

High Angular Resolution Observations of Maser Kinematics Near Low Mass Young Stellar Objects

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Abstract. With the advent of new correlators and dedicated arrays, spectral line VLBI is entering its ascendancy as a probe of a variety of interesting astrophysical environments. One of the most interesting environments where spectroscopic VLBI techniques are valuable are the regions directly coincident with forming stars. In these sources, water maser emission is observed when the outflowing jets of material interact with the surrounding medium. Observations of these water masers dramatically reveal the innermost regions of the star formation process at or below the 1-AU scale.

We have found that the water masers clearly trace the jets at these scales. The masers show space motions on the order of 60 to 100 $km\,s^{-1}$ and form within a few AU of the exciting protostar. By observing the distributions and motions of the water masers associated with these objects, we may be able to address in greater detail the collimation mechanism of the jets seen in these protostars.

In this brief poster proceeding, we provide a summary image of the water masers associated with SVS13, the driving source for the HH 7-11 objects. We have also mapped the masers associated with IRAS 16293-2422, IRAS 05413-0104, IRAS 4A and IRAS 4B, both in the NGC 1333 star forming region. For further information on these sources, please contact any of the authors directly.

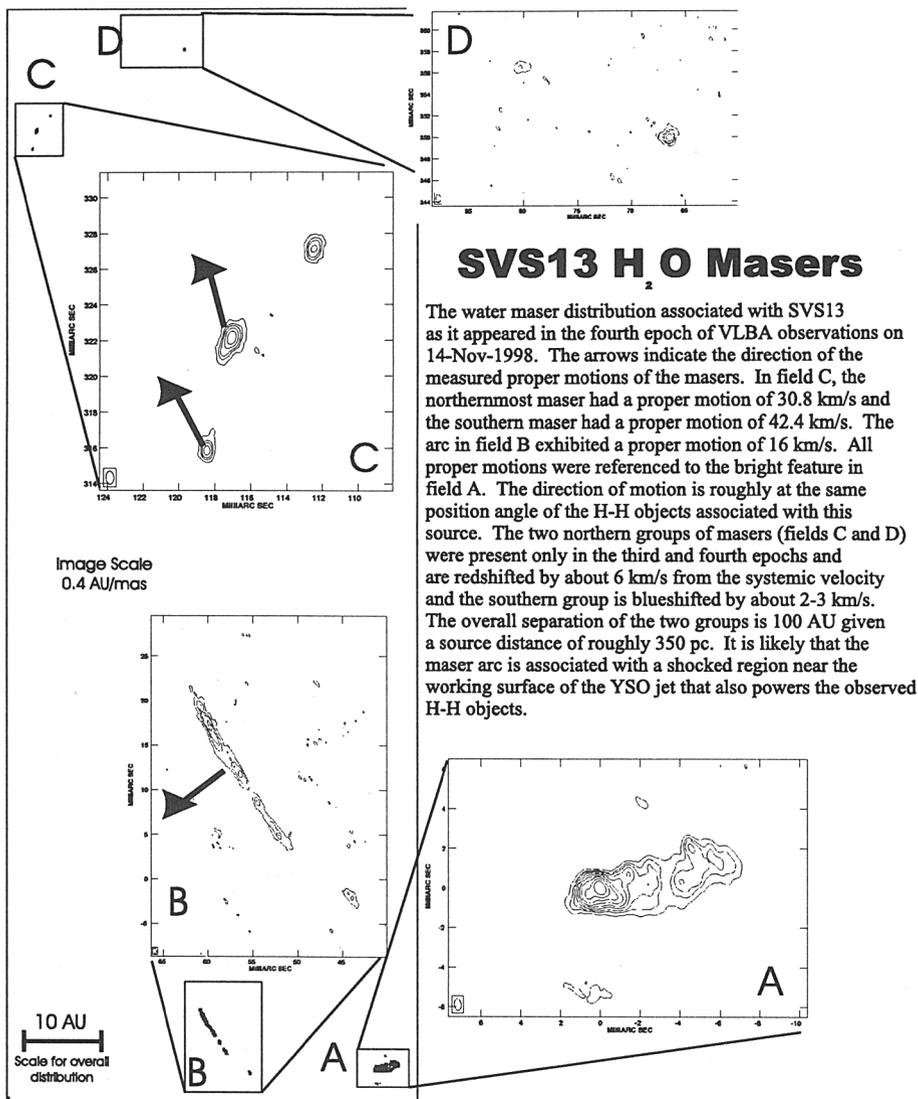


Figure 1. Summary graphic for SVS13 observations.