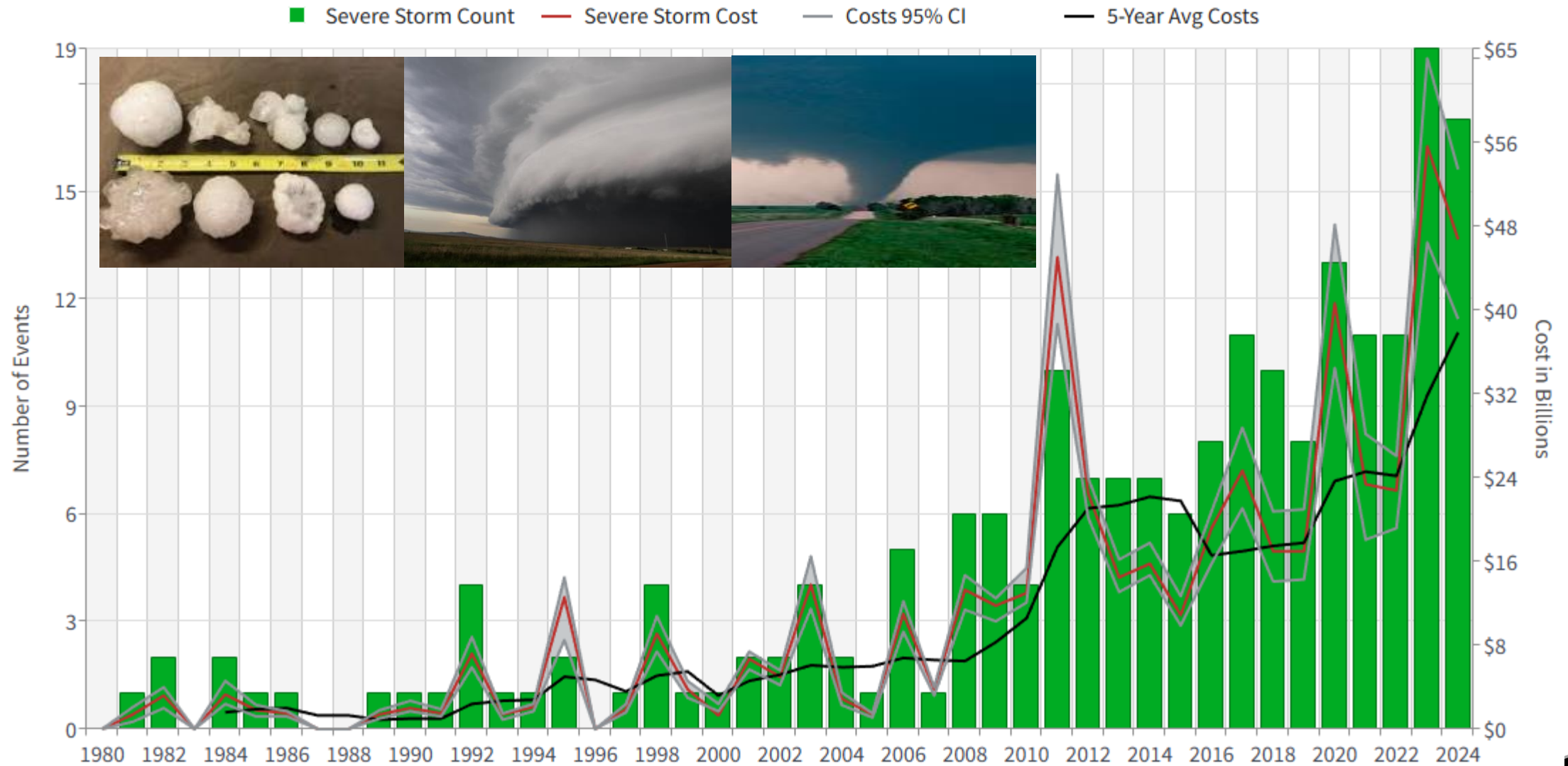


United States Billion-Dollar Disaster Events 1980-2024 (CPI-Adjusted)





