



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: December 10–16, 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
EPFL: L. Laloui, R. Bernier-Latmani, M. Violay, B. Lecampion

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 Gallery18 and reached GM_156.0 by Friday, December 14.

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

- On Monday, December 10, M. Grab and A. Zappone (ETHZ) conducted active seismic and ERT baseline measurements. Further, they tested the injection system.

DR-B (Long-Term Diffusion) experiment

- On Monday, December 10, M. Jaquenoud (Nagra) removed the defect XRF-probe from borehole BDR-B6.

FM-D (Evaporation logging) experiment

- On Thursday, December 13, Prof. Masahiko Osada (Saitama University) and Prof. Takato Takemura (Nihon University) performed a systematical strain-, temperature-, humidity- and pressure data correction on the FM-D sensors, installed in June 15, 2018 (**Figure 1**).
- On Friday, December 14, Prof. Osada and Prof. Takato improved the measurement program to adjust the timestamp values. The running FM-D experiment intends to capture the deformation behavior of the rock surface, accompanying temperature and humidity changes, and to estimate the change of permeability of Opalinus Clay from the phase difference of the measured values.

FS-B (Imaging the Long Term Loss of Faulted Host Rock Integrity) experiment

- On Monday, December 10, the drilling company GeoSonic finished drilling borehole BFS-B3. The borehole has a final depth of 85.12 m.
- On Monday right after drilling, D. Fischer (Terratec GmbH) performed an optical borehole imaging (OBI) log on borehole BFSB-3 (**Figure 2**).
- Monday evening and Tuesday, J. Gisiger, L. Schwab and L. Scheidecker (Solexperts) installed the fibre-optic cables into borehole BFS-B3 behind the casing. They were assisted by S. Schefer (swisstopo). The casing was cemented on Tuesday.
- From Wednesday to Thursday the drilling company GeoSonic begun with the drilling of borehole BFS-B4 (**Figure 3**). They reached a depth of 36.5 m by Thursday, December 13. On Friday they connected a new compressor to the drilling rig, since the old one proved to be too weak.

MA (Microbial Activity in Opalinus Clay) experiment

- On Tuesday, December 11, A. Boylan, N. Burzan and V. Berweiler (EPFL) sampled porewater for the incubation experiments.

MA-A (Modular Platform for Microbial Studies) experiment

- On Tuesday, December 11, A. Boylan, N. Burzan and V. Berweiler (EPFL) conducted the regular bioreactor maintenance.

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

- On Monday and Tuesday, J. Gisiger, L. Schwab and L. Scheidecker (Solexperts) cleansed borehole BMB-A3.

Visits

Day	Date	Number of persons	Name of the group	Guide
Fri	14.12.2018	17	Fiduciaire Juravenir, Delémont	M. Pretalli
Fri	14.12.2018	11	Ressort Feldarbeiten, Nagra	H. Müller/. S. Schefer
Fri	14.12.2018	10	Etat major des sapeurs pompiers du Cornet	M. Pretalli

C. Nussbaum, D. Jaeggi, S. Schefer and R. Raselli, December 14, 2018



Figure 1: FM-D: Prof. M. Osada (Saitama University) and Prof. T. Takemura (Nihon University) working on the FM-D borehole sensors (Photo: R. Raselli, swisstopo).



Figure 2: FS-B: D. Fischer (Terratec GmbH) performing an optical borehole imager (OBI) log (Photo: S. Schefer, swisstopo).



Figure 3: FS-B: J. Dubois and E. Parsy (GeoSonic) drilling borehole BFS-B4 with wireline technique (Photo: S. Schefer, swisstopo).