

Research finds tornado damage impact could triple by end of 21st century

May 24 2017



Credit: Villanova University

Tornadoes are one of the most unpredictable weather phenomena on Earth. Each year the United States, home to more tornadoes than any other country, sustains billions of dollars of damage, death, injuries, and disruption from the violent storms. But, according to the results of a research team led by Stephen Strader, a meteorologist and assistant professor in Villanova University's Department of Geography and the Environment, the potential for annual tornado impact magnitude and disaster could triple by the end of the 21st century. While climate change may be an exacerbating factor for risk, an additional culprit, according to the study published in the journal *Climatic Change*, will be an increasing number of homes, structures, and developed land in tornado-prone regions such as the Central Plains and Southeast.

Although the projected [21st century](#) escalation in tornado frequency and magnitude will play a role in elevating disaster consequences, urban sprawl, which increases "societal exposure by building vulnerable man-made structures in the potential path of future [tornadoes](#) may be more important than future changes in climatological risk," Strader and colleagues contend. Metropolitan areas in high-risk tornado regions like Atlanta, Chicago, Dallas and St. Louis, could be at increased disaster probability.

"Because tornado [disasters](#) are a product of both the physical environment [tornadoes] and society, our research highlights the importance of examining the effects of both future climate and societal changes on tornado disaster frequency and magnitude," says Strader.

Proactive measures designed to help combat the effects of increasing tornado disaster potential are recommended, including: building storm shelters or safe rooms; improving hazard risk communication and warning dissemination systems; retrofitting existing structures for greater resiliency; the adoption of new and enforcement of existing building codes and zoning policies that take tornado hazard risk into consideration.

Provided by Villanova University

Citation: Research finds tornado damage impact could triple by end of 21st century (2017, May 24) retrieved 2 May 2024 from <https://phys.org/news/2017-05-tornado-impact-triple-21st-century.html>

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