Abstract

substantially increasing demand for water consumption driven by population growth On the one hand, and on the other hand limited water resources makes water scarcity a crucial problem in Iran. Therefore, Drought Prediction is essential for the efficient use of water management, irrigation systems and management of dam utilization. In recent years, use of Artificial intelligence methods for modeling of Hydrological phenomenon's that is including complexity and uncertainly, is considered scholars. In this research, performances of Artificial Neural Networks (ANN) and Adaptive Neuro-Fuzzy Inference System (ANFIS) for Drought Prediction Techniques in Mond Basin of Fars Province have been comparatively evaluated on the basis of the monthly data for a 32-year period (1978-2012) including rainfall, temperature and drought indices SPI and ¬ PN.The best combination of the model inputs was selected based on rainfall and temperature at the current month. In addition, the training data length of %70 and the testing data length of %30 were determined. After conducting prediction by using ANN and ANFIS models, the performances of these models were evaluated on the basis of statistical criteria of Nash index (E), correlation coefficient (R) and Root Mean Square Error (RMSE). The obtained results indicated higher accuracy of ANN model rather than ANFIS model in orther to Drought Prediction Techniques in Mond Basin of Fars Province.

Keywords: Drought Index- Artificial Neural Network - Neuro-Fuzzy Inference System - Mond Basin

University of Zabol
Graduate school
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Department of range and watershed management
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Drought Prediction using Artificial Neural Networks and

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Basin of Fars Province

Supervisor:
Dr. A. Pahlevanravi
Dr. A. R. Moghaddam Nia

Advisors:
Dr. F. Hasanpour

By:
Mahnaz Rostami

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