CNN On Scene
Mayfield, Kentucky
6:37 PM CT

via Skype
DeKalb, Illinois
6:37 PM CT



TONIGHT 8P ET
CNN HEROES
22 18
MIN SEC

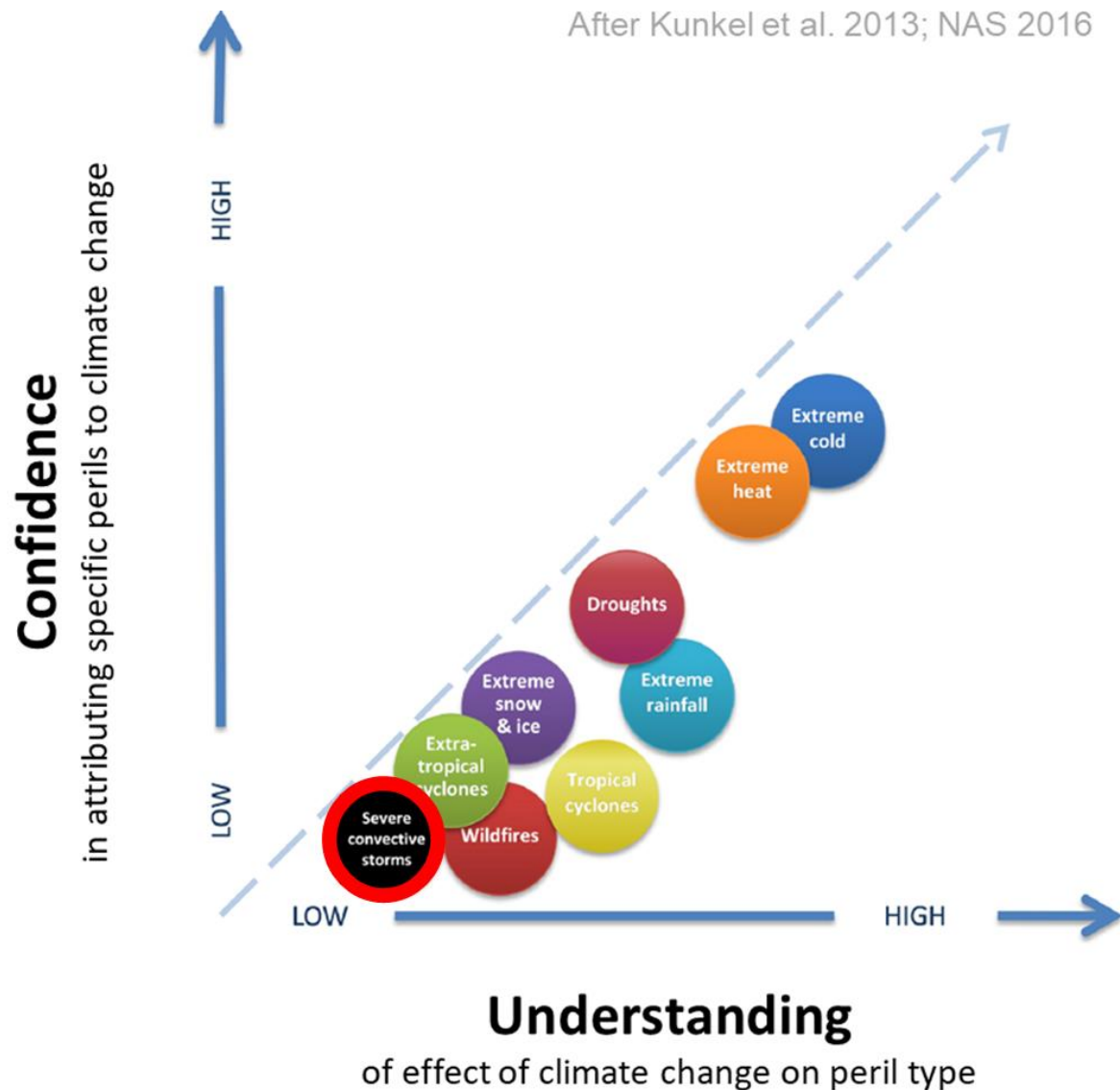
TORNADO AFTERMATH
FEMA CHIEF: POWERFUL STORMS "NEW NORMAL" IN ERA OF CLIMATE CHANGE
Victor Gensini | Meteorology Professor, Northern Illinois University

LIVE
CNN
4:37 PM PT

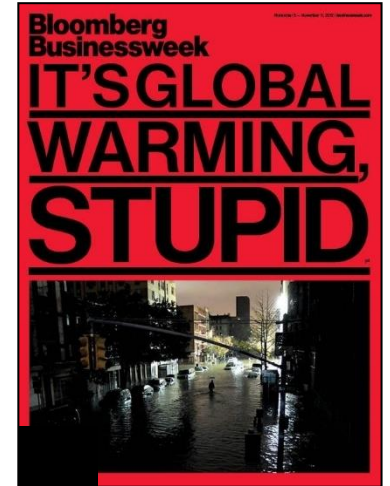
W SHIELD THEIR LAWS FROM REVIEW BY THE FEDERAL COURTS...THEN CAL NEWSROOM

Is climate change to blame?

