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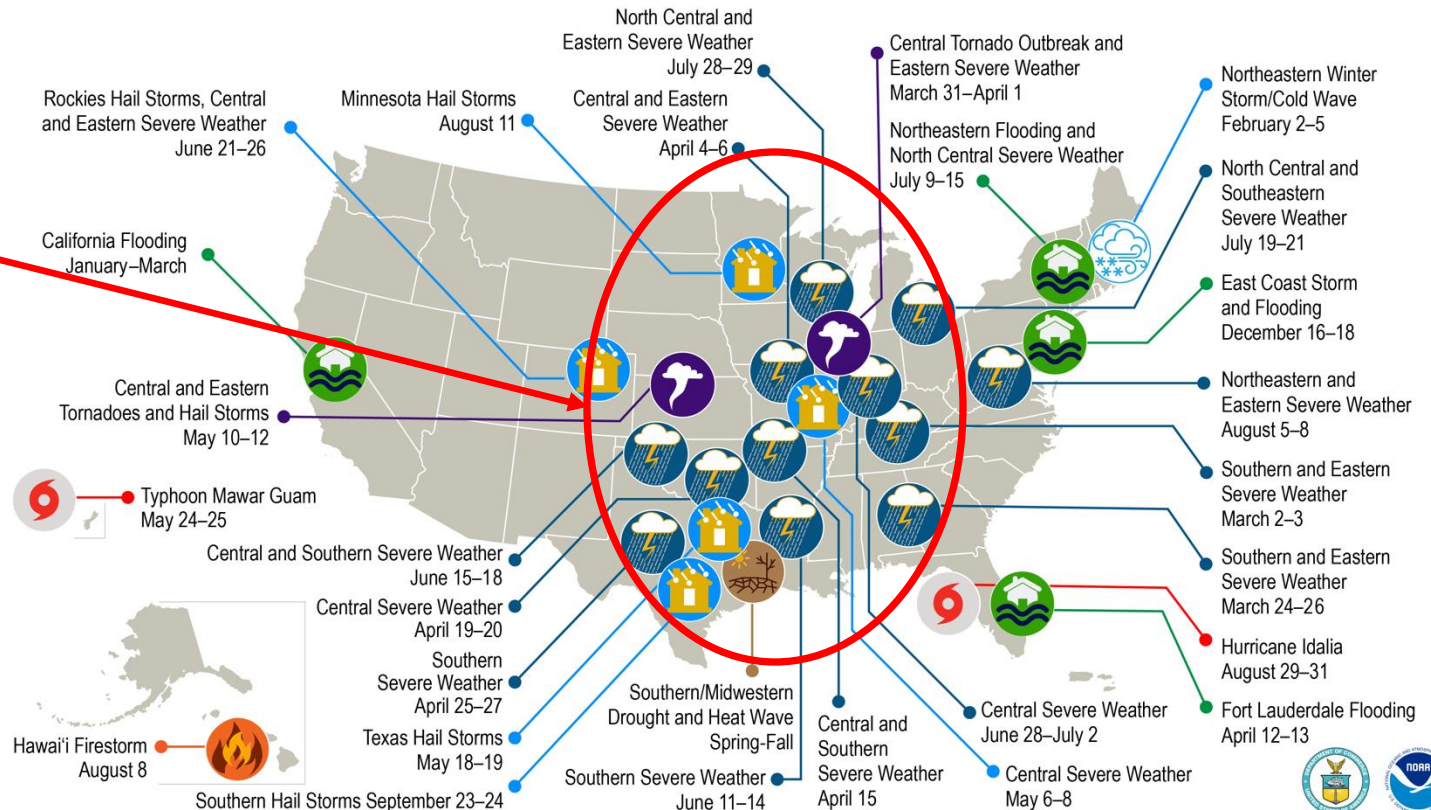
# Harnessing-the-Heartland

## *Livelihoods – Lives – and the Weather*

*Nose height to Satellite Interactive Panel:*

### U.S. 2023 Billion-Dollar Weather and Climate Disasters

- Drought/Heat Wave
- Flooding
- Hail
- Hurricane
- Severe Weather
- Tornado Outbreak
- Wildfire
- Winter Storm/Cold Wave



This map denotes the approximate location for each of the 28 separate billion-dollar weather and climate disasters that impacted the United States in 2023.

