

The Paleocene–Eocene Thermal Maximum in the Río Gor section (southern Spain): *Microcodium*-rich turbidites give new insights on Mediterranean climate

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The Río Gor section in the Subbetic Zone (Betic Cordillera) comprises a very expanded and quite complete Lower Palaeogene succession that contains a record of several Paleocene and Eocene hyperthermal events (Pujalte et al., 2017). The succession is characterised by hemipelagic deposits and contains numerous turbidite beds that are rich in *Microcodium* remains. This study reports on a multidisciplinary (lithostratigraphy, biostratigraphy, stable carbon isotope and mineralogy) study of the PETM interval in the Río Gor section. The studied interval is 21 m thick, and calcareous nannofossil and planktonic and benthic foraminifera analyses constrained the P–E boundary to an approximately 14-m-thick interval in a grey unit. Calcareous nannofossils were rich and well diversified. The studied section spans the NP9–NP10 zonal boundary of Martini (1971). Species of the genus *Rhombaster*, together with asymmetrical and deformed discoasters, occurred within the PETM. The *Fasciculithus/Zygrhablithus* reversal defined the top of the PETM. A major turnover in the benthic foraminifera identified the benthic extinction event, and the planktonic foraminiferal distribution confirmed the base of the PETM, which coincided with a massive influx of *Microcodium*.

Two distinctive features characterised the PETM – a significant increase in the proportion of palygorskite and a large number of redeposited *Microcodium* remains, which imply arid/semiarid conditions and extreme precipitation events. Increased aridity and frequent episodes of extreme precipitation demonstrate that the PETM greatly enhanced the typical seasonal contrast of the Mediterranean climate in the Subbetic Zone.

References

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