.8	17.5	13.1	11.7	13.8	14.1
1966	14.2	14.8	18.6	12.0	14.8	12.5	17.1	20.0	29.4	17.5	16.8	20.5	17.3
1967	18.9	19.8	13.8	15.5	33.1	18.6	14.4	17.5	24.7	17.8	18.9	24.5	19.8
1968	21.1	26.5	23.3	22.2	21.4	24.9	18.0	20.1	22.0	24.8	26.2	20.3	22.6
1969	17.8	25.8	27.3	23.6	25.2	16.7	15.0	15.3	23.8	17.2	18.7	13.8	20.0
1970	14.4	12.7	26.4	23.1	16.6	18.3	28.4	21.0	19.7	20.6	21.6	16.5	19.9
1971	23.5	21.2	21.1	23.9	21.1	17.0	15.2	17.1	21.4	22.2	18.8	18.6	20.1
1972	21.9	18.3	21.5	18.1	16.6	21.5	14.0	34.2	20.4	20.4	21.8	18.9	20.6
1973	26.1	32.7	36.9	39.6	26.1	27.3	20.9	20.6	22.8	28.2	20.7	19.9	26.8
1974	25.8	26.4	33.7	32.9	29.2	29.2	32.0	30.2	33.7	37.3	26.8	27.5	30.4
1975	27.6	31.1	32.0	24.3	22.7	20.7	21.7	18.1	16.9	20.2	29.3	21.1	23.8
1976	23.3	28.5	33.4	25.4	23.7	17.5	18.4	17.7	23.7	20.4	16.9	18.6	22.3
1977	18.7	21.0	19.9	24.9	20.1	14.2	22.9	23.2	23.0	20.9	17.3	17.0	20.3
1978	24.6	26.2	25.9	31.3	31.2	28.3	19.9	25.6	27.0	20.8	24.6	22.0	25.6
1979	27.3	23.7	26.9	33.5	21.0	18.3	17.9	26.0	22.0	19.3	17.1	16.8	22.5
1980	19.0	17.3	12.7	18.4	15.6	20.0	17.0	15.9	14.2	21.9	23.3	21.7	18.1
1981	16.5	23.1	26.6	32.8	26.9	18.0	27.2	24.0	20.4	33.7	24.1	19.3	24.4
1982	24.2	50.6	28.5	32.9	26.7	32.1	43.9	31.4	45.1	28.5	33.0	33.8	34.2
1983	26.2	40.0	33.6	35.7	31.6	24.9	21.3	24.9	23.7	28.3	33.5	26.0	29.1
1984	23.5	26.7	30.7	32.5	27.2	23.7	26.4	25.8	32.6	33.1	31.0	29.0	28.5
1985	25.7	24.1	19.0	29.5	15.6	19.9	23.4	22.0	21.2	22.2	23.7	21.4	22.3
1986	22.4	40.0	21.1	14.3	18.8	15.9	16.3	22.3	24.7	18.6	21.2	15.3	20.9
1987	14.8	16.6	17.6	12.9	14.7	13.2	19.3	24.3	30.3	25.8	22.4	16.0	19.0
1988	22.4	23.4	24.8	25.2	20.5	20.0	20.2	20.6	21.4	23.2	23.3	25.5	22.5
1989	33.9	27.5	60.1	32.8	25.7	24.9	14.4	28.4	26.7	31.4	34.7	31.4	31.0
1990	27.4	37.8	33.9	37.4	25.1	24.6	21.6	28.2	25.1	25.1	17.4	15.2	26.6
1991	17.2	20.1	37.3	24.3	27.3	56.2	35.2	40.8	30.7	44.1	49.7	28.0	34.2
1992	25.9	47.7	24.5	19.8	29.1	24.8	17.9	24.1	35.8	27.0	25.0	26.1	27.3
1993	31.2	27.1	37.9	29.2	22.1	21.8	18.2	19.2	23.8	24.6	25.5	24.8	25.5
1994	26.5	43.2	37.9	40.2	40.2	27.2	20.6	16.0	20.2	33.3	23.6	24.1	29.4
1995	23.6	24.5	23.8	24.2	30.9	19.1	14.9	17.0	22.2	27.9	17.2	18.2	22.0
1996	18.8	20.8	22.3	20.5	14.0	11.1	14.7	18.8	26.2	23.5	16.3	15.9	18.6
1997	17.4	21.0	16.3	18.4	15.1	13.7	12.1	13.7	18.4	18.7	18.0	10.8	16.1
1998	16.8	16.4	21.2	18.0	28.1	18.8	19.3	27.0	21.1	22.4	26.5	15.9	21.0
1999	20.8	21.3	23.5	21.3	15.8	12.7	16.9	26.2	31.2	31.3	25.1	20.1	22.2
2000	24.2	29.4	17.1	25.1	25.0	24.9	31.1	24.3	30.2	28.1	29.1	16.1	25.4
2001	18.0	14.7	30.2	33.0	17.8	18.2	18.7	19.9	22.7	31.4	24.4	19.5	22.4
2002	16.8	20.0	20.2	26.0	19.9	14.2	19.9	22.5	21.4	38.1	29.3		22.6

