ABSTRACT

Dengue fever (DHF) is a disease caused by the bite of a mosquito that carries the dengue virus. Indonesia is a tropical climate with relatively high rainfall, some areas are prone to stagnation of water and make it easy for dengue mosquitoes to breed. According to the DKI Jakarta Central Statistics Agency, which sources from the Ministry of Health, there were 4,744 cases of DHF sufferers in DKI Jakarta in 2020. The data used in this study are DHF case data for West Jakarta, Central Jakarta, and North Jakarta Administrative Cities from January 2017 to December 2020. The purpose and benefits of this study are to create a GSTAR model with parameters that have already been calculated, which can help the Health Office to predict cases of dengue fever for the next 1 period.

In this study, the Generalized Space Time Autoregressive (GSTAR) model was used as a method for predicting dengue fever cases. GSTAR is a development of the Space Time Autoregressive (STAR) model. There are 2 location weights used, namely: uniform location weights and distance inverse weights. GSTAR requires different parameters for each location while STAR all location parameters are considered the same. Parameter control estimation in the GSTAR method uses Ordinary Least Square (OLS) by minimizing the sum of the squares of the residuals. After getting parameter estimation, the model becomes GSTAR model.

From the results of the study it can be concluded that the GSTAR model used (1_1), the GSTAR model after testing the model meets the white noise assumption and uses the inverse distance location weight equation because it is the best model for forecasting dengue fever cases, with a Mean Absolute Error (MAE) value of 29 ,2213. Root Mean Square Error (RMSE) 5.2197. And R^2 0.5543.

Keywords: Dengue Fever, GSTAR