



Early Eocene biota (ostracoda, foraminifera) and paleoenvironment of the Blue Marls in the Corbieres Hills (Aude, France): building a framework for the identification of early Eocene hyperthermals in continental margin records.

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The Corbières Foreland Basin represents the southeastern-most extension of the Aquitanian Basin and is thus palaeo(bio)geographically related to the West-European Cenozoic Basin. During the Ypresian ('Ilerdien') a succession of marine carbonates (e.g., Calcaires blancs à Alvéolines), marine marls (Blue Marls, Marnes à Térébratulides), brackish marls to sandstones and subsequent fluvio-lacustrine sediments (e.g., Montlaur Molasse) were deposited in the Corbières Hills (Aude, France) area in several depositional sequences.

The present study focuses on the upper part of the open marine Blue Marls and the overlying brackish marls and sandstones spanning about 120m thickness close to the village Pradelles-en-Val. Over one hundred samples were collected in 1m intervals in order to document the early Eocene biogeographical and paleoenvironmental evolution of this open marine sequence, through a quantitative analysis of the ostracod assemblages. Furthermore, we aim at identifying anomalous environmental conditions that might be expected to be associated with the early Eocene hyperthermals known as Elmo- (ETM2) and X-event (ETM3). These events are subordinate to the best known hyperthermal, the Paleocene-Eocene thermal maximum, which has been recorded in deep-sea to non-marine depositional settings. ETM2 and ETM3, however, have until now only been demonstrated in deep-sea sequences, not in shelf deposits.

In accordance with biostratigraphical data derived from other outcrops in the region, the sampled succession is attributed to the interval of calcareous nannofossil zones NP10-NP12. The occurrences of planktonic foraminifera of the *Morozovella subbotinae*-group are in agreement with this stratigraphic position (P6-7) for the lower part of the profile.

Recorded fossil groups include generally abundant marine ostracoda, bryozoa, benthic and planktonic foraminifera, fragments of echinoderms including ophiuroidea, moulds of gastropods (often pyritised), large dinocysts, crab claws and few otoliths.

The ostracod assemblages contain common shelf-dwelling genera, such as *Acanthocythereis*, *Bairdoppilata*, *Cytherella*, *Echinocythereis*, *Eopaijenborchiella*, *Horrficiella*, *Krithe*, *Loxoconcha*, *Paracypris*, *Pterygocythereis* throughout the section in variable numbers. *Bairdoppilata* and *Horrficiella* appear to represent the most abundant taxa. Towards the top of the section, an upward shallowing is recorded by the increase in clastic input and macrofossils such as larger foraminifera, cerithid gastropoda and bryozoa and the disappearance of planktic foraminifera.

Future work will focus on a high-resolution sampling of potential early Eocene hyperthermal events, including stable isotopic ($\delta^{18}\text{O}$, $\delta^{13}\text{C}$) analyses.

This project is funded by the Swiss National Science Foundation (project-nr. PBFR22-116947) and further supported by the K.U.Leuven Research Fund.