Explore Weather Trends

Data Analyst

Project #1

Date: 29 April 2020

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1. Data Extraction

In this step I used SQL to extract the data.

1.1 The SQL query used to extract the city level data:

```
SELECT *
FROM city_data
WHERE city = 'Riyadh' AND country = 'Saudi Arabia';
```

1.2 The SQL query used to extract the global data:

```
SELECT *
FROM global_data;
```

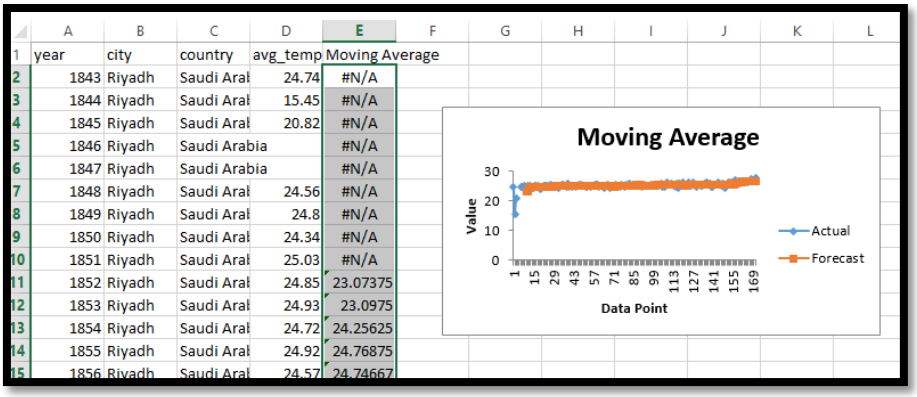
2. Data Manipulation

In this step I used Excel to open the exported CSV file and calculate the Moving Average.

- Moving averages are calculated to be used in the line chart:

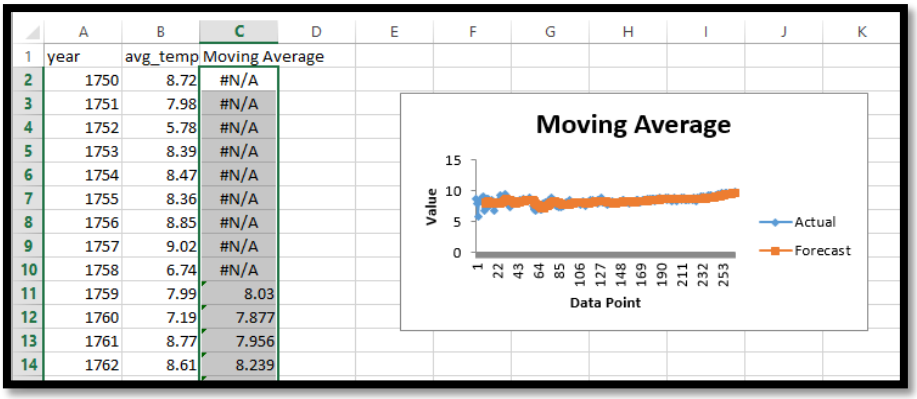
Example: if interval =10;

MA= v1 + v2 + v3 + v4 + v5 + v6 + v7 + v8 + v9 + v10 \ 10.



	A	B	C	D	E	F	G	H	I	J	K	L
1	year	city	country	avg_temp	Moving Average							
2	1843	Riyadh	Saudi Arab	24.74	#N/A							
3	1844	Riyadh	Saudi Arab	15.45	#N/A							
4	1845	Riyadh	Saudi Arab	20.82	#N/A							
5	1846	Riyadh	Saudi Arabia		#N/A							
6	1847	Riyadh	Saudi Arabia		#N/A							
7	1848	Riyadh	Saudi Arab	24.56	#N/A							
8	1849	Riyadh	Saudi Arab	24.8	#N/A							
9	1850	Riyadh	Saudi Arab	24.34	#N/A							
10	1851	Riyadh	Saudi Arab	25.03	#N/A							
11	1852	Riyadh	Saudi Arab	24.85	23.07375							
12	1853	Riyadh	Saudi Arab	24.93	23.0975							
13	1854	Riyadh	Saudi Arab	24.72	24.25625							
14	1855	Riyadh	Saudi Arab	24.92	24.76875							
15	1856	Riyadh	Saudi Arab	24.57	24.74667							

Figure1: Local Moving Average (Riyadh).



