

Isotopic Evidence (He, Ne, Ar) for Deep Fluid in the Caucasus Continental Collision Zone

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Abstract : This study presents and summarizes the results of researching the isotopic signature of helium in the deep fluid eastern part of the Southern slope of the Greater Caucasus and the Lesser Caucasus (Azerbaijan and Armenia) for the period from 2010 to 2016. The results of isotope ratios of $^3\text{He}/^4\text{He}$ in 59 samples of the gas phase of geothermal fluids and mud volcanoes are presented. New data have been obtained not only on the isotopic ratios of helium, but also neon and argon. The R/Ra ratio was analyzed along the Ankara-Sevan ophiolite structure. The patterns of lateral variations of the $^3\text{He}/^4\text{He}$ ratio of different geological structural elements of the studied region are revealed.

Keywords : isotopes helium, deep fluids, tectonic structures, Caucasus

Conference Title : ICGG 2024 : International Conference on Geology and Geophysics

Conference Location : Chicago, United States

Conference Dates : October 03-04, 2024