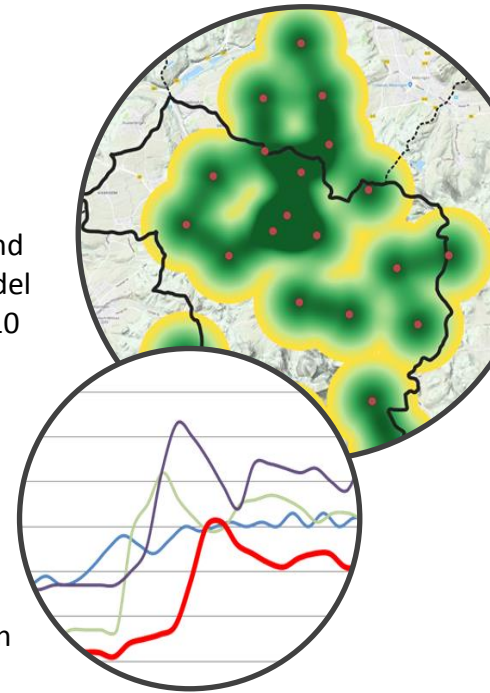


B.Sc. / M.Sc. Topic

“Flash Flood Modelling using low-cost and open-access devices”

Background

The response time for flash floods is short, especially in small catchments and steep terrain areas. The goal of this thesis is to develop a flood warning model for the *Echaz* catchment in Germany. 18 public weather stations as well as 10 low-cost ultra sonic sensors deliver precipitation and water level data. Additionally, *Netatmo* weather stations owned by private persons, who provide their data to open-access online platforms, will be used as an input. Based on the hydraulic and hydrologic data a comprehensive model will be set up by student. The challenges are to understand how individual sensors are connected to each other and which combinations of signals are appropriate for alerting emergency services. The planned outcome of this study is a flash flood warning system, which will deliver valuable information for emergency units.



Thesis Overview

1. Literature review of early warning systems and hydrological forecasting
2. Development of a simplified flash flood warning model
3. Model testing and training with real precipitation and water level data sets
4. Results analysis and documentation

Desirable Skills

- Knowledge of *Python* or the willingness to acquire this programming language
- Curiosity and interest in working with hydroinformatics



Apply now!

benedikt.mester@iws.uni-stuttgart.de

Please send your CV and a few lines why you would like to take this topic.

The thesis will be supervised by Benedikt Mester (IWS, University of Stuttgart)

The thesis can be written in German or English.

Examiner: Prof.-Dr. Ing. Silke Wieprecht (LWW) | Supervisor: Benedikt Mester (LWW)