



4-7 November
Indianapolis, Indiana, USA



Booth No. 212 LATE PALEOZOIC REGIONAL PALEOCLIMATE OF THE PROTOPRECORDILLERAN GONDWANA MARGIN: A CASE STUDY IN THE PAGANZO BASIN

Tuesday, 6 November 2018

09:00 AM - 06:30 PM

📍 *Indiana Convention Center - Halls J-K*

During the mid-Carboniferous, ice centers located in present-day western Argentina disappeared until the late Cenozoic with glaciation of the Andes. The disappearance of mid-Carboniferous glaciers, and the subsequent climate shift, recorded in the Paganzo Basin has been attributed to global events and drivers, such as increased atmospheric CO₂ concentrations and the shifting position of Gondwana across the South Pole. However, glaciers continued at the same paleolatitude in eastern South America and did not disappear from Gondwana until the Late Permian. This study looks at links to local drivers that acted in combination with other global drivers to explain the early deglaciation along the western margin of Gondwana. To do this, several localities within the Paganzo and Calingasta-Uspallata basins in western Argentina were sampled for geochemical analyses. Here, we test the applicability of the Chemical Index of Alteration on strata in the Olta-Malanzán paleovalley in the eastern Paganzo Basin that historically was thought to have been glaciated. A recent study by the authors has shown that the paleovalley was not glaciated, but owes its origin to extension and excavation by fluvial processes. However, the late Paleozoic stratigraphy is similar to the rest of the Paganzo Basin. The results from the paleovalley samples show that this area was intermittently humid and arid through time, but with an overall arid profile. This signature is predominantly due to the nature of the paleovalley, which was subject to rapid burial from frequent rock falls, progradation alluvial fans/fan deltas, and lacustrine sediment gravity flows (Malanzán Fm.), which prevented any significant chemical weathering. While the overall Pennsylvanian climatic signature appears to be relatively arid (Malanzán, Loma Larga, and Solca Fms.), it seems that the climate during the deposition of the late Pennsylvanian and Permian La Colina Formation, was more humid than previously thought. Further analysis is needed to assess the overall climate for the rest of the Paganzo Basin.

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