



Development and inversion of a Neo-Tethyan strand in the central Greece

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Structural and palaeostress analyses were performed in order to elucidate the tectonic evolution of a Neo-Tethyan strand separating Parnassos from Pelagonian microcontinent. Our analyses enabled us to distinguish a succession of four deformation phases. During the Early Jurassic the region between the Parnassos and Pelagonian microcontinent was subjected to a transtensional phase of deformation. In the context of this tectonism, a crustal-scale NW-trending right lateral fault zone caused a series of rhomb-shaped pull apart basins. Intense rifting generated the development of oceanic lithosphere and related sediments within these basins. Mesoscopic structural analysis and olivine's lattice preferred orientation indicate a NE-trending spreading axis oriented perpendicular to the system of the dextral faults. The width of the pull-apart basins diminishes considerably from the southeastern parts (Gerania Mt.) to the north-western tip (Agia Triada area) of the fault zone. In Late Jurassic- Early Cretaceous, the area was affected by a phase of regional NNW-SSE compression which resulted in the inversion of NE-trending margins of the pull-apart basins. Both NW- and SE-directed obduction of oceanic lithosphere took place creating pop-up structures. This phase was also accompanied by the sedimentation of clastic sediments. A weak phase of extension in combination with the rise of the sea level were evident in the Upper Cretaceous onlap of limestones. During Paleocene-Eocene the study area suffered by a second contractional phase which was associated with the collision between the Pelagonian and Parnassos microcontinent. The majority of NW-trending thrusts and folds indicate a top to the SW sense of nappe movement. NE-directed backthrusting was also an important deformation feature.