

Master Thesis in the Department Lake

Research at UFZ:

Location: Brückstrasse 3a, 39114 Magdeburg

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Master Thesis Topic: A Modeling Approach to Simulate Thermal Use of German Lakes and Reservoirs

Project Summary: The topic is part of the FluseeQ project which aims to assess the thermal potential of standing waters in Germany. The main objective is to investigate the impact of the heat extraction on the stratification and mixing patterns of lakes and reservoirs. The methodology includes data analysis and the application of a hydrodynamic model (General Lake Model – GLM) to selected water bodies.

Main Tasks:

- Conduct literature research on water heat pumps and their application on lakes and reservoirs in Germany.
- Perform data analyses and visualization for a large dataset of water temperature data of lakes and reservoirs.
- Apply the General Lake Model (GLM) to simulate thermal regimes in selected water bodies.
- Compare the results generated using GLM with i) measured bathymetric data, ii) estimated bathymetry according to GLOBathy, the global lakes bathymetry dataset (Khazaei et al., 2022).
- Document the findings, compile the final thesis, and present the results internally

Your Profile:

- You are a registered student in the field of engineering or natural sciences with a Bachelor's degree.
- You have experience or knowledge of limnology, lake modeling, data analyses, visualization and presentation.
- You are familiar with MS Office and Rstudio.
- Knowledge of programming with R and basic knowledge of GIS data are desirable.
- You can express yourself confidently in both written and spoken English.
- You work independently and actively drive your tasks forward.