



## **Fission-track thermochronological evidence for km-scale vertical offsets across the Boconó strike-slip fault, central Venezuelan Andes**

**M. Bermúdez-Cella** (1,2), P. van der Beek (1) and M. Bernet (1)

(1) Laboratoire de Géodynamique des Chaînes Alpines (UMR 5025), Université Joseph Fourier, 1381 rue de la Piscine, 38400, Saint-Martin d'Hères, France  
(mauricio.bermudez-cella@e.ujf-grenoble.fr / Fax: +33 476 514058 / Phone: +33 476 635964)

(2) Laboratorios de Termocronología y Geomatemáticas, Escuela de Geología, Minas y Geofísica. Facultad de Ingeniería, Universidad Central de Venezuela, Caracas, Venezuela

The Venezuelan (or Mérida) Andes are divided by the 500-km long NE-SW striking Boconó strike-slip fault, which morphologically separates the belt into two distinct mountain ranges, the Sierra Nevada to the south and the Sierra La Culata to the north. We present a new apatite fission-track age-elevation profile between 1600-4900 m in the Sierra Nevada, to establish its exhumation history and to compare the results with a previously published age-elevation profile for the Sierra La Culata (Kohn et al., 1984). The combined data show that both blocks have strongly different exhumation histories. The Sierra Nevada is characterized by exhumation rates of 0.2 to 0.6 km/m.y. between 9 and 17 Ma, compared to an exhumation rate of 0.8 km/m.y. between 1.8 and 4.2 Ma for the Sierra La Culata. The data suggest  $\sim 4$  km of relative uplift of the Sierra La Culata with respect to the Sierra Nevada since  $\sim 9$  Ma. It has been proposed that the Sierra La Culata was affected by Plio-Quaternary transtension along the Boconó Fault, but our data rather indicate either a distinct phase of NW-SE compression, causing south-directed thrusting on the Boconó Fault, or continuous oblique strike-slip across the fault. They are thus consistent with models that imply significant transpression and uplift of basement blocks along major pre-existing discontinuities in the Mérida Andes.