



## **Retrieval of microphysical cloud parameters from IR spectra measured in the Arctic in Summer 2017**

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Clouds influence the atmospheric energy budget. An increasing amount of the cloud water content leads to higher fluxes in longwave radiation, whereby a saturation in longwave sensitivity occurs at a liquid water path ( $LWP$ ) of approximately  $40 \text{ g} \cdot \text{m}^{-2}$ .

Also the shortwave radiative effect of the cloud changes with increasing water content, due to albedo effects. In the arctic, approximately 80% of the clouds contain less than  $LWP = 100 \text{ g} \cdot \text{m}^{-2}$  and are so called liquid thin clouds. This makes accurate cloud observation to be an important task in atmospheric observation and for understanding the climate change.

Microwave radiometer (MWR) cannot retrieve low amounts of liquid and ice water, because they have an error up to  $30 \text{ g} \cdot \text{m}^{-2}$  for liquid water. To fill this gap, FT-IR spectrometers can be used for cloud observations (Turner et al. 2007).

In this talk, the developed retrieval will presented and first results will be discussed.