of two velocity clouds might have triggered the formation of this massive core and the burst of star formation.

CHARACTERISTICS OF H_2CO TOWARDS STAR-FORMING REGIONS

H.R. Dickel
Astronomy Department, University of Illinois, USA
W.M. Goss
Kapteyn Astronomical Institute, Groningen, The Netherlands
A.H. Rots
NRAO, Socorro, NM 87801, USA

Small clusters of recently-formed massive stars with their associated compact H II regions are often found embedded in the dense cores of molecular clouds. The H_2CO opacity is correlated with the compactness of the H II region and is especially high for those with associated maser activity although additional factors are involved for the ultracompact H II regions (UCH II) . VLA observations of H_2CO at 2 cm have been made towards the UCH II regions of W49-north. The highest H_2CO opacity of 1.0 is found towards region A which does not have maser activity; yet one of the most compact region C, has an H_2CO opacity of only 0.3. For these sources the integrated H_2CO opacity (over the entire profile) may be more indicative of compactness. This may be due to the broader H_2CO lines which can occur towards the maser regions. For example, large line widths of 10 to 12 km s^{-1} are found towards W49-north G where the most intense water masers are located and towards W49-north B which has OH masers. The H_2CO line with the highest 2 cm opacity of 2.5 and a narrow width of 2 km s^{-1} is found towards the UCH II region ON 3 which has only weak H_2O maser emission.

The continuum emission of UCH II regions often exhibits a shell or torus-like structure which is indicative of extreme youth. A prime example is W3 OH for which the surrounding molecular gas shows a similar structure. Its high density was detemined from analysis of both the 2 cm and 6 cm transitions of H_2CO. The size and morphological appearance of ON 3 is similar to W3 OH. the maximum opacity at 2 cm occurs at one edge of the continuum maximum and may also indicate a torus-like structure for the molecular gas.

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