

Subaqual recordings of the changes in the range of glaciers in the Forlandsundet region (NW Spitsbergen)

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The main goal of the studies is to try and answer the following questions: Do the cliffs of the selected glaciers in the Forlandsundet area re-advance in

winter and does this result in the development of subaqual relief? Are subaqual forms concordant with the location of ice cliffs during the selected peri-

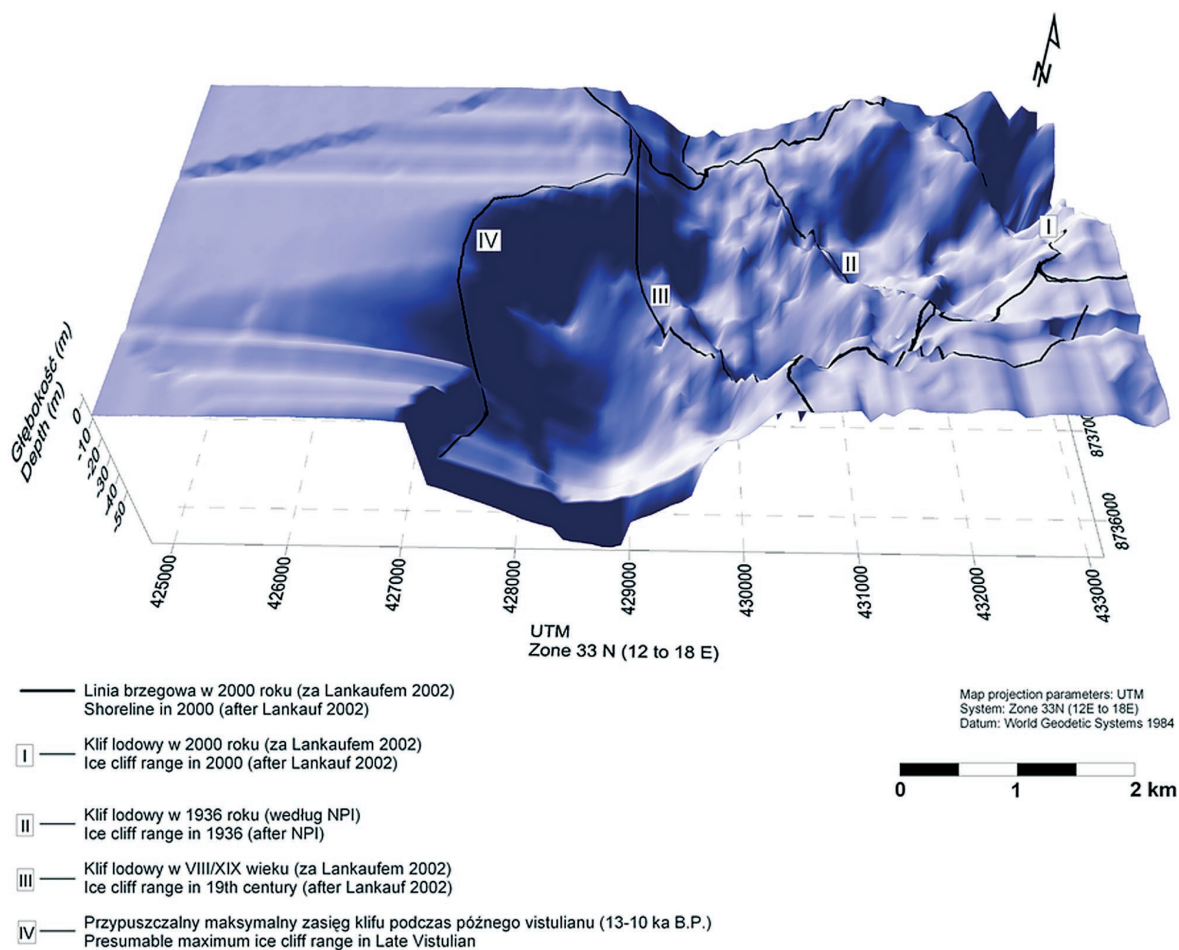


Fig. 1. Subaqual relief in forefield of Aavatsmark glacier with ice cliff ranges in different periods

