ABSTRACT

The agricultural sector plays an important role in maintaining the citizen's prosperity. Therefore, the planting calendar is essential for the farmers in determining early planting to avoid a failed harvest in the future. Rainfall forecasting is the main aspect in making a planting calendar.

Based time series forecasting is one of the statistical methods was used to predict the event in the future from the past data. This final project used Local Regression Smoothing and Fuzzy EAs in predicting the rainfall in Bandung Regency. The rainfall data was collected from BMKG Bandung Regency from 2006 to 2015.

Local Regression Smoothing is a preprocessing method that focuses on handling the data outliers (extreme values) to reduce the error. Moreover the Fuzzy EAs are the combination of a Grammatical Evolution optimized with Fuzzy Government (FG) which focused on the optimization an individual regeneration. EAs was very good to optimize the combinatorial problems and able to do learning process. Nevertheless this method was not good enough in classifying the problems. Therefore FG was needed in order to optimize the parameters that can be used to recombination process or mutation.

Fuzzy EAs made planting calendar forecasting performance about 84.62%. The results of the forecasting will be used to make the planting calendar in Bandung Regency from October 2014 to October 2015.

Key words: rainfall, planting calendar, Local Regression Smoothing, Fuzzy EAs, Grammatical Evolution