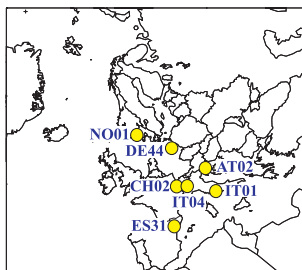


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## Introduction

In the EMEP Monitoring Strategy, advanced aerosol measurements at super sites (*Level 2 and 3*) should be included as a regular part of the monitoring programme in Europe. It is however not realistic to require daily chemical speciation of all species or continuous measurements 365 days a year. Coordinated intensive measurements have therefore been recommended, and the first sampling periods were set for June 2006 and January 2007. The main focus was on size-resolved chemical speciation (i.e. PM<sub>10</sub>, PM<sub>2.5</sub> and PM<sub>1</sub>), size distribution and gas/particle partitioning.



The highly time-resolved measurements of inorganic reactive gases are presented in the poster by Elmitz et al. In total, about 20 sites took part in these campaigns, but here we present data from those having both inorganic- and organic measurement, 7 in total: AT02 (Illmitz), NO01 (Birkenes), CH02 (Payerne), DE44 (Melpitz), ES31 (Montseny), IT01 (Montelibretti), and IT04 (Ispra).

## Measurement methods and data treatment

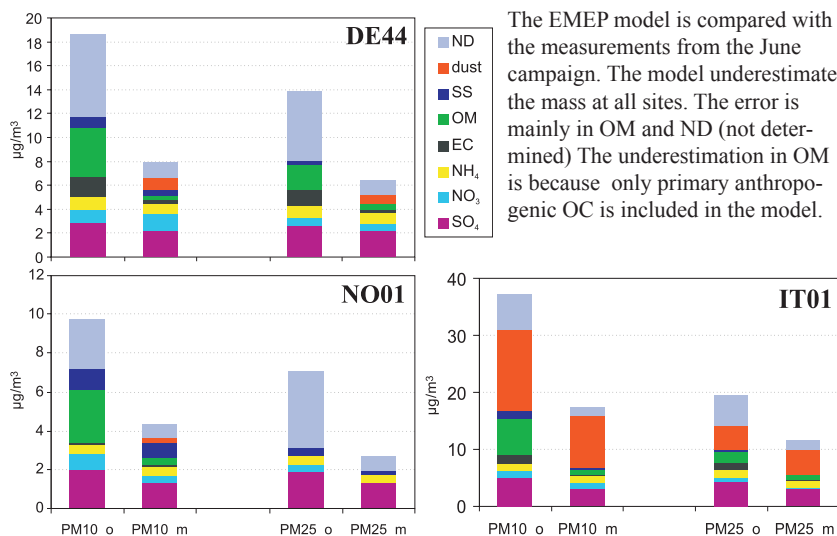
The measurements were conducted by a somewhat different methods by the participants:

Site	Mass	Inorganic	EC/OC	Crustal
IT01	Teflon, beta attenuation	Teflon, IC	Quartz, backup filter, thermo-optical	Teflon, ED- XRF
IT04	Quartz, dichotomous	Quartz, IC	Quartz, denuder, thermo-optical	-
AT02	High Vol	Filterpack, IC	Continuous, denuder, thermo-optical	-
ES31	Quartz, Gravimetric	Quartz, IC	Quartz, TC, no corrections	Quartz, XRF
CH02	KleinfILTERgerät, PM <sub>10</sub> , PM <sub>1</sub>	Teflon, IC	Continuous (PM <sub>2.5</sub> ), thermo-optical	-
DE44	Quartz, kleinfILTERgerät	Quartz, IC	Quartz, thermo-optical, no correction	-
NO01	Quartz, kleinfILTERgerät	Quartz, IC	Quartz, backup filter, thermo-optical	-

Not all the sites had complete measurements in both periods, the pies are therefore not always the average for the whole month. The contribution of dust is defined differently for the different sites. In IT01 the crust is calculated using the formula:  $1.12 \cdot (1.89Al + 2.14Si + 1.4Ca + 1.2K + 1.36Fe)$ . At ES31 it is the sum of all the elements inclusive Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub> plus Ca, CO<sub>3</sub> and K. For the other sites it is only Ca and K. The organic matter (OM) is calculated with a correction factor of 1.7 from OC, a factor 1.6 for modelled data and 1.4 for IT04. For ES31 only TC is measured, a correction factor of 1.4 is applied. In CH02 the OC in PM<sub>2.5</sub> is used as an estimate for what is found in the PM<sub>10</sub> fraction.

## Results

The results show clear regional and seasonal differences, and the sites respond to the differences in source regions in Europe, i.e IT01 and ES31 is clearly effected by African dust events in June. In January on the other sites the organic matter is the major fraction at these sites. At Melpitz the nitrate fraction is large in January. Notice that NH<sub>4</sub> and NO<sub>3</sub> are not measured with unbiased method so it is in general underestimated at all sites.



## Conclusions

These intensive measurements are very valuable to better understand the sources, transformation and transport of aerosols in Europe. A comprehensive data set like this is necessary for better model validation and development. The intensive periods will continue in September/October 2008 and February/March 2009.

## Acknowledgement

There is large number of people that has been involved in analysis and interpretation of these data, and the authors are very grateful to all the participants.

Legend: Dust (brown), SS (light blue), NO3 (dark blue), NH4 (green), SO4 (red), OM (yellow), EC (black), ND (white)

