ABSTRACT

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COMPARISON OF ARIMA, *HOLT - WINTER EXPONENTIAL SMOOTHING* (HWES), LSTM, AND PROPHET MODELS IN PREDICTING TIDAL HEIGHTS IN SURABAYA.
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(xii + 91 + Appendices)

A maritime country is a country that has a majority area of water or in the form of an ocean. Indonesia is one of the maritime countries that has an area of 81,000 km of coastline. Most Indonesian people depend on resources and natural resources sourced from coastal areas. People who work in coastal areas must pay attention to various factors that will affect their work such as sea tides. Sea tides are natural occurrences of sea water surfaces experiencing periodic changes in height caused by the gravitational forces of the moon and sun towards the earth. As a result of the times, the height of sea tides tends to change. This study aims to determine a suitable model in predicting the height of tides. Several models are used namely ARIMA, Holt - Winter Exponential Smoothing (HWES), LSTM, and Prophet. The results showed that the accuracy value of the ARIMA model is MAE 0.16954, MSE 0.04078, RMSE 0.020196. The accuracy value of the HWES model is MAE 0.15213, MSE 0.03515, and RMSE 0.18748. The accuracy value of the LSTM model is MAE 0.05582, MSE 0.00465, and RMSE 0.06825. The accuracy value of the Prophet model is MAE 0.14049, MSE 0.02824, and RMSE 0.16807. Based on these accuracy values, the LSTM model has the highest level of accuracy compared to other models.

Bibliography (2011 - 2024)