PLANETARY GEOMAGNETIC ACTIVITY

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

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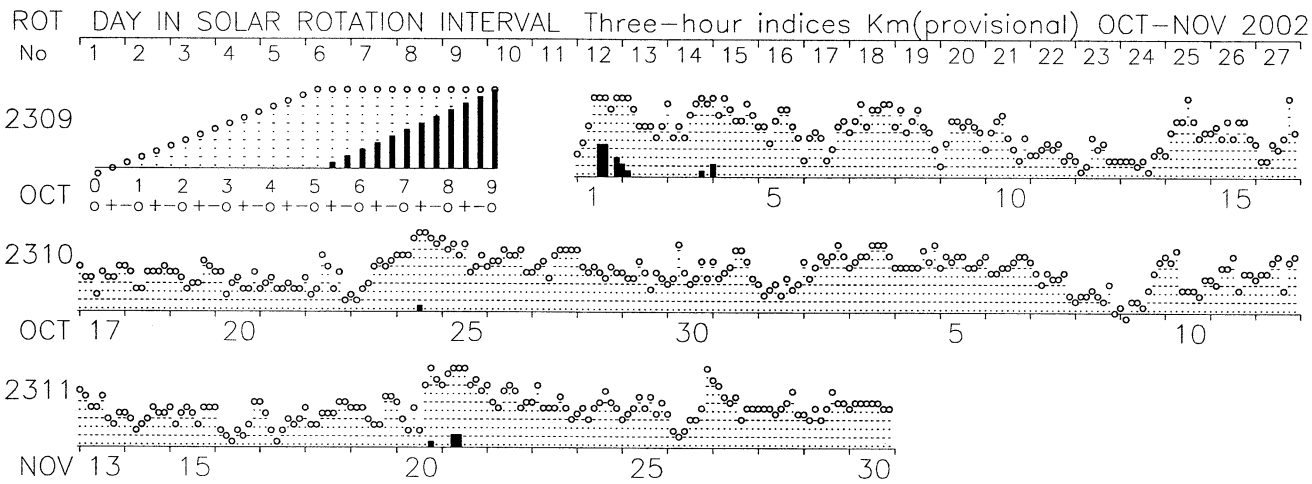
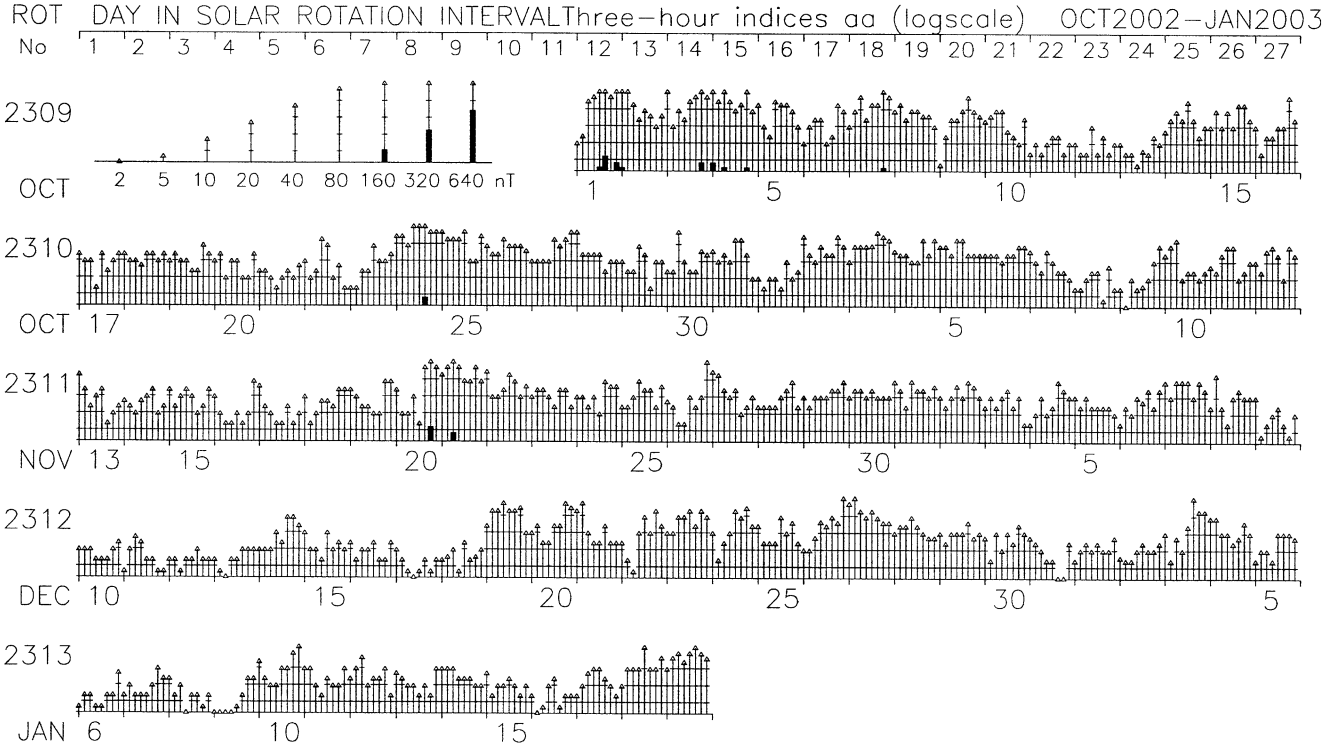


Indices Derivation at C.E.T.P.; Graph Prepared at ISGI Publication Office.



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

WDC FOR GEOMAGNETISM, KYOTO UNIVERSITY

HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

NOVEMBER 2002

UNIT=NT U. T.

