



# Massive star formation: First results with ATCA at 3mm

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# ATCA observations at 3 mm (June - October 2002)

A large radio telescope dish is shown in the background, illuminated by the setting or rising sun. The moon is visible in the dark sky above the dish. The overall scene is a dusk or dawn landscape with silhouettes of trees in the foreground.

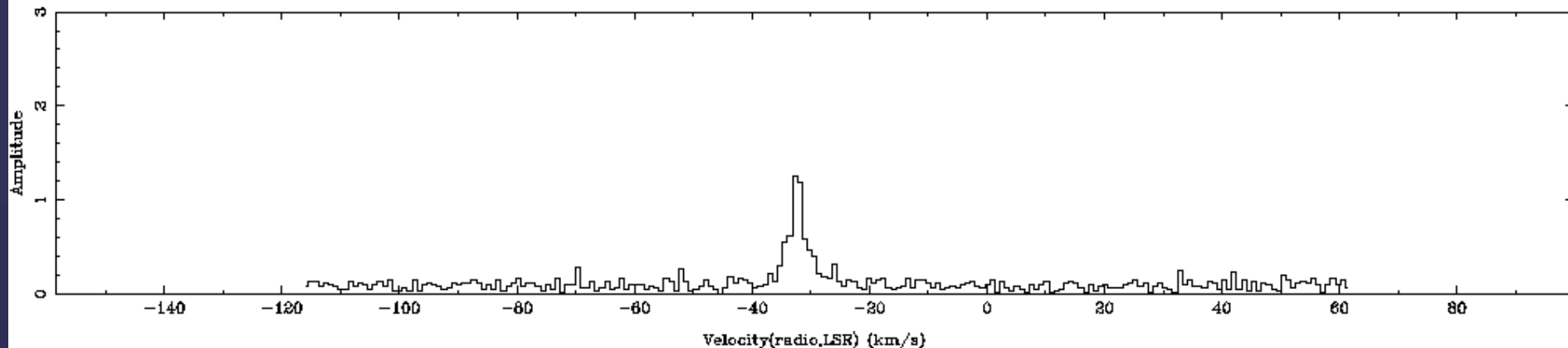
- Hot molecular cores and methanol masers
  - ➔ follow-up of UNSW/Mopra observations  
(UNSW + Tony Wong)
- 85.5 and 86.9 GHz methanol masers
  - ➔ follow-up of SEST/Mopra work by Cragg et al. + M117  
(UNSW + Tony + UTas + Monash)
- Continuum emission from dust grains
  - ➔ follow-up of SIMBA observations  
(UNSW)

# Hot molecular cores and 6.7 GHz methanol masers

- 80% methanol masers isolated from any radio source
- Hypotheses: high-mass protostars or non-ionising YSOs
- ATCA-3mm observations of spectral lines:

