



Glacial erosion, transport, and deposition on the rifted continental margin of Dronning Maud Land

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The seismic refraction data suggest that the continental margin off Dronning Maud Land had complex and long-lived rift history, which were formed during break-up of Gondwana. The relief of the Dronning Maud Land by middle and late Mesozoic tectonic activity had a strong spatial control on both early fluvial and subsequent glacial erosion. In the later, ice streams have formed along pre-existing tectonic grabens and fluvial valleys and played significant role in transporting sediments. The existing topography determines where ice grows, flows, and erodes as well as how sediment has been deposited. The East Antarctic Ice sheet is moist erosive near its margins, where high driving forces, flow velocities and basal pressure gradients combine to create distinct glacial geomorphology. However, Our multichannel seismic reflection data and marine records demonstrate lack of glacial sediments and severe glacial erosions on the Dronning Maud Land continental margin. We proposed that the continuous uplift of Dronning Maud Land had acted as barrier, which blocked the sediments to be transported further to the continental margin and deep sea since the Middle and Late Mesozoic. A series of glacial erosional and sedimentary features will be reported based on seismic reflection data from several surveys to understand the sedimentation process and geomorphology of the glaciated Dronning Maud Land continental margin.