

**U.S. DEPARTMENT OF COMMERCE**

Robert A. Mosbacher, Secretary

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**

John A. Knauss, Under Secretary for Oceans and Atmosphere

**NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE**

Thomas N. Pyke, Jr., Assistant Administrator

OCTOBER 1989 NUMBER 542 - Part II

# **Solar-Geophysical Data comprehensive reports**

Data for April 1989

International Standard Serial Number: 0038-0911

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

**NATIONAL GEOPHYSICAL DATA CENTER**

Michael A. Chinnery, Director

Boulder, Colorado

Subscription information is on the inside back cover.

S O L A R - G E O P H Y S I C A L   D A T A

NUMBER 542

(Issued in Two Parts)

Editor: Helen E. Coffey

Chief: Joe H. Allen  
Solar-Terrestrial Physics Division

-----  
Staff: Daniel C. Wilkinson  
Carol Weathers  
John A. McKinnon

C O N T E N T S

**PART I (PROMPT REPORTS)**

	Page
DETAILED INDEX FOR 1989. . . . .	2
DATA FOR SEPTEMBER 1989. . . . .	3- 56
DATA FOR AUGUST 1989 . . . . .	57-163
LATE DATA. . . . .	.165-173
Cosmic Rays Huancayo Jun 89	
Inferred Interplanetary Magnetic Field 1984-88	
Geomagnetic Activity Indices Jul 89	

**PART II (COMPREHENSIVE REPORTS)**

	Page
DETAILED INDEX FOR 1989. . . . .	2
DATA FOR APRIL 1989. . . . .	3-76
MISCELLANEOUS DATA . . . . .	77-91
Meudon Carte Synoptique Jan-Feb 89	
NIMBUS7 Solar UV Nov 78-Oct 84	

## DETAILED INDEX OF OBSERVATIONS PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

CODE	KIND OF OBSERVATION	FEB 89	MAR	APR	MAY	JUN	JUL	AUG	SEP
<b>A. SOLAR AND INTERPLANETARY EVENTS</b>									
A.1	Sunspot Drawings	536A 61	537A 43	538A 55	539A 63	540A 44	541A 57	542A 67	
A.2aa	Internat. Provisional Sunspot Numbers	535A 13	536A 13	537A 11	538A 13	539A 15	540A 13	541A 13	542A 27
A.2c	American Sunspot Numbers	535A 13	536A 13	537A 11	538A 13	539A 15	540A 13	541A 13	542A 27
A.3a	Mt. Wilson Magnetograms	536A 61	537A 43	538A 55	539A 63	540A 44	541A 57	542A 67	
A.3b	Mt. Wilson Sunspot Magnetic Class	536A 89	537A 74	538A 85	539A 94	540A 74	541A 88	542A 98	
A.3c	Kitt Peak Magnetograms	536A 61	537A 43	538A 55	539A 63	540A 44	541A 57	542A 67	
A.3d	Mean Solar Magnetic Field (Stanford)	535A 37	536A 51	537A 33	538A 44	539A 50	540A 33	541A 45	542A 56
A.3e	Stanford Magnetograms	536A 61	537A 43	538A 55	539A 63	540A 44	541A 57	542A 67	
A.4	H-alpha Filtergrams	536A 61	537A 43	538A 55	539A 63	540A 44	541A 57	542A 67	
A.6	H-alpha Synoptic Charts	537A144	538A138	538A 46	539A 54	540A 36	541A 48	542A 58	
A.6b	Active Region Carte Synoptique (Paris)	Dec 88 in 541B176; Jan-Feb 89 in 542B 78							
A.6c	Stanford Solar Mag Field Synoptic Maps	536A 55	537A 37	538A 48	539A 56	540A 38	541A 50	542A 60	
A.6d	Kitt Peak " Mag Field Synoptic Maps	536A 60	537A 42	538A 47	539A 62	540A 37	541A 56	542A 66	
A.6e	Mass Ejections from the Sun	540B 75	541B158	542B 61					
A.6f	Active Prominences and Filaments	540B 76	541B160	542B 62					
A.6g	Sac Peak Coronal Line Synoptic Maps	536A 56	537A 38	538A 50	539A 58	540A 40	541A 52	542A 62	
A.7h	Coronal Line Emission (Sac Peak)	536A 61	537A 43	538A 55	539A 63	540A 44	541A 57	542A 67	
A.8aa	2800 MHz - Solar Flux (Ottawa)	535A 13	536A 13	537A 11	538A 13	539A 15	540A 13	541A 13	542A 27
A.8ac	2800 MHz - Adj. Solar Flux (Ottawa)	535A 13	536A 13	537A 11	538A 13	539A 15	540A 13	541A 13	542A 27
A.8g	Adjusted Daily Solar Fluxes (Sagamore)	535A 13	536A 13	537A 11	538A 13	539A 15	540A 13	541A 13	542A 27
A.10a	Interferometric Chart (164 MHz) Nancy	535A 31	536A 35	538A140	539A156	539A 39		541A 34	542A 47
A.10c	East-West Scans - 21 cm - Fleurs	535A 29	536A 33	537A 27	538A 33	539A 38	540A 28	541A 32	
A.10d	East-West Scans - 43 cm - Fleurs	535A 30	536A 34	537A 28	538A 34	539A 38	540A 29	541A 33	
A.10e	East-West Scans - 10 cm - Ottawa	535A 28	536A 32	537A 26	538A 32	539A 37	540A 27	541A 31	542A 46
A.10f	East-West Scans - 3 cm - Toyokawa	535A 27	536A 31	537A 25	538A 31	539A 36	540A 26	541A 30	542A 45
A.11g	Solar X-ray GOES (graphs/event table)	540B 67	541B148	542B 53					
A.11k	Solar UV NOAA-9	May 86-Dec 87 in 541B178							
A.11l	Solar UV NIMBUS7	Nov 78-Oct 84 in 542B 82							
A.12e	Solar Particles (IMP H & J)	Sep 85-May 86 in 525B 60; Jul 86-Aug 87 in 539B112							
A.13e	Solar Plasma (IMP H & J)	540B 67 541B147 542B 52							
A.13f	Solar Wind (Pioneer 12)	Jan-Dec 88 in 536A153							
A.16a	SMM Solar Irradiance	Feb 80-Oct 87 in 530B 64							
A.16b	NIMBUS Solar Irradiance	Nov 78-Feb 87 in 523B 49							
A.16c	ERBS Solar Irradiance	1984-88 in 538B101							
A.17	Interplanetary Mag Field (Pioneer 12)	Jan-Jun 88 in 533A130; Jul 88 in 536A152							
A.17c	Inferred Interplanetary Mag Field	1984-1988 data in 542A168							
<b>B. IONOSPHERIC RADIO PROPAGATION</b>									
B.52	Field Strength Graphs-North Atlantic	536A142	537A138	538A134					
B.53	Quality Indices on Paths to Germany	536A144	537A140	538A136					
<b>C. SOLAR FLARE-ASSOCIATED EVENTS</b>									
C.1a	H-alpha Flares	535A 16	536A 16	537A 15	538A 16	539A 18	540A 16	541A 17	542A 31
C.1ba	H-alpha Flare Groups	540B 4	541B 4	542B 4					
C.1d	Flare Patrol Observations	535A 26	536A 30	537A 24	538A 30	539A 35	540A 25	541A 29	542A 44
C.1d	Flare Patrol Observations	540B 32	541B 41	542B 26					
C.3	Radio Bursts Fixed Freq.	540B 34	541B 43	542B 28					
C.3	Radio Bursts Fixed Freq. Selected	535A 32	536A 36	537A 30	538A 36	539A 40	540A 31	541A 35	542A 48
C.4d	Radio Bursts Spectral (Culgoora)	Dec 88 in 534A129							
C.4e	Radio Bursts Spectral (Weissenau)	536A124	537A111	538A116	539A135	540A122	541A122	542A140	
C.4f	Radio Bursts Spectral (Sagamore Hill)	536A124	537A111	538A116	539A135	540A122	541A122	542A140	
C.4i	Radio Bursts Spectral (Bleien)	---	---	---	---	---	541A122	542A140	
C.4k	Radio Bursts Spectral (Learmonth)	536A124	537A111	538A116	539A135	540A122	541A122	542A140	
C.4l	Radio Bursts Spectral (Palehua)	536A124	537A111	538A116	539A135	540A122	541A122	542A140	
C.6	Sudden Ionospheric Disturbances	536A117	537A102	538A111	539A129	540A114	541A118	542A133	
<b>D. GEOMAGNETIC &amp; MAGNETOSPHERIC EVENTS</b>									
D.1a	Geomagnetic Indices	536A137	537A132	538A129	539A150	540A144	541A137	542A158	
D.1ba	27-day Chart of Kp Indices	536A139	537A134	538A131	539A152	540A146	541A139	542A160	
D.1cb	Monthly Mean aa Indices	536A140	537A135	538A132	539A153	540A147	541A140	542A161	
D.1d	Principal Magnetic Storms	536A141	537A136	538A133	539A154	540A148	541A141	542A162	
D.1f	Sudden Commencements/Flare Effects	538A143	540A153	540A154	541A144	541A145			
D.1g	Equatorial Indices Dst	Aug-Dec 87 in 534A163; Mar-Apr 88 in 541A146							
<b>F. COSMIC RAYS</b>									
F.1a	Cosmic Ray Neutron Cts (Deep River)	536A136	537A127	538A123	539A147	540A139	541A136	542A153	
F.1b	Cosmic Ray Neutron Cts (Climax)	536A136	538A141	538A123	539A147	540A139	541A136	542A153	
F.1h	Cosmic Ray Neutron Cts (Thule)	536A136	537A127	538A123	539A147	540A139	541A136	542A153	
F.1i	Cosmic Ray Neutron Cts (Kiel)	536A136	537A127	538A123	539A147	540A139	541A136	542A153	
F.1j	Cosmic Ray Neutron Cts (Tokyo)	536A136	537A127	538A123	539A147	540A139	541A136	542A153	
F.1l	Cosmic Ray Neutron Cts (Huancayo)	536A136	538A141	538A123	540A152	542A167	541A136		
<b>H. MISCELLANEOUS</b>									
H.60	IUWDS Alert Periods	535A 4	536A 4	537A 4	538A 4	539A 4	540A 4	541A 4	542A 19

The entry "536A 61" under Feb 1989, for example, means that the sunspot drawings for Feb 1989 appear in SOLAR-GEOPHYSICAL DATA No. 536, Part I, and that they begin on page 61. "A" denotes Part I and "B", Part II. Blanks indicate data not yet received and dashes mark unavailable data.

C O N T E N T S

Comprehensive Reports                      DATA FOR APRIL 1989                      Number 542    Part II

	Page
MEUDON CARTE SYNOPTIQUE (Unavailable at time of publication.)	
Active Regions and Filaments	
Synoptic Solar Maps	
SOLAR FLARES	
H-alpha Solar Flare Groups. . . . .	4-25
Intervals of No Flare Patrol Observation. . . . .	26
Number of Solar Flares August 1966-present. . . . .	27
SOLAR RADIO BURSTS AT FIXED FREQUENCIES. . . . .	28-51
INTERPLANETARY SOLAR PARTICLES AND PLASMA	
IMP 8 Solar Wind. . . . .	52
SOLAR X-RAY RADIATION FROM GOES SATELLITE Graphs . . . . .	53-57
Preliminary Event List. . . . .	58-59
Preliminary Daily Average Background. . . . .	60
MASS EJECTIONS FROM THE SUN. . . . .	61
ACTIVE PROMINENCES AND FILAMENTS . . . . .	62-76
SOLAR IRRADIANCE	
(Unavailable at time of publication.)	

4  
Apr 89

HO SOLAR FLARES

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	Imp (Min)	Opt	Xray	See	Obs Type	Area Measurement		Remarks		
																Time (UT)	Apparent (10-6 Disk)		Corr (Sq Deg)	
0001		01	0108*	0101*	0141	S18	E53	5428	04	5.1	33	SF					96	2.5	F	
	PALE	01	0059E	0101	0104	S16	E56	5428	04	5.3	50	SF		3	E		67		F	
	PALE	01	0108	0118	0207D	S18	E56	5428	04	5.3	59D	SF		3	E		61		F	
	YUNN	01	0208	0213	0218	S19	E48	5428	04	4.7	10	1N			C		161	2.5		
0002	YUNN	01	0221	0229	0254	N17	E26	5427	04	3.1	33	SN			C		64	0.8		
0003	ISTA	01	0705	0710	0715	N24	E27	5427	04	3.4	10	SN			P				G	
0004	ISTA	01	0800	0804	0807	S21	E55	5428	04	5.6	7	1B			P				E	
		01	0926		0932	No Flare Patrol														
		01	0946		0949	No Flare Patrol														
		01	1012		1019	No Flare Patrol														
0005	RAMY	01	1123	1126	1139D	N22	W34	5422	03	30.0	160	SF		2	E			14		
		01	1146		1239	No Flare Patrol														
0006	HOLL	01	1402	1403	1407	S22	E86	5434	04	8.2	5	SF		3	E			19		
0007	RAMY	01	1615	1617	1623	S18	E45	5428	04	5.1	8	SF		3	E			12		
0008		01	16214	1626	1652	N22	W36	5422	03	30.0	31	SF						47		F
	HOLL	01	1621	1626	1657	N21	W36	5422	03	30.0	36	SF		3	E			60		F
	RAMY	01	1625	1626	1648	N22	W37	5422	03	29.9	23	SF		3	E			34		F
0009		01	17433	17517	1821	N17	E18	5427	04	3.1	38	SF C 1.7						46		FK
	HOLL	01	1743	1752	1824	N17	E18	5427	04	3.1	41	SF C 1.7	3	E				53		
	HOLL	01	1743	1758	1824	N17	E18	5427	04	3.1	41	SF C 1.7		E				46		K
	PALE	01	1746	1751	1816	N17	E17	5427	04	3.0	30	SF C 1.7	3	E				40		F
0010	HOLL	01	1832	1833	1839	S20	E44	5428	04	5.1	7	SF		3	E			34		
0011	HOLL	01	1832	1832	1837	S27	W71	5417	03	27.3	5	SF		3	E			13		
0012	HOLL	01	2001	2001	2039	S22	E45	5428	04	5.3	38	SF		3	E			13		
0013	HOLL	01	2119	2124	2219	S26	E31	5436	04	4.3	60	SF		3	E			61		
0014		01	2259	23002	2311	S24	E76	5434	04	7.8	12	SF C 2.1						20		
	PALE	01	2259	2300	2312	S24	E75	5434	04	7.7	13	SF C 2.1	2	E				21		
	HOLL	01	2259	2302	2310	S24	E78	5434	04	8.0	11	SF C 2.1	3	E				19		
0015	PALE	02	0020	0021	0027	N24	W46	5435	03	29.6	7	SF		2	E			15		
0016	CATA	02	0936	0936	0941	S23	E78	5434	04	8.4	5	1B		2	C	0936		56		
		02	1142		1203	No Flare Patrol														
		02	1218		1308	No Flare Patrol														
0017		02	1315E	1317U	1350	S19	E36	5428	04	5.3	35D	SF						45		F
	HOLL	02	1315E	1317U	1350	S20	E35	5428	04	5.2	35D	SF		2	E			50		F
	SVTO	02	1355E	1356U	1427D	S18	E36	5428	04	5.3	32D	SF		2	E			40		
0018	HOLL	02	1423	1429	1444	N16	E05	5427	04	3.0	21	SF		3	E			75		
0019	SVTO	02	1541E	1541U	1559D	N34	E77		04	8.8	18D	SB M 1.6	2	E				55		
0020	HOLL	02	1907E	1908U	1919	N25	E59	5433A	04	7.4	12D	SF		4	E			27		
0021	HOLL	02	2114	2115	2126	N17	W25		04	1.0	12	SF		4	E			26		F
0022	PALE	02	2220	2220	2227	N22	W54	5435	03	29.9	7	SF		3	E			13		
0023	HOLL	02	2326	2328	2332	N32	E90		04	10.1	6	SF M 1.0	4	E				18		
0024	HOLL	02	2336	2337	2352	N21	W55	5422	03	29.9	16	SF		3	E			14		



6  
Apr 89

H $\alpha$  SOLAR FLARES

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	Imp (Min)	Opt	Xray	See	Obs Type	Area Measurement			Remarks	
																Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)		
0048	HOLL	05	0017	0020	0028	N30	E57	5440	04	9.5	11	SF		3	E			20		
0049	HOLL	05	0030	0032	0036	S22	E01	5428	04	5.1	6	SF		3	E			34		
0050	YUNN	05	0214E	0217U	0222	N19	E24	5433	04	6.9	80	SN			P	0217		32	0.4	
0051	LEAR	05	0247	0247	0251	N34	E73	5441	04	10.9	4	SF		3	E			12		
0052		05	03393	0344	0404	N34	E75	5441	04	11.1	25	1N C 7.1						106		DU
	TACH	05	0339	0344	0412	N35	E80	5441	04	11.5	33	1B		3	C	0344		178		DU
	LEAR	05	0342	0344	0356	N34	E70	5441	04	10.7	14	SF C 7.1		3	E			35		
0053	ABST	05	0518	0520	0525	S17	W03	5428	04	5.0	7	SN			C	0520		87	0.9	D
0054	CATA	05	0812	0812	0815D	N35	E80	5441	04	11.7	30	1N		2	P	0812		56		
0055		05	08496	0852*	0920	N34	E72	5441	04	11.1	31	1N M 1.4						142		E
	ISTA	05	0849	0852	0920	N34	E72	5441	04	11.1	31	SN			P					E
	CATA	05	0851E	0853	0925D	N33	E75	5441	04	11.3	340	2B		2	P	0853		253		
	LEAR	05	0855	0905	0919	N34	E70	5441	04	10.9	24	SF M 1.4		2	E			32		
0056	SVTO	05	0914E	0915	0934	S21	W07	5428	04	4.8	200	SF		2	E			30		
0057	KHAR	05	1007		1015	N36	E78	5441	04	11.7	8	SF		2	V	1007				D
0058		05	1014*	10386	1059	S22	W03	5428	04	5.2	45	SF						44		EF
	SVTO	05	1014	1034U	1109	S22	E01	5428	04	5.5	55	SF		2	E			44		F
	KHAR	05	1037	1038	1053	S21	W06	5428	04	5.0	16	SF		2	V	1038				E
	ISTA	05	1037	1044	1055	S22	W03	5428	04	5.2	18	1N			P					F
0059	SVTO	05	1155	1200	1519D	S19	W09	5428	04	4.8	204D	1N M 4.3		3	E			124		F
0060		05	1254	1259	1339	S20	E60	5448C	04	10.1	45	1F C 4.5						96		F
	RAMY	05	1254	1259	1341	S19	E59	5448C	04	10.0	47	1F C 4.5		3	E			100		F
	HOLL	05	1305E	1307U	1337	S20	E60	5448C	04	10.1	32D	SF		1	E			92		F
0061		05	1619	1621	1647	S20	W16	5428	04	4.4	28	SF						26		F
	RAMY	05	1619	1621	1647	S21	W14	5428	04	4.6	28	SF		3	E			22		F
	HOLL	05	1632E	1635U	1704D	S20	W17	5428	04	4.4	32D	SF		3	E			29		
0062	HOLL	05	1939	1940	1952	S19	W11	5428	04	5.0	13	SF		3	E			36		
0063	HOLL	05	2043E	2050U	2107D	S17	W08	5428	04	5.2	24D	SF C 1.9		3	E			40		
0064	HOLL	05	2147E	2158U	2254	S18	W10	5428	04	5.1	67D	SN		3	E			44		F
0065		05	23051	23091	2338	N34	E63	5441	04	11.0	33	SF						72		EF
	HOLL	05	2305	2309	2345	N34	E63	5441	04	11.0	40	SF		3	E			80		F
	VORO	05	2306	2310	2332	N34	E63	5441	04	11.0	26	SF		2	C	2310		63		E
0066	HOLL	05	2306	2311	2350	S19	W12	5428	04	5.0	44	SF C 7.0		3	E			40		F
0067	PURP	06	0024	0026	0032	S20	W16	5428	04	4.8	8	SB			P	0026		55	0.6	D
0068	HOLL	06	0027	0030	0058	S16	E25	5446	04	7.9	31	SF		3	E			18		F
0069	YUNN	06	0113E	0113U	0129	S25	W26	5428	04	4.0	16D	SN			P	0113		32	0.4	
0070		06	0501	0503	0506	S18	W17	5428	04	4.9	5	SN C 2.0						50	1.0	DF
	LEAR	06	0501	0503	0506	S18	W17	5428	04	4.9	5	SF C 2.0		3	E			14		F
	ABST	06	0501	0503	0506	S18	W17	5428	04	4.9	5	SN			C	0503		87	1.0	D
0071		06	05292	05342	0545	S20	W17	5428	04	4.9	16	SF C 4.5						73	1.1	DEFZ
	LEAR	06	0529	0534	0543	S21	W19	5428	04	4.8	14	SF C 4.5		3	E			49		F
	SVTO	06	0530	0534	0547	S21	W18	5428	04	4.8	17	SF C 4.5		3	E			48		F
	TACH	06	0530	0536	0544	S19	W14	5428	04	5.2	14	SF		2	C	0536		107	1.2	EZ
	ABST	06	0531	0535	0536D	S18	W17	5428	04	4.9	5D	SN			P	0535		87	1.0	D
0072	LEAR	06	0626	0627	0630	S21	W19	5428	04	4.8	4	SF		3	E			18		

H $\alpha$  SOLAR FLARES

7  
Apr 89

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/	CMP	Dur (Min)	Imp Opt	Xray	Obs See	Type	Time (UT)	Area Measurement		Remarks
								USAF Region								Mo	Day	
0073		06	0713	07132	0720	S20	W18	5428	04	4.9	7	SF				40	0.6	E
	LEAR	06	0713	0713	0718	S21	W20	5428	04	4.8	5	SF	3	E		20		
	HTPR	06	0713	0715	0722	S18	W17	5428	04	5.0	9	SF		C	0715	60	0.6	E
0074	KHAR	06	0811U		0819	N53	E75		04	12.8	8U	SF	2	V				DH
0075	KHAR	06	0958	1002	1026	S19	W19	5428	04	5.0	28	1N	2	P	1004	300	3.3	H
0076		06	1005*	1006	1039D	N36	E60	5441	04	11.2	34D	SF C	5.0			79		DF
	SVTO	06	1005	1006	1039D	N36	E58	5441	04	11.1	34D	SF C	5.0	2	E	79		F
	KHAR	06	1024		1028D	N36	E62	5441	04	11.4	4D	SF	2	V	1024			D
0077		06	1803	1807	1814	S20	W22	5428	04	5.1	11	SF C	1.7			36		
	RAMY	06	1803	1807	1813	S19	W22	5428	04	5.1	10	SF C	1.7	3	E	43		
	PALE	06	1803	1807	1814	S20	W23	5428	04	5.0	11	SF C	1.7	2	E	30		
0078	RAMY	06	1824	1831	1858	N34	E54	5441	04	11.1	34	SF	3	E		23		
0079		06	2042	2042	2107	N34	E52	5441	04	11.0	25	SF C	1.9			14		F
	PALE	06	2042	2042	2107	N34	E51	5441	04	10.9	25	SF C	1.9	3	E	10		F
	RAMY	06	2053E	2055U	2135D	N34	E52	5441	04	11.0	42D	SF	2	E		18		
		06	2158		2214	No Flare Patrol												
0080	YUNN	07	0253E	0306	0312	S12	W15	5439	04	6.0	19D	1N		P		402	4.3	
0081	LEAR	07	0439	0439	0445	S17	W28	5428	04	5.1	6	SF C	1.5	3	E	20		H
0082	TACH	07	0529	0530	0547	S13	W21	5439	04	5.6	18	SB	2	C	0530	184	2.0	F
0083		07	08322	08331	0840	S20	E26	5438	04	9.3	8	SN C	2.5			46		H
	LEAR	07	0832	0833	0840	S20	E26	5438	04	9.3	8	SF C	2.5	3	E	46		H
	KANZ	07	0834	0834	0834D	S20	E27	5438	04	9.4	8D	SN		P				
0084	RAMY	07	1056	1056	1101	S21	W36	5428	04	4.7	5	SF	3	E		13		
0085		07	13033	1315*	1451	N35	E45	5441	04	11.1	108	1F C	9.4			157		FHKU
	SVTO	07	1303	1315	1450	N36	E45	5441	04	11.1	107	1F		E		178		K
	KANZ	07	1303	1342	1359D	N35	E46	5441	04	11.2	56D	1F		P				
	SVTO	07	1303	1344	1450	N36	E45	5441	04	11.1	107	1F C	9.4	3	E	122		FH
	RAMY	07	1306	1345	1457	N34	E46	5441	04	11.2	111	1F C	9.4	3	E	122		F
	HOLL	07	1341E	1352	1447	N34	E45	5441	04	11.1	66D	1N		2	E	207		UF
0086		07	13081	1311*	1349	S22	E04	5434	04	7.8	41	SF C	3.5			13		
	KANZ	07	1308	1323	1348	S22	E02	5434	04	7.7	40	SF		P				
	RAMY	07	1309	1311	1350	S23	E05	5434	04	7.9	41	SF C	3.5	3	E	13		
0087	HOLL	07	1448	1448	1454	N32	E43	5448A	04	11.0	6	SF	3	E		13		
0088		07	1452	1452	1504	S19	E24	5438	04	9.4	12	SF				26		
	HOLL	07	1452	1452	1502	S19	E24	5438	04	9.4	10	SF	3	E		39		
	RAMY	07	1452	1452	1505	S19	E25	5438	04	9.5	13	SF	3	E		24		
	SVTO	07	1452	1452	1506	S18	E24	5438	04	9.4	14	SF	3	E		16		
0089		07	15231	15251	1537	N33	E42	5441	04	11.0	14	SF C	8.3			63		
	RAMY	07	1523	1526	1536	N33	E43	5441	04	11.0	13	1N C	8.3	3	E	113		
	SVTO	07	1524	1525	1539	N35	E40	5441	04	10.8	15	SF C	8.3	3	E	24		
	HOLL	07	1528E	1528U	1535	N32	E42	5441	04	11.0	7D	SF C	8.3	3	E	51		
0090		07	15311	15331	1542	S24	E04	5434	04	7.9	11	SF				22		
	SVTO	07	1531	1534	1544	S24	E04	5434	04	7.9	13	SF	3	E		32		
	HOLL	07	1532	1533	1539	S24	E04	5434	04	7.9	7	SF	3	E		15		
	RAMY	07	1532	1534	1543	S24	E03	5434	04	7.9	11	SF	3	E		19		
0091	RAMY	07	1852E	1858U	1904D	N34	E45	5441	04	11.4	12D	SF	2	E		91		
		07	1905		1948	No Flare Patrol												
0092	RAMY	07	1941E	1944U	2001D	S25	W01	5434	04	7.7	20D	SF	2	E		14		



8  
Apr 89

H $\alpha$  SOLAR FLARES

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks	
																Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)		
0093	HOLL	07	1949	1950	1952	S16	E01	5446	04	7.9	3	SF	C	4.7	3	E		10		
0094	HOLL	07	2004	2004	2027	N18	W62	5427	04	3.1	23	SF			3	E		14		
0095	HOLL	07	2023	2023	2029	N34	E41	5441	04	11.1	6	SF			3	E		12		
		07	2041		2048	No Flare Patrol														
0096	HOLL	07	2049E	2053	2116	N21	W62	5427	04	3.1	27D	SF			3	E		29		
0097	HOLL	08	0004	0014	0036	N34	E39	5441	04	11.1	32	SF			3	E		32		
0098	HOLL	08	0007	0007	0023	N18	W65	5427	04	3.0	16	SF			3	E		10		
0099	LEAR	08	0148	0151	0217	N19	W66	5427	04	3.0	29	SF			3	E		22		
0100	LEAR	08	0153	0201	0211	N33	E39	5441	04	11.2	18	SF	C	2.1	3	E		18		
0101	LEAR	08	0315	0323	0330	N34	E39	5441	04	11.2	15	SF	C	2.9	3	E		53		
0102	LEAR	08	0450	0450	0503	N31	W58	5445	04	3.6	13	SF			3	E		14		
0103	LEAR	08	0738	0739	0752	S20	W48	5428	04	4.6	14	SF			3	E		31		
0104		08	08001	08059	0823	N34	E34	5441	04	11.0	23	SF						26		
	LEAR	08	0800	0805	0819	N33	E36	5441	04	11.2	19	SF			3	E		24		
	SVTO	08	0801	0814	0827	N35	E32	5441	04	10.9	26	SF			3	E		28		
0105		08	1053	1059	1116	S22	W50	5428	04	4.6	23	SF						44		H
	SVTO	08	1053	1059	1116	S24	W50	5428	04	4.6	23	SF			3	E		30		
	RAMY	08	1054E	1058U	1115	S21	W50	5428	04	4.6	21D	SF			2	E		59		H
0106		08	11273	11292	1155	N35	E33	5441	04	11.1	28	SN	C	3.4				80	2.8	F
	SVTO	08	1127	1129	1155	N36	E31	5441	04	11.0	28	SF	C	3.4	3	E		46		F
	RAMY	08	1129	1131	1158D	N34	E36	5441	04	11.3	29D	SF	C	3.4	2	E		25		
	CATA	08	1130	1130	1141D	N35	E33	5441	04	11.1	11D	1B			2	P	1130	169	2.8	
0107	SVTO	08	1219	1228	1239	N35	E33	5441	04	11.1	20	SF			3	E		24		
0108	RAMY	08	1317	1317	1323	N34	E32	5441	04	11.1	6	SF			2	E		10		
0109	RAMY	08	1328	1334	1357	N17	W74	5427	04	2.9	29	SF			3	E		21		
0110	RAMY	08	1532	1543	1554D	N18	W78	5427	04	2.7	22D	SF			3	E		26		
0111	RAMY	08	1545	1545	1600	N34	E30	5441	04	11.0	15	SF			3	E		12		F
0112	RAMY	08	1613	1627	1712D	N18	W73	5427	04	3.1	59D	SF	C	2.5	3	E		31		
0113	VORO	08	2318	2320	2328	N32	E25	5448A	04	10.9	10	SF			2	C	2320	81	1.2	DHIJT
0114		09	0044	00536	0236	N35	E28	5441	04	11.3	112	3N	X	3.5				1247	21.4	EFIJSTUZ
	VORO	09	0044	0053	0229D	N34	E29	5441	04	11.3	105D	4F			2	C	0104	3333	48.8	EFIJSTUZ
	LEAR	09	0044	0059	0239	N35	E29	5441	04	11.3	115	4B	X	3.5	3	E		979		
	HOLL	09	0100E	0100U	0104D	N34	E25	5441	04	11.0	4D	3F	X	3.5	3	E		844		UF
	YUNN	09	0111E	0119U	0233	N37	E27	5441	04	11.2	82D	3B				P	0119	1125	18.0	
	PURP	09	0120E	0120U	0228	N33	E29	5441	04	11.3	68D	2N				C	0120	743	11.5	
	MITK	09	0145E		0245	N35	E30	5441	04	11.5	60D	2N				C	0147	460	7.4	FJSU
0115		09	02004	02065	0228	S20	E06	5438	04	9.5	28	1F	M	1.6				293	3.6	EFIJT
	YUNN	09	0200	0206	0233	S20	E05	5438	04	9.5	33	1B				C		482	5.1	
	VORO	09	0202	0207	0229D	S20	E04	5438	04	9.4	27D	1F			2	C	0207	430	4.6	EIJT
	LEAR	09	0202	0207	0233	S20	E04	5438	04	9.4	31	1F	M	1.6	3	E		112		F
	VORO	09	0204	0208	0220	S20	E13	5438	04	10.1	16	1F			2	C	0208	224	2.4	EIJT
	PURP	09	0205E	0211	0228	S19	E03	5438	04	9.3	23D	1F				C	0211	216	2.3	E
0116	YUNN	09	0233	0240	0252	N18	W84	5427	04	2.7	19	SB				C		16		
0117	LEAR	09	0439	0443	0451	N22	W88	5427	04	2.4	12	SF			3	E		68		

H $\alpha$  SOLAR FLARES

9  
Apr 89

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement		Remarks	
								Region	Mo Day						Time (UT)	Apparent (10-6 Disk)		Corr (Sq Deg)
0118	CATA	09	0950	0950	1005	N17	W90	5427	04	2.6	15	1F	2	P	0950	84		
0119		09	1404	1406	1414	S14	W00	5438	04	9.6	10	SF				22	H	
	RAMY	09	1404	1406	1414	S14	E00	5438	04	9.6	10	SF	4	E		21	H	
	HOLL	09	1407E	1408U	1414	S14	W01	5438	04	9.5	7D	SF	3	E		24	H	
0120	HOLL	09	1729	1738	1759	N34	E17	5441	04	11.1	30	SF	4	E		27	F	
		09	2116		2136	No Flare Patrol												
0121	SVTO	10	1435	1437	1453	S20	W15	5438	04	9.5	18	SF	3	E		12		
0122	HOLL	10	1653	1707	1716	N34	E04	5441	04	11.0	23	SF	3	E		19		
0123	HOLL	10	1753	1757	1804	N20	E33	5444	04	13.3	11	SF	3	E		23		
0124		10	1838E	1847	1925	N37	W12	5448B	04	9.8	47D	SN				72	K	
	HOLL	10	1838E	1842U	1925	N37	W12	5448B	04	9.8	47D	SF	3	E		65		
	HOLL	10	1838E	1847	1925	N37	W12	5448B	04	9.8	47D	SN		E		80	K	
		10	1950		2004	No Flare Patrol												
		10	2137		2206	No Flare Patrol												
0125		10	2318	2324	2342	S18	W22	5438	04	9.3	24	SF				74	F	
	PALE	10	2318E	2323U	2347	S19	W21	5438	04	9.4	29D	SF	3	E		93	F	
	LEAR	10	2318	2324	2338	S17	W23	5438	04	9.2	20	SF	3	E		54		
0126	HTPR	11	0931	0935	0954	S30	W20	5448	04	9.8	23	SF		C	0935	30	0.3	E
0127		11	14582	15001	1508	S20	E64	5449	04	16.5	10	SF				12		
	HOLL	11	1458	1500	1510	S20	E65	5449	04	16.6	12	SF	3	E		15		
	RAMY	11	1500	1501	1507	S21	E64	5449	04	16.5	7	SF	3	E		10		
0128		11	1713*	1738	1743	S22	E66	5449	04	16.8	30	SF				19		
	RAMY	11	1713	1738U	1743D	S22	E66	5449	04	16.8	30D	SF	3	E		27		
	PALE	11	1736	1738	1743	S21	E65	5449	04	16.7	7	SF	3	E		11		
0129		11	18151	1815*	1840	S20	E64	5449	04	16.6	25	SF				23	K	
	HOLL	11	1815	1815	1849	S20	E63	5449	04	16.6	34	SF	3	E		22		
	HOLL	11	1815	1838	1849	S20	E63	5449	04	16.6	34	SN		E		33	K	
	PALE	11	1816	1817	1822	S21	E65	5449	04	16.7	6	SF	3	E		13		
		11	1958		2016	No Flare Patrol												
0130	HOLL	11	2042	2042	2059	S21	E60	5449	04	16.5	17	SF	3	E		14		
		11	2126		2151	No Flare Patrol												
		12	0343		0349	No Flare Patrol												
		12	0540		0555	No Flare Patrol												
0131	SVTO	12	0603	0606U	0633D	S18	W37	5438	04	9.4	30D	1F C	4.5	2	E	102	F	
		12	0738		0801	No Flare Patrol												
		12	0821		0839	No Flare Patrol												
0132	ISTA	12	0841E		1012D	N08	E90	5451	04	19.1	91D	1N		P			A	
0133	ISTA	12	0843E		0952	N36	W15	5441	04	11.1	69D	SF		P			B	
0134	ISTA	12	0909E		0952	N13	E72	5450	04	17.8	43D	1F		P			B	
		12	1021		1042	No Flare Patrol												
		12	1239		1245	No Flare Patrol												
0135		12	1342	1346	1540	N11	E87	5451	04	19.1	118	1F C	1.9			135	ADT	
	RAMY	12	1048E	1350U	1623D	N11	E89	5451	04	19.1	335D	SF C	1.9	2	E	98	T	
	ABST	12	1155E	1155U	1213D	N11	E90	5451	04	19.3	18D	1N		P	1155	174	AD	
	HOLL	12	1342	1346	1540	N10	E83	5451	04	18.8	118	1F C	1.9	3	E	134		

10  
Apr 89

H $\alpha$  SOLAR FLARES

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	Imp (Min)	Opt	Xray	Obs See	Type	Time (UT)	Area Measurement		Remarks
																	Apparent (10-6 Disk)	Corr (Sq Deg)	
0136	ABST	12	1159	1201	1210	N14	E70	5450	04	17.8	11	1F			C	1201	87		D
0137	HOLL	12	1433	1434	1453	N35	W20	5441	04	11.0	20	SF		3	E		35		F
0138		12	1615	1621	1642	S17	E46	5449	04	16.2	27	SF					33		
	HOLL	12	1615	1621	1642	S16	E47	5449	04	16.2	27	SF		3	E		43		
	RAMY	12	1620E	1628U	1650D	S18	E46	5449	04	16.2	30D	SF		2	E		23		
		12	1912		1939														No Flare Patrol
		12	1952		1957														No Flare Patrol
		12	2023		2035														No Flare Patrol
		12	2046		2050														No Flare Patrol
		12	2104		2116														No Flare Patrol
0139	VORO	12	2232	2239	2247	N10	E87	5451	04	19.5	15	1F		2	C	2239	45		D
0140	VORO	12	2331	2334	2339	N10	E87	5451	04	19.5	8	1F		2	C	2334	45		D
0141	LEAR	13	0413	0420	0425	N08	E76	5451	04	18.9	12	SF		2	E		47		
0142	MITK	13	0454	0511	0553	S17	E34	5449	04	15.8	59	SN			C	0511			E
0143	KHAR	13	0801	0804U	0810	N13	E57	5450	04	17.6	9	SN		2	P	0804			D
0144	KHAR	13	0810	0815	0819	N11	E80	5451	04	19.3	9	SN		2	V	0815			DHT
0145	KHAR	13	0828	0829	0839	N11	E80	5451	04	19.4	11	SN		2	V	0829			DT
0146		13	1009*	1012*	1023	N12	E80	5451	04	19.4	14	SN							DHT
	KHAR	13	1009	1012	1018	N11	E80	5451	04	19.4	9	SN		2	V	1012			DHT
	KHAR	13	1022	1024	1028	N12	E79	5451	04	19.4	6	SN		2	V	1024			DT
0147	KHAR	13	1048	1050	1106D	N11	E80	5451	04	19.5	18D	SN		2	V	1050			D
0148	RAMY	13	1219	1230	1248D	S17	W54	5438	04	9.4	29D	SF C 3.8		3	E		29		
0149		13	15512	1554	1614	N10	E72	5451	04	19.1	23	SF					47		FH
	SVTO	13	1457E	1458U	1550D	N12	E78	5451	04	19.5	53D	SF		2	E		89		H
	RAMY	13	1551	1554	1617	N07	E67	5451	04	18.7	26	SF		3	E		29		F
	HOLL	13	1553	1554	1612	N10	E70	5451	04	18.9	19	SF		3	E		23		
0150	HOLL	13	1609	1610	1615	S20	E31	5449	04	16.0	6	SF		3	E		18		
0151		13	1622	16222	1632	N08	E68	5451	04	18.8	10	SF					16		
	RAMY	13	1622	1622	1637	N07	E66	5451	04	18.6	15	SF		3	E		16		
	HOLL	13	1622	1624	1628	N10	E69	5451	04	18.9	6	SF		3	E		16		
0152		13	1741	17429	1756	N08	E68	5451	04	18.8	15	SF C 4.5					27		
	RAMY	13	1741	1742	1756	N07	E66	5451	04	18.7	15	SF C 4.5		3	E		33		
	HOLL	13	1741	1751	1756	N10	E69	5451	04	18.9	15	SF C 4.5		3	E		21		
0153	RAMY	13	1818E	1818U	1856D	N18	W13	5444	04	12.8	38D	SF		2	E		13		
0154	HOLL	13	1825	1826	1845	N10	E69	5451	04	18.9	20	SF C 3.7		3	E		23		
		13	1953		2002														No Flare Patrol
0155	RAMY	13	2053E	2059U	2121D	N09	E66	5451	04	18.8	28D	SF C 4.7		2	E		44		F
0156		13	2133*	2135*	2154	N12	E68	5451	04	19.0	21	SN M 1.5					60		F
	HOLL	13	2133	2135	2151	N12	E67	5451	04	18.9	18	SN M 1.5		3	E		72		
	PALE	13	2146	2147	2158	N11	E70	5451	04	19.2	12	SF		2	E		49		F
		13	2206		2215														No Flare Patrol
0157	HOLL	13	2300E	2300U	2342	N13	E49	5450	04	17.6	42D	SF C 5.8		3	E		87		
0158	KHAR	14	0710U	0712	0722	S30	W62	5448	04	9.4	12U	SF		2	P	0712			D

H $\alpha$  SOLAR FLARES

11  
Apr 89

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		CMP Mo	Dur (Min)	Imp Opt	Xray	Obs See	Type	Time (UT)	Area Measurement		Remarks	
								Region	Day								Apparent (10-6 Disk)	Corr (Sq Deg)		
0159	KHAR	14	0835	0837	0845	S30	W62	5448	04	9.5	10	SF		2	V	0837			D	
0160	KHAR	14	0931	0934	0938	N11	E63	5451	04	19.1	7	SF		2	V	0934			DL	
0161	KHAR	14	0956	0957	1000	S11	E80		04	20.4	4	SF		2	V	0957			D	
0162	KHAR	14	1000	1002	1010	S30	W63	5448	04	9.5	10	SF		2	V	1002			D	
			14 1013		1017	No Flare Patrol														
			14 1104		1113	No Flare Patrol														
0163	RAMY	14	1119E	1120U	1145D	S30	W67	5448	04	9.2	26D	SF		3	E		29		F	
			14 1124		1144	No Flare Patrol														
0164	RAMY	14	1302	1302	1314	N14	W22	5444	04	12.9	12	SF		3	E		11			
0165	RAMY	14	1424	1424	1427	N12	E59	5451	04	19.0	3	SF		3	E		19			
0166		14	1617	16191	1632	S18	W69	5438	04	9.4	15	SF					13			
	HOLL	14	1617	1619	1634	S16	W70	5438	04	9.4	17	SF		3	E		14			
	RAMY	14	1617	1620	1631	S19	W68	5438	04	9.5	14	SF		3	E		12			
0167	HOLL	14	1752	1755	1800	N21	E45	5455	04	18.2	8	SF		3	E		13			
0168		14	17571	17593	1910	S20	E18	5449	04	16.1	73	SF					15			
	HOLL	14	1757	1759	2005	S20	E16	5449	04	16.0	128	SF		3	E		16			
	PALE	14	1758	1802	1815	S20	E21	5449	04	16.3	17	SF		2	E		14			
0169	HOLL	14	2028E	2028	2102	N10	E61	5451	04	19.4	34D	SF		3	E		14		H	
			14 2129		2137	No Flare Patrol														
0170	HOLL	14	2204	2205	2225	N18	W28	5444	04	12.8	21	SF		3	E		13			
0171	HOLL	14	2326	2335	2423	S18	E06	5449	04	15.4	57	SF		3	E		42		F	
0172		15	0031	00331	0040	S20	E12	5449	04	15.9	9	SF					26			
	HOLL	15	0031	0033	0042	S20	E12	5449	04	15.9	11	SF		4	E		30			
	LEAR	15	0031	0034	0039	S20	E12	5449	04	15.9	8	SF		3	E		22			
0173	PALE	15	0124	0125	0138	N10	E45	5451	04	18.4	14	SF		2	E		16			
0174	YUNN	15	0215	0224	0243	S21	E18	5449	04	16.5	28	SN					80	0.9		
0175	PALE	15	0353E	0356U	0403D	N10	E43	5451	04	18.4	10D	SF		1	E		63		F	
0176	SVTO	15	0517	0518	0522	N13	W31	5444	04	12.9	5	SF		3	E		15			
0177	HTPR	15	0721	0723	0725	N13	E52	5451	04	19.2	4	SF				C	0723	30	0.5	E
0178		15	0848*	09021	0909	N15	W32	5444	04	12.9	21	SN					37		EF	
	ISTA	15	0848		0914	N15	W32	5444	04	12.9	26	SB			P				E	
	SVTO	15	0859	0903	0905	N13	W33	5444	04	12.9	6	SF		3	E		56		F	
	LEAR	15	0901	0902	0908	N16	W32	5444	04	12.9	7	SF		3	E		18			
0179		15	09536	0957	1014	N17	W34	5444	04	12.8	21	1N					50	0.6	E	
	HTPR	15	0953	0957	1014	N17	W36	5444	04	12.7	21	SN			C	0957	50	0.6	E	
	ISTA	15	0959		1013	N17	W32	5444	04	13.0	14	1F			P				E	
0180		15	1148	1150	1159	S20	E14	5449	04	16.6	11	SF					56	1.0	EF	
	RAMY	15	1148	1150	1157	S21	E13	5449	04	16.5	9	SF		3	E		30		F	
	HTPR	15	1148	1150	1200	S20	E15	5449	04	16.6	12	SN			C	1150	100	1.0	E	
	SVTO	15	1148	1150	1201	S19	E13	5449	04	16.5	13	SF		3	E		37			
0181		15	12065	12089	1247D	N14	W36	5444	04	12.8	41D	SF					40		F	
	RAMY	15	1206	1208	1247D	N15	W35	5444	04	12.8	41D	SF		2	E		41		F	
	SVTO	15	1211	1217	1225D	N14	W36	5444	04	12.8	14D	SF		3	E		40			

12  
Apr 89

H $\alpha$  S O L A R F L A R E S

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks	
								Region	Mo Day						Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)		
0182	SVTO	15	1209	1211	1218	N11	E48	5451	04	19.1	9	SF	3	E		23			
0183	HTPR	15	1225	1227	1246	N11	E50	5451	04	19.3	21	SN		C	1227	30	0.5		
0184		15	1304	1306	1315	N14	E50	5451	04	19.3	11	SN				34	0.8	E	
	HTPR	15	1304	1306	1315	N13	E51	5451	04	19.4	11	SN		C	1306	50	0.8	E	
	SVTO	15	1307E	1307U	1319D	N14	E50	5451	04	19.3	12D	SF	1	E		18			
0185	HTPR	15	1443	1446	1451	S19	E08	5449	04	16.2	8	SF		C	1446	30	0.3		
0186		15	1453Z	15015	1511	N10	E40	5451	04	18.6	18	SF				18	0.3		
	HOLL	15	1453	1506	1512	N10	E42	5451	04	18.8	19	SF	3	E		16			
	HTPR	15	1455	1501	1510	N10	E39	5451	04	18.5	15	SF		C	1501	20	0.3		
0187		15	1543Z	15502	1600	N16	W38	5444	04	12.8	17	SF				15			
	RAMY	15	1543	1550	1605	N15	W38	5444	04	12.8	22	SF	3	E		13			
	HOLL	15	1546	1552	1556	N16	W37	5444	04	12.8	10	SF	3	E		17			
0188	HTPR	15	1551	1555	1602	N13	E50	5451	04	19.4	11	SF		C	1555	20	0.3	E	
0189		15	16004	1605	1618	S20	E06	5449	04	16.1	18	SF				19	0.3		
	HTPR	15	1600		1622D	S19	E07	5449	04	16.2	22D	SF		C	1612	30	0.3		
	HOLL	15	1604	1605	1613	S19	E06	5449	04	16.1	9	SF	3	E		13			
	RAMY	15	1604	1605	1622	S21	E05	5449	04	16.0	18	SF	2	E		14			
0190	HOLL	15	1852	1858	1901	S19	E04	5449	04	16.1	9	SF	3	E		10			
0191		15	2100Z	2106	2114	S19	E03	5449	04	16.1	14	SF				24			
	HOLL	15	2100	2106	2118	S19	E03	5449	04	16.1	18	SF	3	E		33			
	PALE	15	2102	2106	2110	S19	E03	5449	04	16.1	8	SF	3	E		14			
0192	PALE	16	0032	0034	0054	N09	E45	5451	04	19.4	22	SF	3	E		44			
0193	PALE	16	0124	0125	0138	N10	E45	5451	04	19.4	14	SF	2	E		16			
0194	PALE	16	0353E	0356U	0403D	N10	E43	5451	04	19.4	10D	SF C 2.9	1	E		63			F
0195	ABST	16	0457	0500U	0509	N09	E44	5451	04	19.5	12	SF		P	0500	61	0.8	D	
0196		16	05501	0552	0602	N12	E36	5451	04	18.9	12	SN				81	1.7	EFV	
	SVTO	16	0550	0552	0604	N13	E34	5451	04	18.8	14	SF	3	E		31		F	
	ABST	16	0551	0552	0559	N10	E37	5451	04	19.0	8	SN		C	0552	131	1.7	EV	
0197	ABST	16	0611	0613	0622	S18	W08	5449	04	15.6	11	SN		C	0613	114	1.2	E	
0198	ABST	16	0717	0718	0720	S27	E07	5449	04	16.8	3	SF		C	0718	87	1.0	D	
0199	ISTA	16	0855		0904	N11	E45	5451	04	19.7	9	SF		P					E
0200		16	09424	09433	0949	N12	E38	5451	04	19.3	7	1N C 5.7				172	2.7		
	LEAR	16	0942	0943	0948	N12	E38	5451	04	19.3	6	1F C 5.7	3	E		147			
	KANZ	16	0944	0944	0950	N12	E37	5451	04	19.2	6	1F		P					
	CATA	16	0946	0946	0950D	N12	E38	5451	04	19.3	4D	1B	2	P	0946	197	2.7		
0201		16	1730	1739	1748	N16	W54	5444	04	12.6	18	SF				14			
	HOLL	16	1730	1739	1748	N16	W52	5444	04	12.8	18	SF	4	E		13			
	PALE	16	1738E	1738U	1750D	N16	W55	5444	04	12.6	12D	SF	2	E		16			
0202	HOLL	16	1927	1928	1934	S21	W07	5449	04	16.3	7	SF	3	E		13			
0203	HOLL	16	1947	1951	2003	N16	W53	5444	04	12.8	16	SF	3	E		14			
0204	HOLL	16	2153	2156	2201	N12	E28	5451	04	19.0	8	SF	4	E		36			H
0205		16	2215	2216	2227	S20	W06	5449	04	16.5	12	SF C 2.2				41		F	
	HOLL	16	2215	2216	2225	S20	W05	5449	04	16.5	10	SF C 2.2	4	E		52		F	
	PALE	16	2215	2216	2229	S20	W06	5449	04	16.5	14	SF C 2.2	3	E		30		F	
0206	HOLL	16	2306	2310	2316	S21	W09	5449	04	16.3	10	SF	4	E		13			

H $\alpha$  SOLAR FLARES

13  
Apr 89

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	Imp (Min)	Opt	Xray	See	Obs Type	Time (UT)	Area Measurement		Remarks	
																	Apparent (10-6 Disk)	Corr (Sq Deg)		
0207	HOLL	17	0011	0012	0022	N10	E23	5451	04	18.7	11	SF			3	E		22		
0208	HOLL	17	0041	0041	0048	S18	W09	5449	04	16.3	7	SF			3	E		15		F
0209		17	0329	0331	0338	N11	E28	5451	04	19.2	9	SN	C 3.0					94	1.9	
	YUNN	17	0329	0331	0337	N11	E27	5451	04	19.2	8	SN				C		161	1.9	
	LEAR	17	0330	0331	0338	N11	E28	5451	04	19.2	8	SF	C 3.0	3	E			28		
0210	LEAR	17	0409	0411	0429	S20	W09	5449	04	16.5	20	SF			3	E		26		F
0211	ABST	17	0459	0502	0514D	N17	W60	5444	04	12.6	15D	SF				P	0502	87	2.0	D
0212	ISTA	17	0732	0734	0735	S19	W15	5449	04	16.2	3	SF				P				D
		17	1031		1039	No Flare Patrol														
0213	HOLL	17	1351	1358	1401	S18	E61	5452	04	22.2	10	SF			3	E		12		
0214		17	1419	1419*	1506	S19	W17	5449	04	16.3	47	SF						10		K
	HOLL	17	1419	1419	1506	S19	W17	5449	04	16.3	47	SF			3	E		10		
	HOLL	17	1419	1441	1506	S19	W17	5449	04	16.3	47	SF				E		11		K
0215		17	1529	1531	1545	N09	E17	5451	04	18.9	16	SF						22		F
	HOLL	17	1529	1531	1545	N09	E18	5451	04	19.0	16	SF			3	E		26		F
	SVTO	17	1530	1532	1544	N09	E14	5451	04	18.7	14	SF			2	E		20		F
	RAMY	17	1531E	1531U	1545	N09	E18	5451	04	19.0	14D	SF			2	E		21		F
0216		17	1734	1741	1800	S19	E61	5452	04	22.4	26	SF	C 5.6					88		F
	RAMY	17	1734	1741	1816D	S19	E60	5452	04	22.3	42D	1F	C 5.6	3	E			102		F
	HOLL	17	1736	1745	1802	S19	E61	5452	04	22.4	26	SN	C 5.6	3	E			94		F
	PALE	17	1740	1745	1757	S20	E62	5452	04	22.5	17	SF	C 5.6	2	E			68		F
0217	HOLL	17	2021	2035	2042	N19	E60	5453	04	22.4	21	SF			3	E		14		
0218		18	0212	0218	0243	N13	W07	5450	04	17.6	31	SN						52	0.9	F
	YUNN	18	0212	0218	0252	N13	W07	5450	04	17.6	40	SB				C		80	0.9	
	LEAR	18	0212	0224	0245	N13	W07	5450	04	17.6	33	SF			3	E		40		F
	PALE	18	0215	0223	0233	N14	W07	5450	04	17.6	18	SF			3	E		35		F
0219	LEAR	18	0249	0251	0259	N15	W69	5444	04	12.9	10	SF			3	E		22		F
0220	LEAR	18	0430	0432	0438	S22	E68	5454	04	23.4	8	SF			3	E		46		
0221	LEAR	18	0535	0536	0540	S22	E67	5454	04	23.4	5	SF			3	E		45		
0222		18	0629	0640	0700	S18	E55	5452	04	22.4	31	SN	C 3.8					47	0.6	
	LEAR	18	0629	0640	0658	S20	E55	5452	04	22.5	29	SF	C 3.8	3	E			62		
	YUNN	18	0640E	0645U	0702	S16	E55	5452	04	22.4	22D	SN				P	0645	32	0.6	
0223	CATA	18	0943	0957	1011	N22	E90		04	25.3	28	2F			2	C	0957	169		
0224	HPR	18	1038E		1053D	S20	W30	5449	04	16.1	15D	SF				C	1042	100	1.1	E
0225		18	1108	1109	1122	S25	W27	5449	04	16.4	14	SF	C 2.6					62		F
	RAMY	18	1108	1109	1122	S24	W28	5449	04	16.3	14	SF	C 2.6	2	E			48		F
	SVTO	18	1111	1113	1118D	S26	W26	5449	04	16.4	7D	SF		2	E			75		F
0226	CATA	18	1111	1125	1125D	N23	E90		04	25.4	14D	1F		2	P	1125	112			
0227		18	1313*	1313*	1340	S19	W30	5449	04	16.3	27	SF						25		
	HOLL	18	1313	1313	1324	S19	W30	5449	04	16.3	11	SF			3	E		10		
	RAMY	18	1313	1330	1356	S19	W30	5449	04	16.3	43	SF			4	E		30		
	HOLL	18	1325	1328	1340	S18	W31	5449	04	16.2	15	SF			3	E		35		
0228		18	1322*	1336	1344	S21	E62	5454	04	23.3	22	SF						42		
	HOLL	18	1322	1336	1346	S21	E60	5454	04	23.1	24	SN			3	E		47		
	SVTO	18	1335	1336	1342	S20	E65	5454	04	23.5	7	SF			2	E		41		
	RAMY	18	1335	1338	1344	S22	E60	5454	04	23.2	9	SF			4	E		39		

14  
Apr 89

HO SOLAR FLARES

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks		
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)			
0229		18	14501	14533	1503	S20	W30	5449	04 16.3	13	SF						18			
	HOLL	18	1450	1453	1501	S19	W31	5449	04 16.2	11	SF	3	E				20			
	RAMY	18	1451	1456	1505	S20	W30	5449	04 16.3	14	SF	3	E				16			
0230		18	1513*	1515*	1530	S20	E61	5454	04 23.3	17	SF						29			
	SVTO	18	1513	1518	1529	S20	E63	5454	04 23.4	16	SF	2	E				44			
	HOLL	18	1514	1515	1521	S20	E61	5454	04 23.3	7	SF	3	E				38			
	RAMY	18	1514	1525	1540	S21	E60	5454	04 23.2	26	SF	3	E				20			
	HOLL	18	1523	1526	1528	S20	E61	5454	04 23.3	5	SF	3	E				13			
0231		18	1551	15521	1557	S19	W34	5449	04 16.1	6	SF						18			
	HOLL	18	1551	1552	1556	S19	W33	5449	04 16.1	5	SF	3	E				16			
	RAMY	18	1551	1553	1558	S19	W34	5449	04 16.1	7	SF	3	E				21			
0232		18	17136	1727	1742	S19	W33	5449	04 16.2	29	SF						24		F	
	HOLL	18	1713	1727	1745	S19	W33	5449	04 16.2	32	SF	3	E				30		F	
	RAMY	18	1719	1727U	1740	S19	W33	5449	04 16.2	21	SF	2	E				19			
0233		18	1759E	1759*	1831D	S19	E34	5452	04 21.3	32D	SN						27		FK	
	HOLL	18	1759E	1759	1831D	S19	E34	5452	04 21.3	32D	SF	3	E				44		F	
	HOLL	18	1759E	1813	1831D	S19	E34	5452	04 21.3	32D	SN		E				10		K	
0234	PALE	18	1832	1838	1856	S20	W33	5449	04 16.2	24	SF	3	E				34		F	
		18	1937		2050	No Flare Patrol														
0235	PALE	18	2315E	2318U	2326	S20	E46	5452	04 22.5	11D	SF	3	E				36		F	
0236	PALE	18	2346	2349	2352	S19	W36	5449	04 16.2	6	SF	3	E				11		F	
0237	VORO	19	0034	0036	0041D	S18	E44	5452	04 22.4	7D	1F	2	C	0036		152	2.2		EIJT	
0238		19	02554	02592	0312	S19	E42	5452	04 22.3	17	SF						84	3.0		
	YUNN	19	0255	0301	0308	S20	E43	5452	04 22.4	13	1N		C				209	3.0		
	LEAR	19	0259	0259	0312	S20	E43	5452	04 22.4	13	SF	3	E				15			
	PALE	19	0259	0300	0315	S18	E40	5452	04 22.2	16	SF	3	E				29			
0239		19	0420	0422*	0448	S19	E42	5452	04 22.4	28	SF						95	2.8	EF	
	PALE	19	0420	0422	0437D	S18	E40	5452	04 22.2	17D	SF	2	E				54		F	
	ABST	19	0420	0423	0440	S18	E43	5452	04 22.4	20	1N		C	0423		192	2.8		E	
	LEAR	19	0436E	0439	0455	S20	E42	5452	04 22.4	19D	SF	3	E				38		F	
0240		19	05335	05394	0554	S19	W37	5449	04 16.4	21	SF	C 3.8					66	2.1	EF	
	SVTO	19	0533	0539	0554	S21	W38	5449	04 16.3	21	SF	C 3.8	3	E			22		F	
	LEAR	19	0537	0543	0553	S18	W37	5449	04 16.4	16	SF	C 3.8	3	E			19		F	
	ABST	19	0538	0540	0554	S19	W37	5449	04 16.4	16	1F		C	0540		157	2.1		E	
0241	YUNN	19	0618E	0619U	0624	N10	W03	5451	04 19.0	6D	SN		P	0619		48	0.5			
0242	KHAR	19	0807	0812	0820	N54	W90		04 11.6	13	SF	2	V						D	
0243	KHAR	19	0837	0839	0850	N24	E82		04 25.7	13	SF	2	V	0839					D	
0244	KHAR	19	0857		0917	N24	E82		04 25.7	20	SF	2	V						DH	
0245	KHAR	19	0917		0935U	N35	E88	5456	04 26.4	18U	SF	1	V	0917					D	
0246		19	09301	09357	0950	N20	E36	5453	04 22.1	20	SN						52	1.4	EK	
	KHAR	19	0930		0950	N21	E38	5453	04 22.3	20	SN	1	V	0930						
	SVTO	19	0931	0935	0950	N20	E37	5453	04 22.2	19	SF	3	E				19			
	SVTO	19	0931	0942	0950	N20	E37	5453	04 22.2	19	SB		E				16		K	
	HPR	19	0933E		0946D	N18	E32	5453	04 21.8	13D	SB		C	0939		120	1.4		E	
0247		19	10001	1005	1028	S21	E50	5454	04 23.2	28	SF						36		D	
	KHAR	19	1000		1025	S21	E49	5454	04 23.2	25	SF	1	V	1004					D	
	SVTO	19	1001	1005	1032	S21	E51	5454	04 23.3	31	SF	3	E				36			
0248	CATA	19	1120	1121	1130	N23	E80		04 25.6	10	1N	2	C	1121		56				

