Abstract

In today's world of water and water resources, one of the main pillars of sustainable development is considered. Changes affect the quantity and quality of water resources in the basin hydrological activities occur due to limited water resources, prevention is crucial. The results of the two models, ANN and linear regression to estimate the evaporation in Zabol stations, Zahak, Zahedan, Khash, Iranshahr, Chabahar and Saravan is used daily. The best combination of input network for each of the seven stations of the same mean temperature, mean relative humidity, wind speed, sunshine. After the program, the results of statistical analysis to station ANN Zabol, $R^2 = 0.87$, RMSE = 2.55, and MAE = 1.25 Regression analysis of Zabol station R2 = 0.82, RMSE = 2.55, and MAE = 1.25. Zahak station $R^2 = 0.95$, RMSE = 1.2, and MAE = 0.84 Regression analysis of Zahk station $R^2 = 0.95$, RMSE = 2.6, and MAE = 2.46, Zahadan station $R^2 = 0.68$, RMSE = 1.55, and MAE = 1.2 Regression analysis of Zahadan station $R^2 = 0.68$, RMSE = 4.77, and MAE = 4.53, Khash station $R^2 = 0.45$, RMSE = 1.1, and MAE = 0.82 Regression analysis of Khash station $R^2 = 0.21$, RMSE = 3.56, and MAE = 3.18. Iranshahr station $R^2 = 0.85$, RMSE = 1.2, and MAE = 0.82 Regression analysis of Iranshahr station $R^2 = 0.82$, RMSE = 2.71, and MAE = 2.6, Saravan station $R^2 = 0.75$, RMSE = 1.45, and MAE = 1.1 Regression analysis of Saravan station $R^2 = 0.72$, RMSE = 3.1, and MAE = 2.9 and Chabahar station $R^2 = 0.55$, RMSE = 1.66, and MAE = 1.24 Regression analysis of Chabahar station $R^2 = 0.32$, RMSE = 2.33, and MAE = 2.12 .The seven-station results show the better ability of artificial neural network in forecasting is the process of evaporation pan.

Keywords: Evaporation, Neural network, linear regression, Sistan&Balochstan.

University of Zabol
Graduate school
Faculty of Water and Soil
Department of Water Engineering
The Thesis Submitted for the Degree of Master of Science
(in the field of Water Resource Engineering)

The Estimation of Evaporation Using Linear Regression and

Artificial Neural Network in Province of Sistan and Balochestan

Supervisor:
Dr. Parviz. Hagighat jou

Advisors:
Eng. Jamshid Peri
Eng.Abolfazl Bameri

By:
Mahmoud Bameri

February 2015