

Project: Explore Weather Trends

To explore weather trends First we use SQL to extract the required data from the temperatures database, then download the results to a CSV.

SQL query used to extract the data used

Cairo's Temperature Data

```
SELECT year, avg_temp  
FROM city_data  
WHERE city = 'Cairo';
```

Paris's Temperature Data

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

Global Temperature Data

```
SELECT *  
FROM global_data;
```

Using Google Sheets we open the CSV files to start analyzing the data. We then calculate the 7-year moving average of global temperatures, Cairo's temperatures, and Paris temperatures.

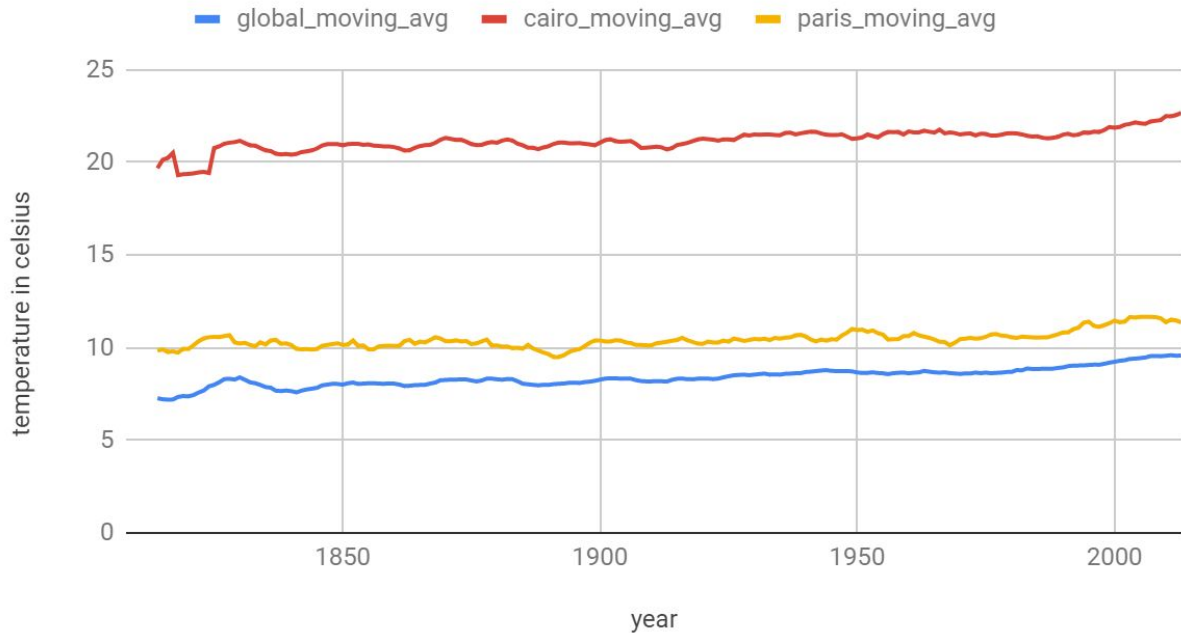
We get the moving average with Google Sheets by grouping the temperatures of the previous 7-years, then get their average, we apply the same average function by dragging the calculated cell till the last year's row.

To start make observations of the data we first need to visualize it. Using a line chart here makes sense, it gives a clear picture of the data, which is important for analysis.

Using Google Sheets we can calculate the correlation coefficient between the global temperatures and Cairo's temperatures. The correlation coefficient can tell us the statistical relationship between the two temperatures.

The correlation coefficient is 0.913.

Comparison between global and cities average temperatures



Observations

After analyzing the line chart, we can draw the following observations.

- Cairo's temperatures are moderately higher than the global temperatures.
- Both Cairo's and the global temperature have been increasing slightly over the years.
- Paris's temperatures looks a little bit higher than the global temperatures, and like Cairo, it's been increasing very slightly the last few decades.
- The overall trend looks to be increasing in temperature hence the world is getting hotter.
- The rise in temperature looks like it has been fluctuating until approximately the beginning of the 20th century, since then the temperature have been increasing consistently.
- The correlation coefficient tells us that the global temperature and Cairo's temperature have a positive relationship, which means when the global temperature increases, Cairo's temperature is very likely to increase.

Link to spreadsheet:

<https://drive.google.com/open?id=1Pp-l90xmYGjbl5qYQqYmBA6LifP8yF1puYMHdKnQTBc>