Abstract

Forecast rainfall is a vital process to avoid hazardous causes from the climatic. So, the process of forecasting needs suitable technique has ability to treat with such problem and forecast rainfall accurately. This paper attempt to solve this problem through constructing Artificial Neural Network (ANN) especially Multi-Layer Perceptron (MLP) and applying two training algorithms on the constructed model (MLP) to train and test it. First training algorithm is an optimization algorithm which based on a global search Particle Swarm Optimization (PSO). Second training algorithm is another type of Back Propagation (BP) is Levenberg-Marquardt (LM). Comparing the model of MLP with two training algorithms with another model is Redial Basis Function (RBF). Applying RBF on the same weather data used on two training algorithms. The results approved that MLP based PSO is the most effective comparing with MLP based LM and RBF, through the error value of RMSE for each one.


Index Terms

Computer Science Artificial Intelligence

Keywords

Forecasting the Weather, Feed Forward Neural Network, Levenberg-Marquardt algorithm, Multi-Layer Perceptron, Particle Swarm Optimization and Redial Basis Function.