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Data for October and November 1999

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Number 664

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CONTENTS

DETAILED INDEX OF OBSERVATIONS PUBLISHED IN SOLAR-GEOPHYSICAL DATA

CODE	KIND OF OBSERVATION	APR 99	MAY	JUN	JUL	AUG	SEP	OCT	NOV
A.	SOLAR AND INTERPLANETARY								
A.1	Sunspot Drawings	658A 52	659A 54	660A 56	661A 60	662A 44	663A 48	664A 52	
A.2aa	International Provisional Sunspot Numbers	657A 24	658A 27	659A 27	660A 27	661A 26	662A 25	663A 27	664A 26
A.2c	American Sunspot Numbers	657A 24	658A 27	659A 27	660A 27	661A 26	662A 25	664B154	
A.3a	Mt. Wilson Magnetograms	658A 52	659A 54	660A 56	661A 60	662A 44	663A 48	664A 52	
A.3b	Sunspot Mag Class and Regions	658A106	659A112	660A111	661A116	662A102	663A102	664A110	
A.3c	Kitt Peak Magnetograms	658A 52	659A 54	660A 56	661A 60	662A 44	663A 48	664A 52	
A.3d	Mean Solar Magnetic Field (Stanford)	657A 35	658A 41	659A 43	660A 45	661A 43	662A 35	663A 39	664A 47
A.3e	Stanford Magnetograms	658A 52	659A 54	660A 56	661A 60	662A 44	663A 48	664A 52	
A.4	H-alpha Filtergrams	658A 52	659A 54	660A 56	661A 60	662A 44	663A 48	664A 52	
A.5d	Photometric Ca II Faculae (San Fernando)	May 88-Dec 91 in 630B 37; Jan 92-Dec 96 in 631B 22; 97-98 in 663B 66							
A.6c	Stanford Solar Mag Field Synoptic Maps	658A 46	659A 48	660A 50	661A 48	662A 38	663A 42	664A 50	
A.6d	Kitt Peak Solar Mag Field Synoptic Maps	658A 51	659A 53	660A 55	661A 58	662A 43	663A 47		
A.6f	Active Prominences and Filaments	662B 28	663B 44	664B 52					
A.6g	Sac Peak Coronal Line Synoptic Maps	658A 48	659A 50	660A 52	661A 52	662A 40	663A 44		
A.6h	Photometric White Light (San Fernando)	Aug 95-Jun 96 in 624B 24; Jul-Dec 96 630B 32; 97-98 in 663B 51							
A.7h	Coronal Line Emission (Sac Peak)	658A 52	659A 54	660A 56	661A 60	662A 44	663A 48	664A 52	
A.7j	Coronal Hole Daily Maps (NSO/KP)	658A102	659A 85	660A106	661A 91	662A 76	663A 78	664A 83	
A.7k	Coronal Index (Slovak Academy)	1939-1996 in 644B 28							
A.8aa	2800 MHz- Solar Flux (Penticton)	657A 24	658A 27	659A 27	660A 27	661A 26	662A 25	663A 27	664A 26
A.8ac	2800 MHz- Adj. Solar Flux (Penticton)	657A 24	658A 27	659A 27	660A 27	661A 26	662A 25	663A 27	664A 26
A.8g	Adjusted Daily Solar Fluxes (Learmonth)	657A 24	658A 27	659A 27	660A 27	661A 26	662A 25	663A 27	664A 26
A.10g	Nancay Radioheliograph - 164&327 MHz	658A133	660B 42	660A170	661A166	662A148	664B 58	664A144	
A.10h	Nobeyama Radioheliograph Maps - 17 GHz	658A 97	659A106	660A101	661A110	662A 96	663A 97	664A104	
A.11g	Solar X-ray GOES (graphs/event table)	662B 20	663B 35	664B 44					
A.11k	Solar UV NOAA-9	May 86-Dec 88 in 566B 84							
A.11l	Solar UV NIMBUS7	Nov 78-Oct 84 in 542B 82							
A.11m	Solar UV SOLSTICE (UARS)	Oct 91-Sep 94 in 607B 46							
A.11n	Solar YOHKOH Soft X-ray Images	658A 82	659A 90	660A 86	661A 94	662A 80	663A 82	664A 88	
A.11o	Solar UV SUSIM (UARS)	Oct 91-Jan 97 in 629B 30							
A.12g	Solar Particles (GOES-7)	657A 4	658A 4	659A 4	660A 4	661A 4	662A 4	663A 4	664A 4
A.12h	Interplanetary Particles (SAMPEX)	Jul 95-Dec 96 in 632B 22; Jan-Dec 97 in 647B 33							
A.13e	Solar Plasma (IMP-8)	662B 29	663B 45	664B 54					
A.16c	ERBS, NOAA-9 & -10 Solar Irradiance	ERBS Jan-Dec 96 in 632B 64; Jan-Oct 97 in 639B 58							
A.16d	UARS Solar Irradiance	Oct 91-Dec 97 in 642B 32							
A.16e	VIRGO/SOHO Solar Irradiance	Jan 96-Nov 99 in 664B 60							
A.17c	Inferred Interplanetary Mag Field	1984-1988 data in 542A168; 1989-Jan 94 in 611A118							
A.17	IMP-8 Interplanetary Mag Field	662B 30	663B 46	664B 55					
C.	SOLAR FLARE-ASSOCIATED EVENTS								
C.1a	H-alpha Flares	657A 27	658A 30	659A 30	660A 30	661A 29	662A 28	663A 30	664A 29
C.1ba	H-alpha Flare Groups	662B 4	663B 4	664B 4					
C.1d	Flare Patrol Obsevations	662B 12	663B 19	664B 23					
C.1h	H-alpha Flare Index (ImpxDur)	Jan 86-Oct 96 in 635B 24; Jan 76-Dec 85 in 639B 26							
C.3	Radio Bursts Fixed Frequency	662B 14	663B 21	664B 25					
C.3	Radio Bursts Fixed Frequency Selected	657A 33	658A 39	659A 41	660A 43	661A 40	662A 33	663A 37	664A 43
C.4	Radio Bursts Spectral	658A121	659A133	660A146	661A142	662A124	663A118	664A133	
C.6	Sudden Ionospheric Disturbances	658A119	659A130	660A142	661A139	662A120	663A116	664A130	
D.	GEOMAGNETIC EVENTS								
D.1a	Geomagnetic Indices	658A140	659A161	660A181	661A176	662A158	663A140	664A154	
D.1ba	27-day Chart of Kp Indices	658A142	659A163	660A183	661A178	662A160	663A142	664A156	
D.1cb	Monthly Mean aa Indices	658A143	659A164	660A184	661A179	662A161	663A143	664A157	
D.1d	Principal Magnetic Storms	658A147	659A169	660A188	661A184	662A166	663A148	664A161	
D.1f	Sudden Commencements/Flare Effects	658A148	659A170	660A189	661A185	663B 50	663A149	664A162	
D.1g	Equatorial Indices Dst	658A145	659A166	660A186	661A181	662A163	663A145		
D.1i	Polar Cap (PC) Index	658A146	659A167	660A187	661A182	662A164	663A146	664A159	
F.	COSMIC RAYS								
F.1b	Cosmic Ray Neutron Cts (Climax)	658A135	659A153	660A173	661A168	662A150	663A132	664A146	
F.1h	Cosmic Ray Neutron Cts (Thule)	----------	----------	----------	----------	----------	----------	----------	
F.1i	Cosmic Ray Neutron Cts (Kiel)	658A135	659A153	660A173	661A168	662A150	663A132	664A146	
F.1n	Cosmic Ray Neutron Cts (Beijing)	658A135	659A153	660A173	661A168	662A150	663A132	664A146	
F.1m	Cosmic Ray Neutron Cts (Haleakala)	658A135	659A153	660A173	661A168	662A150	663A132	664A146	
F.1o	Cosmic Ray Neutron Cts (Moscow)	658A135	659A153	660A173	661A168	662A150	663A132	664A146	
F.1p	Cosmic Ray Neutron Cts (Calgary)	658A135	659A153	660A173	661A168	662A150	663A132	664A146	
F.1r	Cosmic Ray Neutron Cts (Goose Bay)	658A135	659A153	660A173	661A168	662A150	663A132	664A146	
H.	MISCELLANEOUS								
H.60	ISES Alert Periods	657A 19	658A 20	659A 19	660A 20	661A 20	662A 19	663A 20	664A 19

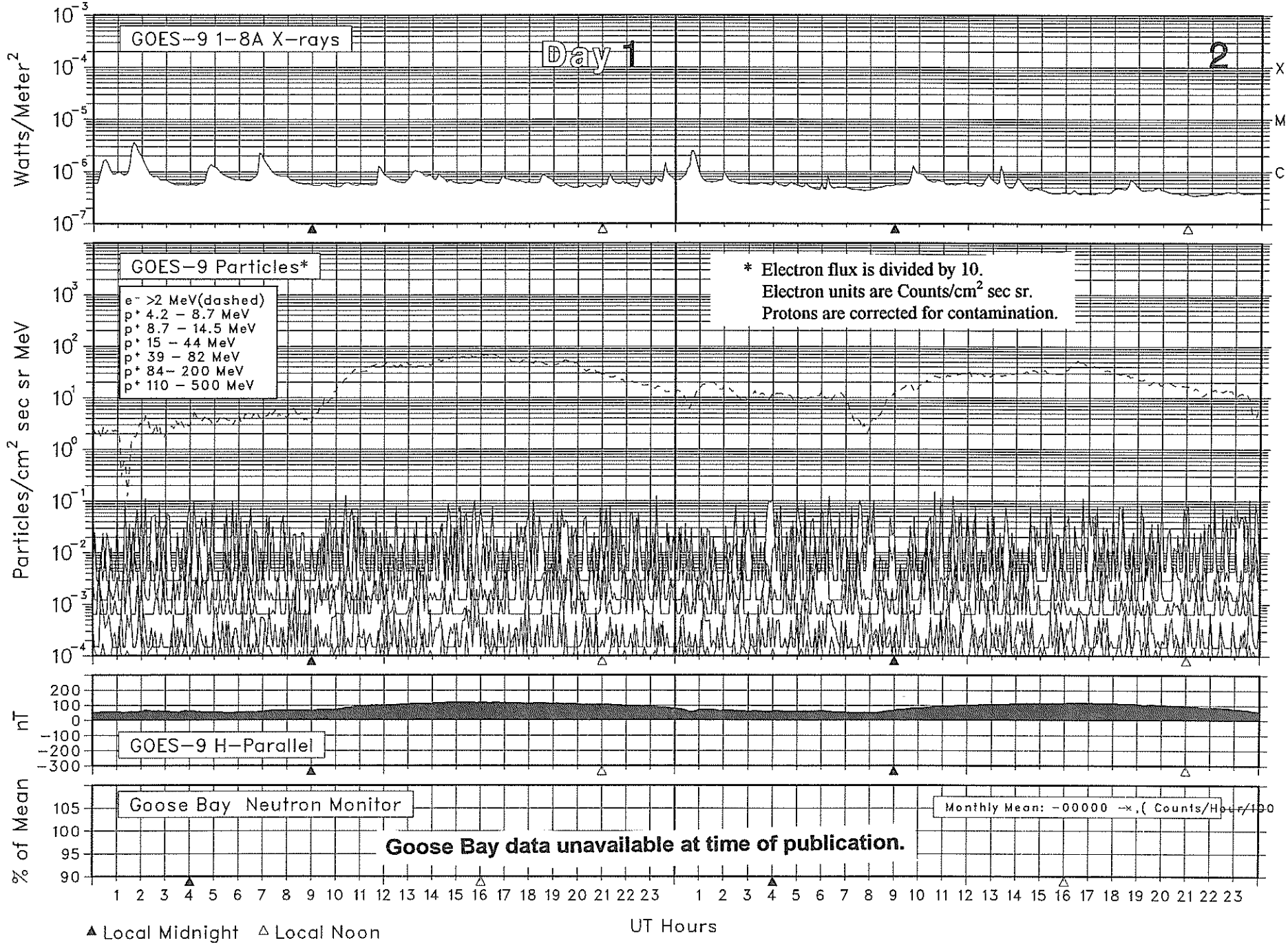
The entry "658A 52" under Apr 99, for example, means that the sunspot drawings for Apr 99 appear in SOLAR-GEOPHYSICAL DATA No. 658, Part I, and that they begin on page 52. "A" denotes Part I and "B", Part II. Blanks indicate data not yet received and dashes mark unavailable data.

CONTENTS

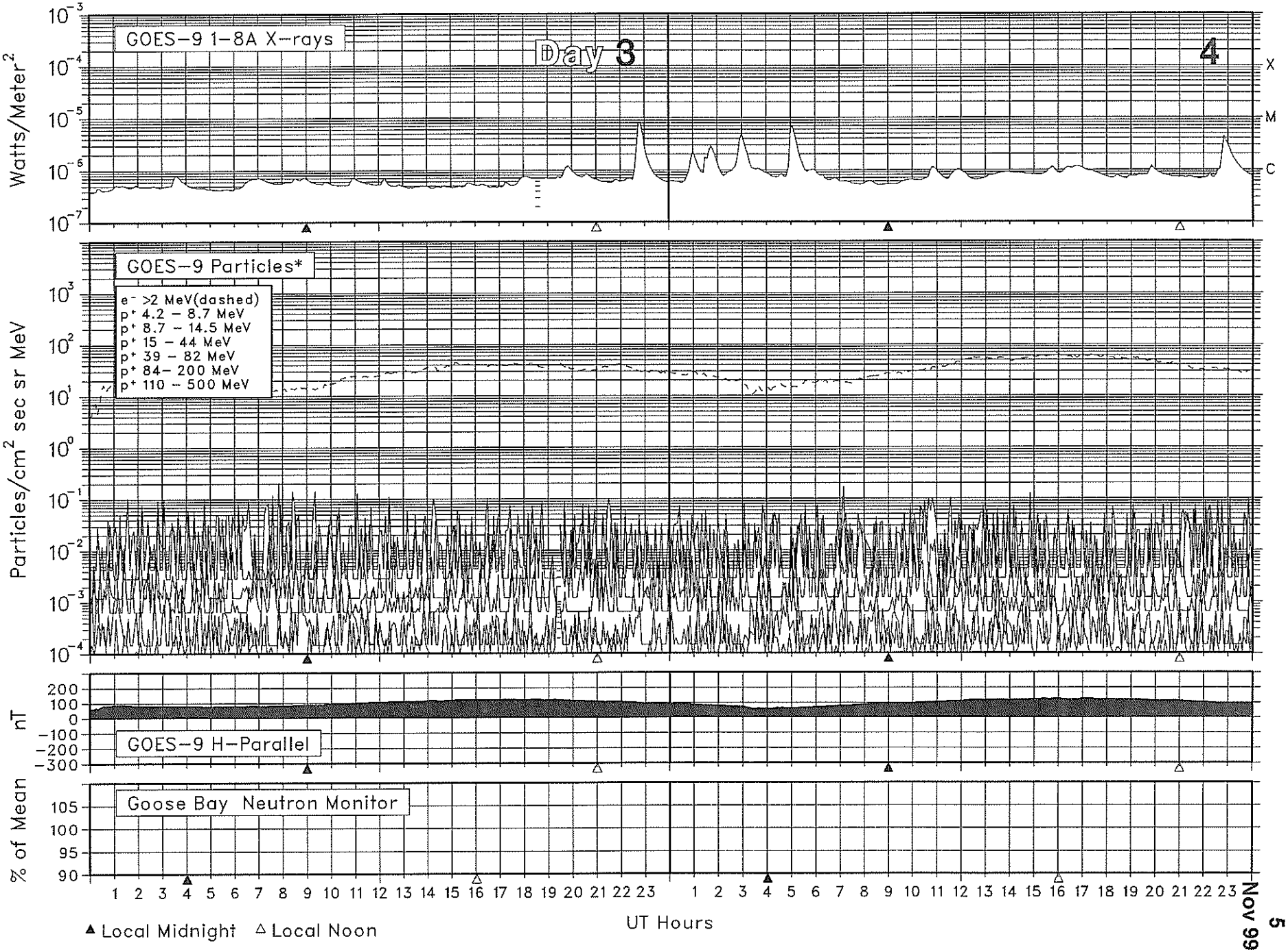
Prompt Reports Number 664 Part I

DATA FOR NOVEMBER 1999

SOLAR-TERRESTRIAL ENVIRONMENT
November 1999

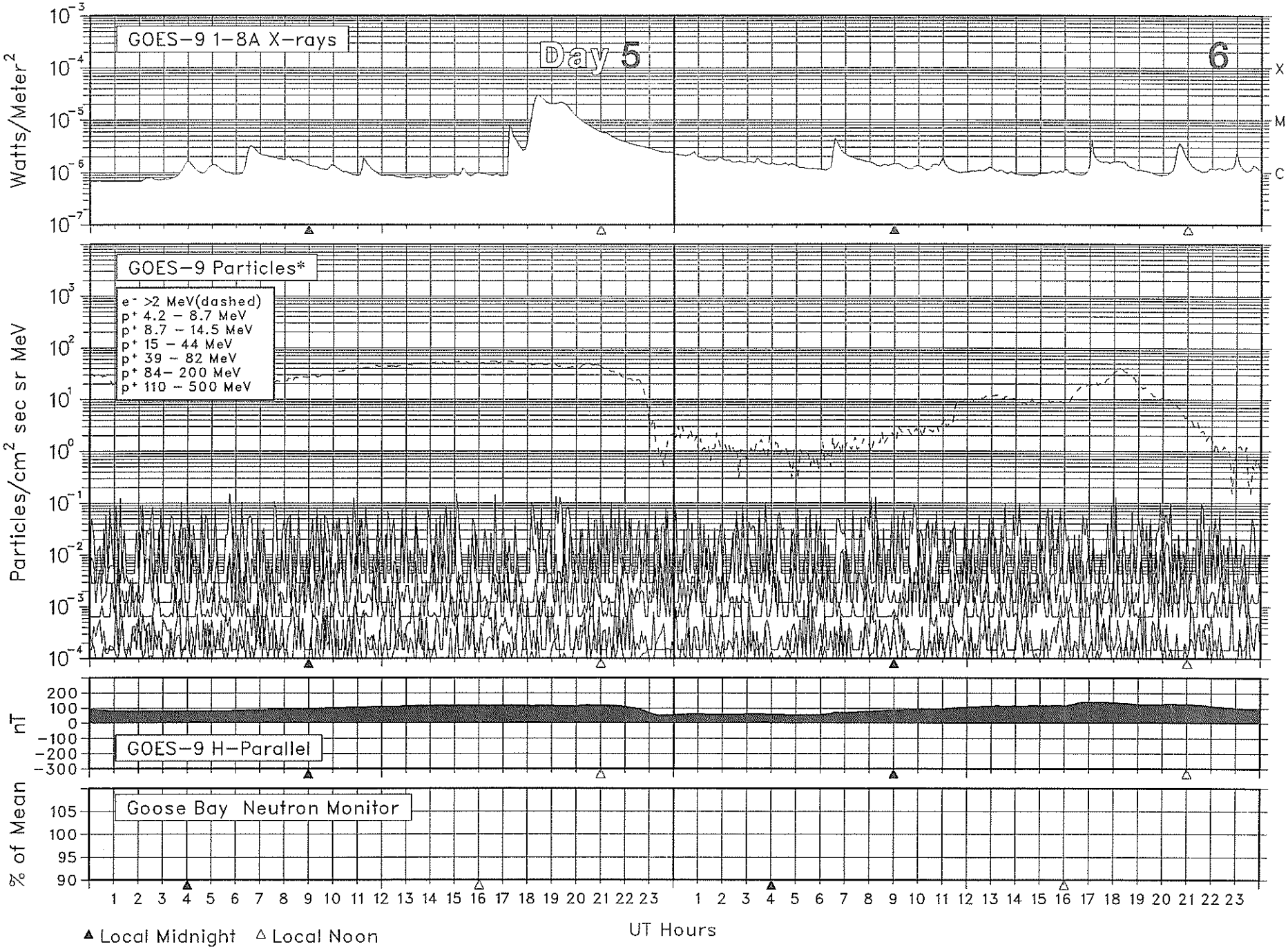


SOLAR-TERRESTRIAL ENVIRONMENT
November 1999

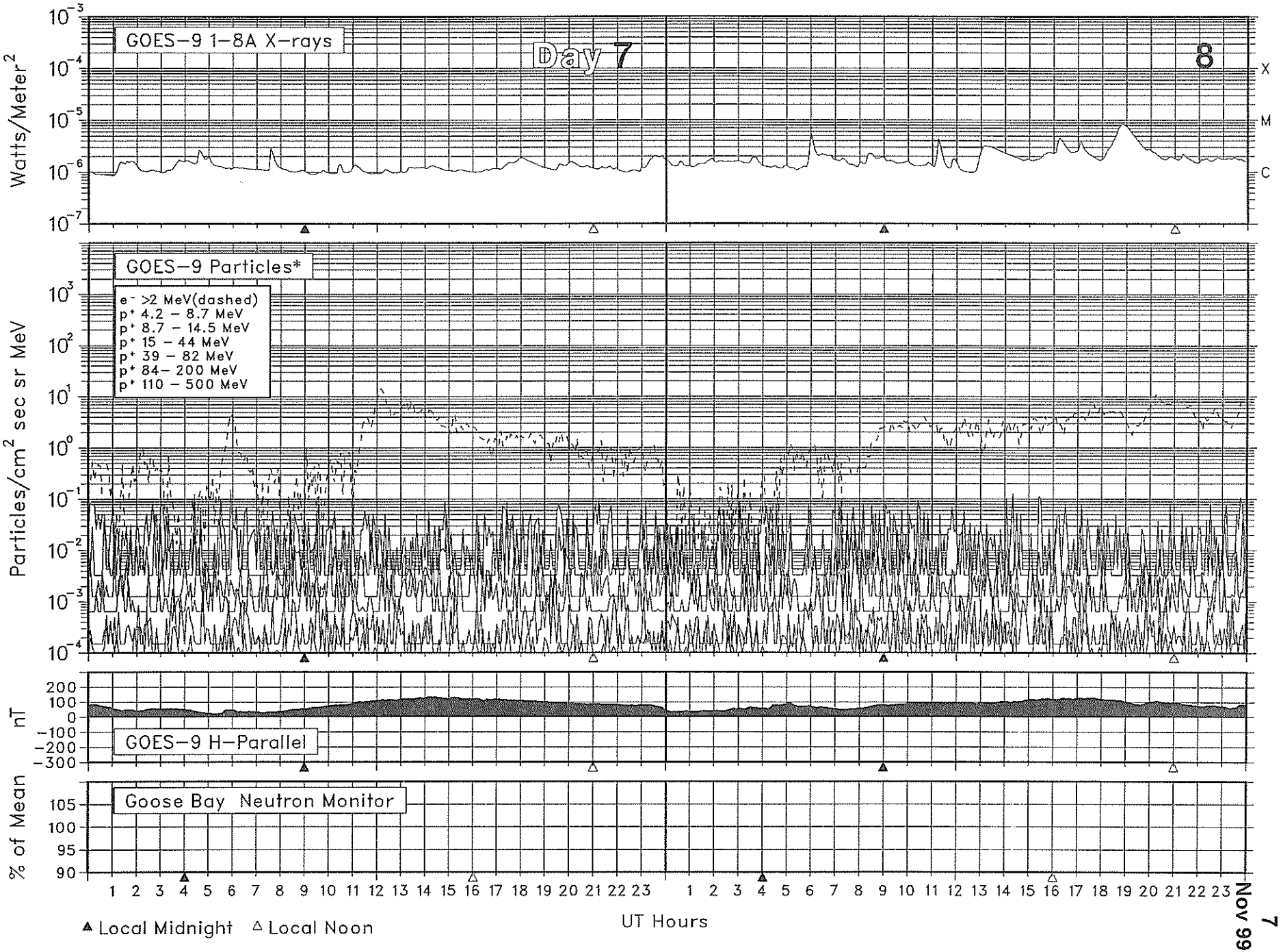


SOLAR-TERRESTRIAL ENVIRONMENT
November 1999

6 Nov 99

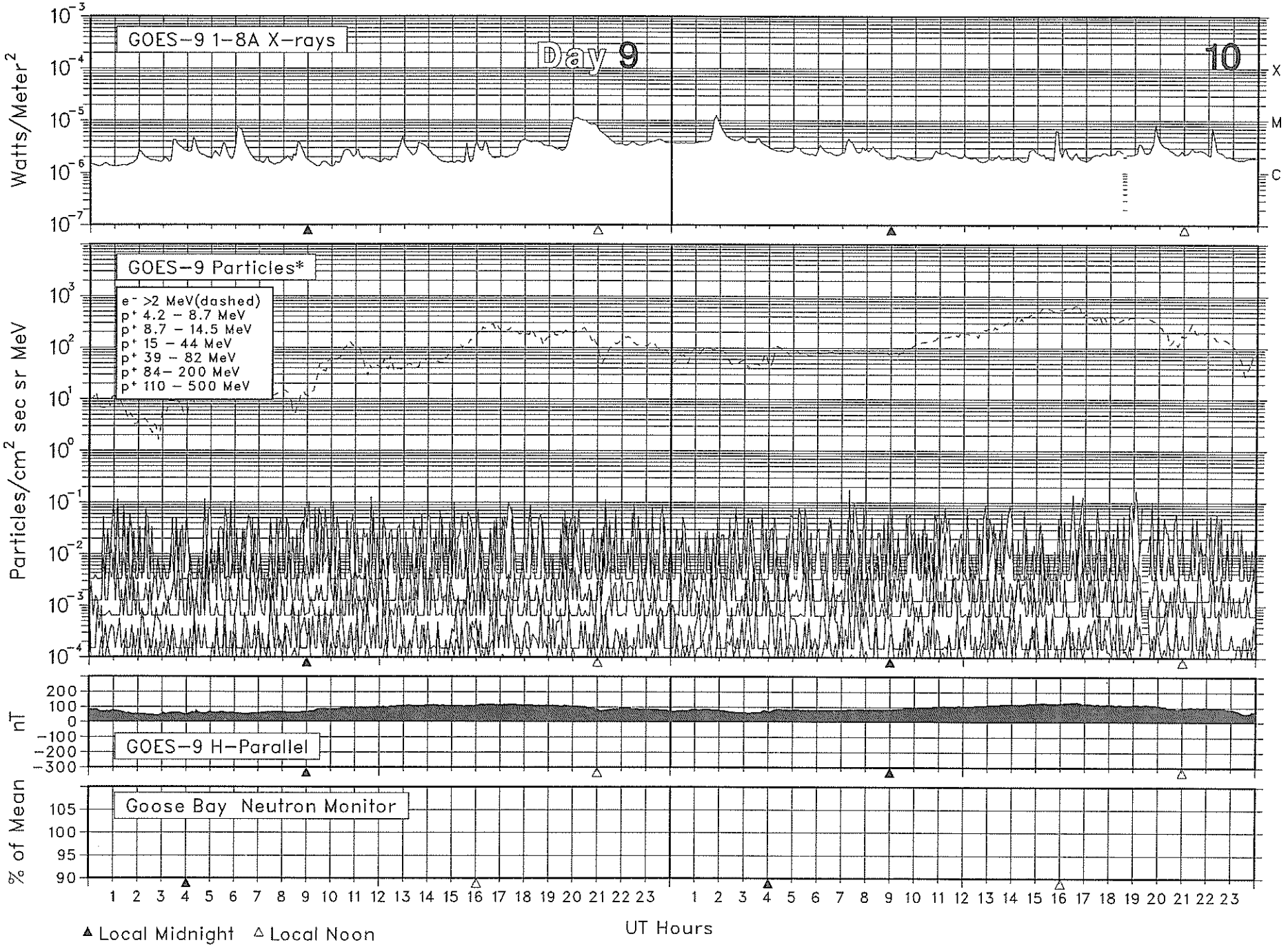


SOLAR-TERRESTRIAL ENVIRONMENT
November 1999

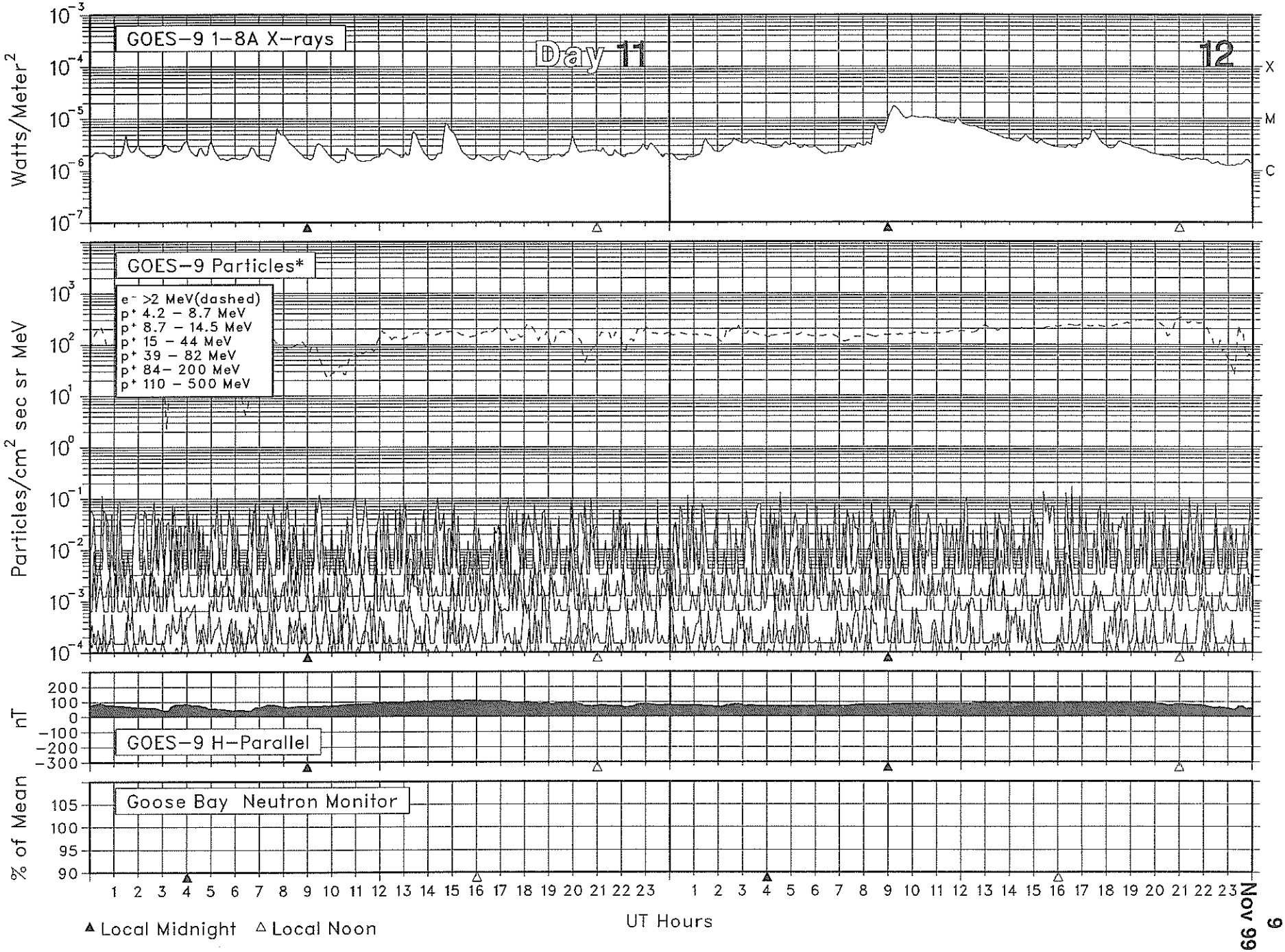


SOLAR-TERRESTRIAL ENVIRONMENT
November 1999

8 Nov 99

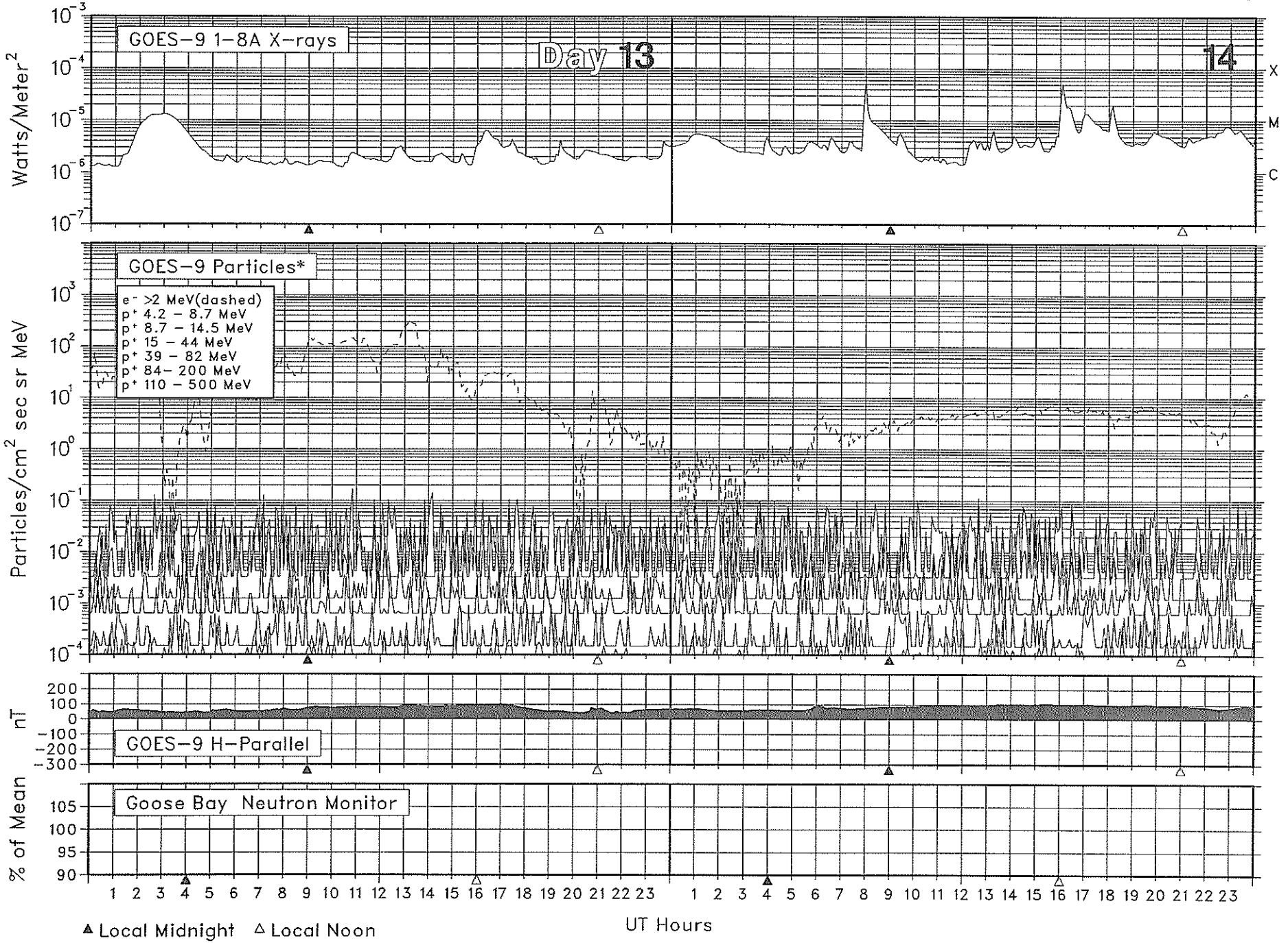


SOLAR-TERRESTRIAL ENVIRONMENT
November 1999

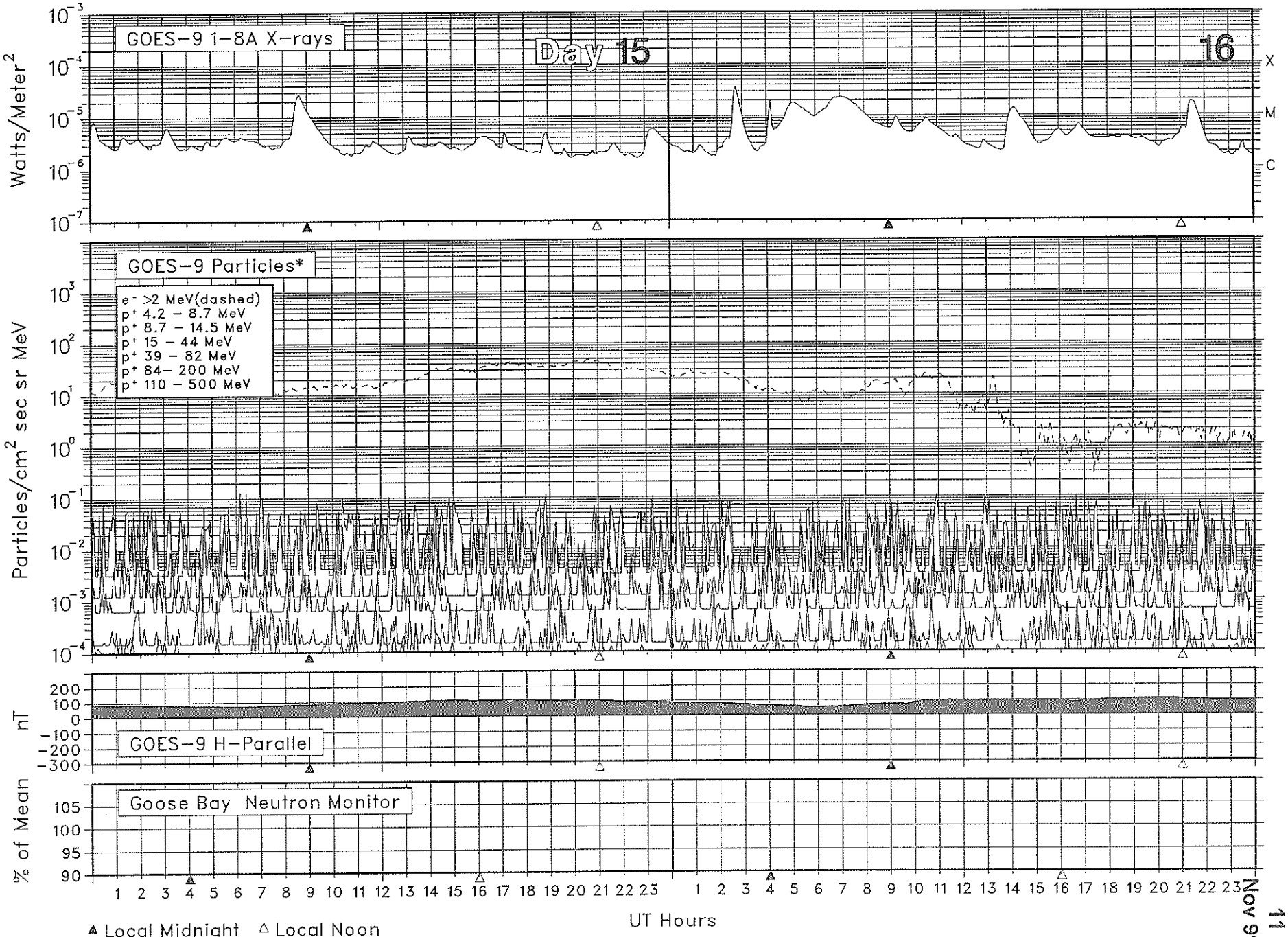


SOLAR-TERRESTRIAL ENVIRONMENT
November 1999

Nov 10 99

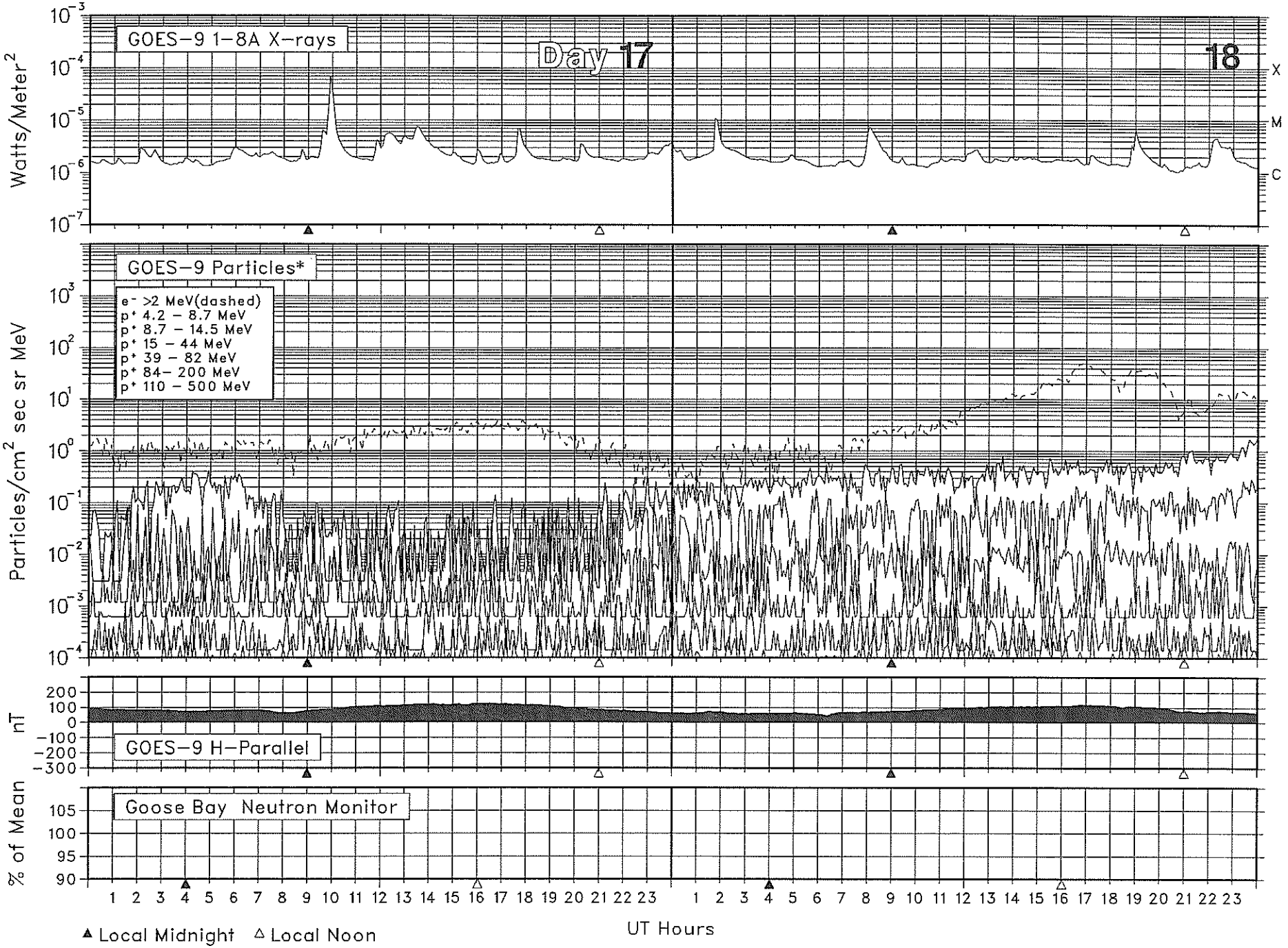


SOLAR-TERRESTRIAL ENVIRONMENT
November 1999

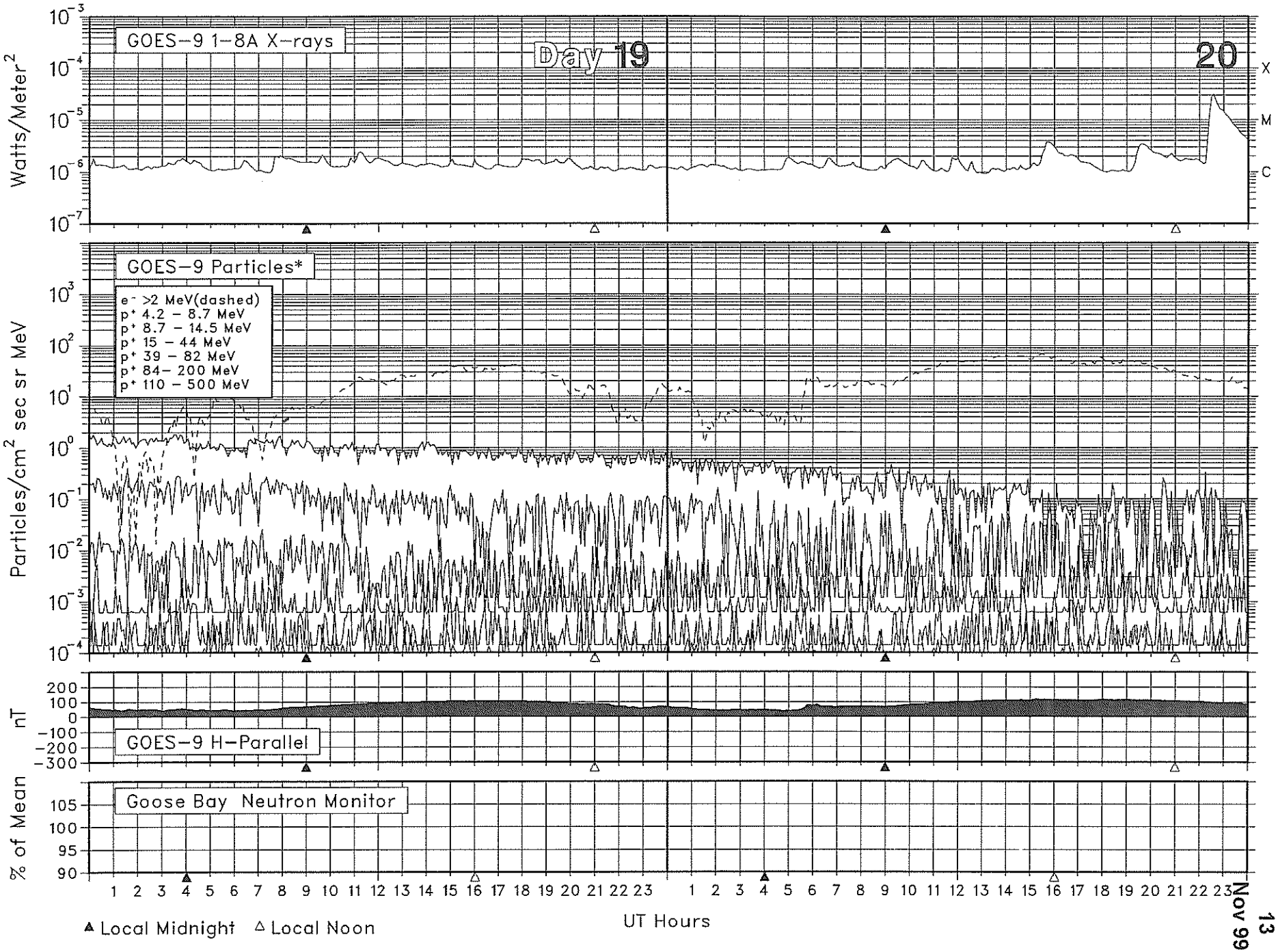


SOLAR-TERRESTRIAL ENVIRONMENT
November 1999

Nov 99 12

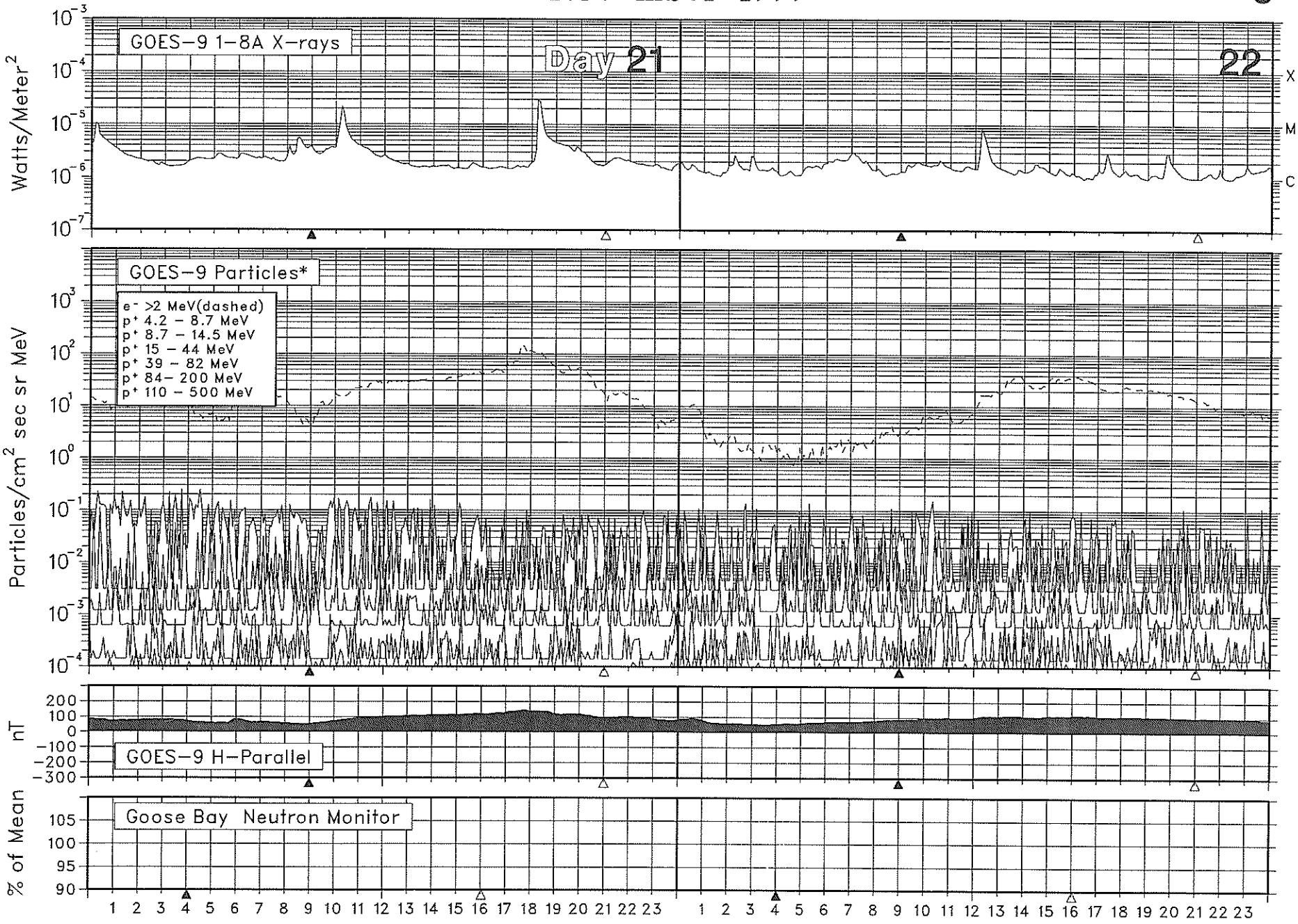


SOLAR-TERRESTRIAL ENVIRONMENT
November 1999

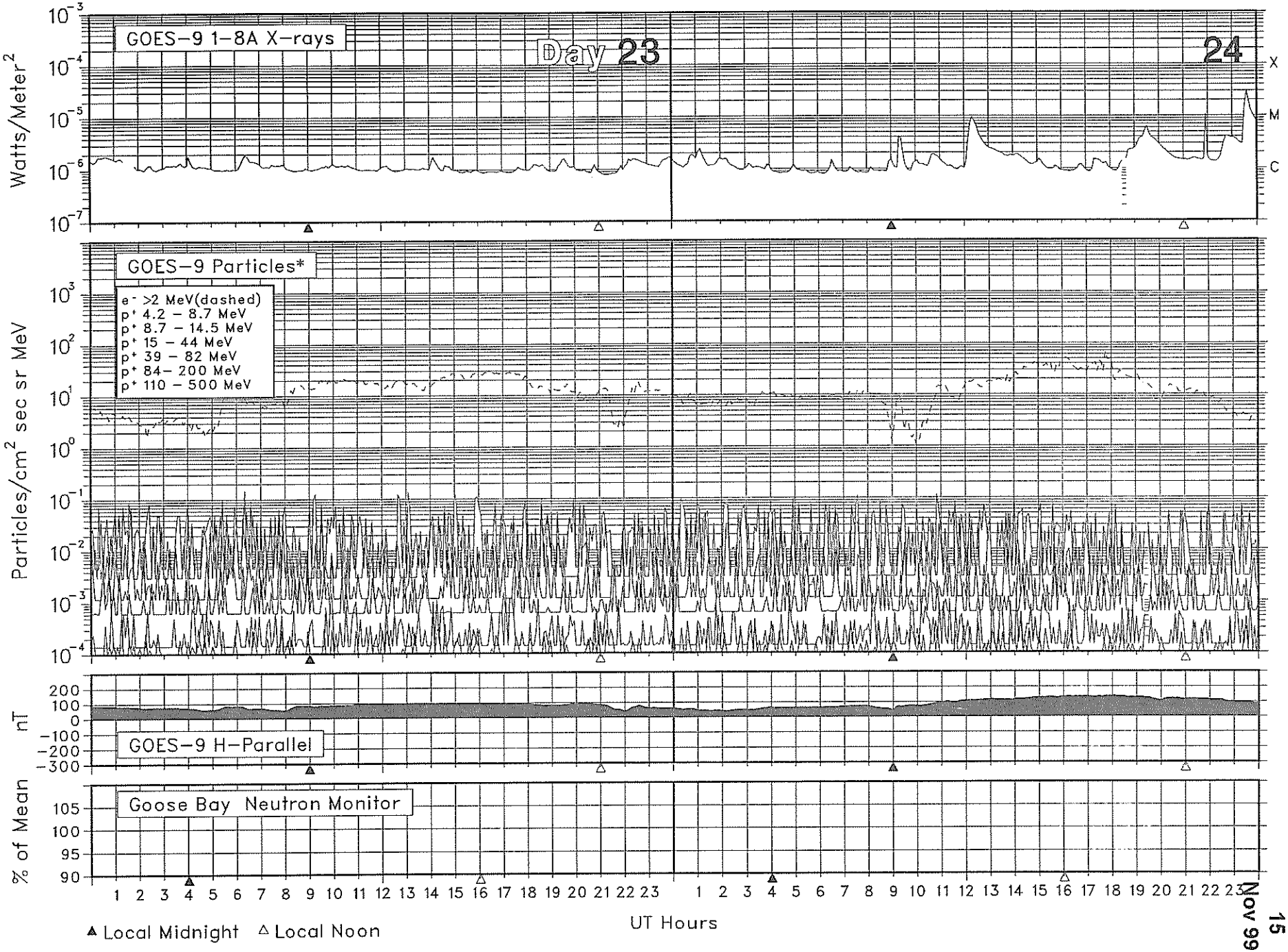


SOLAR-TERRESTRIAL ENVIRONMENT
November 1999

Nov 14 99



SOLAR-TERRESTRIAL ENVIRONMENT
November 1999



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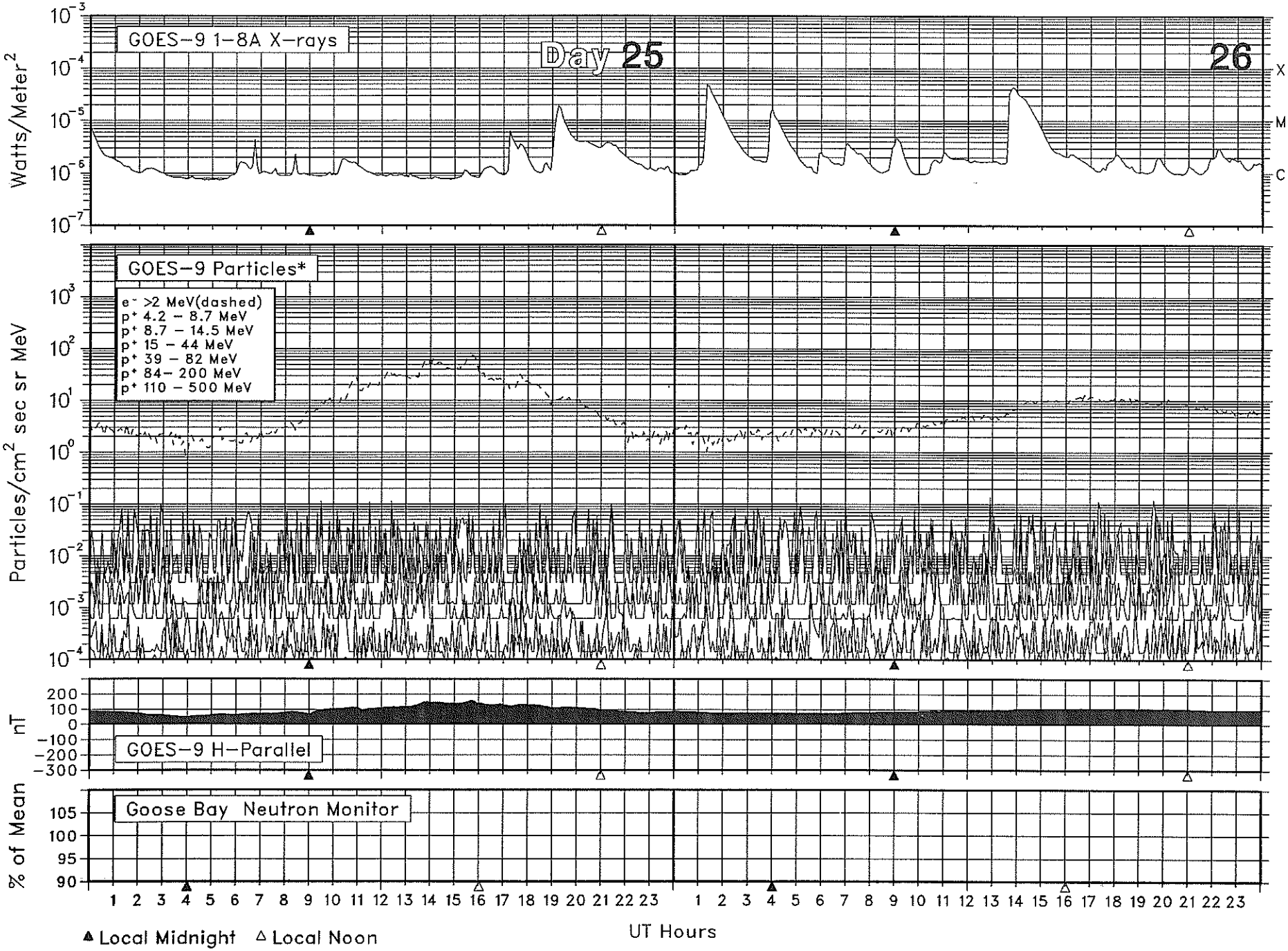
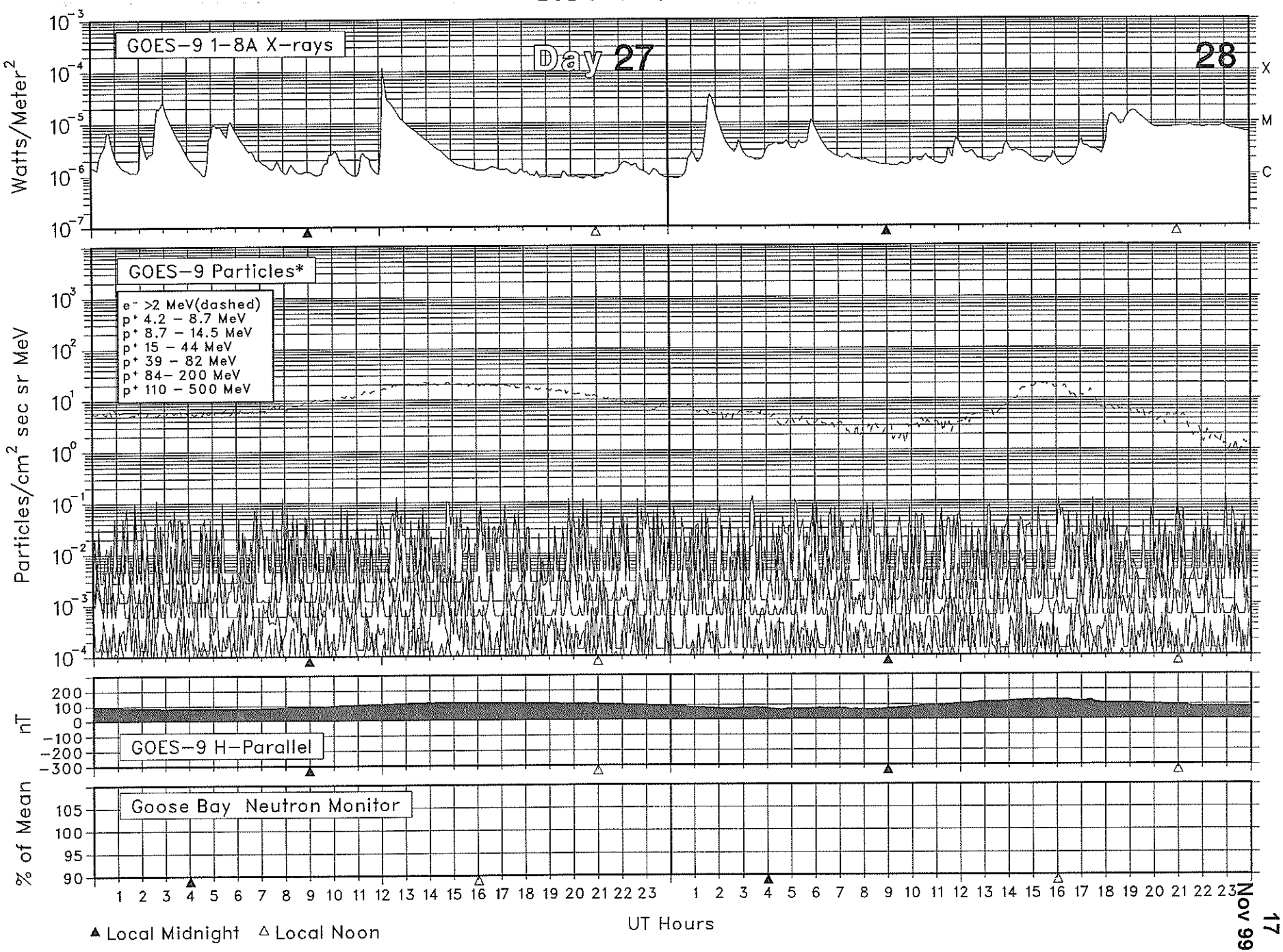
November 1999

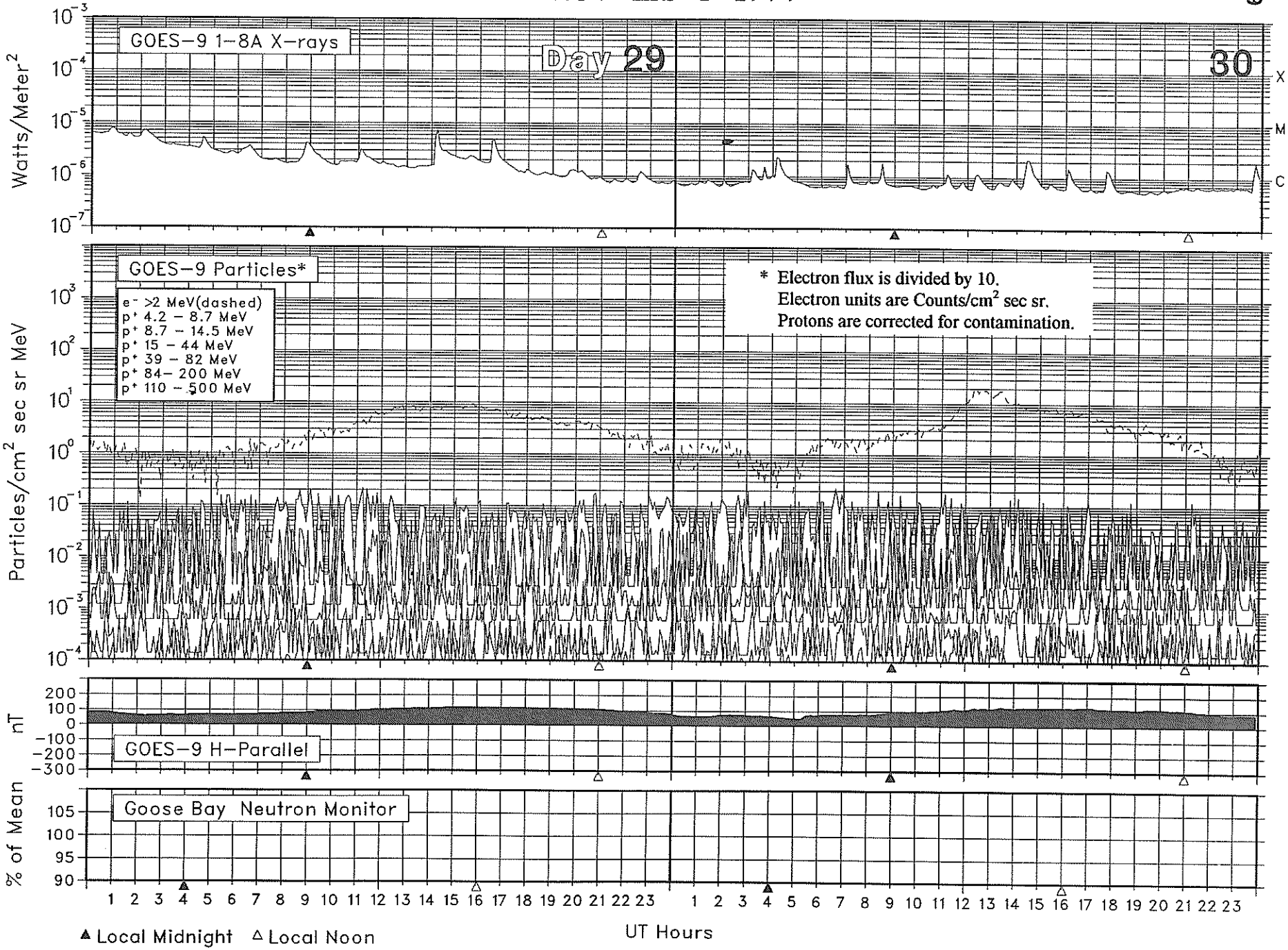


SOLAR-TERRESTRIAL ENVIRONMENT
November 1999



SOLAR-TERRESTRIAL ENVIRONMENT
November 1999

Nov 99 18



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

NOVEMBER 1999

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)
305	01	31	194	160	10	8739	S11	W78	0	0	0	01	E	SOL: Eruptive
						8741	S25	W54	1	0	0	01	E	MAG: Quiet
						8742	N09	W24	0	0	0	01	Q	PRO: Quiet
						8743	S15	W61	0	0	0	01	Q	
						8744	N10	W38	0	0	0	01	Q	
						8745	S15	E00	0	0	0	01	Q	
						8747	N11	E17	3	0	0	01	Q	
						8748	N19	W20	0	0	0	01	Q	
						8749	S18	E15	11	0	0	01	E	
						8750	S16	W18	0	0	0	01	Q	
						8751	N21	E54	0	0	0	01	Q	
306	02	01	178	151	11	8739	S12	W89	0	0	0	02	E	SOL: Eruptive
						8741	S25	W67	7	0	0	02	Q	MAG: Quiet
						8742	N08	W38	0	0	0	02	Q	PRO: Quiet
						8743	S16	W73	0	0	0	02	Q	
						8744	N09	W53	0	0	0	02	Q	
						8745	S15	W12	0	0	0	02	Q	
						8747	N12	E03	2	0	0	02	Q	
						8748	N17	W33	0	0	0	02	Q	
						8749	S18	E02	6	0	0	02	E	
						8751	N21	E40	0	0	0	02	Q	
307	03	02	124	143	7	8741	S25	W80	0	0	0	03	Q	SOL: Eruptive
						8742	N08	W51	0	0	0	03	Q	MAG: Active
						8743	S16	W83	0	0	0	03	Q	PRO: Quiet
						8745	S15	W25	0	0	0	03	Q	
						8747	N12	W11	0	0	0	03	E	
						8749	S18	W11	2	0	0	03	E	
						8751	N21	E28	0	0	0	03	Q	
308	04	03	117	143	5	8742	N08	W68	0	0	0	04	Q	SOL: Eruptive
						8745	S15	W39	0	0	0	04	Q	MAG: Quiet
						8747	N12	W25	2	0	0	04	Q	PRO: Quiet
						8749	S18	W26	2	0	0	04	E	
						8751	N23	E14	0	0	0	04	Q	
						8752	S14	E01	0	0	0	04	Q	
						8753	N21	E63	0	0	0	04	Q	
309	05	04	108	148	5	8742	N08	W80	0	0	0	05	Q	SOL: Eruptive
						8745	S14	W51	1	0	0	05	Q	MAG: Quiet
						8747	N11	W39	1	0	0	05	Q	PRO: Quiet
						8749	S18	W39	6	0	0	05	E	
						8751	N21	E02	0	0	0	05	Q	
						8752	S13	W14	0	0	0	05	Q	
						8754	S08	E66	0	0	0	05	Q	
310	06	05	153	161	5	8742	N09	W93	0	0	0	06	Q	SOL: Eruptive
						8745	S14	W64	2	0	0	06	Q	MAG: Quiet
						8747	N11	W52	1	0	0	06	Q	PRO: Quiet
						8749	S18	W51	2	1	0	06	E	
						8751	N22	W10	0	0	0	06	Q	
						8752	S13	W27	0	0	0	06	Q	
						8754	S09	E55	0	0	0	06	Q	
						8755	N19	E71	0	0	0	06	Q	
						8756	N18	E11	0	0	0	06	Q	
						8757	N38	E09	0	0	0	06	Q	
311	07	06	188	150	4	8745	S13	W76	1	0	0	07	Q	SOL: Eruptive
						8747	N10	W64	0	0	0	07	Q	MAG: Active
						8749	S18	W64	1	0	0	07	E	PRO: Quiet
						8751	N22	W23	0	0	0	07	Q	
						8752	S13	W39	0	0	0	07	Q	
						8753	N20	E29	0	0	0	07	Q	
						8754	S09	E41	0	0	0	07	Q	
						8755	N21	E57	0	0	0	07	Q	
						8756	N18	W02	0	0	0	07	Q	

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

NOVEMBER 1999

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)
						8757	N38	W03	0	0	0	07	Q	
						8758	N18	E64	0	0	0	07	Q	
						8759	N10	E78	1	0	0	07	E	
312	08	07	185	174	22	8747	N12	W78	0	0	0	08	Q	SOL: Eruptive
						8749	S18	W76	2	0	0	08	E	MAG: Active
						8751	N23	W36	0	0	0	08	Q	PRO: Quiet
						8753	N20	E16	1	0	0	08	Q	
						8754	S09	E26	0	0	0	08	Q	
						8755	N21	E42	0	0	0	08	Q	
						8756	N18	W18	0	0	0	08	Q	
						8757	N38	W16	4	0	0	08	Q	
						8758	N17	E52	2	0	0	08	Q	
						8759	N08	E70	0	0	0	08	E	
						8760	N13	E35	0	0	0	08	Q	
313	09	08	232	192	26	8747	N12	W90	0	0	0	09	Q	SOL: Active
						8749	S18	W89	1	0	0	09	Q	MAG: Active
						8751	N23	W50	0	0	0	09	Q	PRO: Quiet
						8753	N21	E03	2	0	0	09	Q	
						8754	S10	E13	0	0	0	09	Q	
						8755	N23	E29	0	0	0	09	Q	
						8756	N16	W36	0	0	0	09	Q	
						8757	N38	W31	2	0	0	09	Q	
						8758	N18	E41	2	0	0	09	Q	
						8759	N13	E58	6	0	0	09	E	
						8760	N14	E22	5	0	0	09	E	
						8761	N22	E51	0	0	0	09	Q	
314	10	09	288	230	25	8751	N22	W63	1	0	0	10	Q	SOL: Eruptive
						8753	N21	W10	0	0	0	10	Q	MAG: Active
						8754	S06	E00	0	0	0	10	Q	PRO: Quiet
						8755	N23	E16	0	0	0	10	Q	
						8757	N39	W43	0	0	0	10	Q	
						8758	N18	E25	2	0	0	10	Q	
						8759	N10	E45	3	1	0	10	E	
						8760	N14	E09	9	0	0	10	E	
						8761	N20	E36	0	0	0	10	Q	
						8762	N07	W32	0	0	0	10	Q	
315	11	10	343	249	13	8751	N23	W78	0	0	0	11	Q	SOL: Eruptive
						8753	N19	W24	5	2	0	11	E	MAG: Active
						8754	S07	W14	0	0	0	11	Q	PRO: Quiet
						8755	N22	E04	0	0	0	11	Q	
						8757	N38	W55	0	0	0	11	Q	
						8758	N18	E13	2	0	0	11	Q	
						8759	N10	E32	5	1	0	11	E	
						8760	N13	W04	9	0	0	11	E	
						8761	N20	E25	2	0	0	11	Q	
						8762	N06	W46	0	0	0	11	Q	
						8763	S13	E74	7	0	0	11	E	
						8764	N17	W15	0	0	0	11	Q	
316	12	11	340	240	30	8753	N18	W37	5	0	0	12	E	SOL: Active
						8754	S08	W26	0	0	0	12	Q	MAG: Quiet
						8755	N22	W11	0	0	0	12	Q	PRO: Quiet
						8757	N37	W68	1	0	0	12	Q	
						8758	N18	W01	0	0	0	12	Q	
						8759	N10	E19	8	0	0	12	E	
						8760	N13	W18	4	0	0	12	E	
						8761	N19	E11	1	0	0	12	Q	
						8762	N06	W60	0	0	0	12	Q	
						8763	S14	E59	7	0	0	12	E	
						8764	N16	W28	0	0	0	12	Q	
						8765	S10	E72	0	0	0	12	E	
317	13	12	324	232	13	8753	N19	W51	1	0	0	13	Q	SOL: Active

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

NOVEMBER 1999

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)
						8754	S07	W40	0	0	0	13	Q	MAG: Quiet
						8755	N22	W22	0	0	0	13	Q	PRO: Quiet
						8757	N36	W81	0	0	0	13	Q	
						8758	N17	W15	0	0	0	13	Q	
						8759	N10	E06	10	2	0	13	E	
						8760	N14	W32	4	0	0	13	E	
						8761	N20	W01	0	0	0	13	Q	
						8762	N06	W76	0	0	0	13	Q	
						8763	S15	E46	6	0	0	13	E	
						8764	N18	W42	1	0	0	13	Q	
						8765	S12	E58	2	0	0	13	Q	
318	14	13	251	224	22	8753	N19	W64	2	0	0	14	Q	SOL: Active
						8755	N23	W36	0	0	0	14	Q	MAG: Quiet
						8758	N18	W26	0	0	0	14	Q	PRO: Quiet
						8759	N10	W07	6	0	0	14	E	
						8760	N14	W45	0	0	0	14	E	
						8761	N20	W15	0	0	0	14	Q	
						8763	S14	E32	7	1	0	14	E	
						8764	N18	W56	1	0	0	14	E	
						8765	S12	E45	8	0	0	14	E	
						8766	N18	E68	0	0	0	14	Q	
319	15	14	232	219	13	8753	N22	W80	0	0	0	15	Q	SOL: Active
						8755	N23	W48	0	0	0	15	Q	MAG: Quiet
						8759	N11	W21	3	1	0	15	E	PRO: Quiet
						8760	N15	W59	0	0	0	15	Q	
						8763	S15	E18	5	1	0	15	E	
						8765	S14	E32	19	1	0	15	E	
						8766	N17	E57	14	1	0	15	E	
						8767	N43	W29	0	0	0	15	Q	
						8768	N17	E33	0	0	0	15	Q	
320	16	15	213	206	6	8755	N23	W61	0	0	0	16	Q	SOL: Active
						8759	N11	W32	2	0	0	16	E	MAG: Quiet
						8760	N15	W70	0	0	0	16	Q	PRO: Quiet
						8763	S14	E04	2	0	0	16	E	
						8765	S13	E19	11	1	0	16	E	
						8766	N17	E44	8	0	0	16	E	
						8767	N42	W42	0	0	0	16	Q	
						8768	N17	E20	0	0	0	16	Q	
						8769	S10	E76	0	0	0	16	Q	
321	17	16	231	233	11	8755	N22	W72	0	0	0	17	Q	SOL: Active
						8759	N12	W45	5	1	0	17	E	MAG: Active
						8760	N15	W83	1	1	0	17	Q	PRO: Warning
						8763	S13	W07	0	0	0	17	Q	
						8765	S12	E06	9	3	0	17	E	
						8766	N18	E31	6	2	0	17	E	
						8767	N42	W54	0	0	0	17	Q	
						8768	N17	E05	3	1	0	17	Q	
						8769	S10	E65	2	0	0	17	Q	
						8770	S14	W23	0	0	0	17	Q	
322	18	17	248	221	11	8755	N22	W88	0	0	0	18	Q	SOL: Active
						8759	N12	W58	7	0	0	18	E	MAG: Active
						8760	N17	W93	0	0	0	18	Q	PRO: Warning
						8763	S13	W20	0	0	0	18	Q	
						8765	S12	W08	7	0	0	18	E	
						8766	N18	E16	3	1	0	18	E	
						8767	N42	W68	0	0	0	18	Q	
						8768	N17	W11	3	0	0	18	E	
						8769	S12	E53	4	0	0	18	E	
						8770	S14	W37	0	0	0	18	Q	
						8771	S13	E59	1	0	0	18	Q	
323	19	18	194	218	12	8759	N13	W66	1	0	0	19	E	SOL: Active

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

NOVEMBER 1999

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)
						8763	S13	W35	0	0	0	19	Q	MAG: Active
						8765	S12	W20	6	0	0	19	E	PRO: Quiet
						8766	N18	E02	2	0	0	19	E	
						8768	N17	W24	0	0	0	19	E	
						8769	S10	E37	0	0	0	19	Q	
						8770	S13	W51	4	0	0	19	Q	
						8771	S14	E46	3	1	0	19	E	
						8772	N05	E71	0	0	0	19	Q	
324	20	19	234	210	12	8759	N12	W79	1	0	0	20	E	SOL: Eruptive
						8765	S12	W34	11	0	0	20	E	MAG: Active
						8766	N17	W11	1	0	0	20	E	PRO: Quiet
						8768	N16	W38	1	0	0	20	E	
						8769	S11	E24	0	0	0	20	Q	
						8770	S14	W65	2	0	0	20	Q	
						8771	S15	E28	5	0	0	20	E	
						8772	N05	E55	0	0	0	20	Q	
						8773	S14	E39	0	0	0	20	Q	
						8774	N22	E69	0	0	0	20	Q	
						8775	S17	W18	0	0	0	20	Q	
325	21	20	225	204	10	8765	S13	W47	2	1	0	21	E	SOL: Eruptive
						8766	N18	W25	0	0	0	21	E	MAG: Active
						8768	N17	W54	1	0	0	21	Q	PRO: Quiet
						8769	S12	E10	0	0	0	21	Q	
						8770	S13	W80	0	0	0	21	Q	
						8771	S17	E12	9	1	0	21	E	
						8772	N04	E42	0	0	0	21	Q	
						8773	S16	E25	2	0	0	21	Q	
						8774	N20	E56	0	0	0	21	Q	
						8775	S16	W31	0	0	0	21	Q	
						8776	S31	E24	0	0	0	21	Q	
326	22	21	200	210	16	8765	S12	W60	9	3	0	22	E	SOL: Eruptive
						8766	N18	W36	0	0	0	22	Q	MAG: Active
						8768	N16	W65	4	0	0	22	Q	PRO: Quiet
						8771	S16	E01	4	0	0	22	E	
						8772	N04	E29	0	0	0	22	Q	
						8773	S15	E12	0	0	0	22	Q	
						8776	S30	E08	0	0	0	22	Q	
						8777	S26	E40	0	0	0	22	Q	
						8778	S14	E62	0	0	0	22	Q	
327	23	22	179	192	10	8765	S13	W72	4	0	0	23	E	SOL: Eruptive
						8766	N17	W49	0	0	0	23	Q	MAG: Active
						8768	N16	W78	2	0	0	23	Q	PRO: Quiet
						8771	S16	W11	6	0	0	23	E	
						8772	N05	E16	1	0	0	23	Q	
						8773	S15	W02	0	0	0	23	Q	
						8776	S29	W01	2	0	0	23	Q	
						8777	S26	E27	1	0	0	23	Q	
						8778	S12	E48	3	0	0	23	Q	
328	24	23	157	186	16	8765	S12	W85	0	0	0	24	A	SOL: Active
						8766	N18	W63	0	0	0	24	A	MAG: Active
						8768	N17	W89	1	0	0	24	A	PRO: Quiet
						8771	S14	W26	11	0	0	24	A	
						8772	N06	E04	1	0	0	24	A	
						8773	S15	W15	0	0	0	24	A	
						8776	S28	W14	0	0	0	24	A	
						8777	S27	E14	1	0	0	24	A	
						8778	S16	E36	2	0	0	24	A	
329	25	24	157	187	18	8765	S13	W98	1	0	0	25	Q	SOL: Active
						8766	N18	W76	1	0	0	25	Q	MAG: Quiet
						8771	S15	W40	13	1	0	25	E	PRO: Quiet
						8772	N06	W08	0	0	0	25	Q	

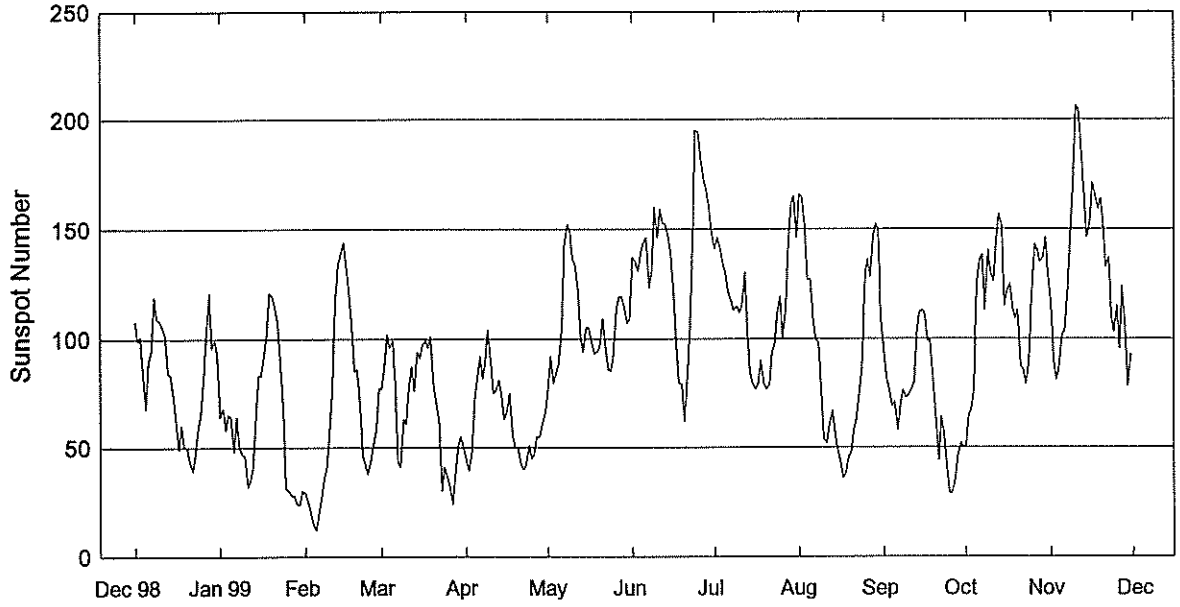
A L E R T P E R I O D S
The International Space Environment Service

NOVEMBER 1999

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)
						8773	S15	W27	0	0	0	25	Q	
						8776	S28	W29	0	0	0	25	Q	
						8778	S15	E23	9	1	0	25	Q	
						8779	S09	W27	0	0	0	25	Q	
						8780	S11	E51	0	0	0	25	Q	
						8781	S13	E71	0	0	0	25	Q	
330	26	25	147	184	18	8771	S15	W51	8	1	0	26	E	SOL: Active
						8772	N07	W20	0	0	0	26	Q	MAG: Quiet
						8773	S15	W39	0	0	0	26	Q	PRO: Quiet
						8776	S28	W42	0	0	0	26	Q	
						8778	S14	E10	9	0	0	26	E	
						8779	S09	W44	0	0	0	26	Q	
						8780	S11	E38	0	0	0	26	Q	
						8781	S13	E58	0	0	0	26	Q	
331	27	26	143	172	5	8771	S31	W36	11	3	0	27	Q	SOL: Active
						8772	N06	W31	0	0	0	27	Q	MAG: Quiet
						8773	S13	W47	0	0	0	27	Q	PRO: Quiet
						8774	N20	W21	0	0	0	27	Q	
						8776	S27	W58	0	0	0	27	Q	
						8778	S14	W05	7	1	0	27	E	
						8779	S09	W58	0	0	0	27	Q	
						8781	S13	E47	1	0	0	27	Q	
332	28	27	187	169	2	8771	S14	W78	10	2	1	28	E	SOL: Active
						8772	N10	W45	1	0	0	28	Q	MAG: Quiet
						8773	S12	W60	3	0	0	28	Q	PRO: Quiet
						8774	N20	W34	0	0	0	28	Q	
						8776	S27	W72	1	0	0	28	Q	
						8778	S14	W19	1	1	0	28	E	
						8779	S11	W70	0	0	0	28	Q	
						8780	S16	E14	0	0	0	28	Q	
						8781	S13	E34	0	0	0	28	Q	
						8782	N11	E01	0	0	0	28	Q	
333	29	28	173	175	8	8771	S15	W85	6	2	0	29	A	SOL: Active
						8772	N07	W55	1	0	0	29	A	MAG: Quiet
						8773	S12	W71	3	0	0	29	A	PRO: Quiet
						8776	S26	W83	0	0	0	29	A	
						8778	S14	W33	6	0	0	29	A	
						8779	S10	W83	0	0	0	29	A	
						8780	S11	W03	1	0	0	29	A	
						8781	S13	E22	2	0	0	29	A	
						8782	N10	W13	1	0	0	29	A	
334	30	29	101	164	3	8773	S11	W85	1	1	0	30	E	SOL: Active
						8778	S14	W47	13	0	0	30	E	MAG: Quiet
						8781	S13	E09	0	0	0	30	E	PRO: Quiet
						8782	N10	W27	7	0	0	30	E	

STRATWARM ALERTS - NONE

International Relative Sunspot Numbers
Dec 1998 - Nov 1999

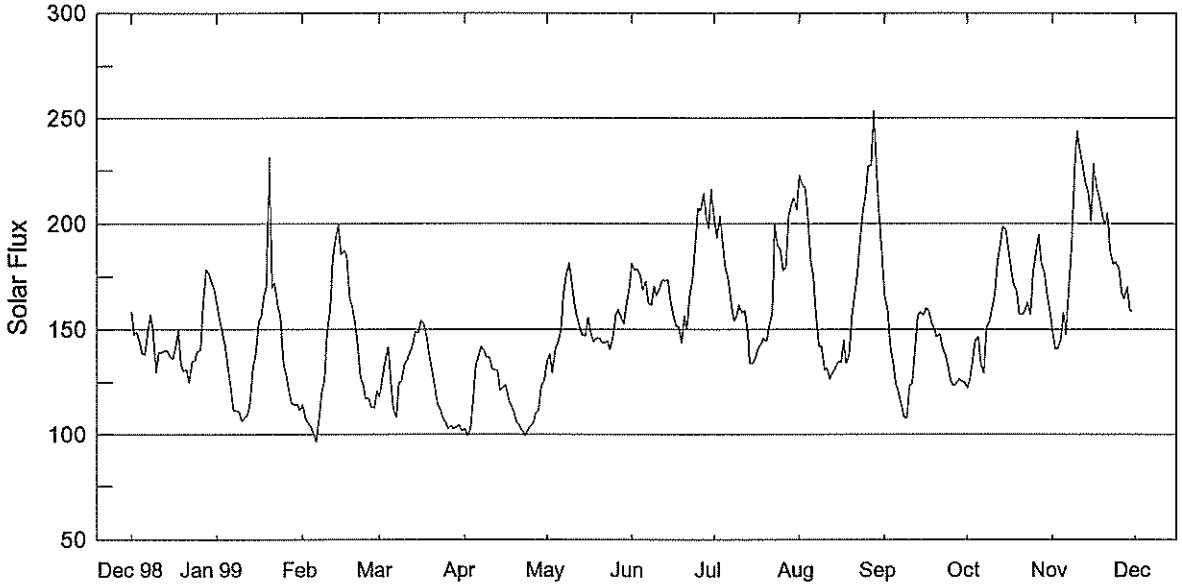


Day	Dec 98	Jan 99	Feb	Mar	Apr	May	Jun	Jul*	Aug*	Sep*	Oct*	Nov*
1	108	64	29	77	44	76	137	141	166	94	50	115
2	99	68	25	88	39	92	135	146	165	82	64	90
3	101	58	19	102	48	80	131	142	151	77	68	81
4	86	65	15	96	71	84	140	134	127	69	77	86
5	68	64	12	99	81	88	144	130	127	71	124	102
6	89	48	19	79	92	104	146	122	110	58	136	103
7	95	64	28	43	82	142	123	117	100	69	138	123
8	119	51	36	41	89	152	131	113	98	76	113	146
9	109	47	41	63	104	149	160	115	76	73	140	169
10	108	46	60	61	90	136	146	112	54	74	130	206
11	105	32	78	76	75	134	159	115	52	76	126	205
12	102	35	115	87	76	122	153	130	60	80	145	188
13	84	41	134	76	81	101	152	103	67	102	157	164
14	83	65	138	94	74	94	147	84	57	112	151	146
15	72	83	144	91	63	105	139	80	49	113	115	153
16	60	83	133	97	67	105	120	77	44	111	122	171
17	49	93	122	99	75	99	97	79	36	99	125	166
18	60	102	105	96	55	93	80	90	38	99	114	159
19	50	121	85	101	50	94	79	79	45	81	109	164
20	50	120	86	78	50	96	62	77	48	65	113	152
21	43	114	74	71	42	109	79	79	58	44	87	133
22	39	108	47	61	40	98	106	94	63	64	86	137
23	47	87	42	30	42	86	144	97	76	57	79	110
24	58	68	38	41	51	85	195	113	86	41	90	103
25	66	31	44	37	45	92	194	119	129	29	120	115
26	81	30	51	31	47	114	182	100	136	29	143	95
27	100	28	59	24	55	119	172	115	128	35	140	124
28	121	28	77	37	55	119	169	144	147	46	135	105
29	96	24		51	61	115	160	161	152	52	137	78
30	99	24		55	66	107	148	165	150	50	146	93
31	92	30		51		109		146	109		129	
Mean	81.9	62.0	66.3	68.8	63.7	106.4	137.7	113.5	93.7	70.9	116.4	132.7

* = Provisional.

Penticton 2800 MHz (10.7cm) Solar Flux
Dec 98 - Nov 99

Adjusted to 1 AU



Day	Dec 98	Jan 99	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	158.2	161.6	114.5	118.0	102.9	134.9*	181.2	202.0	222.9	165.8	121.9	148.4
2	147.4	154.8	107.7	127.6	99.4	137.9	178.1	193.4	218.8	159.3	126.6	140.6
3	148.7	149.4	105.8	134.6	102.7	129.2	178.5	203.5	216.9	141.7	134.7	140.8
4	144.0	142.0	104.3	141.6	116.0	141.1	175.9	191.9	206.0	133.5	144.4	145.1
5	138.3	132.0	100.9	125.4	132.7	143.3	168.8	180.0	182.1	123.8	146.2	157.8
6	138.1	121.6	96.6	112.6	137.6	149.5	172.9	173.5	175.3	120.4	133.5	147.4
7	148.7	111.3	106.5	108.3	141.7	166.4	162.4	163.7	157.6	114.1	129.2	170.8
8	157.1	111.7	121.1	125.0	139.5	175.1	161.3	154.1	141.7	108.4	150.9	188.4
9	149.3	111.0	125.9	125.3	136.7	181.7	170.3	155.9	141.9	108.0	152.8	225.5
10	129.8	106.7	148.4	133.6	136.9	172.8	166.0	161.5	130.8	123.7	160.0	243.6
11	138.8	108.2	159.3	135.3	131.3	162.6	169.8	157.8	131.4	124.1	166.0	235.0
12	138.9	109.1	183.6	138.5	130.7	156.3	173.2	159.2	126.4	142.6	182.9	227.1
13	139.7	114.7	193.4	142.7	130.3	150.5	173.0	148.3	129.8	156.5	190.1	219.1
14	139.9	132.4	199.6	148.7	121.0	147.3	173.5	133.9	131.5	158.2	198.7	214.2
15	137.2	138.0	185.5	148.4	122.7	146.8	163.5	133.8	134.5	156.6	197.1	201.1
16	136.1	153.4	187.3	154.1	123.8	155.6	157.6	136.4	134.4	159.9	187.8	228.2
17	141.5	156.2	185.3	152.9	116.6	148.6	151.3	141.3	144.5	159.1	176.8	216.3
18	149.8	165.4	164.2	146.7	113.8	143.8	151.2	142.8	133.9	153.0	171.4	212.9
19	133.6	170.3	160.5	138.1	110.9	145.8	143.3	145.8	138.0	150.6	168.2	205.1
20	130.4	231.3	153.6	131.6	105.8	145.9	156.5	144.1	155.2	146.2	157.4	199.5
21	130.9	169.7	144.0	123.1	104.4	143.7	150.3	152.1	165.0	147.9	157.0	205.0
22	124.6	172.3	127.0	115.0	101.4	143.7	166.9	157.8	176.7	141.5	158.8	187.2
23	135.2	160.8	124.3	112.2	99.3	144.2	173.0	199.9	191.7	137.8	162.8	180.9
24	134.9	156.8	117.3	107.6	102.0	140.4	191.1	190.1	206.4	132.4	157.1	181.9
25	139.6	133.9	117.1	106.4	103.8	146.8	207.5	188.0	212.9	126.1	177.2	179.0
26	140.2	129.1	113.4	103.1	105.8	156.6	206.1	177.8	226.9	123.3	187.1	167.7
27	161.4	121.6	112.9	104.1	110.0	159.3	214.3	179.9	227.7	124.4	194.8	164.5
28	178.3	115.2	120.7	102.7	111.3	156.2	203.2	203.9	253.4	126.5	181.5	170.1
29	176.8	114.2		103.8	123.9	152.7	197.7	208.6	222.5	125.3	177.2	159.5
30	173.1	114.5		104.4	125.3	161.1	216.5	212.2	201.9	125.1	167.0	158.3
31	168.8	111.5		101.7		170.1		206.7	186.1		158.1	
Mean	145.5	138.1	138.6	124.9	118.0	151.9	175.2	171.0	175.0	137.2	163.7	187.4

NOTE: * 2300UT reading - hail on antenna at 2000UT.

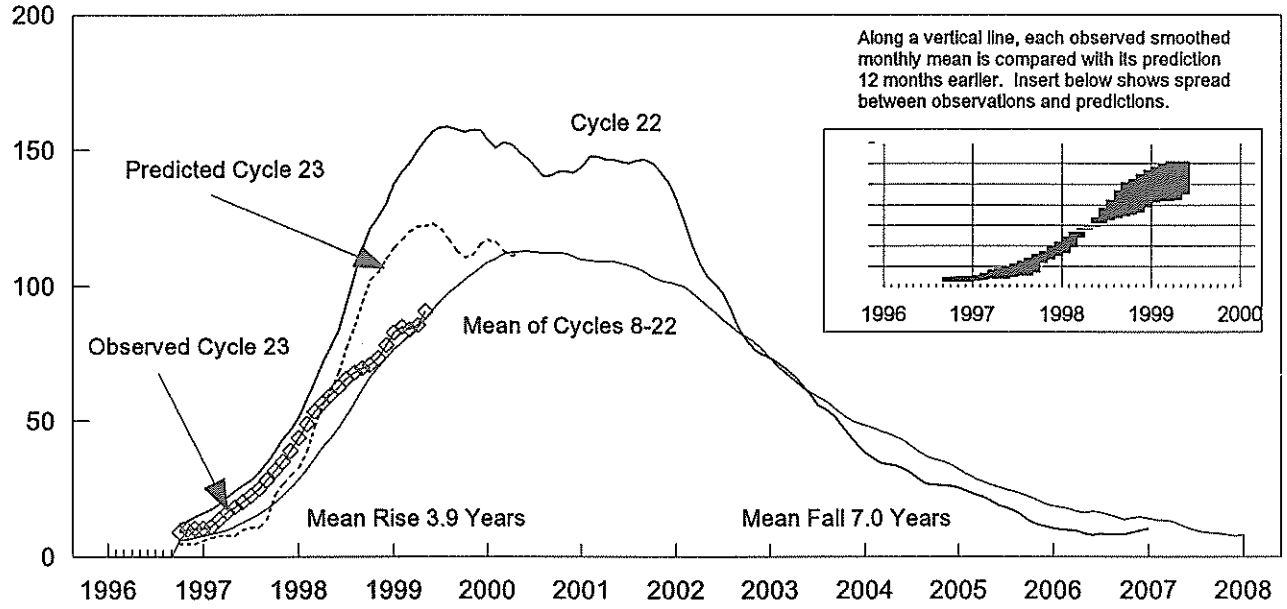
DAILY SOLAR INDICES
November 1999

Day	Day of Year	Bartels Cycle Day	Sunspot Numbers Int	Amer	Obs Flux Penticton (2800)	Solar Flux Adjusted to 1 Astronomical Unit — SGMR (15400)	SGMR (8800)	SGMR (4995)	Pentic (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
1	305	27	115	--	150.6	511	279	186	148.4	143	117	62	43	16
2	306	1	90	--	142.8	--	--	--	140.6	--	--	--	--	--
3	307	2	81	--	143.1	502	275	179	140.8	135	107	61	44	18
4	308	3	86	--	147.5	510	283	185	145.1	137	109	64	45	18
5	309	4	102	--	160.5	524	285	198	157.8	146	114	65	46	17
6	310	5	103	--	150.0	515	278	193	147.4	146	113	63	44	18
7	311	6	123	--	173.9	514	299	211	170.8	161	119	64	45	15
8	312	7	146	--	191.9	522	315	235	188.4	180	131	69	55	--
9	313	8	169	--	229.9	520	322	264	225.5	204	144	72	60	82
10	314	9	206	--	248.5	522	323	283	243.6	220	158	72	60	45
11	315	10	205	--	239.8	518	317	274	235.0	232	156	75	285	73
12	316	11	188	--	231.9	535	322	276	227.1	231	164	73	64	72
13	317	12	164	--	223.8	526	321	254	219.1	214	156	69	45	20
14	318	13	146	--	218.8	543	--	--	214.2	218	165	72	52	--
15	319	14	153	--	205.6	539	355	--	201.1	--	179	76	63	--
16	320	15	171	--	233.4	542	362	285	228.2	217	168	76	184	62
17	321	16	166	--	221.3	533	337	271	216.3	207	163	86	80	115
18	322	17	159	--	217.9	531	341	275	212.9	207	159	80	68	98
19	323	18	164	--	210.0	526	326	252	205.1	190	148	80	62	75
20	324	19	152	--	204.3	521	318	236	199.5	185	143	73	52	22
21	325	20	133	--	210.1	521	314	233	205.0	183	147	75	59	--
22	326	21	137	--	192.0	504	307	226	187.2	181	140	72	53	24
23	327	22	110	--	185.6	505	307	225	180.9	174	137	72	52	--
24	328	23	103	--	186.7	512	309	220	181.9	165	132	72	51	27
25	329	24	115	--	183.7	408	253	183	179.0	163	124	60	53	61
26	330	25	95	--	172.2	367	275	189	167.7	155	122	61	50	36
27	331	26	124	--	169.0	448	265	192	164.5	158	124	56	42	19
28	332	27	105	--	174.8	522	294	206	170.1	155	118	62	45	--
29	333	1	78	--	163.9	504	297	210	159.5	154	122	66	49	26
30	334	2	93	--	162.7	506	293	199	158.3	150	116	64	50	27
MEAN			132.7	--	191.5	508	306	227	187.4	178	137	69	65	42

The International numbers shown above are preliminary values; the American numbers are not available.

NOTE: Radio flux values are from Sagamore Hill, Masssachusetts, 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
1992	124	115	108	103	100	97	91	84	80	76	74	73	94
1993	71	69	67	64	60	56	55	52	48	45	41	38	56
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	94	97	99	102	104	107	109	95
						(3)	(7)	(12)	(16)	(20)	(22)	(24)	9
2000	110	111	112	112	112	113	113	113	113	112	112	111	112
	(26)	(28)	(30)	(31)	(32)	(33)	(32)	(33)	(34)	(35)	(37)	(38)	(32)

Solar Cycle 22 Solar Cycle 23 Min, Max, and Predictions

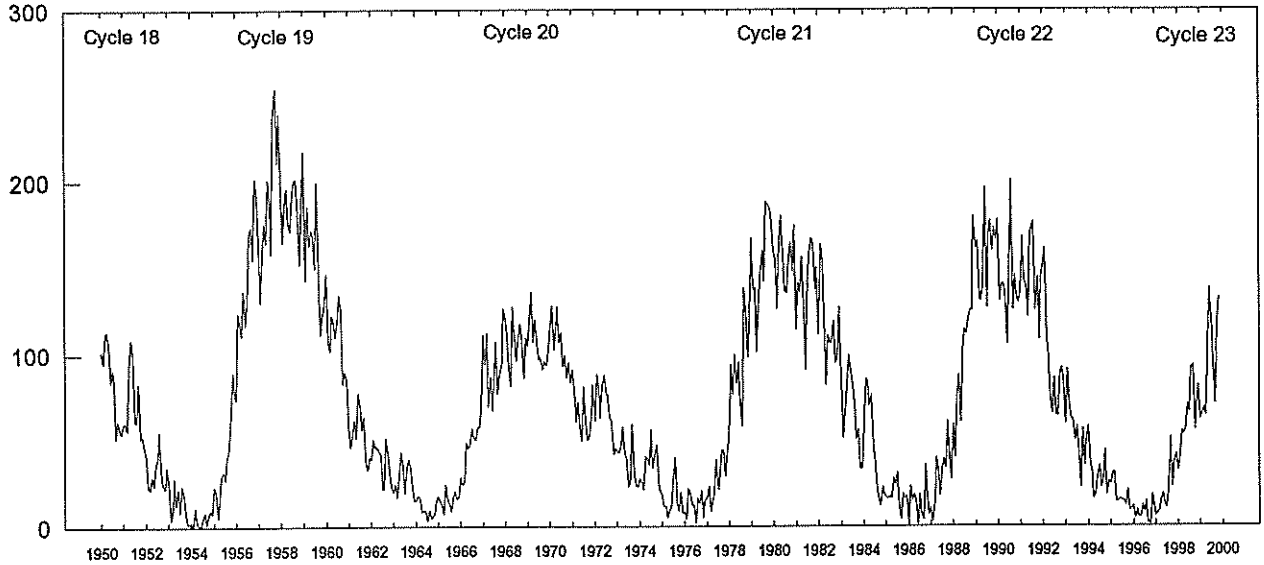
*** May 1996 marks Cycle 22's mathematical minimum. ** October 1996 marks the consensus minimum NGDC is now using.**

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 Jun 1999 and on provisional numbers thereafter. Table entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 9 in the Jul 1987 supplement to *Solar-Geophysical Data.*) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval. Subtracting the number from the predicted value generates the lower limit. Consider, for example, the May 2000 prediction. There exists a 90% chance that in May 2000, the actual smoothed number will fall somewhere between 80 and 144.

