



Tertiary arc-related volcanism in Central Alborz Mountains

M. R. Irannezhadi (1,2), M. R. Ghorbani (3), M. Vossoughi Abedini (1) M. Pourmoafi (1)

(1) Shahid Beheshti University, Iran, (2) Isfahan University of Technology, Iran, (3) Tarbiat Modares University, Iran

Following the late Cretaceous orogenic movements in Iran, immense volumes of lavas with tuffaceous and other clastic sediments were deposited during Eocene times. A part of these volcanic rocks are exposed in the Central Alborz Mountains. The composition of volcanic rocks ranges from basalt to rhyolite. According to lack of comprehensive geochemical data these magmatic rocks have been alternatively attributed to orogenic or extensional regimes. In this study, we tried to investigate the geochemical characteristics of Central Alborz Volcanic rocks by analysis of major oxides and a vast range of trace elements for 14 volcanic samples of a part of the Alborz Mountains, north of Tehran and compare them with plutonic and subvolcanic rocks that cut them.

The results clearly show subduction-related geochemical characteristics. These are volcanic rocks that erupted in the destructive plate margins which were related to the subduction of Arabian plate under Central Iranian plate. Similar volcanic rocks have been recorded in the geological literature from Alp-Himalayan orogenic mountain belt with the same geochemical affinities and it seems that convergence between Eurasia and southern plates like Africa and Arabia during Tertiary to Quaternary times resulted in the magmatism of Central Alborz-mountains and a variety of other collisional orogens and different styles of subduction in the southern margins of Eurasia. The rocks of the studied area with enrichment in alkaline, alkaline earth elements, and Th with respect to N-MORB and depletion in HFSE (Ta, Nb, Zr, and Hf) relative to LREE are the results of this convergence.