

# Tectono-thermal history of the Kaoko Belt, Namibia: an integrated low temperature thermochronology study

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The Kaoko Belt, SW Africa, is a transpressional orogen characterized by km-scale NNW structures generated in the Late Neoproterozoic by the collision between Congo and Rio de La Plata cratons. The 500 km long Purros Mylonitic Zone (PMZ), is a coast parallel, sub-vertical crustal scale shear zone and is also an important structural-metamorphic boundary within the Kaoko Belt. The direct contact between Early Cretaceous Etendeka Basalts and Proterozoic basement in the PMZ, as well as the occurrence of low temperature mylonitization presents strong geological evidence for post Gondwana break-up (ca. 130 Ma) tectonic reactivation.

In order to quantify the timing of reactivation and the denudational response we applied apatite fission track and (U-Th)/He thermochronology to a set of samples from a transect orthogonal to the PMZ in the northern Kaoko Belt. All fission track ages are significantly younger than continental break-up. The youngest fission track ages are Late Cretaceous (~70 Ma), associated with a unimodal distribution of long, confined track lengths. Thermal modeling shows that all samples cooled from maximum palaeotemperatures at the same time to a different degree in the Late Cretaceous. Our data reflect the same significant period of accelerated denudation in the Kaoko Belt that effected central Namibia [1] and [2]. The denudational signature is not only typical of passive margins but also reveals the complex history related to the reactivation of basement structures in the Kaoko Belt.

## References

- [1] Gallagher K. and Brown R.W., (1999) in *Geol. Soc. Spec. Publ.* **153**, 41-53.
- [2] Raab M.J., Brown R.W., Gallagher K., Weber K. and Gleadow A.J.W. (2005) *Tectonics* **24**, 1-15.