ABSTRACT

Dengue Hemorrhagic Fever (DHF) is a frequent outbreaks whose case rates are always high every year. Not a small number of victims were affected nor only adults who were affected but in all walks of life. The number is always increasing so it's hoped that the efforts of the local government and Health Office to carry out early prevention to be more effective in suppressing increase the number of dengue cases.

One of the efforts to do early prevention is by predicting cases of DHF using the ARIMA (Autoregressive Integrated Moving Average) method which was developed into a VARMA (Vector Autoregressive Moving Average) model for bivariate time modeling so that it can capture time series that have a two-way relationship, namely using data the number of dengue cases from the Bandung City Health Office to predict the next 3 months supported by climate data (average temperature, average humidity, and duration of sunshine) from 2012 to 2021.

Based on the research conducted, the final project output was obtained in the form of a website to display a graph of the results of DHF case predictions with a prediction approach for the next 3 months. This study begins by determining the correlation between data on dengue cases and climate data (average temperature, average humidity, and duration of sunlight). It was found that correlation between the DHF case data and the average humidity data had a better correlation value of 0.315. From the correlation results that have been analyzed, the ARIMA(4,0,0) and VARMA(4,0) models obtained with RMSE (Root Mean Square Error) results of 117,78 and MAPE (Mean Absolute Percentage Error) results of 20,83 %.

Keywords: *Aedes aegypti*, ARIMA, DHF, *Climate*, MAPE, RMSE, VARMA.