

ACOMPILATION OF TECTONIC UNITS OF THE ALPINE COLLISION ZONE BETWEEN ALPS AND WESTERN TURKEY

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Correlating tectonic units between the Alps and Western Turkey allows discussing along-strike similarities and differences of the Eastern Alpine-Mediterranean orogen. To this goal we decided to remove post-tectonic basin fills, covering large parts of the Eastern Alpine-Mediterranean orogen, and in the case of the Rhodopes, large volumes presently occupied by post-tectonic plutons. This results in the disadvantage that the location of tectonic boundaries occasionally remains speculative. On the other hand our approach has two major advantages: (1) it allows for superimposing additional information, such as e.g., post-tectonic basins, manifestations of magmatic activity, location of ore deposits, onto a coherent tectonic framework and (2) for outlining the following major features of the Eastern Alpine-Mediterranean orogen:

1. Dinarides-Hellenides, Anatolides and Taurides are orogens of opposite subduction polarity with respect to Alps and Carpathians. The polarity switches across the Mid-Hungarian fault zone, a suspected former trench-trench transform fault.

2. The Dinarides-Hellenides-Taurides consist of nappes detached from the Adriatic-Tauride continental margin, separated from Africa by the southern branch of Neotethys, during Cretaceous and Cenozoic orogeny. Internal units (e.g., Jadar-Kopaonik, Drina-Ivanjica, Pelagonia, Tavsanli and Ören-Afyon zones, Lycian nappes) form composite nappes rather than continental terranes, passively carrying ophiolites obducted in the latest Jurassic–earliest Cretaceous (in the case of the Dinarides-Hellenides) and during Late Cretaceous times (in the case of W-Turkey) on top of the Adriatic-Tauride margin successions.

4. Ophiolites on top of composite nappes are not oceanic sutures. They root in the northern branch

of the Neotethys ocean that started closing during obduction. Suturing between Adria-Taurides and Europe-Pontides occurred in the latest Cretaceous along the more internal Sava-Izmir-Ankara suture Zone.

5. Obducted ophiolites are confined to between the Dinarides and Western Turkey. By contrast, in the Alps and Carpathians oceanic units occur invariably within accretionary prisms and suture zones.

6. Important lateral changes also concern the present-day lithospheric configuration. In the Dinarides, the Adriatic lithospheric slab can only be traced down to c. 200 km depth. Below the Aegean Sea, >2100 km of coherent slab are present, indicating long-lasting subduction of lithosphere that probably initiated in Mid-Cretaceous times.

7. The enigmatic Rhodopian orogen is interpreted as a giant core complex that became exhumed in Late Eocene and Miocene below the Carpatho-Balkan orogen, the Serbomacedonian "Massif" and the Circum-Rhodope Unit. Its tectonic position is similar to, but not identical, with that of the Sakarya Zone of the Pontides. The latter preserves the westernmost relics of the Paleotethys suture.

This yet unpublished map extends an earlier compilation by Schmid et al. (2008) into the southern Balkan Peninsula, the Aegean and Western Turkey. The current draft of this map is freely available from the first author and comments are welcome.

References

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