



## **Inhomogeneities in frontal cirrus clouds**

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Frontal cirrus clouds have a scientifically proven effect on the Earth's radiation budget and thereby an influence on the weather and climate change in regional scale. The formation processes and structures of frontal cirrus clouds are still not fully understood.

For a close investigation of typical frontal cirrus clouds, we use in situ measurements from the CIRRUS-III campaign over Germany and Northern Europe in November 2006. Besides water vapour, cloud ice water content, ice particle size distributions, condensation nuclei, and reactive nitrogen were measured during 6 flights.

In this work the data of the 24th November flight is used to detect and to analyze warm frontal cirrus clouds in the mid latitudes on small temporal and spatial scale. Further, these results are compared with large-scale meteorological analyses from ECMWF and satellite data. Combining these data, the formation and evolution of inhomogeneities in the cirrus cloud structure are investigated. One important result is a qualitative agreement between the occurrence of cirrus clouds and the 'sharpness' of the Tropopause Inversion Layer (TIL).