

# **Geodynamic evolution of the East Carpathian Foreland Basin since the Middle Miocene: Implications for sediment supply to the Black Sea and Dacian Basin**

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The Carpathian orogen is part of the Alpine-Himalayan collision zone and formed as the result of the collision of the Tisza-Dacia and ALCAPA mega-units with the European southern margin, following a protracted phase of subduction, slab roll-back and accretionary wedge formation. The foreland basin of the East Carpathians is 800 km long and stretches out across Poland, Ukraine, Moldova and Romania. We use the results of our intensive field research to unravel the sedimentary architecture of this basin and reveal how it responded to the final phases of foreland vergent thrusting, continental collision and subsequent slab detachment. We discuss the asymmetry in the basins evolution and eventual inversion and relate this to the diachronous evolution of the Carpathian orogen. We also address the impact of changing subsidence patterns and base-level changes on connectivity with the Central and Eastern Paratethys, important for faunal exchange and patterns of endemism. We finally show that continental collision led to the establishment of a Late Miocene NW-SE prograding axial drainage system in the foreland supplying abundant sediment to the NW Black Sea, thus triggering large-scale shelf edge progradation.

**Mots-Clés :** Foreland Basin, Sedimentology, Geodynamics, Paratethys, Source-Sink, Field Geology