

## **The Cretaceous Topographic Evolution of Africa – Siliciclastic Sediment Budget**

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In the frame of the TOPOAFRICA Project, a paleogeographic database (ArcGIS) of the African plate (including Arabia) during Cretaceous times has been built. The main objectives of this project are (1) to focus on the continental domain paleogeography in order to quantify the paleoelevations variations through this time interval and (2) to quantify the siliciclastic sediment budget and then the continental erosion through Cretaceous times. Because landscape response to spatially varying tectonic and climatic forcing can be quite complex, a direct inversion of the geological data into estimates of paleotopography is not possible. We have therefore use a new numerical model of sediment production and transport at the continental scale, which will form the basis of the quantitative inversion of the observations to yield estimates of past topography.

Focusing on North Africa, the Cretaceous is a period of low relief creation. The Early Cretaceous siliciclastic flux mainly record high wave length (x100 km) deformations occurring along the northern Guinea Gulf (opening of the Equatorial Atlantic). The northward-induced topographical gradient is altered by the reactivation of the Panafrican and Hercynian short to medium wave length structures during two critical periods: the Barremian/Aptian boundary and the Late Aptian- Early Albian periods. The Cenomanian, major marine flooding of North Africa, is a period of flat topography, with remnant relief along the Sirt Rift. The Late Cretaceous deformations (Late Turonian to Campanian) do not create significant relief in North Africa, even they highly control the geometries of the basins (flexural pattern of the “phosphates” basins of Morocco, growth of the Mزاب High,...).