Simulation with LAGAMINE of a simple THM coupled case. Scoping calculations

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Numerical Modelling Exercise

In the continuation of the exercise on laboratory experiment, this exercise session aims to model a simple case of thermo-hydro-mechanical processes in a host formation around a gallery of nuclear waste disposal. This simulation will be performed with the LAGAMINE finite element code. The excavation phase, the drainage of the gallery and the heating phase due to the heat-emitting waste will be modelled. In the analysis of results, the main thermo-hydro-mechanical processes will be underlined. In particular, the convergence of gallery wall due to excavation, the effect of pore water pressure dissipation upon the drainage of the gallery and the effect of heating in terms of pore water pressure, displacement and effective stress evolutions around the gallery will be discussed. The pre-requisites to attend this session are some basic notions in finite element simulations as well as the general concepts of thermal and hydraulic diffusive processes in a porous media.