



The mid-Cretaceous fragmentation of Gondwana

M.B. Hart (1), M.P. Watkinson (1) and E.A.M. Koutsoukos (2)

(1) School of Earth, Ocean & Environmental Sciences, University of Plymouth, Drake Circus, Plymouth PL4 8AA, United Kingdom (mhart@plymouth.ac.uk / Fax: +44 1752 233117), (2) PETROBRAS-CENPES, 21941-598 Rio de Janeiro, RJ, Brazil.

The separation of South America, Africa, India, Australia and Antarctica in the early to mid-Cretaceous is one of the major features of the Cretaceous World. Recent work in the Sergipe/Alagoas Basin of Brazil, the Cauvery Basin of Southeast India and the Carnarvon Basin of Northwest Australia (including ODP Sites on the Exmouth Plateau) has provided an insight into the timing of the rifting process. The events in Brazil and Southeast India show remarkable parallelism and it is clear that there is a global sea level overprint on the local tectono-stratigraphy. In all of the basins studied we can identify a rifting stage followed by post-rift subsidence.

In both Brazil and Southeast India the Albian sediments comprise dark organic-rich clays with shallow water areas characterised by rudist/algal limestones (Brazil) or coral/algal limestones (Southeast India). In both areas the late Turonian was a time of marked regression followed by a highstand in the late Campanian. Using detailed analysis of the microbiostratigraphy, based primarily on foraminifera, the timing of the changes has been documented and compared to global sequence stratigraphical models. The Carnarvon Basin in Northwest Australia, however, while recording many of the global sea level signals has an early record very different to the basins of Southeast India and was clearly more open to Tethys during the mid-late Cretaceous.