

Parameter estimation for hydraulic urban drainage models - a virtual ring test

Organizing committee

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Intended audience

All urban drainage model migration and calibration enthusiasts, especially all participants of the phase 1 virtual ring test (see below).

Schedule

8:30-9:00	Welcome, getting to know each other
9:00-10:30	Comparison of model results and discussion on lessons learnt
10:00-10:30	Coffee break
10:30-11:00	Identification of common issues and best practices
11:00-12:00	Next steps and future collaboration: What does the community need to do to improve model transferability?

About the virtual ring test

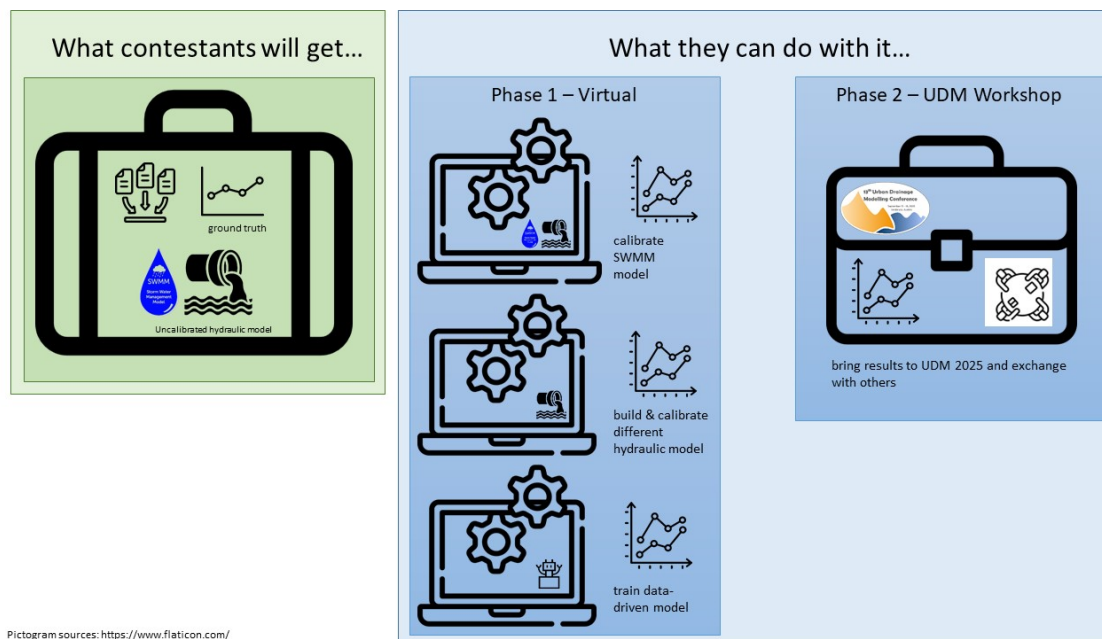


Figure 1: Structure of the virtual ring test

Kick-off (online event, 29th April 2025, 3pm (GMT+1)):

Participants will receive

- a non-calibrated but runnable hydraulic urban drainage model (SWMM input format) which serves as a reference for urban drainage system
- rainfall time series data, potentially dry weather profiles
- reference data as ground truth for model calibration and validation

During the kickoff event, relevant information about model and catchment will be given. The objective of the virtual ring test will be discussed.

Participants are free to use any hydraulic urban drainage modelling environment, including own developments.

Phase 1 (online collaboration)

Different teams participate in a “virtual ring test” to compare transferability of urban drainage models. The objective of the ring test is to create a model capable of optimally reproducing provided reference data. The exchange between teams is promoted through monthly virtual meetings between May and September 2025:

1. Participants define the target values of their virtual ring test contribution, e.g.:
 - Total flow / peak flow at CSO locations
 - Time series of flow at relevant locations such as pumping stations, CSO locations, WWTP influent
 - Flooding at neuralgic locations
 - Time series of water levels at specific / all nodes
 - Time series of flows in specific / all links ...
2. [optional] The provided SWMM model is used by the participants as a starting point to generate the target model in a different modelling environment (if network data beyond the SWMM-.inp file format are required, these will be provided to the participants at their request, subject to their availability). If this step is skipped, the provided SWMM model is used as the target model itself.
3. The target model is prepared (calibrated, trained, ... depending on the model and participants' preferences) to fit the ground truth
4. Using the provided ground truth validation data set, the performance of the fitted target model is evaluated.

Phase 2 (on-site workshop at UDM 2025, see schedule above)