Brad Pierce (rbpierce@wisc.edu)

University of Wisconsin – Madison

Space Science and Engineering Center



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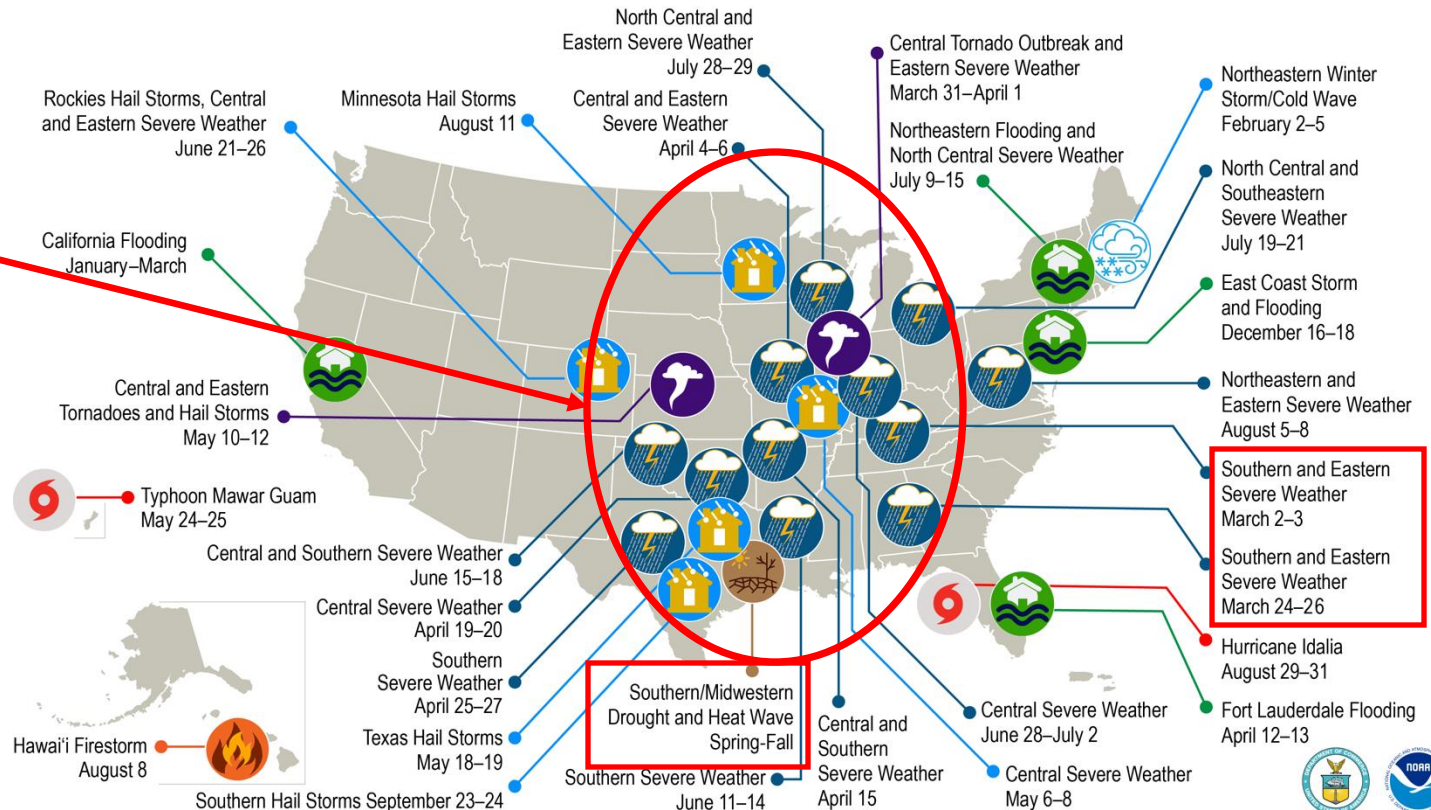
## *Livelihoods – Lives – and the Weather*

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The most costly events in 2023 were the Southern/Midwestern drought and heat wave event at \$14.5 billion, and the Southern/Eastern severe weather event in early March, at \$6.0 billion