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 1950 - Nov 1999



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean	
1950	101.6	94.8	109.7	113.4	106.2	83.6	91.0	85.2	51.3	61.4	54.8	54.1	83.9	
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	70.9	116.4	132.7		93.8	

Values are preliminary after Jun 99. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

Hα SOLAR FLARES

NOVEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	01	0012	0030	0043	N09	E12	8747			31	SF	C 1.7						2.4E-03
LEAR		0022	0035	0048	N09	E12	8747	11	1.9	26	SF		4	E		27		
GOES		0130	0142	0155	S19	E15	8749			25	SF	C 3.7						4.2E-03
LEAR		0133	0142	0221	S19	E15	8749	11	2.2	48	SF		3	E		85		
GOES		0435	0451	0514	S18	E14	8749			39	SF	C 1.4						2.6E-03
LEAR		0443	0451	0511	S18	E14	8749	11	2.3	28	SF		3	E		65		
GOES		0646	0653	0705	S19	E13	8749			19	SF	C 2.4						2.2E-03
LEAR		0649	0653	0707	S19	E13	8749	11	2.3	18	SF		3	E		68		
GOES		1142	1147	1158	S18	E09	8749			16	SF	C 1.3						1.0E-03
RAMY		1144	1145	1200	S18	E09	8749	11	2.2	16	SF		3	E		62		F
SVTO		1307E	1307U	1322D	N09	E05	8747	11	1.9	15D	SF		3	E		10		
GOES		1307	1316	1328	N09	E05	8747			21	SF	C 1.1						1.2E-03
HOLL		1413	1416	1440	S20	E10	8749	11	2.3	27	SF		3	E		31		
HOLL		1517	1522	1528	S19	E10	8749	11	2.4	11	SF		3	E		22		
RAMY		1854	1856	1901	S24	W71	8741	10	27.4	7	SF		3	E		14		
RAMY		1928	1933	1940	S24	W71	8741	10	27.4	12	SF		3	E		18		
HOLL		1931	1934	1939	S24	W64	8741	10	28.0	8	SF		3	E		14		
HOLL		2039	2040	2045	S23	W67	8741	10	27.8	6	SF		3	E		14		
GOES		2113	2116	2119	S24	W69	8741			6	SF	B 8.9						2.6E-04
RAMY		2116E	2117U	2123D	S23	W70	8741	10	27.6	7D	SF		2	E		28		
HOLL		2116	2118	2123	S24	W69	8741	10	27.6	7	SF		3	E		32		
GOES		2119	2122	2124	S23	W70	8741			5	SF	B 9.9						2.6E-04
GOES		2231	2235	2239	S24	W71	8741			8	SF	B 9.4						3.6E-04
HOLL		2234	2235	2241	S24	W71	8741	10	27.5	7	SF		3	E		27		
GOES		2308	2312	2319	S24	W70	8741			11	SF	B 8.6						5.1E-04
HOLL		2310	2311	2316	S24	W70	8741	10	27.6	6	SF		3	E		17		
GOES		2331	2336	2339						8		C 1.8						5.9E-04
GOES	02	0037	0043	0052						15		C 2.8						2.0E-03
GOES		0158	0202	0206						8		C 1.1						4.5E-04
GOES		0558	0602	0604						6		B 6.9						2.1E-04
GOES		0613	0617	0620						7		C 1.0						3.2E-04
GOES		0942	0949	0952	S19	W03	8749			10	SF	C 1.4						7.0E-04
LEAR		0942	0952	1002	S19	W03	8749	11	2.2	20	SF		2	E		54		
SVTO		0947	0948	0955	S19	W03	8749	11	2.2	8	SF		3	E		48		
RAMY		1246	1250	1255	S19	W04	8749	11	2.2	9	SF		3	E		32		
SVTO		1246	1250	1255	S22	E01	8749	11	2.6	9	SF		3	E		33		
GOES		1316	1321	1327						11		C 1.4						6.9E-04
LEAR	03	0830	0833	0843	N09	W16	8747	11	2.1	13	SF		3	E		30		F
RAMY		1214	1214	1220	N10	W17	8747	11	2.2	6	SF		3	E		12		
HOLL		1925	1926	1930	S14	W29	8749	11	1.6	5	SF		3	E		39		
GOES		1941	1949	2002						21		C 1.2						1.4E-03
GOES		2234	2249	2258	S19	W23				24	1F	C 8.9						7.2E-03
LEAR		2247	2248	2309	S19	W23	8749	11	2.2	22	1F		4	E		122		
GOES	04	0051	0102	0110	S19	W22	8749			19	SF	C 2.2						2.0E-03
LEAR		0054	0103	0114	S19	W22	8749	11	2.3	20	SF		3	E		29		
GOES		0127	0146	0157	S19	W25	8749			30	SF	C 2.9						3.8E-03
LEAR		0131	0143	0157	S19	W25	8749	11	2.1	26	SF		3	E		46		
LEAR		0236	0300U	0300D	S19	W25	8749	11	2.2	24D	1F		3	E		132		
GOES		0253	0300	0307	S19	W25	8749			14	1F	C 5.2						3.4E-03
LEAR		0423	0502	0533	S19	W26	8749	11	2.2	70	1N		3	E		181		
LEAR		0434	0435	0440	N11	W26	8747	11	2.2	6	SF		3	E		24		F
GOES		0455	0503	0514			8749			19		C 7.9						5.7E-03
LEAR		0540	0540	0555	S19	W25	8749	11	2.3	15	SF		3	E		30		
HOLL		2123	2123	2128	S12	W48	8745	11	1.3	5	SF		3	E		13		
GOES		2243	2253	2303	S18	W36				20	SF	C 4.8						3.8E-03
HOLL		2245	2253	2359D	S18	W36	8749	11	2.2	74D	SF		3	E		91		
LEAR		2249	2254	2356	S18	W36	8749	11	2.2	67	SF		3	E		70		F
GOES	05	0338	0402	0414						36		C 1.6						2.9E-03
GOES		0448	0509	0519						31		C 1.4						2.5E-03
GOES		0607	0639	0707						60		C 3.3						7.7E-03
RAMY		1142	1144	1205	N09	W41	8747	11	2.4	23	SF		3	E		10		
GOES		1712	1718	1722	S19	W45				10	1F	M 1.2						3.8E-03
HOLL		1715	1716	1811	S19	W45	8749	11	2.3	56	1F		3	E		118		
RAMY		1716	1717	1811	S20	W47	8749	11	2.1	55	SN		3	E		98		F

Hα SOLAR FLARES

NOVEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	05	1804	1829	1944						100		M 3.0						1.3E-01
HOLL		1905	1907	1910	S16	W61	8745	11	1.2	5	SF		3	E		15		
HOLL		1913	1918	2007	S13	W64	8745	11	1.0	54	SF		3	E		71		
RAMY		1915	1921	2007D	S14	W61	8745	11	1.2	52D	SF		3	E		64		F
HOLL		2116	2118	2125	S24	W50	8749	11	2.0	9	SF		3	E		41		
LEAR	06	0329	0331	0339	S17	W66	8745	11	1.1	10	SF		3	E		19		
GOES		0628	0636	0648						20		C 4.6						4.2E-03
GOES		1056	1100	1104						8		C 2.0						8.9E-04
GOES		1701	1706	1709						8		C 5.0						1.6E-03
GOES		2029	2040	2053	S22	W55	8749			24	SF	C 3.7						4.1E-03
HOLL		2031	2038	2047	S22	W55	8749	11	2.6	16	SF		3	E		41		
HOLL		2247	2302	2302D	N10	E66	8759	11	11.9	15D	1F		3	E		145		
GOES		2259	2302	2304	N09	E82	8759			5	SF	C 2.9						7.3E-04
LEAR		2300	2301	2307	N09	E82	8759	11	13.1	7	SF		3	E		79		
LEAR	07	0114	0136	0222	N38	W06	8757	11	6.6	68	SF		4	E		69		E
LEAR		0254	0258	0311	N38	W05	8757	11	6.7	17	SF		4	E		18		
LEAR		0312	0317	0348	N38	W05	8757	11	6.7	36	SF		3	E		30		
LEAR		0338	0357	0402	S17	W65	8749	11	2.2	24	SF		3	E		16		
LEAR		0425	0437	0502	N37	W06	8757	11	6.7	37	SF		4	E		28		
LEAR		0433	0437	0456	S18	W66	8749	11	2.2	23	SF		4	E		50		
GOES		0433	0438	0443	S18	W66	8749			10	SF	C 3.1						1.5E-03
GOES		0732	0737	0743						11		C 3.1						1.6E-03
GOES		1025	1029	1032						7		C 1.8						6.3E-04
RAMY		1105E	1107U	1137	N16	E53	8758	11	11.5	32D	SF		2	E		40		
GOES		2300	2303	2306	N19	E64	8758			6	SF	C 1.4						4.7E-04
LEAR		2302	2302	2313	N19	E64	8758	11	12.8	11	SF		3	E		30		
LEAR		2343	2353	2407	N20	E18	8753	11	9.4	24	SF		3	E		42		E
LEAR	08	0003	0006	0011	N38	W18	8757	11	6.5	8	SF		3	E		24		
LEAR		0036	0040	0045	N17	E50	8758	11	11.8	9	SF		3	E		20		
LEAR		0101	0102	0106	N14	E73	8759	11	13.5	5	SF		3	E		13		
LEAR		0114	0136	0222	N38	W06	8757	11	7.6	68	SF		4	E		69		E
LEAR		0123	0124	0127	N19	E64	8758	11	12.9	4	SF		3	E		13		
LEAR		0128	0132	0136	S17	W78	8749	11	2.1	8	SF		3	E		20		
LEAR		0150	0155	0200	N18	E64	8758	11	12.9	10	SF		3	E		15		
LEAR		0209	0209	0213	N37	W20	8757	11	6.5	4	SF		3	E		15		
LEAR		0209	0209	0213	N11	E59	8759	11	12.5	4	SF		3	E		17		
LEAR		0258	0302	0306	N20	E16	8753	11	9.3	8	SF		3	E		15		
LEAR		0335	0338	0345	N20	E14	8753	11	9.2	10	SF		4	E		28		E
LEAR		0433	0437	0456	S18	W66	8749	11	3.2	23	SF		4	E		50		
LEAR		0440	0454	0505	N13	E32	8760	11	10.6	25	SF		4	E		16		
LEAR		0514	0518	0532	N13	E32	8760	11	10.6	18	SF		4	E		26		
GOES		0555	0602	0609	S18	W82	8749			14	SF	C 5.9						3.4E-03
LEAR		0557	0558	0614	S18	W82	8749	11	2.0	17	SF		4	E		47		
LEAR		0643	0646	0652	N09	E65	8759	11	13.1	9	SF		4	E		30		
LEAR		0648	0652	0806	N12	E31	8760	11	10.6	78	SF		4	E		52		
LEAR		0857	0900	0907	N13	E31	8760	11	10.7	10	SF		3	E		29		
GOES		1110	1117	1124	N12	E28				14	SN	C 4.6						2.8E-03
RAMY		1116E	1117U	1139D	N12	E28	8760	11	10.6	23D	SN		3	E		62		F
GOES		1149	1153	1201						12		C 2.0						1.2E-03
GOES		1255	1312	1406	N07	E54	8759			71	SF	C 3.2						1.2E-02
RAMY		1256	1309	1346	N07	E54	8759	11	12.6	50	SF		3	E		59		
RAMY		1608E	1612U	1642	N11	E25	8760	11	10.5	34D	SF		3	E		45		
HOLL		1609	1614	1646	N12	E24	8760	11	10.5	37	SF		3	E		32		F
GOES		1610	1615	1625	N12	E24	8760			15	SF	C 4.6						3.7E-03
GOES		1703	1707	1712						9		C 4.2						2.0E-03
GOES		1804	1852	1925	N12	E65	8759			81	SF	C 8.5						2.6E-02
HOLL		1838	1852	1923	N12	E65	8759	11	13.7	45	SF		3	E		35		F
HOLL		1957	1957	2001	N21	E45	8758	11	12.3	4	SF		3	E		21		
HOLL		2240	2241	2244	N10	E49	8759	11	12.6	4	SF		3	E		12		
LEAR		2329	2337	2344	N09	E55	8759	11	13.1	15	SF		3	E		12		
HOLL		2336E	2336U	2346	N10	E56	8759	11	13.2	10D	SF		2	E		19		
LEAR	09	0122	0149U	0202D	N14	E24	8760	11	10.9	40D	SF		3	E		21		
GOES		0157	0202	0213	N20	E39	8758			16	SF	C 2.7						2.4E-03
LEAR		0158	0159	0219	N20	E39	8758	11	12.1	21	SF		3	E		71		

Hα SOLAR FLARES

NOVEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	09	0203	0206	0216	N12	E20	8760	11	10.6	13	SF		3	E		12		
LEAR		0217	0218	0228	N12	E20	8760	11	10.6	11	SF		3	E		23		
GOES		0322	0328	0342	N17	E36	8758			20	1N	C 4.9						4.5E-03
LEAR		0324	0327	0400	N17	E36	8758	11	11.9	36	1N		3	E		157		
GOES		0413	0418	0422						9		C 5.8						2.4E-03
LEAR		0413	0606	0935	N12	E18	8760	11	10.5	322	2B		3	E		271		FT
GOES		0505	0509	0517	N09	E52				12	SF	C 2.6						1.8E-03
LEAR		0512	0602	0634	N09	E52	8759	11	13.1	82	SF		4	E		61		
GOES		0526	0531	0538						12		C 3.9						2.5E-03
GOES		0600	0607	0620						20		C 8.6						7.6E-03
GOES		0832	0838	0846						14		C 4.3						3.0E-03
LEAR		0858	0859	0906	N23	W54	8751	11	5.2	8	SF		4	E		28		E
LEAR		0937	0942	1015D	N16	E18	8760	11	10.8	38D	SF		3	E		45		F
GOES		1244	1258	1301						17		C 5.6						3.8E-03
RAMY		1332	1337	1355	N06	E44	8759	11	12.8	23	SF		3	E		78		
GOES		1332	1338	1356	N06	E44	8759			24	SF	C 3.9						5.0E-03
HOLL		1446	1447	1500	N14	E14	8760	11	10.7	14	SF		3	E		22		
GOES		1532	1536	1539						7		C 4.4						1.3E-03
RAMY		1552	1621	1632	N11	E11	8760	11	10.5	40	SF		3	E		79		
GOES		1554	1601	1606	N11	E11				12	SF	C 4.3						2.5E-03
HOLL		1555E	1622	1650	N12	E12	8760	11	10.6	55D	SF		3	E		56		
GOES		1619	1622	1627			8760			8		C 4.6						1.9E-03
HOLL		1719	1720	1723	N14	E13	8760	11	10.7	4	SF		3	E		25		
HOLL		1739	1749	1814	N14	E12	8760	11	10.6	35	SF		3	E		69		
HOLL		1926	1927	1929	N12	E11	8760	11	10.6	3	SF		3	E		35		
GOES		1942	2009	2058	N10	E53	8759			76	1F	M 1.1						4.0E-02
HOLL		1946	2007	2042	N10	E53	8759	11	13.8	56	1F		3	E		187		
GOES	10	0140	0151	0200	N10	E50	8759			20	1N	M 1.3						1.2E-02
LEAR		0143	0144	0154	N16	E09	8760	11	10.7	11	SN		3	E		97		
LEAR		0208	0209	0212	N12	E07	8760	11	10.6	4	SF		4	E		18		
LEAR		0223	0224	0227	N12	E07	8760	11	10.6	4	SF		3	E		19		
LEAR		0246	0252	0317	N19	E37	8761	11	12.9	31	SF		4	E		49		
LEAR		0249	0249	0253	N12	E07	8760	11	10.6	4	SF		4	E		25		
LEAR		0250	0252	0305	N17	E23	8758	11	11.9	15	SF		4	E		17		
GOES		0330	0334	0338	N12	E06	8760			8	SF	C 5.2						2.3E-03
LEAR		0331	0332	0350	N12	E06	8760	11	10.6	19	SF		3	E		67		
LEAR		0345	0348	0400	N17	E22	8758	11	11.8	15	SF		4	E		28		
LEAR		0538	0547	0605	N16	E06	8760	11	10.7	27	SF		4	E		39		
GOES		0600	0605	0614	N06	E36	8759			14	SF	C 3.7						2.7E-03
LEAR		0602	0605	0620	N06	E36	8759	11	12.9	18	SF		3	E		64		F
LEAR		0605	0712	0840	N12	E04	8760	11	10.5	155	1N		3	E		146		
LEAR		0659	0714	0818	N21	W15	8753	11	9.1	79	SF		3	E		68		F
GOES		0709	0715	0728	N21	W15				19	SF	C 4.9						4.7E-03
LEAR		0741	0751	0813	S18	E81		11	16.5	32	1F		3	E		166		E
LEAR		0914	0921	0942	N12	E03	8760	11	10.6	28	SF		3	E		45		
GOES		1438	1449	1502	S16	E73	8763			24	SF	C 3.0						3.8E-03
HOLL		1439	1441	1455	S16	E73		11	16.1	16	SF		3	E		26		
HOLL		1524	1525	1527	N21	W18	8753	11	9.3	3	SF		3	E		12		
GOES		1544	1549	1551	N17	W21	8753			7	SF	M 1.5						3.0E-03
HOLL		1544	1549	1558	N17	W21	8753	11	9.0	14	SF		3	E		99		
HOLL		1604	1610	1627	N21	W22	8753	11	9.0	23	SF		3	E		69		
GOES		1631	1634	1638	S16	E79	8763			7	1F	C 2.8						1.0E-03
HOLL		1633	1634	1647	S16	E79	8763	11	16.7	14	1F		3	E		119		
HOLL		1708	1712	1720	S18	E74	8763	11	16.3	12	SF		3	E		21		
HOLL		1728	1732	1737	S13	E75	8763	11	16.4	9	SF		3	E		38		
HOLL		1814	1816	1827	N12	W05	8760	11	10.4	13	SF		3	E		15		
HOLL		1937	2005	2025	N10	E35	8759	11	13.4	48	SF		3	E		68		
GOES		1945	1952	1956	N19	E26				11	SF	C 9.6						4.2E-03
HOLL		1947	1951	2019	N19	E26	8761	11	12.8	32	SF		3	E		93		
HOLL		2010	2018	2029	S15	E73	8763	11	16.4	19	SF		3	E		45		
GOES		2052	2055	2057						5		C 3.0						8.3E-04
HOLL		2135	2136	2140	S16	E71	8763	11	16.3	5	SF		3	E		29		
HOLL		2138	2138	2140	N10	E33	8759	11	13.4	2	SF		3	E		13		
GOES		2209	2213	2216	N17	W25	8753			7	1N	M 1.1						2.9E-03
HOLL		2211	2212	2220	N17	W25	8753	11	9.0	9	1N		3	E		143		
LEAR		2214E	2215	2222D	N20	W25	8753	11	9.0	8D	1F		2	E		140		E
HOLL		2244	2308	2321	N09	E33	8759	11	13.4	37	SF		3	E		22		

Hα SOLAR FLARES

NOVEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	11	0118	0153	0214	N09	E32	8759	11	13.4	56	SF		3	E		44		
GOES		0125	0131	0134	N18	W27	8753			9	SN	C 5.6						2.3E-03
LEAR		0126	0129	0142	N18	W27	8753	11	9.0	16	SN		3	E		71		E
GOES		0157	0200	0202	N37	W56	8757			5	SN	C 3.8						9.9E-04
LEAR		0157	0201	0221	N37	W56	8757	11	6.6	24	SN		3	E		94		E
LEAR		0248	0249	0327	N09	E27	8759	11	13.1	39	SF		3	E		31		
LEAR		0300	0303	0338	S18	E69	8763	11	16.4	38	SF		3	E		61		
GOES		0302	0309	0313	S18	E69	8763			11	SF	C 3.4						2.0E-03
LEAR		0427E	0445U	0448D	N09	E26	8759	11	13.1	21D	SF		2	E		12		
GOES		0429	0432	0440	N09	E26	8759			11	SF	C 3.0						1.8E-03
LEAR		0444E	0458U	0507D	N20	W24	8753	11	9.4	23D	SF		3	E		36		
GOES		0455	0500	0506	S17	E69				11	1F	C 3.9						2.3E-03
LEAR		0456E	0457U	0521	S17	E69	8763	11	16.4	25D	1F		3	E		107		F
LEAR		0510	0519	0522	N20	W24	8753	11	9.4	12	SF		3	E		15		
LEAR		0512	0515	0518	N09	E26	8759	11	13.2	6	SF		3	E		15		
LEAR		0548	0549	0553	N20	W24	8753	11	9.4	5	SF		3	E		15		
LEAR		0548	0550	0557	N20	E21	8761	11	12.8	9	SF		3	E		21		
GOES		0730	0747	0810						40		C 7.0						1.1E-02
GOES		0918	0932	0946						28		C 3.3						5.0E-03
GOES		1038	1043	1047						9		C 3.2						1.4E-03
GOES		1318	1328	1339						21		C 5.8						5.8E-03
GOES		1439	1449	1508	N09	E19	8759			29	1N	C 8.6						1.1E-02
HOLL		1441	1443	1512	N09	E19	8759	11	13.0	31	1N		3	E		139		
HOLL		1500	1501	1508	S14	E62	8763	11	16.3	8	SF		3	E		18		
HOLL		1503	1505	1531	N14	W14	8760	11	10.6	28	SF		3	E		72		
HOLL		1719	1722	1735	N12	W15	8760	11	10.6	16	SF		3	E		11		
HOLL		1755	1756	1801	N14	W17	8760	11	10.5	6	SF		3	E		19		
HOLL		1758	1802	1820	S15	E63	8763	11	16.5	22	SF		3	E		20		
HOLL		1945	1953	2007	N20	W38	8753	11	8.9	22	SF		3	E		28		
GOES		1955	2000	2006	N08	E18	8759			11	SF	C 5.1						2.7E-03
HOLL		1958	1959	2029	N08	E18	8759	11	13.2	31	SF		3	E		78		
HOLL		2053	2055	2057	S15	E61	8763	11	16.5	4	SF		3	E		17		
HOLL		2115	2116	2119	N10	E23	8759	11	13.6	4	SF		3	E		35		
GOES		2142	2145	2147	S15	E61	8763			5	SF	C 2.9						7.3E-04
HOLL		2144	2145	2149	S15	E61	8763	11	16.5	5	SF		3	E		96		
HOLL		2152	2152	2156	N14	E21	8759	11	13.5	4	SF		3	E		22		
HOLL		2247	2248	2258	N15	W20	8760	11	10.4	11	SF		3	E		29		
HOLL		2253	2256	2301	S15	E60	8763	11	16.5	8	SF		3	E		69		
LEAR	12	0004E	0015U	0026	S18	E59	8763	11	16.5	22D	SF		2	E		59		
GOES		0121	0130	0138						17		C 4.6						3.6E-03
LEAR		0350E	0350U	0408D	S14	E55	8763	11	16.3	18D	SF		2	E		73		
LEAR		0416	0450	0518	N18	W35	8753	11	9.5	62	SF		3	E		40		F
LEAR		0441	0442	0458	N18	W30	8764	11	9.9	17	SF		3	E		16		
LEAR		0450	0453	0457	N09	E12	8759	11	13.1	7	SF		3	E		20		
LEAR		0515	0519	0524	S11	E67	8765	11	17.2	9	SF		3	E		19		
LEAR		0526	0527	0531	N09	E12	8759	11	13.1	5	SF		3	E		13		
LEAR		0532	0538	0551	N09	E12	8759	11	13.1	19	SF		3	E		19		
LEAR		0536	0536	0550	N12	W21	8760	11	10.6	14	SF		3	E		27		
LEAR		0555	0555	0602	N09	E12	8759	11	13.1	7	SF		3	E		12		
LEAR		0557	0559	0617	N12	W22	8760	11	10.6	20	SF		3	E		41		
LEAR		0621	0622	0640	N12	W22	8760	11	10.6	19	SF		3	E		23		
LEAR		0636	0636	0640	S11	E66	8765	11	17.2	4	SF		3	E		15		
GOES		0822	0833	0842						20		C 8.6						7.7E-03
GOES		0854	0916	0936			8759			42		M 1.7						3.2E-02
GOES		1150	1154	1157	N10	E17				7	SF	M 1.1						4.0E-03
RAMY		1152	1154	1200D	N10	E17	8759	11	13.8	8D	SF		3	E		23		
RAMY		1238E	1238	1244	N08	E06	8759	11	13.0	6D	SF		3	E		30		
HOLL		1424	1427	1438	N07	E12	8759	11	13.5	14	SF		3	E		22		
HOLL		1427	1441	1507	S15	E53	8763	11	16.6	40	SF		3	E		96		
RAMY		1429E	1430U	1439D	N15	E51	8763	11	16.5	10D	SF		2	E		36		
HOLL		1440	1441	1450	N13	W27	8760	11	10.6	10	SF		3	E		49		
HOLL		1617	1726	1820	S17	E48	8763	11	16.3	123	1F		3	E		171		F
HOLL		1826	1828	1838	S14	E52	8763	11	16.7	12	SF		3	E		54		
HOLL		1827	1827	1848	N11	E16	8759	11	14.0	21	SF		3	E		15		
HOLL		1843	1843	1847	S15	E50	8763	11	16.6	4	SF		3	E		10		
HOLL		1849	1849	1903	N12	E12	8759	11	13.7	14	SF		3	E		27		
HOLL		2340	2341	2352	N07	E00	8759	11	13.0	12	SF		2	E		15		F

Hα SOLAR FLARES

NOVEMBER 1999

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
GOES	12	2340	2345	2356	N07	E00	8759			16	SF	C 1.6						1.5E-03
GOES	13	0114	0258	0351	S15	E44	8763			157	1F	M 1.3						8.4E-02
LEAR		0200E	0219U	0300D	S15	E44	8763	11	16.4	60D	1F		2	E		148		E
LEAR		0200E	0219U	0300D	S09	E52	8765	11	17.0	60D	SF		2	E		80		F
LEAR		0336E	0357U	0404D	S09	E51	8765	11	17.0	28D	SF		2	E		31		
LEAR		0417E	0419U	0423D	S15	E43	8763	11	16.4	6D	SF		2	E		20		
LEAR		0424E	0424U	0429D	N20	W55	8753	11	9.0	5D	SF		2	E		16		
LEAR		0438	0442	0449	S15	E42	8763	11	16.4	11	SF		3	E		52		
GOES		0532	0535	0543	S15	E42	8763			11	SF	C 2.2						1.4E-03
LEAR		0534E	0535U	0542D	S15	E42	8763	11	16.4	8D	SF		2	E		36		E
GOES		0801	0804	0806	S15	E40	8763			5	SF	C 2.4						6.0E-04
LEAR		0806E	0808U	0839D	S15	E40	8763	11	16.4	33D	SF		2	E		73		
GOES		1231	1246	1257	N16	W48	8764			26	SF	C 3.1						4.6E-03
RAMY		1235E	1235U	1246	N16	W48	8764	11	9.9	11D	SF		2	E		16		
RAMY		1235E	1235U	1247D	N18	W57	8753	11	9.2	12D	SF		2	E		31		F
RAMY		1257E	1258U	1320	S18	E37	8763	11	16.3	23D	SF		2	E		18		
HOLL		1404E	1406U	1445	N12	E03	8759	11	13.8	41D	SF		2	E		51		
HOLL		1517	1518	1535	N14	E00	8759	11	13.6	18	SF		3	E		26		
GOES		1517	1524	1528	N14	E00	8759			11	SF	C 2.4						1.4E-03
HOLL		1544	1544	1550	S16	E39	8763	11	16.6	6	SF		3	E		40		
GOES		1550	1623	1653			8763			63		C 6.6						1.7E-02
HOLL		1551	1628	1725D	S16	E39	8763	11	16.6	94D	1F		3	E		196		
HOLL		1559	1601	1610	N11	E02	8759	11	13.8	11	SF		3	E		37		F
HOLL		1614	1630	1645	S12	E51	8765	11	17.5	31	SF		3	E		35		
HOLL		1725	1726	1744D	S12	E47	8765	11	17.3	19D	SF		3	E		51		
RAMY		1727E	1727U	1740	S11	E47	8765	11	17.3	13D	SF		3	E		28		
HOLL		1745	1746	1751	N15	W03	8759	11	13.5	6	SF		3	E		48		
GOES		1822	1825	1827						5		C 2.5						5.9E-04
GOES		1914	1917	1919	S13	E47	8765			5	SF	C 2.6						6.7E-04
HOLL		1916	1916	1922	S13	E47	8765	11	17.3	6	SF		3	E		40		
GOES		1921	1926	1931			8759			10		C 4.5						2.0E-03
HOLL		1924	1925	1929	S13	E47	8765	11	17.3	5	SF		3	E		30		
HOLL		1924	1925	1933	N10	W03	8759	11	13.6	9	SF		3	E		94		F
RAMY		1924	1925	1938	N09	W01	8759	11	13.7	14	SF		3	E		37		
HOLL		2101	2102	2104	S12	E45	8765	11	17.3	3	SF		3	E		27		
LEAR		2328	2341	2412	S09	E40	8765	11	17.0	44	SN		3	E		60		F
GOES		2338	2342	2348	S09	E40	8765			10	SN	C 4.6						2.2E-03
LEAR		2356		2521	S15	E32	8763	11	16.4	85	SF		3	E		25		F
LEAR		2359		2403	N09	W12	8759	11	13.1	4	SF		3	E		14		
LEAR	14	0015	0026	0030	S09	E40	8765	11	17.0	15	SF		3	E		18		
LEAR		0037	0048	0104	S09	E40	8765	11	17.0	27	SF		3	E		46		
LEAR		0111	0111	0114	S09	E40	8765	11	17.0	3	SF		3	E		16		
LEAR		0122	0126	0137	S15	E31	8763	11	16.4	15	SF		3	E		29		
LEAR		0142	0142	0149	N17	E65	8766	11	19.0	7	SF		3	E		13		
LEAR		0142	0144	0207	S15	E31	8763	11	16.4	25	SF		3	E		32		
LEAR		0147	0147	0155	S09	E39	8765	11	17.0	8	SF		3	E		21		
LEAR		0156	0156	0200	N17	E65	8766	11	19.0	4	SF		3	E		12		
LEAR		0212	0215	0217	S09	E39	8765	11	17.0	5	SF		3	E		14		
LEAR		0256	0256	0300	S10	E44	8765	11	17.4	4	SF		3	E		13		F
LEAR		0348	0352	0414	S10	E43	8765	11	17.4	26	SF		3	E		51		F
GOES		0348	0355	0403	S10	E43	8765			15	SF	C 5.0						3.6E-03
LEAR		0435	0438	0522	N10	W09	8759	11	13.5	47	1F		3	E		156		E
GOES		0435	0440	0445	N10	W09	8759			10	1F	C 3.6						1.9E-03
LEAR		0436	0438	0444	N17	E64	8766	11	19.0	8	SF		3	E		21		
LEAR		0449	0500	0505	N17	E63	8766	11	19.0	16	SF		3	E		26		
LEAR		0528	0534	0543	S09	E37	8765	11	17.0	15	SF		3	E		20		
LEAR		0532	0537	0543	N17	E63	8766	11	19.0	11	SF		3	E		21		
LEAR		0610	0618	0644	S09	E37	8765	11	17.0	34	SF		3	E		89		
LEAR		0627	0642	0706	N17	E62	8766	11	19.0	39	SF		3	E		52		
GOES		0629	0638	0644			8765			15		C 4.9						3.9E-03
LEAR		0647	0650	0658	S09	E37	8765	11	17.0	11	SF		3	E		32		
LEAR		0714	0715	0717	N17	E62	8766	11	19.0	3	SF		3	E		40		
LEAR		0720	0720	0723	S09	E36	8765	11	17.0	3	SF		3	E		19		
LEAR		0720	0721	0723	N17	E62	8766	11	19.0	3	SF		3	E		44		
GOES		0754	0801	0804	S15	E27	8763			10	2B	M 8.0						2.3E-02
GOES		0919	0925	0932						13		C 6.3						4.2E-03

Hα SOLAR FLARES

NOVEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	14	1211	1229	1236						25		C 4.3						5.5E-03
GOES		1239	1244	1248						9		C 4.3						2.0E-03
GOES		1258	1301	1305						7		C 3.8						1.5E-03
GOES		1309	1315	1322						13		C 7.0						4.3E-03
HOLL		1400E	1401U	1526	N18	E61	8766	11	19.2	86D	SF		2	E		86		
HOLL		1400E	1402U	1519	S12	E38	8765	11	17.4	79D	SF		2	E		93		
HOLL		1403E	1404U	1446	N09	W15	8759	11	13.4	43D	SF		2	E		21		F
HOLL		1526	1528	1538	S12	E38	8765	11	17.5	12	SF		3	E		17		
GOES		1536	1540	1542			8765			6		C 5.0						1.3E-03
HOLL		1536	1607	1803	N18	E63	8766	11	19.4	147	2N		3	E		319		
HOLL		1538	1810	1854	S11	E36	8765	11	17.3	196	1N		3	E		178		
GOES		1547	1607	1613			8766			26		M 5.6						3.3E-02
RAMY		1554E	1603	1725D	N18	E60	8766	11	19.2	91D	1B		3	E		194		
RAMY		1603	1604	1620	S13	E36	8765	11	17.4	17	SF		3	E		13		
GOES		1620	1623	1626	S11	E36	8765			6	SN	M 2.2						7.1E-03
RAMY		1621	1623	1743D	S11	E36	8765	11	17.4	82D	SN		3	E		77		H
GOES		1654	1704	1719	N10	W13	8759			25	SF	M 1.4						1.9E-02
HOLL		1714	1728	1840	N10	W13	8759	11	13.7	86	SF		3	E		39		
HOLL		1750	1752	1800	S16	E18	8763	11	16.1	10	SF		3	E		37		
GOES		1803	1809	1813						10		M 2.8						1.0E-02
HOLL		1819	1821	1824	N18	E60	8766	11	19.3	5	SF		3	E		17		
HOLL		1851	1853	1857	N17	E55	8766	11	19.0	6	SF		3	E		19		
HOLL		1910	1917	1926	S11	E36	8765	11	17.5	16	SF		3	E		28		
HOLL		1944	1945	1948	S11	E36	8765	11	17.5	4	SF		3	E		21		
HOLL		1949	1952	2028	S11	E36	8765	11	17.5	39	SF		3	E		56		
HOLL		2045	2046	2053	S12	E36	8765	11	17.6	8	SF		3	E		10		F
HOLL		2114	2116	2129	S12	E31	8765	11	17.2	15	SF		3	E		31		
HOLL		2240	2248	2352D	S19	E18	8763	11	16.3	72D	1F		3	E		146		
HOLL		2242	2246	2248	S12	E32	8765	11	17.3	6	SF		3	E		10		
LEAR		2243	2244	2358	S15	E19	8763	11	16.4	75	SF		4	E		95		F
LEAR		2246	2436	2559	S09	E27	8765	11	17.0	193	SF		3	E		83		T
HOLL		2313	2318	2320	N14	E56	8766	11	19.2	7	SF		3	E		19		
LEAR		2314	2314	2320	N17	E53	8766	11	19.0	6	SF		3	E		35		
HOLL		2321	2325	2352D	S09	E28	8765	11	17.1	31D	SF		3	E		13		
HOLL		2326	2327	2352D	N17	E53	8766	11	19.0	26D	SF		2	E		16		
LEAR		2327	2335	2344	N17	E53	8766	11	19.0	17	SF		4	E		25		
GOES	15	0004	0009	0017	N17	E53	8766			13	SF	C 8.9						6.2E-03
LEAR		0007E	0007	0032	N17	E53	8766	11	19.0	25D	SF		4	E		55		
LEAR		0046	0051	0101	N09	W25	8759	11	13.1	15	SF		4	E		19		
LEAR		0116	0127	0143	N17	E52	8766	11	19.0	27	SF		4	E		60		
LEAR		0147	0147	0155	N09	W26	8759	11	13.1	8	SF		3	E		33		
LEAR		0218	0219	0223	S09	E26	8765	11	17.0	5	SF		3	E		45		
LEAR		0219	0222	0223	N17	E52	8766	11	19.0	4	SF		3	E		32		
LEAR		0238	0240	0252	N17	E51	8766	11	19.0	14	SF		3	E		23		
LEAR		0241	0301	0334	S09	E25	8765	11	17.0	53	SF		4	E		69		
GOES		0259	0313	0322						23		C 6.5						7.6E-03
LEAR		0436	0447	0526	N18	E57	8766	11	19.5	50	SF		2	E		56		F
GOES		0445	0449	0500	N18	E57	8766			15	SF	C 3.9						3.1E-03
LEAR		0613	0615	0628	S16	E17	8763	11	16.5	15	SN		2	E		76		F
LEAR		0651	0654	0706	S12	E29	8765	11	17.5	15	SF		2	E		14		
LEAR		0721	0721	0737	S14	E23	8765	11	17.0	16	SF		2	E		80		F
LEAR		0816	0834	1014D	S13	E29	8765	11	17.5	118D	2N		2	E		302		F
GOES		0825	0841	0855	S13	E29	8765			30	2N	M 2.9						3.6E-02
LEAR		1017E	1021U	1026D	N17	E47	8766	11	19.0	9D	SF		2	E		30		E
GOES		1307	1317	1325						18		C 4.6						4.1E-03
HOLL		1425	1430	1435	N17	E45	8766	11	19.0	10	SF		3	E		33		
GOES		1601	1619	1639	S09	E18	8765			38	SF	C 4.4						9.2E-03
HOLL		1605	1607	1613	S09	E18	8765	11	17.0	8	SF		3	E		14		
GOES		1710	1714	1716	S15	E12	8763			6	1N	C 8.9						2.0E-03
HOLL		1711	1714	1724	S15	E12	8763	11	16.6	13	1N		3	E		158		
HOLL		1732	1735	1739	S09	E17	8765	11	17.0	7	SF		3	E		25		
GOES		1845	1856	1901	S13	E18	8765			16	1F	C 5.5						4.0E-03
HOLL		1847	1857	1916	S13	E18	8765	11	17.1	29	1F		3	E		123		
HOLL		1941	1942	1956	S13	E18	8765	11	17.2	15	SF		3	E		30		
HOLL		2017	2023	2028	S09	E16	8765	11	17.0	11	SF		3	E		18		
HOLL		2017	2024	2027	N17	E41	8766	11	19.0	10	SF		3	E		22		
LEAR		2303	2307	2403	S12	E18	8765	11	17.3	60	SF		3	E		56		

Hα SOLAR FLARES

NOVEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	15	2303	2323	2345	S12	E18	8765			42	SF	C 5.8						1.3E-02
LEAR		2343	2344	2403	N17	E40	8766	11	19.0	20	SF		3	E		27		
LEAR	16	0107	0111	0125	S14	E13	8765	11	17.0	18	SF		3	E		86		
LEAR		0110	0111	0125	N16	E17	8768	11	17.3	15	SF		3	E		39		
GOES		0200	0203	0210						10		C 2.8						1.4E-03
LEAR		0218	0219	0230	N13	W34	8759	11	13.5	12	1F		3	E		113		
GOES		0236	0246	0254	N17	E38	8766			18	1B	M 3.8						2.8E-02
LEAR		0238	0246	0312	N17	E38	8766	11	19.0	34	1B		3	E		209		
LEAR		0240	0246	0254	N09	W40	8759	11	13.1	14	1F		3	E		122		
LEAR		0255	0402	0448	S09	E11	8765	11	16.9	113	SF		3	E		78		
GOES		0405	0410	0413	N12	W74	8760			8	SN	M 3.0						7.5E-03
LEAR		0406	0410	0420	N12	W74	8760	11	10.6	14	SN		3	E		44		
LEAR		0424	0608	0851	N09	W42	8759	11	13.0	267	3N		2	E		619		UE
GOES		0447	0512	0545	N18	E43	8766			58	SF	M 1.8						5.2E-02
LEAR		0510	0510	0521	N18	E43	8766	11	19.5	11	SF		2	E		18		E
LEAR		0514	0548	0617	S13	E14	8765	11	17.3	63	1F		3	E		140		
GOES		0606	0710	0739	S14	E10	8765			93	1N	M 2.3						1.0E-01
LEAR		0618	0622	0708	S14	E10	8765	11	17.0	50	1N		3	E		104		E
LEAR		0728	0757	0822	S14	E11	8765	11	17.1	54	SF		2	E		59		F
LEAR		0754	0800	0810	N16	E13	8768	11	17.3	16	SF		2	E		16		
LEAR		0852	0952	1025D	S09	E08	8765	11	17.0	93D	SF		2	E		45		F
LEAR		0910	0922	1004	N15	E12	8768	11	17.3	54	SN		2	E		73		E
GOES		0915	0923	0928	N15	E12	8768			13	SN	M 0.1						7.0E-03
GOES		1003	1035	1050						47		C 9.4						2.0E-02
GOES		1347	1411	1436	S09	E06	8765			49	1N	M 1.4						2.9E-02
HOLL		1402	1402U	1508	S09	E06	8765	11	17.0	66	1N		2	E		235		
GOES		1541	1603	1613	S09	E05	8765			32	SF	C 5.3						9.0E-03
HOLL		1547	1548	1558	S09	E05	8765	11	17.0	11	SF		3	E		23		
HOLL		1601	1603	1608	S09	E05	8765	11	17.0	7	SF		3	E		30		
GOES		1627	1651	1702	S09	E05	8765			35	SF	C 6.8						1.2E-02
HOLL		1643	1647	1706	S09	E05	8765	11	17.1	23	SF		3	E		52		
HOLL		1754	1756	1801	N19	E33	8766	11	19.3	7	SF		3	E		20		
HOLL		1834	1835	1841	S13	E09	8765	11	17.4	7	SF		3	E		17		
HOLL		1925	1927	1934	N19	E34	8766	11	19.4	9	SF		3	E		18		
HOLL		1938	1940	1947	N17	E29	8766	11	19.0	9	SF		3	E		27		
HOLL		2006	2014	2016	N09	W51	8759	11	13.0	10	SF		3	E		19		
HOLL		2012	2017	2020	N16	E30	8766	11	19.1	8	SF		3	E		57		
GOES		2118	2124	2143	S11	E08	8765			25	1N	M 2.0						2.4E-02
HOLL		2120	2127	2220	S11	E08	8765	11	17.5	60	1N		3	E		215		
HOLL		2122	2122	2128	N13	W39	8759	11	13.9	6	SF		3	E		19		
HOLL		2122	2122	2131	N17	E29	8766	11	19.1	9	SF		3	E		11		
HOLL		2146	2148	2150	S12	E69	8769	11	22.1	4	SF		3	E		14		
HOLL		2223	2224	2227	N17	E27	8766	11	19.0	4	SF		3	E		12		
HOLL		2230	2231	2309	N09	W52	8759	11	13.0	39	SF		3	E		22		
LEAR		2232	2232	2241	N13	W40	8759	11	13.9	9	SF		3	E		10		
HOLL		2256	2301	2304	S13	E63	8769	11	21.7	8	SF		3	E		17		
LEAR		2257	2301	2302	S14	E64	8769	11	21.8	5	SF		3	E		20		
LEAR		2312	2321	2334	N14	W45	8759	11	13.6	22	SF		3	E		42		
HOLL		2316	2321	2351D	N13	W40	8759	11	13.9	35D	SF		3	E		44		
GOES		2331	2335	2338	S14	W04	8765			7	SN	C 3.8						1.4E-03
LEAR		2332	2333	2343	S14	W04	8765	11	16.7	11	SN		3	E		69		
LEAR	17	0112	0113	0115	N16	W40	8759	11	14.0	3	SF		3	E		14		
GOES		0202	0208	0222	S09	W01	8765			20	SF	C 3.1						3.2E-03
LEAR		0206	0207	0210	S09	W01	8765	11	17.0	4	SF		3	E		15		
LEAR		0214	0216	0218	N09	W53	8759	11	13.1	4	SF		3	E		28		
LEAR		0223	0229	0233	N14	W47	8759	11	13.5	10	SF		3	E		36		
LEAR		0233	0236	0238	N14	W47	8759	11	13.5	5	SF		3	E		38		
GOES		0236	0241	0246	S15	W05	8765			10	SF	C 2.8						1.5E-03
LEAR		0237	0239	0242	S15	W05	8765	11	16.7	5	SF		3	E		63		
LEAR		0404	0406	0410	S14	W05	8765	11	16.8	6	SF		3	E		14		
LEAR		0502	0503	0509	N15	E27	8766	11	19.2	7	SF		3	E		12		
LEAR		0507	0507	0524	N16	E01	8768	11	17.3	17	SF		4	E		14		F
LEAR		0548	0552	0614	S14	W01	8765	11	17.2	26	SF		3	E		65		
GOES		0550	0602	0619	S14	W01	8765			29	SF	C 0.3						4.8E-03
LEAR		0707	0709	0722	N19	E26	8766	11	19.3	15	SF		3	E		49		
LEAR		0826	0826	0835	N13	W45	8759	11	13.9	9	SF		3	E		16		

Hα SOLAR FLARES

NOVEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	17	0844	0849	0851	S17	E74	8769			7	SF	C 3.2						1.2E-03
LEAR		0846	0849	0853	S17	E74	8769	11	23.0	7	SF		3	E		30		E
LEAR		0930	0935	1003D	S15	W02	8765	11	17.2	33D	1N		3	E		153		F
GOES		0930	0938	0947	S15	W02	8765			17	1N	C 7.0						5.3E-03
GOES		0947	0957	1002	N17	E21	8766			15	2B	M 7.4						4.0E-02
LEAR		0951	0955	1024D	N17	E21	8766	11	19.0	33D	2B		3	E		369		E
GOES		1147	1154	1200						13		C 4.6						3.0E-03
GOES		1205	1224	1243						38		C 5.7						1.1E-02
GOES		1322	1333	1348						26		C 7.8						1.0E-02
HOLL		1414E	1430U	1458	N16	W03	8768	11	17.4	44D	SF		3	E		41		F
HOLL		1456	1502	1507	S14	E59	8769	11	22.1	11	SF		3	E		56		
HOLL		1515	1516	1529	S15	E60	8769	11	22.2	14	SF		3	E		12		
GOES		1557	1602	1610	S11	W03	8765			13	SF	C 3.0						2.0E-03
HOLL		1558	1600	1611	S11	W03	8765	11	17.4	13	SF		3	E		30		
GOES		1654	1659	1703						9		C 2.8						1.3E-03
HOLL		1725	1728	1735	S13	W34		11	15.2	10	SF		3	E		17		
GOES		1738	1743	1749	S15	E60	8769			11	SF	C 9.2						4.3E-03
HOLL		1741	1741	1754	S15	E60	8769	11	22.3	13	SF		3	E		29		
HOLL		1743	1746	1748	S14	W33		11	15.2	5	SF		3	E		14		
HOLL		1755	1800	1805	N19	W04	8768	11	17.4	10	SF		3	E		11		
HOLL		1945	1946	1948	N09	W63	8759	11	13.1	3	SF		3	E		19		
GOES		2012	2018	2027	S15	E70				15	SF	C 3.8						2.9E-03
HOLL		2016	2017	2027	S15	E70		11	23.1	11	SF		3	E		19		H
HOLL		2259	2301	2305	S06	W12	8765	11	17.0	6	SF		3	E		15		
HOLL		2307	2310	2318	N16	W62	8758	11	13.3	11	SF		3	E		13		
LEAR		2332	2405	2423	N18	W61	8759	11	13.3	51	SF		3	E		61		
LEAR		2357	2358	2408	N18	W08	8768	11	17.4	11	SF		3	E		55		
LEAR	18	0002	0019	0040	S13	W07	8765	11	17.5	38	SF		3	E		54		
GOES		0142	0149	0154	S17	E55	8771			12	1F	M 1.4						6.7E-03
LEAR		0144	0146	0159	S17	E55	8771	11	22.2	15	1F		3	E		120		
LEAR		0326	0335	0348	S16	E54	8771	11	22.2	22	SF		3	E		13		
LEAR		0337	0343	0354	S11	W41	8770	11	15.1	17	SF		3	E		15		
LEAR		0434	0440	0448	S12	W42	8770	11	15.0	14	SF		3	E		23		
LEAR		0451	0451	0509	S11	W11	8765	11	17.4	18	SF		3	E		21		
LEAR		0512	0518	0531	S12	W42	8770	11	15.0	19	SF		3	E		36		
LEAR		0749	0803	0910	N14	W60	8759	11	13.8	81	2N		3	E		306		F
GOES		0755	0807	0823	N13	W60	8759			28	SF	C 7.5						9.4E-03
SVTO		0759	0814	0827	N13	W60	8759	11	13.8	28	SF		3	E		30		F
LEAR		0807	0810	0816	S13	E58	8771	11	22.7	9	SF		3	E		38		
LEAR		0846	0847	0855	S11	W12	8765	11	17.5	9	SF		3	E		29		
RAMY		1351E	1351U	1352D	N19	E11	8766	11	19.4	1D	SF		1	E		15		
GOES		1710	1714	1717	S11	W14	8765			7	SF	C 2.7						9.6E-04
HOLL		1712	1712	1719	S11	W14	8765	11	17.7	7	SF		3	E		43		F
GOES		1846	1852	1857	S14	W51	8770			11	SF	C 3.5						1.7E-03
HOLL		1849	1852	1904	S14	W51	8770	11	14.9	15	SF		3	E		58		
GOES		1857	1903	1906	S11	W14	8765			9	1F	C 8.3						2.8E-03
HOLL		1859	1901	1921	S11	W14	8765	11	17.7	22	1F		3	E		129		
GOES		2205	2210	2229						24		C 5.1						5.9E-03
HOLL		2207	2217	2310D	N14	E03	8766	11	19.1	63D	SF		3	E		91		
HOLL		2311	2312	2323	S11	W21	8765	11	17.4	12	SF		3	E		19		
LEAR		2323	2323	2330	S09	W26	8765	11	17.0	7	SF		3	E		11		
GOES	19	0007	0011	0013						6		C 2.1						6.5E-04
LEAR		0123	0124	0128	S09	W27	8765	11	17.0	5	SF		3	E		20		
LEAR		0157	0158	0200	S09	W28	8765	11	17.0	3	SF		3	E		17		
LEAR		0315	0352	0359	S09	W29	8765	11	16.9	44	SF		3	E		37		
LEAR		0317	0317	0343	S14	W51	8770	11	15.3	26	SF		3	E		35		
LEAR		0317	0317	0343	S18	W39	8763	11	16.2	26	SF		3	E		30		
LEAR		0406	0406	0409	S09	W29	8765	11	17.0	3	SF		3	E		11		
LEAR		0420	0420	0430	N17	W06	8766	11	18.7	10	SF		3	E		11		
LEAR		0541	0542	0545	S09	W30	8765	11	17.0	4	SF		4	E		17		
LEAR		0624	0626	0631	S09	W30	8765	11	17.0	7	1F		4	E		101		
LEAR		0625	0626	0629	S19	E33	8771	11	21.8	4	SF		4	E		21		
LEAR		0636	0637	0700	S09	W30	8765	11	17.0	24	SF		4	E		67		
LEAR		0640	0642	0653	S19	E33	8771	11	21.8	13	SF		4	E		23		
LEAR		0706	0706	0709	S19	E33	8771	11	21.8	3	SF		4	E		27		
LEAR		0706	0708	0709	S09	W30	8765	11	17.0	3	SF		4	E		28		

Hα SOLAR FLARES

NOVEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	19	0737	0745	0838	N18	W24	8768			61	1N	C 2.1						6.8E-03
LEAR		0739	0743	0844	N18	W24	8768	11	17.5	65	1N		4	E		101		U
LEAR		0739	0752	0814	S09	W31	8765	11	17.0	35	SF		4	E		57		
LEAR		0824	0825	0829	S19	E32	8771	11	21.8	5	SF		4	E		28		
LEAR		0940	0940	0952	N09	W85	8759	11	13.0	12	SF		3	E		23		
GOES		1047	1052	1100						13		C 1.9						1.4E-03
GOES		1501	1505	1508	S11	W26	8765			7	SF	C 1.9						7.5E-04
HOLL		1503	1506	1515	S11	W26	8765	11	17.7	12	SF		3	E		80		
GOES		1558	1601	1604	S16	E38	8771			6	SF	C 1.9						6.0E-04
HOLL		1600	1601	1604	S16	E38	8771	11	22.5	4	SF		3	E		24		
HOLL		1601	1603	1604	S14	W59	8770	11	15.2	3	SF		3	E		10		
HOLL		1847	1849	1852	S14	W33	8765	11	17.3	5	SF		3	E		21		
LEAR	20	0055	0055	0100	S09	W40	8765	11	17.0	5	SF		3	E		13		
LEAR		0113	0113	0127	S19	E23	8771	11	21.8	14	SF		3	E		14		
LEAR		0154	0156	0204	S19	E22	8771	11	21.7	10	SF		4	E		14		
LEAR		0312	0312	0315	S19	E22	8771	11	21.8	3	SF		4	E		13		
LEAR		0334	0334	0338	S09	W42	8765	11	17.0	4	SF		4	E		11		
LEAR		0404	0404	0409	S19	E21	8771	11	21.8	5	SF		4	E		12		
LEAR		0424	0454	0542	S19	E21	8771	11	21.8	78	SF		5	E		70		
LEAR		0427	0428	0440	N18	W35	8768	11	17.5	13	SF		4	E		19		
GOES		0450	0501	0517			8768			27		C 1.9						2.8E-03
GOES		0636	0640	0649						13		C 1.9						1.4E-03
GOES		1143	1148	1156						13		C 2.1						1.4E-03
GOES		1231	1234	1239						8		C 1.8						7.7E-04
HOLL		1430	1436	1445	S14	E21	8771	11	22.2	15	SF		3	E		31		
HOLL		1529	1531	1545	S16	E19	8771	11	22.1	16	SF		3	E		26		
HOLL		1543	1544	1557	S15	E29	8773	11	22.8	14	SF		3	E		19		
HOLL		1545	1546	1549	S16	E19	8771	11	22.1	4	SF		3	E		21		
HOLL		1603	1603	1609	S14	E27	8773	11	22.7	6	SF		3	E		16		
GOES		1922	1937	2005						43		C 3.4						7.5E-03
GOES		2217	2235	2251	S15	E19	8771			34	2B	M 3.2						3.9E-02
LEAR		2219	2232	2425	S15	E19	8771	11	22.4	126	2B		3	E		417		UET
HOLL		2219	2243	2349D	S15	E19	8771	11	22.4	90D	2N		3	E		515		
LEAR		2238	2238	2248	S09	W52	8765	11	17.0	10	SF		3	E		14		
GOES	21	0007	0014	0018	S09	W53	8765			11	1N	M 1.3						6.2E-03
LEAR		0008	0011	0054	S09	W53	8765	11	17.0	46	1N		3	E		182		F
LEAR		0225	0229	0234	S19	E09	8771	11	21.8	9	SF		3	E		44		
LEAR		0424	0425	0430	S14	W50	8765	11	17.4	6	SF		4	E		46		
LEAR		0505	0512	0537	S15	W51	8765	11	17.3	32	SF		3	E		61		FH
LEAR		0511	0512	0516	N15	W49	8768	11	17.5	5	SF		3	E		33		F
LEAR		0717	0718	0720	S17	E14	8771	11	22.4	3	SF		3	E		15		
LEAR		0754	0758	0807	N15	W55	8768	11	17.2	13	SF		3	E		23		
LEAR		0757	0804	0828D	S15	W52	8765	11	17.4	31D	SN		2	E		87		
GOES		0801	0805	0810	N15	W55	8765			9	SF	C 4.2						1.9E-03
GOES		0822	0829	0839	S17	E14	8771			17	1N	C 6.0						5.1E-03
LEAR		0823	0828U	0859	S17	E14	8771	11	22.4	36	1N		2	E		140		U
LEAR		0841E	0841U	0848	S15	W82	8770	11	15.1	7D	SF		2	E		56		
LEAR		0853	0902	0916	S15	W52	8765	11	17.4	23	SF		3	E		57		
LEAR		0927	1010U	1026D	S15	W53	8765	11	17.4	59D	SN		2	E		80		E
GOES		1003	1017	1024	S15	W53	8765			21	SN	M 2.2						1.7E-02
RAMY		1436	1437	1444	N16	W59	8768	11	17.1	8	SF		3	E		14		
HOLL		1724	1725	1728	S15	W56	8765	11	17.5	4	SF		3	E		28		
GOES		1810	1820	1825	S15	W56	8765			15	2N	M 3.4						1.9E-02
HOLL		1812	1822	1848	S15	W56	8765	11	17.5	36	2N		3	E		471		
HOLL		1913	1914	1917	S15	W56	8765	11	17.6	4	SF		3	E		21		
HOLL		1930	1932	1941	S14	W60	8765	11	17.3	11	SF		3	E		33		
HOLL		1951	1952	2004	S17	E08	8771	11	22.4	13	SF		3	E		24		
RAMY		1952	1952	2002	S18	E08	8771	11	22.4	10	SF		3	E		12		S
HOLL		2045	2046	2053	N16	W62	8768	11	17.2	8	SF		3	E		32		
HOLL		2218	2222	2233	N15	W64	8768	11	17.1	15	SF		3	E		13		
LEAR		2220	2254	2306	N18	W58	8768	11	17.5	46	SF		3	E		27		
LEAR	22	0147	0149	0154	S19	W04	8771	11	21.8	7	SF		3	E		25		
GOES		0213	0217	0220	S09	W67	8765			7	SN	C 3.2						1.1E-03
LEAR		0216	0216	0223	S09	W67	8765	11	17.1	7	SN		3	E		94		
GOES		0253	0258	0304						11		C 2.9						1.6E-03

Hα SOLAR FLARES

NOVEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
LEAR	22	0344	0346	0351	S15	W67	8765	11	17.1	7	SF		3	E		42		
LEAR		0408	0435	0501	S28	E09	8776	11	22.9	53	SF		3	E		40		
LEAR		0445	0454	0535	S18	E01	8771	11	22.3	50	SF		3	E		26		
LEAR		0508	0514	0515	N16	W67	8768	11	17.1	7	SF		3	E		16		
LEAR		0618	0621	0627	S16	W01	8771	11	22.2	9	SF		2	E		56		F
LEAR		0636	0636	0646	S15	W06	8771	11	21.8	10	SF		3	E		12		
LEAR		0651	0658	0711	S19	W07	8771	11	21.7	20	SF		3	E		26		
LEAR		0841	0841	0851	S26	E36	8777	11	25.1	10	SF		3	E		20		
LEAR		0948	0948	0954	S14	W65	8765	11	17.5	6	SF		3	E		14		
GOES		1210	1217	1228	S16	W75	8765			18	SF	C 8.9						6.8E-03
RAMY		1227	1227	1312D	S16	W75	8765	11	16.8	45D	SF		3	E		69		
HOLL		1441	1442	1502D	N06	E23	8772	11	24.3	21D	SF		3	E		23		
HOLL		1652	1654	1656	N15	W78	8768	11	16.8	4	SF		3	E		31		
GOES		1659	1702	1707	S18	W03	8771			8	SF	C 1.6						7.0E-04
HOLL		1702	1703	1713	S18	W03	8771	11	22.5	11	SF		3	E		27		F
HOLL		1710	1711	1714	S14	E57	8778	11	27.0	4	SF		3	E		18		
GOES		1716	1723	1726	S27	E01	8776			10	SF	C 3.9						1.6E-03
HOLL		1723	1723	1728	S27	E01	8776	11	22.8	5	SF		3	E		22		
HOLL		1723	1723	1733	N16	W47	8766	11	19.1	10	SF		3	E		15		
HOLL		1755	1757	1806	S14	E56	8778	11	27.0	11	SF		3	E		21		
GOES		1940	1950	1955	S15	E54	8778			15	SF	C 3.5						2.3E-03
HOLL		1941	1949	2017	S15	E54	8778	11	26.9	36	SF		3	E		70		
HOLL		2115	2115	2120	S18	W08	8771	11	22.3	5	SF		3	E		20		
GOES		2152	2155	2158	S16	W05	8771			6	SF	C 1.7						5.5E-04
HOLL		2154	2156	2204	S16	W05	8771	11	22.5	10	SF		3	E		30		
HOLL		2302	2306	2313	N18	W50	8766	11	19.1	11	SF		3	E		14		
LEAR		2344	2354	2415	N18	W49	8766	11	19.2	31	SF		3	E		43		
LEAR		2345	2347	2347D	S15	E50	8778	11	26.8	2D	SF		3	E		38		
LEAR	23	0222	0222	0234	S16	W15	8771	11	22.0	12	SF		3	E		26		
LEAR		0229	0231	0236	N17	W77	8768	11	17.2	7	SF		3	E		22		
LEAR		0342	0342	0350	S14	W10	8771	11	22.4	8	SF		3	E		43		F
LEAR		0359	0405	0427	S16	W16	8771	11	21.9	28	SF		3	E		82		F
GOES		0401	0405	0410	S16	W16	8771			9	SF	C 2.0						8.8E-04
LEAR		0441	0446	0506	S19	W19	8771	11	21.7	25	SF		3	E		17		
LEAR		0509	0510	0512	S19	W19	8771	11	21.8	3	SF		3	E		12		
GOES		0613	0625	0633			8771			20		C 2.0						2.0E-03
LEAR		0615	0618	0620	S16	W15	8771	11	22.1	5	SF		3	E		33		E
LEAR		0625	0626	0644	S19	W20	8771	11	21.7	19	SF		3	E		82		F
LEAR		0654	0656	0659	N04	E13	8772	11	24.2	5	SF		3	E		14		
LEAR		0749	0749	0754	S20	W16	8771	11	22.1	5	SF		3	E		14		
LEAR		0937	0939	0941	S19	W22	8771	11	21.7	4	SF		3	E		37		E
LEAR		0944	0945	0952	S26	E21	8777	11	25.0	8	SF		3	E		15		
GOES		1405	1410	1418						13		C 1.8						1.2E-03
HOLL		1841	1841	1852	S19	W20	8771	11	22.2	11	SF		3	E		18		
GOES		2046	2051	2055						9		C 1.3						6.3E-04
GOES		2212	2215	2221	S15	W25	8771			9	SF	C 1.6						8.2E-04
HOLL		2216	2216	2226	S15	W25	8771	11	22.0	10	SF		3	E		24		
LEAR		2222	2224U	2256	S17	E39	8778	11	26.9	34	SF		3	E		36		
HOLL		2222	2225	2254	S16	E39	8778	11	26.9	32	SF		3	E		23		
HOLL		2333	2334	2340D	S15	E39	8778	11	26.9	7D	SF		3	E		17		F
LEAR	24	0056	0057	0123	S15	E37	8778	11	26.8	27	SF		3	E		28		
GOES		0104	0111	0116	S15	E37	8778			12	SF	C 2.5						1.6E-03
LEAR		0135	0136	0145	S15	W30	8771	11	21.8	10	SF		3	E		31		
LEAR		0142	0207	0247	S14	E37	8778	11	26.9	65	SF		3	E		65		F
LEAR		0213	0214	0221	N18	W75	8766	11	18.4	8	SF		3	E		45		E
LEAR		0231	0231	0236	S16	W27	8771	11	22.0	5	SF		3	E		10		
LEAR		0305	0309	0332	S19	W31	8771	11	21.8	27	SF		3	E		46		
LEAR		0332	0354	0409	S14	W29	8771	11	21.9	37	SF		3	E		64		
GOES		0632	0635	0640	S19	W33	8771			8	SF	C 1.5						6.6E-04
LEAR		0634	0636	0644	S19	W33	8771	11	21.7	10	SF		3	E		22		
LEAR		0715	0716	0721	S19	W34	8771	11	21.7	6	SF		3	E		19		
LEAR		0722	0723	0726	S19	W34	8771	11	21.7	4	SF		3	E		18		
LEAR		0746	0748	0750	S14	E34	8778	11	26.9	4	SF		3	E		18		
LEAR		0838	0839	0840	S14	W90	8765	11	17.5	2	SF		3	E		13		
GOES		0854	0859	0907						13		C 1.6						1.1E-03
GOES		0919	0924	0927						8		C 7.2						2.0E-03

Hα S O L A R F L A R E S

NOVEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
LEAR	24	1004	1010	1022	S14	E27	8778	11	26.4	18	SF		2	E		28		E
GOES		1036	1044	1102						26		C 1.9						2.7E-03
GOES		1206	1222	1236						30		C 9.6						1.1E-02
HOLL		1501E	1507	1518	S15	E30	8778	11	26.9	17D	SF		3	E		49		
GOES		1504	1508	1511	S15	E30	8778			7	SF	C 1.6						6.2E-04
HOLL		1540	1540	1547	S15	E30	8778	11	26.9	7	SF		3	E		13		
HOLL		1547	1548	1558	S20	W32	8771	11	22.2	11	SF		3	E		11		
GOES		1716	1721	1743	S16	E28	8778			27	SF	C 1.6						2.2E-03
RAMY		1719	1724	1751	S16	E28	8778	11	26.8	32	SF		3	E		30		
HOLL		1719	1724	1756	S16	E28	8778	11	26.8	37	SF		3	E		28		
HOLL		1825	1825	1833	S16	W35	8771	11	22.1	8	SF		3	E		10		F
GOES		1843	1930	1943			8771			60		C 6.6						1.3E-02
HOLL		1845	1847	1900	S15	E25	8778	11	26.7	15	SF		3	E		23		
RAMY		1846	1847	1855	S15	E25	8778	11	26.7	9	SF		3	E		20		
HOLL		1857	1929	2010	S13	W38	8771	11	21.9	73	1N		3	E		156		
RAMY		1902	1913	2004	S13	W36	8771	11	22.1	62	SF		3	E		94		F
HOLL		2143	2143	2212	S14	W38	8771	11	22.0	29	SF		3	E		13		
GOES		2152	2156	2158	S13	E20	8778			6	1B	M 2.2						3.2E-03
HOLL		2154	2156	2202	S13	E20	8778	11	26.4	8	1B		3	E		146		
HOLL		2215	2239	2348D	S13	W35	8771	11	22.3	93D	SF		3	E		73		
GOES		2233	2249	2323			8771			50		C 4.3						1.0E-02
GOES		2327	2337	2344	S19	W43	8771			17	SF	M 3.0						2.0E-02
LEAR		2338	2401	2425	S19	W43	8771	11	21.7	47	SF		3	E		94		
LEAR	25	0026	0028	0143	S19	W43	8771	11	21.7	77	SF		3	E		42		
LEAR		0159	0235	0248	S19	W44	8771	11	21.7	49	SF		3	E		55		
GOES		0559	0613	0629	S19	W46	8771			30	SF	C 1.6						2.6E-03
LEAR		0606	0621	0632	S19	W46	8771	11	21.7	26	SF		4	E		25		
LEAR		0628	0633	0638	S12	E21	8778	11	26.8	10	SF		4	E		17		
LEAR		0641	0647	0658	S12	E20	8778	11	26.8	17	1N		4	E		130		
GOES		0641	0648	0650	S12	E20	8778			9	1N	C 5.2						1.7E-03
GOES		0731	0734	0739						8		C 1.4						5.8E-04
LEAR		0819	0826	0834	S13	E15	8778	11	26.5	15	SF		3	E		61		H
GOES		0822	0826	0828	S13	E15	8778			6	SF	C 3.2						8.0E-04
GOES		1008	1027	1038	S15	E15	8778			30	SF	C 1.9						2.8E-03
LEAR		1015	1020	1033D	S15	E15	8778	11	26.6	18D	SF		2	E		76		HF
RAMY		1312	1313	1317	S13	E12	8778	11	26.4	5	SF		3	E		15		
HOLL		1508	1509	1512	S14	E09	8778	11	26.3	4	SF		3	E		28		
GOES		1519	1527	1536	S13	W45	8771			17	SF	C 1.1						1.1E-03
RAMY		1521	1523	1542	S13	W45	8771	11	22.2	21	SF		3	E		17		
GOES		1712	1717	1725	S16	W45	8771			13	1F	C 7.4						3.8E-03
HOLL		1714	1717	1806	S16	W45	8771	11	22.3	52	1F		3	E		103		
RAMY		1714	1717	1819	S16	W45	8771	11	22.3	65	SF		3	E		75		
GOES		1839	1845	1851	S19	W53	8771			12	SF	C 1.6						1.1E-03
RAMY		1841	1841	1855	S15	W50	8771	11	22.0	14	SF		3	E		12		
HOLL		1841	1843	1850	S19	W53	8771	11	21.7	9	SF		3	E		23		
GOES		1859	1919	1929	S15	W48	8771			30	2N	M 2.0						2.1E-02
HOLL		1901	1919	1952	S15	W48	8771	11	22.1	51	2N		3	E		315		
RAMY		1901	1921	2004	S15	W47	8771	11	22.2	63	2N		3	E		290		F
HOLL		2110	2112	2117	S07	W56	8769	11	21.7	7	SF		3	E		22		
HOLL		2118	2122	2125	S08	W55	8769	11	21.8	7	SF		3	E		16		
HOLL		2135	2136	2142	S13	E06	8778	11	26.3	7	SF		3	E		38		H
LEAR		2215	2222	2224	S10	W52	8769	11	22.0	9	SF		3	E		12		
LEAR		2302	2302	2306	S12	E11	8778	11	26.8	4	SF		3	E		32		
LEAR		2322	2322	2337	S19	W56	8771	11	21.7	15	SF		3	E		20		E
LEAR		2339	2351	2356	S19	W56	8771	11	21.7	17	SF		3	E		23		E
GOES		2341	2344	2347	S12	E11	8778			6	SF	C 1.6						5.2E-04
LEAR		2342	2343	2354	S12	E11	8778	11	26.8	12	SF		3	E		62		
LEAR		2357	2403	2408	S19	W56	8771	11	21.7	11	SF		3	E		22		
LEAR	26	0047	0049	0055	S19	W56	8771	11	21.7	8	SF		3	E		14		
LEAR		0057	0131	0223	S14	W55	8771	11	21.9	86	3B		3	E		614		E
LEAR		0105	0107	0110	S12	E10	8778	11	26.8	5	SF		3	E		13		
GOES		0110	0123	0138			8771			28		M 5.7						4.9E-02
GOES		0350	0400	0414	S19	W58	8771			24	2B	M 1.9						1.7E-02
LEAR		0352	0357	0502	S19	W58	8771	11	21.7	70	2B		3	E		269		F
LEAR		0439	0443	0557	S12	E08	8778	11	26.8	78	SF		4	E		45		
GOES		0553	0558	0621	S19	W59	8771			28	SN	C 2.8						3.6E-03

Hα S O L A R F L A R E S

NOVEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	26	0556	0558	0616	S19	W59	8771	11	21.7	20	SN		4	E		72		
GOES		0657	0705	0725	S12	E07	8778			28	SF	C 3.9						5.3E-03
LEAR		0659	0701	0751	S12	E07	8778	11	26.8	52	SF		3	E		76		H
SVTO		0700	0700U	0754	S13	E01	8778	11	26.4	54	SF		3	E		67		F
LEAR		0842	0857	0939	S19	W61	8771	11	21.7	57	1N		3	E		147		
SVTO		0845	0906U	0926	S14	W55	8771	11	22.2	41	SF		3	E		21		
GOES		0848	0906	0920	S14	W55	8771			32	SF	C 5.0						6.6E-03
GOES		1057	1103	1113	S19	W61	8771			16	SF	C 2.6						2.3E-03
SVTO		1059	1101	1108	S19	W61	8771	11	21.8	9	SF		3	E		24		
GOES		1338	1343	1408	S15	W59	8778			30	2N	M 6.0						6.6E-02
SVTO		1341	1343U	1446D	S15	W59	8771	11	22.1	65D	1B		3	E		223		
RAMY		1343	1343	1501	S15	W59	8771	11	22.1	78	2N		3	E		275		E
HOLL		1400E	1425	1515	S19	W64	8771	11	21.7	75D	2N		3	E		370		
SVTO		1406	1409U	1445D	S14	W02	8778	11	26.4	39D	SF		3	E		12		
HOLL		1423	1425	1427	S12	E03	8778	11	26.8	4	SF		2	E		27		
HOLL		1438	1441	1447	S12	E02	8778	11	26.8	9	SF		3	E		38		
HOLL		1707	1731	1738	S15	W60	8771	11	22.2	31	SF		3	E		28		
HOLL		1738	1743	1802	S19	W66	8771	11	21.7	24	SF		3	E		63		
GOES		1740	1805	1818	S12	W10	8778			38	SF	C 2.3						4.4E-03
RAMY		1742	1743	1748	S15	W55	8771	11	22.6	6	SF		3	E		16		
RAMY		1757	1804	1842	S12	W10	8778	11	26.0	45	SF		3	E		66		FS
HOLL		1757	1810	1843	S12	W08	8778	11	26.1	46	SF		3	E		39		
GOES		1939	1947	1954	S14	W03	8778			15	SF	C 2.0						1.7E-03
HOLL		1940	1943	1955	S14	W04	8778	11	26.5	15	SF		3	E		58		
RAMY		1942	1943	1955	S14	W03	8778	11	26.6	13	SF		3	E		14		F
HOLL		2030	2031	2034	S13	W57	8771	11	22.5	4	SF		3	E		20		
HOLL		2058	2104	2123	S15	W60	8771	11	22.3	25	SF		3	E		28		
GOES		2059	2103	2108	S15	W60	8771			9	SF	C 1.4						7.4E-04
GOES		2148	2215	2221	S19	W68	8771			33	SF	C 3.1						2.4E-03
HOLL		2152	2214	2221	S19	W68	8771	11	21.7	29	SF		3	E		34		
HOLL		2214	2220	2223	S12	E40	8781	11	29.9	9	SF		3	E		21		
GOES	27	0019	0044	0053			8771			34		C 7.8						8.9E-03
LEAR		0022	0023	0027	S19	W69	8771	11	21.7	5	SF		4	E		28		H
LEAR		0030	0042	0057	S19	W70	8771	11	21.7	27	SF		4	E		61		H
GOES		0201	0206	0212	S14	W63	8771			11	1N	C 7.2						2.9E-03
LEAR		0204	0206	0220	S14	W63	8771	11	22.3	16	1N		4	E		139		H
GOES		0236	0301	0312	S19	W71	8771			36	1N	M 2.8						3.8E-02
LEAR		0238	0241	0330	S19	W71	8771	11	21.7	52	1N		4	E		121		H
GOES		0450	0508	0543			8778			53		C 9.9						2.2E-02
GOES		0452	0457	0508	S12	W15	8778			16	1N	C 5.6						5.4E-03
LEAR		0453	0455	0539	S12	W15	8778	11	26.1	46	1N		3	E		241		F
LEAR		0541	0548	0623	S14	W66	8771	11	22.2	42	1N		3	E		141		E
GOES		0543	0549	0558	S14	W66	8771			15	1N	M 1.2						8.9E-03
LEAR		0723	0739	0759	S15	W07	8778	11	26.8	36	SF		3	E		68		F
GOES		0745	0748	0750	S12	W62	8771			5	SF	C 2.3						6.1E-04
SVTO		0746	0748	0800D	S12	W62	8771	11	22.6	14D	SF		3	E		42		
LEAR		0747	0748	0751	S12	W62	8771	11	22.6	4	SF		3	E		55		
SVTO		0809	0826	0837	S26	W63	8776	11	22.4	28	SF		3	E		16		F
SVTO		0815	0820	0846	N05	W38	8772	11	24.5	31	SF		3	E		36		F
LEAR		0817	0823	0831	N04	W37	8772	11	24.6	14	SF		3	E		43		F
SVTO		0854	0900	0912	S19	W74	8771	11	21.7	18	SF		3	E		26		F
GOES		0953	1012	1018						25		C 3.0						4.0E-03
GOES		1111	1122	1138	S15	W66	8771			27	SF	C 2.8						3.7E-03
RAMY		1114E	1114U	1138D	S15	W66	8771	11	22.5	24D	SF		3	E		29		
GOES		1205	1212	1216	S15	W68	8771			11	2B	X 1.4						4.6E-02
RAMY		1208	1212	1319	S15	W68	8771	11	22.3	71	2B		3	E		299		H
SVTO		1209	1211	1256	S15	W71	8771	11	22.1	47	1B		3	E		172		F
GOES		1834	1837	1839						5		C 1.5						3.7E-04
GOES		1939	1943	1949						10		C 1.2						7.0E-04
HOLL		2055	2055	2100	S12	W60	8773	11	23.3	5	SF		3	E		18		
HOLL		2106	2108	2111	S12	W60	8773	11	23.3	5	SF		3	E		12		
GOES		2237	2240	2242	S12	W61	8773			5	SF	C 2.1						5.3E-04
LEAR		2239	2240	2303	S15	W65	8773	11	23.0	24	SF		3	E		28		H
HOLL		2239	2240	2307	S12	W61	8773	11	23.3	28	SF		3	E		31		
HOLL		2303	2304	2309	S14	W79	8771	11	22.0	6	SF		3	E		32		
LEAR	28	0033	0051	0130	S19	W83	8771	11	21.7	57	SF		3	E		75		

Hα S O L A R F L A R E S

NOVEMBER 1999

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
GOES	28	0047	0102	0112	S19	W83	8771			25	SF	C 2.8						3.4E-03
GOES		0126	0146	0200			8771			34		M 3.5						3.9E-02
LEAR		0127	0129	0139	S12	W16	8778	11	26.8	12	SF		3	E		46		
LEAR		0136	0143	0227	S19	W83	8771	11	21.7	51	SN		3	E		94		
GOES		0251	0256	0302						11		C 4.7						2.7E-03
GOES		0549	0557	0607	S15	W81	8771			18	SF	M 1.1						9.9E-03
LEAR		0552	0557	0608	S15	W81	8771	11	22.1	16	SF		3	E		62		E
GOES		1036	1039	1045						9		C 2.7						1.3E-03
GOES		1131	1136	1143						12		C 3.4						2.0E-03
RAMY		1133	1135	1151	N04	W54	8772	11	24.4	18	SF		3	E		76		UF
GOES		1150	1153	1208	S16	W79	8771			18	SF	C 5.3						4.5E-03
RAMY		1153	1153	1203	S16	W79	8771	11	22.5	10	SF		3	E		13		
RAMY		1235	1235	1240	S13	W66	8773	11	23.5	5	SF		4	E		11		F
GOES		1354	1359	1408						14		C 4.1						3.1E-03
HOLL		1432	1435	1445	S13	E28	8781	11	30.7	13	SF		3	E		24		
HOLL		1438	1439	1445	S13	W72	8771	11	23.2	7	SF		3	E		14		
HOLL		1546	1546	1549	S11	E04	8780	11	28.9	3	SF		3	E		17		
GOES		1553	1558	1602						9		C 2.8						1.4E-03
GOES		1701	1705	1709	S13	W73	8771			8	SF	C 5.1						2.1E-03
HOLL		1702	1704	1709	S13	W73	8771	11	23.2	7	SF		3	E		66		
RAMY		1702	1704	1713	S14	W70	8773	11	23.4	11	SF		4	E		88		FH
RAMY		1746	1747	1753	S13	W71	8773	11	23.4	7	SF		4	E		13		
GOES		1800	1917	1955						115		M 1.6						7.9E-02
HOLL		1949	1955	2000	S14	W34	8778	11	26.2	11	SF		3	E		14		
RAMY		1956	1956	2006	S15	W33	8778	11	26.3	10	SF		4	E		12		
HOLL		2024	2026	2030	S14	W34	8778	11	26.3	6	SF		3	E		17		
HOLL		2121	2122	2131	S14	W35	8778	11	26.2	10	SF		3	E		31		
HOLL		2132	2143	2158	S14	W34	8778	11	26.3	26	SF		3	E		14		
HOLL		2133	2133	2140	N10	W15	8782	11	27.8	7	SF		3	E		18		
HOLL		2217	2218	2220	S12	E25	8781	11	30.8	3	SF		3	E		18		
HOLL		2243	2259	2307	S14	W36	8778	11	26.2	24	SF		3	E		77		
LEAR		2252E	2255U	2311D	S13	W32	8778	11	26.5	19D	SF		3	E		62		F
LEAR	29	0108	0108	0117	N11	W15	8782	11	27.9	9	SF		3	E		22		
LEAR		0109	0115	0147	S14	W34	8778	11	26.5	38	SF		3	E		54		E
LEAR		0129	0131U	0142	S13	W88	8771	11	22.4	13	SF		3	E		40		
LEAR		0150	0150	0154	N10	W16	8782	11	27.9	4	SF		3	E		18		
LEAR		0157	0222	0252	N10	W16	8782	11	27.9	55	SF		3	E		37		
LEAR		0315	0323	0332	S12	W31	8778	11	26.8	17	SF		2	E		66		F
LEAR		0413	0434	0436	N10	W17	8782	11	27.9	23	SF		3	E		28		
LEAR		0422	0437	0501	S14	W36	8778	11	26.5	39	SF		3	E		86		F
GOES		0434	0438	0442	S14	W36	8778			8	SF	C 6.0						2.5E-03
LEAR		0522	0523	0532	S12	W32	8778	11	26.8	10	SF		3	E		23		
LEAR		0614	0617	0626	S12	W32	8778	11	26.8	12	SF		3	E		45		
LEAR		0629	0630	0650	S14	W37	8778	11	26.5	21	SF		3	E		39		
LEAR		0637	0641	0650	N10	W18	8782	11	27.9	13	SF		3	E		21		
LEAR		0744	0754	0802	N10	W19	8782	11	27.9	18	SF		3	E		26		
LEAR		0804	0818	0827	N10	W19	8782	11	27.9	23	SF		3	E		28		
LEAR		0830	0832	0835	S12	W34	8778	11	26.8	5	SF		3	E		11		
GOES		0845	0852	0905			8778			20		C 4.3						4.5E-03
LEAR		0846	0850	0928	S11	W07	8780	11	28.8	42	1F		3	E		165		
LEAR		0849	0850	0907	S12	W34	8778	11	26.8	18	SF		3	E		22		
LEAR		1012	1022	1022D	S16	W36	8778	11	26.7	10D	SF		2	E		32		
GOES		1101	1107	1117						16		C 3.2						2.7E-03
RAMY		1143	1201	1209	S18	W38	8778	11	26.6	26	SF		2	E		19		
GOES		1409	1414	1418	S14	W84	8773			9	SF	M 1.1						3.6E-03
RAMY		1416	1416	1422	S14	W84	8773	11	23.2	6	SF		3	E		36		
RAMY		1435	1436	1451	S14	W46	8778	11	26.1	16	SF		3	E		16		
HOLL		1532	1533	1605	S15	W40	8778	11	26.6	33	SF		3	E		20		
GOES		1628	1634	1638	S14	W90	8771			10	SF	C 6.6						2.7E-03
HOLL		1635	1637	1641	S14	W90	8771	11	22.9	6	SF		3	E		19		
HOLL		1757	1757	1804	S16	W39	8778	11	26.8	7	SF		3	E		27		
GOES	30	0158	0201	0204						6		B 9.7						3.2E-04
GOES		0308	0313	0318						10		C 1.6						7.7E-04
LEAR		0330	0342	0423	N10	W30	8782	11	27.9	53	1F		3	E		122		E
GOES		0407	0414	0421	N10	W30	8782			14	1F	C 2.6						1.7E-03
LEAR		0620	0629	0629	N10	W31	8782	11	27.9	9	SF		3	E		16		

Hα SOLAR FLARES

NOVEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	30	0701	0706	0711	S16	W45	8778			10	SF	C 1.8						8.1E-04
LEAR		0704	0705	0713	S16	W45	8778	11	26.9	9	SF		3	E		86		
LEAR		0725	0726	0729	S12	W46	8778	11	26.8	4	SF		3	E		29		
LEAR		0739	0745	0755	N10	W32	8782	11	27.9	16	SF		2	E		81		
LEAR		0802	0802	0808	N10	W32	8782	11	27.9	6	SF		2	E		62		
LEAR		0814	0822	0827	N10	W33	8782	11	27.9	13	SF		2	E		63		
GOES		0827	0830	0834	N10	W33	8782			7	1F	C 2.3						7.1E-04
LEAR		0830	0833	0953	N10	W33	8782	11	27.9	83	1F		2	E		138		
GOES		1108	1113	1117						9		C 1.2						5.9E-04
GOES		1215	1225	1238						23		C 1.1						1.4E-03
GOES		1415	1429	1440	N10	W35	8782			25	SF	C 2.2						2.5E-03
RAMY		1425	1425	1437	N10	W35	8782	11	28.0	12	SF		3	E		24		
GOES		1602	1608	1613	N11	W37	8782			11	SF	C 1.8						8.7E-04
HOLL		1605	1608	1615	N11	W37	8782	11	27.9	10	SF		3	E		59		
RAMY		1608	1608	1612	N10	W35	8782	11	28.0	4	SF		3	E		31		
GOES		1736	1744	1753	N11	W37	8782			17	SF	C 1.4						1.2E-03
HOLL		1739	1741	1801	N11	W37	8782	11	27.9	22	SF		3	E		48		
RAMY		1742	1742	1748	N11	W36	8782	11	28.0	6	SF		3	E		20		F
GOES		2340	2345	2348						8		C 2.7						7.9E-04

"Remarks"

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

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

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

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

NOVEMBER 1999

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
03	2695	LEAR	4	S/F	2240.0	2242.0	3.0	81.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	2241.0	2242.0	1.0	33.0			QL=4 ST=2 TYP=3
05	2695	PALE	4	S/F	1715.0	1716.0	4.0	60.0			QL=4 ST=2 TYP=3
07	2695	SGMR	8	S	1934.0	1935.0	1.0	62.0			QL=4 ST=2 TYP=3
08	8800	SVTO	20	GRF	0826.0	1056.0	410.0	98.0			QL=4 ST=2 TYP=2
	2695	SVTO	20	GRF	0857.0	1056.0	379.0	17.0			QL=4 ST=2 TYP=2
	8800	SGMR	4	S/F	1835.0	1838.0	5.0	53.0			QL=4 ST=2 TYP=3
09	2695	LEAR	4	S/F	0615.0	0616.0	3.0	63.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0615.0	0616.0	2.0	11.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0616.0	0616.0	1.0	22.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0826.0	0826.0	U	36.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0826.0	0826.0	1.0	28.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0937.0	0937.0	U	140.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0940.0	0940.0	1.0	150.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0940.0	0940.0	1.0	130.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1251.0	1252.0	1.0	40.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1252.0	1252.0	4.0	160.0			QL=4 ST=3 TYP=3
	8800	SGMR	4	S/F	1252.0	1252.0	4.0	62.0			QL=4 ST=3 TYP=3
	2695	SVTO	8	S	1252.0	1252.0	1.0	140.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1256.0	1257.0	1.0	29.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1256.0	1257.0	3.0	57.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1256.0	1257.0	3.0	34.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1534.0	1534.0	2.0	57.0			QL=4 ST=3 TYP=3
	8800	SGMR	20	GRF	1601.0	1621.0U	64.0	60.0			QL=4 ST=2 TYP=2
	2695	SGMR	20	GRF	1601.0	1602.0U	63.0	41.0			QL=4 ST=2 TYP=2
10	2695	SGMR	4	S/F	1546.0	1548.0	7.0	47.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1547.0	1548.0	6.0	130.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	2211.0	2212.0	1.0	240.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	2211.0	2212.0	2.0	180.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	2211.0	2212.0	1.0	200.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2211.0	2212.0	1.0	300.0			QL=4 ST=2 TYP=3
11	2695	SVTO	4	S/F	1440.0	1443.0	8.0	37.0			QL=2 ST=2 TYP=3
	8800	SVTO	4	S/F	1441.0	1442.0	7.0	62.0			QL=2 ST=2 TYP=3
	8800	SGMR	4	S/F	1442.0	1442.0	9.0	90.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1442.0	1443.0	9.0	51.0			QL=4 ST=2 TYP=3
12	8800	SVTO	4	S/F	0823.0	0826.0	10.0	27.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	0824.0	0825.0	15.0	20.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0826.0	0826.0	U	24.0			QL=4 ST=2 TYP=3
	2695	LEAR	46	C	0912.0	0916.0	4.0	32.0			QL=4 ST=2 TYP=8
14	2695	LEAR	49	GB	0756.0	0758.0	16.0	640.0			QL=4 ST=2 TYP=6
	8800	SVTO	4	S/F	0756.0	0757.0	15.0	490.0			QL=4 ST=2 TYP=3
	2695	SVTO	49	GB	0756.0	0757.0	16.0	540.0			QL=4 ST=2 TYP=6
	8800	LEAR	48	C	0756.0	0801.0	964.0	380.0			QL=4 ST=1 TYP=8
	8800	LEAR	4	S/F	0756.0	0757.0	964.0	440.0			QL=4 ST=1 TYP=3
	8800	SGMR	8	S	1317.0	1317.0	2.0	65.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1317.0	1317.0	1.0	42.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1501.0	1501.0	4.0	26.0			QL=2 ST=2 TYP=3
	8800	SVTO	4	S/F	1501.0	1502.0	4.0	360.0			QL=2 ST=2 TYP=3
	8800	SGMR	4	S/F	1502.0	1502.0	4.0	470.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1600.0	1602.0	16.0	200.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1601.0	1602.0	10.0	78.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1620.0	1622.0	5.0	260.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1701.0	1705.0	10.0	57.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1805.0	1805.0	2.0	68.0			QL=4 ST=2 TYP=3
15	2695	PALE	4	S/F	0006.0	0007.0	6.0	53.0			QL=4 ST=2 TYP=3
	8800	SVTO	20	GRF	0818.0	0837.0	136.0	64.0			QL=4 ST=2 TYP=2
	2695	SVTO	20	GRF	0825.0	0835.0	31.0	20.0			QL=4 ST=2 TYP=2
	2695	LEAR	8	S	0826.0	0827.0	1.0	24.0			QL=4 ST=2 TYP=3
	8800	LEAR	20	GRF	0828.0	0836.0	14.0	44.0			QL=4 ST=2 TYP=2
	8800	SGMR	4	S/F	1619.0E	1621.0U	18.0D	40.0			QL=4 ST=2 TYP=3

SOLAR RADIO EMISSION
Selected Fixed Frequency Events

NOVEMBER 1999

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Mean	Int	Remarks
16	8800	LEAR	4	S/F	0238.0	0239.0	3.0	160.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0238.0	0239.0	4.0	360.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	0238.0	0239.0	7.0	350.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0238.0	0239.0	2.0	110.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0408.0	0409.0	2.0	170.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0408.0	0408.0	1.0	150.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0604.0	0607.0	7.0	340.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	0605.0	0607.0	6.0	380.0			QL=2 ST=2 TYP=3
	2695	LEAR	8	S	0641.0	0641.0	U	71.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0641.0	0641.0	U	100.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0706.0	0706.0	U	62.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0706.0	0706.0	U	90.0			QL=4 ST=2 TYP=3
	8800	SGMR	20	GRF	1400.0	1408.0	60.0	52.0			QL=4 ST=3 TYP=2
	8800	SGMR	4	S/F	1632.0	1632.0	4.0	78.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1643.0	1645.0	15.0	59.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	2120.0	2121.0	4.0	180.0			QL=4 ST=2 TYP=3
17	2695	SVTO	4	S/F	0951.0	0952.0	8.0	280.0			QL=4 ST=2 TYP=3
	8800	SVTO	49	GB	0951.0	0953.0	16.0	1000.0			QL=4 ST=2 TYP=6
	8800	SVTO	4	S/F	1148.0	1150.0	7.0	200.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1737.0	1737.0	1.0	50.0			QL=4 ST=2 TYP=3
18	2695	LEAR	8	S	0145.0	0146.0	1.0	41.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	0145.0	0146.0	1.0	40.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1415.0	1415.0	1.0	53.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1415.0	1415.0	1.0	46.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1900.0	1901.0	2.0	81.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	1901.0	1901.0	1.0	67.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1901.0	1901.0	1.0	58.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1901.0	1901.0	1.0	72.0			QL=4 ST=2 TYP=3
20	8800	SGMR	4	S/F	1922.0	1924.0	7.0	110.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	1923.0	1924.0	3.0	79.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1923.0	1924.0	2.0	56.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1923.0	1924.0	6.0	66.0			QL=4 ST=2 TYP=3
	2695	LEAR	20	GRF	2224.0	2232.0	11.0	130.0			QL=4 ST=2 TYP=2
	8800	LEAR	8	S	2231.0	2231.0	1.0	46.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	2249.0	2250.0	2.0	59.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	2250.0	2250.0	U	39.0			QL=4 ST=2 TYP=3
21	8800	LEAR	8	S	0010.0	0010.0	1.0	78.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	0010.0	0011.0	1.0	280.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	0010.0	0010.0	4.0	85.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0011.0	0011.0	U	280.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0803.0	0803.0	1.0	18.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0803.0	0803.0	2.0	42.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0803.0	0803.0	2.0	54.0			QL=4 ST=3 TYP=3
	2695	SVTO	8	S	0803.0	0803.0	1.0	12.0			QL=4 ST=3 TYP=3
	8800	LEAR	8	S	1004.0	1005.0	2.0	160.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1005.0	1005.0	1.0	210.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	1813.0	1815.0	3.0	240.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	1813.0	1815.0	12.0	280.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1813.0	1815.0	13.0	330.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1813.0	1815.0	13.0	270.0			QL=4 ST=2 TYP=3
22	2695	LEAR	4	S/F	0253.0	0255.0	3.0	25.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0254.0	0254.0	2.0	94.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0254.0	0254.0	1.0	97.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	1213.0	1214.0	4.0	140.0			QL=4 ST=3 TYP=3
	8800	SGMR	8	S	1214.0	1214.0	U	190.0			QL=4 ST=2 TYP=3
24	2695	PALE	8	S	1927.0	1927.0	1.0	60.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1927.0	1928.0	1.0	39.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1927.0	1928.0	3.0	63.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1927.0	1927.0	3.0	51.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	2155.0	2156.0	2.0	28.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2155.0	2156.0	1.0	79.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	2156.0	2156.0	1.0	32.0			QL=4 ST=2 TYP=3
	8800	PALE	48	C	2326.0	2330.0	12.0	280.0			QL=4 ST=2 TYP=8

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

NOVEMBER 1999

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
24	8800	LEAR	4 S/F	2329.0	2330.0	3.0	240.0			QL=4 ST=2 TYP=3
	2695	LEAR	4 S/F	2329.0	2330.0	4.0	110.0			QL=4 ST=2 TYP=3
	2695	PALE	4 S/F	2329.0	2330.0	3.0	82.0			QL=4 ST=2 TYP=3
25	8800	LEAR	8 S	0645.0	0645.0	1.0	42.0			QL=4 ST=2 TYP=3
	8800	SVTO	8 S	0645.0	0645.0	1.0	42.0			QL=4 ST=2 TYP=3
	2695	SGMR	4 S/F	1739.0	1739.0	5.0	44.0			QL=4 ST=2 TYP=3
	8800	SGMR	4 S/F	1739.0	1739.0	5.0	47.0			QL=2 ST=2 TYP=3
	8800	PALE	4 S/F	1905.0	1912.0	12.0	60.0			QL=4 ST=2 TYP=3
	2695	PALE	8 S	1906.0	1906.0	U	44.0			QL=4 ST=2 TYP=3
	2695	SGMR	4 S/F	1910.0	1910.0	7.0	48.0			QL=4 ST=2 TYP=3
	8800	SGMR	4 S/F	1911.0	1911.0	6.0	55.0			QL=2 ST=2 TYP=3
26	8800	LEAR	4 S/F	0118.0	0120.0	19.0	200.0			QL=4 ST=2 TYP=3
	2695	LEAR	4 S/F	0119.0	0120.0	6.0	180.0			QL=4 ST=2 TYP=3
	2695	PALE	4 S/F	0119.0	0120.0	7.0	210.0			QL=4 ST=2 TYP=3
	8800	PALE	4 S/F	0119.0	0120.0	16.0	150.0			QL=4 ST=2 TYP=3
	2695	LEAR	8 S	0659.0	0659.0	1.0	58.0			QL=4 ST=2 TYP=3
	2695	SVTO	8 S	0659.0	0659.0	1.0	59.0			QL=4 ST=2 TYP=3
	8800	SGMR	49 GB	1340.0	1342.0	17.0	580.0			QL=2 ST=2 TYP=6
	2695	SVTO	4 S/F	1341.0	1342.0	7.0	77.0			QL=4 ST=2 TYP=3
	2695	SGMR	4 S/F	1341.0	1342.0	16.0	87.0			QL=4 ST=2 TYP=3
	8800	SVTO	49 GB	1341.0	1342.0	17.0	620.0			QL=4 ST=2 TYP=6
27	2695	LEAR	4 S/F	0451.0	0452.0	7.0	84.0			QL=4 ST=2 TYP=3
	8800	LEAR	4 S/F	0452.0	0452.0	6.0	48.0			QL=4 ST=2 TYP=3
	2695	SVTO	4 S/F	1208.0	1210.0	15.0	260.0			QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	1208.0	1210.0	37.0	490.0			QL=4 ST=2 TYP=3
28	2695	LEAR	4 S/F	0251.0	0253.0	3.0	17.0			QL=4 ST=2 TYP=3
	2695	PALE	4 S/F	0252.0	0253.0	3.0	31.0			QL=4 ST=2 TYP=3

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

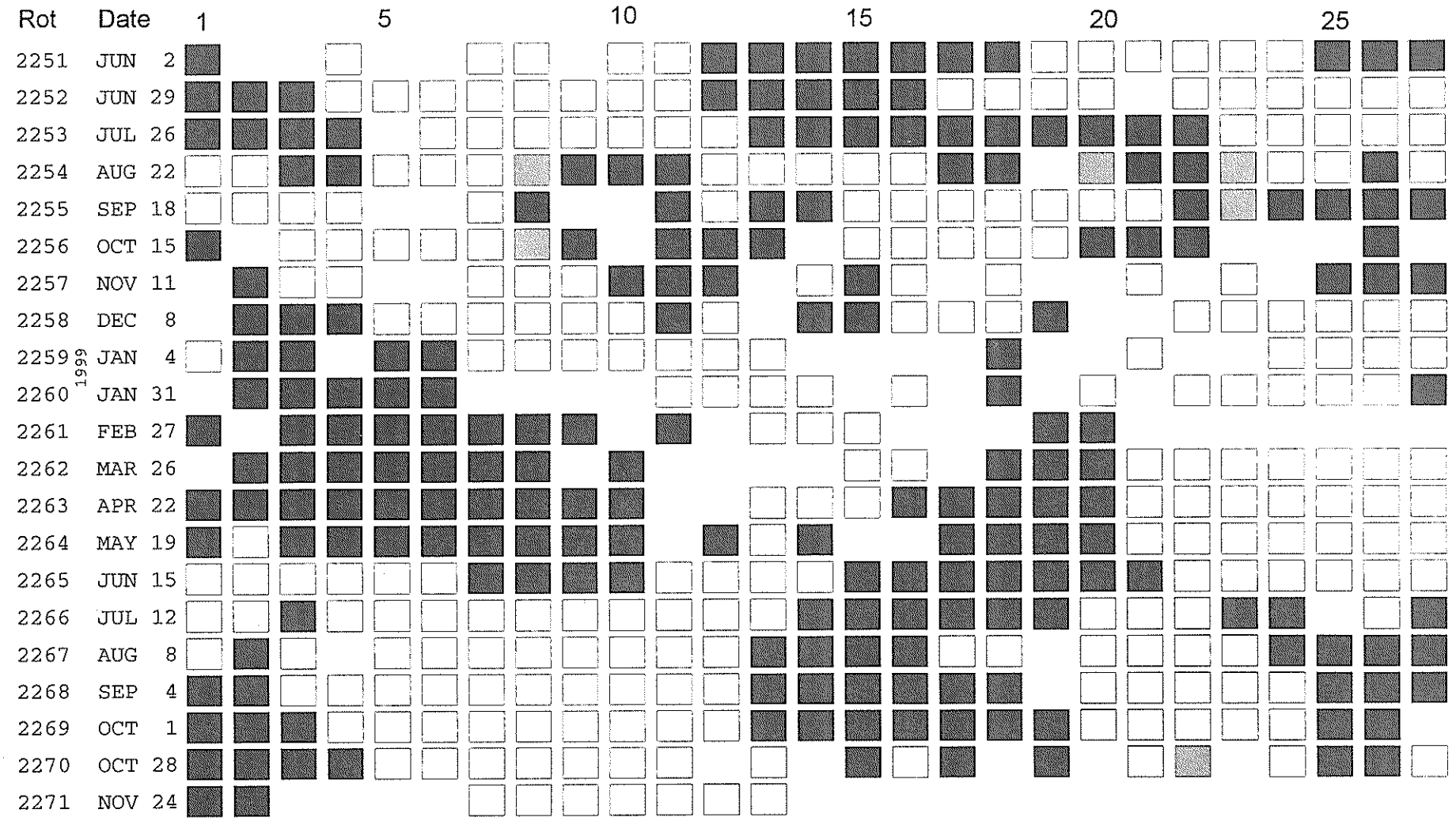
Explanation of Type Code:

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	40 Rise Only	16A Fall A	27AF Rise and Fall AF
21A Simple 3A GRF	40F Rise Only F	260 Fall Only	31A Post Burst Decrease A
2A Simple 1AF	4P Post Rise	26F Fall F	32A Absorption A

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

STANFORD MEAN SOLAR MAGNETIC FIELD

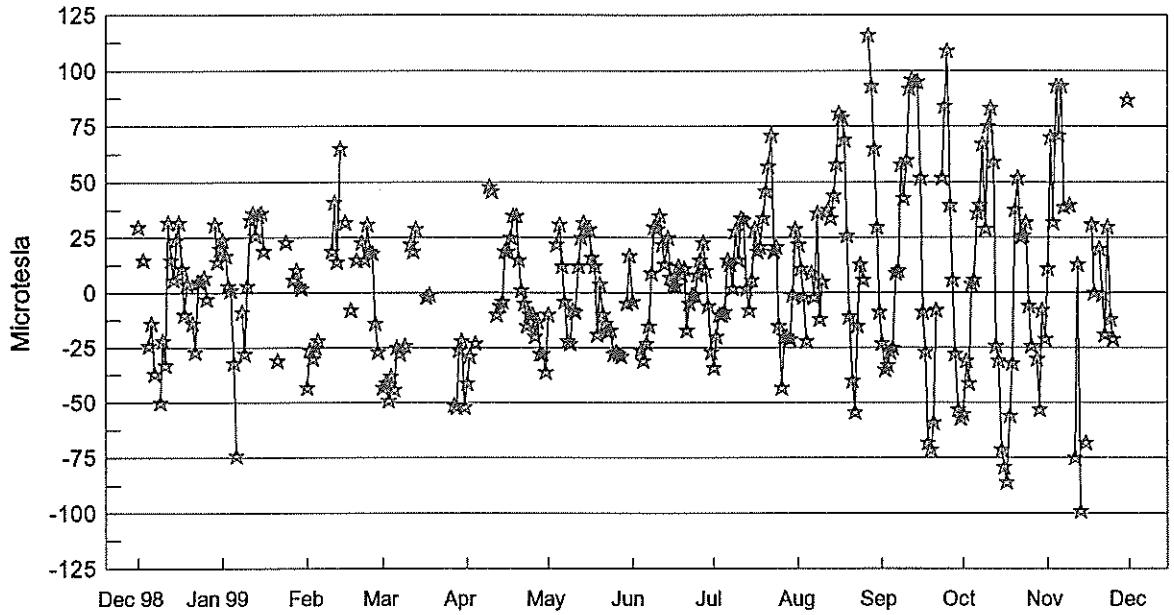


Mean Solar Magnetic Field Polarity: = field > 2 microT; = -2 microT ≤ field ≤ 2 microT

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

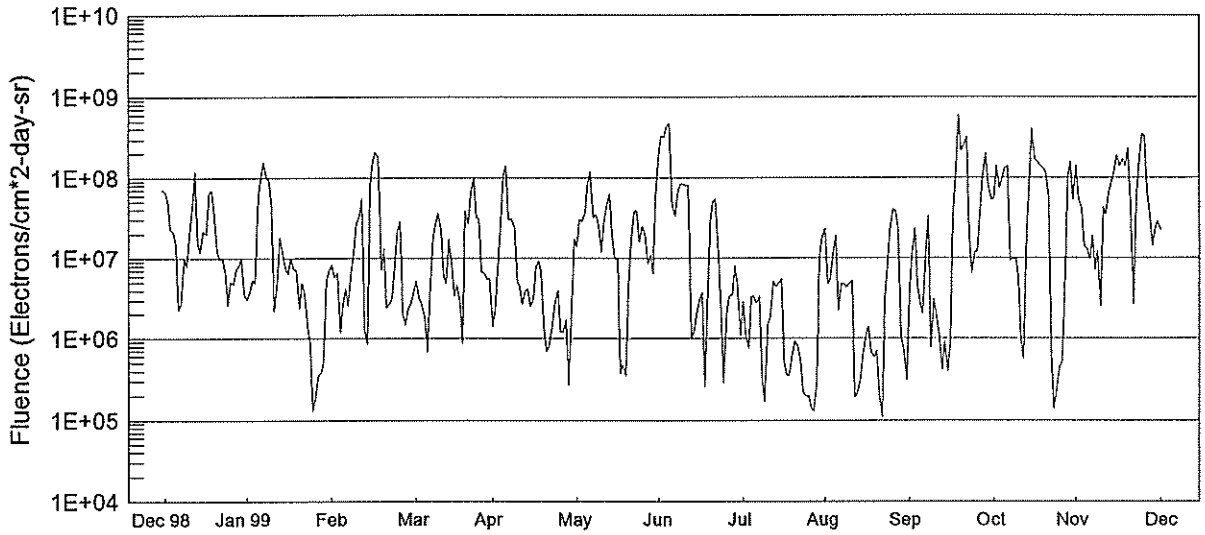
Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates are five days earlier, to mark times of occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

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



Day	Dec 98	Jan 99	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	30	24	-43	-43	-41	-10	-4	-34	22	-23	-55	11
2	---	17	-26	-41	-29	---	---	-20	11	-35	-31	70
3	15	3	-30	-49	---	---	---	-10	-2	-33	-41	32
4	---	1	-25	-38	-23	22	-26	-10	-22	-27	4	93
5	-24	-32	-22	-44	---	31	-31	-9	---	-25	6	71
6	-14	-74	---	-25	---	12	-23	15	9	9	36	93
7	-37	---	---	-28	---	-4	-15	13	-2	10	40	39
8	---	-9	---	---	---	-22	9	2	36	58	67	---
9	-50	-28	---	-24	48	-23	30	28	-12	43	29	40
10	-22	3	19	---	46	-8	29	15	5	60	75	---
11	-33	33	41	22	---	-9	35	34	---	92	83	-75
12	32	36	14	19	-10	12	22	33	38	96	59	13
13	15	26	65	29	-6	25	13	2	34	95	-24	-99
14	6	35	---	---	-4	32	25	-8	44	95	-31	---
15	24	36	32	---	19	29	7	6	58	52	-71	-68
16	32	19	---	---	19	29	3	29	81	-9	-79	---
17	11	---	-8	-2	25	16	3	19	79	-27	-86	31
18	-10	---	---	-1	35	12	12	21	69	-68	-56	0
19	4	---	15	---	35	-19	8	34	26	-71	-32	---
20	---	---	---	---	15	4	11	46	-11	-59	38	20
21	-14	-31	23	---	1	-10	-17	57	-40	-8	52	-1
22	-27	---	15	---	-5	-14	-5	71	-54	---	25	-19
23	5	---	31	---	-15	-18	-1	19	-15	52	26	30
24	5	23	19	---	-10	-17	-1	21	13	84	32	-12
25	7	---	18	---	-10	-28	8	-15	6	109	-6	-21
26	-3	---	-14	---	-20	-27	15	-43	---	40	-24	---
27	---	6	-27	-51	-13	-28	23	-20	116	6	---	---
28	---	10	---	-52	-28	-29	10	-20	93	-28	-30	---
29	31	3		-26	-28	---	-6	-21	65	-53	-53	---
30	14	2		-22	-36	-5	-27	-1	30	-57	-8	87
31	20	---		-52		17		29	-9		-21	

