Nanodegree Data analyst Term 1

Project Weather Trends Udacity

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Steps

First extract the data from the database with SQL

Step 1 Find the nearest city

SELECT city

FROM city_list

WHERE country = 'Netherlands'

Output: 1 result

Amsterdam, Netherlands

Step 2 Extract the local temperature data

SELECT year, city, avg_temp

FROM city_data

WHERE city = 'Amsterdam'

Output: 273 results

Year, average temperature for Amsterdam

Download csv

Step 3 Extract the global temperature data

SELECT *

FROM global_data

Output 266 results
Year and global average temperature

Download csv

Step 4 Visual inspection of the extracted data in the csv's

The years of city_data of Amsterdam do not exactly match the global data. Amsterdam starts in 1743 and global_data starts in 1750. The years 1746-1749 have nog data. Amsterdam last data are for 2013 and global_data goes up to 2015. Since there are no values to compare for the trend I decide to delete the data for the years 1743-1749 and the years 2014 and 2015.

Step 5 Import the csv's in Excel

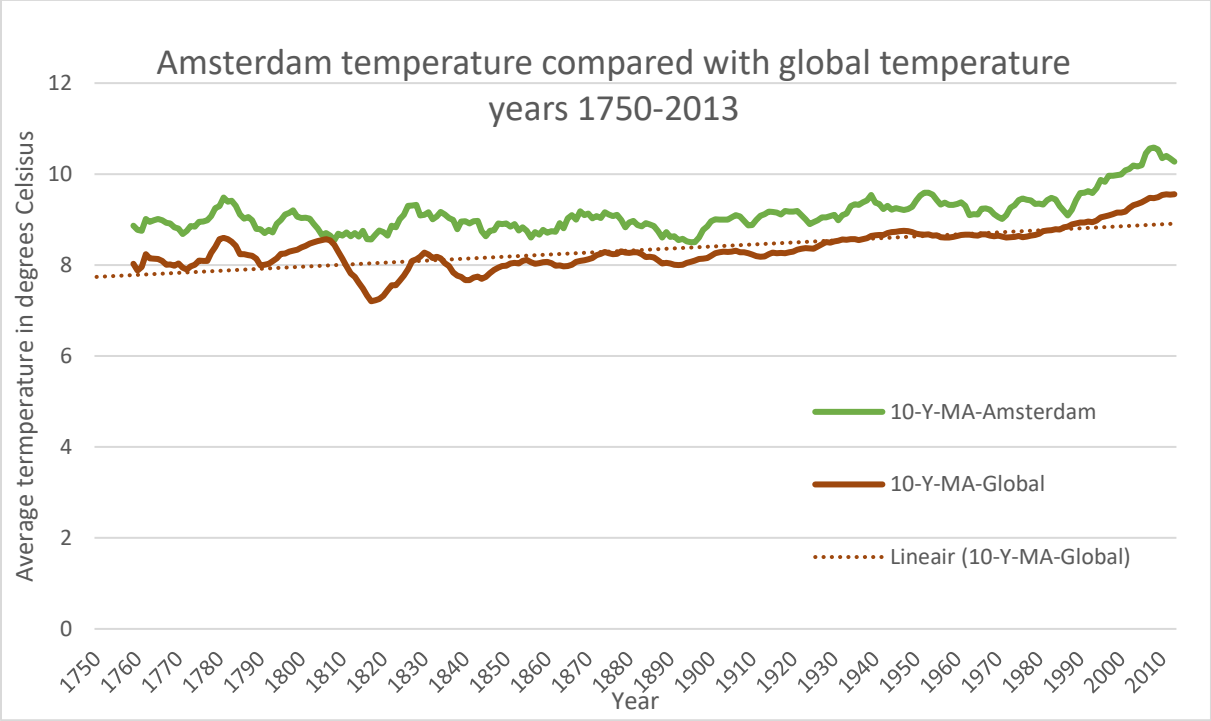
Importing provided some extra challenges due to different notations in regional settings. I solved this with manual settings in SQL editor.

Step 6 Add the columns with the 10-years moving average for local and global data

Given the length of the meared time period of more than 250 years a 10-year average is in my opinion appropiate to smooth out strong yearly differences.

Step 7 Make the chart

I made the line chart based on the data. I choose 10-year steps on the timeline. I added legends and actived a linear trendline for the global 10-year moving average Excel offered me in the chart.



Step 8 make 4 observations

Observation 1

The average global temperature is definitely rising, although there may be some cold years. The average temperature in the years 1750-1899 was 8,06 degrees Celsius compared with an average of 8,74 for the period 1900-2013. This is a global warming of 0,68 degrees. This is clearly shown in the rising 10-year moving averages and supported by the lineair trendline.

Observation 2

Since 1980 the rise of the global temperature is progressing more than before. The 10-year MA went from 8,68 to 9,56 degrees in 2013. This is a growth of 10 percent in 34 years. The temperature clearly exceeds the trendline for these last years.

Observation 3

The temperature in Amsterdam is consistently higher than the global temperature. The green color of the Amsterdam temperature is always above the red line of the global temperature.

Observation 4

The rise of the temperature in Amsterdam is progresssing more than the rise of the global temperature in the last decades. For example in the period of 1987 until 2013 the moving average went from 9,09 to 10,27 degrees. This is a difference of 13 percent. While the global temperature 10 year moving average grew since 1987 with 8 percent from 8,84 to 9,56 degrees. This a significant higher growth of temperature than global of 5 percent in Amsterdam for this period. The green line in the chart for Amsterdam shows a steep climb since 1987.