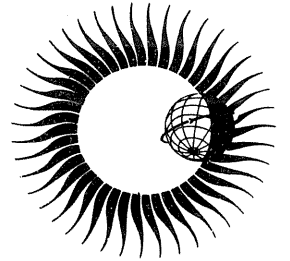


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for  
Solar-Terrestrial Physics



OBSERVATIONS OF JUPITER'S SPORADIC  
RADIO EMISSION IN THE RANGE 7.6-80 MHz  
10 DECEMBER 1971 THROUGH  
21 MARCH 1975

April 1975



ERRATA TO REPORT UAG-25 INCLUDED

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# WORLD DATA CENTER A for Solar-Terrestrial Physics



REPORT UAG - 42

## OBSERVATIONS OF JUPITER'S SPORADIC RADIO EMISSION IN THE RANGE 7.6–80 MHz 10 DECEMBER 1971 THROUGH 21 MARCH 1975

by

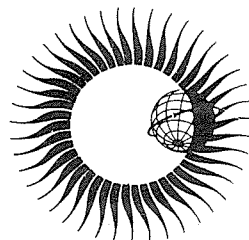
James W. Warwick, George A. Dulk and Anthony C. Riddle  
Department of Astro-Geophysics  
University of Colorado  
Boulder, Colorado USA

April 1975

Prepared by World Data Center A for  
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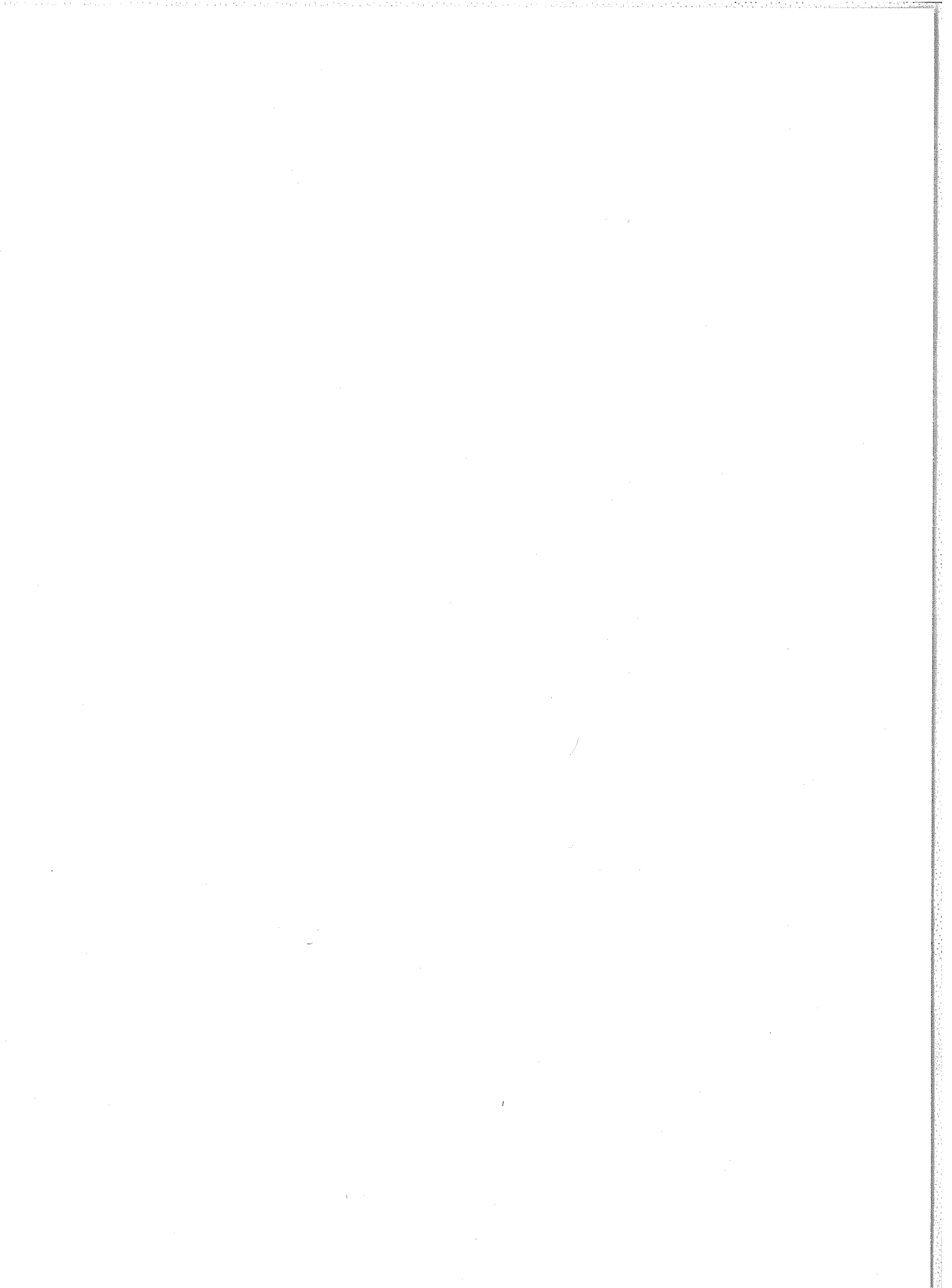
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OBSERVATIONS OF JUPITER'S SPORADIC RADIO EMISSION IN THE RANGE 7.6-80 MHz  
10 DECEMBER 1971 THROUGH 21 MARCH 1975

by

James W. Warwick, George A. Dulk and Anthony C. Riddle  
Department of Astro-Geophysics  
University of Colorado  
Boulder, Colorado 80302 USA

This report extends the list of Jupiter's decametric emissions observed at Boulder through the Jupiter apparition of 1974. The data were recorded on the University of Colorado's radio spectrograph. Previous reports which covered the period from 1960 through December 1971 are found in Warwick and Kreiss [1964], Warwick and Dulk [1965, 1966, 1968] and Warwick *et al.* [1973]. These reports cover the apparitions of 1960-63, 1964, 1965, 1967-68 and 1969-71 respectively.

The observing equipment has been described in previous reports. The high frequency coverage has been extended from 41 MHz to 80 MHz by the addition of another band which was in continuous service during the period of this report and sporadic service earlier. However, despite a sensitivity comparable to that in the 20-41 MHz band no Jupiter emission has yet been recorded in the 41-80 MHz band. The present report uses the same data format as in the previous reports. Observing periods  $\pm 30$  days from conjunctions represent times when the antennas were tracking the sun; Jupiter was within  $30^\circ$  of the sun and therefore in the antenna beam. Observing periods and emission intervals which spanned 0000 UT are recorded with negative times and the later date or with times greater than 2400 UT and the earlier date.

The overall emission probability was 0.009 for 1972, 0.036 for 1973 and 0.108 for 1974; these compare with an overall emission probability of 0.058 for the ten apparitions from 1961 through 1971.

Figure 1 is a histogram of emission probability vs. longitude of the central meridian (LCM) (System III (1957.0)) for the 1972 apparition. Figure 2 is a histogram of emission probability vs. Io's angle from superior geocentric conjunction  $\Phi_{I_0}$ . These curves resemble curves of previous years. Figure 3 shows the joint probability of emission distribution as a function of LCM and  $\Phi_{I_0}$ . Local peaks (depressions) are indicated by the letter H (L) together with the probability value at that point.

Figure 4 is a plot of the (LCM,  $\Phi_{I_0}$ ) relation for the emissions recorded by us in 1972. Each sloped line represents one Jupiter event and is the path of the coordinate pair (LCM,  $\Phi_{I_0}$ ) from beginning to end of the emission. The line slope is equal to  $P_J/P_{I_0}$  where Jupiter's rotational period  $P_J \approx .413$  days and Io's orbital period  $P_{I_0} \approx 1.77$  days. The uneven distribution of lines is due partly to the influence of Jupiter and Io and partly to the uneven distribution of the observations.

Figure 5 shows the (LCM,  $\Phi_{I_0}$ ) path from beginning to end of each observation interval (time when Jupiter was in the antenna beam). The uneven distribution of observations is evident, despite the fact that Jupiter was observed for 2191 hours (corresponding to an average of 221 rotations of Jupiter or 52 of Io). The uneven distribution is due partly to the near commensurabilities of the rotational period of Jupiter and the orbital period of Io and partly to the 24 hour observing periodicity of a single observer on the Earth.

Figures 6 through 10 and 11 through 15 are similar plots for the 1973 and 1974 apparitions, respectively. Jupiter was observed for 2254 hours during the 1973 apparition and for 2641 hours during the 1974 apparition.

During the reduction of these data it was noted that there was an error in the reduction of the data for apparitions 1969-71 [Warwick *et al.*, 1973]. The error did not appear in the listing of observations but did modify the probability of emission plots. Figures 16 through 18, 19 through 21 and 22 through 24 are the corrected plots for the apparitions of 1969, 70 and 71 respectively and correspond to Figures 1 through 3, 6 through 8 and 11 through 13 in Report UAG-25. Figure 16 in Report UAG-25 also reflects the error and is superseded by Figure 25 in this report.

Figure 25 shows the combined histograms of emission probability vs. longitude of central meridian (System III (1957.0)) for all apparitions 1960 through 1974, a total of 14 curves. The scale of each histogram is normalized to give each curve the same height. The value of emission probability at the peak is given on the right hand axis. Figure 25 shows the basic information from which the need for revision of  $P_{III}$  (1957.0) = 9 hr 55 min 29.37 sec can be derived. The main peak of emission, after LCM (System III (1957.0)) =  $200^\circ$ , more or less steadily shifts towards later longitudes. It also shows some of the hazards in so doing, inasmuch as the early peak of emission, before LCM (System III (1957.0)) =  $200^\circ$ , appears to be shifting less steadily. A modification of  $P_{III}$  to 9 hr 55 min 29.71 sec would make the main peak fit on a vertical line on Figure 25. This is just one of several lines of evidence which suggest that the current value of  $P_{III}$  is too short by  $\sim 0.34 \pm 0.05$  sec. For

this reason the University of Colorado, in conjunction with several other groups, intends to publish future catalogues using a new longitude measure, System III (1965.0), which will have  $P_{III} = 9$  hr 55 min 29.71 sec and the LCM at epoch (1965.0) the same as that of System III (1957.0) at 1965.0. To facilitate comparison of past and future data the complete set of Colorado observations from 1960 through 1974, in terms of System III (1965.0) coordinates, is being prepared concurrently with this report and will be published as a University of Colorado Radio Astronomy Observatory Report.

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- |   |      |  |
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Note: The *IGY Solar Activity Report Series* are available through the World Data Center A for Solar-Terrestrial Physics, Boulder, Colorado 80302 U.S.A.

DATE 1971	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
12 10	1400 2330						
12 11	1400 2330						
12 12	1400 2330						
12 13	1400 2330						
12 14	1400 2330						
12 15	1400 2330						
12 16	1400 2330						
12 17	1520 2330						
12 20	1730 2300						
12 21	1330 2300						
12 22	1330 2300						
12 23	1340 2300						
12 24	1330 2300						
12 25	1330 2300						
12 26	1330 2300						
12 27	1300 1514						
12 28	1727 2300						
12 29	1300 2300						
12 30	1300 2230						
12 31	1300 2230						
1972							
1 1	1300 2230						
1 2	1300 2230						
1 3	1300 2230						
1 4	1300 2230						
1 5	1300 2230						
1 6	1230 2230						
1 7	1230 2230						
1 8	1230 2200						
1 9	1230 2200						
1 10	1230 1430						
1 11	1230 1430						
* 1 11	1430 1500						
1 12	1230 1430						
1 13	1230 1430						
1 14	1230 1430						
1 15	1230 1430						
1 16	1200 1430						
1 17	1200 1400						
1 18	1200 1400						
1 19	1200 1400						
1 20	1200 1400						
1 21	1200 1400						
1 22	1200 1400						
1 23	1200 1400						
1 24	1200 1400						
1 25	1200 1400						
1 26	1200 1400						
* 1 26	1400 1600						
1 27	1130 1400						
1 28	1130 1400						
1 29	1130 1400						
1 30	1130 1400						
1 31	1130 1400						
2 1	1130 1400						
2 2	1130 1400						

\* DENOTES SPECIAL OBSERVING PERIOD WHEN IO-RELATED EMISSIONS WERE POSSIBLE.

Note: All times are given in UT.

DATE 1972	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
*	2 2	1400 1700					
	2 3	1130 1400					
	2 4	1130 1400					
	2 5	1100 1400					
	2 6	1100 1400					
	2 7	1100 1400					
	2 8	1100 1400					
	2 9	1100 1400					
	2 10	1100 1400					
*	2 10	1843 2032					
	2 11	1100 1400					
	2 12	1100 1400					
	2 13	1100 1400					
	2 14	1100 1400					
	2 15	1030 1400					
	2 16	1030 1400					
	2 17	1030 1400					
	2 18	1030 1400					
	2 19	1030 1330					
	2 20	1030 1330					
	2 21	1030 1330					
	2 22	1030 1330					
	2 23	1030 1330					
	2 24	1000 1330					
	2 25	1000 1330					
	2 26	1000 1330					
	2 27	1000 1330					
	2 28	1000 1330					
	2 29	1000 1330					
	3 1	1000 1330					
	3 2	1000 1330					
	3 3	1000 1330					
	3 4	0930 1330					
	3 5	0930 1330					
	3 6	0930 1330					
*	3 6	1330 1600					
	3 7	0930 1330					
	3 8	0930 1330					
	3 9	0930 1330					
	3 10	0930 1330					
	3 11	0930 1300					
	3 12	0930 1300					
	3 13	0900 1300					
*	3 13	1300 1600					
	3 14	0900 1300					
	3 15	0900 1300					
	3 16	0900 1300					
	3 17	0900 1300					
	3 18	0900 1300					
	3 19	0900 1300					
	3 20	0900 1300					
*	3 20	1300 1700					
	3 21	0900 1300					
	3 22	0830 1300					
	3 23	0830 1300					
	3 24	0830 1300					
	3 25	0830 1300					
	3 27	0830 1300					



DATE 1972	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
3 28	0830 1300						
3 30	0800 1230						
3 31	0800 1230						
4 1	0800 1230						
4 2	0800 1200						
4 3	0800 1230						
4 4	0800 1230						
4 5	0800 1230						
4 6	0800 1230	0947 1026	1	WEAK	14-18	340.3- 3.8	248.1-253.6
4 7	0800 1230						
4 8	0730 1230						
4 9	0730 1230						
4 10	0730 1230						
4 11	0730 1230						
* 4 11	1500 1700						
4 12	0730 1230						
4 13	0730 1230						
4 14	0910 1230	1112 1207	2	SMOOTH	19-36	156.3-189.5	87.9- 95.7
4 15	0700 1230						
4 16	0700 1230						
4 17	0700 1200						
4 18	0700 1200						
4 19	0700 1200						
4 20	0700 1200						
4 21	0700 1200						
* 4 21	1200 1300						
4 22	0700 1200						
4 23	0630 1200						
4 24	0630 1200						
4 25	0630 1200						
4 27	0630 1200						
4 28	0630 1200						
4 29	0630 1200	1100 1134	1	SMOOTH	16-28	248.1-268.7	258.7-263.5
4 30	0630 1200						
5 1	0600 1200						
5 2	0600 1200	0845 0937	2	MODERATE	13-26	258.4-289.8	130.2-137.5
5 3	0600 1200						
5 4	0600 1200						
5 5	0600 1200						
5 6	0600 1200						
5 8	0530 1100						
5 9	0530 1200	0840 0955	1	SMOOTH	14-22	229.9-275.2	114.2-124.8
5 10	0530 1200						
5 11	0530 1130	1035 1050	1	WEAK	20-26	240.7-249.8	177.6-179.7
5 12	0530 1130						
5 13	0530 1130						
* 5 13	1130 1400	1135 1305	2	MODERATE	15-29	218.3-272.7	233.2-245.9
5 14	0530 1130						
5 15	0500 1130						
5 16	0500 1130	0740 0808	1	SMOOTH	23-29	168.2-185.1	90.7- 94.7
5 17	0500 1130						
5 18	0500 1130						
5 19	0500 1130						
5 20	0500 1130						
5 21	0500 1130						
5 22	0500 1130						
5 25	0430 1130						

DATE 1972	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
5 26	0430 1130						
5 27	0430 1130						
5 28	0430 1130						
5 29	0430 1130						
5 30	0400 1130						
5 31	0400 0700						
6 1	0400 1130						
6 2	0400 1130	0902 0905	1	STRONG	22-27	259.3-261.1	323.4-323.8
6 3	0400 1130						
6 4	0400 1130						
6 5	0330 1130						
6 6	0330 1130						
6 7	0330 1130						
6 8	0330 1130						
6 9	0330 1130						
6 10	0330 1130						
6 11	0330 1130						
6 12	0300 1130						
6 13	0300 0400						
6 14	0300 1130						
6 15	0300 1130	0420 0502	1	MODERATE	20-25	247.7-273.1	50.5- 56.4
6 16	0300 1130	1021 1045	2	MODERATE	20-30	256.6-271.1	305.1-308.5
6 17	0300 1130	0327 0355	1	MODERATE	25-36	156.9-173.9	90.2- 94.2
		0623 0642	2	WEAK	14-29	263.3-274.8	115.1-117.8
6 18	0300 1130						
6 19	0230 1130	0656 0737	1	WEAK	25-31	224.7-249.5	167.0-172.8
6 20	0230 1130						
6 21	0230 1130	0837 0950	1	MODERATE	20-35	227.1-271.3	228.5-238.8
6 22	0230 1130						
6 23	0230 1130						
6 24	0230 1130						
6 25	0230 1130						
6 26	0230 1130						
6 27	0230 1130						
6 28	0230 1130	0916 1021	1	MODERATE	17-31	225.4-264.7	219.5-228.6
6 29	0230 1130						
6 30	0230 1130						
7 1	0230 1130	0803 0807	1	MODERATE	22-26	273.3-275.7	100.0-100.5
7 2	0230 1130						
7 3	0230 1100						
7 4	0230 1100						
7 5	0230 1100						
7 6	0230 1100						
7 7	0230 1100						
7 8	0230 1000	0604 0634	1	MODERATE	20-24	176.0-194.1	68.4- 72.7
7 9	0230 1100						
7 10	0230 1030						
7 11	0230 1030						
7 12	0230 1030						
7 13	0230 1030						
7 14	0230 1030						
7 15	0230 1030						
7 16	0230 1030	0421 0454	1	MODERATE	19-25	238.8-258.7	242.6-247.3
7 17	0230 1000						
7 18	0230 1000						
7 19	0230 1000						
7 20	0230 1000						

DATE 1972	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
7 21	0230 1000	0332 0357	1	SMOOTH	24-28	242.3-257.4	173.7-177.2
7 22	0230 1000						
7 23	0230 1000	0530 0549	1	WEAK	21-30	254.8-266.3	237.5-240.2
7 24	0230 0930	0805 0824	1	SMOOTH	25-34	139.1-150.6	103.1-105.8
* 7 25	0230 0930						
	2300 2630						
7 26	0230 0930						
7 27	0230 0930						
7 28	0230 0930						
7 29	0230 0930						
7 30	0230 0900	0547 0634	1	MODERATE	21-32	239.2-267.6	225.0-231.6
7 31	0230 0900						
8 1	0230 0900						
* 8 2	0030 0230						
8 2	0230 0900						
8 3	0230 0900						
8 4	0230 0900	0504 0516 0545 0616	1 1	WEAK SMOOTH	25-29 14-29	246.0-253.2 270.8-289.5	156.6-158.3 162.4-166.8
8 5	0230 0900						
8 6	0230 0900						
8 7	0230 0830						
8 8	0200 0830						
8 9	0200 0830						
8 10	0220 0830						
8 11	0200 0830						
8 12	0200 0830						
8 13	0200 0830						
8 14	0200 0800						
8 15	0200 0800						
8 16	0200 0800						
8 17	0200 0800						
8 18	0200 0800						
8 19	0200 0800						
8 20	0200 0800						
8 21	0200 0730						
8 22	0200 0730						
8 23	0200 0730						
8 24	0200 0730						
8 25	0200 0730						
8 26	0200 0730						
8 27	0200 0730						
8 28	0200 0730						
8 29	0200 0700						
8 30	0130 0700						
* 8 31	0100 0130						
8 31	0130 0700						
9 1	0130 0700	0431 0545	1	WEAK	20-36	120.1-164.9	90.0-100.5
9 2	0130 0700						
* 9 2	2130 2300						
9 3	0130 0700						
9 4	0130 0700						
9 5	0130 0630						
9 6	0130 0630						
9 7	0130 0630						
9 8	0130 0630						
9 9	0130 0630						
9 10	0130 0630						

