Geophysical Research Abstracts,
Vol. 11, EGU2009-4591, 2009
EGU General Assembly 2009


# Aerosol Mass Spectrometric Measurements at Cabauw Tower during IMPACT May 2008

A. A. Mensah (1), A. Kiendler-Scharr (1), H. M. ten Brink (2), J. S. Henzing (3), R. Holzinger (4), Th. F. Mentel (1), R. P. Otjes (2), and G.-J. van Zadelhoff (5)

(1) Reasearch Centre Juelich, ICG 2, Juelich, Germany (a.mensah@fz-juelich.de), (2) Energy Research Centre of the Netherlands (ECN), 1755 ZG Petten, The Netherlands, (3) TNO - Built Environment and Geosciences Airquality and Climate, Utrecht, The Netherlands, (4) Institute of Marin and Atmospheric research Utrecht (IMAU), University of Utrecht, Utrecht, The Netherlands, (5) Royal Netherlands Meteorological Institute (KNMI), De Bilt, The Netherlands

We present results of measurements with an Aerodyne High Resolution Time of Flight (HR-ToF) Aerosol Mass Spectrometer (AMS) performed during the EUCAARI Intensive Measurement Period at Cabauw Tower (IMPACT) campaign in May 2008. Three distinct meteorological situations were observed during the measurement period from 28th of April to 30th of May.
In the major meteorological situation air masses originated from Central and Eastern Europe (regional background). The origin of air masses changed to the North Sea from 17th to 20th of May combined with precipitation (scavenged background). From the 29th of May to the end of the measurement period possibly a long range transport of Sahara dust from North Africa took place (Sahara dust event).
The total detected refractory aerosol particle mass ranges from 2 $\mu$g/m$^3$ in the scavenged background situation up to 30 $\mu$g/m$^3$ in the potential Sahara dust event. The average aerosol particle mass ranges from 4 $\mu$g/m$^3$ to 10 $\mu$g/m$^3$ in the dominating regional background periods. We present time series of the total particulate mass of the major inorganic components such as ammonium nitrate and ammonium sulphate as well as the total organic component (organics). The three meteorological situations are reflected in the fractional aerosol particles composition.
Additionally, we present inter-instrumental comparisons. HR-ToF AMS results of the particle mass are compared to the mass derived from Scanning Mobility Particle Sizer (SMPS) measurements. The particulate nitrate concentrations determined by a modified Proton Transfer Reaction Mass Spectrometer (PTR-MS) and as well as by a Monitor for Aerosols and Gases in Ambient Air (MARGA) are compared to the HR-ToF AMS results.