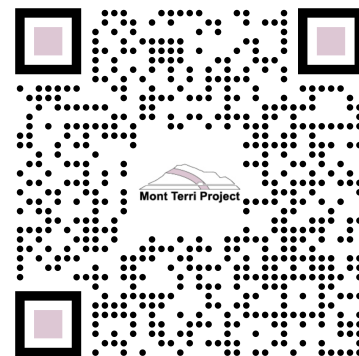
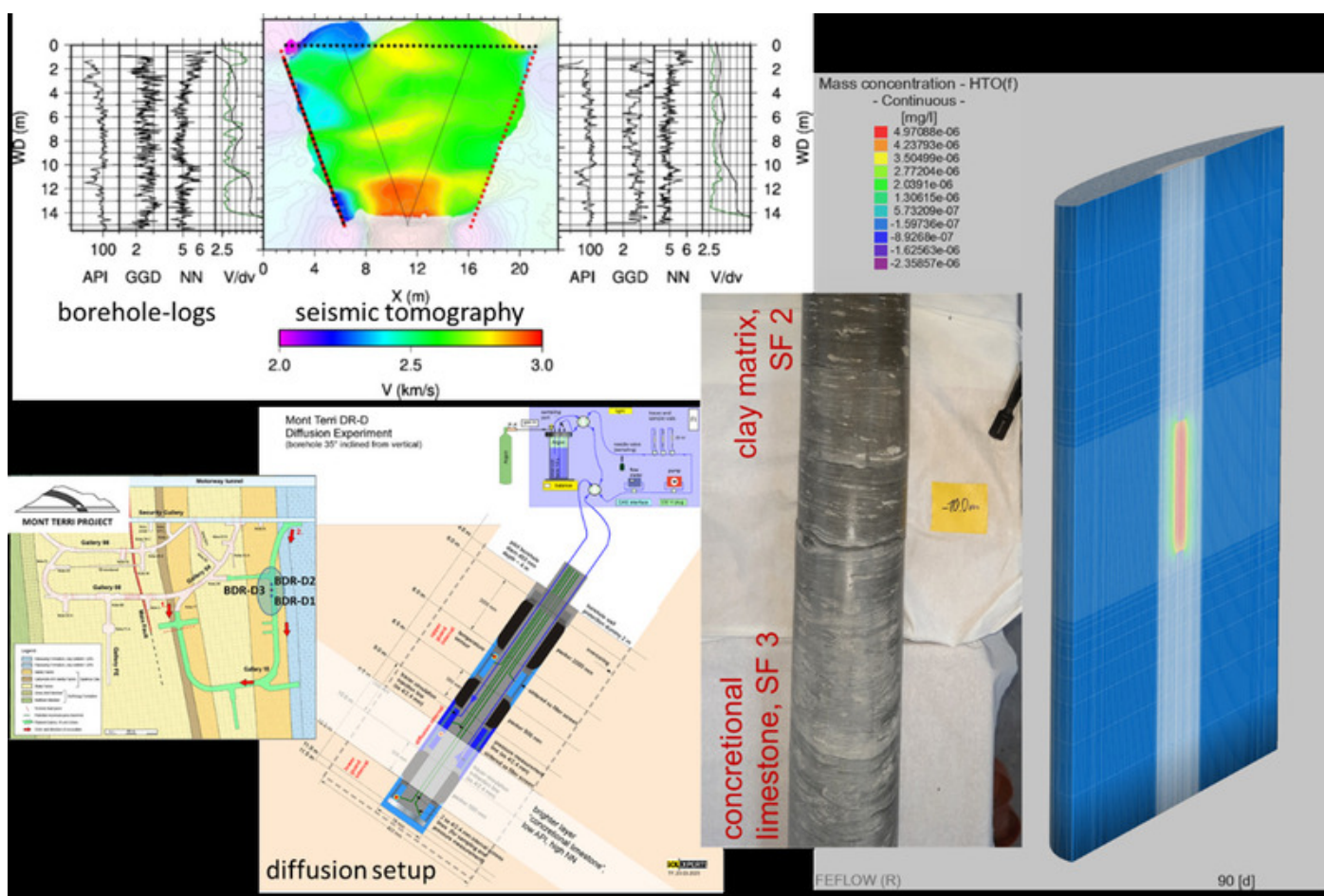


