EXPLORING WEATHER TRENDS

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SUMMARY

In this project, we will analyse local and global temperature data and compare the temperature trends where we live to overall global temperature trends.

SQL QUERY

SQL query to extract global data

```
1   SELECT *
2       FROM global_data;
3
4
```

Success! EVALUATE

SQL query to identify cities in France and Switzerland

```
1   SELECT city
2       FROM city_list
3       WHERE country = 'France' OR country ='Switzerland';
4
5
```

Success! EVALUATE

SQL query to extract cities data

```sql
SELECT city, year, avg_temp
    FROM city_data
    WHERE city = 'Paris' OR city ='Bern';
```

Success! EVALUATE

DATA PROCESSING

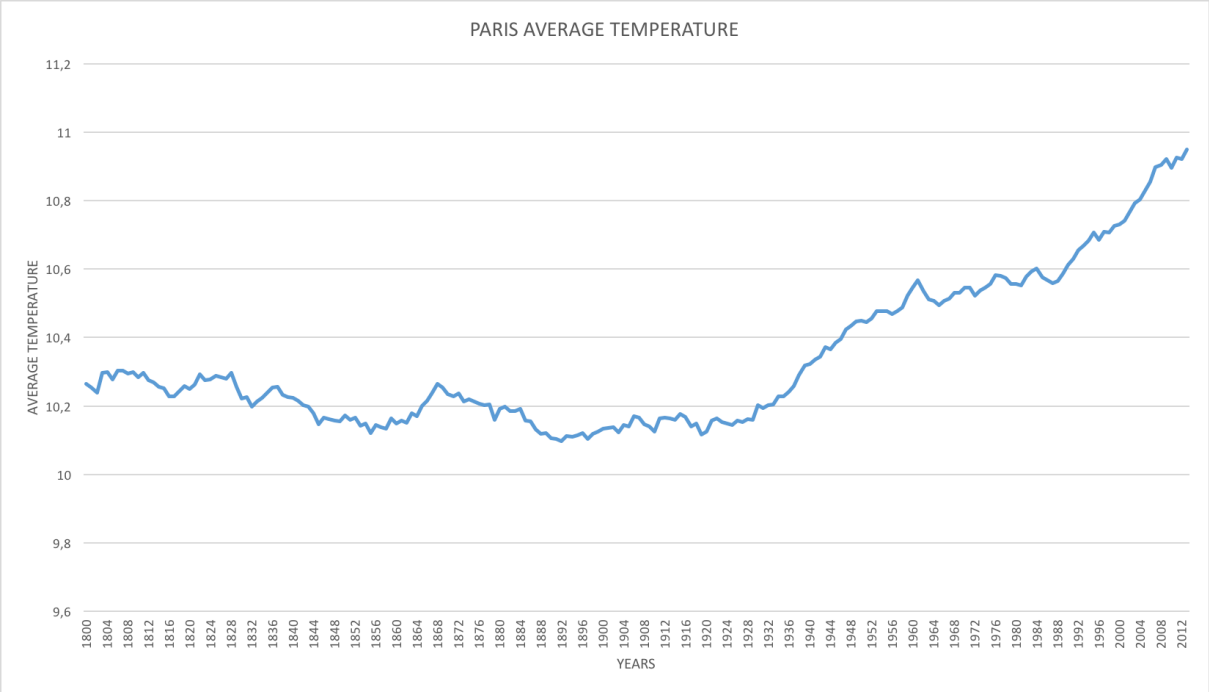
To standardise the data we selected the data available between 1750 and 2013.

To smooth out short-term fluctuations and highlight longer-term trends we applied a moving average of 50 years.

The Excel's formula applied was the following : '=AVERAGE(C2 :C52)'.

DATA ANALYSIS

PARIS



The scatterplot shows us the average temperature in Paris.

