

# **Morphotectonic of the Mantiqueira Mountain Range, Brazil, through Apatite Fission Track Analysis (AFTA): Evaluation of samples in groups with similar geological characteristics**

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The morphotectonic reconstruction of the Mantiqueira Mountain Range, southeastern Brazil, was done using AFTA with the hypothesis that groups of samples with similar geological characteristics (lithology, tectonic data, morphology and apparent age) should possess similar thermal histories.

Nine samples collected near of faults (~ 10 cm) were analyzed in three different groups: the first group collected above 1000 m; the second and the third below 1000 m. In this last group the samples have different lithological characteristics. Otherwise the Qui<sup>2</sup> test leave doubts if this group possesses statistically compatible apparent ages, what will make impossible the common treatment of these samples. Considering the proximity of this samples (~5 km), they were tentatively analyzed as a group. The first and second groups show a common thermal history, with the first reactivation during the Lower Cretaceous and the second during the Plio-Pleistocene. In the last period uplift was followed by about 2 km of erosion across the whole Mantiqueira Mountain Range. In the third group no common thermal history was found. This result strengthens our initial hypothesis.