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Ypresian microfossils and paleoenvironment in the Corbieres (Aude, France) continental margin record and the identification of an early Eocene hyperthermal event

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The Corbières Foreland Basin represents the southeastern-most extension of the Aquitanian Basin and is thus paleogeographically related to the West-European Cenozoic Basin. During the Ypresian a succession of marine carbonates, marine marls, brackish marls to sandstones and subsequent fluvio-lacustrine sediments were deposited in the Corbières (Aude, France) area in several sequences. The present study focuses on the middle and upper part of the neritic „Blue Marls“ and overlying sandy marls and sandstones close to the village Pradelles-en-Val. 126 samples were collected in 1m intervals in order to document the early Eocene paleoenvironmental evolution of this succession through a quantitative analysis of the microfossil assemblages. Furthermore, we aim at identifying anomalous environmental conditions that might be associated with early Eocene hyperthermals (Elmo- / ETM2- and X- / ETM3-events). In contrast to the Paleocene-Eocene thermal maximum, which has been recorded in deep-sea to non-marine depositional settings the ETM2 and ETM3, however, have until now only been demonstrated in deep-sea sequences, not in shelf deposits. Seven samples from the studied section contained only poorly preserved nannofossils of low abundance and diversity (10 to 17 taxa per sample), indicating nannoplankton zone NP11. The occurrences of planktic foraminifera of the *Morozovella subbotinae*-group (lower part of the section) are in agreement with this biostratigraphic position (P6-7) as are the larger foraminifera *Nummulites globulus* and *Assilina leymeriei* (SBZ8; uppermost part of the section). The ostracod assemblages contain common shelf-dwelling genera, such as *Bairdoppilata*, *Echinocythereis* and *Horrificiella* throughout the section in variable numbers. Towards the top of the section, an upward-shallowing trend is recorded by the increase in clastic input and macrofossils such as larger foraminifera, cerithid gastropoda and bryozoa as well as the disappearance of planktic foraminifera. The consistent presence of the nannoplankton taxa *Braarudosphaera bigelowii*, *Micrantholithus* spp., *Pontosphaera* spp. and *Zygrhablithus bijugatus* points to nearshore, but fully marine conditions with normal salinities. The lower half of the section is characterized by a strongly variable (1-70% plankton), but overall decreasing plankton/benthos-ratio. A last pronounced peak in plankton occurrence in association with the near disappearance of all larger faunal elements (except pteropods) and a change in the ostracod assemblage (e.g., LO *Echinocythereis isabenana*, FO *Hermanites* cf. *paijenborchiana*) was studied in more detail. The detailed section (46 samples in 15cm intervals) pinpoints the correlation between rising P/B-ratio and abundance and composition of the ostracod assemblage. Variations in the assemblages of the planktic (e.g., *Pseudohastigerina*, *Acarinina*) and small benthic foraminifera (e.g., *Pseudouvigerina*, *Bolivina*) taxa suggest rapidly changing conditions. Bulk δ^{13}C values generally drop from around -1,0‰ to around 1,5‰ and then rise to -0.8‰δ^{13}C values derived from the ostracod species *Horrificiella aculeate* rise from -4,7‰ to -4,2‰ and then drop gradually to -5,4‰ during the period of high planktic abundance. While the dropping δ^{13}C values and the disturbance of the faunal assemblages hint at a hyperthermal event further study is necessary to judge the influence of regional (paleoecologic) and diagenetic parameters (as indicated by the very low δ^{18}O values). Ongoing work concentrates on absolute counts of selected benthic and planktic foraminiferal taxa of the $>125\mu$m-fraction in the detailed section. A more precise nannofossil biostratigraphic constraint of the overview section is intended. Bulk- and ostracod-material from samples above and below the detailed section will be prepared for the analysis of the longer-term isotopic evolution.

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