

Oligocene-lower Miocene calcareous nannofossils and sedimentology of the Transcarpathian Basin in Romania

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The present study is focused on several investigated sections in the Transcarpathian Basin: Colibița, Mureșenii Bârgăului (i.e., Aroldi *et al.*, 2013), and the Tihuța area. The analyzed successions are deep-water turbidite deposits of the Borșa Formation of Oligocene-early Miocene age. Paleogeographic reconstructions for the late Oligocene-early Miocene interval (Sandulescu & Micu, 1989) indicated that in the Maramures area, the source area of the sequences was situated in a more inner position than the Eastern Carpathians.

Colibița

The lithology includes alternations of sandstone beds and hemipelagic marls that are mainly organized into coarsening-upward cycles. The observed vertical trend is one of shallowing upward. The calcareous nannofossil assemblages contain *Zygrhablites bijugatus* (Zones NP11-NP25), *Lanternithus minutus* (Zones NP14-NP23), *Isthmolithus recurvus* (Zones NP19-NP22), *Reticulofenestra umbilicus* (Zones NP16-NP22), *R. dictyoda* (Zones NP13-NP16), and *Discoaster* cf. *D. lodoensis* (Zones NP14-NP17), which assign an Oligocene age.

Mureșenii Bârgăului

The successions of this unit are organized into fining-upward cycles in its lower stratigraphic levels and coarsening-upward cycles in its upper stratigraphic levels. The vertical trend is also one of shallowing upward. The calcareous nannofossil assemblages belong to Zones NP25-NN2 (Oligocene-early Miocene) and contain: *Sphenolithus*

conicus (Paleogene-Zone NN3), *S. predistentus* (Zones NP17-NP24), *Helicosphaera scissura* (Zones NN2-NN4), *H. mediterranea* (Zones NN2-NN4), *H. euphratis* (Zones NP18-NN5), *Discoaster deflandrei* (Eocene-Zone NN7), and *Cyclicargolithus floridanus* (Paleogene-Zone NN7).

Tihuța

Massive, fine-grained, laterally continuous sandstone beds and hemipelagic marly levels are primarily organized into fining-upward successions. The vertical trend is one of deepening. In the Tihuta Pass area, the presence of Zones NN1 and NN2 was indicated by *Triquetrorhabdulus carinatus*, *Helicosphaera ampliapertura* (Zones NN2-NN4), and *H. mediterranea* (Zones NN2-NN5). A progradation of the depositional turbidite systems is supported by the biostratigraphic study of calcareous nannofossil assemblages that belong to Zones NP25-NN3.

References:

- Aroldi, C., Chira, C.M. & Stefanut, V. 2013. Sedimentological features and calcareous nannoplankton from the Oligocene-Lower Miocene turbidite deposits of the Colibița – Mureșenii Bârgăului area (Bistrita Nasaud). *Sesiunea Științifică Anuală "Ion Popescu Voitești". Departamentul de Geologie al Universității Babes-Bolyai, Cluj-Napoca*, 1–3.
- Sandulescu, M. & Micu, M. 1989. Oligocene paleogeography of the Eastern Carpathians. In: I. Petrescu, L. Ghergari, N. Meszaros, E. Nicorici & N. Suraru (Eds). *The Oligocene from the Transylvanian Basin. Geological Formations of Transylvania, Romania*, 2: 79–86.