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The South Atlantic passive continental margin evolution in Brazil and Southern Africa derived from published AFT ages

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The list of studies concerning the evolution of the South Atlantic and the sourrounding passive continental margins in Africa and South America is long and eminent. Especially, apatite fission- track (AFT) studies provide conclusions to understand the exhumation history of the passive continental margins since the breakup of Gondwana. Since 1990, about 400 single ages in Angola, Namibia, South Africa and Brazil which provide several exhumation events on both sides of the South Atlantic where published. Passive continental margins are important geoarchives related to mantle dynamics, the breakup of continents, lithospheric dynamics and other processes. This climate-continental margin-mantle coupled process-response system is caused by the interaction between endogenic and exogenic forces which are related to the mantle-process driven rift – drift – "passive" continental margin evolution of the South Atlantic and the climate change since the Early/Late Cretaceous climate maximum. The question appears if there are similarities or disparities along the margins in the evolution and is it possible to compare or connect specific events on both sides of the South Atlantic? Here we focus on the reactivation of old shear- and fracture zones or the Florianopolis Fracture Zone (FFZ) which continues from Central Brazil to Northern Namibia across the South Atlantic. The existing single ages were analysed with different statistical methods. The arising age-accumulations of the analyses yield a framework to focus on distinct time slices in the evolution of the margins.
The intention of this work is to provide a summary of already published apatite fisson-track data to get a first and high-resoluted overview of exhumation events on the passive continental margins of the South Atlantic especially since the beginning of the Gondwana breakup in Early Cretaceous time. The statistical analyses indicate age accumulations in Brazil at arround 250 Ma, 130 Ma, 80 Ma, 50 Ma and 10 Ma and in Southern Africa at arround 100 Ma and 70 Ma.