



## **Arc and back-arc volcanism in the Central Neuquén basin: Tectonic control on the magmatic activity during the Quaternary**

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Magmatic and volcanic activity is often described as being related to extensional tectonic regime. However, volcanism also occurs in areas of plate convergence, such as in the A-type subduction-related Andean mountain range.

The Neuquén basin, located in the Southern Central Andes, has recorded Quaternary arc and back-arc volcanism. Change in the geochemical signature of lavas in this area along with a westward migration of the magmatic arc is thought to be related to a steepening of the slab during the Quaternary (e.g., Kay et al., 2005). As a consequence, the regime of deformation would have been switched from compression during the Miocene to extension from the Pliocene onwards. On the contrary, analogical modeling shows that volcanism may have originated from compression during the Plio-Quaternary (Galland et al., 2007). However, these works failed to provide sufficient field observations to best characterize the current deformation regime in the Neuquén basin.

Here, we present field evidences of compressive, extensive and strike-slip tectonic structures of Quaternary age. We show that thrusting and folding is still active during the Quaternary in the external part of the Neuquén basin, along with strike-slip deformation in the modern volcanic arc. We propose that volcanism may be related both to active folding and to post-folding denudation. Steepening of the Nazca subducted slab does not seem to be the main controlling factor accounting for the current deformation

regime in the Neuquén Andes which is more likely to be related to the obliquity and velocity of the convergence between the Nazca and South American plates.

#### References

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