The data was prepped for analysis using SQL by first determining the format of the tables using simple SELECT statements. Once the format was observed, queries were conducted to retrieve global temperature data. Using a WHERE statement, the data pertaining to Atlanta, GA was retrieved. This data was exported to a CSV file, and then, imported to Excel for visualization.

QUERIES:

```
SELECT *

FROM global_data
```

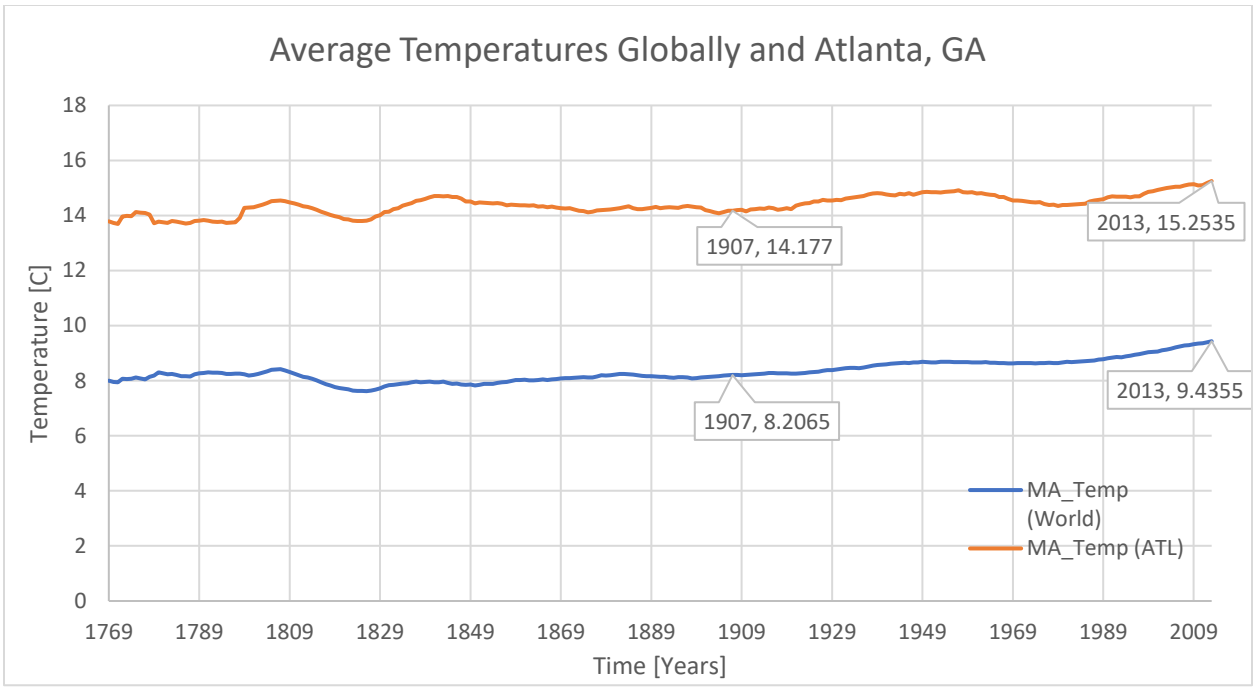
```
SELECT *

FROM city_data

WHERE city = 'Atlanta'
```

When attempting to plot data, it was difficult to notice a trend when plotting each year individually, therefore, a moving average of 20 years was used to smooth out the data. Since, climate change takes place over many years, 20 was chosen as the most effective time span for the smoothing function.

A line chart plotting the moving average was then created to visualize the temperature at a global level and at a city level. I wanted to mark the most striking points on the chart because they are what many scientists use today to support climate change. Much of the world industrialized in the late 1800s and early 1900s. This is when Carbon levels started to skyrocket and cause Global Warming. Therefore, these points were useful in determining the temperature at the start of most of the world industrializing and in 2013, nearly 100 years after the industrialization.

Four observations were made based on the trends:

1. Global temperatures increased on average 1.2 Celsius.
2. Atlanta, despite being closer to the equator, also had a similar increase of 1.1 Celsius.
3. If we determine the slope of this trend, we can calculate that the future average temperature in 2050 will be around 9.9 Celsius which would be almost a 1.7 Celsius increase in global temperature
4. The trend is that the world is getting warmer at an unprecedented rate (faster than the previous couple hundred years), however, there are time periods of natural cooling that seem to take place between 1969 and 1989. Within these time frames, both Atlanta and the rest of the world experience a slight dip in temperatures. This may mean that temperature won't increase as linearly as expected. This natural climate change may slow down the effect of global warming.


Average Temperatures Globally and Atlanta, GA
Temperature [C]
18
16
14
12
10
8
6
4
2
0
1769
1789
1809
1829
1849
1869
1889
1909
1929
1949
1969
1989
2009
Time [Years]
1907, 14.177
2013, 15.2535
1907, 8.2065
2013, 9.4355
MA_Temp (World)
MA_Temp (ATL)