

The Early Miocene evolution of the Getic Basin, Romania

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The Getic Basin is situated south of Southern Carpathians (Romania). The basin has been interpreted as the southern foreland of the Carpathians. However, several recent studies indicate the presence of major post-Late Cretaceous dextral deformations.

An integrated study was done using a network of seismic profiles and a number of wells in order to interpret the Early Miocene structural and sedimentary evolution of the western part of the basin.

Several wells near to the southern and northern rim of the basin intercepted thick packages of conglomerates. They contain *Globigerinoides trilobus* foraminifera assemblages that suggest at least Early Burdigalian age of deposition. For example, these deposits in the 901 Țicleni well are more than 2 km thick. They start with reddish conglomerates interpreted as coarse-grained alluvial fans analogous to similar deposits that outcrop at the northern margin of the basin (e.g. Govora). The conglomerates are typically covered by siliciclastics with salt that indicate the onset of the marine transgression in the basin. This continues in the Late Burdigalian as well shown by the retrogradational onlaps of the upper Burdigalian on the pre-Neogene unconformity of Moesia.

The Lower Miocene on seismic sections is thickening towards the major Mid Miocene thrust faults located at the basin margins. Therefore, the thrust faults are interpreted as inverted extensional faults. This extensional fault network seems to be part of a large-scale splay system, which develops from the Timok fault to the south and runs parallel to the Cerna-Jiu fault system of the Southern Carpathians.

The Early Miocene evolution of the basin was related to the movement and rotation of Inner Carpathians along the Moesian corner, which generated extensional strike-slip deformation. This ceased during the Mid-Miocene, when the Carpathians collided with the stable Europe and triggered inversion of the Early Miocene transtensional basin.