

# StormWatch:

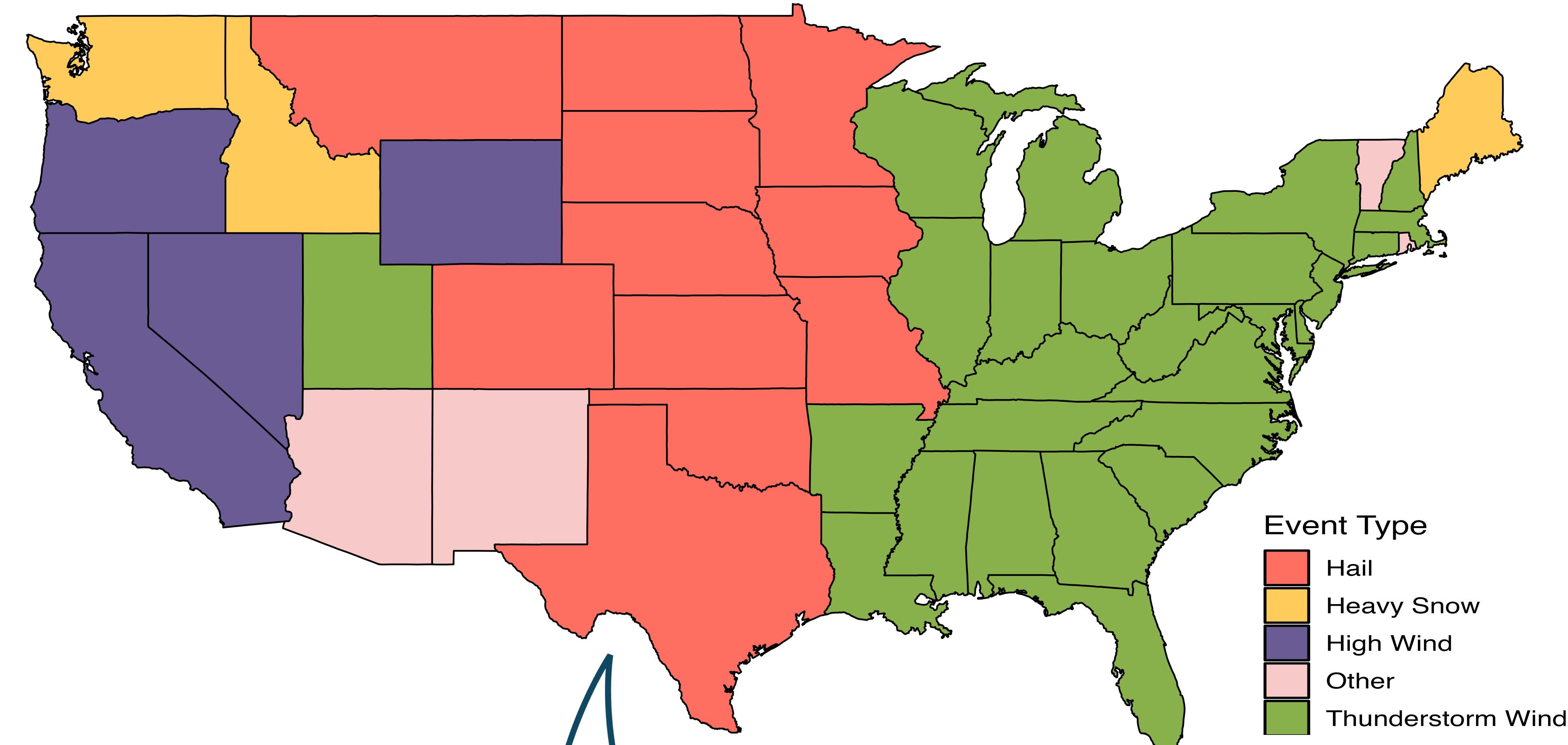
## Analyzing Trends and Predicting the Future of Extreme Weather in the United States

