U.S. DEPARTMENT OF COMMERCE
C. Williams Verity, Jr., Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
William E. Evans, Under Secretary for Oceans and Atmosphere

NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
Thomas N. Pyke, Jr., Assistant Administrator

MAY 1988 NUMBER 525 - Part II

Solar-Geophysical Data comprehensive reports

Data for November 1987, and Miscellanea

International Standard Serial Number: 0038-0911
Library of Congress Catalog Number: 79-640375 //r81

NATIONAL GEOPHYSICAL DATA CENTER
Michael A. Chinnery, Director
Boulder, Colorado

For sale through the National Geophysical Data Center, NOAA/NESDIS, E/GC2, 325 Broadway, Boulder, Colorado 80303. 1988 Subscription Prices for the U.S.: $70.00 annually for both Part I (Prompt Reports) and Part II (Comprehensive Reports) or $40.00 annually for either Part. Annual supplement containing explanation is included. Foreign subscriptions: For 1988 issues—$104.00 annually for both parts or $57.00 for either Part. We require prepayment for all orders. Please include with your request a check or money order payable in U.S. currency to the Department of Commerce, NOAA/NGDC. Any bank charges should be paid by the subscriber. Payment may be made through an American Express, Mastercard or VISA credit cards. Please include the correct name of credit card holder, card number and expiration date. Subscription prices include handling and shipping costs. Quoted prices are valid through September 1988. NGDC phone number: (303)497-6223 (FTS 320-6223).

For obtaining bulletins on a data exchange basis, send request to: World Data Center A for Solar- Terrestrial Physics, NOAA/NESDIS/NGDC, E/GC2, 325 Broadway, Boulder, Colorado 80303 U.S.A.

BACK ISSUES OF *SOLAR-GEOPHYSICAL DATA*

1	Jan 56 - Dec 56	Microfilm	09	Jan 64 - Dec 64	Microfilm	17	Jul 69 - Dec 69	Microfilm
2	Jan 57 - Dec 57	Microfilm	10	Jan 65 - Dec 65	Microfilm	18	Jan 70 - Jun 70	Microfilm
3	Jan 58 - Dec 58	Microfilm	11	Jan 66 - Sep 66	Microfilm	19	Jul 70 - Dec 70	Microfilm
4	Jan 59 - Dec 59	Microfilm	12	Oct 66 - Dec 66	Microfilm	20	Jan 71 - Jun 71	Microfilm
5	Jan 60 - Dec 60	Microfilm	13	Jan 67 - Dec 67	Microfilm	21	Jul 71 - Dec 71	Microfilm
6	Jan 61 - Dec 61	Microfilm	14	Jan 68 - Jun 68	Microfilm	22	Jan 72 - Jun 72	Microfilm
7	Jan 62 - Dec 62	Microfilm	15	Jul 68 - Dec 68	Microfilm	23	Jul 72 - Dec 72	Microfilm
8	Jan 63 - Dec 63	Microfilm	16	Jan 69 - Jun 69	Microfilm		1973 - 1987	Microfiche

Microfilm are available at $20.00 per reel; microfiche at $96.00 per year; $1,900.00 for the above set. Back issues in booklet form are available, as long as the stocks exist, at $2.50 for either Part. Any entire year of back issues in booklet form is available at the current annual subscription rate, as long as the stocks exist. Please add a ten dollar ($10.00) handling fee per order. Non-USA customers must also add a ten dollar ($10.00) shipping surcharge. Quoted prices are valid through September 1988.

To standardize referencing these reports in the open literature, the following format is recommended: *Solar-Geophysical Data*, 515 Part I (or Part II), pages, July 1987, U.S. Department of Commerce (Boulder, Colorado, USA 80303).

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

NUMBER 525

(Issued in Two Parts)

Co-Editors: Helen E. Coffey
John A. McKinnon

Chief: Joe H. Allen
Solar-Terrestrial Physics Division

Staff: Daniel C. Wilkinson
Viola W. Miller
Carol Weathers
Charles T. Shanks

C O N T E N T S

PART I (PROMPT REPORTS)

PART II (COMPREHENSIVE REPORTS)

Published with partial support from ONR (N00014-86-F-0049).

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

CODE	KIND OF OBSERVATION	SEP 87	OCT	NOV	DEC	JAN 88	FEB	MAR	APR
A.	SOLAR AND INTERPLANETARY EVENTS								
A.1	Sunspot Drawings	519A 34	520A 36	521A 32	522A 36	523A 34	524A 53	525A 46	
A.2aa	Internat. Provisional Sunspot Numbers	518A 9	519A 9	520A 9	521A 9	522A 9	523A 9	524A 11	525A 11
A.2c	American Sunspot Numbers	518A 9	519A 9	520A 9	521A 9	522A 9	523A 9	524A 11	525A 11
A.3a	Mt. Wilson Magnetograms	519A 34	520A 36	521A 32	522A 36	523A 34	524A 53	525A 46	
A.3b	Mt. Wilson Sunspot Magnetic Class	519A 64	520A 67	521A 62	522A 67	523A 65	524A 82	525A 77	
A.3c	Kitt Peak Magnetograms	519A 34	520A 36	521A 32	522A 36	523A 34	524A 53	525A 46	
A.3d	Mean Solar Magnetic Field (Stanford)	518A 26	519A 25	520A 26	521A 24	522A 28	523A 24	524A 39	525A 35
A.3e	Stanford Magnetograms	519A 34	520A 36	521A 32	522A 36	523A 34	524A 53	525A 46	
A.4	H-alpha Filtergrams	519A 34	520A 36	521A 32	522A 36	523A 34	524A 53	525A 46	
A.5	Calcium Plage Photographs/Drawings	525A150	525A154						
A.5a	Calcium Plage Regions	Jun and Jul 87 in 523A 98; Aug-Oct 87 in 525A138							
A.5b	Daily Calcium Plage Indices	Jun and Jul 87 in 523A101; Aug-Oct 87 in 525A141							
A.6	H-alpha Synoptic Charts	519A 28	520A 30	522A 92	522A 30	523A 28	524A 42	525A 38	
A.6b	Active Region Carte Synoptique (Paris)	523B 4	524B 4	525B 4					
A.6c	Stanford Solar Mag Field Synoptic Maps	519A 29	520A 31	521A 27	522A 31	523A 29	524A 44	525A 39	
A.6d	Kitt Peak " Mag Field Synoptic Maps	519A 32	520A 34	521A 30	522A 34	523A 32	524A 50	525A 44	
A.6e	Mass Ejections from the Sun	523B 35	524B 40	525B 43					
A.6f	Active Prominences and Filaments	523B 36	524B 41	525B 44					
A.6g	Sac Peak Coronal Line Synoptic Maps	519A 30	520A 32	521A 28	522A 32	523A 34	524A 46	525A 40	
A.7h	Coronal Line Emission (Sac Peak)	519A 34	520A 36	521A 32	522A 36	523A 34	524A 53	525A 46	
A.8aa	2800 MHz - Solar Flux (Ottawa)	518A 9	519A 9	520A 9	521A 9	522A 9	523A 9	524A 11	525A 11
A.8ac	2800 MHz - Adj. Solar Flux (Ottawa)	518A 9	519A 9	520A 9	521A 9	522A 9	523A 9	524A 11	525A 11
A.8g	Adjusted Daily Solar Fluxes (Sagamore)	518A 9	519A 9	520A 9	521A 9	522A 9	523A 9	524A 11	525A 11
A.10a	Interferometric Chart (164 MHz) Nancay	518A 24	519A 23	---	521A 21	522A 25	523A 21	524A 35	
A.10c	East-West Scans - 21 cm - Fleurs	518A 23	519A 22	520A 24	521A 20	522A 24	523A 20	524A 33	525A 29
A.10d	East-West Scans - 43 cm - Fleurs	---	---	---	---	---	---	524A 34	525A 30
A.10e	East-West Scans - 10 cm - Ottawa	518A 22	519A 21	520A 23	521A 19	522A 23	523A 19	524A 32	525A 28
A.10f	East-West Scans - 3 cm - Toyokawa	518A 21	519A 20	520A 22	521A 18	522A 22	523A 18	524A 31	525A 27
A.11g	Solar X-ray GOES (graphs/event table)	523B 27	524B 31	525B 35					
A.12e	Solar Particles (IMP H & J)	May-Aug 85 in 510B 26; Sep 85-May 86 in 525B 60							
A.13e	Solar Plasma (IMP H & J)	May-Sep 87 in 523B 44; Oct 87-Jan 88 in 525B 56							
A.13f	Solar Wind (Pioneer 12)	Feb 84-Dec 87 in 525A114							
A.16a	SMM Solar Irradiance	1980-1985 in 515B 26							
A.16b	NIMBUS Solar Irradiance	Nov 78-Feb 87 in 523B 49							
A.17	Interplanetary Mag Field (Pioneer 12)	May 87 in 518A 96; Jun 87 in 523A 96; Jul-Sep 87 in 524A112							
A.17c	Inferred Interplanetary Mag Field	Mar 87 in 512A 21; Feb 88 in 523A 25; Mar 88 in 524A 40							
B.	IONOSPHERIC RADIO PROPAGATION								
B.52	Field Strength Graphs-North Atlantic	519A 86	520A 92	521A 92	522A 88	523A 92	524A108	525A110	
B.53	Quality Indices on Paths to Germany	519A 88	520A 94	521A 91	522A 90	523A 91	524A107	525A109	
C.	SOLAR FLARE-ASSOCIATED EVENTS								
C.1a	H-alpha Flares	518A 14	519A 14	520A 14	521A 14	522A 14	523A 14	524A 16	525A 16
C.1ba	H-alpha Flare Groups	523B 6	524B 6	525B 6					
C.1d	Flare Patrol Observations	518A 20	519A 19	520A 21	521A 17	522A 21	523A 17	524A 30	525A 26
C.1d	Flare Patrol Observations	523B 14	524B 18	525B 19					
C.3	Radio Bursts Fixed Freq.	523B 16	524B 20	525B 21					
C.3	Radio Bursts Fixed Freq. Selected	518A 25	519A 24	520A 25	521A 22	522A 26	523A 22	524A 36	525A 32
C.4d	Radio Bursts Spectral (Culgoora)	521A103	521A105	521A 73	522A 74	523A 78	524A 92	525A 95	
C.4e	Radio Bursts Spectral (Weissenau)	519A 75	520A 80	521A 73	522A 74	523A 78	524A 92	525A 95	
C.4f	Radio Bursts Spectral (Sagamore Hill)	519A 75	520A 80	521A 73	522A 74	523A 78	524A 92	525A 95	
C.4i	Radio Bursts Spectral (Bleien)	---	---	---	---	---	---	---	
C.4k	Radio Bursts Spectral (Learmonth)	519A 75	520A 80	521A 73	522A 74	523A 78	524A 92	525A 95	
C.4l	Radio Bursts Spectral (Palehua)	519A 75	520A 80	521A 73	522A 74	523A 78	524A 92	525A 95	
C.6	Sudden Ionospheric Disturbances	519A 73	520A 78	521A 71	522A 72	523A 76	524A 90	525A 91	
D.	GEOMAGNETIC & MAGNETOSPHERIC EVENTS								
D.1a	Geomagnetic Indices	519A 81	520A 87	521A 86	522A 83	523A 86	524A101	525A104	
D.1ba	27-day Chart of Kp Indices	519A 83	520A 89	521A 88	522A 85	523A 88	524A103	525A106	
D.1c	27-day Chart of C9								
D.1cb	Monthly Mean aa Indices	519A 84	520A 90	521A 89	522A 86	523A 89	524A104	525A107	
D.1d	Principal Magnetic Storms	519A 85	520A 91	521A 90	522A 87	523A 90	524A105	525A108	
D.1f	Sudden Commencements/Flare Effects	520A 98	523A 97	523A 97	523A 97	524A131	524A106		
D.1g	Equatorial Indices Dst	Jul 87 in 519A 99							
F.	COSMIC RAYS								
F.1a	Cosmic Ray Neutron Cts (Deep River)	May 87 in 515A 86; Jun-Dec 87 in 524A115							
F.1b	Cosmic Ray Neutron Cts (Climax)	519A 79	520A 86	521A 82	522A 82	523A 85	524A100	525A103	
F.1e	Cosmic Ray Neutron Cts (Alert)	May 87 in 515A 86; Jun-Dec 87 in 524A115							
F.1h	Cosmic Ray Neutron Cts (Thule)	519A 79	521A 96	521A 82	522A 82	523A 85	524A100	525A103	
F.1i	Cosmic Ray Neutron Cts (Kiel)	519A 79	520A 86	521A 82	522A 82	523A 85	524A100	525A103	
F.1j	Cosmic Ray Neutron Cts (Tokyo)	519A 79	521A 96	521A 82	522A 82				
F.1l	Cosmic Ray Neutron Cts (Huancayo)	Jul 87 in 520A 96							
H.	MISCELLANEOUS								
H.60	IUWDS Alert Periods	518A 5	519A 5	520A 5	521A 5	522A 4	523A 5	524A 4	525A 5

The entry "519A 34" under Sep 1987, for example, means that the sunspot drawings for Sep 1987 appear in SOLAR-GEOPHYSICAL DATA No. 519, Part I, and that they begin on page 34. "A" denotes Part I and "B", Part II. Blanks indicate data not yet received and dashes mark unavailable data.

CONTENTS

Comprehensive Reports DATA FOR **NOVEMBER 1987** Number 525 Part II

C A R T E S Y N O P T I Q U E
A C T I V E R E G I O N S
CARRINGTON ROTATION 1795

(30 October to 26 November 1987)

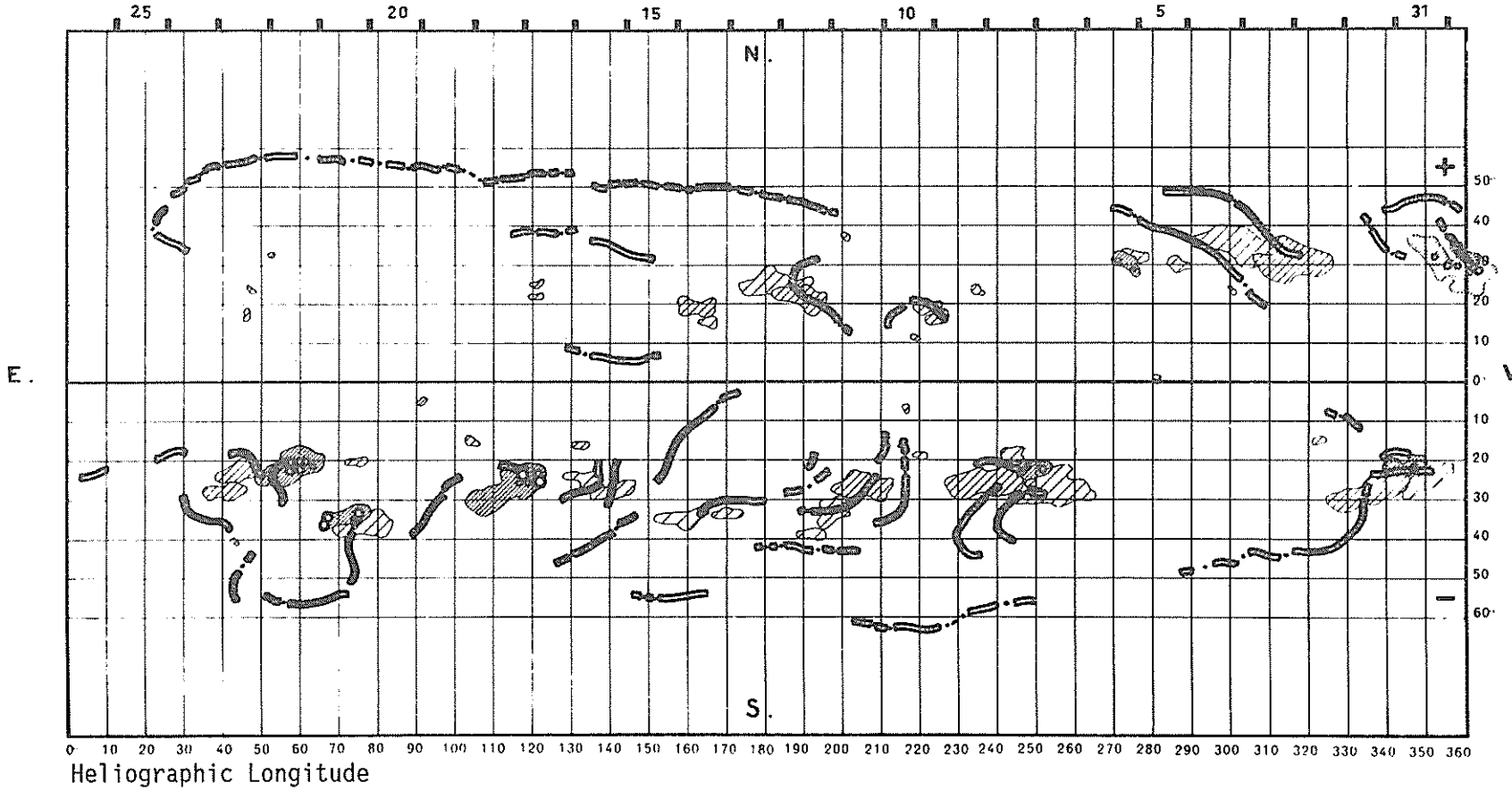
Region No.	Coordinates Lat.	Long.	Imp	Age at CMP (Days)	Spotless Region	Region No. in Rotation 1794	Activity at West Limb
1	30 N	358	5	>6			decreasing
2	25 S	351	1	>6	x	1	dispersed
3	21 S	345	2	>6			decreasing
4	27 S	335	1	>6	x	3	decreasing
5	32 N	316	1	>6	x	4	decreasing
6	36 N	302	1	>6	x	5	dispersed
7	30 N	286	1	>6	x		disappeared
8	33 N	275	1	>6	x	9	disappeared
9	31 N	273	2	-1			stable
10	27 S	256	1	>6	x	10	dispersed
11	22 S	249	3	>6			decreasing
12	29 S	248	1	>6	x		dispersed
13	26 S	237	1	>6	x	12	dispersed
14	24 N	235	1	-4	x		disappeared
15	17 N	224	1	+5	x		decreasing
16	19 N	222	1	+1	x		dispersed
17	19 S	220	1	-2	x		dispersed
18	26 S	206	1	>6	x	14+16	decreasing
19	32 S	197	1	>6	x		dispersed
20	22 N	189	1	>6	x	18	dispersed
21	25 N	184	1	>6	x	19	dispersed
22	33 S	170	1	-3	x		disappeared
23	16 N	165	1	>6	x		disappeared
24	19 N	162	1	>6	x		dispersed
25	27 S	141	1	>6	x		dispersed
26	16 S	132	1	-1	x		dispersed
27	26 N	120	1	-2	x		disappeared
28	26 S	114	6	>6			stable
29	15 S	104	1	0	x		disappeared
30	35 S	75	1	>6	x	29	decreasing
31	20 S	74	1	+4	x		disappeared
32	33 S	71	4	+1			stable
33	20 S	58	5	>6			decreasing
34	22 S	43	1	>6	x	30	decreasing
35	27 S	40	1	>6	x		decreasing

CARTE SYNOPTIQUE

CARRINGTON ROTATION NUMBER 1795
(30 October to 26 November 1987)

Meudon Observatory

October 1987



5 Nov 87

H - ALPHA S O L A R F L A R E S

NOVEMBER 1987

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	Mo	CMP Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
		01	0035		0037	No Flare Patrol													
		01	0243		0259	No Flare Patrol													
0001		01	08586	0910	0912	S20	W73	4881	10	26.9	14	SF					18		
	KANZ	01	0858	0910	0912	S20	W73	4881	10	26.9	14	SF		2					
	LEAR	01	0904	0910	0912	S21	W73	4881	10	26.9	8	SF		3	C		18		
0002	KANZ	01	1031	1035	1053	S21	W71	4881	10	27.1	22	SF		2					
0003	CATA	01	1125E	1125	1145D	S20	W06	4878	11	1.0	20D	SN		2	P	1125	112	1.3	H
		01	1348		1354	No Flare Patrol													
0004	RAMY	01	1726E	1728	1746	S22	W76	4881	10	27.0	20D	SF	C 1.2	3	C				
		01	1826		1833	No Flare Patrol													
0005	RAMY	01	1845	1849	1855	S22	W75	4881	10	27.1	10	SF		3	C				
		01	1858		1900	No Flare Patrol													
0006	RAMY	01	1938	1939	1946	S22	E81	4883	11	8.0	8	SF	C 1.7	3	C				
		01	2005		2046	No Flare Patrol													
		01	2156		2224	No Flare Patrol													
0007	LEAR	02	0120	0124	0128	N31	W26	4875	10	31.0	8	SF		3	C		12		
0008	ABST	02	0518	0519	0537	S23	W15	4878	11	1.1	19	1F			C	0519	174	2.1	EV
0009		02	10132	10201	1040	S23	E74	4883	11	8.1	27	1B					84		DL
	KHAR	02	1013	1021	1040	S21	E75	4883	11	8.2	27	SN			V	1021			DL
	CATA	02	1015	1020	1041	S25	E74	4883	11	8.1	26	1B		2	C	1020	84		
		02	1303		1316	No Flare Patrol													
0010	RAMY	02	1317E	1317U	1342	S22	E72	4883	11	8.1	25D	SF	C 1.0	2	C		32		FH
0011	RAMY	02	1317E	1319U	1324	N30	W43	4875	10	30.3	7D	SF		2	C		13		
0012		02	1347*	13561	1435	N28	W36	4875	10	30.9	48	SF					66		F
	RAMY	02	1347	1356	1435	N27	W38	4875	10	30.7	48	SF		3	C		66		F
	KANZ	02	1357	1357	1405D	N29	W35	4875	10	30.9	8D	SF		2					
0013		02	13552	13563	1421	S24	E62	4882	11	7.4	26	SB	C 7.0				57		
	RAMY	02	1355	1356	1421	S23	E65	4882	11	7.6	26	SB	C 7.0	3	C		57		
	KANZ	02	1357	1359	1405D	S26	E60	4882	11	7.2	8D	SN		2					
0014	RAMY	02	1459	1459	1510	S19	E70	4883	11	8.0	11	SF	C 1.0	3	C		23		
0015	RAMY	02	1655	1656	1702	N30	W45	4875	10	30.3	7	SN		3	C		31		
0016	RAMY	02	1813	1819	1840	S23	E57	4882	11	7.1	27	1B	C 7.8	3	C		133		FR
0017		02	2032*	20424	2108	N30	W37	4875	10	31.0	36	SF	C 1.5				32		F
	HOLL	02	2032	2046	2111	N29	W38	4875	10	31.0	39	SF	C 1.5	3	C		42		F
	PALE	02	2042	2042	2104	N30	W36	4875	10	31.0	22	SF	C 1.5	3	C		23		F
0018	HOLL	02	2212	2213	2217	S21	E66	4883	11	8.0	5	SF		3	C		20		
		03	0202		0215	No Flare Patrol													
0019	VORO	03	0216E	0221U	0231	N29	W53	4875	10	30.0	15D	SF			C	0221	108	1.8	DIJ
0020	LEAR	03	0509	0510	0521	N28	W43	4875	10	30.9	12	SF		3	C		21		
0021	LEAR	03	0705	0705	0725	N30	W43	4875	10	31.0	20	SF	C 1.0	3	C		28		

H - ALPHA SOLAR FLARES

NOVEMBER 1987

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
0022		03	07261	0745	0806	N29	W46	4875	10	30.8	40	SN					52	1.2	E
	HTPR	03	0726	0745	0820	N28	W48	4875	10	30.6	54	SN			C	0745	80	1.2	E
	LEAR	03	0727	0745	0753	N30	W43	4875	10	31.0	26	SF		3	C		24		
0023		03	09062	09103	0943	N29	W46	4875	10	30.9	37	SN	C 4.1				177	3.8	BEI
	LEAR	03	0906	0910	0953	N30	W44	4875	10	31.0	47	SF	C 4.1	3	C		70		
	KANZ	03	0908	0913	0930	N30	W45	4875	10	30.9	22	SN	C 4.1		P	0908	62	1.0	EI
	KHAR	03	0920E	0920D	0945	N29	W50	4875	10	30.6	25D	2N			P	0924	400	6.7	BE
	KANZ	03	0927E		0933D	N28	W47	4875	10	30.8	6D	SF		1					
0024	HTPR	03	1017E		1045	N32	W51	4875	10	30.5	28D	SF			C	1038	20	0.3	
0025	HTPR	03	1113	1117	1137	S23	E58	4883	11	7.9	24	SN			C	1117	60	1.2	E
0026		03	12137	1216*	1236	N34	W50	4875	10	30.6	23	SN					35	0.6	E
	HTPR	03	1213	1216	1235	N37	W48	4875	10	30.7	22	SF			C	1216	30	0.5	E
	HTPR	03	1220	1230	1236	N32	W51	4875	10	30.6	16	SN			C	1230	40	0.6	E
0027		03	13083	13121	1332	N31	W47	4875	10	30.9	24	SN					36	0.7	E
	HTPR	03	1308	1313	1332	N32	W47	4875	10	30.9	24	SN			C	1313	50	0.7	E
	RAMY	03	1311	1312	1333	N30	W47	4875	10	30.9	22	SF		3	C		22		
0028		03	13524	13563	1404	N31	W52	4875	10	30.6	12	SN					45	0.8	E
	HTPR	03	1352	1356	1402	N32	W52	4875	10	30.6	10	SB			C	1356	70	1.2	E
	RAMY	03	1355	1356	1400	N28	W56	4875	10	30.3	5	SF		3	C		46		
	HTPR	03	1356	1359	1410	N32	W48	4875	10	30.9	14	SN			C	1359	20	0.3	E
0029		03	16215	1626	1628	N29	W48	4875	10	31.0	7	SF					20		F
	RAMY	03	1621	1626	1627	N28	W48	4875	10	31.0	6	SF		3	C		27		
	HOLL	03	1626	1626	1629	N30	W49	4875	10	30.9	3	SF		3	C		14		F
0030	RAMY	03	1637	1639	1644	S19	E55	4883	11	7.9	7	SF		3	C		11		
0031		03	1701*	17119	1726	N28	W53	4875	10	30.7	25	SN					33		F
	RAMY	03	1701	1711	1717	N29	W55	4875	10	30.5	16	SF		3	C		29		
	RAMY	03	1718	1720	1736	N28	W51	4875	10	30.8	18	SN		3	C		37		F
0032	HOLL	03	1746	1749	1754	S21	E63	4883	11	8.6	8	SF		3	C		14		F
0033		03	1703*	1817*	1838	N29	W51	4875	10	30.8	95	SF	C 1.0				20		F
	HOLL	03	1703	1818	1825	N28	W52	4875	10	30.7	82	SF		3	C		23		F
	PALE	03	1817	1817	1830	N29	W51	4875	10	30.9	13	SF		3	C		11		
	HOLL	03	1826	1830	1859	N30	W50	4875	10	30.9	33	SF	C 1.0	3	C		26		F
0034	HOLL	03	1946	1959	2008	S22	W43	4878	10	31.5	22	SF		3	C		30		H
0035	HOLL	03	2112	2118	2121	S19	E51	4883	11	7.8	9	SF		3	C		17		
0036	HOLL	03	2203	2204	2211	N30	W59	4875	10	30.4	8	SF		3	C		37		H
0037	YUNN	04	0133E	0133U	0135D	S23	E40	4882	11	7.1	2D	SN			P	0133	115	1.7	D
0038	YUNN	04	0221	0222	0225	N32	W63	4875	10	30.2	4	1N			C		99	2.4	D
0039	YUNN	04	0225	0226	0235	S21	E56	4883	11	8.4	10	SN			C		33	0.7	D
0040	LEAR	04	0536	0536	0540	N30	W63	4875	10	30.4	4	SF		3	C		14		
0041		04	08004	08042	0812	N30	W65	4875	10	30.3	12	SF					46	2.0	EF
	SVTO	04	0800E	0802U	0811	N30	W66	4875	10	30.2	11D	SF		3	C		24		
	HTPR	04	0800	0806	0817	N30	W62	4875	10	30.5	17	SN			C	0806	100	2.0	E
	LEAR	04	0804	0804	0809	N31	W66	4875	10	30.2	5	SF		3	C		13		F
0042	HTPR	04	0927	0931	0958	S27	E47	4883	11	8.0	31	SN			C	0931	60	1.0	E
0043	HTPR	04	0940	0945	1000	N30	W63	4875	10	30.5	20	SN			C	0945	30	0.6	E

H - ALPHA SOLAR FLARES

NOVEMBER 1987

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
0044		04	1033*	1046*	1136	S23	E45	4883	11	7.9	63	SN					65	0.9	EK
	HTPR	04	1033	1046	1143	S22	E43	4883	11	7.7	70	SN			C	1134	70	0.9	EK
	HTPR	04	1033	1134	1143	S22	E43	4883	11	7.7	70	SN			C				EK
	HTPR	04	1043	1047	1122	S26	E48	4883	11	8.2	39	SN			C	1047	60	0.9	E
0045	HTPR	04	1123	1212	1241	S20	W55	4878	10	31.3	78	SF			C	1212	20	0.3	
0046	HTPR	04	1145	1150	1202	N32	W68	4875	10	30.2	17	SF			C	1150	20	0.5	
0047		04	12173	12241	1242	S21	E47	4883	11	8.1	25	SN					30	0.6	E
	RAMY	04	1217	1224	1228	S20	E49	4883	11	8.2	11	SF		2	C		20		
	HTPR	04	1220	1225	1257	S22	E45	4883	11	8.0	37	SB			C	1225	40	0.6	E
0048		04	1232*	1309*	1354	N17	E75	4884	11	10.2	82	SF					34		EH
	HTPR	04	1232	1352	1432	N16	E76	4884	11	10.3	120	1N			C	1352	70		E
	RAMY	04	1308	1309	1312	N18	E75	4884	11	10.2	4	SF		3	C		11		H
	RAMY	04	1349	1352	1359	N17	E73	4884	11	10.1	10	SF		3	C		20		H
0049		04	1713	1715*	1746	N28	W68	4875	10	30.5	33	SF	M 1.3				58		F
	RAMY	04	1713	1715	1741	N28	W67	4875	10	30.6	28	SF	M 1.3	3	C		59		
	HOLL	04	1714E	1716	1751	N28	W69	4875	10	30.4	37D	SF	M 1.3	3	C		96		F
	PALE	04	1725E	1730	1746	N28	W67	4875	10	30.6	21D	SF		3	C		19		F
0050	PALE	04	1912	1914	1925	S22	E46	4883	11	8.3	13	SF	C 1.1	3	C		22		F
		04	1959		2008	No Flare Patrol													
		04	2047		2101	No Flare Patrol													
0051	HOLL	04	2103	2105	2119	N30	W72	4875	10	30.3	16	SF		3	C		31		F
		04	2132		2150	No Flare Patrol													
		04	2155		2210	No Flare Patrol													
		04	2255		2257	No Flare Patrol													
0052	LEAR	04	2323	2325	2332	N27	W62	4875	10	31.1	9	SF	M 1.5	3	C		54		F
0053	PALE	05	0014	0015	0035	S21	E40	4883	11	8.1	21	SN	C 3.0	3	C		35		EF
0054	LEAR	05	0456	0458	0512	N30	W73	4875	10	30.6	16	SF	M 3.1	3	C		97		F
0055	HTPR	05	0758	0759	0812	S24	E42	4883	11	8.6	14	SF			C	0759	30	0.4	
0056		05	0753*	0824*	0837	S20	E33	4883	11	7.8	44	SN					62	1.2	E
	HTPR	05	0753	0834	0845	S20	E35	4883	11	8.0	52	SN			C	0824	100	1.2	E
	LEAR	05	0823	0824	0829	S20	E31	4883	11	7.7	6	SF		3	C		23		
0057	HTPR	05	0859	0902	0905	N30	W73	4875	10	30.7	6	SF			C	0902	40		EIK
0058		05	0942*	0943*	1026	S22	E38	4883	11	8.3	44	SN	C 6.5				81	2.3	EIKU
	HTPR	05	0942	0944	1100	S23	E40	4883	11	8.5	78	1B			C				EIK
	KANZ	05	0942	0945	0953	S22	E37	4883	11	8.2	11	SF		2					
	HTPR	05	0942	0959	1100	S23	E40	4883	11	8.5	78	1B			C	0959	180	2.3	EIK
	LEAR	05	0943	0943	0946	S21	E36	4883	11	8.2	3	SF		3	C		25		U
	LEAR	05	0956	1000	1028	S21	E35	4883	11	8.1	32	SF	C 6.5	3	C		39		U
	KANZ	05	0957	1000	1031	S22	E37	4883	11	8.2	34	SN		2					
0059		05	15126	15147	1531	S21	E19	4882	11	7.1	19	SN					44	0.7	EK
	HTPR	05	1512	1514	1534	S20	E18	4882	11	7.0	22	SB			C				EK
	HTPR	05	1512	1521	1534	S20	E18	4882	11	7.0	22	SB			C	1521	70	0.7	EK
	RAMY	05	1518	1520	1526	S23	E20	4882	11	7.2	8	SF		3	C		19		
		05	1826		1843	No Flare Patrol													
		05	2021		2027	No Flare Patrol													
		05	2141		2205	No Flare Patrol													
0060		05	2334	2335	2339	N30	W77	4875	10	31.0	5	1F	M 2.1				80		DK
	LEAR	05	2334	2335	2339	N29	W75	4875	10	31.1	5	SF	M 2.1	3	C		25		
	VORO	05	2334	2336U	2350D	N30	W79	4875	10	30.9	16D	1F			C	2336	134		DK

H - ALPHA S O L A R F L A R E S

NOVEMBER 1987

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
0061		06	02115	02163	0230	S22	E26	4883	11	8.1	19	SN					39	0.8	E
	LEAR	06	0211	0216	0217	S23	E25	4883	11	8.0	6	SF		3	C		12		
	YUNN	06	0216	0219	0243	S22	E26	4883	11	8.1	27	SN			C		66	0.8	E
0062	LEAR	06	0534	0534	0539	S23	E24	4883	11	8.1	5	SF		3	C		21		F
0063		06	0740*	0751*	0829	S23	E22	4883	11	8.0	49	SB	C 1.4				61	1.0	EK
	HTPR	06	0740	0751	0840	S23	E23	4883	11	8.1	60	SB			C				EK
	HTPR	06	0740	0758	0840	S23	E23	4883	11	8.1	60	SB			C	0758	60	0.6	EK
	LEAR	06	0758	0758	0809	S23	E22	4883	11	8.0	11	SF	C 1.4	3	C		11		
	CATA	06	0803	0803	0826	S24	E22	4883	11	8.0	23	SB		2	C	0803	112	1.4	
0064		06	10303	1036	1058	N15	E50	4884	11	10.2	28	SN					30	0.5	ET
	HTPR	06	1030	1036	1108	N16	E50	4884	11	10.2	38	SN			C	1036	30	0.5	ET
	KANZ	06	1033	1036	1048	N14	E49	4884	11	10.1	15	SF		2					
0065		06	1126	1133*	1154	S20	W90		10	30.7	28	SF					10		AK
	HTPR	06	1126	1133	1154	S20	W90		10	30.7	28	SF			C	1133	10		AK
	HTPR	06	1126	1146	1154	S20	W90		10	30.7	28	SF			C				AK
0066		06	1104*	1146*	1402	S23	E19	4883	11	7.9	178	SN	C 1.1				104	1.5	EK
	HTPR	06	1104	1307	1440	S23	E20	4883	11	8.0	216	1B			C	1307	220	2.2	EK
	HTPR	06	1104	1432	1440	S23	E20	4883	11	8.0	216	1B			C				EK
	CATA	06	1143E	1146	1146D	S24	E18	4883	11	7.9	3D	SN		2	P	1146	68	0.8	
	KANZ	06	1300	1304	1328	S22	E20	4883	11	8.1	28	SN		2					E
	SVTO	06	1305E	1307	1319	S22	E19	4883	11	8.0	14D	SN	C 1.1	3	C		24		
0067	HOLL	06	1750	1803	1813	S26	E05	4882	11	7.1	23	SF		3	C		17		H
0068		06	19495	20029	2206	S27	E60	4886	11	11.5	137	2N	C 4.3				193		ESU
	HOLL	06	1949	2011	2206	S27	E61	4886	11	11.6	137	2N	C 4.3	3	C		277		UE
	PALE	06	1954	2002	2100D	S27	E60	4886	11	11.5	66D	1F	C 4.3	3	C		109		US
0069	HOLL	06	2005	2011	2014	N17	E43	4884	11	10.1	9	SF		3	C		15		
		06	2022		2024	No Flare Patrol													
		06	2030		2039	No Flare Patrol													
		06	2101		2116	No Flare Patrol													
0070	HTPR	07	0940	0948	0958	S22	E13	4883	11	8.4	18	SF			C	0948	70	0.7	E
0071		07	11463	11472	1155	S26	E50	4886	11	11.4	9	SN					57	1.5	E
	SVTO	07	1146	1147	1152	S23	E50	4886	11	11.3	6	SF		3	C		17		
	HTPR	07	1146	1147	1156	S24	E51	4886	11	11.4	10	SB			C	1147	70	1.4	E
	CATA	07	1147	1147	1200	S29	E48	4886	11	11.2	13	SB		2	C	1147	84	1.6	
	KANZ	07	1149	1149	1153	S26	E50	4886	11	11.4	4	SF		2					
0072		07	12382	12391	1252	S27	E06	4882A	11	8.0	14	SN					96	1.1	E
	HTPR	07	1238	1239	1250	S26	E05	4882A	11	7.9	12	SN			C	1239	80	0.8	E
	KANZ	07	1239	1239	1253	S28	E08	4882A	11	8.1	14	SN		2					
	CATA	07	1240	1240	1241D	S28	E06	4882A	11	8.0	1D	SB		2	P	1240	112	1.4	
0073	HTPR	07	1352	1355	1403	S26	E04	4882	11	7.9	11	SF			C	1355	40	0.4	E
0074		07	14591	1503	1536	S24	E48	4886	11	11.3	37	1N	C 1.0				103		FH
	RAMY	07	1459	1503	1537	S23	E49	4886	11	11.4	38	1N	C 1.0	3	C		127		FH
	SVTO	07	1459E	1504U	1510D	S25	E48	4886	11	11.3	11D	SF	C 1.0	2	C		50		
	HOLL	07	1500	1503	1536	S23	E47	4886	11	11.2	36	1N		3	C		132		F
0075	HOLL	07	2028	2030U	2045	N31	W90	4875	10	31.7	17	1N	M 1.2	3	C		165		
0076	HOLL	07	2144	2149	2201	S30	E50	4886	11	11.8	17	SF		3	C		22		H
0077	ABST	09	0651	0657	0710	N31	W70		11	3.8	19	1F			C	0657	87		DI
		09	1322		1344	No Flare Patrol													
0078	YUNN	10	0130E	0134U	0248D	S40	W87		11	3.0	78D				P	0134			A

H - ALPHA S O L A R F L A R E S

NOVEMBER 1987

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
0079		10	0213	0219	0236	N16	W06	4884	11	9.6	23	1N					247	2.6	E
	MITK	10	0213	0219	0243	N15	W08	4884	11	9.5	30	SF			C	0219			E
	YUNN	10	0220E	0220U	0230	N16	W03	4884	11	9.9	10D	1N			P	0220	247	2.6	E
		10	0951		1000	No Flare Patrol													
		10	1218		1337	No Flare Patrol													
0080	RAMY	10	1427	1428	1435	N17	W10	4884	11	9.8	8	SF		3	C		15		H
0081		11	0528*	0530*	0540	N32	W64	4885	11	6.2	12	SF					22		
	LEAR	11	0528	0530	0533	N31	W65	4885	11	6.1	5	SF		3	C		20		
	LEAR	11	0538	0542	0546	N32	W63	4885	11	6.2	8	SF		3	C		23		
0082	LEAR	11	0624	0632	0637	N32	W64	4885	11	6.2	13	SF		3	C		20		
0083	KHAR	11	0718E	0720D	0750	S27	E90	4890	11	18.3	32D	SN			P	0720			DH
0084	KHAR	11	0825	0830	0855	N32	W66	4885	11	6.1	30	1F			P	0830	120		DH
0085	KHAR	11	0930	0933	0935	S27	E90	4890	11	18.4	5	SF			V	0933			D
0086	RAMY	11	1229	1240	1330	N23	E12		11	12.4	61	SF		3	C		70		F
0087	HOLL	11	1606	1610	1617	N31	W69	4885	11	6.2	11	SF		3	C		30		
0088		11	17201	17211	1725	S25	E87	4890	11	18.5	5	SF					20		
	PALE	11	1720	1721	1726	S26	E88	4890	11	18.5	6	SF		2	C				
	RAMY	11	1720	1722	1725	S25	E86	4890	11	18.4	5	SF		3	C		22		
	HOLL	11	1721	1721	1725	S25	E88	4890	11	18.5	4	SF		3	C		18		
0089		11	18221	1822*	1845	S25	E86	4890	11	18.4	23	SF					48		
	PALE	11	1822	1822	1838	S26	E88	4890	11	18.6	16	SF		3	C				
	RAMY	11	1822	1830	1849	S25	E84	4890	11	18.3	27	SF		3	C		42		
	HOLL	11	1823	1835	1847	S25	E86	4890	11	18.4	24	SF		3	C		55		
0090		11	1938	1939	1942	S26	E84	4890	11	18.3	4	SF					26		
	HOLL	11	1938	1939	1942	S25	E85	4890	11	18.4	4	SF		3	C		31		
	RAMY	11	1938	1939	1942	S26	E84	4890	11	18.3	4	SF		3	C		22		
0091	HOLL	11	1953	1953	2010	S25	E88	4890	11	18.6	17	SF		3	C		11		
0092		11	20177	20206	2029	S25	E84	4890	11	18.3	12	SF					12		
	HOLL	11	2017	2020	2025	S24	E84	4890	11	18.3	8	SF		3	C		11		
	PALE	11	2023	2026	2029	S26	E85	4890	11	18.4	6	SF		3	C				
	RAMY	11	2024	2026	2032	S25	E84	4890	11	18.3	8	SF		3	C		14		
0093	HOLL	11	2209	2213	2222	S25	E84	4890	11	18.4	13	SF		3	C		34		
0094	LEAR	11	2352	2353	2356	S26	E88	4890	11	18.8	4	SF		3	C		19		
0095	CATA	12	0955	0955	1020	S29	E52		11	16.5	25	SN		2	C	0955	56	1.1	
		12	1041		1054	No Flare Patrol													
0096	RAMY	12	1303	1303	1319	S22	E74	4890	11	18.2	16	SF		3	C		19		
0097		12	1504*	1536	1548	N29	W82	4885	11	6.2	44	SF					16		
	RAMY	12	1504	1536	1550	N29	W83	4885	11	6.1	46	SF		3	C		20		
	HOLL	12	1534	1536	1545	N29	W81	4885	11	6.3	11	SF		3	C		12		
0098	HOLL	12	1552	1600	1624	N30	W76	4885	11	6.7	32	SF		3	C		22		
0099	RAMY	12	1641	1641	1645	S24	E72	4890	11	18.2	4	SF	C 1.2	3	C		15		F
0100		12	1717*	17237	1742	N30	W79	4885	11	6.5	25	SN					19		
	RAMY	12	1717	1723	1740	N29	W84	4885	11	6.1	23	SF		3	C		11		
	HOLL	12	1724	1726	1742	N31	W72	4885	11	7.0	18	SF		3	C		13		
	PALE	12	1728	1730	1744	N30	W82	4885	11	6.3	16	SB		2	C		34		

H - ALPHA S O L A R F L A R E S

NOVEMBER 1987

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
0101		12	17501	17512	1800	S25	E72	4890	11	18.3	10	SF	C 1.4				37		F
	RAMY	12	1750	1752	1801	S24	E72	4890	11	18.3	11	SF	C 1.4	3	C		47		
	PALE	12	1751	1751	1758	S26	E70	4890	11	18.2	7	SF	C 1.4	3	C		17		F
	HOLL	12	1751	1753	1800	S24	E73	4890	11	18.4	9	SF		3	C		47		
0102	HOLL	12	1855	1903	1914	S24	E72	4890	11	18.3	19	SF	C 1.9	3	C		29		
0103		12	19276	19333	1956	S25	E70	4890	11	18.2	29	SF	C 1.6				15		
	HOLL	12	1927	1933	2002	S24	E71	4890	11	18.3	35	SF	C 1.6	3	C		14		
	RAMY	12	1933E	1933U	1959	S24	E70	4890	11	18.2	26D	SF	C 1.6	3	C		12		
	PALE	12	1933	1936	1946	S26	E69	4890	11	18.2	13	SF		3	C		19		
0104	HOLL	12	2031	2033	2054	S25	E69	4890	11	18.2	23	SF	C 2.4	3	C		38		F
0105	HOLL	12	2133	2133	2141	N29	W86	4885	11	6.1	8	SF		3	C		11		
0106	LEAR	13	0032	0033	0038	S23	E66	4890	11	18.1	6	SF	C 2.1	3	C		19		
0107		13	0156	01582	0217	S27	E65	4890	11	18.1	21	SF	C 2.4				45		EF
	LEAR	13	0156	0158	0216	S26	E65	4890	11	18.1	20	SF	C 2.4	3	C		34		F
	PALE	13	0156	0200	0217	S26	E65	4890	11	18.1	21	SF	C 2.4	3	C		34		F
	YUNN	13	0202E	0202U	0217	S28	E66	4890	11	18.2	15D	1N			P	0202	66		E
0108		13	06243	06247	0642	S22	E67	4890	11	18.4	18	1F					49		D
	LEAR	13	0624	0624	0629	S23	E66	4890	11	18.3	5	SF		3	C		11		
	ABST	13	0627	0631	0655	S21	E68	4890	11	18.5	28	1F			C	0631	87		D
0109	CATA	13	0827E	0827	0910	S31	E61	4890	11	18.2	43D	1N		2	P	0827	141		
		13	1036		1054	No Flare Patrol													
0110	RAMY	13	1447	1449	1512	S25	E61	4890	11	18.3	25	SF		3	C		19		
0111		13	19034	19081	1947	S26	E59	4890	11	18.4	44	SF	C 1.7				36		F
	HOLL	13	1903	1909	1959	S25	E56	4890	11	18.1	56	SF	C 1.7	3	C		55		F
	RAMY	13	1905	1909	1944	S26	E61	4890	11	18.5	39	SF	C 1.7	3	C		30		F
	PALE	13	1907	1908	1937	S27	E60	4890	11	18.5	30	SF	C 1.7	2	C		24		F
		14	0437		0648	No Flare Patrol													
0112	HTPR	14	0926		0953D	S34	E80		11	20.8	27D	SF			C	0946	20		E
0113	HTPR	14	0935	0936	0940	S24	E45	4890	11	17.9	5	SF			C	0936	20	0.3	E
		14	1007		1029	No Flare Patrol													
		14	1926		1928	No Flare Patrol													
		14	2042		2047	No Flare Patrol													
		14	2055		2101	No Flare Patrol													
		14	2116		2242	No Flare Patrol													
		15	0201		0239	No Flare Patrol													
0114	ABST	15	0542E	0542D	0558	N16	W15		11	14.1	16D	SF			P	0542	96		BDG
		15	1011		1049	No Flare Patrol													
0115		16	00251	00314	0050	S24	E29	4890	11	18.2	25	SN	C 1.1				77	1.4	EF
	PEKG	16	0025	0035	0050	S24	E29	4890	11	18.2	25	SN			P	0035	105	1.4	E
	PALE	16	0026	0031	0050	S24	E30	4890	11	18.3	24	SN	C 1.1	3	C		67		FE
	LEAR	16	0034E		0050	S25	E29	4890	11	18.3	16D	SF	C 1.1	1	C		59		
0116		16	0524*	0527*	0545	S24	E29	4890	11	18.5	21	SF					41	1.1	D
	ABST	16	0524	0527	0558	S22	E30	4890	11	18.5	34	SN			C	0527	87	1.1	D
	LEAR	16	0526	0528	0535	S25	E28	4890	11	18.4	9	SF		3	C		19		
	LEAR	16	0537	0537	0543	S25	E28	4890	11	18.4	6	SF		3	C		16		
0117	LEAR	16	0557	0601	0602	S25	E28	4890	11	18.4	5	SF		3	C		16		
0118	HOLL	16	1901	1903	1909	S24	E19	4890	11	18.3	8	SF		3	C		34		
0119	PALE	16	2054	2059	2104	S27	E15	4890	11	18.0	10	SF		3	C		23		F

H - ALPHA S O L A R F L A R E S

NOVEMBER 1987

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp	Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
		16	2214		2234	No Flare Patrol														
		16	2245		2259	No Flare Patrol														
0120	PALE	17	0045	0048	0057	S27	E13	4890	11	18.0	12	SF			3	C		11		F
0121		17	02082	0210	0214	S26	E15	4890	11	18.2	6	1F						122	2.5	EI
	VORO	17	0208	0210U	0215	S26	E14	4890	11	18.2	7	1F				C	0210	206	2.5	EI
	LEAR	17	0210	0210	0213	S25	E16	4890	11	18.3	3	SF			3	C		38		
0122	PALE	17	0318	0320	0323	S20	W08	4893	11	16.5	5	SB			3	C		60		
0123	CATA	17	0919E	0919	0959	S25	E05	4890	11	17.8	40D	SN			2	P	0919	56	0.7	H
		17	1542		1548	No Flare Patrol														
		17	1608		1750	No Flare Patrol														
0124		17	21354	2140	2150	S26	E04	4890	11	18.2	15	SF						18		
	HOLL	17	2135	2140	2152	S24	E05	4890	11	18.3	17	SF			3	C		26		
	PALE	17	2139	2140	2148	S27	E04	4890	11	18.2	9	SF			2	C		11		
0125		18	03153	03173	0335	S24	W05	4890	11	17.7	20	1B	M	1.0				138	2.5	DHR
	YUNN	18	0315	0317	0355	S24	W04	4890	11	17.8	40	1B				C		247	2.8	R
	LEAR	18	0316	0317	0330	S24	W05	4890	11	17.7	14	SF	M	1.0	3	C		57		
	MITK	18	0316	0318	0331	S24	W04	4890	11	17.8	15	1B				C	0318	190	2.2	DH
	PALE	18	0318	0320	0323	S24	W08	4890	11	17.5	5	SB	M	1.0	3	C		60		
0126		18	0648	0654	0714	S27	E01	4890	11	18.4	26	1N						196	4.5	E
	TACH	18	0647E		0656D	S29	E02	4890	11	18.4	9D	1B				C	0656	358	4.5	E
	LEAR	18	0648	0654	0714	S25	E00	4890	11	18.3	26	SF			3	C		33		
0127		18	1046*	10506	1135	S23	E55	4891	11	22.7	49	SN						86	1.6	E
	HTPR	18	1046	1050	1200	S23	E56	4891	11	22.8	74	SN				C	1050	60	1.1	E
	CATA	18	1053E	1053	1110	S23	E54	4891	11	22.6	17D	1N			2	P	1053	112	2.2	
	KANZ	18	1056	1056	1108D	S23	E55	4891	11	22.7	12D	SF			1					
0128	HTPR	18	1208	1209	1214	S24	W08	4890	11	17.9	6	SF				C	1209	20	0.2	
0129	HTPR	18	1327	1332	1338	S24	W09	4890	11	17.9	11	SB				C	1332	60	0.6	E
0130		18	1328*	1331*	1424	S22	E54	4891	11	22.7	56	SF						40	0.5	
	RAMY	18	1328	1331	1333	S21	E53	4891	11	22.6	5	SF			2	C		20		
	RAMY	18	1338	1439	1512D	S22	E53	4891	11	22.6	94D	SF			3	C		69		
	HTPR	18	1426	1433	1516	S23	E55	4891	11	22.8	50	SN				C	1433	30	0.5	
0131	RAMY	18	1558E	1601	1631	S21	E54	4891	11	22.8	33D	SF			3	C		46		
0132	HOLL	18	1611	1611	1705	S24	W05	4890	11	18.3	54	SF			3	C		22		FH
0133		18	1428	1712	1732	S22	E48	4891	11	22.3	184	SN						36		FZ
	HOLL	18	1428	1712	1732	S22	E45	4891	11	22.1	184	SN			3	C		57		ZF
	PALE	18	1717E	1717U	1732	S22	E50	4891	11	22.6	15D	SF			2	C		15		
0134		18	1717	1725	1732	S24	W10	4890	11	17.9	15	SF						18		
	HOLL	18	1717	1725	1726	S25	W09	4890	11	18.0	9	SF			3	C		11		
	PALE	18	1725E	1725U	1737	S23	W11	4890	11	17.9	12D	SF			2	C		26		
0135	PALE	18	1747	1800	1835	S22	E51	4891	11	22.7	48	SF			3	C		25		
		18	1823		1828	No Flare Patrol														
0136		18	19046	19151	1918	S24	W10	4890	11	18.0	14	SF						24		
	HOLL	18	1904	1916	1917	S25	W08	4890	11	18.2	13	SF			3	C		22		
	PALE	18	1910	1915	1918	S24	W11	4890	11	17.9	8	SF			3	C		26		
0137	HOLL	18	1930	2002	2041D	S20	E51	4891	11	22.7	71D	SF			3	C		31		
0138	HOLL	18	2046	2134	2230	S19	E49	4891	11	22.6	104	SF			3	C		37		