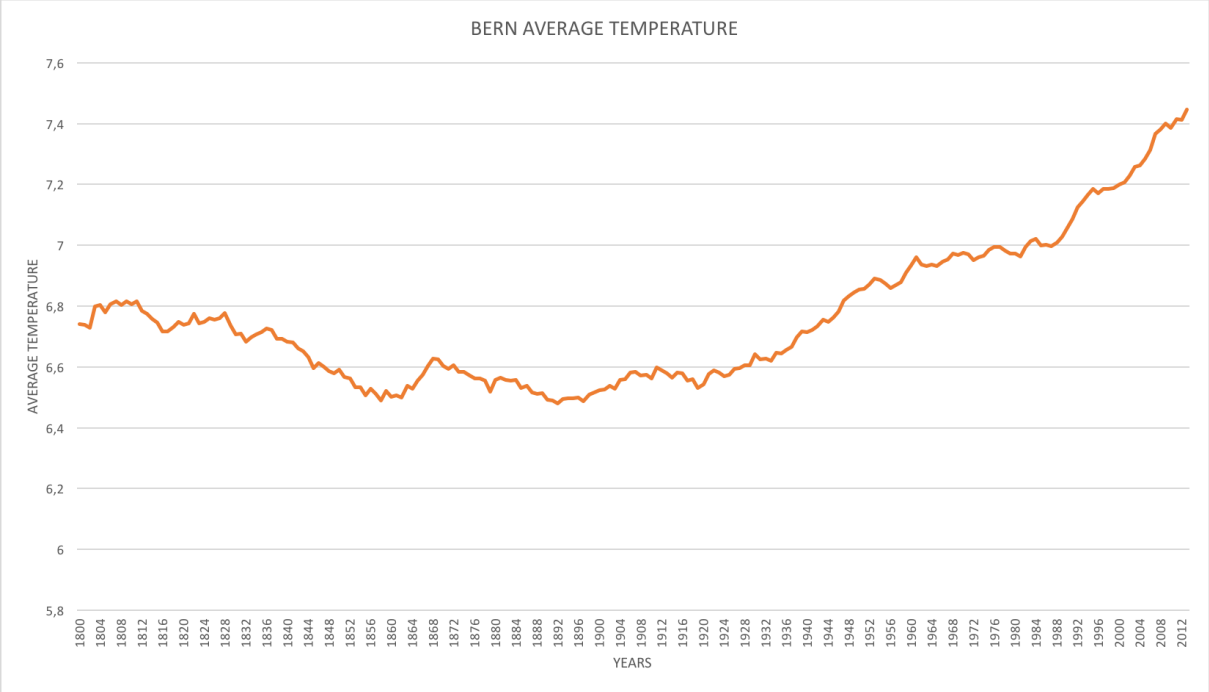
Its evolution can be divided in two cycles.

The first one, between 1800 and 1920, is a linear negative relation.

The second one, between 1920 and 2013, shows us a linear positive relation.

The second cycle is more pronounced, the temperature evolution between 1800 and 1920 (120 years) is -0,14, against +0,8 between 1920 and 2013 (93 years).

BERN



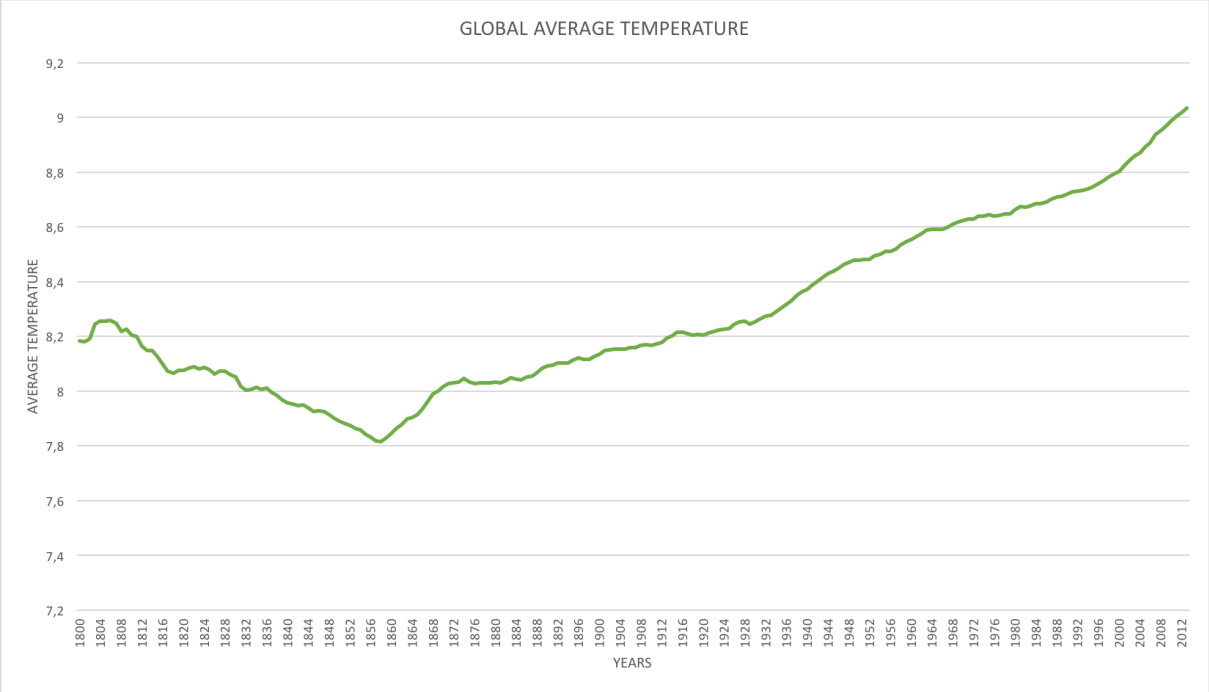
The scatterplot shows us the average temperature in Bern and show us something similar to cycles of the average temperature in Paris

