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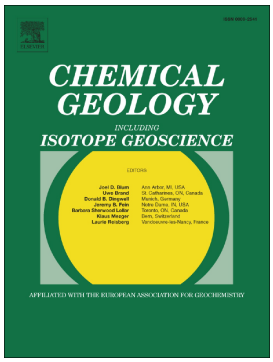

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PII: S0009-2541(17)30186-9
DOI: doi: 10.1016/j.chemgeo.2017.04.003
Reference: CHEMGE 18306

To appear in: *Chemical Geology*

Received date: 28 July 2016
Revised date: 14 March 2017
Accepted date: 4 April 2017

Please cite this article as: F. Italiano, G. Yuce, M. Di Bella, B. Rojay, G. Sabatino, A. Tripodo, M. Martelli, A.L. Rizzo, M. Misseri , Noble gases and rock geochemistry of alkaline intraplate volcanics from the Amik and Ceyhan-Osmaniye areas, se Turkey. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Chemge(2017), doi: 10.1016/j.chemgeo.2017.04.003

NOBLE GASES AND ROCK GEOCHEMISTRY OF ALKALINE INTRAPLATE VOLCANICS FROM THE AMIK AND CEYHAN-OSMANIYE AREAS, SE TURKEY

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Abstract

The SE part of Turkey is characterized by a transtensional regime within the complex collision zone between the Anatolian, Arabian and African plates, which is bounded by two main faults, Dead Sea Fault and its splays on east and the Karasu Fault on west. In this tectonic and geodynamic context developed the Amik and further North, Erzin and Toprakkale districts, which are located onshore the Iskenderun Gulf, with the occurrence of a widespread and young alkaline volcanism dated from 1.57 to 0.05 Ma in Amik, and 2.25 to 0.61 Ma in Toprakkale.

Here we present the results of a petrochemical and noble gases (He-Ar) study performed in basalts and basanites from the Basins in order to constrain the features of the mantle source. The major and trace elements composition indicate that the involved mafic melts could be the result of 0.8-2% partial melting of a predominantly spinel and garnet + spinel mantle, which has typical features of intra-plate OIB magmatism. The $^{4}He/^{40}Ar^{*}$ ratios display two distinct ranges, roughly <1 and >1, for basalts and basanites respectively. The $^{3}He/^{4}He$ ratio of fluid inclusions in olivine crystals ranges