REPORT UAG-80

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EXPERIMENTAL COMPREHENSIVE SOLAR FLARE INDICES FOR "MAJOR" AND CERTAIN LESSER FLARES 1975-1979

July 1981

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Based in part on data collected at the former
McMath-Hulbert Observatory of
The University of Michigan

1. INTRODUCTION

In July 1971 a report on "An Experimental, Comprehensive Flare Index and its Derivation for 'Major' Flares, 1955-1969" was published by the present authors as Report UAG-14 of World Data Center A for Solar-Terrestrial Physics. The index apparently proved to be a useful tool for some investigators, and values of the indices for the later years, 1970-1974, were published in Report UAG-52, "Experimental Comprehensive Solar Flare Indices for Certain Flares, 1970-1974". Requests have been received for values of the Comprehensive Flare Index (CFI) for still later years. Accordingly, the present report has been prepared for 1975 through 1979, years that complete data for solar cycle 20 and provide information for the ascending branch of cycle 21. (For November-December 1979, it was necessary to use preliminary summaries of flare data. Final Hα flare evaluations were not available for these months at the time of preparation of this report.)

We continue to point out the experimental nature of the index and to recognize its imperfections, but its use and availability for almost a decade have introduced a certain gratifying ease in the handling of extensive flare data. Comprehensive flare indices, and the profiles on which they are based, for the so-called "major" flares, permit one to identify easily flare-events that were well above average in some or all aspects of the electromagnetic spectrum (ionizing, optical, and radio frequency radiation). In spite of changing observing and reporting techniques, over the years, it is our belief that Reports UAG-14 and 52 and the present study, together present relatively complete and homogeneous information about the truly greatest flares (i.e., CFI> 10) in the last 25 years (see Report UAG-52, page 19 and part 4 of this study). For "major" flares with CFI's < 10, modifications in the observing and reporting programs (primarily of Type II bursts) have introduced certain unavoidable inhomogeneities in the number of events qualifying for inclusion in the lists of so-called "major" flares.

The five components that comprise the "profile" of the flare are listed below. The sum of the five components gives the Comprehensive Flare Index (CFI).

a. Importance of ionizing radiation as indicated by time-associated Short Wave Fade or Sudden Ionospheric Disturbance;* (Scale 0-3).

b. Importance of Hα flare; (Scale 0**-3).

c. Magnitude of ~ 10 cm flux; (characteristic of log of flux in units of $10^{-22}Wm^{-2}Hz^{-1}$).

d. Dynamic spectrum; (Type II = 1, Continuum = 2, Type IV with duration > 10 minutes = 3).

e. Magnitude of ~ 200 MHz flux; (characteristic of log of flux in units of $10^{-22}Wm^{-2}Hz^{-1}$).

* Prior studies reported in UAG-52 indicated a close relationship between the importance of the SID and the peak x-ray flux for major flares. The two values increase together. Accordingly we have continued to use the magnitude of the SID as a measure of the ionizing radiation.

**Hα subflares are evaluated as of importance "0".

2. COMPREHENSIVE FLARE INDICES FOR "MAJOR" FLARES

In the present study, as in the two earlier reports, values of the Comprehensive Flare Index have been derived for flares that are considered to have been well above average in either ionizing, Hα , or radio frequency radiation. Specifically, the index has been determined for all flares in the years 1975-79 that satisfied any one of the following criteria:

Short wave fade (or Sudden Ionospheric Disturbance), importance ≥ 3.
Hα Flare, importance ≥ 3.
10 cm Flux, ≥ 500 × $10^{-22}Wm^{-2}Hz^{-1}$.
Type II burst.
Type IV radio emission, duration > 10 minutes.

Each flare that satisfied at least one of the above criteria can, in some sense, be considered to have been a "major" flare and is so referred to in this report. The times of these "major" flares, with their respective profiles and comprehensive indices, are listed in Table 1 (at the end of the text). In this table, the reported time refers to the Hα flare or subflare, when known. When no Hα event has been reported, a nominal time is given in parentheses and refers to the approximate time of the short wave fade or the radio frequency emission. Careful

distinction has been made between "no flare or subflare reported" and "Hα observations not in progress". An asterisk in the Time column of Table 1 identifies the latter situation. Underlined times indicate best estimates of starting and ending times of the Hα flare. The remarks column gives additional information about the flare event, especially the radio frequency emission. This column indicates the occurrence of a Type II burst when this fact is masked in the fourth entry in the profile by the occurrence of additional continuum or Type IV emission.

The primary source of flare data used in Table 1 is the Quarterly Bulletin on Solar Activity supplemented by reports from individual observatories given in Solar-Geophysical Data bulletins. The latter publication is also the source for the ionospheric and radio frequency data. For conventions of abbreviations, see "Solar-Geophysical Data (SGD)" especially SGD 366 (Supplement) Explanation of Data Reports, February 1975, U. S. Department of Commerce (Boulder, Colorado 80302), USA). See also the notes at the end of Table 1 of this report.

3. COMMENTS ON THE DATA INCLUDED IN THE LIST OF "MAJOR" FLARES

Table 2 of this report provides a comparison of the Hα importance of the flares in the list of "major" flares, 1975-1979, with the Comprehensive Flare Indices for the same events. In these years, as in earlier studies, flares that were markedly above average in at least one aspect of the electromagnetic spectrum included a high proportion of events (56%) that were reported only as Hα subflares, or were not detected and not reported at all in Hα . These results continue to support the worldwide effort to compile data on Hα subflares as well as for the more important optical events.

TABLE 2. Hα IMPORTANCE OF FLARES IN LIST OF "MAJOR" FLARES, 1975-1979

Hα Importance	Value of Comprehensive Index						Total
	1-3	4-6	7-9	10-12	13-15	>15	
			Number of Flares				
3	0	0	3	2	5	1	11
2	0	10	24	25	8	0	67
1	15	54	58	30	3	0	160
S	89	67	30	3	0	0	189
?	77	25	7	5	0	0	114
TOTAL	181	156	122	65	16	1	541
			Percent of Flares				
3	0	0	2	3	31	100	2
2	0	6	20	38	50	0	12
1	8	35	47	46	19	0	30
S	49	43	25	5	0	0	35
?	43	16	6	8	0	0	21
TOTAL	100	100	100	100	100	100	100

The "major" flares distributed by year and by value of the comprehensive flare index are enumerated in Table 3. It can be seen that even in 1976, the year of sunspot minimum between cycles 20 and 21, there were 31 events that met our criteria for "major" flares. For 3 of these flares, the CFI's were > 10 and constituted significant solar events. In addition, Table 3 shows the level of flare activity in the first three years of cycle 21.

TABLE 3. NUMBER OF "MAJOR" FLARES DISTRIBUTED BY VALUE OF COMPREHENSIVE FLARE INDEX, 1975-1979

YEAR	Comprehensive Flare Index 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	TOTAL
1975	6	2	7	4	4	6	4	3	1	1	2								40
1976	2	3	7	1	1	6	4	3	1	1	1	1							31
1977	16	6	5	3	5	1	4	2	1	1	4	2	2						52
1978	37	16	15	17	27	21	17	17	14	11	9	9	6		4			1	221
1979	23	15	21	23	18	20	14	21	15	13	5	5	3		1				197
TOTAL	84	42	55	48	55	54	43	46	32	27	21	17	11		5			1	541

Similar data from Reports UAG-14 and 52 for reasonably comparable years at the start of cycles 19 and 20 are given in Table 4 and provide a possible basis of comparison for the beginning years of the three cycles. Information for the year of minimum and for a fourth year in cycles 19 and 20 is also included to broaden the basis of comparison.

TABLE 4. NUMBER OF "MAJOR" FLARES

		Total	With CFI ≥ 10
(Year of Minimum)	(1954)	(Data not available)	
Cycle 19	1955	21	1
	1956	77	6
	1957	162	29
	1958	115	28
(Year of Minimum)	(1964)	(3)	(1)
Cycle 20	1965	6	0
	1966	68	16
	1967	102	8
	1968	119	13
(Year of Minimum)	(1976)	(31)	(3)
Cycle 21	1977	51	9
	1978	221	40
	1979	197	27
	1980	(Data not available)	

It is difficult to know how to make valid comparisons for the successive cycles. The increased availability of radio frequency data in later years has tended to increase the number of flare events that qualified as "major" on the basis of Type II bursts. The time of minimum within the year of minimum also has varied in successive cycles making detailed comparisons difficult. In spite of these situations it can be said that the rise to maximum in cycle 21 was especially flare-rich with more events qualifying as "major" flares in 1978 and 1979 than in any year since 1955 when these studies began. The numbers of flares with CFI ≥ 10 in 1978 and 1979 were also exceedingly high.

4. COMMENTS ON APPENDIX TO TABLE 1 WITH COMPREHENSIVE INDICES FOR "LESSER" FLARES

In order to provide values of the Comprehensive Index for flares of potential interest but not included in the list of "major" flares, an Appendix to Table 1 has been prepared. The Appendix follows the format and conventions of Table 1 and gives profiles and comprehensive indices for the following categories of flares:

a. All flares of Hα importance 2 not contained in the list of "major" flares.

b. All ionospheric disturbances of importance 2 not contained in the list of "major" flares.

c. All 10 cm events with an index of 2 not contained in the list of major flares (i.e., bursts with flux < 500 but ≥ 100 flux units).

d. All flares for which Type IV emission was reported but for which the duration was less than 10 minutes.

e. All flares not contained in the list of "major" flares for which continuum emission in the radio spectrum was reported. The frequent reports of day-long continuum without flare association are not included in this tabulation.

This compilation of comprehensive flare indices for so-called "lesser" flares contains 549 entries, 68 of them for flares of Hα importance 2. There were only two cases of indices as great as 9 and 10 respectively. Apparently the listing of "major" flares in Table 1 picks up practically all instances of flares with comprehensive indices as great as 9. See Figure 1 for comparative distributions of comprehensive indices for "major" or "lesser" flares reported in this study.

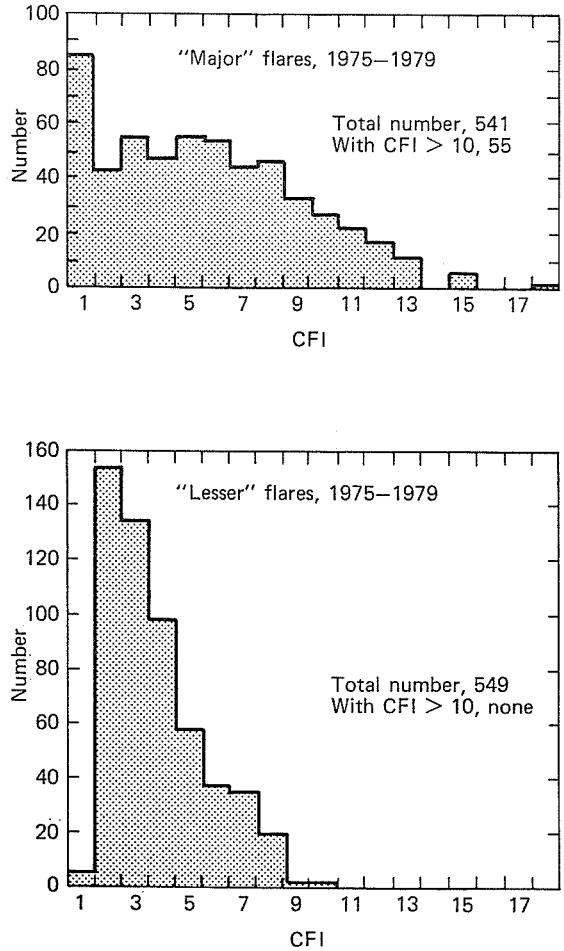

Fig. 1 Distribution of "Major" and "Lesser" Flares by Comprehensive Flare Index (CFI), 1975–1979.

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TABLE 1

COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979†

DATE	TIME (UT) OF FLARE OR EVENT††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
1975							
Jan 6	0735-0908	N04E20	1n	13409	01132	7	IV(DCM,M)IIIG,V,U(M)
12	0707-0728	N04E50	sn	13422	00012	3	II(M);IIIg,V(DCM,M,DKM)
Mar 2	(1640-1835)				00031	4	IV(M,DKM);IIIg(M,DKM) No flare reported.
Jun 24	(1635)				00010	1	II(DKM);No flare reported.
30	(2301)				00032	5	IV(M,DKM);No flare reported.
Jul 2	1622-1637	N06W31	1n	13738	11032	7	IV(DKM);II(M,DKM);IIIG, U(DCM,M,DKM);CONT(M,DKM)
3	(0330)				00010	1	II(DKM):No flare reported
24	1436-1500	N08E40	1n	13777	01011	3	II(M,DKM);IIIg(M,DKM)
27	1815-1825	N09W19	sf	13783	00030	3	IV(DCM,M);IIIG(DCM,M)
Aug 1	2252-2257	N07W75	sf	13777	00010	1	II(DCM,M);IIIg(DCM)
3	(0112)	Culgoora Radio - Heliograph Source is P.A.310°,1.6R⊙		Region 13777, NW Limb	10010	2	II(M);IIIG(M). No flare reported.
3	0323-0455	N09E28	1b	13786	21222	9	II(M);IIIg(DCM,M,DKM); CONT(DCM,M,DKM).
3	0441-0454	N11E85	sn	13790	10130	5	IV(DCM,M);I and CONT (DCM,M) In progress.
3	1218-1230	N09E79	1n	13790	31000	4	IS(M)
3	1306-1318	N06E24	sf	13786	00030	3	II(M,DKM);IV(DKM);IS(M)
4	1128-1150	N06E08	sf	13789	10010	2	II(DCM,M);IIIg(M)
21	0837-0906	N28W72	sb	13811	20112	6	II(DCM,M);IIIg,V(M)
21	1515-1545	N26W75	1b	13811	21233	11	II(M,DKM);IV(DCM,M);IIIG, V(M,DKM)
21	1523-1545	S06W80	sn	13796	20031	6	IV(M,DKM);CONT(DKM)
21	1947-2010	N26W77	sb	13811	20112	6	II(M);IIIg,V(M,DKM)
22	0108-0144	N27W81	1b	13811	21233	11	II(M,DKM);IV(DCM,M,DKM) IIIG,V(DCM,M,DKM)
22	0509-0540	N27W85	1n	13811	21112	7	II(M);IIIG,V(DCM,M,DKM)
22	0553-0630	N27W84	1b	13811	11012	5	II(M);IIIG,V(DCM,M,DKM)
22	1021-1045	N26W85	1b	13811	31101	6	IIIg(DCM,M,DKM)
22	1158-1252	N27W88	1b	13811	21131	8	II(M);IV(DKM)
27	(0608)				00010	1	II(M);IIIg,V(M); No flare reported.
Sep 1	(0604)				00010	1	II(M);IIIG,V(M); No flare reported.
Oct 8	2341-2350	N32W21	sf	13875	00012	3	II(M);IIIg(DCM)
Nov 6	0115-0138	N02E64	1n	13926	11010	3	II(M);IIIg(DCM,M)
14	0409-0423	S08E78	1n	13937	11222	8	II(M);CONT(DKM);IIIG,V (DCM,M,DKM)
15	1141-1225	S08E59	1n	13937	11131	7	II(M);IV(M,DKM),Possible; IIIG(DCM,M)
15	1847-2000	S06E60	sn	13937	00132	6	IV(M,DKM);I(M,DKM)
16	0538-0621	S07E47	1b	13937	11222	8	II(M);CONT(DCM,M,DKM); IIIG,V(DCM,M,DKM)
16	1450-1520	S07E43	sn	13937	00030	3	IV(M,DKM);IIIG(M)
16	2138-2226	N05W26	sf	13926	00010	1	II(M,DKM)
19	0846-0858	S08E07	sb	13937	00132	6	IV(DCM,M);IIIG(DCM,M)
20	0828-0834	S08W03	sf	13937	00032	5	IV(DCM,M);IIIG(DCM,M). Possibly incorrect flare association.
21	0607-0730	S07W21	1b	13937	11233	10	II(M,DKM);IV(DCM,M);IIIG, V(M,DKM)
26	(2228)				00031	4	II and IV(M,DKM). No flare reported. Active region 13937 is at SW limb.
Dec 8	1418-1433	N05W52	1f	13964	01030	4	IV(M,DKM);IS(M)
1976							
Jan 12	0406-0418	S11E78	sn	14029	10010	2	II(DKM);IIIG(DCM,M,DKM)

See notes to Table 1 on page 20.

COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979 (continued)

DATE	TIME (UT) OF FLARE OR EVENT ††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
1976							
Jan 17	2142-2149	S15E02	sf	14029	00110	2	II(DCM,M,DKM);IIIg,U,V (M,DKM).
19	(1414)				00010	1	II(DKM);No flare reported (No Patrol 1434-1743 UT).
19	(1850)*				00012	3	II(DKM);IIIG,V,U(M,DKM) No flare patrol 1836-2044
Mar 20	(0205)	(Perhaps active region 14143 on invisible hemisphere)			00110	2	II(M,DKM);IIIg,V(DCM,M) No flare reported. Cuggoora radio heliograph places source E. Limb (1.3 RO,P.A. 80°).
20	(2257)				10020	3	II(M,DKM);CONT(M,DKM); IIIG(M,DKM);No flare reported; Culgoora places source at E. Limb.
21	0750-0835	N04W29	lb	14127	31102	7	IIIG(DCM,M,DKM)
23	0837-0841 and 0907-0945	S05E90 / S07E90	sb / sn	14143	30234	12	GB,10cm,FLUX = 650; IV(DCM,M),CONT(DKM);IIIG (DCM,M); A strong "radio" flare at all frequencies.
25	1154-1229	S06E75	sn	14143	10232	8	IV(DCM,M);IIIb(M).
25	1305-1430	S05E69	ln	14143	11232	9	IV(M,DKM);IIIg(M)
26	(1720)				00030	3	IV(M,DKM);IIIg,V(M,DKM); No flare reported.
28	0546-0613	S07E37	sb	14143	10113	6	II(M);IIIg,U(M,DKM)
28	0922-1002	S08E31	sn	14143	00032	5	IV(DCM,M),CONT(DKM); IIIg(DCM,M)
28	1342-1353	S07E37	sf	14143	00030	3	IV(M,DKM);IIIG(M,DKM)
28	1905-2021	S07E28	lb	14143	11332	10	GB,10 cm, Flux = 1965; II(M,DKM);IV(DCM,M,DKM) IIIG(M,DKM); A great "radio" flare at all freq
31	1140-1350	S07W09	ln	14143	11132	8	IV(DCM,M,DKM);IIIg(DCM,M)
Apr 5	(2150)*	(Perhaps region 14161 on invisible hemisphere - Return of active region 14127)			0-031	≥ 4	II(M,DKM);IV(DCM,M,DKM) No flare patrol 2045-2515 Culgoora radio heliograph places source at NE Limb (1.2 RO, P.A. 45°).
20	1740-1846	N03W77	sf	14161	00231	6	II(M,DKM);IV(M,DKM) IIIg,V(M,DKM)
29	1904-1940	S08W31	sn	14179	10131	6	IV(M)
30	1243-1306	S06W41	sn	14179	10132	7	IV(DCM,M);IIIG(M)
30	2048-2218	S08W45	lb	14179	21332	11	GB,10 cm, Flux = 1670; II(M,DKM);IV(DCM,M,DKM) IIIG,V,U(M,DKM); A great "radio" flare at all freq
May 1	2140-2238	S08W60	sf	14179	10132	7	II(M);IV(DCM,M),IIIG (DCM,M).
16	0602-0614	S03W62	sn	14203	10110	3	II(M);IIIG,V(DCM,M,DKM)
Aug 6	(≤ 2038)				00010	1	IIN(DCM,DKM);No flare reported.
7	0155-0209	N12E08	sn	14352	10212	6	10cm Flux = 105; II(M); IIIg(DCM,M).
18	1844-1857	S12E81	sb	14375	20113	7	II(DCM,M,DKM);IIIg, V(DCM,M,DKM)
22	1217-1222	S02W90	sn	14366	20231	8	10cm Flux = 152;IV(DKM)
Sep 1	0650-0735	N19W57	sn	14403	00132	6	IV(DCM,M);CONT(M);IIIG(M)
6	0131-0210	N19W28	sn	14395	10131	6	II(M);IV(M);IIIG(DCM,M, DKM).
Dec 9	0201-0217	N03E33	sn	14553	00012	3	II(DCM,M)
18	(2152)				00030	3	II(M);IV(M);No flare reported. Culgoora radio heliograph places source at SW Limb (1.1RO,P.A. 300°)

See notes to Table 1 on page 20.

COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979 (continued)

DATE 1977	TIME (UT) OF FLARE OR EVENT ††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
Feb 10	(0358)				00010	1	II(DKM);IIIG,V(M); No flare reported.
14	(0013)				00011	2	II(DKM);IIIg(DCM,M); No flare reported.
Mar 12	(0226)				00010	1	II(M);IIIg(DKM); No flare reported.
Apr 8	(0608)				00010	1	II(M);IIIg,V(M); No flare reported.
12	0944-1037	S21E82	1b	14726	31221	9	10 cm Flux = 260; I & CONT(DCM,M);IIIg U(DCM)
16	2307-2442	S21E18	1b	14726	11120	5	II(M);CONT(DCM);IIIg (DCM,M)
21	1527-1550	S18W44	sn	14726	00011	2	II(M);IIIG,U(DCM,M,DKM)
21	(2229)				00010	1	II(M);IIIG(DCM,M); No flare reported.
May 19	0015-0100	S18W39	sb	14771	10010	2	II(M);IIIb(M)
Jun 2	(0430)				10011	3	II(M);IIIG(M,DKM); No flare reported.
23	(0021)				00011	2	II(M);IIIg(DCM,M); No flare reported.
23	2111-2122	S24E26	sn	14815	00013	4	II(M);IIIG,V,U(DCM,M,DKM)
Jul 10	(0251)				00010	1	II(M);No flare reported.
19	(2307)				00130	4	IV(M);No flare reported; MM and CM radio bursts.
Aug 26	0542-0549	S25E06	sn	14915	10112	5	II(M);IIIG,V,U(DCM,M,DKM)
Sep 5	(0921)	(Perhaps active region 14943 on invisible hemisphere)			00010	1	II(M);IIIg(M); No flare reported)
5	(1954)				00021	3	II(M,DKM);CONT(DKM);IIIg (M,DKM);No flare reported
7	2255-2402	N07E90	1n	14943	21333	12	GB,10cm,Flux = 1370; II and IV(DCM,M,DKM);IIIG, V(DCM,M,DKM);A strong "radio" flare at all freq
9	1630-1703	N08E84	1n	14943	21332	11	GB,10cm Flux = 1100;II (M,DKM);IV(DCM,M,DKM)IIIG V(M,DKM);Great radio bursts at mm and cm wave-lengths.
16	2123----- 2230-2443	N07W20	2n	14943	22333	13	GB,10cm,Flux-1480;II(M, DKM);IV(DCM,M);Great radio bursts at CM,DCM and M wavelengths.
19	0955-1205	N08W57	3b	14943	33232	13	10cm Flux = 825;II(M),IV (M),IIIg(M);A great "radio" flare at MM and CM wavelengths.
20	0251-0742	N09W59	2n	14943	22232	11	10cm Flux =350;II(M);IV (DCM,M);IIIg(M)
24	(0552)	(Region 14943 is on invisible hemisphere. One day beyond west limb)			00133	7	II(M);IV(DCM,M);IIIG,V (DCM,M,DKM); No flare reported.
Oct 3	2356-2406	N13W31	sf	14963	00030	3	IV(M)
4	(2325)	(Perhaps active region 14979 on invisible hemisphere, beyond E limb)			00031	4	IIIg,V(M);No flare reported. Culgoora radio heliograph places source at SE limb (1.4 R⊙,P.A. 130°).
6	0425-0500	N31W59	1n	14967	21233	11	II and IV(DCM,M);IIIG,V (DCM,M,DKM)
12	0150-0215	N06W02	1b	14979	21233	11	10cm Flux = 420;II(M,DKM) IV(M);IIIG,V(DCM,M,DKM).A great "radio" flare at all frequencies.
31	0411-0430	N20E70	sn	15017	10112	5	II(M);IIIG(DCM,M)

See notes to Table 1 on page 20.

COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979 (continued)

DATE	TIME (UT) OF FLARE OR EVENT ††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
1977							
Nov 4	(2347)				00010	1	II(M);IIIb,U(M);No flare reported. Culgoora radio heliograph places source at E. limb (1.2 R⊙, P.A. 115°). There is some confusion as to whether this event occurs on Nov. 4 or Nov. 5.
7	0531-0830	S23W45	1n	15016	01031	5	II(M,DKM);IV(DCM,M);UNCL (DCM)
20	(0259)				00010	1	II(M);No flare reported.
22	0945-1108	N24W40	2b	15031	22332	12	GB,10cm,Flux = 1400;IV, (DCM,M);IIIg(M); A strong "radio" flare.
27	(0616)				00010	1	II(M); No flare reported.
Dec 6	1651-1657	S20W11	sn	15049	00133	7	IV(DCM,M,DKM),But very short duration; IIIg, V(M,DKM)
6	1935-1945	S18W18	sb	15049	10214	8	10cm Flux = 116;II(M,DKM) IIIG,V,U(DCM,M,DKM)
8	0151-0256	S26E41	1n	15056	11010	3	II(M)
10	0301-0402	S27E16	1b	15056	21232	10	10cm Flux = 132;II(M),IV (DCM,M);CONT(DKM).
10	0613-0618	N16E90	sn	15067	00010	1	II(M);IIIG,V(M,DKM)
17	0127-0132	N18E10	sb	15067	00010	1	II(DKM), but unconfirmed.
17	0330-0410	S33W90	sn	15056	00010	1	II(DKM), unconfirmed;IIIb U(M).
22	(2354)				00010	1	II(DKM) Unconfirmed. No flare or radio bursts reported.
24	(1307)*				1-112	≥ 5	II(M);IIIG,V(DCM,M,DKM). No flare patrol 1240-1310
24	(2303)				00010	1	II(DKM);IN(M). No flare reported.
26	0150-0157	S26W57	sf	15074	20112	6	II(M)
26	0345-0417	S29W60	sf	15074	00012	3	II(DKM), Unconfirmed.
26	1115-1223	S26W68	sn	15074			
	1159-1225	N24E56	sf	15079	10010	2	II(M);IIIG(M)
	1208-1228	S17E90	sn	15081			
27	1045-1126	S25W79	1n	15074	11231	8	II and IV(M);IN(DCM,M)
	1055-1110	S27W13	sf	15077	10231	7	10cm Flux = 480.
28	(0354)				00010	1	II(DKM); Unconfirmed. IIIg,N in prog. No flare reported.
28	0752-0800	S18E64	sf	15081	00020	2	II(DKM);I & CONT(DCM,M)
30	0406-0432	S16E38	1n	15081	21211	7	10cm Flux = 300; II(M); IIIG,U(DCM).
31	0330-0340	S16E49	sf	15083	00010	1	II(DKM), Unconfirmed.
1978							
Jan 1	2145-2216	S21E06	2n	15081	12230	8	GB,10 CM, Flux = 650;
	2147-2216	S19E28	sn	15083	10230	6	IV(DCM,M),II(M,DKM); Simultaneous flares in adjacent regions.
3	1015-1059	S15E06	1b	15083	11232	9	II and IV (M)
7	1113-1323	S19W71	sn	15081	20233	10	IV(DCM,M);Strong radio bursts at all wavelengths
8	0205-0321	S20W79	2n	15081	32232	12	IV(DCM,M);II(M);IIIG,V (M,DKM)
8	0710-0749	S12W85	2b	15081	22132	10	IV(DCM,M);II(M);IIIG(M)
9	1218-1311	S19W90	sf	15081	20111	5	II(M);IIIg,V(M)
10	(2324)				00012	3	II(M,DKM);IIIG,V(DCM,M, DKM);No known reliable flare.
	Culgoora radioheliograph places moving source of Type IV at 0.8 to 3.0 R⊙, P.A. 270° (probably active region 15081, at and beyond west limb).						
11	0256-0359	N15W31	sf	15092	00010	1	II(M)
30	(0325)				00010	1	II(M);No flare reported.
31	(0343)				00030	3	IV(DKM);III(DKM); No flare reported.
Feb 3	1250-1304	S26W22	sf	15124	00030	3	IV(M),Also continuum emission all day.
7	0822-0900	N17E08	sn	15135	00010	1	II(M);Flare association doubtful.

See notes to Table 1 on page 20.

COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979 (continued)

DATE 1978	TIME (UT) OF FLARE OR EVENT	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
Feb 7	1842-1937	N14E54	sb	15139	00222	6	GB,10 CM Flux = 620;CONT (M);IV Pulsations (DCM)
8	1906-1910	N15E38	sb	15139	10130	5	IV(DCM);IIIG(M,DKM)
9	1151-1206	N13E33	2b	15139	12213	9	II(M);IIIg(DCM,M)
9	1613-1620	N18W11	sf	15135	20114	8	II(DCM,M):Flare association doubtful.
10	(2113)				1-132	≥ 7	IV(DCM,M);II(M,DKM)IIIG, V(DCM,M,DKM);No flare patrol, 2018-2250 UT.
	Culgoora radioheliograph places source (at 2300 UT) at 1.4 RØ, P.A. 320° (Possibly active region 15135 on disk, or region 15126 just beyond west limb).						
13	0115-0400	N15W20	2n	15139	32232	12	IV(M);II(M,DKM);GB, 10 CM Flux = 737.
15	2159-2259	N15W52	sb	15139	10130	5	II and IV(M,DKM);IIIG (DCM,M,DKM).
16	2225-2238	N15W61	sf	15139	00131	5	II and IV in Prog at 2259 UT (Clg. Rad.);IIIg(DCM, M,DKM).
	2229-2304	N27W33	sn	15155			
	Culgoora radio heliograph places source of IV (at 2259 UT) at 0.8 RØ, P.A. 290° (probably region 15139).						
17	0244-0325	N16W05	2b	15139	12012	6	II(M);IIIG(DCM,M,DKM)
18	(1645)				00010	1	II(M,DKM);No flare reported
24	0101-0105	N20E03	sn	15161	00010	1	II(M);IIIG(DCM,M)
25	0302-0331	N19W11	1n	15161	11113	7	II(M);IIIg,U(DCM,M)
25	0811-0827	N21W16	1n	15161	11113	7	II(DCM,M);IIIG(DCM,M)
25	1449-1512	N19W21	1b	15161	21233	11	II & IV(DCM,M);IIIG,U,DC (DCM,M);10 CM Flux = 144.
26	0649-0706	N21W32	sf	15161	10010	2	II(M)
27	(0804)				00010	1	II(M);No flare reported.
Mar 6	1125-1418	N26E20	2b	15172	22121	8	II & CONT(M);IIIg(M).
14	0339-0357	S27E29	sb	15178	10112	5	II(M);IIIG,V,U(DCM,M,DKM)
28	0030-0052	N15W15	sb	15198	00010	1	IIIg and II(M).
28	(1616)				00010	1	II(M) and II(M,DKM);IIIg (M);No flare reported.
Apr 2	(1108)				00010	1	II(M);No flare or SID or radio bursts reported.
3	(0542)				00011	2	II(M);No flare reported.
6	(1904)				10113	6	II(M);IIIG(DCM,M);No flare reported.
7	(2023)				1-225	≥ 10	II(M);IIIG,V(DCM,M,DKM); No flare patrol 2005-2130 UT.
8	0109-0445	N19W11	2b	15221	32232	12	GB,10 CM Flux = 750;II (M);IV(DCM,M);A great "radio flare" at DCM and M wavelengths.
8	0422-0452	N16W08	sn	15221	10130	5	II and IV(M);IIIG(DCM,M, DKM);May be a continuation of previous major event.
8	1050-1058	N23W14	sf	15221	10133	8	IV(M,DKM);IIIG,V(DCM,M); Strong radio bursts at DCM and M wavelengths.
9	(2054)				00013	4	II(M),But questionable; IIIg(DCM,M,DKM);No flare reported.
10	(0222)				10012	4	II(DCM,M);IIIG,U(DCM,M, DKM);No flare reported.
	Culgoora radioheliograph places source at 1.2 RØ, P.A. 30° (Probably active region 15235 at NE limb.)						
10	0244-0352	N16E18	sf	15231	10011	3	II(M),IIIG,V(DCM,M,DKM)
10	1105-1110	N20E75	1b	15235	31223	11	II(DCM,M);CONT(M);IIIG (DCM,M);10 CM Flux = 199.
11	1334-1731	N22W56	2b	15221	32332	13	GB,10 CM FLUX = 2878; II and IV (DCM,M);IIIg(M);A great "radio flare",especially at CM and DCM wavelengths.
11	2120-2132	N18E57	sb	15235	10112	5	II(M);IIIg(DCM,M);Simultaneous flares.
	2120-2133	S28W38	sf	15227			
14	0020-0110	N18E28	1n	15235	01131	6	II and IV(DCM,M);IIIg(M).
15	0630-0703	N14W08	sn	15235	20133	9	IV(M);IIIG,V(DCM,M).
16	0919-0931	N14W22	sb	15235	20112	6	II(DCM,M);IIIG,V,DC(DCM, M,DKM).
16	2317-2326	S19W29	sf	15240	00010	1	II(M).

See notes to Table 1 on page 20.

COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979 (continued)

DATE 1978	TIME (UT) OF FLARE OR EVENT ††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
Apr 18	0104-0148	N14W45	1b	15235	21232	10	II(M);IV(DCM,M);IIIG(DCM, M,DKM);10 CM Flux = 103.
19	(0542)				00010	1	II(M);IIIG(M,DKM); No flare reported.
20	2229-2239	N20W60	sf	15235	00010	1	II(M);No radio bursts reported.
21	0805-0825	N24W55	sn	15254	20112	6	II(M);IIIG(DCM,M);Flare data are incomplete.
23	(0422)				22311	9	GB, 10 CM Flux = 4500; II(M);IIIG,V(DCM,M,DKM) No flare reported.
	Culgoora radioheliograph places source at 1.1 R⊙, P.A. 0° to 55° (Probably active region 15266 on invisible hemisphere, just beyond East limb.)						
23	(2018)				20122	7	II(M,DKM);CONT(DCM,M) IIIG,V(M,DKM);No flare reported.
25	1535-1655	N18E72	1b	15266	21300	6	GB,10 CM Flux = 3800; IIIG(DCM)
28	1304-2232	N22E38	3b	15266	33435	18	GB,10 CM Flux = 24,000;II and IV(DCM,M);IIIG(M);A very great "radio flare" at all wavelengths.
29	2010-2211	N20E14	2b	15266	32334	15	GB,10 CM Flux = 3585;II (M);IV(DCM,M,DKM)IIIS(M, DKM);A great "radio flare" at all wavelengths
30	1420-1859	N28E14	3b	15266	33333	15	GB,10 CM Flux = 1900;II (M,DKM);IV(DCM,M);IIIG(M) A great "radio flare" at all wavelengths.
May 1	0538-0620	N29E01	sn	15266	00010	1	II(M);IIIg(M,DKM)
1	1910-2230	N21W12	2b	15266	22333	13	GB,10 CM Flux = 1665;II (M);IV(DCM,M);IIIG(DCM, M,DKM);IC(M,DKM);A strong "radio flare".
2	0048-0209	N26E03	sn	15266	20133	9	II(M);IV(DCM,M);IIIG,V (DCM,M,DKM);Strong radio bursts at M wavelengths.
2	0345-0413	N30W05	1n	15266	11110	4	II(M),But questionable; IIIg(M).
2	0514-0530	N25E01	sf	15266	00011	2	II(DCM)?;IIIg and IIIN(M)
2	0614-0625	S26E78	sn	15280	10113	6	II(M);IIIG,V(DCM,M); Strong radio bursts at M wavelengths.
	(Preceded by sf flare at N35E19 in region 15266)						
2	0635-0710	N29W12	1b	15266	11232	9	10 CM Flux = 192;IV(DCM) IIIG,V(DCM,M,DKM).
2	1610-1615	S27E72	sb	15280	00113	5	II(M);IIIG,V(DCM,M,DKM) Strong radio bursts at DCM and M wavelengths.
3	1211-1242	N22W27	sf	15266	10030	4	IV(M);IIIG,V(M)
4	(0457)				00011	2	II(DCM,M);IIIg(DCM);IS,DC (M);No flare or radio bursts reported.
	Culgoora radiograph places source at 1.2 R⊙, P.A. 25° (probably from region 15266)						
4	1206-1240	N22W48	sf	15266	00010	1	II(M);IN(M)
6	(2019)				2-233	≥ 10	10 CM Flux = 150;II(DCM, M,DKM);IV(DCM)IIIg(M,DKM) No flare patrol 1833-2230 UT.
7	0327-0353	N23W72	1n	15266	31234	13	GB,10 CM Flux = 770;II (DCM,M);IV(DCM,M,DKM)A great "radio flare" at all wavelengths.
7	1544-1626	N20W68	1n	15266	21232	10	10 CM Flux = 110;II(M, DKM);IV(DCM,M);IIIG,V (DCM,M,DKM).
8	(0155)				10132	7	II and IV(DCM,M);IIIg (M,DKM);No flare reported
	Culgoora radioheliograph places source at 1.0 R⊙, P.A. 290° (Active region 15266 going over west limb)						
8	1212-1312	N22W76	1b	15266	21234	12	10 CM Flux = 114;II and IV(DCM,M);IIIg(M);A strong "radio flare", especially at DCM and M wavelengths.
9	(0625)				00010	1	II(M);Also IV(M), 4 min duration. No flare reported.

See notes to Table 1 on page 20.

COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979 (continued)

DATE 1978	TIME (UT) OF FLARE OR EVENT††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
May 9	1442-1509	N21W90	1n	15266	31132	10	II and IV (DCM,M); UNCL (DCM).
10	2157-2240	N19E40	1b	15294	11030	5	II and IV(M,DKM);IIIG, V(M,DKM).
11	0249-0328	N20E38	2b	15294	12030	6	II(M,DKM);IV(M);IIIG (DCM,M);No radio bursts reported.
11	(0735)				00032	5	II and IV(DCM,M);IIIG (DCM,M).
13	0742-0843	S28W70	1b	15280	11231	8	10 CM Flux = 100;II(M); IV(M,DKM).
14	1354-1402	S28W82	sb	15280	10131	6	II(M);IV(DCM),7 min. duration;IIIg(M).
14	(1449)				00010	1	II(M,DKM);No flare reported.
16	1607-1704	N16W56	1b	15291	11110	4	II(M,DKM);IIIG(M,DKM).
17	(0425)				10010	2	II(M);IIIN and IS,DC (M);No flare reported.
	Culgoora radioheliograph places source at 1.2 R⊙, P.A. 220° (Perhaps from region 15296 in SW quadrant, or active region 15280 on invisible hemisphere, about 2 days beyond W limb).						
18	(0516)				00031	4	II and IV(M);IIIg(M); No flare reported.
	Culgoora radioheliograph places source at 1.0 R⊙, P.A. 240° (SW Limb).						
22	1433-1443	S26W44	sb	15301	00012	3	II(M);IIIg,V(M).
23	0015-0107	N18E69	sn	15314	20110	4	II(M);IIIb(DCM).
24	1800-1805	S28W83	1n	15301	11111	5	II(M,DKM);IIIg(M,DKM).
28	1451-1639	N18W07	1b	15314	31100	5	IIIg(M,DKM).
31	1006-1353	N20W43	3b	15314	23232	12	10 CM Flux = 143;II(M); IV(DCM,M);IIIg(M);Strong radio bursts at all wavelengths.
June 1	2113-2115	N23W45	1b	15314	11133	9	II(M,DKM);IV(M);IIIG,V, U(DCM,M,DKM);Flare data incomplete.
2	0258-0319	N25W46	sb	15314	10010	2	II(M);IIIG(DCM,M).
5	(2303)				00010	1	II(DCM,M);No flare, SID or radio bursts reported.
	Culgoora radioheliograph places source at 1.0 R⊙, P.A. 250° (Possibly region 15335 at SW Limb?)						
8	(0415)				00010	1	II(M);IIIg,U(M);No flare SID, or Radio bursts reported.
11	(0214)				00010	1	II(M);No flare, SID, or radio bursts reported.
	Culgoora radioheliograph places source at 1.3 R⊙, P.A. 225° (SW Limb).						
18	(0415)				00010	1	II(M);IIIg,U(M);No flare, SID, or radio bursts reported.
	Culgoora radioheliograph places source at 1.1 R⊙, P.A. 270° (Perhaps from active region 15354, approaching West Limb?)						
21	0109-0123	N14W90	sn	15354	00010	1	II(M);IIIG(DCM,M);IN(M); No SID or radio bursts reported.
22	1643-2240	N18E16	2b	15368	22232	11	10 CM Flux = 113;II(M, DKM);IV(DCM,M)IIIG,V,U (DCM,M,DKM).
26	1207-1237 1220-1240 1227-1250	S16W02 N13W90 N20W12	sn sf sf	15375 15370 15368	10010	2	II(M),1217-1230 UT;IIIg (M);Three possible subflares in progress.
26	1436-1456 1440-1454	S16W04 N15E78	sn sf	15375 15381	10132	7	II(M,DKM);IV(M);IIIG,V (DCM,M,DKM);IC,IIIN(M, DKM);Simultaneous flares.
26	(1528)				30332	11	GB,10 CM Flux = 1160;IV (DCM,M);IIIG,V(M,DKM); No flare reported.
26	(2209)				10112	5	II(DCM,M);IIIG,V(DCM,M, DKM);No flare reported.
27	0102-0123	S17W08	1b	15375	11112	6	II(M);IIIG,V(DCM,M,DKM).
28	0244-0307	S20W16	2b	15375	22214	11	10 CM Flux = 330;II(DCM, M,DKM);IIIG,V(DCM,M,DKM); Strong radio bursts at all wavelengths (especially at metric).
28	2108-2125	N15E48	sb	15381	00010	1	II(M,DKM);IIIN(M).

See notes to Table 1 on page 20.

COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979 (continued)

DATE 1978	TIME (UT) OF FLARE OR EVENT ††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
Jun 28	(2352)				00010	1	II(M);IIIG(DCM,M,DKM); No flare, SID, or radio bursts reported.
	Culgoora radioheliograph places source at 0.5 R⊙, P.A. 40° (on disk, NE quadrant, region ambiguous)						
July 2	(1404)				20131	7	IV and CONT(M);IIIG,V (M,DKM);No flare reported
3	(0614)				10031	5	II and IV(M);IIIG,V(M); No flare reported.
4	(2346)				00010	1	II(M,DKM);IIIg,U(M);No flare, SID, or radio bursts reported.
	Culgoora radioheliograph places source at 1.2 R⊙, P.A. 280° (Perhaps region 15376 at W limb?)						
5	1139-1308	S27W29	sb	15389	20112	6	II(DCM,M);V(M)
5	1748-2028	S27W33	sb	15389	10121	5	II and CONT(M)
6	1510-1612	S27W43	sn	15389	20133	9	II(DCM,M);IV and CONT(M) IIIg,V(DCM,M,DKM).
7	0530-0540	N15E90	2n	15403	22132	10	II(DCM,M);IV(M);IIIG (M,DKM).
7	0946-1010 and 1056-1127	N15E90 / N18E90	sn / 1n	15403	31132	10	IV(M);IIIG,V(DCM,M); Strong SID.
8	1946-2021	N16E82	1n	15403	21232	10	10 CM Flux = 420;IV(DCM, M);UNCL V(M).
9	0703-0734 and 0705-0721	N13E75 / S24W87	sn / sn	15403 / 15389	10212	6	II(M);IIIg,V(DCM,M,DKM) 10 CM Flux = 117. Simultaneous flares in widely separated regions.
9	1007-1116	N18E69	1b	15403	11112	6	II(M);IIIG(DCM,M).
9	1212-1633	N19E70	1b	15403	21132	9	II and IV(M);IIIg(DCM,M).
9	1811-2127	N19E68	2b	15403	22232	11	10 CM Flux = 450;IV(DCM, M,DKM);IIIG,V(M,DKM); Strong radio bursts at all frequencies, especially at MM wavelengths.
10	0137-0258	N16E64	1b	15403	31000	4	No DYN. SP. event.
10	0502-0543	N18E64	1n	15403	11112	6	II(M);IIIG,V(DCM,M).
10	0603-0734 and 0613-0635	N18E61 / N22W37	3b / sf	15403 / 15409	33333 / 30233	15 / 11	-GB,10 CM Flux = 1275 -10 CM Flux = 560;II(M, DKM);IV(DCM,M);IIIG,V(M); A great "radio flare".
10	1655-1806	N17E54	2b	15403	22114	10	II(M);IIIG,V(DCM,M,DKM); Strong radio bursts at DCM and M wavelengths.
11	0122-0134	N15E47	sn	15403	20113	7	II(M);IIIG(DCM,M,DKM).
11	0304-0345 and 0353-0415	N15E49 / N17E51	1n / 2b	15403	12013	7	II(M);IIIG,V(DCM,M,DKM); Strong radio bursts at DCM and M wavelengths.
11	0426-0447	N12E81	1n	15410	21333	12	GB, 10 CM Flux = 1338; II(DCM,M,DKM);IV(DCM,M) IIIg(M,DKM).
11	1031-1301	N18E45	2b	15403	32334	15	GB, 10 CM Flux = 2800; II(M),IV(DCM,M);IIIg(M); A great "radio flare" with great bursts at all frequencies.
11	1613-1644	N16E39	sn	15403	10233	9	10 CM Flux = 110;IV(M); IIIG,V(DCM,M,DKM).
14	1733-1737	N17W01	sn	15403	00113	5	II(M,DKM);IIIG,V(DCM, M,DKM).
15 ?	0404-0423 and 0407-0418	N18W05 / S23E44	sn / sn	15403 / 15413	10110 / 10010	3 / ? / 2	II(M),0350-0435 UT;IIIG (DCM,M,DKM);Flare association doubtful.
	But Culgoora radioheliograph places source of Type II burst at East Limb (1.0 R⊙, P.A. 90°).						
16	(0315)				00010	1	II(M);IIIN(M);No flare or SID or radio bursts reported.
	Culgoora radioheliograph places source of II at 1.3 R⊙, P.A. 300° (Perhaps active region 15409 on invisible hemisphere, about 2 days beyond W limb).						
17	0022-0035	S25E20	sn	15413	00030	3	II & IV(M);IIIG(M).
17	0901-0958	S19W65	1n	15397	11010	3	II(M).
18	0018-0100	N21W42	1n	15403	11300	5	GB, 10 CM Flux = 1000; IIIN(M).

See notes to Table 1 on page 20.

COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979 (continued)

DATE 1978	TIME (UT) OF FLARE OR EVENT††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
Jul 18	1927-2010	N17W52	2b	15403	32132	11	IV(DCM,M);9 minutes duration;IIIN(DCM).
Aug 7	1736-1758	S26E40	sf	15454	10113	6	II(M,DKM);IIIG(DCM,M).
17	(0016)				00010	1	II(M);IIIG,U(DCM,M);
	Culgoora radioheliograph places source at 1.1 R⊙, P.A. 65° (NE limb)						IIIg,V(DCM,M); No flare reported.
29	(0608)				10010	2	II(M);No flare or radio bursts reported.
30	(0312)				00010	1	II(M);No flare or radio bursts reported.
	Culgoora radioheliograph places source at 1.3 R⊙, P.A. 290° (West Limb)						
31	1306-1343	N09W32	sn	15494	00010	1	II(M);IIIG,V(M).
Sept 1	0945-1027	S35E55	1n	15509	11010	3	II(M);IIIg(DCM).
2	2347-2447	S30E29	sb	15509	00030	3	IV(M);IS,C and IIIN(M);
	Culgoora radioheliograph locates moving Type IV at 1.2 R⊙, P.A. 220°, beyond SW limb.						No SID and No radio bursts reported.
4	0800-0819	S32E14	1f	15509	01232	8	II and IV(M);IIIg(DCM,M)
	and						10 CM Flux = 140;II and
	0812-0927	S15E52	2n	15521	22233	12	IV common to both flares.
4	1436-1507	N15W10	sn	15508	00032	5	IV(M);IIIN(M,DKM).
7	2330-2439	S28W17	1n	15518	11132	8	II(M);IV(DCM,M,DKM).
8	(0451)				00011	2	II(M);IIIb(M);No flare or SID reported.
17	0826-0917	N35E27	1n	15543	31100	5	No DYN. SP. events reported.
17	1459-1615	N36E23	2n	15543	32100	6	No DYN. SP. events reported.
18	0927-0932	S28E19	sb	15541	10133	8	II(M);IV(DCM),8 minutes duration;IIIG(DCM,M).
21	0416-0508	N23E40	1b	15546	11231	8	10 CM Flux = 450;II(M); IV(DCM,M,DKM);IIIb,V(M, DKM).
22	1345-1500	N28E48	sn	15551	00032	5	II(M);IV(DCM);IIIG(M,DKM)
	and						II and IV common to both
	1430-1535	S24W11	sf	15542	00030	3	flares.
23	0944-1215	N35W50	3b	15543	23233	13	10 CM Flux = 375;IIIG (DCM);II(M);IV(DCM,M).
24	1720-1837	N25W07	1b	15546	11212	7	10 CM Flux = 163;II(M, DKM);IV(M),4 minutes duration.
24	2112-2251	S20W43	sb	15542	10131	6	II(M);IV(DCM,M).
27	0725-0836	S18W80	1f	15542	11132	8	II(M);IV(DKM).
27	0818-0912	N10W16	1n	15551	11131	7	IV(DCM);IIIG(DCM,M).
27	1428-1546	N27W19	2b	15551	22233	12	10 CM Flux = 406;IV (DCM,M);IIIg,V(M);Strong radio bursts at all wavelengths.
29	1046-1244	S31E55	1n	15564	11012	5	II(M);IIIb(M).
Oct 1	0653-0851	S13E57	2n	15570	32233	13	10 CM Flux = 264;II(M); IV(DCM,M);IN(DCM);A great "radio flare" at DCM and M wavelengths.
3	0755-0835	S17W58	1n	15556	11011	4	II(M).
4	1609-1611	S09E07	sf	15570	00011	2	II(M);IIIG,V(DCM,M,DKM); Flare association questionable.
5	(0144)				00031	4	IV(M);IIIg(M,DKM); No Flare or SID reported.
	Culgoora radioheliograph places source of moving Type IV at 1.0 to 1.5 R⊙, P.A. 110° (Possibly region 15587 on invisible hemisphere, beyond SE limb?)						
5	(0633)				00113	5	II(M);IIIG,V(DCM,M,DKM); No suitable prior flare.
5	1335-1458	S16E04	sf	15570	10233	9	10 CM Flux = 105;IV(DCM, M);IN(M).
6	1646-1724	S15E77	sb	15587	10111	4	II(M);IIIG,V(DCM,M,DKM).
7	(0105)				00010	1	II(M);Fast drift (DCM);
	Culgoora radioheliograph places source at 1.2 R⊙, P.A. 115° (Active region 15587 at SE limb)						No flare, SID or radio bursts reported.
8	0835-0854	S16E63	sn	15587	10113	6	II(M);IIIg,V(M,DKM).
9	(0025)				10133	8	II and IV(DCM,M);IIIg,
	Culgoora radioheliograph places source at 1.0 R⊙, P.A. 125° (Possibly from active region 15587?)						V(DCM,M,DKM);No suitable prior flare.

See notes to Table 1 on page 20.

