



Convergent Research for Reducing the Impacts of Tornado Hazard

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Background

- Tornadoes are among the most damaging natural hazards.
- Tornadoes caused 942 fatalities and \$22.9 billion in economic damage in the U.S. between 2011 and 2020.
- The Understanding of tornadoes and their impacts remains inadequate.

Objects

- To better understand tornadoes.
- To better understand tornado effects on buildings and other infrastructure.
- To better understand the societal impacts of tornado hazard.
- To develop actionable solutions for reducing tornado hazard impacts.

Expectation from a future partner

- Expertise in assessing societal impacts of natural hazard.
- Expertise in developing construction technologies and materials.
- Expertise in developing socioeconomic solutions for hazard impact reduction.



Seeds and Needs

Seeds

- More than 50 years of experience in tornado-related research
- World-class facilities for studying tornadoes and tornado effects on buildings and other infrastructure
 - Research-grade radars and in situ-platforms for measurements of tornadoes
 - One of the largest tornado simulators in the world for simulating tornado-like vortices
- A multidisciplinary team of faculty from engineering, atmospheric science, social science and human behavior, and economics
- A multidisciplinary Ph.D. program in wind science and engineering

Needs

- Partners to develop emerging, disrupting construction technologies and materials for enhanced performance of structures in tornadoes
- Partners to qualitatively and quantitatively assess the socioeconomic effects of tornadoes
- Partners to develop new, disruptive strategies and policies to make engineering and social solutions actionable