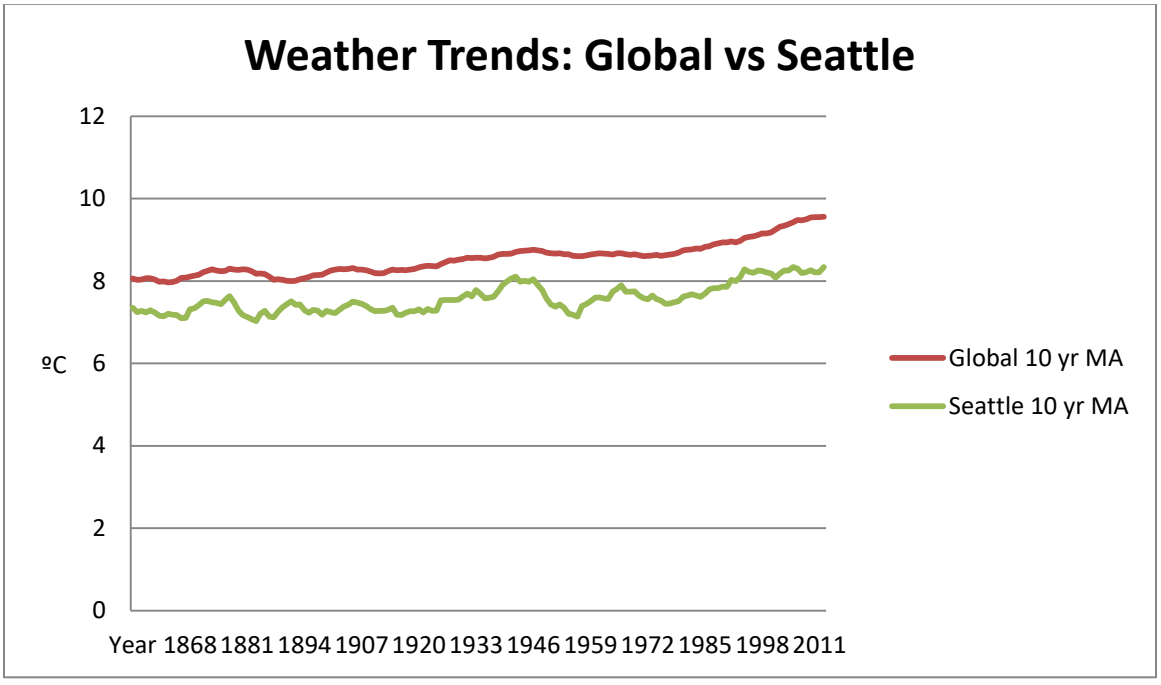
Exploring Weather Trends

Outline:

1. Write SQL query to extract data from the temperatures database:
   1) Select * From city_list—to extract a list of cities and countries and download it to find the nearest city;
   2) Select * From city_data—to extract the average temperatures for each city by year (ºC);
   3) Select * From global_data—to extract the average temperatures for each city by year (ºC);
   4) Download the results to a CSV.
2. Calculate the moving average:
   1) Copy data for Seattle from coty_data list, and paste data to global_data list. Save to Excel Worksheet;
   2) Delete gap data and use data from the year 1847 through 2013;
   3) Since there are average temperatures for 158 years, use AVERAGE() function to calculate the 10-year moving average temperatures for both Seattle and global to smooth out data to make it easier to observe long-term trends and not get lost in yearly fluctuations.
3. Draw line chart to compare 10-year moving average temperatures of Seattle with the global one:
   1) Use data of Global 10 yr MA and Seattle 10 yr MA to create line chart;
   2) Edit Axis and Titles.

Line chart:



Observations:

1. Average temperatures for both Global and Seattle are increasing from 1847 through 2013;
2. Global temperatures are increasing smoother than Seattle temperatures;
3. From 1945 to 1956, temperature drop in Seattle is more significant than globally;
4. Overall, global temperature increased from 8.059 ^{o}C to 9.556 ^{o}C, and Seattle temperature increased from 7.355 ^{o}C to 8.336 ^{o}C.