



**U.S. DEPARTMENT OF COMMERCE**

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**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**

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**ENVIRONMENTAL DATA SERVICE**

Thomas S. Austin, Director

## **Solar - Geophysical Data**

NO. 387 NOVEMBER 1976

**Part II (Comprehensive Reports)**

DATA FOR  
MAY 1976  
APRIL 1976  
& 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.

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

Solar-Geophysical Data, 366 Part I (or Part II), pages, February 1975, U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80302)

# SOLAR - GEOPHYSICAL DATA

1

NO. 387

Issued in two parts

Hope I. Leighton, Editor

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

## CONTENTS

### Part I (Prompt Reports)

	Page
Index for 1975 and 1976	2
Data for October 1976	3-21
Data for September 1976	23-118

### Part II (Comprehensive Reports)

Index for 1975 and 1976	2
Data for May 1976	3-20
Data for April 1976	21-30
Miscellaneous Data	31-36
Radio Emission - Spectral -- August 1976	
Solar Wind - IMP 8 -- April 1976	

INDEX FOR 1975 - 1976 DATA PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

Table with columns for months (Aug, Sep, Oct, Nov, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct) and rows for various solar and geophysical categories (A. Solar and Interplanetary Phenomena, B. Solar and Interplanetary Phenomena, C. Flare-Associated Events, D. Geomagnetic and Magnetospheric Phenomena, H. Miscellaneous).

Note: A = Part I, B = Part II.

374A 28 listed under 1975 Aug shows that data for August 1975 were contained in Solar-Geophysical Data Number 374 - Part I beginning on page 28.

MAY 1976 DATA

Contents

	Page
<u>Synoptic Solar Map</u>	4-5
<u>Solar Flares</u>	
H $\alpha$ Solar Flares (Standardized Data)	6-9
Daily Flare Indices	9
No-Flare-Patrol Chart	10
<u>Solar Radio Waves</u>	
Worldwide Outstanding Occurrences at Fixed Frequencies	11-14
<u>Energetic Solar Particles and Plasma</u>	15-20
<u>Magnetograms of Geomagnetic Storm</u> (The reduced magnetograms for May 1976 are not completed)	

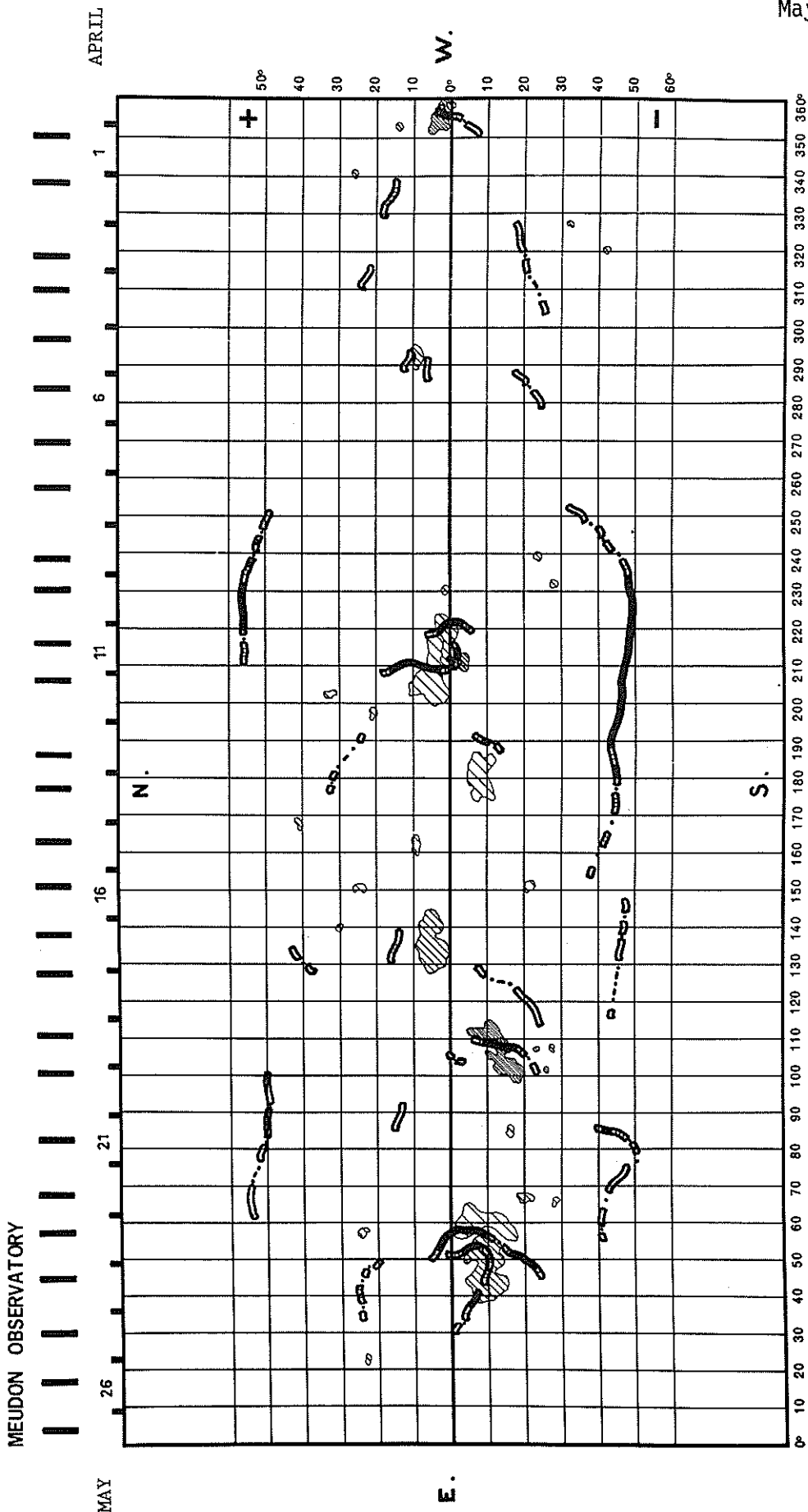
ACTIVE REGIONS

CARRINGTON ROTATION 1641

(April 30-May 27, 1976)

Region No.	Coordinates		Age at CMP	Imp.	Spot-less Region	Region No. in Rotation 1640	Activity at West Limb
	Lat.	Long.					
1	3°N	356°	+6	2			decreasing, no spot at limb
2	9 N	293	+4	1	x		dispersed
3	1 N	217	>6	3			decreasing
4	3 S	211	-4	2			stable
5	5 N	210	>6	1	x	(5)	dispersed
6	7 S	181	>6	1	x		decreasing
7	10 N	162	+1	1	x		disappeared
8	6 N	137	>6	1	x	(10)	dispersed
9	12 S	108	>6	1	x		decreasing
10	20 S	67	+3	1	x		disappeared
11	24 N	57	-4	1	x		decreasing
12	9 S	49	>6	2	x	(17-18)	dispersed

SYNOPTIC SOLAR MAP  
CARRINGTON ROTATION 1641  
(APRIL 30 TO MAY 27, 1976)



APRIL

1

6

11

16

21

26

MAY

50° 40 30 20 10 0° 10 20 30 40 50 60°

W.

E.

N.

S.

MEUDON OBSERVATORY

6  
May 76

# H $\alpha$ SOLAR FLARES

MAY 1976

OBSERVATORY	OBSERVED UT				LOCATION				DURATION MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE 1976 MAY	START	MAX. PHASE	END	APPROX.		CENTRAL DISTANCE	GEOGRAPHIC REGION			CNR DAY	COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk		CORR. AREA Sq. Deg.
					LAT.	NER. DIST.											
	01	1855	1910	NO FLARE	PATROL												
	01	1922	1925	NO FLARE	PATROL												
	01	1930	1939	NO FLARE	PATROL												
	01	1953	2017	NO FLARE	PATROL												
407 PALE	01	2042		2057D	S09 W60	.864	14179	27.4	150	-F	3	C		54			
	01	2044	2111	NO FLARE	PATROL												
GRP63408	01	2140	2154	2238	S08 W60	.864	14179	27.4	58	-F				90	1.8	JU	
			2210														
CULG	01	2140	2210	2241	S08 W59	.855	14179	27.5	61	-F		C	2200	40	.8		
PALE	01	2142E	2154U	2235	S09 W60	.864	14179	27.4	530	-F	3	C		90		U	
MANI	01	2155E	2155U	2210	S08 W61	.872	14179	27.3	150	-N	2	V	2155	90	1.7	FU	
VORO	01	2156E		2248	S08 W61	.872	14179	27.3	520	1N		C	2156	170	3.4	EJ	
	02	2000	2029	NO FLARE	PATROL												
	02	2045	2057	NO FLARE	PATROL												
	02	2104	2115	NO FLARE	PATROL												
	03	0645	0708	NO FLARE	PATROL												
	03	0724	0730	NO FLARE	PATROL												
	03	0735	0746	NO FLARE	PATROL												
	04	0128	0140	NO FLARE	PATROL												
GRP63409	04	0935+9	1001+1	1039	N08 E18	.367	14195	5.7	64	-F				20	.2	EG	
			1018														
HPR	04	0935	1002	1045	N08 E18	.367	14195	5.7	70	-F		C	1002	20	.2	E	
MONT	04	1000	1001	1004	N09 E18	.376	14195	5.8	4	-F		C	1001	20		G	
MONT	04	1016	1018	1032	N09 E18	.376	14195	5.8	16	-F		C	1018	20		G	
410 HPR	04	1119	1128	1140	N08 E18	.367	14195	5.8	21	-F		C	1128	20	.2	E	
411 HPR	04	1309	1313	1400	N08 E17	.354	14195	5.8	51	-F		C	1313	20	.2	E	
	05	0145	0150	NO FLARE	PATROL												
	05	0159	0205	NO FLARE	PATROL												
412 MONT	05	1034	1035	1038	N01 E87	.999	14203	12.0	4	-F		C	1035	20			
GRP63413	05	1053+4	1110	1215D	N03 W65	.909	14185	30.6	82	-F				25	.6	DGH	
			1210														
HPR	05	1053	1055	1140	N03 W65	.909	14185	30.6	47	-F		C	1055	10	.2		
MONT	05	1057	1110	1215D	N03 W62	.886	14185	30.8	780	-F		C	1110	20		DG	
MCHA	05	1113E		1245	N03 W67	.923	14185	30.4	920	-N		C	1114	30	.9	DH	
HPR	05	1150	1210	1215	N03 W66	.916	14185	30.5	25	-F		C	1210	20	.4	E	
	05	2141	2144	NO FLARE	PATROL												
	05	2207	2241	NO FLARE	PATROL												
	05	2337	2342	NO FLARE	PATROL												
	05	2346	2352	NO FLARE	PATROL												
	06	0003	0009	NO FLARE	PATROL												
	06	0017	0022	NO FLARE	PATROL												
	06	0052	0104	NO FLARE	PATROL												
414 ABST	07	0532E	0540	05420	N12 W22	.452	14195	5.6	100	-F		P	0540	87	1.0	DG	
	07	1830	1832	NO FLARE	PATROL												
	07	2113	2133	NO FLARE	PATROL												
	07	2138	2153	NO FLARE	PATROL												
	08	2021	2030	NO FLARE	PATROL												
	08	2036	2040	NO FLARE	PATROL												
	08	2053	2110	NO FLARE	PATROL												
	09	0901	0920	NO FLARE	PATROL												
	09	2035	2156	NO FLARE	PATROL												
	09	2211	2343	NO FLARE	PATROL												
	10	0219	0220	NO FLARE	PATROL												
	10	1900	1928	NO FLARE	PATROL												
	10	2059	2217	NO FLARE	PATROL												
	11	1826	2118	NO FLARE	PATROL												
	12	1515	1520	NO FLARE	PATROL												
	12	2203	2217	NO FLARE	PATROL												
415 HPR	13	0930	0931	0951	N01 E53	.800	14206	17.4	21	-F		C	0931	20	.3		

H $\alpha$  SOLAR FLARES

MAY 1976

OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS		
	DATE 1976 MAY	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.	HER. DIST.													
GRP63416	13	1401+1	1403+3	1408	S11	E75	.965	14211	19.2	7	-F								
ATHN	13	1401	1403	1408	S10	E73	.955	14211	19.1	7	-F	3	C		20			DG	
HTPR	13	1402	1405	1408	S11	E75	.965	14211	19.2	6	-F		C	1405	19			DE	
MONT	13	1402	1406	1410	S11	E78	.977	14211	19.4	8	-F		C	1406	20	.4		DG	
	13	1800	1815		NO FLARE PATROL														
	13	1820	1849		NO FLARE PATROL														
	13	2016	2048		NO FLARE PATROL														
	13	2053	2100		NO FLARE PATROL														
	14	1130	1137		NO FLARE PATROL														
	14	1202	1206		NO FLARE PATROL														
	14	1806	1819		NO FLARE PATROL														
	14	1836	1911		NO FLARE PATROL														
417 MANI	15	0314	0315	03220	S03	W45	.706	14203	11.8	80	-F	3	P	0315	30	.4			
418 ABST	15	0500E	0500	0528	S04	W46	.719	14203	11.8	280	-F		P	0500	131	1.8		E	
419 HTPR	15	0715	0720	0735	S03	W48	.742	14203	11.7	20	-F		C	0720	20	.3		E	
420 HTPR	15	0820	0827	0832	S03	W48	.742	14203	11.7	12	-F		C	0827	20	.3		E	
GRP63421	15	1002+1	1026+4	1108	S14	E59	.860	14211	19.8	66	1F							EG	
			1040+0																
ZURI	15	1002	1030	1222	S12	E54	.812	14211	19.5	140	1N		C	1030	150	2.7			
KHAR	15	1003	1026	11150	S15	E62	.885	14211	20.1	720	1F		C	1026	165			EG	
HTPR	15	1003	1004	1005	S12	E58	.850	14211	19.8	2	-F		C	1004	30	.5		E	
RAMY	15	1037E	1040U	11000	S14	E60	.868	14211	19.9	230	-F	4	V		96			DE	
RAMY	15	1037E	1040U	1108	S15	E60	.869	14211	19.9	310	-F	4	C		72			FOE	
422 HTPR	15	1235	1245	1257	S03	W50	.765	14203	11.8	22	-F		C	1245	20	.3		E	
423 ZURI	15	1348	1352	1352	S12	E53	.802	14211	19.6	4	-F		C	1352	60	1.1			
	15	1957	2010		NO FLARE PATROL														
	15	2017	2025		NO FLARE PATROL														
	15	2036	2126		NO FLARE PATROL														
	15	2158	2214		NO FLARE PATROL														
424 CULG	16	0602	0608	06140	S03	W62	.882	14203	11.6	120	-N		P	0608	50	1.1			
	16	1013	1031		NO FLARE PATROL														
GRP63425	16	1444+0	1446	1519	S03	W65	.906	14203	11.7	35	-F								
			1501																
RAMY	16	1444E	1446U	15200	S03	W65	.906	14203	11.7	360	-F	4	V		48			FDE	
RAMY	16	1444	1501	1517	S04	W65	.906	14203	11.7	33	-F	4	C		54			FOE	
	16	1700	1731		NO FLARE PATROL														
	16	1738	1802		NO FLARE PATROL														
	16	1858	1909		NO FLARE PATROL														
	16	1914	1944		NO FLARE PATROL														
	16	2058	2144		NO FLARE PATROL														
	16	2155	2205		NO FLARE PATROL														
426 CULG	17	0225E	0225	0245	S05	W71	.945	14203	11.8	200	-F		P	0225	15	.5			
	17	1817	1832		NO FLARE PATROL														
	17	1836	1845		NO FLARE PATROL														
	17	1906	2045		NO FLARE PATROL														
427 MONT	18	0931	0933	0937	S11	E19	.354	14211	19.8	6	-F		C	0933	20			H	
428 HTPR	18	1236	1239	1245	S06	E70	.939	14215	23.8	9	-F		C	1239	10	.2			
GRP63429	18	1351+6	1359+2	1405	S06	E66	.913	14215	23.5	14	1N				110			F	
ATHN	18	1348E	1351U	1407	S06	E67	.920	14215	23.6	190	-F	3	C		4			F	
LVOV	18	1351	1359	1407	S04	E70	.939	14215	23.8	16	1F		C	1359	75			E	
RAMY	18	1354	1400	1406	S04	E66	.913	14215	23.5	12	-F	4	C		149			F	
CATA	18	1355	1400	1405	S07	E66	.913	14215	23.5	10	1B	2	C	1400	140				
HTPR	18	1356	1359	1402	S06	E64	.898	14215	23.4	6	-N		C	1359	80	1.2			
ZURI	18	1357	1401	1403	S07	E66	.913	14215	23.5	6	-N		C	1401	90				