Created by:  
Reyhaneh Bolouri  
Md Tahidul Islam  
Sai Varsha Sreeperumbudur

### Background

Over the past decade, data from the National Weather Service (NWS) and NOAA reveals a dramatic increase in severe weather events across the United States. This visualization highlights the staggering frequency and intensity of storms, especially in Texas, which tops the charts year-round. Utilizing ARIMA models, our analysis predicts an alarming surge in storm events from 2023 onwards. Geospatial maps illustrate that Texas counties often face over 500 storm events, with 2017 alone causing \$30 billion in damages. Notably, late afternoons and evenings are peak times for storm occurrences, underscoring the urgent need for enhanced preparedness and resilience measures.

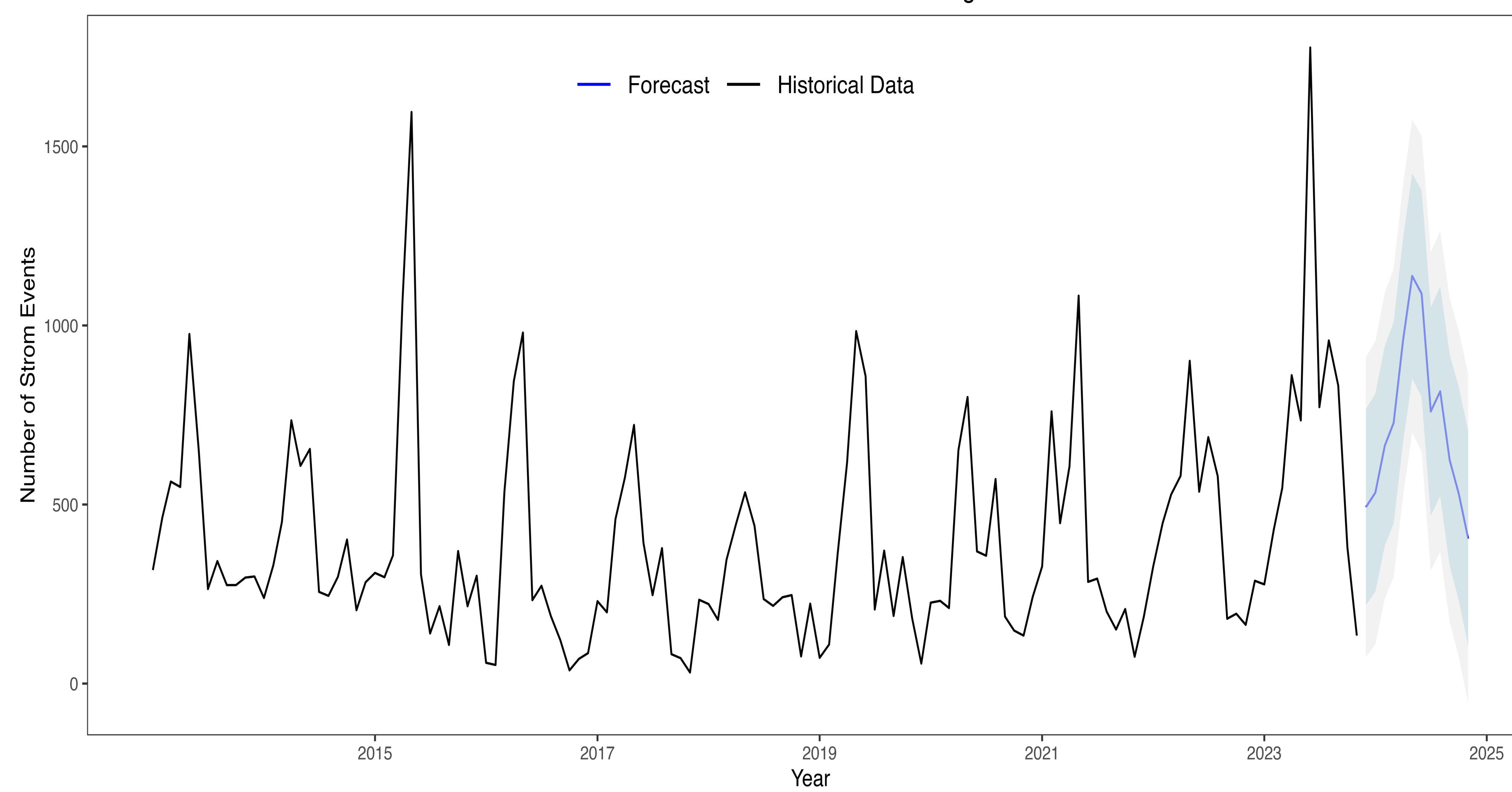
### Over The Past Decade, Harsh Storm Events Have Ravaged Midwest and East Coast In The United States



