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202-5 - LATE PALEOZOIC ICE AGE FJORDS FROM THE KAOKOVELD, NORTHWESTERN NAMIBIA



Thursday, 29 October 2020



1:50 PM - 2:05 PM



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Abstract

The Late Paleozoic Ice Age spanned approximately a 106-million-year interval from the latest Devonian, throughout the Carboniferous, to its demise in the late Permian. Asynchronous ice centers waxed and waned across Gondwana sculpturing landforms and leaving a sedimentary record within the late Paleozoic sedimentary basins. In the Kaokoveld region, NW Namibia, modern drainage systems are exhuming valleys carved by valley glaciers into Precambrian fold belts. They represent one of the most prominent late Paleozoic glacial landscape and are considered the pathways of an African ice center (Windhoek Ice Sheet) that fed tidewater ice masses flowing into the eastern margin of the Paraná Basin, Brazil. In this study we investigate in detail the morphology and infill of three glacial valleys via facies analysis and remote sensing. The relicts of Dwyka Group strata occur confined within the valleys and dip up to 30 degrees outward away from the valley walls. The bottom of some valleys preserves striated surfaces imposed on larger ice-carved streamlined landforms. Deposits within the valleys include successions of diamictites and conglomerates bearing striated boulders and fine-grained rhythmites with dropstones and dump structures. These facies associations represent deposition at ice-marginal to proglacial subaqueous outwash systems. The outwash successions are partially deformed in folds and truncated by thrusts and shear planes. The imposed deformation is attributed to ice-push in morainal banks during renewed advances of valley glaciers. The stacking of these successions makes it possible to identify two advance and retreat glacial cycles. Successions of fine-grained turbidites interbedded with shale occur capping the glaciogenic facies. In a location at the mouth of a valley, a ~200 m-thick mass transport complex containing two mass wasting events comprises glacial to non-glacial deformed beds and is capped by a black shale in an altitude similar to the surrounding valley walls. It likely represents the major transgressive event following the demise of late Paleozoic valley

glaciers in the Kaokoveld. Results obtained so far support dynamic glacial activity of valley glaciers entering a seaway in fjord settings succeeded by a flooding during the demise of late Paleozoic glaciation in the Kaokoveld.

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