# H $\alpha$ SOLAR FLARES

MAY 1976

OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIL	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE 1976 MAY	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	NOMINAL PLAGE REGION	CMP. DAY			COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
					LAT.	MER. DIST.											
442 ABST	25	0200	0240	NO FLARE	PATROL												
	25	1650	1746	NO FLARE	PATROL												
	25	2015	2045	NO FLARE	PATROL												
	26	0049	0056	NO FLARE	PATROL												
443 UPIC	26	0457E	0457	0532	S06 W24	.413	14215	24.4	350	-F	P	0457	79	.9	BD		
444 MONT	26	0906E		0950U	S11 W90	1.000	14211	19.6	440	-N	P	0906			A		
444 MONT	26	1658	1707	NO FLARE	PATROL												
	26	1739	1755	NO FLARE	PATROL												
	26	1859	2004	NO FLARE	PATROL												
	26	2011	2045	NO FLARE	PATROL												
	27	0114	0135	NO FLARE	PATROL												
	27	0145	0151	NO FLARE	PATROL												
	27	1355	1407	NO FLARE	PATROL												
	27	1408	1420	NO FLARE	PATROL												
	27	1912	1921	NO FLARE	PATROL												
	28	1401	1403	1407	N06 E77	.975	14237	3.4	6	-F	C		20		G		
	28	1741	1753	NO FLARE	PATROL												
	28	1839	2104	NO FLARE	PATROL												
	28	2224	2235	NO FLARE	PATROL												
	29	1904	1905	NO FLARE	PATROL												
	29	1920	1929	NO FLARE	PATROL												
	29	1955	2004	NO FLARE	PATROL												
	29	2101	2133	NO FLARE	PATROL												
29	2137	2140	NO FLARE	PATROL													
29	2237	2244	NO FLARE	PATROL													
29	2248	2310	NO FLARE	PATROL													
30	2016	2023	NO FLARE	PATROL													
30	2131	2148	NO FLARE	PATROL													
30	2153	2200	NO FLARE	PATROL													
31	1813	2139	NO FLARE	PATROL													

"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 D<sub>2</sub> in emission.
- Q = Flare shows the Balmer continuum in emission.
- R = Marked asymmetry in H $\alpha$  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 $\alpha$  line.
- Y = System of loop-type prominences.
- Z = Major sunspot umbra covered by flare.

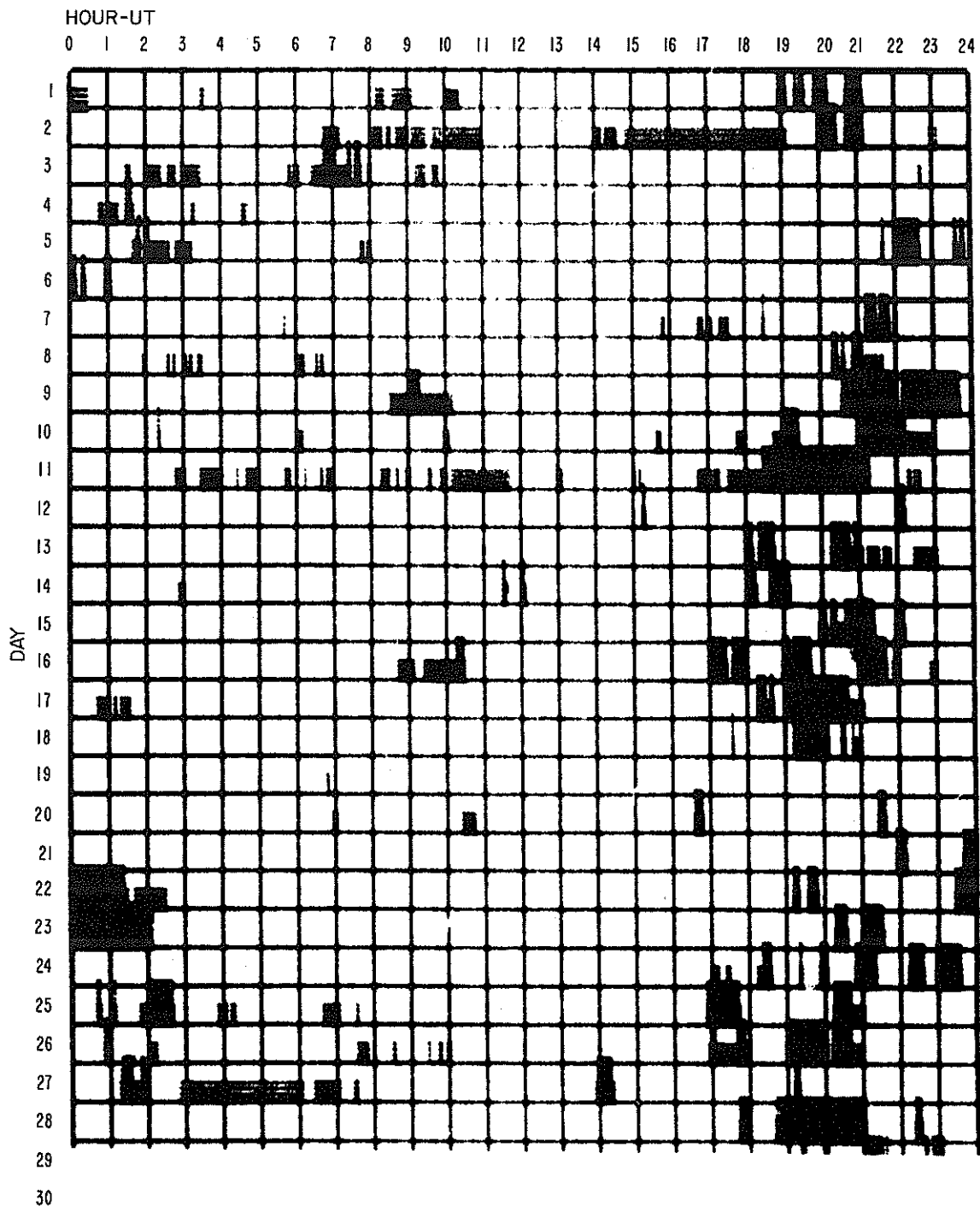
### DAILY FLARE INDICES

Includes all Flares

Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.
760501	5.12	22.7	760511	0.00	21.1	760521	9.13	22.0
760502	0.00	23.1	760512	0.00	23.7	760522	21.41	20.8
760503	0.00	23.3	760513	2.14	22.6	760523	4.28	23.1
760504	10.77	23.8	760514	0.00	23.0	760524	0.00	21.7
760505	1.20	23.0	760515	14.78	22.6	760525	0.00	21.7
760506	0.00	23.6	760516	1.80	21.2	760526	6.25	21.8
760507	3.41	23.4	760517	.89	22.0	760527	0.00	23.0
760508	0.00	23.5	760518	15.50	22.9	760528	.95	21.1
760509	0.00	20.8	760519	1.32	24.0	760529	0.00	22.6
760510	0.00	22.2	760520	0.00	23.5	760530	0.00	23.5
When no Flare Index is given, it is 0 for that day.						760531	0.00	20.6

10  
May 76

INTERVALS OF NO FLARE PATROL OBSERVATION  
FOR PRECEDING SOLAR FLARE TABLE  
MAY 1976



Observatories included in total patrol:

Abastumani	Culgoora	Istanbul	Lvov	Monte Mario	Upice
Arcetri	Haute Provence	Kharkov	Manila	Palehua	Voroshilov
Athènes	Herstmonceux	Kiev	McMath-Hulbert	Ramey	Wendelstein
Bucharest	Huancayo	Kodaikanal	Meudon	Tachkent	Zürich
Catania	Hurbanovo	Lacarno	Mitaka	Tehran	

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).

SOLAR RADIO EMISSION  
OUTSTANDING OCCURRENCES  
MAY 1976

MAY 1976	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		
1	606 MANI	41 F	0000.3	0004.1	40.9	13.7	3.8		
	200 HIRA	45 C	0005	0009.5	13	70	20		SR
	207 VORO	7 C	0005	0009	13	45			
	1000 TYKM	5 S	0012	0015.3	6	5.1	1.3		
	1420 BOUL	3 S	0013.5	0015	3.5	2	1		
	1000 TYKM	5 S	0034	0035.4	6	2.5	0.8		
	100 HIRA	45 C	0052	0053.2	2.5	20	10		HR
	200 HIRA	45 C	0150	0150.9	2	90	15		WR
	100 HIRA		0150	0150		180			WL
	100 HIRA	45 C	0150		2		50		
	100 HIRA		0151	0151		160			WL
	200 HIRA	45 C	0411.8	0412.2	1.2	90	40		WR
	100 HIRA	45 C	0411.8	0412	1.5	700	50		WL
	100 GORK	6 S	0412	0412.50	1	50			
	100 GORK	43 NS	0500		300		5		
	260 ONDR	2 S/F	0652.3	0652.8	2.5	5	0.7		
	200 HIRA	45 C	0652.6	0653	1	30	10		0
	100 GORK	41 F	0653	0653.8	5.4	48			
	100 GORK		0658.3			45			
	3000 POTS	1	0718	0718.5	1.1				
	1470 POTS	3	0718.2	0718.6	0.9	7.6	2.2		
	550 KIEV	6 S	0900	0901.5	2.2	6			
	4995 BOUL	3 S	1734	1735.5	2	10	3		
	2800 OTTA	21 GRF	2135		200 D	4.4			
	4995 BOUL	2 SF	2138	2143	8.5	20	7		
	1420 BOUL	48 C	2139.5	2200.5	88.5	141	10		20R
	9400 TYKM	5 S	2139	2143.2	8	15	4		05L
	3750 TYKM	5 S	2139	2143.3	9	17	4		
	1415 SGHR	46 C	2140.2	2201.2	67.4	141.3	42.4		
	1415 SGHR	46 C		2223.2		63.6			
	2695 BOUL	40 F	2140.5	2144.5	25	15	2		
	2000 TYKM	45 C	2140	2144.1	7	46	5		
	2000 TYKM	42 SER	2140	2144.1	70	46	2.5		
	606 SGHR	46 C	2141.4	2212.5	62.6	50.8	15.3		
	606 SGHR	46 C		2230		38.4			
	2800 OTTA	4 S/F	2141	2143	5	12.8	4.3		
	410 SGHR	6 C	2142.3	2209.1	60	71	25.4		
	410 SGHR	6 C		2212.4		127.3			
	1000 TYKM	40 F	2142	2144	13	1.3	0.4		
	1000 TYKM	42 SER	2142	2229.7	65	51	4.7		
	245 SGHR	7 C	2147.3	2207.8	58.7	264.6	52.9		
	245 SGHR	7 C		2212.3		189.9			
	2000 TYKM	40 F	2147	2147.5	2	15	1.5		
	2000 TYKM	45 C	2149	2202	16	41	2.5		
	9400 TYKM	21 GRF	2150	2158	60	6	2		0R
	200 HIRA	45 C	2154		53		50		
	200 HIRA		2154	2229.5		110			WL
	200 HIRA		2154	2212.2		320			HR
	200 HIRA		2154	2207.8		480			WR
	500 HIRA	45 C	2155.5		42		8		
	500 HIRA		2155.5	2229.8		25			
	500 HIRA		2155.5	2212.6		30			
	2800 OTTA	45 C	2155.5	2203	10	2.8	1.6		
	3750 TYKM	45 C	2155	2159	10	5	3		0R
	1000 TYKM	40 F	2155	2158.5	10	8	2.5		
	100 HIRA	45 C	2158		71		40		
	100 HIRA		2158	2215.3		350			WL
	100 HIRA		2158	2229.8		270			WR
	100 HIRA		2158	2218		170			WL
	1415 MANI	40 F	2200.1	2201	32.2	181	76		
	207 VORO	28 PRE	2155	2158.7	6.5	11			
	207 VORO	4 S/F	2202	2203.5	3	29			
	207 VORO	49 GB	2205	2207.7	12	273			
	207 VORO	29 PBI	2217	2217.7	28	30			
	606 MANI	40 F	2205.50	2212.5	29 U	38.5	17.50		SUNRISE
	2000 TYKM	45 C	2205	2212.7	12	14	3.5		
	1000 TYKM	45 C	2205	2212.9	12	21	6		
	3750 TYKM	45 C	2206	2212.4	10	9	3		15R
	2695 BOUL	1 S	2207.5	2208	1.5	2	1		
	4995 BOUL	2 SF	2210	2211.5	6	12	4		
	2695 BOUL	3 S	2211.5	2213.5	5.5	9	3		
	2695 BOUL	30 PBI	2229.5	2230.5	9	15	5		
	2800 OTTA	2 S/F	2211	2212.3	5	8	3.4		
	9400 TYKM	5 S	2211	2212.3	4	7	3		10R
	3750 TYKM	5 S	2217	2220	10	2	1		0R
	1000 TYKM	45 C	2217	2223.6	11	45	8		
	2000 TYKM	45 G	2217	2219.7	11	5	1.8		
	207 VORO	4 S/F	2227.5	2230	4.5	66			
	4995 BOUL	2 SF	2227.5	2229	4	10	3		
	2800 OTTA	4 S/F	2228.5	2229.7	8	11.6	3		
	3750 TYKM	5 S	2228.5	2229.8	7	10	4		10R
	9400 TYKM	5 S	2228.5	2229.7	4	9	3		10R
	2000 TYKM	5 S	2228	2229.8	9	14	3.5		20L
	1000 TYKM	45 C	2228	2229.6	19	51	6		

