

## عنوان مقاله:

Using response surface methodology (RSM) for leakage detection in water distribution net work

## محل انتشار:

هفتمین کنفرانس بین المللی پژوهش های کاربردی در علوم و مهندسی (سال: 1402)

تعداد صفحات اصل مقاله: 13

## نویسندگان:

Masoud Rabeian - *PhD student, Department of Environmental Engineering, Faculty of Civil Engineering, Babol Noshirvani University of Technology, Babol, Iran*

Amirhossein Khourshidi - *MSc. Student of Civil and Environmental Engineering, Babol Noshirvani University of Technology, ۴۷۱۴۸-۷۱۱۶۷, Babol, Iran*

Mohsen Taghavijeloudar - *PhD of Environment Engineering, Department of Civil and Environmental Engineering, Seoul National University, ۱۵۱- ۷۴۴ Seoul, South Korea*

## خلاصه مقاله:

Water quality security is a critical concern in water distribution systems (WDSs) due to their vulnerability to contamination intrusion events. To ensure timely and effective detection of fun/intentional intrusion events, extensive research has been conducted to develop leakage detection and localization methodologies. Model-based methods have been accepted as promising approaches in detecting leaks within water distribution systems. This paper proposes a novel leakage detection model based on the network hydraulic model. The proposed methodology utilizes mathematical modeling employing the response surface methodology (RSM) for leakage detection. Furthermore, RSM offers the capability to assess sensor placement. The effectiveness of the proposed methodology is demonstrated using a benchmark dataset for leakage diagnosis. The results proved that the proposed method performs well with a high accuracy. In conclusion, this study not only presents a novel leakage detection model but also introduces a new approach for evaluating sensor placement, contributing to the advancement of water quality security in WDSs.

## کلمات کلیدی:

Pipe damage, Response surface methodology, Leakage detection, water distribution net work

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1682248>

