

IONIC RATIOS AND CHEMICAL EQUILIBRIUM IN THE SHALLOW AQUIFER OF SAN MIGUEL DEL MONTE, ARGENTINA

1Fazio, A.M., 1Galindo, G. and 1Fernández Cirelli, A.1FCEN,U.B.A., Buenos Aires Argentina

The ionic ratios of different chemical constituents in the shallow aquifer of San Miguel del Monte, Argentina, are analyzed. In this region, located in the area called Pampa Deprimida, there are a series of ponds and non-permanent streams belonging to the Salado River drainage basin. Water samples from 42 wells were collected, and the major dissolved ions were determined, as well as fluorine and silica. Several distribution maps for major ions were obtained. Data were projected on a straight line of NO-SE direction following the regional groundwater flow. Chloride/sulphate, calcium/magnesium, and sodium/calcium ratios were estimated. Ionic ratios indicate the existence of variations due to the regional system of the groundwater flow, whereas the local system flow, centripetal around the ponds, is better reflected through the changes of the individual ionic species. On the other hand, the hypothetically present mineral phases in equilibrium with the groundwater were analyzed through the silicates stability diagrams and the calculation of the saturation index for fluorite, evaporite and silica minerals. All the samples fall in the field of stability of the montmorillonite, and in addition, calcite and dolomite oversaturation as well as gypsum, fluorite and amorphous silica undersaturation were observed. These results point out the possibility that in this area fluorine and silica contents may overcome the acceptable values for drinking water.