12  
May 76

SOLAR RADIO EMISSION  
OUTSTANDING OCCURRENCES  
MAY 1976

MAY 1976	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		
	2000 TYKM	40 F	2237	2243	13	4	0.5		70L
	1000 TYKM	5 S	2252.5	2252.9	1	4.9	1.6		
2	200 GORK	4 SF	0412.1	0412.8	1.2	55	75		
	550 KIEV	41 F	0756.5	0758.7	8	11			
	550 KIEV	41 F	0825	0826.6	22	8			
	550 KIEV	41 F	0903.5	0909.3	7.5	11			
	550 KIEV	41 F	0942.7	0953.4	13	3			
	550 KIEV	6 S	1012.7	1013	1.5	4			
	550 KIEV	41 F	1038	1038.7	4	7			
	550 KIEV	4 S/F	1046	1046.5	1	1.2			
	550 KIEV	41 F	1119.2	1124.3	5.2	2			
	2800 OTTA	8 S	1829.5	1829.8	0.5	0.8	0.4		
3	3100 CRIM	24 R	0702	0825		2			
	550 KIEV	27 RF	0748	0756	12	0.6			
	550 KIEV	27 RF	0805	0811.5	10	1.4			
	9240 ARCE	8	0828.4	0828.5	0.6				
	260 ONDR	1 S	1103.2	1104.2	2.5	13	3.6		
	9240 ARCE	4	1508.4	1508.6	1.7				
2800 OTTA	26 FAL	1635	1700	25	1.2	0.6			
4	550 KIEV	27 RF	0823.5		8	0.8			
	550 KIEV	6 S	1026.5	1030 U	4	23			
	550 KIEV	27 RF	1145	1148.7	7.5U	1.7			
	550 KIEV	46 C	1245.5	1249.2	5.2	10			
	550 KIEV	29 PBI	1251	1253.2	5.7	1.3			
	550 KIEV	27 RF	1303	1312.5	17.5	1.7			
	550 KIEV	6 S	1320.5		1.7	34			
	550 KIEV	27 RF	1323	1332.7 U	16.3	2			
	550 KIEV	48 C	1339	1346.7	19	56			
	550 KIEV	27 RF	1359.6	1407	15	2.4			
	550 KIEV	27 RF	1418.7		11.3	0.5			
	550 KIEV	48 C	1514	1515.3 U	2	160 D			
	550 KIEV	48 C	1523.7		5.6	148 D			
	9240 ARCE	2	1646.2	1646.3 U	1				
18 MCMA	42	1928	1945	17					
5	200 GORK	43 NS	0641.3		138.7		5		
	3100 CRIM	24 R	1016	1102		2			
	245 SGMR	6 S	1353.8	1354.5	1.3	13.1	2.6		
	410 SGMR	6 S	1354.3	1354.5	.8	6.6	1.3		
	606 SGMR	1 S	1354.5	1354.8	.6	3.3	1		
	18 MCMA	6	1935	1937	2				
6	3100 CRIM	24 R	0904	0917		2			
	260 ONDR	8 S	1129.3	1129.3	0.2	26			
	9240 ARCE	1	1407.3	1407.4	0.5				
7	3100 CRIM	24 R	0929	1018		2			
8	18 MCMA	41	2204	2213	15			1	
9	550 KIEV	41 F	1026.2	1030.2	4.5	7			
	550 KIEV	41 F	1054.7	1101.2	7.7	4			
	550 KIEV	40 F	1110.7	1111.6	2.2	5			
	18 MCMA	6	1638	1640	2				
	4995 BOUL	8 S	2147.5	2149.5	4	183	60		
	2695 BOUL	3 S	2159	2201.5	5	4	1		
	4995 BOUL	1 S	2202.5	2203.5	2	8	3		
	4995 BOUL	1 S	2206	2207	2.5	8	3		
	4995 BOUL	2 SF	2253.5	2254	5	15	5		
10	3100 CRIM	24 R	0742	0904		2			
	260 ONDR	4 S/F	1157.5	1158.3	2		1.4		
	18 MCMA	6	1345	1347	2	9			
	930 BORD	41 F	1503.4	1503.5	0.3	12	2		
	18 MCMA	6	1817	1819	2				
	18 MCMA	41	2050	2053	15				
	18 MCMA	42	2125	2156	38				
	18 MCMA	41	2242	2247	5				
500 HIRA	45 C	2307.1	2308	2	240	10			
11	720 SYDN	45 C	0044	0048.3	5.5				
	1420 SYDN	8 S	0048.3	0048.4	0.2				
	1420 SYDN	45 C	0056.7	0057.5	1				
	720 SYDN	45 C	0056.7	0057.5	1.5				
	720 SYDN	8 S	0100.2	0100.2	0.3				
	1420 SYDN	8 S	0100.2	0100.2	0.3				
	3100 CRIM	24 R	0717	0725		2			
	2695 BOUL	1 S	1616.5	1618	2.5	3	1		
	18 MCMA	42	1734	1738	5				
	12	3100 CRIM	24 R	0714	0830		3		
260 ONDR		2 S/F	1246.2	1246.8	1.5	8			

SOLAR RADIO EMISSION  
OUTSTANDING OCCURRENCES  
MAY 1976

MAY 1976	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			
	9240 ARCE	3	1309.1	1309.5	0.8				DISTURBED	
	260 ONDR	8 S	1508.8	1508.8	0.2	10		1		
	245 SGMR	6 S	2054.4	2055	1.4	1.7	.5			
	18 MCMA	6	2055	2058	3					
	245 SGMR	6 S	2111	2111.4	1	29	8.7			
	4995 BOUL	45 C	2134.5	2142.5	12	12	4			
	2695 PENT	240 R	2240	2440	120	1.6	0.8			
	2695 PENT	24P R	2440		40 0	1.6				
13	113 POTS	45 C	1429.1	1429.1	0.1	200	50			
14	1000 TYKM	5 S	0139.5	0140.1	1.5	5.9	1.3			15L
	550 KIEV	40 F	1117.7	1118.7	6.2	11				
	2800 OTTA	1 S	2042	2043	8	0.6	0.4			
15	260 ONDR	43 NS	0623 E		277	20				
	3100 CRIM	24 R	1000	1009		4				
	2800 OTTA	22 GRF	1050		190	1.4	0.8			
	127 TORN	40 F	1250.5	1259.2	14.5	8.5	1.5			
16	3100 CRIM	3 S	0600	0607.5	29	14	5		OR OL	
	606 MANI	4 S/F	0602.2	0604	9.2	18.9	6.2			
	1415 MANI	3 S	0602.4	0604	5.6	18	1.2			
	4995 MANI	3 S	0602.4	0606.6	6.2	23.2	9.7			
	2695 MANI	3 S	0602.4	0605.1	6.5	11	3.7			
	9400 TYKM	5 S	0602	0607	21	10	5			
	2000 TYKM	45 C	0602	0605.8	11	5.5	2.2			
	2000 TYKM	29 PBI	0613		30	1.2	0.5			
	3750 TYKM	45 C	0602	0607.2	11	20	8			
	3750 TYKM	29 PBI	0613		30	3	1			
	100 HIRA	45 C	0602 U	0603.8	6.5	130	15	O		
	500 HIRA	45 C	0603	0605.5	5	15	6	OL		
	1000 TYKM	45 C	0603.6	0605.2	3.5	6.6	2.7			
	2800 OTTA	20 GRF	1415	1450	150	2.4	1.3			
	18 MCMA	6	1955	1957	2					
	18 MCMA	6	2105	2106	2					
	100 HIRA	45 C	2216.8		4.5		12			
	100 HIRA		2216.8	2220		25				
	100 HIRA		2216.8	2218.6		15				
17	550 KIEV	41 F	1157	1159.5	3.2	9			1 1	
18	9650 IRKU	2 S	0705.6	0706.2	2	57	10			12L
	2800 OTTA	20 GRF	1620	1645	95	2.6	1.3			
	18 MCMA	42	1719	1723	8					
	18 MCMA	6	2105	2107	2					
19	550 KIEV	3 S	0802	0803.2	2.5	4		1 1		
	550 KIEV	31 ABS	0804.5	0829	30					
20	4995 BOUL	45 C	0105.5	0111	7.5	68	16			
	9650 IRKU		0737	0742	7	19	6			
	9650 IRKU	41 F	0737	0740.1		8				
	9650 IRKU		0737	0742.8		64				
	9240 ARCE	1	0939	0939.2	0.6					
	4995 BOUL	40 F	1406.5	1411	15	87	20			
	2695 BOUL	1 S	1415.5	1417.5	2.5	7	2			
	4995 BOUL	45 C	1429	1437	9	17	5			
	4995 BOUL	45 C	1543.5	1547	10	29	7			
	4995 BOUL	1 S	1816	1818	3.5	8	3			
21	550 KIEV	40 F	0948.7	0950.2	2	2.7		1		
	3100 CRIM	24 R	1020	1045		2				
	18 MCMA	41	1908	1918	40					
	4995 BOUL	3 S	2233	2239	10.5	12	4			
	2695 BOUL	3 S	2235.5	2241.5	10.5	6	2			
	4995 BOUL	3 S	2249	2252	5	8	3			
	2695 BOUL	3 S	2250	2253	6	7	2			
	2695 BOUL	45 C	2251.5	2301.5	12	6	2			
	2695 BOUL	1 S	2313.5	2315	2	4	1			
	2695 BOUL	45 C	2320	2321	4	3	1			
22	18 MCMA	42	0003	0009	7			1		
	550 KIEV	42 SER	1027		31.5	6				
	550 KIEV	3 S	1113	1114	2	5				
	550 KIEV	40 F	1144.2	1147	4	3				
	18 MCMA	6	1803	1805	2					
23	550 KIEV	6 S	1111.7	1112.6	1.2	6		1		
	550 KIEV	8 S	1113.5	1113.7	0.5	9				
24	18 MCMA	6	1414	1416	2			1 1 1		
	18 MCMA	6	2047	2048	1					
	18 MCMA	42	2221	2225	4					
26	930 BORD	46 C	1150.7	1150.7	0.3	26	2			

14  
May 76

## SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

MAY 1976

MAY 1976	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		
	930 BORD	41 F	1214	1217.8	4.3	16	2		
27	4995 BOUL	3 S	1536.5	1538	4	20	7		
	2695 BOUL	1 S	1540	1540.5	2.5	3	1		
	4995 BOUL	1 S	1541.5	1543	2.5	10	3		
28	1420 BOUL	3 S	1436	1439	6.5	15	3		
	18 MCMA	6	1653	1655	2			1	
	18 MCMA	42	1729	1732	4			1	
29	3100 CRIM	20 GRF	0924	0935	85	2.5	1		
	550 KIEV	6 S	0951	0951.7	1.5	6			
	550 KIEV	27 RF	1254.5		3.5	3			U
30	18 MCMA	6	1524	1527	3			1	
	4995 BOUL	1 S	1600	1601.5	2.5	12	4		
	4995 BOUL	20 GRF	1716.5	1718	11.5	8	3		
	4995 BOUL	4 SF	1755	1757	10.5	55	18		
31	9240 ARCE	4	0920.3	0920.6	1.5				
	9240 ARCE	20	1037	1104.2	81.5U				
	9240 ARCE	20	1222.3	1236	104				
	18 MCMA	6	1545	1547	2			1	

Reports received from the following observatories:

ABST = Abastumani  
ARCE = Arcetri  
BERL = Berlin-Adlershof  
BORD = Bordeaux  
BOUL = Boulder  
CRIM = Simferopol

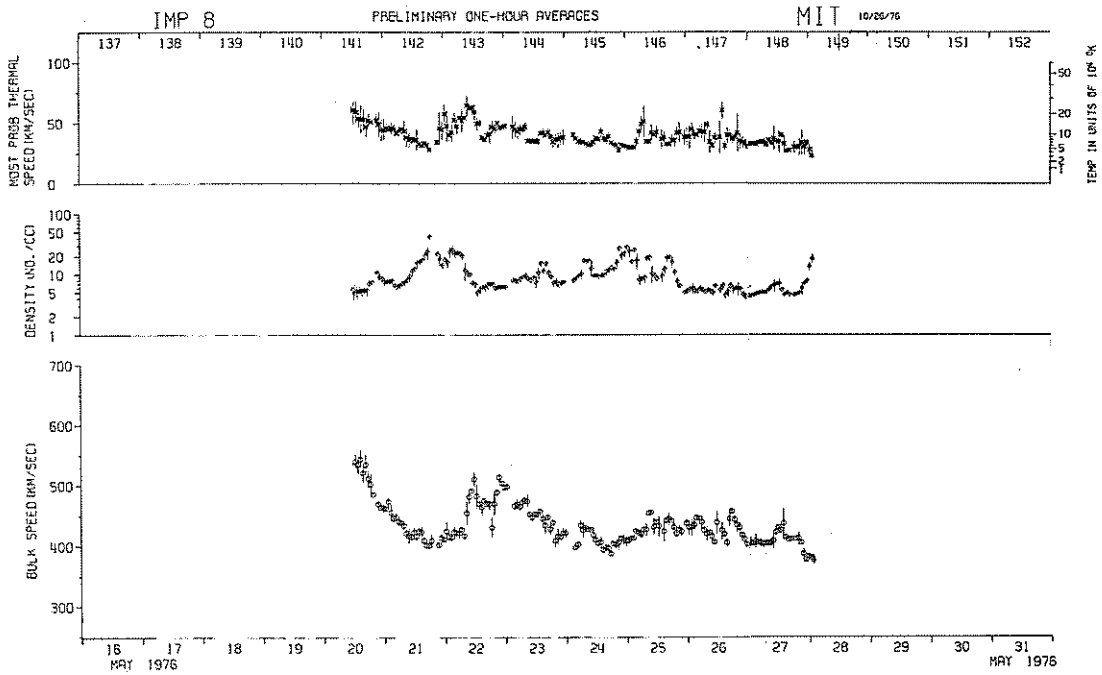
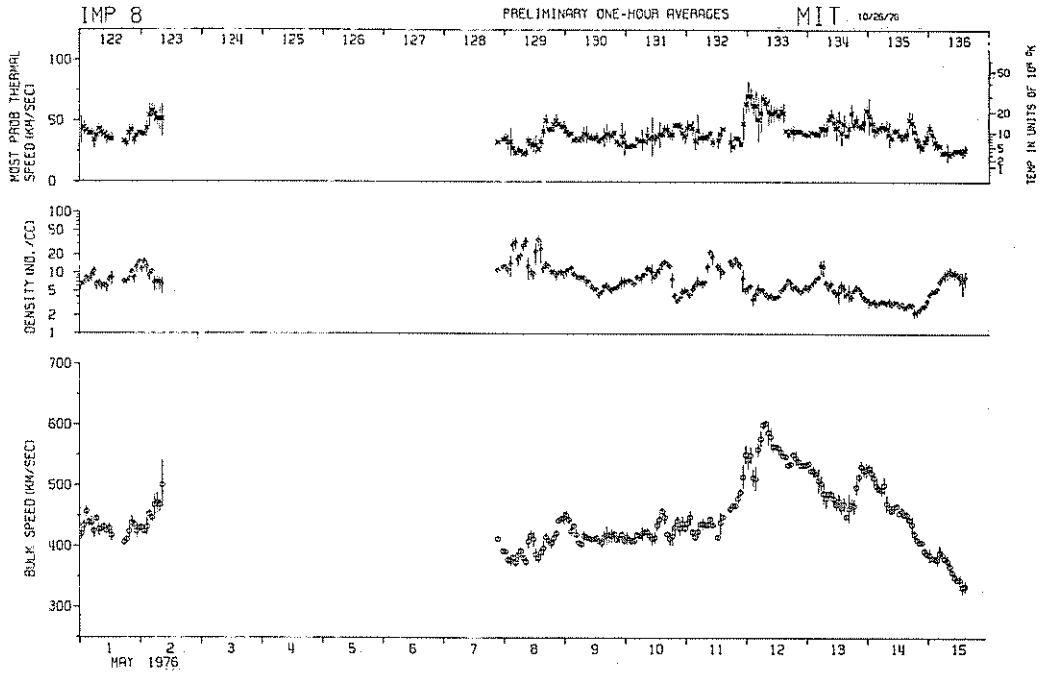
GORK = Gorky  
HARS = Harestua  
HIRA = Hiraiso  
HUAN = Huancayo  
IRKU = Irkutsk

