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# Time Series Analysis of Rainfall in The Khoi Meteorology Station

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## Abstract

Precipitation is one of the key elements in the climate of each region. Decrease or increase precipitation, climate and environmental phenomena that impress. Direct effects of climate on human life are significant. Statistical techniques, a useful tool for predicting the behavior of the climate variables. In this study, using statistical methods, precipitation behavior is analyzed in Khoi meteorological station. For this purpose, statistical data of annual average Precipitation during the period 960- 2011 have been used. In this study with Using the methods Pearson, Spearman and man-Kendal, have

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been attempted to investigate the precipitation trend. The results of these methods show significant decreasing trend in annual rainfall in the Khoi meteorological station. By applying a spectral analysis method based on precipitation data, its full cycle, were evaluated. The results of spectral analysis showed that the 95% confidence level, the first harmonic was significant. Finally the arima model to predict annual precipitation in the Khoi metorological station is used. In this way, four basic models were fitted. Goodness of fit tests, including tests of coefficients, remained independent test of the model, using Akaike and prediction model, indicates that between the four models fitted ,arima model (1, 1, 0) is the best fitted to annual precipitation. Based on this model, Khoi meteorological station annual precipitation, with 95 percent, by 2016 AD, was predicted.

**Keywords**: Trend, Spectral Analysis, ARIMA Model, Khoi Station.