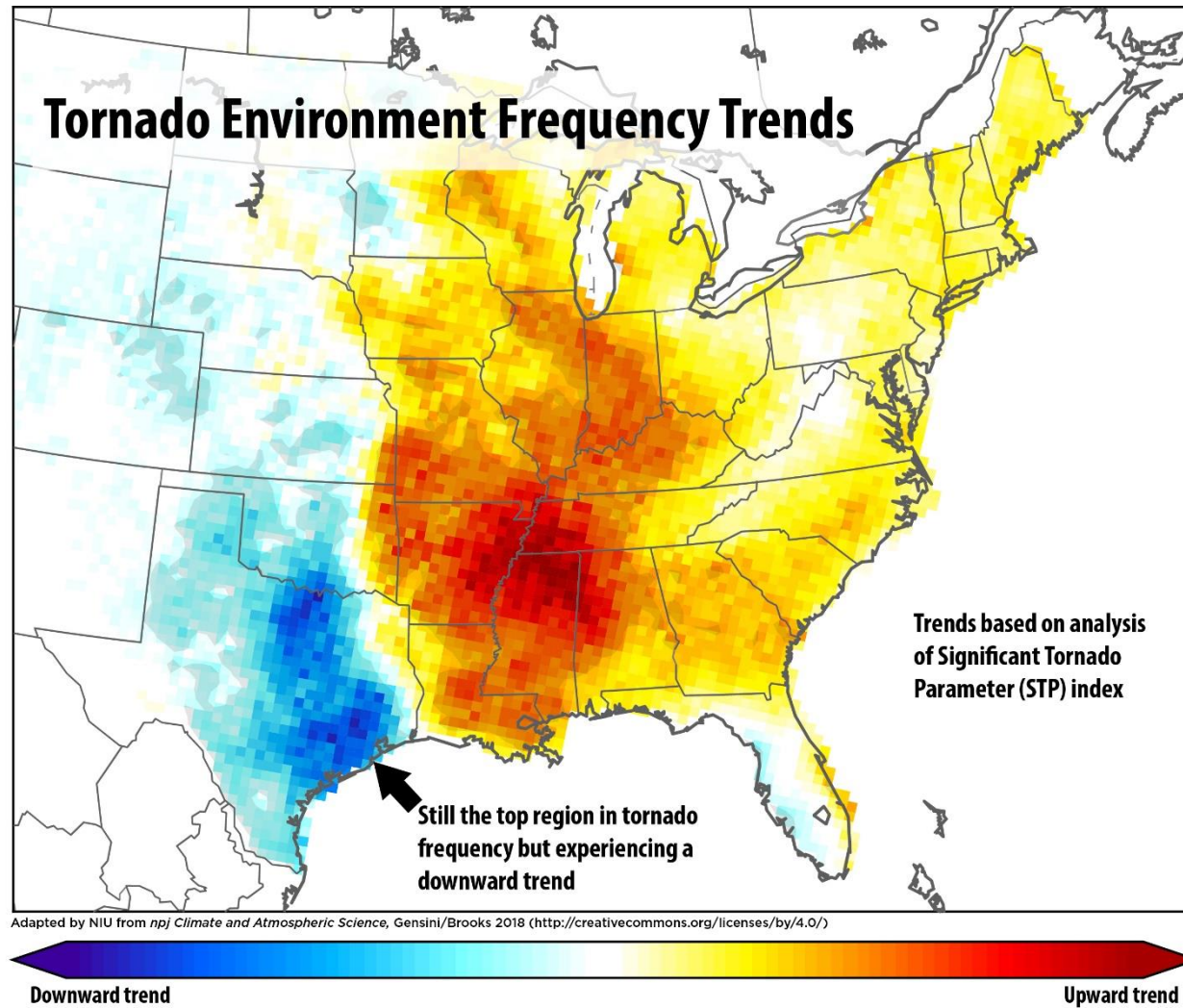
Why did it hit without warning?



- Can climate change be **blamed**?
 - Blamed for what?
- Framing it as *cause vs. contributor*
- Difficulty of attribution
 - Physical science approach
 - observations and modeling
 - Loss normalization approaches
 - remove societal factors

