THE GEOLOGY OF POROS ISLAND IN THE CONTEXT OF ARGO-SARONIC STRUCTURAL EVOLUTION

SCHWANDNER, FLORIAN M.
Institute of Mineralogy and Petrology (IMP), Swiss Federal Institute of Technology (ETH),
Sonneggstr. 5, CH-8092 Zürich, e-mail: florimax@erdw.ethz.ch

ABSTRACT

Poros Island in the Saronic Gulf (Greece) is built of several different types of sedimentary, metamorphic and igneous rocks. They are, during and after their formation, superposed upon one another by tectonic processes of different style and timing.

The alpidic orogen of the Hellenides in general is build of several SW to S vergent nappe zones, the West and Central Hellenic Nappes, the Median Crystalline Belt, and the Innerhellenic Nappes, thrusted over a southern vorland. Two parallel Tethyan ophiolite belts, the Vardar zone to the east and the Pindos zone to the west, border the Central Hellenic Pelagonian Nappe Group which is thought to represent an accreted microcontinent that rifted from Gondwana in Mid-Tertiary. Ophiolite emplacement and closure of the basin started in the Late Jurassic to Early with latest obduction events in Turonian to Early Tertiary times. The southwest facing Subpelagonian margin as exposed in the Argolis Peninsula, the Saronic islands and Attica comprises Triassic to Tertiary sedimentary sequences, Jurassic ophiolites, and island arc volcanic rocks.

A polyphase structural edifice of Meso- to Cenozoic sedimentary and ophiolitic rocks is exposed on Poros Island. Early to Middle Cretaceous platform carbonates (Akros Formation) and slumped calciturbiditic slope deposits (Poros Formation) (tectonic phase F1) show an upward transition to Upper Cretaceous siliciclastic carbonates and Maastrichtian-Eocene flysch (Ermioni Complex), indicating a convergent tectonic regime (F2). Cenomanian-Turonian ophiolite emplacement is documented by coarsening upward flyschoid serpentinite breccias intercalated with Akros limestones, being overthrusted by massive serpentinite (F2). Early to Middle Tertiary thrusting (F3) results into an imbricated nappe stack. Mélanges and Serpentinite lenses within the thrust planes absorb most of the strain. Pre-pliocene SE and SSW vergent folding (F4) complicate the structural relations. Neogene to present normal faulting and associated volcanism (F5) characterize the later phases of deformation, leading to uplift, NE-tilting of the Poros block, and erosion, as well as the (still active) formation of the Graben of Trizinia.

Α΄ ΔΙΕΘΝΕΣ ΣΥΝΕΔΡΙΟ ΙΣΤΟΡΙΑΣ-ΑΡΧΑΙΟΛΟΓΙΑΣ ΤΟΥ ΑΡΓΟΣΑΡΩΝΙΚΟΥ

ΠΟΡΟΣ, 26-29 ΙΟΥΝΙΟΥ 1998

1st INTERNATIONAL CONFERENCE ON THE HISTORY AND ARCHAEOLOGY OF THE ARGO-SARONIC GULF

POROS, 26-29 JUNE 1998