DATE 1972	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
9 11	0130 0630						
9 12	0130 0630						
9 13	0130 0630						
9 14	0130 0600						
9 15	0130 0600						
9 16	0130 0600						
9 17	0100 0600						
9 18	0100 0600						
9 19	0100 0600						
9 20	0100 0600						
9 21	0100 0600						
9 22	0100 0530						
9 23	0100 0530						
9 24	0100 0530						
* 9 24	2100 2500						
* 9 25	0100 0530						
* 9 25	2300 2500						
9 26	0100 0530						
9 27	0100 0530						
9 28	0100 0530						
9 29	0100 0530						
9 30	0100 0500						
10 1	0100 0500						
* 10 1	2200 2500						
10 2	0100 0500						
10 3	0100 0500	0207 0243	2	SMOOTH	24-35	165.9-187.6	98.7-103.8
10 4	0100 0500						
10 5	0100 0500						
10 6	0030 0500						
10 7	0030 0500						
10 8	0030 0500						
10 9	0030 0200						
10 10	0030 0430	0237 0300	1	WEAK	26-30	156.4-170.3	86.4- 89.6
10 12	0030 0430						
10 13	0030 0430						
10 14	0030 0430						
10 15	0030 0430						
10 16	0030 0430						
10 17	0030 0430						
10 18	0030 0400						
10 19	0030 0400						
10 20	0030 0400						
10 21	0030 0400						
10 22	0030 0400						
10 23	0030 0400						
10 24	0030 0400						
10 25	0030 0400						
10 26	0030 0400						
* 10 26	1800 2000						
10 27	0000 0330						
10 28	0000 0330						
10 29	0000 0330						
10 30	0000 0330						
10 31	0000 0330						
11 1	0000 0330						
11 2	0000 0330						
11 3	0100 0330						

DATE 1972	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
*11 3	2100 2400						
11 4	0000 0330						
11 5	0000 0330						
11 6	0000 0300						
11 7	0000 0300						
11 8	0000 0300						
11 9	0000 0300						
11 10	0000 0300						
*11 10	2100 2400						
11 11	0000 0300						
11 12	0000 0300						
11 13	0000 0300						
11 14	0000 0300						
11 15	0000 0300						
11 16	0000 0230						
11 17	0000 0230						
11 18	0000 0230						
11 19	0000 0230						
11 20	0000 0230						
11 21	0000 0230						
11 22	0000 0230						
11 23	0000 0230						
11 24	0000 0230						
11 25	0000 0230						
11 26	0000 0230						
11 27	0000 0200						
11 29	0000 0200						
11 30	-0030 0020						
12 2	-0030 0200						
12 3	-0100 0200						
12 4	-0030 0200						
12 5	-0030 0200						
*12 5	1700 2000						
12 6	-0030 0130						
12 7	-0030 0130						
12 8	-0030 0130						
12 9	-0030 0130						
12 10	-0030 0130						
12 11	-0030 0130						
12 12	-0030 0130						
12 12	1700 2530						
12 13	1530 2530						
12 14	1530 2530						
12 15	1530 2500						
12 16	1530 2500	2452 2455	1	SMOOTH	27-34	233.5-235.3	215.0-215.4
12 17	1530 2500						
12 18	1530 2500						
12 19	1530 2500						
12 20	1530 2500						
12 21	1530 2500						
12 22	1530 2500						
12 23	1500 2500						
12 24	1500 2500						
12 25	1500 2500						
12 26	1500 2430						
12 27	1500 2430						
12 29	2044 2430						
12 30	1500 2430						

DATE 1972	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
12 31	1500 2430						
1973							
1 2	2127 2430						
1 3	1430 2430						
1 4	1430 2430	2314 2321	2	SMOOTH	25-32	150.2-154.5	103.2-104.1
1 5	1430 2400						
1 6	1430 2400						
1 7	1430 2400						
1 8	1430 2400						
1 9	1430 2400						
1 10	1430 2400						
1 11	1400 2400						
1 12	1400 2400						
1 13	1400 1709						
1 15	1558 2400						
1 16	1400 2330						
1 17	1400 2330						
1 18	1400 2330						
1 19	1400 2330						
1 20	1330 2330						
1 21	1330 2330						
1 22	1330 2330						
1 23	1330 2330						
1 24	1530 2330						
1 26	2145 2330						
1 27	1330 2300						
1 28	1330 2300						
1 29	1557 2300						
1 30	1330 2300						
1 31	1300 2300						
2 1	1300 2300						
2 2	1600 2300						
2 3	1300 2300						
2 4	1300 2300						
2 5	1300 2300	1835 2015	2	MODERATE	25-40	112.0-172.4	87.9-102.0
2 6	1300 2230						
2 7	1300 2230						
2 8	1300 2230						
2 9	1230 2230						
2 10	1230 2230						
2 11	1230 2230						
2 12	1230 2230						
* 2 13	1230 1630						
2 14	1230 1400						
2 15	1230 1400						
2 16	1230 1400						
2 17	1230 1400						
2 18	1230 1330						
2 19	1200 1330						
2 21	1200 1330						
2 24	1200 1330						
2 25	1200 1330						
2 26	1200 1330						
2 27	1200 1330						
2 28	1130 1330						
3 1	1130 1330						

DATE 1973	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
* 3 1	1330 1400						
* 3 2	1130 1630	1453 1513	1	SMOOTH	22-36	137.0-149.0	98.3-101.1
3 3	1130 1330						
3 4	1130 1330						
3 5	1130 1330						
3 6	1130 1330						
* 3 6	2000 2130						
3 7	1130 1330						
3 8	1130 1330						
3 9	1100 1330						
* 3 9	1500 1800	1602 1711	1	MODERATE	28-38	151.4-193.1	91.1-100.8
3 10	1100 1300	1100 1105	1	MODERATE	8-16	119.2-122.2	251.7-252.4
3 11	1100 1300						
3 12	1100 1300						
3 13	1100 1300						
3 14	1100 1300						
3 15	1100 1300						
3 16	1100 1300	1212 1217	1	STRONG	16-20	345.2-348.2	41.7- 42.4
3 17	1100 1300						
3 18	1030 1300						
3 19	1030 1300	1138 1140	1	MODERATE	16-20	56.0- 57.2	286.9-287.2
3 20	1030 1300	1230 1300	1	STRONG	10-30	237.8-255.9	137.5-141.7
3 21	1030 1300						
3 22	1030 1300						
3 23	1030 1300						
3 23	0000 0000	1315 1430	1	SMOOTH	20-40	356.3- 41.7	33.8-44.3**
3 24	1030 1300						
3 25	1030 1300						
3 26	1030 1300						
3 27	1000 1300						
3 29	1000 1300						
3 30	1000 1230						
3 31	1000 1230						
4 1	1000 1230						
4 3	1000 1230	1105 1230	2	SMOOTH	11-38	132.6-184.0	92.2-104.2
* 4 3	1230 1330						
4 4	1000 1230						
4 5	0930 1230						
4 6	0930 1230						
4 7	0930 1230						
* 4 7	1700 2000						
4 8	0930 1230						
4 9	0930 1230						
4 10	0930 1230						
* 4 10	1230 1400	1200 1333	2	SMOOTH	18-35	139.2-195.4	83.4- 96.6
4 12	0930 1230						
4 13	0930 1230						
4 14	0900 1230						
4 15	0900 1230						
4 16	0900 1230	0955 1230	1	STRONG	10-18	246.6-340.3	205.9-227.8
4 17	0900 1230						
4 18	0900 1230						
4 19	0900 1230	1000 1100	1	STRONG	10-18	341.0- 17.3	96.9-105.4
4 21	0900 1200	1100 1200	1	STRONG	12-18	318.4-354.7	152.1-160.6
4 22	0830 1200						
4 23	0830 1200						
4 24	0830 1200						
4 25	0830 1200	1118 1200	2	STRONG	12-24	211.3-236.7	248.1-254.1

\*\* THIS EVENT ON 23 MARCH WAS RECEIVED DURING OBSERVATION OF THE SUN WHEN JUPITER WAS OUTSIDE THE NOMINAL BEAMWIDTH OF THE ANTENNAS.

DATE 1973	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
4 26	0830 1200						
4 27	0830 1200						
4 28	0830 1200						
4 29	0830 1200						
4 30	0800 1200						
5 1	0800 1200						
5 2	0800 1200						
* 5 2	1200 1500	1213 1400	1	MODERATE	16-28	218.2-282.9	239.8-254.9
5 3	0800 1200						
5 4	0800 1200						
5 5	0800 1200	0810 0832	1	STRONG	14-30	162.9-176.2	95.8- 98.9
5 6	1030 1200						
5 7	0800 1200						
5 8	0730 1200						
5 9	0730 1200						
* 5 9	1200 1600	1254 1415	2	WEAK	18-31	216.8-265.8	229.6-241.1
5 10	0730 1200						
* 5 10	1500 1800						
5 11	0730 1130	0812 1007	2	STRONG	11-20	347.4- 57.0	236.7-252.9
5 12	0730 1130	0832 1130	2	STRONG	12-28	150.1-257.7	82.9-108.1
5 13	0730 1130	0858 1007	2	STRONG	11-24	316.4-358.2	290.1-299.8
5 14	0730 1130						
5 15	0730 1130	0850 1130	2	STRONG	11-24	252.7-349.4	335.8-358.4
5 16	0730 1130	0735 0803	2	STRONG	12-20	358.0- 14.9	168.7-172.7
* 5 16	1400 1700						
5 17	0700 1130	1030 1111	1	STRONG	12-18	254.4-279.1	36.9- 42.7
* 5 17	1600 1730						
5 18	0700 1130	0817 1130	1	SMOOTH	14-24	324.5- 81.1	221.6-248.9
5 19	0700 1130						
5 20	0700 1130						
5 21	0700 1130						
5 22	0700 1130	0917 1055	2	MODERATE	8-32	243.1-302.4	324.0-337.8
5 23	0700 1130						
5 24	0630 1130	1115 1130	2	MODERATE	20-26	255.7-264.7	27.7- 29.8
5 25	0630 1130						
5 26	0630 1130						
5 27	0630 1130						
5 28	0630 1130						
5 29	0630 1130						
5 30	0630 1130	0817 0830	2	STRONG	13-16	331.7-339.5	143.5-145.3
5 31	0630 1130						
6 1	0600 1130	0735 0826	1	MODERATE	20-28	247.5-278.3	184.5-191.7
6 2	0600 1130						
6 3	0600 1130	0821 1014	2	STRONG	14-25	216.6-284.9	238.0-254.0
6 4	0600 1130						
6 5	0600 1130						
6 6	0600 1130						
6 7	0600 1130						
6 8	0600 1130						
6 9	0530 1130						
6 10	0530 1130	0915 1130	2	SMOOTH	14-35	223.6-305.2	230.4-249.5
6 11	0530 1130						
6 12	0530 1130						
6 13	0530 1130						
6 14	0530 1130						
6 15	0500 1130	0915 0930	1	SMOOTH	20-25	256.8-265.9	168.1-170.2
6 16	0500 1130						



DATE 1973	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
6 17	0500 1130	1000 1130	2	WEAK	14-32	225.3-279.7	221.6-234.3
6 18	0500 1130	0830 1000	2	WEAK	15-28	321.6- 16.0	52.4- 65.2
6 19	0500 1130						
6 20	0500 1130						
6 21	0500 1130						
6 22	0500 1130	0951 1048	2	WEAK	15-26	253.2-287.6	158.2-166.2
6 23	0430 1130	0612 0623	2	WEAK	18-25	271.5-278.1	330.7-332.3
6 24	0430 1130						
6 25	0430 1130						
6 26	0430 1130						
6 27	0430 1130	0857 0955	1	WEAK	15-30	253.9-289.0	88.4- 96.6
6 28	0430 1130	0708 0750	1	MODERATE	13-24	338.6- 4.0	276.6-282.5
6 29	0430 1130						
6 30	0430 1130						
7 1	0400 1130	1015 1042	1	MODERATE	20-29	183.8-200.1	193.9-197.7
7 2	0400 1130						
7 3	0400 1130						
7 4	0400 1130	0908 1047	3	SMOOTH	16-30	235.3-295.1	75.1- 89.1
7 5	0400 1130	0453 0616	1	STRONG	20-26	231.8-282.0	242.6-254.4
7 6	0400 1130						
7 8	0330 1130						
7 9	0330 1130						
7 10	0330 1130	0727 0734	1	WEAK	25-29	358.3- 2.6	202.5-203.5
7 11	0330 0950						
7 12	0330 1130	0624 0635	1	MODERATE	20-29	261.6-268.3	240.8-242.4
7 13	0330 1130						
7 14	0330 1130						
7 15	0300 1130						
7 16	0300 1130						
7 17	0300 1130						
7 18	0300 1130						
7 19	0300 1130	0613 0725	1	SMOOTH	20-25	229.8-273.3	224.5-234.7
7 20	0300 1130	0900 1025	2	WEAK	20-39	121.5-172.8	91.8-103.8
7 21	0300 1130						
7 22	0230 1130	0433 0502	1	WEAK	18-28	261.3-278.9	101.2-105.3
7 23	0230 1130						
7 24	0230 1130						
7 25	0230 1130						
7 26	0230 1130	0705 0830	1	SMOOTH	20-31	236.0-287.4	217.3-229.3
		0935 1040	2	SMOOTH	25-25	326.7- 6.0	238.5-247.7
7 27	0230 0750						
7 27	0900 1200	0949 1150	2	MODERATE	20-38	125.8-198.9	84.1-101.2
7 28	0230 1130						
7 29	0230 1130						
7 30	0230 1130						
7 31	0230 1130						
8 1	0230 1130						
8 2	0230 1130	0751 0755	2	MODERATE	20-30	238.5-241.0	209.1-209.7
8 3	0230 1130						
8 4	0230 1130						
8 5	0230 1130						
8 6	0230 1130						
8 7	0230 1130						
8 8	0230 1130						
8 9	0200 1130	0917 0929	1	WEAK	25-28	265.2-272.5	206.6-208.3
8 10	0200 1130	0510 0603	2	MODERATE	18-27	266.5-298.5	15.3- 22.8
8 11	0200 1300						

DATE 1973	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
8 12	0200 1100						
8 13	0200 1100						
8 14	0200 1100						
8 15	0200 1100						
8 16	0200 1100						
8 17	0200 1100						
8 18	0200 1030						
8 19	0200 1030						
8 20	0200 1030	0302 0340	1	SMOOTH	19-27	255.5-278.5	233.3-238.7
8 21	0200 1030	0510 0600	2	MODERATE	20-35	123.5-153.7	95.0-102.0
8 22	0200 1030						
8 23	0200 1030						
8 24	0200 1030						
8 25	0200 1030						
8 26	0200 1000						
8 27	0200 1000	0349 0403	2	MODERATE	23-33	258.2-266.7	225.1-227.1
8 28	0200 1000	0545 0820	2	MODERATE	22-36	119.0-212.7	85.1-107.0
8 29	0200 1000						
8 30	0130 1000						
8 31	0130 1000						
9 1	0130 0930						
9 2	0130 0930						
9 3	0130 0930	0453 0503	1	SMOOTH	22-26	271.0-277.1	219.1-220.5
9 4	0130 0930	0731 0849	2	SMOOTH	22-34	157.1-204.3	85.0- 96.0
9 5	0130 0930						
9 6	0130 0930						
9 7	0130 0930						
9 8	0130 0900						
9 9	0130 0900						
9 10	0130 0900						
9 11	0130 0900						
9 12	0130 0900						
9 13	0130 0900						
9 14	0130 0900						
9 15	0130 0830						
9 16	0130 0830						
9 17	0130 0830						
9 18	0100 0830	0221 0304	2	SMOOTH	20-30	277.4-303.4	10.7- 16.8
9 19	0100 0830						
9 20	0100 0830						
9 21	0100 0830						
9 22	0100 0830	0143 0204	2	SMOOTH	21-37	136.5-149.2	99.4-102.3
9 23	0100 0800						
9 24	0100 0800						
9 25	0100 0800						
9 26	0100 0800						
9 27	0100 0800						
9 28	0100 0800	0224 0305	1	MODERATE	16-25	344.2- 8.9	246.1-251.9
9 29	0100 0800	0139 0415	2	MODERATE	15-30	107.4-201.8	83.2-105.3
9 30	0100 0730						
10 2	0100 0730	0327 0407	1	WEAK	16-30	264.1-288.3	348.8-354.5
10 3	0100 0730						
10 4	0100 0730						
10 5	0100 0730						
10 6	0100 0730	0400 0435	1	SMOOTH	20-30	165.9-187.0	87.4- 92.4
10 8	0030 0700						
10 9	0030 0700						

DATE 1973	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
10 10	0030 0700						
10 11	0030 0700						
10 12	0030 0700	0052 0213	1	SMOOTH	20-26	234.8-283.8	201.5-212.9
10 16	0030 0630	0607 0620	1	STRONG	20-37	307.0-314.8	339.7-341.5
10 17	0030 0630						
10 18	0030 0630						
10 19	0030 0630						
10 20	0030 0630						
10 21	0030 0630	0310 0430	2	SMOOTH	17-30	232.0-280.3	251.8-263.1
10 23	0030 0630						
*10 23	2100 2400						
10 24	0000 0630						
10 25	0030 0530						
10 26	0030 0600						
10 27	0000 0600						
10 28	0000 0600						
10 29	0000 0600	0010 0115	1	SMOOTH	18-27	246.2-285.5	53.5- 62.7
10 30	0000 0600						
*10 30	2200 2400						
10 31	0000 0600						
11 1	0000 0600						
11 2	0000 0530						
11 3	0000 0200						
11 6	0000 0530						
*11 6	2200 2344						
11 7	0000 0530						
11 9	0000 0530						
11 10	0000 0530						
11 11	0000 0500						
11 12	0000 0500						
11 13	0000 0500						
11 17	0000 0500						
11 18	0000 0310						
11 19	0000 0500						
11 20	0000 0500						
11 21	0000 0430						
11 22	0000 0430						
11 23	0000 0430						
11 24	0000 0430						
11 25	0000 0430						
11 26	0000 0430						
11 27	0000 0430						
11 28	0000 0430						
11 29	0000 0430						
11 30	0000 0400	0200 0317	1	MODERATE	12-17	83.4-130.0	96.0-106.9
12 1	-0030 0400						
12 2	-0030 0400						
12 3	-0030 0400						
12 4	-0030 0400						
12 5	-0030 0400						
12 6	-0030 0400						
12 7	-0030 0400						
12 8	-0030 0400						
12 9	-0030 0400						
12 10	-0030 0330						
12 11	-0030 0330						
12 12	-0030 0330						

