



Citizen Science Project



# Cave drip water



## **Why is cave drip water important?**

The cave drip water originates from precipitation falling in the cave region. Therefore, its isotopic signature reflects the local or regional environmental and hydrological conditions.

## **Why the “Cave drip water” project?**

To produce a Swiss national map of cave drip water isotopic values (hydrogen and oxygen) and monitor cave water isotopes over a short and long time interval.

## **Who can participate?**

Every caver can participate. Order the sampling kit and follow the simple sampling and sending protocol. All free of costs for the participants.

## **Which caves are of interest?**

Drip water samples from all the Swiss caves and its neighboring regions are of interest for this project. There is also no limit on sampling sites within a cave.

## **How often should be sampled?**

Optimal, at least 10 drip sites from the same cave are sampled, or the samples will be taken on a regular basis (seasonal) from the same dripping point. Nevertheless, also sampling only one dripping point from different caves is of great interest for the project.

# THE WATER SAMPLING KIT

The sampling kit is provided free of charge by the Quaternary Geology Group of Basel University.

- Plastic box 10 x 11 x 2 cm or 15 x 13 x 2.5 cm
- Sampling documentation list
- 10 x 1.5 ml or 4 x 10 ml glass vials with rubber caps and a sampling number
- Parafilm and small zip-bags
- Optional: small funnel, phosphorescent sticker
- Ready-to-send envelopes

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Sampling kits can be ordered at:

Pascal Tschudin

[pascal.tschudin@unibas.ch](mailto:pascal.tschudin@unibas.ch) +41 61 207 36 38

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## SAMPLING PROTOCOL

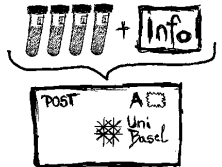
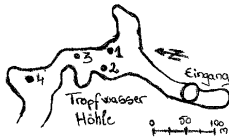
Sample

-

Document

-

Send back



## DRIP WATER SAMPLING

The sampling site:

- should not be in the cave entrance area
- the water should drip, and not flow



Several dripping points can be sampled in the same cave gallery or the same cave. Avoid contamination with sediment.

For very slow dripping sites, the 10 ml vials can be fixed with natural materials on the cave floor and recovered on your way out from the cave. For this situation, a small funnel is also available in the kit.

Water quantity in the 10 ml vial:

- minimum: a quarter of the vial (~2 ml)
- maximum level: until the sample number label



Please fill the 1.5 ml vials with water.

To avoid evaporation, close well the cap and seal it with Parafilm: stretch the thermoplastic and place it around and on the cap of the vial with several a circular move.

## SITE DOCUMENTATION

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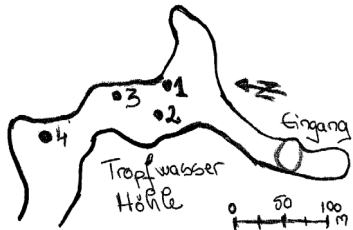
Sampling documentation lists are available in electronic format on our project internet site.

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Fill all the fields in the sampling form provided in the sampling kit or its electronic form available on the project webpage.

If available, in the Observations field, fill in the information about the host rock (limestone, sandstone, conglomerate), soil (bare karst, thin soil, peat land) and vegetation cover (grass, forest, agriculture). If fresh calcite forms under the dripping point, please write it also in the Observations field.

Place the sampling sites on the gallery map and if possible, make a photo of the sampling site.



In the cave, only during the duration of the project, you can mark with the phosphorescent sticker the sampling place, in order to find it during the next sampling campaign.

## SEND SAMPLES BACK TO LABORATORY

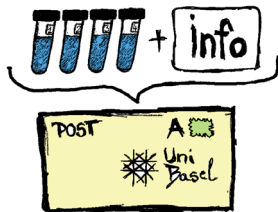
Please send the filled vials to the laboratory within 2 - 4 weeks after the sampling.

Meanwhile, store the filled vials at temperatures between 5 – 20 °C, away from sources of light and heat.

In the ready-to-send envelopes, send back the plastic box with the drip water samples, the documentation lists and the cave / gallery map with the sampling location.

Let us know if you need new sampling kits.

**Pascal Tschudin**  
**Department of**  
**Environmental Sciences**  
**Basel University**  
**Bernoullistrasse 32**  
**CH - 4056 Basel**



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The documentation / photos can be sent also at:  
[pascal.tschudin@unibas.ch](mailto:pascal.tschudin@unibas.ch)

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## ISOTOPIC ANALYSIS, SAMPLES AND DATA STORAGE

The storage and the isotopic analysis of the water samples will be done in the laboratory of the Quaternary Geology Group, under the supervision of Prof. Dr. Dominik Fleitmann and Dr. Stéphane Affolter.

The results are communicated on a regular basis to the samplers and events on this topic will be organized.

A results summary and a map of the sampled caves will be available online on our internet site.

<https://duw.unibas.ch/de/quartaergeologie/citizen-science/>

The data may be later subject of scientific publications.

Cave maps and information will be used and published only in the purpose of this project and its publications.

## CONTACT US

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## WEBSITE

<https://duw.unibas.ch/de/quartaergeologie/citizen-science/>

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Universität  
Basel