upper fan the glacigenic units consist of stacked GDF sheets, but in lower fan the glacigenic units consist of elongate, less-erosive GDF lenses. Six buried inflection points may indicate glacier grounding lines, whereas transparent glacigenic layers are mainly till wedges and moraine ridges. An age model for the main reflectors is based on the mean sedimentation rate in cores from the deep Baffin Basin, where hemipelagic sediment predominates. The lowermost thin GDF, deposited at ~350 m sub-bottom on the lower slope, suggests the onset of major ice-stream glaciation in Arctic Canada occurred in the mid Pliocene. From the mid Pliocene until the mid Pleistocene, the upper slope of the trough-mouth fan mainly aggraded and the gradient of the paleosurface of the fan increased. After this, the slope prograded seaward and more GDFs were deposited on the lower slope. The seismic sections indicate that the grounding line of the glacier during the LGM was at ~1340 m below present sea level. The Huntec seismic profile of the shelf shows a retrogradational stack of till wedges at different scales, resulting from glacial retreat and sea level rise after the LGM. This trough mouth fan thus provides a complete record of the Quaternary glacial history of NW Baffin Bay.

The Quaternary Lancaster Sound trough-mouth fan, northwest Baffin Bay

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Little is known about the long time-scale glacial activities in Arctic Canada. High resolution air-gun and Huntec sparker profiles were collected in 2008 on the Lancaster Sound trough-mouth fan, NW Baffin Bay, in order to investigate the regional seismic stratigraphy and provide a preliminary evaluation of possible geohazards. The seismic units of the trough-mouth fan mainly comprise acoustically transparent glacigenic debris flow (GDF) layers which are separated by thin well-stratified glacimarine layers. Two new cores penetrate the youngest GDFs on the fan and provide ground truth for this interpretation. In the

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