DATE 1978	TIME (UT) OF FLARE OR EVENT††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
Oct 9	1951-2137	S14W61	1b	15570	11223	9	10 CM Flux = 140;II(M, DKM);IS & CONT(M);IIIG, V(DCM,M).
10	0033-0040 and 0035-0100	S17E74 / S24W23	sf / sf	15591 / 15582	10010	2	II(M);Fast drift (DCM); Simultaneous flares in widely separated regions, but Culgoora rad. places source at SE limb (15591)
11	0835-0947	S19E32	2n	15587	02110	4	II(M).
12	0121-0232	N11W90	1n	15569	21031	7	IVM(M);IIIg(M);IIIS and IS,C,DC(M).
	Culgoora radioheliograph indicates Type IV, NW limb, moving from 1.2 to 2.0 R⊙.						
13	1233-1350	S18W01	2b	15587	12234	12	10 CM Flux = 220;II and IV(DCM,M);IIIg(DCM,M); Strong radio bursts at all frequencies, especially at M wavelengths
15	(0007)				00010	1	II(M);IS,DC(M);No flare or radio bursts reported.
	Culgoora radioheliograph places source at 1.2 R⊙, P.A. 90° (East limb)						
16	1314-1429 and 1338-1421	S15W56 / S07W62	sn / sf	15587 / 15587	00010	1	II(M);No SID or radio bursts reported.
16	2142-2159	N32E47	1b	15598	11200	4	GB, 10 CM Flux = 586; Fast drift (DCM).
18	0000-0048	S19W55	sb	15587	00010	1	II(DCM,M);IIIg(DCM,M); IS,DC(M).
18	2141-2235 and 2141-2349	S29E30 / N32E22	sb / sn	15604 / 15598	10010	2	II(M);Also possible IV(M) 4 min. duration; Simultaneous flares.
19	0104-0130	S21W32	sn	15591	00010	1	II(M);IIIg(DCM,M,DKM).
21	1557-1712	N30W12	1n	15598	11122	7	II(M);IIIG,V(DCM,M,DKM) IC(M).
25	(0442)				00010	1	II(DCM,M);No suitable prior flare.
	Culgoora radioheliograph places source at 1.1 R⊙, P.A. 120° (Possibly region 15620, or 15628, at SE limb)						
Nov 8	1751-1807	N18E12	1b	15643	11111	5	II(M);IIIG,V(DCM,M,DKM).
10	0048-0232	N17E01	2n	15643	22130	8	II(M);IV(M,DKM);IS(DCM).
28	0511-0646	N14E47	2n	15682	12132	9	II(M);IV(DCM,M);IS(DCM); IIIS(M).
29	0505-0613	N15E38	2n	15682	12130	7	II and IV(M);IIIS & IS(M)
29	1524-1540	S20E76	sn	15687	00010	1	II(M);IIIG,V(M).
29	1947-2003	S18E58	sb	15687	00012	3	II(M);IIIG,V(DCM,M,DKM).
30	0145-0254	N14E26	1n	15682	11131	7	II(M);IV(DCM,M);IIIb(M).
Dec 3	2032-2044	S23E65	sb	15694	10113	6	II(M);IIIG,V(DCM,M,DKM).
4	0545-0600	S23E62	1n	15694	11010	3	II(M);IV(DCM), 6 minutes duration;IIIG(DCM,M).
4	(1144)				00030	3	IV(DCM,M);IIIg(M);No flare or SID reported.
4	1844-1857	S24E51	sb	15694	10112	5	II(DCM,M);IIIg,V(DCM,M, DKM).
7	0956-1023	S16W47	1b	15687	21113	8	II(M);IIIg(M).
7	1950-2055	S14E74	1n	15697	11222	8	10 CM Flux = 104; II(M,DKM);IS,C(M).
7	2341-2435	S15W57	2b	15687	12010	4	II(DCM,M);IIIg,U(DCM,M).
10	2332-0119	S13E29	2n	15697	22130	8	II(M,DKM);IV(DCM,M); Fast drift (DCM).
11	1911-2157 and 1923-2014	S16W50 / S15E14	2b / 1b	15694 / 15697	12433 / 11232	13 / 9	GB,10 CM Flux = 8320 (333 with second flare);IV(DCM M,DKM);IIIS(M,DKM);Simultaneous flares; A great "radio event" with great bursts at all wavelengths
13	0105-0132	S22W21	1n	15696	21110	5	II(M);IIIG(M,DKM).
13	0340-0622 and 0349-0453	S15E01 / S17W69	2b / 1b	15697* / 15694	22130 / 21130	8 / 7	II(M);IV(DCM,M);IIIb(M, DKM); *Simultaneous flares but Culgoora radioheliograph places source of II and IV at 0.3 R⊙, P.A. 155° (SE disk, region 15697).

See notes to Table 1 on page 20.

DATE	TIME (UT) OF FLARE OR EVENT ††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
1978							
Dec 13	2319-2425	S15W80	1n	15694	31100	5	No DYN. SP. event reported; Several "simultaneous flares" (widely separated on disk) with onset of major SWF.
	and						
	2323-2414	S14W10	sn	15697	30100	4	
	and						
	2327-2357	N20W17	sn	15700	30000	3	
14	0428-0448	S14W18	1b	15697	11110	4	II(M).
17	0729-0805	S15W51	2n	15697	32201	8	10 CM Flux = 243; No DYN. SP. event reported.
18	2346-2404	S12W90	1b	15697	11110	4	II(DCM,M,DKM);IIIG,V,U (DCM,M,DKM).
20	(0645)				10010	2	II(DCM,M);IIIG(DCM,M); No flare or radio bursts reported.
24	(2036)				00010	1	II(DCM);No flare, SID or radio bursts reported.
27	1626-1804	S13E43	2b	15733	22232	11	10 cm Flux = 380; II and IV(M);IIIG(DCM).
29	0612-0635	S35E44	sn	15739	00010	1	IIN and IIIS(M); No SID or radio bursts reported.
30	0541-0652	S20E66	2b	15746	12110	5	II(M,DKM);IV(DCM), 4 min duration;IIIb(DCM).
30	0735-0815	S29E07	sn	15734	10010	2	II(M);IIIg(M).
30	(1258)				10010	2	II(M);IIIg(M); No flare or radio bursts reported.
1979							
Jan 1	0223-0330	S35E00	1f	15739	01030	4	II and IV (M,DKM);IIIG (M,DKM).
	But note that Culgoora radioheliograph places source of Type IV (0251-0321 UT) at 1.5 R⊙, P.A. 315° - at NW limb.						
2	(2253 UT)				00013	4	II(M);IIIG,V(DCM,M,DKM); No flare reported.
	Culgoora radioheliograph places source at 1.5 R⊙, P.A. 75° - possibly region 15750 at NE limb.						
3	0601-0633	N20E70	1b	15750	01012	4	II(M);IIIG,V(DCM,M,DKM).
3	1535-1655	S14W47	sb	15733	10132	7	IVN(DCM);IIIG,V(DCM,M,DKM) Type IV follows max. at 1605 UT common to both flares.
	and						
	1600-1612	N27E64	sn	15750	10131	6	
3	2143-2214	S12W02	sb	15741	10110	3	II(DCM,M);IIIg,V,U(DCM,M, DKM).
5	0010-0107	S19E54	?n	15748	0?010	1?	II(M,DKM);Flare importance called 3 by one station, but sn by another.
6	0005-0101	S22W53	sn	15742	00130	4	II(M);IV(DCM).
8	0223-0317	N17E52	1b	15754	21232	10	GB, 10cm flux = 595; II (M,DKM);IV(DCM,M).
11	0057-0116	S24E60	1f	15762	01110	3	II(M);IIIG,V,U(M,DKM).
	But note that Culgoora radioheliograph places source of Type II at 2.0 R⊙, P.A. 45° - beyond NE limb.						
11	0739-0812	S19W25	1b	15748	31200	6	10cm flux = 120;IIIG(DCM)
13	1144-1213	N18W05	1n	15754	11113	7	II(M).
14	1148-1205	N17W19	sn	15754	10212	6	10cm flux = 325;II(M).
15	0358-0540	S21W75	1n	15748	01010	2	II(M).
16	1036-1108	S20W15	1n	15762	31100	5	IIIG(M).
21	1312-1332	S22W85	sb	15762	20212	7	10cm flux = 140;II(M);IIIG (DCM,M).
25	0317-0402	S14E20	sb	15785	30000	3	IIIG,V(DCM,M,DKM);IS,DC(M)
Feb 1	(0436)				00010	1	II(DCM,M);No flare reported.
1	0755-0905	S22E57	3n	15800	23102	8	IIIg(M);I(M).
5	0634-0725	S21E49	1b	15808	21113	8	II(DCM,M);IIIG(DCM).
5	2115-2149	S18E43	1b	15808	21113	8	II(DCM,M);Also IV (DCM,M) 6 min. duration.
8	2220-2321	N13E04	sn	15807	00010	1	II(M);IIIG(M,DKM).
12	0210-0245	S35E27	sn	15816	10111	4	II(M);IIIg,V(DCM,M,DKM).
16	0144-0315	N16E59	3b	15830	13434	15	GB, 10cm flux = 30,000;II (DCM,M,DKM);IV(DCM,M);A great optical and radio flare.
17	1905-1940	N16E28	sn	15830	10120	4	II(M,DKM);CONT(M);IIIg,V (M,DKM).
18	0637-0720	N18E16	1b	15830	21223	10	10cm flux = 237;II(DCM,M); CONT(M);A strong "radio" flare, especially at meter wavelengths.

See notes to Table 1 on page 20.

COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979 (continued)

DATE 1979	TIME (UT) OF FLARE OR EVENT††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
Feb 18	1615-1656 and 1635-1704	N15E19 N17W14	1b 1b	15830 15823	21333	12	GB,10cm flux = 1945;IV(M); IIIG,V(DCM,M,DKM);Simultaneous great radio flares with common max. at 1642 UT.
20	(0934)				00010	1	II(M);IIIg(M); No flare reported.
20	1725-1845	N03W32	1b	15828	11120	5	II(M);I and CONT(M).
20	1750-1932 and 1802-1810	N17W20 N17W42	1b sn	15830 15823	11222 10202	8 5	10 cm flux = 162; II(M); I and CONT(M).
20	2138-2311	N20W45	1n	15823	11220	6	10cm flux = 230;II(M),IS, DC,CONT(M).
22	0503-0537	N18W33	sb	15830	302_0	> 5	10cm flux = 243;No Dyn.Sp. data.
25	0638-0852	S20E60	1n	15849	11231	8	10cm flux = 110;II and IV (M);IIIG(DCM,M,DKM).
Mar 1	0955-1110	S23E58	3n	15856	33212	11	10cm flux = 350;II(M); IIIg(M).
9	0935-1053 and 1019-1027	N17E80 N36W72	1n sf	15874 15860	21232 20232	10 9	10cm flux = 525;II(M);IV (DCM);All major bursts are common to either flare.
11	0650-0747	N20E71	1b	15877	11010	3	II(M);IIIg(M).
11	1035-1115 1056-1108	S24W76 N19E57	1n 1n	15856 15874	11110 11010	4 3	II(M), 1054-1059 UT; IIIG(M).
20	2300-2405	S25W13	sf	15902	10110	3	II(M);IIIg(DCM,M).
21	(0248)				00213	6	10cm flux = 133;II(DCM,M); IIIG,U(DCM,M);No flare reported.
22	0324-0355	N07W19	1b	15887	31100	5	No Dyn.Sp. events reported with this major SID.
22	1811-1837	N06E66	sb	15904	10111	4	II(M);IIIG(DCM,M).
23	0640-0700	N08E62	1b	15904	21213	9	10cm flux = 276;II(DCM,M); IIIG(DCM,M).
26	1150-1247	N05W78	2b	15887	22202	8	GB,10cm flux = 519; No Dyn Sp. events reported.
27	0604-0610	N07W90	1n	15887	30201	6	10cm flux = 104;IN,DC(M); Major SID of long dur. (3 hours).
27	(0811)				00113	5	II(DCM,M);IIIg,U(M); No flare reported.
27	(1108)				00012	3	II(M); No flare reported.
27	1122-1156	S25E79	1n	15918	11120	5	II & CONT(M);IIIg(M).
30	0033-0042	N11W43	sb	15904	00010	1	II(M);IIIG(DCM,M).
Apr 3	0105-0230	S25W14	1b	15918	21232	10	10cm flux = 475;IV(DCM,M); IIIg(DCM,DKM).
8	1844-1854	N19E51	sb	15933	10010	2	II(M);IIIg(DCM).
9	1216-1316	N05E87	1b	15937	31000	4	No radio events reported with this major SID.
10	2040-2044	N15W75	sf	15939	00010	1	II(M).
12	(1330)				00010	1	II(M); No flare reported.
13	0703-0709	N21W07	sf	15933	00010	1	II(M).
14	1440-1453	N04E08	1b	15937	11233	10	10cm flux = 170; II(M); IV(M);IIIG,V(DCM,M,DKM); A strong "radio flare" at all wavelengths.
15	2004-2035 2007-2025	N23W41 N04W06	sf 1b	15933 15937	10214 11214	8 9	II(M);IIIG,V,U(DCM,M,DKM); 10cm flux = 116
22	(2311)				00110	2	II(M);IIIS(M);No flare reported.
23	(0148)				00031	4	II & IV(M);IN(M);No suitable prior flare reported.
26	2001-2048	N12E31	1b	15967	11120	5	II(M);CONT(M);IIIg(DCM).
27	0633-0731	N18E17	1b	15967	31234	13	GB,10cm flux - 718;II & IV (DCM,M);IIIG(DCM,M); A great "radio" flare at all wavelengths.
29	0730-0759 0735-0826	N17E50 N12W01	sb 1n	15974 15967	10223 11010	8 3	10cm flux = 147;II(M);CONT (DCM);IIIG(DCM,M).
May 2	1649-1708 1651-1759	S25W35 N20W55	sn 2b	15968 15967	20221 22221	7 9	II(M,DKM);CONT(M);IIIg,V (DCM,M,DKM).

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COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979 (continued)

DATE 1979	TIME (UT) OF FLARE OR EVENT ††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
May 3	0120-0153	N20W61	sn	15967	10133	8	IV(DCM);IIIG,V,U(M,DKM).
	0125-0230	N10W03	2n	15974	12133	10	
4	0237-0258	N11W10	sf	15974	00010	1	II(M);No SID and no radio freq. events reported.
17	(1049)				00010	1	II(M);IIIg(DCM);No flare reported.
Jun 3	1433-1521	N20E33	sb	16051	20202	6	GB,10cm flux = 632;IIIG,V, U(DCM,M,DKM);A strong "radio" flare at all freqs.
4	0340-0510	N19E30	2b	16051	32200	7	10cm flux = 103; IIIb(M,DKM).
5	0455-0838	N17E14	2b	16051	22332	12	GB,10cm flux > 4000;II(M); IV(DCM,M);A great "radio" flare.
10	0801-1023 and	N22W46	3b	16051	33110	8	II(M);Type II is common to both flares, near maximum.
	0855-1021	N24E69	sn	16070	10110	3	
13	0352-0423	N22E68	1n	16073	11010	3	II(M).
17	(1305)				00012	3	II(M);IIIg,V(M); No flare reported.
17	1604-1643	N06W30	sn	16078	00011	2	II(M,DKM);IIIg,V(M); Flare association is doubtful.
18	0623-0634	S17W65	1n	16065	21112	7	II(M);IIIG,V(DCM,M).
18	1811-1829 and	S16W72	sn	16065	10112	5	II(M); IIIG,V,U(M); Type II is common to both flares.
	1813-1820	S06E74	sn	16088			
22	0446-0530	N24W59	2n	16073	12122	8	II(M);IS,C(M);IIIG,U (M,DKM).
25	0608-0621	N15W90	1f	16086	21111	6	II(M);IIIg,V(M).
26	1018-1036	N12W62	sn	16102	20112	6	II(M).
27	1824-1841	S23E90	sb	16112	00010	1	II(M);IIIg(M); No SID or single freq. events reported.
Jul 4	0203-0320	N07E44	2n	16122	12232	10	II(M,DKM);IV(DCM,M); 10 cm flux = 378.
4	1903-2110	N11E36	1b	16122	11222	8	II(M);I & CONT(M); 10 cm flux = 348.
5	(0137)				00030	3	IV(DCM,M);IS(M); No flare or SID reported.
5	0650-0727	S29E11	1n	16112	01012	4	II(M);IIIG,U(DCM,M).
5	2144-2300	N15W33	sn	16117	10021	4	II(M);IIIg,V(DCM,M);
	2221-2236	S26E55	sb	16125	00021	3	IS,CONT(M).
6	(1839)				00010	1	II(M);IIIG,V(M,DKM); No flare or SID reported.
7	0440-0516	N17W47	1n	16117	11031	6	II & IV(M);IIIG(M,DKM).
13	0136-0230	N12E74	sf	?	00010	1	II(M); No plage at this location.
19	1055-1107	S03E33	sb	16148	10112	5	II(M);IIIG,V(M).
22	2329-2341 and	S27W76	sf	16137	10113	6	II(DCM,M);IS(M).
	2331-2348	N33W14	sn	16156			
23	0200-0232	N15W73	1n	16161	01010	2	II(DCM,M);IIIg(M).
	0215-0228	N32W15	sb	16156	00010	1	
23	1645-1712	S05W07	sn	16166	10110	3	II(M);Also IV(DCM), Duration 5 min.
28	2355-0014	S22E46	1b	16174	11110	4	II(M);IIIg,V(DCM,M).
29	0321-0416	S14W42	1n	16164	21132	9	II & IV(M);IIIg(M).
30	0220-0437	N23E14	2n	16171	12031	7	II & IV(M);IIIS(M,DKM).
Aug 2	2105-2121	N15W51	sb	16171	10010	2	II(M);IIIb(M); Also possible IV(M), duration 4 min.; Flare association doubtful.
2	2301-2332	S12E63	sf	16192	00010	1	II(M,DKM);IIIg,V(M).
7	1955-2100	N15E78	sn	16208	20120	5	II(DCM,M);IS,C(DCM,M).
13	0532-0621	S26E90	1n	16224	01030	4	II & IV(M); IIIg(M).
13	0947-1115	S26E90	1n	16224	21321	9	GB, 10cm flux = 3700;IIIN, CONT(M);Flare with strong radio emission, especially at MM and CM wavelengths.
14	1153-1203	S23E70	sn	16224	10332	9	IV(DCM);IIIN,CONT(M);IIIg (M);GB,10cm flux - 7500; Incomplete flare data.

