COMPARISON OF Ti/V - AND K_2O - DEPTH RELATIONSHIPS FOR THE VOLCANIC ROCKS OF THE AEGEAN ISLAND ARC

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The Aegean volcanic arc formed in responce 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_2O 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_2O- 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

rare earth element geochemistry of rocks from the above five volcanic centres, showed that the lavas from the back-arc volcanic centres of the Aegean (i.e. Kalymnos, Patmos and S. Chios) exhibit some similarities but also important differences to those from the volcanic centres of Nisyros and Kos, which form the eastern sector of the Aegean volcanic arc.

The lavas from all the five volcanic centres show a high enrichment in LIL relative to HFS elements and negative Nb and Ti anomalies, characteristics of subduction related magmas. The LILE/HFSE ratios are lower for the rocks from Nisyros and Kos, while they are significantly higher for tha back arc volcanics with the highest ratio shown by the Patmos K-rich lavas.

All the lavas, show e LREE relative to the HREE enrichment which is also higher for the back-arc volcanics than for the lavas from Nisyros. The highest LREE/HREE ratio, like the LILE/HFSE ratio, is shown by the Patmos K-rich lavas.

Ploting all the lavas on the Ba/Zr vs. Ce/Zr and Ce/Nb vs. Th/Nb diagrams it is clear that the parental magma of each of the volcanic centres has been developed as a mixture of an arc-like source component and a small but important N-type MORB source component. The contribution of each source in the formation of the parental magmas depends on the position of each volcanic centre, as the extension of the Aegean lithosphere and the depth to the asthenosphere varies spatially and temporally. The variety of the petrographic types occuring in each of the volcanic centres can be attributed to fractional crystallization processes under varying conditions from centre to centre.

PALEOGEOGRAPHICAL AND PALEOCOLOGICAL CHARACTERISTCS OF SARMATIAN IN SERBIA

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During the Sarmatian the greatest part of northern Serbia belonged to the large marine area-Paratethys.

Both intensive and extensive subsidences in the early Badenian were followed by a relatively quiet interval through the Badenian and lower Sarmatian. However, the generally quiet interval included new subsidences of the early Sarmatian in parts of northern Shumadides and Moravides. The subsidences provided for expansion of marine (brakish) areas to the south into the realm of Badenian dry land (Kragujevac and Paracin-Kruševac gulfs of the Velika Morava basin).