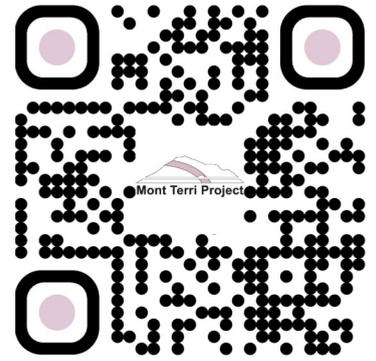


Mont Terri Project Underground Rock Laboratory



Report period: February 2–8, 2026

Assembled and edited by swisstopo, St-Ursanne



Spotlight of the week: Borobotics: Autonomous drilling for shallow geothermal energy. Borobotics is developing an autonomous, electrically driven borerobot named “Grabowski” for shallow geothermal applications. Unlike conventional drilling rigs, the complete drilling system is integrated inside the borehole, enabling low-noise, low-emission drilling with a very small surface footprint. This approach is particularly suited for dense urban environments and groundwater protection zones. Over the past months, Borobotics have conducted extensive field tests in Winterthur (Switzerland). During these tests, they successfully drilled boreholes down to 30 m depth, with a strong focus on limestone formations, demonstrating stable drilling performance and robust torque transmission. These field trials complement laboratory testing and are a key step towards validating the system under realistic geological conditions. Further test campaigns are planned for this year. These include (1) additional field tests up to ~20 m depth in loose and heterogeneous ground, with a particular focus on validating the borehole support and stabilization concept in unconsolidated sediments, and (2) extended drilling tests up to ~50 m depth, aimed at stress-testing the overall system, including drilling, movement and flushing. Borobotics is in discussion with Mont Terri to carry out tests in heterogeneous sedimentary rocks inside the Mont Terri URL, for example within the frame of the TE experiment (Aquifer Thermal Energy Storage experiment in fractured limestone). Together, these activities support the ongoing maturation of the technology (right now TRL5-6) towards higher TRL levels and its preparation for pilot projects with industrial partners (H.-J. Dennig, borobotics).

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

- On Monday, February 2, J. Windisch and C. Etter (swisstopo) switched the valves to measure pH and Eh.
- On Tuesday, February 3, C. Etter (swisstopo) switched the valves back to bypass.
- On Thursday, February 5, J. Windisch (swisstopo) took two water samples from BCL-11.
- On Thursday, February 5, J. Gisiger (Solexperts) was on site to calibrate the pH and electric conductivity probes and the pressure sensors of the injection pump. All pH and EC flow through cells were cleaned during the procedure. The valves are switched to bypass (**Figure 1**).
- On Friday, February 6, S. Schefer (swisstopo) replaced the ERT measuring device on behalf of M. Furche (BGR).

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

- From Tuesday to Friday, February 3–6, BKW prepared the delivery of the container for the temporary transformer for the drill site. Once the container was in place, they installed all the power line connections on site and on Friday morning connected the transformer to the 16 kV line leading to the lab. For this operation, the power inside the lab was interrupted from 8:30-12:15. All electrical installations on the drill site are now ready (**Figure 2**).
- From Thursday to Friday, February 5–6, mobilization of the material for the drilling operation started with the arrival of four trucks with material. The team of Stump BTE unloaded and started setting up the drill site (**Figure 3**).

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

- On Monday, February 2, S. Schefer (swisstopo) on behalf of S. Tuñón (Amphos21) adjusted the manual set points for all three heaters.
- On Tuesday, February 3, S. Schefer (swisstopo) finished the KD2 measurements.

HS (Hydrogeological Survey of the Mont Terri Anticline) experiment

- From Tuesday to Thursday, February 3–5, S. Schröder and H. Thoss (GFZ Potsdam) completed the long-term measurement with the absolute quantum gravimeter (AQG) successfully. As a final touch, an additional overnight measurement was performed with the AQG rotated by 180° towards the south to quantify Coriolis effects. In parallel, the superconducting gravimeter iGrav071 was installed. The hardware setup was assembled, the measurement system was firmly fixed to the floor, and the dewar underwent a vacuum repair to ensure the high vacuum quality required to reach 4 K. The helium cooling system was then commissioned, once 4 K is reached, the helium gas liquefies within the system. Over the next 2–3 weeks, the system will cool down and accumulate liquid helium, after which regular measurements can begin. The iGrav071 is planned to operate at the Mont Terri site for approximately three years (**Figure 4**).

LT (Long-Term Monitoring) experiment

- On Monday, February 2, J. Windisch and C. Etter (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.

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

- On Thursday, February 5, J. Windisch (swisstopo) refilled the HPT of shaft 1.
- On Friday, February 6, S. Schefer (swisstopo) rebooted both scales in the injection cabinets. They had lost their weight during the power outage.