### Texas tops the charts for highest storm events in USA All Year!

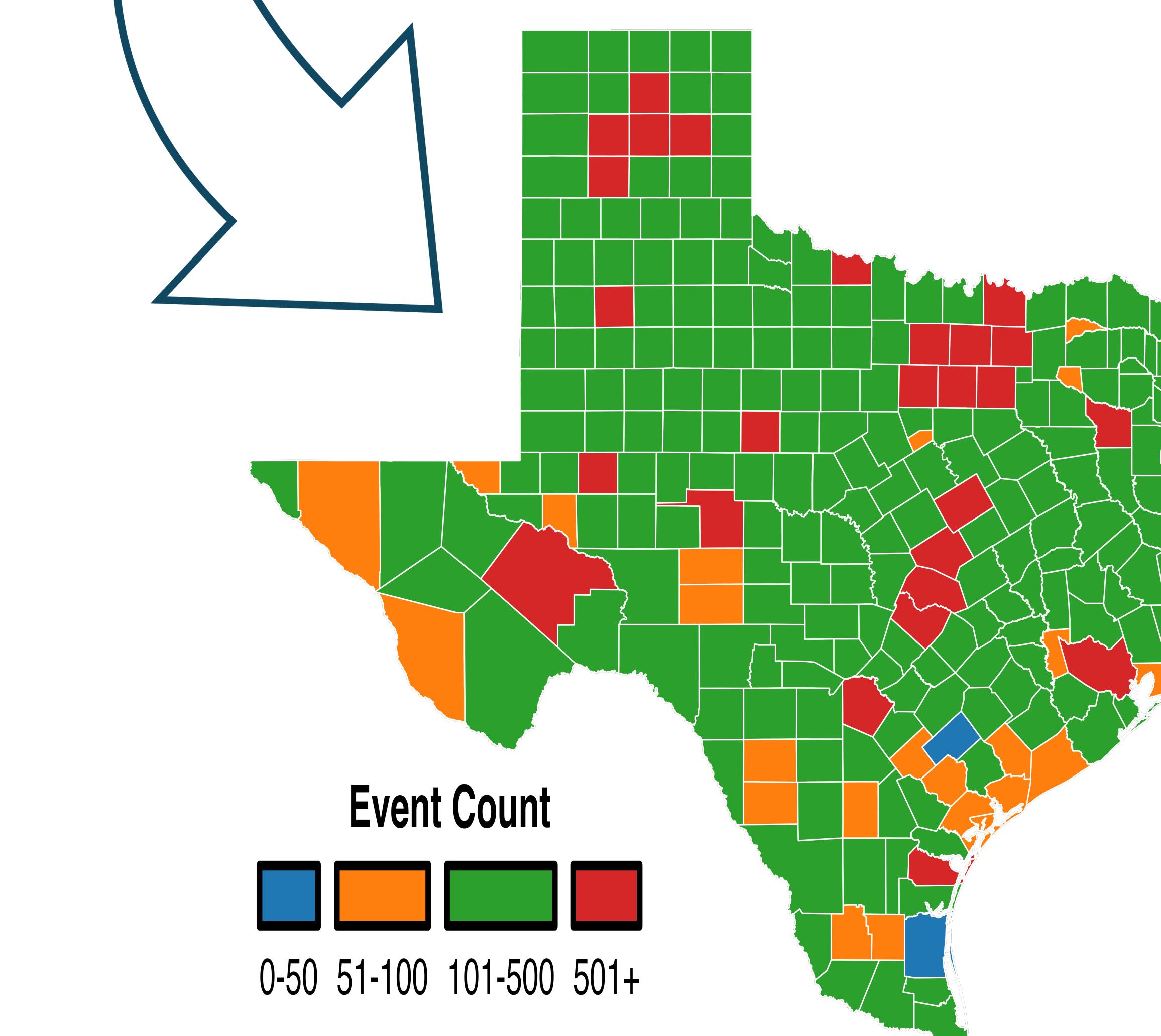
Spring	Summer	Fall	Winter
<b>Texas</b>	<b>Texas</b>	<b>Texas</b>	<b>Texas</b>
Kansas	California	Kansas	Kansas
California	Kentucky	Iowa	Oklahoma
Georgia	New York	S. Dakota	Missouri
Oklahoma	Virginia	Nebraska	Iowa

