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Research Area

This research project analyzed tornado fatalities in different counties in Texas from 1950 to 2017. For each tornado event during this time period, we studied the date of occurrence, city/county location, time of the day, number of fatalities, and the number of fatalities.

Motivation or Background

Tornadoes are rare, severe weather occurrences experienced in Texas that lead to human fatalities and billions of dollars worth of property damages. Compared with other States, Texas ranks number one for frequency of Tornadoes, number of injuries, deaths and cost of damages Tornado locations, time of the day, and duration of occurrence are unpredictable Our goal is to examine each tornado event and the victims involved so that we can come up with a better understanding of the frequency and severity of tornadoes in Texas counties.

Objectives

1. Obtain data from National Oceanic Atmospheric Administration (NOAA) for all counties in Texas regarding tornado events and fatalities.
2. Analyze the data in Excel spreadsheet about the date of each tornado occurrence, location, time of the day, number of fatalities.

Methodology

The data was obtained from National Oceanic Atmospheric Administration (NOAA) going back to 1950 for records on the tornado-related fatalities that happened, covering events that involved studied the date of occurrence, city/county location, time of the day, number of fatalities, and the number of fatalities in the vehicles involved. The data was put into Excel spreadsheet sorted out by year, month, date, time, the number of deaths, gender, age group, the vehicles involved, and fatality location.

Results

The data for tornado fatalities in Texas were compiled. Figure 1-4 show the number of tornado events and fatalities by year (1950 to 2017) and by month respectively; the highest number of fatalities was recorded in 1953 and in the month of May. Figure 5 and 6 also show the number of tornado events and fatalities respectively at different counties and regions. Harris County region has the highest tornado events of 11, while McLennan has the greatest fatalities of 114 people within the year under consideration.

