

Julia Burkart – Abstract of Presentation

CCN measurements at an urban location – concentrations and activation diameters

Cloud condensation nuclei (CCN) are an important fraction of the atmospheric aerosol, because they influence cloud microphysical and radiative properties, and, through these properties, aerosol indirect radiative forcing on the global climate. In July 2007 a long term measurement campaign was started at the roof laboratory of the Physics Building of the University of Vienna, where CCN concentrations are measured among other aerosol parameters. CCN concentrations are measured with the University of Vienna CCN counter (Giebl et al., 2002, Dusek et al., 2006) at a super-saturation of 0.5%. This CCN counter operates on the principle of a static thermal diffusion chamber and detects activated droplets directly from CCD camera images. One measurement point can be obtained every five minutes. A Vienna-type DMA is used to measure particle size distributions every ten minutes. Integration of the number size distributions starting from large particles to measured CCN concentration yields the activation diameter of the aerosol. In the presentation I will explain the functional principles of our CCN counter and show seasonal data on CCN concentrations as well as activation ratios and activation diameters for selected aerosol conditions.

Dusek, U., Reischl, G. P., & Hitzenberger, R. (2006). *CCN activation of pure and coated carbon black particles*. Environ. Sci. Technol., 40, 1223-1230.

Giebl, H., Berner, A., Reischl, G., Puxbaum, H., Kasper-Giebl, A., & Hitzenberger, R. (2002). *CCN activation of oxalic and malonic acid test aerosols with the University of Vienna cloud condensation nuclei counter*. J. Aerosol Sci., 33, 1623-1634