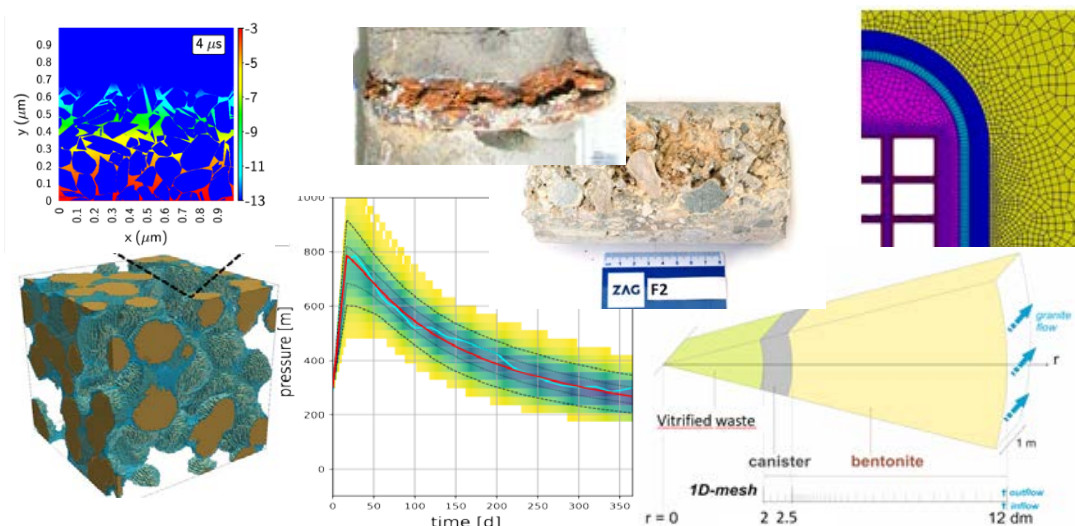


WORKSHOP

Assessing the long-term evolution of engineered barrier systems of waste disposal systems

Date: November 08-10, 2023
Location: Mechelen, Belgium



A joint workshop is organized by the work packages **ACED** (Assessment of Chemical Evolution of ILW and HLW Disposal Cells) and **DONUT** (Development and improvement Of NUmerical methods and Tools for modelling coupled processes) within the project **EURAD** (European Joint Programme on Radioactive Waste Management).

We invite both partners and end-users from inside EURAD and interested partners from outside EURAD to submit an abstract and participate to the workshop.

Scope and Background

The engineered Barrier System (EBS) is a crucial component for containment and isolation in a radioactive waste disposal system. Components of a so-called “multiple-barrier system” between the waste matrix and the biosphere include a combination of waste containers (e.g. metal canisters, concrete), engineered barriers such as bentonite or cementitious materials and natural barriers such as salt formation, clayey, volcanic or granitic rocks. The number, types and assigned safety functions of the various engineered barriers depend on the chosen repository concept, the waste form, the radionuclides inventory in the waste, the selected host rock, the hydrogeological and geochemical settings of the repository site among others. EBS properties will evolve with time in response to the thermo, hydro, mechanical, radiological and chemical gradients and interactions between the various constituents of the barriers and the host rock. Therefore, assessing how these properties evolve over long time frames is highly relevant for evaluating the performance of a repository design and safety function evaluations in a safety case. For this purpose, mechanistic numerical models are increasingly used. Such models provides an excellent way for integrating in a coherent framework scientific understanding of coupled processes and their consequences on different properties of the materials in the engineered barrier system. This issues have been tackled within the ACED and DONUT EURAD work packages.

Topics

This workshop will be aims at exchanging state-of-the-art knowledge gathered on:

- Gaining phenomenological understanding of processes at interfaces (experiments, analogues)
- Modelling alterations at interfaces
- Modelling coupled process at larger scale
- Model abstraction; application in sensitivity and uncertainty analysis
- Machine learning in coupled reactive transport modelling

Key Dates

Deadline for abstract submission:	September 15 2023 to euradworkshop2023@SCKCEN.BE
Notification of abstract acceptance:	Mid October 2023
Finale Program:	Mid October 2023
Workshop:	November 08-10, 2023

Check [Workshop Page](#) for more information and registration (starting July 1, 2023)

Publications: We do not foresee a proceeding with publication of full papers. Authors could consider the special issue in the journal Environmental Earth Sciences on “Digitalisation for nuclear waste management” (closed in June 2024) – see <https://link.springer.com/collections/jfaighicji>

VENUE

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