



## **Comparison of Monthly Rainfall Prediction using Linear Stochastic-Base Models in Gharalar Rain Gauge Station Iran**

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The prediction of rainfall is essential for design and management of water resources systems. The objective of this paper is generate monthly rainfall time series and compare three linear stochastic generators for simulation of monthly rainfall at Gharalar rain gauge stations around Urmia, Iran. Monthly rainfall data for thirty years from 1972-2002 were considered for stochastic modeling. Monthly rainfall was predicted using the Box-Jenkins, autoregressive, moving average, and ARMA models. The results indicate that the best auto-regressive model is AR (3), the best moving average model is MA (3), and the best auto-regressive moving average model is ARMA (1, 3). Comparison of estimated and observed monthly rainfall depth for model validation from 1998-2002 showed that rainfall prediction using AR (4) with RMSE = 320.06 mm had better fitting.

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