GOES Daily Electron Fluence
Dec 98 - Nov 99



Day	Dec 98	Jan 99	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	3.1E+06	8.3E+06	5.2E+06	1.4E+06	1.4E+07	1.9E+08	2.9E+06	2.3E+07	3.4E+06	5.5E+07	1.4E+08	2.2E+07
2	3.9E+06	5.9E+06	3.2E+06	2.2E+06	3.0E+07	3.3E+08	1.1E+06	4.7E+06	1.1E+07	1.4E+08	5.4E+07	1.7E+07
3	5.4E+06	6.5E+06	2.7E+06	7.2E+06	2.9E+07	3.2E+08	7.7E+05	5.5E+06	2.3E+07	7.5E+07	4.1E+07	2.2E+07
4	4.9E+06	1.2E+06	1.8E+06	2.9E+07	3.6E+07	4.4E+08	3.3E+06	1.2E+07	4.5E+06	9.7E+07	1.4E+07	3.1E+07
5	5.8E+07	2.7E+06	6.8E+05	1.1E+08	8.3E+07	4.6E+08	3.3E+06	1.9E+07	2.8E+06	1.3E+08	1.3E+07	2.8E+07
6	1.0E+08	4.1E+06	3.4E+06	1.4E+08	1.2E+08	4.9E+07	2.8E+06	2.2E+06	2.0E+06	1.4E+08	9.9E+06	5.7E+06
7	1.6E+08	2.6E+06	1.8E+07	3.0E+07	3.2E+07	3.3E+07	3.3E+06	4.8E+06	1.1E+07	9.4E+06	1.9E+07	1.3E+06
8	1.0E+08	6.8E+06	2.7E+07	3.0E+07	3.5E+07	6.4E+07	3.2E+05	4.7E+06	3.3E+07	9.7E+06	7.2E+06	2.2E+06
9	9.1E+07	1.2E+07	3.6E+07	2.4E+07	2.5E+07	8.2E+07	1.7E+05	4.3E+06	7.8E+05	1.0E+07	1.2E+07	6.7E+07
10	4.3E+07	2.7E+07	2.2E+07	5.3E+06	1.2E+07	8.4E+07	1.5E+06	4.7E+06	3.1E+06	5.4E+06	2.5E+06	1.7E+08
11	2.2E+06	3.4E+07	5.9E+06	4.4E+06	2.8E+07	8.0E+07	1.8E+06	5.3E+06	1.9E+06	9.4E+05	4.3E+07	1.1E+08
12	5.1E+06	5.5E+07	4.9E+06	2.7E+06	4.8E+07	8.0E+07	5.1E+06	1.9E+05	1.2E+06	5.6E+05	3.5E+07	1.6E+08
13	1.8E+07	1.3E+06	1.7E+07	4.0E+06	6.3E+07	1.0E+06	4.4E+06	2.1E+05	4.1E+05	2.1E+07	6.8E+07	3.8E+07
14	1.2E+07	8.6E+05	7.8E+06	4.1E+06	1.9E+07	1.2E+06	4.8E+06	3.1E+05	9.1E+05	8.2E+07	9.0E+07	3.1E+06
15	7.5E+06	7.7E+07	3.4E+06	2.5E+06	9.8E+06	2.0E+06	5.6E+06	6.3E+05	3.9E+05	4.0E+08	1.2E+08	2.1E+07
16	6.4E+06	1.6E+08	4.6E+06	3.2E+06	1.0E+07	3.1E+06	5.0E+05	1.1E+06	8.8E+05	1.7E+08	1.9E+08	7.9E+06
17	1.0E+07	2.1E+08	2.9E+06	7.9E+06	3.8E+05	3.7E+06	3.6E+05	1.4E+06	3.0E+07	1.6E+08	1.4E+08	1.4E+06
18	7.3E+06	1.8E+08	8.7E+05	9.2E+06	4.8E+05	2.6E+05	3.6E+05	6.8E+05	1.3E+08	1.4E+08	1.7E+08	8.9E+06
19	7.2E+06	7.1E+06	3.9E+07	6.6E+06	3.5E+05	4.1E+06	6.5E+05	5.9E+05	5.9E+08	1.3E+08	1.4E+08	1.3E+07
20	2.4E+06	1.3E+07	2.7E+07	1.2E+06	4.5E+06	2.8E+07	9.2E+05	7.1E+05	2.2E+08	1.2E+08	2.3E+08	2.6E+07
21	4.9E+06	2.4E+06	6.3E+07	7.0E+05	1.6E+07	5.1E+07	8.2E+05	2.1E+05	2.5E+08	5.7E+07	4.7E+07	2.3E+07
22	3.8E+06	2.7E+06	1.0E+08	8.2E+05	3.8E+07	5.4E+07	5.3E+05	1.1E+05	3.2E+08	6.6E+05	2.7E+06	1.1E+07
23	1.4E+06	3.2E+06	3.2E+07	1.5E+06	3.9E+07	1.1E+07	2.2E+05	3.1E+06	1.9E+07	1.4E+05	5.1E+07	1.1E+07
24	8.5E+05	7.8E+06	3.1E+07	2.8E+06	1.6E+07	2.3E+06	2.0E+05	7.5E+06	6.5E+06	2.2E+05	1.4E+08	1.3E+07
25	1.3E+05	2.1E+07	6.8E+06	4.0E+06	2.5E+07	2.9E+05	2.0E+05	2.2E+07	1.2E+07	4.6E+05	3.5E+08	1.2E+07
26	1.8E+05	2.9E+07	6.4E+06	1.2E+06	2.0E+07	2.1E+06	1.4E+05	4.0E+07	1.2E+07	5.0E+05	3.3E+08	4.7E+06
27	3.5E+05	2.0E+06	5.5E+06	1.2E+06	8.5E+06	3.4E+06	1.3E+05	3.9E+07	3.5E+07	3.7E+06	7.2E+07	1.0E+07
28	3.8E+05	1.5E+06	5.6E+06	1.7E+06	1.1E+07	3.5E+06	3.0E+05	2.3E+07	1.0E+08	9.9E+07	3.2E+07	4.9E+06
29	5.0E+05	2.3E+06		2.7E+05	6.4E+06	8.0E+06	1.0E+07	9.8E+05	2.0E+08	1.6E+08	1.4E+07	3.0E+06
30	5.4E+06	2.8E+06		1.7E+06	6.0E+07	4.7E+06	1.8E+07	7.5E+05	8.2E+07	5.4E+07	2.3E+07	3.4E+06
31	7.1E+06	3.6E+06		1.7E+07		1.1E+06		3.1E+05	5.4E+07	--	2.9E+07	

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 664 Part I

DATA FOR OCTOBER 1999

SOLAR MAGNETIC FIELD SYNOPTIC CHART

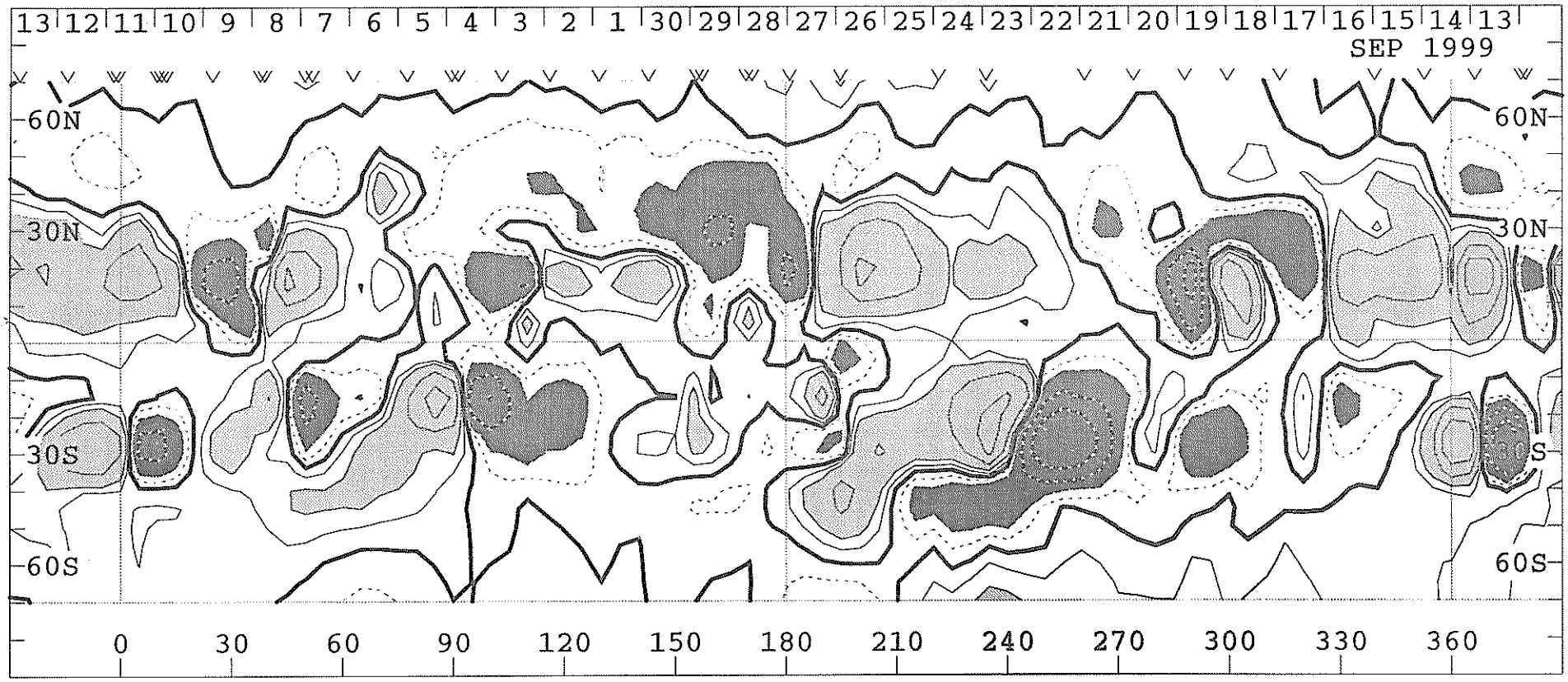
CARRINGTON ROTATION NUMBER 1954

(14 September to 11 October 1999)

Wilcox Solar Observatory

Mean Field

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



Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART

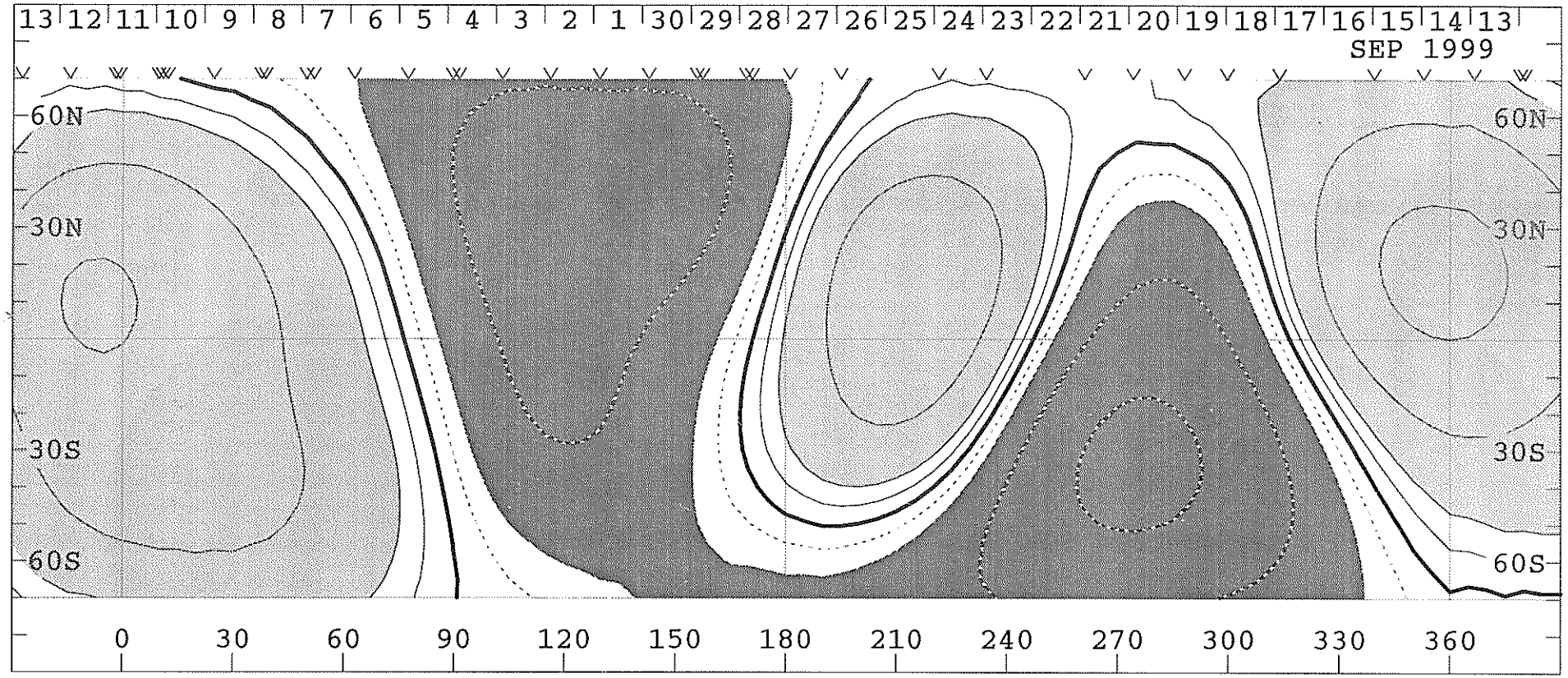
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1954

(14 September to 11 October 1999)

Wilcox Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla

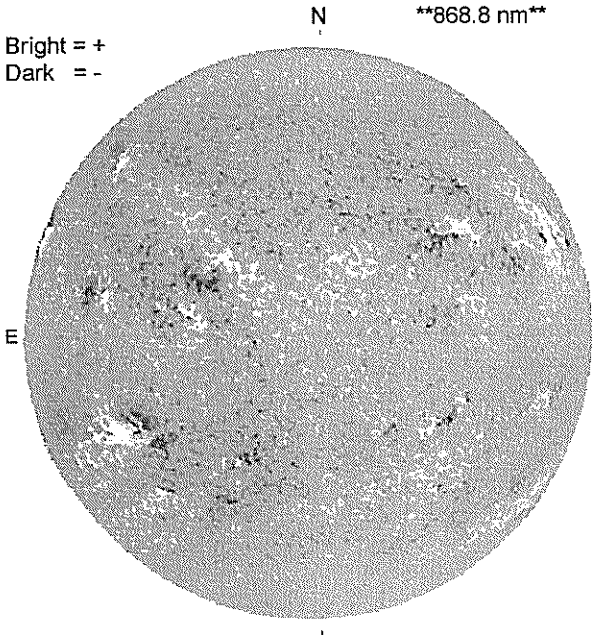


Heliographic Longitude

1954

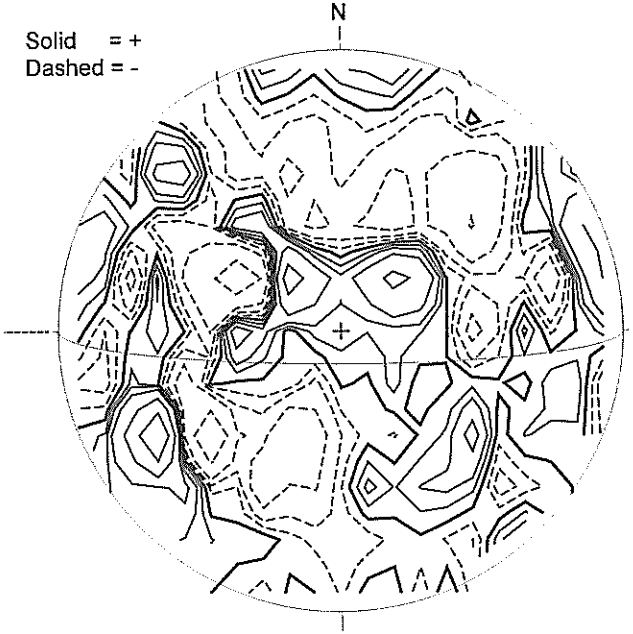
OCTOBER 1, 1999 (P= 25.95, Bo = 6.74, Lo = 140.83)

KITT PEAK MAGNETOGRAM



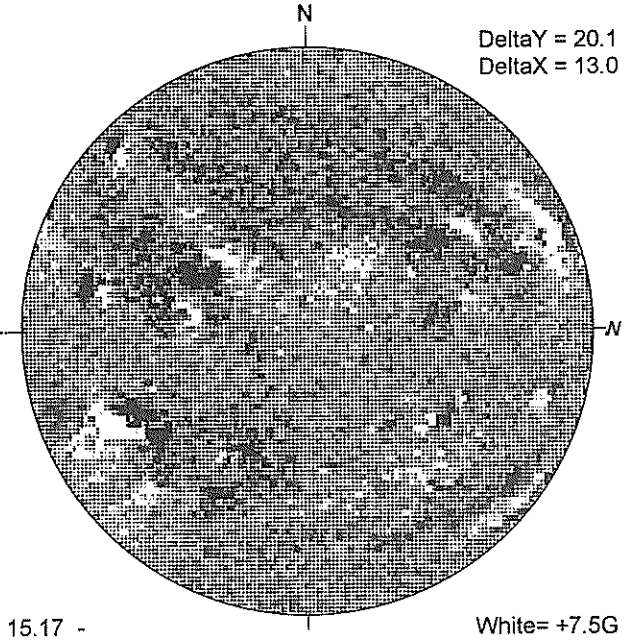
1429 UT

STANFORD MAGNETOGRAM



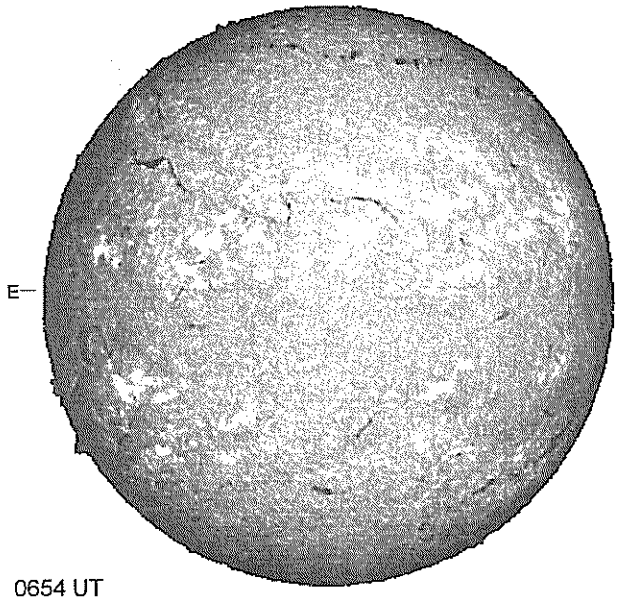
2053 UT

MT. WILSON MAGNETOGRAM



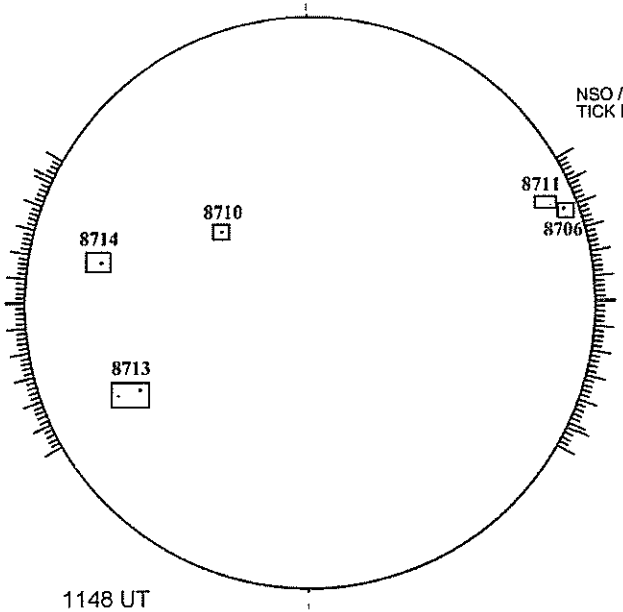
15.17 -
15.58 UT

MEUDON H-ALPHA



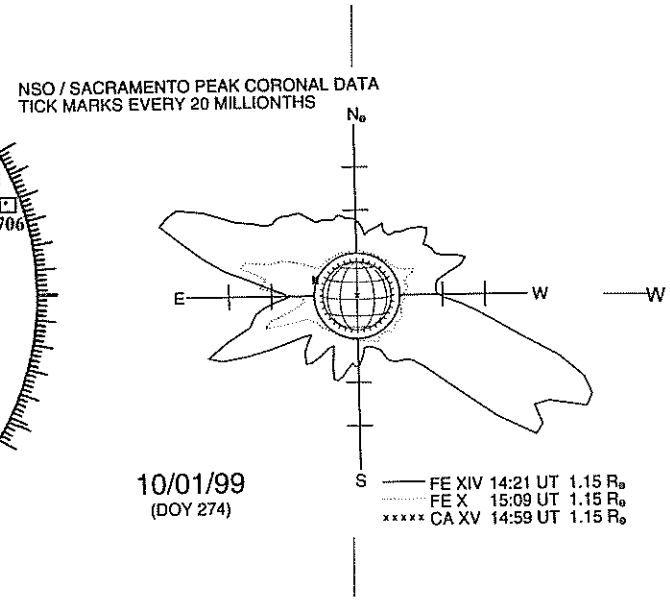
0654 UT

RAMEY SUNSPOT



1148 UT

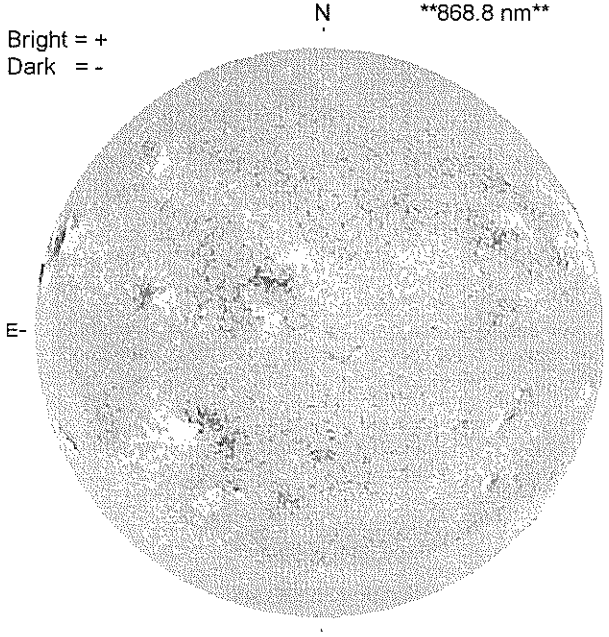
SACRAMENTO PEAK CORONA (1.15 Radii)



10/01/99
(DOY 274)

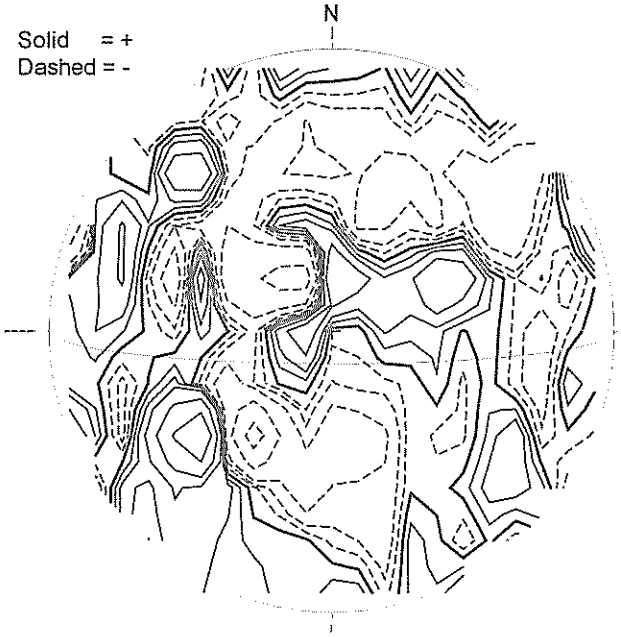
OCTOBER 2, 1999 (P= 26.02, Bo = 6.69, Lo = 127.63)

KITT PEAK MAGNETOGRAM



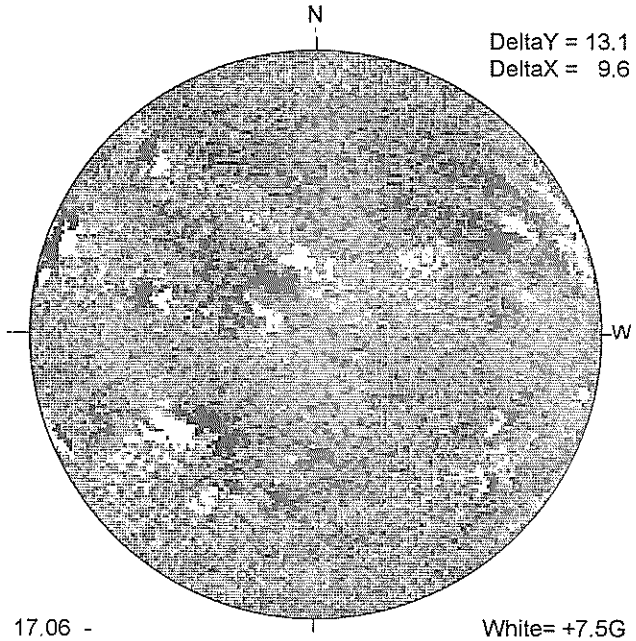
1424 UT

STANFORD MAGNETOGRAM



2111 UT

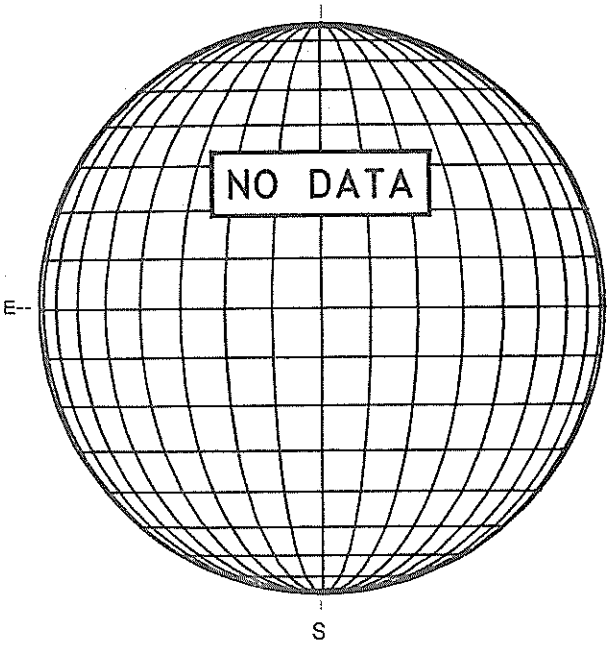
MT. WILSON MAGNETOGRAM



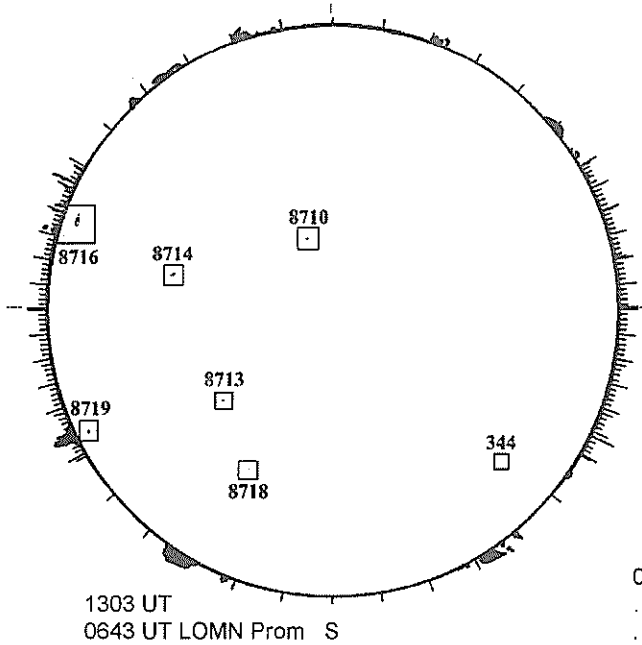
17.06 -
18.01 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

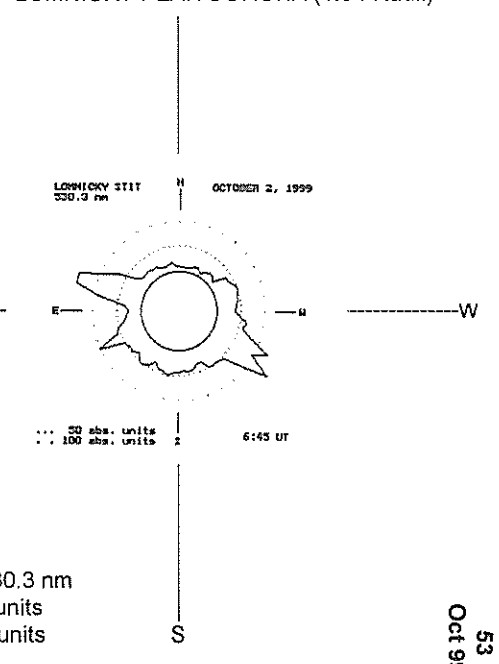


RAMEY SUNSPOT



1303 UT
0643 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



0645 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

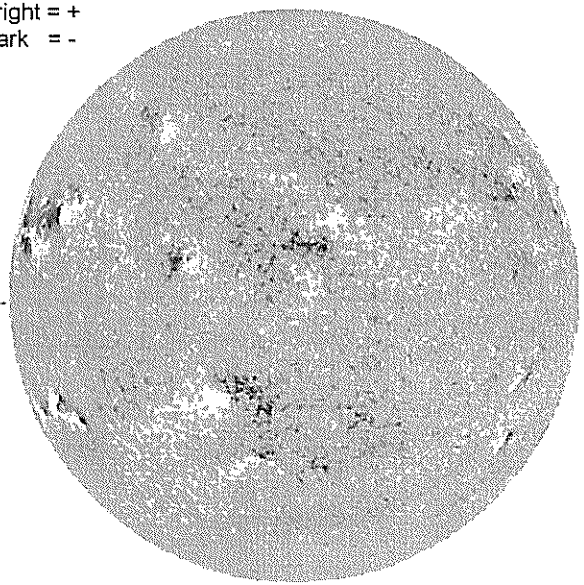
53
Oct 99

OCTOBER 3, 1999 (P= 26.07, Bo = 6.64, Lo = 114.43)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

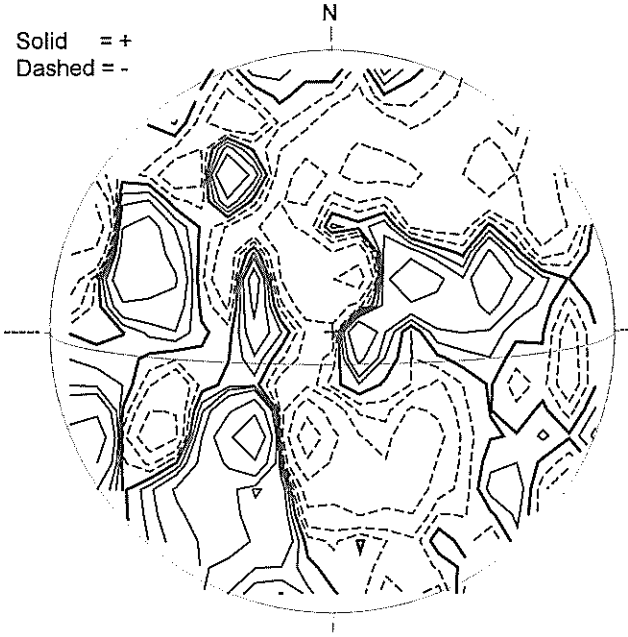
Bright = +
Dark = -



1438 UT

STANFORD MAGNETOGRAM

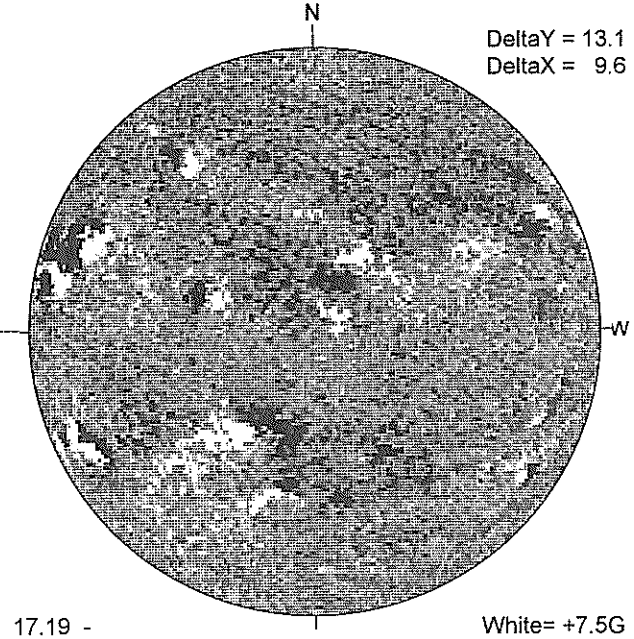
Solid = +
Dashed = -



2049 UT

MT. WILSON MAGNETOGRAM

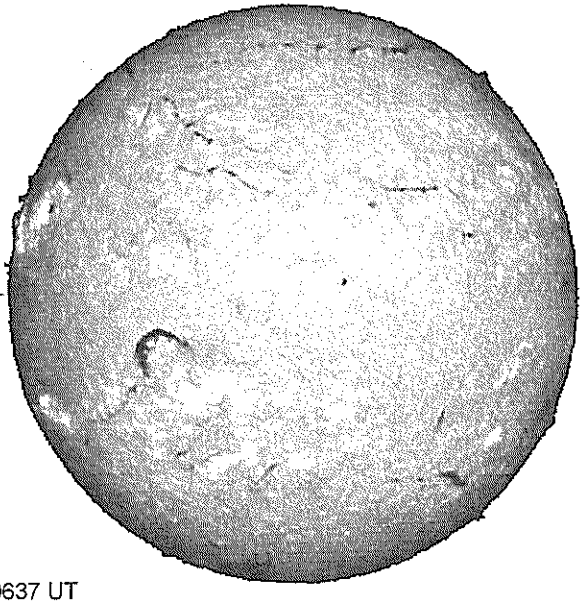
DeltaY = 13.1
DeltaX = 9.6



17.19 -
18.13 UT

White= +7.5G
Black = -7.5G

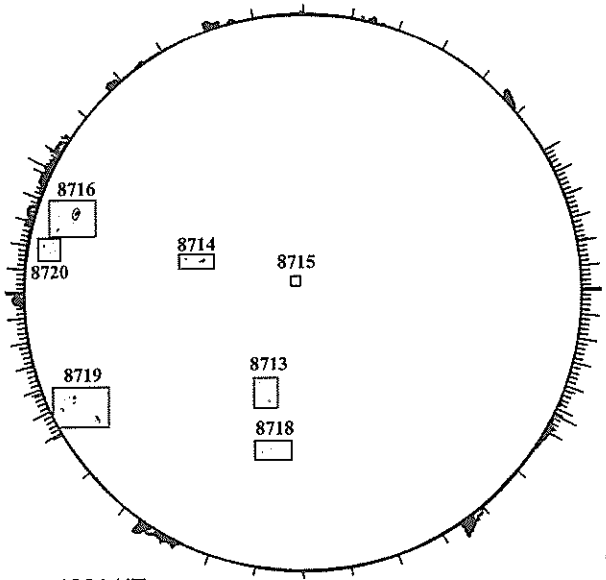
MEUDON H-ALPHA



0637 UT

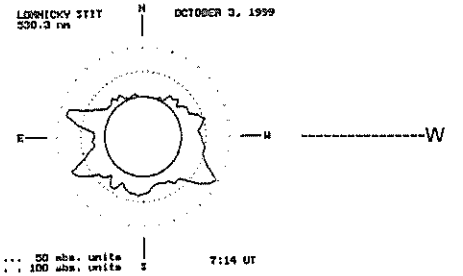
S

RAMEY SUNSPOT



1301 UT
0611 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



0714 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

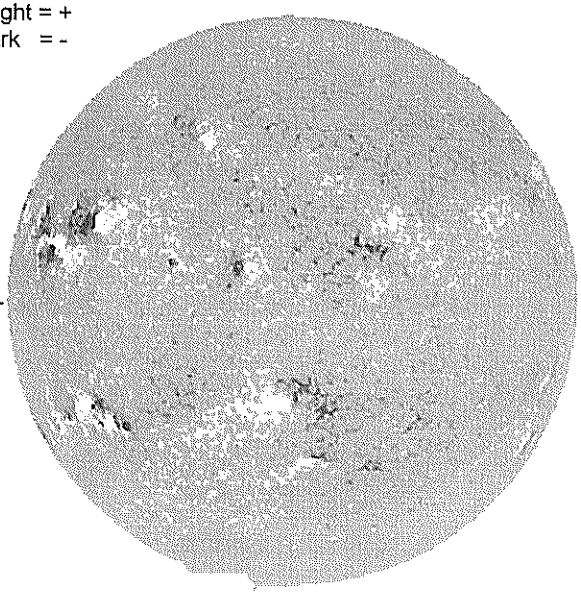
S

OCTOBER 4, 1999 (P= 26.13, Bo = 6.59, Lo = 101.24)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



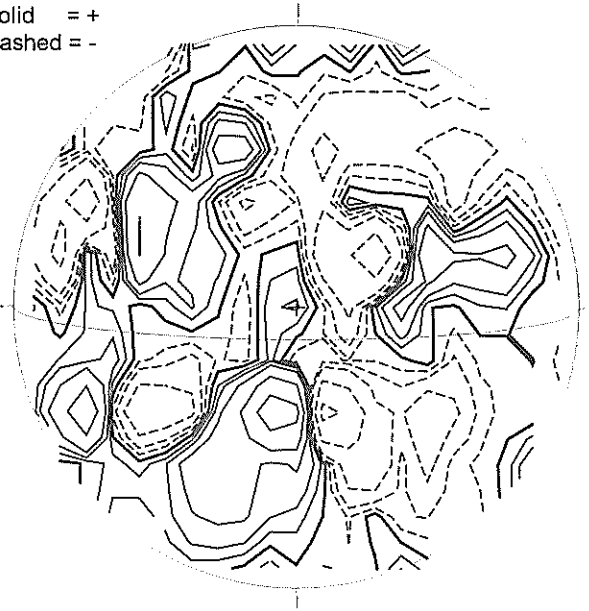
E----

1528 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

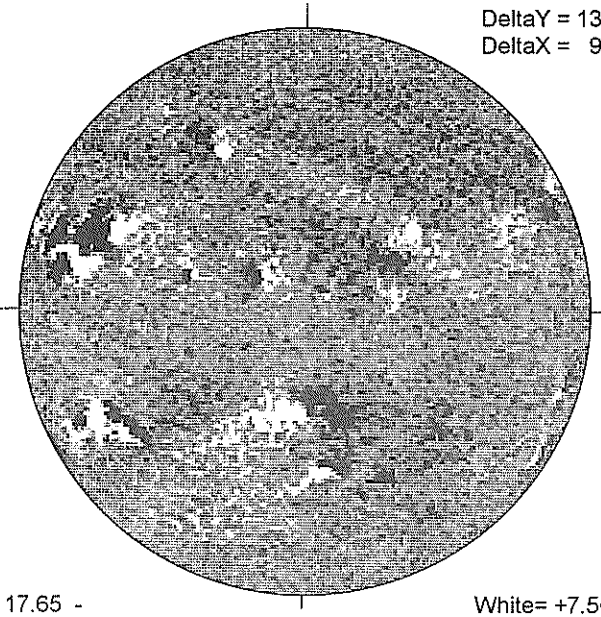


2123 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

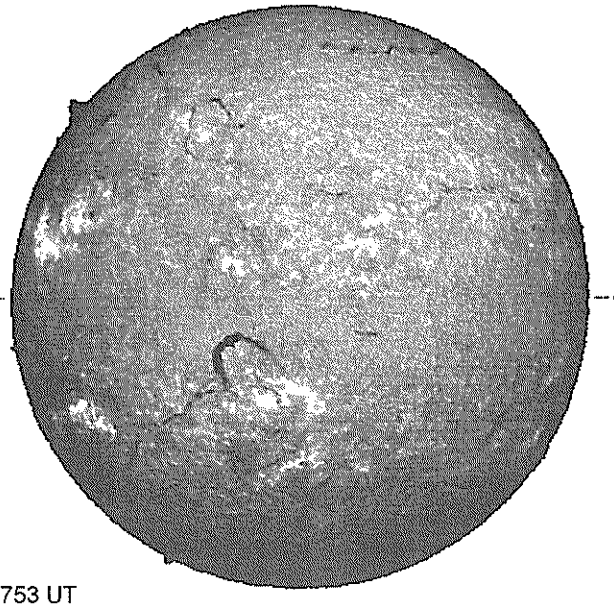


-W

17.65 -
18.59 UT

White= +7.5G
Black = -7.5G

----- MEUDON H-ALPHA

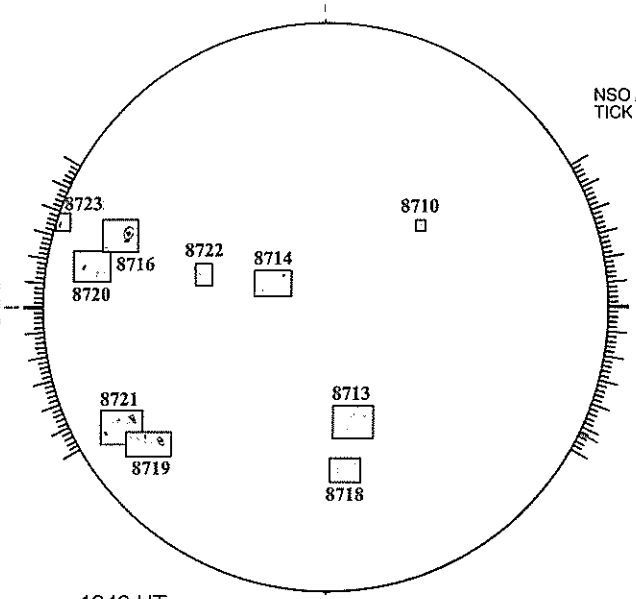


E-

0753 UT

S

RAMEY SUNSPOT

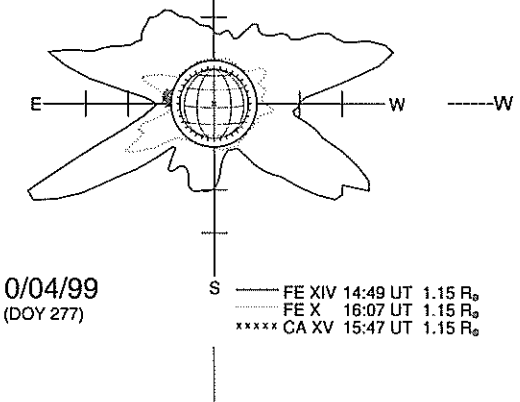


1246 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



10/04/99
(DOY 277)

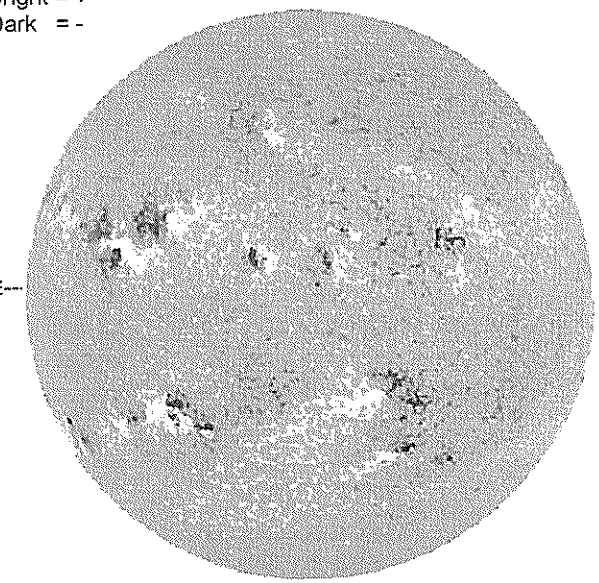
FE XIV 14:49 UT 1.15 $R_\odot$
FE X 16:07 UT 1.15 $R_\odot$
xxxxx CA XV 15:47 UT 1.15 $R_\odot$

S

55
Oct 99

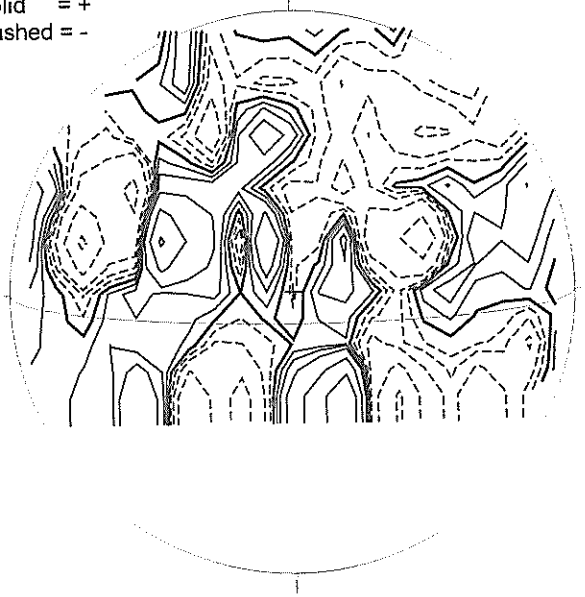
OCTOBER 5, 1999 (P= 26.17, Bo = 6.54, Lo = 88.05)

KITT PEAK MAGNETOGRAM
N
868.8 nm
Bright = +
Dark = -
E---



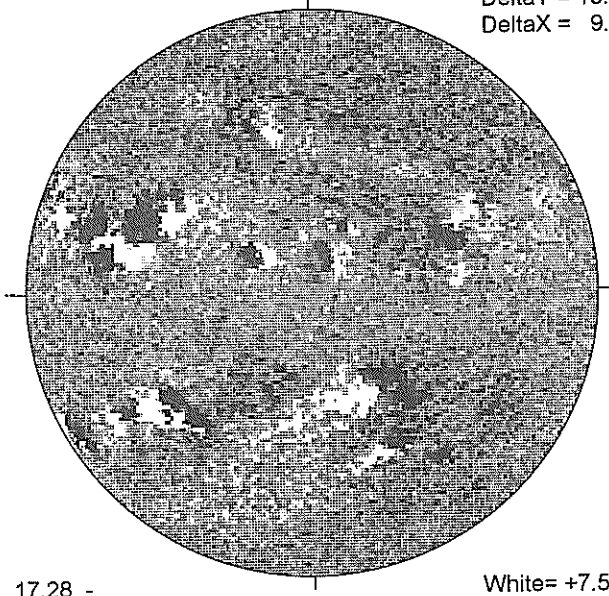
1924 UT

STANFORD MAGNETOGRAM
N
Solid = +
Dashed = -



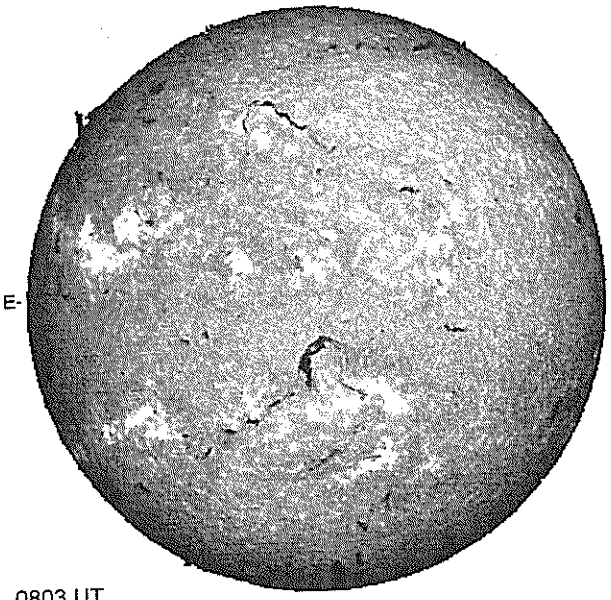
1935 UT

MT. WILSON MAGNETOGRAM
N
DeltaY = 13.1
DeltaX = 9.6



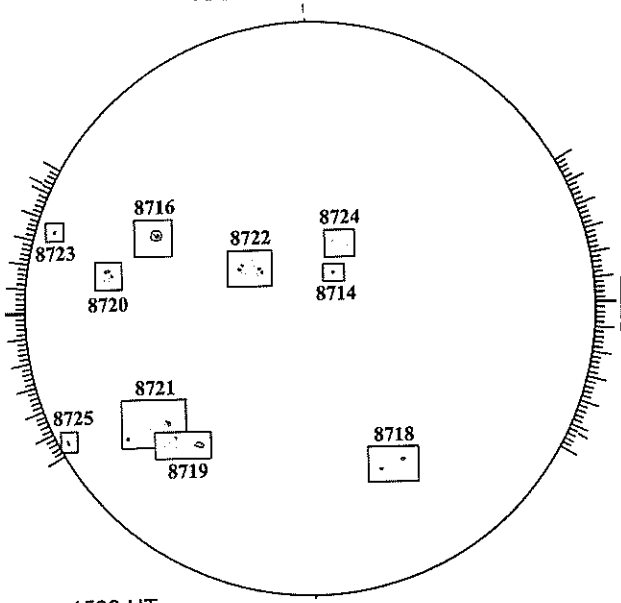
W
17.28 -
18.23 UT
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



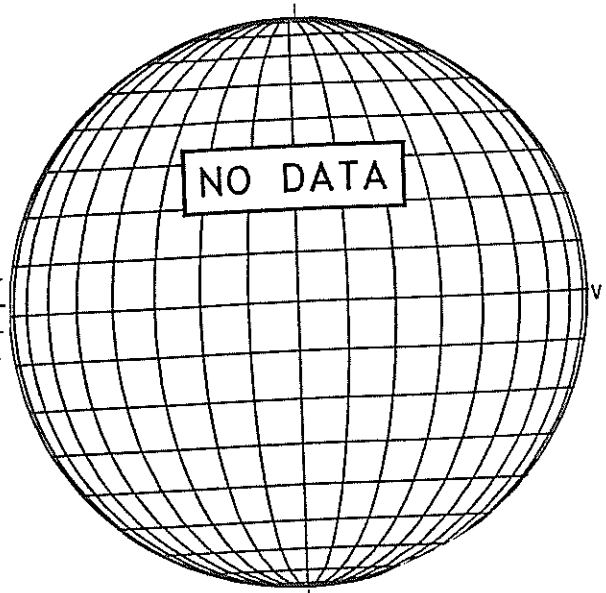
E-
0803 UT
S

RAMEY SUNSPOT



1533 UT
S

SACRAMENTO PEAK CORONA (1.15 Radii)----



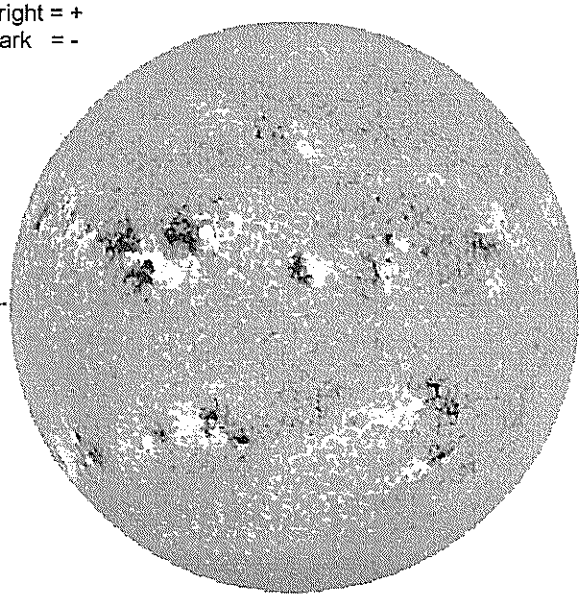
W
S

OCTOBER 6, 1999 (P= 26.21, Bo = 6.49, Lo = 74.85)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



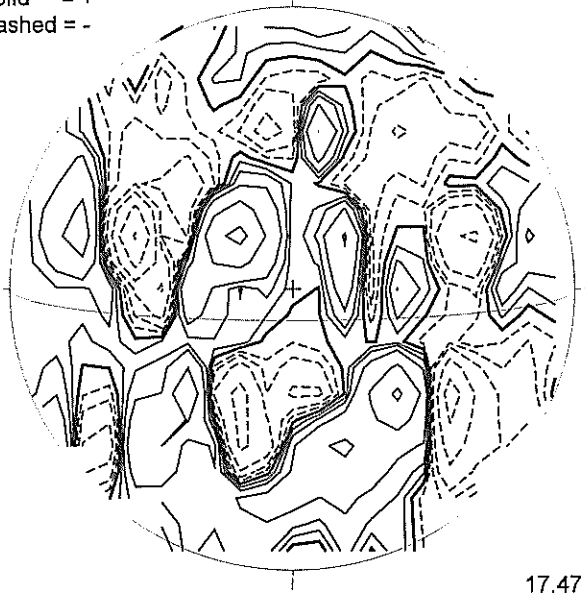
E--

1800 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -



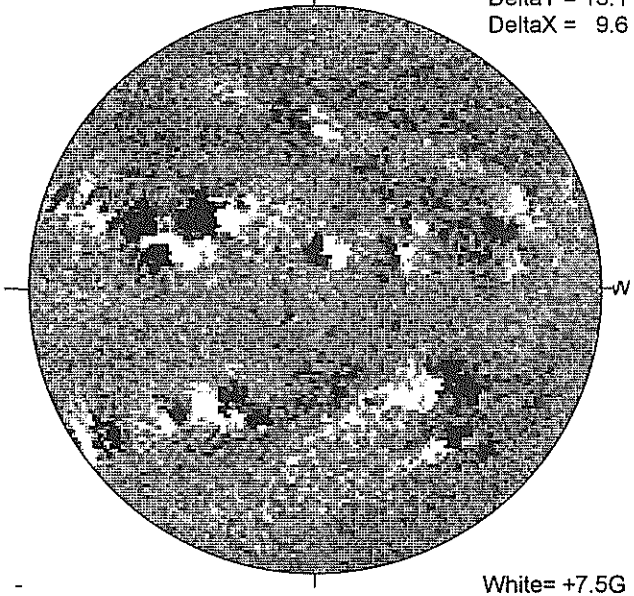
2203 UT

17.47 -
18.42 UT

MT. WILSON MAGNETOGRAM

N

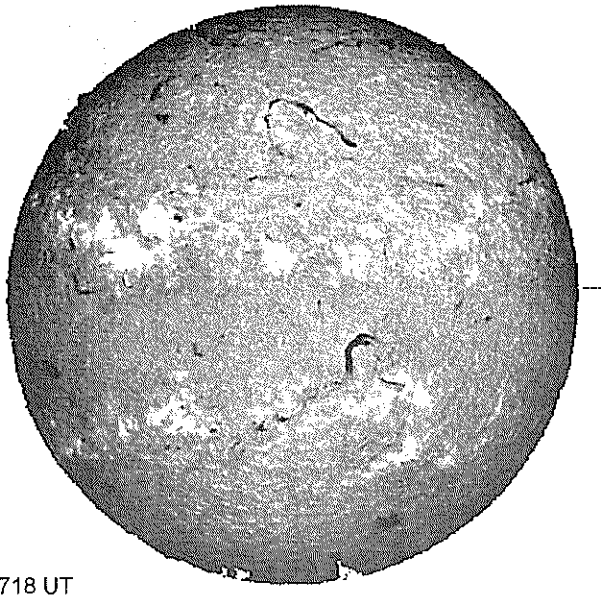
DeltaY = 13.1
DeltaX = 9.6



-W

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

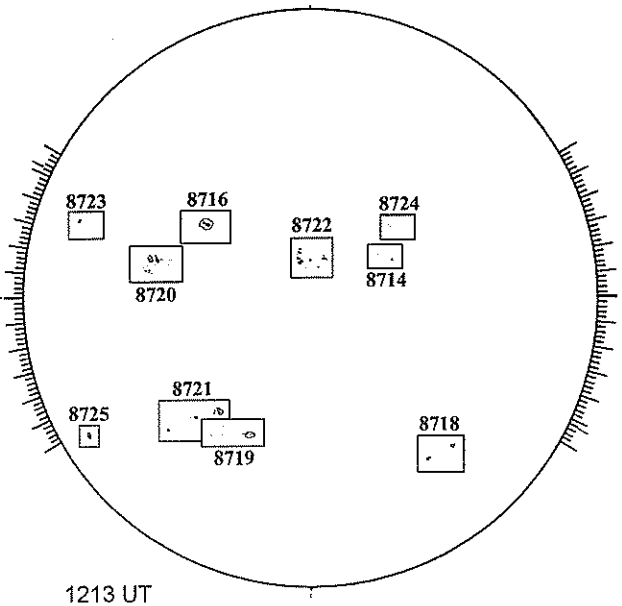


E-

0718 UT

S

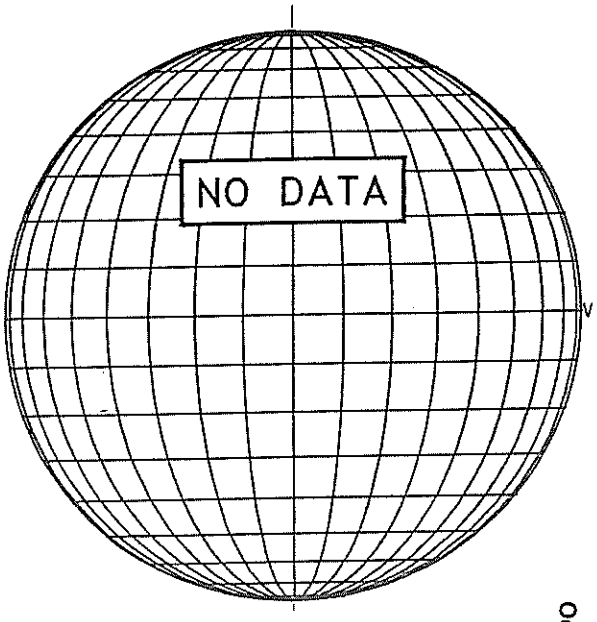
RAMEY SUNSPOT



1213 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)



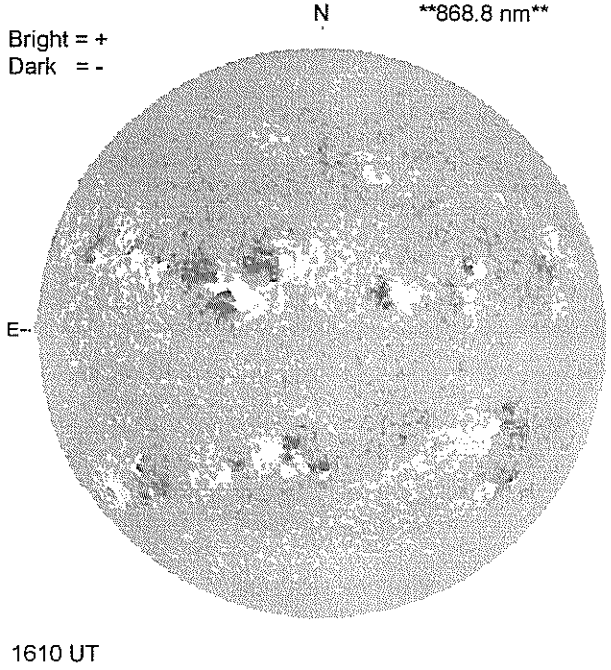
-W

S

57
Oct 99

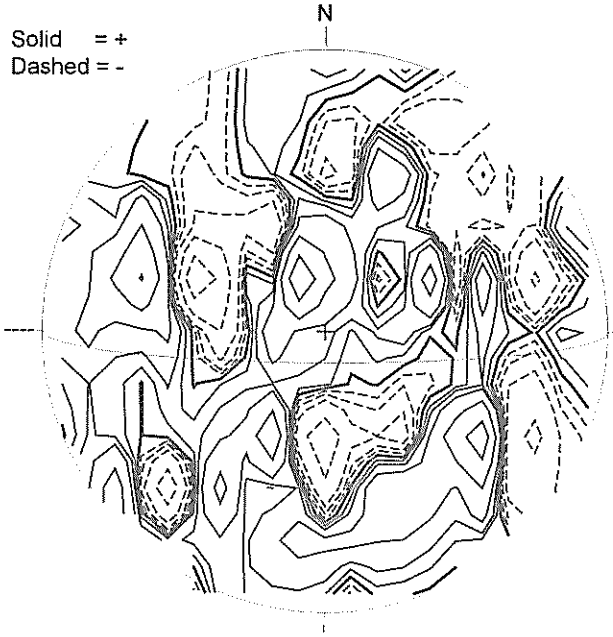
OCTOBER 7, 1999 (P= 26.24, Bo = 6.43, Lo = 61.66)

KITT PEAK MAGNETOGRAM



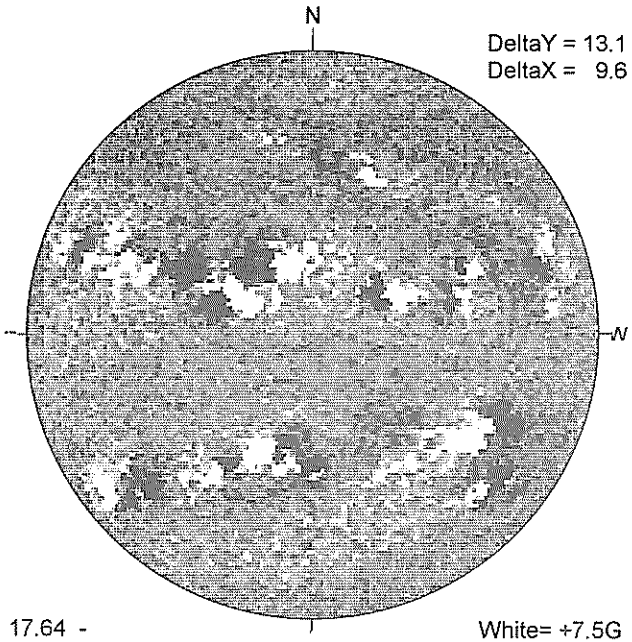
1610 UT

STANFORD MAGNETOGRAM



1808 UT

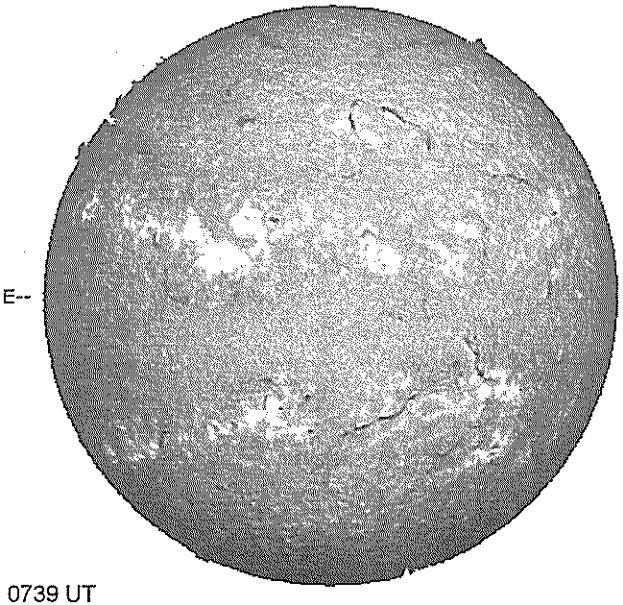
MT. WILSON MAGNETOGRAM



17.64 -
18.59 UT

White= +7.5G
Black = -7.5G

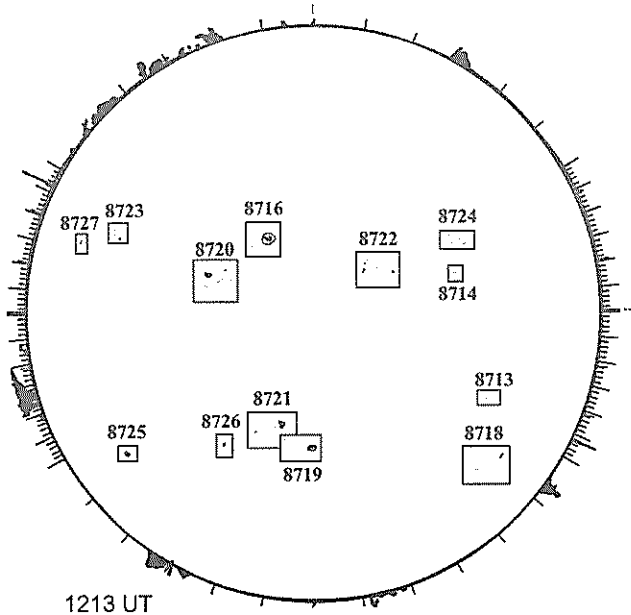
----- MEUDON H-ALPHA



0739 UT

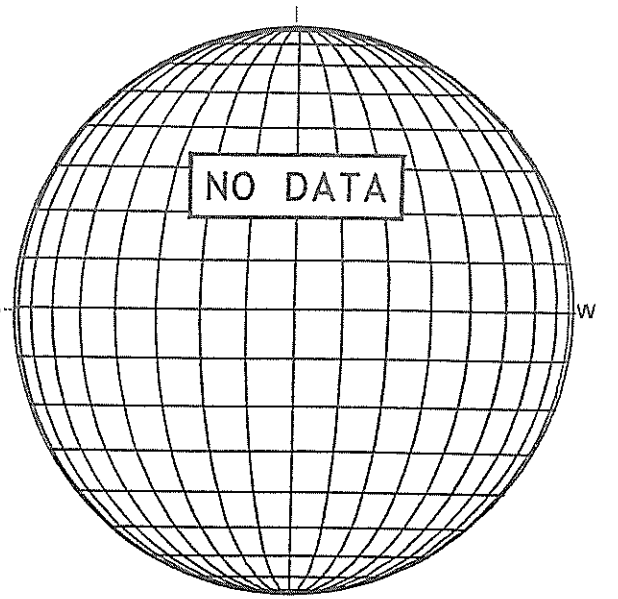
S

RAMEY SUNSPOT



1213 UT
0654 UT LOMN Prom S

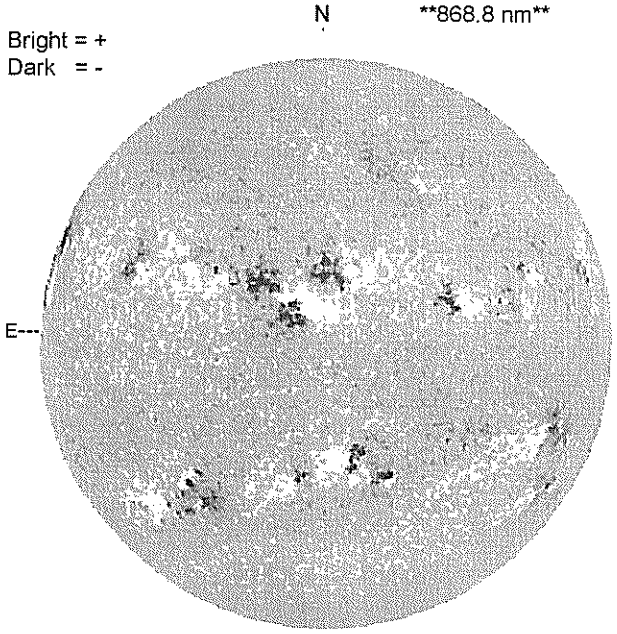
SACRAMENTO PEAK CORONA (1.15 Radii)----



S

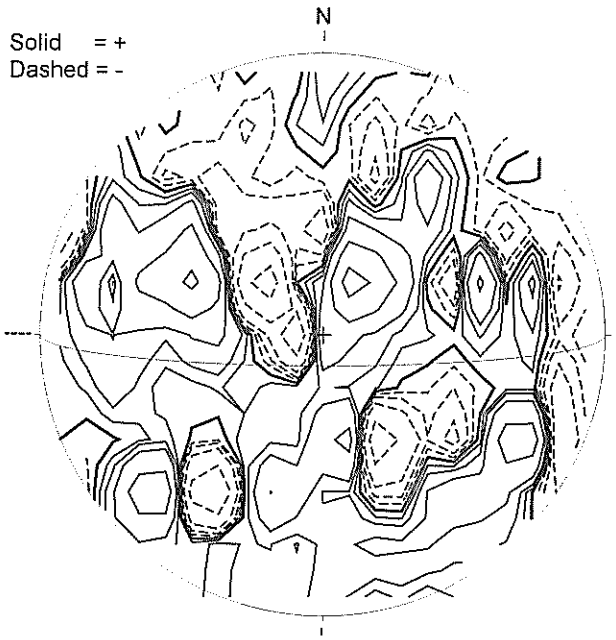
OCTOBER 8, 1999 (P= 26.27, Bo = 6.37, Lo = 48.46)

KITT PEAK MAGNETOGRAM



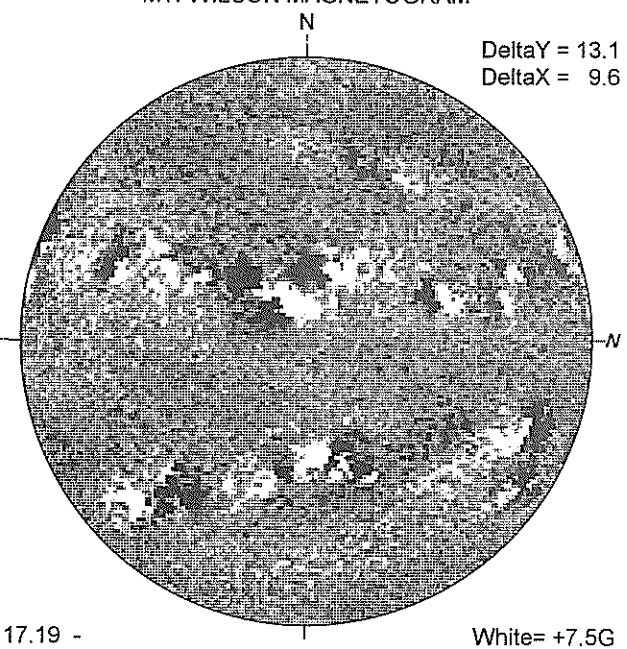
1601 UT

STANFORD MAGNETOGRAM



1956 UT

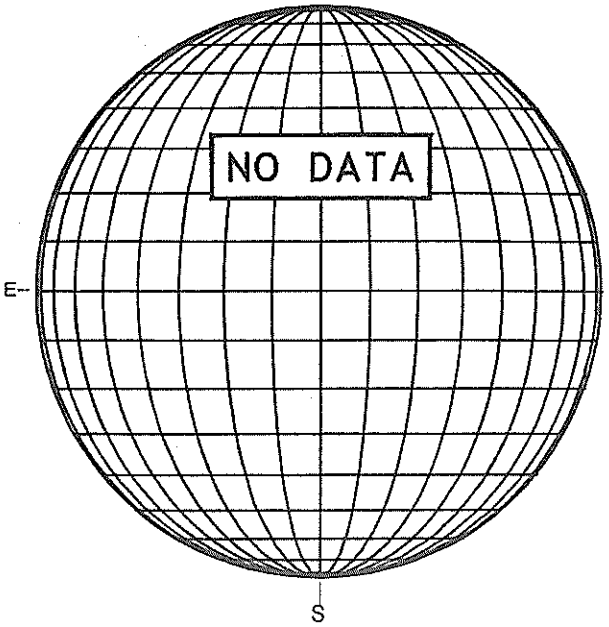
MT. WILSON MAGNETOGRAM



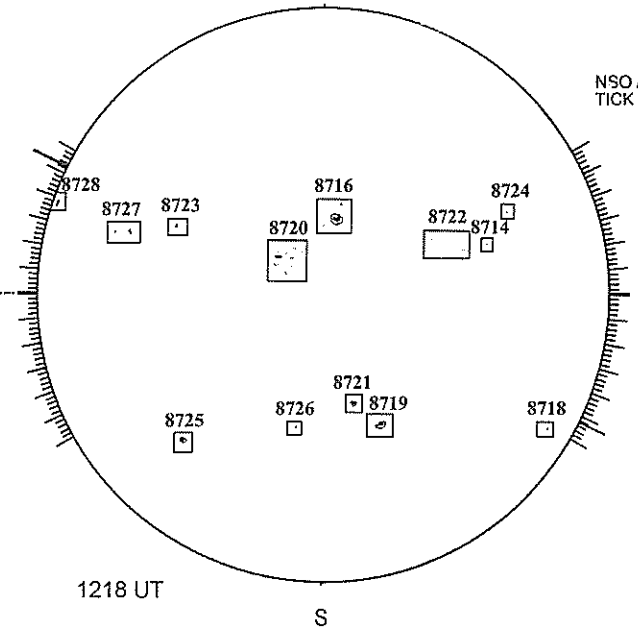
17.19 -
18.13 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

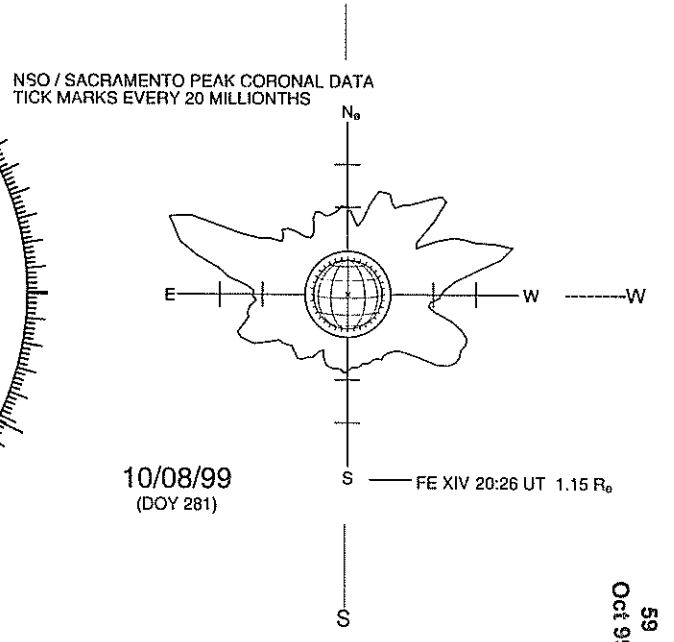


RAMEY SUNSPOT



1218 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

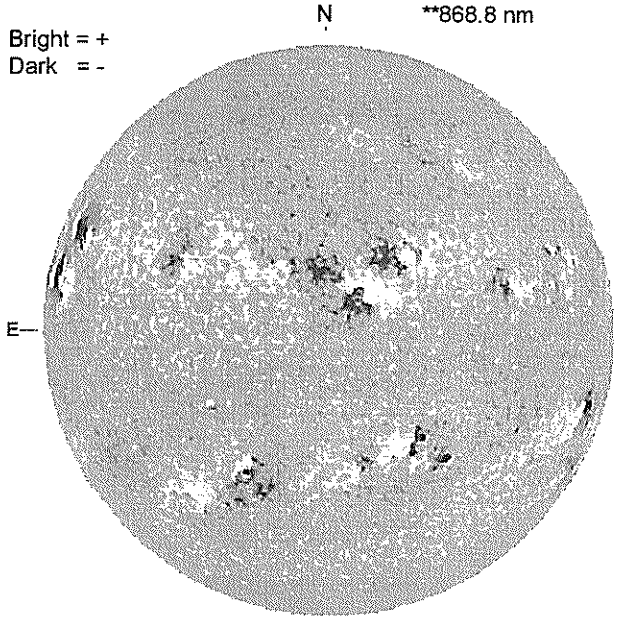


10/08/99
(DOY 281)

59
Oct 99

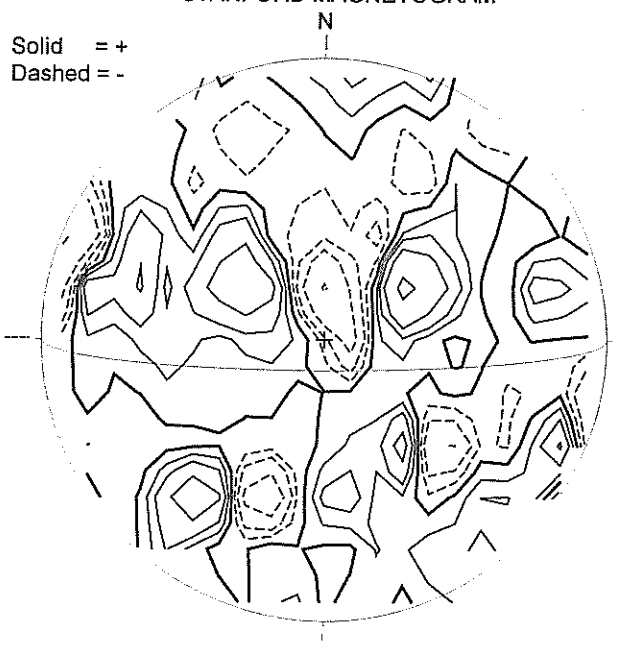
OCTOBER 9, 1999 (P= 26.28, Bo = 6.31, Lo = 35.27)

KITT PEAK MAGNETOGRAM



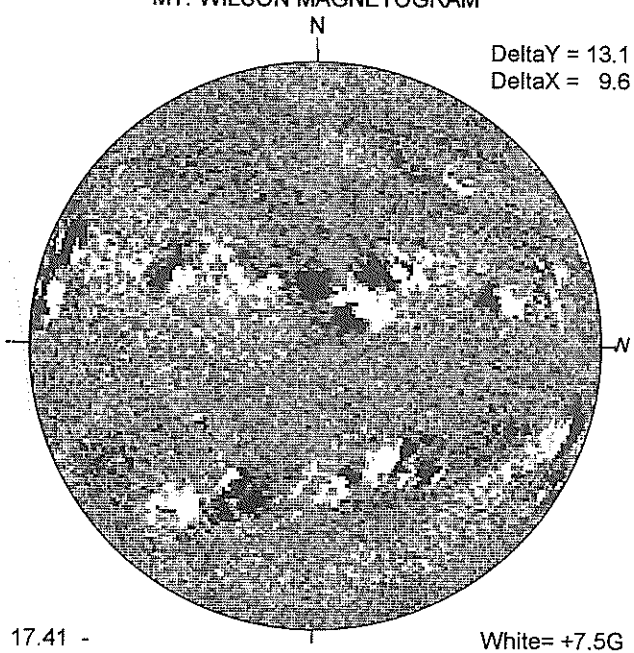
1524 UT

STANFORD MAGNETOGRAM



1914 UT

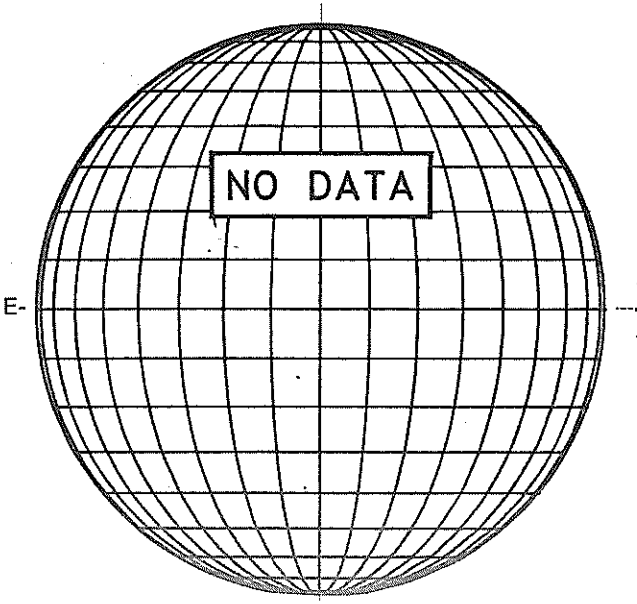
MT. WILSON MAGNETOGRAM



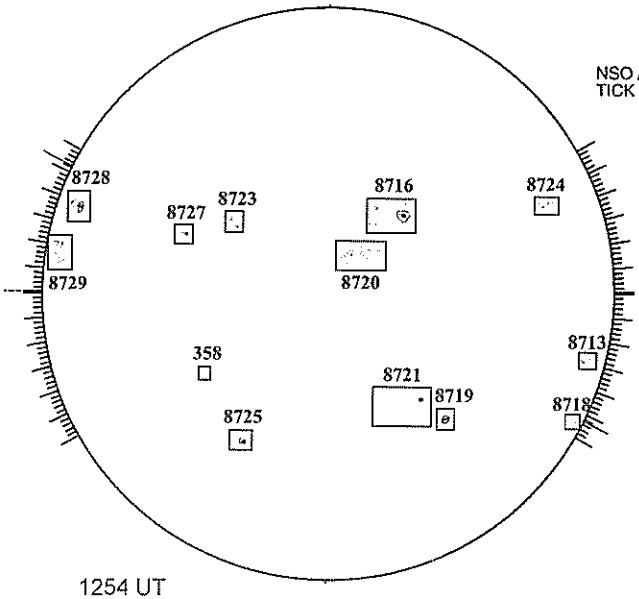
17.41 -
18.36 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

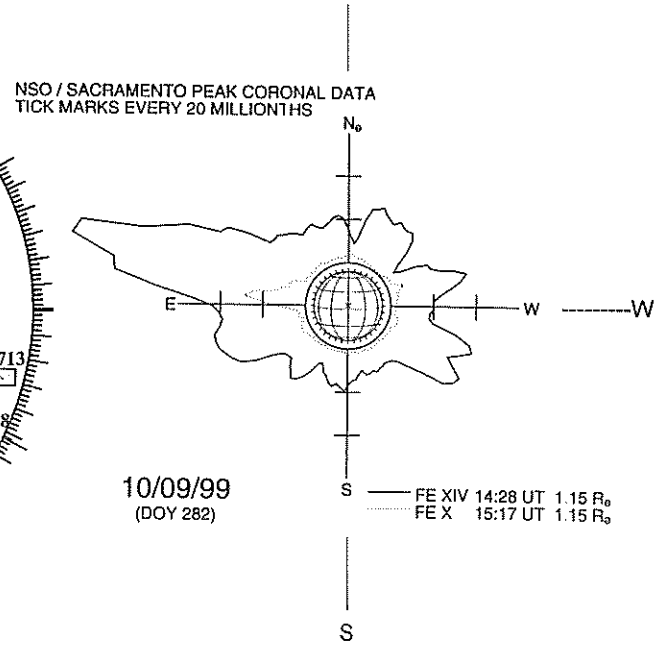


RAMEY SUNSPOT



1254 UT

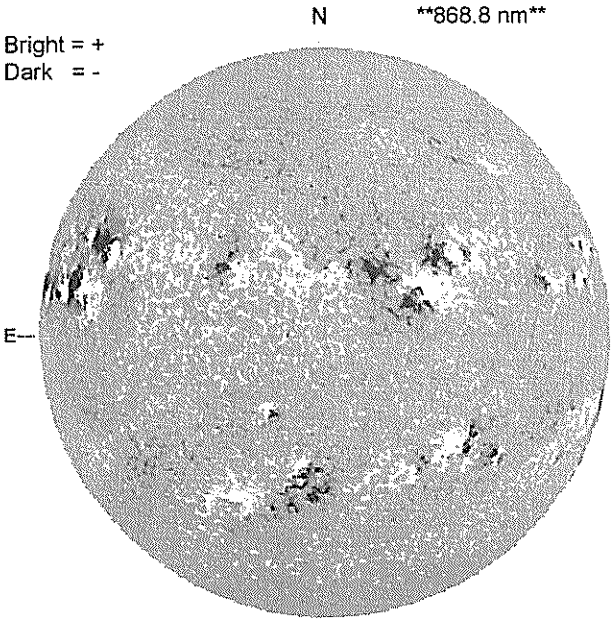
SACRAMENTO PEAK CORONA (1.15 Radii)



10/09/99
(DOY 282)

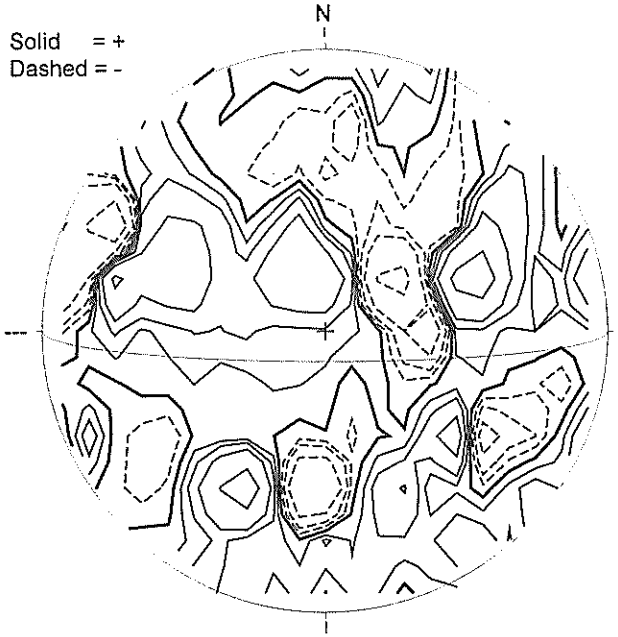
OCTOBER 10, 1999 (P= 26.29, Bo = 6.25, Lo = 22.08)

KITT PEAK MAGNETOGRAM



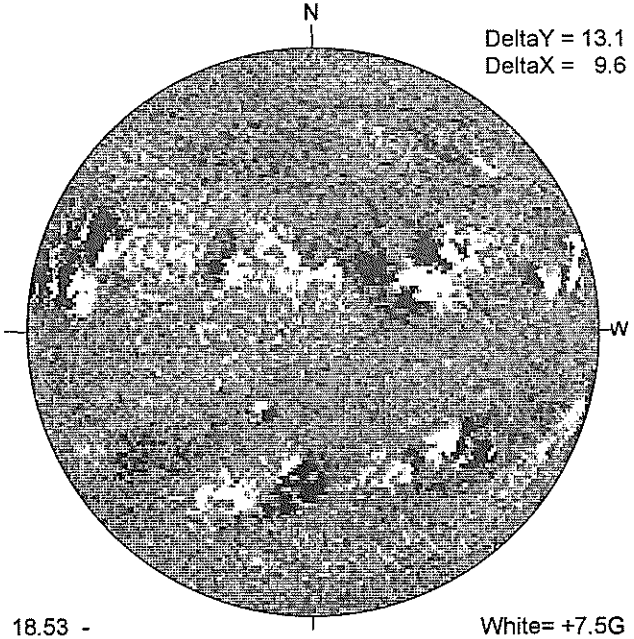
1504 UT

STANFORD MAGNETOGRAM



2038 UT

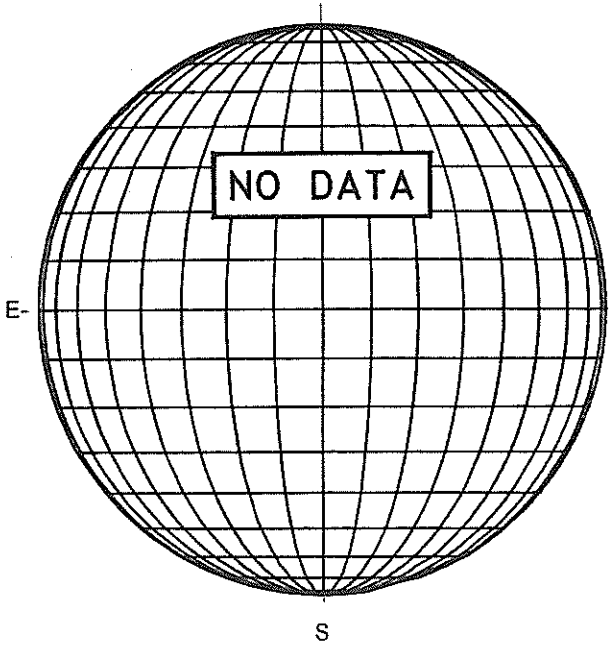
MT. WILSON MAGNETOGRAM



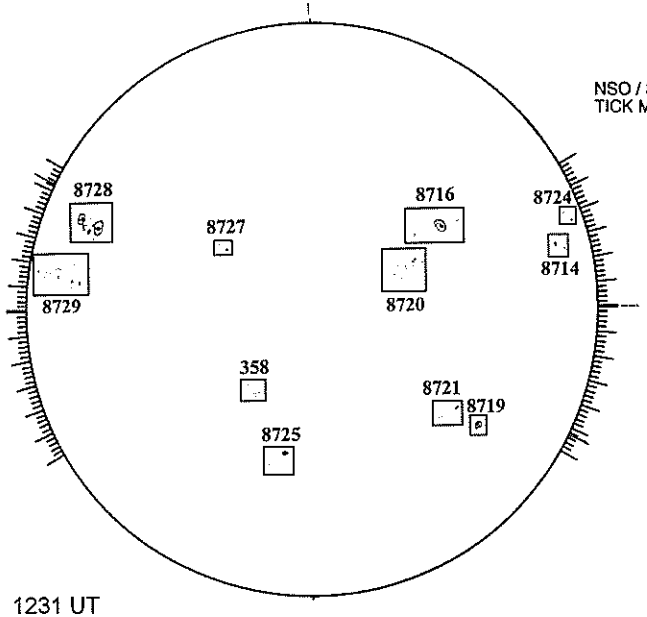
18.53 -
19.48 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

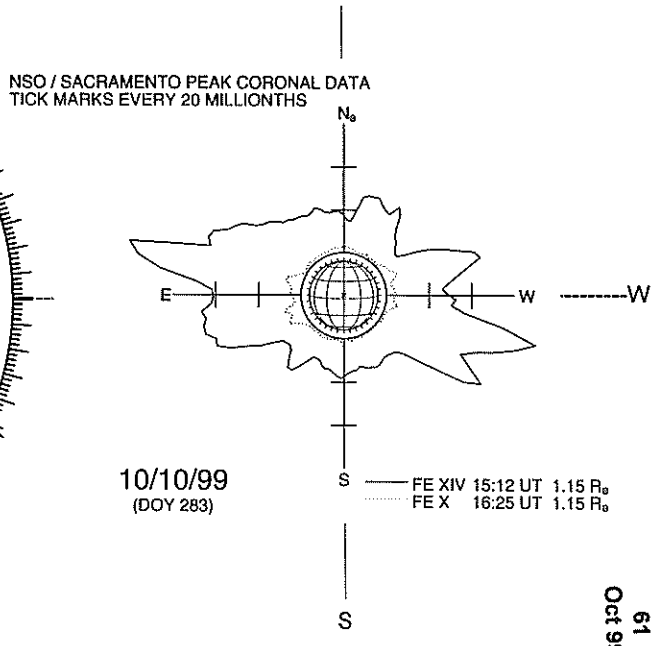


RAMEY SUNSPOT



1231 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



10/10/99
(DOY 283)

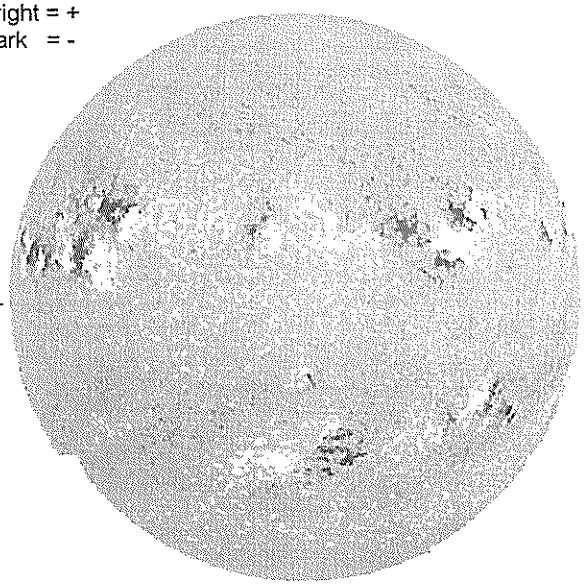
61
Oct 99

OCTOBER 11, 1999 (P= 26.29, Bo = 6.18, Lo = 8.89)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

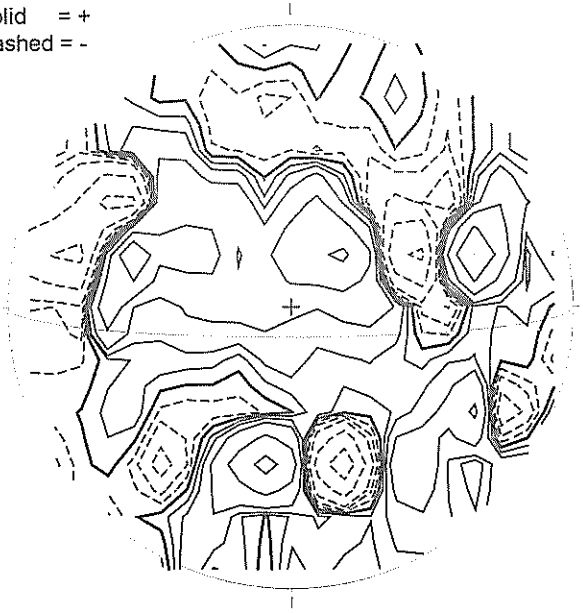


1552 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

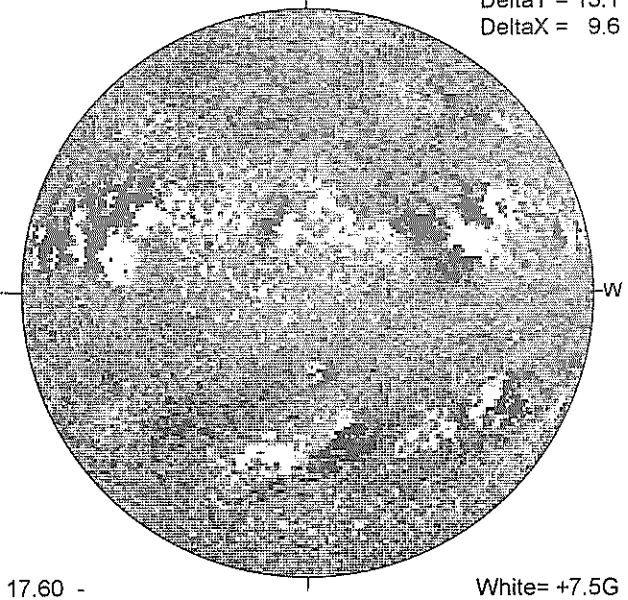


2003 UT

MT. WILSON MAGNETOGRAM

N

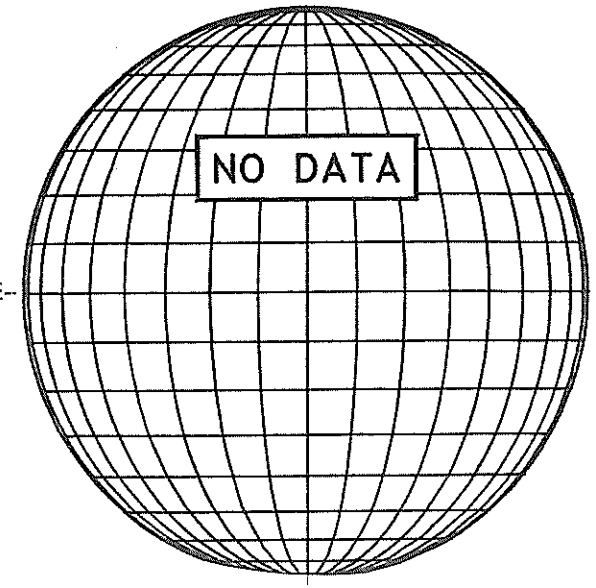
DeltaY = 13.1
DeltaX = 9.6



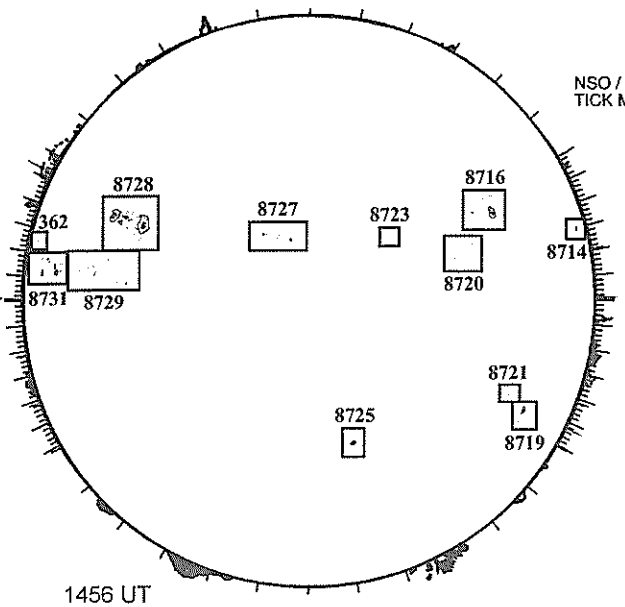
17.60 -
18.55 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



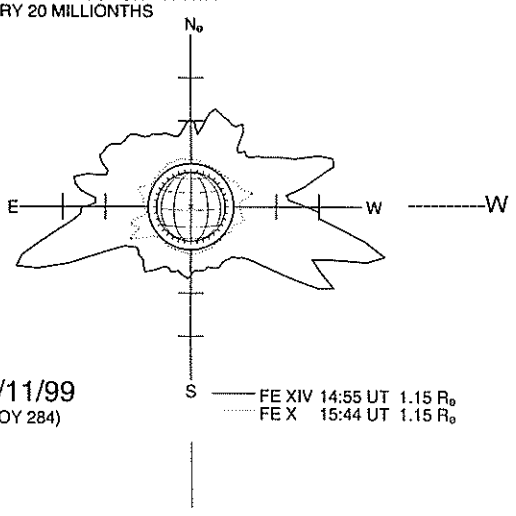
RAMEY SUNSPOT



1456 UT
1240 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



10/11/99
(DOY 284)

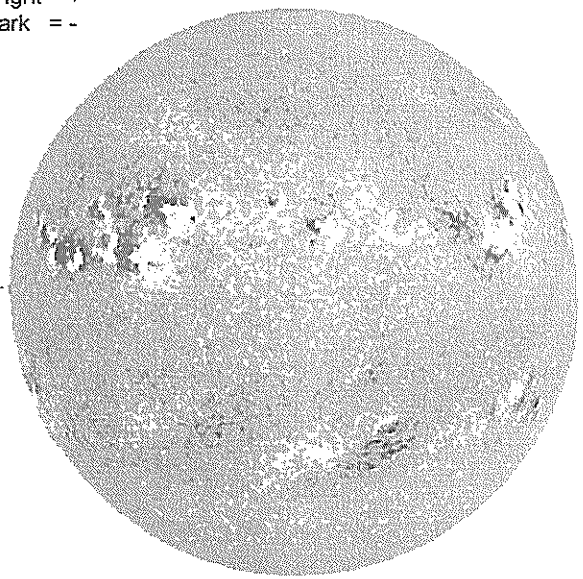
FE XIV 14:55 UT 1.15 $R_\odot$
FE X 15:44 UT 1.15 $R_\odot$

OCTOBER 12, 1999 (P= 26.29, Bo = 6.11, Lo = 355.70)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

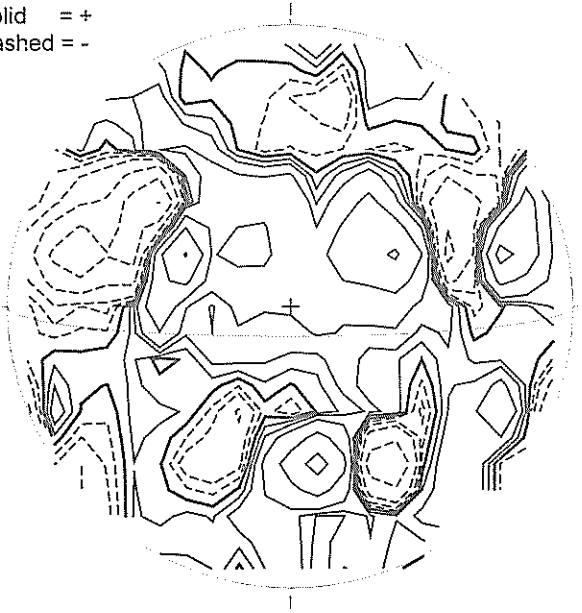


1537 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

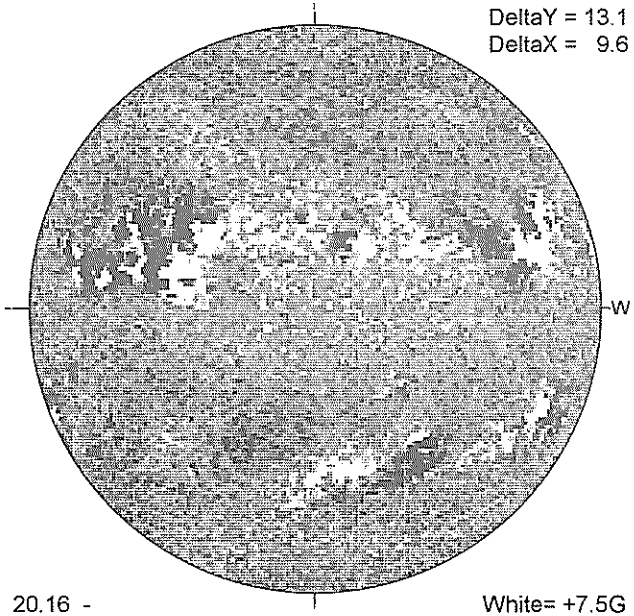


1846 UT

MT. WILSON MAGNETOGRAM

N

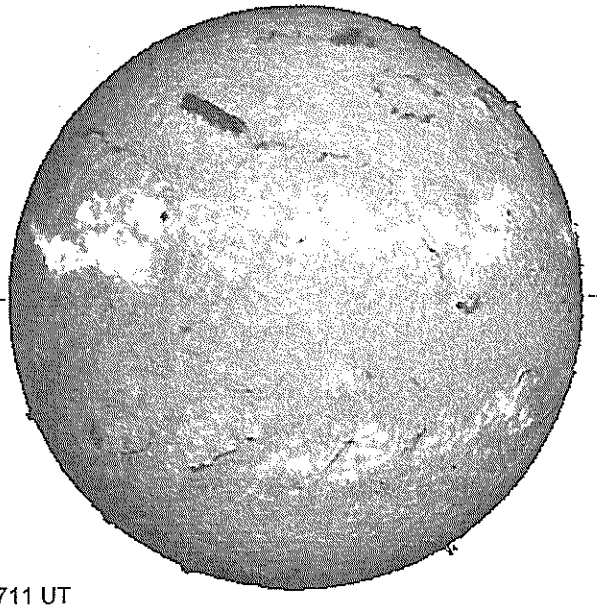
DeltaY = 13.1
DeltaX = 9.6



20.16 -
21.11 UT

White= +7.5G
Black = -7.5G

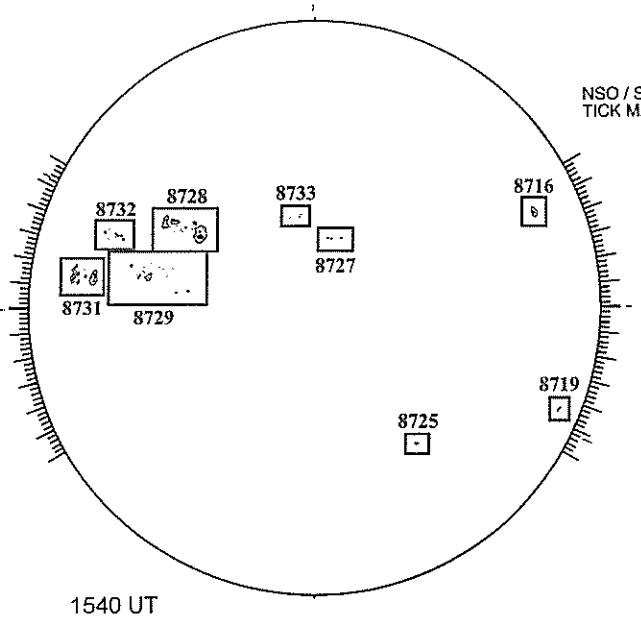
MEUDON H-ALPHA



0711 UT

S

RAMEY SUNSPOT

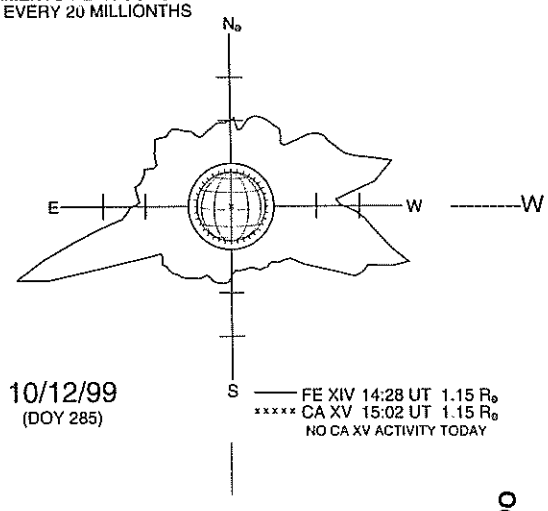


1540 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



10/12/99
(DOY 285)

FE XIV 14:28 UT 1.15 $R_\odot$
xxxxx CA XV 15:02 UT 1.15 $R_\odot$
NO CA XV ACTIVITY TODAY

S

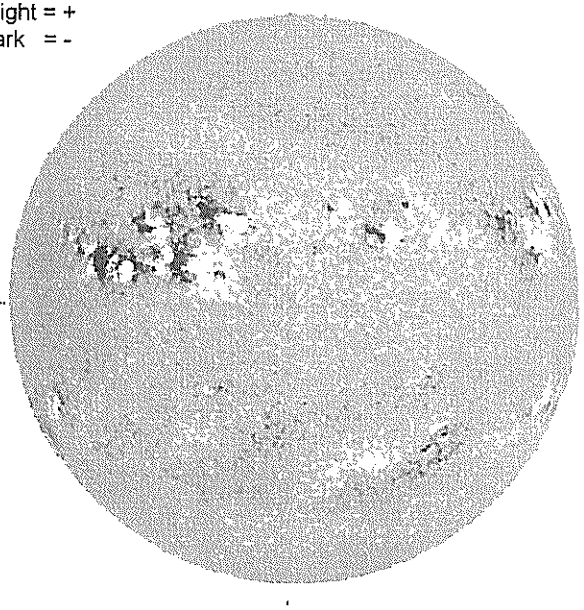
63
Oct 99

OCTOBER 13, 1999 (P= 26.28, Bo = 6.05, Lo = 342.50)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

