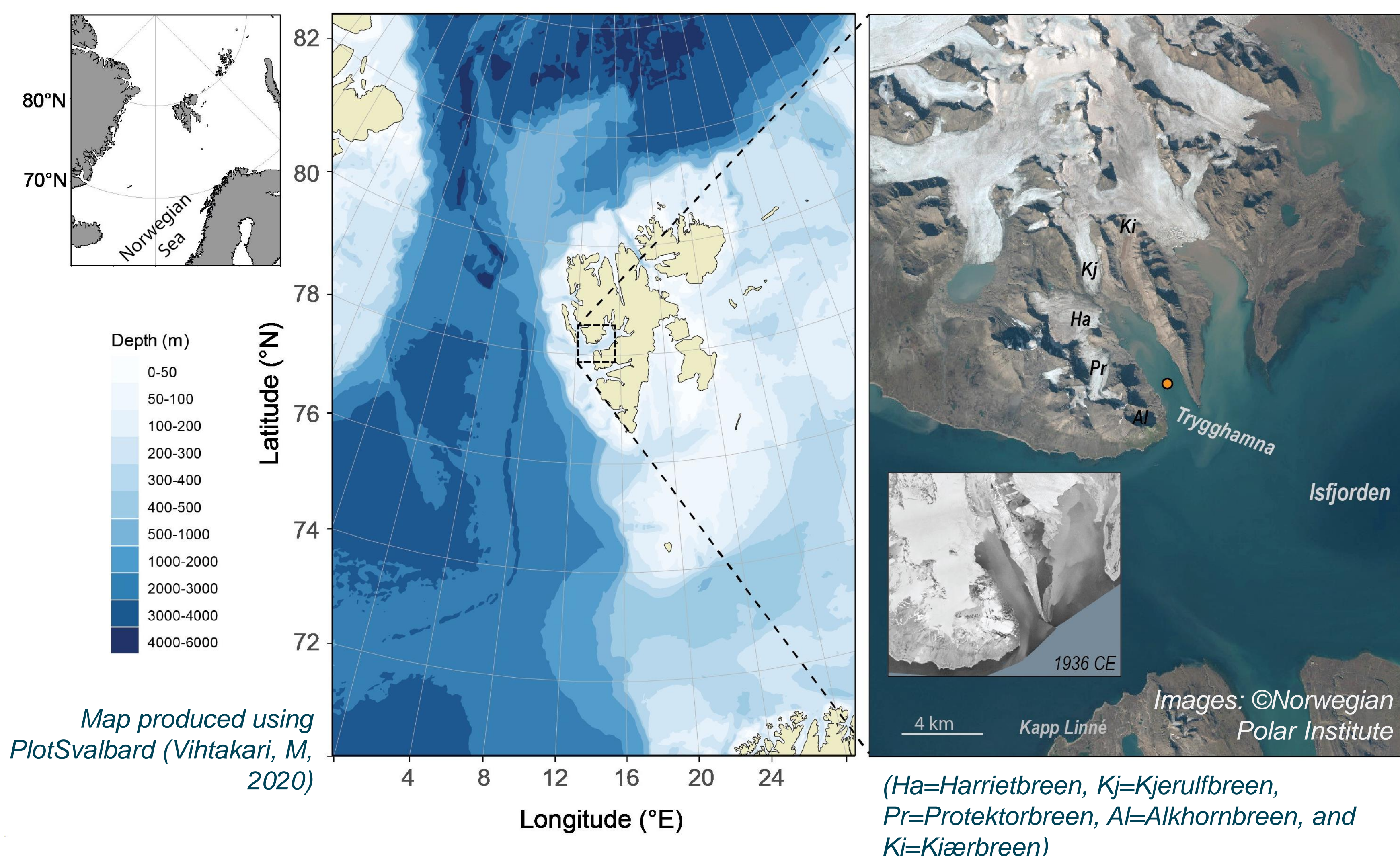


# Glacimarine sedimentation in Trygghamna, Svalbard

