Exploring Weather Trends

Wednesday, August 16, 2023 4:07 PM

Summary

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

Udacity provided a database with three tables for this project:

city_list contains a list of cities and countries in the database.
city_data contains the average temperatures for each city by year (°C).
global_data contains the average global temperatures by year (°C).
Udacity did not provide a link to the source of this data, nor did they explain how the yearly average temperatures were calculated.

Steps

SQL
Initially we needed to extract the txt files needed for visualization & interpretation.
Thus, I extracted the global data simply as:

```
SELECT
        year,
        AVG(avg_temp)
FROM kobaivanovm.city_data
GROUP BY year;
```

Then I needed to choose my country only, thus I used the below SQL statement:

```
SELECT
        year,
        city,
        country,
        avg_temp
FROM kobaivanovm.city_data
WHERE country='United States' AND city='New York';
```

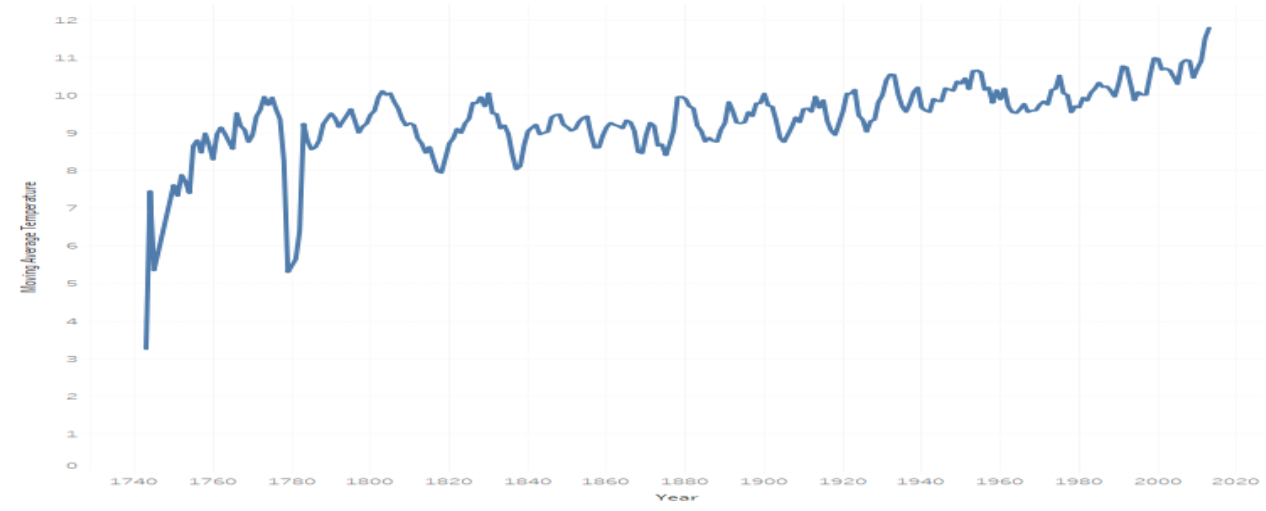
Then I downloaded the csv files & took a look at them manually to just make sure everything is in place.

Tableau

After that, I used Tableau to read the txt files for interpretation & visualization
The moving average was calculate by average of temp over the last 3 periods.
Null values are present in variables but I have sufficient data, so I opt to exclude rows with null values.
The nulls are randomly distributed and not likely to introduce bias since the focus of this analysis is the overall trend.

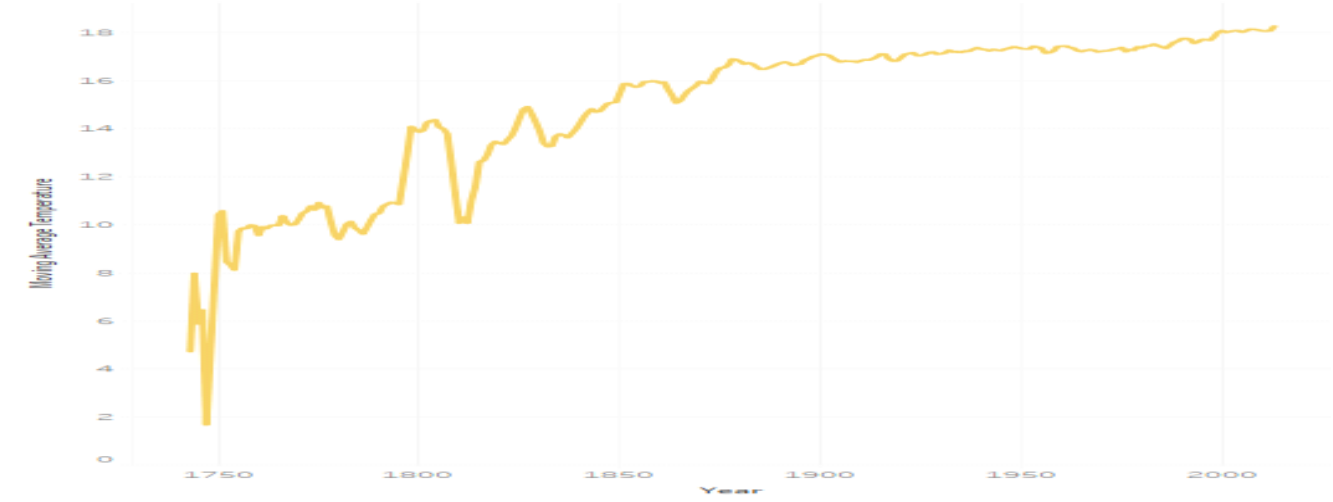
The following image are:
NY Average Temperatures, Global Average Temperatures, NY&Clobal Average Temperatures, NY&Clobal Average Temperatures Differences