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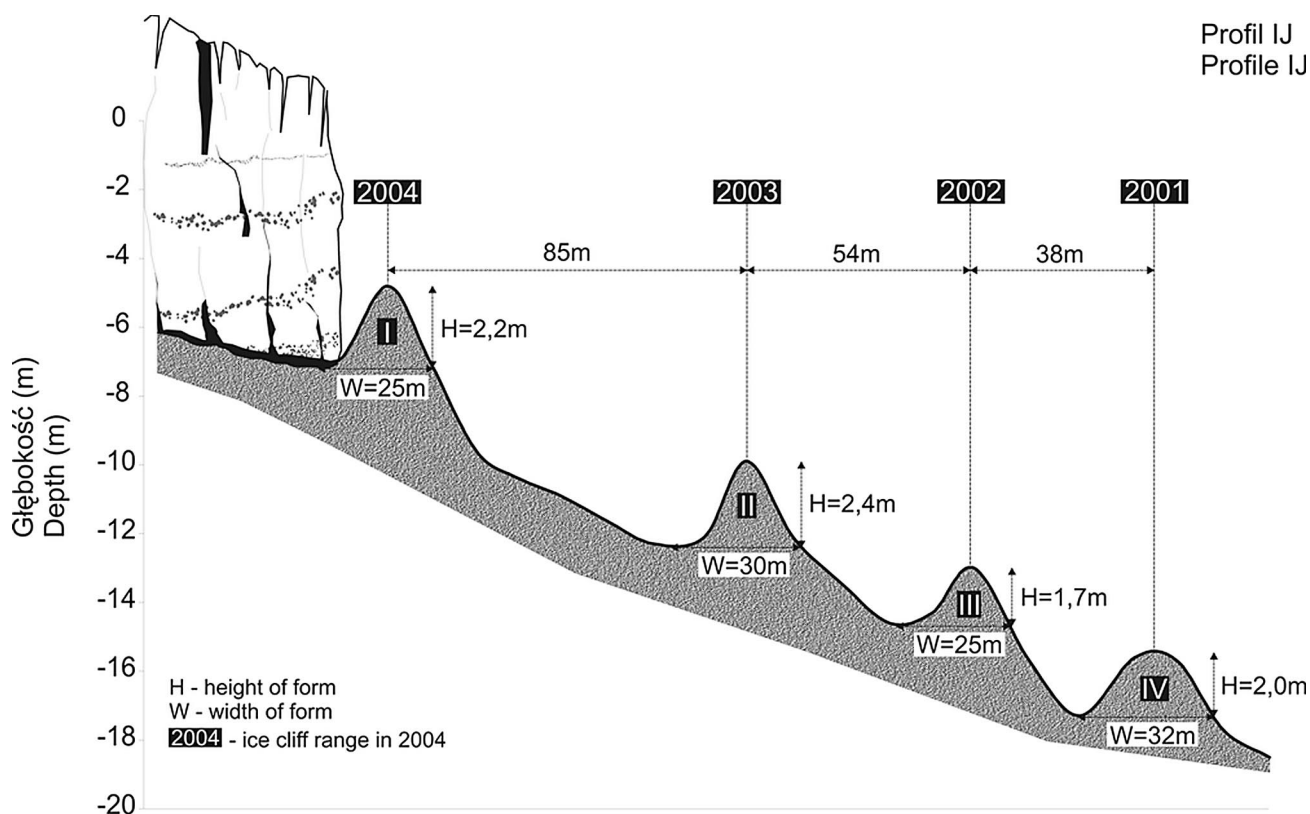


Fig. 2. Annually push moraines formed between 2001 and 2004
H – height of form, W – width of form, 2004 – ice cliff range in 2004.