NOVEMBER 1987

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp	Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
0139		18	21238	2132	2140	S26	W10	4890	11	18.1	17	SF						30		
	HOLL	18	2123	2132	2143	S26	W08	4890	11	18.3	20	SF			3	C		38		
	PALE	18	2131	2132	2136	S25	W11	4890	11	18.0	5	SF			3	C		22		
0140	HOLL	18	2158	2159	2205	S25	W12	4890	11	18.0	7	SF			3	C		22		
0141		18	22272	22282	2233	S25	W15	4890	11	17.8	6	SF						25		H
	HOLL	18	2227	2228	2233	S26	W16	4890	11	17.7	6	SF			3	C		28		
	PALE	18	2227	2229	2232	S25	W17	4890	11	17.6	5	SF			3	C		32		H
	LEAR	18	2229	2230	2233	S25	W12	4890	11	18.0	4	SF			3	C		14		
0142		18	22333	22346	2250	S20	E48	4891	11	22.6	17	SF						14		Z
	HOLL	18	2233	2234	2251	S19	E49	4891	11	22.7	18	SF			3	C		12		Z
	LEAR	18	2236	2240	2248	S22	E46	4891	11	22.5	12	SF			3	C		15		
0143		19	01064	01114	0123	S23	W18	4890	11	17.6	17	SN	C	2.4				78	0.2	EH
	MITK	19	0106	0113	0128	S24	W17	4890	11	17.7	22	SB				C	0113			EH
	PEKG	19	0108	0112	0119	S22	W19	4890	11	17.6	11	SB	C	2.4		C	0112	168	2.0	E
	LEAR	19	0109	0111	0122	S24	W18	4890	11	17.6	13	SF	C	2.4	3	C		19		H
	PALE	19	0110	0115	0123	S23	W18	4890	11	17.7	13	SF	C	2.4	2	C		46		H
0144	LEAR	19	0216	0218	0221	S25	W16	4890	11	17.8	5	SF			3	C		22		H
0145		19	04131	04199	0441	S21	E45	4891	11	22.6	28	1N	C	2.7				142	1.2	E
	PEKG	19	0413	0419	0432	S20	E45	4891	11	22.6	19	1B	C	2.7		C	0419	252	4.0	E
	LEAR	19	0414	0423	0446	S22	E44	4891	11	22.5	32	SF	C	2.7	3	C		33		E
	MITK	19	0427E	0428	0445	S20	E45	4891	11	22.6	18D	1N				C	0428	140	2.1	E
0146	LEAR	19	0600	0604	0605	S21	E42	4891	11	22.5	5	SF			3	C		13		
0147		19	07383	07428	0838	S22	E44	4891	11	22.7	60	1N	M	1.1				244	5.3	BEFK
	YUNN	19	0738	0742	0835	S22	E44	4891	11	22.7	57	2B				C		329	5.2	E
	ABST	19	0738	0743	0834D	S21	E45	4891	11	22.8	56D	1N				P	0743	314	4.9	FK
	SVTO	19	0740	0744	0801	S21	E42	4891	11	22.5	21	SN	M	1.1	3	C		97		F
	CATA	19	0740	0750	0825D	S23	E43	4891	11	22.6	45D	2B			2	P	0750	365	5.7	
	LEAR	19	0741	0746	0859	S21	E42	4891	11	22.5	78	1N	M	1.1	3	C		114		
	KANZ	19	0833E		0859	S24	E47	4891	11	23.0	26D	SN			1					B
0148		19	09032	0905	0918	S25	W18	4890	11	18.0	15	SN	C	2.9				188	3.4	
	LEAR	19	0903	0905	0916	S25	W18	4890	11	18.0	13	SF	C	2.9	3	C		96		
	KANZ	19	0905	0905	0915	S25	W17	4890	11	18.1	10	SN			2					
	CATA	19	0905	0905	0924	S25	W18	4890	11	18.0	19	1B			2	C	0905	281	3.4	
0149		19	09112	0919*	0940	S22	E44	4891	11	22.8	29	SF						56	1.4	EK
	KANZ	19	0911	0919	0922D	S24	E45	4891	11	22.8	11D	SF			2					
	LEAR	19	0913	0932	0940	S21	E41	4891	11	22.5	27	SF			3	C		25		
	ABST	19	0922E	0927U	0940	S21	E45	4891	11	22.8	18D	SN				P	0927	87	1.4	EK
		19	1144		1149	No Flare Patrol														
		19	1202		1316	No Flare Patrol														
		19	1320		1350	No Flare Patrol														
		19	1354		1356	No Flare Patrol														
		19	1419		1601	No Flare Patrol														
0150	HOLL	19	1441	1508	1551	S20	E40	4891	11	22.7	70	SN	C	2.6	3	C		42		F
0151		19	1503*	1506*	1534	S26	W20	4890	11	18.1	31	SF	C	2.6				13		H
	HOLL	19	1503	1506	1523	S25	W20	4890	11	18.1	20	SF	C	2.6	3	C		11		
	HOLL	19	1528	1528	1534	S26	W21	4890	11	18.0	6	SF			3	C		10		
	HOLL	19	1538	1540	1546	S26	W20	4890	11	18.1	8	SF			3	C		17		H
0152		19	1612	16151	1639	S18	E40	4891	11	22.7	27	SN	C	2.1				66		F
	RAMY	19	1602E	1615	1645	S17	E40	4891	11	22.7	43D	SN	C	2.1	2	C		69		
	HOLL	19	1612	1616	1633	S19	E40	4891	11	22.7	21	SN	C	2.1	3	C		64		F
0153		19	16185	1624	1628	S26	W20	4890	11	18.1	10	SF						17		
	HOLL	19	1618	1624	1630	S26	W21	4890	11	18.0	12	SF			3	C		22		
	RAMY	19	1623	1624	1627	S27	W20	4890	11	18.1	4	SF			2	C		12		
0154	HOLL	19	1636	1642	1653	S28	W21	4890	11	18.0	17	SF			3	C		23		F

H - ALPHA S O L A R F L A R E S

NOVEMBER 1987

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
0155	PALE	19	1826	1828	1857	S22	E38	4891	11	22.7	31	SF		3	C		16		H
0156	PALE	19	1938	1939	1953	S25	W22	4890	11	18.1	15	SF		3	C		24		
0157	PALE	19	1938	1940	1957	S21	E37	4891	11	22.6	19	SF		3	C		12		
0158		19	20361	20391	2053	S20	E39	4891	11	22.8	17	SF					23		F
	PALE	19	2036	2039	2055	S21	E35	4891	11	22.5	19	SF		3	C		32		
	RAMY	19	2037	2039	2100	S20	E43	4891	11	23.1	23	SF		2	C		21		
	HOLL	19	2037	2040	2044	S20	E38	4891	11	22.8	7	SF		4	C		15		F
0159	PALE	19	2120	2120	2126	S21	E36	4891	11	22.6	6	SF		3	C		18		
0160	HOLL	19	2135	2140	2203	S18	W37	4893	11	17.1	28	SF		3	C		23		U
0161	HOLL	19	2223	2224	2233	S20	E37	4891	11	22.8	10	SF		3	C		20		
0162	HOLL	19	2254	2256	2301	S22	E35	4891	11	22.6	7	SF		3	C		20		
0163	LEAR	20	0026	0027	0030	S25	W27	4890	11	17.9	4	SF		3	C		11		
0164		20	00525	00535	0100	S25	W26	4890	11	18.0	8	SF	C 1.1				26		
	LEAR	20	0052	0053	0100	S25	W27	4890	11	17.9	8	SF	C 1.1	3	C		21		
	PALE	20	0057	0058	0101	S25	W24	4890	11	18.2	4	SF	C 1.1	3	C		30		
0165		20	0146*	01573	0210	S25	W28	4890	11	17.9	24	SF					117	3.2	FT
	PALE	20	0146	0200	0210	S25	W29	4890	11	17.8	24	SF		3	C		80		F
	YUNN	20	0151	0157	0212	S26	W27	4890	11	18.0	21	1N			C		247	3.2	FT
	LEAR	20	0158	0159	0207	S25	W27	4890	11	18.0	9	SF		3	C		23		
0166		20	01599	02091	0213	S20	E34	4891	11	22.7	14	SF					26		D
	LEAR	20	0159	0210	0211	S21	E37	4891	11	22.9	12	SF		3	C		26		
	MITK	20	0208	0209	0215	S19	E32	4891	11	22.5	7	SF			C	0209			D
0167	YUNN	20	0252	0254	0256	S25	W29	4890	11	17.9	4	SN			C		49	0.6	T
0168	YUNN	20	0252	0255	0303	S22	E32	4891	11	22.6	11	SN			C		49	0.7	ET
0169	YUNN	20	0301	0304	0329	S25	W30	4890	11	17.8	28	SN			P		66	0.9	ET
0170	YUNN	20	0342	0350	0416	S24	W30	4890	11	17.8	34	SN			P		33	0.4	ET
0171	LEAR	20	0313	0314	0317	S21	E36	4891	11	22.9	4	SF		3	C		21		E
0172		20	0410*	0417*	0518	S22	E35	4891	11	22.9	68	1N	M 1.3				237	3.7	EFTU
	YUNN	20	0410	0420	0505	S23	E36	4891	11	22.9	55	2B			C		378	5.3	UT
	MITK	20	0412	0417	0451	S23	E36	4891	11	22.9	39	1N			C	0417	200	2.8	E
	LEAR	20	0412	0418	0535	S21	E35	4891	11	22.8	83	1N	M 1.3	3	C		116		
	PEKG	20	0425	0430	0455	S22	E35	4891	11	22.9	30	1B			C	0430	357	4.9	U
	YUNN	20	0448	0452	0527	S22	E34	4891	11	22.8	39	SN			C		132	1.8	FT
	MITK	20	0503	0503	0553	S23	E34	4891	11	22.8	50	SF			C	0503			E
0173		20	0605*	0616*	0642	S22	E33	4891	11	22.8	37	SF					20		E
	MITK	20	0605	0616	0640	S22	E32	4891	11	22.7	35	SF			C	0616			E
	LEAR	20	0628	0638	0643	S21	E34	4891	11	22.9	15	SF		3	C		20		
0174	LEAR	20	0744	0747	0805	S21	E34	4891	11	22.9	21	SF		3	C		15		
0175		20	0808	08104	0830	S24	W32	4890	11	17.9	22	SN					51	1.1	ET
	LEAR	20	0808	0810	0832	S25	W31	4890	11	17.9	24	SF		3	C		20		
	YUNN	20	0808	0814	0827	S24	W32	4890	11	17.9	19	SN			C		82	1.1	ET
0176	HTPR	20	0924	0925	1130	S24	E30	4891	11	22.7	126	SF			C	0925	30	0.3	E
0177	HTPR	20	1131	1157	1207	S26	W36	4890	11	17.7	36	SF			C	1157	20	0.2	
0178	HTPR	20	1213	1230	1242	S25	W35	4890	11	17.8	29	SF			C	1230	30	0.4	E
0179	HTPR	20	1250	1259	1309	S25	W30	4890	11	18.2	19	SF			C	1259	40	0.4	E

H - ALPHA S O L A R F L A R E S

NOVEMBER 1987

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	Mo	CMP Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
0180	HTPR	20	1314	1318	1342	S23	E26	4891	11	22.5	28	SF			C	1318	40	0.4	E
		20	1501		1603	No Flare Patrol													
		20	1652		1713	No Flare Patrol													
0181	PALE	20	1741	1746	1756	S22	E28	4891	11	22.9	15	SF	C 1.5	2	C		44		
0182		20	19413	19441	1957	S22	E27	4891	11	22.9	16	SF	C 1.3				24		FM
	HOLL	20	1941	1945	1957	S22	E26	4891	11	22.8	16	SF	C 1.3	3	C		25		
	RAMY	20	1941	1945	2000	S23	E29	4891	11	23.0	19	SF	C 1.3	3	C		25		FM
	PALE	20	1944	1944	1954	S22	E25	4891	11	22.7	10	SF	C 1.3	3	C		22		
0183	HOLL	20	2308	2316	2343D	S26	W36	4890	11	18.2	35D	SF		3	C		60		
0184	LEAR	20	2314	2314	2320	S21	E25	4891	11	22.9	6	SF		3	C		11		
0185		20	23311	2337*	2518	S22	E25	4891	11	22.9	107	1N	M 1.3				159	2.6	EIJKTUZ
	LEAR	20	2331	2337	2511	S21	E25	4891	11	22.9	100	1N	M 1.3	3	C		127		
	HOLL	20	2331	2338	2343D	S22	E26	4891	11	23.0	12D	1N	M 1.3	3	C		96		
	VORO	20	2332	2347U	2443D	S23	E26	4891	11	23.0	71D	1F			C	2347	224	2.8	EIJKTUZ
	MITK	20	2335E	2350	2524	S23	E24	4891	11	22.8	109D	1B			C	2350	190	2.4	E
0186	LEAR	21	0233	0235	0240	S25	W41	4890	11	17.9	7	SF		3	C		39		
0187	LEAR	21	0405	0417	0427	S21	E22	4891	11	22.8	22	SF		3	C		12		
0188	YUNN	21	0619	0628	0647	S41	E88		11	28.4	28				C				AG
0189	LEAR	21	0725	0725	0733	S21	E21	4891	11	22.9	8	SF		3	C		11		
0190	HTPR	21	0907	0910	0925	N27	E78	4895	11	27.4	18	SN			C	0910	30		
0191	CATA	21	0950E	0950	0959D	N26	E90	4895	11	28.4	9D	SN		2	P	0950	28		
0192		21	12051	1205*	1224	N28	E78	4895	11	27.6	19	SN					22		
	RAMY	21	1205	1205	1213	N28	E79	4895	11	27.7	8	SF		3	C		14		
	HTPR	21	1206	1217	1235	N27	E77	4895	11	27.5	29	SN			C	1217	30		
0193		21	1357*	1411	1429	S22	E64	4897	11	26.5	32	SN					51	1.3	E
	HTPR	21	1357	1411	1433	S23	E64	4897	11	26.5	36	SN			C	1411	60	1.3	E
	RAMY	21	1410	1411	1425	S22	E63	4897	11	26.4	15	SF		3	C		42		
0194	HOLL	21	1500	1504	1524	S20	E17	4891	11	22.9	24	SF		3	C		16		
0195		21	15322	1535*	1618	S22	E16	4891	11	22.9	46	SF					21		
	RAMY	21	1532	1549	1637	S21	E16	4891	11	22.9	65	SF		3	C		27		
	HOLL	21	1534	1535	1558	S23	E17	4891	11	22.9	24	SF		3	C		15		
0196		21	17551	1805	1902	S22	E16	4891	11	23.0	67	2B	M 3.5				248		FU
	HOLL	21	1755	1805	1901	S23	E16	4891	11	23.0	66	2B	M 3.5	3	C		273		UF
	RAMY	21	1756	1805U	1903	S21	E15	4891	11	22.9	67	1B	M 3.5	3	C		222		F
		21	2117		2120	No Flare Patrol													
0197	HOLL	21	2150	2151	2158	S20	E11	4891	11	22.7	8	SF		3	C		18		
0198		22	0212*	02392	0306	S21	E08	4891	11	22.7	54	SN	C 2.2				141	2.6	EFIJT
	LEAR	22	0212	0239	0323	S21	E08	4891	11	22.7	71	SF	C 2.2	3	C		61		F
	VORO	22	0224	0242U	0300D	S20	E08	4891	11	22.7	36D	1F			C	0242	314	3.5	IJT
	MITK	22	0231	0241	0314	S20	E07	4891	11	22.6	43	SB			C	0241			E
	PALE	22	0242E	0242U	0250	S22	E13	4891	11	23.1	8D	SF	C 2.2	2	C		24		F
	YUNN	22	0252E	0253U	0256	S20	E05	4891	11	22.5	4D	SN			P	0253	164	1.8	F
0199		22	0450*	0513*	0605	S22	E05	4891	11	22.6	75	SN	C 2.0				64	0.7	EF
	MITK	22	0450	0513	0547	S23	E01	4891	11	22.3	57	SN			C	0513			E
	YUNN	22	0513E	0535U	0554D	S21	E06	4891	11	22.7	41D	SN			P	0535	66	0.7	E
	MITK	22	0516	0528	0628	S22	E07	4891	11	22.7	72	SN			C	0528			E
	LEAR	22	0521	0543	0601	S21	E07	4891	11	22.7	40	SF	C 2.0	3	C		61		F

H - ALPHA S O L A R F L A R E S

NOVEMBER 1987

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
0200		22	07134	07183	0801	S21	E06	4891	11	22.8	48	SF	C 1.2				44	0.4	EF
	YUNN	22	0713	0718	0808	S20	E05	4891	11	22.7	55	SN			C		33	0.4	E
	LEAR	22	0715	0718	0759	S21	E05	4891	11	22.7	44	SF	C 1.2	3	C		56		F
	KANZ	22	0717	0721	0755	S22	E07	4891	11	22.8	38	SF		1					
0201	RAMY	22	1211	1233	1250	S20	E01	4891	11	22.6	39	SF		3	C		21		
0202	RAMY	22	1359	1402	1431	S22	E02	4891	11	22.7	32	SF	C 1.1	3	C		23		F
0203	PALE	22	2200	2201	2209	S21	W07	4891	11	22.4	9	SF		3	C		19		F
0204		22	23103	23134	2320	S22	W03	4891	11	22.7	10	SF					14		F
	PALE	22	2310	2313	2322	S22	W05	4891	11	22.6	12	SF		2	C		16		F
	HOLL	22	2313	2314	2321	S21	W03	4891	11	22.7	8	SF		3	C		14		
	LEAR	22	2313	2317	2318	S23	W02	4891	11	22.8	5	SF		3	C		11		
0205	YUNN	23	0429E	0433	0444	S22	W03	4891	11	22.9	15D	SN			P		164	1.8	F
0206		23	05069	0506*	0532	S22	W03	4891	11	23.0	26	1N	C 1.3				157	3.3	EF
	LEAR	23	0506	0506	0531	S23	W03	4891	11	23.0	25	SF	C 1.3	3	C		20		F
	PEKG	23	0515	0518	0534	S22	W03	4891	11	23.0	19	1N	C 1.3		C	0518	294	3.3	E
0207	ABST	23	0734E	0734U	0749D	S23	W10	4891	11	22.5	15D	SF			P	0734	61	0.7	D
0208	KANZ	23	0849		0850D	S23	W13	4891	11	22.4	1D	SN			P	0850	21	0.2	D
		23	1055		1058	No Flare Patrol													
		23	1100		1105	No Flare Patrol													
		23	1121		1327	No Flare Patrol													
0209	HOLL	23	1433E	1433U	1446D	S34	W23	4896	11	21.8	13D	SF		3	C		28		
		23	1534		1544	No Flare Patrol													
		23	1612		1616	No Flare Patrol													
		23	1645		1659	No Flare Patrol													
0210	HOLL	23	1921	1924	1928	S35	W26	4896	11	21.7	7	SF		3	C		12		
0211	PALE	23	1949	1952	2014	S21	E31		11	26.2	25	SF		4	C		17		FH
0212		23	2024	2027	2046	N33	E54	4895	11	28.1	22	SF					14		F
	PALE	23	2024	2027	2046	N33	E54	4895	11	28.1	22	SF		3	C		12		F
	HOLL	23	2029E	2029U	2035D	N33	E54	4895	11	28.1	6D	SF		2	C		16		F
0213		24	0008*	0018*	0035	S34	W32	4896	11	21.4	27	SF					21		F
	LEAR	24	0008	0018	0032	S33	W34	4896	11	21.3	24	SF		3	C		20		F
	PALE	24	0012	0020	0036	S33	W32	4896	11	21.5	24	SF		3	C		19		F
	LEAR	24	0033	0035	0038	S35	W29	4896	11	21.7	5	SF		3	C		23		
0214	PALE	24	0304	0307U	0314	S21	E28		11	26.3	10	SF		2	C		16		F
0215	LEAR	24	0323	0324	0327	N31	E46	4895	11	27.8	4	SF		3	C		13		
0216	YUNN	24	0429E	0433	0444	S35	W35	4896	11	21.4	15D	SB			P		115	1.8	F
0217		24	04402	04446	0520	S23	E28	4897	11	26.3	40	1B					197	2.6	EG
	YUNN	24	0440	0444	0516	S23	E29	4897	11	26.4	36	1B			P		197	2.6	EG
	MITK	24	0442	0450	0524	S23	E28	4897	11	26.3	42	SB			C	0450			E
0218	YUNN	24	0551	0600	0611	S27	W79	4890	11	18.1	20	1N			P		16		A
0219	YUNN	24	0554	0600	0611	N29	E44	4895	11	27.7	17	SB			C		49	0.8	E
0220	YUNN	24	0634	0637	0701	S23	E28	4897	11	26.4	27	SN			P		82	1.1	EG
0221	KANZ	24	0959	1003	1009	S22	E27	4897	11	26.5	10	SN			P	1003	52	0.6	EH
		24	1331		1820	No Flare Patrol													
0222	HOLL	24	1441	1456	1511	S22	W23	4891	11	22.8	30	SF		3	C		55		F

H - ALPHA S O L A R F L A R E S

NOVEMBER 1987

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP	Mo	Day	Dur (Min)	Imp	Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
0223	HOLL	24	1447	1447	1455	S35	W39	4896		11	21.5	8	SF			2	C		17		
0224	HOLL	24	1455	1455	1459	N32	E41	4895		11	27.9	4	SF			2	C		15		
0225	HOLL	24	1914	1929	2012	N28	E41	4895		11	28.0	58	1F	C	1.2	3	C		116		FU
0226	HOLL	24	1940	1953	2001	S36	W39	4896		11	21.7	21	SF			3	C		14		
0227	HOLL	24	2056	2058	2059	S22	W27	4891		11	22.8	3	SF			3	C		11		
0228	HOLL	24	2215	2215	2224	S36	W40	4896		11	21.7	9	SF			3	C		12		
0229		24	22463	2249	2308	N30	E38	4895		11	27.9	22	SF						19		
	HOLL	24	2246	2249	2311	N30	E35	4895		11	27.7	25	SF			3	C		24		
	LEAR	24	2249	2249	2306	N30	E40	4895		11	28.1	17	SF			3	C		14		
0230	YUNN	25	0138E	0141U	0154	S22	E17	4897		11	26.4	16D	SB				P	0141	115	1.4	EG
0231		25	09436	0951	1002	S22	E15	4897		11	26.5	19	SF						30	0.4	E
	HTPR	25	0943	0951	1006	S23	E17	4897		11	26.7	23	SF				C	0951	40	0.4	E
	LEAR	25	0949	0951	0957	S22	E13	4897		11	26.4	8	SF			2	C		20		
		25	1236		1325	No Flare Patrol															
		25	1500		1506	No Flare Patrol															
		25	1510		1517	No Flare Patrol															
0232	HOLL	25	1713	1717	1726	S34	W61	4896		11	20.8	13	SF			3	C		55		
0233	YUNN	26	0138	0154		N29	E20	4895		11	27.6		SN				C		164	2.0	FK
0234	YUNN	26	0236E	0236		N29	E20	4895		11	27.7	D	1N				C		230	2.8	
0235		26	0308*	0311*	0328	N31	E23	4895		11	27.9	20	SN						126	4.3	
	LEAR	26	0308	0311	0312	N33	E25	4895		11	28.1	4	SF			3	C		12		
	YUNN	26	0314E	0314	0423D	N29	E20	4895		11	27.7	69D	1B				P		345	4.3	
	LEAR	26	0332	0332	0345	N31	E23	4895		11	28.0	13	SF			3	C		21		
0236		26	03101	03241	0351	S21	W47	4891		11	22.5	41	1N	C	3.3				181	5.0	F
	YUNN	26	0310	0324	0356	S21	W46	4891		11	22.6	46	1B				C		312	5.0	F
	LEAR	26	0311	0325	0346	S21	W48	4891		11	22.4	35	SF	C	3.3	3	C		50		
0237	YUNN	26	0422	0423	0423D	S22	W49	4891		11	22.4	1D	SN				P		49	0.8	F
0238	ABST	26	0607	0620	0634	S34	W72	4896		11	20.5	27	1F				C	0620	87		D
0239		26	08334	08393	0904	N29	E19	4895		11	27.8	31	SF						87	1.0	D
	ABST	26	0833	0839	0905	N29	E19	4895		11	27.8	32	SF				C	0839	87	1.0	D
	ABST	26	0837	0842	0903	N29	E19	4895		11	27.8	26	SF				C	0842	87	1.0	D
0240		26	08525	08571	0915	S22	W48	4891		11	22.7	23	1N						140	2.4	EF
	ABST	26	0852	0857	0926	S21	W49	4891		11	22.6	34	1F				C	0857	218	3.7	F
	KANZ	26	0857	0858	0904	S22	W48	4891		11	22.7	7	SN				P	0858	62	1.0	E
0241	KANZ	26	1110	1121	1126	S33	W67	4896		11	21.1	16	SN				P			1.4	D
0242		26	1128	1143*	1215	S22	W46	4891		11	22.9	47	1B						154	2.5	EF
	KANZ	26	1128	1143	1215	S22	W46	4891		11	22.9	47	SN				P	1143	83	1.3	EF
	CATA	26	1200E	1200	1212D	S21	W47	4891		11	22.9	12D	1B			2	P	1200	225	3.7	
		26	1326		1359	No Flare Patrol															
0243	HOLL	26	1555	1556	1609	S24	W44	4891		11	23.3	14	SF			3	C		20		
0244	LEAR	26	2243	2243	2251	S34	W70	4896		11	21.4	8	SF			3	C		17		
0245	PALE	26	2345	2350	2403	S33	W75	4896		11	21.0	18	SF			3	C		19		
0246		27	13229	13311	1348	S26	W62	4891		11	22.7	26	1N						68	2.4	EF
	HTPR	27	1322	1331	1400	S24	W62	4891		11	22.8	38	1B				C	1331	120	2.4	E
	SVTO	27	1331	1332	1337	S28	W61	4891		11	22.8	6	SF			3	C		17		F

H - ALPHA SOLAR FLARES

NOVEMBER 1987

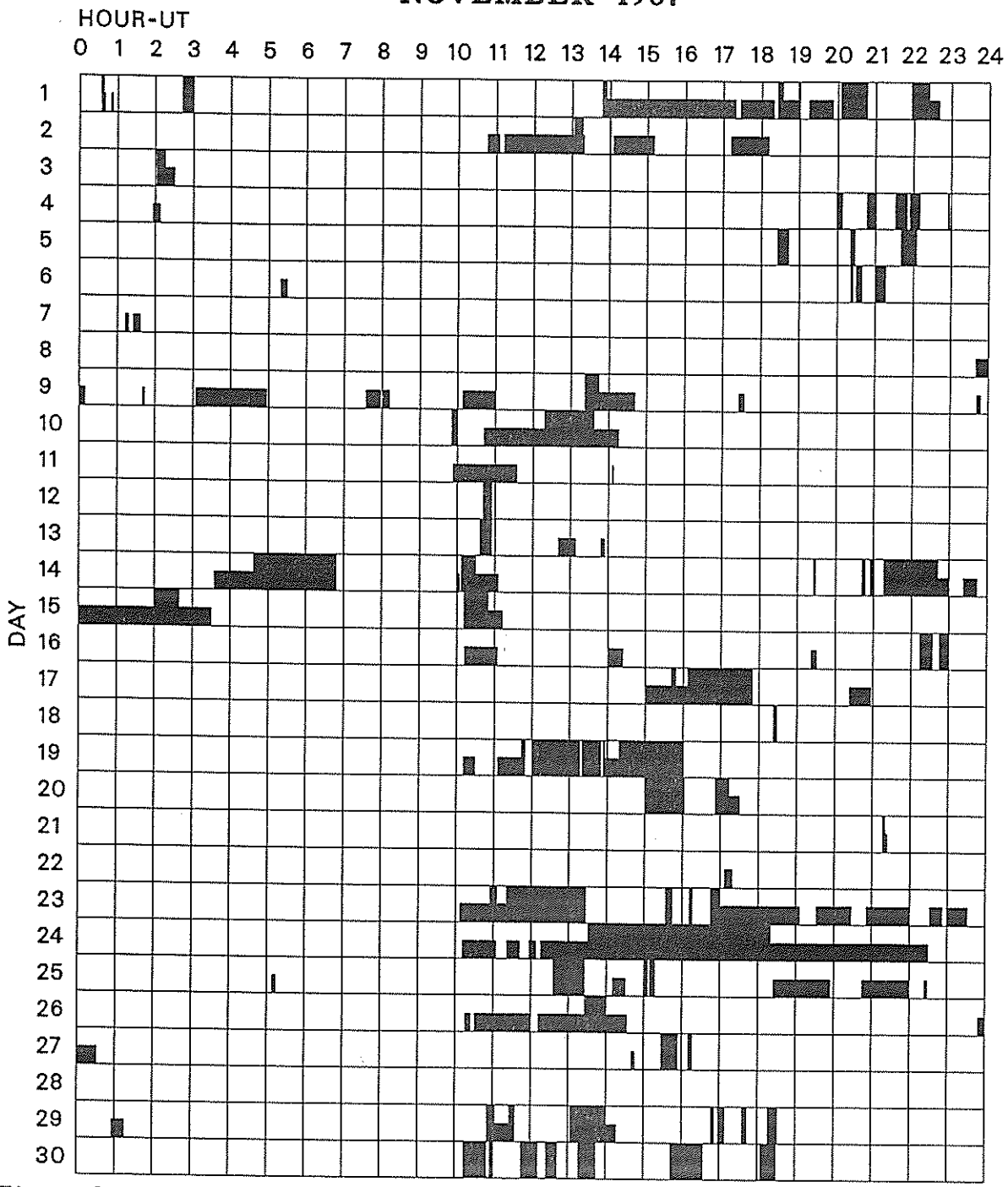
Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
		27	1528		1554	No Flare Patrol													
		27	1611		1617	No Flare Patrol													
0247	YUNN	28	0715	0719	0728	S21	W81	4891	11	22.1	13	SN			C		16		D
0248	YUNN	28	0809	0812	0812D	S34	W89	4896	11	21.2	3D				P				A
0249	HTPR	28	0951	0958	1012	S20	W80	4891	11	22.3	21	SF			C	0958	20		
0250	HOLL	28	1750	1751	1801	S21	W78	4891	11	22.8	11	SF		3	C		14		FH
		29	1051		1103	No Flare Patrol													
		29	1127		1135	No Flare Patrol													
		29	1304		1400	No Flare Patrol													
0251		29	16029	16131	1628	N30	W24		11	27.8	26	SF	C 1.5				28		FU
	RAMY	29	1602	1614	1632D	N30	W23		11	27.8	30D	SF	C 1.5	3	C		26		UF
	HOLL	29	1611	1613	1628	N30	W24		11	27.8	17	SF	C 1.5	3	C		29		UF
		29	1648		1652	No Flare Patrol													
		29	1658		1708	No Flare Patrol													
		29	1737		1743	No Flare Patrol													
		29	1817		1831	No Flare Patrol													
0252	HOLL	29	1940	1942	1952	N28	W26		11	27.8	12	SF		3	C		35		F
0253	ABST	30	0752	0757	0901D	N27	W38		11	27.4	69D	SF			P	0757	96	1.4	F
0254		30	0757	0801U	0954	N25	W02	4900	11	30.2	117	SN					109	1.2	EFK
	ABST	30	0757	0801U	0801D	N27	W02	4900	11	30.2	4D	SF			P	0801	87	1.0	F
	ABST	30	0821E	0825U	0954	N23	W02	4900	11	30.2	93D	SN			P	0825	131	1.5	EK
		30	1014		1050	No Flare Patrol													
		30	1056		1101	No Flare Patrol													
		30	1146		1212	No Flare Patrol													
		30	1226		1243	No Flare Patrol													
		30	1317		1344	No Flare Patrol													
		30	1543		1635	No Flare Patrol													
		30	1805		1830	No Flare Patrol													

"Remarks"

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

INTERVALS OF NO FLARE PATROL OBSERVATION
FOR PRECEDING SOLAR FLARE TABLE

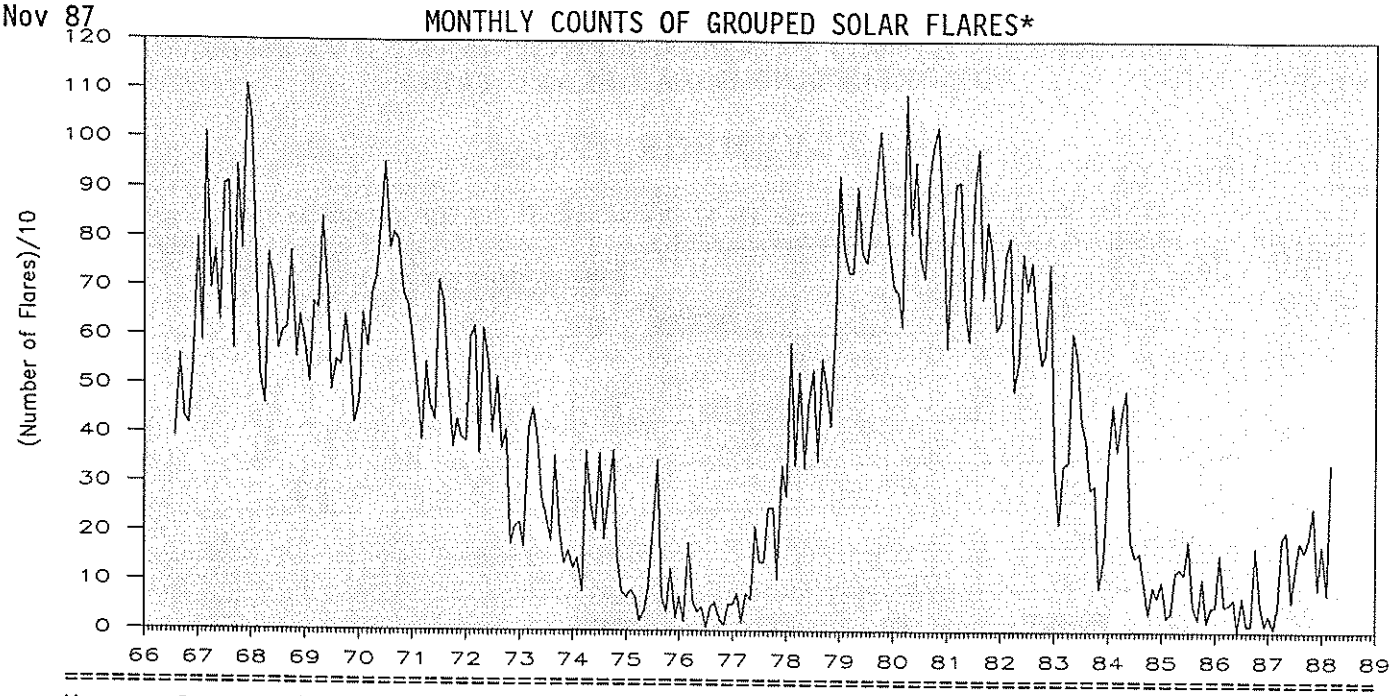
NOVEMBER 1987



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	Holloman	Kharkov	Manila	San Vito
Bucharest	Istanbul	Kodaikanal	Mitaka	Tashkent
Catania	Kandilli	Learmonth	Palehua	Urumqi
Haute Provence	Kanzelhoehe	Lvov	Peking	Voroshilov
			Ramey	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	165	193	254	88	1570
1988	177	77	343	251									848

*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.

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
01	410	LEAR	43	NS	0115.0	0211.0	543.0	30.0			QL=5 ST=2 TYP=1
	245	SVTO	43	NS	0540.0	0630.0	585.0	70.0			QL=5 ST=2 TYP=1
	127	TORN	44	NS	0620.0E		45.0D				V=1
	204	IZMI	44	NS	0700.0E		300.0D	40.0			
	260	ONDR	44	NS	0850.0E	1320.0	297.0D				
	245	SGMR	43	NS	1139.0	1756.0	576.0	72.0			QL=5 ST=2 TYP=1
	245	PALE	44	NS	1653.0E	2020.0	427.0D	62.0			QL=5 ST=3 TYP=1
	100	HIRA	44	NS	2100.0E	2204.0	620.0D	38.0	15.0		0
	245	LEAR	43	NS	2157.0	2211.0	741.0D	180.0			QL=5 ST=2 TYP=1
	536	ONDR	42	SER	0950.0E	1236.8	224.0D	3.0			
	204	IZMI	5	S	1111.6	1111.7	0.3	18.0	9.0		
	9400	HUAN	20	GRF	1316.4	1326.2	17.8	1.8	0.6		
	9400	HUAN			1337.1	1341.4	4.3				
	9400	HUAN	2	S/F	1337.1	1338.7	7.1	3.7	1.2		
	9400	HUAN	1	S	1347.7	1349.5	4.8	2.4	1.9		
	9400	HUAN	1	S	1401.7	1402.5	4.8	3.7	0.8		
	9400	HUAN	1	S	1545.0	1547.0	4.0	2.4	0.6		
	9400	HUAN	1	S	1555.2	1556.8	4.4	1.8	0.7		
	9400	HUAN	1	S	1752.8	1754.2	5.1	3.1	1.2		
	9400	HUAN	1	S	1913.6	1915.9	8.2	8.2	1.2		
	200	HIRA	6	S	2210.1	2210.5	1.2	420.0			0
	1000	TYKW	45	C	2210.5	2211.0	1.5	100.0	10.0		
02	245	SVTO	43	NS	0541.0	0549.0	583.0D	160.0			QL=5 ST=2 TYP=1
	127	TORN	44	NS	0620.0E		130.0D		42.0		V=1
	204	IZMI	44	NS	0700.0E		300.0D	15.0			
	260	ONDR	44	NS	0800.0E	1300.0U	355.0D				
	245	SGMR	44	NS	1140.0E	1305.0	740.0D	66.0			QL=5 ST=3 TYP=1
	410	SGMR	44	NS	1140.0E	1304.0	740.0D	13.0			QL=5 ST=3 TYP=1
	245	PALE	43	NS	1653.0	1847.0	565.0D	55.0			QL=5 ST=3 TYP=1
	100	HIRA	44	NS	2100.0E	2330.0	620.0D	130.0	17.0		
	200	HIRA	44	NS	2100.0E	0004.0	620.0D	93.0	38.0		MR
	245	LEAR	43	NS	2156.0	0607.0	743.0D	110.0			QL=5 ST=2 TYP=1
	245	LEAR	4	S/F	0031.0	0031.0	123.0	50.0			QL=5 ST=2 TYP=5
	245	LEAR	8	S	0132.0	0132.0	1.0	110.0			QL=1 ST=2 TYP=5
	245	LEAR	8	S	0132.0	0132.0	1.0	110.0			QL=5 ST=2 TYP=5
	245	LEAR	8	S	0229.0	0229.0	1.0	75.0			QL=5 ST=2 TYP=5
	3750	TYKW	20	GRF	0340.0	0347.0	40.0	1.5	0.7		RAIN
	2950	GORK	23	GRF	0730.5	1027.0	300.0D	3.6			
	810	KRAK	8	S	0806.9	0807.0	0.2	15.0			
	3000	POTS	21	GRF	1007.0	1013.8	23.0	9.0			
	9500	POTS	20	GRF	1011.0	1015.0	9.0	9.0			
	5900	KISV	2	S/F	1011.1	1013.9	11.5	13.0			
	15000	KISV	1	S	1011.5	1014.1	12.5	7.0			
	3100	CRIM	1	S	1012.0	1014.0	10.0	7.0	2.0		
	9300	KISV	20	GRF	1012.0	1019.0	33.5	5.0			
	9100	GORK	20	GRF	1012.0	1014.9	25.8	8.5			
	2950	GORK			1012.2	1021.0		2.8			
	2950	GORK	45	C	1012.2	1013.8	11.1	7.2			
	9300	KISV	2	S/F	1012.4	1013.9	5.7	9.0			
	5900	KISV	1	S	1020.9	1021.3	1.0	1.0			
	3100	CRIM	29	PBI	1022.0	1022.0	18.0	2.0	1.0		
	3013	IZMI	5	S	1112.0	1114.0	6.5	6.0	3.0		
	536	ONDR	8	S	1144.3	1144.4	0.6	9.0			
	3000	POTS	2	S/F	1303.5	1304.9	3.5	5.0			
	3100	CRIM	1	S	1304.0	1305.0	2.0	3.0	1.0		
	1470	POTS	4	S/F	1304.0U	1305.5	5.0U	6.0			
	2800	OTTA	20	GRF	1304.5	1305.6	6.0	4.6	1.9		
	536	ONDR	8	S	1304.6	1304.6	0.1	5.0			
	9500	POTS	20	GRF	1305.0	1309.1	15.0	5.0			
	2800	OTTA	20	GRF	1348.8	1357.1		10.6			
	3000	POTS	22	GRF	1350.0	1355.9	20.0	7.0			
	1470	POTS	21	GRF	1351.0	1357.0	30.0	7.0			
	9500	POTS	21	GRF	1351.0	1356.5	19.0	15.0			
	33	UPIC	45	C	1355.4	1356.4	3.4				
	29	UPIC	45	C	1355.5	1356.6	3.3				
	410	SGMR	8	S	1356.0	1356.0	1.0	16.0			QL=5 ST=2 TYP=3
	245	SGMR	8	S	1356.0	1356.0	1.0	220.0			QL=5 ST=2 TYP=5
	810	KRAK	2	S/F	1356.0	1356.8	2.0	7.0	2.0		
	430	KRAK	8	S	1357.5	1358.0	0.5	25.0			

SOLAR RADIO EMISSION--OUTSTANDING OCCURRENCES

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
02	2800	OTTA	32	ABS	1415.0	1428.0	75.0	-2.8	-1.4		
	9400	HUAN	1	S	1456.5	1459.4	7.1	5.5	2.9		
	9400	HUAN	1	S	1612.0	1613.8	3.2	4.1	1.6		
	9400	HUAN	4	S/F	1810.2	1811.4	4.3	30.2	13.6		
	9400	HUAN			1810.2	1811.9		26.1			
	4995	PALE	8	S	1811.0	1811.0	1.0	50.0			QL=5 ST=2 TYP=5
	410	PALE	8	S	1811.0	1813.0	2.0	23.0			QL=5 ST=2 TYP=3
	15400	PALE	8	S	1811.0	1811.0	1.0	93.0			QL=5 ST=2 TYP=5
	2695	PALE	8	S	1811.0	1811.0	1.0	57.0			QL=5 ST=2 TYP=5
	1415	PALE	8	S	1811.0	1811.0	1.0	35.0			QL=5 ST=2 TYP=3
	8800	PALE	8	S	1811.0	1811.0	1.0	36.0			QL=5 ST=2 TYP=3
	245	SGMR	4	S/F	1811.0	1811.0	3.0	330.0			QL=5 ST=2 TYP=5
	1415	SGMR	8	S	1811.0	1811.0	1.0	18.0			QL=5 ST=2 TYP=3
	15400	SGMR	8	S	1811.0	1811.0	1.0	75.0			QL=5 ST=2 TYP=5
	2800	OTTA	3	S	1811.3	1812.5	2.3	62.6	15.6		
	2800	OTTA	30	PBI	1813.6	1814.6	57.0	6.3	1.7		
	610	PALE	8	S	1856.0	1856.0	2.0	150.0			QL=5 ST=2 TYP=5
	610	SGMR	8	S	1856.0	1856.0	1.0	170.0			QL=1 ST=2 TYP=5
	410	PALE	8	S	1857.0	1857.0	2.0	21.0			QL=5 ST=2 TYP=3
	9400	HUAN	1	S	2040.8	2042.6	3.6	4.1	2.7		
	200	HIRA	6	S	2246.3	2246.6	1.8	190.0	45.0		WR
03	245	SVTO	44	NS	0637.0E	0916.0	525.0D	50.0			QL=1 ST=2 TYP=1
	204	IZMI	44	NS	0700.0E		300.0D	40.0			
	127	TORN	44	NS	0810.0E		215.0D		15.0		V=1
	260	ONDR	44	NS	0850.0E	1132.0U	282.0D				
	245	SGMR	43	NS	1141.0	2005.0	571.0D	100.0			QL=5 ST=2 TYP=1
	410	SGMR	43	NS	1141.0	2005.0	571.0D	43.0			QL=5 ST=2 TYP=1
	245	PALE	43	NS	1654.0	2315.0	644.0D	57.0			QL=5 ST=2 TYP=1
	200	HIRA	44	NS	2100.0E	2200.0	620.0D	14.0	3.0		MR
	3750	TYKW	20	GRF	0040.0	0101.0	55.0	2.0	1.0		
	2000	TYKW	21	GRF	0040.0	0110.0	60.0	1.5	0.7		
	200	HIRA	42	SER	0046.0	0100.0	54.0U	340.0			WR
	245	LEAR	4	S/F	0048.0	0049.0		45.0			QL=5 ST=1 TYP=3
	500	HIRA	41	F	0048.5	0057.5	12.5	56.0			ML
	1000	TYKW	45	C	0048.5	0049.6	2.5	100.0	10.0		
	2000	TYKW	45	C	0048.7	0050.0	2.0	20.0	3.0		
	1415	LEAR	8	S	0049.0	0050.0	1.0	120.0			QL=1 ST=2 TYP=5
	245	LEAR	4	S/F	0049.0	0049.0		45.0			QL=5 ST=2 TYP=3
	240	SYDN	4	S/F	0049.0	0049.0	16.0	50.0			QL= ST= TYP=5
	1415	SYDN	4	S/F	0049.0	0051.0	13.0	49.0			QL= ST= TYP=5
	9400	TYKW	20	GRF	0050.0	0101.0	40.0	2.0	1.0		RAIN
	500	HIRA	4	S/F	0054.0	0057.0	9.0	60.0			QL= ST= TYP=3
	2000	TYKW	45	C	0055.0	0058.6	6.0	18.0	2.0		
	1000	TYKW	45	C	0055.0	0058.7	6.0	110.0	10.0		
	1415	LEAR	4	S/F	0055.0	0058.0	5.0	180.0			QL=1 ST=3 TYP=5
	245	LEAR	4	S/F	0055.0	0059.0	4.0	190.0			QL=5 ST=2 TYP=5
	245	LEAR	48	C	0055.0	0059.0	4.0	190.0			QL=5 ST=2 TYP=8
	8800	PALE	8	S	0055.0	0055.0	1.0	13.0			QL=5 ST=3 TYP=3
	1415	PALE	48	C	0055.0	0058.0	4.0	180.0			QL=5 ST=3 TYP=8
	610	LEAR	8	S	0056.0	0057.0	2.0	42.0			QL=5 ST=3 TYP=3
	610	PALE	8	S	0057.0	0057.0	2.0	34.0			QL=5 ST=3 TYP=3
	410	PALE	8	S	0059.0	0059.0	2.0	44.0			QL=5 ST=3 TYP=3
	245	PALE	48	C	0059.0	0059.0	1.0	100.0			QL=5 ST=3 TYP=8
	2000	TYKW	21	GRF	0143.0	0156.0	125.0	1.5	0.7		
	3750	TYKW	21	GRF	0143.0	0235.0	125.0	2.0	1.0		
	200	HIRA	6	S	0215.6	0216.0	1.1	70.0	36.0		WR
	100	HIRA	46	C	0215.8	0216.7	2.6	740.0	310.0		
	2000	TYKW	45	C	0216.0	0216.7	2.0	16.0	4.0		
	3750	TYKW	45	C	0216.0	0216.8	2.0	30.0	5.0		
	1000	TYKW	45	C	0216.0	0216.8	2.0	1.0	0.3		
	2695	LEAR	8	S	0216.0	0216.0	1.0	42.0			QL=5 ST=2 TYP=3
	2695	PALE	8	S	0216.0	0216.0	1.0	36.0			QL=5 ST=2 TYP=3
	500	HIRA	6	S	0216.3	0216.5	1.4	3.0	1.0		0
	9400	TYKW	5	S	0216.5	0216.8	1.5	5.0	1.0		
	2000	TYKW	29	PBI	0218.0		10.0	1.0	0.5		
	2000	TYKW	21	GRF	0230.0	0235.0	75.0	1.0	0.5		
	9400	TYKW	21	GRF	0230.0	0245.0	80.0	2.0	1.0		
	200	HIRA	8	S	0245.8	0246.0	0.5	160.0			MR
	2000	TYKW	45	C	0303.0	0310.7	15.0	6.0	3.0		

SOLAR RADIO EMISSION--OUTSTANDING OCCURRENCES

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
03	3750	TYKW	5	S	0305.0	0310.5	8.0	5.0	3.0		
	9400	TYKW	21	GRF	0310.0	0315.0	35.0	2.0	1.0		
	3750	TYKW	29	PBI	0313.0		30.0	3.0	1.5		
	2000	TYKW	29	PBI	0318.0		20.0	2.0	1.0		
	9400	TYKW	45	C	0322.3	0322.7	1.0	6.0	2.0		
	3750	TYKW	20	GRF	0354.0	0410.0	40.0	2.0	1.0		
	2000	TYKW	20	GRF	0354.0	0402.0	40.0	1.0	0.5		
	9400	TYKW	20	GRF	0359.0	0407.0	30.0	3.0	1.5		
	100	HIRA	41	F	0509.2	0511.7	5.3	390.0			
	200	HIRA	42	SER	0533.7	0534.5	5.9	710.0			O
	410	LEAR	4	S/F	0534.0	0535.0	4.0	24.0			QL=5 ST=2 TYP=3
	500	HIRA	42	SER	0534.0	0536.4	6.5	8.0			WL
	245	LEAR	4	S/F	0535.0	0535.0	3.0	430.0			QL=5 ST=2 TYP=5
	2950	GORK	21	GRF	0555.0	0915.0	332.0	11.6			
	200	HIRA	46	C	0605.3	0607.2	4.6	80.0	27.0		WR
	245	SVTO	8	S	0606.0	0607.0	2.0	180.0			QL=5 ST=2 TYP=5
	3100	CRIM	4	S/F	0611.0	0744.0		4.0			QL= ST= TYP=3
	3100	CRIM	21	GRF	0611.0	0744.5	133.0U	4.0	2.0		
	9100	GORK	20	GRF	0621.0	0646.4	312.0	7.0			
	200	HIRA	42	SER	0644.6	0645.5	7.3	740.0			
	950	GORK			0645.0	0647.0		15.0			
	950	GORK	46	C	0645.0	0646.5	4.0	15.0			
	650	GORK			0645.3	0647.1		10.5			
	650	GORK	46	C	0645.3	0646.3	2.5	10.0			
	500	HIRA	42	SER	0645.6	0646.8	6.0	13.0			WL
	2950	GORK	1	S	0645.8	0646.4	2.2	3.3	1.5		
	3750	TYKW	5	S	0646.0	0646.4	2.0	5.0	2.0		
	610	LEAR	8	S	0646.0	0647.0	1.0	11.0			QL=5 ST=2 TYP=3
	410	LEAR	8	S	0646.0	0648.0	2.0	17.0			QL=5 ST=2 TYP=3
	245	LEAR	8	S	0646.0	0646.0	2.0	110.0			QL=5 ST=2 TYP=5
	3100	CRIM	1	S	0646.0	0646.4	2.0	3.0	1.0		
	9300	KISV	2	S/F	0646.0	0646.5	2.0	6.0			
	5900	KISV	2	S/F	0646.0	0646.5	2.5	7.0			
	950	GORK	30	PBI	0648.0	0648.0	5.6	1.5			
	950	GORK	8	S	0648.8	0648.8	0.2	22.0			
	650	GORK	2	S/F	0650.7	0650.9	2.6	5.0			
	3100	CRIM	1	S	0709.0	0711.7	3.5	3.0	1.0		
	3000	POTS	1	S	0710.0	0711.5	4.5	4.0			
	2950	GORK	1	S	0710.8	0711.5	1.5	2.2	1.1		
	5900	KISV	2	S/F	0711.1	0711.6	1.1	2.0			
	9500	POTS	1	S	0724.0	0725.8	2.7	4.0			
	810	KRAK	42	SER	0810.0	0812.2	3.5	10.0			
	1470	POTS	40	F	0810.0	0811.5	5.0	7.0			
	950	GORK			0810.2	0812.2		11.0			
	950	GORK	46	C	0810.2	0811.3	3.4	14.0			
	650	GORK	2	S/F	0810.4	0812.1	2.7	2.0			
	3100	CRIM	20	GRF	0843.0	0914.2	130.0	8.0	3.0		
	9500	POTS	20	GRF	0900.0	0945.4	180.0	12.0			
	3000	POTS	20	GRF	0903.0	0915.0	187.0	8.0			
	1470	POTS	20	GRF	0903.0	0910.5	180.0	8.0			
	950	GORK	20	GRF	0906.0	0909.9	9.0	2.0			
	650	GORK	1	S	0907.2	0910.9	7.3	4.4			
	536	ONDR	8	S	0946.0	0946.0	0.1	7.0			
	810	KRAK	2	S/F	1056.7	1057.5	1.5	5.0	1.0		
	536	ONDR	8	S	1152.9	1152.9	0.3	12.0			
	2800	OTTA	40	F	1343.0		155.0				
	1470	POTS	40	F	1355.0	1356.5	5.0	4.0			
	9500	POTS	42	SER	1435.0U	1436.0	6.0U	9.0			
	3000	POTS	42	SER	1435.0U	1436.0	6.0U	6.0			
	1470	POTS	42	SER	1435.0U	1440.2	6.0U	20.0			
	245	SGMR	8	S	1438.0	1439.0	1.0	180.0			QL=5 ST=2 TYP=5
	245	SVTO	4	S/F	1438.0	1439.0	6.0	260.0			QL=1 ST=3 TYP=5
	245	SVTO	4	S/F	1438.0	1439.0	6.0	24.0			QL=1 ST=3 TYP=3
	2800	OTTA	22	GRF	1719.5E	1719.5	120.0D	4.8			
	410	PALE	8	S	2005.0	2005.0	2.0	67.0			QL=5 ST=2 TYP=5
	245	PALE	4	S/F	2005.0	2005.0		96.0			QL=5 ST=2 TYP=5
	1000	TYKW	45	C	2156.0	2158.0	3.0	38.0	1.0		
	2000	TYKW	5	S	2203.0	2203.5	1.0	5.0	1.0		
	3750	TYKW	5	S	2203.0	2203.5	1.0	5.0	1.5		RAIN

