**ABSTRACT**

Rainfall prediction is the one of the important technique to predict the climatic conditions in any country. This paper proposes a rainfall prediction model using Multiple Linear Regression (MLR) for Indian dataset. The data taken from 1901 to 2015 monthly wise. The input data is having multiple meteorological parameters and to predict the rainfall in more precise. The Mean Square Error (MSE), accuracy, correlation are the parameters used to validate the proposed model. From the results, the proposed machine learning model provides better results than the other algorithms in the literature. It is demanding responsibility of meteorological department to predict the frequency of rainfall with uncertainty. It is complicated to predict the rainfall accurately with changing climatic conditions. It is challenging to forecast the rainfall for both summer and rainy seasons.