

SEA LEVEL, AMMONITE TURNOVER AND ISOTOPIC RECORD IN THE EARLY-MIDDLE JURASSIC OF THE BETIC CORDILLERA (SPAIN)

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Several faunal turnover events are analyzed: Pliensbachian-Toarcian boundary. Almost all Domerian inherited taxa disappear only some Arieticeratinae, Grammocerotinae and Dactylioceratinae survive. Such extinction is linked to sea level fall, although it can also be due to an oceanic anoxic event at the beginning of the transgressive phase. In the Falciferum zone a faunal turnover of Dactylioceratidae, Harpoceratinae and Hildoceratinae starts, due to a major transgression. Latest Middle Toarcian-Earliest Late Toarcian. Extinction of Dactylioceratidae and most Hildoceratinae due to sea level fall, a stratigraphic gap ranging from Gradata to Fallaciosum zones is recorded. Radiation of new Grammocerotinae and Hammatoceratinae at the base of the Fallaciosum zone corresponds to a transgression. Late Aalenian-Earliest Bajocian. It is the most important faunal turnover of the Jurassic marked by the extinction of Graphoceratidae, Grammocerotinae, Tmetoceratinae, Hammatoceratidae and Erycitidae, which were replaced by the Haploceratidae, Strigoceratidae, Sonniniidae, Otoitidae and Stephanoceratidae. It corresponds to a regression and the Early Bajocian transgression. Early Bajocian. Sealevel fall and the extinction of Otoitidae, Bradfordiinae and Sonniniidae, followed by a transgression with the origination of Opeiliidae and Sphaeroceratidae; and with maximum diversity of Stephanoceratidae. Latest Early Bajocian. An extinction of the Stephanoceratidae and last representatives of Sonniniidae occurs concomitantly with the radiation of Leptosphinctinae, Parkinsoniidae and Spiroceratidae. The Sphaeroceratidae, Opeiliidae, Haploceratidae and Strigoceratidae, probably living deeper, persisted. Regression in the Humphriesianum zone followed by a transgression of the Late Bajocian explains the evolutionary transition from Stephanoceratidae to Parkinsoniidae and Perisphinctidae. Latest Bajocian. In the Parkinsoni zone extinction of Sphaeroceratidae, Garantianinae and *Spiroceras* occurs, the replacement of Leptosphinctinae by the Zigzagiceratinae and the origination and radiation of Morphoceratidae. It corresponds with a short regression to transgressive phase at the Bajocian-Bathonian boundary. Latest Early Bathonian. A significant turnover at the Early-Middle Bathonian transition is characterised by extinction of Parkinsoniidae, Morphoceratidae and *Nannolytoceras*. They were followed by the Tulitidae, Hecticoceratinae, and diverse Zigzagiceratinae. This event corresponds to a short discontinuity at the beginning of the Middle Bathonian. Latest Middle Bathonian. The Cadomitinae and the *Wagnericeras*, *Procerites* and *Bullatimorphites* become extinct. A discontinuity above the Middle Bathonian ranges in some areas to the Middle Oxfordian. The middle Late Bathonian may be represented (Orbis zone). Latest Bathonian. It is poorly documented corresponding to a large regressive interval recorded worldwide. with the extinction of many Perisphinctidae and Tulitidae. Maximum of ammonite diversity and positive shift in the $\delta^{13}\text{C}$ are recorded at the Demonense, Bifrons, Propinquans-Humphriesianum, Anceps-Coronatum zones.

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