DATE 1973	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
12 13	-0030 0200						
12 14	0000 0330						
12 15	0000 0330						
12 16	0000 0200						
12 17	0000 0330						
12 18	0000 0330						
12 19	0000 0330						
12 20	0000 0300						
12 21	0000 0130						
12 22	0000 0300						
12 23	0000 0300						
12 24	0000 0300						
12 25	0000 0300						
12 26	0030 0300						
12 27	0000 0300						
12 28	0000 0300						
12 29	0000 0300						
12 30	0000 0300						
12 31	0000 0230						
1974							
1 1	0000 0230	0002 0028	2	SMOOTH	26-38	141.4-157.1	104.3-108.0
1 2	0000 0230						
1 3	0000 0230	0016 0054	1	SMOOTH	26-40	90.5-113.4	152.8-158.2
1 4	0000 0230						
1 5	0000 0100						
1 6	0000 0230						
1 7	0000 0230	0024 0048	1	MODERATE	13-23	336.4-350.9	247.0-250.3
1 8	0000 0230	0032 0135	2	SMOOTH	18-36	131.5-169.6	91.3-100.2
1 9	0000 0230						
1 10	0000 0230						
1 11	0000 0200						
1 12	0000 0200						
1 13	0000 0200						
1 14	0000 0200						
1 15	0000 0200						
1 16	0000 0200						
1 17	0000 0200						
1 18	1530 2600						
1 19	1530 2600						
1 20	1500 2600						
1 21	1500 2530						
1 22	1500 2530						
1 23	1500 2530						
1 24	1500 2530						
1 25	1500 2530						
1 26	1500 2530						
1 27	1500 2530						
1 28	1430 2530						
1 29	1430 2530						
1 30	1430 2530						
1 31	1430 2500						
2 1	1430 2500	2011 2106	2	SMOOTH	18-37	131.1-164.4	95.8-103.6
2 2	1430 2500						
2 3	1430 2500						
2 4	1430 2500						
2 5	1430 2500						

DATE 1974	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
2 6	1430 2500						
2 7	1400 2500						
2 8	1500 2500	2120 2242	2	SMOOTH	15-37	144.9-194.5	88.3- 99.9
2 10	2100 2500						
2 11	1400 2430						
2 12	1400 2430						
2 15	2115 2430						
2 16	1400 2430						
2 17	1330 2430						
2 18	1330 2430						
2 19	1330 2430						
2 20	1330 2430						
2 21	1330 2430						
2 22	1330 2400						
2 23	1330 2400						
2 24	1330 2400						
2 25	1330 2400						
2 26	1300 2400	1557 1633 1836 1927	1 1	SMOOTH SMOOTH	25-37 25-25	135.2-157.0 231.4-262.2	101.3-106.4 123.8-131.0
2 27	1300 2400						
2 28	1300 2400						
3 1	1300 2400						
3 2	1300 2400						
3 3	1300 2400						
3 4	1300 2400						
3 5	1300 2330	1620 1846	2	SMOOTH	17-38	121.4-209.6	87.4-108.0
3 6	1300 2330						
3 7	1230 2330						
3 8	1230 2330						
3 9	1230 2330						
3 10	1230 1800						
3 11	1726 2330						
3 12	1230 2330	1818 1900	2	SMOOTH	17-34	165.1-190.5	86.8- 92.7
3 13	1230 2330						
3 14	1230 2330						
3 15	1230 2330						
3 16	1200 2300						
3 17	1200 1600						
3 18	1200 2300						
3 19	1200 1300						
3 19	1700 2000						
3 20	1200 1300						
3 21	1230 1330						
3 22	1230 1330						
3 23	1230 1330						
3 24	1230 1330						
3 25	1230 1330						
3 26	1130 1300						
3 27	1130 1300						
3 28	1130 1300						
3 29	1130 1300						
3 30	1130 1230						
3 30	1230 1400	1237 1310	1	SMOOTH	20-31	145.2-165.2	97.3-101.9
3 31	1130 1230						
4 1	1130 1230						
4 2	1130 1230						
4 3	1100 1230						

DATE 1974	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
4 3	1800 2100						
4 6	1100 1230						
4 6	1230 1500	1355 1437	1	WEAK	18-35	165.1-190.5	91.2- 97.1
4 7	1100 1230						
4 8	1100 1230						
4 9	1100 1230						
4 10	1100 1230						
4 10	1900 2200						
4 11	1100 1230						
4 11	2100 2200						
4 12	1030 1230						
4 13	1030 1230						
4 13	1300 1600	1500 1515	1	SMOOTH	16-25	177.1-186.2	83.3- 85.4
4 14	1030 1230						
4 15	1030 1230	1119 1128	2	STRONG	16-21	344.3-349.7	98.7-100.0
4 16	1030 1230						
4 17	1030 1230						
4 18	1030 1200						
4 19	1030 1200						
4 20	1000 1200						
4 21	1000 1200						
4 22	1000 1200						
4 23	1000 1200						
4 24	1000 1200						
4 25	1000 1200						
4 26	1000 1200						
4 27	1000 1200						
4 28	1000 1200						
4 30	0930 1200						
5 1	0930 1200						
5 2	0930 1200						
5 3	0930 1200						
5 4	0930 1200						
5 5	0930 1200						
5 5	1400 1700						
5 6	0930 1200						
5 7	0900 1200	1045 1055	1	STRONG	14-20	33.0- 39.1	246.7-248.1
5 8	0900 1200	1004 1147	2	STRONG	10-33	158.7-221.0	84.3- 98.8
5 9	0900 1200						
5 10	0900 1200						
5 11	0900 1200						
5 12	0900 1130						
5 12	1500 1800						
5 13	0900 1130						
5 13	1700 2000						
5 14	0900 1130	1048 1104	1	STRONG	14-26	8.0- 17.7	230.5-232.8
5 15	0900 1130						
* 5 15	1130 1200						
5 16	0830 1130						
5 17	0830 1130						
5 22	0830 1130						
5 23	0830 1130	0914 1030	2	STRONG	11-26	225.5-271.5	247.6-258.3
5 24	0800 1130	1000 1030	1	WEAK	11-20	43.8- 62.0	97.4-101.7
5 25	0800 1130						
5 26	0800 1130						
5 27	0800 1130						
5 28	0800 1130						
5 29	0800 1130						

DATE 1974	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
5 30	0800 1130	1015 1130	2	MODERATE	15-30	235.9-281.2	239.8-250.4
5 30	1130 1300						
5 31	0800 1130						
6 1	0800 1130						
6 2	0730 1130						
6 3	0730 1130						
6 4	0730 1130						
6 5	0730 1130						
6 6	0730 1130						
6 6	1130 1400						
6 7	0730 1130						
6 7	1300 1600						
6 8	0900 1130						
6 10	0700 1130						
6 11	0700 1130	1053 1113	1	STRONG	12-20	265.2-277.3	166.0-168.8
6 12	0700 1130						
6 14	0700 1130	0855 1100	2	STRONG	15-23	285.4- 1.0	39.7- 57.3
6 14	1400 1700	1447 1650	2	STRONG	17-37	138.2-212.6	89.4-106.8
6 15	0700 1130						
6 16	0700 1130	1030 1130	1	WEAK	14-18	284.1-320.3	99.9-108.4
6 17	0700 1130						
6 18	0630 1130						
6 19	0630 1130	0752 1025	1	WEAK	15-24	280.1- 12.6	327.9-349.5
6 20	0630 1130						
6 21	0730 1230						
6 21	1400 1700						
6 22	0630 1130						
6 23	0630 1130	1116 1130	1	MODERATE	14-20	285.8-294.2	90.6- 92.5
6 24	0630 1130	0830 1018	1	WEAK	15-20	336.0- 41.3	270.6-285.8
6 25	0630 1130						
6 26	0600 1130	0745 1110	2	STRONG	12-20	249.9- 13.8	311.1-340.1
6 27	0600 1130						
6 29	0600 1130						
6 30	0600 1130	1033 1130	2	STRONG	12-26	233.9-268.3	68.8- 76.9
7 1	0600 1130	0647 0945	2	STRONG	14-28	247.8-355.5	240.3-265.5
7 2	0600 1130						
7 3	0600 1130						
7 4	0530 1130						
7 5	0530 1130	0810 0817	1	MODERATE	14-23	180.4-184.7	346.0-347.0
		1023 1130	2	WEAK	25-27	260.8-301.3	4.8- 14.3
7 6	0530 1000						
7 8	0530 1130	0710 1110	2	MODERATE	14-27	236.0- 21.0	228.0-261.9
7 9	0530 1130	1010 1130	2	STRONG	13-37	135.4-183.7	97.0-108.3
7 9	1130 1200	1130 1200	2	STRONG	13-37	183.7-201.9	108.3-112.5
7 10	0500 1130	0953 1054	2	STRONG	15-27	275.7-312.6	298.1-306.7
7 11	0500 1130	0613 0643	1	STRONG	15-24	293.4-311.5	110.5-114.8
7 12	0500 1130	1018 1047	1	MODERATE	8-12	232.1-249.6	348.7-352.8
7 13	0500 1130	0535 0930	2	WEAK	11-20	211.6-353.7	152.2-185.4
7 13	1600 1630						
7 14	0500 1130	0830 0955	1	WEAK	81-40	108.0-159.4	20.5- 32.5
7 15	0500 1130	0825 1130	3	STRONG	10-20	255.7- 7.5	223.3-249.5
7 16	0500 1130	1010 1130	3	WEAK	10-41	109.8-158.1	81.7- 93.0
7 16	1130 1300	1130 1300	3	WEAK	10-41	158.1-212.5	93.0-105.7
7 17	0500 1130	0950 1130	1	STRONG	10-23	248.3-308.7	282.4-296.5
7 18	0500 1130						
7 19	0430 1130						
7 20	0430 1130	0732 0823	2	WEAK	8-26	256.9-287.7	153.5-160.7

DATE 1974	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
7 21	0430 1130						
7 24	0430 1200						
7 25	0430 0630						
7 26	0400 1200						
7 27	0400 1200	0845 0900	1	STRONG	14-23	275.5-284.6	148.7-150.8
7 28	0400 1200						
7 29	0400 1200						
7 30	0400 1200						
* 7 30	1200 1400						
7 31	0400 1200	0906 0932 1048 1200 0728 0810	2 3 3	STRONG STRONG STRONG	10-17 25-29 13-27	170.9-186.6 232.5-276.1 262.3-287.7	245.9-249.6 260.3-270.5 75.6- 81.6
8 1	0400 1200						
8 2	0400 1200						
8 3	0330 1200	0644 0730 0858 1200	1 3	SMOOTH STRONG	8-23 25-29	177.0-204.8 258.0- 8.1	116.6-123.1 135.5-161.3
8 4	0330 1200	0525 0550 0715 0905	1 1	MODERATE MODERATE	15-28 25-18	280.0-295.1 346.5- 53.0	309.0-312.5 324.5-340.1
8 5	0330 1200	0930 1200	1	MODERATE	8-21	218.7-309.4	187.2-208.4
8 6	0330 1200	0713 1200	1	MODERATE	14-20	286.6-100.1	11.5- 52.0
8 7	0330 1200	0830 0946	1	WEAK	8-17	123.8-169.8	226.0-236.7
8 8	0330 1200	0730 1113	3	STRONG	8-29	238.2- 13.1	61.1- 92.6
8 9	0330 1200	0450 0725	2	SMOOTH	9-24	292.2- 25.9	242.0-263.9
8 10	0300 1200	0555 1035	2	SMOOTH	8-39	122.1-291.4	94.7-134.3
8 12	0300 1200	0909 1200	2	STRONG	12-28	180.8-284.2	169.4-193.6
8 13	0300 1200	0755 0955	2	MODERATE	8-25	286.8-359.3	2.5- 19.5
8 14	0300 1200						
8 15	0300 1200	0905 1113	3	WEAK	10-18	270.5-347.9	59.7- 77.8
8 16	0300 1200						
8 17	0230 1200	0650 1200	3	MODERATE	13-38	130.2-317.6	87.8-131.6
8 18	0230 1200						
8 19	0230 1200	1048 1130	1	STRONG	10-16	215.4-240.8	158.7-174.6
8 20	0230 1200						
8 21	0230 1200	0605 0740	1	STRONG	10-18	345.8- 43.2	175.9-189.3
8 21	1200 1400						
8 22	0230 1200	0915 1119	2	MODERATE	10-18	251.3-326.3	46.4- 63.9
8 23	0230 1200	0529 0928	2	STRONG	10-24	265.3- 49.8	218.0-251.8
8 24	0200 1230	0805 1135	3	WEAK	13-34	150.3-277.3	83.7-113.4
8 25	0200 1230	0700 0820	1	SMOOTH	12-18	261.7-310.1	278.1-289.4
8 26	0200 1230	1010 1130	1	SMOOTH	11-18	167.3-215.6	148.6-159.9
8 27	0200 1230						
8 28	0200 1230						
8 29	0200 1230	0814 0837 1015 1217	1 1	MODERATE WEAK	13-18 25-18	189.2-203.1 262.4-336.1	23.0- 26.3 40.2- 57.4
8 30	0200 1230	0715 0930	2	WEAK	10-18	304.2- 25.8	218.3-237.4
8 31	0130 1230	0747 1032	2	STRONG	8-28	114.2-214.0	66.5- 89.8
9 1	0130 1230	1033 1130	1	SMOOTH	11-15	5.3- 39.7	293.5-301.6
9 4	0130 1230	0522 0730	2	WEAK	14-22	269.4-346.7	140.5-158.6
9 5	0130 1230	0301 0330	1	STRONG	13-21	334.7-352.3	324.2-328.3
9 6	0130 1230						
9 7	0130 1230	1020 1035	1	STRONG	15-18	181.5-190.6	73.5- 75.6
9 8	0130 1230	0808 0920	2	STRONG	10-20	252.4-295.9	258.5-268.7
9 9	0130 1230	0433 0552 0807 0840	1 2	STRONG MODERATE	12-20 25-16	273.0-320.8 42.4- 62.4	71.7- 82.9 101.9-106.6
9 10	0130 1230						
9 11	0130 1230	0733 0920	2	WEAK	12-20	323.3- 27.9	144.4-159.5
9 12	0130 1230						
9 13	0130 1200	0645 1130	2	STRONG	12-27	235.5- 47.8	184.8-225.1
9 14	0130 1200	0326 0730	1	SMOOTH	13-22	265.9- 53.4	.3- 34.8



DATE 1974	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
9 15	0130 1200	1029 1112 0600 0630 0807 1000	1 1 2	STRONG SMOOTH STRONG	25-20 13-18 25-23	161.7-187.7 149.6-167.8 226.4-294.7	60.1- 66.2 225.7-229.9 243.6-259.6
9 16	0130 1200	0515 0625 0920 1052	1 2	SMOOTH STRONG	10-20 25-18	273.1-315.4 61.2-116.9	62.9- 72.8 97.6-110.6
9 18	0100 1200	0230 0355 0530 0710	3 1	SMOOTH SMOOTH	13-38 25-20	114.7-166.1 223.5-284.0	86.8- 98.8 112.3-126.4
9 19	0100 1130						
9 20	0100 1130						
9 21	0100 1130						
9 22	0100 1130	0855 1031	2	MODERATE	15-35	230.0-288.1	235.7-249.3
9 23	0100 1130						
9 24	0100 1130	0159 0520	2	STRONG	13-22	279.7- 41.3	224.1-252.5
9 25	0100 1130	0354 0626	3	MODERATE	13-39	140.0-231.9	84.0-105.5
9 26	0100 1200						
9 27	0100 1100						
9 28	0100 1100	0430 0724	1	WEAK	11-22	253.5-358.7	339.8- 4.4
9 29	0100 1100	0125 0211 0950 1009	1 1	SMOOTH STRONG	14-20 11-27	292.4-320.2 237.7-249.2	157.3-163.7 228.6-231.3
9 30	0100 1100	0549 0700	2	WEAK	12-23	242.6-285.5	38.2- 48.2
10 1	0100 1100	0205 0646	2	WEAK	10-26	257.8- 67.6	210.1-249.9
10 2	0100 1100	0457 0800	2	WEAK	13-31	152.3-263.0	78.0-103.9
10 3	0100 0930	0356 0610	1	SMOOTH	15-23	266.1-347.1	272.9-291.9
10 4	0100 1030						
10 5	0100 1030						
10 6	0030 1030	0304 0422 0707 0732	1 1	STRONG STRONG	13-28 25-20	326.4- 13.6 113.3-128.5	156.3-167.3 190.7-194.2
10 7	0030 1030	0641 0845	2	STRONG	11-29	248.2-323.2	30.5- 48.1
10 8	0030 1030	0233 0600	1	MODERATE	14-28	248.9- 14.0	199.1-228.4
10 9	0030 1030	0430 0645	1	WEAK	11-26	110.1-191.7	59.2- 78.3
10 10	0030 1000	0500 0600	1	SMOOTH	14-20	278.9-315.1	267.0-275.5
10 11	0030 1000	0440 0505	1	SMOOTH	13-17	57.4- 72.5	107.7-111.3
10 12	0030 1000	0600 0610	1	SMOOTH	12-17	256.3-262.4	322.7-324.1
10 13	0030 1000						
10 14	0030 0800	0400 0745	1	WEAK	14-28	124.9-260.9	352.8- 24.6
10 15	0030 1000						
10 16	0030 0430						
10 17	0030 0930	0313 0550	2	SMOOTH	11-31	188.1-283.0	236.7-258.9
10 18	0030 0930	0530 0630	2	WEAK	12-17	61.5- 97.8	99.6-108.1
10 19	0030 0930	0700 0730	1	MODERATE	11-20	266.4-284.5	315.9-320.1
10 19	2200 2430	2300 2400	2	SMOOTH	20-38	126.8-163.1	91.6-100.1
10 20	0030 0930	0306 0400	1	SMOOTH	13-20	275.5-308.2	126.4-134.0
10 21	0030 0930						
10 22	0030 0930	0343 0630	1	WEAK	10-30	238.9-339.9	178.7-202.3
10 23	0030 0930	0035 0125	1	SMOOTH	14-26	275.8-306.0	355.6- 2.7
10 24	0030 0900	0330 0640	2	SMOOTH	10-30	172.2-287.0	223.8-250.6
10 25	0030 0900	0700 0825	2	MODERATE	11-20	89.6-141.0	97.0-109.0
10 26	0030 0900						
10 26	2300 2400						
10 27	0000 0900	0015 0137 0335 0430	2 1	SMOOTH WEAK	17-36 25-30	145.8-195.3 266.7-299.9	86.8- 98.4 115.1-122.8
10 28	0000 0900						
10 29	0000 0900	0430 0800	2	MODERATE	12-28	240.9- 7.9	169.8-199.5
10 30	0000 0900						
10 31	0000 0830	0659 0716	1	MODERATE	20-34	272.0-282.3	237.9-240.3
11 1	0000 0830						
11 2	0000 0830	0100 0345	2	SMOOTH	11-20	356.0- 95.7	234.1-257.4

