Home
Online Library HESS
- Recent Final Revised Papers
- Volumes and Issues
- Special Issues
- Library Search
- Title and Author Search

Online Library HESSD
Alerts & RSS Feeds
General Information
Submission
Review
Production
Subscription
Comment on a Paper

Volumes and Issues Contents of

Hydrol. Earth Syst. Sci., 14, 1931-1941, 2010
www.hydrol-earth-syst-sci.net/14/1931/2010/
doi:10.5194/hess-14-1931-2010

Experimental investigation of the predictive capabilities of data driven modeling techniques i hydrology - Part 1: Concepts and methodology

A. Elshorbagy[1], G. Corzo[2], S. Srinivasulu[1], and D. P. Solomatine
[1]Centre for Advanced Numerical Simulation (CANSIM), Department of Ci Geological Engineering, University of Saskatchewan, Saskatoon, SK, S7N Canada
[2]Department of Hydroinformatics and Knowledge Management, UNESCO- Institute for Water Education, Delft, The Netherlands
[3]Water Resources Section, Delft University of Technology, Delft, The Net

Abstract. A comprehensive data driven modeling experiment is pre in a two-part paper. In this first part, an extensive data-driven mo experiment is proposed. The most important concerns regarding th data driven modeling (DDM) techniques and data were handled, cc and evaluated, and the basis on which findings and conclusions w drawn are discussed. A concise review of key articles that present comparisons among various DDM techniques is presented. Six DDM techniques, namely, neural networks, genetic programming, evolut polynomial regression, support vector machines, M5 model trees, a nearest neighbors are proposed and explained. Multiple linear reg and naïve models are also suggested as baseline for comparison v various techniques. Five datasets from Canada and Europe repres evapotranspiration, upper and lower layer soil moisture content, a rainfall-runoff process are described and proposed, in the second p for the modeling experiment. Twelve different realizations (groups) each dataset are created by a procedure involving random samplir group contains three subsets; training, cross-validation, and testir modeling technique is proposed to be applied to each of the 12 gr each dataset. This way, both prediction accuracy and uncertainty c modeling techniques can be evaluated. The description of the data the implementation of the modeling techniques, results and analys the findings of the modeling experiment are deferred to the secon this paper.

Final Revised Paper (PDF, 384 KB) Discussion Paper (HESSD)

Citation: Elshorbagy, A., Corzo, G., Srinivasulu, S., and Solomatine, Experimental investigation of the predictive capabilities of data dri modeling techniques in hydrology - Part 1: Concepts and methodol Hydrol. Earth Syst. Sci., 14, 1931-1941, doi:10.5194/hess-14-1931 2010. Bibtex EndNote Reference Manager XML