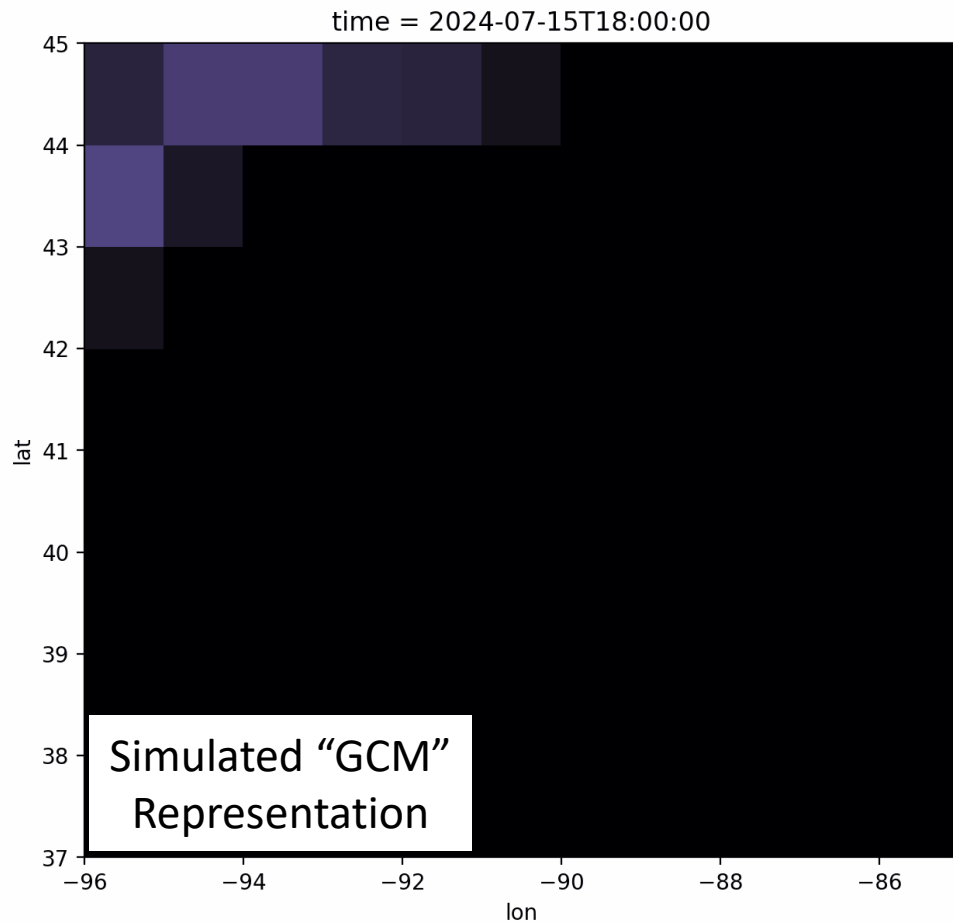


Post-Sandy Cover

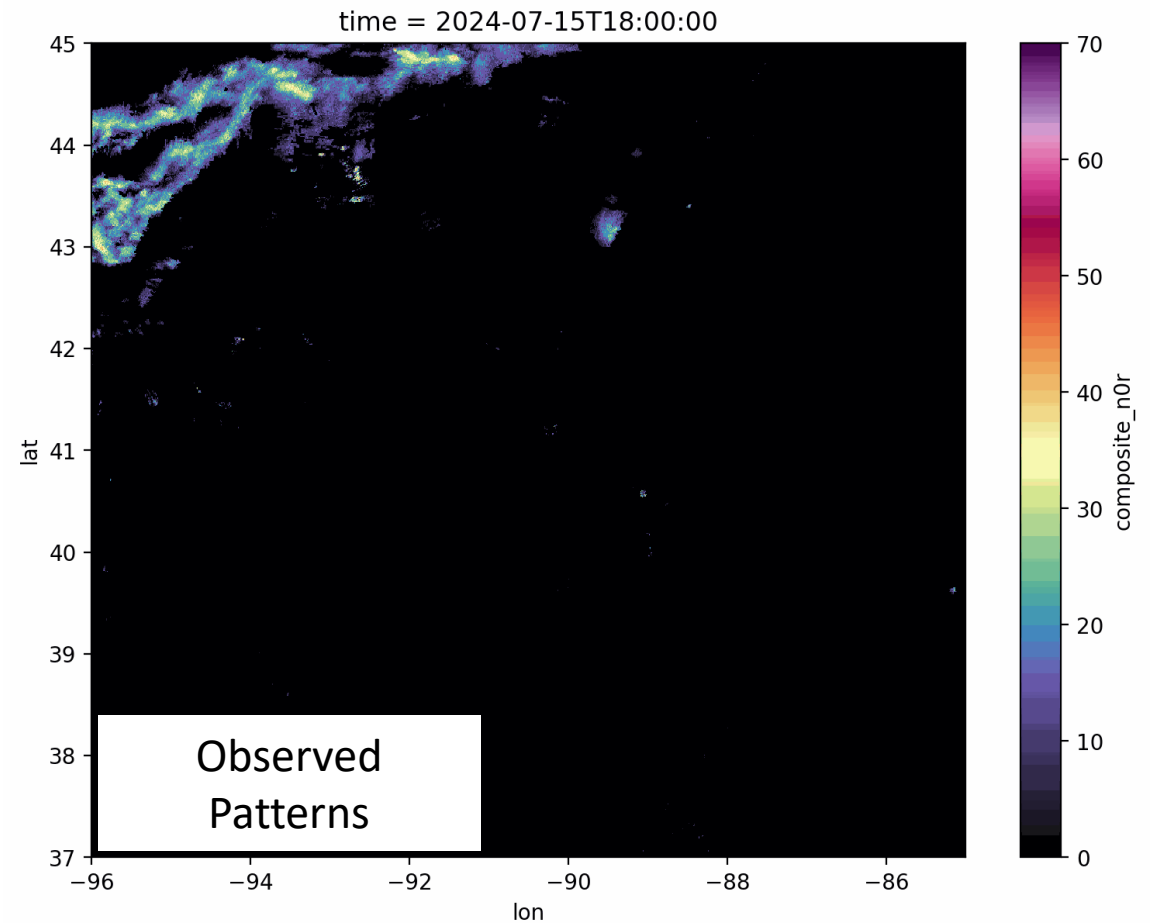


Gensini, V. A., and H. E. Brooks, 2018: Spatial trends in United States tornado activity. *npj Climate and Atmos. Sci.