



Chemical composition of aerosol samples taken from ambient air near Strasbourg, France: carboxylic acids and nitrophenols

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Most carboxylic acids and nitrophenols belong to a group of water-soluble organic compounds that contribute significantly to the load of atmospheric aerosol. Due to their hygroscopicity they can take part in cloud formation and hence have impact on Earth's climate. At present, only a small fraction of organic particulate matter is known, including major monoterpene oxidation products representative for biogenic emissions. Aerosol particles were collected on filters during the INTERREG III Campaign at two stations north and south of Strasbourg (France, Alsace) between May and June 2003. The analysis was aimed at identifying carboxylic acids and nitrophenols using a LC/MS/MS-TOF method, which does not require derivatisation of polar species in contrast to GC/MS methods. Electrospray ionization in the negative mode (ESI(-)) prevented degradation of the molecular ions and enabled their identification by high resolution mass spectrometry. Polar organic compounds observed in our samples were: linear dicarboxylic acids, biogenic acids, aromatic dicarboxylic acids and nitrophenols. Concentration-time profiles for these substances are presented and their contribution to the total mass of aerosol discussed. However, many compounds remain unidentified and constitute a large fraction to the water-soluble organic carbon (WSOC).