DATE 1974	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
11 3	0000 0830	0118 0730	3	SMOOTH	11-32	157.3- 22.1	80.1-132.7
11 4	0000 0830	0003 0430	2	SMOOTH	11-31	262.4- 63.8	273.0-310.7
11 5	0000 0830	0645 0705	1	WEAK	12-20	295.9-308.0	173.3-176.1
11 6	-0030 0730						
11 7	-0100 0730						
11 8	0000 0800	0343 0400	1	MODERATE	13-26	277.3-287.6	38.0- 40.4
11 9	0000 0800	0403 0423	1	STRONG	10-16	79.8- 91.9	244.3-247.1
11 10	0000 0800	0253 0440	1	WEAK	12-20	188.0-252.7	77.8- 93.0
11 11	0000 0800	0310 0325	1	SMOOTH	11-18	348.7-357.7	283.7-285.8
11 12	0000 0800						
11 13	0000 0800						
11 14	0000 0800						
11 15	0000 0800	0208 0335	2	MODERATE	8-18	193.0-245.6	8.8- 21.0
11 16	0000 0730						
11 17	0000 0730						
11 18	0000 0730	0041 0240	2	SMOOTH	12-35	231.6-303.5	246.7-263.5
11 19	0000 0730	0100 0303	2	SMOOTH	13-18	33.5-107.8	92.8-110.2
		0512 0650	1	MODERATE	25-24	185.8-245.1	128.4-142.3
11 20	0000 0730	0045 0256	1	SMOOTH	15-20	174.9-254.1	294.2-312.7
11 21	0000 0730	0054 0225	1	SMOOTH	14-18	330.7- 25.8	138.8-151.7
11 22	0000 0730						
11 23	0000 0730						
11 24	0000 0700						
11 25	0000 0700	0037 0320	2	SMOOTH	17-33	202.1-300.6	230.1-253.1
11 26	0000 0700	0539 0610	1	MODERATE	14-24	175.0-193.8	116.1-120.5
11 27	0000 0700	0318 0438	1	MODERATE	20-26	240.1-288.5	299.6-310.9
11 27	1900 2200	2100 2200	2	SMOOTH	20-36	162.1-198.4	89.6- 98.1
11 28	0000 0700	0020 0230	1	WEAK	11-21	282.9- 1.5	117.8-136.2
11 29	0000 0700	0503 0603	1	STRONG	13-27	244.4-280.6	1.3- 9.7
12 1	-0030 0700						
12 2	-0030 0630	0300 0350	1	WEAK	18-24	261.1-291.3	234.0-241.1
12 3	-0030 0630	0427 0550	1	MODERATE	13-35	194.1-154.3	89.7-101.4
12 4	-0030 0630	0515 0531	1	WEAK	18-26	283.5-293.2	299.8-302.1
12 4	2000 2300	2200 2300	1	WEAK	18-31	171.1-207.4	81.8- 90.2
12 5	-0030 0630	0114 0200	1	MODERATE	14-18	288.1-315.9	109.2-115.7
12 6	0225 0630						
12 7	-0030 0630	0147 0200	1	SMOOTH	8-17	248.9-256.7	160.6-162.4
12 8	-0030 0530						
12 9	-0030 0630						
12 10	-0030 0630						
12 11	-0030 0600						
12 12	-0030 0600	0148 0200	1	WEAK	15-28	281.2-288.4	97.6- 99.3
12 13	-0030 0600	0330 0402	1	MODERATE	12-15	133.3-152.6	315.4-319.9
12 14	-0030 0600	0310 0407	1	STRONG	12-24	271.5-305.9	155.9-163.9
12 15	0000 0600	0015 0104	1	SMOOTH	13-20	316.1-345.7	334.4-341.4
12 16	0000 0600	0400 0520	1	WEAK	13-18	242.4-290.8	209.5-220.9
12 17	0000 0600	0010 0335	2	MODERATE	10-23	253.6- 17.6	20.5- 49.4
12 18	0000 0600						
12 19	0000 0600	0159 0345	1	STRONG	12-20	260.2-324.3	82.6- 97.6
12 20	0000 0530						
12 21	0000 0530						
12 22	0000 0530						
12 23	0000 0530						
12 24	0000 0530	0101 0153	1	SMOOTH	8-25	256.8-288.2	11.0- 18.4
		0321 0437	1	MODERATE	25-18	341.4- 27.4	30.8- 41.5
12 25	0000 0530	0147 0400	1	WEAK	14-18	74.9-155.3	220.9-239.7
12 26	0000 0530						
12 26	2100 2400						

DATE 1974	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
12 27	0000 0530						
12 28	0000 0530						
12 29	0000 0530						
12 29	1730 1900						
12 30	0000 0500	0212 0234	1	STRONG	16-25	121.6-134.9	160.9-164.0
12 31	0000 0500						
1975							
1 1	0000 0500						
1 2	0000 0500	0400 0435	2	WEAK	12-21	277.8-298.9	66.2- 71.2
1 3	0000 0500	0006 0020	1	MODERATE	15-23	286.6-295.1	236.5-238.4
1 4	0000 0500	0122 0251	2	STRONG	11-36	122.9-176.7	90.5-103.1
* 1 5	0000 0500						
1 5	1600 1900						
1 6	0000 0500						
1 7	0000 0500						
1 8	0000 0500						
1 9	0000 0430						
1 10	0000 0430	0000 0132	2	STRONG	13-29	255.1-310.7	218.7-231.7
1 11	0000 0430	0300 0400	2	MODERATE	9-33	154.2-190.5	87.4- 95.9
1 12	0000 0430	0113 0245	2	STRONG	12-21	239.8-295.4	275.6-288.6
1 13	0000 0430						
1 14	0000 0430	0247 0316	1	STRONG	11-20	237.3-254.8	335.4-339.5
1 15	0000 0430						
1 16	0000 0430	0302 0340	1	WEAK	10-24	186.8-209.8	24.1- 29.5
1 17	0000 0430						
1 18	0000 0430						
1 19	0000 0400	0220 0315	2	STRONG	17-30	252.3-286.2	268.1-276.0
1 20	0000 0400						
* 1 20	1700 2000						
1 21	0000 0400						
1 22	0000 0400						
1 23	0030 0400						
1 24	0030 0400	0118 0321	2	MODERATE	12-29	246.3-320.6	195.7-213.0
1 25	0030 0400						
1 26	0030 0400						
1 27	0030 0400						
* 1 27	1800 2100	1924 1936	2	SMOOTH	20-29	273.7-280.9	238.9-240.6
1 28	0030 0400	0200 0215	1	SMOOTH	8-12	152.7-161.8	294.8-296.9
* 1 28	2000 2300	2100 2153	2	WEAK	20-36	121.9-154.0	95.7-103.2
1 29	0030 0330						
1 30	0030 0330						
1 31	0030 0330						
2 1	0030 0330	0210 0237	1	STRONG	11-15	40.0- 56.3	29.2- 33.0
2 2	0030 0330						
2 3	0030 0330						
2 4	0030 0330						
* 2 4	2100 2400	2210 2359	2	SMOOTH	16-26	136.2-202.1	88.4-103.8
2 5	0030 0330						
2 6	0030 0330						
* 2 6	1530 1600						
2 7	0030 0330						
2 8	0030 0330						
2 9	0030 0300						
2 10	0030 0300						
2 11	0030 0300						
* 2 11	2200 2430	2233 2430	1	WEAK	10-34	122.0-192.5	74.4- 90.9

DATE 1975	OBSERVING PERIOD	JUPITER OBSER- VATIONS	IN- TEN- SITY	BURSTI- NESS	FREQ. RANGE MHZ	JUPITER LONGITUDE	IO RANGE
2 12	0030 0300	0030 0040	1	WEAK	25-34	192.5-198.6	90.9- 92.3
2 12	0000 0000	2230 2319	1	WEAK	17-27	270.5-300.2	277.3-284.2**
2 13	0030 0300						
2 14	0030 0300						
2 15	0030 0300						
2 18	0100 0300						
* 2 18	2300 2500						
2 19	0100 0230						
2 20	0100 0230						
2 20	1430 2520						
2 21	1540 2630						
2 22	1900 2630						
2 23	1900 2630	2535 2550	1	MODERATE	13-17	235.2-244.3	19.2- 21.3
2 24	1430 2630						
2 25	1430 2630	2510 2550	1	STRONG	14-18	160.6-184.8	62.1- 67.8
2 26	1430 2630						
2 27	1430 2630						
2 28	1430 2630						
3 1	1400 2600	1745 1831	1	SMOOTH	20-37	133.0-160.8	92.3- 98.8
3 2	1400 2600						
3 3	1400 2600						
3 4	1400 2600						
3 5	1400 2600	2348 2418	1	STRONG	15-25	233.6-251.5	236.6-240.8
3 6	1400 2600	2036 2125	1	WEAK	20-30	267.8-297.4	52.8- 59.7
3 7	1400 2600						
3 8	1400 2600	1905 2023	2	WEAK	20-36	153.4-200.6	86.4- 97.4
3 9	1400 2600						
3 10	1330 2600						
3 11	1330 2600						
3 12	1330 2530						
3 13	1330 2530						
3 14	1330 2530						
3 15	1330 2530	2040 2055	1	SMOOTH	18-26	182.8-191.9	82.6- 84.7
3 16	1330 2530						
3 17	1330 2530						
3 18	1300 2530						
3 19	1300 2530						
3 20	1300 2530						
3 21	1300 2530						

\*\* THIS EVENT ON 12 FEBRUARY WAS RECEIVED DURING OBSERVATION OF THE SUN WHEN JUPITER WAS OUTSIDE THE NOMINAL BEAMWIDTH OF THE ANTENNAS.

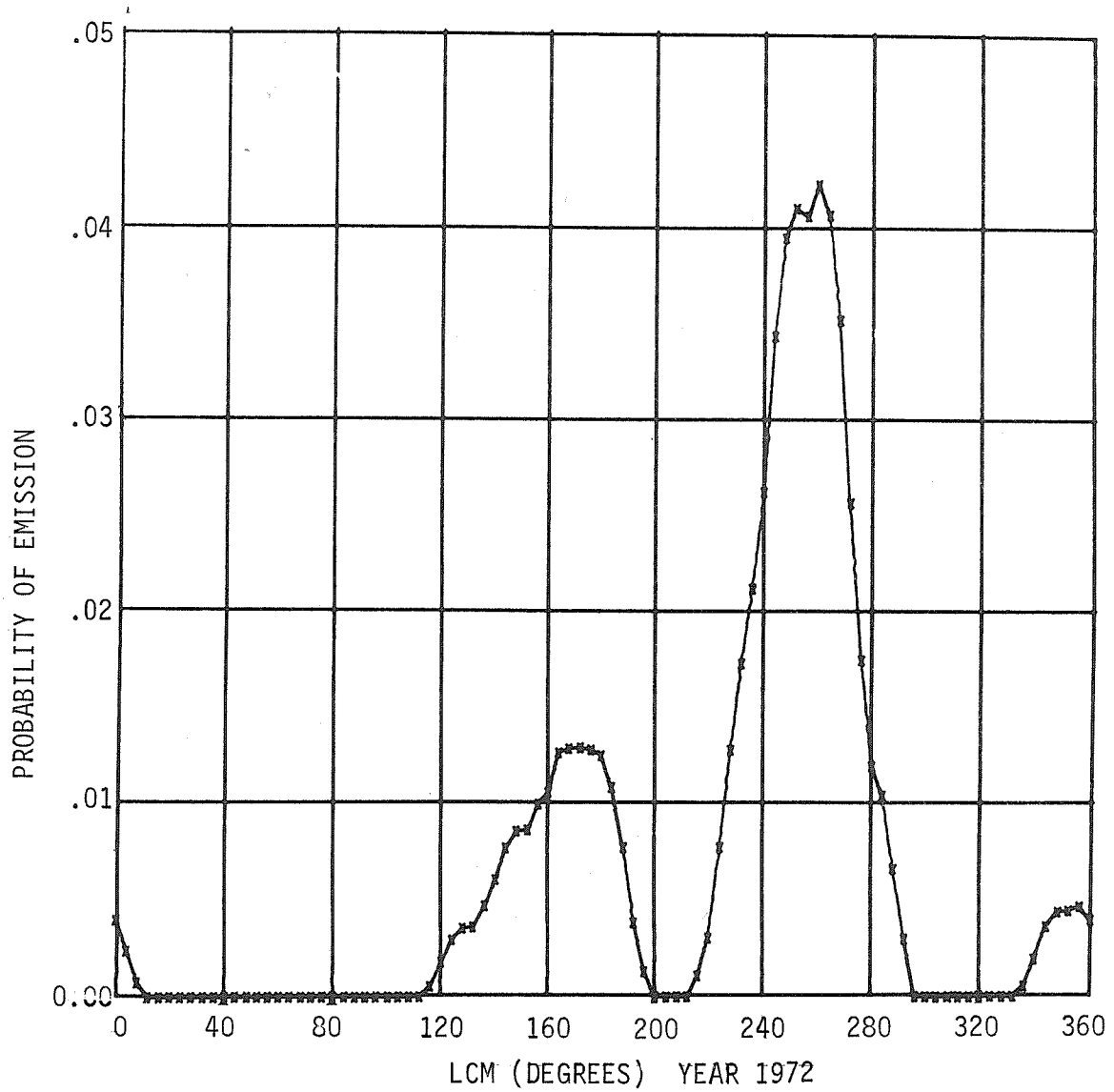


Fig. 1.

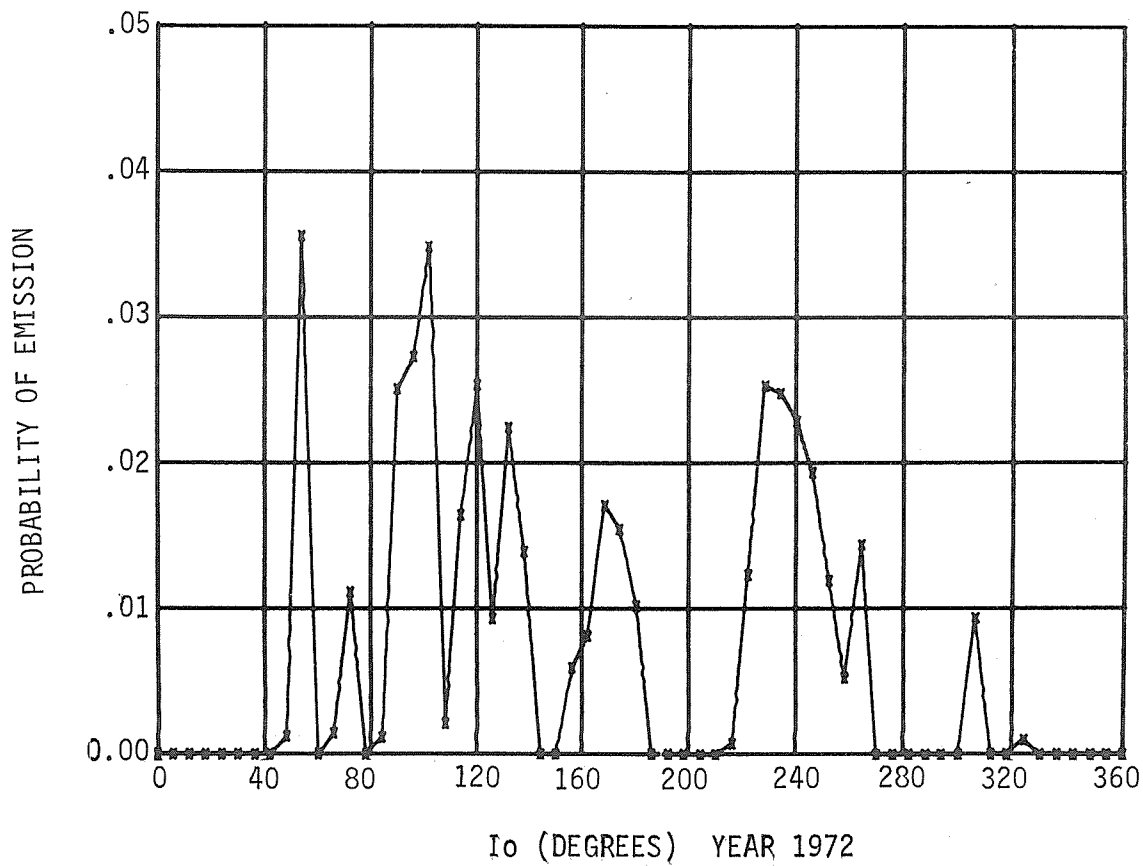


Fig. 2.

I<sub>0</sub>, LCM PROBABILITY CONTOUR MAP, YEAR 1972, CONTOUR INTERVAL .10

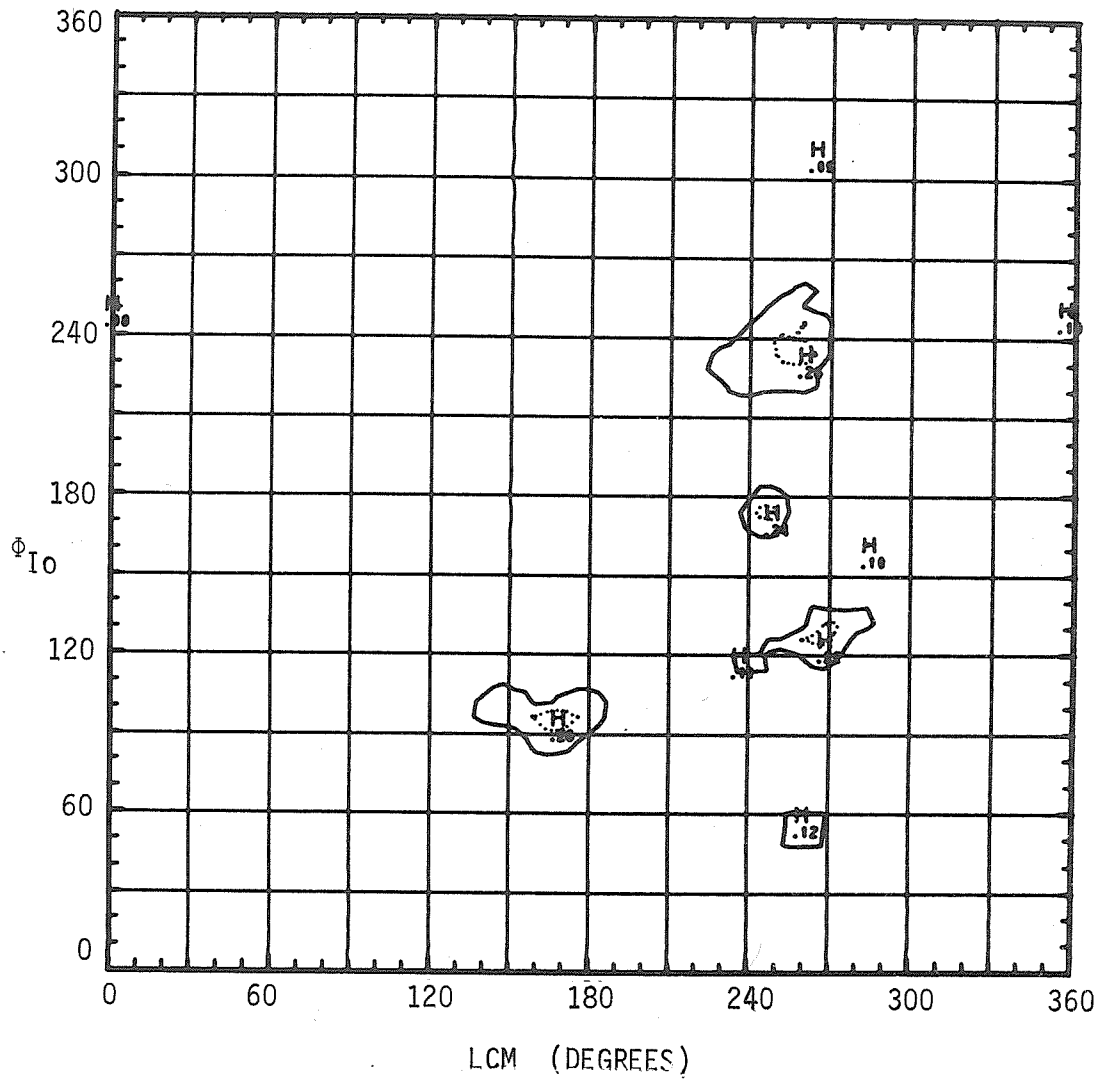


Fig. 3.