H $\alpha$  SOLAR FLARES

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	Imp (Min)	Opt	Xray	Obs See	Type	Time (UT)	Area Measurement		Remarks
																	Apparent (10-6 Disk)	Corr (Sq Deg)	
0249	RAMY	19	1427	1428	1441	N10	W07	5451	04	19.1	14	SF		3	E		14		
0250		19	14522	14561	1507	N22	E40	5453	04	22.7	15	SN					40	0.8	
	HTPR	19	1452	1457	1506	N22	E40	5453	04	22.7	14	SN			C	1457	60	0.8	
	SVTO	19	1454	1456	1508	N21	E39	5453	04	22.6	14	SF		3	E		19		
0251		19	15106	15217	1559	S21	E30	5452	04	21.9	49	SN					80	0.9	EI
	HTPR	19	1510	1528	1600	S21	E29	5452	04	21.8	50	SN			C	1528	120	1.3	EI
	HTPR	19	1513	1521	1556	S21	E32	5452	04	22.1	43	SB			C	1521	80	0.9	E
	HTPR	19	1516	1521	1600	S21	E28	5452	04	21.8	44	SF			C	1521	40	0.4	E
0252	HTPR	19	1609	1609	1619	N10	W13	5451	04	18.7	10	SF			C	1609	20	0.2	E
0253		19	1731	1734	1749	N09	W10	5451	04	19.0	18	SF	C 1.7				20		
	PALE	19	1731	1734	1749	N10	W09	5451	04	19.0	18	SF	C 1.7	3	E		26		
	RAMY	19	1735E	1735U	1746D	N08	W12	5451	04	18.8	11D	SF		2	E		15		
0254	PALE	19	1734	1742	1745	S19	E36	5452	04	22.5	11	SF		3	E		18		
0255	RAMY	19	1807E	1812U	2011D	N11	W14	5451	04	18.7	124D	SF		1	E		20		F
		19	2029		2037	No Flare Patrol													
0256		19	20524	20562	2112	N10	W12	5451	04	19.0	20	SF	C 2.7				28		
	PALE	19	2052	2056	2116	N10	W10	5451	04	19.1	24	SF	C 2.7	3	E		26		
	HOLL	19	2056	2058	2107	N10	W14	5451	04	18.8	11	SF	C 2.7	3	E		31		
		19	2153		2155	No Flare Patrol													
0257	HOLL	19	2249	2252	2257	N10	W11	5451	04	19.1	8	SF		3	E		11		
0258	HOLL	19	2349	2351	2359	N28	W38	5457	04	17.0	10	SF		3	E		25		
0259	PALE	20	0203	0205	0214	S20	E31	5452	04	22.4	11	SF		3	E		24		
0260		20	0220	02211	0230	N11	W15	5451	04	19.0	10	SF	C 1.9				46		EF
	PALE	20	0220	0221	0231	N11	W17	5451	04	18.8	11	SF	C 1.9	3	E		51		FE
	LEAR	20	0220	0222	0228	N11	W13	5451	04	19.1	8	SF	C 1.9	3	E		40		
0261		20	0506*	05251	0557	N10	W18	5451	04	18.9	51	1N	M 1.4				217	5.1	DF
	LEAR	20	0506	0525	0602	N10	W15	5451	04	19.1	56	1N	M 1.4	3	E		195		F
	ABST	20	0521	0526	0555	N13	W21	5451	04	18.6	34	1N			C	0526	437	5.1	D
	SVTO	20	0546E	0551U	0553	N08	W18	5451	04	18.9	7D	SF		2	E		20		F
0262	LEAR	20	0612	0614	0626	S21	W55	5449	04	16.0	14	SF		3	E		44		
0263		20	06591	07003	0709	S21	E40	5454	04	23.3	10	SN					68	1.4	DV
	LEAR	20	0659	0700	0704	S22	E44	5454	04	23.7	5	SF		3	E		30		
	ISTA	20	0700	0702	0705	S22	E46	5454	04	23.8	5	1B			P				V
	BUCA	20	0700	0703	0717	S20	E31	5454	04	22.7	17	SF			P	0703	107	1.4	D
0264	ISTA	20	0701	0704	0710	S23	W56	5449	04	16.0	9	SF			P				E
0265	ISTA	20	0711	0713	0746	N10	W14	5451	04	19.2	35	SB			P				F
0266		20	0750*	08041	0820	N10	W16	5451	04	19.1	30	SF	C 2.1				47	0.8	E
	HTPR	20	0750	0805	0827	N10	W15	5451	04	19.2	37	SF			C	0805	80	0.8	E
	LEAR	20	0802	0804	0813	N10	W17	5451	04	19.0	11	SF	C 2.1	3	E		14		
0267	RAMY	20	1218	1220	1235	S21	W57	5449	04	16.1	17	SF		3	E		18		F
0268		20	1311*	1314*	1344	N08	W22	5451	04	18.9	33	SF					26		F
	RAMY	20	1311	1314	1339	N09	W22	5451	04	18.9	28	SF		3	E		26		F
	RAMY	20	1342	1344	1349	N08	W22	5451	04	18.9	7	SF		3	E		26		
0269		20	1403	1412	1438	N10	W23	5451	04	18.8	35	SN	C 4.4				80		F
	RAMY	20	1403	1412	1438	N09	W23	5451	04	18.8	35	SF	C 4.4	3	E		99		F
	HOLL	20	1405E	1415U	1433D	N10	W23	5451	04	18.8	28D	SN		2	E		60		F





H $\alpha$  SOLAR FLARES

17  
Apr 89

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	NOAA/ USAF Region	CMP Mo	Dur Day	Imp (Min)	Xray	C	4.8	Obs See	Type	Area Measurement			Remarks
																Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
0292		21	1423	1424	1447D	S22	W65	5449	04	16.6	24D	SF	C	4.8			64		H
	RAMY	21	1423	1424	1447D	S22	W67	5449	04	16.4	24D	SF	C	4.8	2	E	66		H
	HOLL	21	1426E	1428U	1441D	S21	W63	5449	04	16.8	15D	SF				E	62		
		21	1442		1444			No Flare Patrol											
		21	1456		1503			No Flare Patrol											
		21	1510		1535			No Flare Patrol											
0293	HOLL	21	1546	1546	1603	S22	W72	5449	04	16.1	17	SF				E	12		
0294	HOLL	21	1624	1628	1641	S21	W68	5449	04	16.5	17	SF				E	20		
0295		21	1713	1720	1743	N14	W54	5450	04	17.6	30	1F	C	3.3			96		EF
	HOLL	21	1713	1720	1743	N14	W53	5450	04	17.7	30	1F	C	3.3	3	E	113		FE
	RAMY	21	1721E	1722U	1727D	N14	W54	5450	04	17.6	6D	SF	C	3.3	2	E	79		F
0296		21	1737	1737	1743	N09	W38	5451	04	18.9	6	SF					12		F
	HOLL	21	1737	1737	1743	N08	W38	5451	04	18.9	6	SF			3	E	12		
	RAMY	21	1737E	1739U	1748D	N10	W37	5451	04	18.9	11D	SF				E	12		F
0297	RAMY	21	1741E	1757U	1809D	N26	W58	5457	04	17.2	28D	SF				E	11		
0298	HOLL	21	1910	1910	1920	N10	W39	5451	04	18.9	10	SF				E	13		
0299	RAMY	21	2047E	2056U	2100	N12	W34	5451	04	19.3	13D	SF				E	23		
0300		21	2210	2217	2222	N12	W34	5451	04	19.4	12	SF	C	2.0			30		EFH
	HOLL	21	2210	2217	2222	N13	W34	5451	04	19.3	12	SF	C	2.0	3	E	29		EH
	PALE	21	2214E	2216U	2226D	N12	W34	5451	04	19.4	12D	SF	C	2.0	3	E	32		F
0301	HOLL	21	2233	2237	2242	N08	W41	5451	04	18.9	9	SF				E	47		
0302		21	22521	2258	2302	N12	W34	5451	04	19.4	10	SF					31		
	HOLL	21	2252	2258	2302	N12	W34	5451	04	19.4	10	SF			3	E	25		
	PALE	21	2253	2254U	2305D	N12	W34	5451	04	19.4	12D	SF			3	E	37		
0303		21	23396	23414	2414	N28	E44	5456	04	25.4	35	SF					20		FS
	PALE	21	2339	2341	2414	N29	E43	5456	04	25.3	35	SF			3	E	26		F
	HOLL	21	2345	2345	2413D	N27	E44	5456	04	25.4	28D	SF			3	E	13		FS
0304	PALE	21	2341E	2342	2431D	S10	W40	5459	04	19.0	50D	SF				E	21		
0305		21	2349	2355	2420	N12	W40	5451	04	19.0	31	SF	C	4.2			69		EF
	HOLL	21	2349	2355	2413D	N12	W40	5451	04	19.0	24D	SF	C	4.2	3	E	63		FE
	PALE	21	2353E	2353U	2420	N11	W39	5451	04	19.1	27D	SF	C	4.2	3	E	75		F
0306		22	0133	0136	0152	N11	W39	5451	04	19.1	19	SN					80	1.8	FH
	YUNN	22	0133	0136	0146	N12	W38	5451	04	19.2	13	SB				C	129	1.8	
	PALE	22	0140E	0140U	0158	N10	W40	5451	04	19.1	18D	SF			3	E	32		FH
0307	PALE	22	0147	0148	0156	S20	W75	5449	04	16.3	9	SF				E	22		
0308		22	01537	02002	0218	S10	W39	5459	04	19.1	25	1N	C	4.2			130	3.3	DEF
	YUNN	22	0153	0200	0216	S09	W41	5459	04	19.0	23	1N				C	241	3.3	
	MITK	22	0200	0201	0213	S10	W38	5459	04	19.2	13	SF				C	0201		D
	PALE	22	0200	0202	0234	S11	W39	5459	04	19.1	34	1N			3	E	108		FE
	LEAR	22	0201E		0207	S10	W39	5459	04	19.1	6D	SF	C	4.2	3	E	41		F
0309	PALE	22	0226	0227	0231	S23	W73	5449	04	16.5	5	SF				E	23		
0310		22	03322	03342	0345	N12	W38	5451	04	19.3	13	SN	M	1.2			76	1.1	EF
	LEAR	22	0332	0334	0346	N13	W37	5451	04	19.3	14	SN	M	1.2	3	E	85		F
	PALE	22	0334	0336	0345	N12	W38	5451	04	19.3	11	SN	M	1.2	3	E	63		FE
	YUNN	22	0340E	0340U	0345	N11	W39	5451	04	19.2	5D	SN				P	0340	80	1.1
0311	PALE	22	0335	0336	0348	S21	W75	5449	04	16.4	13	SF				E	19		
0312	PALE	22	0337	0340	0345	S11	W39	5459	04	19.2	8	SF				E	65		

18  
Apr 89

H $\alpha$  SOLAR FLARES

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	NOAA/ USAF CMD Region	CMP Mo Day	Dur (Min)	Imp Opt Xray	Obs See Type	Area Measurement			Remarks	
												Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)		
0313	ABST	22	0417	0418	0431	S23 W74	5449	04	16.5	14	1N	C	0418	87		DV
0314		22	0545	0546	0607	N12 W39	5451	04	19.3	22	1N			168	2.3	EV
	ABST	22	0545	0546	0607	N12 W40	5451	04	19.2	22	1N	C	0546	175	2.5	EV
	MITK	22	0545	0546	0609D	N12 W38	5451	04	19.4	24D	1F	C	0546	160	2.1	
0315	ABST	22	0548	0551	0558	S10 W43	5459	04	19.0	10	1N	C	0551	175	2.5	E
0316		22	0646E		0744	S10 W44	5459	04	19.0	58D	SF			150	2.0	DEH
	HTPR	22	0646E		0744	S09 W43	5459	04	19.0	58D	SF	C	0658	150	2.0	E
	KHAR	22	0655U		0708U	S10 W45	5459	04	18.9	13U	SF	1 V	0659			DH
0317		22	07325	07391	0750	N29 W71	5457	04	16.7	18	SN			44		D
	HTPR	22	0732	0739	0750	N28 W70	5457	04	16.8	18	SB	C	0739	60		
	KHAR	22	0735U		0748	N29 W73	5457	04	16.6	13U	SF	1 V	0737			D
	CATA	22	0737	0740	0751	N31 W70	5457	04	16.8	14	SN	1 C	0740	28		
0318		22	08231	0827	0848	N11 W43	5451	04	19.1	25	SB C 8.6			125	2.2	DEFTV
	HTPR	22	0823		0828D	N12 W42	5451	04	19.2	5D	1B	C	0827	260	3.4	EV
	KHAR	22	0824	0827	0841	N12 W42	5451	04	19.2	17	SB	1 P	0827			DV
	HTPR	22	0831E		0855	N12 W42	5451	04	19.2	24D	SB	C	0831	70	0.9	ET
	SVTO	22	0831E	0831U	0847	N08 W46	5451	04	18.9	16D	SB C 8.6	2 E		45		F
0319	HTPR	22	0836	0839	0843	S10 W43	5459	04	19.1	7	SF	C	0839	60	0.8	E
0320	HTPR	22	0844	0846	0854	S17 E11	5452	04	23.2	10	SN	C	0846	40	0.4	
0321	HTPR	22	0919	0921	0933	S19 E10	5454	04	23.1	14	SF	C	0921	20	0.2	
0322	HTPR	22	0921	0922	0932	N12 W43	5451	04	19.2	11	SB	C	0922	100	1.3	E
0323	HTPR	22	0932	0934	0938	N07 W60	5451	04	17.9	6	SF	C	0934	80	1.6	E
0324	HTPR	22	0943	0947	1000	S30 W40		04	19.2	17	SF	C	0947	40	0.5	E
0325	RAMY	22	1142E	1144U	1221	S19 E46	5460	04	26.0	39D	SF	2 E		25		
0326		22	1212	12143	1302	N28 E38	5456	04	25.5	50	SN C 2.5			96	1.8	EFI
	RAMY	22	1212	1214	1243	N30 E37	5456	04	25.4	31	SF C 2.5	2 E		42		F
	HTPR	22	1212	1217	1320	N25 E38	5456	04	25.4	68	SN	C	1217	150	1.8	EI
0327		22	12551	12565	1316	N12 W43	5451	04	19.3	21	SN C 9.4			69	1.7	EFH
	RAMY	22	1255	1256	1316	N12 W44	5451	04	19.2	21	SF C 9.4	3 E		60		F
	SVTO	22	1256	1256	1317	N11 W44	5451	04	19.2	21	SF C 9.4	3 E		18		H
	HTPR	22	1256	1301	1315	N12 W40	5451	04	19.5	19	SB	C	1301	130	1.7	E
0328	RAMY	22	1325	1331	1346	S09 W49	5459	04	18.9	21	SF	2 E		11		
0329	RAMY	22	1341	1343	1347	S18 E45	5460	04	26.0	6	SF	2 E		12		
		22	1350	1357	1403	N12 W44	5451	04	19.3	13	SN			40	0.5	
	HTPR	22	1350	1357	1403	N13 W43	5451	04	19.3	13	SN	C	1357	40	0.5	
	RAMY	22	1350E	1358U	1409D	N11 W45	5451	04	19.2	19D	SF	2 E		41		
0331	RAMY	22	1427E	1433U	1455D	N09 W52	5451	04	18.7	28D	SF	2 E		14		
0332	RAMY	22	1539E	1541U	1547	N12 W45	5451	04	19.3	8D	SF	2 E		13		H
		22	1701		1704	No Flare Patrol										
0333		22	1721	1730	1735	N13 W69	5450	04	17.5	14	SF			25		T
	RAMY	22	1719E	1722U	2112D	N13 W69	5450	04	17.5	233D	SF	2 E		22		T
	HOLL	22	1721	1730	1735	N13 W69	5450	04	17.5	14	SF	3 E		28		
0334		22	1721	1722	1737	S18 E43	5460	04	26.0	16	SF			24		T
	HOLL	22	1721	1722	1737	S18 E43	5460	04	26.0	16	SF	3 E		23		
	RAMY	22	1721	1727U	2112D	S19 E43	5460	04	26.0	231D	SF	2 E		24		T
0335	PALE	22	1933	1934	1939	N11 W47	5451	04	19.3	6	SF	3 E		21		

H $\alpha$  SOLAR FLARES

19  
Apr 89

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	NOAA/ USAF Region	CMP Mo Day	Dur (Min)	Imp Opt Xray	Obs See Type	Area Measurement			Remarks
												Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
0336	PALE	22	2022	2022	2033	N13 W47	5451	04 19.3	11	SF	3 E		82		
0337		22	2052	2059	2127	N22 E42		04 26.1	35	SF			23		F
	PALE	22	2052	2059	2127	N23 E43		04 26.2	35	SF	3 E		26		F
	RAMY	22	2111E	2114U	2156D	N22 E42		04 26.1	45D	SF	2 E		20		
0338	VORO	22	2327	2328	2337	N30 E87		04 29.8	10	SF	2 C	2328	36		D
0339	VORO	22	2334E	2343	2358	N18 E11	5461B	04 23.8	24D	SF	2 C	2343	90	1.0	DIJT
0340	PALE	22	2334	2337	2349	N18 W10	5453	04 22.2	15	SF C 2.8	3 E		19		
0341		23	0045Z	00514	0102	N18 W12	5453	04 22.1	17	SF C 1.6			60	0.9	DIJT
	VORO	23	0045	0051	0101D	N18 W12	5453	04 22.1	16D	SF	2 C	0051	108	1.2	DIJT
	YUNN	23	0047	0053	0105	N19 W12	5453	04 22.1	18	SN			48	0.6	
	PALE	23	0047	0055	0059	N18 W11	5453	04 22.2	12	SF C 1.6	3 E		23		
0342		23	0215Z	02204	0233	N17 W14	5453	04 22.0	18	1N			135	2.8	
	YUNN	23	0215	0220	0235	N17 W15	5453	04 21.9	20	1N			241	2.8	
	PALE	23	0217	0224	0231	N17 W12	5453	04 22.2	14	SF	3 E		29		
		23	0424		0502	No Flare Patrol									
0343		23	0610I	0611I	0623	S21 E06	5454	04 23.7	13	SF			105	1.1	D
	ABST	23	0610	0612	0621	S21 E07	5454	04 23.8	11	SF		0612	105	1.1	D
	KANZ	23	0611	0611	0625	S21 E06	5454	04 23.7	14	SF					
0344	KHAR	23	0715		0735U	S17 E27	5460	04 25.3	20U	1F	2 P	0715			EH
0345	KHAR	23	0815	0820	0830	N18 W15	5453	04 22.2	15	SN	2 V	0820			
0346	KHAR	23	0915U		0943	N19 W18	5453	04 22.0	28U	SN	2 V	0920			
0347	RAMY	23	1205	1223	1234	N17 W18	5453	04 22.1	29	SF	2 E		20		
0348	SVTO	23	1350E	1357U	1402	N14 E90	5463	04 30.4	12D	SF	2 E		32		
0349	RAMY	23	1631	1721	1735	N11 W64	5451	04 18.9	64	SF	3 E		17		
0350	RAMY	23	1823E	1836U	1855D	N10 W66	5451	04 18.8	32D	SF	2 E		31		
0351		23	2355	2405	2521	S20 W06	5454	04 23.5	86	1N M 1.0			219	2.8	EFUZ
	HOLL	23	2355	2405	2444D	S21 W07	5454	04 23.4	49D	1B M 1.0	3 E		137		F
	MITK	24	0005E		0113	S20 W06	5454	04 23.5	68D	SF		0005			E
	VORO	24	0007E		0032D	S20 W06	5454	04 23.5	25D	1N	1 C	0007	269	2.8	EZ
	PALE	24	0033E	0045U	0129	S20 W04	5454	04 23.7	56D	2F C 5.1	3 E		252		UF
0352	PALE	24	0104	0112	0131	N11 W68	5451	04 18.9	27	SF	3 E		69		
0353		24	0337I	0338I	0412	N31 E17	5456	04 25.5	35	SF C 2.7			87	1.4	BEFI
	LEAR	24	0337	0339	0358	N28 E16	5456	04 25.4	21	SF C 2.7	3 E		63		
	PALE	24	0338	0338	0419	N31 E17	5456	04 25.5	41	SF	3 E		83		F
	ABST	24	0400E	0400U	0420	N33 E17	5456	04 25.5	20D	SF	P	0400	114	1.4	BEI
0354		24	0349	0349	0402	N20 W30	5453	04 21.9	13	SF C 3.0			54	1.3	BE
	LEAR	24	0349	0349	0357	N19 W30	5453	04 21.9	8	SF C 3.0	3 E		12		
	ABST	24	0400E	0400U	0407	N21 W31	5453	04 21.8	7D	SF	P	0400	96	1.3	BE
0355		24	05149	0528	0612	S21 W07	5454	04 23.7	58	1F C 6.0			234	5.7	EHTUZ
	LEAR	24	0514	0528	0606	S24 W05	5454	04 23.8	52	SF C 6.0	3 E		90		U
	SVTO	24	0516	0527U	0645	S20 W08	5454	04 23.6	89	SF C 6.0	2 E		88		UH
	ABST	24	0523	0528	0546	S20 W09	5454	04 23.5	23	2N		0528	524	5.7	ETUZ
0356		24	0620Z	0623I	0631	N11 W68	5451	04 19.1	11	SN C 7.7			79		
	KANZ	24	0620	0623	0628	N11 W67	5451	04 19.2	8	SN					
	LEAR	24	0620	0623	0631	N12 W68	5451	04 19.1	11	SN C 7.7	3 E		99		
	SVTO	24	0622	0624	0635	N09 W68	5451	04 19.2	13	SF C 7.7	3 E		59		
0357	KHAR	24	0851	0856	0913	N25 W90	5457	04 17.4	22	SF	2 P	0856			E

20  
Apr 89

H $\alpha$  SOLAR FLARES

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks		
																Time (UT)	Apparent (10 <sup>-6</sup> Disk)	Corr (Sq Deg)			
0358	KHAR	24	0955	0957	1001	S19	W30	5452	04	22.1	6	SF		2	V	0957				D	
0359	RAMY	24	1141	1150	1159	N10	W76	5451	04	18.8	18	SF		3	E			24			
0360	HOLL	24	1326	1328	1333	S21	E83	5464	04	30.9	7	SF C	4.8	3	E			22			
0361		24	14271	1428	1432	N12	W73	5451	04	19.1	5	SF						32			
	HOLL	24	1427	1428	1432	N12	W73	5451	04	19.1	5	SF		3	E			32			
	KANZ	24	1428	1428	1432	N11	W73	5451	04	19.1	4	SF			P						
0362	RAMY	24	1547E	1605	1613	N10	W76	5451	04	18.9	26D	SF		3	E			15		H	
0363	HOLL	24	1645	1650	1655	N10	W75	5451	04	19.1	10	SF		3	E			10			
0364		24	1705	17061	1711	S18	E12	5460	04	25.6	6	SF						16			
	RAMY	24	1705	1706	1711	S18	E13	5460	04	25.7	6	SF		3	E			15			
	HOLL	24	1705	1707	1711	S18	E12	5460	04	25.6	6	SF		3	E			18			
0365	HOLL	24	1711	1712	1716	N11	W75	5451	04	19.1	5	SF		3	E			20			
0366		24	17261	17272	1745	S21	W16	5454	04	23.5	19	SF						29			
	RAMY	24	1726	1727	1748	S21	W15	5454	04	23.6	22	SF		3	E			34			
	HOLL	24	1727	1729	1742	S21	W16	5454	04	23.5	15	SF		3	E			24			
0367	HOLL	24	1909	1911	1920	N18	W34	5453	04	22.2	11	SF		3	E			16			
0368		24	1936	19371	1946	S20	W19	5454	04	23.4	10	SF						18			
	HOLL	24	1936	1937	1943	S20	W19	5454	04	23.4	7	SF		3	E			15			
	RAMY	24	1936	1938	1948	S20	W19	5454	04	23.4	12	SF		3	E			20			
0369	RAMY	24	2014	2015	2020	N10	W76	5451	04	19.1	6	SF		3	E			31			
0370	HOLL	24	2127	2128	2131	N11	W77	5451	04	19.1	4	SF		3	E			50			
0371	PURP	24	2348E	2348U	2403	S21	W17	5454	04	23.7	15D	SB			P	2348	128	1.4		E	
0372	LEAR	25	0116	0118	0125	N10	E66	5463	04	30.0	9	SF		3	E			92			
0373		25	04071	0409	0418	S21	W19	5454	04	23.7	11	SF C	2.1					26	0.2	F	
	YUNN	25	0407	0409	0416	S21	W19	5454	04	23.7	9	SN			C			16	0.2		
	PALE	25	0408	0409	0418	S22	W19	5454	04	23.7	10	SF C	2.1	3	E			44		F	
	LEAR	25	0408	0409	0419	S21	W19	5454	04	23.7	11	SF C	2.1	3	E			18		F	
0374	ABST	25	0543	0549	0554	S16	E03	5460	04	25.5	11	SF			C	0549	87	0.9		D	
0375	ISTA	25	0735		0740	S23	W21	5454	04	23.7	5	SF			P						E
0376	RAMY	25	1206	1206	1221	S23	W24	5454	04	23.6	15	SF		3	E			17			
0377		25	17301	1733	1806	S18	E75	5464	05	1.4	36	SF C	2.0					78			
	HOLL	25	1730	1733U	1807	S20	E75	5464	05	1.5	37	SF C	2.0	2	E			76			
	RAMY	25	1731	1733	1804	S17	E75	5464	05	1.4	33	SF C	2.0	3	E			80			
0378	RAMY	25	1814	1840	1855	S20	W28	5454	04	23.6	41	SF		3	E			21			
0379		25	1815	18184	1846	S20	E75	5464	05	1.5	31	SF C	3.4					53		F	
	RAMY	25	1815	1818	1849	S21	E76	5464	05	1.6	34	SF C	3.4	3	E			52			
	HOLL	25	1815	1822	1843	S20	E74	5464	05	1.4	28	SF C	3.4	3	E			54		F	
0380	HOLL	25	1900	1900	1910	N17	W52	5453	04	21.8	10	SF		3	E			14			
0381	RAMY	25	1926	1935	1945	S20	W29	5454	04	23.6	19	SF		3	E			18		F	
0382	RAMY	25	2006	2007	2011	S17	W34	5452	04	23.2	5	SF C	2.2	3	E			20			
0383	HOLL	25	2013	2023	2031	S20	E74	5464	05	1.5	18	SF		3	E			49			
0384	HOLL	25	2108E	2108U	2116	S17	W35	5452	04	23.2	8D	SN C	5.0	3	E			25			E

H $\alpha$  SOLAR FLARES

21  
Apr 89

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	Imp (Min)	Xray	Obs See	Type	Area Measurement			Remarks	
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)		
0385		25	2141	2141	2151	S20	W31	5454	04	23.5	10	SF				26		F	
	HOLL	25	2141	2141	2149	S19	W31	5454	04	23.5	8	SF	3	E		30		F	
	RAMY	25	2141	2141	2153	S20	W31	5454	04	23.5	12	SF	3	E		23		F	
0386	HOLL	25	2256	2300	2320	S21	E71	5464	05	1.4	24	SF C	2.0	3	E		97		
0387	HOLL	25	2357	2401	2406	S20	E70	5464	05	1.3	9	SF		3	E		29		
0388		26	0017	00181	0025	N12	E56	5463	04	30.2	8	SF C	2.0				34		
	HOLL	26	0017	0018	0026	N10	E52	5463	04	29.9	9	SF C	2.0	3	E		33		
	LEAR	26	0017	0019	0024	N15	E59	5463	04	30.5	7	SF C	2.0	3	E		36		
0389		26	00127	0021	0038	S20	E68	5464	05	1.2	26	SF					29		
	HOLL	26	0012	0021	0054	S21	E68	5464	05	1.2	42	SF		3	E		46		
	LEAR	26	0019	0021	0023	S20	E69	5464	05	1.3	4	SF		3	E		12		
0390		26	00571	00581	0110	S20	E73	5464	05	1.6	13	SF C	3.6				33	FH	
	LEAR	26	0057	0058	0110	S20	E74	5464	05	1.7	13	SF C	3.6	3	E		30		
	HOLL	26	0057	0059	0109	S21	E68	5464	05	1.2	12	SF C	3.6	3	E		28		
	PALE	26	0058	0059	0111	S19	E77	5464	05	1.9	13	SF C	3.6	4	E		42	FH	
0391	YUNN	26	0140	0151	0201	S17	E76	5464	05	1.8	21	SN			C		16		
0392	LEAR	26	0300	0304	0312	S21	E70	5464	05	1.5	12	SF C	2.1	3	E		68		
		26	0427		0433	No Flare Patrol													
0393	ISTA	26	0710E		0726	S12	W36	5465	04	23.6	16D	SF			P			B	
0394	ISTA	26	0847	0852	0901	N11	E52	5463	04	30.3	14	SF			P			E	
0395	SVTO	26	0858	0913	0932	S17	W54	5452	04	22.3	34	SF		3	E		22		
0396	KAND	26	1022	1022	1030	S23	W17	5460	04	25.1	8	SN			P	1022	62	0.7	D
0397		26	13181	1320	1328	N18	W61	5453	04	21.9	10	SF					46	F	
	RAMY	26	1318	1320	1327	N19	W58	5453	04	22.1	9	SF		4	E		44	F	
	HOLL	26	1318E	1320	1327	N18	W64	5453	04	21.7	9D	SF		3	E		51		
	SVTO	26	1319	1320	1330	N16	W62	5453	04	21.8	11	SF		3	E		42		
0398		26	14291	14321	1435	S17	W51	5452	04	22.7	6	SF					16		
	RAMY	26	1429	1432	1435	S17	W57	5452	04	22.3	6	SF		3	E		20		
	HOLL	26	1430	1433	1435	S17	W45	5452	04	23.2	5	SF		3	E		12		
0399	HOLL	26	1445	1445	1453	N34	W12	5456	04	25.6	8	SF		3	E		23		
0400	RAMY	26	1621	1621	1628	S20	E61	5464	05	1.3	7	SF		4	E		11		
0401	HOLL	26	1637	1641	1644	N13	E50	5463	04	30.5	7	SF		3	E		22		
0402		26	1939	1944	1959	S14	W43	5454A	04	23.6	20	SF					16	F	
	RAMY	26	1939	1944	2002	S13	W43	5454A	04	23.6	23	SF		3	E		14	F	
	HOLL	26	1947E	1948U	1956	S14	W43	5454A	04	23.6	9D	SF		3	E		18		
0403	HOLL	26	1947E	1950	2004	S23	W42	5454	04	23.6	17D	SF		3	E		27		
0404		26	20116	2014*	2034	S20	E62	5464	05	1.6	23	SF					16		
	RAMY	26	2011	2014	2017	S20	E63	5464	05	1.6	6	SF		3	E		12		
	RAMY	26	2017	2038	2050	S20	E62	5464	05	1.6	33	SF		2	E		20		
0405		26	2044	2054	2117	S19	W45	5454	04	23.4	33	SF					52		
	RAMY	26	2043E	2054U	2117D	S19	W45	5454	04	23.4	34D	SF		2	E		46		
	HOLL	26	2044	2054	2117	S19	W45	5454	04	23.4	33	SF		3	E		57		
0406	HOLL	26	2155	2156	2205	S19	W45	5454	04	23.5	10	SF		3	E		14		
0407	HOLL	26	2304	2305	2322	S19	W47	5454	04	23.4	18	SF C	2.4	3	E		38		

22  
Apr 89

H $\alpha$  SOLAR FLARES

APRIL 1989

Grp #	Sta	Start Day (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		GMP Mo	Dur Day	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks	
							Region	Class							Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)		
0408		27 0028	0030*	0051	S19	W46	5454	04	23.5	23	SF	C	1.3		17		FK		
	LEAR	27 0028	0030	0051	S19	W46	5454	04	23.5	23	SF			E	19		K		
	LEAR	27 0028	0044	0051	S19	W46	5454	04	23.5	23	SF	C	1.3	3	E	15		F	
0409	LEAR	27 0103	0110	0116	S23	E67	5464	05	2.2	13	SF	C	1.3	3	E	23			
0410	LEAR	27 0120	0130	0201	S19	E63	5464	05	1.9	41	SF	C	1.5	3	E	83			
0411	ABST	27 0422	0424	0426	S22	W22	5460	04	25.5	4	SN			C	0424	105	1.2	E	
0412	ABST	27 0445	0447	0453	S17	W51	5465	04	23.3	8	SN			C	0447	87	1.5	E	
0413	ABST	27 0523	0526	0538	N30	W23	5456	04	25.4	15	SF			C	0526	87	0.9	D	
0414	HTPR	27 0650	0652	0700	S18	E50	5464	05	1.1	10	SN			C	0652	40	0.7	EI	
0415	ISTA	27 0718	0720	0727	S22	W47	5454	04	23.7	9	SN			P				E	
0416	RAMY	27 1049E	1056	1102	S18	E54	5464	05	1.6	13D	SF			3	E	14			
0417	RAMY	27 1049E	1050	1119	S20	W54	5454	04	23.3	30D	SF			3	E	48		F	
0418	HTPR	27 1058	1104	1110	S21	W61	5454	04	22.8	12	SF			C	1104	30	0.6	E	
0419	HTPR	27 1137	1139	1200	S23	E60	5464	05	2.1	23	SF			C	1139	40	0.8	E	
0420	HTPR	27 1300	1304	1314	N11	E40	5463	04	30.5	14	SF			C	1304	60	0.8	E	
0421		27 1417*	1421*	1445	S21	W56	5454	04	23.3	28	SF	C	1.9		34	1.0	EFI		
	HTPR	27 1417	1421	1424	S24	W53	5454	04	23.5	7	SF			C	1421	20	0.3		
	HTPR	27 1422	1429	1458	S20	W60	5454	04	23.0	36	SN			C	1429	80	1.6	EI	
	HOLL	27 1426	1437	1450	S19	W55	5454	04	23.4	24	SF	C	1.9	3	E	19		F	
	RAMY	27 1427	1431U	1445	S19	W55	5454	04	23.4	18	SF	C	1.9	3	E	21		F	
	SVTO	27 1428	1436	1447	S21	W56	5454	04	23.3	19	SF	C	1.9	2	E	32		F	
0422		27 1501*	1506*	1526	S19	E56	5464	05	1.9	25	SF				38	1.0	E		
	RAMY	27 1501	1506	1518	S22	E57	5464	05	2.0	17	SF			3	E	39			
	RAMY	27 1519	1522	1533	S18	E56	5464	05	1.9	14	SF			3	E	16			
	HTPR	27 1521	1522	1526	S16	E55	5464	05	1.8	5	SF			C	1522	60	1.0	E	
0423		27 1552*	16251	1651	S19	W58	5454	04	23.2	59	SF				37	1.2	E		
	HOLL	27 1552	1625	1651	S21	W56	5454	04	23.4	59	SF			3	E	39			
	HTPR	27 1621		1635D	S19	W60	5454	04	23.1	14D	SF			C	1624	60	1.2	E	
	RAMY	27 1624	1626	1633D	S18	W57	5454	04	23.3	9D	SF			3	E	13			
0424		27 1652	1714*	1749	S18	W57	5454	04	23.4	57	1F	C	2.7		73		EFK		
	HOLL	27 1652	1714	1755	S18	W57	5454	04	23.4	63	1N	C	2.7	3	E	111		FE	
	HOLL	27 1652	1726	1755	S18	W57	5454	04	23.4	63	1F	C	2.7		E	68		K	
	RAMY	27 1716E	1716U	1736	S18	W57	5454	04	23.4	20D	SF	C	2.7	2	E	40		F	
0425		27 17251	1727	1744	N30	W30	5456	04	25.4	19	1F				113				
	HOLL	27 1725	1727	1748	N30	W31	5456	04	25.3	23	1F			3	E	156			
	RAMY	27 1726	1727	1739	N29	W30	5456	04	25.4	13	SF			3	E	70			
0426		27 1837	18381	1845	S19	W56	5454	04	23.5	8	SF	C	1.0		26				
	HOLL	27 1837	1838	1845	S19	W56	5454	04	23.5	8	SF	C	1.0	3	E	36			
	RAMY	27 1837	1839	1845	S19	W56	5454	04	23.5	8	SF	C	1.0	3	E	17			
0427		27 1900	1901	1909	S19	W58	5454	04	23.4	9	SF	C	1.4		24		F		
	HOLL	27 1900	1901	1909	S19	W57	5454	04	23.4	9	SF	C	1.4	3	E	33			
	RAMY	27 1901E	1902U	1910D	S19	W58	5454	04	23.4	9D	SF	C	1.4	2	E	15		F	
0428	HOLL	27 2334	2336	2340	S18	W60	5454	04	23.4	6	SF			3	E	15			
0429	VORO	27 2338	2341	2351	S21	E37	5464	04	30.8	13	SF			2	C	2341	81	1.1	D
0430		27 23391	2340	2348	S20	W36	5460	04	25.2	9	SF	C	1.1		17				
	HOLL	27 2339	2340	2352	S19	W37	5460	04	25.2	13	SF	C	1.1	3	E	22			
	LEAR	27 2340	2340	2345	S21	W36	5460	04	25.2	5	SF	C	1.1	3	E	12			

H $\alpha$  SOLAR FLARES

23  
Apr 89

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	NOAA/USAF			CMP Mo	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
						Lat	CMD	Region							Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
0431		28	00011	00033	0016	N24	E28	5468	04	30.2	15	SF				76	1.7	EI
	VORO	28	0001	0006	0019	N24	E27	5468	04	30.1	18	SF	2	C	0006	134	1.7	EI
	HOLL	28	0002	0003	0014	N23	E29	5468	04	30.2	12	SF	3	E		19		
0432	VORO	28	0122	0126	0136	S17	E54	5464	05	2.2	14	1F	2	C	0126	116	2.0	EIJ
0433	YUNN	28	0250	0258	0314	S31	W34	5466	04	25.4	24	SN		C		80	1.1	G
0434	ABST	28	0505	0507	0511	S22	E50	5464	05	2.0	6	SF		C	0507	87	1.4	D
0435	HTPR	28	0859	0907	0915	N20	W24		04	26.5	16	SF		C	0907	30	0.3	
0436	HTPR	28	1004		1013D	S22	W60	5454	04	23.8	9D	1F		C	1010	150	3.0	EI
		28	1014		1021	No Flare Patrol												
0437	RAMY	28	1047	1050	1055	N22	W23		04	26.7	8	SF	3	E		10		
0438		28	13364	13375	1346	S21	W39	5460	04	25.6	10	SF				28	0.8	EF
	HOLL	28	1336	1337	1348	S19	W38	5460	04	25.7	12	SF	3	E		12		F
	RAMY	28	1337	1337	1341	S22	W39	5460	04	25.6	4	SF	3	E		13		F
	HTPR	28	1340	1342	1348	S23	W39	5460	04	25.6	8	SF		C	1342	60	0.8	E
0439		28	13535	13575	1413	S22	E46	5464	05	2.1	20	SF				44	1.1	EF
	HOLL	28	1353	1357	1414	S22	E45	5464	05	2.0	21	SF	3	E		29		F
	SVTO	28	1356	1357	1414	S20	E45	5464	05	2.0	18	SF	3	E		22		
	HTPR	28	1358	1402	1412	S24	E47	5464	05	2.2	14	SN		C	1402	80	1.1	E
0440	RAMY	28	1438	1443	1455	S21	W67	5454	04	23.5	17	SF	3	E		14		
0441		28	15063	15065	1532	S18	E39	5464	05	1.6	26	SF C 3.1				30	0.8	EF
	HOLL	28	1506	1506	1531	S17	E38	5464	05	1.5	25	SF C 3.1	3	E		18		F
	RAMY	28	1508	1508	1524	S18	E39	5464	05	1.6	16	SF C 3.1	3	E		12		
	HTPR	28	1509	1511	1540	S18	E40	5464	05	1.7	31	SN		C	1511	60	0.8	E
0442		28	1510*	1522	1632	S20	W64	5454	04	23.7	82	SF				25	0.6	
	HOLL	28	1510	1522	1641	S20	W65	5454	04	23.7	91	SF	3	E		16		
	RAMY	28	1510	1527U	1623	S19	W65	5454	04	23.7	73	SF	2	E		28		
	HTPR	28	1520		1608D	S20	W62	5454	04	23.9	48D	SN		C	1534	30	0.6	
0443		28	1745	1746	1808	N12	E24	5463	04	30.5	23	SF C 2.8				34		F
	PALE	28	1745	1746	1748D	N12	E25	5463	04	30.6	3D	SF C 2.8	3	E		44		
	RAMY	28	1745	1746	1759	N12	E24	5463	04	30.5	14	SF C 2.8	3	E		22		
	HOLL	28	1745	1746	1817	N13	E22	5463	04	30.4	32	SF C 2.8	3	E		36		F
0444	HOLL	28	1829	1833	1841	S22	E46	5464	05	2.3	12	SF	3	E		23		
0445	PALE	28	1938	1942	1949	N26	E04	5468	04	29.1	11	SF	3	E		13		
0446		28	20022	20062	2016	N26	E03	5468	04	29.1	14	SF				21		
	PALE	28	2002	2008	2016	N26	E03	5468	04	29.1	14	SF	3	E		26		
	HOLL	28	2004	2006	2015	N25	E03	5468	04	29.1	11	SF	3	E		16		
0447	HOLL	28	2047	2049	2056	S20	W72	5454	04	23.3	9	SF	3	E		17		
0448		28	2101*	21151	2126	S21	W72	5454	04	23.3	25	SN C 2.2				66		
	HOLL	28	2101	2116	2129	S20	W72	5454	04	23.4	28	SN C 2.2	3	E		72		
	PALE	28	2112	2115	2123	S22	W71	5454	04	23.4	11	SF	3	E		60		
0449	HOLL	28	2110	2122	2135	N25	E02	5468	04	29.0	25	SF C 2.0	3	E		15		
0450	HOLL	28	2128	2130	2149	S22	E38	5464	05	1.8	21	SF	3	E		18		
0451	HOLL	28	2139	2141	2144	N29	E88	5470	05	5.8	5	SF	3	E		19		
0452		28	23442	23461	2358	N26	W00	5468	04	29.0	14	SF				49	0.8	E
	VORO	28	2344	2346	2400	N26	W01	5468	04	28.9	16	SF	2	C	2346	72	0.8	E
	HOLL	28	2346	2347	2357	N25	E00	5468	04	29.0	11	SF	3	E		26		



24  
Apr 89

H $\alpha$  SOLAR FLARES

APRIL 1989

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks	
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)		
0453	YUNN	29	0249	0253	0303	S22	E32	5464	05	1.6	14	SN		C		32	0.4		
0454		29	0758	0802	0815	S21	W82	5454	04	23.0	17	SN				50		D	
	HTPR	29	0758	0802	0815	S20	W80	5454	04	23.2	17	SN		C	0802	50			
	KHAR	29	0758	0803	0815U	S22	W85	5454	04	22.8	17U	SN	2	V	0802			D	
0455	HTPR	29	0839	0842	0848	S22	E32	5464	05	1.8	9	SF		C	0842	30	0.3	E	
0456	KHAR	29	0857		0910	N32	E43	5467	05	2.8	13	SF	2	V	0858				
0457	HTPR	29	0950	0956	1004	S22	W82	5454	04	23.1	14	SN		C	0956	50		E	
0458	HTPR	29	1045	1048	1056	S20	W50	5460	04	25.6	11	SF		C	1048	60	0.9	E	
0459	HTPR	29	1126	1130	1145	S20	E30	5464	05	1.8	19	SN		C	1130	80	0.9	EI	
0460	RAMY	29	1221	1221	1234	S20	W52	5460	04	25.5	13	SF	3	E		17		F	
0461	RAMY	29	1510	1514	1528	S20	W46	5460	04	26.1	18	SF	3	E		15			
0462	HOLL	29	1619	1620	1626	N30	E83	5470	05	6.2	7	SF	3	E		16			
0463	RAMY	29	1629	1646	1653	S12	W74	5465	04	24.1	24	SF	3	E		42			
0464	HOLL	29	1631	1635	1646	S17	W60	5460	04	25.1	15	SF	3	E		12			
0465		29	1720	1723	1728	N30	E80	5470	05	6.0	8	SF				35			
	HOLL	29	1720	1723	1728	N30	E81	5470	05	6.1	8	SF	3	E		39			
	RAMY	29	1723E	1723U	1731D	N29	E78	5470	05	5.8	8D	SF	3	E		31			
0466	HOLL	29	1922	1922	1926	S22	E33	5464	05	2.3	4	SF	3	E		13			
0467	HOLL	29	1939	1939	1946	S20	W52	5460	04	25.8	7	SF	3	E		12			
0468	HOLL	29	2300	2301	2304	S19	E26	5464	05	1.9	4	SF	3	E		25			
0469	PALE	30	0331	0336	0340	S23	W86	5454	04	23.5	9	SF	3	E		24			
0470	YUNN	30	0419E	0419U	0427D	S20	E22	5464	05	1.9	8D	SN		P	0419	16	0.2		
0471		30	0611	0612	0618	S22	E27	5464	05	2.3	7	SN				76	1.0	EV	
	YUNN	30	0610E	0610U	0618	S21	E27	5464	05	2.3	8D	SN		P	0610	48	0.6		
	ABST	30	0611	0612	0618	S23	E27	5464	05	2.3	7	SN		C	0612	105	1.3	EV	
0472	KHAR	30	0728		0750U	S24	W90	5454	04	23.3	22U	SN	2	V	0737			E	
0473	KHAR	30	0802		0814	N32	E75	5470	05	6.3	12	SF	2	V	0802			H	
0474	KHAR	30	0830		0842	S15	W90	5454	04	23.5	12	SF	2	V	0831			D	
0475	KHAR	30	0858	0901U	0907	S26	E23		05	2.2	9	SF	2	V	0901			DL	
0476	KHAR	30	0938	0940	0955	S23	W88	5454	04	23.6	17	SF	2	V	0940			D	
0477	KHAR	30	1006U	1008	1016	S20	E23	5464	05	2.2	10U	SF	2	V	1008			DH	
		30	1025		1104	No Flare Patrol													
		30	1213		1224	No Flare Patrol													
0478	RAMY	30	1347	1356U	1402	S24	E19	5464	05	2.0	15	SF	2	E		24			
		30	1416		1445	No Flare Patrol													
		30	1558		1607	No Flare Patrol													
		30	1619		1634	No Flare Patrol													
		30	1659		1720	No Flare Patrol													
		30	1754		1758	No Flare Patrol													
0479	HOLL	30	2035	2037	2056	N20	W04	5463A	04	30.5	21	SF	3	E				17	

H $\alpha$  SOLAR FLARES

25  
Apr 89

APRIL 1989

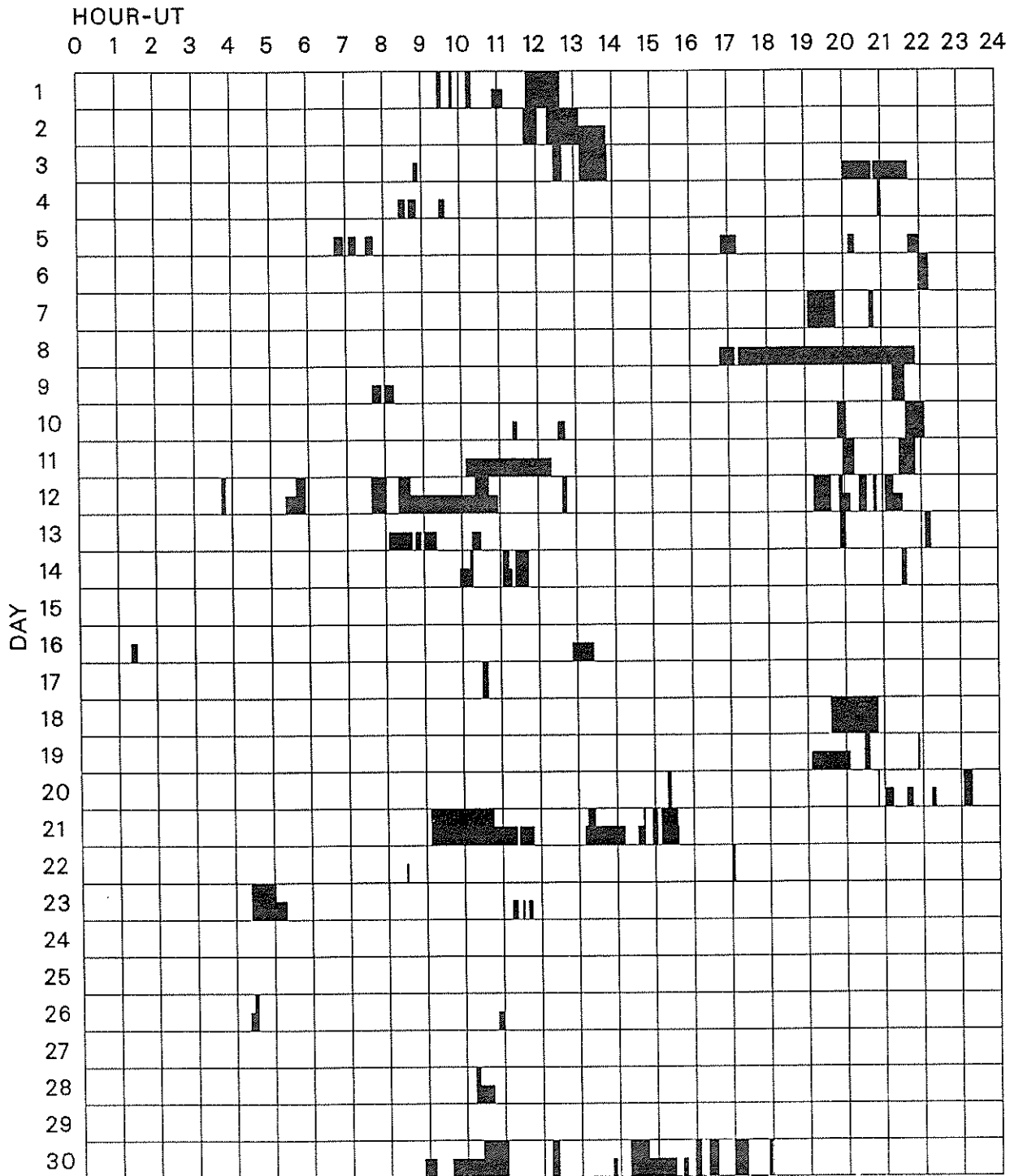
Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur (Min)	Imp Opt	Xray	Obs See	Type	Time (UT)	Area Measurement		Remarks
																Apparent (10-6 Disk)	Corr (Sq Deg)	
0480	HOLL	30	2206	2211	2215	S21	E13	5464	05	1.9	9	SF	4	E		24		
0481	HOLL	30	2208	2209	2217	S20	W68	5460	04	25.7	9	SF	4	E		13		
0482	HOLL	30	2218	2220	2228	N28	E64	5470	05	5.9	10	SF	4	E		27		
0483	HOLL	30	2232	2232	2238	S21	E13	5464	05	1.9	6	SF	4	E		18		
0484	HOLL	30	2254	2309	2331	S22	E11	5464	05	1.8	37	SF	4	E		40		F
0485	HOLL	30	2329	2335	2343	N28	E61	5470	05	5.7	14	SF	4	E		28		

"Remarks"

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

# INTERVALS OF NO FLARE PATROL OBSERVATION FOR PRECEDING SOLAR FLARE TABLE

APRIL 1989



Times of no flare patrol, shown here as shaded areas, combine reports from the observatories listed below. Portions of a panel completely shaded mark dates and times of no patrol of any kind, that is, of neither visual nor cinematographic; portions of a panel with only the bottom half shaded mark times of strictly visual patrol.

Abastumani  
Bucharest  
Catania

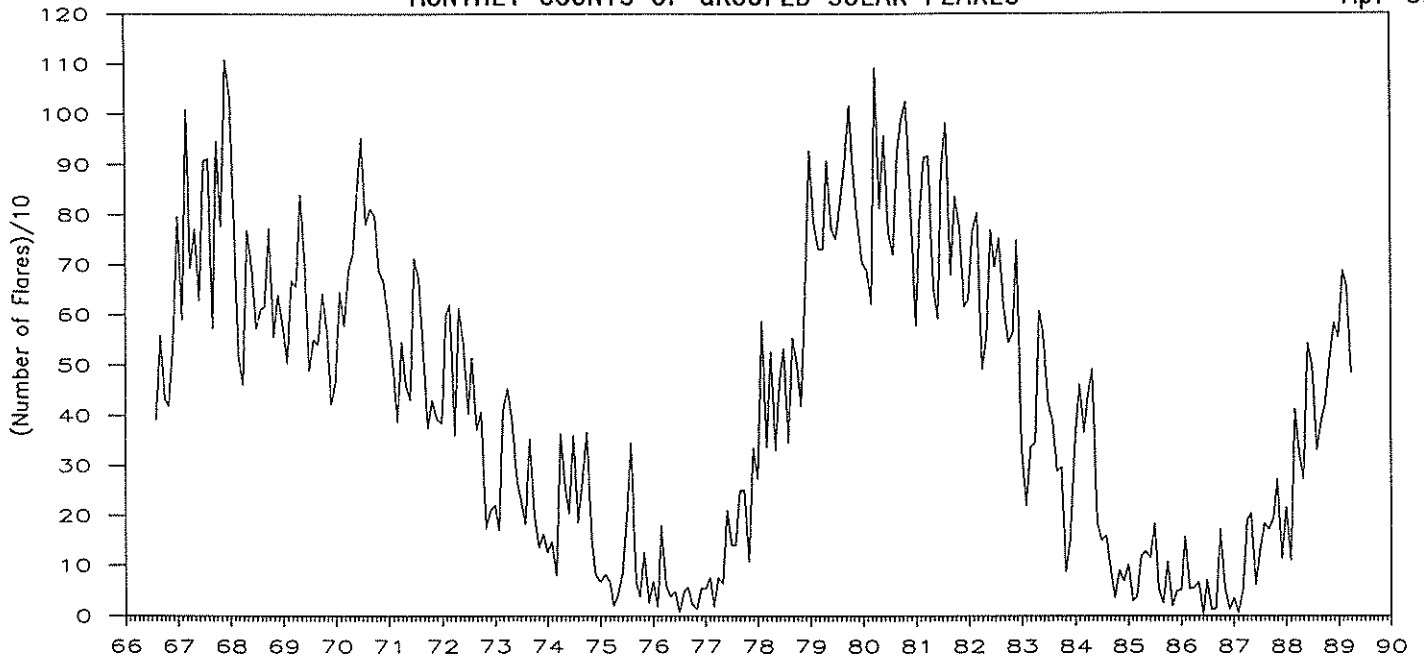
Haute Provence  
Holloman  
Hurbanovo  
Istanbul

Kandilli  
Kanzelhoehe  
Kharkov  
Learmonth

Mitaka  
Palehua  
Purple Mt.  
Ramey

San Vito  
Tashkent  
Voroshilov  
Yunnan

MONTHLY COUNTS OF GROUPED SOLAR FLARES\*



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966								391	558	432	417	543	2341
1967	796	589	1009	694	771	629	907	911	573	946	775	1109	9709
1968	1037	773	519	460	768	697	573	611	616	772	556	640	8022
1969	581	504	669	655	839	694	489	551	540	643	566	422	7153
1970	466	646	578	688	722	836	954	780	811	797	687	667	8632
1971	598	505	387	546	461	430	713	673	518	375	431	394	6031
1972	384	599	621	361	614	541	404	515	371	408	175	210	5203
1973	221	171	410	453	388	270	232	182	353	201	136	163	3180
1974	127	148	79	364	255	204	360	187	270	366	153	81	2594
1975	68	82	69	19	42	85	196	346	68	38	127	25	1165
1976	69	18	180	60	38	48	6	47	57	23	13	55	614
1977	54	77	18	76	64	210	140	140	250	252	107	336	1724
1978	274	588	338	526	330	460	533	346	554	499	418	648	5514
1979	926	781	731	731	907	772	750	821	901	1018	888	786	10012
1980	703	689	621	1092	811	956	763	720	924	988	1027	838	10132
1981	578	782	914	915	658	592	893	982	680	836	773	615	9218
1982	631	766	803	490	553	769	696	753	615	544	564	748	7932
1983	332	220	337	346	609	561	427	389	289	298	88	152	4048
1984	353	461	366	440	492	185	151	161	95	36	92	69	2901
1985	104	29	38	119	129	116	185	53	25	108	19	50	975
1986	51	158	54	56	68	3	71	12	14	174	56	13	730
1987	36	7	52	192	205	61	132	185	172	198	273	114	1627
1988	217	109	413	328	274	544	499	331	390	421	508	584	4618
1989	689	539	658	485									2371

\*Flare counts are preliminary from July 1982 to present. In particular, the monthly totals for the last 6 months may change significantly, as more sites submit their reports. The term "grouped" means that observations of the same event by different stations have been lumped together and counted as one.

