Explore Weather Trends

Data Analyst Nanodegree Project #1

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Extract the data from the database:

At first I wanted to see what are the cities mentioned in the database from my country. So, I wrote this SQL query:

Figure 1 (SQL query to display cities)

I choose Riyadh because it's the city that I'm living in. Then retrieved its information from the database using this SQL query:

Figure 2 (SQL query to display Riyadh Weather data)

After that I wrote SQL query to retrieve the global data

Figure 3(SQL query to display global Weather data)

All the data from previous tables extracted to .CSV files. I used Microsoft Excel to analyze them.

To keep the analysis proper I have to not include some data like global data between (1750-1842) due to unavailable information in Riyadh in these years. And Riyadh data in (1846 and 1847) due to null values. Then the included years will be (1843-1845,1848-2013) 169 years in total.

I decided to make moving average for 13 years bases for both Global and Riyadh temperatures using "Average" function.
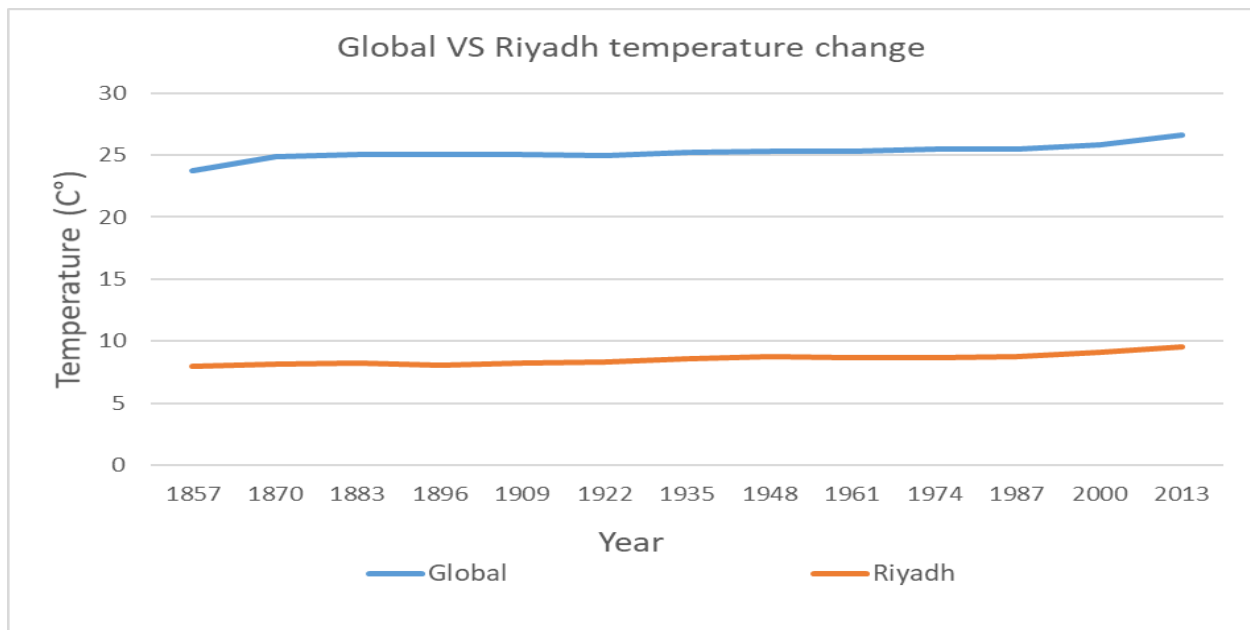

Figure 4 (13- Years Moving average for Global and Riyadh temperature)

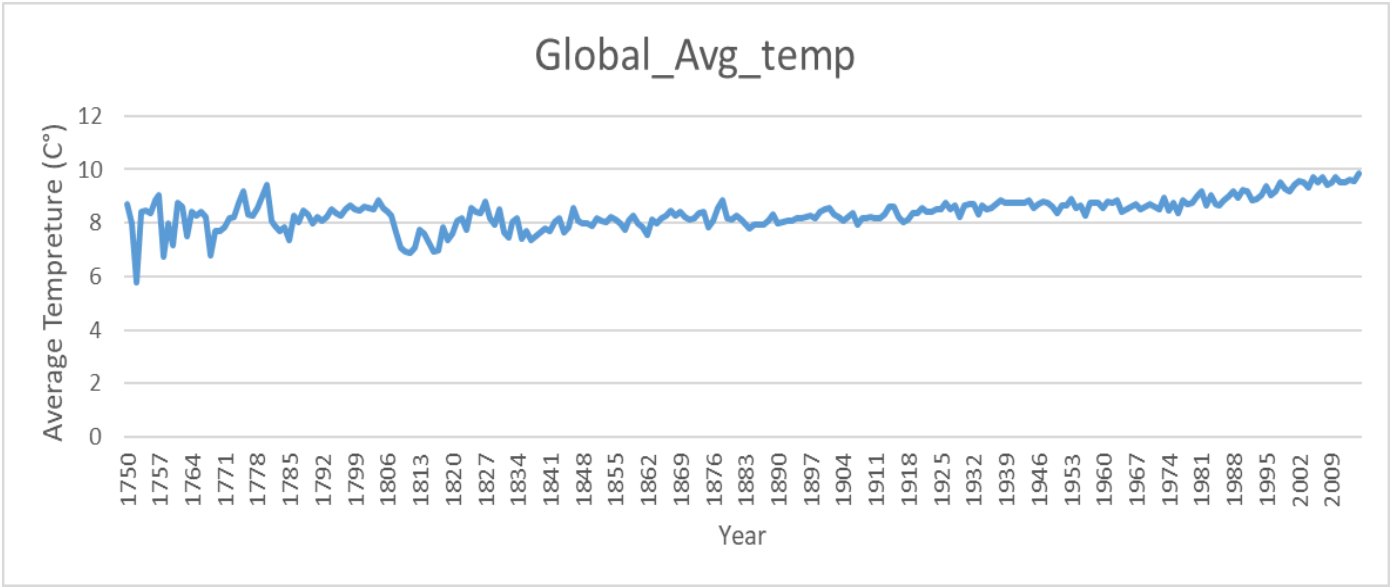Other charts to show clearer view of the global and Riyadh average changes in the passing decades.

