The basis of our work consists of observing, measuring, understanding and predicting how energy geostructures behave from a multiphysical perspective. Special attention is put on cyclic thermo-mechanical behavior as well as heat extraction in crystalline rocks at high depths. The work is targeted to develop practical tools for design and conception.

This technology meets 70% of the energy needs of buildings.

LMS supports the goals of the Swiss Energy Strategy 2050.

Disposal in deep clay geological formations is the most promising way for disposing of high level wastes. The laboratory works as well as numerical modelling are being conducted taking into account complex thermo-hydro-mechanical (THM) behaviour of materials. Involved materials are deeply analyzed in order to provide reliable predictions for the behaviour of storage facilities.
We investigate a novel soil improvement strategy, inspired by the natural process of biologically driven crystal mineralization. The research aims to develop the conception of a geo-mechanical model to describe the enhanced behavior of the bio-treated soil, optimize the improvement process and enhance the practical applicability of this technique. The works are carried out from laboratory to field scales.

**CO2 STORAGE**

CO2 sequestration in deep geological formations is one of most suitable solutions for CCS (Carbon Capture and Storage).

The interplay between transport, reaction and mechanics is tackled through innovative interdisciplinary research both experimentally and numerically. Our research focuses on experimental investigation of the behaviour of shale caprocks as well as on the quantitative risk prediction of large earthquakes occurring in the basement rocks below fluid injection intervals.

**CONTACT US**

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