Outline

To import the SQL file and extract the data required into CSV format, I used MySQL Workbench and ran the following SQL queries:

1. SELECT * FROM city_list WHERE country LIKE "Canada"
2. SELECT * FROM city_data WHERE city="Victoria" AND country="Canada" AND avg_temp NOT LIKE '%null%'
3. SELECT * FROM global_data WHERE avg_temp NOT LIKE '%null%'

Query 1 was to see the major cities in Canada included in the database. I decided to use Victoria, B.C. as the largest city closest to where I live in this project.
Query 2 was to extract all the temperature data excluding NULL values for Victoria, B.C. since that is the city I will be using to compare against the global temperatures.
Query 3 was to extract all of the global temperature data excluding NULL values.

After I exported the required data into CSV files, I opened Excel. To calculate the moving average, I used the AVERAGE function to calculate the average over a 7-year time frame before then copying the calculation for all remaining 7-year increments. I then manually created and formatted the line charts. I modified the global average temperature to only calculate the moving average beginning in the year 1828 until 2013 since these are the years where Victoria recorded the average temperatures.

Line Charts

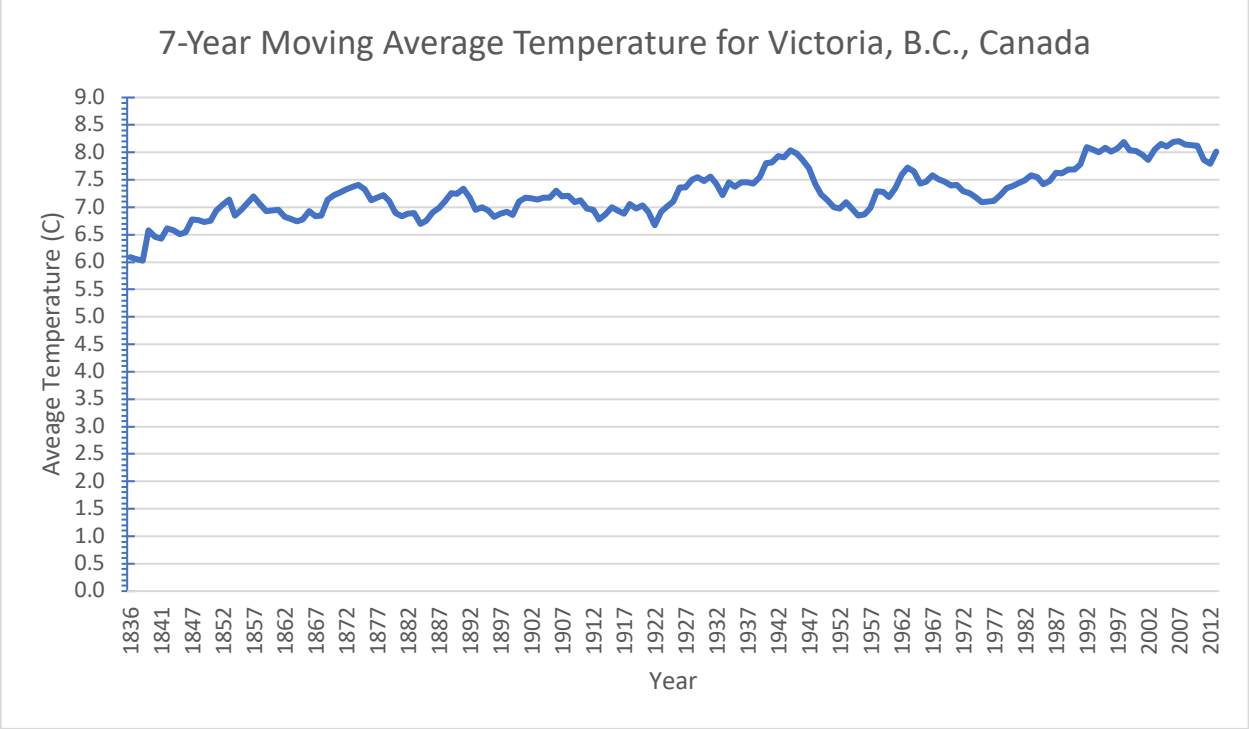

Figure 1. 7-Year Moving Average Temperature for Victoria, B.C., Canada

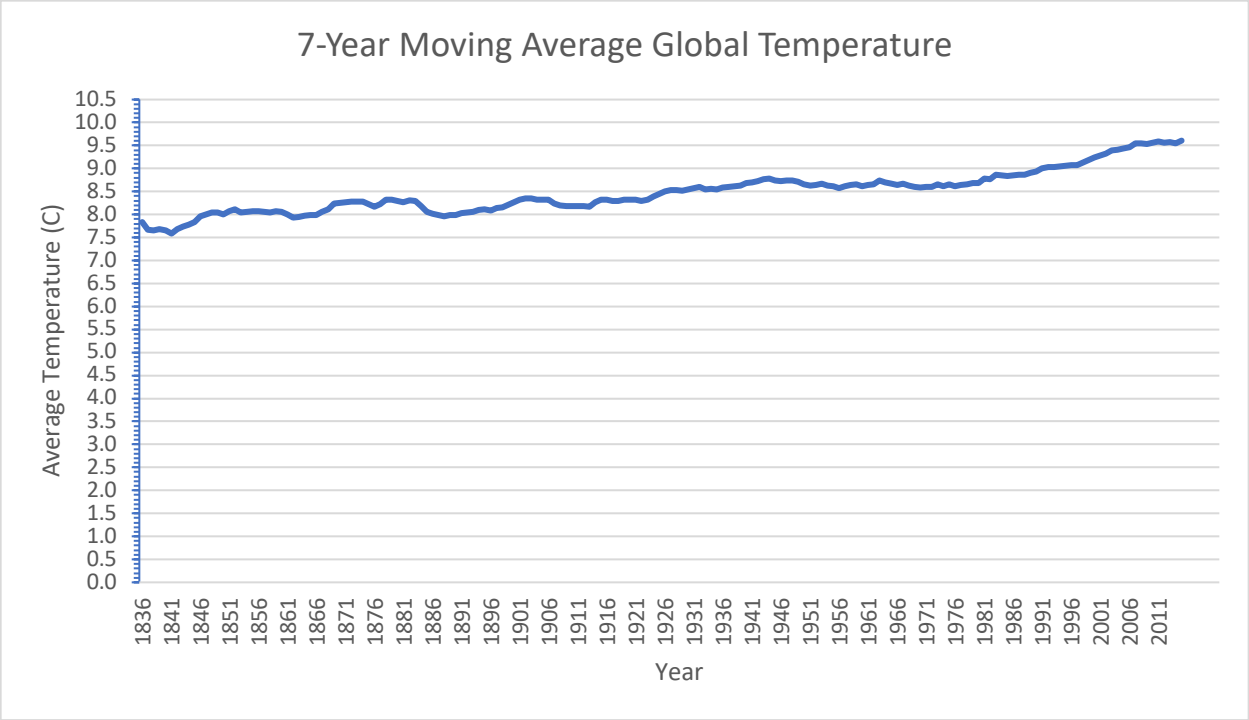

Figure 2. 7-Year Moving Global Average Temperature

Observations

Victoria is on average cooler than the global average temperature. Victoria's average temperature never exceeds 8.5 degrees whereas the global average temperature tends to hover around 8.5 degrees. This difference has been consistent over time.

From Figure 1, we can see that from 1836 to 2013, Victoria's temperature increased from 6.09 degrees to 8.01 degrees. During the same time frame, the global average temperature increased from 7.84 degrees to 9.61 degrees.

Despite the moving average smoothing out the lines, we can still see temperature changes that are similar in both figures. For example, in the 1940s, we notice that Victoria and the global average temperature increased, followed by a dip.

The charts show that the overall trend for both Victoria and global average temperatures has been steadily increasing as time passes. Over the past 100 years, this trend has been consistent which indicates that the world is getting hotter.