



Late Pan-African and early Mesozoic brittle compressions in East and Central Africa: lithospheric deformation within the Congo-Tanzania Cratonic area

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Tectonic reconstructions leading to the formation of the Central-African part of Gondwana have so far not much taken into account constraints provided by the evolution of brittle structures and related stress field. This is largely because little is known on continental brittle deformation in Equatorial Africa before the onset of the Mesozoic Central-African and Late Cenozoic East-African rifts. We present a synthesis of fault-kinematic data and paleostress inversion results from field surveys covering parts of Tanzania, Zambia and the Democratic Republic of Congo. It is based on investigations along the eastern margin of the Tanzanian craton, in the Ubendian belt between the Tanzanian craton and Bangweulu block, in the Lufilian Arc between the Kalahari and Congo cratons and along the Congo intracratonic basin.

Paleostress tensors were computed for a substantial database by interactive stress tensor inversion and data subset separation, and the relative succession of major brittle events established. Two of them appear to be of regional importance and could be traced from one region to the other. The oldest one is the first brittle event recorded after the paroxysm of the Terminal Pan-African event that led to the amalgamation Gondwana at the Precambrian-Cambrian transition. It is related to compressional deformation with horizontal stress trajectories fluctuating from an E-W compression in Central Tanzania to NE-SW in the Ubende belt and Lufilian Arc. The second event is a transpressional inversion with a consistent NW-SE compression that we relate to the far-field effects of the active margin south of Gondwana during the late Triassic – early Jurassic.