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Role of carbonate platforms, continental margin sediments/volcanics and oceanic units in Tethyan assembly: evidence from the Eastern Taurides, Turkey

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We focus here on the palaeotectonic development of the Eastern Tauride region in its wider regional setting related to the opening and closure of Neotethys. Continental margin-type, ophiolitic and melange units are widely exposed in eastern central Turkey (Gürün, Darende, Hekimhan and Pinarbaşı areas). These units restore as a Triassic rifted continental margin that underwent passive margin subsidence during Jurassic-Early Cretaceous. Ophiolitic rocks (e.g. Pınarbaşı, Gürün area, Kuluncak, Hekimhan, Divriği) formed by spreading above a northward-dipping intra-oceanic subduction zone during Late Cretaceous time. Melanges associated with the emplaced ophiolites are interpreted as parts of the former rifted margins and the early formed (Triassic) oceanic crust that were assembled into an accretionary prism during latest Cretaceous time. The emplacement of the continental margin units, melanges and ophiolites onto the Eastern Tauride platform (e.g. Gürün Autochthon) was driven by trench-margin collision during latest Cretaceous time (Campanian-Maastrichtian). The allochthonous units were re-thrust further south during Early to Mid-Eocene time related to regional continental collision. Eocene thrusting strongly affected the western (Pınarbaşı) and central (Gürün) areas of the region studied, whereas areas further east mainly experienced folding. Specifically, there is little evidence of Eocene thrusting Darende Basin in the east. This suggests that the thrusting was focused by the collision of irregularly shaped microcontinents while intervening areas remained less affected.

The complex present-day Eastern Tauride outcrop then reflects post-collisional suture tightening (Miocene) and Plio-Quaternary strike-slip (transpression/transtension) related to the westward 'escape' of Anatolia. As a result of this, different levels of the thrust stack are commonly juxtaposed complicating reconstruction.

After taking account of several alternative tectonic models, we infer that the Eastern Taurides experienced a common tectonic development with the Central and Western Taurides during Mesozoic-Early Cenozoic time. However, the geological history diverged after Eocene ocean closure mainly as a result of the contrasting neotectonic deformation in different areas.

We conclude that all of the oceanic units (melanges and ophiolites) in the region studied relate to the rifting and closure one particular strand of Neotethys, namely the Inner (Intra) Tauride ocean, while the wider İzmir-Ankara-Erzincan ocean was located further north adjacent to Eurasia. The Eastern Tauride oceanic and continental units therefore evolved separately from the better known Southern Neotethys that opened and closed further south adjacent to Arabia