Review of: "Flood Prediction Using Artificial Neural Networks: A Case Study in Temerloh, Pahang"

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Potential competing interests: No potential competing interests to declare.

Overall, the paper provides useful research on the use of artificial neural networks in flood prediction for Temerloh, Pahang. Addressing these major and minor suggestions may improve the clarity, depth, and impact of your study, resulting in a more complete contribution to the subject.

Major Suggestions

- The manuscript may benefit from a more extensive discussion of the ANN model's design, including the reasons for selecting the number of hidden layers and neurons in each layer. Furthermore, detailing the selection of activation functions, the optimization algorithm utilized, and any approaches used to prevent overfitting (e.g., dropout, regularization) would improve this section.
- While ANN's performance is highlighted, comparing it against other machine learning models (e.g., SVM, Random Forest) on the same dataset may offer a more thorough evaluation of the model's performance. This comparison could help justify the selection of ANN over other potential models.

- The manuscript briefly mentions data preprocessing steps; however, a more thorough discussion on feature selection and its impact on model performance would be valuable. This could involve exploring feature importance or conducting experiments to identify which features contribute most significantly to accurate flood predictions.

- Extending the evaluation metrics beyond accuracy, MSE, RMSE, AUC, and F1 score to include precision, recall, and specificity would allow for a more comprehensive assessment of model performance.

- Furthermore, discussing the model's performance in the context of Type I and Type II errors could provide insights into its practical implications in flood prediction.

- In addition to the holdout test, k-fold cross-validation tests should also be performed.

Minor Suggestions

- The literature review thoroughly covers various aspects of flood prediction using machine learning. It might be improved by incorporating current advances in deep learning models for flood prediction and comparing them to classic machine learning methods.
- A more complete description of the dataset, including the number of instances, the balance of classes (flood/no flood),

and any issues encountered during data collection (e.g., missing data), will help users comprehend the dataset's features.

- Ensure that all references are current and contain both key works and newer studies to represent the current state of flood prediction and machine learning research.

- The conclusion section hints at future directions, such as expanding the study to other districts and states. Providing a more detailed roadmap for future research, including potential improvements to the model and exploring other machine learning techniques, would be beneficial.