



U.S. DEPARTMENT OF COMMERCE
Juanita M. Kreps, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Richard A. Frank, Administrator
ENVIRONMENTAL DATA SERVICE
Thomas S. Austin, Director

Solar - Geophysical Data

NO. 403 MARCH 1978

Part II (Comprehensive Reports)

DATA FOR
SEPTEMBER 1977
AUGUST 1977
& MISCELLANEA

**NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO**

For obtaining bulletins on a data exchange basis, send request to: World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado 80302.

For sale through the National Geophysical and Solar-Terrestrial Data Center, NOAA, Boulder, CO 80302. Subscription Price: \$34.00 annually for both Part I (Prompt Reports) and Part II (Comprehensive Reports) or \$18.00 annually for either part. Annual supplement containing explanation is included. For foreign mailing add \$32.00 for both parts or \$16.00 for either part. Single issue price \$1.50 for either part and \$1.40 for the extra issue. Make checks and money orders payable to: Department of Commerce, NOAA/NGSDC.

To standardize referencing these reports in the open literature, the following format is recommended:

Solar-Geophysical Data, 390 Part I (or Part II), pages, February 1977, U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80302).

SOLAR-GEOPHYSICAL DATA

1

No. 403

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Director
Solar-Terrestrial Data Services Division

CONTENTS

	PAGE
Part I (Prompt Reports)	
Index for 1977 and 1978	2
Data for February 1978	3-40
Data for January 1978	43-150
 Part II (Comprehensive Reports)	
Index for 1977 and 1978	2
Data for September 1977	3-41
Data for August 1977	43-53
Miscellaneous Data	55-69
Solar Radio Waves	
Spectral Observations Culgoora, November 1977	
Spectral Observations Culgoora, December 1977	
Selected Events by Radioheliograph, Culgoora, November 1977	
Selected Events by Radioheliograph, Culgoora, December 1977	
3 cm East-West Scans Toyokawa, December 1977	
Geomagnetic Indices	
Sudden Commencements and Solar Flare Effects, December 1977	

INDEX FOR 1977 AND 1978 DATA PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1977						1978		
		Aug	Sep	Oct	Nov	Dec	Jan	Feb		
A.	SOLAR AND INTERPLANETARY PHENOMENA									
A.1	Sunspot Drawings	398A 36	399A 34	400A 30	401A 36	402A 38	403A 47			
A.2a	Zurich Provisional Relative Sunspot Numbers Rz	397A 7	398A 7	399A 7	400A 7	401A 7	402A 9	403A 9		
A.2b	Zurich Final Sunspot Numbers Rz									
A.2c	American Relative Sunspot Numbers RA'	397A 7	398A 7	399A 7	400A 7	401A 7	402A 9	403A 9		
A.3a	Mt. Wilson Magnetograms	898A 36	399A 34	400A 30	401A 36	402A 38	403A 46			
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	398A 98	399A 94	400A 92	401A 96	402A100	403A108			
A.3c	Kitt Peak Magnetograms	398A 36	399A 34	400A 30	401A 36	402A 38	403A 46			
A.3d	Mean Solar Magnetic Field (Stanford)	397A 25	398A 29	399A 29	400A 24	401A 31	402A 33			
A.4	H-alpha Filtergrams	398A 36	399A 34	400A 30	401A 36	402A 38	403A 47			
A.5	Calcium Plage Drawings - McMath (or Catania)	398A 36	399A 34	400A 30	401A 36	402A 38	403A 47			
A.5a	Calcium Plage (McMath) and Sunspot Regions	398A 98	399A 94	400A 92	401A 96	402A100	403A108			
A.5b	McMath Daily Calcium Plage Indices	398A105	399A 99	400A 99	401A100	402A105	403A114			
A.6	H-alpha Synoptic Charts	398A 34	399A 32	400A 28	401A 35	402A 36	403A 44			
A.6b	Synoptic Chart and Active Regions (Paris)	402B 4	403B 4							
A.7f	Helium D3 Chromosphere (Big Bear)	397A 19	398A 24	399A 24	400A 21	401A 28	402A 29	403A 36		
A.7g	Helium Synoptic Maps (KPNO)	397A 20	398A 22	399A 23	400A 20	401A 27	402A 28	403A 35		
A.7h	Coronal Line Emission (Sac Peak)	398A 36	399A 34	400A 30	401A 36	402A 38	403A 46			
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	397A 7	398A 7	399A 7	400A 7	401A 7	402A 9	403A 9		
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	397A 7	398A 7	399A 7	400A 7	401A 7	402A 9	403A 9		
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	397A 7	398A 7	399A 7	400A 7	401A 7	402A 9	403A 9		
A.9cb	8.6 mm Radio Maps of the Sun (NOSC - La Posta)	398A 36	400B 57	400A 30	401A 36	402A 38	403A 47			
A.9d	2 cm Radio Maps of the Sun (NOSC - La Posta)	398A 36	400B 52	400A 30	401A 36	402A 38	403A 47			
A.10a	169 MHz - Interferometric Observations (Nancay)	397A 13	398A 14	399A 14	400A 12	401A 15	402A 16	403A 20		
A.10c	21 cm East-West Solar Scans (Fleurs)	397A 15	398A 16	399A 16	400A 14	401A 17	402A 19	403A 23		
A.10d	43 cm East-West Solar Scans (Fleurs)	397A 16	398A 17	399A 17	400A 15	401A 18	402A 20	403A 24		
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	397A 14	398A 15	399A 15	400A 13	401A 16	402A 18	403A 22		
A.10f	3 cm East-West Solar Scans (Toyokawa)					403B 68	402A 17	403A 21		
A.11ab	Solar X-ray Radiation (SOLRAD 11)						403A116			
A.11g	Solar X-ray (SMS/GOES)	---	398A 25	399A 20	400A 17	401A 22	402A 24	403A 29		
A.11h	Solar X-ray (OSO-8; 1975-057A)	398A 36	399A 34	400A 30	401A 36	402A 38	403A 46			
A.11i	Solar X-ray (Columbia U.)									
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	397A 23	---	399A 26	---	---	402A 30			
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	---	---	399A 27	---	---	402A 31			
A.12e	Energetic Solar Particles (IMP H & J)	402B 24	403B 37							
A.13a	Solar Wind (Pioneers 6 & 7)	397A 23	---	399A 26	---	---	402A 30			
A.13ab	Solar Wind (Pioneers 8 & 9)	---	---	399A 27	---	---	402A 31			
A.13d	Solar Wind from IPS Measurements	397A 27	398A 27	399A 25	400A 25	401A 29	402A 34	403A 37		
A.13e	Solar Plasma (IMP H & J)	402B 23	403B 22							
A.17	Interplanetary Magnetic Field (Pioneer 8)	---	---	---	---	---	402A 31			
A.17	Interplanetary Magnetic Field (Pioneer 9)	---	---	---	---	---	402A 32	403A 38		
A.17c	Inferred IP Magnetic Field	397A 24	398A 28	400A 22	400A 22	401A 30	402A 31			
A.18	Interplanetary Electric Field (Pioneer 8)	---	---	399A 27	---	---	402A 31			
A.18	Interplanetary Electric Field (Pioneer 9)	---	---	---	---	---	402A 31			
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA									
B.52	Graphs of Transmission Frequency Range	398A124	399A128	400A120	401A116	402A132	403A148			
B.53	Quality Figures Based on Frequency Ranges	398A126	399A127	400A122	401A118	402A131	403A150			
C.	FLARE-ASSOCIATED EVENTS									
C.1a	Optical Observations Flares	397A 10	398A 10	399A 10	400A 10	401A 10	402A 12	403A 12		
C.1ba	Optical Observations Flares (Standardized Data)	402B 8	403B 8							
C.1d	Flare Patrol Observations	397A 12	398A 13	399A 13	400A 11	401A 14	402A 15	403A 19		
C.1d	Flare Patrol Observations	402B 17	403B 21							
C.1e	Flare Indices (by day)	402B 16	403B 20							
C.1f	Flare Indices (by Region)	403B 53								
C.3	Solar Radio Waves - Outstanding Occurrences	402B 18	403B 22							
C.3t	Solar Radio Waves - Fixed Frequencies - Selected	397A 17	398A 18	399A 18	400A 16	401A 19	402A 21	403A 25		
C.4a	43.25, 80 and 160 MHz Selected Bursts (Culgoora)	399B 36	399A113	401B 44	403B 64	403B 65				
C.4a	Solar Radio Spectral Obs. (Fort Davis)	398A107	399A102	400A101	401A102	402A108	403A132			
C.4d	Solar Radio Spectral Obs. (Culgoora)	400B 62	399A102	401B 38	403B 56	403B 59				
C.4e	Solar Radio Spectral Obs. (Weissenau)	398A107	399A102	400A101	402B 42	402A108	403A132			
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	398A107	399A102	400A101	401A102	402A108	403A132			
C.4h	Solar Radio Spectral Obs. (Dwingeloo)	398A107	399A102	400A101	401A102	402A108	403A132			
C.4i	Solar Radio Spectral Obs. (Durnten)	398A107	399A102	400A101	401A102	402A108	403A132			
C.4j	Solar Radio Spectral Obs. (Manila)		399A102	400A101	401A102	402A108	403A132			
C.5e	Solar X-ray (SMS/GOES)	397A 22	399B 37	399A 22	400A 19	401A 24	402A 26	403A 29		
C.5f	Solar X-ray (Columbia U.)									
C.6	Sudden Ionospheric Disturbances	398A106	399A100	400A100	401A101	402A106	403A115			
D.	GEOMAGNETIC AND MAGNETOSPHERIC PHENOMENA									
D.1a	Geomagnetic Indices Kp, Kn, Ks, Km, Ap, aa, Cp	398A117	399A120	400A113	401A109	402A125	403A142			
D.1ba	27-day Chart of Kp Indices	398A119	399A122	400A115	401A111	402A127	403A144			
D.1c	27-day Chart of C9									
D.1d	Principal Magnetic Storms	398A122	399A125	400A118	401A114	402A130	403A145			
D.1e	Reduced Magnetograms									
D.1f	Sudden Commencement and Solar Flare Effects	398A123	399A126	400A119	401A115	403B 69	403A147			
D.1g	Equatorial Indices Dst	398A121	399A124	400A117	401A113	402A129				
F.	COSMIC RAYS									
F.1a	Cosmic Ray Neutron Counts (Deep River)	398A116	399A115	400A112	402B 47	402A124	403A138			
F.1b	Cosmic Ray Neutron Counts (Climax)	398A116	399A115	400A112	401A108	402A124				
F.1e	Cosmic Ray Neutron Counts (Alert)	398A116	399A115	400A112	402B 47	402A124	403A138			
F.1f	Cosmic Ray Neutron Counts (Calgary)	400B 70	400B 70	402B 47						
F.1g	Cosmic Ray Neutron Counts (Sulphur Mountain)	400B 70	---	402B 47						
F.1h	Cosmic Ray Neutron Counts (Thule)									
F.1i	Cosmic Ray Neutron Counts (Kiel)	398A116	399A115	400A112	401A108	402A124	403A138			
F.1j	Cosmic Ray Neutron Counts (Tokyo)	398A116	399A115	400A112	401A108	402A124	403A138			
F.1k	Cosmic Ray Neutron Counts (Kula)	398A116								
H.	MISCELLANEOUS									
H.60	IUWDS Alert Decisions	397A 4	398A 4	399A 4	400A 4	401A 4	402A 5	403A 5		
H.62	Abbreviated Calendar Record	403B 46								

Notes:

"398A 36" listed under 1977 Aug means that data for August 1977 were contained in *Solar-Geophysical Data* Number 398 - Part I, beginning on page 36.

SEPTEMBER 1977 DATA

Contents

	Page
<u>Active Regions</u>	4-5
<u>Synoptic Solar Maps</u>	6-7
<u>Solar Flares</u>	
H α Solar Flares (Standardized Data)	8- 19
Daily Flare Indices	20
No-Flare-Patrol Chart	21
<u>Solar Radio Waves</u>	
Worldwide Outstanding Occurrences at Fixed Frequencies	22-35
<u>Energetic Solar Particles and Plasma</u>	36-41
<u>Solar X-ray Radiation</u> (Data not available at time of publication)	
<u>Magnetograms of Geomagnetic Storm</u> (Data not available at time of publication)	

ACTIVE REGIONS

CARRINGTON ROTATION 1659

(September 3 - September 30, 1977)

Region No.	Coordinates		Age at CMP	Imp.	Spot-less Region	Region No. in Rotation 1658	Activity at West Limb
	Lat.	Long.					
1	18°S	352°	>6	1	x		disappeared
2	15 N	343	+3	2			decreasing stable
3	36 S	327	-4	1	x	(2)	dispersed
4	25 N	325	>6	1	x		dispersed
5	19 N	317	>6	1	x		decreasing
6	26 N	312	>6	2			dispersed
7	21 N	259	>6	1	x	(6)	decreasing
8	19 N	239	>6	2			decreasing
9	15 N	205	>6	3			decreasing
10	6 N	197	>6	5			decreasing
11	17 N	169	>6	1	x		disappeared
12	23 N	147	-2	2			increasing
13	13 S	125	-2	1	x		dispersed
14	22 S	114	-5	2			increasing
15	25 N	111	>6	2			decreasing
16	23 N	103	>6	1	x		decreasing
17	25 S	98	>6	5			decreasing
18	27 N	95	>6	1	x		decreasing
19	28 N	61	+1	3			decreasing
20	42 N	50	-2	1	x		decreasing
21	17 N	44	0	2			dispersed
22	29 S	35	0	1	x		decreasing
23	26 S	28	>6	1	x		disappeared
24	19 S	18	>6	1	x		decreasing
25	20 S	5	>6	2	x		dispersed
26	31 S	1	+4	1	x		disappeared

ACTIVE REGIONS

CARRINGTON ROTATION 1660

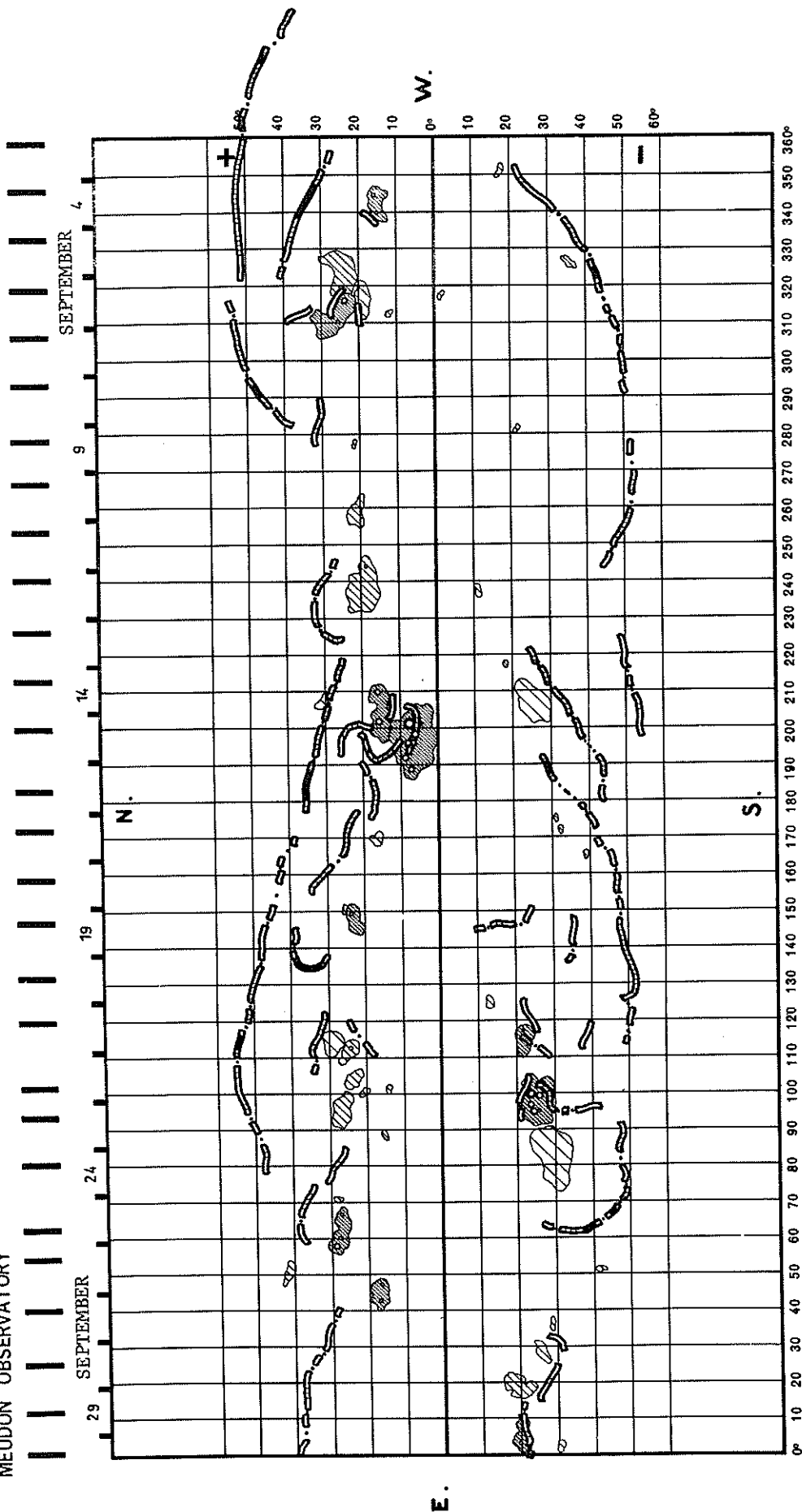
(September 30 - October 27, 1977)

Region No.	Coordinates		Age at CMP	Imp.	Spot- less Region	Region No. in Rotation 1659	Activity at West Limb
	Lat.	Long.					
1	15°N	344°	>6	4			decreasing
2	32 N	338	+2	3			decreasing
3	26 N	318	>6	1	x		dispersed
4	36 S	317	+4	1	x		disappeared
5	22 S	303	>6	3			decreasing
6	20 N	298	>6	2			decreasing
7	32 N	298	>6	1	x		dispersed
8	29 N	267	+3	1	x		disappeared
9	19 N	260	+6	2	x		increasing
10	34 S	259	+1	1	x		disappeared
11	23 N	209	>6	1	x		decreasing
12	16 N	207	>6	1	x		decreasing
13	6 N	204	>6	3		(9)	decreasing
14	30 N	199	0	2		(10)	decreasing
15	17 S	191	+1	1	x		decreasing
16	18 N	173	+1	2			disappeared
17	24 S	170	-5	1	x		decreasing
18	23 N	165	-5	2			(?)
19	24 N	160	>6	1			(?)
20	19 N	159	>6	3	x		dispersed
21	23 N	148	0	2			decreasing
22	26 N	148	>6	1	x		stable
23	39 N	140	0	1	x	(12)	dispersed
24	22 S	120	+6	1	x		disappeared
25	25 S	114	+6	1	x		dispersed
26	23 N	109	+6	3	x		dispersed
27	28 S	91	>6	1	x		decreasing
28	29 N	89	>6	1	x	(17)	dispersed
29	24 S	85	+3	4		(18)	dispersed
30	17 N	81	+6	1	x		decreasing
31	29 N	63	>6	1			dispersed
32	29 N	48	>6	1	x	(19)	dispersed
33	18 N	43	-2	2			decreasing
34	26 S	40	+4	1	x		decreasing
35	31 N	30	>6	1	x		dispersed

6
Sep 77

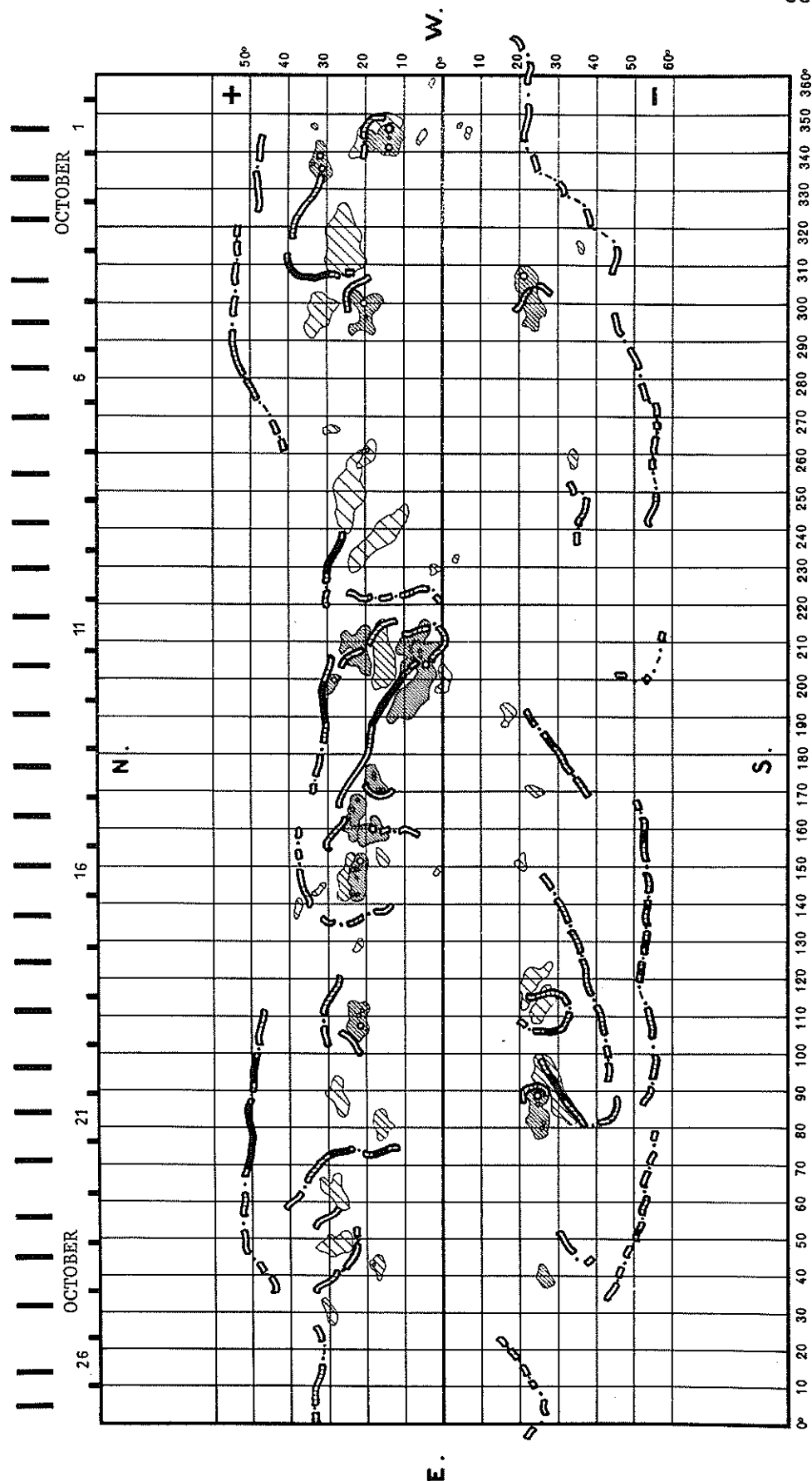
SYNOPTIC SOLAR MAP
CARRINGTON ROTATION 1659
SEPTEMBER 3 TO SEPTEMBER 30, 1977

MEUDON OBSERVATORY



SYNOPTIC SOLAR MAP
CARRINGTON ROTATION 1660
SEPTEMBER 30 TO OCTOBER 27, 1977

MEUDON OBSERVATORY



8
Sep 77

H α SOLAR FLARES

SEPTEMBER 1977

OBSERV- ATORY	OBSERVED UT				LOCATION				DURA- TION	IMPOR- TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE SEP	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	MCNATH PLAGE REGION			CMP DAY	COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk		CORR AREA Sq. Deg.
					LAT.	MER. DIST.											
	01	0015	0102	NO FLARE PATROL													
	01	0105	0134	NO FLARE PATROL													
473 MITK	01	0407	0410	0415	S25	H67	.954	14915	27.1	8	-N	C	0410	120			Y5
474 CATA	01	0655	0655	0700	N24	E71	.938	14930	6.6	5	-N	2	0655	56			Y5
475 MONT	01	0736	0756	0821	N26	E69	.927	14930	6.5	45	-N	C	0756	180			Y5
476 ATHN	01	0747E		0747D	N21	W40	.656	14931	29.3		-N	1		123			Y5
GRP64477	01	0830+3	0857	0903	N27	E68	.922	14930	6.5	33	-N						E
CATA	01	0830E	0830	0830D	N29	E68	.923	14930	6.5		1N	2	0830	73			E
MONT	01	0833	0857	0903	N26	E69	.927	14930	6.5	30	-N	C	0857	80			E
478 MONT	01	0917	0923	0931	N26	E68	.921	14930	6.5	14	-F	C	0923	60			Y5
GRP64479	01	1335	1340	1400D	N21	E62	.877	14930	6.2	25	-F						
CATA	01	1335	1340	1400	N24	E60	.864	14930	6.1	25	-F	2	1340	67	1.4		A
LVOV	01	1348E	1434	1517D	N19	E64	.892	14930	6.4	89D	1F	C	1434	100			
	01	1550	1555	NO FLARE PATROL													
	01	1609	1613	NO FLARE PATROL													
	01	1623	1632	NO FLARE PATROL													
	01	1635	1647	NO FLARE PATROL													
	01	1648	1710	NO FLARE PATROL													
	01	1726	1730	NO FLARE PATROL													
	01	1750	2336	NO FLARE PATROL													
480 VORO	02	0205	0207	0220	N26	E57	.841	14930	6.4	15	-N	C	0207	45	.8		EJ Y5
GRP64481	02	0617	0618	0621	N26	E62	.881	14930	6.9	4	-F			60	1.4		D
HTPR	02	0617	0618	0620	N26	E62	.881	14930	6.9	3	-F	C	0618	60	1.2		
BUCA	02	0618E		0622	N26	E62	.881	14930	6.9	40	-F	C	0618	64	1.4		CD
	02	1654	1701	NO FLARE PATROL													
	02	2036	2037	NO FLARE PATROL													
	02	2047	2050	NO FLARE PATROL													
	02	2058	2101	NO FLARE PATROL													
	02	2107	2129	NO FLARE PATROL													
	02	2200	0006	NO FLARE PATROL													
	03	0007	0027	NO FLARE PATROL													
	03	0038	0043	NO FLARE PATROL													
	03	0055	0102	NO FLARE PATROL													
	03	0139	0146	NO FLARE PATROL													
	03	0203	0204	NO FLARE PATROL													
GRP64482	03	1449+3	1453+1	1458	N24	E36	.620	14930	6.3	9	-F			20	.3		D
LVOV	03	1449E	1454	1500D	N23	E35	.604	14930	6.2	110	-F	C	1454	100	1.3		D
HTPR	03	1451	1453	1455	N25	E38	.648	14930	6.5	4	-F	C	1453	20	.2		D
MCMA	03	1452	1454	1458	N23	E35	.604	14930	6.2	6	-N	C	1454	20	.3		
GRP64483	03	1457+6	1508+6	1537	S32	W43	.836	14924	31.4	40	-N						E
LVOV	03	1457E	1508	1520D	S32	W43	.836	14924	31.4	230	1F	C	1508	150	2.8		E
MCMA	03	1503	1514	1537	S33	W44	.848	14924	31.3	34	-N	C	1514	60	.9		
GRP64484	03	1515+9	1555	1606	N26	E37	.641	14930	6.4	51	-F						K
MCMA	03	1515		1611	N27	E38	.657	14930	6.5	56	-F						E
KANZ	03	1551	1555	1600	N25	E37	.637	14930	6.4	9	-F	C	1530	100	1.4		EFK
	04	2117	2151	NO FLARE PATROL													
	04	2155	2235	NO FLARE PATROL													
	05	0135	0144	NO FLARE PATROL													
485 PALE	05	2103	2104	2124	N23	E08	.301	14930	6.5	21	-F	3	C		43		DE F Y5
	06	0122	0137	NO FLARE PATROL													
	06	0140	0148	NO FLARE PATROL													
	06	0204	0209	NO FLARE PATROL													
	06	0212	0217	NO FLARE PATROL													
GRP64486	06	0902+2	0908+2	0920	N24	00	.288	14930	6.4	18	-F			15	.2		E
MONT	06	0848	0856	0923	N25	E07	.325	14930	6.9	35	-F	C	0856	60			E
KANZ	06	0902	0910	0922	N24	E00	.288	14930	6.4	20	-N	C					E
HTPR	06	0903	0908	0918	N24	W01	.289	14930	6.3	15	-F	C	0908	10	.1		E
MEUD	06	0904	0908	0918	N24	W01	.289	14930	6.3	14	-F	C	0908	20	.2		E

10
Sep 77

H α SOLAR FLARES

SEPTEMBER 1977

OBSERV- ATORY	OBSERVED UT				LOCATION					DURA- TION	IMPORT- ANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	McNATH PLAGE REGION	CMP. DAY			COND	TYPE	TIME UT	MEAS. AREA	CORR AREA		
					LAT.	MER. DIST.												
503 HUAN	08	1359	1404	1412	N08	E90	1.000	14943	15.3	13	-F	1	C	1404	25		D	Y5
504 HUAN	08	1427	1433	1441	N06	E90	1.000	14943	15.4	14	-F	1	C	1433	20		D	Y5
505 MCMA	08	1444	1450	1457	N07	E90	1.000	14943	15.4	13	-F		C	1450				Y5
506 MCMA	08	1516	1517	1521	N07	E90	1.000	14943	15.4	5	-F		C	1517				Y5
507 MCMA	08	1640E		17200	N07	E90	1.000	14943	15.4	400	-F		C					Y5
508 HUAN	08	1751E		17540	N09	E90	1.000	14943	15.5	30	-F	1	P					Y5
509 MCMA	08	1825E		18400	N07	E90	1.000	14943	15.5	150	-F		C					Y5
510 HUAN	08	1859	1901	1903	N09	E90	1.000	14943	15.5	4	-F	1	C	1901	35		E	Y5
	08	1954	2033	NO FLARE PATROL														
511 VORO	08	2354	2356	0003	N21	E43	.691	14941	12.2	9	? N		C	2356	206	2.8	E	Y5
		IMP.1 NO	CULG															
512 VORO	09	0043	0044	0054	N16	E80	.980	14942	15.0	11	? N		C	0044	81	4.0	DG	Y5
		IMP.1 NO	CULG															
513 TACH	09	0453		0540	N08	E88	.999	14943	15.8	47	? N		C	0517	203		E	Y5
		IMP.1 NO	CULG															
514 ATHN	09	0620	0639	06550	N03	E85	.996	14943	15.6	350	-B	1						Y5
515 KHAR	09	0725E		07500	N08	E81	.985	14943	15.4	250	? F		P	0740	21		OT	Y5
		IMP.1 NO	HTPR	CATA														
GRP64516	09	0831E	0855+4	10100	N09	E83	.990	14943	15.6	99	1N				90			
MONT	09	0831E	0859	09530	N08	E85	.995	14943	15.7	820	-N		C	0859	70			
KHAR	09	0845E		09250	N08	E81	.985	14943	15.4	400	1F		C	0900	15		T	
CATA	09	0855	0855	09200	N12	E84	.992	14943	15.7	250	1N	1		0855	112			
KHAR	09	0950E		10100	N08	E81	.985	14943	15.5	200	1F		C				T	
GRP64517	09	1015+5	1020+7	1031	N08	E81	.985	14943	15.5	16	-N						E	
ATHN	09	1015	1020	1030	N04	E83	.992	14943	15.7	15	-B	1						
HTPR	09	1019	1027	1031	N08	E82	.988	14943	15.6	12	-F		C	1027	30	.7	E	
CATA	09	1020	1025	10300	N09	E79	.978	14943	15.4	100	1B	1		1025	84		T	
KHAR	09	1020E	1027	11200	N08	E80	.982	14943	15.4	600	1F		C					
GRP64518	09	1025+0	1028+2	1044	N18	W67	.913	14935	4.4	19	-F						D	
HTPR	09	1025	1028	1037	N18	W67	.913	14935	4.4	12	-F		C	1028	20	.5	D	
KHAR	09	1025E	1030	10500	N18	W67	.913	14935	4.4	250	1F		C					
GRP64519	09	1609+3	1616+4	1625	N08	E83	.991	14943	15.9	16	-N				25		E	
MCMA	09	1609	1620	16300	N07	E85	.995	14943	16.0	210	-N		C	1620			E	
HUAN	09	1610	1617	1625	N09	E85	.994	14943	16.0	15	-N	1		1617	30			
HTPR	09	1612	1616	1624	N08	E80	.982	14943	15.7	12	-F		C	1616	20	.5		
GRP64520	09	1630+1	1634	1703	N08	E84	.993	14943	16.0	33	1N						FIRUY	
MCMA	09	1630		19000	N07	E87	.998	14943	16.2	1500	2B		C	1645			FIRU	
HUAN	09	1631		1703	N09	E85	.994	14943	16.1	32	1B	1					Y	
HTPR	09	1631	1634	1655	N08	E80	.982	14943	15.7	24	-F		C	1634	30	.8		
	09	2017	2037	NO FLARE PATROL														
	09	2106	2132	NO FLARE PATROL														
521 TACH	10	0510	0514	0550	N08	E75	1.000	14943	15.8	67	1N		C				E	Y5
522 CULG	10	0548	05580	0635	N06	E69	.930	14943	15.4	47	-F		C	0558	60			Y5
GRP64523	10	0655+9	0701	0852	N06	E69	.930	14943	15.5	117	-N						DK	
			0747+2															
CULG	10	0655	0701	07320	N06	E69	.930	14943	15.5	370	-N		P	0701	70		T K	
KANZ	10	0730	0749	0855	N06	E70	.937	14943	15.6	85	-F						D	
MONT	10	0732E	0747	0849	N06	E69	.930	14943	15.5	770	-N		C	0747	50			
GRP64524	10	0800+1	0804+0	0808	N26	W49	.768	14930	6.7	8	-F						E	
KANZ	10	0800	0804	0807	N25	W51	.785	14930	6.5	7	-F		C				D	
MONT	10	0801	0804	0808	N27	W48	.761	14930	6.7	7	-F		C	0804	20			
525 KANZ	10	1118	1118	1124	N25	W52	.795	14930	6.6	6	-F		C					Y5

