

ANDEAN EVOLUTION OF THE ALUMINÉ FOLD AND THRUST BELT, NORTHERN PATAGONIAN ANDES (38°30' – 40°30' S)

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The Aluminé fold and thrust belt constitutes the southern expression of the Agrio fold and thrust belt, which has been extensively studied during the last decades (Cobbold and Rossello, 2003; Zamora Valcarce *et al.*, 2006; among others). It involves the eastern slope of the Patagonian Cordillera across the inner retro-arc, as well as the Southern Neuquén Precordillera to the east, an independent mountain system more important in topographic terms than the Patagonian Cordillera located more than 400 Km east from the trench. Its extensive development, high altitudes, and its position within the retro-arc, raise a question about its genesis in the context of this Andean segment. The study of the retroarc area between 38°30' and 40°30'S allowed us to define and characterize the different stages that led to its present configuration. The analysis of the Tertiary synorogenic deposits, and its relationship with the main structural features, together with the ages obtained for the Cretaceous - Paleogene volcanic sequences, and the determination of a structural control in their emplacement, allowed us to define the main contractional phases that affected this segment. The most significant event took place between the Late Cretaceous – Early Paleocene, related to an eastward expansion of Late Cretaceous to Eocene arc-related sequences. The inversion of normal faults of the Mesozoic rift phase along the external portion of the fold and thrust belt, resulted in the early uplift of the Southern Neuquén Precordillera. On the basis of tectonostratigraphic controls we define the last Andean contractional phase between the Late Miocene and Early Pliocene (~11 – 4.3 Ma). This event induced the reactivation of both sectors of the fold and thrust belt, leading to the uplift of the Patagonian Andes and reshaping the Southern Neuquén Precordillera (García Morabito *et al.*, 2010). Both intervals of compression and shortening are separated by a period of extensional activity that resulted in the development of the Collón Cura basin within this Andean segment. Here, large thicknesses of volcanosedimentary sequences accumulated between the Early Oligocene and the Early to Middle Miocene. Data and observations were integrated in a tectonic model consisting in five principal stages developed between Mesozoic and Cenozoic times, which lead to the present configuration of this Andean segment through a complex history of deformation characterized by the alternation of tectonic regimes.

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