Exploring Weather Trends

Data Analysis - Udacity Project 1

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Contents

Tool used:

1. SQL: data Extracting from the database.
2. Excel: used to calculating the Moving Average and making observation by the data presented and the line chart.

Data Extracting:

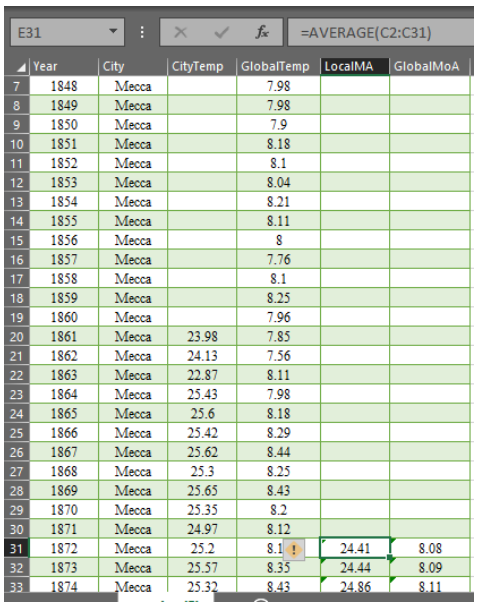
The SQL Query used to extract data from the database is:

- **SELECT** city_data.year, city_data.city ,city_data.avg_temp city_temp, global_data.avg_temp global_temp **FROM** global_data, city_data **WHERE** city_data.year=global_data.year **AND** city_data.city **LIKE** 'Mecca';

```
1   select city_data.year, city_data.city
    ,city_data.avg_temp city_temp, global_data.avg_temp
    global_temp from global_data, city_data where
    city_data.year=global_data.year and city_data.city
    like 'Mecca';
```

Calculating the moving average:

Calculating the 30-year moving average of the local and global temperature using the average function.

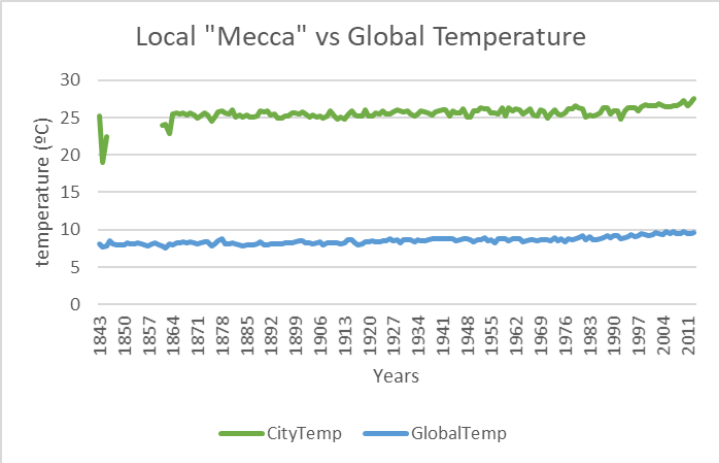


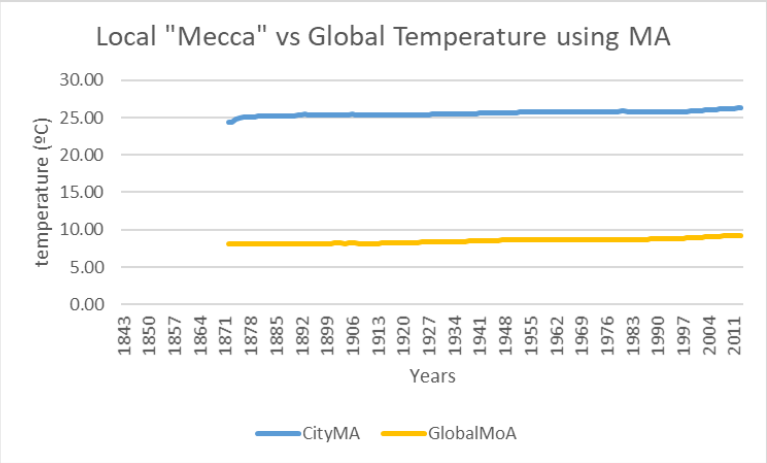
	Year	City	CityTemp	GlobalTemp	LocalMA	GlobalMoA
7	1848	Mecca		7.98		
8	1849	Mecca		7.98		
9	1850	Mecca		7.9		
10	1851	Mecca		8.18		
11	1852	Mecca		8.1		
12	1853	Mecca		8.04		
13	1854	Mecca		8.21		
14	1855	Mecca		8.11		
15	1856	Mecca		8		
16	1857	Mecca		7.76		
17	1858	Mecca		8.1		
18	1859	Mecca		8.25		
19	1860	Mecca		7.96		
20	1861	Mecca	23.98	7.85		
21	1862	Mecca	24.13	7.56		
22	1863	Mecca	22.87	8.11		
23	1864	Mecca	25.43	7.98		
24	1865	Mecca	25.6	8.18		
25	1866	Mecca	25.42	8.29		
26	1867	Mecca	25.62	8.44		
27	1868	Mecca	25.3	8.25		
28	1869	Mecca	25.65	8.43		
29	1870	Mecca	25.35	8.2		
30	1871	Mecca	24.97	8.12		
31	1872	Mecca	25.2	8.1	24.41	8.08
32	1873	Mecca	25.57	8.35	24.44	8.09
33	1874	Mecca	25.32	8.43	24.86	8.11

Analyzing the data:

Method Used to Analyze:

1. Analyzing the data, from the SQL query.
2. Analyzing the data, from moving average: 30-year MA for the temperature globally and locally.
3. Analyzing the temperature differences globally and locally from the line chart.





Observation:

The shorter the MA range the messier I tried to do the MA as a range of 3 and 10 and 20 and tried 30-year MA is relativity is a smooth line.

The temperature for both globally and locally (Mecca) from the line chart above are increasing, the global temperature increased by 1.44 in the years from 8.17 - 9.61 Celsius degree, and where local Mecca temperature increased by 2.41 in the years from 25.16 - 27.57 Celsius degree.

The resemblance between the temperature globally and locally (Mecca) the continues increment, but the increment in the local (Mecca) temperature is greater than the global changes.

The speed of the temperature changes globally and locally for the global temperature is increasing slower than the local (Mecca) temperatures.

The missing values effect in data if I fill the missing data by the average which is 25.60 that will effect most of moving averages, so I choose not to fill the missing values.