

Accepted Manuscript

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PII: S0098-3004(17)30486-7

DOI: [10.1016/j.cageo.2018.08.003](https://doi.org/10.1016/j.cageo.2018.08.003)

Reference: CAGEO 4166

To appear in: *Computers and Geosciences*

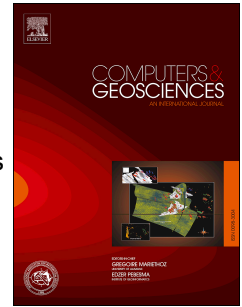
Received Date: 1 May 2017

Revised Date: 4 August 2018

Accepted Date: 17 August 2018

Please cite this article as: Atiquzzaman, M., Kandasamy, J., Robustness of Extreme Learning Machine in the prediction of hydrological flow series, *Computers and Geosciences* (2018), doi: 10.1016/j.cageo.2018.08.003.

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Robustness of Extreme Learning Machine in the Prediction of Hydrological Flow

Series

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ABSTRACT: Prediction of hydrological flow series generated from a catchment is an important aspect of water resources management and decision making. The underlying process underpinning catchment flow generation is complex and depends on many parameters. Determination of these parameters using a trial and error method or optimization algorithm is time consuming. Application of Artificial Intelligence (AI) based machine learning techniques including Artificial Neural Network, Genetic Programming (GP) and Support Vector Machine (SVM) replaced the complex modelling process and at the same time improved the prediction accuracy of hydrological time-series. However, they still require numerous iterations and computational time to generate optimum solutions. This study applies the Extreme Learning Machine (ELM) to hydrological flow series modeling and compares its performance with GP and Evolutionary Computation based SVM (EC-SVM). The robustness and performance of ELM

¹ Md Atiquzzaman is a PhD student at UTS, undertook this study as part of doctoral studies and prepared the manuscript.

² Jaya Kandasamy is the PhD supervisor of the first author and edited and revised the manuscript.

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