H α SOLAR FLARES

SEPTEMBER 1977

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMR DAY			COND	TYPE	TIME UT	MEAS. AREA	CORR AREA	
					LAT.	MER. DIST.											
526 HTPR	10	1121	1127	1136	N06	E67	.917	14943	15.5	15	-F		C	1127	10	.2	Y5
GRP64527	10	1435+1	1437+0	1449	N05	E65	.903	14943	15.5	14	-F				20	.5	D
MCMA	10	1418E		14510	N05	E66	.911	14943	15.5	330	-N		P	1439	25	.6	D
MEUD	10	1435	1437	1439	N05	E64	.896	14943	15.4	4	-F		C	1437	20	.5	D
HTPR	10	1436	1437	1447	N05	E64	.896	14943	15.4	11	-F		C	1437	20	.4	
HUAN	10	1445E		1500	N05	E65	.903	14943	15.5	150	-F	1	P				
528 HUAN	10	1850		1856	N06	E61	.871	14943	15.4	6	-F	1	C				E Y5
	10	1934	1937		NO FLARE PATROL												
	10	2035	2104		NO FLARE PATROL												
529 CULG	10	2132	2141	2210	N06	E59	.853	14943	15.3	38	-N		C	2141	20	.4	Y5
	11	0053	0058		NO FLARE PATROL												
	11	0104	0122		NO FLARE PATROL												
	11	0146	0148		NO FLARE PATROL												
530 CULG	11	0604	0606	0620	N14	E36	.588		14.0	16	-N		C	0606	20	.3	Y5
531 CATA	11	0855E	0855	09000	N18	E50	.764	14942	15.1	50	-B	1		0855	22	.4	Y5
532 MEUD	11	1043	1044	1045	N26	H61	.873	14930	6.9	2	-N		C	1044	30	.7	E Y5
533 MCMA	11	1201E		13000	N15	E47	.727	14942	15.0	590	-N	*	P	1221	125	1.9	E Y5
534 MCMA	11	1201E		1400	N07	E52	.783	14942	15.4	1190	-F		P	1215	60	1.0	E Y5
GRP64535	11	1300+9	1320+4 1350+3	14120	N15	E47	.727	14942	15.1	72	-N						E
MCMA	11	1300	1320	13380	N15	E46	.716	14942	15.0	380	-N	*	C	1320	130	1.9	E
KANZ	11	1318	1324	1332	N15	E46	.716	14942	15.0	14	-N	*	C				E
KANZ	11	1332	1353	1502	N15	E48	.739	14942	15.2	90	-N						E
MCMA	11	1338	1350	14120	N15	E48	.739	14942	15.2	340	-N		C	1350	60	.9	E
GRP64536	11	1413+4	1420+1	14400	N15	E46	.716	14942	15.0	27	-N				100	1.5	E
MCMA	11	1413	1420	1510	N15	E48	.739	14942	15.2	57	-B		C	1420	100	1.6	E
MEUD	11	1417	1421	1440	N16	E44	.693	14942	14.9	23	-N		C	1421	100	1.4	E
537 KANZ	11	1432	1440	1442	N07	E50	.761	14942	15.4	10	-N		C				Y5
GRP64538	11	1615+0	1619+0	1625	N26	H66	.908	14930	6.7	10	-N				40		D
MCMA	11	1615	1619	1624	N27	H68	.922	14930	6.6	9	-B		C	1619	30	.7	D
MEUD	11	1615	1619	1626	N26	H64	.895	14930	6.9	11	-N		C	1619	50		D
539 MCMA	11	1710	1712	1718	N15	E47	.727	14942	15.2	8	-N		C	1712	30	.5	D Y5
540 MCMA	11	1718	1721	1724	N15	E44	.692	14942	15.0	6	-N		C	1721	50	.7	E Y5
GRP64541	11	1849+1	1850+1	1856	N08	E48	.738	14943	15.4	7	-N				90	1.3	DR
RAMY	11	1849E	18510	18560	N09	E48	.738	14943	15.4	70	-N	3	C		95		R
PALE	11	1850	1850	1907	N09	E50	.760	14943	15.5	17	-N	3	C		91		DE
MCMA	11	1850	1851	1855	N07	E46	.715	14943	15.2	5	-B		C	1851	40	.6	D
	11	1938	1952		NO FLARE PATROL												
	11	2016	2022		NO FLARE PATROL												
	11	2028	2031		NO FLARE PATROL												
	11	2124	2134		NO FLARE PATROL												
542 VORO	11	2211E		2228	N16	E42	.669	14942	15.1	170	-B		P	2217	99	1.3	J Y5
543 VORO	11	2230E		2240	N06	E44	.691	14943	15.2	100	-B		C	2231	90	1.2	CDJ Y5
544 VORO	11	2247	2252	23160	N16	E42	.669	14942	15.1	290	-B		P	2252	99	1.3	EJ Y5
	11	2300	2311		NO FLARE PATROL												
	11	2325	0021		NO FLARE PATROL												
	12	0023	0038		NO FLARE PATROL												
	12	0041	0045		NO FLARE PATROL												
GRP64545	12	0954+4	1001	1028	N21	E42	.680	14943	15.6	34	-F				25	.4	E
			1014+0														
HONT	12	0954	1001	1008	N18	E47	.731	14943	15.9	14	-F		C	1001	40		E
KANZ	12	0958	1014	1026	N21	E42	.680	14943	15.6	28	-F		C				
HONT	12	1007	1014	1029	N22	E42	.683	14943	15.6	22	-F		C	1014	20		D
CATA	12	1015E	1015	10150	N22	E42	.683	14943	15.6		-N	1		1015	28	.4	

12
Sep 77

H α SOLAR FLARES

SEPTEMBER 1977

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY			COND	TYPE	TIME UT	MEAS. AREA	CORR AREA		
					LAT.	MER. DIST.												
																		SEP
	12	1807	1948	NO FLARE	PATROL													
	12	2001	2039	NO FLARE	PATROL													
	12	2054	2104	NO FLARE	PATROL													
	12	2158	2206	NO FLARE	PATROL													
	12	2219	2222	NO FLARE	PATROL													
546 VORO	13	0126	0128	0133	N17	E31	.527	14943	15.4	7	-B	C	0128	125	1.4	D	Y5	
547 VORO	13	0212	0212	0218	N11	E38	.611	14943	15.9	6	-B	C	0212	45	.5	D	Y5	
548 TACH	13	0530	0534	0550	N10	E36	.583	14943	15.9	20	-N	C	0539	88	1.1	E	Y5	
549 CULG	13	0544	0554	0605	N28	W90	.998	14930	6.5	21	-N	C	0554	40			Y5	
550 KANZ	13	0927E	0927	0927D	N10	E35	.569	14943	16.0		-B	C				D	Y5	
GRP64551	13	1318+5	1322+1	1334	N10	E33	.541	14943	16.0	16	-N					D		
HTPR	13	1318	1322	1333	N11	E33	.541	14943	16.0	15	-F	C	1322	10	.1			
KANZ	13	1323	1323	1334	N10	E33	.541	14943	16.0	11	-B	C				D		
GRP64552	13	1455+1	1455+2	1507	N06	E21	.357	14943	15.2	12	-N			20	.2			
CATA	13	1455	1455	1510	N08	E21	.356	14943	15.2	15	-B	2	1455	28	.3			
HUAN	13	1456E		1501	N05	E21	.358	14943	15.2	50	-F	1	P 1456	20	.2	D		
HTPR	13	1456	1457	1507	N05	E22	.374	14943	15.3	11	-F	C	1457	20	.2	E		
GRP64553	13	1548+1	1553	1610	N10	E32	.526	14943	16.1	22	-F							
HTPR	13	1548	1553	1612	N09	E32	.526	14943	16.1	24	-F	C	1553	20	.2	E		
HUAN	13	1549		1608	N11	E32	.527	14943	16.1	19	-F	1	C 1604	25	.3	D		
	13	1857	1915	NO FLARE	PATROL													
	13	1953	2049	NO FLARE	PATROL													
554 CULG	13	2333	2356	0010	N10	E27	.451	14943	16.0	37	-N	C	2356	25	.3		Y5	
555 HTPR	14	0922E		0934	N07	E12	.206	14943	15.3	120	-F	C	0925	10	.1		Y5	
GRP64556	14	1311	1315	1329	N08	E17	.290	14943	15.8	18	-F							
ZURI	14	1311	1315	1333	N09	E18	.307	14943	15.9	22	-N	C	1315	130	1.4			
HTPR	14	1312E		1324	N08	E17	.290	14943	15.8	120	-F	C	1314	10	.1			
GRP64557	14	1501+9	1529	1615	N05	E07	.127	14943	15.2	74	-N							
			1555															
ZURI	14	1501	1529	1539	N05	E09	.160	14943	15.3	38	-N	C	1529	50	.5			
MCMA	14	1527	1555	1640	N05	E07	.127	14943	15.2	73	-N	C	1555	60	.6	E		
WEND	14	1545E		1619D	N06	E07	.123	14943	15.2	340	1N	P		400				
HUAN	14	1604E		1610D	N05	E07	.127	14943	15.2	60	-F	1	P 1605	25	.3	D		
558 VORO	14	2147	2149	2159	N18	E37	.610	14948	17.7	12	-B	C	2149	45	.5	OGJ	Y5	
GRP64559	15	0729+1	0730+1	0743	N15	W12	.244	14942	14.4	14	-F			20	.2	D		
HTPR	15	0729	0730	0744	N14	W12	.235	14942	14.4	15	-F	C	0730	20	.2			
MONT	15	0729	0731	0743	N15	W12	.244	14942	14.4	14	-F	C	0731	20		D		
KANZ	15	0730	0730	0743	N15	W12	.244	14942	14.4	13	-F	C				D,T		
GRP64560	15	0751+9	0802+1	0830	N07	W01	.018	14943	15.3	39	-F					D		
			0812															
MONT	15	0751	0803	0835	N08	W01	.022	14943	15.3	44	-F	C	0803	20		D		
KANZ	15	0758	0802	0830	N06	W01	.027	14943	15.3	32	-F	C				D		
HTPR	15	0800	0812	0830	N07	W02	.035	14943	15.2	30	-F	C	0812	10	.1			
GRP64561	15	1042+3	1051+0	1103D	N07	E03	.052	14943	15.7	21	-N							
MONT	15	1042	1051	1115D	N08	E01	.022	14943	15.5	330	-F	C	1051	80				
ZURI	15	1045	1051	1103	N07	E05	.087	14943	15.8	18	-B	C	1051	30	.3			
GRP64562	15	1107+6	1115+2	1118D	N10	E07	.130	14943	16.0	11	-N			35	.4	E		
ZURI	15	1107	1117	1151	N10	E06	.114	14943	15.9	44	-B	C	1117	50	.5			
HTPR	15	1113	1115	1118	N10	E08	.146	14943	16.1	5	-F	C	1115	20	.2	E		
GRP64563	15	1115+0	1129+0	1146	N23	E88	.997	14951	22.1	31	-F							
ZURI	15	1115	1129	1151	N23	E87	.995	14951	22.0	36	-F	C	1129	20				
KANZ	15	1115	1129	1141	N24	E90	.999	14951	22.2	26	-N							
564 KANZ	15	1145	1148	1152	N17	W04	.183	14942	15.2	7	-N	C					Y5	
565 ZURI	15	1319	1321	1359	N09	E05	.092	14943	15.9	40	-N	C	1321	40	.4		Y5	
566 PALE	15	1855	1857	1901	N07	W03	.052	14943	15.6	6	-F	3	C		36		DE	Y5

H α SOLAR FLARES

SEPTEMBER 1977

OBSERV- ATORY	OBSERVED UT				LOCATION				DURA- TION	IMPOR- TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	MCNATH PLAGE REGION			CMP DAY	COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk		CORR AREA Sq. Deg.
					LAT.	MER. DIST.											
GRP64567 CULG VORO	15 15	2000 2040	2004 2045	NO FLARE PATROL													
	16 16	0033+1 0033	0040+2 0042	0135 0135	N23 N24	W05 W05	.284 .300	14942 14942	15.6 15.6	62 62	-N -N			130 140	1.4 1.6	DG	
	16 16	0034 0040	01100 01100	N23 N23	W06 W06	.290 .290	14942 14942	15.6 15.6	360 360	-B -B	C C	0042 0040	116 116	1.2 1.2	DG		
	16 16	0112 0112	0119 0119	NO FLARE PATROL													
	16 16	0127 0127	0134 0134	NO FLARE PATROL													
	16 16	0137 0137	0142 0142	NO FLARE PATROL													
	16 16	0155 0155	0221 0221	NO FLARE PATROL													
568 CATA	16 16	0645 0645	0650 0650	N17 N17	W11 W11	.251 .251	14943 14943	15.5 15.5	5 5	-N -N	2 2	0645 0645	56 56	.6 .6	H Y5		
569 HTPR	16 16	0931 0931	0932 0947	N16 N16	W15 W15	.294 .294	14942 14942	15.3 15.3	16 16	-F -F	C C	0932 0932	10 10	.1 .1	Y5 Y5		
GRP64570 HTPR HTPR	16 16	0942 0942	0944+1 0944	1005 0953	N09 N08	W07 W10	.125 .173	14943 14943	15.9 15.7	23 11	-F -F	C C	0944 0944	10 10	.1 .1		
	16 16	0944 0944	0945 1005	N11 N11	W05 W05	.109 .109	14943 14943	16.0 16.0	21 21	-F -F	C C	0945 0945	10 10	.1 .1			
	571 HTPR	16 16	1201 1201	1203 1204	N18 N18	W30 W30	.517 .517	14942 14942	14.3 14.3	3 3	-F -F	C C	1203 1203	10 10	.1 .1	Y5 Y5	
572 HTPR	16 16	1202 1202	1204 1215	N08 N08	W17 W17	.290 .290	14943 14943	15.2 15.2	13 13	-F -F	C C	1204 1204	10 10	.1 .1	Y5 Y5		
573 HTPR	16 16	1204 1204	1207 1213	N13 N13	W20 W20	.350 .350	14942 14942	15.0 15.0	9 9	-F -F	* C	1207 1207	10 10	.1 .1	Y5 Y5		
574 HTPR	16 16	1244 1244	1247 1250	N08 N08	W17 W17	.290 .290	14943 14943	15.3 15.3	6 6	-F -F	C C	1247 1247	10 10	.1 .1	Y5 Y5		
575 HTPR	16 16	1312 1312	1318 1322	N17 N17	W21 W21	.386 .386	14942 14942	15.0 15.0	10 10	-F -F	C C	1318 1318	10 10	.1 .1	Y5 Y5		
576 HTPR	16 16	1343 1343	1346 1403	N20 N20	W23 W23	.434 .434	14942 14942	14.8 14.8	20 20	-F -F	C C	1347 1347	10 10	.1 .1	Y5 Y5		
577 HTPR	16 16	1428 1428	1430 1445	N08 N08	W15 W15	.257 .257	14943 14943	15.5 15.5	17 17	-F -F	C C	1430 1430	20 20	.2 .2	Y5 Y5		
578 HTPR	16 16	1510 1510	1512 1520	N10 N10	W17 W17	.293 .293	14943 14943	15.4 15.4	10 10	-F -F	C C	1512 1512	10 10	.1 .1	Y5 Y5		
579 RAMY	16 16	1735E 1735E	1739 1753	N07 N07	W20 W20	.339 .339	14943 14943	15.2 15.2	180 180	-N -N	4 4	C C	1739 1739	190 190		FDE Y5	
GRP64580 PALE PALE	16 16	1803+0 1803	1805+0 1805	1830 1830	N07 N07	W16 W16	.274 .274	14943 14943	15.6 15.6	27 27	-F -F	3 3	V V	50 53	.5 .5	DE DE	
	16 16	1803 1803	1805 1830	N07 N07	W16 W16	.274 .274	14943 14943	15.6 15.6	27 27	-F -F	3 3	C C	53 53				
	GRP64581	16 16	2123 2123	2141+2 2141	0043 22300	N07 N08	W20 W20	.339 .339	14943 14943	15.4 15.4	200 670	2N 1N		820 220	8.7 2.4	FRUZ UZ	
CULG PALE PALE CULG MANI VORO MITK	16 16	2123 2123	2256+9 2256	0043 0215	N07 N07	W20 W21	.339 .356	14943 14943	15.4 15.3	2750 2750	2N 2B	4 4	C C	2141 190	2.4 1.9	UZ Z U	
	16 16	2140E 2140E	2143 0000	N07 N07	W21 W21	.356 .356	14943 14943	15.3 15.3	1400 1400	2B 2B	3 3	V V	826 826		Z U		
	16 16	2230 2230	2256 0050	N08 N08	W20 W20	.339 .339	14943 14943	15.4 15.4	140 140	2N 2N		C C	2256 765	8.2 8.2	UZ ZF		
	16 16	2300E 2300E	2300U 0015	N08 N08	W21 W21	.356 .356	14943 14943	15.4 15.4	750 750	2B 2B	2 2	C C	2300 850	9.4 9.4	ZF ZF		
	16 16	2305E 2305E	23250 01050	N07 N06	W20 W20	.339 .340	14943 14943	15.5 15.5	200 1190	2N 2N	P P	2305 2312	1102 570	12.0 6.2	Y5 R		
	16 16	2306E 2306E	01050 01050	N06 N06	W20 W20	.340 .340	14943 14943	15.5 15.5	1190 1190	2N 2N	P P	2312 2312	570 570	6.2 6.2	R R		
	16 16	2203 2203	2223 2223	NO FLARE PATROL													
GRP64582 CULG MITK PALE	17 17	0240+5 0240	0247+3 0250	0300 0310	N17 N18	W28 W28	.485 .490	14942 14942	15.0 15.0	20 30	-N -N			70 55	.8 .6	U U	
	17 17	0241 0241	0247 0300	N17 N17	W28 W28	.485 .485	14942 14942	15.0 15.0	19 19	-N -N			90 90	1.1 1.1	E E		
	17 17	0245 0245	0247 0253	N16 N16	W29 W29	.496 .496	14942 14942	14.9 14.9	8 8	-F -F	3 3	C C	0247 0247	73 73		U F	
	17 17	0624+6 0624	0634+1 0634	0652 0648	N18 N19	W38 W38	.623 .626	14942 14942	14.4 14.4	28 24	-N -F	C C	0634 0634	20 20	.2 .2		
CATA GRP64584 CULG ATHN	17 17	0630 0630	0635 06550	N17 N17	W38 W38	.620 .620	14942 14942	14.4 14.4	250 250	-B -B	2 2	C C	0635 0635	56 56	.7 .7		
	17 17	0651+1 0651	0654+0 0711	0704 0711	N08 N08	W24 W20	.404 .339	14943 14943	15.5 15.8	13 20	-F -F	C C	0654 0654	30 30	.3 .4		
	17 17	0652 0652	0654 0656	N09 N09	W28 W28	.466 .466	14943 14943	15.2 15.2	4 4	-N -N	1 1	C C	0654 0654	33 33	.7 .7		
585 CATA	17 17	1020 1020	1020 1030	N09 N09	W31 W31	.511 .511	14943 14943	15.1 15.1	10 10	-N -N	2 2	1020 1020	112 112	1.3 1.3	Y5 Y5		
586 MCMA	17 17	1345E 1400	1400 14200	N08 N08	W33 W33	.540 .540	14943 14943	15.1 15.1	350 350	-B -B	C C	1400 1400	100 100	1.3 1.3	E Y5		
587 MCMA	17 17	1504E 1510	1520 15230	N18 N18	W36 W36	.597 .597	14942 14942	14.9 14.9	190 190	-N -N	C C	1510 1510	60 60	.8 .8	E Y5		
588 MCMA	17 17	1514 1514	15280 15280	N08 N08	W33 W33	.540 .540	14943 14943	15.2 15.2	140 140	-N -N	C C	1523 1523	150 150	1.5 1.5	E Y5		

14
Sep 77

H α SOLAR FLARES

SEPTEMBER 1977

OBSERVATORY	OBSERVED UT				LOCATION				DURATION MIN	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE SEP	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	McMATH PLAGE REGION			CNR DAY	COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk		CORR AREA Sq. Deg.
					LAT.	MER. DIST.											
GRP64589	17	2146+6	2158+2	2222	N06	W34	.556	14943	15.4	36	-N				50	.6	
VORO	17	2146E		22040	N06	W35	.570	14943	15.3	180	-B		P	2149	143	1.7	E
CULG	17	2151	2200	2210	N06	W35	.570	14943	15.3	19	-F		C	2200	30	.3	
PALE	17	2152	2158	2234	N07	W32	.526	14943	15.5	42	-F	3	C		70		FDE
GRP64590	18	0019+1	0035+5	0140	N07	W35	.570	14942	15.4	81	1N				360	4.4	FZ
PALE	18	0019	0035	00540	N07	W33	.541	14942	15.5	350	1B	3	V		368		Z F
CULG	18	0020	0040	0140	N08	W38	.611	14942	15.2	80	1N		C	0040	345	4.3	ZF
	18	0205	0210	NO FLARE PATROL													
591 PALE	18	0321	0325	0338	N01	W35	.580	14943	15.5	17	-F	3	V		120		FDE Y5
GRP64592	18	0538+2	0542+2	0556	S26	E67	.956	14952	23.3	18	-F						D
CULG	18	0538	0544	0555	S27	E66	.953	14952	23.2	17	-F		C	0544	30		D
TACH	18	0540	0542	05560	S25	E69	.963	14952	23.4	160	-N		C	0546	88		
593 ATHN	18	0640	0642	0644	S23	E64	.936	14952	23.1	4	-B	1			33		Y5
594 CULG	18	0654	0701	0715	N08	W40	.638	14943	15.3	21	-F		C	0701	20	.2	Y5
595 RAMY	18	1228E	1230	12350	S25	E61	.924	14952	23.1	70	-N	4	C		32		DE Y5
GRP64596	18	1256+2	1301+2	1308	N07	W38	.612	14943	15.7	12	-F				130	1.7	
MEUD	18	1256		1304	N07	W38	.612	14943	15.7	8	-F		C	1259	40	.5	
TEHR	18	1258	1301	1311	N10	W45	.702	14943	15.2	13	-F	3	C		127		
RAMY	18	1300E	1303	13080	N07	W37	.598	14943	15.8	80	-F	4	C		127		FDE
597 MEUD	18	1331	1332	1343	S25	E59	.912	14952	23.0	12	-F		C	1332	30	.7	D Y5
598 HUAN	18	1822		1830	S26	E57	.902	14952	23.0	8	-F	1	C				E Y5
GRP64599	18	1905+1	1911	1924	N07	W44	.690	14943	15.5	19	-F						
HUAN	18	1905		1919	N06	W45	.703	14943	15.4	14	-F	1	C				E
PALE	18	1906	1911	1929	N08	W44	.690	14943	15.5	23	-F	3	C		70		F
GRP64600	19	0004+0	0012+0	0044	N08	W47	.726	14943	15.5	40	-F				70	1.0	K
PALE	19	0004	0012	0042	N08	W47	.726	14943	15.5	38	-N	3	C		71		FDE
PALE	19	0004	0012	0042	N08	W47	.726	14943	15.5	38	-F	3	V		71		FDE
CULG	19	0023E	0023E	0105	N08	W45	.702	14943	15.6	420	-F		P	0023	40	.6	
CULG	18	2335	2341	0045	N08	W50	.761	14943	15.2	70	-F		C	2341	30	.5	K
GRP64601	19	0414	0421	0438	N09	W52	.782	14943	15.3	24	-N						E
CULG	19	0414	0421	0438	N09	W54	.803	14943	15.1	24	-F		C	0421	40	.6	
TACH	19	0416E		04270	N10	W50	.760	14943	15.4	110	1N		V	0416	176	2.8	E
602 ATHN	19	0753E	0756	0805	S26	E48	.840	14952	22.9	120	-F	1			33	1.0	Y5
GRP64603	19	0955E	1038+7	1207	N08	W57	.834	14943	15.1	132	3B						FZ
CATA	19	0955E	1045	11250	N05	W57	.836	14943	15.1	900	3B	2		1045	843	15.8	
KANZ	19	10060	1045	1205	N08	W57	.834	14943	15.1	1190	3B		C				
ATHN	19	1027	1039	12000	N10	W53	.793	14943	15.5	930	2B	1			672	15.3	
RAMY	19	1028E	1038	12080	N08	W58	.843	14943	15.1	1000	3B	3	C		1368		Z F
604 ATHN	19	1007E	1016	1026	S26	E48	.840	14952	23.0	190	-F	1			82	2.4	Y5
605 RAMY	19	1351E	1359U	14090	N08	W57	.834	14943	15.3	180	-N	4	C		127		FDE Y5
606 RAMY	19	1534E	1538	15550	S23	E46	.810	14952	23.1	210	-N	4	C		95		FDE Y5
607 CULG	20	0024	0029	0045	N12	W64	.892	14943	15.2	21	-N		C	0029	30	.6	Y5
608 PALE	20	0024E	0029	0037	S24	E40	.765	14952	23.0	130	-F	2	V		25		DE Y5
GRP64609	20	0251+9	0354	0847	N09	W59	.852	14943	15.7	356	2N						FI
		0615															
CULG	20	0251	0354	07420	N10	W58	.842	14943	15.8	2910	3N		C	0354	840	15.1	I
MITK	20	0302		03150	N12	W55	.813	14943	16.0	130	1N		C	0315	210	3.7	F
TACH	20	0344E		06440	N11	W59	.851	14943	15.7	1800	3F		C	0347	618	12.8	BF
MITK	20	0429E		06500	N11	W57	.832	14943	15.9	1410	2N		C	0429	480	8.6	F
CATA	20	0605E	0615	06500	N08	W60	.861	14943	15.8	450	1B	2		0615	224	4.6	
MONT	20	0714E	0714	0847	N07	W62	.879	14943	15.7	930	1N		C	0714	250		B
610 MONT	20	0849	0850	0853	S25	E33	.712	14952	22.8	4	-F		C	0850	20		D Y5
611 HUAN	20	1632	1634	1636	N11	W73	.951	14943	15.2	4	-F	1	C	1634	25		E Y5

H α SOLAR FLARES

SEPTEMBER 1977

OBSERV- ATORY	OBSERVED UT				LOCATION					DURA- TION	IMPOR- TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY			COND	TYPE	TIME UT	MEAS. AREA	CORR AREA	
					LAT.	MER. DIST.											
612 PALE	20	1753	1755	1801	N08	W70	.935	14943	15.5	8	-F	3	V		22		FOE Y5
GRP64613 PALE HUAN	20	1838+0	1842	1850	N10	W73	.952	14943	15.3	12	-N						
	20	1838	1842	1850	N10	W71	.941	14943	15.5	12	-N	3	V		60		FOE
	20	1838		18410	N11	W75	.961	14943	15.2	30	-N	1	P				
GRP64614	20	2242+4	2250	2318	S23	E28	.652	14952	23.0	36	-N				60	.8	DJK
			2307+1														
VORO	20	2242	2308	2319	S22	E30	.661	14952	23.2	37	-B		C	2308	81	1.1	DJK
PALE	20	2246	2250	2313	S23	E27	.644	14952	23.0	27	-F	3	V		27		DE
CULG	20	2300	2307	2318	S24	E28	.661	14952	23.1	18	-F		C	2307	40	.5	
GRP64615	20	2257+9	2303+8	2324	N10	W74	.957	14943	15.4	27	-N				40		JL
CULG	20	2257	2307	2324	N11	W74	.956	14943	15.4	27	-F		C	2307	35		
VORO	20	2301	2303	2324	N10	W75	.962	14943	15.3	23	-B		C	2303	63	2.2	DJL
PALE	20	2308	2311	2326	N08	W73	.952	14943	15.5	18	-F	3	V		30		FOE
616 VORO	21	0106	0108	0113	N05	W76	.968	14943	15.3	7	-B		C	0108	63	2.2	DJL Y5
	21	0212	0213	NO FLARE PATROL													
	21	0221	0226	NO FLARE PATROL													
617 MITK	21	0345	0346	0348	N05	W77	.972	14943	15.4	3	-F		C	0346	50		E Y5
618 HTPR	21	0635E	0636	0644	N10	W80	.982	14943	15.3	90	-F		C	0636	10		Y5
619 HTPR	21	0723	0726	0730	N10	W80	.982	14943	15.3	7	-F		C	0726	10		E Y5
620 MONT	21	0804	0818	0830	N13	W81	.984	14943	15.3	26	-F		C	0818	40		E Y5
621 MONT	21	0821	0822	0826	N18	W88	.997	14942	14.7	5	-F		C	0822	20		D Y5
GRP64622	21	0834+2	0836+1	0840	S23	E22	.602	14952	23.0	6	-F				45	.6	D
MONT	21	0834	0837	0841	S24	E22	.613	14952	23.0	7	-F		C	0837	40		D
ZURI	21	0836	0836	0838	S23	E23	.610	14952	23.1	2	-N		C	0836	50	.7	
GRP64623	21	0911+9	0932+1	0944	N11	W83	.990	14943	15.2	33	-N				30		E
MONT	21	0911	0933	10120	N13	W82	.987	14943	15.2	610	-F		C	0933	40		E
ZURI	21	0922	0932	0944	N09	W85	.995	14943	15.0	22	-B		C	0932	30		
HTPR	21	0929	0933	0936	N10	W82	.988	14943	15.2	7	-F		C	0933	10		E
624 MONT	21	1000	1002	10120	N18	W89	.999	14942	14.7	120	-F		C	1002	20		Y5
GRP64625	21	1036+4	1040+5	1101	N09	W84	.993	14943	15.1	25	-F				20		
HTPR	21	1036	1045	1101	N10	W84	.992	14943	15.1	25	-F		C	1045	10		
CATA	21	1040	1040	10500	N09	W85	.995	14943	15.1	100	-F	2		1040	28		
626 HTPR	21	1435	1436	1445	N25	E04	.314	14951	21.9	10	-F		C	1436	10	.1	Y5
627 HTPR	21	1436	1439	1454	S23	E21	.594	14952	23.2	18	-F		C	1439	10	.1	Y5
GRP64628	21	1448+0	1450+1	1453	N17	W90	.999	14942	14.9	5	-F				25		D
HUAN	21	1448	1451	1452	N18	W90	.999	14942	14.9	4	-F	1	C	1451	25		D
HTPR	21	1448	1450	1453	N16	W90	.999	14942	14.9	5	-N		C	1450	20		
629 HTPR	21	1458	1503	1522	S23	E21	.594	14952	23.2	24	-F		C	1503	10	.1	Y5
630 HUAN	21	1707E		1716	N11	W87	.997	14943	15.2	90	-N	1	P	1707	20		C,D Y5
	21	1956	2055	NO FLARE PATROL													
631 CULG	21	2235	2253	2335	N19	W90	.999	14942	15.2	60	?F		C	2253	50		Y5
	IMP. 1	NO	VOR01														
632 CULG	22	0120	0124	0210	N11	W90	1.000	14943	15.3	50	1N		C	0124	60		K Y5
633 CULG	22	0548	0555	0608	S24	E14	.558	14952	23.3	20	-F		C	0555	30	.3	Y5
GRP64634	22	0617	0625	0649	N11	W90	1.000	14943	15.5	32	1F						
CULG	22	0617	0625	0703	N12	W90	1.000	14943	15.5	46	1F		C	0625	50		
ATHN	22	0626E	0626	0635	N10	W90	1.000	14943	15.5	90	-N	1					
635 CULG	22	0624	0631	0648	S24	E13	.553	14952	23.2	24	-F		C	0631	25	.3	Y5

