

Assessing the effect of hiatal surfaces on our understanding of the Pliensbachian–Toarcian boundary event

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The Pliensbachian–Toarcian boundary (Pl/To) event is the first manifestation of the protracted early Toarcian environmental perturbations that reached a climax during the T-OAE. Compared to this latter event, the Pl/To boundary is however less well-understood. Hence, contradictory evidences have been presented about, for example, change in carbon cycle or sea-level fluctuations during this event. Uncertain is also the relationship of the Pl/To event with the preceding late Pliensbachian Spinatum cold snap. In this study, we will present the results of integrated chemo-sequence stratigraphy studies from SE France and Morocco that will highlight how the presence of ubiquitous hiatal surfaces in the stratigraphic record has so far blurred our understanding of this event. These hiatal surfaces are linked to the rhythmic sea-level fluctuations spanning the late Pliensbachian – early Toarcian transition as well as to the dramatic change in sediment supply associated with the Pl/To event. In general, our study highlights the valuable contribution of basin proximal–distal transects in order to extract paleo-environmental information during time of climatic upheavals.

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