Non-tornadic Convective Wind Fatalities in the United States

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Research Goals

- Little research has focused on the hazards associated with non-tornadic convective high-wind phenomena.
- This study examines *reported* fatalities due to these events for the 31-yr period 1977-2007 to illustrate the human vulnerability across the U.S. to these storms.

Methodology

- The dataset was transcribed and compiled from NCDC's *Storm Data* and the NTSB Aviation Accident Database. Data recorded for each casualty event included: a) the geographic location of the casualty, b) place/structure of casualty occurrence (e.g., vehicle, boat, outdoors, etc.), and c) whether the casualty was associated with a felled tree.

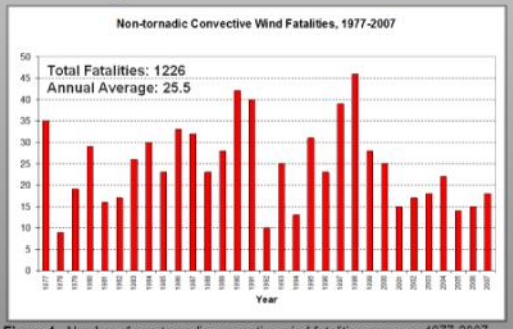

Figure 1. Number of non-tornadic convective wind fatalities per year, 1977-2007.

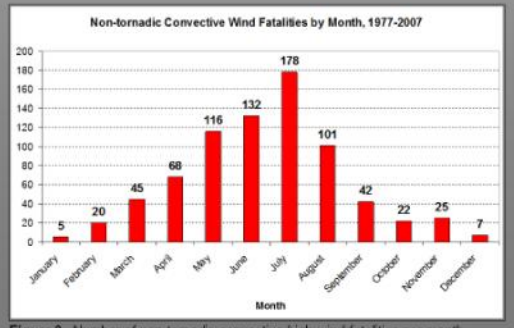

Figure 2. Number of non-tornadic convective high wind fatalities per month, 1977-2007 (excludes aviation-related deaths).

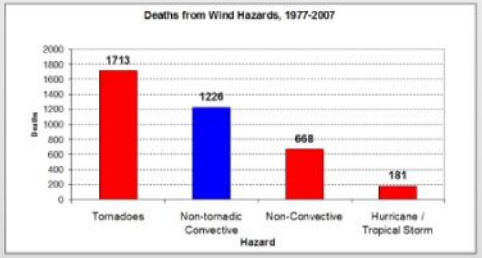

Figure 3. The distribution of fatalities by all wind-related hazards, 1977-2007.

- Non-tornadic convective wind fatalities account for 32.4% of all wind fatalities recorded during the period 1977-2007.

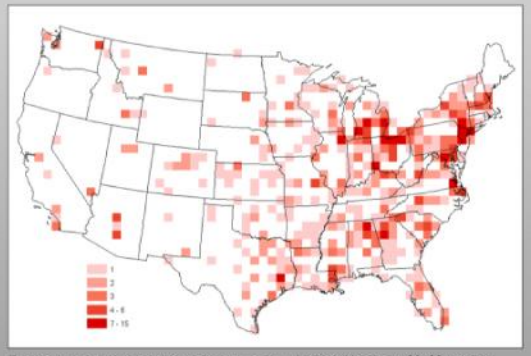

Figure 4. Number of non-tornadic convective wind fatalities in an 80x80 km grid, 1977-2007 (excludes aviation-related deaths).

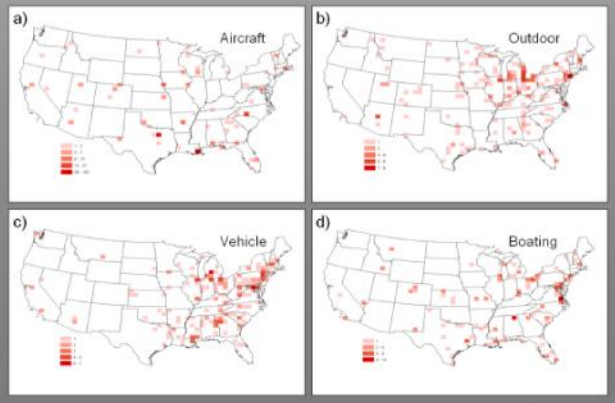

Figure 5. Number of a) aircraft-, b) outdoor-, c) vehicle-, and d) boating-related fatalities in an 80x80 km grid, 1977-2007.

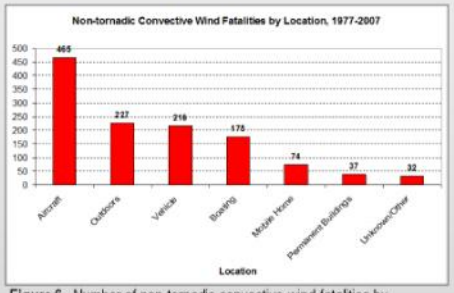

Figure 6. Number of non-tornadic convective wind fatalities by location/structure of occurrence, 1977-2007.

Conclusions

- Most non-tornadic convective wind fatalities occurred across the Great Lakes, Northeast, Mid-Atlantic regions, with a secondary fatality axis in the Southeast.
- These fatalities tend to occur between the months of May and August, coinciding with the warm-season climatological maxima of non-tornadic convective wind occurrence.
- Most (88%) fatalities occur in aircraft, outdoors, in vehicles, or while boating.
- Collectively, non-tornadic convective and non-convective wind fatalities account for 43% of all recorded wind fatalities from 1977-2007.
- These wind events appear to receive less attention in terms of research, media coverage, and public hazard perception.

Future Research

- Determine the relationship between non-tornadic convective wind fatalities and NWS warning activities; compare and contrast to tornado fatalities and warning activities.
- Assess public perception of the risk and vulnerability posed by all wind hazards.

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