SEPTEMBER 1977

18
Sep 77

H α SOLAR FLARES

SEPTEMBER 1977

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY			COND	TYPE	TIME UT	MEAS. AREA	CORR. AREA	
					LAT.	MER. DIST.											
677 CULG	26	2139	2143	2153	S20	H54	.862	14952	22.9	14	-F	C	2143	40	.8	Y5	
678 CULG	26	2200	2204	2235	N28	H15	.429	14957	25.8	35	-F	C	2204	40	.4	Y5	
GRP64679 CULG VORO	26	2208	2212	2305	S21	E42	.764	14962	30.1	57	-N					EGHJ	
	26	2208	2212	2300	S22	E42	.769	14962	30.1	52	-F	C	2212	40	.6		EGHJ
	26	2241E		2310	S20	E42	.758	14962	30.1	290	-B	P	2244	108	1.6		
680 CULG	26	2335	2339	2357	S23	H60	.912	14952	22.5	22	-F	C	2339	20	.5	Y5	
GRP64681 VORO CULG	27	0113+2	0135+5	0157	S21	E41	.754	14962	30.1	44	-N					EGJ EGJ	
	27	0113	0135	0153	S21	E42	.764	14962	30.2	40	1N	C	0135	179	2.7		
	27	0115	0140	0200	S22	E40	.751	14962	30.1	45	-N	C	0140	40	.6		
682 CULG	27	0442	0446	0458	S24	H88	1.000	14964	20.6	16	-F	C	0446	40		Y5	
GRP64683 CULG MITK	27	0517+0	0522+1	0558	S21	E36	.707	14962	29.9	41	-F				.7	EG EG EG	
	27	0517	0522	0558	S22	E36	.714	14962	29.9	41	-N	C	0522	60	.9		
	27	0517	0523	05380	S21	E37	.717	14962	30.0	210	-F	C	0523	50	.7		
684 HTPR	27	0656E		0705	N14	E58	.842	14963	1.6	90	-F	C	0659	20	.3	E Y5	
685 HTPR	27	0820	0832	0845	S22	E38	.733	14962	30.2	25	-F	C	0832	20	.2	Y5	
GRP64686 MONT HTPR	27	0845+1	0849+1	0854	S23	H58	.899	14952	23.0	9	-F					D E Y5	
	27	0845	0850	0854	S23	H57	.893	14952	23.1	9	-N	C	0850	70			
	27	0846	0849	0853	S24	H59	.908	14952	22.9	7	-F	C	0849	20	.3		
687 MONT	27	0938	0940	0943	S23	H57	.893	14952	23.1	5	-F	C	0940	20		Y5	
688 MONT	27	1011	1017	1032	N14	E58	.842	14963	1.8	21	-N	C	1017	60		Y5	
689 MONT	27	1106	1118	11450	N14	E58	.842	14963	1.8	390	-N	C	1118	60		Y5	
690 MONT	27	1108	1120	11450	S25	H86	1.000	14964	21.0	370	-F	C	1120	20		Y5	
691 HTPR	27	1230	1241	1253	S23	H86	1.000	14964	21.1	23	-F	C	1241	10		Y5	
692 ZURI	27	1338E	1355	1429	S22	H82	.997	14964	21.4	510	-N	P	1355	20		Y5	
GRP64693 MCMA ZURI	27	1406+1	1417+5	1455	S20	E31	.652	14962	29.9	49	-F				.5	E E E	
	27	1406	1422	1505	S21	E32	.665	14962	30.0	59	-N	C	1422	50	.6		
	27	1407	1417	1445	S20	E31	.652	14962	29.9	38	-F	C	1417	20	.3		
GRP64694 ZURI HTPR	27	1435+2	1437+5	1447	S22	H85	.999	14964	21.2	12	-F				15	D D D	
	27	1435	1437	1445	S22	H82	.997	14964	21.5	10	-N	C	1437	20			
	27	1437	1442	1448	S23	H88	1.000	14964	21.0	11	-F	C	1442	10	.2		
GRP64695 ZURI HUAN	27	1501+8	1509	1526	S21	H84	.999	14964	21.3	25	-F					D D D	
	27	1501	1509	1533	S22	H82	.997	14964	21.5	32	-N	C	1509	10			
	27	1509	1517	1518	S21	H87	1.000	14964	21.1	9	-F	1 C	1517	20			
GRP64696 ZURI HUAN MCMA	27	1531+0	1544	1558	N14	E54	.804	14963	.7	27	-N				40	.7	E E E E
	27	1531	1544	15530	N14	E54	.804	14963	1.7	220	-N	P	1544	40	.7		
	27	1531	1554	16020	N14	E55	.813	14963	1.8	23	-F	1 C					
	27	1537E			N14	E54	.804	14963	1.7	250	-B	C	1548	40	.7		
697 HUAN	27	1759		1837	S21	H87	1.000	14964	21.2	38	-F	1 C				Y5	
698 PALE	27	1822	1832	18500	N15	E50	.762	14963	1.5	280	-N	3 C		44		FOE Y5	
	27	1950	2026	NO FLARE PATROL													
GRP64699 PALE PALE	27	2150+0	2155+0	2220	N15	E48	.740	14963	.5	30	-F			50	.8	FOE FOE FOE	
	27	2150	2155	2220	N15	E48	.740	14963	1.5	30	-F	3 C		51			
	27	2150	2155	2220	N15	E48	.740	14963	1.5	30	-F	3 V		51			
GRP64700 HANI PALE PALE	27	2329E	2349	0118	N15	E47	.728	14963	.5	109	-N					FOE FOE FOE FOE	
	28	0005E	00100	01180	N16	E48	.741	14963	1.6	730	-N	2 C	0010	130	2.0		
	27	2329E	2439	0120	N15	E47	.728	14963	1.5	1110	-N	3 C		163			
	27	2329E	2349	0008	N15	E47	.728	14963	1.5	390	-F	3 V		113			
701 PALE	28	0137	0139	0230	N15	E45	.705	14963	1.4	53	-F	3 C		131		FOE Y5	
702 CULG	28	0208	0216	0235	S22	H67	.949	14952	23.1	27	-F	C	0216	20		Y5	

H α SOLAR FLARES

SEPTEMBER 1977

OBSERV- ATORY	OBSERVED UT				LOCATION					DURA- TION	IMPORT- ANCE	OBS.	MEASUREMENTS			REMARKS		
	DATE SEP	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY				COND	TYPE	TIME UT		MEAS. AREA Milli of Disk	CORR AREA Sq Deg.
					LAT.	MER. DIST.												
703 CULG	28	0230	0243	0257	S32	E29	.740	14966	30.3	27	-F	C	0243	20	.3	Y5		
704 CULG	28	0541 1 NO	0550 TACH1	0605	S27	W85	1.000	14964	21.9	24	?N	C	0550	100		Y5		
GRP64705	28	0810>9	0815 0825	0851	S22	W90	1.001	14964	21.6	41	-F					D		
MONT CATA	28	0810E	0815	0841	S23	W90	1.001	14964	21.6	310	-F	C	0815	20		D		
	28	0825	0825	09000	S22	W90	1.001	14964	21.6	350	-F	2	0825	56				
GRP64706	28	1010	1015	1034	S22	W90	1.001	14964	21.7	24	-F			25		D		
CATA MONT	28	1010	1015	1035	S21	W90	1.001	14964	21.7	25	-F	2	1015	28				
	28	1019E	1019	1033	S23	W90	1.001	14964	21.7	140	-F	C	1019	20		D		
707 KANZ	28	1439	1443	1448	N14	E41	.655	14963	1.7	9	-F	C				Y5		
708 KANZ	28	1509		15090	N13	E42	.666	14963	1.8		-F	C				Y5		
709 HUAN	28	1821		1830	N17	E37	.605	14963	1.5	9	-F	1	C	1822	40	.5	Y5	
710 PALE	29	0058	0102	0117	N15	E34	.564	14963	1.6	19	-F	3	C		33		F0E Y5	
711 PALE	29	0206	0218	0220	N15	E33	.550	14963	1.6	14	-F	3	C		41		F0E Y5	
GRP64712	29	0620	0627+3	0741	N15	E31	.522	14963	.6	81	-N					F		
CULG TEHR BUCA KANZ	29	0620	0630	0720	N14	E31	.515	14963	1.6	60	-N	C	0630	40	.5			
	29	0623E	0627	0634	N16	E30	.511	14963	1.5	110	-N	3	C		159		F	
	29	0702E		0805	N14	E31	.519	14963	1.6	630	-N	P	0710	107	1.3			
	29	0726E	0737	0801	N15	E31	.522	14963	1.6	350	-F	C						
713 KANZ	29	0916		09160	N12	E28	.471	14963	1.5		-F	C				D Y5		
GRP64714	29	1114	1126+1	1146	N14	E31	.519	14963	.8	32	-F							
MONT KANZ	29	1114	1126	1146	N15	E31	.522	14963	1.8	32	-F	C	1126	40		E		
	29	1123E	1127	1146	N14	E31	.519	14963	1.8	230	-F	C				D		
	29	1905	1935		NO FLARE PATROL													
	29	2025	0031		NO FLARE PATROL													
	30	0034	0105		NO FLARE PATROL													
	30	0110	0145		NO FLARE PATROL													
	30	0155	0207		NO FLARE PATROL													
	30	0214	0229		NO FLARE PATROL													
	30	0234	0242		NO FLARE PATROL													
715 CULG	30	0315E	0321	03340	N13	E21	.368	14963	1.7	190	-N	P	0321	80	.8	Y5		
716 TEHR	30	0612	0619	06220	N14	E20	.357	14963	1.8	100	-F	3	V		190		U F Y5	
717 MONT	30	0758	0800	0805	N16	W45	.707	14968	27.0	7	-F	C	0800	20		D Y5		
GRP64718	30	1111+2	1115+2	1123	N16	E14	.284	14963	.5	12	-N							
ZURI MONT KANZ	30	1111	1115	1123	N17	E13	.281	14963	1.4	12	-N	C	1115	20	.2			
	30	1111	1117	1139	N16	E16	.312	14963	1.7	28	-N	C	1117	80		E		
	30	1113	1117	1123	N16	E14	.284	14963	1.5	10	-N	C				D		
719 ZURI	30	1249	1303	1317	N14	E13	.253	14963	1.5	28	-F	C	1303	20	.2	Y5		
720 HUAN	30	1712		17130	N17	E11	.256	14963	1.5	10	-F	1	P			E Y5		
	30	1820	1828		NO FLARE PATROL													
	30	1858	1903		NO FLARE PATROL													
	30	1908	1916		NO FLARE PATROL													
	30	1942	2035		NO FLARE PATROL													
	30	2124	2134		NO FLARE PATROL													
GRP64721	30	2221+6	2228+0	2247	N17	W53	.795	14968	27.0	26	-N			70	1.2			
CULG VORO	30	2221	2228	2258	N18	W54	.806	14968	26.9	37	-N	C	2228	80	1.3			
	30	2227	2228	2235	N16	W53	.795	14968	27.0	8	-B	C	2228	63	1.0			
GRP64722	30	2300+2	2302+1	2314	S23	E47	.817	14970	3.5	14	-N			30	.5	D		
CULG VORO	30	2300	2302	2320	S24	E47	.821	14970	4.5	20	-N	*	C	2302	25	.4		
	30	2302	2303	2308	S22	E48	.820	14970	4.6	6	-B	*	C	2303	27	.4	D	

"Remarks":

A = Eruptive prominence whose base is less than 90° 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 a 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.

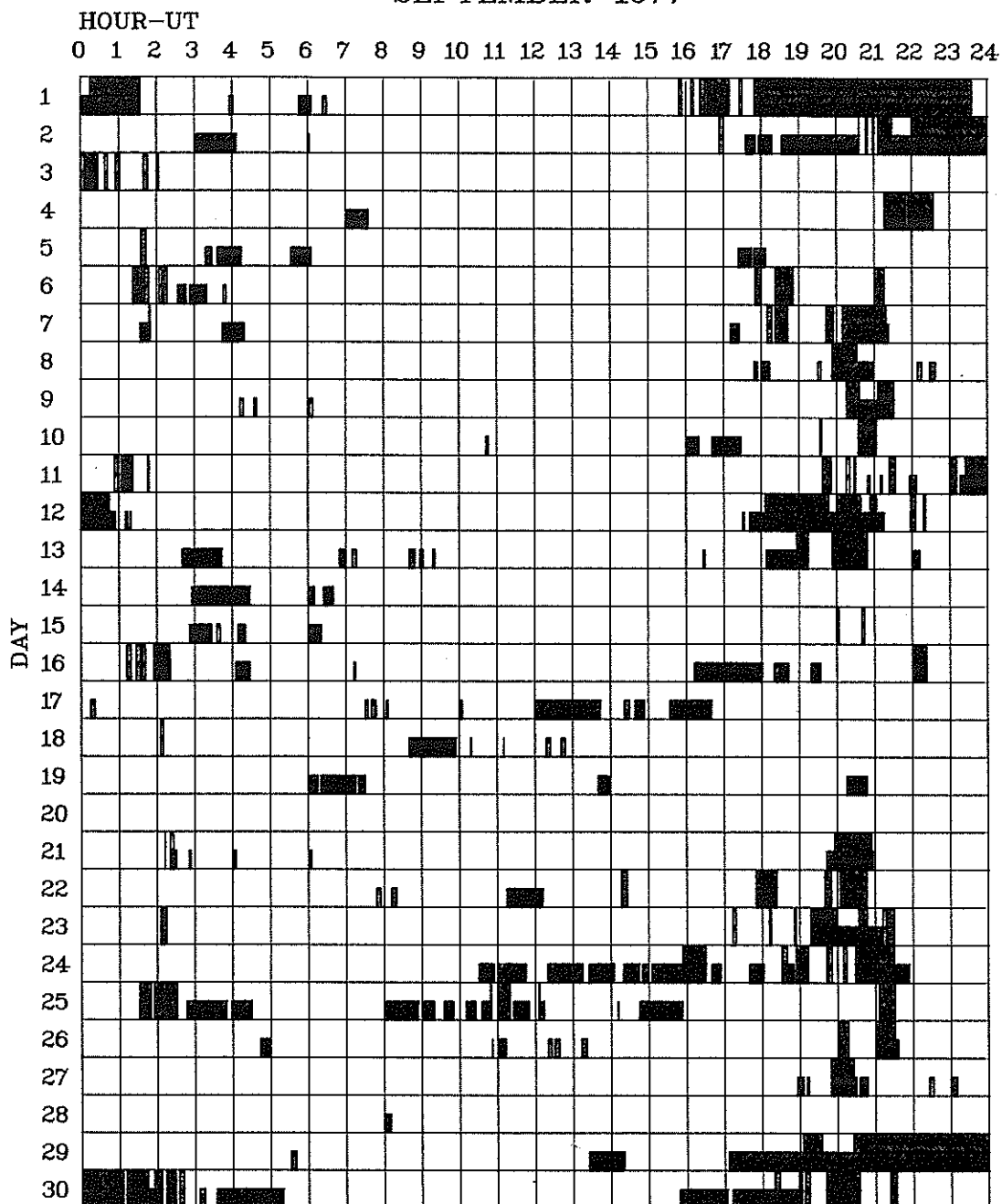
N = Continuous spectrum shows effects of polarization.
 O = Observations have been made in the calcium II lines H and K.
 P = Flare shows helium D₃ in emission.
 Q = Flare shows the Balmer continuum in emission.
 R = Marked asymmetry in H α line suggests ejection of high velocity material.
 S = Brightness follows disappearance of filament (same position).
 T = Region active all day.
 U = Two bright branches, parallel (||) or converging (Y).
 V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
 W = Great increase in area after time of maximum intensity.
 X = Unusually wide H α line.
 Y = System of loop-type prominences.
 Z = Major sunspot umbra covered by flare.

SEPTEMBER 1977		DAILY FLARE INDICES Includes all Flares					
Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.	Date	Flare Index HR. OBS.
770901	10.43	16.0	770911	34.31	21.9	770921	21.61 22.9
770902	4.14	21.3	770912	.35	21.0	770922	24.24 22.4
770903	5.49	23.3	770913	25.77	22.8	770923	16.89 22.4
770904	0.00	22.8	770914	19.21	24.0	770924	10.76 21.7
770905	5.28	23.9	770915	28.09	23.9	770925	47.61 22.3
770906	6.46	22.5	770916	426.55	22.9	770926	46.07 23.2
770907	7.91	22.1	770917	21.27	24.0	770927	24.30 23.4
770908	11.15	23.4	770918	90.20	23.9	770928	13.00 24.0
770909	10.52	23.2	770919	2339.59	24.0	770929	20.23 19.4
770910	9.21	23.5	770920	78.32	24.0	770930	32.76 20.9

When no Flare Index is given, it is 0 for that day.

INTERVALS OF NO FLARE PATROL OBSERVATION FOR PRECEDING SOLAR FLARE TABLE

SEPTEMBER 1977



Observatories included in total patrol:

Athens	Herstmonceux	Kharkov	McMath-Hulbert	Tashkent
Bucharest	Huancayo	Kiev	Meudon	Tehran
Catania	Istanbul	Kodaikanal	Mitaka	Upice
Culgoora	Kandilli	Locarno	Monte Mario	Voroshilov
Haute Provence	Kanzelhoehe	Lvov	Palehua	Wendelstein
		Manila	Ramey	Zürich

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

22
Sep 77

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
1	2000 TYKW	45 C	0736	0737.6	7	2	.5		OR
	1470 BERL	4 SF	0745	0747.5	48	6.5			
	3000 BERL	1	0745	0747.5	52	2.9			
	536 ONDR	2 S/F	0746.3	0747.6	3	4	2.8		
	808 ONDR	4 S/F	0746.8	0746.8	2	48	10		
	1420 ARCE	3	0746	0747.5	3.5				
	2000 TYKW	45 C	0746	0747.5	3	4.5	2		OR
	930 BORD	46 C	0746	0746.8	3	28	4		
2	2800 OTTA	20 GRF	1255	1543	195	.8	.4		
	260 ONDR	4 S/F	0825.3	0826	1.5	24	3.3		
	240 OWIN	45 C	0825.5	0826	1	50	5		
	160 OWIN	45 C	0825.5	0826	1	30	3		
	237 TRST	41 F	0826.7	0826.8	.4	90	9 L		
	240 OWIN	8 S	0903.6			25	2		
	160 OWIN	8 S	0903.6						
	260 ONDR	3 S	1050.7	1050.7	.2	5			
3	260 ONDR	2 S/F	1311	1310.6	1.2	8	2.3		
	2800 OTTA	240 R	1920	2000	40	1	.5		
	2695 PENT	240 R	0045	0055	10	1.2	.6		
	260 ONDR	44 NS	0640 E		511 0	9			
	536 ONDR	3 S	1006.2	1006.2	.3	13			
	536 ONDR	8 S	1255.2	1255.2	.3	110			
	2800 OTTA	20 GRF	1420	1530	115	3.4	1.7		
	2800 OTTA	20 GRF	1630	1708	75	1.4	.7		
4	2800 OTTA	20 GRF	1750	1800	25	1	.5		
	536 ONDR	3 S	1003	1003	.2	14			
5	700 SYDN	45 C	0030.2	0030.3	.4				
	700 SYDN	8 S	0050.2	0050.5	.7				
	700 SYDN	45 C	0101	0101.1	.2				
	700 SYDN	45 C	0121	0121.2	1.1				
	700 SYDN	4 S	0122.2	0122.4	.6				
	536 ONDR	8 S	1339.2	1339.2	.3	72			
	2800 OTTA	240 R	1500	1550	50	1.2	.6		
	2800 OTTA	1 S	1630	1633	10	.6	.3		
	930 BORD	42 SER	1720.8	1721	1.9	42	2		
	245 SGMR	6 S	1944.2	1944.8	3	24.8	7.4		CONT
	2800 OTTA	1 S	2101	2103.2	4	6.4	3		
	2800 OTTA	29 PBI	2105	2105	25	2	1		
	2695 BCUL	3 GRF	2102	2104	8.5	6	2		
	1420 BCUL	3 S	2102	2103	2	2	1		
	1000 TYKW	42 SER	2140 U	2158	45 U	13	2 U		05R
6	260 ONDR	44 NS	0641 E		513 0	74			
	1470 BERL	1 S	0902	0903	23	2			
	3000 BERL	2 SF	0902	0903.3	23	2.2			
	240 OWIN	45 C	0903		.6	20	3		
	930 BORD	46 C	0915	0915.4	.4	19	2		
	536 ONDR	42 SER	1047	1054.2	35	18			
	237 TRST	41 F	1252	1252.8	.8	140	10 L		
	930 BORD	46 C	1252.7	1253	.7	27	3		
	240 OWIN	45 C	1252		1	35	5		
	536 ONDR	8 S	1358.8	1358.8	.3	35			
	237 TRST	41 F	1454.5	1454.6	.3	57	9 L		
	240 OWIN	45 C	1454		.6	40	5		
	2695 PENT	240 R	2030	2410	230	4.4	2.2		
7	260 ONDR	44 NS	0630 E		550 0	20			
	240 OWIN	44 NS	0647 E		443 0		3		
	160 OWIN	44 NS	0705 E	0800	100 0		4		
	3100 CRIM	20 GRF	0724	0758	125	4	1		
	2800 OTTA	240 R	1617	1710	53	1.6	.9		
	245 SGMR	43 NS	1643.4	1621.9	379.60	32.4			2,3,5,SWF
	200 HIRA	44 NS	2020 E	2215	130 0	10	5		0
	208 VORO	44 NS	2200		28		14		
	4995 BCUL	20 GRF	1703	1707	12	13	4		
	1420 BCUL	20 GRF	1705.5	1705.9	7.5	1			
	2800 OTTA	41 SER	1713	1720	37	6.4			
	2800 OTTA	22 GRF	1713	1720	15	6.4	2.9		
	2695 BCUL	45 C	1716	1720.5	8.5	5	2		
	2800 OTTA	22 GRF	1730	1732	20	3.8	1.5		
	1420 BCUL	1 S	1730	1732.5	3.5	2	1		
	2695 BCUL	1 S	1731	1732.5	4	2	1		
	2695 BCUL	1 S	1740.5	1742.5	2.5	2	1		
	1420 BCUL	3 S	1740	1741	3	1			
	606 MANI	04 S/F	2218	2233.4	75.1	395	108		
	606 MANI	29 PBI	2333.1	2333.1	67.1	23.9	10.4		
	4995 BCUL	49 GB	2223.5	2250	126	1933	538		
	500 HIRA	48 C	2224.5		95		40		
	500 HIRA		2224.5	2226.7		190			WL, 1ST PEAK
	500 HIRA		2224.5	2228.7		23			WL, 2ND PEAK

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
	500 HIRA		2224.5	2233.1		550			/, 3RD PEAK
	500 HIRA		2224.5	2325.3		40			HR, 4TH PEAK
	1420 BOUL	47 GB	2224	2314.5	121.5	413	119		
	606 SGMR	47 GB	2225.1	2233	37.90	1703	511 U		2,5,SWF
	410 SGMR	49 GB	2225.4	2232.8	19	752	226		2,5,SWF
	1415 SGMR	4 S/F	2225.5	2233.2	37.50	322	96.6U		2,5,SWF
	1415 MANI	47 GB	2225.6	2313.6	67.5	545	180		
	1415 MANI	29 PBI	2333.1	2333.1	67.1	139	44.8		
	2695 MANI	47 GB	2225.6	2259.6	67.5	1350	690		
	2695 MANI	29 PBI	2333.1	2333.1	67.1	315	103		
	4995 MANI	47 GB	2225.6	2246	67.5	3480	1230		1 SWF
	4995 MANI	29 PBI	2333.1	2333.1	67.1	255	81		
	2695 SCUL	49 GB	2225	2300.5	121	1636	246		
	3750 TYKH	47 GB	2225	2258	115	1850	530		067102F
	3750 TYKH	29 PBI	2420		190	17	5		
	1000 TYKH	45 C	2225	2321	110	260	75		06R/04L
	1000 TYKH	29 PBI	2415		60	3	1.5		
	2000 TYKH	47 GB	2225	2232.1	115	1300	270		06R/01L
	2000 TYKH		2225	2317.3		960			
	2000 TYKH	29 PBI	2420		190	8	2		
	15400 SGMR	47 GB	2227.5	2235.9	14.3	3181	954		2,5,SWF
	208 VORO	49 GB	2228	2232	32	250			
	200 HIRA	48 C	2228.3	2232.7	30	3500	200		WL
	8800 MANI	47 GB	2228.4	2243.1	64.7	2100	740		2 SPA
	8800 MANI	29 PBI	2333.1	2333.1	67.1	390	125		
	2800 OTTA	28 PRE	2223	2226.5	5	5.8			
	2800 OTTA	47 GB	2228	2259.2	112	1370	363		
	2695 PENT	29 PBI	2420	2420	90 0	16			
	9400 TYKH	47 GB	2228	2241.3	102	4600	930		03L
	9400 TYKH	29 PBI	2410		140	30	9		
	35000 SGMR	47 GB	2229.2	2231.3	5.9	1244	373		2,5,SWF
	245 SGMR	49 GB	2229.8	2231.6	15.2	1618	485		2,5,SWF
	100 HIRA	48 C	2230	2240 U	56	1250 0	400 0		MLWR
	35000 NAGO	47 GB	2231	2240	30	1170			
	35000 NAGO	29 PBI	2301		70	135			
	8800 SGMR	47 GB	2232.6	2246.4	19.3	2079 U	623 U		2,5,SWF
	4995 SGMR	47 GB	2234.9	2246.5	18	772 U	232 U		2,5,SWF
8	700 SYDN	8 S	0513.2	0513.4	.6				
	536 ONDR	8 S	1053.2	1053.2	.3	41			
	536 ONDR	3 S	1133.7	1133.7	.2	11			
	536 ONDR	3 S	1335.5	1335.5	.2	17			
	1420 BOUL	1 S	2200	2201.5	2.5	1			
	2000 TYKH	5 S	2201	2201.5	1	2.5	.8		OR
	1000 TYKH	45 C	2201	2201.5	1	2.8	.6		
	2800 OTTA	1 S	2201	2201.7	1	6	.3		
	2695 BOUL	8 S	2202	2205	1.5	5	2		
	2800 OTTA	20 GRF	2220	2230	40	1	.5		
	1400 SYDN	48 GB	2225	2231	85				
	700 SYDN	48 GB	2225	2231	85				
9	3750 TYKH	5 S	0235	0237	5	2	1		
	5730 IRKU	1 S	0457	0457.8	2	5			L
	5730 IRKU	45 C	0607	0609.8	20	8			L
	5730 IRKU		0607	0623		11			L
	9100 GORK	20 GRF	0846.5	0854	43.5	6.5	3		
	9100 GORK	20 GRF	1022.3	1026.7	8.4	8	4		
	9100 GORK	20 GRF	1036.6	1039	8.4	4	2		
	160 DWIN	45 C	1047	1050	4	35	5		
	240 DWIN	45 C	1047	1050	4	20	1		
	2800 OTTA	20 GRF	1150	1207	42	2.6	1.3		
	2800 OTTA	240 R	1350	1535	105	2.8	1.4		
	4995 ATHN	3 S	1558.1	1558.8	6.5	21.1	6.3		
	4995 SCUL	49 GB	1600.5	1643	171	2331	475		
	9100 ARCE	28	1603.4		21.9				
	1420 BOUL	47 GB	1617.5	1719	168	341	61		
	2695 BOUL	47 GB	1622.5	1646.5	161.5	1098	191		
	9100 ARCE	42	1625.3		34.8				AT SUNSET
	2800 OTTA	28 PRE	1610	1615	15.5	3.4			
	2800 OTTA	47 GB	1625.5	1645	154.5	1100	333		
	2800 OTTA	29 PBI	1900	1900	165	8.6	3		
	1420 ARCE	46	1625.8	1630.8	9.8				AT SUNSET
	4995 ATHN	15 GB	1627.7	1631	12.1	820	246		
	4995 ATHN	15 GB	1627.7	1633.3		1380	414		
	4995 ATHN	15 GB	1627.7	1636.1		2560	768		
	930 BORD	46 C	1627	1631	33	224	40		
	930 BORD	30 PBI	1700	1727.4	60 0	185			
	237 TRST	47 GB	1629.5	1633.5	33.5	110	40 R		VAR. POL.
	15400 SGHR	47 GB	1631.5	1633.6	84.5	6023	2409		SWF
	15400 SGHR	47 GB	1631.5	1717.3		408			2,4,CONT,
	35000 SGHR	47 GB	1631.5	1633.6	84.5	3627	1451		2,4,CONT,
	245 SGHR	7 C	1632.8	1634.1	73.6	98.7	39.5		SWF
	245 SGHR	7 C	1632.8	1718.5		63.8			2,4,CONT,
	410 SGHR	7 C	1632.8	1633	78.2	71.4	28.6		SWF
	410 SGHR	7 C	1632.8	1716.8		115.5			2,4,CONT,

24
Sep 77

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ W cm}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
10	4995 SGMR	47 GB	1633	1642.7	129.2	3052	1220	2	SWF 2,4,CONT, 2,4,CONT, SWF 2,4,CONT, SWF 2,4,CONT, SWF
	4995 SGMR	47 GB	1633	1717.3		1189			
	8800 SGMR	47 GB	1633	1717.3		952			
	8800 SGMR	47 GB	1633	1640.6	129.2	4580	1832		
	2695 SGMR	47 GB	1633	1718		1066			
	2695 SGMR	47 GB	1633	1645.2	129.2	1121	448		
	606 SGMR	22 GRF	1633.4	1735	148.6	91.4	36.6		
	1415 SGMR	22 GRF	1633.4	1727.2	148.6	375	150		
	1420 ARCE	29	1635.6						
	18 MCMA	42 SER	1640	1702	38				
	9100 ARCE	29	1701.1						
	245 SGMR	43 NS	1746.4	2028.5	313.60	18			
	3750 TYKH	20 GRF	0010	0040	60	3	1		
	3750 TYKH	20 GRF	0350	0511	190	7	3		
	9100 GORK	20 GRF	0428 E	0530	124.7	17	10		OR
	2000 TYKH	20 GRF	0500	0515	90	2	1		
	9100 GORK	1 S	0705.4	0706.3	1.5	7	3.5		
	3100 CRIM	20 GRF	0713	0736	80	3	1		
	9100 GORK	20 GRF	0719	0748	57.7	7.5	3		
	9100 ARCE	1	0815.1	0815.4	.8				
	1420 ARCE	1	0815.4	0815.5	.5				
	9100 GORK	20 GRF	0845	0900.5	24.5	8.9	4		
	9100 ARCE	21	0847.5	1038.5	420				
	9100 GORK	1 S	0939.8	0940.2	1.8	4	2		
	9100 GORK	20 GRF	1005.4	1038	38.6	9.7	4.5		
	9100 ARCE	1	1122.1	1122.5	2				
	9100 ARCE	3	1415.3	1416.2	4				
	9500 BERL	2 SF	1415	1416	4	13			
	536 ONDR	2 S/F	1440.5	1441.2	1	17	4.2		
	160 OHIN	45 C	1659.8	1700	.6	10	2		
	2800 OTTA	240 R	2125	2225	60	2.6	1.3		
	9400 TYKH	5 S	2317	2317.5	3	6	2		
	3750 TYKH	5 S	2317	2317.5	4	2	1		
11	260 ONDR	44 NS	0710 E		470 D	31			
	9100 ARCE	1	0731.4	0732.4	2.8				
	3100 CRIM	24 R	0955	1052		4			
	160 OHIN	45 C	1006.5		.2	65	5		
	113 POTS	1	1043.7	1046.2	3.3	700	7		
	160 OHIN	45 C	1044		.6	250	5		
	202 IZMI	41 F	1045	1046.5	3	113			
	9100 ARCE	20	1138.9	1156.6	67.5				
	160 OHIN	45 C	1348		1	200	5		
	2800 OTTA	20 GRF	1711	1714.5	60	2.6	1		
	160 OHIN	45 C	1725.6		.2	20	2		
	15400 SGMR	3 S	1849.7	1851.3	3.6	12.1	3.6		SWF SWF SWF
	8800 SGMR	3 S	1850	1851.3	2	23	6.9		
	4995 SGMR	3 S	1850.4	1851.4	4.2	14.9	4.5		
	4995 BCUL	8 S	1850.5	1851	1	9	3		
	2800 OTTA	20 GRF	2125	2140	55	1	.5		
12	260 ONDR	44 NS	0646 E		502 D	44			
	113 POTS	1	0953.5	0955.2	7	250	13		
	237 TRST	41 F	0955.1	0955.4	.5	870	60 L		
	234 POTS	45 C	0955	0955.2	.5	130	30		
	2800 OTTA	20 GRF	1310	1355	105	2	1		
	2800 OTTA	20 GRF	1500	1515	50	1.4	.7		
	2800 OTTA	240 R	1605	1640	35	1.8	.9		
	2800 OTTA	20 GRF	1915	1922	75	1.4	.7		
	208 VORO	43 NS	2215	2220	90	18	8		
13	208 VORO	S/F	0126	0127	2	120			WR O 066047F OR 20R L
	200 HIRA	45 C	0126	0127	2	500	40		
	100 HIRA	45 C	0126	0127	2	1200	600		
	3750 TYKH	5 S	0126	0127.5	14	3	1		
	1000 TYKH	5 S	0126	0126.8	3	1	.3		
	2000 TYKH	5 S	0126	0126.8	3	2.7	.6		
	5730 IRKU	20 GRF	0527	0532	24	18	4		
	8800 HANI	1 S	0531	0531.9	3.3	8.3	2.1		
	4995 HANI	3 S	0531	0531.9	3.5	10.1	3.4		
	9100 GORK	2 S/F	0531.2	0532.2	2.5	10.7	5		
	9100 GORK	20 GRF	0535	0539.9	15	9.5	4		
	9100 GORK	2 S/F	0631.2	0632	2.4	6	3		
	160 OHIN	44 NS	0753	0900	110	40	5		
	9100 GORK	20 GRF	0805.3	0807.7	10.7	12	6		
	260 ONDR	4 S/F	1058	1058	1	15			
	2800 OTTA	20 GRF	1230	1258	.55	1.6	.8		
	160 OHIN	45 C	1257.6		.4	15	2		
	240 OHIN	45 C	1257.6		.4	3	1		
	160 OHIN	45 C	1415.5	1416	2	35	5		
	240 OHIN	45 C	1415.5	1417	2	5	2		
	2800 OTTA	20 GRF	1920	1940	80	2.4	1.2		
14	9400 TYKH	5 S	0329.5	0330.3	6	10	3		

