

Predicting Avalanche Danger in Northern Norway Using Statistical Models (egusphere-2024-2865)

In this study, several machine learning models for predicting avalanche danger levels have been developed. The authors have made significant improvements in the revised version of the manuscript. However, the results' writing, structure, and presentation could be further modified to enhance readability. I recommend publishing this paper after addressing the following suggestions:

- I suggest a review of the English and the structure of the paper. The models' development, performance, and a discussion of the results of the models with earlier studies could be separated.
- I still find the introduction quite long and suggest that some parts could be moved to other sections (please see the previous review's comments).
- Section 4: The features are described sometimes using abbreviations and others with full names followed by abbreviations in parentheses. This should be presented consistently. Additionally, the comparison of the main important features of the Random Forest models with previous studies should be moved to a discussion section instead of being included in the description of the model development and optimization.
- Section 5: The results are mixed with discussions and comparisons to previous studies, which makes the reading difficult. For instance, the model evaluation in Section 5.1 starts with a comparison of the overall performance of the model (balanced or unbalanced?) with previous studies, followed by the presentation of the performance of the two models. Furthermore, the distinction between the balanced and unbalanced models is unclear. The performance of these two approaches is sometimes presented together in the main text (e.g., Table 4) and, at other times, separately in the supplementary material. Also, what is the advantage of applying the balanced strategy if the overall performance of the balanced model is lower (Table 4)? A comparison of the overall performance of both methods and per danger level will help to understand why developing models using both strategies. Which model has been used for Hindcasting avalanche danger (balanced or unbalanced?)?
- Supplement: The results of the artificial neural networks are only shown and mentioned in the supplementary material. I suggest removing this if it is not more discussed or compared with the performance of the Random Forest models.