

Neotectonic and Recent Deformation of Crete

M. DERMITZAKIS , V. KARAKITSIOS and E. LAGIOS

Subfaculty of Earth Sciences, University of Athens, Panepistimiopolis, 15784 Athens (Græce)

In Crete, the Quaternary shorelines constitute good vertical deformation indicators. The stratigraphical age of the shorelines and their today's elevation, show that they've been under strong deformation associated with the block-faulting that affected Crete.

Radiometric dating of the shorelines, made from various researchers, show that the average speed of some uplifts from Tyrrhenian up to the last thousand years ranges between 5 to 6 cm/100 years.

The speed of differential deformation for the entire Neotectonic period (approximately 13 M. years) is estimated to be similar with the speed of the fossilized Pleistocene shorelines.

The analysis of the Neotectonic period faults shows that they are associated with a strong extensional status, in a perpendicular direction to the longer dimension of Crete (and in general to the Aegean arc). In the internal of this status, small events of ephemeral compression have been observed, that are different in width and in direction.

This extension that has been expressed with normal faults, has caused a gravitationally spreading of Aegean towards the Ionian sea on an extremely large scale in Crete. This phenomenon is associated with the subduction of the African plate under the Aegean plate.

Shorelines of the last 1500 years "record" revolving upward movements in West Crete with maximum rising approximately 10m.

Gravimetric measurements of the last 7 years in Crete show that the upward and downward movements in the horsts and grabens respectively, are still continuing in an increasing speed. This phenomenon is probably related to the particular stage of continental collision between Africa and Europe.