# Master projects in physical geography

## 2020

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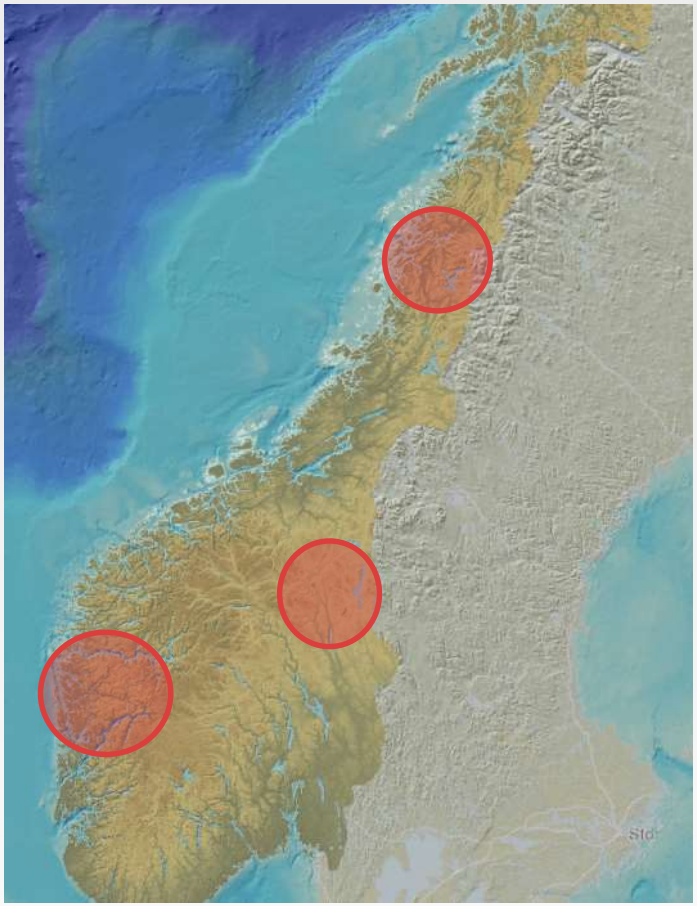
# Academic interests:

- Groundwater and karsthydrology
- Floods and hydro-meteorological geohazards
- Speleology (cave science)
- Reconstruction of the deglaciation history with focus on meltwater drainage, glacial lakes and canyon development



**Field areas:**

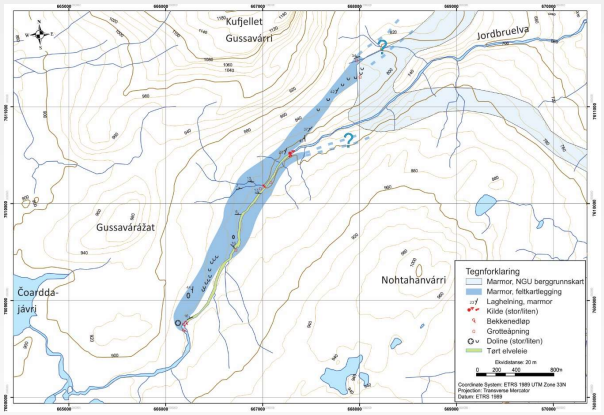
- Western Norway
- Nordland county
- Central Southern Norway

**Are you interested in a master's project in physical geography related to topics such as groundwater, geohazards, flooding, paleohydrology, caves or canyons?**

