



Mesozoic Source-to-Sink of the African margin of the Equatorial Atlantic

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The objective of the Transform Source to Sink Project (TS2P) is to link the dynamics of the erosion of the West African Craton to the offshore sedimentary basins of the African margin of the Equatorial Atlantic at geological time scales. This margin, alternating transform and oblique segments from Guinea to Nigeria, shows a strong structural variability in the margin width, continental geology and relief, drainage networks and subsidence/accumulation patterns. We analyzed this system combining onshore geology and geomorphology as well as offshore sub-surface data.

We produced paleogeographic maps at the scale of West Africa spanning the continental domain and offshore basins since 200 Ma. Mapping spatial and temporal distribution of domains either in erosion (sources) or in accumulation (sinks) document the impact of the successive rifting of Central and Equatorial Atlantic on the physiography of the area. We use low temperature thermochronology dating along three transects perpendicular to the margin (Guinea, Ivory Coast and Benin) to determine periods and domains of denudation in that framework.

We compare these data to the Mesozoic accumulation histories in passive margin basins and discuss their stratigraphic expression according to the type of margin segment they are preserved in. Syn-rift architectures (Early Cretaceous) are largely impacted by transform faults that define sub-basins with contrasted width of crustal necking zone (narrower in transform segments than in oblique/normal segments). During the Late Cretaceous post-rift, sedimentary wedges record a transgression along the all margin. Proximal parts of the sedimentary wedge are preserved in basins developing on segments with wide crustal necking zone while they were eroded away in basins developing on narrow segments. As a difference, the Cenozoic wedge is everywhere preserved across the whole width of the margin.