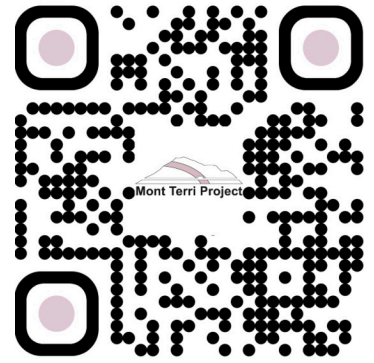


Mont Terri Project Underground Rock Laboratory

Report period: March 31, 2025 – April 6, 2025

Assembled and edited by swisstopo, St-Ursanne



Spotlight of the week: FS-B (Imaging the Long-Term Loss of Faulted Host Rock Integrity) experiment: The vertical borehole BFS-B15 crosses the Main Fault and is an important borehole for the design of the new phase for injection and monitoring within and around the Main Fault. In this borehole, 4 different zones of scaly clay have been observed, varying in thickness from 10-70 cm. The abundance of fault planes increases coming from above and below towards these scaly clay layers, showing that the Main Fault is a complicated tectonic feature. In the picture you see four geologists being amazed about the beautiful cores and fighting about the true interpretation... (Fig. S. Schefer, swisstopo).

BN (Bitumen-Nitrate-Clay Interaction) experiment

- On Tuesday, April 1, T. Theurillat (swisstopo) took the 2nd sample of interval 2. The water level of the gas trap is at about 475 – 480 ml. He also adjusted the flow to 10.5 ml/min as the flowmeter showed ca. 7,5 ml/min.

CD-A (Influence of Humidity on Cyclic and Long-Term Deformations) experiment

- On Monday, March 31, M. Abdelouhabi, M. Stöpfer and S. Schefer (swisstopo) performed the leveling of the two Twin Niches and the platform tiltmeters associated to the CD-A experiment (**Figure 1**).

CS-E (Mini-Fracturing and Sealing) experiment

- On Thursday, April 3, D. Zbinden and A. Rinaldi (ETHZ) performed GPR measurement in BCS-D5 and BCS-D6 and refilled the mixing tank for continuous injection operation (**Figure 2**).

DR-B (Long-Term Diffusion) experiment

- On Tuesday, April 1, R. Wüst (Nagra), U. Mäder (RWC) and S. Schefer (swisstopo) discussed the position and orientation of new sampling boreholes to be drilled between the injection borehole and the down-dip monitoring borehole to get an independent measurement of the iodine transport during the last 8 years.

DR-C (Diffusion in a Thermal Gradient) experiment

- On Wednesday, April 2, Y. Lettry (Solexperts) took a water sample for F. Heberling (KIT) and raised the injection temperature at BDR-C1 to 95 degrees.

DR-D (Heterogeneity of Sandy Facies by Geophysical Characterization and Diffusion Studies) experiment

- On Wednesday, April 2, Y. Lettry (Solexperts) started the circulation in interval 2.

DR-E (Long-Term Diffusion Experiment in the Main Fault-Zone) experiment

- On Tuesday, April 1, R. Wüst (Nagra), U. Mäder (RWC), M. Kiczka (UniBe) measured pH and sampled both boreholes for water analysis and for radionuclide activity (**Figure 3**).

FE-M (Long-Term Monitoring of the Full-Scale Emplacement Experiment) experiment

- On Tuesday, April 1, S. Schefer (swisstopo) restarted the GmuG computer on behalf of E. Manukyan (Nagra).

FS-B (Imaging the Long-Term Loss of Faulted Host Rock Integrity) experiment

- From Tuesday to Friday, April 1–4, A. Eul, S. Braunschweig and F. Durulan (Eul GmbH) drilled BFS-B15 down to its final depth of 56.6 m. The Main Fault was reached at 42.8 m with the first zone of scaly clay (0.5 m), followed by two other zones of scaly clay of similar thickness, and a last slim one at 53.6 m (**Figure 4**).
- On Thursday, April 3, M. Ziegler (swisstopo) and P. Annan (ETHZ) took in total six samples of scaly clay fault zone and less deformed Opalinus Clay shale from BFS-B15 for ETH and NGI for mechanical and structural analyses (**Figure 5**).
- On Friday, April 4, M. Frädrich (Terratec) performed OBI, natural gamma and caliper logs inside BFS-B15.

FS-E (Distributed Hydromechanical Response during Fault Damage and Fault Self-Sealing Evolution) experiment

- On Thursday, April 3, M. Rutschi and A. Guzik (Neubrex) measured the fiber optical cables (strain/T) installed in BPF-7. This time the measurements were made without switch board.
- On Thursday, April 3, A. Rinaldi, D. Zbinden and P. Annan (ETHZ) participated in a training with Neubrex to use the newly purchased DSS interrogator.

MH (Long-Term Monitoring of Heaves and Displacement) experiment

- On Tuesday, April 1, S. Condamine (swisstopo) read out the data from the Meteo-Logger in the Safety Gallery.