SEP 1977	FREQUENCY STATION	TYPE	STARTING	TIME OF	DURATION	FLUX DENSITY		INT	POLARIZATION OR REMARKS
			TIME	MAXIMUM		$10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$	Hz^{-1}		
			UT	UT	MINUTES	PEAK	MEAN		
	3750 TYKH	5 S	0400	0405	20	3	1		066027F
	3750 TYKH	5 S	0429	0430	4	1.5	.5		
	3750 TYKH	5 S	0438	0440	5	1.5	.5		
	3750 TYKH	5 S	0500	0501.4	4	2	1		
	2800 OTTA	240FR	1150	1245	55	4.6	2.3		
	9100 ARCE	1	1314.6	1314.8	2				
	4995 ATHN	2 S	1336.5	1344.8	13.5	14.5	8.7		
	2800 OTTA	20 GRF	1417	1424	20	1	.5		
	4995 ATHN	2 S	1426.6	1436.2	14.3	14.5	8.7		
	2800 OTTA	27A RF	1446.5		243.5	1.8	1.5		
	2800 OTTA	24 R	1446.5	1448	1.5	1.8			
	2800 OTTA	24P R	1448		172	1.8			
	2800 OTTA	20 GRF	1523	1537	140	4.2	2.1		
	1420 ARCE	3	1526.6	1526.8	.8				
	237 TRST	41 F	1556.2	1556.7	1.8	120	13 R		
	245 SGMR	6 S	1557.3	1557.8	2	21.8	4.5		3
	2800 OTTA	26 FAL	1740	1850	70	-1.8	-9		
	100 HIRA	45 C	2147	2148.7	4	550	150		ML
	245 SGMR	6 S	2148	2149.2	1.5	18.1	9.1		5
15	3750 TYKH	5 S	0253	0256	12	3	1		
	3750 TYKH	45 C	0325	0334.6	50	14	2		
	9400 TYKH	5 S	0330	0334.5	30	17	3		
	2000 TYKH	5 S	0330	0334.6	40	1.4	.5		10L
	5730 IRKU	45 C	0333.5	0335	9	5			
	5730 IRKU		0333.5	0336.7		20			
	3750 TYKH	5 S	0512	0513	4	3	1		
	3100 CRIM	20 GRF	0624	0801	115	6	2		
	160 OHIN	45 C	1019.4		1.1	80	5		
	240 OHIN	45 C	1019.4		1.1	15	3		
	160 OHIN	45 C	1049.3		.7	40	4		
	240 OHIN	45 C	1049.3		.7	5	2		
	160 OHIN	45 C	1140		.3	45	2		
	240 OHIN	45 C	1140		.3	12	1		
	2800 OTTA	20 GRF	1215	1225	60	4.6	2.3		
	2800 OTTA	20 GRF	1440	1455	40	2	1		
	2800 OTTA	20 GRF	1755	1855	95	3.6	1.8		
	2800 OTTA	20 GRF	2015	2030	35	2.2	1.1		
16	240 OHIN	8 S	0833.3			40	1		
	200 GORK	43 NS	0912		78		5		
	240 OHIN	45 C	0913		1	15	2		
	9100 GORK	1 S	0931.5	0932.4	4.8	6.3	3		
	4995 ATHN	2 S	0931.5	0932.4	21.2	6.8	4.1		
	3100 CRIM	7 S	0939	0944	42	10	3		
	240 OHIN	45 C	0957.6		.4	12	2		
	4995 ATHN	2 S	1240	1252.7	29.3	21.1	12.6		
	4995 ATHN	1 F	1336.2	1343	21.5	28.1	14		
	4995 ATHN	1 F	1427.7	1432.9	17	21.1	10.5		
	2800 OTTA	20 GRF	1429	1430.2	25	1.4	.7		
	2800 OTTA	20 GRF	1515	1525	40	2	1		
	2800 OTTA	20 GRF	1610	1620	17	.8	.4		
	2800 OTTA	45 C	1710	1735	50	16.8	12.2		
	2800 OTTA	29 PBI	1800	1800	170	7.8	3		
	2695 BCUL	45 C	1720	1757.5	61	25	19		
	1420 BCUL	23 GRF	1720	1722.5	18.5	2	1		
	4995 BCUL	23 GRF	1728	1735	26	14	5		
	2695 BCUL	45 C	2023	2023.5	3.5	3	1		
	2695 BCUL	2 SF	2027	2028	1.5	3	1		
	2695 BCUL	49 GB	2126.5	2309.5	192.50	1590	219		
	2695 HANI	47 GB	2219	2308.1	82.1	2400	740		
	4995 HANI	47 GB	2219.2	2308	84.8	1100	280		
	1415 HANI	47 GB	2219.2	2303	81.9	1970	380		
	1415 HANI	47 GB	2219.2	2308.2		2400			
	8800 HANI	47 GB	2219.2	2308	83.7	900	232		1 SPA
	1000 TYKH	28 PRE	2200 E	2219	19 D	5 U	4 D		
	1000 TYKH	47 GB	2219	2308.3	161	690	80		COMPLEX POL.
	1000 TYKH	30 PBI	2500		180	8	3		
	2000 TYKH	28 PRE	2135 E	2159	44 D	20 U	12 D		
	2000 TYKH	47 GB	2219	2308.2	161	950	180		COMPLEX POL.
	2000 TYKH	30 PBI	2500		210	16	6		
	9400 TYKH	28 PRE	2130 E	2133.1	49 D	30 U	20 D		15R
	9400 TYKH	47 GB	2219	2308.1	161	610	130		12R
	9400 TYKH	29 PBI	2500		180	20	8		
	3750 TYKH	28 PRE	2125	2158.8	54	40	23		
	3750 TYKH	47 GB	2219	2308.1	161	1100	160		15L,246035F
	3750 TYKH	30 PBI	2500		210	19	8		
	2800 OTTA	28 PRE	2125	2158.6	55	44	20		
	2695 PENT	47 GB	2220	2308	155	1480	248		
	2695 PENT	29 PBI	2455	2455	20 D	17			
	200 HIRA	48 C	2224		140		200		
	200 HIRA		2224	2244		400			SR, 1ST PEAK
	200 HIRA		2224	0000 U		2500 U			SR, 2ND PEAK
	606 HANI	47 GB	2225	2303.5	65.2	2100	215		
	245 SGMR	7 C	2225.1	2239.3	21.90	178.5	71.4		2

26
Sep 77

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
	245 SGMR	7 C	2225.1	2246.2		177.8			2
	606 SGMR	46 C	2225.8	2233.6	21.20	60.4	24.2		2
	606 SGMR	46 C	2225.8	2238.5		62			2
	1415 SGMR	46 C	2226.2	2229.2	20.80	42.2	16.9		2
	1415 SGMR	46 C	2226.2	2239.2		77.4			2
	410 SGMR	7 C	2226.8	2232.2	20.20	114.5	45.8		2
	410 SGMR	7 C	2226.8	2238		95.2			2
	100 HIRA	48 C	2226	2253	100	1200	350		HR
	500 HIRA	48 C	2226		70		400		
	500 HIRA		2226	2235.4		90			HR, 1ST PEAK
	500 HIRA		2226	2243.6		88			SR, 2ND PEAK
	500 HIRA		2226	2255.8		310			HR, 3RD PEAK
	500 HIRA		2226	2303.6		1500			SR, 4TH PEAK
	500 HIRA		2226	2310.7		1900			HR, 5TH PEAK
	208 VORO	49 GB	2227	2246	138	274			
	208 VORO		2227	0003		364			
	35000 NAGO	20 GRF	2237	2313	90	80			
	8800 MANI	04 S/F	2343.1	0000.9	66.1	77	22.6		
	606 MANI	04 S/F	2344.8	2356.7	56	265	95		
	606 MANI	47 GB	2344.8	2309		2400			
	1415 MANI	46 C	2344.8	2347.2	82.6	81	76		
	1415 MANI	46 C	2344.8	0004.8		225			
	2695 MANI	46 C	2344.8	2347.2	83.2	64	111		
	2695 MANI	46 C	2344.8	0004		325			
	500 HIRA	48 C	2345	2357	75	1270	300		HR
	4995 MANI	46 C	2345.3	2347	64.9	41.6	80		
	4995 MANI	46 C	2345.3	0004		200			
17	3750 TYKH	5 S	0243	0246.4	10	3	1		246035F
	2000 TYKH	5 S	0246	0246.3	2	3	1		15L
	1000 TYKH	5 S	0246	0246.3	1.5	2.4	.5		05L
	1420 ARCE	1	0912.2	0912.4	.6				
	2800 OTTA	240 R	1220	1230	10	2.4	1.2		
	15400 SGMR	3 S	1252.2	1253	1.9	117	35.2		SWF
	9100 ARCE	4	1252.4	1253.1	6				
	4995 ATHN	4 S	1252.5	1252.9	19.7	277.8	78.6		
	4995 SGMR	3 S	1252.5	1253	11.8	263	78.8		SWF
	8800 SGMR	3 S	1252.5	1253	9.6	194	58.2		SWF
	2800 OTTA	3 S	1252.5	1253	2.5	30	11		
	2800 OTTA	29 PBI	1255	1255	55	3.2	1.6		
	2695 SGMR	3 S	1252.5	1253	5.6	24	7.2		SWF
	2800 OTTA	21 GRF	1458	1520	52	2.6	1.3		
	4995 ATHN	1 F	1501.8	1514.5	29.1	23.4	11.7		
	4995 SGMR	3 S	1514.3	1514.7	18.8	24.7	7.4		
	8800 SGMR	3 S	1514.4	1514.7	1.7	24	7.2		
	2800 OTTA	1 S	1514.5	1515	1.5	1.6	.8		
	9100 ARCE	3	1514.5	1514.9	2.2				
	2695 SGMR	1 S	1514.6	1514.8	1.1	2.4	.7		
	2800 OTTA	240AR	1845	1945	60	1.8			
	2800 OTTA	20 GRF	1855	1910	50	3	1.5		
	2800 OTTA	20 GRF	2020	2027	60	1.4	.7		
	2695 BOUL	22 GRF	2025	2033	12	4	1		
	2800 OTTA	240AR	2138	2222	42	1.8			
	2800 OTTA	22 GRF	2143.5	2153	35	4.4	2.4		
	2695 BOUL	45 C	2145	2153	24.5	5	2		
	2695 PENT	23 GRF	2223	2235	37	3	1.5		
	2695 BOUL	20 GRF	2227.5	2236	14	3	1		
	9400 TYKH	5 S	2244	2246	5	10	3		
	2000 TYKH	5 S	2244	2246	15	5	1.5		
	3750 TYKH	5 S	2244	2246	15	7	2		
	2695 PENT	1 S	2245	2246.5	5	3.2	1.2		
	2695 BOUL	3 S	2246	2247.5	11.5	5	2		
	2695 PENT	2 S/F	2305.1	2305.6	2	2.2	1		
	3750 TYKH	45 C	2305	2305.7	3	7	1.5		
	3750 TYKH	29 PBI	2308		20	2	1		
	9400 TYKH	45 C	2305	2305.8	3	9	3		
	2000 TYKH	5 S	2306.5	2307.1	1.5	3	.8		
	1000 TYKH	5 S	2306.5	2307.1	1.5	2	.3		
	2695 PENT	28 PRE	2345	2353	33	2.2			
	2695 PENT	4 S/F	2418	2430	35	300	65		
	2695 PENT	29 PBI	2446	2446	40 D	21			
	3750 TYKH	28 PRE	2346	2353	31	3	2		
	3750 TYKH	45 C	2417	2429.8	83	365	30		10L, 245054F
	3750 TYKH	30 PBI	2540		240	8	5		
18	2695 BOUL	47 GB	0011	0031	26.50	296	51		
	2000 TYKH	45 C	0017	0029.9	83	150	20		03L/02R
	2000 TYKH	30 PBI	0140		240	4.5	2.5		
	9400 TYKH	45 C	0020	0029.7	80	230	40		04R
	9400 TYKH	29 PBI	0140		170	10	4		
	2930 VORO	31 ABS	0020	0030	.2	1150			
	1000 TYKH	45 C	0021	0030.4	59	60	9		06R
	1000 TYKH	30 PBI	0120		180	1.5	.6		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
	1415 MANI	46 C	0022.5	0028.3	30	65	22.5		
	1415 MANI	46 C	0022.5	0030.3		89			
	2695 MANI	46 C	0022.5	0028.3	32	99	31.1		
	2695 MANI	46 C	0022.5	0030		149			
	4995 MANI	46 C	0022.5	0028.3	33.5	205	55		
	4995 MANI	46 C	0022.5	0029.9		405			
	8800 MANI	46 C	0022.5	0028.3	33.5	98	61		2 SPA
	8800 MANI	46 C	0022.5	0029.9		235			
	35000 NAGO	20 GRF	0023	0053	110	29			
	500 HIRA	45 C	0026	0029.7	16	15	3		WR
	606 MANI	20 GRF	0027.9	0030.3	24.1	5.8	1.1		
	200 HIRA	45 C	0028	0038	22	35	5		0
	100 HIRA	45 C	0029	0031	3	50	10		0
	500 HIRA	6 S	0204.3	0208.3	13.5	2	1		0
	3750 TYKH	5 S	0204	0208	35	14	5		20L, 245054F
	2000 TYKW	5 S	0204	0208.6	35	26	8		10R
	1000 TYKH	5 S	0204	0210.4	20	12	5		05L/07R
	3750 TYKH	5 S	0339	0342	10	3	1		245054F
	3100 CRIM	5 S	0644	0700	20	10	3		
	3100 CRIM	29 PBI	0644	0704	74	7	2		
	3750 TYKH	5 S	0654	0700	20	7	2		
	4995 ATHN	2 S	1134.8	1144	14.2	12	7.2		
	4995 ATHN	2 S	1153.3	1158.5	20	9.6	5.8		
	2800 OTTA	22 GRF	1800	1823	50	2.6	1.3		
	4995 SGHR	3 S	1903.7	1906	5.3	24.2	9.7		
	8800 SGHR	3 S	1904	1905.9	3	23	9.2		
	2800 OTTA	40 F	1904.5	1905	2	2			
	2800 OTTA	21 GRF	1904	1913	26	2.4	1.2		
	2800 OTTA	20 GRF	2122	2140	70	3.4	1.7		
	3750 TYKW	28 PRE	2310	2408	58	5	2.5		
	2000 TYKW	21 GRF	2330	2420	120	3.5	1.3		05R
19	4995 MANI	4 S/F	0006.6	0012	23.3	71	25.8		
	8800 MANI	4 S/F	0007.8	0011.8	22.2	68	20.5		1-SPA
	2695 MANI	4 S/F	0008.6	0012	16.4	16.9	4.6		
	2695 PENT	21 GRF	0008	0020	34	8.2	4.1		
	3750 TYKH	45 C	0008	0011.9	52	48	16		245066F
	3750 TYKH	29 PBI	0100		50	8	4		
	9400 TYKH	5 S	0009	0011.8	8	37	10		05L
	2000 TYKH	5 S	0011.5	0011.9	1.5	5.5	2		15R
	2695 PENT	4 S/F	0011.5	0012	6	16.8	5		
	2695 BCUL	8 S	0012	0012.5	3	16	5		
	200 HIRA	45 C	0329.5	0330	1	700	200		0
	500 HIRA	45 C	0329.7	0330	3.5	350	40		0
	3750 TYKH	45 C	0330	0331.7	4	16	2.5		245066F
	1000 TYKH	45 C	0330	0332.3	6	4	1.5		05L
	2000 TYKH	45 C	0330	0331	6	9	2		30L
	5730 IRKU	45 C	0331.7	0331.8	4	12			
	5730 IRKU		0331.7	0333		12			
	3750 TYKH	21 GRF	0345	0402	60	4	2		245066F
	3750 TYKH	5 S	0416	0420	29	5	2.5		245066F
	200 GORK	43 NS	0606.4		234		5		
	260 ONDR	44 NS	0640 E		509.0	84	5		
	200 GORK	41 F	0643.2	0645.2U	5.7	30			
	200 GORK		0643.2	0648.4U		30			
	237 TRST	5 S	0645.2	0645.3	.2	500	11	L	
	202 IZMI	41 F	0645.2	0648.6	4.2	400			
	536 ONDR	8 S	0645	0645	.3	32			
	100 GORK	41 F	0646.7	0647	3.7	80			
	100 GORK		0646.7	0648.7		80			
	237 TRST	5 S	0646.9	0646.9	.1	710	12	L	
	237 TRST	41 F	0648.4	0648.5	.3	122	6	L	
	200 GORK	41 F	0757.7	0820.2	60.3	30			
	200 GORK		0757.7	0851.3		30			
	200 GORK		0757.7	0857 U		30			
	9100 GORK	23 GRF	0903		330.8				
	3000 BERL	21 GRF	0903	0956.5	311	11			
	2950 GORK	23 GRF	0912 U		240				
	4995 ATHN	2 S	0913	0916.7	7.3	6.8	4.1		
	9500 BERL	21 GRF	0927.5	1320	301	22			
	200 GORK	6 S	0948.7	0951 U	2.8	30			
	240 DWIN	45 C	0950		2.2	190	15		
	160 DWIN	45 C	0950		2.2	300	0		
	228 HARS	46 C	0950	0950.2	1.5	60	20		
	237 TRST	41 F	0950.3	0950.5	1.4	325	9	L	
	4995 ATHN	2 S	0952.7	1022.7	31.3	15.9	9.5		
	9100 ARCE	20	0954	0956.8	13				
	1470 BERL	21 GRF	0955.5	1159	228	6.1			
	9100 GORK	1 S	0956	0956.8	2.6	6	1		
	15000 KISV	45 C	1010	1036.5	69	2444			
	3100 CRIM	28 PRE	0904	0915	82	5			
	3100 CRIM	47 GB	1026	1032	41	400	133		
	3100 CRIM		1026	1036.5		400	133		
	3100 CRIM		1026	1053		550	183		
	3100 CRIM		1026	1100.5		600	200		

28
Sep 77

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
						PEAK	MEAN		
	3100 CRIM	29 PBI	1026	1107	99	60	20		
	3000 BERL	46 GB	1026.5	1101	80	825			
	9100 GORK	47 GB	1027	1036	39	2239			
	9100 GORK		1027	1037.3		2203			
	9100 ARCE	47	1027.2	1035.9	41.7				
	9100 ARCE		1027.2	1035.9	18.4				
	4995 ATHN	15 GB	1027.4	1036	82.8	1280	384		
	4995 ATHN	15 GB	1027.4	1037.5		1200			
	1470 BERL	46 GB	1027	1037.6	78	1040			
	1420 ARCE		1027		18.2				
	1420 ARCE	47	1027		40.7				
	9500 BERL	46 GB	1027	1035.9	83	2000			
	234 POTS	45 C	1030	1045	110	105	20		
	606 SGMR	4 S/F	1031	1101	75.10	243	72.8		
	1415 SGMR	47 GB	1031	1101.1	75.10	776	233		
	4995 SGMR	47 GB	1031	1100.6	75.10	1283	385		
	410 SGMR	6 S	1031	1103	75.10	99	29.7		
	245 SGMR	6 S	1031	1103.1	75.10	16.8	5		
	8800 SGMR	47 GB	1031	1100.9	75.10	1034	311		
	2695 SGMR	47 GB	1031	1100.6	75.10	1133	400		
	15400 SGMR	4 S/F	1031	1100.9	75.10	447	134		
	202 IZMI	7 C	1033	1040.3	67	120	35		
	240 OWIN	47 GB	1033	1040	100	180	100		
	160 OWIN	47 GB	1033	1037	100	300	100		
	237 TRST	47 GB	1034	1040.2	48.5	260	30	L	VAR. POL.
	228 HARS	28 PRE	1032.5	1033.7	2.5	19	8		
	228 HARS	47 GB	1035	1040.7	31	121	70		
	228 HARS		1035	1035.1	.3U	47			
	228 HARS		1042.8	1043.3	1.2	65			
	228 HARS		1044	1044.3	.5	56			
	228 HARS		1045	1045.5	1.3	121			
	228 HARS		1046.5	1047.5	2.8	87			
	228 HARS		1049.3	1052.5	5.7	109			
	228 HARS	29 PBI	1055	1056.3	5	72			
	127 TORN	47 GB	1035.3	1035.5	4	170	200		
	127 TORN		1035.3	1038.4		750			
	113 POTS	45 C	1035	1039	117	140	35		
	127 TORN	27 RF	1039	1055	150	95	30		
	1420 ARCE		1045.2	1053.8	13.1				
	9100 ARCE		1045.6	1052.9	12.9				
	100 GORK	24 R	1053	1102.5	78	100			
	200 GORK	47 GB	1053.5E	1056	87.5	200			
	950 GORK	45 C	1054	1100.7U	13.7	108			
	950 GORK	29 PBI	1107	1107.5	14	13.7			
	650 GORK	45 C	1054	1101.1	13.6	114			
	650 GORK		1054	1106.5		58			
	650 GORK	29 PBI	1107.6	1107.6	39.7	45	20		
	2950 GORK	4 S/F	1058.2U	1100.2	11.3	146			
	1420 ARCE		1058.3	1100.9	9.4				
	9100 ARCE		1058.5	1101	10.4				
	228 HARS	40 F	1102.3	1103.5	2.8	10	3		
	536 ONDR	42 SER	1105	1107.2	85	20	5.6		
	808 ONDR	41 F	1105	1106.3	45	38	18		
	808 ONDR		1105	1118.2		18			
	1420 ARCE	30	1107.7		120				
	9100 ARCE	30	1108.9		212				
	9100 ARCE	3	1109.5		6.4				
	3100 CRIM	1 S	1125.5	1126.5	2.5	8	3		
	127 TORN	46 C	1130	1135.5	35	150			
	2800 OTTA	26A FAL	1130	1300	90	-28			
	3100 CRIM	1 S	1138	1140.5	5	8	3		
	4995 ATHN	1 S	1150.6	1159	13.5	27.2	16.3		
	1420 ARCE	40	1151.1	1154	3.4				
	1470 BERL	45 C	1151	1154.3	4	15			
	3100 CRIM	1 S	1154.5	1159	6	5	2		
	3000 BERL	46 C	1155.5	1159	5.5	24			
	950 GORK	5 S	1205.2	1210.6	10.5	24	11.5		
	650 GORK	20 GRF	1205.5	1210.9	8.4	16.6	8		
	606 SGMR	4 S/F	1205.8	1210.6	10	16	4.8		3
	1470 BERL	4	1205	1210.9	15	44			
	3000 BERL	4	1206.2	1210	10	62			
	1420 ARCE	4	1206.3	1210.4	14				
	2695 SGMR	4 S/F	1206.4	1210.5	13	65.7	19.7		3
	1415 SGMR	4 S/F	1206.4	1210.5	10.1	83.1	24.9		3
	4995 SGMR	4 S/F	1206.4	1210.3	8	30.1	9		3
	2950 GORK	45 C	1206.5	1208.6	6.2	74			
	2950 GORK		1206.5	1210.4		95			
	808 ONDR	46 C	1206	1210.8	14	30	19		
	2800 OTTA	4 S/F	1206	1210.3	11	63	25		
	9500 BERL	3 S	1206	1210.6	9	48			
	100 GORK	6 S	1215.2	1215.4	.9	600			
	240 OWIN	45 C	1225.9		1.1	30	5		
	160 OWIN	45 C	1225.9		1.1	300			
	200 GORK	6 S	1226	1226.2	1	70			
	8000 SGHR	4 S/F	1239.1	1239.3	3	75.5	22.7		3

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
	606 SGMR	4 S/F	1239.3	1241.5	3.8	23.1	6.9		3
	1415 SGMR	4 S/F	1239.5	1240.4	5.1	31.1	9.3		3
	9500 BERL	4	1239.7	1240	4.3	78			
	4995 SGMR	4 S/F	1240	1240.3	4.1	35	10.5		3
	2695 SGMR	4 S/F	1240	1240.4	2.5	20.4	6.1		3
	3100 GRIM	3 S	1240	1240.5	1.5	10	3		
	410 SGMR	49 GB	1240	1240.2	2.9	730	219		3
	245 SGMR	6 S	1240	1240.2	2.5	93.1	27.9		3
	650 GORK	45 C	1240	1240.6	4.7	10.5	3		
	650 GORK		1240	1242.1		5.5			
	240 DWIN	45 C	1240.1	1240.5	2.2	140	5		
	160 DWIN	45 C	1240.1	1240.5	2.2	200	5		
	9100 ARCE	45	1240.2	1240.5	3.7				
	9100 ARCE		1240.2	1240.5	1.6				
	237 TRST	41 F	1240.2	1240.3	.3	400	8 L		
	950 GORK	41 F	1240.2	1240.6	2.7	7.9			
	950 GORK		1240.2	1242.2		10.4			
	9100 GORK	5 S	1240.2	1240.4	1.1	80	40		
	2950 GORK	45 C	1240.3	1240.5	3.1	24			
	2950 GORK		1240.3	1242		17			
	15400 SGMR	4 S/F	1240.3	1240.5	9	21.4	6.4		3
	1420 ARCE	45	1240	1240.3	5				
	1420 ARCE		1240	1240.3	1.6				
	1470 BERL	4	1240	1240.3	10	14			
	1470 BERL			1241.8		14			
	3000 BERL	4	1240	1240.3	5	18			
	2800 OTTA	45 C	1240	1240.2	4	18.8	7.2		
	808 ONDR	45 C	1240	1241.5	12	25	7		
	536 ONDR	45 C	1240	1240	10	87	4		
	3100 GRIM	3 S	1241.5	1242	1	6	2		
	1420 ARCE		1241.6	1241.9	3.4				
	9100 ARCE		1241.8	1242.1	2.1				
	2800 OTTA	22 GRF	1317	1320	23	1.4	.9		
	2800 OTTA	26A FAL	1342	1510	88	-16.8	-8.4		
	160 DWIN	45 C	1355		1.3	190	10		
	2800 OTTA	45 C	1400	1401	8	2.6	1.3		
	8800 SGMR	3 S	1500.9	1501.5	2.4	31	9.3		
	15400 SGMR	1 S	1500.9	1501.4	1.2	9	2.7		
	4995 SGMR	3 S	1501	1501.5	4.1	22.8	6.8		
	2695 SGMR	1 S	1501.1	1501.4	1	9.6	2.9		
	9100 ARCE	3	1501.1	1501.6	2				
	4995 ATHN	2 S	1501.1	1501.5	.9	24.4	14.6		
	2800 OTTA	1 S	1501	1501.3	2	1.2	.3		
	2695 BCUL	8 S	1502	1502.5	1	7	2		
	2800 OTTA	22 GRF	1512	1610	120	4	2		
	2800 OTTA	240 R	1715	1726	11	1.8	.9		
	2800 OTTA	20 GRF	1728	1738	45	1.8	.9		
	2800 OTTA	21 GRF	1927	1943	28	3.4	2		
	245 SGMR	43 NS	1931.1	1942.9	190.90	41.3			
	208 VORO	44 NS	2200		240		17		
	200 HIRA	44 NS	2355 E		160 D	15	10		SR
	2695 BCUL	3 S	1931.5	1934.5	28	4	1		
	2800 OTTA	1 S	1932	1934.2	8	4.4	2		
	2800 OTTA	20 GRF	2020	2030	50	1.8	.9		
	2800 OTTA	21 GRF	2135	2230	80	2.2	1.1		
	2800 OTTA	1 S	2139	2140.5	7	2	1		
	2695 PENT	20 GRF	2300	2310	30	1.6	.8		
20	3750 TYKH	45 C	0245	0337.7	95	70	35		10R, 245077F
	3750 TYKH		0245	0315.7		63			15R
	3750 TYKH	30 PBI	0420		220 D	35	20 D		
	2000 TYKH	45 C	0245	0315.7	85	87	35		COMPLEX POL.
	2000 TYKH		0245	0333.7		77			
	2000 TYKH	30 PBI	0410		230 D	25	15 D		
	1000 TYKH	45 C	0245	0337.1	85	130	35		COMPLEX POL.
	1000 TYKH		0245	0316		85			
	1000 TYKH	30 PBI	0410		230 D	10	6 D		
	500 HIRA	48 C	0246	0338.8	80	1000	100		SL
	200 HIRA	48 C	0247	0338.3	80	500	240		SL
	5730 IRKU	47 GB	0248	0315.9	180	40			L
	5730 IRKU		0248	0337.7		65			L
	5730 IRKU		0248	0453		145			L
	9400 TYKH	45 C	0250	0337.6	110	70	35		03L
	9400 TYKH		0250	0315.6		55			
	9400 TYKH	30 PBI	0440		200 D	30	20 D		
	606 HANI	40 F	0251.2	0338.4	70.8	151	54		
	1415 HANI	22 GRF	0253	0315.8	72	69	35		
	2695 HANI	22 GRF	0253	0315.5	67	64	31.6		
	4995 HANI	22 GRF	0253	0315.5	67	47.3	24.3		
	8800 HANI	22 GRF	0253	0315.5	67	49.8	24.9		
	700 SYDN	40 F	0253.2	0315.8	73.8				
	1400 SYDN	40 F	0255	0315.7	70.3				
	100 HIRA	48 C	0259	0338	72	1200	500		WRML
	650 GORK	21 GRF	0413.8	0500	102.7	28	11		
	200 GORK	44 NS	0415 E		525		5		

30
Sep 77

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
	240 OWIN	44 NS	0640 E		473 0		5		
	160 OWIN	44 NS	0640 E		473 0		5		
	260 ONDR	44 NS	0650 E		500 0	13			
	245 SGMR	44 NS	1032 E	1842.9	728 0	64.5			CONT
	208 VORO	44 NS	2200		240		11		
	35000 NAGO	20 GRF	0420	0525	160	25			
	700 SYON	22 GRF	0425	0454.2	57.2				
	1400 SYON	22 GRF	0425.8	0454.3	66.2				
	500 HIRA	48 C	0426	0451.3	66	53	15		WL
	606 MANI	4 S/F	0426.9	0453.3	59.6	101	45.4		
	1415 MANI	4 S/F	0427.5	0453	67.2	335	167		
	2695 MANI	4 S/F	0428	0448.5	66.8	350	186		
	650 GORK	2 SF	0428.9	0431.6	12.9	15.4	7.5		
	650 GORK		0443.2	0454.9	24.7	77	37		
	2000 TYKH	28 PRE	0425	0437.6	16	20	14		45L
	2000 TYKH	45 C	0441	0451.5	79	380	85		10L
	950 GORK	5 S	0442	0454.4	33	172			
	2950 GORK		0442 U		80 U				
	950 GORK	21 GRF	0442		109.2				
	4995 ATHN	2 S	0442.5	0453	41.9	154.7	92.8		
	3750 TYKH	28 PRE	0430	0431.5	12	2	1.5		245077F
	3750 TYKH	5 S	0442	0453	68	230	60		15R, 245077F
	1000 TYKH	28 PRE	0410	0426.2	32	28	10		15R/20L
	1000 TYKH	5 S	0442	0454	78	255	55		02R
	4995 MANI	3 S	0443	0452	51.2	150	81		
	9400 TYKH	5 S	0445	0453	45	60	20		08L
	8800 MANI	3 S	0447	0452.9	47.2	95	42.3		
	9100 GORK		0455 E		245				
	3100 CRIM	26 FAL	0707	1015		9			
	536 ONDR	8 S	1041	1041	.3	29			
	4995 ATHN	2 S	1151.7	1201	14.4	28.1	16.8		
	2800 OTTA	22 GRF	1155	1210	50	4	2.2		
	4995 ATHN	2 S	1217.8	1224.1	121.1	33.2	19.9		
	4995 ATHN	2 S	1217.8	1237.1		37.8			
	4995 ATHN	2 S	1217.8	1243.8		43.4			
	4995 ATHN	2 S	1217.8	1256.2		40.8			
	2800 OTTA	240 R	1250	1310	20	2.4	1.2		
	4995 ATHN	2 S	1427.5	1433.4	31.1	12.8	7.7		
	2800 OTTA	20 GRF	1500	1504	40	2.8	1.4		
	2800 OTTA	21 GRF	1540	1610	95	1	.5		
	2800 OTTA	4 S/F	1631.5	1632.1	2.5	14.4	3.6		
	2800 OTTA	29 PBI	1634	1634	15	1.2	.6		
	9100 ARCE	3 S	1632.2	1633	8				AT SUNSET
	2695 BCUL	8 S	1632	1633	5.5	13	4		
	2800 OTTA	27AFRF	1720		310	2.2	2		
	2800 OTTA	24 R	1720	1740	20	2.2	1.1		
	2800 OTTA	24P R	1740		253	2.2			
	2695 SGMR	4 S/F	1840	1840.6	1.7	19.8	7.9		CONT
	4995 SGMR	4 S/F	1840.3	1841.2	2.2	23	9.2		CONT
	2695 BCUL	8 S	1840.5	1841	2	15	5		
	2800 OTTA	4 S/F	1840	1840.6	2	20	6		
	2800 OTTA	20 GRF	1909	1910.5	11	1.6	.8		
	2800 OTTA	20 GRF	2010	2015	20	1.8	.9		
	2695 BCUL	8 S	2045	2045.5	2	11	4		
	2800 OTTA	20 GRF	2100	2105	20	3.6	2		
	2695 PENT	26 FAL	2153	2153	37	-2.2	-1.1		
	3750 TYKH	5 S	2259	2303.3	10	5	1		
	9400 TYKH	5 S	2303	2303.6	2	8	3		
	2000 TYKH	5 S	2319	2322	15	2	1		OL
	3750 TYKH	5 S	2320	2325	15	2	1		
	2695 PENT	20 GRF	2320	2326	23	2.2	1.1		
21	2695 PENT	1 S	0000	0005	10	2.8	1.4		
	3750 TYKH	21 GRF	0000	0004.5	80	4	1		
	2000 TYKH	21 GRF	0000	0004	80	2.5	1		OR
	1000 TYKH	5 S	0003.9	0004.1	1	3	.7		10R
	2000 TYKH	5 S	0036	0037.3	2	1.2	.3		OR
	3750 TYKH	5 S	0107	0107.5	2	2	.5		
	2000 TYKH	45 C	0324.5	0327.4	5	5	1		OR
	3750 TYKH	5 S	0327	0327.4	2	6	1.5		
	9400 TYKH	5 S	0327	0327.4	1.5	7	2		
	5730 IRKU	1 S	0327	0327.5	1.5	4	2		R
	200 GORK	44 NS	0406 E		90		5		
	4995 ATHN	2 S	0501.2	0508.2	20.5	27	16.2		
	5730 IRKU	1 S	0537	0537.7	1.5	4			
	9400 TYKH	5 S	0537	0537.5	2	6	2		
	3750 TYKH	5 S	0537	0537.5	2	5	1.5		
	5730 IRKU	1 S	0555	0555.2	.7	4			
	260 ONDR	44 NS	0650		497 D	70			
	127 TORN	44 NS	0700 E	1031.8	480 D	40			V=1
	200 GORK	44 NS	0815 E		255		5		
	9100 ARCE	1	0737.8	0738.1	2.5				
	9100 GORK	1 S	0737.9	0738	1.1	5.9	2.9		
	9100 GORK	2 S/F	0816.5	0818.2	2.1	7	3.5		
	9100 ARCE	2	0817	0818.4	2				

