

# WATER RESOURCES AND GEOTHERMAL POTENTIAL OF OVERDEEPEINED VALLEYS

## Context and objectives

Within the framework of ICDP (International Continental Drilling Program) drill cores from overdeepened alpine valleys will be recovered in order to investigate the environmental and glaciation history of the Alps. Within this international project DOVE (Drilling Overdeepened Alpine Valleys), the module that targets the applied aspects (hydrogeology, geothermics) will be realized at the CHYN and at Eawag. The module investigates the potential of the deep Quaternary aquifers as valuable resources for (drinking) water and for geothermal energy. Up to now, this potential has never been analyzed in depth.

## Research approach and methodology

The first hole will be drilled at the end of 2017 in Basadingen (CH). The 'water' team will sample on site water from aquifer levels and pore water from clayey sections (aquitards). The waters will be analyzed for the stable water isotopic composition, major ions and trace elements, and for its age in order to examine the recharge conditions. The geothermal potential will be assessed via the installation of a temperature sensing cable, as well as analyzing thermal conductivity and thermal heat capacity in the laboratory. The results from the water module will be put in context with the sediment properties and with the timing of the sediment infilling. This complete picture will allow us to assess the hydrogeological and geothermal potential of the Quaternary valley filling. The MSc student will work on a specific aspect according to her/his interests.

## Partners and collaboration

The project will be supervised by Dr. S. Wirth and Prof. P. Brunner. The MSc student will closely collaborate with the PhD student working on the project and an important collaboration exists with Prof. Rolf Kipfer (Eawag) who is responsible for the water dating. This project offers a great opportunity to get in touch with the 'Swiss Drilling' community (swissdrilling.ch) and to get insight into a large international research project that also tackles applied aspects.

Contact for further information: [stefanie.wirth@unine.ch](mailto:stefanie.wirth@unine.ch)