Visits

| Day | Date | Group Name | Group Size | Visitors Guide |
|-----|----------|--|------------|---|
| Wed | 2.4.2025 | Ghent University | 10 | I. Gaus (Nagra) M. Abdelouhabi (swisstopo) |
| Wed | 2.4.2025 | Schatz Roman (Finland) | 2 | C. Nussbaum (swisstopo) |
| Thu | 3.4.2025 | Landesamt Für Geologie, Rohstoffe Und Bergbau, Freiburg Im Breisgau | 9 | O. Leupin (Nagra) |

Figures



Figure 1: CD-A: Leveling in Niche Open Twin (S. Schefer, swisstopo).



Figure 2: CS-E: Installing the GPR in BCS-D5 (M. Abdelouhabi, swisstopo).



Figure 3: DR-E: M. Kiczka taking water samples from BDR-E1 (M. Abdelouhabi, swisstopo).



Figure 4: FS-B: Drill rig for BFS-B15, vertical borehole (M. Abdelouhabi, swisstopo).

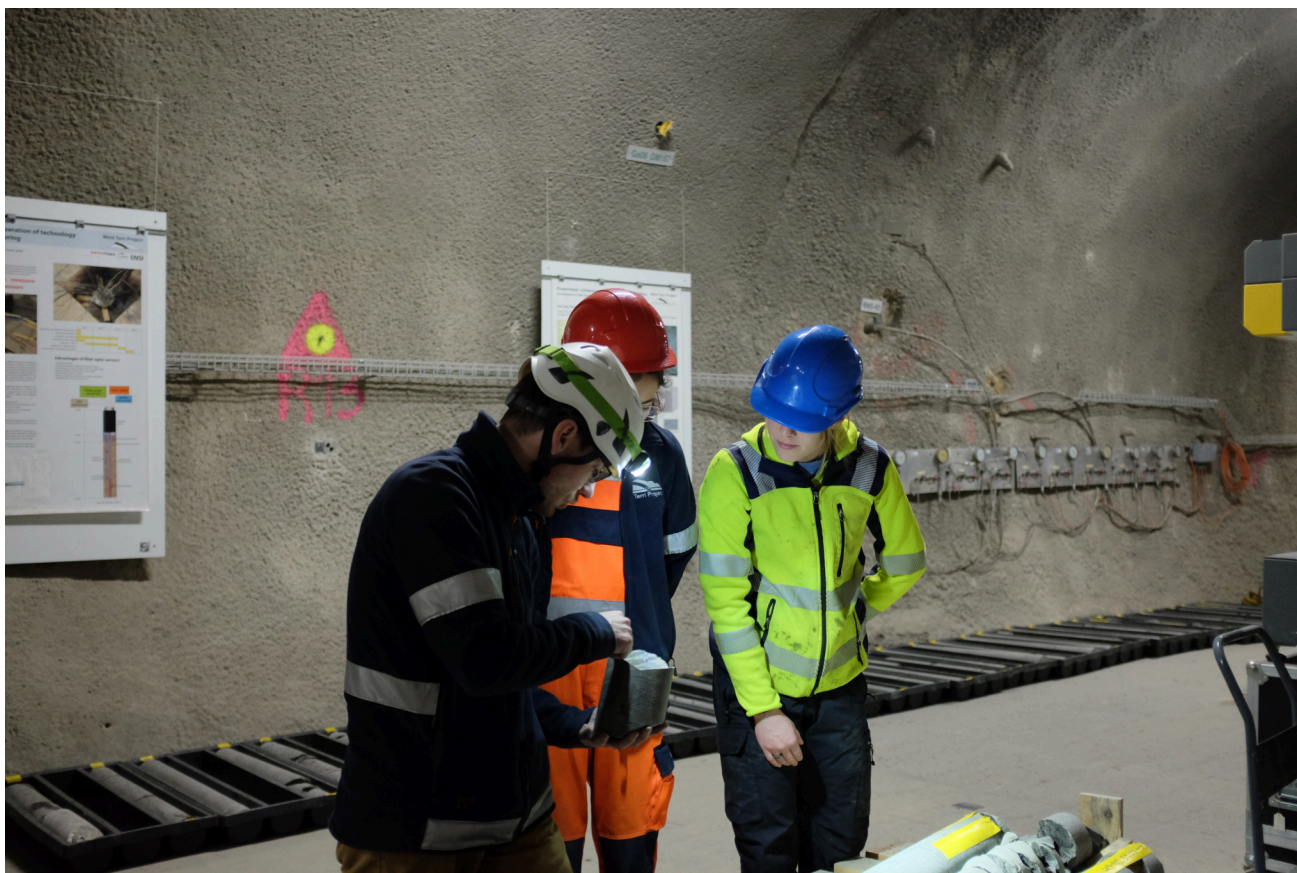


Figure 5: FS-B: Sample selection on site (S. Schefer, swisstopo).