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ABSTRACTS



Plio-Quaternary tectonics on rhodos island, SE Aegean sea

D. SAKELLARIOU, E. LEKKAS and D. PAPANIKOLAOU

National Centre for Marine Research, 16604 Athens, Greece

Miocene faulting resulted to the break up of the alpine structure on Rhodes island and the formation of four main post-alpine basins with fluvial or lacustrine sedimentation in Upper Miocene - Pliocene. The Northern Rhodes basin occupies the northern part of the island and is bounded southwards by the Salakos-Archipolis E-W trending fault zone. The Apollona basin is located in Central Rhodes and has developed between the Profitis Ilias E-W oriented fault zone to the north and the WNW-ESE trending Mandriko-Massari dextral strike slip zone to the south. Two more SW-NE elongate basins (Apolakkia and Lachania) have developed in Southern Rhodes along the Atavyros-Akramitis fault zone and the SE coast of the island respectively. The marginal fault zones separate the post-alpine basins from the mountainous areas of the island where the complex alpine nappe stuck outcrops. Continuous normal and horizontal movements along the main marginal faults during Pliocene-Pleistocene caused extensional (faulting) but also compressional (folding, reverse faulting) deformation of the post-alpine sediments. The successive, SW-NE trending, wide-angle folds of the Apollona basin Pliocene sediments are interpreted as the result of transpressional deformation between two marginal fault zones.

In Pleistocene the entire island undergoes ESE-ward rotation, which has been clearly imprinted on the development of the drainage network, the deposition of the Pleistocene sediments and the evolution of the marine terraces. WNW-ESE faulting of the eastern part of the island separates subsiding neotectonic blocks with marine sedimentation from uplifting areas, where alpine basement rocks outcrop. Relics of uplifted marine terraces on the alpine rocks offer the possibility of accurate dating of vertical movements in Pleistocene. Holocene uplifted paleo-coastlines prove the continuity of the neotectonic uplift or subsidence in recent times.