

VLA SEARCH FOR OPTICALLY THICK H II REGIONS IN LUMINOUS EMBEDDED
INFRARED SOURCES

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We have searched for radio continuum emission at 15 GHz from a number of deeply embedded protostar like infrared objects, using the B configuration of the VLA. The aim was to get high resolution (1") and high sensitivity maps. For 10 objects (NGC 7538-IRS 3, GL 989, GL 4029-IRS 1, GL 437N, GL 2789, NGC 1333-IRS 13, S235B, GL 4029-IRS 2, R Mon and OMC2-IRS 3) we did not detect radio emission, the 3 upper limit being 0.3 - 0.5 mJy. Positive detections were made for W33A, OMC2-IRS 4, S 235-IRS 1 and NGC 6334V-IRS 4. The cleaned maps for these objects are shown in Figures 1-4.

For W33A the observed flux is 1.95 ± 0.25 mJy. Comparing the observed Br (4-m) line flux of 4.3×10^{-16} W m⁻² (McGregor *et al.* 1984) with that expected for a source of total luminosity equal to $10^5 L_{\odot}$ as given by FIR observations (Stier *et al.* 1984), we get an optical depth $\tau = 4$ which is consistent with the observed silicate optical depth $\tau = 7.8$ (Willner *et al.* 1982).

In NGC 6334V, we find a compact source (1.5 mJy) close to the centre of the 20-m source. We also find extended structure (7 mJy) corresponding to one of the 2-m bipolar lobes, IRS 4E (Harvey and Wilking, 1984). There is no radio emission seen at the position of IRS 4W.

In OMC2, the radio source with a flux density of 2.5 mJy is 20" from the centre of the extended 2-m source IRS 4. In S255, the 1.9 mJy compact radio source is within 3" of IRS-1. No counterpart of IRS-2 is seen.

REFERENCES

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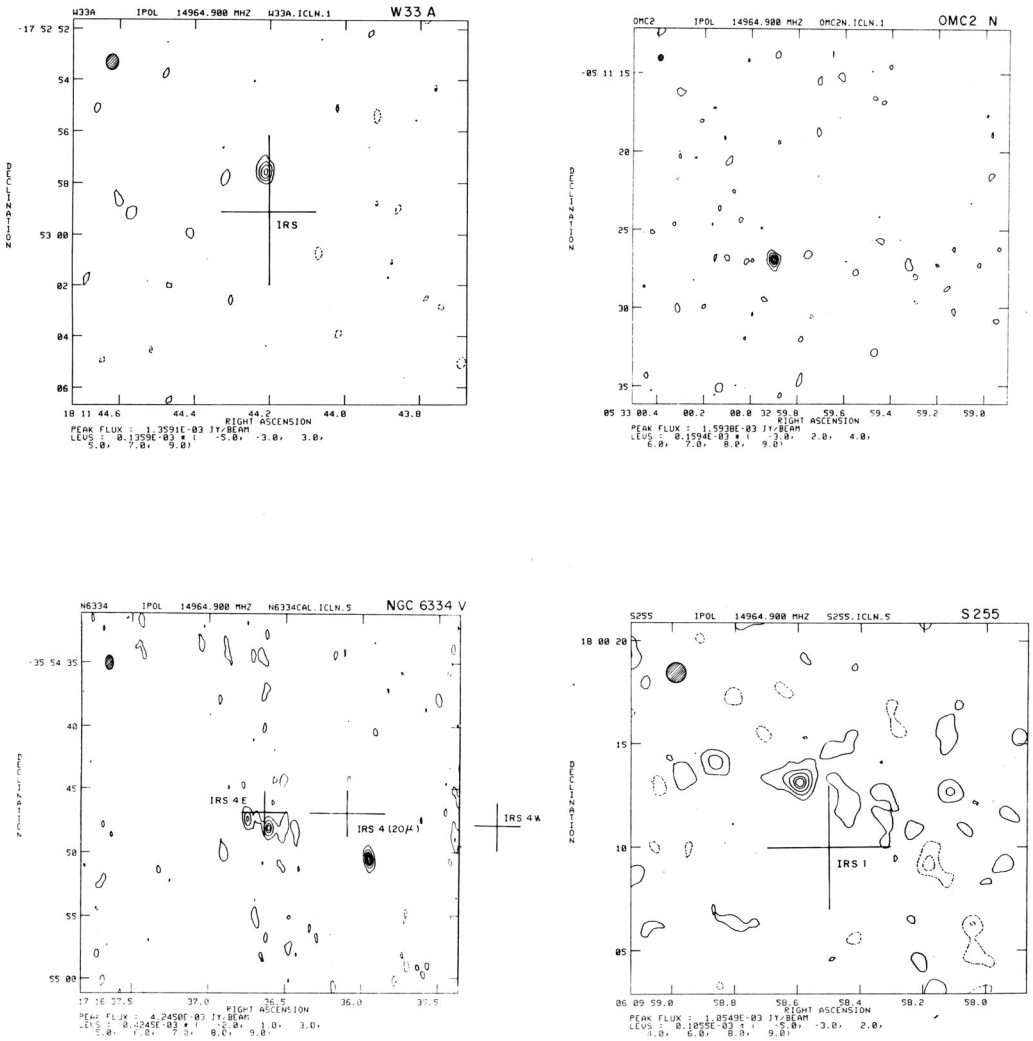


Figure 1-4 Radio continuum maps at 15 GHz. The large crosses denote positions of IR sources and their positional uncertainties.