SOLAR RADIO EMISSION--OUTSTANDING OCCURRENCES

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
04	204	IZMI	44	NS	0700.0E		300.0D	15.0			
	260	ONDR	44	NS	0755.0E	1259.0	345.0D	8.0			
	127	TORN	44	NS	0825.0E		395.0D		8.0		V=1
	200	HIRA	44	NS	2100.0E	2205.0	620.0D	28.0	5.0		MR
	410	LEAR	4	S/F	0007.0	0007.0		170.0			QL=5 ST=2 TYP=5
	410	PALE	8	S	0007.0	0007.0	1.0	170.0			QL=5 ST=2 TYP=5
	200	HIRA	42	SER	0117.8	0124.2	10.0	780.0			0
	1000	TYKW	45	C	0120.7	0121.0	0.7	8.0	1.0		
	500	HIRA	42	SER	0122.0	0137.5	21.5	28.0			ML
	500	HIRA	8	S	0124.0	0125.0	2.0	7.0			QL= ST= TYP=3
	200	HIRA	8	S	0124.0	0125.0	2.0	700.0			QL= ST= TYP=3
	410	LEAR	4	S/F	0124.0	0124.0		39.0			QL=5 ST=2 TYP=3
	245	LEAR	8	S	0124.0	0124.0	1.0	230.0			QL=5 ST=2 TYP=5
	410	PALE	8	S	0124.0	0124.0	1.0	37.0			QL=5 ST=2 TYP=5
	245	PALE	8	S	0124.0	0125.0	1.0	130.0			QL=5 ST=2 TYP=5
	2000	TYKW	45	C	0124.5	0125.1	1.5	10.0	0.5		
	1000	TYKW	45	C	0124.5	0124.9	1.5	6.0	1.0		
	1000	TYKW	45	C	0131.5	0137.1	13.0	14.0	1.5		
	610	LEAR	48	C	0136.0	0137.0	1.0	160.0			QL=5 ST=3 TYP=8
	610	PALE	8	S	0136.0	0137.0	2.0	140.0			QL=5 ST=2 TYP=5
	2000	TYKW	45	C	0136.5	0137.4	1.5	2.0	0.5		
	610	LEAR	8	S	0141.0	0141.0	2.0	38.0			QL=5 ST=2 TYP=3
	100	HIRA	46	C	0213.2	0213.9	4.0	6700.0	500.0		0
	3750	TYKW	5	S	0215.0	0215.7	3.0	3.0	0.7		
	1000	TYKW	45	C	0317.5	0322.2	5.5	12.0	1.0		
	500	HIRA	41	F	0317.5	0318.3	2.5	25.0			ML
	410	LEAR	8	S	0318.0	0319.0	2.0	21.0			QL=5 ST=3 TYP=3
	245	LEAR	4	S/F	0320.0	0320.0		42.0			QL=5 ST=3 TYP=3
	100	HIRA	46	C	0348.8	0349.5	2.8	850.0	120.0		0
	500	HIRA	42	SER	0351.0	0355.5	9.6	72.0			ML
	200	HIRA	42	SER	0354.7	0400.0	5.4	84.0			0
	3750	TYKW	20	GRF	0355.0	0415.0	65.0	2.0	1.0		RAIN
	1000	TYKW	45	C	0355.0	0355.8	1.5	33.0	2.0		
	610	LEAR	8	S	0355.0	0355.0	1.0	100.0			QL=5 ST=2 TYP=5
	1000	TYKW	45	C	0358.5	0359.9	2.5	73.0	6.0		
	2000	TYKW	45	C	0359.0	0359.9	2.0	26.0	1.0		
	3750	TYKW	20	GRF	0505.0	0535.0	75.0	2.0	1.0		
	100	HIRA	41	F	0533.1	0534.5	4.2	1000.0D			
	9100	GORK	20	GRF	0759.2	0804.1	24.2	8.0			
	2950	GORK	1	S	0803.4	0804.0	3.2	1.2	0.6		
	3000	POTS	20	GRF	0915.0	0949.4	180.0U	5.0			
	2950	GORK	20	GRF	0915.1	0942.4	83.0	2.9			
	9100	GORK	20	GRF	0920.7	0942.3	35.0	7.0			
	9500	POTS	20	GRF	0925.0	0942.0	120.0	8.0			
	1470	POTS	20	GRF	0926.5	0948.0	94.0	5.0			
	204	IZMI	5	S	0942.0	0942.2	0.8	60.0	4.0		
	536	ONDR	41	F	1248.0	1254.2	11.0	28.0			
	2800	OTTA	22	GRF	1345.0		90.0				
	2800	OTTA	22	GRF	1545.0		150.0				
	2800	OTTA	42	SER	1705.0	1713.5	10.0	11.0			
	9400	HUAN			1706.2	1713.1		25.6			
	9400	HUAN	4	S/F	1706.2	1707.3	8.9	24.4	12.7		
	9400	HUAN			1706.2	1710.5		18.3			
	9400	HUAN	29	PBI	1715.1	1715.1	35.9	12.2	3.5		
	245	PALE	4	S/F	1753.0	1756.0	3.0	140.0			QL=5 ST=2 TYP=5
	610	PALE	8	S	1756.0	1756.0	2.0	120.0			QL=5 ST=2 TYP=5
	100	HIRA	46	C	2232.3	2233.7	2.6	410.0	130.0		
	200	HIRA	41	F	2246.5	2250.6	5.9	63.0			MR
	2000	TYKW	45	C	2320.0	2324.4	10.0	7.0	1.5		
	3750	TYKW	45	C	2320.0	2323.8	7.0	11.0	4.0		
	100	HIRA	42	SER	2320.3	2332.1	39.0	715.0			WR
	200	HIRA	46	C	2320.3	2323.4	5.3	49.0	21.0		WR
	8800	PALE	4	S/F	2322.0	2323.0	13.0	26.0			QL=5 ST=2 TYP=3
	4995	LEAR	8	S	2323.0	2323.0	2.0	18.0			QL=1 ST=2 TYP=3
	8800	LEAR	4	S/F	2323.0	2323.0	8.0	19.0			QL=5 ST=2 TYP=3
	4995	PALE	8	S	2323.0	2323.0	1.0	23.0			QL=5 ST=2 TYP=3
	1000	TYKW	45	C	2323.5	2325.2	4.0	6.0	2.0		
	3750	TYKW	30	PBI	2327.0		90.0	2.0	1.0		
	15400	PALE	8	S	2329.0	2330.0	2.0	15.0			QL=5 ST=2 TYP=3
	15400	LEAR	8	S	2330.0	2331.0	2.0	16.0			QL=5 ST=2 TYP=3

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
05	9400	TYKW	21	GRF	2340.0E	2340.0U	20.0D	10.0	4.0D		
	3750	TYKW	45	C	2343.0	2346.3	6.0	3.0	1.0		
	9400	TYKW	5	S	2345.0	2346.0	4.0	3.0	1.0		
	127	TORN	44	NS	0640.0E		500.0D		10.0		V=1
	204	IZMI	43	NS	0700.0		80.0D	20.0			
	260	ONDR	44	NS	0750.0E	0804.0	360.0D	9.0			
	2000	TYKW	20	GRF	0000.0	0015.0	55.0	2.0	1.0		
	3750	TYKW	20	GRF	0007.0	0014.0	40.0	2.0	1.0		
	2000	TYKW	21	GRF	0110.0	0143.0	130.0	2.0	1.0		
	3750	TYKW	21	GRF	0120.0	0145.0	120.0	1.5	0.7		
	2000	TYKW	20	GRF	0152.0	0158.0	65.0	1.5	0.7		
	3750	TYKW	20	GRF	0152.0	0204.0	75.0	3.0	1.5		
	2000	TYKW	20	GRF	0330.0	0400.0	70.0	1.0	0.5		
	3750	TYKW	21	GRF	0335.0	0400.0	70.0	1.0	0.5		
	3750	TYKW	5	S	0423.0	0424.9	6.0	2.0	0.7		
	500	HIRA	6	S	0430.8	0432.2	2.5	3.0	1.0		0
	3750	TYKW	5	S	0431.0	0431.9	4.0	1.5	0.5		
	200	HIRA	46	C	0454.4	0455.8	5.9	28.0	7.0		WR
	100	HIRA	46	C	0454.5	0454.7	12.0	1000.0D	450.0D		ML
	9400	TYKW			0455.0	0502.0		20.0			
	4995	LEAR	4	S/F	0455.0	0456.0	8.0	110.0			QL=1 ST=2 TYP=5
	2000	TYKW	45	C	0455.5	0457.2	8.5	13.0	3.0		
	9400	TYKW	45	C	0455.5	0456.2	29.5	74.0	13.0		
	3750	TYKW	45	C	0455.5	0456.3	8.5	72.0	15.0		
	500	HIRA	45	C	0455.7	0457.6	5.0	3.0	1.0		0
	1000	TYKW	45	C	0456.0	0459.2	10.0	7.0	1.5		
	245	LEAR	46	C	0456.0	0458.0		25.0			QL=5 ST=1 TYP=8
	2695	LEAR	4	S/F	0456.0	0456.0		26.0			QL=5 ST=1 TYP=3
	15400	LEAR	48	C	0456.0	0505.0	12.0	84.0			QL=5 ST=2 TYP=8
	8800	LEAR	4	S/F	0456.0	0456.0	12.0D	74.0			QL=5 ST=2 TYP=5
	9100	GORK	4	S/F	0457.0E	0457.3U	6.7U	42.0			
	9100	GORK	29	PBI	0503.3	0503.3	38.7	16.0			
	3750	TYKW	30	PBI	0504.0		10.0	1.5	0.7		
	2000	TYKW	31	ABS	0504.0	0535.0	85.0	-1.0	-0.5		
	3750	TYKW	31	ABS	0514.0	0542.0	90.0	-1.5	-0.7		
	9400	TYKW	31	ABS	0525.0	0542.0	70.0	-4.0	-2.0		
	9400	TYKW	5	S	0614.5	0614.8	1.0	5.0	1.5		
	15400	LEAR	8	S	0743.0	0743.0	1.0	45.0			QL=5 ST=2 TYP=3
	536	ONDR	8	S	0942.2	0942.7	1.0	35.0			
	9300	KISV	1	S	0942.4	0943.0	1.5	4.0			
	9100	GORK	1	S	0942.5	0942.9	0.9	3.6	1.8		
	1470	POTS	20	GRF	0947.0	1056.5	133.0	7.0			
	2950	GORK	23	GRF	0949.8	1025.4	133.0	6.3			
	3000	POTS	21	GRF	0950.0	1013.5	130.0U	13.0			
	9500	POTS	20	GRF	0955.0	1019.5	70.0U	11.0			
	3100	CRIM	20	GRF	0956.0	1035.0		6.0			QL= ST= TYP=2
	3100	CRIM	21	GRF	0956.0	1035.0	124.0	6.0	2.0		
	3100	CRIM	1	S	1003.0	1005.2	4.0	6.0	2.0		
	9300	KISV	22	GRF	1003.5	1013.9	26.5	5.0			
	2950	GORK	4	S/F	1003.8	1005.1	5.5	5.9			
	9300	KISV	1	S	1004.8	1005.2	1.0	3.0			
	2950	GORK	4	S/F	1010.5	1013.2	5.2	5.6			
	3100	CRIM	1	S	1012.6	1013.8	3.0	5.0	2.0		
	810	KRAK	2	S/F	1012.8	1013.0	0.5	6.0	2.0		
	5900	KISV	1	S	1112.9	1113.8	3.0	3.0			
	5900	KISV	45	C	1114.7	1118.3	9.5	6.0			
	5900	KISV			1114.7	1119.8		5.0			
	9300	KISV	45	C	1116.4	1118.3	6.0	7.0			
	9300	KISV			1116.4	1119.8		7.0			
	33	UPIC	45	C	1117.0	1118.1	3.8				
	15000	KISV	45	C	1117.1	1118.3	4.5	1.0			
	9100	GORK	2	S/F	1117.1	1118.5	3.8	9.0			
	15000	KISV			1117.1	1119.9		1.0			
	204	IZMI	5	S	1117.2	1117.5	1.0	30.0	15.0		
	29	UPIC	45	C	1117.2	1120.6	4.0				
	650	GORK	1	S	1210.1	1210.4	0.4	3.0			
	950	GORK	1	S	1210.2	1210.3	0.3	0.7			
	100	HIRA	4	S/F	2128.0	2129.0	3.0	60.0			QL= ST= TYP=3
	500	HIRA	8	S	2129.0	2130.0	1.0	2000.0			QL= ST= TYP=3

SOLAR RADIO EMISSION--OUTSTANDING OCCURRENCES

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
05	9500	HIRA	8	S	2129.0	2129.0	1.0	4.0			QL= ST= TYP=3
	200	HIRA	42	SER	2323.8	2324.4	13.5	150.0			0
	100	HIRA	42	SER	2323.8	2340.5	26.4	2500.0			0
	1000	TYKW	45	C	2329.2	2329.3	0.5	10.0	3.0		
	3750	TYKW	45	C	2332.0	2336.0	6.0	16.0	5.0		
	500	HIRA	7	C	2332.7	2333.2	4.5	2.0			0
	2000	TYKW	45	C	2333.0	2336.3	7.0	7.0	2.0		
	1000	TYKW	45	C	2333.0	2336.7	7.0	6.0	1.5		
	9400	TYKW			2334.0	2343.0		6.0			
	9400	TYKW	45	C	2334.0	2336.0	25.0	25.0	5.0		
	4995	LEAR	8	S	2334.0	2335.0	2.0	24.0			QL=1 ST=2 TYP=3
	8800	PALE	8	S	2334.0	2336.0	2.0	29.0			QL=5 ST=2 TYP=3
	245	LEAR	8	S	2335.0	2335.0	1.0	19.0			QL=5 ST=2 TYP=3
	4995	PALE	8	S	2335.0	2335.0	1.0	22.0			QL=5 ST=2 TYP=3
	8800	LEAR	4	S/F	2336.0	2336.0	12.0	12.0			QL=5 ST=2 TYP=3
	3750	TYKW	29	PBI	2338.0		15.0	1.0	0.5		
06	260	ONDR	44	NS	0750.0E	1042.4	340.0D	3.0			
	3750	TYKW	20	GRF	0025.0	0110.0	155.0	2.0	1.0		
	9400	TYKW	5	S	0320.3	0320.7	1.0	4.0	1.0		
	3750	TYKW	5	S	0531.0	0532.6	10.0	3.0	1.0		
	3100	CRIM	20	GRF	0736.0	0748.7	64.0	3.0	2.0		
	2950	GORK	20	GRF	0737.2	0750.4	112.0	4.7			
	9100	GORK	20	GRF	0739.8	0816.4	135.0	6.6			
	950	GORK	21	GRF	0742.7	0749.0	10.2	1.4			
	950	GORK	1	S	0744.4	0745.0	1.3	3.4			
	950	GORK	1	S	0750.6	0751.0	0.7	5.5			
	536	ONDR	42	SER	0917.0	0930.0U	253.0				
	9400	HUAN	20	GRF	1255.2	1307.8	39.8	6.4	2.8		
	245	SVTO	4	S/F	1358.0	1358.0	6.0	79.0			QL=1 ST=2 TYP=5
	2800	OTTA	20	GRF	1950.0	2050.0	170.0D	8.8	5.2		
07	260	ONDR	42	SER	0920.0	1403.4	284.0D	3.0			
	536	ONDR	42	SER	0925.0		245.0D				
	1470	POTS	1	S	1238.4	1238.4	1.1	4.0			
	29	UPIC	2	S/F	1311.0	1311.2	0.7				
	33	UPIC	2	S/F	1311.2	1311.2	0.3				
	1415	SYDN	4	S/F	1948.0	1955.0	41.0	26.0			QL= ST= TYP=5
	2800	OTTA	42	SER	1948.5	1955.0	45.5D	52.0	17.0		
	2695	PALE	4	S/F	1953.0	1955.0	34.0	52.0			QL=5 ST=2 TYP=5
	1415	PALE	4	S/F	1954.0	1954.0	3.0	17.0			QL=5 ST=2 TYP=3
	4995	PALE	4	S/F	1954.0	1957.0	10.0	28.0			QL=5 ST=2 TYP=3
	2800	OTTA	30	PBI	2033.0	2033.0	90.0D				
	2000	TYKW	20	GRF	2200.0U	2300.0	210.0U	4.0	2.0		
	3750	TYKW	20	GRF	2200.0U	2300.0	210.0U	4.0	2.0		
08	204	IZMI	5	S	1035.2	1035.5	0.8	135.0			
	204	IZMI	4	S/F	1041.5	1041.6	0.4	48.0	38.0		
	260	ONDR	42	SER	1103.7	1230.7	152.3	4.0			
09	15400	LEAR	8	S	0209.0	0209.0	1.0	20.0			QL=5 ST=2 TYP=3
	3750	TYKW	5	S	0519.0	0520.3	2.0	3.0	1.0		
	2000	TYKW	45	C	0519.0	0519.7	3.0	3.0	1.0		
	1000	TYKW	45	C	0519.0	0519.7	3.0	40.0	1.0		
	500	HIRA	6	S	0519.5	0519.7	2.0	18.0	8.0		WL
	3750	TYKW	29	PBI	0521.0		20.0	1.0	0.5		
	260	ONDR	8	S	0953.6	0953.6	0.1	1.0			
	260	ONDR	6	S	1113.4	1113.7	1.2	6.0			
	260	ONDR	41	F	1217.6	1223.7	6.7	1.0			
	260	ONDR	7	C	1251.5	1253.3	7.2	1.0			
10	204	IZMI	5	S	0907.0	0907.2	0.8	65.0	55.0		
	536	ONDR	8	S	0946.8	0947.0	0.3	6.0			
	260	ONDR	8	S	0947.2	0947.2	0.1	1.0			
	260	ONDR	8	S	1110.9	1110.9	0.1	2.0			
	260	ONDR	40	F	1152.4	1203.8	170.0U	1.0			
	1470	POTS	8	S	1251.3	1251.5	0.7	4.0			
11	260	ONDR	44	NS	0800.0E	1036.3	350.0D	5.0			
	245	LEAR	8	S	0627.0	0627.0	1.0	350.0			QL=5 ST=2 TYP=5

SOLAR RADIO EMISSION--OUTSTANDING OCCURRENCES

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
11	410	LEAR	8	S	0627.0	0628.0	1.0	26.0			QL=5 ST=2 TYP=3
	245	SVTO	8	S	0627.0	0627.0	1.0	460.0			QL=1 ST=2 TYP=5
	410	SVTO	8	S	0627.0	0628.0	1.0	35.0			QL=1 ST=2 TYP=3
	245	LEAR	8	S	0732.0	0732.0	1.0	51.0			QL=5 ST=2 TYP=5
	950	GORK	2	S/F	0844.8	0845.0	0.7	11.0			
	650	GORK	4	S/F	0844.8	0845.2	0.6	23.0			
	204	IZMI	41	F	0903.0	0903.1	1.0	67.0			
	650	GORK	4	S/F	0934.3	0934.7	0.6	27.0			
	950	GORK	2	S/F	0934.3	0934.7	0.7	11.0			
	536	ONDR	42	SER	1024.5	1027.1	5.8	6.0			
	33	UPIC	2	S/F	1040.5	1040.6	0.3				
	29	UPIC	2	S/F	1040.7	1040.9	0.6				
12	950	GORK	2	S/F	0657.1	0657.3	0.3	10.0			
	650	GORK	4	S/F	0657.1	0657.4	0.7	8.0			
	650	GORK	6	S	0738.0	0739.8	3.7	3.3			
	950	GORK	6	S	0739.0	0740.2	2.8	1.0			
	950	GORK			0739.0	0741.4		1.0			
	2950	GORK	1	S	0740.8	0741.1	0.8	1.6	0.8		
	9100	GORK	1	S	0740.9	0741.3	0.7	6.9	3.4		
	260	ONDR	42	SER	0920.0E	1116.3	252.0D	4.0			
13	245	SVTO	43	NS	0554.0	0557.0	351.0D	20.0			QL=3 ST=2 TYP=1
	410	SVTO	43	NS	0554.0	1016.0	351.0D	14.0			QL=3 ST=2 TYP=1
	9400	TYKW	5	S	0031.0	0032.3	2.0	18.0	5.0		
	3750	TYKW	5	S	0032.0	0032.4	1.0	1.0	0.3		
	8800	LEAR	4	S/F	0032.0	0032.0	12.0	17.0			QL=5 ST=3 TYP=3
	9400	TYKW	30	PBI	0033.0		17.0	4.0	2.0		
	9400	TYKW	5	S	0043.4	0043.6	0.5	8.0	2.0		
	3750	TYKW	21	GRF	0139.0	0147.0	55.0	1.0	0.5		
	9400	TYKW	20	GRF	0154.0	0157.1	30.0	7.0	2.5		
	3750	TYKW	45	C	0155.0	0158.0	6.0	2.0	1.0		
	3750	TYKW	29	PBI	0201.0		15.0	1.0	0.5		
	204	IZMI	41	F	0851.0	0856.5	6.5	103.0			
	260	ONDR	42	SER	0936.6	0936.7	3.5	2.0			
	204	IZMI	5	S	1106.5	1107.0	1.0	23.0	15.0		
	260	ONDR			1147.0	1156.9	11.7	10.0			
	430	KRAK	8	S	1155.7	1156.5	1.0	28.0			
	260	ONDR			1203.8	1206.4	16.4	2.0			
	260	ONDR	8	S	1229.5	1229.5	0.4	2.0			
	2800	OTTA	20	GRF	1851.0	1908.0	80.0	6.3			
14	245	SGMR	44	NS	1352.0E	1357.0	608.0D	68.0			QL=5 ST=1 TYP=1
	15400	LEAR	8	S	0239.0E	0239.0	1.0D	98.0			QL=5 ST=2 TYP=5
	204	IZMI	5	S	0807.8	0807.8	0.2	22.0	18.0		
	204	IZMI	5	S	0821.8	0821.8	0.2	18.0	18.0		
	260	ONDR	8	S	0934.3	0934.6	0.7	10.0			
	260	ONDR	7	C	1017.7	1017.8	2.1	4.0			
	260	ONDR	8	S	1047.3	1047.3	0.3	1.0			
	260	ONDR	8	S	1056.0	1056.0	0.2	2.0			
	204	IZMI	4	S/F	1101.8	1101.9	0.3	135.0	120.0		
	260	ONDR	42	SER	1308.6	1308.8	9.6	11.0			
15	260	ONDR	44	NS	0925.0E	1304.0	235.0D	10.0			
	8800	SVTO	8	S	1037.0	1037.0	1.0	350.0			QL=1 ST=2 TYP=5
	204	IZMI	5	S	1106.6	1106.8	0.5	9.0	5.0		
	33	UPIC	45	C	1106.7	1106.8	1.3				
	29	UPIC	45	C	1106.7	1106.9	1.7				
	9400	TYKW	5	S	2244.0	2244.5	2.0	8.0	2.0		
	3750	TYKW	21	GRF	2310.0	2341.0	125.0	1.5	0.7		
16	200	GORK	44	NS	0503.0E		419.0D		5.0		
	260	ONDR	44	NS	0927.0E	1212.4	242.0D	4.0			
	3750	TYKW	45	C	0025.0	0030.6	15.0	8.0	1.5		
	9400	TYKW	45	C	0028.0	0030.8	12.0	19.0	5.0		
	4995	LEAR	8	S	0030.0	0030.0	2.0	13.0			QL=1 ST=2 TYP=3
	8800	LEAR	8	S	0030.0	0030.0	1.0	22.0			QL=5 ST=2 TYP=3
	9400	TYKW	29	PBI	0040.0		15.0	4.0	2.0		
	3750	TYKW	29	PBI	0040.0		15.0	1.5	0.7		
	9400	TYKW	5	S	0524.0	0527.0	7.0	4.0	1.5		

SOLAR RADIO EMISSION--OUTSTANDING OCCURRENCES

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
16	1470	POTS	4	S/F	0904.0	0904.1	1.0	10.0			
	204	IZMI	5	S	1037.0	1037.2	0.3	7.0	4.0		
17	100	GORK	44	NS	0548.0E		373.0D		10.0		
	200	GORK	44	NS	0551.0E		371.0D		5.0		
	127	TORN	44	NS	0640.0E		350.0D		1.0		V=1
	33	UPIC	43	NS	0805.8	0806.0	414.2D				
	29	UPIC	43	NS	0806.0	0806.4	414.0D				
17	260	ONDR	44	NS	0930.0E	1027.9	240.0D	7.0			
	245	LEAR	4	S/F	0354.0	0359.0	6.0	48.0			QL=3 ST=3 TYP=3
	204	IZMI	8	S	0806.0	0806.1	0.4	36.0	3.0		
	204	IZMI	5	S	1019.5	1019.6	0.5	20.0	18.0		
	204	IZMI	5	S	1120.0	1120.2	0.3	20.0	18.0		
18	100	GORK	44	NS	0548.0E		375.0D		5.0		
	200	GORK	44	NS	0553.0E		430.0D		5.0		
	127	TORN	44	NS	0640.0E		470.0D		2.0		V=2
	33	UPIC	43	NS	0738.0		413.0				
	29	UPIC	43	NS	0738.5	1208.0	412.5				
	3750	TYKW	5	S	0050.8	0051.2	1.0	3.0	1.0		
	200	HIRA	4	S/F	0127.0	0128.0	3.0	51.0			QL= ST= TYP=3
	4995	SYDN	8	S	0127.0	0128.0	2.0	15.0			QL= ST= TYP=3
	200	HIRA	42	SER	0127.0	0315.8	113.0	5000.0			0
	100	HIRA	42	SER	0127.3	0316.0	112.0	8000.0D			
	2000	TYKW	5	S	0127.5	0128.2	2.5	1.0	0.3		
	1000	TYKW	5	S	0127.5	0128.3	2.5	1.0	0.3		
	3750	TYKW	5	S	0127.5	0128.3	2.5	9.0	3.0		
	9400	TYKW	5	S	0128.0	0128.2	1.0	8.0	2.0		RAIN
	2000	TYKW	5	S	0156.0	0157.0	3.0	2.0	0.5		
	1000	TYKW	5	S	0156.0	0157.1	3.0	2.0	0.5		
	3750	TYKW	5	S	0156.0	0156.8	3.0	7.0	2.5		
	9400	TYKW	5	S	0156.0	0156.8	3.0	5.0	1.5		
	500	HIRA	6	S	0156.0	0156.5	2.0	1.0			
	8800	LEAR	4	S/F	0235.0	0235.0		26.0			QL=5 ST=2 TYP=3
	245	LEAR	4	S/F	0235.0	0235.0	6.0	180.0			QL=3 ST=3 TYP=5
	15400	LEAR	8	S	0235.0	0235.0	1.0	18.0			QL=5 ST=2 TYP=3
	1000	TYKW	5	S	0235.5	0236.0	2.5	1.5	0.5		
	3750	TYKW	5	S	0235.5	0235.7	1.5	3.0	1.0		
	9400	TYKW	5	S	0235.5	0235.8	1.5	17.0	5.0		
	2000	TYKW	5	S	0235.5	0235.8	1.0	7.0	2.0		
	245	LEAR	4	S/F	0248.0	0250.0	8.0	56.0			QL=5 ST=2 TYP=5
	245	LEAR	8	S	0250.0	0250.0	2.0	56.0			QL=3 ST=3 TYP=5
	500	HIRA	46	C	0315.8	0318.0	6.2	48.0	8.0		ML
	3750	TYKW	45	C	0316.0	0318.3	6.0	19.0	2.5		
	1000	TYKW	45	C	0316.0	0318.3	7.0	24.0	5.0		
	2000	TYKW	45	C	0316.0	0318.3	6.0	14.0	3.0		
	9400	TYKW	45	C	0316.0	0318.4	7.0	27.0	4.0		
	8800	LEAR	4	S/F	0316.0	0318.0	5.0	34.0			QL=5 ST=2 TYP=5
	1415	LEAR	8	S	0316.0	0318.0	2.0	22.0			QL=1 ST=2 TYP=3
	245	LEAR	48	C	0316.0	0316.0	5.0	1300.0			QL=3 ST=2 TYP=8
	245	PALE	49	GB	0316.0E	0316.0	5.0D	780.0			QL=5 ST=2 TYP=6
	610	LEAR	4	S/F	0317.0	0318.0	3.0	33.0			QL=5 ST=2 TYP=3
	410	LEAR	48	C	0318.0	0320.0	2.0	64.0			QL=5 ST=2 TYP=8
	410	PALE	8	S	0318.0	0320.0	2.0	41.0			QL=5 ST=2 TYP=3
	1415	PALE	4	S/F	0318.0	0318.0		19.0			QL=5 ST=2 TYP=3
	950	GORK	1	S	0731.2	0732.0	1.0		3.7		
	650	GORK	1	S	0731.3	0731.8	1.3		1.6		
	260	ONDR	42	SER	0930.0	1208.0U	240.0				
	204	IZMI	41	F	0959.0	1000.2	5.0	49.0			
	204	IZMI	5	S	1011.3	1011.4	0.2	15.0	13.0		
	536	ONDR	42	SER	1029.8	1207.6	97.8U	13.0			
	3100	CRIM	1	S	1055.2	1057.2	3.0	2.0	1.0		
	9100	GORK	20	GRF	1130.4	1135.4	10.3		4.2		
	204	IZMI	41	F	1137.0	1146.0	11.0	33.0			
	3100	CRIM	1	S	1137.7	1138.8	3.0	2.0	1.0		
	100	GORK	4	S/F	1137.8	1138.2	0.8	4200.0			
	5900	KISV	2	S/F	1137.8	1138.6	3.0	5.0			
	200	GORK	4	S/F	1138.0	1139.0	1.5		25.0		
	2950	GORK	2	S/F	1138.2	1138.7	1.0	1.7	0.7		
	650	GORK			1138.4	1140.1			8.0		

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
18	650	GORK	46	C	1138.4	1138.9	2.6		9.6		
	950	GORK	2	S/F	1138.5	1139.0	2.3		3.0		
	3000	POTS	1	S	1138.5	1138.7	1.0	2.0			
	1470	POTS	8	S	1138.7	1139.0	0.8	7.0			
	1470	POTS	40	F	1159.0	1206.5	11.0	5.0			
	204	IZMI	4	S/F	1159.4	1159.6	0.5	136.0	120.0		
	810	KRAK	41	F	1159.5	1208.0	10.5	38.0	2.0		
	234	POTS	42	SER	1200.0	1207.6	10.0	660.0			
	3000	POTS	40	F	1205.0	1208.0	5.0	4.0			
	30	POTS	42	SER	1206.7	1207.6	17.0	16000.0			
	245	SVTO	8	S	1207.0	1207.0	2.0	320.0			QL=3 ST=2 TYP=5
	3100	CRIM	1	S	1207.3	1208.0	2.0	2.0	1.0		
	9400	HUAN	20	GRF	1248.0	1302.0	21.4	4.8	1.2		
	1470	POTS	1	S	1252.0	1253.0	2.0	3.0			
	3000	POTS	1	S	1252.0	1253.0	2.5	6.0			
	234	POTS	42	SER	1324.8	1330.5	7.2	2100.0			
	30	POTS	41	F	1325.1	1329.0	8.4	12000.0			
	245	SVTO	49	GB	1330.0	1330.0	1.0	960.0			QL=1 ST=3 TYP=7
	410	SVTO	8	S	1330.0	1330.0	1.0	45.0			QL=1 ST=3 TYP=3
	3000	POTS	1	S	1330.5	1331.0	2.5	5.0			
	1470	POTS	1	S	1330.5	1331.2	1.5	3.0			
	810	KRAK	1	S	1330.8	1331.5	1.0	3.0	2.0		
	9400	HUAN	1	S	1343.7	1345.7	3.6	3.6	1.8		
	245	SGMR	8	S	1541.0	1542.0	1.0	120.0			QL=5 ST=2 TYP=5
	2800	OTTA	1	S	1606.0	1607.0	6.5	6.5	1.3		
	9400	HUAN	4	S/F	1631.2	1633.2	8.4	5.4	2.7		
	9400	HUAN			1631.2	1634.6		6.0			
	9400	HUAN			1631.2	1638.9		4.2			
	245	SGMR	4	S/F	1727.0	1729.0	3.0	250.0			QL=5 ST=3 TYP=5
	410	SGMR	4	S/F	1727.0	1729.0	3.0	130.0			QL=1 ST=3 TYP=5
	245	PALE	8	S	1729.0	1729.0	1.0	230.0			QL=5 ST=2 TYP=5
	410	PALE	8	S	1729.0	1729.0	1.0	140.0			QL=5 ST=2 TYP=5
	610	PALE	8	S	1729.0	1729.0	1.0	28.0			QL=1 ST=2 TYP=3
	3750	TYKW	21	GRF	2234.0	2241.0	75.0	1.5	0.7		
	3750	TYKW	45	C	2331.5	2332.2	1.5	3.0	0.7		
	245	LEAR	8	S	2332.0	2332.0	1.0	84.0			QL=3 ST=2 TYP=5
	245	PALE	8	S	2332.0	2332.0	1.0	67.0			QL=5 ST=3 TYP=5
	3750	TYKW	20	GRF	2343.0	2350.0	90.0	2.0	1.0		
19	127	TORN	43	NS	0730.0		376.0		2.0		V=2
	260	ONDR	44	NS	0929.0E	1049.0	201.0D	9.0			
	245	SVTO	44	NS	1030.0E	1040.0	810.0D	20.0			QL=5 ST=1 TYP=1
	410	SVTO	44	NS	1030.0E	1047.0	810.0D	15.0			QL=5 ST=1 TYP=1
	100	HIRA	42	SER	0107.1	0133.0	28.0	1000.0D			
	200	HIRA	41	F	0107.3	0114.4	9.2	150.0D			0
	9400	TYKW	5	S	0110.0	0113.0	9.0	2.0	1.0		
	245	LEAR	48	C	0111.0	0111.0	3.0	820.0			QL=3 ST=2 TYP=8
	610	LEAR	8	S	0111.0	0111.0	1.0	50.0			QL=5 ST=2 TYP=5
	245	LEAR	8	S	0113.0	0114.0	1.0	120.0			QL=3 ST=2 TYP=5
	3750	TYKW	21	GRF	0130.0	0200.0	130.0	2.0	1.0		
	200	HIRA	8	S	0132.3	0132.5	0.6	910.0			
	245	PALE	8	S	0133.0	0133.0	1.0	340.0			QL=5 ST=2 TYP=5
	245	LEAR	49	GB	0134.0E	0134.0		710.0			QL=3 ST=2 TYP=6
	2000	TYKW	20	GRF	0145.0	0156.0	120.0	2.0	1.0		
	100	HIRA	42	SER	0217.0	0217.2	4.0	6300.0			WL
	245	PALE	49	GB	0219.0E	0219.0	1.0D	10000.0			QL=5 ST=2 TYP=6
	1000	TYKW	5	S	0219.8	0220.1	1.0	3.0	1.0		
	245	LEAR	49	GB	0220.0E	0220.0	1.0D	1700.0			QL=3 ST=2 TYP=6
	3750	TYKW	20	GRF	0230.0	0241.0	65.0	1.5	0.7		
	3750	TYKW	28	PRE	0357.0	0412.0	15.0	1.0	0.5		
	2000	TYKW	5	S	0412.0	0414.3	8.0	26.0	8.0		
	3750	TYKW	5	S	0412.0	0414.4	8.0	27.0	10.0		
	9400	TYKW	5	S	0412.0	0414.4	4.0	10.0	4.0		
	1000	TYKW	45	C	0412.0	0414.6	6.0	5.0	2.0		
	9400	TYKW	29	PBI	0416.0		50.0	4.0	2.0		
	2000	TYKW	29	PBI	0420.0		30.0	1.5	0.7		
	3750	TYKW	29	PBI	0420.0		40.0	4.0	2.0		
	5900	KISV	21	GRF	0554.0	0559.3	24.5	8.0			
	9100	GORK	1	S	0558.4	0559.2	4.0	3.5			
	2950	GORK	21	GRF	0730.0	0814.0	138.0	7.4			

SOLAR RADIO EMISSION--OUTSTANDING OCCURRENCES

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
19	9100	GORK	21	GRF	0730.0	0749.0	160.0	16.0			
	3000	POTS	45	C	0737.0U	0742.3	113.0U	275.0			
	1470	POTS	46	C	0738.0	0740.3	142.0	990.0			
	9300	KISV	28	PRE	0738.2	0741.4	3.2	7.0			
	950	GORK	46	C	0738.6	0756.0		113.0			
	950	GORK	46	C	0738.6	0742.7	24.4	70.0			
	5900	KISV	4	S/F	0738.7	0743.3	6.0	165.0			
	2950	GORK	4	S/F	0739.0	0743.2	4.2	91.0			
	3100	CRIM	3	S	0739.0	0743.2	12.0	72.0	24.0		
	15000	KISV	20	GRF	0739.1	0752.4	26.0	10.0			
19	1415	SVTO	49	GB	0740.0E	0740.0	7.0D	870.0			QL=5 ST=2 TYP=6
	1415	LEAR	48	C	0740.0E	0741.0	15.0D	850.0			QL=1 ST=3 TYP=8
	650	GORK	23	GRF	0740.3	0750.4	22.0	6.0			
	9500	POTS	45	C	0741.0	0742.0	2.5	100.0			
	9100	GORK	4	S/F	0742.0	0743.0	5.0	137.0			
	4995	LEAR	4	S/F	0742.0	0744.0	5.0	130.0			QL=1 ST=3 TYP=5
	8800	SVTO	8	S	0742.0	0743.0	2.0	130.0			QL=5 ST=2 TYP=5
	2695	SVTO	4	S/F	0742.0	0743.0	3.0	110.0			QL=5 ST=2 TYP=5
	4995	SVTO	4	S/F	0742.0	0743.0	3.0	140.0			QL=5 ST=2 TYP=5
	15400	SVTO	4	S/F	0742.0	0743.0	7.0	120.0			QL=5 ST=2 TYP=5
	2695	LEAR	4	S/F	0742.0	0743.0	10.0	110.0			QL=5 ST=3 TYP=5
	9300	KISV	4	S/F	0742.0	0743.1	7.0	168.0			
	3013	IZMI	5	S	0742.0	0743.2	6.0	81.0	75.0		
	15000	KISV	4	S/F	0742.3	0743.1	5.0	75.0			
	650	GORK			0742.8	0747.1		5.6			
	650	GORK	46	C	0742.8	0744.4	5.1	21.0			
	8800	LEAR	8	S	0743.0	0743.0	2.0	130.0			QL=5 ST=3 TYP=5
	15400	LEAR	8	S	0743.0	0743.0	1.0	73.0			QL=5 ST=3 TYP=5
	204	IZMI	41	F	0743.0	0748.0	15.0	40.0			
	610	LEAR	8	S	0744.0	0744.0	1.0	16.0			QL=5 ST=3 TYP=3
	5900	KISV	29	PBI	0744.7	0744.9	73.0	32.0			
	9300	KISV	29	PBI	0746.1	0746.1	74.5	19.0			
	245	LEAR	4	S/F	0748.0	0748.0		21.0			QL=3 ST=2 TYP=3
	1415	LEAR	4	S/F	0756.0	0756.0		13.0			QL=1 ST=2 TYP=3
	810	KRAK	45	C	0759.0E	0800.5U	7.5D	37.0U	16.0		
	650	GORK	4	S/F	0802.2	0803.4	1.7	7.0			
	950	GORK	30	PBI	0803.0	0803.0	24.0	30.0			
	950	GORK	1	S	0813.2	0813.4	0.6	3.0			
	5900	KISV	4	S/F	0901.0	0903.0	3.0	26.0			QL= ST= TYP=5
	5900	KISV	45	C	0901.3	0903.4	3.0	26.0			
	5900	KISV			0901.3	0902.4		14.0			
	9300	KISV			0901.8	0902.3		11.0			
	9300	KISV	45	C	0901.8	0903.3	2.0	16.0			
	9300	KISV	29	PBI	0903.8	0903.8	7.0	6.0			
	5900	KISV	29	PBI	0904.3	0904.3	35.0	11.0			
	204	IZMI	5	S	0934.0	0934.1	0.2	8.0	7.0		
	5900	KISV	21	GRF	1051.7	1106.3	18.0	3.0			
	204	IZMI	42	SER	1112.5	1114.5	5.0	16.0			
	5900	KISV	1	S	1114.2	1115.7	7.0	3.0			
	2800	OTTA	22	GRF	1440.0	1505.0	70.0	4.3			
	2800	OTTA	1	S	1738.3	1739.1	3.5	4.3	1.3		
	3750	TYKW	45	C	2253.0	2254.3	4.0	3.0	1.0		
	3750	TYKW	20	GRF	2351.0	0008.0	40.0	2.0	1.0		
20	200	GORK	44	NS	0600.0E		360.0D		5.0		
	127	TORN	44	NS	0650.0E		456.0D		1.0		V=1
	260	ONDR	44	NS	0930.0E	1211.3	242.0D	10.0			
	3750	TYKW	28	PRE	0038.0	0048.0	10.0	1.5	0.7		
	9400	TYKW	5	S	0046.0	0052.0	20.0	3.0	1.5		
	3750	TYKW	45	C	0048.0	0051.6	12.0	6.0	3.0		
	3750	TYKW	29	PBI	0100.0		15.0	2.0	1.0		
	3750	TYKW	21	GRF	0128.0	0210.0	125.0	3.0	1.5		
	3750	TYKW	45	C	0130.0	0133.4	5.0	3.0	1.5		
	3750	TYKW	29	PBI	0135.0		15.0	1.0	0.5		
	3750	TYKW	45	C	0156.0	0157.5	6.0	3.0	1.5		
	3750	TYKW	5	S	0234.0	0234.7	3.0	1.5	0.5		
	3750	TYKW	21	GRF	0250.0	0305.0	40.0	2.0	1.0		
	2000	TYKW	20	GRF	0250.0	0303.0	40.0	1.5	0.7		
	3750	TYKW	5	S	0310.0	0311.7	4.0	6.0	2.0		
	3750	TYKW	29	PBI	0314.0		15.0	2.0	1.0		

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
20	3750	TYKW	28	PRE	0350.0	0410.0	20.0	2.0	1.0		
	1000	TYKW	28	PRE	0400.0	0410.0	10.0	1.0	0.5		
	2000	TYKW			0408.0	0434.4		24.0			
	2000	TYKW	45	C	0408.0	0417.8	52.0	44.0	10.0		
	9400	TYKW			0408.0	0434.8		23.0			
	9400	TYKW			0410.0	0418.0		26.0			
	1000	TYKW			0410.0	0431.0		23.0			
	1000	TYKW	45	C	0410.0	0422.0	30.0	39.0	8.0		
	3750	TYKW			0410.0	0434.6		33.0			
	3750	TYKW	45	C	0410.0	0417.8	50.0	61.0	18.0		
	9400	TYKW	45	C	0410.0	0429.9	50.0	28.0	16.0		
	2000	TYKW			0410.0	0449.6		12.0			
	500	HIRA	46	C	0410.4	0417.0	34.0	33.0	5.0		WL
	200	HIRA			0411.9	0421.8		140.0			0
	200	HIRA	46	C	0411.9	0414.9	31.0	150.0	21.0		0
	4995	LEAR	48	C	0412.0	0424.0		140.0			QL=1 ST=1 TYP=8
	2695	LEAR	48	C	0412.0	0417.0		69.0			QL=5 ST=1 TYP=8
	410	LEAR	4	S/F	0413.0	0413.0		12.0			QL=3 ST=2 TYP=3
	245	LEAR	48	C	0414.0	0420.0	17.0	71.0			QL=3 ST=2 TYP=8
	100	HIRA	6	S	0414.4	0414.6	1.2	75.0	32.0		
	1415	LEAR	4	S/F	0416.0	0422.0	8.0	20.0			QL=1 ST=2 TYP=3
	610	LEAR	8	S	0416.0	0417.0	1.0	15.0			QL=5 ST=2 TYP=3
	8800	LEAR	4	S/F	0416.0	0418.0	26.0	31.0			QL=5 ST=2 TYP=3
	15400	LEAR	48	C	0416.0	0423.0	26.0	220.0			QL=5 ST=2 TYP=8
	100	HIRA	46	C	0417.8	0418.0	41.0	4800.0D	120.0		WL
	1000	TYKW	30	PBI	0440.0		50.0	1.0	0.5		
	1000	TYKW	45	C	0448.8	0449.5	1.5	3.0	0.7		
	9400	TYKW	29	PBI	0500.0		40.0	10.0	5.0		
	3750	TYKW	29	PBI	0500.0		70.0	10.0	5.0		
	2000	TYKW	29	PBI	0500.0		70.0	4.0	1.5		
	2950	GORK	1	S	0703.0	0703.4	1.8	1.5	0.7		
	2950	GORK	20	GRF	0736.5	0933.8	201.0	6.9			
	9100	GORK	22	GRF	0739.5	0908.1	248.0	9.4			
	5900	KISV	22	GRF	0807.3	0810.9	20.5	5.0			
	5900	KISV	2	S/F	1012.5	1013.8	3.5	3.0			
	204	IZMI	5	S	1056.5	1056.6	0.5	31.0	28.0		
	5900	KISV	2	S/F	1128.7	1131.5	7.5	4.0			
	200	GORK	4	S/F	1157.1	1157.4	0.7	50.0			
	950	GORK	1	S	1157.2	1157.4	0.5	72.0			
	100	GORK	4	S/F	1157.2	1157.5	0.7	45.0			
	127	TORN	45	C	1422.4	1424.6	3.6	65.0	20.0		
	500	HIRA	46	C	2325.3	2333.5	20.0	67.0	13.0		WL
	2000	TYKW	45	C	2328.0	2339.2	25.0	30.0	9.0		
	9400	TYKW	45	C	2328.0	2339.2	30.0	26.0	15.0		
	1000	TYKW	45	C	2328.0	2332.3	25.0	114.0	15.0		
	3750	TYKW	45	C	2328.0	2338.8	25.0	40.0	15.0		
	200	HIRA	8	S	2328.3	2328.4	0.6	105.0			0
	245	LEAR	4	S/F	2329.0	2329.0	32.0	150.0			QL=3 ST=2 TYP=5
	4995	PALE	20	GRF	2330.0	2338.0	13.0	42.0			QL=5 ST=2 TYP=2
	2695	LEAR	4	S/F	2330.0	2334.0	30.0	33.0			QL=5 ST=1 TYP=3
	610	PALE	4	S/F	2330.0	2333.0	30.0	95.0			QL=5 ST=1 TYP=5
	1415	PALE	4	S/F	2330.0	2331.0	30.0	63.0			QL=5 ST=1 TYP=5
	2695	PALE	4	S/F	2330.0	2333.0	30.0	38.0			QL=5 ST=1 TYP=3
	200	HIRA	46	C	2330.6	2337.9	40.0	26.0	4.0		WL
	610	LEAR	4	S/F	2331.0	2334.0	8.0	100.0			QL=5 ST=2 TYP=5
	1415	LEAR	4	S/F	2331.0	2332.0	9.0	65.0			QL=1 ST=2 TYP=5
	8800	PALE	8	S	2331.0	2331.0	2.0	16.0			QL=5 ST=2 TYP=3
	2695	LEAR	4	S/F	2331.0	2339.0	23.0	49.0			QL=5 ST=2 TYP=3
	4995	LEAR	4	S/F	2331.0	2334.0	29.0	30.0			QL=1 ST=1 TYP=3
	8800	LEAR	4	S/F	2331.0	2348.0	20.0	32.0			QL=5 ST=2 TYP=3
	410	LEAR	48	C	2332.0	2339.0	7.0	85.0			QL=3 ST=2 TYP=8
	4995	LEAR	4	S/F	2332.0	2338.0	8.0	33.0			QL=1 ST=2 TYP=3
	245	PALE	4	S/F	2333.0	2335.0	27.0	58.0			QL=5 ST=1 TYP=5
	410	PALE	4	S/F	2333.0	2333.0	27.0	40.0			QL=5 ST=1 TYP=3
	100	HIRA	46	C	2340.4	2344.6	7.3	125.0	46.0		
	1000	TYKW	30	PBI	2353.0		40.0	1.0	0.5		
	2000	TYKW	30	PBI	2353.0		67.0	4.0	2.0		
	3750	TYKW	30	PBI	2353.0		67.0	10.0	5.0		
	9400	TYKW	30	PBI	2358.0		62.0	14.0	7.0		

SOLAR RADIO EMISSION--OUTSTANDING OCCURRENCES

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
21	200	GORK	43	NS	0557.0		141.0D		5.0		
	127	TORN	44	NS	0700.0E		450.0D		1.0		V=1
	245	SGMR	43	NS	1832.0	2022.0	141.0D	320.0			QL=5 ST=2 TYP=1
	410	PALE	8	S	0004.0	0005.0	2.0	21.0			QL=5 ST=3 TYP=3
	245	PALE	8	S	0004.0	0005.0	2.0	45.0			QL=5 ST=3 TYP=3
	4995	PALE	4	S/F	0004.0	0005.0	3.0	38.0			QL=5 ST=3 TYP=3
	1415	PALE	4	S/F	0004.0	0005.0	4.0	150.0			QL=5 ST=3 TYP=5
	2695	PALE	4	S/F	0004.0	0005.0	4.0	59.0			QL=5 ST=3 TYP=5
	610	PALE	8	S	0004.0	0005.0	1.0	52.0			QL=5 ST=3 TYP=5
	200	HIRA	45	C	0004.4	0006.1	4.2	53.0	21.0		0
	500	HIRA	45	C	0004.5	0005.3	11.0	37.0	12.0		WL
	1000	TYKW	45	C	0005.0	0006.1	7.0	117.0	35.0		
	3750	TYKW	5	S	0005.0	0005.9	11.0	45.0	10.0		
	500	HIRA	4	S/F	0005.0	0005.0	5.0	35.0			QL= ST= TYP=3
	4995	LEAR	8	S	0005.0	0005.0	1.0	24.0			QL=1 ST=2 TYP=3
	1415	LEAR	4	S/F	0005.0	0006.0	4.0	160.0			QL=1 ST=2 TYP=5
	8800	PALE	8	S	0005.0	0005.0	2.0	23.0			QL=5 ST=3 TYP=3
	2000	TYKW	5	S	0007.0E	0007.0U	9.0D	53.0	11.0D		
	9400	TYKW	5	S	0007.0E	0007.0U	11.0D	7.0	3.0D		
	3750	TYKW	5	S	0027.0	0028.0	4.0	5.0	2.0		
	3750	TYKW	29	PBI	0031.0		15.0	1.5	0.7		
	2000	TYKW	31	ABS	0100.0	0150.0	80.0	-2.0	-1.0		
	9400	TYKW	31	ABS	0100.0	0150.0	135.0	-6.0	-3.0		
	3750	TYKW	31	ABS	0100.0	0148.0	160.0	-4.0	-2.0		
	3750	TYKW	45	C	0217.0	0233.4	29.0	5.0	2.0		
	3750	TYKW	5	S	0308.0	0316.0	20.0	3.0	1.0		
	2000	TYKW	5	S	0311.0	0316.4	15.0	3.0	0.7		
	9400	TYKW	45	C	0617.0	0617.9	2.0	12.0	3.0		
	9100	GORK	1	S	0818.8	0819.3	4.9	4.3			
	430	KRAK	2	S/F	1325.5	1325.7	0.5	7.0	1.0		
	210	KRAK	2	S/F	1325.5	1325.8	1.0	8.0	3.0		
	2800	OTTA	45	C	1755.4	1803.5	12.3	94.2	37.0		
	9400	HUAN	45	C	1756.4	1804.0	10.3	130.5	73.0		
	4995	SGMR	48	C	1800.0	1803.0	5.0	170.0			QL=5 ST=2 TYP=8
	8800	SGMR	48	C	1800.0	1801.0	5.0	270.0			QL=5 ST=2 TYP=8
	410	SGMR	48	C	1800.0	1802.0	4.0	51000.0			QL=5 ST=2 TYP=8
	15400	SGMR	4	S/F	1800.0	1801.0	4.0	130.0			QL=5 ST=2 TYP=5
	2695	SGMR	48	C	1801.0	1803.0	3.0	80.0			QL=5 ST=2 TYP=8
	610	SGMR	4	S/F	1801.0	1802.0	3.0	150.0			QL=5 ST=2 TYP=5
	1415	SGMR	48	C	1801.0	1802.0	3.0	140.0			QL=5 ST=2 TYP=8
	245	SGMR	48	C	1802.0	1818.0	30.0	7800.0			QL=5 ST=2 TYP=8
	2800	OTTA	29	PBI	1807.6	1807.6	60.0	21.5			
	3750	TYKW	21	GRF	2300.0	2329.0	130.0	3.0	1.5		
	3750	TYKW	5	S	2354.0	2356.0	20.0	1.0	0.5		
22	127	TORN	44	NS	0700.0E		420.0D		3.0		V=1
	3750	TYKW	21	GRF	0028.0	0036.0	40.0	1.5	0.7		
	3750	TYKW	5	S	0053.0	0057.5	13.0	1.5	0.5		
	9400	TYKW	21	GRF	0153.0	0200.0	75.0	2.0	1.0		
	3750	TYKW	21	GRF	0158.0	0218.0	70.0	1.0	0.5		
	3750	TYKW	5	S	0159.0	0201.8	6.0	1.5	0.5		
	9400	TYKW	5	S	0211.5	0212.4	2.0	4.0	1.5		
	3750	TYKW	5	S	0212.0	0212.4	1.0	1.5	0.5		
	9400	TYKW	20	GRF	0224.0	0241.0	40.0	4.0	2.0		
	3750	TYKW	21	GRF	0227.0	0229.0	30.0	1.5	0.5		
	3750	TYKW	5	S	0250.0	0251.7	4.0	1.5	0.5		
	3750	TYKW	31	ABS	0258.0	0316.0	80.0	-1.5	-0.7		
	9400	TYKW	31	ABS	0308.0	0319.0	50.0	-2.0	-1.0		
	2000	TYKW	21	GRF	0445.0	0513.0	70.0	1.0	0.5		
	3750	TYKW	21	GRF	0447.0	0512.0	90.0	2.0	1.0		
	2000	TYKW	5	S	0448.0	0451.0	7.0	1.0	0.3		
	3750	TYKW	5	S	0448.0	0451.0	11.0	2.0	0.7		
	9400	TYKW	20	GRF	0505.0	0533.0	70.0	4.0	2.0		
	3750	TYKW	45	C	0517.0	0533.0	30.0	4.0	1.5		
	5900	KISV	21	GRF	0711.0	0719.2	44.7	5.7			
	5900	KISV			0711.0	0721.7		3.8			
	260	ONDR	3	S	1145.8	1147.3	3.7	1.0			
	260	ONDR	23	GRF	1210.8	1212.6	5.5				
	260	ONDR	2	S/F	1229.4	1229.4	0.6	1.0			
	245	SVTO	20	GRF	1320.0E	1443.0	104.0D	7.0			QL=1 ST=2 TYP=2