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-19	-17	-17	-20	-21	-22	-19	-18	-21	-18	-14	-14	-13	-9	-8	-7	-10	-9	-13	-15	-9	-8	-3	-9
2	-15	-15	-12	-22	-22	-29	-33	-40	-40	-44	-46	-51	-50	-42	-50	-44	-36	-48	-57	-54	-45	-51	-52	-49
3	-53	-56	-59	-62	-62	-62	-68	-69	-70	-61	-52	-50	-50	-49	-52	-49	-51	-60	-52	-59	-59	-64	-57	-42
4	-45	-45	-42	-47	-58	-56	-48	-52	-58	-53	-55	-50	-57	-65	-56	-52	-53	-41	-40	-43	-47	-40	-38	-40
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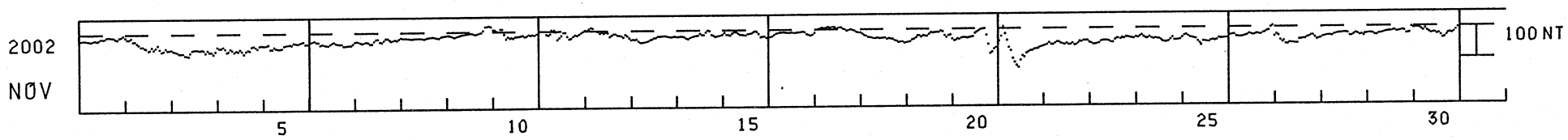
