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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "The XWS open access catalogue of extreme European windstorms from 1979–2012" *by* J. F. Roberts et al.

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Review for NHESS

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The XWS open access catalogue of extreme European windstorms from 1979âĂŤ2012

J.F. Roberts, A.J. Champion, L. Dawkins, K.I. Hodges, L.C. Shaffrey, D.B. Stephenson, M.A. Stringer, H.E. Thornton, and B.D. Youngman

General Comments

This paper provides a very solid start to a much needed public catalogue of histor-

ical European extra-tropical storms. The authors present clearly the motivation and methodology of the data set development, resulting in a data set that should provide valuable input into both raw climatological studies and more impacts focused work. While the paper is of sufficient quality to be published as is, I would recommend a few minor additions to aid clarity and completeness.

Recommendation: Minor Corrections

Minor comments

1. In Fig 8c, there seems to be a large no. of points where the observed wind speed is greater than the model for Jeanette, which can't be explained by the model's inability to simulate cyclones of sufficient intensity as for Kyrill. I would suggest an alternative explanation that we are relying on a 24 hr forecast with a single initialisation at 18Z. This is compared to the ERA Interim which incorporates analysis every 6 hrs and twice daily initialisation of forecasts for 3-hrly fields. The authors include a worthwhile discussion on the problems introduced by the once-daily initialisation on the storm entering the western boundary, but the discussion focuses more on cyclone initialisation. There is still the possibility that a correctly initialised cyclone does not behave in the model as observed in both track and intensity over the subsequent 24 hrs. I think explicit mention needs to be made that the footprint for some storms may be up to 24 hours from the last initialisation, so any forecast errors in storm track would be evident in the windfield. I would also suggest that increasing the initialisation frequency or moving to a full reanalysis model with its own data assimilation might add significant improvement if resources were available to support such an endeavor in a future release.

2. Regarding storm indices, you make mention of Lamb's index (the only index incorporating storm duration), but do not use such an index in your comparison of indices. The four indices examined are all a function of wind speed and area only. It is our experience that damages at a point are largely related to wind speed and duration. I suspect you would find an index that incorporates the time-integrated wind speed at

each point better able to capture the 23 severe storms. I wouldn't expect the analysis to be updated, but just perhaps mention this.

3. Since wind gust is the most important variable in the model for this study, I would suggest expanding slightly the discussion on the gust parameterisation in MetUM (Section 2.2.2) to include the relative strengths/weaknesses of the Panovsky approach compared with e.g. the more modern and physically based Brasseur. As you are probably aware, the Met Office has an excellent technical report on the subject (Sheridan 2011).

Corrections

1. P2023 L15: "on the" is duplicated

2. Fig 8g: Missing contour labels

References

Sheridan, P. (2011). Review of techniques and research for gust forecasting and parameterisation. Forecasting Research Technical Report 570. Exeter, UK, Met Office: 19pp.

Malcolm Haylock 16.04.2014

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 2011, 2014.