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VERTICAL MOVEMENTS IN NW AFRICA MARGIN: controls on accomodation and sedimentary partionning

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Present day central Atlantic margins of West Africa are flat margins with no significant reliefs onshore. Nevertheless, recent thermochronological studies shows denudation, related to major vertical movements (Ghorbal et al., Terra Nova, 2008 ; Bertotti et al., Int J Earth Sci, 2012) along some parts of the margins.
Using basin-scale regional sections, calibrated in age and lithology on different types of wells (industry, DSDP/ODP), the aim of this study was (1) to analyse the sediments geometry of the whole margin (Morocco to Senegal) from its hinterland to the distal deep-water basin, (2) to constrain and quantify the vertical movements along the margin and (3) to discuss impact of those deformations on margin morphology (accommodation, sedimentary partitioning between the shelf and the distal basin through time. . .) and their geodynamic significance.

1. The structure of the Triassic rift controls the aggradational geometry of the platforms from Jurassic (carbonate aggradation: Tethys type margins) to Early Cretaceous (mixed terrigenous/carbonate) times. The present day geometry of the margins is inherited from the end of the thermal subsidence period (Cenomanian - Turonian) and the decrease of the accommodation that lead to progradational geometries characteristics of Atlantic types margins,
2. Major uplifts events, probably associated with Early Cretaceous global plate reorganisation (Austrian deformations) are recorded during Valanginian and Hauterivian-Barremien times along the Moroccan margins (from Dakhla to Tarfaya). There is no major "final uplift" (Oligocene - Miocene) that characterizes most of the South Atlantic margins.
3. Some siliciclastic wedges (e.g. Oligocene - Miocene) are not necessary recording uplift of the upstream proximal onshore, but distant deformation events (e.g. Hoggar uplift).