

Research Project

Relevance of biological particles in atmospheric ice formation at moderate supercooling

Third-party funded project

Project title Relevance of biological particles in atmospheric ice formation at moderate supercooling

Principal Investigator(s) [Conen, Franz](#) ;

Project Members [Mignani, Claudia](#) ;

Organisation / Research unit

Departement Umweltwissenschaften / Umweltgeowissenschaften (Alewell)

Department

Project start 01.04.2017

Probable end 31.05.2021

Status Completed

Most precipitation over continents begins with ice formation in clouds. Biological ice nucleating particles (INPs) probably dominate ice formation at moderate supercooling (>-15 °C), but direct evidence is extremely limited because of experimental challenges related to small INP number concentrations. Here, we propose two novel experiments to solve the issue. One includes three campaigns, four weeks each, at the high-altitude research station Jungfraujoch to sample and analyse cloud droplets and snow, account for riming and analyse normalised differential freezing spectra. The second experiment, including two four-week campaigns in northern Norway, will trace abundance and morphology of INPs from decaying leaf litter through the boundary layer to depositing ice crystals at cloud height. Both experiments have the potential to directly show whether biological particles play a relevant role in cloud ice formation or not.

Keywords Arctic; mixed phase cloud; Jungfraujoch; primary biological aerosol particles; ice nucleation

Financed by

Swiss National Science Foundation (SNSF)

Follow-up project of [1121996 Biological ice nucleators at tropospheric cloud height](#)
[2820399 Biological ice nucleators at tropospheric cloud height \(4th year\)](#)

Add publication

Add documents

Specify cooperation partners