



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: November 12 – November 18, 2018 (Phase 24)

Distribution

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Supporting Research Organisations

Paul Scherrer Institute PSI: S. Churakov, M. Glaus, Th. Gimmi, L. van Loon
ETHZ: S. Löw, M. Ziegler, S. Wiemer, A. Zappone
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Project Management

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

Construction of Gallery 18

- The excavation continued along Gallery 18 and reached GM_122.5 by Friday, November 16. The daily advance is 2 m.

CI-D (Diffusion across 10-Year Old Concrete/Claystone Interface) experiment

- On Friday, November 16, L. Schwob and K. Kontar (Solexperts) controlled the fluid tanks of the CI-D experiment.

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

- On Monday and Tuesday, M. Lukovic and Q. Wenning (ETHZ) finished the logging and scanning of the CS-D drill cores.
- On Monday and Tuesday J. Gisiger, B. Helmlinger, M. Derrien, L. Scheidecker, N. Jnglin (Solexperts) performed the installation of the 4-fold packer-system in borehole BCS-D1. Furthermore, they performed the fiber optical strain zero-measurements in boreholes BCS-D1 to BCS-D6.
- From Tuesday to Friday, in a condensed intervention of ETHZ, M. Grab, L. Villiger, C. Madonna, C. Petrini, M. Lukovic, A. Obermann, S. Demir, T. Mörgeli, Q. Wenning and A. Zappone (all ETHZ) worked on the installation of passive seismic survey by installing GMuG sensors. Those sensors were installed in short, newly drilled boreholes on the ground of Niche 8. Further, GMuG sensors were installed in borehole BCS-D6 permanently and installed in BCS-D5 temporarily.

DR-B (Long-Term Diffusion) experiment

- On Monday and Tuesday M. Jaquenoud (Nagra) finished last week's measuring campaign in borehole BDR-B8.

FI (Fluid-Mineral Interactions in Opalinus Clay during Natural Faulting and Heating Tests) experiment

- From Tuesday to Thursday the drilling company Schützeichel drilled the three boreholes BFI-1 to 3 (**Figure 1**). The first two in the sandy facies parallel and perpendicular to bedding and the third one in the shaly facies, perpendicular to bedding. The boreholes were drilled with the triple core technique and with a diameter of 131 mm. Samples were collected by A. Wiseall of British Geological Survey (BGS) and S. Thompson (RWM) (**Figure 2**). The samples will be used in two projects; an EC project, that will evaluate the impact of heat on the behavior of clay, and a laboratory methods project.
- On Friday the drilling equipment was installed on the site of the last borehole BFM-I4. A borehole drilling parallel to bedding will be conducted on Monday, November 19.

MB-A (MineByTest 2018 Hydromechanical Characterization of the Sandy Facies) experiment

- From Tuesday to Wednesday, F. Schulte, U. Novak, H. Albers (BGR), performed interval velocity measurements in boreholes BMB-A2 and BMB-A3 in Niche 7.
- Furthermore, they removed the ERT (electrical resistivity tomography)-probe from borehole BPE-1 since one of the 4 monitoring sections did not work anymore. The probe was transported back to Hannover and will be reinstalled after its repair and maintenance.
- On Friday, November 16, L. Schwob and K. Kontar (Solexperts) performed a borehole camera check of boreholes BMB-A2 and BMB-A3.

MH (Long-Term Monitoring of Displacements in the Security Gallery and the Rock Laboratory) experiment

- Monday to Thursday, B. Bacchilega, N. Dietler and A. Bascio (swisstopo) conducted the levelling measurements in the Security Gallery and throughout the whole Mont Terri Rock Laboratory.

SI-A (Seismic Imaging Ahead of and Around Underground Infrastructure) experiment

- From Wednesday to Friday the drilling company GeoSonic drilled the boreholes BSI-A17 to BSI-A32 in Gallery08 (**Figure 3**). The BSI-A boreholes are destructively drilled with a diameter of 46 mm and have a length of 2 m each. Aluminium anchors were installed by the drilling company GeoSonic. The installation works are now completed. The monitoring campaign by GFZ Potsdam is planned for January 2019.

TS (Testing Different Tunneling Support in Sandy Facies During Extension of Ga18) experiment

- This week the TS-3 test section of the TS experiment was ongoing. This section consists of 2 m daily advances, shotcrete lining and a delayed concreting of the invert about 2-3 tunnel diameters behind.

Varia:

- On Thursday, November 15, the 78th Steering Meeting took place at the Mont Terri visitor centre, including a visit of the construction site and the Mont Terri rock laboratory (**Figure 4**).

Visits

Day	Date	Number of persons	Name of the group	Guide
Tue	13.11.2018	8	HR-Team swisstopo	G. Fiedler
Wed	14.11.2018	47	Eidgenössische Zollverwaltung – Abteilung Alkohol und Tabak	M. Pretalli / H. Hauser / G. Fiedler
Wed	14.11.2018	19	Senioren Männerriege Rubigen	H.-P. Weber / G. Fiedler
Thu	15.11.2018	2	Guests Andra	G. Fiedler
Thu	15.11.2018	11	Steering Meeting SM-78	P. Bossart / C. Nussbaum

C. Nussbaum, D. Jaeggi and R. Raselli, November 16, 2018



Figure 1: FI: Schützeichel while drilling borehole BFI-1 (Photo: R. Raselli, swisstopo).



Figure 2: FI: From left to right; S. Thompson (RWM) and A. Wiseall of the British Geological Survey (BGS) taking rock samples (Photo: R. Raselli, swisstopo).



Figure 3: SI-A: GeoSonic drilling boreholes BSI-A17 to BSI-A32 in Gallery 08 (Photo: R. Raselli, swisstopo).



Figure 4: Varia: Some participants of the 78th steering meeting in Gallery 08 of the Mont Terri Rock Laboratory (Photo: R. Raselli, swisstopo).