Project Proposal

Prepared for: Rob Thomas, et al., Instructor

Prepared by: Dave, Deepti, Barrett, Ellen, Data Analysis Team

October 16, 2018

Proposal number: 1001

EXECUTIVE SUMMARY

Objective

Gather weather data to discover trends in tornado occurrences and locations. With this data we plan to determine if “tornado alley” has shifted geographically. This data is relevant to tell our story: Tornado Alley is shifting, who is effected, what can be done to prepare, and how does temperature change influence this shift. Effected areas that are not in “tornado alley”, but in a “shifted tornado alley” may want to up their weather monitoring, safety plans; insurance companies, residential and commercial building codes may need to make plans to better provide for their clients and residents who may be effected by this shift in extreme weather locations.

Goals

Provide map with bubble plot on tornado locations in original tornado alley then display the more recent data revealing the shift of tornado locations (and frequency).

Null Hypothesis

There is no correlation between “tornado alley” shift and temperature change.

Project Outline

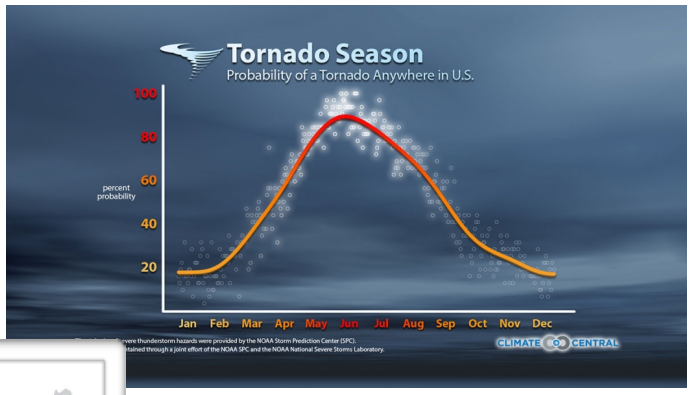
For this upcoming week we plan to:

- Further investigate relevant data (if necessary) and retrieve data.
  - Current dataset sources:
    - 1950s - 2006 https://catalog.data.gov/dataset?tags=tornado
    - 1950s - 2018 https://www.ncdc.noaa.gov/stormevents/ftp.jsp
    - Potential Web scraping to get more current data
- Organize/select tools to display the data that will fit how we want to tell the story.
  - Leaflet to provide map display, etc.
  - D3 to animate data
  - (Extra JS library)…
  - HTML, CSS to house data.
- Consider other leads (after data is collected so as to avoid scope creep) of the impact of this location shift of this extreme weather, i.e. agriculture, deaths caused by tornadoes, etc.

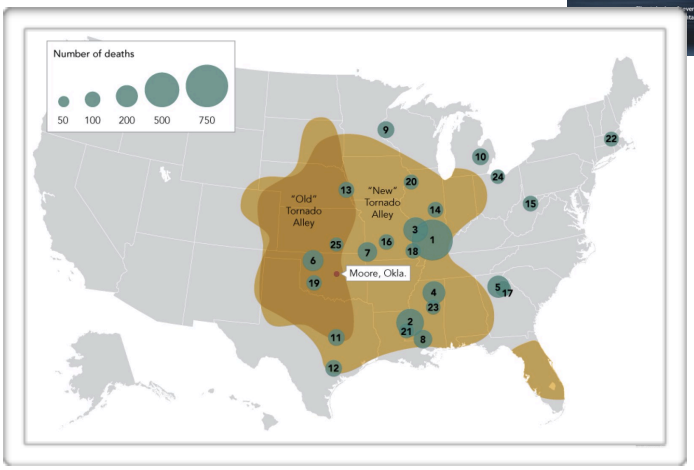
INFOGRAPHIC IDEAS TO INCLUDE

Tornado Season Comparison

This can display two data sets identifying the occurrences through the months.



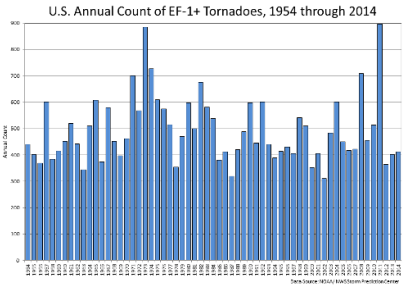
Tornado locations by time

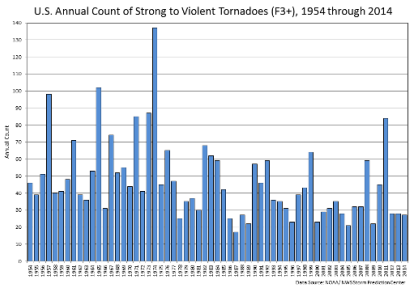


This will help identify locations and shifts, bubbles can identify frequency of tornados.

Interesting Data: Trends Identified by Tornado Severity

This can help identify outliers as well as trends through time to determine accuracy of our hypothesis and importance of the impact of tornados on given areas discovered through the data.





Data Flow Chart

TORNADO!!!
(DATA)

Clean the Data:

Python, Pandas,
MatplotLib

JS.D3

CSS/
HTML/
Leaflet

Documentation

DataBase:MongoDB,SQLite