



STRATIGRAPHIC UNCERTAINTIES IN THE TORRES-HUAB TROUGH: PARANÁ-ETENDEKA LIP AND RELATED SEDIMENTARY FORMATIONS

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Several publications have recently brought new insights on the distribution and stratigraphy of the geological units mainly concerning the Serra Geral volcanics, in the Torres Trough, between the states of Santa Catarina (SC) and Rio Grande do Sul (RS) in Brazil. This paleo depression was formerly connected to the Huab Basin in NW Namibia, and on both sides a number of aspects regarding the paleogeography and stratigraphy still need to be resolved. Some of the unknowns relate to the pre-volcanic scenario, for example: (1) in the Huab Basin the Krone Member fluvial sandstones and conglomerates are overlain paraconformably by Cretaceous aeolian sandstones of the Twyfelfontein Formation (correlated to the Botucatu Formation of Paraná Basin), and they share similarities with the sandstones of the Guará Formation (RS), suggesting a genetic relationship. (2) Albin Ridge conglomerates contain, in addition to clasts of Damara Belt and Karoo, intriguing clasts of unmetamorphosed amygdaloidal basalts, suggesting a somewhat younger positioning concomitant with Etendeka volcanism. (3) The red beds of the Uniab Mouth on the coast of Namibia were positioned in the "Tertiary" but are currently inserted tentatively between the Triassic and the Jurassic. They could represent a stretch of what it would have been a braid plain located between the Omingonde Formation, which crops out at the Waterberg Plateau (400 km east) in the center of the country and the Santa Maria Formation, in the center of RS, thus both would be related. In this scenario, these sandstones would have probably been deposited close to the northern edge of the basin. Another unresolved deposits are (4) three aeolian sheets, of up to 25 m preserved cumulative thickness, occurring on top of the Gamsberg Plateau. This plateau forms a table mountain that reaches 2,350 m of altitude, and is herewith the second highest elevation in Namibia. It is located 280 km south of the southern limits of the Etendeka Group. The aeolian sand sheets that form the plateau cap unconformably Neoproterozoic rocks, and they may either correlate with the Upper Jurassic Etjo Formation exposed at the Waterberg 300 km to the East, or with the Early Cretaceous Twyfelfontein Formation of the Etendeka Plateau in the North. Fragments of rhyolites found on the Gamsberg Plateau leave an even more intriguing question, considering that Jurassic silicic volcanism is unknown from the area, and the Early Cretaceous Etendeka silicic rocks are minimum of 280 km away. The examples show, that a number of questions on the understanding of the correlation between the volcanic rocks of the Torres-Huab Trough still persist. Required are: A (1) revision of silicic sequence (plateaus of SC and RS) stratigraphic and morphological criteria for its division into volcanic units already recognized through geochemistry (Lower and Upper Caxias do Sul, and Anita Garibaldi subtypes) and already established as lithostratigraphic units in Etendeka (Wêreldsend, Grootberg and Beacon formations of the Etaka Subgroup). And (2) correlation between silicic rocks interfingering with the Vale do Sol Formation basalts in RS and the Awahab Subgroup quartz-latites (Springbok and Goboboseb formations), which would be under an erosive surface separating them from the Etaka Subgroup quartz-latites of Etendeka Group. A partnership between the geological surveys of Brazil and Namibia could contribute to advances in these issues and broaden the understanding of the South Atlantic opening and previous geological scenarios.