

Petrology and Geochemistry of Balkuyumcu-Ankara Volcanics, Central Anatolia, Turkey

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Balkuyumcu Volcanic Complex, located in SW of Ankara, is composed of basaltic trachyandesite, trachyandesite, andesite, dacite and rhyolite. This is a suite of a volcanic plug, named Kargabedir, and its lava flows. Volcanic activity occurred during Lower Miocene (19.9- 21.6 Ma). The most common phenocrysts consist of clinopyroxene (Wo 40-46), plagioclase (An 12.9-56.8), amphibole (Mg# 41.3-74.7), biotite, rarely quartz and oxides. These rocks have both alkaline and calc-alkaline characters. Variation diagrams of SiO₂ with major and trace elements show that the fractional crystallization is the

dominant process involved in the formation of this rock suite. They have high Ba/Nb (>28) ratios, and MORB-normalized spider diagrams indicate Nb and Ti depletions and LILE (such as Ba, Sr, Rb, K) enrichments. Correlation of ⁸⁷Sr/⁸⁶Sr (0.705127- 0.705318) with SiO₂, MgO and Rb/ Sr emphasizes the effect of crustal contamination on these volcanic rocks. All of these geochemical data show that Balkuyumcu volcanic rocks are the products of assimilation and fractional crystallization processes of a magma which is probably related to a subduction zone.