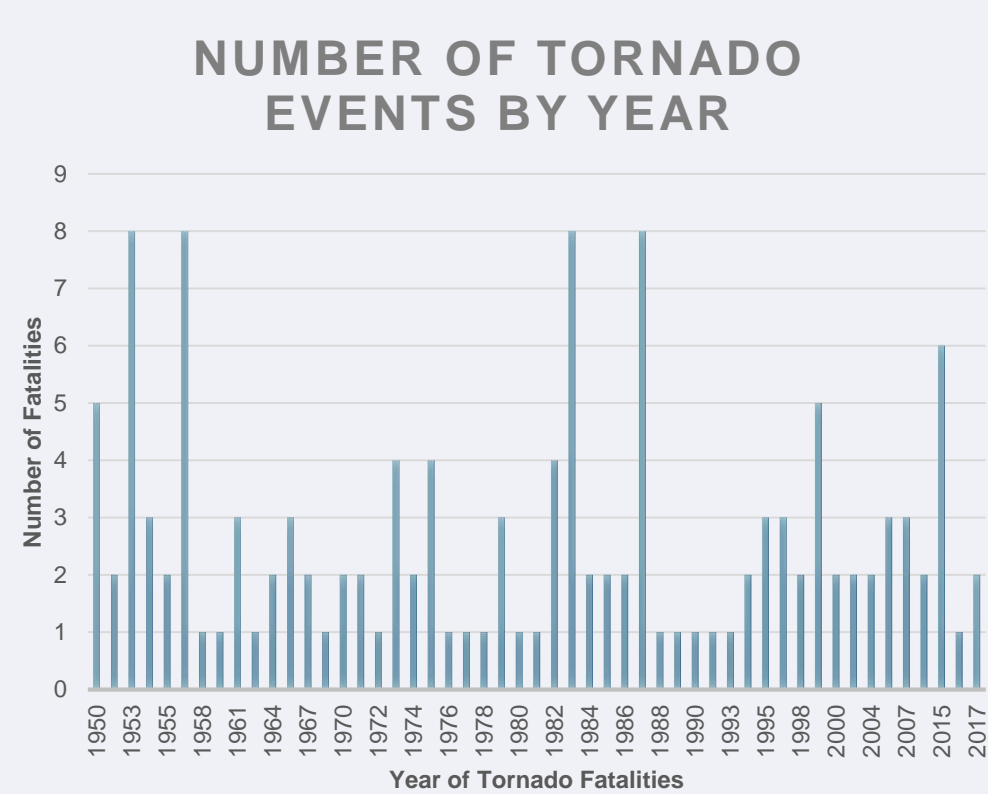


Figure 1: Tornado events per year

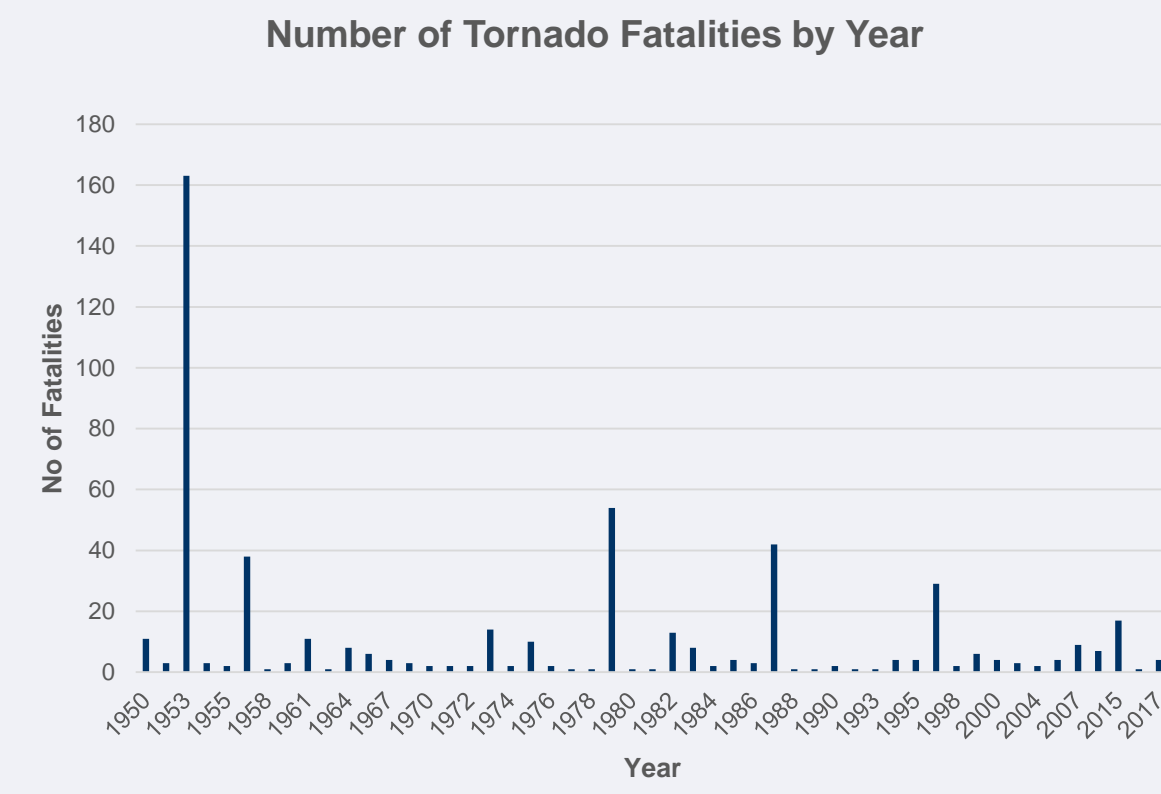


Figure 2; Tornado Fatalities per year

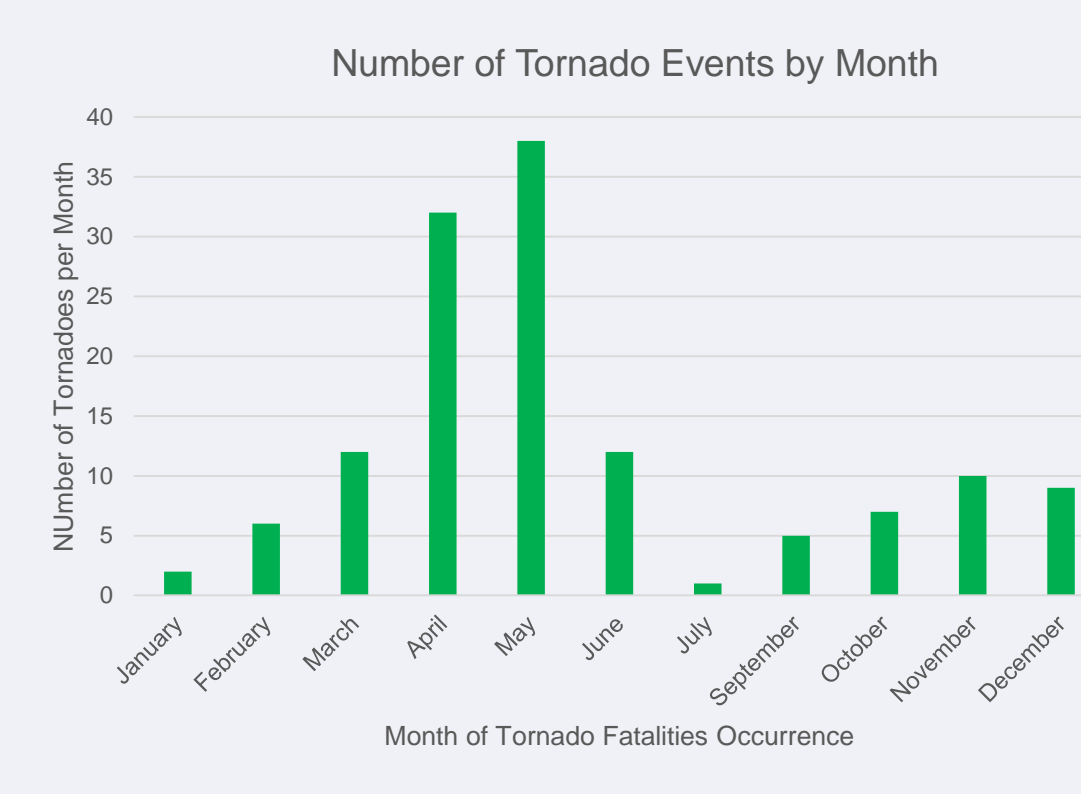


Figure 3: Tornado Events by Month

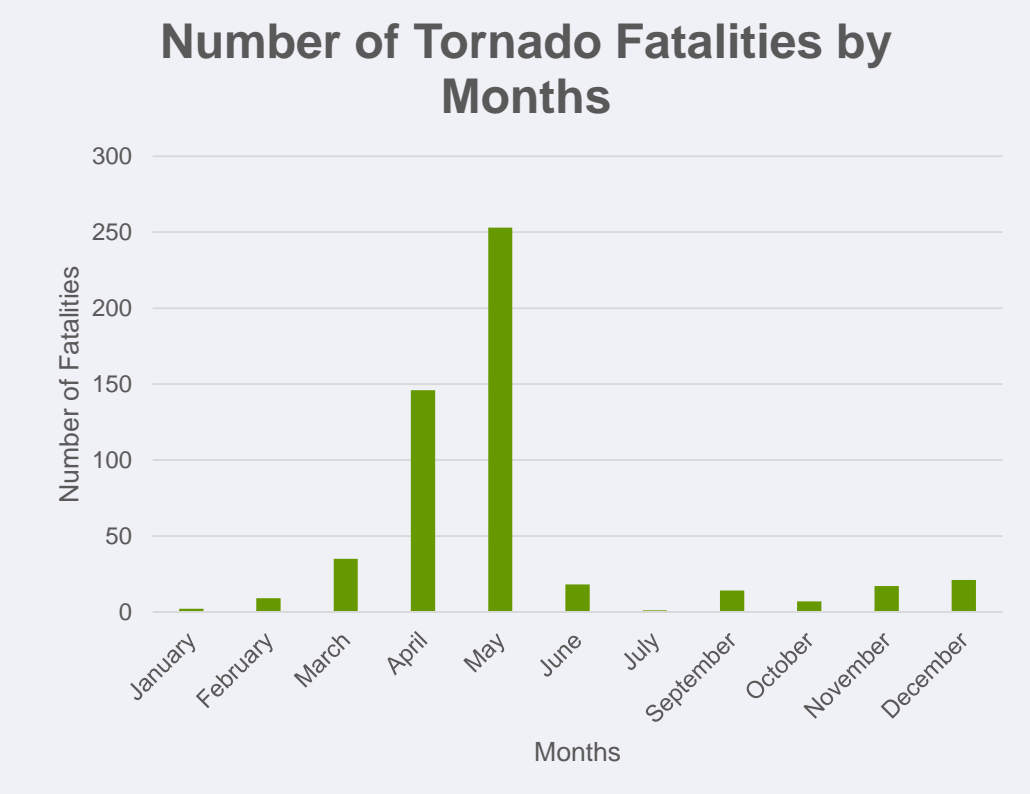


Figure 4: Tornado Fatalities per month

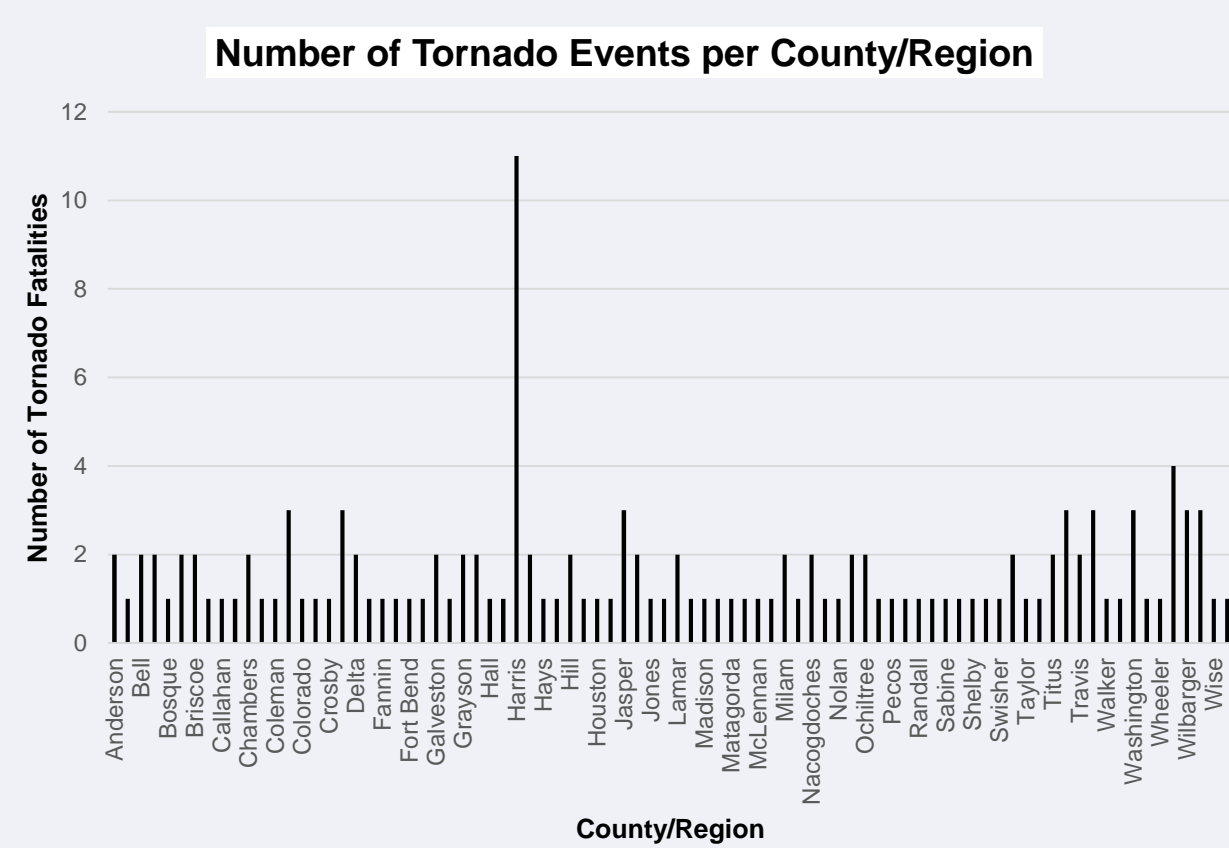


Figure 5: Tornado events by location

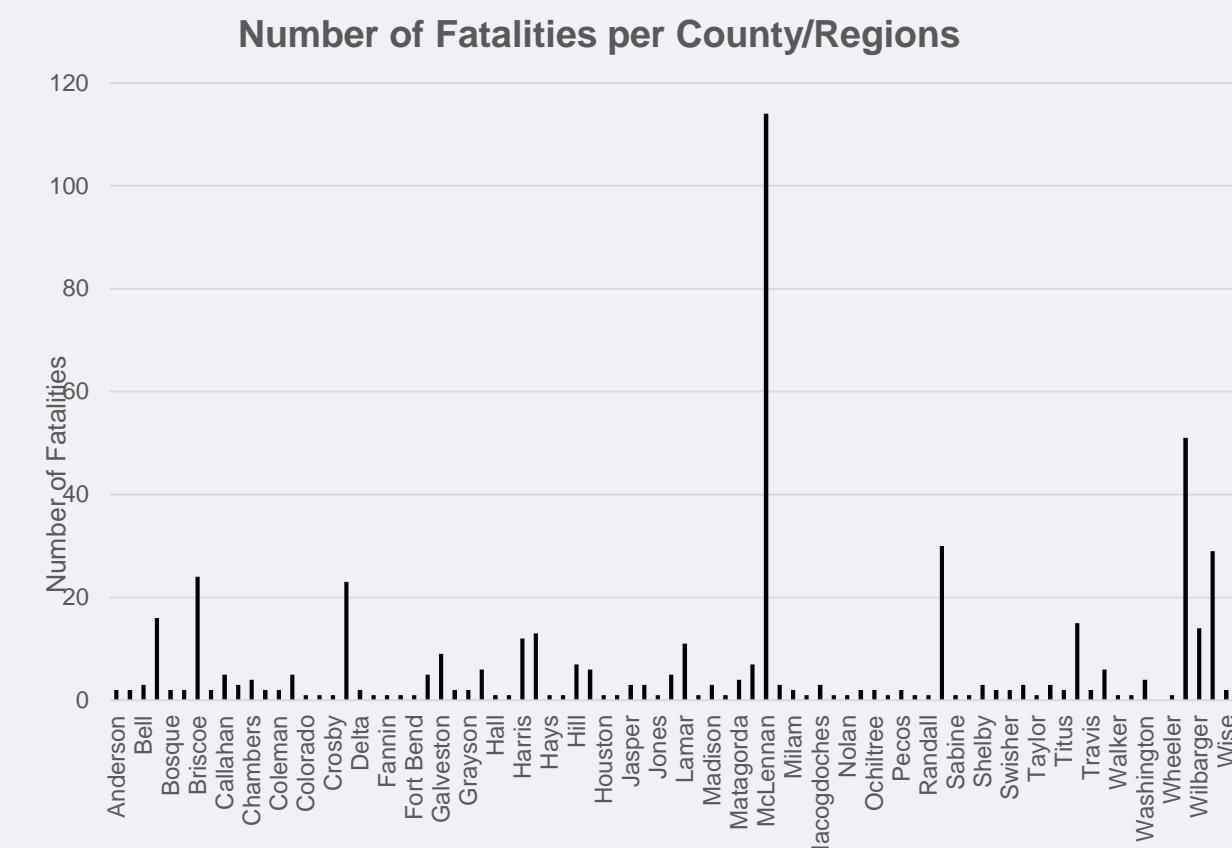