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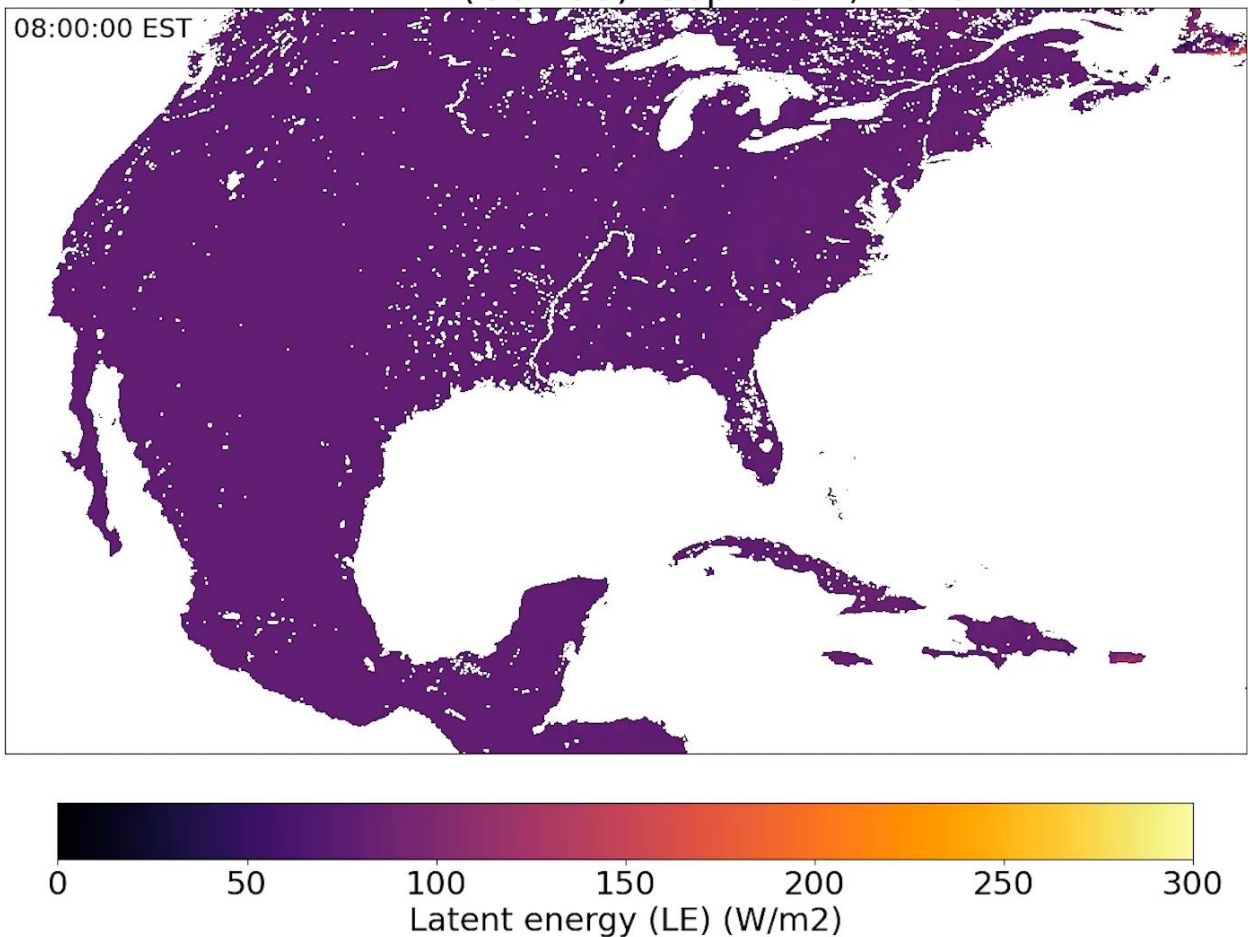
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## Advanced Baseline Imager Live Imaging of Vegetated Ecosystems (ALIVE) – Paul Stoy (UW Madison)

