

GEOLOGICAL STRUCTURE AND EVOLUTION OF THE NISYROS VOLCANO

D. Papanikolaou, E. Lekkas, D. Sakelariou

University of Athens, Department of Geology, Panepistimioupoli Zografou,
15784, Athens, Greece

Detailed mapping at scale 1/10.000 permitted us the establishment of the stratigraphic and tectonic structure of the Nisyros volcano. The stratigraphy comprises four lava formations A, B, C, D each followed by pyroclastics and pumise which form a volcanic cone. This stratovolcanic succession is followed by massive rhyolite extrusions in the SW of the cone (Nikia) followed by an important pumise formation contemporaneous and slightly post-dating the caldera formation in the centre of the former cone. Post-caldera massive extrusions of rhyolitic-dacitic lavas cut through the former volcanic cone and caldera building up high mountains in the central and western part of Nisyros.

The tectonic structure is dominated by the activation of four major fault zones dissecting the volcano in triangular segments. The throw of the major faults ranges from 70-100 m and it is the result of both pre-caldera and post-caldera tectonic activity. The faults have influenced the local stratigraphy of the volcano because they have limited as natural barriers the lava flows and consequent volcanic materials only in some segments of Nisyros. Intense geothermal alteration is observed along the major fault zones of Nisyros.

OBSERVATIONS ON THE KINEMATIC AND DYNAMIC EVOLUTION OF NEOTECTONIC BASINS IN EASTERN KORINTHOS

D. Papanikolaou, E. Logos, S. Lozios, Ch. Sideris

University of Athens, Department of Geology,
Panepistimioupolis Zografou, 15784, Athens, Greece

Structural analysis of some small neotectonic grabens in the area of eastern Korinthos, showed that during the first stages of their formation in Late Miocene – Early Pliocene they could be regarded as «pull apart basins», created within the shear zone of an echelon vertical and/or inclined strike-slip faults.

Younger slip motions indicate a gradual change towards oblique-slip faults, whereas finally most recent slip motions indicate dip-slip normal faults.

The overall stress-field seems to be constant throughout the neotectonic evolution (Late Miocene – Present) with a mutual change of the position between σ_1 and σ_2 principal stress axes.

Thus, (i) in the early stages σ_1 was sub-horizontal in the E-W direction whereas in the late stages it became sub-vertical, (ii) σ_2 was sub-vertical and became sub-horizontal in the

E-W direction and (iii) α_3 remained constant in sub-horizontal position around the N-S direction.

This change is attributed to the gradual westward migration of the Hellenic arc in relation to the role of depth of deformation and especially to the probable relation of the Corinthian fault zone from a paleotransform fault zone.

MICROSTRUCTURAL OBSERVATIONS ON THE GRANITES OF IKARIA ISLAND, AEGEAN SEA

D. Papanikolaou, D. Sakellariou, A. Leventis

University of Athens, Department of Geology, Panepistimioupolis Zografou,
15784, Athens, Greece

The microstructures of the Miocene granites of Ikaria island have been studied and important differences concerning the degree and style of deformation have been found. Especially the main granitic body of western Ikaria comprises rather inhomogeneous parts, as far as their structural framework is concerned, with domains where the rock is underformed (mainly along the southern outcrops) or domains where the rock is highly mylonitic with characteristics of S-tectonite (mainly in the western outcrops) or domains where the rock is ultramylonitic with characteristics of L-tectonite (mainly along the eastern outcrops). The shear sense is directed towards the north. The lack of penetrative structures within the smaller granitic body of Xylosyrtis and the available radiochronologic data permit the dating of the microstructures and the discussion of their genetic relation within a megashear developed during the late geotectonic evolution of the area.

GEOMETRY OF ACID INTRUSIVES IN PLAKA, LAURIUM, AND RELATION BETWEEN MAGMATISM AND DEFORMATION

D. Papanikolaou, D. Syskaki

University of Athens, Department of Geology, Panepistimioupolis Zografou,
15784, Athens, Greece

Some new intrusive forms have been described in the granitic rocks of Plaka area in Laurium, such as loccoliths and pipes, besides the well known dykes and sills. Some of the granitic bodies have been found to be intensively deformed bodies with penetrative structures. Some isoclinal non cylindrical folds with curved hinges have been also described in some granitic bodies and also in the neighboring mica schists and phyllites. These structures occur mainly above the thrust plane of the Laurium allochthon. The above observations