

## PROJECT: EXPLORE WEATHER TRENDS

I took the following steps for my analysis:

1. I began by querying the database for average temperature for Ibadan, Nigeria.

```
SELECT * FROM city_data
WHERE city = 'Ibadan' AND country = 'Nigeria';
```

2. The above query returned 158 rows with the following columns:

- year
- city
- country
- avg\_temp

3. By inspecting the returned table I observed that several rows(10) had NULL avg\_temp values. So, I queried the database again for Ibadan where avg\_temp *IS NOT NULL*.

```
SELECT * FROM city_data
WHERE city = 'Ibadan'
AND country = 'Nigeria'
AND avg_temp IS NOT NULL;
```

4. 148 rows containing non-null values were returned. This result omitted observations for the years from 1863 to 1872.
5. I also ensured that there are no duplicate data in the returned dataset

```
SELECT COUNT(DISTINCT(year)) FROM city_data
WHERE city = 'Ibadan'
AND country = 'Nigeria'
AND avg_temp IS NOT NULL;
```

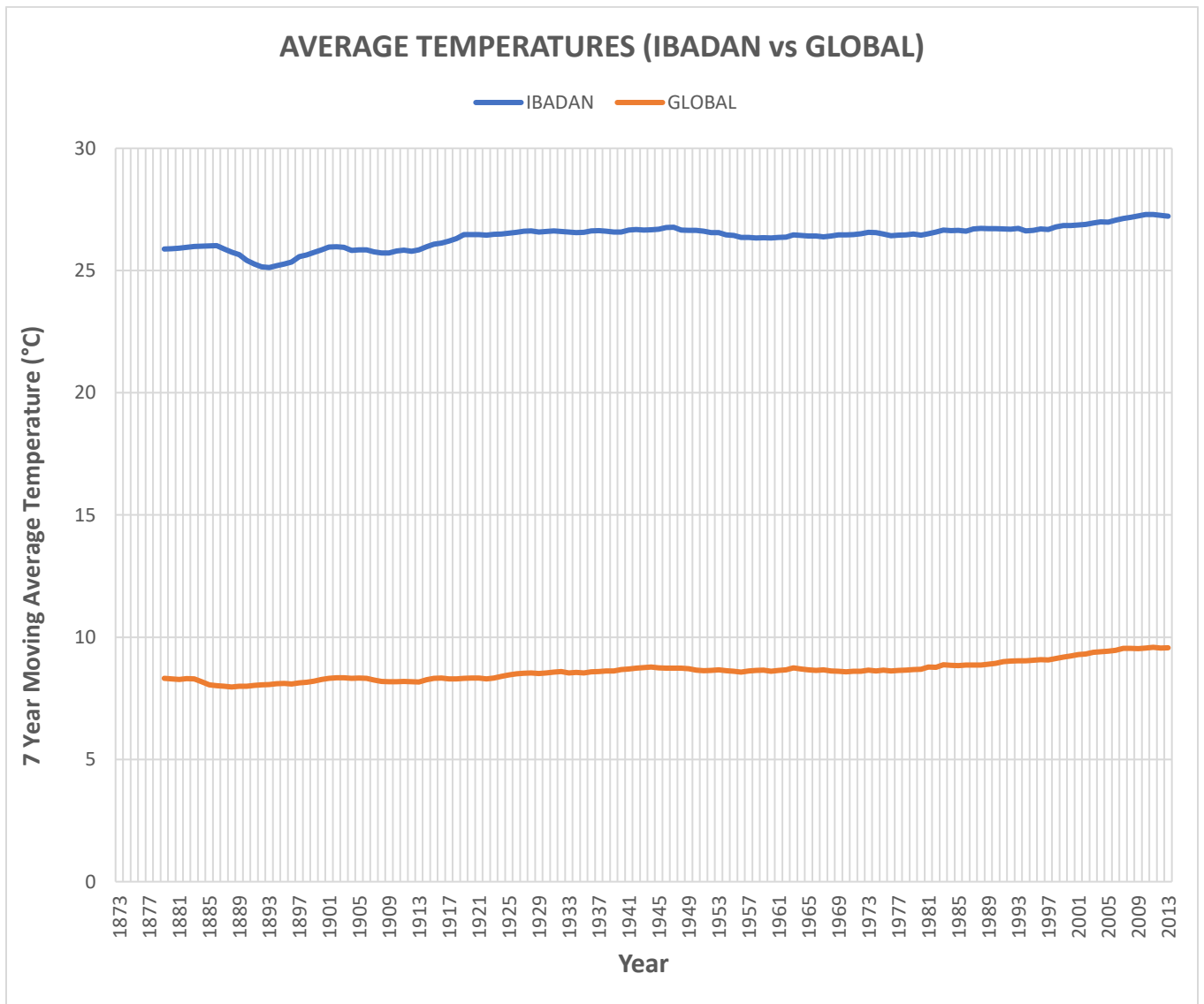
6. To compare Ibadan weather data with the global weather data, I queried the global\_data table for the global weather data for only years observed in the last obtained dataset. That is, the table returned data for between 1856 and 2013 excluding years from 1863 to 1872.

```
SELECT      cd.year, cd.city, cd.country,
            cd.avg_temp ib_temp, gd.avg_temp gl_temp
FROM city_data cd JOIN global_data gd on gd.year = cd.year
AND cd.city = 'Ibadan' AND cd.year > 1863
AND cd.avg_temp IS NOT NULL;
```

**NOTE:** It is necessary to exclude the years not reported by the final Ibadan weather data set to have a one to one annual comparison.

I also decided to exclude the years before 1872 because it will calculate a moving average for years which are not contiguous. Thus, I'm left with 141 rows.

7. I downloaded the results as csv and copied them into separate worksheets in excel.
8. I calculated the 7-year moving averages in another column using `=AVERAGE (D2 : D8)` for the D2 cell starting from the row 8 (1879) in column F.
9. I calculated a 7-year moving average for the global\_temp column in a new column G.
10. I created a line chart using entries from the year, ibadan\_moving\_avg\_temp, and global\_moving\_avg\_temp columns.



## **OBSERVATIONS**

From the line chart above created from the extracted dataset, I was able to observe that:

1. The average temperature both in Ibadan and globally is increasing at an almost steady rate.
2. The average temperature in Ibadan is increasing at almost the same rate with the global average temperature.
3. The rate of increase of the average temperatures both globally and in Ibadan is slow.
4. The average temperature in Ibadan is about three times(3x) higher than the global annual average temperature.
5. Unlike the global average temperature, which has an even line throughout the chart, the line for the moving average temperature in Ibadan is unstable from 1872 to around 1917.