

# ORGANIC COMPOUNDS AND HEAVY METALS IN THE ATMOSPHERE OF THE CITY OF CARACAS, VENEZUELA - II: ATMOSPHERIC DEPOSITION

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(Received September 2, 1992; accepted December 24, 1992)

**Abstract.** Aliphatic and aromatic hydrocarbons, fatty acids and heavy metals (Pb, Cu, Ni, Zn, Fe and Cd) were analyzed in bulk deposition samples at two locations within the metropolitan area of Caracas, Venezuela. One of the sampling sites was located in the center (urban site, 1), while the other was in the outskirts of the city (rural site, 4).

In general, a higher flux was observed for the deposition of pollutants at site 1 than at site 4. These fluxes showed relatively large short-term variations, while the long-term integrated deposition was found to be relatively constant throughout the sampling period. Wet deposition did not affect the flux of most of the pollutants studied, with the exception of Pb and the fatty acids of an anthropogenic origin.

## 1. Introduction

Atmospheric deposition of anthropogenically derived chemicals, is an important source of pollutants in the environment. Atmospheric fallout contributes to the load of pollutants in urban runoff (Eganhouse *et al.*, 1981; Simoneit and Mazurek, 1989; Latimer *et al.*, 1990) and as such serves as a source of contaminants to the aquatic environment. In some areas, the atmospheric deposition of pollutants has reached levels which are toxic to humans and other organisms (e.g. Galloway *et al.*, 1982 and references therein). Therefore, the measurement of the fluxes of pollutants from the atmosphere in urban and non-urban environments can aid in the assessment of air quality, and can be used to determine spatial, temporal and seasonal variabilities of pollution sources (Ross, 1987; Kawamura and Kaplan, 1986; Wade, 1983). The ratio of biogenic *vs.* anthropogenic organic compounds in atmospheric deposition can provide valuable information on the impact of man on the geochemical cycles.

The biogenic and anthropogenic sources of aliphatic and aromatic hydrocarbons in atmospheric samples have been well established (Simoneit and Mazurek, 1981; Mazurek and Simoneit, 1986 and references therein). With respect to the fatty acids, however, some questions still remain. While the short chain acids (SCA, up to C<sub>11</sub>) have been attributed to photochemical reactions in the atmosphere (Kawamura

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