

Name of research institute or organization:

Institute for Atmospheric and Environmental Sciences, Goethe-University, Frankfurt/Main, Germany

Title of project:

The concentration of atmospheric ice nuclei (IN) at Jungfraujoch during events of Saharan dust transport.

Project leader and team:

Dr. Heinz Bingemer, project leader
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Project description:

We have measured the concentration of atmospheric ice nuclei at Jungfraujoch during episodes of high mineral dust. These data complement our daily measurements at a site near Frankfurt (Taunus Observatory, 825 m.a.s.l.). The data will be used in modelling studies related to the sensitivity of cloud development on ice nuclei concentration. Ice nuclei have been sampled at the Sphinx terrace by electrostatic precipitation of aerosols on silicon wafer substrates. Samples were analyzed in the lab at Frankfurt by the vacuum diffusion ice nuclei counter FRIDGE.

Two episodes of 31 March/ - 3 April and of 12 – 14 May have been sampled in 2009. In the dust plume ice nuclei number concentration was enhanced by a factor of 10-20 against the background, and paralleled the PM10 aerosol mass. The ratio of activated particles to total particles was higher in the dust plume than outside, i.e. the aerosol nucleates better.

Key words:

Ice nuclei, aerosol, cloud ice

Internet data bases:

<http://www.geo.uni-frankfurt.de/iau/PhysAtm/Instrumente/fridge/index.html>

Scientific publications and public outreach 2009:

Refereed journal articles

Klein, H., Haunold, W., Bundke, U., Nillius, B., Wetter, T., Schallenberg, S., Bingemer, H.: A new method for sampling of atmospheric ice nuclei with subsequent analysis in a static diffusion chamber, *Atmospheric Research*, in press, <http://dx.doi.org/10.1016/j.atmosres.2009.08.002>, 2009.

Theses

Schallenberg, S., Bestimmungen der Eiskeimkonzentration mit der Vakuumdiffusionskammer FRIDGE, Diplomarbeit, Universität Frankfurt, 2009.

Magazine and Newspapers articles

Wie in Wolken der Regen entsteht: Kristallisationskeime als Schlüssel, *Forschung Frankfurt*, 3, 29-33, 2009.

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