

Name of research institute or organization:

Institute for Atmospheric and Climate Science, ETH Zurich

Title of project:

Field measurements of atmospheric ice nuclei and properties of mixed phase clouds

Project leader and team:

Dr. Olaf Stetzer, Dr. Berko Sierau, and Prof. Ulrike Lohmann, project leaders
Cédric Chou, Jan Henneberger

Project description:

The cloud physics group at ETH Zurich has developed various instruments to measure ice nucleation and the properties of ice nuclei, ambient aerosols, and ice crystals. The Portable Ice Nucleus Counter (PINC) and the holographic microscope for cloud droplets and ice crystals HOLIMO have been deployed to the Jungfraujoch during the CLACE campaign in summer 2010. These data from PINC will only be analyzed in the first half of 2011 but we have successfully submitted our data from 2009 with detailed correlation analysis as a paper to ACP recently (see publications).

The measurements with HOLIMO were mainly done to test the instrument and discover limitations and shortcomings of the instrument that need to be addressed in the ongoing enhancements of the instrument. These include enhancements in the resolution of the instrument as well as mechanical improvements to make HOLIMO more robust and sturdy to withstand the rough conditions on the Jungfraujoch. An improved version of HOLIMO is planned to be deployed to the Jungfraujoch in fall 2011.



HOLIMO during CLACE 2010 on the Jungfraujoch. The bent tube with the vane is the inlet that moves to the direction of the wind automatically

Key words:

ice nuclei, heterogeneous nucleation, aerosol particles, clouds, ice crystals, mixed phase clouds

Collaborating partners/networks:

Ernest Weingartner, Martin Gysel, Nicolas Bukowiecki, PSI

Scientific publications and public outreach 2010:

Refereed journal articles and their internet access

C. Chou, O. Stetzer, E. Weingartner, Z. Jurányi, Z. A. Kanji, and U. Lohmann: "Ice nuclei properties within a Saharan Dust Event at the Jungfrauoch", *Atmospheric Chemistry and Physics Discussion*, **10**, 23705-23738, 2010.

<http://www.atmos-chem-phys-discuss.net/10/23705/2010/acpd-10-23705-2010.html>

Conference papers

Cedric Chou, O. Stetzer, E. Weingartner, Z. Jurányi, Z. A. Kanji, and U. Lohmann: "Measurements of IN properties at the Jungfrauoch using the Portable Ice Nucleation Chamber (PINC)", European Geosciences Union (EGU) General Assembly 2010, 2 – 7 May 2010 Vienna, Austria

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