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Overdeepening-fill profiles in southwestern Germany

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Overdeepenings are closed basins incised into the bedrock by subglacial erosion, and following ice retreat, they become infilled with water and sediments. The sedimentary fillings, some of which are composed of multiple cycles representing separate glaciations, are archives of enormous scientific value. Investigation of overdeepenings and their infills is the key to understanding the processes and drivers of subglacial erosion, the timing and sequence of past glaciations, and thus their cumulated impact on landscape and topography.

We present the stratigraphic successions of three high-quality drill cores from Upper Swabia in the North of the Lake Constance area (southwestern Germany), which are part of the project “Drilling Overdeepened Alpine Valleys” (DOVE; Anselmetti et al. 2022) supported by the International Continental Scientific Drilling Program (ICDP).

These drill cores recovered the complete Quaternary succession at each site, including the infill of two, potentially three separate overdeepenings (Lichtenegg Basin, Gaisbeuren Basin?, Tannwald Basins. These were selected because they should represent, according to previous studies (Ellwanger et al., 2011), large parts of the Early, and early Middle Pleistocene (i.e. pre-Holsteinian), and are therefore excellent candidates for the investigation of a time interval that is currently only poorly understood in the northern Alpine foreland.

Anselmetti, F. S., Bavec, M., Crouzet, C., Fiebig, M., Gabriel, G., Preusser, F., & Ravazzi, C. (2022). *Drilling Overdeepened Alpine Valleys (ICDP-DOVE): quantifying the age, extent, and environmental impact of Alpine glaciations*. *Scientific Drilling*, 31, 51-70.

Ellwanger, D., Wielandt-Schuster, U., Franz, M., & Simon, T. (2011). *The Quaternary of the southwest German Alpine Foreland (Bodensee-Oberschwaben, Baden-Württemberg, southwest Germany)*. *E&G Quaternary Science Journal*, 60(2/3), 22.

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