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{22} \text{ Wm}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
22	9100 ARCE	1	0838.8	0839.1	.6				
	9100 ARCE	1	1056	1056.6	1				
	950 GORK	4 S/F	1137	1139.9	5.5	10.3			
	2800 OTTA	1 S	1156	1201	10	2	1		
	9100 ARCE	22	1534.1	1538.5	6				
	2800 OTTA	45 C	1534	1539	26	7.6	3.8		
	2800 OTTA	30 PBI	1600	1600	80	3.8	1.9		
	1420 ARCE	40	1535.3	1538.7	16				
	2695 BOUL	45 C	1535.5	1547.5	27	13	4		
	2800 OTTA	20 GRF	1615	1623	30	3.4	1.5		
	2695 BOUL	45 C	1616.5	1623.5	19	4	1		
	2800 OTTA	1 S	1703	1703.8	2	4.2	2		
	2695 BOUL	23 GRF	1704	1704.5	7	4	1		
	2695 PENT	240 R	2130	2200	30	1.8	.9		
	208 VORO	44 NS	2200		240		9		
	2695 PENT	20 GRF	2249	2256	33	2.2	1.6		
	2695 BOUL	1 S	2256	2256.5	2.5	3	1		
	3750 TYKW	20 GRF	0200	0215	50	2	1		245086F
	2000 TYKW	21 GRF	0200	0219	50	2	1		15R
	2000 TYKW	42 SER	0213.5	0215.5	3	1.5	.4		40R
	3750 TYKW	45 C	0321	0328	12	2	1		245086F
	200 GORK	44 NS	0415 E		165		5		
	260 ONDR	44 NS	0650 E		499 0	40			
	160 DMIN	44 NS	0709 E		620 0		20		
	240 DMIN	44 NS	0709 E		620 0		15		
	127 TORN	43 NS	0740 U	1053.2	440 0	30			V=1
	245 SGHR	43 NS	1305	1606.7	572 0	148.7			CONT
	200 HIRA	44 NS	2025 E	0000	450 0	10	4		MR
	208 VORO	44 NS	2200		240		13		
	200 HIRA	45 C	0630	0631	2.5	300	30		SR
	200 GORK	41 F	0630	0631	24.4	40			
	200 GORK		0630	0639		40			
	200 GORK		0630	0650.6U		40			
	3750 TYKW	45 C	0642	0643.3	40	6	2		
	3100 CRIM	1 S	0643	0645	4	4	1		
	2000 TYKW	5 S	0643	0643.4	2	2	.7		05L
	3100 CRIM	5 S	0729	0731	13	3	1		
	9100 ARCE	20	0938.7	1012	72				
	9100 ARCE	1	1333.4	1333.6	.6				
	808 ONDR	2 S/F	1356.4	1400.4	5	25	10		
	2695 BOUL	45 C	1356	1401	6.5	6	2		
	2695 SGHR	2 S/F	1357	1400	6	6	1.8		
	4995 SGHR	4 S/F	1357	1400.5	8	36.2	10.8		CONT
	4995 ATHN	2 S	1357.2	1400.4	6.3	34.1	20.4		
	3000 BERL	4 SF	1357.5	1359.8	4.5	8.8			
	1470 BERL	4	1357	1359.7	7.5	14			
	930 BORD	46 C	1357	1359.6	5	38	6		
	536 ONDR	2 S/F	1358.6	1400.4	2.5	9	5		
	245 SGHR	6 S	1358.7	1400	5	68.3	13.7		CONT
	237 TRST	41 F	1358.8	1359.8	1.6	140	0		
	606 SGHR	2 S/F	1358.8	1400.3	2.9	7.2	2.1		CONT
	410 SGHR	6 S	1359	1400.3	2	32.8	6.6		CONT
	1415 SGHR	3 S	1359.2	1400	3.8	14.6	4.4		CONT
	8800 SGHR	4 S/F	1359.2	1400.5	3.8	41.5	12.5		CONT
	9100 ARCE	3	1359.3	1400.6	4.7				
	1420 ARCE	4	1359	1359.8	2.5				
	9500 BERL	4 SF	1359	1400	3	30			
	2800 OTTA	24 R	1726	1727	1	1	.5		
	2800 OTTA	27A RF	1726		31	1	.8		
	2800 OTTA	24P R	1727		19	1			
	2800 OTTA	2 S/F	1728	1729.9	3.5	1.6	.8		
	2800 OTTA	2 S/F	1740	1742	6	1.2	.6		
	2800 OTTA	26 FAL	1746	1757	11	-1	.5		
	2695 BOUL	40 F	1752	1753	8	10	3		
	3750 TYKW	5 S	2358	2400.2	20	7	2		
	1000 TYKW	45 C	2358	2400.6	7	12.5	1.5		SR
23	3750 TYKW	5 S	0356	0356.7	3	1.5	.5		
	200 GORK	44 NS	0400 E		60		5		
	200 GORK	44 NS	0603 E		72		5		
	240 DMIN	44 NS	0635 E		670 0		3		
	260 ONDR	44 NS	0650 E		497 0	22			
	127 TORN	44 NS	0700 E	1110.2	460 0	60			V=1
	245 SGHR	43 NS	1208.5	1752.3	626.50	36.8			CONT
	176 DMIN	44 NS	1225 E		200 0				
	1000 TYKW	5 S	0629.6	0629.8	.5	12	3		DR
	650 GORK	21 GRF	0639.1	0647.1	43.9	7.8	2.7		
	606 MANI	40 F	0639.5	0641.2	17.5	18.6	12		
	1415 MANI	22 GRF	0639.5	0652.7	17.1	6.2	2.1		
	1415 MANI	46 C	0639.5	0702.7		90			
	500 HIRA	45 C	0640.5	0647.3	25	13	5		0
	1000 TYKW	42 SER	0640	0700.1	30	12	1.5		OR
	950 GORK	40 F	0641	0700.8	19.8	13			
	650 GORK	46 C	0641.1	0641.2	2	11	2.8		

32
Sep 77

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
24	650 GORK	42 SER	0641.1	0642.8		11			08R
	2000 TYKW		0645	0700	25	27	2.5		
	1470 BERL	4	0650	0702.5	14	115			
	3000 9ERL	4	0650	0700	13	104			
	606 MANI	04 S/F	0657.4	0658.5	8.3	30	6		
	1415 MANI	46 C	0657.6	0659.3	5.9	77	24.2		
	2695 MANI	40 F	0658	0658.6	2.2	195	18.9		
	2950 GORK	4 S/F	0659.4	0700.6	2.3	45			
	650 GORK	2 S	0659.6	0700.4	1.5	7.1	3.5		
	200 HIRA	45 C	0736.3	0737	1.7	150	10		0
	930 8ORD	42 SER	0945.4	0945.6	2.6	21	3		
	1470 BERL	20 GRF	1025	1137	45	2.1			
	3000 BERL	20 GRF	1030	1138	66	6.2			
	9500 BERL	20 GRF	1030	1132.5	95	9.5			
	2800 OTTA	240 R	2120	2134	14	1.2	.6		
	2695 PENT	20 GRF	2340	2355	65	2.2	1.1		
	100 HIRA	45 C	0209.5	0209.5	.8	200	60		0 0 0L 0R 04R 0L 0 0
	100 HIRA	45 C	0211.3	0211.8	1	320	80		
	3750 TYKW	8 S	0214	0214.2	1	50	5		
	2000 TYKW	5 S	0214	0214.4	1	17	3		
	1000 TYKW	45 C	0214	0214.2	1	65	10		
	9400 TYKW	5 S	0214	0214.7	1.5	7	2		
	100 HIRA	45 C	0241	0242	1.5	300	100		
	200 HIRA	45 C	0241.7	0242	1	350	40		
	100 GORK	45 C	0524.7	0525 U	2.1	60			
	100 GORK	45 C	0524.7	0525.6		65			
	200 GORK	6 S	0524.8	0525.1	.6	30			HL 0
	200 GORK	41 F	0536.9	0537	1.2	30			
	200 GORK		0536.9	0537.9		10			
	200 GORK	8 S	0537	0537.1	1	50			
	100 GORK	45 C	0550	0554.3	50	350	20		
	234 POTS	45 C	0551.9	0552	7.7	65			
	100 GORK	46 C	0551.9	0556.2		260			
	100 GORK		0551.9	0558.7		4150			
	100 GORK		0553	0555 U	17	1200 D	300 D		
	100 HIRA	48 C	0553	0555	15	5000	200		
	200 HIRA	48 C	0553.3	0554.2	2.2	6.9	4.2		0, 1ST PEAK 0, 2ND PEAK
	4995 ATHN	2 S	0553.5	0554.5	18.5	620 U	80		
	228 HARS	47 GB	0555.8	0557.5	1.8	120			
	228 HARS		0559.9	0600	1.1	95			
	200 GORK	46 C	0553.5	0600.2U	11.2	400			
	2950 GORK	23 GRF	0554	0558.9	7.1	15			
	950 GORK	45 C	0554	0555.5	10.2	38			
	950 GORK		0554	0558.4		24			
	950 GORK		0554	0600.2		22			
	950 GORK	29 PBI	0554	0604.3	20	6.1			
	650 GORK	45 C	0554	0555.5	20.1	36	11		04L
	650 GORK		0554	0558.6		31			
	500 HIRA	45 C	0554	0555.6	16		15		
	500 HIRA		0554	0558.7		40			
	500 HIRA		0554	0555.6		37			
	606 MANI	46 C	0554.2	0555.6	14.6	43.4	21.7		
	606 MANI	46 C	0554.2	0558.8		37.8			
	1415 MANI	4 S/F	0554.2	0555.1	15.8	39.4	20.4		
	2695 MANI	4 S/F	0554.3	0555.3	12.4	25.4	12.7		
	4995 MANI	3 S	0554.3	0555.3	2.5	14.6	3.2		
	9100 GORK	20 GRF	0554.3	0555.3	78	8.2	3.8		04R
	2950 GORK	3 S	0554.5	0555.7	2.2	9			
	8800 MANI	3 S	0554.8	0555	1.6	11.7	2.3		
	9400 TYKW	5 S	0554	0555	3	6	2		
	2000 TYKW	45 C	0554	0555	15	35	10		
	2000 TYKW	29 PBI	0609		30	2.5	1		
	3750 TYKW	45 C	0554	0555	9	13	5		
	3750 TYKW	29 PBI	0603		50	3	1		
	1000 TYKW	45 C	0554	0555.5	25	50	10		
	200 GORK	43 NS	0618		222		5		
	260 ONDR	44 NS	0650 E		501 D	20			3
	245 SGMR	44 NS	1037 E	1344.1	715 D	21.8			
	100 GORK	46 C	0802.6E	0802.6	2.7	80			
	100 GORK		0802.6E	0803.4		80			
	100 GORK		0802.6E	0803.6		80			
	100 GORK		0802.6E	0805		75			
	200 GORK	47 GB	0926.3	0926.8	29.7	20			
	200 GORK		0926.3	0944.6		20			
	200 GORK		0926.3	0948.8		130			
	202 IZMI	25 R	0926.3	0947.5	34	56	30		
	127 TORN	48 C	0932 U	0945.7	30 U	70			04R
	113 POTS	45 C	0934	0958	37	60	20		
	100 GORK	46 C	0936.3	0945.2	35.4	90			
	100 GORK		0936.3	0957.7		500			
	100 GORK		0936.3	0959.3		300			
	1420 ARCE	20	0941.8	1007.8	143				
	1420 ARCE		0941.8	1007.8	65				
	1470 BERL	20 GRF	0942	1008	60	24			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
25	127 TORN	27 RF	0952 U	1000 U	60 D	75			
	3100 CRIM	3 S	0954	1006	24	10	3		
	1420 ARCE		1046.8	1105.6	78				
	1470 BERL	20 GRF	1047	1106	46	15			
	3100 CRIM	3 S	1059.5	1111	17	10	3		
	9100 ARCE	1	1406.3	1406.7	.9				
	1420 ARCE	1	1406.4	1406.6	.5				
	1420 ARCE	23	1424.3	1429.6	9.2				
	1420 ARCE	4	1426.8	1427.3	1.1				
	1420 ARCE	1	1504.5	1505.1	.8				
	200 GORK	44 NS	0412 E		402		5		
	260 ONDR	44 NS	0650 E		500 D	15			
	176 OWIN	44 NS	0815 E		555 D		5		
	245 SGMR	44 NS	1038 E	2037	713 D	117.8			
	1415 MANI	4 S/F	0438	0438.9	3.6		8.5		
	2695 MANI	3 S	0439.4	0440	1.8	18.3	6.6		
	9400 TYKH	5 S	0439.5	0440	1.5	19	5		15L
	3750 TYKH	5 S	0439.5	0440	3.5	16	5		40R
	3750 TYKH	30 PBI	0443		20	2	1		
	2000 TYKH	5 S	0439.5	0440.1	3.5	10	3.5		20L
	2000 TYKH	30 PBI	0443		20	1.5	.5		
	1000 TYKH	45 C	0439.5	0443.4	4.5	2.7	.5		
	1000 TYKH		0439.5	0439.7		.9			
	4995 MANI	4 S/F	0439.6	0440	1.1	29.8	8.8		
	8800 MANI	4 S/F	0439.6	0440	1.6	27.6	6.9		2-SPA
	5730 IRKU	1 S	0440.1	0440.5	2	5			R
	3750 TYKH	5 S	0443.3	0443.7	1	2	.5		
	2000 TYKH	5 S	0443.4	0443.8	.8	1	.3		30L
	3100 CRIM	42 SER	0848	0850.5	62	10	3		
	3100 CRIM		0848	0858		14	5		
	3100 CRIM		0848	0925.5		17	6		
	2950 GORK	3 S	0849.4	0850.6	3.3	21			
	9100 GORK	20 GRF	0904.5	0919	115.5	10.7	4.5		
	1420 ARCE	1	1146.2	1146.3	.6				
	2800 OTTA	240AR	1200	1210	10	1.8	.9		
	2800 OTTA	1 S	1206	1207	4	2	1		
	2800 OTTA	24 R	1245	1300	15	1.6	.8		
	2800 OTTA	27A RF	1245		215	1.6	1.4		
	2800 OTTA	24P R	1300		165	1.6			
	3000 BERL	1 S	1311.7	1312	.8	5.2			
	1470 BERL	3 S	1311.7	1312	.8	5.7			
	1420 ARCE	3	1311.9	1312.2	.8				
	2800 OTTA	8 S	1312	1312.1	.6	4.8			
	2695 SGMR	3 S	1333.6	1344.3	27.6	35.3	10.6		SWF
	8800 SGMR	3 S	1334.9	1344.3	26.2	63.2	19		SWF
	4995 SGMR	3 S	1335.4	1344.3	25.7	72.8	21.8		SWF
	9100 ARCE	21	1335.6	1340.5	117				
	15400 SGMR	3 S	1336.5	1344.3	20.9	50.4	15.1		SWF
	4995 BOUL	8 S	1339.5	1344.5	8	31	10		
	9500 BERL	4	1339	1343.8	17	63			
	3000 BERL	4	1339	1344	18	53			
	4995 ITHN	4 S	1340.3	1344.6	7.1	72.2	21.7		
	2800 OTTA	4 S/F	1340	1344.2	8	34	14		
	2800 OTTA	29 PBI	1348	1348	42	5.4			
	1420 BOUL	45 C	1341.5	1344.5	4	5	2		
	1415 SGMR	1 S	1341.7	1345.7	5.5	6.8	2.7		SWF
	1420 ARCE	40	1341.7	1345.5	6.7				
	1470 BERL	4	1341	1345.4	6	6.1			
	9100 ARCE	28	1342.2		1.4				
	606 SGMR	3 S	1343.2	1346.3	3.8	15.5	4.7		SWF
	930 BORD	42 SER	1343.5	1343.8	3.5	13	3		
	9100 ARCE	3	1343.6	1344.6	3.5				
	2695 BOUL	3 S	1344.5	1345.5	3	17	6		
	9100 ARCE	29	1347.1		33.4				
	2800 OTTA	26 FAL	1545	1620	35	-1.6	-0.8		
	4995 SGMR	3 S	1654.6	1657.9	5.3	20.6	6.2		SWF
	8800 SGMR	3 S	1654.7	1656.5	4.7	30	9		SWF
	4995 BOUL	45 C	1654	1658	6.5	20	7		
	15400 SGMR	3 S	1655	1656.4	3.6	36.7	11		SWF
	2695 SGMR	1 S	1656.6	1657.9	3.7	1.8	.6		SWF
	2800 OTTA	1 S	1657	1658	2	2.6	1.3		
	2695 BOUL	1 S	1658	1658.5	1.5	1			
	2800 OTTA	1 S	1855	1856	2	.8	.4		
	2800 OTTA	20 GRF	1900	1930	100	1.6	.8		
26	700 SYDN	40 F	0018.9	0018.9	.7				
	3750 TYKH	5 S	0021	0022.3	5	8	2.5		
	9400 TYKH	5 S	0021	0022.7	5	38	15		
	1000 TYKH	5 S	0021	0022	2	1.7	.5		
	2000 TYKH	5 S	0021	0022.3	2	1.5	.7		
	4995 MANI	4 S/F	0022	0023	2.5	13.4	3.8		
	8800 MANI	4 S/F	0022	0023	2.5	26.5	7.2		
	35000 NAGO	5 S	0022	0023	3	30			
	3750 TYKH	20 GRF	0030	0040	50	1	.5		

34
Sep 77

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION MINUTES	FLUX DENSITY $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT		PEAK	MEAN		
	9400 TYKW	20 GRF	0030	0040	50	3	1		
	9400 TYKW	5 S	0135.5	0136.4	2.5	39	15		
	9400 TYKW	30 PBI	0138		120	6	3		
	5730 IRKU	2 S	0135.7	0136.4	8	16	4		
	3750 TYKW	21 GRF	0135	0230	200	3	1		244075F
	1400 SYDN	45 C	0140.2	0140.4	.4				
	2000 TYKW	8 S	0140.4	0140.5	.3	6	2		OR
	2000 TYKW	21 GRF	0140	0240	200	1.5	.7		
	35000 NAGO	20 GRF	0140	0200	60	8			
	1000 TYKW	8 S	0141.4	0141.5	.5	2	.3		OR
	9400 TYKW	5 S	0141	0141.7	1	9	2		
	1400 SYDN	45 C	0142.9	0143.1	.7				
	3750 TYKW	5 S	0143	0143.3	.6	7	1.5		064095F
	2000 TYKW	45 C	0143	0143.3	1	5	1.5		OR
	1000 TYKW	45 C	0143	0143.4	1	36	5		05R
	3750 TYKW	20 GRF	0355	0425	55	2	1		244075F
	2000 TYKW	45 C	0413	0418	35	1.4	.6		15L
	3750 TYKW	20 GRF	0520	0545	90	6	3		
	2000 TYKW	21 GRF	0525	0533.5	80	3	1		10L
	9400 TYKW	20 GRF	0530	0545	80	5	2		
	9100 GORK	20 GRF	0534.3	0546.4	70.4	11.5	5		
	260 ONDR	44 NS	0700 E		485 D	9			
	100 GORK	43 NS	0806.3	0832.7	69	27	5		
	245 SGMR	43 NS	1205.2	2040.6	624.8D	49.6			5
	200 HIRA	44 NS	2035 E	0140	400 D	10	2		SR
	100 GORK	41 F	0756.3	0757.6	9.8	20			
	100 GORK		0756.3	0759.3		15			
	100 GORK		0756.3	0804.7		45			
	127 TORN	27 RF	0808 U	0820	25 U	10	5		
	9100 ARCE	20	0815.9	0839	149				
	1420 ARCE	20	0836.2	0836.8	24				
	1420 ARCE	1	0951.7	0951.9	.6				
	1420 ARCE	2	1249.4	1249.8	.7				
	9100 ARCE	1	1250	1250.3	.5				
	536 ONDR	8 S	1455	1455	.3	35			
	1420 RCUL	3 S	1906.5	1910	13	22	7		
	2695 SGMR	3 S	1908.6U	1910.2U	5.7U	21.4U	6.4U		5
	2800 OTTA	4 S/F	1908	1910	6	19	6.4		
	2800 OTTA	29 PBI	1914	1914	16	2.6	1.4		
	4995 SGMR	3 S	1909 U	1910.2U	4.8U	13.9U	4.2U		5
	1415 SGMR	3 S	1909.6	1910.1	6.6	27.6	8.3		5
	606 SGMR	3 S	1909.6	1909.7	9.2	42.4	12.7		5
	410 SGMR	7 C	1909.9	1910	8.8	488	146		5
	245 SGMR	48 C	1909.9	1910	5.9	1507	452		5
	4995 RCUL	3 S	1909	1910	7	11	4		
	2695 RCUL	3 S	1909	1911	6.5	17	6		
	18 MCMA	4 F	1910	1913	5				
	4995 RCUL	45 C	2158.5	2159.5	5.5	192	25		
	2695 RCUL	45 C	2158.5	2204	6.5	189	42		
	1420 RCUL	8 S	2201.5	2202	1	3	1		
27	208 VORO	44 NS	0000	0045	120	30	10		
	2000 TYKW	5 S	0134.3	0134.6	1	1.8	.5		OL
	3750 TYKW	5 S	0134.3	0134.6	1	2	.5		
	200 GORK	44 NS	0406 E		180		5		
	260 ONDR	44 NS	0720 E		465 D	25			
	245 SGMR	43 NS	1132.2	1506.4	655.8D	31.5			5
	9100 GORK	6 S	1051.4	1051.7	.4	24.8	12.4		
	536 ONDR	8 S	1131	1131	.3	42			
	176 OHIN	45 C	1237.2	1237.5	3	10	2		
	1420 ARCE	22	1444	1523.7	67				AT SUNSET
	9100 ARCE	22	1453	1532.2	71				AT SUNSET
	2800 OTTA	20 GRF	1515	1532.1	100	2	.6		
	176 OHIN	45 C	1531.4		.2	260	5		
	176 OHIN	45 C	1538.9		2	220	10		
	18 MCMA	6 S	1541	1542	3				
	2800 OTTA	20 GRF	1715		120	1	.7		
28	5730 IRKU	21 GRF	0204.5	0207.7	12	10	4		L
	3750 TYKW	5 S	0206	0207.6	3	4	2		244096F
	3750 TYKW	29 PBI	0209		70	1.5	.7		
	9400 TYKW	5 S	0206	0207.2	3	6	2		
	2000 TYKW	5 S	0206	0207.7	3	2.5	1		15L
	2000 TYKW	29 PBI	0209		20	1	.5		
	200 GORK	44 NS	0415 E		525		5		
	260 ONDR	44 NS	0730 E		455 D	34			
	176 OHIN	44 NS	0815 E		555 D		4		
	240 OHIN	44 NS	0815 E		555 D		4		
	245 SGMR	43 NS	1101.2	1531.6	684.8D	27.1			
	200 GORK	6 S	0518	0519 U	1.7	30			
	100 GORK	41 F	0518.1	0519.1	3.1	80			
	100 GORK		0518.1	0521		70			
	200 HIRA	45 C	0518.3	0519	1.3	300	25		HL
	100 HIRA	45 C	0518.7	0519.3	1	130	40		HL
	200 GORK	41 F	0551	0554.6	120	30			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

SEPTEMBER 1977

SEP 1977	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
29	200 HIRA	45 C	0018.7	0019	2	400	40		SL
	200 GORK	44 NS	0415 E		315		5		
	127 TORN	44 NS	0620 E	0847.4	340 D	16			V=0
	100 GORK	43 NS	0640.4		350		5		
	260 ONDR	44 NS	0710 E		478 D	12			
	176 OWIN	44 NS	0750 E		115 D		10		
	240 OWIN	44 NS	0750 E		100 D		10		
	176 OWIN	43 NS	1300		270		5		
	200 GORK	27 RF	0521	0636.2	236	100	20		
	202 IZHI	27 RF	0600	0636	156	90	35		
	950 GORK	20 GRF	0615	0632.4	63	12.3	3.7		
	200 HIRA	45 C	0615	0636	65	35	15		ML
	9100 GORK	20 GRF	0616.6	0632.2	58.9	14	5		
	900 HIRA	27 RF	0616	0633	110	26	6		SL
	3100 CRIM	1 S	0617	0619	5	9	3		
	100 HIRA	45 C	0621	0651	80 D	160	40		ML
	100 GORK	27 RF	0623.2	0651.6	174	130	35		
	9400 TYKH	5 S	0625	0632	45	15 U	5 U		OR
	3750 TYKH	28 PRE	0616	0618	10	3	2		
	3750 TYKH	45 C	0626	0632	18	30	12		15R
	3750 TYKH	29 PBI	0644		65	5	2		
	1000 TYKH	28 PRE	0615	0618	11	20	3		SR
	1000 TYKH	45 C	0626	0631.1	14	36	10		25R
	1000 TYKH		0626	0632.1		21			
	1000 TYKH	30 PBI	0640		50	2.5	1		
	2000 TYKH	28 PRE	0615	0618	11	5	2.5		10L
	2000 TYKH	45 C	0626	0632.2	17	31	12		10L
	2000 TYKH	29 PBI	0643		55	1	.4		
	3100 CRIM	3 S	0627	0633	17	25	8		
	2950 GORK	4 S/F	0627.7	0632.5	149	52	24		
	1000 TYKH	45 C	0716	0716.9	2	10	2.5		99R
	176 OWIN	45 C	0913.5		1.5	70	5		
	240 OWIN	45 C	0913.5		1.5	25	3		
	808 ONDR	2 S/F	1110	1110.4	.4	25	2		
	237 TRST	41 F	1623	1623.1	.2	290	11 L		
	606 SGMR	1 S	1745.8	1745.9	.2	5	1.5		
	245 SGMR	6 S	1745.9	1746.1	.4	89.3	26.8		
	410 SGMR	6 S	1746.1	1746.2	.2	24.6	7.4		
	245 SGMR	6 S	1751	1751.2	.5	335.2	100.6		
	410 SGMR	6 S	1751.2	1751.3	.3	46.7	14		
	1415 SGMR	2 S/F	1751.2	1751.3	.2	7.8	2.4		
	606 SGMR	2 S/F	1751.3	1751.4	.2	5.5	1.7		
	4995 BCUL	45 C	2022.5	2029	9.5	27	9		
	2695 BCUL	45 C	2028.5	2031.5	5	18	6		
30	3750 TYKH	20 GRF	0310	0315	40	1.7	.5		
	2000 TYKH	20 GRF	0310	0315	40	1.3	.5		OR
	200 GORK	44 NS	0530 E		384		5		
	260 ONDR	44 NS	0717 E		463 D	21			
	176 OWIN	44 NS	0747		456		5		
	200 GORK	44 NS	1215		45		5		
	245 SGMR	43 NS	1217.2	1303.9	605.80	32.1			
	950 GORK	5 S	0535.7	0536.2	1.7	22	11		
	2950 GORK	2 S/F	0536.3	0537.9	3.3	12			
	3750 TYKH	45 C	0536	0537.8	4	80	16		
	9100 GORK	23 GRF	0537.7	0612.7	91.6	16	4		
	2000 TYKH	45 C	0537	0537.8	3	1.2	.3		
	9400 TYKH	5 S	0538	0538.7	2	3	1		
	650 GORK	4 S/F	0539.6	0540	.7	37	18		
	9400 TYKH	5 S	0610.5	0611.2	8	18	5		
	9100 GORK	2 S/F	0610.6	0611.5	1.7	15	7		
	3750 TYKH	21 GRF	0610	0635	60	2.5	1		
	3750 TYKH	5 S	0612	0613	10	1	.3		
	536 ONDR	8 S	1114.5	1114.5	.3	56			
	536 ONDR	8 S	1241.2	1241.2	.3	35			
	536 ONDR	3 S	1302	1302	.2	17			
	536 ONDR	3 S	1430.3	1430.3	.2	15			
	536 ONDR	3 S	1452.3	1452.3	.2	10			
	2800 OTTA	20 GRF	2115	2137	40	1.4	.9		
	2695 PENT	20 GRF	2224	2226.8	18	1.4			

Reports received from the following observatories:

ARCE = Arcetri	DWIN = Dwingeloo	IRKU = Irkutsk	ONDR = Ondrejov	SGMR = Sagamore Hill
BERL = Berlin-Adlershof	GORK = Gorky	KIEV = Kiev	OTTA = Ottawa	SYDN = Sydney
BORD = Bordeaux	HARS = Harestua	MANI = Manila	PENT = Penticton	TORN = Torun
BOUL = Boulder	HIRA = Hiraiso	MCMA = McMath-Hulbert	POTS = Potsdam	TYKH = Toyokawa
CRIM = Simferopol	HUAN = Huancayo	NAGO = Nagoya	SAOP = Sao Paulo	TRST = Trieste
				VORO = Voroshilov (Ussurisk)

Explanation of Type Code:

1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase A	42 Series of Bursts	47 Great Burst
5 Simple	21 Simple 3A	26 Fall	31 Post Burst Decrease	43 Onset of Noise Storm	48 Major
					49 Major +

