Project one: Explore Weather Trends

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Overall

This is my answer of Udacity Data Analysis Nanodegree project one: Explore Weather Trends

Outline

Prepare the Data

- Tools used for each step

  Extracting data: SQL

  Calculating and plotting: Excel

- Extracting data

  To extract the data, SQL query used:

  1. SELECT *

  FROM global_data;

  2. SELECT city

  FROM city_list

  WHERE country = 'Australia';

  3. SELECT year, avg_temp

  FROM city_data

  WHERE city = 'Melbourne';

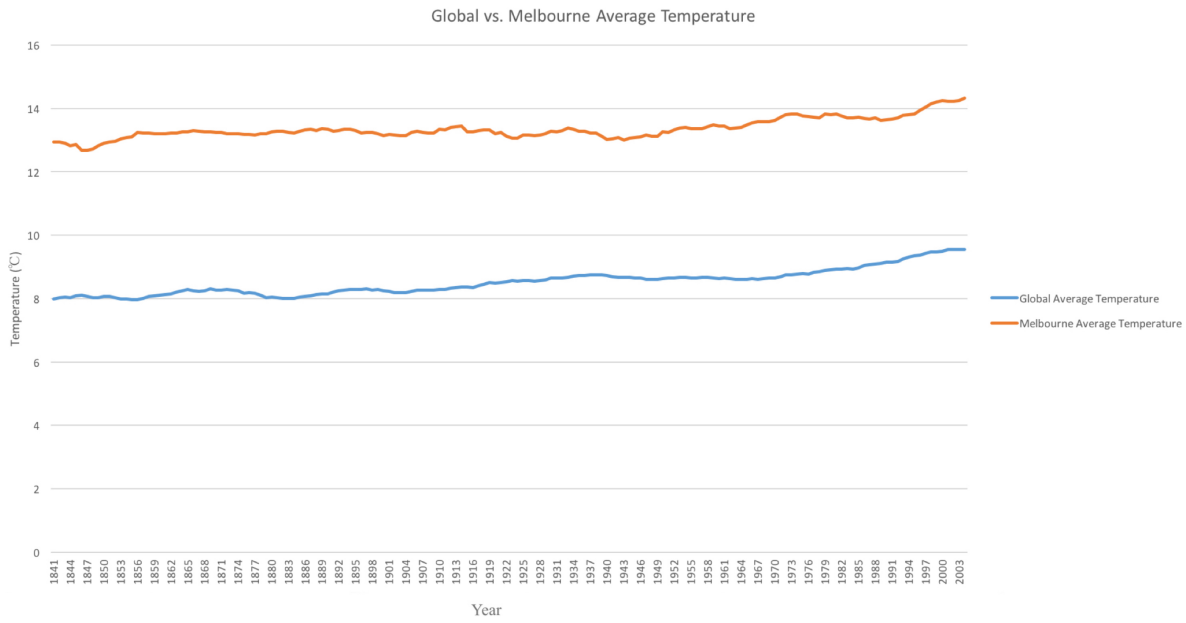
- Calculate the moving average

  In order to smooth out data and to make it easier to observe long term trends in the temperature, I decided to use 10 year moving averages to get the smooth line chart. I used the command '= AVERAGE(B2:B11)' to see the moving average for the first 10 years, and than drag the formula down to the next several cells. Since the data of Melbourne is from 1841 to 2013, I will conduct analysis between these years.

- Key considerations when deciding how to visualize the trends

My first key considerations when plotting is to show the trends of both global and Melbourne's average temperatures clearly. The second one is to make the comparison of two lines obviously.

Line Chart



Observations

Here from the line chart, we can clearly see that:

- The temperature patterns of both global and Melbourne's average temperatures between 1841 and 2003 were very similar. They all increased by about 2 ℃.
- The world's temperature kept rising with a little fluctuation during these years. Getting increasingly hotter.
- Melbourne was hotter on average compared to the global average, and kept the same trend over time.
- The changes of Melbourne's average temperatures were slightly larger than those of global. We can see clearly fluctuations through the line which is represented Melbourne's temperatures.