Post-processing of NWP for on-line flood forecasting

Krüger has collected rainfall forecasts generated by DMI's numerical weather models and from radar rainfall measurements, as well as rain gauge measurements. The aim of this project is to develop post-processing methods for the numerical weather forecasts based on statistical models. The aim would be to identify statistically optimal combinations of the different rainfall observations and forecasts to minimize the overall forecast error, and to exploit spatial and temporal error structures that were previously observed, to correct the numerical weather forecast.

Tool: time series model structures, filtering techniques.

Tasks:

- Systematically compare numerical weather forecasts against rain gauges (for different horizons and locations) and radar rainfall
- Try to identify error patterns in space and time
- Try to develop models for those error patterns that can be used to
  - Describe uncertainty of the rainfall forecast in different situations
  - Correct the rainfall forecast / merge rainfall forecasts from different sources

Project type
Topic is suitable for MSc

Pre-requisite
Knowledge of time series analysis / statistics, programming skills in R or MATLAB

Group size
1 student

Department of supervisors
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Co-supervisors: DTU Compute

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