

Exploring Weather Trends

Project 1

Analysis Of Local And Global Temperature Data

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Overview

This Project describes similarities and differences between global temperature averages and temperature trends in Tbilisi, Georgia.

Outline

Project consists of following steps :

- Extraction of data from a database using a SQL query.
- Calculation of a moving average in a spreadsheet.
- Creation of a line chart in a spreadsheet.
- Least four observations, about the similarities and/or differences in the trends.

Tools used

- SQL - For data extraction

SQL commands to find city, select and join tables:

‣ SELECT * FROM city_list WHERE country LIKE 'Georgia'

‣ SELECT global_data.year, global_data.avg_temp as globavg,

city_data.avg_temp as cityavg

FROM global_data

JOIN city_data

ON global_data.year=city_data.year

WHERE city='Tbilisi'

- Excel - Plotting Line Charts and calculating Moving Average

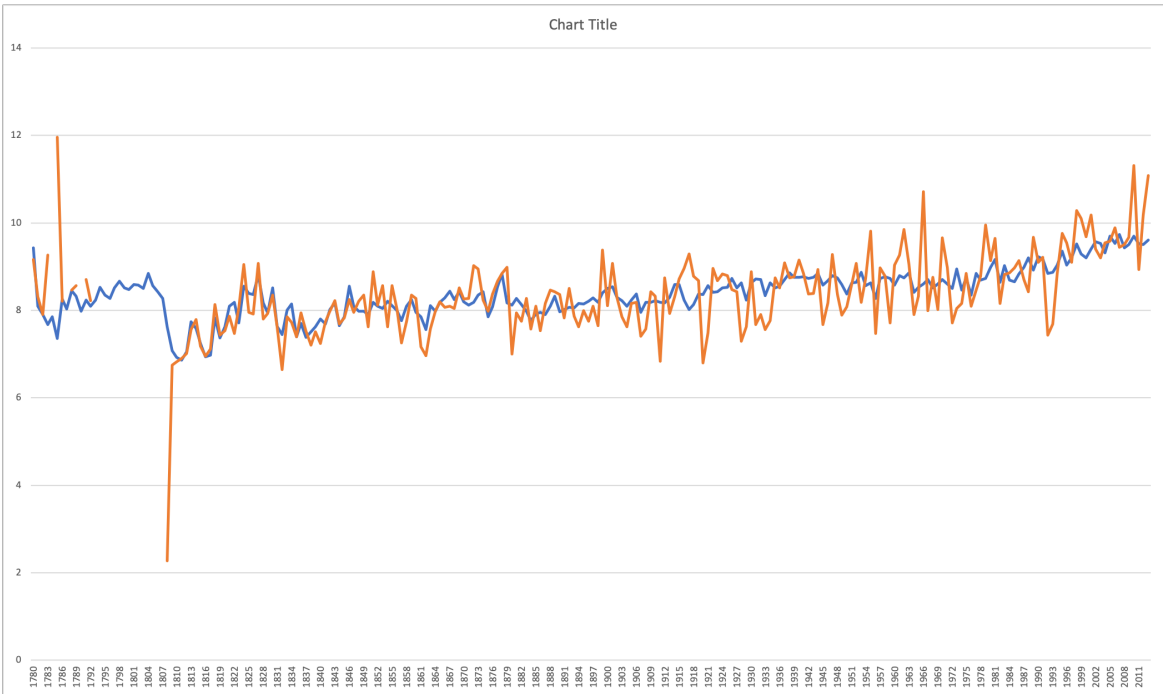
Moving Average was calculated using formula “=AVERAGE(An:An+10) ”

Charts

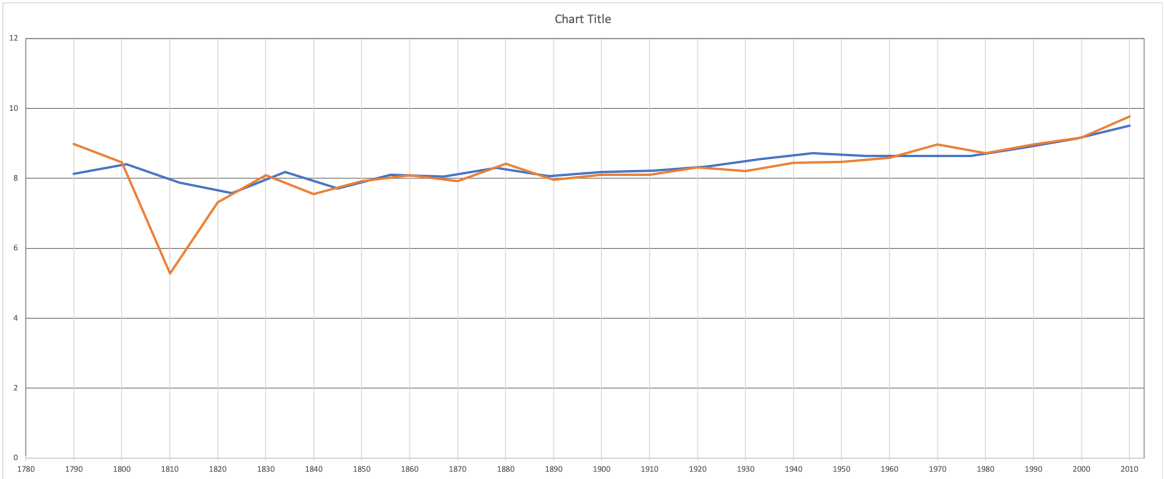
I have plotted combined (Global and City) charts together to better demonstrate differences and similarities between the two. First chart is for yearly average. Second chart is for moving average, where missing values has been connected by straight lines.

Y-axis:Temperature(°C) X-axis:Years Blue:Global Orange:Tbilisi

Yearly Average Line Chart :



Moving Average Line Chart :



Observations

1. Global average temperature changes between 7.5°C - 9.5°C during 230 years. Showing a (in larger picture) trend of very slow gradual increase over the years 1780 - 2010 of nearly 2°C.
2. Average Tbilisi temperature is very similar to global average. Which has mostly been consistent over time (Especially from year 1820 till 2010).
3. Tbilisi average temperature trend, Just like trend for global average, also shows gradual increase over long period of time.
4. Both averages show consistent type of periodicity, where after temperature increase phase, comes a decrease phase: having peak minimums and maximums in every period. Showing that in smaller periods (~ 10 years) temperature stays nearly consistent.
5. According to above observation [4] and an average temperature graph, we can expect an average temperature decrease soon after 2010 (first a bit of increase possibly, and once it reaches maximum peak, it will start to decrease), for global world and Tbilisi.
6. Having in mind the first observation [1], and larger time lapse, we can also expect a gradual and slow increase of temperature after 2010. For example in every 100 years by ~ +1°C. This shows a trend of temperature rising globally. However, this is only a guess, based on small time period, and I don't have nearly enough information from this data, to make any accurate conclusion.