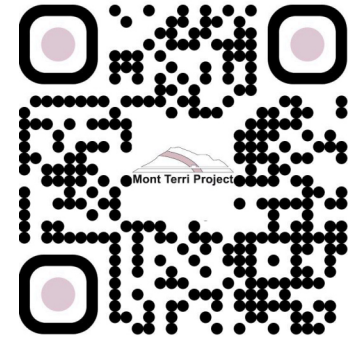


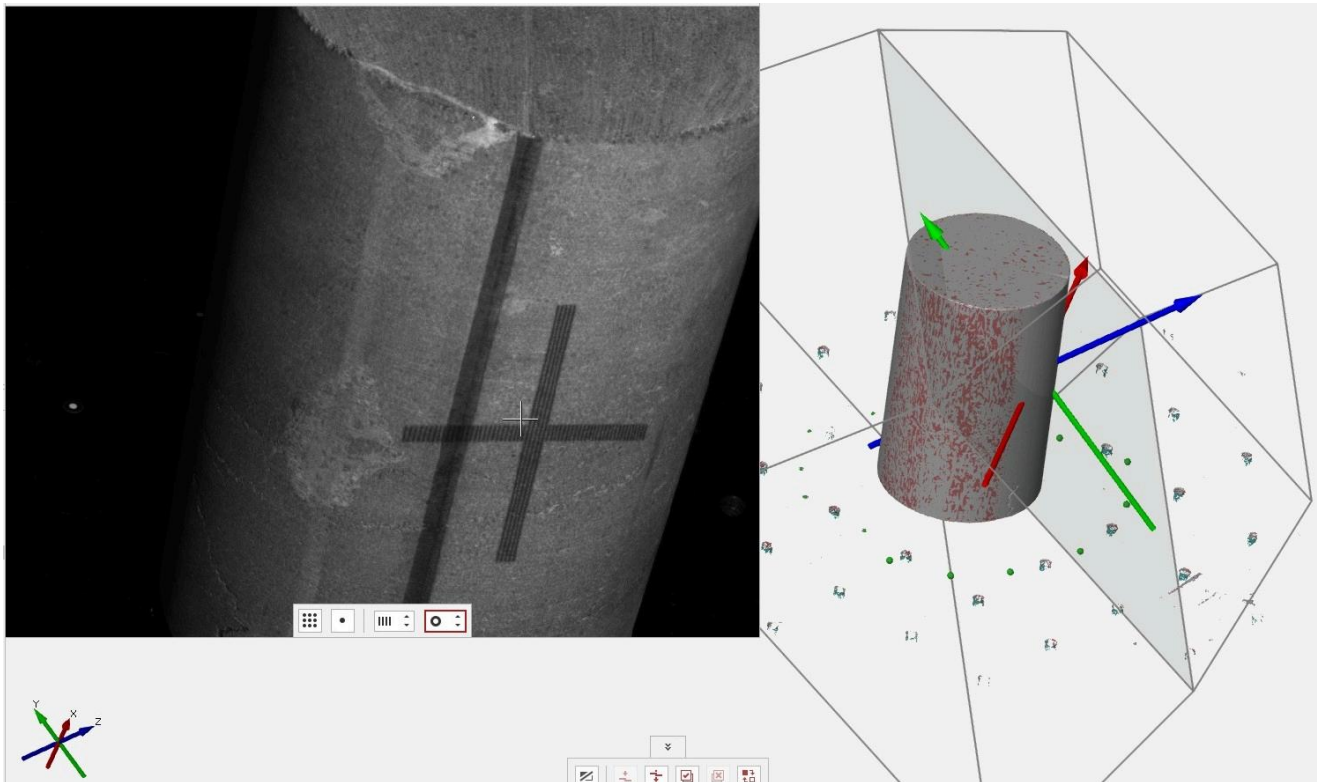
# Mont Terri Project

## Underground Rock Laboratory



Report period: April 6–12, 2026

Assembled and edited by swisstopo, St-Ursanne



**Spotlight of the week:** Extraction of rock from a compressed rock mass leads to stress relaxation and expansion of the rock. This expansion occurs in all directions and may include elastic and anelastic behaviour. In the case of Diametrical Core Deformation Analysis (DCDA), it is assumed that rotary drilling produces initially a perfectly cylindrical core geometry which is then relaxing from the in situ stress with all radial core deformation being elastic. Measuring drillcore radii is used to infer in situ stress directions (e.g., the direction of the minimum and maximum horizontal stress,  $S_{Hmax}$  and  $S_{Hmin}$ , in case of a vertical borehole), and the differential radial stress magnitude if the elastic properties of the rock are known. DCDA will be tested with cores from the deep DEBORAH (BDB-B1) borehole. A first series of photogrammetric scans was conducted by C. Etter and M. Ziegler at the Institute of Geodesy and Photogrammetry of ETH Zurich, supported by R. Presl. A GOM ATOS 300 Core scanner was used. The accuracy of the core scanner ranges between about 10 and 20  $\mu\text{m}$ . However, based on scoping calculations the elastic relaxation of the cores may be below this accuracy level. Therefore, after first analyses, there is the option to measure DEBORAH cores with devices delivering higher accuracy (1-2  $\mu\text{m}$ ) using, e.g., a coordinate measuring machine. The image shows a screenshot during photogrammetric scanning with the GOM ATOS (M. Ziegler, swisstopo).

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

- On Tuesday, April 7, D. Jaeggi (swisstopo) switched all Eh and pH sondes to monitoring mode.
- On Thursday, April 9, D. Jaeggi (swisstopo) switched the Eh and pH sensors back to bypass
- On Friday, April 10, J. Windisch (swisstopo) took two water samples from BCL-11.

## DB-B (Deep Borehole to resolve the Mont Terri Anticline Hydrogeology) experiment

- From Tuesday to Saturday, April 7–11, the drilling team of Stump drilled the entire Opalinus Clay section (129 m, top 421 m, bottom 550 m) and 8 m into the Staffelegg Formation (Rietheim Mb, 557.75 m) with HQ (96 mm). After logging, they will ream this section to PQ (122 mm) and cement the casing. (Figure 1)
- From Tuesday to Saturday, April 7–11, the sampling teams of GFZ, BGR, NWS and BGS treated 140 m of core and took over 120 samples (corresponding to ca. 30 m) in three shifts around the clock. (Figure 2)