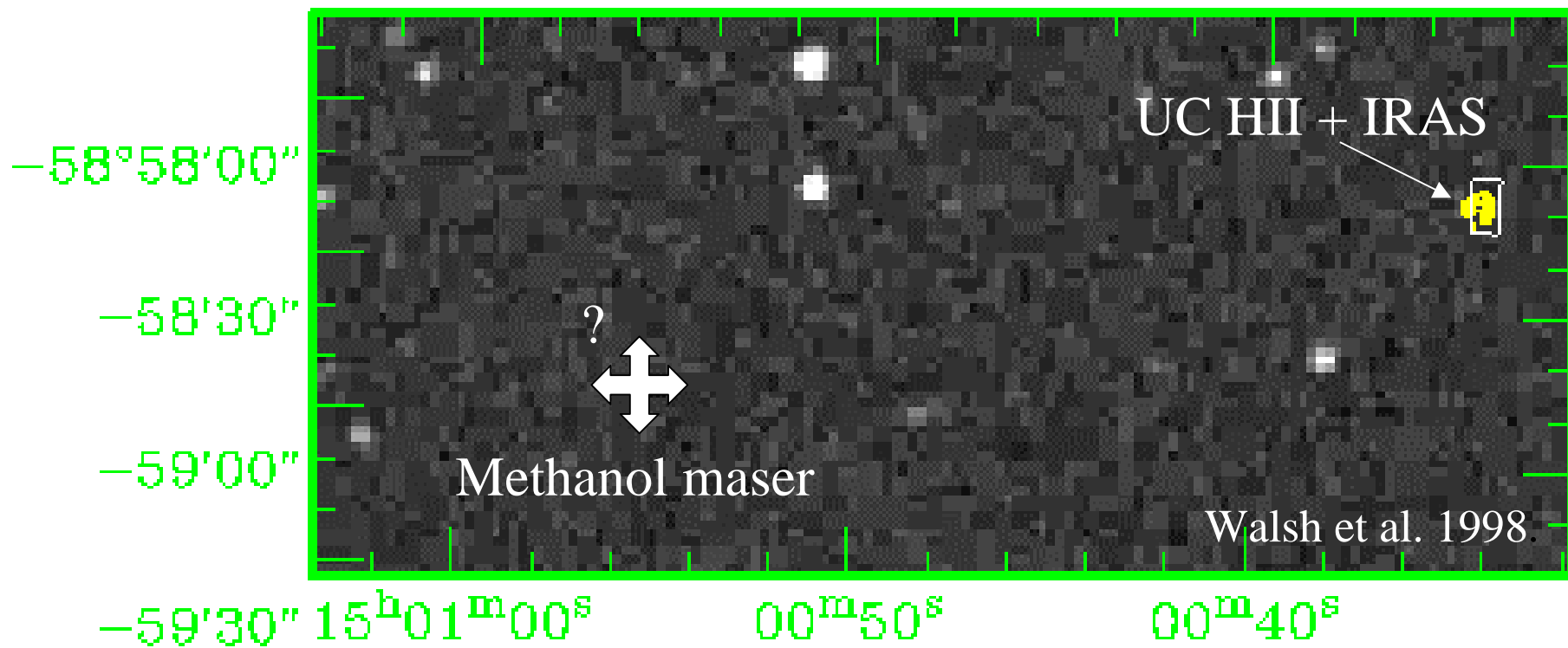
Do methanol masers trace hot molecular cores?