EMISSION PLOT FOR THE APPARITION OF 1972

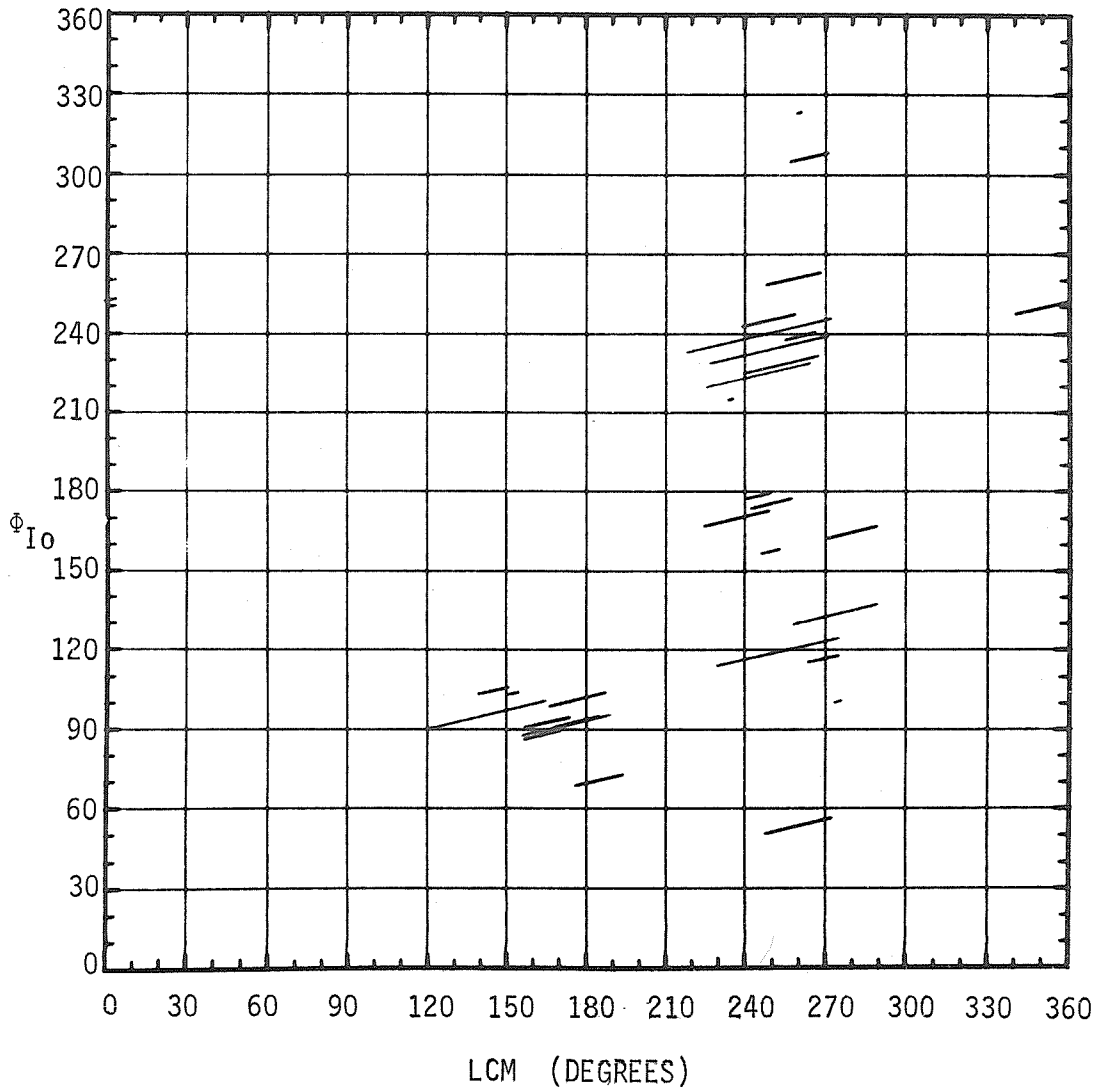


Fig. 4.



OBSERVATION PLOT FOR THE APPARITION OF 1972

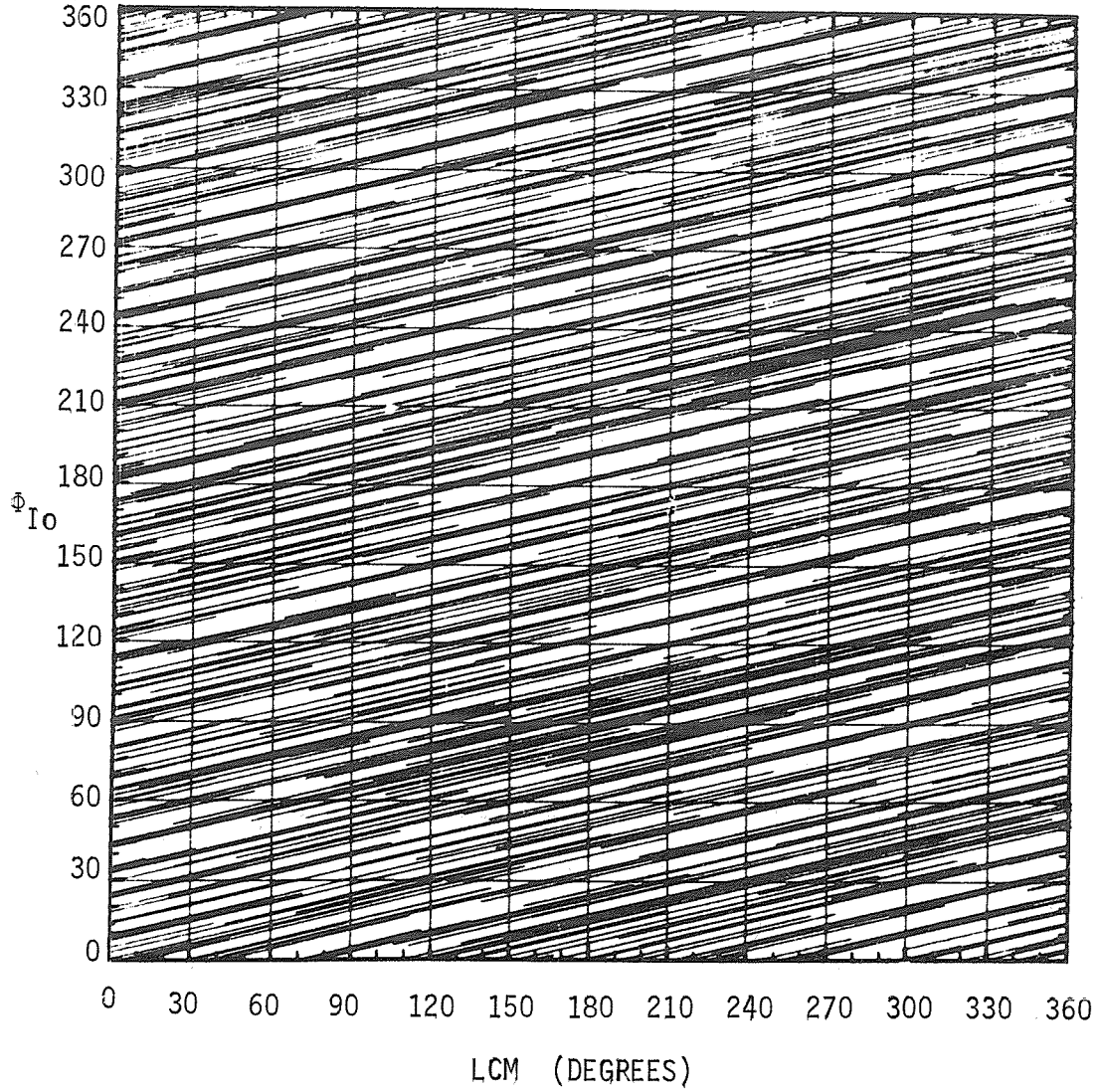


Fig. 5.

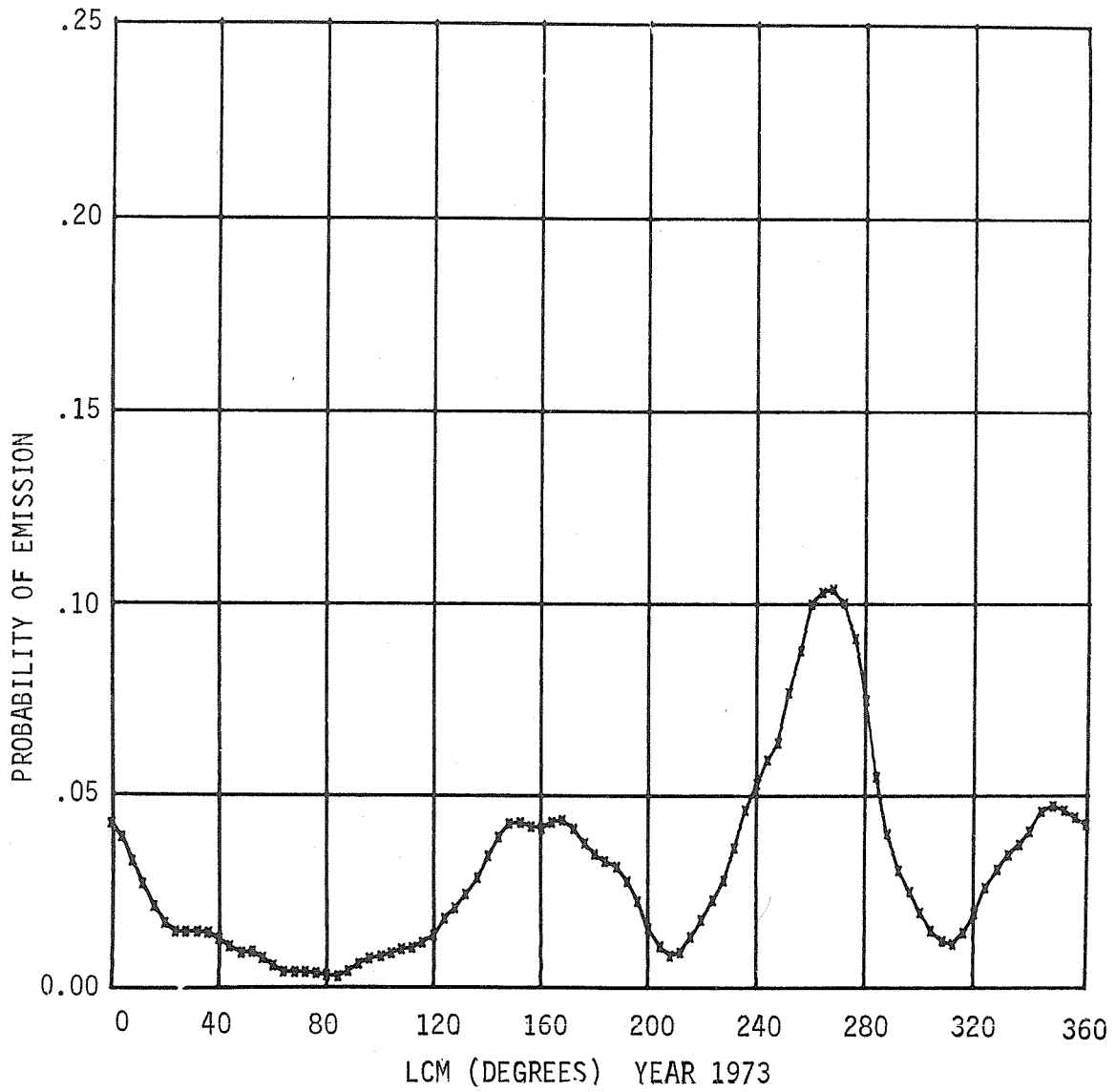


Fig. 6.

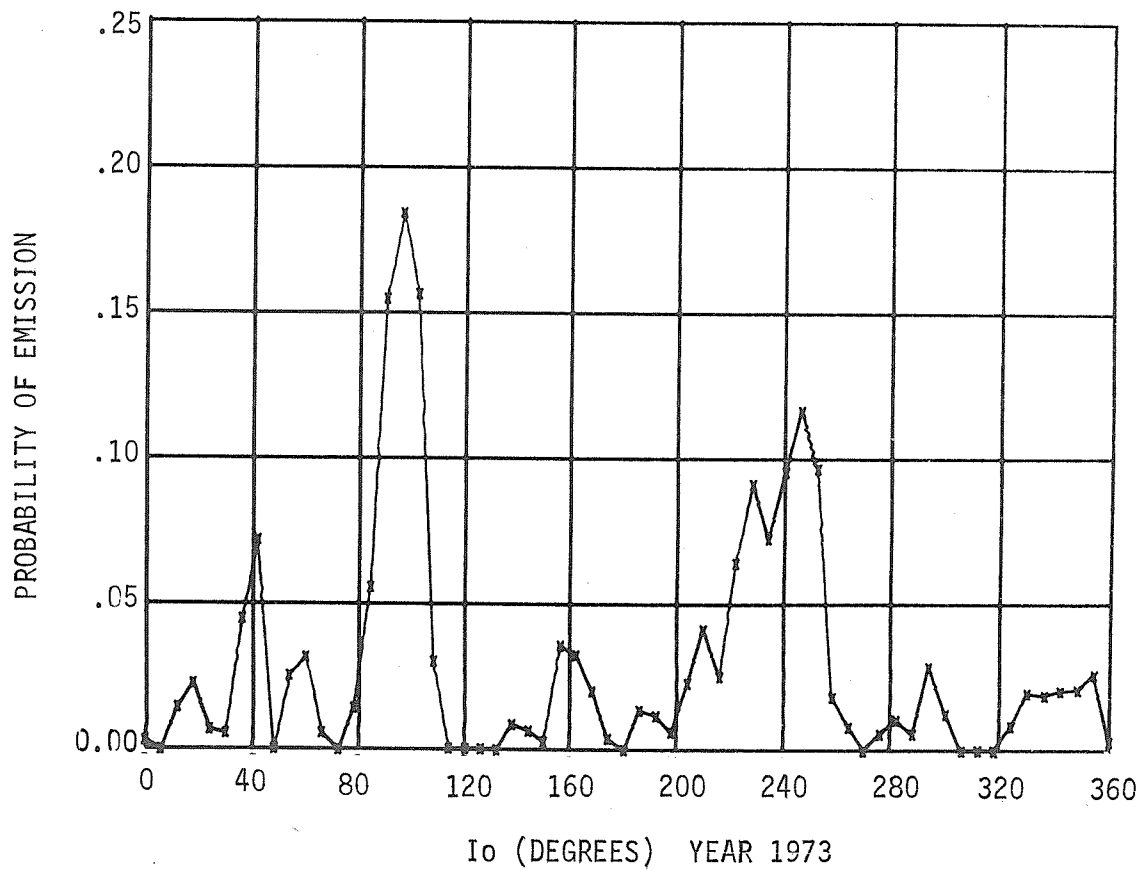


Fig. 7.

I<sub>0</sub>, LCM PROBABILITY CONTOUR MAP, YEAR 1973, CONTOUR INTERVAL .10

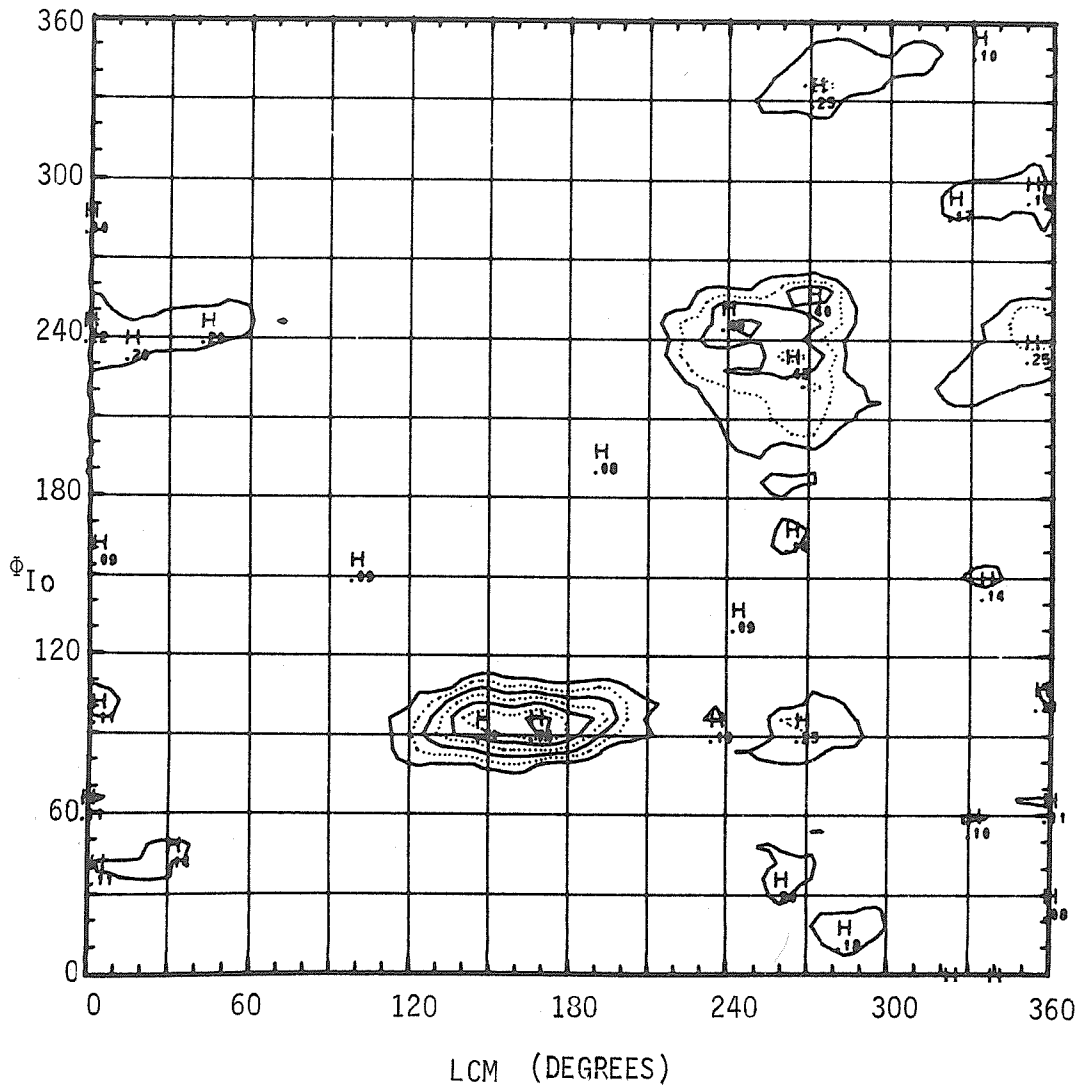


Fig. 8.

EMISSION PLOT FOR THE APPARITION OF 1973

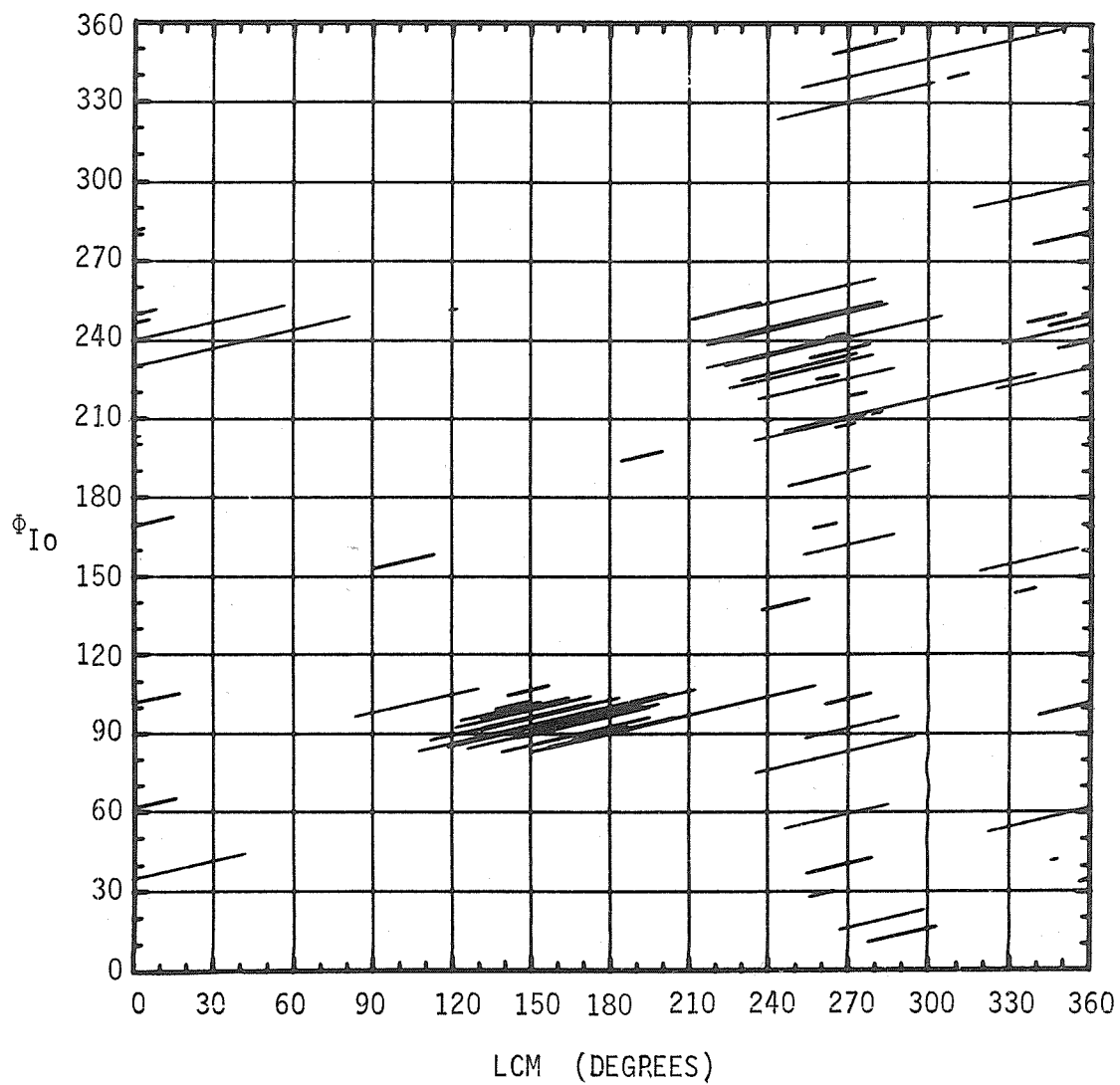


Fig. 9.

