basins. These basins are underlain by anomalously thin crust (20-22 km) and lithosphere (55-60 km) in a spatially coincident manner.

Two regional structure transect were constructed across the Hungarian and Romanian part of the Pannonian Basin and the Apuseni Mts. These perpendicularly oriented sections were also constrained by deep reflection seismic profiles (Pannonian Geotraverse 1 and 4) in order to gain insight into the lithospheric-scale structure of the region. These transects suggest large-magnitude extension during the Neogene, mostly due to the superimposed extensional styles.

Alpine tectonics in the East Alpine-Pannonian transition zone (Austria-Hungary)

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Structural interpretation of reflection seismic profiles combined with well data reveals distinct modes of upper crustal extension in the NW Pannonian Basin. As the first manifestation of extensional collapse at the beginning of the Middle Miocene (~17.5 Ma, Ottnangian/Karpatian boundary) the Rechnitz metamorphic core complex has been formed in the Raba River extensional corridor.This metamorphic core complex style, ENE-WSW trending extensional phase can be characterized by a minimum of 80 km horizontal extension. Shortly after, and partly overlapping with this period, the style of syn-rift extension changed to a wide-rift style one (16.5-13.8 Ma, Early and Middle Badenian) producing a minimum of 40 km extension in a NW-SE direction across the East Alpine/Pannonian transition zone.

The predominance of low-angle normal faults in the Neogene structure of the Danube Basin excludes its pull-apart basin origin proposed by many. The numerous Miocene detachment faults interacted with earlier Cretaceous decollement levels, although in a more complicated manner than previously thought.

Widespread Upper Badenian and Sarmatian strike-slip faulting has little to do with the formation of the Danube Basin but it belongs to the post-rift phase and records a basin-wide inversional stage. The still continuing, but gradually diminishing continental extension during the Late Miocene and Pliocene (12.5-5.5 Ma, Sarmatian-Lower Pannonian) could not advance to the localization of extension into a narrow rift zone in the NW Pannonian Basin, except perhaps the center of the Danube Basin (zone of Pasztori and Kolarovo).

Regarding the whole lithosphere of the NW Pannonian Basin gravity modeling indicates that the present-day thickness minima for the crust and the upper mantle do not coincide. The some 160 km lateral offset between them indicates the detachment of the the upper crust from the mantle lid along a rheologically weak lower crust during Miocene times.

Geodynamic evolution of the area adjoining the Pannonian Basin and Dinarides

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Almost all recent geodinamic interpretations of the evolution of the Pannonian Basin (PB) are related to the Carpathians. However, the Dinarides, especially its northernmost parts played very important role in their evolution.

The central part of the northernmost Dinarides is genetically related to an ancient magmatic arc, as indicated by following units: (1) Upper Cretaceous-Paleogene trench sediments, in lower parts interlayered by basalts, rhyolites and pyroclastics which overlie (2) Jurassic-Cretaceous ophiolites associated in places with blueschists, (3) Alpine medium-pressure metamorphics originating from the trench sediments and associated volcanics, and (4) Alpine synkinematic granitoids.

The western part of the northernmost Dinarides, west of the Zagreb-Zemplen fault zone is mostly covered by the Sava nappe, composed of Upper Palaeozoic metaclastic and carbonate rocks, Schytian clastics, and Middle and Upper Triassic limestones and dolomites. The tectonic windows composed of Jurassic-Cretaceous basinal sediments of Dinaridic affinity are exposed below the Sava overthrust. Further to the east in the area of Zagreb, the Sava nappe is thrust onto the ophiolites.

In the northern part of the Dinarides subduction processes terminated with the Eocene compressional event and the uplift of the Dinarides.

West of the Zagreb-Zemplen line numerous intramontane shallow-marine, fluviatil and lacustrine basins during the Oligocene were generated. Penecontemporaneous andesites can be compositionally correlated with the easternmost Periadriatic tonalites, but the andesites are also found along the Drava and Sava strike-slip faults.