

Abstract— Real time prediction of wind is needed for ship navigation, loading and unloading activities in a harbour as well as for operational activities on an offshore structure. In this paper, we propose a short term wind prediction system by using artificial neural network. Here, the so-called Long Short Term Memory (LSTM) method is used to obtain wind prediction based on a historical data. To train the network, historical wind data is obtained from ERA-INTERIM provided by ECWMF in a location in a southern offshore of Java island, Indonesia. Short term wind prediction by using LSTM is investigated each month by using wind data of 2015. Prediction is investigated for every 5 hours ahead, i.e.  $t+1hr$ ,  $t+6hr$ ,  $t+12hr$ ,  $t+18hr$  and  $t+24hr$ . Results of prediction show that the LSTM method gives a good agreement for short term wind prediction compared to the testing data.

*Keywords—Deep Learning, Artificial Neural Network, LSTM, Wind Prediction*