

## PARAMETERS CONTROLLING THE EXTREME PROPORTIONS OF THE YOUNG CENTRAL ANDES

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The Central Andes show several unique features: (1) The high and broad Altiplano-Puna Plateau, (2) a 70-km-thick crust; (3) strong arc volcanism and plutonism during the last 200 Ma, (4) the trench shows almost no sediments, and erosion in the mountain chain is at a minimum; (5) large metallic and non-metallic ore deposits. The subduction process was not steady during the last 200 Ma, but was subject to major changes in configuration of the oceanic plates, convergence rate and convergence obliquity. Besides the eastward migration of the volcanic arc during that time, three events can be recognised: (1) magmatic gaps at 90-80 Ma 35-25 Ma; and (3) a following widening of the volcanic belt over the Altiplano and Puna to the Eastern Cordillera. Thus the following questions may be posed: What has triggered the change in Andean evolution starting at 35-25 Ma? Seafloor spreading and the age of the subducting ocean floor are important parameters in the study of plate tectonic processes. During that time span the anomalous mid-Cretaceous superplume has been subducted. Its thick crust had influenced the later formation of the young Central Andes. The high buoyancy of this thick oceanic crust caused a flattening of slab dip and interrupted the magmatic activity for at least 10 Myr. Coincidence of factors such as subduction of a highly hydrated slow spreading crust, a high convergence rate, and a low-angle slab dip caused intense hydration and weakening of the overlying mantle wedge and thus controlled the Neogene tectonic and magmatic evolution of the Central Andes. Finally, arid climatic conditions prevented crustal thinning by erosion.