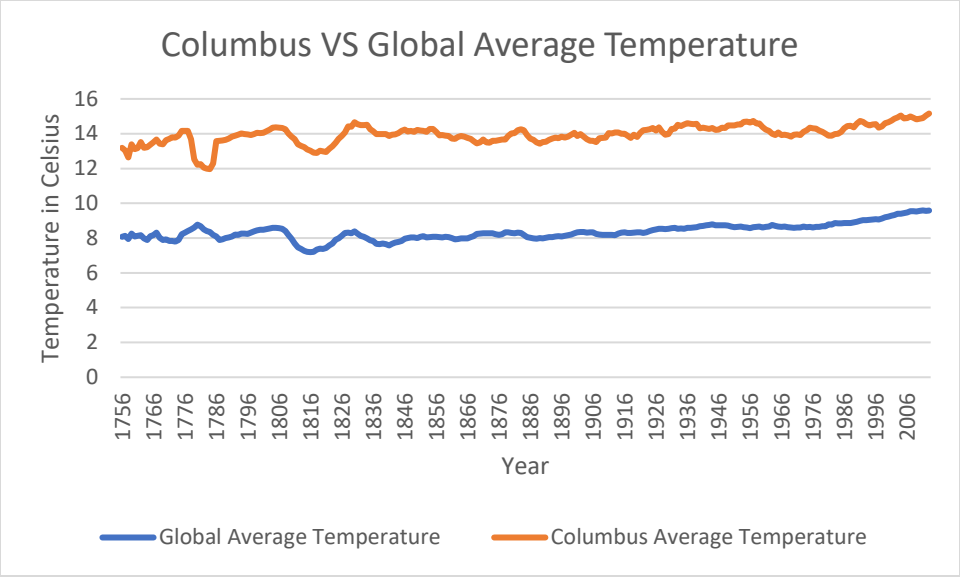

Explore Weather Trends

2/3/2020

Udacity – Data Analyst Nanodegree

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Columbus, Ohio

1. Using the SQL form on the website, I executed the following to pull data:
    a. ALTER TABLE city_data RENAME COLUMN avg_temp to CAT;
    ALTER TABLE global_data RENAME COLUMN avg_temp to GAT;
    SELECT global_data.year, global_data.GAT, city_data.CAT
    FROM global_data JOIN city_data
    ON global_data.year = city_data.year
    WHERE city LIKE 'Columbus';
    b. This created a csv with 3 columns, the first with the year, the second with the global average temperature, and the third with the Columbus average temperature, which I then downloaded and opened in Excel.
2. Using Excel, I created two new columns each calculating the 7 year moving average, one for the global temperature and one for Columbus. I used the formula =AVERAGE(B2:B8) as an example, but was repeated down through the column and a similar one was used for the other column. This resulted in calculating the average for the current, plus 6 previous, year changing as the year changed.
3. Using Excel, I created the graph above by using my year column on the X axis, with temperature on the Y axis, and giving the global and city data different lines. I then edited the title, axis names, and legend using excel.
4. My main considerations were wanting to have a detailed, yet smooth, line graph to help understand the data, allowing people to see overall trends in both global and city data, yet still

see smaller dips in the data, without bogging down the graph with large line jumps that can occur when not using moving averages in data like this.

Four observations:

1. Columbus, on average, is warmer than the global average temperature, typically between 4 and 6 degrees Celsius hotter.
2. The difference is fairly consistent, however, between 1776 and 1786 Columbus dipped lower than normal while global increased higher than nearby years, resulting in the smallest difference between the two.
3. Generally speaking, other than between 1776 and 1786, Columbus and global moving average trends tend to mirror each other, with only minor differences in fluctuations, such as after 1966 when Columbus dips more than the global average.
4. The overall trend for both Columbus and global moving average temperatures is an increase, suggesting the world is getting hotter. The trend has not been consistent as there have been some drops, but overall the trend is increasing.