KIEV = Kiev  
MANI = Manila  
MCMA = McMath-Hulbert  
ONDR = Ondrejov

OTTA = Ottawa  
PENT = Penticton  
POTS = Potsdam  
SAOP = Sao Paulo  
SGMR = Sagamore Hill

SYDN = Sydney  
TORI = Torun  
TYKW = Toyokawa  
TRST = Trieste  
VORO = Voroshilov  
(Ussurisk)

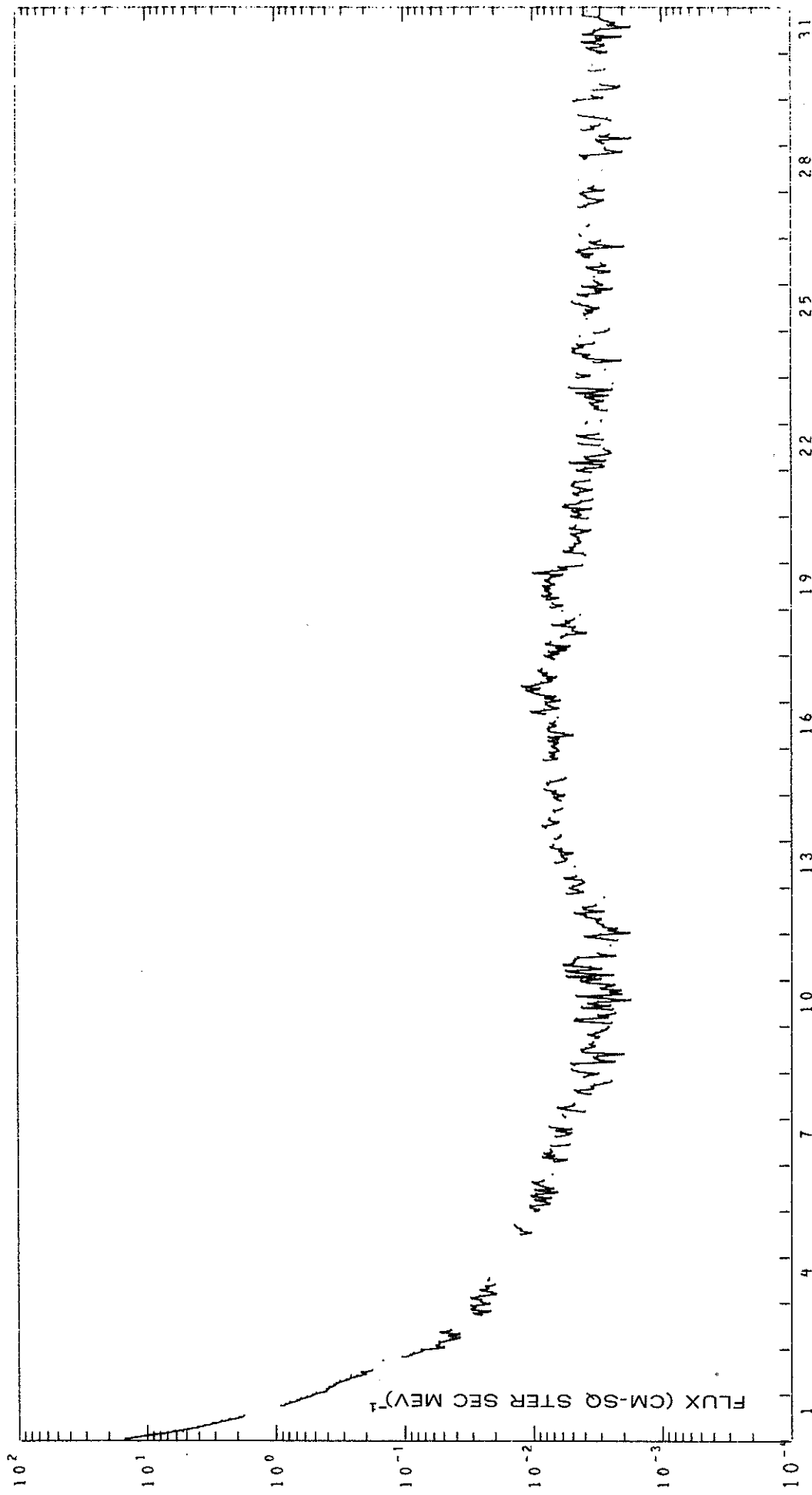
### IMP 7 AND 8 SOLAR WIND PLASMA MAY 1976