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
23	127	TORN	44	NS	0700.0E		440.0D		2.0		V=1
	3750	TYKW	20	GRF	0110.0	0120.0	80.0	2.0	1.0		
	9400	TYKW	20	GRF	0110.0	0125.0	80.0	2.0	1.0		
	2000	TYKW	21	GRF	0110.0	0120.0	90.0	1.5	0.7		
	2000	TYKW	20	GRF	0135.0	0145.0	35.0	1.0	0.5		
	9400	TYKW	20	GRF	0455.0U	0515.0U	80.0U	4.0	2.0U		RAIN
	3750	TYKW	21	GRF	0500.0	0511.0	70.0	5.0	2.5		
	2000	TYKW	21	GRF	0500.0	0512.0	70.0	3.0	1.5		
	3750	TYKW	5	S	0550.0	0550.7	4.0	1.5	0.5		
	2000	TYKW	5	S	0550.5	0550.8	1.5	1.5	0.5		
	260	ONDR	2	S/F	0938.9	0938.9	0.7	1.0			
	650	GORK	4	S/F	1030.0	1033.1	6.2	11.7	2.5		
	260	ONDR	8	S	1119.3	1119.3	0.1	1.0			
	260	ONDR	45	C	1254.6	1255.7	1.6	1.0			
	3750	TYKW	20	GRF	2255.0	2357.0	190.0	4.0	2.0		
24	2000	TYKW	20	GRF	0320.0	0330.0	50.0	1.0	0.5		
	3750	TYKW	20	GRF	0320.0	0332.0	50.0	2.0	1.0		
	2000	TYKW	5	S	0442.0	0444.0	9.0	1.0	0.3		
	1000	TYKW	45	C	0552.0	0558.5	8.0D	8.0	2.5D		
	260	ONDR	41	F	1150.7	1152.3	2.5	6.0			
	260	ONDR	47	GB	1239.1	1240.0U	3.9	11.0			
	245	PALE	4	S/F	2049.0	2050.0	3.0	19.0			QL=3 ST=2 TYP=3
	410	PALE	8	S	2051.0	2051.0	2.0	59.0			QL=3 ST=3 TYP=5
	3750	TYKW	20	GRF	2235.0	2257.0	145.0	3.0	1.5		
	2000	TYKW	20	GRF	2240.0	2256.0	130.0	2.0	1.0		
	410	LEAR	4	S/F	2303.0	2303.0	3.0	39.0			QL=5 ST=2 TYP=3
25	3750	TYKW	21	GRF	0127.0	0133.0	30.0	2.0	1.0		
	9400	TYKW	20	GRF	0127.0	0133.0	30.0	2.0	1.0		
	3750	TYKW	5	S	0138.0	0138.4	2.0	4.0	1.5		
	3750	TYKW	29	PBI	0140.0		5.0	1.0	0.5		
	245	LEAR	8	S	0153.0	0154.0	1.0	26.0			QL=3 ST=2 TYP=3
	410	LEAR	8	S	0153.0	0153.0	1.0	20.0			QL=3 ST=2 TYP=3
	3750	TYKW	21	GRF	0205.0	0211.0	55.0	1.5	0.7		
	2000	TYKW	5	S	0210.0	0211.0	8.0	1.0	0.3		
	9400	TYKW	21	GRF	0218.0	0227.0	45.0	2.0	1.0		
	2000	TYKW	20	GRF	0219.0	0222.0	30.0	1.0	0.5		
	3750	TYKW	20	GRF	0220.0	0222.0	30.0	1.5	0.7		
	9400	TYKW	5	S	0222.0	0222.5	1.0	6.0	1.5		
	2000	TYKW	20	GRF	0318.0	0330.0	40.0	1.0	0.5		
	3750	TYKW	20	GRF	0320.0	0330.0	50.0	1.0	0.5		
	9400	TYKW	5	S	0414.0	0415.3	3.0	5.0	1.5		
	260	ONDR	41	F	0931.0E	1015.0U	249.0U				
	1470	POTS	4	S/F	1126.3	1127.4	3.2	20.0			
	1470	POTS	8	S	1141.9	1142.2	0.7	6.0			
	9400	HUAN	2	S/F	1216.6	1218.3	5.5	4.9	1.3		
	9400	HUAN	2	S/F	1324.3	1326.4	3.4	9.7	3.6		
	15400	PALE	4	S/F	1737.0	1738.0	4.0	57.0			QL=5 ST=2 TYP=5
	8800	PALE	8	S	1738.0	1738.0	2.0	15.0			QL=5 ST=2 TYP=3
26	245	LEAR	44	NS	2149.0E	0406.0	131.0D	68.0			QL=5 ST=2 TYP=1
	245	LEAR	8	S	0058.0	0059.0	1.0	48.0			QL=5 ST=2 TYP=3
	1000	TYKW	21	GRF	0130.0	0240.0	240.0	2.0	1.0		
	9400	TYKW	21	GRF	0130.0	0320.0	240.0	4.0	2.0		
	3750	TYKW	21	GRF	0130.0	0320.0	260.0	6.0	3.0		
	2000	TYKW	21	GRF	0140.0	0320.0	250.0	4.0	2.0		
	3750	TYKW	21	GRF	0335.0	0410.0	105.0	3.0	1.5		
	9400	TYKW	21	GRF	0340.0	0410.0	90.0	3.0	1.5		
	2000	TYKW	21	GRF	0340.0	0425.0	110.0	3.0	1.5		
	1000	TYKW	20	GRF	0340.0	0425.0	110.0	1.0	0.5		
	9400	TYKW	5	S	0405.5	0406.1	1.5	12.0	2.0		
	3750	TYKW	5	S	0422.0	0423.2	4.0	5.0	2.0		
	3750	TYKW	29	PBI	0426.0		15.0	1.0	0.5		
	5900	KISV	1	S	0829.2	0830.7	2.5	2.0			
	3100	CRIM	1	S	0829.5	0830.5	14.0	2.4	1.0		
	2950	GORK	20	GRF	0829.7	0830.5	49.5	2.7			
	204	IZMI	5	S	0847.5	0847.7	1.0	63.0	55.0		
	260	ONDR	41	F	0930.0E	1151.3	215.0D	5.0			
	536	ONDR	41	F	1133.6	1136.6	7.3	19.0			

SOLAR RADIO EMISSION--OUTSTANDING OCCURRENCES

NOVEMBER 1987

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
26	810	KRAK	42	SER	1134.0	1135.0	30.0	13.0			
	430	KRAK	42	SER	1134.2	1144.0	40.2	21.0	9.0		
	810	KRAK	27	RF	1143.7	1159.2U	26.7	20.0	15.0		
27	200	HIRA	43	NS	0352.0	0430.0	180.0D	8.0	2.0		WL
	245	SVTO	43	NS	0611.0	0728.0	530.0D	81.0			QL=1 ST=2 TYP=1
	204	IZMI	43	NS	0700.0		180.0	25.0			
	260	ONDR	44	NS	0920.0E	1132.0	220.0D	9.0			
	245	LEAR	44	NS	2149.0E	0006.0	671.0D	19.0			QL=5 ST=2 TYP=1
28	245	LEAR	44	NS	0001.0E	0006.0	539.0D	19.0			QL=5 ST=2 TYP=1
	260	ONDR	44	NS	0920.0E	1123.0	220.0D	10.0			
30	2000	TYKW	20	GRF	0405.0	0410.0	65.0	1.0	0.5		
	3750	TYKW	20	GRF	0405.0	0410.0	65.0	1.0	0.5		
	810	KRAK	42	SER	1013.0	1031.4	20.0	183.0D			
	260	ONDR	41	F	1105.6	1106.7	14.0	8.0			
	260	ONDR	3	S	1304.2	1304.4	0.7	3.0			
	536	ONDR	8	S	1304.4	1304.4	0.3	10.0			
	9400	HUAN	1	S	1352.2	1353.9	3.3	4.2	1.7		
	9400	HUAN	1	S	1548.7	1551.0	5.5	8.3	1.9		

Reports are received routinely from the following observatories:

BORD = Bordeaux
CRIM = Crimea
GORK = Gorky
HIRA = Hiraiso
HUAN = Huancayo
IZMI = IZMIRAN
KISK = Kislovodsk
KRAK = Krakow
LEAR = Learmonth
MANI = Manila
NOBE = Nobeyama
ONDR = Ondrejov
OTTA = Ottawa
PALE = Palehua
PENT = Penticton
POTS = Potsdam
SGMR = Sagamore Hill
SVTO = San Vito
SYDN = Sydney
TORN = Torun
TYKW = Toyokawa
UPIC = Upice

Explanation of Type Code:

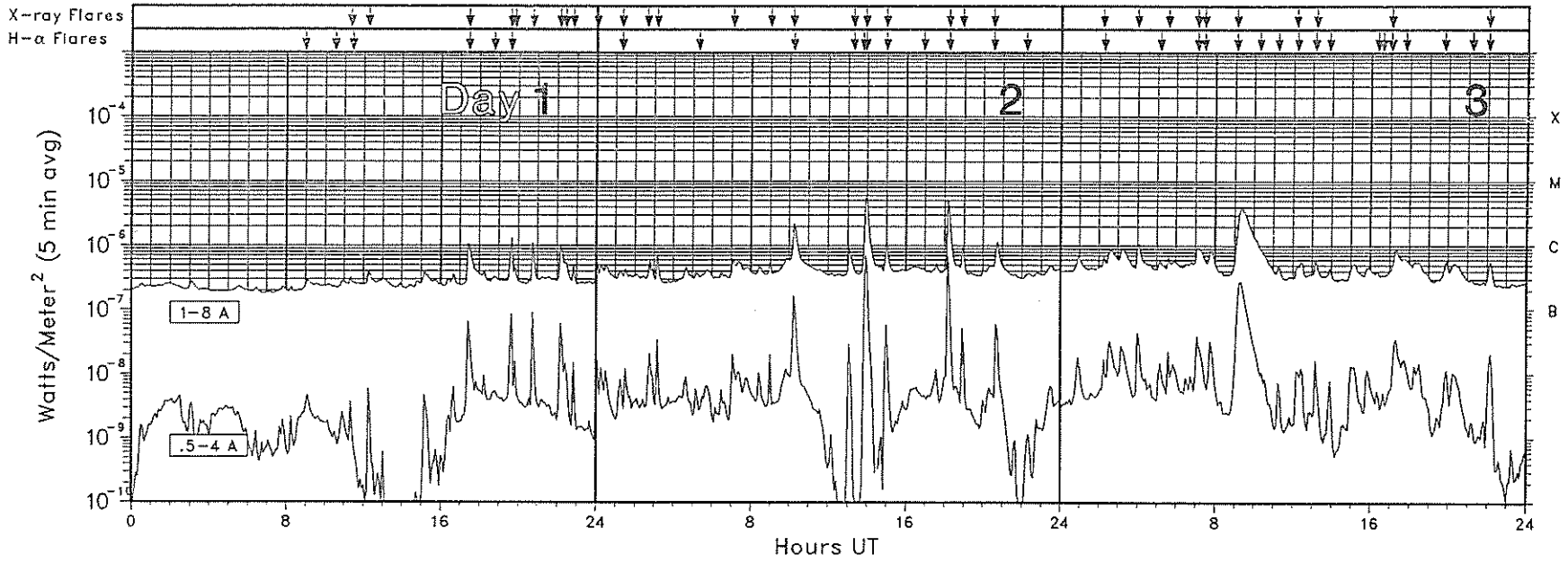
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precusor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
33 Absorption
40 Fluctuation
41 Group of Bursts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

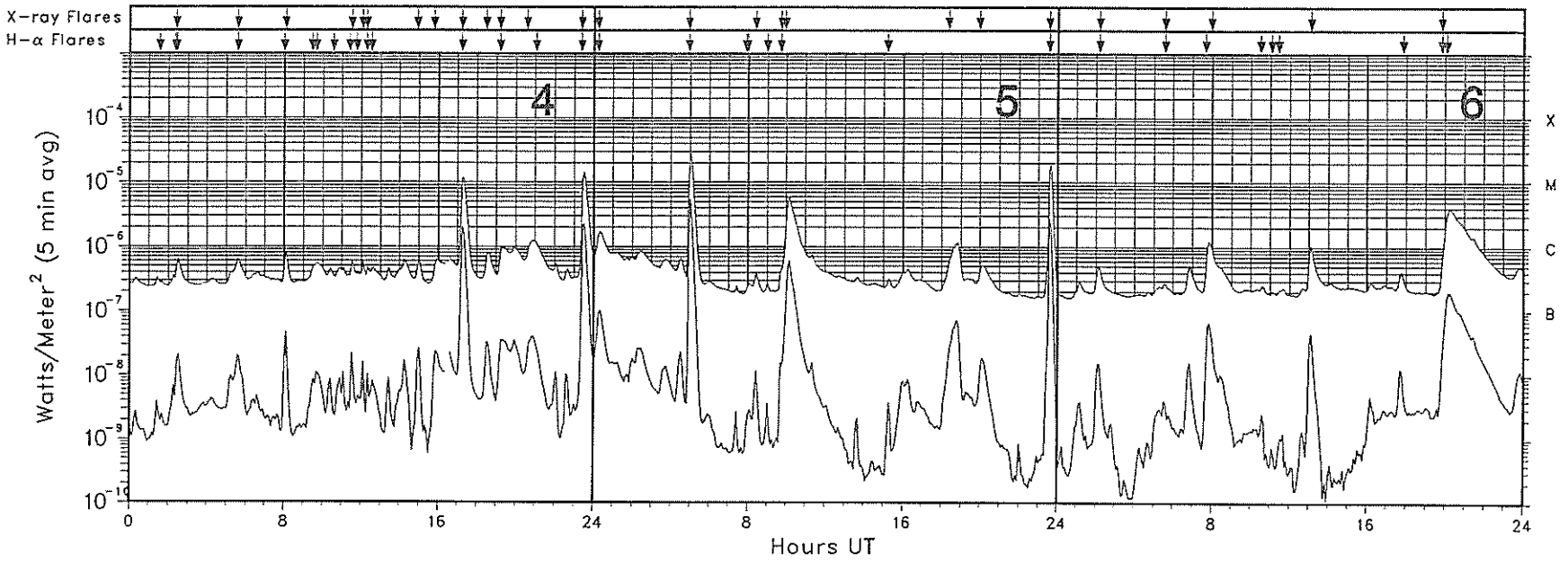
1A Simple 1A
3A Simple 2A
21A Simple 3A GRF
2A Simple 1AF
4A Simple 2AF
40 Rise Only
40F Rise Only F
4P Post Rise
24PF Post Rise F
16A Fall A
260 Fall Only
26F Fall F
27F Rise and Fall F
27AF Rise and Fall AF
31A Post Burst Decrease A
32A Absorption A
46F Complex F

RSTN Site Information: Beginning in April 1986, the RSTN sites LEAR, PALE, SGMR, and SVTO fixed frequency solar radio data are periodically adjusted to several world standard stations. These world standard stations include: Kislovodsk, USSR 15,500 MHz; Ottawa, Canada 2800 MHz; Hiraiso, Japan 500 and 200 MHz; and Toyokawa, Japan 9400, 3750, 2000 and 1000 MHz.

GOES-7 X-RAY DETECTOR

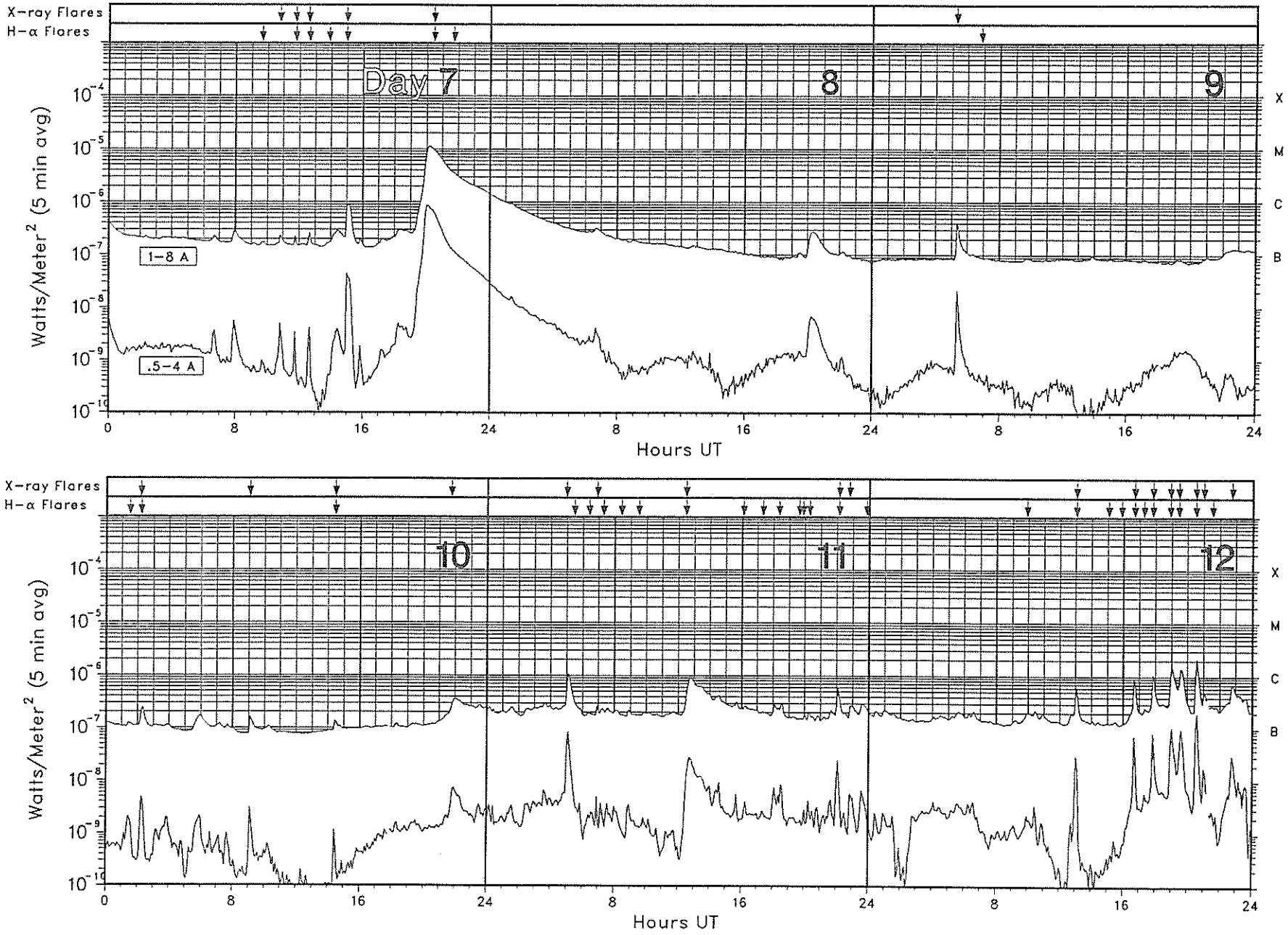
November 1987





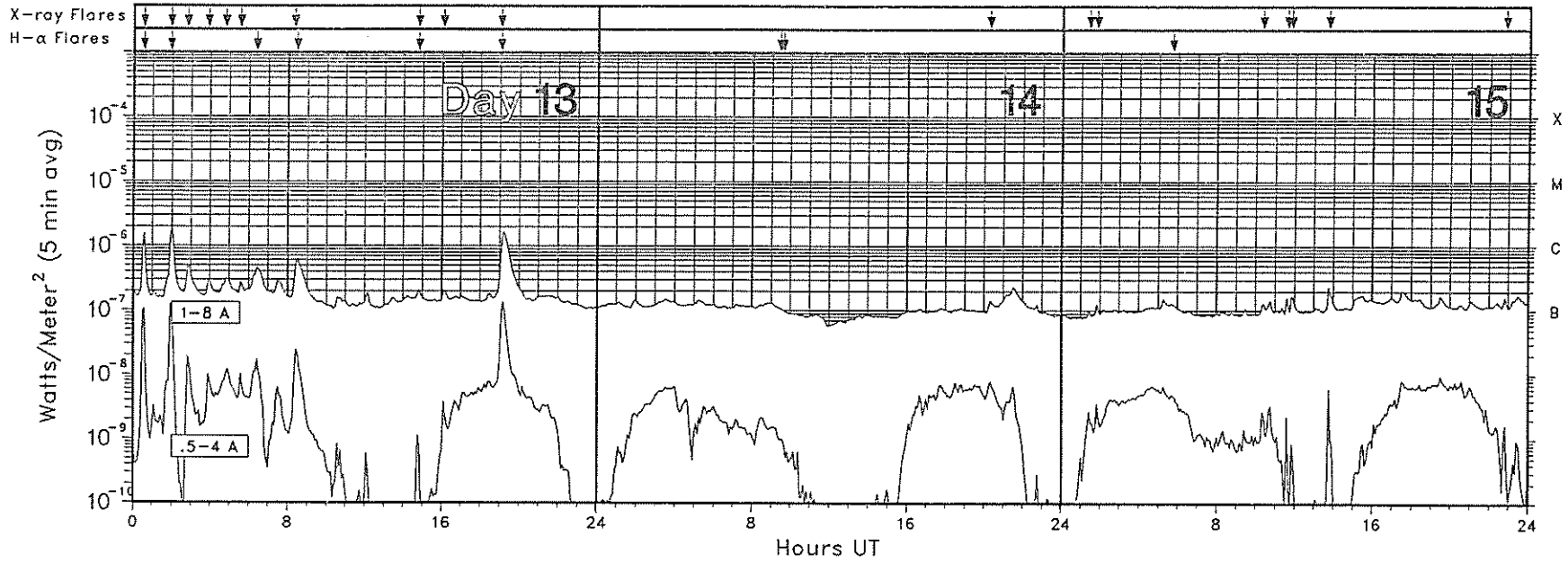
GOES-7 X-RAY DETECTOR

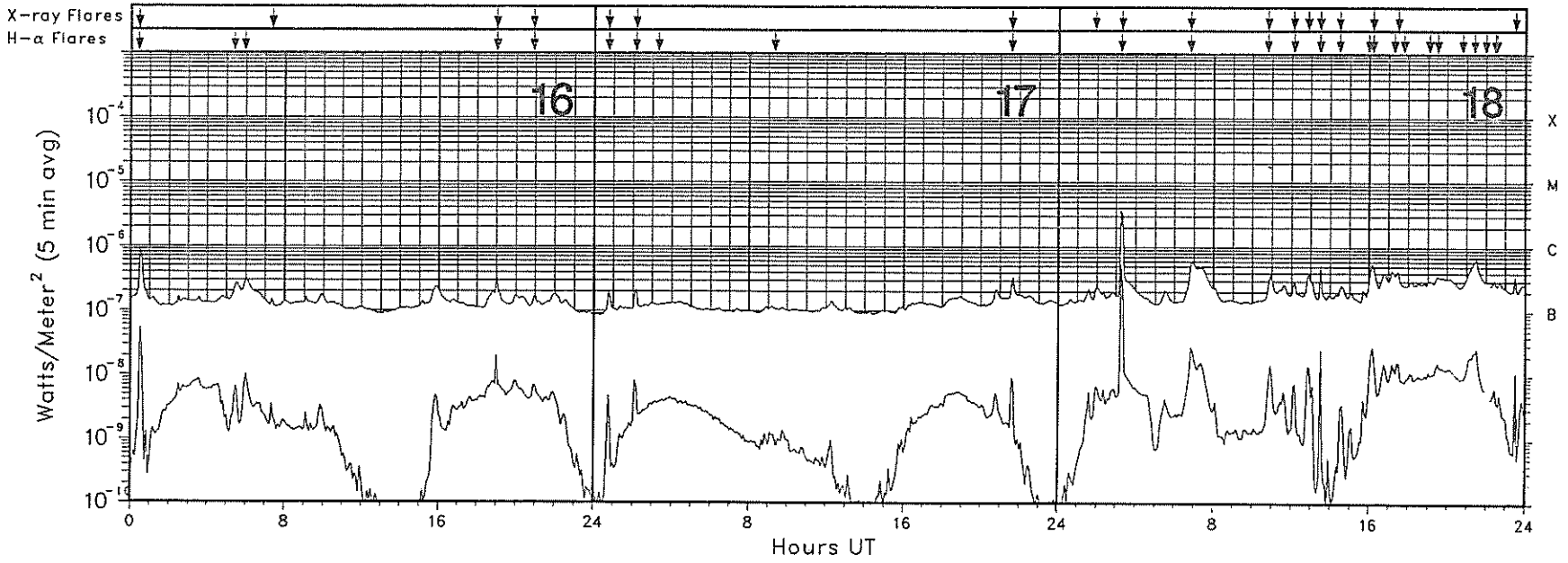
November 1987



GOES-7 X-RAY DETECTOR

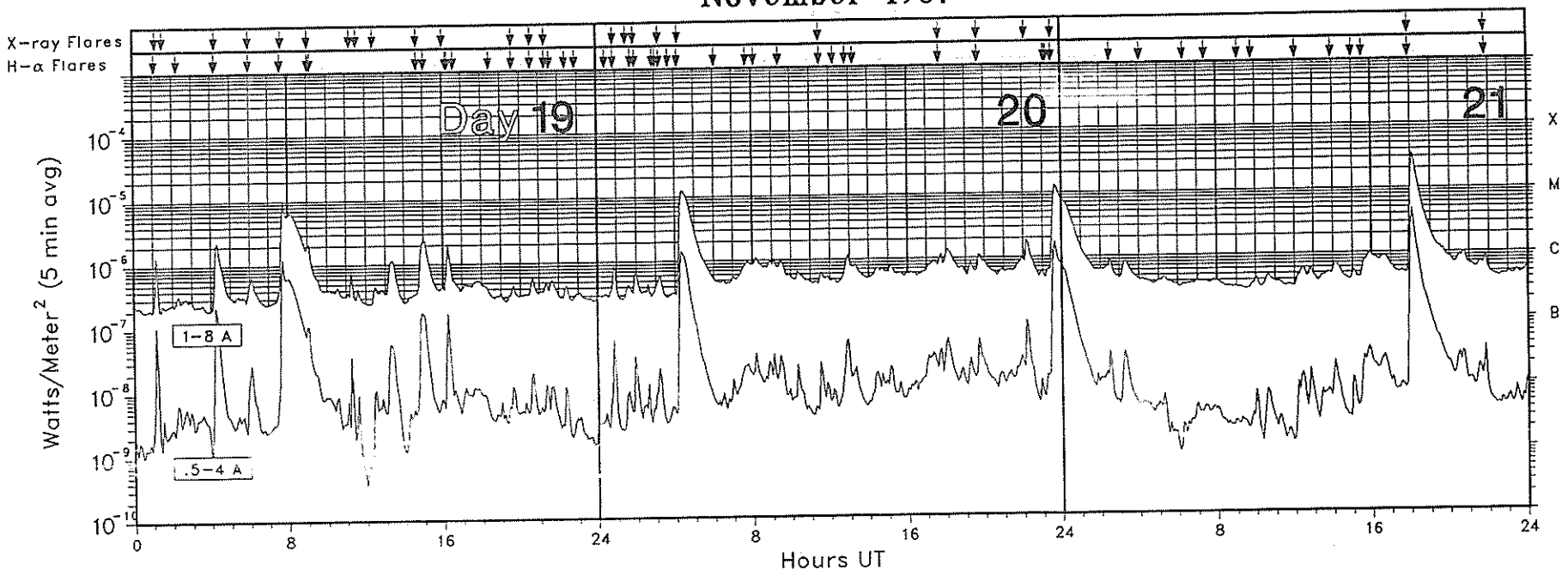
November 1987

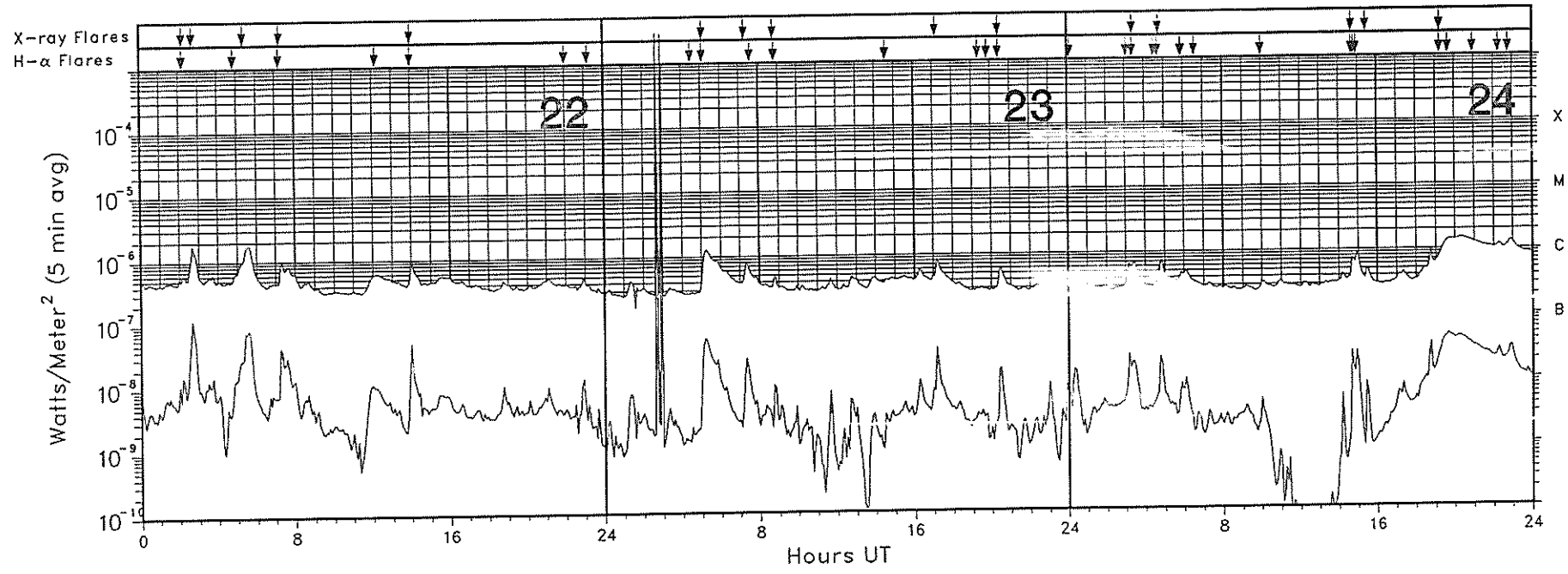




GOES-7 X-RAY DETECTOR

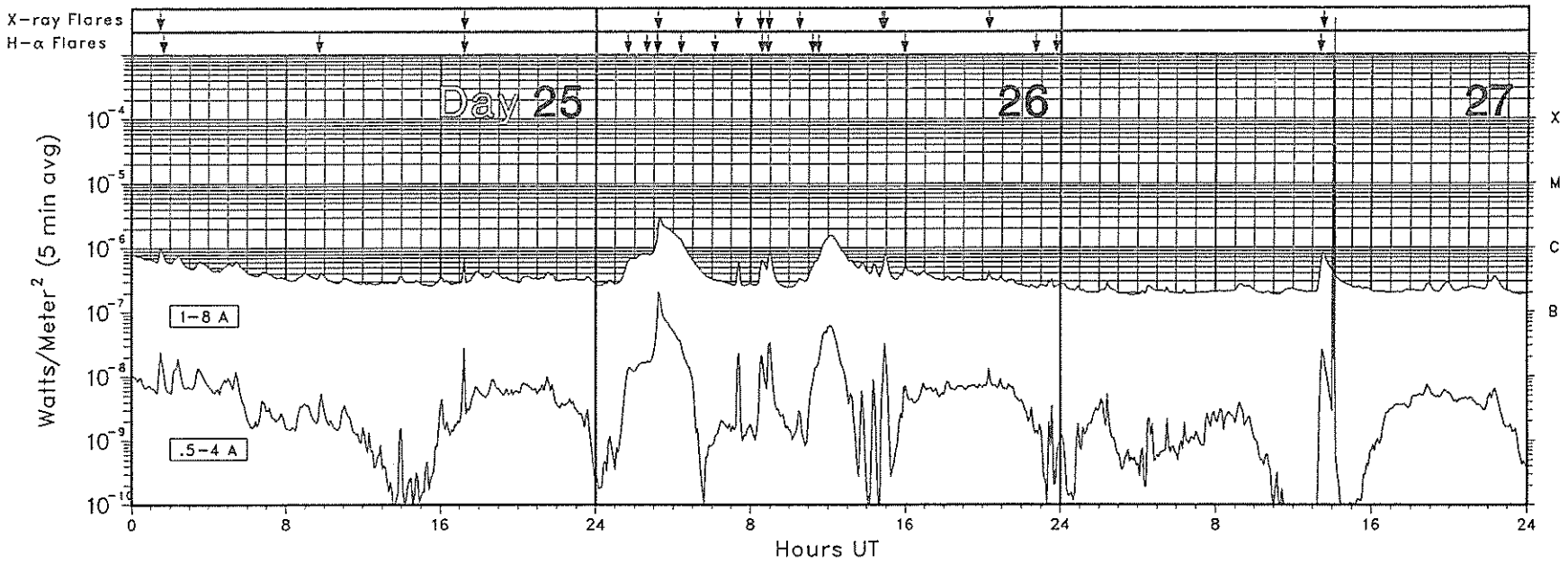
November 1987

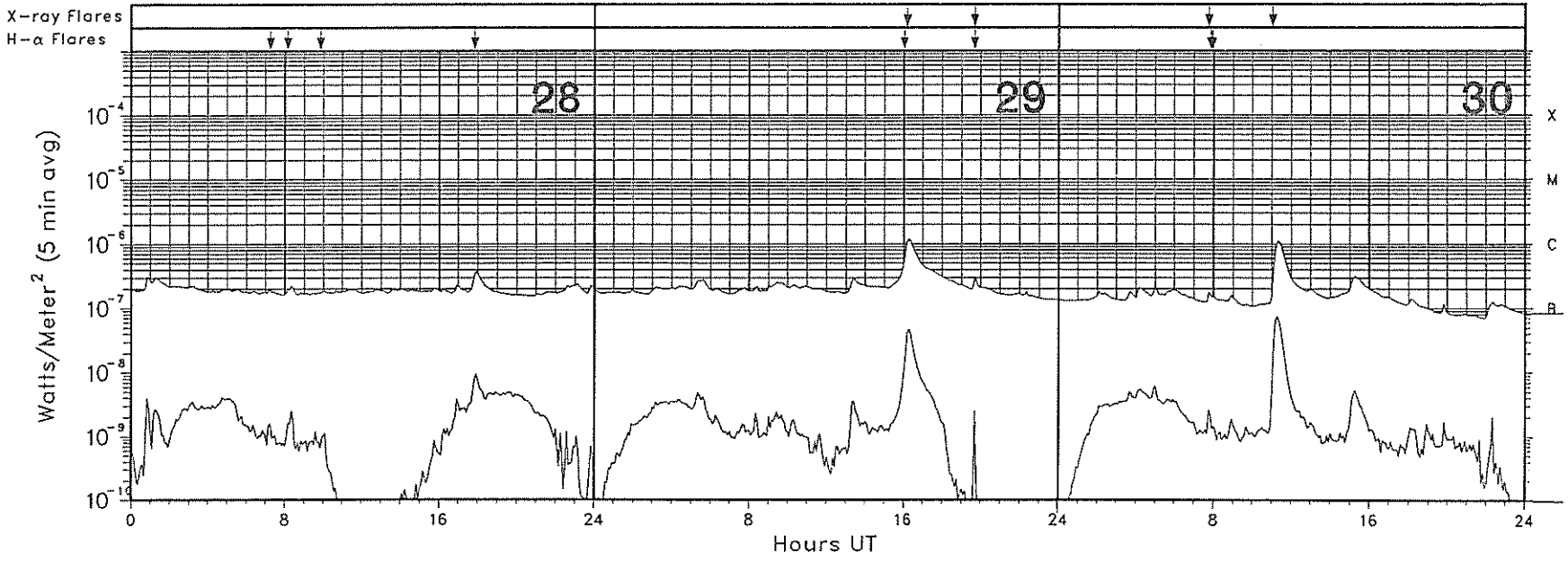




GOES-7 X-RAY DETECTOR

November 1987





GOES S O L A R X-RAY F L A R E S

Preliminary Listing

November 1987

Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Opt	Imp Xray	NOAA/ USAF Region
01	1120	1123	1125				B3.7	
01	1215	1219	1223				B4.6	
01	1726E	1728	1746	S22	W76	SF	C1.2	4881
01	1938	1939	1946	S22	E81		C1.7	4882
01	1950	1953	1956				B5.5	
01	2045	2049	2052				C1.7	
01	2208	2213	2221				C1.3	
01	2225	2228	2231				B6.2	
01	2249	2253	2256				B5.9	
02	0002	0006	0010				B7.0	
02	0120	0124	0128	N31	W26	SF	B6.2	4875
02	0238	0246	0305	S24	E74	SF	B6.5	4882
02	0308	0312	0316				B9.8	
02	0705	0709	0712				B7.9	
02	0900	0904	0906				B7.7	
02	1011	1020	1024				C2.7	
02	1317E	1317	1342	S22	E72	SF	C1.0	4883
02	1355	1356	1421	S23	E65	SB	C7.0	4882
02	1459	1459	1510	S19	E70	SF	C1.0	4883
02	1813	1819	1840	S23	E57	1B	C7.8	4882
02	1855	1859	1902				C1.4	
02	2032	2046	2111	N29	W38	SF	C1.5	4875
03	0213	0219	0224	N29	W50	SN	B9.4	4875
03	0359	0405	0412				C1.3	
03	0534	0537	0542				B8.0	
03	0705	0705	0725	N30	W43	SF	C1.0	4875
03	0727	0745	0753	N30	W43	SF	B9.6	4875
03	0906	0910	0953	N30	W44	SF	C4.1	4875
03	1210	1229	1235				B7.2	
03	1311	1312	1333	N30	W47	SF	B8.0	4875
03	1703	1830	1859	N30	W50	SF	C1.0	4875
03	2203	2204	2211	N30	W59	SF	B6.6	4875
04	0224	0232	0240				B7.0	
04	0536	0536	0540	N30	W63	SF	B7.0	4875
04	0804	0804	0809	N31	W66	SF	B9.5	4875
04	1130	1134	1138				B7.6	
04	1203	1207	1211				B7.0	
04	1217	1224	1228	S20	E49	SF	B5.8	4883
04	1455	1503	1509				B6.8	
04	1547	1601	1639				B6.2	
04	1713	1715	1741	N28	W67	SF	M1.3	4875
04	1828	1838	1847				B8.7	
04	1912	1914	1925	S22	E46	SF	C1.1	4883
04	2035	2058	2115				C1.4	4875
04	2323	2325	2332	N27	W62	SF	M1.5	4875
05	0014	0015	0035	S21	E40	SN	C2.0	4883
05	0456	0458	0512	N30	W73	SF	M3.1	4875
05	0823	0824	0829	S20	E31	SF	B4.1	4883
05	0943	0943	0946	S21	E36	SF	B7.2	4883
05	0956	1000	1028	S21	E35	SF	C6.5	4883
05	1821	1851	1859				C1.2	
05	1957	2007	2031				B6.0	
05	2334	2335	2339	N29	W75	SF	M2.1	4875
06	0211	0216	0217	S23	E25	SF	B5.7	4883
06	0534	0534	0539	S23	E24	SF	B3.5	4883
06	0758	0758	0809	S23	E22	SF	C1.4	4883
06	1305E	1307	1319	S22	E19	SN	C1.1	4883
06	1949	2011	2206	S27	E61	2N	C4.3	4886
07	1048	1052	1101				B2.4	
07	1146	1147	1152	S23	E50	SF	B3.4	4886
07	1236	1240	1246				B3.2	
07	1459	1503	1537	S23	E49	1N	C1.0	4885
07	2028	2030	2045	N31	W90		M1.2	4875
09	0518	0524	0530				B4.7	
10	0212	0221	0228				B2.8	
10	0903	0909	0916				B2.1	
10	1427	1428	1435	N17	W10	SF	B1.7	4884
10	2145	2150	2300				B4.0	
11	0459	0510	0517				C1.2	
11	0655	0659	0701				B3.6	
11	1229	1240	1330	N23	E12	SF	B9.8	
11	2209	2213	2222	S25	E84	SF	B7.0	4890
11	2248	2253	2314				B3.1	
12	1303	1303	1319	S22	E74	SF	B8.3	4890
12	1641	1641	1645	S24	E72	SF	C1.2	4890
12	1750	1752	1801	S24	E72	SF	C1.4	4890
12	1855	1903	1914	S24	E72	SF	C1.9	4890
12	1927	1933	2002	S24	E71	SF	C1.6	4890
12	2031	2033	2054	S25	E69	SF	C2.4	4890
12	2100	2105	2110				B6.2	
12	2245	2249	2256				B8.5	
13	0032	0033	0038	S23	E66	SF	C2.1	4890
13	0156	0200	0217	S26	E65	SF	C2.4	4890
13	0249	0255	0259				B6.4	
13	0354	0359	0406				B3.3	
13	0448	0500	0504				B3.2	
13	0534	0539	0543				B3.1	
13	0820	0831	0845				B7.6	
13	1447	1449	1512	S25	E61	SF	B2.2	4890
13	1604	1608	1617				B2.1	
13	1903	1909	1959	S25	E56	SF	C1.7	4890
14	2016	2023	2042				B1.3	
15	0125	0129	0131				B1.3	
15	0149	0152	0155				B1.4	
15	1020	1025	1030				B1.6	
15	1135	1139	1141				B2.2	
15	1149	1155	1159				B2.2	
15	1343	1349	1353				B3.0	
15	2249	2252	2256				B1.9	
16	0026	0031	0050	S24	E30	SN	C1.1	4890
16	0721	0724	0726				B1.9	

GOES S O L A R X-RAY F L A R E S

Preliminary Listing

November 1987

Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Imp Opt	Xray	NOAA/ USAF Region
16	1901	1903	1909	S24	E19	SF	B5.4	4890
16	2054	2059	2104	S27	E15	SF	B2.3	4890
17	0045	0048	0057	S27	E13	SF	B2.7	4890
17	0210	0210	0213	S25	E16	SF	B3.5	4890
17	2135	2140	2152	S24	E05	SF	B4.4	4890
18	0155	0159	0210				B2.7	
18	0317	0319	0326	S22	W07	SB	M1.0	4890
18	0648	0654	0714	S25	W00	SF	B6.7	4890
18	1047	1059	1105				B4.4	
18	1206	1211	1213				B4.7	
18	1251	1256	1301				B4.6	
18	1328	1331	1333	S21	E53	SF	B8.3	4891
18	1428	1712	1732	S22	E45	SN	B2.9	4891
18	1611	1611	1705	S24	W05	SF	B6.0	4890
18	1729	1730	1737	S25	W09	SF	B6.7	4890
18	2330	2333	2335				B5.4	
19	0109	0111	0122	S24	W18	SF	C2.4	4890
19	0132	0135	0137				B3.6	
19	0414	0423	0446	S22	E44	SF	C2.7	4891
19	0600	0604	0605	S21	E42	SF	B7.2	4891
19	0741	0746	0859	S21	E42	1N	M1.1	4891
19	0903	0905	0916	S25	W18	SF	C2.9	4890
19	1113	1118	1122				B9.0	
19	1133	1137	1143				B4.8	
19	1226	1230	1236				B5.5	
19	1441	1508	1551	S20	E40	SN	C2.6	4891
19	1602E	1615	1645	S17	E40	SN	C2.1	4891
19	1938	1939	1953	S25	W22	SF	B4.9	4890
19	2036	2039	2055	S21	E35	SF	B6.5	4891
19	2120	2120	2126	S21	E36	SF	B5.6	4891
20	0052	0053	0100	S25	W27	SF	C1.1	4890
20	0131	0138	0146				B4.4	
20	0155	0200	0204				B9.1	4890
20	0311	0315	0319				B7.1	4891
20	0412	0418	0535	S21	E35	1N	M1.3	4891
20	1130	1135	1143				B7.4	
20	1741	1746	1756	S22	E28	SF	C1.5	4891
20	1941	1945	2000	S23	E29	SF	C1.3	4891
20	2209	2215	2219				C2.4	
20	2331	2337	0111	S21	E25	1N	M1.3	4891
21	1755	1805	1901	S23	E16	2B	M3.5	4891
21	2148	2151	2154				C1.1	4891
22	0212	0239	0323	S21	E08	SF	B7.5	4891
22	0242E	0242	0250	S22	E13	SF	C2.2	4891
22	0521	0543	0601	S21	E07	SF	C2.0	4891
22	0715	0718	0759	S21	E05	SF	C1.2	4891
22	1359	1402	1431	S22	E02	SF	C1.1	4891
23	0506	0506	0531	S23	W03	SF	C1.3	4891
23	0717	0723	0732				B8.7	
23	0846	0850	0853				B6.6	
23	1709	1714	1720				C1.0	4891
23	2024	2027	2046	N33	E54	SF	B6.8	4895
24	0323	0324	0327	N31	E46	SF	B7.3	4895
24	0443	0451	0457				B8.3	
24	1441	1456	1511	S22	W23	SF	B9.7	4891
24	1525	1530	1535				B5.9	
24	1914	1929	2012	N38	E41	1F	C1.2	4895
25	0128	0133	0137				C1.1	
25	1713	1717	1726	S34	W61	SF	B9.3	4896
26	0311	0325	0346	S21	W48	SF	C3.3	4891
26	0720	0726	0729				B8.5	
26	0829	0838	0852				B7.2	
26	0855	0900	0907				C1.0	
26	1030	1210	1320				C1.8	
26	1445	1448	1451				B5.0	
26	1452	1459	1507				B8.5	
26	2018	2022	2025				B4.8	
27	1331	1332	1337	S28	W61	SF	B8.8	4891
29	1611	1613	1628	N30	W24	SF	C1.5	4895
29	1940	1942	1952	N28	W26	SF	B3.6	4895
30	0745	0749	0754				B2.0	
30	1102	1123	1142				C1.1	

Preliminary GOES Satellite Data
Daily Average X-ray Background

December 1986 - November 1987

Day	1986 Dec	1987 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	<A1.0	<A1.3	<A1.0	<A1.0	A1.1	A4.9	A4.8	---	B1.2	B1.1	A6.8	B2.2
2	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	A5.0	A3.2	A1.7	B1.2	B1.3	A6.8	B3.8
3	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	A8.8	A2.7	A1.4	B1.0	B1.3	A7.7	B3.4
4	<A1.0	<A1.0	<A1.0	<A1.0	A2.2	A8.6	A2.7	A1.3	A6.7	B1.3	B1.2	B3.4
5	<A1.0	<A1.0	<A1.0	<A1.0	A2.3	A8.1	A2.3	A1.2	A6.5	B1.4	B1.1	B2.1
6	<A1.0	<A1.0	<A1.0	A2.6	B2.7	A8.0	A2.0	A1.3	A6.9	B1.4	B1.0	B2.1
7	<A1.0	<A1.0	<A1.0	A4.1	---	A6.5	A1.9	A1.5	B1.7	B2.7	B1.1	B1.7
8	<A1.0	<A1.0	<A1.0	A5.2	---	A5.9	A1.9	A5.0	B2.8	B2.2	B1.7	B1.2
9	A1.6	<A1.0	<A1.0	A3.1	---	A5.3	A2.8	A3.5	B2.1	B1.6	B2.1	A8.8
10	A1.6	<A1.0	<A1.0	A1.9	B2.2	A5.7	A6.3	A3.2	B2.3	B1.7	B2.0	A8.8
11	<A1.0	<A1.0	<A1.0	A2.2	B1.9	A4.8	A8.5	A2.7	B2.9	B1.6	B1.8	B1.9
12	<A1.0	<A1.0	<A1.0	A3.0	B1.6	A4.9	A8.7	A1.9	B2.9	B1.3	B1.7	B1.4
13	<A1.0	<A1.0	<A1.0	A2.6	B1.4	A9.5	A8.8	A1.9	B2.6	B1.2	B2.3	B1.4
14	<A1.0	<A1.0	<A1.0	A5.3	B1.4	B1.8	A7.9	A3.3	B1.9	A9.5	B2.1	A8.2
15	<A1.0	<A1.0	<A1.0	A1.9	B1.2	B2.0	A7.3	A4.3	B1.2	A7.1	B2.2	A9.7
16	<A1.0	<A1.0	<A1.0	<A1.0	B2.2	B2.8	A7.1	A5.3	B1.4	A4.6	B2.6	B1.1
17	<A1.0	<A1.0	<A1.0	<A1.0	B2.6	B1.9	A8.9	A4.0	B1.1	A5.2	B2.1	B1.1
18	<A1.0	<A1.0	<A1.0	<A1.0	B2.9	B1.9	A8.6	A5.2	B1.1	A3.8	B2.6	B1.6
19	<A1.0	<A1.0	<A1.0	A1.0	B2.2	B2.0	A7.4	B1.1	B1.2	A4.7	B2.4	B2.7
20	<A1.0	<A1.0	<A1.0	A1.3	B1.5	B1.8	A6.4	B1.8	B1.3	A7.6	B1.7	B5.2
21	<A1.0	<A1.0	<A1.0	A1.5	A7.2	B2.1	A7.7	B2.0	B1.6	A5.9	B1.5	B3.5
22	<A1.0	A2.5	<A1.0	A1.4	A3.5	B2.4	B1.2	---	B1.6	A5.0	B1.6	B3.6
23	<A1.0	A1.3	<A1.0	A1.7	A2.1	B1.6	A9.7	B3.9	B1.5	A3.4	B1.4	B3.0
24	<A1.0	<A1.0	A1.7	A5.3	A2.2	B3.1	B1.1	B3.5	B1.5	A3.7	B1.4	B2.9
25	<A1.0	<A1.0	A2.3	A4.2	A1.8	B4.9	A9.5	B3.4	B1.4	A3.0	B1.8	B2.9
26	<A1.0	A1.7	A2.3	A3.8	A1.4	B3.6	A8.3	B3.6	B1.1	A2.7	B1.9	B2.9
27	<A1.0	<A1.0	A1.5	A3.2	A1.7	B2.3	A5.5	B3.7	B1.1	A7.6	B2.5	B2.0
28	<A1.0	<A1.0	<A1.0	A2.2	A1.7	B2.3	A4.6	B3.2	A8.6	B1.0	B2.7	B1.7
29	<A1.0	<A1.0		A1.2	A1.7	B1.4	A4.0	B2.2	A6.6	A9.8	B1.9	B1.7
30	<A1.0	<A1.0		A1.2	A2.6	B1.4	A3.9	B1.6	A7.6	A7.0	B2.7	B1.1
31	<A1.0	<A1.0		<A1.0		A6.7		B1.4	B1.3		B2.7	

NOVEMBER 1987

Sta	Day	Observed UT Start	Max	End	Location RA°	R/R$_o$	Freq or Wavelength	Kind of Event
CULG	Nov 02	0229.5		0230.0			Meter	II Single burst
KHAR	Nov 02	1140	1145 U	1150 D	249	1.00	H-alpha	S
KHAR	Nov 03	1005 E		1022	306-312	0.82	H-alpha	S
PALE	Nov 04	1712.0		1714.0			Meter	II
LEAR	Nov 04	2331.0		2341.0			Meter	II
CULG	Nov 04	2332.0		2340.0			Meter; dekameter	II Herringbone
PALE	Nov 04	2332.0		2337.0			Meter	II
CULG	Nov 05	0500.0		0529.0			Meter; dekameter	II Single burst
LEAR	Nov 05	0502.0		0517.0			Meter	II
LEAR	Nov 05	0502.0		0528.0			Meter	II
CULG	Nov 05	2337.0		2358.0			Meter; dekameter	II Single burst
LEAR	Nov 05	2339.0		2358.0			Meter	II
PALE	Nov 05	2341.0		2401.0			Meter	II
VORO	Nov 06	0212	0222	0230 D	350	1	H-alpha	SP
PALE	Nov 06	2008.0		2024.0			Meter	II
CULG	Nov 06	2015.0		2036.0			Meter; dekameter	II Single burst
PALE	Nov 06	2341.0		2401.0			Meter	II
PALE	Nov 07	2002.0		2021.0			Meter	IV
CULG	Nov 07	2116.0		2021.0			Meter; dekameter	II Single burst
KHAR	Nov 08	0716 E	0717 U	0735 D	252	1.00	H-alpha	S
KHAR	Nov 11	0718 E	0720 U	0755	117	1.00-1.02	H-alpha	S
KHAR	Nov 11	0730 E	0735 U	0746 D	305-307	0.93	H-alpha	S
KHAR	Nov 11	0825		0915	303	0.93	H-alpha	S
KHAR	Nov 11	1000		1008	117	1.00	H-alpha	S
KHAR	Nov 11	1002		1100 D	304	0.91	H-alpha	S
CULG	Nov 18	0324.0		0330.0			Meter; dekameter	II Single burst
LEAR	Nov 18	0324.0		0328.0			Meter	II
CULG	Nov 20	0415.0		0423.0			Meter	II Single burst
CULG	Nov 20	0417.0		0445.0			Meter	IV Single burst
LEAR	Nov 20	0421.0		0708.0			Meter	IV
CULG	Nov 20	2234.0		2237.0			Meter	II
CULG	Nov 20	2341.0		2347.0			Meter; dekameter	II
LEAR	Nov 20	2341.0		2349.0			Meter	II
PALE	Nov 20	2341.0		2346.0			Meter	II
LEAR	Nov 20	2346.0		2741.0			Meter	IV
CULG	Nov 20	2358.0		2400.1			Meter	IV
CULG	Nov 21	0000.0		0004.0			Meter	IV
LEAR	Nov 21	0006.0		0014.0			Meter	II
CULG	Nov 21	0008.0		0015.5			Meter	II
PALE	Nov 21	1806.0		1819.0			Meter	IV
PALE	Nov 21	1807.0		1816.0			Meter	II
CULG	Nov 21	2018.0		2045.0			Meter; dekameter	IV

QUALIFIERS ON START, MAX AND END TIMES
- D = event ended after tabulated time
- E = event began before the tabulated time
- U = uncertain time

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

REPORTING STATIONS
- CULG = Culgoora
- KHAR = Kharkov
- LEAR = Learmonth
- PALE = Palehua
- VORO = Voroshilov

