

Report on AMS datasets submitted

Participation to EMEP international campaign (January-February 2013)

During 11 January - 8 February 2013 was carried out ACTRIS - EMEP campaign, an international intensive measurements campaign which had the object to study aerosols and their oxidation capacities, both at ground level and altitude. INOE was involved in the campaign as an active remote sensing ACTRIS station. Were used both multichannel Raman lidar system (RALI) and aerosol mass spectrometer (C-ToF AMS).

A. Variation of the chemical composition of submicron aerosol in the summer time

During the summer, total average concentration of the 5 main fractions analyzed of non-refractory submicron aerosol was $2.8 \mu\text{g}/\text{m}^3$. Aerosols were compounds in almost 50% from organic fractions, 25% sulphates and 15% ammonium, with low amounts of nitrate and chloride. The most important sources of aerosols in the summer time are agriculture and road traffic, but also long range reansported aerosols like biomass burning.

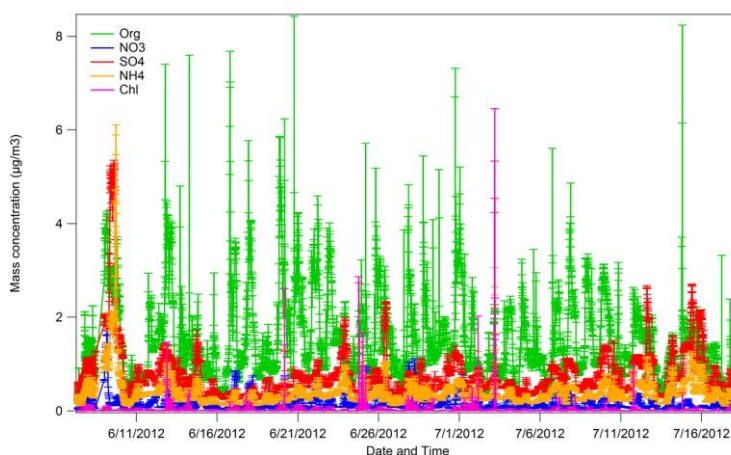


Fig. 1 Time series of mass concentrations and temporal variation of submicron non refractory aerosol chemical composition

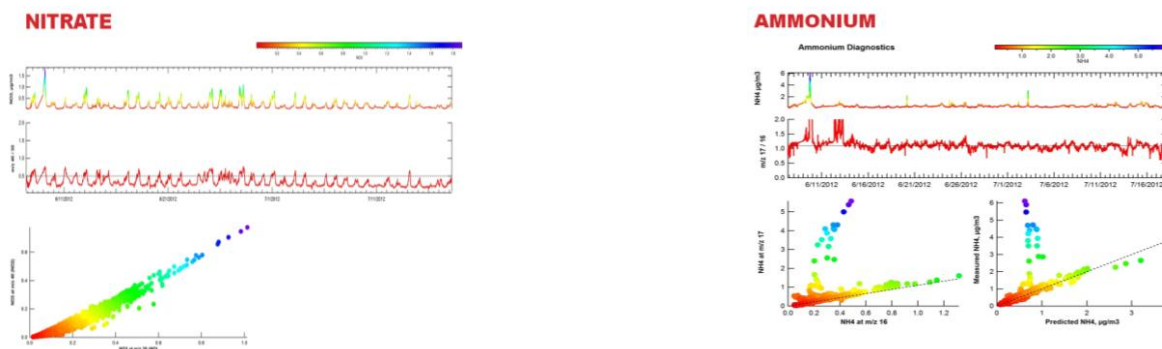


Fig. 2 Analysis of AMS system stability during EMEP campaign

B. Variation of the chemical composition of submicron aerosol in the winter time

In the winter were found increased proportion of the organic fraction about 49% and a constant distribution for sulfate (15%), ammonia (14%) and nitrate (19%). There were observed episodes that indicate increased concentrations of submicron aerosol, mainly due to burning fossil fuels for domestic heating.

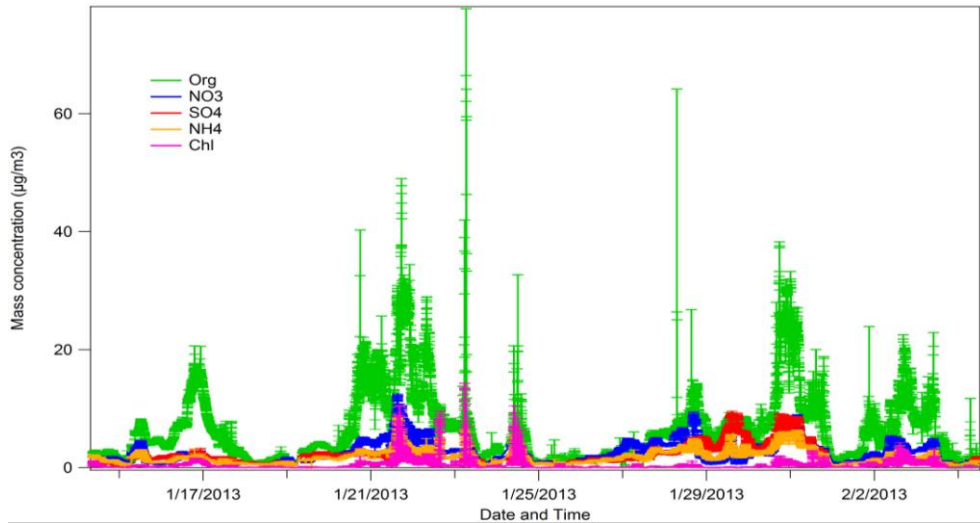
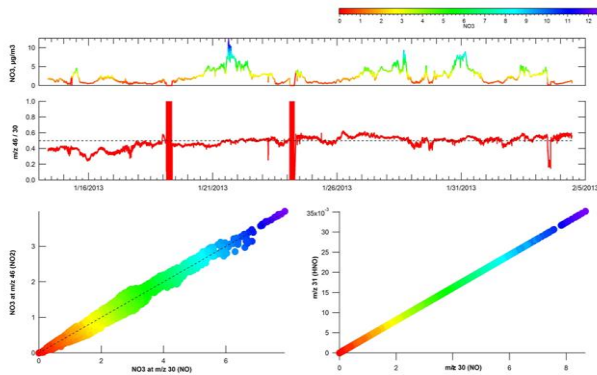


Fig. 3 Time series of mass concentration concentrations and temporal variation of submicron non refractory aerosol chemical composition

NITRATE



AMMONIUM

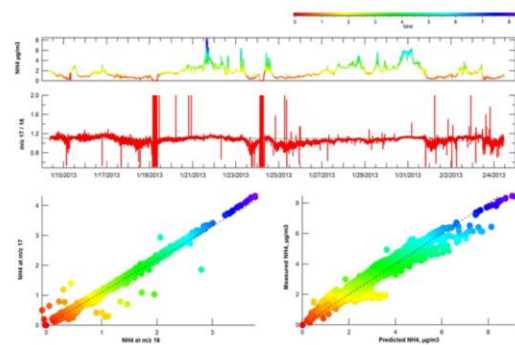


Fig. 4 Analysis of AMS system stability during EMEP campaign