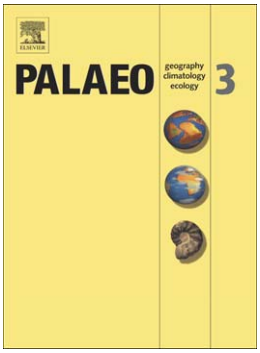

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The Cretaceous/Paleogene boundary: sea level change and sequence stratigraphy

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ABSTRACT

The tsunami generated by the Chicxulub impact eroded the uppermost Cretaceous surface of the Gulf Coast region of the USA forming a distinctive topography that was previously interpreted as a sequence boundary. At more distal sites, such as Stevns Klint (Denmark), there appears to be no sequence boundary at the Cretaceous/Paleogene boundary but there is one within the uppermost Maastrichtian, between the Sigerslev and Højerup members, and another in the earliest Paleocene (top of zone P1a). Both of these surfaces are identified by distinctive, phosphatised, incipient hardgrounds. The changes in sea level involved in the generation of latest Cretaceous sequences are thought to have been minimal as, in the Gulpen and Maastricht formations of the Maastricht area (Netherlands) the presence of sea grasses and their associated foraminifera would indicate that the chalk sea floor remained within the range of water depth that would allow photosynthesis (< 20 m), even across suggested sequence boundaries. The assemblages of foraminifera associated with the sea grass fossils in the latest Maastrichtian are comparable in morphology to those associated with modern sea