

Preliminary results of the ACTRIS ACSM intercomparison study at the SIRTA French Atmospheric Supersite in the region of Paris

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As part of the EU-FP7 ACTRIS program (Aerosols, Clouds, and Trace gases Research InfraStructure Network; <http://www.actris.net>), 14 of 19 ACSMs (Aerosol Chemical Speciation Monitor; Aerodyne Research Inc., MA, USA) have been deployed for long-term observations within background monitoring stations, among which the French SIRTA atmospheric supersite (Site Instrumental de Recherche par Télédétection Atmosphérique; <http://sirta.ipsl.fr>) located 20km southwest of Paris.

In order to have homogenous quality-controlled ACSM datasets at an European scale, an intercomparison study was conducted from 15 Nov. to 2 Dec. 2013 at the SIRTA station.

The real-time mass concentrations and chemical composition (Organic, nitrate, sulfate, ammonium) of non-refractory submicronic aerosols (NR-PM1) measured by the ACSMs were compared providing new insights on the precision of this instrument. Accuracy of these measurements was then evaluated with various co-located instruments (TEOM-FDMS, SMPS, OPC, OC-EC Sunset Field analyzer, PILS-IC, HR-ToF-AMS, aethalometers, nephelometers, filter sampling).

Preliminary results of this significant intercomparison study are presented which compare ACSM measurement precision, accuracy and validity of source apportionment data.