



Long-term landscape evolution of the Poços de Caldas Plateau revealed by thermokinematic numerical modeling using the software code Pecube, SE-Brazil

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The Poços de Caldas Plateau in the southeastern Brazil, and it is characterized by a high relief topography supported by the pre-Cambrian crystalline rocks and by the Poços de Caldas Alkaline Massif (PCAM). Ulbrich et al (2002) determine that the ages for the predominant PCAM intermediate rocks were constrained ~ 83 Ma. In addition, geologic observations indicates the phonolites, tinguaite and nepheline syenites were emplaced in a continuous and rapid sequence lasting between 1 to 2 Ma.

The topography is characterized by dissected plateau with irregular topographic ridges and peaks with elevations between 900 and 1300m (a.s.l.) on the metamorphic basement and from 1300 to 1700m (a.s.l.) on the PCAM region. Therefore, the aim of the work was quantify the main processes that were responsible for the evolution of the landscape by using methods as the low temperature thermochronology and the 3D thermokinematic modeling, for obtaining data of uplift and erosion rates and to correlate them with the thermal gradients of the region. The 3D thermokinematic modeling was obtained using the software code PECUBE (Braun 2003).