



Depicting a high-latitude channel system: the INBIS Channel (NW Barents Sea)

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The INBIS (Interfan Bear Island and Storfjorden) Channel System is a rare example of deep-sea channel on and beyond a glaciated continental margin. This channel system is located between the Bear Island and Kveithola-Storfjorden Trough Mouth Fans on the SW Barents Sea continental margin. A new compilation of bathymetry data shows that a series of 40 gullies, about 150-600 m wide and with incision depth of 10-60 m, incises the upper part of the continental slope. These merge and increase in size downslope, transit into larger tributary channels and converge into the INBIS Channel. The fringes of the INBIS tributary channels are buried below glacial debris flows originating from the upper slope and shelf of the adjacent Trough-Mouth Fans during glacial maxima. This suggests that the INBIS Channel was not generated primarily by mass flows released at the mouth of the troughs. We infer that this gully-dominated part of the INBIS Channel System developed mainly in interglacial periods from dense water cascading from the continental shelf and meltwaters. This gully-dominated part was relatively protected, by its location to the west of Bear Island, from recurrent glacial debris flows allowing meltwaters to continuously increase gullies (and channels) dimensions during interglacial periods.