

# **COMPARISON OF Ti/V - AND K<sub>2</sub>O - DEPTH RELATIONSHIPS FOR THE VOLCANIC ROCKS OF THE AEGEAN ISLAND ARC**

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The Aegean volcanic arc formed in response to northeasterly subduction of the Mediterranean sea floor beneath the Aegean Sea. Although the lavas from all the major volcanic centres of the arc exhibit typical calc-alkaline major and trace element characteristics it is clear that there are consistent differences in trace-element abundances and ratios in the lavas of the various islands located at different sectors of the arcs reflecting compositional differences in the mantle source and/or in melting conditions.

The K<sub>2</sub>O content as well as the Ti/V ratios of island-arc related volcanic rocks have been used as indicators of the depth of their parental magma genesis. The comparison of the K<sub>2</sub>O- and Ti/V - depth relationships of lavas from different sectors of the Aegean island arc revealed that the parental magma of the rocks from Santorini volcano which is located at the central sector of the arc has been generated at a greater depth than that of the parental magmas of the rocks from the Aegina, Methana and Poros volcanic centres, located at the western sector of the arc. This difference seems to be in accordance to the varying geotectonic structure of the Aegean island arc into its different sectors as it is revealed from geophysical data.

It is shown, finally, that the parental magmas of the lavas from the various sectors of the Aegean island arc have been evolved as complex mixtures of sources available for melting as the subcontinental lithosphere is replaced by uprising asthenosphere material.

## **GEOCHEMICAL CHARACTERISTICS OF VOLCANIC ROCKS FROM THE EASTERN AEGEAN ON AN AXIS PERPENDICULAR TO THE VOLCANIC ARC**

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The volcanic centres of Nisyros, Kos, Kalymnos, Patmos and Southern Chios lie on an axis, perpendicular to the Aegean volcanic arc. The study of the major, trace and