

# **US Tornado historical data**

## **Categories, Losses and Trends**

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## ✘ Tornado and it's contributing weather systems

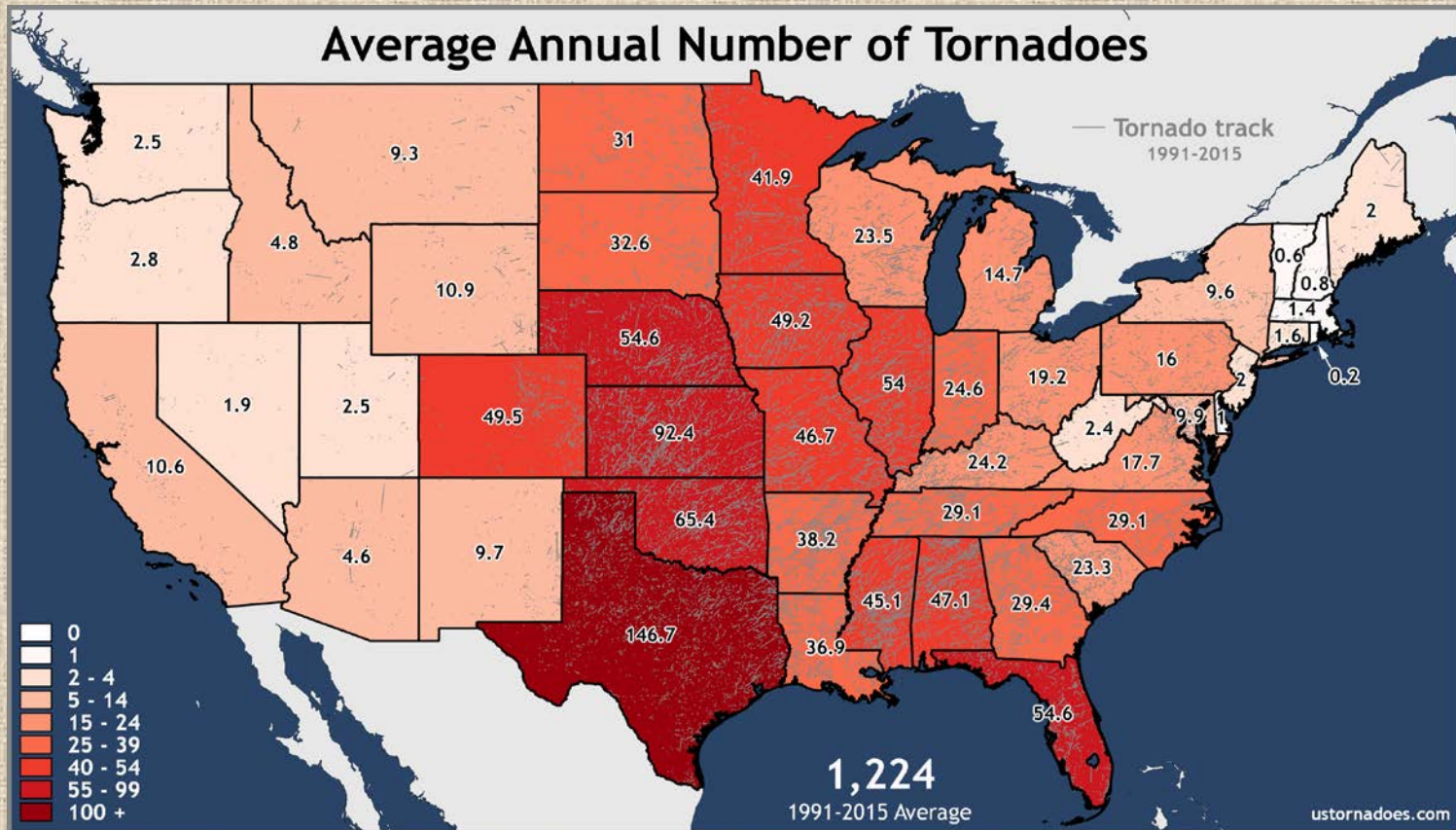
A tornado is a mobile, destructive vortex of rapidly rotating air that is in contact with both the surface of the Earth and a cumulonimbus cloud and has the appearance of a funnel-shaped cloud.







✘ Tornado frequency in US by states:



✘ Tornado categories based on losses:

Scale 1	Wind (MPH)	Damage			
F0	40-72	Light Damage			
F1	73-112	Moderate Damage, Damage to roofs			
F2	113-157	Significant Damage, Roofs torn off			
F3	158-206	Severe Damage, Houses missing walls			
F4	207-260	Devastating Damage, Houses leveled			
F5	261-318+	Extreme Damage, Houses disintegrate			
Scale 2					
EF rating					
EF 0	EF 1	EF 2	EF 3	EF 4	EF 5
Weak Damage		Strong Damage		Severe Damage	

## Research proposal

The research includes tornado frequency analysis during 1990-2017 period.

The data set is obtained from NOAA storm database which records daily occurrence of US tornadoes since 1950 with information of their intensity, the touch-down location (county, state, and geographic coordinates). The research will investigate:

- ✘ Changes in Tornado frequency in each State during different time period
- ✘ Tornado occurrence in each State by categories (F0,F1,...EF5)
- ✘ Tornado seasonality analysis at different climate regions to see if tornado season varies in different regions
- ✘ Average annual loss caused by Tornado in each state for each five categories

**The students will learn R programming to do the data analysis and Arc-GIS to represent their results on maps.**