

An Andean Tectonic Syntaxis, Due to Strike-Slip Motions on the Intersecting Tucumán and Valle Fértil Lineaments, Western Argentina

^{1,2}ROSSELLO, E.A., ^{1,3}MOZETIC, M.E. & ⁴COBBOLD, P.R. ¹ Universidad de Buenos Aires, Argentina, ² CONICET, ³ YPF S.A., ⁴ Géosciences Rennes, Francia.

The Tucumán Lineament (**TL**), at the southern edge of the Altiplano, is a wide transpressional belt, right-lateral and ENE-trending. The Valle Fértil Lineament (**VFL**) is a much narrower transpressional belt, left-lateral and SSE-trending. The two lineaments are conjugate structures, which have resulted from rapid oblique subduction of the Nazca plate beneath South America during the Neogene.

The **TL** is a transfer zone at continental scale. It probably formed where there was a change in dip of the subducting slab. In contrast, the **VFL** formed by reactivation of a pre-existing fault zone. According to growth structures in sediments and volcanic deposits, the **VFL** was active during Triassic and Cretaceous rifting. From then on, until the Pliocene, both lineaments lay dormant and buried by a thick Andean foreland basin.

During the Neogene, simultaneous transpressional motions on the **TL** and **VFL** resulted in a large tectonic syntaxis. The intersection of the two lineaments defines four quadrants. In the eastern restraining quadrant, uplifted crystalline basement reaches anomalously large altitudes (Nevado de Famatina, 6,250 m a.s.l.). Tilted and rotated blocks of basement are bound by steep reverse faults. Between the basement blocks are sedimentary basins, containing internal structures (doubly-plunging folds, domes and thrusts with various strikes), which are diagnostic of horizontal contraction in all directions (constrictional deformation). In the western quadrant, where altitudes are smaller, well-preserved Neogene sequences contain both extensional and compressional structures.