List of projects Ph. Häuselmann

This list of projects only contains the larger and possibly scientifically more important projects. The mapping of several caves is not mentioned here.

Projects done (chronological order)

- Cave Inventory of the Laubloch area (1991-1998): The aim of the project was to get the inventory, which was published in 2000. Some results could be incorporated into the PhD thesis. (In collaboration with the HRH)
- Remapping of St. Beatus Cave (1993-1996): The aim of the project was to get an accurate map of St. Beatus Cave. During the mapping work, the geomorphology of the cave and her sediment contents were investigated. This work led to the PhD, and a monography about St. Beatus Cave is published in 2004. (In collaboration with the HRH)
- Diploma (1994-1997): "Zur Geologie des Val Vergeletto (TI)": Observation and interpretation of the tectonic situation, petrography of the different rocks, estimations about pressure and temperature of the eoalpine metamorphosis (Microprobe analysis and thermobarometric calculations), fluid inclusion studies on primary inclusions in garnets. (Supervised by Martin Engi and Larryn Diamond)
- Hydrogeology (1996): Organisation and execution of a tracing experiment in the region St. Beatus Cave-Gemmenalp (Bernese Oberland) to delimit the catchment of St. Beatus Cave towards the one of the Réseau Siebenhengste-Hohgant. (In collaboration with the HRH)
- PhD (1998-2002): "Cave Genesis and its relationship to surface processes: Investigations in the Siebenhengste region (BE, Switzerland)":
  With investigations in St. Beatus Cave, the neighbouring Bärenschacht and other caves, the paleogeography of the prealps in the Lake Thun region was retraced. This work needed mapping of caves as well as detailed sedimentological and morphological studies within the caves. The result is a precise spatial and temporal succession of the valley deepening during the last 400'000 years. In parallel, the tectonic history of the Beatenberg was investigated. (Supervised by Michel Monbaron, Pierre-Yves Jeannin, on the board: Christian Schlüchter, Stein-Erik Lauritzen, and Jean-Jacques Delannoy).
- PostDoc (2002-2003): Dating of the upper cave levels at Siebenhengste by cosmogenic isotopes. This work gives indications about the age of the caves, the rate of valley incision and therefore of the geomorphic evolution, and of the erosion rates in the Helvetic border chain. (In collaboration with Darryl Granger)
- Dating of the Granier Cave system in France (2004-2006): An interesting test to see if the results from the Siebenhengste are similar to the ones from France. They are Pliocene in age! (In collaboration with Fabien Hobléa).
- Dating of the Grotta Masera in Italy (2005-2006): The cave is thought to have Pliocene sediments that came into the cave after the Messinian crisis. The sediment is too old to be dated correctly, but fits within the framework presented. (In collaboration with Alfredo Bini).

Publication pending.

- Dating of Quaternary deposits (2004-2005): We dated the Günz and Mindel type localities using cosmogenic nuclides! Günz is older than previously assumed. The results are encouraging, although the absolute results are not perfect. (In collaboration with Markus Fiebig).
- Sedimentology of Ciclovina Cave (2005-2007): Phosphate-bearing Ciclovina cave is one of the very interesting caves of Romania. A diploma work has set up to investigate the mode and the spatial and temporal relationship of sediments. Its results are published. (In collaboration with Bogdan Onac).
- Remapping of Haglätsch Cave (1995-2009): Haglätsch Cave, situated near the Hohgant, is an ancient phreatic cave. Its spring is supposed to have been located in the northern flank of the Eriz Valley. Its genesis is similar to the one of the Siebenhengste labyrinth. The remapping work should clarify the genesis of Haglätsch Cave and the supposed link to the Eriz valley. The mapping is finished, the final drawing is still in wait. (In collaboration with the HRH)
- Cave Inventory of the Innerbergli (1976-2010): This project is successively inherited from the late Philippe Rouiller and Thomas Bitterli. The field work is completed, the inventory is also published. (In collaboration with the HRH).
- Relative Chronology and Paragenesis of Humpleu Cave (2008-2010): Diploma student Giorgiana Soit investigated the morphology of Humpleu cave to assess where paragenesis was active. This information gave indications whether the passage size would be more related to paragenesis or to the amount of water. Paragenesis seems to be of utmost inportance in this old cave.
- Refinement of the St. Beatus chronology (2004-2011): The aim is be to refine the ages obtained in the PhD by using U/Th with TIMS (or ICP). This work is done on some stalagmites form Excenter (St. Beatus Caves). In addition to measurements of stable isotopes, the climatic evolution of several interstadials and interglacials should be retraced. The publication is out. (In collaboration with Christoph Spötl).
- Modelisation of speleogenesis I (2006-2014): The well-known "four state model" of Ford & Ewers (1978) does not fit well to reality, and Derek Ford himself states that the model does not predict effective fissure frequency. Our idea is that variations in discharge condition whether looping caves or water table caves are created. Modelizations should enlighten if this is true. YES IT IS! (In collaboration with Franci Gabrovsek and Philippe Audra).
- Realisation of the Geological Atlas of Switzerland 1:25'000, sheets Brienz and Beatenberg (2008-2022): After having cartographied the last part of Brienz, the eastern side of Beatenberg followed. Both sheets were be printed in 2022.
- Plio-Pleistocene valley deepening in the Eastern Alps (2007-2025): Cosmogenic dating of Austrian and Slovenian caves allows a better idea on valley deepening processes, tectonic activity, and speleogenesis. The last paper is in review. (with Markus Fiebig, Lukas Plan, Peter Pointner, Philippe Audra, and Andrej Mihevc).
- Remapping of Humpleu Cave, Romania (2001-2024): Humpleu Cave is a subhorizontal cave of huge dimensions. The remapping project allowed already to distinguish a genesis in distinct phases. These phases are best expressed near the spring and melt into each other upstream.

