Mont Terri Rock Laboratory

Field report: December 6–12, 2021 (Phase 27)

CS-E (Mini-Fracturing and Sealing) experiment
- On Friday, A. Zappone, A. Rinaldi (ETHZ) and S. Schefer (swisstopo) continued the fishing expedition inside BCS-D4. They managed to remove 10 m of rods and one sensor. The last five sensors are still stuck at 20 m depth, unfortunately.

HT (Hydrogen Transfer in Opalinus Clay) experiment
- On Monday, Wednesday and Friday, T. Theurillat (swisstopo) took water samples.

MA-A (Modular Platform for Microbial Studies) experiment
- On Monday, A. Eul (Eul GmbH), S. Braunschweig (IEM-WW) and A. Kasyanov (Stump BTE) installed the drill rig close to Niche MA in Ga08 and started drilling the concrete for borehole BMA-A2.
- On Tuesday and Wednesday, the PI O. Leupin (Nagra) and M. Frutschi (EPFL) disinfected all the tools for the drilling (Figure 1) and instructed the drilling team about the procedure to drill an uncontaminated borehole (Figure 2). On Wednesday evening, the borehole BMA-A2 reached the final depth of 16 m. It has a diameter of 101 mm and was drilled with a double core barrel. The borehole crosses the boundary from the lower shaly facies to the carbonate-rich facies at 8 m.
- On Tuesday and Wednesday, PX. Meury (Geo&Environnement) and V. Regard (swisstopo) mapped and scanned the cores of BMA-A2.
- On Thursday morning, M. Ziegler, V. Regard and S. Schefer (swisstopo) performed OBI and GR logging in BMA-A2 (Figure 3).
- On Thursday afternoon, Y. Lettry and A. Jakupi (Solexperts) installed a packer at 5 - 6 m depth, a 5 m long filter screen and three lines reaching until the end of the borehole to collect water samples.

SW-A (Large-Scale Sandwich Seal in Opalinus Clay) experiment
- On Thursday, D. Jaeggi and T. Theurillat (swisstopo) switched the injection from the low pressure tank (LPT) to the high pressure tank (HPT) since the electric valve V3 was not opening anymore and adjusted the injection pressure to 5 bar (Figure 4).
- On Friday, T. Theurillat and S. Schefer opened the electric valve V3 manually, refilled the LPT and switched the injection back to the LPT. This way there is more volume available in the unlikely case of a break-through and no gas will be injected into the system. The injection pressure is at 6 bar at the moment.

Announcements
- The Visitor Center is closed due to new COVID-19-regulations. Most of the Mont Terri team is working in home-office.
- Access to the lab for scientific or maintenance missions is still possible. We like to remind you that all persons require a COVID-19-certificate (3G).
- The lab will be closed for winter break from December 20 to January 2.

D. Jaeggi and S. Schefer, December 12, 2021

Figure 1: MA-A: All the rods need to be disinfected (Photo: V. Regard, swisstopo).

Figure 2: MA-A: Careful handling of the drill rods (Photo: V. Regard, swisstopo).
Figure 3: **MA-A**: Logging is a joint effort in an upward borehole (Photo: V. Regard, swisstopo).

Figure 4: **SW-A**: T. Theurillat connecting the line from the LPT (Photo: S. Schefer, swisstopo).