

# SUBDUCTION DILUTED SLAB TEAR RELATED MAGMATISM IN SUTHERN CENTRAL CHILE AND ARGENTINA (35-37°S): NEW ISOTOPIC AND GEOCHEMICAL EVIDENCE FROM LATE TRIASSIC-EARLY JURASSIC VOLCANISM.

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Recently, multiple geophysical and geochemical evidence seems to confirm the presence of a large slab rupture under Western Gondwana at the actual latitudes of South-Central Chile-Argentina (35-40°), [1,2]. This phenomenon seems to have a variable chemical/isotopic influence in the magmatic products observed in the fore arc, arc and back-arc area, producing highly heterogeneous igneous products with, subduction, rift and intraplate signatures [1,3,2]. Here we present a new set of whole rock geochemical and isotopic data of five Upper Triassic to Early Jurassic rift related depocenters. The studied units show a bi-modal behavior with a marked diminish in intermediate compositions (55-67% SiO<sub>2</sub>), consistent with a dominant rift related scenario. Trace elements show ubiquitous presence of subduction related signatures with some units evidencing tear related compositions, however, not being the dominant characteristic of the analyzed units. On the other hand Sr-Nd and Pb isotopes confirm that crustal assimilation as a major phenomenon in magma genesis of the Late Triassic-Early Jurassic magmatism, as shown previously [2]. These results seem to be consistent with a local modification of the subduction system, induced by a rupture of the slab but that do not completely influence the magmatic signature of the igneous rocks in the area, being obscured or diluted by subduction fingerprint of the magmas.

[1]Navarrete, C., Gianni, G., Encinas, A., Márquez, M., Kamerbeek, Y., Valle, M. & Folguera, A. (2019), Triassic to Middle Jurassic geodynamic evolution of southwestern Gondwana: From a large flat-slab to mantle plume suction in a rollback subduction setting. *Earth-Science Rev.* 194, 125–159. <https://doi.org/10.1016/j.earscirev.2019.05.002>.

[2]Rossel, P., Gianni, G., Reinoso, V., Fanning, M. Ducea, M.N., Muñoz, T., Salvat, D. (2023). Origin of Late Triassic granitoids of the Coastal Cordillera of Southern Central Chile (34-37°S): Multi-isotopic evidence of slab tearing effects on pre-Andean magmatogenesis. *Tectonics* 42 (2). <https://doi.org/10.1029/2022TC007354>

[3]Rossel, P., Echaurren, A., M.N. Ducea., Maldonado, P. & Llanos, K. (2020), Jurassic segmentation of the early Andean magmatic Province in southern central Chile (35–39°S): Petrological constraints and tectonic drivers. *Lithos* 364-365.