Therefore, the cave might be an interesting case study for the creation of speleogenetic phases during an (assumedly) slow continuous lowering of the valley floor. In addition, ancient hydrothermal activity as well as a truncation of the original catchment area is supposed. Remapping is complete, scientific work pending. (In collaboration with Bogdan Onac)

- Bacterial investigations (2006-2020): In two caves of the Siebenhengste areas, in Bärenschacht and Kaltbach cave, material of presumedly bacterial origin has been found. In order to investigate if this assumption is true, and to determine the species of bacteria (or algae etc.), a microbiologist is currently working with the mats. There are bacteria! However it is not very clear how this data can be used (In collaboration with Stephane Pfendler)

Projects presently active:

- Speleogenesis of Humpleu cave (2025-): Already during the remapping process, the genesis of Humpleu cave was intriguing. Now, more information showed that it might even be a cave composed of three initially independent caves...
- Altaussee project (2022-): Famous oceanographer Walter Munk, of Austrian origin, partially lived in his childhood in Altaussee. Just before his death, he initiated a research project on the nearby lake. Since this is also a spring of a huge karst system, the implication of cavers are clear.
- Dating of Père Noël cave in Belgium (2019-). In Pere Noël, pebbles were washed in by the Lesse river when it was at higher elevation. Dating of these pebbles gave a high age that can be used to reconstruct valley deepenings. The publication is pending.
- Pebbles in Hölloch (2004-): In huge floods in 2004 and 2005, pebble sediments were washed out from their original position within Hölloch. In the following years, they move gradually out towards the cave exit. How and when (and to what extent) pebbles can be washed out of a cave is of high interest for cosmogenic dating.
- Age dating of Niaux-Lombrives-Sabart (NLS) and Neuenburgerhöhle (2018-): One alpine and one pyrenean cave system, both of considerable age, might be investigated in detail to elucidate their age. In NLS, different datings were already done, but are ambiguous. In Neuenburger, most age datings have to be done still. For the moment this is just a project idea, hopefully it will be realized.
- Biocorrosion (2024-): French speleologists found out that bats can have considerable effect on cave morphology and size. Ciclovina cave in Romania had some unexplainable traits that might be linked with biocorrosion. An international team now begins to investigate biocorrosion in Romania (where still many bats live). Maybe an european research project might be started?
- Modelisation of speleogenesis II (2006-): Time-dependency of transition versus equilibrium. The findings in Bärenschacht (PhD) indicate that the transition from one speleogenetic phase to the other is already completed, but equilibrium is not reached yet. A modelisation, taking into account the water chemistry and discharge, should be able to answer how much time is needed to reach equilibrium. (In collaboration with Franci Gabrovsek and Philippe Audra).

- Modelisation of speleogenesis III (2006-): Normally it is assumed that abrupt valley deepening followed by stable conditions lead to speleogenetic phases, while slow and continuous valley entrenchment would lead to meanders incising down. Is this really true or can we get speleogenetic phases under steady deepening conditions? Modelizations will enlighten that topic. (In collaboration with Franci Gabrovsek and Philippe Audra).
- Modelisation of speleogenesis IV (2006-): In recent years, the apparent deep flow paths observed or inferred in some caves were explained by Darcian flow laws or changes in viscosity. Another alternative solution is to assume that the deep caves are either hypogenic in origin or represent drowned vadose caves (as p.ex. Vaucluse). Modelization should clarify when and where deep loops may occur. (In collaboration with Franci Gabrovsek and Philippe Audra).
- Cave Inventory of Traubach-Gopital (1996-): This project is inherited from the late Thomas Bitterli. Once the inventory is completed, we hope to have much better insight into that specific area and to the processes which governed the speleogenesis. Specifically, it is hoped to get information about the landscape during the early phases, when an allogenic fluviokarstic evolution is presumed. Tectonic investigations are also planned. (In collaboration with the HRH)

Projects (at least temporarily) abandoned

- FlinCalcite (1998-): Several calcite crystals of presumedly hydrothermal origin have been collected in caves from Switzerland and France. The aim was to test if the approach using fluid inclusions in cave calcites is generally promising. The results are mixed, the work in progress will clarify its uses and indicate when a sampling for FLINC work makes sense. (In collaboration with B.A. Hofmann & F. Hobléa)