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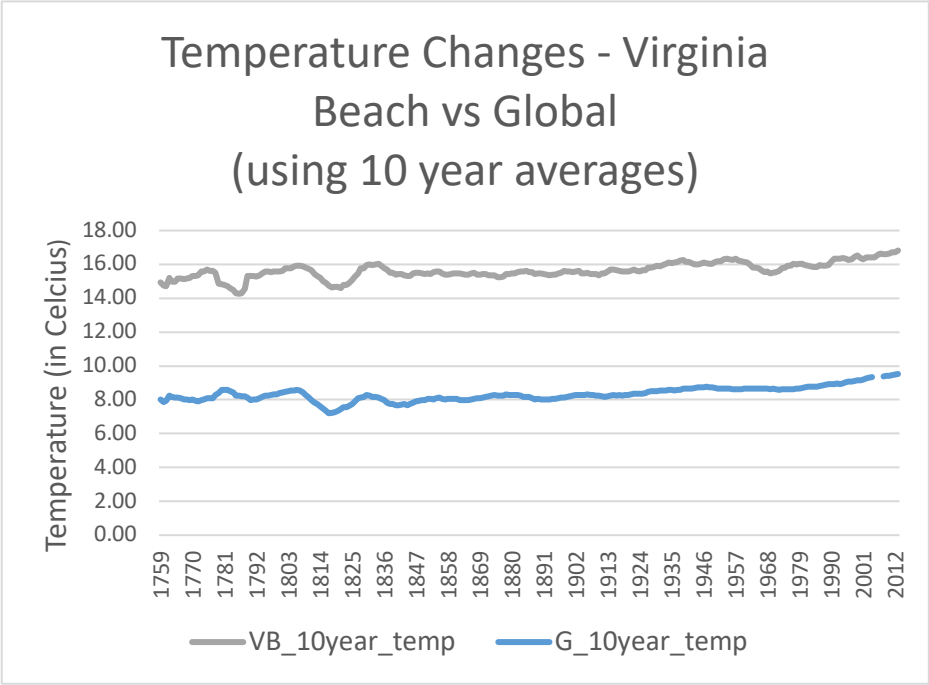
Exploring Weather Trends

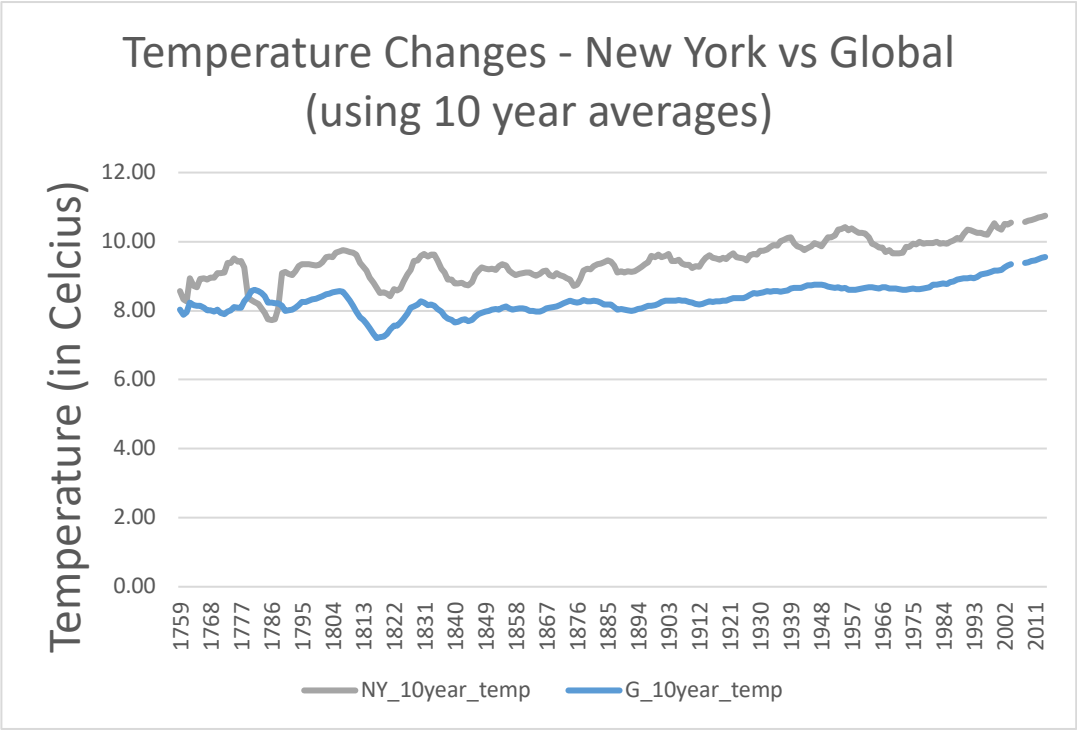
Below are the steps taken for the project

