Exploring Weather Trends

Project 1

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Extracting the data

SQL queries:

SELECT * FROM city_list WHERE country='United States' -> *The biggest city near me is Buffalo but is not on the list. Then I had to choose New York City.*

SELECT * FROM city_data WHERE city='New York'

SELECT * FROM global_data

Moving Average

Tool: Google sheets

Method: 10-year moving average (5-year moving average still has a lot of fluctuations) using =AVERAGE(D2:D11) and dragging the formula.
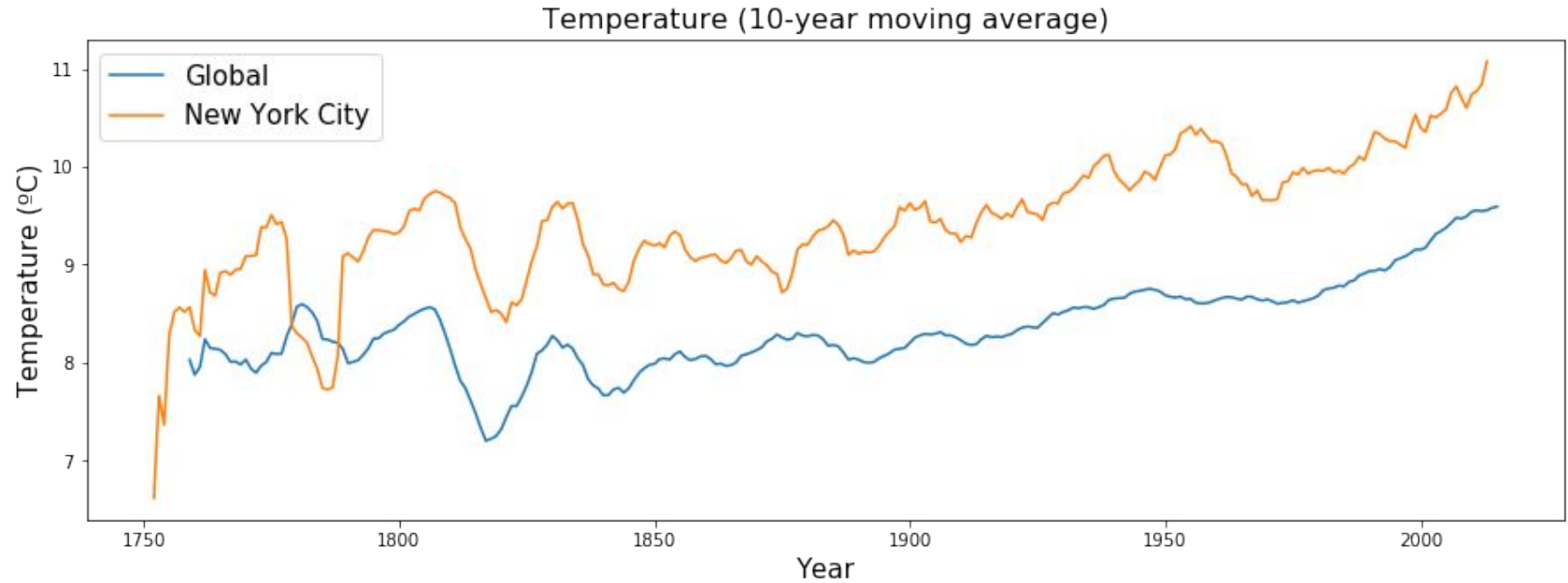
Line Chart

Tool: Jupyter Notebook. Python - Pandas - Matplotlib

Method: Read the csv files with Pandas, plot with Matplotlib inline.

Line Chart

Temperature (10-year moving average)

Observations

The average temperature of New York City is higher than the global one in almost all years except in a little window around 1785.

The trend in both cases is really similar with some differences around 1785 and 1880 where there is a peak in the global temperature but a valley in the New York City's temperature.

The average temperature in both cases is growing since 1850. Before that, the temperature fluctuated a lot and there is no clear trend.

