

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/363796424>

The Orutanda Paleofjord in Namibia: a Late Paleozoic Ice Age fjord filled essentially by gravitational resedimentation

Conference Paper · October 2022

DOI: 10.1130/abs/2022AM-377964

CITATIONS

0

READS

35

5 authors, including:



Eduardo Menozzo da Rosa

University of Wisconsin - Milwaukee

31 PUBLICATIONS 230 CITATIONS

[SEE PROFILE](#)



John L. Isbell

University of Wisconsin - Milwaukee

165 PUBLICATIONS 4,667 CITATIONS

[SEE PROFILE](#)



Nicholas D. Fedorchuk

Southern Connecticut State University

39 PUBLICATIONS 378 CITATIONS

[SEE PROFILE](#)



Natalie Mcnall

University of Wisconsin - Milwaukee

7 PUBLICATIONS 16 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Geobiology of Precambrian–Cambrian microbial structures [View project](#)



Determining Genetic Origins of Early Proterozoic Diamictites of the Gowganda Formation, Using Anisotropy of Magnetic Susceptibility (AMS) [View project](#)

69-4 - THE ORUTANDA PALEOFJORD IN NAMIBIA: A LATE PALEOZOIC ICE AGE FJORD FILLED ESSENTIALLY BY GRAVITATIONAL RESEDIMENTATION



Monday, 10 October 2022



8:50 AM - 9:05 AM



Colorado Convention Center - Mile High Ballroom 4D

Abstract

The stratigraphic architecture of fjords is complex as it is controlled by ice dynamics, sediment supply, relative sea-level fluctuations, and topography. Glacially-transported debris are prone to failure and to be carried downslope to the fjord floor through the entire spectrum of mass movements and density flows, as the submarine landscape moves toward to a more stable state. Paleofjords formed by Gondwanan glaciers during the late Paleozoic Ice Age (362-256 Ma) contain a compelling record for comprehending the imprint of gravitational resedimentation in fjord depositional systems. This work presents the morphology and the depositional history of a glacial-deglacial cycle recorded in the Orutanda paleofjord in the Namibian fjord network. Three stages are defined for the Orutanda fjord evolution: glaciation, early deglaciation, and late deglaciation. During glaciation, the up to 200 m-thick Orutanda glacier eroded a 20 km-long and 3.7 km-wide glacial trough that embodies an overdeepened basin. The progressive retreat of the tidewater glacier, concomitant with marine flooding, increased accommodation in the overdeepening during early deglaciation. During this stage, minimal proglacial sedimentation by iceberg rafting and settling of turbid overflow plumes was outpaced by intense paraglacial resedimentation of previously glacially-transported debris. Successive failures from the fjord walls and downslope resedimentation resulted in coalescing debrite-turbidite lobes on the fjord's floor. Slumps entirely composed of deformed debrites and turbidites indicate that these resedimented facies were prone to renewed downslope mass wasting. As the Orutanda glacier became land based and lost contact with marine waters during late deglaciation, the fjord experienced the installment and axial progradation of a fjord-head delta with deposits registered only by slumps and turbidites derived from its collapse. The record derived from the Orutanda paleofjord showcases an example of an overdeepened fjord basin fill dominated by subaqueous gravity-driven resedimentation products. This example elucidates the importance of downslope gravitational resedimentation of glacially-transported sediments for an accurate interpretation of glacial poorly-sorted facies in fjord depositional systems.

Geological Society of America Abstracts with Programs. Vol. 54, No. 5, 2022
doi: 10.1130/abs/2022AM-377964

© Copyright 2022 The Geological Society of America (GSA), all rights reserved.

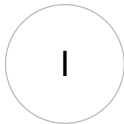
Author



Eduardo Menozzo Rosa

University of Wisconsin-Milwaukee

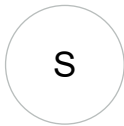
Authors



John L. Isbell
University of Wisconsin-Milwaukee



Nicholas Fedorchuk
University of Wisconsin-Milwaukee
Southern Connecticut State University



Roger Swart



Natalie Mcnall
University of Wisconsin-Milwaukee

View Related