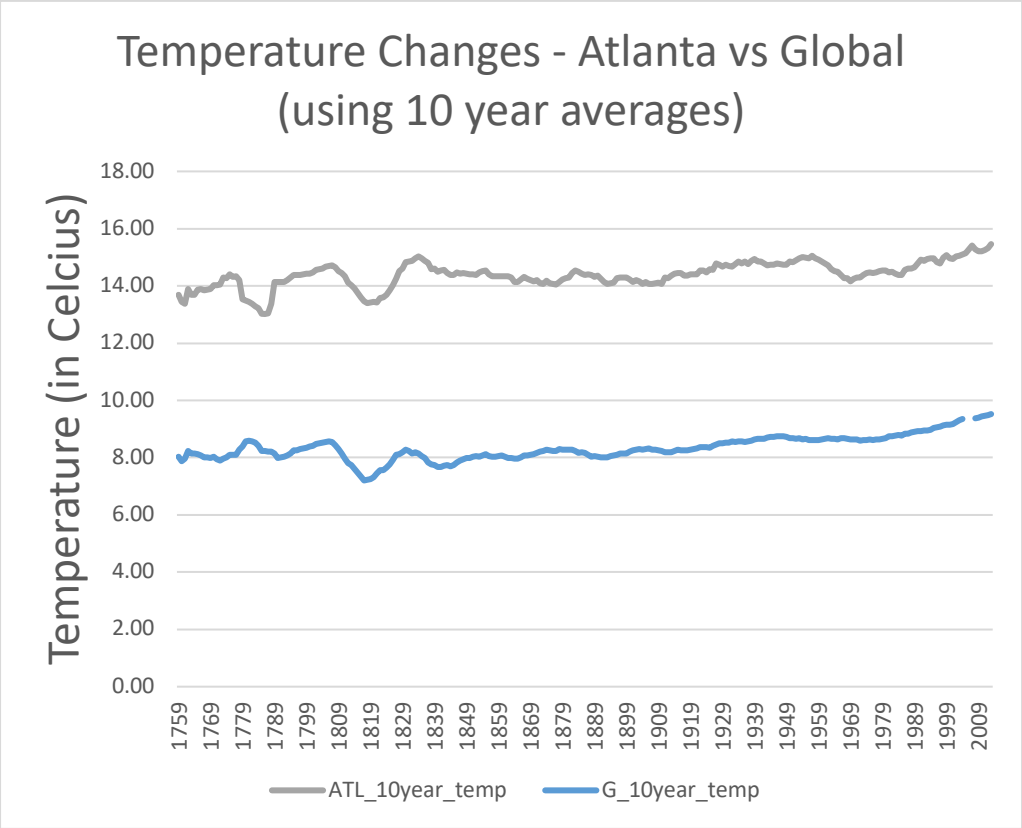
STEP	ACTION

1	Ran a SQL script to searching for data from the three closest cities to me (I live in Chesapeake)
	`SELECT city, country`
	`FROM city_list`
	`WHERE city IN ('Chesapeake', 'Norfolk', 'Virginia Beach')`

2	Ran another SQL script to join the city_data and global_data tables to obtain one table with the year and avg_temp from the city_data table and avg_temp from the global_data table
	`SELECT cd.year, cd.avg_temp, gd.avg_temp AS g_temp`
	`FROM city_data AS cd`
	`JOIN global_data AS gd`
	`ON cd.year = gd.year`
	`WHERE city LIKE '%Virginia Beach%'`

3	Downloaded results as a .csv file. This file had three columns A. Year B. Avg_temp (Virginia Beach) C. Avg_temp (Global)
4	Decided to use "10 year moving averages" to smooth out the data • Edited the .csv file in excel to add two columns to calculate 10 year averages of the Virginia Beach avg_temp and the Global avg_temp
5	Created a line chart using the year, VB_10year_temp, and G_10year_temp columns • Added a title to the chart • Added an title to the y-axis • Added a legend
6	This is the chart that was created 

7	Reviewed data and chart to determine the following observations 1. The temperature patterns for Virginia Beach mostly follow the Global patterns since 1750 2. There were two drops in average annual temperature in Virginia Beach that did not coincide with average annual temperature drops globally (late 1700's and mid 1900's 3. The average annual temperature in Virginia Beach is a little over 7°C higher than the average annual global temperature 4. Global temperatures have been rising steadily since 1910
8	Utilized the CORREL function in excel to determine the correlation coefficient between annual average temperatures in Virginia Beach and global temperatures This resulted in a *correlation coefficient of .77* which represents a strong positive linear relationship
9	Utilized Excel to estimate study recent temperature trends for Virginia Beach over the last 30 years • Average annual temperature has risen 1.25°C • Average annual temperature (using 10 year averages) has risen 1°C • Using the 10 year averages over the last 30 years the temperature rises by 0.03°C per year • Based on these numbers, the average annual temperature in Virginia Beach in 2020 would be 17.03
10	Utilized Excel to estimate study recent Global temperature trends over the last 30 years • Average annual temperature has risen 0.92°C • Average annual temperature (using 10 year averages) has risen 0.77°C • Using the 10 year averages over the last 30 years the temperature rises by 0.026°C per year • Based on these numbers, the Global average annual temperature in 2020 would be 9.74°C
11	Repeated steps 1-5 for New York and Atlanta
12	Created chart comparing annual 10 year average temperatures in New York vs the global averages 
13	Reviewed data and chart to determine the following observations 1. The temperature patterns for New York mostly follow the Global patterns since 1759 2. New York experienced a massive drop in average annual temperature at the end of the 1700's 3. New York also showed to have less consistent averages in the 1900's compared to global temperatures which display a much smoother line

14	Created chart comparing annual 10 year average temperatures in Atlanta vs the global averages 
15	Reviewed data and chart to determine the following observations 1. The temperature patterns for Atlanta mostly follow the Global patterns until the mid-1900s 2. Atlanta experienced a massive drop in average annual temperature at the end of the 1700's 3. Atlanta experienced a sharp decrease in temperature in the mid 1900s and has been rising rapidly since