
Poromechanical Couplings in Geomaterials and Geostructures

Antonin Fabbri*¹, Jean-Michel Pereira*², and Henry Wong*¹

¹Laboratoire de Tribologie et Dynamique des Systèmes (LTDS-LGCB) – CNRS : UMR5513, Ecole Centrale de Lyon, Ecole Nationale d'Ingénieurs de Saint Etienne, Ecole Nationale des Travaux Publics de l'Etat – 2 rue Maurice Audin 69518 Vaulx en Velin Cedex, France

²Laboratoire Navier – Université Paris-Est – 6-8 avenue Blaise Pascal F-77455 Marne-la-Vallée cedex 2, France

Abstract

Most of geomaterials being porous (soils, rocks, rammed earth, concrete, etc.), it has long been known that pore fluids interacting with the solid matrix impacts significantly on the mechanical behaviour and that of the structure concerned (tunnels, nuclear or urban waste storage facilities, buildings, geological storage reservoir...). In the last few decades, effects of other phenomena such as heat and physico-chemical interactions have also been investigated and an immense knowledge base have been accumulated. The aim of this mini-symposium is to gather researchers and engineers who are interested by such coupled phenomena or have conducted studies on one or several aspects of such coupled processes, either experimentally or theoretically, to share their experience and insight. The topics of this mini-symposium are composed of but not limited to the following areas: thermal effects, crystallisation, phase change such as freeze-thaw behaviour, chemically-induced swelling-shrinkage, capillarity effects...

Keywords: multiphysic couplings, fluid solid interactions, coupled phenomena, nonlinear behavior

*Speaker