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SECTORIZATION AND ANALYTICAL LEAKS LOCALIZATION IN THE *H2OLEAK* PROJECT: CLUSTERING-BASED SERVICES FOR SUPPORTING WATER DISTRIBUTION NETWORKS MANAGEMENT

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Abstract

Water distribution networks are complex systems that require innovative technological solutions enabling an integrated and rational water resource management. In this paper we present the approaches we have designed and developed within the H2OLEAK project aimed at supporting the following activities: (i) district identification, i.e. a partition of the network into independent sub-sectors and (ii) leak localization on pipelines according to flow and pressure values continuously measured at crucial points of the network. These two decision support services are both based on clustering techniques and hydraulic simulation. In particular, we propose clustering methodologies which allow managers to determine the "optimal" districts with respect to changes in demand and/or network structure and improve the possibility to identify a limited set of pipelines as the probably leaky ones, therefore reducing time and costs for physical check and consequent rehabilitation activities.

Key words: clustering, leakages localization, sectorization, simulation, water distribution network management,

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