

Identification of the Hydrogeochemical Process in Zahrez Basin, Algeria

F. Bouteldjaoui ^{a*}, A.Kettab ^a, M. Bessenasse ^(a,b)

^aEcole Nationale Polytechnique (ENP), Laboratoire de Recherche Sciences de l'Eau (LRS-EAU/ENP) 10, Av.HacénBadi, BP 182 El-Harrach-Alger, Algérie.

^b Université Saad Dahlab, Soumaa, Blida, 09000, Blida, Algérie.

*Corresponding author: theldjaoui@yahoo.fr ; Tel. +213 552 783 613

ARTICLE INFO

Article History:

Received : 12/11/2016

Accepted : 03/03/2017

Key Words:

Groundwater
Hydrogeochemistry;
Geochemical processes;
Zahrez basin;

ABSTRACT/RESUME

Abstract: The Zahrez basin (Fig.1) is one of the endorheic basins of the vast steppes region in the central northern part of Algeria. The Zahrez hydrological basin covers approximately 8,989 km². Topography of the area is relatively flat with an elevation ranging from 900 to 1330 meters above mean sea level. The catchment lies between longitudes 2° 15' to 4° 08'E and latitudes 34 35' to 35 30'N. The area is characterized by a semi-arid climate, typically Mediterranean, with an irregular annual rainfall. The mean monthly temperature varies between 3°C and 25°C. The hydrogeochemical processes of groundwater in Zahrez basin were identified based on the combination of geochemical methods, graphical methods, and scatter diagrams. According to the piper diagram, the dominant hydrochemicalfacies in the study area is Ca-Mg-Cl-SO₄, which represents 87% of the samples. Mineral saturation indices calculated from major ions, indicate that the groundwater is generally oversaturated with respect to carbonate minerals and undersaturated with respect to evaporite minerals, indicated that the chemical composition of groundwater in the study area is influenced by natural processes of water-rock interaction.