See notes to Table 1 on page 20.

COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979 (continued)

DATE 1979	TIME (UT) OF FLARE OR EVENT††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
Aug 14	1240-1451	S27E76	1n	16224	11332	10	GB,10cm flux = 4030;IV (DCM,M);A great "radio flare".
14	1542-1554	S23E77	1b	16224	11202	6	10cm flux = 535;IIIG,V (M,DKM).
14	2048-2104 and 2051-2100	S17W48 S23E68	sn sb	16205 16224	10110	3	II(M);IIIG,V(DCM,M,DKM).
16	0438-0627	S27E53	2n	16224	22231	10	II & IV(M);IIIg(DCM,M); 10cm flux = 140.
16	1134-1200	S25E47	sn	16224	00131	5	II(M);IV(DCM).
	1137-1303	N18E25	1b	16218	01131	6	
18	(1409)				20233	10	II & IV(M);IIIg,U(DCM,M); 10cm flux = 490; A strong "radio flare" at all freq; Two minor sub-flares in regions 16224 (S25E17) and 16239 (N08E90) have poor time relationships with radio events.
20	0905-1040	N05E77	2b	16239	32232	12	II(M);IV(DCM);IIIg(M);GB, 10cm flux = 990;A strong "radio flare" at all wavelengths.
21	0550-0658	N17W48	2b	16218	12131	8	II(M);IV(DCM,M);IIIG,V(M).
22	0155-0254	N05E51	1n	16239	01030	4	IV(M);IIIb(M,DKM).
22	2340-2410	S22E75	1n	16245	11110	4	II(M);IIIN(M).
23	1244-1451	N07E29	1n	16239	21232	10	IV(DCM,M);10cm flux = 124.
26	0130-0251	S14W60	2b	16231	12030	6	II & IV(M);IIIg(M,DKM).
26	1615-2200	N05W11	2b	16239	22230	9	IV(DCM,M);IIIG(DCM,M,DKM); 10cm flux = 400.
Sep 2	0006-0131	S20E67	1n	16267	11231	8	II & IV(M);IIIg,V(M); 10 cm flux = 143.
3	0425-0517	S23E56	1n	16267	21131	8	II & IV(M);IIIb(M).
7	0055-0116	S17W06	1b	16267	11113	7	II(M,DKM);IIIG,V(M,DKM).
7	1948-2005	S17W17	sb	16267	10110	3	II(M,DKM);IIIG,V(M,DKM).
8	0019-0032	S15W18	sf	16267	00110	2	II(M);IIIG,N(M,DKM).
10	0515-0535	S22W47	2b	16267	12113	8	II(M);IIIG,V(DCM,M,DKM).
11	0628-0638	N15W71	sf	16269	00030	3	IV(DCM);No SID or single freq radio events reported
11	1555-1608	S22W66	sb	16267	10010	2	II(M);IIIg,V(DCM,M)
14	(0656)				30030	6	II & IV(DCM,M);IIIb(M); No flare reported; Active region 16267 is at SW limb.
15	1015-1110 and 1020-1040	S14E56 N06E90	2b 2b	16295 16298	32201	8	10cm flux = 104;IIIG(DCM, M);Simultaneous flares at time of major SID.
16	0101-0124	N05E90	sn	16298	30210	6	II(M);IN(M).
17	(0654)				00303	6	GB,10cm flux = 4089; No flare or SID reported.
18	(0403)				00010	1	II(M);No flare or SID reported.
19	2256-0103	N06E33	3b	16298	33300	9	GB,10cm flux = 1520;Strong radio bursts at MM & CM wavelengths.
30	1040-1140	S27W90	1n	16306	11132	8	IV(DCM);IIIg(M).
Oct 4	1554-1747	N14E76	sb	16344	20210	5	10cm flux = 148;II(M); IIIg,U(M).
5	1130-1240	N14E59	2n	16344	22233	12	10cm flux = 254;II(DCM,M); IV(DCM,M);IIIg(DCM); A strong "radio flare" at all frequencies.
5	(1549)				00030	3	IV(DCM);No flare reported.
7	1405-1437	S20W62	1b	16346	11200	4	GB, 10 cm flux = 610;
	1405-1435	N16E33	1b	16344	11200	4	IN in prog.
	1414-1442	N26E23	sn	16341	10200	3	
12	0515-0615	N08E56	2n	16363	12010	4	II(M);IIIS(M).
19	0415-0446	N26E21	2n	16373	32200	7	10cm flux = 280;IIIb(M).
19	1153-1335	N28E13	2b	16373	22300	7	GB,10cm flux = 1825;No dynamic spectrum events; strong radio bursts at MM and CM wavelengths.
26	(0635)				10010	2	II(M);IIIg(M);IN(DCM,M); No flare reported.

See notes to Table 1 on page 20.

COMPREHENSIVE FLARE INDEX FOR "MAJOR FLARES", 1975-1979 (continued)

DATE 1979	TIME (UT) OF FLARE OR EVENT††	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS[r]
Oct 30	1629-1733	N33E57	sf	16399	00010	1	II(M).
Nov 1	0805-0842	N13W72	1b	16386	11230	7	IV(DCM,M);IIIG(DCM,M); 10cm flux = 110.
2	2126-2353	N20E01	sn	16398	00011	2	II(M);IIIg(M,DKM).
4	0526-0540	S16E72	sf	16413	20134	10	II & IV(M);IIIg(M).
4	1430-1440	N25W67	sn	16389	10010	2	II(M).
4	2346-2425	S15W13	sb	16401	10112	5	II(M);IIIG,V,U(M,DKM).
5	2127-2338	S14E48	2b	16413	12114	9	II(M);IIIG,V(M,DKM).
5	2342-2356	S14E44	1b	16413	21213	9	GB,10 cm flux = 617; II(M);IIIg,V(M,DKM).
6	0511-0521	N19E11	1n?	16406	21233	11	II & IV(M);10cm flux = 170
	0527-0541	S14E39	1n	16413	21130	7	
6	0850-0900 and 0850-0914	N34E90 / N18W57	1n / 1b	16419a / 16398	11200	4	GB,10cm flux = 600;IIIG(M)
6	1446-1524	S14E39	sb	16413	10233	9	10cm flux = 268;II(M);IV (DCM);IIIG,V(DCM,M).
8	0116-0152	N31E71	1b	16419b	21233	11	10cm flux = 342;II & IV (M);IIIG,V(M,DKM).
8	0826-1136	S14E14	2b	16413	22232	11	IV(DCM);10cm flux = 320.
8	1116-1139	S14E08	1b	16413	21133	10	II(DCM,M);IV(DCM);IIIg (DCM,M).
9	0304-0322	S15E02	1n	16413	21334	13	GB,10cm flux = 1512;II(M, DKM);IV(M);IIIG,V(M); A great "radio flare" at all wavelengths.
9	0601-0627	S15W03	1n	16413	11213	8	10cm flux = 288;II(M); IIIg,V(M,DKM).
9	2125-2154	N22W29	sb	16406	00110	2	II(M);IIIg,V(M,DKM).
10	0633-0659	S16W15	2b	16413	22324	13	GB,10cm flux =1848;II(M); IS,DC,CONT(M);A great "radio flare" at all wavelengths.
12	0059-0145	S15E03	1n	16418	21213	9	10cm flux = 242;II(M);
	0118-0144	S17W28	sn	16413	20213	8	IIIG,V(M,DKM).
12	1940-2103	N12E24	2b	16421	12210	6	10cm flux = 107;II(M,DKM); IIIG(M,DKM).
14	2023-2110	N33W15	1b	16419a	11230	7	10cm flux = 107;IV(DCM).
15	2021-2140	N10W15	2b	16421	12210	6	10cm flux = 167;II(M); IIIg,V(M).
15	2115-2446	N29W38	2b	16419a	12231	9	GB,10cm flux = 920;II (M,DKM);IV(M);IIIG(M).
16	0220-0244	N18W05	sf	16425	00010	1	II(M);IIIG(M,DKM).
17	1145-1230	N14W17	sb	16425	10112	5	II(M);IIIG,U(M).
21	0720-0725	S38W58	sn	16433	00110	2	II(M);IIIS(M).
Dec 4	1806-1822	S16W18	sn	16458	10010	2	II(M);IIIg(M).
	1814-1826	S26E49	sb	16476	10110	3	
10	2317-2344	S18W85	1n	16480	01010	2	II(M);IIIG,V(M,DKM).
11	1150-1240	N26E41	1n	16507	01030	4	IV(DCM).
11	(1335)				00130	4	IV(DCM,M,DKM);IIIG(M,DKM); No flare or SID reported.
13	1353-1402	S17W31	sb	16492	20213	8	10cm flux = 119;II(DCM,M).
14	1259-1320	S13W33	sn	16495	10130	5	IV(DCM);IIIG(DCM,M).
	1310-1331	N19W42	1b	16490	11130	6	
15	2139-2150	S28W90	sn	16493	00010	1	II(M);IIIg,V(DCM,M,DKM).
16	(0243)				00010	1	II(M);IIIg(M,DKM);No flare or SID reported.
18	1902-2042	N10W38	1b	16514	11210	5	10cm flux = 106;II(M); IIIG(M,DKM).
19	2156-2316	S15E36	2b	16529	22233	12	GB,10cm flux = 970;II(M, DKM);IV(DCM,M,DKM);IIIG, V(DCM,M,DKM).
20	0543-0800	S18E33	1b	16529	21213	9	10cm flux = 200;II(DCM,M); Also IV(DCM);Duration 4.5 min.;IIIG(DCM,M,DKM).
23	0215-0233	S20W43	sf	16525	00010	1	II(M);IIIg,V(DCM,M,DKM).
25	0655-0800	S14W43	2b	16529	22232	11	10cm flux = 200;II(M);IV (DCM);IIIg,V(M).
25	(2330) (2405)				00010	1	II(M); No flare or SID reported.
26	0048-0212	S12W04	1b	16539	11010	3	II(M,DKM);IIIg(M).
29	0157-0246	S15E23	sf	16548	10210	4	10cm flux = 170;
	0210-0214	S13E73	1n	16558	11210	5	II(DCM,M).
29	0708-0717	S16W90	1n	16529	21112	7	II(DCM,M);IIIg,U(DCM,M).
30	(0314)				00010	1	II(M); No flare or SID reported.

See notes to Table 1 on page 20.

NOTES TO TABLE 1:

† This list of "major" flares includes all flares that satisfied any one of the five criteria stated in section 2 of this report.

abcde The successive entries in the column titled "Hα Flare Profile" refer respectively to evaluations of the ionizing radiation, the Hα flare, the ~ 10 cm flux, the type of event in the dynamic spectrum and the ~ 200 MHz flux. See section 1 of this report. A dash (-) appearing in the profile set indicates "no observations" were available for that particular entry.

†† When no flare or subflare was reported, the beginning time of the SID or radio frequency event is shown in parentheses.

? A question mark following the index value indicates a Type IV event that is questionable for either duration or conflicting reports.

r In the remarks column, the following abbreviations have been used: DCM,M,DKM = decimetric, metric, and dekametric events in the dynamic spectrum; BO (Boulder), CLG (Culgoora), DURN (Durnten), DWIN (Dwingeloo), H (Ft. Davis), MAN (Manila), SAG (Sagamore Hill), WEIS (Weissenau) = stations reporting dynamic spectrum events.

APPENDIX OF "LESSER EVENTS" FOR 1975-1979

DATE	TIME (UT) OF FLARE OR EVENT	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS
1975							
Jan 5	(1950)				00020	2	CONT(DKM);IIIG(DKM);No flare reported.
9	2023	N16E66	sn	13423	00121	4	CONT(M,DKM);IIIG,V,U (M,DKM)
Feb 6	(2007)				00020	2	CONT(M,DKM);IS,IIIS(M) No flare reported.
8	(2100)				00020	2	CONT(DKM);IS,IIIN(M) No flare reported.
Mar 16	(2207)				00020	2	CONT(DKM);No flare reported.
17	(1640)				00020	2	CONT(M,DKM);No flare reported.
Jun 5	(1916)				00020	2	CONT(DKM);No flare reported.
19	1140-1200	N09W75	2f	13722	02000	2	No radio events reported with this flare.
28	(1458)				00020	2	CONT(DKM);No flare reported.
30	1915-1946	N10W02	sf	13738	00021	3	CONT(DKM);IIIG,V(M,DKM)
Jul 1	(1935)				00020	2	CONT(M,DKM);No flare reported.
2	(2010)				00020	2	CONT(M,DKM);No flare reported.
26	(1809)				00020	2	CONT(M,DKM);IN(M); No flare reported.
28	(1800)				00020	2	CONT(DKM);IIIg(DKM); No flare reported.
29	1220-1236	N08W53	sn	13783	00031	4	IV(DKM)DUR,5 MIN;IIIG (DCM,M,DKM);CONT(DKM)
29	(2007)				00020	2	CONT(DKM);IIIg,V(M,DKM) No flare reported.
30	(1309)				00021	3	CONT(M,DKM);No flare reported.
Aug 1	(1917)				00020	2	CONT(DKM);IIIg,V(M,DKM) No flare reported.
1-2	2357-0044	N05E44	sf	13786	10122	6	CONT(DCM,M);IIIg(M,DKM)
2	0915-0945	N06E37	sn	13786	20100	3	
2	1023-1029	N05E38	sf	13786	20000	2	
2	1043-1130	N07E90	sb	13790	20000	2	
4	1446-1513	N02E08	sf	13786	00020	2	CONT(DKM);IN,In prog.
6	1017-1100	N06W14	sn	13786	00020	2	CONT(DKM);IIIg(DCM)
7	1248-1308	N05W31	sn	13786	20120	5	IIIg(DCM);I(M);CONT(M, DKM)In prog.
10	0914-0940	N05W71	ln	13786	21020	5	CONT(DKM)
10	0947-1010	N08W09	ln	13790	11020	4	CONT(DKM)
10	1353-1450	N04W71	sn	13786	21101	5	CONT(DKM)In prog; IIIG(M)
10	1833-1925	N08W17	sn	13790	20100	3	CONT(DKM)In prog.
14	1031-1120	N07W69	ln	13790	21000	3	
14	(1450)				00020	2	CONT(DKM);No flare reported.
Oct 21	(2112)				00030	3	IV(DKM),7 Min. Duration; No flare reported.
Nov 16	1111-1121	S09E45	sn	13937	20000	2	No radio events reported.
17	1145-1242	S07E31	sn	13937	10223	8	CONT(DKM);Strong DCM and M-λ radio bursts.
21	(0124)				00020	2	CONT(DKM);IIIg(DCM,M,DKM)
1976							
Jan 13	(1920)				00020	2	CONT(DKM);No flare reported.
Mar 20	1356-1408	N05W20	sf	14127	00020	2	CONT(DKM)
20	1752-1815	N02W22	sn	14127	10020	3	CONT(DKM);IIIG(M,DKM)
21	(1115)*				20000	2	No flare patrol 1111-1230 UT.

