Nat. Hazards Earth Syst. Sci. Discuss.,
https://doi.org/10.5194/nhess-2017-314-RC2, 2017

Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Re-Analysis of one of the deadliest Tornadoes in European History and its implications" *by* Alois M. Holzer et al.

G. Kopp (Referee)

gakopp@uwo.ca

Received and published: 6 October 2017

General Comments This is a well-written paper which develops a coherent methodology for assessing tornado intensity and track details from historical sources, and then applying the method to a historically significant event. All tornado archives use reanalysis of historical events, so clarifying the methodology is of importance for users of such databases, as is data storage for future users. In addition, from an international perspective, developing a clear description of what tornado damage for the most severe European tornadoes looks like is important, since it will contrast with the distinctly different damage in the United States and elsewhere, where building practices and styles differ (e.g., wood-frame houses are the primary indicator for severe tornadoes in North America where the Fujita Scale originated). Such work will ultimately be

Printer-friendly version

Discussion paper

important for establishing a unified and consistent international standard for tornado intensity estimation.

Scientific Questions There is significant uncertainty with the authors' analysis, which I believe they have addressed with reasonable effectiveness. However, there are a couple of ways in which the analysis could be extended to reduce the uncertainty. The F4 rating of the tornado is centred on a brick building with 1m thick walls. It is not clear if this was typical practice, then or now, but one wonders if the capacity of such a wall system could be estimated from current engineering practice or literature. Such an analysis could ultimately provide support for the current rating (or a different one), when combined with appropriate aerodynamic data. The aerodynamics of a wall system, after the roof has been removed, are straightforward and unlikely to be altered much by details of the tornado vortex structure and wind field. I am not suggesting that the authors have to conduct this analysis; however, this aspect of tornado-intensity estimation is not mentioned in manuscript even though it is useful and becoming common amongst engineering analyses of tornado damage. A second technical aspect, which is typically important in severe tornadoes is wind-borne debris. I wonder, particularly, about the effects on trees. In severe tornadoes, one typically sees trees that are shredded by the debris (at least in North America), but Figure 9 does not appear to indicate that. Once wonders if observations are available, but are just not reported by the authors.

Technical Corrections âĂć P.2, line 10. Building aerodynamics and structural analysis are much further advanced nowadays as well. âĂć P.4, lines 20-21. Unclear/awkwardly-worded sentence. âĂć P.4, line 30 and following. One could argue that the DI/DoD approach arose with the EF-Scale, not the original Fujita Scale, although the authors are treating the DIs in a simple way that is perhaps more consistent with the Fujita-Scale than that currently used in the EF-Scale. A sentence or two on this would be helpful. âĂć P.6, lines 1-2. Unclear/awkwardly-worded sentence. âĂć P.6, line 3. A sentence or two about the meaning and interpretation of "damage

prevalence" would be helpful. âĂć P.7, Figure 3. It would be helpful to have the track boundaries identified on this map. âĂć P.18, the sentences around line 10. No need to repeat the text from earlier in the manuscript.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2017-314, 2017.