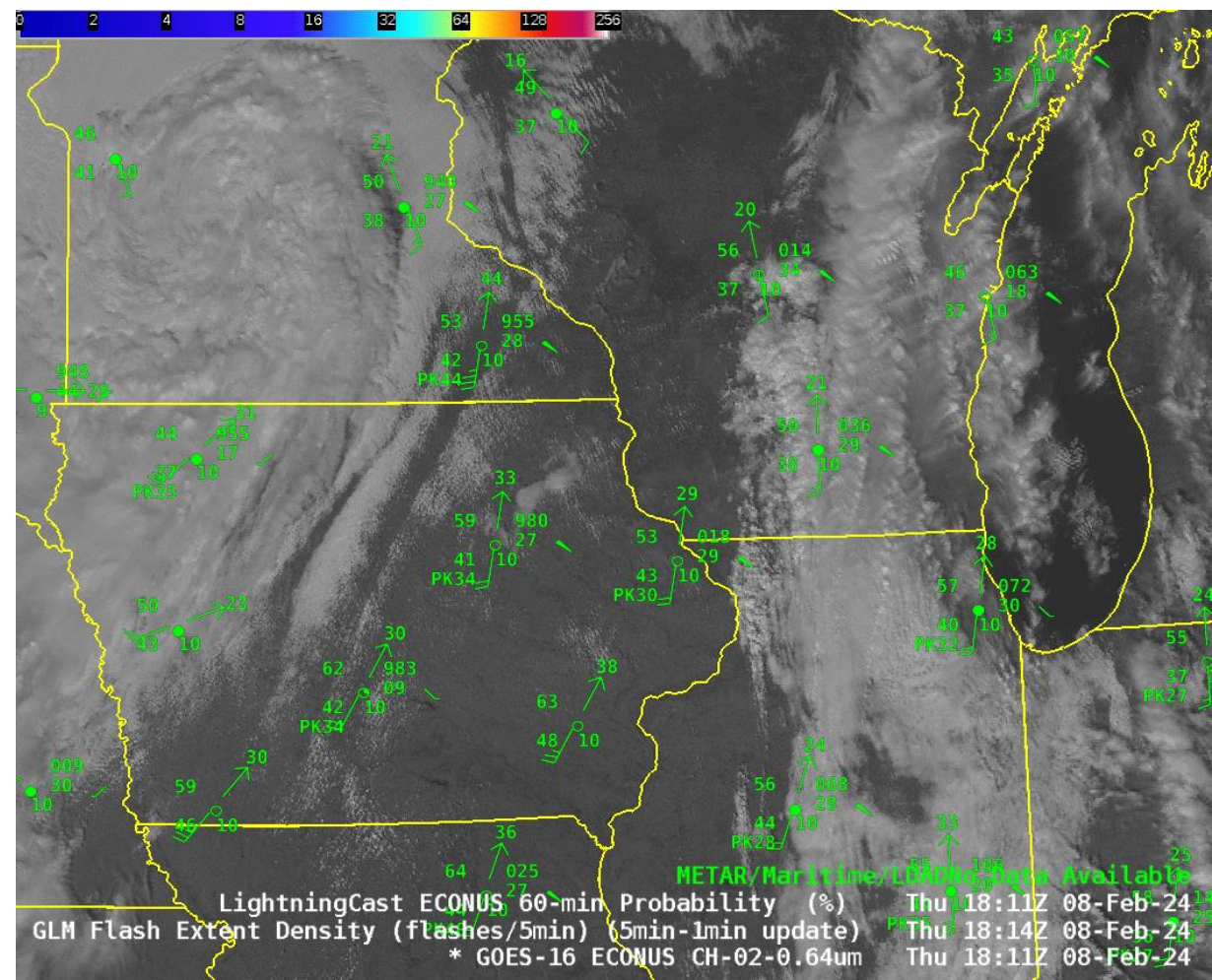
ABI Machine Learning model trained on Water and Carbon fluxes from [Ameriflux](#) and [NEON, Inc.](#) eddy covariance towers across the conterminous United States.

