
**Recent sediment delivery and accumulation in
three subarctic fjords (poster presentation)**

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Sediment cores from three subarctic fjords on the Nunatsiavut/Labrador coast (Canada) have been studied to evaluate patterns of sediment delivery and accumulation over the past century. The fjords span a gradient of human impact, from Nachvak Fjord (a pristine fjord within the Torngat

Mountains National Park), to Saglek Fjord (on the southern edge of the Torngat Mountains, undeveloped except for a small military installation), to Anaktalak Fjord, the site of significant mining and associated activities over the past two decades. Onboard the CCGS Amundsen in 2007, boxcores were collected from deep muddy basins (depth 100–250 m) in each fjord. Basin floor coring targets were selected in sonar data collected during and before the Amundsen 2007 cruise. Cores were sub-sampled and analyzed for grain size, sedimentary fabric and structures (via X-radiography), and $\text{Pb}^{210}/\text{Cs}^{137}$ radioisotope geochronology.

X-radiographs show that sediments in each core have been bioturbated moderately to intensely, bioturbation imparting relatively homogeneous fabric to each core, with no obvious physical stratification. Radioisotope analyses suggest that sediment accumulation rates vary among fjords over the range of 0.18–0.26 cm/y with results from Pb^{210} and Cs^{137} being broadly consistent. Using the landward reaches of Nachvak Fjord as a specific example, seabed bathymetry appears to tightly constrain the location of depocenters for fluvial sediment. Accumulation rates estimated for one basin with an area of $\sim 10 \text{ km}^2$ suggest that annual total sediment accumulation is on the order of $16 \times 10^6 \text{ kg/y}$. This equates to relatively modest sediment yields from adjacent river catchments of $< 105 \text{ kg/y}$, despite the steep topography and mostly unvegetated landscape. Thus, the bathymetry in fjord basins appears to focus modest sediment supply and creates a relatively high resolution stratigraphic record of fluvial sediment supply over the past 100–200 y.