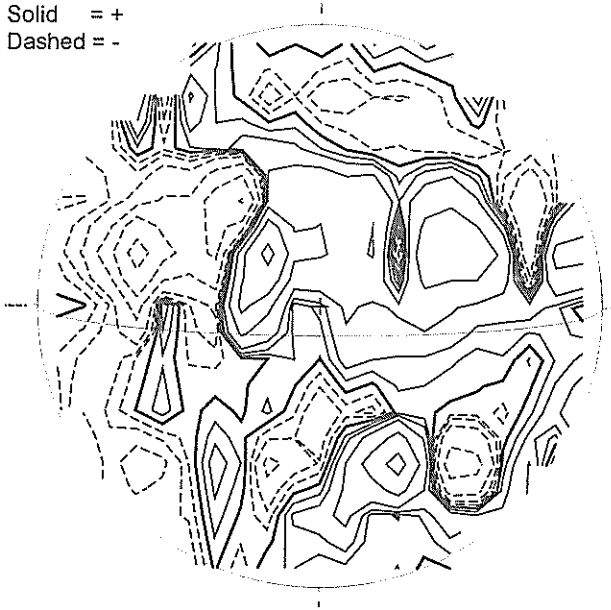


1542 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

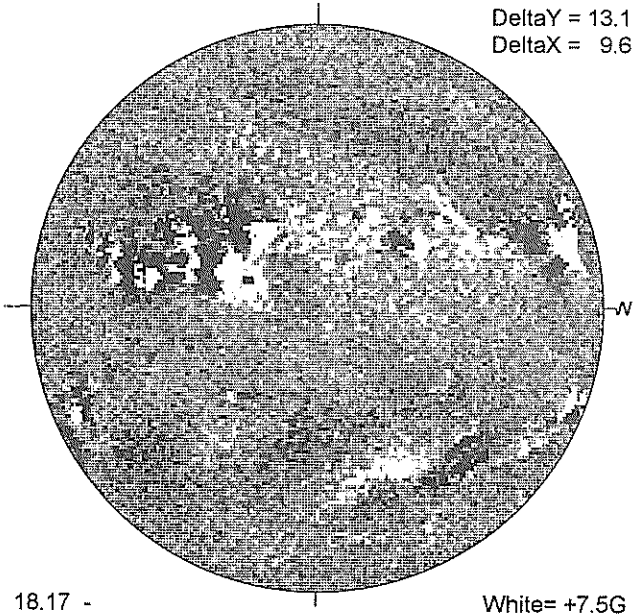


1821 UT

MT. WILSON MAGNETOGRAM

N

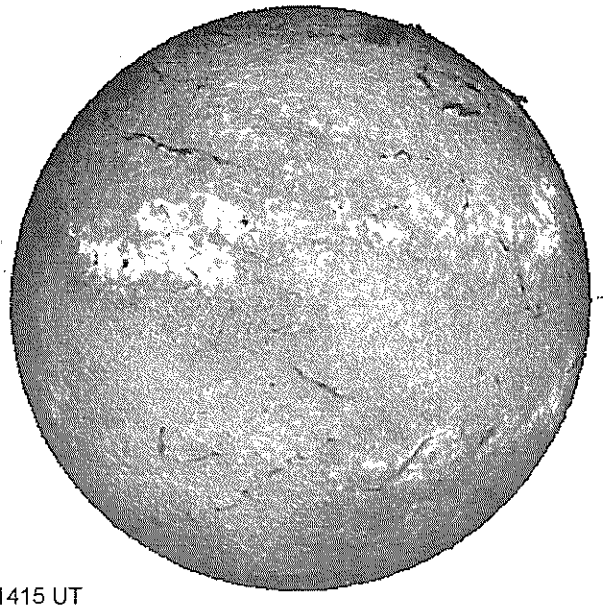
DeltaY = 13.1
DeltaX = 9.6



18.17 -
19.12 UT

White= +7.5G
Black = -7.5G

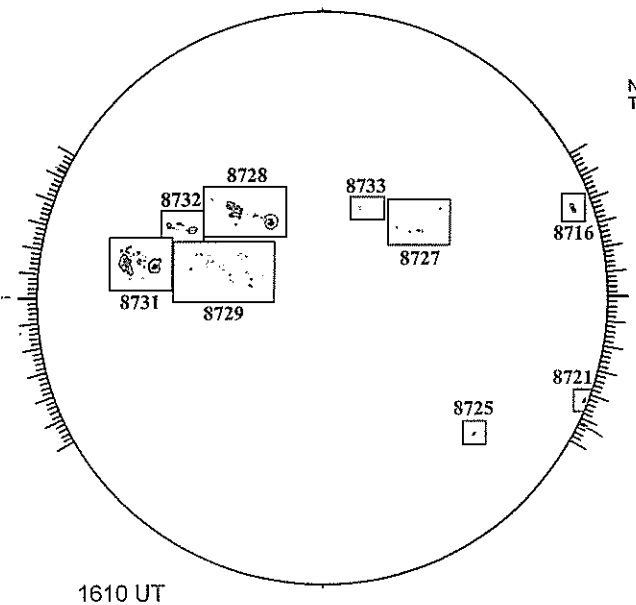
MEUDON H-ALPHA



1415 UT

S

HOLLOMAN SUNSPOT

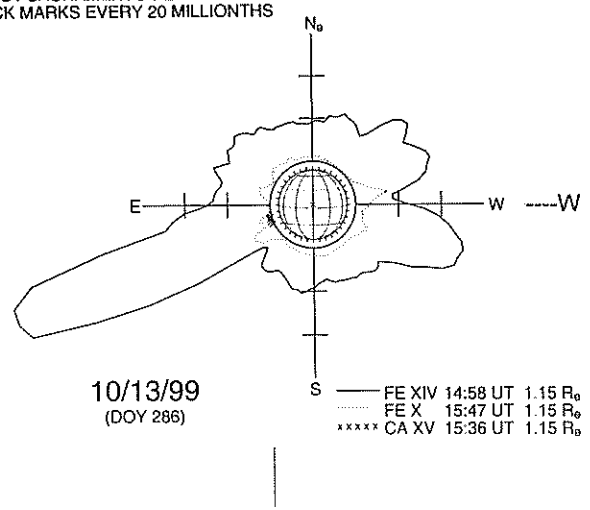


1610 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



10/13/99
(DOY 286)

FE XIV 14:58 UT 1.15 $R_\odot$
FE X 15:47 UT 1.15 $R_\odot$
CA XV 15:36 UT 1.15 $R_\odot$

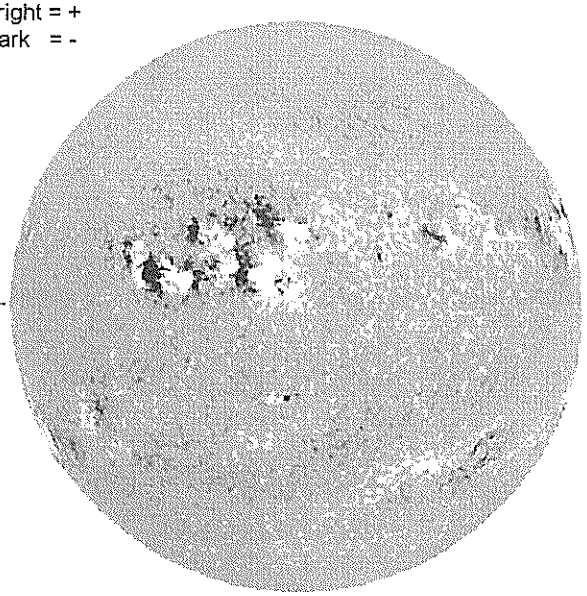
S

OCTOBER 14, 1999 (P= 26.26, Bo = 5.98, Lo = 329.31)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

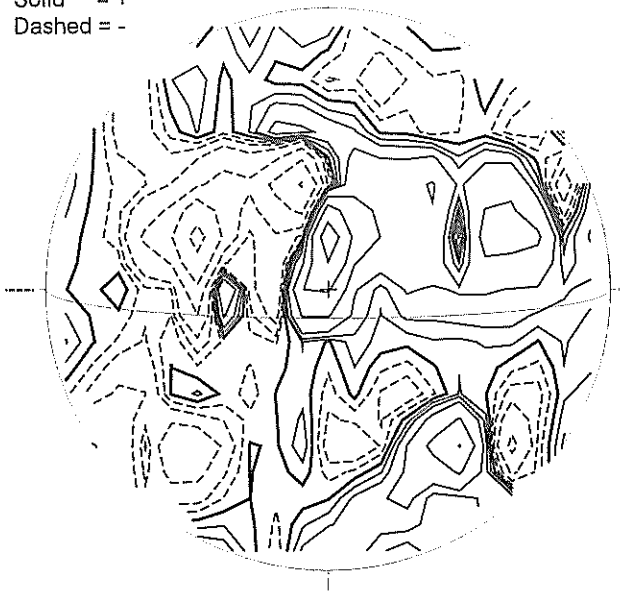


1533 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

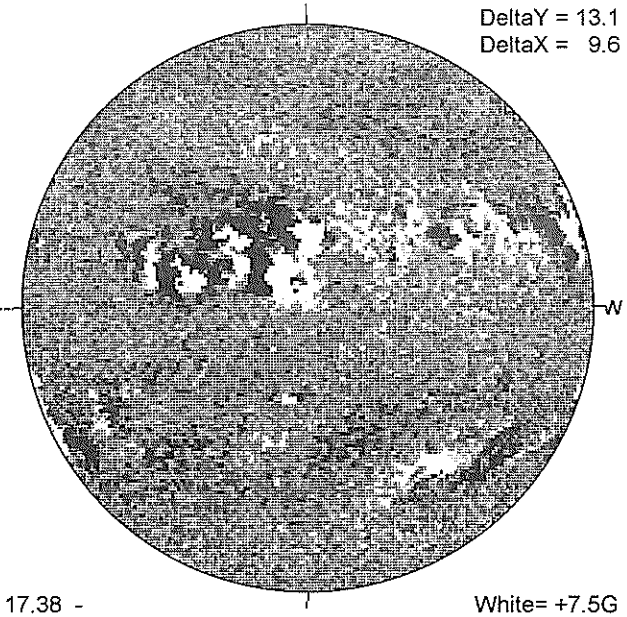


1740 UT

MT. WILSON MAGNETOGRAM

N

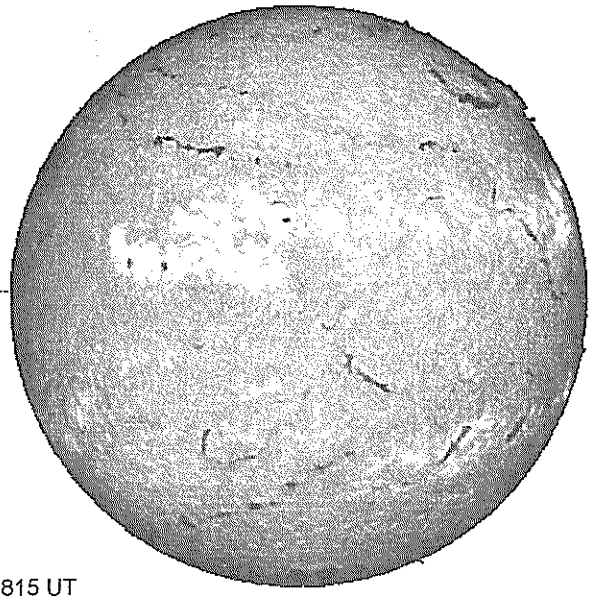
DeltaY = 13.1
DeltaX = 9.6



17.38 -
18.32 UT

White= +7.5G
Black = -7.5G

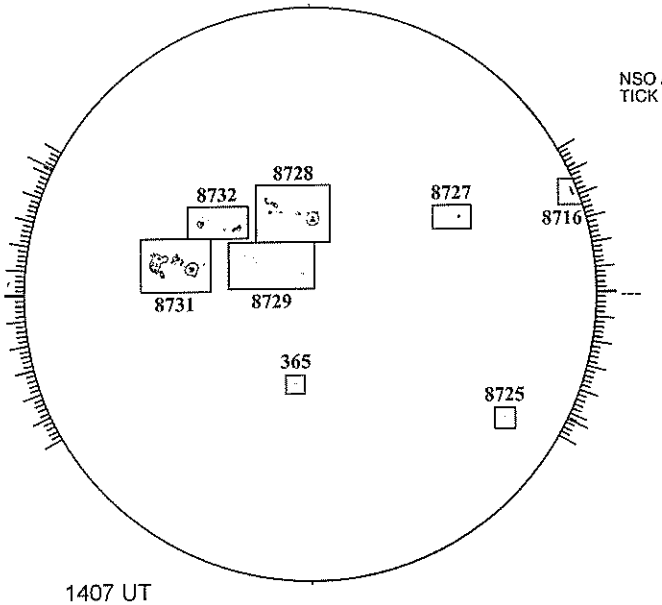
----- MEUDON H-ALPHA



0815 UT

S

RAMEY SUNSPOT

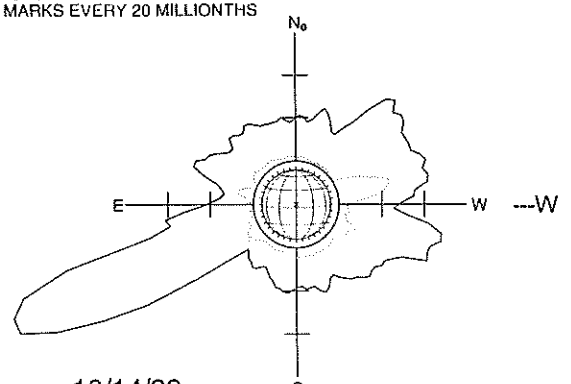


1407 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



10/14/99
(DOY 287)

FE XIV 15:23 UT 1.15 R₀
FE X 16:13 UT 1.15 R₀

S

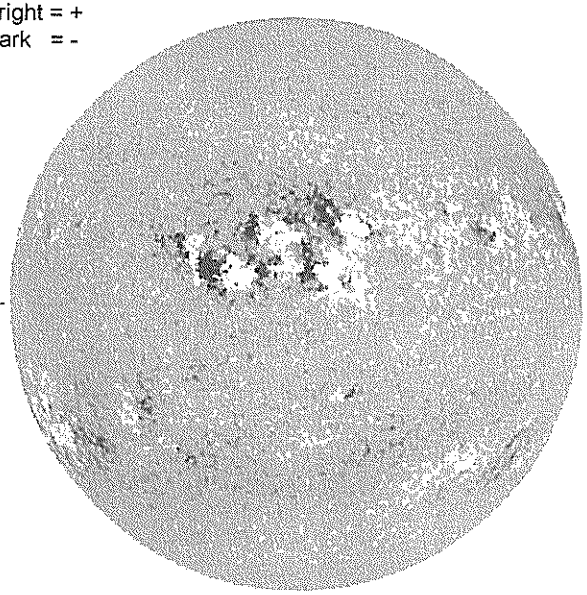
65
Oct 99

OCTOBER 15, 1999 (P= 26.23, Bo = 5.90, Lo = 316.12)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



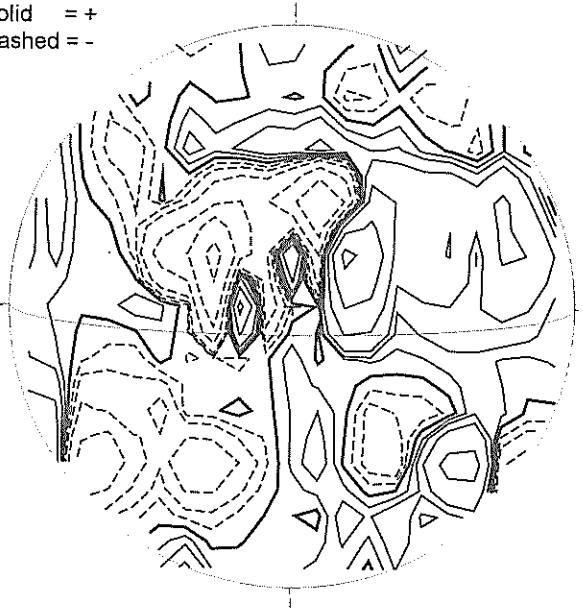
E--

1534 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

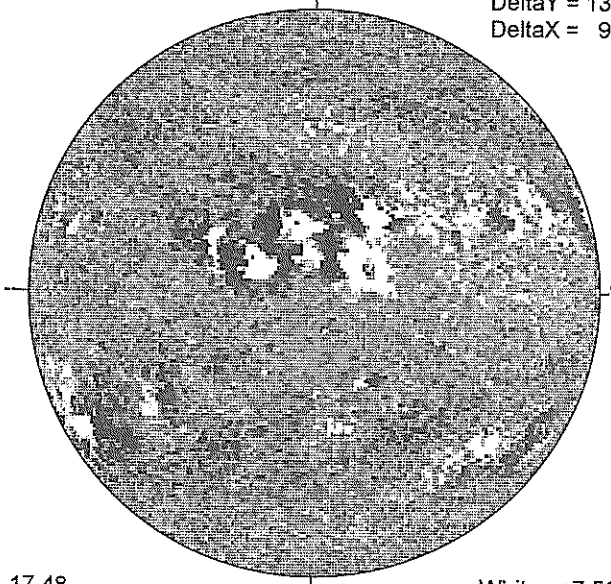


1903 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

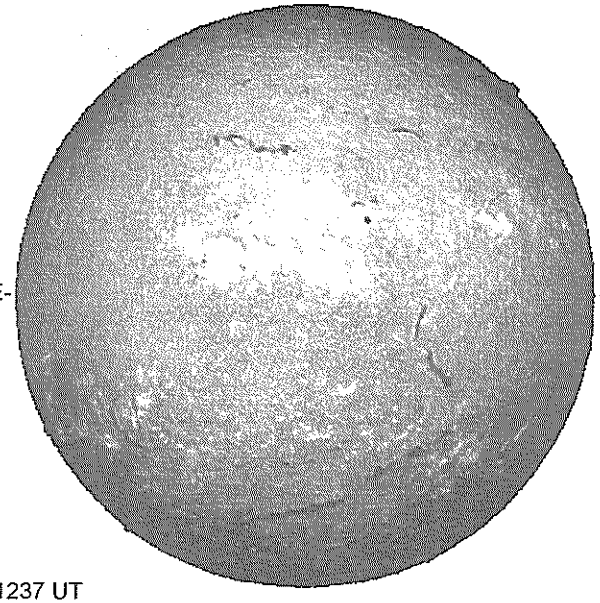


-W

17.48 -
18.43 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

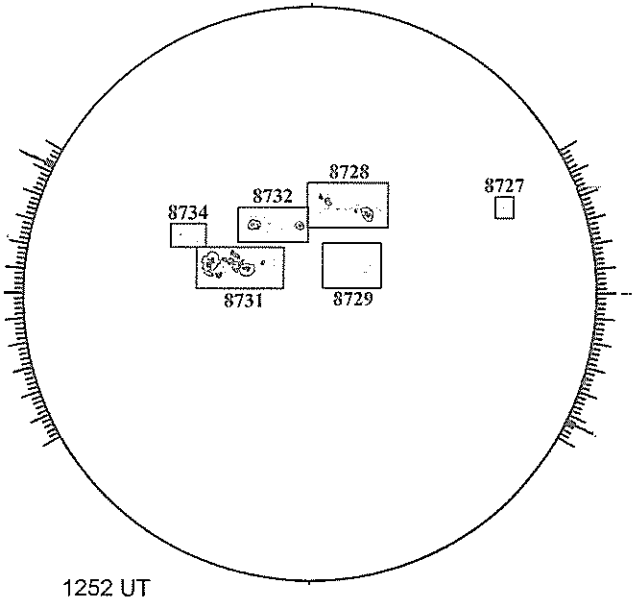


E-

1237 UT

S

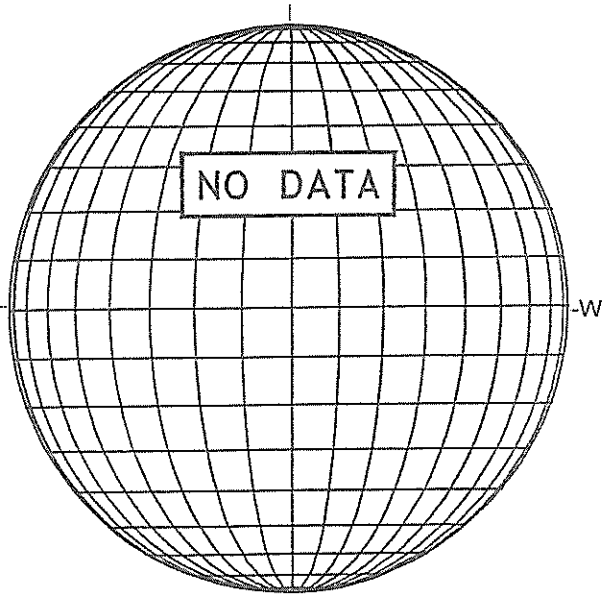
RAMEY SUNSPOT



1252 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



-W

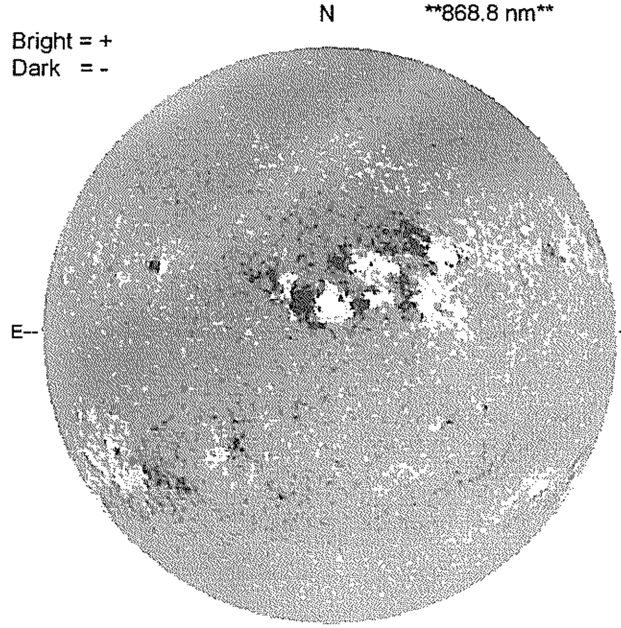
S

OCTOBER 16, 1999 (P= 26.19, Bo = 5.83, Lo = 302.93)

KITT PEAK MAGNETOGRAM

868.8 nm

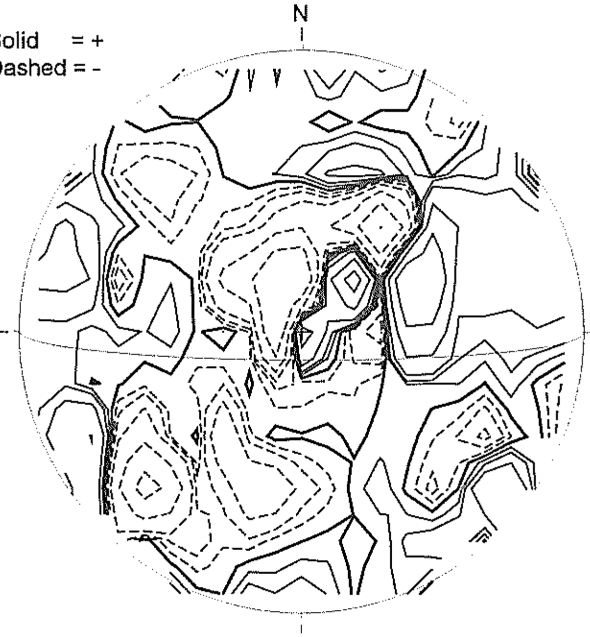
Bright = +
Dark = -



1542 UT

STANFORD MAGNETOGRAM

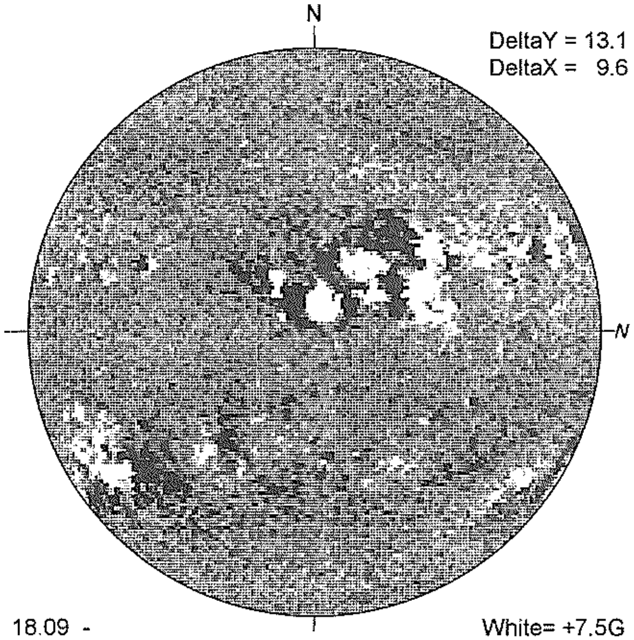
Solid = +
Dashed = -



1859 UT

MT. WILSON MAGNETOGRAM

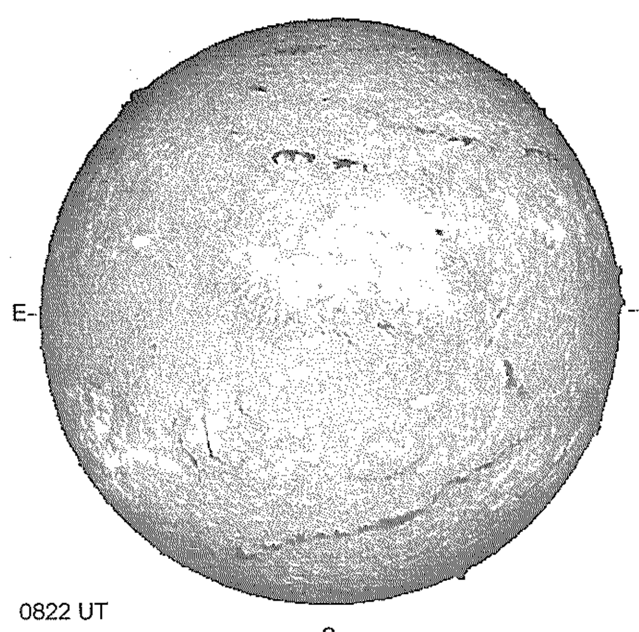
DeltaY = 13.1
DeltaX = 9.6



18.09 -
19.04 UT

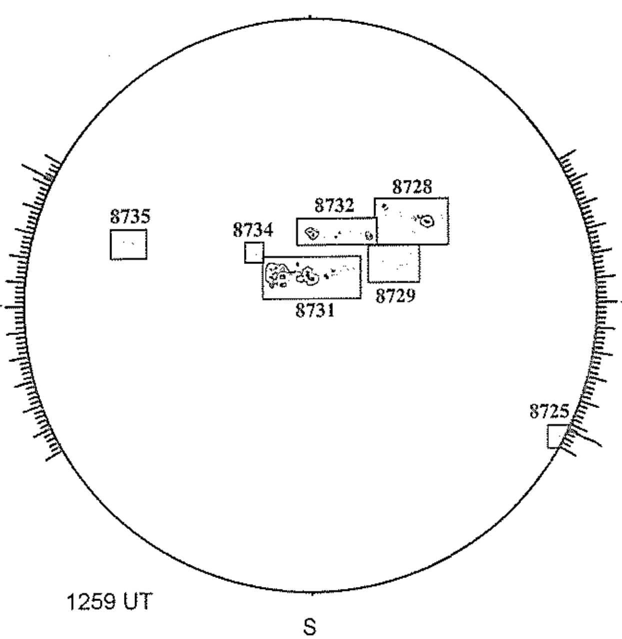
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



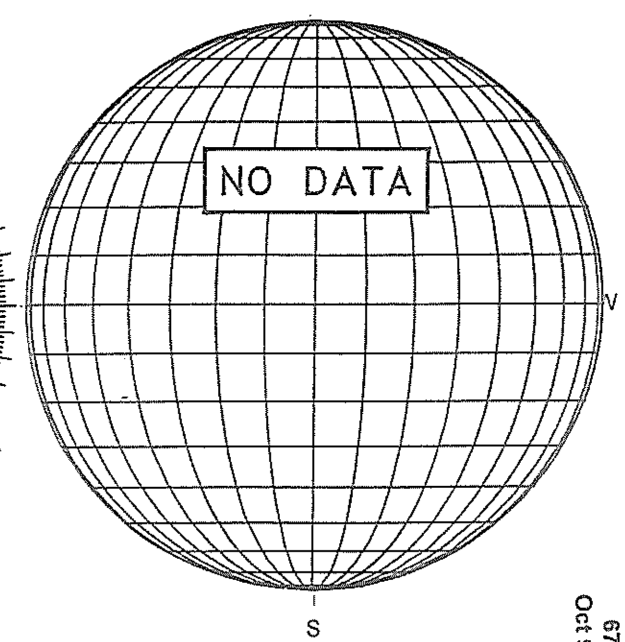
0822 UT

RAMEY SUNSPOT



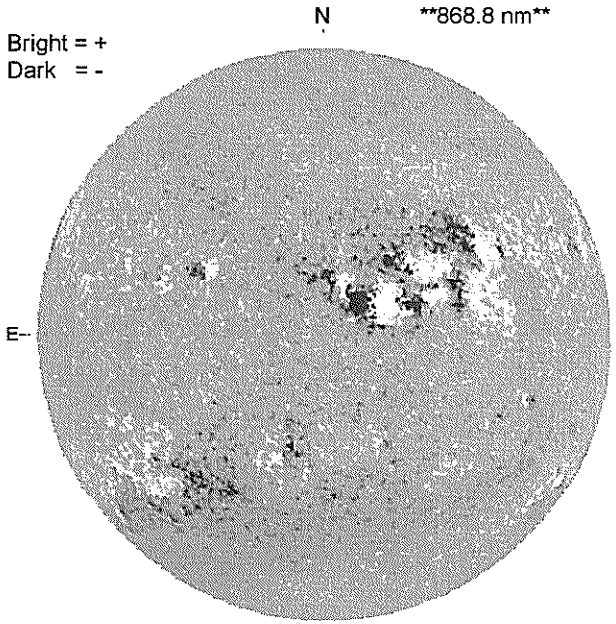
1259 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



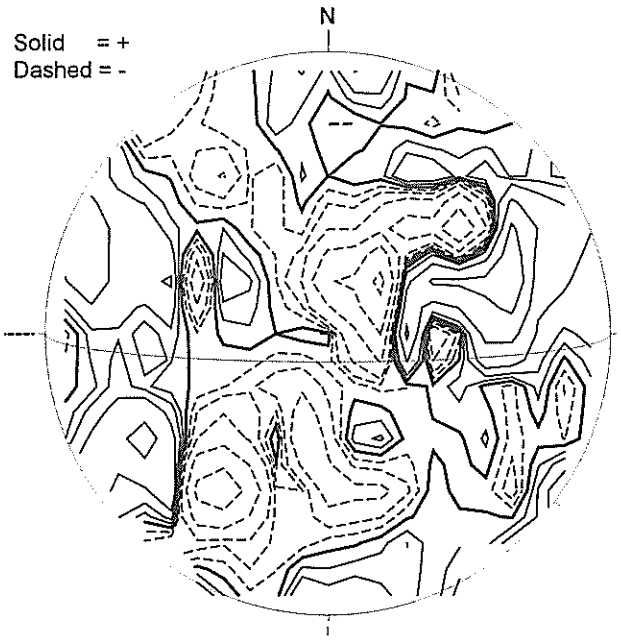
OCTOBER 17, 1999 (P= 26.15, Bo = 5.76, Lo = 289.74)

KITT PEAK MAGNETOGRAM



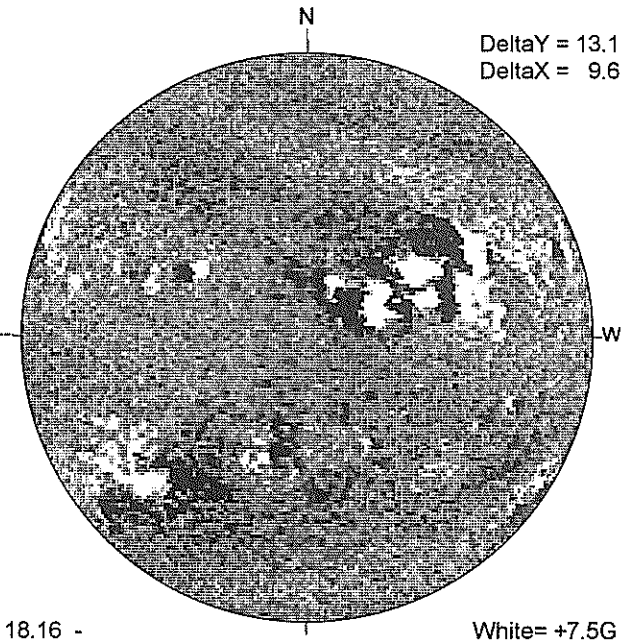
1505 UT

STANFORD MAGNETOGRAM



1914 UT

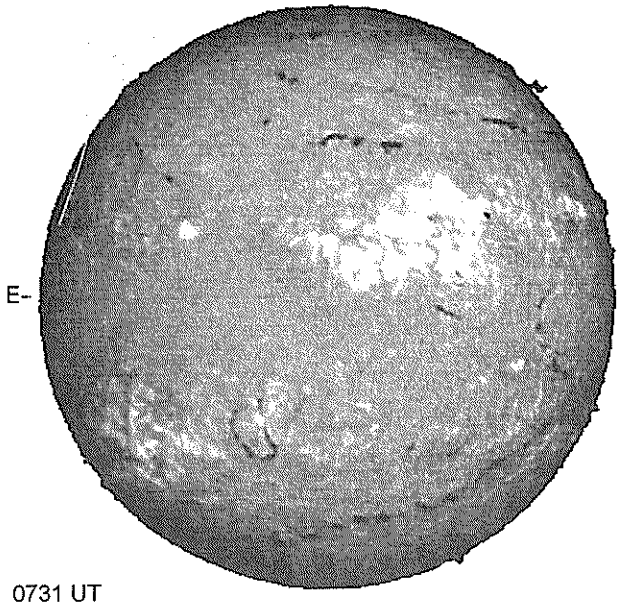
MT. WILSON MAGNETOGRAM



18.16 -
19.11 UT

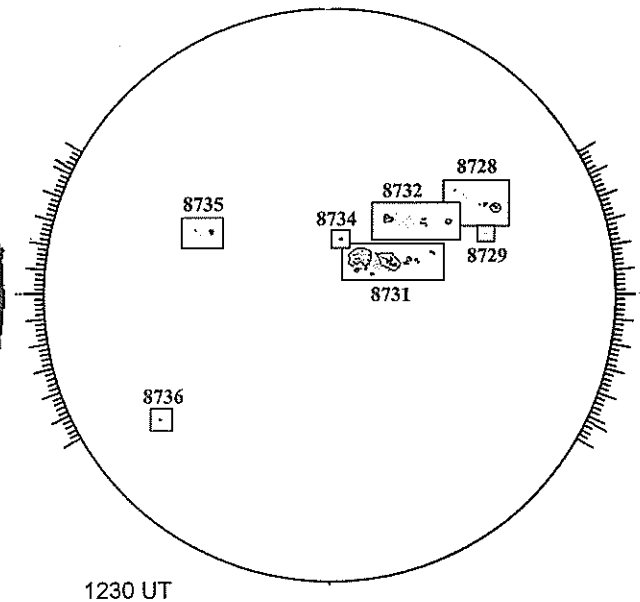
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



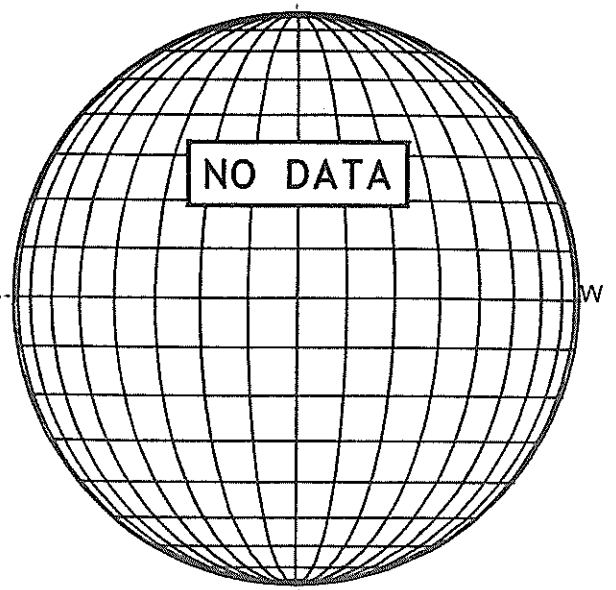
0731 UT

RAMEY SUNSPOT



1230 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

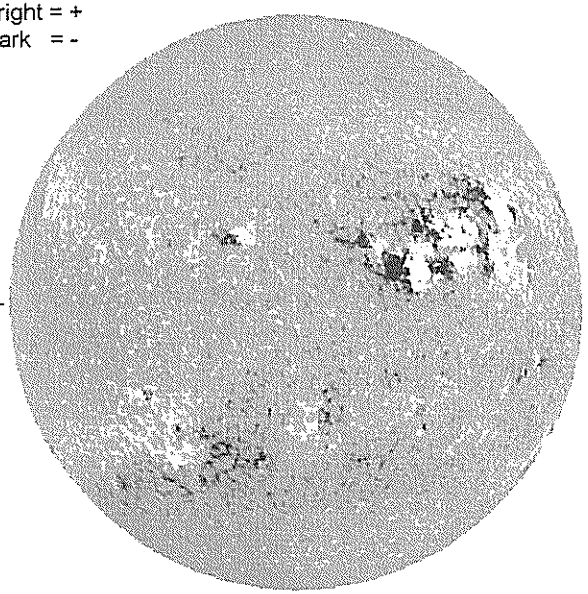


OCTOBER 18, 1999 (P= 26.10, Bo = 5.68, Lo = 276.55)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

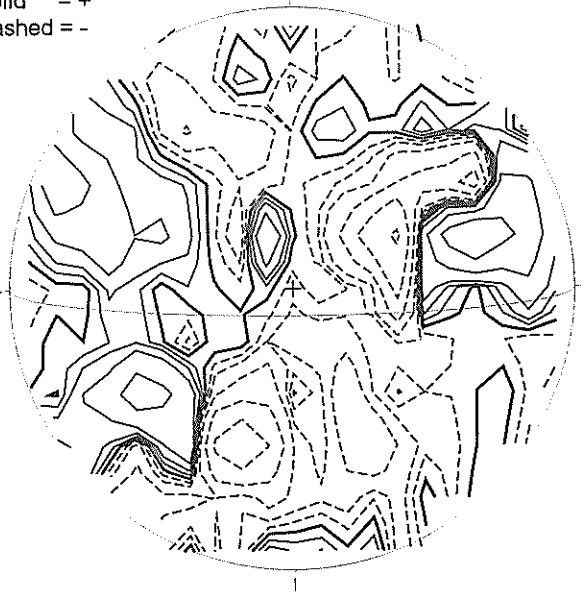


1533 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

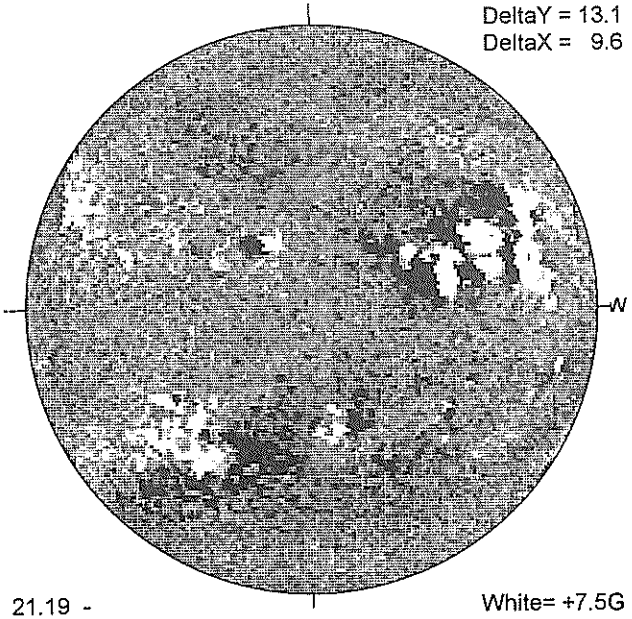


2048 UT

MT. WILSON MAGNETOGRAM

N

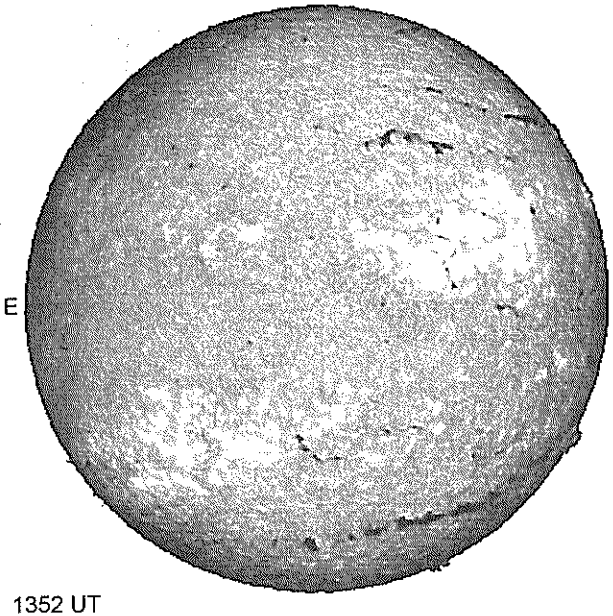
DeltaY = 13.1
DeltaX = 9.6



21.19 -
22.14 UT

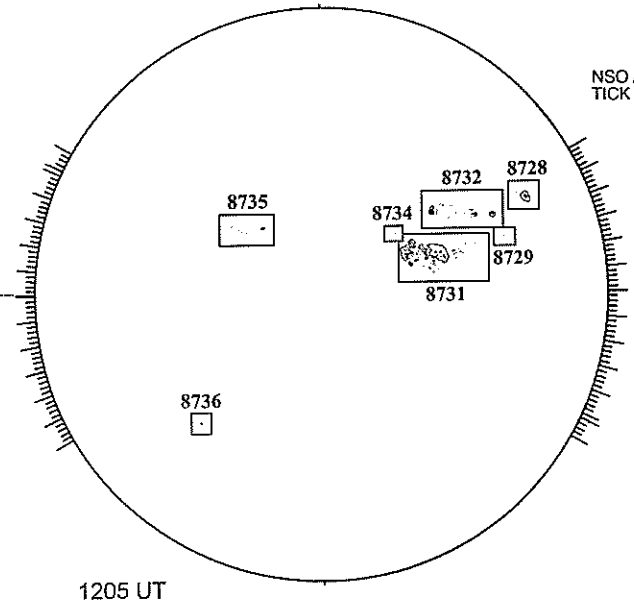
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



1352 UT

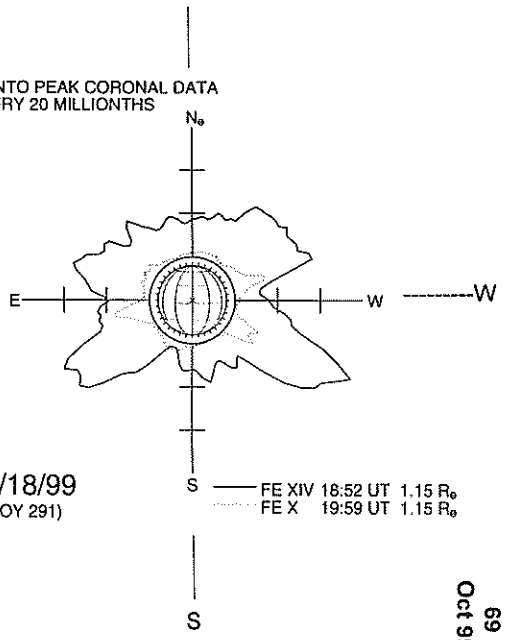
RAMEY SUNSPOT



1205 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



10/18/99
(DOY 291)

FE XIV 18:52 UT 1.15 R
FE X 19:59 UT 1.15 R

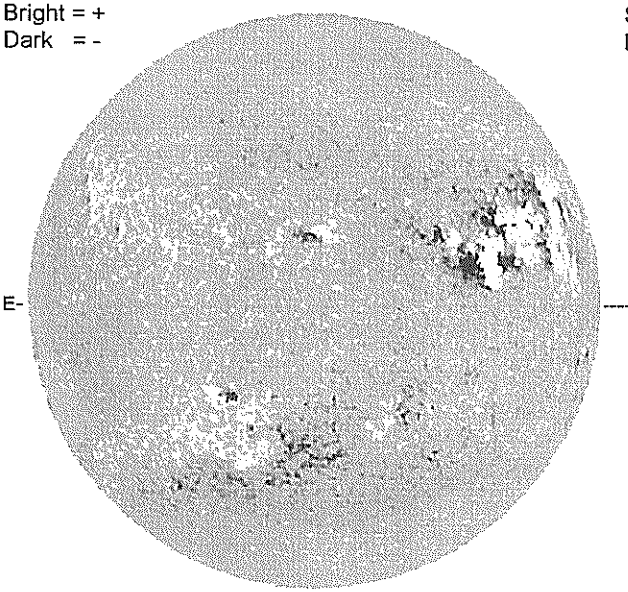
OCTOBER 19, 1999 (P= 26.04, Bo = 5.60, Lo = 263.36)

Oct 99 70

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



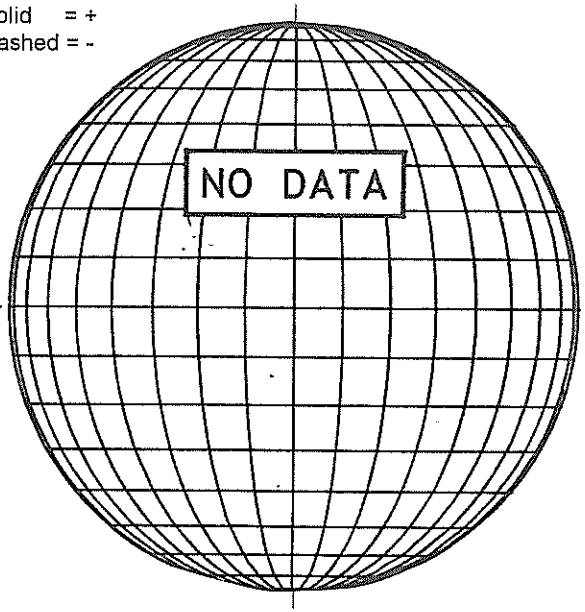
E-

1531 UT

STANFORD MAGNETOGRAM

N

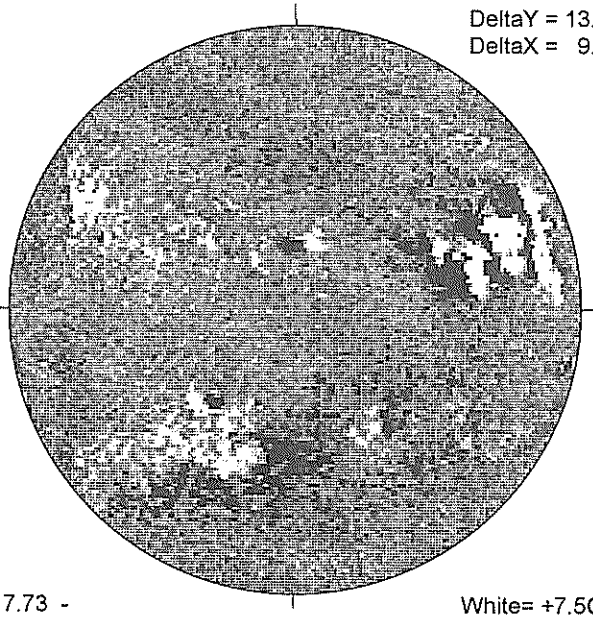
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

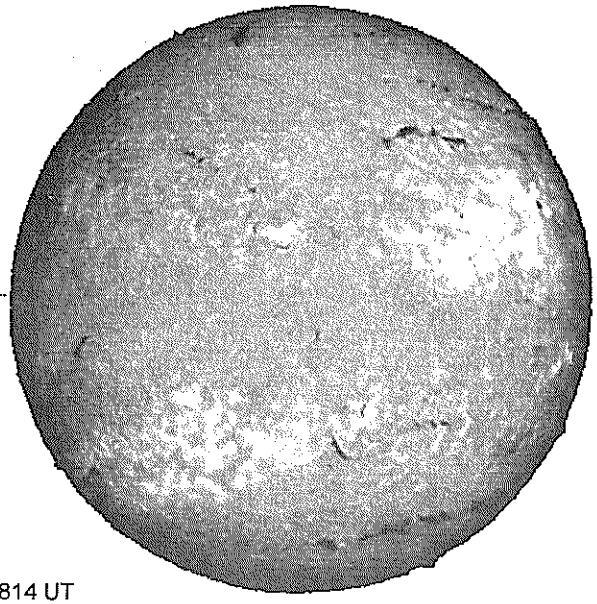


-W

17.73 -
18.69 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

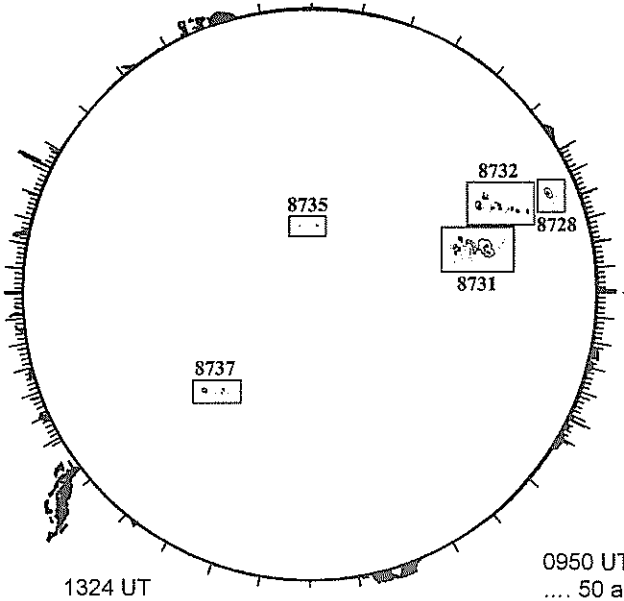


E--

0814 UT

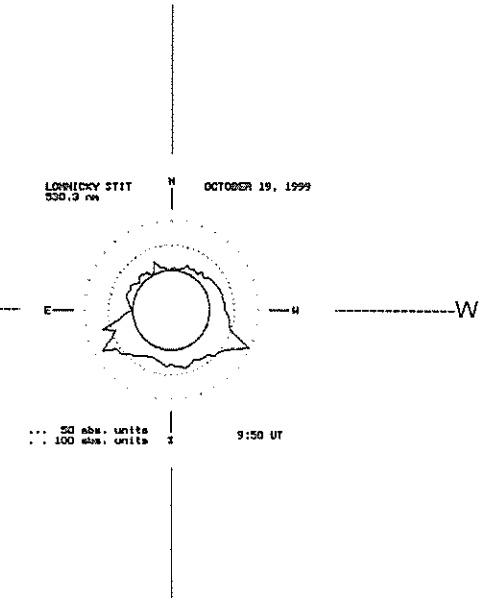
S

RAMEY SUNSPOT



1324 UT
0746 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



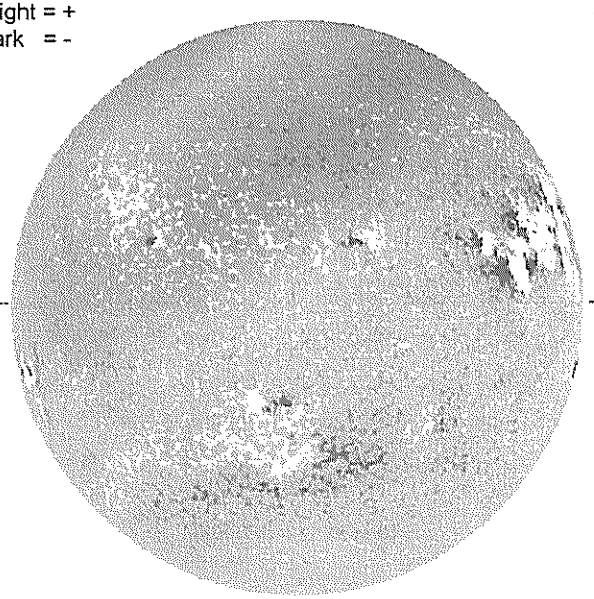
0950 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

OCTOBER 20, 1999 (P= 25.98, Bo = 5.52, Lo = 250.17)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



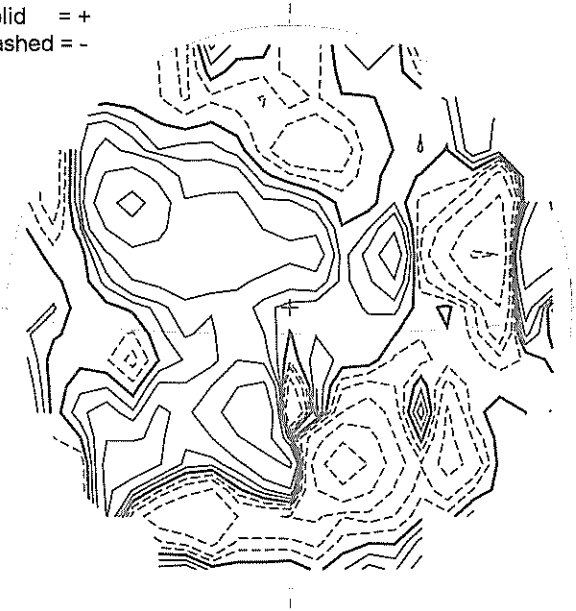
E---

1536 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

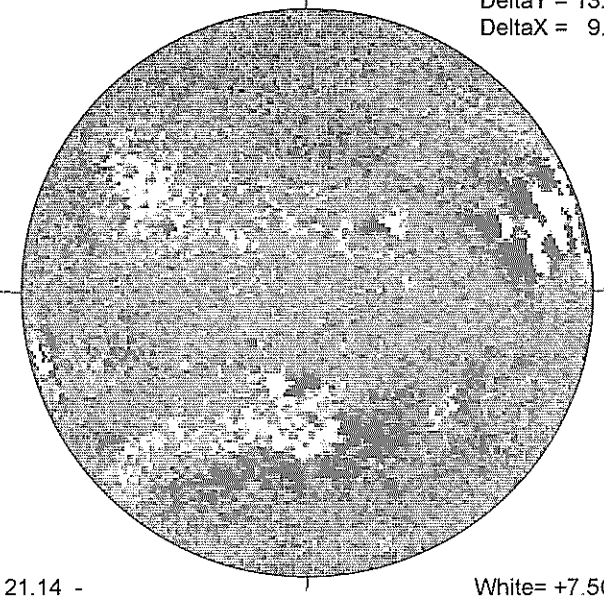


2045 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

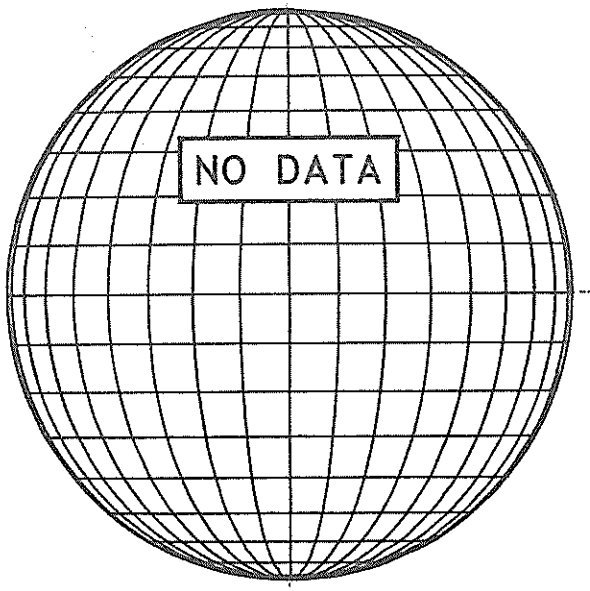


-W

21.14 -
22.09 UT

White= +7.5G
Black = -7.5G

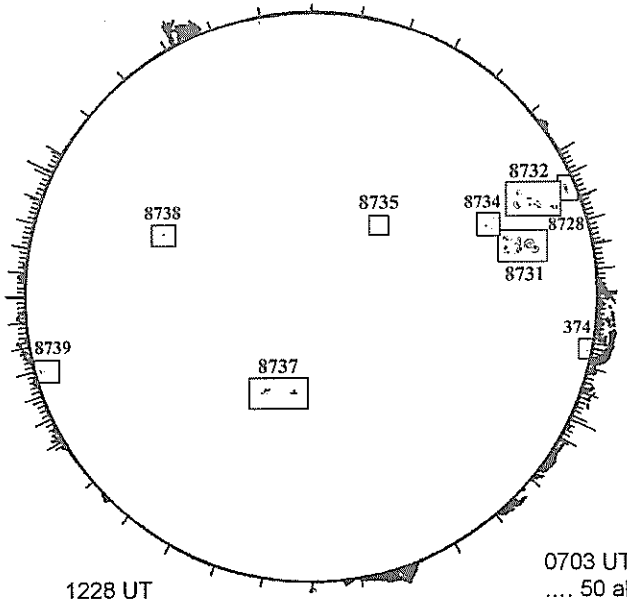
---- MEUDON H-ALPHA



E-

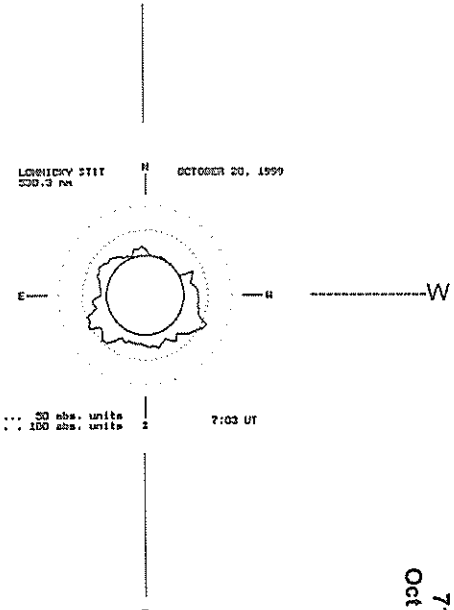
S

RAMEY SUNSPOT



1228 UT
0646 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



0703 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

W

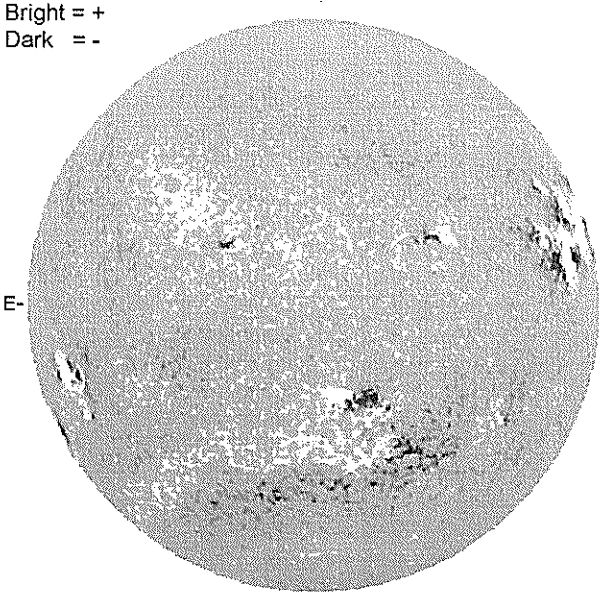
71
Oct 99

OCTOBER 21, 1999 (P= 25.90, Bo = 5.44, Lo = 236.98)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



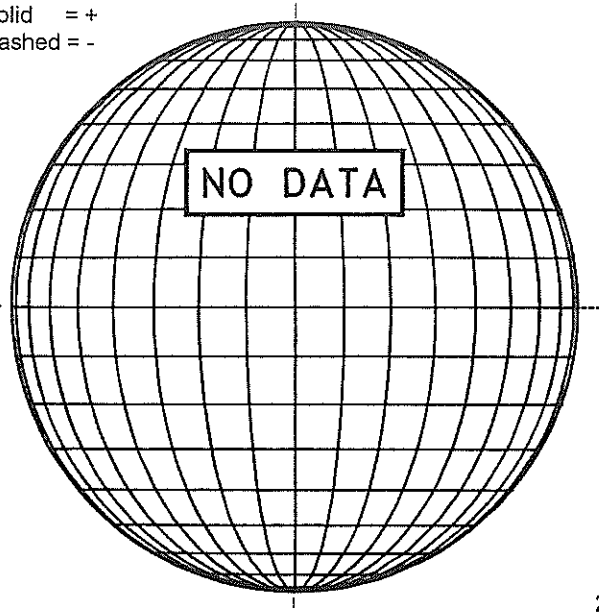
E-

1516 UT

STANFORD MAGNETOGRAM

N

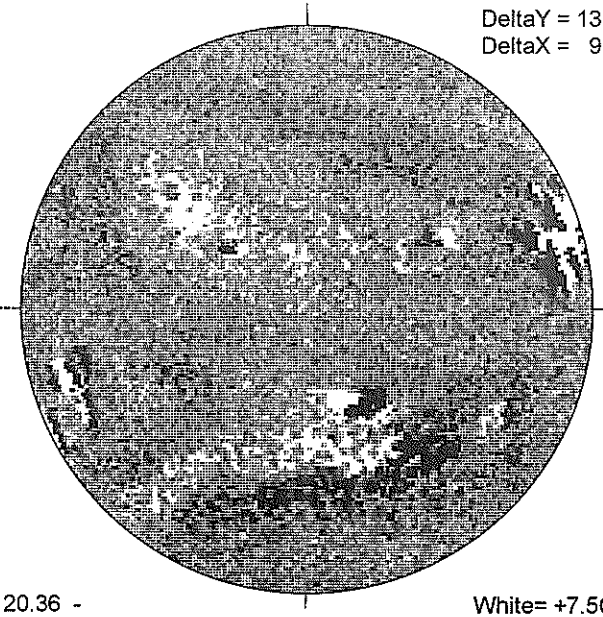
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

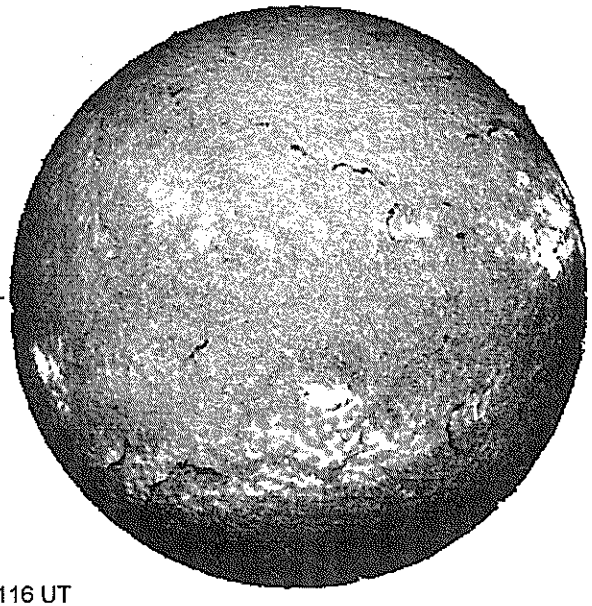


-W

20.36 -
21.32 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

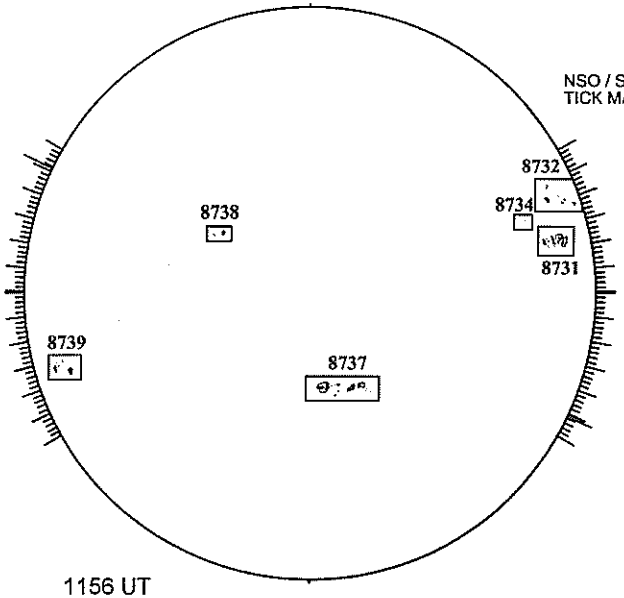


E--

1116 UT

S

RAMEY SUNSPOT

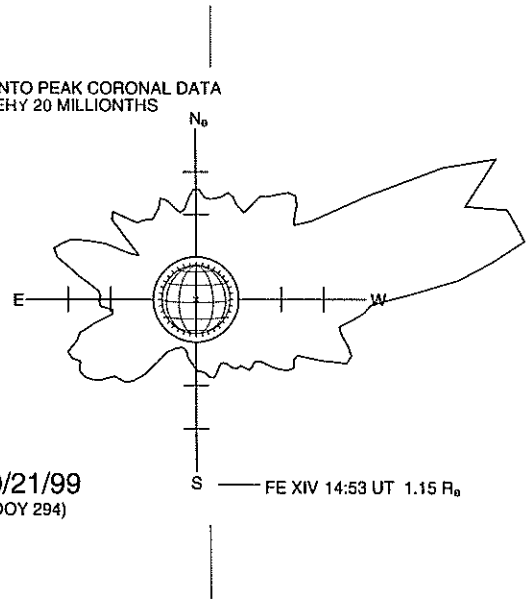


1156 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVEHY 20 MILLIONTHS



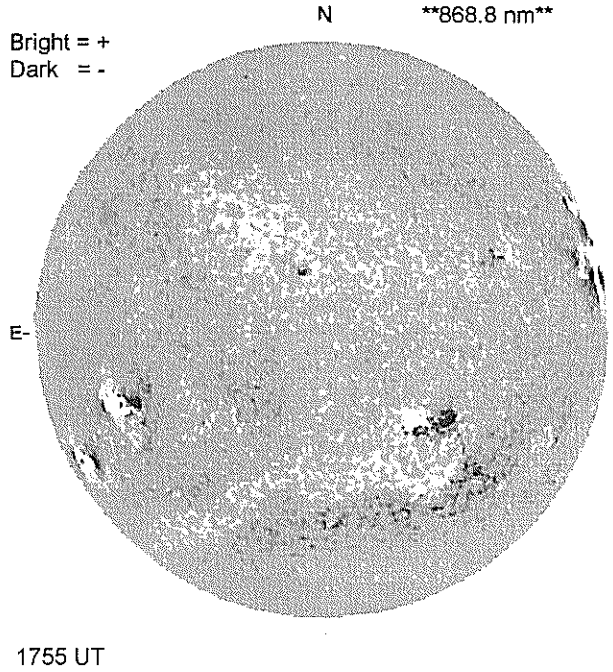
10/21/99
(DOY 294)

FE XIV 14:53 UT 1.15 R_o

S

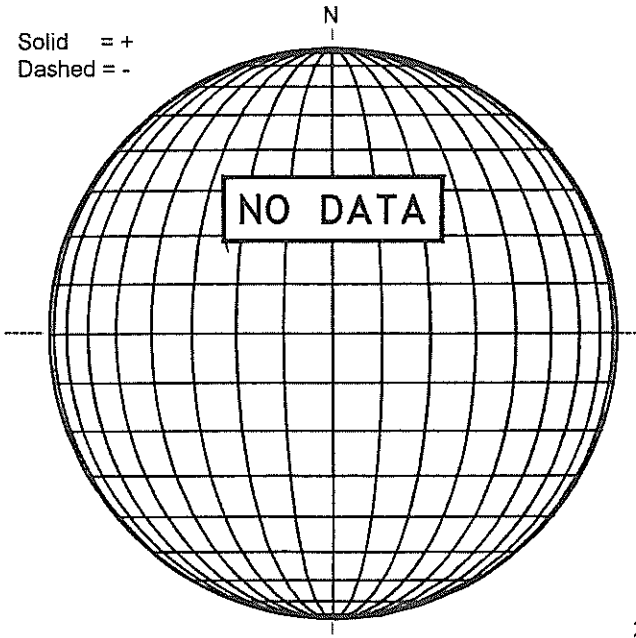
OCTOBER 22, 1999 (P= 25.82, Bo = 5.35, Lo = 223.79)

KITT PEAK MAGNETOGRAM

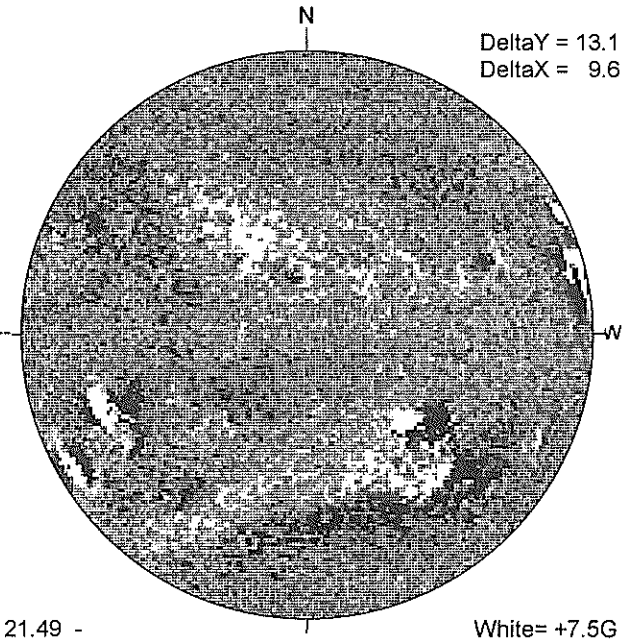


1755 UT

STANFORD MAGNETOGRAM



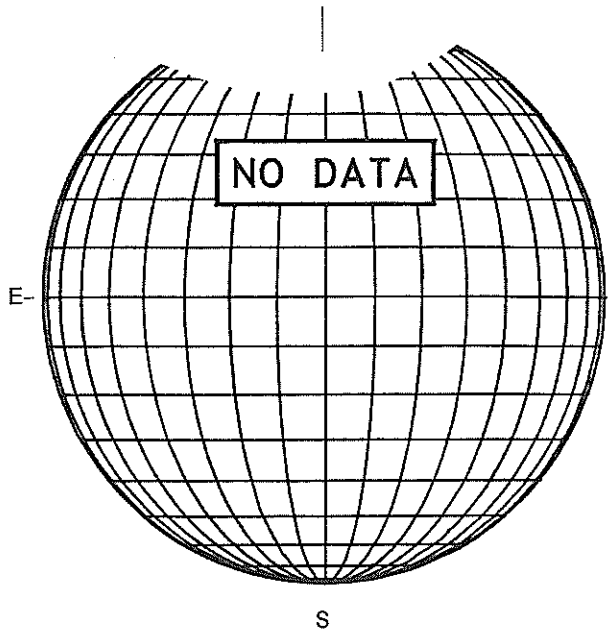
MT. WILSON MAGNETOGRAM



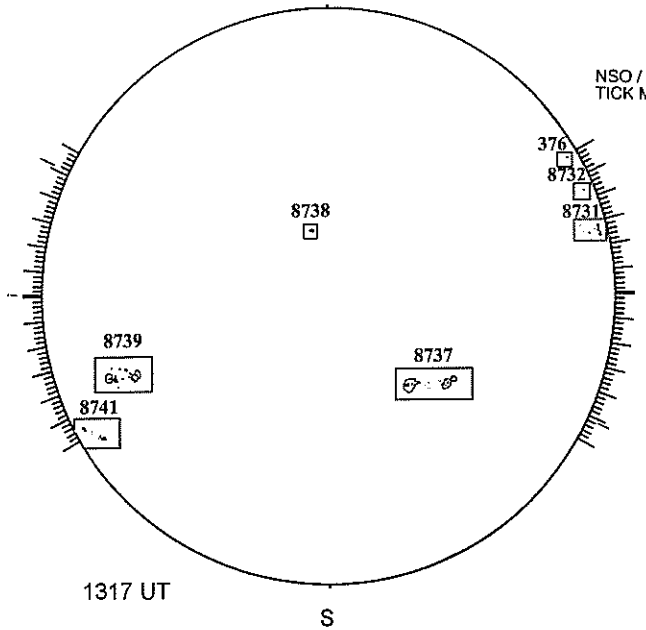
21.49 -
22.45 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

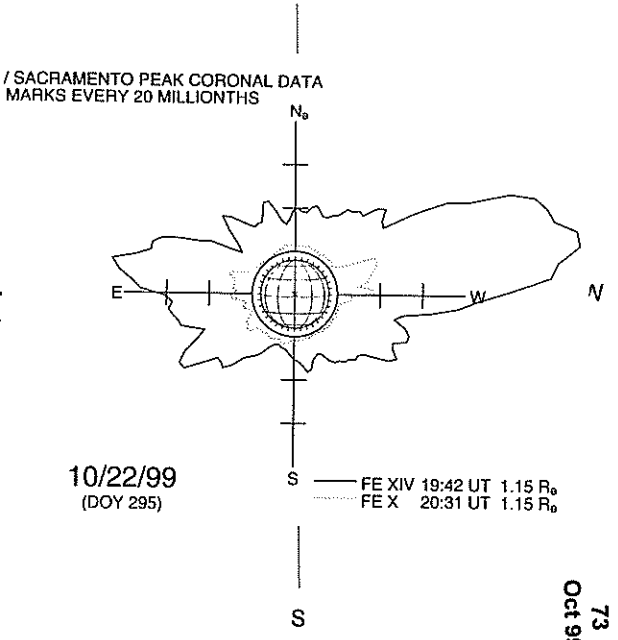


RAMEY SUNSPOT



1317 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



10/22/99
(DOY 295)

S

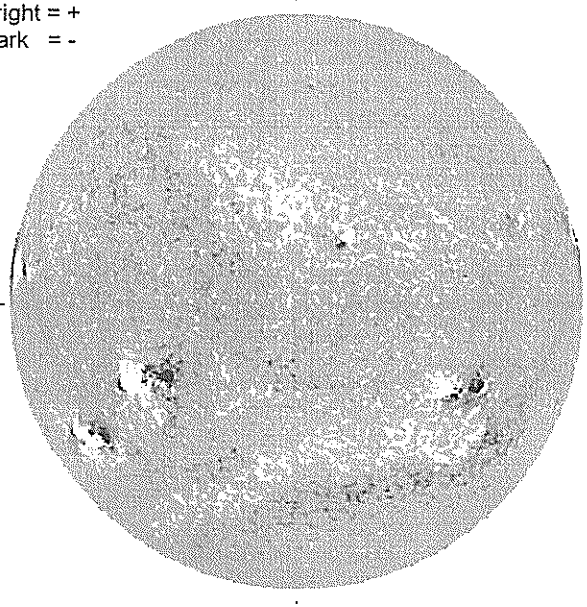
73
Oct 99

OCTOBER 23, 1999 (P= 25.73, Bo = 5.27, Lo = 210.60)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

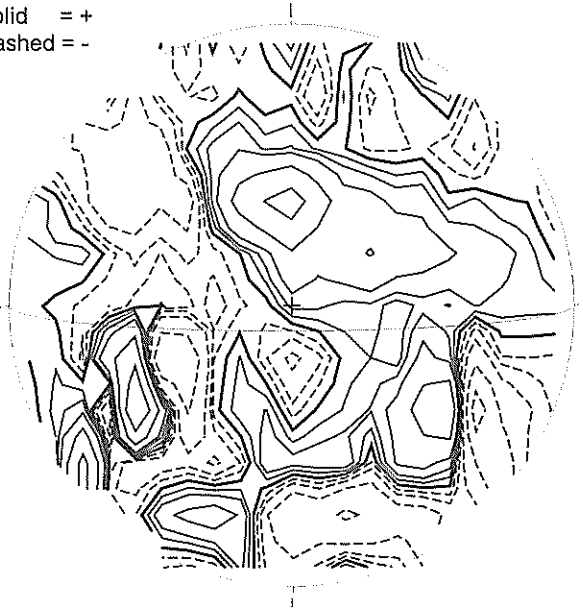


1730 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

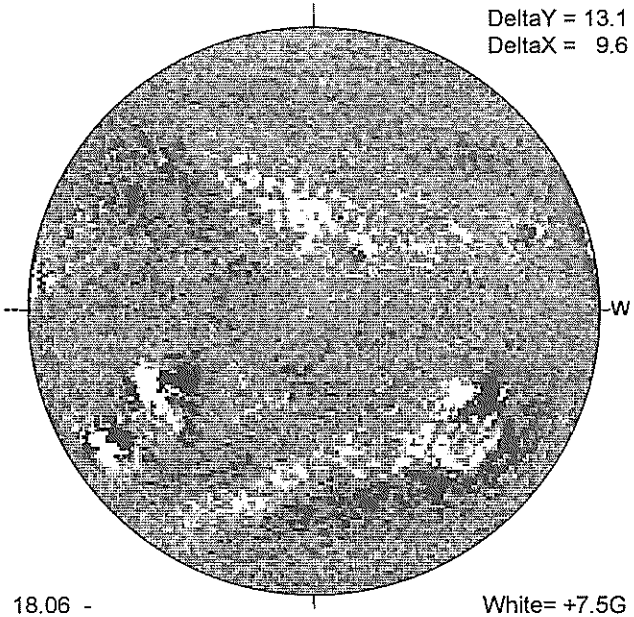


2102 UT

MT. WILSON MAGNETOGRAM

N

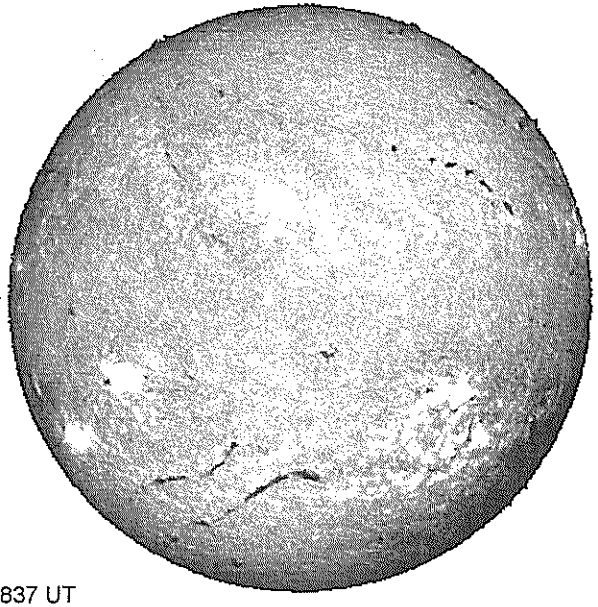
DeltaY = 13.1
DeltaX = 9.6



18.06 -
19.02 UT

White= +7.5G
Black = -7.5G

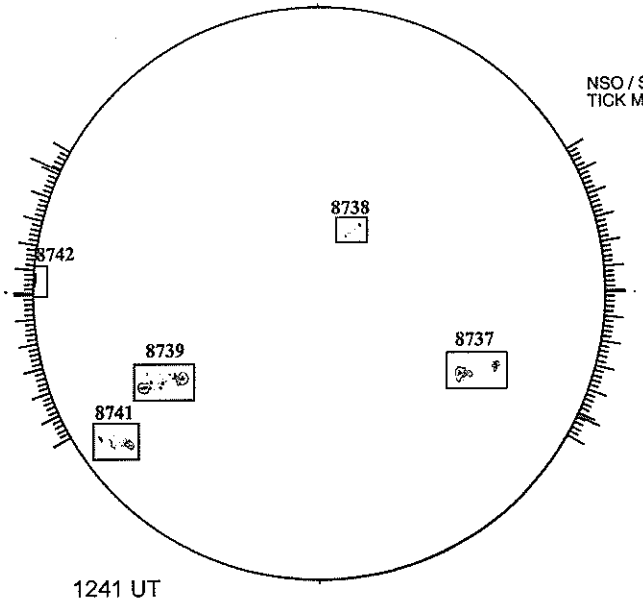
MEUDON H-ALPHA



0837 UT

S

RAMEY SUNSPOT

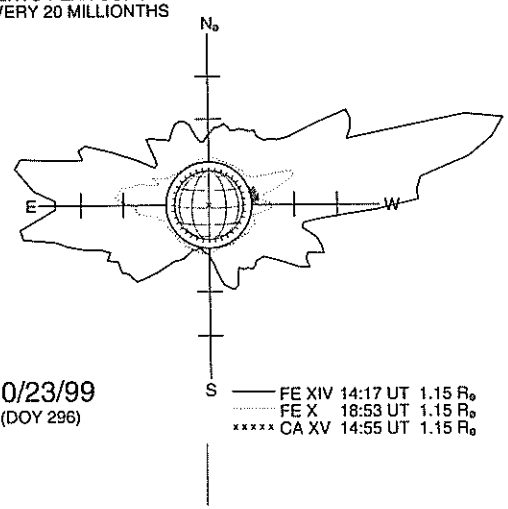


1241 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



10/23/99
(DOY 296)

FE XIV 14:17 UT 1.15 R
FE X 18:53 UT 1.15 R
CA XV 14:55 UT 1.15 R

S

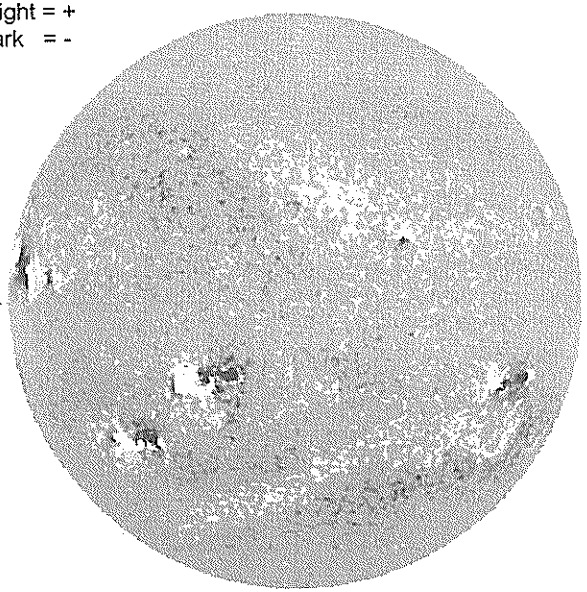
OCTOBER 24, 1999 (P= 25.64, Bo = 5.18, Lo = 197.41)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

E--

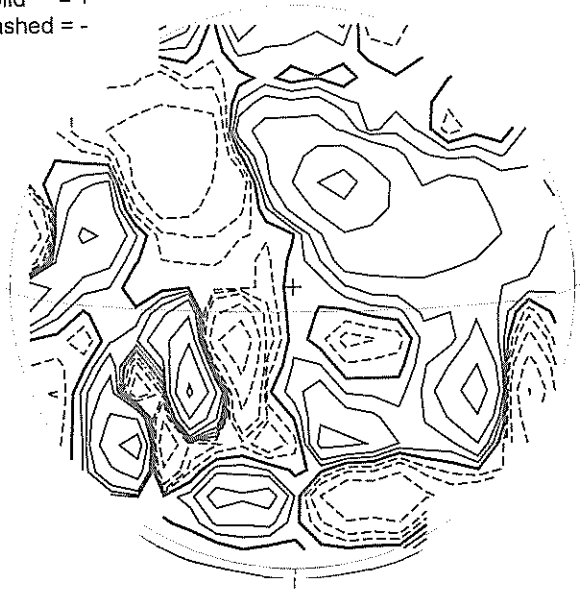


1744 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

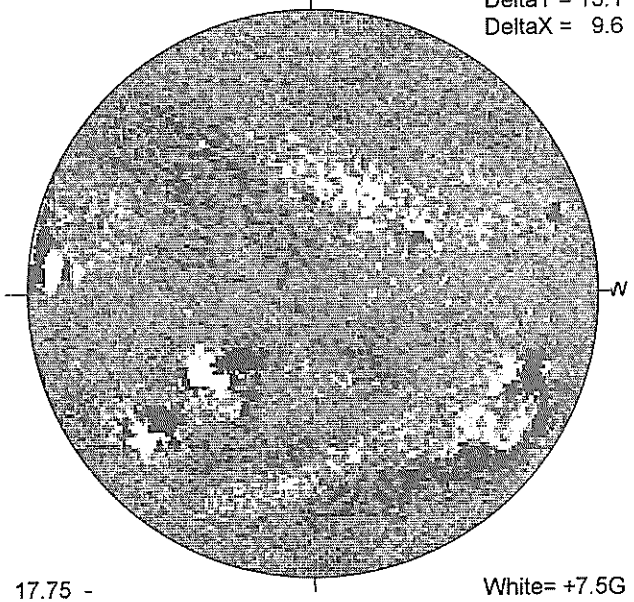


2047 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

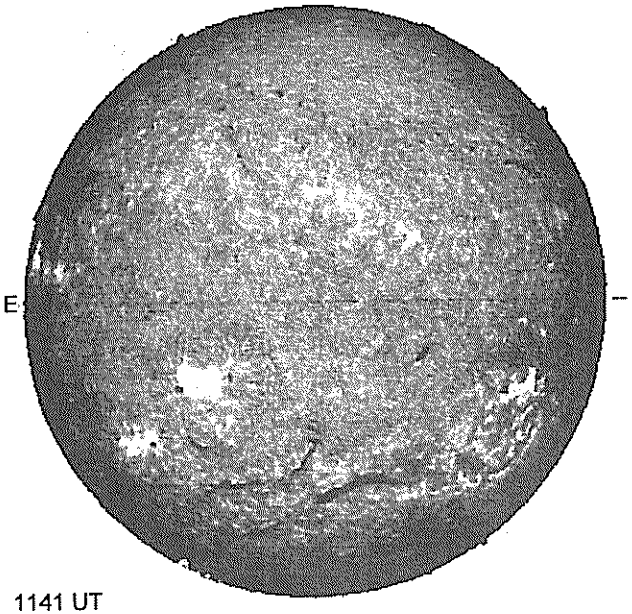


W

17.75 -
18.71 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

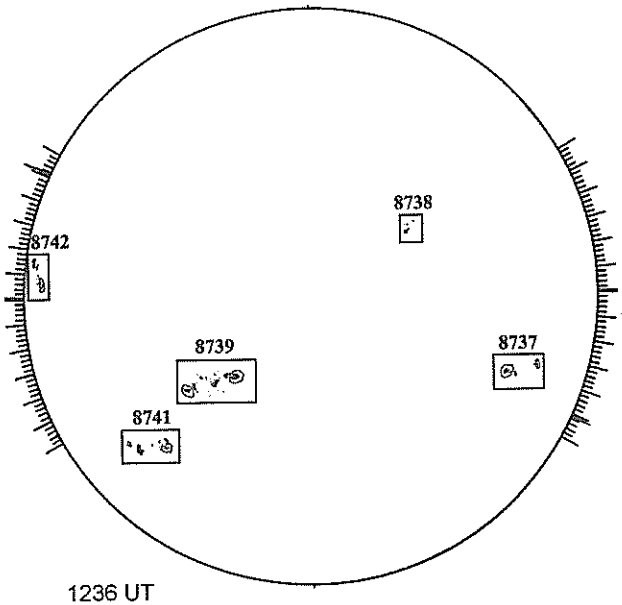


E

1141 UT

S

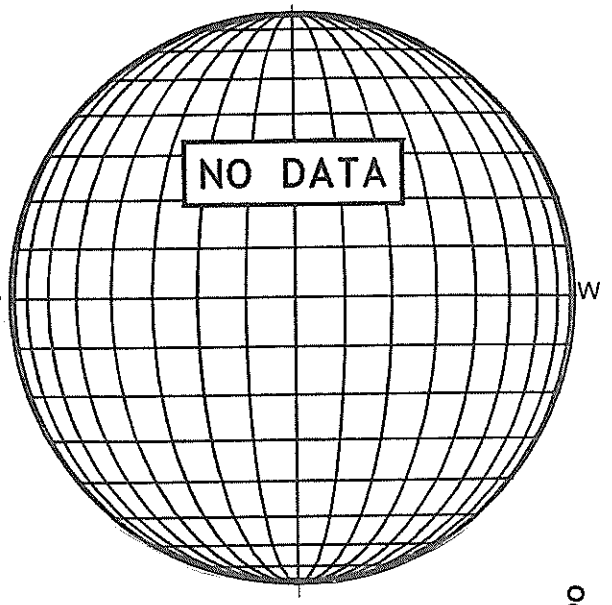
RAMEY SUNSPOT



1236 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



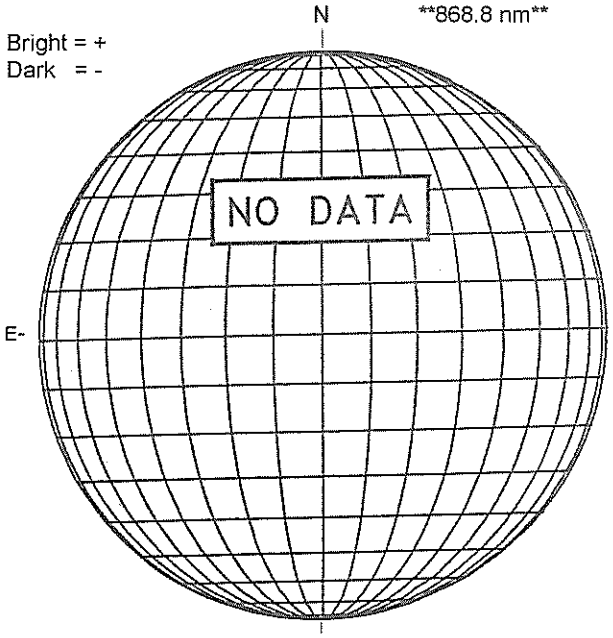
W

S

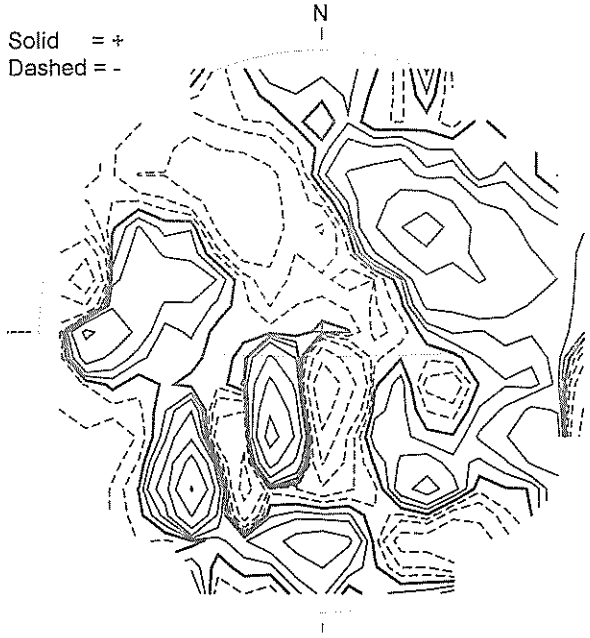
75
Oct 99

OCTOBER 25, 1999 (P= 25.53, Bo = 5.09, Lo = 184.22)

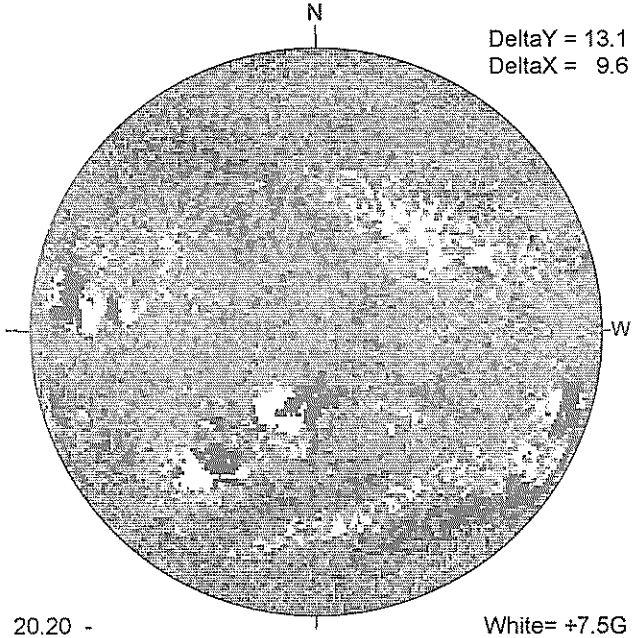
KITT PEAK MAGNETOGRAM



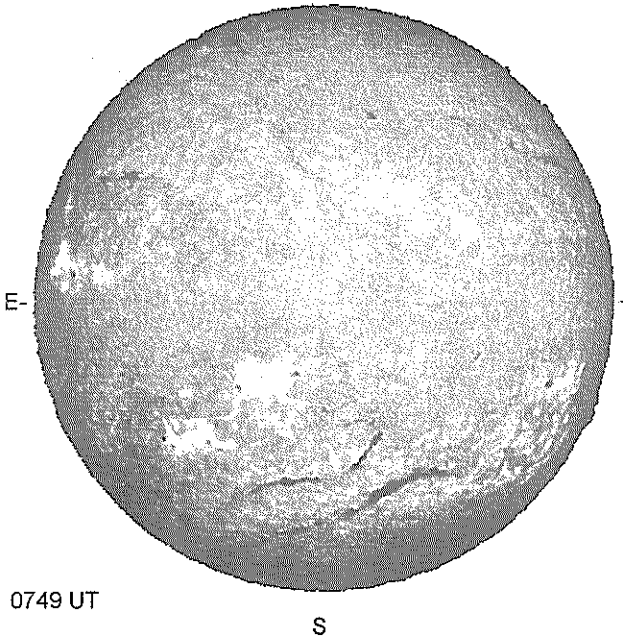
STANFORD MAGNETOGRAM



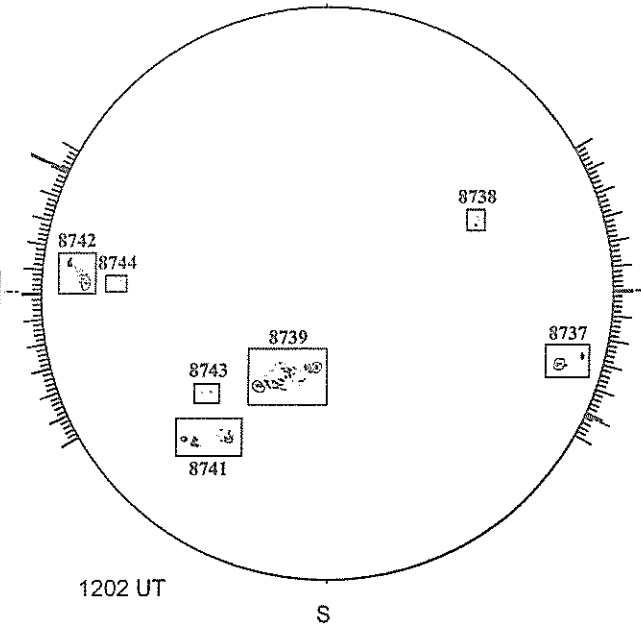
MT. WILSON MAGNETOGRAM



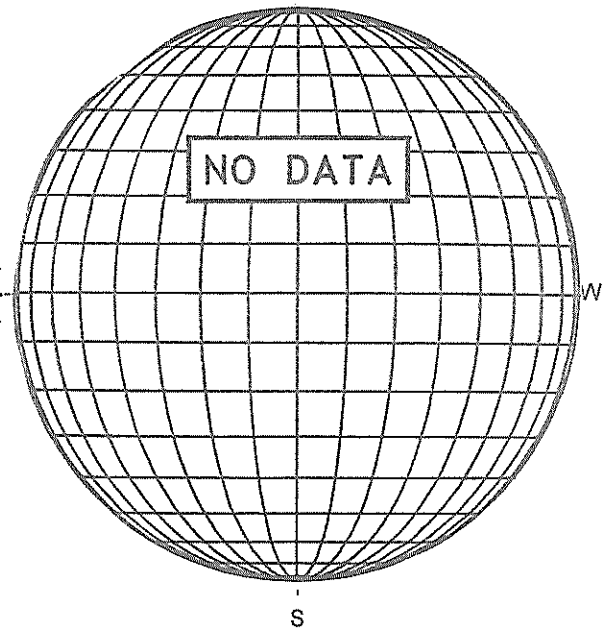
MEUDON H-ALPHA



RAMEY SUNSPOT

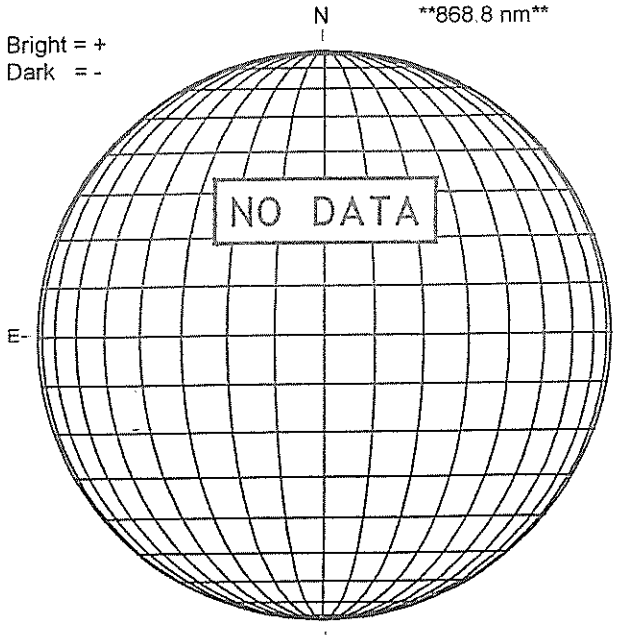


SACRAMENTO PEAK CORONA (1.15 Radii)----

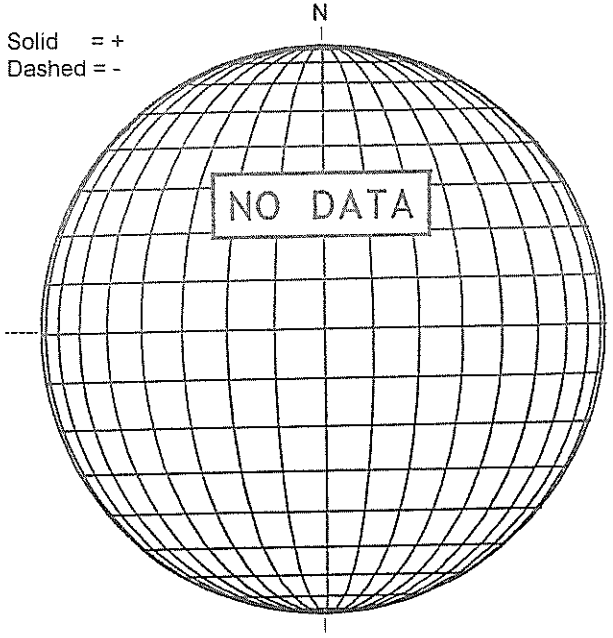


OCTOBER 26, 1999 (P= 25.42, Bo = 5.00, Lo = 171.04)

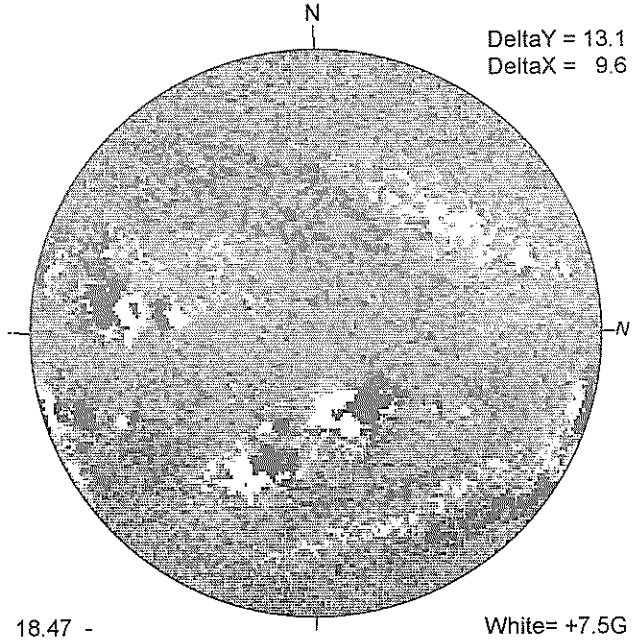
KITT PEAK MAGNETOGRAM



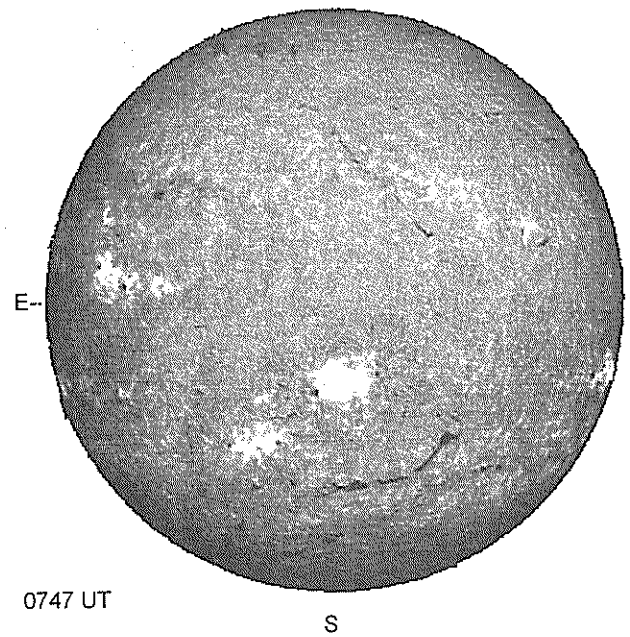
STANFORD MAGNETOGRAM



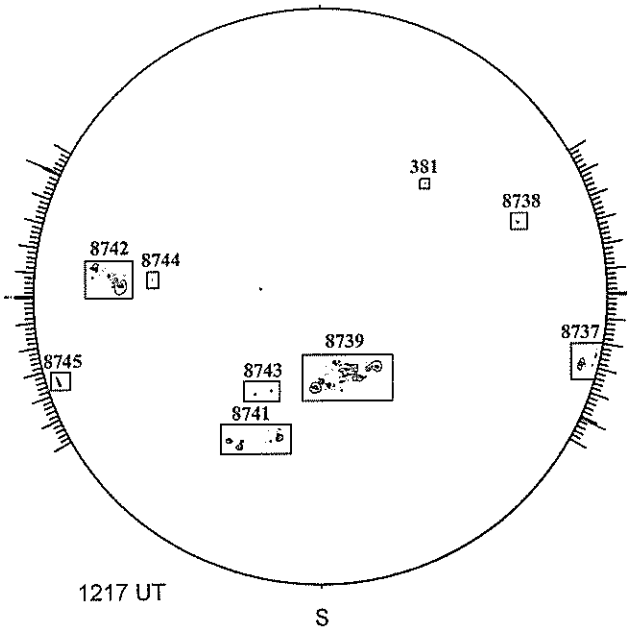
MT. WILSON MAGNETOGRAM



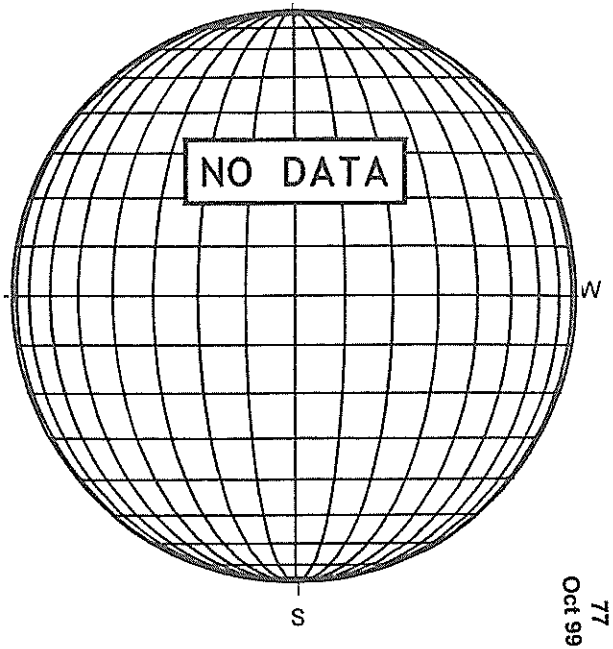
MEUDON H-ALHPA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



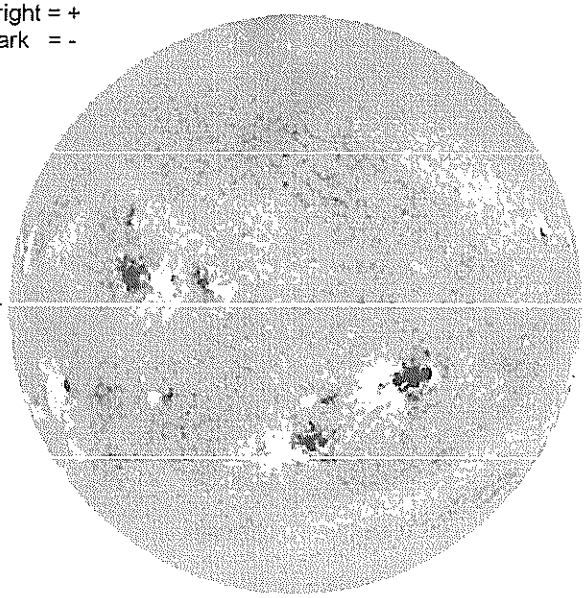
77
Oct 99

OCTOBER 27, 1999 (P= 25.30, Bo = 4.91, Lo = 157.85)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



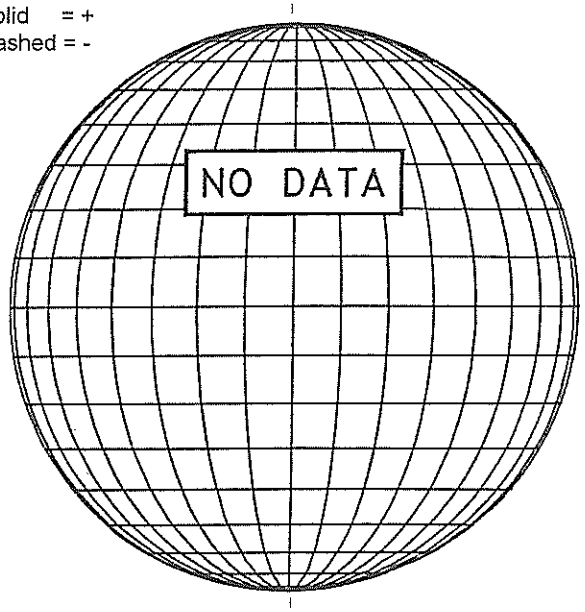
E--

1831 UT

STANFORD MAGNETOGRAM

N

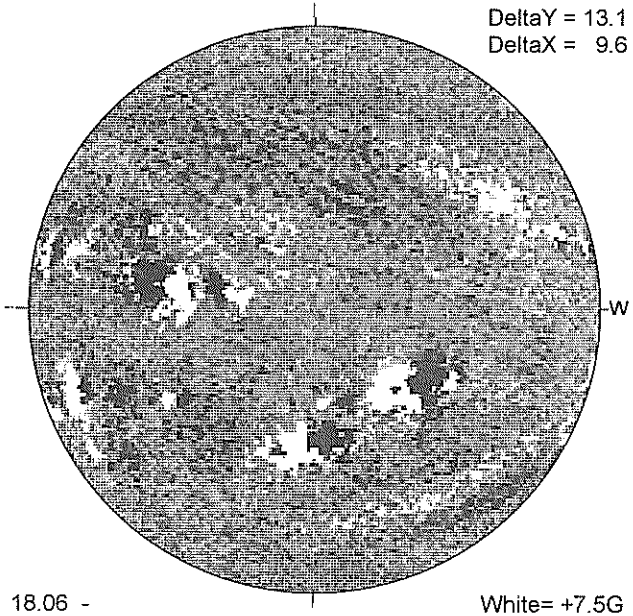
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

