Mont Terri Project
Underground Rock Laboratory

Mont Terri Rock Laboratory

Field report: March 22-28, 2021 (Phase 26)

CD-A (Influence of Humidity on Cyclic and Long-Term Deformations) experiment
- Monday and Tuesday, the boreholes BCD-A26 (5.5 m, vertical) and BCD-A27 (4.0 m, horizontal) were successfully drilled by C. Fixar and D. Nowotny. They also measured the permeability of the newly drilled boreholes.
- From Tuesday to Thursday, J. Gerowski (BGR) helped with the permeability measurements and measured ERT in all four boreholes (Figure 1).
- Monday to Thursday, A. Fourrière (BGR) took rock samples for the determination of water content (Figure 2).
- Monday to Wednesday, S. Costabel and M. Ratz (BGR) performed NMR measurements on the samples from BCD-A26 and BCA-27. They also repeated last week’s measurements in the Niche Closed Twin to see whether the few days of the open door had a measurable influence on the humidity inside the rock (Figure 3).
- On Tuesday and Wednesday, the PI G. Ziefle (BGR) was on site to discuss structural geology and the results of the measurements with the team.

CS-A (Well Leakage Simulation and Remediation Experiment) experiment
- Monday and Tuesday, after precise positioning of the drill rig by C. Dubois (GGT), A. Eul, H. Gutgesell and H. W. Sassmannshausen (Schützeichel) drilled borehole BCS-A4 (131 mm, triple core) to its final depth of 13.1 m crossing the cement clay interval at 12.7 m. They retrieved 70 cm of intact sample (Figure 4).

FE-M (Long-Term Monitoring of the Full-Scale Emplacement Experiment) experiment
- On Wednesday, L. Baer and T. Baer (Baer engineering) repaired the fibre optic heater bath. They were assisted by T. Theurillat and P. Steiner (swisstopo).

GT (Gas Transport Models and the Behavior of OPA to Gas Pressure) experiment
- On Tuesday afternoon, A. Eul, H. Gutgesell and H. W. Sassmannshausen (Schützeichel) installed the drill rig on BGT-3 (azimuth 328°, dip 57°, parallel to BGT-2) and on Wednesday morning started drilling the first of seven observation boreholes after precise orienting of the drill rig by C. Dubois (GGT).
- Wednesday and Thursday, PX Meury (GéoEnvironnement) with the assistance of V. Regard (swisstopo) did the core mapping of BGT-3 (Figure 5).
- On Thursday afternoon, the final depth of 15.25 was reached.

MH (Long-Term Monitoring of Heaves and Displacements) experiment
- From Monday to Friday, the PI S. Condamin (swisstopo) finished the gravity measurements on selected fix points inside the lab.
- On Friday, P. Mahler and A. Wetter (FHNW) inspected the fix points inside the lab and together with S. Schefer decided on the trees to be cut for the open view towards the surrounding fix points.
in preparation for the survey during the field course for the students of FHNW in May.

- On Friday, S. Schefer with the remote assistance of D. Rebscher (BGR) adjusted and recalibrated the platform tilt meter (PTM) north of Niche MA-A.

**Varia**

- On Thursday, the security team of Mont Terri underwent a radio training with the Polycom system. J.-M. Vaucher (DCVI) made them build a house of lego bricks guided over the radio. The results were rather interesting…😊

- Pre announcement: In the framework of the MH experiment, geodetic measurements will be carried out in the Security Gallery. During the weeks May 17–21 and May 31–June 4, access to the rock laboratory will be limited and partly not possible with vehicles.

**Visits**

- There were no visits this week due to COVID-19 restrictions. We will keep you informed about any development.

D. Jaeggi and S. Schefer, March 28, 2021

---

**Figure 1:** CD-A: J. Gerowski controlling the results of the pneumatic measurements (Photo: S. Schefer, swisstopo).
Figure 2: CD-A: A. Fournier preparing the samples for the water content measurements (Photo: S. Schefer, swisstopo).

Figure 3: CD-A: S. Costabel and M. Ratz preparing the portable NMR (Photo: S. Schefer, swisstopo).
Figure 4: **CS-A:** Intact sample of the cement-clay interface from the lateral borehole BCS-A4 (cement at the top, clay below; Photo: S. Schefer, swisstopo).

Figure 5: **GT:** PX Meury during the scanning of the cores (Photo: S. Schefer, swisstopo).