APPENDIX OF "LESSER EVENTS" FOR 1975-1979 (continued)

DATE	TIME (UT) OF FLARE OR EVENT	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS
1976							
Mar 21	1306-1323	N03W33	sn	14127	20122	7	CONT(M,DKM);IIIg(M)
21	1829-1924	N03W34	sb	14127	20101	4	IIIG(DCM,M,DKM)
21	2228-2255	N03W37	sn	14127	10202	5	10 cm. Flux = 104; IIIG,V(DCM,M,DKM)
24	0011-0043	N02W66	ln	14127	11201	5	10 cm flux = 105; IS and IIIN in prog.
25	2310-2318	S07E67	sf	14143	00020	2	CONT(M,DKM);IIIg(M)
26	1334-1401	S04E61	sf	14143	00022	4	CONT(DKM);IIIG,V(M,DKM)
26	1439-1455	S08E62	sn	14143	10121	5	CONT(M,DKM);IIIG,V(M,DKM) Also IV(DKM),8 min. duration.
26	2300-2311	S07E51	sf	14143	00020	2	CONT(M,DKM);I(M) in prog.
27	1156-1230	S10E49	ln	14143	21122	8	CONT(DKM);IIIG,V(DCM,M)
27	1428-1455	S05E48	sf	14143	00022	4	IS and CONT in prog. (M,DKM)IIIG(DCM,M,DKM)
29	1152-1232	S09E26	sf	14143	00020	2	CONT(DKM);IIIg(DCM,M)
Apr 7	(1723)				00020	2	CONT(M);IIIb(DCM,M); No flare reported.
9	(0555)				00021	3	IS and CONT(M); No flare reported.
May 16	1444-1519	S03W65	sf	14203	00020	2	CONT(M,DKM);IS(M)
Aug 2	(0710)				00022	4	CONT(DCM,M);IIIG,V (DCM,M) No flare reported.
2	2232-2257	N15E60	sf	14352	00022	4	CONT(DCM,M);IIIG,V (DCM,M,DKM)
3	(0500)				00021	3	IS & CONT(M);IIIG (DCM,M,DKM);No flare reported.
7	(0434)				00020	2	IS & CONT(M,DKM);IIIg, V(M,DKM); No flare reported.
10	(1346)				00020	2	CONT(DKM);IIIg(M); No flare reported.
Sep 3	0905-0930 and 0917-0925	N14E05 N20W90	sb sf	14395 14403	10122	6	IN & CONT(DCM,M);IIIG (DCM,M)
4	0715-0750 and 0730-0744	N16W07 N22W90	sf sf	14395 14403	00021	3	IN & CONT(DCM,M); IIIG(DCM,M)
4	1025-1113	N15W08	sn	14395	00021	3	CONT(M,DKM);IIIg(DCM,M)
17	1805-1905	N20E82	ln	14429	11132	8	IV(M,DKM),4 min. duration IIIG(M,DKM)
Oct 2	(0550)				00022	4	I & CONT(DCM,M); No flare reported.
6	0846-0913	S24E52	sf	14468	00020	2	I & CONT(DCM,M)
25	(0714)				00020	2	IS & CONT(M); No flare reported.
26	(0621)				00020	2	I & CONT(DCM,M); No flare reported.
Nov 19	(1207)				00022	4	I & CONT(DCM,M); No flare reported.
Dec 14	(0900)				00020	2	I & CONT(DCM,M);IIIG (DCM,M) No flare reported.
15	(<0727)				00020	2	I & CONT(DCM,M). No flare reported.
1977							
Jan 2	(1200)				00020	2	IN and CONT(DCM,M); No flare reported.
12	1316-1355	S28W05	sn	14607	10020	3	IS & CONT(DCM,M)
13	1329-1342	S31W17	sf	14607	00020	2	IS & CONT(M)
Feb 28	(2053)				10020	3	CONT(DKM);IIIg,U,V(M) No flare reported.
Apr 13	2332-2359	S21E57	ln	14726	21000	3	No Dyn. Spectrum event reported.

APPENDIX OF "LESSER EVENTS" FOR 1975-1979 (continued)

DATE 1977	TIME (UT) OF FLARE OR EVENT	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS
Apr 14	0650-0655	S22E53	sf	14726	20120	5	CONT(M);IIIg(DCM,M)
16	0711-0735 and 0717-0827	S22E35 / S21E26	sf / sn	14726	10121	5	IN & CONT(DCM,M); IIIg(DCM,M)
May 21	(1332)				00030	3?	IVU(M), Duration only 0.1 minutes;IIIg(M).
Jun 9	1233-1247	S27W16	sn	14796	00021	3	CONT(DKM);IIIG,V(M,DKM)
25	1425-1443	N15E57	1n	14822	21000	3	IN(M)
26	1334-1405	S22W16	2n	14815	22100	5	No dyn. spectrum event reported.
26	1422-1545	S22W18	1n	14815	21100	4	IIIg,V(DCM,M,DKM)
26	1507-1530	N16E44	sn	14822	20000	2	No dyn. spectrum event reported.
26	1546-1552	N15E44	sn	14822	20100	3	I(DCM)
26	2049-2102	N15E43	sf	14822	10120	4	IS & CONT(M)
Aug 5	1858-1945	N27E48	1n	14888	21100	4	No dyn. spectrum event reported.
31	1004-1105	N26E80	2n	14930	12000	3	IIIg(DCM,M)
Sep 3	1457-1537 and 1515-1606	S32W43 / N26E37	sn / sf	14924 / 14930	00020	2	CONT(DKM);IIIG(M)
5	2103-2124	N23E08	sf	14930	00020	2	IS & CONT(M)
9	1609-1625	N08E83	sn	14943	20000	2	Radio Bursts only at CM wavelengths.
18	0019-0140	N07W35	1n	14943	11201	5	10 cm flux = 300; IIIG(M)
25	1334-1405	N13E83	1b	14963	21100	4	IIIb(DCM)
26	0137-0220 and 0145-0155	N14E78 / N24W36	1n / sn	14963 / 14951	21000	3	Fast drift bursts (DCM)
29	0620-0741	N15E31	sn	14963	10121	5	IS & CONT(DCM,M);IIIG, U(M)
Oct 3	2321-2336	N13W32	sn	14963	00020	2	CONT(M,DKM)
4	(1950)				30000	3?	A questionable SID of IMP 3; No flare or radio events reported.
4	1543-1623	N32W33	sf	14967	00020	2	IN,C(DCM,M)
6	0801-0822	N06E81	sf	14979	20102	5	IIIg(DCM,M)
6	1051-1105	N06E82	sn	14979	20102	5	IIIg(M)
7	1134-1159	N10E65	sf	14979	00021	3	IN & CONT(DCM,M);IIIG, U(DCM,M)
7	1253-1430	N03E58	sn	14979	00021	3	I & CONT(M,DKM);IIIb(DKM)
7	1752-1839	N07E56	sf	14979	00020	2	IC(M);IIIN(M,DKM)
8	1230-1402	N06E44	1n	14979	11121	6	CONT(DKM);IIIg(M)
11	(0027)				00020	2	CONT(DKM);No flare or radio bursts reported.
12	0020-0042	N10E01	sn	14979	00120	3	CONT(DKM);IIIG(DCM,M,DKM)
12	(0327)				00020	2	CONT(DKM);IS and IV in prog;No flare reported.
13	0033-0047	N06W09	sn	14979	00020	2	CONT(DKM)
14	0123-0158	N06W26	sn	14979	10120	4	CONT(DKM);III(DKM)
15	(0003)				00020	2	CONT(DKM);No flare or radio bursts reported.
17	(0026)				00020	2	CONT(DKM);No flare or radio bursts reported.
18	0031-0041	N19W45	sn	14979	00020	2	CONT(DKM)
19	1156-1215	S25E26	sf	14995	00020	2	IN,C(M)
19	2212-2310	S26E16	sn	14995	10021	4	IS,C(M);IIIb(M)
21	2125-2255	S28W14	sn	14995	00020	2	IIIS,C(M);IIIG,V(DCM,M)
23	(0345)				00021	3	IS & CONT(M)
29	0820-0915	N20E90	sf	15017	00020	2	IN & CONT(M)
Nov 17	(1514)				00020	2	IN & CONT(M); No flare reported.
21	0141-0254	N22W23	sf	15031	00021	3	CONT(M);IIIN(M)
Dec 1	(2312)				00010	1	II(DKM);No flare or radio bursts reported.
8	2248-2304	N23E68	sf	15061	00010	1	II(DKM);No radio bursts reported.

APPENDIX OF "LESSER EVENTS" FOR 1975-1979 (continued)

DATE	TIME (UT) OF FLARE OR EVENT	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS
1977							
Dec 9	0034-0054 and 0055-0117	N26E70 / N24E70	sn / sn	15061	00010	1	A group of Type II(DKM) between 0045 and 0117 UT reported by Manila. IIIN in prog - CLG.
9	0212-0317	S26E26	sf	15056	00010	1	II(DKM),(MAN),Not confirmed by CLG.
9	(0325)				00010	1	II(DKM):Unconfirmed;No flare or radio bursts reported.
9	(0935)				00020	2	IN & CONT(DCM,M);IIIg(M); No flare reported.
10	0416-0423	S29E18	sn	15056	00022	4	CONT(DKM)
11	2154-2305	S27W05	1n	15056	21100	4	IIIG(M)
12	0219-0251	S27W08	sn	15056	20100	3	III(DKM)
14	(0051-0347)						
14	(2314-2342)		Groups of II(DKM) bursts reported by Manila;				
15	(0205-0213)		Not confirmed by Culgoora. No flares, No Sid's				
16	(0011-0014)		No radio bursts are reported at these times.				
17	(0155-0158)						
19	0822-0910	N25E68	sf	15070	00022	4	IN & CONT(DCM,M);IIIg(M)
24	1845-1911	N21W12	sf	15070	00032	5?	IV(DKM),DUR. 0.6 MIN. IIIG(M,DKM)
25	0020.5-0021.8						
	0045.4-0049.5						
	0110.0-0113.0		A series of type II(DKM) bursts reported by				
	0344.2-0346.7		Manila; Not confirmed by Culgoora. No flares,				
	0408.8-0411.6		no SID's, no radio bursts reported at these times.				
	0511.0-0513.0						
	0522-0525						
26	(1859)*				1-131	≥ 6	IV(M),Duration 7 min. IIIg(M,DKM). No flare patrol 1730-1957 UT.
26	2322-2400	S27W72	1n	15074	21100	4	IIIG(M,DKM)
28	0856-0948	S19E68	sn	15081	20201	5	10 cm. flux = 159; IIIb(M)
29	0902-0945	S16E77	sn	15083	20000	2	IC in prog.
31	0349.0-0351.2		A series of Type II(DKM) bursts reported				10 cm. long GR & F
	0400.0-0403.6		by Manila, not confirmed by Culgoora.				in prog.
	0412-0415.2		No flares & no SID's reported at these times.				
1978							
Jan 1	0554-0626	S18E36	1n	15083	21101	5	
2	(1305)				00020	2	CONT(M);No flare or SID reported.
7	0123-0217	S21W64	1f	15081	11122	7	CONT(DCM,M,DKM);IIIG(M)
7	0632-0651	S16W65	1f	15081	21202	7	Strong radio bursts at MM and CM wavelengths.
14	(2041)				00020	2	CONT(DCM,M);IIIS(M);No flare reported.
Feb 2	1133-1155	N19E07	sb	15126	20232	9	IV(M),6 minutes duration.
3	0443-0602	N20E66	1n	15135	11120	5	CONT(DCM);IS,C,DC(M)
3	0803-0820	N20E61	sn	15135	20100	3	IIIg,N(DCM)
3	1605-1645	N21E57	1b	15135	21100	4	IIIG(M,DKM)
3	2026-2158	N33W18	2b	15136	12100	4	IIIG,V(DCM,M,DKM)
4	(0315)				00021	3	IS,C,DC(DCM,M);No flare reported.
4	1650-1655	S32W45	sn	15124	00020	2	CONT(M)
5	0728-0750	S28E32	sf	15132	00021	3	IS,C,DC(M);IIIS
8	0355-0418	N12E45	2n	15139	12000	3	No radio events reported.
8	1756-1802	N15E39	sb	15139	00020	2	CONT(M);IIIg(M).
9	1111-1214	N28W14	1n	15134	21102	6	IIIg(M)
9	2253-2343	N27W20	sn	15134	20100	3	Radio bursts only at MM. and CM. wavelengths.
9-10	2359-0109	N16W27	sn	15135	20103	6	IIIG,V(DCM,M,DKM)
10	0014-0104	N13E22	1b	15139	21103	7	
11	1425-1443	N14E06	1b	15139	11203	7	10 CM Flux = 117;IIIG,V (DCM,M,DKM)
11-12	2341-0053	N13W08	1n	15139	21102	6	
12	1307-1347	N14W05	1n	15139	11122	7	CONT(M);IIIg(DCM,M)
13	0948-1002	N14W31	sf	15139	00020	2	IC,DC(DCM,M);IIIg(DCM)
15	0718-0843	N15W48	sn	15139	10202	5	10 CM Flux = 140;IIIG (DCM,M,DKM).
16	0603-0658	S30W28	sn	15142	10122	6	
	0607-0651	N17W52	1b	15139	11122	7	CONT(DKM);IIIG(DCM,M,DKM)
16	2117-2212	N16W71	sn	15139	10132	7	IV(DCM),7 min duration; IIIG(M,DKM)
17	0137-0153	N12W80	1b	15139	21000	3	IIIb(DKM)
20	1609-1625	N37E73	2b	15162	12021	6	CONT(M);IIIG(M,DKM)
21	2250-2328	N37E62	2n	15162	12001	4	No radio events except M-λ noise storm.

APPENDIX OF "LESSER EVENTS" FOR 1975-1979 (continued)

DATE	TIME (UT) OF FLARE OR EVENT	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS
1978							
Mar 7	(1415)				00022	4	CONT(M);IIIG(DCM,M); No flare reported.
8	(1430)				00021	3	IIIg AND CONT(M);No flare reported.
9	1840-1844	S35E90	sf	15178	10202	5	10 CM FLUX = 440;IIIG (DCM,M);Strong radio bursts at all wavelengths
10	1150-1158	S30E85	sf	15178			IIIb AND CONT(M); With
	1155-1215	N17W02	sn	15175	10020	3	simultaneous flares.
10	2210-2255	S34E77	2n	15178	12000	3	No radio events except M-λ noise storm.
11	1625-1637	N26W45	sn	15172	00021	3	CONT(M);IIIN(M,DKM)
12	0151-0207	S35E69	sm	15178	00021	3	IS,C(M);No radio bursts reported.
13	(0450)				00021	3	IS,C(M);IN,DC(DCM) No flare reported.
15	1235-1315	N18E67	1b	15184	11020	4	IIIS AND CONT(M)
15	2329-2445	S29E02	sn	15178	00022	4	IS,C(DCM,M);IIIb,U(M)
16	0211-0248	S26E08	sn	15178	00122	5	IS,C,DC(DCM,M)
17	(0240)				00020	2	IS,C,DC(DCM,M);IIIg,U(M); No flare or radio bursts reported.
17-18	(2355)				00022	4	IS,C,DC(DCM,M);IIIg,U(M); No flare reported.
	Culgoora radioheliograph places source of IS,C at 0.3 R⊙, P.A. 120°-170° (Probably active region 15178)						
Apr 2	(1209)				20001	3	IIIg(M);No flare reported
4	(<2035)				00120	3	IS,C(M);No flare reported
8	0835-0855	N16W11	sb	15221	20103	6	IIIG,V(DCM,M,DKM)
9	0422-0449	N23W71	1n	15214	11123	8	IS,C(DCM);IIIG,V(M)
9	1202-1211	N18W25	1n	15221	11123	8	CONT(M);IIIG,V(DCM,M); Strong radio bursts at DCM and M wavelengths.
10	(1210)				2-002	≥ 4	IIIg(M);No flare patrol 1211-1250 UT.
10	(1457)				1-022	≥ 5	IIIb and CONT(M);No flare patrol 1415-1441 UT.
11	(1159)				20121	6	CONT(M);No flare reported
12	0644-0730	N20W65	2n	15221	22101	6	IIIb and IIIg,U(M)
12	0740-0746	N19E50	sf	15235	20102	5	IIIg,V(DCM,M,DKM)
13	0450-0512	N20W86	1b	15221	21102	6	IIIG,V,U(M)
14	1059-1117	N15E05	sn	15235	10121	5	CONT(M);IIIG,V(DCM,M)
14	2312-2327	N26W90	sn	15221	20100	3	
15	0500-0540	N20W18	sf	15239	10021	4	CONT(M);IN AND IIIN (M)
	0511-0602	N12W07	sf	15235			Simultaneous flares.
15	0811-0826	N14W07	sb	15235	20104	7	IIIG(DCM,M);Strong radio bursts at DCM and M wavelengths.
18	(1348)				10031	5	IV(M),7 min. duration; IIIG(M,DKM);No flare reported.
23	(1025)				20100	3	IIIg(M);No flare reported
23	(1745)				20100	3	IIIG,V(M,DKM);No flare reported.
24	0540-0550	N15W90	sn	15254	20000	2	IIIN(M);No radio bursts reported.
26	1339-1410	N20E39	1n	15266	11120	5	CONT(M);Weak radio bursts only at MM and CM wavelengths.
27	0945-1006	N22E65	1b	15266	21102	6	IIIG,V(DCM,M)
28	0010-0041	N27E45	sb	15266	10232	8	IV(DCM,M),7 min. duration IIIG,V,U(DCM,M);10 CM Flux = 295.
28	0438-0500	N24W69	sn	15248	00020	2	IS,C(M);No radio events except M-λ noise storms.
May 2	1330-1355	N25W05	sn	15266	00020	2	CONT(M);No radio bursts reported.
3	(0403)				10020	3	IS,C(M);IIIG,N(M);No flare and no radio bursts reported.
3	1500-1655	N21W33	sn	15266	00020	2	IC(M);IIIg(M,DKM);No radio bursts reported.
3	1654-1735	N29W31	1b	15266	11233	10	10 CM FLUX = 170;IV(M), 6 Min. duration;IIIG,V (DCM,M,DKM).
3	2020-2056	N26W20	sb	15266	10120	4	IS,C,DC(M)
4	0637-0708	N21W24	1n	15266	11020	4	CONT(M)

