

Cenomanian-Turonian calcareous nannofossil biostratigraphy of the Mudurnu section (Turkey)

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The Oceanic Anoxic Event 2 (OAE 2), which occurred across the Cenomanian/Turonian boundary, represents a key interval of the Mesozoic, characterized by a major perturbation of the global carbon cycle. OAE 2 reflects a significant disruption of the ocean–climate system, marked by rapid global warming, elevated atmospheric CO₂ levels, and a profound shift in marine redox conditions. Widespread anoxia, driven by increased primary productivity, led to enhanced production and burial of organic matter, resulting in a pronounced positive $\delta^{13}\text{C}$ excursion that is globally recognized in both marine and terrestrial records (i.e. Jenkyns, 2010).

Changes in calcareous nannofossils were documented both before and during the OAE 2 interval, which is characterized by variations in abundance and a high rate of turnover driven by extinctions and the occurrences of new species (Leckie et al., 2002; Erba et al., 2026).

This study aims to characterize the calcareous nannofossil assemblages across the OAE 2 in the Mudurnu section (Turkey), through a new biostratigraphic analysis. The Mudurnu section, located in the Mudurnu–Göynük Basin within the Sakarya Zone, was deposited in the Neo-Tethys Ocean. The investigated outcrop is approximately 20 m thick and spans from the middle Cenomanian to the lower Turonian.

Preliminary results from this study, despite the presence of moderately to poorly preserved calcareous nannofossil assemblages, allow for a detailed biostratigraphic characterization of the section.

References:

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