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Central Africa's Cretaceous Rifting: Examples from Chad

Very little has been published on the Cretaceous rift systems in Chad. In this presentation, established views will be integrated with recent ideas on uplift and fault linkage, to provide a new perspective on Africa's Cretaceous rifting. Regional seismic data, supporting this model, will be shown.

Rifting in Chad initiated above a mantle plume located under present day Lake Chad. Rift systems radiated to the NW, creating the Termit Rift in Niger, to the SW towards the approaching Benue Rift and to the SE along the southern limit of the Sharan craton, creating the rift systems of Southern Chad.

As in the South Atlantic, the age of the majority of the extension (Syn-rift) occurred during Early Cretaceous (Neocomian) followed by a period of thermal subsidence (Sag). Rich source rocks were deposited in both the Syn-rift and Sag phases. Unlike West Africa, there is no Drift and the Sag phase continued into the Upper Cretaceous and Tertiary. A huge (1x10⁶ km²) intra-cratonic basin formed in response to the subsiding mantle plume and likely contains 2-5 x10⁶ km³ of shallow marine and continental sediments.

Multiple periods (Santonian and Miocene) of post rift structuring occurred as the surrounding cratons adjusted to regional tectonic forces. Over 1 billion BOR have been discovered and are being developed in compressional anticlines. Additional major reserves are likely in Chad's other under-explored rift basins.