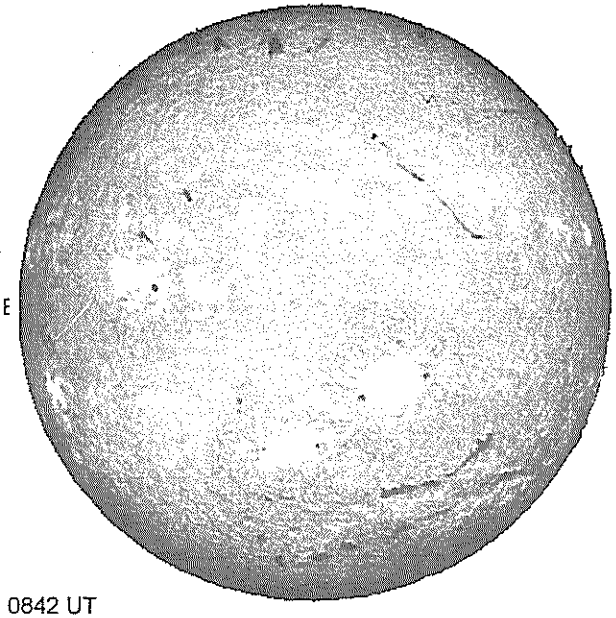


-W

18.06 -
19.01 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

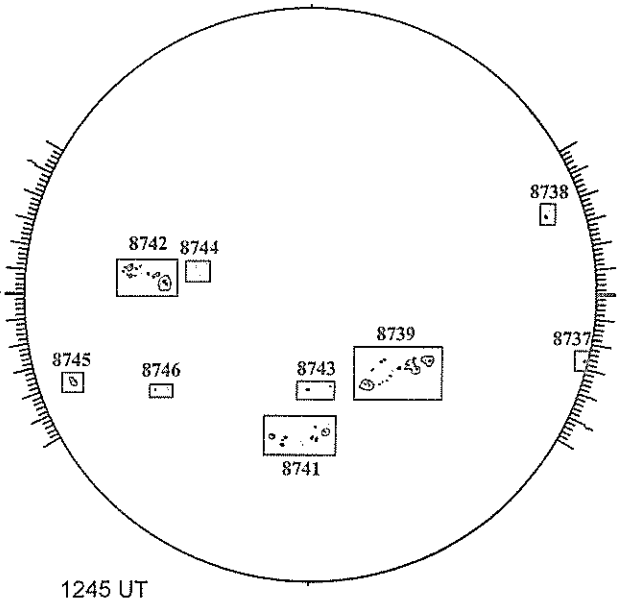


E

0842 UT

S

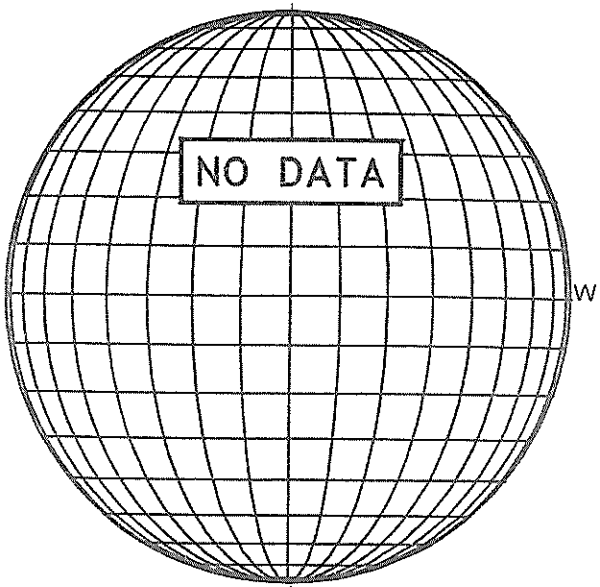
RAMEY SUNSPOT



1245 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)



W

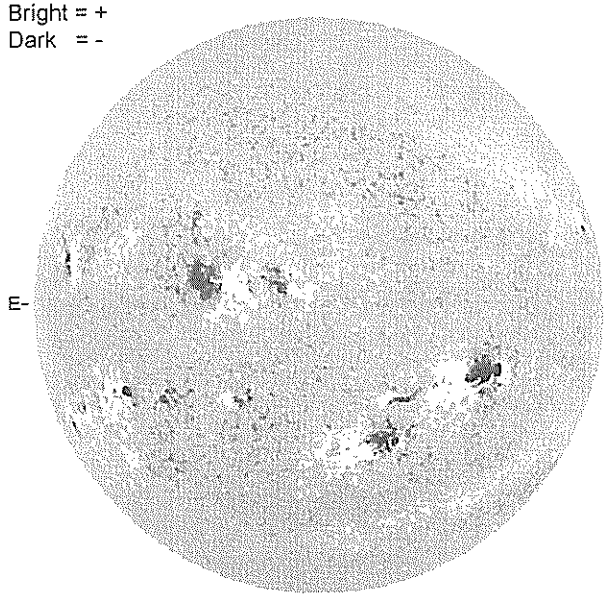
S

OCTOBER 28, 1999 (P= 25.18, Bo = 4.81, Lo = 144.66)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



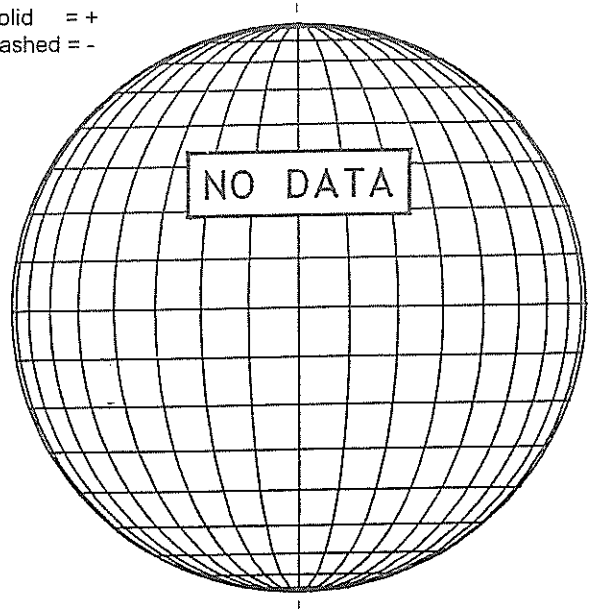
E-

1440 UT

STANFORD MAGNETOGRAM

N

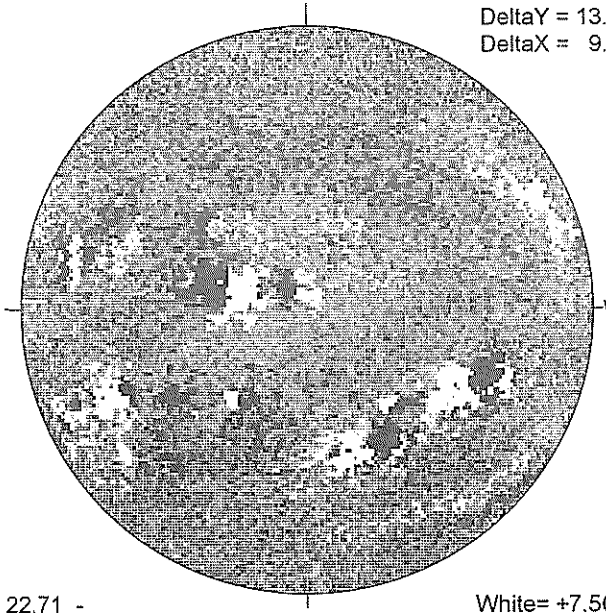
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

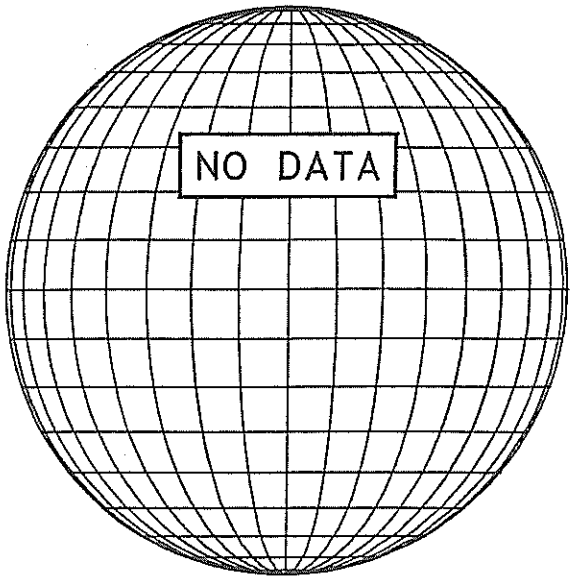


W

22.71 -
23.67 UT

White= +7.5G
Black = -7.5G

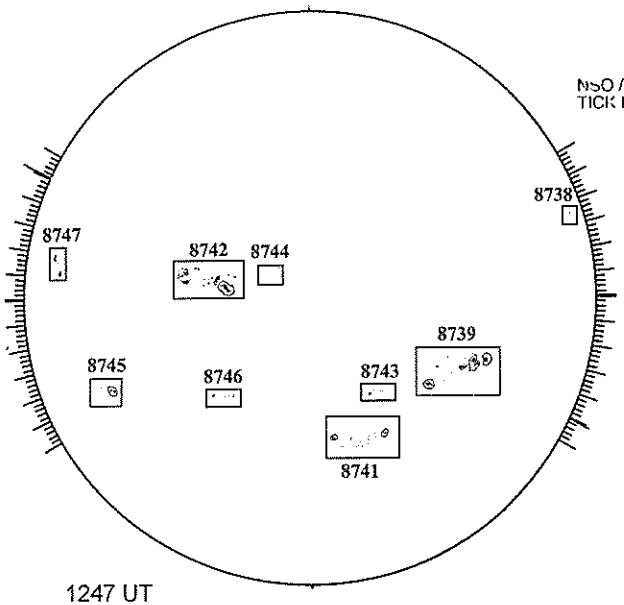
MEUDON H-ALPHA



E-

S

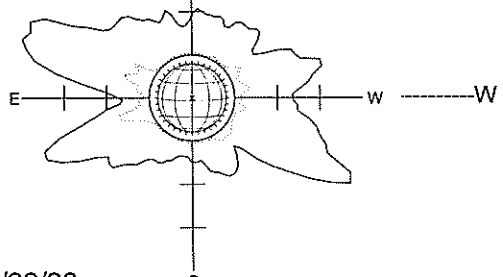
RAMEY SUNSPOT



1247 UT
1452 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)

N$_o$ / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



E W W

10/28/99
(DOY 301)

S

FE XIV 14:59 UT 1.15 R$_o$
FE X 15:47 UT 1.15 R$_o$
xxxxx CA XV 15:37 UT 1.15 R$_o$
NO CA XV ACTIVITY TODAY

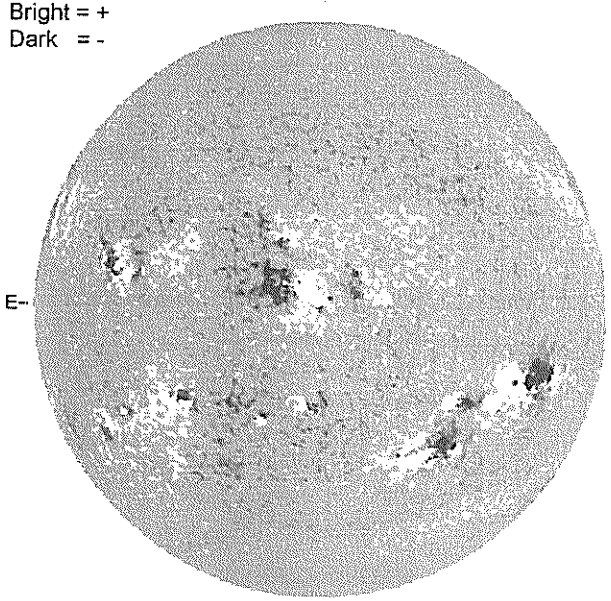
S

OCTOBER 29, 1999 (P= 25.04, Bo = 4.72, Lo = 131.47)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

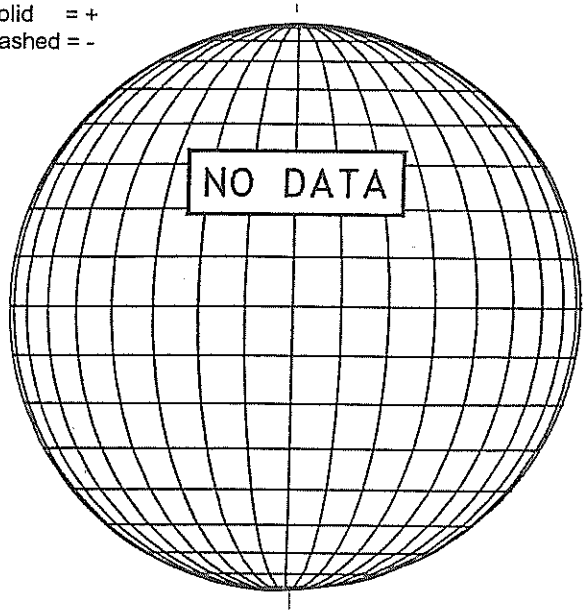


1827 UT

STANFORD MAGNETOGRAM

N

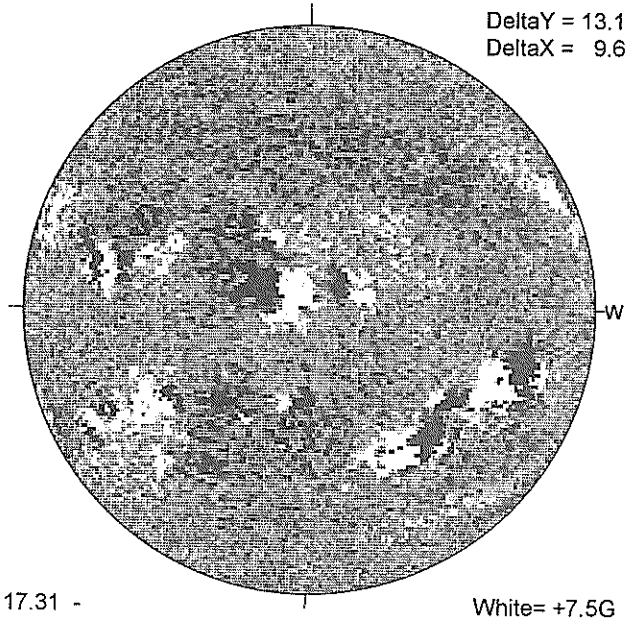
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

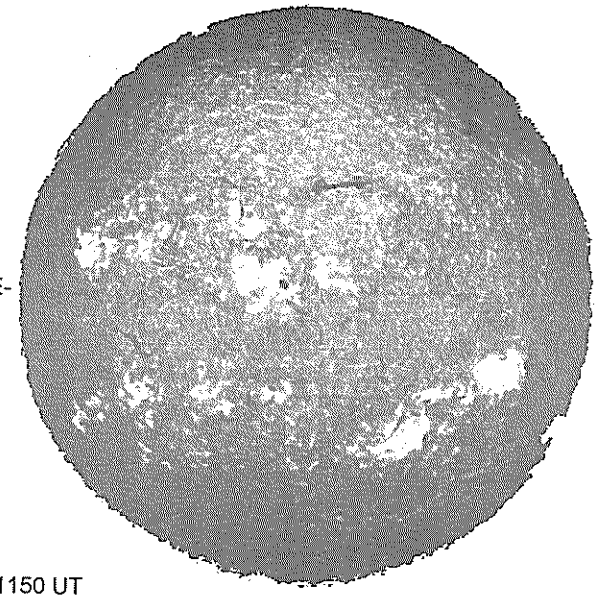
DeltaY = 13.1
DeltaX = 9.6



17.31 -
18.27 UT

White= +7.5G
Black = -7.5G

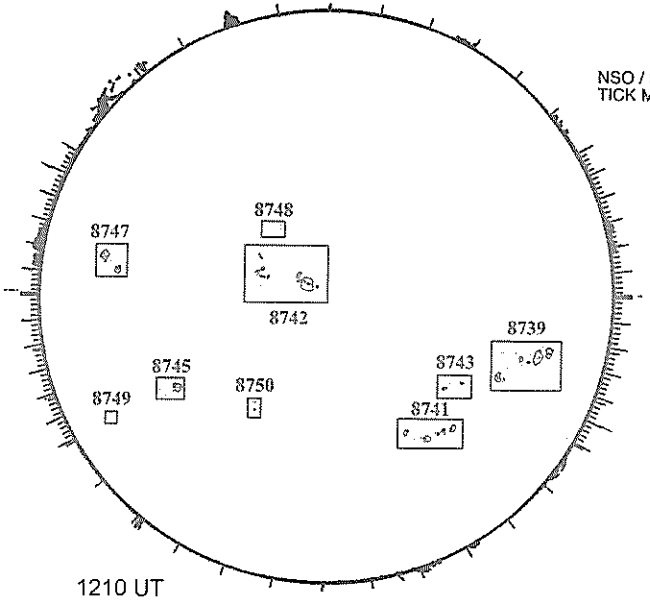
MEUDON H-ALPHA



1150 UT

S

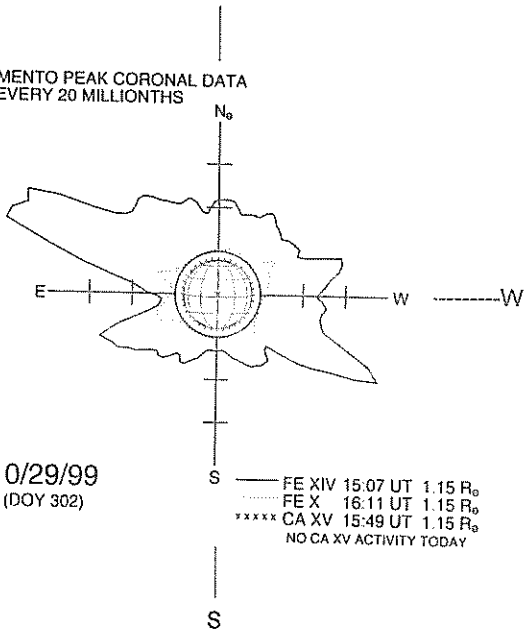
RAMEY SUNSPOT



1210 UT
1009 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



10/29/99
(DOY 302)

FE XIV 15:07 UT 1.15 $R_\odot$
FE X 16:11 UT 1.15 $R_\odot$
CA XV 15:49 UT 1.15 $R_\odot$
NO CA XV ACTIVITY TODAY

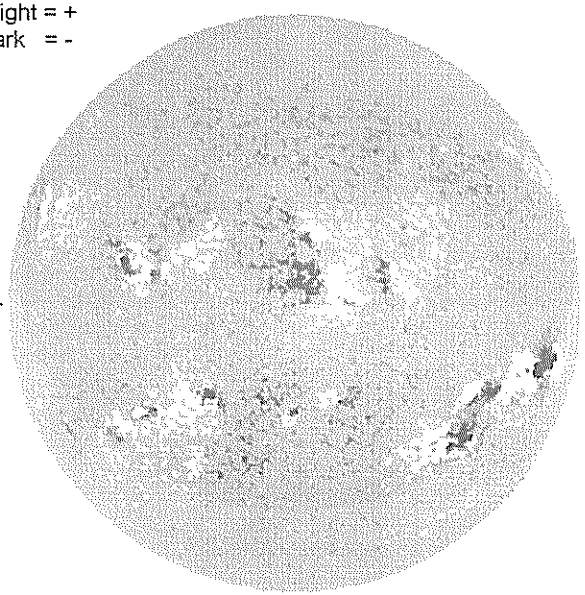
S

OCTOBER 30, 1999 (P= 24.90, Bo = 4.62, Lo = 118.29)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



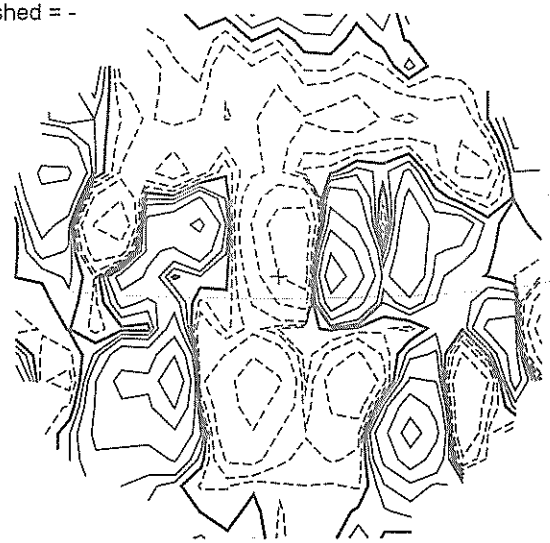
E--

1446 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

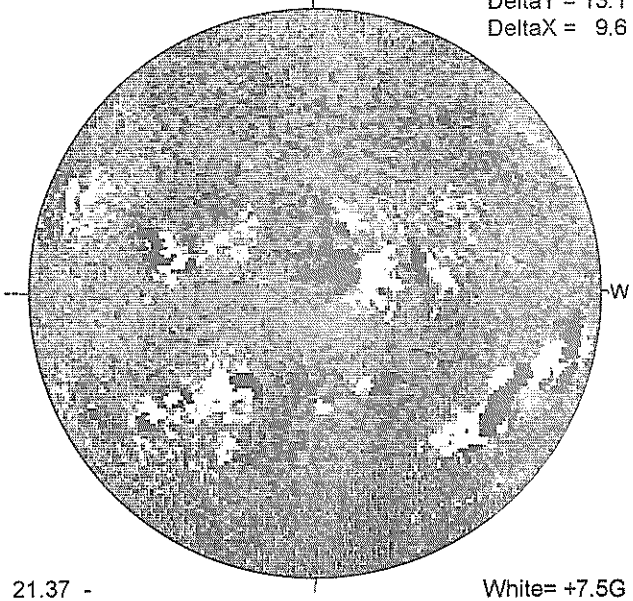


1913 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

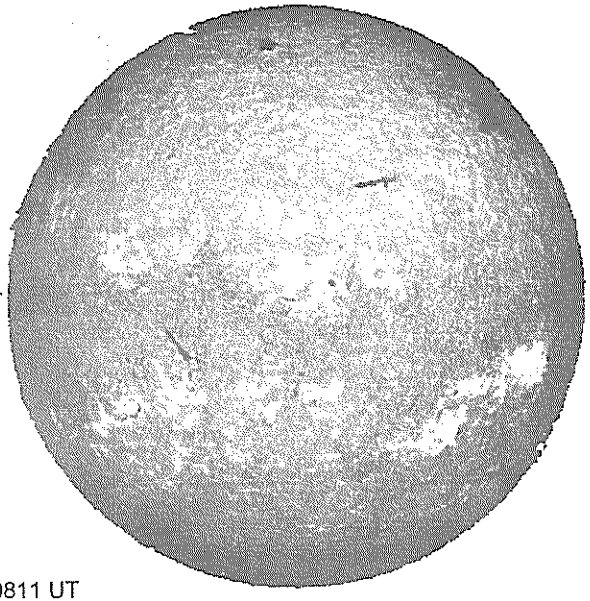


-W

21.37 -
22.33 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

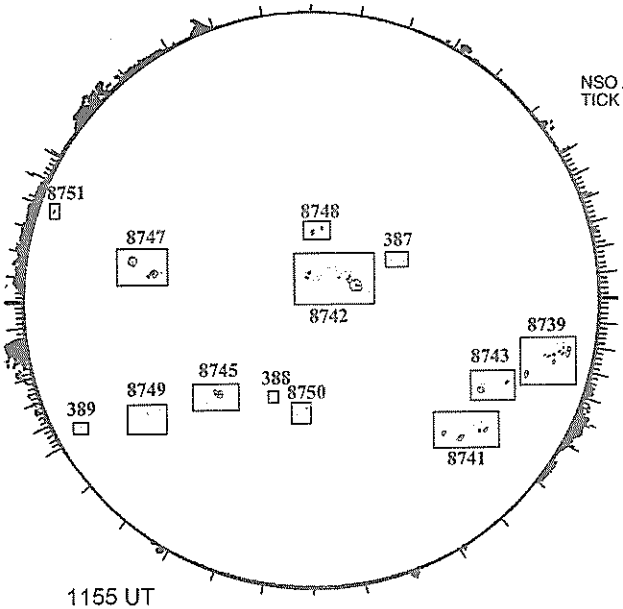


E-

0811 UT

S

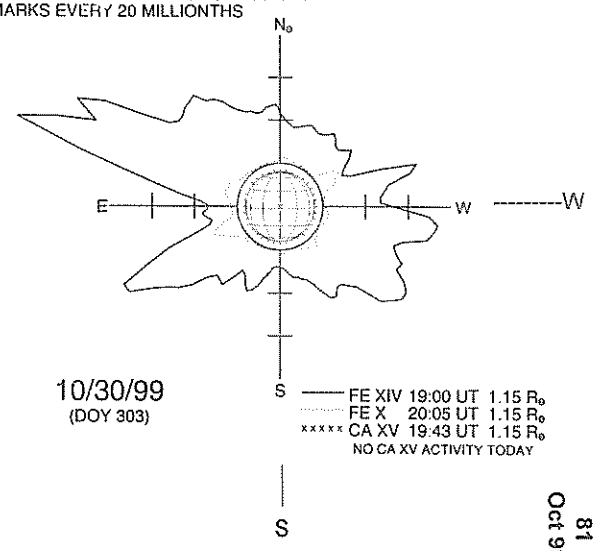
RAMEY SUNSPOT



1155 UT
0655 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



10/30/99
(DOY 303)

FE XIV 19:00 UT 1.15 R
FE X 20:05 UT 1.15 R
CA XV 19:43 UT 1.15 R
NO CA XV ACTIVITY TODAY

S

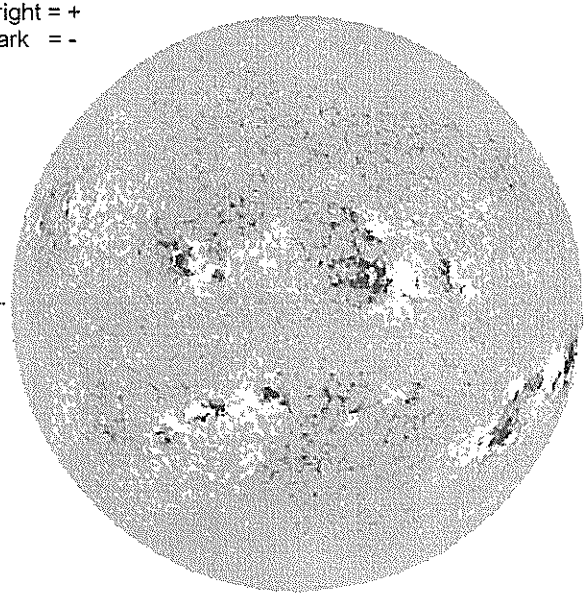
81
Oct 99

OCTOBER 31, 1999 (P= 24.75, Bo = 4.52, Lo = 105.10)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

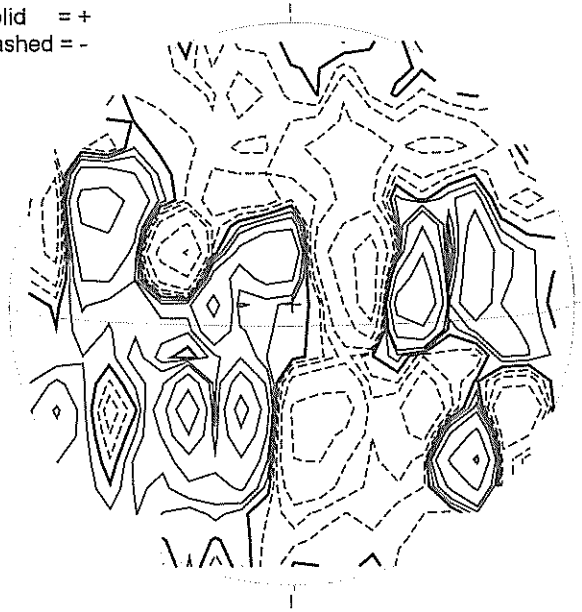


1429 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

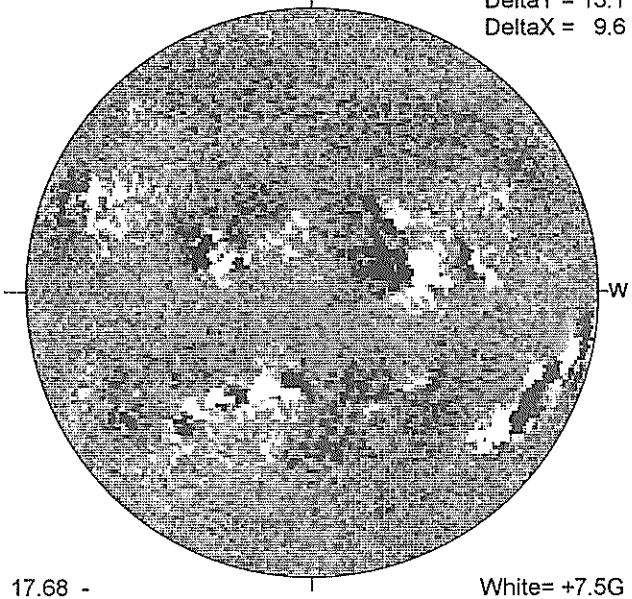


1857 UT

MT. WILSON MAGNETOGRAM

N

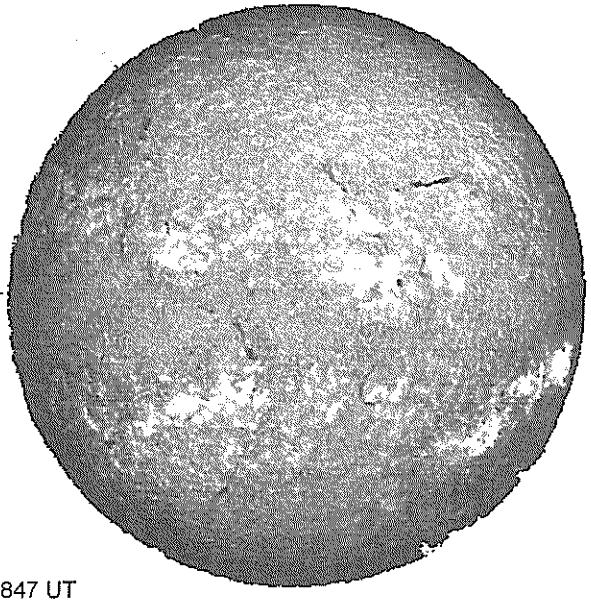
DeltaY = 13.1
DeltaX = 9.6



17.68 -
18.63 UT

White= +7.5G
Black = -7.5G

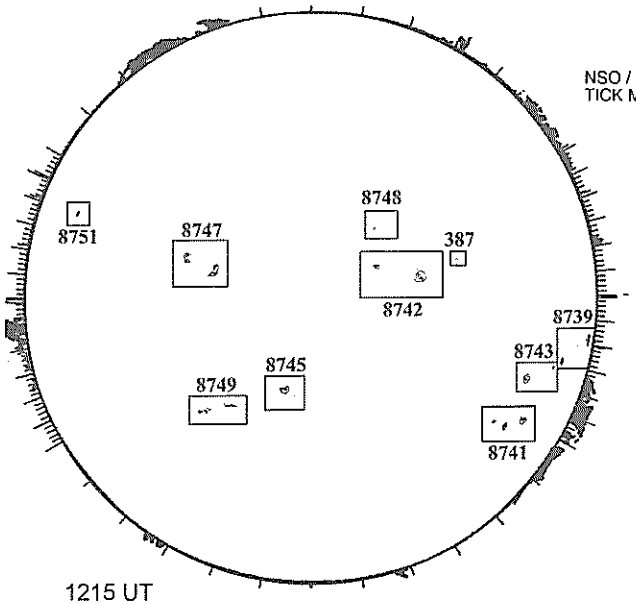
MEUDON H-ALPHA



0847 UT

S

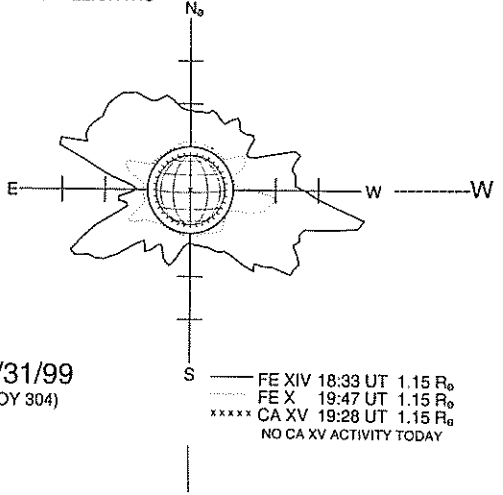
RAMEY SUNSPOT



1215 UT
0630 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS

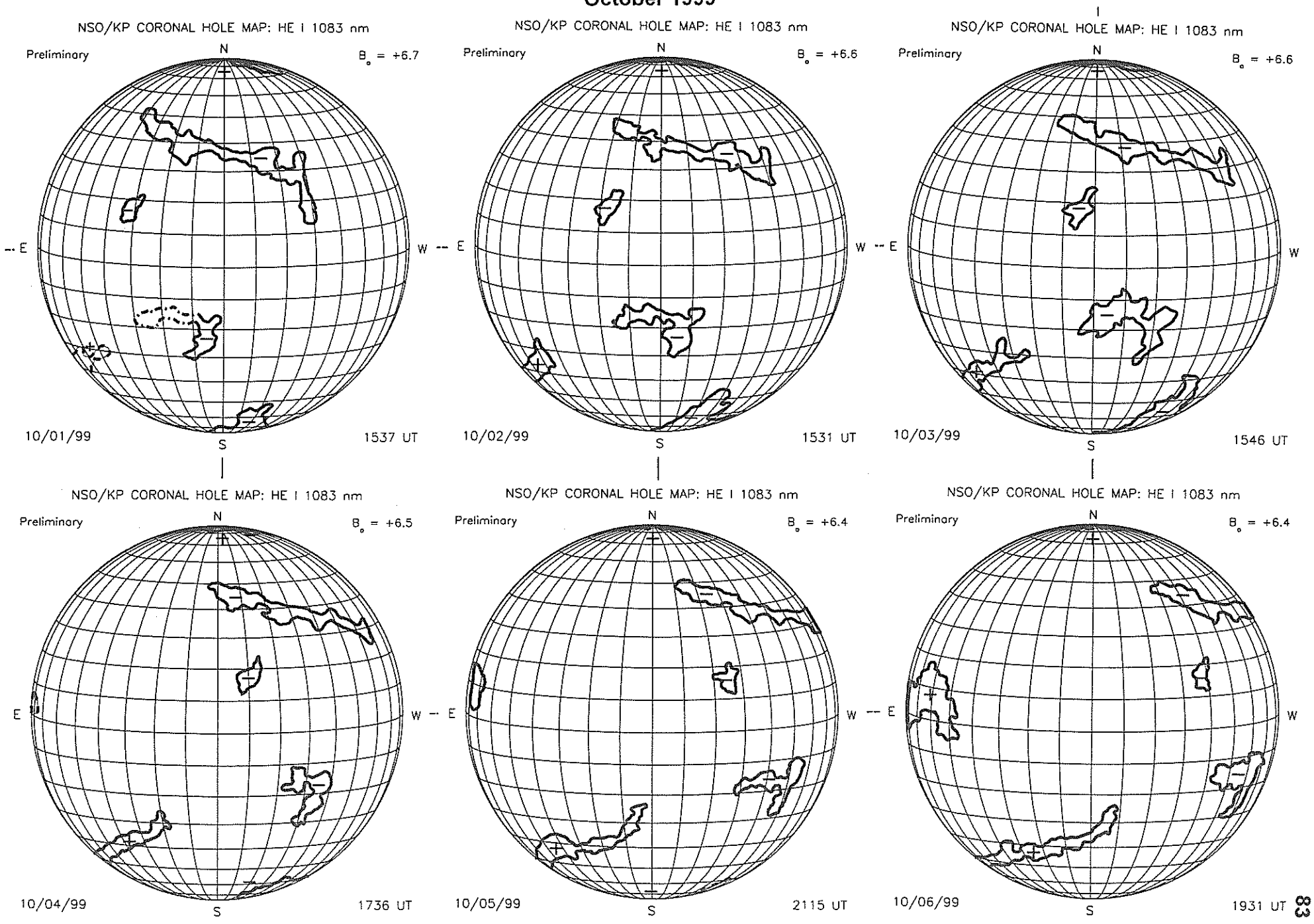


10/31/99
(DOY 304)

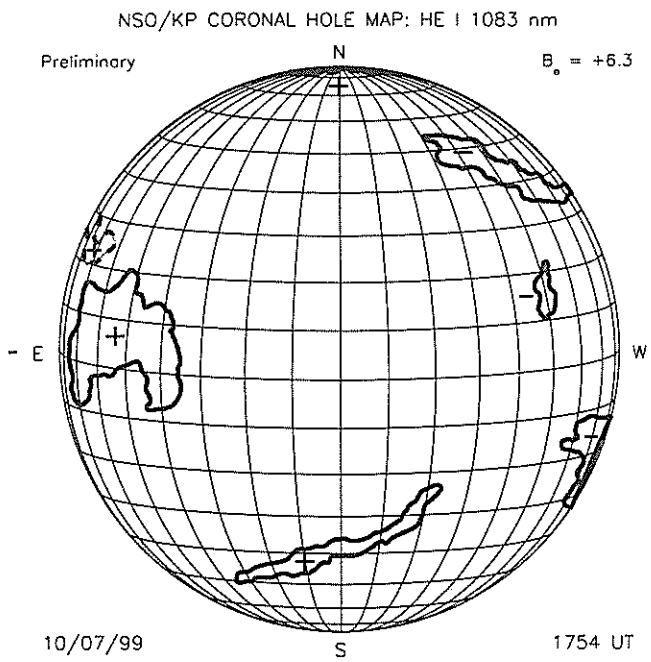
FE XIV 18:33 UT 1.15 $R_\odot$
FE X 19:47 UT 1.15 $R_\odot$
xxxxx CA XV 19:28 UT 1.15 $R_\odot$
NO CA XV ACTIVITY TODAY

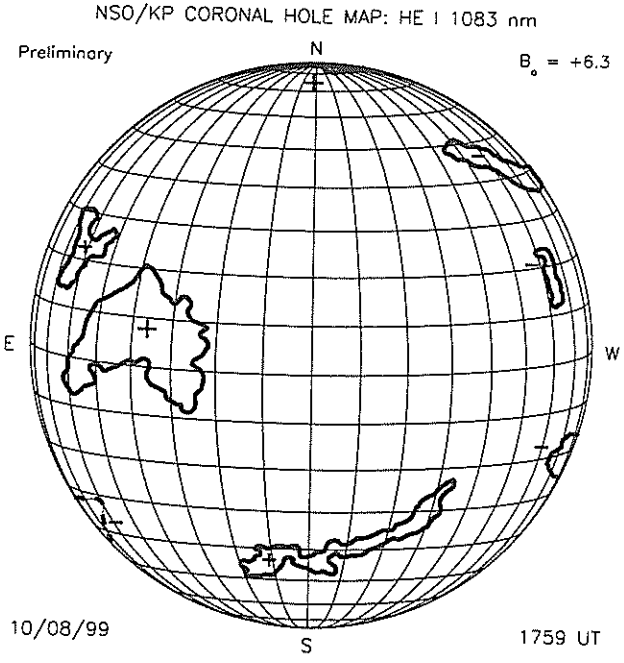
S

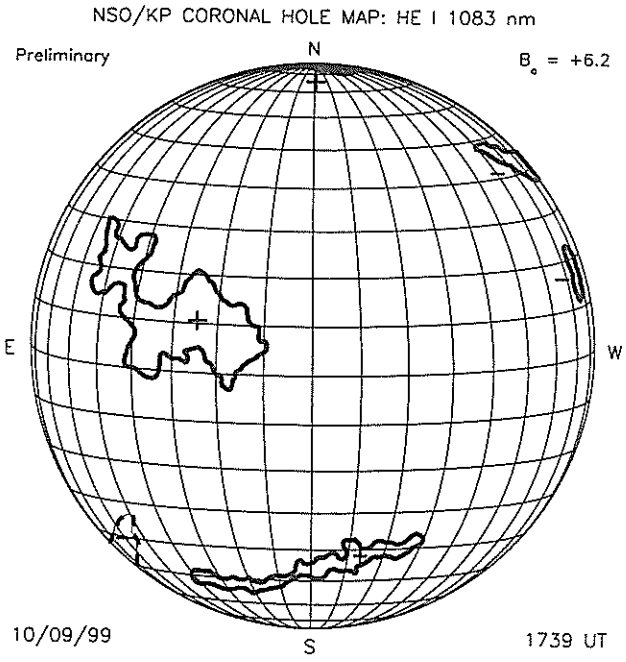
KITT PEAK CORONAL HOLE MAPS HE I 1083 nm
October 1999

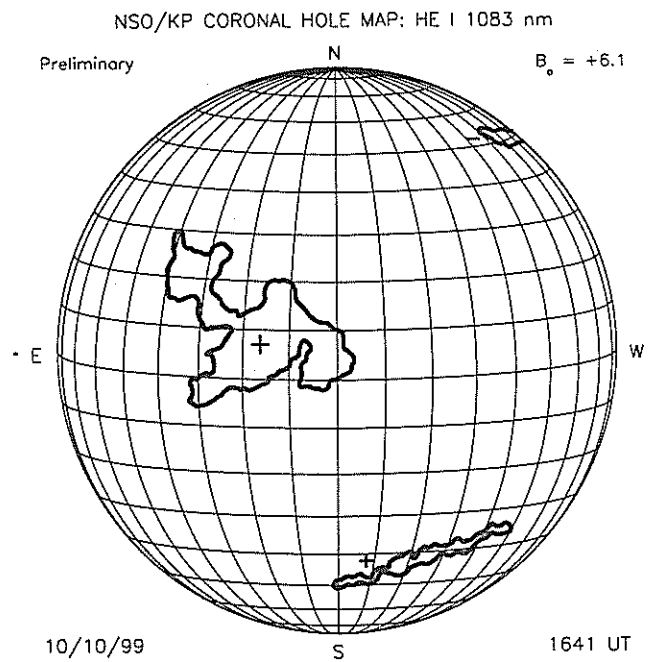


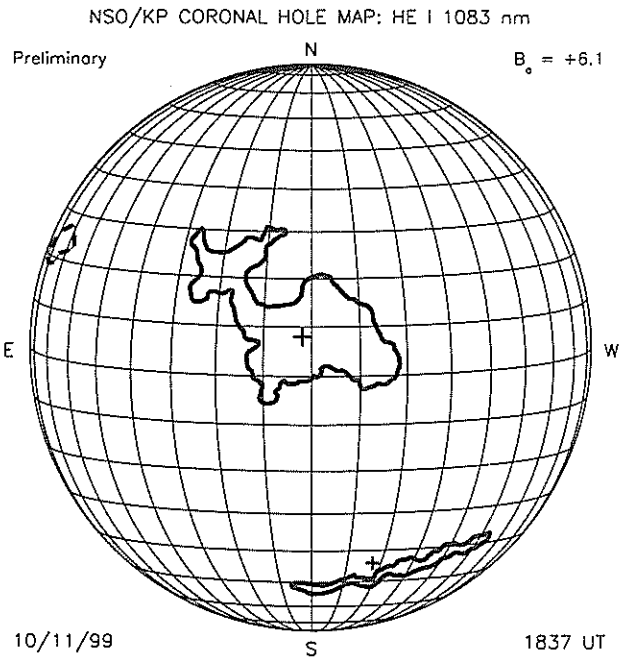
KITT PEAK CORONAL HOLE MAPS HE I 1083 nm
October 1999

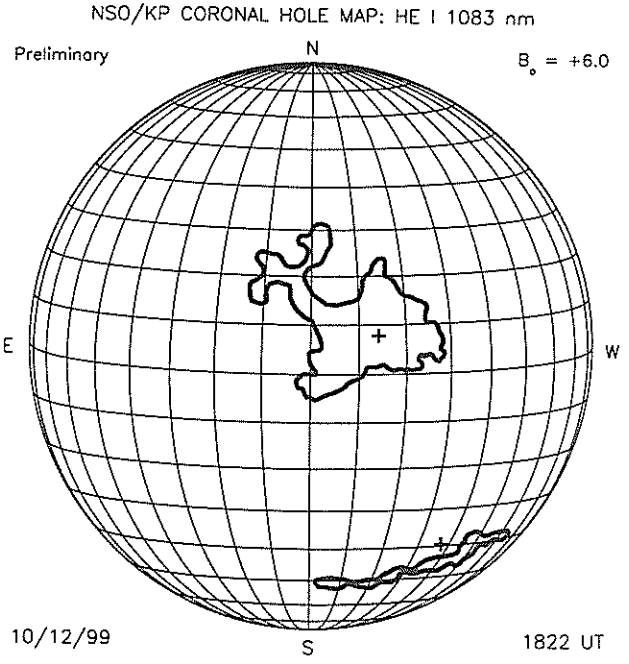




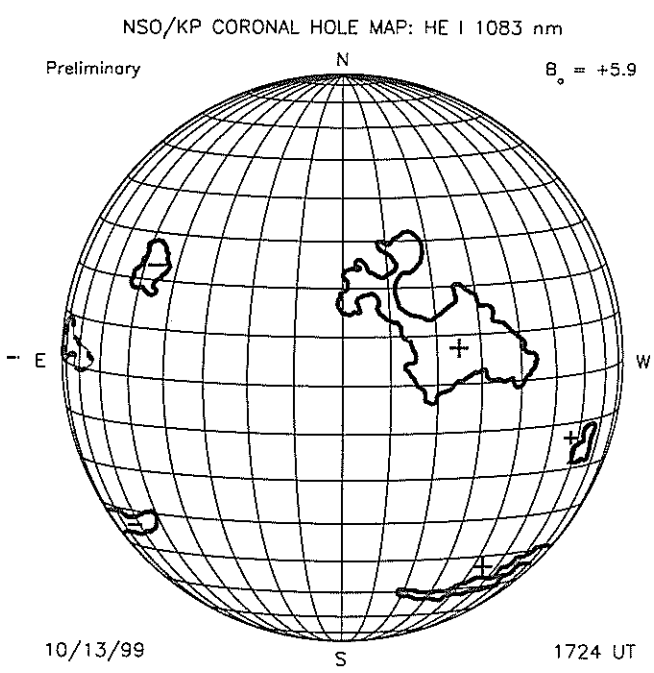


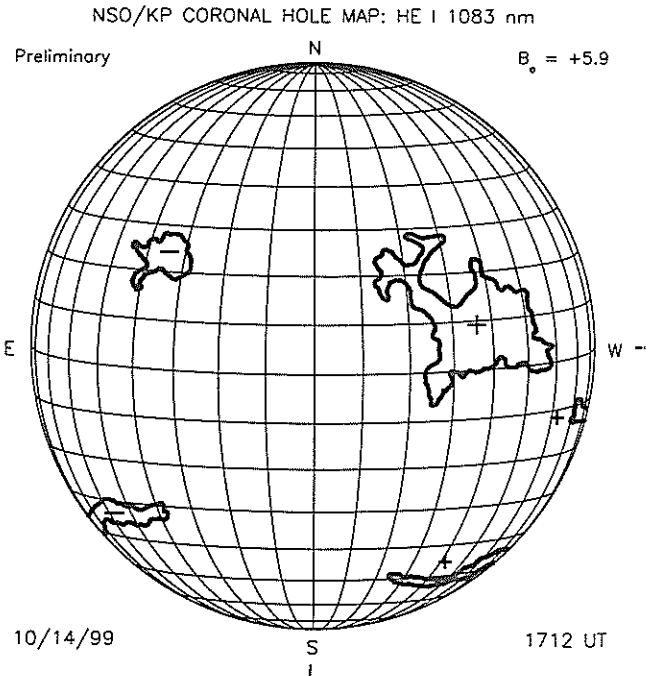


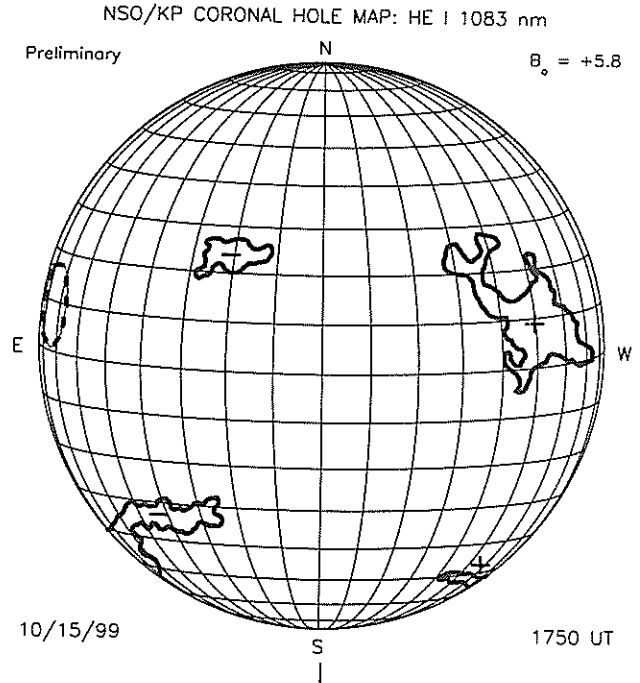


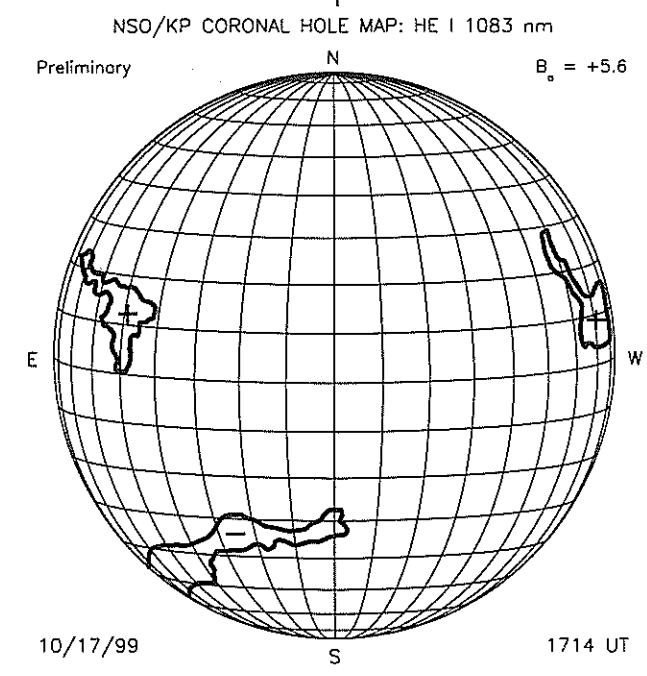


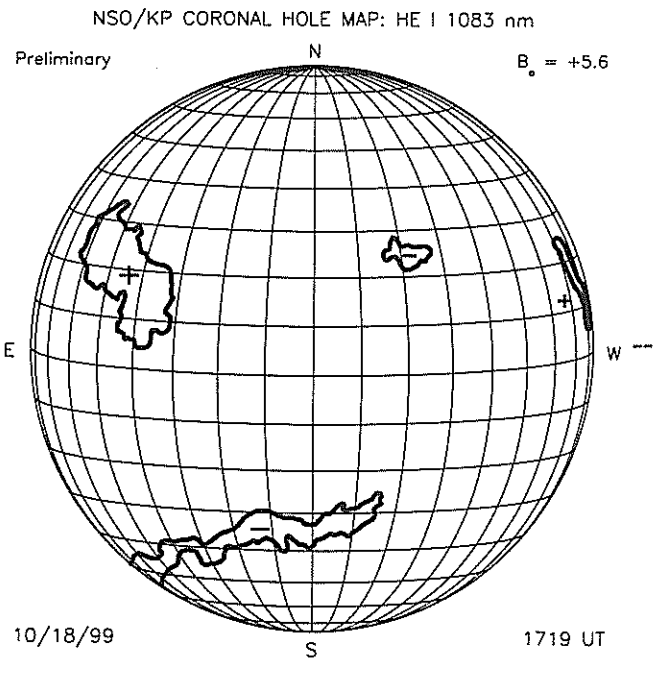
KITT PEAK CORONAL HOLE MAPS HE I 1083 nm
October 1999

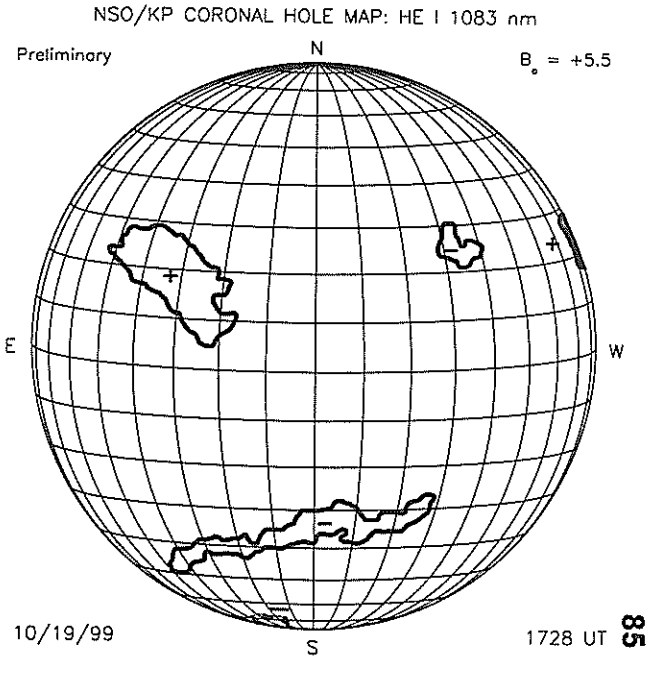




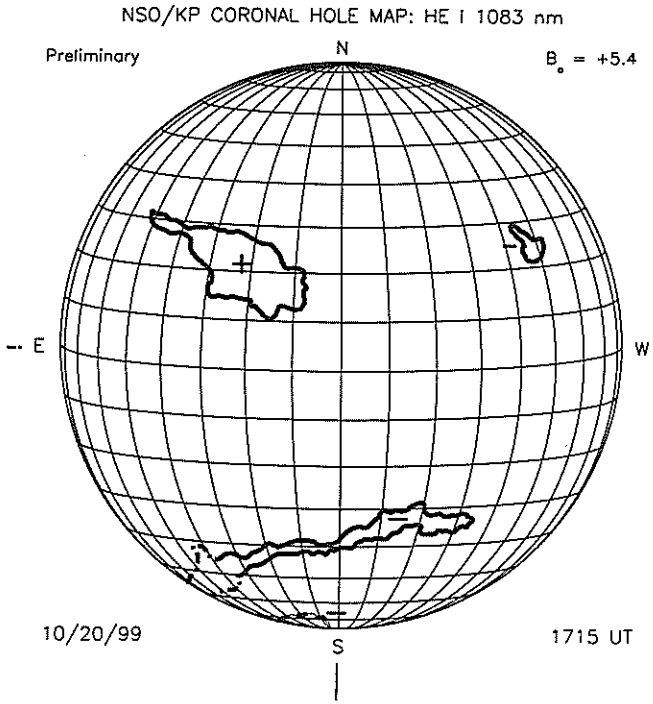


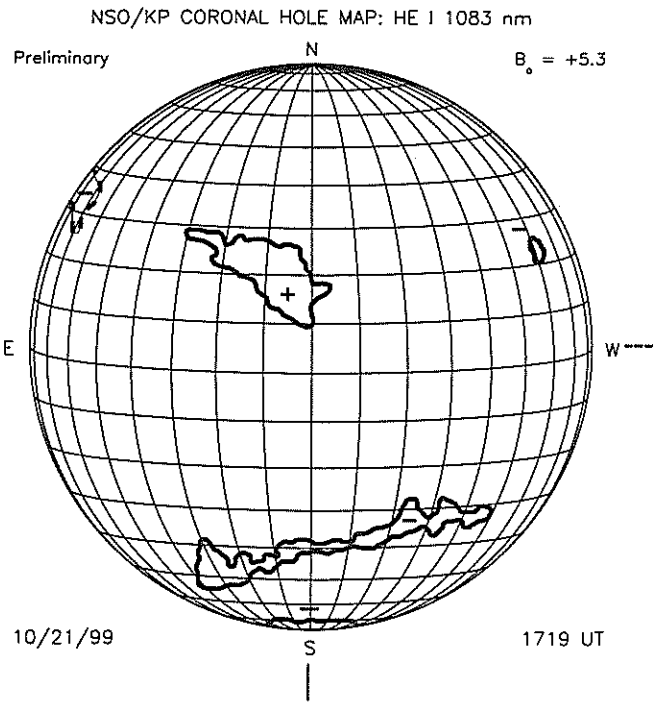


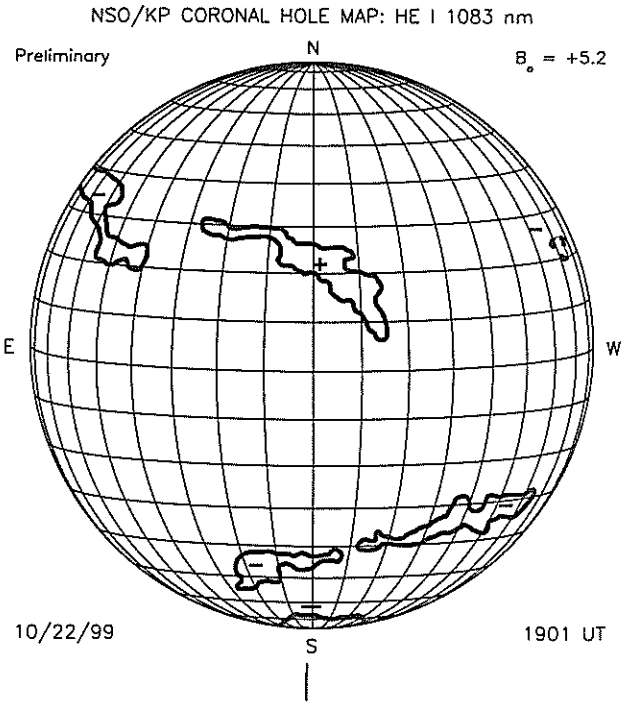


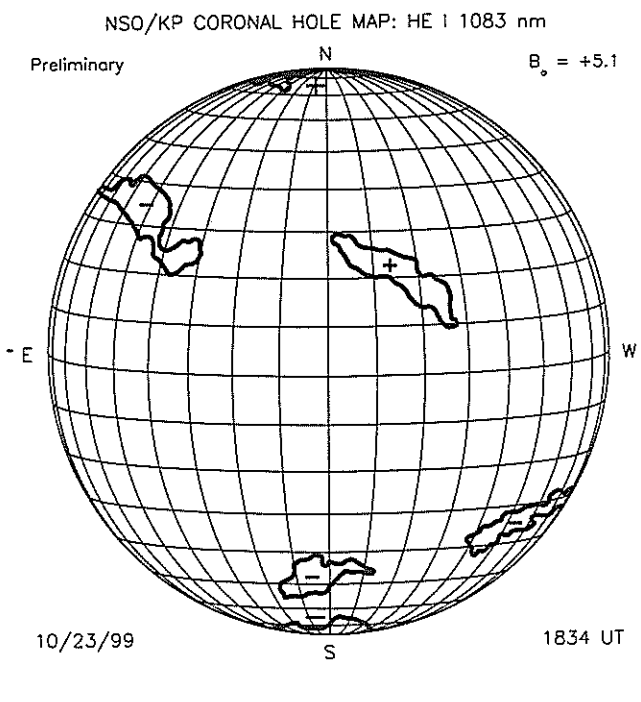


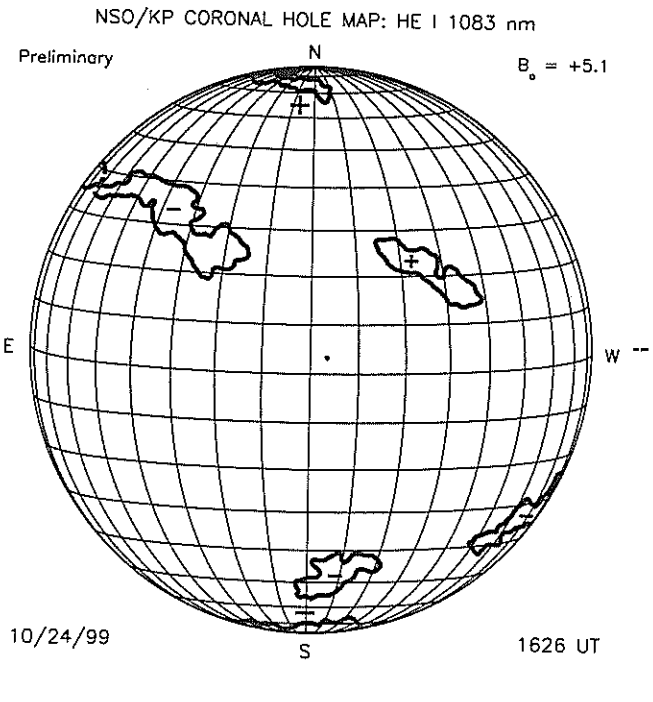
KITT PEAK CORONAL HOLE MAPS HE I 1083 nm
October 1999

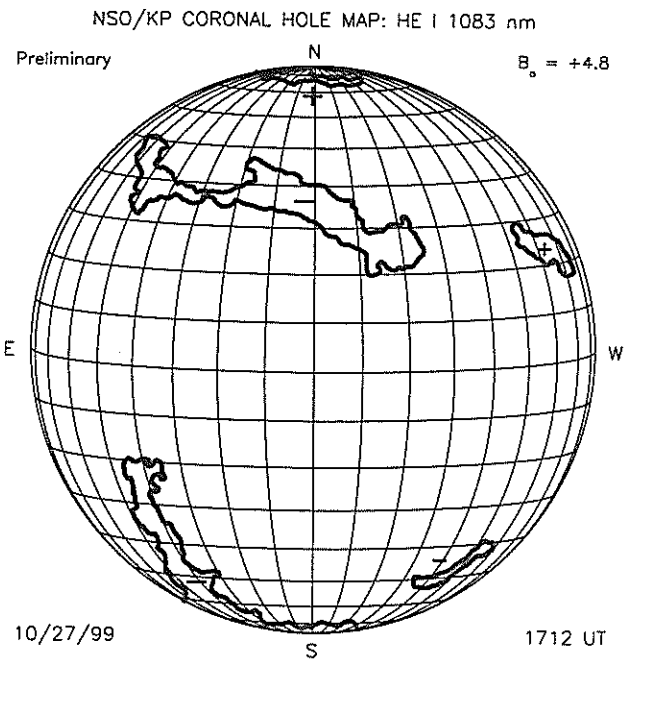




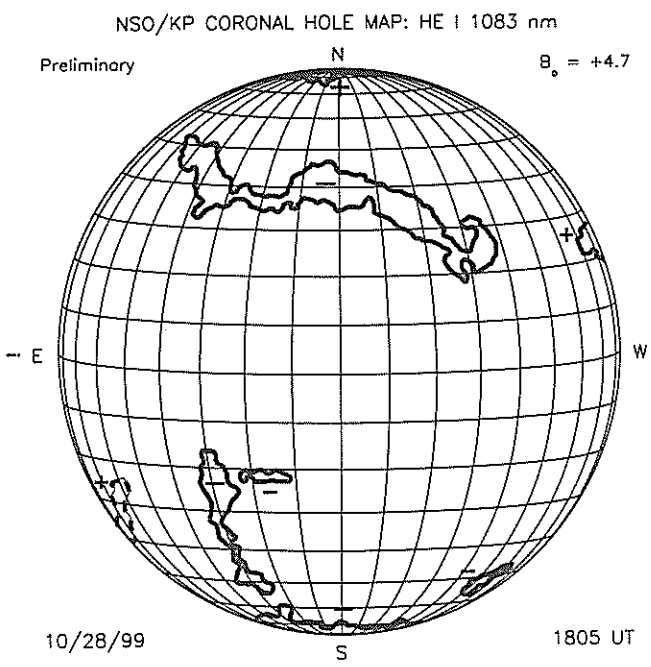


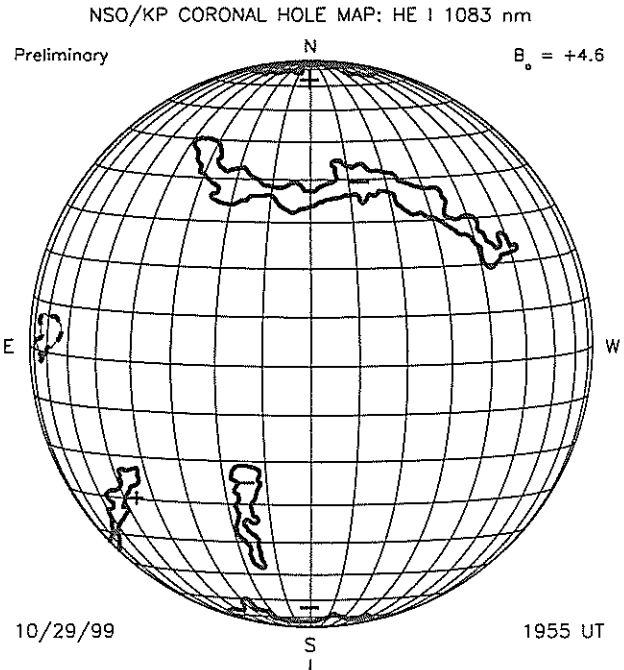


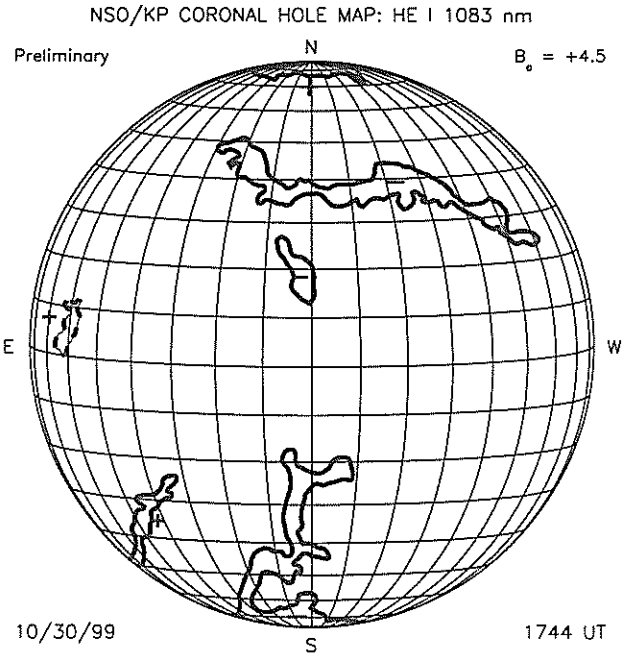


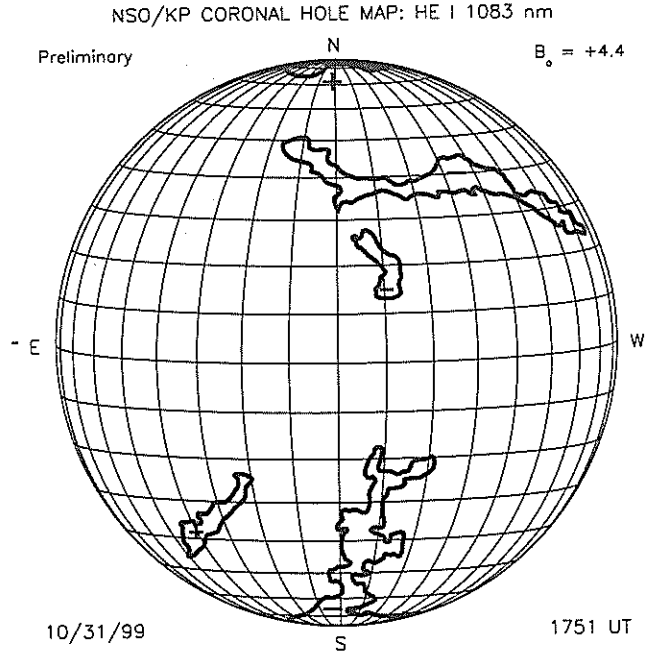


KITT PEAK CORONAL HOLE MAPS HE I 1083 nm
October 1999





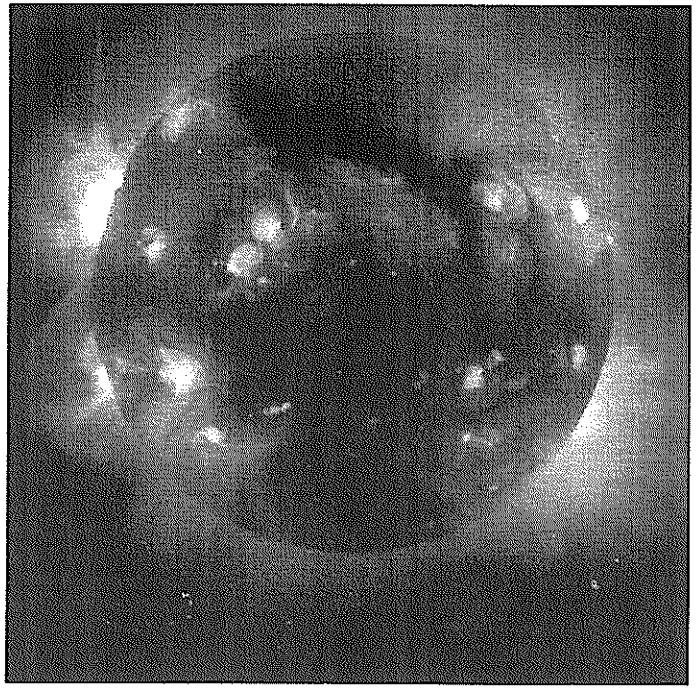




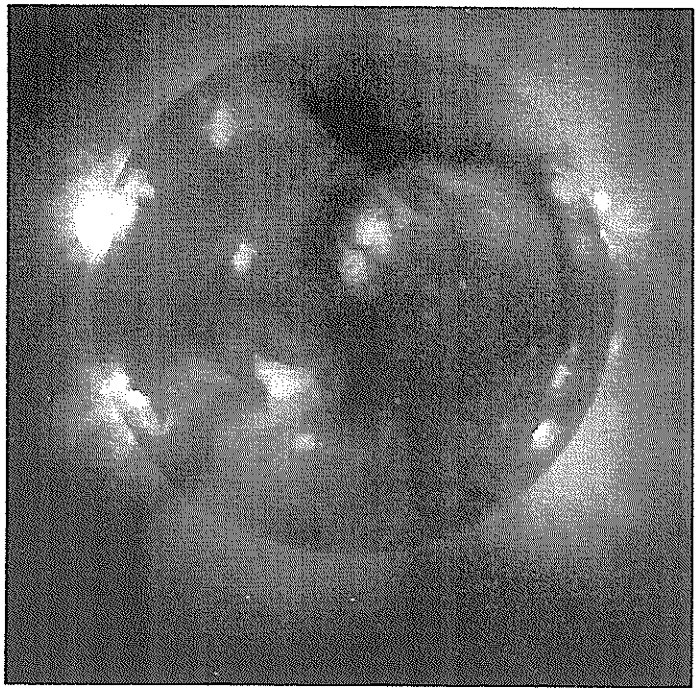
Oct 99
87

YOHKOH SOFT X-RAY TELESCOPE IMAGES

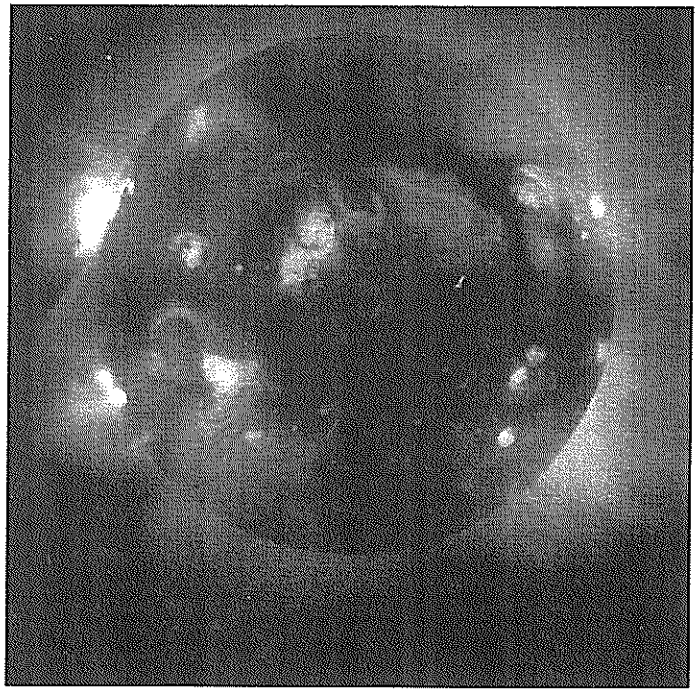
October
1999



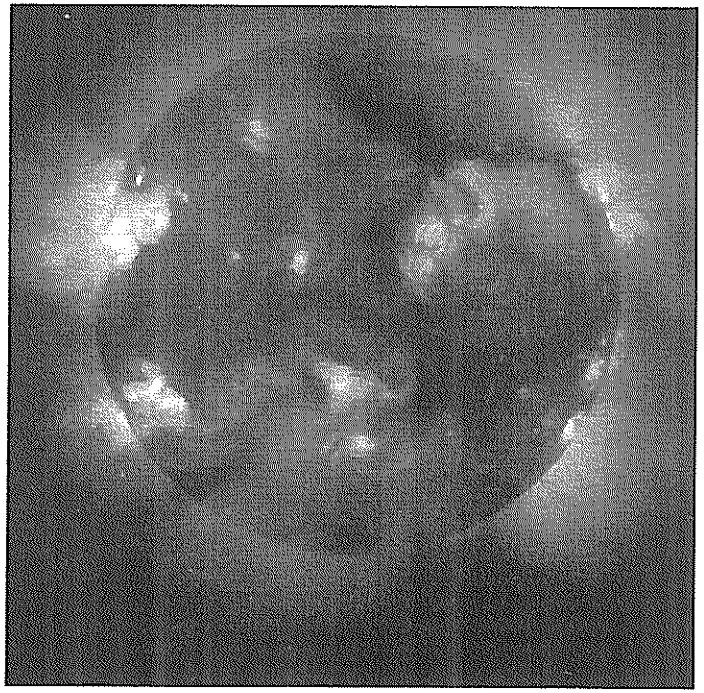
Day 1
14:48:25 UT



Day 3
12:01:47 UT



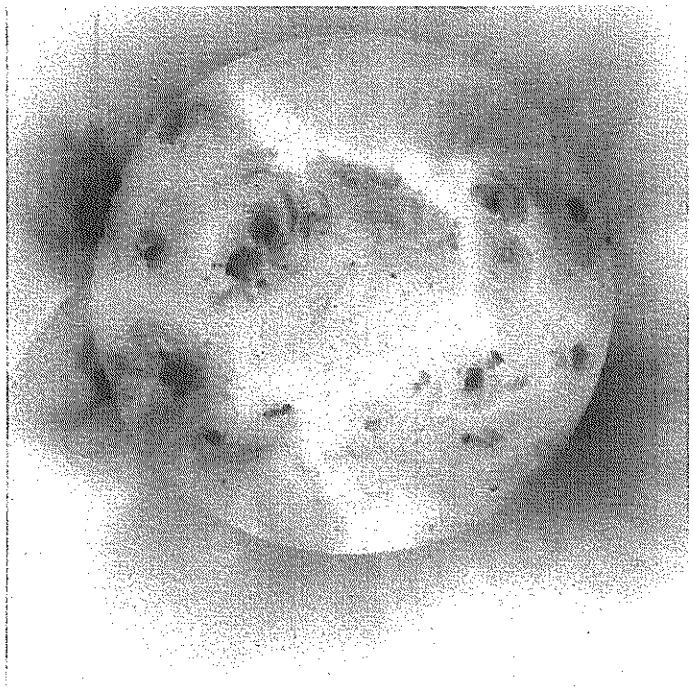
Day 2
11:45:33 UT



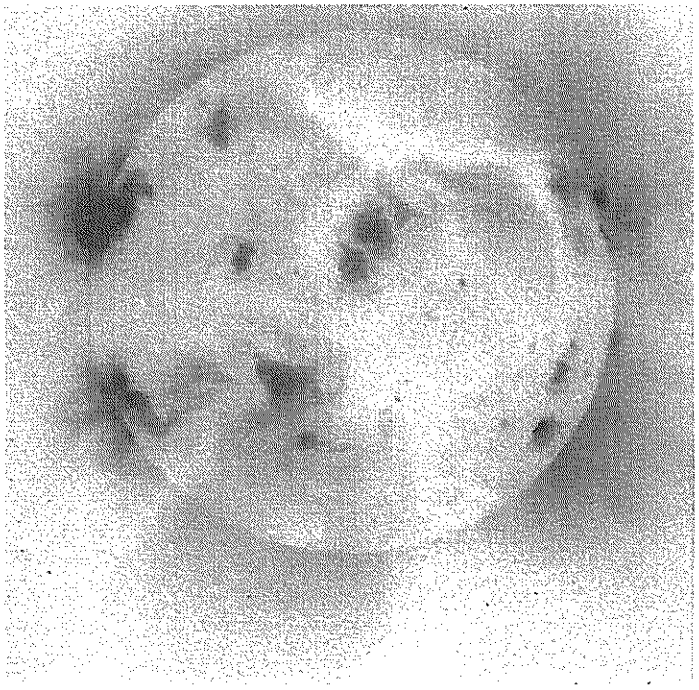
Day 4
11:23:09 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

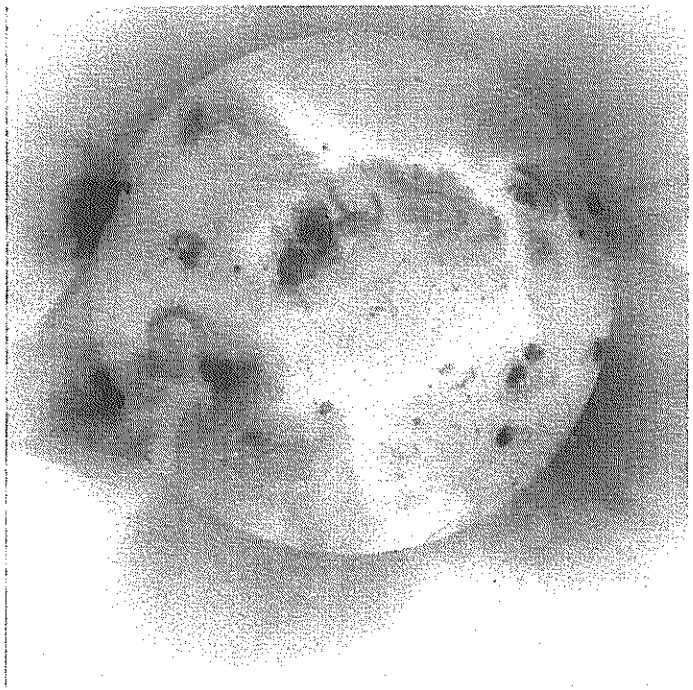
October 1999



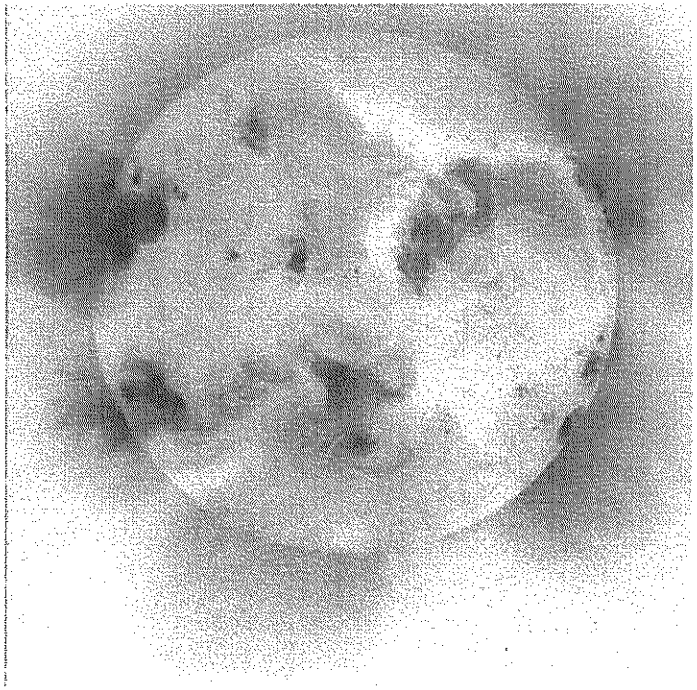
Day 1
14:48:25 UT



Day 3
12:01:47 UT



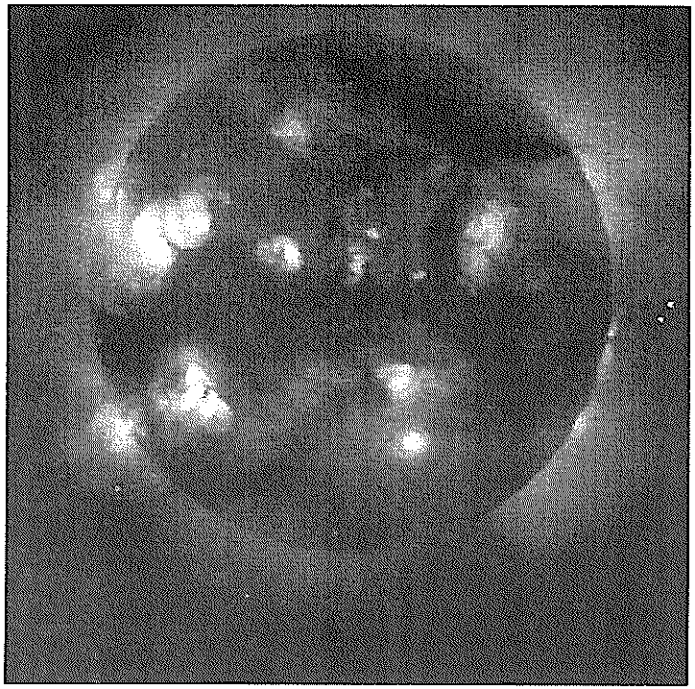
Day 2
11:45:33 UT



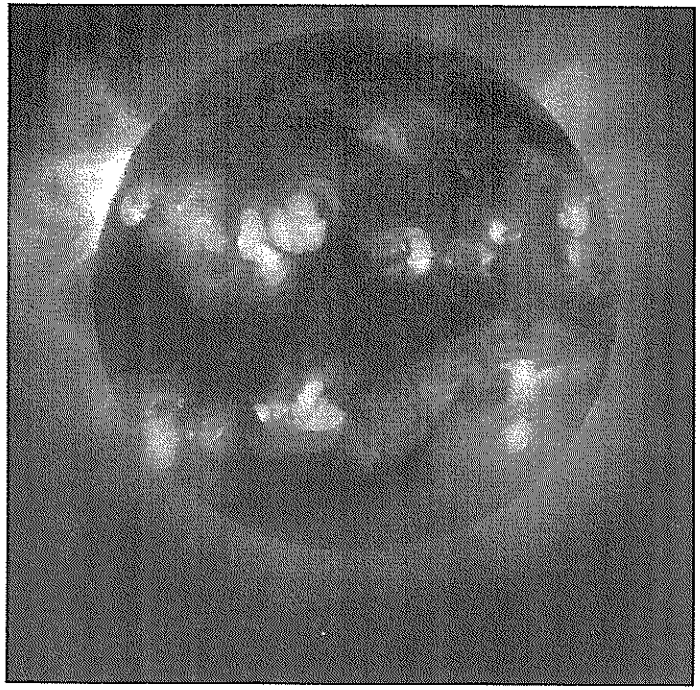
Day 4
11:23:09 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

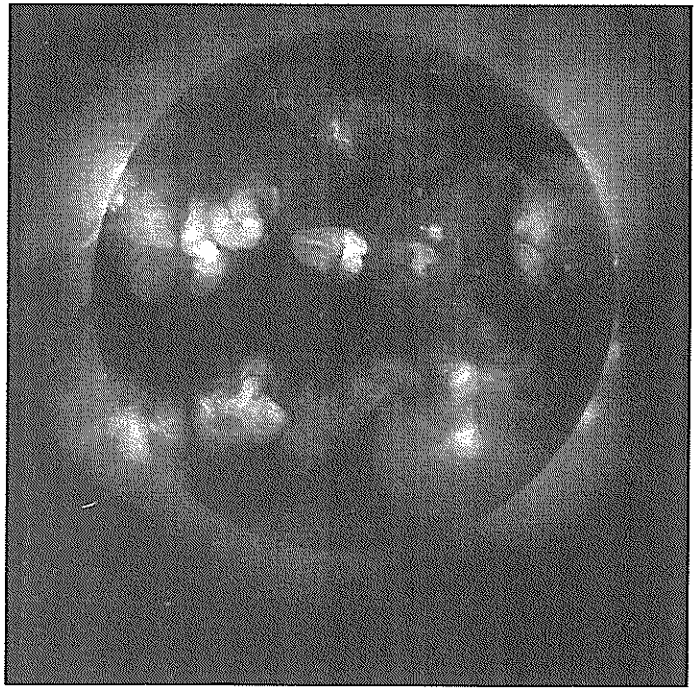
October 1999



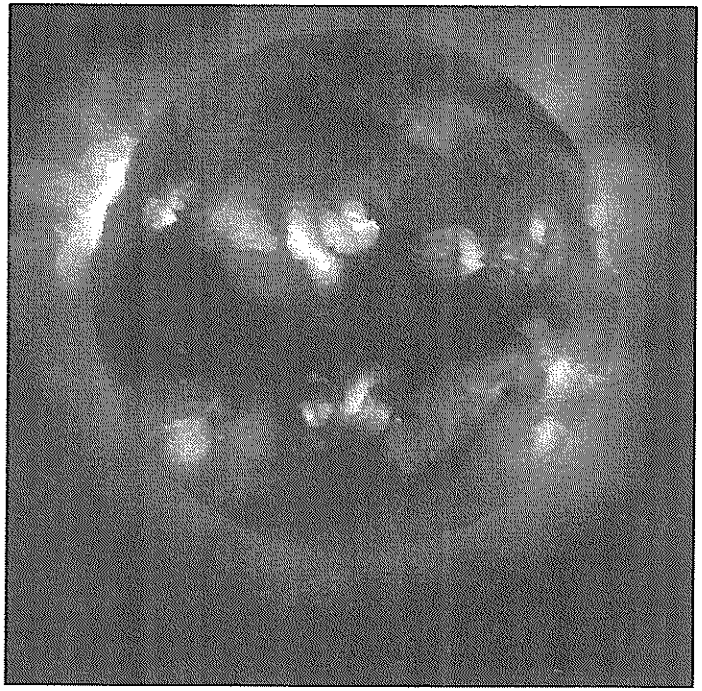
Day 5
12:12:59 UT



Day 7
14:17:48 UT



Day 6
12:26:54 UT

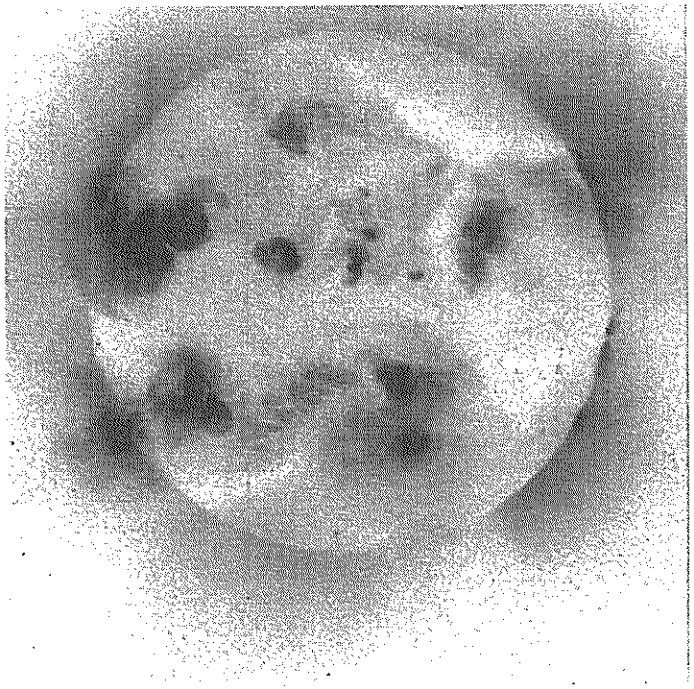


Day 8
11:29:22 UT

90
Oct 99

YOHKOH SOFT X-RAY TELESCOPE IMAGES

October 1999



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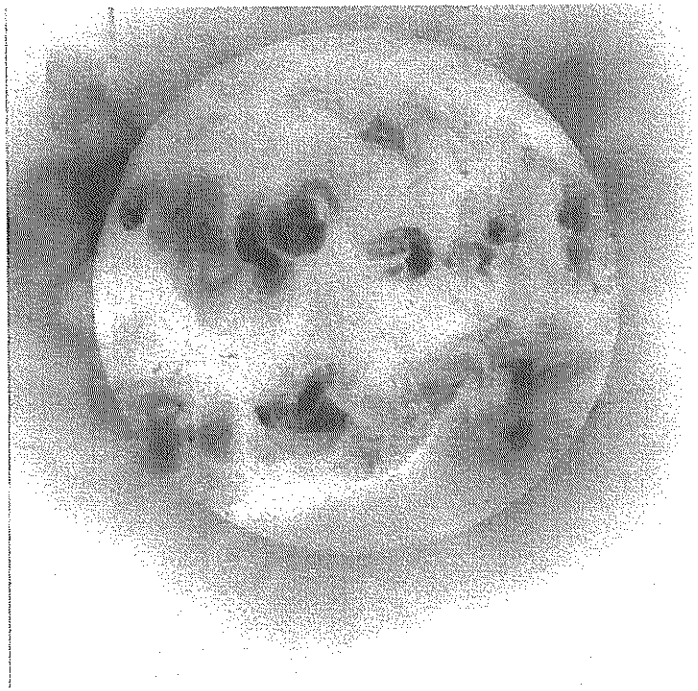
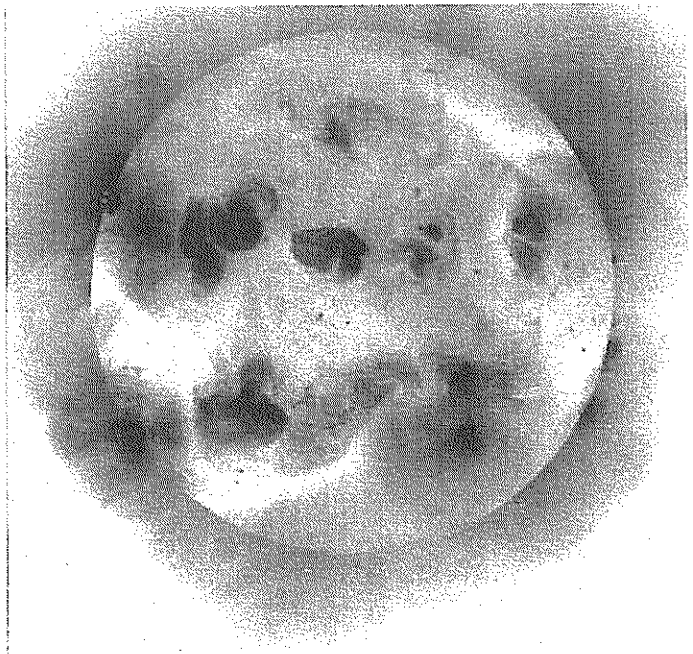


Day 7
14:17:48 UT



Day 6
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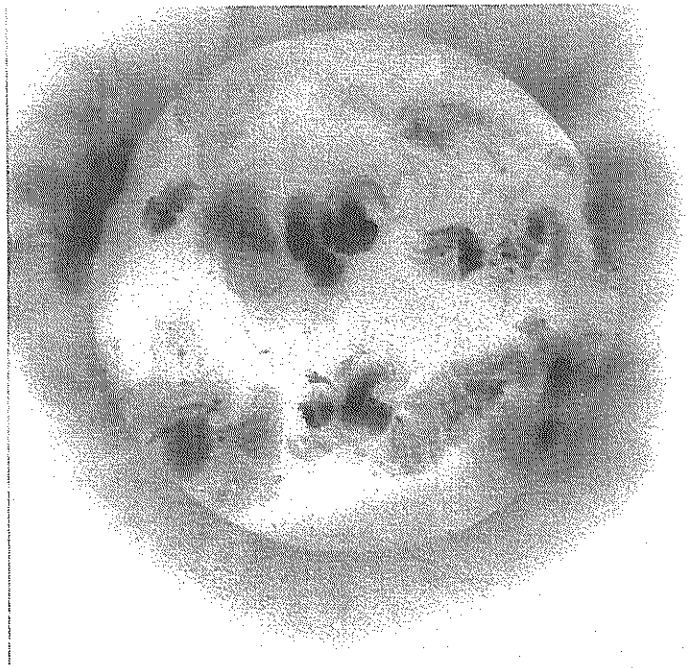
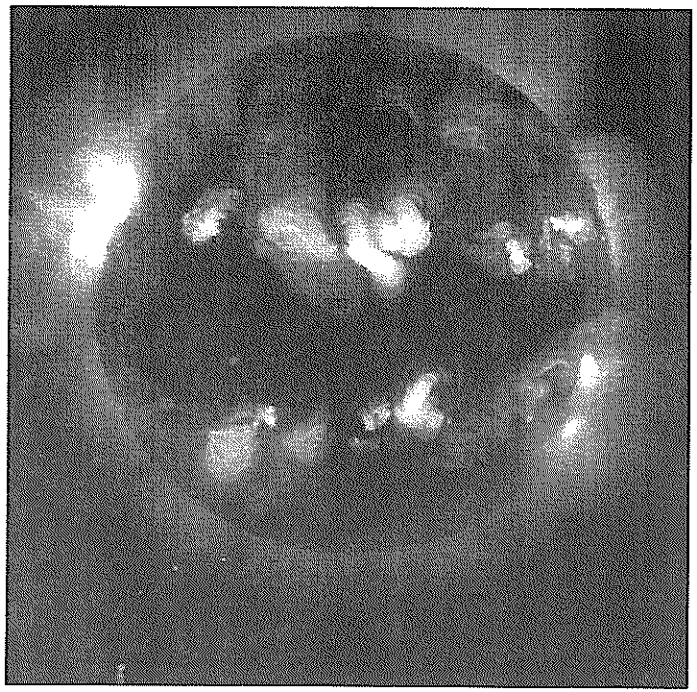


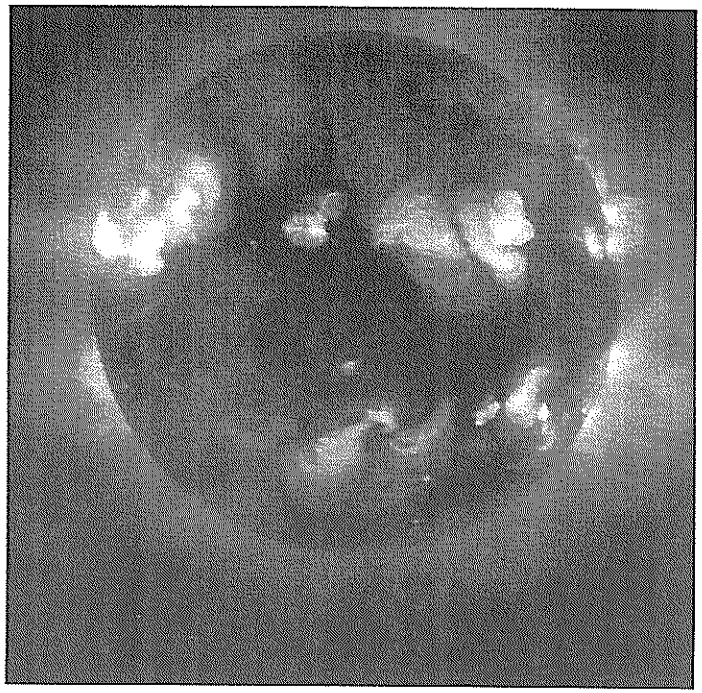
Day 8
11:29:22 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

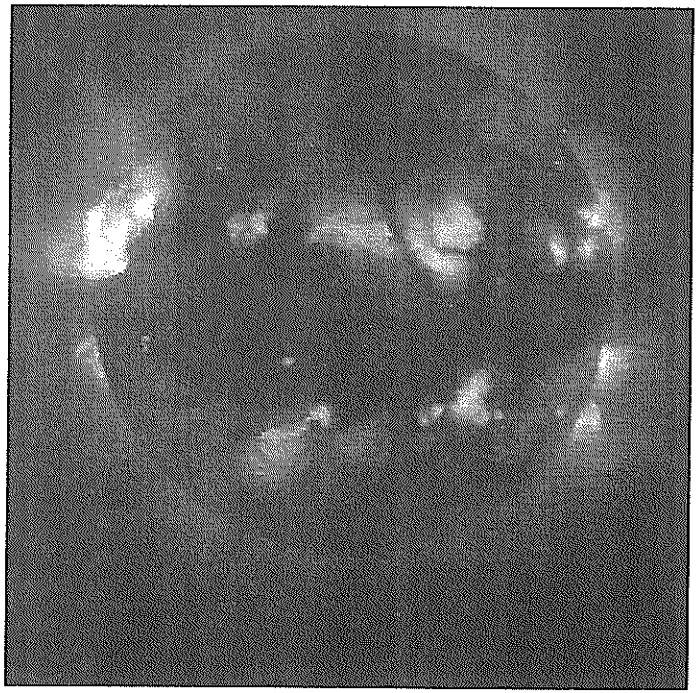
October
1999



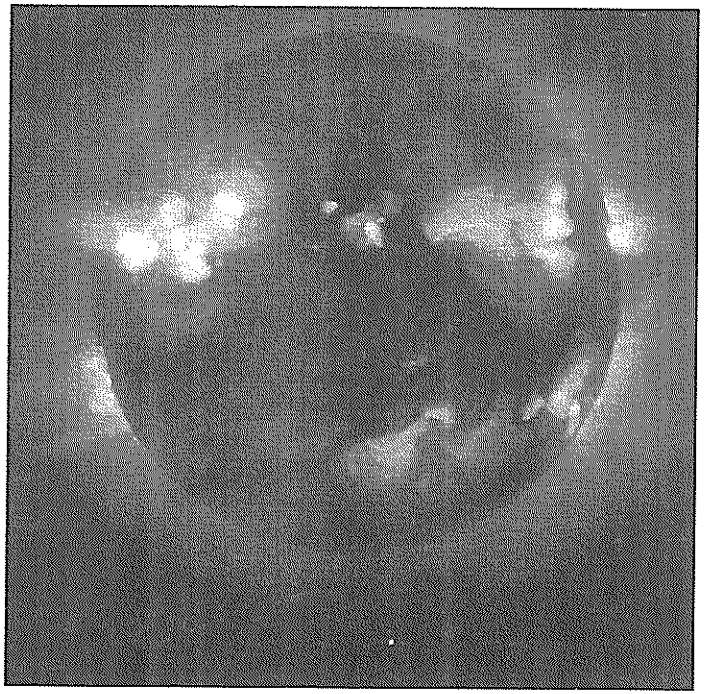
Day 9
11:38:34 UT



Day 11
12:01:51 UT



Day 10
11:55:06 UT



Day 12
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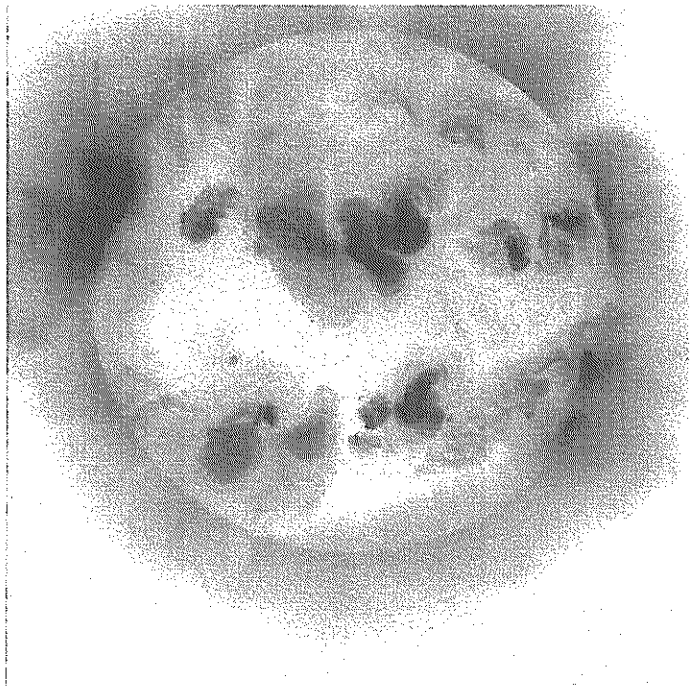
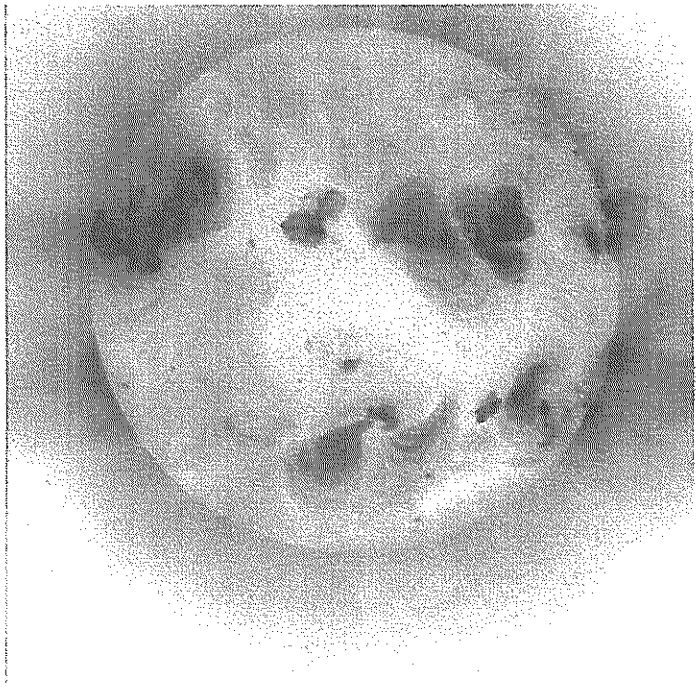
YOHKOH SOFT X-RAY TELESCOPE IMAGES

October 1999



Day 9
11:38:34 UT



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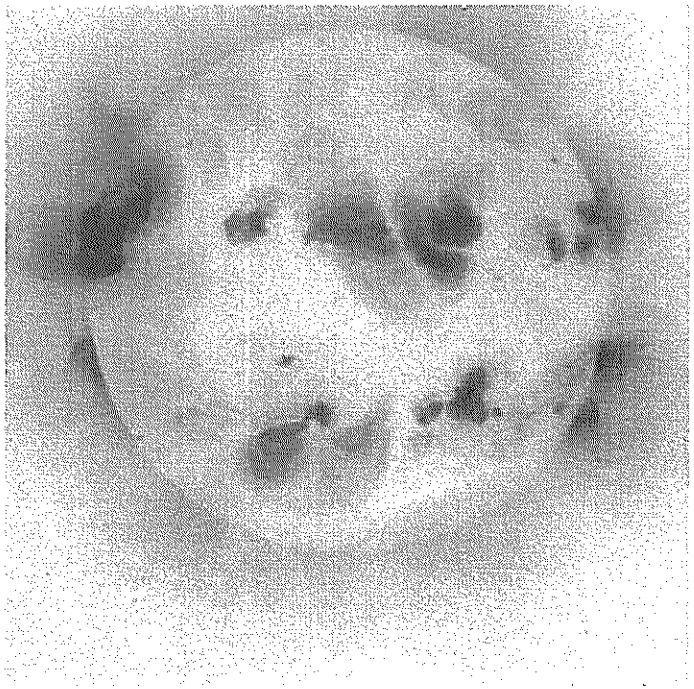

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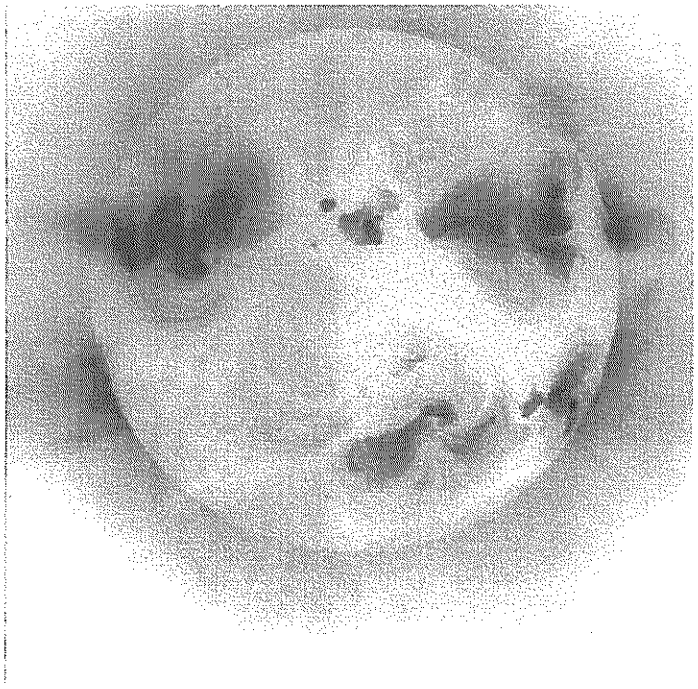
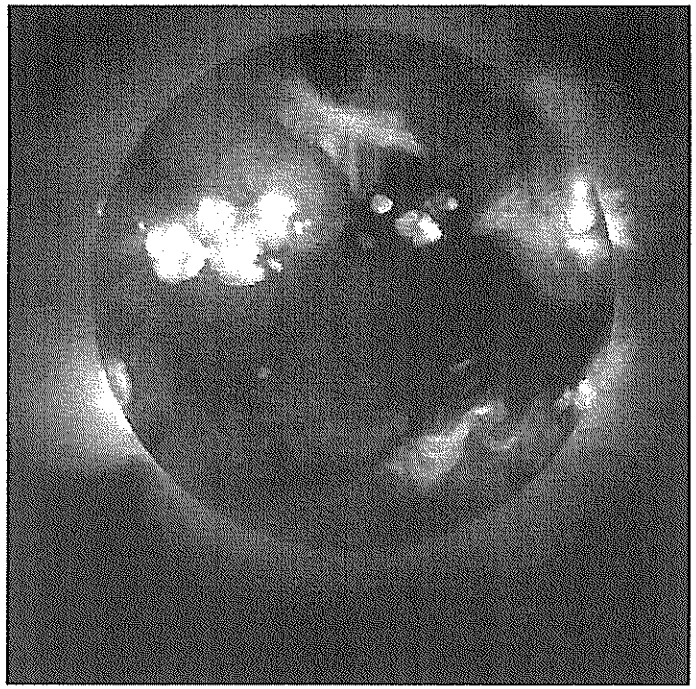


