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Paleoenvironments in the Oligocene from the NW Transylvanian Basin (Romania) revealed by calcareous nannofossils and foraminifera

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Paleoenvironmental analyses based on calcareous nannofossils and foraminifera were carried out on samples collected from the Fântânele section (Vima Formation), located in the southern part of Preluca Masif, in north-western Transylvanian Basin. The studied area is characterized by continuous marine sedimentation for the whole Oligocene - Early Miocene interval (Popescu 1972, 1975, Melinte & Brustur, 2008).
The calcareous nannofossils assemblages suggest middle-upper Rupelian – Chattian age, respectively upper part of *Sphenolithus predistentus* Zone (NP23) to lower part of *Sphenolithus ciperoensis* Zone (NP25) according to standard zonation of Martini (1971). No Miocene taxa have been observed. The foraminiferal assemblage suggests the Early Oligocene (Rupelian) O4 Zone to Late Oligocene (Chattian) O5 Zone according to Wade et al. (2011).
The low diversity and low abundance benthic communities contain calcareous benthic forms (species of *Bolivina* and *Cibicidoides*) and agglutinated foraminifera (mainly tubular forms and *Reophax* species) possibly suggesting shallower environments. These alternate with high diversity assemblages from deeper environments mostly comprising calcareous benthic species of *Lenticulina, Alabamina, Epistominella, Gyroidina, Globocassidulina,* low-oxygen tolerant taxa such as *Bolivina, Fursenkoina* and species of *Uvigerina* suggesting high organic matter flux to the sea-floor. The overall shallowing trend of the upper part of the studied section is reflected in the composition of benthic foraminiferal assemblages. Additionally, calcareous nannofossils abundance patterns suggest relatively shallow environments, generally characterized by well-stratified column water, fluctuations in water salinity, temperature, nutrient supply and increased fresh-water input.

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