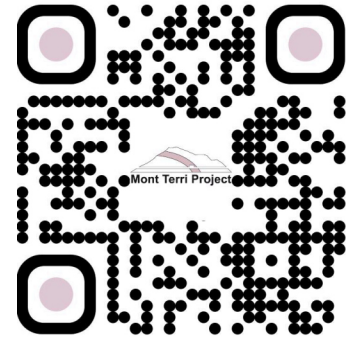


Mont Terri Project Underground Rock Laboratory

Report period: January 13–19, 2025

Assembled and edited by swisstopo, St-Ursanne



Spotlight of the week: The CL (CO₂ long-term periodic injection) experiment investigates the influence of CO₂ saturated pore water on the Opalinus Clay as a cap rock. In the first part of the CL experiment, a modular multi-sensor monitoring system (MMMS) has been developed, tested and installed successfully. The characterization phase of the investigated rock volume with ERT, active seismic acquisition, fiber optical strain/T measurements and pore pressure survey combined with rock core investigations is finished. This week the drilling of the final injection and extraction boreholes started. These boreholes are situated in the middle of the characterized rock mass and will be used to inject and geochemically monitor the injected CO₂ brine. For the diffusion processes between the two boreholes it is important that they are completely parallel to each other. The image shows the CL team performing core documentation and sampling. Next week x-hole seismic measurements, and borehole logging will be performed and the injection system will be installed. (Photo: D. Jaeggi, swisstopo).

BN (Bitumen-Nitrate-Clay Interaction) experiment

- On Monday, January 13, T. Theurillat (swisstopo) removed the clay loops 1A and 2A from the sampling cabinet and sent them to SCK•CEN.

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

- On Monday, January 13, D. Jaeggi (swisstopo) disconnected and removed the equipment for constant head injection from boreholes BCL-5 to BCL-8. Balance weight was 9.23 kg and the pressure for all four boreholes was 1538 kPa. The area is now ready for the installation of the two drill rigs.
- From Monday to Tuesday, January 13–14, A. Eul, S. Braunschweig and F. Durulan (Eul GmbH) installed the two rigs for simultaneously drilling of BCL-9 and BCL-10. S. Schefer (swisstopo) measured the position and orientation of both rigs to ensure perfectly parallel boreholes (**Figure 1**).
- From Wednesday to Friday, January 15–17, A. Eul, S. Braunschweig and F. Durulan (Eul GmbH) drilled BCL-9 and BCL-10 to a depth of 9.5 m. The last 5.1 m containing the injection intervals will be drilled on Monday.
- From Wednesday to Friday, January 15–17, P. X. Meury (Géo&Environnement), C. Marion (Eawag) and M. Abdelouhabi (swisstopo) did the core mapping of BCL-09 and BCL-10 and took samples for determining water content, rock density and pore water gas analyses. The samples were sealed in aluminium and/or plastic bags (**Figure 2**, **Figure 3**).
- On Thursday, January 16, S. Schefer (swisstopo) controlled the orientation of boreholes BCL-9 and BCL-10 at a depth of 4.5 and 8.5 m, respectively. They are parallel within 0.2 degrees.

GT (Gas Transport Models and the Behavior of OPA to Gas Pressure) experiment

- On Friday, January 17, J. Gisiger (Solexperts) reinstalled the repaired injection pump.

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

- On Wednesday, January 15, T. Theurillat (swisstopo) refilled the HPT attached to BSW-A1.

Varia

- The Mont Terri mobile database application was extended to allow recording of core logging information (rock mass sedimentological features and fracture data). The digital core logging workflow was trained and tested successfully during mapping of BCL-09 and BCL-10 (**Figure 4**).

Visits

Day	Date	Group Name	Group Size	Visitors Guide
Wed	15.1.2025	Nagra Und ETH	8	D. Jaeggi (swisstopo)

Figures



Figure 1: CL: Orientation of both rigs to be parallel within 0.1 degrees takes a lot of patience... (S. Schefer, swisstopo).



Figure 2: CL: Vacuuming samples for later analysis (S. Schefer, swisstopo).



Figure 3: CL: Cutting smaller pieces for the gas analyses (S. Schefer, swisstopo).



Figure 4: Varia: Entering mapping data into the tablet after performing a 360 degree core scan (C. Marion, Eawag).