Abstract

The Guadalajara Metropolitan Zone (ZMG) as a result of an intense urban and industrial development from the second half of the century XX has presented problems of atmospheric contamination, particularly acid rain. In this work, a study was made to determine the concentration of polluting agents deposited by rainwater, a pluviometer network with 17 stations distributed in the ZMG was implemented. The rainy seasons were analyzed during the period 1994-2002, in the interval June to September. The analyzed compounds were potential hydrogen (pH), sulphates (SO4 2-), nitrates (NO3 -) and chlorides (Cl-). In order to evaluate the influence of sulfur dioxide (SO2) and nitrogen dioxide (NO2) (the main precursors of acid rain), the information of the data bank of 8 stations of the Automatic Network of Atmospheric Monitoring was used (RAMA). These stations were provided by the Secretaría del Medio Ambiente para el Desarrollo Sustentable del Gobierno del Estado de Jalisco (SEMADES). The results of this work showed that the atmospheric contamination has modified the chemical nature of rain, with a tendency to increase its acid concentration. The highest concentrations of SO2 and NO2 in the air were in 1999, also the maximums for SO4 2- and NO3 - in rain. In the rainy season of 2002, we found the maximum concentrations of Cl-, agreeing with the development of the plastic industry in the zone. The atmospheric dynamic conditions favored the dominant acid tendency towards the west of the ZMG.

Keywords

acid rain, precursors NO2, SO2, pluviometer network