Hybrid regression model for near real-time urban water demand forecasting.

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Resumen: The most important factor in planning and operating water distribution systems is satisfying consumer demand. This means continuously providing users with quality water in adequate volumes at reasonable pressure, thus ensuring reliable water distribution. In recent years, the application of statistical, machine learning, and artificial intelligence methodologies has been fostered for water demand forecasting. However, there is still room for improvement; and new challenges regarding on-line predictive models for water demand have appeared. This work proposes applying support vector regression, as one of the currently better machine learning options for short-term water demand forecasting, to build a base prediction. On this model, a Fourier time series process is built to improve the base prediction. This addition produces a tool able to eliminate many of the errors and much of the bias inherent in a fixed regression structure when responding to new incoming time series data. The final hybrid process is

validated using demand data from a water utility in Franca, Brazil. Our model, being a near real-time model for water demand, may be directly exploited in water management decision-making processes. [ABSTRACT FROM AUTHOR]

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