The first 40 million years of planktonic foraminifera

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Abstract

We provide a biochronology of Jurassic planktonic foraminifera (*), using first order linkage to ammonite and nannofossil stratigraphy and geochronology. This enigmatic and understudied group of microfossils occurred from Toarcian through Tithonian time, from ~180 to ~143 Ma; its origin is unknown and the Toarcian occurrence is somewhat problematic. There are three genera: *Globuligerin*a, *Conoglobigeri*na and *Petaloglobigerina*. The genus *Globuligerina,* with a smooth to pustulose test surface texture appeared in Bajocian (early Middle Jurassic) and *Conoglobigerina,* with a rough reticulate test surface texture in Oxfordian (early Late Jurassic) time. The genus *Petaloglobigerina*, with a petaloid last whorl and one or more twisted and claviform chambers evolved in early Kimmeridgian time from *Globuligerina balakhmatovae*. We recognize stratigraphic events from eleven species across four evolutionary lineages, calibrated to Geologic Time Scale 2020. Event recognition for Jurassic stages stratigraphy demands free specimens, and is well-tried but problematic using thin-sections in fine-grained hemipelagic Middle East carbonates. A dramatic faunal change over, which is not well documented led to the survival of only one taxon, most likely *Gobuligerina oxfordiana* in the Tithonian. During the Berriasian several new taxa appeared.

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