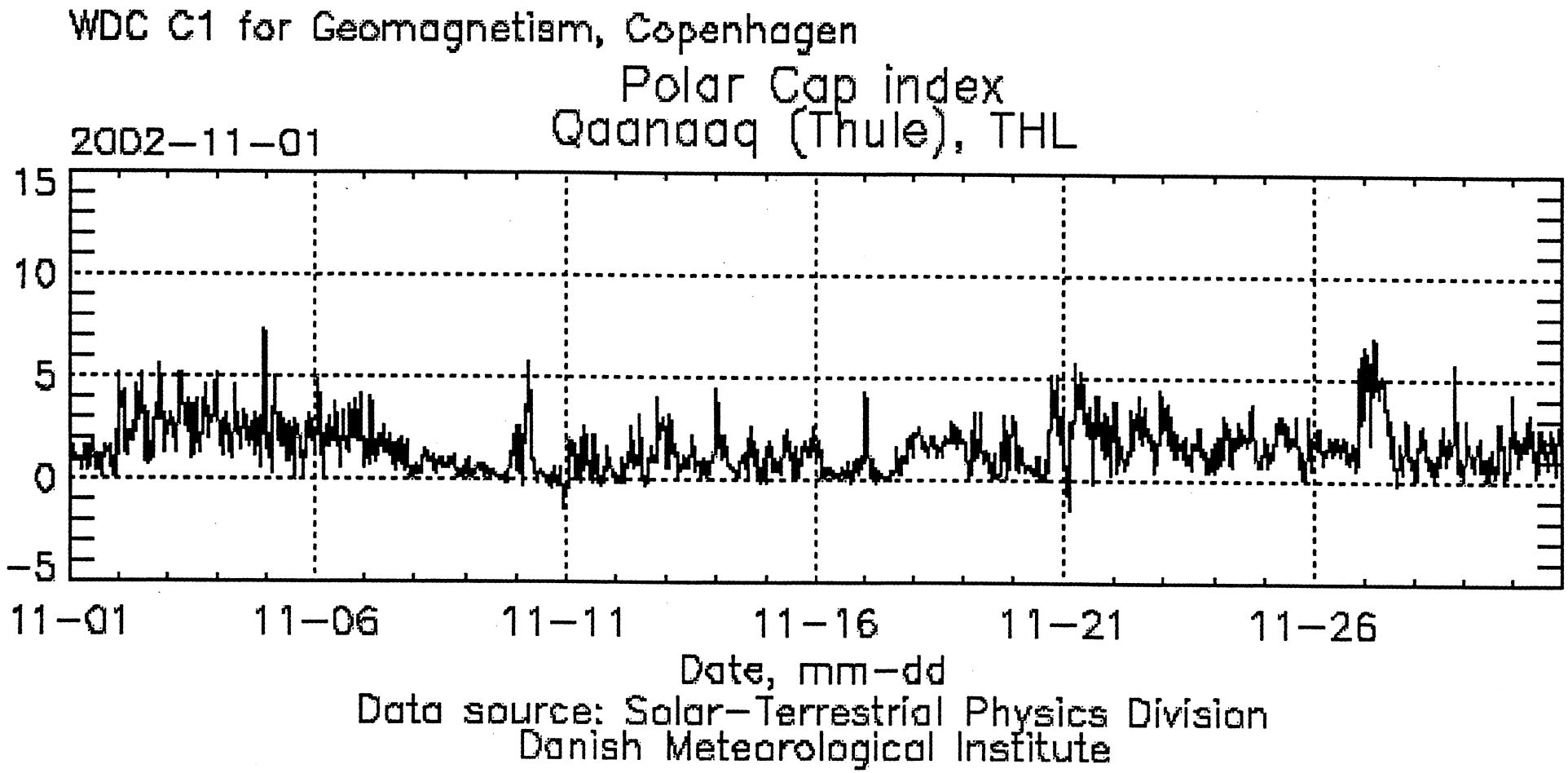
26	-24	-22	-22	-28	-30	-30	-30	-29	-27	-24	-21	-22	-24	-23	-21	-22	-23	-17	-15	-12	-10	1	5	-28
27	-23	-27	-41	-47	-44	-54	-54	-50	-49	-52	-51	-51	-40	-39	-38	-37	-33	-30	-26	-27	-32	-39	-38	-34
28	-30	-30	-28	-27	-27	-29	-24	-22	-20	-19	-20	-18	-17	-20	-28	-28	-25	-21	-23	-26	-25	-28	-23	-22
29	-19	-20	-23	-26	-26	-23	-22	-19	-18	-16	-16	-16	-14	-12	-16	-16	-13	-12	-14	-22	-23	-19	-2	-6
30	-3	-4	-6	-10	-14	-8	-14	-18	-23	-21	-21	-24	-23	-28	-37	-36	-28	-23	-20	-22	-17	-11	-4	-3

