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## CONFERENCE

<b>Coupled THM Model and Simulation of the Yucca Mountain and F</b>	
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<b>Abstract</b>	Task_D of the DECOVALEX_THMC project fo to 10,000 years) in two generic repositories, FI better understand the coupled THM processes set of generic coupled THM governing equatio according to given Task_D model inception ph are introduced into general simulation which m this practical models is developed and used in verified in the 3rd and 4th workshop of DECO\ different participant teams which enhances cor
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## Coupled THM Model and Simulation of the FEBEX Case Study within DECOVALEX

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**Keywords:** DECOVALEX; THM coupled simulation

**Abstract.** Task\_D of the DECOVALEX\_THMC project is a coupled THM process (up to 10,000 years) in two generic repository types for comparison. To better understand the system behavior, we have introduced a set of simplified models based on these equations, we develop simplified models to meet the request. Boiling model and empirical bentonite simulation which makes model more practical. A coupled THM model is developed and used in two BMT case studies, which are verified in the 3rd and 4th workshop of DECOVALEX with results of different participant teams which compare the coupled THM processes.

### Introduction

This paper presents coupled thermal-hydrological-mechanical (THM) results for DECOVALEX-THMC, Task\_D, comparing two generic repository types. The research is conducted at the State Key Laboratory of Geomechanics and Geotechnical Engineering, the Chinese Academy of Sciences. The study involves analysis of coupled THM processes in two generic repository types:

- ① Task\_D THM1: A generic repository located in a cavernous rock. The tunnels are backfilled with buffer material (FEBEX).
- ② Task\_D THM2: A generic repository located in a crystalline rock. The tunnels are open gas-filled tunnels (Yucca Mountain type).

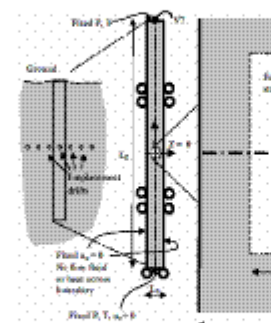


Fig. 1 Schematic general model geometry, boundary conditions and parameters

The geometry chosen for the two repository types is shown in Fig. 1). To better understand the coupling THM processes, we introduced a rigorous treatment of the thermal-hydrological-mechanical (THM) processes in the unsaturated porous media [4]. Each of the three independent continua with four constituents