28  
Apr 89

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

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 <sup>-22</sup> W/m <sup>2</sup> Hz)	Mean		
01	100	GORK	44 NS	0339.0E		411.0D		5.0		
	200	GORK	44 NS	0342.0E		150.0D		0.5		
	245	SVTO	43 NS	0453.0	0827.0	719.0D	220.0			QL=1 ST=2 TYP=1
	221	ABST	43 NS	0500.0		240.0		16.0		
	204	IZMI	43 NS	0600.0		360.0	50.0			
	600	HUMN	43 NS	0625.0	1003.0	720.0D	67.0			
	260	ONDR	44 NS	0640.0E	0829.1D	520.0D	104.0			
	127	TORN	43 NS	0650.0		530.0		30.0		V=2
	430	KRAK	44 NS	0731.0E	0950.3U	383.5D	81.0	15.0		
	410	SVTO	44 NS	0948.0E	0950.0	852.0D	86.0			QL=1 ST=1 TYP=1
	245	SGMR	44 NS	1047.0E	2024.0	721.0D	900.0			QL=1 ST=2 TYP=1
	245	PALE	44 NS	1641.0E	2203.0	528.0D	2200.0			QL=1 ST=2 TYP=1
	410	PALE	44 NS	2004.0E	2221.0	290.0D	870.0			QL=1 ST=2 TYP=1
	410	SGMR	44 NS	2021.0E	2110.0	147.0D	94.0			QL=1 ST=2 TYP=1
	610	LEAR	44 NS	2248.0E	2250.0	77.0D	50.0			QL=1 ST=2 TYP=1
	410	LEAR	44 NS	2248.0E	2250.0	96.0D	410.0			QL=1 ST=2 TYP=1
	245	LEAR	44 NS	2248.0E	2252.0	218.0D	950.0			QL=1 ST=2 TYP=1
	245	PALE	44 NS	2340.0E	0119.0	290.0D	240.0			QL=1 ST=2 TYP=1
	650	GORK	22 GRF	0406.0E	0941.3	384.0D	33.0			
	950	GORK	22 GRF	0412.5	0436.8	39.0	4.4			
	200	GORK	41 F	0500.0	0506.0		190.0			
	200	GORK	41 F	0500.0	0500.3	14.3	270.0			
	200	GORK	41 F	0500.0	0512.8		200.0			
	950	GORK	22 GRF	0515.4	0531.5	22.1	4.0			
	100	GORK	41 F	0557.6	0702.5		37.0			
	100	GORK	41 F	0557.6	0658.7	88.3	33.0			
	410	LEAR	8 S	0644.0E	0644.0	U	110.0			QL=1 ST=2 TYP=3
	536	ONDR	41 F	0740.0E	1421.7	450.0D	107.0			
	100	GORK	41 F	0804.0	0805.1	50.8	38.0			
	100	GORK	41 F	0804.0	0836.3		39.0			
	100	GORK	41 F	0804.0	0850.4		39.0			
	100	GORK	41 F	0804.0	0813.4		38.0			
	950	GORK	22 GRF	0818.0	0837.7	34.3	8.5			
	3100	CRIM	45 C	0906.0	0906.7	3.0	2.6	1.0		
	3100	CRIM	45 C	0906.0	0907.8		3.1			
	2950	GORK	2 S/F	0906.4	0906.8	3.5	2.9			
	950	GORK	22 GRF	0922.0	1005.3	57.0	8.5			
	410	LEAR	8 S	0948.0E	0949.0	1.0D	51.0			QL=1 ST=2 TYP=3
	100	GORK	41 F	0948.0	1023.2		37.0			
	100	GORK	41 F	0948.0	1006.6		37.0			
	100	GORK	41 F	0948.0	0950.6	42.0	37.0			
	2950	GORK	20 GRF	1016.7	1030.0	15.0D	4.0			
	245	SVTO	8 S	1042.0E	1042.0	1.0D	170.0			QL=1 ST=2 TYP=3
	245	SVTO	49 GB	1533.0E	1534.0	1.0D	910.0			QL=1 ST=2 TYP=6
	2800	OTTA	20 GRF	1620.0	1639.0	50.0	3.5	1.0		
245	PALE	8 S	1722.0E	1722.0	U	370.0			QL=1 ST=2 TYP=3	
2800	OTTA	20 GRF	1738.0	1751.0	45.0	3.9	2.0			
410	SGMR	8 S	1936.0E	1936.0	U	70.0			QL=1 ST=2 TYP=3	
245	SGMR	49 GB	2000.0E	2002.0	2.0D	780.0			QL=1 ST=2 TYP=6	
2800	OTTA	22 GRF	2010.0	2200.0	270.0	11.0	5.0			
200	HIRA	48 C	2024.0E	2200.0	340.0D	2500.0	940.0		SL	
100	HIRA	48 C	2024.0E	2251.5	340.0D	4800.0	690.0		SL	
500	HIRA	48 C	2024.0E	2235.8	215.0D	700.0U			SL	
410	PALE	4 S/F	2110.0E	2124.0	21.0D	200.0			QL=1 ST=2 TYP=5	
410	SGMR	49 GB	2112.0E	2232.0	96.0D	990.0			QL=1 ST=3 TYP=7	
245	SGMR	49 GB	2113.0E	2200.0	95.0D	3600.0			QL=1 ST=3 TYP=7	
610	SGMR	4 S/F	2115.0E	2136.0	93.0D	200.0			QL=1 ST=3 TYP=5	
610	PALE	4 S/F	2116.0E	2125.0	15.0D	140.0			QL=1 ST=2 TYP=5	
245	LEAR	49 GB	2247.0	2247.0	73.0	560.0			QL=1 ST=1 TYP=6	
02	200	HIRA	44 NS	0200.0E		430.0D		15.0		WL
	200	GORK	44 NS	0348.0E		180.0D		5.0		
	100	GORK	44 NS	0448.0E		402.0D		5.0		
	221	ABST	43 NS	0500.0		240.0		18.0		
	204	IZMI	43 NS	0600.0		360.0	20.0			
	260	ONDR	44 NS	0630.0E	0937.2	530.0D				
	245	SGMR	44 NS	1045.0E	1153.0	724.0D	140.0			QL=1 ST=2 TYP=1
	200	HIRA	44 NS	2024.0E		770.0D		12.0		WL
	650	GORK	20 GRF	0446.8	0613.1	245.5	11.5			

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

29  
Apr 89

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak	Mean		
							(10 -22 W/m 2 Hz)			
02	950	GORK	22	GRF	0507.8	0606.7	91.2	14.5		
	100	GORK	4	S/F	0508.0	0508.2	1.3	40.00		
	245	LEAR	8	S	0601.0E	0602.0	2.00	56.0		QL=1 ST=2 TYP=3
	200	HIRA	8	S	0602.0	0602.4	0.5	260.0		0
	9300	KISV	22	GRF	0602.2	0605.3	15.3	4.0		
	245	SVTO	8	S	0603.0E	0603.0	1.00	75.0		QL=1 ST=2 TYP=3
	5900	KISV	22	GRF	0603.2	0612.2	18.8	5.0		
	2950	GORK	1	S	0604.8	0605.1	1.0	1.2		
	2950	GORK	1	S	0609.3	0612.0	6.8	1.8	0.9	
	950	GORK	22	GRF	0649.0	0754.0	86.0	10.0		
	430	KRAK	42	SER	0729.8	0733.5	5.3	10.0		
	410	LEAR	8	S	0733.0E	0733.0	U	55.0		QL=1 ST=2 TYP=3
	9300	KISV	2	S/F	0749.2	0750.2	3.3	5.0		
	9100	GORK	1	S	0749.4	0749.9	2.3	4.0		
	5900	KISV	2	S/F	0749.5	0750.2	3.0	4.0		
	2950	GORK	1	S	0749.5	0749.7	0.8	4.7	2.3	
	245	LEAR	8	S	0813.0E	0813.0	1.00	51.0		QL=1 ST=2 TYP=3
	9100	GORK	1	S	0829.2	0829.6	2.1	9.7		
	9300	KISV	2	S/F	0829.3	0829.4	2.0	10.0		
	5900	KISV	2	S/F	0829.3	0829.4	1.4	3.0		
	3000	POTS	3	S	0846.0	0846.5	2.0	8.0		
	1470	POTS	1	S	0846.0	0846.5	4.0	4.0		
	2950	GORK	1	S	0846.0	0847.6	6.0	8.0		
	9100	GORK	1	S	0846.1	0846.5	1.2	4.8		
	9300	KISV	2	S/F	0846.2	0846.4	1.3	5.0		
	5900	KISV	2	S/F	0846.2	0846.5	2.3	5.0		
	950	GORK	1	S	0846.4	0846.6	0.5	2.5		
	5900	KISV	1	S	0943.9	0945.1	2.0	4.0		
	5900	KISV	22	GRF	1022.8	1030.7	14.4	3.0		
	245	SVTO	8	S	1154.0E	1154.0	U	100.0		QL=1 ST=2 TYP=3
	810	KRAK	41	F	1301.3	1301.5	2.7	10.0	3.0	
	2800	OTTA	22	GRF	1307.0	1320.0	96.0	9.1	4.0	
	2800	OTTA	3	S	1534.0	1535.3	3.0	21.0	6.0	
	4995	SGMR	8	S	1534.0E	1535.0	1.00	66.0		QL=1 ST=2 TYP=3
	4995	SVTO	4	S/F	1534.0E	1536.0	3.00	55.0		QL=1 ST=2 TYP=3
	5200	BERN	3	S	1534.5	1535.1	0.7	60.0		
	8400	BERN	3	S	1534.5	1535.1	0.7	56.0		
	3200	BERN	3	S	1534.5	1535.1	0.7	24.0		
	245	PALE	8	S	2008.0E	2008.0	1.00	81.0		QL=1 ST=2 TYP=3
	245	PALE	8	S	2041.0E	2041.0	U	110.0		QL=1 ST=2 TYP=3
245	LEAR	8	S	2324.0E	2325.0	1.00	33.0		QL=1 ST=2 TYP=3	
8800	LEAR	8	S	2325.0E	2325.0	U	22.0		QL=1 ST=2 TYP=3	
410	LEAR	8	S	2325.0E	2325.0	U	63.0		QL=1 ST=2 TYP=3	
4995	LEAR	8	S	2325.0E	2325.0	U	16.0		QL=1 ST=2 TYP=3	
245	PALE	8	S	2325.0E	2325.0	U	60.0		QL=1 ST=2 TYP=3	
410	PALE	8	S	2325.0E	2325.0	U	85.0		QL=1 ST=2 TYP=3	
245	LEAR	8	S	2334.0E	2334.0	1.00	60.0		QL=1 ST=2 TYP=3	
03	245	LEAR	43	NS	0223.0	0419.0	202.00	110.0		QL=1 ST=2 TYP=1
	100	HIRA	43	NS	0253.0	0440.0	230.0	125.0	63.0	
	200	GORK	44	NS	0400.0E		180.00		10.0	
	100	GORK	44	NS	0400.0E		231.00		20.0	
	245	SVTO	44	NS	0453.0E	0455.0	89.00	72.0		QL=1 ST=2 TYP=1
	221	ABST	43	NS	0500.0		240.0		22.0	
	204	IZMI	43	NS	0600.0		360.0	30.0		
	260	ONDR	44	NS	0630.0E	1109.6	530.00	34.0		
	430	KRAK	44	NS	0726.0E	1229.8	358.00	11.0		
	245	SGMR	44	NS	1043.0E	2019.0	727.00	550.0		QL=1 ST=2 TYP=1
	245	SVTO	43	NS	1100.0	1529.0	354.00	170.0		QL=1 ST=2 TYP=1
	245	PALE	44	NS	1705.0E	1942.0	686.00	710.0		QL=1 ST=2 TYP=1
	410	PALE	43	NS	1929.0	1953.0	52.00	220.0		QL=1 ST=2 TYP=1
	610	PALE	43	NS	1929.0	1944.0	53.00	170.0		QL=1 ST=2 TYP=1
	200	HIRA	44	NS	2020.0E	2120.0	770.00	500.0	179.0	SL
	100	HIRA	44	NS	2020.0E	2117.0	770.00	840.0	330.0	SL
	245	LEAR	44	NS	2249.0E	0457.0	676.00	290.0		QL=1 ST=2 TYP=1
	100	HIRA	46	C	0206.6	0211.2	4.8	900.0		
	200	HIRA	27	RF	0238.0	0436.0	210.0	116.0	45.0	ML
	245	PALE	8	S	0305.0E	0305.0	U	99.0		QL=1 ST=2 TYP=3
100	HIRA	42	SER	0313.0	0436.3	168.0	480.0			

30  
Apr 89

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

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 -22 W/m 2 Hz)	Mean		
03	245	PALE	8 S	0330.0E	0330.0		U	93.0		QL=1 ST=2 TYP=3
	245	PALE	8 S	0423.0E	0423.0		U	150.0		QL=1 ST=2 TYP=3
	950	GORK	2 S/F	0458.2	0458.6	0.6		9.0		
	950	GORK	46 C	0609.4	0610.0			31.0		
	950	GORK	46 C	0609.4	0609.6	1.0		13.0		
	2950	GORK	1 S	0622.0	0624.5	7.0		1.5		
	2950	GORK	20 GRF	0636.0	0712.0	105.0		4.3		
	9100	GORK	20 GRF	0751.6	0801.1	59.0		7.5		
	5900	KISV	2 S/F	0800.0	0801.1			4.3		
	33	UPIC	42 SER	0802.2	0809.2			7.3		
	5900	KISV	2 S/F	0921.0	0921.5	3.3		2.0		
	536	ONDR	42 SER	1009.0	1009.7	96.0		191.0		
	430	KRAK	8 S	1039.0	1039.0			0.2		
	600	HUMN	2 S/F	1517.0	1519.0	4.0		12.0	4.0	
	2800	OTTA	4 S/F	1517.3	1518.0	5.0		8.7	3.0	
	2800	OTTA	32 ABS	1604.0	1650.0	81.0		-5.2	2.0	
	245	PALE	49 GB	1802.0E	1802.0		U	1200.0		QL=1 ST=2 TYP=6
	245	SGMR	49 GB	1802.0E	1802.0		U	1100.0		QL=1 ST=2 TYP=6
	2800	OTTA	22 GRF	1911.0	1940.0	152.0		29.0	14.0	
	410	SGMR	20 GRF	1914.0E	1953.0	62.00		200.0		QL=1 ST=2 TYP=2
610	SGMR	20 GRF	1914.0E	1944.0	62.00		220.0		QL=1 ST=2 TYP=2	
245	SGMR	20 GRF	1914.0E	1938.0	286.00		740.0		QL=1 ST=3 TYP=2	
245	SGMR	4 S/F	1926.0	1929.0			450.0		QL=/ ST=/ TYP=3	
04	200	GORK	44 NS	0348.0E		180.00		50.0		
	100	GORK	44 NS	0348.0E		402.00		15.0		
	245	SVTO	44 NS	0448.0E	0457.0	1152.00		400.0		QL=1 ST=1 TYP=1
	221	ABST	43 NS	0500.0		240.0				
	127	TORN	44 NS	0620.0E		560.00		100.0		V=2
	260	ONDR	44 NS	0640.0E	1415.4	520.00		69.0		
	245	SGMR	44 NS	1041.0E	2143.0	730.00		580.0		QL=1 ST=3 TYP=1
	430	KRAK	44 NS	1045.0E	1303.7	160.00		12.0		
	234	POTS	43 NS	1243.0	1442.0	139.00		17.0		
	245	PALE	44 NS	1638.0E	2138.0	713.00		390.0		QL=1 ST=2 TYP=1
	200	HIRA	44 NS	2020.2E	2200.0	770.00		220.0	38.0	ML
	245	LEAR	43 NS	2322.0	2322.0	24.00		64.0		QL=1 ST=2 TYP=1
	500	HIRA	46 C	0518.0	0531.0	35.0		11.0	5.0	WL
	2950	GORK	1 S	0655.4	0655.9	1.2		2.4	1.2	
	5900	KISV	1 S	0701.5	0701.9	1.0		1.0		
	100	GORK	41 F	0736.0	0736.2	12.0		400.0		
	100	GORK	41 F	0736.0	0745.9			420.0		
	810	KRAK	8 S	0801.0	0801.0	0.2		9.0		
	100	GORK	4 S/F	0940.7	0941.0	1.2		600.0		
	100	GORK	41 F	1006.0	1016.0			1100.0		
	100	GORK	41 F	1006.0	1006.2	12.0		700.0		
	536	ONDR	42 SER	1052.5	1052.7	11.0		34.0		
	810	KRAK	8 S	1234.7	1234.9	0.2		4.0		
	245	SGMR	8 S	1359.0E	1359.0	1.00		490.0		QL=1 ST=3 TYP=3
	245	SGMR	8 S	1415.0E	1415.0		U	250.0		QL=1 ST=2 TYP=3
600	HUMN	3 S	1539.3	1539.8	1.0		22.0	10.0		
245	PALE	49 GB	2142.0E	2143.0	1.00		780.0		QL=1 ST=2 TYP=6	
245	PALE	49 GB	2202.0E	2202.0	1.00		670.0		QL=1 ST=2 TYP=6	
05	200	GORK	44 NS	0333.0E		180.00		5.0		
	245	SVTO	43 NS	0446.0	0810.0	730.00		320.0		QL=1 ST=2 TYP=1
	245	LEAR	43 NS	0458.0	0507.0	58.00		250.0		QL=1 ST=2 TYP=1
	221	ABST	43 NS	0500.0		240.0				
	204	I2MI	43 NS	0600.0		360.0		30.0		
	260	ONDR	44 NS	0640.0E	0810.0	450.00		119.0		
	430	KRAK	44 NS	0701.5E	1015.0	365.00		50.0	2.0	
	245	LEAR	44 NS	0738.0E	0806.0	146.00		500.0		QL=1 ST=2 TYP=1
	245	SGMR	44 NS	1146.0E	1207.0	666.00		440.0		QL=1 ST=2 TYP=1
	245	PALE	44 NS	1638.0E	1719.0	522.00		130.0		QL=1 ST=2 TYP=1
	200	HIRA	44 NS	2020.0E	2126.0	100.00		24.0	4.0	O
	200	HIRA	42 SER	0107.9	0115.8	15.2		670.0		WL
	9100	GORK	2 S/F	0348.0	0350.0	5.2		19.7		
	2950	GORK	1 S	0448.7	0450.0	3.4		7.3		
	200	GORK	8 S	0456.1	0456.2	0.3		690.0		
	245	LEAR	4 S/F	0729.0E	0730.0	3.00		130.0		QL=1 ST=2 TYP=3

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

31  
Apr 89

A P R I L      1 9 8 9

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 <sup>-22</sup> W/m <sup>2</sup> Hz)	Mean (2 Hz)		
05	100	GORK	4 S/F	0733.2	0736.7	5.7	40.0			
	245	LEAR	8 S	0734.0E	0735.0	2.0D	160.0			QL=1 ST=2 TYP=3
	200	HIRA	42 SER	0758.0	0800.0	35.6	305.0			0
	245	SVTO	49 GB	0806.0E	0806.0	U	560.0			QL=1 ST=2 TYP=6
	2950	GORK	21 GRF	0841.6	0854.0	22.7	29.0			
	3100	CRIM	29 PBI	0842.0	0858.0	62.0	23.5			
	3100	CRIM	3 S	0842.0	0850.2	16.0	129.0	8.0		
	5900	KISV	45 C	0844.2	0852.3		66.0			
	5900	KISV	45 C	0844.2	0853.3	14.0	66.0			
	5900	KISV	23 GRF	0844.2	0859.9	81.0	26.0			
	2695	LEAR	4 S/F	0846.0E	0850.0	14.0D	120.0			
	9300	KISV	23 GRF	0846.0	0900.0	68.8	23.0			
	3200	BERN	46 C	0846.0	0850.1	14.0	84.0			
	5200	BERN	46 C	0846.0	0852.1	14.0	72.0			
	3000	POTS	4 S/F	0846.0U	0850.3	20.0U	76.0			
	3013	IZMI	5 S	0846.0	0850.5	13.0	33.0	20.0		
	1470	POTS	4 S/F	0846.0U	0850.6	17.0U	48.0			
	9100	GORK	21 GRF	0847.1	0859.9	157.0	18.7			
	950	GORK	5 S	0847.7	0850.8	9.2	7.0			
	1415	LEAR	4 S/F	0848.0E	0850.0	4.0D	48.0			
	4995	LEAR	4 S/F	0848.0E	0852.0	8.0D	58.0			
	2695	SVTO	4 S/F	0848.0E	0850.0	4.0D	98.0			
	2950	GORK	4 S/F	0848.6	0850.2	5.0	56.0			
	8400	BERN	46 C	0849.0	0853.0	7.0	42.0			
	15000	KISV	45 C	0849.8	0853.3	6.4	10.0			
	15000	KISV	45 C	0849.8	0852.3		10.0			
	11800	BERN	46 C	0850.0	0853.0	6.0	24.0			
	8800	LEAR	4 S/F	0850.0E	0853.0	910.0D	26.0			
	9500	POTS	3 S	0850.0	0853.4	6.0	17.0			
	9100	GORK	46 C	0851.5	0853.2		17.0			
	9100	GORK	46 C	0851.5	0852.2	3.8	17.9			
	9300	KISV	45 C	0851.5	0853.3		20.0			
	9300	KISV	45 C	0851.5	0852.3	4.3	19.0			
	15400	LEAR	8 S	0854.0E	0854.0	U	25.0			
	650	GORK	2 S/F	0921.0	0921.2	0.4	5.0			
	2950	GORK	1 S	1015.1	1015.2	0.3	15.0	7.5		
	245	SVTO	8 S	1026.0E	1026.0	U	300.0			
	2950	GORK	20 GRF	1030.1	1033.5	19.2	5.7			
	600	HUMN	27 RF	1032.5	1114.7	76.0	14.0	5.0		
	536	ONDR	41 F	1034.0	1101.4	67.0	45.0			
	950	GORK	22 GRF	1040.4	1115.0	84.0	14.0			
	9100	GORK	21 GRF	1154.1		12.0D				
	9300	KISV	45 C	1155.6	1158.0	4.0	83.0			
	9300	KISV	29 PBI	1155.6	1159.6	26.3	7.0			
	9300	KISV	45 C	1155.6	1156.9		103.0D			
15000	KISV	45 C	1155.9	1158.1		101.0				
15000	KISV	45 C	1155.9	1157.5	3.5	92.0				
3100	CRIM	3 S	1156.0	1157.0	5.0	152.0	50.0			
1470	POTS	3 S	1156.0	1157.0	4.0	36.0				
2695	SGMR	4 S/F	1156.0E	1156.0	4.0D	140.0				
15400	SGMR	8 S	1156.0E	1156.0	2.0D	60.0				
8800	SGMR	8 S	1156.0E	1156.0	2.0D	80.0				
4995	SGMR	8 S	1156.0E	1156.0	2.0D	100.0				
2695	SVTO	8 S	1156.0E	1156.0	1.0D	120.0				
4995	SVTO	8 S	1156.0E	1156.0	1.0D	87.0				
8800	SVTO	8 S	1156.0E	1156.0	2.0D	120.0				
5900	KISV	29 PBI	1156.0	1159.6	36.0	8.0				
2950	GORK	4 S/F	1156.0	1156.9	4.7	120.0				
5900	KISV	4 S/F	1156.0	1156.9	3.6	108.0				
19600	BERN	46 C	1156.2	1156.5	3.0	120.0				
3200	BERN	46 C	1156.2	1156.5	3.0	120.0				
8400	BERN	46 C	1156.2	1156.5	3.0	126.0				
5200	BERN	46 C	1156.2	1156.5	3.0	105.0				
11800	BERN	46 C	1156.2	1156.5	3.0	159.0				
3013	IZMI	5 S	1156.3	1156.8	4.0	54.0	30.0			
9100	GORK	46 C	1156.4	1158.0		74.0				
3000	POTS	4 S/F	1156.4	1156.7	4.6	108.0				
9100	GORK	46 C	1156.4	1156.8	3.6	120.0				
9500	POTS	4 S/F	1156.5	1156.6	6.5	93.0				



32  
Apr 89

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

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 -22 W/m <sup>2</sup> Hz)	Mean		
05	1470	POTS	4 S/F	1253.0	1257.4	7.0	42.0			
	3000	POTS	4 S/F	1253.0	1257.5	7.0	11.0			
	810	KRAK	7 C	1255.5	1258.8	4.0	22.0	7.0		
	600	HUMN	27 RF	1306.0	1312.0	35.0	15.0	4.0		
	536	ONDR	27 RF	1306.0	1312.8	10.0	32.0			
	410	SGMR	8 S	1456.0E	1456.0	2.00	89.0			QL=1 ST=2 TYP=3
	410	SVTO	8 S	1456.0E	1457.0	1.00	100.0			QL=1 ST=2 TYP=3
	2800	OTTA	3 S	1631.0	1633.8	5.0	24.2	7.0		
	33	UPIC	46 C	1632.7	1634.5U	2.3				
	600	HUMN	3 S	1633.0	1633.5	1.5	18.0	6.0		
	245	LEAR	8 S	2250.0E	2251.0	1.00	62.0			QL=1 ST=2 TYP=3
245	LEAR	8 S	2330.0E	2330.0	U	60.0			QL=1 ST=2 TYP=3	
06	200	HIRA	43 NS	0148.0	0710.0	420.00	130.0	16.0		WL
	200	GORK	44 NS	0336.0E		170.00		5.0		
	245	SVTO	43 NS	0544.0	0701.0	673.00	550.0			QL=1 ST=2 TYP=1
	221	ABST	43 NS	0600.0		180.0		15.0		
	204	IZMI	43 NS	0600.0		360.0	60.0			
	234	POTS	43 NS	0620.0	0643.0	117.0	28.0			
	260	ONDR	44 NS	0620.0E	1412.0	530.00	82.0			
	245	LEAR	44 NS	0622.0E	0751.0	221.00	420.0			QL=1 ST=2 TYP=1
	430	KRAK	44 NS	0701.5E	0935.0	213.50	35.0	8.0		
	410	SVTO	43 NS	0740.0	0740.0	980.0	51.0			QL=1 ST=3 TYP=1
	245	SGMR	44 NS	1038.0E	1735.0	736.00	410.0			QL=1 ST=2 TYP=1
	127	TORN	43 NS	1052.0	1120.7	200.0	200.0	7.0		V=1
	245	PALE	44 NS	1637.0E	1759.0	674.00	190.0			QL=1 ST=1 TYP=1
	200	HIRA	44 NS	2016.0E	0508.0	770.00	35.0	13.0		ML
	245	LEAR	44 NS	2250.0E	2305.0	30.00	110.0			QL=1 ST=2 TYP=1
	245	LEAR	8 S	0024.0E	0024.0	1.00	83.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0222.0E	0222.0	U	64.0			QL=1 ST=2 TYP=3
	200	GORK	23 GRF	0504.5	0643.3	204.0	20.0			
	245	LEAR	8 S	0509.0E	0511.0	2.00	62.0			QL=1 ST=2 TYP=3
	500	HIRA	46 C	0509.0	0512.8	8.5	9.0	4.0		0
	245	SVTO	4 S/F	0524.0E	0526.0	3.00	110.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0525.0E	0525.0	2.00	110.0			QL=1 ST=2 TYP=3
	5900	KISV	45 C	0527.0	0529.7		9.0			
	5900	KISV	45 C	0527.7	0535.7	17.1	8.0			
	9100	GORK	22 GRF	0529.2	0529.7	7.3	6.5			
	9300	KISV	2 S/F	0529.2	0529.7	3.1	5.0			
	9300	KISV	2 S/F	0533.9	0534.9	3.1	6.0			
	245	SVTO	4 S/F	0536.0E	0537.0	3.00	220.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0537.0E	0537.0	U	180.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0543.0E	0544.0	1.00	83.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0609.0E	0611.0	2.00	75.0			QL=1 ST=2 TYP=3
	500	HIRA	27 RF	0617.5	0718.0	113.0	30.0	15.0		0
	600	HUMN	27 RF	0625.0	0730.0	116.0	7.0	4.0		
	3100	CRIM	20 GRF	0711.9	0714.2	7.0	6.0	2.0		
5900	KISV	22 GRF	0712.4	0713.9	11.7	3.0				
9300	KISV	2 S/F	0712.7	0715.6	3.6	6.0				
9100	GORK	20 GRF	0712.9	0715.7	14.9	7.3				
5900	KISV	2 S/F	0715.4	0715.7	0.9	4.0				
2950	GORK	1 S	0715.5	0715.7	0.4	3.8	1.9			
100	GORK	46 C	0715.6	0716.0		3800.0				
100	GORK	46 C	0715.6	0715.8	1.4	730.0				
410	SVTO	49 GB	0734.0E	0734.0	1.00	2900.0			QL=1 ST=2 TYP=6	
810	KRAK	27 RF	0830.2	0850.0U	53.3	54.0	31.0			
5900	KISV	20 GRF	0933.4	0935.2	111.5	5.0				
5900	KISV	20 GRF	0947.8	1017.8	47.0	6.0				
5900	KISV	45 C	0957.7	1000.2	3.9	19.0				
5900	KISV	45 C	0957.7	0959.6		12.0				
5900	KISV	29 PBI	0957.7	1001.7	8.1	4.0				
9300	KISV	20 GRF	0958.5	1017.0	42.0	6.0				
9300	KISV	46 C	0958.5	1000.2		13.0				
9300	KISV	46 C	0958.5	0959.4		7.0				
9300	KISV	46 C	0958.5	0959.6	2.5	8.0				
9100	GORK	21 GRF	0958.6	1022.5	25.7	8.0				
2950	GORK	2 S/F	0959.5	0959.6	0.8	11.0				
9100	GORK	1 S	0959.8	1000.2	0.6	11.3				
5900	KISV	46 C	1001.7	1002.1		1.0				

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

33  
Apr 89

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 <sup>-22</sup> W/m <sup>2</sup> Hz)	Flux Density Mean	Int	Remarks
06	5900	KISV	46 C	1001.7	1003.3	2.0	3.0			
	5900	KISV	46 C	1001.7	1002.5		2.0			
	5900	KISV	2 S/F	1020.3	1022.6	5.0	10.0			
	9300	KISV	2 S/F	1020.3	1022.7	5.0	10.0			
	536	ONDR	8 S	1052.7	1053.0	0.8	31.0			
	1470	POTS	40 F	1057.5	1100.6	6.5	6.0			
	200	GORK	4 S/F	1058.9	1108.0		285.0			
	200	GORK	4 S/F	1058.9	1103.1	12.9	290.0			
	3000	POTS	4 S/F	1059.0	1100.0	5.0	48.0			
	100	GORK	41 F	1108.7	1109.3	5.5	30.0			
	100	GORK	41 F	1108.7	1112.5		40.0			
	245	SGMR	8 S	1109.0E	1109.0	1.0D	160.0			QL=1 ST=2 TYP=3
	127	TORN	8 S	1204.4	1204.7	0.7	270.0	130.0		
	8800	SVTO	8 S	1320.0E	1321.0	2.0D	75.0			QL=1 ST=2 TYP=3
	600	HUMN	27 RF	1406.0	1456.0	204.0	16.0	6.0		
	245	PALE	8 S	1734.0E	1735.0	1.0D	380.0			QL=1 ST=2 TYP=3
	2800	OTTA	4 S/F	1825.4	1825.5	1.6	12.8	3.0		
	2800	OTTA	22 GRF	1900.0	2000.0	160.0	3.3	1.0		
	245	PALE	8 S	2116.0E	2116.0	1.0D	130.0			QL=1 ST=2 TYP=3
	200	HIRA	46 C	2345.4	2346.2	1.2	170.0			WL
07	200	GORK	44 NS	0400.0E		150.0D		10.0		
	245	LEAR	43 NS	0440.0	0506.0	255.0	390.0			QL=1 ST=2 TYP=1
	221	ABST	43 NS	0500.0		240.0		24.0		
	204	IZMI	43 NS	0600.0		300.0	40.0			
	260	ONDR	44 NS	0640.0E	1116.4	520.0D	81.0			
	245	SGMR	44 NS	1103.0E	1120.0	712.0D	120.0			QL=1 ST=2 TYP=1
	245	SVTO	43 NS	1353.0	1355.0	52.0D	150.0			QL=1 ST=2 TYP=1
	500	HIRA	21 GRF	0406.5	0545.5	141.0	16.0	4.0		WL
	650	GORK	20 GRF	0519.8	0535.3	37.3	6.0			
	950	GORK	22 GRF	0524.4	0545.5	46.0	2.5			
	9100	GORK	1 S	0552.5	0553.0	0.7	13.0			
	9300	KISV	1 S	0552.6	0552.9	0.7	14.0			
	5900	KISV	1 S	0552.7	0552.9	0.6	6.0			
	15000	KISV	1 S	0552.7	0552.9	0.6	14.0			
	2950	GORK	1 S	0552.8	0553.0	0.4	1.7	0.8		
	5900	KISV	22 GRF	0659.9	0702.8	11.0	4.0			
	650	GORK	21 GRF	0728.6	0806.2	76.4	6.0			
	9100	GORK	20 GRF	0806.8	0824.2	41.0	9.7			
	5900	KISV	2 S/F	0808.8	0810.2	4.8	2.0			
	5900	KISV	22 GRF	0819.9	0824.3	15.2	7.0			
	9300	KISV	22 GRF	0821.8	0824.2	14.0	7.0			
	950	GORK	22 GRF	0830.1	0832.5	10.8	3.4			
	3100	CRIM	1 S	0831.8	0832.5	1.2	8.0	3.0		
	100	GORK	41 F	0831.9	0832.2	2.6	110.0			
	650	GORK	4 S/F	0831.9	0832.2	2.4	9.0			
	100	GORK	41 F	0831.9	0832.4		1300.0			
	100	GORK	41 F	0831.9	0834.4		110.0			
	245	SVTO	8 S	0832.0E	0832.0	1.0D	130.0			QL=1 ST=2 TYP=3
	2950	GORK	4 S/F	0832.0	0832.4	2.6	5.0			
	204	IZMI	5 S	0832.0	0832.4	1.0	200.0	150.0		
	5900	KISV	2 S/F	0904.2	0905.9	5.7	3.0			
	9300	KISV	2 S/F	0904.2	0904.9	2.1	4.0			
	9100	GORK	1 S	0904.3	0905.3	1.8	4.0			
	9300	KISV	21 GRF	0948.9	0950.4	9.5	13.0			
	9100	GORK	1 S	0949.5	0950.3	5.8	11.0			
	15000	KISV	2 S/F	0949.6	0950.4	1.0	9.0			
	5900	KISV	2 S/F	0949.8	0950.4	1.5	11.0			
	3100	CRIM	1 S	0950.1	0950.4	0.7	5.0	2.0		
	2950	GORK	1 S	0950.2	0950.4	0.5	3.4	1.7		
	9300	KISV	22 GRF	1008.9	1016.4	13.0	3.0			
536	ONDR	41 F	1022.5	1041.0	47.0	9.0				
9100	GORK	20 GRF	1043.8	1056.1	76.0D	4.8				
9300	KISV	1 S	1109.1	1109.2	1.5	2.0				
9300	KISV	2 S/F	1132.2	1133.0	2.0	2.0				
9300	KISV	2 S/F	1153.6	1154.3	2.0	2.0				
9300	KISV	2 S/F	1247.1	1247.4	0.5	3.0				
1470	POTS	21 GRF	1300.0	1320.0	110.0D	13.0				
9500	POTS	21 GRF	1300.0	1323.0	110.0	20.0				

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

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density (10 <sup>-22</sup> W/m <sup>2</sup> Hz)		Int	Remarks
							Peak	Mean		
07	3000	POTS	21 GRF	1300.0	1330.5	110.00	26.0			
	2800	OTTA	22 GRF	1306.0	1331.0	180.0	24.4	12.0		
	8800	SGMR	8 S	1307.0E	1308.0	1.00	58.0			QL=1 ST=2 TYP=3
	9500	POTS	4 S/F	1307.0	1308.1	4.5	39.0			
	536	ONDR	42 SER	1307.0	1323.7	17.0	14.0			
	9500	POTS	3 S	1329.0	1330.9	6.0	43.0			
	4995	SGMR	8 S	1330.0E	1330.0	U	59.0			QL=1 ST=2 TYP=3
	2800	OTTA	4 S/F	1415.0	1423.5	23.0	24.4	8.0		
	1470	POTS	3 S	1420.5	1423.5	9.5	29.0			
	3000	POTS	3 S	1421.0	1423.5	14.0	47.0			
15400	SGMR	8 S	1949.0E	1949.0	U	68.0			QL=1 ST=2 TYP=3	
08	245	LEAR	43 NS	0052.0	0052.0	1.0	69.0			QL=1 ST=2 TYP=1
	245	LEAR	43 NS	0307.0	0313.0	21.00	170.0			QL=1 ST=2 TYP=1
	221	ABST	43 NS	0500.0		240.0		10.0		
	260	ONDR	44 NS	0640.0E	0738.4	520.00				
	245	SGMR	44 NS	1850.0E	2048.0	246.00	190.0			QL=1 ST=2 TYP=1
	2695	PENT	3 S	0014.0		44.0	250.00			
	500	HIRA	20 GRF	0022.5	0034.5	55.0	9.0	4.0		WL
	200	HIRA	42 SER	0049.5	0100.0	34.3	160.0			ML
	2695	PENT	29 PBI	0125.0	0125.0		47.6			
	500	HIRA	27 RF	0235.0	0307.0	68.0	8.0	3.0		WL
	200	HIRA	27 RF	0247.0	0300.0	59.0	29.0	5.0		ML
	9100	GORK	20 GRF	0321.0E		121.00				
	2950	GORK	21 GRF	0450.0	0736.0	360.00	7.8			
	9100	GORK	21 GRF	0648.6	0813.5	131.0	7.2			
	9300	KISV	2 S/F	0727.0	0728.0	2.2	5.0			
	5900	KISV	28 PRE	0727.8	0734.1	6.3	9.0			
	9300	KISV	2 S/F	0730.5	0731.3	3.7	4.0			
	1470	POTS	3 S	0731.0	0731.4	2.0	8.0			
	5900	KISV	8 S	0734.1	0734.3	0.4	34.0			
	15000	KISV	28 PRE	0735.9	0737.2	2.2	3.0			
	5900	KISV	2 S/F	0735.9	0738.5	4.8	12.0			
	9300	KISV	28 PRE	0736.0	0737.7	2.2	6.0			
	2950	GORK	4 S/F	0736.2	0738.5	2.9	49.0			
	9100	GORK	2 S/F	0736.5	0738.5	2.8	14.5			
	2695	LEAR	8 S	0738.0E	0738.0	1.00	60.0			QL=1 ST=2 TYP=3
	2695	SVTO	8 S	0738.0E	0739.0	1.00	65.0			QL=1 ST=2 TYP=3
	9500	POTS	3 S	0738.0	0738.5	1.3	11.0			
	3000	POTS	4 S/F	0738.0	0738.6	1.3	38.0			
	15000	KISV	29 PBI	0738.1	0740.2	2.1	3.0			
	15000	KISV	2 S/F	0738.1	0738.5	1.1	8.0			
	9300	KISV	2 S/F	0738.2	0738.5	0.8	17.0			
	3100	CRIM	3 S	0738.2	0738.6	1.0	78.0	20.0		
	9300	KISV	29 PBI	0738.2	0738.9	5.3	5.0			
	1470	POTS	1 S	0738.5	0738.8	1.5	3.0			
	5900	KISV	28 PRE	0759.1	0804.6	5.5	2.0			
	9300	KISV	21 GRF	0759.5	0804.7	17.6	10.0			
	9100	GORK	1 S	0804.1	0804.7	1.7	11.0			
	15000	KISV	2 S/F	0804.2	0804.6	0.6	3.0			
	5900	KISV	2 S/F	0804.6	0804.7	0.3	5.0			
	5900	KISV	29 PBI	0804.6	0804.9	0.6	2.0			
5900	KISV	28 PRE	0807.8	0832.2	24.4	14.0				
5900	KISV	8 S	0832.2	0832.4	0.3	41.0				
9100	GORK	21 GRF	0948.0		75.00					
536	ONDR	41 F	1052.5	1057.6	6.5	16.0				
3000	POTS	1 S	1057.0	1057.5	2.0	4.0				
1470	POTS	1 S	1057.0	1057.8	2.0	5.0				
950	GORK	2 S/F	1057.2	1057.5	1.3	3.0				
9100	GORK	2 S/F	1057.3	1057.6	3.3	15.2				
650	GORK	2 S/F	1057.3	1057.7	1.2	6.0				
9500	POTS	4 S/F	1057.5	1057.7	2.5	15.0				
1470	POTS	42 SER	1109.0	1120.5	21.0	23.0				
9500	POTS	21 GRF	1125.5	1127.3	30.0	21.0				
5900	KISV	2 S/F	1125.7	1127.2	4.2	17.0				
15000	KISV	2 S/F	1126.3	1126.4	0.3	7.0				
9300	KISV	2 S/F	1127.0	1127.2	1.0	22.0				
9300	KISV	45 C	1135.0	1136.3		8.0				
9300	KISV	45 C	1135.0	1137.4	6.8	12.0				

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

35  
Apr 89

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 <sup>-22</sup> W/m <sup>2</sup> Hz)	Mean (2 Hz)		
08	5900	KISV	2 S/F	1137.1	1137.4	1.0	6.0			
	9300	KISV	2 S/F	1201.4	1203.2	3.3	3.0			
	1470	POTS	40 F	1213.0	1228.0	42.0	6.0			
	5900	KISV	20 GRF	1215.2	1225.8	18.8	6.0			
	9300	KISV	2 S/F	1218.1	1218.6	1.3	2.0			
	9500	POTS	1 S	1225.0	1226.0	4.0	7.0			
	9300	KISV	2 S/F	1225.4	1226.0	5.8	11.0			
	200	HIRA	24 R	2015.0E		540.00		7.0		WL
	245	SGMR	8 S	2031.0E	2031.0	1.00	320.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	2048.0E	2048.0	1.00	280.0			QL=1 ST=2 TYP=3
	500	HIRA	42 SER	2106.8	2303.5	210.0	34.0			O
	200	HIRA	46 C	2302.8	2306.3	4.6	16.0			ML
410	LEAR	8 S	2345.0E	2346.0	1.00	130.0			QL=1 ST=2 TYP=3	
09	100	GORK	44 NS	0330.0E		420.00		5.0		
	200	GORK	44 NS	0500.0E		60.00		5.0		
	200	HIRA	43 NS	0507.0	0714.0	172.0	17.0	2.0		WL
	204	IZMI	43 NS	0600.0		120.0	20.0			
	221	ABST	43 NS	0600.0		180.0		11.0		
	245	SVTO	44 NS	0652.0E	0657.0	1028.00	70.0			QL=1 ST=1 TYP=1
	430	KRAK	44 NS	0705.0E	1025.2	355.00	55.0			
	127	TORN	43 NS	0826.0		370.0		7.0		V=0
	245	SGMR	43 NS	1533.0	1553.0	320.00	110.0			QL=1 ST=2 TYP=1
	410	LEAR	8 S	0031.0E	0031.0	1.00	60.0			QL=1 ST=2 TYP=3
	4995	LEAR	49 GB	0042.0E	0054.0	82.00	2400.0			QL=1 ST=2 TYP=7
	8800	LEAR	49 GB	0042.0E	0058.0	82.00	3300.0			QL=1 ST=2 TYP=7
	1415	LEAR	49 GB	0044.0E	0050.0	43.00	2200.0			QL=1 ST=2 TYP=7
	2695	LEAR	49 GB	0044.0E	0103.0	74.00	1100.0			QL=1 ST=2 TYP=7
	100	HIRA	46 C	0044.6		11.9	1000.00			
	200	HIRA	46 C	0044.6	0056.1		65.0			WL
	200	HIRA	46 C	0044.6	0116.2	38.9	95.0	47.0		ML
	15400	LEAR	49 GB	0045.0E	0058.0	72.00	4200.0			QL=1 ST=2 TYP=7
	500	HIRA	46 C	0045.8	0057.5	38.0	132.0	25.0		O
	610	LEAR	20 GRF	0047.0E	0057.0	17.00	93.0			QL=1 ST=2 TYP=2
	410	LEAR	4 S/F	0050.0E	0051.0	5.00	36.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0053.0E	0055.0	2.00	310.0			QL=1 ST=2 TYP=3
	200	HIRA	8 S	0054.1	0054.5	0.5	5000.0			O
	500	HIRA	4 S/F	0201.8	0202.4	5.5	12.0			WL
	245	LEAR	4 S/F	0202.0E	0203.0	3.00	120.0			QL=1 ST=2 TYP=3
	200	HIRA	46 C	0203.6	0203.7	4.0	670.0			O
	100	HIRA	46 C	0203.8	0204.8	3.3	980.0			O
	2950	GORK	20 GRF	0421.6	0806.0	360.00	28.0			
	260	ONDR	41 F	0640.0E	1525.0	530.00				
	9100	GORK	20 GRF	0645.2	0645.6	8.1	4.0			
	33	UPIC	42 SER	0909.0	0927.1	18.9				
	536	ONDR	42 SER	1001.9	1016.7	58.0	49.0			
5900	KISV	2 S/F	1210.0	1210.6	1.6	7.0				
5900	KISV	29 PBI	1210.0	1211.6	5.6	2.0				
9300	KISV	2 S/F	1210.5	1210.6	0.5	2.0				
536	ONDR	42 SER	1215.6	1228.3	18.5	18.0				
245	SGMR	8 S	1547.0E	1547.0	U	170.0			QL=1 ST=2 TYP=3	
2800	OTTA	3 S	2041.0	2044.5	13.0	7.7	2.0			
10	127	TORN	43 NS	0914.0		210.0		3.0		V=0
	200	HIRA	41 F	0153.0	0229.0	67.0	54.0			WL
	500	HIRA	27 RF	0153.5	0227.0	67.0	13.0	7.0		O
	500	HIRA	23 GRF	0435.0	0529.0	140.0	15.0	8.0		O
	650	GORK	22 GRF	0439.8	0529.2	156.6	6.0			
	9100	GORK	20 GRF	0617.8	0624.8	12.4	6.5			
	260	ONDR	41 F	0640.0E	0901.7	530.00	193.0			
	9300	KISV	2 S/F	0715.6	0716.0	1.9	6.0			
	9100	GORK	1 S	0715.6	0716.1	1.7	7.3			
	5900	KISV	2 S/F	0715.6	0716.1	3.0	10.0			
	810	KRAK	8 S	0858.5	0858.5	0.1	8.0			
	33	UPIC	3 S	0858.5	0858.7	0.4				
	410	LEAR	8 S	0901.0E	0901.0	1.00	43.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0901.0E	0901.0	1.00	440.0			QL=1 ST=2 TYP=3
810	KRAK	8 S	0901.8	0901.8	0.1	9.0				
33	UPIC	8 S	0901.9	0902.1	0.5					

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

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 <sup>-22</sup> W/m <sup>2</sup> Hz)	Flux Density Mean	Int	Remarks
10	245	SVTO	49 GB	0902.0E	0902.0	U	530.0			QL=1 ST=3 TYP=6
		204	IZMI	8 S	0902.0	0902.1	0.2	600.0	550.0	
	536	ONDR	42 SER	1044.4	1044.7	15.5	23.0			QL=1 ST=2 TYP=3
		204	IZMI	5 S	1058.5	1058.7	0.3	70.0	35.0	
	536	ONDR	42 SER	1213.0	1222.0	75.0	31.0			
	2800	OTTA	22 GRF	1810.0	1855.0	110.0	5.1	2.0		
	2695	PENT	24 R	2120.0	2440.0	280.0	30.7	15.0		
	8800	SGMR	8 S	2234.0E	2234.0	1.0D	100.0			
11	100	GORK	43 NS	0704.0		235.0D		5.0		V=1
		127	TORN	43 NS	0756.0		410.0		14.0	
	650	GORK	20 GRF	0454.0	0516.6	108.3	9.0			
	260	ONDR	41 F	0633.0E		0810.0	540.0D	11.0		
	9100	GORK	20 GRF	0751.3	0835.1	144.0	5.5			
	2950	GORK	22 GRF	0752.9	0759.9	56.0	8.5			
		5900	KISV	22 GRF	0754.5	0759.6	13.4	6.0		
	3100	CRIM	21 GRF	0756.0	0759.8	14.0	4.0	1.0		
	3100	CRIM	1 S	0759.8	0759.9	0.2	4.4	0.5		
	204	IZMI	4 S/F	0818.0	0818.3	0.4	60.0	30.0		
	2950	GORK	20 GRF	0854.8	0904.0	27.0	3.0			
	536	ONDR	42 SER	1013.0	1025.9	80.0	32.0			
		810	KRAK	8 S	1023.0	1023.1	0.4	8.0		
536	ONDR	42 SER	1408.4	1408.7	7.0	124.0				
12	200	GORK	44 NS	0318.0E		180.0D		5.0		V=0
		127	TORN	43 NS	0754.0		464.0		7.0	
	245	SGMR	44 NS	1813.0E	1837.0	63.0D	72.0			QL=1 ST=2 TYP=1
	15000	KISV	22 GRF	0559.9	0612.4	27.3	10.0			
		9300	KISV	22 GRF	0601.8	0612.3	39.6	9.0		
	2950	GORK	21 GRF	0603.0E	0757.0	330.0D	12.8			
	5900	KISV	23 GRF	0603.0	0612.3	40.7	8.0			
	950	GORK	45 C	0603.7	0605.0	7.1	5.0			
	950	GORK	45 C	0603.7	0606.8		7.0			
	3013	IZMI	5 S	0604.0	0604.8	1.0	6.0	3.0		
	5900	KISV	2 S/F	0604.1	0604.6	1.2	3.0			
	2950	GORK	2 S/F	0604.1	0604.7	1.9	4.2	2.1		
	260	ONDR	41 F	0630.0E	1507.6	550.0D	98.0			
	9100	GORK	20 GRF	0656.3E	0751.8	139.0D	8.2			
	5900	KISV	2 S/F	0741.9	0742.2	0.8	3.0			
	200	GORK	8 S	0811.6	0812.1	1.1	22.0			
		100	GORK	41 F	0811.9	0812.2	3.5	300.0		
		100	GORK	41 F	0811.9	0815.3		230.0		
		3013	IZMI	41 F	1136.0	1137.5	7.0	21.0		
3013		IZMI	41 F	1150.0	1158.8	9.0	25.0			
810	KRAK	41 F	1237.0	1237.2	3.3	20.0	4.0			
13	221	ABST	43 HS	0600.0		180.0		8.0		V=0
		204	IZMI	43 NS	0600.0		360.0	20.0		
	260	ONDR	44 NS	0620.0E	0642.4	560.0D	210.0			
	430	KRAK	44 NS	0658.5E	1117.0	346.5D	54.0	7.0		
	127	TORN	43 NS	0750.0		360.0		5.0		
	245	SGMR	44 NS	1152.0E	1354.0	669.0D	140.0			QL=1 ST=2 TYP=1
	245	SVTO	44 NS	1357.0E	1629.0	188.0D	96.0			QL=1 ST=2 TYP=1
	200	HIRA	44 NS	2007.0E	0123.0	780.0D	40.0	17.0		WL
	245	LEAR	43 NS	2307.0	0742.0	649.0	300.0			QL=1 ST=2 TYP=1
	245	PALE	44 NS	2319.0E	0133.0	315.0D	250.0			QL=1 ST=2 TYP=1
	500	HIRA	27 RF	0134.5	0154.0	77.0	4.0	2.0		O
	245	LEAR	8 S	0602.0E	0602.0	U	130.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0614.0E	0614.0	2.0D	190.0			QL=1 ST=2 TYP=3
	2950	GORK	1 S	0616.3	0616.7	1.6	1.8			
	410	LEAR	8 S	0621.0E	0622.0	1.0D	130.0			QL=1 ST=2 TYP=3
	245	LEAR	49 GB	0621.0E	0622.0	1.0D	720.0			QL=1 ST=2 TYP=6
	245	SVTO	49 GB	0622.0E	0622.0	U	890.0			QL=1 ST=2 TYP=6
	410	SVTO	8 S	0622.0E	0622.0	U	250.0			QL=1 ST=2 TYP=3
	204	IZMI	5 S	0622.0	0622.3	0.7	350.0	250.0		
	2950	GORK	1 S	0623.8	0625.0	2.8	2.4	1.2		
	200	HIRA	8 S	0641.8	0642.0	0.3	280.0			O
410	LEAR	8 S	0642.0E	0642.0	U	250.0			QL=1 ST=2 TYP=3	
245	LEAR	49 GB	0642.0E	0642.0	U	880.0			QL=1 ST=2 TYP=6	

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

37  
Apr 89

APRIL 1989

Day	Freq Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
						Peak	Mean		
						(10 -22 W/m <sup>2</sup> Hz)			
13	410 SVTO	8 S	0642.0E	0642.0	1.0D	430.0			QL=1 ST=2 TYP=3
	245 SVTO	49 GB	0642.0E	0642.0	1.0D	1000.0			QL=1 ST=2 TYP=6
	500 HIRA	8 S	0642.0	0642.3	0.7	1400.0			0
	600 HUMN	4 S/F	0642.0	0642.4	1.0	36.0	10.0		
	204 IZMI	5 S	0642.1	0642.4	0.6	330.0	200.0		
	234 POTS	8 S	0642.2	0642.3	0.6	150.0	50.0		
	3100 CRIM	1 S	0914.0	0914.6	1.0	4.3	1.0		
	810 KRAK	41 F	0914.4	0918.2	4.2	8.0	2.0		
	245 SVTO	8 S	1009.0E	1010.0	1.0D	340.0			QL=1 ST=2 TYP=3
	600 HUMN	4 S/F	1217.5	1223.0	7.0	86.0	17.0		
	430 KRAK	2 S/F	1218.3	1218.5	3.0	14.0	4.0		
	536 ONDR	47 GB	1219.3	1222.7	7.0	124.0			
	610 SGMR	8 S	1222.0E	1222.0	1.0D	250.0			QL=1 ST=2 TYP=3
	810 KRAK	8 S	1222.0	1222.3	1.0	51.0	25.0		
	430 KRAK	4 S/F	1222.0	1223.5	3.5	78.0	31.0		
	810 KRAK	41 F	1242.5	1242.5	59.0	33.0D	2.0		
	1470 POTS	42 SER	1316.0	1316.5	6.0	5.0			
	245 SVTO	8 S	1355.0E	1355.0	U	97.0			QL=1 ST=2 TYP=3
	2800 OTTA	20 GRF	1450.0	1522.0	150.0	4.8	2.0		
	2800 OTTA	22 GRF	2045.0	2134.5	380.0D	34.1	13.0		
500 HIRA	27 RF	2252.0	2306.0	73.0	27.0	16.0		0	
14	200 GORK	44 NS	0327.0E		180.0D		5.0		
	245 SVTO	44 NS	0432.0E	0506.0	283.0D	280.0			QL=1 ST=2 TYP=1
	221 ABST	43 NS	0500.0		240.0		20.0		
	204 IZMI	43 NS	0600.0		190.0	50.0			
	260 ONDR	44 NS	0620.0E	0746.4	560.0D	153.0			
	245 SGMR	44 NS	1604.0E	1747.0	186.0D	230.0			QL=1 ST=2 TYP=1
	200 HIRA	46 C	0010.6	0011.0	1.3	775.0			0
	245 PALE	8 S	0121.0E	0122.0	2.0D	170.0			QL=1 ST=2 TYP=3
	245 LEAR	8 S	0615.0E	0615.0	1.0D	190.0			QL=1 ST=2 TYP=3
	2950 GORK	20 GRF	0657.0	1123.0	300.0D	8.6			
	810 KRAK	41 F	0710.0	0710.5	2.5	20.0	5.0		
	245 LEAR	8 S	0739.0E	0740.0	1.0D	150.0			QL=1 ST=2 TYP=3
	245 SVTO	8 S	0743.0E	0743.0	1.0D	410.0			QL=1 ST=2 TYP=3
	245 SVTO	8 S	0744.0E	0744.0	U	480.0			QL=1 ST=2 TYP=3
	9100 GORK	20 GRF	0821.0	0856.4	87.0	8.4			
	810 KRAK	8 S	0823.5	0823.5	0.5	15.0			
	204 IZMI	5 S	0847.8	0848.0	0.5	280.0	140.0		
	536 ONDR	8 S	0943.8	0944.2	1.0	83.0			
	536 ONDR	42 SER	1037.6	1041.0	5.0	30.0			
	245 SVTO	8 S	1038.0E	1038.0	U	87.0			QL=1 ST=2 TYP=3
245 SGMR	8 S	1216.0E	1216.0	U	79.0			QL=1 ST=2 TYP=3	
245 SVTO	8 S	1216.0E	1217.0	1.0D	68.0			QL=1 ST=2 TYP=3	
245 SVTO	8 S	1639.0E	1639.0	U	210.0			QL=1 ST=2 TYP=3	
245 SGMR	4 S/F	1709.0E	1710.0	4.0D	320.0			QL=1 ST=2 TYP=3	
15	204 IZMI	43 NS	0600.0		360.0	60.0			
	260 ONDR	44 NS	0620.0E	1009.1	560.0D	232.0			
	127 TORN	43 NS	0820.0		440.0		7.0		V=1
	245 SVTO	43 NS	0828.0	0932.0	518.0D	130.0			QL=1 ST=2 TYP=1
	245 SGMR	44 NS	1105.0E	1715.0	718.0D	370.0			QL=1 ST=2 TYP=1
	245 PALE	44 NS	1642.0E	1916.0	497.0D	240.0			QL=1 ST=2 TYP=1
	200 HIRA	44 NS	2007.0E		240.0D		12.0		WL
	2950 GORK	20 GRF	0528.2	0754.0	283.0	5.7			
	100 GORK	4 S/F	0609.0	0610.7	2.9	30.0D			
	3013 IZMI	5 S	0859.0	0859.3	1.0	12.0	6.0		
	245 LEAR	8 S	0932.0E	0932.0	U	100.0			QL=1 ST=2 TYP=3
	245 LEAR	8 S	0937.0E	0938.0	1.0D	76.0			QL=1 ST=2 TYP=3
	430 KRAK	42 SER	0949.3	0950.4	3.7	15.0			
	536 ONDR	41 F	0949.5	0951.7	30.0	31.0			
	536 ONDR	7 C	1300.0	1304.4	10.0	133.0			
	430 KRAK	45 C	1301.0	1301.2	1.0D	100.0D			
	410 SGMR	49 GB	1304.0E	1304.0	U	1400.0			QL=1 ST=3 TYP=6
	410 SVTO	8 S	1304.0E	1304.0	1.0D	440.0			QL=1 ST=2 TYP=3
	600 HUMN	2 S/F	1304.0	1304.4	1.5	54.0	8.0		
	600 HUMN	2 S/F	1449.4	1449.8	2.5	4.0	2.0		
600 HUMN	2 S/F	1519.0	1522.0	8.0	11.0	3.0			
600 HUMN	41 F	1551.5	1555.5	5.0	42.0	2.0			

38  
Apr 89

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

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 <sup>-22</sup> W/m <sup>2</sup> Hz)	Mean (2 Hz)		
15	245	PALE	8 S	1718.0E	1719.0	1.0D	170.0			QL=1 ST=2 TYP=3
	245	PALE	8 S	1751.0E	1751.0	1.0D	280.0			QL=1 ST=2 TYP=3
	245	PALE	49 GB	1827.0E	1827.0	1.0D	600.0			QL=1 ST=2 TYP=6
	245	SGMR	49 GB	1827.0E	1827.0	U	820.0			QL=1 ST=2 TYP=6
	245	PALE	8 S	1851.0E	1851.0	1.0D	180.0			QL=1 ST=2 TYP=3
16	200	GORK	44 NS	0318.0E		180.0D		5.0		
	221	ABST	43 NS	0500.0		240.0		13.0		
	100	GORK	43 NS	0548.0		280.0D		5.0		
	204	IZMI	43 NS	0600.0			60.0			
	260	ONDR	44 NS	0630.0E		550.0D				
	430	KRAK	44 NS	0718.0E	1254.8	364.0D	57.0	2.0		
	127	TORN	43 NS	0820.0		440.0		45.0		V=2
	245	SGMR	44 NS	1034.0E	2122.0	751.0D	820.0			QL=1 ST=2 TYP=1
	245	SVTO	44 NS	1308.0E	1544.0	240.0D	280.0			QL=1 ST=2 TYP=1
	600	HUMN	43 NS	1412.0	1516.0	230.0D	12.0			
	245	PALE	43 NS	1642.0	0058.0	686.0D	740.0			QL=1 ST=2 TYP=1
	410	PALE	44 NS	1817.0E	0038.0	567.0D	240.0			QL=1 ST=2 TYP=1
	410	SGMR	44 NS	1824.0E	1824.0	336.0D	62.0			QL=1 ST=3 TYP=1
	410	SGMR	44 NS	1826.0E	1824.0	334.0D	62.0			QL=1 ST=3 TYP=1
	500	HIRA	44 NS	2000.0E	2115.0	620.0D	80.0	30.0		MR
	100	HIRA	44 NS	2000.0E	2043.0	780.0D	320.0	85.0		
	200	HIRA	44 NS	2000.0E	2300.0	780.0D	490.0	215.0		SR
	410	LEAR	44 NS	2313.0E	0038.0	188.0D	170.0			QL=1 ST=2 TYP=1
	245	LEAR	44 NS	2313.0E	0004.0	640.0D	790.0			QL=1 ST=2 TYP=1
	200	HIRA	42 SER	0322.4	0323.5	18.5	187.0			O
	245	LEAR	8 S	0323.0E	0323.0	1.0D	120.0			QL=1 ST=2 TYP=3
	245	PALE	8 S	0323.0E	0323.0	1.0D	150.0			QL=1 ST=2 TYP=3
	650	GORK	41 F	0344.3	0346.1	21.7	9.0			
	650	GORK	41 F	0344.3	0405.4		222.0			
	650	GORK	41 F	0344.3	0351.4		37.0			
	9100	GORK	21 GRF	0345.6	0355.9	216.0	8.0			
	2950	GORK	4 S/F	0349.6	0351.1	5.7	17.4			
	9100	GORK	2 S/F	0349.7	0352.2	5.8	29.0			
	950	GORK	2 S/F	0349.7	0352.5	5.8	3.5			
	500	HIRA	46 C	0350.5	0351.3	1.5	54.0			O
	245	LEAR	8 S	0443.0E	0443.0	U	140.0			QL=1 ST=2 TYP=3
	410	LEAR	8 S	0443.0E	0443.0	U	25.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	0443.0E	0443.0	1.0D	160.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0540.0E	0541.0	1.0D	87.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	0541.0E	0541.0	1.0D	100.0			QL=1 ST=2 TYP=3
	100	GORK	41 F	0623.5	0638.2	32.7	460.0			
	100	GORK	41 F	0623.5	0655.8		40.0D			
	204	IZMI	5 S	0631.4	0632.0	1.0	180.0	100.0		
	245	LEAR	4 S/F	0740.0E	0742.0	3.0D	91.0			QL=1 ST=2 TYP=3
	536	ONDR	41 F	0740.0E	0942.6	520.0D	162.0			
204	IZMI	41 F	0742.0	0743.0	1.0	250.0				
810	KRAK	8 S	0801.2	0801.2	0.5	27.0				
810	KRAK	8 S	0845.8	0845.8	0.4	18.0				
5900	KISV	2 S/F	0852.3	0855.6	5.5	3.0				
410	LEAR	8 S	0855.0E	0855.0	U	150.0			QL=1 ST=2 TYP=3	
245	LEAR	8 S	0855.0E	0855.0	U	54.0			QL=1 ST=2 TYP=3	
410	SVTO	8 S	0855.0E	0856.0	1.0D	190.0			QL=1 ST=2 TYP=3	
204	IZMI	41 F	0855.0	0855.7	1.0	310.0				
100	GORK	8 S	0855.1	0855.4	1.0	30.0D				
245	LEAR	8 S	0901.0E	0902.0	1.0D	72.0			QL=1 ST=2 TYP=3	
650	GORK	4 S/F	0940.7	0942.2	4.3	160.0				
610	LEAR	8 S	0941.0E	0942.0	2.0D	82.0			QL=1 ST=2 TYP=3	
410	LEAR	4 S/F	0941.0E	0942.0	4.0D	160.0			QL=1 ST=2 TYP=3	
3100	CRIM	3 S	0941.3	0943.0	6.0	78.0	26.0			
950	GORK	46 C	0941.4	0943.0		24.0				
5900	KISV	4 S/F	0941.4	0943.0	3.7	78.0				
5900	KISV	29 PBI	0941.4	0945.1	29.6	7.0				
9300	KISV	45 C	0941.4	0942.3		62.0				
950	GORK	46 C	0941.4	0942.5	3.8	18.0				
9300	KISV	29 PBI	0941.4	0945.7	36.0	9.0				
9300	KISV	45 C	0941.4	0942.8	4.3	68.0				
9100	GORK	4 S/F	0941.4	0942.9	7.7	55.0				
15000	KISV	45 C	0941.5	0943.0		35.0				