Day 12
12:14:43 UT

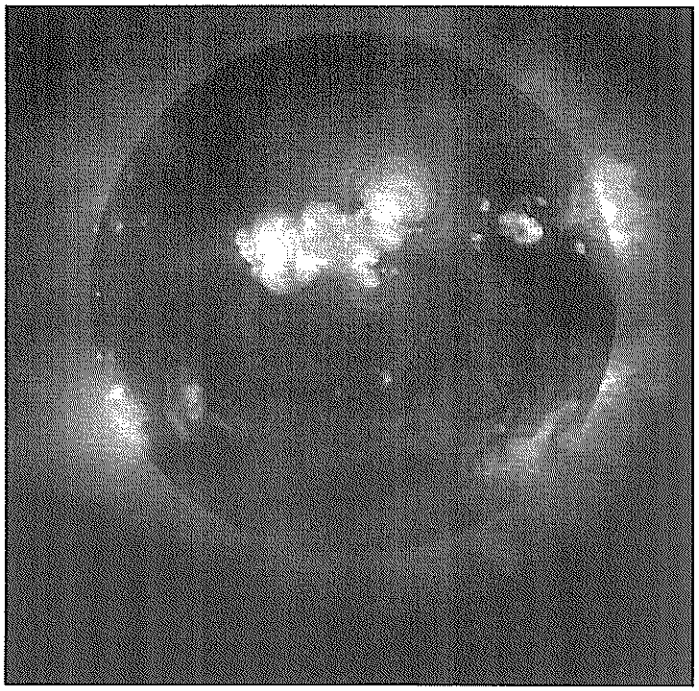
93
Oct 99

YOHKOH SOFT X-RAY TELESCOPE IMAGES

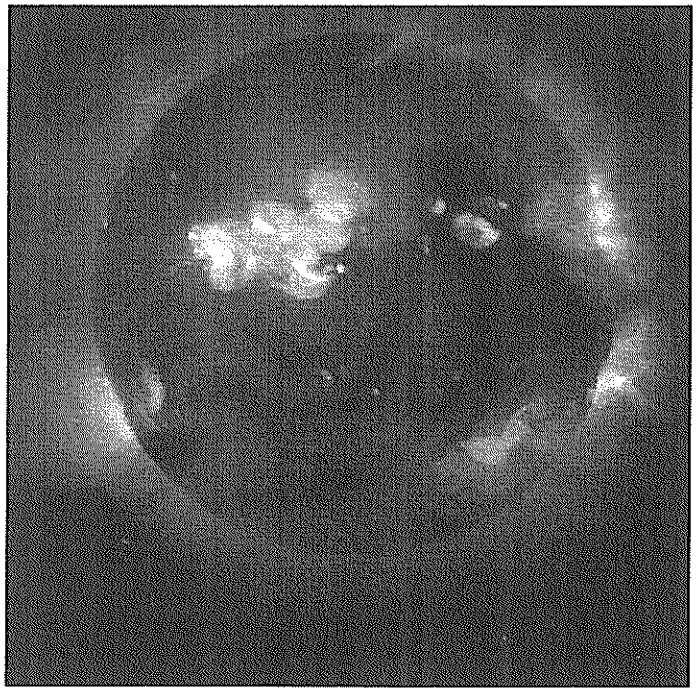
October
1999



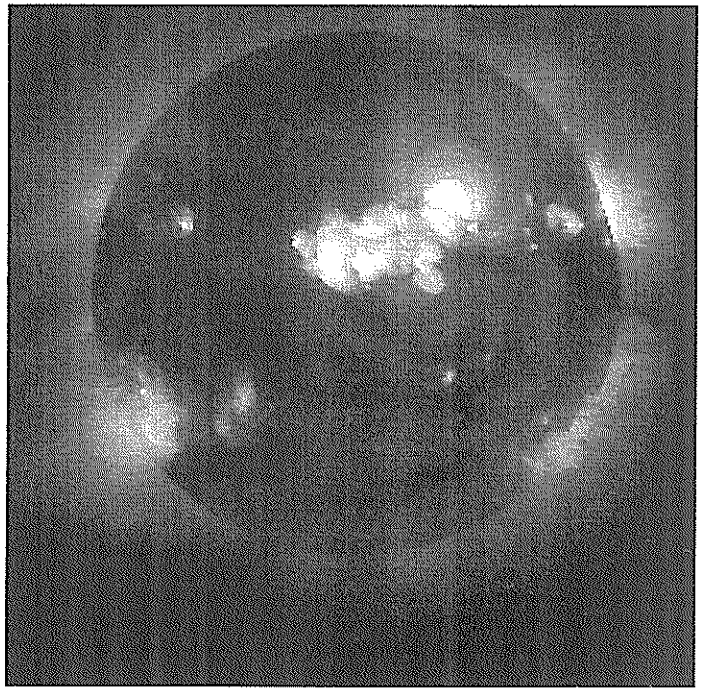
Day 13
12:17:07 UT



Day 15
11:20:01 UT



Day 14
12:34:21 UT



Day 16
11:38:48 UT

YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

October
1999

Day 13
12:17:07 UT

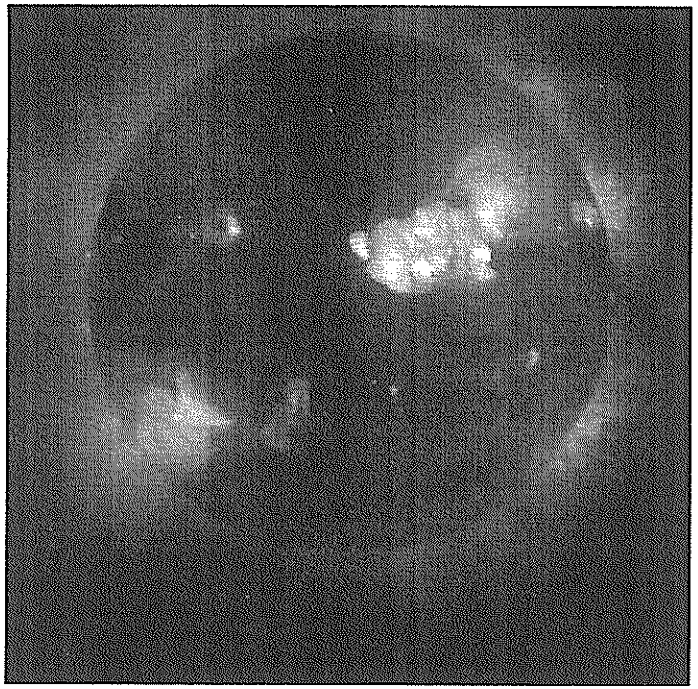
Day 15
11:20:01 UT

Day 14
12:34:21 UT

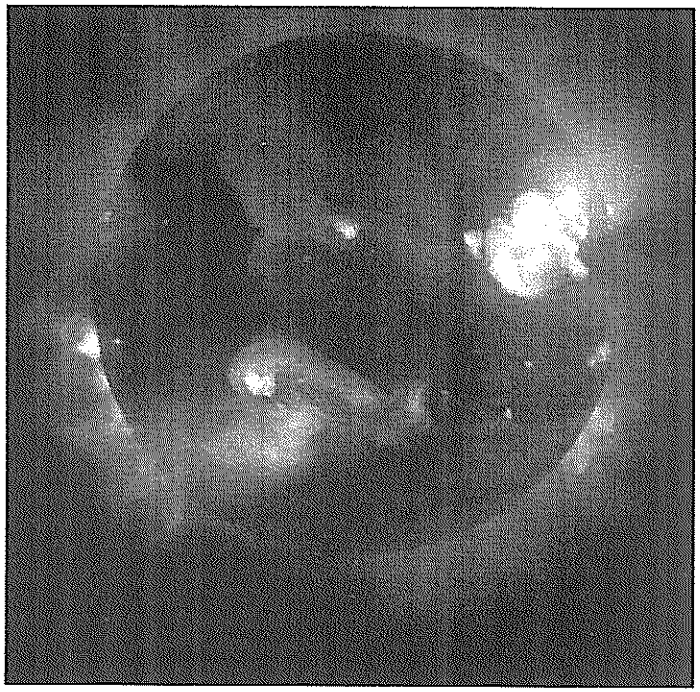
Day 16
11:38:48 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

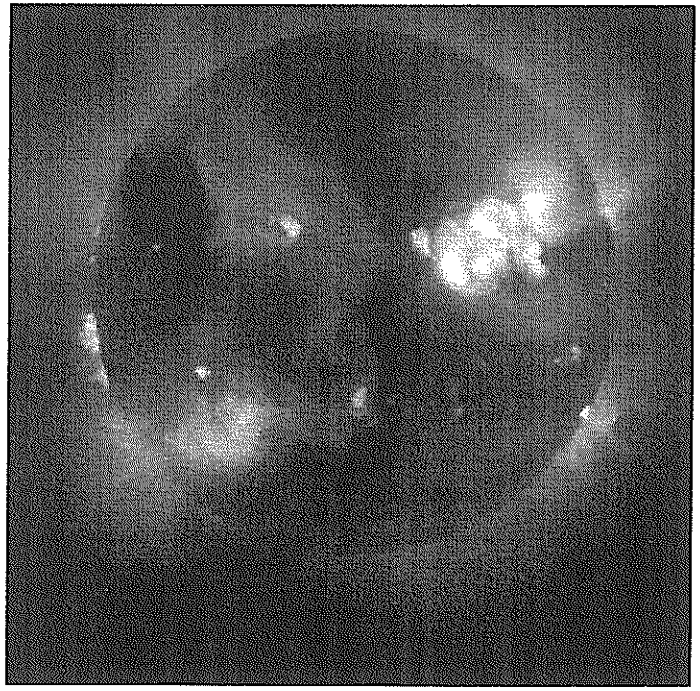
October 1999



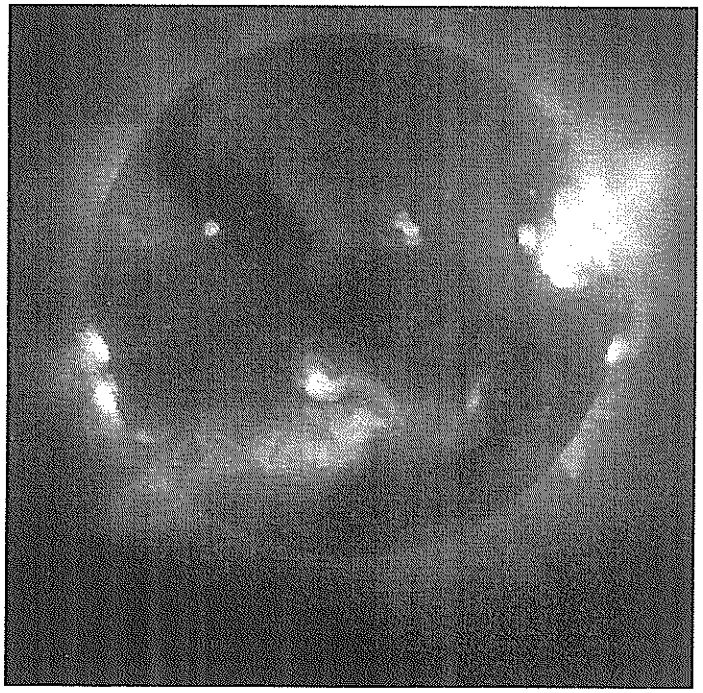
Day 17
12:34:00 UT



Day 19
10:21:24 UT



Day 18
11:48:24 UT

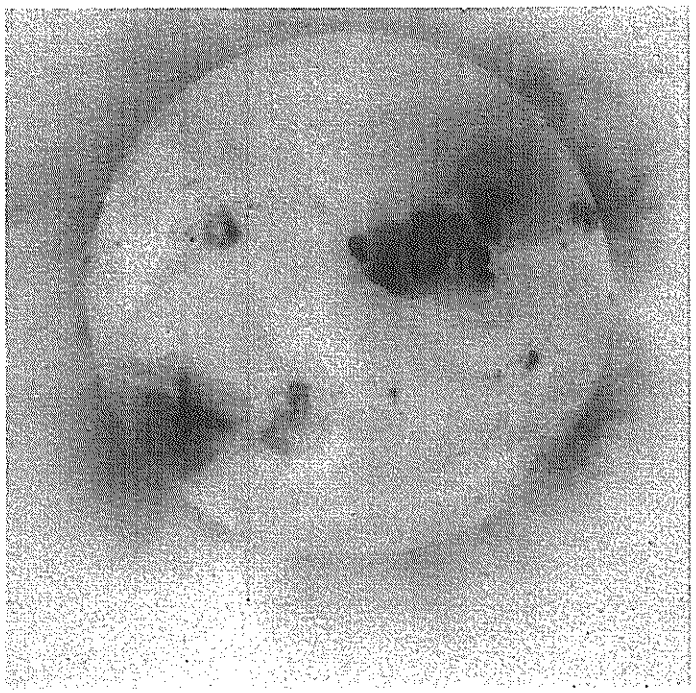


Day 20
13:11:04 UT

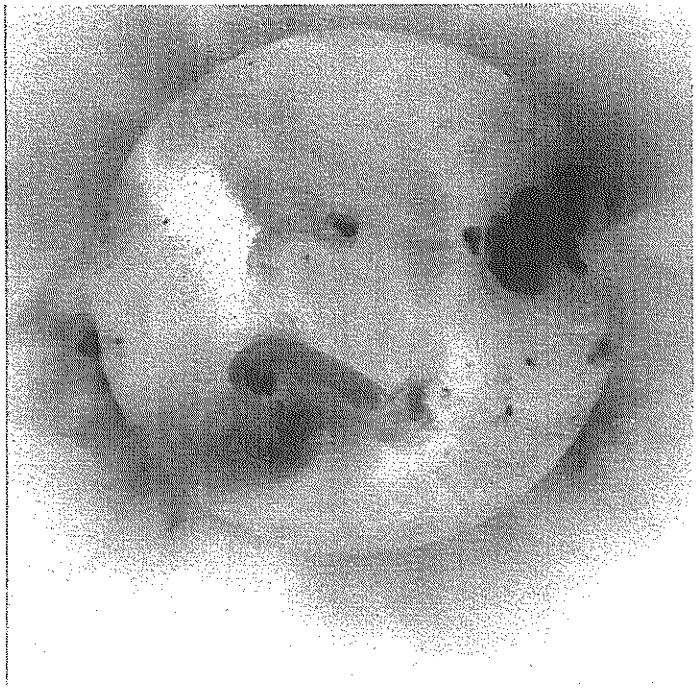
96
Oct 99

YOHKOH SOFT X-RAY TELESCOPE IMAGES

October 1999

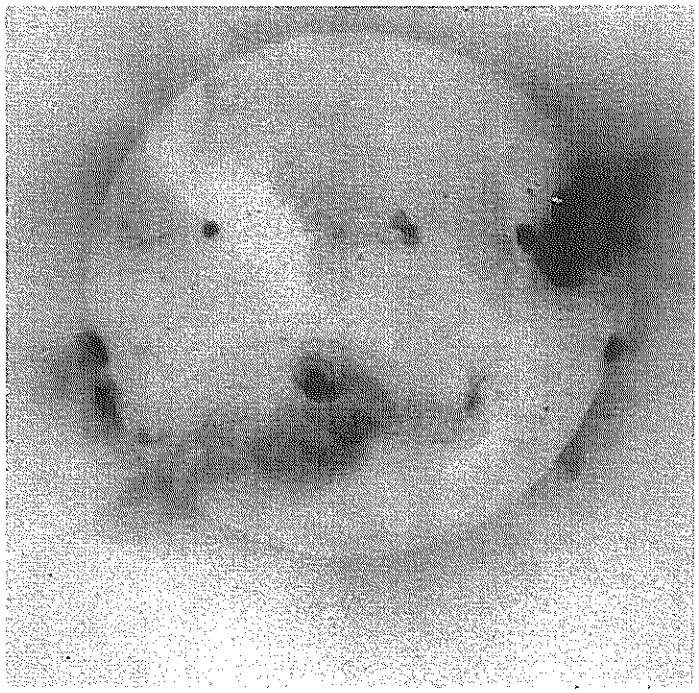


Day 17
12:34:00 UT



Day 19
10:21:24 UT

Day 18
11:48:24 UT

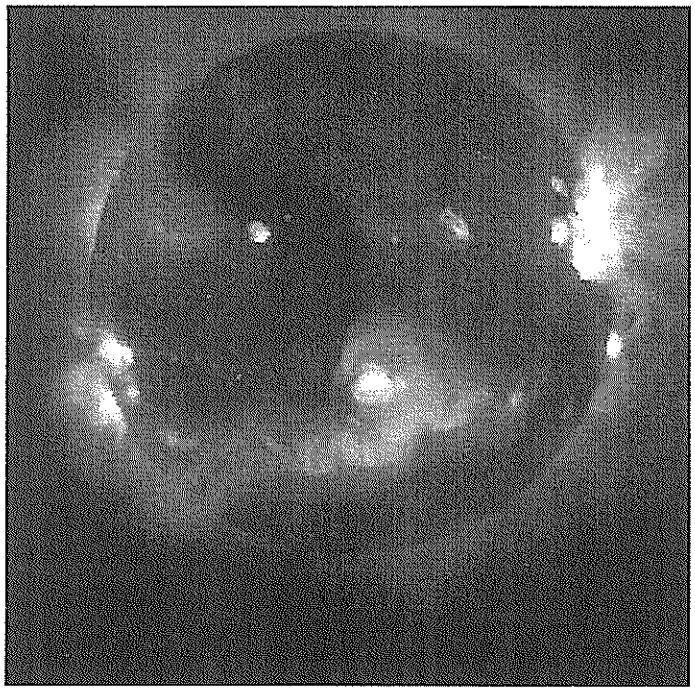


Day 20
13:11:04 UT

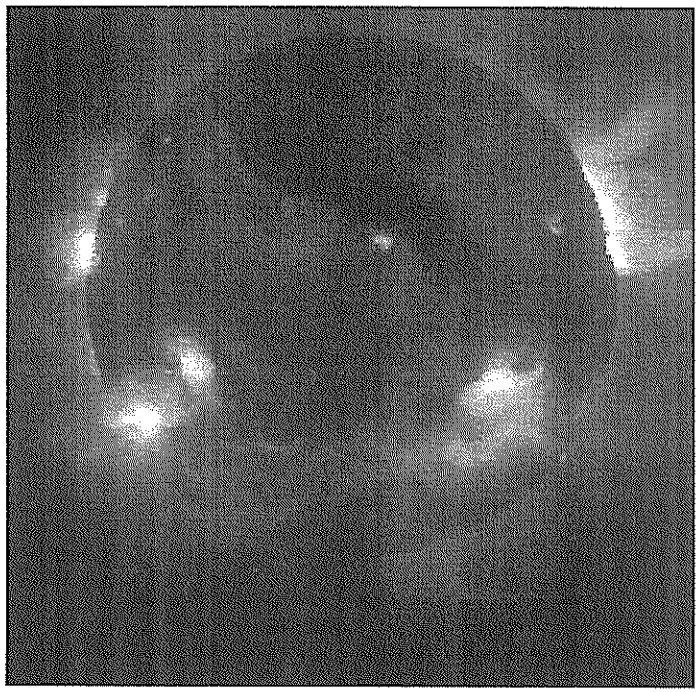
97
Oct 99

YOHKOH SOFT X-RAY TELESCOPE IMAGES

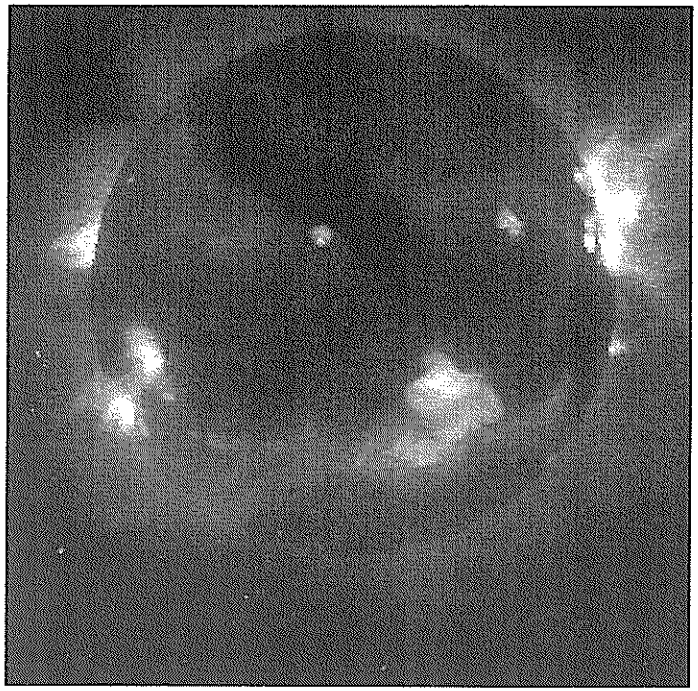
October
1999



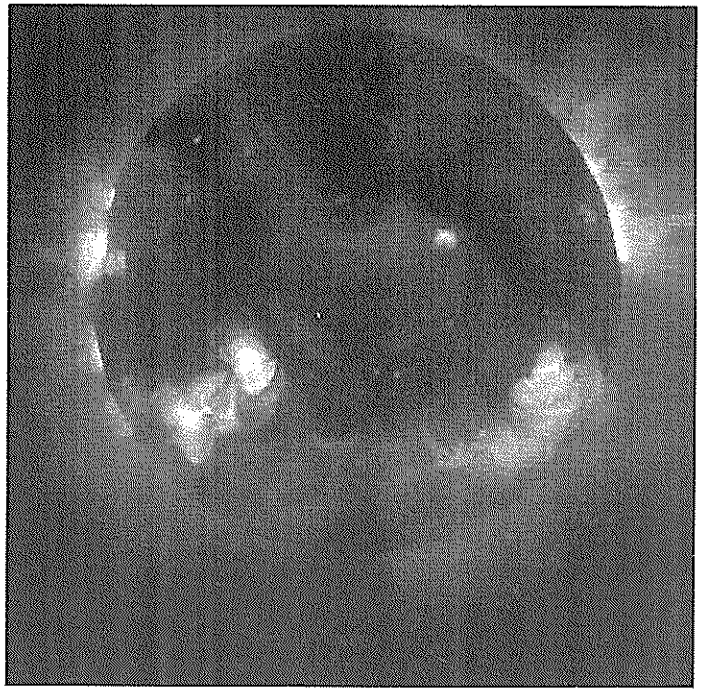
Day 21
10:33:11 UT



Day 23
12:12:23 UT



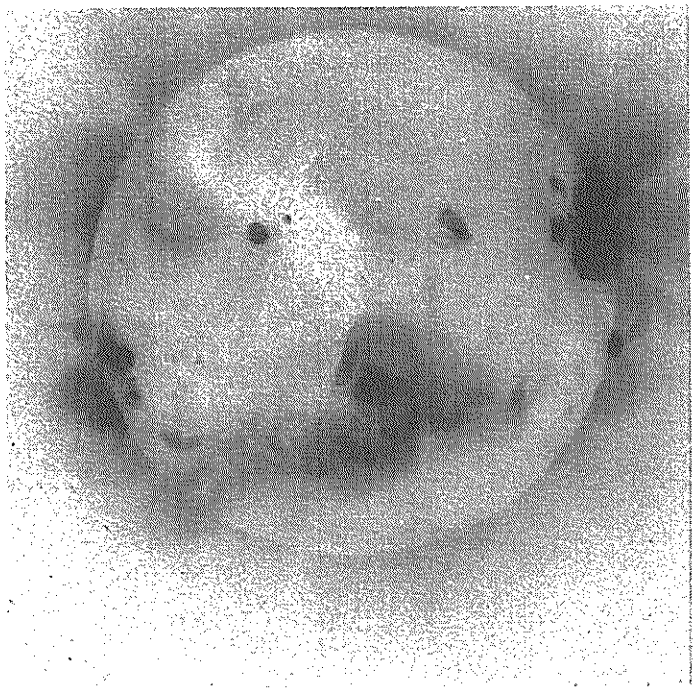
Day 22
11:13:11 UT



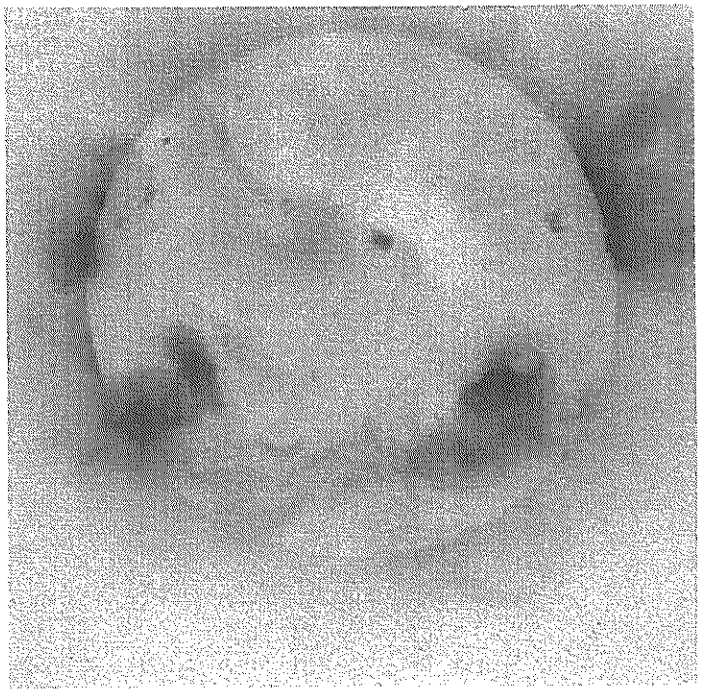
Day 24
11:42:41 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

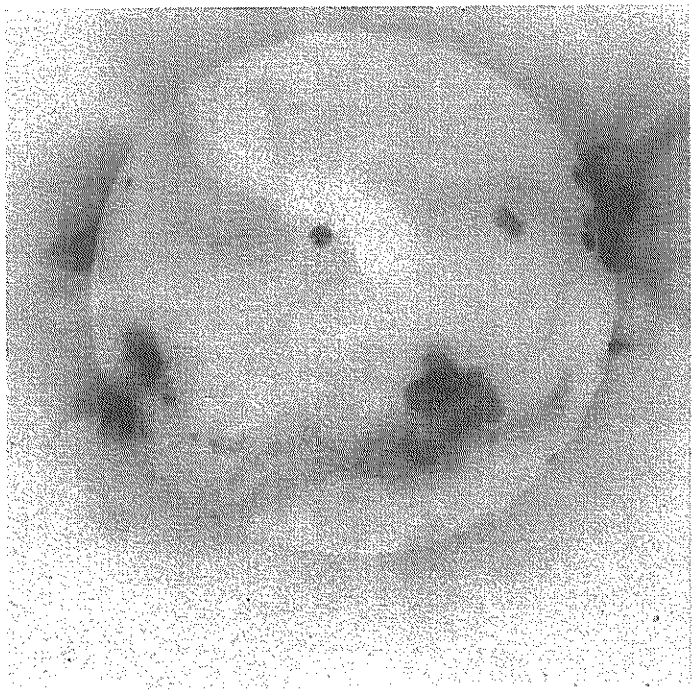
October 1999



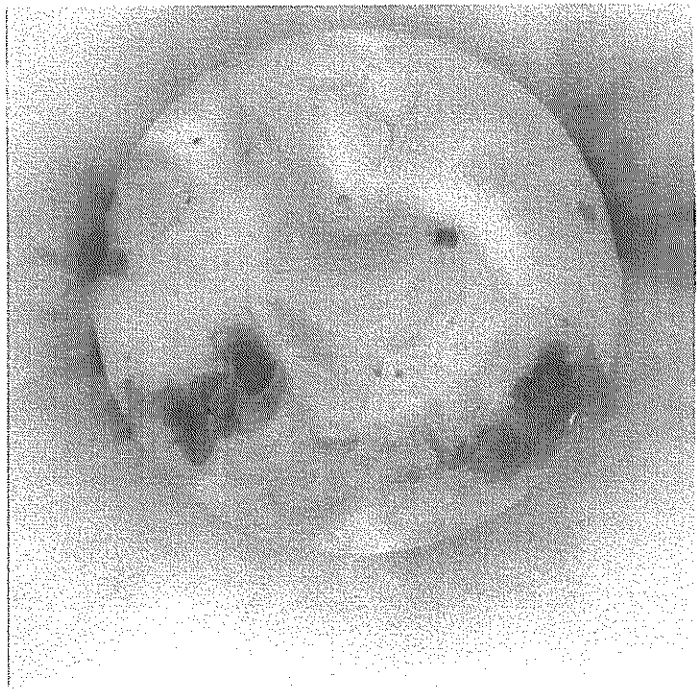
Day 21
10:33:11 UT



Day 23
12:12:23 UT



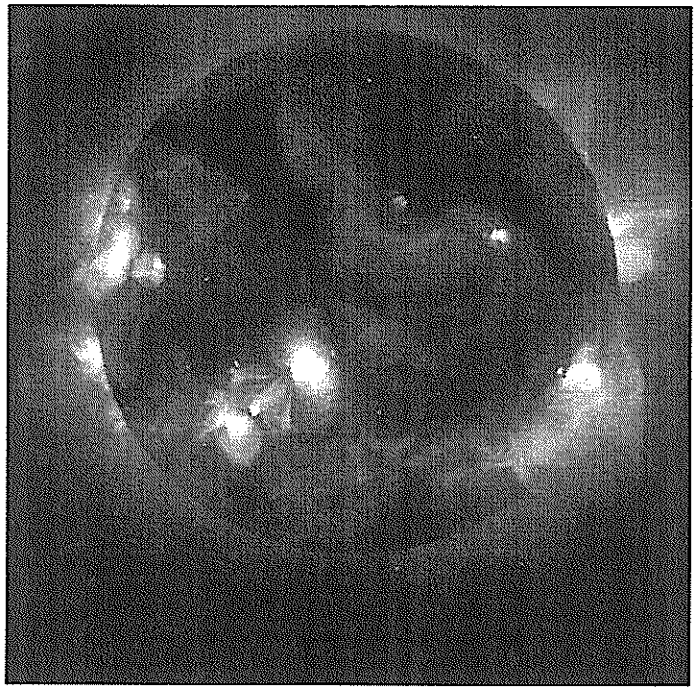
Day 22
11:13:11 UT



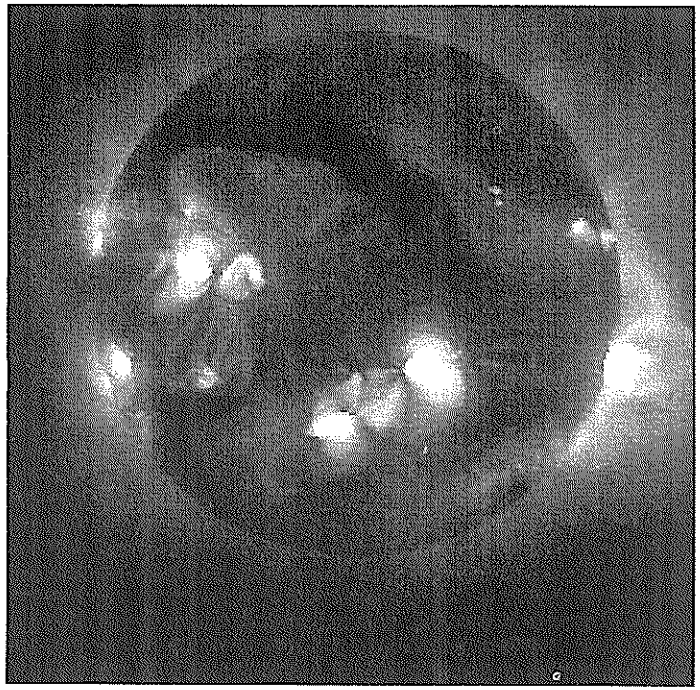
Day 24
11:42:41 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

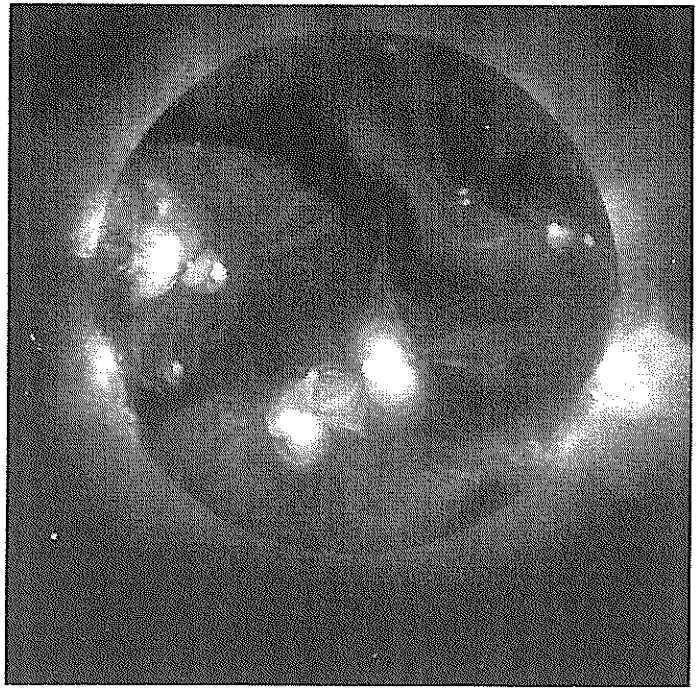
October
1999



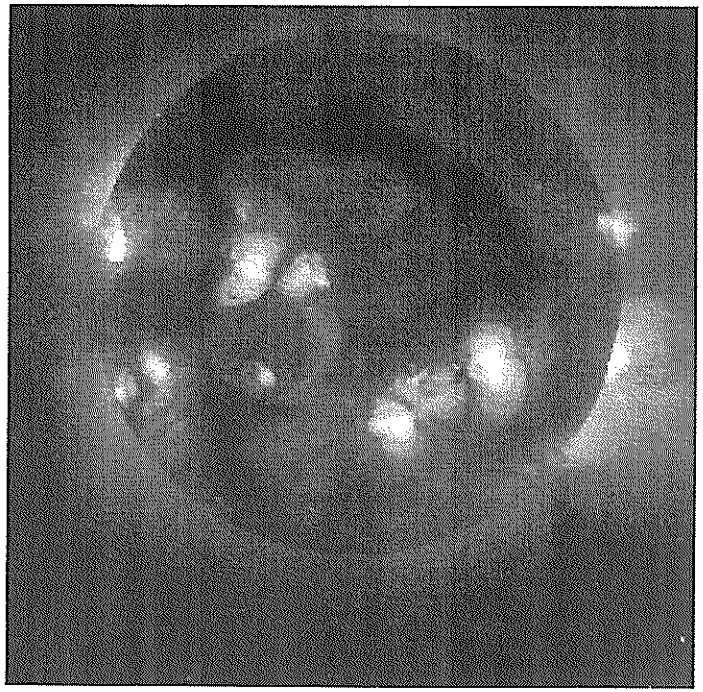
Day 25
12:00:03 UT



Day 27
10:21:10 UT



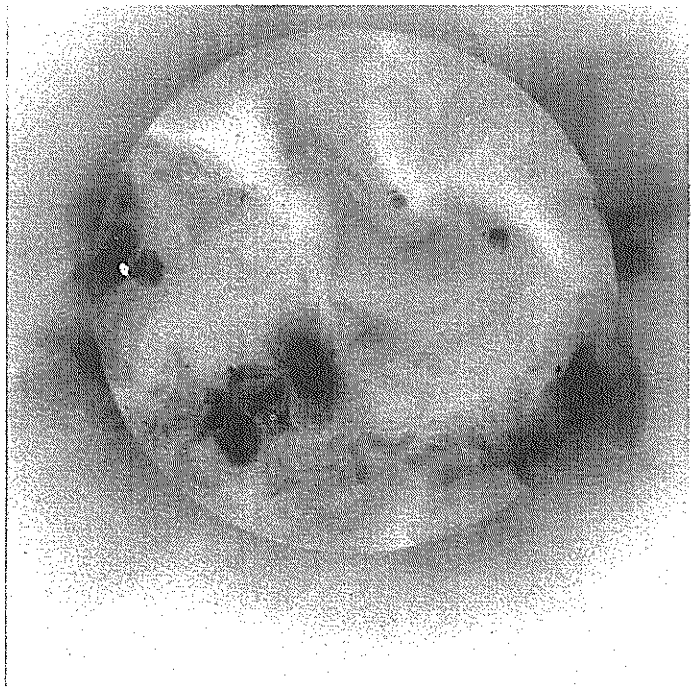
Day 26
18:07:36 UT



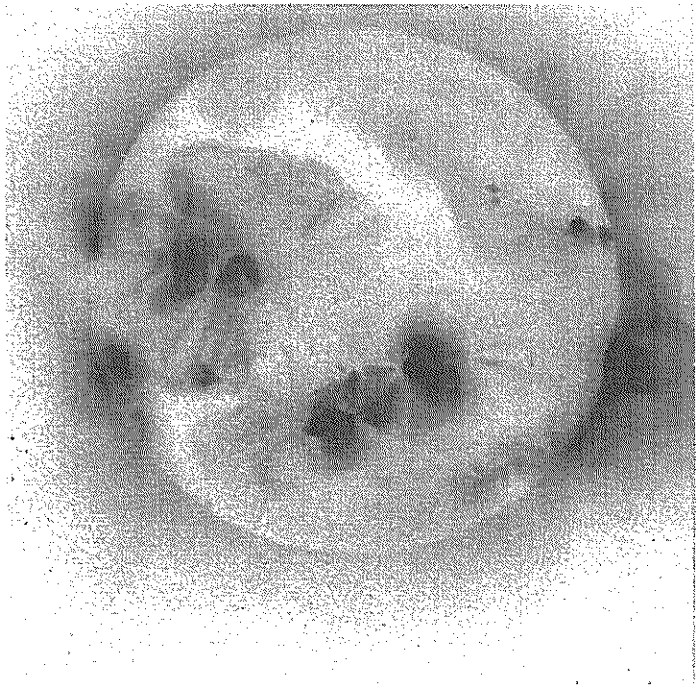
Day 28
12:03:50 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

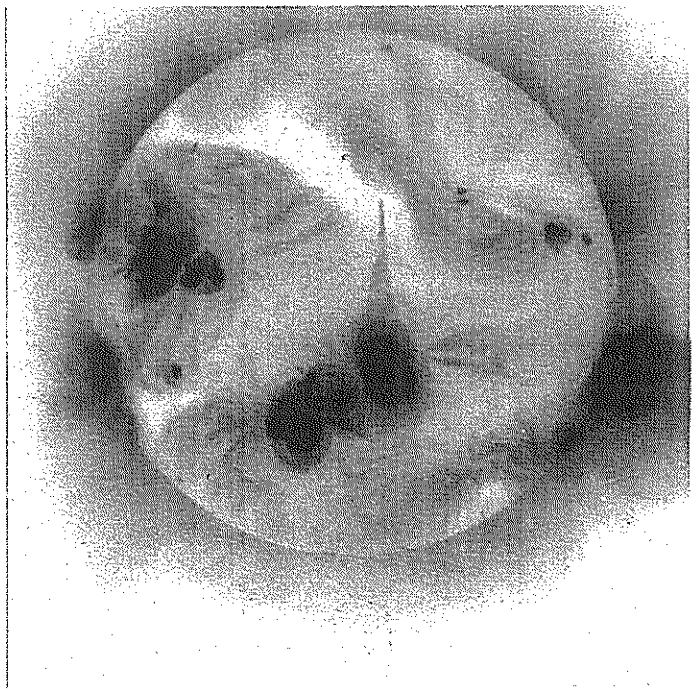
October 1999



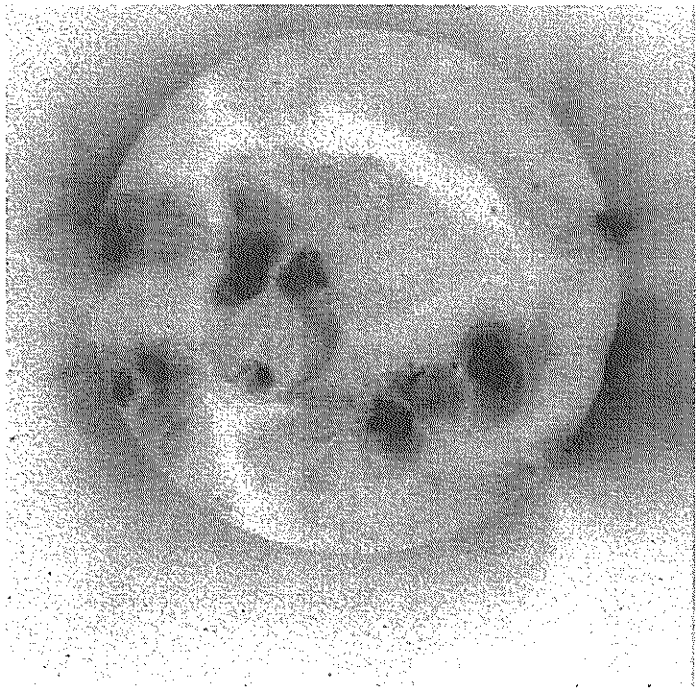
Day 25
12:00:03 UT



Day 27
10:21:10 UT



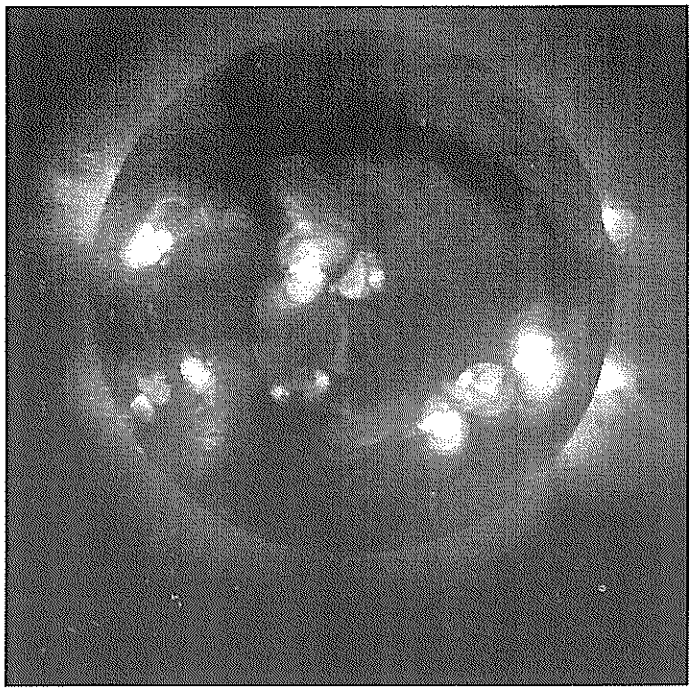
Day 26
18:07:36 UT



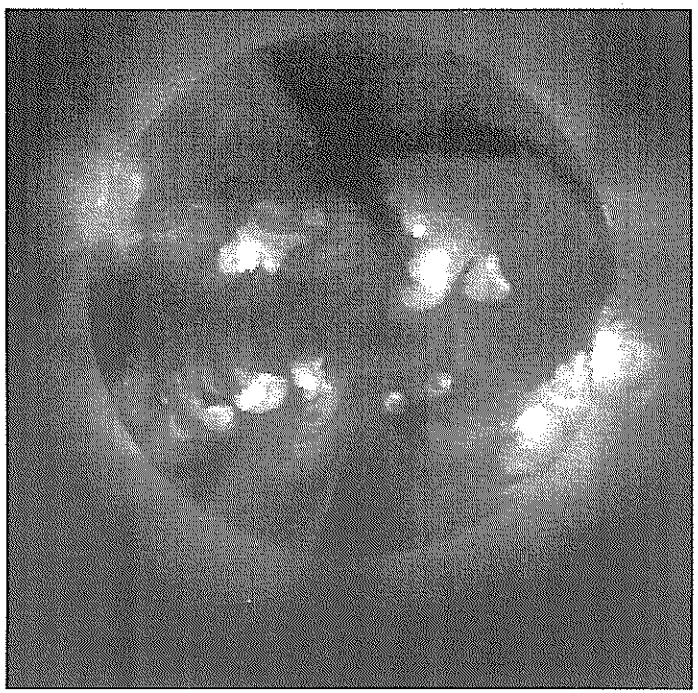
Day 28
12:03:50 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

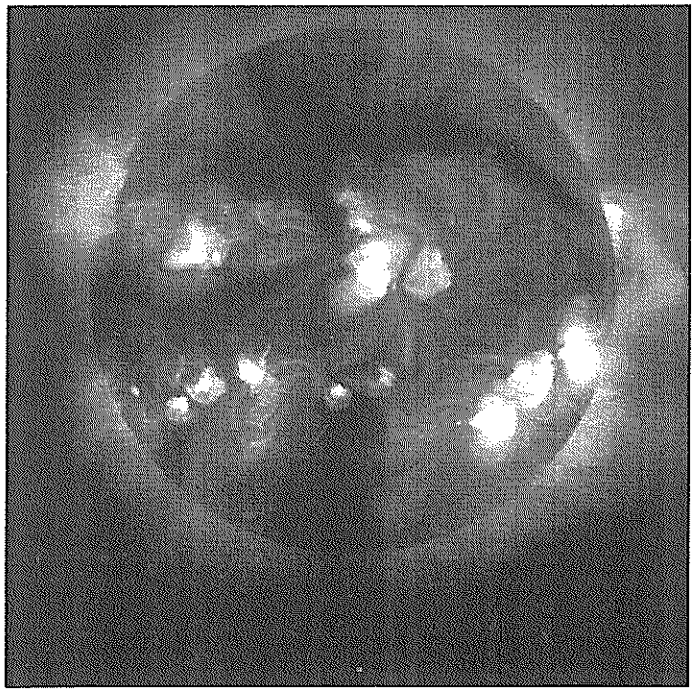
October
1999



Day 29
11:10:12 UT



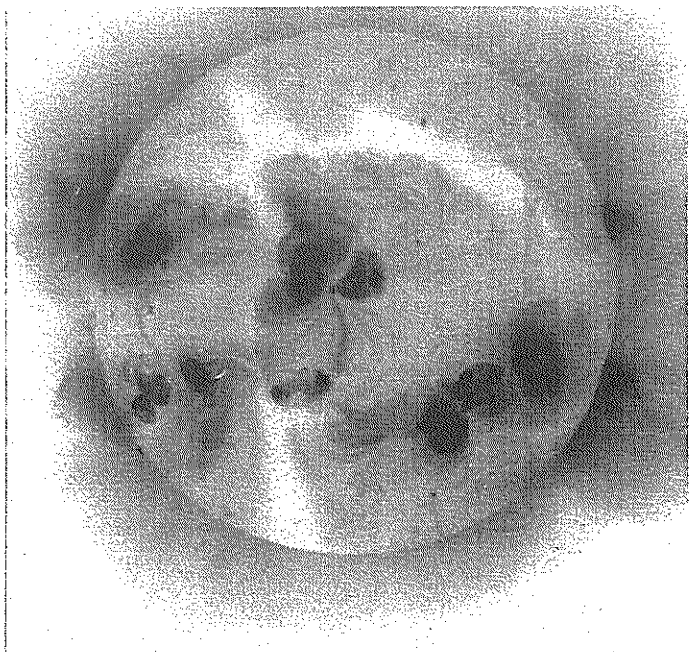
Day 31
11:44:05 UT



Day 30
12:25:39 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

October
1999



Day 29
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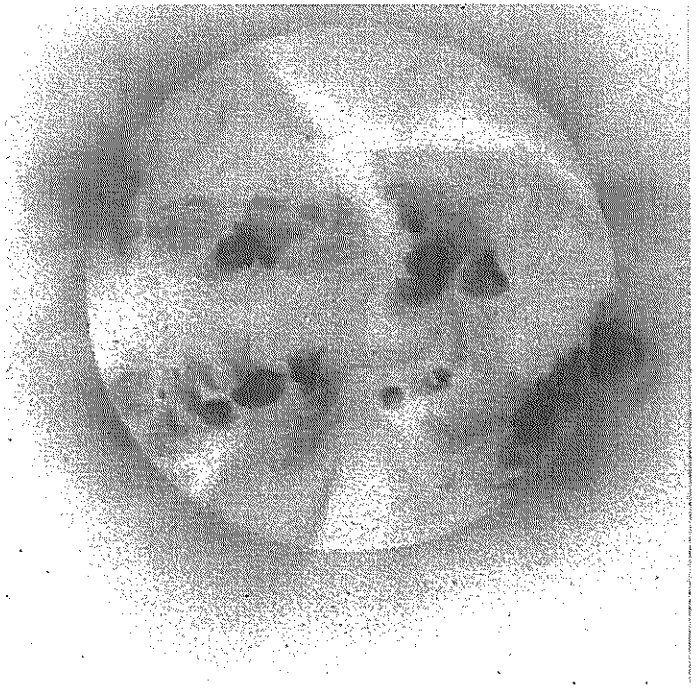
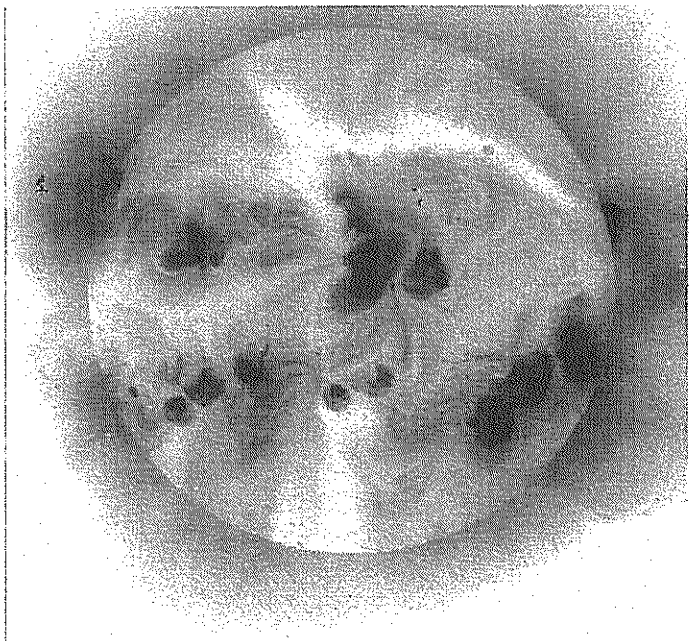
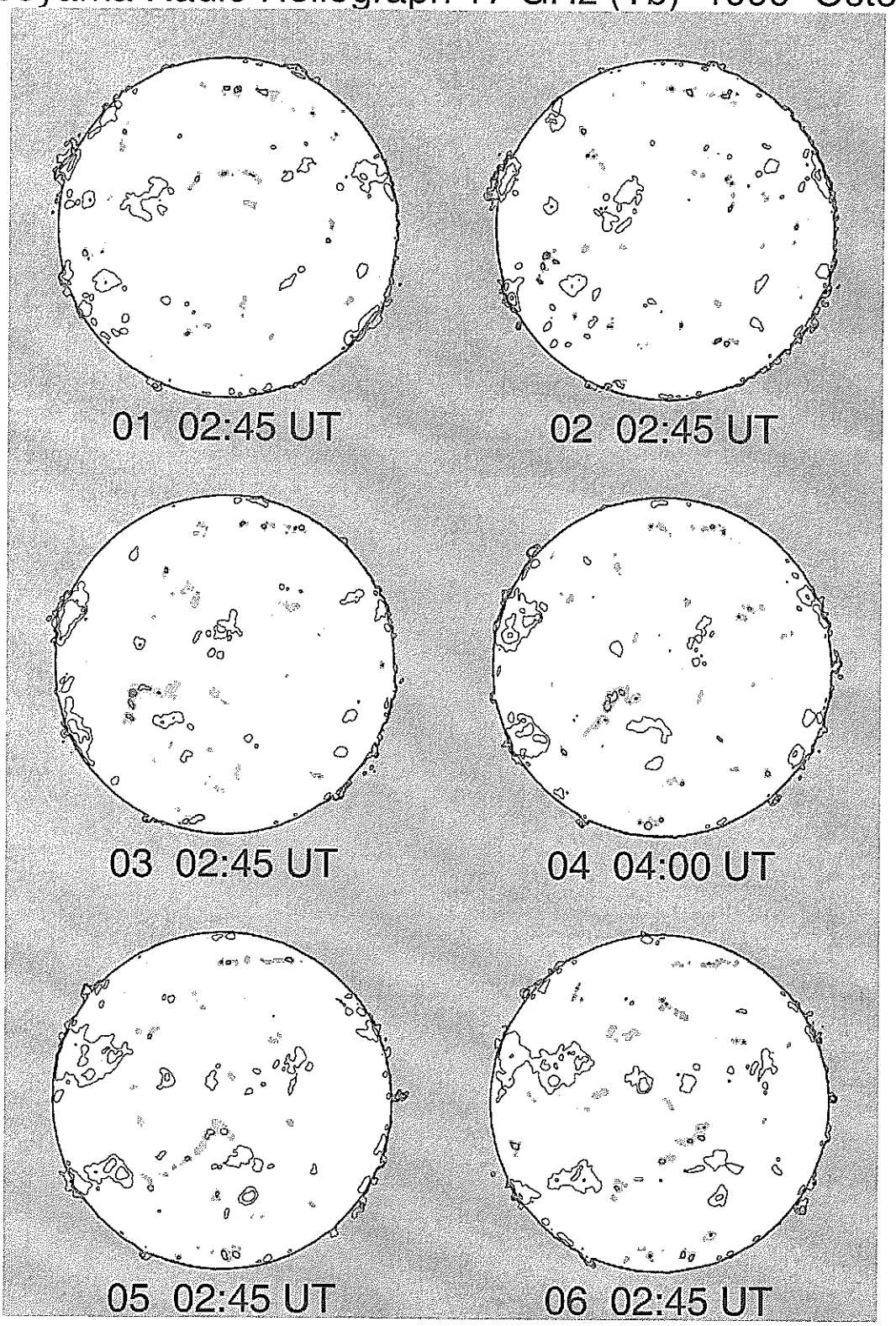


Day 31
11:44:05 UT



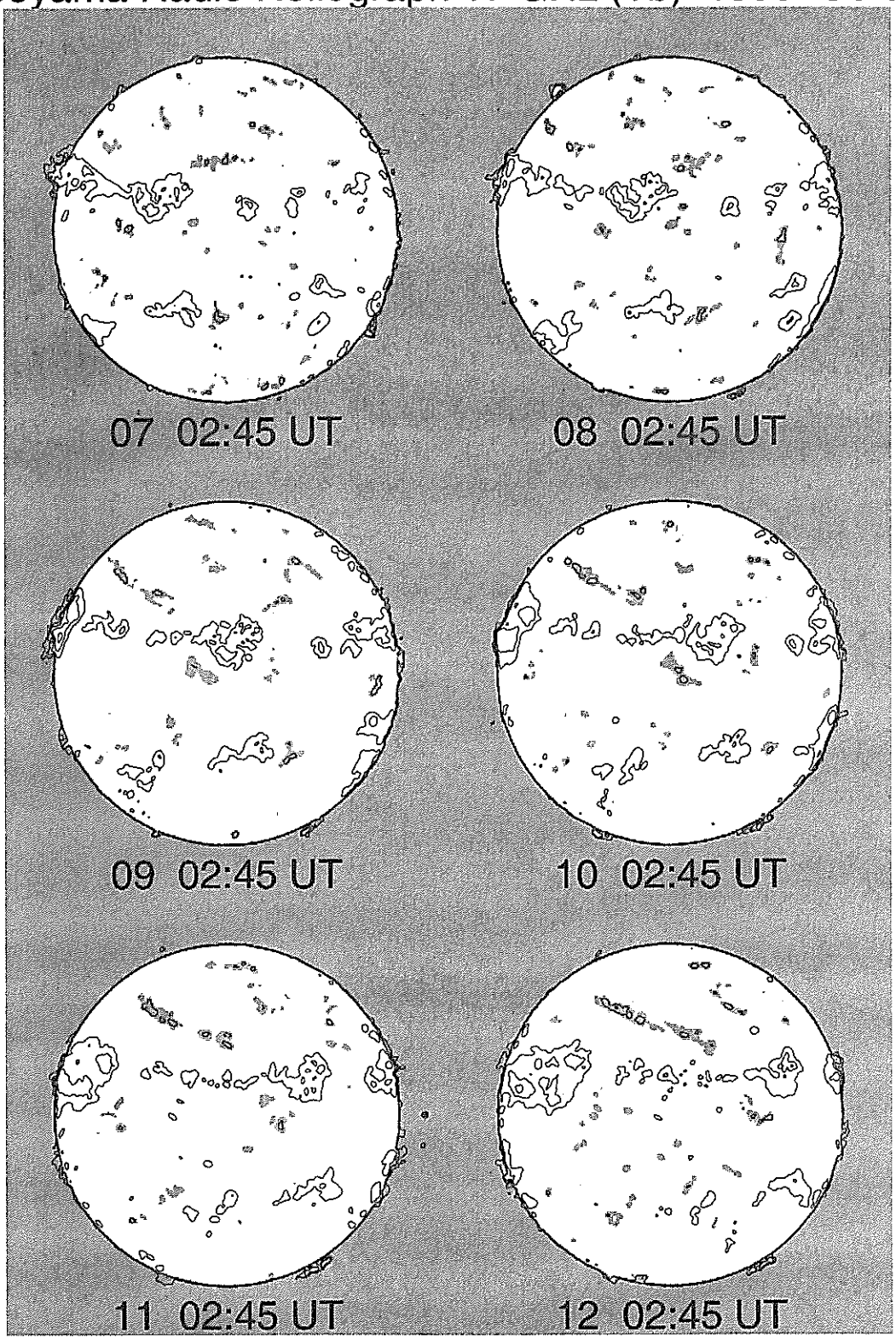
Day 30
12:25:39 UT

Nobeyama Radio Heliograph 17 GHz (Tb) 1999 October



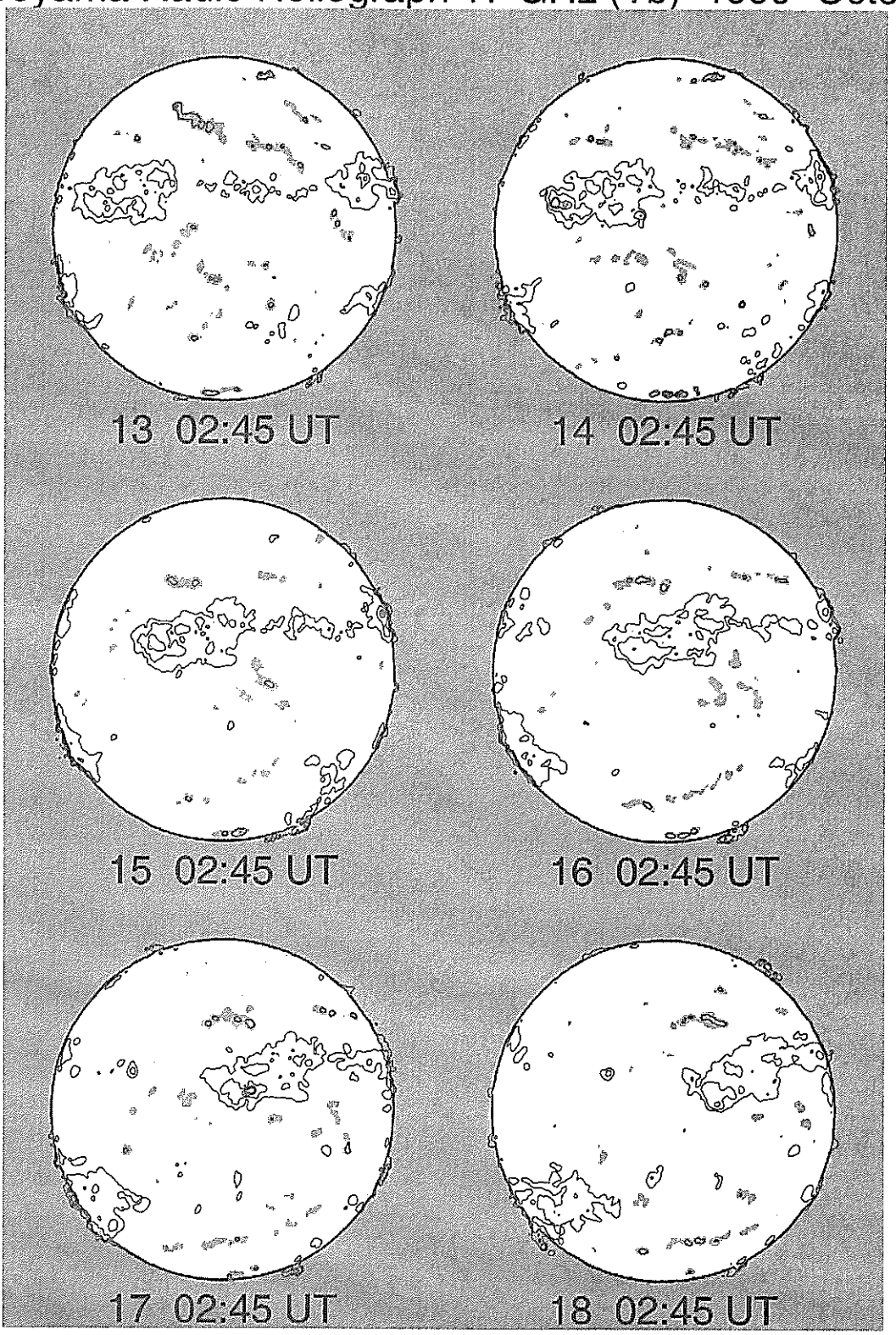
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 1999 October



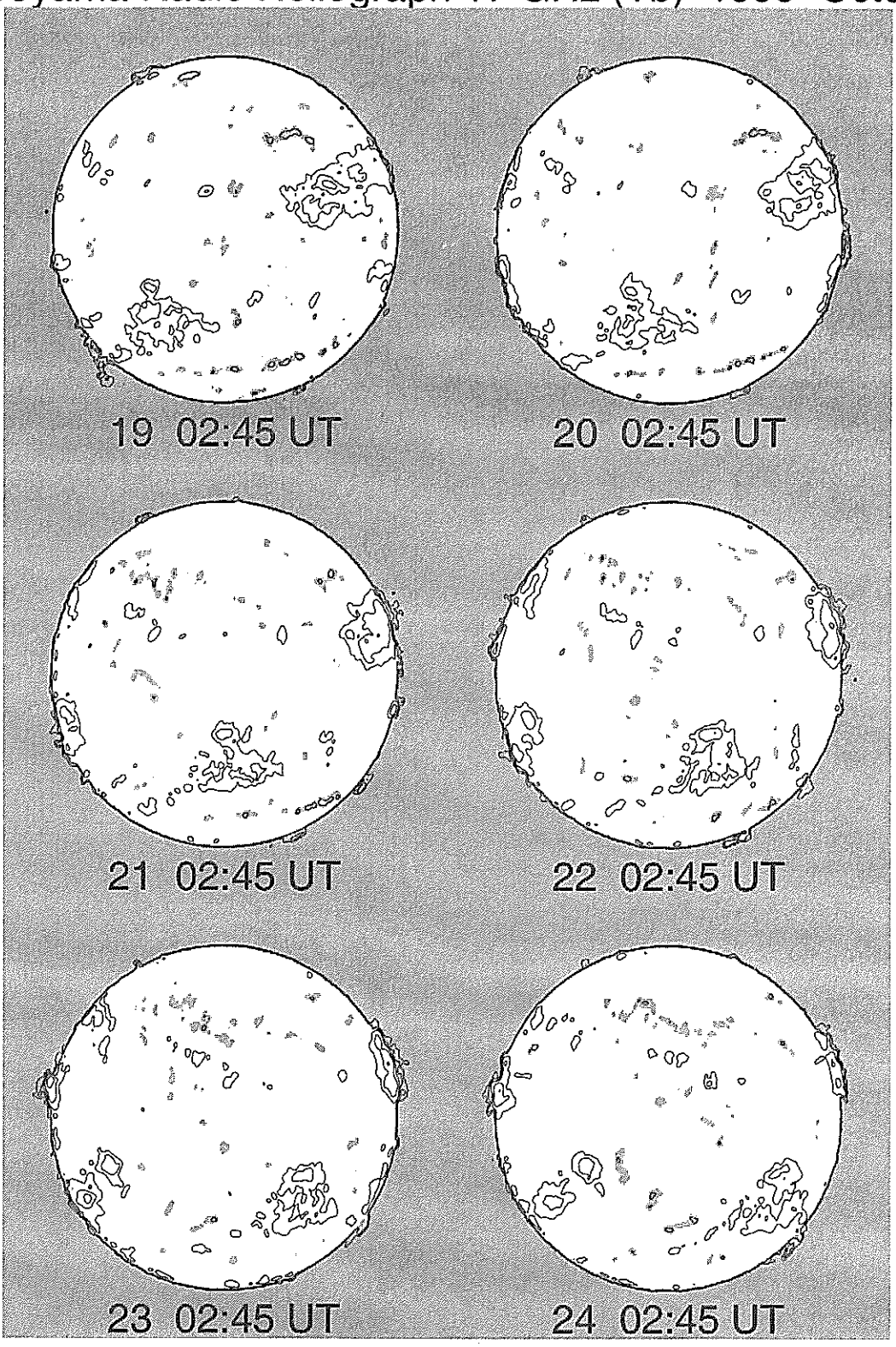
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 1999 October



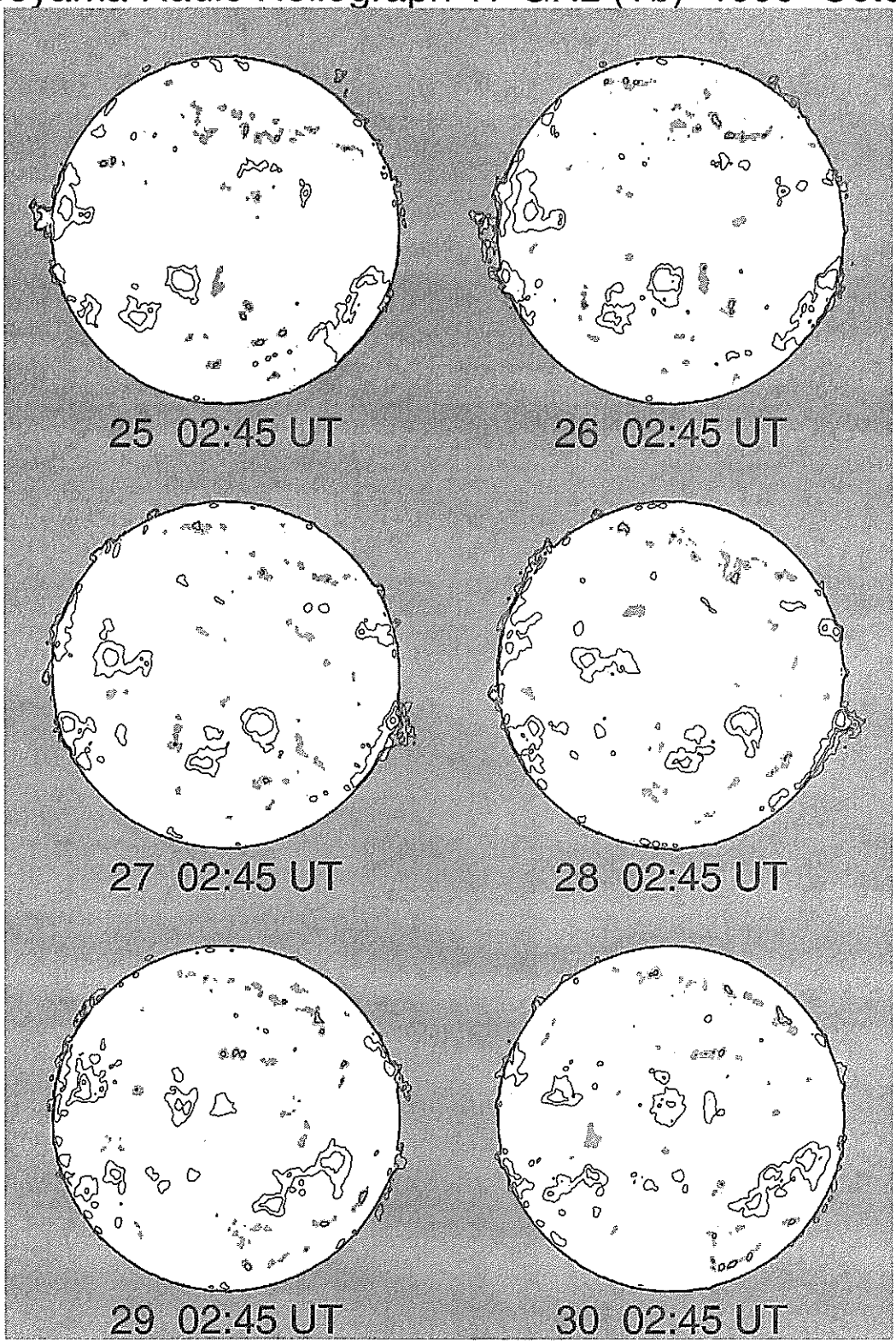
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 1999 October



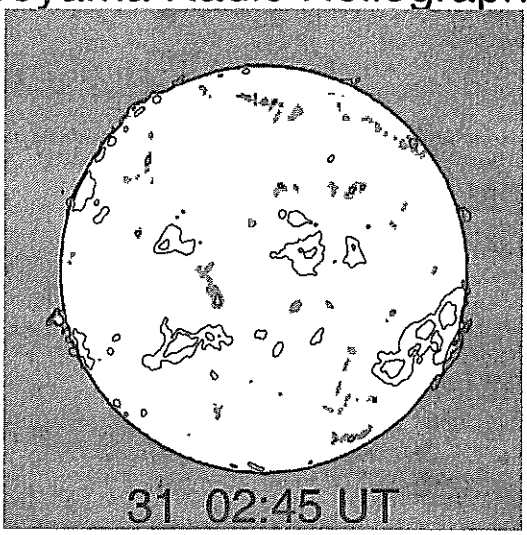
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 1999 October



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) 1999 October



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)

OCTOBER 1999

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
8712C	29359	MWIL	10 04 1445	N24 W37	10 1.7	3	(AP)					
8710A	29344	MWIL	09 27 1445	S19 E68	10 2.8	4	(AP)					
8710A	29344	MWIL	09 28 1430	S19 E54	10 2.7	4	(AP)					
8710A		HOLL	09 28 1635	S18 E55	10 2.9		B	BXO	10	2	3	3
8710A	29344	MWIL	09 29 1430	S20 E42	10 2.8	3	(AP)					
8710		RAMY	09 26 1337	N18 E80	10 2.6		A	HS	20	1	1	3
8710	29342	MWIL	09 26 1430	N19 E83	10 2.9	4	(AP)					
8710		HOLL	09 26 1540	N21 E80	10 2.8		A	HS	30	1	1	3
8710		LEAR	09 27 0021	N18 E75	10 2.7		A	HA	30	1	2	3
8710		VORO	09 27 0315	N21 E78	10 3.1			HRX	58	1		3
8710		KAND	09 27 0755	N20 E74	10 3.0			HR		1	1	4
8710		SVTO	09 27 0815	N22 E74	10 3.0		A	HS	30	1	2	3
8710		RAMY	09 27 1211	N16 E70	10 2.8		A	HS	20	1	1	3
8710	29342	MWIL	09 27 1445	N20 E69	10 2.9	5	(AP)					
8710		HOLL	09 27 1635	N21 E63	10 2.5		A	HS	70	1	7	2
8710		VORO	09 27 2215	N20 E66	10 3.0			HAX	69	1		3
8710		KAND	09 28 0650	N20 E59	10 2.8			HS		1	1	3
8710		RAMY	09 28 1157	N18 E56	10 2.8		B	CSO	20	3	4	4
8710	29342	MWIL	09 28 1430	N20 E56	10 2.9	5	(AP)					
8710		HOLL	09 28 1635	N21 E56	10 3.0		B	CSO	40	3	3	3
8710		LEAR	09 29 0059	N18 E50	10 2.8		A	HS	30	1	1	3
8710		KAND	09 29 0615	N21 E48	10 2.9			AX		2	1	2
8710		SVTO	09 29 0800	N19 E47	10 2.9		A	AX	10	1	1	3
8710	29342	MWIL	09 29 1430	N20 E43	10 2.9	5	(AP)					
8710		HOLL	09 29 1557	N21 E42	10 2.9		A	HS	20	1	1	3
8710		VORO	09 29 2150	N20 E40	10 3.0			HAX	22	1		2
8710		LEAR	09 30 0029	N19 E38	10 2.9		A	HS	10	1	1	3
8710		SVTO	09 30 0905	N21 E32	10 2.8		A	HS	10	1	1	3
8710		KAND	09 30 1230	N21 E31	10 2.9			CSO		2	2	2
8710	29342	MWIL	09 30 1500	N20 E30	10 2.9	5	(AP)					
8710		HOLL	09 30 1658	N22 E28	10 2.8		A	HS	20	1		3
8710		RAMY	09 30 1733	N20 E28	10 2.9		A	HS	10	1	1	2
8710		LEAR	10 01 0050	N21 E25	10 2.9		A	HS	10	1	1	3
8710		KAND	10 01 0705	N21 E20	10 2.8			HR		1	1	3
8710		RAMY	10 01 1148	N21 E19	10 2.9		A	HS	10	1	1	4
8710	29342	MWIL	10 01 1445	N21 E18	10 3.0	4	(AP)					
8710		HOLL	10 01 1516	N21 E18	10 3.0		A	HS	10	1	1	2
8710		LEAR	10 02 0045	N21 E12	10 2.9		A	HS	10	1	1	3
8710		SVTO	10 02 0835	N22 E08	10 3.0		A	AX		1		3
8710		KAND	10 02 1020	N21 E07	10 3.0			HR		1	1	2
8710		RAMY	10 02 1303	N21 E05	10 2.9		A	AX		1		3
8710	29342	MWIL	10 02 1500	N21 E05	10 3.0	4	(AP)					
8710		HOLL	10 02 1528	N21 E04	10 2.9		A	AX	10	2	1	3
8710		VORO	10 02 2208	N21 E01	10 3.0			AXX	6	1		3
8710		LEAR	10 03 0023	N22 W01	10 2.9		A	AX		1		4
8710		RAMY	10 04 1246	N24 W22	10 2.8		A	AX		1		4
8710C		HOLL	10 01 1516	S28 E35	10 4.4		B	BXO	10	2	3	2
8710C		RAMY	10 02 1303	S28 E19	10 4.0		A	AX		1		3
8710C		HOLL	10 02 1528	S27 E20	10 4.2		A	AX	10	1		3
8710C		LEAR	10 03 0023	S26 E13	10 4.0		A	AX		1		4
8710C		SVTO	10 03 0607	S27 E13	10 4.3		B	BXO	10	2	3	3
8713		KAND	09 29 0615	S12 E70	10 4.5			AX		2	2	2
8713		SVTO	09 29 0800	S14 E70	10 4.6		A	AX		1		3
8713	29347	MWIL	09 29 1430	S13 E65	10 4.5	4	(AP)					
8713		HOLL	09 29 1557	S12 E65	10 4.6		A	AX	10	2	2	3
8713		VORO	09 29 2150	S12 E61	10 4.5			HAX	30	1		2
8713		LEAR	09 30 0029	S13 E58	10 4.4		A	HS	10	1	1	3
8713		SVTO	09 30 0905	S12 E53	10 4.4		A	AX	10	2	2	3
8713		KAND	09 30 1230	S12 E51	10 4.4			AX		4	2	2
8713	29347	MWIL	09 30 1500	S13 E51	10 4.5	3	(BP)					
8713		HOLL	09 30 1658	S11 E49	10 4.4		A	AX	10	3	1	3
8713		RAMY	09 30 1733	S13 E47	10 4.3		A	HS	20	1	1	2
8713		LEAR	10 01 0050	S13 E44	10 4.3		A	HS	10	1	1	3
8713		KAND	10 01 0705	S12 E44	10 4.6			CAO		3	9	3
8713		RAMY	10 01 1148	S13 E41	10 4.6		B	CSO	10	2	5	4

S U N S P O T G R O U P S
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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8713	29347	MWIL	10	01	1445	S14	E39	10	4.6	4	(BP)					
8713		HOLL	10	01	1516	S12	E37	10	4.4		A	HS	20	1		2
8713		LEAR	10	02	0045	S12	E31	10	4.4		A	HS	40	1	1	3
8713		SVTO	10	02	0835	S12	E27	10	4.4		A	HR	10	1	1	3
8713		KAND	10	02	1020	S11	E25	10	4.3			HS		2	1	2
8713		RAMY	10	02	1303	S12	E23	10	4.3		A	AX		1		3
8713	29347	MWIL	10	02	1500	S12	E23	10	4.3	4	(AP)					
8713		HOLL	10	02	1528	S12	E23	10	4.4		A	HS	10	1		3
8713		VORO	10	02	2208	S12	E19	10	4.3			AXX	9	1		3
8713		LEAR	10	03	0023	S12	E17	10	4.3		A	AX		1		4
8713		SVTO	10	03	0607	S12	E15	10	4.4		A	AX		1	1	3
8713		KAND	10	03	0810	S12	E13	10	4.3			AX		2	1	4
8713	29347	MWIL	10	03	1500	S12	E09	10	4.3	3	(AP)					
8713	29356	MWIL	10	03	1500	S16	E07	10	4.1	3	(AP)					
8713		RAMY	10	04	1246	S16	W06	10	4.1		B	BXO		4	4	4
8713		SVTO	10	07	0727	S15	W36	10	4.6		A	AX		2	2	3
8713		RAMY	10	07	1213	S13	W39	10	4.6		B	BXO		2	2	3
8710B		SVTO	09	30	0905	N11	E50	10	4.1		A	AX	10	2	2	3
8710B		KAND	09	30	1230	N11	E47	10	4.0			AX		2	2	2
8710B	29349	MWIL	09	30	1500	N10	E47	10	4.1	4	(B)					
8710B		HOLL	10	04	1853	N10	W06	10	4.3		A	AX		1		3
8710B		LEAR	10	05	0043	N12	W08	10	4.4		B	BXO		2	2	3
8718		KAND	10	01	0705	S28	E41	10	4.5			AX		1		3
8718	29350	MWIL	10	01	1445	S28	E34	10	4.3	4	(AP)					
8718		KAND	10	02	1020	S26	E22	10	4.1			HR		1	1	2
8718	29350	MWIL	10	02	1500	S27	E20	10	4.2	4	(AP)					
8718		VORO	10	02	2208	S27	E16	10	4.2			AXX	10	1		3
8718		KAND	10	03	0810	S26	E11	10	4.2			BXO		2	3	4
8718	29350	MWIL	10	03	1500	S28	E08	10	4.2	4	(BP)					
8718		HOLL	10	03	1635	S27	E07	10	4.2		B	BXO	10	4	6	2
8718		VORO	10	03	2223	S28	E05	10	4.3			BXO	21	2	3	3
8718		LEAR	10	04	0146	S26	E03	10	4.3		B	BXO	10	2	4	3
8718		RAMY	10	04	1246	S27	W05	10	4.1		B	BXO	10	6	5	4
8718	29350	MWIL	10	04	1445	S27	W04	10	4.3	4	(B)					
8718		HOLL	10	04	1853	S27	W07	10	4.2		B	CSO	10	3	5	3
8718		LEAR	10	05	0043	S27	W10	10	4.2		B	DAO	30	5	4	3
8718		VORO	10	05	0140	S28	W10	10	4.3			CAO	32	3	2	2
8718		SVTO	10	05	0635	S27	W13	10	4.3		B	DSO	50	6	7	3
8718		KAND	10	05	0755	S27	W14	10	4.2			CAO		6	7	4
8718	29350	MWIL	10	05	1430	S28	W17	10	4.3	5	(BP)					
8718		RAMY	10	05	1433	S27	W17	10	4.3		B	DSO	40	9	6	3
8718		HOLL	10	05	1529	S27	W16	10	4.4		B	DSO	30	7	7	3
8718		RAMY	10	05	1533	S27	W17	10	4.3		B	DSO	40	9	6	3
8718		VORO	10	05	2230	S28	W21	10	4.3			DAI	103	4	5	3
8718		LEAR	10	06	0032	S27	W24	10	4.1		B	DAO	30	8	6	3
8718		SVTO	10	06	0545	S28	W26	10	4.2		B	CSO	40	5	7	3
8718		KAND	10	06	1130	S28	W29	10	4.2			DAO		3	8	3
8718		RAMY	10	06	1213	S27	W31	10	4.1		B	DAO	50	3	5	4
8718	29350	MWIL	10	06	1445	S28	W30	10	4.3	4	(B)					
8718		HOLL	10	06	1518	S27	W30	10	4.3		B	DSO	50	4	8	3
8718		VORO	10	06	2226	S28	W35	10	4.2			BXI	31	7	6	3
8718		LEAR	10	07	0035	S27	W36	10	4.2		B	DSO	50	3	8	3
8718		SVTO	10	07	0727	S29	W40	10	4.2		B	DAO	40	2	8	3
8718		KAND	10	07	1130	S28	W43	10	4.1			CSO		2	7	2
8718		RAMY	10	07	1213	S27	W45	10	4.0		B	CRO	20	6	7	3
8718	29350	MWIL	10	07	1500	S28	W45	10	4.1	4	(B)					
8718		HOLL	10	07	1902	S27	W49	10	4.0		A	HS	10	1	1	2
8718		LEAR	10	08	0028	S25	W52	10	4.0		A	HS	40	1	1	3
8718		SVTO	10	08	0727	S29	W58	10	3.8		A	HA	40	1	2	3
8718		RAMY	10	08	1218	S26	W61	10	3.8		A	AX	10	2	1	3
8718	29350	MWIL	10	08	1445	S27	W59	10	4.0	4	(AP)					
8718		VORO	10	08	2252	S27	W65	10	3.9			HRX	21	1		2
8718	29350	MWIL	10	09	1430	S27	W73	10	3.9	4	(AP)					
8710D		KAND	10	03	0810	S15	E21	10	4.9			AX		1		4
8710D	29369	MWIL	10	09	1430	S13	W65	10	4.7	4	(B)					
8714		KAND	09	29	0615	N13	E85	10	5.7			HS		1	2	2

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8714		SVTO	09 29 0800	N11 E80	10 5.3		A	AX		1		3
8714	29348	MWIL	09 29 1430	N13 E75	10 5.3	4	(BP)					
8714		HOLL	09 29 1557	N15 E74	10 5.3		A	HS	40	1	2	3
8714		VORO	09 29 2150	N13 E70	10 5.2			HAX	57	1		2
8714		LEAR	09 30 0029	N11 E68	10 5.1		A	HS	10	1	1	3
8714		SVTO	09 30 0905	N13 E63	10 5.1		A	HA	20	1	1	3
8714		KAND	09 30 1230	N13 E62	10 5.2			HS		1	2	2
8714	29348	MWIL	09 30 1500	N13 E61	10 5.2	4	(BP)					
8714		HOLL	09 30 1658	N14 E60	10 5.2		A	HS	30	1		3
8714		RAMY	09 30 1733	N12 E58	10 5.1		A	HS	20	1	1	2
8714		LEAR	10 01 0050	N13 E56	10 5.2		B	CSO	20	2	3	3
8714		KAND	10 01 0705	N14 E54	10 5.4			CAO		3	4	3
8714		RAMY	10 01 1148	N13 E50	10 5.3		B	CSO	10	2	3	4
8714	29348	MWIL	10 01 1445	N13 E49	10 5.3	4	(BP)					
8714		HOLL	10 01 1516	N14 E48	10 5.3		B	CSO	20	2	3	2
8714		LEAR	10 02 0045	N13 E42	10 5.2		A	HS	20	1	1	3
8714		SVTO	10 02 0835	N14 E37	10 5.1		A	HA	20	1	1	3
8714		KAND	10 02 1020	N14 E36	10 5.1			HA		1	2	2
8714		RAMY	10 02 1303	N13 E36	10 5.2		A	HS	10	3	1	3
8714	29348	MWIL	10 02 1500	N13 E34	10 5.2	4	(AP)					
8714		HOLL	10 02 1528	N14 E33	10 5.1		A	HS	20	1		3
8714		VORO	10 02 2208	N13 E30	10 5.2			HAX	24	1		3
8714		LEAR	10 03 0023	N14 E29	10 5.2		A	HS	20	3	2	4
8714		SVTO	10 03 0607	N14 E26	10 5.2		A	HS	20	1	2	3
8714		KAND	10 03 0810	N13 E24	10 5.1			HA		2	1	4
8714	29348	MWIL	10 03 1500	N13 E22	10 5.3	4	(BP)					
8714		HOLL	10 03 1635	N14 E20	10 5.2		A	HS	20	1	1	2
8714		VORO	10 03 2223	N13 E17	10 5.2			AXX	19	1		3
8714		LEAR	10 04 0146	N14 E15	10 5.2		A	HA	10	1	1	3
8714		KAND	10 04 0845	N13 E11	10 5.2			HS		1	1	4
8714		SVTO	10 04 1220	N14 E09	10 5.2		A	HR	10	1		3
8714		RAMY	10 04 1246	N12 E11	10 5.4		B	CRO	10	2	6	4
8714	29348	MWIL	10 04 1445	N14 E09	10 5.3	4	(B)					
8714		HOLL	10 04 1853	N14 E06	10 5.2		A	HS	10	1	1	3
8714		LEAR	10 05 0043	N14 E04	10 5.3		B	BXO	10	2	2	3
8714		VORO	10 05 0140	N14 E03	10 5.3			AXX	11	2		2
8714		SVTO	10 05 0635	N14 W01	10 5.2		A	HR	10	1		3
8714		KAND	10 05 0755	N13 W01	10 5.2			AX		1		4
8714	29348	MWIL	10 05 1430	N13 W04	10 5.3	4	(BP)					
8714		RAMY	10 05 1433	N13 W05	10 5.2		A	AX	10	1	1	3
8714		HOLL	10 05 1529	N14 W05	10 5.3		A	HS	10	1	1	3
8714		RAMY	10 05 1533	N13 W05	10 5.3		A	AX	10	1	1	3
8714		VORO	10 05 2230	N13 W09	10 5.2			AXX	11	1		3
8714		LEAR	10 06 0032	N13 W10	10 5.3		A	HR	10	1	1	3
8714		SVTO	10 06 0545	N13 W13	10 5.2		A	AX		1		3
8714		KAND	10 06 1130	N12 W16	10 5.3			AX		1		3
8714		RAMY	10 06 1213	N14 W16	10 5.3		B	BXO	10	2	3	4
8714	29348	MWIL	10 06 1445	N13 W18	10 5.2	4	(AP)					
8714		HOLL	10 06 1518	N14 W18	10 5.3		A	AX	10	2	1	3
8714		VORO	10 06 2226	N14 W21	10 5.3			AXX	4	2		3
8714		LEAR	10 07 0035	N13 W23	10 5.3		B	DSO	10	2	1	3
8714		SVTO	10 07 0727	N13 W28	10 5.2		B	BXO	10	2	3	3
8714		KAND	10 07 1130	N12 W30	10 5.2			AX		1		2
8714		RAMY	10 07 1213	N13 W31	10 5.2		A	AX		1		3
8714	29348	MWIL	10 07 1500	N13 W31	10 5.3	4	(AP)					
8714		HOLL	10 07 1902	N13 W34	10 5.2		A	AX	10	1		2
8714		RAMY	10 08 1218	N14 W37	10 5.7		A	AX		1		3
8714	29366	MWIL	10 08 1445	N13 W37	10 5.8	3	(BF)					
8714		KAND	10 10 0845	N13 W62	10 5.7			BXO		2	4	2
8714	29372	MWIL	10 10 1445	N13 W66	10 5.6	5	(B)					
8714		KAND	10 11 0700	N14 W77	10 5.5			HA		1	2	5
8714	29372	MWIL	10 11 1430	N14 W77	10 5.8	4	(AF)					
8724		LEAR	10 05 0043	N19 E02	10 5.2		B	CSO	10	2	2	3
8724		VORO	10 05 0140	N20 E02	10 5.2			AXX	7	1		2
8724		SVTO	10 05 0635	N19 W02	10 5.1		B	BXO	10	2	3	3
8724		KAND	10 05 0755	N18 W02	10 5.2			BXO		3	3	4
8724	29362	MWIL	10 05 1430	N19 W06	10 5.1	4	(B)					
8724		RAMY	10 05 1433	N20 W07	10 5.1		B	BXO	10	2	4	3

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8724		HOLL	10	05	1529	N19	W07	10	5.1		B	CSO	10	2	4	3
8724		RAMY	10	05	1533	N20	W07	10	5.1		B	BXO	10	2	4	3
8724		VORO	10	05	2230	N20	W10	10	5.2			BXI	19	3	3	3
8724		LEAR	10	06	0032	N19	W12	10	5.1		B	BXO	10	2	3	3
8724		SVTO	10	06	0545	N19	W14	10	5.2		A	HR		1		3
8724		KAND	10	06	1130	N19	W18	10	5.1			BXO		4	4	3
8724		RAMY	10	06	1213	N19	W18	10	5.1		B	BXO	10	5	4	4
8724	29362	MWIL	10	06	1445	N19	W19	10	5.2	4	(B)					
8724		HOLL	10	06	1518	N20	W18	10	5.3		A	AX	10	2	1	3
8724		VORO	10	06	2226	N20	W25	10	5.0			BXO	10	3	4	3
8724		LEAR	10	07	0035	N19	W25	10	5.1		B	BXO	10	3	4	3
8724		SVTO	10	07	0727	N17	W31	10	4.9		B	BXO	10	4	5	3
8724		KAND	10	07	1130	N18	W29	10	5.3			BXO		3	5	2
8724		RAMY	10	07	1213	N19	W32	10	5.1		B	BXO		6	5	3
8724	29362	MWIL	10	07	1500	N19	W33	10	5.1	4	(B)					
8724		HOLL	10	07	1902	N18	W37	10	5.0		B	BXO	10	4	5	2
8724		LEAR	10	08	0028	N19	W37	10	5.2		B	BXO	10	2	4	3
8724		SVTO	10	08	0727	N18	W43	10	5.0		A	HR	10	1	1	3
8724		RAMY	10	08	1218	N21	W44	10	5.1		A	AX		1		3
8724	29362	MWIL	10	08	1445	N19	W44	10	5.2	4	(AF)					
8724	29362	MWIL	10	09	1430	N19	W58	10	5.2	4	(BG)					
8724	29362	MWIL	10	10	1445	N19	W71	10	5.2	4	(B)					
8722		SVTO	10	04	1220	N13	E28	10	6.6		A	HS	10	2	1	3
8722		RAMY	10	04	1246	N13	E26	10	6.5		B	BXO	10	5	2	4
8722	29360	MWIL	10	04	1445	N14	E26	10	6.6	4	(BG)					
8722		HOLL	10	04	1853	N14	E23	10	6.5		B	BXO	10	9	4	3
8722		LEAR	10	05	0043	N14	E20	10	6.5		B	DSO	30	8	4	3
8722		VORO	10	05	0140	N14	E20	10	6.6			BXI	24	3	3	2
8722		SVTO	10	05	0635	N15	E17	10	6.6		B	DAO	50	10	5	3
8722		KAND	10	05	0755	N14	E16	10	6.5			BXO		14	6	4
8722	29360	MWIL	10	05	1430	N14	E13	10	6.6	5	(B)					
8722		RAMY	10	05	1433	N15	E13	10	6.6		B	DAO	60	13	6	3
8722		HOLL	10	05	1529	N14	E12	10	6.5		B	DAO	50	14	6	3
8722		RAMY	10	05	1533	N15	E13	10	6.6		B	DAO	60	13	6	3
8722		VORO	10	05	2230	N15	E08	10	6.5			DAI	135	9	4	3
8722		LEAR	10	06	0032	N13	E07	10	6.5		B	DAI	70	18	6	3
8722		SVTO	10	06	0545	N14	E03	10	6.5		B	CAI	50	15	6	3
8722		KAND	10	06	1130	N13	E01	10	6.5			DAI		19	7	3
8722		RAMY	10	06	1213	N14	W01	10	6.4		B	DAO	90	16	6	4
8722	29360	MWIL	10	06	1445	N14	W01	10	6.5	5	(B)					
8722		HOLL	10	06	1518	N13	W02	10	6.5		B	CSO	40	16	7	3
8722		VORO	10	06	2226	N15	W05	10	6.5			BXI	57	16	6	3
8722		LEAR	10	07	0035	N14	W07	10	6.5		B	DSO	60	9	7	3
8722		SVTO	10	07	0727	N14	W11	10	6.5		B	DSO	50	8	7	3
8722		KAND	10	07	1130	N14	W13	10	6.5			DSO		4	7	2
8722		RAMY	10	07	1213	N15	W14	10	6.4		B	DRO	20	7	7	3
8722	29360	MWIL	10	07	1500	N14	W14	10	6.6	4	(BF)					
8722		HOLL	10	07	1902	N14	W17	10	6.5		B	BXO	20	9	6	2
8722		LEAR	10	08	0028	N14	W20	10	6.5		B	DSO	30	6	8	3
8722		SVTO	10	08	0727	N15	W26	10	6.3		B	DAO	30	2	8	3
8722		RAMY	10	08	1218	N15	W27	10	6.5		B	BXO		3	7	3
8722	29360	MWIL	10	08	1445	N14	W27	10	6.6	4	(B)					
8719		SVTO	10	02	0835	S21	E74	10	8.0		A	AX	10	1	1	3
8719		KAND	10	02	1020	S20	E71	10	7.9			HS		1	2	2
8719		RAMY	10	02	1303	S22	E69	10	7.8		A	HR	10	1	1	3
8719	29353	MWIL	10	02	1500	S22	E68	10	7.8	4	AP					
8719		HOLL	10	02	1528	S21	E68	10	7.8		A	AX	10	1		3
8719		VORO	10	02	2208	S21	E63	10	7.7			HAX	32	1		3
8719		LEAR	10	03	0023	S20	E65	10	8.0		B	CSO	70	6	15	4
8719		SVTO	10	03	0607	S18	E64	10	8.1		B	FSO	130	4	19	3
8719		KAND	10	03	0810	S22	E61	10	8.0			CAO		2	8	4
8719	29353	MWIL	10	03	1500	S22	E53	10	7.7	4	(BP)					
8719		HOLL	10	03	1635	S22	E54	10	7.8		B	CSO	60	2	4	2
8719		VORO	10	03	2223	S20	E57	10	8.3			DAI	283	10	17	3
8719		LEAR	10	04	0146	S22	E48	10	7.8		B	DAO	80	5	5	3
8719		KAND	10	04	0845	S21	E47	10	8.0			CAO		5	11	4
8719		SVTO	10	04	1220	S21	E45	10	8.0		B	DSO	160	6	10	3

S U N S P O T G R O U P S
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OCTOBER 1999

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8719		RAMY	10	04	1246	S23	E43	10	7.8		B	DSO	90	11	10	4
8719	29353	MWIL	10	04	1445	S21	E42	10	7.8	5	(BG)					
8719		HOLL	10	04	1853	S21	E40	10	7.8		B	ESO	10	8	12	3
8719		LEAR	10	05	0043	S22	E37	10	7.9		B	EAO	100	11	11	3
8719		VORO	10	05	0140	S19	E35	10	7.7			DAI	184	6	13	2
8719		SVTO	10	05	0635	S21	E35	10	7.9		B	DSO	150	7	7	3
8719		KAND	10	05	0755	S22	E34	10	7.9			CAO		12	11	4
8719	29353	MWIL	10	05	1430	S21	E29	10	7.8	5	(BG)					
8719		RAMY	10	05	1433	S23	E30	10	7.9		B	DSO	80	10	9	3
8719		HOLL	10	05	1529	S21	E29	10	7.9		B	DSO	80	5	6	3
8719		RAMY	10	05	1533	S23	E30	10	7.9		B	DSO	80	10	9	3
8719		VORO	10	05	2230	S21	E26	10	7.9			DAI	184	5	6	3
8719		LEAR	10	06	0032	S22	E23	10	7.8		B	DAO	90	5	7	3
8719		SVTO	10	06	0545	S21	E22	10	7.9		B	CAO	130	5	8	3
8719		KAND	10	06	1130	S22	E20	10	8.0			CAO		8	11	3
8719		RAMY	10	06	1213	S23	E17	10	7.8		B	CSO	90	8	10	4
8719	29353	MWIL	10	06	1445	S21	E16	10	7.8	5	(BP)					
8719		HOLL	10	06	1518	S21	E16	10	7.9		B	CSO	60	3	7	3
8719		VORO	10	06	2226	S22	E14	10	8.0			CAI	138	6	9	3
8719		LEAR	10	07	0035	S22	E12	10	7.9		B	CSO	70	4	11	3
8719		SVTO	10	07	0727	S22	E08	10	7.9		B	CAO	120	3	7	3
8719		KAND	10	07	1130	S21	E02	10	7.6			HA		1	2	2
8719		RAMY	10	07	1213	S22	E03	10	7.7		B	CSO	70	2	7	3
8719	29353	MWIL	10	07	1500	S22	W00	10	7.6	4	(AP)					
8719		HOLL	10	07	1902	S22	W02	10	7.6		A	HS	60	2	2	2
8719		LEAR	10	08	0028	S21	W06	10	7.5		A	HS	60	2	2	3
8719		SVTO	10	08	0727	S22	W08	10	7.7		A	HA	90	1	2	3
8719		RAMY	10	08	1218	S22	W13	10	7.5		A	HA	70	2	2	3
8719	29353	MWIL	10	08	1445	S22	W13	10	7.6	5	(AP)					
8719		VORO	10	08	2252	S21	W17	10	7.6			HAX	80	1		2
8719	29353	MWIL	10	09	1430	S21	W25	10	7.7	5	(AP)					
8719		KAND	10	10	0845	S20	W36	10	7.6			HA		1	1	2
8719	29353	MWIL	10	10	1445	S21	W38	10	7.7	5	(AP)					
8719		KAND	10	11	0700	S21	W49	10	7.5			CAO		5	5	5
8719	29353	MWIL	10	11	1430	S21	W51	10	7.7	5	(BP)					
8719		VORO	10	11	2207	S21	W56	10	7.6			HAX	90	2		2
8719		KAND	10	12	0700	S20	W59	10	7.8			HA		1	2	3
8719	29353	MWIL	10	12	1500	S20	W65	10	7.6	4	(AP)					
8719		VORO	10	12	2320	S21	W69	10	7.7			HAX	38	1		2
8719		KAND	10	13	0715	S20	W72	10	7.8			HR		1	1	3
8719	29353	MWIL	10	13	1430	S20	W74	10	7.9	4	(AP)					
8716	29351	MWIL	10	01	1445	N20	E87	10	8.3	5	AP					
8716		HOLL	10	01	1516	N22	E85	10	8.2		A	HS	60	1	1	2
8716		LEAR	10	02	0045	N20	E79	10	8.1		A	HS	120	1	1	3
8716		SVTO	10	02	0835	N22	E78	10	8.3		A	HS	180	1	3	3
8716		KAND	10	02	1020	N22	E76	10	8.3			HS		2	4	2
8716		RAMY	10	02	1303	N19	E76	10	8.3		B	CSO	180	4	12	3
8716	29351	MWIL	10	02	1500	N21	E73	10	8.2	5	(BP)					
8716		HOLL	10	02	1528	N22	E75	10	8.4		B	CAO	140	4	11	3
8716		VORO	10	02	2208	N18	E74	10	8.5			CAI	319	4	9	3
8716		LEAR	10	03	0023	N18	E70	10	8.3		B	CSO	220	8	15	4
8716		SVTO	10	03	0607	N23	E66	10	8.3		B	CAO	190	4	8	3
8716		KAND	10	03	0810	N20	E66	10	8.4			CSO		5	10	4
8716	29351	MWIL	10	03	1500	N21	E61	10	8.3	5	(BP)					
8716		HOLL	10	03	1635	N20	E64	10	8.6		B	CSO	200	5	7	2
8716		VORO	10	03	2223	N17	E63	10	8.7			DKI	448	9	13	3
8716		LEAR	10	04	0146	N19	E58	10	8.5		B	DSO	210	5	8	3
8716		KAND	10	04	0845	N22	E50	10	8.2			HK		6	4	4
8716		SVTO	10	04	1220	N20	E52	10	8.5		B	CSO	260	6	9	3
8716		RAMY	10	04	1246	N18	E52	10	8.5		B	CSO	260	7	8	4
8716	29351	MWIL	10	04	1445	N20	E48	10	8.3	5	(BP)					
8716		HOLL	10	04	1853	N20	E49	10	8.5		B	CSO	210	4	8	3
8716		LEAR	10	05	0043	N19	E45	10	8.5		B	CSO	220	4	8	3
8716		VORO	10	05	0140	N18	E48	10	8.7			DHI	384	5	13	2
8716		SVTO	10	05	0635	N21	E40	10	8.3		B	DHO	260	6	8	3
8716		KAND	10	05	0755	N21	E39	10	8.3			CAO		9	9	4
8716	29351	MWIL	10	05	1430	N20	E35	10	8.3	5	(BP)					
8716		RAMY	10	05	1433	N20	E37	10	8.4		B	CSO	210	5	6	3

S U N S P O T G R O U P S
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OCTOBER 1999

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8716		HOLL	10	05	1529	N20	E37	10	8.5		B	CSO	190	4	5	3
8716		RAMY	10	05	1533	N20	E37	10	8.5		B	CSO	210	5	6	3
8716		VORO	10	05	2230	N22	E31	10	8.3			HHX	308	3		3
8716		LEAR	10	06	0032	N20	E28	10	8.2		A	HS	180	5	3	3
8716		SVTO	10	06	0545	N22	E26	10	8.2		A	HS	220	2	3	3
8716		KAND	10	06	1130	N21	E23	10	8.2			HA		3	3	3
8716		RAMY	10	06	1213	N20	E24	10	8.3		B	CAO	230	9	7	4
8716	29351	MWIL	10	06	1445	N20	E22	10	8.3	5	(BP)					
8716		HOLL	10	06	1518	N21	E22	10	8.3		B	CSO	150	8	5	3
8716		VORO	10	06	2226	N22	E18	10	8.3			HHX	238	3		3
8716		LEAR	10	07	0035	N21	E16	10	8.2		A	HS	150	3	2	3
8716		SVTO	10	07	0727	N22	E13	10	8.3		A	HA	200	1	3	3
8716		KAND	10	07	1130	N22	E12	10	8.4			CSO		3	6	2
8716		RAMY	10	07	1213	N21	E12	10	8.4		B	CSO	200	3	5	3
8716	29351	MWIL	10	07	1500	N20	E09	10	8.3	5	(BP)					
8716		HOLL	10	07	1902	N21	E08	10	8.4		B	CSO	200	3	5	2
8716		LEAR	10	08	0028	N20	E05	10	8.4		B	DSO	220	3	5	3
8716		SVTO	10	08	0727	N23	W02	10	8.1		B	CKO	200	2	5	3
8716		RAMY	10	08	1218	N22	W02	10	8.3		B	CSO	170	3	6	3
8716	29351	MWIL	10	08	1445	N22	W04	10	8.3	5	(BP)					
8716		VORO	10	08	2252	N22	W09	10	8.3			HAX	226	1		2
8716	29351	MWIL	10	09	1430	N21	W15	10	8.4	5	(BP)					
8716		KAND	10	10	0845	N22	W27	10	8.3			HS		1	4	2
8716	29351	MWIL	10	10	1445	N21	W28	10	8.5	5	(BP)					
8716		KAND	10	11	0700	N21	W37	10	8.4			CAO		6	8	5
8716	29351	MWIL	10	11	1430	N21	W43	10	8.3	5	(BP)					
8716		VORO	10	11	2207	N21	W48	10	8.2			HAX	207	4		2
8716		KAND	10	12	0700	N22	W54	10	8.1			CAO		5	8	3
8716	29351	MWIL	10	12	1500	N23	W57	10	8.2	5	(BP)					
8716		VORO	10	12	2320	N20	W61	10	8.3			HAX	242	3		2
8716		KAND	10	13	0715	N21	W64	10	8.4			HA		1	2	3
8716	29351	MWIL	10	13	1430	N22	W69	10	8.3	5	(AP)					
8716		HOLL	10	13	1610	N20	W70	10	8.3		A	HA	140	2	2	2
8716		LEAR	10	14	0040	N23	W69	10	8.7		B	CSO	100	3	11	4
8716		VORO	10	14	0107	N20	W75	10	8.3			HAX	158	1		2
8716		KAND	10	14	0742	N21	W78	10	8.3			HS		1	2	4
8716		SVTO	10	14	1027	N20	W81	10	8.2		A	HA	90	1	3	2
8716	29351	MWIL	10	14	1500	N21	W80	10	8.5	5	AP					
8721	29354	MWIL	10	02	1500	S18	E75	10	8.3	4	AP					
8721		KAND	10	03	0810	S19	E70	10	8.7			BXO		6	7	4
8721	29354	MWIL	10	03	1500	S20	E62	10	8.4	4	(B)					
8721		HOLL	10	03	1635	S17	E60	10	8.2		B	CSO	50	6	12	2
8721		LEAR	10	04	0146	S18	E57	10	8.4		B	DAI	60	12	10	3
8721		KAND	10	04	0845	S17	E51	10	8.2			DAO		11	8	4
8721		SVTO	10	04	1220	S17	E53	10	8.5		B	EAO	140	10	13	3
8721		RAMY	10	04	1246	S20	E51	10	8.4		B	EAO	110	16	13	4
8721	29354	MWIL	10	04	1445	S18	E48	10	8.3	5	(BP)					
8721		HOLL	10	04	1853	S21	E49	10	8.5		B	EAO	100	8	12	3
8721		LEAR	10	05	0043	S19	E45	10	8.5		B	EAO	130	6	12	3
8721		VORO	10	05	0140	S19	E42	10	8.3			DAI	317	9	18	2
8721		SVTO	10	05	0635	S18	E43	10	8.5		B	EAO	100	6	13	3
8721		KAND	10	05	0755	S18	E39	10	8.3			CAO		9	7	4
8721	29354	MWIL	10	05	1430	S18	E35	10	8.3	5	(BP)					
8721		RAMY	10	05	1433	S19	E38	10	8.5		B	EAO	80	12	12	3
8721		HOLL	10	05	1529	S18	E38	10	8.5		B	EAO	110	5	11	3
8721		RAMY	10	05	1533	S19	E38	10	8.5		B	EAO	80	12	12	3
8721		LEAR	10	06	0032	S19	E33	10	8.5		B	EAO	90	10	12	3
8721		SVTO	10	06	0545	S18	E31	10	8.6		B	EAO	90	6	13	3
8721		KAND	10	06	1130	S18	E25	10	8.4			DAO		8	8	3
8721		RAMY	10	06	1213	S20	E26	10	8.5		B	EAO	90	9	13	4
8721	29354	MWIL	10	06	1445	S17	E22	10	8.3	5	(BP)					
8721		HOLL	10	06	1518	S17	E21	10	8.2		B	DSO	60	5	6	3
8721		VORO	10	06	2226	S19	E22	10	8.6			DAI	158	6	13	3
8721		LEAR	10	07	0035	S20	E20	10	8.5		B	ESO	70	7	14	3
8721		SVTO	10	07	0727	S19	E14	10	8.4		B	DSO	110	9	8	3
8721		KAND	10	07	1130	S16	E08	10	8.1			HA		2	2	2
8721		RAMY	10	07	1213	S18	E09	10	8.2		B	CAO	40	5	7	3
8721	29354	MWIL	10	07	1500	S17	E08	10	8.2	4	(AP)					

