ABSTRACT

Kototabang is located in the western part of Indonesia, specifically in Agam Regency, West Sumatra. This area receives rainfall every month due to its position on the equator and proximity to large bodies of water, resulting in high evaporation rates. This high evaporation rate mainly results in rain. With Kototabang's location on the equator and influenced by atmospheric winds, it is a strategic location for collecting atmospheric wind data, or what is known as Equatorial Atmosphere Radar (EAR) data.

With the strategic location of Kototabang and the EAR data that has been collected by scientists at Kototabang. We try to utilize this data to predict rainfall in the Kototabang area by utilizing optical rain gauge (ORG) data, as well as utilizing machine learning with the logistic regression method and multilayer perceptron regressor for the Development of an Information System for Wind Observation Data for Heavy Rain Prediction. With the Machine Learning Method. With EAR and ORG data for 6 years (2014–2019), we use data for 5 years (2014–2018) as train data and 2019 data as test data. The results of machine learning processing will be used as a model to be connected using the API to the website.

Thus, the website system will be able to display predictions of rainfall in Kototabang and can be easily accessed by residents for various purposes. As well, the results obtained by machine learning using the logistic regression method and the multilayer perceptron regressor have fairly high accuracy, which is: 99% for rainfall accuracy with logistic regression method, 99% for wind direction accuracy with logistic regression method, and 99% for wind speed accuracy with multilayer perceptron regressor method.

Keywords: Machine Learning, Equatorial Atmosphere Radar (EAR), Optical Rain Gauge (ORG), logistic regression, multilayer perceptron regressor, Heavy Rain.