Abstract

Air temperature is an important meteorological and climatological factor that its changes are offspring of the most fluctuation on agriculture, water resources and environment. Because of this measurement and prediction of air temperature have more importance and long background than other atmospheric parameters. The aim of this study is to illustrate a mathematical model for the time series of daily mean temperature, using a new approach of gene expression programing (GEP). (GEP) is a powerful tool to modeling and detection of linkage between complex phenomenons that produced from Genetic programming. Also another characteristic of this approach is to present mathematical relationship from model that produced. This approach is performed in two main steps: 1. train the model that can predict time series. 2. Test or validate the model that produced in last step with actual data. Models are traind in seven different historical (subsequence) patterns. In second step for validating models, Root Mean Square Error (RMSE),Mean Absuolute Error (MAE), correlation cofficient (R) and coefficient of determination (R^2) is used. 80 percent of data is considered for training and 20 percent considered for model verification. In this way time series of daily mean temperature from three synoptic stations of Sistan and Blouchestan provience is modeled. Finally results showed that the (GEP) is very suitable for modeling of daily mean temperature. The best model in this research was achieved in synoptic stationof Zabol.

Key woed   : Daily mean temperature , Gene Expression Programing , Modeling ,
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