



## **Performance and Intercomparison of two Ice Nucleus Counters.**

**H. Bingemer (1), B. Nillius (2), R. Jaenicke (2), H. Klein (1), T. Wetter (1) and U. Bundke (1)**

1. Institute for Atmospheric and Environmental Sciences, J. W. Goethe-University, Frankfurt/M., Germany, (2) Institute for Atmospheric Physics, J. Gutenberg-University, Mainz, Germany

Precipitation from mixed phase clouds develops by the growth of cloud ice crystals at the expense of evaporating water drops in what is called the *Bergeron-Findeisen Process*. Ice nuclei (IN) initiate the formation of primary ice in such tropospheric clouds. However, their role in the development of clouds and precipitation is quantitatively still poorly understood, and deserves further experimental and theoretical investigation.

This work intercompares the performances of two instruments and experimental techniques for the measurement of atmospheric ice nuclei: a) the Fast Ice Nucleous Chamber FINCH for the continuous, contact-free in situ-measurement of IN, and b) the Frankfurt Ice Deposition Freezing Experiment FRIDGE for the off-line analysis of ice nuclei collected on substrates. While the latter technique may be used to study IN on a time scale of hours to characterize an airmass, in situ-methods are required to study the microphysics of cloud development on the scale of minutes.

The presentation intercompares both techniques from parallel measurements under environmental and laboratory conditions. The data used are from field experiments like the CLACE 6 campaign at the research station Jungfraujoch (Switzerland), from Mt. Kleiner Feldberg (Germany), as well as from the sampling of laboratory test aerosols.