

Reply to:

Reviewer's report – reviewer #4

Journal: NHESS

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Paper title: Mapping of extreme wind speed for landscape modelling of the Bohemian Forest, Czech Republic

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The authors thank both referees for their constructive comments and suggestions. We respond to all comments in the reviewer's report. We believe that the overall quality of the manuscript has improved.

*Comment 1: The text needs some important English polishing.*

The English form was revised and corrected.

*Comment 2: Exploratory analysis of measured wind time series is missing?*

*Comment 3: Visualize your methodology with flow-chart(s). Also, it will help to better structure the presentation: methodology, methods, modelling, results, etc.*

The flowchart for the proposed method was added as Figure 1. The individual sections were also reordered in more logical sequence.

*Comment 4: Another question is how different spatial and temporal scales were combined within the modelling procedures and how they were selected?*

The method actually works on only one spatial scale – the domain with 120-meter resolution. However combining the presented microscale model with coarser non-hydrostatic model is discussed in the conclusions and we plan to test it in the future. The temporal scale of the final result – generated annual extremes – was required by the application in the landscape model.

*Comment 5: Can authors justify their “believe that using idealized wind patterns rather than simulating specific events is more robust”?*

It is true that the statement was only based on personal opinion of the authors and is not proved. The sentence was removed.

*Comment 6: Please, better explain how extremes were fitted and used. In the present text it is not clear.*

The basic methodology, including processing of the reference annual extremes and generation of the extremes in the model domain, was newly rewritten in the section 2.

*Comment 7: Also, is one station representative for such complex region?*

The extreme wind speed analysis requires long measurements with good quality and those are only found on professional weather stations. The density of station network is normally not high enough in mountainous regions to cover such area with more professional stations. Moreover the method is designed to be used with one reference dataset. We believe that effect of synoptic-scale circulation on the presented area is small compared to the effect of orography, especially in complex terrain.

*Comment 8: Section 4.2 should be better presented and more elaborated.*

The section was rewritten and the production of the probability map is clearer now.

*Comment 9: Finally, how the results were validated and tested?*

The direct validation of the generated extreme wind speed was not possible. However a new section (5.2) was added that compares the wind speed calculated for the storm Kyrill with forest damage documented by the National Park.