

Using extreme learning machines for short-term urban water demand forecasting.

Autores: Mouatadid, Soukayna¹
Adamowski, Jan¹

Fuente: Urban Water Journal. Jul2017, Vol. 14 Issue 6, p630-638. 9p.

Tipo de documento: Article

Descriptores: *WATER demand management
*SUPPORT vector machines
*MACHINE learning
*PRECIPITATION (Meteorology)
*STANDARD deviations

Palabras clave proporcionadas por el autor: artificial neural network
regression model
support vector machine
Water resources management

Resumen: This study explores the ability of various machine learning methods to improve the accuracy of urban water demand forecasting for the city of Montreal (Canada). Artificial Neural Network (ANN), Support Vector Regression (SVR) and Extreme Learning Machine (ELM) models, in addition to a traditional model (Multiple linear regression, MLR) were developed to forecast urban water demand at lead times of 1 and 3 days. The use of models based on ELM in water demand forecasting has not previously been explored in much detail. Models were based on different combinations of the main input variables (e.g., daily maximum temperature, daily total precipitation and daily water demand), for which data were available for Montreal, Canada between 1999 and 2010. Based on the squared coefficient of determination, the root mean square error and an examination of the residuals, ELM models provided greater accuracy than MLR, ANN or SVR models in forecasting Montreal urban water demand for 1 day and 3 days ahead, and can be considered a promising method for short-term urban water demand forecasting. [ABSTRACT FROM AUTHOR]

Copyright of Urban Water Journal is the property of Taylor & Francis Ltd and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use. This abstract may be abridged. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material for the full abstract. (Copyright applies to all Abstracts.)

¹Department of Bioresource Engineering, McGill University, QC, Canada

**Afiliaciones del
autor:**

ISSN: 1573-062X

DOI: 10.1080/1573062X.2016.1236133

**Número de
acceso:** 122386605

**Información del
editor:**