Mont Terri Project Underground Rock Laboratory



Report period: October 30 – November 5, 2023

Assembled and edited by swisstopo, St-Ursanne



Spotlight of the week: The DR-D experiment investigates the heterogeneity of the sandy facies of Opalinus Clay, and its impact on radio tracer diffusion. Seven institutions (KIT, FZJ, HZDR, GFZ, BGR, BGE, and PSI) collaborate to characterize the heterogeneity of the upper Sandy Facies at various scales from a seismic tomography survey, via borehole logging, to detailed microscopic investigations of drill core samples. A distinct concretional limestone layer (subfacies 3) has been identified ca. 10 m below the surface of Gallery 18. A multi-tracer diffusion study will be performed at the transition from the more clay rich rock matrix (subfacies 2) to this layer.

CI-D (Diffusion Across 10-Year-Old Concrete/Claystone Interface) experiment

- From Monday to Tuesday, October 30–31, U. Mäder, C. Zwahlen and A. Jenni (RWI UniBern) sampled the two cores from BCI-D3. This was done in a radioprotective setting, supervised by S. Schefer (swisstopo) (**Figure 1**).
- From Monday to Tuesday, October 30–31, A. Eul and S. Braunschweig (Eul GmbH) worked in hyperdrill mode and recovered 3 giant core lengths, each around 1.2 m long (350 mm drilling DM) and ca. 300 kg. The depth reached is 5.3 m. There is one core length missing to final depth of this approach borehole BCI-D4.
- On Wednesday, November 1, U. Mäder (RWC) did first interim measurements for water content of Opalinus Clay samples from the partial profile sampled so far and also for aqueous extracts from BCI-D3-OC2.

CL (CO₂LPIE-CO₂ Long-Term Pulse Injection) experiment

- From Thursday to Friday, November 2–3, J. Windisch, A. Grignaschi and L. Borgeaud (swisstopo) measured the grain density of rock samples from BCL-3 and BCL-4 at the University of Bern. The samples were finely ground, dried overnight and then analysed using a pycnometer.
- On Thursday, November 2, S. Schefer (swisstopo) together with our two weeks trainee Janna implemented the positions of the six boreholes (BCL-5 to BCL-10) in the Niche CL (**Figure 2**).

HE-E (In-Situ Heater Test in VE-Micro-Tunnel) experiment

- On Wednesday, November 1, U. Mäder (RWC) finished the 48 hour measurements for bentonite samples from last Thursday. Next week a second borehole for a second sampling of granular bentonite will be drilled at location B (BHE-E4, already surveyed).

IC-A (Corrosion of Iron in Bentonite) experiment

- On Friday, November 3, N. Jakus (EPFL) was on site to prepare the glovebox for the upcoming retrieval of the samples inside BIC-A1.

SI-B (Seismic Imaging of Structures Below the Mont Terri Tunnel and Rock Laboratory) experiment

- On Friday, November 3, T. Theurillat (swisstopo) and two people from BKW installed the electrical supply cabinets for the upcoming seismic survey in the Safety Gallery.

SW-A (Large-Scale Sandwich Seal in Opalinus Clay) experiment

- On Monday, October 30, S. Schefer (swisstopo) found a new small leak in the low pressure injection system for shaft 2. S. Tunon (Amberg) suggested a fix with special pressure resistant tape that will be sent to Mont Terri as soon as possible.
- On Monday, October 30, and Friday, November 3, T. Theurillat (swisstopo) refilled the HPT of shaft 1.

Varia

- On Tuesday, October 31, J-M. Vaucher (DVCI) and T. Theurillat (swisstopo) trained the team and the drivers in fire fighting skills and Polycorn radio protocol (**Figures 3, 4**).

Visits

Day	Date	Group Name	Group Size	Visitors Guide
Mon	30.10.2023	Kantonsschule Im Lee, Winterthur	31	H. Sager (Nagra) R. Nicol (swisstopo)
Sat	4.11.2023	Nagra Besuchstage Ab Stadel	31	H. Sager (Nagra) O. Moser (Nagra)

Figures



Figure 1: CI-D: The core and the sampling team are ready (S. Schefer, swisstopo).



Figure 2: CL: Janna learned how to implement drilling positions as one of many things during her stay in Mont Terri. It was very nice having you with us (S. Schefer, swisstopo).



Figure 3: Varia: Theoretical instructions before the action started (S. Schefer, swisstopo).



Figure 4: Varia: And finally some action! Very well prepared and totally safe, of course (S. Schefer, swisstopo).