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

39  
Apr 89

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 -22 W/m 2 Hz)	Mean		
16	430	KRAK	45 C	0941.5	0942.0	1.5	115.00	70.00		
	430	KRAK	45 C	0941.5	0943.5U		115.00			
	15000	KISV	45 C	0941.5	0942.7	3.3	41.0			
	3000	POTS	4 S/F	0941.5	0942.8	8.5	55.0			
	9500	POTS	4 S/F	0941.5	0942.8	12.0	42.0			
	15000	KISV	29 PBI	0941.5	0944.8	35.0	15.0			
	600	HUMN	4 S/F	0941.6	0943.0	4.0	57.0	11.0		
	2950	GORK	4 S/F	0941.7	0942.9	3.8	52.0			
	1470	POTS	3 S	0941.8	0943.0	7.2	36.0			
	3013	IZMI	5 S	0942.0	0943.0	3.0	46.0	35.0		
	2695	LEAR	8 S	0942.0E	0943.0	1.00	58.0			QL=1 ST=2 TYP=3
	1415	LEAR	8 S	0942.0E	0942.0	1.00	33.0			QL=1 ST=2 TYP=3
	810	KRAK	45 C	0942.0	0942.2	2.0	165.00	50.0		
	810	KRAK	45 C	0942.0	0942.7		165.00			
	410	SVTO	8 S	0943.0E	0943.0	U	110.0			QL=1 ST=2 TYP=3
	4995	SVTO	8 S	0943.0E	0943.0	U	60.0			QL=1 ST=2 TYP=3
	2695	SVTO	8 S	0943.0E	0943.0	U	53.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	1027.0E	1027.0	1.00	140.0			QL=1 ST=2 TYP=3
	15000	KISV	2 S/F	1051.3	1051.8	4.7	8.0			
	410	SGMR	8 S	1216.0E	1216.0	1.00	98.0			QL=1 ST=2 TYP=3
	410	SVTO	8 S	1217.0E	1217.0	U	180.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	1252.0E	1253.0	2.00	90.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	1255.0E	1255.0	U	150.0			QL=1 ST=2 TYP=3
	810	KRAK	8 S	1304.3	1304.3	0.5U	40.0			
	410	SGMR	8 S	1441.0E	1441.0	1.00	68.0			QL=1 ST=2 TYP=3
	410	PALE	8 S	1925.0E	1925.0	U	130.0			QL=1 ST=2 TYP=3
	245	PALE	8 S	2010.0E	2010.0	U	410.0			QL=1 ST=3 TYP=3
	245	PALE	4 S/F	2042.0E	2042.0	3.00	340.0			QL=1 ST=2 TYP=5
	245	PALE	8 S	2059.0E	2100.0	2.00	450.0			QL=1 ST=2 TYP=3
	245	PALE	49 GB	2121.0E	2122.0	1.00	550.0			QL=1 ST=2 TYP=6
	245	PALE	49 GB	2126.0E	2131.0	9.00	1700.0			QL=1 ST=2 TYP=7
245	SGMR	49 GB	2131.0E	2131.0	1.00	1900.0			QL=1 ST=2 TYP=6	
245	PALE	8 S	2146.0E	2146.0	U	350.0			QL=1 ST=3 TYP=3	
245	PALE	8 S	2333.0E	2334.0	1.00	490.0			QL=1 ST=2 TYP=3	
17	200	GORK	44 NS	0327.0E		250.00		15.0		
	100	GORK	43 NS	0327.0		513.0		5.0		
	245	SVTO	44 NS	0428.0E	0438.0	760.00	300.0			QL=1 ST=2 TYP=1
	221	ABST	43 NS	0600.0		180.0		26.0		
	204	IZMI	43 NS	0600.0		360.0	150.0			
	127	TORN	44 NS	0620.0E		560.00		180.0		V=1
	260	ONDR	44 NS	0620.0E		570.00				
	430	KRAK	44 NS	0726.5E	1245.5	369.00	43.0	6.0		
	245	SGMR	44 NS	1020.0E	1629.0	766.00	610.0			QL=1 ST=2 TYP=1
	245	PALE	44 NS	1642.0E	1716.0	438.00	120.0			QL=1 ST=3 TYP=1
	200	HIRA	44 NS	2000.0E	0100.0	780.00	240.0	86.0		SL
	100	HIRA	44 NS	2000.0E	2107.0	780.00	580.0	89.0		SL
	245	PALE	49 GB	0004.0E	0004.0	U	870.0			QL=1 ST=3 TYP=6
	410	LEAR	8 S	0327.0E	0327.0	U	290.0			QL=1 ST=2 TYP=3
	610	LEAR	8 S	0327.0E	0327.0	1.00	22.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0327.0E	0327.0	1.00	180.0			QL=1 ST=2 TYP=3
	245	PALE	8 S	0327.0E	0327.0	U	310.0			QL=1 ST=2 TYP=3
	410	PALE	8 S	0327.0E	0327.0	U	470.0			QL=1 ST=2 TYP=3
	500	HIRA	41 F	0328.0	0330.0	3.5	74.0			0
	410	LEAR	8 S	0329.0E	0330.0	2.00	460.0			QL=1 ST=2 TYP=3
	610	LEAR	8 S	0329.0E	0330.0	2.00	67.0			QL=1 ST=2 TYP=3
	245	LEAR	4 S/F	0329.0E	0330.0	3.00	240.0			QL=1 ST=2 TYP=3
	610	PALE	8 S	0329.0E	0330.0	1.00	64.0			QL=1 ST=2 TYP=3
	650	GORK	23 GRF	0329.0E	0344.7	294.40	26.0			
	650	GORK	4 S/F	0329.9	0330.1	1.7	150.0			
	1415	LEAR	8 S	0330.0E	0330.0	1.00	23.0			QL=1 ST=2 TYP=3
	410	PALE	8 S	0330.0E	0330.0	U	210.0			QL=1 ST=2 TYP=3
245	PALE	8 S	0330.0E	0330.0	1.00	340.0			QL=1 ST=2 TYP=3	
410	LEAR	8 S	0449.0E	0450.0	1.00	350.0			QL=1 ST=2 TYP=3	
410	SVTO	8 S	0450.0E	0450.0	1.00	310.0			QL=1 ST=2 TYP=3	
221	ABST	41 F	0510.0	0520.5	15.0	40.0				
245	SVTO	8 S	0545.0E	0545.0		300.0			QL=1 ST=2 TYP=3	
810	KRAK	8 S	0734.3	0734.5	0.5	11.0				
810	KRAK	8 S	1035.7	1035.7	0.4	11.0				



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

APRIL 1989

Day	Freq Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
						Peak (10 -22 W/m 2 Hz)	Mean		
17	536 ONDR	42 SER	1041.0	1053.3	30.0	58.0			
	810 KRAK	8 S	1200.4	1200.4	0.4	11.0			
	810 KRAK	8 S	1256.0	1256.0	0.2	12.0			
	810 KRAK	8 S	1258.8	1258.8	0.2	14.0			
	810 KRAK	8 S	1308.0	1308.0	0.4	13.0			
	536 ONDR	8 S	1453.8	1454.2	0.7	75.0			
	245 PALE	8 S	1911.0E	1911.0	U	240.0			QL=1 ST=3 TYP=3
	245 PALE	49 GB	2035.0E	2035.0	U	580.0			QL=1 ST=3 TYP=6
	245 SGMR	49 GB	2035.0E	2035.0	U	600.0			QL=1 ST=3 TYP=6
245 SGMR	8 S	2058.0E	2058.0	1.0D	410.0			QL=1 ST=2 TYP=3	
18	245 LEAR	44 NS	0006.0E	0033.0	586.0D	300.0			QL=1 ST=2 TYP=1
	200 GORK	44 NS	0330.0E		200.0D		10.0		
	100 GORK	43 NS	0330.0		510.0		10.0		
	245 SVTO	44 NS	0427.0E	1022.0	763.0D	420.0			QL=1 ST=2 TYP=1
	221 ABST	43 NS	0500.0		240.0		22.0		
	204 IZMI	43 NS	0600.0		360.0		100.0		
	127 TORN	44 NS	0620.0E		560.0D		270.0		V=1
	260 ONDR	44 NS	0620.0E		570.0D				
	430 KRAK	44 NS	0721.0E	1109.0	368.0D	88.0	7.0		
	245 SGMR	44 NS	1019.0E	1120.0	441.0D	540.0			QL=1 ST=2 TYP=1
	245 SGMR	44 NS	1837.0E	1850.0	270.0D	170.0			QL=1 ST=2 TYP=1
	200 HIRA	44 NS	2000.0E	0611.0	780.0D	150.0	31.0		SL
	245 PALE	44 NS	2048.0E	2049.0	192.0D	130.0			QL=1 ST=3 TYP=1
	245 LEAR	44 NS	2255.0E	0617.0	656.0D	680.0			QL=1 ST=2 TYP=1
	2695 PENT	4 S/F	0010.0	0019.0	45.0	31.2	9.0		
	245 LEAR	8 S	0019.0E	0019.0	U	190.0			QL=1 ST=2 TYP=3
	410 LEAR	8 S	0137.0E	0137.0	U	62.0			QL=1 ST=2 TYP=3
	410 LEAR	8 S	0140.0E	0140.0	U	62.0			QL=1 ST=2 TYP=3
	5900 KISV	23 GRF	0627.3	0638.9	62.8	9.0			
	5900 KISV	2 S/F	0628.1	0629.0	3.3	7.0			
	2950 GORK	1 S	0628.5	0629.0	1.2	3.9			
	100 GORK	4 S/F	0633.6	0639.1	14.0	30.0D			
	100 GORK	46 C	0746.3	0747.0	7.7	600.0			
	100 GORK	46 C	0746.3	0748.3		480.0			
	810 KRAK	8 S	0833.5	0833.5	0.3	9.0			
	245 SVTO	8 S	0837.0E	0837.0	U	190.0			QL=1 ST=2 TYP=3
	810 KRAK	8 S	0845.0	0845.0	0.3	11.0			
	100 GORK	41 F	1043.3	1052.0		600.0			
	100 GORK	41 F	1043.3	1058.3		1200.0			
	100 GORK	41 F	1043.3	1044.5	22.0	360.0			
	3100 CRIM	20 GRF	1059.0	1112.0	81.0	11.8	4.0		
	536 ONDR	41 F	1111.5	1113.0	18.0	73.0			
536 ONDR	40 F	1451.0	1451.8	1.3	36.0				
245 PALE	8 S	1849.0E	1849.0	2.0D	130.0			QL=1 ST=2 TYP=3	
245 PALE	8 S	2100.0E	2100.0	U	350.0			QL=1 ST=2 TYP=3	
245 SGMR	8 S	2100.0E	2100.0	U	380.0			QL=1 ST=3 TYP=3	
245 SGMR	8 S	2126.0E	2126.0	U	180.0			QL=1 ST=2 TYP=3	
410 PALE	8 S	2159.0E	2159.0	1.0D	240.0			QL=1 ST=2 TYP=3	
245 PALE	8 S	2159.0E	2159.0	1.0D	130.0			QL=1 ST=2 TYP=3	
19	200 GORK	44 NS	0330.0E		200.0D		10.0		
	245 SVTO	44 NS	0433.0E	0433.0	1167.0D	53.0			QL=1 ST=3 TYP=1
	221 ABST	43 NS	0500.0		240.0		21.0		
	100 GORK	43 NS	0509.0		411.0		10.0		
	100 HIRA	43 NS	0512.0	0642.0	198.0D	120.0	30.0		
	600 HUMN	43 NS	0515.0	0602.0	130.0	8.0			
	410 SVTO	44 NS	0558.0E	0601.0	141.0D	72.0			QL=1 ST=2 TYP=1
	410 LEAR	43 NS	0558.0	0614.0	233.0	66.0			QL=1 ST=2 TYP=1
	204 IZMI	43 NS	0600.0		360.0	100.0			
	127 TORN	44 NS	0620.0E		560.0D		30.0		V=2
	260 ONDR	44 NS	0620.0E		580.0D				
	430 KRAK	44 NS	0720.0E	0808.2	340.0D	43.0	6.0		
	245 SGMR	43 NS	1017.0	1059.0	631.0D	210.0			QL=1 ST=2 TYP=1
	245 PALE	44 NS	1644.0E	2200.0	449.0D	130.0			QL=1 ST=2 TYP=1
	200 HIRA	44 NS	2000.0E	2325.0	780.0D	8.0	4.0		WL
	245 LEAR	44 NS	2255.0E	0617.0	656.0D	680.0			QL=1 ST=2 TYP=1
	4995 LEAR	4 S/F	0027.0E	0028.0	3.0D	80.0			QL=1 ST=2 TYP=3
	2695 LEAR	8 S	0028.0E	0028.0	1.0D	35.0			QL=1 ST=2 TYP=3

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

41  
Apr 89

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks	
							Peak (10 <sup>-22</sup> W/m <sup>2</sup> Hz)	Mean			
19	8800	LEAR	8 S	0028.0E	0028.0	1.0D	29.0			QL=1 ST=2 TYP=3	
	410	LEAR	8 S	0238.0E	0238.0	U	60.0			QL=1 ST=2 TYP=3	
	200	HIRA	46 C	0251.7	0253.0		85.0			MR	
	9100	GORK	20 GRF	0415.4	0421.6	30.2	13.0				
	2950	GORK	4 S/F	0418.9	0421.6	3.5	38.0				
	245	LEAR	8 S	0428.0E	0428.0	1.0D	89.0			QL=1 ST=2 TYP=3	
	245	PALE	8 S	0428.0E	0428.0	1.0D	110.0			QL=1 ST=2 TYP=3	
	245	SVTO	8 S	0429.0E	0429.0	U	110.0			QL=1 ST=2 TYP=3	
	500	HIRA	23 GRF	0510.0	0602.0	160.0	33.0	10.0			WL
	650	GORK	22 GRF	0512.4	0601.9	131.6	12.0				
	245	LEAR	8 S	0515.0E	0516.0	2.0D	100.0				QL=1 ST=3 TYP=3
	9100	GORK	20 GRF	0534.9	0540.4	36.4	7.4				
	2950	GORK	20 GRF	0536.7	0541.0	18.2	5.7				
	245	LEAR	8 S	0655.0E	0655.0	2.0D	230.0				QL=1 ST=2 TYP=3
	245	SVTO	8 S	0655.0E	0656.0	2.0D	270.0				QL=1 ST=2 TYP=3
	245	LEAR	4 S/F	0700.0E	0701.0	5.0D	260.0				QL=1 ST=2 TYP=3
	245	LEAR	8 S	0824.0E	0824.0	1.0D	230.0				QL=1 ST=2 TYP=3
	245	SVTO	8 S	0825.0E	0825.0	1.0D	220.0				QL=1 ST=2 TYP=3
	245	SVTO	49 GB	0910.0E	0910.0	1.0D	570.0				QL=1 ST=2 TYP=6
	100	GORK	41 F	0940.0	1034.2		35.0D				
	100	GORK	41 F	0940.0	1040.7		115.0				
	100	GORK	41 F	0940.0	0957.7	75.0	35.0D				
	100	GORK	41 F	0940.0	1051.8		340.0				
	536	ONDR	41 F	1000.0	1150.4	200.0	76.0				
	245	SVTO	8 S	1038.0E	1038.0	1.0D	230.0				QL=1 ST=2 TYP=3
	810	KRAK	8 S	1039.5	1039.5	0.2	6.0				
	650	GORK	22 GRF	1041.1	1048.9	16.3	4.5				
	950	GORK	40 F	1047.7	1049.0	11.4	1.5				
	810	KRAK	8 S	1050.2	1050.3	0.2	6.0				
	810	KRAK	8 S	1139.7	1139.7	0.2	12.0				
	245	SGMR	8 S	1140.0E	1140.0	U	240.0				QL=1 ST=3 TYP=3
	245	SGMR	8 S	1200.0E	1200.0	1.0D	300.0				QL=1 ST=3 TYP=3
	245	SVTO	8 S	1201.0E	1201.0	U	280.0				QL=1 ST=2 TYP=3
	245	SGMR	8 S	1324.0E	1324.0	U	350.0				QL=1 ST=2 TYP=3
	245	SVTO	8 S	1324.0E	1324.0	1.0D	310.0				QL=1 ST=2 TYP=3
	536	ONDR	41 F	1411.0	1455.6	46.0	103.0				
	600	HUMN	3 S	1455.5	1457.0	1.5	50.0	20.0			
	610	SGMR	8 S	1510.0E	1511.0	1.0D	130.0				QL=1 ST=2 TYP=3
	600	HUMN	8 S	1510.5	1510.6	0.3	65.0	30.0			
	600	HUMN	4 S/F	1526.5	1527.5	1.2	15.0	4.0			
245	PALE	8 S	1646.0E	1647.0	1.0D	80.0				QL=1 ST=2 TYP=3	
245	PALE	49 GB	2112.0E	2113.0	1.0D	580.0				QL=1 ST=2 TYP=6	
245	SGMR	49 GB	2112.0E	2113.0	1.0D	520.0				QL=1 ST=2 TYP=6	
245	SGMR	8 S	2200.0E	2200.0	U	140.0				QL=1 ST=2 TYP=3	
245	LEAR	8 S	2255.0E	2255.0	1.0D	59.0				QL=1 ST=2 TYP=3	
20	200	GORK	44 NS	0324.0E		200.0D		10.0			
	221	ABST	43 NS	0500.0		240.0		17.0			
	204	IZMI	43 NS	0600.0		360.0	10.0				
	260	ONDR	44 NS	0620.0E	1306.6	580.0D	29.0				
	430	KRAK	44 NS	0701.0E	0733.5	386.0D	20.0				
	127	TORN	44 NS	0956.0E		344.0D		14.0			V=1
	245	SVTO	44 NS	1255.0E	1303.0	665.0D	100.0				QL=1 ST=1 TYP=1
	234	POTS	43 NS	1342.0	1454.0	76.0D	11.0				
	200	HIRA	44 NS	2000.0E	2040.0	780.0D	23.0		6.0		WL
	245	LEAR	8 S	0002.0E	0002.0	2.0D	59.0				QL=1 ST=2 TYP=3
	650	GORK	20 GRF	0324.0E	0330.5	22.0D	4.0				
	9100	GORK	1 S	0453.1	0455.1	5.2	7.8				
	5900	KISV	2 S/F	0454.5	0455.0	3.0	3.0				
	9300	KISV	2 S/F	0454.5	0454.9	2.2	6.0				
	2950	GORK	21 GRF	0504.3	0536.0	245.0	9.7				
	5900	KISV	46 C	0518.4	0521.0		27.0				
	5900	KISV	46 C	0518.4	0526.3	26.2	28.0				
	5900	KISV	46 C	0518.4	0525.4		23.0				
	4995	LEAR	20 GRF	0519.0E	0526.0	38.0D	28.0				QL=1 ST=2 TYP=2
	15000	KISV	22 GRF	0520.2	0526.3	21.6	17.0				
9100	GORK	20 GRF	0520.7	0526.6	34.0	19.6					
15000	KISV	2 S/F	0520.9	0521.0	0.6	6.0					
2950	GORK	1 S	0521.0	0521.1	1.1	13.6					

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

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 <sup>-22</sup> W/m <sup>2</sup> Hz)	Flux Density Mean	Int	Remarks
20	2950	GORK	4 S/F	0524.0	0526.7	3.3	11.7			
		5900	KISV	22 GRF	0756.6	0802.6	18.5	6.0		
		9300	KISV	22 GRF	0759.8	0805.7	34.0	8.0		
	3100	CRIM	45 C	0835.0	0835.4	3.0	21.0	15.0		
		3100	CRIM	45 C	0835.0	0836.7		45.0		
	810	KRAK	42 SER	0837.0	0846.0	83.0D	50.0			
	1470	POTS	21 GRF	0912.5	0917.5	28.0	11.0			
	9300	KISV	2 S/F	0958.2	0958.4	0.5	9.0			
	15000	KISV	45 C	0958.4	0958.5	0.4	10.0			
	100	GORK	8 S	1059.0	1059.5	0.8	40.0D			
	204	IZMI	4 S/F	1059.0	1059.6	1.0	8.0			
	5900	KISV	1 S	1148.7	1150.8	4.1	2.0			
	5900	KISV	2 S/F	1208.1	1208.8	2.5	1.0			
	245	SGMR	8 S	1213.0E	1214.0	1.0D	55.0			QL=1 ST=2 TYP=3
	2800	OTTA	3 S	1216.0	1220.0	9.0	42.6	12.0		
	9300	KISV	22 GRF	1217.0	1219.8	10.8	18.0			
	15000	KISV	45 C	1217.5	1219.4		13.0			
	15000	KISV	45 C	1217.5	1219.9	4.9	20.0			
	5900	KISV	21 GRF	1217.9	1219.9	15.0	12.0			
	3000	POTS	4 S/F	1218.0	1219.9	3.0	27.0			
	1470	POTS	4 S/F	1218.5	1220.0	4.5	133.0			
	1415	SGMR	8 S	1219.0E	1220.0	1.0D	120.0			QL=1 ST=3 TYP=3
	8800	SGMR	8 S	1219.0E	1219.0	1.0D	20.0			QL=1 ST=2 TYP=3
	15400	SGMR	8 S	1219.0E	1219.0	1.0D	23.0			QL=1 ST=2 TYP=3
	4995	SGMR	8 S	1219.0E	1220.0	1.0D	12.0			QL=1 ST=2 TYP=3
	2695	SGMR	8 S	1219.0E	1219.0	1.0D	41.0			QL=1 ST=2 TYP=3
	410	SGMR	8 S	1223.0E	1223.0	1.0D	62.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	1229.0E	1229.0	1.0D	79.0			QL=1 ST=2 TYP=3
	536	ONDR	41 F	1253.0	1306.8	122.0	25.0			
	2800	OTTA	4 S/F	1310.0	1313.5	10.0	7.1	2.0		
	3000	POTS	21 GRF	1310.0	1313.4	14.0	10.0			
	2695	SGMR	8 S	1338.0E	1338.0	U	60.0			QL=1 ST=2 TYP=3
	9500	POTS	21 GRF	1402.5	1411.8	36.0	18.0			
3000	POTS	3 S	1411.0	1412.0	4.0	16.0				
2800	OTTA	3 S	1412.5E	1412.5	15.0D	15.8	4.0			
2800	OTTA	3 S	1506.0	1513.5	12.0	7.5	2.0			
2695	SGMR	8 S	1640.0E	1640.0	U	65.0			QL=1 ST=2 TYP=3	
2800	OTTA	3 S	1816.0	1816.5	3.0	9.1	3.0			
2800	OTTA	3 S	2043.0	2045.5	11.0	9.5	3.0			
500	HIRA	8 S	2330.2	2330.3	0.3	190.0			0	
21	221	ABST	43 NS	0500.0		240.0		18.0		
	204	IZMI	43 NS	0600.0		360.0	20.0			
	260	ONDR	44 NS	0620.0E	0939.5	580.0D	165.0			
	127	TORN	43 NS	0818.0	1115.7	442.0	260.0	5.0		V=1
	245	LEAR	44 NS	0935.0E	0941.0	15.0D	170.0			QL=1 ST=2 TYP=1
	245	SGMR	43 NS	1546.0	1713.0	338.0D	100.0			QL=1 ST=3 TYP=1
	200	HIRA	44 NS	2000.0E	0000.0	270.0D	13.0	4.0		WL
	245	LEAR	8 S	0032.0E	0032.0	U	59.0			QL=1 ST=2 TYP=3
	2695	PENT	3 S	0133.0	0134.0	4.0	23.2	8.0		
	410	SVTO	4 S/F	0434.0E	0435.0	3.0D	75.0			QL=1 ST=2 TYP=5
	9100	GORK	4 S/F	0434.3	0436.0	2.5	56.0			
	650	GORK	46 C	0434.3	0435.3	4.6	100.0			
	650	GORK	46 C	0434.3	0437.4U		100.0D			
	9100	GORK	29 PBI	0434.3	0436.8	28.5	12.0			
	500	HIRA	46 C	0434.5	0435.0	4.5	235.0			0
	950	GORK	46 C	0434.6	0436.2	4.7	12.0			
	950	GORK	46 C	0434.6	0437.3		60.0			
	2950	GORK	21 GRF	0434.7	0609.0	438.0	12.2			
	610	LEAR	8 S	0435.0E	0437.0	2.0D	86.0			QL=1 ST=2 TYP=5
	1415	LEAR	8 S	0435.0E	0437.0	2.0D	22.0			QL=1 ST=2 TYP=3
	8800	LEAR	8 S	0435.0E	0436.0	2.0D	56.0			QL=1 ST=2 TYP=3
	410	LEAR	8 S	0435.0E	0435.0	U	100.0			QL=1 ST=2 TYP=3
	4995	LEAR	4 S/F	0435.0E	0436.0	3.0D	16.0			QL=1 ST=2 TYP=3
	15400	LEAR	8 S	0435.0E	0435.0	1.0D	25.0			QL=1 ST=2 TYP=3
	2950	GORK	2 S/F	0435.4	0436.7	4.0	6.4			
	9100	GORK	20 GRF	0541.7	0543.7	43.8	5.0			
2950	GORK	3 S	0542.8	0543.8	3.9	4.5				
204	IZMI	41 F	0617.0	0622.0	5.0	200.0				

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

43  
Apr 89

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak	Mean		
							(10 -22 W/m <sup>2</sup> Hz)			
21	950	GORK	2 S/F	0642.2	0642.5	0.8	5.0			
	950	GORK	2 S/F	0654.6	0655.2	0.8	11.0			
	650	GORK	8 S	0654.9	0654.9	0.1	8.0			
	245	LEAR	8 S	0800.0E	0800.0	1.0D	55.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	0800.0E	0800.0	1.0D	70.0			QL=1 ST=2 TYP=3
	33	UPIC	45 C	0800.0	0800.1	1.1				
	204	IZMI	5 S	0800.0	0800.5	0.8	620.0	500.0		
	200	HIRA	8 S	0800.1	0800.5	0.7	580.0			0
	810	KRAK	42 SER	0801.3	0853.0		37.0			
	810	KRAK	42 SER	0801.3	0835.6	125.5	127.0			
	430	KRAK	42 SER	0813.0	0816.5	12.7	32.0			
	5900	KISV	2 S/F	0911.4	0912.2	0.9	3.0			
	245	LEAR	8 S	0916.0E	0916.0	1.0D	81.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	0932.0E	0932.0	U	200.0			QL=1 ST=2 TYP=3
	5900	KISV	2 S/F	0937.1	0937.4	1.4	3.0			
	245	SVTO	8 S	0941.0E	0941.0	1.0D	270.0			QL=1 ST=2 TYP=3
	204	IZMI	41 F	0949.0	0953.5	11.0	80.0			
	5900	KISV	2 S/F	1008.5	1010.2	8.6	4.0			
	9100	GORK	22 GRF	1009.5	1029.7	31.0	6.6			
	9300	KISV	46 C	1009.5	1009.8	1.4	5.0			
	15000	KISV	22 GRF	1012.2	1020.4	12.4	9.0			
	5900	KISV	46 C	1026.7	1029.7		9.0			
	5900	KISV	46 C	1026.7	1027.9	16.2	10.0			
	9300	KISV	21 GRF	1026.9	1028.0	21.0	13.0			
	245	SGMR	8 S	1027.0E	1028.0	1.0D	93.0			QL=1 ST=2 TYP=3
	15000	KISV	45 C	1027.9	1028.2	0.3U	11.0			
	245	SVTO	8 S	1028.0E	1028.0	U	130.0			QL=1 ST=2 TYP=3
	5900	KISV	1 S	1039.2	1040.7	3.1	4.0			
	15000	KISV	2 S/F	1049.3	1050.2	1.7	10.0			
	9300	KISV	21 GRF	1054.0	1054.7	18.8	4.0			
	15000	KISV	45 C	1054.1	1054.4	0.5	8.0			
	5900	KISV	45 C	1054.3	1055.7		9.0			
	2950	GORK	3 S	1054.3	1054.8	2.1	10.2			
	5900	KISV	45 C	1054.3	1054.8	3.9	19.0			
	3013	IZMI	5 S	1054.5	1055.0	1.0	5.0	3.0		
	245	SGMR	8 S	1100.0E	1100.0	U	56.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	1136.0E	1136.0	U	440.0			QL=1 ST=2 TYP=3
	810	KRAK	8 S	1144.3	1144.5	0.5	15.0			
	5900	KISV	2 S/F	1242.8	1244.1	4.7	4.0			
	9300	KISV	2 S/F	1243.9	1244.1	0.5	5.0			
	810	KRAK	8 S	1310.8	1311.0	0.5	12.0			
	245	SGMR	8 S	1338.0E	1339.0	1.0D	130.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	1338.0E	1339.0	2.0D	90.0			QL=1 ST=2 TYP=3
	536	ONDR	41 F	1408.0	1531.6	85.0	102.0			
	1415	SGMR	8 S	1421.0E	1422.0	2.0D	220.0			QL=1 ST=3 TYP=3
	1415	SVTO	8 S	1421.0E	1422.0	1.0D	190.0			QL=1 ST=2 TYP=3
	600	HUMN	1 S	1421.4	1422.0	3.0	5.0	2.0		
	2800	OTTA	3 S	1421.5	1423.0	10.5	42.1	12.0		
	1470	POTS	4 S/F	1421.5	1422.0	8.5	216.0			
	3000	POTS	3 S	1421.5	1422.5	7.5	38.0			
9500	POTS	4 S/F	1421.5	1422.5	19.0	37.0				
4995	SGMR	8 S	1422.0E	1422.0	1.0D	46.0			QL=1 ST=3 TYP=3	
15400	SGMR	8 S	1422.0E	1422.0	U	29.0			QL=1 ST=3 TYP=3	
2695	SGMR	8 S	1422.0E	1422.0	1.0D	41.0			QL=1 ST=3 TYP=3	
8800	SGMR	8 S	1422.0E	1422.0	U	28.0			QL=1 ST=3 TYP=3	
600	HUMN	3 S	1516.5	1516.8	1.0	6.0	2.0			
600	HUMN	4 S/F	1518.5	1519.0	0.8	14.0	5.0			
245	PALE	8 S	1712.0E	1713.0	1.0D	95.0			QL=1 ST=3 TYP=3	
245	PALE	8 S	1811.0E	1811.0	1.0D	130.0			QL=1 ST=2 TYP=3	
245	SGMR	8 S	1811.0E	1811.0	1.0D	150.0			QL=1 ST=2 TYP=3	
245	PALE	8 S	1815.0E	1815.0	U	120.0			QL=1 ST=2 TYP=3	
245	SGMR	8 S	1815.0E	1815.0	1.0D	140.0			QL=1 ST=2 TYP=3	
245	PALE	8 S	1824.0E	1824.0	U	130.0			QL=1 ST=2 TYP=3	
245	SGMR	8 S	1824.0E	1824.0	U	150.0			QL=1 ST=2 TYP=3	
245	PALE	8 S	2041.0E	2042.0	1.0D	73.0			QL=1 ST=2 TYP=3	
245	SGMR	8 S	2220.0E	2220.0	U	290.0			QL=1 ST=2 TYP=3	
245	PALE	8 S	2310.0E	2310.0	1.0D	180.0			QL=1 ST=2 TYP=5	
200	HIRA	46 C	2314.2	2314.5	1.3	187.0			0	
100	HIRA	46 C	2314.2	2314.5	1.3	250.0				

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

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 <sup>-22</sup> W/m <sup>2</sup> Hz)	Mean	Int	Remarks
21	200	HIRA	46 C	2348.3	2348.6	1.1	75.0			0
	500	HIRA	46 C	2348.8	2349.6	3.1	296.0			WL
	2695	PENT	3 S	2349.0	2350.0	4.5	21.0	7.0		
	610	LEAR	8 S	2349.0E	2349.0	1.00	220.0			QL=1 ST=2 TYP=3
	1415	LEAR	8 S	2349.0E	2349.0	1.00	35.0			QL=1 ST=2 TYP=3
	2695	LEAR	8 S	2349.0E	2349.0	U	25.0			QL=1 ST=2 TYP=3
	410	LEAR	8 S	2349.0E	2349.0	1.00	160.0			QL=1 ST=2 TYP=3
	4995	LEAR	8 S	2349.0E	2349.0	U	19.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	2349.0E	2349.0	U	120.0			QL=1 ST=2 TYP=3
	410	PALE	8 S	2349.0E	2349.0	U	230.0			QL=1 ST=2 TYP=3
	610	PALE	8 S	2349.0E	2349.0	U	240.0			QL=1 ST=2 TYP=3
	245	PALE	8 S	2349.0E	2349.0	U	180.0			QL=1 ST=2 TYP=3
1415	PALE	8 S	2357.0E	2358.0	1.00	100.0			QL=1 ST=2 TYP=3	
22	200	GORK	43 NS	0339.0		480.00		5.0		
	221	ABST	43 NS	0500.0		240.0		12.0		
	260	ONDR	44 NS	0620.0E		530.00				
	127	TORN	44 NS	0940.0E		210.00				V=0
	200	HIRA	44 NS	1955.0E	0600.0	780.00	37.0	11.0		WL
	245	LEAR	8 S	0001.0E	0001.0	U	59.0			QL=1 ST=2 TYP=3
	245	PALE	49 GB	0025.0E	0026.0	1415.00	880.0			QL=1 ST=1 TYP=6
	245	LEAR	8 S	0027.0E	0027.0	1.00	71.0			QL=1 ST=2 TYP=3
	410	LEAR	8 S	0035.0E	0035.0	U	61.0			QL=1 ST=2 TYP=3
	15400	LEAR	8 S	0107.0E	0108.0	1.00	55.0			QL=1 ST=2 TYP=3
	8800	LEAR	8 S	0107.0E	0108.0	1.00	48.0			QL=1 ST=2 TYP=3
	4995	LEAR	8 S	0108.0E	0108.0	U	13.0			QL=1 ST=2 TYP=3
	8800	PALE	8 S	0108.0E	0108.0	U	56.0			QL=1 ST=2 TYP=3
	500	HIRA	46 C	0132.8	0133.2	3.0	230.0			SL
	200	HIRA	46 C	0133.0	0133.0	1.5	140.0			0
	245	LEAR	8 S	0133.0E	0133.0	1.00	54.0			QL=1 ST=2 TYP=3
	610	LEAR	8 S	0133.0E	0133.0	1.00	55.0			QL=1 ST=2 TYP=3
	1415	LEAR	8 S	0133.0E	0133.0	1.00	19.0			QL=1 ST=2 TYP=3
	410	LEAR	8 S	0133.0E	0133.0	1.00	62.0			QL=1 ST=2 TYP=3
	2695	LEAR	8 S	0133.0E	0133.0	1.00	29.0			QL=1 ST=2 TYP=3
	4995	LEAR	8 S	0133.0E	0134.0	1.00	34.0			QL=1 ST=2 TYP=3
	8800	LEAR	8 S	0133.0E	0134.0	1.00	19.0			QL=1 ST=2 TYP=3
	410	PALE	8 S	0133.0E	0133.0	1.00	65.0			QL=1 ST=2 TYP=3
	245	PALE	8 S	0133.0E	0133.0	1.00	81.0			QL=1 ST=2 TYP=3
	8800	LEAR	8 S	0248.0E	0248.0	1.00	93.0			QL=1 ST=2 TYP=3
	2695	LEAR	8 S	0248.0E	0248.0	1.00	16.0			QL=1 ST=2 TYP=3
	610	LEAR	8 S	0248.0E	0248.0	1.00	72.0			QL=1 ST=2 TYP=3
	1415	LEAR	8 S	0248.0E	0248.0	1.00	21.0			QL=1 ST=2 TYP=3
	4995	LEAR	8 S	0248.0E	0248.0	1.00	28.0			QL=1 ST=2 TYP=3
	15400	LEAR	8 S	0248.0E	0248.0	1.00	130.0			QL=1 ST=2 TYP=3
	200	HIRA	46 C	0329.7	0331.4	6.6	885.0			0
	4995	LEAR	4 S/F	0330.0E	0332.0	7.00	82.0			QL=1 ST=2 TYP=3
	410	LEAR	4 S/F	0330.0E	0331.0	3.00	55.0			QL=1 ST=2 TYP=3
	245	LEAR	4 S/F	0330.0E	0333.0	3.00	410.0			QL=1 ST=2 TYP=3
	2695	LEAR	4 S/F	0330.0E	0332.0	4.00	53.0			QL=1 ST=2 TYP=3
	245	PALE	49 GB	0330.0E	0333.0	4.00	670.0			QL=1 ST=2 TYP=6
	100	HIRA	46 C	0330.4	0331.1	2.0	910.0			0
	500	HIRA	46 C	0330.8	0331.7	6.0	215.0			SL
	8800	LEAR	8 S	0331.0E	0332.0	2.00	39.0			QL=1 ST=2 TYP=3
	1415	LEAR	4 S/F	0331.0E	0332.0	3.00	26.0			QL=1 ST=2 TYP=3
	9100	GORK	23 GRF	0331.0E	0345.4	123.00	25.0			
	9100	GORK	1 S	0331.8	0332.2	0.9	23.0			
15400	LEAR	8 S	0332.0E	0332.0	U	14.0			QL=1 ST=2 TYP=3	
2695	PALE	8 S	0332.0E	0332.0	U	55.0			QL=1 ST=2 TYP=3	
200	HIRA	27 RF	0345.5	0402.6	86.0	6.0	4.0		0	
245	PALE	8 S	0349.0E	0350.0	1.00	250.0			QL=1 ST=2 TYP=3	
245	SVTO	8 S	0422.0E	0424.0	2.00	70.0			QL=1 ST=2 TYP=3	
245	LEAR	8 S	0423.0E	0423.0	U	61.0			QL=1 ST=2 TYP=3	
9300	KISV	4 S/F	0512.3	0517.5	9.0	40.0				
15000	KISV	21 GRF	0512.6	0517.4	14.0	32.0				
5900	KISV	28 PRE	0513.1	0516.7	3.6	8.0				
2950	GORK	21 GRF	0513.5	0520.5	180.0	5.8				
650	GORK	46 C	0515.5	0517.6		27.0				
650	GORK	46 C	0515.5	0516.8	7.3	65.0				
8800	LEAR	8 S	0516.0E	0517.0	2.00	26.0			QL=1 ST=2 TYP=3	

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

45  
Apr 89

APRIL 1989

Day	Freq Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
						Peak (10 -22 W/m 2 Hz)	Mean		
22	4995 LEAR	8 S	0516.0E	0517.0	2.0D	22.0			QL=1 ST=2 TYP=3
	610 LEAR	8 S	0516.0E	0517.0	1.0D	52.0			QL=1 ST=2 TYP=3
	410 LEAR	8 S	0516.0E	0516.0	1.0D	11.0			QL=1 ST=2 TYP=3
	1415 LEAR	8 S	0516.0E	0517.0	1.0D	15.0			QL=1 ST=2 TYP=3
	15400 LEAR	8 S	0516.0E	0517.0	1.0D	21.0			QL=1 ST=2 TYP=3
	3100 CRIM	1 S	0516.0	0517.4	2.0	7.0	2.0		
	950 GORK	2 S/F	0516.4	0517.4	1.9	3.0			
	9100 GORK	1 S	0516.4	0517.4	2.0	21.0			
	600 HUMN	4 S/F	0516.5	0517.0	1.5	14.0	6.0		
	5900 KISV	29 PBI	0516.7	0519.0	24.6	8.0			
	5900 KISV	4 S/F	0516.7	0517.3	2.3	32.0			
	9300 KISV	4 S/F	0542.7	0545.9	4.2	43.0			
	410 SVTO	49 GB	0543.0E	0545.0	3.0D	1600.0			QL=1 ST=2 TYP=6
	650 GORK	21 GRF	0543.6	0547.5	20.2	3.0			
	5900 KISV	4 S/F	0543.7	0546.0	4.5	70.0			
	950 GORK	46 C	0543.9	0545.6	21.6	53.0			
	950 GORK	46 C	0543.9	0552.8		15.0			
	100 HIRA	42 SER	0543.9	0544.9	11.2	18000.0			0
	245 LEAR	49 GB	0544.0E	0545.0	2.0D	6600.0			QL=1 ST=2 TYP=6
	410 LEAR	49 GB	0544.0E	0545.0	2.0D	1200.0			QL=1 ST=2 TYP=6
	2695 LEAR	4 S/F	0544.0E	0546.0	3.0D	67.0			QL=1 ST=2 TYP=3
	4995 LEAR	8 S	0544.0E	0546.0	2.0D	75.0			QL=1 ST=2 TYP=3
	200 HIRA	42 SER	0544.0	0544.2	11.9	16000.0			0
	3100 CRIM	3 S	0544.0	0545.9	4.3	57.0	19.0		
	9100 GORK	21 GRF	0544.4	0552.6	18.5	7.0			
	600 HUMN	2 S/F	0544.5	0546.0	3.0	54.0	12.0		
	100 GORK	46 C	0544.8	0545.1	2.0	23000.0			
	100 GORK	46 C	0544.8	0545.6		7000.0			
	500 HIRA	42 SER	0544.8	0544.8	12.0	286.0			WL
	650 GORK	46 C	0544.8	0544.9	2.7	50.0			
	200 GORK	4 S/F	0544.9	0545.0	1.0	12600.0			
	1415 LEAR	8 S	0545.0E	0546.0	2.0D	58.0			QL=1 ST=2 TYP=3
	610 LEAR	8 S	0545.0E	0546.0	1.0D	76.0			QL=1 ST=2 TYP=3
	15400 LEAR	8 S	0545.0E	0546.0	1.0D	17.0			QL=1 ST=2 TYP=3
	245 SVTO	49 GB	0545.0E	0545.0	1.0D	6700.0			QL=1 ST=2 TYP=6
	15000 KISV	45 C	0545.3	0546.0		11.0			
	15000 KISV	45 C	0545.3	0545.8	1.1	11.0			
	9100 GORK	2 S/F	0545.4	0545.9	1.2	22.7			
	650 GORK	46 C	0546.0			83.0			
	2695 SVTO	8 S	0546.0E	0546.0	U	61.0			QL=1 ST=2 TYP=3
	4995 SVTO	8 S	0546.0E	0546.0	U	67.0			QL=1 ST=2 TYP=3
	33 UPIC	46 C	0546.0	0546.9	2.0				
	2950 GORK	45 C	0546.9	0549.0		62.0			
	2950 GORK	45 C	0546.9	0548.6	3.5	50.0			
	3100 CRIM	1 S	0551.9	0552.8	2.0	9.0	3.0		
	1415 LEAR	8 S	0552.0E	0552.0	1.0D	11.0			QL=1 ST=2 TYP=3
	245 LEAR	8 S	0552.0E	0552.0	1.0D	80.0			QL=1 ST=2 TYP=3
	4995 LEAR	8 S	0552.0E	0552.0	U	14.0			QL=1 ST=2 TYP=3
	245 SVTO	8 S	0552.0E	0553.0	1.0D	90.0			QL=1 ST=2 TYP=3
	5900 KISV	45 C	0552.1	0552.5	1.5	11.0			
5900 KISV	45 C	0552.1	0552.9		11.0				
100 GORK	41 F	0552.2	0555.4		110.0				
100 GORK	41 F	0552.2	0552.6	8.7	630.0				
100 GORK	41 F	0552.2	0600.9		230.0				
15000 KISV	2 S/F	0552.4	0553.0	1.3	8.0				
650 GORK	5 S	0552.4	0553.1	1.5	8.0				
9300 KISV	2 S/F	0552.4	0552.8	1.3	8.0				
2950 GORK	1 S	0554.2	0554.8	1.5	9.9				
9100 GORK	20 GRF	0641.2	0646.0	9.8	9.6				
9300 KISV	20 GRF	0641.4	0645.2	72.6	6.0				
5900 KISV	23 GRF	0642.2	0645.9	36.4	6.0				
15000 KISV	46 C	0645.2	0646.1	1.4	8.0				
650 GORK	2 S/F	0645.4	0646.4	7.5	4.0				
950 GORK	41 F	0645.5	0646.1	2.4	16.0				
9300 KISV	46 C	0645.5	0657.2		4.0				
950 GORK	41 F	0645.5	0647.4		6.0				
9300 KISV	46 C	0645.5	0647.6		4.0				
9300 KISV	46 C	0645.5	0645.9	2.4	8.0				
9100 GORK	20 GRF	0711.4	0714.3	9.7	5.2				

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

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 <sup>-22</sup> W/m <sup>2</sup> Hz)	Mean	Int	Remarks
22	9300	KISV	2 S/F	0713.8	0714.5	1.0	6.0			
	9100	GORK	21 GRF	0744.5	0831.3	47.0	8.6			
	536	ONDR	47 GB	0800.0	0825.7	46.0	84.0			
	5900	KISV	2 S/F	0808.0	0810.6	6.0	3.0			
	15000	KISV	2 S/F	0820.4	0820.4	0.2	14.0			
	430	KRAK	4 S/F	0821.5	0822.0	1.0	115.00	4.0		
	650	GORK	21 GRF	0822.5	0832.4	22.00	3.5			
	5900	KISV	46 C	0823.1	0827.0		82.0			
	5900	KISV	46 C	0823.1	0825.2	8.3	156.0			
	5900	KISV	46 C	0823.1	0828.2		48.0			
	5900	KISV	29 PBI	0823.1	0831.4	30.0	6.0			
	200	HIRA	46 C	0823.8	0824.4	4.6	2100.0			0
	3100	CRIM	45 C	0824.0	0827.0		33.0			
	1415	LEAR	8 S	0824.0E	0825.0	2.00	43.0			QL=1 ST=2 TYP=3
	245	LEAR	4 S/F	0824.0E	0824.0	5.00	210.0			QL=1 ST=2 TYP=3
	2695	LEAR	4 S/F	0824.0E	0825.0	6.00	100.0			QL=1 ST=2 TYP=3
	100	GORK	41 F	0824.0	0827.1		8500.0			
	100	GORK	41 F	0824.0	0825.1	4.3	6400.0			
	3100	CRIM	45 C	0824.0	0828.2		28.0			
	3000	POTS	4 S/F	0824.0	0825.2	8.0	98.0			
	3100	CRIM	45 C	0824.0	0825.4	6.7	95.0	32.0		
	1470	POTS	4 S/F	0824.0	0825.5	14.0	57.0			
	430	KRAK	45 C	0824.0	0825.8	9.0	72.0	9.0		
	950	GORK	46 C	0824.3	0828.4		16.0			
	950	GORK	46 C	0824.3	0825.5	5.8	65.0			
	100	HIRA	42 SER	0824.4	0826.4	4.0	670.0			WL
	600	HUMN	45 C	0824.5	0825.6	15.0	36.0	9.0		
	500	HIRA	46 C	0824.5	0825.8	6.0	56.0			WL
	9300	KISV	46 C	0824.6	0828.1		38.0			
	9300	KISV	46 C	0824.6	0825.2	24.8	95.0			
	2950	GORK	4 S/F	0824.6	0825.3	7.1	109.0			
	650	GORK	46 C	0824.6	0828.5		26.0			
	650	GORK	46 C	0824.6	0825.8		39.0			
	650	GORK	46 C	0824.6	0824.8	7.8	46.0			
	9300	KISV	46 C	0824.6	0826.9		76.0			
	200	GORK	41 F	0824.7	0827.0		530.0			
	200	GORK	41 F	0824.7	0824.9	2.1	1460.0			
	15000	KISV	46 C	0824.8	0828.1		39.0			
	9500	POTS	4 S/F	0824.8	0825.3	9.2	72.0			
	15000	KISV	46 C	0824.8	0825.5	10.3	73.0			
	15000	KISV	46 C	0824.8	0826.9		66.0			
	610	LEAR	4 S/F	0825.0E	0825.0	4.00	31.0			QL=1 ST=2 TYP=3
	4995	SVTO	8 S	0825.0E	0825.0	2.00	150.0			QL=1 ST=2 TYP=5
	8800	SVTO	8 S	0825.0E	0825.0	2.00	97.0			QL=1 ST=2 TYP=5
	245	SVTO	8 S	0825.0E	0825.0	U	250.0			QL=1 ST=2 TYP=5
	2695	SVTO	8 S	0825.0E	0825.0	1.00	95.0			QL=1 ST=2 TYP=3
	810	KRAK	45 C	0825.0	0825.5	7.0	41.0	14.0		
	33	UPIC	46 C	0825.0	0825.5	1.6				
	245	SVTO	8 S	0829.0E	0829.0	1.00	130.0			QL=1 ST=2 TYP=3
	650	GORK	4 S/F	0842.5	0842.6	0.6	11.0			
	5900	KISV	45 C	0844.1	0845.7	4.2	4.0			
	430	KRAK	2 S/F	0844.5	0845.0	1.5	16.0	3.0		
	600	HUMN	1 S	0844.5	0845.5	2.5	13.0	4.0		
	245	LEAR	8 S	0845.0E	0845.0	U	200.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	0845.0E	0845.0	1.00	220.0			QL=1 ST=2 TYP=3
	650	GORK	4 S/F	0845.0	0845.3	1.7	20.0			
	9100	GORK	46 C	0854.6	0857.0		55.0			
9100	GORK	46 C	0854.6	0855.3	5.7	84.0				
536	ONDR	41 F	0902.0	0921.3	33.0	184.0				
100	GORK	41 F	0917.5	0921.5		700.0				
100	GORK	41 F	0917.5	0917.8	5.5	115.0				
33	UPIC	3 S	0918.0	0918.1	0.3					
950	GORK	46 C	0920.7	0922.1		8.0				
950	GORK	46 C	0920.7	0921.4	3.2	10.0				
950	GORK	46 C	0920.7	0921.6		16.0				
3000	POTS	3 S	0920.9	0921.6	3.1	16.0				
245	LEAR	8 S	0921.0E	0921.0	U	110.0			QL=1 ST=2 TYP=3	
1470	POTS	4 S/F	0921.0	0921.0	2.0	24.0				
245	SVTO	8 S	0921.0E	0921.0	1.00	110.0			QL=1 ST=2 TYP=3	

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

47  
Apr 89

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 -22 W/m 2 Hz)	Mean		
22	600	HUMN	4 S/F	0921.0	0921.5	2.0	9.0	4.0		
	33	UPIC	46 C	0921.0	0921.6	2.0				
	2950	GORK	1 S	0921.0	0921.7	1.5	15.9			
	5900	KISV	2 S/F	0921.0	0921.7	2.4	6.0			
	3100	CRIM	1 S	0921.0	0921.8	2.0	14.0	5.0		
	650	GORK	4 S/F	0921.2	0921.4	2.0	21.0			
	5900	KISV	22 GRF	1057.7	1148.0	68.3	4.0			
	810	KRAK	1 S	1109.2	1109.4	0.6	9.0	4.0		
	9300	KISV	20 GRF	1109.5	1115.4	11.8	5.0			
	1470	POTS	21 GRF	1121.0	1143.0	34.0	7.0			
	3000	POTS	42 SER	1125.0	1142.00	25.0	8.0			
	9300	KISV	20 GRF	1126.5	1128.1	11.0	4.0			
	536	ONDR	42 SER	1140.0	1237.8	110.0	98.0			
	5900	KISV	46 C	1140.3	1141.3		4.0			
	5900	KISV	46 C	1140.3	1140.5		2.0			
	5900	KISV	46 C	1140.3	1142.7	6.5	11.0			
	9300	KISV	45 C	1141.9	1142.7	3.4	7.0			
	600	HUMN	3 S	1142.0	1142.2	0.5	4.0	2.0		
	5900	KISV	22 GRF	1209.8	1216.9	9.5	7.0			
	9300	KISV	22 GRF	1211.0	1217.0	13.0	7.0			
	9300	KISV	45 C	1230.3	1231.0	1.7	14.0			
	9300	KISV	45 C	1230.3	1230.6		5.0			
	9500	POTS	1 S	1230.5	1230.9	1.5	10.0			
	5900	KISV	2 S/F	1230.7	1230.9	0.8	11.0			
	9500	POTS	1 S	1255.0	1255.6	5.0	9.0			
	3000	POTS	4 S/F	1255.0	1255.7	5.0	15.0			
	1470	POTS	4 S/F	1255.0	1255.8	5.0	7.0			
	5900	KISV	2 S/F	1255.3	1255.8	3.3	17.0			
	9300	KISV	2 S/F	1255.3	1255.8	3.2	11.0			
	15000	KISV	2 S/F	1255.4	1256.0	3.3	11.0			
	600	HUMN	4 S/F	1257.0	1258.0	1.5	60.0	10.0		
	245	SGMR	8 S	1257.0E	1258.0	1.00	490.0			QL=1 ST=2 TYP=3
	610	SGMR	8 S	1257.0E	1258.0	1.00	81.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	1258.0E	1258.0	U	310.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	1308.0E	1308.0	U	88.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	1438.0E	1438.0	2.00	63.0			QL=1 ST=2 TYP=3
	2800	OTTA	32 ABS	1445.0	1700.0	195.0	-5.1	2.0		
	245	SGMR	8 S	1457.0E	1457.0	U	71.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	1514.0E	1514.0	2.00	120.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	1514.0E	1515.0	1.00	110.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	1531.0E	1531.0	2.00	160.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	1532.0E	1532.0	U	120.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	1617.0E	1617.0	U	87.0			QL=1 ST=2 TYP=3
	245	SVTO	8 S	1617.0E	1617.0	1.00	74.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	1654.0E	1654.0	U	51.0			QL=1 ST=2 TYP=3
	245	PALE	8 S	1906.0E	1906.0	U	200.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	1906.0E	1906.0	U	210.0			QL=1 ST=2 TYP=3
245	PALE	49 GB	2021.0E	2022.0	1.00	550.0			QL=1 ST=2 TYP=6	
100	HIRA	46 C	2021.3	2021.8	1.5	1500.0			0	
200	HIRA	46 C	2021.3	2021.8	1.5	815.0			0	
245	SGMR	49 GB	2022.0E	2022.0	U	590.0			QL=1 ST=2 TYP=6	
245	PALE	8 S	2034.0E	2034.0	U	70.0			QL=1 ST=2 TYP=3	
245	SGMR	8 S	2034.0E	2034.0	1.00	73.0			QL=1 ST=2 TYP=3	
23	200	GORK	44 NS	0330.0E		420.00		5.0		
	245	PALE	44 NS	0351.0E	0355.0	46.00	100.0			QL=1 ST=2 TYP=1
	221	ABST	43 NS	0500.0		240.0		24.0		
	100	GORK	43 NS	0506.0		186.0		10.0		
	245	SVTO	43 NS	0521.0	0825.0	206.00	190.0			QL=1 ST=2 TYP=1
	204	IZMI	43 NS	0600.0		360.0	40.0			
	260	ONDR	44 NS	0620.0E	0851.4	580.00	112.0			
	430	KRAK	43 NS	0909.5	1203.8	233.00	28.0	1.0		
	245	SGMR	43 NS	1446.0	1508.0	81.00	240.0			QL=1 ST=2 TYP=1
	245	SGMR	43 NS	1900.0	1900.0	300.0	87.0			QL=1 ST=3 TYP=1
	245	PALE	44 NS	1900.0E	2044.0	332.00	80.0			QL=1 ST=2 TYP=1
	200	HIRA	44 NS	1950.0E		780.00		7.0		0
	245	SGMR	44 NS	2104.0E	2104.0	2.00	69.0			QL=1 ST=2 TYP=1
245	SGMR	43 NS	2143.0	2143.0	9.0	83.0			QL=1 ST=2 TYP=1	
245	PALE	8 S	0209.0E	0209.0	U	170.0			QL=1 ST=2 TYP=3	



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

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak	Mean		
							(10 -22 W/m <sup>2</sup> Hz)			
23	9300	KISV	22 GRF	0516.7	0617.7	141.3	14.0			
	2950	GORK	1 S	0524.5	0524.6	0.8	5.7			
	5900	KISV	22 GRF	0524.6	0531.6	24.0	4.0			
	100	GORK	8 S	0616.6	0616.7	0.3	1700.0			
	3100	CRIM	1 S	0633.0	0633.3	1.0	9.3	3.0		
	2950	GORK	1 S	0633.1	0633.2	0.7	11.5			
	5900	KISV	2 S/F	0633.1	0633.2	0.8	6.0			
	204	IZMI	5 S	0633.6	0634.0	400.0	300.0			
	200	GORK	4 S/F	0633.7	0634.3	0.7	250.0			
	5900	KISV	2 S/F	0634.1	0636.6	7.2	4.0			
	500	HIRA	42 SER	0635.0	0637.5	3.0	85.0		0	
	650	GORK	22 GRF	0706.7	0716.5	11.2	5.5			
	950	GORK	2 S/F	0711.2	0713.4	5.9	3.0			
	9300	KISV	2 S/F	0831.9	0832.2	0.7	6.0			
	9100	GORK	20 GRF	0851.0	0934.0	97.0	7.6			
	9300	KISV	45 C	0907.0	0907.4	2.5	4.0			
	650	GORK	1 S	0909.4	0910.4	2.3	2.0			
	3100	CRIM	20 GRF	0909.6	0910.5	8.0	5.2	3.0		
	950	GORK	2 S/F	0909.6	0910.5	2.7	1.6			
	5900	KISV	22 GRF	0909.8	0910.7	25.5	7.0			
	2950	GORK	1 S	0910.0	0910.4	2.2	4.0			
	15000	KISV	45 C	0910.5	0910.6	0.2	6.0			
	536	ONDR	41 F	1000.0	1012.0	53.0	20.0			
	15000	KISV	2 S/F	1054.8	1056.0	1.5	4.0			
	536	ONDR	42 SER	1330.0	1504.2	100.0	130.0			
	2800	OTTA	22 GRF	1440.0	1650.0	390.0	12.9	6.0		
	245	SGMR	8 S	1727.0E	1727.0	U	74.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	1832.0E	1833.0	1.0D	72.0			QL=1 ST=3 TYP=3
	245	PALE	8 S	1836.0E	1836.0	U	130.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	1836.0E	1836.0	U	130.0			QL=1 ST=2 TYP=3
	245	SGMR	8 S	1839.0E	1839.0	U	70.0			QL=1 ST=2 TYP=3
	245	PALE	8 S	2041.0E	2041.0	1.0D	110.0			QL=1 ST=2 TYP=3
245	SGMR	8 S	2041.0E	2041.0	1.0D	120.0			QL=1 ST=2 TYP=3	
245	SGMR	8 S	2044.0E	2044.0	2.0D	82.0			QL=1 ST=3 TYP=3	
2800	OTTA	3 S	2147.0	2150.0	7.0	12.4	4.0			
24	200	GORK	44 NS	0318.0E		500.0D	5.0			
	221	ABST	43 NS	0500.0		240.0	11.0			
	204	IZMI	43 NS	0600.0		360.0	20.0			
	260	ONDR	44 NS	0620.0E	0821.6	580.0D	66.0			
	430	KRAK	44 NS	0700.0E	1216.8	390.0D	19.0			
	127	TORN	44 NS	0800.0E		420.0D		8.0	V=1	
	100	GORK	43 NS	0933.0		147.0	5.0			
	245	PALE	44 NS	1637.0E	1731.0	139.0D	98.0			QL=1 ST=2 TYP=1
	245	SGMR	44 NS	1640.0E	1640.0	135.0D	110.0			QL=1 ST=2 TYP=1
	200	HIRA	44 NS	1950.0E	2230.0	780.0D	25.0	5.0		0
	245	SGMR	44 NS	2149.0E	2149.0	U	66.0			QL=1 ST=2 TYP=1
	245	LEAR	4 S/F	0001.0E	0004.0	3.0D	51.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0031.0E	0031.0	1.0D	58.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0047.0E	0047.0	U	51.0			QL=1 ST=2 TYP=3
	245	PALE	8 S	0047.0E	0047.0	U	65.0			QL=1 ST=2 TYP=3
	950	GORK	23 GRF	0329.0E	0340.4	53.0D	2.6			
	650	GORK	21 GRF	0330.0E	0340.0	28.3D	1.5			
	950	GORK	4 S/F	0335.9	0337.4	3.3	22.0			
	650	GORK	46 C	0336.4	0338.0		22.0			
	650	GORK	46 C	0336.4	0337.1	3.5	12.5			
	500	HIRA	46 C	0336.8	0338.0	2.4	37.0			WR
	950	GORK	2 S/F	0348.0	0350.0	2.8	10.5			
	650	GORK	46 C	0349.0	0350.0		9.0			
	650	GORK	46 C	0349.0	0349.2	1.2	11.0			
	15000	KISV	2 S/F	0504.5	0504.6	0.4	7.0			
	9300	KISV	22 GRF	0508.7	0543.0	59.5	11.0			
	5900	KISV	22 GRF	0512.3	0543.5	53.0	12.0			
9100	GORK	21 GRF	0513.8	0545.5	107.0	16.7				
650	GORK	23 GRF	0524.9	0548.6	83.0	19.0				
500	HIRA	27 RF	0535.0	0557.3	84.0	48.0	8.0		0	
650	GORK	4 S/F	0535.3	0535.8	1.0	50.0				
9300	KISV	46 C	0543.9	0545.5	2.6	5.0				
5900	KISV	45 C	0544.1	0545.5		3.0				

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

49  
Apr 89

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 -22	Mean W/m 2 Hz)		
24	5900	KISV	45 C	0544.1	0545.8	3.6	4.0			
	5900	KISV	45 C	0619.3	0621.1	12.3	17.0			
	5900	KISV	45 C	0619.3	0622.5		10.0			
	9300	KISV	45 C	0619.6	0621.0	8.6	17.0			
	9300	KISV	45 C	0619.6	0622.4		9.0			
	3100	CRIM	1 S	0620.0	0621.5	4.0	8.0	3.0		
	15000	KISV	45 C	0620.1	0621.0	5.8	7.0			
	15000	KISV	45 C	0620.1	0620.8		5.0			
	9100	GORK	2 S/F	0620.2	0621.0	3.5	14.0			
	2950	GORK	1 S	0620.5	0621.2	8.1	7.9			
	9300	KISV	42 SER	0648.8	0649.0	1.1	4.0			
	9300	KISV	42 SER	0648.8	0649.5		2.0			
	9100	GORK	20 GRF	0723.4	0918.5	187.0	6.8			
	5900	KISV	22 GRF	0738.9	0750.4	18.9	4.0			
	245	LEAR	8 S	0802.0E	0803.0	2.0D	150.0			QL=1 ST=2 TYP=3
	9300	KISV	42 SER	0802.7	0803.1	0.8	5.0			
	9300	KISV	42 SER	0802.7	0802.8		3.0			
	245	SVTO	8 S	0803.0E	0803.0	1.0D	160.0			QL=1 ST=2 TYP=3
	536	ONDR	27 RF	0901.0	0916.7	90.0	18.0			
	5900	KISV	2 S/F	0917.1	0918.4	4.3	9.0			
	9300	KISV	2 S/F	0917.7	0918.4	3.6	5.0			
	2950	GORK	1 S	0917.9	0918.9	3.2	4.0			
	3100	CRIM	1 S	0918.0	0919.0	2.5	2.5	1.0		
	9100	GORK	20 GRF	1109.0	1145.0	60.0D	7.5			
810	KRAK	8 S	1118.0	1118.0	0.5	9.0				
245	SGMR	8 S	1228.0E	1229.0	2.0D	110.0			QL=1 ST=2 TYP=3	
245	SVTO	8 S	1230.0E	1230.0	U	77.0			QL=1 ST=2 TYP=3	
536	ONDR	27 RF	1342.3	1442.4	85.0	35.0				
245	SVTO	8 S	1612.0E	1612.0	U	65.0			QL=1 ST=2 TYP=3	
2800	OTTA	20 GRF	1905.0	1915.0	45.0	2.7	1.0			
245	PALE	8 S	2149.0E	2149.0	U	74.0			QL=1 ST=2 TYP=3	
25	200	GORK	44 NS	0315.0E		520.0D	5.0			
	100	GORK	44 NS	0321.0E		359.0D	5.0			
	221	ABST	43 NS	0500.8		240.0	15.0			
	204	IZMI	43 NS	0600.0		360.0	15.0			
	127	TORN	44 NS	0620.0E	1112.0	560.0D	700.0	5.0		V=1
	260	ONDR	44 NS	0620.0E	1108.2	580.0D	27.0			
	200	HIRA	44 NS	1950.0E	2124.0	790.0D	29.0	17.0		MR
	950	GORK	8 S	0608.0	0608.1	0.3	73.0			
	650	GORK	4 S/F	0608.0	0608.2	0.4	55.0			
	950	GORK	2 S/F	0901.0	0903.0	4.3	6.5			
	1415	LEAR	8 S	0901.0E	0902.0	1.0D	54.0			QL=1 ST=2 TYP=3
	1470	POTS	3 S	0901.0	0902.0	3.0	45.0			
	650	GORK	46 C	0901.4	0903.3		8.0			
	650	GORK	46 C	0901.4	0901.8	2.4	3.6			
	1415	SVTO	8 S	0902.0E	0902.0	U	54.0			QL=1 ST=2 TYP=3
	204	IZMI	5 S	0956.2	0956.5	0.5	70.0	35.0		
	5900	KISV	45 C	1203.5	1204.5		5.0			
	5900	KISV	45 C	1203.5	1205.8	11.5	9.0			
	9300	KISV	45 C	1203.9	1204.4		4.0			
	9300	KISV	45 C	1203.9	1205.8	7.8	5.0			
810	KRAK	41 F	1225.9	1225.9	0.8	15.0	5.0			
536	ONDR	42 SER	1423.4	1424.4	4.5	13.0				
410	SGMR	8 S	1500.0E	1500.0	U	64.0			QL=/ ST=2 TYP=3	
536	ONDR	40 F	1513.7	1514.1	2.0	24.0				
410	SGMR	8 S	1857.0E	1857.0	1.0D	52.0			QL=1 ST=2 TYP=3	
245	PALE	8 S	1951.0E	1951.0	U	340.0			QL=1 ST=2 TYP=3	
410	PALE	8 S	1951.0E	1951.0	U	70.0			QL=1 ST=2 TYP=3	
245	SGMR	8 S	1951.0E	1951.0	U	360.0			QL=1 ST=2 TYP=3	
410	SGMR	8 S	1951.0E	1951.0	U	47.0			QL=1 ST=2 TYP=3	
26	100	GORK	44 NS	0315.0E		525.0D	5.0			
	200	GORK	44 NS	0318.0E		540.0D	10.0			
	221	ABST	43 NS	0600.0		180.0	10.0			
	204	IZMI	43 NS	0600.0		360.0	20.0			
	127	TORN	44 NS	0620.0E		560.0D		45.0		V=1
	260	ONDR	44 NS	0620.0E	1228.2	580.0D	60.0			
	430	KRAK	44 NS	0700.0E	0758.5	317.0D	25.0			

