



Middle Miocene calcareous nannofossil and isotope fluctuations in the Central Paratethyan Realm (Eastern Carpathians)

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This work presents the fluctuation pattern related to the modifications in the calcareous nannofossil diversity and abundance and shift in $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ isotopes identified in a succession situated in the Outer Moldavide nappe system of the Eastern Carpathians. The studied section is mainly made by clays and marls and includes a cm-thick volcanic ash layer dated as 13.32 ± 0.07 Ma (de Leeuw *et al.*, 2018). We have pointed out the biotical response to the environmental changes that took place as a consequence of the “Badenian Evaporitic Crisis” of the Central Paratethyan Realm.

Based on the biostratigraphy of the calcareous nannofossils, we identified the Badenian NN5 biozone, argued by the co-occurrence of *Sphenolithus heteromorphus*, *Coronocyclus nitescens* and *Cyclicargolithus floridanus*. The semiquantitative analysis point out the abundant presence of *Helicosphaera* spp. (mainly *H. carteri*), which together with *Sphenolithus* spp., *Cyclicargolithus floridanus*, *Reticulofenestra pseudoumbilicus* and *Braarudosphaera bigelowii* accounted up to 50% calcareous nannofossil assemblages. Most of the found specimens of *Braarudosphaera bigelowii* are “rounded” morphotypes, as previously identified in several Central Paratethyan Miocene successions (Melinte-Dobrinescu & Stoica, 2013; Peryt *et al.*, 2021), whereas the “classical” specimens with sharp edges and trapezoidal segments are extremely rare. In the studied interval, the values of $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ isotopes show wide ranges, with a significant negative shift of $\delta^{13}\text{C}$ isotope values towards the top of the studied succession.

References

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