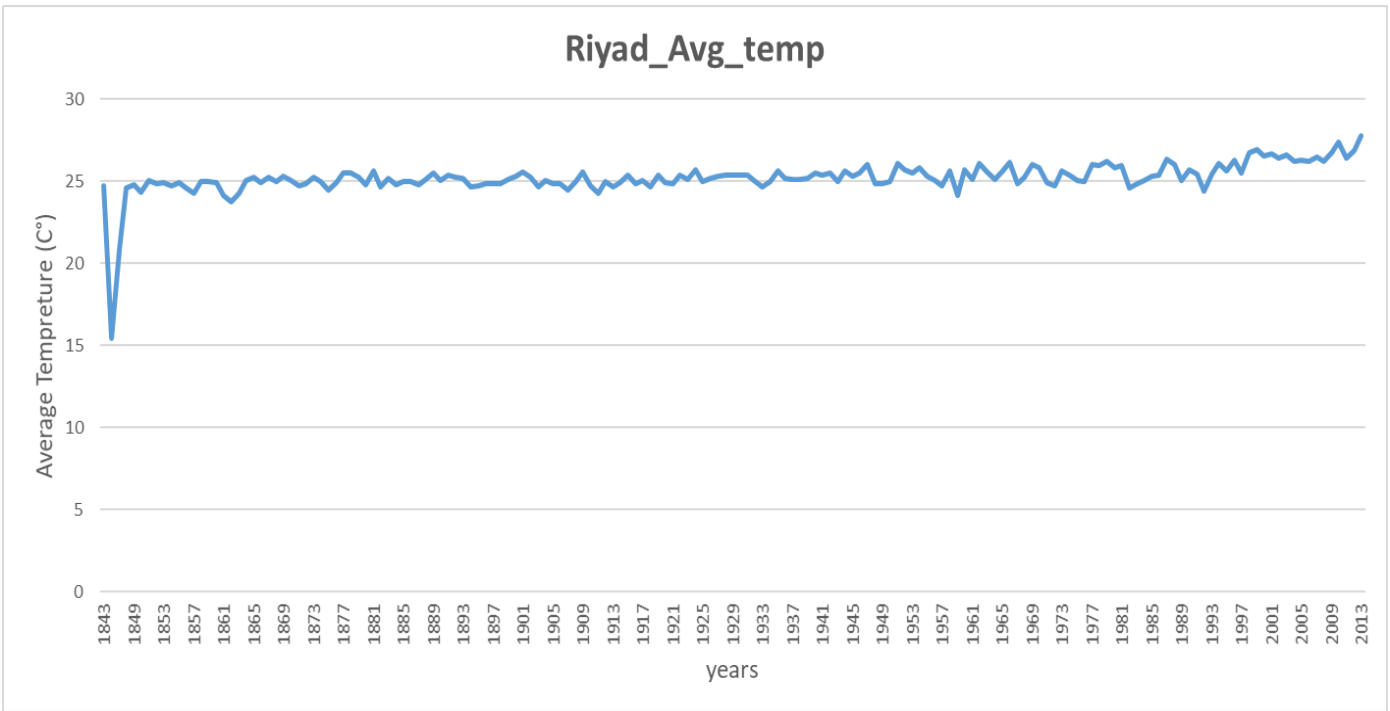*Figure 5 (One-Year moving average for the Global temperature)*

Figure 6 (One-Year moving average for Riyadh temperature)

From the previous chart and the information extracted from the Database I conclude to some observation:

1) Riyadh is way hotter than the global average considering that Riyadh's temperature is always greater than the global temperature in the last couple hundred years. This is attributed to the location of Riyadh which is near by the Equator where the weather is hot and dry.
2) In both moving averages of Global and Riyadh temperatures we see rapidly incrementing temperature.
3) The coldest year Riyadh ever seen is 1843 and I wondered why is it so cold lower than the average by 10 degrees I searched for what happened in that year and the most convincing explanation I think is the great storms that stroke the northern side of the equator as mentioned in the theory of storms. (The North American Review, Apr., 1844, Vol. 58, No. 123 (Apr., 1844), pp. 335- 371)
4) The temperature changes are clearly larger in Riyadh rather than the global changes.
5)

Global			Riyadh	
Average=	8.369474		Average=	25.21414
Max=	9.83		Max=	27.78
Min=	5.78		min=	15.45
Δ=	4.05		Δ=	12.33

Figure 7 (Average, max, min and Δ for Globale and Riyadh temperature)