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Neotectonic folds in central-western Peloponnese (SW Greece)

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The western Peloponnese, being very close to the Hellenic Trench, is one of the most active areas in Greece. The study area is located at the central western part of Peloponnese and it is developed in a NNW-SSE direction along 45 km, parallel to the Ionian trench, which occurs at a distance of only 30-40 km to the west.

Based on the morphotectonic studies of the neotectonic macrostructures of the Central-western Peloponnese in many scales, it was concluded that the main neotectonic mega-structure is the "Megalopolis — Lykaeon — Minthi - Tetrazio composite tectonic graben (MELYMITE CTG)" (1st order structure). Within MELYMITE CTG there are neotectonic macrostructures of lower order, (Zacharo, Neda, Megalopolis, and the northern part of Kalamata — Kyparissia tectonic grabens and tectonic horsts such as Minthi, Lykaeon and Tetrazio) striking E-W. The MELYMITE CTG is a composite neotectonic structure of brittle-ductile type, which can be characterized as a Mega-fold of syncline type, if one takes into account the geotectonic units occurring within, and in the same time as tectonic graben as a big fault-zones bound it.

Neotectonic folds occur in the alpine formations as well the post alpine ones, in various scales. They can be characterized as open, closed or very closed folds. The open folds are generally more recently created. Furthermore, it must be underlined that all these folds haven't been created under great depth conditions, (the theoretical area of ductile deformation) but in surface conditions (the theoretical area of brittle deformation). In addition, it is impossible for anybody to suggest that these folds are synsedimentary structures, as the fold axes have a constant strike E-W throughout all the beds of the formations.

Consequently, the neotectonic deformation is expressed not only by faults, but also by folds, that in some cases are the principal structures of the neotectonic deformation. The folds, and the ductile deformation in general, are not easily observed on the surface because of the intense presence of the brittle tectonics. The ductile deformation has played a very important role during the creation and evolution of the MELYMITE CTG (a mega-syncline in the scale of geotectonic units), especially during the evolution of the 2nd, 3rd, ... order neotectonic macrostructures. Furthermore, it has strongly affected the morphogenetic processes.