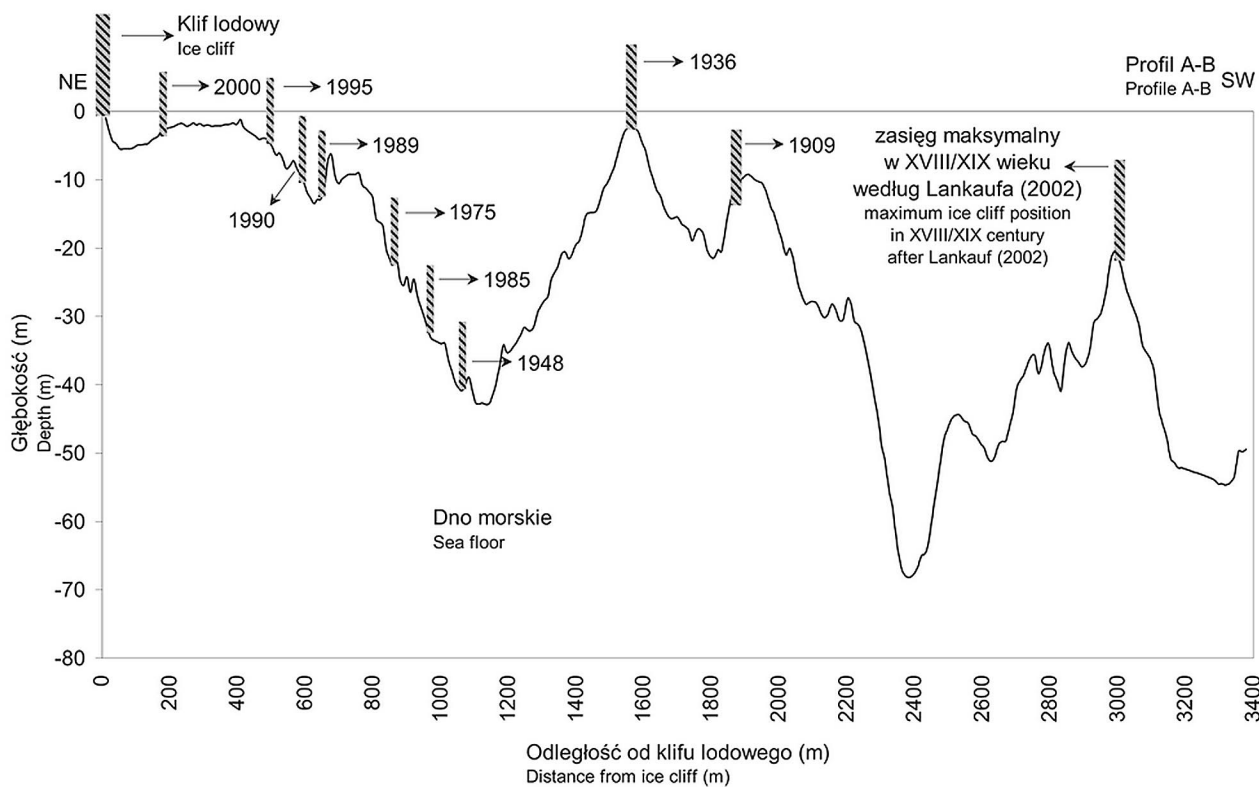


Fig. 3. Subaqueal relief in forefield of Aavatsmark glacier, profile A-B

ods of advance, such as the Little Ice Age, the glacial episode (3.0–2.5 ka BP) or the late Vistulian (13–10 ka BP)? What forms are connected with the periods of significant glacier advances, such as the Little Ice Age, the glacial episode (3.0–2.5 ka BP) or the late Vistulian (13–10 ka BP)? What forms develop as a result of an annual winter re-advance of a cliff? What forms develop at a surge advance? Can bathymetry of the bays in which the glaciers end limit significantly a glacier advance? The paper presents the results of the echo sounders made in the summer seasons of both 2004 and 2005 at the selected glaciers which end in the sea in the Forlandundet region. The measurements included the following glaciers: Aavatsmarkbreen, Dahlbreen, Gaffelbreen, Konowbreen, Osbornebreen and Buchananisenbreen. According to literature and the archival cartographic

materials, the changes in the range of the researched glaciers were studied. For the echo soundings at the glaciers an echo sounder correlated with the GPS Map 178C by Garmin was used. For the long profiles of the glaciers the trace method was used, while for the studies of the data the GPS Utility 4.20.4 was used.

Morphogenetic analysis of the subaqual forms of the sea bottoms where the studied glaciers end needs further research. However, their sequence as well as the fact that they correspond with the old ranges of glaciers proves their glacial genesis. Echo sounders' results of the surging Aavatsmarkbreen are also interesting. The paper contains the results of the echo sounders made at Buchananisenbreen, which in the 1930s was a piedmont glacier.