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An Atlas of submarine glacial landforms:modern, Quaternary and ancient

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In the past two decades there have been several advances that make the production of an atlas of submarine glacial landforms timely. First is the development of high-resolution imaging technologies; multi-beam echo-sounding or swath bathymetry that allows the detailed mapping of the sea floor at water depths of tens to thousands of metres across continental margins, and 3-D seismic methods that enable the visualisation of palaeo-shelves in Quaternary sediments and ancient palaeo-glacial rocks (e.g. Late Ordovician of Northern Africa). A second technological development is that of ice-breaking or ice-strengthened ships that can penetrate deep into the ice-infested waters of the Arctic and Antarctic, to deploy the multibeam systems. A third component is that of relevance – through both the recognition that the polar regions, and especially the Arctic, are particularly sensitive parts of the global environmental system and that these high-latitude margins (both modern and ancient) are likely to contain significant hydrocarbon resources. An enhanced understanding of the sediments and landforms of these fjord-shelf-slope systems is, therefore, of increasing importance to both academics and industry. We are editing an Atlas of Submarine Glacial Landforms that presents a series of individual contributions that describe, discuss and illustrate features on the high-latitude, glacier-influenced sea floor. Contributions will be organised in two ways: first, by position on a continental margin – from fjords, through continental shelves to the continental slope and rise; secondly, by scale – as individual landforms and assemblages of landforms. A final section will allow discussion of integrated fjord-shelf-slope systems. We have assembled a group of editors who have worked with and published extensively on the acquisition, description and interpretation of swath-bathymetric data from both Arctic and Antarctic margins and used 3D seismic data to investigate ancient glacial landforms. The Geological Society of London has agreed to publish the Atlas in its Memoir Series.