Quaternary Maar Volcanism near Karapinar in Central Anatolia *

J. KELLER
Mineralogisches Institut der Universität, D-78 Freiburg (BRD)

Abstract

In Central Anatolia, Quaternary olivine basalts overlie the Neogene calc-alkaline and sialic post-orogenic volcanic series. Crater forms, cones and lava fields generally exhibit a very fresh morphology suggesting a sub-recent age. Near the town of Karapinar, eruptions took place through the shallow waters of a lake which occupied the present Konya-Eregli plain during Quaternary times. Depending on the varying influence of phreatomagmatic effects, hyaloclastic tuff rings and maar craters, both rich in sideromelane and its palagonitic alteration products, or subaerial red cinder cones developed.

The maar phase is characterized by a large development of base surge structures.

The basalts are alkaline and, mostly, Ne-normative and are distinct for their low TiO₂ content and low Fe/Mg ratio from the alkali olivine basalts from oceanic and stable continental areas.

Introductory Outline of Central Anatolian Volcanism

Within the extensive late to post-orogenic volcanism of Anatolia, the volcanic areas bordering the Taurian fold ranges toward the Central Anatolian median massifs became recently better known as far as their field relations and petrology are concerned. The age of the volcanism is Neogene to Quaternary, and its character is dominantly but not exclusively calc-alkaline (Fig. 1).

North of the town of Afyon, rhyolitic ignimbrites form a voluminous sheet and are overlain by potassic basalt lavas. South of

Afyon, latitic and trachytic domes are associated with leucite-rich potassic lavas and tuff-breccias (Keller and Villari, 1972). Radio-metric K/Ar age determinations gave values from 14.75 to 8.6 m.y. (Besang et al., in press.).

![Map of Asia Minor with volcanic areas](image)

Fig. 1 - Western part of Asia Minor with distribution of the Neogene and Quaternary volcanic areas. The hatched area represents the Central Anatolian Median Massifs. The Galatian andesites are represented by the stippled area near Ankara (after Westerveld, 1957).

West of Konya, the Erenler Dag-Alaca Dag Mountains form a volcanic massif of ca. 1,200 sq.km, which is built up mainly by clustered volcanic domes and associated breccias (Jung and Keller, 1972). Ignimbrite sheets are found at the base of and repeatedly within