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Thermal history and evolution of the South Atlantic passive continental margin in eastern Argentina based on different geochronometers and 2D- and 3D-modelling

S. Kollenz (1), U. A. Glasmacher (1), E. A. Rossello (2), and R. Pereyra (3)

(1) University of Heidelberg, Institute of Earth Sciences, 69120 Heidelberg, Germany (sebastian.kollenz@geow.uni-heidelberg.de), (2) Universidad de Buenos Aires, Facultad de Ciencias Exactas y Naturales, Depto de Ciencias Geológicas, Ciudad Autónoma de Buenos Aires, Argentina (ea_rossello@yahoo.com.ar) , (3) Universidad National de Salta, Av. Bolivia 5150, 4400 Salta, Argentina (pereyra.ricardo@gmail.com)

The eastern Argentina South Atlantic passive continental margin is distinguished by a very flat topography. Out of the so called Pampean flat two mountain ranges are arising. These mountain ranges, the Sierras Australes and the Sierras Septentrionales, are located in the State of Buenos Aires south of the capital Buenos Aires. North of the Sierras Septentrionales the Salado basin is located. The Sieras Septentrionales and the Sierras Australes are also divided by a smaller intracratonic basin. South of the Sierras Australes the Colorado basin is located.
The Sierras Australes is a fold belt originated by strong phases of metamorphosis, but till now it is unclear by how many tectonic phases the area was influenced (Tomezzoli & Vilas, 1999). The recent research aim is to understand the long-term landscape evolution and to determine the exhumation rates. To fulfill this goal, thermochronological techniques such as apatite and zircon fission-track and (U-Th-Sm)/He dating has been applied to samples from the region. Furthermore, numerical modeling of the cooling history has provided the data base for the quantification of the exhumation rates.

References:
Tomezzoli, R. N. & Vilas, J. F.; Palaeomagnetic constraints on the age of deformation of the sierras Australes thrust and fold belt, Argentina; 1999; Geophys. J. Int., Vol. 138, pp. 857-870