Aerosol source apportionment by PMF applied to daily and hourly concentration datasets: a case study in the framework of the PATOS project.

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Many studies have been devoted to aerosol source apportionment by receptor models applied to 24-h averaged data. However, the impact of many aerosol sources can vary on a time scale of few hours or less. As a consequence, the use of hourly concentration datasets can be of great help for, at least, two reasons: the high resolved time patterns can help in source identification and more accurate source profiles can be obtained.

In the framework of the PATOS project, the first extensive field campaign for the aerosol characterisation in Tuscany (Italy), PM10 daily samples have been collected in six sampling sites, representative of areas of different typology, for one year (Sept. 2005 – Sept. 2006), simultaneously on Teflon and Quartz filters, thus allowing the application of different analytical techniques (PIXE, IC, Total Carbon measurements, etc.). For the aforementioned reasons, during shorter periods we also collected the fine and coarse fractions of the aerosol by a streaker sampler; PIXE analysis of these samples produced the concentrations of all the elements with atomic number $Z > 10$ with hourly resolution.

Results concerning the application of PMF to daily and hourly concentrations in the most polluted of the sampling sites (Lucca-Capannori), will be shown.