XX,  $\tau=212.2$  min, Bl=2-3, T=11:37:31



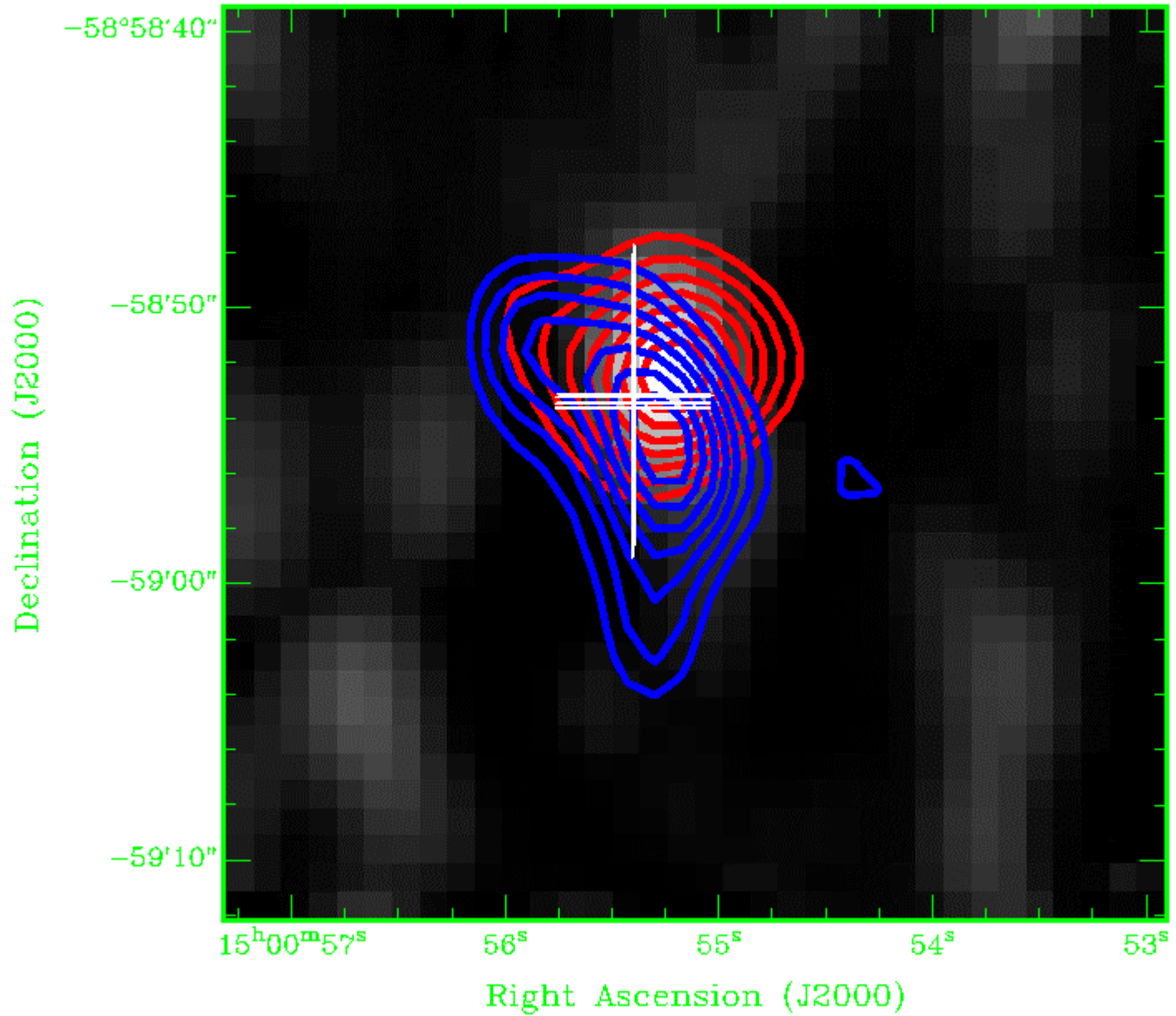
XX,  $\tau=212.4$  min, Bl=2-4, T=11:37:40

Declination (J2000)