NY



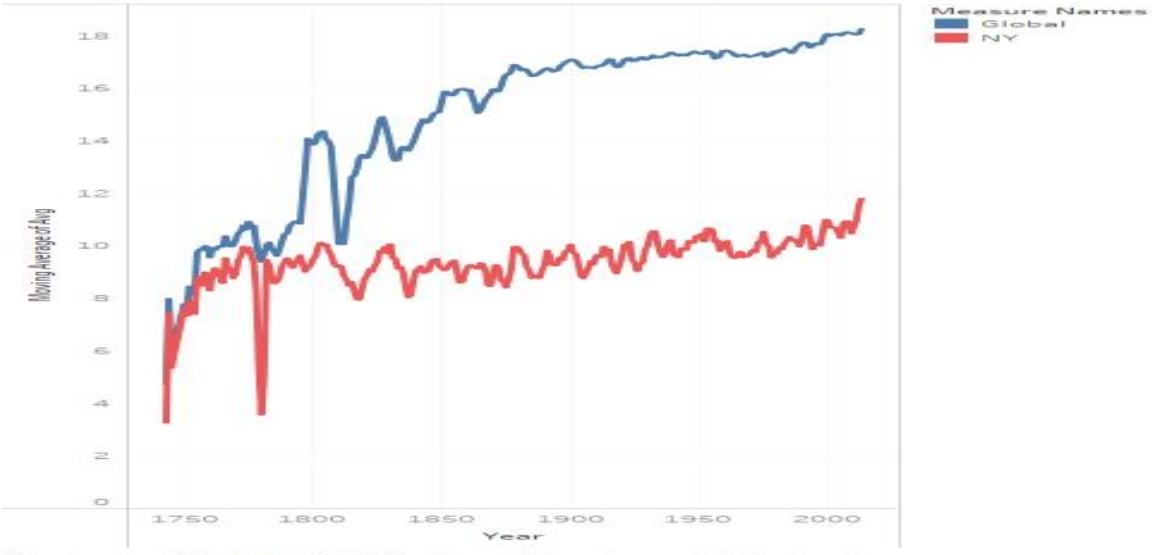
The trend of Moving Average of Avg Temp for Year. The data is filtered on sum of Avg Temp, which keeps non-Null values only.

GL

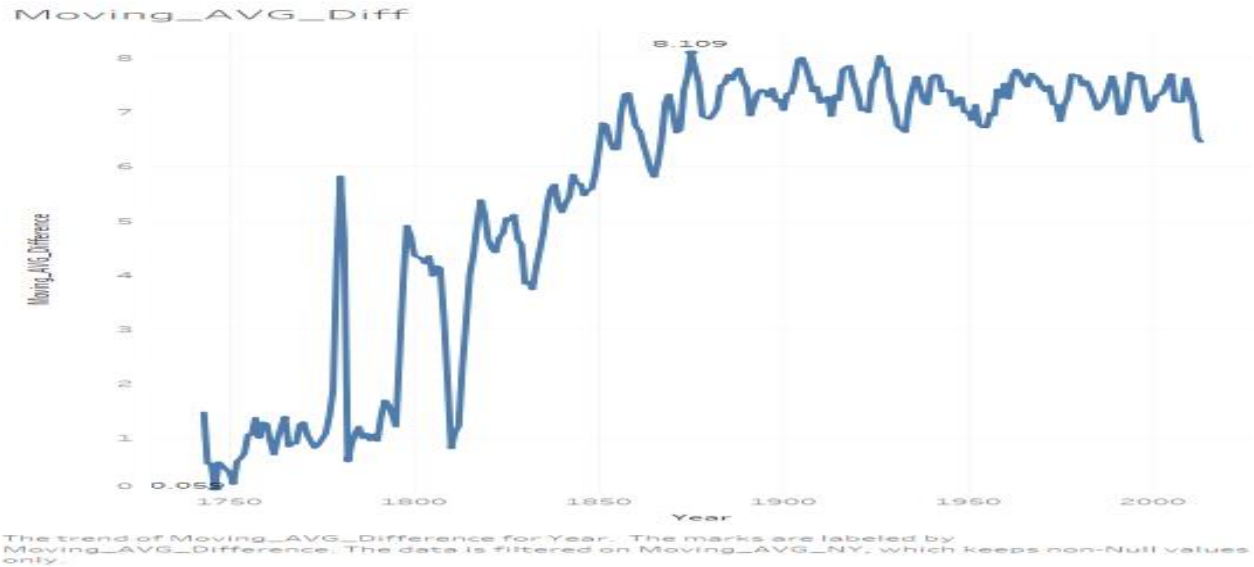


The trend of Moving Average of Avg for Year. The view is filtered on Moving Average of Avg, which keeps non-Null values only.

Comparsion



The trends of Global and NY for Year. Color shows details about Global and NY. The data is filtered on sum of Avg, which keeps non-Null values only.



The trend of Moving_AVG_Difference for Year. The marks are labeled by Moving_AVG_Difference. The data is filtered on Moving_AVG_NY, which keeps non-Null values only.

Interpretations

As shown in the above graph that:

- New York is much cooler the average of the global temperatures with a difference in the range of 0.059 to 8.109°C.
- The difference is increasing.
- The trend is that the world is getting hotter and hotter (Global Warming).
- Global weather started to take an increasing trend after the 1810, while the New York weather measures had some fluctuations.