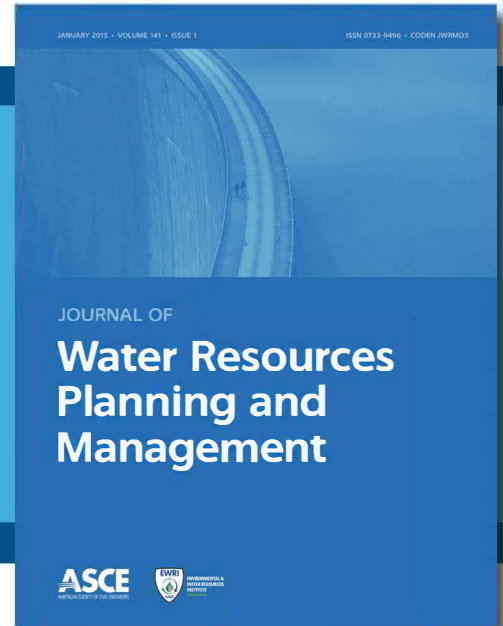


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Call for Papers

Special Collection on the Battle of the Leakage Detection and Isolation Methods (BattLeDIM)



Aims & Scope

Water Distribution Systems (WDS) are susceptible to infrastructure failures, which may lead to water losses. Typically, these water losses are due to background leakages and pipe bursts which may occur anywhere within the distribution network. Background leakages are normally difficult to detect due to their small size, whereas pipe bursts are easier to locate as they are of larger size and may appear on the surface. The early detection and localization of some leakage events is extremely important, as this would reduce the time required for accommodating the event and therefore reducing the risk of further infrastructure degradation, contamination events and consumer complaints.

In previous years, a number of methodologies have been proposed to detect and isolate the location of leakage events using various types of sensor measurements. These methods were commonly evaluated on private commercial datasets, and as a result, it is not possible to objectively compare these methods in their ability to detect and isolate leaks.

The aim of this Special Collection is to solicit papers focusing on leakage detection and isolation methods proposed by the teams which participated in the Battle of the Leakage Detection and Isolation Methods (BattLeDIM) competition. The Battle of Leakage Detection and Isolation Methods (BattLeDIM), organized initially as part of the 2nd International CCWI/WDSA Joint Conference in Beijing, China (<http://www.ccwi-wdsa2020.com/>), aimed at objectively comparing the performance of methods for the detection and localization of leakage events, relying on SCADA measurements of flow and pressure sensors installed within water distribution networks.

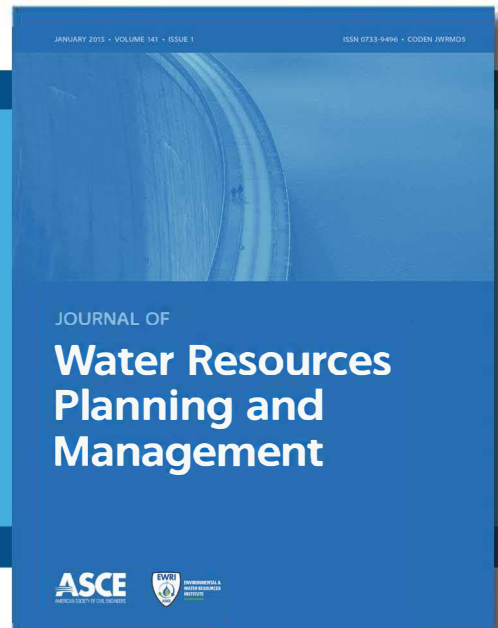
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Call for Papers

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The competition problem was based on L-Town, a small hypothetical town which experiences a large number of pipe breaks and water losses, affecting its service quality. The L-Town EPANET model and the SCADA measurements provided were generated based on a real water distribution network in a city of Cyprus.

Participants have been invited to use different types of tools and methods to detect and localize the leakage events that occurred in L-Town in 2019, given the availability of a historical SCADA dataset of the year 2018 and the evaluation SCADA dataset of year 2019. The methods used include (but are not limited to) engineering judgement, machine learning, statistical methods, signal processing, and model-based fault diagnosis approaches.

The teams, without knowing the solution of the problem, have submitted a results file indicating the location and time of the detected leakages and an extended abstract providing an overview of their solution methodology. The teams have also prepared on line presentations and presented their methodologies. The authors who participated in the competition are invited to submit their contributions describing their methodologies and presenting their results when applied on the BattLeDIM benchmark. Changes in authors, title and content compared to the submitted abstracts are acceptable, provided that the manuscript includes the results submitted to the competition

Proposed Schedule

- * Call for papers: 1st of December 2020
- * Submission deadline: 31st of March 2021
- * Target to complete: 31st of November 2021