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

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 -22 W/m <sup>2</sup> Hz)	Mean		
26	245	SGMR	44 NS	1045.0E	1045.0	U	120.0			QL=1 ST=2 TYP=1
	245	SGMR	44 NS	1225.0E	1225.0	U	57.0			QL=1 ST=2 TYP=1
	200	HIRA	44 NS	1950.0E	2705.0	790.0D	28.0	17.0		MR
	5900	KISV	2 S/F	0605.1	0606.6	3.5	3.0			
	9100	GORK	20 GRF	0730.0	0733.3	26.6	3.5			
	1415	SVTO	8 S	0925.0E	0926.0	1.0D	91.0			QL=1 ST=2 TYP=3
	2950	GORK	1 S	1019.9	1021.0	1.7	1.9			
	1470	POTS	3 S	1021.0	1021.2	1.0	15.0			
	5900	KISV	2 S/F	1050.8	1051.5	1.6	3.0			
	810	KRAK	8 S	1054.5	1054.7	0.4	21.0			
	9100	GORK	1 S	1154.4	1155.1	4.2	5.0			
	810	KRAK	2 S/F	1211.3	1211.7	1.2	14.0	3.0		
	810	KRAK	8 S	1244.5	1244.5	0.1	28.0			
	536	ONDR	40 F	1317.2	1317.5	1.5	45.0			
27	100	GORK	44 NS	0322.0E		518.0D		5.0		
	200	GORK	44 NS	0324.0E		516.0D		5.0		
	221	ABST	43 NS	0500.0		240.0		8.0		
	204	IZMI	43 NS	0600.0		360.0	20.0			
	127	TORN	44 NS	0620.0E	1113.7	560.0D	200.0	25.0		V=1
	260	ONDR	44 NS	0620.0E	1044.8	580.0D	46.0			
	245	SVTO	8 S	0436.0E	0436.0	U	190.0			QL=1 ST=2 TYP=3
	2950	GORK	1 S	0649.7	0650.1	1.8	1.3			
	9100	GORK	1 S	0649.8	0651.1	3.9	14.0			
	5900	KISV	2 S/F	0649.9	0651.0	3.9	5.0			
	9500	POTS	3 S	0650.8	0651.2	1.7	12.0			
	9300	KISV	2 S/F	0650.9	0651.2	1.9	12.0			
	2950	GORK	20 GRF	0848.1	0903.0	45.0	3.6			
	245	SVTO	8 S	1033.0E	1033.0	U	120.0			QL=1 ST=2 TYP=3
	536	ONDR	42 SER	1034.0	1034.8	90.0	14.0			
	9300	KISV	2 S/F	1111.2	1112.2	3.0	15.0			
	9500	POTS	3 S	1111.5	1112.3	2.5	12.0			
	9100	GORK	1 S	1111.6	1112.3	4.2	13.6			
	5900	KISV	2 S/F	1111.7	1112.0	2.3	8.0			
	9500	POTS	3 S	1136.0	1137.0	7.0	18.0			
	2950	GORK	1 S	1136.5	1137.1	2.4	3.0			
	9100	GORK	1 S	1136.5	1137.2	4.0	17.0			
	15000	KISV	2 S/F	1136.8	1137.0	1.0	15.0			
	5900	KISV	2 S/F	1136.8	1137.1	1.0	6.0			
9300	KISV	2 S/F	1136.8	1137.1	1.6	18.0				
536	ONDR	40 F	1303.6	1305.7	2.5	29.0				
536	ONDR	8 S	1337.7	1337.9	0.7	75.0				
2800	OTTA	3 S	1726.0	1726.7	2.0	12.1	3.0			
245	PALE	8 S	1726.0E	1726.0	1.0D	70.0			QL=1 ST=2 TYP=3	
200	HIRA	24 R	1950.0E	2500.0	790.0D	11.0	5.0		MR	
28	100	GORK	44 NS	0320.0E		343.0D		5.0		
	127	TORN	44 NS	0620.0E		300.0D		13.0		V=1
	950	GORK	22 GRF	0607.6	0622.8	33.8	5.0			
	650	GORK	22 GRF	0607.8	0630.5	48.0	12.0			
	500	HIRA	46 C	0619.5	0630.7	17.0	23.0	4.0		0
	260	ONDR	41 F	0620.0E	1042.7	580.0D	28.0			
	600	HUMN	27 RF	0621.0	0630.8	20.0	13.0	2.0		
	100	GORK	41 F	0630.0	0649.3		60.0			
	100	GORK	41 F	0630.0	0639.6		55.0			
	100	GORK	41 F	0630.0	0633.7	23.0	55.0			
	650	GORK	8 S	0635.2	0635.3	0.3	17.0			
	9100	GORK	1 S	0800.2	0800.4	1.1	5.0			
	9300	KISV	2 S/F	0939.6	0939.9	1.9	4.0			
	5900	KISV	2 S/F	0951.9	0954.0	5.4	6.0			
	9300	KISV	22 GRF	0953.2	1003.9	20.6	9.0			
	810	KRAK	8 S	1051.5	1051.5	0.5	11.0			
	600	HUMN	27 RF	1153.7	1159.5	9.3	3.0	1.0		
	5900	KISV	2 S/F	1216.5	1216.8	0.7	2.0			
	536	ONDR	8 S	1512.0	1512.4	1.5	194.0			
	245	SGMR	8 S	2052.0E	2052.0	U	160.0			QL=1 ST=2 TYP=3
245	PALE	8 S	2156.0E	2156.0	1.0D	86.0			QL=1 ST=2 TYP=3	
29	260	ONDR	44 NS	0620.0E	1159.1	580.0D	186.0			

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

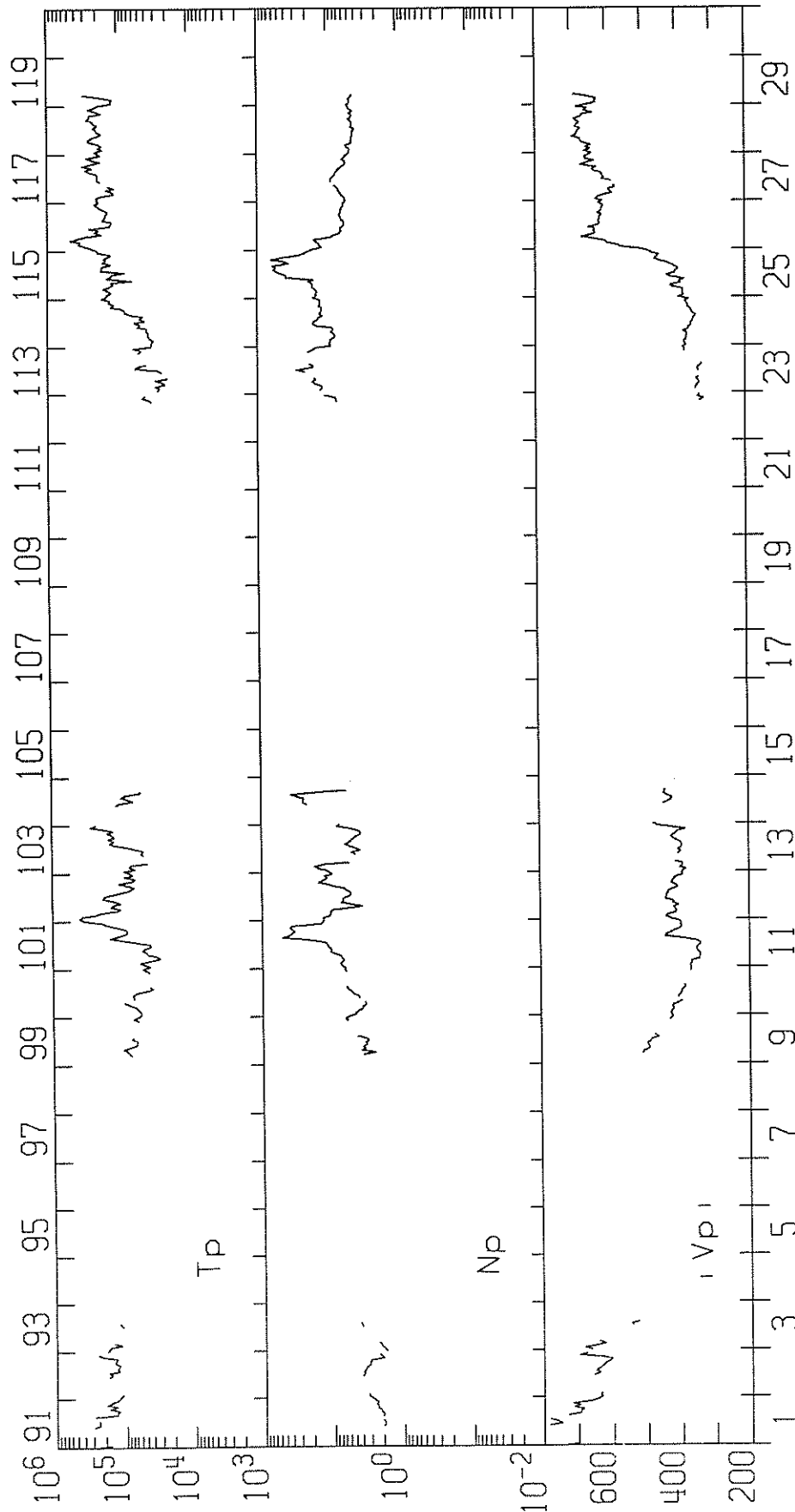
51  
Apr 89

APRIL 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 -22 W/m <sup>2</sup> Hz)	Mean		
29	430	KRAK	44 NS	0720.0E	1018.8	363.0D	73.0	4.0		
	1415	LEAR	4 S/F	0108.0E	0110.0	3.0D	95.0			QL=1 ST=2 TYP=3
	1415	PALE	8 S	0110.0E	0110.0	1.0D	95.0			QL=1 ST=2 TYP=3
	650	GORK	22 GRF	0315.0E	0748.5	312.0D	27.0			
	2950	GORK	20 GRF	0332.0E	0427.5	280.0D	15.6			
	950	GORK	22 GRF	0412.0	0415.4	24.0	3.0			
	500	HIRA	42 SER	0450.0	0531.0	54.0	39.0			WL
	950	GORK	22 GRF	0451.0	0517.3	64.0	5.0			
	221	ABST	47 GB	0629.0	0632.0	18.0	26.0			
	500	HIRA	42 SER	0709.0	0747.5	65.0	50.0			WL
	245	SVTO	8 S	0732.0E	0733.0	1.0D	85.0			QL=1 ST=2 TYP=3
	245	LEAR	8 S	0733.0E	0733.0	U	83.0			QL=1 ST=2 TYP=3
	600	HUMN	27 RF	0734.0	0749.0	41.0	15.0	5.0		
	950	GORK	22 GRF	0737.0	0748.0	37.0	8.0			
	5900	KISV	2 S/F	0840.7	0841.8	5.3	4.0			
	204	IZMI	5 S	0853.0	0853.4	0.6	30.0	15.0		
	650	GORK	22 GRF	0903.8U	1000.1	86.0D	11.0			
	950	GORK	22 GRF	0940.7	1007.0	31.0	2.0			
	536	ONDR	41 F	0951.0	1057.1	83.0	9.0			
	600	HUMN	27 RF	0959.0	1004.0	78.0	5.0	2.0		
	810	KRAK	27 RF	1207.5	1214.5	7.5	8.0	3.0		
	536	ONDR	45 C	1211.0	1215.4	7.0	11.0			
	600	HUMN	2 S/F	1212.7	1215.3	7.4	10.0	3.0		
	600	HUMN	27 RF	1238.7	1442.6	189.0	42.0	9.0		
	810	KRAK	27 RF	1245.0	1304.2	37.5D	21.0	8.0		
	536	ONDR	27 RF	1246.0	1256.5	15.4	39.0			
	245	SVTO	8 S	1307.0E	1307.0	U	61.0			QL=1 ST=2 TYP=3
	600	HUMN	4 S/F	1626.2	1626.7	1.4	26.0	8.0		
	600	HUMN	40 F	1655.0	1715.0	55.0	6.0			
500	HIRA	42 SER	2040.0	2244.0	145.0	38.0			WR	
30	204	IZMI	43 NS	0730.0		270.0	15.0			
	245	SGMR	44 NS	2052.0E	2052.0	U	110.0			QL=1 ST=2 TYP=1
	2800	OTTA	45 C	0054.0	0109.0	52.0D	171.9	51.0		
	245	LEAR	8 S	0110.0E	0110.0	1.0D	140.0			QL=1 ST=2 TYP=3
	245	PALE	8 S	0110.0E	0110.0	1.0D	240.0			QL=1 ST=2 TYP=3
	2950	GORK	21 GRF	0352.8	0615.0	397.0D	6.1			
	500	HIRA	21 GRF	0500.0	0600.0	105.0	12.0	4.0		WL
	650	GORK	22 GRF	0507.6	0555.3	78.0	11.5			
	950	GORK	22 GRF	0549.7	0557.2	20.4	3.5			
	600	HUMN	27 RF	0555.0	0601.0	27.0	8.0	2.0		
	4995	LEAR	8 S	0609.0E	0609.0	1.0D	59.0			QL=1 ST=2 TYP=3
	9100	GORK	1 S	0609.7	0609.9	1.6	26.0			
	2950	GORK	1 S	0609.8	0610.0	0.3	4.9			
	3013	IZMI	5 S	0609.8	0610.0	0.8	11.0	5.0		
	5900	KISV	8 S	0609.8	0610.0	0.8	43.0			
	9300	KISV	1 S	0609.8	0609.9	0.5	25.0			
	15000	KISV	1 S	0609.9	0610.0	0.4	8.0			
	260	ONDR	41 F	0620.0E	0744.8	580.0D	23.0			
	650	GORK	22 GRF	0712.8	0730.8	32.0	14.0			
	430	KRAK	42 SER	0723.7	0740.7	250.0	27.0			
	600	HUMN	27 RF	0724.0	0731.0	12.0	9.0	4.0		
	950	GORK	22 GRF	0725.1	0729.8	9.9	3.5			
	810	KRAK	8 S	0752.0	0752.0	0.2	9.0			
	430	KRAK	8 S	0840.2	0840.2	0.1	42.0			
	204	IZMI	41 F	0943.5	0943.8	0.8	96.0			
	3013	IZMI	5 S	1005.5	1006.5	10.0	5.0	3.0		
	536	ONDR	41 F	1011.0	1016.9	15.0	13.0			
	5900	KISV	2 S/F	1013.6	1014.7	2.4	5.0			
	204	IZMI	41 F	1107.0	1107.9	1.2	98.0			
536	ONDR	8 S	1254.6	1254.9	0.7	82.0				
245	PALE	8 S	2052.0E	2052.0	U	93.0			QL=1 ST=2 TYP=3	

IMP 8 SOLAR WIND PLASMA  
APRIL 1989

MIT/CSR IMP 8 PLASMA PARAMETERS



APR 1989

APR 1989

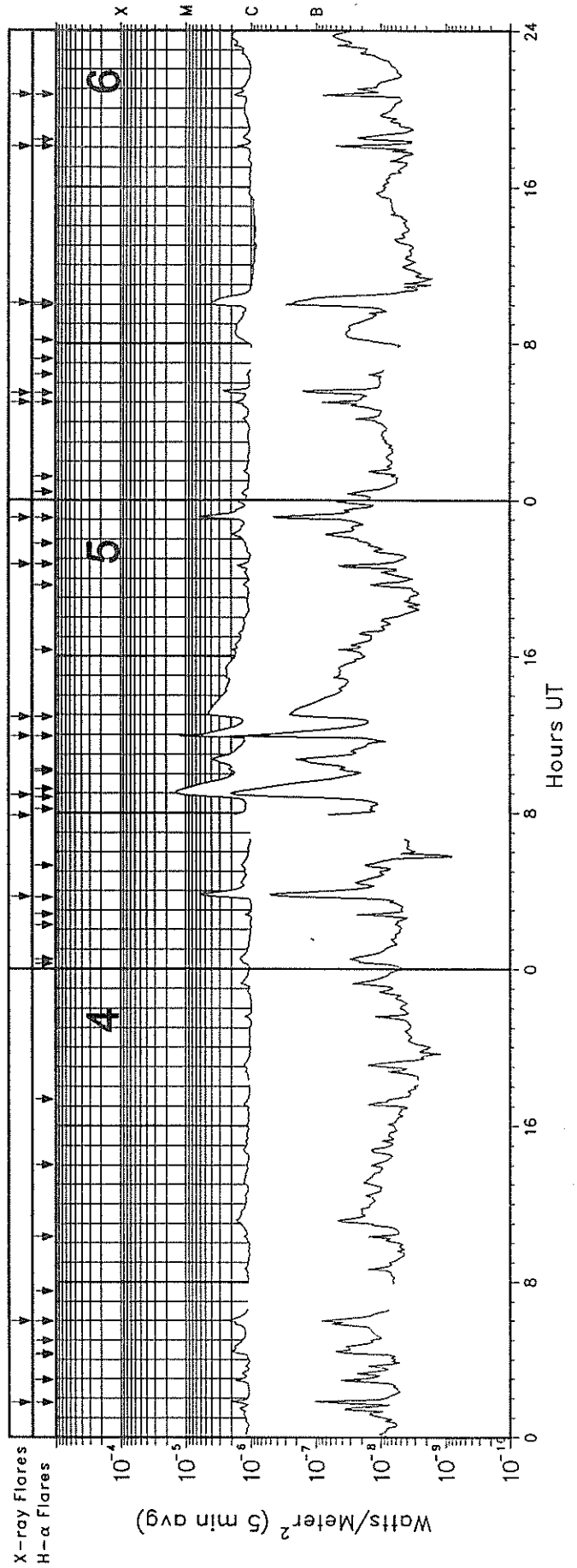
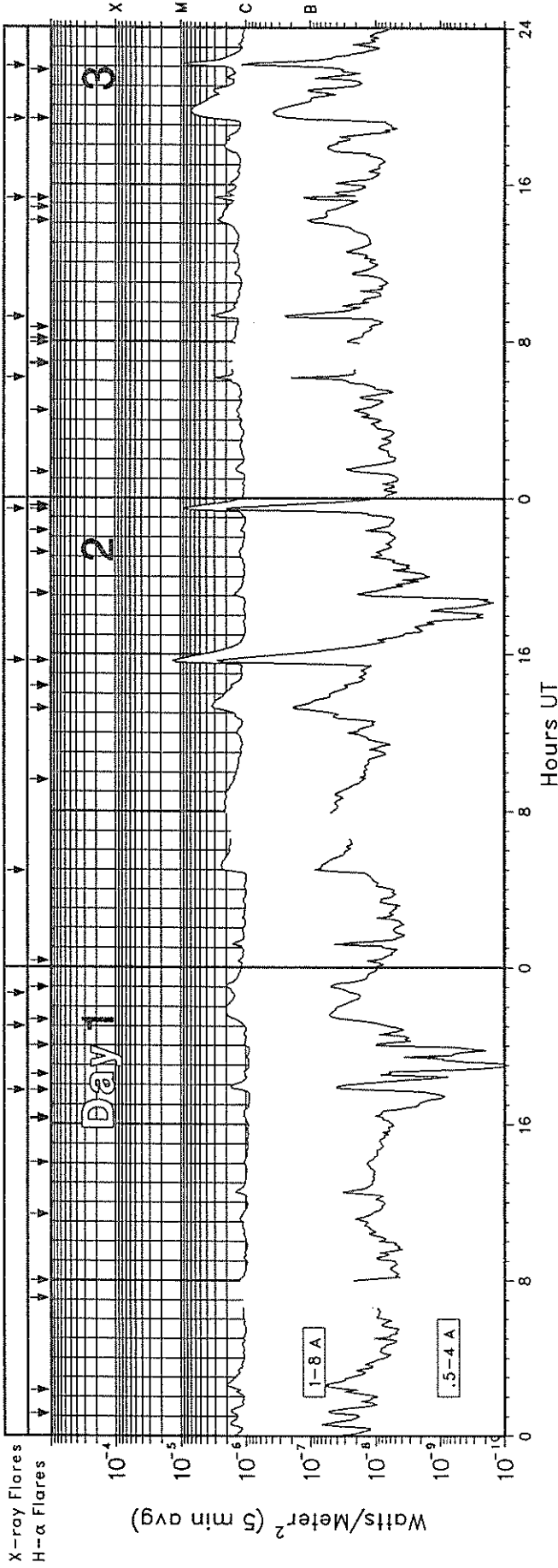
IMP 8

MIT

PRELIMINARY ONE-HOUR AVERAGES

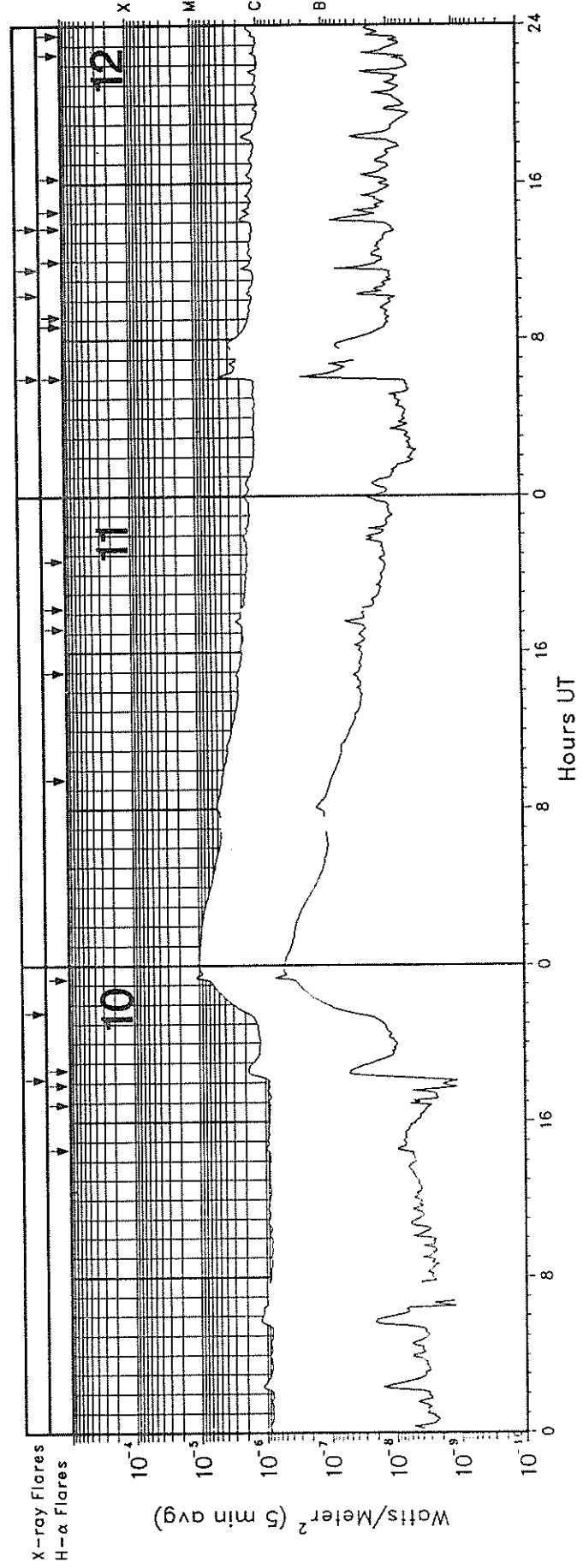
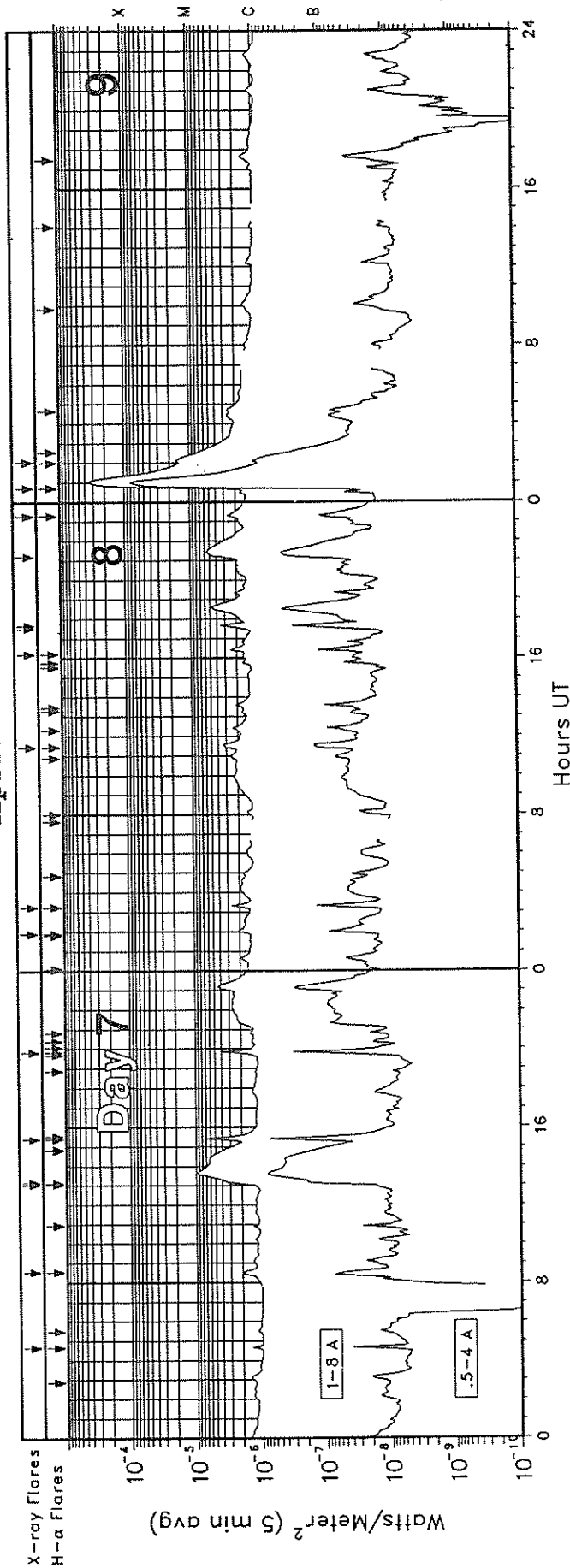
# GOES-7 X-RAY DETECTOR

April 1989



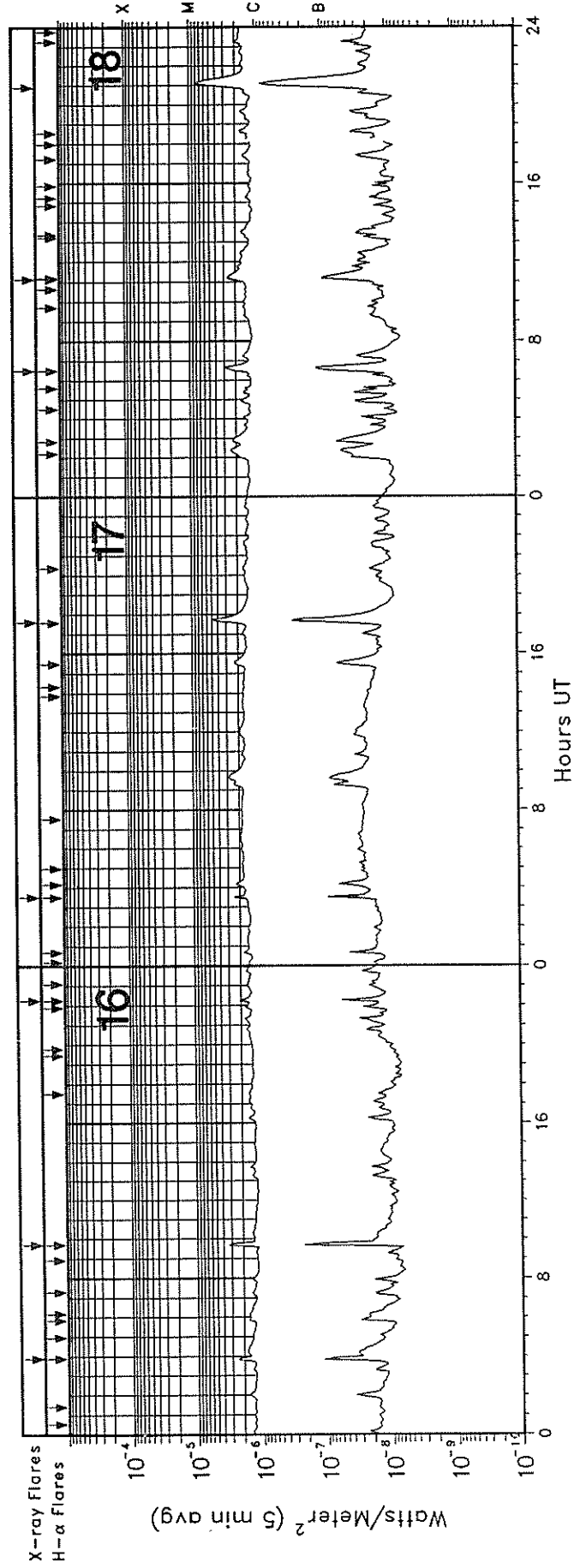
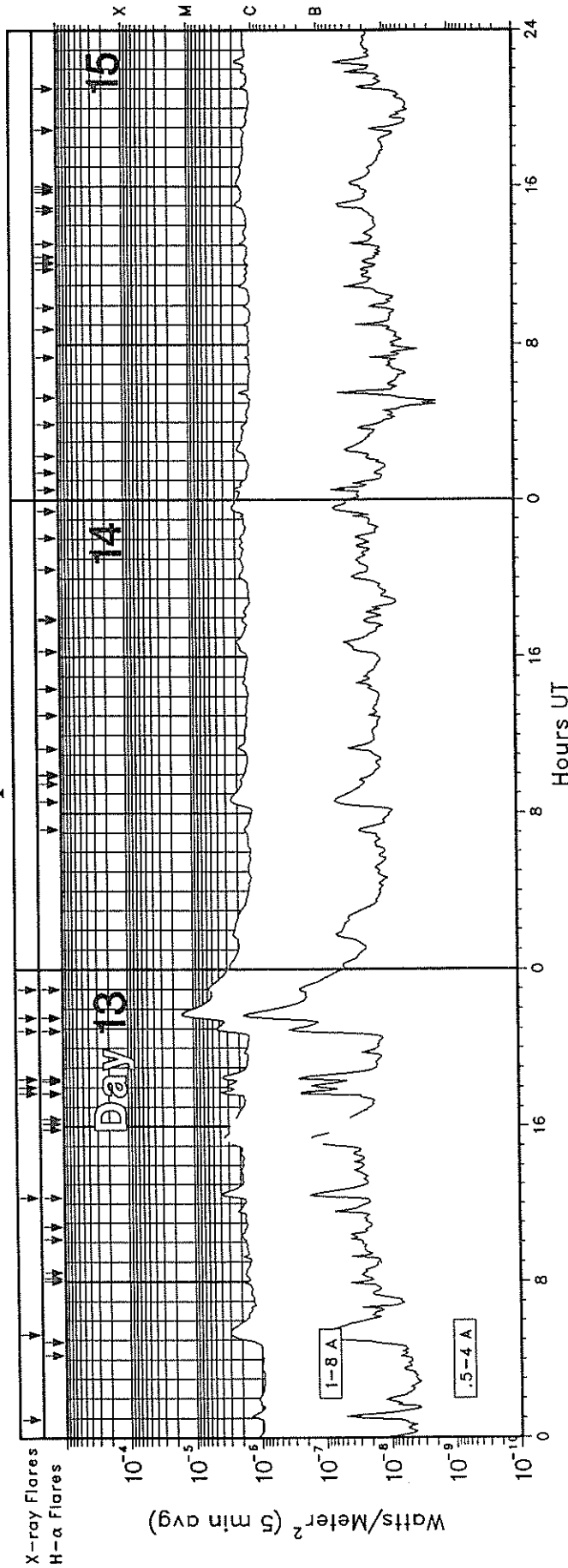
# GOES-7 X-RAY DETECTOR

April 1989



# GOES-7 X-RAY DETECTOR

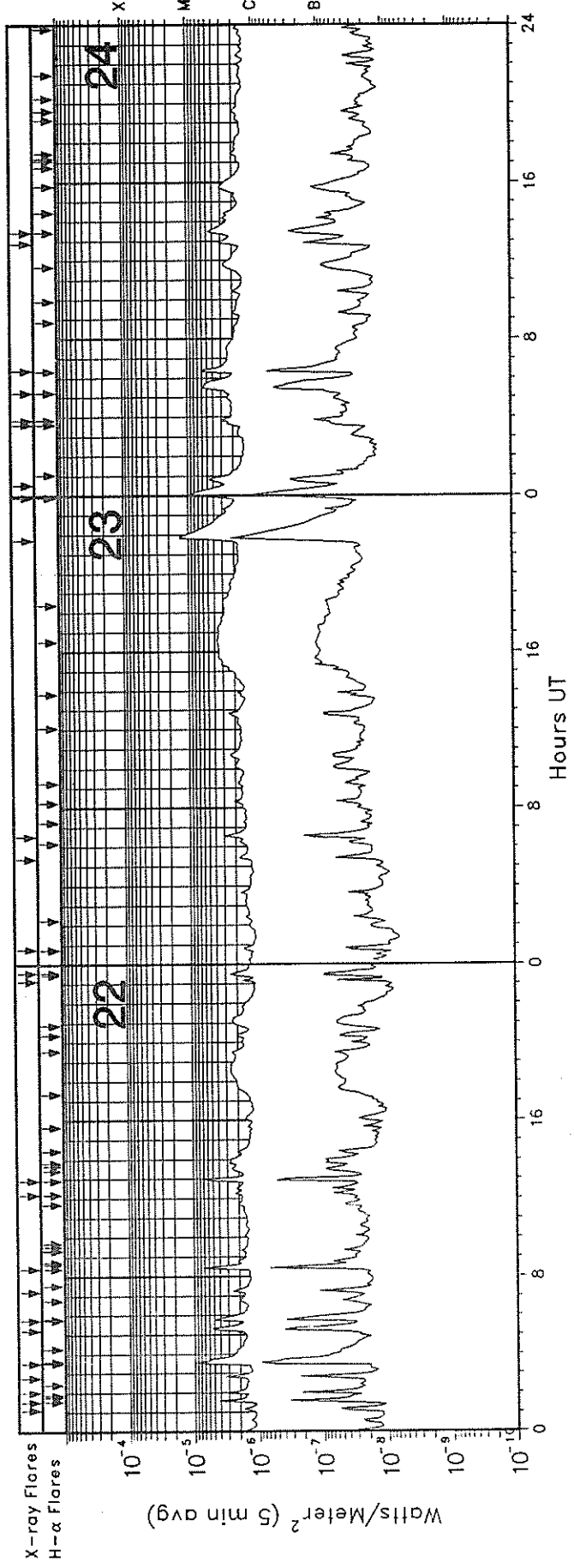
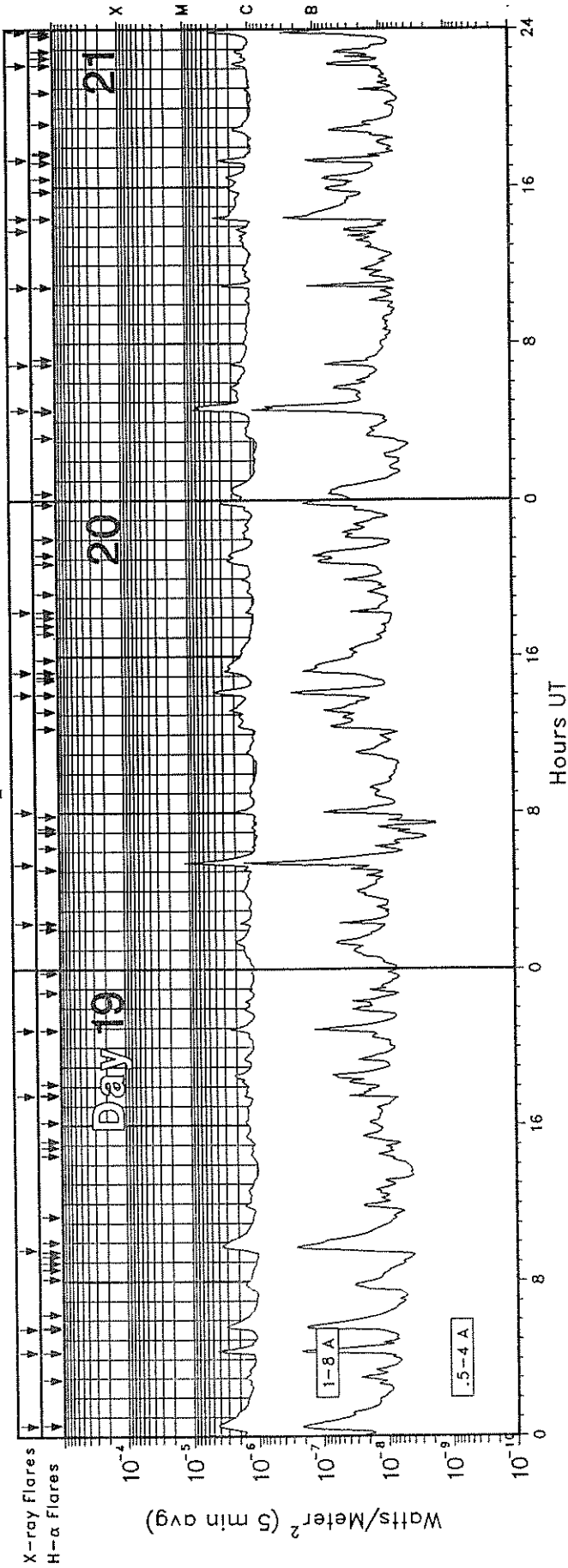
April 1989





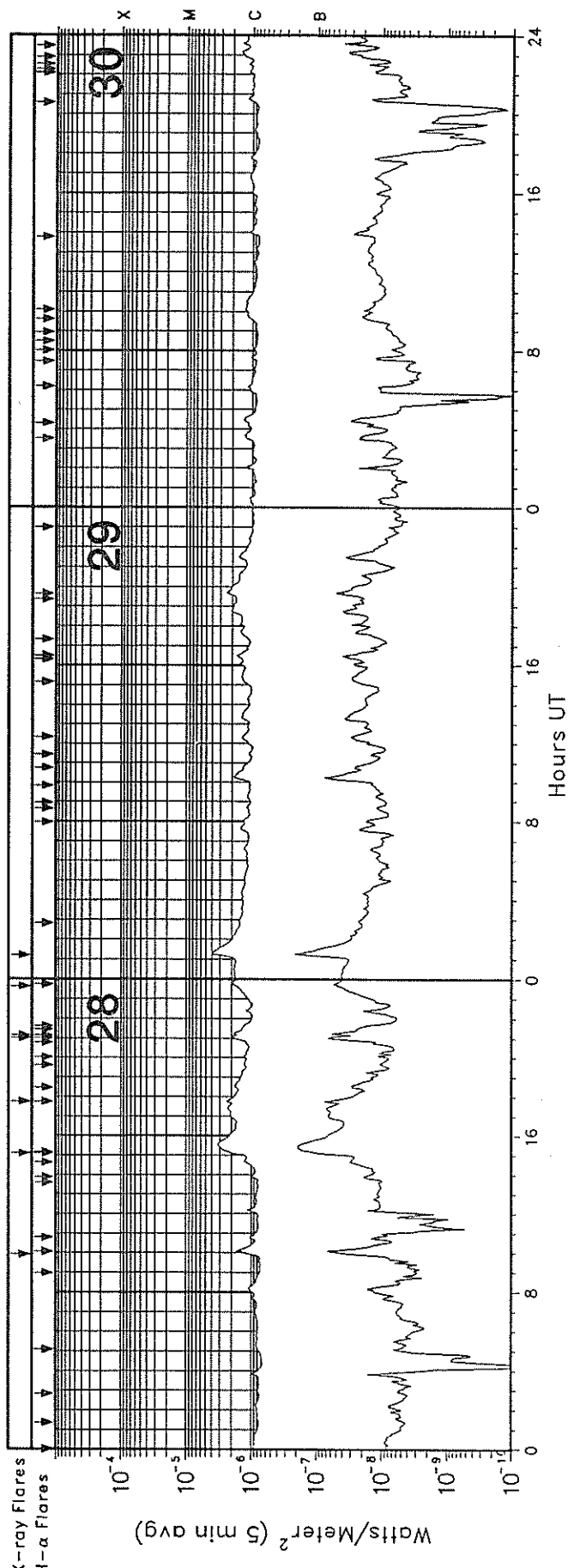
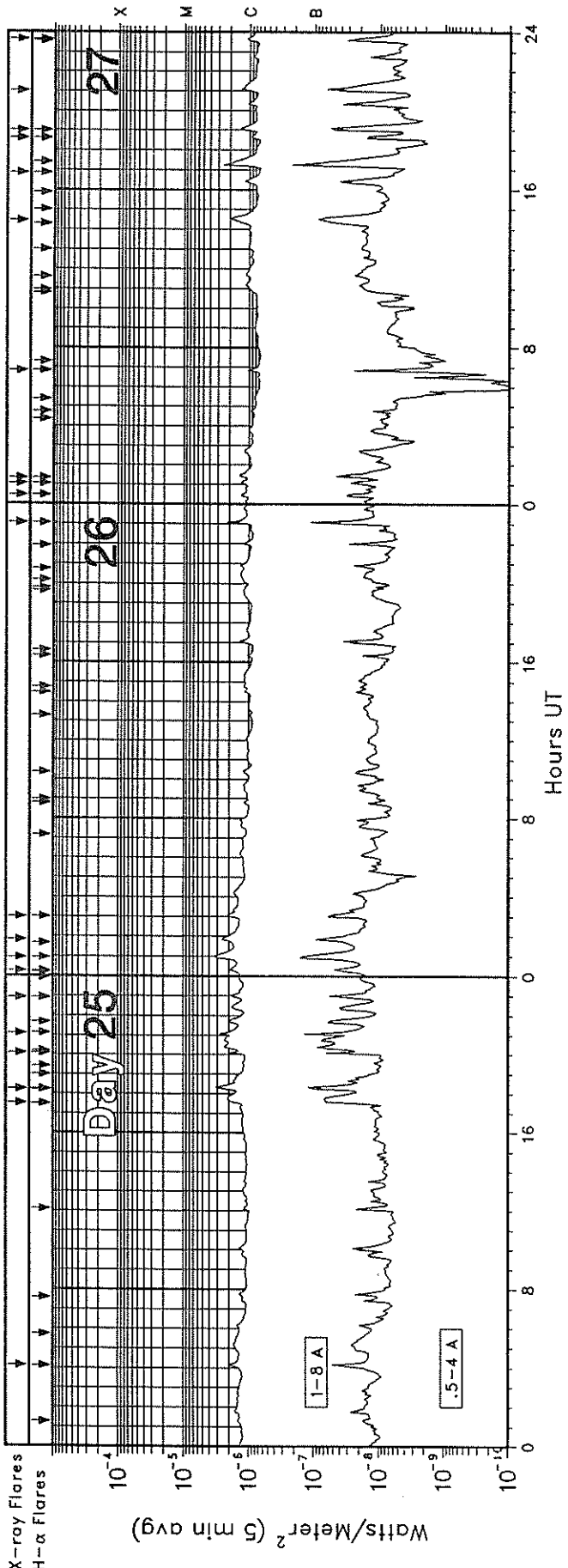
# GOES-7 X-RAY DETECTOR

April 1989



# GOES-7 X-RAY DETECTOR

April 1989



58  
Apr 89

GOES SOLAR X-RAY FLARES  
\*\*Preliminary Listing\*\*

April 1989

Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Imp Opt	Xray	NOAA/USAF Region
01	1743E	1752	1824D	N17	E18	SF	C1.7	5427
01	2100	2200	2240				C2.0	
01	2240	2301	0000	S24	E75	SF	C2.1	5434
02	0456	0505	0554				C2.4	
02	1541	1541U	1559	N34	E77	SB	M1.6	
02	2326E	2328	2332D	N32	E90	SF	M1.0	
03	0609	0613	0615				C3.7	
03	0914	0922	0931				C3.4	
03	1517E	1520	1526D	S23	E24	1N	C5.2	5428
03	1920E	1926	2041D	S23	E05	1N	C6.9	5428
03	2201	2207U	2256D	S17	E13	SN	M1.2	5428
04	0146	0151	0154				C2.9	
04	0559E	0602	0610D	S29	E06	SF	C2.3	
05	0342E	0344	0356D	N34	E70	SF	C7.1	5441
05	0752	0756	0802				C2.1	
05	0855E	0905	0919D	N34	E70	SF	M1.4	5441
05	1155E	1200	1519	S19	W09	1N	M4.3	5428
05	1254E	1259	1341D	S19	E59	1F	C4.5	5438
05	2043	2050U	2107	S17	W08	SF	C1.9	5428
05	2306E	2311	2350D	S19	W12	SF	C7.0	5428
06	0501E	0503	0506D	S18	W17	SF	C2.0	5428
06	0529E	0534	0543D	S21	W19	SF	C4.5	5428
06	1005E	1006	1039	N36	E58	SF	C5.0	5441
06	1803E	1807	1813D	S19	W22	SF	C1.7	5428
06	2042E	2042	2107D	N34	E51	SF	C1.9	5441
07	0439E	0439	0445D	S17	W28	SF	C1.5	5428
07	0832E	0833	0840D	S20	E26	SF	C2.5	5438
07	1303E	1344	1450D	N36	E45	1F	C9.4	5441
07	1309E	1311	1350D	S23	E05	SF	C3.5	5434
07	1523E	1526	1536D	N33	E43	1N	C8.3	5441
07	1949E	1950	1952D	S16	E01	SF	C4.7	5446
08	0153E	0201	0211D	N33	E39	SF	C2.1	5441
08	0315E	0323	0330D	N34	E39	SF	C2.9	5441
08	1127E	1129	1155D	N36	E31	SF	C3.4	5441
08	1613E	1627	1712	N18	W73	SF	C2.5	5427
08	1732	1737	1739				C2.5	
08	1740	1743	1746				C4.1	
08	2112	2126	2148				C5.5	
08	2317	2320	2324				C3.0	
09	0044E	0059	0239D	N35	E29	4B	X3.5	5441
09	0202E	0207	0233D	S20	E04	1F	M1.6	5438
10	1810	1830	1915				C1.8	
10	2134	2323	2357D	N40	W08		M1.2	
12	0603E	0606U	0633	S18	W37	1F	C4.5	5438
12	1017	1021	1023				C2.0	
12	1134	1138	1143				C1.9	
12	1342E	1346	1540D	N10	E83	1F	C1.9	
13	0057	0105	0120				C1.5	
13	0516		0523	S20	E41	SN	C3.0	
13	1219	1230	1248	S17	W54	SF	C3.8	5438
13	1741E	1751	1756D	N10	E69	SF	C4.5	5451
13	1759	1805	1821				C3.2	
13	1825E	1826	1845D	N10	E69	SF	C3.7	5451
13	2053	2059U	2121	N09	E66	SF	C4.7	5451
13	2133E	2135	2151D	N12	E67	SN	M1.5	5451
13	2300	2300U	2342D	N13	E49	SF	C5.8	5450

Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Imp Opt	Xray	NOAA/USAF Region
16	0353	0356U	0403	N10	E43	SF	C2.9	5451
16	0942E	0943	0948D	N12	E38	1F	C5.7	5451
16	2215E	2216	2225D	S20	W05	SF	C2.2	5449
17	0330E	0331	0338D	N11	E28	SF	C3.0	5451
17	1736E	1745	1802D	S19	E61	SN	C5.6	5452
18	0629E	0640	0658D	S20	E55	SF	C3.8	5452
18	1108E	1109	1122D	S24	W28	SF	C2.6	5449
18	2054	2110	2121				C7.9	
19	0032E	0036	0045D	N33	E84	SF	C4.7	5456
19	0420E	0423	0440D	S18	W43	1N	C5.1	
19	0533E	0539	0554D	S21	W38	SF	C3.8	5449
19	0938	0951	1012				C3.6	
19	1731E	1734	1749D	N10	W09	SF	C1.7	5451
19	2052E	2056	2116D	N10	W10	SF	C2.7	5451
20	0220E	0221	0231D	N11	W17	SF	C1.9	5451
20	0521E	0526	0555D	N13	W21	1N	M1.4	5451
20	0802E	0804	0813D	N10	W17	SF	C2.1	5451
20	1403E	1412	1438D	N09	W23	SF	C4.4	5451
20	1512E	1513	1552D	S21	W55	SF	C2.8	5449
20	1816E	1817	1825D	N10	W21	SF	C1.3	5451
21	0436E	0447	0501D	S19	W66	SF	M1.0	5449
21	0655E	0656	0705D	S20	W67	SF	C2.4	5449
21	1052E	1056	1114D	S25	E30	SF	C2.9	5454
21	1346	1350	1354				C1.7	
21	1423E	1424	1447	S22	W67	SF	C4.8	5449
21	1721	1722U	1727	N14	W54	SF	C3.3	5450
21	2210E	2217	2222D	N13	W34	SF	C2.0	5451
21	2353	2353U	0020D	N11	W39	SF	C4.2	5451
22	0107	0111	0115				C2.2	
22	0132	0137	0140				C5.2	
22	0201		0207D	S10	W39	SF	C4.2	5459
22	0247	0252	0255				C3.7	
22	0332E	0334	0346D	N13	W37	SN	M1.2	5451
22	0514	0521	0526				C6.3	
22	0545E	0546	0607D	N12	W40	1N	C6.0	5451
22	0713	0716	0722				C2.8	
22	0824E	0826	0841D	N12	W41	SB	C8.6	5451
22	1212E	1214	1243D	N30	E37	SF	C2.5	5456
22	1256E	1256	1317D	N11	W44	SF	C9.4	5451
22	2309	2313	2315				C1.9	
22	2334E	2337	2349D	N18	W10	SF	C2.8	5453
23	0047E	0055	0059D	N18	W11	SF	C1.6	5453
23	0524	0530	0537				C1.9	
23	0632	0636	0642				C3.3	
23	2144	2155	2232				M1.4	
23	2355E	0005	0044D	S21	W07	1B	M1.0	5454
24	0033	0045U	0129D	S20	W04	2F	C5.1	5454
24	0337E	0339	0358D	N28	E16	SF	C2.7	5456
24	0349E	0349	0357D	N19	W30	SF	C3.0	5453
24	0514E	0528	0606D	S24	W05	SF	C6.0	5454
24	0622E	0624	0635D	N09	W68	SF	C7.7	5451
24	1253	1259	1309				C3.2	
24	1326E	1328	1333D	S21	E83	SF	C4.8	
25	0408E	0409	0419D	S21	W19	SF	C2.1	5454
25	1731E	1733	1804D	S17	E75	SF	C2.0	5464
25	1815E	1822	1843D	S20	E74	SF	C3.4	5464
25	2006E	2007	2011D	S17	W34	SF	C2.2	5454
25	2107E	2108	2115D	S18	W32	SN	C5.0	5454
25	2256E	2300	2320D	S21	E71	SF	C2.0	5464

GOES SOLAR X-RAY FLARES  
 \*\*Preliminary Listing\*\*

59  
 Apr 89

April 1989

Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Opt	Imp Xray	NOAA/USAF Region
26	0017E	0018	0026D	N10	E52	SF	C2.0	5463
26	0057E	0058	0110D	S20	E74	SF	C3.6	5464
26	0150	0155	0159				C2.8	
26	0300E	0304	0312D	S21	E70	SF	C2.1	5464
26	2304E	2305	2322D	S19	W47	SF	C2.4	5454
27	0028E	0044	0051D	S19	W46	SF	C1.3	5454
27	0103E	0110	0116D	S23	E67	SF	C1.3	5464
27	0120E	0130	0201D	S19	E63	SF	C1.5	5464
27	0649	0653	0656				C1.1	
27	1426E	1437	1450D	S19	W55	SF	C1.9	5454
27	1652E	1714	1755D	S18	W57	1N	C2.7	5454
27	1837E	1839	1845D	S19	W56	SF	C1.0	5454

Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Opt	Imp Xray	NOAA/USAF Region
27	1900E	1901	1909D	S19	W57	SF	C1.4	5454
27	2101	2105	2122				C1.4	
27	2339E	2340	2352D	S19	W37	SF	C1.1	5460
28	0955	1005	1010				C1.6	
28	1506E	1506	1531D	S17	E38	SF	C3.1	5464
28	1745E	1746	1817D	N13	E22	SF	C2.8	5463
28	2101E	2116	2129D	S20	W72	SN	C2.2	5454
28	2110E	2122	2135D	N25	E02	SF	C2.0	5468
28	2338E	2341	2353D	S19	W29	SF	C2.0	
29	0112	0120	0136				C4.1	

Preliminary GOES Satellite Data  
Daily Average X-ray Background  
May 1988 - April 1989

Day	1988							1989				
	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
1	B1.9	B7.5	B8.4	B9.4	B6.9	C1.0	B5.7	B4.6	C1.7	C1.2	C1.3	B9.2
2	B2.6	B6.6	B7.1	B9.8	B6.5	C1.2	B6.1	B4.7	C2.1	C1.2	C1.3	C1.0
3	B3.7	B7.1	B9.7	C1.1	B6.9	C1.3	B5.2	B4.4	C2.2	C1.6	B9.8	C1.1
4	B5.1	B9.5	B6.3	B8.6	B6.7	C1.0	B5.0	B4.5	C2.0	C2.0	B7.0	C1.0
5	B4.1	B6.0	B6.4	B8.3	B6.4	B8.7	B4.6	B5.7	C1.9	C1.6	C1.3	C1.0
6	B2.9	B4.8	B6.5	B7.9	B6.1	C1.0	B5.8	B6.2	C2.4	C1.9	C2.7	B8.6
7	B3.1	B5.6	B6.8	B8.2	B6.9	B7.4	B5.5	B6.6	C4.7	C1.9	C2.5	C1.0
8	B2.5	B5.2	B7.0	C1.1	B5.5	B5.3	B5.5	B7.4	C4.6	C2.1	C1.9	C1.3
9	B1.8	B6.4	B7.7	C1.0	B4.8	B5.0	B9.2	B7.8	C3.4	C2.2	C2.1	B9.8
10	B1.6	B4.9	B9.1	C1.0	B3.2	B4.7	B9.8	C1.0	C2.5	C1.9	C2.5	B8.1
11	B1.6	B4.3	B7.7	B6.7	B2.7	B4.9	B9.8	C1.3	C3.1	C1.3	C2.8	C2.1
12	B1.5	B3.7	B4.9	B5.1	B2.8	B5.4	B6.3	C1.2	C2.3	C1.1	C2.3	C1.1
13	B1.4	B3.0	B5.3	B3.9	B2.4	B5.4	B8.9	C1.1	C5.0	C1.3	C3.0	C1.2
14	B1.3	B2.8	B5.0	B3.1	B2.3	B4.7	C1.3	C1.4	C3.8	C2.0	C2.4	C1.2
15	B1.1	B3.3	B4.7	B3.2	B2.6	B5.9	B7.9	C2.1	C2.9	C1.5	C2.1	C1.1
16	B1.3	B3.7	B5.5	B3.0	B3.0	B7.8	C1.4	C1.7	C3.1	C1.7	C2.5	C1.1
17	B2.0	B3.6	B4.8	B3.2	B3.6	C1.2	C1.0	C2.0	C2.1	C1.4	C2.3	C1.4
18	B3.2	B4.0	B6.7	B2.8	B5.3	B8.0	B8.1	C1.3	C2.8	C1.3	C2.1	C1.1
19	B2.9	B2.6	B9.2	B2.7	B4.8	B8.3	B8.4	C1.9	C2.0	C1.5	C2.6	C1.0
20	B3.2	B2.6	B4.5	B2.7	B6.9	B6.8	B6.6	C2.2	C2.3	C1.4	C2.3	B9.5
21	B4.1	B3.5	B6.5	B2.8	B7.2	B7.3	C1.1	C2.3	C2.7	C1.7	*	B9.0
22	B5.8	B4.6	B7.2	B2.7	C1.0	B8.2	B8.3	C1.8	C2.1	C2.2	C1.8	C1.2
23	B8.8	B9.8	B6.1	B7.4	B8.8	B8.0	B5.1	C2.3	C1.9	C1.5	C1.6	C1.4
24	B4.5	C1.2	B6.7	B7.7	B8.1	B6.6	B5.3	C2.1	C1.8	C1.4	C1.1	C1.4
25	B5.3	---	B7.7	B7.3	B8.5	B6.0	B5.7	C1.5	C1.4	C1.5	C1.0	C1.0
26	B3.8	C2.7	B8.0	B7.4	B6.2	B5.3	B7.2	C1.3	C1.3	C1.1	B8.9	B9.4
27	B3.7	C1.1	B8.9	B8.1	B7.3	B6.7	B7.5	C1.9	C1.3	B9.5	B9.9	B7.4
28	B5.0	C1.6	B9.4	B7.3	B6.0	B7.3	B4.2	C1.4	C1.1	C1.0	C1.1	B7.6
29	B7.2	C1.5	B9.9	B9.2	B6.0	B8.4	B4.3	B8.7	C1.1		C1.0	C1.0
30	B8.0	B8.1	B7.8	B9.4	B8.4	B8.0	B4.1	C1.0	C8.9		B8.8	B8.4
31	B8.5		B9.4	B8.9		B6.7			C1.0		B9.6	

MASS EJECTIONS FROM THE SUN

61  
Apr 89

APRIL 1989

Sta	Day	Observed UT			Location		Freq or Wavelength	Kind of Event
		Start	Max	End	RA <sup>o</sup>	R/R <sub>o</sub>		
KHAR	Apr 02	0859		0906	D 043	1.00-1.03	H-alpha	S
SGMR	Apr 03	1929.0		2030.0			Meter	IV
KHAR	Apr 05	1020	E	1044	D 180-187	0.32-0.40	H-alpha	S
KHAR	Apr 06	0806		0842	030	1.00-1.03	H-alpha	S
KHAR	Apr 06	1004		1022	234	0.30	H-alpha	S
PALE	Apr 09	[ 0045.0		0107.0			Meter	IV
LEAR	Apr 09	[ 0045.0		0200.0			Meter	IV
VORO	Apr 12	2333	2335	U 2400	115	1	H-alpha	SP
KHAR	Apr 13	0810		0816	D 077	0.99	H-alpha	S
KHAR	Apr 13	1010		1021	D 075	0.96	H-alpha	S
KHAR	Apr 14	0745		0835	246	1.00-1.50	H-alpha	SP
LEAR	Apr 18	0636.0		0642.0			Meter	II
LEAR	Apr 18	0642.0		0952.0			Meter	IV
LEAR	Apr 22	0347.0		0351.0			Meter	II
LEAR	Apr 22	0600.0		0605.0			Meter	II
KHAR	Apr 22	0655	E	0713	D 258	0.72	H-alpha	S
KHAR	Apr 23	0720	0725	0800	112-120	0.51	H-alpha	S
KHAR	Apr 23	0835		1020	D 143-155	0.90-1.50	H-alpha	S
PALE	Apr 23	[ 2155.0		2156.0			Meter	II
SGMR	Apr 23	[ 2155.0		2156.0			Meter	II
KHAR	Apr 24	0848	E	0935	D 067	1.00-1.02	H-alpha	S
KHAR	Apr 29	0718	E	0735	D 112	0.59	H-alpha	S
KHAR	Apr 30	1014		1024	D 122	0.45	H-alpha	S

QUALIFIERS ON START, MAX AND END TIMES

D = event ended after tabulated time  
E = event began before the tabulated time  
U = uncertain time

REPORTING STATIONS

KHAR = Kharkov  
LEAR = Learmonth  
PALE = Palehua  
SGMR = Sagamore Hill  
VORO = Voroshilov

TYPE OF EVENT

A = eruptive active region prominence  
CB = coronal cloud bubble  
D = coronal depletions  
E = coronal enhancement  
EL = coronal expanding loop  
II = Type II radio burst  
IVm = moving Type IV radio burst  
Q = eruptive quiescent prominence  
R = coronal ray or streamer  
S = flare-surge if there is a known flare association  
SP = flare-spray if there is a known flare association  
\* = movement may be caused by ionospheric refraction