Forecasted Event Counts in Texas Using ARIMA



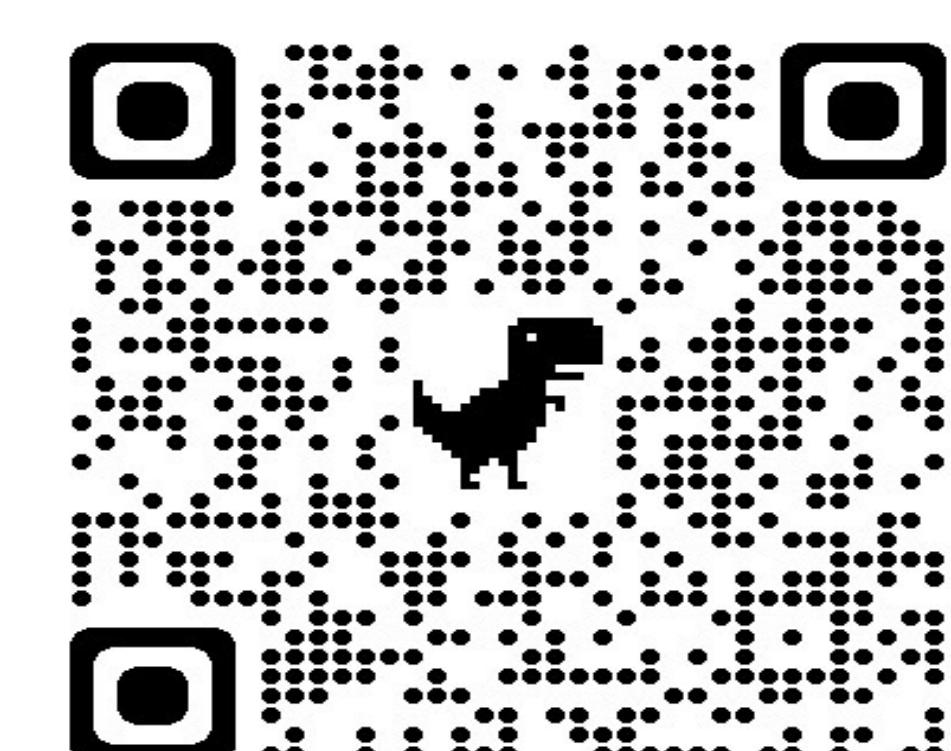
### Heads up, Texas!

Our ARIMA forecast shows a spike in storm events coming in near future.



