



22-25 October
Seattle, Washington, USA

THE GEOLOGICAL SOCIETY
 OF AMERICA®

Booth No. 415 CARBONIFEROUS GLACIOTECTONIZED SEDIMENTS ON THE WESTERN RIO GRANDE DO SUL SHIELD, PARANÁ BASIN, SOUTHERNMOST BRAZIL

Monday, 23 October 2017

09:00 AM - 06:30 PM

📍 *Washington State Convention Center - Halls 4EF*

The Paraná Basin contains one of the most detailed and complete records of late Paleozoic glaciation in west-central Gondwana. However, the nature of glaciation on the Rio Grande do Sul Shield (southernmost Brazil) is poorly characterized compared to other parts of the Paraná Basin. Questions remain regarding the location and thermal regime of glaciation, ice flow directions, and the style of glaciotectonic deformation. An ~3 km railroad cut through glaciogenic (Itararé Gp.) sediments on the western Rio Grande do Sul Shield contains a glaciotectonized succession that sheds light on these questions. Sedimentary units include thin (mm-scale) clay and silt rhythmite couplets with granule to cobble sized dropstones, conglomerates with striated and faceted clasts, and dipping sandstone beds. The conglomerates are consistent with outwash and mass transport deposition in front of a glacier and the rhythmites may be indicative of small ponded lakes formed by meltwater. The dipping sandstone beds are interpreted as the foresets of a small delta. Deformation features include stacked thrust sheets, nappes, décollement surfaces, and a vertical deformation profile with intensely folded beds. The deformation profile shows a clear increase in deformation up to a décollement surface, consistent with an overriding ice mass. Furthermore, hydrofractures in rhythmites that overlie the deformation profile indicate high porewater pressures in front of, or underneath, an advancing glacier. Together, these features are consistent with the oscillating margin of a grounded, wet-based (temperate) glacier and may be part of a well-preserved late Paleozoic push/thrust moraine complex, which commonly form in the presence of permafrost conditions. The orientation of folds and paleoflow indicators suggest ice movement towards the NW. These interpretations are consistent with a grounded ice cap or lobe emanating north out of Uruguay during the late Paleozoic and terminating near the southern margin of the Paraná Basin.

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