*, **1**, 1-5. DOI: 10.1038/s41612-018-0048-2

Grid Spacing Importance in Climate Models



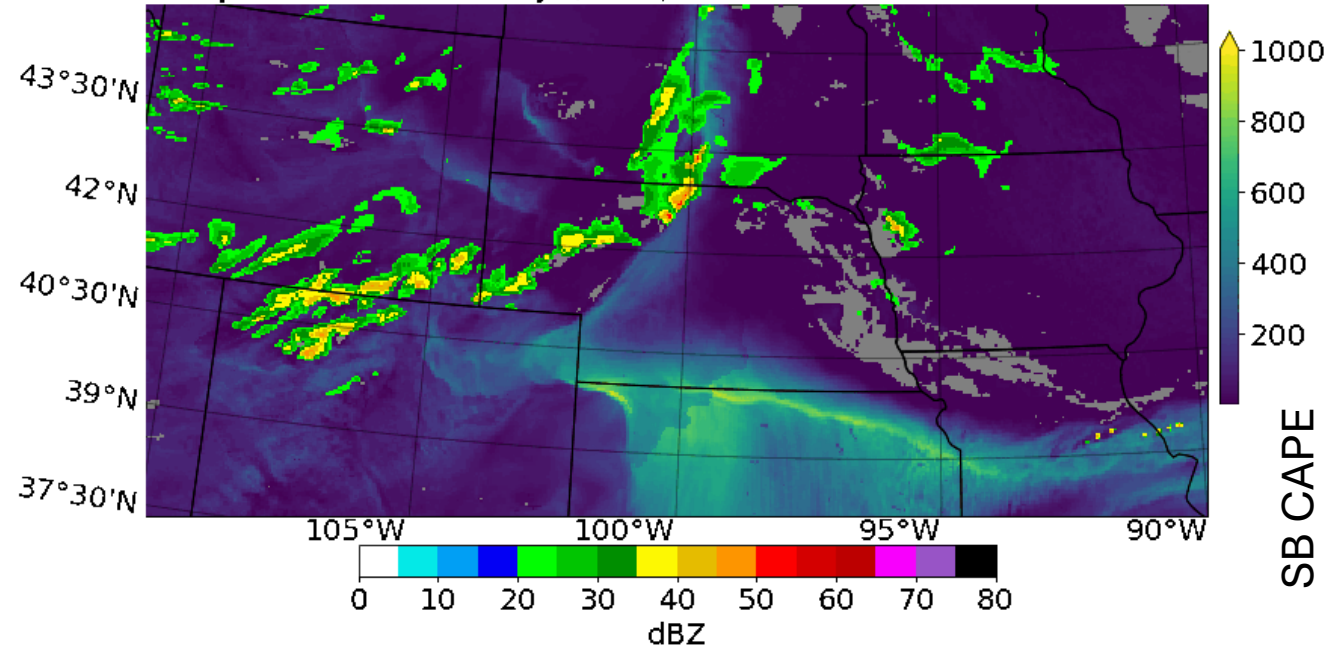
Iowa State Mesonet Composite
Coarsened to $1^\circ \times 1^\circ$ (~100 x 100 km)



