



## **Synrift subsidence and magmatism of the Central South Atlantic passive margins based on long term 2-D thermo-mechanical modelling.**

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Here we use observations from the central South Atlantic conjugate margins to constrain the structural style of rifting and its relation with sedimentary basin evolution during the syn and early post-rift. Three synthetic transects from North (Gabon-Brazil) to South (Angola-Brazil) are used to constrain fault distribution, width, crustal thickness, distribution of magmatism, syn-rift sedimentary section thickness and paleo-environment from the start of rifting in the Berriasian (145 Ma) until the early post rift in the Aptian (113 Ma). This integrated study aims to understand variations in along strike structural style, magmatic output, and sedimentary basin evolution to assess the contribution of mantle processes on topography using forward 2-D thermo-mechanical modelling. The main and well known characteristic is the small topographic gradient and the shallow water environment between the proximal and distal domains over more than 200 km of the wide margin during most of the syn-rift. The subsidence in the thermo-mechanical models is calibrated with a reference ridge elevation and explained by the different contributions on buoyancy of rifted passive margin during rifting. The influence of pressure and temperature dependency on mantle rocks properties including melting and the conditions (rheology and density contrast with non-depleted sub-lithospheric mantle) that promote counterflow of metasomatized depleted lower lithospheric mantle has been evaluated.