

RC1: '[Comment on gmd-2024-2](#)', Anonymous Referee #1, 04 Jan 2025

Dear Editor,

The topic of the article is suitable for the Journal.

The technical aspect is good.

Language and structure is good.

Statistical design is correct.

Discussion is very good.

Answer: We appreciate the reviewer's contribution to improving the quality of our manuscript. Indeed, it does not make sense to list all variables if only 20 were used in the modeling process. Accordingly, we have revised the table to include only the variables actually used, as recommended.

One comment about Table 1, which presents over 50 attributes of which the authors only use ~20 in their modelling. Could the table be reduced to present only the used attributes or is the introduction of the other attributes necessary?

Answer: We appreciate the reviewer's valuable suggestion. Although Table 1 lists over 50 attributes, all 48 morphometric covariates derived from the digital elevation model were initially included as predictor variables in our modeling. The Random Forest algorithm inherently performs variable selection by prioritizing those variables that contribute most to the prediction accuracy. Considering similar feedback from other reviewers requesting the presentation of all input variables for transparency and reproducibility, we have opted to maintain the full list of attributes in Table 1. This approach ensures that readers can fully understand the scope of data considered in our analyses.

This aspect is thoroughly addressed in the Methodology section, as detailed below:

"The covariate selection based on importance is executed using the backward-forward method, employing the Recursive Feature Elimination (RFE) function available in the "caret" package (Kuhn and Johnson, 2013). This RFE technique is algorithm-specific and yields an optimal set of covariates utilized in predicting the final model for each respective

algorithm. RFE is a selection procedure that iteratively removes variables contributing the least to the model, employing an importance measure tailored to each algorithm (Kuhn and Johnson, 2013)."