



Introduction of the new EQSAM2 inorganic/organic aerosol model framework with application to various measurements (SMOCC, MINOS, FACE, MOHp)

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To study the gas/aerosol partitioning of atmospherically relevant species with the aid of regional and global models, an extended version of the computationally efficient thermodynamic gas/aerosol model, EQSAM2 (equilibrium simplified gas/aerosol model), will be introduced. Besides gas/liquid/solid partitioning of the ammonium-sulfate-nitrate-water-system, EQSAM2 considers sodium, chloride (Na^+ , HCl , Cl^-) and mineral compounds (K^+ , Mg^{++} , Ca^{++}). In addition to inorganic compounds, a lumped approach that incorporates low molecular weight organic acids and humic-like substances has been introduced.

EQSAM2 has been successfully applied to experimentally derived data during different campaigns in the Amazon Basin (LBA-SMOCC¹), the Mediterranean region (MINOS²), an industrialized and heavily populated region of Frankfurt/Rhein-Main (FACE³), and to continuous observations at a global aerosol watch (GAW) site in Germany (MOHp⁴).

The updated model framework will be discussed together with main results of the inorganic/organic gas/aerosol systems.

¹Large Scale Biosphere Atmosphere Experiment in Amazonia, Smoke Aerosols, Clouds, Rainfall and Climate: Aerosols from Biomass Burning Perturb Global and Regional Climate. September to November, 2002

² Mediterranean INTensive Oxidant Study, Crete, Greece, July and August 2001

³ Feldberg Aerosol Characterization Experiment, Germany, July and August 2004

⁴ Meteorological Observatory at Hohenpeißenberg, Germany, 2003