Nat. Hazards Earth Syst. Sci. Discuss.,
doi:10.5194/nhess-2016-121-RC2, 2016

Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "The 21st Century Decline in Damaging European Windstorms" *by* L. C. Dawkins et al.

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Received and published: 13 May 2016

General comments:

The excellent work of the author has definitely a quite real impact on the insurance industry. This study helps to understand and explain the observed discrepancy between the (in the insurance industry commonly used) windstorm risk models (build on 40 years of meteorological data) and the real claims data (captured over the last 10 years). Which helps to derive a more realistic risk view for the coming years.

The paper is very clearly, consistently and illustratively write and I definitely recommend publication.

Detailed comments:

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The following comment is rather a suggestion how the quality could be improved e.g. in a follow on study. The used 25km resolution of the windstorm footprints is rather a low resolution. For example in tropical cyclone risk models normally a resolution of around 1km is used to best estimate the damage. Several studies in insurance companies (unfortunately unpublished to my knowledge) show an increase of the correlation between claims data and reproduced wind speeds with a higher resolution, even if a statistical down scaling is used. Common practice is to use a surface friction model as described for example in "Meng, Y., M. Matsui and K. Hibi (1997) A numerical study of the wind field in a typhoon boundary layer, Journal of Wind Engineering and Industrial Aerodynamics, 67&68, pp. 437-448." and estimating the surface friction based on land use data as for example described in "Graf, M., K. Nishijima and M. H. Faber (2009) A Probabilistic Typhoon Model for the Northwest Pacific Region, APCWE 7, Taipei.". This would help to derive more realistic local maximum wind speeds. A higher resolution could help to derive more realistic wind speeds compared to shown (low) wind speeds in the Paris example.

But since the author is investigating an explanation of a "relative" decline of damaging European windstorms, rather than an absolute value, I strongly assume that the proposed suggestion will not have any impact on the final conclusion.

The findings on page 6, describing the increase in the variability of the storm activity in the recent years and describing the increase of the frequency of exceeding 20 m/s wind speeds in southern Europe, are also very interesting discoveries and should be mentioned in the conclusions and/or in the abstract.

As mentioned already in the outlook, it definitely would be interesting to investigate if there are more driving factors aside of NOA which influence the storm size.

Figure 1: The legend of the color bar is missing, I assume it should be max 3 sec gust wind speed [m/s] as stated in the figure description.

Page 5: Adding the value of the correlation coefficient between log(L98) and log(A20)

could help to describe the positive correlation, e.g. in Figure 2.

Figure 5: It would may be worthwhile to set the limits for the x and y axis to 10 – 30 m/s, since the increase in the uncertainty below 10m/s is probably just related to the number of storms for which a footprint was generated and this would magnify the tail of the distribution which is relevant for the argumentation.

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