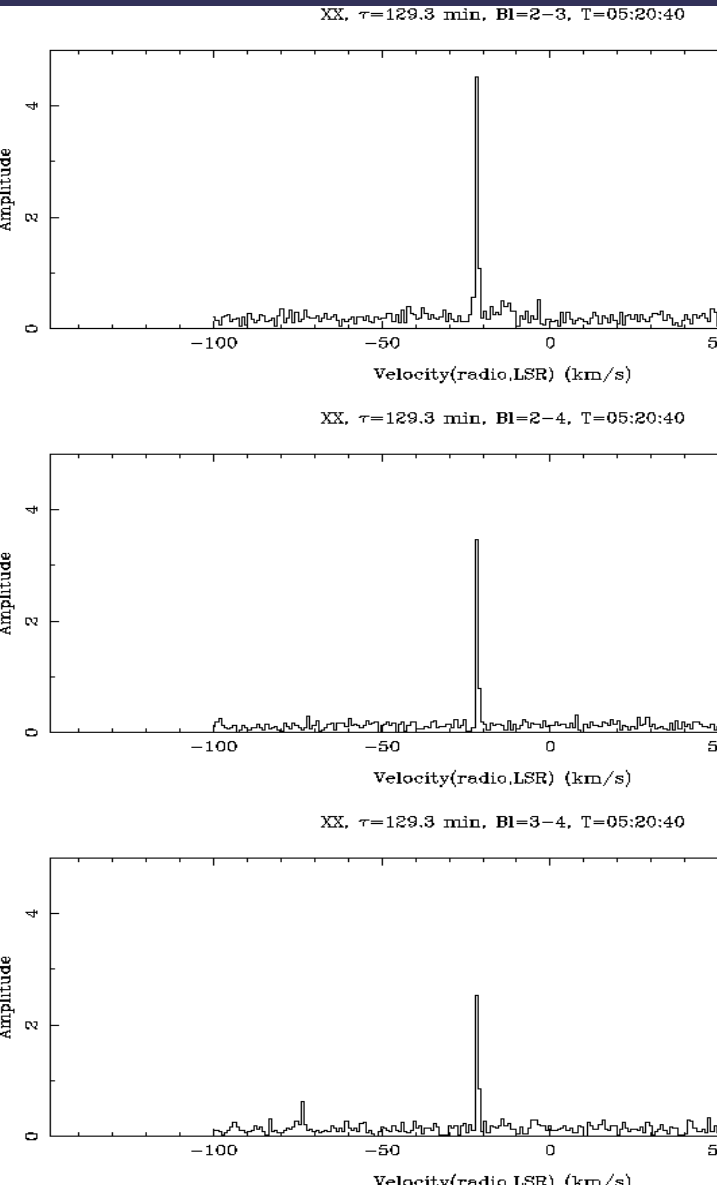


Right Ascension (J2000)

