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Overdeepened glacial basins as archives for Pleistocene glaciation history and subglacial processes: Results from scientific drilling in the Northern Alpine Foreland

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Overdeepened glacial basins are excellent archives for the Quaternary glaciation history and the landscape evolution of the Alps. While they are common large-scale glacial features in many inner-Alpine and foreland settings, most of these basins remain underexplored as challenging drilling operations into 10s to 100s of meters of unconsolidated sediment are required to access the sedimentary record.

We currently investigate some of the most prominent overdeepened glacial basins between the Aare and Rhine Rivers in Northern Switzerland with a multi-method approach – including geophysical methods and scientific drilling – to characterise the geometry, sedimentary infill and age of these glacial basins. The focus of this research is on 1) extracting and refining the Middle to Late Pleistocene glaciation history of Northern Switzerland, and 2) identifying the mechanisms and controls of overdeepening subglacial erosion by characterizing former ice-contacts in the basin fills using micro- to macroscale sedimentological tools.