



PM_{2.5} chemical composition in Mexico City during winter 2004.

H. Ruiz (1,2) and E. Vega (2)

(1) Posgrado en Ciencias de la Tierra, Universidad Nacional Autonoma de Mexico, (2) Instituto Mexicano del Petróleo (hruizflores@hotmail.com, evega@imp.mx / Tel: +5255 9175-7057 / Fax: +5255 9175-8272)

ABSTRACT

The results of a study on PM_{2.5} chemical composition carried out at three different sites in Mexico City is presented.

Samples of PM_{2.5} were measured over 24-hour period at three sites in Mexico City from during winter 2004. Sampling locations were selected to represent different land uses. Mass, trace metals by ICP-MS, ions by HPLC, elemental and organic carbon by TOR were determined.

In general it was observed that the lowest concentrations were recorded at the residential area and the highest concentrations were measured at the industrial area. The largest fine-particle component are carbonaceous aerosols, constituting ~50% of PM_{2.5} mass, followed by ~30% secondary aerosols and ~15% geological material. It was also observed that sulfate concentrations from sources that use diesel were higher at the industrial (north) as well as the commercial-residential (center) areas due to the heavy duty traffic around the sites. Results showed that sulfate concentrations were higher than those of nitrate and both components were present as ammonium sulfate and ammonium nitrate, respectively, due to the high concentrations of ammonium across the city (Chow *et al.*, 2002). On the other hand, sulfate concentration was homogeneously distributes along the Mexico City and showed a north to south decrease which is consisted with the SO₂ emissions from the industrial area a the north of the City, as reported by Vega *et al.* (2001, 2002, 2003, 2004)