ACTIVE PROMINENCES AND FILAMENTS

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	NOAA/USAF Sta Reg#	Remarks
01	ADF	0523E	0940D	N14	E01	04 1.3	2	06	9	9	E	LEAR 5426	
01	BSL	0714E	0727	N27	E90	04 8.3	1				C	CATA	
01	AFS	0815E	0959D	S17	E49	04 5.1		03	9	9	E	SVTO 5428	
01	AFS	0816E	0959D	N19	E23	04 3.1		03	8	8	E	SVTO 5427	
01	ADF	0817E	0959D	S15	E39	04 4.3	1	09	9	9	E	SVTO 5428	
01	ASR	0823	0959D	S19	E90	04 8.2			9	9	E	SVTO	
01	BSL	1109E	1117	N28	E90	04 8.5	1-				C	CATA	
01	BSL	1113	1117	S40	W90	03 25.2	1-				C	CATA	
01	SDF	1400E	1615D	N16	E40	04 4.6		08	0	0	E	HOLL	
01	AFS	1605E	0030D	S19	E36	04 4.4		02	9	9	E	HOLL 5428	
01	AFS	1620E	0030D	S20	E46	04 5.2		03	9	9	E	HOLL 5428	
01	AFS	1630E	1710D	S20	E45	04 5.1		03	9	9	E	RAMY 5428	
01	AFS	1728E	0346D	S20	E45	04 5.2		03	9	9	E	PALE 5428	
01	SSB	1750		106	W13	04 2.2			0	0	E	HOLL	
01	SDF	2159E	1454D	N38	E20	04 3.5		11	0	0	E	HOLL	
01	SDF	2159E	1454D	S25	W09	04 1.2		20	0	0	E	HOLL	
01	DSD	2320E	0948D	S22	E40	04 5.0		02	9	9	E	LEAR 5428	
02	ASR	0639E	0948D	S22	W90	03 26.4			9	9	E	LEAR 5417	
02	DSD	0728	0948D	N13	E61	04 6.9		04	9	9	E	LEAR 5433	
02	AFS	0815E	1635D	N19	W56	03 29.2		03	9	9	E	SVTO 5422	
02	AFS	0816E	1635D	S18	E36	04 5.1		03	7	8	E	SVTO 5428	
02	DSD	0817E	1635D	S21	E34	04 4.9		03	9	9	E	SVTO 5428	
02	ADF	0818E	1635D	S23	W77	03 27.5	1	06	9	9	E	SVTO 5417	
02	ASR	0819E	1635D	S27	W85	03 26.8			9	9	E	SVTO 5417	
02	ADF	0820E	1635D	N16	E59	04 6.8	1	06	9	9	E	SVTO 5433	
02	AFS	0821E	1635D	N20	W46	03 29.9		03	9	9	E	SVTO 5422	
02	BSL	0829E	0844D	N78	E90	04 10.7	1-				C	CATA	
02	ADF	0829E	0948D	N20	W25	03 31.4	2	09	9	9	E	LEAR 5426	
02	APR	0830E	1635D	S53	E90	04 10.1	1		9	9	E	SVTO	
02	APR	0844E	1635D	N23	E90	04 9.3	1		9	9	E	SVTO	
02	ADF	0855E	0906D	S22	E35	04 5.1	1				V	KHAR	
02	BSL	0856	0905D	N30	E90	04 9.4	1-				C	CATA	
02	ASR	0857	1635D	N32	E90	04 9.5			9	9	E	SVTO	
02	BSL	0859E	0906	N47	E90	04 9.9	1				V	KHAR	
02	SDF	0946E	2302D	N36	E13	04 3.4		15	0	0	E	LEAR	
02	SDF	0946E	2302D	S32	W15	04 1.2		19	0	0	E	LEAR	
02	BSL	1039	1106	S24	E90	04 9.4	2				C	CATA	
02	BSL	1123	1141D	S23	E90	04 9.4	1-				C	CATA	
02	ASR	1414	1526D	N15	E88	04 9.2			9	9	E	SVTO	
02	BSL	1547E	1645D	N31	E90	04 9.7			9	9	E	HOLL	
02	ASR	1547E	1842D	N31	E90	04 9.7			9	9	E	HOLL	
02	BSL	1556E	1621D	N34	E90	04 9.8			9	9	E	SVTO	Flare Associated
02	DSD	1703E	1846D	N22	W60	03 29.2		03	9	9	E	RAMY 5422	
02	AFS	1704E	1846D	S21	E30	04 5.0		02	9	9	E	RAMY 5428	
02	AFS	1819E	1846D	S05	W14	04 1.7		02	9	9	E	RAMY	
02	ADF	1907E	0042D	N25	E54	04 7.0	2	16	9	9	E	HOLL	
02	ADF	2001E	0401D	N19	W23	04 1.1		04	9	9	E	PALE 5426	
02	AFS	2001E	0401D	S18	E26	04 4.8		04	9	9	E	PALE 5428	
02	ASR	2035E	0042D	S23	W90	03 27.0			9	9	E	HOLL 5417	
02	ASR	2038	0042D	N29	E90	04 9.9			9	9	E	HOLL	
02	ASR	2259E	0915D	N30	E82	04 9.4			9	9	E	LEAR	
02	AFS	2300E	0915D	S20	E27	04 5.0		02	9	9	E	LEAR 5428	
02	ASR	2301E	0915D	S28	W86	03 27.3			9	9	E	LEAR 5417	
02	AFS	2304E	0520D	N19	W61	03 29.4		02	7	7	E	LEAR 5422	
02	AFS	2319E	0520D	N36	W41	03 30.8		02	8	8	E	LEAR 5437	
02	BSL	2347E	0022	N26	E90	04 10.0	1				C	VORO	
02	APR	2347E	0056D	N57	E90	04 10.8	1				C	VORO	
02	APR	2347E	0056D	S54	E90	04 10.7	1				C	VORO	
02	SPY	2352E	0029D	N29	E90	04 10.0			9	9	E	HOLL	
03	BSL	0029	0039	S22	W90	03 27.2	1				C	VORO	
03	AFS	0549E	1309D	S18	E23	04 5.0		04	9	9	E	SVTO 5428	
03	DSD	0550E	1309D	S17	E16	04 4.4		05	9	9	E	SVTO 5428	
03	ADF	0558E	1309D	N21	E54	04 7.4	1	08	9	9	E	SVTO	
03	AFS	0602E	1309D	S11	E37	04 6.0		04	9	9	E	SVTO	
03	ADF	0704E	1309D	N12	E43	04 6.5	1	05	9	9	E	SVTO 5433	
03	ADF	0706E	1309D	N15	W04	04 3.0	1	05	9	9	E	SVTO 5427	
03	AFS	0739E	1309D	N36	W51	03 30.3		02	9	9	E	SVTO 5437	
03	AFS	0740E	1309D	N18	W70	03 29.1		03	9	9	E	SVTO 5422	

## ACTIVE PROMINENCES AND FILAMENTS

63  
Apr 89

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/USAF Reg#	Remarks
03	AFS	0748E	1309D	N20	W29	04	1.1		02	9	9	E	SVTO	5426	
03	ADF	0749E	1309D	N11	W33	03	31.8	1	05	9	9	E	SVTO	5426	
03	AFS	0817E	1309D	S13	E88	04	10.0		03	9	9	E	SVTO	5438	
03	ASR	1056E	1309D	N34	E85	04	10.2			9	9	E	SVTO		
03	ASR	1127	1240D	S18	E90	04	10.3			9	9	E	SVTO	5438	Flare Associated
03	AFS	1225E	2158D	N21	W63	03	29.8		02	9	9	E	RAMY	5435	
03	AFS	1254E	2158D	S20	E22	04	5.2		03	9	8	E	RAMY	5428	
03	ADF	1357E	2144D	S32	E33	04	6.2	1	06	9	9	E	RAMY	5432	
03	AFS	1401E	2158D	S24	E58	04	8.1		03	9	9	E	RAMY	5434	
03	ADF	1413E	2158D	S15	E82	04	9.8	1	06	9	9	E	RAMY	5438	
03	AFS	1435E	0117D	N21	W61	03	30.0		05	9	9	E	HOLL	5435	
03	AFS	1436E	2010D	S19	E14	04	4.7		01	9	9	E	HOLL	5428	
03	DSD	1526E	1830D	S23	E26	04	5.6		06	9	9	E	HOLL	5428	
03	SSB	1549		452	W25	03	30.7			0	0	E	RAMY		
03	AFS	1703E	2048D	S20	E18	04	5.1		01	9	9	E	PALE	5428	
03	AFS	1708E	2048D	S21	E54	04	7.8		02	9	9	E	PALE	5434	
03	AFS	1711E	2048D	N19	W63	03	30.0		03	9	9	E	PALE	5435	
03	AFS	1715E	2048D	S12	E30	04	6.0		02	9	9	E	PALE	5439	
03	ASR	1725E	2048D	N35	E90	04	10.9			9	9	E	PALE		
03	DSD	2030E	2150D	S21	E06	04	4.3		05	9	9	E	HOLL	5428	Flare Associated
03	DSD	2054E	2150D	S20	E23	04	5.6		06	9	9	E	HOLL	5428	
03	SDF	2158E	1510D	N18	W31	04	1.5		08	0	0	E	RAMY	5426	
03	APR	2328	0200D	S54	W90	03	27.3	1				C	VORO		
03	APR	2354	0200D	N33	E90	04	11.1	1				C	VORO		
04	APR	0026	0200D	N01	E90	04	10.7	1				C	VORO		
04	APR	0036	0200D	S20	E90	04	10.9	1				C	VORO		
04	APR	0126	0200D	N60	W90	03	27.2	1				C	VORO		
04	ASR	0223E	0839D	N31	E90	04	11.2			9	9	E	LEAR	5440	
04	ADF	0224E	0839D	S17	E06	04	4.5	2	07	9	9	E	LEAR	5428	
04	AFS	0227E	0839D	S21	E52	04	8.1		02	9	9	E	LEAR	5434	
04	ADF	0234E	0519D	S31	E27	04	6.2	2	06	9	9	E	LEAR	5432	
04	DSD	0303	0345	S22	E19	04	5.6		03	9	9	E	LEAR	5428	Flare Associated
04	BSL	0409E	0800D	N14	E90	04	11.0	1				C	ABST		
04	BSD	0419	0429	N31	E67	04	9.5		04	9	9	E	LEAR	5440	
04	DSD	0428	0522D	N31	E65	04	9.3		05	9	9	E	LEAR	5440	Flare Associated
04	AFS	0451E	0839D	S12	E25	04	6.1		03	9	9	E	LEAR	5439	
04	BSL	0505E	0800D	N60	E90	04	12.1	1				C	ABST		
04	AFS	0555E	1559D	N17	W74	03	29.7		04	9	9	E	SVTO	5422	
04	AFS	0610E	1559D	N11	E25	04	6.1		03	9	9	E	SVTO	5439	
04	ASR	0616E	1536D	N26	W90	03	28.4			9	9	E	SVTO	5435	
04	ASR	0712E	0839D	N25	W90	03	28.4			9	9	E	LEAR	5435	
04	ADF	0822E	1044D	N37	E66	04	9.7	1	10	9	9	E	SVTO	5440	
04	BSL	0956	1027	N18	W90	03	28.7	1-				C	CATA		
04	ASR	1035E	1559D	N34	E90	04	11.6			9	9	E	SVTO		
04	APR	1044E	1242D	N38	E65	04	9.7	1		9	9	E	SVTO	5440	
04	APR	1105E	1147D	N26	W90	03	28.6	3		9	9	E	SVTO		
04	EPL	1106E	1109D	N29	W90	03	28.5	1-				C	CATA		
04	BSL	1106E	1109D	N33	E90	04	11.6	1-				C	CATA		
04	EPL	1121E	1141	N30	W90	03	28.5	2				C	CATA		
04	ADF	1151E	1559D	N32	E61	04	9.3	1	11	9	9	E	SVTO	5440	
04	ADF	1330E	1559D	S13	E71	04	9.9	1	13	9	9	E	SVTO	5438	
04	AFS	1436E	0017D	S01	E18	04	5.9		03	9	9	E	HOLL	5428	
04	ADF	1453E	2224D	S24	E14	04	5.7	1	04	9	9	E	RAMY	5428	
04	SSB	1720		444	W31	04	1.2			0	0	E	HOLL		457 W44
04	ADF	1744E	2008D	N23	W29	04	2.5		11	9	9	E	PALE	5427	
04	ASR	1744E	2008D	N30	E90	04	11.8			9	8	E	PALE	5441	
04	ADF	1744E	2008D	S18	W02	04	4.6		08	9	9	E	PALE	5428	
04	DSD	1744E	2008D	S22	E04	04	5.0		02	9	9	E	PALE	5428	
04	DSD	1744E	2008D	S23	E00	04	4.7		02	9	9	E	PALE	5428	
04	AFS	1750E	0017D	N16	E28	04	6.9		02	9	9	E	HOLL	5433	
04	AFS	1800E	1802D	S14	E65	04	9.7		05	9	9	E	HOLL	5438	
04	DSD	1800E	1915D	S18	E65	04	9.7		02	9	9	E	HOLL	5438	
04	AFS	2221E	0932D	S20	W01	04	4.8		02	9	9	E	LEAR	5428	
04	ASR	2227E	0932D	N33	E90	04	12.1			9	9	E	LEAR	5441	
04	ASR	2310E	0932D	N25	W90	03	29.1			9	9	E	LEAR	5422	
05	AFS	0001E	0017D	N35	E64	04	10.1		10	9	9	E	HOLL	5440	
05	ASR	0102E	0932D	N46	E90	04	12.5			9	9	E	LEAR		
05	AFS	0243E	0932D	S11	E12	04	6.0		02	9	9	E	LEAR	5439	



ACTIVE PROMINENCES AND FILAMENTS

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks
05	BSD	0350E	0425D	N34	E70	04 10.7		05	9	9	E	LEAR	5441	Flare Associated
05	BSL	0744E	0758	N53	E90	04 13.0	1				C	CATA		
05	BSD	0914E	1053D	N36	E68	04 10.8		04	9	9	E	SVTO		
05	APR	0956E	1022	N23	E90	04 12.3	1				V	KHAR		
05	DSD	1020E	1044D	S27	W02	04 5.3	1				V	KHAR		
05	ADF	1020E	1057D	N25	E45	04 8.9	1				V	KHAR		
05	ADF	1023E	1644D	S24	E00	04 5.4	1	02	9	9	E	SVTO	5428	
05	ADF	1023E	1644D	S24	W06	04 5.0	1	04	9	9	E	SVTO	5428	
05	AFS	1129E	1644D	N07	W17	04 4.2		03	9	9	E	SVTO		
05	DSD	1654E	1810D	S18	W09	04 5.0		08	9	9	E	HOLL	5428	
05	ADF	1920E	0120D	N34	E51	04 9.9	1	05	9	9	E	HOLL	5440	
05	AFS	2034E	0120D	S16	E27	04 7.9	1	04	9	9	E	HOLL		
05	DSD	2120E	0120D	S13	E49	04 9.6		03	9	9	E	HOLL	5438	
05	AFS	2133E	0314D	N17	E13	04 6.9		01	9	9	E	PALE	5433	
05	ADF	2133E	0314D	N34	E49	04 9.8		05	9	9	E	PALE	5440	
05	DSD	2133E	0314D	N34	E64	04 11.0		02	9	9	E	PALE	5441	
05	ADF	2133E	0314D	N36	E48	04 9.7		06	9	9	E	PALE	5440	
05	ADF	2133E	0314D	S15	W07	04 5.4		02	9	8	E	PALE	5428	
05	AFS	2133E	0314D	S19	W13	04 4.9		05	9	8	E	PALE	5428	
05	AFS	2205E	0120D	N17	E13	04 6.9	1	03	9	9	E	HOLL	5433	
05	APR	2326	0200D	N55	W90	03 29.3	1				C	VORO		
05	APR	2336	0200	S65	E90	04 14.0	1				C	VORO		
05	AFS	2340E	0956D	N15	E13	04 7.0		03	9	8	E	LEAR	5437	
05	AFS	2345E	0956D	S18	E26	04 8.0		03	9	9	E	LEAR		
05	APR	2350	0200D	S21	E90	04 12.9	1				C	VORO		
06	BSL	0001	0029	N38	W90	03 29.8	1				C	VORO		
06	BSL	0025	0037	N20	E90	04 12.9	1				C	VORO		
06	AFS	0040E	0120D	N30	W18	04 4.6		01	7	8	E	HOLL		
06	DSD	0601E	1523D	S18	W22	04 4.6		03	9	9	E	SVTO	5428	
06	ADF	0610E	1640D	N35	E59	04 11.0	1	08	9	9	E	SVTO	5441	
06	ADF	0612E	1640D	N50	E59	04 11.2	1	23	9	9	E	SVTO	5440	
06	BSL	0628E	0705D	N34	E90	04 13.4	1				C	ABST		
06	BSL	0700E	0705D	N19	E90	04 13.1	1-				C	CATA		
06	ADF	0728E	0820D	N47	E55	04 10.9	1				V	KHAR		
06	ADF	0728E	0845D	N34	E44	04 9.8	1				V	KHAR		
06	ADF	0740E	0800D	N18	E05	04 6.7	1				V	KHAR		
06	BSL	0805	0815	N14	E90	04 13.1	1-				C	CATA		
06	BSL	0805	0835	N57	E90	04 14.2	1				C	CATA		
06	BSL	0806E	0845D	N60	E90	04 14.2	1				V	KHAR		
06	ADF	0810E	0842	S16	E22	04 8.0	1				V	KHAR		
06	ADF	0830E	0916	S17	E48	04 10.0	1				V	KHAR		
06	BSL	0843	0852	N20	E90	04 13.2	1-				C	CATA		
06	AFS	0944E	1640D	S16	E21	04 8.0	1	04	9	9	E	SVTO	5434	
06	ADF	0945E	1002	S17	E48	04 10.0	1				V	KHAR		
06	AFS	0951E	1640D	N16	E06	04 6.9	1	03	9	9	E	SVTO	5433	
06	DSD	1004	1022	S16	W15	04 5.3	1				V	KHAR		
06	ADF	1246E	1616D	S18	W30	04 4.2	1	06	9	9	E	RAMY	5428	
06	AFS	1246E	1616D	S19	W23	04 4.8		03	9	9	E	RAMY	5428	
06	AFS	1254E	2117D	N16	E05	04 6.9		03	9	9	E	RAMY	5433	
06	ADF	1307E	2117D	N23	E29	04 8.8	1	45	9	9	E	RAMY	5440	
06	AFS	1345E	0117D	N28	W37	04 3.7		02	9	9	E	HOLL		
06	AFS	1345E	0117D	S16	E19	04 8.0		02	9	9	E	HOLL		
06	ASR	1355E	0117D	N19	E90	04 13.4			8	8	E	HOLL		
06	AFS	1357E	0117D	N16	E03	04 6.8		02	9	9	E	HOLL	5433	
06	SSB	1420		378	W00	03 31.8			0	0	E	HOLL		455 W67
06	AFS	1520E	1640D	S20	W21	04 5.0		03	5	7	E	SVTO	5428	
06	ADF	1521E	1640D	S19	W31	04 4.3	1	06	9	9	E	SVTO	5428	
06	AFS	1522E	1640D	S25	E18	04 8.0		02	9	9	E	SVTO		
06	SSB	1608		340	W00	04 3.7			0	0	E	SVTO		
06	AFS	1718E	0353D	N17	E02	04 6.9		02	9	9	E	PALE	5433	
06	AFS	1731E	0353D	S16	E16	04 7.9		02	8	8	E	PALE		
06	AFS	1736E	0353D	N27	W38	04 3.8		02	9	9	E	PALE		
06	SSB	1801		374	W00	04 1.2			0	0	E	PALE		453 W67
06	AFS	2346E	0955D	N16	E00	04 7.0		03	9	7	E	LEAR	5433	
07	AFS	0330E	0955D	N19	W51	04 3.2		03	9	9	E	LEAR	5427	
07	AFS	0413E	0955D	N28	W42	04 3.9		04	9	9	E	LEAR		
07	DSD	0439	0545D	S17	W27	04 5.1		04	9	9	E	LEAR	5428	
07	DSD	0840E	0902D	S20	E26	04 9.3		05	9	9	E	LEAR	5438	Flare Associated

## ACTIVE PROMINENCES AND FILAMENTS

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/USAF Reg#	Remarks
07	SSB	0910		378	W00	04 1.5			0	0	E	LEAR		
07	BSL	1000	1007	N16	W90	03 31.6	1-				C	CATA		
07	AFS	1058E	1904D	N17	W56	04 3.2		02	9	9	E	RAMY 5427		
07	ADF	1058E	1904D	N32	E54	04 11.7	1	09	9	9	E	RAMY 5441		
07	BSL	1120	1125D	N24	E90	04 14.4	1-				C	CATA		
07	AFS	1256E	1644D	N15	W60	04 3.0		02	9	9	E	SVTO 5427		
07	AFS	1256E	1644D	N26	W51	04 3.6		02	9	9	E	SVTO		
07	AFS	1415E	0118D	N17	W57	04 3.3		04	9	9	E	HOLL 5427		
07	AFS	1415E	0118D	S13	W18	04 6.2		02	9	9	E	HOLL 5439		
07	AFS	1415E	0118D	S20	E25	04 9.5		02	9	9	E	HOLL 5438		
07	DSD	1415E	2200D	N34	E44	04 11.1		08	9	9	E	HOLL 5441		
07	AFS	1430E	0118D	S20	W32	04 5.1		04	9	9	E	HOLL 5428		
07	AFS	1430E	0118D	S28	W55	04 3.3		01	9	9	E	HOLL 5436		
07	AFS	1440E	0118D	N28	W52	04 3.5		04	9	9	E	HOLL		
07	AFS	1440E	0118D	N31	W35	04 4.8		03	9	9	E	HOLL 5442		
07	DSD	1445E	1644D	N37	E42	04 11.0		05	9	9	E	SVTO 5441		
07	AFS	1505E	1644D	S13	W19	04 6.2		03	9	9	E	SVTO 5439		
07	AFS	1510E	1644D	S18	E24	04 9.4		02	9	9	E	SVTO 5438		
07	AFS	1645E	0118D	S23	E02	04 7.8		02	9	9	E	HOLL 5434		
07	APR	2314	0200D	S38	E90	04 15.2	1				C	VORO		
07	BSL	2323	2343	N45	E90	04 15.4	1				C	VORO		
07	AFS	2344E	0949D	N31	W54	04 3.7		03	9	9	E	LEAR 5445		
07	APR	2345	0200D	N65	E90	04 16.0	1				C	VORO		
07	DSD	2352E	0949D	N35	E41	04 11.3		03	9	9	E	LEAR 5441		
08	AFS	0007E	0949D	S19	E18	04 9.4		04	9	9	E	LEAR 5438		
08	AFS	0010E	0949D	N20	W63	04 3.2		03	9	9	E	LEAR 5427		
08	APR	0019	0200D	S60	E90	04 15.9	1				C	VORO		
08	APR	0024	0200D	N20	E90	04 14.9	1				C	VORO		
08	ADF	0548E	0949D	S37	E36	04 11.1	2	20	9	9	E	LEAR 5438		
08	EPL	0749	0830	N40	E90	04 15.6	3				C	CATA		
08	AFS	0800E	0949D	S23	W07	04 7.8		02	9	9	E	LEAR 5434		
08	AFS	0850E	1638D	N37	E22	04 10.1		02	9	9	E	SVTO		
08	AFS	0851E	1638D	S18	E14	04 9.4		02	9	9	E	SVTO 5438		
08	AFS	0852E	1638D	N15	W72	04 2.9		03	9	9	E	SVTO 5427		
08	AFS	0853E	1638D	N26	W63	04 3.5		03	9	9	E	SVTO 5445		
08	AFS	0854E	1638D	S24	W07	04 7.8		03	8	9	E	SVTO 5434		
08	ADF	0855E	1638D	N25	E69	04 13.7	1	17	9	9	E	SVTO 5444		
08	ADF	0856E	1638D	N35	E41	04 11.6	1	14	9	9	E	SVTO 5441		
08	SSB	0857		340	W00	04 5.4			0	0	E	SVTO		
08	BSL	0858E	0922D	S45	E90	04 15.8	1				C	ABST		
08	BSD	1015E	1638D	N15	W74	04 2.8		06	9	9	E	SVTO 5427		
08	DSD	1105E	1155D	S22	W50	04 4.6		04	9	9	E	RAMY 5428		Flare Associated
08	ADF	1105E	1715D	N36	E39	04 11.6	1	09	9	9	E	RAMY 5441		
08	AFS	1450E	0104D	N37	E24	04 10.5		02	9	9	E	HOLL 5441		
08	AFS	1900E	0104D	S17	E08	04 9.4		03	9	9	E	HOLL 5438		
08	AFS	1919E	1922D	N18	W23	04 7.0		04	9	9	E	HOLL 5433		
08	ADF	1931E	0104D	N38	E33	04 11.5		10	9	9	E	HOLL 5441		
08	DSD	2140E	0020D	N38	E22	04 10.7		11	9	9	E	HOLL 5441		
08	AFS	2150E	0104D	N19	E57	04 13.2		03	9	9	E	HOLL 5444		
08	ADF	2155E	0104D	N29	E38	04 11.9		09	9	9	E	HOLL 5444		
08	SDF	2254	0048	N40	E37	04 12.0	1				V	VORO		
08	ASR	2320E	0010D	N17	W90	04 2.1			9	9	E	HOLL 5427		
08	BSD	2320E	0104D	N17	W71	04 3.6		01	9	9	E	HOLL 5427		
09	APR	0008	0230	N55	W90	04 1.2	1				C	VORO		
09	APR	0045	0230D	N18	E90	04 15.9	1				C	VORO		
09	BSL	0519E	0630D	S50	E90	04 16.8	1				C	ABST		
09	BSL	0730E	0740D	S19	E90	04 16.2	1				C	CATA		
09	BSL	0910	0915	S45	W90	04 1.9	1-				C	CATA		
09	BSL	0950	1011	N18	W90	04 2.5	1				C	CATA		
09	BSL	0950	1011	S52	W90	04 1.7	1-				C	CATA		
09	BSL	1022	1030	N14	E90	04 16.2	1-				C	CATA		
09	BSL	1038	1110	N17	E90	04 16.3	2				C	CATA		
09	BSL	1048	1100	N51	E90	04 17.1	1-				C	CATA		
09	BSL	1100	1110	N45	W90	04 2.0	1-				C	CATA		
09	ADF	1110E	1651D	N35	E27	04 11.6	1	09	9	9	E	SVTO 5441		
09	AFS	1110E	1651D	N37	E09	04 10.2		02	9	9	E	SVTO		
09	AFS	1111E	1651D	S17	E01	04 9.5		02	9	8	E	SVTO 5438		
09	ASR	1115E	1651D	N14	W90	04 2.7			9	9	E	SVTO 5427		

66  
Apr 89

ACTIVE PROMINENCES AND FILAMENTS

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/USAF Reg#	Remarks
09	AFS	1120E	1410D	S21	W54	04	5.3		02	9	9	E	SVTO	5428	
09	ADF	1138E	1651D	N13	W33	04	7.0	1	04	9	9	E	SVTO	5433	
09	AFS	1145E	1748D	S20	W61	04	4.8		02	9	9	E	RAMY	5428	
09	ADF	1145E	1748D	S22	W61	04	4.8	1	05	9	9	E	RAMY	5428	
09	SSB	1330		349	W10	04	5.9			0	0	E	RAMY		
09	DSD	1402E	1500D	S14	W01	04	9.5		05	9	9	E	RAMY	5438	Flare Associated
09	DSD	1407E	1943D	S15	W03	04	9.4		06	9	9	E	HOLL	5438	Flare Associated
09	ADF	1417E	1627D	S22	W66	04	4.5	1	05	9	9	E	HOLL	5428	
09	ASR	1420E	2346D	N18	W90	04	2.7			7	9	E	HOLL	5427	
09	SSB	1421		377	W28	04	3.6			0	0	E	HOLL		404 W55
09	DSD	1431E	1508D	S14	W03	04	9.4		06	9	9	E	SVTO	5438	
09	SSB	1442		336	W00	04	6.9			0	0	E	SVTO		376 W27
09	ADF	1626E	2346D	S19	W01	04	9.6	2	21	9	9	E	HOLL	5438	
09	ADF	1807E	0437D	N36	E22	04	11.5		06	7	9	E	PALE	5441	
09	ADF	1807E	0437D	S18	W01	04	9.7		14	9	9	E	PALE	5438	
09	ADF	1819E	2346D	N35	E16	04	11.0	1	05	7	9	E	HOLL	5441	
09	DSD	1913E	0232D	N33	E17	04	11.1		02	9	9	E	PALE	5441	
09	AFS	1913E	0437D	N19	W40	04	6.7		03	9	9	E	PALE	5433	
09	ADF	1913E	0437D	S19	W70	04	4.4		10	9	9	E	PALE	5428	
09	ASR	2016E	2346D	N26	W78	04	3.8			9	9	E	HOLL	5445	
09	DSD	2140E	0020D	N38	E22	04	11.7		11	9	9	E	HOLL	5441	
09	AFS	2300E	0942D	S18	W06	04	9.5		03	9	9	E	LEAR	5438	
09	ADF	2301E	0942D	N36	W16	04	8.7	1	10	9	9	E	LEAR	5441	
09	ASR	2302E	0350D	N20	W84	04	3.5			8	8	E	LEAR	5427	
09	ASR	2303E	0942D	N32	W87	04	3.1			7	7	E	LEAR	5446	
09	AFS	2305E	0942D	S22	W32	04	7.5		02	9	9	E	LEAR	5434	
09	ADF	2307E	0942D	N14	E37	04	12.7	1	10	9	9	E	LEAR	5444	
09	ASR	2320E	0010D	N17	W90	04	3.1			9	9	E	HOLL	5427	
10	ASR	0050E	0942D	N13	E89	04	16.8			9	9	E	LEAR		
10	APR	0540E	1027D	N31	W90	04	3.1			9	9	E	SVTO	5445	
10	ASR	0545	0912D	N22	E90	04	17.1			9	9	E	SVTO		
10	ADF	0550E	1701D	S29	W57	04	5.8	1	05	9	9	E	SVTO	5432	
10	AFS	0607E	1701D	S26	W35	04	7.5		02	9	9	E	SVTO	5434	
10	BSL	0700E	0705	N26	W90	04	3.3	1-				C	CATA		
10	BSL	0812E	0850D	S44	E90	04	17.8	1				C	ABST		
10	ADF	0830E	0942D	S34	E06	04	10.8	2	17	9	9	E	LEAR	5446	
10	ADF	0832E	0942D	S25	W57	04	5.9	2	11	9	9	E	LEAR	5432	
10	DSD	0910E	1027D	N23	E00	04	10.4		04	9	9	E	SVTO		
10	SSB	0911		339	W01	04	7.5			0	0	E	SVTO		383 W45
10	BSL	0915	0926	N17	E90	04	17.2	1-				C	CATA		
10	DSD	0928E	1030D	S29	W57	04	5.9		04	9	9	E	SVTO	5432	
10	BSL	0932	0950	N25	W90	04	3.4	1-				C	CATA		
10	BSL	1105	1130	N15	E90	04	17.3	1-				C	CATA		
10	BSL	1110	1117	N17	E90	04	17.3	1-				C	CATA		
10	EPL	1229E	1229D	N77	E18	04	12.2			9	9	E	HOLL		
10	ASR	1313	1701D	N17	E90	04	17.4			9	9	E	SVTO		
10	SSB	1731		382	W43	04	4.0			0	0	E	PALE		
10	SSB	1800		378	W45	04	4.3			0	0	E	HOLL		
10	SDF	1819E	2220D	N40	W08	04	10.1		10	9	9	E	HOLL		
10	EPL	1829E	2220D	N69	E24	04	12.9			9	9	E	HOLL		
10	ASR	2248E	0121D	N14	E90	04	17.7			9	9	E	HOLL		
11	ASR	0120E	0959D	N08	E90	04	17.8			7	5	E	LEAR		
11	ASR	0129E	0436D	N15	E90	04	17.9			9	9	E	PALE		
11	BSL	0436	0645D	S55	E90	04	19.0	1				C	ABST		
11	SSB	1125		341	W17	04	8.3			0	0	E	RAMY		390 W66
11	ADF	1238E	1912D	S30	W80	04	5.2	1	20	9	9	E	RAMY	5432	
11	DSD	1310E	1555D	N20	E14	04	12.6		03	9	9	E	RAMY	5444	
11	AFS	1414E	0102D	S29	W25	04	9.6		02	8	8	E	HOLL	5448	
11	AFS	1417E	0102D	S19	E63	04	16.4		03	9	9	E	HOLL	5449	
11	ASR	1418E	0102D	N11	E90	04	18.4			9	9	E	HOLL	5450	
11	SSB	1536		334	W12	04	9.1			0	0	E	HOLL		380 W58
11	DSD	1541E	0102D	S21	E64	04	16.6		05	9	9	E	HOLL	5449	
11	ADF	1709E	0127D	N27	W34	04	9.1	1	08	9	9	E	PALE	5440	
11	ADF	1709E	0127D	N36	W01	04	11.6	1	05	9	9	E	PALE	5441	
11	AFS	1709E	0127D	S20	E64	04	16.6		02	9	9	E	PALE	5449	
11	AFS	1709E	0127D	S29	W26	04	9.7		02	9	9	E	PALE	5448	
11	APR	2220	0200D	S07	W90	04	5.2	1				C	VORO		
11	APR	2340	0200D	S45	E90	04	19.5	1				C	VORO		

ACTIVE PROMINENCES AND FILAMENTS

67  
Apr 89

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/USAF Reg#	Remarks
11	APR	2350	0200D	S37	W90	04	4.7	1				C	VORO		
12	SSB	0002		347	W24	04	8.4			0	0	E	PALE		
12	APR	0006	0200D	S26	W90	04	5.0	1				C	VORO		
12	BSL	0037	0055	N08	E90	04	18.8	1				C	VORO		
12	BSL	0148	0200D	N40	W90	04	4.7	1				C	VORO		
12	AFS	0435E	0633D	N37	W06	04	11.7		02	9	9	E	LEAR	5441	
12	AFS	0435E	0633D	S13	W37	04	9.4		02	9	9	E	LEAR	5438	
12	AFS	0435E	0633D	S26	E58	04	16.7		03	9	9	E	LEAR	5449	
12	AFS	0523E	1614D	S15	W38	04	9.3		03	8	8	E	SVTO	5438	
12	AFS	0525E	1420D	N26	W16	04	11.0		03	9	9	E	SVTO	5441	
12	ADF	0525E	1614D	N39	W10	04	11.4	1	08	8	8	E	SVTO	5441	
12	AFS	0555E	1614D	S19	E53	04	16.3		04	9	9	E	SVTO	5449	
12	ASR	1003E	1614D	N10	E90	04	19.2			9	9	E	SVTO		
12	ASR	1043E	1634D	N07	E90	04	19.2			9	9	E	RAMY		
12	APR	1043E	1634D	S29	W90	04	5.4	1		9	9	E	RAMY	5432	
12	ADF	1100E	1634D	S16	W35	04	9.8	1	03	9	9	E	RAMY	5438	
12	BSL	1155E	1203D	N11	E90	04	19.3	1				C	ABST		
12	SSB	1206		333	W23	04	10.0			0	0	E	RAMY		
12	SDF	1444E	1106D	N09	W25	04	10.7		07	0	0	E	RAMY		
12	SDF	1444E	1106D	S17	W34	04	10.0		08	0	0	E	RAMY	5438	
12	ASR	1620E	0122D	N10	E83	04	18.9			9	9	E	HOLL		
12	ASR	1726E	0151D	N10	E88	04	19.3			9	9	E	PALE		
12	AFS	1726E	0151D	S20	E49	04	16.5		02	9	9	E	PALE	5449	
12	AFS	1809E	0151D	S30	W39	04	9.7		02	9	9	E	PALE	5448	
12	AFS	1840E	0122D	S28	W39	04	9.7		02	9	9	E	HOLL	5448	
12	ADF	1856E	0151D	N32	W16	04	11.5		06	9	9	E	PALE	5441	
12	SSB	1900		309	W03	04	12.1			0	0	E	PALE		340 W34
12	ASR	2003E	2029D	S12	W90	04	6.0			9	9	E	PALE	5439	
12	APR	2208	0036D	S28	E90	04	19.9	1				C	VORO		
12	APR	2313	0036D	S45	E90	04	20.4	1				C	VORO		
12	BSL	2333	0000	N08	E90	04	19.7	1				C	VORO		
13	APR	0010	0036	N62	E90	04	21.0	1				C	VORO		
13	ASR	0115E	0804D	N10	E90	04	19.8			9	9	E	LEAR		
13	ASR	0239E	0804D	N24	W90	04	6.1			9	9	E	LEAR	5433	
13	BSD	0643	0730	N08	E76	04	19.0		12	9	9	E	LEAR	5451	
13	BSL	0802E	0821D	S43	E90	04	20.7	1-				C	CATA		
13	DSD	0810	0816	N12	E85	04	19.7	1				V	KHAR		
13	BSL	0842E	0846D	S43	E90	04	20.8	1-				C	CATA		
13	ADF	0845E	0907D	N14	E78	04	19.2	1				V	KHAR		
13	BSL	0856E	0900D	S43	E90	04	20.8	1-				C	CATA		
13	BSL	0946	1003	N17	W90	04	6.6	1-				C	CATA		
13	ADF	1010	1021	N14	E78	04	19.3	1				V	KHAR		
13	BSL	1035	1041	N37	W90	04	6.2	1-				C	CATA		
13	ADF	1035E	1106D	S26	E45	04	16.9	1				V	KHAR		
13	BSL	1136E	1140D	N29	W90	04	6.4	1-				C	CATA		
13	AFS	1150E	2122D	N08	E71	04	18.8		02	9	9	E	RAMY	5451	
13	DSD	1150E	2122D	N10	E72	04	18.9		03	9	9	E	RAMY	5451	
13	ADF	1150E	2122D	N38	W29	04	11.1	1	08	9	9	E	RAMY	5441	
13	AFS	1459E	1605D	N10	E69	04	18.8		04	9	9	E	SVTO	5451	
13	ADF	1505E	1605D	N37	W27	04	11.4	1	07	9	9	E	SVTO	5441	
13	ADF	1517E	1605D	S18	E28	04	15.8	1	08	9	9	E	SVTO	5449	
13	ADF	1518E	1605D	S24	E37	04	16.5	1	06	9	9	E	SVTO	5449	
13	DSD	1630E	1605D	N12	E68	04	18.8		03	9	9	E	SVTO	5451	Flare Associated
13	AFS	1745E	2009D	N17	W09	04	13.0		08	9	9	E	HOLL	5444	
13	AFS	1745E	2052D	N34	W33	04	11.1		03	9	9	E	HOLL	5441	
13	AFS	1800E	0123D	S22	E37	04	16.6		03	9	9	E	HOLL	5449	
13	DSD	1820E	2009D	N17	W09	04	13.1		02	9	9	E	HOLL	5444	
13	SDF	2000E	0123D	S26	E34	04	16.5		12	0	0	E	HOLL	5449	
13	SDF	2000E	0123D	S26	E34	04	16.5		12	0	0	E	HOLL	5449	
13	AFS	2002E	0123D	N09	E67	04	18.9		05	9	9	E	HOLL	5451	
13	ADF	2052E	0123D	N39	W34	04	11.1		08	9	9	E	HOLL	5441	
13	BSD	2111E	2150D	N13	E70	04	19.2		03	9	9	E	HOLL	5451	
13	DSD	2300E	0123D	S17	W55	04	9.8		03	7	7	E	HOLL	5438	
13	DSD	2312E	0333D	S18	W56	04	9.7		04	9	9	E	PALE	5438	
13	SSB	2325		347	W56	04	9.9			0	0	E	PALE		
13	AFS	2330E	0945D	S20	E33	04	16.5		02	9	9	E	LEAR	5449	
13	AFS	2330E	0333D	N17	W12	04	13.1		01	9	8	E	PALE	5444	
13	DSD	2345E	0945D	S16	W59	04	9.5		04	9	9	E	LEAR	5438	

## ACTIVE PROMINENCES AND FILAMENTS

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/USAF Reg#	Remarks
13	AFS	2345E	0945D	S18	W61	04	9.3		03	9	9	E	LEAR	5438	
14	ADF	0240E	0945D	N11	E67	04	19.1	1	06	8	8	E	LEAR	5451	
14	ASR	0443E	0945D	N20	E90	04	21.1			9	9	E	LEAR	5451	
14	BSL	0543E	0825D	S30	E90	04	21.3	1				C	ABST		
14	ADF	0708E	0735D	N35	W70	04	8.7	1				V	KHAR		
14	ADF	0718E	0730D	S26	E28	04	16.5	1				V	KHAR		
14	ADF	0738	0808D	S26	E28	04	16.5	1				V	KHAR		
14	EPL	0745E	0835	S23	W90	04	7.4	2				V	KHAR		
14	BSL	0752E	0825D	N15	E90	04	21.1	1				C	ABST		
14	EPL	0820E	0835D	S25	W90	04	7.4	3				C	CATA		
14	EPL	0823	0837	S21	W90	04	7.4	3		9	9	E	LEAR	5446	
14	ADF	0836E	0856D	N10	E66	04	19.3	1				V	KHAR		
14	BSL	0914E	0921	N38	W90	04	7.1	1				C	CATA		
14	ADF	0920	1012D	N10	E66	04	19.3	1				V	KHAR		
14	BSL	1036	1103D	N23	E90	04	21.4	1				C	CATA		
14	BSL	1103	1103D	N30	E90	04	21.5	1				C	CATA		
14	SDF	1125E	0653D	S10	E20	04	16.0	1				C	CATA		
14	SDF	1125E	0653D	S22	E13	04	15.5	1				C	CATA		
14	AFS	1152E	1737D	N09	E59	04	18.9		03	9	9	E	RAMY	5451	
14	AFS	1322E	1737D	S22	E25	04	16.5		03	9	9	E	RAMY	5449	
14	AFS	1343E	1737D	N11	E38	04	17.4		02	9	9	E	RAMY	5450	
14	ADF	1345E	1737D	N11	E60	04	19.1	1	09	9	9	E	RAMY	5451	
14	ADF	1350E	1737D	S08	E20	04	16.1	1	21	9	9	E	RAMY	5449	
14	AFS	1355E	1737D	N14	W22	04	12.9		03	9	9	E	RAMY	5444	
14	AFS	1413E	0119D	N10	E58	04	18.9		06	9	9	E	HOLL	5451	
14	ADF	1413E	0119D	N14	E56	04	18.8	1	08	9	9	E	HOLL	5451	
14	ASR	1420E	2123D	N19	E90	04	21.5			9	9	E	HOLL		
14	SSB	1422		S09	W26	04	13.9			0	0	E	HOLL		339 W56
14	SDF	1737E	1120D	S09	E13	04	15.7		09	0	0	E	RAMY	5449	
14	ASR	2115E	2311D	S18	W90	04	8.0			9	9	E	HOLL		
14	BSD	2135E	2311D	S29	W71	04	9.3		07	9	9	E	HOLL	5448	
14	ASR	2152	2311D	S15	W77	04	9.1			9	9	E	HOLL	5438	
15	ADF	0023E	0941D	N13	E52	04	18.9	1	07	9	9	E	LEAR	5451	
15	ADF	0024E	0941D	S17	E09	04	15.7	1	08	9	9	E	LEAR		
15	AFS	0024E	0941D	S20	E13	04	16.0		02	9	9	E	LEAR	5449	
15	ADF	0026E	0941D	N14	E35	04	17.7	1	04	9	9	E	LEAR	5450	
15	ADF	0027E	0941D	N15	W31	04	12.7	1	04	9	9	E	LEAR	5444	
15	APR	0100E	0200D	N30	W90	04	8.0	1				C	VORO		
15	ASR	0510	0803D	S30	W90	04	8.1			9	9	E	SVTO	5448	
15	BSD	0530	0557D	N13	E54	04	19.3		07	9	9	E	SVTO	5451	
15	ASR	0535E	0941D	S17	E87	04	21.8			9	9	E	LEAR		
15	AFS	1128E	1851D	S21	E06	04	15.9		02	6	6	E	RAMY	5449	
15	AFS	1128E	1851D	S23	E12	04	16.4		03	7	6	E	RAMY	5449	
15	SSB	1129		S29	W19	04	22.3			0	0	E	SVTO		
15	SDF	1230E	1550D	S16	E08	04	16.1		11	0	0	E	RAMY	5449	
15	AFS	1430E	1851D	N18	W36	04	12.9		03	7	7	E	RAMY	5444	
15	AFS	1430E	1851D	N19	W38	04	12.7		03	9	9	E	RAMY	5444	
15	ADF	1430E	1851D	N36	W48	04	11.7	1	11	9	9	E	RAMY	5441	
15	SDF	1439E	1815D	N05	W27	04	13.6		15	0	0	E	HOLL		
15	AFS	1445E	2348D	S20	E06	04	16.1		02	9	9	E	HOLL	5449	
15	SDF	1447E	1255D	N01	W50	04	11.9		18	0	0	E	RAMY		
15	AFS	1453E	2348D	N16	W37	04	12.8		04	9	9	E	HOLL	5444	
15	AFS	1507E	2348D	N10	E43	04	18.9		02	9	9	E	HOLL	5451	
15	ASR	1545E	1851D	S21	E90	04	22.5			9	9	E	RAMY	5452	
15	AFS	1605E	2348D	N22	E34	04	18.3		03	9	9	E	HOLL		
15	DSD	1714E	2215D	N11	E38	04	18.6		03	9	9	E	PALE	5451	
15	DSD	1730E	1851D	N10	E36	04	18.4		05	9	9	E	RAMY	5451	
15	AFS	1738E	0403D	N16	W37	04	12.9		02	9	9	E	PALE	5444	
15	SSB	1744		S08	W40	04	15.1			0	0	E	PALE		
15	DSD	1745E	2348D	N11	E36	04	18.4		06	9	9	E	HOLL	5451	
15	AFS	1950E	0403D	N11	E44	04	19.1		02	9	9	E	PALE	5451	
15	AFS	1950E	0403D	S21	E09	04	16.5		03	9	9	E	PALE	5441	
16	ADF	0157E	0948D	N11	E34	04	18.6	1	08	9	9	E	LEAR	5451	
16	ASR	0158E	0948D	S15	W90	04	9.3			9	9	E	LEAR	5438	
16	AFS	0159E	0534D	S18	W04	04	15.8		02	9	9	E	LEAR	5449	
16	AFS	0159E	0534D	S21	E06	04	16.5		03	9	9	E	LEAR	5449	
16	AFS	0200E	0948D	N15	W42	04	12.9		02	9	9	E	LEAR	5444	

ACTIVE PROMINENCES AND FILAMENTS

69  
Apr 89

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/USAF Reg#	Remarks
16	BSL	0522E	0658D	S20	E90	04 23.1	1				C	ABST		
16	AFS	0540E	1657D	N13	W44	04 12.9		02	9	9	E	SVTO	5444	
16	ADF	0540E	1657D	N19	W37	04 13.4	1	08	9	8	E	SVTO	5444	
16	DSD	0715E	0729D	H10	E27	04 18.3		02	9	9	E	SVTO	5451	
16	APR	0728E	1657D	S17	E90	04 23.1			9	9	E	SVTO	5452	
16	ASR	0730E	1657D	S19	W90	04 9.4			9	9	E	SVTO	5438	
16	BSL	0731	0731D	S15	W90	04 9.5	1-				C	CATA		
16	BSL	0837	0911	S16	W90	04 9.5	1-				C	CATA		
16	SSB	0837		290	W30	04 23.4			0	0	E	SVTO		
16	APR	0852E	1657D	N41	W90	04 9.0			9	9	E	SVTO		
16	BSL	0901	0931	S37	W90	04 9.1	1-				C	CATA		
16	BSL	1040	1050	N80	W90	04 8.1	1-				C	CATA		
16	BSL	1046	1057	N68	E90	04 24.6	1-				C	CATA		
16	AFS	1112E	1813D	N16	W48	04 12.8		03	9	9	E	RAMY	5444	
16	AFS	1112E	1813D	S22	W01	04 16.4		03	9	9	E	RAMY	5449	
16	ASR	1112E	1813D	S27	E90	04 23.5			9	9	E	RAMY	5454	
16	BSL	1140	1140D	N77	E90	04 24.8	1				C	CATA		
16	SSB	1243		313	W57	04 15.4			0	0	E	RAMY		288 W31
16	ADF	1352E	0122D	S21	W01	04 16.5	1	05	9	9	E	HOLL	5449	
16	ADF	1400E	0122D	N11	E31	04 18.9	1	11	9	9	E	HOLL	5451	
16	DSD	1400E	2000D	N04	E22	04 18.2		06	9	9	E	HOLL	5451	
16	DSD	1519E	1813D	N06	E22	04 18.3		03	9	9	E	RAMY	5451	
16	ASR	1525E	1657D	S19	E90	04 23.5			9	9	E	SVTO		
16	ASR	1623E	0122D	S22	E90	04 23.6			9	9	E	HOLL	5454	
16	AFS	1635E	0122D	N16	W49	04 13.0		03	9	9	E	HOLL	5444	
16	SDF	1720E	1721D	N02	W43	04 13.5		16	0	0	E	PALE		
16	AFS	1740E	0240D	N15	W53	04 12.7		02	9	9	E	PALE	5444	
16	SSB	1844		289	W35	04 23.9			0	0	E	HOLL		310 W56
16	SDF	1913E	1700D	S35	E48	04 20.6		23	0	0	E	PALE		
16	DSD	1932E	2012D	S20	W09	04 16.1		02	9	9	E	PALE	5449	
16	DSD	1947	0122D	N11	E36	04 19.5		03	9	9	E	HOLL	5451	
17	SDF	0029E	1348D	S33	E55	04 21.4		29	0	0	E	HOLL		
17	AFS	0042E	0950D	N16	W54	04 12.9		03	9	9	E	LEAR	5444	
17	ASR	0046E	0950D	S23	E90	04 24.0			9	9	E	LEAR	5454	
17	DSD	0337E	0356D	N12	E28	04 19.3		03	9	9	E	LEAR	5451	Flare Associated
17	BSL	0515E	0608D	N10	W90	04 10.4	1				C	ABST		
17	BSL	0715	0751	N23	E90	04 24.2	1-				C	CATA		
17	SSB	0740		290	W43	04 24.7			0	0	E	SVTO		
17	BSL	1022	1039D	N27	E90	04 24.4	1				C	CATA		
17	DSD	1045E	1600D	S20	W18	04 16.1		02	9	9	E	SVTO	5449	
17	BSL	1049	1130D	N28	E90	04 24.5	1				C	CATA		
17	BSL	1049E	1052	N69	E90	04 25.6	1-				C	CATA		
17	AFS	1052E	2016D	N15	W60	04 12.9		03	9	9	E	RAMY	5444	
17	DSD	1055E	1420D	N11	E18	04 18.8		04	9	9	E	SVTO	5451	
17	BSL	1100	1106	N66	E90	04 25.5	1-				C	CATA		
17	DSD	1135E	1642D	S20	W19	04 16.0		02	9	9	E	RAMY	5449	
17	AFS	1135E	2016D	S21	W12	04 16.6		03	7	8	E	RAMY	5449	
17	SDF	1145E	0729D	S34	E40	04 20.7	2				C	CATA		
17	AFS	1207E	2016D	N18	E63	04 22.3		02	9	9	E	RAMY	5453	
17	SSB	1220		289	W45	04 24.9			0	0	E	RAMY		301 W57
17	DSD	1325E	1730D	S22	E66	04 22.6		03	9	9	E	RAMY	5452	
17	DSD	1325E	2016D	S24	E79	04 23.7		02	9	9	E	RAMY	5454	
17	DSD	1345E	2030D	N08	E10	04 18.3		04	9	9	E	HOLL	5451	
17	DSD	1345E	2030D	N08	E11	04 18.4		05	9	9	E	HOLL	5451	
17	ADF	1420E	1600D	N05	E14	04 18.6	1	14	9	9	E	SVTO	5451	
17	ASR	1425E	2000D	N15	E90	04 24.4			5	5	E	HOLL		
17	ADF	1435E	1600D	N13	W67	04 12.5	1	06	9	9	E	SVTO	5444	
17	AFS	1435E	1600D	N14	W64	04 12.8		04	9	9	E	SVTO	5444	
17	AFS	1445E	1450D	S20	W13	04 16.6	1	02	9	9	E	HOLL	5449	
17	SSB	1520		289	W46	04 25.0			0	0	E	HOLL		197 W00
17	AFS	1607E	0126D	N17	W63	04 12.9		06	9	9	E	HOLL	5444	
17	DSD	1615E	2030D	N10	E19	04 19.1		04	9	9	E	HOLL	5451	
17	AFS	1744E	0438D	N15	W65	04 12.8		03	9	9	E	PALE	5444	
17	AFS	1748E	0438D	S21	W16	04 16.5		03	9	9	E	PALE	5449	
17	DSD	1756E	2005D	S23	E76	04 23.6		10	9	9	E	HOLL	5454	
17	DSD	1905E	0015D	S19	W09	04 17.1		02	9	9	E	HOLL	5449	
17	SDF	1913E	1700D	S35	E48	04 21.6		23	0	0	E	PALE		
17	AFS	2005E	0126D	N20	E64	04 22.7		04	9	9	E	HOLL	5453	
17	DSD	2005E	0126D	S20	W24	04 16.0		03	9	9	E	HOLL	5449	

ACTIVE PROMINENCES AND FILAMENTS

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks
17	AFS	2020E	0126D	S19	E60	04	22.4		02	9	9	E	HOLL	5452	
17	DSD	2030E	0126D	N06	E07	04	18.4		06	9	9	E	HOLL	5451	
17	ASR	2100E	2115D	N27	E90	04	24.9			9	9	E	HOLL		
17	DSD	2153	0015D	N14	E22	04	19.6		07	9	9	E	HOLL	5451	Flare Associated
17	ADF	2330E	0941D	N07	E04	04	18.3	1	03	9	9	E	LEAR	5451	
17	ADF	2330E	0941D	N09	E08	04	18.6	1	06	9	9	E	LEAR	5451	
17	ADF	2335E	0941D	S18	W24	04	16.1	1	04	9	9	E	LEAR	5449	
17	ADF	2339E	0941D	N13	W05	04	17.6	1	05	9	9	E	LEAR	5450	
18	BSL	0517E	0625D	S55	W90	04	10.4	1				C	ABST		
18	BSD	0530E	0941D	N16	W87	04	11.6		06	9	9	E	LEAR		
18	BSL	0729E	0731	N39	W90	04	11.0	1				C	CATA		
18	BSL	0729E	0735D	N15	W90	04	11.5	1				C	CATA		
18	BSL	0759E	0810	N33	E90	04	25.5	1-				C	CATA		
18	DSD	1108	1347D	S28	W26	04	16.4		06	9	9	E	RAMY	5449	Flare Associated
18	BSL	1115	1115D	N17	W90	04	11.6	1-				C	CATA		
18	AFS	1133E	1147D	S28	W26	04	16.4		02	9	9	E	SVTO	5449	
18	ADF	1133E	1642D	S29	W19	04	17.0	1	05	9	9	E	SVTO	5449	
18	ADF	1136E	1843D	N06	E01	04	18.5	1	04	9	9	E	RAMY	5451	
18	ADF	1255E	1642D	N03	E00	04	18.5	1	04	9	9	E	SVTO	5451	
18	ADF	1255E	1642D	N04	W02	04	18.4	1	02	9	9	E	SVTO	5451	
18	ADF	1255E	1642D	N06	E01	04	18.6	1	05	9	9	E	SVTO	5451	
18	AFS	1255E	1642D	N19	E51	04	22.4		03	9	9	E	SVTO	5453	
18	AFS	1335E	0102D	S21	W34	04	15.9		02	9	9	E	HOLL	5449	
18	DSD	1356E	0102D	N09	W01	04	18.5		06	9	9	E	HOLL	5451	
18	AFS	1410E	0102D	N19	E52	04	22.5		03	9	9	E	HOLL	5453	
18	AFS	1604E	0102D	N16	W72	04	13.2		04	9	9	E	HOLL	5444	
18	SDF	1642E	1400D	S24	E29	04	20.9		10	0	0	E	SVTO		
18	DSD	1715E	0102D	S19	W31	04	16.3		03	9	9	E	HOLL	5449	
18	ADF	1809E	0437D	N07	W02	04	18.6		02	9	9	E	PALE	5451	
18	ADF	1809E	0437D	N18	E47	04	22.3		01	9	9	E	PALE	5453	
18	ASR	1809E	0437D	N18	W90	04	11.9			9	9	E	PALE	5444	
18	AFS	1809E	0437D	S19	E48	04	22.4		02	9	9	E	PALE	5452	
18	AFS	1809E	0437D	S19	W34	04	16.2		01	8	9	E	PALE	5449	
18	DSD	1809E	0437D	S20	W34	04	16.1		01	8	9	E	PALE	5449	
18	ADF	2221	0200D	S23	E32	04	21.4	1				C	VORO		
18	ASR	2228E	2229D	N13	W81	04	12.8			9	9	E	PALE		
19	APR	0020	0200D	S51	E90	04	26.7	1				C	VORO		
19	BSL	0030	0054	N21	E90	04	25.9	1				C	VORO		
19	APR	0040	0200D	N60	W90	04	11.1	1				C	VORO		
19	ASR	0042E	0228D	N21	E88	04	25.8			9	9	E	PALE		
19	BSL	0110	0142	N21	E90	04	25.9	1				C	VORO		
19	ASR	0115E	0919D	N22	E90	04	26.0			9	9	E	LEAR		
19	BSL	0138	0152	S20	E90	04	25.9	1				C	VORO		
19	BSL	0430E	0807D	N56	W90	04	11.4	1				C	ABST		
19	ASR	0449E	0919D	N16	W90	04	12.4			9	9	E	LEAR	5444	
19	DSD	0450E	0919D	S20	E41	04	22.3		03	9	9	E	LEAR	5452	
19	DSD	0604E	1711D	N10	W03	04	19.0		04	9	9	E	SVTO	5451	
19	AFS	0610E	0905D	S20	W42	04	16.0		02	6	6	E	SVTO	5449	
19	AFS	0610E	0905D	S21	W35	04	16.6		03	9	9	E	SVTO	5449	
19	AFS	0630E	1528D	N20	E40	04	22.3		02	9	9	E	SVTO	5453	
19	BSL	0720E	0720D	N20	W90	04	12.4	1-				C	CATA		
19	BSL	0730E	0759	N30	E90	04	26.4	1-				C	CATA		
19	APR	0805E	0955D	N54	W90	04	11.6	1				V	KHAR		
19	BSL	0857	0915	N24	E90	04	26.3	1				V	KHAR		
19	ADF	0905E	1528D	N18	E39	04	22.3	1	02	9	9	E	SVTO	5453	
19	BSL	1012E	1030D	N12	W90	04	12.6	1				V	KHAR		
19	ASR	1013	1711D	N11	W90	04	12.6			9	9	E	SVTO		
19	ASR	1029E	1519D	S17	E90	04	26.3			9	9	E	SVTO		
19	AFS	1111E	1711D	N26	W30	04	17.1		03	9	9	E	SVTO		
19	BSL	1126E	1130D	N20	W90	04	12.6	1				C	CATA		
19	BSD	1144E	1247D	N22	E84	04	25.9		06	9	9	E	SVTO		
19	AFS	1214E	1637D	N31	E41	04	22.7		02	9	9	E	SVTO		
19	AFS	1229E	2011D	N28	W32	04	17.0		03	9	9	E	RAMY	5457	
19	AFS	1257E	2011D	N08	W08	04	18.9		03	5	6	E	RAMY	5451	
19	DSD	1335E	2011D	N12	W06	04	19.1		02	9	9	E	RAMY	5451	
19	DSD	1400E	2130D	N19	E38	04	22.5		02	7	9	E	HOLL	5453	
19	AFS	1408E	2130D	N32	E41	04	22.8		02	9	9	E	HOLL		
19	AFS	1409E	2130D	N20	W18	04	18.2		02	9	9	E	HOLL	5455	

