



## **Ice nucleation active particles in continental air samples over Mainz, Germany**

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Aerosol particles are of central importance for atmospheric chemistry and physics, climate and public health. Some of these particles possess ice nucleation activity (INA), which is highly relevant for cloud formation and precipitation.

In 2010, air filter samples were collected with a high-volume filter sampler separating fine and coarse particles (aerodynamic cut-off diameter  $3 \mu\text{m}$ ) in Mainz, Germany. In this study, the INA of the atmospheric particles deposited on these filters was determined. Therefore, they were extracted with ultrapure water, which was then measured in a droplet freezing assay, as described in Fröhlich-Nowoisky et al. (2015). The determined concentration of ice nucleators (INs) was between 0.3 and 2 per  $\text{m}^3$  at 266 K, and between 5 and 75 per  $\text{m}^3$  at 260 K.

The INs were further characterized by different treatments, like heating (308 K, 371 K), filtration ( $0.1 \mu\text{m}$ , 300 kDa), and digestion with papain (10 mg/ml). We further investigated, which atmospheric conditions (e.g. weather) and distinguished events (e.g. dust storms, volcanic eruptions, and pollen peaks) influenced the number and nature of these INs.

Fröhlich-Nowoisky, J., Hill, T. C. J., Pummer, B. G., Yordanova, P., Franc, G. D., and Pöschl, U.: Ice nucleation activity in the widespread soil fungus *Mortierella alpina*, *Biogeosci.*, 12, 1057-1071, doi:10.5194/bg-12-1057-2015, 2015.