INUIT (Ice Nuclei research Unit) was a research unit funded by the German National Science (DFG) aiming at the investigation of heterogeneous freezing processes in the atmosphere. Within the research unit, both atmospheric and laboratory measurements were carried out. Based on the measured data, parameterizations for use in atmospheric models were developed and tested in the framework of case studies. INUIT went on until 2018. Within INUIT, TROPOS has been engaged in two research projects (RPs):

RP2: This project was carried out in collaboration between TROPOS and the Max Planck Institute, for Chemistry in Mainz (Johannes Schneider). Goal of this project was the physical and chemical characterization of atmospheric ice nuclei (IN) and small ice particle residuals (IPR). This was achieved by combining a counter flow virtual impactor (CVI, counterflow virtual impactor) with online mass spectroscopy, and measurements of aerosol physical properties such as particle size. Atmospheric ice particle residues sampled from real clouds as well as INP activated by means of an ice nucleus counter were considered.

RP6: Goal of this project was the quantification of the immersion freezing behavior of size selected pure, and surface modified ice nucleation particles (INP). As well mineral dusts as biogenic dusts were investigated. Additionally, the second project phase had a stronger focus on more atmospherically relevant INP. Furthermore, parameterizations for the description of immersion freezing processes in atmospheric models were developed. The measurements were carried out at LACIS (Leipzig Aerosol Cloud Interaction Simulator).

TROPOS results achieved in the framework of INUIT can be found in:

Hartmann et al. (2013), Immersion freezing of ice nucleating active protein complexes, Atmos. Chem. Phys., 13, 5751-5766.

Wex et al. (2014), Kaolinite particles as ice nuclei: learning from the use of different kaolinite samples and different coatings, Atmos. Chem. Phys., 14, doi:10.5194/acp-14-5529-2014.