## ACTIVE PROMINENCES AND FILAMENTS

71  
Apr 89

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	Day	Imp	Extent	Blue	Red	Obs Type	Sta	NOAA/	Remarks
										Shift (.1 A)	Shift (.1 A)			USAF Reg#	
19	AFS	1410E	2130D	N29	W30	04	17.2		03	9	9	E	HOLL	5455	
19	AFS	1412E	0020D	N11	W07	04	19.1		02	9	9	E	HOLL	5451	
19	SSB	1420		285	W68	04	27.3			0	0	E	SVTO		
19	SDF	1424E	1200D	S20	E17	04	20.9		10	0	0	E	RAMY		
19	DSD	1425E	0020D	S21	W48	04	15.9		03	9	9	E	HOLL	5449	
19	SDF	1427E	1510D	N13	E15	04	20.7		07	0	0	E	HOLL		
19	SDF	1427E	1510D	S18	E12	04	20.5		12	0	0	E	HOLL		
19	DSD	1458E	2011D	N21	E40	04	22.7		03	9	9	E	RAMY	5453	
19	ASR	1721E	0154D	S18	E90	04	26.6			7	9	E	PALE		
19	AFS	1721E	0417D	N10	W10	04	19.0		01	9	9	E	PALE	5451	
19	ADF	1721E	0417D	N15	W18	04	18.4		05	9	9	E	PALE	5451	
19	ADF	1721E	0417D	S19	W43	04	16.4		06	9	9	E	PALE	5449	
19	AFS	1721E	0417D	S20	E52	04	23.7		04	8	9	E	PALE	5454	
19	ADF	1721E	0417D	S22	E43	04	23.0		05	8	9	E	PALE	5454	
19	AFS	2339E	0937D	N29	W37	04	17.1		03	9	9	E	LEAR	5457	
20	ASR	0019E	0937D	N15	W90	04	13.2			9	9	E	LEAR	5444	
20	DSD	0230E	0937D	S19	W51	04	16.2		02	9	9	E	LEAR	5449	
20	BSL	0418E	0755D	N63	W90	04	12.2	1				C	ABST		
20	DSD	0609E	0934D	N09	W16	04	19.0		03	5	9	E	SVTO	5451	
20	BSL	0628E	0755D	S58	E90	04	28.1	1				C	ABST		
20	ADF	0724E	0724D	N25	E75	04	26.1	1	09	9	8	E	SVTO	5405	
20	DSD	0734E	1149D	S23	E42	04	23.5		04	9	9	E	SVTO	5454	
20	DSD	1150E	1228D	N05	W30	04	18.2		05	9	9	E	RAMY	5451	
20	AFS	1150E	2016D	N10	W21	04	18.9		03	9	9	E	RAMY	5451	
20	SDF	1205E	0642D	S27	E17	04	21.8	1	10	9	9	E	SVTO		
20	AFS	1310E	2016D	N06	W62	04	15.9		02	9	9	E	RAMY	5458	
20	DSD	1432E	1740D	S11	W19	04	19.2		03	9	9	E	RAMY		
20	AFS	1450E	2301D	S10	W19	04	19.2		02	9	9	E	HOLL	5459	
20	DSD	1625E	2301D	S22	E33	04	23.2		03	9	9	E	HOLL	5454	
20	AFS	1725E	0358D	S10	W20	04	19.2		02	9	9	E	PALE	5459	
20	SDF	1801E	1438D	N24	E17	04	22.1		07	0	0	E	HOLL	5453	
20	DSD	2020E	2301D	S21	W60	04	16.2		03	9	9	E	HOLL	5449	
20	ADF	2250E	0358D	S22	E27	04	23.0	1	07	9	9	E	PALE	5454	
20	AFS	2340E	0906D	N10	W26	04	19.0		02	9	9	E	LEAR	5451	
20	ADF	2341E	0906D	N19	E14	04	22.0	1	03	9	9	E	LEAR	5453	
20	ADF	2341E	0906D	N25	E15	04	22.1	1	05	9	9	E	LEAR	5453	
20	ADF	2341E	2350D	N16	W43	04	17.7	1	03	9	9	E	LEAR	5450	
20	ADF	2342E	0906D	S23	E30	04	23.3	1	04	9	9	E	LEAR	5454	
20	ADF	2342E	0906D	S27	E39	04	24.0	1	09	9	9	E	LEAR	5454	
20	AFS	2343E	0906D	S10	W24	04	19.2		02	9	9	E	LEAR	5459	
21	DSD	0315E	0358D	S09	W29	04	18.9		03	9	9	E	PALE	5459	
21	AFS	1129E	2209D	N11	W34	04	18.9		02	8	8	E	RAMY	5451	
21	AFS	1138E	2209D	S10	W31	04	19.1		04	9	9	E	RAMY	5459	
21	SDF	1209E	0630D	S43	W90	04	14.1		77	0	0	E	SVTO		
21	SDF	1209E	0630D	S58	W18	04	19.9		47	0	0	E	SVTO		
21	BSD	1407E	1441D	S12	W36	04	18.9		03	9	9	E	HOLL	5459	
21	DSD	1420E	1506D	S20	W70	04	16.2		05	9	9	E	RAMY	5449	Flare Associated
21	AFS	1420E	2209D	N28	W56	04	17.2		03	9	9	E	RAMY	5457	
21	AFS	1600E	0111D	N27	W54	04	17.4	1	03	9	9	E	HOLL	5457	
21	AFS	1600E	0111D	S09	W34	04	19.1	1	02	9	9	E	HOLL	5459	
21	APR	1918E	0111D	N25	W90	04	14.8	1		9	9	E	HOLL		
21	DSD	1927E	1934	N10	W33	04	19.3		02	9	9	E	HOLL	5451	
21	AFS	1934E	0438D	N27	W56	04	17.4		03	9	9	E	PALE	5457	
21	AFS	1959E	0052D	S23	E25	04	23.7		02	9	9	E	PALE	5454	
21	ADF	2000E	0009	N26	E47	04	25.5	1	08	9	9	E	HOLL		
21	AFS	2049E	2209D	S19	E54	04	26.0		03	9	9	E	RAMY	5460	
21	DSD	2051E	2209D	S19	W79	04	15.8		03	9	8	E	RAMY	5449	
21	DSD	2057E	2209D	S09	W42	04	18.7		03	9	9	E	RAMY	5459	
21	DSD	2109E	0111D	S09	W41	04	18.8		04	9	9	E	HOLL	5459	
21	SDF	2209E	1150D	N39	E44	04	25.5		11	0	0	E	RAMY	5456	
21	DSD	2210E	0111D	N13	W34	04	19.3		02	9	9	E	HOLL	5451	Flare Associated
21	DSD	2309E	0134D	S12	W38	04	19.1		03	9	9	E	PALE	5459	
21	AFS	2330E	0438D	N09	W42	04	18.8		03	9	9	E	PALE	5451	
21	AFS	2330E	0438D	S18	E55	04	26.2		02	9	9	E	PALE	5460	
21	SDF	2341E	1522D	S60	W63	04	16.4		69	0	0	E	HOLL		
21	SDF	2345E	0009	N26	E47	04	25.6		08	9	9	E	HOLL		Flare Associated
22	AFS	0049E	0438D	S10	W37	04	19.2		02	9	9	E	PALE	5459	



72  
Apr 89

ACTIVE PROMINENCES AND FILAMENTS

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/USAF Reg#	Remarks
22	AFS	0123E	0438D	S13	W31	04	19.7		02	9	9	E	PALE		
22	DSD	0140E	0221D	N12	W36	04	19.3		03	9	9	E	PALE	5451	Flare Associated
22	DSD	0230E	0505D	N08	W47	04	18.6		02	9	9	E	LEAR	5451	
22	ADF	0231E	0505D	N19	E03	04	22.3	1	06	9	9	E	LEAR	5453	
22	ADF	0231E	0505D	N21	W03	04	21.9	1	07	9	9	E	LEAR	5453	
22	AFS	0239E	0505D	S10	W40	04	19.1		02	9	9	E	LEAR	5459	
22	DSD	0239E	0505D	S11	W38	04	19.2		02	5	9	E	LEAR	5459	
22	AFS	0319E	0438D	N17	E00	04	22.1		02	9	9	E	PALE	5453	
22	BSL	0437E	0717D	N19	W90	04	15.3	1				C	ABST		
22	BSL	0437E	0717D	N60	W90	04	14.3	1				C	ABST		
22	BSL	0539E	0717D	S31	E90	04	29.3	1				C	ABST		
22	APR	0607E	0655	N21	W90	04	15.3	1				V	KHAR		
22	DSD	0655E	0713D	S11	W46	04	18.8	1				V	KHAR		
22	BSL	0747	0756	N26	E90	04	29.3	1-				C	CATA		
22	BSL	0747	0802	N23	E90	04	29.2	1-				C	CATA		
22	BSL	0907	0917	S15	W90	04	15.6	1-				C	CATA		
22	SSB	0938		233	W53	04	25.2			0	0	E	SVTO		
22	ADF	1150E	2201D	N29	W66	04	17.3	1	04	9	9	E	RAMY	5457	
22	AFS	1207E	1659D	N25	W70	04	17.1		03	9	9	E	SVTO	5457	
22	AFS	1213E	1649D	S17	E46	04	26.0		04	9	9	E	SVTO	5460	
22	ASR	1221E	1233D	N26	W71	04	17.0			8	8	E	RAMY	5457	
22	ADF	1227E	1649D	N26	E37	04	25.4	1	08	9	9	E	SVTO	5456	
22	AFS	1232E	2114D	S09	W47	04	19.0		02	9	9	E	RAMY	5459	
22	ADF	1232E	1649D	S32	E23	04	24.3	1	11	9	9	E	SVTO	5454	
22	AFS	1237E	1649D	S11	W46	04	19.1		02	9	9	E	SVTO	5459	
22	ADF	1241E	1647D	S21	E13	04	23.5	1	04	9	9	E	RAMY	5454	
22	DSD	1304E	1319D	N11	W45	04	19.1		03	9	9	E	SVTO	5451	Flare Associated
22	ASR	1517E	1549D	S22	W90	04	15.7			9	9	E	RAMY	5449	
22	DSD	1541E	1557D	N13	W46	04	19.2		04	9	9	E	RAMY	5451	Flare Associated
22	AFS	1617E	1858D	S17	E43	04	25.9		02	9	9	E	HOLL	5460	
22	DSD	1617E	1858D	S20	E42	04	25.9		05	9	9	E	HOLL	5460	
22	DSD	1624E	1858D	N10	W61	04	18.1		03	9	5	E	HOLL	5451	
22	BSD	1632E	2115D	N26	W74	04	16.9		04	9	9	E	RAMY	5457	
22	SSB	1640		200	W24	04	22.7			0	0	E	HOLL		
22	BSD	1705E	1858D	N23	W78	04	16.7		08	5	6	E	HOLL	5457	
22	MDP	1720E	1858D	N20	W90	04	15.8			8	9	E	HOLL		
22	AFS	1823E	0437D	N12	W45	04	19.4		01	9	9	E	PALE	5451	
22	ASR	1826E	2138D	N33	W75	04	16.8			9	9	E	PALE	5457	
22	AFS	1828E	0437D	S19	E43	04	26.0		02	9	9	E	PALE	5460	
22	DSD	2129E	0437D	N08	W62	04	18.2		10	9	9	E	PALE	5451	
22	ASR	2250E	0437D	N23	W90	04	16.0			9	9	E	PALE	5449	
22	ADF	2314	0200D	N09	W30	04	20.7	1				C	VORO		
22	APR	2343	0200D	S57	E90	04	30.8	1				C	VORO		
23	APR	0004	0200D	N20	W90	04	16.1	1				C	VORO		
23	APR	0011	0200D	S20	E90	04	29.9	1				C	VORO		
23	DSD	0256E	0437D	N11	W53	04	19.1		05	9	9	E	PALE	5451	
23	ASR	0300E	0437D	N25	W90	04	16.1			9	9	E	PALE	5457	
23	ADF	0509E	1635D	N13	W57	04	18.9	1	08	8	8	E	SVTO	5451	
23	SSB	0519		201	W32	04	23.3			0	0	E	SVTO		
23	ASR	0532E	1635D	S23	W90	04	16.3			9	9	E	SVTO	5449	
23	ADF	0538E	1635D	N29	E25	04	25.2	1	04	9	9	E	SVTO	5456	
23	BSL	0543	0545D	N06	E90	04	30.0	1-				C	CATA		
23	BSL	0616E	0740D	N07	E90	04	30.0	1				C	ABST		
23	BSL	0616E	0740D	S23	W90	04	16.3	1				C	ABST		
23	BSL	0626E	0640	S23	E90	04	30.2	1-				C	CATA		
23	ADF	0629E	1635D	S26	E08	04	23.9	1	08	9	9	E	SVTO	5454	
23	DSD	0633E	1154D	S18	E40	04	26.3		03	9	9	E	SVTO	5460	
23	APR	0657E	0850D	S23	W90	04	16.3	1				V	KHAR		
23	BSL	0700	0700D	N06	E90	04	30.0	1-				C	CATA		
23	BSL	0711E	0723	S38	E90	04	30.6	1-				C	CATA		
23	ADF	0715E	0745	S21	E38	04	26.2	1				V	KHAR		
23	DSD	0720E	0800	S17	E28	04	25.4	1				V	KHAR		
23	BSL	0737	0750D	N09	E90	04	30.1	1-				C	CATA		
23	BSL	0829	0835D	N06	E90	04	30.1	1				C	CATA		
23	EPL	0835E	1020D	S54	E90	05	1.1	3				V	KHAR		
23	AFS	0848E	1635D	S17	E33	04	25.9		02	9	9	E	SVTO	5460	
23	EPL	0913E	1016D	N50	E89	04	30.9	1		9	9	E	SVTO		
23	BSL	0925E	0947D	N14	E90	04	30.2	1				C	CATA		
23	EPL	0925E	1045	S57	E90	05	1.2	3				C	CATA		

ACTIVE PROMINENCES AND FILAMENTS

73  
Apr 89

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP No	Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	NOAA/USAF Sta Reg#	Remarks
23	BSL	1005E	1012	N07	E90	04	30.2	1-				C	CATA	
23	BSL	1005E	1040	N14	E90	04	30.2	1				C	CATA	
23	DSD	1037E	1154D	S09	W55	04	19.3		04	9	9	E	SVTO 5459	
23	BSL	1045	1052D	N07	E90	04	30.2	1				C	CATA	
23	ASR	1126E	1900D	N21	W88	04	16.7			9	9	E	RAMY 5449	
23	ADF	1137E	1900D	N11	W60	04	19.0	1	04	9	9	E	RAMY 5451	
23	SSB	1147			236	W70	04	26.8		0	0	E	SVTO	
23	DSD	1154E	1347D	S30	E04	04	23.8		16	9	9	E	SVTO 5454	
23	AFS	1154E	1635D	S22	E03	04	23.7		03	9	8	E	SVTO 5454	
23	ADF	1154E	1635D	S26	W31	04	21.1	1	13	9	9	E	SVTO	
23	ASR	1156E	1635D	N88	W24	04	21.2			9	9	E	SVTO 5457	
23	ASR	1256E	1635D	N11	E90	04	30.3			9	9	E	SVTO	
23	ASR	1709E	0044D	N11	E90	04	30.5			9	9	E	HOLL	
23	AFS	1710E	1930D	N15	W74	04	18.1		04	9	9	E	HOLL 5450	
23	AFS	1710E	2350D	N11	W64	04	18.9		04	9	9	E	HOLL 5451	
23	AFS	1718E	0026D	S07	W62	04	19.1		02	9	9	E	HOLL 5459	
23	AFS	1725E	0044D	S22	E00	04	23.7		02	7	9	E	HOLL 5454	
23	DSD	1726E	0044D	S19	E30	04	26.0		03	9	9	E	HOLL 5460	
23	DSD	1753E	0242D	S25	E02	04	23.9		17	9	9	E	PALE 5454	
23	ADF	1753E	0438D	N13	W64	04	18.9		09	9	9	E	PALE 5451	
23	ASR	1753E	0438D	S18	W90	04	16.9			9	8	E	PALE 5449	
23	ADF	1810E	0438D	N25	E22	04	25.5		02	9	9	E	PALE 5456	
23	ASR	1816E	0438D	N19	W90	04	16.9			9	9	E	PALE 5457	
23	AFS	1816E	0438D	S09	W63	04	19.0		05	9	9	E	PALE 5459	
23	ADF	1821E	0438D	S17	E30	04	26.0		06	9	9	E	PALE 5460	
23	DSD	1821E	0438D	S19	E31	04	26.1		04	9	9	E	PALE 5460	
23	DSD	1915E	0044D	N12	W67	04	18.7		07	9	9	E	HOLL 5451	
23	ADF	2130E	0020D	N27	E19	04	25.4	1	03	9	9	E	HOLL 5456	
23	APR	2218E	0044D	N15	W90	04	17.1	1		8	9	E	HOLL 5450	
23	DSD	2250E	0044D	S14	W22	04	22.3		02	9	9	E	HOLL 5452	
23	AFS	2302E	0044D	N20	W22	04	22.3		03	9	9	E	HOLL 5453	
23	ASR	2318E	0044D	N30	W90	04	16.9			9	9	E	HOLL 5457	
24	ADF	0020E	0044D	N30	E18	04	25.4	1	14	9	9	E	HOLL 5456	
24	AFS	0242E	0438D	S20	W05	04	23.7		02	9	9	E	PALE 5454	
24	AFS	0305E	0942D	S21	W06	04	23.7		04	9	9	E	LEAR 5454	
24	ASR	0350E	0942D	N27	W90	04	17.1			9	9	E	LEAR 5457	
24	BSL	0418E	0908D	N30	W90	04	17.1	1				C	ABST	
24	DSD	0519E	0535D	S19	W08	04	23.6		04	9	9	E	SVTO 5454	Flare Associated
24	AFS	0519E	1711D	S20	W08	04	23.6	1	05	9	9	E	SVTO 5454	
24	AFS	0600E	1711D	N09	W73	04	18.8		02	9	9	E	SVTO 5451	
24	ASR	0618E	1711D	N23	W90	04	17.3			9	9	E	SVTO 5457	
24	ADF	0634E	1711D	N23	E20	04	25.8	1	04	9	9	E	SVTO	
24	SDF	0711E	0626D	S05	W23	04	22.6		13	0	0	E	SVTO	
24	ADF	0750E	1711D	S26	W05	04	23.9	1	18	9	9	E	SVTO 5454	
24	BSL	0848E	0935	N22	E90	05	1.3	1				V	KHAR	
24	DSD	0905E	0939D	N18	E75	04	30.1		20	9	9	E	SVTO	
24	ASR	1120E	1715D	N14	W88	04	17.8			9	9	E	RAMY 5450	
24	DSD	1120E	2150D	N10	W74	04	18.9		02	9	9	E	RAMY 5451	
24	ASR	1120E	2202D	S20	E90	05	1.3			9	9	E	RAMY	
24	DSD	1120E	2202D	S20	W14	04	23.4		04	9	9	E	RAMY 5454	
24	ASR	1125E	1711D	N13	W88	04	17.8			9	9	E	SVTO 5451	
24	APR	1125E	1711D	N27	W88	04	17.6	1		6	8	E	SVTO 5457	
24	ASR	1125E	1711D	S09	E90	05	1.2			9	9	E	SVTO	
24	ASR	1125E	1711D	S17	E90	05	1.3			9	9	E	SVTO	
24	AFS	1125E	1711D	S18	E20	04	26.0		03	9	9	E	SVTO 5460	
24	AFS	1420E	2051D	N12	W73	04	19.1		06	9	9	E	HOLL 5451	
24	AFS	1423E	0135D	S23	W12	04	23.7		01	9	9	E	HOLL 5454	
24	DSD	1424E	0135D	S21	W12	04	23.7		04	9	9	E	HOLL 5454	
24	SDF	1432E	1445D	S02	W18	04	23.3		14	0	0	E	HOLL	
24	SDF	1450E	1200D	N30	W34	04	21.9		04	0	0	E	RAMY	
24	DSD	1501E	1711D	S19	W17	04	23.3		03	9	9	E	SVTO 5454	
24	ASR	1548	2202D	N09	W78	04	18.8			9	9	E	RAMY 5451	Flare Associated
24	AFS	1548E	2202D	S19	E16	04	25.9		02	9	9	E	RAMY 5460	
24	AFS	1548E	2202D	S21	W13	04	23.7		03	9	9	E	RAMY 5454	
24	DSD	1600E	1711D	N21	E78	04	30.6		09	9	9	E	SVTO 5463	
24	ADF	1648E	1711D	S20	W64	04	19.8	1	12	9	9	E	SVTO	
24	AFS	1748E	0135D	S19	E17	04	26.0		02	9	9	E	HOLL 5460	
24	AFS	1910E	2132D	N09	W89	04	18.1		02	9	9	E	PALE 5451	
24	ASR	1910E	2132D	N11	W90	04	18.0			9	9	E	PALE 5451	

74  
Apr 89

ACTIVE PROMINENCES AND FILAMENTS

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/USAF Reg#	Remarks
24	ASR	1938E	2132D	N27	W90	04 17.8			9	8	E	PALE	5457	
24	AFS	1938E	2132D	S18	E15	04 26.0		02	9	9	E	PALE	5460	
24	AFS	1938E	2132D	S20	W17	04 23.5		06	9	9	E	PALE	5454	
24	ADF	1938E	2132D	S38	W03	04 24.6		15	9	9	E	PALE	5454	
24	ADF	2202	0154D	N32	E45	04 28.5	1				C	VORO		
24	ASR	2205E	0135D	N11	W90	04 18.1			9	9	E	HOLL	5451	
24	SSB	2230		199	W54	05 3.4			0	0	E	HOLL		
24	BSL	2251	2258	N12	W90	04 18.2	1				C	VORO		
24	ASR	2325E	0944D	N11	W90	04 18.2			9	9	E	LEAR	5451	
24	AFS	2326E	0944D	S20	W18	04 23.6		03	9	9	E	LEAR	5454	
24	ADF	2327E	0944D	S37	W08	04 24.3	1	09	9	9	E	LEAR	5454	
24	ADF	2328E	0944D	N31	E07	04 25.5	1	07	9	9	E	LEAR	5456	
24	ADF	2329E	0944D	N25	E16	04 26.2	1	05	9	9	E	LEAR		
25	ASR	0412E	0429D	N10	W89	04 18.5			9	9	E	PALE	5451	
25	AFS	0412E	0429D	S24	W18	04 23.8		02	9	9	E	PALE	5454	
25	SSB	0456		204	W62	04 25.6			0	0	E	SVTO		
25	AFS	0514E	1547D	S22	W20	04 23.7		02	9	9	E	SVTO	5454	
25	ADF	0515E	1547D	S30	W15	04 24.0	1	08	9	9	E	SVTO	5454	
25	AFS	0517E	1547D	N14	E66	04 30.2		03	9	9	E	SVTO	5463	
25	ADF	0518E	1547D	N21	E69	04 30.5	1	07	9	9	E	SVTO	5463	
25	ADF	0522E	1547D	N17	E08	04 25.8	1	06	9	9	E	SVTO		
25	DSD	0532E	1330D	N31	W02	04 25.1		03	9	9	E	SVTO	5456	
25	ADF	0535E	1547D	S10	W87	04 18.7	1	07	9	9	E	SVTO	5459	
25	DSD	0549E	1330D	S16	E05	04 25.6		03	9	9	E	SVTO	5460	
25	AFS	0602E	1547D	N03	E31	04 27.6		02	9	9	E	SVTO		
25	BSL	0632E	0803D	S13	E90	05 2.1	1				C	ABST		
25	ASR	0701E	1547D	N11	E90	05 2.1			9	9	E	SVTO	5451	
25	BSL	0732E	0803D	S27	W90	04 18.3	1				C	ABST		
25	BSL	0803E	0805D	N15	W90	04 18.5	1-				C	CATA		
25	BSL	0914E	0915D	S71	W90	04 17.2	1-				C	CATA		
25	BSL	1046	1105	S06	W90	04 18.7	1-				C	CATA		
25	BSL	1105	1116	N16	W90	04 18.6	1				C	CATA		
25	ASR	1124E	2224D	N12	W80	04 19.4			9	9	E	RAMY	5451	
25	ASR	1124E	2224D	S08	W90	04 18.7			9	9	E	RAMY	5459	
25	ADF	1258E	2224D	N22	E71	05 1.0	1	08	9	9	E	RAMY	5463	
25	SSB	1330		201	W63	04 25.6			0	0	E	RAMY		
25	ASR	1353E	1715D	N27	E88	05 2.4			9	9	E	RAMY		
25	ASR	1406E	0136D	N11	W90	04 18.8			9	9	E	HOLL	5451	
25	SSB	1415		202	W64	04 25.8			0	0	E	HOLL		
25	SDF	1450E	1155D	S04	W30	04 23.4		15	0	0	E	RAMY		
25	DSD	1500E	1620D	S21	E84	05 2.1		03	9	9	E	RAMY	5464	
25	DSD	1900E	0136D	S21	E75	05 1.5		02	9	9	E	HOLL	5464	
25	ASR	1938E	0448D	N14	W90	04 19.0			9	9	E	PALE	5451	
25	DSD	2116	0136D	S17	W35	04 23.2		04	9	9	E	HOLL	5454	Flare Associated
25	ASR	2328E	0940D	N13	W90	04 19.2			9	9	E	LEAR	5451	
26	AFS	0057E	0448D	S19	W01	04 26.0		02	8	9	E	PALE	5460	
26	DSD	0112E	0205D	S20	E76	05 1.9		03	9	9	E	PALE	5464	Flare Associated
26	BSL	0518E	0701D	S40	E90	05 3.5	1				C	ABST		
26	APR	0518E	0757D	S07	E90	05 3.0	1				C	ABST		
26	ADF	0530E	0940D	S20	W53	04 22.2	1	05	9	9	E	LEAR	5452	
26	ADF	0531E	0940D	S22	W10	04 25.5	1	07	9	9	E	LEAR	5460	
26	ADF	0532E	0940D	S17	W36	04 23.5	1	05	9	9	E	LEAR	5454	
26	ASR	0600E	1644D	N10	W90	04 19.5			9	9	E	SVTO	5451	
26	AFS	0609E	1644D	S19	W39	04 23.3		02	9	8	E	SVTO	5454	
26	AFS	0628E	1644D	N13	E55	04 30.4		01	9	9	E	SVTO	5463	
26	APR	0637E	1644D	S18	E90	05 3.1	1		9	9	E	SVTO		
26	BSL	0701E	0710	N14	W90	04 19.5	1-				C	CATA		
26	BSL	0800	0805	N14	W90	04 19.5	1-				C	CATA		
26	BSL	0821	0836	N10	W90	04 19.6	1-				C	CATA		
26	BSL	0846	0910	N20	W90	04 19.5	1-				C	CATA		
26	BSL	0922E	0937	N13	W90	04 19.6	1-				C	CATA		
26	BSL	0922E	0937	N20	W90	04 19.5	1-				C	CATA		
26	ADF	1017E	1644D	N26	E60	05 1.1	1	10	9	9	E	SVTO	5463	
26	ASR	1130E	1502D	N11	W90	04 19.7			9	9	E	RAMY	5451	
26	APR	1130E	2225D	N10	W77	04 20.7			9	9	E	RAMY	5451	
26	AFS	1130E	2225D	S19	W07	04 25.9		02	9	9	E	RAMY	5460	
26	ADF	1210E	2225D	N22	E60	05 1.1	1	13	9	9	E	RAMY	5463	
26	AFS	1217E	1644D	S33	W14	04 25.4		02	8	9	E	SVTO		

## ACTIVE PROMINENCES AND FILAMENTS

75  
Apr 89

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/USAF Reg#	Remarks
26	DSD	1350E	0116D	S20	W48	04 22.9		04	9	9	E	HOLL	5454	
26	AFS	1435E	0116D	S17	W13	04 25.6	1	04	9	9	E	HOLL	5460	
26	ADF	1443E	2027D	S37	W31	04 24.1	1	09	9	9	E	HOLL	5454	
26	SSB	1500		203	W79	04 26.9			0	0	E	HOLL		
26	ASR	1554E	1710D	N10	W90	04 19.9			9	9	E	RAMY	5451	
26	DSD	1635E	2205D	N31	W18	04 25.3		02	9	9	E	RAMY	5456	
26	AFS	1645E	1936D	S19	W09	04 26.0		02	7	7	E	PALE	5460	
26	AFS	1650E	1936D	S19	E63	05 1.5		03	9	9	E	PALE	5464	
26	DSD	1709E	1936D	N32	W18	04 25.3		02	9	9	E	PALE	5456	
26	DSD	1730E	1936D	S20	E62	05 1.5		03	9	9	E	PALE	5464	
26	AFS	2324E	0940D	S18	W47	04 23.4		03	9	9	E	LEAR	5454	
26	ADF	2325E	0940D	S22	W22	04 25.3	1	05	9	9	E	LEAR	5460	
27	ADF	0402E	0940D	S25	W46	04 23.6	1	09	9	9	E	LEAR	5454	
27	ADF	0403E	0940D	S23	W51	04 23.2	1	06	9	9	E	LEAR	5454	
27	APR	0507E	0607D	N12	W90	04 20.4	1				C	ABST		
27	AFS	0545E	0940D	S20	E60	05 1.8		03	6	4	E	LEAR	5464	
27	ADF	1036E	1625D	N15	E55	05 1.6	1	10	9	9	E	SVTO	5464	
27	ADF	1036E	1625D	N18	E57	05 1.8	1	08	9	9	E	SVTO	5464	
27	AFS	1049E	2015D	S13	W51	04 23.6		02	9	9	E	RAMY	5465	
27	ADF	1049E	2230D	N24	E50	05 1.3	1	09	9	9	E	RAMY	5463	
27	BSL	1053E	1105D	S11	W90	04 20.7	1-				C	CATA		
27	ADF	1343E	1625D	N23	E42	04 30.8	1	06	9	9	E	SVTO	5467	
27	DSD	1359E	1625D	S23	W57	04 23.2		04	9	9	E	SVTO	5454	
27	DSD	1520E	1625D	N22	W11	04 26.8		03	9	9	E	SVTO		
27	AFS	2004E	0137D	S18	W25	04 25.9		04	7	8	E	HOLL	5460	
27	ADF	2034E	0137D	S27	W55	04 23.6		09	9	9	E	HOLL	5454	
27	APR	2228	0200D	N10	W90	04 21.2	1				C	VORO		
27	AFS	2320E	0941D	S18	W28	04 25.8		02	9	9	E	LEAR	5460	
28	APR	0020	0200D	N27	W90	04 21.0	1				C	VORO		
28	EPL	0041	0135	N57	E90	05 5.9	1				C	VORO		
28	AFS	0312E	0941D	S30	W34	04 25.4		02	9	9	E	LEAR	5466	
28	BSL	0422E	0803D	N10	W90	04 21.4	1				C	ABST		
28	BSL	0949	0949D	N27	E90	05 5.4	1-				C	CATA		
28	ADF	1154E	1901D	N24	E36	05 1.3	1	16	9	9	E	RAMY	5463	
28	ASR	1214E	1239D	S30	E90	05 5.6			9	9	E	RAMY		
28	SSB	1245		124	W25	04 30.4			0	0	E	RAMY		
28	CAP	1320E	2049D	S27	E90	05 5.6		05	8	6	E	HOLL		
28	ADF	1322E	2358D	N31	W39	04 25.5		16	9	9	E	HOLL	5456	
28	AFS	1430E	1626D	N26	E04	04 28.9		01	7	7	E	SVTO		
28	AFS	1433E	1626D	S21	W37	04 25.8		02	9	9	E	SVTO	5460	
28	AFS	1441E	1626D	N14	E25	04 30.5		02	9	9	E	SVTO	5463	
28	ASR	1610E	1626D	N30	E90	05 5.7			9	9	E	SVTO		
28	AFS	1615E	0137D	N27	E06	04 29.1		01	8	8	E	HOLL		
28	ASR	1620E	0137D	N29	E90	05 5.7			9	9	E	HOLL		
28	AFS	1650E	0442D	S20	W39	04 25.7		02	9	9	E	PALE	5460	
28	AFS	1701E	0442D	N10	W20	04 27.2		02	9	9	E	PALE		
28	ASR	1706E	0442D	N29	E90	05 5.8			9	9	E	PALE		
28	CAP	1713E	1714D	S24	E90	05 5.7		07	4	4	E	PALE		
28	AFS	1920E	0137D	S18	W40	04 25.7		02	9	9	E	HOLL	5460	
28	AFS	1934E	0137D	N16	E24	04 30.6		02	6	8	E	HOLL	5463	
28	APR	2205	0200D	N28	E90	05 5.9	1				C	VORO		
28	APR	2324	0200D	S40	W90	04 21.6	1				C	VORO		
28	APR	2334	0200D	N40	E90	05 6.3	1				C	VORO		
28	ADF	2335E	0919D	S21	E38	05 1.9	1	06	9	9	E	LEAR	5464	
28	AFS	2336E	0919D	S19	W44	04 25.6		02	9	9	E	LEAR	5460	
29	ASR	0145	0919D	N29	E90	05 6.1			9	9	E	LEAR		
29	APR	0512E	0628D	S47	W90	04 21.7	1				C	ABST		
29	ASR	0545E	0919D	S24	W90	04 22.3			9	9	E	LEAR	5454	
29	APR	0648E	0704D	N31	E90	05 6.4	1				V	KHAR		
29	DSD	0718E	0735D	S16	E36	05 2.0	1				V	KHAR		
29	AFS	1104E	1312D	N25	W07	04 28.9		02	8	7	E	SVTO	5468	
29	DSD	1111E	1530D	S22	W77	04 23.5		02	9	9	E	RAMY	5454	
29	APR	1117E	1312D	S17	W90	04 22.6	1		9	9	E	SVTO	5454	
29	ASR	1117E	1312D	S21	W90	04 22.6			8	9	E	SVTO	5454	
29	AFS	1120E	1312D	S22	W49	04 25.7		02	9	9	E	SVTO	5460	
29	ADF	1122E	1813D	S17	E33	05 2.0	1	16	9	9	E	RAMY	5464	
29	APR	1139E	1312D	N46	E68	05 5.1	1		9	9	E	SVTO		

ACTIVE PROMINENCES AND FILAMENTS

APRIL 1989

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/USAF Reg#	Remarks
29	ADF	1205E	1312D	S17	E32	05	1.9	1	07	9	9	E	SVTO	5464	
29	SSB	1236		141	W56	05	3.1			0	0	E	RAMY		
29	AFS	1325E	0124D	N26	W05	04	29.2		02	9	9	E	HOLL	5468	
29	AFS	1332E	0124D	S19	W48	04	25.9		04	9	9	E	HOLL	5460	
29	ASR	1806E	2249D	S26	W90	04	22.8			9	9	E	HOLL	5454	
29	BSL	2203	2240	N22	W90	04	23.0	1				C	VORO		
29	APR	2316	0200D	N28	E90	05	7.0	1				C	VORO		
29	APR	2355	0200D	N57	W90	04	22.2	1				C	VORO		
30	BSL	0140	0200D	S11	W90	04	23.3	1				C	VORO		
30	BSL	0155	0200D	S25	W90	04	23.1	1				C	VORO		
30	AFS	0230E	0919D	N29	E73	05	5.8		03	9	5	E	LEAR	5470	
30	ADF	0230E	0919D	S27	E28	05	2.3	1	09	7	5	E	LEAR	5464	
30	AFS	0230E	0919D	S41	W25	04	28.0		02	8	5	E	LEAR	5469	
30	ADF	0252E	0443D	N27	W10	04	29.3		04	9	9	E	PALE	5468	
30	ADF	0252E	0443D	S19	E24	05	1.9		07	9	9	E	PALE	5464	
30	ADF	0252E	0443D	S23	W62	04	25.3		04	9	9	E	PALE	5454	
30	ADF	0252E	0443D	S26	E79	05	6.2		08	9	8	E	PALE		
30	ASR	0440E	0919D	S25	W90	04	23.2			9	9	E	LEAR	5454	
30	BSL	0511E	0558D	S30	W90	04	23.1	1				C	ABST		
30	BSL	0640	0700D	S28	W90	04	23.2	1-				C	CATA		
30	ADF	0805E	0852D	N31	E80	05	6.6	1				V	KHAR		
30	ADF	0855	0910	S25	E25	05	2.3	1				V	KHAR		
30	DSD	1014	1024D	S18	E25	05	2.3	1				V	KHAR		
30	ASR	1120E	2120D	N20	W87	04	23.8			9	9	E	RAMY	5454	
30	ADF	1200E	2120D	N22	E12	05	1.4	1	08	9	9	E	RAMY	5463	
30	ADF	1219E	0941D	S20	E13	05	1.5	1	08	9	9	E	LEAR	5464	
30	ASR	1657E	0052D	S21	E90	05	7.6			9	9	E	HOLL		
30	DSD	1745E	0052D	N30	E64	05	5.8		05	9	9	E	HOLL	5470	
30	APR	1748E	0052D	S33	W90	04	23.6			9	9	E	HOLL		
30	ASR	1748E	2102D	S28	W90	04	23.7			9	9	E	HOLL		
30	ADF	2102E	0052D	S18	E17	05	2.2	1	21	9	9	E	HOLL	5464	
30	SSB	2105		435	W07	04	28.2			0	0	E	HOLL		
30	ASR	2249E	0052D	S28	W90	04	23.9			9	9	E	HOLL		
30	AFS	2317E	0941D	N27	E58	05	5.5		02	9	9	E	LEAR	5470	
30	ASR	2320E	0941D	S23	E89	05	7.8			9	9	E	LEAR		

ADF = Active Dark Filament      BSL = Bright Surge on Limb      LPS = Loops  
 AFS = Arch Filament System      CAP = CAP Prominence (Tandberg-Hanssen)      MDP = Mound Prominence  
 APR = Active Prominence      CRN = Coronal Rain      SDF = Sudden Disappearing Filament  
 ASR = Active Surge Region      DSD = Dark Surge on Disk      SPY = Spray  
 BSD = Bright Surge on Disk      EPL = Eruptive Prominence on Limb      SSB = Solar Sector Boundary

For SOLAR SECTOR BOUNDARY REPORTS, the latitude field contains the Carrington longitude of the point where a neutral line crosses the solar equator. The comments field may contain the Carrington longitude and central meridian distance of two more intersection points.

The EXTENT field for limb events is the radial extent above the limb in hundredths of solar radius. For disk events this field contains the heliographic extent in whole degrees.

The remark "Bright Emission 1/3" indicates that bright emission was observed 1/3 of time.  
 The remark "Normal Emission 1/3" indicates that normal emission was observed 1/3 of time.

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

C O N T E N T S

Comprehensive Reports

MISCELLANEOUS DATA

Number 542 Part II

Page

MEUDON CARTE SYNOPTIQUE Carrington Rotations 1811-1812. . . . . 78-81  
Active Regions and Filaments  
Synoptic Solar Map

SOLAR ULTRAVIOLET RADIATION NIMBUS7 November 1978-October 1984  
Descriptive Text . . . . . 82  
Tabular Data . . . . . 83-91

78  
Late  
Jan 89

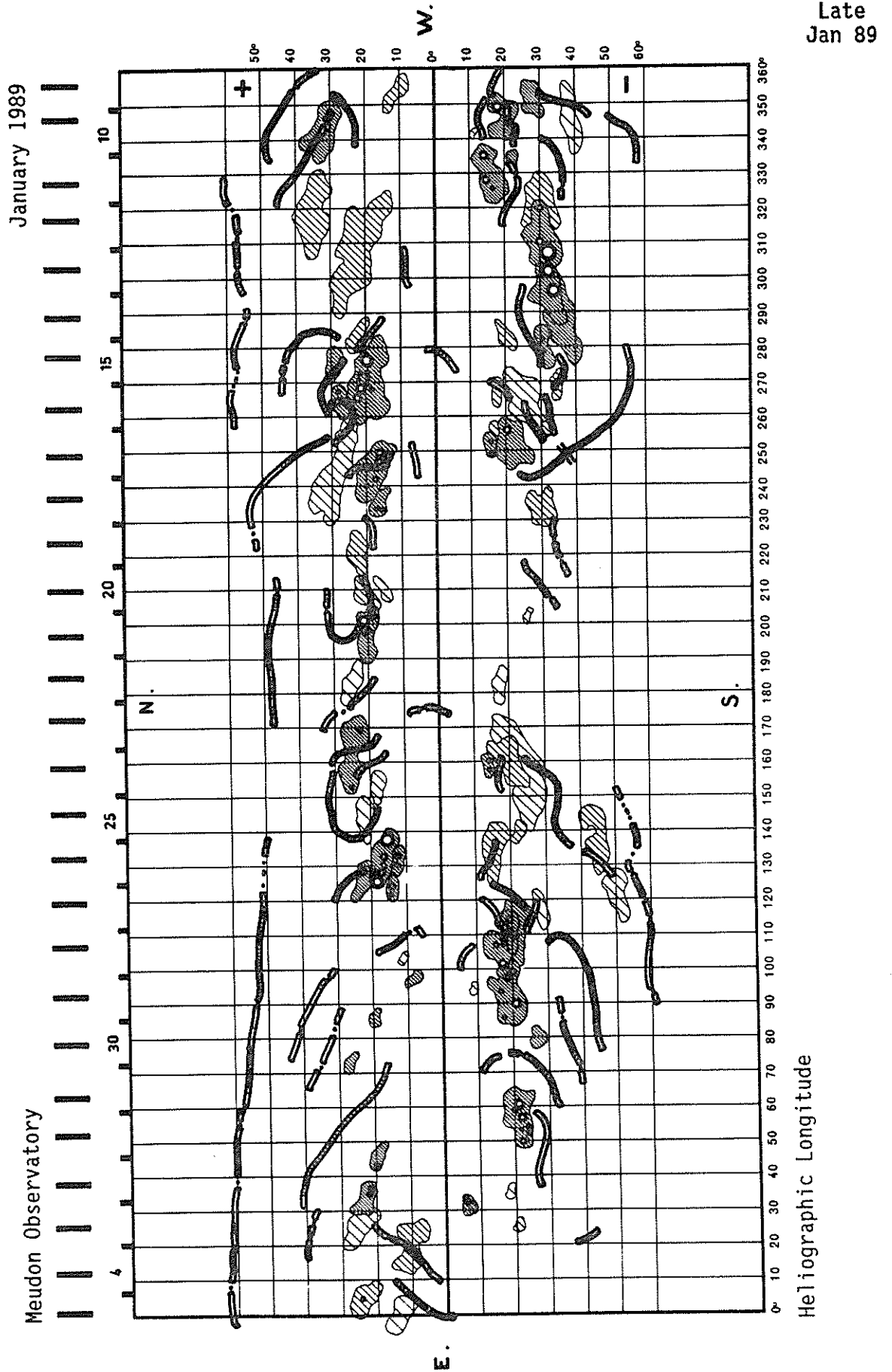
CARTE SYNOPTIQUE  
ACTIVE REGIONS  
CARRINGTON ROTATION 1811

(9 January to 5 February 1989)

Region No.	Coordinates Lat. Long.	Age at CMP (Days)	Spotless Region	Region No. in Rotation 1810	Activity at West Limb	
1	11 N 353	1	>6	x	2	decreasing
2	27 S 351	1	>6	x		stable
3	20 S 347	3	>6			decreasing
4	32 N 343	1	>6	x	1	stable
5	22 S 334	1	>6	x		disappeared
6	15 S 330	4	>6			decreasing
7	30 S 322	1	>6	x	8	decreasing
8	36 N 319	1	>6	x		dispersed
9	30 S 312	5	>6			decreasing
10	22 N 309	1	>6	x	12	decreasing
11	32 S 296	5	+1			decreasing
12	36 S 287	1	>6	x	14	decreasing
13	23 N 284	1	>6	x		decreasing
14	20 S 283	1	+6	x		dispersed
15	31 S 280	2	>6			decreasing
16	29 N 276	1	>6	x		decreasing
17	20 N 271	5	>6			stable
18	35 S 269	1	>6	x		dispersed
19	18 S 268	1	+3	x		dispersed
20	28 N 265	2	>6			decreasing
21	25 S 264	1	>6	x		dispersed
22	16 S 255	1	>6	x		disappeared
23	21 S 255	3	>6			decreasing
24	15 S 252	2	-5			stable
25	18 N 245	3	>6			decreasing
26	28 N 245	1	>6	x	20	decreasing
27	17 N 236	2	-3			stable
28	30 S 234	1	>6	x		decreasing
29	23 N 221	1	>6	x		decreasing
30	16 N 210	1	+5	x		dispersed
31	21 N 209	1	>6	x		decreasing
32	20 N 198	3	>6		27	stable
33	26 N 162	2	>6		32	decreasing
34	20 S 160	1	>6	x	34	decreasing
35	13 S 159	2	-3			stable
36	23 S 159	1	>6	x		dispersed
37	18 N 154	1	>6	x	36	dispersed
38	22 S 140	1	-2	x		stable
39	44 S 138	1	>6	x	35	decreasing
40	15 S 134	1	>6	x	40	decreasing
41	12 N 132	2	>6			decreasing
42	18 N 133	4	>6			decreasing
43	23 N 126	2	>6			decreasing
44	14 N 123	2	>6			decreasing
45	50 S 121	1	>6	x		decreasing
46	19 S 112	2	0			stable
47	20 S 110	1	>6	x	44	dispersed
48	15 S 106	3	>6			decreasing
49	8 N 97	1	-3	x		dispersed
50	19 S 93	4	>6			decreasing
51	20 N 86	1	-3	x		stable
52	27 S 80	1	-4	x		stable
53	27 N 73	1	-1	x		stable
54	21 S 57	4	>6			decreasing
55	19 N 46	2	+4			disappeared
56	23 N 34	2	0			decreasing
57	6 S 32	2	+3			decreasing
58	21 S 26	1	-4	x		stable
59	25 N 25	1	>6	x	50	dispersed
60	10 N 19	1	>6	x	51	decreasing
61	24 N 6	2	>6		53	decreasing

CARTE SYNOPTIQUE

CARRINGTON ROTATION NUMBER 1811  
(9 January to 5 February 1989)





80  
Late  
Feb 89

CARTE SYNOPTIQUE  
ACTIVE REGIONS  
CARRINGTON ROTATION 1812

(5 February to 4 March 1989)

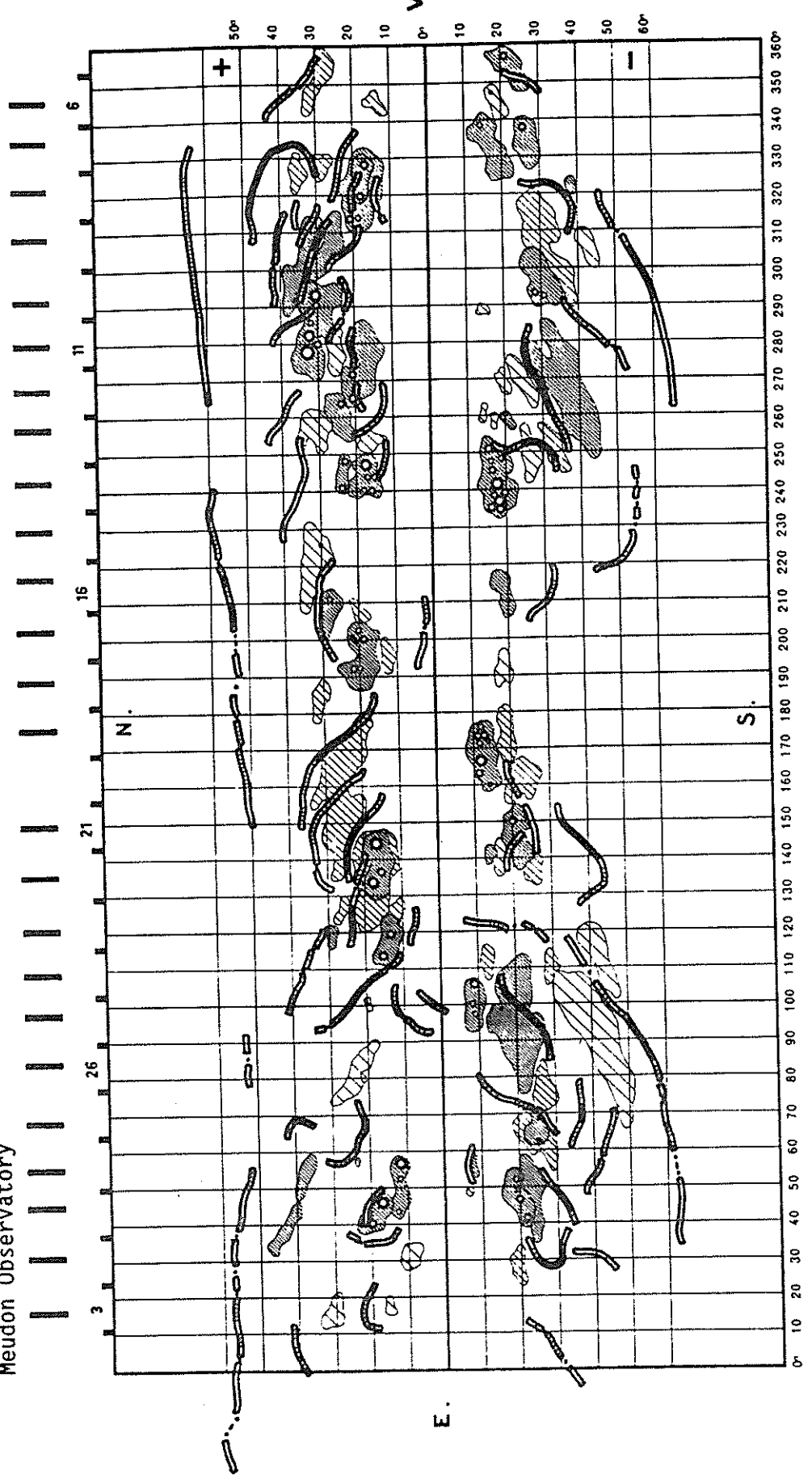
Region No.	Coordinates Lat. Long.	Imp	Age at CMP (Days)	Spotless Region	Region No. in Rotation 1811	Activity at West Limb
1	22 S 354	2	>6			decreasing
2	29 N 351	1	>6	x		decreasing
3	14 N 344	1	+3	x		dispersed
4	18 S 344	2	>6		3	disappeared
5	26 S 334	2	>6			decreasing
6	17 S 332	2	>6		6	decreasing
7	28 N 327	1	>6	x		dispersed
8	35 N 326	1	>6	x		dispersed
9	17 N 325	3	-1			stable
10	39 S 322	1	-4	x		stable
11	17 N 321	2	>6			decreasing
12	27 N 306	1	>6	x		decreasing
13	30 S 306	1	>6	x	7+9	decreasing
14	34 N 303	1	>6	x	8	decreasing
15	29 S 297	2	>6		9	decreasing
16	14 S 288	1	-3	x		decreasing
17	31 N 285	6	>6			decreasing
18	26 N 278	3	>6	x		decreasing
19	18 N 274	3	>6			decreasing
20	24 S 269	1	>6	x		dispersed
21	19 S 268	1	>6	x		dispersed
22	36 S 266	1	>6	x	11+12+15	decreasing
23	25 N 260	2	>6			decreasing
24	20 S 259	1	>6	x		decreasing
25	32 N 256	1	>6	x		dispersed
26	17 N 253	1	>6	x		decreasing
27	32 S 251	1	>6	x		dispersed
28	26 S 250	1	>6	x		dispersed
29	24 N 245	3	0			decreasing
30	18 N 244	3	>6		25	decreasing
31	17 S 244	5	>6			decreasing
32	33 N 220	2	>6			decreasing
33	19 S 212	1	>6	x		decreasing
34	20 N 207	1	>6	x	31	dispersed
35	29 N 207	2	>6			decreasing
36	13 N 196	1	+5	x		decreasing
37	20 N 195	4	>6		32	decreasing
38	32 N 184	1	+3	x		stable
39	18 S 174	1	>6	x		decreasing
40	12 S 168	4	+5			stable
41	22 S 161	1	>6	x	34	decreasing
42	27 N 158	1	>6	x	33	decreasing
43	20 S 145	2	>6			decreasing
44	16 S 140	1	>6	x		disappeared
45	25 S 139	1	>6	x		decreasing
46	17 N 138	5	+2			stable
47	18 N 134	2	>6		42	decreasing
48	27 N 126	1	>6	x		disappeared
49	12 N 125	1	>6	x	44	dispersed
50	30 N 119	1	0	x		stable
51	14 N 118	3	0			increasing
52	12 S 112	1	>6	x		decreasing
53	29 S 110	1	+6	x		disappeared
54	8 S 100	3	+6			decreasing
55	19 S 95	1	>6	x	46+48+50	decreasing
56	27 S 78	1	>6	x	52	disappeared
57	24 S 66	2	+1			decreasing
58	24 S 64	1	>6	x		disappeared
59	7 S 57	1	+5	x		disappeared
60	39 N 53	1	>6	x		decreasing
61	12 N 50	3	>6	x		decreasing
62	22 S 49	1	>6	x	54	disappeared
63	19 S 48	3	+4			decreasing
64	19 N 43	3	>6			stable
65	43 N 39	1	>6	x		dispersed
66	19 S 28	1	>6	x		disappeared

CARTE SYNOPTIQUE

CARRINGTON ROTATION NUMBER 1812  
(5 February to 4 March 1989)

February 1989

Meudon Observatory



Heliographic Longitude

## THE NIMBUS7 SOLAR UV CORE-TO-WING RATIO FOR THE MG II H &amp; K LINES

Richard F. Donnelly and Joan Barrett  
Air Resources Laboratory, NOAA/ERL  
Boulder, Colorado 80303, U.S.A.

Heath and Schlesinger (1986) studied the solar ultraviolet measurements from the Solar Backscatter Ultraviolet (SBUV) experiment on the NIMBUS7 satellite and showed that the core-to-wing ratio of Mg II h & k lines [R(MgIIc/w)] was a good measure of the temporal variations of the solar UV flux, including long-term variations, because the ratio is relatively insensitive to drifts in instrument sensitivity. They defined the ratio as follows:

$$R(\text{MgII}, t) = \frac{4[F(C1, t) + F(C2, t) + F(C3, t)]}{3[F(LW1, t) + F(LW2, t) + F(SW1, t) + F(SW2, t)]} \quad (1)$$

where  $F(w, t)$  is the measured flux at wavelength  $w$  and time  $t$ . For NIMBUS7,  $LW1 = 283.4$ ,  $LW2 = 283.2$ ,  $C1 = 280.2$ ,  $C2 = 280.0$ ,  $C3 = 279.8$ ,  $SW1 = 276.8$  and  $SW2 = 276.6$  nm. The bandpass of that instrument was 1.1 nm and the steps in wavelength were 0.2 nm. That bandwidth is so wide that the h & k lines are not resolved but blend together to form one large absorption line.

The tables on the next several pages present our values for Heath and Schlesinger's  $R(\text{MgII}, t)$ , which were derived from the NIMBUS7-SBUV data tapes (Schlesinger et al., 1988) available from the National Space Science Data Center and World Data Center A for Rockets and Satellites, NASA-GSFC, Greenbelt, MD 20771, U.S.A. Unlike the similar results for NOAA9-SBUV2 published elsewhere in Solar-Geophysical Data, which were normalized to the solar-cycle minimum, i.e., the monthly mean value for September 1986, these NIMBUS7 values are those derived from (1) with no normalization. As the premiere long-term set of  $R(\text{MgII})$ , the NIMBUS7 values are those that later measurements should be expressed in terms of equivalent NIMBUS7 values.

We conclude that Heath and Schlesinger's NIMBUS  $R(\text{MgII}, t)$  is an excellent measure of the short-term (days, weeks), intermediate-term (months) and long-term (years, solar cycle) variations of solar chromospheric full-disk activity and are useful for estimating the relative temporal variation of UV fluxes in the 170-295 nm range and chromospheric UV and EUV fluxes at shorter wavelengths (Heath and Schlesinger, 1986; Donnelly, 1988). Hall and Anderson (1988) have pointed out complications in comparing  $R(\text{MgII})$  values from solar spectral measurements from different instruments, which limits the usefulness of comparing  $R(\text{MgII})$  values from past rocket-flight measurements. However, for long-term relative intensity measurements, the NIMBUS7 results are good because its wavelength repeatability is quite good. Overlapping long-term series of measurements from different satellites can then be compared through linear regression analysis to obtain equivalent NIMBUS7 values for  $R(\text{MgII}, t)$ .

Our results in the tables differ slightly from those of Heath and Schlesinger (1988, private communication) in the following ways: In 1978 to July, 1980, NIMBUS7 measured the solar flux typically for three days followed by a fourth day of no measurements. After July 20, 1980, measurements were also made on the "fourth" days. Unfortunately, the instrument operation differed on these "fourth" days causing an offset in the data. We have excluded these "fourth" days from the tables rather than correcting the values. The occasional asterisk in 1982 and 1983 marks results with small differences, usually in the last digit shown, but as large as 0.6% on August 19, 1982. These differences probably result from differences in identifying and treating noise in the data. In 1984, our results are lower by about one in the fourth digit probably because Heath and Schlesinger included a correction for the small drift in instrument wavelength settings probably caused by years of mechanical wear.

The following tables were presented by R. F. Donnelly in August, 1987, in a paper entitled "Solar UV Data Sets for Atmospheric Research", at the XIX General Assembly of the International Union of Geodesy and Geophysics, in Vancouver, Canada.

- Donnelly, R.F., Uniformity in Solar UV Flux Variations Important to the Stratosphere, Ann. Geophys., **6**, 417-424, 1988.
- Hall, L.A., and G.P. Anderson, Instrumental Effects on a Proposed Mg II Index of Solar Activity, Ann. Geophys., **6**, 531-534, 1988.
- Heath, D.F., and B.M. Schlesinger, The Mg 280-nm Doublet as a Monitor of Changes in Solar Ultraviolet Irradiance, J. Geophys. Res., **91**, 8672, 1986.
- Schlesinger, B.M., R.P. Cebula, D.F. Heath, and A.J. Fleig, Nimbus 7 Solar Backscatter Ultraviolet (SBUV) Spectral Scan Solar and Earth Radiance Product User's Guide, NASA Reference Publication 1199, NASA GSFC, Greenbelt, Maryland, 20771, U.S.A., 67 pp., 1988.

