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283-3: THE MID-CARBONIFEROUS OLTA PALEOVALLEY, EASTERN PAGANZO BASIN, ARGENTINA: IMPLICATIONS FOR GLACIATION AND CONTROLS ON DIACHRONOUS DEGLACIATION IN WESTERN GONDWANA DURING THE LATE PALEOZOIC ICE AGE

Wednesday, 7 November 2018
02:05 PM - 02:20 PM
Indiana Convention Center - Room 140

Both global and regional climate drivers contributed to glaciation during the late Paleozoic Ice Age (LPIA). However, the transition from icehouse to greenhouse conditions was asynchronous across Gondwana suggesting that, occasionally, regional controls played a significant role in deglaciation. Of particular interest is the eastern Paganzo Basin, which was flanked by glaciers in the Precordilleran and Sierras Pameanas regions to the west, and ice sheets in the Paraná, Chaco-Paraná, and Sauce Grande basins to the east, all of which resided between 40-50^{o} S latitude. Hypotheses of ice occurring in the eastern Paganzo Basin are based on interpretations of the narrow, steep-walled, Olta-Malanzán paleovalley as carved by alpine glaciation or an outlet glacier draining an eastern ice sheet. However, we found no evidence for glaciation, but rather the paleovalley owed its origin to extensional tectonics. In this valley, prograding alluvial fans/fan deltas and rock falls ponded drainage in the eastern end of the valley. A transition from fluvial sandstones to marine mudstones suggest a marine transgression from the west, which is overlain by Gilbert-type deltaic deposit. Dropstones were from rock falls off valley walls rather than from icebergs. Therefore, we conclude that the climate in western Argentina resulted from uplift induced glaciation along the western basin margin, and the occurrence of a precipitation shadow to the east, which prevented glaciers from forming in the Olta-Malanzán area of the eastern Paganzo Basin. The mid-Carboniferous disappearance of the western glaciers, prior to deglaciation elsewhere at the same paleolatitude, resulted from a westward shift in the position of the active margin, collapse of the glaciated upland(s), and an expansion of the precipitation shadow across the whole of western Argentina.

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