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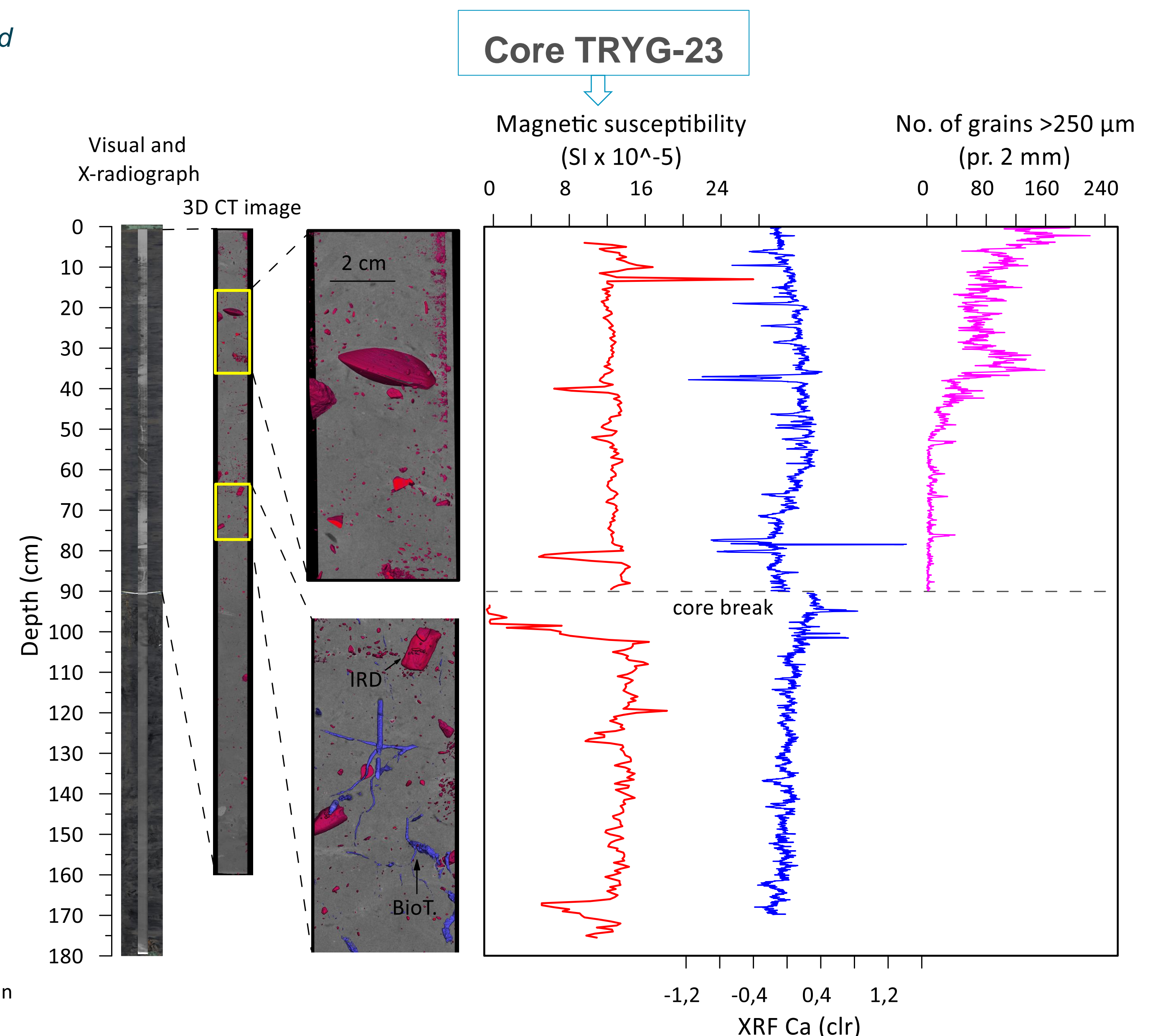


