

The structure of cirrus clouds at different galactic altitudes

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Galactic cirrus clouds, often also called high-latitude clouds, span a wide range of physical parameters, some of them consist of pure atomic gas; other are partly molecular. Cirrus clouds can be separated into three classes:

- Low-velocity clouds: distances approx. 100pc, velocity: $|v| < 20\text{km/s}$
- Intermediate-velocity clouds (IVC): distances $< 1000\text{pc}$, velocities: $20\text{km/s} < |v| < 100\text{km/s}$
- High-velocity clouds (HVC): distances $> 1000\text{pc}$, velocity: $|v| > 100\text{km/s}$

The origin of the last two classes is completely unknown. The different distances to the plane of our Galaxy make cirrus cloud ideal targets, to study the formation and structure of molecular clouds in different environments and also to study the structure of our Galaxy and its halo. They might help to answer the questions, how the structure of a molecular cloud influences the formation of stars and how it is linked to the IMF. Much of the structure of a cloud can be deduced from the transition region from H to H₂ and from C⁺ over C to CO. As an example we discuss ISO CII observations of a line of sight to a HVC and describe, why spectrally resolved CII observations, as possible with HIFI on board of FIRSAT, are needed to learn more about the structure of the clouds and about their environment.