



New apatite fission-track data reflecting the landscape evolution using the example of the southeastern passive continental margin in Central Brazil

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Low-temperature thermochronology like AFT yield a well established tool to understand and reconstruct the rift to post-rift evolution of the passive continental margin in Brazil.

The aim of the study is to quantify the temperature, exhumation, uplift, and long-term dynamic evolution of the topography of the southeastern passive continental margin in the states of Paraná and Santa Catarina (Central Brazil) along different transects.

The working area shows the active evolution since the Early Cretaceous with altitudes up to 1400 m a.s.l and partly deep incised valleys. The first transect crosses the Ponta Grossa Arch with Devonian to Jurassic sediments in an NE-SW direction from the escarpment (Escarpa Devoniana) of the Serra Mantiqueira in the NE to the escarpment in the SE built up of the overlying Early Cretaceous flood basalts of the Serra Urtigueira. The second transect drops down perpendicular to the coast where the eastern escarpment of the Serra Geral (up to 1400 m a.s.l) reaches nearly the coast. The highlands consist of Cretaceous flood basalts whereas the coastal lowlands consist of Precambrian metamorphic and intrusive rocks.

Previous apatite fission-track data of the states of Parana and Santa Catarina provide ages between 144 (5) Ma (Gallgher et al., 1994) and 25 (1.8) Ma (Franco-Magalhaes, A.O.B., subm.) and show different post-rift reactivation from the Cretaceous to the Paleogene. But none of the studies indicate a clear relationship between age distribution and topography or age distribution and stratigraphic age.

This study is based on samples taken along the transects within the working area. The results will provide new insights into the evolution of the southeastern passive continental margin in Central Brazil concerning the thermal, exhumation, and uplift history of the Brazilian passive continental margin.