ACTIVE PROMINENCES AND FILAMENTS

NOVEMBER 1987

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	CMP Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks
01	SDF	0224E	1936	N24	E55	11	5.3		36	0	0	E	PALE		
01	SDF	0242E	2342D	S27	E10	11	1.9		15	0	0	E	PALE	4878	
01	DSD	0635E	1115D	N00	W12	10	31.4		02	9	9	E	SVTO	4875	
01	ADF	0642E	1115D	S24	W66	10	27.3	1	02	9	9	E	SVTO	4881	
01	BSL	0709E	0741D	S54	E90	11	9.0	1				C	ABST		
01	ADF	0710E	1115D	S23	E01	11	1.4	2	25	9	9	E	SVTO	4878	
01	ASR	0746E	0753D	S46	E90	11	8.8			9	9	E	SVTO		
01	BSL	0747	0750	S20	E90	11	8.2	1				C	CATA		
01	ADF	0802E	1115D	S04	W20	10	30.9	1	03	9	9	E	SVTO	4878	
01	BSL	0810E	0840D	N28	E90	11	8.4	1-				C	CATA		
01	BSL	0845	0855	S20	E90	11	8.2	1-				C	CATA		
01	BSL	0845	0855D	N85	W90	10	24.1	1-				C	CATA		
01	AFS	0845E	1005D	S34	W33	10	29.8		02	9	9	E	LEAR		
01	LPS	0901	0950	146	DEG			0				P	MANI		
01	AFS	0901E	0950D	N45	E38	11	4.5	0				P	MANI		
01	AFS	0901E	0950D	S34	W34	10	29.8	0				P	MANI		
01	AFS	0901E	0950D	S38	E09	11	2.1	0				P	MANI		
01	SDF	0957	0747	N31	E58	11	6.0	2				C	CATA		
01	BSL	1000E	1014D	S18	E90	11	8.3	1-				C	CATA		
01	BSL	1000E	1025	S24	E90	11	8.4	1-				C	CATA		
01	SDF	1005E	2330D	S39	E00	11	1.4		10	0	0	E	LEAR	4875	
01	ADF	1100E	1115D	N22	W05	11	1.1	1	03	9	9	E	SVTO	4875	
01	DSD	1125E	1145	S19	W07	10	31.9	1				C	CATA		
01	BSL	1131E	1145	S21	E90	11	8.4	1				C	CATA		
01	DSD	1136E	1310D	S18	E03	11	1.7		04	9	9	E	RAMY	4878	
01	ADF	1136E	2119D	S27	E02	11	1.6	1	15	9	9	E	RAMY	4878	
01	SDF	1226E	1101D	N43	E52	11	5.8		16	0	0	E	RAMY		
01	DSD	1247E	1302D	S22	W73	10	27.0		02	9	9	E	RAMY	4881	
01	DSD	1247E	1318D	N31	W20	10	31.0		02	9	9	E	RAMY	4875	
01	ADF	1247E	2119D	N35	W21	10	30.9	1	04	9	9	E	RAMY	4875	
01	ADF	1310E	2119D	S18	W07	11	1.0	2	05	9	9	E	RAMY	4878	
01	AFS	1411E	2119D	N30	W21	10	31.0		02	9	9	E	RAMY	4875	
01	ASR	1428E	2119D	S19	E89	11	8.4			9	9	E	RAMY		
01	ADF	1730E	2119D	S23	W05	11	1.3	2	07	9	9	E	RAMY	4878	
01	SDF	2119E	1055D	S29	E10	11	2.7		18	0	0	E	RAMY	4878	
01	ASR	2140E	2155D	S22	W88	10	26.2			9	9	E	HOLL	4881	
01	ASR	2145E	2155D	S22	E75	11	7.7			9	9	E	HOLL	4882	
01	ASR	2245E	1012D	S20	W81	10	26.8			9	9	E	LEAR	4881	
01	AFS	2307E	1012D	N29	W26	10	31.0		02	9	9	E	LEAR	4875	
02	DSD	0015E	0130D	S22	E74	11	7.7		05	9	9	E	LEAR	4882	
02	ASR	0015E	1012D	S22	E90	11	8.9			9	9	E	LEAR	4882	
02	BSL	0735E	0750D	N25	E90	11	9.3	1-				C	CATA		
02	BSL	0745E	0800D	S29	E90	11	9.4	1-				C	CATA		
02	BSL	0750E	0800D	S83	E90	11	10.7	1-				C	CATA		
02	BSL	0821E	0825D	S19	E90	11	9.2	1				C	CATA		
02	DSD	0843E	1012D	S22	E62	11	7.1		03	9	9	E	LEAR	4882	
02	LPS	0857	0901	117	DEG			0				P	MANI		
02	LPS	0857	0901	148	DEG			0				P	MANI		
02	LPS	0857	0901	317	DEG			0				P	MANI		
02	AFS	0857E	0901D	N32	W29	10	31.1	0				P	MANI		
02	AFS	0857E	0901D	S27	W05	11	2.0	0				P	MANI		
02	AFS	0857E	0901D	S36	W50	10	29.4	0				P	MANI		
02	BSL	0913	0916	S17	E90	11	9.2	2				C	CATA		
02	BSL	0931	0941D	S15	E90	11	9.2	1				C	CATA		
02	ADF	0933E	1150D	S20	E74	11	8.0	1				V	KHAR		
02	BSL	0941E	0955D	S15	W90	10	26.7	1-				C	CATA		
02	BSL	1000E	1020D	N62	W90	10	25.5	1-				C	CATA		
02	BSL	1005E	1030D	N81	W90	10	25.1	1-				C	CATA		
02	BSL	1140	1150D	S20	W90	10	26.7	1				V	KHAR		
02	ASR	1150E	2026D	S23	W90	10	26.6			9	9	E	RAMY	4881	
02	SDF	1215	0728	S38	E01	11	2.6	2				C	CATA		
02	AFS	1245E	2026D	N29	W33	10	31.0		03	9	9	E	RAMY	4875	
02	DSD	1317E	1340D	S18	E70	11	7.9		05	9	9	E	RAMY		Flare Associated
02	BSD	1332E	1341D	S19	E67	11	7.7		04	8	9	E	RAMY		Flare Associated
02	DSD	1817	1915D	S25	E57	11	7.2		03	9	9	E	RAMY	4882	Flare Associated
02	ASR	1845E	2224D	S21	W88	10	27.1			9	9	E	PALE	4881	
02	DSD	1911	2050D	S21	E66	11	7.8		02	9	9	E	PALE		

ACTIVE PROMINENCES AND FILAMENTS

NOVEMBER 1987

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	CMP Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks
02	DSD	1915E	2026D	S18	E67	11	7.9		04	9	9	E	RAMY		
02	ADF	2056E	2224D	S21	W27	10	31.8	1	13	9	9	E	PALE	4878	
02	ADF	2110E	0001D	S23	W20	11	1.3		06	9	9	E	HOLL	4878	
02	ASR	2110E	0001D	S23	W90	10	27.0			9	9	E	HOLL	4881	
02	ADF	2110E	0001D	S24	W18	11	1.5	1	10	9	9	E	HOLL	4878	
02	ASR	2315E	0729D	S22	W90	10	27.1			9	9	E	LEAR	4881	
02	ADF	2320E	0042D	N29	W38	10	31.0	1	04	9	9	E	LEAR	4875	
03	DSD	1005E	1022	N34	W48	10	30.7	1				V	KHAR		
03	APR	1005E	1028	S27	W90	10	27.5	1				V	KHAR		
03	ADF	1445E	1738D	S23	W36	10	31.8	2	06	9	6	E	RAMY	4878	
03	ADF	1445E	1738D	S32	W26	11	1.5	2	08	6	9	E	RAMY	4878	
03	ADF	1610E	1738D	S22	E88	11	10.4	2	13	9	9	E	RAMY		
03	DSD	1650E	1712D	S23	E47	11	7.3		02	9	9	E	RAMY	4882	
03	DSD	1650E	1738D	S19	E54	11	7.8		04	9	9	E	RAMY	4883	
03	DSD	1720E	2020D	S21	E53	11	7.8	2	04	9	9	E	HOLL	4883	
03	APR	1721E	2340D	S17	E90	11	10.6	2		9	9	E	HOLL		
03	ADF	1810E	0107D	S23	W39	10	31.7	1	07	9	9	E	PALE	4878	
03	APR	1812E	0107D	S09	E90	11	10.5	1		9	9	E	PALE		
03	DSD	1946	2020D	S22	E40	11	6.9	2	04	9	9	E	HOLL	4878	Flare Associated
03	ADF	2008E	2340D	S22	E42	11	7.1	1	05	9	9	E	HOLL	4878	
03	DSD	2205E	2340D	N30	W60	10	30.3	1	03	9	9	E	HOLL	4875	Flare Associated
03	DSD	2219E	2340D	S16	E49	11	7.6	1	03	9	9	E	HOLL	4883	
03	APR	2234E	1008D	N01	E90	11	10.7	1		8	6	E	LEAR		
03	ADF	2234E	1008D	S23	W35	11	1.2	1	06	9	9	E	LEAR	4878	
03	AFS	2315E	1008D	S27	E64	11	8.9		02	9	9	E	LEAR	4883	
04	AFS	0150E	1008D	S24	E37	11	6.9		02	6	9	E	LEAR	4882	
04	APR	0540E	1008D	S25	W90	10	28.4	1		9	8	E	LEAR		
04	ADF	0630E	1357D	S25	W35	11	1.5	2	06	9	0	E	SVTO	4878	
04	AFS	0828E	1357D	S22	E47	11	8.0		02	9	9	E	SVTO	4883	
04	DSD	1210E	1745D	N18	E75	11	10.2		02	9	9	E	RAMY	4884	Flare Associated
04	DSD	1210E	1745D	N18	E75	11	10.2		02	9	9	E	RAMY	4884	Flare Associated
04	DSD	1255E	1626D	N28	W70	10	30.2		04	9	9	E	RAMY	4875	
04	DSD	1255E	1629D	N30	W67	10	30.4		04	9	9	E	RAMY	4875	
04	ADF	1255E	1948D	S26	W44	11	1.1	2	10	9	9	E	RAMY	4878	
04	DSD	1310E	1335D	N18	E76	11	10.3		03	9	9	E	SVTO		
04	ADF	2110E	2316D	S26	E51	11	8.8	1	15	9	9	E	HOLL	4883	
04	AFS	2211E	0211D	S24	E29	11	7.2		02	9	9	E	LEAR	4882	
04	ADF	2211E	1016D	S20	W57	10	31.6	2	08	9	9	E	LEAR	4878	
04	ADF	2235E	2335D	N31	W67	10	30.7	2	06	9	9	E	LEAR	4875	
04	ADF	2255E	0211D	S23	E24	11	6.8	2	06	4	9	E	LEAR	4882	
04	AFS	2255E	1016D	S21	E41	11	8.1		02	9	9	E	LEAR	4883	
04	AFS	2335E	1016D	N27	W62	10	31.1		02	9	9	E	LEAR	4875	
05	BSD	0422	0425	N28	W76	10	30.3		02	7	5	E	LEAR	4875	
05	BSL	0834	0840	N08	E90	11	12.1	1-				C	CATA		
05	SPY	0858	0909	42	DEG			0				P	MANI		
05	LPS	0858	0909	107	DEG			0				P	MANI		
05	MDP	0858	0909	121	DEG			0				P	MANI		
05	AFS	0858E	0909D	N47	W15	11	4.1	0				P	MANI		
05	AFS	0858E	0909D	N49	W55	10	31.7	0				P	MANI		
05	AFS	0858E	0909D	S30	E53	11	9.5	0				P	MANI		
05	AFS	0858E	0909D	S35	W43	11	1.9	0				P	MANI		
05	DSD	1114E	1715D	N27	W74	10	30.8		03	9	9	E	RAMY	4875	
05	BSL	1122	1126	N84	E90	11	13.9	1-				C	CATA		
05	BSL	1122	1126	S54	E90	11	13.2	1				C	CATA		
05	DSD	1348E	2116D	S27	E34	11	8.2		02	9	9	E	RAMY	4883	
05	ADF	1429E	2116D	S26	W55	11	1.3	2	22	9	9	E	RAMY	4878	
05	DSD	1740E	1855D	S25	E26	11	7.7		02	9	9	E	PALE	4883	
05	APR	1745E	0211D	N46	W90	10	29.3	1		8	9	E	PALE		
05	ASR	1813	1845D	N28	W87	10	30.0			9	9	E	PALE	4875	
05	AFS	2212E	0945D	S19	E24	11	7.7		03	9	9	E	LEAR	4883	
05	SPY	2317	0018D	N30	W85	10	30.4			9	9	E	LEAR	4875	
05	ADF	2327	0230D	S42	W90	10	29.7	1				C	VORO		
05	ASR	2332	0211D	N29	W90	10	30.0			9	9	E	PALE	4875	
05	APR	2340	0230D	N53	W90	10	29.4	2				C	VORO		
06	APR	0009	0230D	N41	W90	10	29.7	1				C	VORO		

ACTIVE PROMINENCES AND FILAMENTS

NOVEMBER 1987

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	CMP Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks
06	ASR	0018E	0945D	N30	W85	10	30.4	2		9	9	E	LEAR	4875	
06	APR	0025	0206	S34	W90	10	29.9	1				C	VORO		
06	AFS	0100E	0945D	N16	E56	11	10.3		04	9	9	E	LEAR	4884	
06	AFS	0106E	0211D	N16	E54	11	10.1		03	9	9	E	PALE	4884	
06	ASR	0202E	0433D	N37	E90	11	13.3	2		9	9	E	LEAR		
06	BSL	0212	0230D	N33	W90	10	30.0	1				C	VORO		
06	EPL	0746	0920	N50	W90	10	29.8	2				C	CATA		
06	BSL	0747	0805D	N28	W90	10	30.4	1-				C	CATA		
06	MDP	0806	0823	43	DEG			0				P	MANI		
06	MDP	0806	0823	124	DEG			0				P	MANI		
06	LPS	0806	0823	234	DEG			0				P	MANI		
06	LPS	0806	0823	315	DEG			0				P	MANI		
06	AFS	0806E	0823D	N44	W23	11	4.4	0				P	MANI		
06	AFS	0806E	0823D	S37	E49	11	10.3	0				P	MANI		
06	AFS	0806E	0823D	S41	W52	11	2.1	0				P	MANI		
06	BSL	0853E	0905D	S09	W90	10	30.7	1-				C	CATA		
06	BSL	0915	0920	N82	E90	11	14.8	1-				C	CATA		
06	BSL	0915	0920	S10	W90	10	30.7	1-				C	CATA		
06	EPL	1017	1105	N45	W90	10	30.0	1				C	CATA		
06	APR	1050E	1449D	N44	W90	10	30.1	1		9	9	E	SVTO		
06	AFS	1140E	1449D	N30	W05	11	6.1		02	9	9	E	SVTO		
06	EPL	1143	1146	N45	W90	10	30.1	1				C	CATA		
06	ASR	1146E	1730D	S24	W88	10	30.8			9	9	E	RAMY	4878	
06	AFS	1150E	1449D	N16	E46	11	10.0		02	9	9	E	SVTO	4884	
06	ADF	1215E	1449D	S28	E65	11	11.6	1	11	9	9	E	SVTO		
06	EPL	1218	1246	N45	W90	10	30.1	1				C	CATA		
06	AFS	1356E	1730D	N16	E46	11	10.1		02	9	9	E	RAMY	4884	
06	APR	1428E	1730D	N45	W82	10	30.9	2		9	9	E	RAMY		
06	ASR	1708E	2357D	N26	W90	10	30.8			9	9	E	HOLL	4875	
06	ASR	1710E	2357D	S26	W90	10	30.8			9	9	E	HOLL	4878	
06	AFS	1712E	2357D	N32	W06	11	6.2		02	9	9	E	HOLL	4885	
06	ADF	1715E	2357D	S27	E68	11	12.0	2	07	9	9	E	HOLL	4886	
06	DSD	1755	1901D	S26	E05	11	7.1		03	8	9	E	HOLL	4882	Flare Associated
06	DSD	1801E	2357D	S18	E13	11	7.7		05	9	9	E	HOLL	4883	
06	AFS	1820E	2100D	N32	W06	11	6.3		02	9	9	E	PALE		
06	ADF	1825E	2005	S24	E60	11	11.4	1	20	9	9	E	PALE		
06	AFS	1835E	2100D	N15	E43	11	10.0		01	9	9	E	PALE	4884	
06	SDF	1949E	2005D	S34	E90	11	14.0	3	20	9	9	E	HOLL	4886	Flare Associated
06	SDF	1951	2100D	S24	E60	11	11.5		20	9	9	E	PALE		Flare Associated
06	AFS	2311E	0945D	S22	E15	11	8.1		04	9	9	E	LEAR	4883	
06	SPY	2317	0018D	N30	W85	10	31.3			9	9	E	LEAR	4875	
07	ASR	0030E	0423D	N27	W90	10	31.0			9	9	E	LEAR	4875	
07	AFS	0220E	0945D	N32	W09	11	6.4		01	9	9	E	LEAR	4885	
07	APR	0250E	0945D	S23	W90	10	31.2	2		9	9	E	LEAR	4878	
07	ADF	0415E	0945D	S25	E21	11	8.8	1	05	9	9	E	LEAR	4883	
07	MDP	0754	0758	43	DEG			0				P	MANI		
07	LPS	0754	0758	126	DEG			0				P	MANI		
07	MDP	0754	0758	246	DEG			0				P	MANI		
07	APR	0754	0758	319	DEG			0				P	MANI		
07	AFS	0754E	0758D	N45	W34	11	4.5	0				P	MANI		
07	EPL	0805E	0946	N47	W90	10	30.9	2				C	CATA		
07	ADF	0825E	1510D	S25	E15	11	8.5	1	12	9	9	E	SVTO	4883	
07	ADF	0827E	1510D	S24	E52	11	11.4	1	08	9	9	E	SVTO	4886	
07	BSL	0840E	0920D	N54	W90	10	30.7	1-				C	CATA		
07	BSL	0840E	0920D	N57	W90	10	30.6	1-				C	CATA		
07	DSD	1005E	1510D	S26	W03	11	7.2		03	9	9	E	SVTO	4882	
07	EPL	1050	1241	N50	W90	10	30.9	2				C	CATA		
07	AFS	1052E	1510D	N17	E33	11	10.0		01	9	9	E	SVTO	4884	
07	BSL	1221E	1231D	S23	W90	10	31.6	1-				C	CATA		
07	SDF	1247	0625	S47	E35	11	10.5	1				C	CATA		
07	AFS	1258E	1728D	N16	E32	11	10.0		02	9	9	E	RAMY	4884	
07	APR	1258E	1728D	N46	W82	10	31.7	1		9	9	E	RAMY		
07	ADF	1258E	1728D	S27	E53	11	11.7	1	03	9	9	E	RAMY	4886	
07	ADF	1435E	1728D	N19	E35	11	10.3	2	03	9	9	E	RAMY	4884	
07	DSD	1509E	1553D	S23	E51	11	11.6		02	9	9	E	RAMY	4886	Flare Associated
07	ADF	1535E	2349D	S28	E50	11	11.5	2	05	9	9	E	HOLL	4886	
07	DSD	1556E	1728D	S27	E07	11	8.2		02	9	9	E	RAMY	4883	

ACTIVE PROMINENCES AND FILAMENTS

NOVEMBER 1987

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	CMP Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks
07	ASR	1650E	1819D	S22	W88	10	31.9	2		9	9	E	HOLL	4878	
07	AFS	1716E	2349D	S19	E33	11	10.2		01	9	9	E	HOLL	4887	
07	AFS	1740E	0245D	N20	E34	11	10.3		02	9	9	E	PALE	4884	
07	ADF	1830E	0245D	S28	E50	11	11.7	2	06	9	9	E	PALE	4886	
07	AFS	1918	0245D	S19	E31	11	10.2		01	9	9	E	PALE		
07	EPL	2008	2139D	N43	W90	10	31.4			9	9	E	PALE		
07	LPS	2027	2028D	N33	W90	10	31.7			9	9	E	PALE		
07	EPL	2036	2145	N47	W90	10	31.3			9	9	E	HOLL		
07	LPS	2045	2349D	N31	W90	10	31.8			9	9	E	HOLL	4875	
07	ADF	2045E	2055D	N17	E28	11	10.0	1	05	8	7	E	PALE	4884	
07	DSD	2144	2349D	S30	E49	11	11.7		03	9	9	E	HOLL	4886	Flare Associated
07	AFS	2150E	2349D	S25	E11	11	8.8		04	9	9	E	HOLL	4883	
07	AFS	2215E	0245D	S27	E08	11	8.5	1	02	8	8	E	PALE	4883	
07	APR	2355	0156	S41	W90	10	31.6	2				C	VORO		
07	LPS	2357E	0515D	N32	W90	10	31.9			9	9	E	LEAR		
08	AFS	0045E	0939D	S09	E27	11	10.0		02	3	3	E	LEAR	4883	
08	APR	0340E	0800D	S23	W90	11	1.2	1		8	8	E	LEAR	4878	
08	BSL	0716E	0730	S18	W90	11	1.4	1				V	KHAR		
08	APR	0716E	0800D	S39	W90	11	1.0	1				V	KHAR		
08	ADF	0727E	1445D	S29	E03	11	8.5	1	06	8	8	E	SVTO	4883	
08	AFS	0728E	1445D	N30	W28	11	6.1		02	9	9	E	SVTO	4885	
08	DSD	0730E	1236D	N27	W28	11	6.1		03	9	9	E	SVTO	4885	
08	ADF	0731E	1445D	S26	E41	11	11.5	1	15	9	9	E	SVTO	4886	
08	AFS	0733E	1445D	S19	E25	11	10.2		05	9	9	E	SVTO	4887	
08	AFS	0745E	0939D	N30	W28	11	6.1		02	9	9	E	LEAR	4885	
08	ADF	0749E	1445D	N31	E57	11	12.8	1	08	9	9	E	SVTO		
08	DSD	0756E	0810D	N30	W26	11	6.3	1-				C	CATA		
08	APR	0820E	0939D	S30	W87	11	1.5	2		8	9	E	LEAR		
08	BSL	0910E	0921	S18	W90	11	1.5	1-				C	CATA		
08	BSL	0951E	1001D	N22	W90	11	1.5	1-				C	CATA		
08	EPL	1226E	1240	S34	E90	11	15.7	2				C	CATA		
08	ADF	1510E	2012D	S21	W01	11	8.5	1	04	8	4	E	RAMY	4883	
08	DSD	1517E	1802D	N19	E76	11	14.4		01	9	9	E	HOLL	4889	
08	APR	1540E	2012D	S41	W90	11	1.3	2		8	9	E	RAMY		
08	ADF	1830E	0245D	S28	E50	11	12.7	2	06	9	9	E	PALE	4886	
08	AFS	1834E	2012D	N30	W34	11	6.1		02	6	7	E	RAMY	4885	
08	AFS	1847E	0304D	N20	E78	11	14.7		01	9	9	E	PALE	4889	
08	AFS	1918	0245D	S19	E31	11	11.2		01	9	9	E	PALE		
08	DSD	2010E	2134D	N01	E20	11	10.3		02	9	9	E	HOLL		
08	LPS	2027	0245D	N33	W90	11	1.7			9	9	E	PALE		
08	ADF	2045E	0245D	N17	E28	11	11.0	1	05	8	7	E	PALE	4884	
08	AFS	2134E	2343D	N01	E19	11	10.3		02	9	9	E	HOLL		
08	AFS	2215E	0245D	S27	E08	11	9.5	1	02	8	8	E	PALE	4883	
09	AFS	0105E	0139D	S21	W10	11	8.3		02	9	9	E	LEAR	4883	
09	APR	0645E	1007D	S43	W90	11	1.9	1				C	ABST		
09	LPS	0857	0909	60	DEG			0				P	MANI		
09	LPS	0857	0909	133	DEG			0				P	MANI		
09	LPS	0857	0909	228	DEG			0				P	MANI		
09	LPS	0857	0909	318	DEG			0				P	MANI		
09	AFS	0857E	0909D	N45	W62	11	4.2	0				P	MANI		
09	APR	1010E	1103D	S39	W90	11	2.1	1				V	KHAR		
09	ADF	1019E	1032	S31	W02	11	9.3	1				V	KHAR		
09	APR	1140E	1321D	S42	W90	11	2.1	1		9	9	E	RAMY		
09	AFS	1305E	1321D	N01	E11	11	10.4		03	5	6	E	RAMY		
09	ADF	1308E	1321D	S24	E22	11	11.2	2	11	7	9	E	RAMY	4886	
10	DSD	1431	1442D	N17	W10	11	9.8		03	9	9	E	RAMY	4884	Flare Associated
10	AFS	1616E	2013D	N29	W58	11	6.1		03	9	9	E	RAMY	4885	
10	ADF	1725E	2356D	N18	E19	11	12.2	2	14	9	9	E	HOLL		
10	AFS	1740E	0318D	N32	W56	11	6.3		02	8	8	E	PALE	4885	
10	ADF	1747	2233D	N17	W10	11	10.0	2	03	9	9	E	HOLL	4884	
10	ADF	1810E	2013D	N29	E25	11	12.7	2	12	9	9	E	RAMY		
10	ADF	1818E	2013D	N17	W10	11	10.0	2	04	9	9	E	RAMY	4884	
10	ADF	1825E	0318D	N18	W10	11	10.0	1	09	9	9	E	PALE	4884	
10	ASR	1840	2356D	S21	E90	11	17.7			9	9	E	HOLL		
10	ASR	1852E	2013D	S22	E89	11	17.6			9	9	E	RAMY		

ACTIVE PROMINENCES AND FILAMENTS

NOVEMBER 1987

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	CMP Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks
10	ADF	2025E	2356D	N20	W09	11	10.2	2	05	9	9	E	HOLL	4884	
10	EPL	2104E	2133D	N50	W90	11	3.2			9	9	E	PALE		
10	EPL	2135	2215D	N34	W90	11	3.7			9	9	E	HOLL		
10	SDF	2233E	2235D	N16	W14	11	9.9		07	8	8	E	HOLL	4884	
10	ADF	2300E	1015D	N20	W10	11	10.2	1	04	7	3	E	LEAR	4884	
10	ASR	2305E	1015D	S23	E90	11	17.9			6	6	E	LEAR		
11	SDF	0318E	1654	N28	E26	11	13.2		18	0	0	E	PALE		
11	BSL	0718E	0755	S27	E90	11	18.3	1				V	KHAR		
11	DSD	0730	0746	N35	W69	11	5.8	1				V	KHAR		
11	DSD	0825	0915	N32	W70	11	5.8	1				V	KHAR		
11	BSL	1000	1008	S27	E90	11	18.4	1				V	KHAR		
11	DSD	1002	1100D	N32	W65	11	6.3	1				V	KHAR		
11	SDF	1015E	2300D	N30	E24	11	13.3		09	9	9	E	LEAR		
11	DSD	1249E	1816D	N31	W69	11	6.1		03	9	9	E	RAMY	4885	
11	ADF	1255E	1816D	S32	W32	11	9.0	2	07	7	9	E	RAMY	4888	
11	SDF	1400E	1400D	N18	E08	11	12.2		14	0	0	E	HOLL		
11	ADF	1515E	1843D	N22	W19	11	10.2	1	07	9	9	E	HOLL	4884	
11	ASR	1519E	2355D	S22	E88	11	18.4			9	9	E	HOLL	4890	
11	ASR	1620E	2132D	S26	E86	11	18.4			9	9	E	RAMY	4890	
11	ASR	1740E	0335D	S26	E88	11	18.6			9	9	E	PALE	4890	
11	AFS	1840E	2005D	N17	W24	11	9.9		02	9	9	E	PALE	4884	
11	AFS	1843E	1924D	N16	W23	11	10.0		03	9	9	E	HOLL	4884	
11	AFS	1904E	2132D	N15	W23	11	10.0		02	9	9	E	RAMY	4884	
11	ADF	2005E	0335D	N20	W16	11	10.6	1	11	9	9	E	PALE	4884	
11	SDF	2013E	1625D	N21	E09	11	12.5		12	0	0	E	RAMY		
11	AFS	2018E	0335D	N17	W25	11	9.9		02	9	9	E	PALE	4884	
11	ADF	2129E	2323D	S34	E02	11	12.0	2	04	9	9	E	HOLL	4886	
11	BSD	2143E	0054D	N31	W77	11	5.8		05	9	9	E	PALE	4885	
11	BSD	2145	2320D	N29	W73	11	6.2		15	9	9	E	HOLL	4885	
11	ASR	2208E	0200D	S90	E28	11	14.5			9	9	E	LEAR	4890	
11	DSD	2215E	2355D	S24	E79	11	18.0		03	9	9	E	HOLL	4890	
12	BSL	0622E	0855D	N50	E90	11	19.9	1				C	ABST		
12	LPS	1040	1044	230	DEG			0				P	MANI		
12	MDP	1040	1044	305	DEG			0				P	MANI		
12	AFS	1040E	1044D	S18	E43	11	15.7	0				P	MANI		
12	ASR	1140E	2009D	N29	W78	11	6.4			9	9	E	RAMY	4885	
12	BSL	1205E	1216	N86	E90	11	20.9	1-				C	CATA		
12	ASR	1338E	1515D	N28	W90	11	5.5			9	9	E	SVTO	4885	
12	ASR	1505E	2355D	N29	W80	11	6.3			9	9	E	HOLL	4885	
12	ADF	1718E	0315D	N30	E01	11	12.8	1	18	8	8	E	PALE		
12	ADF	1719E	0315D	N19	W35	11	10.0	1	05	8	8	E	PALE	4884	
12	ADF	1720E	0315D	S28	W61	11	7.9	1	11	9	9	E	PALE	4888	
12	ADF	1721E	0315D	S27	W17	11	11.4	1	13	9	9	E	PALE	4886	
12	ASR	1726E	0315D	N30	W82	11	6.3			9	9	E	PALE	4885	
12	BSD	2143E	0054D	N31	W77	11	6.8		05	9	9	E	PALE	4885	
12	ASR	2208E	0200D	S90	E28	11	15.5			9	9	E	LEAR	4890	
12	ADF	2208E	0930D	N22	W22	11	11.2	2	08	9	9	E	LEAR	4884	
12	ASR	2225E	1014D	N31	W90	11	5.8			6	5	E	LEAR	4885	
12	DSD	2305E	2355D	S25	E64	11	17.9		02	7	9	E	HOLL	4890	
12	BSL	2359	0205	N21	W90	11	6.1	1				C	VORO		
13	ADF	0020E	0324D	N21	W49	11	9.2	2	08	8	7	E	PALE	4884	
13	ASR	0630E	1320	N30	W90	11	6.2			9	9	E	SVTO	4885	
13	BSL	0921E	0924D	N32	W90	11	6.3	1-				C	CATA		
13	BSL	0935	0945	N32	W90	11	6.3	1-				C	CATA		
13	BSL	0957	1008	N31	W90	11	6.3	1-				C	CATA		
13	MDP	1040	1044	55	DEG			0				P	MANI		
13	AFS	1040E	1054D	N21	W09	11	12.7	0				P	MANI		
13	AFS	1040E	1054D	N22	W36	11	10.7	0				P	MANI		
13	AFS	1040E	1054D	S10	W67	11	8.4	0				P	MANI		
13	AFS	1040E	1054D	S20	E28	11	15.6	0				P	MANI		
13	AFS	1040E	1054D	S21	E60	11	18.0	0				P	MANI		
13	BSL	1150	1159D	N73	W90	11	5.2	1-				C	CATA		
13	ASR	1358E	1750D	N30	W90	11	6.5			9	9	E	RAMY	4885	
13	ASR	1540E	1754D	N28	W90	11	6.6			9	9	E	HOLL	4885	
13	DSD	1913E	1941D	S20	E51	11	17.7		03	9	9	E	HOLL	4890	

NOVEMBER 1987

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	CMP Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks
14	ADF	0020E	0324D	N21	W49	11	10.2	2	08	8	7	E	PALE	4884	
14	ADF	0235E	1006D	S28	W34	11	11.4	2	06	7	6	E	LEAR	4886	
14	ADF	0257E	0324D	S27	E53	11	18.2	1	04	7	9	E	PALE	4890	
14	ASR	1430E	1836D	S34	W90	11	7.4			7	4	E	RAMY	4888	
14	ASR	1437E	1836D	N25	W90	11	7.6			9	9	E	RAMY		
14	ASR	1742E	2115D	N25	W84	11	8.2			9	9	E	PALE		
14	ASR	1810	2115D	S26	W80	11	8.5			9	9	E	PALE	4883	
15	BSL	0638E	0843D	S50	E90	11	22.9	1				C	ABST		
15	AFS	1138E	2051D	S27	E36	11	18.3		03	9	9	E	RAMY	4890	
15	APR	1144E	2051D	S32	W90	11	8.4	2		7	6	E	RAMY	4888	
15	AFS	2030E	0316D	S28	E29	11	18.1		03	9	9	E	PALE	4890	
15	AFS	2330E	1023D	S28	E26	11	18.0		02	9	9	E	LEAR	4890	
16	BSL	0516E	0609D	S39	W90	11	8.9	1				C	ABST		
16	BSL	0726E	0744D	S17	E90	11	23.1	1				C	ABST		
16	AFS	0933E	1054D	S26	E22	11	18.1		03	9	9	E	SVTO	4890	
16	SDF	1323E	1132D	S01	W45	11	13.2		24	7	6	E	RAMY		
16	ADF	1330	2057D	S27	E19	11	18.0	2	06	9	9	E	RAMY	4890	
16	AFS	1330E	2057D	S25	E22	11	18.3		02	9	9	E	RAMY	4890	
16	AFS	1753E	0244D	N18	W28	11	14.6		02	9	9	E	PALE	4889	
16	ADF	1757E	0244D	S29	E16	11	18.0	1	03	9	9	E	PALE	4890	
16	AFS	1950E	0244D	S26	E19	11	18.3		02	9	9	E	PALE	4890	
17	AFS	0049E	1023D	S28	E16	11	18.3		03	9	9	E	LEAR	4890	
17	SDF	0244E	2000D	S29	E06	11	17.6		11	0	0	E	PALE		
17	BSL	0608E	1007D	N20	W90	11	10.4	1				C	ABST		
17	BSL	0634	0649D	N88	E90	11	25.7	1-				C	CATA		
17	AFS	0702E	1512D	S25	E14	11	18.4		02	9	9	E	SVTO	4890	
17	ADF	0704E	1512D	S27	E13	11	18.3	1	04	9	9	E	SVTO	4890	
17	DSD	0705E	1512D	S25	E08	11	17.9		02	9	9	E	SVTO	4890	
17	AFS	0706E	1158D	N18	W40	11	14.2		02	9	9	E	SVTO	4889	
17	BSL	0708E	0720D	N52	W90	11	9.6	1-				C	CATA		
17	BSL	0708E	0726D	S58	E90	11	25.1	1-				C	CATA		
17	AFS	0708E	1512D	S19	E52	11	21.3		02	9	9	E	SVTO		
17	DSD	0919	1050D	S25	E02	11	17.5	1				C	CATA		
17	EPL	1005E	1136D	N19	W90	11	10.5	2				C	CATA		
17	BSL	1232E	1235	S28	E90	11	24.5	1-				C	CATA		
17	ADF	1400E	1921D	S25	E04	11	17.9	2	05	9	9	E	RAMY	4890	
17	AFS	1400E	1921D	S25	E08	11	18.2		03	7	4	E	RAMY	4890	
17	DSD	1450E	1914D	S16	W08	11	17.0		02	9	9	E	RAMY	4893	
17	AFS	2158E	0929D	S19	E84	11	24.3		02	9	9	E	LEAR	4891	
17	AFS	2158E	0929D	S25	E05	11	18.3		03	9	9	E	LEAR	4890	
18	SDF	0236	0632	S27	W10	11	17.3	1				C	CATA		
18	DSD	0329E	0929D	S24	E05	11	18.5		04	9	9	E	LEAR	4890	
18	DSD	0905E	1503D	S17	W15	11	17.2		02	9	9	E	SVTO	4893	
18	DSD	0929E	1142D	S24	W05	11	18.0		03	9	9	E	SVTO	4890	
18	ADF	0929E	1503D	S21	E00	11	18.4	1	06	9	9	E	SVTO	4890	
18	SDF	1026E	0929D	S29	W55	11	14.1	1	17	9	9	E	LEAR		
18	ADF	1028E	1503D	S15	E69	11	23.6	1	07	9	9	E	SVTO	4891	
18	AFS	1058E	1144D	S17	W18	11	17.1		02	9	9	E	SVTO	4893	
18	AFS	1058E	1503D	S17	W18	11	17.1		01	9	9	E	SVTO	4893	
18	BSL	1115E	1125D	N13	W90	11	11.7	1-				C	CATA		
18	BSL	1155E	1230	N42	W90	11	11.1	1-				C	CATA		
18	AFS	1315E	1558D	S15	W20	11	17.0		02	9	9	E	RAMY	4893	
18	DSD	1315E	1558D	S16	W17	11	17.3		02	9	9	E	RAMY	4893	
18	DSD	1424E	2125D	S22	E53	11	22.7		02	9	9	E	RAMY	4891	
18	DSD	1602E	1900D	S19	E52	11	22.6		03	9	9	E	HOLL	4891	Flare Associated
18	DSD	1607E	1630	S24	E09	11	19.4		02	9	9	E	HOLL	4890	Flare Associated
18	DSD	1607E	1900D	S25	E11	11	19.5		06	9	9	E	HOLL	4890	
18	DSD	1607E	2308D	S27	E11	11	19.5		08	9	9	E	HOLL	4890	
18	AFS	1736E	0332D	S22	E50	11	22.6		02	9	9	E	PALE	4891	
18	DSD	1737E	2101D	S24	W12	11	17.8		03	9	9	E	PALE	4890	
18	AFS	1754E	0303D	S28	E06	11	19.2		02	7	9	E	PALE	4890	
18	AFS	1830E	0303D	S16	W11	11	17.9		02	8	9	E	PALE	4893	
18	DSD	1839E	0303D	S16	W11	11	17.9		01	9	9	E	PALE	4893	
18	AFS	2000E	0332D	S15	W26	11	16.9		01	9	9	E	PALE	4893	

ACTIVE PROMINENCES AND FILAMENTS

NOVEMBER 1987

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	CMP Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks
18	AFS	2041E	2350D	S18	E49	11	22.6		02	9	9	E	HOLL	4891	
18	AFS	2055E	0332D	S24	W09	11	18.2		03	9	9	E	PALE	4890	
18	AFS	2200E	1003D	S21	E47	11	22.5		02	9	9	E	LEAR	4891	
18	AFS	2200E	1003D	S25	W11	11	18.1		03	9	9	E	LEAR	4890	
18	DSD	2225E	2308D	S25	W18	11	17.5		10	9	9	E	PALE	4890	Flare Associated
18	BSD	2227E	2236	S25	W18	11	17.5		09	9	9	E	PALE	4890	Flare Associated
18	DSD	2237E	2300D	S25	W12	11	18.0		11	9	9	E	LEAR	4890	
19	DSD	0112E	0332D	S25	W18	11	17.6		06	9	9	E	PALE	4890	Flare Associated
19	DSD	0113E	0205D	S25	W12	11	18.1		06	9	9	E	LEAR	4890	
19	DSD	0216E	0340D	S25	W14	11	18.0		07	9	9	E	LEAR	4890	
19	BSL	0616E	1005D	S32	W90	11	12.1	1				C	ABST		
19	ADF	0721E	1143D	S25	W14	11	18.2	1	05	9	9	E	SVTO	4890	
19	DSD	0726E	1009D	S26	W17	11	18.0		02	9	9	E	SVTO	4890	
19	SDF	0726E	1009D	S26	W17	11	18.0		02	9	9	E	SVTO	4890	
19	DSD	0820E	1003D	S21	W14	11	18.3		03	9	9	E	LEAR	4890	
19	MDP	0835	0852	118	DEG			0				P	MANI		
19	MDP	0835	0852	239	DEG			0				P	MANI		
19	EPR	0835	0852	314	DEG			1				P	MANI		
19	AFS	0835E	0852D	S35	E14	11	20.5	0				P	MANI		
19	AFS	0835E	0852D	S43	W27	11	17.1	0				P	MANI		
19	BSL	0850E	0855D	S14	W90	11	12.6	1-				C	CATA		
19	BSL	0956E	1008D	N84	E90	11	27.8	1-				C	CATA		
19	AFS	1455E	2349D	S19	E40	11	22.7		02	9	9	E	HOLL	4891	
19	ADF	1455E	2349D	S21	E44	11	23.0	1	05	9	9	E	HOLL	4891	
19	DSD	1710E	1903D	S27	W19	11	18.2		04	9	9	E	RAMY	4890	Flare Associated
19	ADF	1718E	2105D	S15	E50	11	23.5	1	06	8	5	E	RAMY	4891	
19	ADF	1718E	2105D	S20	E44	11	23.1	1	08	8	4	E	RAMY	4891	
19	DSD	1839	1923D	S22	E38	11	22.7		02	9	9	E	PALE	4891	Flare Associated
19	DSD	1931	0249D	S25	W24	11	17.9		02	9	9	E	PALE	4890	
19	AFS	2020E	0249D	S21	E35	11	22.5		03	9	9	E	PALE	4891	
19	DSD	2034E	2349D	S20	E38	11	22.8		03	9	9	E	HOLL	4891	
19	SDF	2133	2159D	S18	W37	11	17.1		06	9	9	E	PALE	4893	
19	DSD	2153E	2349D	S26	W23	11	18.1		02	9	9	E	HOLL	4890	
19	ADF	2240E	2349D	S32	W19	11	18.4	1	02	9	9	E	HOLL	4890	
19	DSD	2330E	0845D	S22	E34	11	22.6		02	9	9	E	LEAR	4891	
19	AFS	2330E	1000D	S25	W26	11	18.0		02	9	9	E	LEAR	4890	
20	DSD	0035E	0245D	S22	E34	11	22.6		03	9	9	E	PALE	4891	
20	AFS	0140E	1008D	S22	E32	11	22.5		02	9	9	E	LEAR	4891	
20	DSD	0230E	0850D	S26	W26	11	18.1		04	9	9	E	LEAR	4890	
20	ASR	1615E	2349D	N29	E90	11	27.7			9	9	E	HOLL		
20	ADF	1717E	0236D	S22	E23	11	22.5	1	03	9	9	E	PALE	4891	
20	ASR	1746E	0236D	N27	E88	11	27.6			9	9	E	PALE		
20	DSD	1835E	2009D	S20	E24	11	22.6		04	9	9	E	HOLL	4891	
20	ASR	1842E	2002D	N29	E90	11	27.8			9	9	E	RAMY		
20	AFS	1913E	2002D	S20	E22	11	22.5		02	9	9	E	RAMY	4891	
20	DSD	1931E	2002D	S22	E25	11	22.7		02	9	9	E	RAMY	4891	
20	ADF	2215E	0955D	S26	E25	11	22.9	3	04	9	9	E	LEAR	4891	
20	DSD	2240E	0845D	S21	E21	11	22.5		03	9	9	E	LEAR	4891	
20	ASR	2240E	0955D	N27	E78	11	27.0			6	4	E	LEAR		
20	AFS	2240E	0955D	S21	E21	11	22.5		02	9	9	E	LEAR	4891	
20	AFS	2240E	0955D	S29	W34	11	18.3		04	9	9	E	LEAR	4890	
21	ADF	0748E	0815D	S18	E27	11	23.4		06	9	9	E	SVTO	4891	
21	AFS	0801E	0815D	S21	E18	11	22.7		02	9	9	E	SVTO	4891	
21	ADF	1407E	2107D	S22	E18	11	23.0	1	05	9	6	E	RAMY	4891	
21	AFS	1435E	2349D	S20	E15	11	22.7		03	9	9	E	HOLL	4891	
21	AFS	1450E	2107D	S21	E14	11	22.7		03	9	9	E	RAMY	4891	
21	ADF	1717E	0236D	S22	E23	11	23.5	1	03	9	9	E	PALE	4891	
21	ASR	1746E	0236D	N27	E88	11	28.6			9	9	E	PALE		
21	AFS	2135E	2349D	S34	W01	11	21.8		03	9	9	E	HOLL		
21	AFS	2136E	0304D	S34	W01	11	21.8		03	9	8	E	PALE		
21	ADF	2139E	2349D	S21	E12	11	22.8	1	03	9	9	E	HOLL	4891	
21	AFS	2305E	1000D	S21	E07	11	22.5		02	9	9	E	LEAR	4891	
21	AFS	2305E	1000D	S22	W48	11	18.3		03	9	9	E	LEAR	4890	
21	AFS	2325E	1000D	S33	W06	11	21.5		02	9	7	E	LEAR		
22	ASR	0100E	0304D	S24	E90	11	29.0			8	8	E	PALE		

ACTIVE PROMINENCES AND FILAMENTS

NOVEMBER 1987

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	CMP Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks
22	ASR	0150E	0530D	S31	E77	11	28.1			9	9	E	LEAR		
22	DSD	0350E	1000D	S07	E21	11	23.7		03	9	9	E	LEAR	4891	
22	BSL	1000E	1007D	S24	E90	11	29.4	1-				C	CATA		
22	DSD	1145E	1815D	S22	W56	11	18.2		04	9	9	E	RAMY	4890	
22	AFS	1145E	2049D	S20	E02	11	22.6		04	8	6	E	RAMY	4891	
22	BSL	1150E	1205D	S25	E90	11	29.5	1-				C	CATA		
22	ADF	1229E	2049D	S18	E12	11	23.4	2	05	9	9	E	RAMY		
22	ADF	1229E	2049D	S22	E03	11	22.7	2	05	9	9	E	RAMY	4891	
22	DSD	1455E	2224D	S23	W59	11	18.1		03	9	9	E	HOLL	4890	
22	ADF	1456E	2225D	S21	E01	11	22.7	2	04	9	9	E	HOLL	4891	
22	AFS	1500E	2348D	S35	W13	11	21.6		04	9	9	E	HOLL	4896	
22	AFS	1720E	0332D	S33	W15	11	21.5		02	9	9	E	PALE	4896	
22	AFS	1730E	0332D	S21	W01	11	22.6		02	9	9	E	PALE	4891	
22	ADF	1800E	0332D	S22	E03	11	23.0	1	06	9	9	E	PALE	4891	
22	ADF	1800E	0332D	S26	W62	11	17.9	1	04	9	9	E	PALE	4890	
22	ADF	1815E	2049D	S23	W61	11	18.1	1	03	9	9	E	RAMY	4890	
22	DSD	1850E	0332D	S25	W66	11	17.7		05	9	9	E	PALE	4890	
22	AFS	1855E	0332D	S22	E66	11	27.9		01	9	9	E	PALE		
22	ADF	2225E	2348D	S21	W02	11	22.8	2	08	9	9	E	HOLL	4891	
23	ADF	0230E	1006D	S20	W06	11	22.6	2	08	9	9	E	LEAR	4891	
23	SDF	1242	0740	S32	E25	11	25.5	1				C	CATA		
23	SDF	1242	0740	S40	E10	11	24.3	1				C	CATA		
23	AFS	1415E	2051D	S21	W14	11	22.5		04	9	9	E	RAMY	4891	
23	ADF	1415E	2051D	S21	W65	11	18.6	2	11	9	9	E	RAMY	4890	
23	ADF	1415E	2051D	S22	W04	11	23.3	2	10	8	7	E	RAMY	4891	
23	AFS	1415E	2051D	S23	W14	11	22.5		03	9	9	E	RAMY	4891	
23	AFS	1415E	2051D	S33	W27	11	21.4		05	9	9	E	RAMY	4896	
23	AFS	1426E	2258D	S38	W29	11	21.2		03	9	9	E	HOLL	4896	
23	AFS	1715E	0331D	S33	W28	11	21.5		03	9	9	E	PALE	4896	
23	ADF	1850E	0331D	N30	E55	11	28.1	2	09	9	9	E	PALE	4895	
23	ADF	2005E	0030D	S21	E31	11	26.2	1	05	9	9	E	PALE		
23	AFS	2006E	0331D	S20	E23	11	25.6		01	9	9	E	PALE		
23	DSD	2009	2050D	S21	E31	11	26.2		04	9	9	E	PALE		Flare Associated
23	ASR	2038E	2051D	S25	W77	11	17.9			9	0	E	RAMY	4890	
24	AFS	0120E	1020D	S33	W34	11	21.3		04	9	9	E	LEAR	4896	
24	ADF	0615E	1020D	N32	W46	11	20.6		04	9	9	E	LEAR	4895	Normal Emission 1/3
24	BSL	0707E	0909D	N40	E90	12	1.6	1				C	ABST		
24	SDF	0903E	0104D	S18	E37	11	27.2		11	0	0	E	LEAR		
24	BSL	0950	0950	N29	W90	11	17.3	1-				C	CATA		
24	AFS	1500E	2348D	S35	W39	11	21.5		03	9	9	E	HOLL	4896	
24	ASR	1501E	2348D	S28	W86	11	17.9			9	9	E	HOLL	4890	
24	AFS	1935E	0331D	S36	W39	11	21.7		03	9	9	E	PALE	4896	
24	AFS	2257E	1021D	N33	W46	11	21.3		03	9	9	E	LEAR	4896	
24	ADF	2257E	1021D	N34	E40	11	28.1		04	9	9	E	LEAR	4895	
24	ADF	2327E	1021D	S21	W25	11	23.1		05	9	9	E	LEAR	4891	
25	ADF	0330E	1021D	S24	W31	11	22.7		06	9	9	E	LEAR	4891	
25	SDF	0331E	2006D	N32	W06	11	24.7		07	0	0	E	PALE		
25	BSL	0615E	0659D	S20	E90	12	2.1	1				C	ABST		
25	BSL	0615E	0916D	N40	E90	12	2.6	1				C	ABST		
25	BSL	0959	1017	S42	W90	11	18.0	1-				C	CATA		
25	LPS	1040		54	DEG			0				P	MANI		
25	LPS	1040		130	DEG			0				P	MANI		
25	LPS	1040		228	DEG			0				P	MANI		
25	AFS	1040E	1040D	N55	W18	11	23.9	0				P	MANI		
25	AFS	1040E	1040D	S24	W66	11	20.3	0				P	MANI		
25	AFS	1040E	1040D	S57	W47	11	21.3	0				P	MANI		
25	SDF	1215	0915	S26	E34	11	28.1	1				C	CATA		
25	DSD	1405E	1410D	S32	W55	11	21.2		03	9	9	E	RAMY	4896	
25	DSD	1637E	1714D	S22	E25	11	27.6		02	9	9	E	HOLL	4897	
25	ADF	1637E	2349D	S34	W55	11	21.3	2	03	9	9	E	HOLL	4896	
25	EPL	1713E	1726D	N34	E90	12	2.9			7	9	E	PALE		
25	DSD	1722	1755D	S34	W61	11	20.9		13	9	9	E	HOLL	4896	Flare Associated
25	EPL	1731	1750D	N34	E90	12	2.9			9	9	E	HOLL		
25	ADF	2330E	1009D	S19	W32	11	23.5		08	9	9	E	LEAR	4891	
26	ADF	0405E	1009D	N27	E20	11	27.7		03	9	9	E	LEAR	4895	

