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Project: Phase 2

ECNS 461

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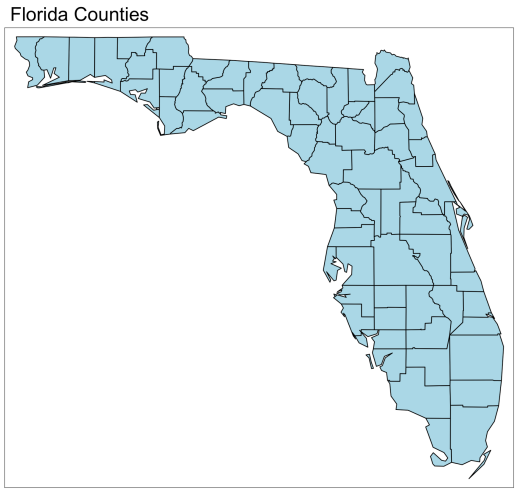
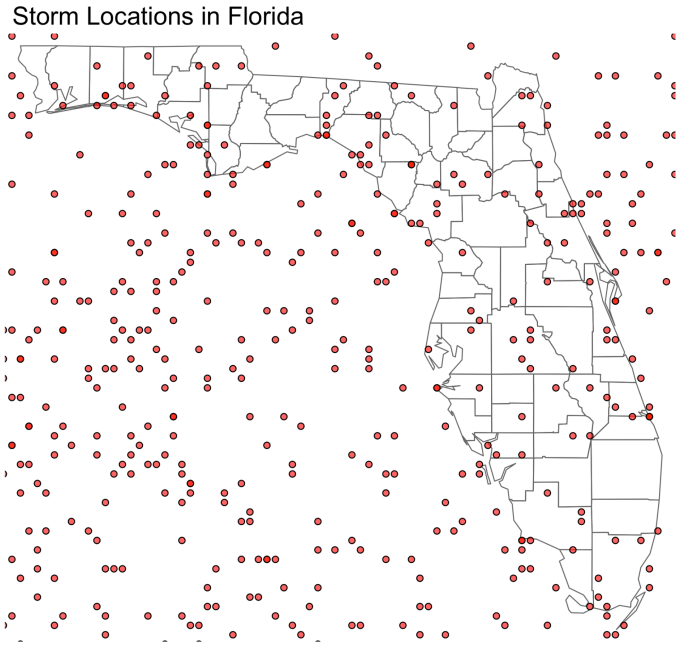
Our project aims to develop a Shiny App that will allow potential Florida home buyers to view the history of extreme weather events since 2000. This project is pertinent, as extreme weather events in Florida, specifically hurricanes, have grown in intensity. In turn property damages related to these extreme weather events are also increasing. One of the most important factors for many home buyers when deciding where to live is security and safety. With the Shiny App, potential home buyers in Florida will be able to understand the possible risk associated with a home moving forward by having a complete picture of the past. With this better understanding of the risk associated with a home, the potential buyers can make decisions about possible renovations that can be made to mitigate risk, or whether they even want to assume the risk associated with purchasing the home.

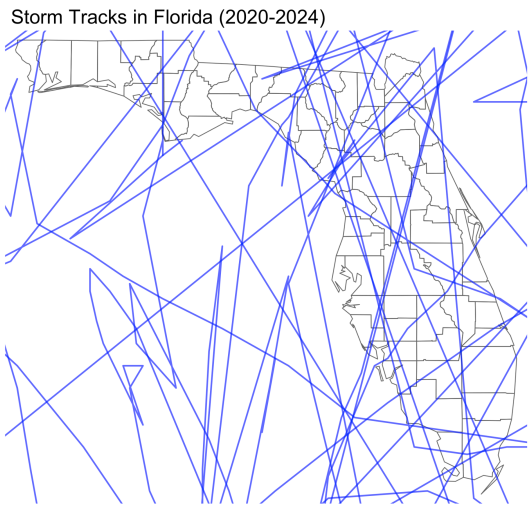
We are currently working with two sources of data, a shape file for the United States, and historical storm data(tropical storms, tropical depressions, hurricanes, etc.) from NOAA. Making the shape file applicable for our analysis involved modifying scope to only contain Florida and its counties. Processing the historical hurricane data involved two primary steps. First, we cleaned the csv file; this involved separating rows, renaming columns, and removing unnecessary characters and variables. After this process was complete we were left with information on the time, date, storm name, longitude, latitude, wind speed, pressure, and storm type for each observation. The second step involved using the latitude and longitude to convert the observations into spatial points.



