



Tracks and intensity of cyclones associated with the top-10 most intense windstorms from 1979-2018 set in the context of the cyclone climatology computed over October-April 1979-2018.

Letson F.W., Barthelme R.J., Hodges K.I., and Pryor S.C. (2021): Intense windstorms in the northeastern United States, *Nat. Hazards Earth Syst. Sci.*, 21, 2001–2020, doi: <https://doi.org/10.5194/nhess-21-2001-2021>

## Scientific Achievement

We identify and characterize windstorms in the Northeastern US and examine the sources of those intense, and societally relevant, extreme events. Cyclones responsible for these windstorms exhibit maximum intensities (measured using 700 hPa relative vorticity and mean sea level pressure) 5–10 times the mean values for cyclones that followed similar tracks over the 40-year period 1979-2018.

## Significance and Impact

Maximum sustained wind speeds at 100 m during these windstorms range from 26 to over 43 ms<sup>-1</sup>. The 4 most widespread of these 10 windstorms caused inflation adjusted property damage over over US\$1.5 billion each. Understanding the sources of such events in the contemporary climate is needed to contextualize possible changes in their occurrence under future climate conditions.

## Research Details

40 years of ERA5 reanalysis output and a cyclone tracking algorithm are used to detect windstorms, identify their source and contextualize them in the cyclone climatology.