

## Accepted Manuscript

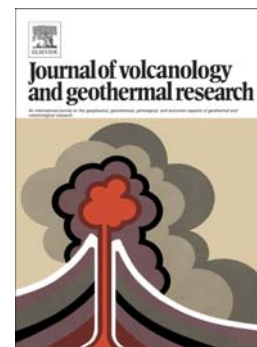
Geochemical study of the Sakalol–Harralol geothermal field (Republic of Djibouti): Evidences of a low enthalpy (regional?) aquifer between graben and rift settings

Mohamed Osman Awaleh, Tiziano Boschetti, Youssouf Djibril Soubaneh, Paul Baudron, Ali Dirir Kawalieh, Omar Assowe Dabar, Moussa Mahdi Ahmed, Samaleh Idriss Ahmed, Mohamed Ahmed Daoud, Nima Moussa Egueh

PII: S0377-0273(16)30320-1  
DOI: doi: [10.1016/j.jvolgeores.2016.11.008](https://doi.org/10.1016/j.jvolgeores.2016.11.008)  
Reference: VOLGEO 5961

To appear in: *Journal of Volcanology and Geothermal Research*

Received date: 7 September 2016  
Revised date: 11 November 2016  
Accepted date: 11 November 2016



Please cite this article as: Awaleh, Mohamed Osman, Boschetti, Tiziano, Soubaneh, Youssouf Djibril, Baudron, Paul, Kawalieh, Ali Dirir, Dabar, Omar Assowe, Ahmed, Moussa Mahdi, Ahmed, Samaleh Idriss, Daoud, Mohamed Ahmed, Egueh, Nima Moussa, Geochemical study of the Sakalol–Harralol geothermal field (Republic of Djibouti): Evidences of a low enthalpy (regional?) aquifer between graben and rift settings, *Journal of Volcanology and Geothermal Research* (2016), doi: [10.1016/j.jvolgeores.2016.11.008](https://doi.org/10.1016/j.jvolgeores.2016.11.008)

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 proof before it is published in its final 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.

# **Geochemical study of the Sakalol – Harralol geothermal field (Republic of Djibouti): evidences of a low enthalpy (regional?) aquifer between graben and rift settings**

Mohamed Osman Awaleh<sup>a\*</sup>, Tiziano Boschetti<sup>b</sup>, Youssouf Djibril Soubaneh<sup>c</sup>, Paul Baudron<sup>d,e,f</sup>, Ali

Dirir Kawalieh<sup>a</sup>, Omar Assowe Dabar<sup>a</sup>, Moussa Mahdi Ahmed<sup>a</sup>, Samaleh Idriss Ahmed<sup>a</sup>,

Mohamed Ahmed Daoud<sup>a</sup>, Nima Moussa Egueh<sup>a</sup>

<sup>a</sup>Centre d'Etudes et de Recherches de Djibouti (CERD), Route de l'aéroport, B.P. 486, Djibouti – ville, République de Djibouti

<sup>b</sup>Department of Physics and Earth Sciences "Macedonio Melloni", University of Parma, Parco Area delle Scienze 157/a 43124 Parma – Italy.

<sup>c</sup>Département de biologie, chimie et géographie, Université du Québec à Rimouski, 310, Allée des Ursulines, Rimouski, QC, G5L 3A1, Canada

<sup>d</sup>Département des génies civil, géologique et des mines, Polytechnique Montréal  
C.P. 6079, succ. Centre-Ville. Montréal. Qc. Canada. H3C 3A7.

<sup>e</sup>UMR G-EAU, BP 5095, 34196 Montpellier Cedex 5, France

<sup>f</sup>GEOTOP Research Center, Montréal, Canada

## **Abstract**

Eighty-six sodium bicarbonate to sodium chloride hot springs and four water wells in the Tadjoura Region of Djibouti were investigated for major, minor (B, Br, F, Sr, Li) chemistry and isotope composition of water molecule and dissolved components ( $^{87}\text{Sr}/^{86}\text{Sr}$ ,  $^{11}\text{B}/^{10}\text{B}$ ,  $^{13}\text{C}/^{12}\text{C}$  and  $^{14}\text{C}$  of DIC,  $^{34}\text{S}/^{32}\text{S}$  and  $^{18}\text{O}/^{16}\text{O}$  of sulfate). The deep saline Na-Cl reservoir at 143°C shows affinity with the shallow geothermal water from the “active” Asal rift. Asal water is a diluted and recycled seawater component with the major cation composition obliterated by equilibration with Stratoid basalt. Locally, the deep reservoir is differentiated in term of recharge, re-equilibration with rocks

Download English Version:

<https://daneshyari.com/en/article/5783939>

Download Persian Version:

<https://daneshyari.com/article/5783939>

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