

NW to NWN, respectively. Overthrust nappes are compressed N-S or even towards NNE. S_{Hmax} orientation in the nappes is more or less similar with the last stage of folding compression in the Western Outer Carpathians. NW orientation of S_{Hmax} for metamorphic basement is characteristic for regional, „plate” compression characteristic for West European Stress Province.

Pre neogene terranes in the central part of the Balkan Peninsula

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At the end of Oligocene the geological framework of the central part of the Balkan peninsula was established. The preexisting terranes or composite terranes have already been in their recent position, and the last existing oceanic area, the Vardar ocean was closed.

The following units in this frame, from the east to the west, can be distinguished: (1) The composite terrane of the Carpatho-Balkanides (CBCT), composed of five terranes, docked together and to the Moesian plate at the East before the Middle Carboniferous; (2) The Serbian-Macedonian composite terrane (SMCT), which parts docked to the CBCT in Ordovician, but at its West new units were added during the Lower Paleozoic; (3) The Vardar Zone composite terrane (VZCT) representing the suture zone or a relict of the former Vardar Ocean, with a long and complex evolution, including different parts of this large oceanic area and incorporated crustal fragments. The largest and probably the last one among them was the Jadar block terrane, pushed into the Vardar zone oceanic area in Upper Cretaceous. This oceanic area was successively closed from the East (during Upper Jurassic) to the West (in the Uppermost Cretaceous), but some parts were closed even earlier; (4) The five terranes belonging to the Dinarides: the Drina-Ivanjica terrane (DIT), the Dinaridic Ophiolite Belt terrane (DOBT), the East Bosnian-Durmitor terrane (EBDT), the Central Bosnian Mountains terrane (CBMT), and the Dalmatian-Herzegovinian composite terrane (DHCT). The DIT, the CBMT and the DHCT, or the basement of the Mesozoic carbonate platforms, merged together during Permian. The DOBT originated by Triassic rifting in that, during Permian (?) formed composite terrane, then was developed in an oceanic area and closed before the end of Jurassic, now are exposed only the remnants of this oceanic basin. The position of the EBDT

terrane is not clear, it was probably pushed into the DOBT during (Middle/Upper ?) Jurassic.

At the end of Cretaceous this framework was established, during the Paleogene only movements along transcurrent faults, rotation and northwards movement of most units took place.

Neogene tectonics, basin formation and sedimentation at the Alpine-Carpathian-Pannonian junction zone

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During the neo-Alpine period, the basin forming processes led to the evolution of the Neogene basin system in the central and inner zones of the Alpine-Carpathian-Pannonian junction. The Vienna and Danube basins are the most extensive, filled by marine and lacustrine sediments attaining thickness from 5 to 8 km.

In the Early Miocene, during the initial stage of the collision between the Western Carpathians and North-European platform, basins of wrench fault furrow-type originated on the northern margin of the paleo-Alpine consolidated part of the orogene. In the latest Lower Miocene, during the Karpatian (culmination of the collision), the pull-apart basins were formed in the transpressional-transtensional regime in more external zones (Vienna Basin). In the hinterland of the orogene, mainly grabens originated. The basins in the frontal part of the Western Carpathians are characterized by thin-skinned tectonics, while the initial rifting of the back-arc basins were accompanied by whole-lithosphere extension.

An orogenic collapse took place during the Middle to Upper Miocene in a transtensional regime. Extensional basins of the syn-rift and post-rift back-arc types have been formed in the central zone; in the marginal parts the basins were formed by pull-apart mechanism. In the central part, the combination of normal faults and listric décollements took place (Danube basin).

The orogenic collapse attacked also inner zone. Neogene syn-rift and post-rift back-arc basins with graben-like features, superimposed on the Buda Paleogene Basin, were formed in the transtensional regime. Thickness of the Neogene sediments in the examined area reaches some 4-6 km.

During the Pliocene and Quaternary a partial relief inversion took place in the Central Western Carpathian area. The Pliocene compressional event is characterized by the stress-field with compression oriented perpendicular to the orogenic trend.