



Exhumation History Of Brazilian Highlands After Late Cretaceous Alkaline Magmatism

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The southeast Brazilian margin recorded a long history of tectonic and magmatic events after the Gondwana continent break up. The drifting of the South American Platform over a thermal anomaly generated a series of alkaline intrusions that are distributed from the interior to the coast from west to east. Several exhumation events are recorded on the region and we are providing insights on the landscape evolution of the region since Late Cretaceous, comparing low temperature thermochronology results from two alkaline intrusions regions.

Poos de Caldas Alkaline Massif (PCAM), is located in the interior, 300km from the coastline, covering over 800km² intruding the Precambrian basement around 83Ma, nepheline syenites, phonolites and tinguaite intruded in a continuous and rapid sequence lasting between 1 to 2 Ma. So Sebastio Island (SSI) on the other hand is located at the coast, 200 km southeast of So Paulo. It is characterized by an intrusion in Precambrian/Brazilian orogen and intruded by Early Cretaceous sub-alkaline basic and acid dykes, as well as by Late Cretaceous alkaline stocks (syenites) and dykes (basanite to phonolite).

Will be presenting the apatite fission track (AFT) and (U-Th)/He results that shows the main difference between the areas is that PCAM region register older history than the coastal area of SSI, where thermal history starts register cooling event after the South Atlantic rifting process, while in the PCAM area register a previous history, since Carboniferous.

The results are giving support to studies that indicate the development of the relief in Brazil being strongly influenced by the local and regional tectonic movements and the lithological and structural settings. The landscape at the Late Cretaceous was witness of heating process between 90 and 60Ma due the intense uplift of South American Platform. The elevation of the isotherms is associated with the mantle plumes and the crustal thickness that caused thermal anomalies due the magma flow to subsurface.

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