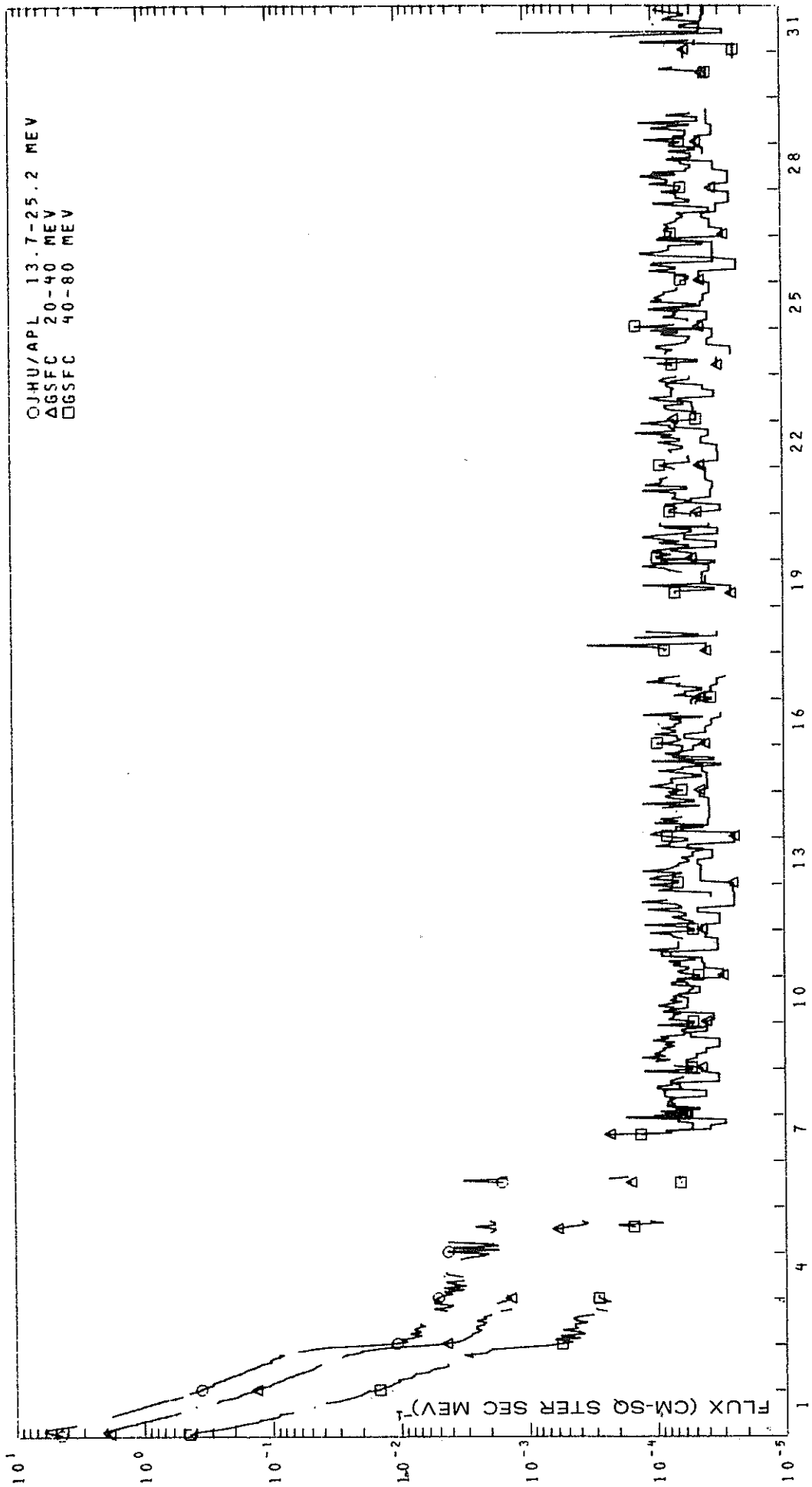
# IMP 7 AND 8 ELECTRONS

MAY, 1976



# IMP 7 AND 8 LOW ENERGY PROTONS

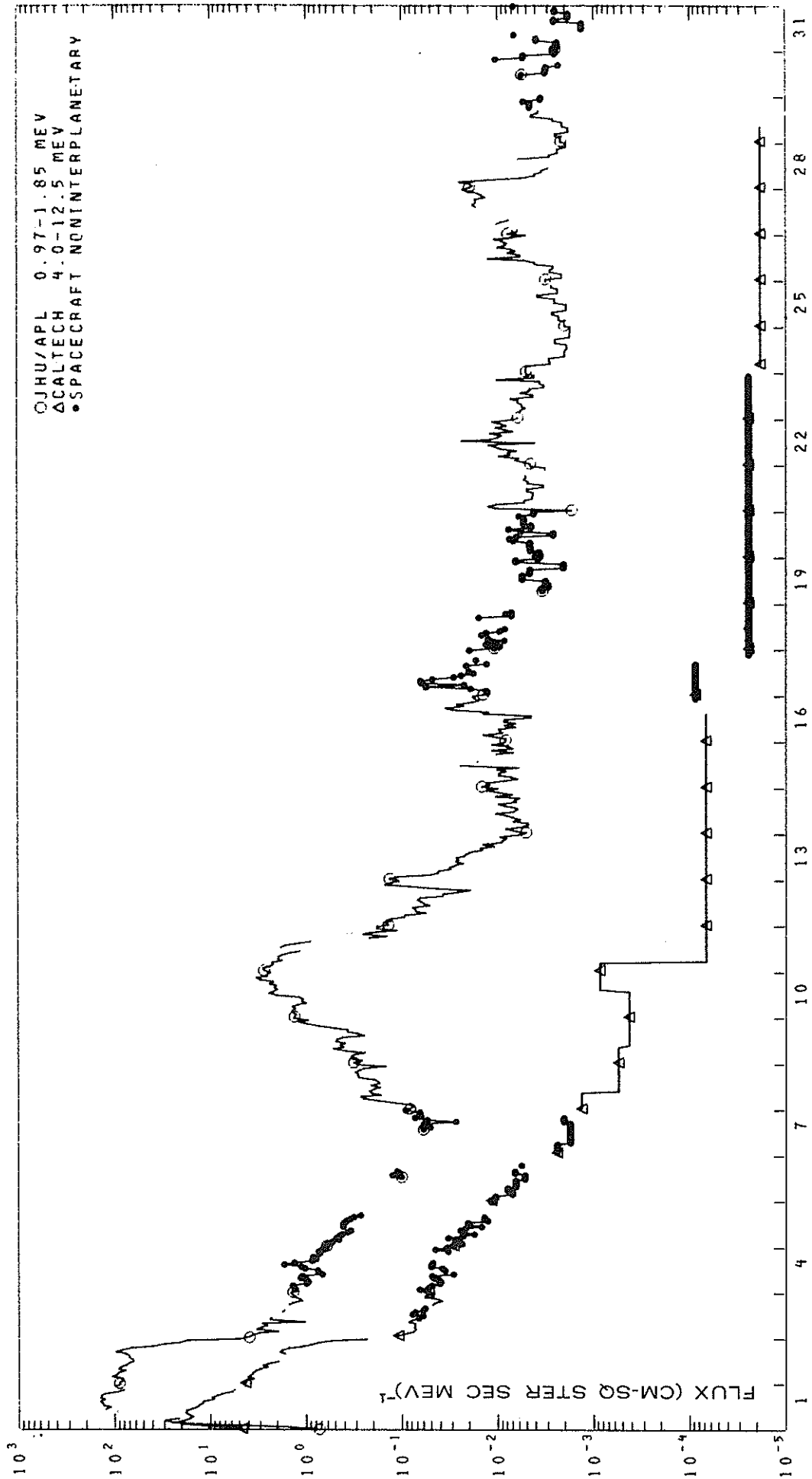
MAY, 1976



17  
May 76

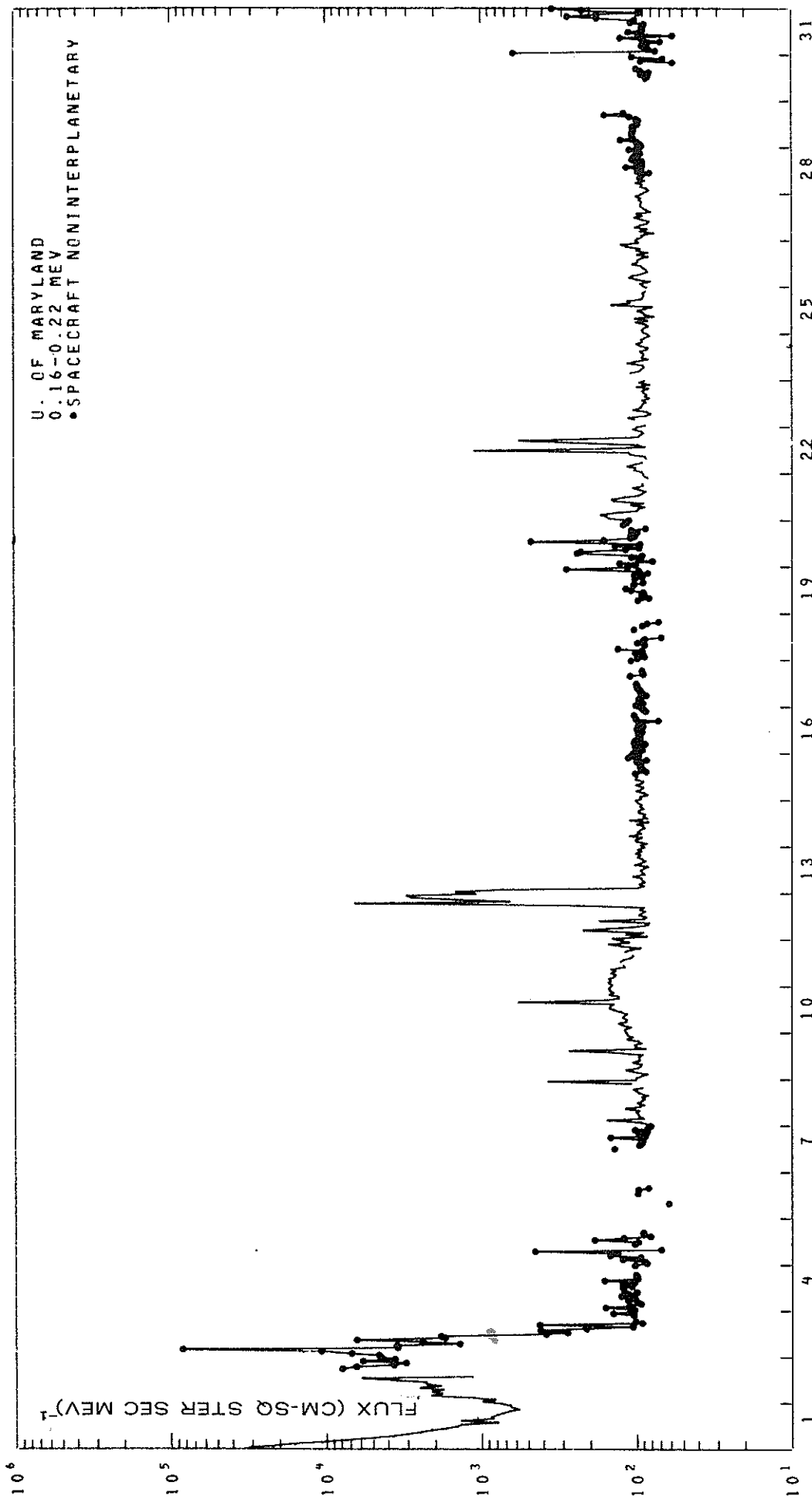
# IMP 7 AND 8 INTERMEDIATE ENERGY PROTONS

MAY, 1976



# IMP 7 AND 8 HIGH ENERGY PROTONS

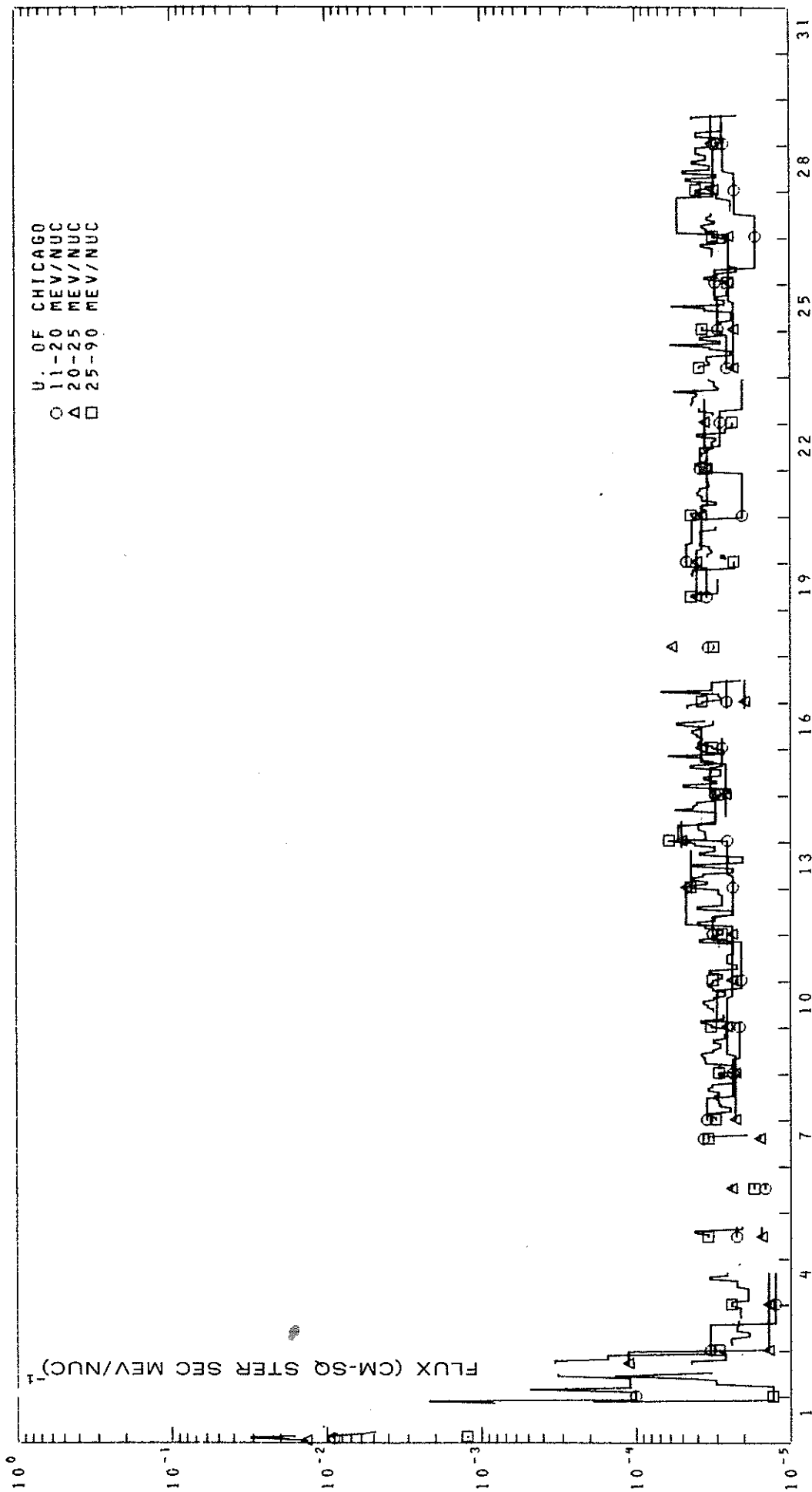
MAY, 1976



19  
May 76

# IMP 7 AND 8 ALPHA PARTICLES

MAY, 1976



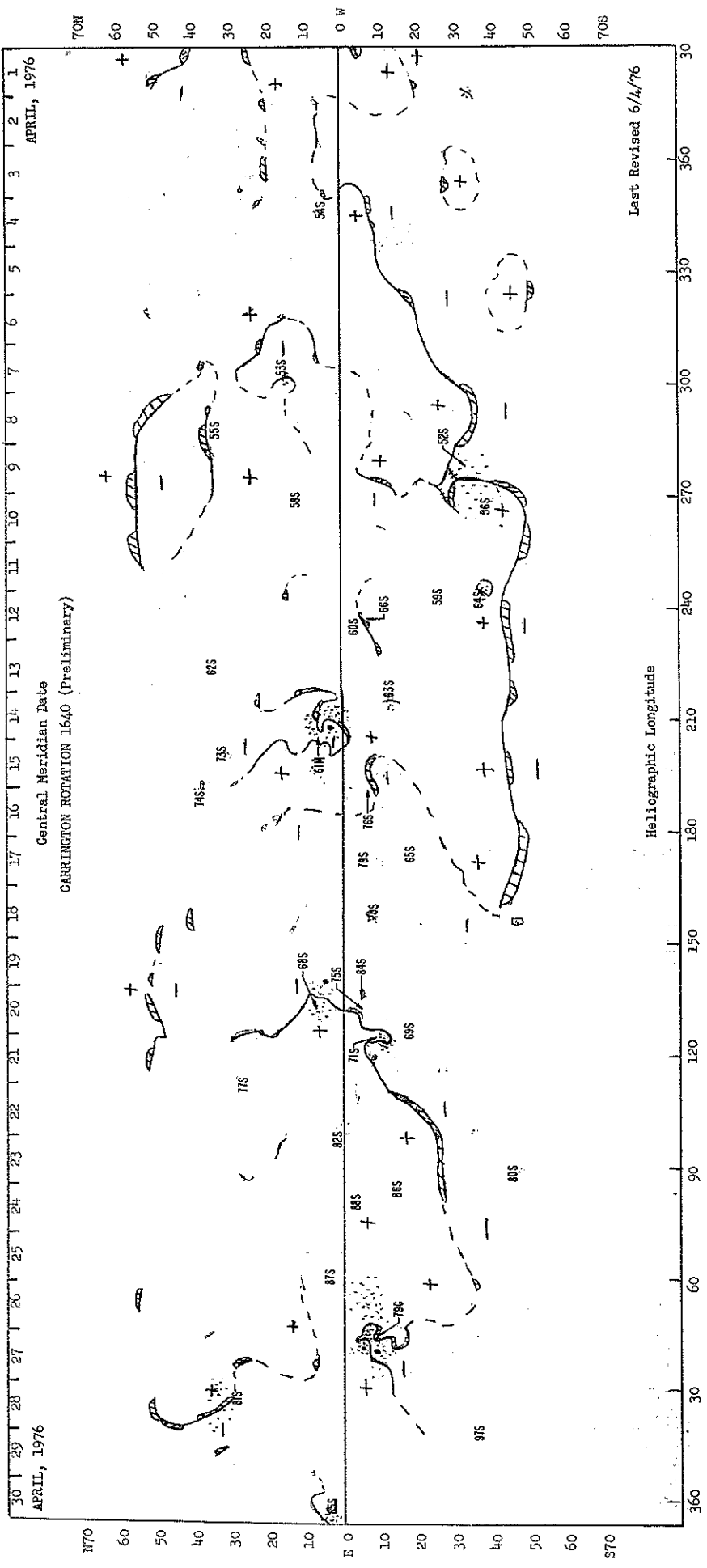
APRIL 1976 DATA

Contents

	Page
<u>H<sub>α</sub> Synoptic Chart</u>	22
<u>Abbreviated Calendar Record</u>	23-30
<u>Regional Flare Index</u>	30

# ABBREVIATED CALENDAR RECORD H $\alpha$ SYNOPTIC CHART

APRIL 1976



Central Meridian Date  
CARRINGTON ROTATION 1640 (Preliminary)

Last Revised 6/4/76





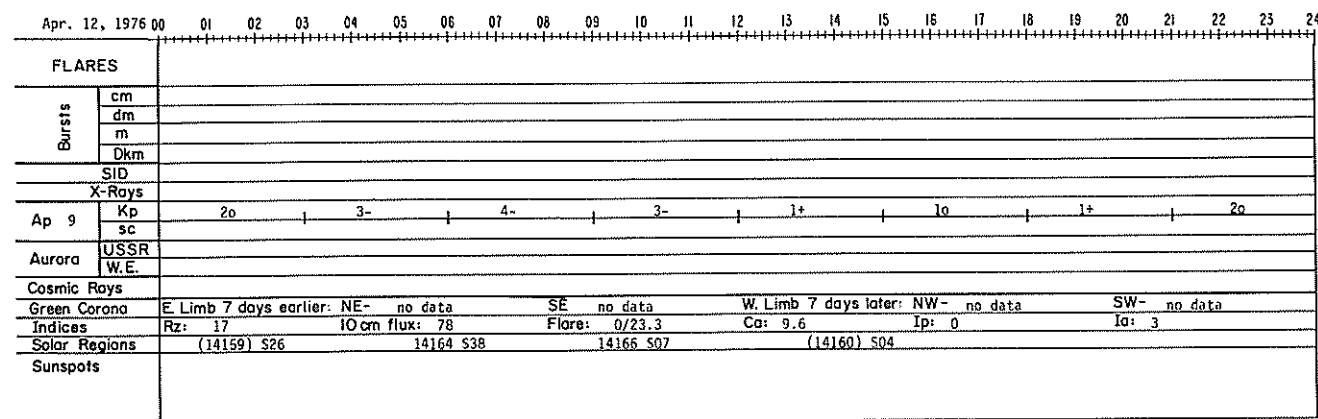
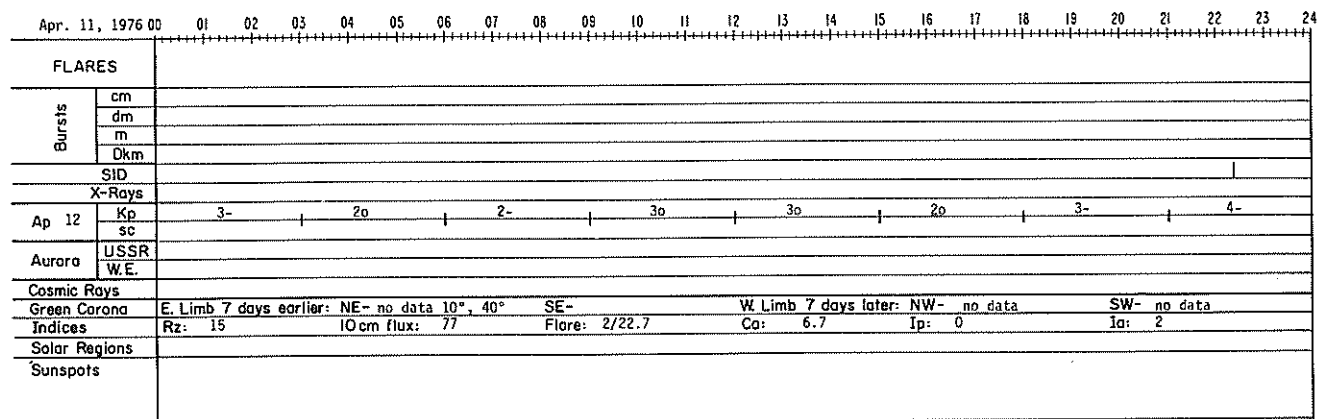
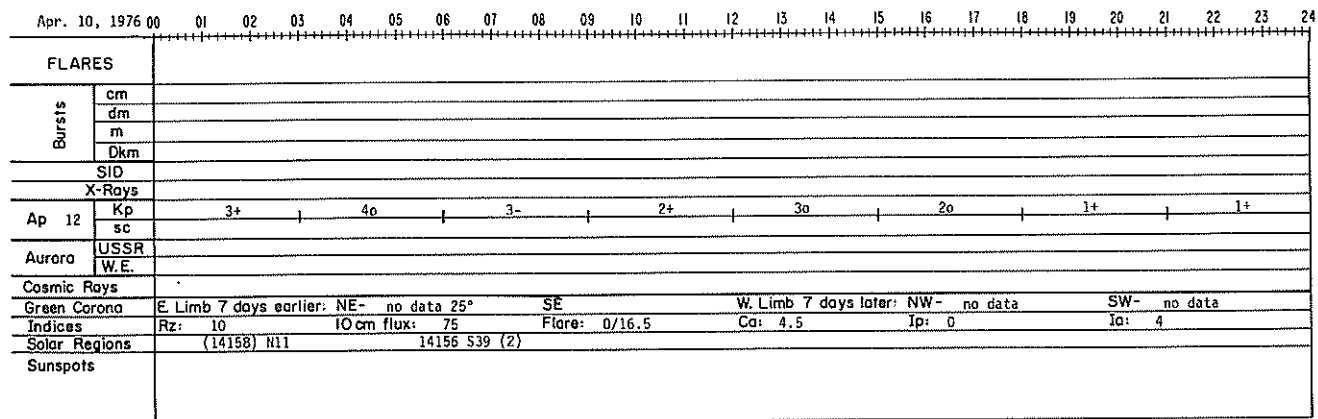
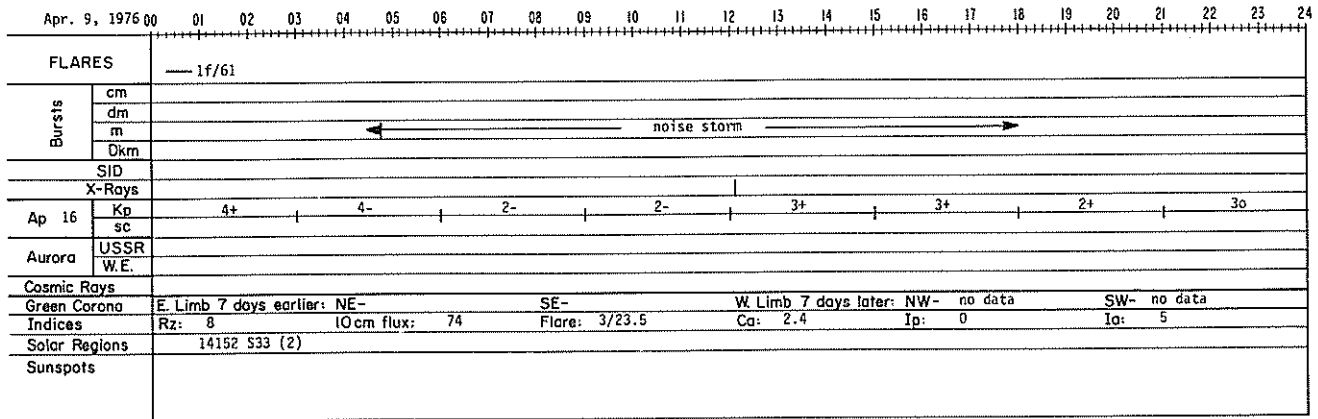
24  
Apr 76

