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306-1: ORIGIN OF PALEOVALLEYS ON THE NORTHEAST RIO GRANDE DO SUL SHIELD (BRAZIL): IMPLICATIONS FOR THE EXTENT OF LATE PALEOZOIC GLACIATION IN WEST-CENTRAL GONDWANA

Wednesday, 25 October 2017
08:00 AM - 08:15 AM
Washington State Convention Center - Room 604

The location, longevity, and geographic extent of Permo-Carboniferous ice centers in west-central Gondwana remain ambiguous. Paleovalleys on the Rio Grande do Sul Shield of southernmost Brazil have previously been interpreted as fjords carved by outlet glaciers that originated in Africa and emptied into the Paraná Basin (Brazil). The sedimentology, stratigraphy, and provenance of sediments infilling two such paleovalleys on the NE part of the shield were examined in order to test the hypothesis that a large ice center over present day Namibia drained across southernmost Brazil during the late Paleozoic, possibly extending into Uruguay and Paraguay. Contrary to previous findings, the facies assemblage from within these paleovalleys is inconsistent with a fjord setting and no clear evidence for glaciation was observed. Facies analyses indicate that sediments were deposited in small non-glacial lacustrine or estuarine subbasins that transitioned to a fluvial system. Detrital zircon results present a single population of Neoproterozoic ages (c. 550 Ma – 800 Ma) from the paleovalley fill that matches the ages of underlying igneous and metamorphic basement (Dom Feliciano Belt) in this portion of Brazil and is inconsistent with an African source. Furthermore, results suggest that the formation of these paleovalleys and the deposition of their fill were controlled by the reactivation of Neoproterozoic basement structures during the Carboniferous and Permian. The lack of evidence for glaciation in these paleovalleys coupled with evidence for glaciation on the western portion of the shield suggests that well-established glacial deposits on the Rio Grande do Sul Shield (southern margin of the Paraná Basin) may be the product of either local South American glaciation or a separate African lobe (extending north across Uruguay), rather than a single, massive ice sheet draining west from Africa or even Antarctica. These findings are in agreement with the hypothesis that late Paleozoic glacial deposits in west-central Gondwana are the result of multiple separate ice centers during the late Paleozoic.

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