



## **Geological and Petrological Characteristics of Oligocene Magmatic Rocks in The Biga Peninsula, NW Turkey**

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Oligocene magmatic activity in the Biga Peninsula (NW-Anatolia) produced widespread volcano-plutonic complexes. The study region, where in north of the Evciler village in the middle of Biga Peninsula includes these igneous assemblages. In this study, the petrographic and geochemical characteristics of igneous rocks in the region were investigated as well as the geological locations. The magmatic rocks are classified as 6 different units using their lithostratigraphical properties. The volcanism in the region starts with basaltic andesite lava including basalt dykes in the Lower Oligocene. In the Upper Oligocene, the evolved magma by crustal contamination produced commonly dacitic and andesitic lavas. The volcanism continued with andesitic lavas which had significant alterations in the region during this period. Evciler pluton including granite and granodiorite composition with shallow intrusive, was located with the related volcanism at the same time. The volcanic products, i.e. andesitic and trachydacitic lavas, was completed in the interval between Upper Oligocene and Lower Miocene. The post-collisional Oligocene sequence is associated with calc-alkaline composition and it has middle, high-K. Trace and rare earth elements (REE) diagrams show the enrichment in both large-ion lithophile elements (LILE) and light rare earth elements (LREE) with respect to the high field strength elements (HFSE), and a significant increment in heavy rare earth element consumption (HREE). The features of major, trace and rare earth elements of plutonic and volcanic rocks and the compositional variations of Oligocene volcanic group indicate increasing amounts of partial melting, crustal contamination and/or assimilation. The Oligocene post-collisional volcanism in Biga Peninsula points out the lithospheric mantle source enriched by subduction which controlled by slab break-off and lithospheric delamination.

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