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Tracing the closure of Neotethys from the Alps to Western Turkey II: Similarities and differences between Dinarides, Hellenides and Anatolides-Taurides.

Stefan Schmid (1), Daniel Bernoulli (2), Bernhard Fügenschuh (3), Liviu Matenco (4), Senecio Schefer (5), Roland Oberhänsli (6), and Kamil Ustaszewski (7)

(1) Inst. Geophysik, ETH-Zürich, Switzerland (stefan.schmid@erdw.ethz.ch) , (2) Geol.-Pal. Inst. Univ. Basel, Switzerland (Daniel.Bernoulli@unibas.ch), (3) Geology and Paleontology, Innsbruck Univ., Austria (Bernhard.Fuegenschuh@uibk.ac.at) , (4) Faculty of Earth and Life Sciences Vrije Universiteit, Amsterdam, The Netherlands (liviu.matenco@falw.vu.nl), (5) Geol.-Pal. Inst. Univ. Basel, Switzerland (Senecio.Schefer@unibas.ch), (6) Inst. Geowissenschaften Univ. Potsdam, Germany (roob@geo.uni-potsdam.de), (7) GFZ German Research Centre for Geosciences, Potsdam, Germany (kamilu@gfz-potsdam.de)

This contribution presents an extension of a previously published tectonic overview (Schmid et al. 2008) into Greece and Western Turkey and discusses along strike similarities and differences. The Dinarides, linked to the Alps-Western Carpathians along the present-day Mid-Hungarian fault zone (a former transform fault), represent an orogen of opposite subduction polarity with respect to the Alps. Dinarides and Hellenides alike consist of far-travelled nappes detached from the Adriatic continental margin along Paleozoic or younger decollement horizons during Cretaceous and Cenozoic orogeny. The more internal nappes (i.e. Drina-Ivanjica, Pelagonian) are composite nappes in which the allochthonous Adriatic margin sequences passively carry previously (during the latest Jurassic) obducted ophiolites (Western Vardar Ophiolitic Unit). Hence, such obducted ophiolitic units (for example, the Mirdita ophiolites) have to be rooted in one single oceanic Neotethys that later closed and formed the Sava-Izmir-Ankara suture (Ustaszewski et al 2011). Therefore such ophiolitic "massifs" found SW or S of the Sava-Izmir-Ankara suture zone do not mark oceanic sutures nor do the Drina-Ivanjica and Pelagonian "massifs" represent independent continental fragments (terranes). The same logic applies to Western Turkey with the difference that the ophiolites that overly Tavsanli zone, Ören-Afyon unit (Pourteau et al. 2010) and the Lycian composite nappe were obducted in Late Cretaceous rather than Late Jurassic times.

The Budva-Cukali-Krasta-Pindos paleogeographic zone represented an intra-platform pelagic seaway during the Triassic (Bernoulli 2001) that persisted into Eocene times. In the southern part of the external Dinarides and in the western Hellenides the incompetent pelagic strata and overlying Cenozoic flysch became the site of a decollement zone also for the far-travelled higher nappes such as the High Karst-Parnassos nappes and the Korabi-Pelagonian composite nappe that carries previously stacked nappes on its back. This thrusting was active in Late Eocene times. Since the amount of Cenozoic-age shortening substantially increases eastward, as expected from plate tectonic reconstructions, the Budva-Cukali-Krasta-Pindos nappe laterally develops into an intracontinental suture zone marked by the Cycladic Blueschist Zone of the eastern Hellenides that can be traced into Western Turkey (Dilek nappe) were this blueschist belt overlies and surrounds the Menderes tectonic window that we parallelize with the Dalmatian-Kruja-Gavrovo-Tripolitza paleogeographic and tectonic unit. Conversely, the amount of Cenozoic-age displacements accommodated within the Budva-Cukali-Krasta-Pindos tectonic unit dramatically decreases towards the northwest, i.e. within the northern external Dinarides where the Budva zone wedges out and intra-platform Eocene-age thrusting decreases to negligible amounts near the Southern Alps-Dinarides junction. The reasons for this are that (1) much of the Europe-Adria-convergence is here taken up by the Alps that exhibit an opposite subduction polarity and (2) that the amount of Africa-Europe convergence decreases westward.

Important lateral changes are also observed when comparing the present-day lithospheric configuration of the Dinarides with that of the Hellenides. While the Adriatic lithospheric slab can only be traced down to a depth to some 200km whereas its deeper parts broke off (Spakman &Wortel 2004), an over 2100 km long slab is still preserved below the Aegean part of the Hellenides (Hafkenscheid et al. 2006), indicating long-lasting subduction of one single lithospheric slab that initiated during the onset of closure of Neotethys (Jurassic?). According to the crustal-scale retrodeformation provided by Jolivet & Brun (2010) some 1500km of this 2100 km plate

convergence occurred after Neotethys closed, i.e. after the Sava-Izmir-Ankara suture zone formed some 65Ma ago (Ustaszewski et al 2011).

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