ACTIVE PROMINENCES AND FILAMENTS

NOVEMBER 1987

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	CMP Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks
26	ADF	0521E	1008D	N57	W31	11	23.5	1				C	ABST		
26	BSL	0542E	1009D	N20	E90	12	3.1	1				C	ABST		
26	DSD	1512E	1635D	S24	W44	11	23.2		03	9	9	E	HOLL	4891	
26	ADF	1635E	2347D	S23	W45	11	23.2	1	06	8	9	E	HOLL	4891	
26	AFS	2030E	2355D	N12	E22	11	28.5		02	8	8	E	PALE		
26	ADF	2245E	0453D	S22	W49	11	23.2	2	03	9	9	E	LEAR	4891	
26	DSD	2246E	0457D	S32	W71	11	21.3		01	9	9	E	LEAR	4896	
26	ASR	2325E	0145D	S31	W90	11	19.9			9	9	E	PALE	4896	
27	DSD	0001E	0215D	S20	W18	11	25.6		03	9	9	E	PALE		
27	ADF	0135E	0959D	N26	E06	11	27.5	2	08	9	9	E	LEAR	4895	
27	ADF	0230E	0331D	S21	W54	11	23.0	1	06	9	9	E	PALE	4891	
27	EPL	0420E	0530D	S33	W71	11	21.5	2		8	6	E	LEAR	4896	
27	BSL	0629E	0653D	S33	W90	11	20.1	1				C	ABST		
27	BSL	0637	0641	S37	W90	11	20.0	2				C	CATA		
27	LPS	0835	0940	235	DEG			0				P	MANI		
27	APR	0849E	1040D	S20	W54	11	23.2	1				V	KHAR		
27	BSL	0858E	0905D	N87	E90	12	5.8	1-				C	CATA		
27	BSL	0942E	0955D	N64	W90	11	19.4	1-				C	CATA		
27	ADF	0944E	1440D	S23	W60	11	22.8	1	05	9	9	E	SVTO	4891	
27	ADF	0945E	1440D	N41	E12	11	28.4	1	04	9	9	E	SVTO	4895	
27	ASR	1222E	1440D	S37	W90	11	20.3			9	9	E	SVTO	4896	
27	ASR	1645E	1731D	S32	W74	11	21.8			8	7	E	RAMY	4896	
27	ADF	1847E	2348D	S21	W66	11	22.7	1	04	9	9	E	HOLL	4891	
27	ASR	1849E	2348D	S34	W90	11	20.6			9	9	E	HOLL	4896	
28	ADF	0200E	0830D	S21	W64	11	23.2	2	07	9	9	E	LEAR	4891	
28	AFS	0200E	1025D	S27	E27	11	30.2		03	8	9	E	LEAR	4898	
28	ASR	0200E	1025D	S34	W80	11	21.7			6	7	E	LEAR	4896	
28	SDF	0303E	2238D	N35	W15	11	26.9		12	0	0	E	PALE		
28	SDF	0303E	2238D	N50	W01	11	28.0		09	0	0	E	PALE		
28	SDF	0303E	2238D	N53	E08	11	28.8		07	0	0	E	PALE		
28	AFS	0458E	1025D	N27	W06	11	27.7		05	9	9	E	LEAR	4895	
28	BSL	0720E	0725	N28	E90	12	5.3	1-				C	CATA		
28	DSD	0742E	1501D	S24	E73	12	4.0		03	9	9	E	SVTO	4891	
28	LPS	0800	0820	43	DEG			0				P	MANI		
28	LPS	0800	0820	328	DEG			0				P	MANI		
28	AFS	0800E	0820D	N47	E09	11	29.1	0				P	MANI		
28	AFS	0800E	0820D	S22	W63	11	23.5	0				P	MANI		
28	BSL	0905E	0910	S32	W90	11	21.2	1-				C	CATA		
28	BSL	0935E	0946	S32	W90	11	21.3	1				C	CATA		
28	DSD	1435E	1640D	S22	E21	11	30.2		02	9	9	E	RAMY	4898	
28	AFS	1435E	1730D	S21	E27	11	30.7		02	9	8	E	RAMY	4898	
28	ADF	1435E	1937D	S21	W81	11	22.4	1	12	9	9	E	RAMY	4891	
28	ASR	1620E	1934D	S33	W89	11	21.6			9	9	E	RAMY	4896	
28	AFS	1640E	2112D	S22	E20	11	30.2		01	9	9	E	RAMY	4898	
28	AFS	1709E	2342D	S22	E21	11	30.3		01	9	9	E	HOLL	4898	
28	ASR	1744E	1817D	S34	W89	11	21.6			7	7	E	HOLL	4896	
28	DSD	1756E	1829D	S20	W70	11	23.4		03	9	9	E	HOLL	4891	Flare Associated
28	AFS	1801E	0250D	S27	E21	11	30.4		02	9	9	E	PALE	4898	
28	ASR	1814E	1925D	S23	W86	11	22.1			9	9	E	HOLL	4891	
28	ASR	1834E	1933D	S22	W86	11	22.2			9	9	E	RAMY	4891	
28	ASR	2044E	2112D	S33	W89	11	21.8			9	9	E	RAMY	4896	
28	ADF	2150E	2238D	N35	W03	11	28.7	1	02	9	9	E	PALE		
28	ASR	2232E	2342D	S35	W90	11	21.7			9	9	E	HOLL	4891	
29	BSL	0703E	0719D	N41	W90	11	21.9	1-				C	CATA		
29	BSL	0710E	0725D	S35	W90	11	22.1	1-				C	CATA		
29	BSL	0735E	0735	S35	W90	11	22.1	1-				C	CATA		
29	BSL	0810E	0816D	N74	E90	12	7.6	1-				C	CATA		
29	BSL	0810E	0816D	S88	W90	11	20.9	1-				C	CATA		
29	BSL	0814E	0947D	S33	W90	11	22.2	1				C	ABST		
29	ADF	0900E	1010D	N29	W22	11	27.6		05	9	9	E	LEAR	4895	
29	BSL	0910E	0920D	S32	W90	11	22.2	1-				C	CATA		
29	BSL	1006E	1021D	S88	E90	12	7.8	1-				C	CATA		
29	BSL	1140E	1150D	N59	E90	12	7.4	1-				C	CATA		
29	BSL	1225E	1230D	N68	W90	11	21.4	1-				C	CATA		
29	ASR	1720E	2145D	S20	W90	11	22.8			9	9	E	RAMY	4891	

NOVEMBER 1987

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo	CMP Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks
29	MDP	1744E	2015D	S22	W86	11	23.1			9	9	E	HOLL	4891	
29	DSD	2015E	2118D	S04	E22	12	1.5		02	9	9	E	RAMY	4898	
29	DSD	2015E	2118D	S04	E25	12	1.7		02	9	9	E	RAMY	4898	
29	ASR	2029E	2156D	S22	W89	11	23.0			9	9	E	HOLL	4891	
29	APR	2156E	2232D	S21	W90	11	23.0	2		9	9	E	HOLL	4891	
29	AFS	2316E	1013D	S23	E01	11	30.0		04	9	8	E	LEAR	4898	
29	AFS	2358E	1000D	S28	E15	12	1.2		02	9	9	E	LEAR	4898	
29	ASR	2358E	1000D	S33	W90	11	22.8			9	9	E	LEAR	4896	
30	APR	0052	0253	S53	W90	11	22.3	1				C	VORO		
30	ADF	0122	2353D	N50	W22	11	28.2	1				C	VORO		
30	ADF	0314E	1013D	N34	W26	11	28.1	2	09	9	9	E	LEAR	4895	
30	BSL	0602E	0947D	S32	E90	12	7.4	1				C	ABST		
30	BSL	0602E	0947D	S50	E90	12	7.9	1				C	ABST		
30	AFS	0830E	0912D	N24	W02	11	30.2		03	9	9	E	SVTO		
30	EPL	0847	0910	S33	E90	12	7.5	1				C	CATA		
30	EPL	0949	1001	S33	E90	12	7.5	2				C	CATA		
30	DSD	1259E	1500D	N33	W34	11	27.8		07	9	9	E	RAMY	4895	
30	AFS	1725E	0331D	N23	W07	11	30.2		02	8	8	E	PALE		
30	AFS	1930E	2348D	S23	W08	11	30.2		01	9	9	E	HOLL	4898	
30	AFS	1940E	2137D	N23	W09	11	30.1		02	9	9	E	RAMY	4900	
30	AFS	1940E	2137D	S23	W09	11	30.1		02	9	9	E	RAMY	4898	
30	DSD	1959E	2102D	N27	W42	11	27.5		02	9	9	E	RAMY	4895	
30	ADF	2203E	2258D	N34	W38	11	27.9	2	09	9	9	E	LEAR	4895	
30	ADF	2220E	2245	N29	W43	11	27.5	1	08	9	9	E	PALE	4895	
30	ADF	2222E	2253D	N32	W41	11	27.7	1	07	9	9	E	HOLL	4895	
30	SDF	2226E	2258D	N34	W38	11	27.9	2	09	0	0	E	LEAR	4895	
30	SDF	2245E	2253D	N32	W41	11	27.7	3	07	2	6	E	HOLL	4895	
30	SDF	2245E	2310D	N29	W43	11	27.6	3	08	9	9	E	PALE	4895	

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

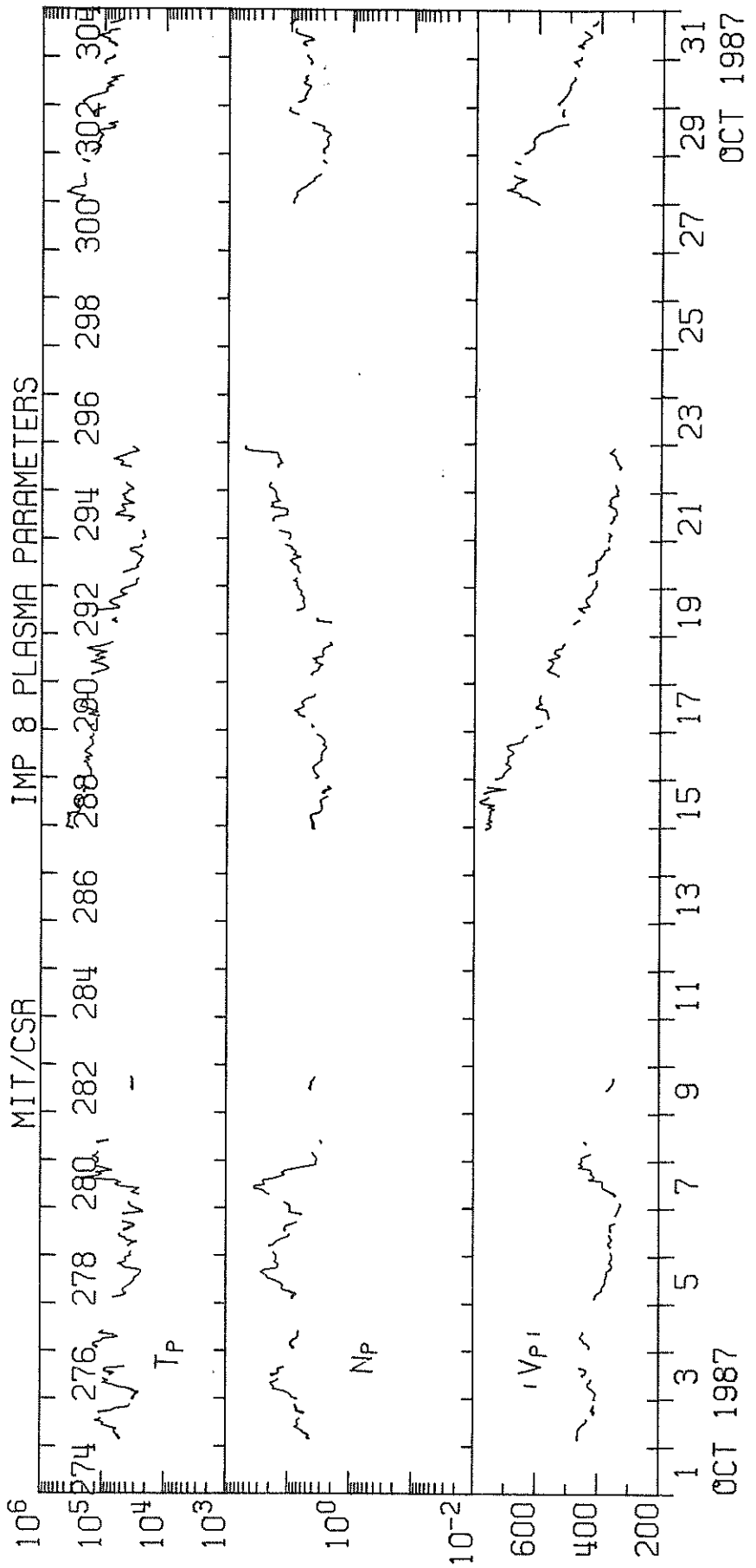
The EXTENT field for limb events is the radial extent above the limb in hundredths of solar radius. For disk events this field contains the heliographic extent in whole degrees.

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.

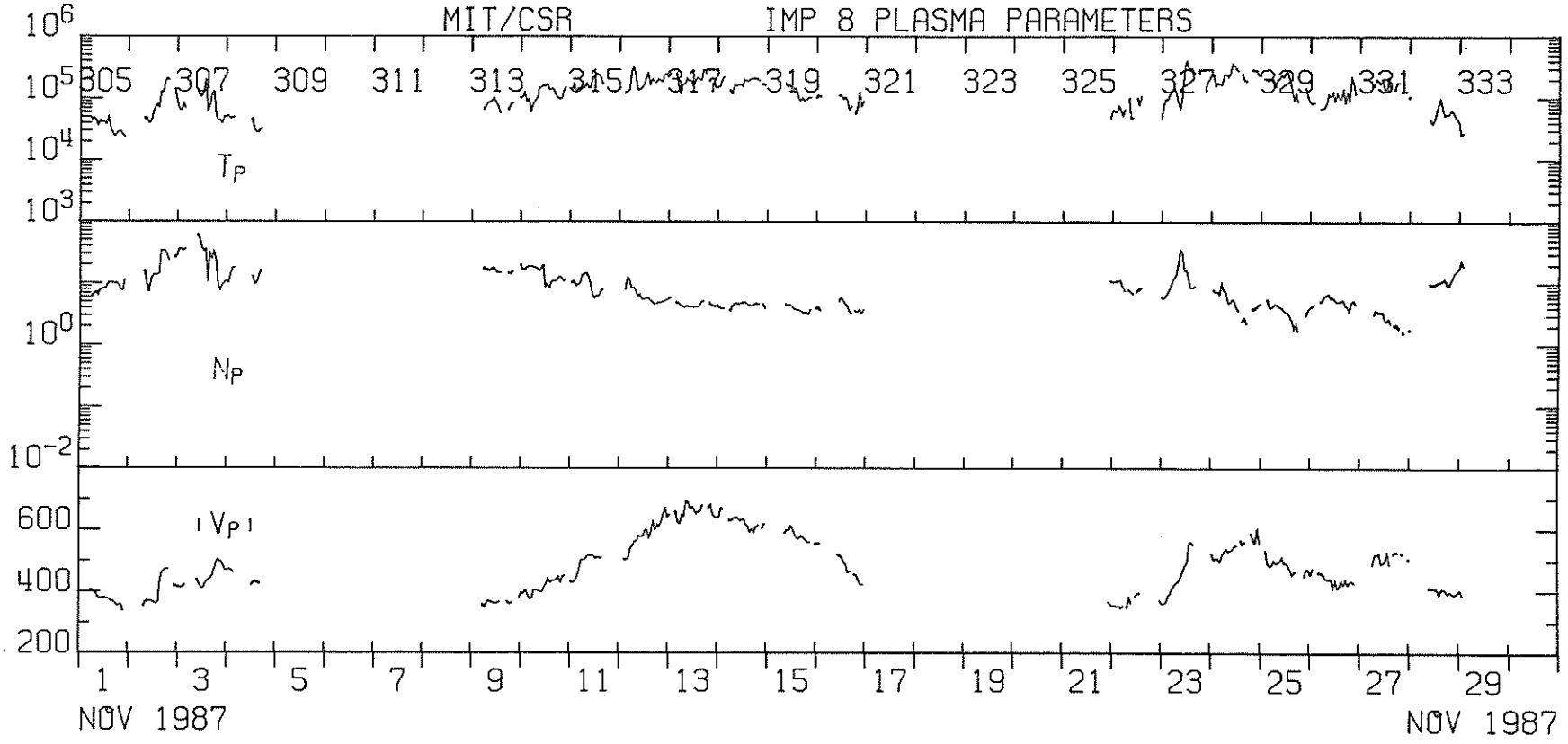
C O N T E N T S

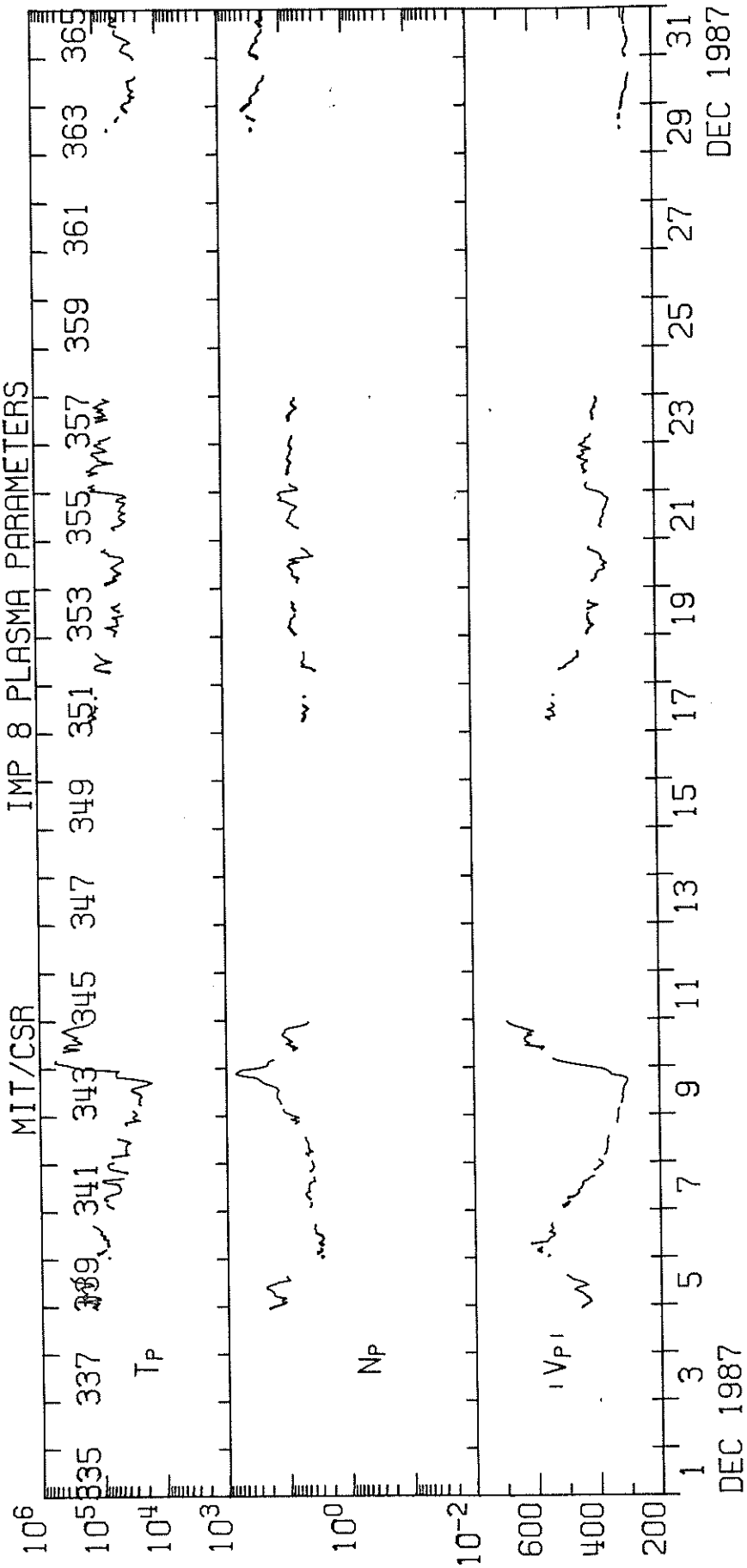
Comprehensive Reports **MISCELLANEOUS DATA** Number 525 Part II


IMP 8 SOLAR WIND PLASMA
OCTOBER 1987
MIT/CSR
IMP 8 PLASMA PARAMETERS
T_P
N_P
$|V_P|$
OCT 1987
OCT 1987

IMP 8 SOLAR WIND PLASMA

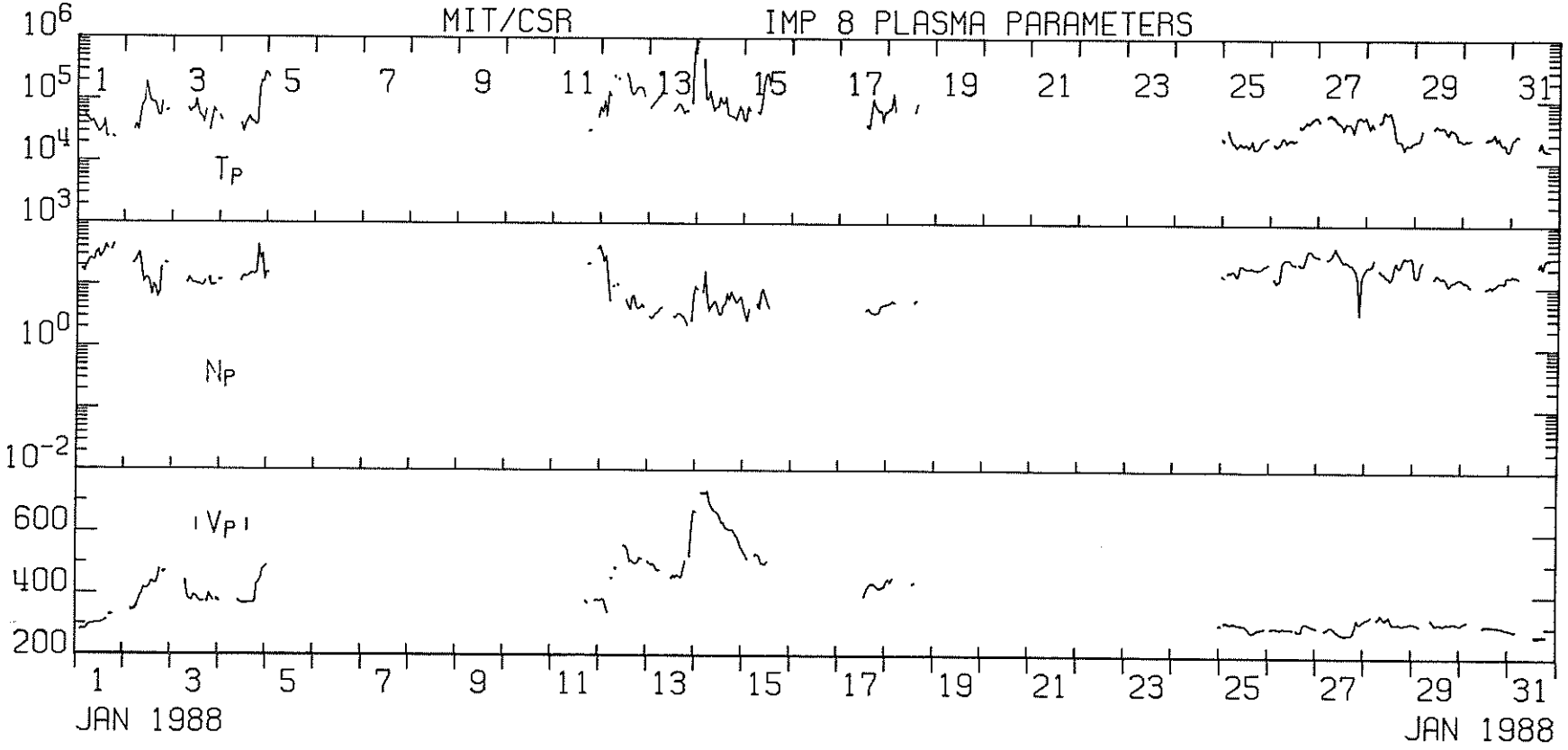
NOVEMBER 1987



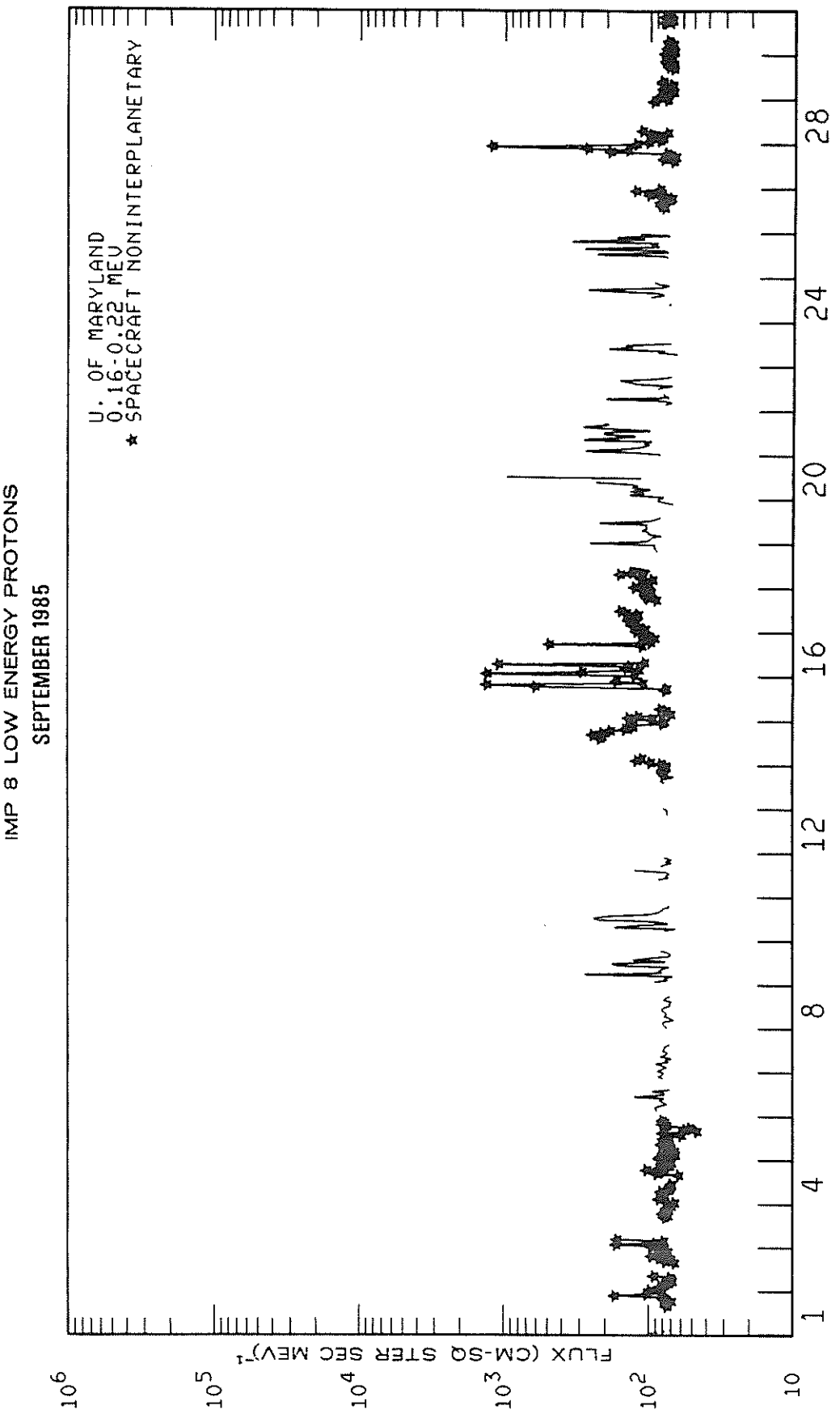

IMP 8 SOLAR WIND PLASMA
DECEMBER 1987
MIT/CSR
IMP 8 PLASMA PARAMETERS
T_P
N_P
V_P
DEC 1987
DEC 1987

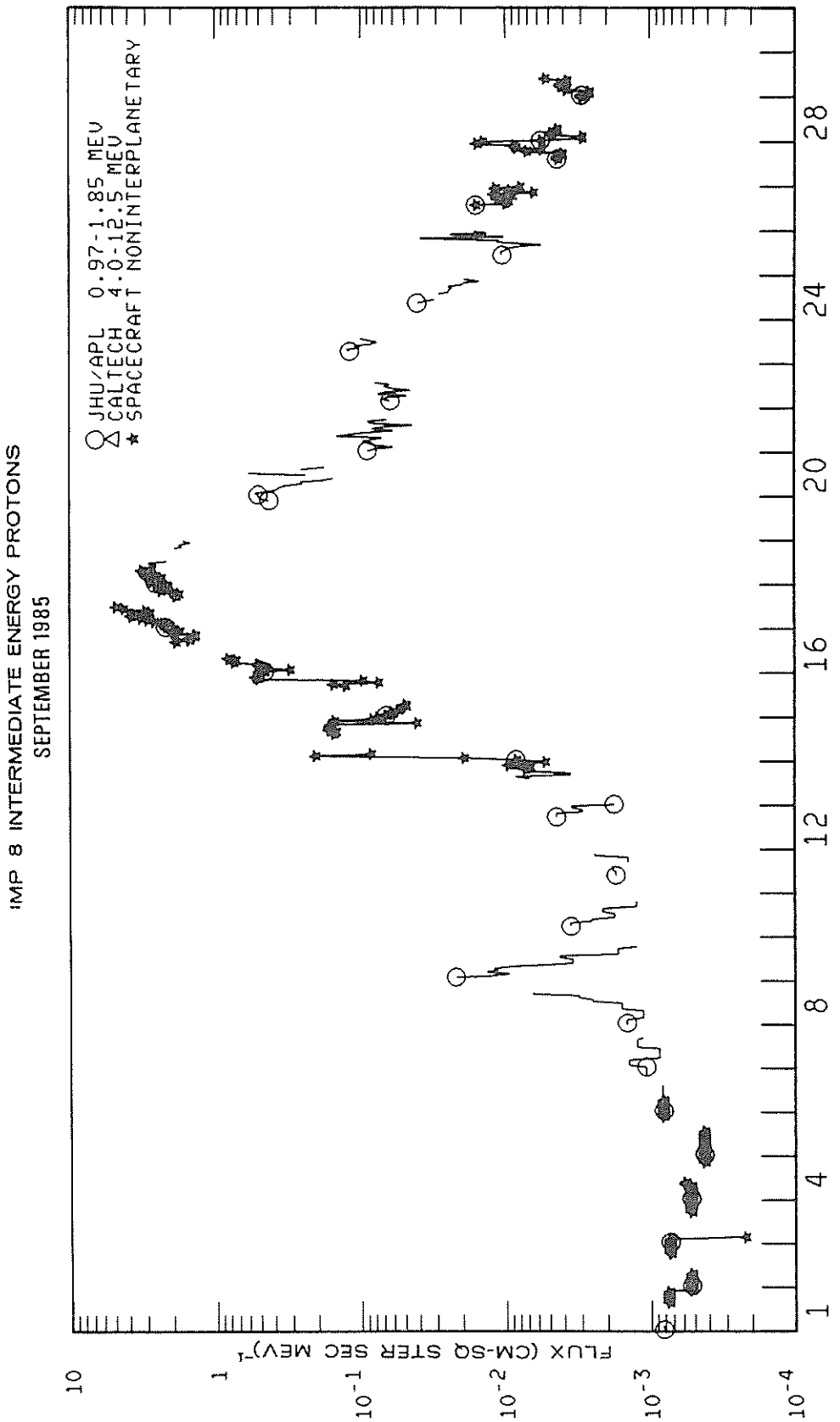
IMP 8 SOLAR WIND PLASMA

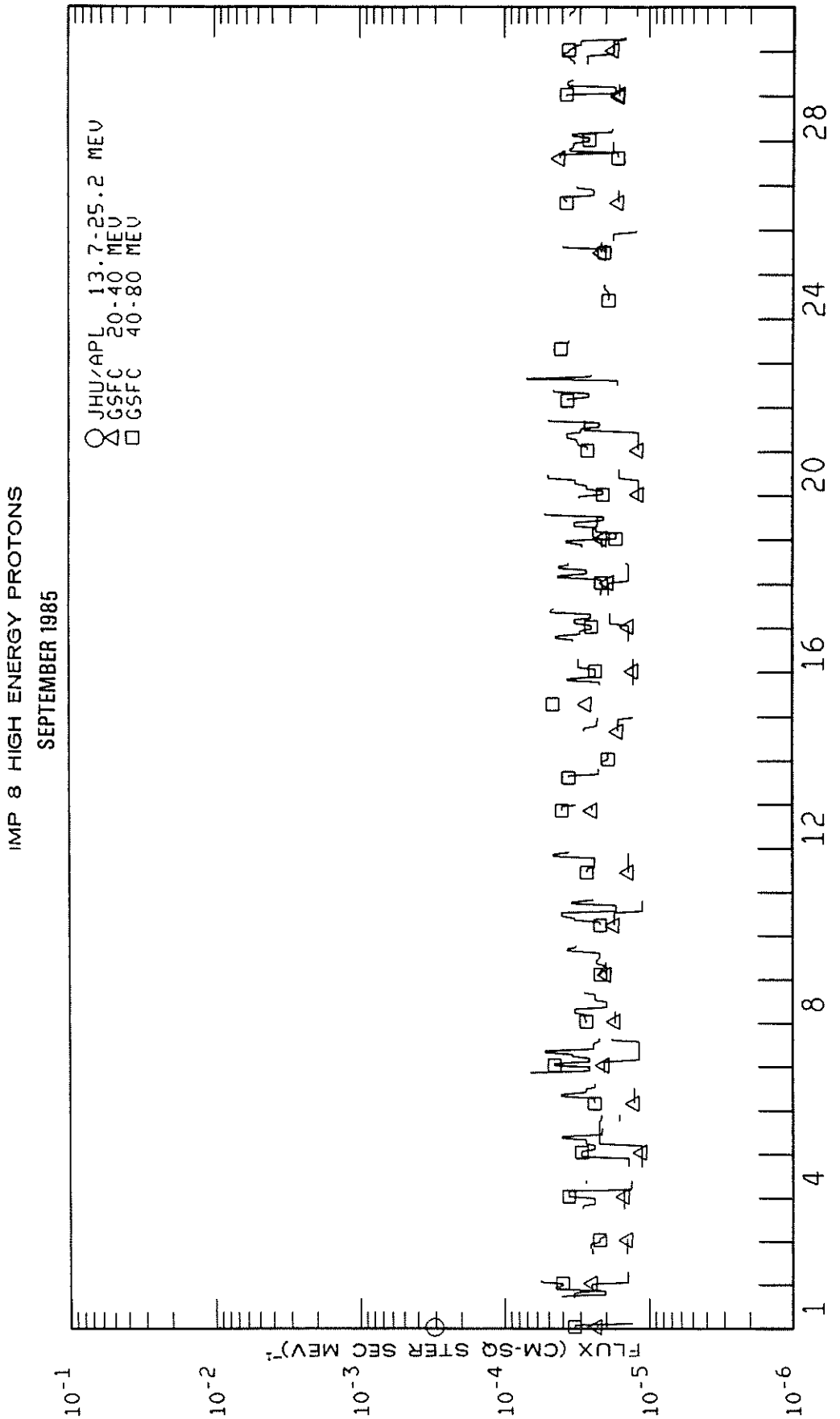
JANUARY 1988

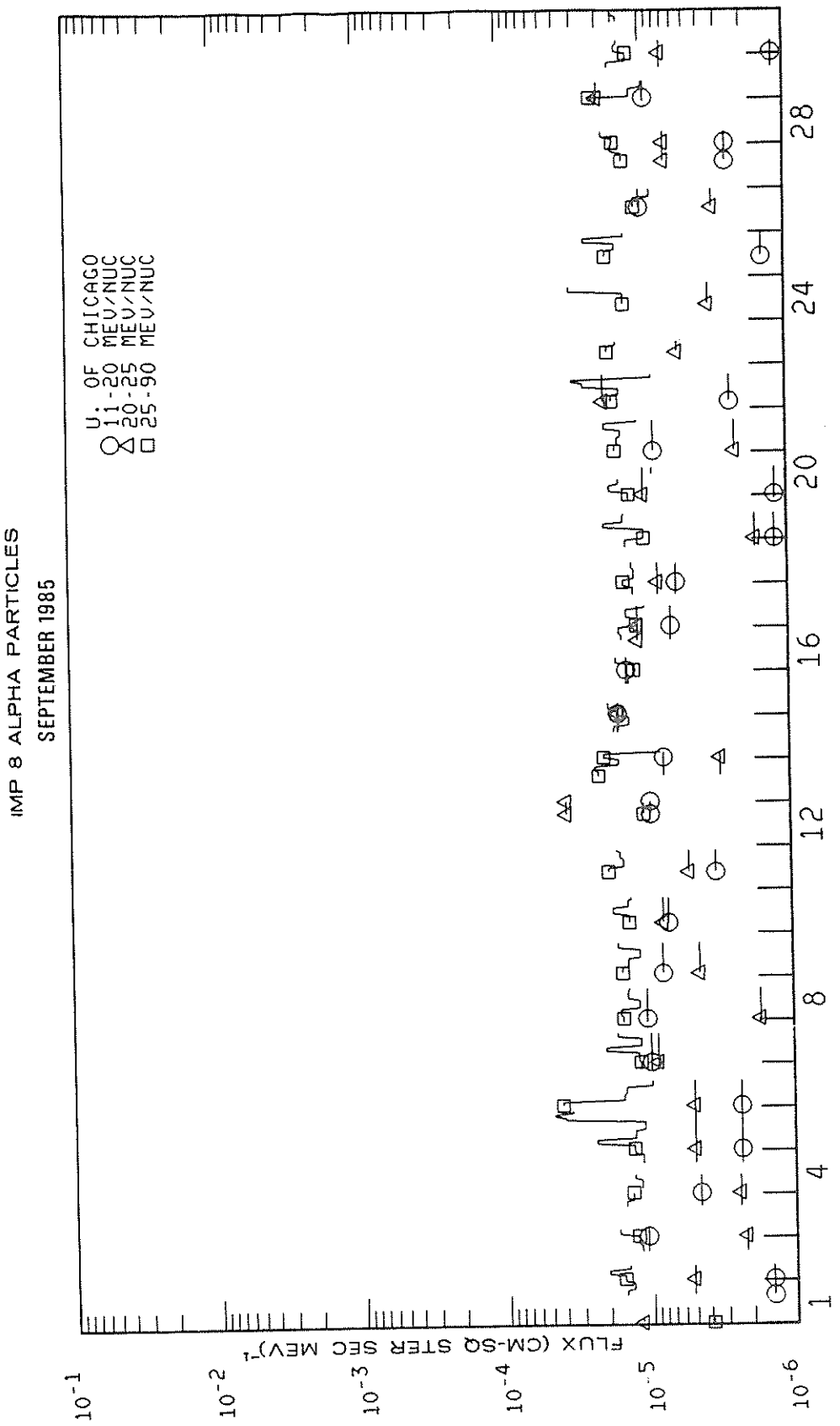


60
Late
Sep 85

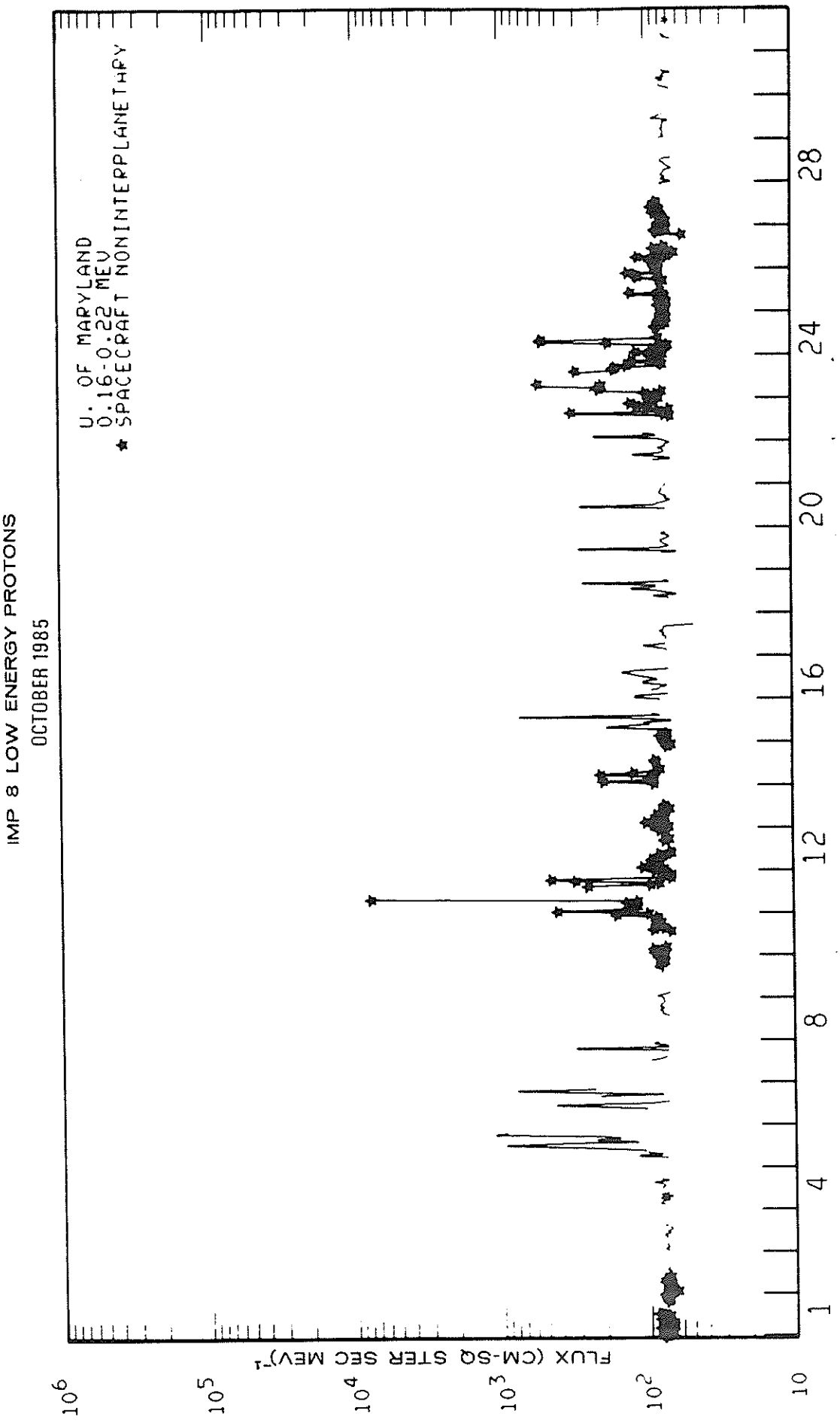



IMP 8 INTERMEDIATE ENERGY PROTONS
SEPTEMBER 1985
JHU/APL 0.97-1.85 MEV
CALTECH 4.0-12.5 MEV
SPACECRAFT NONINTERPLANETARY
FLUX (CM-SQ STER SEC MEV)⁻¹
10
1
10⁻¹
10⁻²
10⁻³
10⁻⁴
1
4
8
12
16
20
24
28


IMP 8 HIGH ENERGY PROTONS
SEPTEMBER 1985
JHU/APL 13.7-25.2 MEV
GSFC 20-40 MEV
GSFC 40-80 MEV
FLUX (CM-SQ STER SEC MEV)⁻¹
10⁻¹
10⁻²
10⁻³
10⁻⁴
10⁻⁵
10⁻⁶
1
4
8
12
16
20
24
28

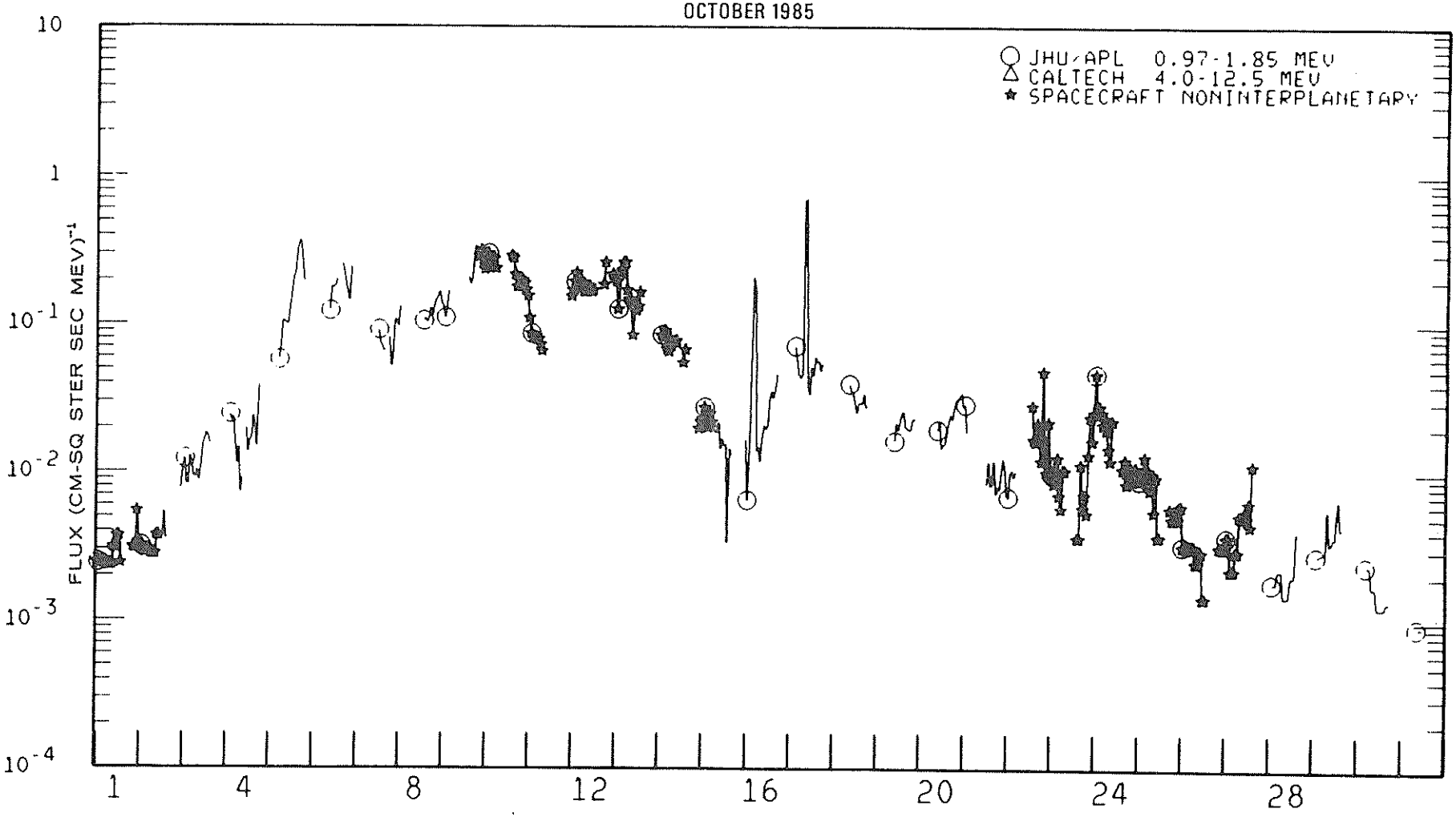

IMP 8 ALPHA PARTICLES
SEPTEMBER 1985
U. OF CHICAGO
11-20 MEV/NUC
20-25 MEV/NUC
25-90 MEV/NUC
FLUX (CM-SQ STER SEC MEV)⁻¹
10⁻¹
10⁻²
10⁻³
10⁻⁴
10⁻⁵
10⁻⁶
1
4
8
12
16
20
24
28