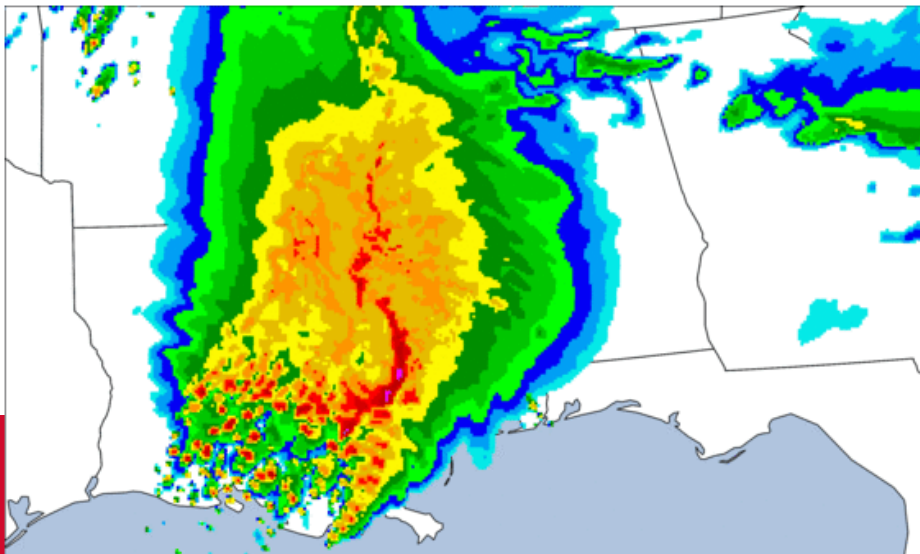
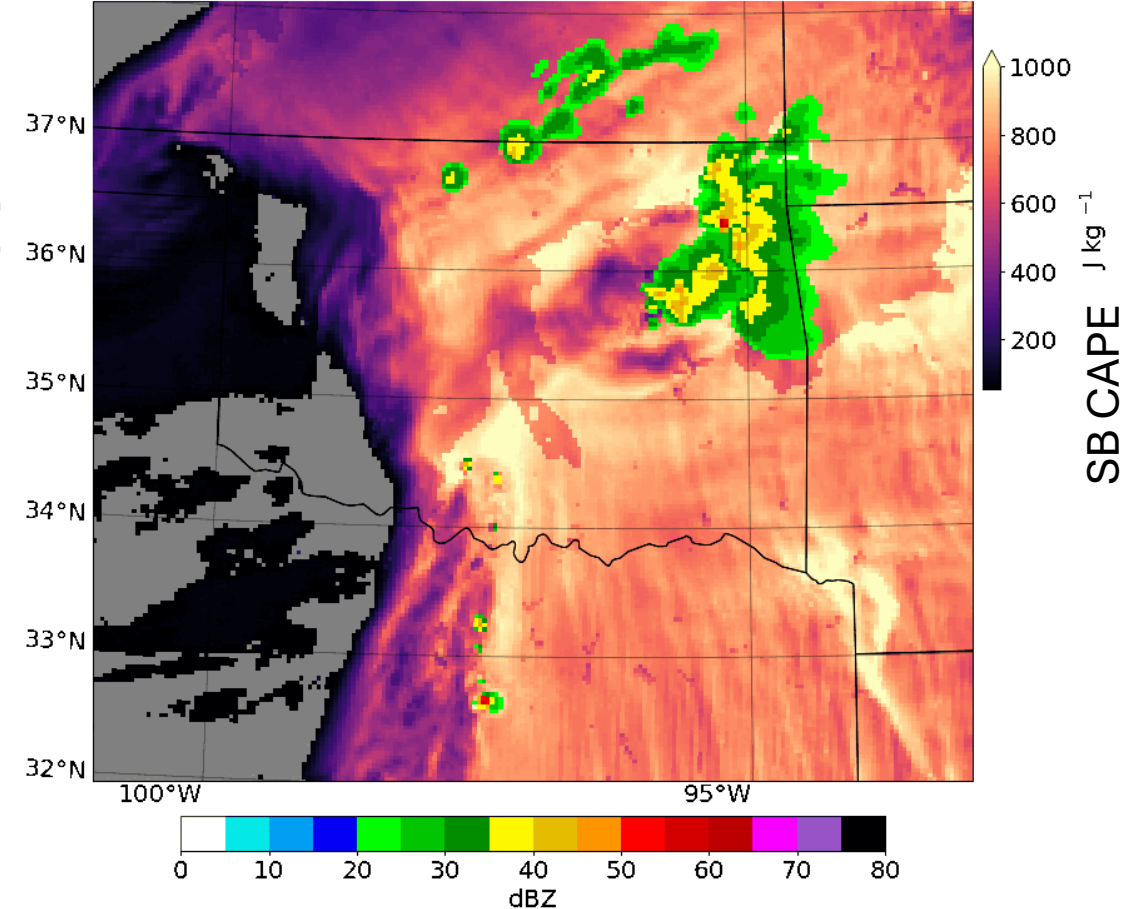
Iowa State Mesonet Composite
 $0.01^\circ \times 0.01^\circ$ (~1 x 1 km)