Apr. 5, 1976		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 270	Kp	4 <sub>0</sub>		5-		4 <sub>0</sub>		4 <sub>0</sub>		4-		3 <sub>0</sub>		5-		3+												
	sc																											
Aurora	USSR	$\phi = 54^\circ$ 1600-1900 (HP1)																										
	W.E.																											
Cosmic Rays																												
Green Corona	E. Limb 7 days earlier: NE-											SE-				W. Limb 7 days later: NW- no data				SW- no data								
Indices	Rz:	12	IO cm flux: 73					Flare: 2/19.5				Ca: 2.3				Ip: 0				Ia: 7								
Solar Regions																												
Sunspots																												

Apr. 6, 1976		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 300	Kp	5-		5-		4+		4+		4-		3+		4+		4 <sub>0</sub>												
	sc																											
Aurora	USSR	$\phi = 59^\circ$ 1700-1900 (HA2)																										
	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 270°-275°				SW- no data 235°-270°								
Indices	Rz:	9	IO cm flux: 71					Flare: 1/22.4				Ca: 0.4				Ip: 0				Ia: 7								
Solar Regions																												
Sunspots																												

Apr. 7, 1976		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 27	Kp	4-		4-		5-		3+		5 <sub>0</sub>		3-		3+		5-												
	sc																											
Aurora	USSR	$\phi = 57^\circ$ 1300-1400 (HA1)																										
	W.E.																											
Cosmic Rays																												
Decrease which began March 25 returned to normal																												
Green Corona	E. Limb 7 days earlier: NE-											SE-				W. Limb 7 days later: NW- no data 315°				SW- no data 260°								
Indices	Rz:	0	IO cm flux: 70					Flare: 0/20.1				Ca: 0.4				Ip: 0				Ia: 6								
Solar Regions																												
(14153) N15																												
Sunspots																												

Apr. 8, 1976		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 14	Kp	4+		3+		2+		3-		3-		2-		3 <sub>0</sub>		2+												
	sc																											
Aurora	USSR																											
	W.E.																											
Cosmic Rays																												
Green Corona	E. Limb 7 days earlier: NE- no data 0°-90°											SE- no data 90-95°; 135-180°				W. Limb 7 days later: NW- no data				SW- no data								
Indices	Rz:	0	IO cm flux: 72					Flare: 0/22.7				Ca: 0.8				Ip: 0				Ia: 5								
Solar Regions																												
(14155) N32																												
Sunspots																												



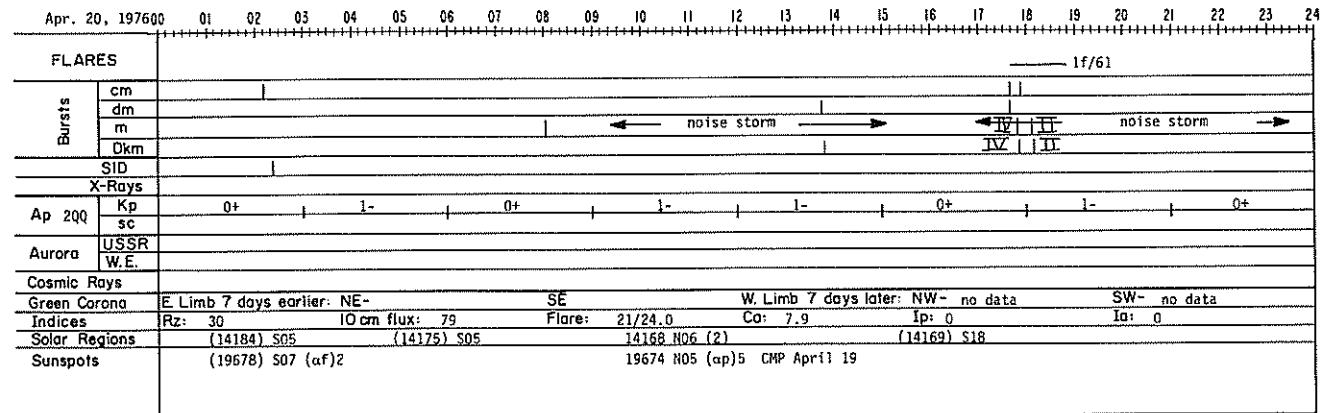
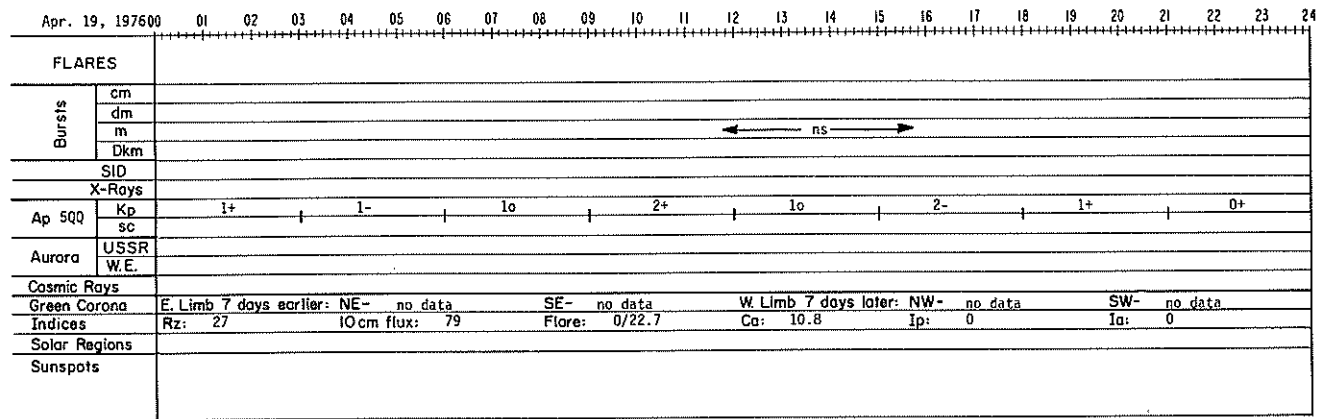
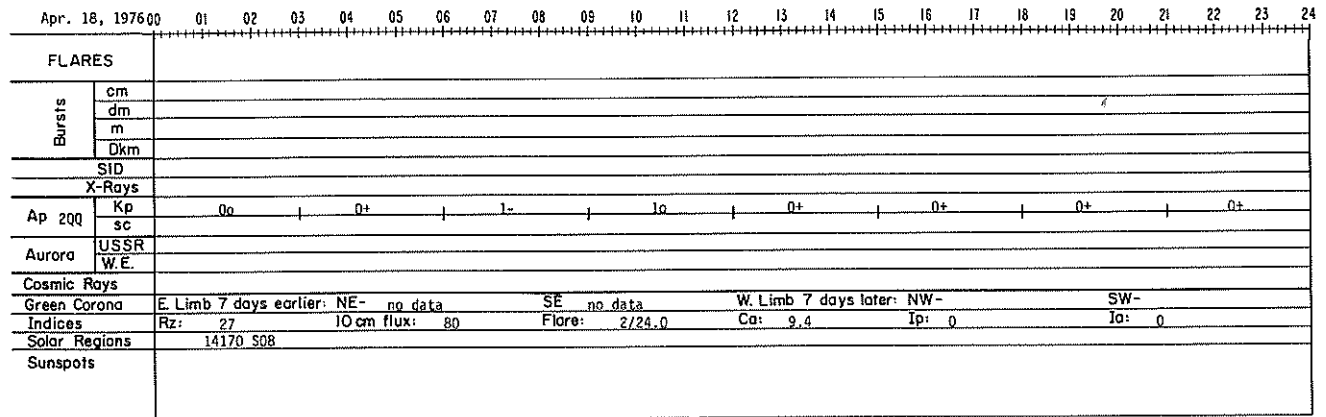
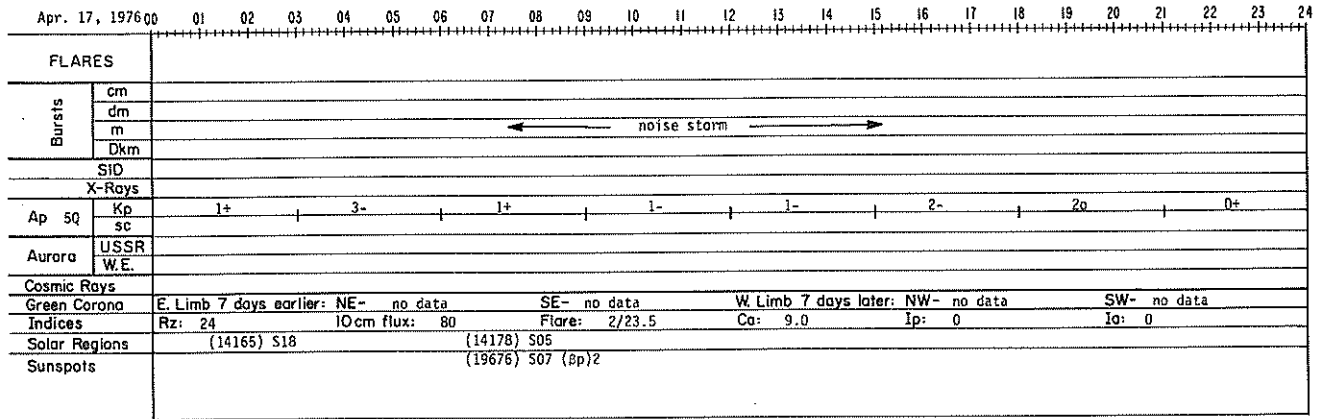
26  
Apr 76

