

Forecasting Water-Level Fluctuation in Water-Supply Dams of the Auckland and Waikato Regions

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Abstract

Dams play a vital role in supplying fresh water to many cities all over the world. With increasing pressure on and demand for natural resources, water supply remains a scarce resource worldwide. During times of uncertainty, predicting the future availability of water supply by considering various hydrometric and anthropogenic variables will provide a framework for future scenario forecasting and a model-based approach to sustainable water management. To this end, this project proposes a multivariate time-series analysis and forecasting model to both analyse and forecast daily water-level fluctuations in three water-supply dams: Upper Nihotupu, Waitākere and Mangatangi, located in the Tāmaki Makaurau Auckland and Waikato regions of Aotearoa New Zealand.

Keywords: Environment, dams, water supply, forecasting, sustainable water management

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