Exploring Weather Trends - Project

My city – Nairobi, Kenya

Other city – Johannesburg, South Africa

Tools used

1. SQL – use of SQL queries (see below) to extract the data.
2. Excel – to load the data for visualisation
3. PowerBI – to visualize the moving averages against each year

Queries

-- Global data

```
SELECT year, avg_temp, avg(avg_temp) OVER (ORDER BY year ROWS BETWEEN 10 PRECEDING AND 10 FOLLOWING) AS moving_avg

FROM global_data

ORDER BY year
```

-- City data – Nairobi, Kenya

```
SELECT year, city, country, avg_temp, avg(avg_temp) OVER (ORDER BY year ROWS BETWEEN 10 PRECEDING AND 10 FOLLOWING) AS moving_avg

FROM city_data WHERE country = 'Kenya'

ORDER BY year
```

--city data - Johannesburg, South Africa

```
SELECT year, city, country, avg_temp, avg(avg_temp) OVER (ORDER BY year ROWS BETWEEN 10 PRECEDING AND 10 FOLLOWING) AS moving_avg

FROM city_data WHERE country = 'South Africa' AND city = 'Johannesburg'

ORDER BY year
```

Moving average calculation

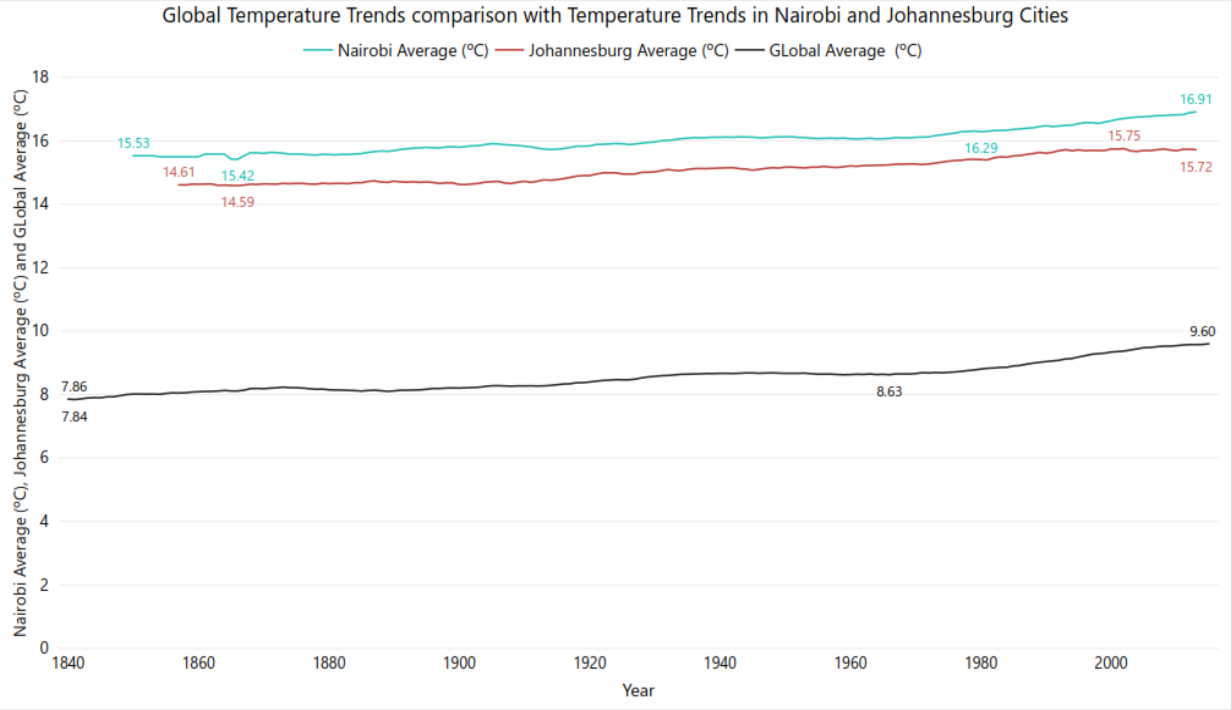
Using SQL query; see query above

Moving average of 10 years preceding and following current year.

Key considerations when deciding how to visualize the trends

1. Creation of a new year table with a one to many relationship to both the city_data and global_data data sources hence use of one visual with a common X-axis
2. Choice of the visual – Line chart with clearly distinguishable line colours.

Line chart with local and global temperature trends



At least four observations about the similarities and/or differences in the trends

1. Nairobi and Johannesburg Cities are hotter on average compared to global average temperatures with a consistent difference of around 7℃ over the years.
2. There is an increase of 1.38℃ in Nairobi City average temperature from 15.53℃ in 1850 to 16.91℃ in 2013.
3. There is a similar consistent increase in temperatures over the years for Nairobi, Johannesburg and the global average.
4. In General, there is an increase in global temperatures with a consistent rise of 2℃ over the last one hundred and fifty years.