Abstract

This paper presents a review of runoff forecasting method based on hydrological time series data mining. Researchers are developed models for runoff forecasting using the data mining tools and techniques like regression analysis, clustering, artificial neural network (ANN), and support vector machine (SVM), Genetic Algorithms (GA), fuzzy logic and rough set theories. The scientific community has been trying to find out a better approach to solve the issues of flood problems. Time Series Data mining is paying crucial role for the achieving a real time hydrological forecast. Hydrological Time series is an important class of temporal data objects and it can be find out from water resource management and metrological department. A hydrological time series is a collection of observations of hydro and hydrometeorological parameters chronologically. The wide use of hydrological time series data has initiated a great deal of research and development attempts in the field of data mining. Trend, pattern, simulation, similarity measures indexing, segmentation, visualization and prediction carried out by the researchers with the implicit mining from the historical observed data. The critical reviews of the existing hydrological parameter prediction research are briefly explored to identify the present circumstances in hydrological fields and its concerned issues.
References


Period", Indian. J. of Zeo-Marine Science, 44(3).
- Adamowski, J. and Karapataki, C. (2010), Comparison of Multivariate Regression and Artificial Neural Networks for Peak Urban Water-Demand Forecasting: Evaluation of Different ANN Learning Algorithms, ASCE.
- Adamowski, J. F. (2008), Peak Daily Water Demand Forecast Modeling Using Artificial Neural Networks, ASCE.
- Wang, C. W., Chau, W. K., Cheng, T. C. and Qiu, Lin (2009), A comparison of performance of several artificial intelligent methods for forecasting monthly discharge time
- Makridakis, S. and Hison, M., 1995 "ARMA MODELS and The Box Jenkins methodology"; by revised version of 95/33/TM.
- Edossa, D. C., Mukand, S., Babel, Forecasting Hydrological Droughts Using Artificial Neural Network Modeling Technique.
- Hsieh, B. B., Bartos, C. C. L., and Zhang, B., USE OF ARTIFICIAL NEURAL NETWORKS IN A STREAMFLOW PREDICTION SYSTEM.
- Kumar, R., and Yadav, G. S. (2013), Forecasting of Rain Fall in Varanasi District, Uttar Pradesh Using Artificial Neural Network, JECET.
- Cigizoglu, H. K. (2005), Generalized regression neural network in monthly flow forecasting, Civil Engineering and Environmental Systems, 22 (2).
- Partal, T., and Cigizoglu, H. K. (2009), Prediction of daily precipitation using
wavelet–neural networks, IAHS.


- Wei, S., Yang, H., Song, J., Abbaspour, K., and Xu, Z. (2013), A wavelet-neural network hybrid modeling approach for estimating and predicting river monthly flows, IAHS.


yield, ELSEVIER Science: 103(2009), pp 527-535.
- Shahbazi, N. A. and Pilpayeh, A. R. (2012), River flow forecasting using support vector machines, 14th ISCCBE, Moscow, Russia.
- Shah Shiloh, R. (2005), Least Squares Support Vector Machines

- Mahabir, C. , Hicks, F. And Fayek, A. (2003), Application of fuzzy logic to forecast seasonal runoff, Hydrological Processes, 17, pp 3749-3762.

Index Terms

Computer Science Information Science

Keywords

Clustering; data mining; runoff; hydrological time series; pattern discovery; regression
analysis ANN SVM rough set and fuzzy logic genetic algorithms.