

The Abstract Deadline is April 1st (23:59 CET)



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13N: Biogeochemical Processes and Radioactive Waste Disposal

Convenors: Andrea Cherkouk (HZDR), Jonanthan Lloyd (Uni Manchester)

Keynote: Karsten Pedersen (Microbial Analytics Sweden AB)

Invited speakers: Katherine Morris (Uni Manchester), Rizlan Bernier-Latmani (EPFL)

This session will examine the impact of biogeochemical processes on the long-term performance of geological repositories for a broad range of radioactive waste materials. Microorganisms may affect the conditions in a geological repository through controlling influences on waste form evolution in situ, multibarrier integrity, and ultimately radionuclide migration from the repository into the surrounding geosphere. An important concern is the quantification of specific measurable impacts of microbial activity on safety cases under repository-relevant conditions, leading to significant refinements of safety case models currently being implemented to evaluate the long-term evolution of radioactive waste repositories. This session aims to combine cross-disciplinary synergies between experts from fields including environmental microbiology, (bio)geochemistry, mineralogy and radiochemistry. We invite contributions covering all aspects of biogeochemical processes expected in deep geological repositories and in deep subsurface sites intended to represent the conditions of the repositories. This includes nano to microscale investigations about microbial processes controlling radionuclide, chemical and gas release from long-lived low and intermediate level wastes containing organics, biodegradation of anthropogenic organic polymers and cellulose present in waste forms under disposal conditions and their impact on radionuclide speciation, microbial contribution to canister corrosion for higher level wastes, as well as the impact of microbial activity on the long-term performance of bentonites as barrier materials and seals and plug systems. We welcome contributions that include experimental or modeling approaches.