Weather Trends

Tools:

SQL and Excel.

SQL:

The first tool that I used SQL commands to look at data for Detroit. Use this query download the CSV file that has the data foe Detroit.

SELECT *

FROM city_list

WHERE country ='United States';

ALTER TABLE global_data RENAME COLUMN avg_temp TO global_avg_temp;

ALTER TABLE city_data RENAME COLUMN avg_temp TO city_avg_temp;

SELECT global_data.year, global_data.global_avg_temp, city_avg_temp

FROM global_data

JOIN city_data

ON global_data.year=city_data.year

WHERE city = 'Detroit';

Excel:

I used Excel to calculate moving average to observe trends. I tried a 10-year moving average in order to smooth out the lines and making trends more clear and observable. The calculating moving average was by taking the average of the first of the global temperatures and city temperatures and applying it to the rest of the data. All the data is based on a 10-year moving average.

Line Chart:

Through the line chart, we can analyze the relationship between temperatures for Detroit versus global temperatures over the time. The correlation coefficient of .87 is a positive linear relationship.
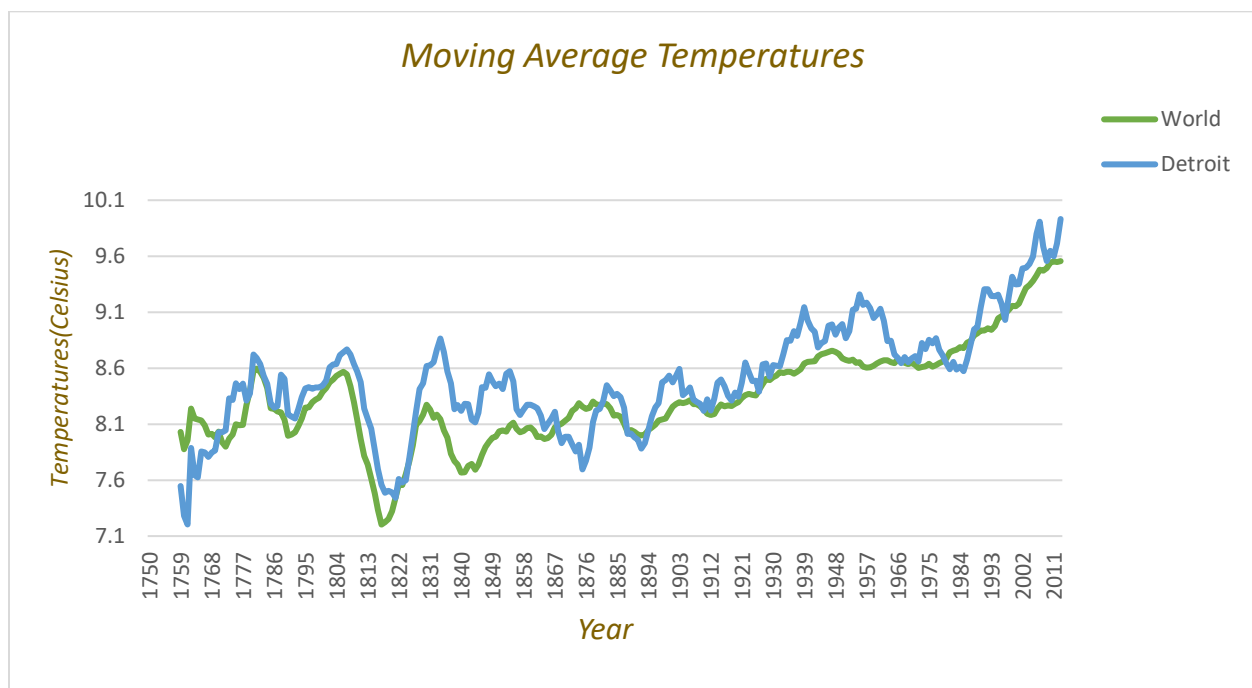
Observing Trends:

The most significant changes that I saw Detroit is hotter on average compared to the global average. In general, we can say that the difference has been rather consistent over times. The Detroit's temperatures have been increasing, we can see that the highest temperatures on record were the average 9.9 Celsius in 2013. Even though in 1761, Detroit's temperatures were 7.2 Celsius which is the lowest temperatures have been recorded. Also, the average global temperatures are increasing over the time. The global temperatures are rising at a slower rate than Detroit temperatures are rising.