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Modeling of Temperature in the North of Ardebil Province With the aim of Drought Management

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Abstract

Variability of temperature is very important as one of the symbols of climatic change. In this research, variability of temperature in north of Ardebil Province has been investigated by using monthly and annual mean temperature in Pars-Abad synoptic station from Jan 1984 to Dec 2009 and order 2 moving average, autoregressive and ARIMA models. Linear and order 6 polynomial trends in Pars-Abad synoptic station showed that annual temperature in this station has an increasing trend. Order 6 polynomial model was better than linear regression model in detection of annual temperature variability of Pars-Abad synoptic station. Result of modeling and analysis of monthly temperature in the under study by linear regression, moving average and ARIMA models and forecasts until 2014 showed that ARIMA model has the lowest MAPE and highest R^2 and the estimates of mean temperature of this station was better than other models. In selection of the best pattern, indices and rate of AIC, RSME and MAD

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showed that SARIMA (0, 0, 1)$(0,1,1)_{12}$ model with lowest RSME, AIC and MAD is a suitable model to monthly temperature forecasts in under study station.

Keywords*:* ARIMA MODELS, Forecasting, Linear Regression, Monthly Temperature, Moving Average, Pars-Abad Station.