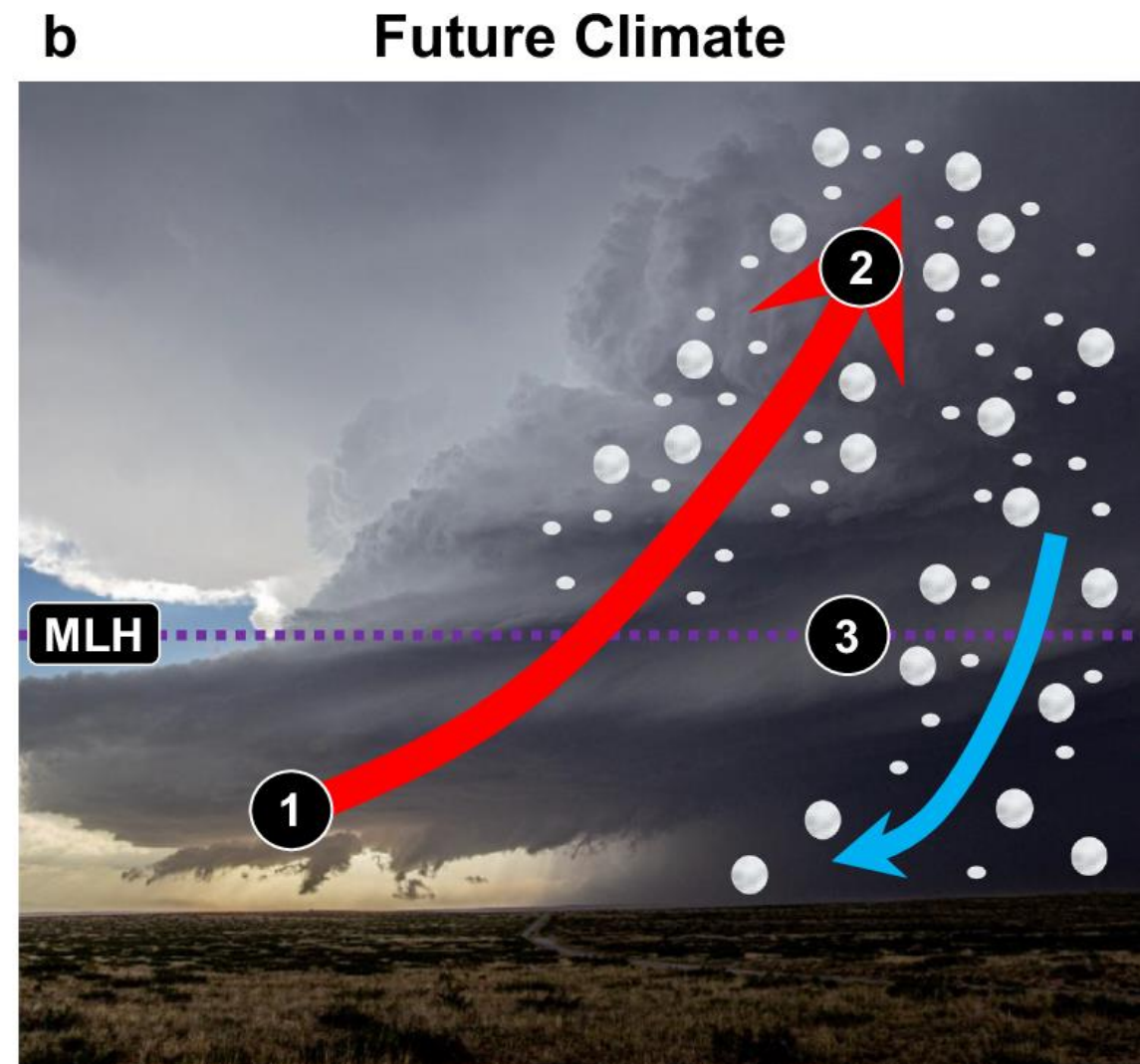
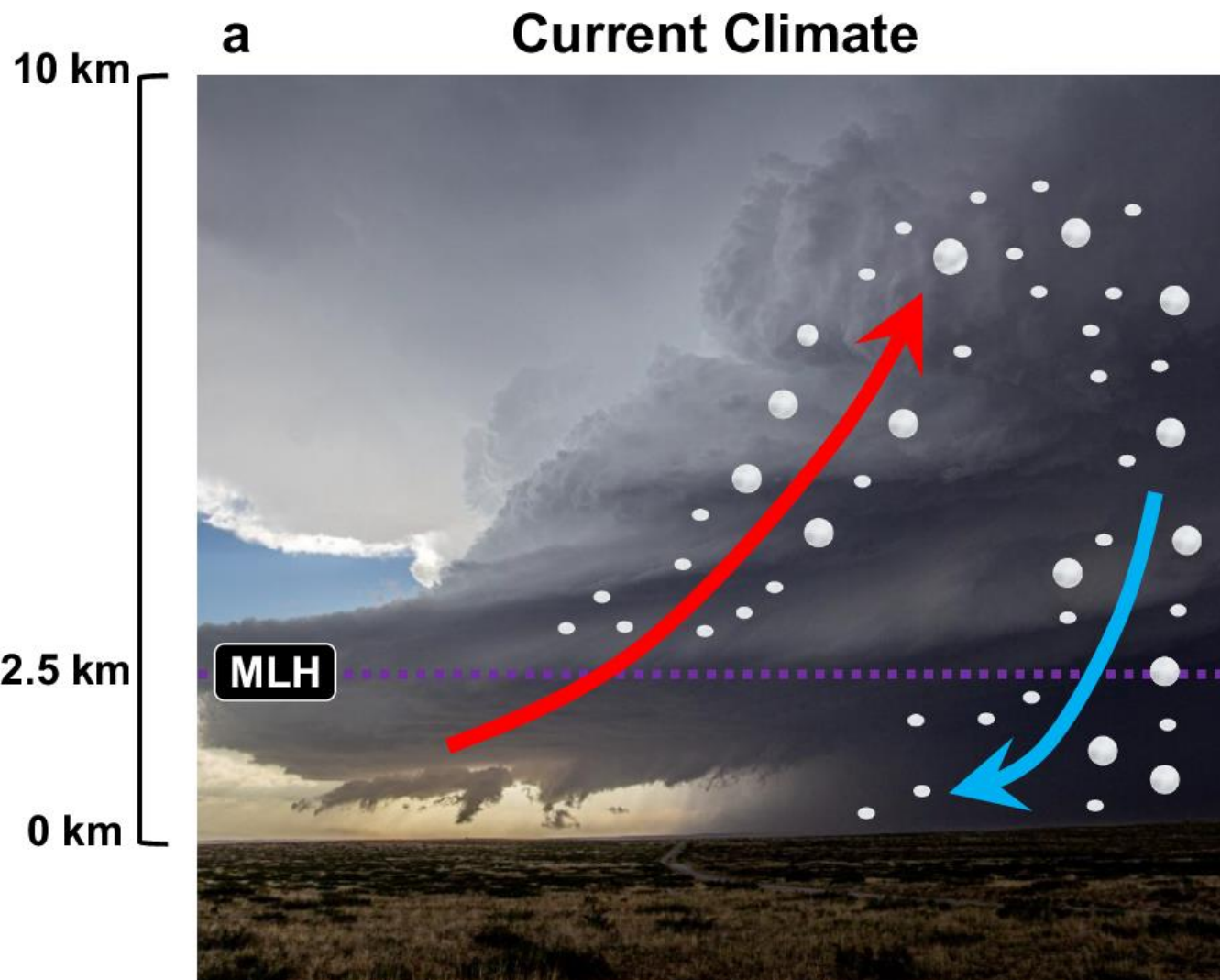
GCMs vs RCMs

