This experiment is a heterogeneous ice nucleation experiment at the AIDA cloud chamber. For that, the aerosol is injected into the chamber via a e.g. rotating brush generator. Before the actual ice nucleation experiment, the size distribution of the injected aerosol is measured with a Scanning Mobility Particle Sizer (SMPS) and an Aerodynamic Particle Sizer (APS) (Niemand et al., 2012). This data can be found in the file **_aerosolSD.edf*.
To observe heterogeneous ice nucleation, the AIDA cloud chamber is evacuated. Hence, the chamber volume (humidified air and dispersed aerosol) expands and causes an adiabatic temperature and pressure decrease, and thus an increase in humidity. After some time of evacuation, the moist air becomes saturated wrt. ice and/or water and forms a cloud. Thereby, the aerosol particles in the chamber air might act as Cloud Condensation Nuclei (CCN) or Ice Nucleating Particle (INP). The observed cloud in the chamber is then either a pure ice cloud or a supercooled liquid cloud or a mixed-phase cloud. The time series of the pressure, temperature, relative humidity wrt. ice and water, aerosol number concentration, and total particle and ice particle number concentration can be found in the file **_experiment_timeseries.edf*. A more technical description of the AIDA cloud chamber and the experimental procedure can be found in e.g. Moehler et al. (2005, 2006), Benz et al. (2005), or Wagner et al. (2012).
Finally, from the measured ice particle number concentration n_{ice} and the aerosol particle number concentration n_{ae} the ice active fraction f_{ice}

$$f_{ice}(T,S_i)=\frac{n_{ice}(T,S_i)}{n_{ae}}$$

and the Ice Nucleation Active Surface site (INAS) density n_S

$$n_S(\mathrm{T},\mathrm{S_i})=\frac{f_{ice}(T,S_i)}{S_{ae}}=\frac{n_{ice}(T,S_i)}{s_{ae}} \text{ in m}^{-2}$$

can be calculated (e.g. Ullrich et al., 2017, Niemand et al., 2012, Hoose and Moehler, 2012). S_{ae} is the total aerosol surface area und s_{ae}=S_{ae}*n_{ae} the aerosol surface area concentration. The f_{ice} and n_S data can be found in **_fice_inas.edf* for the time of observed heterogeneous ice nucleation.

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