

# Eocene calcareous nannofossils from the Humor Basin (Eastern Carpathians, Romania): Biostratigraphy and paleoenvironment reconstruction

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The Rea Valley section from the Tarcău Nappe, belonging to the Carpathian flysch was analysed in order to integrate biostratigraphical, sedimentological and paleoecological data. The studied section is located between Humor Monastery and Poiana Micului village and consists of siliciclastic turbidites characteristic for deep-water deposition.

The calcareous nannofossils assemblages were quantitatively and qualitative analysed. The studied samples were collected from the fine-grained intercalations of the turbiditic sequence, at an interval of about 50 cm distance from each other. For the calcareous nannofossils assemblages' analysis, the samples were processed by using two different standard micropaleontological methods; samples for smaller foraminifera were processed following the classic method. The abundance of calcareous nannofossil and foraminifera assemblages display variations through the section. Most samples are abundant in microfossils, these being intercalated by few quasi-sterile intervals.

The calcareous nannofossil assemblages are generally rich in reticulofenestrids (reaching up to 80% in the basal part of the section), such as *Reticulofenestra umbilicus* (NP16–Lutetian to NP22–Rupelian), *R. dictyoda*, *R. reticulata*, *R. bisecta*, *R. minuta*. *Zygrabolithus bijugatus* (NP9–Thanetian to NN1–Aquitania), *Discoaster lodoensis* (NP12–Ypresian to NP14–Lutetian), *Discoaster saipanensis* (NP14–Ypresian to NP19–20–Priabonian) are also present in the analysed samples (do not exceed percentages up to 5%). The assemblage besides contains in low percentages: *Chiasmolithus gigas*, *Pontosphaera pulchra*, *Pontosphaera sp.*, *Coccolithus pelagicus*, *C. eopelagicus*, *Helicosphaera bramlettei* (NP14–Ypresian to NP25–Chattian), *Helicosphaera carteri*, *Sphenolithus anarrhopus*, *S. moriformis*, *S. furcatolithoides* (Lutetian–Bartonian), *Lanternithus minutus*, *Neococcolithes sp.*, and *Braarudosphaera bigelowii*, calcispheres and ascidian spicules.

The foraminifera assemblages are composed by coarsely agglutinated individuals with a moderate to good degree of preservation. Typical deep-water agglutinated foraminifera together with *Ammolagena clavata* indicate a bathyal deposition. Calcareous nannofossil assemblages and smaller benthic foraminifera place the deposits in the Middle Eocene (NP17 Biozone–*Discoaster saipanensis*) of the Sucevița Formation. The paleoecological information based on statistical interpretation (diversity indices, abundance, clusters) suggest relatively favorable conditions in the water column.

The distribution of the calcareous nannofossil and foraminifera assemblages offers important criteria for facies correlation and allow reconstruction of the regional evolution of the Humor Basin (northern Eastern Carpathians, Romania).