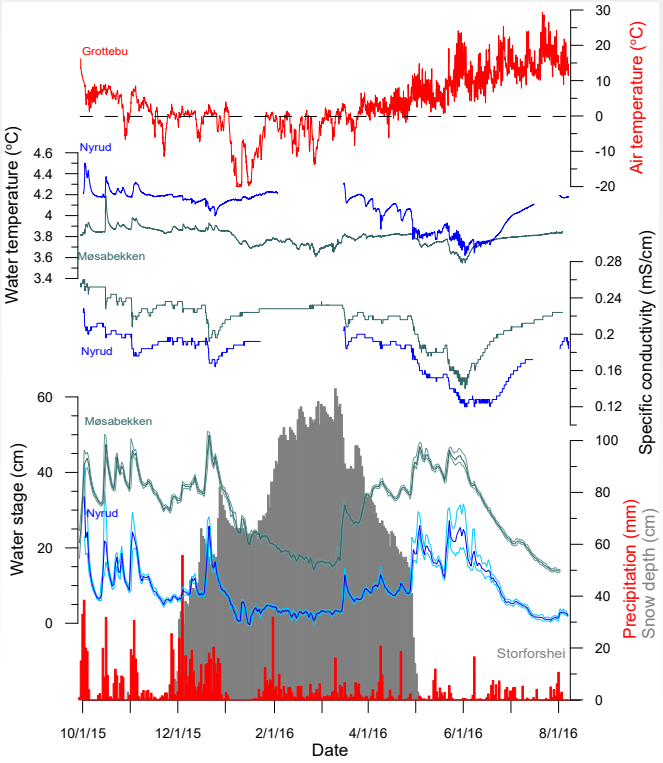
**Contact: rannveig.skoglund@uib.no**

# Water resources in karst

In karst areas the bedrock is soluble, and runoff occur mainly underground in dissolved fractures and conduits. Accordingly, karst aquifers contain the fastest-flowing groundwater in the world and karst springs are vulnerable to contamination if water is not filtrated through surficial sediments. Small karst springs are important water supplies in rural areas, but at present there is little information about their water quality.



# Water resources in karst

The GROUNDWATERISK project is a cooperation with researchers in Romania, focusing on water quality and contamination risk in small karst springs used for water supply in rural areas. In this project there is available two funded master's projects related to karst hydrology. The field area is in Nordland county, either in Gildeskål or Rana municipality.

**Objective:** To identify aquifer characteristics and investigate and monitor the water quality of small water supplies from karst aquifers in Northern Norway, and to do a risk assessment analysis of their vulnerability.

**Methods:** Monitoring stage, temperature and electric conductivity in selected springs in Nordland. Discharge measurements and tracing experiments. Water sampling and analyses. Survey of karst features in the drainage area focusing on dolines and caves. Survey of surficial deposits and potential sources of contamination in the catchment area. GIS and risk assessment analysis.

**Field work**: 3-4 weeks, main field season summer 2021, but some field trips throughout the year will be necessary.

**Co-supervisor:** prof. Stein-Erik Lauritzen, Inst for geovitenskap, UiB

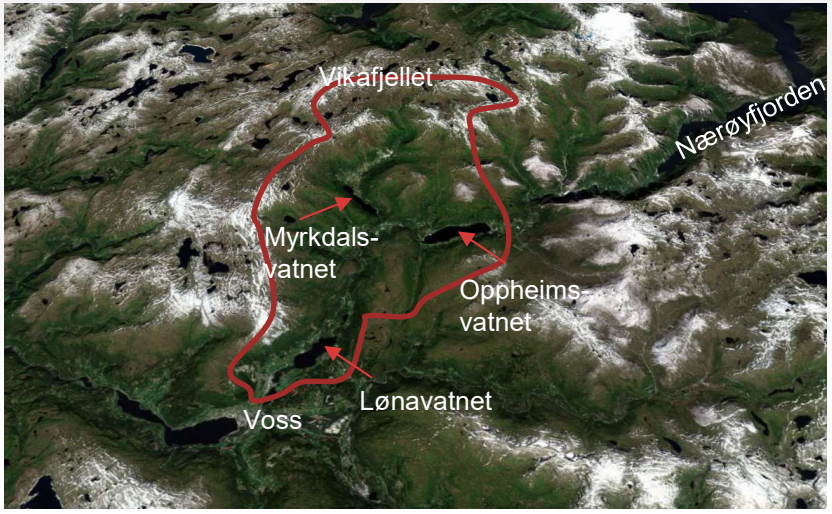
# Reconstruction of flood history in western Norway

**Supervisors:** Rannveig Ø Skoglund and Kristian Vasskog

**Methods:** . Lab-analysis of lake sediment cores. $^{14}$C-dating. Detailed survey of surficial deposits, analysis of Lidar-data and aerial photos, GIS.

**Fieldwork:** lake coring August-September 2020, 1-2 weeks for field mapping summer 2021.

**Number of projects:** 1-2




Strandaelva is a tributary river to the Vosso water system. In contrast to the other tributaries there are several lakes along Strandaelva. One master's thesis is written about flood reconstruction in lake Lønavatnet. This will now be supported by studies of flood and mass wasting history of the upstream lakes, Oppheimsvatnet and Myrkdalsvatnet.

The flood regime in western Norway is dominated by autumn floods caused by intense and long-lasting rainfall. The hazard due to rapid runoff in steep catchments is due to erosion rather than inundation. In addition, buildings and infrastructure are often located at flood plains and on colluvial fans, because these narrow valleys have limited building ground.

Studies of former flooding and mass-wasting processes in such catchment will gain valuable knowledge relevant for planning related to geohazards and climate adaptation.

**Objective**: Reconstruction of the flooding and mass wasting history over the last thousands of years either in lake Myrkdalsvatnet or Opphemsvatnet.

It may also possible to do similar projects on sediment cores from lake Grimvatnet or Haukelandsvatnet in Bergen municipality.