



Quantifying the Effects of Changing Deposition Rates on the Stratigraphic Distribution of Fossils

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The stratigraphic distribution of fossils is an important source of information for paleobiology, be it to establish relative ages via biostratigraphy or to trace evolutionary processes through time. However research over the last decades has shown that the stratigraphic distribution of fossils is strongly overprinted by the sequence stratigraphic architecture, generating predictable changes in the distribution of fossils. One contribution to this are changing deposition rates, determining the amount of sediment placed between individual shells and thereby altering the patterns observable in the section.

I present a statistical method allowing to account for the effect of changing deposition rates on the stratigraphic distribution of fossils. It can be used to model the effects of changing deposition rates on different types of information, e. g. geochemical proxies, rates of last fossil occurrences, fossil occurrences, and rates of morphological change in taxa. The model also allows to incorporate uncertainties regarding the deposition model into the analysis and is backwards compatible with any previously published statistical method that is based on the stratigraphic distribution of fossils.