

metamorphic and ultramafic basement rocks, necessitate the reconsideration of the Neotethyan origin for the Izmir-Ankara Zone, widely accepted in previous work.

TERTIARY EXTENSION OF CONTINENTAL CRUST AND UPLIFT OF PSILORITIS "METAMORPHIC CORE COMPLEX" IN THE CENTRAL PART OF THE HELLENIC ARC (CRETE, GREECE)

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A new interpretation of the structural evolution of Crete, in the central part of the Hellenic Arc, is herewith presented.

Kinematic analysis of deformation in the central Crete revealed that the structure of Psiloritis Mountains, is characterized by the presence of a "metamorphic complex" in the core.

The structural evolution and the uplift of Psiloritis "metamorphic core complex", is associated with two main successive deformational events; a compressional D1 and an extensional D2. These events overprinted the structures of an older Orogenetic process, which are similar to those created during Cretaceous-Oligocene, in the internal Hellenides.

The first D1 event, took place during Oligocene - Miocene simultaneously with an underplating of crustal material and caused an intense folding and thrusting of continental material towards South, stacking of nappes and overthickening of the accretionary wedge in the central part of the Hellenic Arc.

During Miocene, a regional scale extension is created, in order to balance the large overthickening of the wedge. This D2 extension, is developed subhorizontally in a N-S direction and under bulk coaxial, ductile conditions in the lower nappes, or brittle conditions in the Upper one. This tectonic regime resulted in crustal thinning and continental escape along semi - ductile extensional shear zones.

A relative younger, E-W directed compression developed during Middle to Upper Miocene, in an evolutionary stage of D2 event, normal to the direction of the main extension of the previously formed nappe pile, without changing the finite strain ellipsoid. This compression possibly accelerated the continental escape along fault zones, in a direction normal to the compression. Thus, during Miocene, a compressional field at the front of the escaped masses is created, displacing the compression southwards.

Gradually, after Miocene, uplift, cooling and exhumation of Psiloritis "metamorphic

core complex", followed, while the compressive regime is displaced even southerly, in the area of the Mediterranean ridge.

ON THE VOLCANISM IN THE AEGEAN AREA

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The volcanoes of the Aegean area are studied from the geological and petrochemical point of view. Emphasis is placed in the case of the Santorini volcanoes. Attention has been called to the study of the evolution process of the magma differentiation in their magma chambers. Cases of these magma chambers isolation from the asthenosphere (mantle) are also examined. On the basis of the obtained data it is suggested that the kind of the rocks of the last eruption of an Aegean volcano makes it easy to conclude, if this volcano is able to undergo or not new eruptions. Thus, in the case of alkali rhyolites the question is of a discharged magma chamber, i.e. of an extinct volcano, whereas the presence of dacites with tendency to rhyolite indicates a serious weakness of the magma chamber, i.e. a magma hardly able to erupt at the surface.

ENGINEERING GEOLOGY OF SELECTED DISUSED ANDESITE QUARRIES, IN IZMIR-TURKEY

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The city of Izmir has been founded over Miocene aged volcanic rocks, Neogene sedimentary rocks and Quaternary sediments. Volcanic rocks are mainly consisted of tuffs, agglomerates and andesite lavas. Good quality andesites have been widely used as building stones in construction of buildings and other engineering structures in Izmir, in the past. Andesites were obtained from the quarries opened up in the periphery of the city. As the city has expanded over the years, these andesite quarries remained in the middle of the dwelling areas and then the quarrying operations were stopped without taking any precautions against slope failures. Recently, there has been an increased interest shown to make use of the disused andesite quarries after carrying out engineering geological investigations and rock slope reinforcement, because of the shortage of free space in the city centre.

In this paper, initially a brief review of the geology of Izmir and its surroundings will be explained. The engineering geological properties of andesites will be discussed and the details of the engineering geological studies carried out in these disused andesite quarries will be given. The engineering geological studies involved detailed disconti-