The first one, between 1800 and 1920, is a linear negative relation.

The second one, between 1920 and 2013, shows us a linear positive relation.

The second cycle is more pronounced, the temperature evolution between 1800 and 1920 (120 years) is -0,2, against +0,9 between 1920 and 2013 (93 years).

GLOBAL



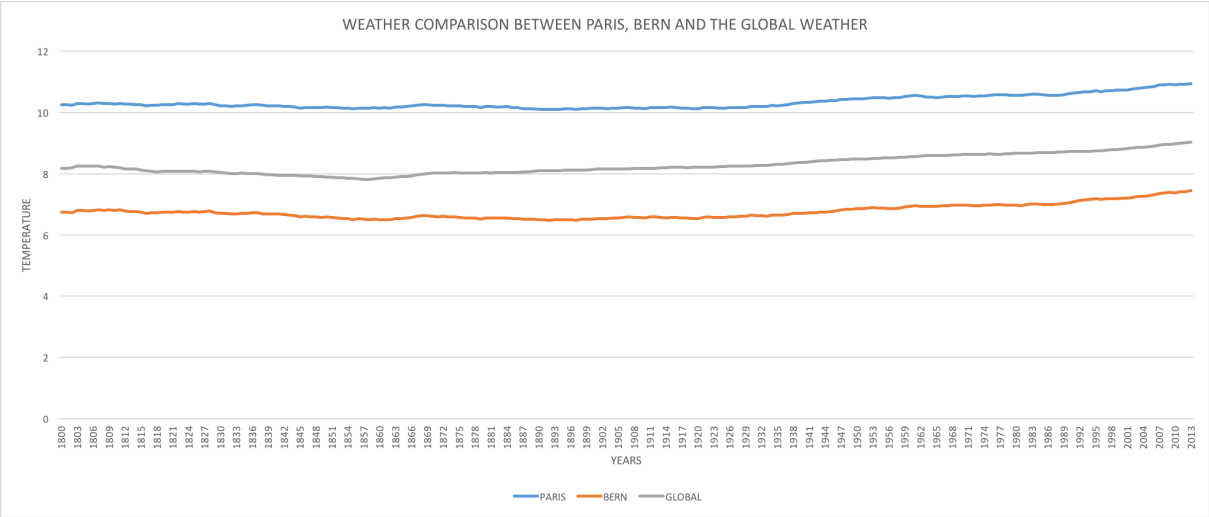
The scatterplot shows us the average temperature in the world.

It also has two cycles but they aren't the same as for Paris or Bern.

The first one, between 1800 and 1858, is a linear negative relation (-0,37).

The second one, between 1858 and 2013, shows us a linear positive relation (+1,22).

COMPARISON



When we compare the three trends, the first thing we observe is that Paris is the hotter city and Bern the cooler city. Also, Paris is hotter, and Bern is cooler than the global temperature trend.

Though, Paris and Bern have different cycles and variabilities than the global weather, the three trends seem to follow the same pattern.

To insure that, we can calculate a correlation coefficient based on the moving average for each city.

The correlation coefficient for Paris and the global weather is 0,93.
The correlation coefficient for Bern and the global weather is 0,90.

The two coefficients show a strong relation.