OBSERVATION PLOT FOR THE APPARITION OF 1973

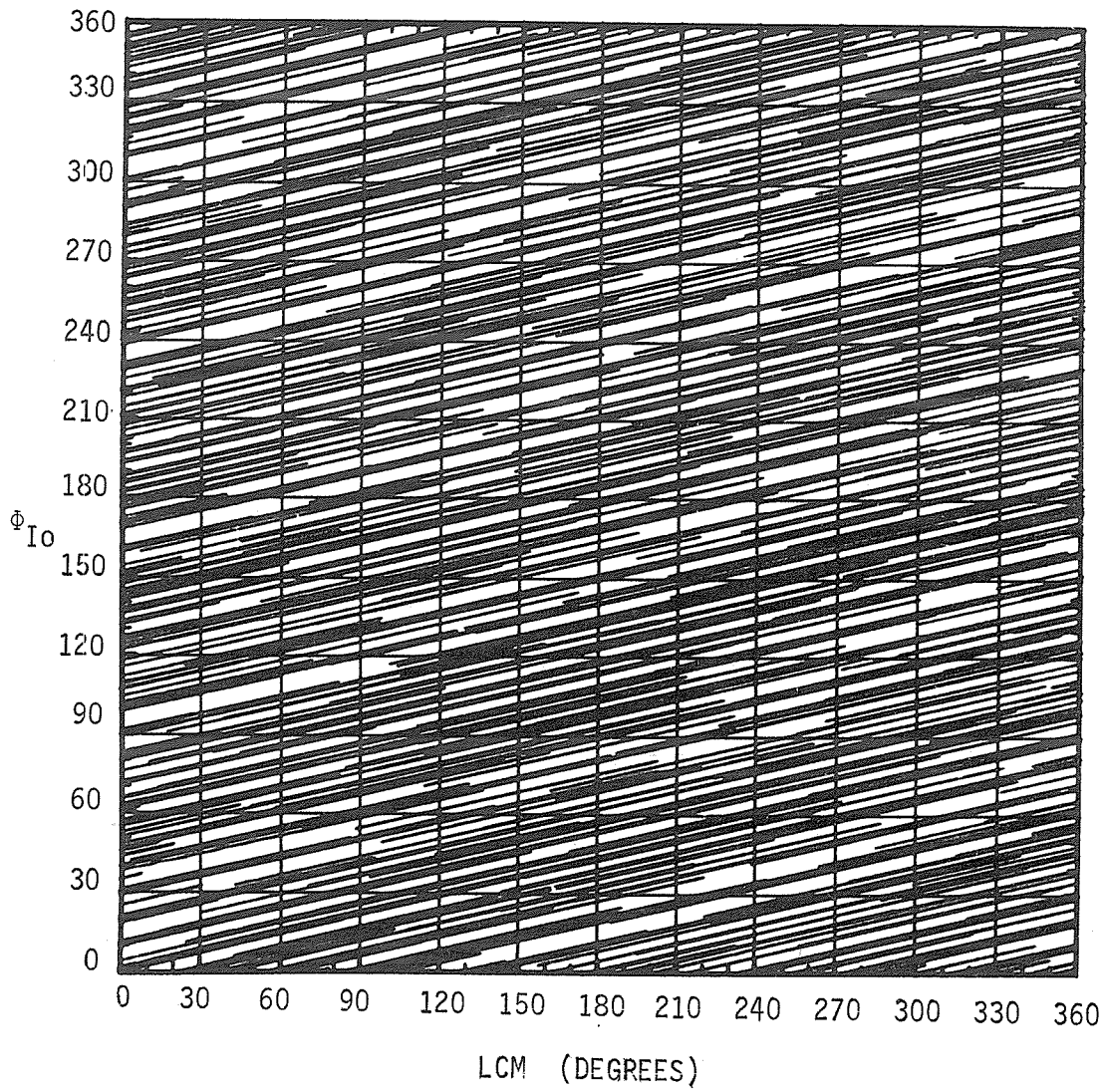


Fig. 10.

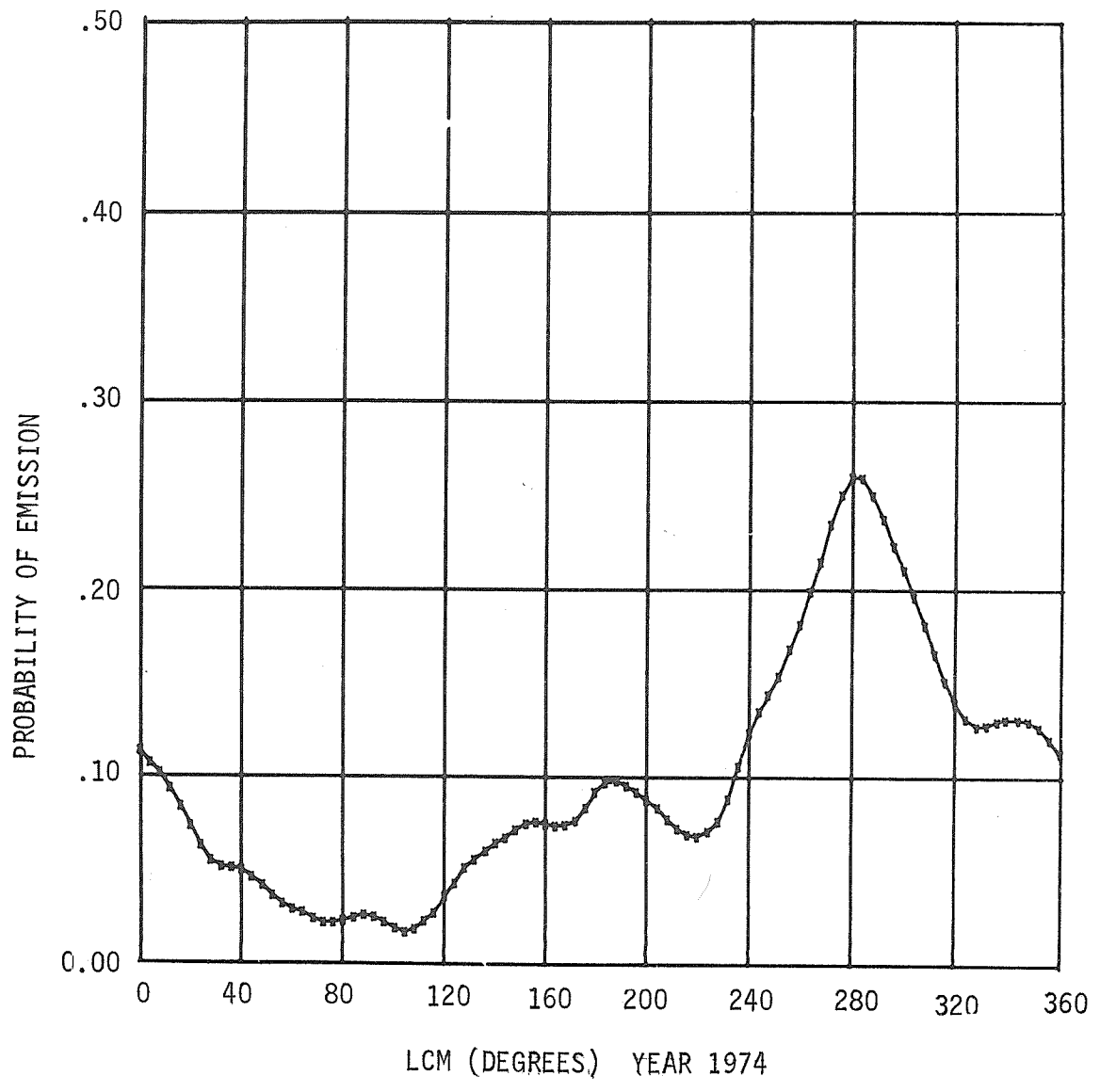


Fig. 11.

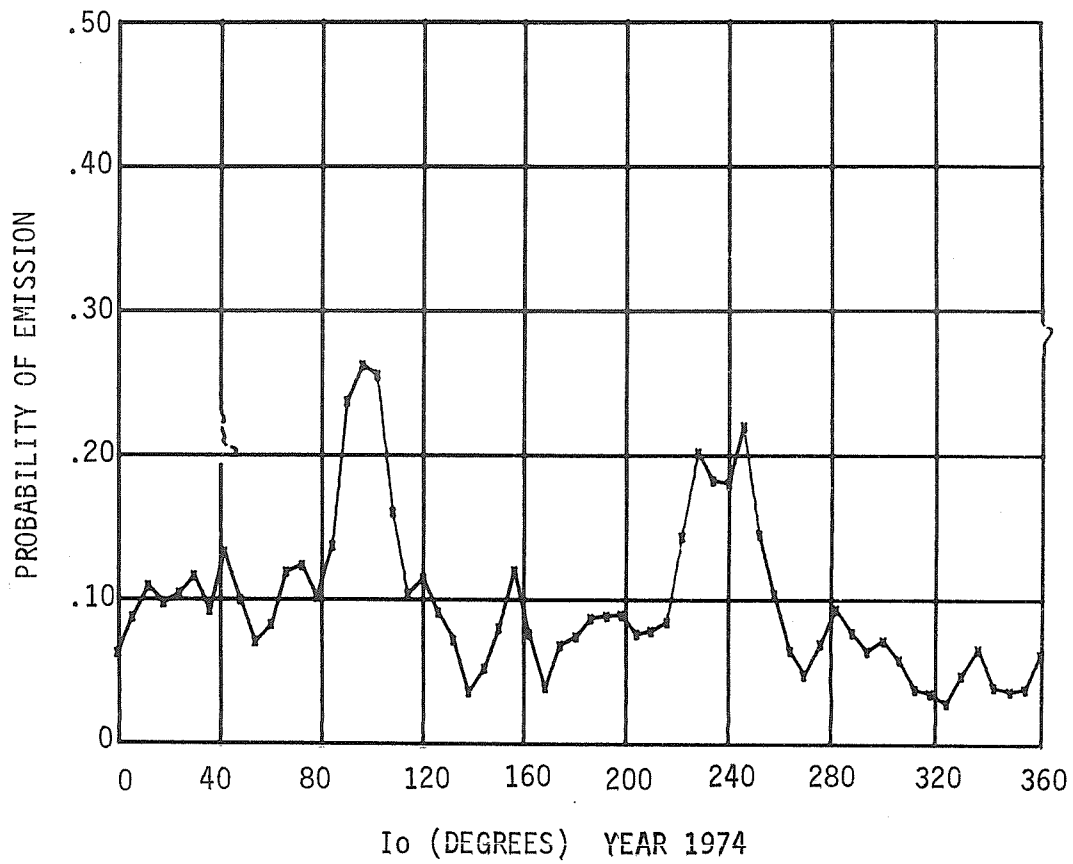


Fig. 12.



I<sub>0</sub>, LCM PROBABILITY CONTOUR MAP, YEAR 1974, CONTOUR INTERVAL .10

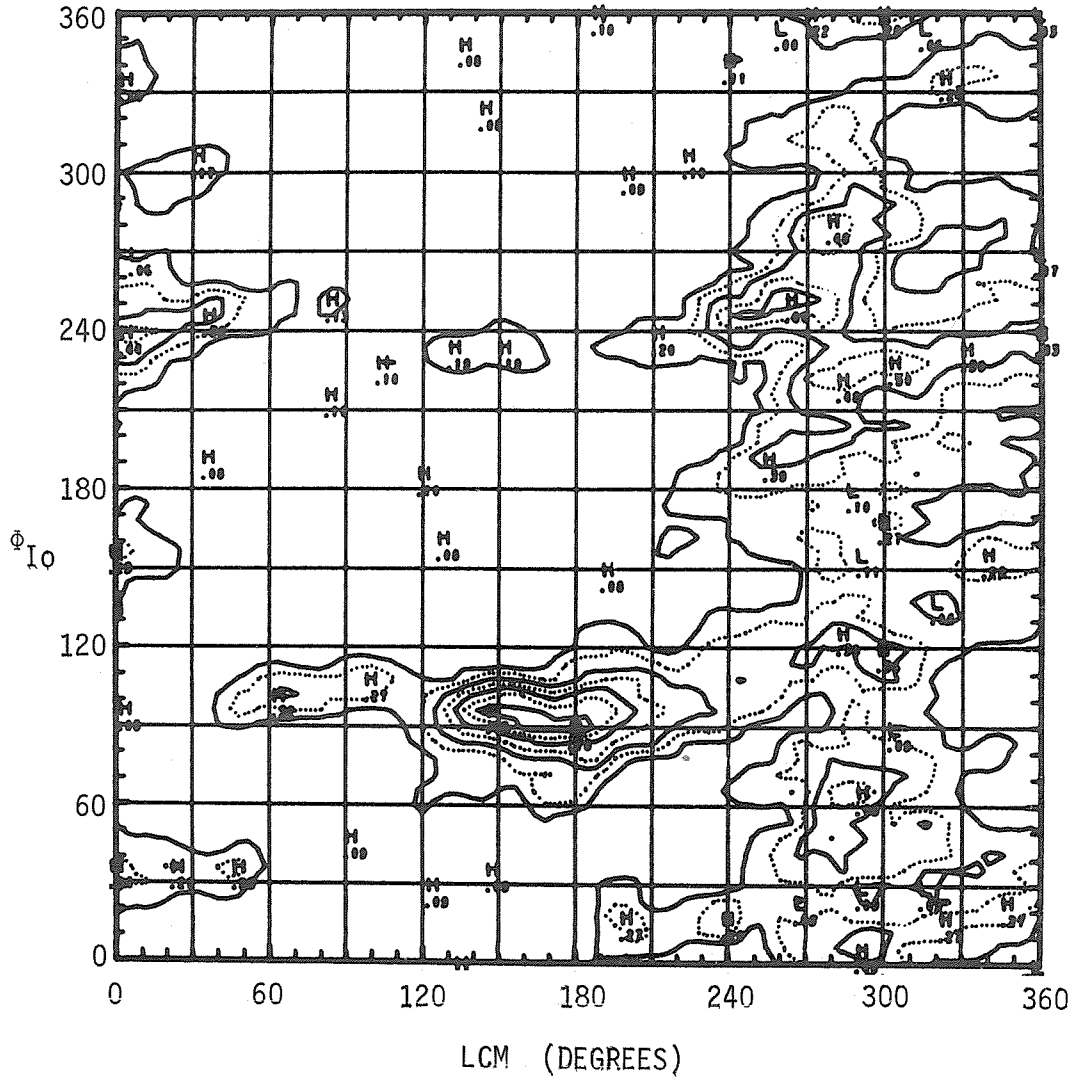


Fig. 13.

EMISSION PLOT FOR THE APPARITION OF 1974

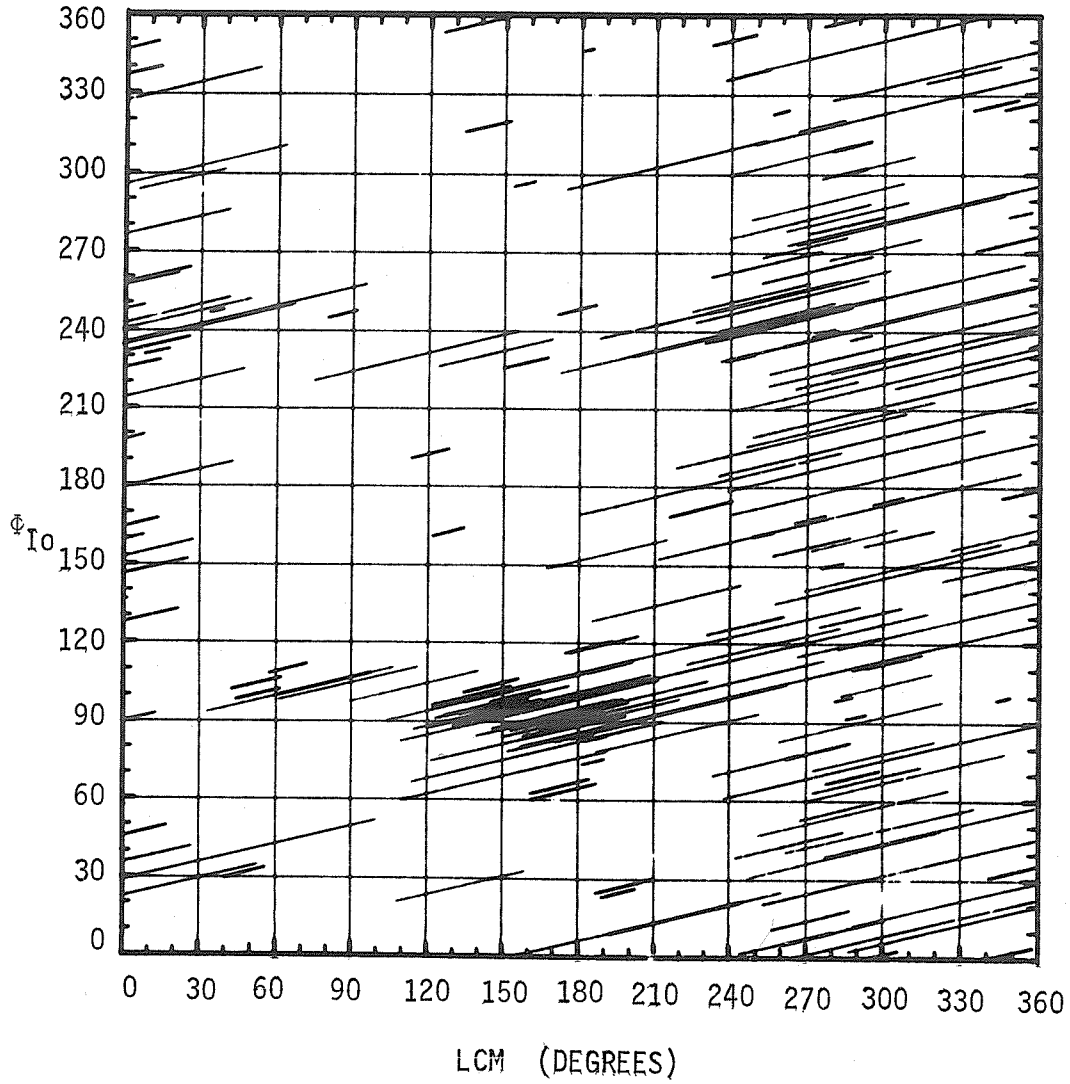


Fig. 14.

