Yuzhuo Wu

Beijing, P.R. China | yuzhuowu@email.cugb.edu.cn | https://wuyzhuo.github.io/

Education

China University of Geosciences, Beijing **Beijing, China**

M.S. in Geology (GPA: 3.9/4.0) 2022 - Present

B.S. in Groundwater Science and Engineering (GPA: 3.9/4.0) 2018 - 2022

Research Experiences

Simulation and Uncertainty Analysis of Nuclide Transport Breakthrough in DFN **2024**

- Developed a 200m DFN model to simulate nuclide transport in Äspö HRL prototype repository, predicting an initial breakthrough time of 4.19 years.
- Used the Sobol analysis to quantify fracture parameter contributions and interaction between radius and longitudinal dispersion explained 82% variance in transport distances.

Time−Dependent Gas Permeability of Fractures in Shales **2023**

- Tracked permeability evolution in two artificially fractured shale cores under multiple stresses, revealing 3.8–5.2 times reduction due to elastic deformation and creep-induced processes.
- Developed and validated a gas permeability model considering the coupled effects of creep and gas slip, accurately predicting fracture permeability change patterns.

CO_2 Seepage in a Microfracture Network **2023**

- Monitored the breakthrough pressures of helium, nitrogen, methane, and carbon dioxide in coal rock at different humilities and the evolution of permeability with time.

Existence of REV in Different Fractured Rocks Based on Permeability Analysis **2022**

- Calculated hydraulic conductivities of 36 fractured rock types in 3D and fitted permeability ellipsoids, highlighting heightened REV probability in dense, persistently fractured rock.

Technical Experiences

Geotechnical Numerical Simulation (TA) **Fall 2023**

- Taught theory of solute transport in fractured rocks and application of numerical simulation.

Hydrogeology Field Work **Summer 2021**

- Designed 10 routes to investigate 30 wells and three rivers, and collected water samples to characterize the distribution patterns and types of groundwater in the Liujiang Basin area.
- Used water balance method to evaluate the groundwater resources, and the annual average is negative equilibrium.

Geological Field Work **Summer 2020**

- Designed sixteen routes for geologic investigations, and drew regional geological maps, stratigraphic bar charts, indicating that Zhoukoudian area is composed of the Fangshan intrusion rock body and the multi-phase faults.

Publications and Presentations

[1] **YuzhuoWu**, A stochastic simulation model for nuclide transport breakthrough in DFN, 2023, *Eighth Symposium on Underground Disposal of Waste*.China.(Talk)

[2] **YuzhuoWu**, Uncertainty analysis of fracture parameters for nuclide transport simulations in DFN, 2024. (working paper)