



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 17–23, 2018 (Phase 24)

Distribution

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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 Gallery18 and reached GM_163.5 by Thursday, December 20.
- The excavation will continue on January 7, 2019.

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

- On Wednesday and Thursday, December 19 & 20, A. Obermann, A. Zappone, S. Demir, M. Grab (ETHZ) performed the active seismic measurements for the baseline monitoring before the start of the brine injection in January 2019.
- On Wednesday and Thursday, December 19 & 20, Y.Guglielmi (LBNL), with remote-support from P. Cook, installed some upgrades on the SIMFIP probe which is permanently set in borehole BCS-D7. The upgrades that have successfully been installed concern an automatic packer pressure control pump which allows a very accurate control of the packers pressure effects on the SIMFIP's signals evolution over very long time periods. Further, a SIMFIP chamber recirculation pump has been installed. The recirculation pump will maintain a movement in the chamber limiting eventual long term corrosion effects on the electric resistivity sensors. In addition, the recirculation system will periodically average the chamber water electric resistivity allowing the detection of eventual leaks of CO₂ during the experiments. Finally, the recirculation pump will allow to better dissolve these gas before sampling. In addition, some improvement and maintenance of the data loggers programming and some remote connection protocols improvements have been performed.

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

- From Tuesday to Wednesday the drilling company GeoSonic continued with the drilling of borehole BFS-B4 (**Figure 1**). On Wednesday afternoon, they reached a final depth of 79.95 m.
- G. Mühlebach (Terratec Geophysical Services) performed an optical borehole imager log, including natural gamma and magnetic deviation on Wednesday evening.
- Finally J. Gisiger, L. Schwab and L. Scheidecker (Solexperts) installed a casing with fiber optical strain sensors attached to it. S. Schefer (swisstopo) and Y. Guglielmi (LBNL) surveyed the installation and performed regular checks of the integrity of the fiber optical cables.
- On Thursday the Solexperts team performed the grouting of thin installation in borehole BFS-4.

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

- On Monday and Tuesday, J. Gisiger, L. Schwab and L. Scheidecker (Solexperts) cleaned up borehole BMB-A3. The borehole is equipped with a 104 mm diameter PVC casing. During installation cement had intruded at collars at depths 1.0 m, 6.6 m, 8.6 m and 10.5 m. The cement was removed with heavy steel rods and a dummy with 98 mm diameter was inserted in order to check the necessary clearance for future IVM and ERT measurements.
- On Tuesday December 18, M. Furche, F. Schulthe and T. Tietz (BGR) installed the repaired ERT (electrical resistivity tomography) probe in borehole BPE-1 to a final depth of 23 m. The four fold probe is placed above the axis of the future MB-A mine-by tunnel.

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

- On Friday, December 21, A. Vlasek (Marmota Engineering) performed measurements using the fiber optical strain sensors in the floor of the 2nd and 3rd TS section in Gallery18 (**Figure 2**).

Varia

- On Friday, December 21, Chaocheng Dai from the East-China University of Technology (ECIT) finished his internship at the Mont Terri Project. C. Dai and the Mont Terri Team both were able to profit a lot from this knowledge-exchange. We wish C. Dai all the best and a good journey back to China.
- Friday, December 21 was also the last day of the civil service for Maurin Ringeisen. He did an exceptional job during his service. The swisstopo team benefits from his skills, especially in the domain of geodesy.

- The Mont Terri Underground Rock Laboratory will be **closed** from:

Friday, December 21, 2018 to Monday, January 7, 2019

*The Mont Terri Team wishes you happy holidays
and a happy New Year!*

Visits

Day	Date	Number of persons	Name of the group	Guide
Mon	17.12.2018	8	Office de l'environnement	M. Pretalli
Wed	19.12.2018	7	Arc Hebdo	T. Theurillat



Figure 1: CS-D: The drilling company GeoSonic drilling borehole BFS-B4 (Photo: R. Raselli, swisstopo).



Figure 2: TS: A. Vlasek (Marmota Engineering) performing measurements in the TS section of Gallery18 (Photo: M. Ringeisen, swisstopo).