64
Late
Oct 85



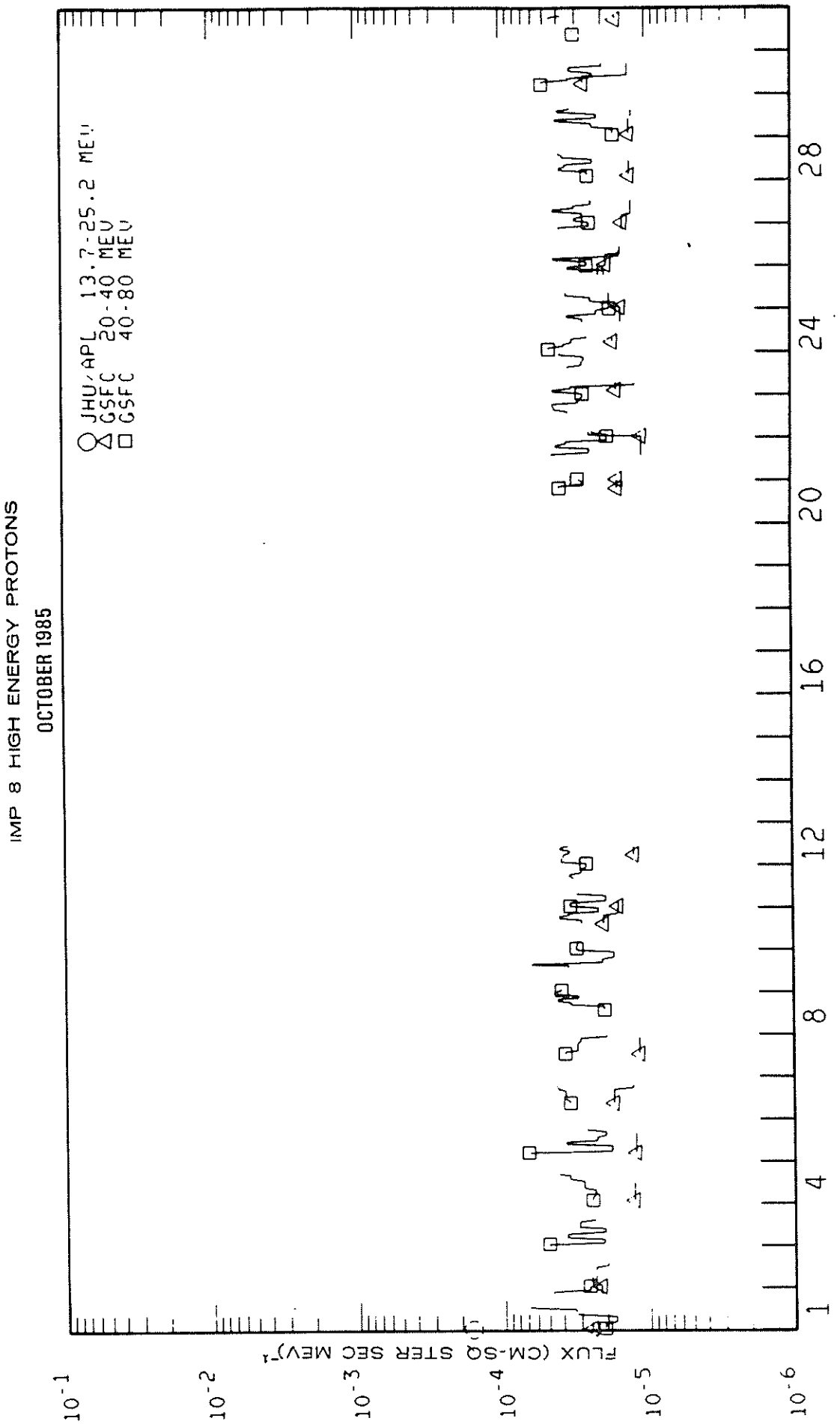
IMP 8 INTERMEDIATE ENERGY PROTONS

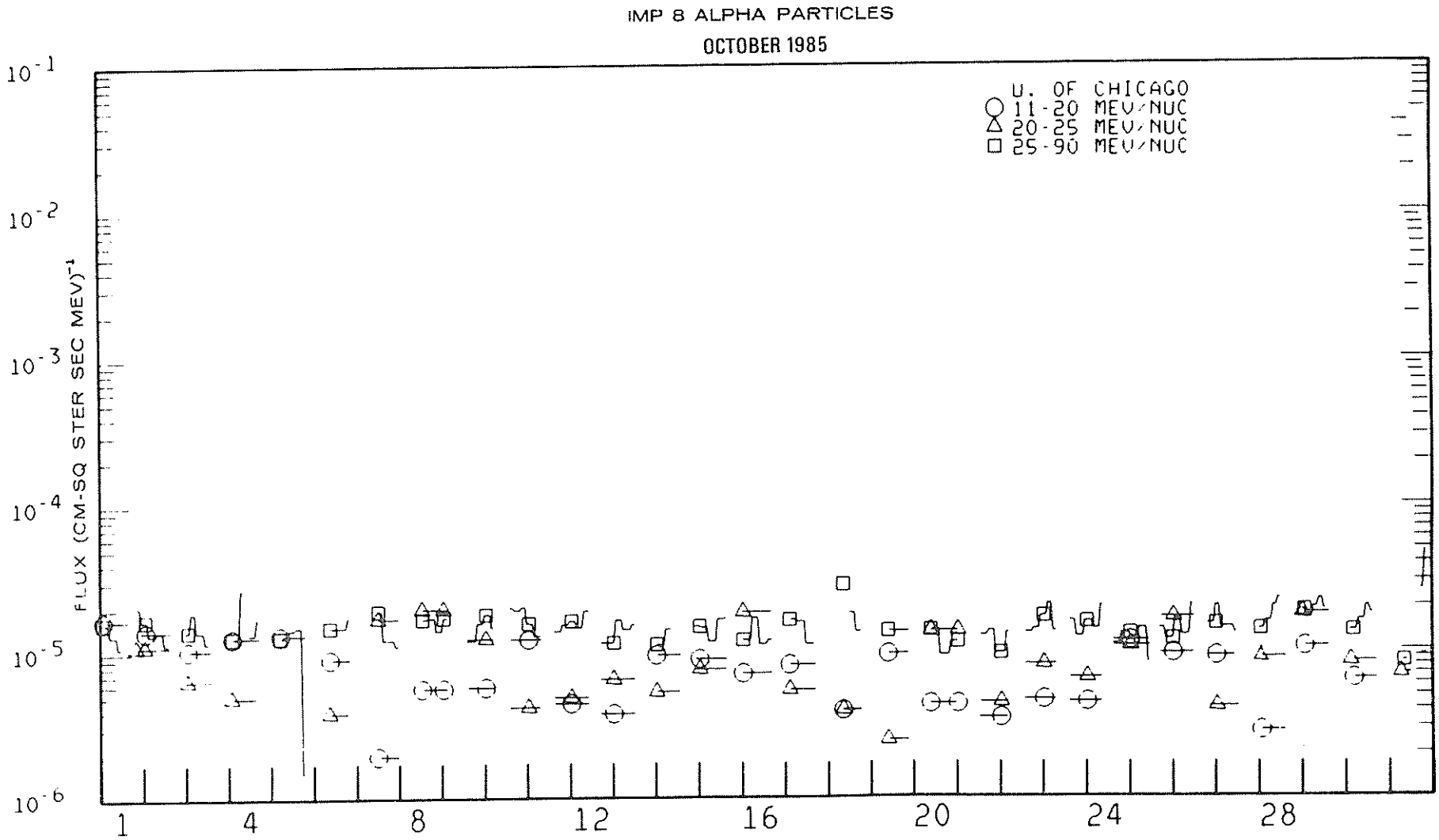
OCTOBER 1985



65
Late
Oct 85

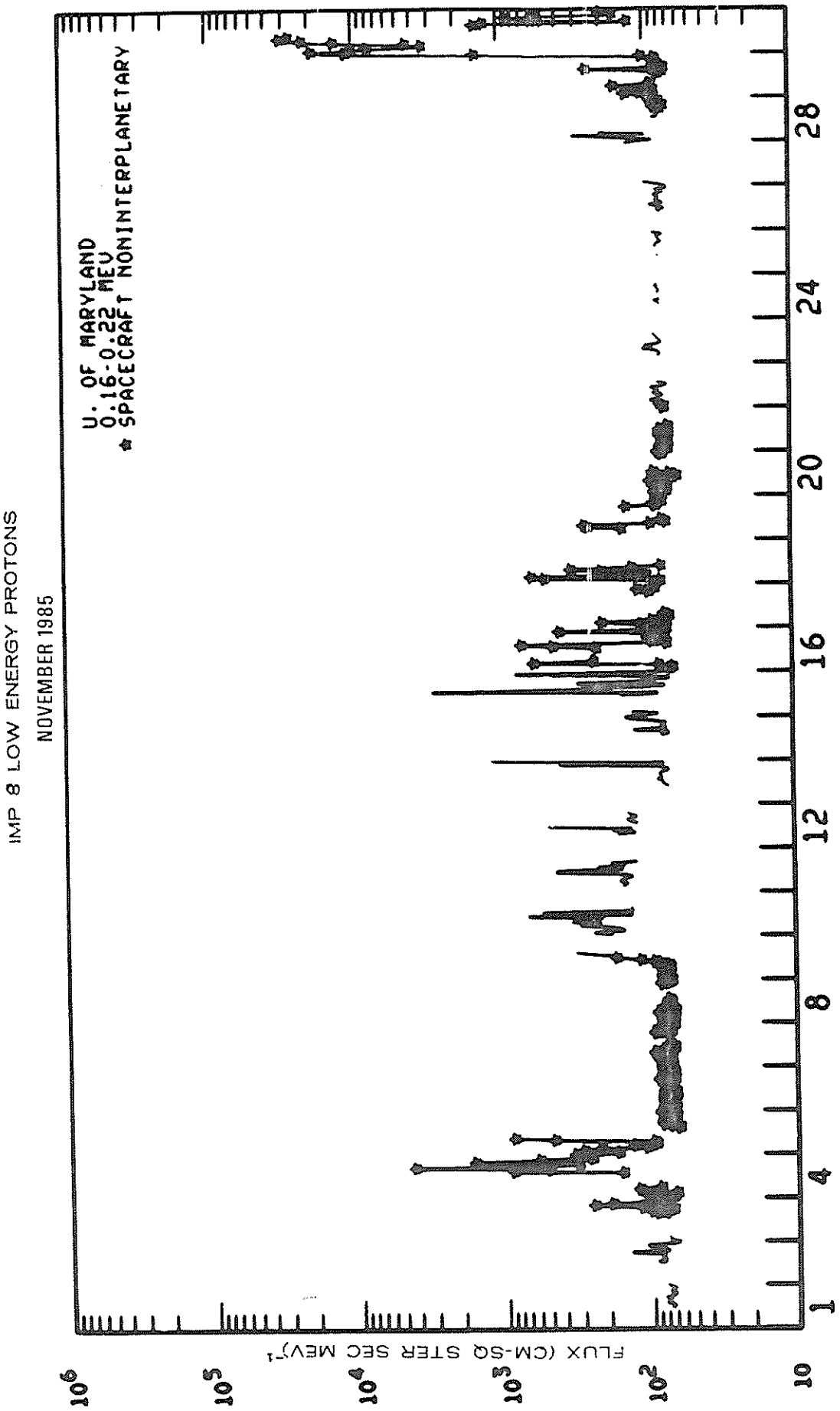
66
Late
Oct 85

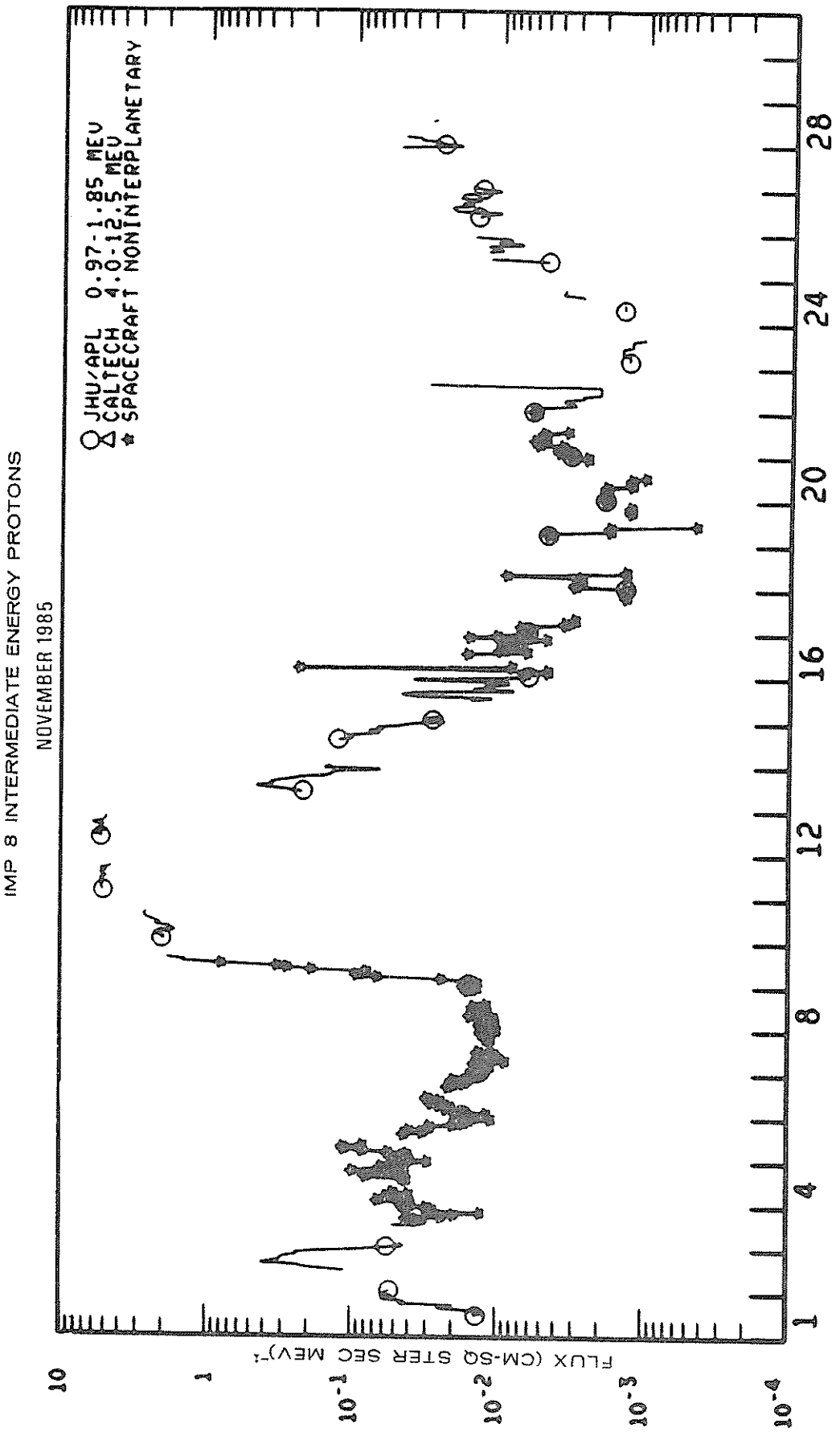


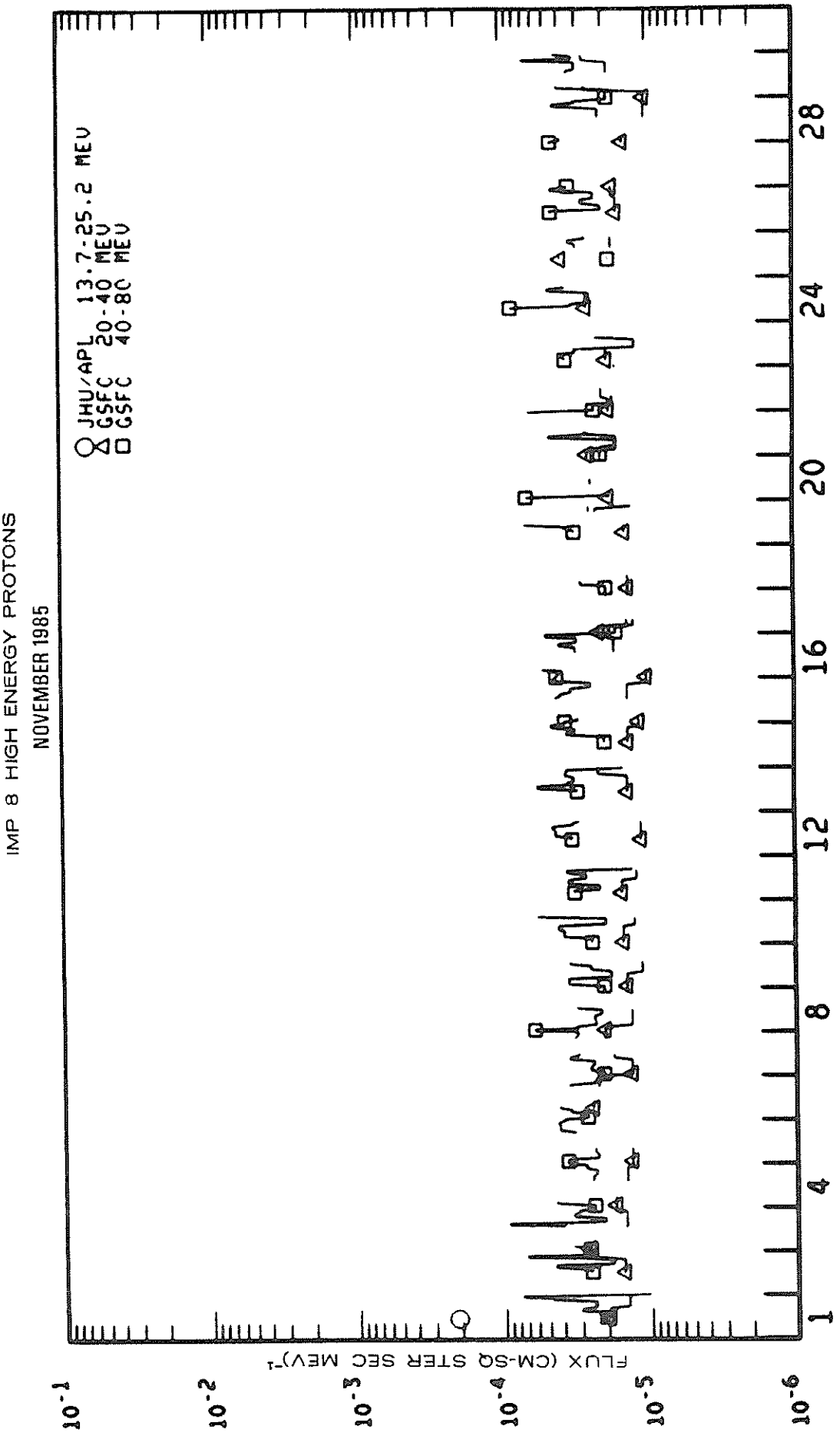


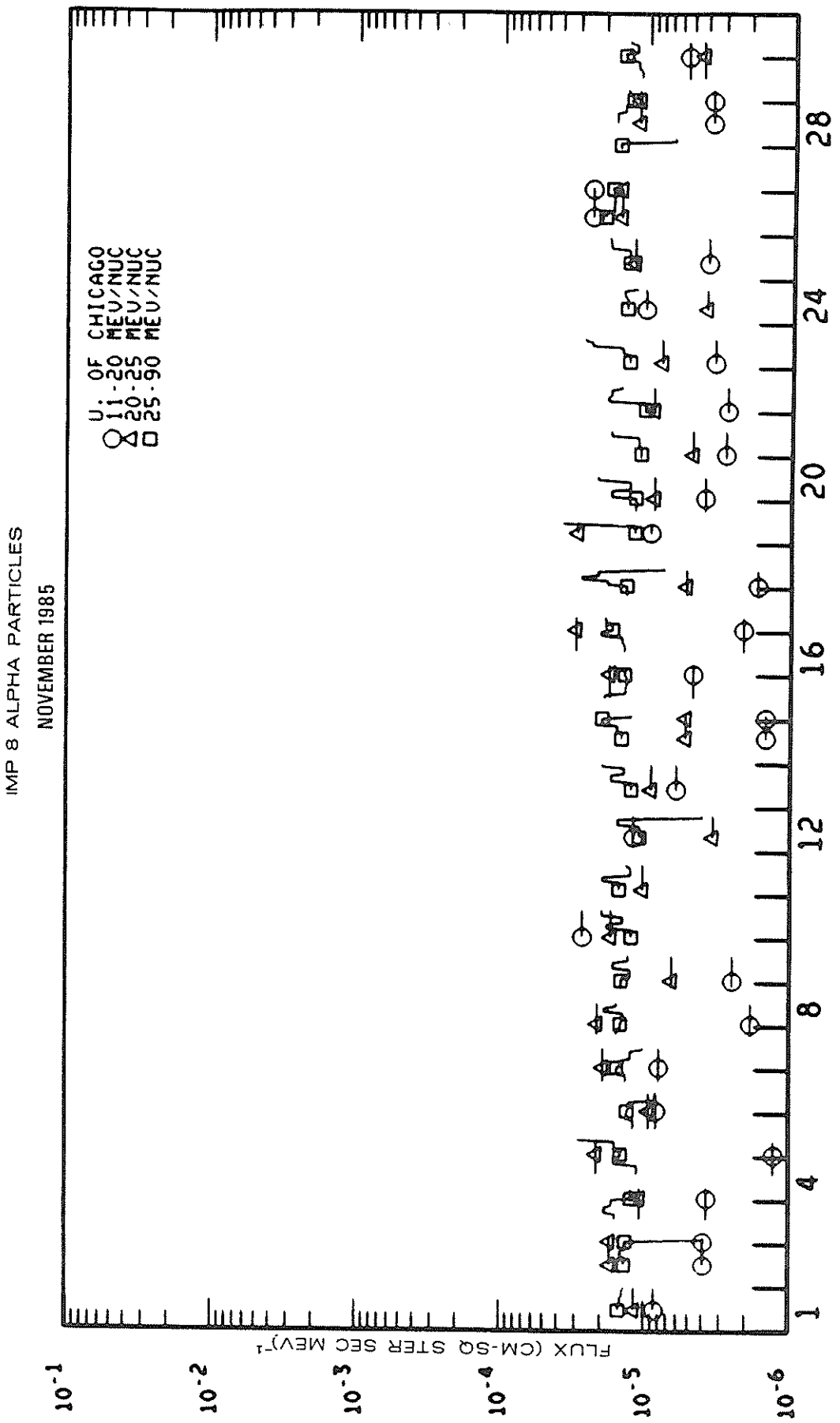
67
Late
Oct 85

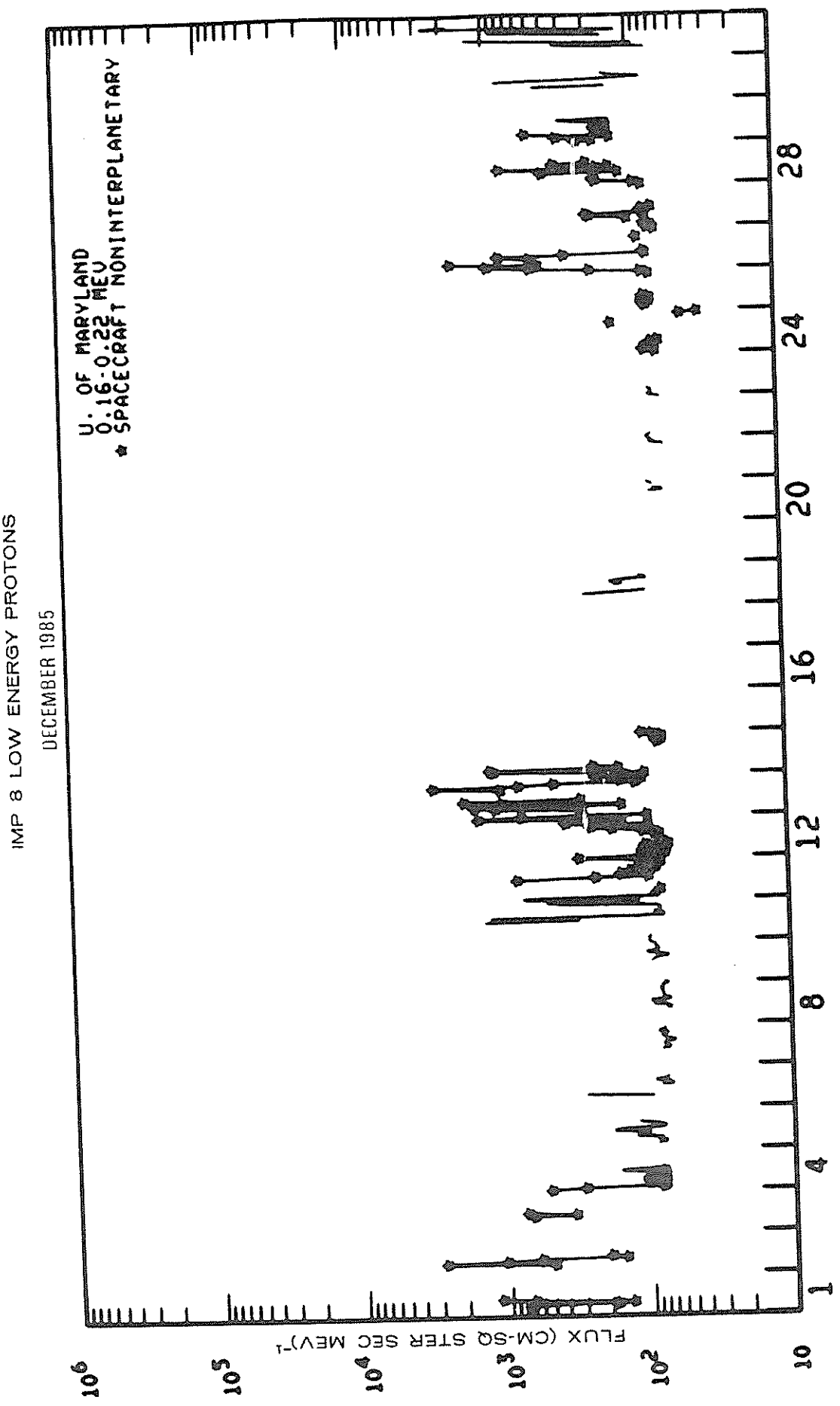
68
Late
Nov 85

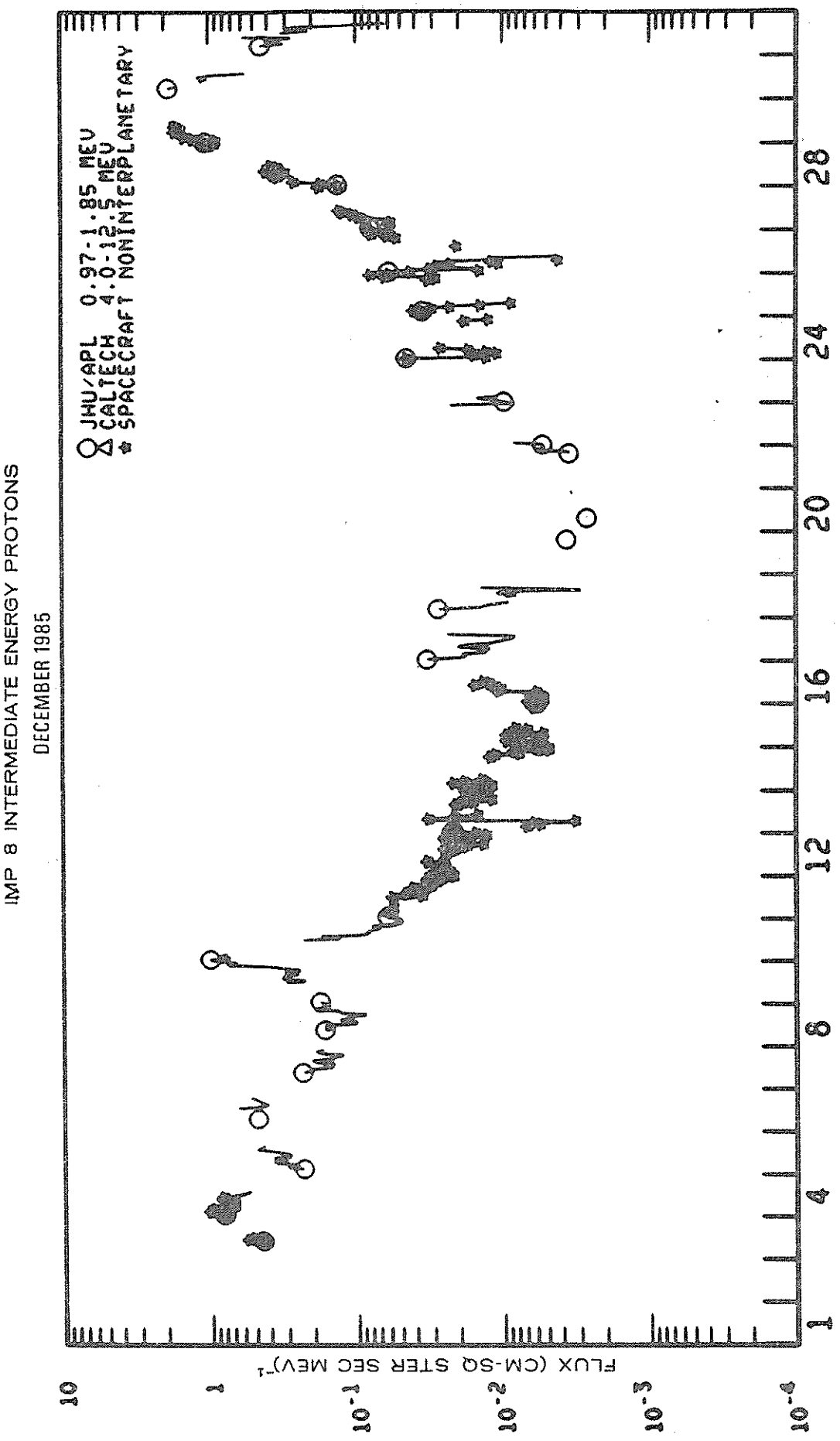


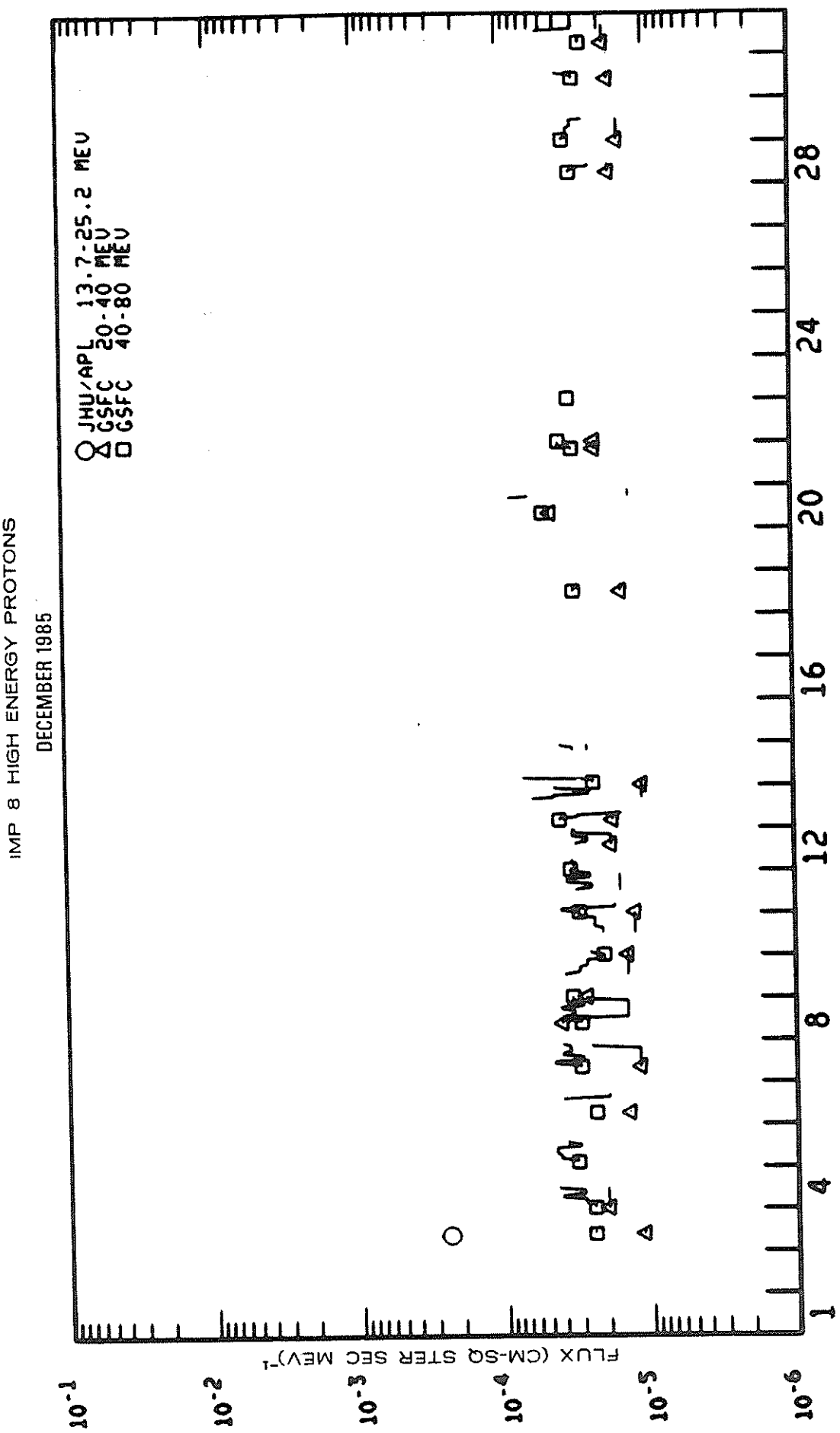

IMP 8 INTERMEDIATE ENERGY PROTONS
NOVEMBER 1985
JHU/APL 0.97-1.85 MEV
CALTECH 4.0-12.5 MEV
SPACECRAFT NONINTERPLANETARY
FLUX (CM-SQ STER SEC MEV)⁻¹
10
1
10⁻¹
10⁻²
10⁻³
10⁻⁴
1
4
8
12
16
20
24
28

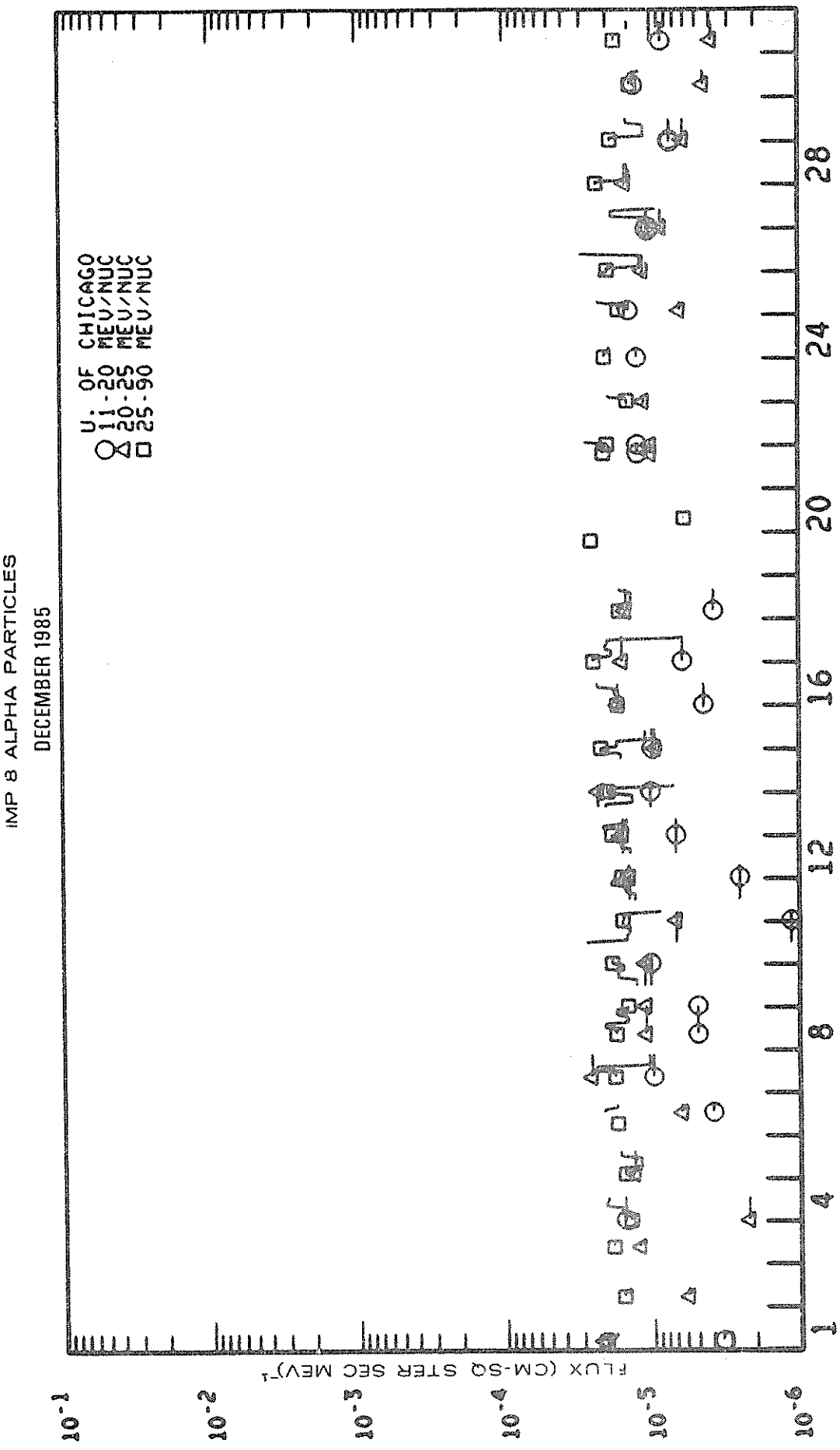

IMP 8 HIGH ENERGY PROTONS
NOVEMBER 1985
JHU/APL 13.7-25.2 MEV
GSFC 20-40 MEV
GSFC 40-80 MEV
FLUX (CM-SQ STER SEC MEV)⁻¹
10⁻¹
10⁻²
10⁻³
10⁻⁴
10⁻⁵
10⁻⁶
1
4
8
12
16
20
24
28


IMP 8 ALPHA PARTICLES
NOVEMBER 1985
U. OF CHICAGO
11-20 MEV/NUC
20-25 MEV/NUC
25-90 MEV/NUC
FLUX (CM-SQ STER SEC MEV)⁻¹
10⁻¹
10⁻²
10⁻³
10⁻⁴
10⁻⁵
10⁻⁶
1
4
8
12
16
20
24
28

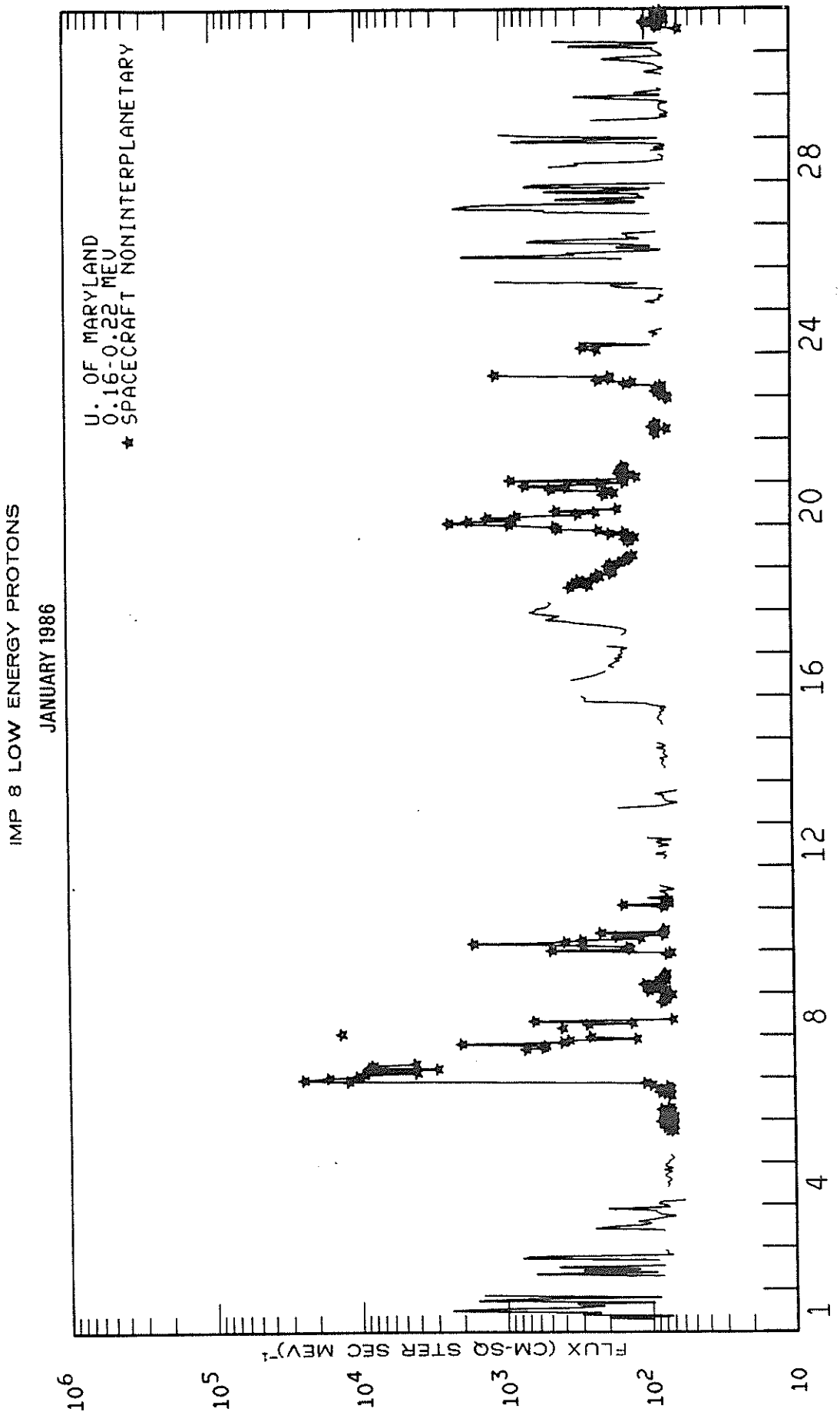

IMP 8 LOW ENERGY PROTONS
DECEMBER 1985
U. OF MARYLAND
0.16-0.22 MEV
* SPACECRAFT NONINTERPLANETARY
FLUX (CM-SQ STER SEC MEV)-1
10^6
10^5
10^4
10^3
10^2
10
1
4
8
12
16
20
24
28


IMP 8 INTERMEDIATE ENERGY PROTONS
DECEMBER 1985
JHU/APL 0.97-1.85 MEV
CALTECH 4.0-12.5 MEV
SPACECRAFT NONINTERPLANETARY
FLUX (CM-SQ STER SEC MEV)⁻¹
10
1
10⁻¹
10⁻²
10⁻³
10⁻⁴
1
4
8
12
16
20
24
28


IMP 8 HIGH ENERGY PROTONS
DECEMBER 1985
JHU/APL 13.7-25.2 MEV
GSFC 20-40 MEV
GSFC 40-80 MEV
FLUX (CM-SQ STER SEC MEV)-1
10-1
10-2
10-3
10-4
10-5
10-6
1
4
8
12
16
20
24
28

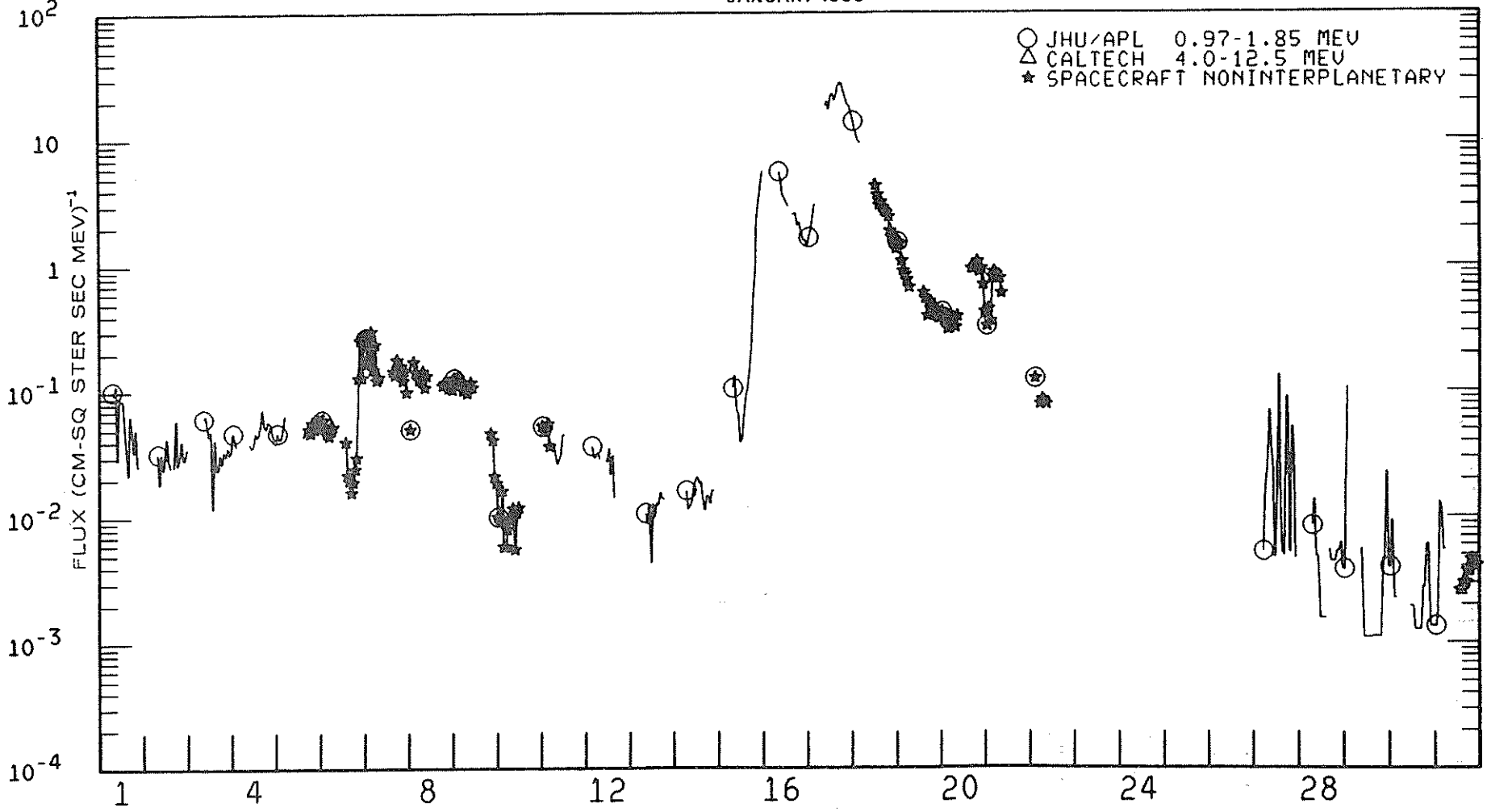

IMP 8 ALPHA PARTICLES
DECEMBER 1985
U. OF CHICAGO
11-20 MEV/NUC
20-25 MEV/NUC
25-90 MEV/NUC
FLUX (CM-SQ STER SEC MEV)⁻¹
10⁻¹
10⁻²
10⁻³
10⁻⁴
10⁻⁵
10⁻⁶
1
4
8
12
16
20
24
28

76
Late
Jan 86

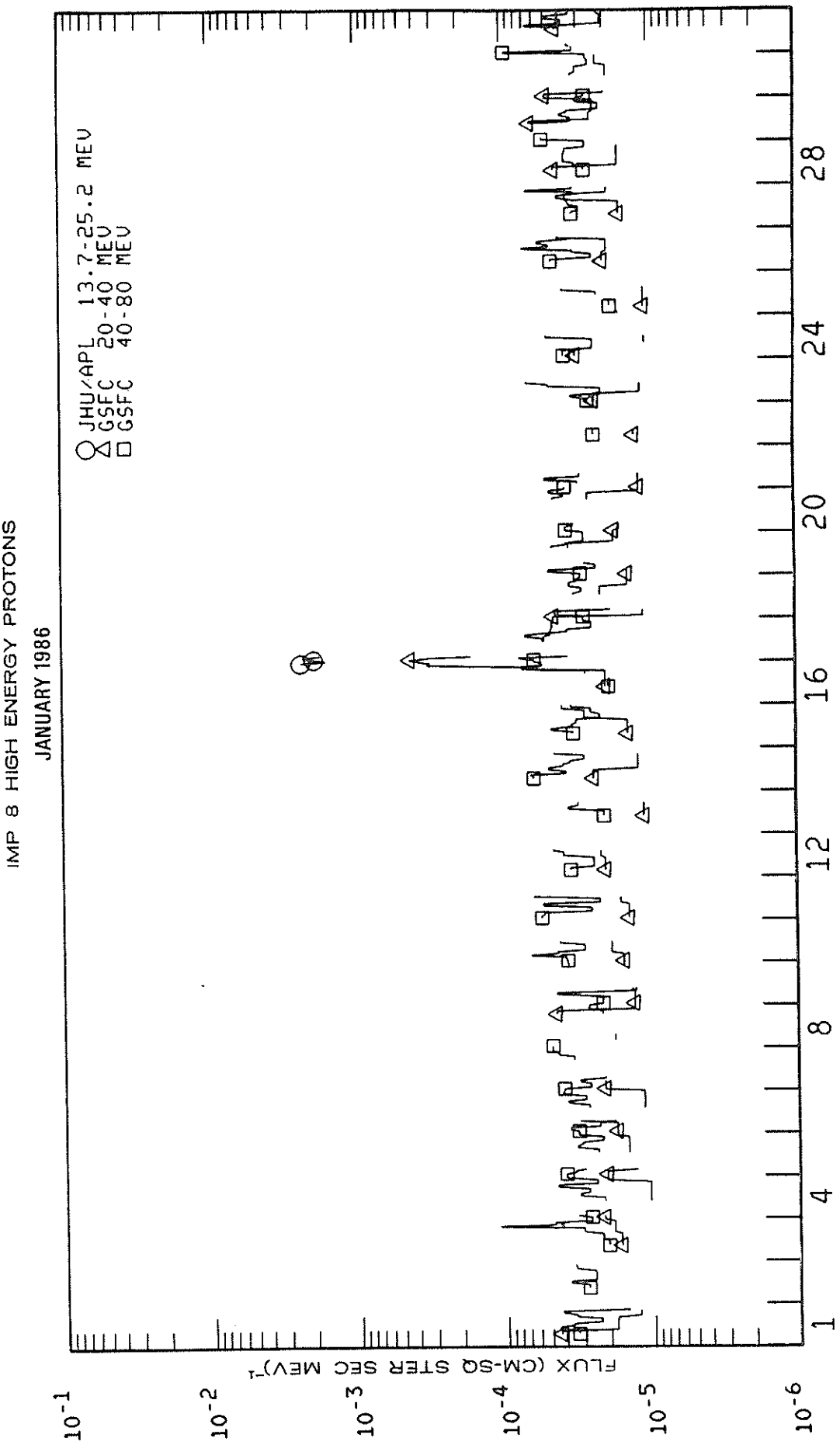


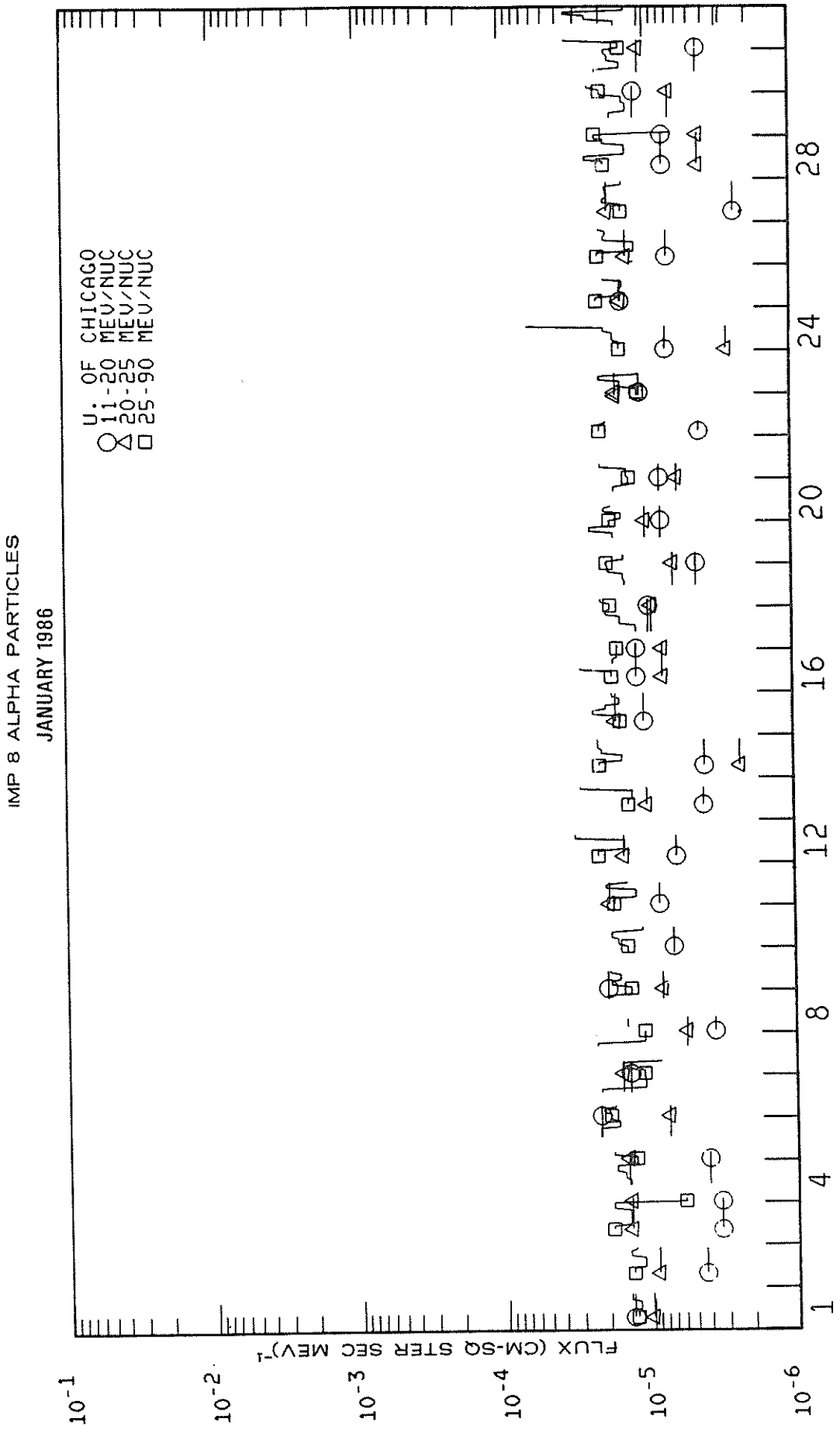
IMP 8 INTERMEDIATE ENERGY PROTONS

JANUARY 1986

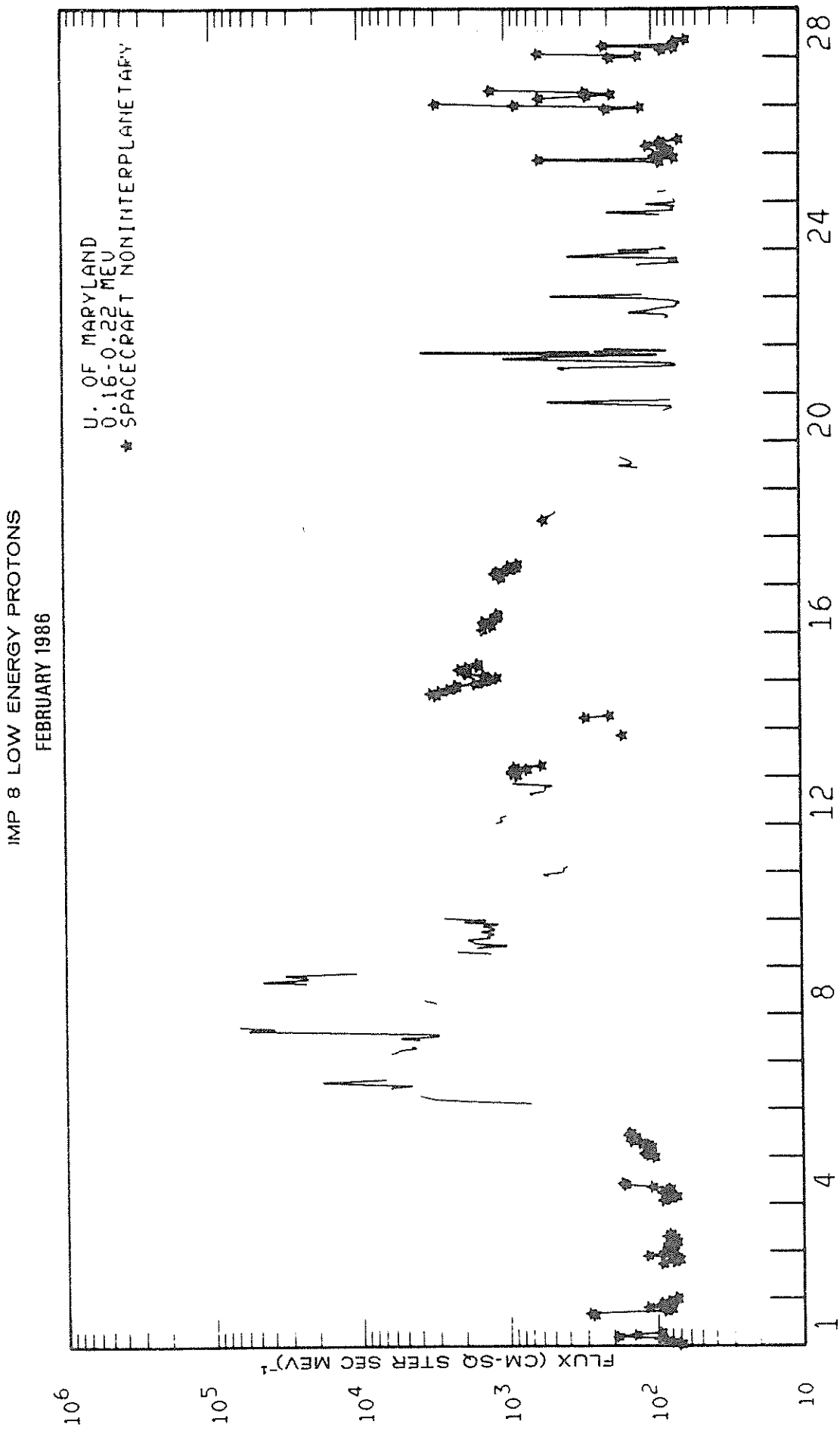


77
Late
Jan 86


IMP 8 HIGH ENERGY PROTONS
JANUARY 1986
JHU/APL 13.7-25.2 MEV
GSFC 20-40 MEV
GSFC 40-80 MEV
FLUX (CM-SQ STER SEC MEV)⁻¹
10⁻¹
10⁻²
10⁻³
10⁻⁴
10⁻⁵
10⁻⁶
1
4
8
12
16
20
24
28

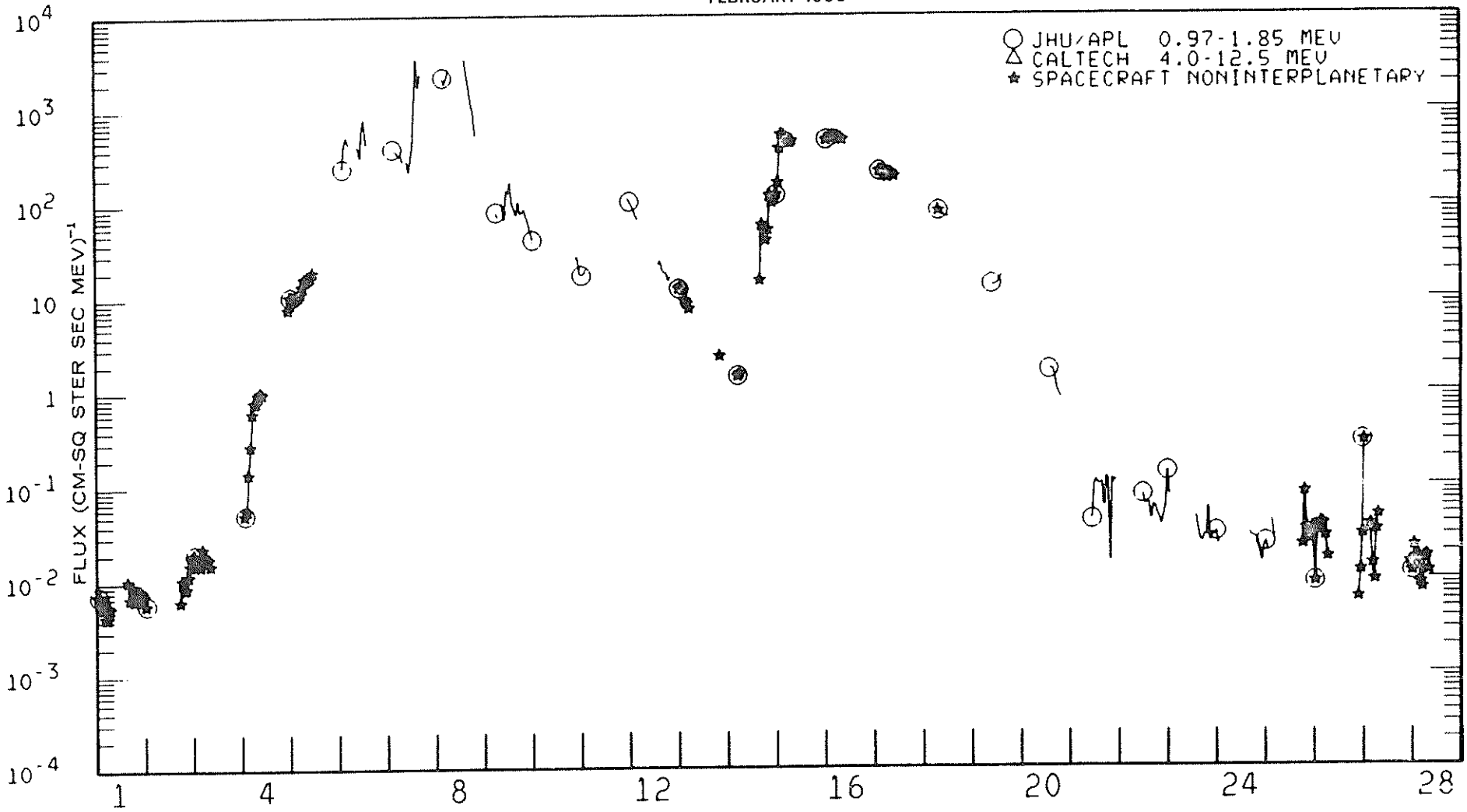

IMP 8 ALPHA PARTICLES
JANUARY 1986
U. OF CHICAGO
11-20 MEV/NUC
20-25 MEV/NUC
25-90 MEV/NUC
FLUX (CM-SQ STER SEC MEV)$^{-1}$
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
1
4
8
12
16
20
24
28

