Thesis presentation

Degree:
Joint Master of Science in Hydroinformatics and Water Management

Tampere, August 21st, 2019
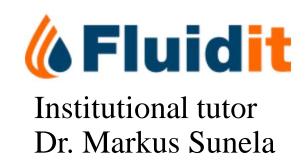
Urban sanitary sewer modelling in cold climate

Test case using automatic calibration and precipiration forecast in Finland

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Problem description

- Rainfall dependent **Inflow** and **infiltration (RDII).**

- Inflow – roof or foundation drain connections.   Infiltration – pipe cracks, faulty manhole, etc.

- **Overflows** upstream caused by blockage or downstream by the WWTP bypass.

- Why model the RDII? Improve design, rehabilitation, operations.

- How can RDII be modeled in cold climates? Snow accumulation and **snowmelt**.

Root intrusion [1]   Infiltration through cracks [1]   Overflow: upstream [2]   Overflow: downstream [3]

Objectives of the thesis

1. Use two different hydrological modeling approaches
present in stormwater management model (SWMM) to model RDII simulation

2. Couple the hydrological models to the hydraulic model to simulate SSN flows on a real case study of a town in Finland.

3. Propose a methodology for parameter estimation and calibration of the hydrological models.

4. Use the built sewer model with forecasted precipitation data and identify key aspects of using the proposed model as part of an operational forecast system able to predict the SSN flows during all seasons.

- Include the fIGURE nOT included in the THesis.

References

[1] Test case using automatic calibration and precipiration forecast in Finland

[2]