

**There was a tectonomagmatic cycle during the Miocene  
which controlled the volcanism and a local collapse of the  
western Puna (24,5°-26,5°S)?**

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The Andean cordillera formation is linked to the shortening of a heterogeneous and thermally-weakened crust (Isacks et al., 1988). The interaction between shortening, delamination (Kay et al., 1994), flare up (De Silva and Kay 2018) and magmatism (Trumbull et al. 1996) triggered the uplift of the Altiplano-Puna plateau (Allmendinger et al., 1997). This uplift is diachronic (Schildgen and Hoke, 2018) and began on the western slope of the Puna, between 24-26°S, during the early Miocene, coinciding with the onset of volcanism (ca. 25 Ma; Trumbull et al., 2006). It has been recognized that the deformation related to the uplift of the Puna, which eventually controlled the location of volcanic centers, was compressive in nature, accommodated through reverse faults with strike approximately NS (e.g. González et al., 2009). However, there are extensional structures distributed in the Western Cordillera closely related to the emplacement of stratovolcanoes, formations of calderas (e.g. Riller et al., 2001) and distribution of the monogenetic volcanic centers (Matteini et al., 2002). This extensional deformation has been widely related with gravitational collapse of the orogen (e.g. Tibaldi and Bonali, 2018; Giambiagi et al., 2016). However, it is not known which structures accommodated this extension in the Western Cordillera and how they exerted control over the emplacement of the current volcanic centers. In particular, the temporal and spatial relationship of extension with Neogene compression and the inherited structural system in the crust is unknown. In addition, if there is a geochemical signature in the volcanic deposits that could be related to a disposition within the structural system. Based on a literature review and available data collection, we propose that in the Central Andes there was a tectonomagmatic cycle, controlled by transfer zones between NW-SE faults systems. This cycle was active during Miocene-Pliocene between 24.5°-26°S and controlled the distribution and geochemical segmentation of volcanic deposits in the Western Cordillera. In addition, this cycle would be related to the local collapse of the western margin of the Puna.