

202-13 - GLACIOGENIC SEDIMENTARY INFILL OF LATE PALEOZOIC GLACIAL PALEOVALLEYS OF THE KAOKOVELD, NORTHWEST NAMIBIA



Tuesday, 24 September 2019



9:00 AM - 6:30 PM



Phoenix Convention Center - Hall AB, North Building

Booth No. 291

Abstract

In the Kaokoveld (NW Namibia), several modern river valleys are exhuming late Paleozoic glacial valleys cut onto Precambrian fold belts. They represent one of the most prominent late Paleozoic exhumed glacial landscapes and are widely considered to have been carved by outlet glaciers that drained the Windhoek Ice Sheet and fed marginal lobes that flowed into the Paraná Basin, southern Brazil. No detailed research exists on the glacial sedimentary fill of these valleys. Two study sites in the Khumib and Kunene rivers catchment were analyzed for depositional environments, glacial cyclicity, and relative timing of deposition recorded in the Dwyka Group. The Dwyka strata are confined within these valleys and dip up to 30 degrees outward away from the valley walls becoming horizontal near the axis of the valleys. Sedimentary units include: 1) thick successions of diamictite- and conglomerate-bearing clinoforms containing boulders up to 2 m in diameter generated by sediment-laden meltwater, sediment gravity flows and iceberg rainout with intraformational grooved surfaces generated by coeval iceberg scour; 2) laminated, fine-grained sandstone/mudstone rhythmites with dropstones, dump structures, interbedded rainout diamictites and sole mark-bearing fine-grained massive to current-rippled sandstones (turbidites). These units were deposited in the distal zones of a subaqueous outwash system; 3) folded and sheared intervals of the above facies interpreted as having been deformed subglacially and in ice-marginal settings during ice advance. Ice advance is indicated by the occurrence of overlying erosional based conglomerates interpreted as outwash deposits; and 4) a capping succession of fine-grained massive, horizontally laminated, and current-rippled sandstones with sole marks and laminated rhythmites with convolute bedding interpreted as turbidity flow deposits generated following glaciers retreat. The stacking of these units is consistent with the occurrence of oscillating margins of temperate, tidewater termini of fast flowing ice with deposition occurring in morainal banks or grounding-zone wedges during at least two glacial advance-retreat cycles. The morphology of the valleys and their sedimentary infill suggest that they were shaped by ice streams during the Late Paleozoic Ice Age.

Geological Society of America Abstracts with Programs. Vol. 51, No. 5, ISSN 0016-7592
doi: 10.1130/abs/2019AM-340908

© Copyright 2019 The Geological Society of America (GSA), all rights reserved.

Authors

Eduardo L.M. Rosa

University of Wisconsin-Milwaukee