



Preliminary results on the geology, petrography and geochemistry of the Karaabalar Magmatic rocks in the Istranca Region, NW TURKEY

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In this study, the Karaabalar magmatic rocks exposed between the town of Karaabalar and the town of Caglayık (Kırklareli) was investigated to determine its petrological and geochemical characteristics. In the study area, the basement lithologies are represented by the Paleozoic Korukoy formation that mainly consists of granitic gneisses, granite with diabase dykes. The Triassic Kocabayır formation that consists of quartz - feldspar schist, quartz-muscovite schist, and mica schist unconformably overlay the basement. The Kocabayır Formation passes up Mahya formation that consists of calcschist, graphite schists and marble. The Jurassic Dolapdere formation lies on the Mahya formation and mainly consists of black marble and calc-schist. These metamorphic rocks cut by the Upper Cretaceous - Karaabalar magmatic rocks in the studied area.

On the basis of petrographical investigations, the common mineral assemblages of the Karaabalar magmatic unit are mainly made up of quartz + alkali feldspar (Orthoclase, microcline) + muscovite + biotite ± opaque minerals. Sericite and epidote excite as secondary mineral.

The Karaabalar magmatic unit generally ranges from granodiorite and quartz-monzonite to granite. Geochemical data obtained from whole-rock samples show that the rocks of the Karaabalar magmatic unit are generally peraluminous with 64 – 75 wt % SiO₂, 13 – 16 wt % Al₂O₃, 0.4 – 1.7 wt % CaO, 3 -5 wt % Na₂O, 3 – 5 wt % K₂O and characterized by enrichment in LREE and LILE and relative depletion in HFSE (e.g. negative Nb and Ta anomalies). LILE concentrations are generally greater, and Ti, Zr, P, Sr and Ba concentrations are smaller than those of normal arc granites, except for Nb and Y. These characteristics indicate a mature arc or collision affinities rather than normal arc granites. Geochemical discrimination diagrams also imply a volcanic arc and/or a collisional tectonic setting for the Karaabalar Granitoids.