



## **Chemical and physical characterization of fertile soil-derived ice residuals from the Fifth International Ice Nucleation workshop in November 2014 (FIN-1)**

Naruki Hiranuma (1,2), Ottmar Möhler (1), Gourihar Kulkarni (3), Alexander Laskin (3), Alla Zelenyuk (3), and the INUIT/FIN-1 Team

(1) Institute of Meteorology and Climate Research – Atmospheric Aerosol Research, Karlsruhe Institute of Technology, Karlsruhe, Germany, (2) Dept. of Life, Earth and Environmental Sciences, West Texas A&M University, Canyon, TX, USA, (3) Pacific Northwest National Laboratory, Richland, WA, USA

The climate impact of ice-nucleating particles (INPs) derived from fertile soils on global scale has been recently accentuated by their diversity and efficient freezing ability. However, their representation in atmospheric models is limited in part due to our incomplete knowledge of fertile soil composition, abundance and associated sensitivity to heterogeneous ice nucleation. To fill given knowledge gap, we have investigated a unique/rich set of ice crystal residual samples derived from a variety of fertile soil samples obtained through our participation in the Fifth International Ice Nucleation workshop (FIN-1). FIN-1 was held at the Aerosol Interaction and Dynamics in the Atmosphere (AIDA) facility at Karlsruhe Institute of Technology (KIT), which is the world's foremost facility for studying ice clouds in a controlled setting, in November 2014 to comprehensively study the heterogeneous ice formation in the atmosphere with collaboration among 10 international groups that were funded through European consortium, NSF and USDOE agencies. Here, we will present the nanoscale surface morphology and elemental/molecular composition of ice crystal residuals as well as that of total aerosol samples from the FIN-1 activity to identify and classify any specific mineral and organic inclusions that may have promoted nucleation of ice. Comparing total aerosols to residuals will shed light on the composition and abundance of certain particle types in INPs.

**Acknowledgements:** The valuable contributions of the INUIT (Ice Nuclei Research Unit) collaborators, the FIN organizers, their institutions and the FIN-1 Workshop science team are gratefully acknowledged.