OBSERVATION PLOT FOR THE APPARITION OF 1974

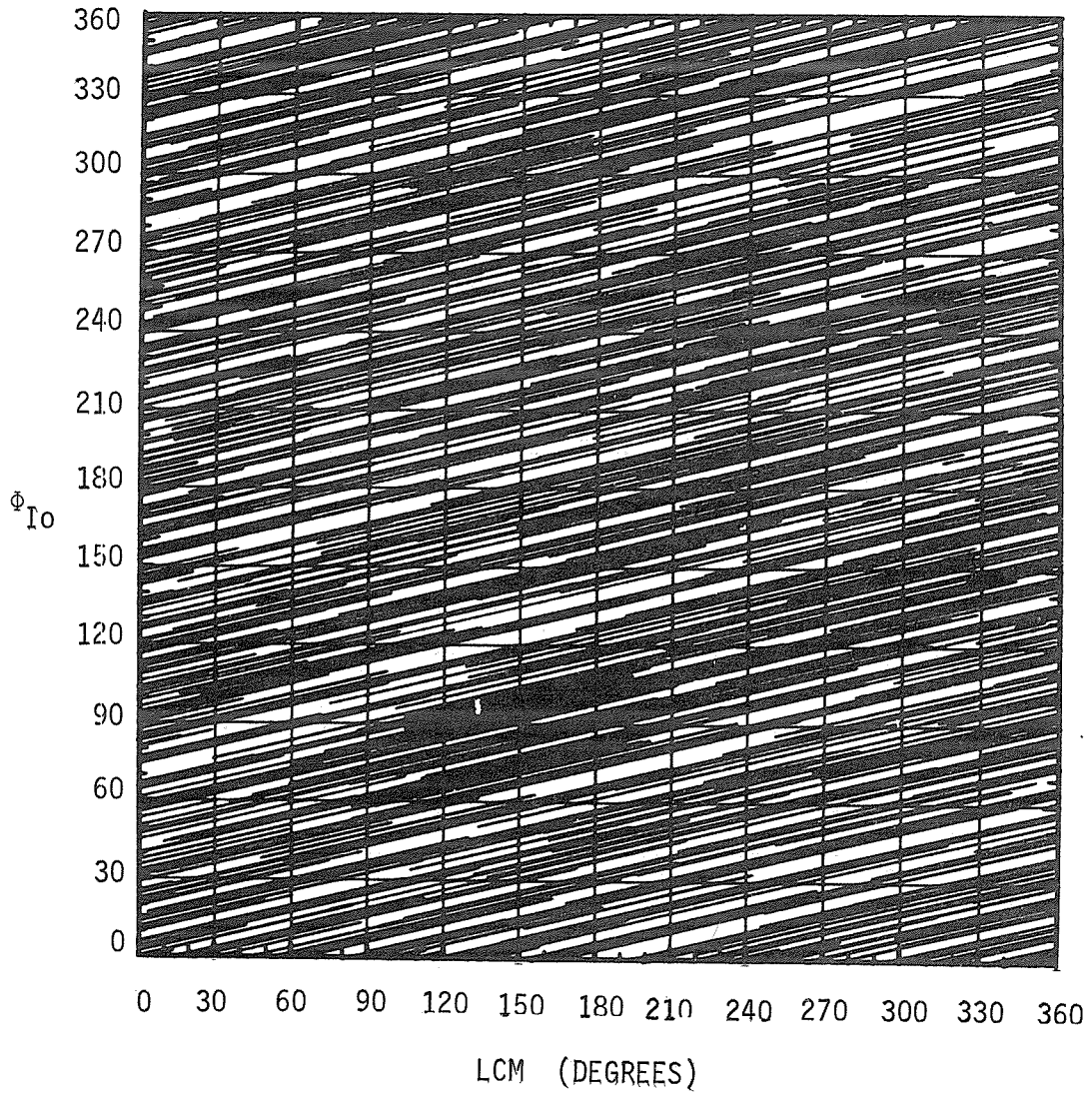


Fig. 15.

ERRATA TO REPORT UAG-25

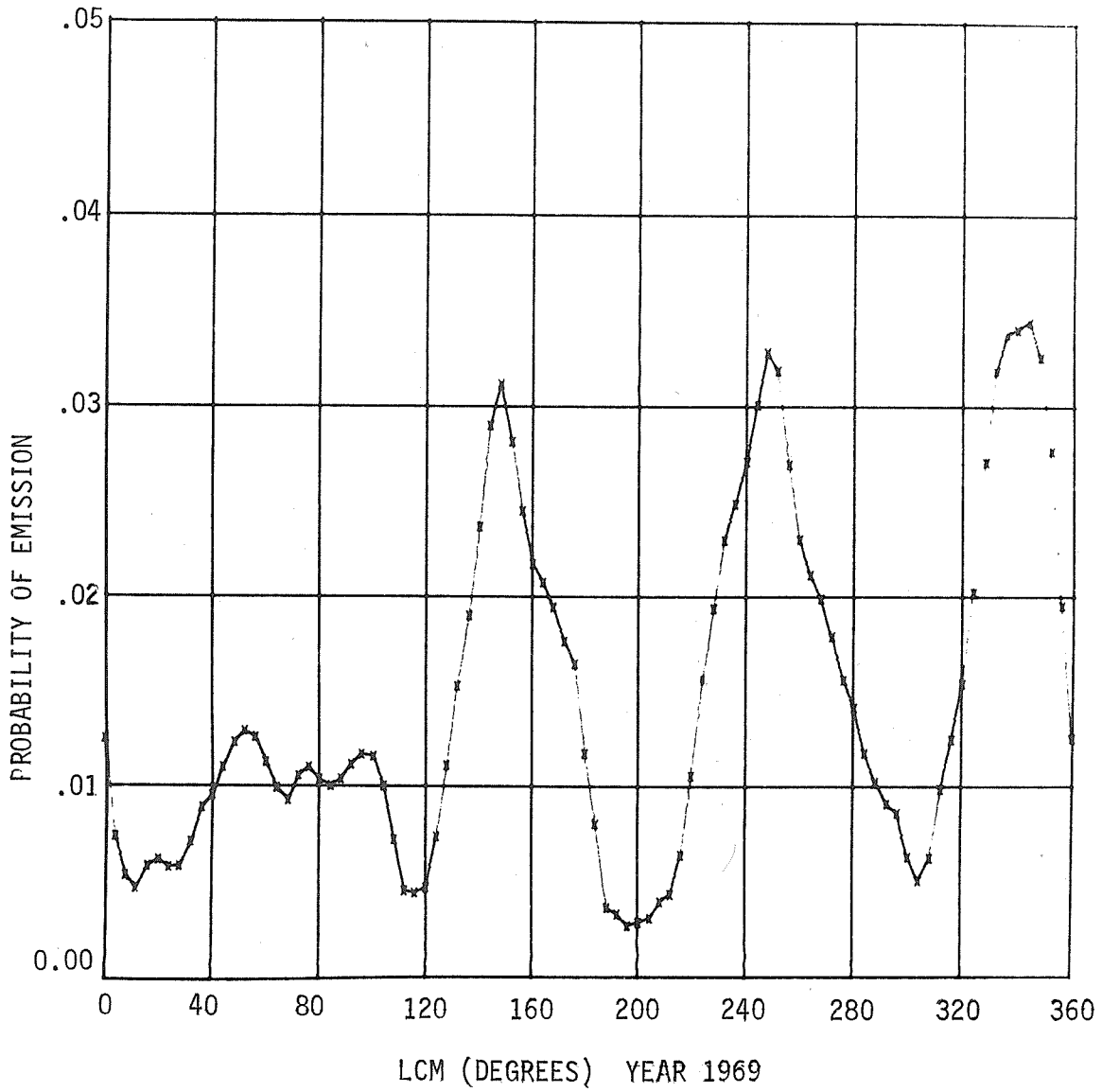


Fig. 16.

ERRATA TO *REPORT UAG-25*

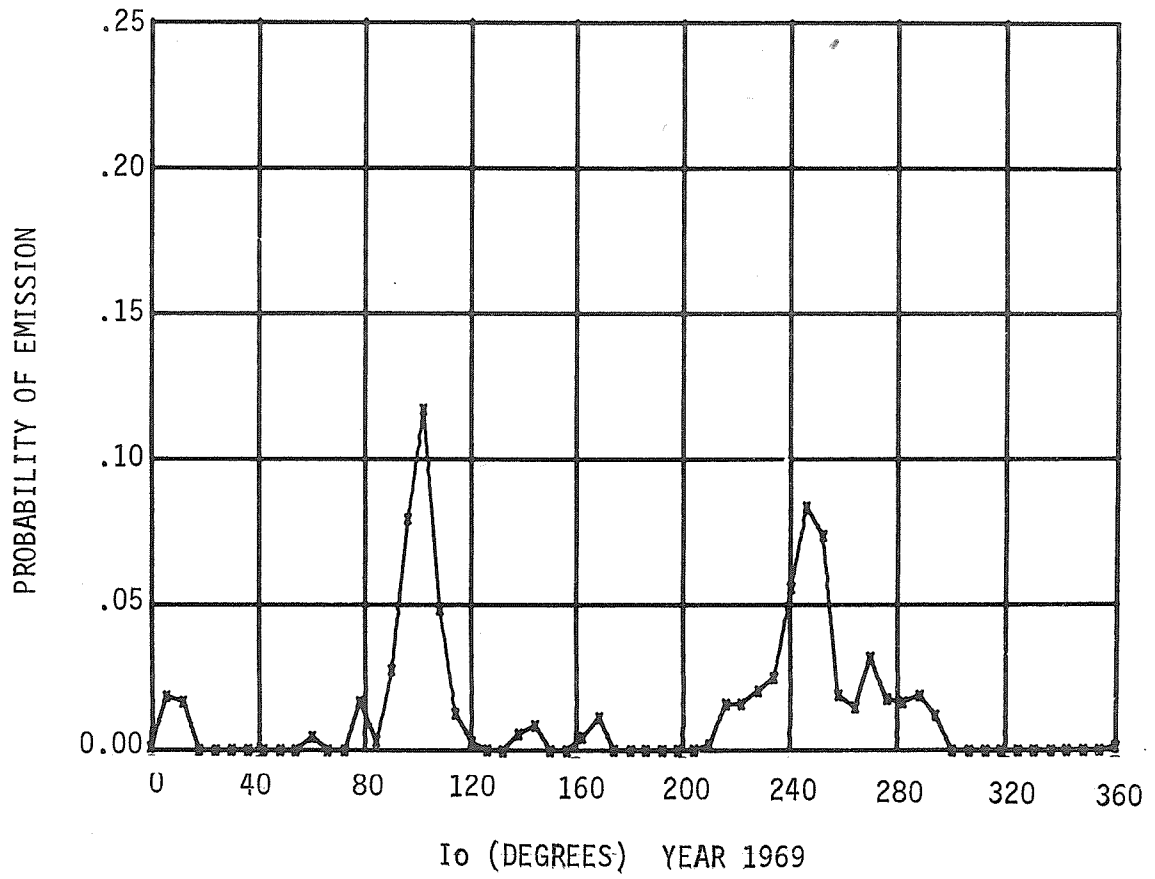


Fig. 17.

ERRATA TO REPORT UAG-25

$I_0$ , LCM PROBABILITY CONTOUR MAP, YEAR 1969. CONTOUR INTERVAL .10

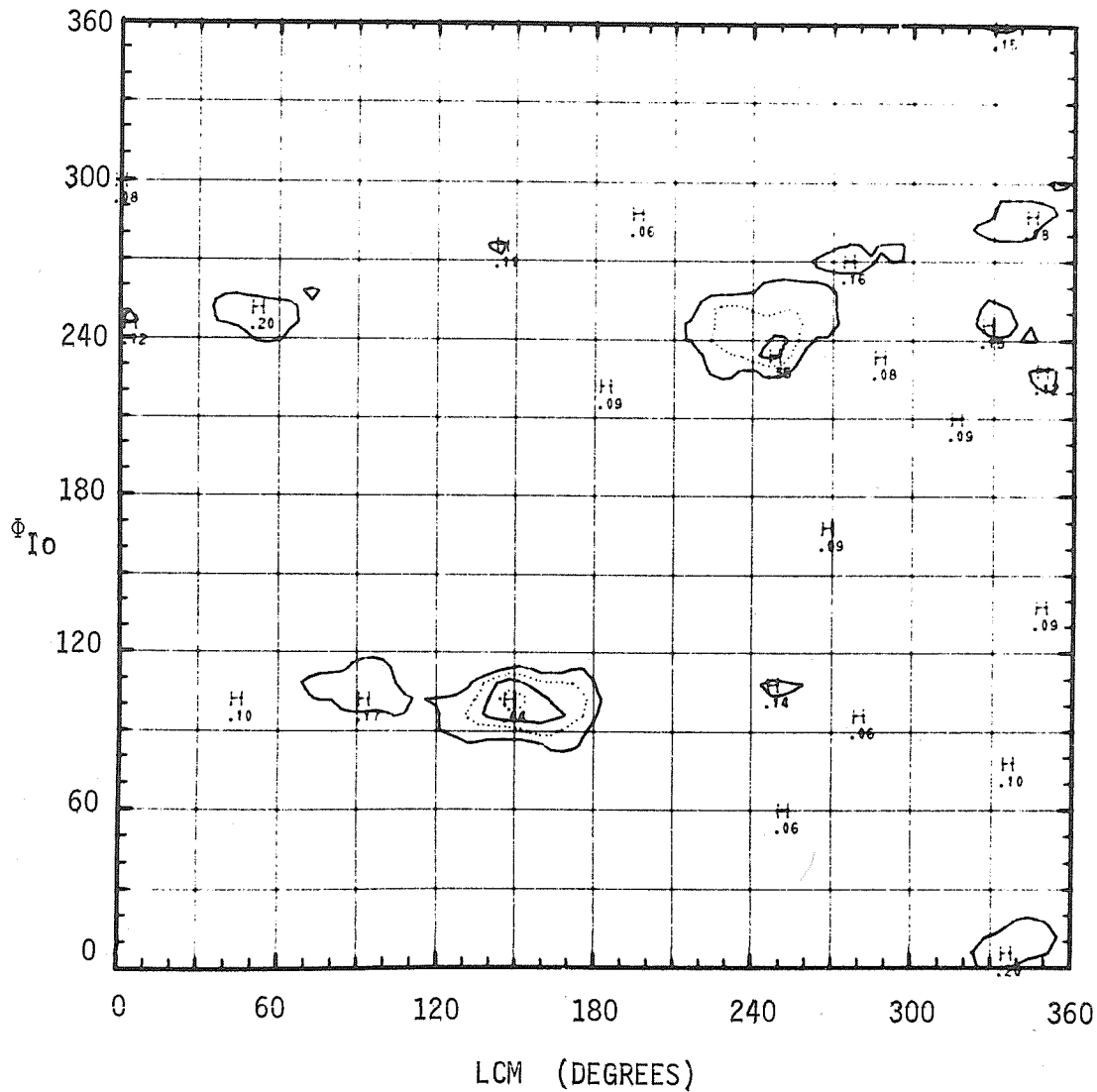


Fig. 18.

ERRATA TO REPORT UAG-25

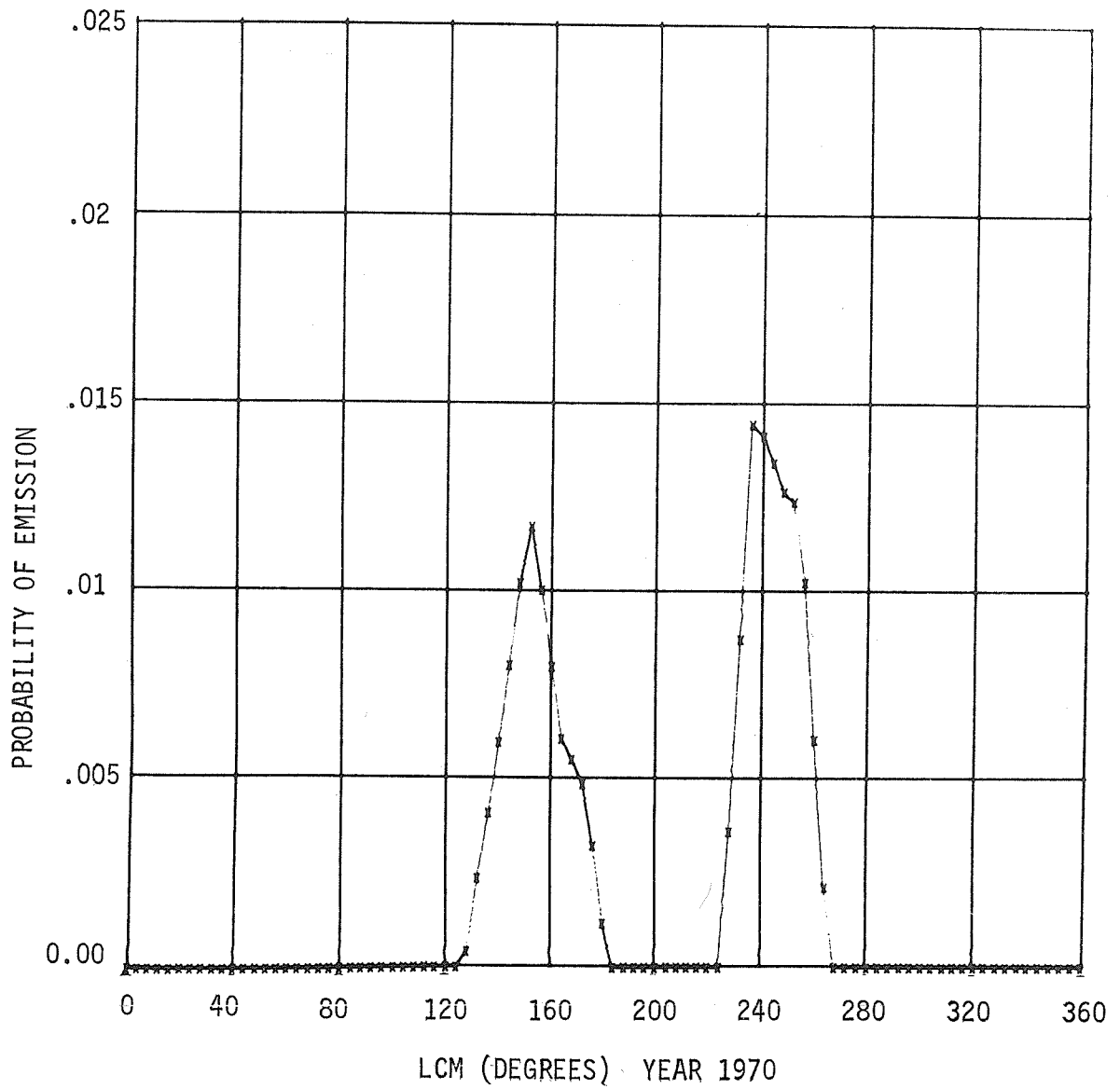


Fig. 19.

ERRATA TO REPORT UAG-25

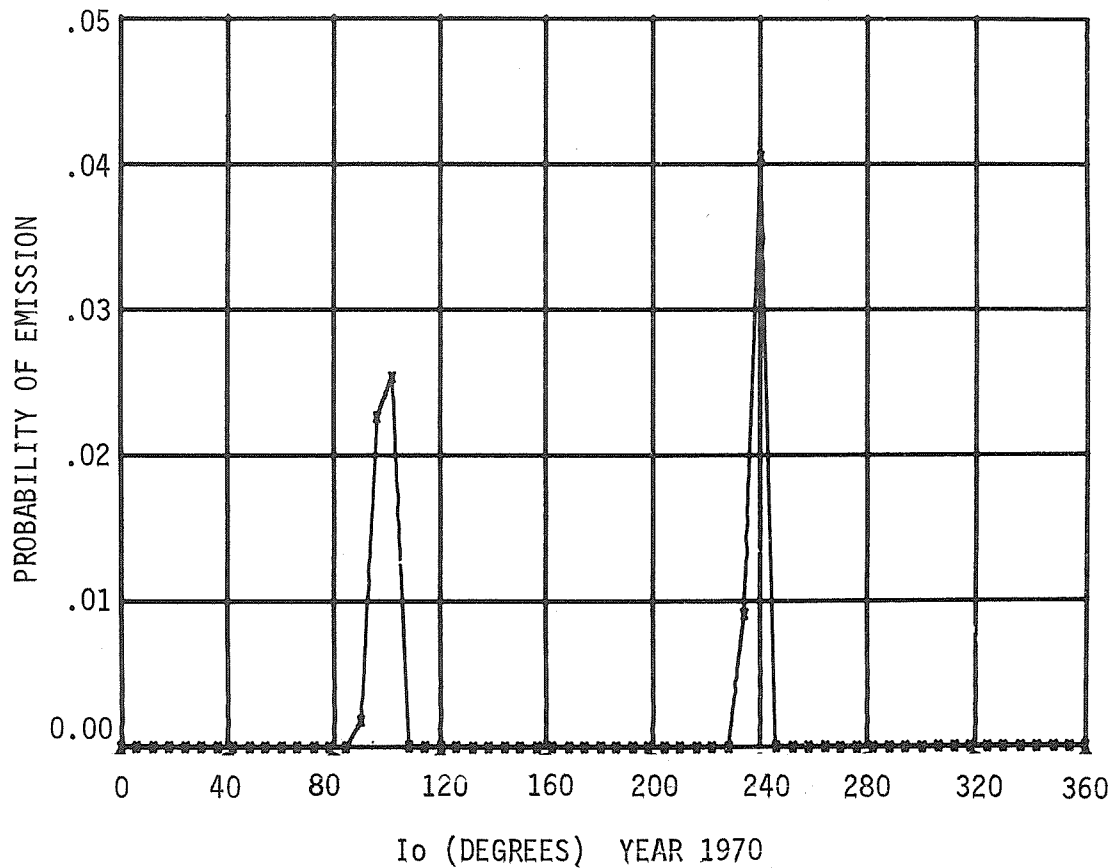


Fig. 20.



