

Data management...

...what else

SCCER-SoE Annual Conference, September 14./15th 2017

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“I am not disorganized — I know *exactly* where everything is!

....later

Where is the data?

What does the data mean?

How can I read the format?



What is the quality?

Is the data complete?

Origin of these issues: No **data policy**

- Missing metadata
- No sustainable storage
- No clear access rules



Potential consequences

- Data loss, Ignorance of existing data
- Problems with data exchange and reuse
- Limited reproducibility of results
- Waste of resource to recollect already existing data



This is not theory – examples of no data management:

A) NEFF (Nationaler Energie-Forschungs-Fonds)

- 1977-97; Research contributions: **240 Mio CHF**
- Support of 518 research projects
- Today: **lot of the data not available or lost**



B) Risk coverage for geothermal projects

- 1987-1997; Budget of **15 Mio CHF**
- 16 projects: 5 success, 1 partial success, 7 failure
- Today: **difficult data access**



Solution:



FAIR data principles: Findable, Accessible, Interoperatable, Re-usable

SNF, Horizon2020, G20; → <https://www.force11.org/group/fairgroup/fairprinciples>

swisstopo: federal competence center for geo-information and geo-resources

- Develops national **data models** and standards
- Develops according **data infrastructure and storage** (technical implementation)
- makes geological data of national interest **available** (data brokering)
- Assists cantons and universities with **data management**

✓ ***Data management for industry data from geothermal projects (with federal co-financing), based on revised energy and CO2 laws***

➤ ***Goal: develop a clear data policy for all geological research data***



New guidelines of **SNSF's** from October 2017:
Datenmanagement-Plan (DMP) mandatory for any
submissions of research applications

- **Archiving:** public accessible data bases
 - **Access:** minimum for metadata
 - But: no obligation for unrestricted publication
 - Guidelines count for: **re-utilized**, produces/collected and published data
-
- Cost contribution for data preparation and upload
 - Support for organizing workshops on open research data





Make sure your data lives happily ever after

Data management within SCCER-SoE

Task 1.4 “Data infrastructure”; task leader: swisstopo

- Development of **infrastructure** for storage and publication
- **Data:** eg. **borehole** data and **seismic** survey, publications etc.

Implementation concept: swisstopo collects and stores **FINAL** research data and results from SCCER-SoE.

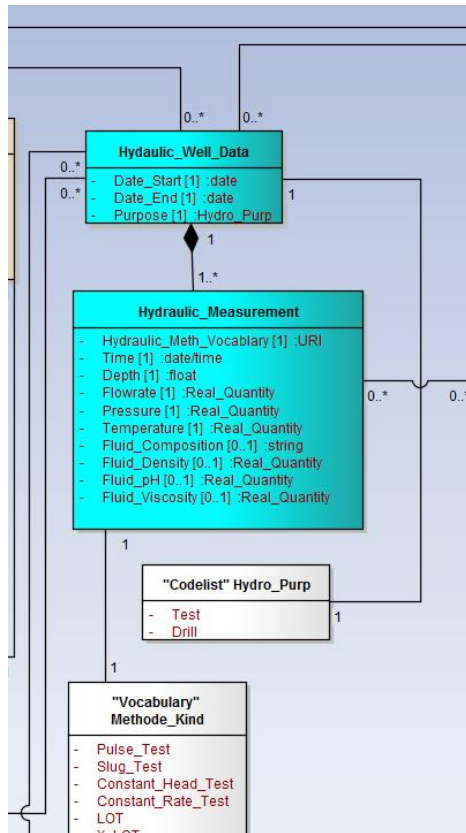
- Primary, processed primary and secondary geological data*
- Defined **standards** (e.g. swisstopo data model borehole)

➤ Project: **GeoTherm**

* ordonnance of swiss geological survey (under revision)



Conceptual data model



implementation

documentation

Implementation

swisstopo Database

Name	Coord_XY	OKT_Z	OKT_MD_TVD	Target
8120-00091	2725302 1297779	583.9	1418 / -	...
8120-00260	2722423 1300939	553.6	1290 / -	...
8121-00010	2731141 1296140	519.6	1625 / -	...
8220-00004	2727957 1288462	439	2702.1 / -	...
8221-00193	2735743 1288247	411.5	1224 / -	...
8222-00002	2750232 1287102	442.1	2349 / -	...
Allmenalobahn, 92/6	2617145 1148277	1184.3	550 / -	Geotechnics
Altschwil_2	2607975 1267305	329.7	922.1 / -	Hydrocarbons
Altschhofen-1	2640375 1281300	479.74	2166 / -	Hydrocarbons
Aqui_1 (Zürich)	2682125 1246560	419.5	500 / -	Mineral water
Ausserberg_92/8	2617072 1149685	1260.6	550.1 / -	Geotechnics
l00-10873_Witikon	2686896 1245999	598.4	500 / -	Geothermie
Baersol	2623722 1137725	1731.5	1405 / -	Geotechnics
Baltenhausen-1	2740300 1286500	429.4	1500 / -	Geotechnics
Basel-1	2611810 1270536	250.4	5009.4 / -	Geothermie
Bassersdorf-1	2690280 1255000	456.9	800.3 / -	Geothermie