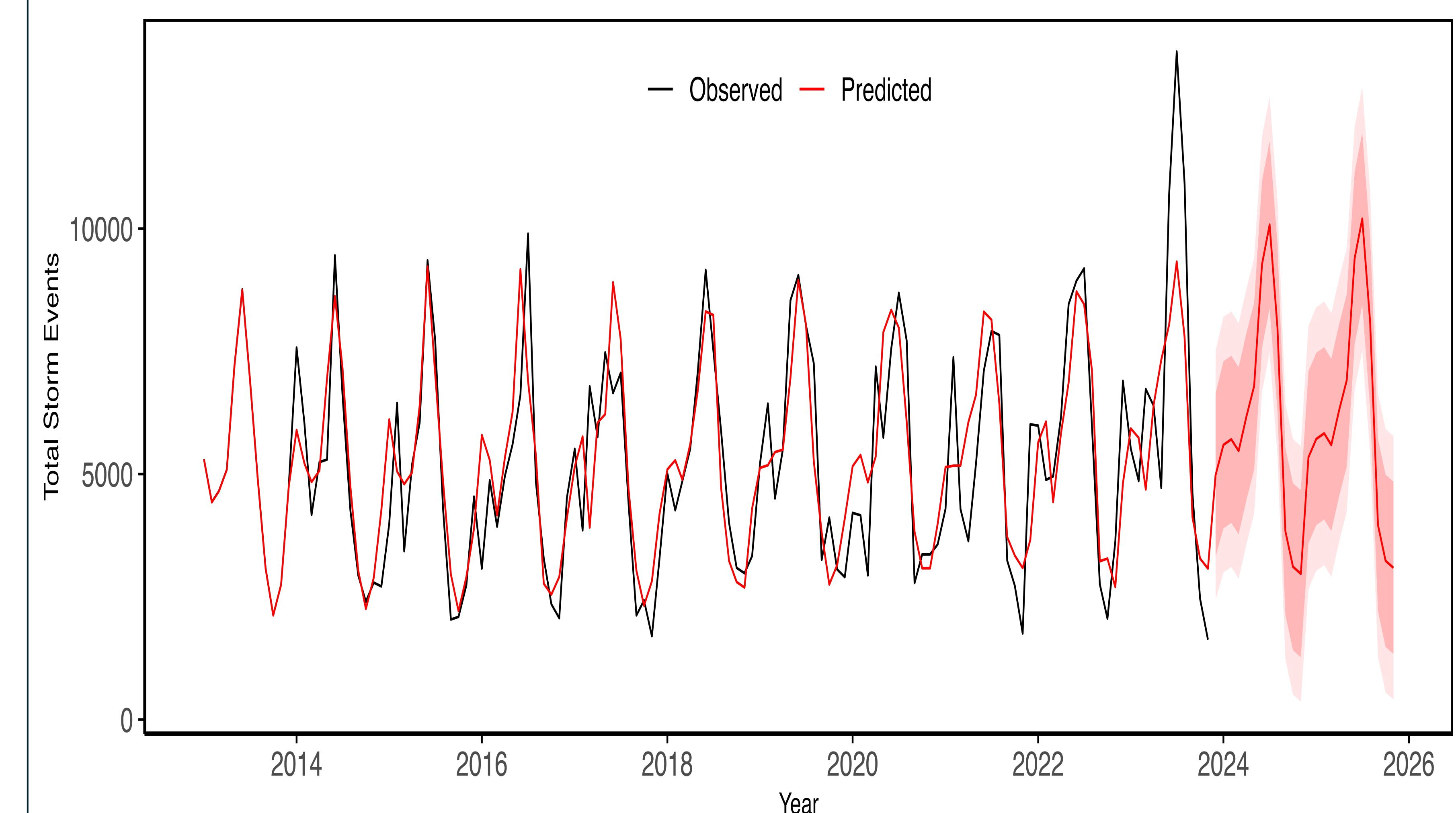
Texas leads the nation in severe weather events and costly disasters, accounting for 15% of all U.S. billion-dollar disasters. This county-level map illustrates the state's vulnerability, with most counties experiencing up to 500 storm events, and some even surpassing 500.

Scan the QR code or follow the [link](#) to explore our Interactive Texas Storm Map!



