

A study of atmospheric aerosols from five sites in Mexico city using PIXE

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Atmospheric aerosol samples collected in five sites in the Metropolitan Area of Mexico City were analyzed with proton induced X-ray emission (PIXE). Stacked Filter Units (SFU) of the Davis design were employed to obtain samples of fine aerosols (smaller than 2.5 μm Mean Aerodynamic Diameter) on polycarbonate filters. The study was conducted during the first half of 1996 (16 weeks, from 31st January to 6th June), exposing the filters once a week, from 8:00 to 14:00 h. PIXE analyses of the filters using a 2 MeV proton beam produced by the Instituto de Física, UNAM, 5.5 MV Van de Graaff accelerator were compared with those carried out using a 2.2 MeV proton beam from the 56 cm isochronous cyclotron at the Universidad de Chile, showing a good correlation between both laboratories. Analysis of variance of the measured elemental concentrations showed differences in the mean concentrations for several elements at the sampling sites. Comparisons with other studies are also given. © 1998 Elsevi