- From Saturday to Sunday, April 11–12, M. Groh, J. Kück, K. Thißen and S. Pierdominici (OSG GFZ) performed logging inside BDB-B1 from 422-556 m (Opalinus Clay). They measured mud parameters (T, P, RES), Spectral Gamma Ray, Dual Latero Log, Full-Wave Sonic, ABI and Micro Resistivity Imager.

## DR-C (Diffusion in a Thermal Gradient) experiment

- On Tuesday, April 7, S. Schefer and J. Windisch (swisstopo) took sample #7 from sampler 2 from BDR-C1 and BDR-C6 and measured the pH. Contamination tests showed no activities above background.

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

- On Tuesday, April 7, S. Schefer and J. Windisch (swisstopo) took sample #7 from BDR-D3 from sampler #2 and measured the pH. Contamination tests showed no activities above background.

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

- On Tuesday, April 7, B. Firat (Nagra) remotely performed a heating test on the FO-cables.
- On Friday, April 10, J. Windisch and N. Rentsch (swisstopo) did the moisture measurements in the BFE-B49. (Figure 3)
- On Friday, April 10, S. Schefer, J. Windisch and N. Rentsch (swisstopo) performed the thermal conductivity measurements with the KD2 probe.

## IS-E (In-situ stress measurements using a novel flat jack method) experiment

- On Wednesday, April 8, S. Schefer, J. Windisch and N. Rentsch (swisstopo) measured the position and orientation of BIS-E1 and BIS-E2 and performed a laser scan of the entire niche and its surroundings. (Figure 4)

## LT (Long-Term Monitoring) experiment

- On Tuesday, April 7, N. Rentsch (swisstopo) measured the changes of the x/y/z axis of the joint meter in Niche EZ-B and at the main fault in Ga98.

## MD (Cosmic Muon Density Tomography) experiment

- On Tuesday, April 7, S. Schefer (swisstopo) restarted the DAS from the myon telescope.

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

- On Thursday, April 9, J. Windisch (swisstopo) refilled the HPT from shaft 1.

## Visits

Day	Date	Group Name	Group Size	Visitors Guide
Wed	8.4.2026	Club Montagne Jura	26	J.-P. Meusy (freelance) R. Nicol (swisstopo)

## Figures



Figure 1: DB-B: Pyritic layers and a green bank marking the base of the Gross Wolf Mb. That's the last core run before cementing. (S. Schefer, swisstopo)



Figure 2: DB-B: The British team taking micro biology samples from the Opalinus Clay. (S. Schefer, swisstopo)



Figure 3: FE-M: Measuring the water content using the DeltaT profile probe. (J. Windisch, swisstopo)



Figure 4: IS-E: Explaining tachymetry to our civilist. Teaching is part of the Mont Terri spirit... (J. Windisch, swisstopo)