Exploring Weather Trends

An outline of steps taken to prepare the data to be visualized in the chart

The SQL query used to extract the data

First, find the city “select city from city_list’’. ‘Seattle’ was found in the list of cities.

Second, find the year and average temperature in Seattle. “select year, avg_temp from city_data where city = 'Seattle';”. Save the file “seattle_tem.csv”

Third, obtain the year and global average temperature using “select year, avg_temp from global_data”. Save the file “global_tem.csv”.

Google Sheet and calculation of the moving average

Calculate the moving average using excel “average” formula. Here I use a 5 years, 10 years, 20 years average to smooth the trend.

Key considerations: Note that the global data starts from 1750 to 2015, while Seattle data starts from 1832 to 2013. We keep all the data here. When there is missing data, the average formula only calculates the existing numbers.

Line chart with local and global temperature trends

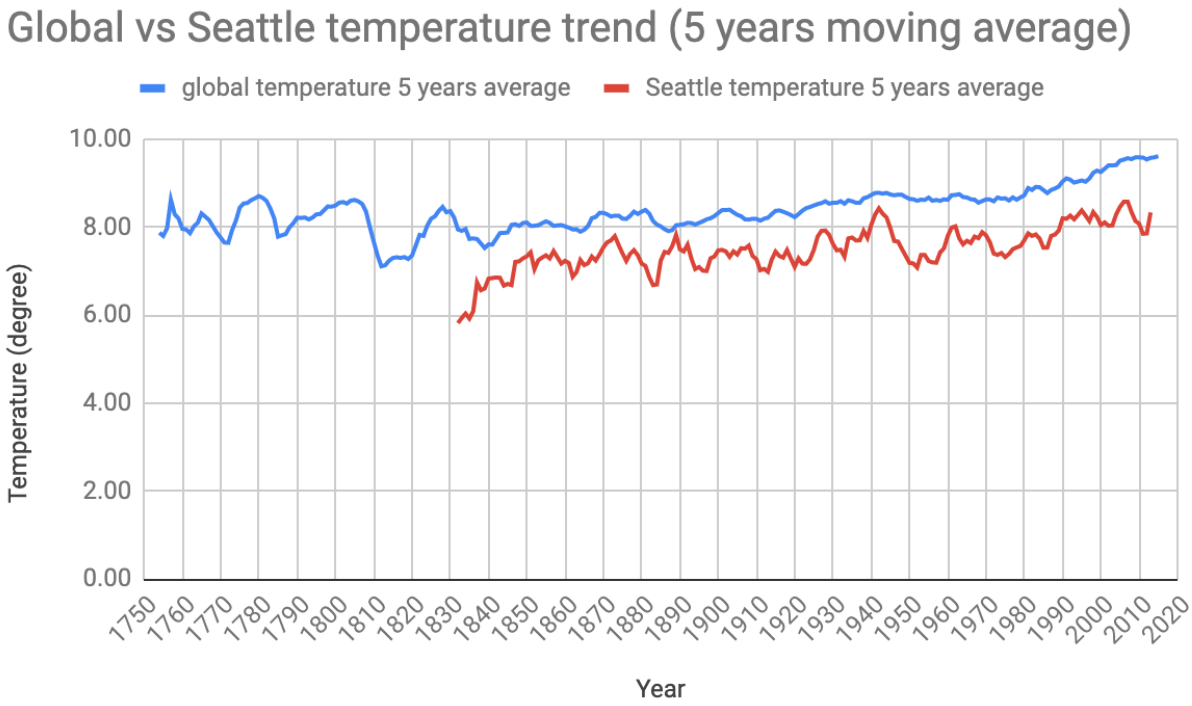

Figure 1: Global vs Seattle temperature trend (5 years moving average)