<https://tahidul94.shinyapps.io/myapp123/>

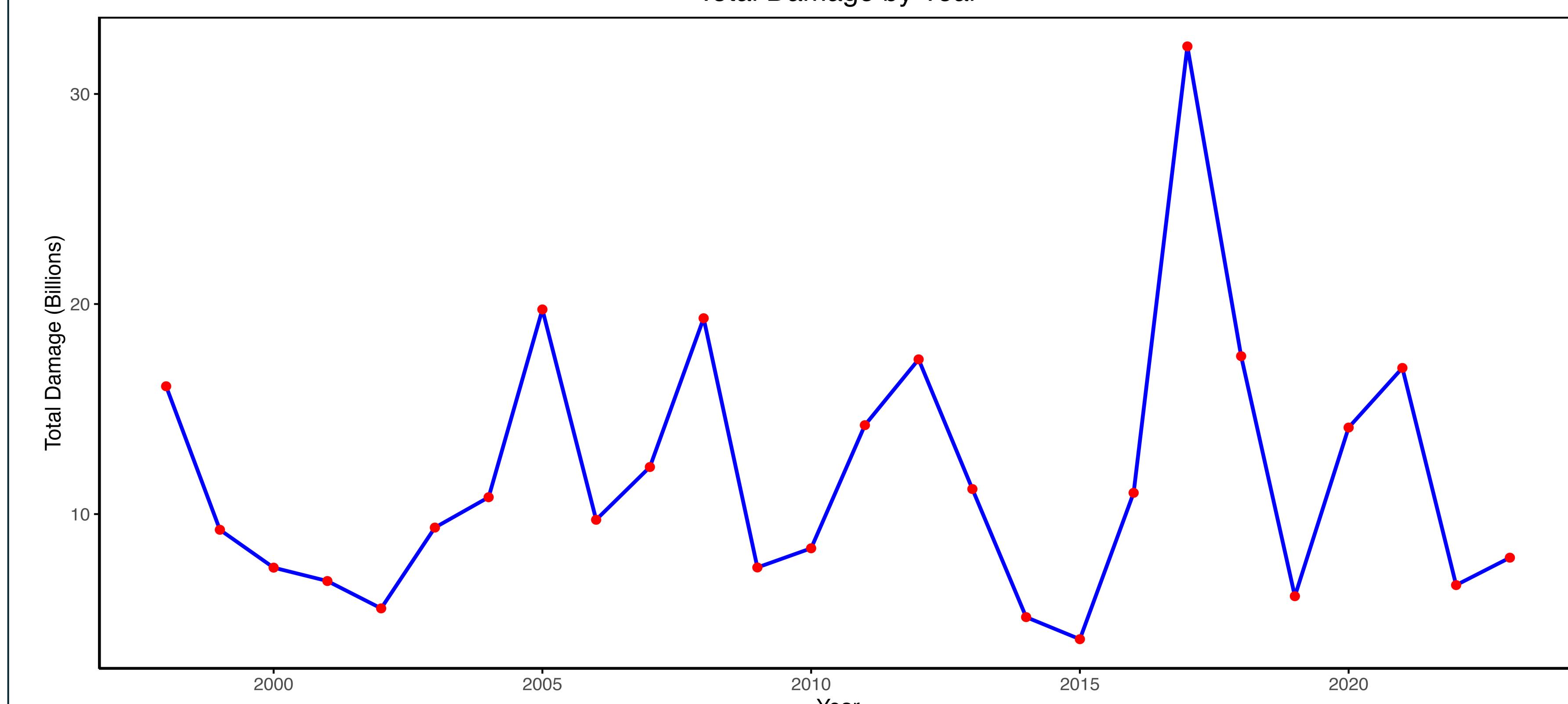
### Fitted Model vs. Actual Total Storm Events



