

## SMALL-SCALE STRUCTURE OF THE MON R2 CLOUD CORE

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### INTRODUCTION

High-resolution mm continuum observations are especially well suited to detect clumpy structures in molecular clouds. In this paper we concentrate on the Mon R2 cloud core which is associated with a cluster of IR sources. Walker et al. (1990) made a 1.3 mm map with 30" resolution. They found an unresolved and elongated structure extending from NE to SW. Here, we discuss high-resolution continuum maps at 870 and 1300  $\mu\text{m}$  showing a rich clumpy structure on the scale of several 10 arcsec. The clumps are probably intimately linked to the star formation process in Mon R2.

### OBSERVATIONS

The MPIfR bolometer system was used at the IRAM 30-m MRT during February 1989 for mapping the Mon R2 cloud at 1300  $\mu\text{m}$  with a beam size of about 11". In September 1990 we obtained with identical equipment an 870  $\mu\text{m}$  map at SEST with an angular resolution of 18". Details of the mapping procedure, data reduction, and the results of subsequent photometry of the detected clumps are discussed elsewhere (Henning et al., 1992).

### SMALL-SCALE CLUMPS

In the Fig.1a and 1b we show the 870  $\mu\text{m}$  map and the 1300  $\mu\text{m}$  map. In both maps distinct dust clumps can be seen. This is especially the case in the 1300  $\mu\text{m}$  map. To check for coincidences, the positions of the IR sources after Hackwell et al. (1982) are also indicated. A Gaussian decomposition of the 1300  $\mu\text{m}$  leads to the position of seven clumps given in Table 1. IR sources are associated with five of the mm emission peaks, the identification of them is given in Table 1. The position of IR source d is after Aspin and Walther (1990), the positions of the other IR sources are after Hackwell et al. (1982). We would like to emphasize that our clump #1 has no NIR counterpart and may be a protostellar clump.

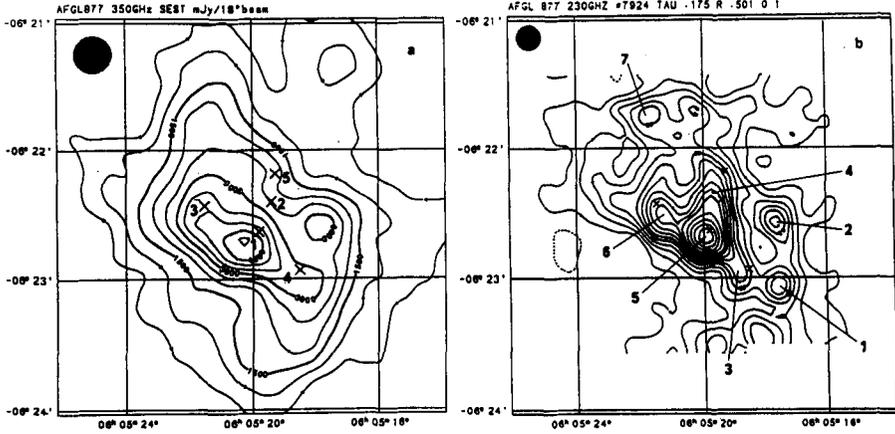


FIGURE I (a) 870  $\mu\text{m}$  map with 18'' resolution with the positions of the IR sources (crosses) and number after Hackwell et al. (1982) and (b) 1300  $\mu\text{m}$  MRT map with 11'' resolution and the location of the clumps marked by their numbers after Table 1

The clump #7 is located outside the NIR search field of Aspin and Walther (1990).

TABLE I Millimetre clump and infrared source positions

number	mm clump positions		name	positions of infrared sources	
	RA(1950) [h min s]	DEC(1950) [° ' "]		RA(1950) [h min s]	DEC(1950) [° ' "]
#1	06 05 17.48	-06 23 03.6			
#2	06 05 17.54	-06 22 34.8	d	06 05 17.3	-06 22 36.3
#3	06 05 18.92	-06 22 56.1	IRS 4	06 05 18.5	-06 22 56
#4	06 05 19.64	-06 22 20.8	IRS 2	06 05 19.4	-06 22 24
#5	06 05 19.93	-06 22 40.9	IRS 1	06 05 19.8	-06 22 38
#6	06 05 21.45	-06 22 32.6	IRS 3	06 05 21.5	-06 22 26
#7	06 05 21.84	-06 21 43.7			

REFERENCES

Aspin, C., and Walther, D.M. 1990, *A&A*, **235**, 387  
 Hackwell, J.A., Grasdalen, G.L., and Gehrz, R.D. 1982, *ApJ*, **252**, 250  
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 Walker, C.K., Adams, F.C., and Lada, C.J. 1990, *AJ*, **100**, 1892