



## **The Zambezi sedimentary system (coastal plain - deep sea fan): a record of the vertical movements of the Mozambican margin since Cretaceous times.**

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The Mozambique margin is an oblique to transform margin which feeds one of the largest African turbiditic system, the Zambezi deep-sea fan (1800 km length and 400 km wide; Droz and Mougenot., AAPG Bull., 1987). The Zambezi sedimentary system is characterized by (1) a changing catchment area through time with evidences of river captures (Thomas and Shaw, J. Afr. Earth. Sci, 1988) and (2) a delta, storing more than 12 km of sediment, with no gravitary tectonics.

The aim of this study is to carry out a source to sink study along the Zambezi sedimentary system and to analyse the margin evolution (vertical movements, climate change) since Early Cretaceous times. The used data are seismic lines (industrial and academic) and petroleum wells (with access to the cuttings).

Our first objective was to perform a new biochronostratigraphic framework based on nannofossils, foraminifers, pollen and spores on the cuttings of three industrial wells. The second target was to recognize the different steps of the growth of the Zambezi sedimentary systems. Four main phases were identified:

- Late Jurassic (?) - early Late Cretaceous: from Neocomian to Aptian times, the high of the clinofolds is getting higher, with the first occurrence of contouritic ridges during Aptian times.
- Late Cretaceous - Early Paleocene: a major drop of relative sea-level occurred as a consequence of the South African Plateau uplift. The occurrence of two depocenters suggests siliciclastic supplies from the Bushveld and from the North Mozambique domain.
- Early Paleocene - Eocene: growth of carbonate platforms and large contouritic ridges.
- Oligocene - Present-day: birth of the modern Zambezi Delta, with quite low siliciclastic supply during Oligocene times, increasing during Miocene times. As previously expected (Droz and Mougenot) some sediments of the so-called Zambezi fans are coming from a feeder located east of the Davie Ridge.

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