WEATHER TRENDS

FEBRUARY 2018

ROME

Area

1,285 km^2 (496.3 sq mi)

Elevation

21 m (69 ft)

Population

(30 April 2018)

Rank

1st, Italy (4th in EU)

Density

2,236/km^2 (5,790/sq mi)

Comune

2,872,800

Metropolitan City

4,355,725

Weather trends

Introduction

I compared the local temperature of Rome with the global one, taking into consideration a period of about 200 years. Projects like this can bring to the attention the issue of global warming, so bring people to have a critical eye on pollution and habits that can damage our planet, causing effects such as:

- heat waves
- droughts
- heavy rainfall with floods
- heavy snowfall
- ocean acidification
- species extinctions due to shifting temperature regimes

Data gathering and cleaning

In order to gather the data I used SQL, I renamed the columns and after joined the tables excluding the missing data.

```
ALTER TABLE global_data RENAME COLUMN avg_temp to glob_avg_tmp;
ALTER TABLE city_data RENAME COLUMN avg_temp to city_avg_tmp;

SELECT global_data.year, global_data.glob_avg_tmp, city_avg_tmp
FROM global_data INNER JOIN city_data
ON global_data.year=city_data.year
WHERE city like 'Rome';
```

After running those queries, I downloaded the result as a CSV file

Output 264 results Download CSV

year	glob_avg_tmp	city_avg_tmp
1750	8.72	12.53
1751	7.98	12.99
1752	5.78	7.68
1753	8.39	11.96

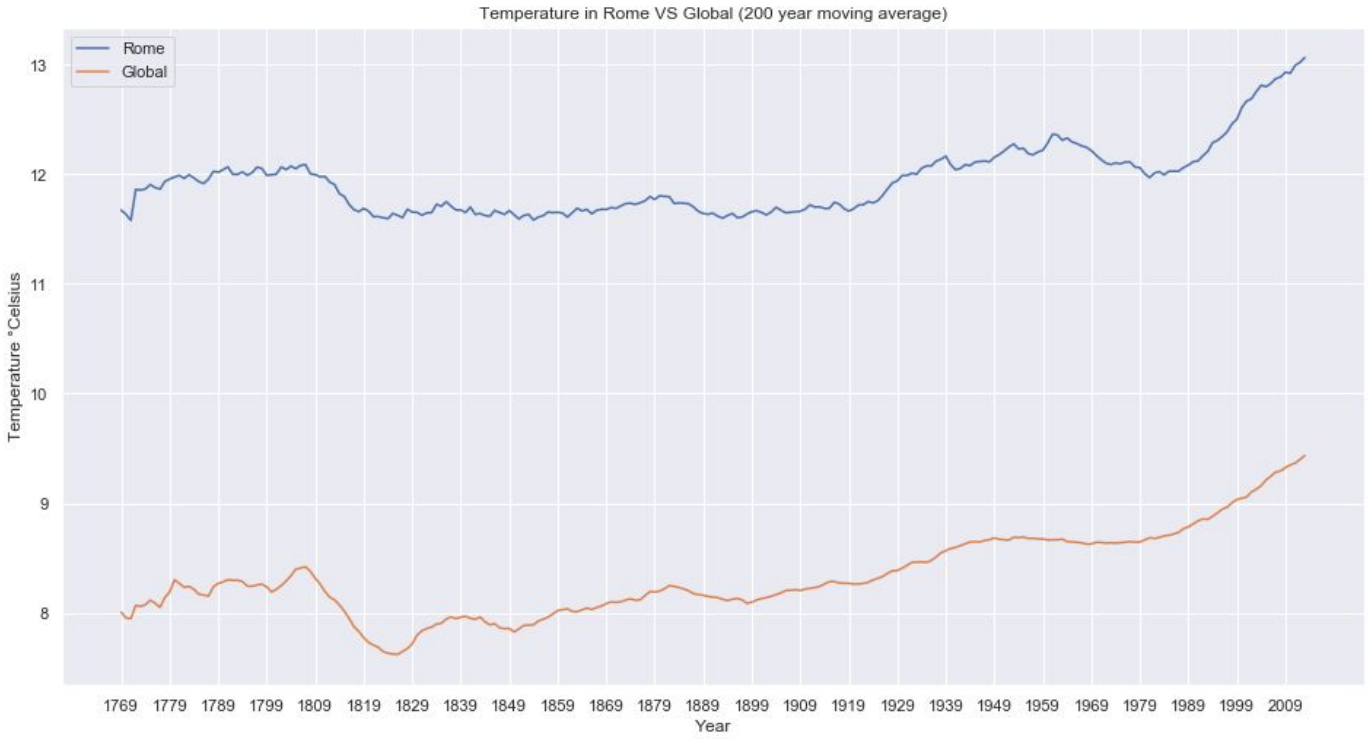
Moving average

In order to calculate the moving average I used Python. First of all I loaded the csv file, after I calculated the moving average using a pandas function “rolling” with a window of 20 years, the jupyter notebook is available on my github

```
df_temps = pd.read_csv("results.csv")
df_movingAvg = df_temps.rolling(window = 20, center=False, on = "year").mean().dropna()
```

Data Visualization

I decided to use a linear graph to better see a comparison between the average global temperature and the average temperature of Rome



Data analyses

1. We can note generally that the average temperature of Rome is 4 degrees higher than the average global temperature

2. Around 1820, both Rome and the global average temperatures had a significant decrease

3. The temperature of the city of Rome and the global average tend to increase more and more

4. Since 1979 we can notice a steep curve related to the increase in temperatures both for the average temperature of Rome and in the average global temperature