



A new, small and fast Frost- and Dew Point Hygrometer for Use in atmospheric applications including super saturated Cloud Conditions

U. Bundke , H. Bingemer, T. Wetter and R. Rossberg

Institut für Atmosphäre und Umwelt, University of Frankfurt, Georg Voigt Str. 14, 60325 Frankfurt , Germany (Contact: bundke@meteor.uni-frankfurt.de)

Within the collaborative Research group SFB 641 The tropospheric Ice Phase - TROPICE, our group is developing an ice nucleus (IN) counter, called the FINCH (Frankfurt IN Chamber).

IN particles are activated within the chamber at controlled ice super saturation and controlled temperature by mixing three gas flows comprising warm moist air, cold dry air, and the aerosol sample air. In order to actively control the water vapor content and the super saturation, we have to measure the dew point with a high temporal resolution in the mixing area. Therefore we developed a dew point measurement system on the basis of a dew-sensor chip, which has been developed by the CIS-Institute, Erfurt, Germany.

In contrast to commercial available systems, this system is small, fast and able to measure in water super saturated surroundings with a high precision and a high temporal resolution. The device was first tested at the AIDA Chamber in Karlsruhe, Germany and during the measurement campaign CLACE 5 at the High Altitude Research Station Jungfraujoch, Switzerland 3580 m above sea level. Because of its small dimensions, this device is suitable for applications on balloon or aircraft platforms.

This presentation will show the characteristics of this device.

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