



Palaeogeographic and tectonic evolution of Africa during Cenozoic times

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In the frame of the TOPOAFRICA project (french ANR), palaeogeographic maps have been compiled for reconstructing the palaeotopographic, tectonic and climatic evolution of Africa during the Cenozoic.

This study is based on new-style palaeogeographic reconstructions focussed on the continental environments yielding the geometry of paleocatchments, the lacustrine baselevel, the type and the flow direction of the fluvial systems... All those data are registered in database and GIS (ArcGis). Uncertainties are quantified. The uplift maps, in a first step semi-quantitative, are based on the paleogeographical changes and on synthesis of the tectonically induced-unconformities both onland and offshore (seismic) and their consequences (incised valleys, forced-regression wedges, changes of weathering types....). The paleoprecipitation maps are product by coupling climatic numerical models with a geological database (GIS) including all the climate recorders (lithology, type of clays, paleosoils; woods, pollens...).

- 65-40 Ma: quite flat topography, excepted in southern Africa where the plateau existed; weathering is quite intense; Sirt, Sudan and Anza rifts are active;
- 40-34 Ma: uplift of Africa, active extension along Sirt, Chad, Sudan, Rugwa rifts; initiation of the present-day river drainage and main deltas;
- 29-24 Ma: weathering of central Africa (less intense than from 60 to 35 Ma);
- 20-16 Ma: uplift of the southern Atlantic margin of Africa and of central Africa; growth of an incised river drainage;
- 16-8 Ma: growth of the East African Rift and early aridification of Africa.

Early Oligocene (34-28 Ma) and Miocene (20-10Ma) are two main periods of uplift of Africa that control the location of the present-day main watersheds and the sediment supply in an overall trend of arification of Africa with two main breaks (34 and 16 Ma).

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