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SEASONAL VARIATION OF THE AEROSOL CHEMICAL COMPOSITION IN A ROMANIAN PERI-URBAN AREA

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Abstract

Chemical composition variations of aerosols during summer and winter seasons have been investigated using an Aerosol Mass Spectrometer (AMS) at Magurele, a city near Bucharest, Romania. Proportions of chemical species, concentration time series, mass range distribution and aerodynamic size distribution of aerosols have been analyzed.
AMS measurements proved that the organics, nitrate, sulphate and ammonium, with small amounts of chloride were the main species at ground level during the investigated period. Important differences have been noticed between hot and cold seasons related to the total submicronic aerosol concentration and composition. The submicronic aerosols loadings are almost two times higher in summer in comparison with wintertime. Proportions of the species are evenly distributed during wintertime. One accumulation peak can be depicted with diameter between 450 to 600 nm. The fine particle mode consisted typically of organics, sulphate and ammonium during summertime, with size distribution centered at about 400-500 nm.

Keywords: aerosol mass spectrometer, chemical composition, submicronic aerosols size distribution

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