# Title of the project: Impact of $CO_2$ storage on its environment

## Context

By 2025, the EPFL Carbon Team's prototypes will be up and running, capturing the first kilos of $CO_2$ directly from the atmosphere, as well as from the gas boiler of the animal facility in the SV Faculty. Several solutions are currently being studied for the further processing of this captured $CO_2$. One of these is permanent storage in specific geological formations in Switzerland. To make this storage as optimal as possible, a number of studies need to be carried out, concerning soil properties, the presence of impurities in the captured $CO_2$ stream, the conditions under which the carbon dioxide must be present during burial, and the impact of the latter on its environment. To this end, a collaboration with the Laboratory of Soil Mechanics, or LMS, has been developed to enable interested students to work on these topics. This project is focused on studying the impact of underground $CO_2$ storage on its environment.

## Description

Study the impact of $CO_2$ on its environment after injection into a geological reservoir. Emphasis will be placed on determining the influence of the interaction of $CO_2$ with the geomaterial in contact and the impact on the microstructure of this material. This interaction may be linked to possible chemical interactions with some of the rock's minerals, the introduction of $CO_2$ overpressure or other.

## Requirements

- Knowledge in physics, porous media mechanics, mechanical engineering.
- Knowledge in civil/environmental engineering.
- Basic Python programming.

Bonus: experience in a lab or with other projects or 3D image processing.

## Contact

Supervising lab: LMS, Dr. Eleni Stavropoulou.
Student supervisor: Louis Saix (louis.saix@epfl.ch).

## Remarks

Project location: Lausanne.

The project can accommodate a maximum of 5 students.
Aimed at ENAC students but students from other sections can also apply to this project.