### Brace for More Storms in USA!

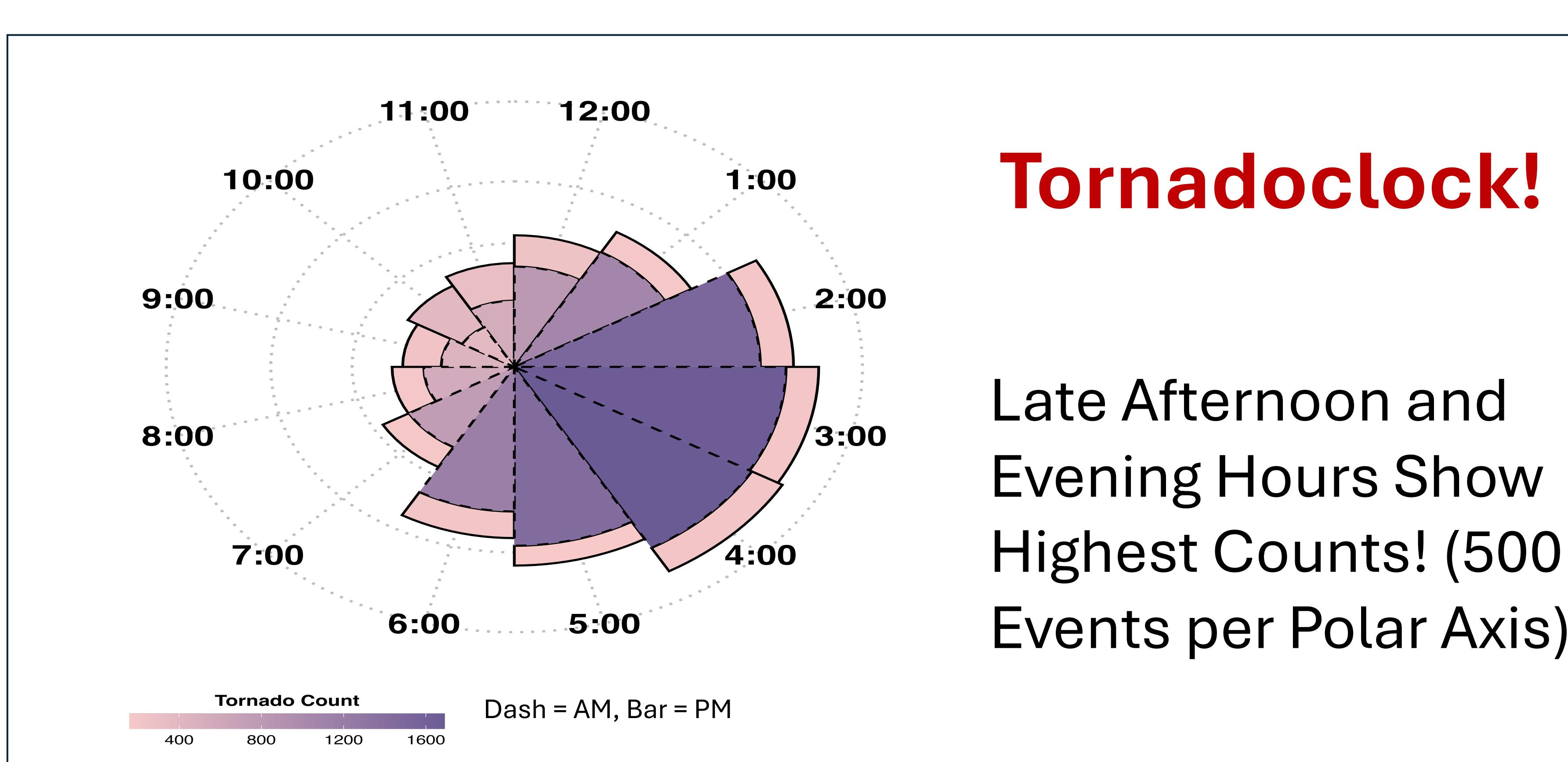
Our analysis shows a dramatic surge in frequency and intensity starting from 2023, urging immediate action for future resilience.

Total Damage by Year



### In 2017: Storms Unleashed \$30 Billion Havoc

Enough to Build 150 Hospitals or Fund 3M Scholarships for Students



### Tornadoclock!

Late Afternoon and Evening Hours Show Highest Counts! (500 Events per Polar Axis)