Figure 6: Tornado Fatalities by location



Figure 7: NOAA Data Repository

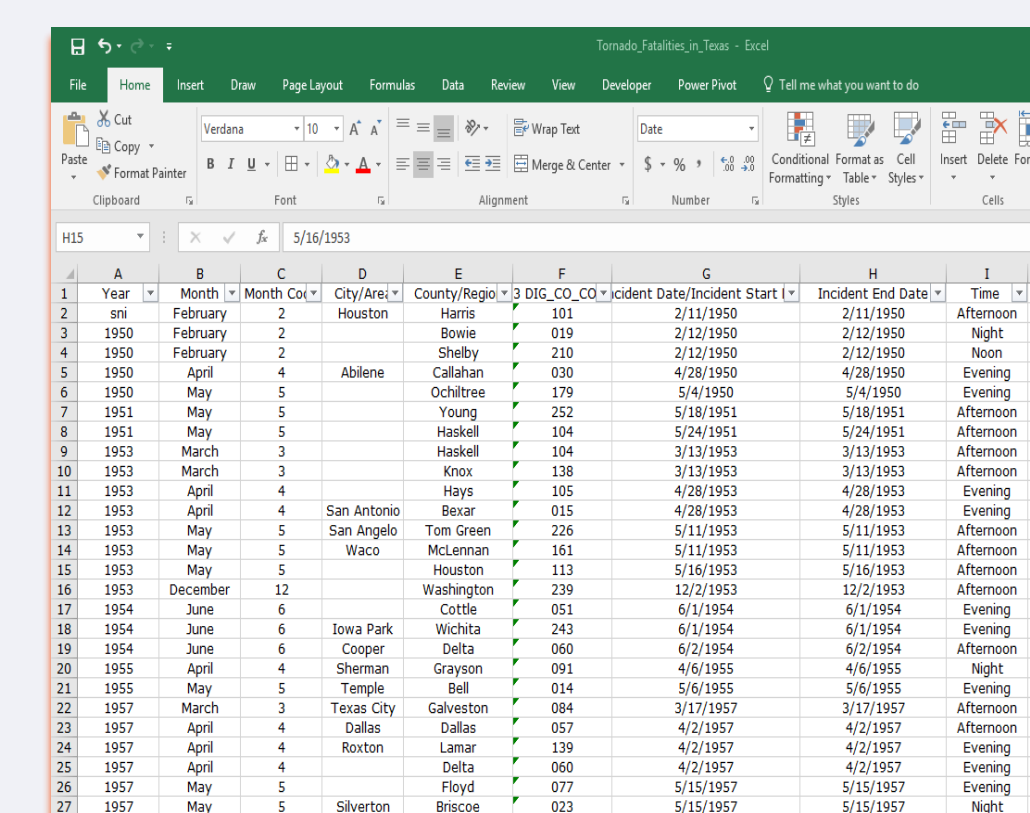


Figure 8: Excel Data Analysis Tool

Skills and Experience

- How to download data from NOAA
- Data Analysis in Microsoft Excel
- Graph manipulation in MS Excel
- Graph interpretation and discussion.
- Understanding of flood types and how they are linked to tornadoes.
- The highest number of fatalities recorded was recorded in 1953 (163 deaths).
- Over 48% of the total fatalities occurs in the of month of May, which make it the highest fatality month between 1950 and 2017.
- McLennan region has the highest number of fatalities over 68 years period while Harris has the highest occurrence.
- MS Excel is a good tool for analyzing data.
- There is need for continuous awareness to further reduce the deadly effects of tornado during its occurrence.

Future Plans

Future plans will include spreading the awareness of the different types of storm types and safety precaution measures. Social media will be used as a key tools in ensuring the message spread especially with the ever-increasing population of the State. Also, there will be need to evaluate escape routes across the State so that residents can evacuate as soon as possible as well as existing potential shelters.

References

- National Oceanic and Atmospheric Administrations' Storm Events Database
- National Weather Service (NWS). (2017). "Storm data operation manual. National weather service instruction 10-1605." (<http://www.weather.gov/directives/sym/pd01016005curr.pdf>).
- <https://comptroller.texas.gov/taxes/resources/county-codes.php>

Acknowledgments

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