

## Abstract

Wind is a mass of air with a large amount affected by the rotation of the earth and differences in temperature and pressure. The wind moves from a place of high pressure to low pressure air. Wind speed can be measured using anemometer one of them from the European Center for Medium-Range Weather Forecasts (ECMWF). This tool can measure the level of wind speed, high and low wind pressure obtained from ERA5 satellite data. Wind speed affects the height of the waves, the faster the direction of the wind the higher the waves in an area of water and the coast. Wind speed is important for the needs of fishermen who need information on the direction of the wind, sea wave height, and cruise safety. In this research, wind speed prediction approach is done by analyzing two methods, namely Long Short Term Memory (LSTM) and Recurrent Neural Network (RNN). LSTM method is a method of one type of Recursive Neural Network (RNN). The data used in this study are wind data from the results of the ECMWF simulation in Jakarta Bay for 10 years in 2009 to 2019. Testing is done every year from 1 year, 2 years, 5 years, and 10 years. The parameters for the wind data, the components  $u$  and  $v$  in units of  $m / sec$ , are input for analysis of LSTM parameters. Data composition parameters used are 70% training data and 30% testing data, number of hidden layer 1, number of layer dropout 20%, number of neurons in hidden layer 50, number of epoch 30, number of batch size 32, using optimizer namely Adaptive Moment Estimation Optimization (ADAM). These parameters are used to get wind speed predictions with optimal accuracy.

**Keywords :** wind speed, *long short term memory*, *reccurent neural network*, *anemometer*.