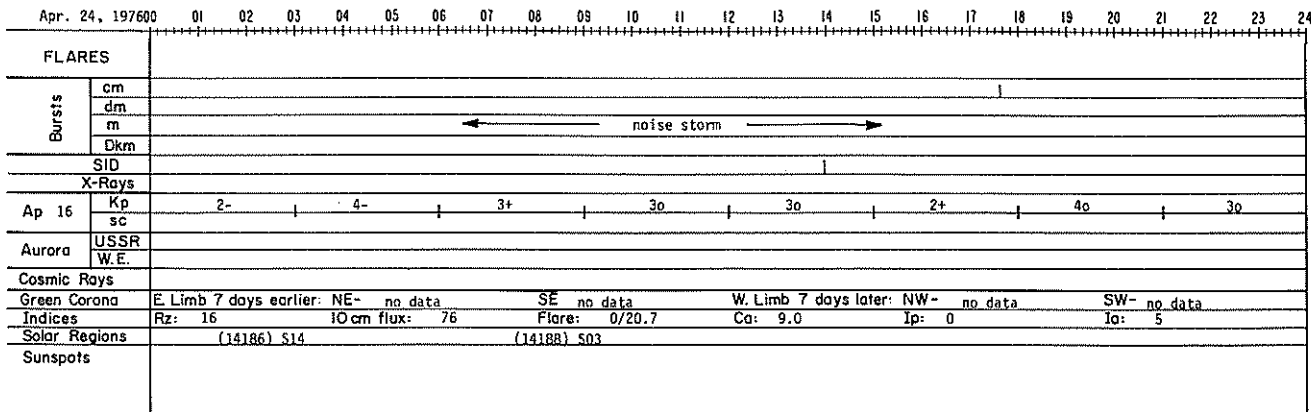
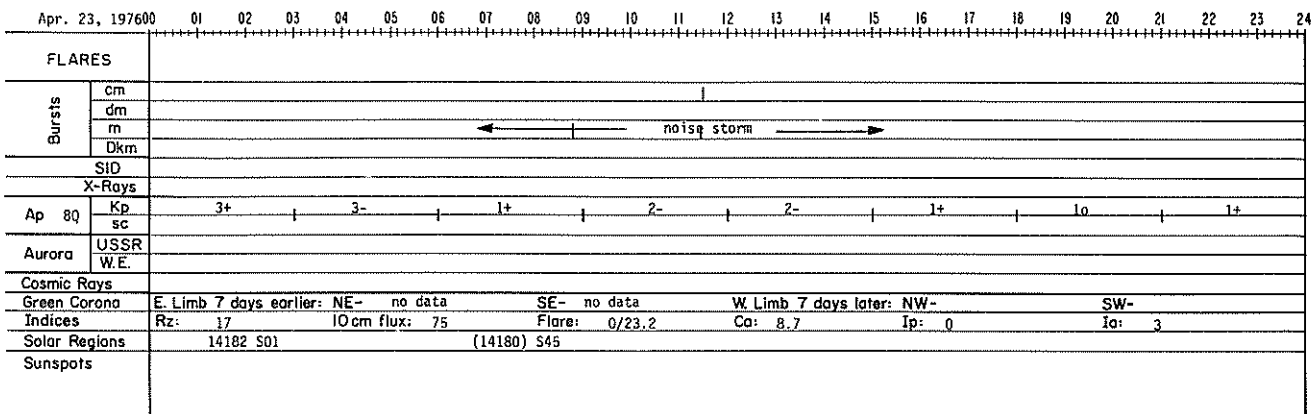
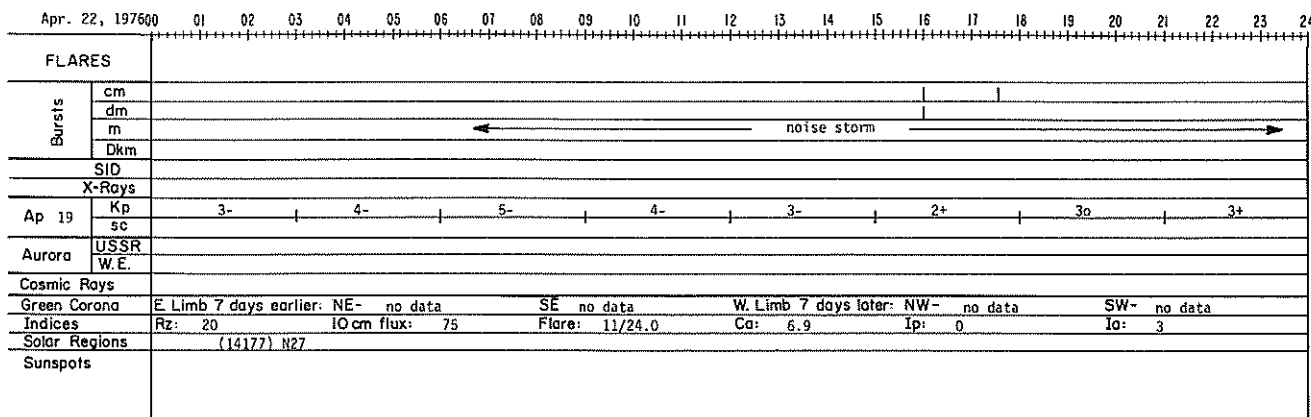
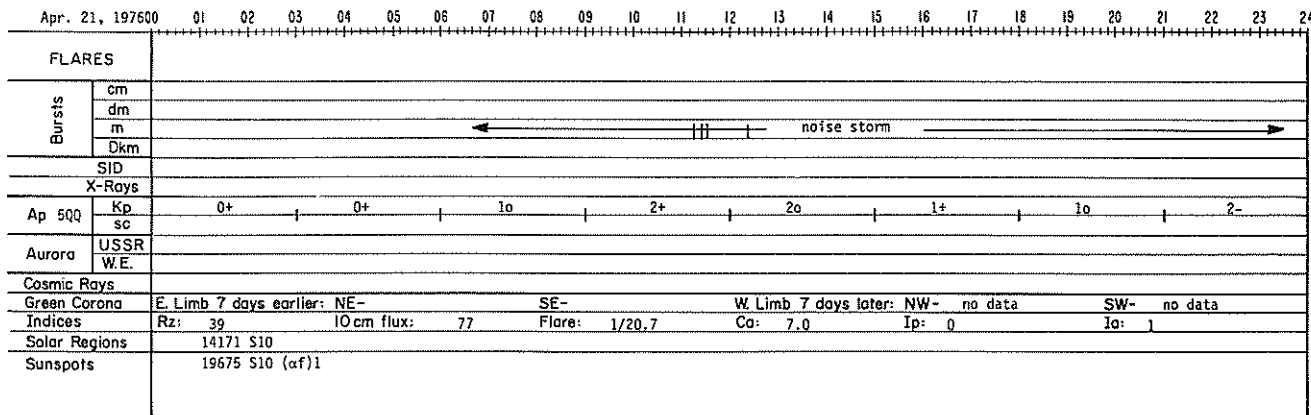
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FLARES																										
Bursts	cm																									
	dm																									
	m																									
	Dkm																									
SID																										
X-Rays																										
Ap 13	Kp	4-			3-			2o			3-			2+			2-			3+			3o			
	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: 17	IO cm flux: 79					Flare: 0/24.0					Ca: 9.8					Ip: 0					Ia: 1				
Solar Regions	(14162) N34																									
Sunspots																										

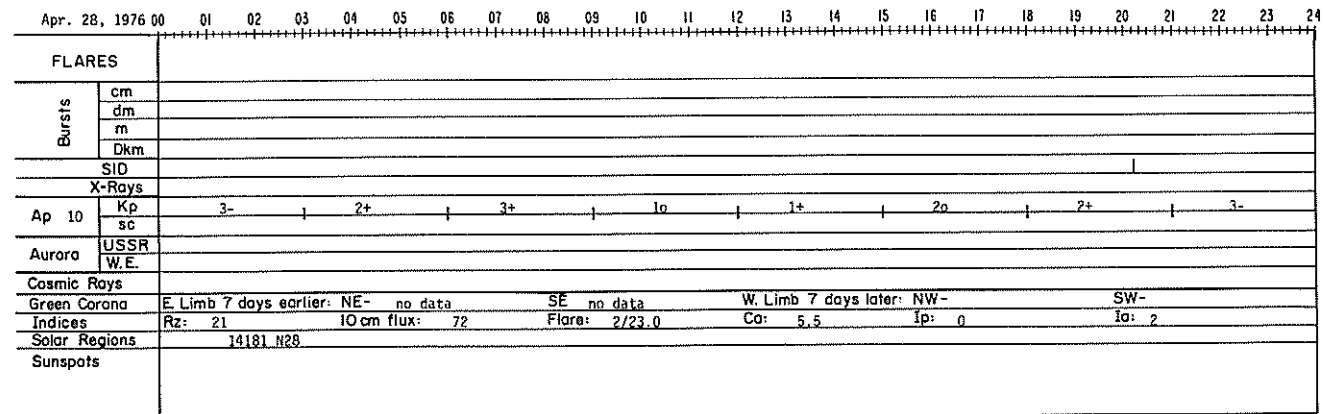
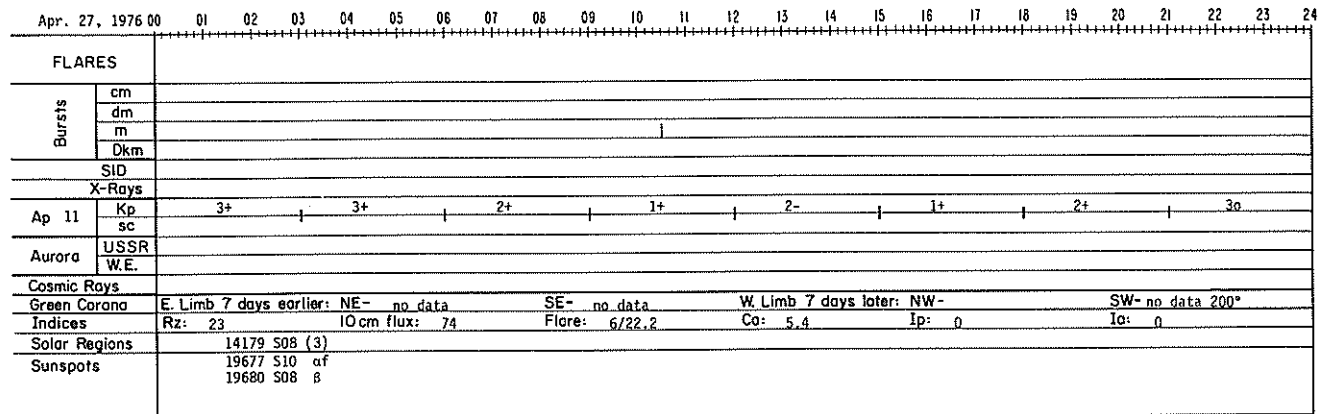
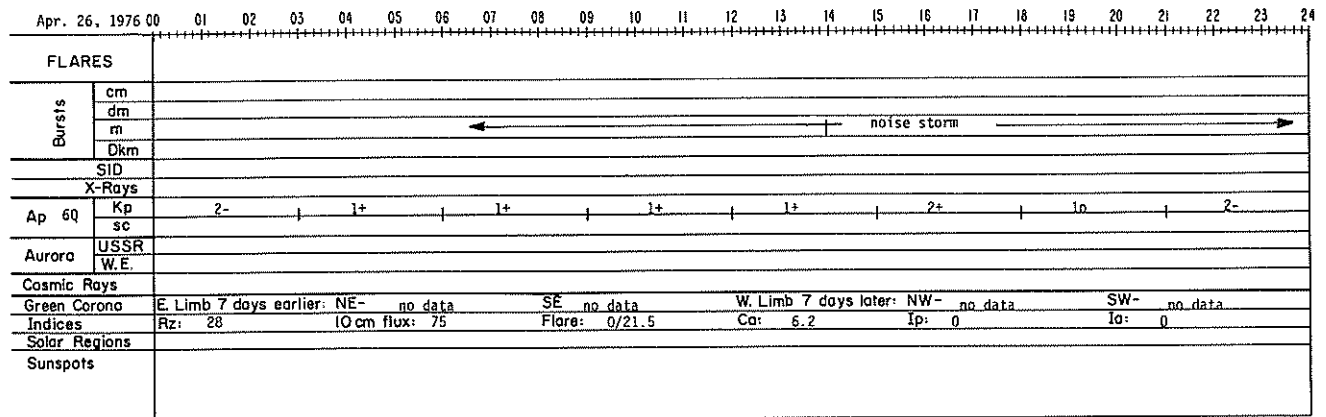
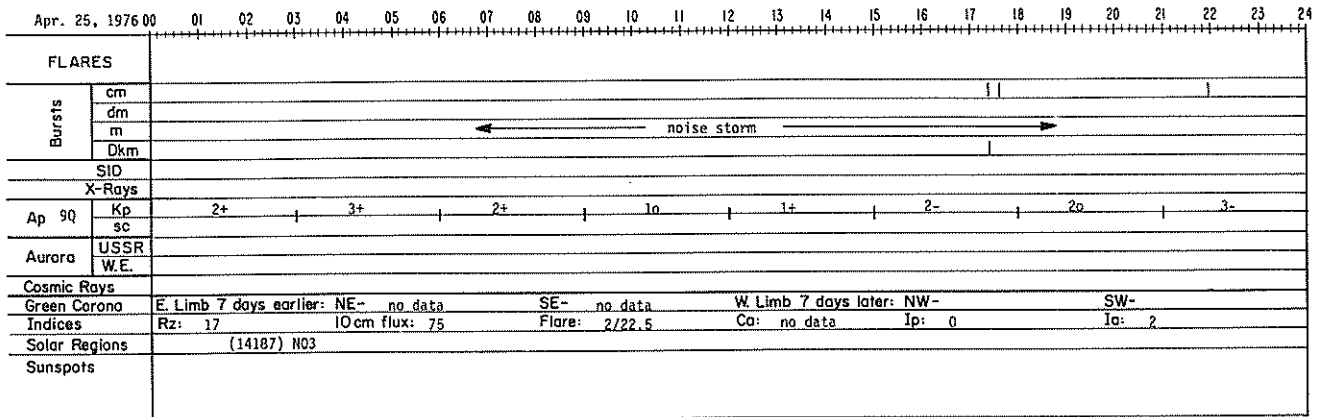
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FLARES																										
Bursts	cm																									
	dm																									
	m																									
	Dkm																									
SID																										
X-Rays																										
Ap 15	Kp	2+			3-			3o			3-			3+			4-			3-			3+			
	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: 19	IO cm flux: 79					Flare: 12/22.6					Ca: 10.3					Ip: 0					Ia: 5				
Solar Regions	14163 S13										14161 N06 (2)															
Sunspots	19672 N02 (ap)5 19673 N01 (α)2																									

Apr. 15, 1976 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 40Q	Kp	2-			1-			1-			1o			1o			1+			1o			1+			
	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: 19	IO cm flux: 79					Flare: 0/21.2					Ca: 9.3					Ip: 0					Ia: 0				
Solar Regions	(14173) N32																									
Sunspots																										

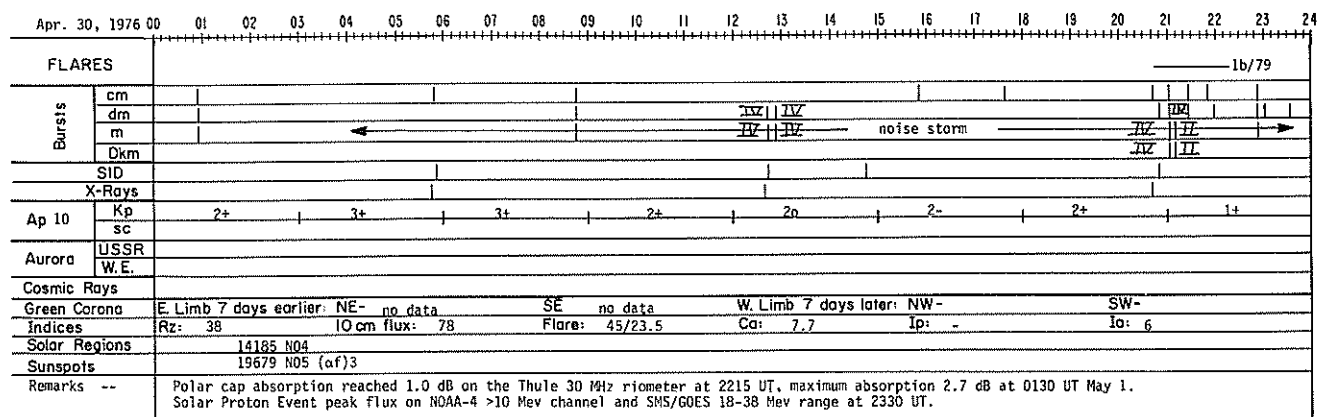
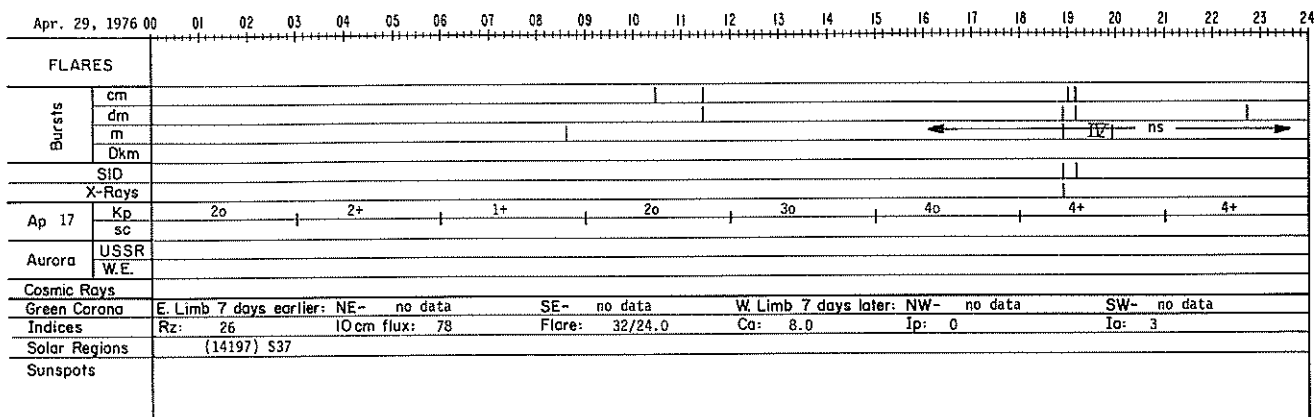
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FLARES																										
Bursts	cm																									
	dm																									
	m																									
	Dkm																									
SID																										
X-Rays																										
Ap 8Q	Kp	3-			3-			2+			2-			1+			1-			1+			2+			
	sc																									
Aurora	USSR																									
	W.E.																									
Cosmic Rays																										
Green Corona	E. Limb 7 days earlier: NE-										SE					W. Limb 7 days later: NW- no data					SW- no data					
Indices	Rz: 19	IO cm flux: 80					Flare: 9/23.4					Ca: 8.7					Ip: 0					Ia: 0				
Solar Regions	(14176) S07										(14174) N38															
Sunspots																										