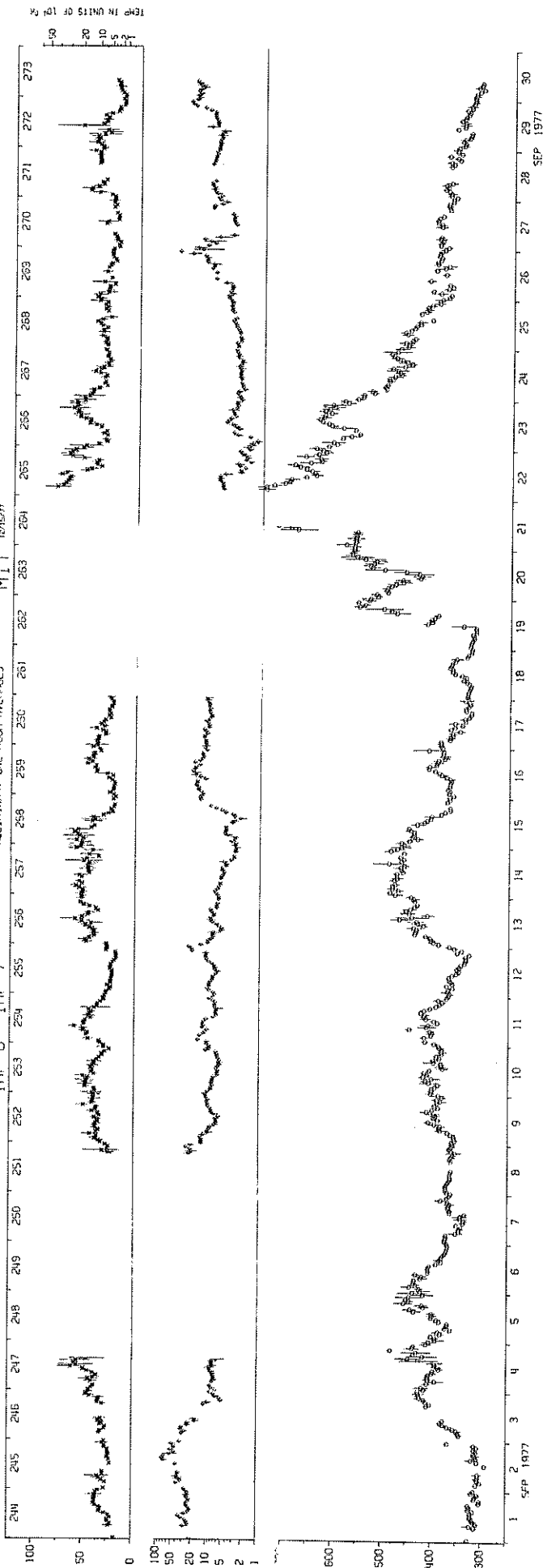
IMP 7 AND 8 SOLAR WIND PLASMA

SEPTEMBER 1977

MIT 12/15/77

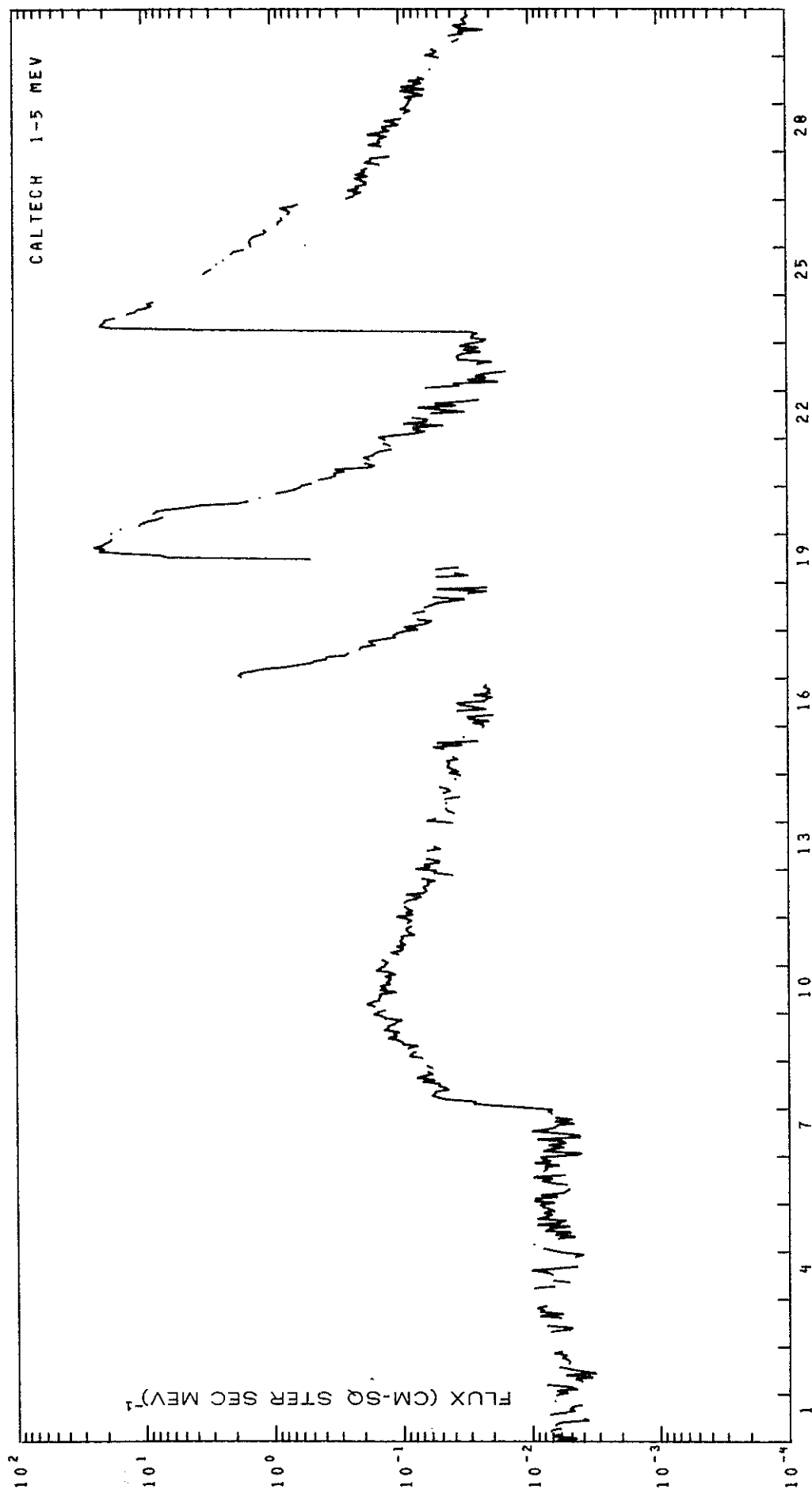
PRELIMINARY ONE-HOUR AVERAGES

IMP 8 IMP 7



IMP 7 AND 8 ELECTRONS

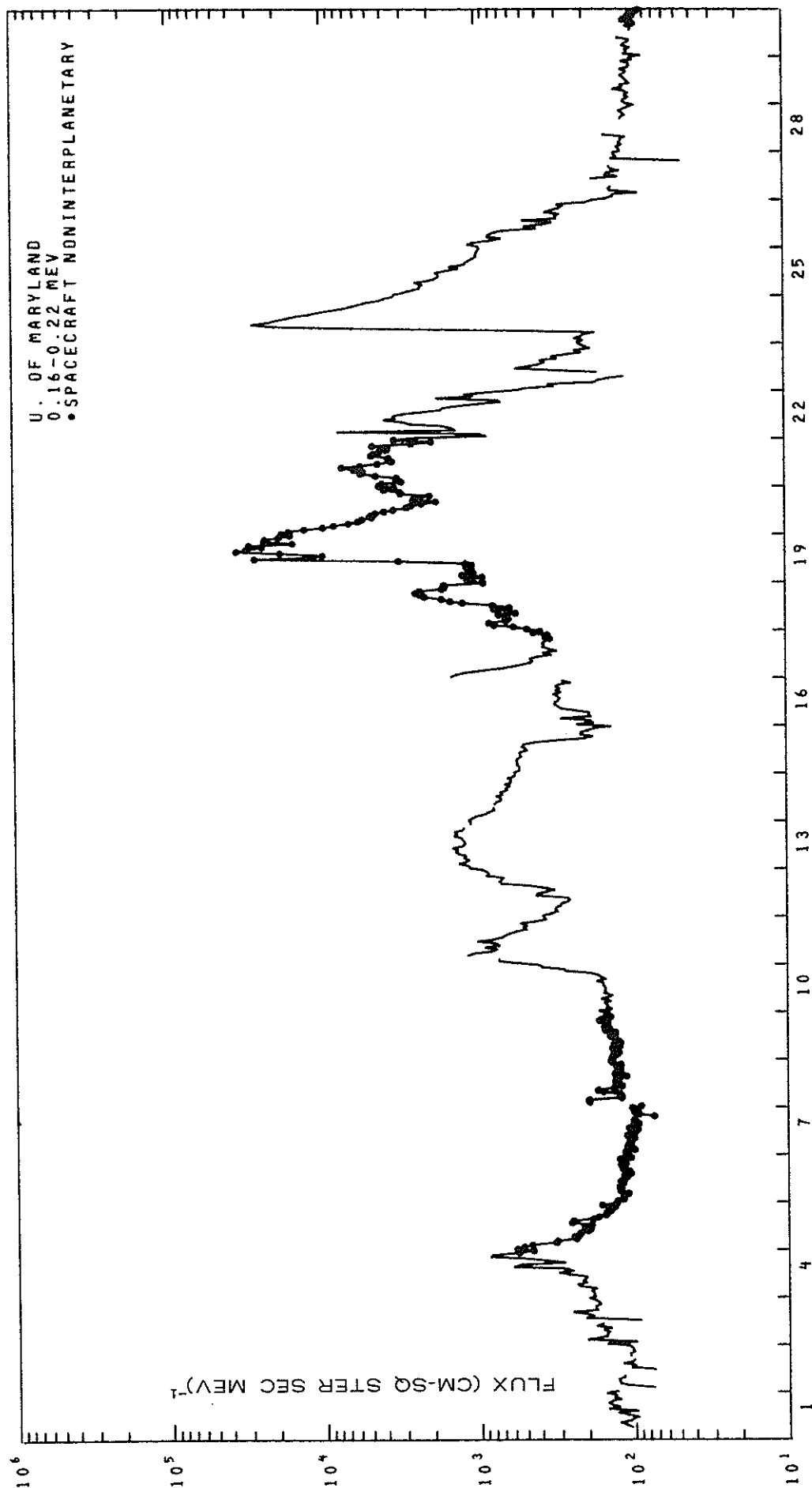
SEPTEMBER, 1977



37
Sep 77

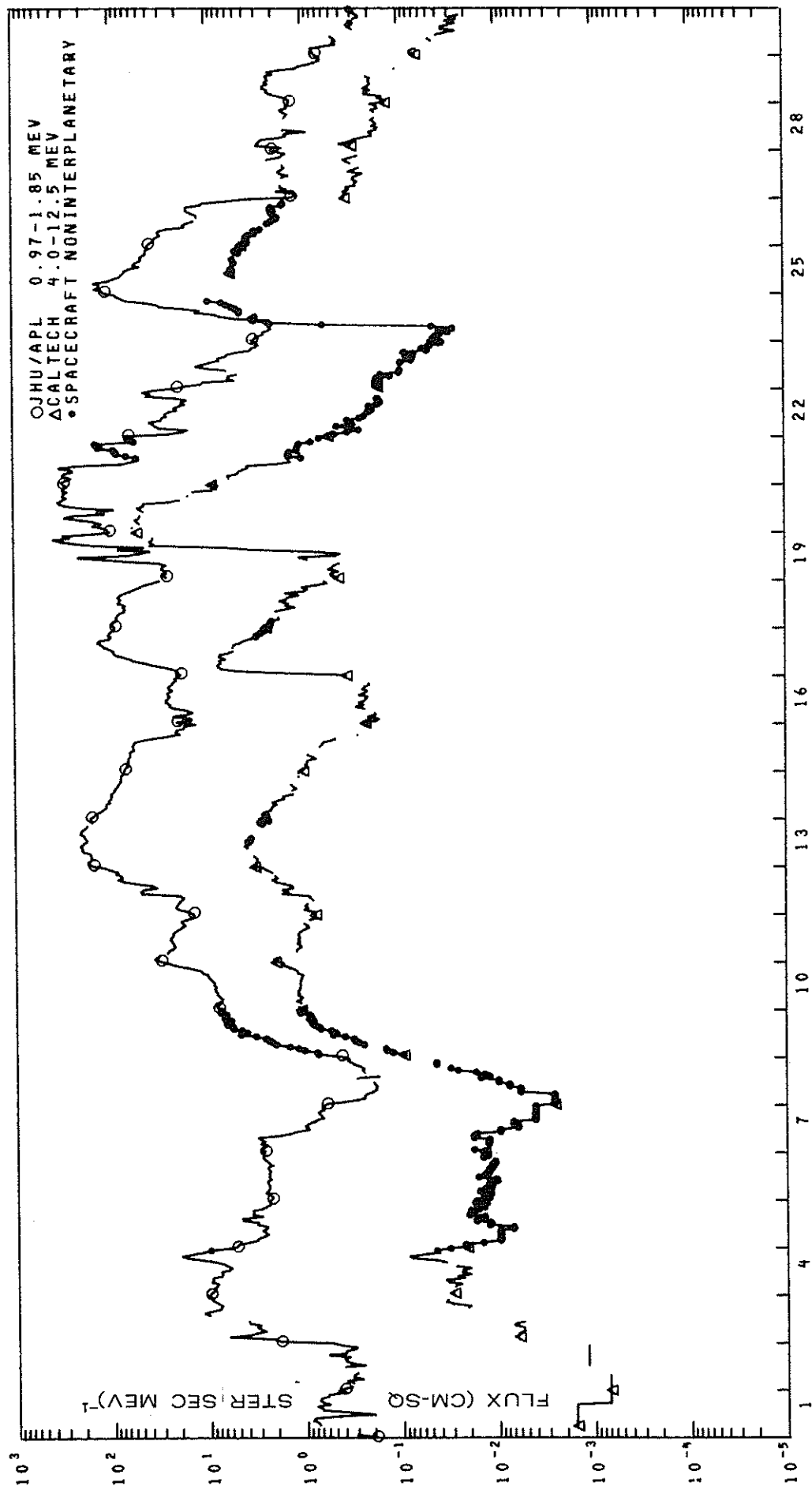
IMP 7 AND 8 LOW ENERGY PROTONS

SEPTEMBER, 1977



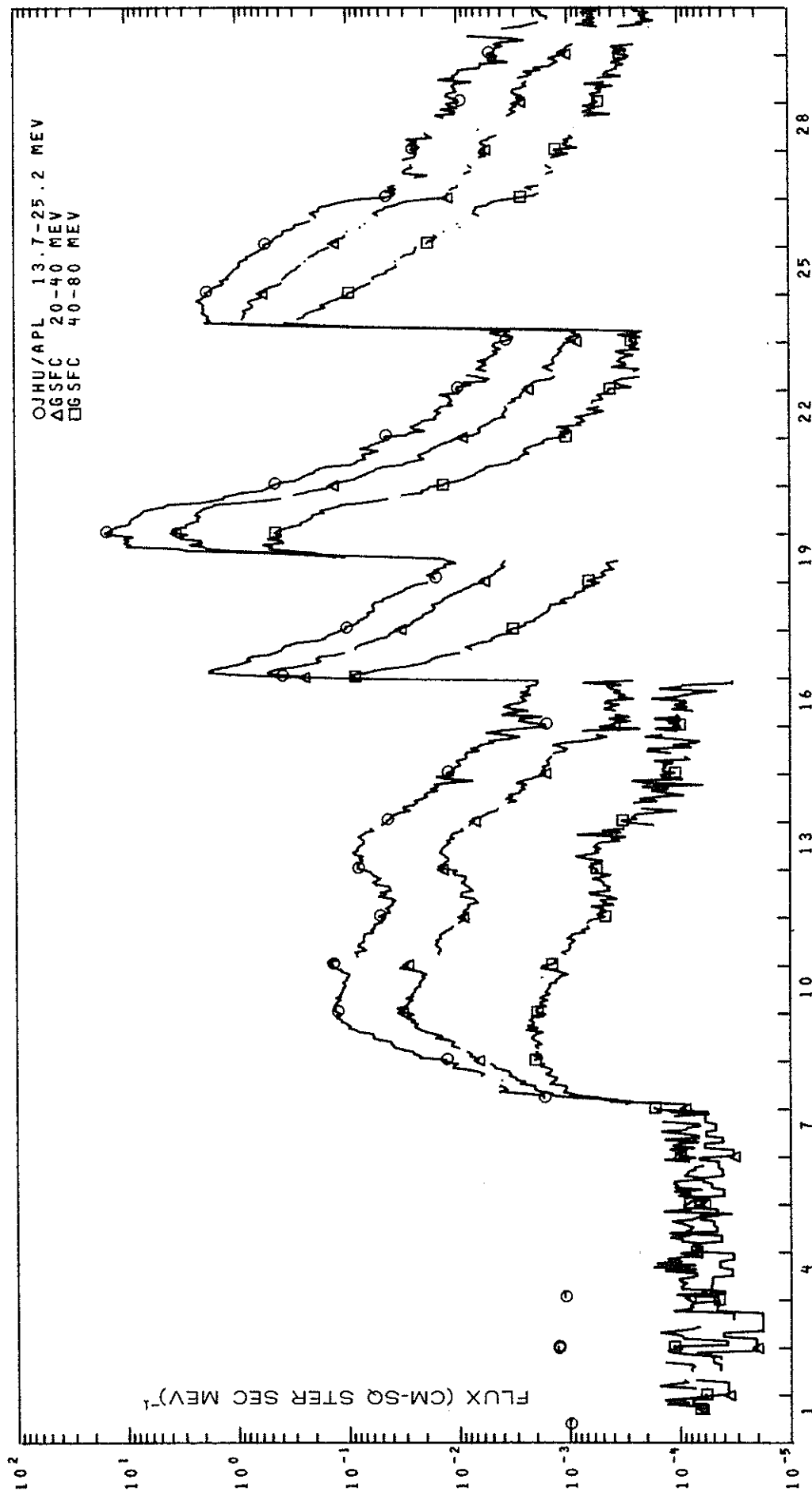
IMP 7 AND 8 INTERMEDIATE ENERGY PROTONS

SEPTEMBER, 1977



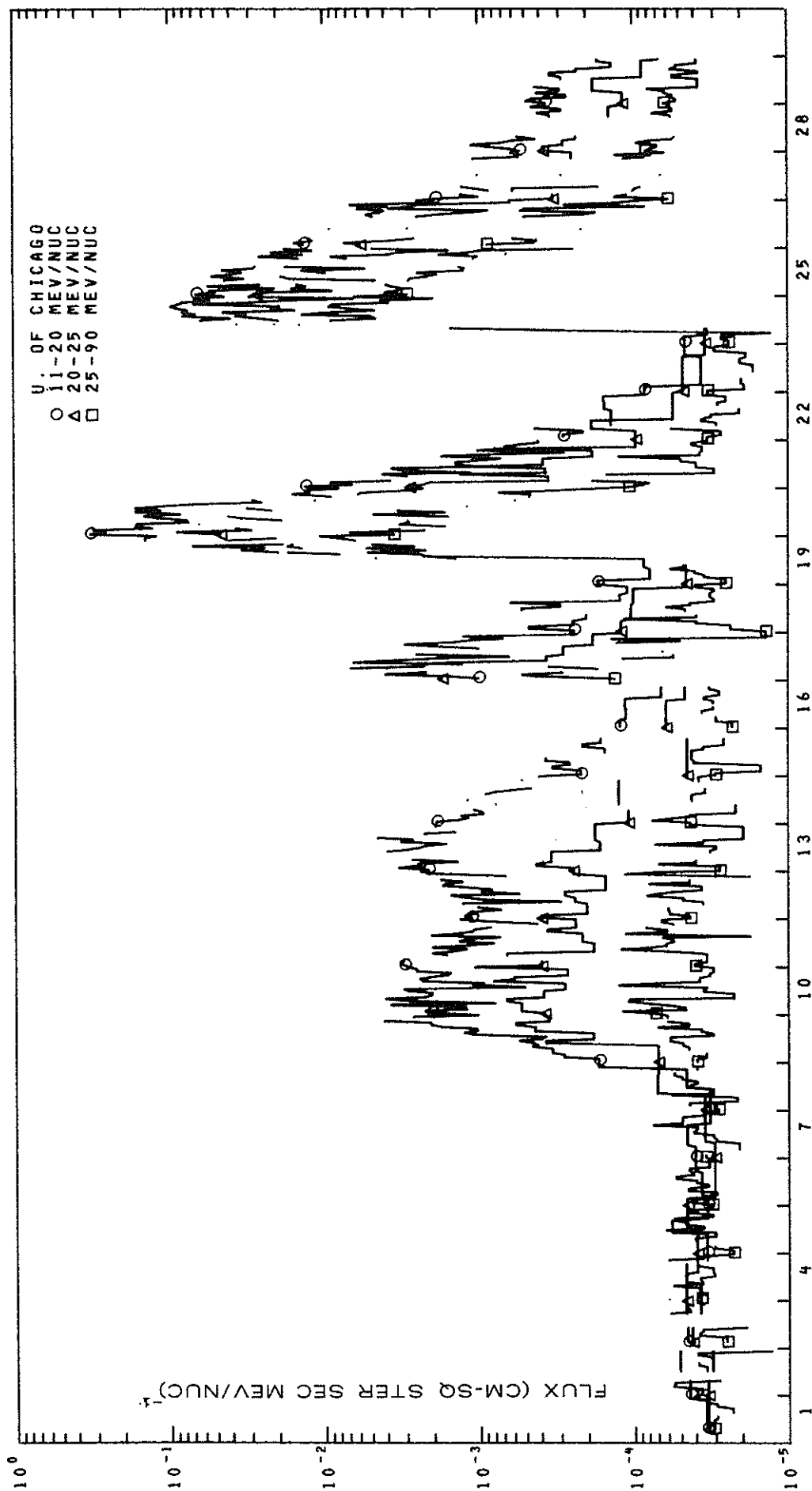
IMP 7 AND 8 HIGH ENERGY PROTONS

SEPTEMBER, 1977



IMP 7 AND 8 ALPHA PARTICLES

SEPTEMBER, 1977



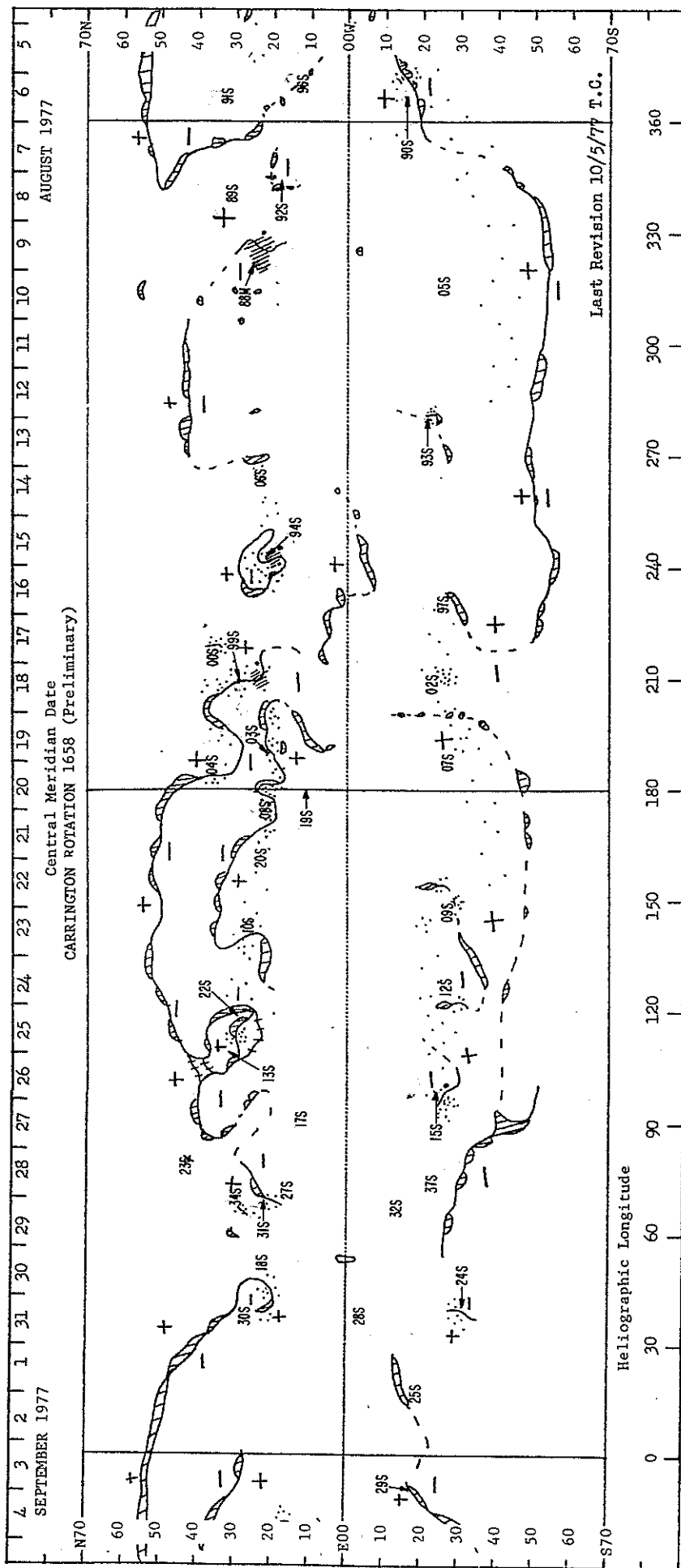
AUGUST 1977 DATA

Contents

	Page
<u>Hα Synoptic Chart</u>	44-45
<u>Abbreviated Calendar Record</u>	46-53
<u>Regional Flare Index</u>	53

H α SYNOPSIS CHART

AUGUST 1977 SEPTEMBER 1977



H α SYNOPSIS CHART

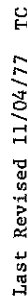
CARRINGTON ROTATION 1659 (PRELIMINARY)

Central Meridian Date
CARRINGTON ROTATION 1659 (Preliminary)

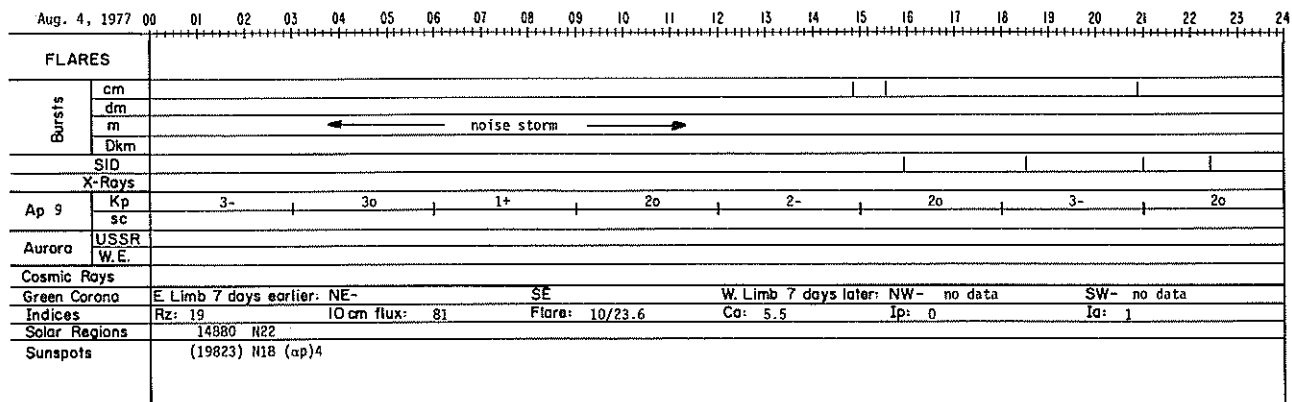
Central Meridian Date

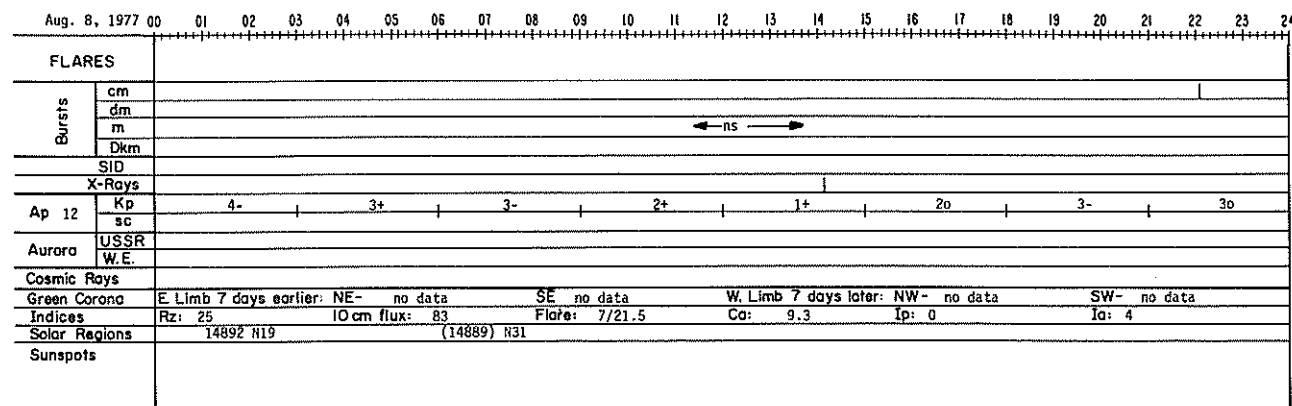
SEPTEMBER 1977

OCTOBER 1977



Heliographic Longitude





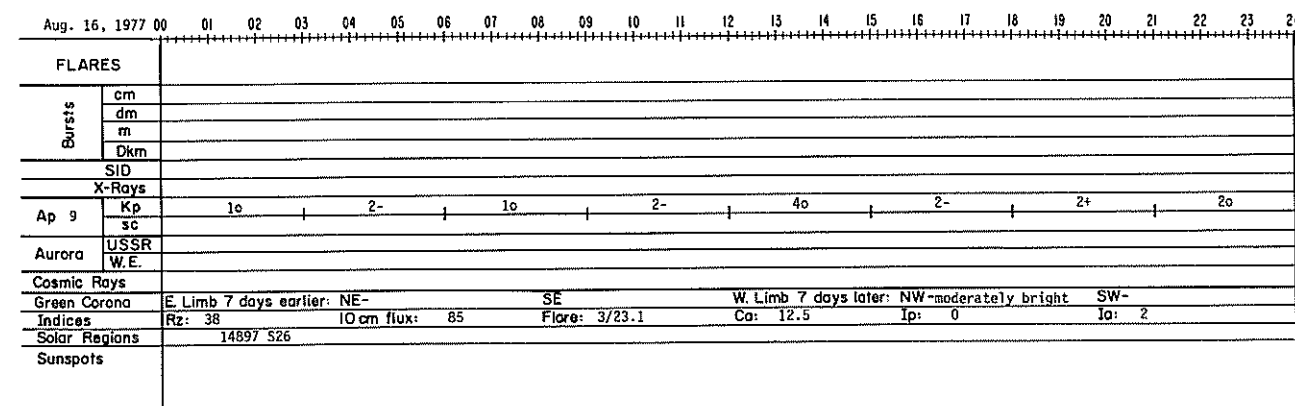
48
Aug 77

Aug. 9, 1977		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
FLARES																													
Bursts	cm																												
	dm																												
	m																												
	Dkm																												
SID																													
X-Rays		1																											
Ap 20	Kp	4p 3p 3- 2p 5- 4- 4- 3p																											
	sc																												
Aurora	USSR																												
	W.E.																												
Cosmic Rays																													
Green Corona		E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- no data SW- no data																											
Indices		Rz: 30 10cm flux: 84 Flare: 40/23.0 Ca: 8.5 Ip: 0 Ia: 3																											
Solar Regions		14888 N24																											
Sunspots		19824 N24 (δ)5																											

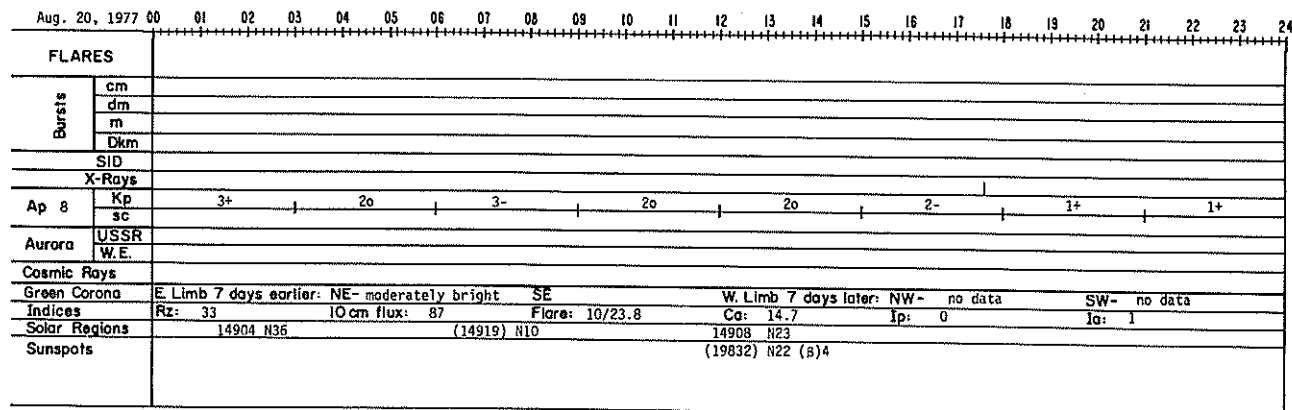
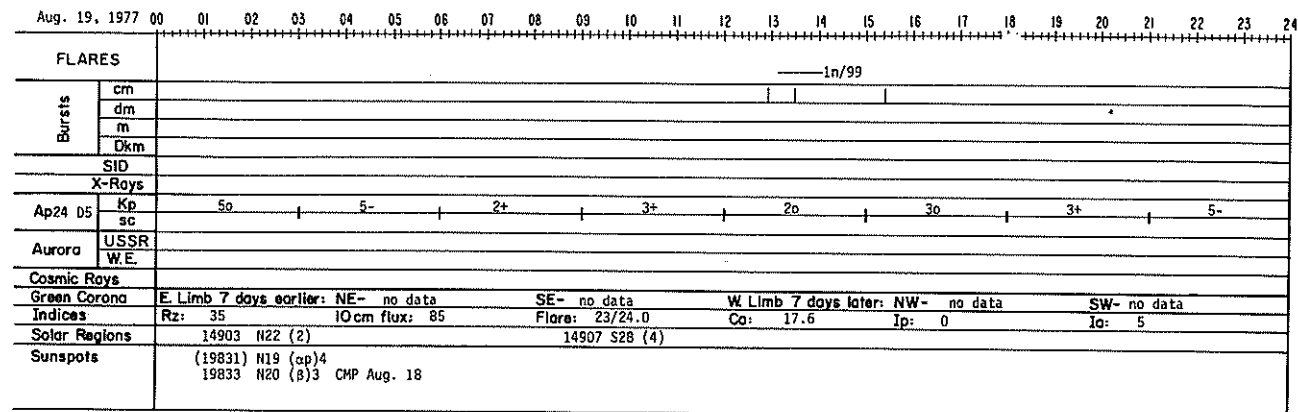
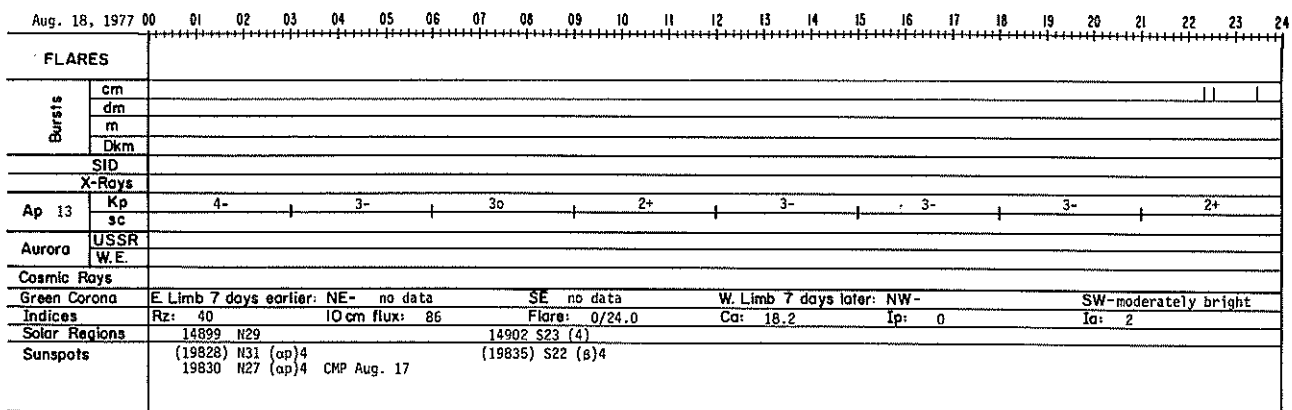
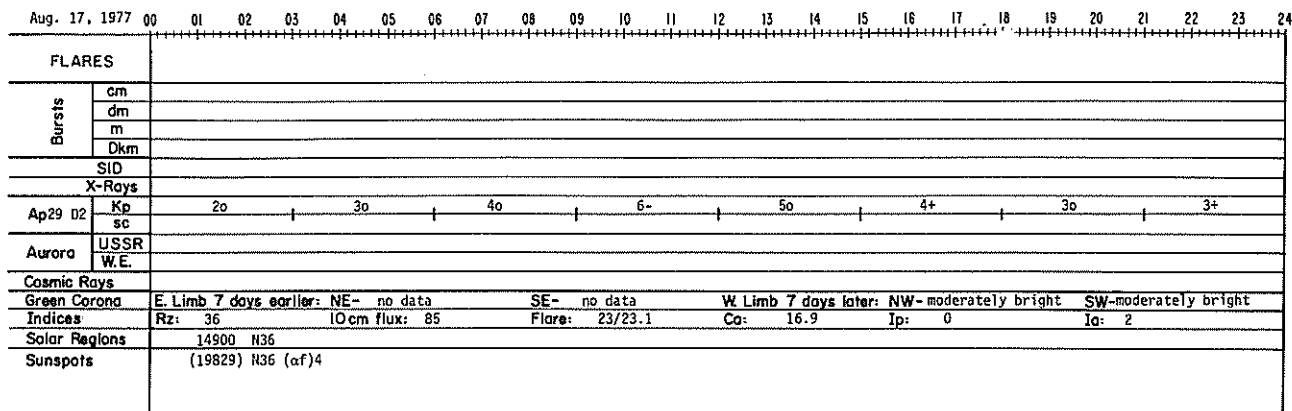
Aug. 10, 197700		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FLARES																									
Bursts	cm																								
	dm																								
	m																								
	Dkm																								
SID																									
X-Rays																									
Ap 12	Kp	3o		3+		3+		2o		2o		2+		3-		2o									
	sc																								
Aurora	USSR																								
	W.E.																								
Cosmic Rays																									
Green Corona	E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- SW-																								
Indices	Rz: 25 10cm flux: 85 Flare: 1/23.9 Ca: 9.4 Ip: 0 Ia: 3																								
Solar Regions		(14905) S26																							
Sunspots																									

