



Accommodation of shortening in southern central Andes: a multiscale structural approach

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The Malargue fold and thrust belt is located in the northern part of the Neuquén basin in the Central Andes of Argentina. A full structural analysis of this hybrid thin and thick-skinned fold belt has been undertaken using several methods that cover a wide range of spatial and temporal scales. The way in which shortening was accommodated in the upper crust has first been investigated on a regional basis by means of cross sections building. Several field examples show that localization of deformation on rift-related inherited structure is frequent allowing us to target a common mode of deformation propagation. The structural geometries and the associated mechanisms governing during the Miocene shortening phase were subsequently compared to the present day pattern of active deformation enabling us to state about whether or not deformational mechanisms are continuous through times. In addition, meter-scale and millimetre-scale deformation were analysed thank to fracturing and Anisotropy of Magnetic Susceptibility data. Respectively, both of these methods shed new light on (1) the record of the several LPS related convergence phases that affected the Andean retro-arc since the late Cretaceous and (2) the relationships between the matrix strain pattern and the large scale distribution of macroscopic deformation.