

**Master thesis, Supervisor: Andreas Wieser, Jan Handwerker**

**Extracting cloud base heights from Doppler-Lidar measurements**

The scanning Doppler-Lidars of IMK-TRO are mainly applied to determine wind information. Their uncalibrated (but quite stable) backscatter data are used to separate reliable from unreliable measurements. Nevertheless, these backscatter measurements are very similar to ceilometer measurements. Ceilometers are used to measure cloud base heights, cloud depth and further properties of clouds.

Within this **master thesis**, routines to gather these cloud related properties from the backscatter data shall be derived/adopted at least for the vertical oriented measurements. Potentially, even measurements on scan pattern with inclined beam can be used, which then give access to spatial variations of cloud base heights and cloud coverages. Finally, the statistics of these spatial distribution can be compared to the distribution of temporal variations observed with the ceilometer.

Combined lidar measurements (backscatter) and ceilometer measurements (backscatter and derived cloud properties for up to three cloud layers) are available from several measuring campaigns with KITcube. There are matlab routines to read and process these data. Thus, we prefer a candidate with some experience with matlab.