Composite Reflectivity (dBZ) at 1993-05-18 20:00:00 UTC



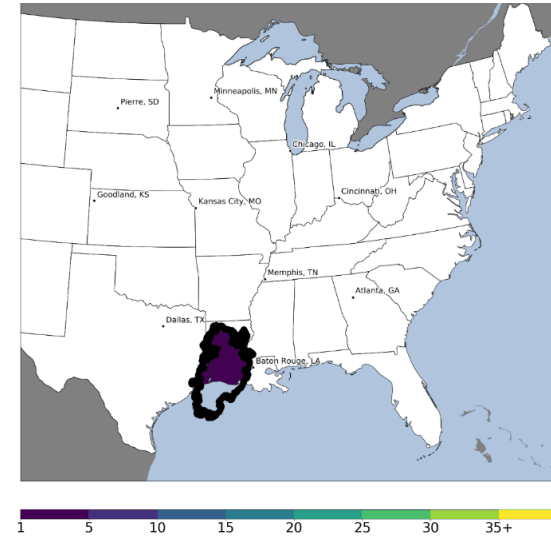
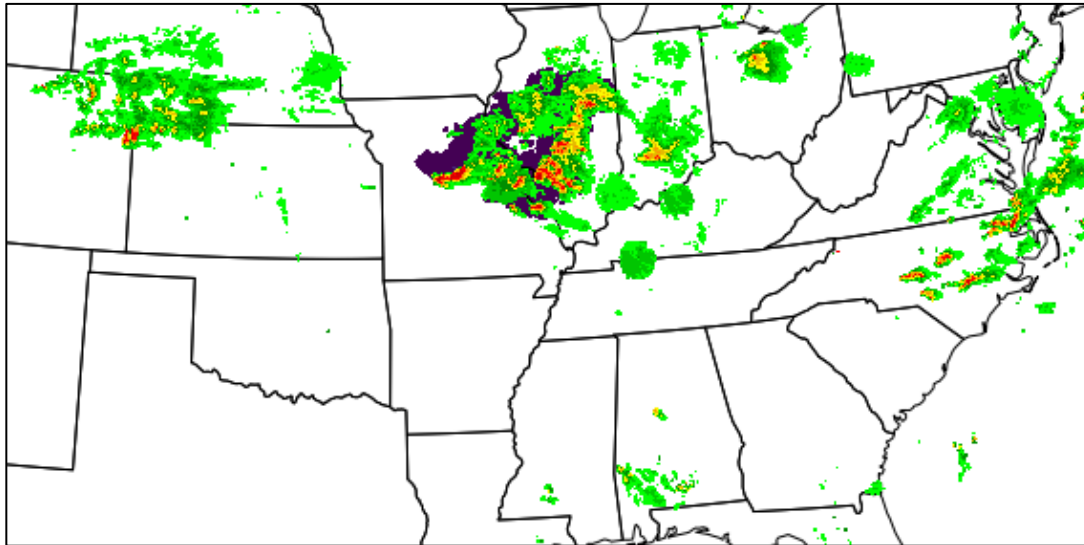
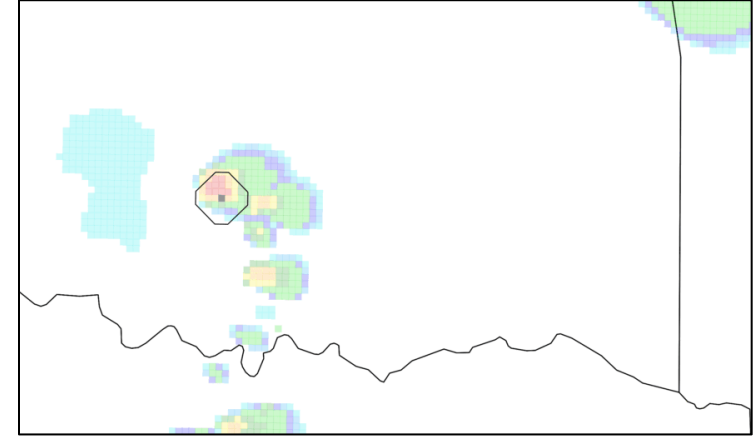
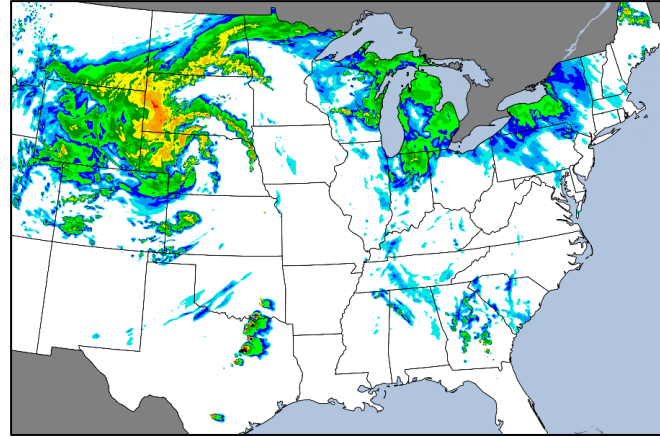
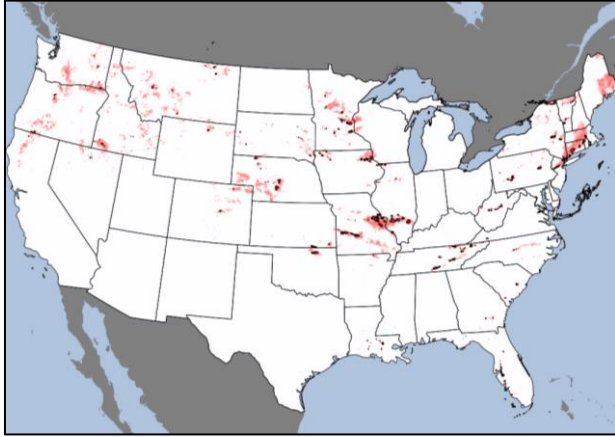
Composite Reflectivity (dBZ) at 1993-05-21 20:00:00 UTC





Gensini, V. A., Ashley, W. S., Michaelis, A. C., Haberlie, A. M., Goodin, J., & Wallace, B. C. (2024). Hailstone size dichotomy in a warming climate. *npj Climate and Atmospheric Science*, 7(1), 185.

Identifying, Tracking, and Cataloging Perils with ML/AI





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Focus areas: Across NOAA Topics: natural disasters , climate change

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May 16, 2023



Industry-University Cooperative Research Centers

PROGRAM SOLICITATION

NSF 20-570

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NSF 17-516



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THE PARTNERSHIP



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NSF catalyzes partnership.
Other government entities fund research relevant to their needs



University

Provides research infrastructure, human capital, and technical expertise



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Provides funding for research and insight for industrially relevant projects

IUCRCs are focused on bridging the gap between early academic research and commercial readiness

IUCRC FOCUS

Early Stage Research

TECHNOLOGY READINESS

Commercial Deployment



Northern Illinois University



WISCONSIN UNIVERSITY OF WISCONSIN-MADISON



Research Thrusts

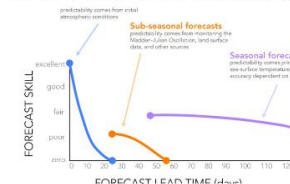


Societal Impacts

Link our understanding of convective storms to the significant impact they pose on society and the economy.

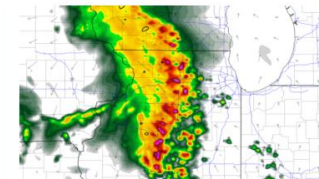


Data Science



Prediction

Improve prediction of convective storms across a variety of time and space scales.



Modeling



Variability and Change

Unraveling the multifaceted impact of climate change and variability on convective storm perils.



Risk



vgensini@niu.edu

