

EVOLUTION OF THE NAMIBIAN CONTINENTAL MARGIN - INSIGHTS FROM NUMERICAL MODELS

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A crustal-scale numerical model of continental extension and break-up is used to study quantitatively the evolution of the Namibian passive continental margin. In contrast to geodynamic models based on subsidence analyses or balanced cross-sections, the finite element modeling approach used in this study allows to calculate crustal deformation on the basis of rock rheology and forces. Additionally, faults are incorporated into the model so that subsidence history and basin geometry can be related to the geometry and kinematics of the main basin-bounding faults. The geometry and boundary conditions of the model are constrained by published deep seismic profiles and geological data, respectively. The results of the crustal-scale numerical model provide improved input parameters, e.g. basement subsidence and basal heat flow, for basin-scale sedimentation and thermal maturity models. The ultimate goal of the project is to relate quantitatively subsidence and sedimentation offshore to uplift and erosion onshore.