



A 600-km long coherent subduction wedge in W-Turkey

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In Western and Central Turkey throughout Mesozoic and Tertiary times, the closure of the Tethys oceanic realm took place through the consumption of oceanic basins and accretion of continental blocks. Regarding its Alpine (i.e. Cretaceous-Tertiary) history, the tectonic framework of W-Turkey is rather clear. The following blocks build up the Turkish microplate: a) Pontide Block, assembled during the Cimerian (late Triassic) closure of the Palaeo-Tethys; b) the Anatolide-Tauride Block, partly metamorphosed under HP-LT conditions in Late Cretaceous to Palaeocene times; c) the Central Anatolian Crystalline Complex, made of Late Cretaceous high grade metamorphics and intrusions; and d) the Alanya Nappes. The ways of imbrication of these tectonic units, however, are often matter of debate. Particularly, the number and position of former oceans is questioned. This is the case in Central Turkey where the presence of a Neo-Tethyan ocean between Central Anatolian Crystalline Complex and Anatolide-Tauride Block is very controversial.

Recent studies in sedimentary cover of the Anatolide-Tauride Block show that Alpine subduction-related HP-LT metamorphism is not restricted to the northernmost Tavşanlı Zone, but is widespread in all the tectonic units (Tavşanlı Zone, Afyon Zone, Menderes Massif and Lycian Nappes). The widespread occurrence of HP-LT tethyan metasediments sparks the debate on the Alpine evolution of this area.

In the central part of the Afyon Zone, Lower Triassic metapelites and metaconglomerates contain Fe,Mg-carpholite, and their pressure conditions are estimated at between 6 and 9 kbar for temperature around 350 °C. Metamorphic age is stratigraphically constrained between 65 and 55 Ma that strongly differs from the Tavşanlı Zone (85-80 Ma).

New observations indicate that carpholite-bearing rocks of the Afyon Zone are present from North of the Menderes Massif to South-East of the Central Anatolian Crystalline Complex, depicting a HP-LT tectonic unit of 600-km length. It is noteworthy that some of these HP-LT metamorphism occurrences are closely related to glaucophane- and/or lawsonite-bearing rocks already reported by v. d. Kaaten (1966).

Therefore, from Late Cretaceous to Eocene, the consumption of a Neo-Tethyan ocean between Anatolide-Tauride Block and Central Anatolian Crystalline Complex has formed a coherent accretionary wedge over 600 km.