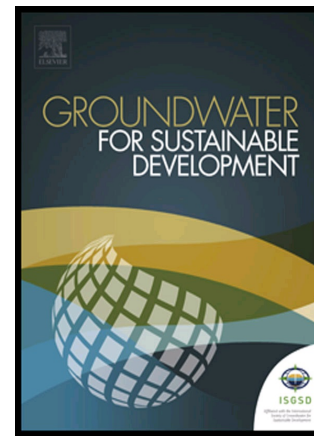


## Author's Accepted Manuscript

Identification of the hydrogeochemical processes and assessment of groundwater in a semi-arid region using major ion chemistry: A case study of Ardestan basin in Central Iran

Kaveh Pazand, Davoud Khosravi, Mohammad Reza Ghaderi, Mohammad Reza Rezvaniyanzadeh



www.elsevier.com/locate/gsd

PII: S2352-801X(17)30169-8  
DOI: <https://doi.org/10.1016/j.gsd.2018.01.008>  
Reference: GSD104

To appear in: *Groundwater for Sustainable Development*

Received date: 18 October 2017  
Revised date: 23 December 2017  
Accepted date: 29 January 2018

Cite this article as: Kaveh Pazand, Davoud Khosravi, Mohammad Reza Ghaderi and Mohammad Reza Rezvaniyanzadeh, Identification of the hydrogeochemical processes and assessment of groundwater in a semi-arid region using major ion chemistry: A case study of Ardestan basin in Central Iran, *Groundwater for Sustainable Development*, <https://doi.org/10.1016/j.gsd.2018.01.008>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Identification of the hydrogeochemical processes and assessment of groundwater in a semi-arid region using major ion chemistry: a case study of Ardestan basin in Central Iran

Kaveh Pazand<sup>1,\*</sup>, Davoud Khosravi<sup>2</sup>, Mohammad Reza Ghaderi<sup>3</sup>, Mohammad Reza Rezvaniyanzadeh<sup>4</sup>

<sup>1</sup>Young Researchers and Elite Club, Science and Research Branch, Islamic Azad University, Tehran, Iran.

<sup>2</sup>Department of Geology, Science and Research Branch, Islamic Azad University, Tehran, Iran

<sup>3</sup>Department of Mining Engineering, College of Engineering, University of Tehran, Tehran, Iran

<sup>4</sup>Nuclear Science and Technology Research Institute, Tehran, Iran

\*Corresponding author's; Kaveh.pazand@gmail.com

## Abstract

The present study investigates the physical, chemical, and hydrogeochemistry of groundwater samples in Ardestan basin in the central Iran. The 48 samples were collected from June 2014 to July 2014. All samples were analyzed for conductivity, dissolved oxygen, pH, total dissolved solids (TDS), major cations, major anions and trace metals. The most prevalent water type is Na–Cl followed by water types Ca–Mg–Cl, Ca–Mg–SO<sub>4</sub>, Na–HCO<sub>3</sub>–Cl, Na–HCO<sub>3</sub> and Ca–Mg–HCO<sub>3</sub>. The equiline diagrams and ionic ratios suggesting silicate minerals weathering, ion exchange, and evaporation are the dominant factors controlling the water chemistry in the area. The domination of cations and anions was in the order of Na<sup>+</sup> > Ca<sup>2+</sup> > Mg<sup>2+</sup> > K<sup>+</sup> for cations and Cl<sup>-</sup> > SO<sub>4</sub><sup>2-</sup> > HCO<sub>3</sub><sup>-</sup> > CO<sub>3</sub><sup>2-</sup> in anions. Sodium adsorption ratio (SAR) and % Na<sup>+</sup> in relation to total salt concentration indicate that groundwater mostly falls under unsuitable for irrigation purpose.

## Keywords:

Hydrogeochemistry, Groundwater, Irrigation, Ardestan

Download English Version:

<https://daneshyari.com/en/article/8870592>

Download Persian Version:

<https://daneshyari.com/article/8870592>

[Daneshyari.com](https://daneshyari.com)