Datenmodell Bohrdaten - Module
 Datum: 23.04.2016
 Ersteller: Nils Oestering, Sabine Brodberg
 Version: 1.0

Datenmodell Bohrdaten Modul Tiefbohrungen
 Datum: 31.07.2017
 Ersteller: Ladinna Glaes, Nils Oestering
 Version: 0.9
 Experte/Gruppe: Philipp Kästli, Sabine Brodberg, Christian Mering, Oliver Zingg
 Kontakt: Ladinna Glaes, SCCER-SoE, Bundesamt für Landestopografie swisstopo (Landesgeologie)

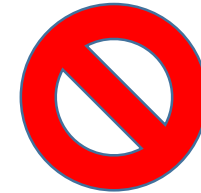
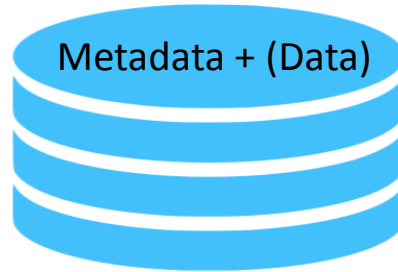
Reports and object catalogues

In process: vers. 0.9

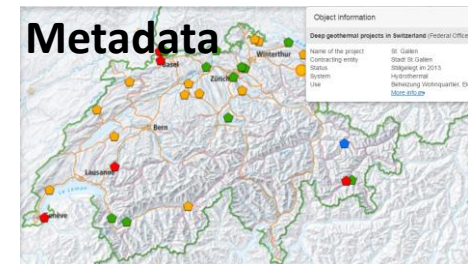
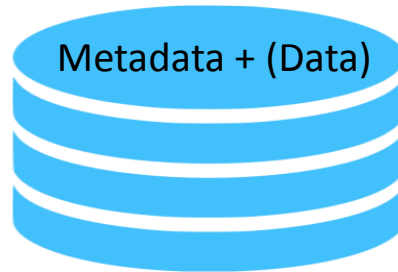
Storage (DB)

publication

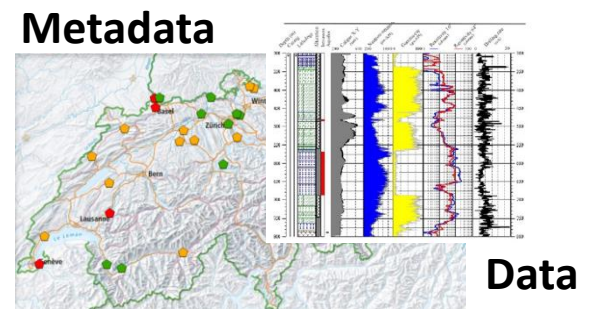
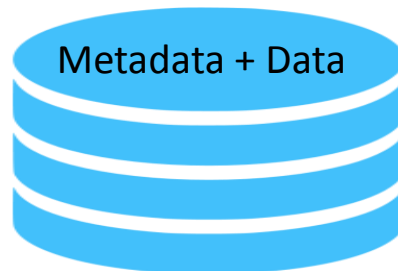
A) completely restricted (existence of data is not shown)



B) Partially public (Metadata public, data restricted)



C) Completely public



What's in it for you?

- **Visibility** of your research and perennial storage
- Knowledge of and easier access to a larger **data treasure**
- **Compliance** with funding requirements

What's provided for you?

- Data **models** (by swisstopo)
- **Infrastructure** for storage and publication (by swisstopo)
- **Templates** for data management plan (DMP) (SNSF, EPFL etc.)
- **Support:** advice, financing, workshops (swisstopo, SNFS, library ETHZ)

What we need from you:

- **Good data management** plan DMP
- **Compliance** with your DMP
- **Feedback**

Helpful websites

- **Swisstopo:** <https://www.swisstopo.admin.ch/de/swisstopo/organisation/geologie.html>
- **EPFL:** <https://library.epfl.ch/research-data-management-plan/en>
- **ETHZ Bibliothek:** <http://www.library.ethz.ch/ms/Digitaler-Datenerhalt-an-der-ETH-Zuerich/Forschungsdaten/Datenmanagement>
- **Swisstopo:** <https://www.swisstopo.admin.ch/de/swisstopo/organisation/geologie.html>
- **EPFL:** <https://library.epfl.ch/research-data-management-plan/en>
- **ETHZ Bibliothek:** <http://www.library.ethz.ch/ms/Digitaler-Datenerhalt-an-der-ETH-Zuerich/Forschungsdaten/Datenmanagement>
- **UK Data Service:** <https://www.ukdataservice.ac.uk/manage-data>
- **SNF:** http://www.snf.ch/de/derSnf/forschungspolitische_positionen/open_research_data/Seiten/default.aspx
- **UK Data Service:** <https://www.ukdataservice.ac.uk/manage-data>
- **SNF:** http://www.snf.ch/de/derSnf/forschungspolitische_positionen/open_research_data/Seiten/default.aspx

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Datamanagement. What else?*



Le café corps et âme.