Exploring Weather Trends

In this project I will analyze the data between local and global temperature and compare the temperature trend between the nearest city to where I live to the overall global temperature.

In this paper I will tell

1- Which tool has been used.
2- which queries I write to extract the data.
3- Calculating the moving average for local and global temperature.
4- how I plot and visualize the data.
5- an observation about the similarities and differences between the local and global temperatures trends.

Tools:

1- Udacity SQL workspace.
2- Microsoft Excel.

Data extraction and queries:

Using the Udacity SQL workspace I write a query that extract the year, the nearest city to where I live (Mecca), the country, city average temperature and global average temperature.

Input HISTORY MENU

```
1  select  city_data.year, city_data.city, city_data.country, city_data.avg_temp as
   city_avg_temp, global_data.avg_temp as global_avg_temp
2  from global_data
3  left join city_data
4  on city_data.year = global_data.year
5  where city_data.city = 'Mecca'
6  and not city_data.avg_temp is null
```

Figure-1

Then using download csv to display the result in an Excel spreadsheet.

Figure-2

Calculating the moving average and plotting:

Then calculating the moving average for the city and global temperature.

year	city	country	city_avg_t	global_avg_temp	Moving_city_avg_temp	Moving_global_avg_temp
1843	Mecca	Saudi Arab	25.16	8.17		
1844	Mecca	Saudi Arab	19.05	7.65		
1845	Mecca	Saudi Arab	22.46	7.85		
1861	Mecca	Saudi Arab	23.98	7.85		
1862	Mecca	Saudi Arab	24.13	7.56		
1863	Mecca	Saudi Arab	22.87	8.11		
1864	Mecca	Saudi Arab	25.43	7.98		
1865	Mecca	Saudi Arab	25.6	8.18		
1866	Mecca	Saudi Arab	25.42	8.29		
1867	Mecca	Saudi Arab	25.62	8.44	23.972	8.008
1868	Mecca	Saudi Arab	25.3	8.25	23.986	8.016
1869	Mecca	Saudi Arab	25.65	8.43	24.646	8.094
1870	Mecca	Saudi Arab	25.35	8.2	24.935	8.129
1871	Mecca	Saudi Arab	24.97	8.12	25.034	8.156
1872	Mecca	Saudi Arab	25.2	8.19	25.141	8.219
1873	Mecca	Saudi Arab	25.57	8.35	25.411	8.243
1874	Mecca	Saudi Arab	25.32	8.43	25.4	8.288
1875	Mecca	Saudi Arab	24.53	7.86	25.293	8.256
1876	Mecca	Saudi Arab	25.13	8.08	25.264	8.235
1877	Mecca	Saudi Arab	25.81	8.54	25.283	8.245
1878	Mecca	Saudi Arab	25.94	8.83	25.347	8.303
1879	Mecca	Saudi Arab	25.57	8.17	25.339	8.277
1880	Mecca	Saudi Arab	25.42	8.12	25.346	8.269
1881	Mecca	Saudi Arab	26.06	8.27	25.455	8.284
1882	Mecca	Saudi Arab	25.09	8.13	25.444	8.278
1883	Mecca	Saudi Arab	25.36	7.98	25.423	8.241
1884	Mecca	Saudi Arab	25.03	7.77	25.394	8.175
1885	Mecca	Saudi Arab	25.33	7.92	25.474	8.181

Figure-3

Plot:

Line chart:

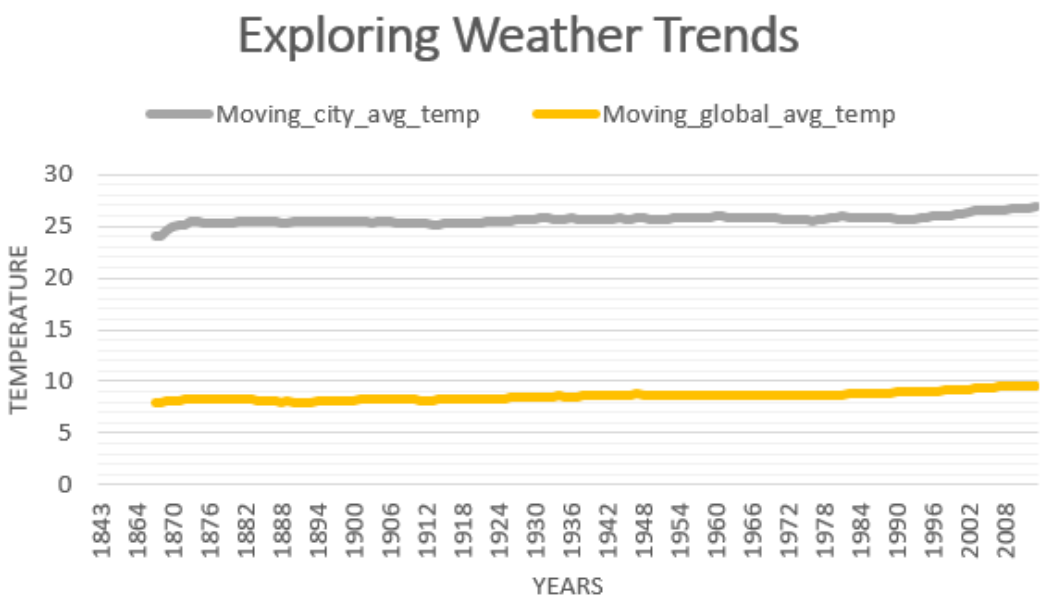

Figure-4

Observation:

the temperature changes in the city (Mecca) is rising over time greater than the temperature changes in global over time, city changes average temperature from 22 to 26 compare to average global temperature from 8 to 9.5.

observing from the line chart above, that average temperature for Mecca city is hotter than the average global temperature.

Observing from the line chart above, I concluded that as the time goes by the temperature rise.

Observing from the line chart above, I concluded that the city temperate are rising at least twice faster than the global average temperate.