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Fast and artefact-free characterization of the major anions of submicron urban aerosols in Clermont-Ferrand (France) during the falls 2005

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We present here the first results of a 2-week aerosol characterization experiment performed in the suburban region of Clermont-Ferrand (Centre of France) in November-December 2005.

These results consist first in a fast and artefact-free characterization of the major anions of submicron urban aerosols (Sulphate, Nitrate). This characterization was performed by the mean of a Steam Jet Aerosol Collector (SJAC) coupled with Conductivity, pH, and Ion Chromatography (DIONEX, Model ICS 2000) measurements; aerosol collection efficiency being permanently monitored downstream of the SJAC with an optical counter (GRIMM, Model 1.108).

These measurements were compared with artefact free PM1 measurements performed in parallel by a TEOM-FDMS (R&P, 8500 model series), which enables real-time volatile + non-volatile PM measurements.

All these results were then used to reconstruct the real-time light scattering coefficient, which was continuously measured for the submicron aerosol range by the means of a mono-wavelength integrating Nephelometer (ECOTECH, Model M9003).