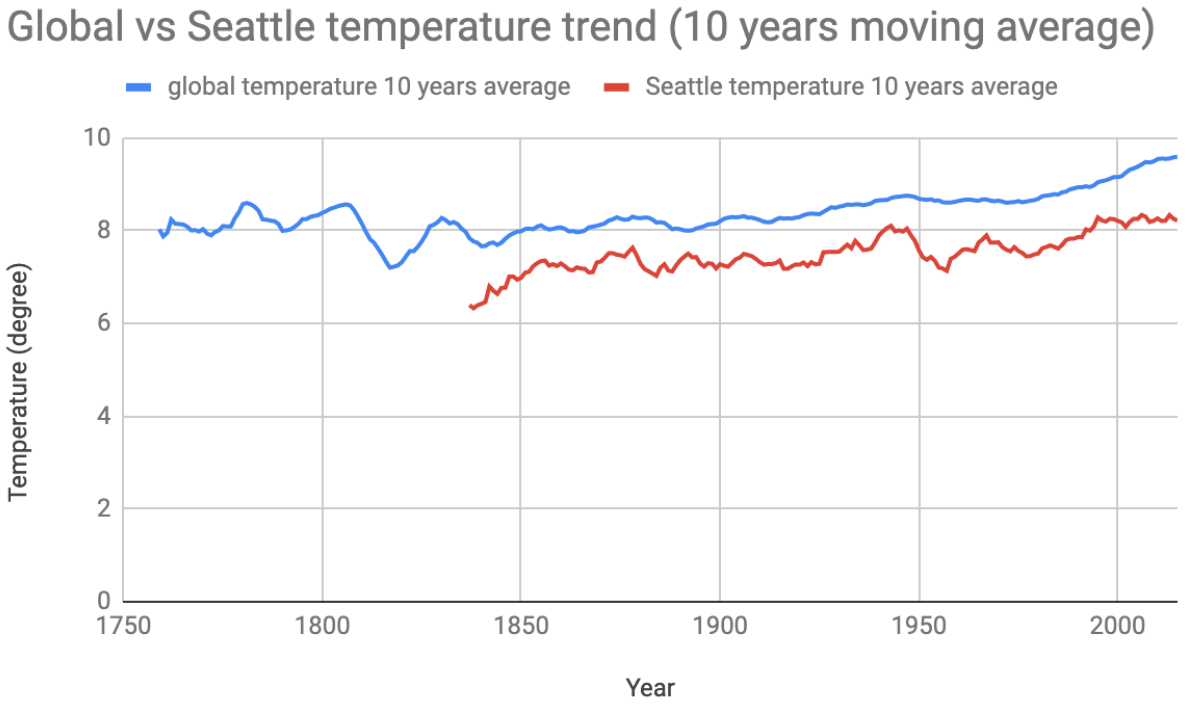

Figure 2: Global vs Seattle temperature trend (10 years moving average)

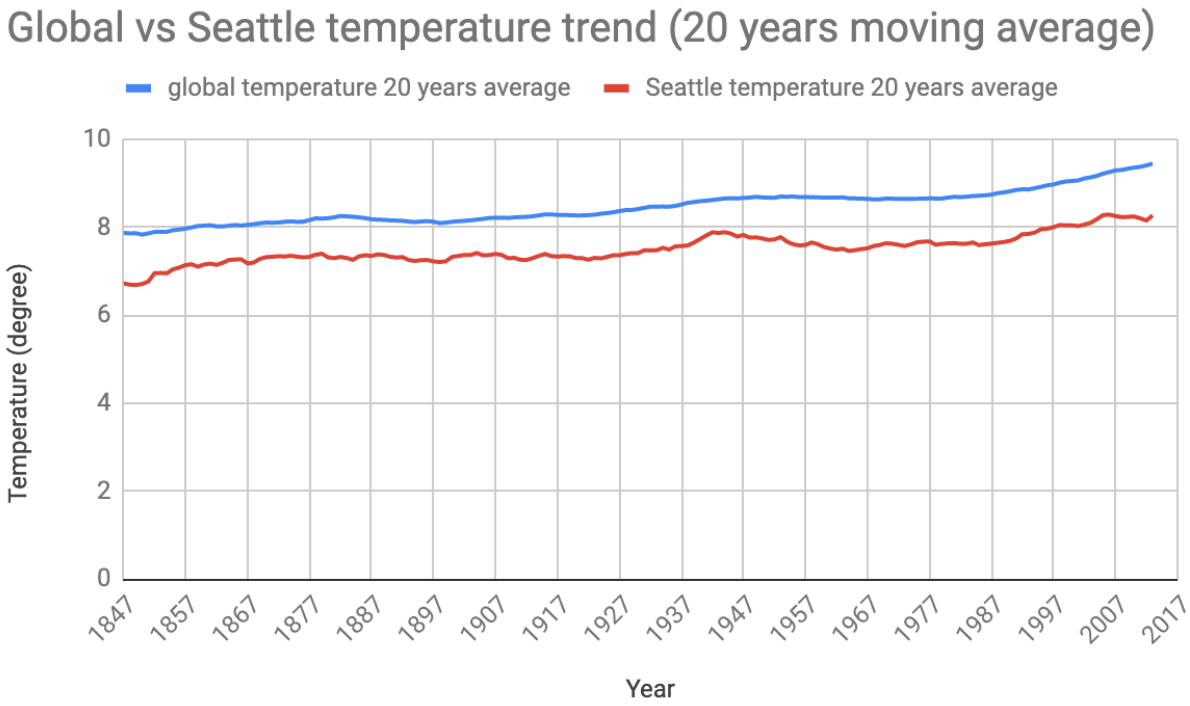

Figure 3: Global vs Seattle temperature trend (20 years moving average)

Five observations about the similarities and/or differences in the trends

- **Observations** about the similarities and differences between the world averages and your city's averages, as well as overall trends.

1. Seattle has been cooler on average compared to the global average from 1847 to 2013. The difference has been consistent over time.
2. The global temperature improved from 7.9 degrees to 9.5 degrees from 1847 to 2013, Seattle's average temperature also increased from 6.7 degrees to 8.3 degrees. The two trends are similar.
3. The gap between the global average and Seattle average temperature is consistent over time.
4. The overall trend looks similar that both Seattle and the world average

temperature were constantly increasing. The world was getting hotter. The trend has been consistent over the last few hundred years.

5. Compared with the global average temperature, Seattle's average temperature was more turbulent. One peak was observed between 1937 and 1947. Another peak was observed between 1997 and 2010. It is reasonable to assume that the two peaks were associated with the quick economic development and improved human activity in the city that happened during the times.