



## **Vertical Profiles of Aerosol Number Concentrations observed during clean Conditions in the Arctic Troposphere in May/June 2004**

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In order to improve knowledge on the budget, evolution and climate impact of the tropospheric aerosol in both polar regions, four aircraft experiments are planned by the Alfred Wegener Institute (AWI) in the Arctic and Antarctic in the course of the years 2004 to 2007 as a joint international collaboration of research groups in Germany, Japan, Sweden and other countries. The first experiment in the Arctic, ASTAR (Arctic Study on Tropospheric Aerosol and Radiation) 2004, has been successfully performed in May/June 2004. The Polar 4 of the Alfred Wegener Institute, a Dornier-228 turboprop aircraft, carried an extensive payload to characterize aerosol microphysical, chemical and optical properties as a function of altitude (up to 8 km). In this contribution we report on the results of a combination of different instruments providing information on the vertical and spatial variability of the number concentration, thermal stability and size distribution of aerosol particles in the size range from 0.004 to 20  $\mu\text{m}$  in diameter. In the period May 18 to June 7, 2004, 19 measurement flights were performed which showed that very low aerosol number concentrations in the Aitken and the accumulation mode prevailed throughout this period in the lower troposphere. Accumulation mode and non-volatile particles showed in general increasing concentrations with altitude. First analyses of the origin and transport pathways of these clean polar air masses will be presented.