



Seasonal characteristics of Organic Aerosols Sources in Cape Corsica obtained by ACSM and monthly resolved Source apportionment (PMF/ME-2)

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As part of the Chemistry-Aerosol Mediterranean Experiment (ChArMEx, <http://charmex.lsce.ipsl.fr/>), and the CORSICA (<http://www.obs-mip.fr/corsica>) program, long term observations of real-time chemical composition of submicron aerosols were initiated since mid of 2012 at the Cape Corsica atmospheric supersite (<http://gaw.empa.ch/gawsis/reports.asp?StationID=2076203042>).

Submicron organic aerosols (OA) and the major inorganic salts (sulfate, ammonium, nitrate) were monitored every 30 min using an Aerosol Chemical Speciation Monitor (ACSM; Aerodyne Res. Inc. MA, USA). Quality control of this large dataset (20-month continuous observations) was performed through closure studies (using co-located SMPS and TEOM-FDMS) and direct comparisons with other on-line / off-line instruments running in parallel (filter sampling ...).

Source apportionment of OA was then performed on a monthly basis using the SourceFinder software (SoFi v4.5, <http://www.psi.ch/acsm-stations/me-2>) allowing the distinction between hydrogen- and oxygen-like organic aerosols (HOA and OOA, respectively). This monthly resolved source apportionments was first compared with co-located real-time tracer measurements (NO_x , BC, CO, ...) available at the Cape Corsica station. Seasonal patterns of the various properties of (secondary) OOA (oxidation state, double bonds abundance ...) was then investigated from the monthly resolved source apportionment results (monthly OOA mass spectra) obtained over a period of 20 months (June 2012, March 2014).

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