More insight

Pearson's correlation coefficient between the global 10-year moving average and the one for New York city is p=0.79 indicating that there is indeed a correlation between both temperatures.
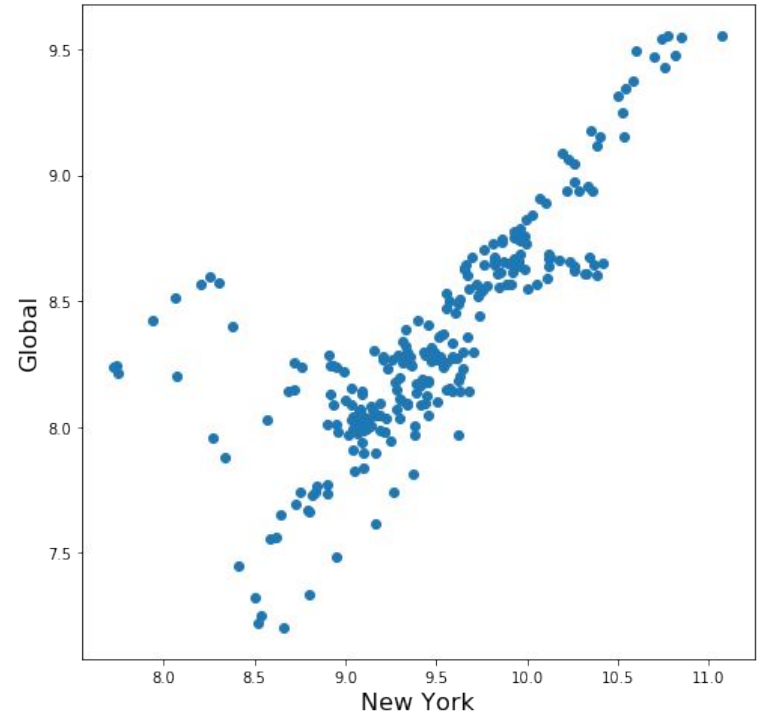
Cities with similar latitude

Temperature (10-year moving average)
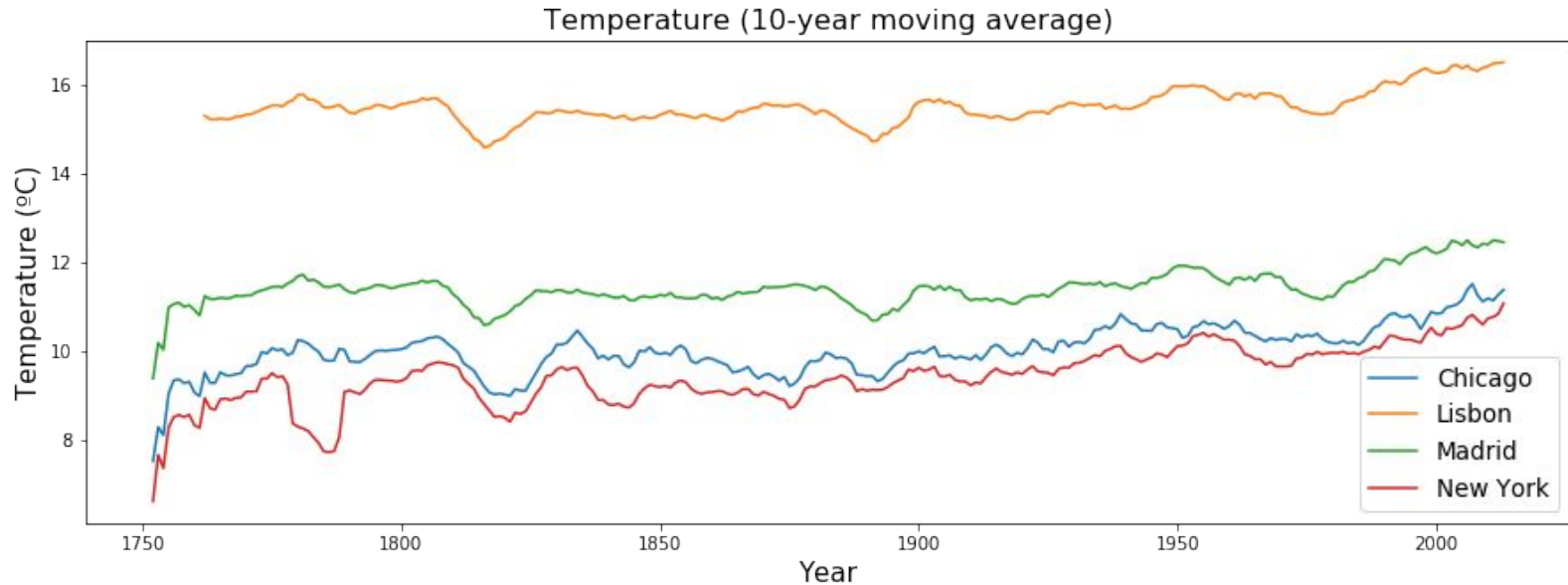
Observations

The behaviour of New York and Chicago's temperature is remarkable similar.

The four cities have a very similar trend with a difference in the value of the temperature.

The only remarkable difference between the cities is the valley in the New York's line around 1785.