



Mont Terri Project

Underground Rock Laboratory

ANDRA BGR CHEVRON CRIEPI DOE ENRESA ENSI FANC GRS HELMHOLTZ IRSN JAEA NAGRA NWMO OBAYASHI RWM SCK•CEN SWISSTOPO TOTAL

Mont Terri Rock Laboratory

Field report: March 25 – March 31, 2019 (Phase 24)

Distribution

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Paul Scherrer Institute PSI: S. Churakov, Th. Gimmi, M. Glaus, L. van Loon
ETHZ: S. Löw, S. Wiemer, A. Zappone, M. Ziegler
EPFL: L. Laloui, R. Bernier-Latmani, B. Lecampion, M. Violay

Project Management

Swisstopo: C. Nussbaum (Project Manager), T. Theurillat (Site Manager), S. Schefer (Dep. Site Manager), D. Jaeggi (Research Associate)
GGT: F. Burrus (Project Engineer), Th. Küttel, R. Daneluzzi

Construction of Gallery 18

- The excavation continues in Gallery 18 and has reached GM251.2 by Friday, March 29.

CS-A (Well Leakage Simulation and Remediation) experiment

- From Monday to Thursday, March 25-28, the PI C. Minnig (swisstopo), M. Fleury (IFPEN) and J. Gisiger (Solexperts) conducted the sealant injection in interval 4. They injected a silica solution that precipitates a silicate gel in specific pH- and temperature-conditions over time.

CS-D (CO₂: Studying Caprock and Fault Sealing Integrity) experiment

- On Tuesday, March 26, M. Grab and H. Maurer (ETH Zurich) executed example measurements for the ETH lecture borehole geophysics.
- On Thursday, March 28, S. Demir, M. Grab and A. Rinaldi (ETHZ) were on-site to do a step-up injections-test in borehole BCS-D1, interval 4. They also had to temporarily unmount the GMUG-Acquisitions-System (passive seismic) because it's needed in the Grimsel site.
- On Thursday, B. Helmlinger and E. Huguenet (Solexperts France) checked the fibre-optic installations.
- From Wednesday to Friday, March 26-29, P. Cook (LBNL) was on site to update the remote pump controls on the SIMFIP probe. Additionally, he installed several valves to make it more convenient to sample pore water.

HC (Hydrogeol. Characterization of the Transition OPA - Passwang Fm.) experiment

- On Monday, March 25, A. Gutgesell and Z. Radonjić (Schützeichel GmbH) performed a reaming
- From Monday afternoon to Friday, J. Gerowski, C. Fixar and B. Paul (BGR) conducted permeability tests in BHC-1 (**Figure 1**).
- From Monday to Thursday, M. Stalder (UniNE) was on-site to assist the activities.

FE-M (Long-term monitoring of the Full-Scale Emplacement Experiment) experiment

- On Tuesday, March 26, E. Jacobeit, A. Mazurkiewicz (Terra) and H. Maurer (ETHZ) performed radar measurements in GT-1 and GT-2.
- On Wednesday, L. Keller and M. Marsano (roXplore GmbH) re-installed the seismic strings into GT-1 and GT2 and performed a base measurement. They were assisted by R. Dunst (swisstopo).
- On Wednesday, B. Firat Lüthi (Nagra) conducted the thermal conductivity measurements.

GC-A (Characterization of EDZ Development - Focus: Sandy Facies) experiment

- On Tuesday and Wednesday, H. Gutgesell and Z. Radonjić (Schützeichel GmbH) started drilling BGC-A2 in the Niche DR down to 7 m. This borehole lies in the axis of the future connection tunnel towards Niche 2 in Gallery 18. It has a diameter of 86 mm and will be 15 m deep.

MA-A (Modular Platform for Microbial Studies) experiment

- On Tuesday, March 26, N. Burzan (EPFL, **Figure 2**) and Y. Lettry (Solexperts) installed an electric valve for borehole water safety and connected the bioreactors to the H₂-pump.
- On Wednesday, N. Burzan was joined by M. Frutschi (EPFL) to saturate the bioreactors, calibrate the instruments and take water samples.

MB-A (MineByTest 2018 - Hydromechanic Characterization of the Sandy Facies Before and During Excavation) experiment

- On Monday, March 25, H. Gutgesell and Z. Radonjić (Schützeichel GmbH) finished BMB-A26.
- On Tuesday, M. Pesendorfer, B. Strommer and G. Vogel (Polymetra GmbH) installed a VW pressure transmitter for pressure observation in the surrounding rock of the tunnel excavation into BMB-A26. The PI J. Hesser (BGR) supervised the work (**Figure 3**).
- On Wednesday, J. Gose, M. Kröhn and K. Wieczorek (GRS) performed pressure test in the piezometers of the MB-A experiment.

Varia

- On Thursday, March 28, the Steering Meeting (SM-79) took place in St-Ursanne. The main topics were the budget of the research programme of Phase 25, the status on the rock laboratory excavation works and costs, and the admission of two new partners (ETH, BfE Germany). The Mont Terri Consortium will be then composed of 21 partners from 1 July 2019 on (Phase 25).

C. Nussbaum, D. Jaeggi and S. Schefer, March 30, 2019

Visits

Day	Date	Number of persons	Name of the group	Guide
Thu	28.03.2019	6	Steering Meeting SM-79	P. Bossart
Fri	29.03.2019	13	Jean-Claude Beuchat Sàrl	M. Pretalli
Sat	30.03.2019	20	Bevölkerung Benken	H. Hauser/ P. Birkhäuser



Figure 1: HC-experiment: B. Paul and C. Fixar (BGR) during the measurements in BHC-1 (Photo: D. Jaeggi, swisstopo).



Figure 2: MA-A experiment: N. Burzan (EPFL) working in the glovebox in the niche 3 (Photo: S. Schefer, swisstopo).



Figure 3: MB-A-experiment: J. Hesser (BGR) and M. Pesendorfer (Polymetra GmbH) discussing the installation in BMB-A26 (Photo: D. Jaeggi, swisstopo).