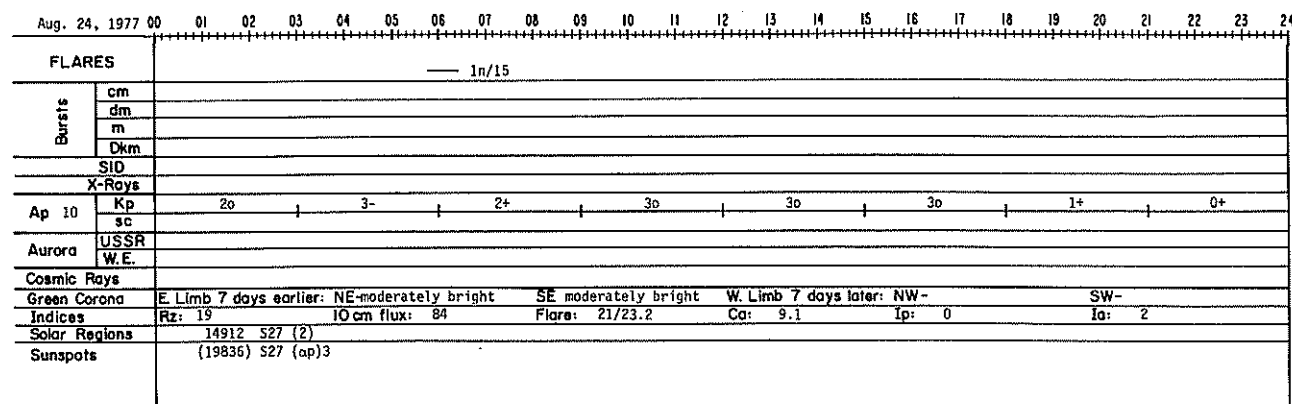
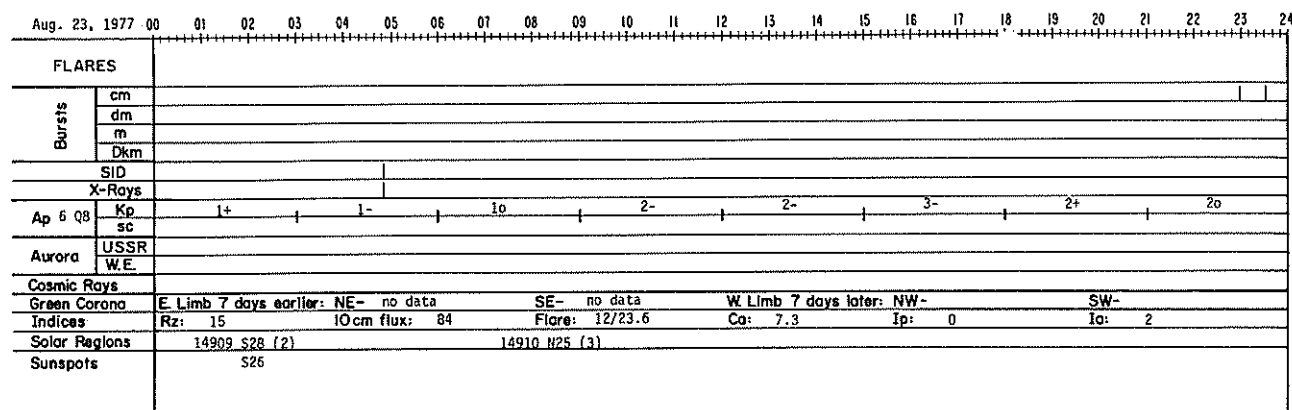
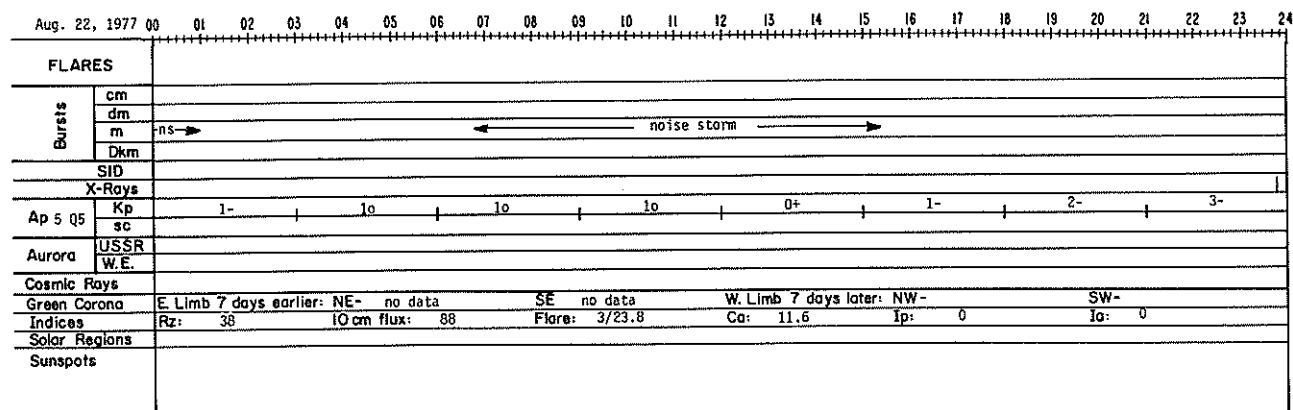
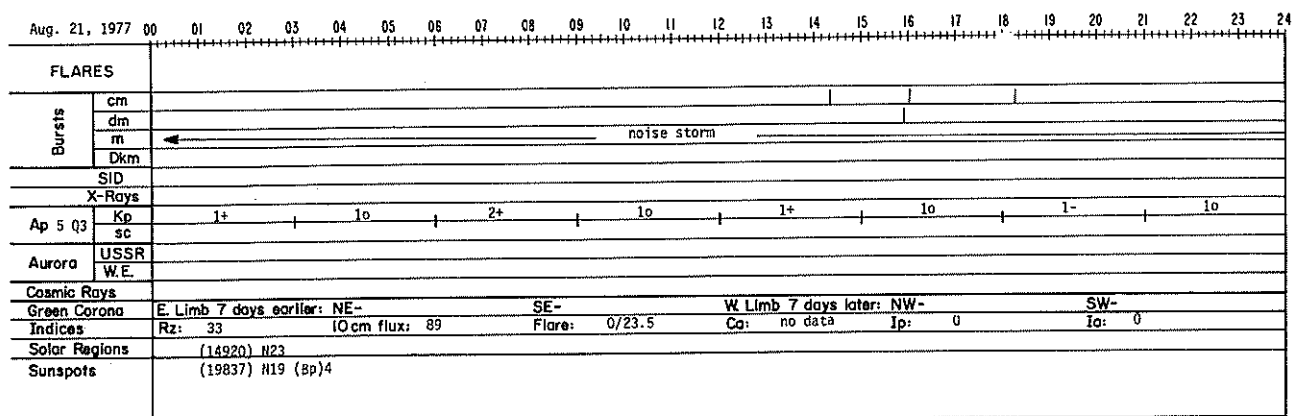
Aug. 11, 1977		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FLARES																											
Bursts	cm																										
	dm																										
	m																										
	Dkm																										
SID																											
X-Rays																											
Ap 28 D3	Kp	3+		4+		4+				3+				4+			3+			5+			4+				
	sc																										
Aurora	USSR																										
	W.E.																										
Cosmic Rays																											
Green Corona	E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- no data SW- no data																										
Indices	Rz: 23 10 cm flux: 85 Flare: 4/23.1 Ca: 10.5 Ip: 0 Ia: 6																										
Solar Regions																											
Sunspots																											

Aug. 12, 1977		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24											
FLARES																																					
Bursts	cm																																				
	dm																																				
	m																																				
	Dkm																																				
SID																																					
X-Rays																																					
Ap 11	Kp	1+			3+				2+				4-				2+				2+				2o			2+									
	sc																																				
Aurora	USSR																																				
	W.E.																																				
Cosmic Rays																																					
Green Corona		E Limb 7 days earlier: NE-						no data						SE						no data						W. Limb 7 days later: NW-						SW-					
Indices		Rz: 29		IO cm flux: 84		Flare: 6/23.5		Cd: 11.6		Ip: 0		Ia: 3																									
Solar Regions		14893 S21																																			
Sunspots		(19825) S22 (af)3																																			

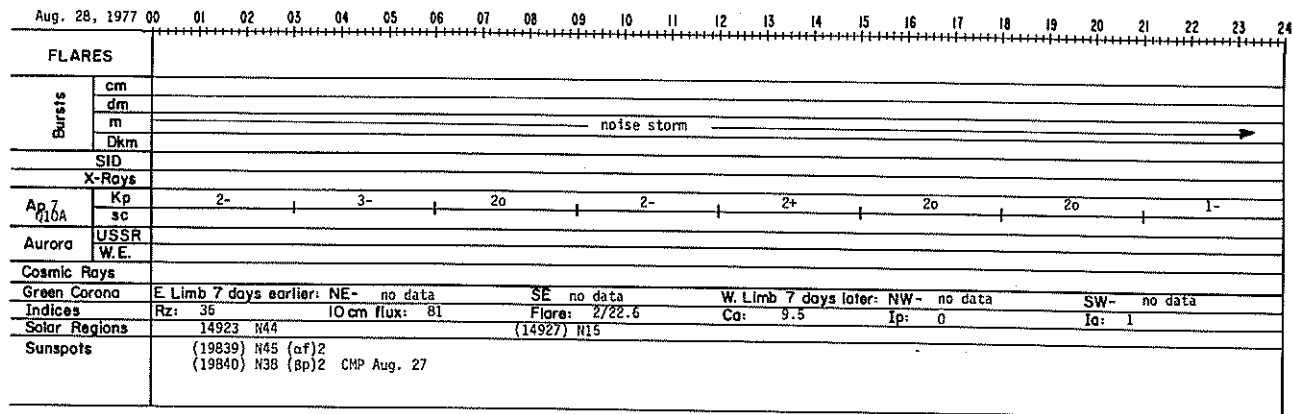
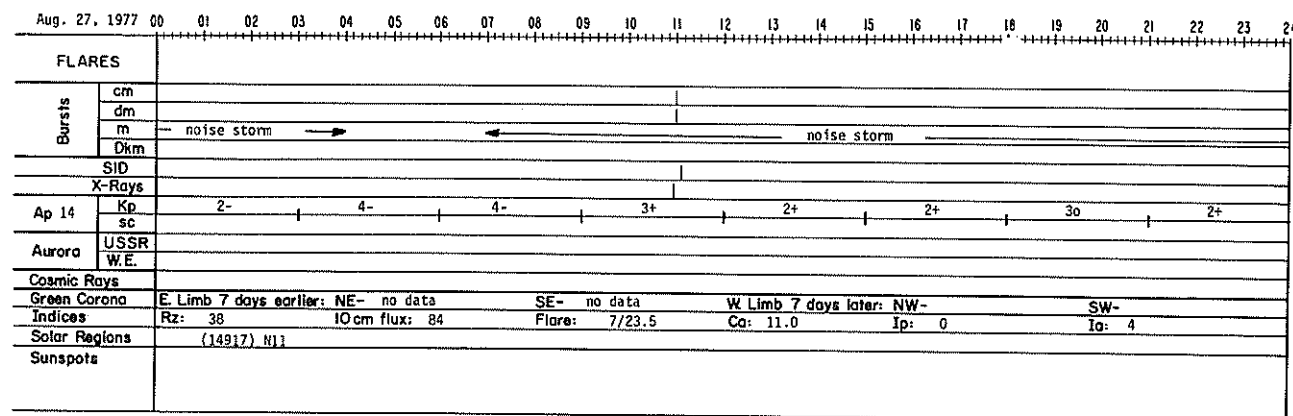
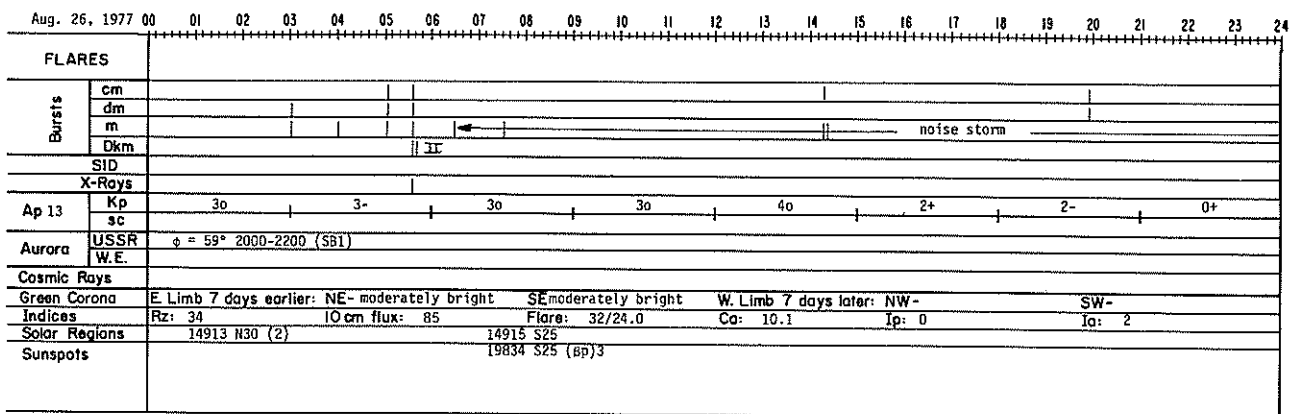
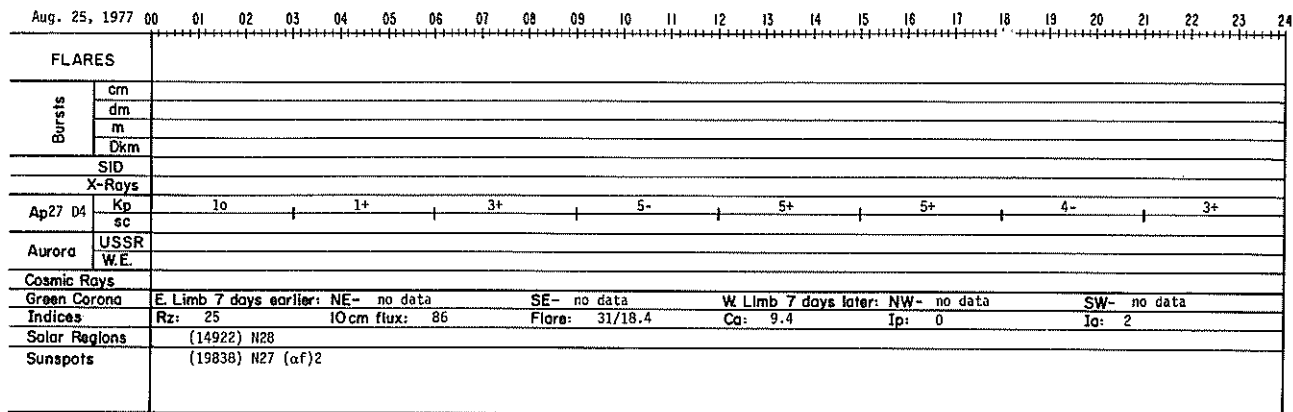


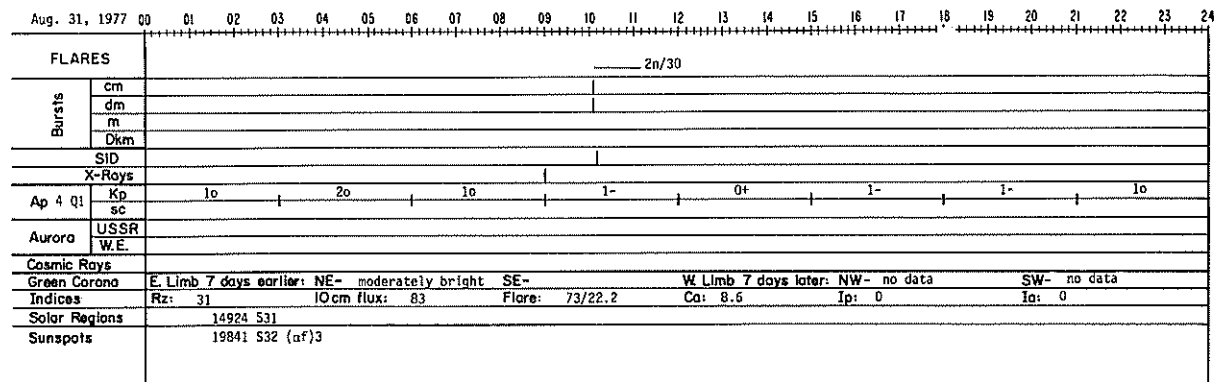
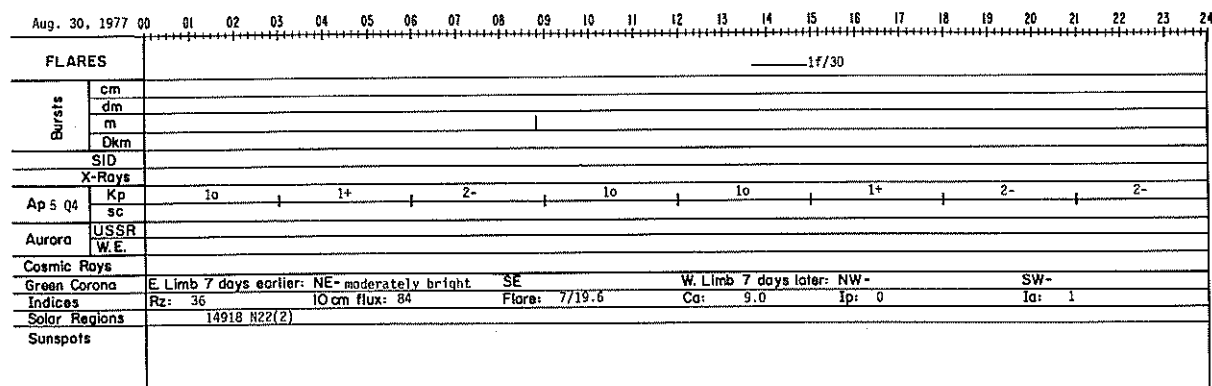
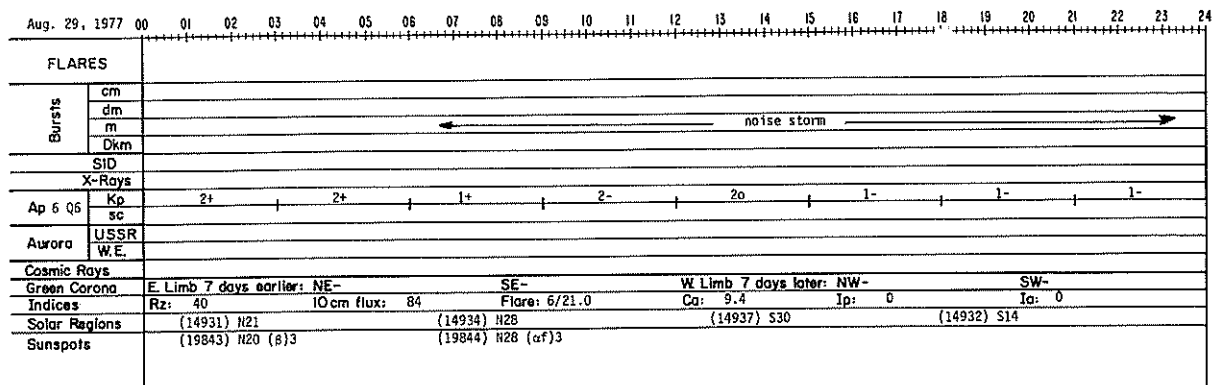
50
Aug 77





52
Aug 77





REGIONAL FLARE INDEX

INCLUDES ALL FLARES -

MU MAIN PLAGE NO.	LAT	CHP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
14888	N22	77/08/04.1	77/08/02	77/08/05	16.16	4.04	4
14888	N24	77/08/09.5	77/08/03	77/08/13	135.99	12.36	44
14893	S21	77/08/12.9	77/08/08	77/08/09	6.67	3.33	4
14894	N21	77/08/15.8	77/08/14	77/08/22	26.89	2.99	15
14897	S26	77/08/16.7	77/08/11	77/08/11	0.00	0.00	1
14899	N30	77/08/18.3	77/08/11	77/08/22	47.97	4.00	12
14902	S22	77/08/18.6	77/08/23	77/08/24	5.08	2.54	3
14903	N22	77/08/19.5	77/08/14	77/08/24	1.38	.13	2
14904	N36	77/08/20.2	77/08/14	77/08/14	2.69	2.69	3
14908	N23	77/08/20.8	77/08/23	77/08/25	5.89	1.96	3
14920	N22	77/08/21.9	77/08/24	77/08/25	12.51	6.26	5
14912	S26	77/08/24.6	77/08/23	77/08/23	3.38	3.38	1
14922	N28	77/08/25.2	77/08/27	77/08/27	3.39	3.39	1
14915	S25	77/08/26.8	77/08/23	77/09/01	80.34	8.83	27
14931	N21	77/08/29.0	77/09/01	77/09/01	2.84	2.84	1
14924	S30	77/08/31.3	77/08/26	77/09/03	3.59	.40	3

Miscellaneous Data

Contents

	Page
<u>Solar Radio Waves</u>	
Spectral Observations, Culgoora, November 1977	56-58
Spectral Observations, Culgoora, December 1977	59-63
<u>Solar Radio Waves</u>	
Selected Events by Radioheliograph, Culgoora, November 1977	64
Selected Events by Radioheliograph, Culgoora, December 1977	65-67
3 cm East-West Scans, Toyokawa, December 1977	68
<u>Geomagnetic Indices</u>	
Sudden Commencements and Solar Flare Effects, December 1977	69

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

NOV 1977	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE				
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND							
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT					
01	0000	0715	CULG	0022.5	0023.5	1	0002	0003	1				IIIG,W				
			CULG				0022.5	0023.5					1	IIIG			
			CULG				0031.5						1	IIIB			
			CULG				0125	0152						IS,W			
			CULG				0649	0649.5					1	0647	0650	1	IIIG
			CULG				2015	2040						IS,W			
	2015	2040	CULG	2104	2400		2023.5		1	IIIB,W							
			CULG				2032.5			IIIB							
			CULG				2107			IS,W							
			CULG				2112			IIIB,W							
			CULG				2349	2349.5		1	IIIB						
			CULG								IIIG,W						
02	0000	0715	CULG	0000	0715		0020	0020.5	1				IS,W				
			CULG				0032	0033					1	IIIG			
			CULG				0033.5						1	IIIG			
			CULG				0650	0715						IIIB			
			CULG				2015	2120					1	IS,W			
			CULG											IS			
03	0000	0715	CULG	0355	0715		0535	0715					IS,W				
			CULG				0647.5	0648					IIIG,W				
			CULG				2015	2016					IIIG,W				
			CULG				2217.5	2218					IIIG,W				
			CULG				2226						IIIB,W				
			CULG				2237						IIIB,W				
04	0000	0716	CULG	0046	0048.5		0136	0136.5	2				IIIG,W				
			CULG				0334.5	0335.5					IIIG				
			CULG				0350.5						IIIG,W				
			CULG				0357	0358.5					1	IIIB,W			
			CULG				0413	0414						IIIG			
			CULG				0417	0418.5					1	IIIG,W			
	2016	2400	CULG	0613	0716		0417	0418.5	2				IIIG				
			CULG				0428						1	IIIB			
			CULG				0503.5							IIIB,W			
			CULG				0618	0716						IS,W			
			CULG				2025	2026						IIIG,W			
			CULG				2328.5	2329					1	FAST DRIFT			
2016	2400	CULG	2328.5	2329	1	2337.5		1				IIIB,U					
		CULG				2347	2359					2					
		CULG				2348.5	2349.5					1	II				
		CULG											IIIG				
		CULG															
		CULG															
06	0000	0340	CULG														
			CULG														
07	0000	0715	CULG	0125	0125.5	1							IIIG				
			CULG				0539	0540						UNCLF,W			
			CULG											HB			
			CULG				0544	0607					2	0603	0607	1	II,
			CULG				0545	0555					1				P
			CULG				0545	0715					1				IV
2015	2400	CULG	0550	0612	1	0540	0715	1				IS					
		CULG															
		CULG															
		CULG															
		CULG															
		CULG															
08	0000	0715	CULG	0257	0258	1	0337.5						IIIG				
			CULG				0440.5	0441						IIIB,W			
			CULG				0449	0449.5						IIIG,W			
			CULG				2038	2039					1	IIIG,W			
			CULG				2040.5	2041.5					1	IIIG			
			CULG											IIIG			
09	0000	0716	CULG	0304	0306.5	1							FAST DRIFT				
			CULG				0437.5	0438					1	FAST DRIFT			
			CULG											IIIG,U			
10	0000	0420	CULG														
			CULG														
			CULG														
2016	2400	CULG	2016	2030		2016	2255					IS,W					
		CULG				2101.5	2102					IIIG,W					

**SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS**
NOVEMBER 1977

NOVEMBER 1977

[illegible]

58
Misc
Nov 77

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS NOVEMBER 1977

NOV 1977	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
18			CULG				0016.5	0017					IIIG,W
			CULG				0607	0711					IIIN,W
			CULG	2018.5		1	2018.5		1				IIIB
			CULG	2018	2400		2018	2400					IS,W
	2018	2400	CULG				2018	2400					IIIN,W
19	0000	0717	CULG	0000	0620		0000	0530					IS,W
			CULG				0038	0039	1				IIIG
			CULG				0101	0102	1				IIIG
			CULG				0515	0520	1				IIIG
	2017	2400	CULG										
20	0000		CULG	0000.5	0001.5	1	0000.5	0001.5	2				IIIG
	0230	0718	CULG				0259	0302	1				II
			CULG	0617	0620	1	0617	0619	2	0617.5	0618	1	IIIG,V,U
	2018	2400	CULG	2326	2327	1	2326	2327	1				IIIG
			CULG	2330	2400								IS,W
21	0000	0717	CULG	0000	0150								IS,W
			CULG				0105	0205	1				IS,C
			CULG				0152	0205					IIIN,W
			CULG				0205	0455					IS,W
	2018	2400	CULG										
22	0000	0718	CULG				0025						IIIB,W
	2019	2400	CULG				2220.5	2221	1				IIIG,U
23	0000	0711	CULG										
	2019	2400	CULG										
24	0000	0719	CULG				0113		1				IIIB
	2019	2400	CULG										
25	0000	0719	CULG										
	2019	2400	CULG										
26	0000	0719	CULG				0649.5	0652.5	1				UNCLF
			CULG				0710	0712.5	1				UNCLF
	2019	2400	CULG										
27	0000	0719	CULG				0152		1				IIIB
			CULG				0302.5						IIIB,W
			CULG				0358	0359	1				IIIG
			CULG				0616	0619					II, W
	2019	2400	CULG										
28	0000	0719	CULG				0137	0139	2				IIIG,U
	2020	2400	CULG				2147.5	2149					IIIG,W
			CULG				2225.5	2226					IIIG,W
			CULG				2240.5						IIIB,W
			CULG				2256	2257	1				IIIG
29	0000	0719	CULG				0209	0211					IIIG,W
			CULG				0548						IIIB,W
			CULG				0628	0629					IIIG,W
			CULG				0643.5						IIIB,W
	2019	2400	CULG										
30	0000	0720	CULG				2105.5		1				IIIB
	2020	2400	CULG				2111	2400					IIIN,W
			CULG				2118.5	2119.5	1				IIIG
			CULG				2144	2145.5	2				IIIG,U
			CULG				2159	2200	1				IIIG,U
			CULG				2202	2203	2				IIIG
			CULG				2206.5	2207	1				IIIG
			CULG				2236.5	2237	1				IIIG,U
			CULG				2256.5	2258	1				IIIG,U
			CULG	2257	2258	1	2308.5	2316	2	2310.5	2312	2	IIIGG
			CULG	2308.5	2316	2	2310		3	2310	2312	2	IIIG,V
			CULG				2351.5	2359	2	2353.5	2354	1	IIIGG

DEC 1977	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE			
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND						
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT				
01	0000	0720	CULG				0000	0720	1					IIIN		
			CULG	0003.5	0007	1	0003.5	0007	2				IIIGG,V			
			CULG	0007.5	0008	1	0007.5	0008	2				IIIG			
			CULG				0150	0151	2				IIIG			
			CULG				0220	0221	2				IIIG			
			CULG	0225.5	0231	2	0224.5	0231	2	0227	0230.5	2	IIIG			
			CULG				0304	0305	2				IIIG			
			CULG				0327.5	0328.5	2				IIIG,U			
			CULG				0350	0354	2	0352.5	0353.5	1	IIIGG,V,U			
			CULG				0359	0359.5	2				IIIG			
			CULG				0403.5	0404	2				IIIG			
			CULG	0406.5	0407	1	0406.5	0408	2	0406.5	0407	1	IIIG			
			CULG				0422	0423.5	2				IIIG,U			
			CULG	0424	0424.5	1	0423.5	0425.5	3				IIIGG			
			CULG	0442.5	0443	1	0442.5	0443	2				IIIG			
	2020	2400	CULG				0514	0515	2				IIIG			
			CULG				0618	0632	2				IIIG,V,N			
			CULG				2019.5	2023.5	2				IIIG			
			CULG				2020	2400	1				IIIN			
			CULG	2114	2121	1	2114	2119	2	2113	2114	1	IIIGG			
			CULG				2216	2217	2				IIIG			
			CULG	2232	2237	2	2231	2237	2	2232.5	2237	2	IIIGG			
			02	0000	0721	CULG				0000	0600	1				IIIN
						CULG	0058	0058.5	1	0058	0058.5	1				IIIG
						CULG				0111		2				IIIB,U
CULG	0118.5	0119.5				1	0118	0122	3	0118	0122	3	IIIGG,V			
CULG							0237.5	0239	2	0238	0239	2	IIIG			
CULG							0358.5		1				IIIB			
CULG							0410		1				IIIB			
CULG							0418		2	0418		2	IIIB			
CULG							0439.5	0440	2	0439.5	0440	1	IIIG			
CULG							0537	0539	2				IIIG,U			
2021	2400	CULG					2022						IIIB,W			
		CULG					2104	2106.5					IIIG,W			
		CULG					2136	2137	2				IIIG			
		03		0000	0722	CULG				0020.5	0021.5	2				IIIG
						CULG				0026.5	0638					IIIN,W
2025	2400		CULG				2106	2107	1				IIIG			
			CULG				2119	2121	1				IIIGG			
04	0000	0722	CULG				0155	0156					IIIG,W			
			CULG				0520	0521	1				IIIG			
			CULG				0605	0606					IIIG,W			
			CULG				2112.5	2114	2				IIIG			
			CULG				2155	2156.5	1				IIIGG			
	2023	2400	CULG				2247.5						IIIB,W			
			CULG				2250.5	2252					IIIG,W			
			CULG				2306	2307	1				IIIG			
			CULG				2318						IIIB,W			
			CULG				2351.5		1				IIIB			
05	0000	0722	CULG				0034	0722					IIIN,W			
			CULG	0257.5	0258.5	1							IIIG			
			CULG	0502.5	0503	1	0502.5	0503	1				IIIG,RS			
	2022	2400	CULG	0505	0506	1	0505	0506	1				IIIG,RS			
			CULG				2022	2400	1				IIIN			
			CULG	2148	2400								IS,W			
			CULG	2307.5	2308	2	2307	2308	2	2308	2308.5	1	IIIGG,U			
CULG	2309	2315.5		2309	2316					IIIGG,U						
06	0000	0723	CULG	0000	0723	1	0000	0723	1				IIIN			
			CULG	0000	0723		0034	0723					IS,W			
			CULG				0103	0104	1				IIIG,U			
			CULG	0143	0146	1							IIIGG,RS			
			CULG				0143	0146	1				IIIGG,U			
			CULG				0159	0200	2				IIIG,U			
			CULG				0207	0207.5	2				IIIG			
			CULG	0257.5	0258.5	1	0257.5	0258.5	2				IIIG			

