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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Spatial-Temporal Clustering of Tornadoes" *by* Bruce D. Malamud and Donald L. Turcotte

J. Elsner (Referee)

jelsner@fsu.edu

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Review of Malamud and Turcotte. Spatial-temporal clustering of tornadoes.

The authors illustrate a method for analyzing space-time clustering of tornadoes that was originally developed for earthquakes. They do this using the dramatic outbreaks of 26-27 April 2011 and the less dramatic outbreak of 4 April 2011. The work provides convincing evidence that the clustering approach results in useful quantitative information on the structure of severe tornado outbreaks. The paper is well written and straight forward. I recommend publication subject to consideration of the following relatively minor points.

1. The physical rationale for the methodology appropriate for earthquakes might not be appropriate for tornadoes. Perhaps the authors can comment on this? All earthquakes

have aftershocks but not all tornadoes have after events. That is earthquakes can directly cause aftershocks. Tornadoes do not directly cause other tornadoes.

2. The authors note the difficulty in defining a tornado outbreak. Recent work by Elsner et al. (2014) provide a way to do this using spatial distances and a clustering algorithm. Perhaps the authors can take a look at this earlier work and put their work in context? Elsner et al. (2014) The increasing efficiency of tornado days in the United States. Climate Dynamics DOI 10.1007/s00382-014-2277-3.

3. Line 4 on page 2. Define the subscripts (e.g., i is the first event and j is the subsequent event).

4. Line 20 on page 2. I assume the maximum EF rating is 5 not 6.

5. Comment: It seems that the method quantifies an underlying group velocity of multiple tornado events.

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