Exploring Weather Trends

Tools used for extracting the data:

1- SQL query to extract Riyadh city.

```
select * from city_data where city='Riyadh';
```

2- SQL query to extract global data.

```
select * from global_data;
```

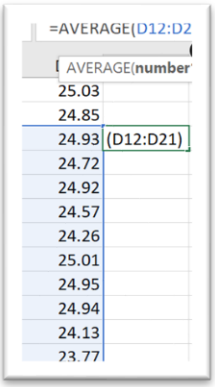
3- SQL query to extract both Riyadh and global temperatures in one table output

```
SELECT city_data.year,city_data.avg_temp as
Riyadh,global_data.avg_temp as Global
FROM city_data, global_data
WHERE city_data.year = global_data.year
 AND NOT city_data.avg_temp IS NULL
 AND city_data.city = 'Riyadh'
```

4- Excel to explore the data as a CSV file.

Calculating the moving average:

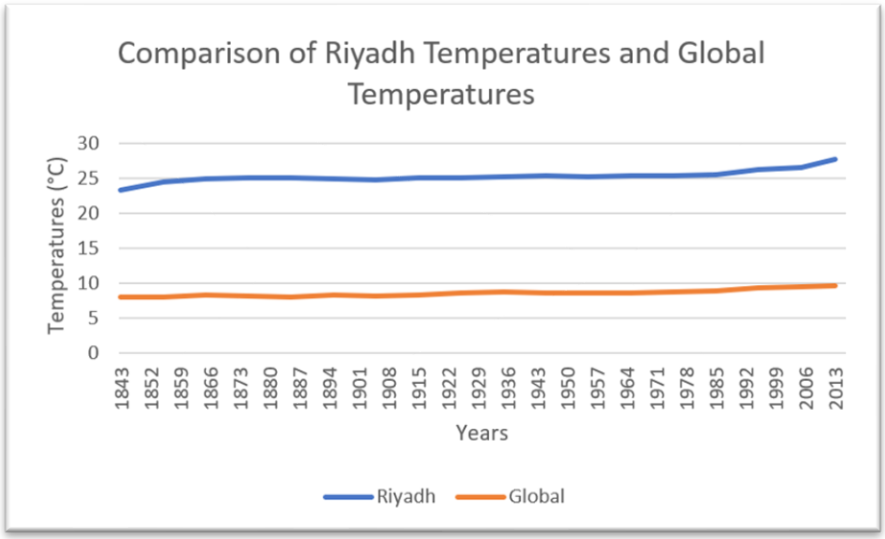
I calculated the moving average for both temperatures for Riyadh city and global temperatures using the average for every 10 days by using the Avg formula as in the figure below to make it easy to observe the data. I used 10 because it will make the moving average of the line chart smoother than the 7-moving average.



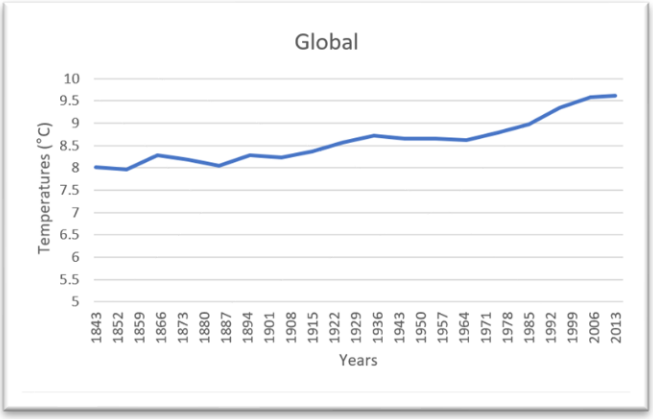
The key considerations of visualizing the trends:

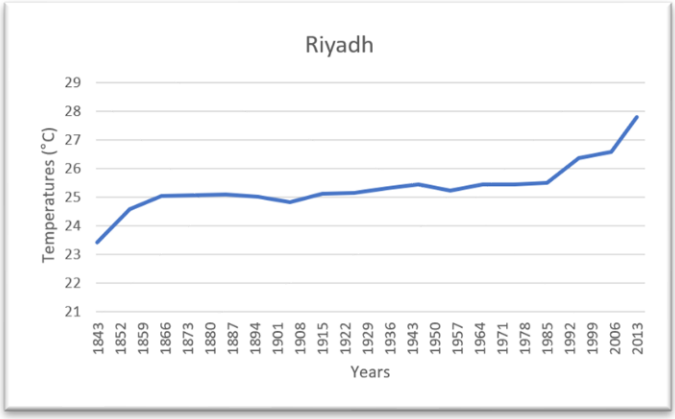
The most important key to deciding the trends it is the changes in the temperatures. Among the years it was changing by going up and down. And this is can be noticed in the following sections.

Line charts:



Here is the comparison in two charts in more details:





Observations:

1- My city is Riyadh; it is a hotter city in comparison to the global average. The difference was slight changes over time. The average temperature in Riyadh was not consistent.

2- The difference in my city temperature is hotter than global temperatures and it is going up and down between 24 °C and 25 °C until it reached 27.78 °C.

3- The global temperatures, the temperatures were cooler, and it started at 8.0°C and increases over time until it reached 9.6 °C.

4- The trends in the world getting hotter.

5- The trend in the last few hundred years was not consistent, it is increasing.