Varia

- On Friday, February 6, from 8:30 to 12:15 the power line was interrupted due to the work at the DEBORAH drilling site. S. Schefer and J. Windisch (swisstopo) were on site to ensure proper functioning. The two generators supplied all the experiments connected to the secure lines as planned. Unfortunately, in Ga18, the fuse of the secure line on the generator failed due to an overcurrent in one experiment and it took until 10:30 to locate the error. Until then, the entire Ga18 was without power. The normal power was re-established at 12:15 and all experiments were running afterwards. Please check your installations remotely for function and data integrity. We apologize for the inconvenience and are ready to help if you encounter problems with your experiment.

Figures



Figure 1: CL: Calibration of the pH and electric conductivity sensors for COOLPIE (J. Windisch, swisstopo).

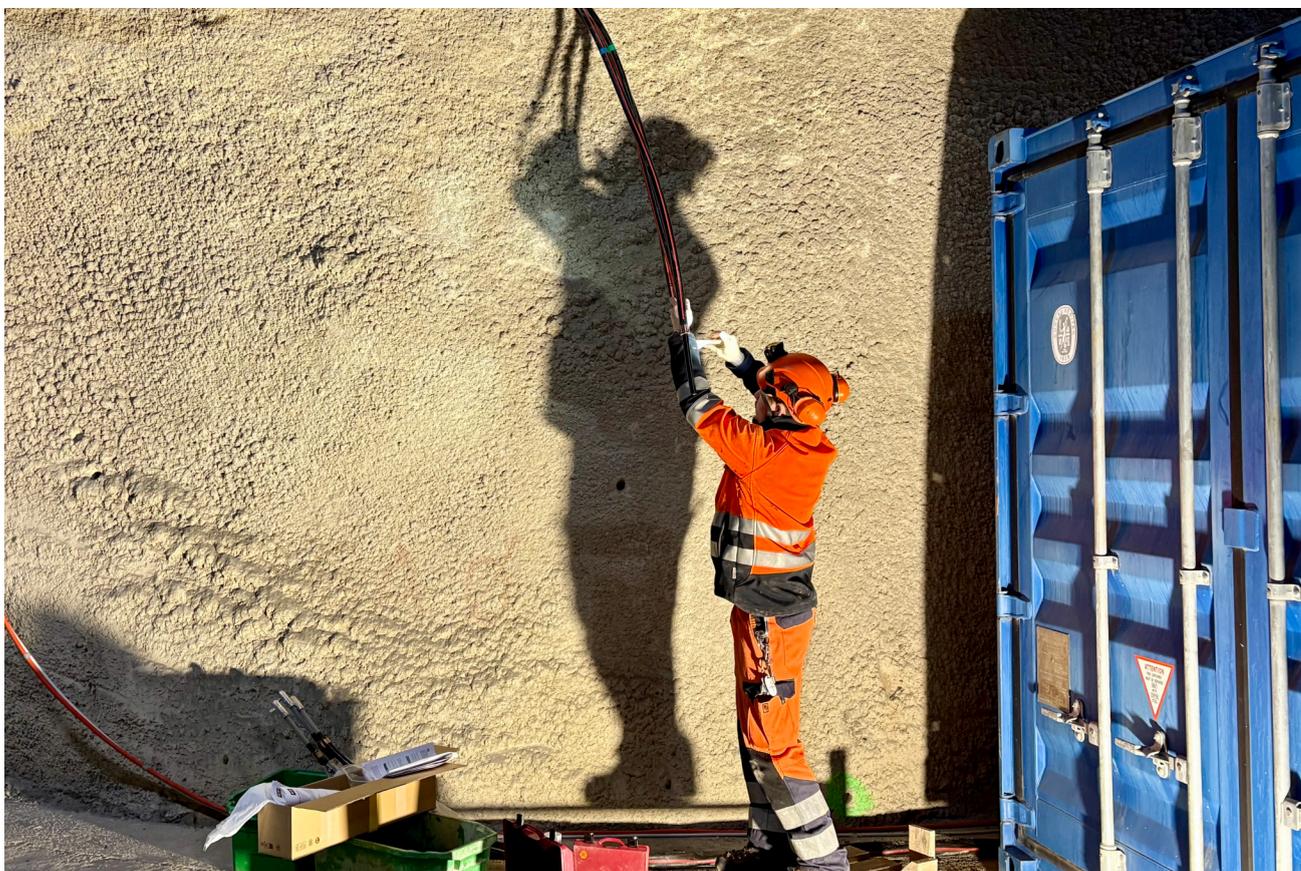


Figure 2: DB-B: BKW staff is splicing the 16 kV power line (J. Windisch, swisstopo).



Figure 3: DB-B: Most of the material was unloaded outside of the safety gallery (S. Schefer, swisstopo).



Figure 4: HS: S. Schröder and H. Thoss with the newly installed gravimeter (S. Schefer, swisstopo).