MgII Center to Wing Ratio  
Nimbus 7 Six Year Data Set (11/78 to 10/84)

Date	Value	Date	Value	Date	Value	Date	Value
----	-----	----	-----	----	-----	----	-----
78 11 7	.2772	79 1 1	.2810	79 2 24	.2787	79 4 17	.2799
78 11 8	.2770	79 1 2	.2814	79 2 26	.2779	79 4 18	.2784
78 11 9	.2769	79 1 3	.2824	79 2 27	.2789	79 4 19	.2772
78 11 10	.2765	79 1 5	.2819	79 2 28	.2796	79 4 20	.2754
78 11 12	.2759	79 1 6	.2804	79 3 1	.2802	79 4 21	.2749
78 11 13	.2747	79 1 7	.2815	79 3 2	.2822	79 4 23	.2746
78 11 14	.2736	79 1 9	.2812	79 3 3	.2828	79 4 27	.2812
78 11 19	.2728	79 1 10	.2801	79 3 4	.2831	79 4 28	.2820
78 11 20	.2722	79 1 12	.2801	79 3 6	.2827	79 4 29	.2815
78 11 22	.2718	79 1 13	.2804	79 3 7	.2823	79 5 1	.2809
78 11 23	.2718	79 1 14	.2795	79 3 8	.2815	79 5 2	.2798
78 11 24	.2725	79 1 15	.2788	79 3 10	.2803	79 5 3	.2781
78 11 25	.2732	79 1 18	.2767	79 3 12	.2816	79 5 6	.2769
78 11 26	.2742	79 1 19	.2765	79 3 13	.2817	79 5 7	.2772
78 11 27	.2754	79 1 21	.2787	79 3 14	.2821	79 5 9	.2796
78 11 28	.2755	79 1 23	.2813	79 3 15	.2826	79 5 10	.2813
78 12 1	.2783	79 1 24	.2823	79 3 18	.2834	79 5 11	.2816
78 12 2	.2790	79 1 25	.2825	79 3 19	.2828	79 5 13	.2826
78 12 4	.2782	79 1 27	.2811	79 3 20	.2816	79 5 14	.2823
78 12 5	.2789	79 1 28	.2803	79 3 22	.2804	79 5 15	.2819
78 12 6	.2781	79 1 29	.2797	79 3 24	.2803	79 5 16	.2804
78 12 7	.2784	79 1 30	.2803	79 3 25	.2801	79 5 17	.2788
78 12 8	.2776	79 1 31	.2798	79 3 26	.2803	79 5 18	.2773
78 12 9	.2774	79 2 2	.2815	79 3 27	.2810	79 5 19	.2766
78 12 12	.2776	79 2 3	.2827	79 3 28	.2812	79 5 22	.2759
78 12 13	.2775	79 2 4	.2827	79 3 29	.2827	79 5 25	.2804
78 12 14	.2769	79 2 5	.2833	79 3 30	.2835	79 5 26	.2802
78 12 16	.2761	79 2 7	.2838	79 3 31	.2849	79 5 27	.2796
78 12 17	.2720	79 2 8	.2843	79 4 1	.2850	79 5 30	.2783
78 12 18	.2742	79 2 10	.2820	79 4 2	.2846	79 5 31	.2776
78 12 19	.2732	79 2 11	.2805	79 4 3	.2839	79 6 2	.2787
78 12 20	.2730	79 2 12	.2804	79 4 4	.2815	79 6 3	.2800
78 12 21	.2694	79 2 14	.2794	79 4 6	.2778	79 6 4	.2825
78 12 22	.2709	79 2 15	.2801	79 4 7	.2773	79 6 6	.2840
78 12 24	.2721	79 2 16	.2806	79 4 8	.2769	79 6 7	.2858
78 12 25	.2739	79 2 17	.2820	79 4 9	.2764	79 6 10	.2831
78 12 26	.2749	79 2 19	.2837	79 4 10	.2770	79 6 11	.2809
78 12 28	.2776	79 2 20	.2833	79 4 11	.2776	79 6 12	.2797
78 12 29	.2789	79 2 22	.2808	79 4 13	.2811	79 6 14	.2769
78 12 30	.2795	79 2 23	.2800	79 4 16	.2808	79 6 15	.2760

84  
Misc

Date	Value	Date	Value	Date	Value	Date	Value
----	-----	----	-----	----	-----	----	-----
79 6 16	.2760	79 8 27	.2822	79 11 11	.2901	80 1 22	.2761
79 6 18	.2761	79 8 29	.2815	79 11 13	.2894	80 1 24	.2762
79 6 19	.2756	79 8 30	.2808	79 11 14	.2892	80 1 25	.2757
79 6 22	.2775	79 8 31	.2799	79 11 17	.2866	80 1 26	.2757
79 6 23	.2769	79 9 2	.2782	79 11 19	.2834	80 1 28	.2774
79 6 26	.2774	79 9 3	.2778	79 11 21	.2796	80 1 29	.2801
79 6 27	.2781	79 9 7	.2793	79 11 22	.2786	80 1 30	.2806
79 7 1	.2801	79 9 8	.2791	79 11 23	.2780	80 2 1	.2844
79 7 2	.2826	79 9 12	.2794	79 11 25	.2773	80 2 2	.2846
79 7 4	.2851	79 9 15	.2801	79 11 26	.2772	80 2 3	.2854
79 7 5	.2857	79 9 16	.2801	79 11 27	.2775	80 2 5	.2850
79 7 8	.2836	79 9 18	.2812	79 11 29	.2763	80 2 6	.2838
79 7 9	.2821	79 9 19	.2829	79 11 30	.2766	80 2 7	.2837
79 7 10	.2797	79 9 20	.2828	79 12 1	.2771	80 2 9	.2806
79 7 12	.2772	79 9 22	.2841	79 12 4	.2812	80 2 10	.2794
79 7 13	.2760	79 9 23	.2848	79 12 5	.2834	80 2 11	.2791
79 7 14	.2745	79 9 24	.2852	79 12 6	.2837	80 2 13	.2804
79 7 16	.2743	79 9 26	.2850	79 12 8	.2875	80 2 14	.2803
79 7 17	.2748	79 9 27	.2834	79 12 9	.2890	80 2 15	.2807
79 7 20	.2762	79 9 28	.2813	79 12 11	.2899	80 2 17	.2809
79 7 21	.2767	79 9 30	.2793	79 12 12	.2910	80 2 18	.2803
79 7 22	.2760	79 10 1	.2789	79 12 13	.2904	80 2 19	.2793
79 7 25	.2762	79 10 4	.2786	79 12 15	.2864	80 2 21	.2778
79 7 26	.2778	79 10 5	.2791	79 12 16	.2847	80 2 22	.2761
79 7 28	.2791	79 10 6	.2797	79 12 17	.2823	80 2 26	.2766
79 7 29	.2784	79 10 8	.2799	79 12 19	.2777	80 2 27	.2790
79 7 30	.2794	79 10 10	.2811	79 12 21	.2757	80 2 29	.2826
79 8 1	.2791	79 10 12	.2810	79 12 23	.2746	80 3 1	.2824
79 8 2	.2780	79 10 13	.2829	79 12 24	.2749	80 3 2	.2825
79 8 3	.2783	79 10 14	.2832	79 12 25	.2751	80 3 4	.2816
79 8 5	.2763	79 10 16	.2854	79 12 28	.2754	80 3 5	.2810
79 8 6	.2764	79 10 17	.2861	79 12 29	.2774	80 3 6	.2800
79 8 9	.2765	79 10 18	.2867	79 12 31	.2804	80 3 8	.2774
79 8 10	.2768	79 10 22	.2859	80 1 1	.2813	80 3 9	.2768
79 8 11	.2769	79 10 24	.2832	80 1 4	.2854	80 3 10	.2768
79 8 13	.2771	79 10 25	.2812	80 1 6	.2881	80 3 12	.2773
79 8 14	.2773	79 10 26	.2810	80 1 9	.2872	80 3 14	.2774
79 8 15	.2778	79 10 28	.2801	80 1 10	.2870	80 3 16	.2763
79 8 17	.2775	79 10 29	.2805	80 1 12	.2868	80 3 17	.2770
79 8 18	.2780	79 10 30	.2813	80 1 13	.2851	80 3 18	.2765
79 8 19	.2787	79 11 1	.2828	80 1 16	.2801	80 3 20	.2776
79 8 22	.2814	79 11 2	.2831	80 1 17	.2797	80 3 21	.2771
79 8 23	.2821	79 11 5	.2835	80 1 18	.2792	80 3 22	.2778
79 8 25	.2825	79 11 6	.2854	80 1 20	.2764	80 3 24	.2789
79 8 26	.2826	79 11 9	.2876	80 1 21	.2753	80 3 25	.2806

Date	Value	Date	Value	Date	Value	Date	Value
----	-----	----	-----	----	-----	----	-----
80 3 26	.2824	80 5 31	.2811	80 7 30	.2768	80 9 28	.2793
80 3 28	.2845	80 6 1	.2792	80 7 31	.2760	80 9 29	.2801
80 3 29	.2842	80 6 2	.2776	80 8 1	.2756	80 9 30	.2808
80 3 30	.2841	80 6 4	.2772	80 8 3	.2741	80 10 2	.2809
80 4 1	.2815	80 6 5	.2776	80 8 4	.2735	80 10 3	.2809
80 4 2	.2797	80 6 6	.2765	80 8 5	.2733	80 10 4	.2808
80 4 3	.2775	80 6 8	.2760	80 8 7	.2744	80 10 6	.2800
80 4 4	.2770	80 6 9	.2771	80 8 8	.2760	80 10 7	.2802
80 4 5	.2767	80 6 10	.2772	80 8 9	.2777	80 10 8	.2812
80 4 7	.2778	80 6 12	.2790	80 8 11	.2808	80 10 10	.2829
80 4 9	.2797	80 6 13	.2803	80 8 12	.2821	80 10 11	.2836
80 4 10	.2807	80 6 14	.2804	80 8 13	.2835	80 10 12	.2842
80 4 11	.2821	80 6 16	.2804	80 8 15	.2845	80 10 14	.2838
80 4 13	.2829	80 6 17	.2821	80 8 16	.2849	80 10 15	.2830
80 4 14	.2826	80 6 18	.2824	80 8 17	.2844	80 10 16	.2822
80 4 15	.2818	80 6 20	.2845	80 8 19	.2829	80 10 17	.2807
80 4 17	.2801	80 6 21	.2849	80 8 20	.2819	80 10 18	.2798
80 4 18	.2800	80 6 22	.2855	80 8 21	.2808	80 10 19	.2795
80 4 19	.2813	80 6 23	.2855	80 8 23	.2780	80 10 20	.2793
80 4 21	.2821	80 6 24	.2849	80 8 24	.2773	80 10 22	.2800
80 4 22	.2816	80 6 25	.2839	80 8 25	.2759	80 10 23	.2796
80 4 25	.2820	80 6 26	.2829	80 8 27	.2752	80 10 24	.2795
80 4 26	.2824	80 6 28	.2806	80 8 28	.2756	80 10 26	.2792
80 4 27	.2816	80 6 29	.2793	80 8 29	.2759	80 10 27	.2795
80 4 29	.2795	80 6 30	.2779	80 8 31	.2774	80 10 28	.2797
80 4 30	.2781	80 7 2	.2760	80 9 1	.2781	80 10 30	.2807
80 5 1	.2793	80 7 3	.2753	80 9 2	.2792	80 10 31	.2814
80 5 3	.2794	80 7 4	.2746	80 9 4	.2813	80 11 1	.2823
80 5 4	.2807	80 7 7	.2748	80 9 5	.2818	80 11 3	.2837
80 5 5	.2816	80 7 8	.2749	80 9 6	.2823	80 11 4	.2840
80 5 7	.2818	80 7 10	.2756	80 9 8	.2825	80 11 5	.2845
80 5 8	.2823	80 7 11	.2764	80 9 9	.2820	80 11 7	.2846
80 5 9	.2834	80 7 12	.2778	80 9 10	.2817	80 11 8	.2843
80 5 13	.2792	80 7 14	.2814	80 9 12	.2815	80 11 9	.2834
80 5 15	.2807	80 7 15	.2830	80 9 13	.2811	80 11 11	.2820
80 5 16	.2815	80 7 16	.2850	80 9 14	.2804	80 11 12	.2805
80 5 19	.2827	80 7 18	.2872	80 9 16	.2792	80 11 13	.2791
80 5 20	.2832	80 7 19	.2882	80 9 17	.2786	80 11 15	.2781
80 5 21	.2849	80 7 20	.2890	80 9 18	.2780	80 11 16	.2779
80 5 22	.2873	80 7 22	.2869	80 9 20	.2772	80 11 17	.2779
80 5 23	.2872	80 7 23	.2853	80 9 21	.2765	80 11 19	.2783
80 5 25	.2875	80 7 24	.2836	80 9 22	.2763	80 11 20	.2790
80 5 27	.2861	80 7 26	.2816	80 9 24	.2770	80 11 21	.2789
80 5 28	.2855	80 7 27	.2806	80 9 25	.2776	80 11 23	.2789
80 5 29	.2843	80 7 28	.2792	80 9 26	.2781	80 11 24	.2784

86  
Misc

Date	Value	Date	Value	Date	Value	Date	Value
----	-----	----	-----	----	-----	----	-----
80 11 25	.2786	81 1 27	.2815	81 4 8	.2873	81 6 7	.2761
80 11 27	.2794	81 1 28	.2817	81 4 9	.2877	81 6 8	.2763
80 11 28	.2802	81 1 30	.2817	81 4 10	.2880	81 6 9	.2765
80 11 29	.2809	81 1 31	.2819	81 4 12	.2847	81 6 11	.2777
80 12 1	.2839	81 2 1	.2815	81 4 13	.2838	81 6 12	.2773
80 12 2	.2847	81 2 3	.2814	81 4 14	.2831	81 6 13	.2779
80 12 3	.2845	81 2 4	.2813	81 4 16	.2827	81 6 15	.2778
80 12 5	.2837	81 2 7	.2820	81 4 17	.2838	81 6 16	.2782
80 12 6	.2822	81 2 8	.2810	81 4 18	.2838	81 6 17	.2793
80 12 9	.2793	81 2 9	.2795	81 4 20	.2836	81 6 19	.2787
80 12 10	.2795	81 2 12	.2796	81 4 21	.2815	81 6 20	.2771
80 12 11	.2808	81 2 15	.2786	81 4 22	.2803	81 6 21	.2780
80 12 13	.2832	81 2 16	.2789	81 4 24	.2803	81 6 23	.2781
80 12 14	.2845	81 2 17	.2781	81 4 25	.2801	81 6 24	.2780
80 12 15	.2850	81 2 19	.2793	81 4 26	.2803	81 6 25	.2779
80 12 17	.2867	81 2 20	.2793	81 4 28	.2811	81 6 27	.2792
80 12 18	.2862	81 2 21	.2789	81 4 29	.2822	81 6 28	.2783
80 12 19	.2853	81 2 23	.2790	81 4 30	.2825	81 6 29	.2788
80 12 21	.2840	81 2 24	.2796	81 5 2	.2850	81 7 1	.2773
80 12 22	.2826	81 2 25	.2802	81 5 3	.2860	81 7 2	.2770
80 12 23	.2826	81 2 27	.2824	81 5 4	.2863	81 7 3	.2763
80 12 25	.2824	81 2 28	.2824	81 5 6	.2854	81 7 5	.2753
80 12 26	.2828	81 3 1	.2820	81 5 7	.2854	81 7 6	.2747
80 12 27	.2827	81 3 3	.2830	81 5 8	.2854	81 7 7	.2743
80 12 29	.2845	81 3 4	.2838	81 5 10	.2829	81 7 9	.2749
80 12 30	.2845	81 3 5	.2836	81 5 11	.2818	81 7 10	.2765
80 12 31	.2847	81 3 7	.2823	81 5 12	.2811	81 7 11	.2778
81 1 2	.2828	81 3 9	.2824	81 5 14	.2818	81 7 13	.2801
81 1 3	.2823	81 3 11	.2820	81 5 15	.2816	81 7 14	.2808
81 1 4	.2799	81 3 12	.2820	81 5 16	.2818	81 7 15	.2813
81 1 6	.2768	81 3 13	.2818	81 5 18	.2803	81 7 17	.2812
81 1 7	.2765	81 3 15	.2806	81 5 19	.2783	81 7 18	.2806
81 1 8	.2778	81 3 19	.2789	81 5 20	.2784	81 7 19	.2806
81 1 10	.2785	81 3 20	.2797	81 5 22	.2788	81 7 21	.2787
81 1 11	.2799	81 3 21	.2799	81 5 23	.2777	81 7 22	.2793
81 1 12	.2806	81 3 24	.2824	81 5 24	.2782	81 7 23	.2808
81 1 14	.2806	81 3 25	.2824	81 5 26	.2796	81 7 25	.2823
81 1 15	.2793	81 3 27	.2814	81 5 27	.2804	81 7 26	.2824
81 1 16	.2785	81 3 28	.2822	81 5 28	.2817	81 7 27	.2822
81 1 18	.2768	81 3 29	.2833	81 5 30	.2807	81 7 29	.2809
81 1 19	.2766	81 4 1	.2838	81 5 31	.2790	81 7 30	.2803
81 1 20	.2774	81 4 2	.2852	81 6 1	.2782	81 7 31	.2786
81 1 22	.2797	81 4 4	.2853	81 6 3	.2771	81 8 2	.2762
81 1 23	.2806	81 4 5	.2862	81 6 4	.2765	81 8 3	.2746
81 1 26	.2817	81 4 6	.2868	81 6 5	.2755	81 8 4	.2742

Date	Value	Date	Value	Date	Value	Date	Value
----	-----	----	-----	----	-----	----	-----
81 8 6	.2748	81 10 5	.2847	81 12 5	.2865	82 2 7	.2821
81 8 7	.2759	81 10 6	.2851	81 12 6	.2873	82 2 8	.2814
81 8 8	.2765	81 10 7	.2836	81 12 8	.2879	82 2 10	.2804
81 8 10	.2786	81 10 9	.2811	81 12 9	.2892	82 2 11	.2790
81 8 11	.2801	81 10 10	.2811	81 12 10	.2893	82 2 12	.2790
81 8 12	.2808	81 10 11	.2800	81 12 12	.2876	82 2 14	.2787
81 8 14	.2812	81 10 13	.2809	81 12 13	.2864	82 2 15	.2780
81 8 15	.2813	81 10 14	.2828	81 12 14	.2823	82 2 16	.2767
81 8 16	.2809	81 10 15	.2834	81 12 16	.2779	82 2 18	.2759
81 8 18	.2831	81 10 17	.2854	81 12 17	.2758	82 2 19	.2759
81 8 19	.2844	81 10 18	.2854	81 12 18	.2751	82 2 20	.2764
81 8 20	.2862	81 10 19	.2851	81 12 20	.2736	82 2 22	.2771
81 8 22	.2877	81 10 21	.2833	81 12 21	.2741	82 2 24	.2781
81 8 23	.2884	81 10 22	.2820	81 12 22	.2754	82 2 26	.2823
81 8 24	.2885	81 10 23	.2815	81 12 24	.2794	82 2 27	.2843
81 8 26	.2883	81 10 25	.2812	81 12 25	.2809	82 2 28	.2850
81 8 27	.2874	81 10 26	.2813	81 12 26	.2819	82 3 3	.2850
81 8 28	.2864	81 10 27	.2809	81 12 28	.2832	82 3 4	.2849
81 8 30	.2847	81 10 29	.2832	81 12 30	.2837	82 3 6	.2845
81 8 31	.2846	81 10 30	.2847	82 1 1	.2825	82 3 7	.2846
81 9 1	.2852	81 10 31	.2858	82 1 2	.2829	82 3 8	.2813
81 9 3	.2853	81 11 2	.2851	82 1 3	.2830	82 3 10	.2785
81 9 4	.2848	81 11 3	.2859	82 1 5	.2832	82 3 12	.2796
81 9 5	.2851	81 11 4	.2857	82 1 6	.2828	82 3 14	.2806
81 9 7	.2862	81 11 6	.2862	82 1 7	.2824	82 3 15	.2806
81 9 8	.2862	81 11 7	.2854	82 1 10	.2777	82 3 16	.2804
81 9 9	.2856	81 11 8	.2851	82 1 11	.2761	82 3 19	.2793
81 9 11	.2835	81 11 10	.2848	82 1 13	.2730	82 3 20	.2785
81 9 12	.2825	81 11 11	.2848	82 1 14	.2731	82 3 22	.2774
81 9 13	.2825	81 11 12	.2844	82 1 15	.2730	82 3 24	.2765
81 9 15	.2829	81 11 14	.2842	82 1 17	.2754	82 3 26	.2791
81 9 16	.2835	81 11 15	.2835	82 1 18	.2761	82 3 27	.2815
81 9 17	.2836	81 11 16	.2810	82 1 19	.2785	82 3 28	.2824
81 9 19	.2843	81 11 18	.2793	82 1 21	.2794	82 3 30	.2836
81 9 20	.2839	81 11 19	.2778	82 1 22	.2788	82 3 31	.2817
81 9 21	.2843	81 11 20	.2774	82 1 23	.2784	82 4 2	.2803
81 9 23	.2834	81 11 22	.2762	82 1 25	.2785	82 4 3	.2799
81 9 24	.2829	81 11 23	.2763	82 1 27	.2801	82 4 4	.2788
81 9 25	.2822	81 11 24	.2772	82 1 29	.2845	82 4 5	.2775
81 9 27	.2833	81 11 26	.2790	82 1 30	.2859	82 4 7	.2783
81 9 28	.2839	81 11 27	.2804	82 1 31	.2877	82 4 9	.2795
81 9 29	.2840	81 11 28	.2820	82 2 2	.2867	82 4 12	.2806
81 10 1	.2846	81 11 30	.2841	82 2 3	.2875	82 4 13	.2800
81 10 2	.2854	81 12 2	.2854	82 2 4	.2849	82 4 15	.2773
81 10 3	.2857	81 12 4	.2859	82 2 6	.2835	82 4 16	.2755



Date	Value	Date	Value	Date	Value	Date	Value
----	-----	----	-----	----	-----	----	-----
82 4 17	.2739	82 6 28	.2733	82 9 8	.2823	82 11 23	.2791
82 4 19	.2730	82 6 30	.2738	82 9 10	.2793	82 11 25	.2782
82 4 21	.2746	82 7 1	.2738	82 9 12	.2771*	82 11 26	.2779
82 4 23	.2777	82 7 2	.2734	82 9 14	.2743	82 11 27	.2777
82 4 24	.2786	82 7 4	.2730	82 9 15	.2746	82 11 29	.2770
82 4 25	.2786	82 7 6	.2727*	82 9 16	.2742	82 11 30	.2770
82 4 27	.2785	82 7 8	.2725	82 9 18	.2747	82 12 1	.2768
82 4 28	.2782	82 7 9	.2738	82 9 20	.2749	82 12 3	.2778
82 4 29	.2775	82 7 10	.2766	82 9 22	.2754	82 12 5	.2784*
82 5 1	.2761	82 7 12	.2786	82 9 23	.2756	82 12 7	.2799
82 5 3	.2758	82 7 13	.2808	82 9 24	.2764	82 12 9	.2817
82 5 5	.2776	82 7 16	.2865	82 9 26	.2790	82 12 11	.2834
82 5 7	.2778	82 7 17	.2862	82 9 28	.2812*	82 12 13	.2843
82 5 9	.2768	82 7 18	.2863	82 9 30	.2840	82 12 15	.2833
82 5 11	.2753*	82 7 20	.2811	82 10 1	.2844	82 12 17	.2809
82 5 13	.2730	82 7 21	.2788	82 10 2	.2838	82 12 19	.2776
82 5 14	.2723	82 7 22	.2742	82 10 4	.2816	82 12 21	.2748*
82 5 15	.2725	82 7 24	.2715	82 10 6	.2779	82 12 23	.2750
82 5 17	.2741	82 7 26	.2705	82 10 8	.2750	82 12 24	.2758
82 5 19	.2763	82 7 28	.2697	82 10 10	.2747	82 12 25	.2773
82 5 21	.2774	82 7 29	.2693	82 10 12	.2742	82 12 27	.2778
82 5 22	.2774	82 7 30	.2705	82 10 13	.2753	82 12 28	.2773
82 5 23	.2771	82 8 1	.2716	82 10 14	.2757	82 12 29	.2764
82 5 25	.2767	82 8 3	.2720*	82 10 16	.2749	82 12 31	.2756
82 5 27	.2763	82 8 5	.2749	82 10 18	.2738	83 1 1	.2748
82 5 29	.2762	82 8 6	.2785	82 10 20	.2742	83 1 2	.2741
82 5 30	.2758	82 8 7	.2817	82 10 22	.2765*	83 1 4	.2739
82 5 31	.2757	82 8 9	.2843	82 10 24	.2794	83 1 5	.2755
82 6 2	.2752	82 8 10	.2856	82 10 25	.2811	83 1 6	.2769
82 6 3	.2759	82 8 11	.2861	82 10 26	.2832	83 1 8	.2796
82 6 4	.2758	82 8 13	.2845	82 10 28	.2826	83 1 10	.2787
82 6 6	.2751	82 8 14	.2827	82 10 29	.2821	83 1 12	.2770
82 6 7	.2750	82 8 15	.2806	82 10 30	.2809	83 1 14	.2760
82 6 8	.2747	82 8 17	.2757	82 11 1	.2790	83 1 15	.2751
82 6 10	.2750	82 8 19	.2747*	82 11 3	.2769	83 1 16	.2742
82 6 11	.2748	82 8 21	.2726	82 11 6	.2764	83 1 17	.2734
82 6 12	.2757	82 8 23	.2719	82 11 10	.2767	83 1 18	.2739
82 6 14	.2765	82 8 25	.2729	82 11 11	.2764	83 1 21	.2733
82 6 15	.2775	82 8 27	.2740	82 11 13	.2762	83 1 22	.2734
82 6 16	.2779	82 8 30	.2753	82 11 15	.2750	83 1 25	.2720
82 6 18	.2788	82 8 31	.2766	82 11 17	.2748	83 1 26	.2729*
82 6 20	.2791	82 9 2	.2784	82 11 18	.2753	83 1 29	.2745
82 6 22	.2787	82 9 3	.2801	82 11 19	.2763	83 1 30	.2753
82 6 24	.2767*	82 9 4	.2817	82 11 21	.2782	83 2 2	.2772
82 6 26	.2742	82 9 6	.2819	82 11 22	.2787	83 2 3	.2777

Date	Value	Date	Value	Date	Value	Date	Value
----	-----	----	-----	----	-----	----	-----
83 2 5	.2767	83 4 19	.2724	83 7 4	.2732	83 9 7	.2727
83 2 7	.2748	83 4 20	.2720	83 7 5	.2737	83 9 9	.2732
83 2 9	.2728	83 4 22	.2722	83 7 8	.2734	83 9 10	.2742
83 2 11	.2716*	83 4 23	.2731	83 7 9	.2725	83 9 11	.2738
83 2 14	.2695	83 4 24	.2743	83 7 11	.2728	83 9 12	.2729
83 2 15	.2689	83 4 26	.2753	83 7 13	.2723*	83 9 13	.2718
83 2 17	.2696	83 4 27	.2763	83 7 15	.2719	83 9 14	.2717
83 2 18	.2701	83 4 28	.2771	83 7 16	.2729	83 9 15	.2709
83 2 19	.2699	83 4 30	.2763	83 7 17	.2737	83 9 16	.2703
83 2 21	.2699	83 5 2	.2742	83 7 19	.2740	83 9 17	.2701
83 2 23	.2709	83 5 4	.2726	83 7 20	.2742	83 9 18	.2691
83 2 25	.2715	83 5 6	.2707	83 7 21	.2743	83 9 20	.2691
83 2 26	.2724	83 5 8	.2716	83 7 23	.2743	83 9 21	.2687
83 2 27	.2740	83 5 10	.2720	83 7 24	.2737	83 9 22	.2692
83 3 1	.2754	83 5 12	.2726	83 7 25	.2727	83 9 23	.2695
83 3 2	.2755	83 5 13	.2732	83 7 27	.2715	83 9 25	.2708
83 3 3	.2756	83 5 14	.2724	83 7 28	.2703	83 9 26	.2707
83 3 6	.2753	83 5 16	.2725	83 7 29	.2707	83 9 27	.2710
83 3 7	.2734	83 5 17	.2724	83 7 31	.2725	83 9 28	.2709
83 3 9	.2716	83 5 18	.2723	83 8 1	.2732	83 9 30	.2700
83 3 11	.2699*	83 5 20	.2730	83 8 2	.2740	83 10 1	.2699
83 3 13	.2687	83 5 21	.2745	83 8 4	.2736	83 10 2	.2695
83 3 14	.2684	83 5 22	.2754	83 8 6	.2730	83 10 3	.2697
83 3 15	.2694	83 5 24	.2760	83 8 8	.2728	83 10 4	.2710
83 3 17	.2708	83 5 25	.2768	83 8 9	.2723	83 10 7	.2725
83 3 19	.2718	83 5 26	.2767	83 8 10	.2725	83 10 8	.2738
83 3 21	.2714	83 5 28	.2753	83 8 12	.2743	83 10 9	.2748
83 3 22	.2720	83 5 30	.2735	83 8 13	.2757	83 10 10	.2745
83 3 23	.2717	83 6 3	.2723*	83 8 14	.2769	83 10 12	.2744
83 3 25	.2716	83 6 5	.2733	83 8 16	.2772	83 10 13	.2730
83 3 27	.2715	83 6 6	.2732	83 8 18	.2752	83 10 14	.2721
83 3 29	.2716	83 6 7	.2740	83 8 20	.2734	83 10 15	.2710
83 3 30	.2726	83 6 10	.2744	83 8 22	.2717*	83 10 16	.2698
83 3 31	.2720	83 6 11	.2731	83 8 24	.2704	83 10 18	.2692
83 4 2	.2713	83 6 13	.2723	83 8 25	.2706	83 10 20	.2684
83 4 3	.2716	83 6 15	.2724*	83 8 26	.2715	83 10 21	.2691
83 4 4	.2703	83 6 17	.2734	83 8 28	.2719	83 10 23	.2687
83 4 6	.2697	83 6 18	.2745	83 8 29	.2718	83 10 24	.2687
83 4 7	.2692	83 6 19	.2753	83 8 30	.2709	83 10 25	.2683
83 4 10	.2693	83 6 23	.2775	83 8 31	.2707	83 10 27	.2684
83 4 11	.2707	83 6 25	.2761	83 9 1	.2703	83 10 29	.2682
83 4 12	.2711	83 6 27	.2754*	83 9 2	.2706	83 10 30	.2685
83 4 14	.2720	83 6 29	.2733	83 9 3	.2700	83 10 31	.2685
83 4 15	.2719	83 7 1	.2724	83 9 4	.2707	83 11 1	.2689
83 4 16	.2720	83 7 3	.2728	83 9 6	.2714	83 11 2	.2696

90  
Misc

Date	Value	Date	Value	Date	Value	Date	Value
----	-----	----	-----	----	-----	----	-----
83 11 4	.2708	83 12 31	.2671	84 3 2	.2717	84 4 28	.2725
83 11 5	.2720	84 1 2	.2681	84 3 3	.2718	84 4 29	.2726
83 11 6	.2722	84 1 3	.2684	84 3 5	.2713	84 4 30	.2722
83 11 7	.2722	84 1 5	.2685	84 3 7	.2714	84 5 1	.2720
83 11 9	.2712	84 1 6	.2684	84 3 8	.2713	84 5 3	.2707
83 11 10	.2712	84 1 7	.2684	84 3 9	.2709	84 5 4	.2691
83 11 11	.2706	84 1 8	.2682	84 3 10	.2710	84 5 5	.2685
83 11 12	.2692	84 1 9	.2689	84 3 11	.2701	84 5 6	.2673
83 11 13	.2683	84 1 11	.2692	84 3 13	.2699	84 5 9	.2694
83 11 15	.2678	84 1 12	.2690	84 3 14	.2694	84 5 10	.2702
83 11 16	.2669	84 1 13	.2695	84 3 15	.2693	84 5 11	.2710
83 11 17	.2672	84 1 14	.2684	84 3 16	.2707	84 5 12	.2719
83 11 18	.2673	84 1 16	.2680	84 3 18	.2723	84 5 14	.2732
83 11 19	.2666	84 1 19	.2675	84 3 19	.2732	84 5 15	.2734
83 11 21	.2659	84 1 20	.2678	84 3 20	.2735	84 5 16	.2728
83 11 22	.2666	84 1 22	.2683	84 3 21	.2741	84 5 17	.2713
83 11 23	.2664	84 1 23	.2689	84 3 22	.2744	84 5 18	.2709
83 11 24	.2664	84 1 24	.2689	84 3 24	.2734	84 5 20	.2707
83 11 26	.2664	84 1 25	.2694	84 3 25	.2731	84 5 21	.2719
83 11 27	.2664	84 1 26	.2709	84 3 26	.2726	84 5 22	.2726
83 11 29	.2677	84 1 28	.2711	84 3 27	.2717	84 5 23	.2732
83 12 1	.2689	84 1 30	.2711	84 3 28	.2719	84 5 25	.2731
83 12 2	.2699	84 1 31	.2708	84 3 30	.2716	84 5 26	.2731
83 12 3	.2695	84 2 2	.2699	84 3 31	.2716	84 5 27	.2731
83 12 4	.2692	84 2 3	.2694	84 4 1	.2724	84 5 28	.2726
83 12 5	.2700	84 2 4	.2695	84 4 2	.2725	84 5 29	.2717
83 12 7	.2698	84 2 5	.2700	84 4 4	.2732	84 5 30	.2710
83 12 8	.2691	84 2 6	.2706	84 4 5	.2727	84 6 1	.2694
83 12 9	.2701	84 2 8	.2712	84 4 6	.2721	84 6 2	.2701
83 12 10	.2697	84 2 9	.2725	84 4 7	.2716	84 6 3	.2705
83 12 11	.2698	84 2 11	.2725	84 4 9	.2700	84 6 4	.2707
83 12 14	.2697	84 2 12	.2716	84 4 10	.2692	84 6 6	.2708
83 12 15	.2691	84 2 14	.2711	84 4 11	.2687	84 6 7	.2705
83 12 16	.2681	84 2 15	.2701	84 4 12	.2684	84 6 8	.2702
83 12 17	.2677	84 2 17	.2694	84 4 13	.2691	84 6 9	.2705
83 12 19	.2675	84 2 19	.2698	84 4 14	.2703	84 6 10	.2705
83 12 20	.2675	84 2 20	.2701	84 4 16	.2710	84 6 11	.2704
83 12 21	.2670	84 2 21	.2722	84 4 17	.2716	84 6 12	.2703
83 12 22	.2673	84 2 22	.2729	84 4 18	.2723	84 6 13	.2696
83 12 23	.2673	84 2 23	.2743	84 4 19	.2723	84 6 14	.2697
83 12 25	.2665	84 2 25	.2750	84 4 21	.2717	84 6 15	.2702
83 12 26	.2667	84 2 26	.2744	84 4 22	.2711	84 6 17	.2704
83 12 27	.2670	84 2 27	.2745	84 4 24	.2710	84 6 18	.2710
83 12 28	.2669	84 2 28	.2736	84 4 25	.2716	84 6 19	.2711
83 12 30	.2676	84 2 29	.2731	84 4 27	.2722	84 6 20	.2709

<u>Date</u>	<u>Value</u>	<u>Date</u>	<u>Value</u>	<u>Date</u>	<u>Value</u>	<u>Date</u>	<u>Value</u>
84 6 22	.2699	84 7 19	.2675	84 8 22	.2655	84 9 25	.2656
84 6 23	.2699	84 7 20	.2675	84 8 24	.2656	84 9 27	.2659
84 6 24	.2700	84 7 21	.2674	84 8 26	.2665	84 9 28	.2660
84 6 25	.2689	84 7 23	.2670	84 8 28	.2668	84 9 29	.2663
84 6 26	.2683	84 7 26	.2665	84 8 30	.2671	84 9 30	.2661
84 6 27	.2675	84 7 27	.2666	84 8 31	.2680	84 10 2	.2660
84 6 28	.2673	84 7 28	.2663	84 9 1	.2677	84 10 3	.2663
84 6 30	.2684	84 7 29	.2669	84 9 2	.2683	84 10 4	.2662
84 7 1	.2689	84 7 30	.2672	84 9 5	.2680	84 10 5	.2657
84 7 2	.2696	84 8 1	.2679	84 9 6	.2684	84 10 6	.2661
84 7 4	.2713	84 8 2	.2685	84 9 7	.2680	84 10 9	.2655
84 7 5	.2720	84 8 3	.2684	84 9 8	.2676	84 10 10	.2653
84 7 6	.2719	84 8 4	.2685	84 9 10	.2671	84 10 11	.2650
84 7 7	.2719	84 8 5	.2689	84 9 11	.2664	84 10 12	.2648
84 7 8	.2717	84 8 7	.2687	84 9 12	.2662	84 10 14	.2644
84 7 9	.2710	84 8 8	.2690	84 9 13	.2655	84 10 15	.2647
84 7 10	.2701	84 8 9	.2692	84 9 14	.2651	84 10 16	.2645
84 7 11	.2698	84 8 10	.2694	84 9 16	.2651	84 10 17	.2651
84 7 12	.2691	84 8 11	.2692	84 9 17	.2647	84 10 18	.2652
84 7 13	.2689	84 8 13	.2686	84 9 18	.2645	84 10 20	.2654
84 7 15	.2689	84 8 14	.2681	84 9 21	.2647	84 10 21	.2657
84 7 16	.2688	84 8 16	.2666	84 9 22	.2653	84 10 22	.2655
84 7 17	.2685	84 8 18	.2655	84 9 23	.2656	84 10 25	.2649
84 7 18	.2684	84 8 20	.2650	84 9 24	.2657	84 10 27	.2647

## UAG SERIES OF REPORTS

Fewer than four UAG Reports are published at irregular intervals each year. Copies of these publications may be purchased through the NATIONAL GEOPHYSICAL DATA CENTER, Solar-Terrestrial Physics Division (E/GC2) 325 Broadway, Boulder, Colorado 80303, USA. A \$10.00 handling charge per order will be added to single-copy price, if any, listed below. Please note, too, that some reports are available on microfiche only. Orders must include check or money order payable in U.S. currency to Commerce, NOAA/NGDC.

- UAG- 1 IQSY NIGHT AIRGLOW DATA, by L.L. Smith, F.E. Roach, and J.M. McKennan, ESSA Aeronomy Laboratory, Boulder, CO, July 1968, 305 pp, \$1.75.
- UAG- 2 A REEVALUATION OF SOLAR FLARES, 1964-1966, by Helen W. Dodson and E. Ruth Hedeman, McMath-Hulbert Observatory, University of Michigan, Pontiac, MI, August 1968, 28 pp.
- UAG- 3 OBSERVATIONS OF JUPITER'S SPORADIC RADIO EMISSION IN THE RANGE 7.6-41 MHZ, 6 JULY 1966 THROUGH 8 SEPTEMBER 1968, by James W. Warwick and George A. Dulk, University of Colorado, Boulder, CO, October 1968, 35 pp.
- UAG- 4 ABBREVIATED CALENDAR RECORD 1966-1967, by J. Virginia Lincoln, Hope I. Leighton and Dorothy K. Kropp, ESSA [now NOAA], Aeronomy and Space Data Center, Boulder, CO, January 1969, 170 pp.
- UAG- 5 DATA ON SOLAR EVENT OF MAY 23, 1967, AND ITS GEOPHYSICAL EFFECTS, compiled by J. Virginia Lincoln, World Data Center A, Upper Atmosphere Geophysics, ESSA [now NOAA], Boulder, CO, February 1969, 120 pp.
- UAG- 6 INTERNATIONAL GEOPHYSICAL CALENDARS 1957-1969, by A.H. Shapley and J. Virginia Lincoln, ESSA Research Laboratories [now NOAA], Boulder, CO, March 1969, 25 pp.
- UAG- 7 OBSERVATIONS OF THE SOLAR ELECTRON CORONA: FEBRUARY 1964 - JANUARY 1968, by Richard T. Hansen, High Altitude Observatory, NCAR, Boulder, CO, and Kamuela, HI, October 1969, 12 pp.
- UAG- 8 DATA ON SOLAR-GEOPHYSICAL ACTIVITY OCTOBER 24 - NOVEMBER 6, 1968, Parts 1 and 2, compiled by J. Virginia Lincoln, World Data Center A, Upper Atmosphere Geophysics, ESSA [now NOAA], Boulder, CO, March 1970, 312 pp, \$1.75 (includes Parts 1 and 2).
- UAG- 9 DATA ON COSMIC RAY EVENT OF NOVEMBER 18, 1968, AND ASSOCIATED PHENOMENA, compiled by J. Virginia Lincoln, World Data Center A, Upper Atmosphere Geophysics, ESSA [now NOAA], Boulder, CO, April 1970, 109 pp.
- UAG-10 ATLAS OF IONOGRAMS, edited by A.H. Shapley, ESSA Research Laboratories [now NOAA], Boulder, CO, May 1970, 243 pp, \$1.50.
- UAG-11 [Superseded by UAG-30]
- UAG-12 SOLAR-GEOPHYSICAL ACTIVITY ASSOCIATED WITH THE MAJOR GEOMAGNETIC STORM OF MARCH 8, 1970, Parts 1, 2 and 3, compiled by J. Virginia Lincoln and Dale B. Bucknam, World Data Center A, Upper Atmosphere Geophysics, ESSA [now NOAA], Boulder, CO, April 1971, 466 pp, \$3.00 (includes 3 parts).
- UAG-13 DATA ON THE SOLAR PROTON EVENT OF NOVEMBER 2, 1969, THROUGH THE GEOMAGNETIC STORM OF NOVEMBER 8-10, 1969, compiled by Dale B. Bucknam and J. Virginia Lincoln, World Data Center A, Upper Atmosphere Geophysics, ESSA [now NOAA], Boulder, CO, May 1971, 76 pp.
- UAG-14 AN EXPERIMENTAL, COMPREHENSIVE FLARE INDEX AND ITS DERIVATION FOR 'MAJOR' FLARES, 1955-1969, by Helen W. Dodson and E. Ruth Hedeman, McMath-Hulbert Observatory, University of Michigan, Pontiac, MI, July 1971, 25 pp.
- UAG-15 [Superseded by UAG-30]
- UAG-16 TEMPORAL DEVELOPMENT OF THE GEOPHYSICAL DISTRIBUTION OF AURORAL ABSORPTION FOR 30 SUBSTORM EVENTS IN EACH OF IQSY (1964-65) AND IASY (1960), by F.T. Berkey, University of Alaska, Fairbanks, AK; V.M. Driatskiy, Arctic and Antarctic Research Institute, Leningrad, USSR; K. Henriksen, Auroral Observatory, Tromso, Norway; D.H. Jelly, Communications Research Center, Ottawa, Canada; T.I. Shchuka, Arctic and Antarctic Research Institute, Leningrad, USSR; A. Theander, Kiruna Geophysical Observatory, Kiruna, Sweden; and J. Yliniemä, University of Oulu, Oulu, Finland, September 1971, 131 pp, \$1.50 (microfiche only).
- UAG-17 IONOSPHERIC DRIFT VELOCITY MEASUREMENTS AT JICAMARCA, PERU (JULY 1967 - MARCH 1970), by Ben B. Balsley, NOAA Aeronomy Laboratory, Boulder, CO, and Ronald F. Woodman, Jicamarca Radar Observatory, Instituto Geofisico del Peru, Lima, Peru, October 1971, 45 pp, \$1.50 (microfiche only).
- UAG-18 A STUDY OF POLAR CAP AND AURORAL ZONE MAGNETIC VARIATIONS, by K. Kawasaki and S.-I. Akasofu, University of Alaska, Fairbanks, AK, June 1972, 21 pp.

UAG SERIES OF REPORTS (Continued)

- UAG-19 REEVALUATION OF SOLAR FLARES 1967, by Helen W. Dodson and E. Ruth Hedeman, McMath-Hulbert Observatory, University of Michigan, Pontiac, MI, and Marta Rovira de Miceli, San Miguel Observatory, Argentina, June 1972, 15 pp.
- UAG-20 [Superseded by UAG-30]
- UAG-21 PRELIMINARY COMPILATION OF DATA FOR RETROSPECTIVE WORLD INTERVAL JULY 26 - AUGUST 14, 1972, by J. Virginia Lincoln and Hope I. Leighton, World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, CO, November 1972, 128 pp.
- UAG-22 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES (AE) FOR 1970, by Joe Haskell Allen, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, November 1972, 146 pp.
- UAG-23 U.R.S.I. HANDBOOK OF IONOGRAM INTERPRETATION AND REDUCTION, Second Edition, November 1972, edited by W.R. Piggott, Radio and Space Research Station, Slough, UK, and K. Rawer, Arbeitsgruppe fur Physikalische Weltraumforschung, Freiburg, GFR, November 1972, 324 pp, \$1.75.
- UAG-23A U.R.S.I. HANDBOOK OF IONOGRAM INTERPRETATION AND REDUCTION, Second Edition, Revision of Chapters 1-4, edited by W.R. Piggott, Radio and Space Research Station, Slough, UK, and K. Rawer, Arbeitsgruppe fur Physikalische Weltraumforschung, Freiburg, GFR, November 1972, 135 pp, \$2.00.
- UAG-24 DATA ON SOLAR-GEOPHYSICAL ACTIVITY ASSOCIATED WITH THE MAJOR GROUND LEVEL COSMIC RAY EVENTS OF 24 JANUARY AND 1 SEPTEMBER 1971, Parts 1 and 2, compiled by Helen E. Coffey and J. Virginia Lincoln, World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, CO, December 1972, 462 pp, \$2.00 (includes Parts 1 and 2).
- UAG-25 OBSERVATIONS OF JUPITER'S SPORADIC RADIO EMISSION IN THE RANGE 7.6-41 MHZ, 9 SEPTEMBER 1968 THROUGH 9 DECEMBER 1971, by James W. Warwick, George A. Dulk and David G. Swann, University of Colorado, Boulder, CO, February 1973, 35 pp.
- UAG-26 DATA COMPILATION FOR THE MAGNETOSPHERICALLY QUIET PERIODS FEBRUARY 19-23 AND NOVEMBER 29 - DECEMBER 3, 1970, compiled by Helen E. Coffey and J. Virginia Lincoln, World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, CO, May 1973, 129 pp.
- UAG-27 HIGH SPEED STREAMS IN THE SOLAR WIND, by D.S. Intriligator, University of Southern California, Los Angeles, CA, June 1973, 16 pp.
- UAG-28 COLLECTED DATA REPORTS ON AUGUST 1972 SOLAR-TERRESTRIAL EVENTS, Parts 1, 2 and 3, edited by Helen E. Coffey, World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, CO, July 1973, 932 pp, \$4.50.
- UAG-29 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(11) FOR 1968, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, October 1973, 148 pp.
- UAG-30 CATALOGUE OF DATA ON SOLAR-TERRESTRIAL PHYSICS, prepared by NOAA Environmental Data Service, Boulder, CO, October 1973, 317 pp, \$1.75. Supersedes catalogs UAG-11, 15 and 20.
- UAG-31 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(11) FOR 1969, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, February 1974, 142 pp.
- UAG-32 SYNOPTIC RADIO MAPS OF THE SUN AT 3.3 MM FOR THE YEARS 1967-1969, by Earle B. Mayfield, Kennon P. White III, and Fred I. Shimabukuro, Aerospace Corp., El Segundo, CA, April 1974, 26 pp.
- UAG-33 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(10) FOR 1967, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, May 1974, 142 pp.
- UAG-34 ABSORPTION DATA FOR THE IGY/IGC AND IQSY, compiled and edited by A.H. Shapley, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO; W.R. Piggott, Appleton Laboratory, Slough, UK; and K. Rawer, Arbeitsgruppe fur Physikalische Weltraumforschung, Freiburg, GFR, June 1974, 381 pp, \$2.00.
- UAG-35 [Superseded by UAG-92]
- UAG-36 AN ATLAS OF EXTREME ULTRAVIOLET FLASHES OF SOLAR FLARES OBSERVED VIA SUDDEN FREQUENCY DEVIATIONS DURING THE ATM-SKYLAB MISSIONS, by R.F. Donnelly and E.L. Berger, NOAA Space Environment Laboratory; Lt. J.D. Busman, NOAA Commissioned Corps; B. Henson, NASA Marshall Space Flight Center; T.B. Jones, University of Leicester, UK; G.M. Lerfald, NOAA Wave Propagation Laboratory; K. Najita, University of Hawaii; W.M. Retallack, NOAA Space Environment Laboratory and W.J. Wagner, Sacramento Peak Observatory, October 1974, 95 pp.

UAG SERIES OF REPORTS (Continued)

- UAG-37 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(10) FOR 1966, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, December 1974, 142 pp.
- UAG-38 MASTER STATION LIST FOR SOLAR-TERRESTRIAL PHYSICS DATA AT WDC-A FOR SOLAR-TERRESTRIAL PHYSICS, by R.W. Buhmann, World Data Center A for Solar-Terrestrial Physics, Boulder, CO; Juan D. Roederer, University of Denver, Denver, CO; and M.A. Shea and D.F. Smart, Air Force Cambridge Research Laboratories, Hanscom AFB, MA, December 1974, 110 pp, \$1.60.
- UAG-39 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(11) FOR 1971, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, February 1975, 144 pp, \$2.05.
- UAG-40 H-ALPHA SYNOPTIC CHARTS OF SOLAR ACTIVITY FOR THE PERIOD OF SKYLAB OBSERVATIONS, MAY 1973 - MARCH 1974, by Patrick S. McIntosh, NOAA Space Environment Laboratory, Boulder, CO, February 1975, 32 pp.
- UAG-41 H-ALPHA SYNOPTIC CHARTS OF SOLAR ACTIVITY DURING THE FIRST YEAR OF SOLAR CYCLE 20 OCTOBER 1964 - AUGUST 1965, by Patrick S. McIntosh, NOAA Space Environment Laboratory, Boulder, CO, and Jerome T. Nolte, American Science and Engineering, Inc., Cambridge, MA, March 1975, 25 pp.
- UAG-42 OBSERVATIONS OF JUPITER'S SPORADIC RADIO EMISSION IN THE RANGE 7.6-80 MHZ, 10 DECEMBER 1971 THROUGH 21 MARCH 1975, by James W. Warwick, George A. Dulk and Anthony C. Riddle, University of Colorado, Boulder, CO, April 1975, 49 pp.
- UAG-43 CATALOG OF OBSERVATION TIMES OF GROUND-BASED SKYLAB-COORDINATED SOLAR OBSERVING PROGRAMS, compiled by Helen E. Coffey, World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, CO, May 1975, 159 pp, \$3.00.
- UAG-44 SYNOPTIC MAPS OF SOLAR 9.1 CM MICROWAVE EMISSION FROM JUNE 1962 TO AUGUST 1973, by Werner Graf and Ronald N. Bracewell, Stanford University, Stanford, CA, May 1975, 183 pp, \$2.55.
- UAG-45 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(11) FOR 1972, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, May 1975, 144 pp, \$1.50 (microfiche only).
- UAG-46 INTERPLANETARY MAGNETIC FIELD DATA 1963-1964, by Joseph H. King, National Space Science Data Center, NASA Goddard Space Flight Center, Greenbelt, MD, June 1975, 382 pp, \$2.95.
- UAG-47 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(11) FOR 1973, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, June 1975, 144 pp, \$1.50 (microfiche only).
- UAG-48 [Superseded by UAG-48A]
- UAG-48A SYNOPTIC OBSERVATIONS OF THE SOLAR CORONA DURING CARRINGTON ROTATIONS 1580-1596 (11 OCTOBER 1971 - 15 JANUARY 1973), [Re-issue of UAG-48 with quality images], by R.A. Howard, M.J. Koomen, D.J. Michels, R. Tousey, C.R. Detwiler, D.E. Roberts, R.T. Seal, and J.D. Whitney, U.S. Naval Research Laboratory, Washington, DC; and R.T. Hansen and S.F. Hansen, C.J. Garcia and E. Yasukawa, High Altitude Observatory, NCAR, Boulder, CO, February 1976, 200 pp, \$4.27. Supersedes UAG-48.
- UAG-49 [Superseded by UAG-92]
- UAG-50 HIGH-LATITUDE SUPPLEMENT TO THE URSI HANDBOOK ON IONOGRAM INTERPRETATION AND REDUCTION, edited by W.R. Piggott, British Antarctic Survey, c/o Appleton Laboratory, Slough, UK, October 1975, 294 pp, \$4.00.
- UAG-51 SYNOPTIC MAPS OF SOLAR CORONAL HOLE BOUNDARIES DERIVED FROM HE II 304A SPECTROHELIOGRAMS FROM THE MANNED SKYLAB MISSIONS, by J.D. Bohlin and D.M. Rubenstein, U.S. Naval Research Laboratory, Washington, DC, November 1975, 30 pp.
- UAG-52 EXPERIMENTAL COMPREHENSIVE SOLAR FLARE INDICES FOR CERTAIN FLARES, 1970-1974, by Helen W. Dodson and E. Ruth Hedeman, McMath-Hulbert Observatory, University of Michigan, Pontiac, MI, November 1975, 27 pp.
- UAG-53 DESCRIPTION AND CATALOG OF IONOSPHERIC F-REGION DATA, JICAMARCA RADIO OBSERVATORY (NOVEMBER 1966 - APRIL 1969), by W.L. Clark and T.E. Van Zandt, NOAA Aeronomy Laboratory, Boulder, CO, and J.P. McClure, University of Texas at Dallas, Dallas, TX, April 1976, 10 pp.
- UAG-54 [Superseded by UAG-85]

UAG SERIES OF REPORTS (Continued)

- UAG-55 EQUIVALENT IONOSPHERIC CURRENT REPRESENTATIONS BY A NEW METHOD, ILLUSTRATED FOR 8-9 NOVEMBER 1969 MAGNETIC DISTURBANCES, by Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO; H.W. Kroehl, Data Studies Division, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO; M. Kanamitsu, Advanced Study Program, National Center for Atmospheric Research, Boulder, CO; Joe Haskell Allen, Data Studies Division, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO; and S.-I. Akasofu, Geophysical Institute, University of Alaska, Fairbanks, AK, April 1976, 91 pp, \$1.50 (microfiche only).
- UAG-56 ISO-INTENSITY CONTOURS OF GROUND MAGNETIC H PERTURBATIONS FOR THE DECEMBER 16-18, 1971, GEOMAGNETIC STORM, Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO, April 1976, 37 pp.
- UAG-57 MANUAL ON IONOSPHERIC ABSORPTION MEASUREMENTS, edited by K. Rawer, Institut fur Physikalische Weltraumforschung, Freiburg, GFR, June 1976, 302 pp, \$4.00.
- UAG-58 ATS-6 RADIO BEACON ELECTRON CONTENT MEASUREMENTS AT BOULDER, JULY 1974 - MAY 1975, by R.B. Fritz, NOAA Space Environment Laboratory, Boulder, CO, September 1976, 61 pp.
- UAG-59 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(11) FOR 1974, by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, December 1976, 144 pp, \$2.16.
- UAG-60 GEOMAGNETIC DATA FOR JANUARY 1976 [AE(7) INDICES AND STACKED MAGNETOGRAMS], by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, July 1977, 57 pp.
- UAG-61 COLLECTED DATA REPORTS FOR STIP INTERVAL II 20 MARCH - 5 MAY 1976, edited by Helen E. Coffey and John A. McKinnon, World Data Center A for Solar-Terrestrial Physics, Boulder, CO, August 1977, 313 pp, \$2.95.
- UAG-62 GEOMAGNETIC DATA FOR FEBRUARY 1976 [AE(7) INDICES AND STACKED MAGNETOGRAMS], by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, September 1977, 55 pp.
- UAG-63 GEOMAGNETIC DATA FOR MARCH 1976 [AE(7) INDICES AND STACKED MAGNETOGRAMS], by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, September 1977, 57 pp.
- UAG-64 GEOMAGNETIC DATA FOR APRIL 1976 [AE(8) INDICES AND STACKED MAGNETOGRAMS], by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO, February 1978, 55 pp.
- UAG-65 THE INFORMATION EXPLOSION AND ITS CONSEQUENCES FOR DATA ACQUISITION, DOCUMENTATION, PROCESSING, by G.K. Hartmann, Max-Planck-Institut fur Aeronomie, Lindau, GFR, May 1978, 36 pp.
- UAG-66 SYNOPTIC RADIO MAPS OF THE SUN AT 3.3 MM 1970-1973, by Earle B. Mayfield and Fred I. Shimabukuro, Aerospace Corp., El Segundo, CA, May 1978, 30 pp.
- UAG-67 IONOSPHERIC D-REGION PROFILE DATA BASE, A COLLECTION OF COMPUTER-ACCESSIBLE EXPERIMENTAL PROFILES OF THE D AND LOWER E REGIONS, by L.F. McNamara, Ionospheric Prediction Service, Sydney, Australia, August 1978, 30 pp, \$1.50 (microfiche only).
- UAG-68 A COMPARATIVE STUDY OF METHODS OF ELECTRON DENSITY PROFILE ANALYSIS, by L.F. McNamara, Ionospheric Prediction Service, Sydney, Australia, August 1978, 30 pp, \$1.50 (microfiche only).
- UAG-69 SELECTED DISTURBED D-REGION ELECTRON DENSITY PROFILES. THEIR RELATION TO THE UNDISTURBED D REGION, by L.F. McNamara, Ionospheric Prediction Service, Sydney, Australia, October 1978, 50 pp, \$1.50 (microfiche only).
- UAG-70 ANNOTATED ATLAS OF H-ALPHA SYNOPTIC CHARTS FOR SOLAR CYCLE 20 (1964-1974) CARRINGTON SOLAR ROTATIONS 1487-1616, by Patrick S. McIntosh, NOAA Space Environment Laboratory, Boulder, CO, February 1979, 327 pp, \$3.50.
- UAG-71 MAGNETIC POTENTIAL PLOTS OVER THE NORTHERN HEMISPHERE FOR 26-28 MARCH 1976, A.D. Richmond, NOAA Space Environment Laboratory, Boulder, CO; H.W. Kroehl, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO; M.A. Henning, Lockheed Missiles and Space Co., Aurora, CO; and Y. Kamide, Kyoto Sangyo University, Kyoto, Japan, April 1979, 118 pp, \$1.50.
- UAG-72 ENERGY RELEASE IN SOLAR FLARES, PROCEEDINGS OF THE WORKSHOP ON ENERGY RELEASE IN FLARES, 26 FEBRUARY - 1 MARCH 1979, CAMBRIDGE, MASSACHUSETTS, U.S.A., edited by David M. Rust, American Science and Engineering, Inc., Cambridge, MA; and A. Gordon Emslie, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, July 1979, 68 pp, \$1.50 (microfiche only).

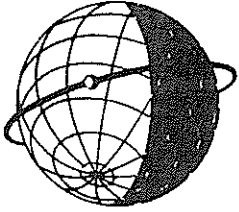


UAG SERIES OF REPORTS (Continued)

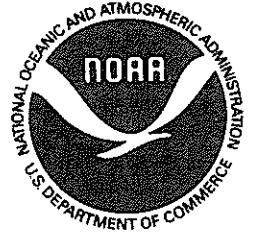
- UAG-73 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(11-12) FOR JANUARY - JUNE 1975, by Joe Haskell Allen, Carl C. Abston, J.E. Salazar and J.A. McKinnon, National Geophysical and Solar-Terrestrial Data Center, NOAA, Boulder, CO, August 1979, 114 pp, \$1.75 (microfiche only).
- UAG-74 ATS-6 RADIO BEACON ELECTRON CONTENT MEASUREMENTS AT OOTACAMUND, INDIA, OCTOBER - JULY 1976, by S.D. Bouwer, K. Davies, R.F. Donnelly, R.N. Grubb, J.E. Jones and J.H. Taylor, NOAA Space Environment Laboratory, Boulder, CO; and R.G. Rastogi, M.R. Deshpande, H. Chandra and G. Sethia, Physical Research Laboratory, Ahmedabad, India, March 1980, 58 pp, \$2.50.
- UAG-75 THE ALASKA IMS MERIDIAN CHAIN: MAGNETIC VARIATIONS FOR 9 MARCH - 27 APRIL 1978, by H.W. Kroehl and G.P. Kosinski, National Geophysical and Solar-Terrestrial Data Center, Boulder, CO; S.-I. Akasofu, G.J. Romick, C.E. Campbell and G.K. Corrick, University of Alaska, Fairbanks, AK; and C.E. Hornback and A.M. Gray, NOAA Space Environment Laboratory, Boulder, CO, June 1980, 107 pp, \$3.00.
- UAG-76 AURORAL ELECTROJET MAGNETIC ACTIVITY INDICES AE(12) FOR JULY - DECEMBER 1975, by Joe Haskell Allen, Carl C. Abston, J.E. Salazar and J.A. McKinnon, National Geophysical and Solar-Terrestrial Data Center, NOAA, Boulder, CO, August 1980, 116 pp, \$2.50.
- UAG-77 SYNOPTIC SOLAR MAGNETIC FIELD MAPS FOR THE INTERVAL INCLUDING CARRINGTON ROTATIONS 1601-1680, MAY5, 1973 - APRIL 26, 1979, by J. Harvey, B. Gillespie, P. Miedaner and C. Slaughter, Kitt Peak National Observatory, Tucson, AZ, August 1980, 66 pp, \$2.50.
- UAG-78 THE EQUATORIAL LATITUDE OF AURORAL ACTIVITY DURING 1972-1977, by N.R. Sheeley, Jr. and R.A. Howard, E.O. Hulbert Center for Space Research, U.S. Naval Research Laboratory, Washington, DC and B.S. Dandekar, Air Force Geophysics Laboratory, Hanscom AFB, MA, October 1980, 61 pp, \$3.00.
- UAG-79 SOLAR OBSERVATIONS DURING SKYLAB, APRIL 1973 - FEBRUARY 1974, I. CORONAL X-RAY STRUCTURE, II. SOLAR FLARE ACTIVITY, by J.M. Hanson, University of Michigan, Ann Arbor, MI; and E.C. Roelof and R.E. Gold, The Johns Hopkins University, Laurel, MD, December 1980, 43 pp, \$2.50.
- UAG-80 EXPERIMENTAL COMPREHENSIVE SOLAR FLARE INDICES FOR 'MAJOR' AND CERTAIN LESSER FLARES, 1975-1979, compiled by Helen W. Dodson and E. Ruth Hedeman, The Johns Hopkins University, Laurel, MD, July 1981, 33 pp, \$2.00.
- UAG-81 EVOLUTIONARY CHARTS OF SOLAR ACTIVITY (CALCIUM PLAGES) AS FUNCTIONS OF HELIOGRAPHIC LONGITUDE AND TIME, 1964-1979, by E. Ruth Hedeman, Helen W. Dodson and Edmond C. Roelof, The Johns Hopkins University, Laurel, MD, August 1981, 103 pp, \$4.00.
- UAG-82 INTERNATIONAL REFERENCE IONOSPHERE - IRI 79, edited by J. Virginia Lincoln and Raymond O. Conkright, National Geophysical and Solar-Terrestrial Data Center, NOAA, Boulder, CO, November 1981, 243 pp, \$4.50.
- UAG-83 SOLAR-GEOPHYSICAL ACTIVITY REPORTS FOR SEPTEMBER 7-24, 1977 AND NOVEMBER 22, 1977, Parts 1 and 2, compiled by John A. McKinnon and J. Virginia Lincoln, World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, CO, February 1982, 553 pp, \$10.00.
- UAG-84 CATALOG OF AURORAL RADIO ABSORPTION DURING 1976-1979 AT ABISKO, SWEDEN, by J.K. Hargreaves, C.M. Taylor and J.M. Penman, Environmental Sciences Department, University of Lancaster, Lancaster, UK, July 1982, 69 pp, \$3.00.
- UAG-85 [Superseded by UAG-91]
- UAG-86 [Superseded by UAG-92]
- UAG-87 CHANGES IN THE GLOBAL ELECTRIC FIELDS AND CURRENTS FOR MARCH 17-19, 1978, FROM SIX IMS MERIDIAN CHAINS OF MAGNETOMETERS, by Y. Kamide, Kyoto Sangyo University, Kyoto, Japan; H.W. Kroehl, National Geophysical Data Center, NOAA, Boulder, CO; and A.D. Richmond, NOAA Space Environment Laboratory, Boulder, CO, November 1982, 102 pp, \$3.50.
- UAG-88 NUMERICAL MODELING OF IONOSPHERIC PARAMETERS FROM GLOBAL IMS MAGNETOMETER DATA FOR THE CDAW-6 INTERVALS, by Y. Kamide, Kyoto Sangyo University, Kyoto, Japan; H.W. Kroehl, National Geophysical Data Center, NOAA, Boulder, CO; and B.A. Hausman, National Geophysical Data Center, NOAA, Boulder, CO, November 1983, 197 pp, \$4.00.
- UAG-89 ATMOSPHERIC HANDBOOK: ATMOSPHERIC DATA TABLES AVAILABLE ON COMPUTER TAPE, by V.E. Derr, NOAA Environmental Research Laboratories, Boulder, CO, July 1984, 56 pp.
- UAG-90 EXPERIENCE WITH PROPOSED IMPROVEMENTS OF THE INTERNATIONAL REFERENCE IONOSPHERE (IRI): CONTRIBUTED PAPERS, MAINLY FROM THE URSI-COSPAR WORKSHOP HELD IN BUDAPEST IN 1980, edited by K. Rawer, University of Freiburg, Federal Republic of Germany, and C.M. Minnis, International Union of Radio Science (URSI), Brussels, Belgium, May 1984, 233 pp, \$6.00.

UAG SERIES OF REPORTS (Continued)

- UAG-91 COMBINED CATALOG OF IONOSPHERE VERTICAL SOUNDINGS DATA, compiled by Raymond O. Conkright and Marcus O. Ertle, National Geophysical Data Center, NOAA, Boulder, CO, December 1984, 174 pp.
- UAG-92 INTERNATIONAL CATALOG OF GEOMAGNETIC DATA, compiled by C.C. Abston, National Geophysical Data Center, NOAA, Boulder, CO; N.E. Papitashvili, Academy of Sciences of the USSR, World Data Center B2, Moscow, USSR; and V.O. Papitashvili, IZMIRAN, Moscow Region, USSR, August 1985, 291 pp. Supersedes UAG-35, 49, and 86.
- UAG-93 IONOGRAM ANALYSIS WITH THE GENERALIZED PROGRAM POLAN, by J.E. Titheridge, University of Auckland, New Zealand, December 1985, 194 pp.
- UAG-94 THE SOLAR MAGNETIC FIELD--1976 THROUGH 1985: AN ATLAS OF PHOTOSPHERIC MAGNETIC FIELD OBSERVATIONS AND COMPUTED CORONAL MAGNETIC FIELDS FROM THE JOHN M. WILCOX SOLAR OBSERVATORY AT STANFORD, by J. Todd Hoeksema and Philip H. Scherrer, Center for Space Science and Astrophysics, Stanford University, Stanford, CA, January 1986, 370 pp, \$9.00.
- UAG-95 SUNSPOT NUMBERS: 1610-1985, (based on THE SUNSPOT-ACTIVITY IN THE YEARS 1610-1960, by Prof. M. Waldmeier, Copyright 1961, Swiss Federal Observatory, Zurich, Switzerland), revised by John A. McKinnon, National Geophysical Data Center, NOAA, Boulder, CO, January 1987, 112 pp, \$10.00.
- UAG-96 SOLAR-GEOPHYSICAL ACTIVITY REPORTS FOR STIP INTERVAL XV, 12-21 February 1984 Ground Level Event, AND STIP INTERVAL XVI, 20 April - 4 May 1984 Forbush Decrease, compiled by Helen E. Coffey and Joe H. Allen, National Geophysical Data Center, NOAA, Boulder, CO, July 1987, 418 pp, \$15.00.
- UAG-97 NUMERICAL MODELING OF POLAR IONOSPHERIC ELECTRODYNAMICS FOR JULY 23-24, 1983, UTILIZING IONOSPHERIC CONDUCTANCES DEDUCED FROM DMSX X-RAY IMAGES, by B.-H. Ahn, Kyungpook National University, Taegu, Korea; E. Friis-Christensen, Division of Geophysics, Danish Meteorological Institute, Copenhagen, Denmark; D.J. Gorney, Space Sciences Laboratory, The Aerospace Corporation, Los Angeles, CA; Y. Kamide, Kyoto Sangyo University, Kyoto, Japan; and H.W. Kroehl, National Geophysical Data Center, NOAA, Boulder, CO, April 1988, 133 pp, \$12.00.



**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."