80
Late
Feb 86



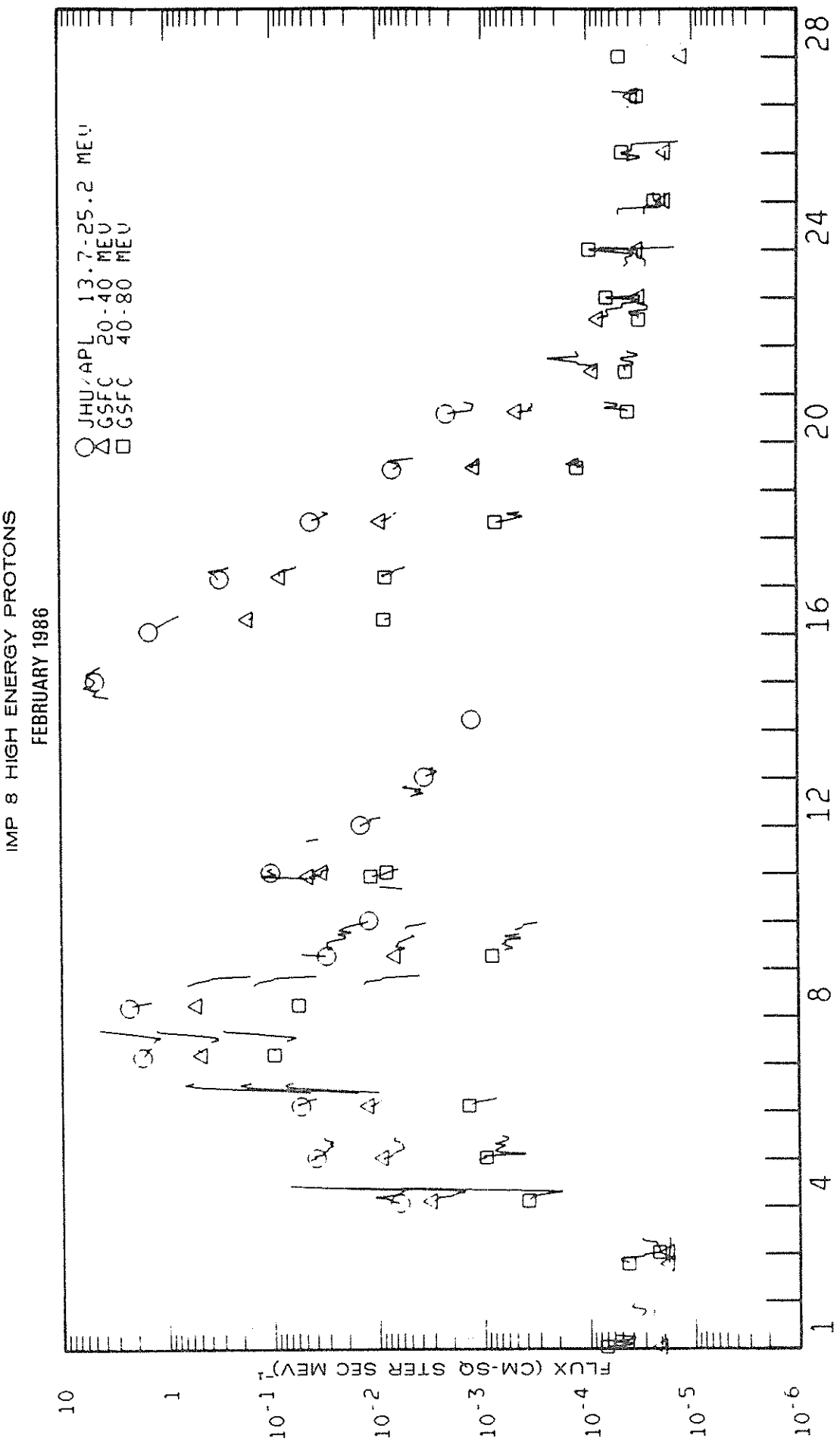
IMP 8 INTERMEDIATE ENERGY PROTONS

FEBRUARY 1986



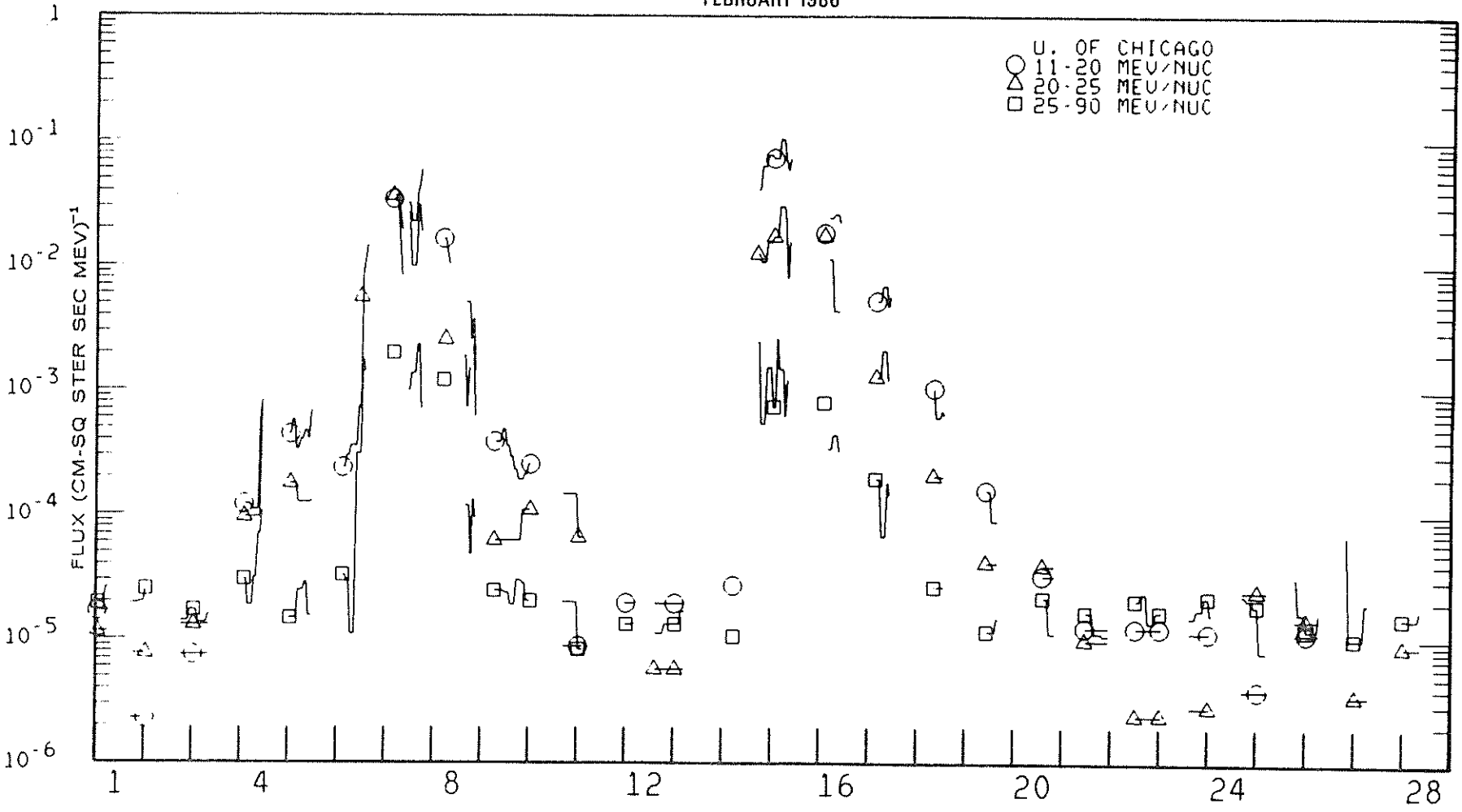
81
Late
Feb 86

82
Late
Feb 86



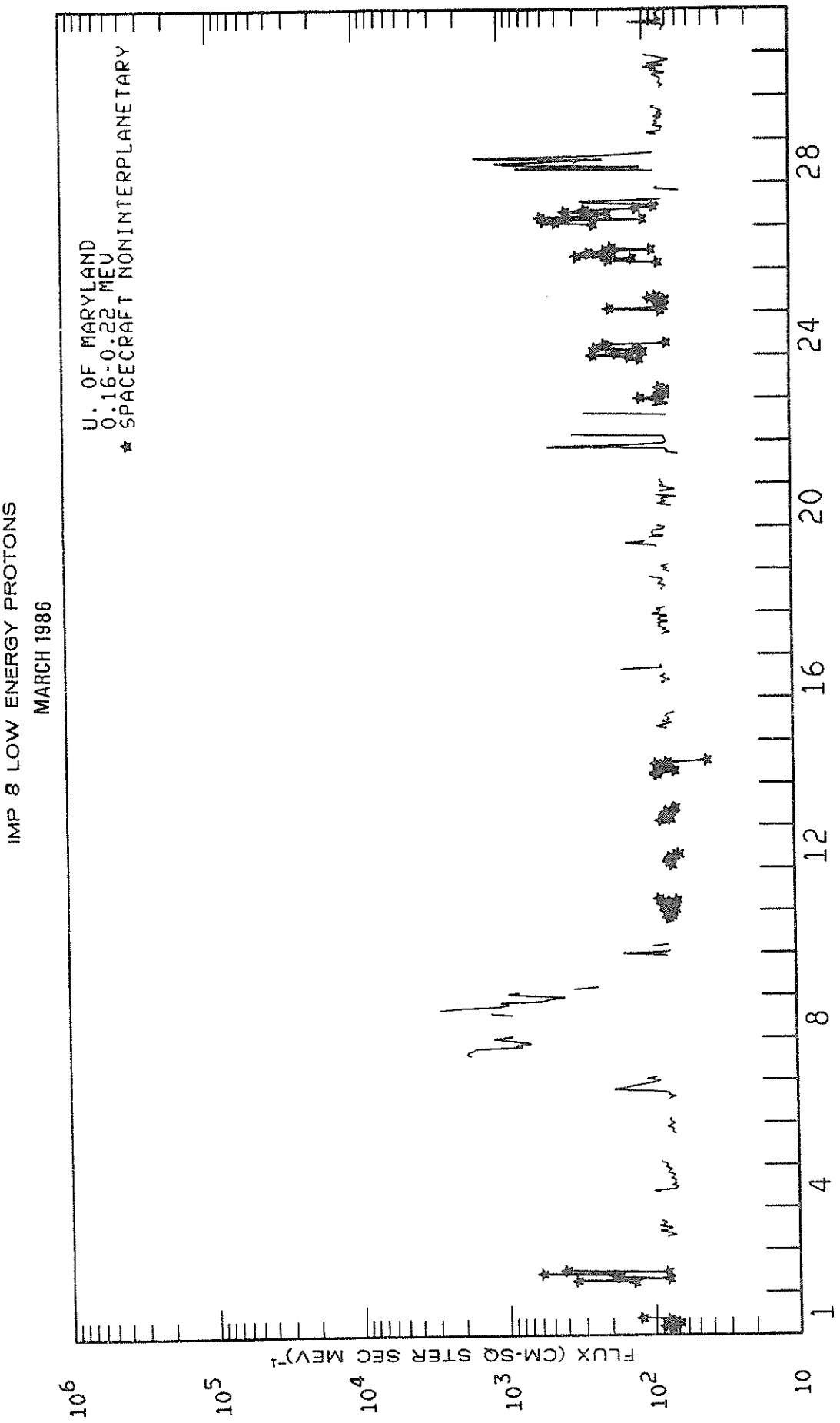
IMP 8 ALPHA PARTICLES

FEBRUARY 1986



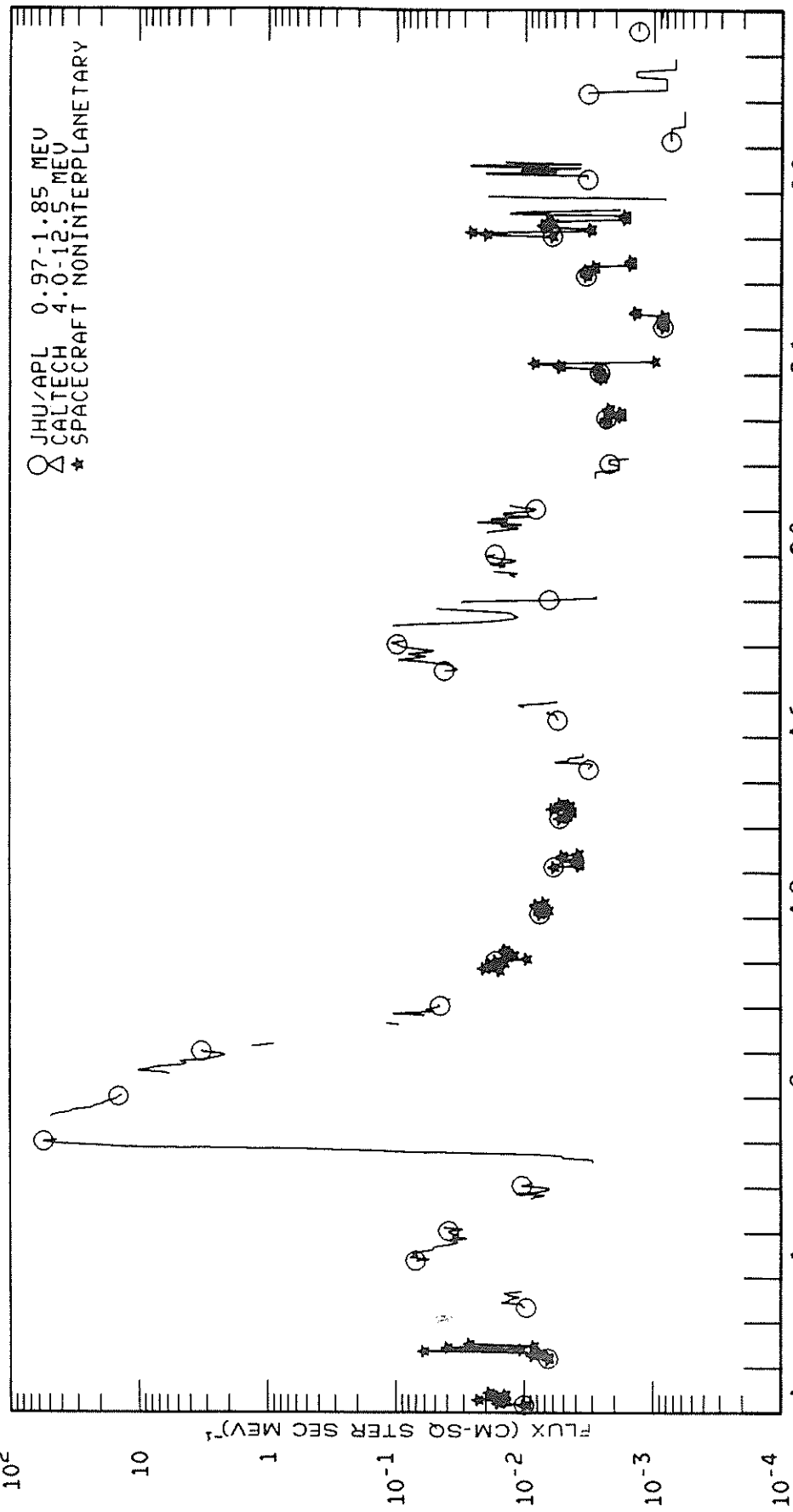
83
Late
Feb 86

84
Late
Mar 86

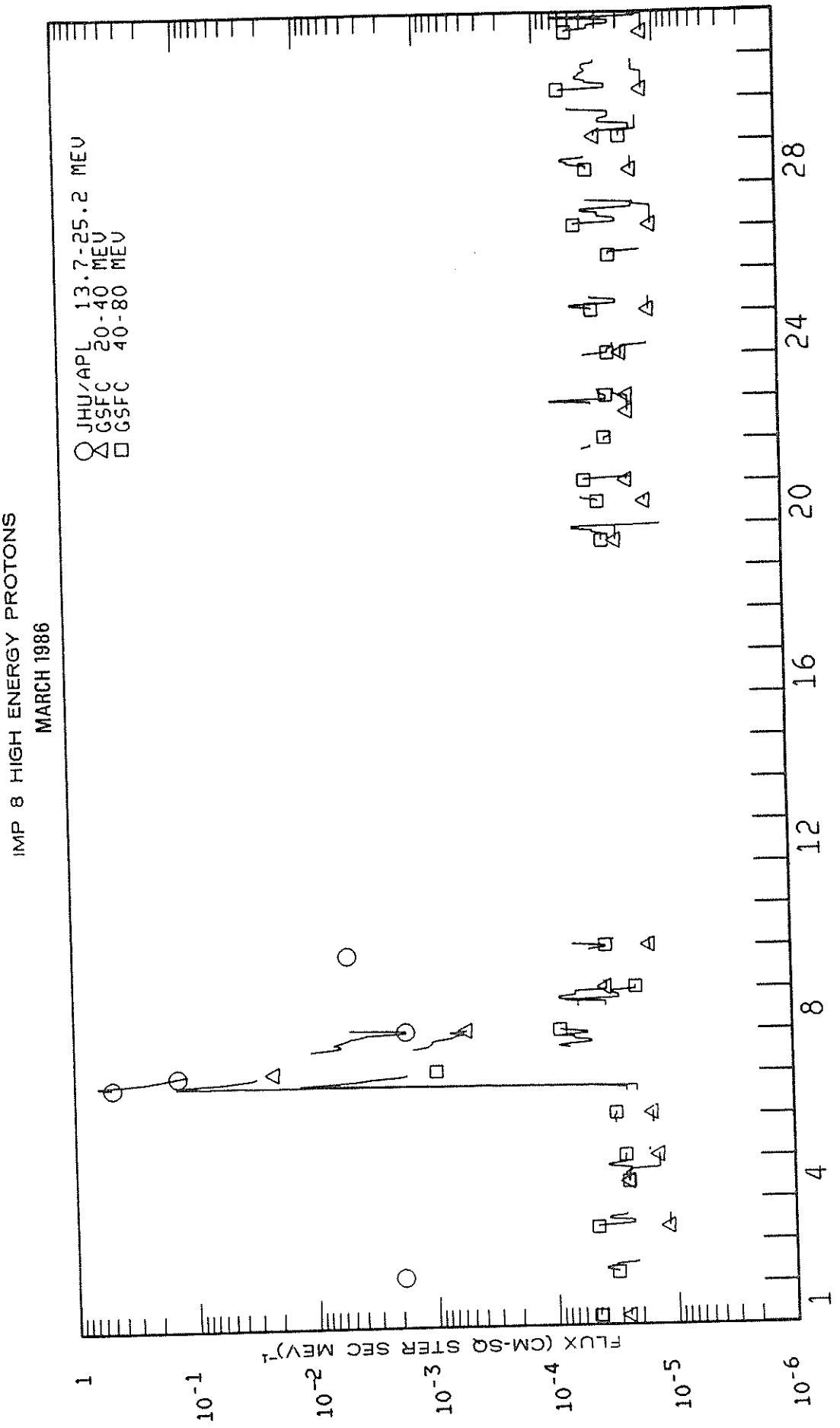


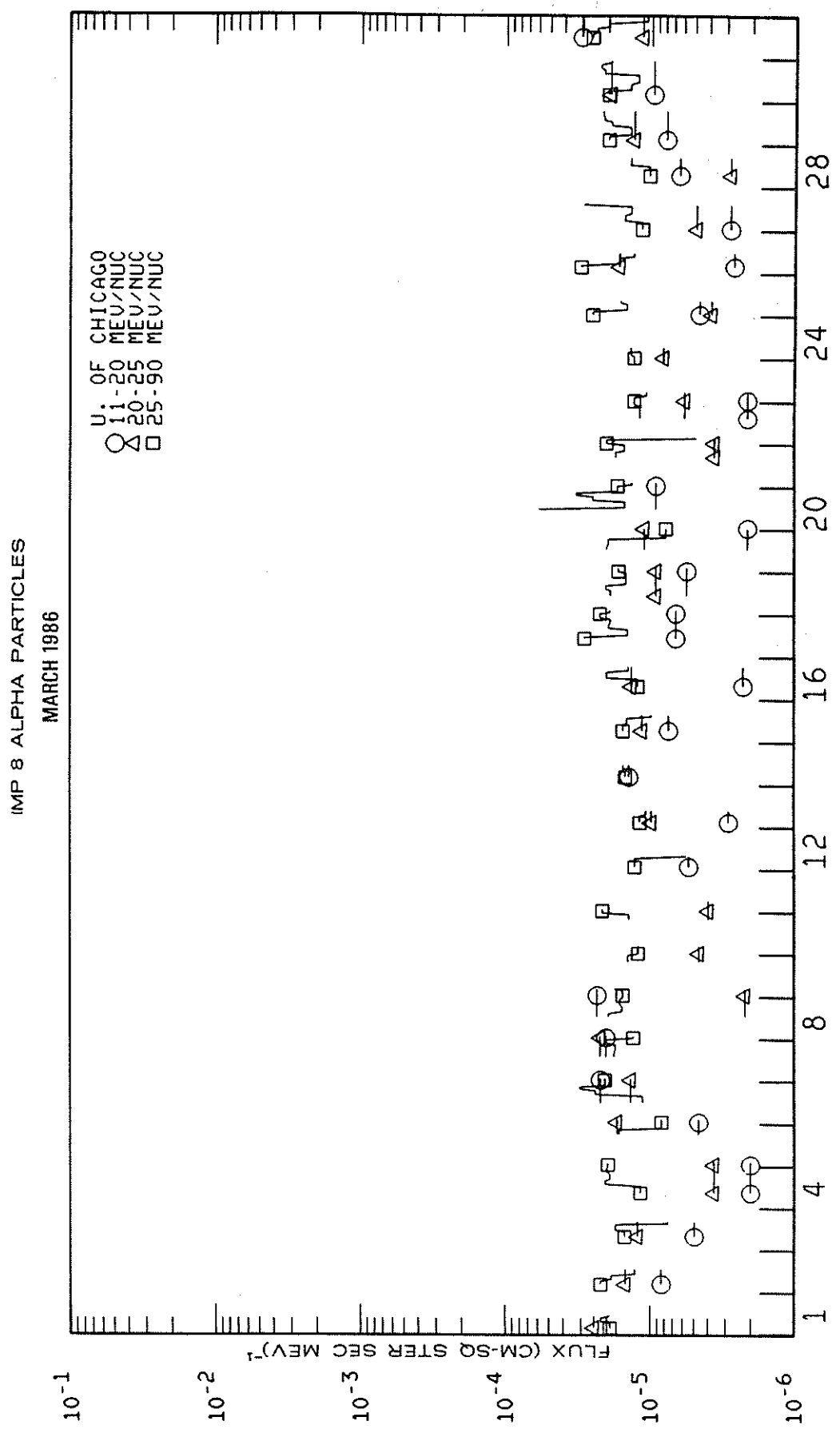
IMP 8 INTERMEDIATE ENERGY PROTONS

MARCH 1986

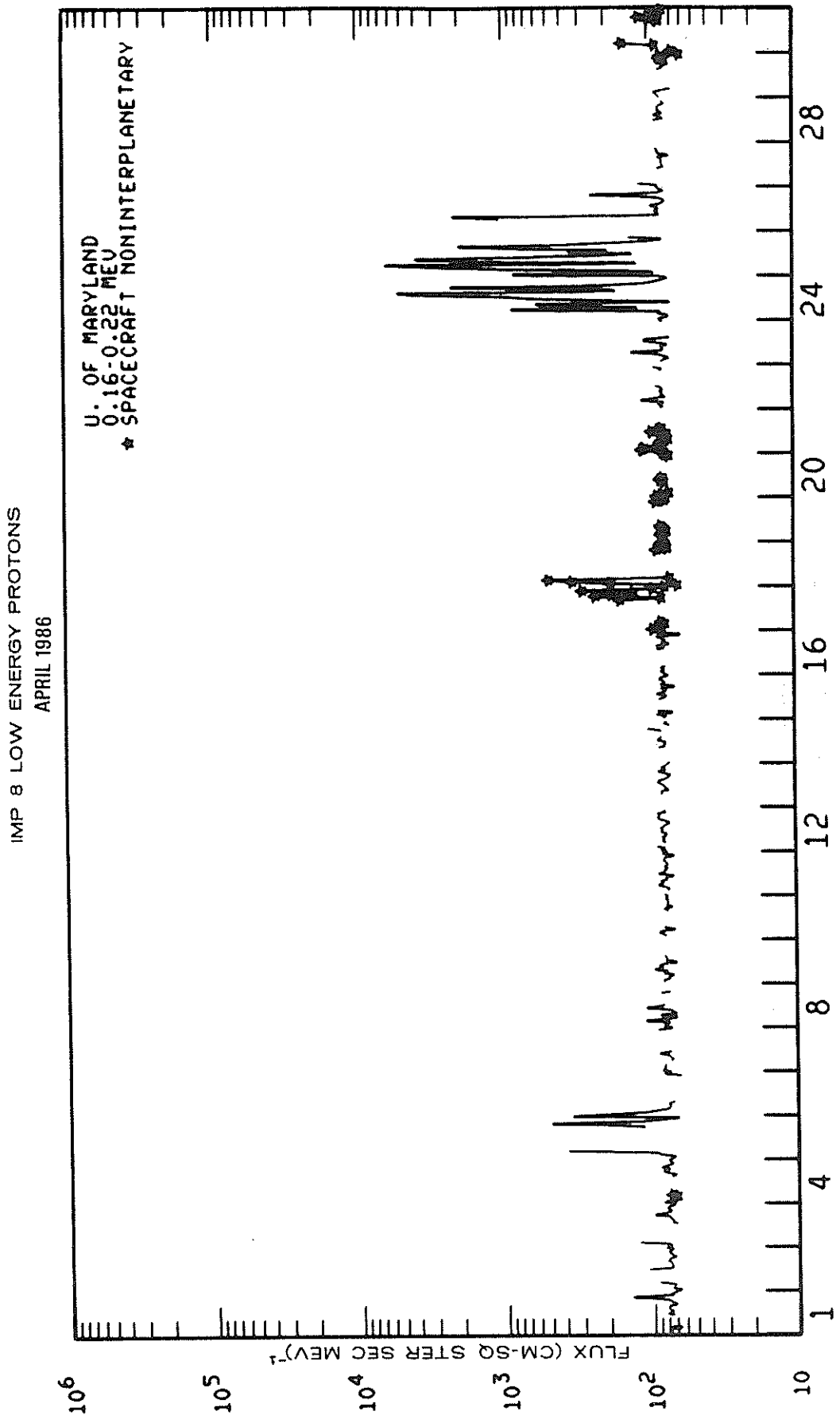


86
Late
Mar 86



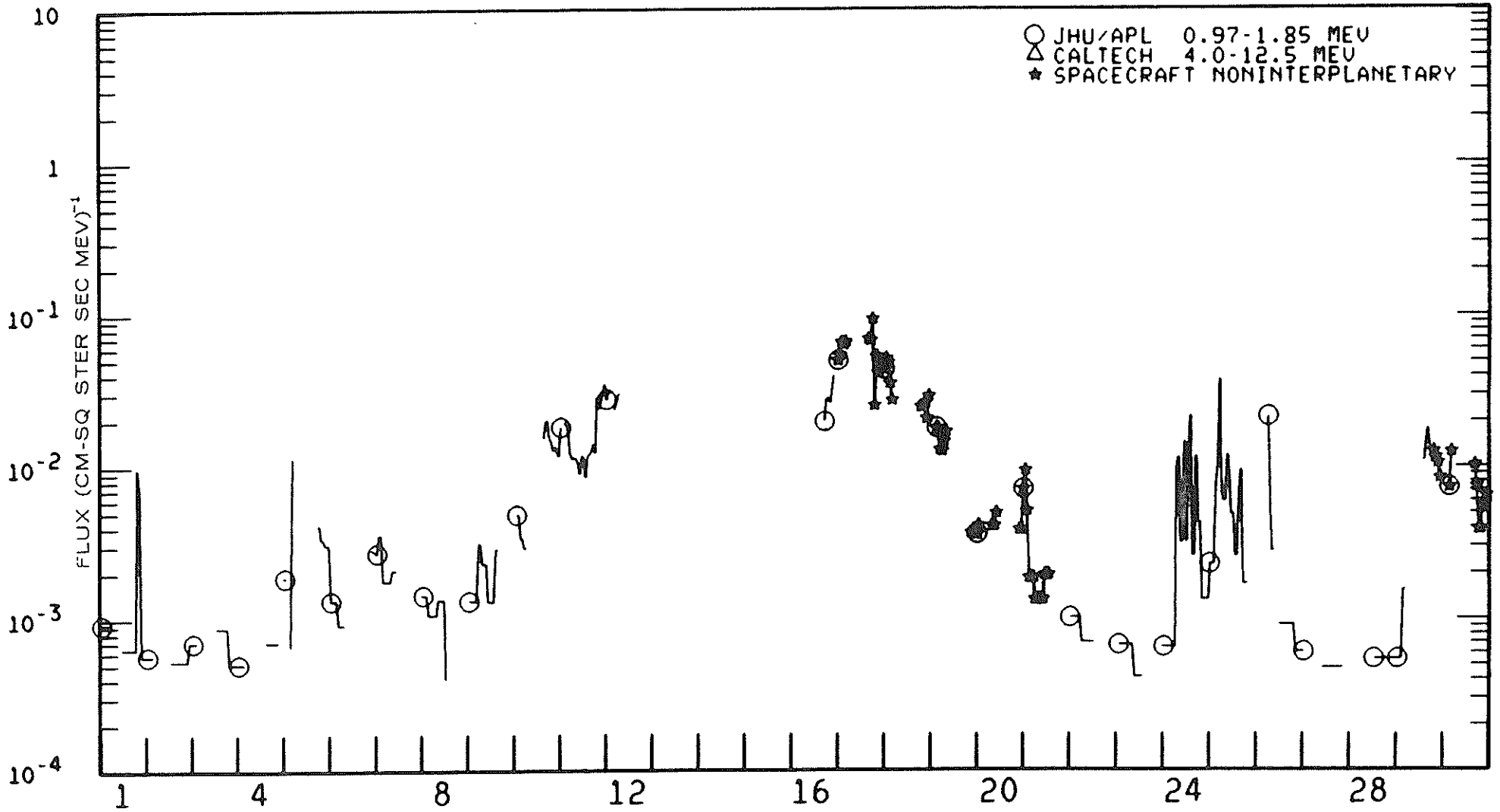

IMP 8 ALPHA PARTICLES
MARCH 1986
U. OF CHICAGO
11-20 MEV/NUC
20-25 MEV/NUC
25-90 MEV/NUC
FLUX (CM-SQ STER SEC MEV)⁻¹
10⁻¹
10⁻²
10⁻³
10⁻⁴
10⁻⁵
10⁻⁶
1
4
8
12
16
20
24
28

88
Late
Apr 86



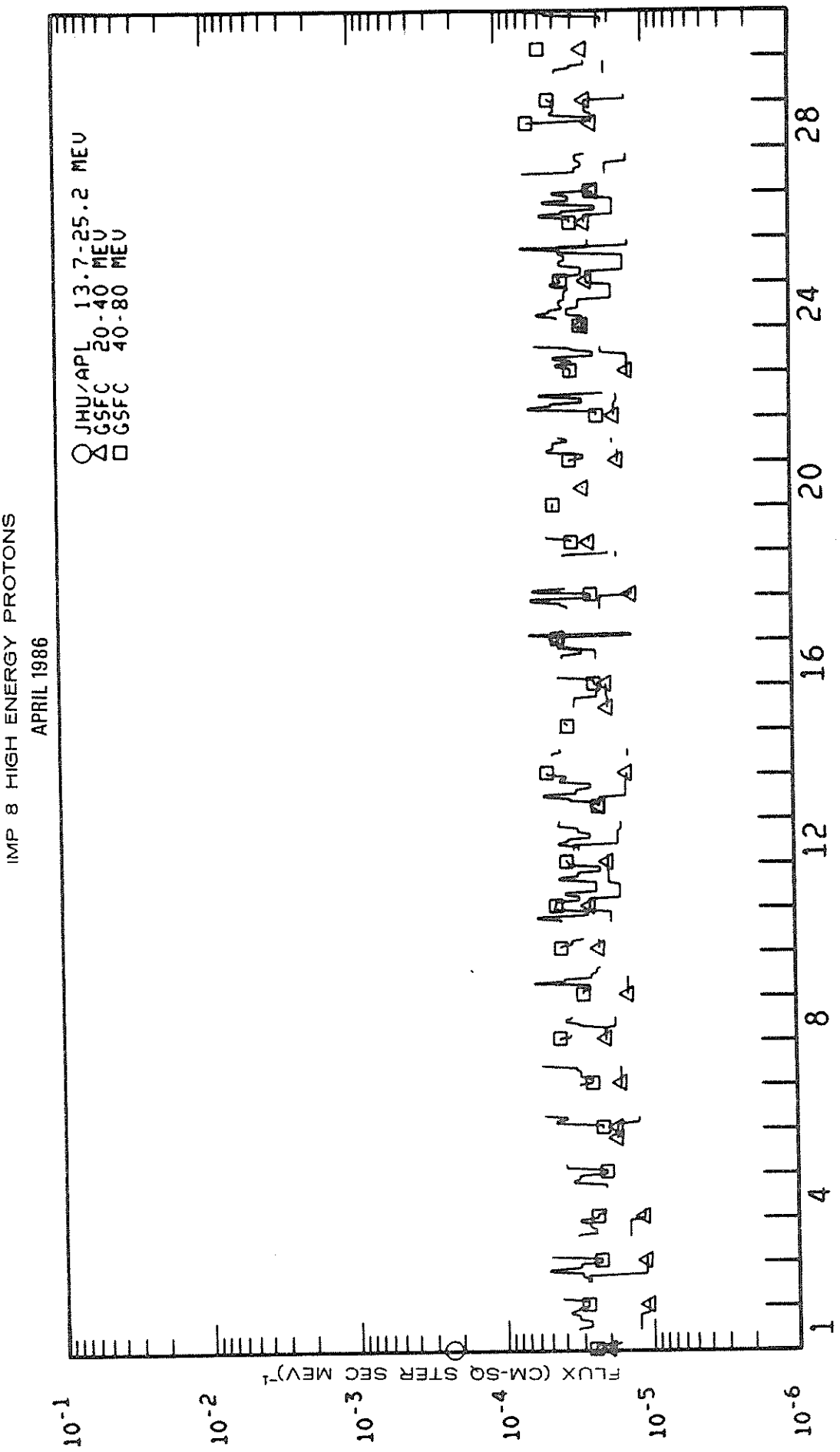
IMP 8 INTERMEDIATE ENERGY PROTONS

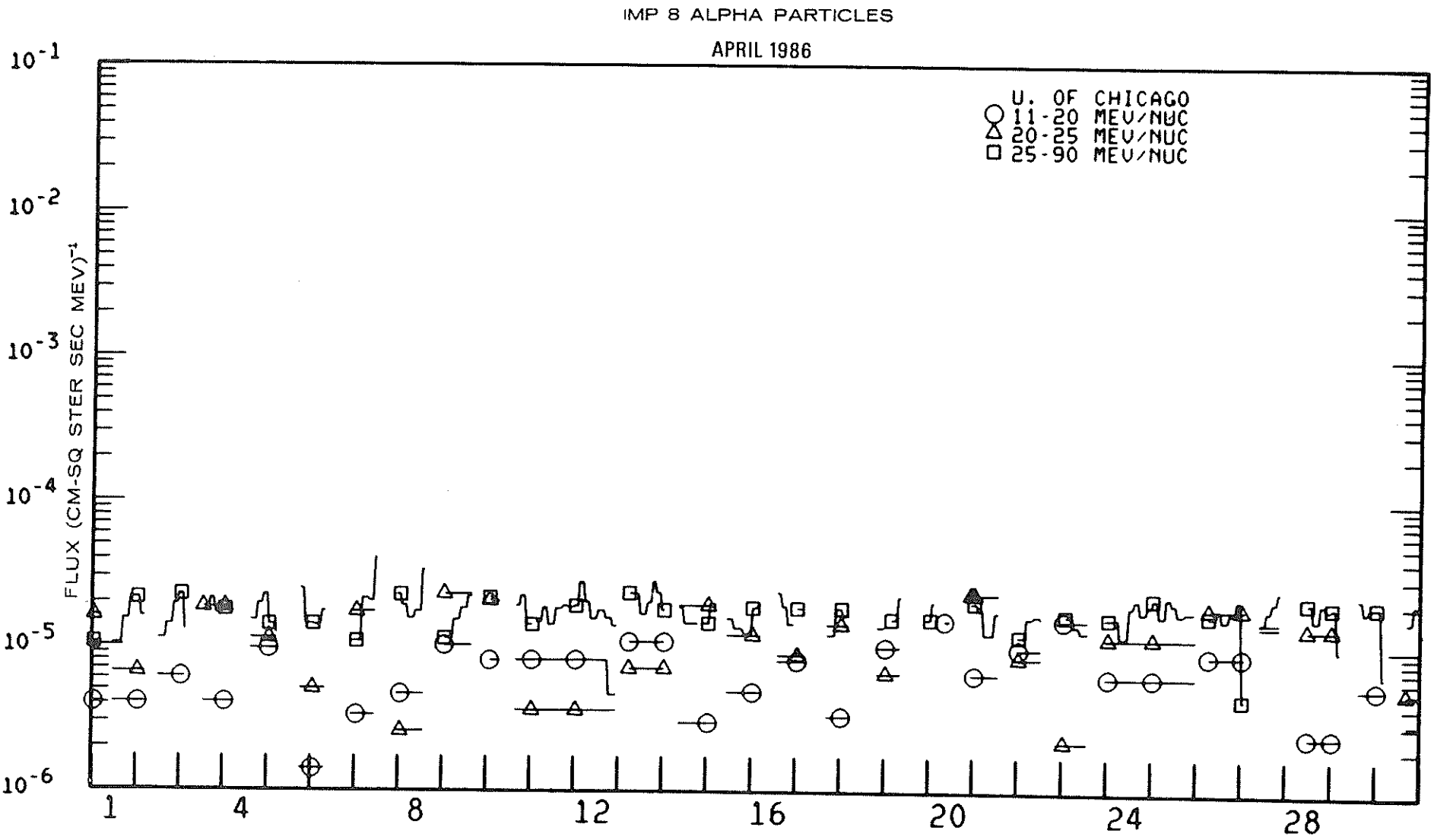
APRIL 1986



89
Late
Apr 86

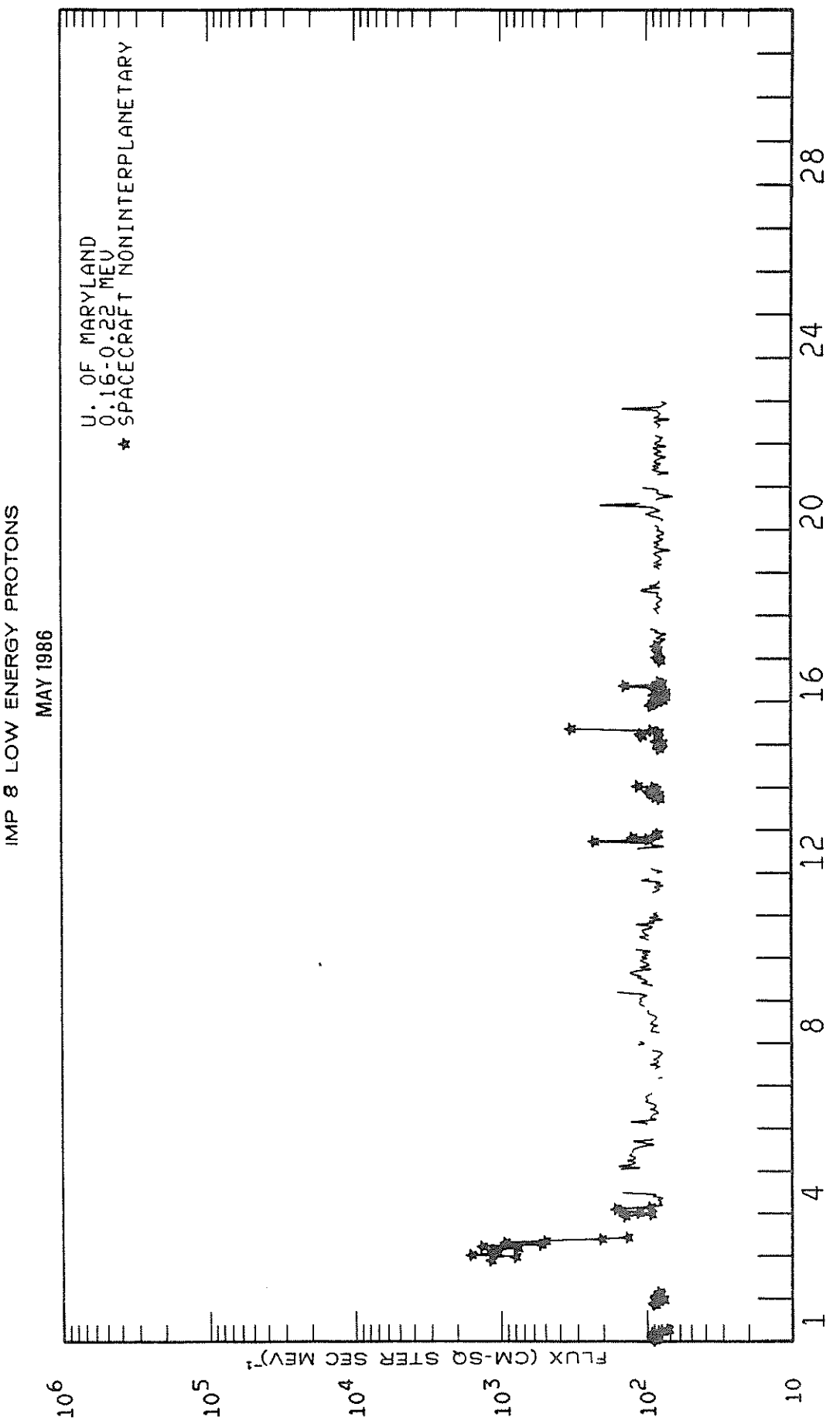
90
Late
Apr 86





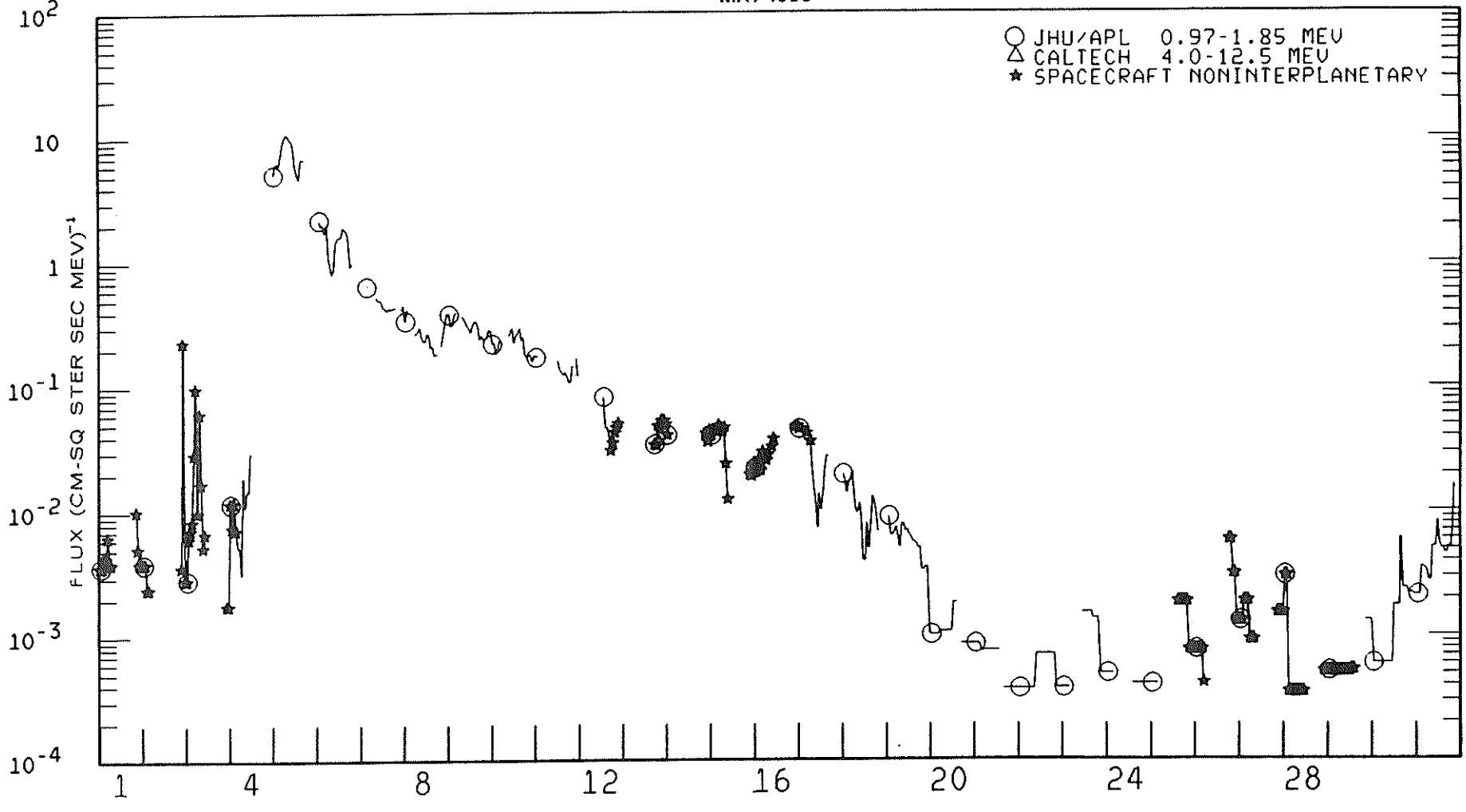
91
Late
Apr 86

92
Late
May 86

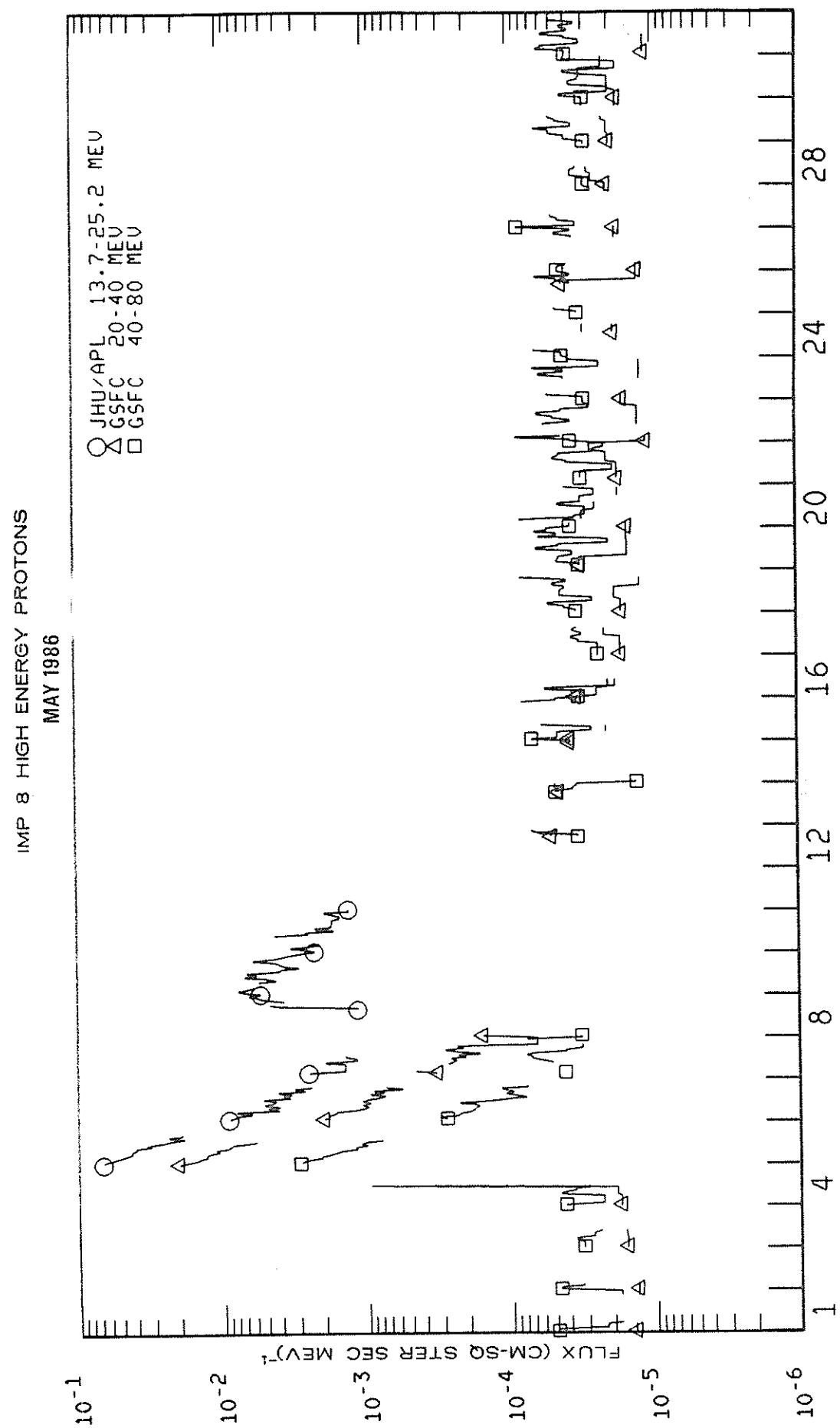


IMP 8 INTERMEDIATE ENERGY PROTONS

MAY 1986

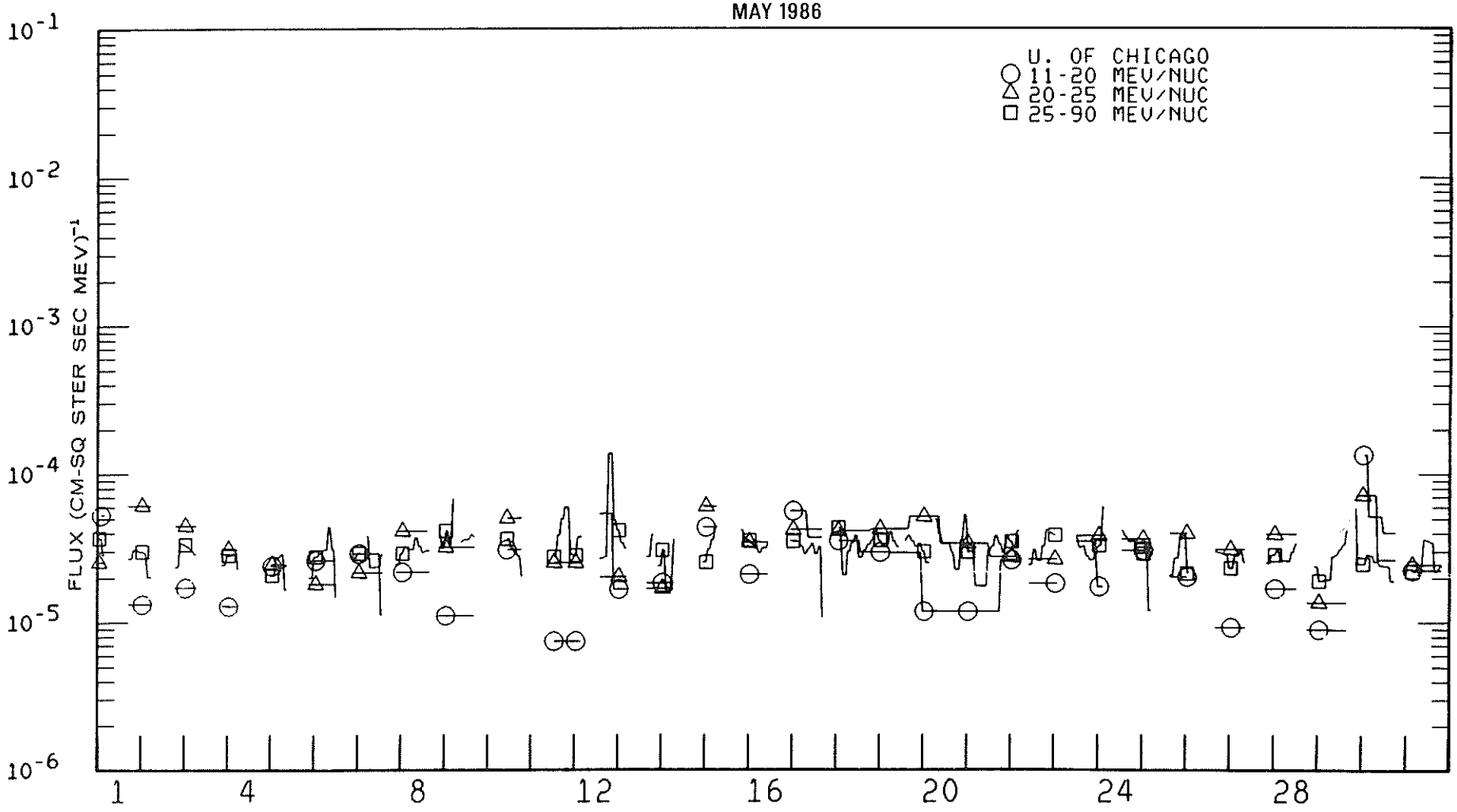


93
Late
May 86


IMP 8 HIGH ENERGY PROTONS
MAY 1986
JHU/APL 13.7-25.2 MEV
GSFC 20-40 MEV
GSFC 40-80 MEV
FLUX (CM-SQ STER SEC MEV)⁻¹
10⁻¹
10⁻²
10⁻³
10⁻⁴
10⁻⁵
10⁻⁶
1
4
8
12
16
20
24
28

IMP 8 ALPHA PARTICLES

MAY 1986



95
Late
May 86

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."