Weather Trends in Chicago and the Globe

SQL Query

The data was initially collected using SQL query. The following commands were used to extract and download the information about the nearest large city, Chicago, and the globe:

Chicago	Globe
SELECT * FROM city_data WHERE city IN ('Chicago')	SELECT * FROM global_data

Visualization

After the CSV file was downloaded, Excel was used to visualize the data. The moving average method was used to make a smooth line and visualize the trend in a better way as shown in *Figure 1*.

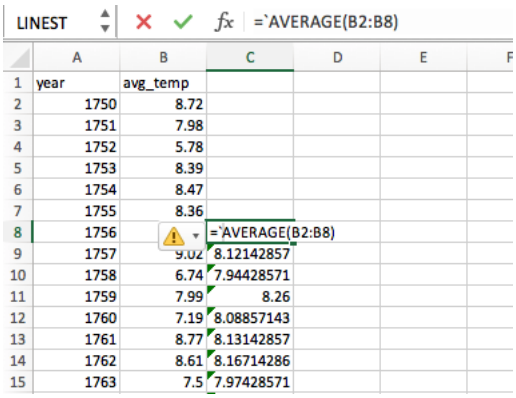

Figure 1. The calculation of the 7-day moving average to smooth the results and lower undesired spikes.

7-year moving average was selected for both cases: Chicago and the globe. They were plotted in line charts. It should be noted that the in both cases, there was some missing data at the beginning of the sheet. These missing data were simply skipped. The starting point for both with the moving average was 1756. The last year for both was 2013.

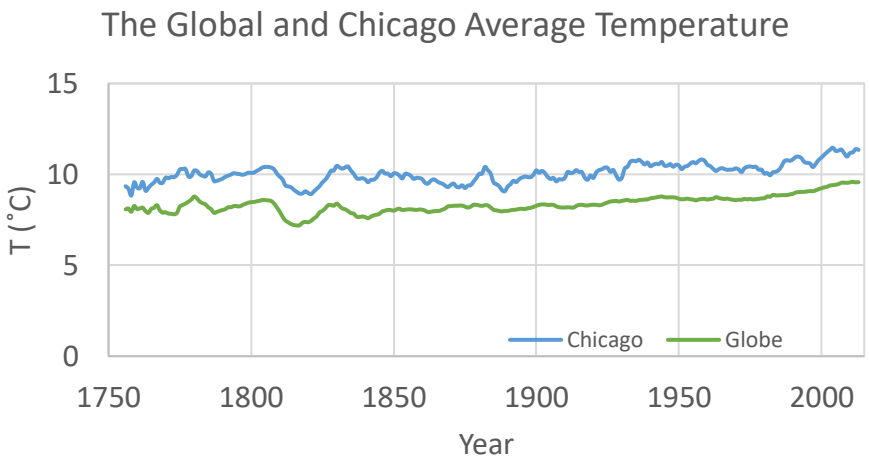

Figure 2. The average temperature in Chicago and the globe from year 1756 to year 2013. With 7-year moving average, it seems that the overall trend is increasing, although there are some fluctuations from one year to another.

Analysis

First of all, when looking at line graphs such as *Figure 2*, the analyst should look for the overall trend as well as local maxima or minima. By examining the overall trends for both figures, it seems that both are gradually increasing, indicating a positive trend. Their values however are different, Chicago is slightly warmer at 11 while the globe is around 10 in 2013. The most outstanding minimum to me for both figures happens at the year 1815. I was suspecting a major event happened during that time caused the earth to cool down by around 1˚. A quick Google search shows this event. It was the 1815 eruption of Mount Tamboraa in Indonesia. This eruption was one of the most violent in the recorded history and affected the world temperature. The volcanic smog blocked the sun from the earth in many parts of the world for several month to few years, causing the temperature to go up. One maximum that was more pronounced in the Chicago figure in the year 1871 could be attributed to the Great Chicago Fire that took place in that year and destroyed the city.