

**FLOOD AREA SIZE PREDICTION USING ARTIFICIAL NEURAL NETWORK: A
CASE STUDY OF SUPHANBURI PROVINCE**

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ABSTRACT

Flooding has damaged many areas in Thailand every year. In order to evaluate the damages and tendency of flooding, this study used water level and flood shape files to predict the size of flood area occurrence focusing on Suphanburi Province. This paper presents the development of an artificial neural network for flood area size prediction. The Bayesian regularization training function was used for model development. The features, which are the water level data from each gauge station and floodgate, were used as input. The flood shape files were analyzed through GIS method to find the size of the flood area, and were used as quantitative output. In addition, the correlation coefficient was used for the input selection. The results indicated the performance of the artificial neural network suit predicted the dataset one day in advance with the selected input. Moreover, we have proven that the artificial neural network outperforms the conventional model.

KEY WORDS: FLOOD / PREDICTION / ARTIFICIAL NEURAL NETWORK

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