

Atomic carbon mapping of molecular clouds: a comparison to various molecular emissions

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To investigate the role of interstellar turbulence in star formation, we have extended our molecular line mappings (see presentation by M. Cunningham) to atomic carbon [C I] mapping of molecular clouds. Our [C I] mapping programme covers star forming regions in the giant molecular clouds toward G333 and Vela C. In this presentation we focus on the comparison of [C I] emission to various molecular lines.

Our results show that [C I] has similar distribution to ¹³CO on large scale, but matches C¹⁸O well at peak emission positions. However, [C I] has various degree of different spatial distributions to other molecules, including but not limited to CS, C₂H, HCO⁺, HNC, and a very different distribution to N₂H⁺. In combination with images at other wavelengths, we will discuss possible causes of different distributions and their relations to turbulence.