Geophysical Research Abstracts
Vol. 12, EGU2010-11634, 2010
EGU General Assembly 2010

Aging of Diesel and Wood Burning Emissions in Smogchamber Experiments

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Photochemical aging experiments were performed for emissions of a diesel passenger car and logwood-burner at the smogchamber at the Paul Scherrer Institute in Switzerland. The measurements include black carbon measurements (with Aethalometer, Multi-Angle Absorption Photometer, Single Particle Soot Photometer (SP-2), and Photoacoustic Spectrometer), organic mass measurements with the Aerodyne high-resolution Aerosol mass spectrometer and off-line GC-MS measurements. Single particle composition was measured with the TSI-Aerosol time-of-flight mass spectrometer. The size distribution is characterized with a scanning mobility particle sizer, and the hygroscopicity with a hygroscopicity tandem differential mobility analyzer.
The given overview of the results of experiments during the last 1.5 years will focus on the formation secondary organic aerosol and include the oxidation of primary organic aerosols and the change of optical and hygroscopic properties. A considerable variability of most results is found for different after treatment systems of diesel cars and for different burning conditions of the log-wood burner which will be discussed in detail.