Storm surge prediction using Artificial Neural Network in the Eastern region of Philippines

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ABSTRACT

Disaster-related casualties in the Philippines are largely caused by typhoons. Typhoons' strong winds and low atmospheric pressure induce storm surges contributing to these casualties. To reduce the devastation due to flooding in coastal regions, storm surge forecasting should be improved. Numerical prediction model is conventionally utilized for forecasting storm surge. However, it requires high computational time and memory. Artificial Neural Networks (ANNs), on the other hand, has a faster computing time and more powerful pattern classification and recognition capabilities. Because of the current numerical prediction model limitations, this study is proposing to employ ANN in modeling and predicting storm surge in Philippines. Optimal input parameters and ANN model configuration will be determined by varying number of hidden neurons, inputted parameters and number of iterations. The accuracy and performance of ANN model in predicting and modeling the storm surge in the Eastern region of the Philippines will also be determined.

Keywords: storm surge, artificial neural network, prediction system, coastal flooding.