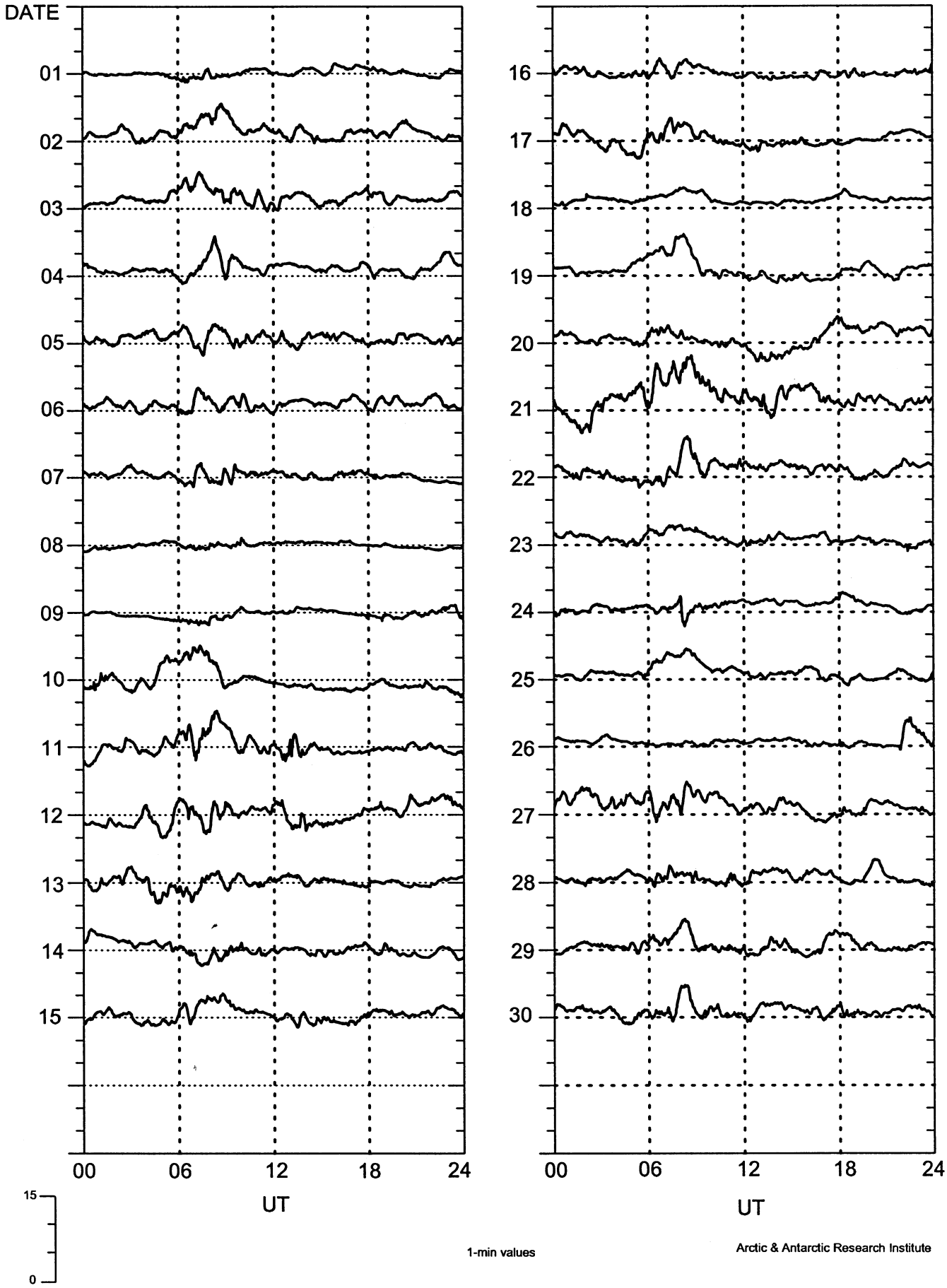



WDC C1 for Geomagnetism, Copenhagen
Polar Cap index
Qaanaaq (Thule), THL
2002-11-01
15
10
5
0
-5
11-01
11-06
11-11
11-16
11-21
11-26
Date, mm-dd
Data source: Solar-Terrestrial Physics Division
Danish Meteorological Institute

