

Role of local to regional-scale collisions in the closure history of the Southern Neotethys, exemplified by tectonic development of the Kyrenia Range active margin/collisional lineament, N Cyprus

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Active margin processes including subduction, accretion, arc magmatism and back-arc extension play a key role in the diachronous, and still incomplete closure of the S Neotethys. The S Neotethys rifted along the present-day Africa-Eurasia continental margin during the Late Triassic and, after sea-floor spreading, began to close related to northward subduction during the Late Cretaceous. The northern, active continental margin of the S Neotethys was bordered by several of the originally rifted continental fragments (e.g. Taurides). The present-day convergent lineament ranges from subaqueous (e.g. Mediterranean Ridge), to subaerial (e.g. SE Turkey). The active margin development is partially obscured by microcontinent-continent collision and post-collisional strike-slip deformation (e.g. Tauride-Arabian suture). However, the Kyrenia Range, N Cyprus provides an outstanding record of convergent margin to early stage collisional processes. It owes its existence to strong localised uplift during the Pleistocene, which probably resulted from the collision of a continental promontory of N Africa (Eratosthenes Seamount) with the long-lived S Neotethyan active margin to the north. A multi-stage convergence history is revealed, mainly from a combination of field structural, sedimentological and igneous geochemical studies. Initial Late Cretaceous convergence resulted in greenschist facies burial metamorphism that is likely to have been related to the collision, then rapid exhumation, of a continental fragment (stage 1). During the latest Cretaceous-Palaeogene, the Kyrenia lineament was characterised by subduction-influenced magmatism and syn-tectonic sediment deposition. Early to Mid-Eocene, S-directed thrusting and folding (stage 2) is likely to have been influenced by the suturing of the Izmir-Ankara-Erzincan ocean to the north ('N Neotethys'). Convergence continued during the Neogene, dominated by deep-water terrigenous gravity-flow accumulation in a foredeep setting. Further S-directed compression took place during Late Miocene-earliest Pliocene (stage 3) in an oblique left-lateral stress regime, probably influenced by the collision of the Tauride and Arabian continents to the east. Strong uplift of the active margin lineament then took place during the Pleistocene, related to incipient continental collision (stage 4). The uplift is documented by a downward-younging flight of marine and continental terrace deposits on both flanks of the Kyrenia Range. The geological record of the S Neotethyan active continental margin, based on regional to global plate kinematic reconstructions, appears to have been dominated by on-going convergence (with possible temporal changes), punctuated by the effects of relatively local to regional-scale collisional events. Similar processes are likely to have affected other S Neotethyan segments and other convergent margins.