UNIVERSITY TEKNOLOGI MARA

FORECASTING CARBON ABSORPTION OF OIL PALM PLANTATION IN MALAYSIA

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ABSTRACT

The rising volume of carbon dioxide in the atmosphere has become a predicament that can affect the system and biodiversity on earth. High concentration of carbon in the atmosphere will cause various problems such as global warming that will not only affect the world's climate change but also will contribute in the increasing sea level. Conversion of natural lands into oil palm plantation will have a significant effect on the amount of carbon absorbed by the forests from the atmosphere as the natural forest will be destroyed and replaced with oil palms. The aim of this study is to forecast the amount of carbon dioxide absorption of oil palm plantations in Malaysia. To forecast the amount of carbon dioxide absorbed by the oil palm plantations, several forecasting methods will be implemented. These methods are the double exponential smoothing method, adaptive response rate exponential smoothing (ARRES) method, Holt's method and the advance Box-Jenkins method. The data of carbon absorbed by oil palm plantation used for the analysis are from 1974 until 2017. The forecast values for the amount of carbon dioxide absorbed by oil palm plantations are generated for the next 10 years which are from 2018 to 2027. Then, the results produced by the methods used for forecasting in this study are compared to determine the best models based on the value of error measures. The value of error measures that are used for the comparison purpose are including the Mean Square Error (MSE), Mean Absolute Deviation (MAD) and Mean Absolute Percentage Error (MAPE).

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TABLE OF CONTENTS