	A	B	C	D	E	F	G	H	I	J	K
1	year	avg_temp	Moving Average								
2	1750	8.72	#N/A								
3	1751	7.98	#N/A								
4	1752	5.78	#N/A								
5	1753	8.39	#N/A								
6	1754	8.47	#N/A								
7	1755	8.36	#N/A								
8	1756	8.85	#N/A								
9	1757	9.02	#N/A								
10	1758	6.74	#N/A								
11	1759	7.99	8.03								
12	1760	7.19	7.877								
13	1761	8.77	7.956								
14	1762	8.61	8.239								

Figure2: Global Moving Average.

The Query to extract the city level data return 171 results from year 1843 to year 2013, while the extracted global data was 266 results from year 1750 to year 2015. In order to provide a more accurate comparison, I have choose the range of common years only, from year 1843 to year 2013.

3. Data visualization

In this step I used Excel to compare Riyadh city temperatures with the global temperatures, then I plotted the moving average in order to smooth out the lines, making trends more observable.

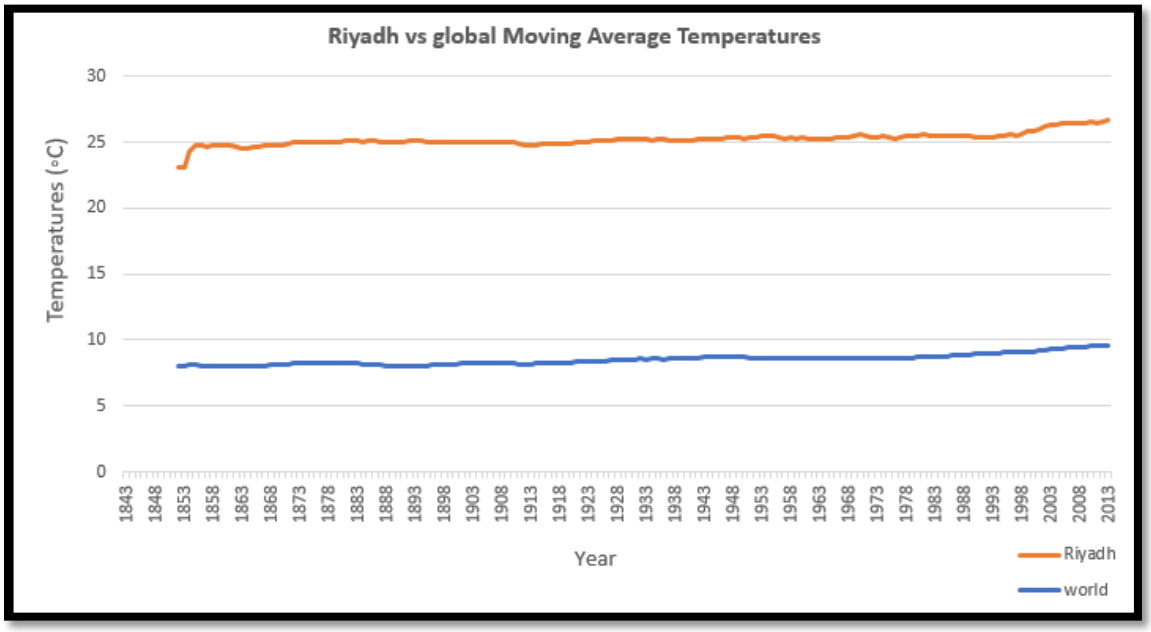


Figure3: Riyadh vs. global Moving Average Temperatures

4. Observations

1- Riyadh was hotter compared to the global average.
2- In both cases, we can see that the average temperatures are increased over time.
3- The trend look rising, meaning the world getting hotter over years.
4- The average temperature in Riyadh rises faster than average temperature in the global over time