PC INDEX

Vostok

November, 2002



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

NOVEMBER 2002

Sta	Geomag Lat	Commencement Day	Commencement Time (UT)	Type	SC Amplitudes D (Min)	SC Amplitudes H (Gamma)	SC Amplitudes Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	Ranges H (Gamma)	Ranges Z (Gamma)	End Day	End Hour (UT)
HYB	07.6N	01	0400	..	..	..	..	02(7) 03(6,8)	5	3	128	20	04	01
ETT	00.7S	01	0500	..	..	..	..		-	2	185	66	06	24
GNA	43.0S	01	2100	..	..	..	..	03(6,7)	5	21	94	129	04	06
BJI	28.8N	02	00--	..	..	..	..	02(4)	5	8	96	28	02	24
KRC	16.4N	02	1112	..	..	..	..	02(7)	5	4	68	40	04	00
UJJ	13.6N	02	0630	..	..	..	..		-	3	88	25	04	20
NGP	11.3N	02	0630	..	..	..	..		-	3	113	27	04	20
ABG	09.4N	02	0630	..	..	..	..	02(7) 03(6,8)	5	3	102	29	04	20
PND	02.0N	02	0630	..	..	..	..		-	2	114	63	04	20
TIR	00.6S	02	0630	..	..	..	..		-	3	174	79	04	20
HYB	07.6N	04	0200	..	..	..	..	06(6)	4	3	128	29	08	20
HYB	07.6N	09	1848	SC	- 0.3	18	- 2	10(3)	4	2	95	14	10	24
ETT	00.7S	09	1849	SC	0	15	17		-	3	159	59	10	24
HER	33.6S	09	1752	SC	1	8	5	10(1,3)	4	25	74	71	10	17
UJJ	13.6N	11	0600	..	..	..	..		-	2	71	25	11	21
NGP	11.3N	11	0600	..	..	..	..		-	2	93	25	11	21
ABG	09.4N	11	0600	..	..	..	..	10(2) 11(5)	5	3	91	25	11	21
HYB	07.6N	11	1230	SC	- 0.5	23	- 1	11(3,5)	4	2	90	20	13	23
PND	02.0N	11	0600	..	..	..	..		-	2	102	47	11	21
TIR	00.6S	11	0600	..	..	..	..		-	2	145	75	11	21
ETT	00.7S	11	1230	SC	- 0.4	15	12		-	2	152	55	13	16
HYB	07.6N	16	2351	SC	- 0.3	9	0	16(8) 18(7,8)	3	2	93	23	18	01
ETT	00.7S	16	2351	SC	0	6	6		-	2	149	37	17	24
BJI	28.8N	20	1108	SC	0.8	16	1	21(4)	6	10	226	39	00	05
KRC	16.4N	20	1624	..	..	..	..	20(6,7)	6	8	182	48	21	19
UJJ	13.6N	20	1109	SC	--	16	- 3		-	3	167	19	21	20
NGP	11.3N	20	1109	SC	--	16	- 2		-	5	200	12	21	20
ABG	09.4N	20	1109	SC	--	14	- 2	21(3)	7	5	192	28	21	20