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May 5	1028-1032	N28W54	1b	15266	11203	7	10 CM FLUX = 430;IIIG,V (DCM,M);A strong radio flare at all wavelengths, especially metric.
5	(2038)				10020	3	IS,C,DC(M);IIIg,V(M); No flare reported.
9	(0356)				20000	2	IIIg(M);IIIN(DCM,M); No flare reported.
	Culgoora radioheliograph places source at 1.1 R⊙, P.A. 270° (Probably active region 15266 at W limb)						
9	(0708)				20000	2	IIIg(DKM);No flare reported.
18	(0730)				00020	2	CONT and IN(M);No flare reported.
18	1024-1046	S18W48	sf	15296	00020	2	CONT(M);No SID or radio bursts reported.
19	2343-2355	S21W76	2n	15296	12000	3	A flare of IMP. 2, with little effect.
20	(2048)				00021	3	IS,C(DCM);IIIN(M); No flare reported.
26	0551-0714	N16E21	sf	15314	20000	2	IS and IIIN(M)
26	1732-1813	N20E61	1b	15319	21102	6	IIIG(M,DKM)
29	1720-1848	N27W23	1b	15314	11200	4	10 CM FLUX = 205;No DYN. SP. events reported.
30	0630-0827	N16W30	2b	15314	22101	6	IIIg(DCM,M)
	(Accompanied by a simultaneous flare of IMP. 1b at N21E15, in region 15319)						
30	1927-2027	N18W36	1b	15314	21100	4	No DYN. SP. events reported.
June 5	0729-0812	N23W65	1b	15319	21000	3	IIIg(M)
6	(0355)				00020	2	IS,C(M);IIIb(M);No flare, SID or radio bursts reported.
19	0354-0418	N18W05	sn	15360	00020	2	CONT(M);IIIg(DCM);Poor flare association;No SID or radio bursts reported.
20	(0540)				00020	2	CONT(M);No prior flare, SID or radio bursts reported.
22	0235-0301	S20E66	1n	15375	21000	3	No DYN. SP. or radio events reported.
25	(0114)				00020	2	IS,C,DC(M);No prior flare or SID or radio bursts reported.
26	(2117)				0-020	≥ 2	IS,C(M);IIIb(M);No flare patrol 2040-2130 UT.
29	0501-0512	N16W14	sf	15376	10204	7	10 CM Flux = 180; IIIG,V(DCM,M,DKM)
July 1	(1341)				20100	3	No DYN. SP. event and no flare reported.
7	1205-1230	S26W57	sf	15389	20101	4	No DYN. SP. event. Simultaneous flares at time of SID.
	1211-1227	S19E65	sb	15397			
7	1748-1830	S16W52	sn	15384	10020	3	CONT(M)
8	1959-2045	S15W66	sn	15384	20222	8	10 CM FLUX = 420;CONT(M); IIIG(M,DKM)
9	1139-1210	S21W02	sn	15400	10202	5	10 CM FLUX = 118;IIIg, V(M);Simultaneous flares.
	1140-1203	N18E71	1b	15403	11202	6	
9	1637-1710	N17E69	sn	15403	10202	5	10 CM FLUX = 121;IIIG,V (DCM,M,DKM)
10	1241-1415	N18E57	1b	15403	21000	3	V(M);IIIN(M,DKM)
10	1546-1615	N16E56	sn	15403	10120	4	CONT(M);IIIN(M,DKM)
10	1819-2118	N17E54	1b	15403	11123	8	IS,C(M);IIIg,V(DCM,M,DKM)
11	0052-0117	N17E49	sn	15403	20000	2	IIIg,V(M,DKM)
11	0540-0620	N16E48	2b	15403	22202	8	10 CM FLUX = 472;IIIb, V(M);Strong radio bursts at all wavelengths.
11	0933-1000	N18E45	sn	15403	20000	2	No DYN. SP. event.
11	1907-2106	N17E41	1b	15403	11020	4	IS,C(M),IIIG(DCM,M,DKM)
11	2159-2320	N18E38	2b	15403	22100	5	IIIN(M);IIIg,V(DCM,M,DKM)
	2219-2237	N20W60	sf	15409	20100	3	Either flare could be associated with the SID.
12	0236-0340	N18E35	1b	15403	21000	3	IIIG(M,DKM);IS and IIIS(M)
12	0517-0545	N21W65	sn	15409	10021	4	IS,C,DC(M);IIIg(DKM); No radio bursts reported; Flare-ambiguous.
	0521-0544	N17E33	sn	15403			
	0556-0559	N12E61	sn	15410			

APPENDIX OF "LESSER EVENTS" FOR 1975-1979 (continued)

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Jul 12	0900-0943	N18E32	sn	15403	20100	3	IIIS(M); Flare-ambiguous.
	0900-0925	N17W68	sn	15409			
12	1000-1035	N17E31	sn	15403	20002	4	IIIg(DCM,M)
12	1553-1639	N16E28	sn	15403	10204	7	10 CM FLUX = 118;IIIG,V (DCM,M);Strong radio bursts at all wavelengths
12	1756-1850	N16E28	sn	15403	10023	6	IC(M);IIIG,V(DCM,M,DKM)
12	2049-2125	N17E25	1b	15403	21122	8	IS,C(M);IIIG,V(DCM,M,DKM)
	2052-2107	S20W45	sn	15400	20122	7	IIIS(M);Flare-ambiguous association with SID.
15	0035-0134	N16W01	1b	15403	21103	7	IIIG,V(DCM,M);IIIN(M)
15	1424-1443	N18W11	1b	15403	11203	7	10 CM FLUX = 450;IIIG,V (DCM,M);Strong radio bursts at all wavelengths
18	0844-1000	N18W44	sn	15403	20000	2	No DYN. SP. event.
20	0002-0057	N17W90	1n	15403	21000	3	IIIN(M);IIIg(DCM,M)
21	0413-0429	N18W88	2f	15403	02000	2	No SID and no radio events reported.
21	1307-1354	N14W61	sn	15410	10020	3	IC(DCM,M)
21	(1538)				10201	4	10 CM FLUX = 430;No DYN. SP. event and no flare reported.
21	1857-1926	N17W90	1b	15403	21200	5	10 CM FLUX = 126;No DYN. SP. event reported.
22	(1315)				20001	3	IIIg,V(M);No flare reported.
28	1410-1421	N27W26	sf	15428	00021	3	IC(M)
Aug 3	(1513)				00021	3	IC(M);No flare reported.
6	(0530)				00020	2	IN,C(M);No flare or SID or radio bursts reported.
16	1325-1406	S26W76	1n	15454	21000	3	No DYN. SP. event reported.
30	1530-1703	N18E65	1b	15508	21221	8	10 CM Flux = 170;CONT(M)
31	0526-0603	N15E57	1n	15508	21000	3	IN(DCM);IIIg(DCM,M)
Sept 1	1237-1320	S35E65	sn	15509	20000	2	IIIg(M)
1	1807-1825	S39E68	sn	15509	00020	2	CONT(M);IIIN(DCM,M,DKM)
1	2223-2300	S33E44	2n	15509	12100	4	IIIS(M)
2	0533-0621	S32E43	2b	15509	22220	8	10 CM Flux = 105;IIIS, C(M);Strong radio bursts at MM and CM wavelengths.
2	1131-1212	S30E37	1n	15509	11120	5	CONT(M);IV(M),6 min. duration.
2	1305-1327	S31E39	sb	15509	20100	3	IIIG(DCM)
3	(2135)				00120	3	IS,C(M);IIIG,V(DCM,M, DKM);No flare reported.
4	0035-0120	N15W18	sf	15508	00020	2	IS,C,DC(DCM,M);IIIg (M,DKM)
4	(0230)				00020	2	IS,C(M);IIIg,V(DCM,M,DKM)
	Culgoora radioheliograph places source at 0.5-0.8 R⊙, P.A. 330° (Northwest quadrant, perhaps active region 15508 on disk)						No flare or SID or radio bursts reported.
5	0515-0538	N22E90	2f	15523?	12022	7	IDC,CONT(M);IIIS(M)
22	(0429)				00020	2	IS,C,DC(M);No flare or SID or radio bursts reported.
24	0623-0705	N35W62	2n	15543	12000	3	IIIg(M);No radio bursts reported.
26	2217-2250	N28W07	1n	15551	11122	7	IS,C,DC(M);IIIb(DCM)
Oct 5	(1113)				20101	4	IIIG,V(M);No flare reported.
14	2342-2353	S21W87	sn	15582	20100	3	I(DCM);IS,DC(M)
15	0944-1002	S19W90	sb	15582	20100	3	IIIg(M)
16	0027-0109	N28E61	2n	15598	12000	3	IS(M);No radio bursts reported.
19	0406-0439	N25E77	2n	15610	21100	4	No DYN. SP. events.
22	0556-0638	S23E24	1b	15611	01020	3	IS,C(DCM,M);IIIg(DCM,M)
Nov 11	1210-1225	N24E40	sn	15651	00023	5	CONT(M);IIIG,V(M); Simultaneous sub-flares in widely separated regions, with onset of continuum emission.
	1216-1225	N18W23	sf	15643	00023	5	
	1221-1231	S10W54	sn	15641	00022	4	
12	0619-0630	N16W31	sf	15643	00020	2	CONT(M);IIIb(M);IS(DCM,M)
13	0819-0848	N21W46	sn	15643	20100	3	No DYN. SP. events.

APPENDIX OF "LESSER EVENTS" FOR 1975-1979 (continued)

DATE	TIME (UT) OF FLARE OR EVENT	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS
1978							
Dec 4	1320-1327	S23E58	sb	15694	10204	7	10 CM Flux = 139;IIIG, V(M);Strong radio bursts at all frequencies, especially at DCM and M wavelengths.
10	0204-0218	S31W90	sn	15684	20000	2	IIIG(DCM,M,DKM);IS(M)
10	1950-2045	S17W36	sb	15694	10123	7	IS,C(M);IIIg(DCM);IIIS (M,DKM)
11	0341-0404	S17E23	sf	15697	10020	3	IS,C(DCM)
12	0404-0443	S13E15	1n	15697	11020	4	CONT(DCM,M)
12	0747-0930	S17W56	sn	15694	20020	4	IS,DC,CONT(M),IIIN(M)
12	0838-0853	N21E00	sf	15700	20000	2	No DYN. SP events reported.
12	1002-1223	S17W60	1n	15694	21102	6	No DYN. SP. events reported.
12	1503-1620	S18W61	1b	15694	21203	8	10 CM Flux = 185 and 46;
	1503-1634	S22W14	sn	15696	20103	6	IIIN(M);Strong radio bursts at all wavelengths Simultaneous flares.
12	1726-1900	S19W74	2b	15689	12000	3	IIIN(DKM);No radio bursts reported.
12	2053-2205	S18W66	1n	15694	11020	4	IS,C(M);IIIG(M,DKM)
13	0011-0103	S18W67	1b	15694	21000	3	IIIb(M,DKM);IS(M)
13	0202-0259	S17W68	2n	15694	12000	3	IIIg(M,DKM)
13	1014-1032	S16W70	sn	15694	20102	5	No DYN. SP. events reported.
14	0717-0731	S17W82	1b	15694	21100	4	IIIg,U(M)
17	0343-0406	N20W10	sn	15704	20100	3	IIIg(M,DKM);IIIN(M)
19	(2345)				00200	2	10 CM Flux = 133;IIIg(M) No flare or SID reported.
	(Possible source, from Culgoora radioheliograph, of Type IIIg, is 0.1 R0, P.A. 130°.)						
1979							
Jan 9	0936-0952	N18W85	2n	15744	12000	3	No Dyn. Sp. or radio events reported.
13	1931-2013	N16W10	1n	15754	21100	4	No Dyn. Sp. event reported.
15	0712-0755	N15W35	2n	15754	02100	3	
15	1041-1120	S23W25	sn	15757	20102	5	IIIg(M)
	1058-1135	S18W78	sf	15748			
15	1306-1425	S25W27	sf	15757	20203	7	10 CM Flux = 117; Numerous flares during common SID, 1338-1410 UT — Are they related?
	1327-1340	S18W79	1n	15748	21203	8	
	1332-1343	S22W02	sn	15762	20203	7	
	1347-1422	N15W36	sn	15754	20000	2	
16	0724-0750	S21W12	sn	15762	10200	3	10 cm Flux = 206; IIIg (DCM)
16	2224-2324	N20W54	2n	15754	02101	4	IIIg(DCM). "Simultaneous flares" with approx. same max. (~ 2250 UT).
	2242-2311	S27W07	sf	15762	00101	2	
18	0425-0435	N14W73	2n	15754	02000	2	IIIg(M,DKM).
25	1417-1458	S26E24	1b	15786	11200	4	No Dyn. Sp. or Meter wavelength events reported; 10 cm flux = 294
28	0453-0536	N12W52	sn	15777	00200	2	10 cm flux = 133; IIIb(M)
Feb 2	0903-1026	S21E90	1n	15808	21002	5	IIIg(M)
7	0347-0416	S19E27	1n	15808	21200	5	10 cm flux = 116
8	0202-0332	S20E15	1n	15808	21222	9	10 cm flux = 102;CONT(M)
8	0712-0842	N12E15	1n	15807	21000	3	
9	0734-0840	N13W05	1b	15807	21000	3	I(M)
11	0949-1040	N15W27	2f	15807	02000	2	
11	1223-1314	N12W32	1b	15807	11203	7	10 cm flux = 200;IIIU(M)
12	0000-0204	N16W36	1n	15807	21121	7	IS,DC,CONT(M)
12	0546-0611	N15W38	sn	15807	20000	2	IIIg,V(M)
12	1948-2031	S34E16	1b	15816	11202	6	10 cm flux = 126;IIIg,V (DCM,M,DKM)
16	1245-1312	N18E10	sn	15823	10202	5	10 cm flux = 130;IIIG (DCM,M)
16	2136-2216	N18E08	sb	15823	10202	5	10 cm flux = 166;IIIG (DCM,M,DKM).
16	(2235)				10200	3	10 cm flux = 189; No flare reported.
17	0004-0048	N18E08	sn	15823	10200	3	10 cm flux = 430; IIIG (DCM,M).
	0013-0100	N10E40	sn	15830			
17	0225-0330	N18E06	1n	15828	21201	6	10 cm flux = 462; IIIG (DCM,M,DKM).
17	1900-1924	N18W01	sn	15823	10120	4	CONT(M);IIIg,V(M,DKM)
18	1652-1731	N06W17	sb	15836	00202	4	10 cm flux = 236;IIIG,V (DCM,M,DKM);IV in progress

DATE 1979	TIME (UT) OF FLARE OR EVENT	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS
Feb 18	1707-1750	N18W17	1n	15823	01200	3	10 cm flux = 185; IIIG,V (DCM,M,DKM).
18	2156-2243 and	N17E11	sb	15830	10122	6	CONT(DCM);IIIG(M,DKM).
	2203-2246	N18W20	1n	15823	11122	7	
18	2330-2412 and	N18W19	sn	15823	20020	4	IS, CONT(M); IIIG (M,DKM)
	2342-2436	N18E12	sn	15830			
19	1520-1649	N19W27	1b	15823	11122	7	CONT(M);IIIG(DCM,M,DKM).
19	1758-1906	N16E02	2b	15830	22200	6	10 cm flux = 130;IN(M); IIIN(DCM,M).
20	0431-0535 and	N13W24	sf	15823	20000	2	IIIg(M,DKM).
	0440-0524	N18W06	1f	15830	21000	3	
20	1125-1153	N17W17	sn	15830	10202	5	10 cm flux = 129;IIIG,V (DCM,M).
20	2115-2143	N20W20	1n	15830	01124	8	IS,DC CONT(M);IIIG,V(DCM, M,DKM).
21	0220-0257	N18W22	sf	15830	00020	2	CONT(M);IS,DC(DCM,M)
21	0932-0939	N16W30	sn	15830	10202	5	10 cm flux = 226; Type IV also reported, duration 1 min. (DCM).
21	1555-1607	N16W34	sn	15830	10203	6	10 cm flux = 178; IIIg,V (DCM,M).
22	1119-1257	N25W48	2n	15823	12121	7	CONT(M);IIIg(DCM).
24	2314-2508	N20W66	1f	15830	01021	4	IS,DC,CONT(M);IIIg(DCM,M, DKM).
	2348-2408	S27E07	sf	15838	00021	3	
Mar 5	1405-1558	N13E38	1b	15863	21100	4	Simultaneous flaring in different parts of plage, and at time of start of major SID.
	1408-1513 and	N21E44	sb	15863	20100	3	
	1409-1454	N12E25	1b	15863	21100	4	
5	1517-1609	S19W52	2b	15849	12000	3	
6	1423-1506	S21W10	1n	15856	01021	4	CONT(M);IIIG(M).
16	1433-1446 and	N18W09	sb	15877	20100	3	IIIb(M);I,DC(M).
	1411-1504	N19E26	1b	15877	21100	4	
18	1355-1445 and	N40W14	sn	15880	20100	3	No Dyn.Sp. events. Flares have common max. at 1425 UT, with SID.
	1418-1425	N06E32	1b	15887	21100	4	
19	1654-1745	N07E15	1b	15887	21201	6	10 cm flux = 220; IIIg (DCM,M).
21	1258-1339	N07W09	1b	15887	21100	4	No Dyn.Sp. events reported.
22	1338-1545	N07W26	1b	15887	21200	5	10 cm flux = 120; No Dyn. Sp. events reported.
23	1904-2015	N08W43	1b	15887	21000	3	No Dyn.Sp. events reported.
24	0718-0755	N07E49	sb	15904	10202	5	10 cm flux = 119; IIIg (DCM,M).
25	0030-0123	N07W64	sn	15887	20100	3	IIIg(M).
25	0650-0731	N09W64	sf	15887	20100	3	No Dyn.Sp. events reported.
25	1802-1829	N08W71	1b	15887	21202	7	10 cm flux = 325; IIIg (DCM,M).
26	0309-0325	N09W80	sn	15887	20000	2	IIIb(M,DKM).
26	1641-1649	S30W12	sn	15899	20002	4	IN(M).
29	0715-0824	S29E52	1b	15918	21100	4	IN(M).
31	2315-2402	S24E19	2b	15918	22200	6	10 cm flux = 240;IS(DCM).
Apr 3	0417-0440	S23W05	1b	15918	11200	4	10 cm flux = 368; IIIg (M,DKM).
3	1151-1243	S21W11	1n	15918	11203	7	10 cm flux = 175; IIIS(M)
5	1455-1504	N20E88	sb	15933	20000	2	IIIg(DCM,M).
5	1823-1846	N20E89	sn	15933	00201	3	10cm flux = 160;IIIG(DCM)
10	0458-0530	N10E90	1b	15948	21000	3	IIIG,U(DCM,M).
11	0834-0903	N10E70	1n	15948	21002	5	No Dyn.Sp. event reported
11	1325-1351	S26W42	sn	15940	20222	8	10 cm flux = 234; IIIg,V, U(DCM,M,DKM);I,DC,CONT(M)
16	0510-0521	N03W09	1b	15937	21100	4	IIIg(M); Different flares overlap with major SID.
	0531-0615	N18E15	1f	15952	21000	3	
25	2131-2156	S27E53	2n	15968	12103	7	IIIG,V(DCM,M).
27	0529-0555 and	N16E15	sn	15967	10203	6	10 cm flux = 137; IIIG,V (M). These flares precede the major flare event following, at 0633 UT.
	0537-0637	N12E80	1n	15974	11200	4	
27	1628-1725	N19E10	sb	15967	11000	2	10 cm flux = 173; IIIg (DCM,M).
29	1605-1627	N16E44	sb	15974	20100	3	IIIg,V(DCM,M,DKM).

