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New geo-thermochronological constraints on the deformation history of the SW margin of Gondwana: linking the Terra Australis fold belts and foreland basins of South America and southern Africa

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Recognition of the shared geological history of Africa and South America predates the widespread acceptance of plate tectonic theory. The complementary modern coastlines of these two continents provide a starting point for the reconstruction of all the Gondwanan continents. In this contribution, we focus on the southern margin of Gondwana in the Late Paleozoic, when the continental margin bordering the pre-Pacific, Panthalassan Ocean was the locus of deformation, magmatism, and foreland basin sedimentation. Our focus is a comparison of the sedimentary and deformational histories of the Cape Fold Belt and associated foreland Karoo Basin of South Africa with the Sierra de la Ventana Fold Belt and Sauce Grande Basin of Argentina. The deformational history of the fold-thrust belts is documented and compared using both U-Pb and ⁴⁰Ar/³⁹Ar data, with new data from the Sierra de la Ventana region to be synthesized with recently published data from the Cape Fold Belt [1]. The isostatic links between deformation and subsidence/deposition in the adjacent foreland basins will be examined using recent U-Pb and magnetostratigraphic results from the Karoo Basin [2,3] and new U-Pb age data from the Sauce Grande Basin.

References:

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