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

DEC 1977	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE				
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND							
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT					
06	2023	2400	CULG	0337	0339	1	0337	0339.5	2					IIIGG,U			
			CULG	0343		1	0343		1					III8,U			
			CULG	0349	0350	1	0349	0350.5	2	0349	0350	1		IIIGG			
			CULG				2023	2220						IS,W			
			CULG				2023	2400	1					IIIN			
			CULG				2114	2115	2					IIIG			
07	0000	0724	CULG				0000	0724	1					IIIN			
			CULG	0056.5	0100	2	0059	0059.5	1					IIIGG			
			CULG				0127	0127.5	1	0127	0127.5	1		IIIG			
			CULG				0333	0339	2	0333.5	0338	2		IIIGG			
			CULG	0420.5	0421									IIIG,W			
			CULG	0550	0550.5	1	0550	0555	2					IIIGG			
	2024	2400	CULG				0636	0637	2					IIIGG			
			CULG	0642.5	0644	1	0642.5	0644	2	0642.5	0644	2		IIIGG			
			CULG	2024	2400	1	2024	2400	2					IIIN			
			CULG	2117.5	2118	1	2117.5	2119	3	2117.5	2118	2		IIIG,V			
			CULG				2145	2146	2	2145.5	2146	2		IIIG			
			CULG				2236	2239	2	2237.5	2238	1		IIIGG,V			
			CULG				2255.5	2257.5	2	2256	2257	1		IIIG			
			CULG	2330	2400									IS,W			
			08	0000	0723	CULG	0000	0220		0120	0430						IS,W
						CULG	0000	0723	1	0000	0723	2					IIIG,N
						CULG	0022.5	0023	1	0022	0023.5	2	0022.5	0023.5	2		IIIGG,V
						CULG	0034	0036	1	0034	0036	2					IIIG,V,U
CULG							0257	0305	2					II, HB			
CULG	2025	2400				1	2050	2400	1					IIIN			
2025	2400	CULG	2052.5	2053	1	2052	2054	2					IIIG				
		CULG	2320	2330									IS,W				
		CULG				2348.5	2351	2					IIIG				
		CULG				2355.5	2356.5	2	2355.5	2356	2		IIIG				
		CULG				2359.5	2401	2	2400	2400.5	2		IIIG				
		09	0000	0724	CULG	0000	0724	1	0000	0724	2					IIIN	
					CULG				0034	0038.5	3	0034.5	0038.5	2		IIIGG	
					CULG	0652	0653	1	0650	0654.5	2	0652	0653	1		IIIGG	
					CULG	0712.5	0715	2	0712.5	0715	2					IIIGG	
					CULG	2025	2400		2025	2400						IS,W	
					CULG				2025	2400	1					IIIN	
		2025	2400	CULG				2333.5	2334.5	2	2333.5	2334	1		IIIG		
10	0000			0725	CULG	0000	0725		0000	0725					IS,W		
					CULG				0000	0725	1					IIIN	
					CULG				0114	0115.5	1					IIIG,U	
					CULG				0214.5	0215.5	2	0214.5	0215.5	1		IIIG	
					CULG				0233.5	0237	2	0234	0236	2		IIIG,V	
					CULG							0310	0335	1		SWF	
2025	2400			CULG				0313	0338	1					II		
				CULG	0317	0725	2	0323	0725	2					IV		
				CULG				0612	0617	2	0612	0615.5	1		IIIGG,V		
				CULG				0618.5	0631	2					II, HB		
				CULG	2025	2400		2025	2400						IS,W		
		CULG				2025	2400	1					IIIS				
2025	2400	CULG				2057	2100	2					IIIGG				
		CULG				2111.5	2112.5	1					IIIG				
		CULG	2152.5	2153	1	2152.5	2153	2					IIIG				
		11	0000	0725	CULG	0000	0515		0000	0515					IS,W		
					CULG				0000	0725						IIIS,W	
					CULG	0515	0725	1	0515	0725	1					IS,DC	
CULG	2025				2400		2025	2400						IS,W			
CULG							2025	2400	1					IIIS			
CULG							2201.5	2206.5	1					IIIGG			
12	0000	0725	CULG				0000	0725					IIIS,W				
			CULG	0000	0725	1	0000	0725	1					IS			
			CULG	0037.5	0038.5	2	0037.5	0038.5	2					IIIG,U			
			CULG	0039	0040.5	2	0039	0040.5	2					IIIG,U			

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

DECEMBER 1977

61
Misc
Dec 77

DEC 1977	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE	
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT		
12			CULG	0235	0725	1								IIIN
	2026	2400	CULG				0649	0651	3	0649	0650.5	2		IIIG
			CULG	2026	2400		2026	2400						IIIS,W
			CULG				2026	2400						IS,W
13	0000	0712	CULG				0000	0115	1					IS
			CULG	0000	0220									IS,W
			CULG				0000	0712						IIIN,W
			CULG				0115	0712						IS,W
			CULG	0220	0305	1								IS
			CULG	0305	0712									IS,W
			CULG	0420	0421.5									IIIG,W
	2026	2400	CULG				2026	2400	1					IS,DC
			CULG	2026	2400		2026	2400	1					IIIS
			CULG											IS,W
14	0000	0726	CULG				0000	0430						IIIS,W
			CULG	0000	0726	1	0000	0726						IS,W
			CULG	0124	0320	1								IIIN
	2026	2400	CULG				0148.5		1					IIIB,U
			CULG				2210							IIIB,W
15	0000	0727	CULG				0323							IIIB,W
	2028	2400	CULG											
16	0000	0727	CULG				0338	0341	1					IIIG
			CULG				0711							IIIB,W
	2028	2400	CULG				2205	2207	1					IIIG
			CULG				2323	2325	1					IIIG
17	0000	0728	CULG				0338.5							IIIB,U,W
	2029	2400	CULG											
18	0000	0713	CULG				0205.5							IIIB,W
	2029	2400	CULG				2029	2230						IS,W
			CULG				2102							IIIB,W
			CULG				2111							IIIB,W
			CULG	2330	2350									IS,W
			CULG				2343	2344						IIIG,W
19	0000	0729	CULG				0204	0647						IIIN,W
	2030	2400	CULG				2030	2400						IS,W
			CULG				2034	2035	1					IIIG
			CULG				2044	2045						IIIG,W
20	0000	0730	CULG				0000	0050						IS,W
	2030	2400	CULG				2030	2335						IS,W
			CULG	2244.5	2245		2244.5	2245						IIIG,W
			CULG				2347.5	2348.5						IIIG,W
			CULG				2350	2350.5						IIIG,W
21	0000	0730	CULG				0116.5							IIIB,W
			CULG				0143.5		1					IIIB
			CULG				0222.5	0223.5	2					IIIG
			CULG				0224	0225						IIIG,W
			CULG				0233.5							IIIB,W
			CULG				0321	0321.5						IIIG,W
			CULG	0419.5		1	0419.5		1					IIIB
			CULG				0705							IIIB,W
	2030	2400	CULG	2030	2400		2030	2400						IIIN,W
			CULG	2151	2152	1	2151	2152	1					IIIG
22	0000	0730	CULG	0000	0630		0000	0630						IS,W
			CULG				0000	0730						IIIN,W
			CULG	0630	0730	1	0630	0730	1					IS
			CULG				2030	2400	1					IIIN
	2030	2400	CULG	2030	2400		2030	2400						IS,W
			CULG				2051.5	2057	1					IIIGG
			CULG	2102.5	2103.5	1	2102.5	2104	1					IIIGG
			CULG				2204	2204.5	1					IIIG

62
Misc
Dec 77

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS DECEMBER 1977

DEC 1977	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
23	0000	0730	CULG	0000	0730		0000	0730					IS,W
			CULG				0000	0730	1				IIIN
			CULG				0104		2				IIIB
			CULG	0228	0228.5	1	0228	0229.5	2	0228.5	0229.5	2	IIIGG
			CULG	0633.5	0642	2	0633.5	0642	2	0635.5	0637	2	IIIGG
			CULG				0655	0656	2				IIIG
2046	2400	CULG	2046	2400		2046	2400					IS,W	
		CULG	2046	2142	1	2046	2400	1				IIIN	
24	0000	0731	CULG	0000	0731		0000	0731					IS,W
			CULG				0000	0731	1				IIIN
			CULG	0007.5	0010.5	1	0007.5	0022	1				IIIGG
			CULG	0322.5	0323	1	0322.5	0323	2				IIIG
			CULG	0326.5	0327	2	0326.5	0327.5	2				IIIG,U
			CULG	0653.5	0654.5	1	0653.5	0654.5	1				IIIG
	2031	2400	CULG				2031	2400	1				IS
			CULG	2031	2400								IS,W
			CULG				2031	2400					IIIS,W
			CULG				2224	2225	1				IIIG
25	0000	0732	CULG				0000	0045	1				IS,DC
			CULG	0000	0732								IS,W
			CULG				0000	0030					IIIN,W
			CULG				0030	0732					IIIN,W
			CULG				0045	0510					IS,W
			CULG				0349	0350	1				IIIG
	2039	2220	CULG				0408	0417	1	0416	0417	1	IIIGG
			CULG				0440	0445	2	0442	0443	2	IIIG
			CULG	0557.5	0605	1	0557	0604	2	0559.5	0603	1	IIIGG,U
			CULG	2039	2220								IS,W
			CULG				2039	2220	1				IIIN
			CULG				2300	2400					IIIN,W
26	0000	0732	CULG				0204	0205					II, W
			CULG	0250	0732								IS,W
			CULG				0253.5	0254.5					IIIG,W
			CULG	0312	0708		0000	0732					IIIN,W
			CULG	0429	0431	1	0429	0431	1	0429.5	0431	1	IIIG,U
			CULG				2035	2400	1				IIIN
	2035	2400	CULG				2035	2235					IS,W
			CULG	2058	2059	1	2058	2101.5	2	2058.5	2059	2	IIIGG
			CULG				2302	2305	2	2302.5	2305	2	IIIG,V
			CULG	2337	2342	1	2336	2339	2				IIIGG
27	0000	0733	CULG				0000	0733					IIIN,W
			CULG	0052	0105								IS,W
			CULG	0705	0706	1	0705	0706.5	2	0705	0706.5	1	IIIG,V
			CULG	0706.5	0708	1							IIIG
			CULG	2045	2400	1	2034	2400	2				IIIN
28	0000	0315	CULG				0000	0315	1				IIIN
			CULG	0103	0315								IS,W
			CULG				0300	0530	2				IIIG,N
			CULG										
			CULG	0445	0700		0446.5	0447.5	1				IS,W
			CULG	0447	0447.5	1	0503	0745					IIIGG
	0430	0745	CULG				0639.5	0640.5	2	0639.5	0640.5	2	IIIN
			CULG				0639	0642.5	1				IIIGG
			CULG	2124	2400	1	2114	2400	1				IS
			CULG				2217.5	2221	2	2218	2221	2	IIIGG
			CULG				2320.5	2327.5	1	2320.5	2326	1	IIIGG
29	0000	0734	CULG				0000	0330					IS,W
			CULG				0006	0011	2	0006.5	0007.5	1	IIIGG
			CULG				0128	0633					IIIN,W
			CULG				2055	2204					IIIN,W
30	0000	0420	CULG				0024	0420					IIIN,W
			CULG	0408	0412	1							IIIGG,U

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

DECEMBER 1977

DEC 1977	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE	
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT		
30			CULG				0412	0416	1	0410	0420	1	II	SWF
	0458	0735	CULG				0458	0525						IIIN,W
	2035	2400	CULG	2035	2400		2115	2340						IS,W
			CULG											IIIN,W
31	0000	0735	CULG	0000	0735									IS,W
			CULG	0109	0331		0016	0415						IIIN,W
	2035	2400	CULG				2035	2036	1					IIIG
			CULG	2148	2400									IS,W
			CULG	2153.5	2155	1	2153.5	2155	1					IIIG
			CULG				2238							IIIB,W
			CULG				2244							IIIB,W

64
Misc
Nov 77

SELECTED SOLAR EVENTS

NOVEMBER 1977

Culgoora

UT Date 1977. NOVEMBER	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions		Polar- ization	Inten- sity (1-3)		
				Central Dist. (R _g)	Position Angle (Deg.)				
5	2347	2356	80	1.2	115	-	3	II	Flare from behind the limb.
14	2319	2321	43.25) 80) 160)	1.2 1.1 1.1	55	-	3) 2) 1)	IIIGG,U	*
14/15	2300	0500	160	1.0	270	Unpol	1	I	
16	0239	0241	160	1.0	270	-	3	IIIG,U	*This region produced type III activity until 18
17	0107	0109	43.25) 80) 160)	1.2 1.2 1.1	270	-	3	IIIG,V,U	*
17/18	2300	0500	80) 160)	.9	50	ℓ	1) 2)	I	This region persisted from 16th until 21st
27	0358	0359	80) 160)	.8	40	-	2) 1)	IIIG	
28	0137	0139	80) 160)	1.1	125	-	3) 2)	IIIG,U	

Days without Heliograph observations:20th.....

* Other type III's observed from same position during the day.

SELECTED SOLAR EVENTS

DECEMBER 1977

Culgoora

UT Date 1977	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions		Polar- ization	Inten- sity (1-3)		
				Central Dist. (R _s)	Position Angle (Deg.)				
December									
1	0003	0005	43.25) 80) 160)	1.0	130	-	3	IIIGG,V	*Type III activity persisted from this region until 3rd Dec.
6	0031	0104	80) 160)	.7	200	R)))	Not recor- ded	I IIIGG,U*	*
	0143	0144	160	.1	250	-))		IIIGG	
	0349	0350	80) 160)	1.0	165	-)			
7	0333	0339	43.25) 80) 160)	1.1	230	-	3	IIIGG	
7/8	2304	2305	43.25) 80) 160)	.8	245	-)))	3 2 1	IIIG	*Type III activity persisted from this region until 10 Dec.
	0022	0024	43.25) 80) 160)	1.1	110	-)))	3 3 2	IIIGG,V	*Type III activity persisted until 10 Dec.
	0034	0036	43.25) 80) 160)	1.1 .9 .9	330	-	3	IIIG,V,U	*Type III activity persisted until 9 Dec.
	0257	0303	43.25) 80) 160)	1.1	110	-)))	3 3 2	II	
8	2355	2357	43.25) 80) 160)	.8	180	-)))	3 3 1	IIIG	*

Days without Heliograph observations:NIL.....

*Other type III's observed from same position during the day.

66
Misc
Dec 77

SELECTED SOLAR EVENTS

DECEMBER 1977

Culgoora

UT Date 197.7	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions		Polar- ization	Inten- sity (1-3)		
				Central Dist. (R _g)	Position Angle (Deg.)				
DECEMBER									
9/10	2330	0414	160	.9	150	Varying	1	I	This complex type I region persisted until 14th
	0048	0049	43.25) 80) 160)	1.1	105	-)))	3 2 2	IIIG	*
	0114	0115	43.25) 80) 160)	.2	140	-)))	3 2 2	IIIG,U	*
	0233	0236	43.25) 80) 160)	.9	115	-)))	3 2 2	IIIG,V	*
	0310	0414	43.25) 80) 160)	.2	140	See note	3	(II (IV	Complete source structure polar- ization of type IV developing into RH
11	0127	0132	80) 160)	1.1	255	R	2	I	Type I persisted from this region until 12th
17/18	2300	0500	160	1.1	70	Varying	2	I	Type I activity persisted until 25 Dec.
21	0222	0225	43.25) 80) 160)	1.0	70	-)))	3 3 2	IIIG	Type III activity from this region persisted inter- mittently until 24th
24	0326	0328	43.25) 80) 160)	.8	0	-	3	IIIG,U	*

Days without Heliograph observations:NIL.....

*Other type III's observed from same position during the day.

SELECTED SOLAR EVENTS

DECEMBER 1977

Culgoora

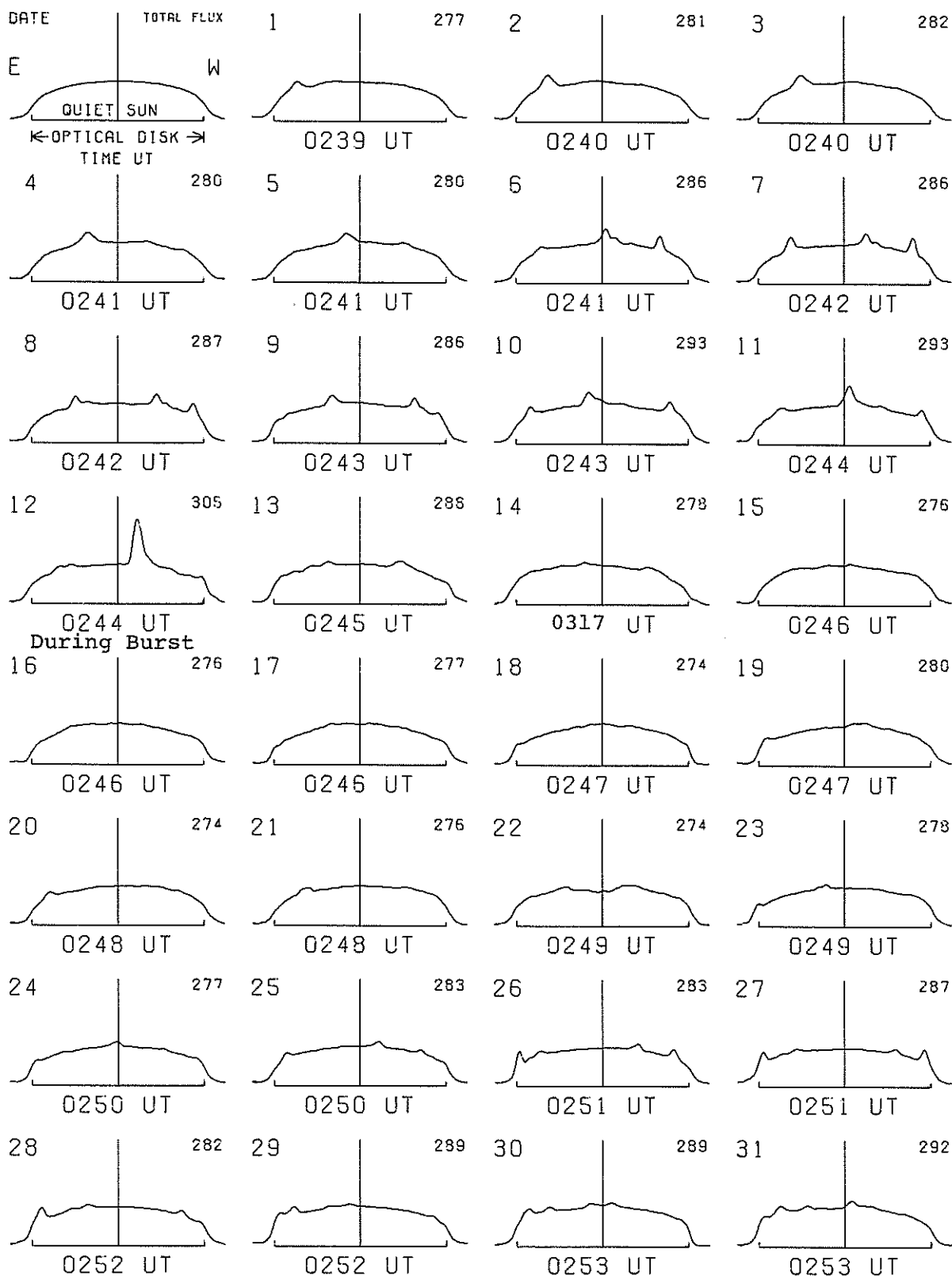
UT Date 197..7 DECEMBER	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions		Polar- ization	Inten- sity (1-3)		
				Central Dist. (R _o)	Position Angle (Deg.)				
25	0440	0444	43) 80)	1.0	115	-))	3 2	IIIG	This type I region persisted intermittently until 28 Dec., accompanied by type III activity. *Type III activity from this region also on 28th
	0310	0330	160	.9	260	r	1	I	
26	0200	0201	80) 160)	.6 .5	290	-	2	IIIG	
	0203	0257	80) 160)	1.1	105	r-R	2	II	
	2336	2342	43.25 80 160	1.2 1.1	295	-	3	IIIGG	
28	2327	2328	43.25) 80) 160)	1.2	50) 70) 85)	-	3 2 1	IIIG	
29	0005	0009	43.25) 80) 160)	1.0 .9 .8	320	-	3 3 2	IIIGG	
30	0029	0030	160	.5	320	-	2	IIIG	
	0411	0414	80) 160)	.5	320	-	3	II	
30/31	2300	0500	160	.5	330	R	1	I	

Days without Heliograph observations:NIL.....

EAST-WEST SOLAR SCANS DECEMBER 1977

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

69
Misc
Dec 77

DECEMBER 1977

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS (by Dr. A. Romana).
The meaning of the station symbols is given in the IAGA-Bulletin nr. 32.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc),

01 2029 A: SO LM; B: WN FU HB KS; C: TL

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

10 0307 - 0337 MT KA KY

26 2226 - 2352 KA

30 0409 - 0446 MT KA KY

Very unusual events

28 1942 bp CZ (---)

1955 bp KG (+280 γ -130 γ +130 γ)

1955-2029 pi 1-2 WN (60s 25 γ within bps)

1957-2025 pg FU (within b, large pi2)

1959 bps WI (+-)

UAG Series of Reports

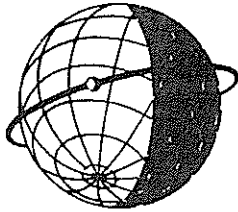
Prepared by World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado, U.S.A.

These reports are for sale through the National Climatic Center, Federal Building, Asheville, NC 28801, Attn: Publications. Subscription price: \$25.20 a year; \$12.00 additional for foreign mailing; single copy price varies. These reports are issued on an irregular basis with 6 to 12 reports being issued each year. Therefore, in some years the single copy rate will be less than the subscription price, and in some years the single copy rate will be more than the subscription price. Make check or money order payable to: Department of Commerce, NOAA.

Some issues are now out of print and are available only on microfiche as indicated. Requests for microfiche should be sent to World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, CO 80302, with check or money order made payable to Department of Commerce, NOAA.

- UAG-1 "IQSY Night Airglow Data", price \$1.75.
- UAG-2 "A Reevaluation of Solar Flares, 1964-1966", price 30 cents.
- UAG-3 "Observations of Jupiter's Sporadic Radio Emission in the Range 7.6-41 MHz, 6 July 1966 through 8 September 1968", microfiche only, price 45 cents.
- UAG-4 "Abbreviated Calendar Record 1966-1967", price \$1.25.
- UAG-5 "Data on Solar Event of May 23, 1967 and its Geophysical Effects", price 65 cents.
- UAG-6 "International Geophysical Calendars 1957-1969", price 30 cents.
- UAG-7 "Observations of the Solar Electron Corona: February 1964-January 1968", price 15 cents.
- UAG-8 "Data on Solar-Geophysical Activity October 24-November 6, 1968", price (includes Parts 1 & 2) \$1.75.
- UAG-9 "Data on Cosmic Ray Event of November 18, 1968 and Associated Phenomena", price 55 cents.
- UAG-10 "Atlas of Ionograms", price \$1.50.
- UAG-11 "Catalogue of Data on Solar-Terrestrial Physics" (now obsolete).
- UAG-12 "Solar-Geophysical Activity Associated with the Major Geomagnetic Storm of March 8, 1970", price (includes Parts 1-3) \$3.00.
- UAG-13 "Data on the Solar Proton Event of November 2, 1969 through the Geomagnetic Storm of November 8-10, 1969, price 50 cents.
- UAG-14 "An Experimental, Comprehensive Flare Index and Its Derivation for 'Major' Flares, 1955-1969", price 30 cents.
- UAG-15 "Catalogue of Data on Solar-Terrestrial Physics" (now obsolete).
- UAG-16 "Temporal Development of the Geographical Distribution of Auroral Absorption for 30 Substorm Events in each of IQSY (1964-65) and IASY (1969)", price 70 cents.
- UAG-17 "Ionospheric Drift Velocity Measurements at Jicamarca, Peru (July 1967-March 1970)", microfiche only, price 45 cents.
- UAG-18 "A Study of Polar Cap and Auroral Zone Magnetic Variations", price 20 cents.
- UAG-19 "Reevaluation of Solar Flares 1967", price 15 cents.
- UAG-20 "Catalogue of Data on Solar-Terrestrial Physics" (now obsolete).
- UAG-21 "Preliminary Compilation of Data for Retrospective World Interval July 26 - August 14, 1972", price 70 cents.
- UAG-22 "Auroral Electrojet Magnetic Activity Indices (AE) for 1970", price 75 cents.
- UAG-23 "U.R.S.I. Handbook of Ionogram Interpretation and Reduction", price \$1.75.
- UAG-24 "Data on Solar-Geophysical Activity Associated with the Major Ground Level Cosmic Ray Events of 24 January and 1 September 1971", price (includes Parts 1 and 2) \$2.00.
- UAG-25 "Observations of Jupiter's Sporadic Radio Emission in the Range 7.6-41 MHz, 9 September 1968 through 9 December 1971", price 35 cents.
- UAG-26 "Data Compilation for the Magnetospherically Quiet Periods February 19-23 and November 29 - December 3, 1970", price 70 cents.
- UAG-27 "High Speed Streams in the Solar Wind", price 15 cents.
- UAG-28 "Collected Data Reports on August 1972 Solar-Terrestrial Events", price (includes Parts 1-3) \$4.50.
- UAG-29 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1968", price 75 cents.
- UAG-30 "Catalogue of Data on Solar-Terrestrial Physics", price \$1.75.
- UAG-31 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1969", price 75 cents.
- UAG-32 "Synoptic Radio Maps of the Sun at 3.3 mm for the Years 1967-1969", price 35 cents.
- UAG-33 "Auroral Electrojet Magnetic Activity Indices AE (10) for 1967", price 75 cents.
- UAG-34 "Absorption Data for the IGY/IGC and IQSY", price \$2.00.
- UAG-35 "Catalogue of Digital Geomagnetic Variation Data at World Data Center A for Solar-Terrestrial Physics", price 20 cents.
- UAG-36 "An Atlas of Extreme Ultraviolet Flashes of Solar Flares Observed Via Sudden Frequency Deviations During the ATM-SKYLAB Missions", price 55 cents.
- UAG-37 "Auroral Electrojet Magnetic Activity Indices AE (10) for 1966", price 75 cents.
- UAG-38 "Master Station List for Solar-Terrestrial Physics Data at WDC-A for Solar-Terrestrial Physics", price \$1.60.
- UAG-39 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1971", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, February 1975, 144 pages, price \$2.05.
- UAG-40 "H-Alpha Synoptic Charts of Solar Activity For the Period of Skylab Observations, May, 1973-March, 1974", by Patrick S. McIntosh, NOAA Environmental Research Laboratories, February 1975, 32 pages, price 56 cents.
- UAG-41 "H-Alpha Synoptic Charts of Solar Activity During the First Year of Solar Cycle 20, October, 1964 - August, 1965", by Patrick S. McIntosh, NOAA Environmental Research Laboratories, and Jerome T. Nolte, American Science and Engineering, Cambridge, Massachusetts, March 1975, 25 pages, price 48 cents.
- UAG-42 "Observations of Jupiter's Sporadic Radio Emission in the Range 7.6-80 MHz 10 December 1971 through 21 March 1975", by James W. Warwick, George A. Dulk, and Anthony C. Riddle, Department of Astro-Geophysics, University of Colorado, Boulder, Colorado 80302, April 1975, 49 pages, price \$1.15.
- UAG-43 "Catalog of Observation Times of Ground-Based Skylab-Coordinated Solar Observing Programs", compiled by Helen E. Coffey, World Data Center A for Solar-Terrestrial Physics, May 1975, 159 pages, price \$3.00.
- UAG-44 "Synoptic Maps of Solar 9.1 cm Microwave Emission from June 1962 to August 1973", by Werner Graf and Ronald N. Bracewell, Radio Astronomy Institute, Stanford University, Stanford, California 94305, May 1975, 183 pages, price \$2.55.
- UAG-45 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1972", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, May 1975, 144 pages, price \$2.10.
- UAG-46 "Interplanetary Magnetic Field Data 1963-1974", by Joseph H. King, National Space Science Data Center, NASA Goddard Space Flight Center, Greenbelt, Maryland 20771, June 1975, 382 pages, price \$2.95.
- UAG-47 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1973", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, June 1975, 144 pages, price \$2.10.

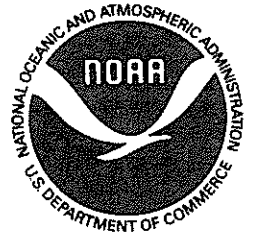
- UAG-48A "Synoptic Observations of the Solar Corona during Carrington Rotations 1580-1596 (11 October 1971 - 15 January 1973)", [Reissue with quality images] by R. A. Howard, M. J. Koomen, D. J. Michels, R. Tousey, C. R. Detwiler, D. E. Roberts, R. T. Seal and J. D. Whitney, E. O. Hulbert Center for Space Research, NRL, Washington, D. C. 20375 and R. T. and S. F. Hansen, C. J. Garcia and E. Yasukawa, High Altitude Observatory, NCAR, Boulder, Colorado 80303, February 1976, 200 pages, price \$4.27.
- UAG-49 "Catalog of Standard Geomagnetic Variation Data", prepared by Environmental Data Service, NOAA, Boulder, Colorado, August 1975, 125 pages, price \$1.85.
- UAG-50 "High-Latitude Supplement to the URSI Handbook on Ionogram Interpretation and Reduction", by W. R. Piggott, British Antarctic Survey, c/o SRC, Appleton Laboratory, Ditton Park, Slough, England, October 1975, 292 pages, price \$4.00.
- UAG-51 "Synoptic Maps of Solar Coronal Hole Boundaries Derived from He II 304Å Spectroheliograms from the Manned Skylab Missions", by J. D. Bohlin and D. M. Rubenstein, E. O. Hulbert Center for Space Research, Naval Research Laboratory, Washington, D. C. 20375 U.S.A., November 1975, 30 pages, price 54 cents.
- UAG-52 "Experimental Comprehensive Solar Flare Indices for Certain Flares, 1970-1974", compiled by Helen W. Dodson and E. Ruth Hedeman, McMath-Hulbert Observatory, The University of Michigan, 895 Lake Angelus Road North, Pontiac, Michigan 48055 U.S.A., November 1975, 27 pages, price 60 cents.
- UAG-53 "Description and Catalog of Ionospheric F-Region Data, Jicamarca Radar Observatory (November 1966 - April 1969)", by W. L. Clark and T. E. Van Zandt, Aeronomy Laboratory, NOAA, Boulder, Colorado 80302 and J. P. McClure, University of Texas at Dallas, Dallas, Texas 75230, April 1976, 10 pages, price 33 cents.
- UAG-54 "Catalog of Ionosphere Vertical Soundings Data", prepared by Environmental Data Service, NOAA, Boulder, Colorado 80302, April 1976, 130 pages, price \$2.10.
- UAG-55 "Equivalent Ionospheric Current Representations by a New Method, Illustrated for 8-9 November 1969 Magnetic Disturbances", by Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80302 and Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701, H. W. Kroehl, Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302, M. Kanamitsu, Advanced Study Program, National Center for Atmospheric Research, Boulder, Colorado 80303, J. H. Allen, Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302, and S.-I. Akasofu, Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701, April 1976, 91 pages, price \$1.60.
- UAG-56 "Iso-intensity Contours of Ground Magnetic H Perturbations for the December 16-18, 1971 Geomagnetic Storm", by Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80302 and Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701 (currently Guest worker at Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302), April 1976, 37 pages, price \$1.39.
- UAG-57 "Manual on Ionospheric Absorption Measurements", edited by K. Rawer, Institut für Physikalische Weltraumforschung, Freiburg, G.F.R., June 1976, 202 pages, price \$4.27.
- UAG-58 "ATS6 Radio Beacon Electron Content Measurements at Boulder, July 1974 - May 1975", by R. B. Fritz, Space Environment Laboratory (currently with Wave Propagation Laboratory), NOAA, Boulder, Colorado 80302 USA, September 1976, 61 pages, price \$1.04.
- UAG-59 "Auroral Electrojet Magnetic Activity Indices AE(11) for 1974", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, December 1976, 144 pages, price \$2.16.
- UAG-60 "Geomagnetic Data for January 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, July 1977, 57 pages, price \$1.07.
- UAG-61 "Collected Data Reports for STIP Interval II 20 March - 5 May 1976", edited by Helen E. Coffey and John A. McKinnon, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, August 1977, 313 pages, price \$2.95.
- UAG-62 "Geomagnetic Data For February 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, September 1977, 55 pages, price \$1.11.
- UAG-63 "Geomagnetic Data for March 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, September 1977, 57 pages, price \$1.11.
- UAG-64 "Geomagnetic Data for April 1976 (AE(8) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, February 1978, 55 pages, price \$1.00.



WORLD DATA CENTER A

FOR

SOLAR-TERRESTRIAL PHYSICS



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

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