

## ABSTRACT

*Research about time series indicates that a data not only talking about a previous time, but has a linked thing to the surrounding areas as well. Generalized Space-Time Autoregressive (GS-TAR) is a model that has the ability to calculate a data with heterogeneous location. Normalized cross-correlation location weight will produce different values between a locations of observation. This research discusses the systematic steps to make a model with time series data using GSTAR with normalized cross correlation location weights. The steps include data stationary test, parameter estimation, diagnostic checking and forecasting. The case study used is the rate of air pollution in Bandung Raya area. Forecasting results obtained is 10 years from 2015 until 2024. It showing not much different from the previous data. RMSE score obtained is 0.0067 for NO<sub>2</sub> and 0.0035 for SO<sub>2</sub>. Based on RMSE score, GSTAR (1;1) model with normalized cross correlation location weight is a good models for forecasting. ArcMap used to show visually through the spread of pollution with contour maps, so that the spread of air pollution can be seen well. Pollutant NO<sub>2</sub> will mostly spreading at Dago area, and pollutant SO<sub>2</sub> will mostly spreading at Martadinata, Tanjungsari, Padalarang and Tanjungwangi area.*

**Keywords :** *GS-TAR, air pollution, forecasting, contour maps.*