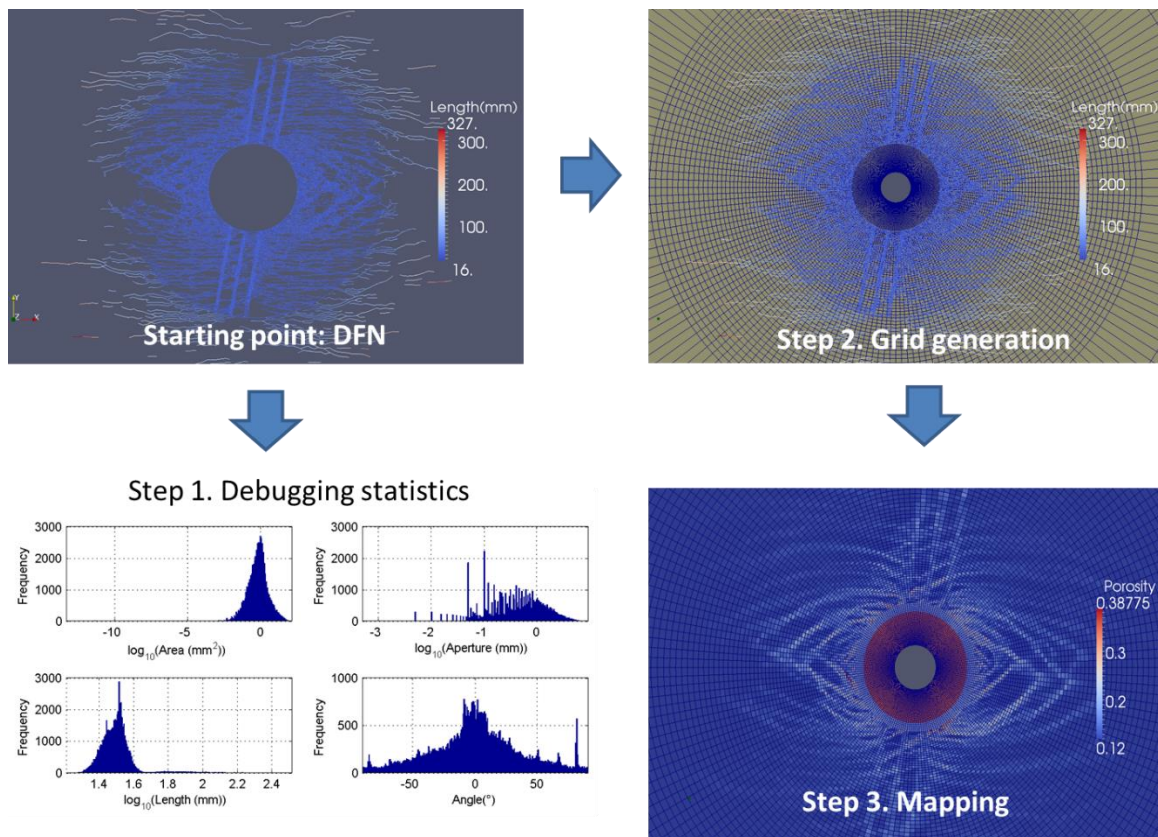


Hydromechanical characterization of the Excavation Damaged Zone around excavated structures. Storage of High Level Radioactive Waste (HLW).

Client: Nagra

Keywords: EDZ, Hydromechanical modelling, upscaling, radioactive waste disposal



Summary: The excavation damaged zone (EDZ) around the tunnels of a geological repository represents a possible release path for radionuclides, that needs to be adequately addressed by safety assessment (SA) tools. The thermohydromechanical phenomena associated with the EDZ are of high complexity, precluding detailed representations of the EDZ. Thus, simplified EDZ models mimicking the safety-relevant features of the EDZ are required. In this context, a heuristic modelling approach has been developed to represent the creation and evolution of the EDZ in an abstracted and simplified manner. The key features addressed are the stochastic character of the excavation-induced fracture network and the self-sealing processes associated with the re-saturation after backfilling of the tunnels.