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## Hurricane Wind/Pressure Analysis

### Purpose

The purpose of this analysis was to visualize hurricane location, wind speed, and pressure in relation to the sea surface temperature of the north atlantic.

### Data Attributes

#### **Hur.csv**

The hurricane data was a .csv that originally contains 49085 rows and 22 columns. The columns are:

- Index Column
- id: that hurricanes identification tag
- name: name of hurricane
- date: The date and time the observation was made
- record\_identifier: Single character based identifier, not used
- status\_of\_system: The type of storm (hurricane , tropical storm etc)
- latitude
- longitude
- maximum\_sustained\_wind\_knots
- maximum\_pressure

Additionally there are 12 other columns that give the radius of where the maximum wind occurred but they are not needed for this analysis and were dropped to make the data cleaner. The rows were also trimmed down as the sea surface temperature contained data from 1982 onward while the hurricane data goes all the way back to the 19th century.

#### **sst.mnmean.nc**

The seas surface temperature data was a .nc (netCDF) that maps the average monthly temperature on to a global grid. The variables contained are:

- Lat: latitude
- Lon: longitude
- Sst: Sea Surface Temperature (Celsius)
- time: Date and time the measurement was taken

## Data Processing

Using Python 3 in a jupyter notebook, the data was set up by:

- Import required libraries
- Import the data files
- Drop unneeded rows and columns
- Create the color maps and variables that will be used later on

To create the map plot with the widgets:

- Define a function that will take the input from the user.
- Inside this function set up the basemap for temp and scatter plot for storms

## Observations

- Hurricanes are most prevalent in the south western part of the north atlantic
- Warmest water temps are in the gulf of mexico
- The higher the pressure the lower the wind speed and vice versa
- Generally, Wind speed increases as a storm moves over warmer water

## Conclusion

This data, when visualized, helps to show what is already well known: storms with low pressure are stronger and have higher wind speeds and movement of the storm over warm water is one of the main factors that causes this.