ALIVE LE (CONUS): Sept 18th, 2023



## Advanced Baseline Imager ProbSevere LightningCast – John Cintineo (SSEC/CIMSS)

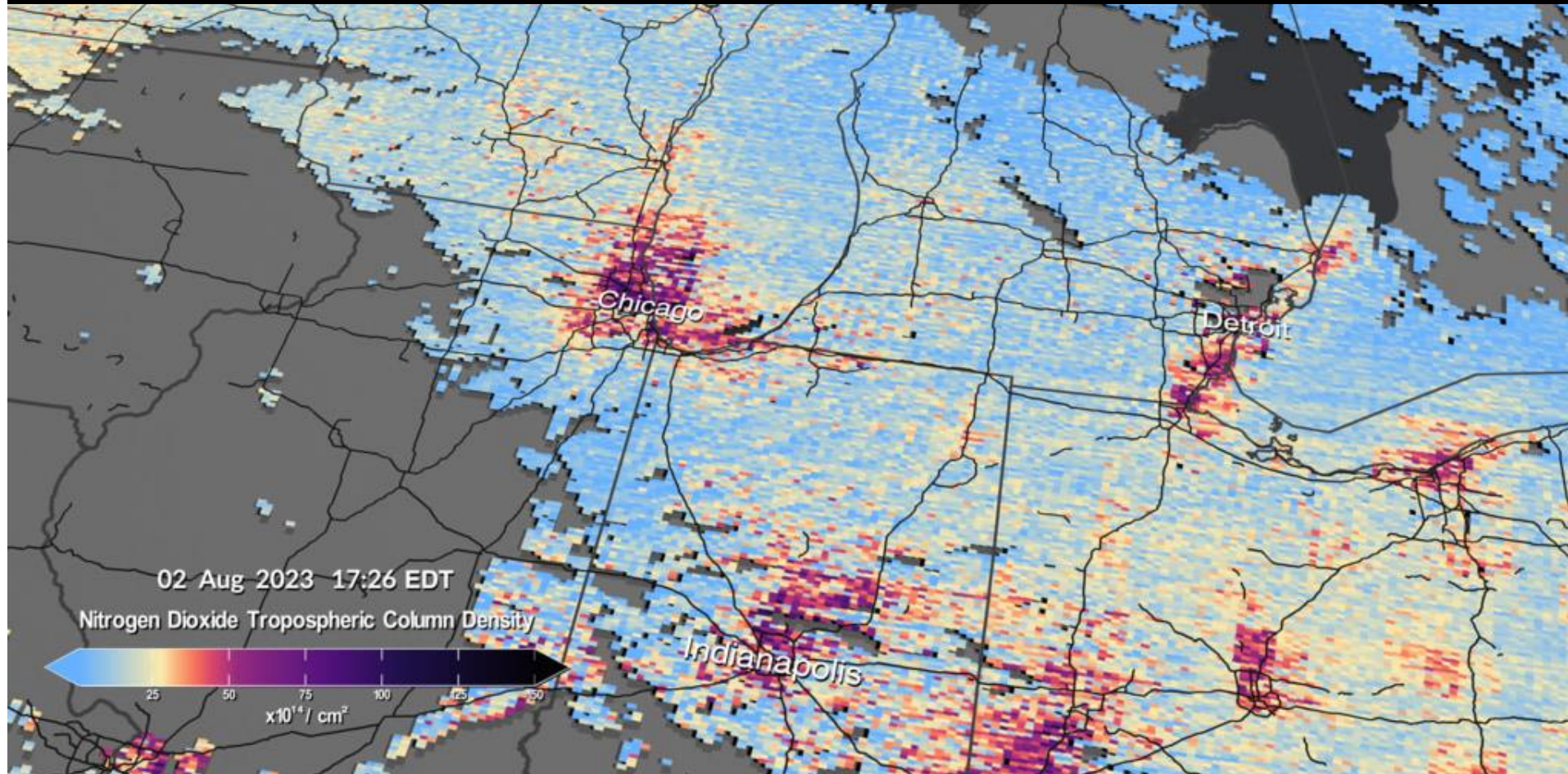
ABI machine learning model trained on, radar and Geostationary Lightning Mapper to predict next-hour lightning probability





# TEMPO First Light: August 2<sup>nd</sup> 2023

The Tropospheric Emissions: Monitoring of Pollution (TEMPO) instrument collected its “first light” measurements of nitrogen dioxide air pollution over North America on August 2, 2023.



- TEMPO is a precursor to the Atmospheric Composition instrument (ACX), part of the GeoXO satellite system.
- Also measures formaldehyde, which is an indirect indicator of biogenic activity
- May also be able to measure chlorophyll induced fluorescence, a direct indicator of biogenic activity