

Interactive comment on “Three variables are better than one: detection of European winter windstorms causing important damages” by M.-S. Deroche et al.

Anonymous Referee #2

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Review for NHESS

Three variables are better than one: detection of European winter windstorms causing important damages

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General Comments This paper addresses the important but difficult topic of objectively identifying potentially damaging storms from coarse resolution climate models. Their methodology and results are, on the whole, clearly presented, but the study does not achieve its stated goal: to show that an analysis of a combination of three meteorological

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logical variables, independent of exposure, identifies the most damaging storms. My conclusions from the study are the obvious finding that, when you consider overlapping storms in multiple variables, you reduce the number of storms detected. The ultimate success of the study would be a positive answer to the question “Would I adopt this methodology to identify the most damaging storms in my dataset?”. Based on what is presented here, the answer would be “no”.

Recommendation: Major Revision

Major comments 1. The study claims that the meteorological variables alone can identify the most damaging storms, independent of exposure. Yet the geographical extent has masked out large areas where potentially damaging storms occur but with little exposure: Sweden, Norway, northern Scotland and Ireland. I suspect if these regions were added, many of the most extreme storms detected would not be the most damaging economically and the reference events would be demoted in their ranking. 2. The study shows that Lothar has little signature in NCEP in RV850 and MSLP, and therefore was rejected. However the conclusion overlooks this fact and reads as if all major events were detected.

Minor comments 1. P4258 L9: Change “high” to “highly” 2. P4259 L23: I question whether an extreme ETC could not have strong winds. 3. P4267 L8 (and elsewhere): “Complement” is the wrong term. I think you mean “intersection”. 4. P4268 L9: Change “Distribution” to “Density”. 5. P4268 L18: remove “out”. 6. P4269 L6: Change “will be the same” to “would have large overlap”. 7. P4269 L26 (Fig. 7a): Please complete the figure by showing the degree of overlap between ERAI and NCEP2 as well as all three sets. 8. P4271 L5: The events common to the three data sets does not include Lothar, hence does not include the reference events.

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