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May 1	0351-0416	N15E18	1n	15974	21002	5	IS(DCM).
1	0605-0631	S24W20	sf	15968	00022	4	IS,CONT(DCM,M).
	0610-0652	S30E27	1n	15978	01022	5	
	0625-0652	N11E20	sf	15974	00022	4	
1	0914-0929	N19W40	sf	15967	00200	2	10 cm flux > 160; IS, DC in progress.
6	2335-2353	N24E34	1b	15990	11200	4	10 cm flux = 100; IIIg, V,U(DCM,M).
17	0116-0138	S22W69	sb	15996	20100	3	No Dyn. Sp. events reported; three flares in common with SID.
	0122-0144	S23W46	sf	16001	20100	3	
	0122-0131	N13E07	sf	16010	20000	2	
19	0424-0445	N16W75	sn	15999	20100	3	No Dyn.Sp event reported.
20	1057-1124 and	S32E84	sf	16034	10021	4	CONT(M);IIIN(M).
	1110-1137	N15W65	1n	16014	11021	5	
20	(1310)				20000	2	IIIg(M);No flare reported
21	0443-0510 and	N20W50	1f	16014	21001	4	IIIb,V(M,DKM).
	0458-0515	S22E53	1b	16030			
21	0626-0632	S17W88	sn	16005	20000	2	IIIN(M).
22	1110-1235	S21E35	2n	16030	12100	4	No Dyn.Sp. event reported
Jun 1	1455-1530	N15E65	sn	16051	00020	2	IC(M);IIIN(M).
2	1421-1621	N20E49	sb	16051	10220	5	10 cm flux = 122; IC(M); IIIN(M,DKM).
3	0129-0159	N14E50	2b	16051	02000	2	No SID or Dyn.Sp. events reported.
3	0845-1113 and	N18E39	2n	16051	22100	5	No Dyn.Sp. events reported; Simultaneous flares common to major SID.
	0910-1119	S26E47	1b	16052	21100	4	
5	0124-0220	N20E18	1n	16051	21121	7	IS,C(M);IIIG(M,DKM).
6	2105-2139	N17E71	1b	16067	21201	6	10 cm flux = 204;IIIN(M)
10	(0220)				00020	2	IS,DC,CONT(DCM,M); No prior flare reported.
10	(1424)				00020	2	CONT(M); No prior flare reported.
11	(1150)				10122	6	CONT(M); IS(M); No flare reported.
11	1223-1243 and	N20W75	1b	16051	21122	8	I and CONT(M).
	1229-1243	S25W52	sf	16052	20122	7	
11	(1520)				00020	2	IC(M);IIIb(M); No prior flare reported.
11	1745-1818 and	S25W55	sn	16052	10020	3	I and CONT(M);IIIG(M).
	1747-1809	N22W81	1b	16051	11020	4	
11	2116-2125	N28W75	sf	16051	00020	2	IS,C(DCM,M);IIIS(M).
12	0548-0555	N14E03	sn	16067	00020	2	IS and CONT(M).
12	0647-0700	S25W65	sn	16052	00200	2	10 cm flux = 228; No SID and no Dyn.Sp. events reported.
12	1447-1521 and	S18E05	sf	16065	00020	2	IC(M); No SID or single freq. radio events reported.
	1452-1549	S23W66	sf	16052			
12	1649-1658	N20W90	sf	16051	00020	2	IC(M);IIIG(M).
12	2049-2105	N19W89	sn	16051	00020	2	IS,DC, and CONT(DCM,M);No SID or single freq. radio events reported.
13	1042-1133	N16E90	sf	16092	00120	3	CONT(M) - Possibly an "All Day" report.
13	2034-2109	N15E87	sb	16092	00022	4	IS,DC,CONT(DCM,M);IIIS(M)
14	0110-0138 and	N23E20	sn	16070	00020	2	IS,DC,CONT(M);IIIS(M).
	0125-0143	S25W13	sf	16065			
14	2110-2215	N15W46	sn	16067	00020	2	IS,C(DCM,M);IIIS(M).
30	0551-0638	S28E78	1f	16112	01020	3	IS,DC,CONT(M);IIIg(M).
30	1835-1844	N18E45	sb	16117	00020	2	IC(M);No SID or single freq. radio events reported.
Jul 1	0259-0420	S27E63	2n	16112	02000	2	IIIg(M);IS,DC(M).
2	(1448)				00120	3	CONT(M); No flare or SID reported.
3	2300-2337	N04W02	2n	16111	12000	3	IIIg(DCM);IS(M).
4	0601-0647	N08E47	1b	16122	11200	4	IV and IS, CONT in prog; 10 cm flux = 170.
4	0829-0947	N08E46	1b	16122	11122	7	CONT(M);IS in prog.

APPENDIX OF "LESSER EVENTS" FOR 1975-1979 (continued)

DATE 1979	TIME (UT) OF FLARE OR EVENT	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS
Jul 16	(1755)				00200	2	10 cm flux = 155; No flare or SID reported.
23	0457-0800	N28W90	2n	16160	02000	2	No SID or single freq. events reported.
24	0725-0835	N31W31	1n	16156	21101	5	IIIN in prog.
Aug 1	1115-1205	S13E04	sb	16175	20100	3	IIIb(DCM).
1	1412-1440	S13E02	sn	16175	20100	3	IIIb(M).
15	1524-1541	S23E41	sb	16225	20100	3	IIIg(DCM).
21	2056-2109 and 2057-2133	N05E57 S32E56	sn sn	16239 16241	00020	2	I and CONT(M).
22	2221-2240 2232-2245 2231-0213	N04E57 S32E55 S27W22	sf sn sn	16239 16241 16224	00020	2	IS,CONT(M);IIIg,U(M).
27	0257-0331	N28W22	sf	16237	00024	6	CONT(M);IIIG,V(M).
27	2137-2315	N18E62	1b	16252	11020	4	IS,C(M);iIIg,V(M,DKM).
28	0028-0031	N17E63	sn	16252	00020	2	CONT(M);IIIg(M).
Sep 7	0425-0508	N21W72	2n	16252	12000	3	IIIG,V(M,DKM);IS(M).
8	0645-0711	S22W86	1n	16271	21100	4	IIIG(DCM,M);IS(M).
11	0950-1021	N11E31	sn	16279	00132	6	IV(DCM), Duration 4 min.
11	1343-1524	N15W10	2b	16275	12100	4	
13	(0549)				00020	2	CONT(M);IIIG,U(M); No flare or SID reported.
14	0245-0401	N06W05	2n	16279	12000	3	
15	(0113)				20000	2	No flare reported at time of SID.
16	0759-0823	N03E85	sb	16298	20100	3	IIIg,U(DCM,M).
16	0937-1015	N06E80	2b	16298	22200	6	10 cm flux = 220;No event reported in dynamic spectrum.
18	0746-0856	N09W63	1n	16279	21100	4	IIIb(M).
19	0356-0442	N10W76	1n	16279	21100	4	IIIb(M,DKM).
19	1353-1423 1407-1512	N09W78 N05E38	1b sn	16279 16298	21100 20100	4 3	
20	0838-0946	N05E27	1n	16298	21100	4	IN(M).
21	2340-2430	N06E05	1n	16298	11202	6	10 cm flux = 200;IIIg(M).
22	0215-0320	N06E03	1n	16298	21000	3	IIIg,V(M).
25	1106-1205	N15E56	1n	16325	11131	7	IV(DCM,M), Dur. 8 min; IIIg(M).
30	0614-0701	N18W37	2b	16315	22120	7	IS,C(M);IIIN(M).
Oct 1	0554-0622	S25W16	1b	16324	21100	4	IIIb(M);IN(DCM,M).
1	0920-0950	N16W51	1b	16315	21100	4	IN in prog.
2	0935-1003	N13E24	sb	16337	20100	3	IN in prog.
2	1440-1600	S29E25	1n	16334	11131	7	IV(DCM), Dur. 6 min; IIIG (DCM,M).
2	2155-2325	N13E55	2n	16336	12201	6	10 cm flux = 113; IIIg(M)
3	0831-0855	S23W44	1n	16324	21101	5	
4	1048-1200	N11E27	1n	16336	01202	5	IIIG(M).
6	0621-0703	N25E40	2n	16341	22100	5	
6	0700-0730	N14E40	2n	16344	12100	4	IIIg(DCM,M).
6	0738-0815	N25E39	1b	16341	21101	5	IN(M).
8	1852-1904	S18W76	sn	16346	00020	2	I, CONT(M).
9	0654-0756	N15E10	1n	16344	21001	4	IS and IIIS in prog.
9	1453-1505	N18E00	sf	16344	00020	2	I, CONT(M).
9	(1849)				00020	2	I, CONT(M);IIIG(M,DKM); No flare or SID reported.
9	2007-2020	N13W41	sn	16336	00020	2	IS,C(M).
10	(1333)				00020	2	I,C(M); No flare or SID reported.
10	(2217)				00020	2	IC(M); IIIb(M); No flare or SID reported.
11	1155-1226	N09E62	sn	16363	00200	2	10 cm flux = 100; IIIN in prog.
12	1035-1136	N28E29	sb	16357	10132	7	IV(DCM), Duration 5 min.; IIIG(M).
13	(1100)				00022	4	CONT(M); No flare or SID reported.
13	1332-1422 and 1352-1611	N28E22 N14W48	sb sn	16357 16344	10120	4	I, CONT(M).
13	1958-2038 and 2000-2016	S14W75 N28E27	sf sb	16343 16357	10120	4	IS, CONT(M).
14	0055-0316 0110-0143 0151-0231	N16W48 S16W77 N26E88	1b 1n? 1f	16344 16343 16373	21200 21200 21000	5 5 3	IIIg(M);10 cm flux = 119; Several different flares during course of major SID

APPENDIX OF "LESSER EVENTS" FOR 1975-1979 (continued)

DATE 1979	TIME (UT) OF FLARE OR EVENT	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS
Oct 17	0038-0128	N26E43	1n?	16373	21000	3	IIIb(M); Flare importance is questionable.
17	0648-0754	N26E42	2n	16373	22130	8	IV(DCM), Duration 7 min.; IIIg,V(M).
19	0018-0122	N28E19	2n	16373	12200	5	10 cm flux = 113; IIIb(M); IIIG(M,DKM).
20	0256-0310 and 0305-0315	N33W35 / N28E08	1n? / 1n?	16366 / 16373	11200	4	10cm flux = 127;IIIb(M, DKM).
20	0552-0634	N27E04	2n	16373	22200	6	10 cm flux = 394; No event in dynamic spectrum.
20	1147-1242	N26E01	1b	16373	21100	4	IIIg(M).
20	1824-1934	N26W02	2b	16373	12100	4	IIIg(M,DKM).
20	2212-2309	N19E52	2n	16381	12100	4	IIIg(M,DKM).
21	1324-1431	N26W15	1b	16373	11200	4	10cm flux = 104;IIIb(M).
22	0630-0649	N26W16	sn	16373	00120	3	IN, CONT(M).
23	0558-0610	N27W34	sn	16373	00020	2	IS,DC,CONT(M).
25	0028-0111	S20E28	2n	16384	02000	2	No SID or radio events reported.
25	0118-0214	S28W47	2f	16374	02000	2	
29	(0649)				00020	2	IN, CONT(M);IIIg(M); No prior flare or SID reported.
29	1125	N14E58	2n	16374	02100	3	IIIg(DCM,M);Flare data incomplete.
29	2017-2111	S30W40	1f?	16385	01020	3	IS,C(M);IIIg,V,U(M).
Nov 2	(1449)				00030	3	IV(DCM), Duration 5 min.; IIIG(DCM,M): No flare or SID reported.
3	(0221)				20000	2	IIIg,V(M,DKM); No flare reported.
5	0200-0234	N18E29	sn	16406	20100	3	IIIg(DKM);IN(M).
5	0247-0442	S12E54	2n	16413	12100	4	IIIG(M).
5	0507-0716	S12E52	2n?	16413	12104	8	IIIg(M,DKM).
5	1010-1053	S14E57	2f?	16413	02003	5	IIIG(DCM,M).
6	0232-0235	S13E45	1n	16413	21124	10	CONT(M), Duration 5 min.; IIIg,V(M,DKM).
6	0306-0346	S15E47	2b	16413	22100	5	IS(M).
6	2001-2029 and 2007-2028	S14E39 / S16E78	1n / sb	16413 / 16418	11020 / 10020	4 / 3	IS,C(M);IIIG(M,DKM)
7	0254-0337	S14E25	2f?	16413	12000	3	No radio events reported.
7	0331-0340	N21E53	sf	16414	00020	2	CONT(M), Duration 6 min.; IIIG(M,DKM).
	0347-0419	S15E35	2b	16413	12000	3	No radio events reported.
7	0512-0540	S15E32	2n?	16413	12000	3	IIIg(DKM);IIIN(M).
7	0641-0658	S14E30	1n	16413	11122	7	CONT(M), Duration 7 min.; IIIG(M,DKM).
8	0805-0817	S15E11	sb	16413	10203	6	10cm flux = 187; IIIG(DCM, M); Also IV(DCM) but only 2.5 min. duration.
8	2156-2253	N28E26	sn	16414	00200	2	10cm flux = 211; IIIg,U (M,DKM).
8	2331-2359 and 2332-2358	S15E47 / S15E00	sb / sf	16418 / 16413	20200	4	10cm flux = 268
9	0504-0523	S17E41	sn	16418	20000	2	No radio events reported.
10	1201-1241 and 1217-1237	S16E25 / S15W17	sb / sb	16418 / 16413	10200	3	10cm flux = 119;IIIg(DCM); Also IV(DCM), duration 1.5 minutes.
11	(1048)				00200	2	10cm flux = 120; No flare or SID reported.
13	1518-1541	N19W90	1b	16406	11130	6?	IV(DCM), Duration 2 min.
14	1520-1540	N17W90	sn	16406	20000	2	No event reported in dynamic spectrum.
15	(1007)				00200	2	10cm flux = 140;IIIg(M); No flare or SID reported.
16	(0830)				00200	2	10cm flux = 130; No flare, SID, or Dyn.Sp. events reported.
16	0935-1045	N18W05	2n	16425	02122	7	CONT(M), Duration 8 min.; IIIG(M); IN(M).
18	1055-1120	S27W29	1b	16433	11200	4	10cm flux = 267; IIIG(M); IN(M).
21	(1101)				00200	2	10cm flux = 370; No flare or SID reported.
27	0647-0804	N16E05	1n	16448	01020	3	CONT(M);IS(DCM).

APPENDIX OF "LESSER EVENTS" FOR 1975-1979 (continued)

DATE 1979	TIME (UT) OF FLARE OR EVENT	POSITION	Hα IMP.	McMATH PLAGE NUMBER	Hα FLARE PROFILE abcde	COMP. FLARE INDEX	REMARKS
Dec 3	1514-1640	S24E54	2b?	16476	12100	4	No dynamic spectrum events reported.
4	0438-0536	S17E32	1n	16467	21000	3	IIIg(DCM).
4	(0956)				00200	2	10cm Flux = 165; No flare or SID reported.
7	0151-0240	S25W23	2b	16465	02100	3	No dynamic spectrum events reported.
10	(1603)				00200	2	10cm flux = 205; No flare or SID reported.
13	0915-0930	N10E41	sb	16527	00030	3	IV(DCM), Duration 7 min.
14	0613-0630	N12E46	2b?	16515	12203	8	10cm flux = 107; IIIG, V (DCM,M,DKM).
	0615-0632	S16W29	1b	16495	11203	7	
14	(1118)				00030	3	IV(DCM), Duration 7 min.; IIIG(DCM,M); No flare or SID reported.
21	2003-2640	N20E55	2f?	16540	02100	3	IIIg,U(M);IS(DCM).
22	0511-0604	S18E53	2n	16541	22100	5	No dynamic spectrum events reported.
23	0440-0525	S07W64	2b	16522	02001	3	IIIb(M,DKM).
23	0720-0735	S06W64	2b?	16522	22000	4	No dynamic spectrum events reported.
28	2137-2154	S17W87	sf	16529	20100	3	IIIg(DCM,M,DKM);IIIN(M).
29	0034-0055	S16W86	sn	16529	20000	2	IIIg(DCM,M,DKM).

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