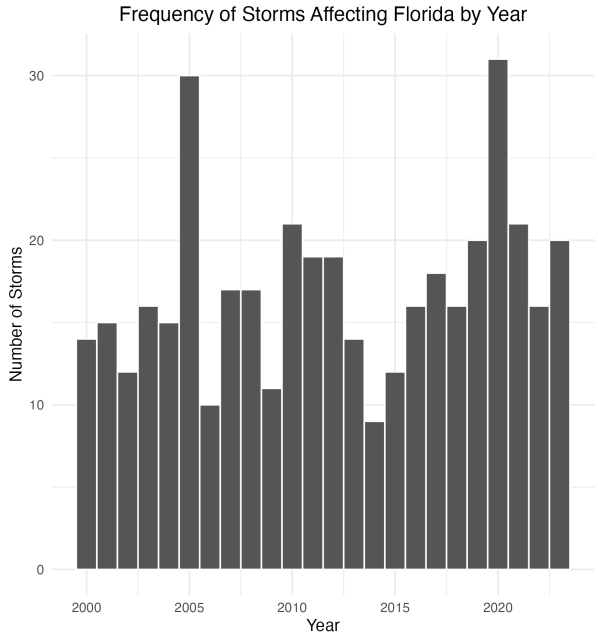
This is a map of the Florida counties that we will use to determine where Hurricanes and other storms passed through.



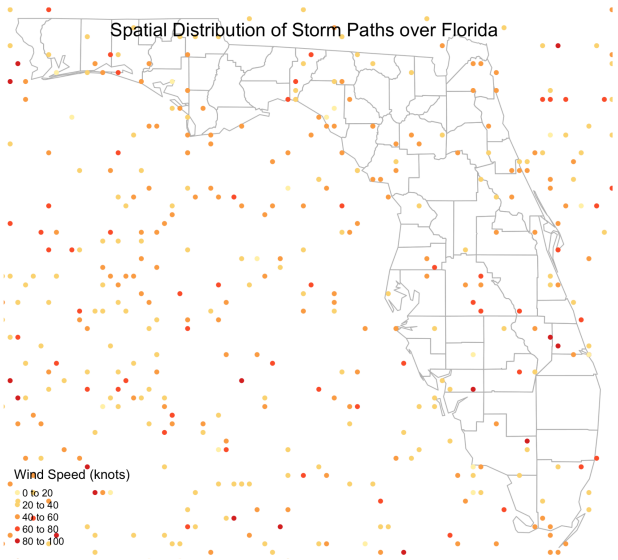
This map shows all of the data points that were recorded in or near Florida. It is important to include the points near Florida because these storms can still have a large impact on the state.



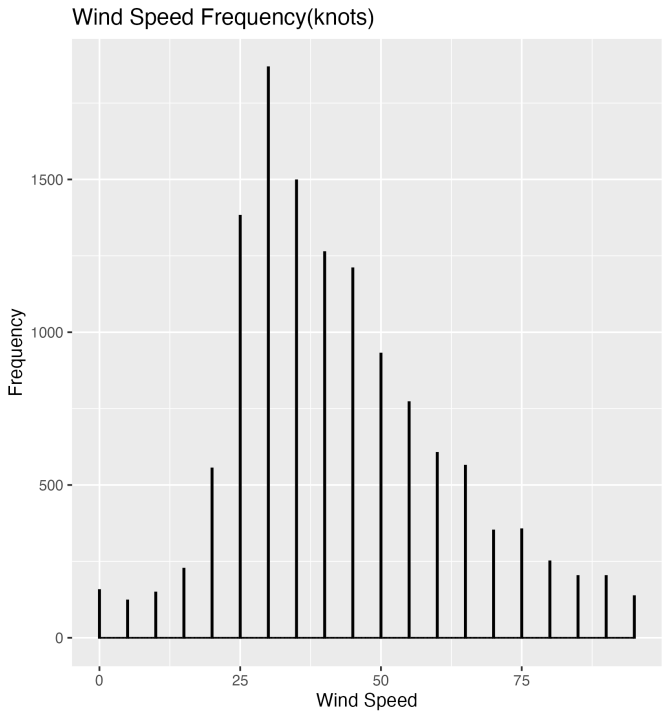
This map shows the tracks of hurricanes that passed over Florida within the last 4 years. We will use the entire data set to track all hurricanes. This was impractical to print a graph of because it became so congested.



This shows the number of storms affecting Florida each year since 2000. This can be used to forecast how many storms may come in the future years.



This shows the wind speed in knots at each observed location. This can be used in conjunction with the hurricane paths to demonstrate damage caused.



This histogram shows the frequency of the wind speeds associated with all data points. This can be used to understand the level of severity for all of the storms.