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Press release

Fjords in the Swiss Plateau

A team of researchers supported by the Swiss National Science Foundation drilled a borehole into the Bernese subsoil. Their discoveries have now been published: a few hundred thousand years ago, fjords shaped the face of the Central Plateau.

A few hundred thousand years ago, inhabitants roaming the Swiss Plateau could feast their eyes on a spectacular scene. The Alpine peaks descended steeply into a huge lake – a veritable fjord landscape. A team of researchers supported by the Swiss National Science Foundation (SNSF) discovered the evidence of this landscape in an underground valley near Bern. More specifically, in the sediments that fill the valley today. The findings are published in the journal *Scientific Drilling* (*).

History stored in sediment

About 300,000 years ago the lowlands around the Alps experienced substantial glacier advance and retreat. "We now know that as the glaciers retreated towards the Alps they left behind a fjord landscape. This was also the case in the Bern region: a lake covered the entire Aare Valley and a good part of the plateau around the city of Bern," says Fritz Schlunegger, a geologist at the University of Bern.

Because of the succession of different ice ages, the valley below the city of Bern is instructive for understanding how the regional landscape developed. "The sediments that accumulated there by the rivers have remained undisturbed since. Outside the valley, the advance and retreat of the glaciers shifted the sediments several times," says Schlunegger.

Improving safety

Underground valleys like this one also exist beneath the Reuss, the Limmat, the Rhone, Lake Geneva and Lake Constance, and the Seeland region. The borehole data are of interest not only to geologists: they are important to ensure the safety of buildings as well as radioactive waste storage. "We need to take in a period of a million years," says Schlunegger. "You have to rule out locations where glaciers could create valleys again in the future, so that the repositories don't return to the surface."

(*) M. Schwenk, P. Schläfli, D. Bandou, N. Gribenski, G. Douillet and F. Schlunegger: From glacial erosion to basin overfill: a 240 m-thick overdeepening–fill sequence in Bern, Switzerland. *Scientific Drilling* (2021). <https://doi.org/10.5194/sd-30-17-2022>

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Research funding in all disciplines

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[Project Funding](#)

This project was also carried out with the support of ETH Zurich, Building Insurance Bern, Stiftung Landschaft und Kies and Swisstopo.

Links

- [The project on the SNSF Data Portal](#)
- [SNSF Twitter account](#)

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