ERRATA TO *REPORT UAG-25*

$I_0$ , LCM PROBABILITY CONTOUR MAP, YEAR 1970, CONTOUR INTERVAL .10

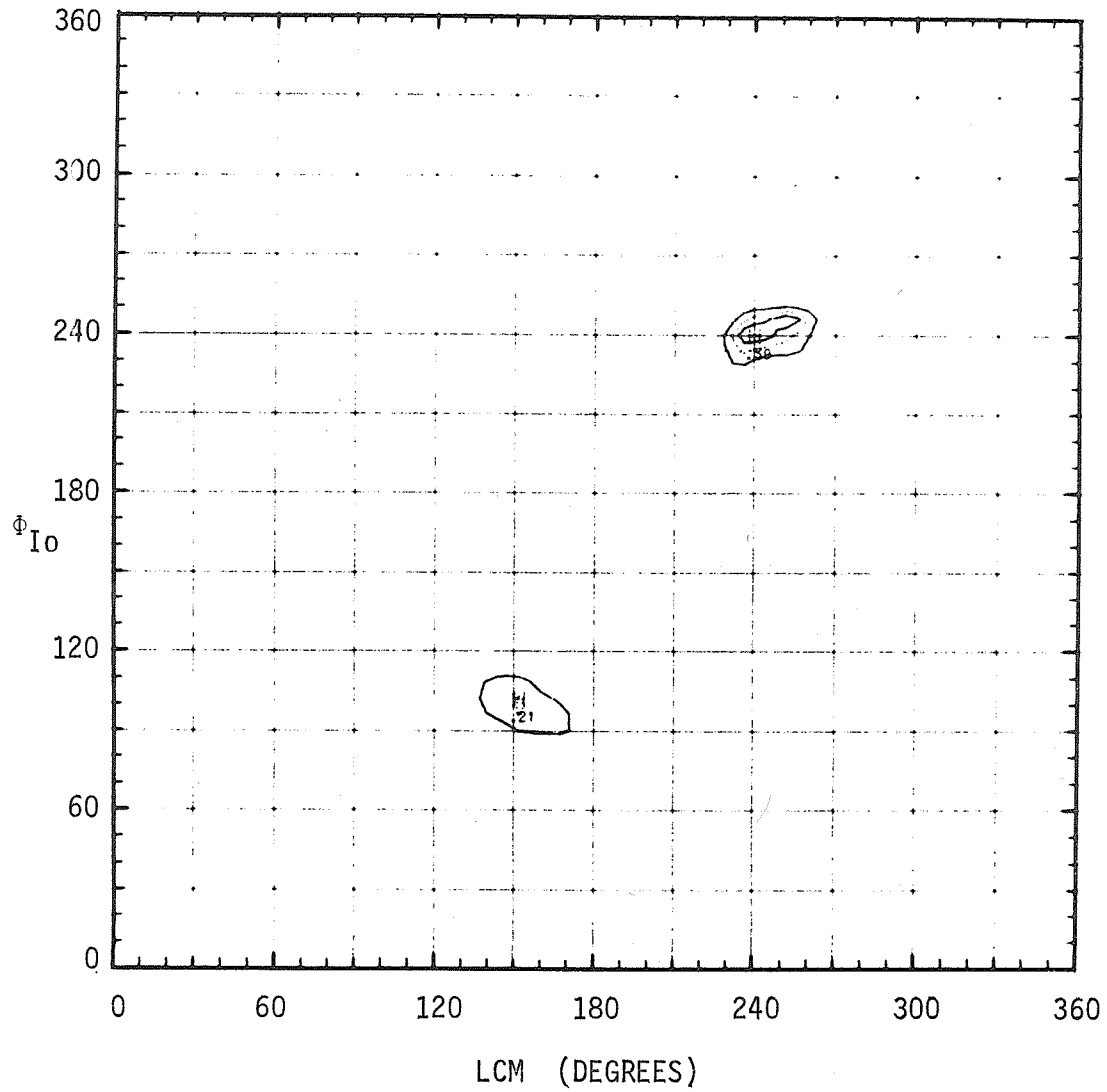


Fig. 21.

ERRATA TO *REPORT UAG-25*

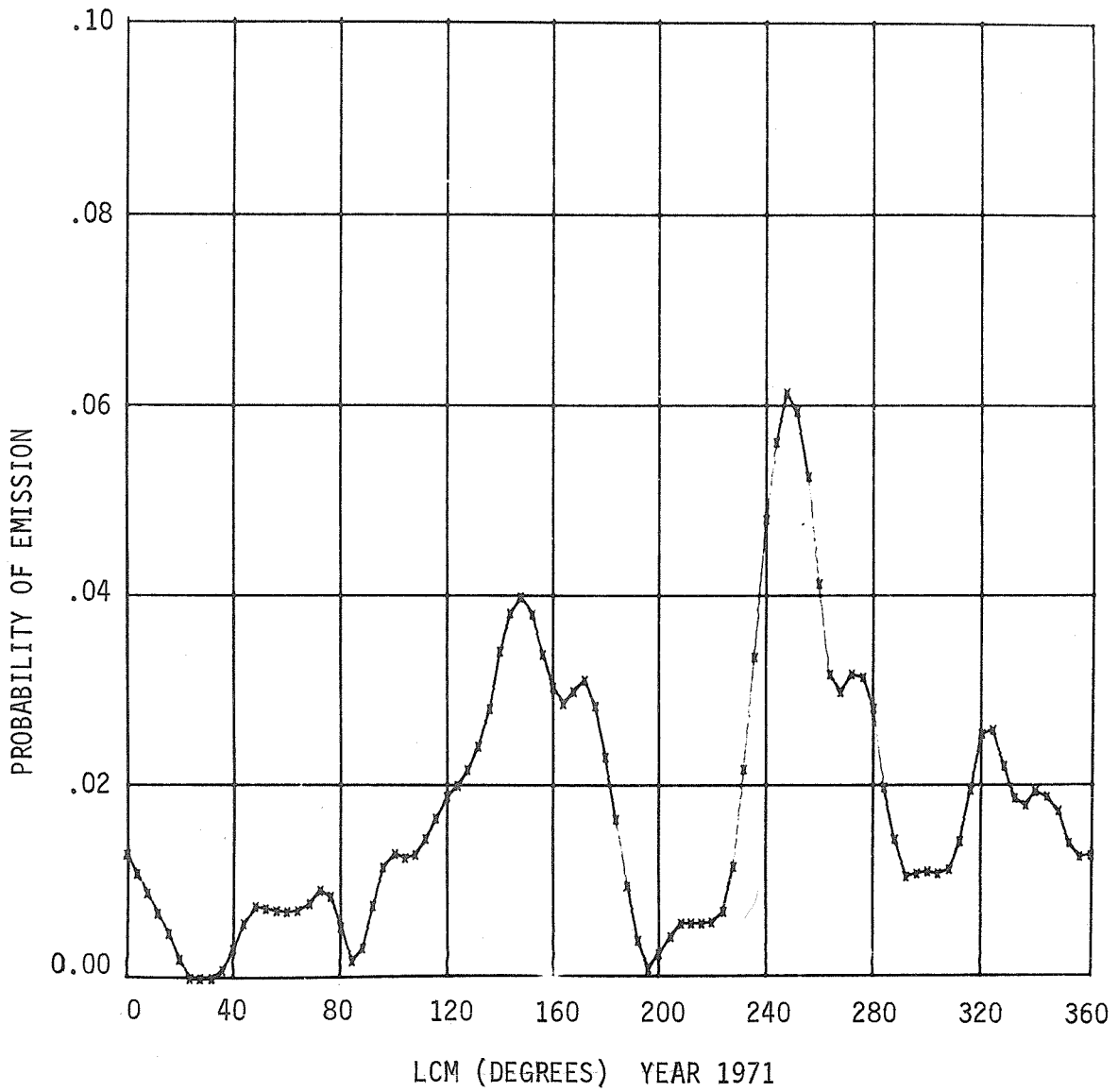


Fig. 22.

ERRATA TO REPORT UAG-25

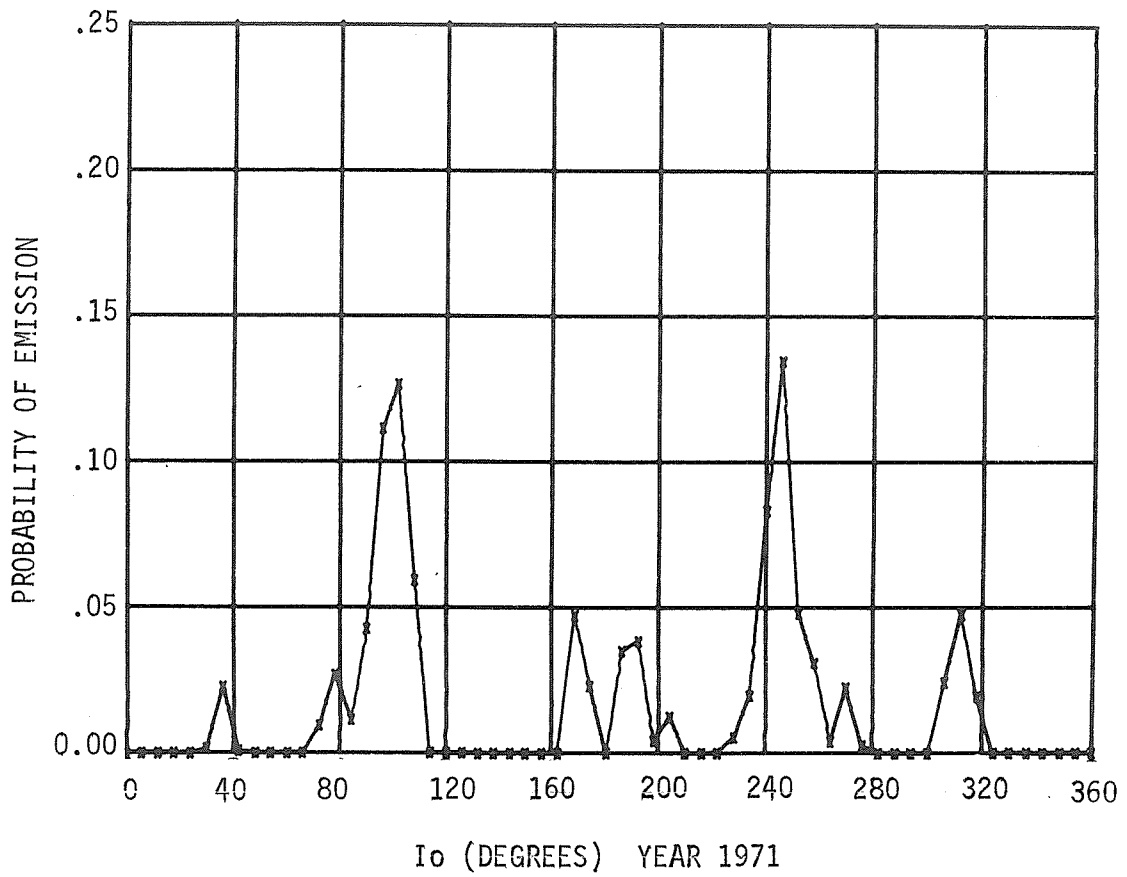


Fig. 23.

ERRATA TO REPORT UAG-25

$I_0$ , LCM PROBABILITY CONTOUR MAP, YEAR 1971, CONTOUR INTERVAL .10

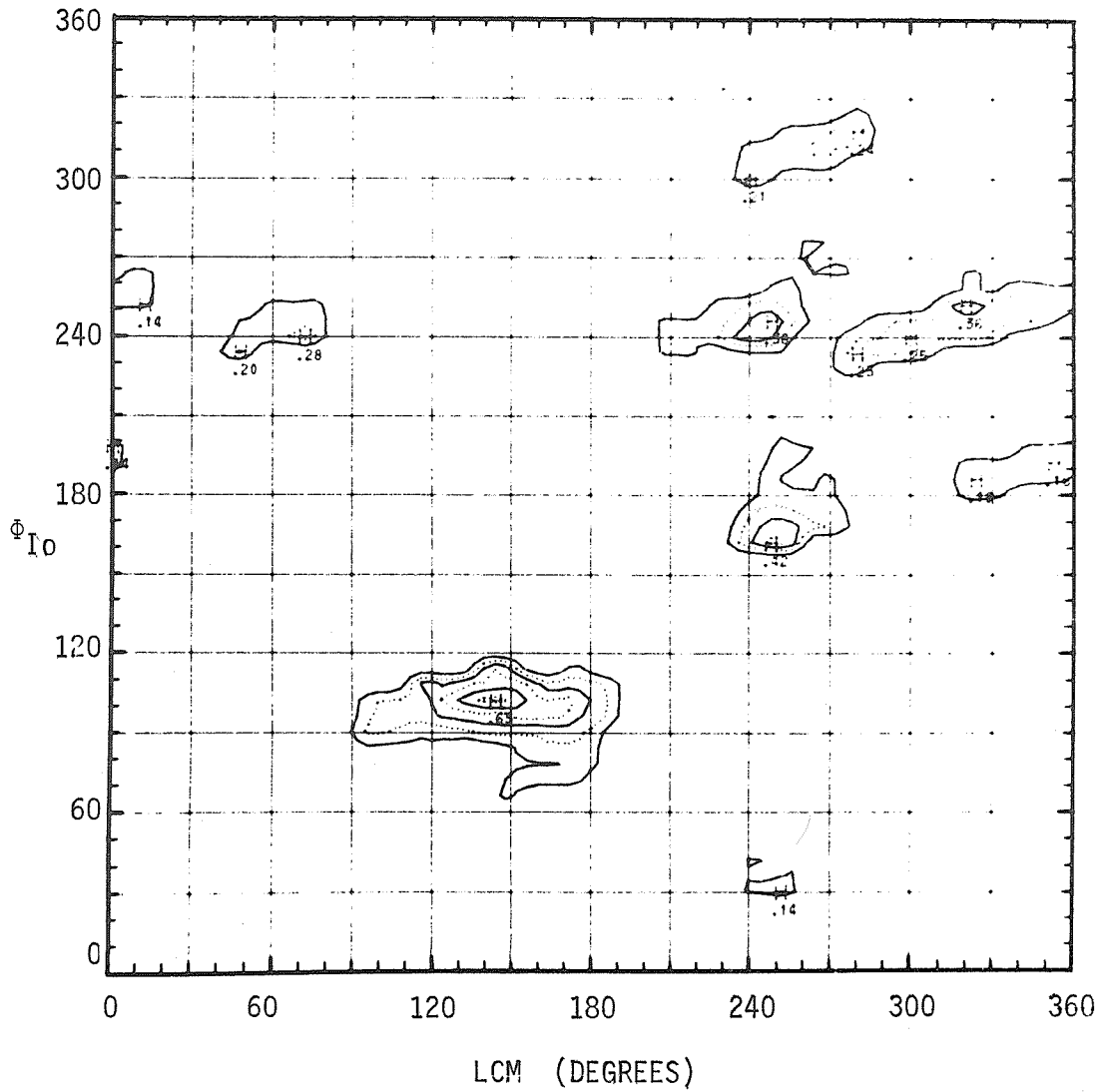


Fig. 24.

# NORMALIZED PROBABILITY OF EMISSION

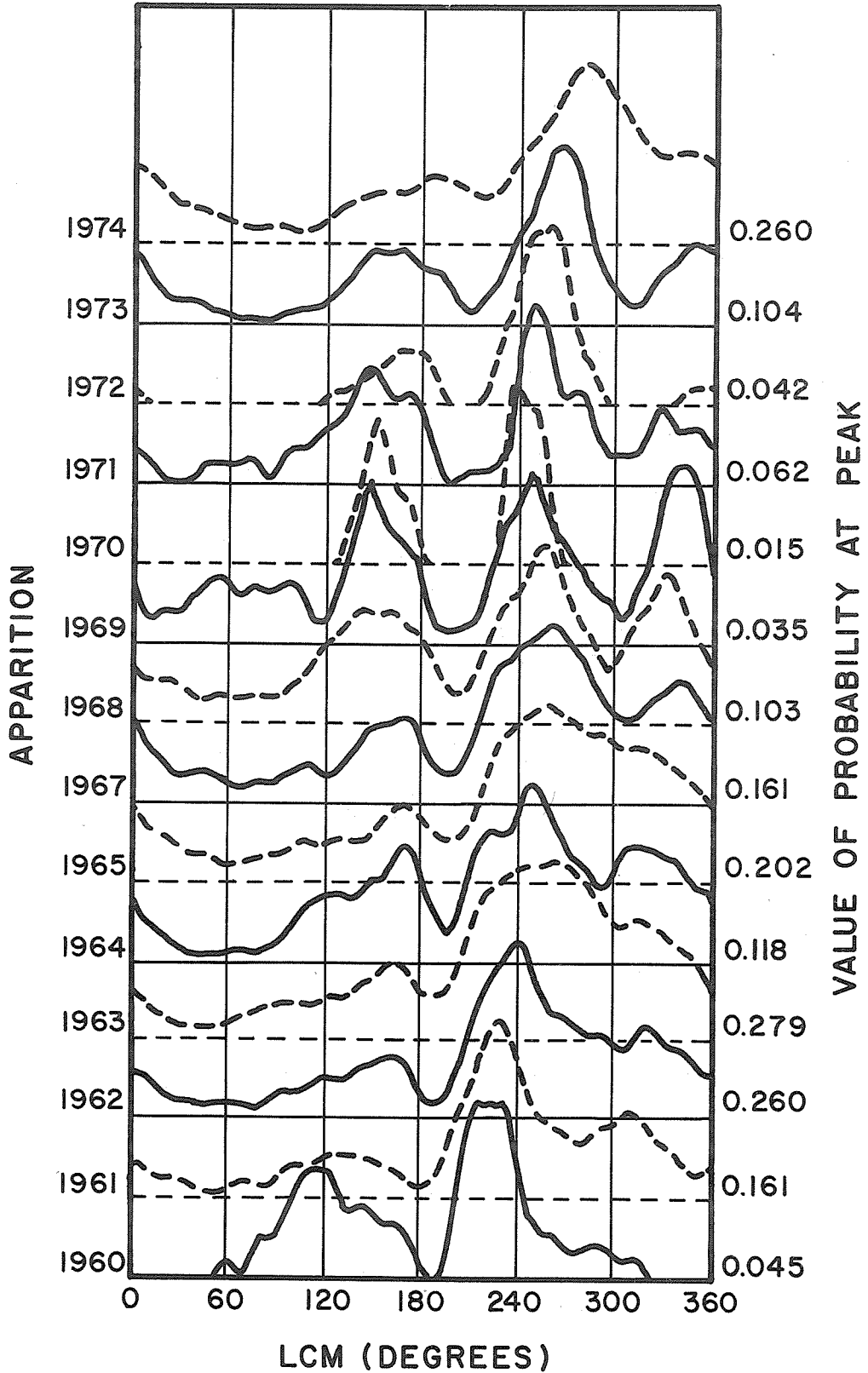


Fig. 25

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