

A study of the particulate matter PM10 composition in the atmosphere of Chillán, Chile

Celis, José E.

Morales, José R.

Zaror, Claudio A.

Inzunza, Juan C.

There was a distribution pattern of the chemical components in the inhalable particulate matter (PM) as a function of the anthropogenic activity within Chillán. Carbonaceous substances, crustal material, and inorganic substances of secondary origin (NO_3 and NH_4) were the predominant components of PM10 in the city. High concentrations of non-crustal V and Ni (products of oil combustion emissions), Br, Pb, and NO_3 (products of vehicle combustion), EC (product of diesel engine), etc. were measured. A clear temporal variability was observed, because there was a higher concentration of PM10 during cold season than during the warm months. Spatial variability was also noted as downtown of Chillán resulted more contaminated by chemical compounds compared to surrounding areas of the city. Perimetrical areas received large loads of geologic material in suspension in summertime. In general, there were no high SO_4 concentrations in the city, which could be explained for there are few industries ne