S U N S P O T G R O U P S
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OCTOBER 1999

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8721		HOLL	10 07 1902	S17 E05	10 8.2		B	CSO	40	2	3	2
8721		LEAR	10 08 0028	S17 E01	10 8.1		B	CSO	40	3	2	3
8721		SVTO	10 08 0727	S16 W02	10 8.1		B	CAO	60	3	3	3
8721		RAMY	10 08 1218	S17 W07	10 8.0		A	HA	20	1	1	3
8721	29354	MWIL	10 08 1445	S17 W05	10 8.2	5	(BP)					
8721		VORO	10 08 2252	S16 W11	10 8.1			HRX	36	1		2
8721	29354	MWIL	10 09 1430	S17 W18	10 8.2	4	(BP)					
8721		KAND	10 10 0845	S16 W29	10 8.2			AX		1		2
8721	29354	MWIL	10 10 1445	S17 W31	10 8.2	4	(BP)					
8721		KAND	10 11 0700	S16 W42	10 8.1			AX		1		5
8721	29354	MWIL	10 11 1430	S17 W44	10 8.3	4	(BF)					
8721		HOLL	10 13 1610	S20 W70	10 8.3		A	HA	60	1	2	2
8726		KAND	10 03 0810	S21 E80	10 9.5			AX		1	1	4
8726	29357	MWIL	10 03 1500	S22 E70	10 9.0	4	(AP)					
8726		KAND	10 04 0845	S21 E61	10 9.0			HS		1	1	4
8726	29357	MWIL	10 04 1445	S21 E57	10 9.0	4	(AP)					
8726		KAND	10 05 0755	S22 E49	10 9.1			HA		1	2	4
8726	29357	MWIL	10 05 1430	S21 E45	10 9.0	5	(AP)					
8726		KAND	10 06 1130	S21 E34	10 9.1			HS		1	1	3
8726	29357	MWIL	10 06 1445	S21 E32	10 9.1	4	(AP)					
8726		HOLL	10 06 1518	S20 E32	10 9.1		A	HS	10	1	1	3
8726		SVTO	10 07 0727	S21 E23	10 9.1		A	HS	20	1	1	3
8726		KAND	10 07 1130	S20 E21	10 9.1			HS		1	1	2
8726		RAMY	10 07 1213	S22 E19	10 9.0		A	HS	10	1	1	3
8726	29357	MWIL	10 07 1500	S21 E18	10 9.0	4	(AP)					
8726		HOLL	10 07 1902	S21 E17	10 9.1		A	HS	10	1		2
8726		LEAR	10 08 0028	S22 E13	10 9.0		A	HS	20	1	1	3
8726		SVTO	10 08 0727	S21 E10	10 9.1		A	HR	10	1	1	3
8726		RAMY	10 08 1218	S22 E06	10 9.0		A	AX		2	1	3
8726	29357	MWIL	10 08 1445	S21 E05	10 9.0	4	(AP)					
8720	29355	MWIL	10 02 1500	N13 E80	10 8.7	3	(AP)					
8720		SVTO	10 03 0607	N14 E74	10 8.8		B	BXO	20	2	3	3
8720		KAND	10 03 0810	N14 E75	10 9.0			BXO		4	10	4
8720	29355	MWIL	10 03 1500	N13 E70	10 8.9	4	(B)					
8720		HOLL	10 03 1635	N14 E68	10 8.8		B	BXO	20	4	5	2
8720		LEAR	10 04 0146	N13 E65	10 9.0		B	CSO	20	5	9	3
8720		KAND	10 04 0845	N13 E61	10 9.0			CAO		3	9	4
8720		SVTO	10 04 1220	N13 E59	10 9.0		B	CSO	40	3	9	3
8720		RAMY	10 04 1246	N12 E58	10 8.9		B	CSO	20	5	10	4
8720	29355	MWIL	10 04 1445	N13 E57	10 8.9	4	(B)					
8720		HOLL	10 04 1853	N14 E54	10 8.9		B	CSO	30	4	9	3
8720		LEAR	10 05 0043	N13 E51	10 8.9		B	CSO	60	3	8	3
8720		VORO	10 05 0140	N13 E53	10 9.1			DAI	113	4	3	2
8720		SVTO	10 05 0635	N14 E53	10 9.3		B	CSO	50	3	3	3
8720		KAND	10 05 0755	N12 E51	10 9.2			CAO		4	3	4
8720	29355	MWIL	10 05 1430	N12 E47	10 9.1	4	(BF)					
8720		RAMY	10 05 1433	N12 E47	10 9.1		B	DAO	40	6	3	3
8720		HOLL	10 05 1529	N14 E46	10 9.1		B	DSO	70	3	3	3
8720		RAMY	10 05 1533	N12 E47	10 9.2		B	DAO	40	6	3	3
8720		LEAR	10 06 0032	N12 E41	10 9.1		B	DAO	60	9	4	3
8720		SVTO	10 06 0545	N13 E38	10 9.1		B	CRO	20	5	4	3
8720		KAND	10 06 1130	N13 E35	10 9.1			DAO		18	6	3
8720		RAMY	10 06 1213	N12 E34	10 9.1		B	DAI	130	18	6	4
8720	29355	MWIL	10 06 1445	N12 E33	10 9.1	4	(B)					
8720		HOLL	10 06 1518	N14 E32	10 9.0		B	CSO	60	27	6	3
8720		VORO	10 06 2226	N13 E29	10 9.1			DAI	146	10	5	3
8720		LEAR	10 07 0035	N12 E26	10 9.0		B	DSO	60	13	8	3
8720		SVTO	10 07 0727	N14 E24	10 9.1		B	DAO	60	18	8	3
8720		KAND	10 07 1130	N14 E21	10 9.1			CAO		7	7	2
8720		RAMY	10 07 1213	N13 E20	10 9.0		B	CAO	50	14	6	3
8720	29355	MWIL	10 07 1500	N13 E21	10 9.2	4	(BF)					
8720		HOLL	10 07 1902	N13 E16	10 9.0		B	CSO	40	21	6	2
8720		LEAR	10 08 0028	N13 E14	10 9.1		B	DSO	90	15	5	3
8720		SVTO	10 08 0727	N14 E09	10 9.0		B	DAO	40	16	10	3
8720		RAMY	10 08 1218	N13 E08	10 9.1		B	CSO	20	16	6	3
8720	29355	MWIL	10 08 1445	N14 E07	10 9.1	4	(BF)					
8720		VORO	10 08 2252	N14 E03	10 9.2			AXX	32	5	2	2

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

OCTOBER 1999

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
8720	29355	MWIL	10	09	1430	N14	W07	10	9.1	4	(B)					
8720	29355	MWIL	10	10	1445	N14	W20	10	9.1	4	(BP)					
8720		KAND	10	11	0700	N15	W26	10	9.3			BXO		3	4	5
8720	29355	MWIL	10	11	1430	N14	W33	10	9.1	4	(B)					
8720		LEAR	10	14	0040	N17	W66	10	9.0		B	BXO	10	2	4	4
8720A	29370	MWIL	10	09	1430	N19	E03	10	9.8	4	(AF)					
8720A	29370	MWIL	10	10	1445	N19	W11	10	9.8	3	(AF)					
8720A	29370	MWIL	10	11	1430	N18	W26	10	9.6	3	(AF)					
8720B	29364	MWIL	10	06	1445	N19	E50	10	10.4	4	(AP)					
8720B	29381	MWIL	10	15	1500	N14	W64	10	10.8	3	(AP)					
8725		LEAR	10	05	0043	S24	E76	10	10.9		A	HA	30	1	1	3
8725		VORO	10	05	0140	S24	E80	10	11.2			HAX	58	1		2
8725		SVTO	10	05	0635	S23	E78	10	11.3		A	HA	80	1	2	3
8725		KAND	10	05	0755	S24	E80	10	11.5			HA		1	2	4
8725	29363	MWIL	10	05	1430	S24	E72	10	11.2	4	AP					
8725		RAMY	10	05	1433	S26	E71	10	11.1		A	HA	20	1	2	3
8725		HOLL	10	05	1529	S23	E70	10	11.0		A	HA	60	1	1	3
8725		RAMY	10	05	1533	S26	E71	10	11.2		A	HA	20	1	2	3
8725		VORO	10	05	2230	S24	E68	10	11.2			HAX	63	1		3
8725		LEAR	10	06	0032	S24	E66	10	11.1		A	HA	60	1	1	3
8725		SVTO	10	06	0545	S23	E63	10	11.1		A	HA	60	1	2	3
8725		KAND	10	06	1130	S24	E61	10	11.2			HS		1	2	3
8725		RAMY	10	06	1213	S26	E59	10	11.1		A	HS	80	1	1	4
8725	29363	MWIL	10	06	1445	S24	E59	10	11.2	4	(AP)					
8725		HOLL	10	06	1518	S23	E57	10	11.0		A	HS	40	1	1	3
8725		VORO	10	06	2226	S24	E55	10	11.2			HAX	87	1		3
8725		LEAR	10	07	0035	S26	E52	10	11.1		A	HS	40	1	1	3
8725		SVTO	10	07	0727	S24	E51	10	11.2		A	HS	50	2	2	3
8725		KAND	10	07	1130	S23	E48	10	11.2			HS		1	2	2
8725		RAMY	10	07	1213	S26	E46	10	11.1		A	HS	40	1	2	3
8725	29363	MWIL	10	07	1500	S24	E45	10	11.1	4	(AP)					
8725		HOLL	10	07	1902	S23	E43	10	11.1		A	HS	30	1	1	2
8725		LEAR	10	08	0028	S25	E40	10	11.1		A	HS	30	1	1	3
8725		SVTO	10	08	0727	S24	E37	10	11.2		A	HS	60	1	2	3
8725		RAMY	10	08	1218	S26	E33	10	11.1		A	HS	40	1	1	3
8725	29363	MWIL	10	08	1445	S24	E32	10	11.1	5	(AP)					
8725		VORO	10	08	2252	S24	E28	10	11.1			HAX	59	1		2
8725	29363	MWIL	10	09	1430	S24	E19	10	11.1	5	(BP)					
8725		KAND	10	10	0845	S24	E09	10	11.0			HA		1	1	2
8725	29363	MWIL	10	10	1445	S24	E06	10	11.1	5	(BP)					
8725		KAND	10	11	0700	S24	W03	10	11.0			HS		1	1	5
8725	29363	MWIL	10	11	1430	S24	W07	10	11.1	5	(AP)					
8725		VORO	10	11	2207	S24	W12	10	11.0			HAX	39	2		2
8725		KAND	10	12	0700	S23	W17	10	11.0			HS		2	2	3
8725	29363	MWIL	10	12	1500	S24	W21	10	11.0	4	(AP)					
8725		VORO	10	12	2320	S24	W26	10	11.0			AXX	16	1		2
8725		KAND	10	13	0715	S23	W30	10	11.0			HS		1	1	3
8725	29363	MWIL	10	13	1430	S24	W34	10	11.0	4	(AP)					
8725		HOLL	10	13	1610	S25	W35	10	11.0		A	HS	10	1	1	2
8725		LEAR	10	14	0040	S22	W40	10	10.9		A	HS	10	1		4
8725		VORO	10	14	0107	S23	W40	10	11.0			AXX	12	1		2
8725		KAND	10	14	0742	S22	W43	10	11.0			AX		1	1	3
8725		SVTO	10	14	1027	S24	W47	10	10.8		A	AX		1		2
8725	29363	MWIL	10	14	1500	S24	W45	10	11.1	3	(AP)					
8725	29363	MWIL	10	16	1500	S27	W73	10	10.9	2	(AP)					
8723		RAMY	10	04	1246	N18	E81	10	10.7		A	HS	20	1	1	4
8723	29361	MWIL	10	04	1445	N20	E85	10	11.1	4	AP					
8723		HOLL	10	04	1853	N21	E82	10	11.1		A	HA	40	1	2	3
8723		LEAR	10	05	0043	N18	E78	10	11.0		A	HA	30	1	2	3
8723		VORO	10	05	0140	N21	E78	10	11.0			HAX	43	1		2
8723		SVTO	10	05	0635	N21	E77	10	11.2		A	HS	40	1	1	3
8723		KAND	10	05	0755	N20	E77	10	11.2			HS		1	2	4
8723	29361	MWIL	10	05	1430	N20	E71	10	11.0	4	(AP)					
8723		RAMY	10	05	1433	N19	E71	10	11.0		A	HS	30	1	2	3
8723		HOLL	10	05	1529	N21	E70	10	11.0		A	HA	40	1	1	3

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)
OCTOBER 1999

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8723		RAMY	10 05 1533	N19 E71	10 11.1		A	HS	30	1	2	3
8723		VORO	10 05 2230	N20 E67	10 11.1			HAX	65	1		3
8723		LEAR	10 06 0032	N18 E62	10 10.7		B	CAO	40	2	1	3
8723		SVTO	10 06 0545	N20 E60	10 10.8		B	BXO	10	2	8	3
8723		KAND	10 06 1130	N19 E52	10 10.4			AX		1		3
8723		KAND	10 06 1130	N20 E59	10 11.0			HS		1	2	3
8723		RAMY	10 06 1213	N18 E56	10 10.8		B	CAO	20	2	7	4
8723	29361	MWIL	10 06 1445	N20 E57	10 11.0	4	(AP)					
8723		HOLL	10 06 1518	N21 E58	10 11.1		A	HS	10	1	2	3
8723		VORO	10 06 2226	N21 E54	10 11.1			HAX	27	1		3
8723		LEAR	10 07 0035	N18 E47	10 10.6		B	CSO	30	3	11	3
8723		SVTO	10 07 0727	N23 E50	10 11.2		B	CSO	30	4	4	3
8723		KAND	10 07 1130	N21 E47	10 11.1			HR		1	1	2
8723		RAMY	10 07 1213	N20 E47	10 11.1		B	CRO	10	3	4	3
8723	29361	MWIL	10 07 1500	N20 E44	10 11.0	4	(BP)					
8723		HOLL	10 07 1902	N21 E42	10 11.0		B	CSO	20	4	3	2
8723		LEAR	10 08 0028	N19 E40	10 11.1		B	CSO	20	2	2	3
8723		SVTO	10 08 0727	N21 E35	10 11.0		A	HS	20	1	1	3
8723		RAMY	10 08 1218	N19 E33	10 11.0		A	HS	10	1	1	3
8723	29361	MWIL	10 08 1445	N20 E31	10 11.0	4	(AP)					
8723		VORO	10 08 2252	N20 E27	10 11.0			AXX	9	2		2
8723	29361	MWIL	10 09 1430	N20 E19	10 11.0	4	(AP)					
8723	29361	MWIL	10 10 1445	N20 E06	10 11.1	3	(AP)					
8725B	29371	MWIL	10 09 1430	S09 E26	10 11.5	4	(BF)					
8725B		KAND	10 10 0845	S10 E14	10 11.4			AX		1		2
8725B	29371	MWIL	10 10 1445	S10 E12	10 11.5	4	(B)					
8725A		KAND	10 13 0715	N23 W21	10 11.7			AX		2	1	3
8725A	29377	MWIL	10 13 1430	N24 W26	10 11.6	6	(AP)					
8725A		LEAR	10 14 0040	N26 W31	10 11.6		A	AX		1		4
8725A		VORO	10 14 0107	N24 W32	10 11.6			AXX	11	1		2
8725A		KAND	10 14 0742	N24 W34	10 11.7			HR		1	1	4
8727		VORO	10 06 2226	N19 E68	10 12.1			AXX	11	1		3
8727		LEAR	10 07 0035	N17 E65	10 12.0		A	AX	10	1	1	3
8727		SVTO	10 07 0727	N19 E63	10 12.1		A	HR	10	1	1	3
8727		KAND	10 07 1130	N20 E60	10 12.1			AX		1	1	2
8727		RAMY	10 07 1213	N18 E58	10 11.9		B	BXO	10	2	2	3
8727	29365	MWIL	10 07 1500	N18 E57	10 12.0	4	(AP)					
8727		HOLL	10 07 1902	N19 E55	10 12.0		A	HS	30	1		2
8727		LEAR	10 08 0028	N17 E53	10 12.0		B	CSO	60	3	2	3
8727		SVTO	10 08 0727	N19 E48	10 12.0		B	DSO	30	3	3	3
8727		RAMY	10 08 1218	N17 E45	10 11.9		B	CRO	20	3	1	3
8727	29365	MWIL	10 08 1445	N18 E43	10 11.9	4	(BP)					
8727		VORO	10 08 2252	N19 E40	10 12.0			AXX	11	1		2
8727	29365	MWIL	10 09 1430	N18 E30	10 11.9	5	(AP)					
8727		KAND	10 10 0845	N19 E20	10 11.9			AX		2	1	2
8727	29365	MWIL	10 10 1445	N18 E17	10 11.9	4	(AP)					
8727		KAND	10 11 0700	N19 E10	10 12.0			CSO		4	7	5
8727	29365	MWIL	10 11 1430	N19 E07	10 12.1	4	(B)					
8727		VORO	10 11 2207	N20 E03	10 12.1			BXO	25	2	6	2
8727		KAND	10 12 0700	N19 W01	10 12.2			BXO		5	7	3
8727	29365	MWIL	10 12 1500	N19 W05	10 12.2	4	(B)					
8727		VORO	10 12 2320	N19 W10	10 12.2			CAI	33	6	7	2
8727		KAND	10 13 0715	N19 W15	10 12.1			CSO		7	9	3
8727	29365	MWIL	10 13 1430	N19 W18	10 12.2	4	(B)					
8727		HOLL	10 13 1610	N21 W20	10 12.1		B	BXO	40	9	11	2
8727		LEAR	10 14 0040	N20 W24	10 12.2		B	DAO	30	9	8	4
8727		VORO	10 14 0107	N19 W25	10 12.1			HAX	55	2	3	2
8727		KAND	10 14 0742	N19 W28	10 12.2			DAO		3	4	4
8727		SVTO	10 14 1027	N19 W31	10 12.1		B	CSO	30	4	5	2
8727	29365	MWIL	10 14 1500	N20 W33	10 12.1	4	(BP)					
8727		VORO	10 15 0015	N20 W39	10 12.0			AXX	11	1		3
8727		KAND	10 15 0705	N19 W43	10 12.0			HR		1	1	3
8727		SVTO	10 15 0810	N19 W44	10 12.0		A	HS	10	1	1	3
8727	29365	MWIL	10 15 1500	N20 W47	10 12.0	4	(AP)					
8727		HOLL	10 15 1649	N20 W49	10 11.9		A	AX		1		3
8733		KAND	10 12 0700	N25 E08	10 12.9			AX		2	1	3

S U N S P O T G R O U P S
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OCTOBER 1999

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8733	29375	MWIL	10	12	1500	N25	E04	10	12.9	4	(BP)					
8733		VORO	10	12	2320	N24	W00	10	13.0			BXO	7	3	3	2
8733		KAND	10	13	0715	N24	W07	10	12.8			AX		2	1	3
8733	29375	MWIL	10	13	1430	N25	W07	10	13.1	4	(B)					
8733		HOLL	10	13	1610	N24	W09	10	13.0		B	BXO	10	3	4	2
8733		LEAR	10	14	0040	N26	W12	10	13.1		A	AX		1		4
8733B		SVTO	10	14	1027	S13	E06	10	14.9		A	AR		1	1	2
8733B	29378	MWIL	10	14	1500	S13	E03	10	14.8	4	(AP)					
8733B		HOLL	10	20	1600	S14	W75	10	15.0		B	CAO	50	3	9	3
8728		SVTO	10	08	0727	N24	E80	10	14.5		A	HS	30	1	3	3
8728		RAMY	10	08	1218	N19	E82	10	14.8		A	HS	30	1	1	3
8728	29367	MWIL	10	08	1445	N22	E79	10	14.7	5	AP					
8728		VORO	10	08	2252	N22	E75	10	14.7			HAX	63	1		2
8728	29367	MWIL	10	09	1430	N22	E68	10	14.8	5	(D)					
8728		KAND	10	10	0845	N23	E60	10	15.0			DSO		6	10	2
8728	29367	MWIL	10	10	1445	N22	E55	10	14.8	5	(B)					
8728		KAND	10	11	0700	N22	E47	10	14.9			EKI		20	12	5
8728	29367	MWIL	10	11	1430	N22	E43	10	14.9	5	(BG)					
8728		VORO	10	11	2207	N23	E40	10	15.0			DKI	887	16	9	2
8728		KAND	10	12	0700	N23	E34	10	14.9			EKI		17	12	3
8728	29367	MWIL	10	12	1500	N22	E29	10	14.8	5	(B)					
8728		VORO	10	12	2320	N23	E26	10	15.0			DKI	685	16	9	2
8728		KAND	10	13	0715	N22	E20	10	14.8			EKI		19	13	3
8728	29367	MWIL	10	13	1430	N22	E17	10	14.9	5	(B)					
8728		HOLL	10	13	1610	N23	E19	10	15.1		B	FHO	520	26	16	2
8728		LEAR	10	14	0040	N22	E12	10	14.9		B	EKO	320	19	13	4
8728		VORO	10	14	0107	N23	E12	10	15.0			DKI	607	9	10	2
8728		KAND	10	14	0742	N22	E09	10	15.0			EKO		26	13	4
8728		SVTO	10	14	1027	N23	E06	10	14.9		BG	EKI	350	25	13	2
8728	29367	MWIL	10	14	1500	N23	E05	10	15.0	6	(BP)					
8728		VORO	10	15	0015	N24	W00	10	15.0			EHI	460	15	10	3
8728		KAND	10	15	0705	N23	W05	10	14.9			EAO		11	14	3
8728		SVTO	10	15	0810	N23	W05	10	14.9		B	EAO	350	21	13	3
8728	29367	MWIL	10	15	1500	N23	W08	10	15.0	6	(BG)					
8728		HOLL	10	15	1649	N21	W10	10	14.9		B	EHO	280	11	13	3
8728		VORO	10	16	0002	N23	W14	10	14.9			EHI	411	7	11	3
8728		KAND	10	16	1015	N23	W19	10	15.0			ESO		11	14	2
8728	29367	MWIL	10	16	1500	N22	W21	10	15.0	6	(BG)					
8728		VORO	10	17	0354	N23	W30	10	14.8			SO	302	4	9	3
8728		SVTO	10	17	0842	N23	W33	10	14.8		B	EAO	270	13	13	3
8728		KAND	10	17	1230	N22	W33	10	15.0			ESO		6	12	2
8728	29367	MWIL	10	17	1530	N22	W36	10	14.9	5	(BP)					
8728		VORO	10	17	2208	N23	W39	10	14.9			CSO	206	4	10	3
8728		KAND	10	18	0615	N20	W49	10	14.5			HS		4	5	3
8728		HOLL	10	18	1107	N21	W54	10	14.3		A	HS	150	1	2	3
8728	29367	MWIL	10	18	1600	N22	W52	10	14.7	5	(AP)					
8728		VORO	10	18	2220	N21	W57	10	14.6			HAX	259	1		2
8728		LEAR	10	19	0335	N24	W59	10	14.6		B	DAO	130	3	5	4
8728	29367	MWIL	10	19	1630	N21	W65	10	14.7	5	(BG)					
8728		HOLL	10	19	1635	N21	W68	10	14.5		A	HA	120	1	2	3
8728		VORO	10	20	0113	N21	W71	10	14.6			HAX	181	1		2
8728		LEAR	10	20	0245	N26	W72	10	14.5		B	CAO	120	3	5	3
8728	29367	MWIL	10	20	1445	N21	W78	10	14.6	5	(AP)					
8728		HOLL	10	20	1600	N22	W80	10	14.5		A	HA	100	1	2	3
8728		VORO	10	20	2213	N22	W81	10	14.7			HAX	220	1		2
8728		SVTO	10	21	0627	N21	W85	10	14.7		A	HS	60	1	4	3
8728		LEAR	10	21	0630	N22	W86	10	14.7		A	HA	90	1	5	4
8729	29368	MWIL	10	08	1445	N11	E83	10	14.8	4	AP					
8729		VORO	10	08	2252	N14	E79	10	14.9			HRX	39	2		2
8729	29368	MWIL	10	09	1430	N12	E73	10	15.1	4	(BP)					
8729		KAND	10	10	0845	N12	E68	10	15.5			BXO		5	19	2
8729	29368	MWIL	10	10	1445	N12	E59	10	15.0	4	(B)					
8729		KAND	10	11	0700	N12	E52	10	15.2			BXO		9	15	5
8729	29368	MWIL	10	11	1430	N11	E47	10	15.1	5	(BG)					
8729		VORO	10	11	2207	N12	E43	10	15.2			BXI	55	10	11	2
8729		KAND	10	12	0700	N12	E40	10	15.3			FAO		16	18	3

S U N S P O T G R O U P S
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OCTOBER 1999

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
8729	29368	MWIL	10 12 1500	N13 E35	10 15.3	4	(BG)					
8729		VORO	10 12 2320	N12 E30	10 15.2			CRI	91	13	14	2
8729		KAND	10 13 0715	N11 E29	10 15.5			FAI		16	17	3
8729	29368	MWIL	10 13 1430	N13 E21	10 15.2	4	(BG)					
8729		HOLL	10 13 1610	N11 E21	10 15.2		B	CRO	110	30	16	2
8729		LEAR	10 14 0040	N12 E16	10 15.2		B	CAO	20	12	13	4
8729		VORO	10 14 0107	N11 E16	10 15.2			BXI	27	5	11	2
8729		KAND	10 14 0742	N13 E10	10 15.1			BXO		19	15	4
8729		SVTO	10 14 1027	N13 E09	10 15.1		B	FAO	40	21	16	2
8729	29368	MWIL	10 14 1500	N12 E07	10 15.1	4	(BG)					
8729		VORO	10 15 0015	N12 E01	10 15.1			BXO	10	3	10	3
8729		KAND	10 15 0705	N11 W08	10 14.7			AX		4	2	3
8729		SVTO	10 15 0810	N12 W03	10 15.1		B	CRO	30	8	10	3
8729	29368	MWIL	10 15 1500	N12 W08	10 15.0	4	(BP)					
8729		HOLL	10 15 1649	N12 W10	10 14.9		B	CAO	20	4	7	3
8729		VORO	10 16 0002	N11 W19	10 14.6			AXX	3	2		3
8729	29368	MWIL	10 16 1500	N12 W19	10 15.2	4	(BP)					
8729		SVTO	10 17 0842	N12 W34	10 14.8		B	BXO		3	6	3
8729		HOLL	10 18 1107	N14 W44	10 15.1		A	AX		1		3
8731A		KAND	10 16 1015	N12 W04	10 16.1			BXO		13	8	2
8731A	29383	MWIL	10 16 1500	N12 W06	10 16.2	4	(BG)					
8731A		VORO	10 17 0354	N12 W14	10 16.1			CAI	79	8	6	3
8731A		KAND	10 17 1230	N12 W19	10 16.1			CAO		12	7	2
8731A	29373A	MWIL	10 17 1530	N12 W20	10 16.1	4	(B)					
8731A	29383	MWIL	10 17 1530	N12 W20	10 16.1	4	(B)					
8731A		KAND	10 18 0615	N11 W30	10 16.0			BXO		10	9	3
8731A	29383	MWIL	10 18 1600	N13 W33	10 16.2	4	(BG)					
8731A		VORO	10 18 2220	N12 W35	10 16.3			CAI	57	3	2	2
8731A	29383	MWIL	10 19 1630	N12 W44	10 16.4	4	(AF)					
8731A	29383	MWIL	10 20 1445	N13 W57	10 16.3	3	(AF)					
8732		VORO	10 11 2207	N21 E58	10 16.4			AXX	14	3		2
8732		KAND	10 12 0700	N21 E53	10 16.3			BXO		4	3	3
8732	29376	MWIL	10 12 1500	N20 E48	10 16.3	4	(BF)					
8732		VORO	10 12 2320	N21 E43	10 16.3			BXI	52	7	6	2
8732		KAND	10 13 0715	N19 E37	10 16.1			CAO		10	9	3
8732	29376	MWIL	10 13 1430	N20 E33	10 16.1	4	(B)					
8732		HOLL	10 13 1610	N19 E32	10 16.1		B	DSO	230	10	8	2
8732		LEAR	10 14 0040	N20 E28	10 16.2		B	DAO	70	24	9	4
8732		VORO	10 14 0107	N20 E27	10 16.1			DAO	100	3	7	2
8732		KAND	10 14 0742	N20 E24	10 16.1			EAI		18	11	4
8732		SVTO	10 14 1027	N21 E22	10 16.1		B	DAO	140	14	10	2
8732	29376	MWIL	10 14 1500	N20 E20	10 16.1	5	(B)					
8732		VORO	10 15 0015	N20 E15	10 16.1			DAI	197	6	9	3
8732		KAND	10 15 0705	N20 E10	10 16.1			ESI		7	12	3
8732		SVTO	10 15 0810	N20 E09	10 16.0		B	EAO	160	16	12	3
8732	29376	MWIL	10 15 1500	N20 E06	10 16.1	5	(B)					
8732		HOLL	10 15 1649	N20 E04	10 16.0		B	ESO	200	6	14	3
8732		VORO	10 16 0002	N20 E01	10 16.1			DAI	327	5	11	3
8732		KAND	10 16 1015	N20 W04	10 16.1			EAO		10	14	2
8732	29376	MWIL	10 16 1500	N20 W06	10 16.2	5	(B)					
8732		VORO	10 17 0354	N20 W14	10 16.1			EAI	234	7	13	3
8732		SVTO	10 17 0842	N20 W18	10 16.0		B	EAO	250	25	15	3
8732		KAND	10 17 1230	N19 W19	10 16.1			FAO		23	16	2
8732	29376	MWIL	10 17 1530	N20 W21	10 16.0	4	(B)					
8732		VORO	10 17 2208	N20 W24	10 16.1			EAI	284	9	14	3
8732		KAND	10 18 0615	N19 W30	10 16.0			FAO		19	16	3
8732		HOLL	10 18 1107	N20 W36	10 15.7		B	FSO	190	14	16	3
8732	29376	MWIL	10 18 1600	N20 W33	10 16.1	5	(B)					
8732		VORO	10 18 2220	N20 W38	10 16.0			EAI	358	10	15	2
8732		LEAR	10 19 0335	N22 W41	10 16.0		B	FAI	180	39	16	4
8732	29376	MWIL	10 19 1630	N20 W46	10 16.2	5	(D)					
8732		HOLL	10 19 1635	N20 W50	10 15.9		B	FSO	200	15	16	3
8732		VORO	10 20 0113	N19 W53	10 16.0			EAI	354	15	16	2
8732		LEAR	10 20 0245	N24 W52	10 16.1		B	FAI	210	26	18	3
8732	29376	MWIL	10 20 1445	N20 W59	10 16.1	5	(BG)					
8732		HOLL	10 20 1600	N21 W61	10 16.0		B	FSI	120	20	16	3
8732		VORO	10 20 2213	N20 W61	10 16.3			EAI	331	9	10	2

S U N S P O T G R O U P S
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OCTOBER 1999

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
8732		SVTO	10	21	0627	N22	W68	10	16.0		B	FSO	70	12	18	3
8732		LEAR	10	21	0630	N21	W66	10	16.2		B	FAI	220	17	20	4
8732	29376	MWIL	10	21	1600	N20	W70	10	16.3	4	(B)					
8732		HOLL	10	21	1605	N18	W73	10	16.1		B	BXO	130	8	22	4
8732		VORO	10	22	0124	N19	W77	10	16.2			HAX	21	1		2
8732		LEAR	10	22	0155	N20	W79	10	16.0		B	EAI	90	10	12	4
8732		SVTO	10	22	0721	N19	W78	10	16.3		B	CRO	20	3	5	3
8732	29376	MWIL	10	22	1445	N20	W80	10	16.5	4	AF					
8732A	29385	MWIL	10	18	1600	S21	W28	10	16.5	4	(BP)					
8732A		LEAR	10	19	0335	S16	W38	10	16.3		B	BXO		2	6	4
8732B	29389	MWIL	10	21	1600	N27	W63	10	16.7	4	(AP)					
8732B		SVTO	10	22	0721	N27	W74	10	16.5		A	AX		1		3
8732B	29389	MWIL	10	22	1445	N28	W75	10	16.7	4	(B)					
8731B		HOLL	10	18	1107	S29	W21	10	16.8		A	AX		1		3
8731	29373	MWIL	10	10	1445	N12	E71	10	16.0	4	(B)					
8731		KAND	10	11	0700	N12	E71	10	16.6			DAO		4	8	5
8731	29373	MWIL	10	11	1430	N12	E68	10	16.7	4	(D)					
8731		VORO	10	11	2207	N12	E66	10	16.9			DAI	260	9	9	2
8731		KAND	10	12	0700	N12	E60	10	16.8			EKO		23	14	3
8731	29373	MWIL	10	12	1500	N11	E56	10	16.8	4	(B)					
8731		VORO	10	12	2320	N11	E51	10	16.8			DKI	726	19	8	2
8731		KAND	10	13	0715	N11	E45	10	16.7			EKO		17	12	3
8731	29373	MWIL	10	13	1430	N11	E42	10	16.8	5	(BG)					
8731		HOLL	10	13	1610	N11	E41	10	16.7		BG	EKO	810	38	12	2
8731		LEAR	10	14	0040	N11	E36	10	16.7		BG	EKC	530	42	12	4
8731		VORO	10	14	0107	N11	E37	10	16.8			DKI	915	22	9	2
8731		KAND	10	14	0742	N12	E34	10	16.9			EKC		38	13	4
8731		SVTO	10	14	1027	N14	E31	10	16.8		BG	FKI	730	50	18	2
8731	29373	MWIL	10	14	1500	N12	E28	10	16.7	5	(D)					
8731		VORO	10	15	0015	N12	E22	10	16.7			EKC	1227	26	11	3
8731		KAND	10	15	0705	N12	E13	10	16.3			CSO		2	3	3
8731		KAND	10	15	0705	N13	E20	10	16.8			EKC		17	11	3
8731		SVTO	10	15	0810	N13	E18	10	16.7		BG	FKI	1050	33	17	3
8731	29373	MWIL	10	15	1500	N12	E15	10	16.7	5	(BG)					
8731		HOLL	10	15	1649	N12	E12	10	16.6		BG	FKC	730	19	16	3
8731		VORO	10	16	0002	N12	E09	10	16.7			EKC	1503	24	11	3
8731		KAND	10	16	1015	N12	E05	10	16.8			EKI		42	11	2
8731	29373	MWIL	10	16	1500	N12	E04	10	16.9	5	(B)					
8731		VORO	10	17	0354	N12	W07	10	16.6			EKC	1540	28	11	3
8731		SVTO	10	17	0842	N13	W11	10	16.5		BGD	FKC	1250	67	20	3
8731		KAND	10	17	1230	N12	W09	10	16.8			EKI		48	12	2
8731		VORO	10	17	2208	N12	W14	10	16.9			EKC	1279	25	7	3
8731		KAND	10	18	0615	N12	W19	10	16.8			EKI		44	12	3
8731		HOLL	10	18	1107	N12	W26	10	16.5		BG	EKC	1070	10	14	3
8731	29373	MWIL	10	18	1600	N13	W24	10	16.8	5	(D)					
8731		VORO	10	18	2220	N12	W27	10	16.9			DKI	1149	27	8	2
8731		LEAR	10	19	0335	N13	W34	10	16.6		BG	FKC	640	88	17	4
8731	29373	MWIL	10	19	1630	N12	W36	10	17.0	5	(BG)					
8731		HOLL	10	19	1635	N12	W38	10	16.8		BG	EKC	640	29	15	3
8731		VORO	10	20	0113	N11	W42	10	16.9			DKI	604	30	9	2
8731		LEAR	10	20	0245	N15	W44	10	16.8		BG	EKI	580	45	13	3
8731	29373	MWIL	10	20	1445	N12	W50	10	16.8	5	(BG)					
8731		HOLL	10	20	1600	N12	W51	10	16.8		BG	EKI	300	44	13	3
8731		VORO	10	20	2213	N11	W54	10	16.9			DKI	538	16	8	2
8731		SVTO	10	21	0627	N12	W58	10	16.9		BG	EAI	290	26	14	3
8731		LEAR	10	21	0630	N12	W58	10	16.9		B	EAI	360	29	12	4
8731	29373	MWIL	10	21	1600	N12	W64	10	16.8	4	(BP)					
8731		HOLL	10	21	1605	N12	W66	10	16.7		B	DKO	310	6	9	4
8731		VORO	10	22	0124	N11	W69	10	16.9			DAI	100	4	6	2
8731		LEAR	10	22	0155	N12	W68	10	16.9		B	EAI	240	13	12	4
8731		SVTO	10	22	0721	N12	W69	10	17.1		B	ESI	160	15	15	3
8731		KAND	10	22	1210	N12	W74	10	16.9			CAO		4	10	2
8731		HOLL	10	22	1440	N12	W74	10	17.0		B	CSO	60	7	12	3
8731	29383A	MWIL	10	22	1445	N12	W76	10	16.9	4	(BP)					
8734	29374	MWIL	10	11	1430	N15	E83	10	17.9	4	(AP)					

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8734		KAND	10 12 0700	N16 E75	10 18.0			AX		1		3
8734		KAND	10 14 0742	N17 E38	10 17.2			CRO		3	2	4
8734	29379	MWIL	10 14 1500	N17 E37	10 17.4	4	(BF)					
8734		VORO	10 15 0015	N18 E36	10 17.7			AXX	9	1		3
8734		KAND	10 15 0705	N17 E30	10 17.6			BXO		2	5	3
8734		SVTO	10 15 0810	N17 E28	10 17.5		B	CRO	10	2	5	3
8734	29379	MWIL	10 15 1500	N17 E25	10 17.5	4	(B)					
8734		HOLL	10 15 1649	N17 E26	10 17.7		A	AX	10	1		3
8734		KAND	10 16 1015	N17 E15	10 17.6			BXO		2	5	3
8734	29379	MWIL	10 16 1500	N17 E12	10 17.5	3	(AP)					
8734		VORO	10 17 0354	N17 E07	10 17.7			AXX	7	1		3
8734		SVTO	10 17 0842	N17 W02	10 17.2		A	AX		2	2	3
8734		KAND	10 17 1230	N16 W02	10 17.4			AX		2	1	2
8734		KAND	10 18 0615	N16 W12	10 17.3			AX		1		3
8734		HOLL	10 18 1107	N18 W18	10 17.1		B	CSO	20	5	6	3
8734		VORO	10 20 0113	N18 W34	10 17.5			AXX	4	1		2
8734		LEAR	10 20 0245	N21 W35	10 17.4		B	BXO	20	5	3	3
8734	29379	MWIL	10 20 1445	N17 W43	10 17.3	4	(B)					
8734		HOLL	10 20 1600	N18 W43	10 17.4		B	BXO	30	5	4	3
8734		VORO	10 20 2213	N17 W45	10 17.5			AXX	28	3		2
8734		SVTO	10 21 0627	N17 W52	10 17.3		B	CRO	20	3	5	3
8734		LEAR	10 21 0630	N18 W49	10 17.5		A	HS	20	1	1	4
8734	29379	MWIL	10 21 1600	N17 W54	10 17.6	4	(AP)					
8734		LEAR	10 22 0155	N16 W60	10 17.5		A	AX		1		4
8734A	29384	MWIL	10 16 1500	S18 E20	10 18.1	3	(AP)					
8735	29382	MWIL	10 15 1500	N18 E55	10 19.8	3	(AF)					
8735		KAND	10 16 1015	N18 E43	10 19.7			BXO		6	5	2
8735	29382	MWIL	10 16 1500	N18 E40	10 19.7	4	(B)					
8735		VORO	10 17 0354	N19 E34	10 19.7			AXX	31	3	4	3
8735		SVTO	10 17 0842	N20 E30	10 19.6		B	DRO	40	7	5	3
8735		KAND	10 17 1230	N18 E28	10 19.6			BXO		5	5	2
8735	29382	MWIL	10 17 1530	N18 E26	10 19.6	4	(B)					
8735		VORO	10 17 2208	N19 E23	10 19.7			BXO	19	2	5	3
8735		KAND	10 18 0615	N19 E17	10 19.5			BXO		5	5	3
8735		HOLL	10 18 1107	N18 E18	10 19.8		B	CSO	20	5	6	3
8735	29382	MWIL	10 18 1600	N19 E13	10 19.6	4	(BP)					
8735		VORO	10 18 2220	N19 E07	10 19.5			HAX	27	1		2
8735		LEAR	10 19 0335	N19 E06	10 19.6		B	CSO	20	4	5	4
8735	29382	MWIL	10 19 1630	N18 W01	10 19.6	5	(BP)					
8735		HOLL	10 19 1635	N19 W04	10 19.4		A	AX	10	1	1	3
8735		VORO	10 20 0113	N19 W08	10 19.4			AXX	11	2		2
8735		LEAR	10 20 0245	N18 W08	10 19.5		B	BXO	10	2	1	3
8735	29382	MWIL	10 20 1445	N18 W13	10 19.6	4	(BP)					
8735		HOLL	10 20 1600	N19 W15	10 19.5		B	BXO	10	4	5	3
8735		VORO	10 20 2213	N18 W19	10 19.5			AXX	6	1		2
8735A		HOLL	10 18 1107	S35 E14	10 19.6		B	BXO	20	4	3	3
8736	29380	MWIL	10 14 1500	S22 E78	10 20.6	3	AP					
8736	29380	MWIL	10 15 1500	S21 E65	10 20.6	4	AP					
8736		KAND	10 16 1015	S20 E56	10 20.7			AX		1	1	2
8736	29380	MWIL	10 16 1500	S20 E54	10 20.7	4	(BP)					
8736		VORO	10 17 0354	S21 E47	10 20.8			AXX	12	1		3
8736		SVTO	10 17 0842	S19 E44	10 20.7		A	HR		1		3
8736		KAND	10 17 1230	S21 E41	10 20.7			HR		1	1	2
8736	29380	MWIL	10 17 1530	S21 E39	10 20.6	3	(AP)					
8736		VORO	10 17 2208	S21 E36	10 20.7			AXX	5	1		3
8736		KAND	10 18 0615	S20 E31	10 20.6			AX		1		3
8736		HOLL	10 18 1107	S26 E31	10 20.9		A	AX		1		3
8736	29380	MWIL	10 18 1600	S20 E27	10 20.7	4	(B)					
8736		VORO	10 18 2220	S21 E24	10 20.8			AXX	11	1		2
8736		LEAR	10 19 0335	S22 E15	10 20.3		B	BXO		2	6	4
8736	29380	MWIL	10 19 1630	S21 E14	10 20.8	4	(AP)					
8736		HOLL	10 19 1635	S20 E14	10 20.8		A	AX		1		3
8736		LEAR	10 20 0245	S25 E05	10 20.5		B	BXO	10	2	1	3
8736	29390	MWIL	10 21 1600	S16 W15	10 20.5	4	(B)					
8737		KAND	10 18 0615	S13 E39	10 21.2			BXO		2	3	3

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

OCTOBER 1999

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
8737	29386	MWIL	10 18 1600	S14 E35	10 21.3	4	(B)					
8737		VORO	10 18 2220	S15 E31	10 21.3			CAI	68	4	2	2
8737		LEAR	10 19 0335	S15 E25	10 21.0		B	CAO	30	11	6	4
8737	29386	MWIL	10 19 1630	S14 E20	10 21.2	5	(BF)					
8737		HOLL	10 19 1635	S14 E19	10 21.1		B	CS	70	5	8	3
8737		VORO	10 20 0113	S14 E14	10 21.1			DAI	83	7	6	2
8737		LEAR	10 20 0245	S16 E12	10 21.0		B	DAO	70	14	7	3
8737	29386	MWIL	10 20 1445	S14 E07	10 21.1	4	(B)					
8737		HOLL	10 20 1600	S15 E05	10 21.0		B	DSO	60	19	8	3
8737		VORO	10 20 2213	S14 E02	10 21.1			DAI	190	10	7	2
8737		SVTO	10 21 0627	S16 W04	10 21.0		B	EAI	170	24	12	3
8737		LEAR	10 21 0630	S15 W02	10 21.1		B	EAI	130	33	13	4
8737	29386	MWIL	10 21 1600	S14 W06	10 21.2	5	(BG)					
8737		HOLL	10 21 1605	S15 W08	10 21.1		B	EAI	210	25	14	4
8737		VORO	10 22 0124	S14 W14	10 21.0			DKI	268	15	9	2
8737		LEAR	10 22 0155	S15 W14	10 21.0		B	EKI	210	21	11	4
8737		SVTO	10 22 0721	S15 W17	10 21.0		B	DAO	430	24	11	3
8737		KAND	10 22 1210	S14 W20	10 21.0			EAO		9	11	2
8737		HOLL	10 22 1440	S15 W21	10 21.0		B	EAI	310	22	11	3
8737	29386	MWIL	10 22 1445	S14 W20	10 21.1	5	(B)					
8737		VORO	10 22 2215	S14 W25	10 21.0			DKI	453	9	8	2
8737		SVTO	10 23 0633	S15 W31	10 20.9		B	EKO	450	13	11	3
8737		LEAR	10 23 0750	S14 W31	10 21.0		B	DKO	250	12	10	2
8737		RAMY	10 23 1241	S12 W34	10 21.0		B	EAO	320	20	11	4
8737		HOLL	10 23 1518	S15 W35	10 21.0		B	EKO	20	21	10	3
8737	29386	MWIL	10 23 1600	S14 W34	10 21.1	5	(B)					
8737		VORO	10 23 2228	S14 W39	10 21.0			DAI	547	14	9	3
8737		LEAR	10 24 0010	S13 W40	10 21.0		B	DKO	260	13	10	3
8737		SVTO	10 24 0751	S14 W46	10 20.8		B	EKO	390	9	13	3
8737		KAND	10 24 1105	S15 W46	10 21.0			EKO		10	12	2
8737		RAMY	10 24 1236	S12 W49	10 20.8		B	EAO	360	13	13	4
8737	29386	MWIL	10 24 1445	S14 W47	10 21.1	5	(BG)					
8737		HOLL	10 24 1556	S15 W49	10 20.9		B	EKO	290	17	12	3
8737		VORO	10 24 2248	S14 W53	10 20.9			DKI	473	6	10	2
8737		LEAR	10 25 0012	S13 W54	10 20.9		B	EKO	260	6	12	3
8737		KAND	10 25 0625	S13 W55	10 21.1			EKO		7	12	4
8737		SVTO	10 25 0905	S14 W59	10 20.9		B	EAO	460	4	13	3
8737		RAMY	10 25 1202	S12 W61	10 20.9		B	ESO	400	5	13	4
8737	29386	MWIL	10 25 1600	S13 W61	10 21.1	5	(D)					
8737		HOLL	10 25 1623	S16 W64	10 20.8		B	EKO	290	8	13	1
8737		LEAR	10 26 0032	S13 W68	10 20.9		B	EAO	530	5	15	3
8737		KAND	10 26 0820	S15 W72	10 20.9			FKO		6	16	4
8737		SVTO	10 26 1123	S16 W74	10 20.9		B	EKO	550	3	13	2
8737		RAMY	10 26 1217	S12 W74	10 20.9		B	ESO	250	7	12	3
8737	29386	MWIL	10 26 1445	S14 W74	10 21.0	5	(BF)					
8737		HOLL	10 26 1756	S18 W71	10 21.3		A	HA	190	1	2	3
8737		LEAR	10 27 0021	S13 W78	10 21.1		A	HA	240	2	3	3
8737		KAND	10 27 0610	S16 W83	10 21.0			HS		1	3	2
8737		SVTO	10 27 0847	S14 W78	10 21.5		A	HS	110	1	2	3
8737		RAMY	10 27 1245	S13 W85	10 21.1		A	HS	60	1	9	3
8737	29386	MWIL	10 27 1445	S14 W86	10 21.1	5	(AF)					
8737B		KAND	10 17 1230	S26 E49	10 21.3			AX		2	2	2
8737A		RAMY	10 25 1202	N05 W49	10 21.8		B	BXO		6	5	4
8737C	29397	MWIL	10 27 1445	N13 W75	10 21.9	4	(AF)					
8738		VORO	10 20 0113	N19 E40	10 23.1			AXX	10	2		2
8738		LEAR	10 20 0245	N15 E39	10 23.1		A	AX		2		3
8738	29387	MWIL	10 20 1445	N18 E32	10 23.0	4	(BP)					
8738		HOLL	10 20 1600	N17 E32	10 23.1		B	CRO	20	4	3	3
8738		VORO	10 20 2213	N18 E27	10 23.0			HAX	21	1		2
8738		SVTO	10 21 0627	N16 E22	10 22.9		A	HS	10	2	1	3
8738		LEAR	10 21 0630	N17 E23	10 23.0		B	CAO	30	3	2	4
8738	29387	MWIL	10 21 1600	N17 E18	10 23.0	5	(BP)					
8738		HOLL	10 21 1605	N17 E17	10 23.0		B	CRO	20	3	3	4
8738		VORO	10 22 0124	N19 E12	10 23.0			HSX	21	1		2
8738		LEAR	10 22 0155	N17 E12	10 23.0		B	CSO	20	3	1	4

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OCTOBER 1999

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8738		SVTO	10 22 0721	N17 E08	10 22.9		B	CAO	20	3	3	3
8738		KAND	10 22 1210	N18 E04	10 22.8			HS		1	1	2
8738		HOLL	10 22 1440	N18 E02	10 22.8		A	HS	10	1	1	3
8738	29387	MWIL	10 22 1445	N17 E04	10 22.9	4	(BP)					
8738		VORO	10 22 2215	N19 W01	10 22.8			HSX	22	1		2
8738		SVTO	10 23 0633	N17 W05	10 22.9		B	CSO	30	4	4	3
8738		LEAR	10 23 0750	N18 W06	10 22.9		B	CSO	30	5	7	2
8738		RAMY	10 23 1241	N18 W07	10 23.0		B	BXO	10	6	4	4
8738		HOLL	10 23 1518	N17 W09	10 22.9		B	CSO	20	9	4	3
8738	29387	MWIL	10 23 1600	N17 W09	10 23.0	4	(B)					
8738		VORO	10 23 2228	N17 W13	10 22.9			BXO	27	3	2	3
8738		LEAR	10 24 0010	N18 W14	10 22.9		B	CSO	30	2	4	3
8738		SVTO	10 24 0751	N18 W18	10 22.9		B	DSO	40	4	4	3
8738		KAND	10 24 1105	N16 W19	10 23.0			CAO		6	4	2
8738		RAMY	10 24 1236	N18 W21	10 22.9		B	CRO	20	7	4	4
8738	29387	MWIL	10 24 1445	N17 W22	10 22.9	4	(B)					
8738		HOLL	10 24 1556	N17 W23	10 22.9		B	CSO	20	11	4	3
8738		VORO	10 24 2248	N18 W27	10 22.9			CAI	53	4	3	2
8738		LEAR	10 25 0012	N18 W27	10 22.9		B	CSO	20	5	4	3
8738		KAND	10 25 0625	N17 W30	10 23.0			CSO		3	4	4
8738		SVTO	10 25 0905	N17 W32	10 22.9		B	CRO	20	4	3	3
8738		RAMY	10 25 1202	N18 W34	10 22.9		B	CRO	10	3	3	4
8738	29387	MWIL	10 25 1600	N17 W35	10 23.0	4	(BF)					
8738		HOLL	10 25 1623	N16 W37	10 22.9		B	CSO	20	2	3	1
8738		LEAR	10 26 0032	N17 W41	10 22.9		B	BXO	10	3	3	3
8738		KAND	10 26 0820	N16 W45	10 22.9			CSC		2	2	4
8738		RAMY	10 26 1217	N18 W47	10 22.9		B	BXO	10	3	2	3
8738	29387	MWIL	10 26 1445	N17 W48	10 23.0	4	(BF)					
8738		HOLL	10 26 1756	N15 W51	10 22.9		A	AX		1		3
8738		LEAR	10 27 0021	N18 W54	10 22.9		B	CSO	220	2	3	3
8738		KAND	10 27 0610	N16 W56	10 23.0			CRO		3	2	2
8738		SVTO	10 27 0847	N16 W60	10 22.8		A	HS	20	2	2	3
8738		RAMY	10 27 1245	N18 W61	10 22.9		B	CSO	30	2	1	3
8738	29387	MWIL	10 27 1445	N17 W62	10 22.9	4	(BF)					
8738		HOLL	10 27 1907	N15 W66	10 22.8		A	HS	30	1	1	2
8738		VORO	10 27 2335	N16 W68	10 22.8			HAX	35	1		4
8738		LEAR	10 28 0005	N18 W67	10 22.9		A	HS	40	1	1	4
8738		KAND	10 28 0630	N17 W71	10 22.9			AX		1	1	2
8738		SVTO	10 28 0801	N16 W72	10 22.9		A	HR	10	1		3
8738		RAMY	10 28 1247	N18 W75	10 22.8		A	AX		1		3
8738	29387	MWIL	10 28 1600	N16 W75	10 23.0	4	AF					
8738B		KAND	10 22 1210	N15 E22	10 24.2			AX		1		2
8738A		RAMY	10 26 1217	N28 W25	10 24.5		A	AX		1		3
8738A	29395	MWIL	10 26 1445	N26 W26	10 24.6	4	(AP)					
8739	29388	MWIL	10 20 1445	S12 E76	10 26.3	4	(AP)					
8739		HOLL	10 20 1600	S14 E75	10 26.3		B	CAO	50	3	9	3
8739		SVTO	10 21 0627	S13 E67	10 26.3		B	DAO	140	4	9	3
8739		LEAR	10 21 0630	S12 E67	10 26.3		B	DAO	90	9	9	4
8739	29388	MWIL	10 21 1600	S12 E62	10 26.3	4	(B)					
8739		HOLL	10 21 1605	S12 E62	10 26.3		B	DSO	170	9	9	4
8739		LEAR	10 22 0155	S13 E56	10 26.3		B	DAO	180	13	10	4
8739		SVTO	10 22 0721	S13 E53	10 26.3		B	DAI	230	22	11	3
8739		KAND	10 22 1210	S17 E50	10 26.3			DAO		13	10	2
8739		HOLL	10 22 1440	S12 E47	10 26.1		B	ESI	270	25	11	3
8739	29388	MWIL	10 22 1445	S12 E49	10 26.3	4	(BF)					
8739		SVTO	10 23 0633	S13 E40	10 26.3		B	EKI	550	17	13	3
8739		LEAR	10 23 0750	S12 E37	10 26.1		B	DAI	290	22	10	2
8739		RAMY	10 23 1241	S14 E35	10 26.2		B	EAI	440	23	13	4
8739		HOLL	10 23 1518	S11 E35	10 26.3		BG	EKI	440	30	14	3
8739	29388	MWIL	10 23 1600	S12 E35	10 26.3	5	(BG)					
8739		LEAR	10 24 0010	S12 E28	10 26.1		B	EKI	310	31	11	3
8739		SVTO	10 24 0751	S11 E25	10 26.2		B	EKI	340	29	14	3
8739		KAND	10 24 1105	S11 E24	10 26.3			EAO		32	13	2
8739		RAMY	10 24 1236	S13 E21	10 26.1		B	ESI	480	41	14	4
8739	29388	MWIL	10 24 1445	S12 E22	10 26.3	5	(BG)					
8739		HOLL	10 24 1556	S11 E22	10 26.3		BGD	EKC	550	43	14	3

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OCTOBER 1999

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8739		LEAR	10 25 0012	S12 E15	10 26.1		B	EKI	340	34	13	3
8739		KAND	10 25 0625	S11 E13	10 26.2			EKI		32	14	4
8739		SVTO	10 25 0905	S11 E12	10 26.3		BG	FKC	810	44	16	3
8739		RAMY	10 25 1202	S12 E09	10 26.2		BG	ESO	560	76	14	4
8739	29388	MWIL	10 25 1600	S12 E08	10 26.3	5	(D)					
8739		HOLL	10 25 1623	S11 E08	10 26.3		BG	EHC	590	65	15	1
8739		LEAR	10 26 0032	S12 E02	10 26.2		BGD	FKC	910	80	16	3
8739		KAND	10 26 0820	S11 W01	10 26.3			EKC		42	17	4
8739		SVTO	10 26 1123	S12 W03	10 26.2		BG	FKC	900	36	16	2
8739		RAMY	10 26 1217	S11 W05	10 26.1		BGD	EKC	800	68	14	3
8739	29388	MWIL	10 26 1445	S11 W08	10 26.0	5	(D)					
8739		HOLL	10 26 1756	S11 W08	10 26.1		BG	FHC	630	57	16	3
8739		LEAR	10 27 0021	S11 W11	10 26.2		BG	FAC	660	58	16	3
8739		KAND	10 27 0610	S11 W14	10 26.2			FAI		47	16	2
8739		SVTO	10 27 0847	S12 W14	10 26.3		BG	FAC	600	38	17	3
8739		RAMY	10 27 1245	S12 W17	10 26.2		BG	FKI	680	31	16	3
8739	29388	MWIL	10 27 1445	S11 W18	10 26.3	5	(D)					
8739		HOLL	10 27 1907	S12 W22	10 26.1		BG	FSC	590	39	16	2
8739		LEAR	10 28 0005	S11 W24	10 26.2		BG	EAI	590	54	15	4
8739		KAND	10 28 0630	S10 W27	10 26.2			FKI		26	17	2
8739		SVTO	10 28 0801	S13 W28	10 26.2		BG	FKI	610	17	17	3
8739		RAMY	10 28 1247	S10 W32	10 26.1		B	FKI	580	28	16	3
8739	29388	MWIL	10 28 1600	S11 W32	10 26.2	5	(B)					
8739		LEAR	10 29 0045	S11 W37	10 26.2		B	FAO	390	24	16	3
8739		KAND	10 29 0955	S11 W41	10 26.3			FKI		17	17	4
8739		RAMY	10 29 1210	S11 W45	10 26.1		BG	FKI	570	27	16	4
8739	29388	MWIL	10 29 1500	S12 W43	10 26.4	4	(B)					
8739		HOLL	10 29 1513	S13 W42	10 26.5		BG	FKC	350	30	18	3
8739		KAND	10 30 1135	S13 W58	10 26.1			FSO		18	18	3
8739	29388	MWIL	10 30 1600	S11 W58	10 26.3	5	(D)					
8739		LEAR	10 31 0055	S10 W65	10 26.1		BG	EAI	240	8	15	2
8739		KAND	10 31 0810	S16 W67	10 26.2			FSO		4	17	3
8739		SVTO	10 31 0938	S12 W76	10 25.7		B	EAO	170	6	13	2
8739		RAMY	10 31 1215	S10 W71	10 26.2		B	FSO	140	11	19	4
8739	29388	MWIL	10 31 1500	S11 W68	10 26.5	4	(B)					
8739		HOLL	10 31 1550	S13 W73	10 26.1		BG	FAO	210	7	16	3
8739		LEAR	11 01 0002	S12 W76	10 26.4		B	EAI	180	10	15	4
8739		KAND	11 01 0900	S14 W77	10 26.6			HA		1	3	4
8739	29388	MWIL	11 01 1530	S13 W78	10 26.9	4	(AF)					
8743		KAND	10 25 0625	S14 E30	10 27.5			BXO		2	2	4
8743		SVTO	10 25 0905	S14 E29	10 27.6		A	HS	20	2	2	3
8743		RAMY	10 25 1202	S16 E26	10 27.5		B	BXO		4	3	4
8743	29393	MWIL	10 25 1600	S15 E25	10 27.5	4	(B)					
8743		HOLL	10 25 1623	S14 E24	10 27.5		B	BXO	20	2	3	1
8743		LEAR	10 26 0032	S15 E18	10 27.4		B	BXO		4	4	3
8743		KAND	10 26 0820	S14 E15	10 27.5			BXO		3	5	4
8743		RAMY	10 26 1217	S15 E12	10 27.4		B	BXO	10	3	4	3
8743	29393	MWIL	10 26 1445	S15 E12	10 27.5	5	(BF)					
8743		HOLL	10 26 1756	S13 E11	10 27.6		B	BXO	10	3	5	3
8743		LEAR	10 27 0021	S14 E06	10 27.5		B	DAO	20	5	5	3
8743		KAND	10 27 0610	S14 E06	10 27.7			BXO		4	5	2
8743		SVTO	10 27 0847	S15 E02	10 27.5		B	CAO	10	3	5	3
8743		RAMY	10 27 1245	S14 W03	10 27.3		B	DSO	30	2	5	3
8743	29393	MWIL	10 27 1445	S14 W02	10 27.5	5	(BF)					
8743		HOLL	10 27 1907	S15 W02	10 27.6		A	AX	10	2	1	2
8743		LEAR	10 28 0005	S14 W06	10 27.6		B	CRO	20	3	2	4
8743		KAND	10 28 0630	S15 W09	10 27.6			CRO		3	4	2
8743		SVTO	10 28 0801	S15 W08	10 27.7		A	AX		2	2	3
8743		RAMY	10 28 1247	S15 W14	10 27.5		B	BXO	10	6	4	3
8743	29393	MWIL	10 28 1600	S14 W15	10 27.5	4	B					
8743		LEAR	10 29 0045	S14 W20	10 27.5		B	CSO	30	6	4	3
8743		KAND	10 29 0955	S15 W25	10 27.5			CSO		7	7	4
8743		RAMY	10 29 1210	S14 W27	10 27.5		B	DSO	50	9	6	4
8743	29393	MWIL	10 29 1500	S14 W28	10 27.5	4	(B)					
8743		HOLL	10 29 1513	S15 W28	10 27.5		B	DAO	40	10	6	3
8743		KAND	10 30 1135	S16 W40	10 27.4			DSO		9	9	3
8743	29393	MWIL	10 30 1600	S15 W42	10 27.5	5	(B)					
8743		LEAR	10 31 0055	S13 W47	10 27.5		B	DAO	140	2	9	2

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

OCTOBER 1999

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
8743		KAND	10 31 0810	S15 W53	10 27.3			ESO		2	11	3
8743		SVTO	10 31 0938	S14 W57	10 27.1		B	FAO	90	4	17	2
8743		RAMY	10 31 1215	S14 W56	10 27.3		B	EAO	120	5	12	4
8743	29393	MWIL	10 31 1500	S14 W58	10 27.2	5	(B)					
8743		HOLL	10 31 1550	S17 W56	10 27.4		B	EAO	100	7	11	3
8743		LEAR	11 01 0002	S15 W58	10 27.7		A	HS	50	1	1	4
8743		KAND	11 01 0900	S16 W70	10 27.2			CSO		2	13	4
8743		SVTO	11 01 0935	S15 W68	10 27.3		B	FSO	180	4	18	3
8743	29393	MWIL	11 01 1530	S14 W69	10 27.5	4	(BF)					
8743		HOLL	11 01 1604	S17 W71	10 27.4		B	ESO	120	5	12	3
8743		LEAR	11 02 0210	S14 W71	10 27.8		A	HA	60	1	1	2
8743		KAND	11 02 0920	S17 W77	10 27.6			HS		1	2	3
8743		RAMY	11 02 1208	S15 W78	10 27.7		A	HS	30	1	1	3
8743	29393	MWIL	11 02 1530	S16 W78	10 27.8	4	(AF)					
8743		HOLL	11 02 1904	S18 W81	10 27.7		A	HS	100	1	3	3
8743		LEAR	11 02 2255	S13 W80	10 28.0		A	HA	50	1	2	4
8741		LEAR	10 22 0155	S26 E75	10 27.9		B	CAO	90	7	8	4
8741		SVTO	10 22 0721	S26 E76	10 28.2		B	FSO	90	4	19	3
8741		KAND	10 22 1210	S26 E70	10 27.9			CAO		5	15	2
8741		HOLL	10 22 1440	S24 E66	10 27.7		B	CAO	60	9	10	3
8741	29391	MWIL	10 22 1445	S25 E69	10 28.0	4	B					
8741		SVTO	10 23 0633	S26 E61	10 28.0		B	EAO	280	10	14	3
8741		LEAR	10 23 0750	S24 E57	10 27.7		B	EAI	150	13	11	2
8741		RAMY	10 23 1241	S28 E55	10 27.8		B	EAO	190	18	13	4
8741		HOLL	10 23 1518	S23 E54	10 27.8		B	EKO	200	25	13	3
8741	29391	MWIL	10 23 1600	S25 E54	10 27.8	5	(BG)					
8741		LEAR	10 24 0010	S25 E49	10 27.8		B	EAI	150	13	11	3
8741		SVTO	10 24 0751	S26 E45	10 27.8		B	EAO	240	16	14	3
8741		KAND	10 24 1105	S25 E44	10 27.9			EAO		21	13	2
8741		RAMY	10 24 1236	S28 E40	10 27.6		B	EAO	240	17	14	4
8741	29391	MWIL	10 24 1445	S25 E41	10 27.8	5	(B)					
8741		HOLL	10 24 1556	S24 E41	10 27.8		B	EAI	250	24	14	3
8741		LEAR	10 25 0012	S25 E35	10 27.7		B	EAO	200	18	12	3
8741		KAND	10 25 0625	S24 E31	10 27.7			EAO		12	14	4
8741		SVTO	10 25 0905	S24 E31	10 27.8		B	EAO	380	12	13	3
8741		RAMY	10 25 1202	S27 E28	10 27.7		B	EAO	270	24	13	4
8741	29391	MWIL	10 25 1600	S25 E27	10 27.7	5	(BG)					
8741		HOLL	10 25 1623	S23 E27	10 27.8		B	EAO	250	13	13	1
8741		LEAR	10 26 0032	S26 E20	10 27.6		B	EAO	180	13	13	3
8741		KAND	10 26 0820	S25 E19	10 27.8			ESO		17	14	4
8741		SVTO	10 26 1123	S25 E17	10 27.8		B	EAO	210	15	13	2
8741		RAMY	10 26 1217	S25 E15	10 27.7		B	EAO	180	13	13	3
8741	29391	MWIL	10 26 1445	S24 E15	10 27.8	5	(BG)					
8741		HOLL	10 26 1756	S24 E14	10 27.8		B	ESO	150	18	13	3
8741		LEAR	10 27 0021	S26 E08	10 27.6		B	EAO	140	15	13	3
8741		KAND	10 27 0610	S24 E06	10 27.7			ESI		16	13	2
8741		SVTO	10 27 0847	S25 E07	10 27.9		B	EAO	160	22	14	3
8741		RAMY	10 27 1245	S24 E03	10 27.8		B	ESO	260	20	12	3
8741	29391	MWIL	10 27 1445	S24 E02	10 27.8	5	(B)					
8741		HOLL	10 27 1907	S25 E01	10 27.9		B	ESO	140	20	13	2
8741		LEAR	10 28 0005	S24 W04	10 27.7		B	EAO	190	24	13	4
8741		KAND	10 28 0630	S24 W05	10 27.9			EAI		16	13	2
8741		SVTO	10 28 0801	S25 W07	10 27.8		B	EAO	140	11	13	3
8741		RAMY	10 28 1247	S26 W11	10 27.7		B	ESO	120	21	13	3
8741	29391	MWIL	10 28 1600	S25 W11	10 27.8	4	(B)					
8741		LEAR	10 29 0045	S24 W16	10 27.8		B	EAO	160	29	12	3
8741		KAND	10 29 0955	S25 W20	10 27.9			EAO		14	14	4
8741		RAMY	10 29 1210	S24 W23	10 27.7		BG	EAI	230	25	12	4
8741	29391	MWIL	10 29 1500	S25 W23	10 27.8	4	(B)					
8741		HOLL	10 29 1513	S25 W25	10 27.7		BG	EAC	140	17	13	3
8741		KAND	10 30 1135	S26 W35	10 27.8			EAO		9	13	3
8741	29391	MWIL	10 30 1600	S25 W36	10 27.9	5	(BF)					
8741		LEAR	10 31 0055	S23 W42	10 27.8		B	EAO	150	4	11	2
8741		KAND	10 31 0810	S24 W45	10 27.9			ESO		3	11	3
8741		SVTO	10 31 0938	S26 W49	10 27.6		B	EAO	150	3	12	2
8741		RAMY	10 31 1215	S24 W48	10 27.8		B	EAO	170	10	12	4
8741	29391	MWIL	10 31 1500	S25 W49	10 27.8	4	(B)					
8741		HOLL	10 31 1550	S26 W49	10 27.8		BG	ESC	90	6	12	3

S U N S P O T G R O U P S
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OCTOBER 1999

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
8741		LEAR	11	01	0002	S24	W55	10	27.8		B	EAO	150	7	12	4
8741		KAND	11	01	0900	S26	W60	10	27.8			ESO		3	14	4
8741		SVTO	11	01	0935	S25	W59	10	27.9		B	EAO	130	4	11	3
8741	29391	MWIL	11	01	1530	S25	W62	10	27.9	4	(B)					
8741		HOLL	11	01	1604	S27	W63	10	27.9		B	EAO	180	4	13	3
8741		LEAR	11	02	0210	S24	W68	10	27.9		B	DAO	130	4	10	2
8741		KAND	11	02	0920	S27	W75	10	27.6			EAO		5	15	3
8741		RAMY	11	02	1208	S24	W72	10	28.0		B	ESO	50	4	13	3
8741	29391	MWIL	11	02	1530	S25	W75	10	27.9	4	(B)					
8741		HOLL	11	02	1904	S27	W79	10	27.7		B	CAO	130	5	13	3
8741		LEAR	11	02	2255	S24	W76	10	28.2		B	BXO	30	3	6	4
8744		SVTO	10	25	0905	N08	E51	10	29.2		B	BXO	10	4	5	3
8744	29394	MWIL	10	25	1600	N06	E46	10	29.1	4	(B)					
8744		LEAR	10	26	0032	N07	E40	10	29.0		B	BXO		5	5	3
8744		KAND	10	26	0820	N09	E37	10	29.1			AX		3	2	4
8744		RAMY	10	26	1217	N07	E37	10	29.3		A	AX		3	2	3
8744	29394	MWIL	10	26	1445	N08	E33	10	29.1	4	(B)					
8744		LEAR	10	27	0021	N08	E30	10	29.3		A	AX		2		3
8744		KAND	10	27	0610	N08	E27	10	29.3			AX		2	1	2
8744		SVTO	10	27	0847	N09	E23	10	29.1		B	CRO	10	6	6	3
8744		RAMY	10	27	1245	N09	E23	10	29.2		B	BXO	10	4	3	3
8744	29394	MWIL	10	27	1445	N10	E21	10	29.2	4	(B)					
8744		HOLL	10	27	1907	N12	E17	10	29.1		A	AX	10	2	1	2
8744		LEAR	10	28	0005	N10	E16	10	29.2		B	BXO	20	5	3	4
8744		KAND	10	28	0630	N10	E11	10	29.1			BXO		2	4	2
8744		SVTO	10	28	0801	N10	E11	10	29.2		B	BXO		2	4	3
8744		RAMY	10	28	1247	N10	E08	10	29.1		B	BXO		2	4	3
8744	29394	MWIL	10	28	1600	N11	E06	10	29.1	4	B					
8744		KAND	10	30	1135	N11	W16	10	29.3			AX		2	1	3
8744	29403	MWIL	10	30	1600	N06	W23	10	28.9	3	(AP)					
8744	29394	MWIL	10	30	1600	N11	W18	10	29.3	3	(AF)					
8744		RAMY	10	31	1215	N11	W32	10	29.1		A	AX		1		4
8744	29403	MWIL	10	31	1500	N06	W37	10	28.8	3	(AP)					
8744	29394	MWIL	10	31	1500	N11	W33	10	29.1	4	(B)					
8744		HOLL	10	31	1550	N09	W34	10	29.1		A	AX	10	2	2	3
8744		LEAR	11	01	0002	N10	W40	10	29.1		B	CRO	10	2	2	4
8744		SVTO	11	01	0935	N08	W47	10	29.0		A	AX		2	1	3
8744	29403	MWIL	11	01	1530	N06	W51	10	28.9	3	(AP)					
8744	29394	MWIL	11	01	1530	N11	W44	10	29.4	4	(AP)					
8744A		RAMY	10	27	1245	S16	E33	10	30.0		B	BXO	10	4	3	3
8744A	29398	MWIL	10	27	1445	S14	E32	10	30.0	4	(B)					
8744A		HOLL	10	27	1907	S13	E32	10	30.2		A	AX	10	2	1	2
8744A	29398	MWIL	10	28	1600	S14	E19	10	30.1	3	AF					
8742		RAMY	10	23	1241	N04	E88	10	30.1		A	HK	120	1	3	4
8742		HOLL	10	23	1518	N09	E86	10	30.1		A	HK	270	1	4	3
8742	29392	MWIL	10	23	1600	N07	E85	10	30.0	4	(AP)					
8742		LEAR	10	24	0010	N07	E73	10	29.5		B	EKO	130	4	15	3
8742		SVTO	10	24	0751	N09	E75	10	29.9		B	DKO	300	6	7	3
8742		KAND	10	24	1105	N08	E77	10	30.2			EKO		12	14	2
8742		RAMY	10	24	1236	N06	E74	10	30.1		B	EAO	300	8	12	4
8742	29392	MWIL	10	24	1445	N09	E73	10	30.1	5	(B)					
8742		HOLL	10	24	1556	N12	E73	10	30.2		B	EKO	390	16	13	3
8742		LEAR	10	25	0012	N07	E63	10	29.7		B	FKO	250	15	19	3
8742		KAND	10	25	0625	N08	E66	10	30.2			DKI		10	10	4
8742		SVTO	10	25	0905	N09	E64	10	30.2		B	EKI	560	11	13	3
8742		RAMY	10	25	1202	N06	E62	10	30.1		BG	EKO	500	28	13	4
8742	29392	MWIL	10	25	1600	N08	E60	10	30.2	5	(BP)					
8742		HOLL	10	25	1623	N12	E60	10	30.2		B	EHO	490	18	14	1
8742		LEAR	10	26	0032	N08	E55	10	30.1		B	EKI	450	23	12	3
8742		KAND	10	26	0820	N09	E51	10	30.2			EKI		14	12	4
8742		SVTO	10	26	1123	N08	E50	10	30.2		B	EKI	620	16	15	2
8742		RAMY	10	26	1217	N07	E49	10	30.2		BG	EKI	530	24	13	3
8742	29392	MWIL	10	26	1445	N08	E47	10	30.1	5	(BG)					
8742		HOLL	10	26	1756	N11	E46	10	30.2		B	EKO	370	31	12	3
8742		LEAR	10	27	0021	N08	E42	10	30.2		B	EKI	430	28	12	3
8742		KAND	10	27	0610	N09	E38	10	30.1			EKO		25	13	2

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OCTOBER 1999

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
8742		SVTO	10 27 0847	N08 E37	10 30.1		B	EKI	440	24	13	3
8742		RAMY	10 27 1245	N07 E36	10 30.2		B	EKI	570	22	12	3
8742	29392	MWIL	10 27 1445	N09 E34	10 30.2	5	(BG)					
8742		HOLL	10 27 1907	N10 E32	10 30.2		B	EHO	350	34	12	2
8742		LEAR	10 28 0005	N08 E30	10 30.2		BG	EKI	530	38	13	4
8742		KAND	10 28 0630	N09 E25	10 30.1			EKO		28	14	2
8742		SVTO	10 28 0801	N09 E25	10 30.2		B	EKO	460	12	14	3
8742		RAMY	10 28 1247	N08 E22	10 30.2		B	EKI	360	34	13	3
8742	29392	MWIL	10 28 1600	N09 E21	10 30.2	5	(B)					
8742		LEAR	10 29 0045	N08 E16	10 30.2		BG	EKI	520	34	13	3
8742		KAND	10 29 0955	N08 E10	10 30.2			EKO		16	14	4
8742		RAMY	10 29 1210	N10 E09	10 30.2		B	EKO	400	32	13	4
8742	29392	MWIL	10 29 1500	N09 E07	10 30.1	4	(B)					
8742		HOLL	10 29 1513	N11 E07	10 30.2		B	EKI	340	35	14	3
8742		KAND	10 30 1135	N08 W04	10 30.2			EHO		26	14	3
8742	29392	MWIL	10 30 1600	N08 W06	10 30.2	5	(BG)					
8742		LEAR	10 31 0055	N11 W13	10 30.1		B	EAO	190	25	14	2
8742		KAND	10 31 0810	N09 W16	10 30.1			ESO		10	14	3
8742		SVTO	10 31 0938	N08 W17	10 30.1		B	EAO	240	8	12	2
8742		RAMY	10 31 1215	N09 W18	10 30.1		B	EAO	220	26	14	4
8742	29392	MWIL	10 31 1500	N08 W20	10 30.1	5	(B)					
8742		HOLL	10 31 1550	N08 W21	10 30.1		B	EAO	170	18	13	3
8742		LEAR	11 01 0002	N09 W24	10 30.3		B	EAO	180	16	12	4
8742		KAND	11 01 0900	N07 W30	10 30.2			EAO		9	12	4
8742		SVTO	11 01 0935	N07 W31	10 30.2		B	EAO	220	9	12	3
8742	29392	MWIL	11 01 1530	N08 W33	10 30.3	5	(BP)					
8742		HOLL	11 01 1604	N08 W34	10 30.2		B	DAO	110	8	10	3
8742		LEAR	11 02 0210	N09 W39	10 30.3		B	DAO	120	5	10	2
8742		KAND	11 02 0920	N07 W44	10 30.2			EAO		5	11	3
8742		RAMY	11 02 1208	N08 W45	10 30.2		B	CSO	120	6	10	3
8742	29392	MWIL	11 02 1530	N08 W47	10 30.2	5	(BP)					
8742		HOLL	11 02 1904	N07 W48	10 30.3		B	DSO	130	2	10	3
8742		LEAR	11 02 2255	N10 W52	10 30.1		B	EAO	100	5	11	4
8742		KAND	11 03 0805	N08 W55	10 30.3			CAO		2	9	3
8742		RAMY	11 03 1226	N10 W60	10 30.1		B	CSO	80	3	9	3
8742	29392	MWIL	11 03 1545	N08 W60	10 30.2	5	(BP)					
8742		HOLL	11 03 1623	N07 W65	10 29.9		A	HS	70	2	2	4
8742		LEAR	11 04 0105	N09 W65	10 30.3		B	CAO	130	4	10	3
8742		RAMY	11 04 1208	N09 W79	10 29.7		A	HS	60	1	2	4
8742	29392	MWIL	11 04 1530	N08 W78	10 29.9	4	(AP)					
8742		HOLL	11 04 1635	N07 W79	10 29.9		A	HS	60	2	2	3
8742		LEAR	11 05 0200	N09 W85	10 29.8		A	HA	60	1	2	3
8748	29399	MWIL	10 27 1445	N22 E40	10 30.7	4	(AF)					
8748		LEAR	10 29 0045	N19 E17	10 30.3		A	AX		2		3
8748		KAND	10 29 0955	N19 E13	10 30.4			BXI		7	4	4
8748		RAMY	10 29 1210	N19 E11	10 30.3		B	BXO	10	4	3	4
8748	29401	MWIL	10 29 1500	N19 E10	10 30.4	4	B					
8748		HOLL	10 29 1513	N19 E08	10 30.2		B	BXO	10	7	4	3
8748		KAND	10 30 1135	N18 W01	10 30.4			DSO		8	3	3
8748	29401	MWIL	10 30 1600	N18 W03	10 30.4	4	(B)					
8748		LEAR	10 31 0055	N19 W08	10 30.4		B	CRO	20	6	4	2
8748		KAND	10 31 0810	N19 W12	10 30.4			CSO		2	3	3
8748		SVTO	10 31 0938	N18 W13	10 30.4		B	CSO	10	2	4	2
8748		RAMY	10 31 1215	N19 W14	10 30.4		B	BXO	10	6	4	4
8748	29401	MWIL	10 31 1500	N18 W16	10 30.4	3	(B)					
8748		HOLL	10 31 1550	N18 W17	10 30.4		A	AX	10	4	2	3
8748		LEAR	11 01 0002	N17 W20	10 30.6		A	AX		2	1	4
8746		LEAR	10 28 0005	S15 E28	10 30.1		B	BXO	10	3	1	4
8746		KAND	10 28 0630	S13 E24	10 30.1			BXO		4	5	2
8746		SVTO	10 28 0801	S15 E22	10 30.0		B	BXO		2	3	3
8746		RAMY	10 28 1247	S15 E18	10 29.9		B	BXO	10	6	5	3
8746		LEAR	10 29 0045	S15 E17	10 30.3		B	BXO	10	4	9	3
8746		KAND	10 29 0955	S18 E18	10 30.8			AX		3	2	4
8746		RAMY	10 29 1210	S18 E15	10 30.6		A	HSO	20	2	2	4
8746		KAND	10 30 1135	S18 E03	10 30.7			BXO		4	3	3
8746		LEAR	10 31 0055	S16 W06	10 30.6		B	BXO		3	3	2
8750	29402	MWIL	10 29 1500	S17 E15	10 30.8	3	(AF)					

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OCTOBER 1999

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8750		HOLL	10 29 1513	S17 E15	10 30.8		B	BXO	20	5	2	3
8750		KAND	10 30 1135	S15 E09	10 31.2			AX		1		3
8750	29402	MWIL	10 30 1600	S18 E02	10 30.8	3	(B)					
8750		LEAR	10 31 0055	S14 E01	10 31.1		B	BXO		3	3	2

Stations reporting:

BOUL = Boulder
CULG = Culgoora
HOLL = Holloman
LEAR = Learmonth
MWIL = Mt. Wilson
PALE = Palehua
RAMY = Ramey
SVTO = San Vito

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1999

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	0708	0722	0751	1+	3		1			1	0710	C4.1	
01	0730	0750	0820	2+	1		1				0710	C4.1	
01	0945	0946	0957	1-	3					2	0945	C5.4	
01	1000	1000U	1000D	1	1		1				No flare		
01	1449	1457	1522	1+	5					4	1449	C6.0	
02	0757	0804	0835	1+	3		1			1	0754	C2.4	
02	0958	1024	1051	1	1		1				No flare		
02	1152	1214	1256	1	1		1				No flare		
02	1421	1435	1455	2-	5					2	1418	C2.8	
02	1454	1506	1538	1	1		1				No flare		
02	1527	1600	1700	1	1		1				No flare		
02	1643	1645	1657	1-	1					1	1641	C1.5	
02	1658	1702	1715	1-	1					1	1658	C1.5	
02	1804	1818	1908	2+	3					2	1811	C3.6	8716
02	1817	1830	1911	2+	1					1	1811	C3.6	8716
03	1516	1541	1627	2+	5					2	1508	C3.0	8716
03	1702	1705	1725	1	1					1	1700	C2.8	8720
04	0645	0658	0725	1	1		1				*		
04	0725	0750	0925	3	1		1				0729	C5.0	8720
04	0902	0907	0941	2	1		1				No flare		
04	0926	0942	1030	2	1		1				*		
04	1043	1110	1130	1	1		1				No flare		
04	1522	1542	1612	2	1		1				No flare		
04	1613	1621	1649	1	1		1				No flare		
05	0538	0545	0615	2	1					1	0536	C2.8	8720
06	1021	1027	1050	1+	1			1			No flare		
06	1300	1310	1320	1	1					1	1300	C2.3	8720
06	1357	1448	1530	2	1		1				No flare		
06	1535	1545	1611	1+	5		1			2	1537	C1.5	8720
07	0750	0758	0829	1	1		1				No flare		
07	1337	1343	1417	1+	5		1			1	1330	C3.9	
08	0712	0724	0758	1	1		1				No flare		
08	1003	1030	1122	2+	3		1			1	1007	C1.7	8720
08	1246	1259	1330	2	5	1	2	1		1	1238	C6.4	8720
08	1352	1410U	1540	1	1		1				No flare		
08	1355	1459	1552	1	1		1				No flare		
09	1558	1645	1729	1+	1		1				No flare		
10	1339	1346	1400	1	1					1	1348	C2.0	8728
11	0700U	0737	0800U	1	1		1				*		
12	1310	1335	1420	2+	1					1	1310	C2.9	
13	0700	0703	0715	1-	1					1	0656	C1.6	8732
13	0738	0844	0950	1	1		1				*		
13	1336	1348	1500	1	1		1				1335	C2.8	8732
14	0651	0715	0749	2	1		1				0659	C1.6	
14	0748	0758	0842	1+	3		1			1	0745	C2.9	8731
14	0807	0815	0900	1	1		1				0745	C2.9	8731
14	0858	0903	0949	3	5	1	2	1		3	0854	X1.8	8731
14	1204	1209	1250	1	1		1				No flare		
14	1741	1750	1830	2	3					3	1738	C6.5	
15	0830	0837	0855	1	1		1				No flare		
15	0855	0918	0937	1	1		1				No flare		
15	1220	1226	1256	2+	5		3	1		3	1218	C3.7	8731
15	1445	1449	1521	2	1						1457	C5.5	8731
15	1458	1506	1537	2-	5		1			4	1457	C5.5	8731
15	1555	1600	1617	1	1					1	1551	C2.4	8731

* = no flare patrol.

OCTOBER 1999

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
16	1021	1045	1209	2	1		1				No flare		
16	1100	1103	1113	2	5			1		1	1055	C3.7	8728
16	1338	1442	1447	2	1		1				No flare		
16	1942	1947	2019	2-	3					3	1940	C3.1	
17	0735	0737	0800	1	1					1	0731	C1.3	8731
17	0800	0804	0815	1-	1					1	0758	C1.5	
17	1003	1007	1025	3-	5			1		2	No flare		
17	1018	1030	1116	1	1		1				No flare		
17	1200	1215	1253	1	1		1				No flare		
17	1500	1515	1530	1	1		1				1458E		8728
17	1821	1830	1904	2	1					1	*		
17	1834	1842	1933	2+	3					2	1832	C3.6	
18	0840	0905	0925	2	1					1	0840	C1.5	
18	1210	1240	1320	1	1		1				*		
19	0313	0323	0345	1+	1					1	0305	C5.1	
19	0702	0712	0729	1	1		1				0658	C3.1	8732
19	0912	0924	0937	1-	3		1			2	0911	C3.0	8732
19	1008	1018	1036	1	1		1				1002		8731
19	1035	1040	1050	1-	1					1	1034	C2.5	8732
19	1043	1125	1211	1	1		1				No flare		
19	1307	1321	1347	1	1		1				1322	C1.3	8732
19	1403	1408	1424	1	3					2	1359	C2.7	8737
19	1405	1436	1452	1	1		1				*		
19	1928	1940	2023	2+	3					4	1926	C8.7	8732
19	2023E	2025	2049	1+	1					1	2021	C3.1	8732
19	2157	2204	2304	2+	3					2	2156	C7.3	8732
20	0559	0613	0715	2+	1					1	0553	M1.7	8731
20	0704	0715	0733	1	1		1				0647E		8731
20	0925	0930	0940	1-	1					1	0925	C2.2	8739
20	1355	1405	1410	1-	1					1	1357	C1.3	
21	0840	0914	0958	2	1		1				0841	C2.3	8732
21	1003	1014	1030	1+	3		1			1	1001	C2.1	8739
21	1225	1235	1245	1	1					1	1226	C1.8	
21	1303	1311	1330	1	1		1				*		
21	1331	1344	1403	1+	5		1			2	1330	C3.5	8732
21	1447	1450	1515	1+	1					1	1446	C2.3	8732
21	1904	1909	1931	1+	3					4	1906	C4.1	
21	1952	1954	2028	2-	3					3	1953	C6.1	
22	0700	0728	0810	1	1		1				No flare		
22	0912	0915	0921	2	5		2	1		2	0910	C4.8	8732
22	1335	1347	1450	1	1		1				1404	C3.4	8732
22	1340	1406	1447	2	1		1				1404	C3.4	8732
22	1925	1930	1950	1	1					1	1924	C2.7	8739
23	1136	1202	1247	2	1		1				No flare		
23	1245	1255	1300	1	1					1	1243	C2.4	8741
23	1314	1348	1426	2	1		1				*		
23	1428	1438	1554	2	1					1	1425		8739
23	1724	1730	1825	2+	1					1	1725	C4.1	
23	1914	1918	1956	2	3					2	1913	C5.3	
23	2152	2157	2219	1+	1					1	2148	C2.7	
24	0919	0955	1015	2	1		1				0940	C1.5	
25	0630	0634	0704	1+	3		1			1	0626	M1.7	8741
25	0727	0757	0830	1	1		1				0736	C2.3	8739
25	0940	0955	1000	1	1					1	0941	C1.2	8739
25	1440	1450	1515	2	1					1	1440	C1.2	
25	1925	1935	2040	2+	1					1	1928	C4.8	8737
25	1933	1950	2012	2	1					1	1928	C4.8	8737

* = no flare patrol.

OCTOBER 1999

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
26	0445	0450	0507	1-	1					1	0443	C4.0	8739
26	0728	0739	0815	2	3					2	0729	M1.2	8739
26	0836	0839	0846	1	1					1	No flare		
26	0902	0916	0950	1+	3					3	0901	C5.3	
26	0913	0930	0937	1	3		2				0901	C5.3	
26	1152	1155	1214	2+	5		2	1		2	1149	C6.5	8739
26	1837	1844	1928	2	3					4	1838	M2.3	8739
26	1857	1909	2012	2+	1					1	1838	M2.3	8739
26	2107	2119	2231	2+	3					2	2109	M3.7	
27	0426	0430	0445	1	1					1	0426	C5.3	8742
27	0716	0724	0807	2	3		2				*		
27	0904	0907	0921	1-	3	1				2	0856	C2.2	8739
27	0909	0926	0948	3-	5		1	1		2	0908	M1.0	
27	1053	1117	1146	1	1		1				No flare		
27	1158	1207	1326	1	1		1				1159E		8739
27	1327	1336	1400	3	5	1	1	1		1	1324	M1.8	8737
27	1330	1346	1432	2-	5		1			3	1324	M1.8	8737
27	1520	1534	1625	2	5		1			4	1518	M1.4	
27	1530	1615	1658	3	1					1	1518	M1.4	
28	0817	0831	0846	1	1		1				0828		8747
28	1440	1445	1455	1-	1					1	1439	C1.6	8747
29	1100	1110	1120	1	1					1	1101	C2.5	8739
29	1230	1234	1306	1	1		1				1225	C2.5	8747
29	1400	1407	1430	1	1		1				No flare		
29	1704	1707	1744	2-	3					2	1703	C2.1	8739
29	2005	2014	2037	2-	3					2	2004	C1.6	8747
30	0749	0809	0836	1+	3		2				*		
31	0655	0705	0735	2	3		1			1	0650	C7.6	8749
31	1712	1717	1730	1-	1					1	1716	C3.4	8747

* = no flare patrol.