30  
Apr 76



REGIONAL FLARE INDEX  
INCLUDES ALL FLARES

MC MATH PLAGE NO.	LAT	CHP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUH	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
14160	S 4	76/04/12.7	76/04/06	76/04/06	.89	.89	1
14163	S13	76/04/14.1	76/04/14	76/04/14	.21	.21	1
14161	N 5	76/04/14.9	76/04/09	76/04/20	31.25	2.60	12
14168	N 6	76/04/20.4	76/04/16	76/04/21	19.22	3.20	5
14171	S10	76/04/21.1	76/04/17	76/04/22	9.08	1.51	3
14179	S 8	76/04/27.1	76/04/22	76/05/01	85.54	8.55	22
14185	N 4	76/04/30.8	76/04/25	76/05/05	9.33	.85	6

Note:

Because of differences in method of calculation, the dates of Central Meridian Passage for the McMath Plage Regions vary somewhat from those given elsewhere. Any region not listed here produced no flares during its disk passage.

MISCELLANEOUS DATA

Contents

	Page
<u>Solar Radio Waves</u>	
Spectral Observations - Culgoora -- August 1976	32-35
<u>Solar Wind</u>	
IMP 8 - April 1976	36



32  
Misc  
Aug. 76

# SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

AUGUST 1976

AUG 1976	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE			
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND						
	START UT	END UT			START UT	END UT	INT	START UT	END UT	INT	START UT	END UT		INT		
01	0000	0738	CULG				0000	0738	1							IIIS
			CULG	0000	0738	1	0000	0738	2						IS,DC	
			CULG				0014.5	0016	2						IIIG	
			CULG	0025	0228	1	0223	0231.5	2	0015	0015.5	1			IIIGG	
			CULG	0319	0320	1							0225	0228	1	FAST DRIFT
			CULG				0448	0505	2							IIIGG
	2038	2400	CULG	0647	0647.5	2	0647	0648	3						IIIB	
			CULG	2038	2400	1	2038	2400	2						IS,DC	
			CULG	2038	2400	1									IIIN	
			CULG				2038	2400	1							IIIS
			CULG	2310	2311	1	2309.5	2311	2							IIIG
02	0000	0738	CULG	0000	0738	1	0000	0155	1							IS,DC
			CULG	0000	0738	1										IIIN
			CULG				0000	0738	1							IIIS
			CULG	0036	0037	1	0036	0037	2							IIIG,U
			CULG	0151.5	0155.5	2	0151.5	0155.5	2							IIIGG,V
			CULG				0155	0320	2							IS,DC
	2038	2400	CULG	0702	0711	2	0702	0711	2							IS,DC
			CULG	0710	0728	1	0710	0728	1							IIIGG,V
			CULG				2038	2400	1							CONT
			CULG	2038	2400	1	2038	2400	1							IIIS
			CULG	2228	2236	1	2228	2236	2	2228	2233	2				IS,DC,C
			CULG	2236	2315	1	2236	2330	2							IIIN
03	0000	0738	CULG	0000	0738	1	0000	0738	1							IS,DC
			CULG	0000	0738	1										IIIN
			CULG				0000	0738	1							IIIS
			CULG	0006	0015	1	0000	0020	2							IIIGG
			CULG	0113.5	0116	1	0113.5	0116	1							IIIG
			CULG	0451	0503	1	0448	0503	2	0455	0500	1				IIIGG
	2038	2400	CULG	0638	0639.5	1	0638	0639.5	1							IS,C
			CULG	0706	0708	1	0706	0708	2							IIIGG
			CULG	2038	2400	1										IIIN
			CULG				2038	2400	1							IIIS
			CULG	2038	2400	1	2038	2400	2							IS,DC
			CULG	2322	2342.5	1	2322	2342.5	2	2325	2334	1				IIIG
04	0000	0725	CULG	0000	0725	1	0000	0725	2							IS,DC
			CULG	0000	0725	1										IIIN
			CULG				0000	0725	1							IIIS
	2038	2400	CULG	0524	0525	1	0524	0525	2	0524.5	0525	1				IIIG
			CULG	2038	2400	1	2038	2400	2							IS,DC,C
			CULG	2038	2400	1				2038	2400	1				IIIN
05	0000	0738	CULG	0000	0738	1	0000	0738	2							IS,DC,C
			CULG	0000	0738	1				0000	0738	1				IIIN
			CULG				0000	0738	2							IIIS
	2039	2400	CULG	0021	0022.5	1	0021	0022.5	2							IIIGG
			CULG	2039	2400	1	2039	2400	2							IS,DC,C
			CULG	2039	2400	1				2039	2400	1				IIIN
06	0000	0738	CULG	2321	2322	1	2039	2400	2							IIIS
			CULG	2321	2322	1	2321	2322	2	2321	2322	2				IIIG,V
			CULG				2331.5	2332.5	2							IIIG,U
	2038	2400	CULG	2351	2357	1	2351	2357	2	2351.5	2357	2				IIIGG,V
			CULG	0000	0738	1	0000	0738	2							IS,DC,C
			CULG	0000	0738	1				0000	0738	1				IIIN



34  
Misc  
Aug 76

# SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

AUGUST 1976

AUG 1976	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	
15	2200	2400	CULG CULG CULG CULG CULG	0515	0535		0202 0326 0431 2227	0328 0648 2310					IIIB,W IIIG,W IIIN,W IN,W IIIN,W
16	0000 2220	0730 2400	CULG CULG CULG CULG				0143 2220 2301 2323	0155 2400 2324					IIIN,W IN,W IIIB,W IIIG,W
17	0000	0730	CULG CULG CULG CULG CULG CULG CULG CULG	0441	0443	1	0034 0115 0206.5 0330 0352 0435 0438 0441	0207.5 0430 0359 0436 0439 0444					IIIB,W IN,W IIIG,W IIIN,W IIIG,U IIIG IIIG IIIG,V,U
18	0005 2036	0736 2400	CULG CULG CULG CULG CULG	2056	2057	1	2036 2056 2141 2155 2329	2200 2058.5 2142.5			2329.5	1	IS,W IIIG IIIG IIIB,W IIIB
19	0000 2035	0735 2400	CULG CULG CULG CULG CULG				0024 0158 0559 2105.5 2109 2115.5	0025 0159 0600	1				IIIG IIIG,W IIIG,W IIIB,W IIIG,U IIIB,U
20	0000 2035	0735 2400	CULG CULG	2128	2129		0018 2128	0019 2129					IIIG,W IIIG,W
21	0000 2035	0735 2400	CULG CULG										
22	0000 2035	0735 2400	CULG CULG										
23	0000 2036	0736 2400	CULG CULG CULG				0003 0707.5						IIIB,W IIIB,U
24	0000 2036	0736 2400	CULG CULG										
25	0000 2034	0734 2400	CULG CULG										
26	0000 2034	0734 2400	CULG CULG										
27	0000 2034	0734 2400	CULG CULG										
28	0000 2034	0734 2400	CULG CULG				0204	0205	2	0204	0205	1	IIIB
29	0000 2034	0734 2400	CULG CULG				2048	2049.5	1				IIIG
30	0000 2033	0733 2400	CULG CULG CULG CULG	0342	0600		0117.5 2121 2154 2202						IIIB,W IS,W IIIB IIIB IIIB,W

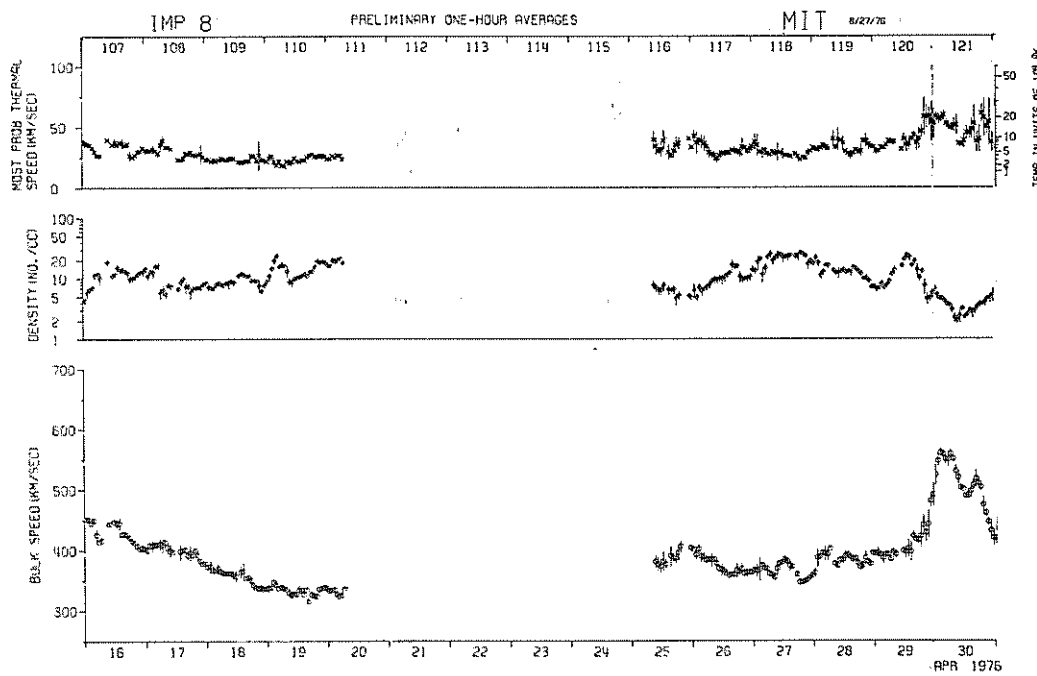
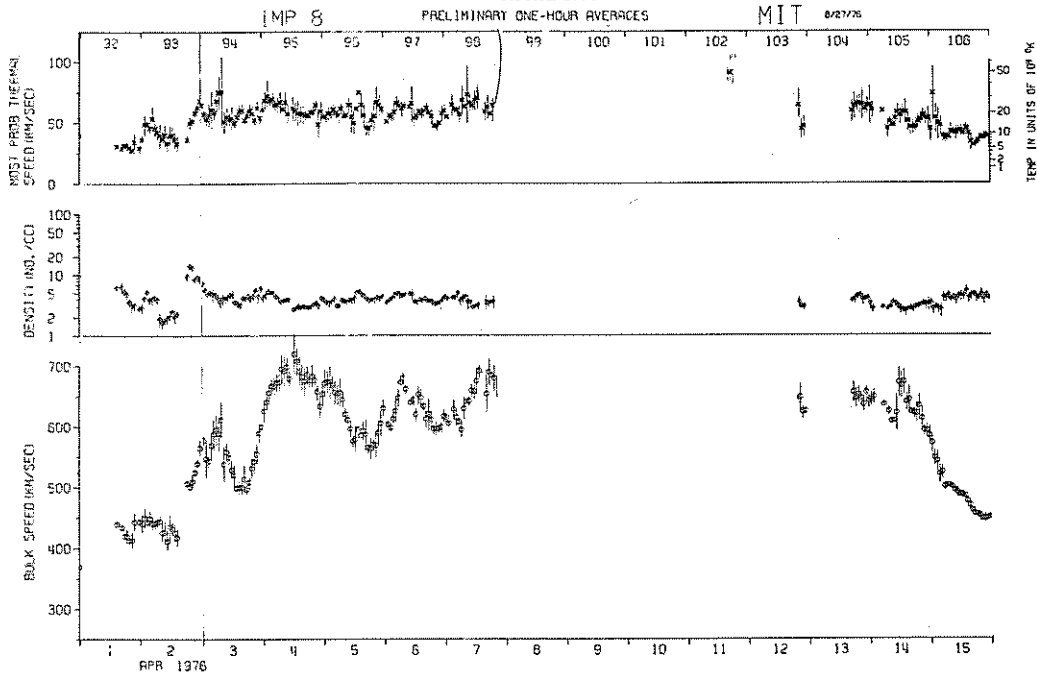
# SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

AUGUST 1976

AUG 1976	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE		
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAWETRIC BAND					
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT			
30			CULG CULG	2232	2233		2225.5								IIIB,W IS,W
31	0000	0732	CULG CULG CULG CULG CULG CULG CULG				0000 0000 0424 2032 2032	0732 0732 2400 2400							IS,W IIIN,W IIIB,W IIIN IS IS IIIN IIIB
	2032	2400		2100	2400	1	2220 2358	2300							

# IMP 7 AND 8 SOLAR WIND PLASMA

APRIL 1976



## UAG Series of Reports

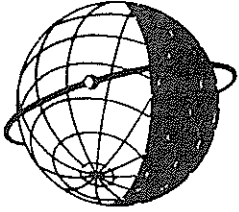
Prepared by World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado, U.S.A.

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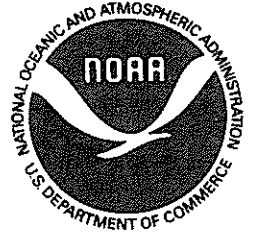
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- UAG-39 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1971", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, February 1975, 144 pages, price \$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 Laboratory, 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 Laboratory, 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 80301 USA, September 1976, 61 pages, price \$1.04.



**WORLD DATA CENTER A**  
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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."