Geophysical Research Abstracts
Vol. 16, EGU2014-**PREVIEW**, 2014
EGU General Assembly 2014

First results of the aerosol measurements at San Pietro Capofiume during the PEGASOS Po Valley campaign 2012

Laurent Poulain, Johannes Größ, Yoshiteru Iinuma, Dominik van Pinxteren, Alfred Wiedensohler, and Hartmut Herrmann

Leibniz Institute for Tropospheric Research, Leipzig, Germany (poulain@tropos.de, +49 34127177316)

In the frame of the Pan-European Gas-Aerosol-Climate Interaction Study (PEGASOS) a field campaign was carried out at the San Pietro Capofiume site in the North Eastern of the Po Valley, Northern Italy, from June 9 to July 10, 2012. A large set of online instruments measuring aerosol physico-chemical properties were sitting in a laboratory container and connecting to a common PM10 inlet. These instruments were including SMPS, APS, HR-ToF-AMS, MAAP, Nephelometer and HH-TDMA. In parallel off-line aerosol measurements including DIGITEL High-Volume PM1 sampler and 5-stages BERNER impactor were deployed and collected twice a day (day time, 09:00 to 21:00 and nighttime 21:00 to 09:00). Additionally, VOC samples were also collected with TENAX TA cartridges six times a day (1:00-5:00, 5:00-9:00, 9:00-13:00, 13:00-17:00, 17:00-21:00, 21:00-01:00) and subsequently analyzed by thermal desorption GC-MS. The data quality insurance of the aerosol measurements was performed by successfully comparing our measurements with collocated instrumentation including SP-AMS, Nephelometer, MAAP, PILS and MARGA.

The first results of these measurements will be presented. During the sampling period, different meteorological conditions occurred: for example at the beginning of the measurements, anticyclonic conditions with very low wind and extremely high temperature brought to the highest aerosol concentrations while different wind regimes and air mass origins characterized the second part of the sampling periods. In averaged over the period, aerosols were mainly made of organics (46 %) and sulfate (27%). Nitrate appears to be more important during nighttime than day time, indicating an important temperature dependency. However, a strong increase of the nitrate concentration after sunrise early in the morning when temperature already started to increase was also regularly observed and can be related to either influence of mixing layer higher or local nitrate formation after sunrise. Almost every morning, new particle formation events were also reported. Finally, a series of isoprene oxidation products were detected both in gas- and particle samples from cartridges and filters, respectively. Most of these compounds showed higher concentrations during the day time, indicating that photochemistry serves as the driving force for their formation.