OBSERVATORIES REPORTING FOR OCTOBER 1999

Cambridge, England, UK	SES	Rimavska Sobota, Slovakia	SEA
Edenvale, Rep of S. Africa	SES	Rochester, New Hampshire, USA	SES
Houston, Texas, USA	SES	Sofia, Bulgaria	SES
Hudson, Ohio, USA	SES	Sun City Center, FL, USA	SES
Louisville, Kentucky, USA	SES	Tucson, Arizona, USA	SES
Marlboro, Massachusetts, USA	SES	Upice, Czech Republic	SEA
Nerja, Spain	SES	Vlasim, Czech Republic	SEA
New Milford, New York, USA	SES	Ziar nad Hronom, Slovakia	SEA
Panska Ves, Czech Republic	SES, SEA, SWF	Zilina, Slovakia	SEA
Parma, Ohio, USA	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

OCTOBER 1999

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
01			LEAR	0009.0	0011.0	III		2	30	80	
			PALE	0009.0	0010.0	III		1	30	65	
	0000	0715	CULG	0009.0	0011.0	III	G	1	23	150	
	0000	0827	HIRA	0009.6	0010.2	III	G	1	30	150	
			CULG	0233.0	0235.0	III	G	1	23	80	
			LEAR	0234.0	0234.0	III		2	30	65	
			LEAR	0318.0	0319.0	III		1	31	51	
			CULG	0520.0	0520.0	III	B	1	30	80	
			LEAR	0520.0	0520.0	III		2	30	53	
			LEAR	0812.0	0814.0	III		3	30	80	
			SVTO	0812.0	0814.0	V		3	35	85	
			HIRA	0812.2	0812.4	III	B	1	30	250	
			LEAR	0816.0	0824.0	II		2	44	80	ESS 0600
			SVTO	0947.0	1033.0	III	N	2	35	80	
			SGMR	1442.0	1501.0	III	N	2	30	80	
			SVTO	1451.0	1502.0	III	N	2	35	75	
			ONDR	1458.4	1459.4	DCIM	G	2	2000X	4285X	
	0609	1531	ONDR	1458.4	1459.5	DCIM	G	2	800X	2000X	
	2027	2400	HIRA								
	2010	2400	CULG	2201.0	2201.0	III	B	1	20	80	
			CULG	2223.0	2223.0	III	B	1	20	90	
			CULG	2249.0	2256.0	III	G	1	18	90	
			LEAR	2255.0	2311.0	III		1	30	60	
			CULG	2311.0	2311.0	III	B	1	30	90	
02			LEAR	0134.0	0134.0	III		2	30	80	
	0000	0715	CULG	0134.0	0134.0	III	B	2	20	90	
	0000	0826	HIRA	0134.0	0134.2	III	B	1	30	120	
			LEAR	0155.0	0326.0	III	N	2	30	80	
			CULG	0157.0	0201.0	III	G	2	18X	90	
			HIRA	0157.4	0157.6	III	B	1	25X	140	
			CULG	0212.0	0213.0	III	B	1	23	80	
			CULG	0229.0	0233.0	III	G	2	18	130	
			HIRA	0229.2	0230.4	III	G	1	30	200	
			CULG	0301.0	0303.0	III	G	2	20	90	
			CULG	0322.0	0322.0	III	B	1	20	70	
	0611	1528	ONDR								
			LEAR	0623.0	0623.0	III		2	30	80	
			SVTO	0623.0	0623.0	III		1	36	81	
			HIRA	0623.8	0624.0	III	B	1	50	600	
			LEAR	0804.0	0804.0	III		2	30	53	
			SVTO	0804.0	0804.0	III		2	35U	45U	
			SGMR	1428.0	1430.0	III		1	30	50	
	2028	2400	HIRA								
	2010	2400	CULG	2214.0	2214.0	III	B	2	20	80	
			PALE	2313.0	2314.0	III		1	25	50	
03	0000	0715	CULG								
	0000	0825	HIRA								
	0612	1525	ONDR								
			SGMR	1615.0	1754.0	III	N	2	30	60	
	2029	2400	HIRA								
	2010	2400	CULG	2045.0	2045.0	III	B	1	25	80	
			PALE	2113.0	2215.0	III	N	1	25	40	
			CULG	2114.0	2142.0	III	N	1	23	70	
04	0000	0710	CULG								
	0000	0823	HIRA								
			LEAR	0130.0	0130.0	III		1	30	56	
			LEAR	0512.0	0513.0	III		1	30	37	
	0614	1522	ONDR								
			SVTO	1053.0	1054.0	III		1	36U	73U	
			SGMR	1524.0	1525.0	III		1	30	60	
	2030	2400	HIRA								
	2010	2400	CULG	2128.0	2129.0	III	G	2	23	80	
05	0000	0715	CULG	0020.0	0034.0	III	N	1	23	80	
			LEAR	0024.0	0032.0	III		3	30	80	
			PALE	0031.0	0032.0	III		3	25	75	

SOLAR RADIO EMISSION
Spectral Observations

OCTOBER 1999

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	FREQUENCY Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
05			CULG	0032.0	0033.0	III	G	2	18	90	
	0000	0822	HIRA	0033.4	0033.6	III	B	2	30	200	
			CULG	0136.0	0136.0	III	B	1	30	90	
			LEAR	0155.0	0155.0	III		1	30	47	
	1215	1522	ONDR								
			SGMR	1323.0	1328.0	V		1	30	80	
			SVTO	1323.0	1328.0	III		2	35	85	
			SGMR	1507.0	1508.0	III		1	30	50	
	2031	2400	HIRA								
	2010	2400	CULG	2314.0	2314.0	III	B	1	23	80	
			CULG	2319.0	2320.0	III	G	1	20	90	
			LEAR	2319.0	2319.0	III		1	35U	80U	
06	0000	0715	CULG								
	0000	0820	HIRA								
			LEAR	0731.0	0732.0	III		1	30	65	
			SVTO	0731.0	0732.0	III		1	35	50	
	0618	1518	ONDR	1302.0	1303.4	DCIM	G	1	2030	4295X	
	2010	2400	CULG								
	2032	2400	HIRA								
07	0000	0715	CULG	0202.0	0204.0	III	G	1	18	90	
	0000	0818	HIRA	0203.2	0203.4	III	B	1	50	90	
	0619	1518	ONDR								
			SGMR	1725.0	1726.0	III		1	30	50	
			PALE	2127.0	2128.0	III		1	25	55	
			SGMR	2127.0	2127.0	III		2	30	80	
	2010	2400	CULG	2127.0	2128.0	III	G	3	18X	120	
	2033	2400	HIRA	2127.6	2127.8	III	B	2	30	200	
			CULG	2153.0	2242.0	III	N	1	18	80	
			PALE	2241.0	2313.0	III	N	2	25	65	
			CULG	2309.0	2310.0	III	B	2	18	90	
			LEAR	2309.0	2326.0	III	N	2	30	65	
			HIRA	2309.2	2309.4	III	B	1	25X	130	
			CULG	2310.0	2326.0	III	N	1	25	140	
			HIRA	2320.0	2320.2	III	B	1	50	180	
08			LEAR	0146.0	0147.0	III		2	30	75	
	0000	0720	CULG	0147.0	0147.0	III	B	1	25	90	
	0000	0818	HIRA	0151.4	0151.6	III	B	1	80	180	
	0621	1515	ONDR								
			LEAR	1000.0	1002.0	III		2	30	80	
			SVTO	1000.0	1010.0	V		3	35	85	
	2010	2400	CULG								
	2034	2400	HIRA								
09	0000	0817	HIRA								
	0000	0135	CULG	0019.0	0019.0	III	B	1	30	90	
			CULG	0058.0	0100.0	III	G	1	25	90	
	0623	1512	ONDR								
	2034	2400	HIRA								
10	0000	0815	HIRA								
	0625	1509	ONDR								
	2035	2400	HIRA								
11	0000	0813	HIRA								
	0000	0730	CULG	0229.0	0229.0	III	B	1	25	70	
	0626	1508	ONDR								
	2036	2400	HIRA								
	2010	2400	CULG	2128.0	2131.0	III	G	1	20	35	
			CULG	2134.0	2135.0	III	G	2	18	80	
12	0000	0730	CULG								
	0000	0812	HIRA								
	0628	1505	ONDR								
	2010	2400	CULG	2110.0	2110.0	III	B	1	25	80	
	2037	2400	HIRA	2110.0	2110.2	III	B	1	50	300	
			HIRA	2117.6	2117.8	III	B	1	80	260	

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

OCTOBER 1999

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
12			HIRA	2127.2	2127.4	III	B	1	100	240	
			HIRA	2132.2	2132.4	III	B	1	90	240	
			CULG	2322.0	2328.0	III	G	2	18X	130	
			HIRA	2322.6	2326.0	III	G	3	30	240	
13	0000	0730	CULG	0021.0	0023.0	III	G	3	18X	130	
	0000	0811	HIRA	0021.4	0021.8	III	B	3	25X	230	
			CULG	0024.0	0026.0	III	G	1	23	90	
			HIRA	0025.2	0025.4	III	B	1	40	240	
			HIRA	0034.2	0034.4	III	B	1	80	160	
			CULG	0044.0	0053.0	III	G	2	20	90	
			HIRA	0047.4	0047.6	III	B	1	30	160	
			HIRA	0051.8	0052.0	III	B	1	40	140	
			CULG	0121.0	0149.0	III	N	2	18	90	
			HIRA	0121.4	0121.6	III	B	1	25X	180	
			HIRA	0143.6	0150.0	III	B	1	30	150	
			CULG	0216.0	0216.0	III	B	1	23	90	
			CULG	0233.0	0234.0	III	B	3	18X	120	
			HIRA	0233.4	0233.8	III	B	3	25X	220	
			CULG	0314.0	0326.0	III	N	1	25	80	
			CULG	0330.0	0331.0	III	G	2	25	120	
			HIRA	0330.0	0330.4	III	B	3	40	240	
			CULG	0359.0	0401.0	III	G	1	25	80	
			CULG	0432.0	0433.0	III	G	2	20	80	
			CULG	0509.0	0510.0	III	G	2	23	90	
			HIRA	0509.4	0509.8	III	B	1	40	200	
			HIRA	0523.0	0524.0	III	G	1	50	170	
			CULG	0617.0	0617.0	III	B	2	35	90	
			HIRA	0617.2	0617.6	III	B	2	40	150	
	0630	1502	ONDR								
			HIRA	0705.6	0706.6	III	G	1	50	140	
			SGMR	1631.0	1631.0	III		1	30	53	
			SGMR	1737.0	1738.0	III		1	30	75	
	2038	2400	HIRA								
			LEAR	2315.0	2319.0	III		2	30	80	
	2010	2400	CULG	2316.0	2318.0	III	G	1	18	90	
			LEAR	2332.0	2333.0	III		2	30	80	
			CULG	2333.0	2334.0	III	G	1	18	75	
			CULG	2338.0	2341.0	III	G	2	18	90	
			LEAR	2338.0	2341.0	III		2	30	80	
			LEAR	2354.0	0004.0	III		2	30	80	
14	0000	0710	HIRA	0004.0	0004.2	III	B	1	40	250	
	0000	0730	CULG	0004.0	0036.0	III	N	1	18	90	
			LEAR	0016.0	0017.0	III		2	30	80	
			HIRA	0036.0	0036.2	III	B	1	50	140	
			LEAR	0036.0	0036.0	III		2	30	80	
			LEAR	0055.0	0106.0	III	N	2	30	80	
			CULG	0106.0	0106.0	III	B	2	18	70	
			LEAR	0112.0	0113.0	III		1	40	60	
			LEAR	0124.0	0135.0	III	N	2	30	80	
			CULG	0147.0	0152.0	III	G	1	23	90	
			LEAR	0147.0	0153.0	III		2	30	80	
			LEAR	0223.0	0224.0	III		2	30	55	
			LEAR	0225.0	0241.0	III	N	3	30	80	
			CULG	0228.0	0240.0	III	GG	2	18X	150	
			HIRA	0228.4	0231.6	III	G	3	25X	200	
			HIRA	0237.4	0238.2	III	G	1	50	180	
			LEAR	0308.0	0310.0	III		2	30	70	
			CULG	0309.0	0310.0	III	G	1	23	50	
			HIRA	0441.0	0441.6	III	G	1	40	180	
			SVTO	0639.0	0646.0	III		2	35	85	
			HIRA	0639.8	0640.2	III	B	2	50	140	
			HIRA	0645.6	0646.0	III	B	2	50	140	
			SVTO	0700.0	0815.0	III	N	2	35	80	
			HIRA	0702.0	0702.2	III	B	1	50	140	
			ONDR	0747.0	0750.3	DCIM	G	1	800X	2000X	
			SVTO	0747.0	0754.0	V		3	35	85	
	0632	1501	ONDR	0747.4	0748.2	DCIM	G	1	2000X	4305X	

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

OCTOBER 1999

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
14			SVTO	0750.0	0857.0	CONT		1	65U	82U	
			SVTO	0857.0	0928.0	IV		3	35	85	
			ONDR	0858.0	0901.5	DCIM	GG	2	2000X	4305X	
			ONDR	0858.0	0904.2	DCIM	GG	2	800X	2000X	
			SVTO	0908.0	0920.0	II		2	57U	74U	ESS 0700
			SVTO	1003.0	1028.0	III	N	2	35	46	
			SVTO	1141.0	1202.0	III	N	2	35	75	
			SVTO	1447.0	1511.0	III	N	2	35	85	
			PALE	1704.0	1704.0	III		1	25	55	
			PALE	1744.0	1911.0	III	N	1	25	50	
			PALE	2029.0	2032.0	III		1	25	40	
	2010	2400	CULG	2029.0	2114.0	III	N	1	23	90	
			PALE	2113.0	2114.0	III		1	25	60	
			CULG	2201.0	2228.0	III	N	1	20	90	
			PALE	2201.0	2304.0	III	N	1	25	55	
	2232	2400	HIRA	2242.8	2244.0	III	G	2	25X	200	
			CULG	2243.0	2244.0	III	G	2	20	90	
			LEAR	2243.0	2244.0	III		2	30	80	
			PALE	2358.0	2359.0	III		1	25	75	
			CULG	2359.0	2400.0	III	G	2	18	90	
			HIRA	2359.0	2359.2	III	B	1	40	140	
15	0000	0730	CULG	0002.0	0002.0	III	B	1	18	80	
			CULG	0022.0	0257.0	III	S	1	20	90	
			PALE	0043.0	0043.0	III		2	45	65	
			PALE	0045.0	0120.0	CONT		1	25	60	
			LEAR	0232.0	0235.0	III		2	30	80	
			CULG	0233.0	0235.0	III	G	2	18	90	
	0000	0808	HIRA	0233.0	0235.0	III	G	1	30	130	
			LEAR	0318.0	0319.0	III		3	30	80	
			CULG	0319.0	0319.0	III	B	2	18	150	
			HIRA	0319.2	0319.4	III	B	2	25X	320	
			LEAR	0532.0	0533.0	III		1	30	80	
			HIRA	0532.8	0533.0	III	B	1	50	160	
			CULG	0555.0	0555.0	III	B	1	30	85	
	0634	1458	ONDR								
			CULG	0702.0	0710.0	III	G	1	30	90	
			LEAR	0702.0	0713.0	III		3	30	80	
			HIRA	0702.4	0702.6	III	B	1	50	120	
			CULG	0711.0	0713.0	III	G	2	20	90	
			SVTO	0711.0	0713.0	V		2	35	85	
			HIRA	0711.4	0712.6	III	G	2	50	200	
			LEAR	0750.0	0750.0	III		2	30	80	
			SVTO	0750.0	0750.0	III		2	35	83	
			LEAR	0852.0	0853.0	III		1	30	80	
			SVTO	0852.0	0853.0	III		1	60	79	
			SVTO	0942.0	1000.0	III	N	1	35	47	
			SVTO	1124.0	1126.0	III		2	35	85	
			SGMR	1152.0	1153.0	III		1	30	50	
			SVTO	1157.0	1231.0	III	N	2	35	85	
			SGMR	1230.0	1231.0	III		1	30	80	
			SVTO	1320.0	1322.0	V		2	35	85	
			SGMR	1321.0	1322.0	III		1	30	80	
			SGMR	1336.0	1337.0	III		1	30	45	
			SVTO	1336.0	1337.0	III		2	35	74	
			SVTO	1411.0	1411.0	III		2	35	76	
			PALE	1708.0	1709.0	III		1	25	50	
	2010	2400	CULG	2010.0E	2400.0D	III	N	1	20	90	
	2039	2400	HIRA								
			LEAR	2351.0	0005.0	III		3	30	80	
16	0000	0740	CULG	0000.0E	0336.0	III	N	1	20	90	
			CULG	0002.0	0003.0	III	G	2	18	90	
	0000	0807	HIRA	0002.2	0002.4	III	B	2	40	380	
			LEAR	0016.0	0838.0	CONT		2	30	80	
			HIRA	0027.4	0029.0	III	G	1	50	220	
			HIRA	0137.8	0138.0	III	B	1	50	120	
			HIRA	0246.8	0247.0	III	B	1	30	130	
			CULG	0247.0	0247.0	III	G	2	18	90	

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

OCTOBER 1999

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
16			HIRA	0500.8	0501.0	III	B	1	160	270	
			CULG	0513.0	0513.0	III	B	1	20	80	
			SVTO	0526.0	0527.0	III		2	35	84	
			SVTO	0602.0	0655.0	III	N	1	35	85	
			CULG	0630.0	0655.0	III	N	1	30	90	
			HIRA	0642.8	0643.0	III	B	1	50	200	
			HIRA	0652.8	0655.0	III	G	1	50	200	
			SVTO	0841.0	1018.0	CONT		2	35	50	
			LEAR	0923.0	0924.0	III		1	38U	80U	
			SVTO	1022.0	1229.0	III	N	3	35	85	
			ONDR	1057.1	1059.3	DCIM	G	1	970	2000X	
	0635	1456	ONDR	1057.3	1058.5	DCIM	G	1	2000X	4305X	
			SGMR	1154.0	1155.0	III		1	30	70	
			SVTO	1327.0	1547.0	CONT		2	35	85	
			SGMR	1337.0	1341.0	III		1	30	60	
			SGMR	1406.0	1411.0	III		1	30	60	
			SGMR	1441.0	1814.0	III	N	1	30	80	
			SGMR	1938.0	1959.0	III	N	1	30	60	
	2010	2400	CULG	2010.0E	2109.0	III	N	1	20	80	
			CULG	2050.0	2055.0	III	G	2	20	90	
			SGMR	2051.0	2101.0	III	N	1	30	60	
	2040	2400	HIRA	2051.4	2054.0	III	G	1	40	240	
			CULG	2100.0	2102.0	III	G	2	20	90	
			CULG	2121.0	2122.0	III	G	2	20	80	
			HIRA	2121.4	2121.6	III	B	1	25X	200	
			CULG	2134.0	2134.0	III	B	1	25	70	
			HIRA	2134.0	2134.2	III	B	1	30	140	
			CULG	2155.0	2155.0	III	B	1	25	70	
			CULG	2215.0	2346.0	III	N	1	20	90	
			LEAR	2243.0	2255.0	III		2	30	80	
			LEAR	2311.0	0645.0	CONT		2	30	80	
17	0000	0740	CULG	0049.0	0136.0	III	N	1	18	80	
			CULG	0126.0	0128.0	III	G	2	18X	90	
	0000	0805	HIRA	0126.4	0127.6	III	G	1	40	140	
			CULG	0309.0	0312.0	III	G	2	18	90	
			HIRA	0309.4	0311.4	III	G	1	40	180	
			CULG	0314.0	0319.0	III	G	1	20	70	
			HIRA	0342.8	0343.0	III	B	1	30	180	
			CULG	0343.0	0343.0	III	B	2	18	80	
			CULG	0350.0	0426.0	III	N	1	20	90	
			HIRA	0404.8	0405.2	III	B	1	50	160	
			HIRA	0417.6	0431.0	III	G	1	40	150	
			CULG	0431.0	0431.0	III	B	2	18X	90	
			SVTO	0644.0	0645.0	III		1	35	75	
			HIRA	0644.8	0645.0	III	B	1	50	130	
			CULG	0645.0	0645.0	III	G	2	20	80	
			SVTO	0844.0	0936.0	III	N	1	35	44	
			ONDR	0959.1	1005.0	DCIM	GG,SP	1	800X	2000X	
	0637	1452	ONDR	0959.2	1005.0	DCIM	G	1	2000X	4305X	
			SVTO	1123.0	1123.0	III		2	38	75	
	2010	2400	CULG	2055.0	2103.0	III	G	2	20	90	
	2041	2400	HIRA	2102.0	2102.2	III	B	1	40	130	
			CULG	2224.0	2224.0	III	B	1	20	80	
			LEAR	2317.0	2320.0	III		2	35	80	
			CULG	2318.0	2333.0	II	UE	1	18X	45	FLA
			CULG	2320.0	2320.0	III	B	1	18	90	
			CULG	2324.0	2325.0	III	G	2	18	90	
			LEAR	2324.0	2325.0	III		2	30	80	
			HIRA	2324.6	2325.2	III	G	1	30	140	
			CULG	2353.0	2358.0	III	G	1	20	90	
			LEAR	2354.0	0014.0	III	N	2	30	80	
18	0000	0740	CULG	0003.0	0004.0	III	G	2	18	160	
	0000	0804	HIRA	0003.6	0003.8	III	B	1	50	140	
			CULG	0004.0	0014.0	III	G	1	30	90	
			LEAR	0123.0	0123.0	III		1	30	51	
			CULG	0124.0	0124.0	III	B	1	18	90	
			LEAR	0218.0	0221.0	III		2	30	71	

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

OCTOBER 1999

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
18			CULG	0219.0	0241.0	III	N	1	20	90	
			LEAR	0238.0	0242.0	III		1	30	52	
			LEAR	0611.0	0611.0	III		1	30	55	
			LEAR	0627.0	0629.0	III		2	30	68	
			SVTO	0629.0	0629.0	III		1	36U	51U	
	0639	1451	ONDR								
			LEAR	0732.0	0747.0	III	N	2	30	80	
			SVTO	0736.0	0747.0	III	N	2	35U	85U	
	2042	2400	HIRA								
	2010	2400	CULG	2144.0	2144.0	III	B	1	30	140	
			CULG	2235.0	2235.0	III	B	1	30	90	
19			LEAR	0016.0	0016.0	III		1	30U	65U	
	0000	0740	CULG	0016.0	0016.0	III	B	1	30	150	
			CULG	0104.0	0104.0	III	B	1	30	75	
			LEAR	0104.0	0104.0	III		1	30	60	
			CULG	0244.0	0245.0	III	G	1	30	150	
			LEAR	0245.0	0245.0	III		1	30	39	
			CULG	0441.0	0443.0	III	G	2	20	140	
			LEAR	0441.0	0442.0	III		2	30	80	
			CULG	0512.0	0516.0	III	G	1	20	180	
	0000	0803	HIRA	0515.6	0515.8	III	B	1	40	200	
			CULG	0525.0	0530.0	III	G	2	18X	180	
			HIRA	0525.6	0529.0	III	G	2	25X	170	
			SVTO	0619.0	0620.0	III		1	35	69	
			CULG	0620.0	0620.0	III	B	2	25	180	
	0648	1449	ONDR								
			LEAR	0930.0	0930.0	III		1	35	49	
	2043	2400	HIRA	2216.6	2216.8	III	B	1	30	80	
	2010	2400	CULG	2217.0	2217.0	III	B	1	23	90	
			LEAR	2328.0	2331.0	III		2	30	80	
			CULG	2331.0	2331.0	III	B	1	23	90	
20			LEAR	0124.0	0124.0	III		2	30	80	
	0000	0740	CULG	0124.0	0124.0	III	B	2	30	140	
	0000	0801	HIRA	0124.2	0124.4	III	B	1	50	120	
			LEAR	0220.0	0249.0	III	N	2	30	51	
			HIRA	0248.8	0249.0	III	B	1	30	120	
			CULG	0249.0	0249.0	III	B	2	30	130	
			CULG	0416.0	0416.0	III	B	1	25	60	
			LEAR	0440.0	0448.0	III		2	30	80	
			CULG	0441.0	0442.0	III	G	1	30	120	
			CULG	0447.0	0448.0	III	G	1	30	150	
			LEAR	0556.0	0557.0	III		1	30	44	
			CULG	0557.0	0557.0	III	B	1	20	180	
			CULG	0603.0	0608.0	III	G	1	100	180	
			CULG	0610.0	0630.0	II	SH	2	28	75	
			LEAR	0612.0	0629.0	II		2	30	70	ESS 0400
			SVTO	0612.0	0613.0	III		2	36	85	
			HIRA	0613.0	0620.0	II		1	40	60	ESS 300
			CULG	0615.0	0618.0	II	FN	2	23	30	
	0643	1445	ONDR								
			LEAR	0900.0	0900.0	III		2	30	80	
			SVTO	0924.0	0926.0	III		2	36	73	
			LEAR	0925.0	0926.0	III		2	30	75	
			SVTO	1234.0	1235.0	III		1	35	47	
			SVTO	1407.0	1407.0	III		2	35	84	
	2010	2400	CULG								
	2044	2400	HIRA								
21			LEAR	0112.0	0113.0	III		1	30	80	
	0000	0740	CULG	0113.0	0113.0	III	B	1	30	90	
			CULG	0131.0	0131.0	III	B	1	30	90	
			CULG	0211.0	0213.0	III	G	1	20	300	
			LEAR	0211.0	0212.0	III		2	30	80	
	0000	0800	HIRA	0211.6	0212.4	III	G	2	50	340	
			CULG	0404.0	0404.0	III	B	2	20	90	
			LEAR	0404.0	0404.0	III		2	30	80	
			HIRA	0404.2	0404.6	III	B	1	30	80	

SOLAR RADIO EMISSION
Spectral Observations

OCTOBER 1999

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
21	0645	1445	ONDR								
			LEAR	0922.0	0923.0	III		3	30	80	
			SVTO	0922.0	0927.0	III		2	35	85	
			LEAR	1003.0	1011.0	III		2	30	80	
			SVTO	1003.0	1016.0	III	N	3	35	85	
	2010	2400	CULG	2015.0	2020.0	III	G	1	20	60	
			CULG	2153.0	2154.0	III	G	2	18	180	
			PALE	2153.0	2154.0	III		1	25	60	
	2045	2400	HIRA	2153.2	2154.0	III	G	2	30	230	
			CULG	2207.0	2207.0	III	B	1	18	90	
			CULG	2218.0	2222.0	III	G	1	18	180	
			LEAR	2218.0	2218.0	III		1	35	50	
			HIRA	2218.2	2218.4	III	B	1	30	160	
			CULG	2232.0	2232.0	III	B	1	20	90	
			CULG	2252.0	2252.0	III	B	1	20	80	
			LEAR	2330.0	0439.0	III	N	2	30	80	
			CULG	2331.0	2333.0	III	G	1	18	170	
			CULG	2345.0	2345.0	III	B	1	23	90	
			CULG	2350.0	2352.0	III	G	2	18X	180	
			HIRA	2350.2	2350.8	III	G	2	25X	220	
22	0000	0740	CULG	0002.0	0039.0	III	N	1	18	180	
			CULG	0024.0	0026.0	III	G	2	18X	180	
	0000	0759	HIRA	0024.6	0025.2	III	G	2	25X	180	
			CULG	0118.0	0118.0	III	B	1	20	50	
			CULG	0138.0	0140.0	III	G	2	18X	180	
			PALE	0139.0	0139.0	III		1	25	75	
			HIRA	0139.2	0139.4	III	B	2	25X	200	
			CULG	0147.0	0148.0	III	G	1	18	180	
			CULG	0242.0	0244.0	III	G	1	18	100	
			CULG	0307.0	0346.0	III	N	1	20	160	
			CULG	0331.0	0334.0	III	G	2	18X	400	
			HIRA	0331.2	0334.0	III	G	2	30	400	
			CULG	0407.0	0417.0	III	N	1	20	80	
			LEAR	0519.0	0519.0	III		2	30	57	
	0000	0740	CULG	0519.0	0522.0	III	G	1	20	80	
			CULG	0619.0	0641.0	III	N	2	18	160	
			LEAR	0619.0	0628.0	III		2	30	80	
			SVTO	0619.0	0627.0	V		2	35	85	
			HIRA	0623.2	0624.4	III	G	1	40	160	
			LEAR	0639.0	0640.0	III		2	30	80	
			SVTO	0639.0	0640.0	III		1	35	69	
			HIRA	0639.2	0640.2	III	G	1	50	120	
			CULG	0649.0	0720.0	III	N	1	20	60	
			LEAR	0750.0	0753.0	III		2	30	64	
			SVTO	0750.0	0753.0	V		1	35	47	
			LEAR	0827.0	0846.0	III	N	2	30	80	
			SVTO	0827.0	0846.0	III	N	2	35	85	
			LEAR	0853.0	0858.0	II		1	43	58	ESS 0450
	0647	1442	ONDR	0913.1	0914.3	DCIM		1	2410	4305X	
			ONDR	1240.4	1241.5	DCIM	G	1	800X	2000X	
			ONDR	1250.4	1254.4	DCIM	G	1	815	2000X	
			ONDR	1251.2	1254.2	DCIM	G	1	2000X	3300	
			SVTO	1300.0	1319.0	II		2	35	85	ESS 0600
			SVTO	1344.0	1345.0	III		1	65	75	
			SGMR	1718.0	1718.0	III		1	30	55	
			PALE	1909.0	1930.0	III	N	1	25	55	
			SGMR	1909.0	1946.0	III	N	1	30	60	
	2046	2400	HIRA								
	2010	2400	CULG	2148.0	2149.0	III	G	1	23	300	
			LEAR	2332.0	2333.0	III		1	30	65	
			CULG	2333.0	2333.0	III	B	1	20	120	
23			LEAR	0037.0	0146.0	CONT		3	30	80	
	0000	0740	CULG	0037.0	0112.0	III	N	1	23	160	
			CULG	0116.0	0117.0	III	G	2	18X	160	
	0000	0758	HIRA	0116.2	0116.4	III	B	1	25X	80	
			CULG	0125.0	0136.0	II	FN	1	28	90	ESS 550
			CULG	0132.0	0142.0	II	SH	2	45	80	

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

OCTOBER 1999

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
23			LEAR	0132.0	0141.0	II		2	30	80	ESS 0900
			LEAR	0259.0	0300.0	III		2	30	55	
			CULG	0342.0	0342.0	III	B	2	20	90	
			LEAR	0342.0	0342.0	III		2	30	80	
			LEAR	0414.0	0415.0	III		1	30	51	
			LEAR	0427.0	0436.0	III		2	30	80	
			SVTO	0534.0	0545.0	III	N	2	35	77	
	0649	1439	ONDR								
			LEAR	0740.0	0740.0	III		1	37	50	
			SVTO	0740.0	0907.0	III	N	2	35	78	
			LEAR	0803.0	0818.0	III		1	30U	65U	
			LEAR	0906.0	0906.0	III		1	35U	80U	
			SGMR	1452.0	1457.0	III		1	30	45	
			SVTO	1452.0	1455.0	III		2	35U	56U	
	2010	2400	CULG	2020.0	2022.0	III	G	1	25	60	
	2047	2400	HIRA								
			CULG	2232.0	2232.0	III	B	1	20	80	
			LEAR	2317.0	0629.0	CONT		1	30U	51U	
24	0000	0740	CULG	0323.0	0411.0	III	N	1	20	70	
	0000	0757	HIRA	0328.6	0328.8	III	B	1	100	240	
			CULG	0329.0	0329.0	III	B	1	100	180	
			CULG	0502.0	0505.0	III	G	1	20	150	
			LEAR	0629.0	0630.0	III		1	30	80	
			HIRA	0629.8	0630.0	III	B	1	60	140	
			CULG	0630.0	0632.0	III	G	1	30	180	
			CULG	0638.0	0729.0	III	N	1	50	130	
	0651	1437	ONDR								
			SVTO	0651.0	0652.0	III		1	39U	48U	
			LEAR	0705.0	0705.0	III		1	30U	56U	
			CULG	0714.0	0715.0	III	G	1	20	180	
			LEAR	0714.0	0714.0	III		1	30	80	
			HIRA	0714.4	0714.6	III	B	1	80	300	
			SVTO	1018.0	1043.0	III	N	2	35	85	
			SGMR	1603.0	1605.0	III		1	30	55	
	2010	2400	CULG	2039.0	2125.0	III	N	1	25	80	
	2048	2400	HIRA								
			CULG	2145.0	2146.0	III	G	1	23	90	
25			LEAR	0024.0	0024.0	III		1	30	52	
	0000	0745	CULG	0445.0	0445.0	III	B	1	50	90	
			CULG	0512.0	0514.0	III	G	2	18	450	
			LEAR	0512.0	0514.0	III		3	30	80	
	0000	0756	HIRA	0512.2	0513.2	III	G	2	30	500	
			LEAR	0534.0	0537.0	III		2	30	80	
			CULG	0535.0	0537.0	III	G	2	18	180	
			SVTO	0535.0	0536.0	III		1	36U	64U	
			HIRA	0535.6	0535.8	III	B	3	30	210	
			CULG	0629.0	0630.0	III	G	1	400	800	
			HIRA	0629.8	0630.0	III	B	1	400	800	
			CULG	0647.0	0739.0	III	N	1	35	160	
	0653	1436	ONDR								
			LEAR	0733.0	0738.0	III		1	30	80	
			LEAR	0749.0	0751.0	III		3	30	80	
			SVTO	0749.0	0751.0	V		2	35	85	
			LEAR	0808.0	0808.0	III		1	30	80	
			LEAR	0823.0	0823.0	III		1	35	68	
			LEAR	0923.0	0923.0	III		2	30	80	
			SVTO	0923.0	0923.0	III		2	36	76	
			SGMR	1145.0	1146.0	III		1	30	45	
			SVTO	1145.0	1146.0	III		1	37	72	
			SVTO	1249.0	1250.0	III		1	61U	85U	
			PALE	1758.0	1804.0	III		1	25	40	
			SGMR	1903.0	1904.0	III		1	30	52	
	2005	2400	CULG	2009.0	2009.0	III	B	1	20	90	
			CULG	2030.0	2031.0	III	G	2	40	180	
			CULG	2032.0	2040.0	III	G	1	20	180	
			PALE	2034.0	2036.0	III		1	25	50	
			CULG	2134.0	2136.0	III	G	1	18	160	

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

OCTOBER 1999

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	FREQUENCY Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
25			CULG	2146.0	2146.0	III	B	1	20	50	
			CULG	2215.0	2216.0	III	G	2	18	160	
			PALE	2215.0	2221.0	III		1	25	50	
	2049	2400	HIRA	2215.2	2215.8	III	G	1	30	180	
			CULG	2221.0	2222.0	III	G	2	18	180	
			HIRA	2221.0	2221.6	III	G	1	30	180	
			CULG	2244.0	2245.0	III	G	1	23	85	
			CULG	2309.0	2310.0	III	G	1	30	140	
			LEAR	2309.0	2309.0	III		1	30	80	
			CULG	2319.0	2319.0	III	B	1	35	90	
			PALE	2335.0	2336.0	III		1	25	50	
			HIRA	2335.6	2335.8	III	B	1	25X	130	
			CULG	2336.0	2337.0	III	G	2	18X	160	
			CULG	2359.0	2359.0	III	B	1	30	60	
			LEAR	2359.0	2359.0	III		1	34	57	
26			LEAR	0044.0	0044.0	III		1	30	55	
	0000	0745	CULG	0045.0	0128.0	III	N	1	18	160	
			LEAR	0048.0	0050.0	III		2	30	80	
			LEAR	0051.0	0127.0	CONT		1	30	65	
			LEAR	0222.0	0223.0	III		2	30	68	
			CULG	0223.0	0224.0	III	G	1	20	150	
			CULG	0249.0	0321.0	III	N	1	20	180	
			CULG	0401.0	0406.0	III	G	1	18	100	
			CULG	0413.0	0413.0	III	B	1	30	90	
			LEAR	0413.0	0413.0	III		1	30	61	
			CULG	0433.0	0446.0	III	N	1	20	160	
			LEAR	0433.0	0433.0	III		1	30	55	
			LEAR	0438.0	0445.0	III		2	30	75	
			CULG	0528.0	0553.0	III	N	1	18	160	
			CULG	0618.0	0620.0	III	G	1	28	180	
	0000	0754	HIRA	0618.0	0619.4	III	G	1	50	180	
			SVTO	0619.0	0630.0	III	N	2	35	85	
			CULG	0626.0	0626.0	III	B	2	20	40	
			LEAR	0629.0	0630.0	III		3	30	80	
			CULG	0630.0	0630.0	III	B	3	20	180	
			HIRA	0630.0	0630.2	III	B	3	40	140	
			CULG	0659.0	0711.0	III	GG	1	20	180	
			SVTO	0709.0	0718.0	III		1	35	83	
			HIRA	0709.2	0710.2	III	G	1	60	150	
			CULG	0718.0	0719.0	III	G	2	20	180	
			HIRA	0718.2	0718.4	III	B	1	60	150	
			SVTO	0828.0	0834.0	III		2	35	80	
	0655	1434	ONDR	0903.2	0905.1	DCIM	G	1	2000X	4235	
			ONDR	0903.4	0905.0	DCIM	G	1	1005	2000X	
			SVTO	1108.0	1108.0	III		1	35U	71U	
			SGMR	1350.0	1351.0	III		1	30	68	
			SVTO	1350.0	1350.0	III		1	64U	74U	
	2005	2400	CULG	2049.0	2111.0	III	N	2	18	320	
			PALE	2050.0	2051.0	III		1	25	45	
			CULG	2118.0	2214.0	I	S	1	120	180	
			CULG	2130.0	2143.0	II	FN	1	25	70	
			CULG	2130.0	2150.0	II	SH	1	35	150	ESS 400
	2050	2400	HIRA	2130.0	2132.2	II		1	90	130	ESS 400
			HIRA	2140.0	2143.0	II		1	50	70	
			CULG	2214.0	2332.0	IV	FS	2	30	200	
			HIRA	2220.0	2340.0	IV		1	50	200	
			LEAR	2322.0	2325.0	III		2	30	80	
			CULG	2323.0	2325.0	III	G	1	23	90	
			PALE	2324.0	2325.0	III		1	25	45	
			CULG	2332.0	2400.0D	I	S	1	110	180	
27	0000	0745	CULG	0000.0E	0110.0	I	S	1	120	170	
			LEAR	0050.0	0052.0	III		1	30	74	
			CULG	0428.0	0430.0	III	G	3	18X	850	
	0000	0753	HIRA	0428.0	0429.8	III	G	3	25X	1200	
			LEAR	0431.0	0434.0	II		3	55	70	ESS 0900
			HIRA	0431.6	0435.0	II	FN	3	40	100	ESS 1100
			HIRA	0431.6	0435.0	II	SH	3	90	160	ESS 1100

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

OCTOBER 1999

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			CULG	0432.0	0436.0	II	FN,H	3	20	100	
			CULG	0432.0	0436.0	II	SH	3	100	200	ESS 1100
			CULG	0444.0	0612.0	III	S	1	20	180	
			LEAR	0452.0	0710.0	CONT		1	50	80	
			LEAR	0519.0	0519.0	III		2	30	50	
			CULG	0612.0	0740.0	I	S	1	110	170	
			LEAR	0846.0	0847.0	III		2	30	80	
			SVTO	0846.0	0847.0	III		1	59	79	
			LEAR	0909.0	0911.0	III		3	30	80	
			SVTO	0909.0	0912.0	III		3	35	84	
			ONDR	0909.1	0912.2	DCIM	G	2	800X	2000X	
	0657	1430	ONDR	0909.1	0912.0	DCIM	G	2	2000X	4305X	
			SVTO	1106.0	1108.0	III		1	60	84	
			SVTO	1329.0	1340.0	II		2	62	85	ESS 0500
			SGMR	1331.0	1338.0	II		1	63	80	ESS 0400
	2005	2400	CULG	2019.0	2019.0	III	B	1	80	180	
			CULG	2025.0	2026.0	III	G	1	23	150	
			CULG	2042.0	2045.0	III	G	1	18	60	
	2051	2400	HIRA								
			LEAR	2221.0	2221.0	III		1	30	55	
			LEAR	2242.0	2242.0	III		1	30	55	
			PALE	2242.0	2244.0	III		1	25	40	
28	0000	0745	CULG	0027.0	0032.0	III	G	3	18X	360	
			LEAR	0028.0	0032.0	III		3	30	80	
			PALE	0028.0	0031.0	III		3	25	75	
	0000	0752	HIRA	0029.0	0031.2	III	G	2	25X	330	
			HIRA	0238.6	0238.8	III	B	1	90	240	
			CULG	0239.0	0239.0	III	B	1	75	300	
			CULG	0444.0	0546.0	III	S	2	23	170	
			HIRA	0445.0	0540.0	IV		2	50	200	
			LEAR	0447.0	0550.0	CONT		1	30	80	
			CULG	0456.0	0457.0	III	G	3	18X	260	
			LEAR	0456.0	0458.0	III		3	30	80	
			HIRA	0456.4	0456.8	III	B	3	25X	300	
			CULG	0546.0	0745.0D	I	S	1	110	160	
	0659	1429	ONDR								
			SVTO	1459.0	1459.0	III		2	46	62	
			CULG	2005.0E	2223.0	I	S	1	120	170	
	2005	2400	CULG	2005.0E	2151.0	III	N	1	20	180	
	2052	2400	HIRA								
			CULG	2311.0	2400.0D	III	S	1	35	100	
29	0000	0750	CULG	0000.0E	0225.0	III	S	1	28	100	
			CULG	0111.0	0120.0	III	GG	2	18	180	
			PALE	0111.0	0118.0	III		1	25	55	
	0000	0751	HIRA	0111.0	0118.2	III	G	1	30	220	
			CULG	0321.0	0322.0	III	G	1	28	90	
			CULG	0350.0	0750.0D	III	N	1	28	100	
	0701	1427	ONDR								
	0715	1515	BLEN								
			PALE	1815.0	1816.0	III		1	25	65	
			PALE	1924.0	1925.0	III		1	25	65	
	2005	2400	CULG	2005.0E	2400.0D	III	S	1	18	90	
	2053	2400	HIRA								
30	0000	0750	CULG	0000.0E	0351.0	III	S	1	18	100	
			CULG	0001.0	0002.0	III	G	2	18X	180	
	0000	0750	HIRA	0001.0	0001.2	III	B	1	30	170	
			HIRA	0157.0	0157.2	III	B	1	50	150	
			HIRA	0242.2	0242.4	III	B	1	30	80	
			CULG	0340.0	0340.0	III	B	2	18X	180	
			HIRA	0340.0	0340.2	III	B	1	25X	160	
	0703	1423	ONDR								
	0715	1515	BLEN								
	2005	2400	CULG								
	2054	2400	HIRA								
31	0000	0750	CULG	0022.0	0025.0	III	G	1	30	150	

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

OCTOBER 1999

OBSERVATION Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	FREQUENCY Int (1-3)	Lower (MHz)	Upper (MHz)	Remarks
31		LEAR	0024.0	0024.0	III		1	30	80	
		LEAR	0112.0	0115.0	III		1	30	60	
		CULG	0113.0	0115.0	III	G	1	20	150	
		LEAR	0159.0	0200.0	III		1	30	50	
		CULG	0206.0	0208.0	III	G	1	18	100	
		LEAR	0206.0	0217.0	III		2	30	80	
0000	0749	HIRA	0206.4	0207.4	III	G	1	40	130	
		CULG	0215.0	0217.0	III	G	1	30	90	
		CULG	0348.0	0408.0	III	N	1	23	170	
		LEAR	0403.0	0405.0	III		2	30	80	
		LEAR	0428.0	0523.0	CONT		1	30	80	
		LEAR	0510.0	0512.0	III		2	30	80	
		HIRA	0510.4	0511.6	III	G	1	40	100	
		LEAR	0647.0	0711.0	III	N	3	30	80	
		SVTO	0653.0	0732.0	CONT		2	35	84	
		HIRA	0654.6	0659.8	III	G	1	50	170	
		CULG	0655.0	0700.0	III	G	1	23	150	
0705	1422	ONDR								
		LEAR	0706.0	0828.0	CONT		1	30	80	
		CULG	0714.0	0716.0	II	FN	1	30	40	
		CULG	0714.0	0717.0	II	SH	1	60	85	
		SVTO	1259.0	1259.0	III		2	35	85	
2055	2400	HIRA								
2005	2400	CULG	2113.0	2113.0	III	B	1	20	40	

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

SOLAR RADIO NOISE STORM AT 164 MHZ

FROM NANCAY RADIOHELIOGRAPH

OCTOBER 1999

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)
05/10/99	-0.22	+0.14	I	13H40	15H09 D
06/10/99	-0.29	+0.12	II	8H09 E	15H09 D
06/10/99	+0.12	+0.19	II	8H09 E	15H09 D
08/10/99	+0.12	+0.36	III	9H15	11H40
08/10/99	-0.19	+0.50	I	13H50	15H08 D
10/10/99	-0.37	+0.25	I	12H45	15H08 D
13/10/99	-1.22	-0.16	IV	8H07 E	15H07 D
14/10/99	-0.85	+0.09	V	8H07 E	15H07 D
15/10/99	-0.81	+0.11	II	8H07 E	15H07 D
15/10/99	-0.60	-0.47	II	10H20	15H07 D
15/10/99	-0.39	+0.25	III	10H50	15H07 D
18/10/99	+0.33	+0.25	II	8H10 E	13H05
20/10/99	+1.55	+0.51	I	8H06 E	11H43
22/10/99	-0.90	-0.50	III	8H05 E	15H05 D
23/10/99	-0.76	-0.48	III	8H05 E	15H05 D
24/10/99	-1.30	+0.09	II	8H05 E	15H05 D
24/10/99	-0.50	-0.57	III	8H05 E	15H05 D
25/10/99	-1.19	-0.08	II	8H05 E	15H05 D
26/10/99	-1.05	-0.08	III	8H05 E	14H55 D
26/10/99	-0.71	+0.00	III	8H05 E	14H55 D
26/10/99	+0.29	-0.12	II	8H05 E	11H22
27/10/99	-0.87	-0.14	II	8H05 E	15H05 D
28/10/99	-0.31	+0.05	II	8H33 E	15H05 D
28/10/99	+0.39	-0.43	II	8H33 E	15H05 D
29/10/99	-0.26	+0.20	III	8H04 E	15H04 D
29/10/99	+0.20	+0.02	II	12H40	15H04 D
29/10/99	+0.56	-0.33	III	11H15	15H04 D
30/10/99	+0.05	+0.17	I	8H18 E	15H04 D
31/10/99	-0.54	-0.23	III	10H32 E	15H05 D

[1] POSITIVE E-W AND S-N COORDINATES CORRESPOND TO THE N-W QUADRANT

[2] IMP1: FLUX< 5 SFU IMP2: 5< FLUX < 20 SFU IMP3: 20< FLUX <100 SFU
IMP4: 100< FLUX <300 SFU IMP5> 300 SFU

[3] E NOISE STORM IN PROGRESS AT THE BEGINNING OF THE NANCAY OBSERVATIONS
D NOISE STORM IN PROGRESS AT THE END OF THE NANCAY OBSERVATIONS

SOLAR RADIO NOISE STORM AT 327 MHZ

FROM NANCAY RADIOHELIOGRAPH

OCTOBER 1999

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)
06/10/99	+0.05	+0.09	I	8H09 E	15H09 D
07/10/99	-0.09	-0.62	I	8H09 E	15H09 D
08/10/99	+0.08	+0.29	I	8H08 E	15H09 D
08/10/99	+0.20	-0.57	I	8H08 E	15H09 D
09/10/99	+0.43	-0.51	I	8H08 E	15H09 D
10/10/99	-1.30	-0.03	I	10H59	13H20
13/10/99	-0.95	+0.03	III	8H07 E	15H07 D
14/10/99	-0.74	+0.14	IV	8H07 E	15H07 D
15/10/99	-0.48	+0.19	III	8H07 E	15H07 D
18/10/99	+0.25	+0.05	I	8H10 E	15H06 D
20/10/99	+1.27	+0.64	I	8H06 E	10H05
20/10/99	+1.30	+0.29	I	8H06 E	12H43
22/10/99	-0.91	-0.37	II	8H05 E	15H05 D
23/10/99	-0.70	-0.47	II	8H05 E	15H05 D
23/10/99	-0.90	-0.64	I	9H50	15H05 D
24/10/99	-1.22	+0.09	I	8H05 E	15H05 D
24/10/99	-0.54	-0.47	II	8H05 E	15H05 D
25/10/99	-1.13	+0.09	II	8H05 E	15H05 D
26/10/99	-0.96	+0.06	II	8H05 E	14H55 D
26/10/99	-0.65	-0.08	II	8H05 E	14H55 D
26/10/99	+0.28	-0.22	I	8H05 E	14H55 D
27/10/99	-0.76	+0.05	II	8H05 E	15H05 D
27/10/99	-0.42	-0.03	II	8H05 E	15H05 D
27/10/99	+0.20	-0.59	II	11H45	15H05 D
27/10/99	+0.57	-0.14	II	8H05 E	15H05 D
28/10/99	-0.53	+0.03	III	8H33 E	15H05 D
28/10/99	-0.14	-0.12	III	8H33 E	15H05 D
28/10/99	+0.37	-0.45	II	8H33 E	15H05 D
29/10/99	-0.31	+0.14	II	8H04 E	15H04 D
29/10/99	+0.16	+0.03	II	8H04 E	15H04 D
29/10/99	+0.54	-0.37	II	8H04 E	15H04 D
30/10/99	-0.56	+0.17	I	8H18 E	15H04 D
30/10/99	-0.03	+0.11	I	8H18 E	15H04 D
30/10/99	+0.40	+0.05	I	8H18 E	15H04 D
30/10/99	+0.76	+0.36	I	8H18 E	15H04 D
31/10/99	-0.45	-0.31	I	10H32 E	15H05 D
31/10/99	+0.87	-0.25	I	10H32 E	15H05 D

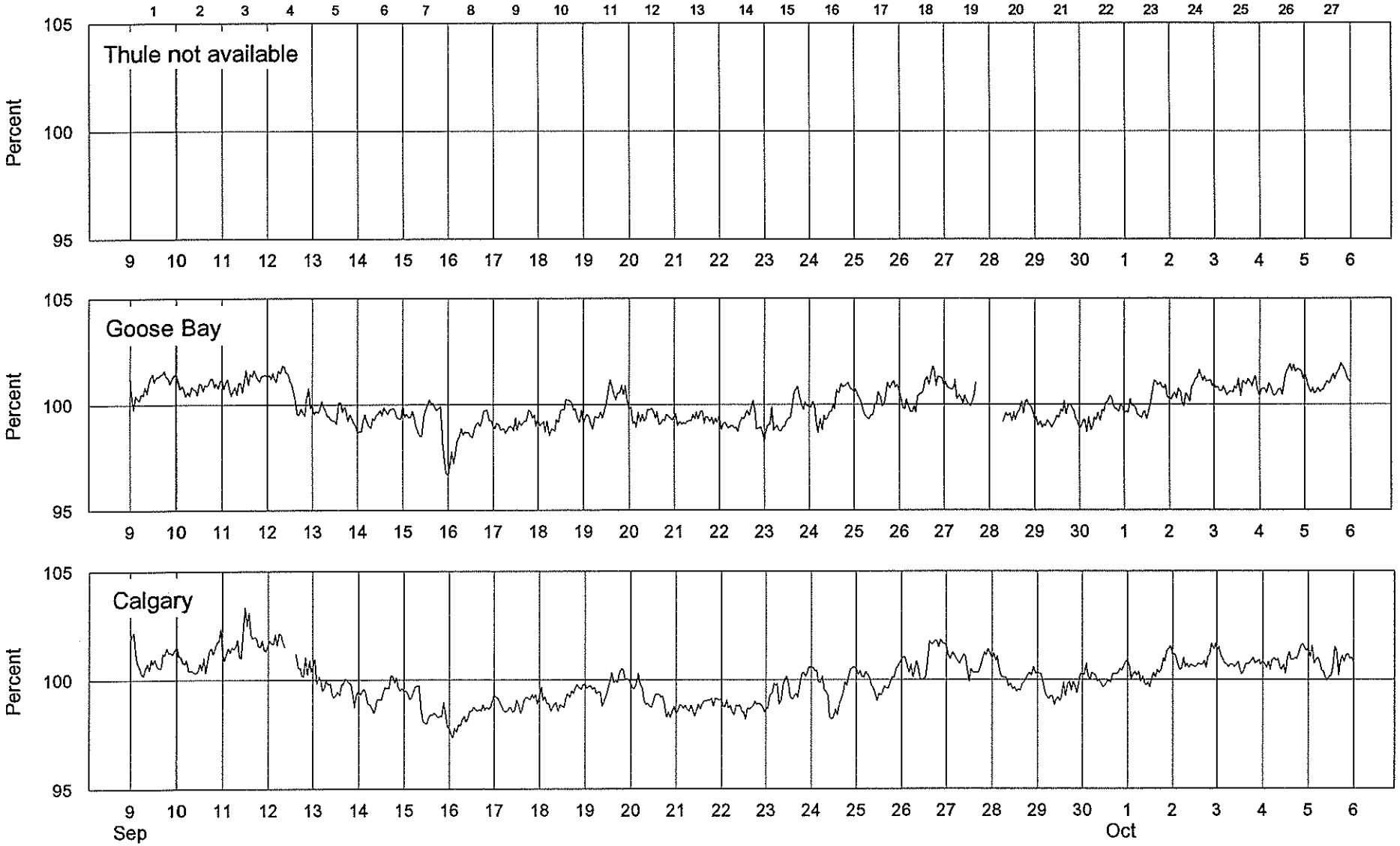
16,17 OCTOBER 1999: NO DATA

OTHERS DAYS: NO DETECTABLE NOISE STORM

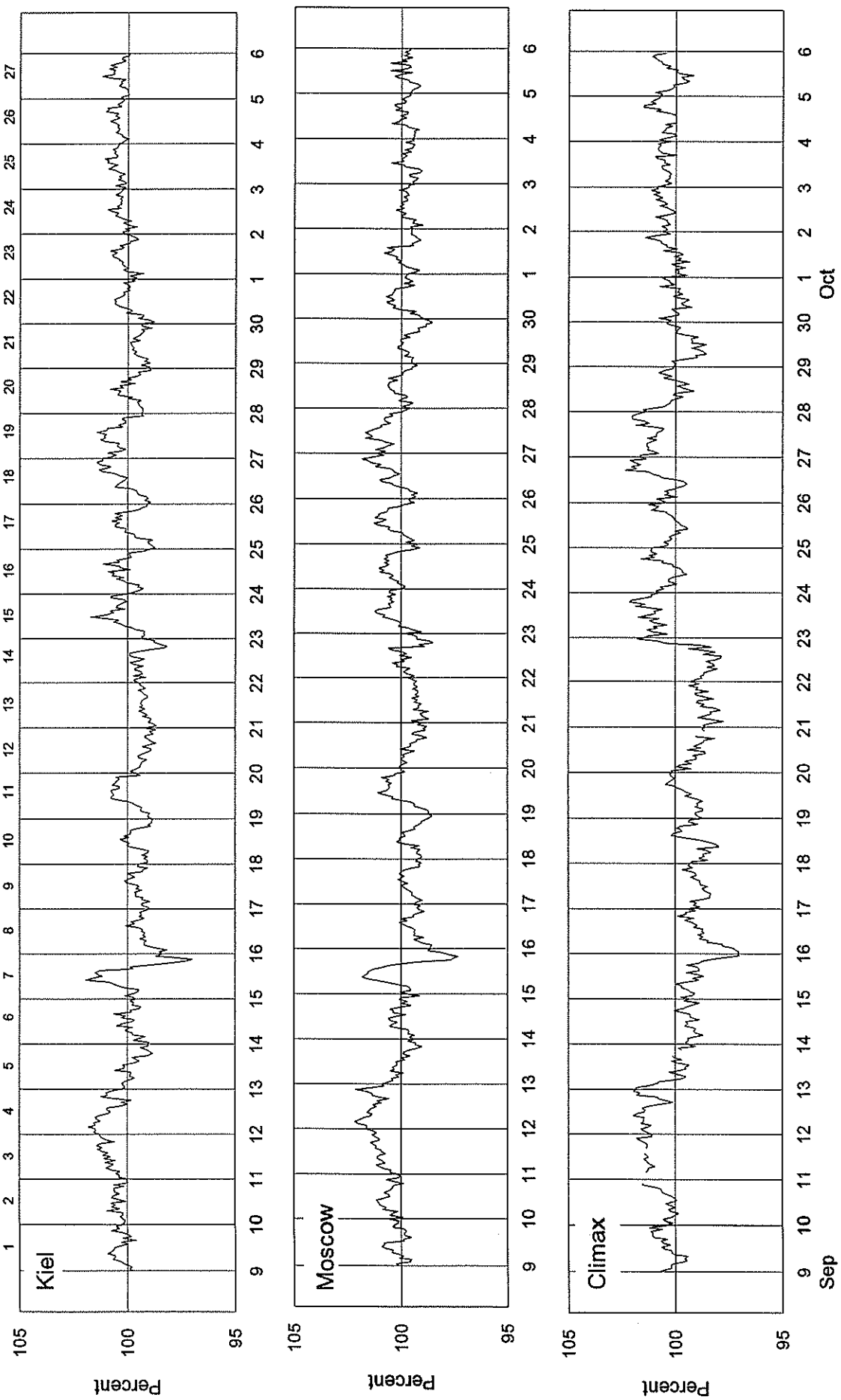
COSMIC RAY INDICES
(Neutron Monitor)
October 1999

Day	THULE Average (cts/h)/100	GOOSE BAY Average (cts/h)/100	CALGARY Average (cts/h)/300	KIEL Average (cts/h)/100	MOSCOW Average (cts/h)/64	CLIMAX Average (cts/h)/100	BEIJING Average (cts/h)/256	HALEAKALA Average (cts/h)/1000
1	No data	6841.6	3706.3	5893.3	8754.5	3955.3	1943.5	3546.8
2	at time of	6883.5	3723.7	5904.0	8750.2	3971.2	1956.7	3551.5
3	publication	6889.4	3720.2	5917.5	8737.9	3970.3	1958.0	3552.5
4		6904.3	3725.8	5914.5	8755.2	3971.2	1964.7	3556.0
5		6908.3	3721.0	5909.6	8749.3	3959.5	1965.9	3546.7
6		6920.1	3718.0	5897.3	8764.2	3967.0	1961.4	3554.9
7		6925.9	3723.7	5903.2	8781.7	3979.6	1964.2	3559.2
8		6941.3(15)	3738.7	5897.4	8784.7	3984.2	1964.0	3569.0
9		6966.2	3760.0	5922.3	8825.7	3994.8	1966.6	3577.1
10		6854.4	3715.7	5849.3	8728.0	3960.4	1963.8	3553.0
11		6808.2	3692.0	5826.8	8702.0	3926.9	1955.8	3543.6
12		6815.9	3678.7	5814.7	8672.1	3916.2	1951.0	3540.2
13		6813.2	3660.8	5809.5	8701.5	3912.2	1955.1	3537.9
14		6743.8(16)	3639.3	5756.1	8635.7	3875.3	1953.0	3533.4
15		6651.9(15)	3608.2	5707.9	8548.3	3842.3	1955.8	3508.4
16		6669.0	3608.5	5700.7	8527.2	3833.9	1956.9	3500.2
17		6664.6	3591.7	5701.3	8529.6	3825.0	1951.0	3499.7
18		6688.5	3617.0	5722.9	8562.5	3827.8	1951.8	3490.3(54)
19		6733.6	3630.3	5756.5	8604.4	3838.2	1955.9	3463.3(9)
20		6739.0(9)	3628.7	5762.7	8590.2	3833.0	1952.7	3481.5
21		6714.1	3596.8	5727.7	8573.0	3805.1	1938.9	3460.8
22		6685.8	3595.0	5745.8	8592.6	3868.7	1966.9	3488.2
23		6698.0(20)	3617.7	5741.0	8583.5	3865.0	1955.4	3483.9
24		6674.3	3614.5	5741.6	8590.0	3851.9	1955.0	3490.0
25		6709.7	3619.0	5751.0	8581.5	3847.1	1957.6	3497.4
26		6758.6	3634.3	5760.5	8589.3	3868.5	1958.9	3505.7
27		6743.9(10)	3674.3	5779.5	8654.4	3896.3	1973.5	3517.2
28		---	3666.0	5802.1	8680.7	3920.7	1989.4	3533.5
29		6804.9(7)	3669.3	5785.8	8649.2	3902.1	1987.5	3529.4
30		6789.4	3646.2	5770.8	8634.3	3870.9	1985.0	3520.8
31		6752.7	3652.3	5767.1	8613.9	3853.7	1981.0	3511.6
Mean		6789.8	3664.3	5804.5	8659.6	3899.1	1961.2	3524.6

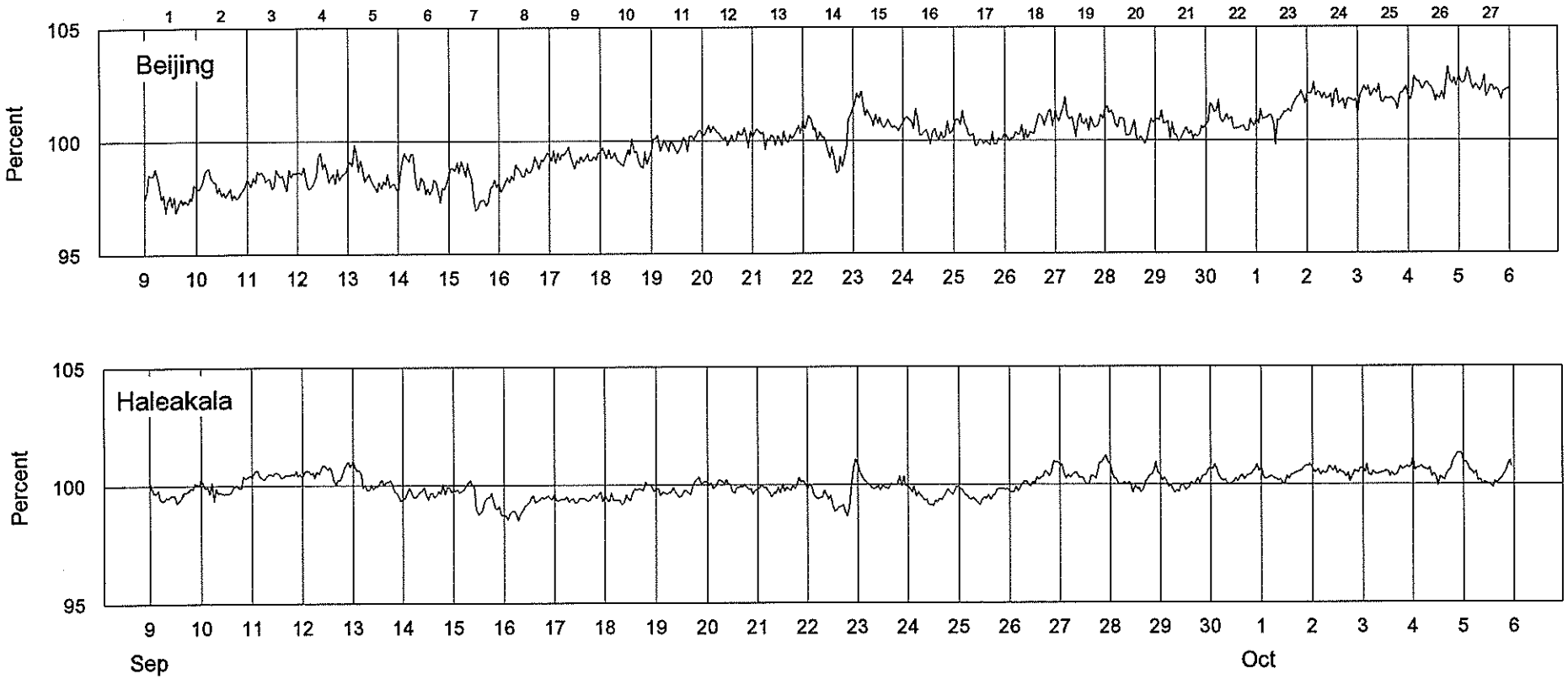
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2268 - Beginning 9 Sep 99



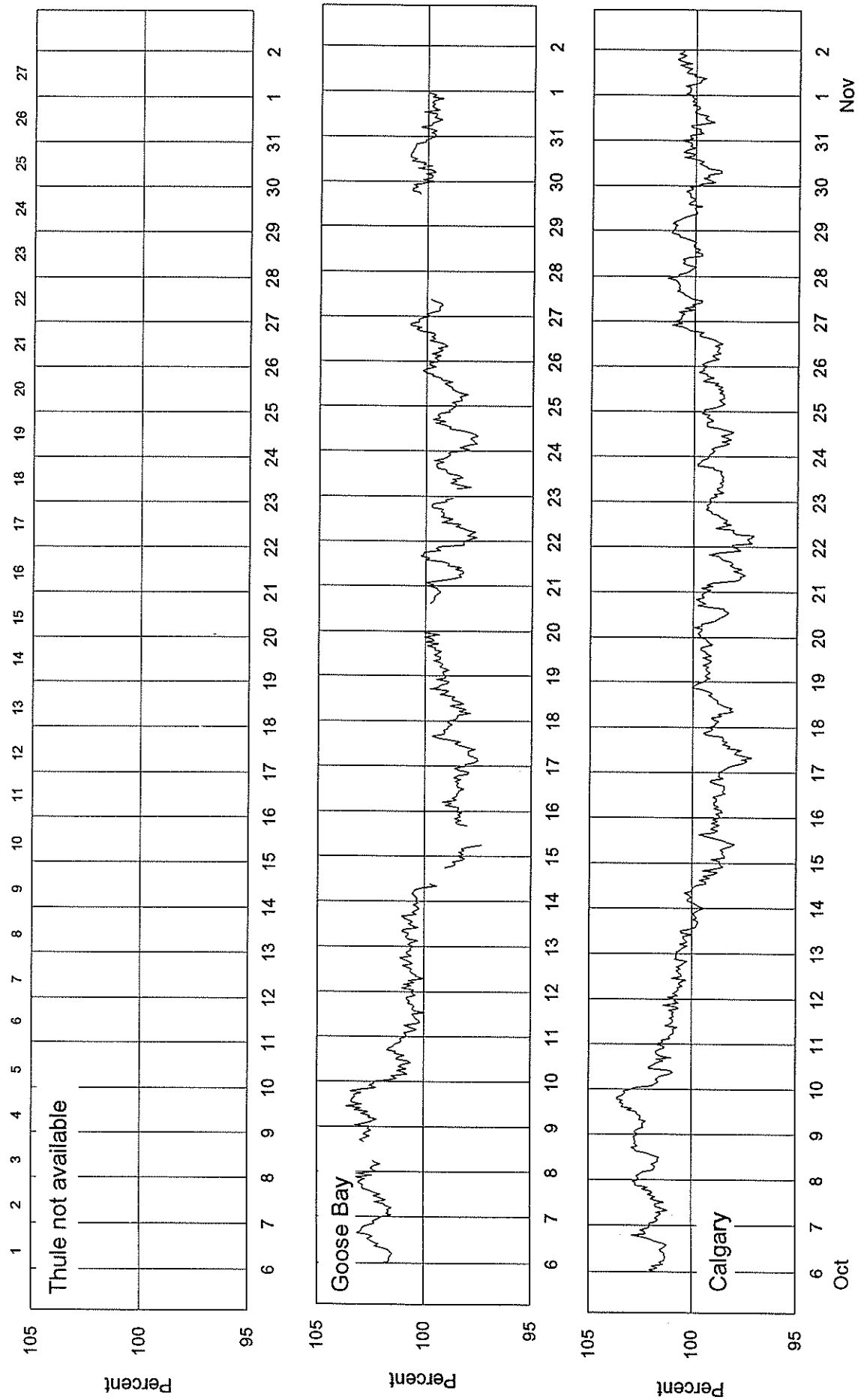
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2268 - Beginning 9 Sep 99



COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2268 - Beginning 9 Sep 99



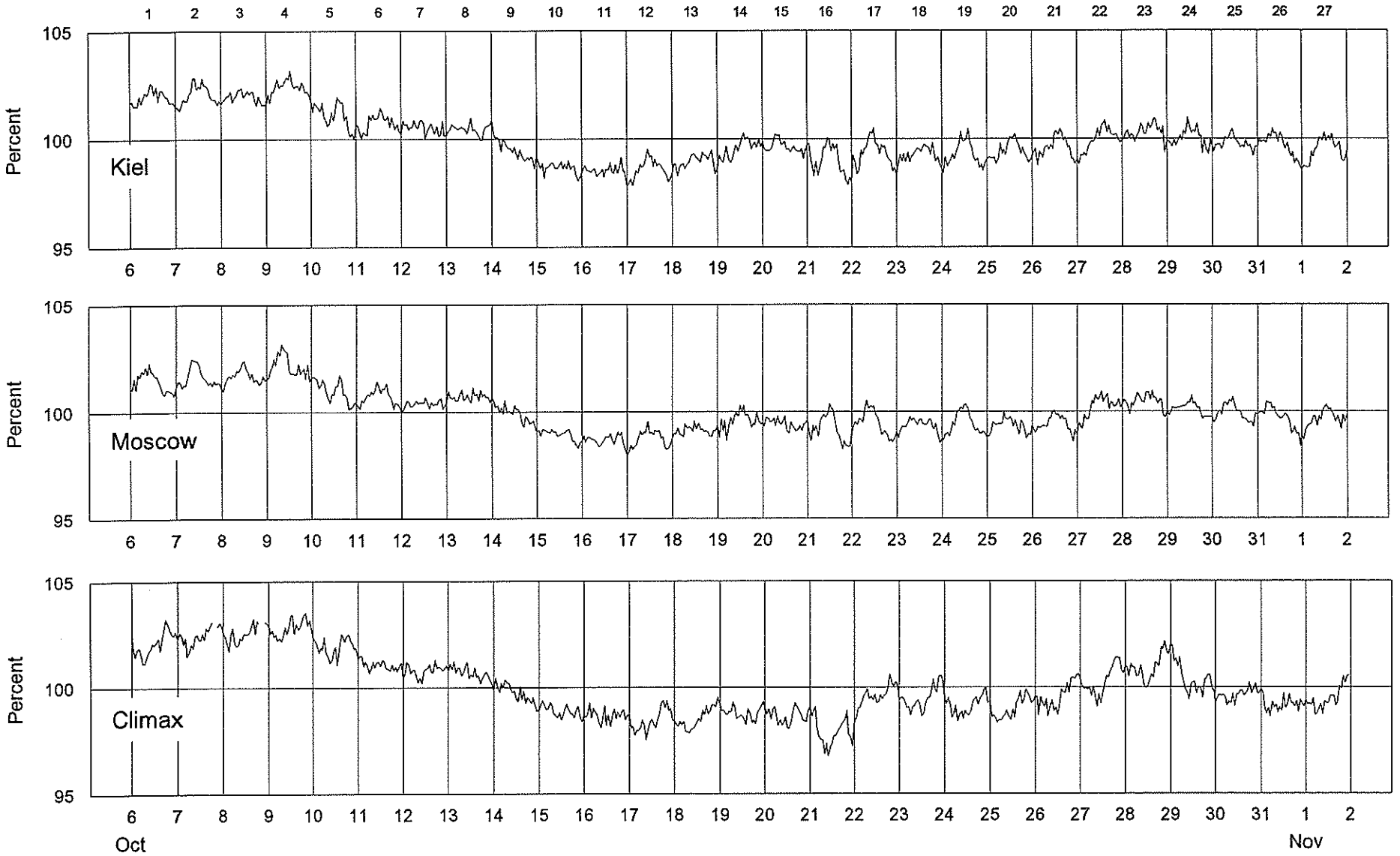
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2269 - Beginning 6 Oct 99



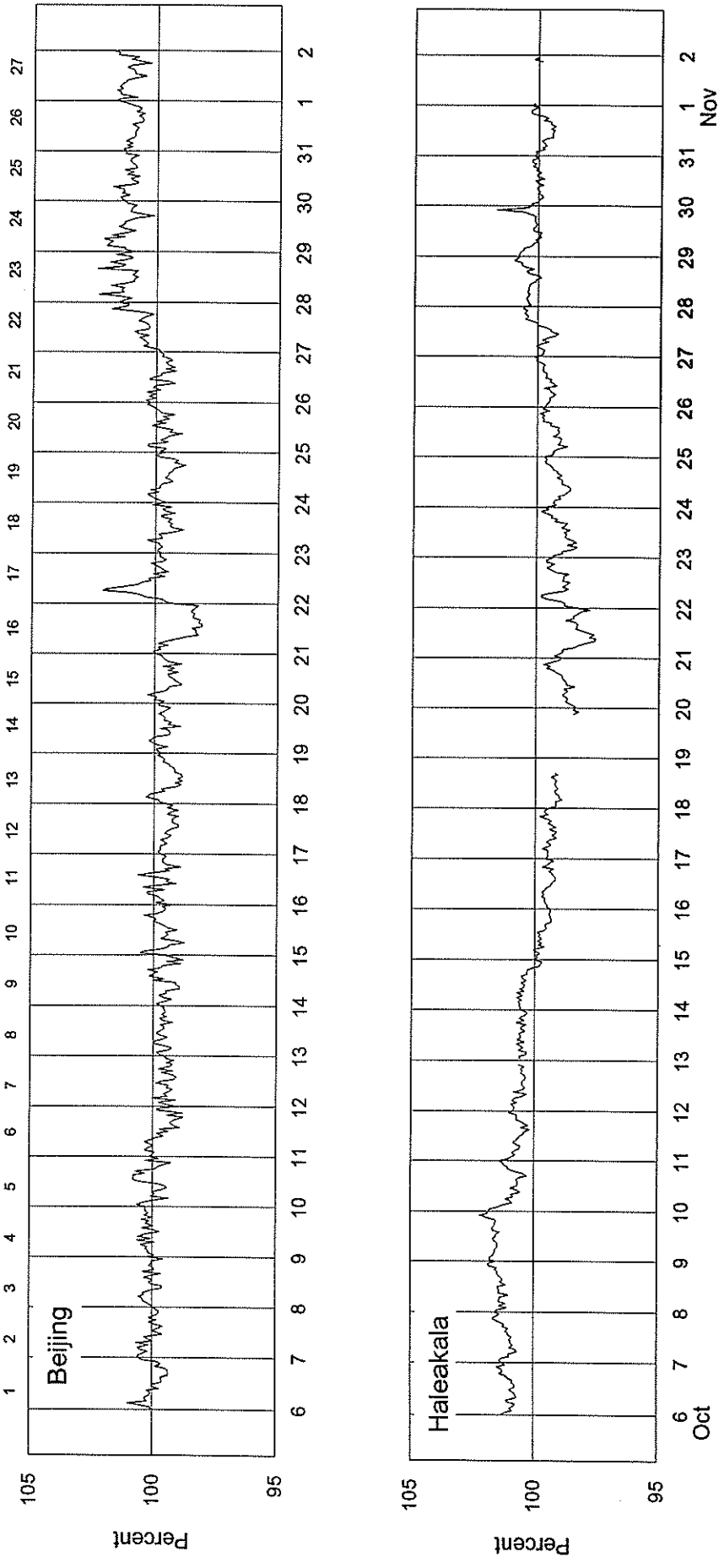
COSMIC RAY INDICES

(Neutron Monitor)

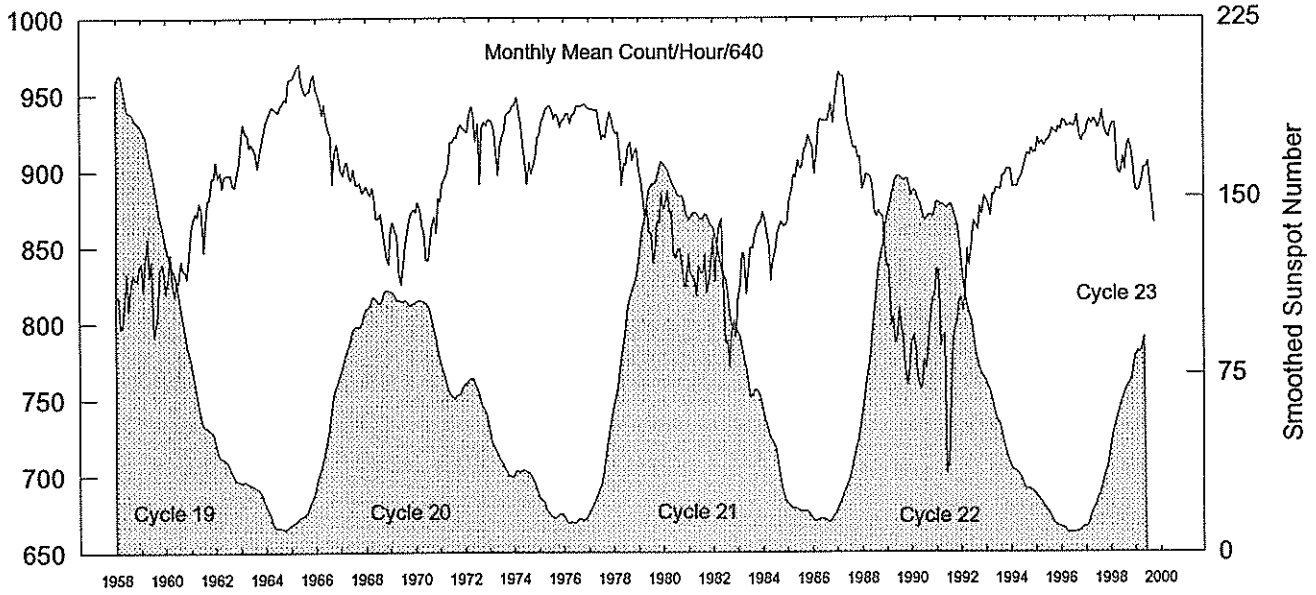
Bartels Rotation 2269 - Beginning 6 Oct 99



COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2269 - Beginning 6 Oct 99



Moscow Neutron Monitor Pressure-Corrected Values
Jan 1958 - Oct 1999



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1958	8171*	8175*	7973*	7971*	8145*	8330*	8087*	8266*	8324*	8291*	8294*	8378*	8200*
1959	8405	8223	8443	8565	8309	8416	7911	7972	8054	8351	8397	8325	8281
1960	8199	8313	8459	8264*	8178*	8272*	8272*	8417	8348	8348	8295	8464	8319*
1961	8619	8682	8731*	8708*	8791*	8759*	8472	8676	8808	8816	8957	8956	8748*
1962	9061	8959	8996	8891	8964*	8974	8977	8977	8908	8902	8973	9056	8940*
1963	9201	9308	9243	9239	9154	9180	9147	9109	9020	9110	9194	9259	9180
1964	9321	9353	9395	9416	9410	9396	9384	9425	9442	9473	9458	9594	9422
1965	9602	9608	9642	9685	9701	9586	9530	9505	9520	9525	9608	9630	9595
1966	9531	9502	9439	9367	9438	9336	9261	9242*	8916	9105*	9178	9094	9284*
1967	9006	8973	9038	9059	8956	8940	9015	8913	8911	8924	8860	8873	8956
1968	8904	8875*	8844*	8892*	8825*	8690*	8689	8725	8635*	8533*	8428	8394	8703*
1969	8628	8666	8606	8584	8334	8261	8378	8510	8612	8689	8731	8751	8562
1970	8735	8799	8749	8639	8608	8418	8420	8540	8656	8702	8596	8827	8641
1971	8805	8921	8952	8982	9028	9185	9190	9219	9215	9285	9302	9276	9113
1972	9260	9254	9367	9419	9364	9192	9311	8916	9275	9319	9298	9336	9275
1973	9333	9321	9258	9107	8975	9160	9233	9263	9368	9376	9392	9423	9267
1974	9431	9481	9390	9327	9153	9062	8916	9054	8983	9027	9092	9222	9178
1975	9238	9317	9361	9405	9415	9425	9395	9339	9370	9361	9285*	9330	9353*
1976	9339	9375	9370	9310	9363	9371	9423	9418	9423	9428	9440	9415	9380
1977	9405	9404	9401	9392	9399	9318	9209	9236	9216	9302	9384*	9341	9334*
1978	9279	9243	9254	9113	8907	9050	9035	9149	9189	9062	9118	9145	9216
1979	9012	8955	8860	8693	8778	8599	8592	8396	8470	8662	8661	8857	8740
1980	8752	8776	8871	8737	8732	8463	8430	8490	8491	8379	8259	8242	8552
1981	8451	8330	8311	8277	8176	8379	8332	8338	8452	8206	8289	8439	8332
1982	8565	8277	8565	8649	8686	8279	7870	7882	7712	7931	8023	7902	8195
1983	8150	8253	8460	8460	8194	8343	8498	8492	8575	8625	8658	8670	8448
1984	8736	8686	8574	8505	8286	8421	8476	8590	8632	8669	8641	8644	8575
1985	8671	8813	8878	8973	8958	9066	9018	9017	9140	9155	9233	9183	9009
1986	9162	8982	9125	9316	9339	9328	9326	9327	9368	9444	9312	9472	9292
1987	9553	9646	9619	9618	9505	9349	9268	9202	9149	9153	9085	9094	9353
1988	8885	8922	8979	8968	8961	8904	8724	8704	8745	8716	8699	8474	8807
1989	8381	8385	7985	8043	7868	7888	8102	7977	7897	7709	7592	7701	7961
1990	7871	7910	7846	7652	7574	7569	7755	7701	7864	8037	8168	8185	7844
1991	8356	8347	7850	7915	7926	7025	7082	7510	7863	7964	8008	8153	7833
1992	8169	8078	8247	8490	8378	8535	8670	8649	8614	8767	8717	8833	8512
1993	8804	8784	8705	8846	8842	8888	8884	8880	8968	8968	9010	9011	8882
1994	9001	8895	8899	8898	8942	8963	9013	9055	9110	9098	9141	9112	9011
1995	9122	9206	9169	9193	9159	9186	9203	9228	9272	9257	9241	9286	9210
1996	9266	9328	9324	9287	9291	9302	9295	9302	9364	9226	9192	9227	9284
1997	9240	9311	9334	9302	9340	9318	9277	9322	9390	9281	9233	9217	9297
1998	9273	9306	9312	9057	8981	8983	9088	9007	9157	9196	9133	9036	9127
1999	8883	8867	8887	8937	9021	9018	9058	8904	8794	8660			8903

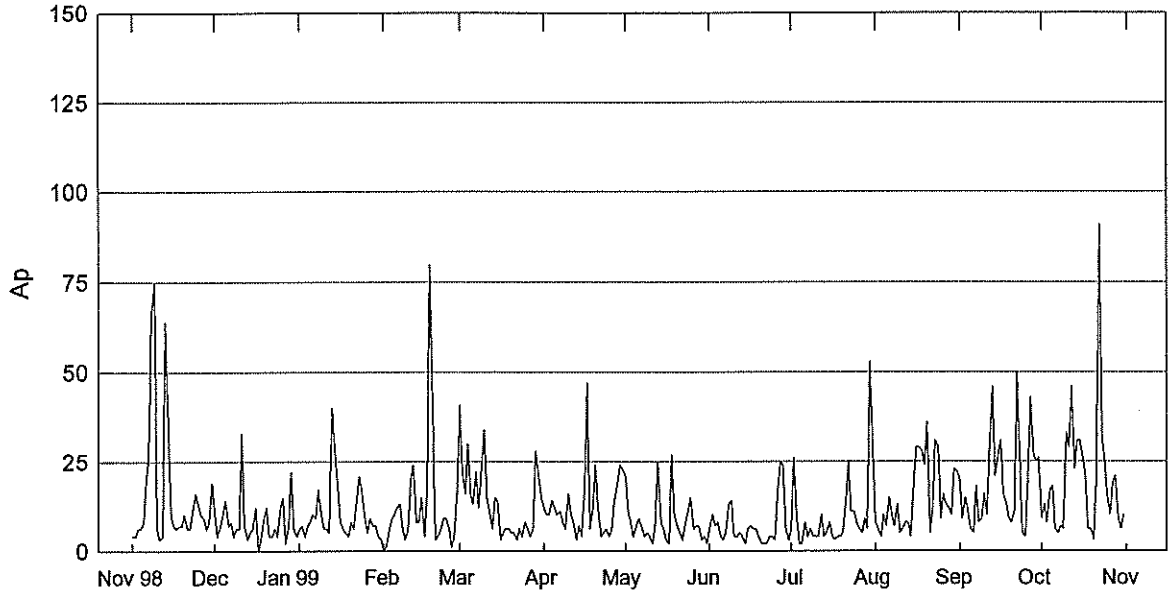
Multiply table entries by 64 to obtain hourly counting rate. Moscow, Russia: N55, E37, Alt= 200 m, Cutoff Rigidity= 2.42GV.
NOTE: * Indicates data have been restored using the corresponding data of other cosmic ray stations.

Geomagnetic Activity Indices
October 1999

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	aa Provisional Am	N	S	M	
1	Q10A	2+	3-	1+	2-	3	2-	3	1+	17	9	0.5	2+	2o	1+	2o	3o	2o	3o	1+	19	23	16	16	23	
2		3	3+	4-	2-	3-	2+	2	3-	21+	13	0.7	3o	4-	3o	2o	2+	3-	2o	3-	25	23	21	23	21	
3	Q9A	2	2	2+	2	2-	3-	1+	3-	17-	8	0.4	2-	2-	2+	2+	2-	3-	2-	2+	16	18	17	15	20	
4		1+	3+	3+	4-	3-	3	4-	4-	25-	17	0.9	2-	3+	3o	3+	2+	3o	3+	4-	31	42	31	34	39	
5		3-	3	2+	3+	4	4-	3-	4	26-	18	1.0	3-	3-	3-	3o	4-	3+	2+	4-	31	38	24	25	37	
6	Q3	1-	1	2	2	2+	1+	1+	1	12-	6	0.2	1o	1-	2o	3-	2+	1+	2-	1+	12	11	13	13	11	C
7	Q2	2-	2+	2-	1+	1-	0+	1+	1	10+	5	0.2	2+	2o	2-	1+	1o	0+	1+	1+	9	8	8	9	7	CK
8	Q8A	1+	3	2-	2	3-	0+	1-	2-	13+	7	0.4	2o	3-	2-	3-	3-	0+	1o	1+	14	18	14	20	12	K
9	Q7K	1-	1	1+	1	1-	2-	3-	3	12	6	0.3	1o	1-	1+	1o	1o	2o	3-	3o	12	18	11	8	21	
10	D3	3-	4+	4+	5-	5-	6-	4	3	33+	33	1.3	2+	4o	4-	4o	4+	5-	4o	3-	51	57	45	50	52	
11		4+	3+	5-	4-	3+	5-	3+	5	32+	29	1.3	4o	3o	4+	3+	3+	3+	3o	4+	44	57	34	45	45	
12	D2	5	5	4-	5	5+	5+	5+	4+	39	46	1.5	4+	4+	3+	5-	4+	4o	4+	4o	60	66	57	51	72	
13		5-	3	4	3-	4-	4	4	3+	29+	23	1.1	4o	3-	4o	3+	4-	4-	4-	3+	44	41	35	31	45	
14	D5	3+	4+	4-	4-	5-	5	4+	4+	33+	31	1.3	3+	4-	3o	3+	4o	4o	3+	4o	44	57	41	37	61	
15		5	5	4+	4	4-	5-	3+	3-	33-	31	1.3	4+	4+	4-	4-	3+	4-	3o	2+	43	50	34	47	37	
16		4	5-	3+	4-	4-	5-	4-	3	31-	26	1.2	4-	4-	3-	3+	4-	4-	4-	3o	40	54	28	36	46	
17		4	4-	5-	4-	4+	3-	1+	2	26+	21	1.1	4-	3o	4o	4-	4o	3o	2-	2o	35	37	30	38	29	
18	Q6	1	1+	0+	2-	2+	2-	2+	2	13-	6	0.3	1+	1+	0+	2-	3-	2+	2+	2o	13	17	13	10	20	
19	Q4K	3	2	3-	1	0+	0	0+	0+	10-	6	0.2	2+	2-	3o	1+	0+	0o	1o	1-	11	10	12	18	4	KK
20	Q1	1-	1	0+	1	1	1-	1-	1-	6	3	0.1	1o	1-	1-	2-	1o	1-	1+	1o	7	6	10	9	8	C
21		3+	5	2	2	2-	3	3+	5-	25	20	1.0	4o	4+	2o	3-	2+	3o	3+	5-	39	32	39	36	35	
22	D1	7	8-	8	5+	5-	4+	6-	3+	46	91	1.9	6+	7o	8-	5-	5-	4o	5-	3+	136	105	106	140	72	
23	D4	4	5-	3+	3-	5+	5	4+	4	33+	32	1.3	3+	4o	3-	2+	5o	4+	4-	3+	48	46	50	32	65	
24		5-	4	4+	4-	4	3	3+	4+	31+	26	1.2	4-	3+	4o	4-	4o	3-	3o	4o	43	50	41	51	40	
25		4-	3+	3	3+	4-	3+	2+	1-	23+	16	0.9	3o	3-	3o	3+	4-	3o	2+	1o	28	25	29	30	25	
26		1-	2+	2	3-	2+	3-	3-	3-	18	10	0.5	1+	2o	2-	3-	2o	3-	3-	2+	18	22	14	15	21	
27		3-	4	3-	3+	3	5-	3	3-	26	19	1.0	2o	3o	3-	4-	3+	4o	3o	3-	32	43	25	26	41	
28		2+	2-	3-	2-	4+	4	5+	3+	25+	21	1.1	2-	2-	3-	2-	4o	4-	4-	3o	31	41	30	19	52	
29		3-	2	2	2+	2	1	3-	3-	17+	9	0.5	2+	2-	2-	2+	3-	1+	3o	2+	18	19	13	13	19	
30	Q5	1	1	2-	2	2+	2	1	2-	13-	6	0.3	1o	1o	1+	2o	3o	2-	1o	2-	12	12	11	10	13	C
31		2	2	2	4-	2	2	2-	3	18+	10	0.5	2-	2o	2+	3o	2+	2+	2o	3o	20	23	17	21	19	
Mean											19	0.82									31.8	34.5	28.2		31.3	

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	2+	2+	1+	2o	3+	2+	3o	1+	20	2+	2-	1+	2o	3-	2-	3o	1+	17	122.2	50	54	70		
2	3o	4o	3+	2o	3-	3-	2+	3-	27	3-	3+	3o	2o	2o	3-	2o	3o	23	126.5	64	62	75		
3	2-	2-	3-	2+	2-	3-	1+	2+	16	2-	2o	2o	3-	1+	3-	2o	2+	16	141.5	68	71	91		
4	2o	3+	3o	4-	2+	3o	3+	3+	31	2-	3o	3o	3+	3-	3-	3+	4-	30	141.8	77	84	91		
5	3o	3-	3-	3o	4-	4-	3-	4o	33	3-	3-	3-	3-	3+	3-	2+	4-	28	148.2	124	127	98		
6	0+	1-	2+	3o	3-	2-	2-	2-	14	1+	1o	2o	2+	2o	1+	1+	1+	11	139.5	136	138	89		
7	2-	2-	2-	1o	1-	0+	1+	1+	8	3-	2o	1+	1+	1o	0o	1+	1+	10	131.5	138	140	80		
8	2-	3-	2-	3-	3-	1-	1-	1+	14	2o	2+	2-	3-	3-	0o	1o	1+	14	147.1	113	122	97		
9	1+	1-	1+	1-	1o	2o	2+	3o	12	1o	1o	2-	1o	1o	2-	3-	3o	13	151.3	140	129	101		
10	3-	4o	4-	4+	4o	5-	4+	3o	52	2o	4o	4o	4o	5-	5-	4-	3-	50	159.0	130	128	110		
11	4o	3-	4+	4-	3+	4-	3o	4o	46	4o	3+	4o	3-	3o	3o	3+	4+	43	162.6	126	135	114		
12	4o	4+	4-	4+	5-	4o	4+	4o	61	4+	4+	3o	5-	4+	4+	4o	4o	59	178.9	145	145	131		
13	4o	3o	4+	3+	4o	4-	4o	3+	47	4o	3-	4-	3o	4-	3+	4-	4-	40	187.0	157	146	140		
14	3-	4-	3+	3+	4+	4o	4-	4-	45	4-	3+	3-	3o	4o	4o	3+	4+	43	195.2	151	132	149		
15	4o	4+	4o	4-	4-	4-	3o	2+	44	4+	4+	4-	3+	3+	4-	3o	2+	43	192.0	115	117	145		
16	4o	4-	3-	3o	4o	4o	3o	3o	42	3+	4-	2+	3+	3+	4-	4-	3+	38	191.3	122	135	145		
17	4-	3-	4+	4-	4+	3o	2-	2-	36	4-	3o	4o	3+	4-	3o	2-	2o	34	179.0	125	124	131		
18	1-	1o	0o	2-	3-	3-	2+	2+	13	2-	1+	0+	2-	2+	2o	2+	2-	12	176.6	114	116	129		
19	3-	2-	3o	1+	1o	0+	1-	0+	11	2+	2o	3o	2-	0o	0o	1+	1o	11	164.4	109	104	116		
20	0+	1-	0+	2-	1o	1-	1+	1-	6	1+	1-	1-	2o	1+	1-	1+	1+	8	157.9	113	114	109		
21	3+	4o	2-	2+	2+	3+	3o	5-	36	4+	5-	2o	3-	2o	2+	3+	5-	42	153.9	87	104	104		
22	6+	7-	7+	5-	5o	4o	5o	3o	133	6+	7o	8-	5-	4o	4o	5-	3+	140	157.0	86	100	108		
23	3+	4+	3o	2o	5o	4+	4-	3+	48	4-	4o	3-	2+	5-	4+	4-	4-	47	159.4	79	94	110		
24	4o	3+	4+	4-	4+	3-	3-	4o	46	4-	3o	4-	4-	4-	3-	3o	4-	39	161.9	90	103	113		
25	3o	3-	3o	4-	4-	3o	2o	1-	29	3-	3-	3o	3o	4o	3o	2+	1+	28	170.8	120	133	122		
26	1o	2+	2-	3o	2+	3o	3-	3-	19	2-	2o	2-	3-	2o	2o	3-	2+	17	188.5	143	149	142		
27	2o	3o	3-	4-	4-	4o	3o	2+	32	2+	3o	3o	3+	3o	4o	3o	3-	32	194.7	140	146	148		
28	2o	2-	3-	2-	4+	4-	4o	3o	33	2-	2o	3-	2-	4-	4o	4-	3o	29	181.7	135	141	134		
29	2o	2o	2o	3-	3o	1+	3o	2o	19	2+	1+	2-	2o	2o	1+	3o	3-	16	173.6	137	156	125		
30	1o	1-	1+	2o	3o	2o	1o	1+	12	1+	1o	1+	2o	3o	2-	1+	2o	12	171.1	146	173	123		
31	2-	2-	3-	3+	3-	3-	2-	3o	21	2o	2o	2o	3-	2o	2o	2o	3+	19	161.3	129	153	112		
Mean									32.5									31.1	163.5	116.4	121.8	114.6		

Daily Average Indices Ap
Nov 1998 - Oct 1999

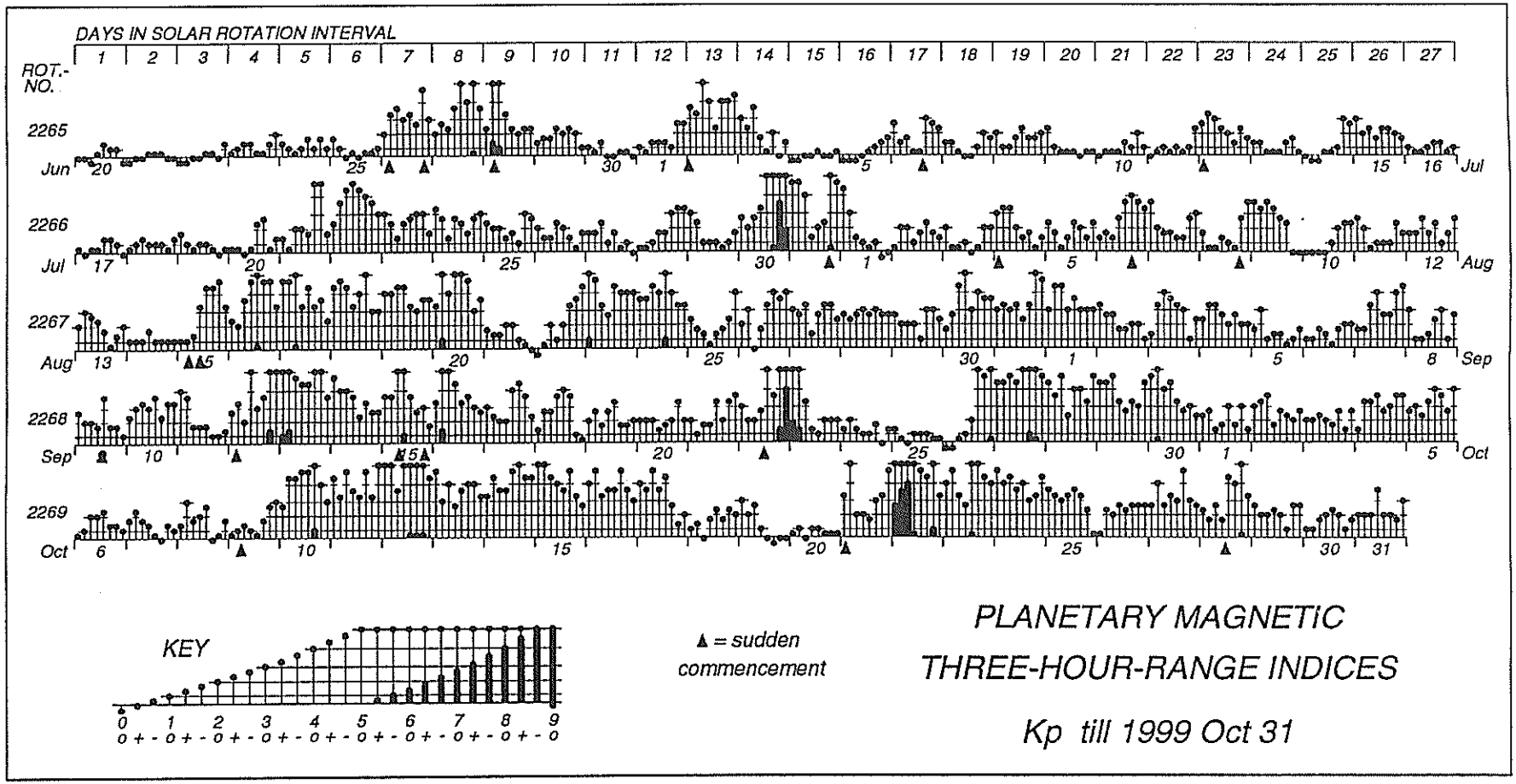


Day	Nov 98	Dec	Jan 99	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1	4	11	6	0	41	12	21	6	6	8	20	9
2	4	4	7	1	22	10	11	10	26	6	9	13
3	6	7	4	5	16	10	8	7	9	4	15	8
4	6	10	7	9	30	14	4	8	2	10	11	17
5	8	14	8	10	16	12	7	4	2	7	6	18
6	20	7	10	12	13	10	9	3	8	15	5	6
7	26	8	9	13	22	11	7	5	4	10	18	5
8	66	4	17	6	12	8	4	13	6	7	8	7
9	75	6	11	3	21	6	5	14	4	13	9	6
10	6	6	6	6	34	16	4	4	4	5	16	33
11	3	33	6	20	15	10	2	4	4	6	10	29
12	4	7	5	24	11	8	8	5	10	8	31	46
13	64	3	40	8	6	3	25	4	4	8	46	23
14	41	5	29	8	15	7	8	2	5	4	21	31
15	10	6	20	15	14	4	6	6	8	19	27	31
16	7	12	8	4	3	18	3	7	4	29	31	26
17	6	0	6	17	5	47	2	6	3	29	16	21
18	7	3	5	80	6	6	27	6	4	28	13	6
19	7	9	4	40	6	12	10	4	4	24	9	6
20	10	12	8	3	5	24	7	2	5	36	8	3
21	6	4	6	4	5	12	5	2	14	5	11	20
22	6	4	14	6	3	4	3	2	25	12	50	91
23	11	6	21	9	6	5	8	4	11	31	28	32
24	16	4	17	9	4	6	11	4	11	29	5	26
25	13	12	9	6	8	4	15	3	8	9	4	16
26	10	15	5	1	6	6	6	18	6	16	20	10
27	9	2	9	4	4	14	7	25	5	13	43	19
28	6	7	7	17	6	19	7	24	9	12	27	21
29	8	22	7		28	24	3	6	6	10	25	9
30	19	6	4		22	23	4	3	53	23	26	6
31		4	3		15		2		28	22		10
Mean	16	8	10	12	14	12	8	7	10	15	19	19

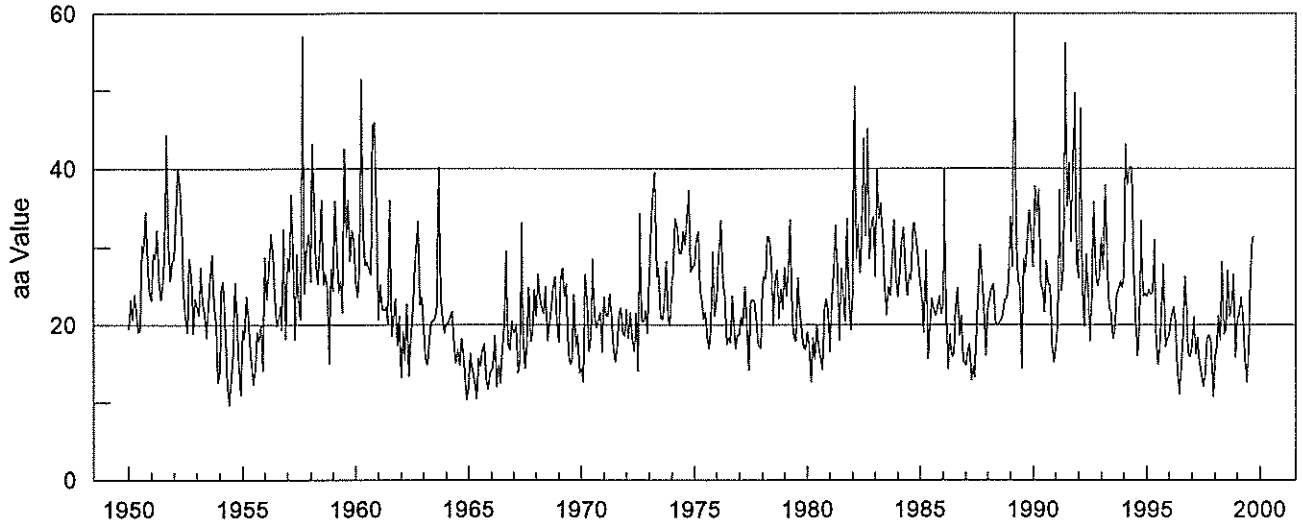
PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

GeoForschungsZentraum Potsdam

Kp through October 31, 1999



Monthly Mean aa Index Jan 1950 - Oct 1999

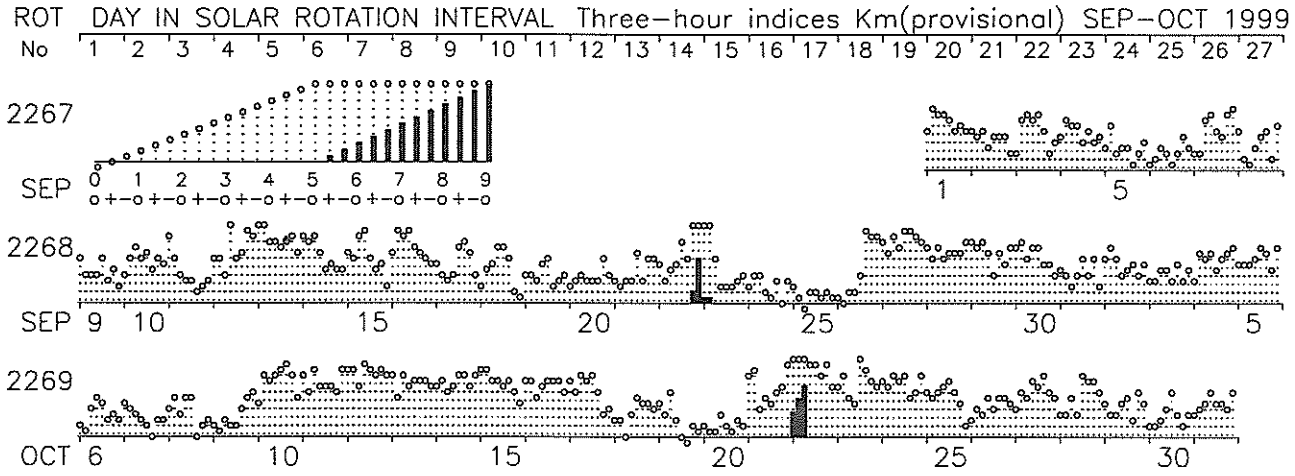


Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	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			22.1

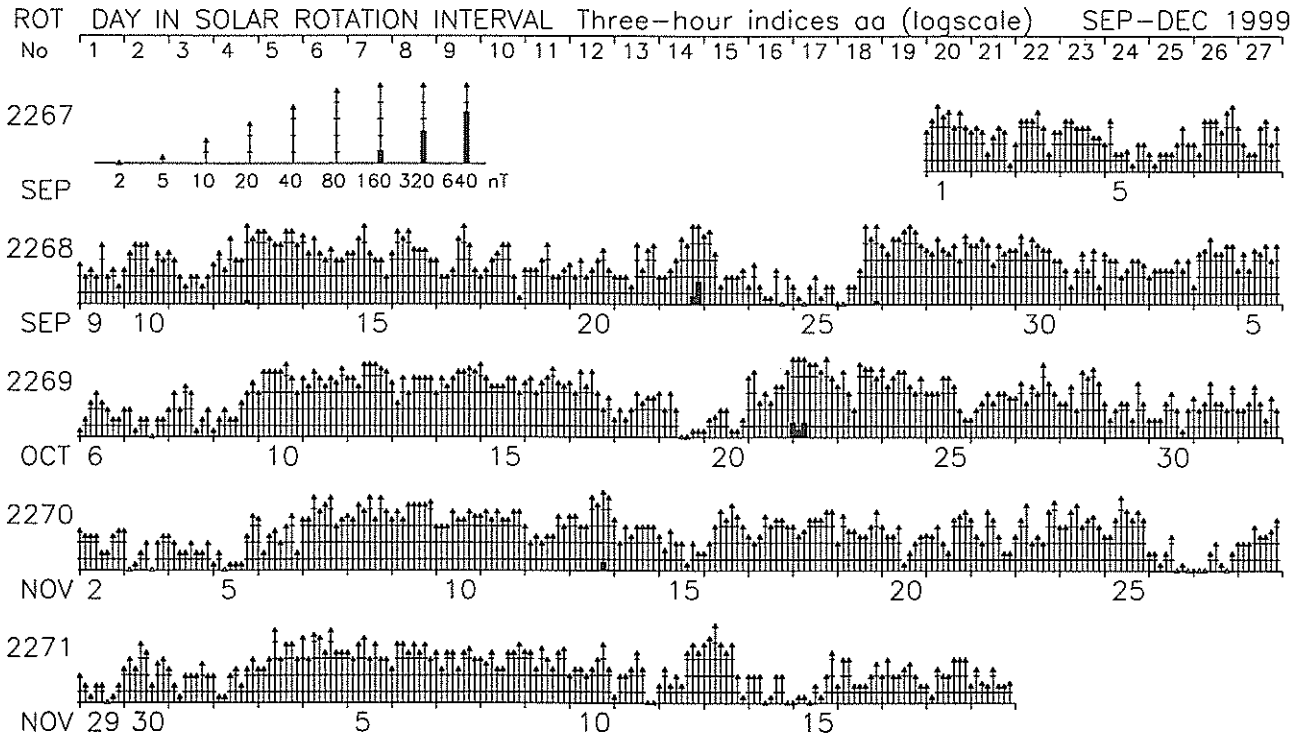
PLANETARY GEOMAGNETIC ACTIVITY

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

ISGI PUBLICATION OFFICE - EMail : ISGI.PUBOFF@cetp.ipsl.fr
CETP, 4 Avenue de Neptune, F-94107 Saint Maur des Fosses CEDEX - FRANCE



Indices Derivation at Universite Paris Sud; Graph Prepared at ISGI Publication Office.



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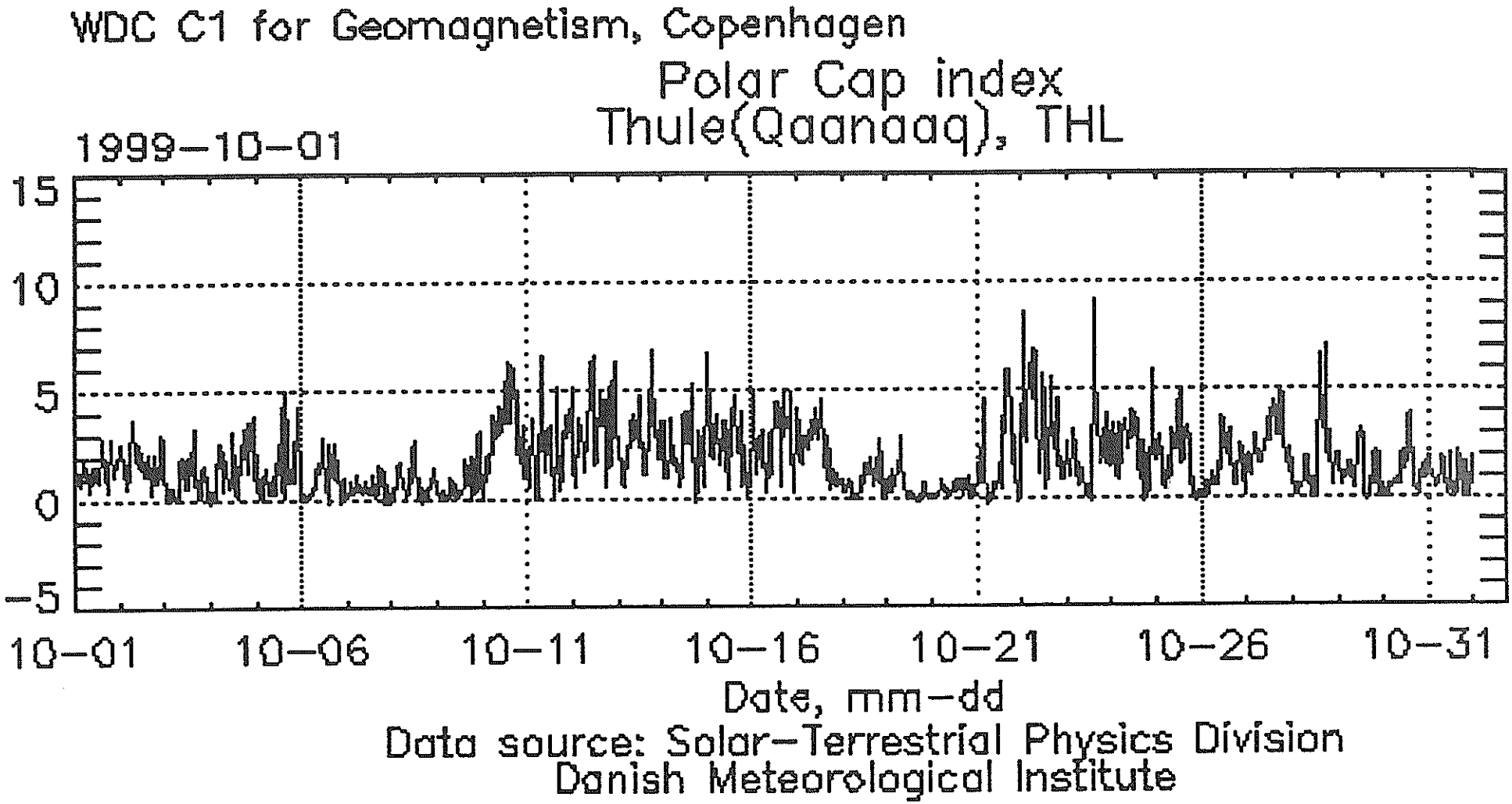
WDC C1 for Geomagnetism, Copenhagen
Polar Cap index
Thule(Qaanaaq), THL
1999-10-01
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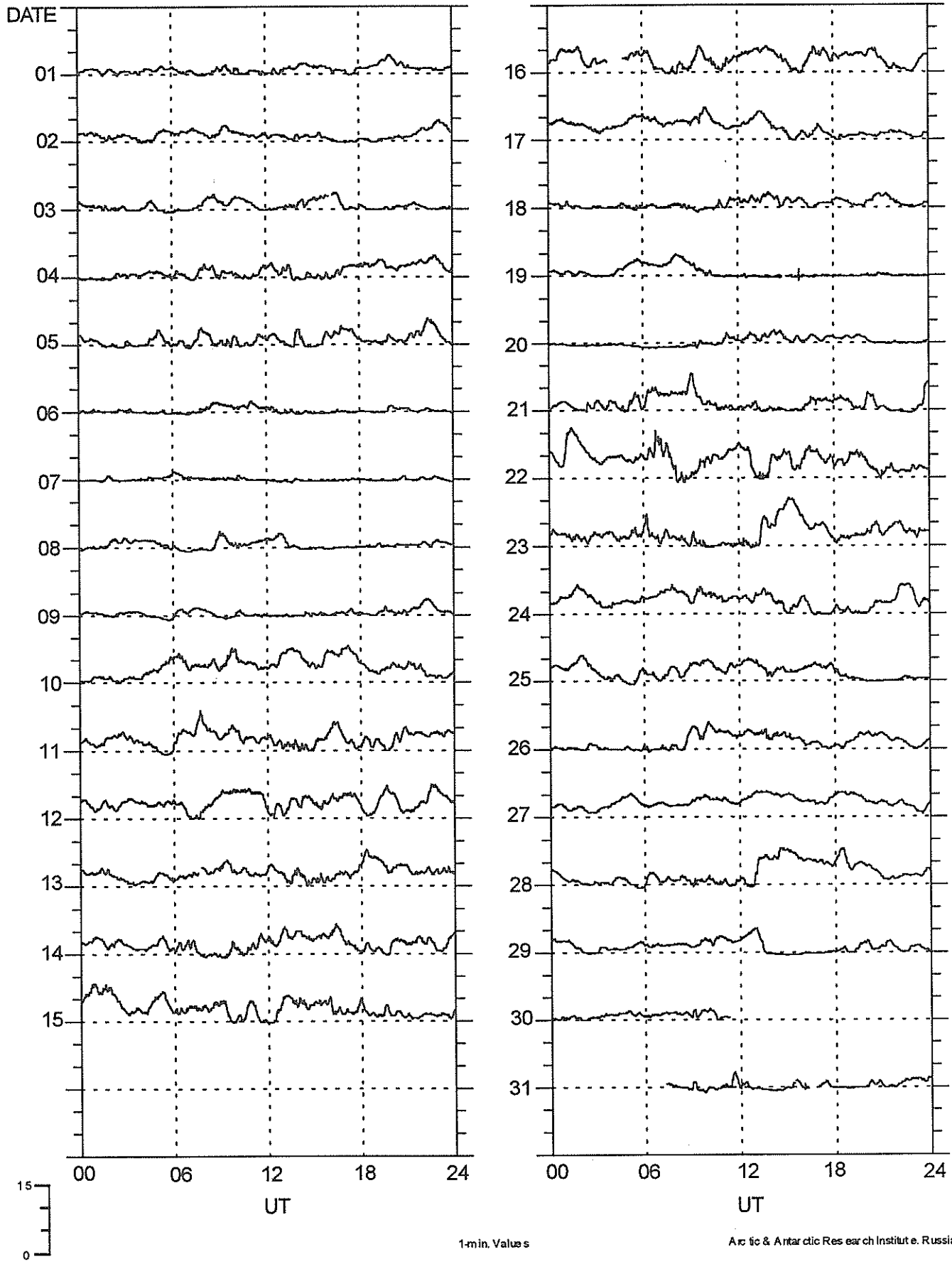
Date, mm-dd
Data source: Solar-Terrestrial Physics Division
Danish Meteorological Institute

160
Oct 99

PC-INDEX

Vostok

October, 1999



1-min. Values

Arctic & Antarctic Research Institute. Russia

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

OCTOBER 1999

Sta	Geomag Lat	Commencement Day	Time (UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
UJJ	13.6N	02	2100	..	..	..	..		-	7	67	44	05	24
NGP	11.3N	02	2100	..	..	..	..		-	-	--	--	05	24
ABG	09.4N	02	2100	..	..	..	..	04(2,6,7) 05(2,3,4,5,6,7,8)	4	7	83	62	05	24
PND	02.0N	02	2100	..	..	..	..		-	6	122	89	05	24
TRD	01.1S	02	2100	..	..	..	..		-	4	215	76	05	24
BJI	28.8N	09	16--	..	..	..	..	10(7)	5	9	124	41	10	23
UJJ	13.6N	09	0300	..	..	..	..		-	5	153	37	12	20
NGP	11.3N	09	0300	..	..	..	..		-	5	193	41	12	20
ABG	09.4N	09	0300	..	..	..	..	10(5)	6	5	179	47	12	20
HYB	07.6N	09	1400	..	..	..	..	10(5,6,7) 12(4,6,7)	5	5	194	33	13	23
PND	02.0N	09	0300	..	..	..	..		-	4	229	92	12	20
ETT	00.7S	09	1400	..	..	..	..		-	--	302	75	13	22
TRD	01.1S	09	0300	..	..	..	..		-	3	316	97	12	20
KRC	16.4N	10	0356	..	..	..	..	10(2,5,6,7)	5	7	140	57	11	06
BJI	28.8N	11	23--	..	..	..	..	12(5)	6	7	111	30	13	02
KRC	16.4N	11	1547	..	..	..	..	12(4,6,7,8) 13(5)	5	6	117	89	13	18
HER	33.6S	11	00--	..	..	..	..	11(8) 12(7)	5	22	119	102	13	03
UJJ	13.6N	14	0857	SC	- 1.3	13	- 3		-	7	91	35	15	20
NGP	11.3N	14	0857	SC	- 1.2	13	- 2		-	6	109	37	15	20
ABG	09.4N	14	0857	SC	- 1.1	10	- 9	14(5,6) 15(6)	5	6	97	42	15	20
HYB	07.6N	14	0100	..	..	..	..	14(6) 15(6) 16(6)	5	6	114	35	17	18
PND	02.0N	14	0857	SC	- 0.6	--	7		-	4	104	63	15	20
ETT	00.7S	14	0100	..	..	..	..		-	--	194	58	17	17
TRD	01.1S	14	0857	SC	- 0.7	17	9		-	3	176	61	15	20
UJJ	13.6N	16	0300	..	..	..	..		-	4	89	38	17	18
NGP	11.3N	16	0300	..	..	..	..		-	3	111	38	17	18
ABG	09.4N	16	0300	..	..	..	..	16(6)	5	4	104	35	17	18
PND	02.0N	16	0300	..	..	..	..		-	3	115	61	17	18
TRD	01.1S	16	0300	..	..	..	..		-	3	164	67	17	18
BJI	28.8N	21	0223	SC	0.6	26	0	22(2)	6	20	304	46	22	23
KRC	16.4N	21	1435	..	..	..	..	21(8)	7	9	251	90	23	22
UJJ	13.6N	21	0224	SC	- 0.8	33	- 10		-	8	232	34	23	21
NGP	11.3N	21	0224	SC	- 0.7	38	- 6		-	8	267	39	23	21
ABG	09.4N	21	0224	SC	- 1.4	32	- 15	22(1,2,3,5)27(6)28(5)	6	6	274	59	23	21
HYB	07.6N	21	0225	SC	- 1.1	40	- 4	22(3)	7	8	294	40	22	22
PND	02.0N	21	0224	SC	- 0.9	44	42		-	8	336	113	23	21
ETT	00.7S	21	0225	SC	- 0.3	61	51		-	--	422	142	22	23
TRD	01.1S	21	0224	SC	- 0.8	59	52		-	7	443	246	23	21
HER	33.6S	21	17--	..	..	..	..	21(8) 22(1,2,3,7)	5	37	244	111	22	21
HYB	07.6N	23	0200	..	..	..	..	25(5)	5	6	127	36	25	19
KRC	16.4N	27	1711	SC	- 3.0	52	10	27(6) 28(5)	6	7	105	58	29	07
HYB	07.6N	28	1216	SC	- 0.2	13	- 1	28(5)	6	2	105	17	29	04
ETT	00.7S	28	1217	SC	0	10	9		-	--	--	--	--	--

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
TRD = TRIVANDRUM
UJJ = UJJAIN

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

OCTOBER 1999

Storm Sudden Commencements (SSC)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
14	0858	C: SPT QUE	14	0855-0908	BDV+ NAG HYB GNA
		sfe: BDV+ NAG HYB GNA			(ssc: HRB SPT QUE)
21	0225	A: SOD* CLF* HRB NAG* COI QUE LNP	20	0920-0937	BDV
		HYB ETT CNB*	25	0629-0640	HYB ETT
		B: NGK* VAL* BDV* GCK* EBR* SPT* GNA*	27	0429-0436	LNP
		-: WNG*	31	1120-1148	WNG NGK VAL EBR
28	1216	B: NUR			SPT
		C: NGK* VAL* BDV* EBR SPT* QUE HYB ETT			
		-: WNG*			

REPORTING OBSERVATORIES (up to the 2nd of December 1999):
SOD NUR WNG NGK VAL BDV CLF HRB NAG GCK MMB EBR COI SPT KAK KNY QUE LNP HYB ETT GNA HER CNB

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

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WORLD DATA CENTER A
FOR
SOLAR-TERRESTRIAL PHYSICS

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

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