Abstract

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TimeSeries Modeling and Short Term Prediction of Annual Temperature Trend on Coast Libya Using the BoxJenkins ARIMA Model

Aims: In this study a time series modeling was developed to predict the annual warming trend at coast Libya in the second decade of the 21st century using ARIMA model, and performing an evaluation for the results significance. Study Design: Utilizing Box-Jenkins method through, the stage of identification, parameter estimation and diagnosis, finally, a forecast of the annual surface temperature trend on Libya in the second decade of the 21st century was assembled, together with an evaluation of the significance of the predicted warming trend. Place and Duration of Study: Annual surface absolute temperature (ASAT) from 16 stations belonging to the coast of Libya during the period of (1892-2010) was used. Results: The most optimum two prediction models obtained for the above data, are non-seasonal linear trend model ARIMA (3-1-2) and quadratic trend model ARIMA (3-2-3). We found that the forecasted values followed the upward trend present in the data and the pattern of results almost followed the pattern predicted with a correlation value of approximately 80% for both models.