Ocean Drilling Program Leg 207, was designed to recover shallowly buried and relatively expanded Cretaceous to Palaeogene sediments along a palaeo-depth transect in the tropical Atlantic to obtain sample material for palaeoceanographic reconstructions. Another important objective of the leg was to recover organic matter-rich sediments, which are believed to have served as substrates of an active microbial population. Multiple coring of five sites successfully obtained spliced sections of several stratigraphic intervals in 13 holes (Sites 1257–1261) and resulted in recovering Cretaceous to Palaeogene chalks, claystones and black shales from a number of critical time slices and events: i.e. the late Cenomanian OAE 2; the opening of the Equatorial Atlantic in the Santonian to Early Campanian; the Cretaceous/Palaeogene boundary (K/P-boundary) and the Palaeocene/Eocene Thermal Maximum (PETM) (Erbacher et al., 2003, 2004). For many of these events correlative sequences from various palaeo-water depths were recovered, which will allow to further study the vertical structure of the Atlantic Ocean during these intervals.

The study of marine microfossils is critical in defining the age of sediments recovered and to understand the record of the planktic and benthic biosphere in relation to the global environmental changes that affected the Cretaceous and Palaeogene oceans. This special issue presents the results of four micropalaeontological studies, which deal with the Albian terrigenous sediments and Cenomanian–Turonian laminated black shales of Demerara Rise. The three first papers focus on the Oceanic Anoxic Event 2 close to the Cenomanian–Turonian boundary. Friedrich, Erbacher and Mutterlose conducted a high-resolution and quantitative study on benthic foraminifera at different palaeodepths in order to unravel the palaeoenvironmental changes that took place during this critical interval. Musavu-Moussavou and Danelian conducted a high-resolution biostratigraphic study based on calcareous nanofossils. All three studies built-upon the high-resolution stratigraphic framework provided earlier by the C-isotope curve published by Erbacher et al. (2005). Finally, the paper by Kulhanek and Wise establishes a revised biostratigraphic framework for the Albian sequence of site 1258 and it documents for the first time the presence of cold-water nanofossils in an equatorial setting.

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