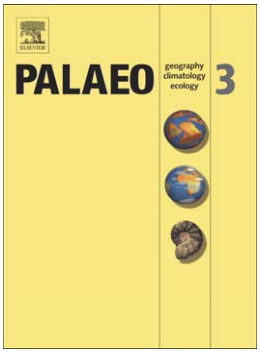

Mesozoic echinoid diversity in Portugal: investigating fossil record quality and environmental constraints on a regional scale

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PII: S0031-0182(15)00070-X
DOI: doi: 10.1016/j.palaeo.2015.02.014
Reference: PALAEO 7167

To appear in: *Palaeogeography, Palaeoclimatology, Palaeoecology*

Received date: 21 October 2014
Revised date: 4 February 2015
Accepted date: 11 February 2015

Please cite this article as: Pereira, Bruno Claro, Benton, Michael J., Ruta, Marcello, Mateus, Octávio, Mesozoic echinoid diversity in Portugal: investigating fossil record quality and environmental constraints on a regional scale, *Palaeogeography, Palaeoclimatology, Palaeoecology* (2015), doi: 10.1016/j.palaeo.2015.02.014

Mesozoic echinoid diversity in Portugal: investigating fossil record quality and environmental constraints on a regional scale

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Abstract: Several analyses of diversity through geological time use global, synoptic databases, and this practice often makes it difficult to distinguish true signals in changing diversity from regional-scale sampling and/or geological artefacts. Here we investigate how echinoid diversity changed through the Mesozoic of the Lusitanian basin in Portugal based on a comprehensive, revised database, and seek to distinguish biological signal from geological or environmental constraints. The observed diversity pattern is far from having a defined trend, showing many fluctuations that appear to be linked with gaps in the geological record. This study revealed that, independently of the method used, whether correlation tests or model fitting, the diversity signal is not completely explained by the studied sampling proxies. Among the different proxies, marine facies variation in combination with outcrop area best explains the palaeodiversity curve.

Keywords: echinoid; diversity; sampling proxies; fossil record; Portugal

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