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Understanding subduction dynamics in Central Anatolia

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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 tectonics units, however, are often matter of debate. Particularly, the number and position of former oceans is questioned.
Recent studies int the Anatolide Tauride Block show that Alpine subduction-related HP-LT metamorphism is not restricted to the northernmost Tavşanlı Zone, but is actually widespread in the tectonic slices of (Tavşanlı Zone, Afyon Zone, Menderes Massif and Lycian Nappes). These new blueschist-facies metamorphism occurrences spark the debate on the Alpine evolution of this region. Fe,Mg-carpholite-bearing rocks occur not only in its central part of the Afyon Zone, but South of the Central Anatolian Crystalline Complex, all along from the Menderes Massif to East of Kayseri. Some of these occurrences are closely related to glaucophane- and/or lawsonite-bearing rocks already reported in the sixties by v. d. Kaaten. On top of the Mesozoic sequence of the Afyon Zone, consisting of a coherent marble sequence, an accretionary mélange, made of a serpentinized blueschists, marbles and mantellic rocks occurs. This mélange is typical of the Tavşanlı Zone. We also observed it, croping out scarcely between the CACC and the Afyon Zone all the way to Kayseri. Therefore our field observations lead us to extend the Afyon and the Tavşanlı Zones eastwards and to depict them as HP-LT tectonics slices, of more than 600-km long. P,T-conditions and ages from the Tavsanli lawsonite blueschists (24 kbar/450 °C; 85-80 Ma) contrast with the Afyon carpholite bearing metapelites and associated blueschists (8kb/350 °C; 65-60 Ma).
The two HP-very LT metamorphic belts occurring in Central Anatolia are separated by an low grade flysch. This flysch and the age difference between HP belts open the question of the number of subduction zones during the late Cretaceous in Central Anatolia.
If two subductions are assumed this area compares to the Alps, but an equivalent to the Briançonnais microcontinent is missing. The dynamic of a one subduction zone model could be similar to the the Aegean realm today. In this case, Tavşanlı - Afyon can be compared to the situation between Rhodopes and Tinos. There, similarly significant differences in P,T conditions and ages are obvious, while direct observation of contacts are hampered by the seas. Contrarily the Tavşanlı - Afyon realm allows insight into a dual metamorphic belt.