METHANOL EMISSION FROM LOW MASS PROTOSTARS

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During the formation of a star, the gas undergoes important changes, both on a physical and chemical point of view. In the prestellar phase, the gas is heavily depleted by accretion on grain mantles. When the gravitational collapse starts, the protostar gradually warm up the gas, while ice mantles molecules are released into the gas phase. These released molecules trigger then the formation of more complex molecules through rapid reactions in the warm gas. In this contribution, we present observations of methanol lines in a sample of Class 0 low mass protostars. Using a 1-D radiative transfer model, we derive the abundances in the envelopes and show that in two sources of our sample, the methanol abundance are two order of magnitude higher in the inner hot region of the envelope than in the outer region. We suggest that these high methanol abundances reflect evaporation of ices due to the heating by the newly formed star. We discuss the implications on the formation of this molecule.