

Late Cretaceous foraminifers and ammonites and palaeoceanographic events of northeastern Brazil – An overview

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The Coniacian–Maastrichtian deposits of northeastern Brazil, mainly represented by siliclastic and calci-siliclastic successions of the Sergipe and Pernambuco-Paraíba basins, are of key importance for better understanding the evolution of the South Atlantic Ocean at low latitudes and assessing its global impact during the Late Cretaceous. Integration of foraminiferal and ammonite biostratigraphy and biogeographic data has contributed to reconstructing the sequence of major palaeoceanographic events (e.g., BENGTSON & KOUTSOUKOS, 2014).

The establishment of a deep-oceanic circulation regime by late Coniacian–early Santonian times, resulting from the final structural separation of the South American Plate from the African Plate, caused a radical change in the sedimentary regime of northeastern Brazil, from a carbonate-dominated (Cenomanian–mid-Coniacian) to a siliclastic cycle (KOUTSOUKOS & BENGTSON, 1993; KOUTSOUKOS, 1998). Long-term high stands of sea level, coupled with overall well-oxygenated water masses and widespread oligotrophic pelagic conditions in neritic and oceanic settings, considerably increased the potential for species migration from low-latitude, central Atlantic–western Tethyan provinces, resulting in the development of polytaxic benthic, planktic and nektic communities. Late Coniacian to Maastrichtian, high-diversity, shelf and upper slope, calcareous benthic and planktic foraminiferal assemblages and ammonites demonstrate patterns of oceanic surface circulation apparently similar to the present conditions at low latitudes on both sides of the northern South Atlantic (KOUTSOUKOS, 1992; KOUTSOUKOS & DE KLASZ, 2000). A bathymetric maximum appears to have occurred during the Campanian, when the deepest environments are recorded in all studied sites (e.g., KOUTSOUKOS, 1998). Late Cretaceous deep-slope calcareous and agglutinated foraminiferal assemblages were pandemic, indicating that deeper oceanic circulation patterns had been established around that time interval (e.g., KOUTSOUKOS, 1992; KOUTSOUKOS & DE KLASZ, 2000).

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