

Name of research institute or organization:

**Institut für Physik der Atmosphäre, Johannes Gutenberg Universität
Mainz**

Title of project:

Characterization of cloud particles with FSSP and CIP instruments during CLACE5

Project leader and team:

Dr. Hermann-Josef Vössing

Project description:

Inside the CLACE5 experiment characterization of the coarse mode, cloud and precipitation particles was needed. To maintain these measurements two, original airborne instruments, the FSSP-SPP100 and the CIP, both manufactured by DMT, inc., were deployed within a groundbased setup. A windvane, which holds the instruments, was fixed to the reling at the upstream side of the Sphinx gallery.

The FSSP-SPP100 (forward scattering spectrometer probe) measures particles in the size range from 1 μm to 32 μm in diameter by forward scattering of a HeNe-laser. (Knollenberg, 1981)

The CIP (cloud imaging probe) records shadow images of particles larger than 25 μm up to 1550 μm particle width. The particles passing a laser beam shadow a photodiode line array. This rasters the shadow to an image of 62 by 128 pixels.

The wind vane was a passive vane, pointing to the horizontal direction of the wind. The vertical direction, which is around 30° at the Sphinx gallery, had to be adjusted manually. If the overall wind direction changed from south east to north west the wind vane had to be moved to the other side of the gallery.

Measurements were performed during 4 weeks during CLACE5. Problems arose inside icing clouds, which contain supercooled droplets. Despite the heating of the instrument frontends, the sample inlets frooze completely in short time. This way no measurements were possible inside icing clouds. During clear skies no large particles (>2 μm) could be found at all.

Key words:

Aerosols, hydrometeors, cloud particles, ice crystals

Collaborating partners/networks:

CLACE5 community

Scientific publications and public outreach 2006:

Book sections

Knollenberg, R. G., 1981: Techniques for probing cloud microstructure. Clouds, their formation, optical properties and effects, P. V. Hobbs, A. Deepak (Eds.), Academic Press, New York.

Address:

Institut für Physik der Atmosphäre
Johannes Gutenberg Universität Mainz
Johann Joachim Becherweg 21
D-55099 Mainz

Contacts:

Hermann-Josef Vössing
Tel.: +49 6131 39 25268
Fax: +49 6131 39 23532
e-mail: voessing@uni-mainz.de
URL: http://www.uni-mainz.de/FB/Physik/IPA/pc/pc_home_d.htm