

Morpho-structural analysis of the Neogene tectonic in the Precordillera of North Chilean at 25°S

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The nature and temporality of Neogene tectonic activity of the Cordillera de Domeyko still unclear. In this context, we studied the Río Frío fault located in pre Andean depression at 25° south. Previously, Soto et al., (2005) indicates a compressive tectonic activity whit not strike-slip in this sector during the Miocene due the Río Frío ignimbrite (18-17 Ma) was affected by repeated and small tectonic pulses that reactivate previous structures as a result of E-W compression.

In this work, we show preliminary results obtained by morpho-structural analysis of the Río Frío fault and others faults in the study area. This analysis was performed by a interpretation of alluvial landsforms, drainage organisation and others markers preserved by the aridity/hiper aridity present in the Atacama desert.

Our results allow show that Río Frío fault had a reactivation during lower Miocene as a result of E-W compression, this generated a folding of the Río Frío ignimbrite, the reverse scarp formation. Also, we recognized a subsequent dextral movement evidenced by displaced drainages originated later the folding.

Finally, we have hypothesized that this tectonic activity registered in the study area responds to a variation of the stress field related with a main surrection episode of the Altiplano-Puna and its subsequent collapse (Giambiagi et al, 2016).

Giambiagi, L., Alvarez, P., Spagnotto, S., 2016. Temporal variation of the stress field during the construction of the central Andes: Constrains from the volcanic arc region (22-26°S), Western Cordillera, Chile, during the last 20 Ma. *Tectonics* 35, 2014-2033.

Soto, R., Martinod, J., Riquelme, R., Hérail, G., Audin, L., 2005. Using geomorphological markers to discriminate Neogene tectonic activity in the Precordillera of North Chilean forearc (24-25°S). *Tectonophysics* 411, 41-55.