HYB	07.6N	20	1107	SC	- 0.3	14	- 1	21(1,2,3)	6	5	213	29	24	02
PND	02.0N	20	1109	SC	--	15	12		-	5	196	108	21	20
TIR	00.6S	20	1109	SC	- 0.1	12	16		-	7	218	117	21	20
ETT	00.7S	20	1108	SC	0	15	14		-	6	215	102	22	24
HER	33.6S	20	11--	..	..	..	..	20(7)	6	34	159	137	22	03
GNA	43.0S	20	1500	..	..	..	..	21(3,4,5)	5	24	148	171	22	21
CAN	43.6S	20	0900	..	..	..	..	21(3)	6	28	170	107	22	21
KRC	16.4N	26	2151	SC	- 3	44	23	26(8)	5	7	78	42	27	20
UJJ	13.6N	26	2130	..	..	..	..		-	4	83	23	27	19
NGP	11.3N	26	2130	..	..	..	..		-	5	81	32	27	19
ABG	09.4N	26	2130	..	..	..	..	26(8)	5	5	83	32	27	19
HYB	07.6N	26	2150	SC*	0.8	31	2	26(8)	5	5	95	31	28	22
PND	02.0N	26	2130	..	..	..	..		-	5	95	70	27	19
TIR	00.6S	26	2130	..	..	..	..		-	4	94	67	27	19
ETT	00.7S	26	2150	SC	0.5	25	24		-	5	106	61	28	15
HER	33.6S	26	2151	SC*	2	35	23	26(8)	5	22	86	83	27	15

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)

November 2002

Storm Sudden Commencements (SSC)

Day	Time	Quality: Station Group*
09	1751	A: HER
		B: NUR NAG* GUI
		C: NGK* VAL* BDV* CLF HRB* EBR SPT
09	1849	A: NAG* SPT*
		B: VAL* CLF* HRB* EBR* GUI HYB ETT
		C: SOD* NGK* BDV* GCK HTY
11	1231	B: HRB HYB ETT
		C: NGK* GCK
20	1108	B: SOD* MMB KAK KNY
		C: BDV HRB GCK EBR GUI HYB ETT (SFE: NGK)
26	2150	A: VAL* NAG* SPT* GUI* HER*
		B: NUR CLF HRB* GCK MMB EBR* KAK HTY* KNY
		C: NGK BDV*

Solar Flare Effects (sfe)

Day	Begin-End	Station(s)
01	1134-1144	NGK
08	0930-1002	GUI
09	1310-1342	NGK BDV
18	0203-0242	MMB KAK HTY KNY
20	1108-1115	NGK (See SSC)
24	0810-0824	NGK

REPORTING OBSERVATORIES (up to the 7th of January 2003):
SOD NUR NGK VAL BDV CLF HRB NAG GCK MMB EBR SPT KAK HTY KNY GUI HYB ETT HER

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

Note that we have included data of the Antartic Station LIVINGSTONE (62° 39' 44" S, 60°23' 41" W) -- Luis F.