## Background

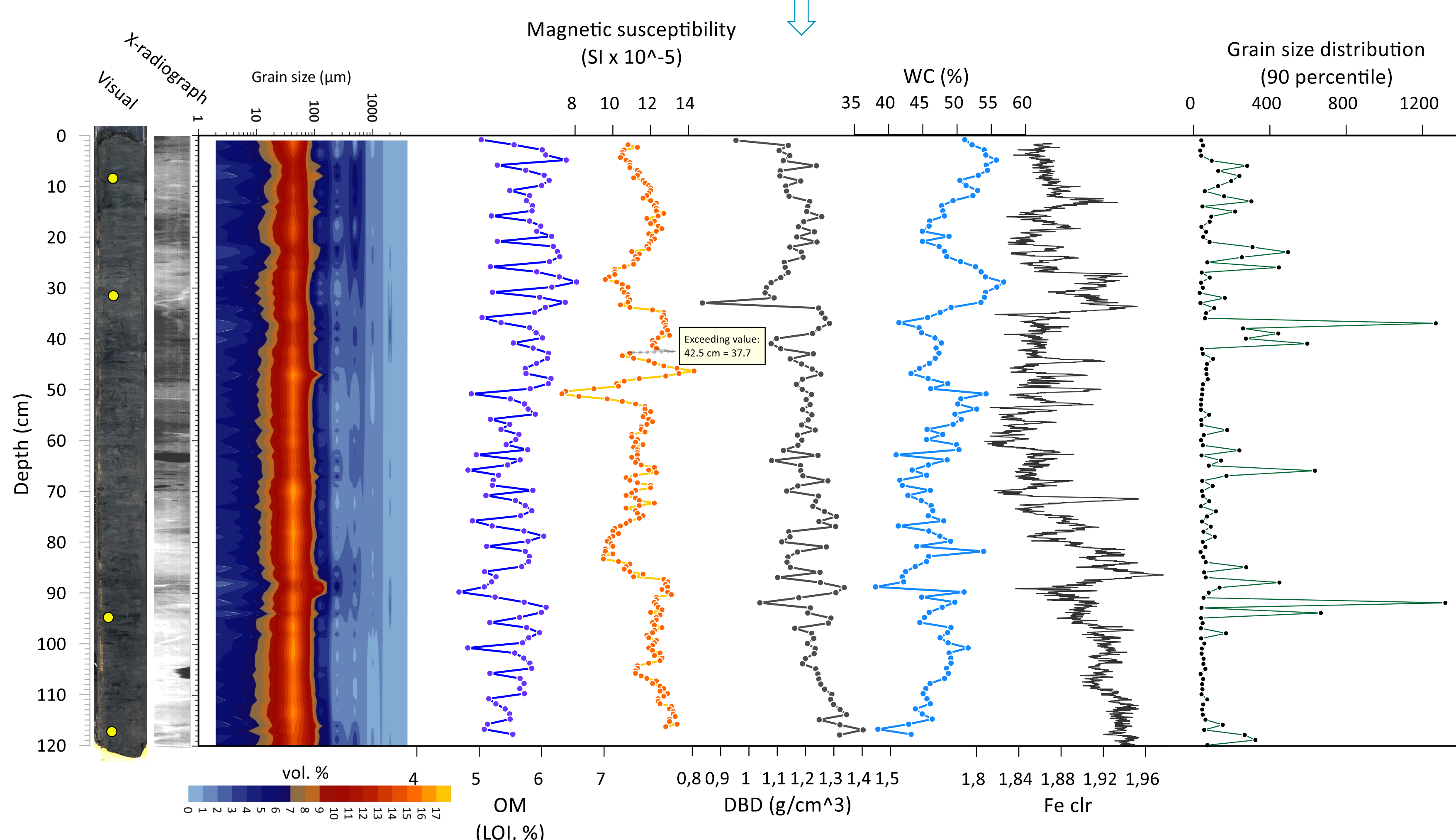
- Two marine sediment sequences from Trygghamna (78°14.5'N, 13°51.0'E) are investigated
- Presently, 5 glaciers supply meltwater and sediments to the fjord basin: 1 grounded tidewater glacier, and 4 glaciers terminating on land
- The motivation for this study is
  - to reconstruct temporal variations in (glacigenic) sediment accumulation
  - to identify, if possible, a sedimentary signature reflecting the transition(s) from marine-terminating to land-terminating glaciers as recorded in the sediments

## Methods and preliminary results

- We combine non-destructive methods including 3D-computed tomography (CT) and  $\mu$ -X-ray fluorescence spectroscopy (XRF) with physical sediment properties, magnetic properties, and total organic carbon to infer temporal and spatial variations in sediment transfer
- Chronology will be based on <sup>14</sup>C and <sup>210</sup>Pb ages
- 3D CT-imaging allow for e.g., sediment facies identification, IRD quantification, bioturbation structures visualization, as well as identification of sediment deformation and structures



## Core TRYG-22



## Outlook

- Statistical analysis will be performed to elucidate and identify the relative contribution from different sedimentary sources and processes
- A robust chronology will be established for climatic context and comparison with relevant records

## Selected references

- Forwick, M., & Vorren, T. O. (2011). Submarine Mass Wasting in Isfjorden, Spitsbergen. In *Submarine Mass Movements and Their Consequences*, Advances in Natural and Technological Hazards Research 31. Dordrecht: Springer Netherlands, pp. 711-722.
- Aradóttir, N., Ingólfsson, Ó., Noormets, R., Benediktsson, Í. Ö., Ben-Yehoshua, D., Håkansson, L., & Schomacker, A. (2019). Glacial geomorphology of Trygghamna, western Svalbard-Integrating terrestrial and submarine archives for a better understanding of past glacial dynamics. *Geomorphology*, 344, 75-89.