

Task 1.4

Title

Geo-data infrastructure and analysis

Project (presented on the following page)

GeoTherm: The federal data infrastructure for deep geothermal energy
Lise Boulicault, Ladina Glaus, Christian Minnig, Roland Baumberger

GeoTherm

The federal data infrastructure for deep geothermal energy

L. Boulicault*, L. Glaus**, C. Minnig*, R. Baumberger*

* Federal Office of Topography swisstopo, Swiss Geological Survey, Seftigenstrasse 264, CH-3084 Wabern
** SCCER-SoE, ETH Zürich, Sonneggstrasse 5, CH-8092 Zürich

GeoTherm is the federal information system for deep geothermal energy exploration and production. It was launched by the Swiss Federal Office of Energy and swisstopo and support the Energy Strategy 2050.

Challenges for geothermal projects in Switzerland

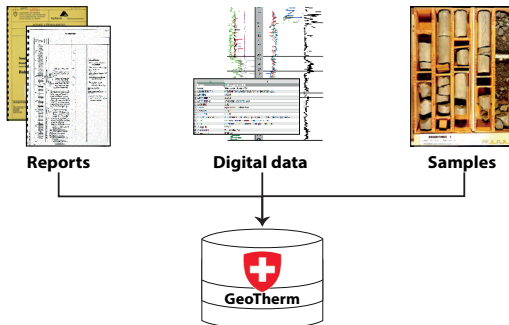
- Overview of the existing and fully accessible geological datasets
- Harmonisation and standardisation of geological data

Advantages of GeoTherm

- All relevant geological data are displayed
- Datasets are structured, harmonised and archived
- Offers free access to non-confidential datasets

Infrastructure

The Swiss Geological Survey collects raw, processed and interpreted geological data that are relevant for developing deep geothermal projects in Switzerland.



Stakeholders and data sources

- Federal Offices
- SCCER-SoE Universities and partners
- 26 Cantons and Liechtenstein
- Private companies (NAGRA, SEAG, Schweizer Salinen, etc.)
- Scientific associations (Geothermie - Schweiz, etc.)

Definition of standards

Publication of 3 data models:
Data model «Geology» (2017) [1], «Boreholes» (2014) [2] and «Deep wells» (in prep.) [3].

Standards facilitate the collection and the long-term storage of the data.

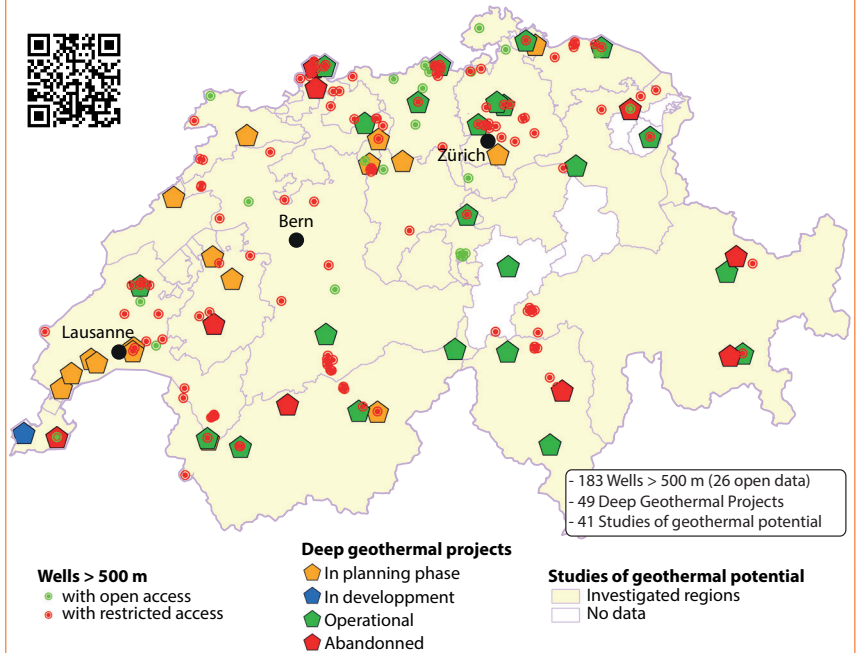
Data harmonisation and quality control (QC)

- Well metadata (location, depth, physical properties, etc.)
- Strata data harmonisation using the lithostratigraphic Lexicon of Switzerland HARMOS [4]

Web-publication

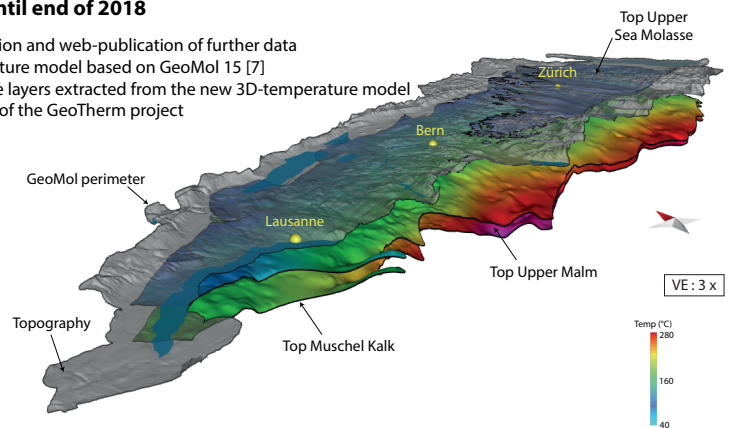
Only the non-confidential data is available on the federal portal (according to agreements with the data owner(s), [5] and [6]).

Results : 3 new layers published on <https://map.geo.admin.ch>



Outlook until end of 2018

- QC, integration and web-publication of further data
- 3D-temperature model based on GeoMol 15 [7]
- Temperature layers extracted from the new 3D-temperature model
- Final report of the GeoTherm project



After 2018

- Continuous data collection, QC, harmonisation and storage
- Iterative process embedded in the ISO-management System of the Swiss Geological Survey.

Take Home Message

GeoTherm Project (2015 - 2018) supports the development of deep geothermal projects by providing visibility of geological data and facilitates data exchanges through a robust data model. Continuous **collaboration** between stakeholders is the key to maintain the basis to achieve the geothermal targets of the Energy Strategy 2050.

[1] Brodhag S. (2017): Datenmodell Geologie. Beschreibung im UML-Format und Objektkatalog. Version 3.0. Bundesamt für Landestopographie swisstopo
 [2] Brodhag S. & Oesterling N. (2014): Datenmodell Bohrdaten. Beschreibung des Kernmodells mit Objektkatalog und UML-Model. Version 2.0, Bundesamt für Landestopographie swisstopo
 [3] Glaus L. & Oesterling N. (unpublished, in prep.): Datenmodell Bohrdaten Modul Tiefbohrungen. Bundesamt für Landestopographie swisstopo
 [4] Strasky S. et al. (2016): Swiss Journal of Geosciences, Vol. 109, issue 2, pp 123-136

[5] Ordonnance sur la géoinformation (Og6o) 510.620, 2008.05.21
 [6] Kettiger, D. (2017): Rechtlicher Rahmen für das Erheben, Nachführen und Verwalten von geologischen Daten. Landesgeologie, No.9, Bundesamt für Landestopographie swisstopo
 [7] GeoMol GST-Viewer : <https://viewer.geomol.ch/>