HCO+ overlaid on CH3OH



# 85.5 & 86.9 GHz methanol masers

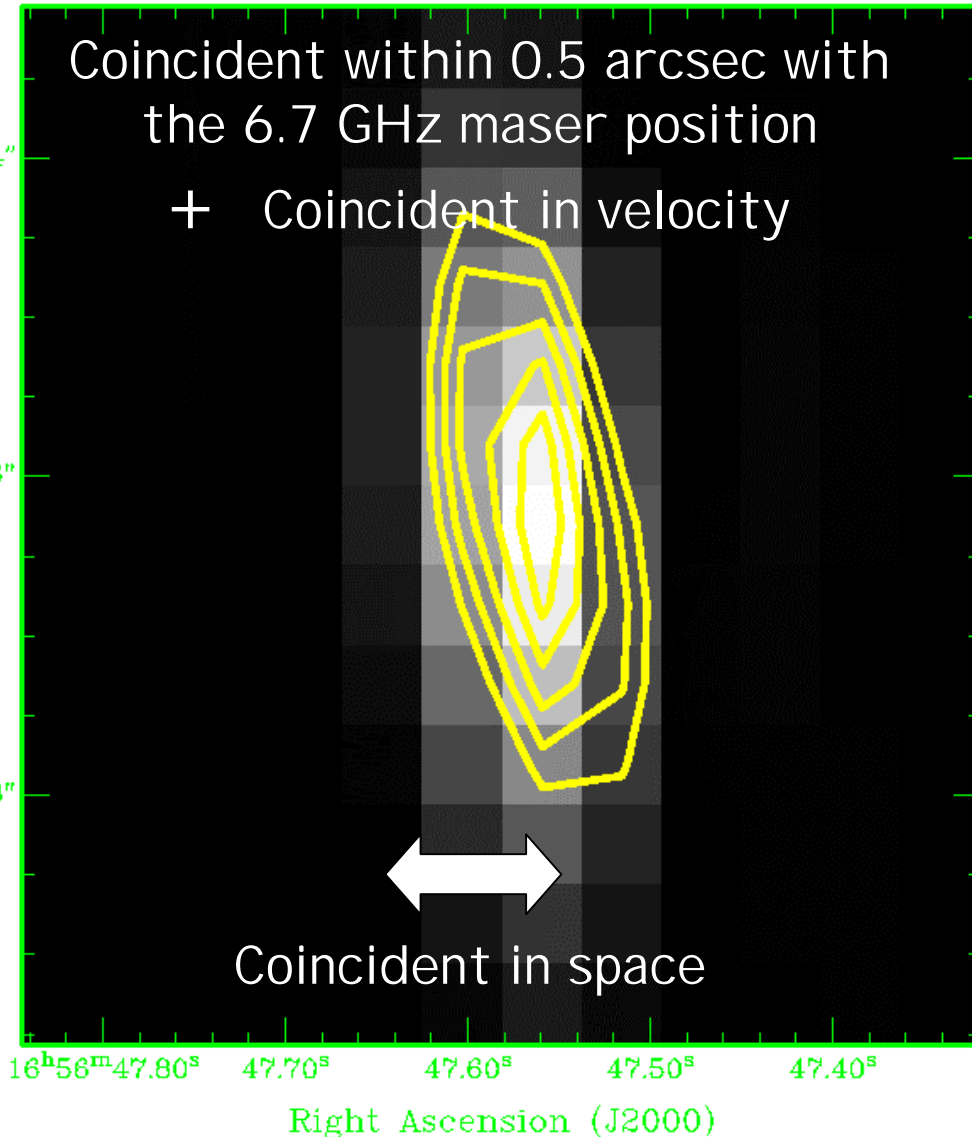


Declination (J2000)

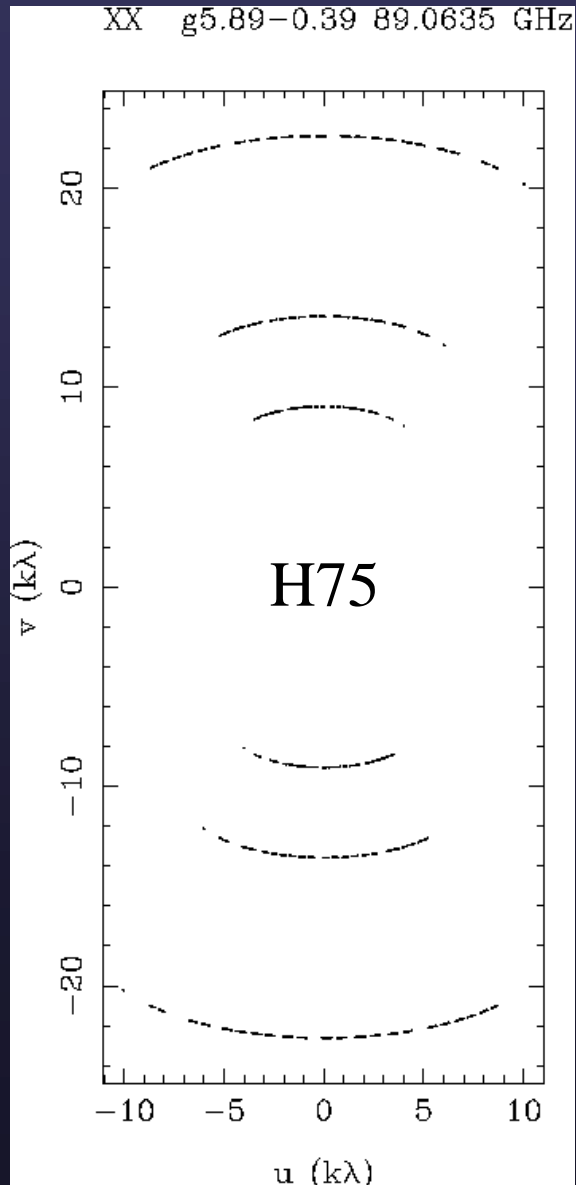
$-40^{\circ}14'24''$

$-26''$

$-28''$



# Continuum emission from dust grains



G5.89-0.39: methanol maser + UC HII

SIMBA@1.2 mm + ATCA@3 mm

