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Cloud condensation nuclei (CCN) concentrations and efficiencies on Jungfraujoch during the CLACE-5 campaign

D. Rose (1), G. P. Frank (1), U. Dusek (1), M. Gysel (2), E. Weingartner (2), S. Walter (3), J. Curtius (3), and U. Pöschl (1)

(1) Max Planck Institute for Chemistry, Biogeochemistry Department, Mainz, Germany, (2) Paul Scherrer Institut, Villigen, Switzerland, (3) Max Planck Institute for Chemistry, Particle Chemistry Department, Mainz, Germany, (rose@mpch-mainz.mpg.de / Fax: +49 6131 305 487 / Phone: +49 6131 305 376)

The influence of aerosol particles on clouds and precipitation is one of the central questions of current atmospheric and climate research. The cloud condensation nuclei (CCN) activity and its relation to other properties of aerosol particles from different sources and regions are, however, not yet well characterized.

In this study, CCN concentrations and efficiencies were measured as a function of water vapor supersaturation and particle diameter on Mt. Jungfraujoch (3570 m asl) in the Swiss Alps. The measurements were part of the Cloud and Aerosol Characterization Experiment (CLACE-5) and took place in February and March 2006.

First results show that for supersaturation levels of 0.1-0.9% the total concentration of CCN was in the range of 10-200 cm^{-1}, corresponding to 1-15 % of the total aerosol particle number concentration. The diameters at which 50% of the aerosol particles are activated as CCN (D_{50}) were in the range of 35-145 nm.