

WORKSHOP

HYDROGEOCHEMICAL CHARACTERISATION OF THERMAL FLUIDS AND RESERVOIRS

The key to successfully identifying
and operating hydrothermal systems

The workshop will feature presentations from
academia, industry and public administration.



DATE
13–14 January 2027



LOCATION
University of Lausanne, Géopolis
1015 Chavannes-près-Renens



PROGRAMME & REGISTRATION
www.geo.unibe.ch/wsgeothermie
Registration deadline: 21 December 2026

If you have any questions, please contact daniela.vandenheuvel@unibe.ch

Organisation
u^b
UNIVERSITÄT
BERN

Unil.  **Hydroisotop**  **BWG
GEOCHEMISCHE
BERATUNG** CH-001

Support
**canton de
vaud**



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Federal Office of Energy SFOE



Hydrogeochemical characterisation of thermal fluids and reservoirs – the key to successfully finding and operating hydrothermal systems

Date:	13–14 January 2027
Organisation	Rock-Water Interaction Group, University of Bern, DeTect Group, University of Lausanne, Hydroisotop GmbH, BWG Geochemische Beratung GmbH Supported by Etat de Vaud (DGE) and Swiss Federal Office of Energy
Location:	University of Lausanne, Géopolis 1015 Chavannes-près-Renens
Target audience:	(Geo)Scientists and engineers working in industry (energy providers, geological consultancies); federal, cantonal and municipal administration interested in geothermal topics; students and academic staff working in geothermal
Language:	Preferentially English; contributions in French or German are possible
Registration	Registration via https://forms.gle/UBtiaFEwfzL1qg3K9 Deadline: 21 December 2026 Fee: 300.- (100.- for students), +60.- for optional dinner on first day (13 January)
Further information	daniela.vandenheuvel@unibe.ch

Short description:

Geothermal energy is a promising source of renewable and reliable energy available anywhere. Historically, it has been developed primarily in volcanic settings, where high temperatures can be found at shallow depths. But more recently, geothermal resources have been made accessible in all kinds of geological settings including foreland basins and orogenic belts.

One way to utilise geothermal energy is by developing hydrothermal systems. Such systems make use of thermal waters naturally present in the subsurface. These fluids not only transport the energy to be extracted, but in their chemical composition they also carry information about the reservoir. This information is crucial to establish successful and sustainable energy production. It also allows for better system understanding which, in turn, allows for improved exploration for geothermal resources nearby or in similar structural settings. In addition, detailed fluid characterisation allows to predict and monitor operational challenges such as unwanted mineral precipitation (scaling), corrosion, microbial activity or the formation of a gas phase, allowing mitigation strategies to be implemented or modified. This improves the operational safety and economic performance of a geothermal system. More recently, the production of critical raw materials (e.g. Li) from thermal waters as a byproduct of energy production has become another crucial aspect to include when characterising thermal fluids.

This workshop introduces all the concepts described above through a combination of theoretical lectures and case studies presented by speakers from academia, industry and administration. It aims to increase participants' understanding of the processes occurring in a geothermal system (from the reservoir to the surface) and how this knowledge can be used to ensure sustainable and safe energy production as well as exploration for additional resources. The workshop also acts as a networking platform for established and new stakeholders in the geothermal landscape of Switzerland and neighbouring areas.

DAY 1 – Wednesday, 13 January 2027

Introduction and the perspective of the federal administration		Chair: N. Lupi
13:00 – 13:30	Introduction and housekeeping	
13:30 – 14:15	Introduction to hydrogeochemistry: Why should we care about the chemical composition of thermal fluids?	Ch. Wanner (UniBe)
14:15 – 14:30	Hydrochemical characterisation of geothermal fluids – a reference guideline	E. Stopelli (Nagra)
14:30 – 15:00	COFFEE BREAK	
15:00 – 15:20	Hydrogeochemistry of deep groundwater: a national dataset and potential (future) applications	D. Traber (swisstopo)
15:20 – 15:40	Protection of deep groundwaters around geothermal systems – Updates on the 3°C rule	M. Schärer et al. (BAFU)
Critical raw materials		Chair: D v/d Heuvel
15:40 – 16:20	Recovery of critical raw materials during geothermal fluid production: Li extraction in the Upper Rhine Graben as a case study	V. Goldberg (BWG)
16:20 – 16:30	The potential of CRM recovery in Switzerland	Ch. Wanner (UniBe)
Fluid sampling demonstration		
16:30 – 17:45	Apéro & demonstration of how to take different types of high-quality water samples	Hydroisotop, BWG & UniBe
18:00 – 21:00	Dinner for interested participants (+ 60.- at registration)	

DAY 2 – Thursday, 14 January 2027

Reservoir characterisation		Chair: A. Samsu
08:30 – 09:00	Hydrogeochemistry of the Muschelkalk aquifer in northern Switzerland	Ch. Wanner (UniBe)
09:00 – 09:20	Local and regional reservoir characterisation of the Bavarian Malm	F. Eichinger (Hydroisotop)
09:20 – 09:40	Hydrogeochemistry and fluid circulation in the Geneva Basin	Hydroisotop et al.
09:40 – 10:00	Reservoir characterisation and acidification at the Forsthaus aquifer thermal energy storage site	Ch. Wanner (UniBe)
10:00 – 10:30	COFFEE BREAK	
Operational challenges		Chair: L. Bazalgette
10:30 – 10:50	Comparative analysis of geochemical challenges in medium-deep geothermal energy across the North German Basin	V. Goldberg (BWG)
10:50 – 11:10	Use of scaling and inhibitors in the German and Swiss Molasse Basin	F. Eichinger (Hydroisotop)
11:10 – 11:30	Microbial processes in geothermal systems: Case studies from Germany, Austria, and Switzerland	P. Junier/S. Bindschedler (UniNe)
11:30 – 13:00	LUNCH	
Exploration: Combining hydrogeochemistry with structural data		Chair: Ch. Wanner
13:00 – 13:30	Introduction to water-conducting structures and where and how to find them	A. Samsu (UniL)
13:30 – 13:50	Different geothermal plays across Switzerland	A. Ebert (geoexplorers)
13:50 – 14:20	Play Fairway Analysis – combining structural and hydrochemical indications to identify areas of interest for geothermal exploration in the greater Rhone Valley	D. van den Heuvel (UniBe) T. Schmid (UniL)
14:20 – 14:50	COFFEE BREAK	
14:50 – 15:10	GEOOL Project – exploration at prospect level	N. Giroud (GEOOL)
15:10 – 15:30	Geothermal exploration program of Canton de Vaud	L. Bazalgette (Etat de VD)

15:30 – 15:50	Exploration in the Eclepens area	Rodolphe Lathion (SGE)
15:50 – 16:10	Federal perspective on geoenergy exploration – current challenges and potential ways forward	H. Madritsch (swisstopo)
16:10 – 16:20	Summary and final remarks	Ch. Wanner (UniBe)
16:20 – 17:30	Apéro	