



## **Glaciers, ice sheets and the submarine geomorphic record on high-latitude continental margins**

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The presence of ice during the Late Cenozoic distinguishes the nature and rates of processes on high-latitude margins from those elsewhere. Ice sheets terminating in marine waters deliver icebergs, meltwater and debris to high-latitude seas. These cryospheric processes have led to the development of a distinctive sedimentary architecture on modern and ancient polar continental shelves and slopes. The marine record of past glacial activity is often better preserved than that at the margins of terrestrial glaciers and ice sheets, and provides opportunities for detailed observations of glacier-derived sediments, landforms and landsystems. In particular, it is difficult to investigate the beds of modern ice sheets, which are often buried beneath several kilometres of ice. In palaeo-glacial continental-shelf settings, marine-geophysical and geological tools deployed from ships allow the three-dimensional investigation of glacial sediments over wide geographical areas of both the sea floor and within the sediments beneath. The form and flow of former ice sheets can be reconstructed using these methods. For example, the locations of former ice streams, which drained huge interior basins with past ice sheets, can be pinpointed and the nature of ice-sheet retreat during deglaciation can be investigated. Examples are drawn from the continental margins of Norway, Svalbard, Greenland and Antarctica.