

### **Tools used**

- data extraction: workspace on Udacity
- data manipulation: Microsoft Excel for Mac
- data visualization: Microsoft Excel for Mac
- note taking: Atom.io

### **Calculation of moving average**

- used "AVERAGE" to calculate the average of 5 years, copied formula in the remaining cells in the column
- used "AVERAGE" to calculate the average of 10 years, copied formula in the remaining cells in the column

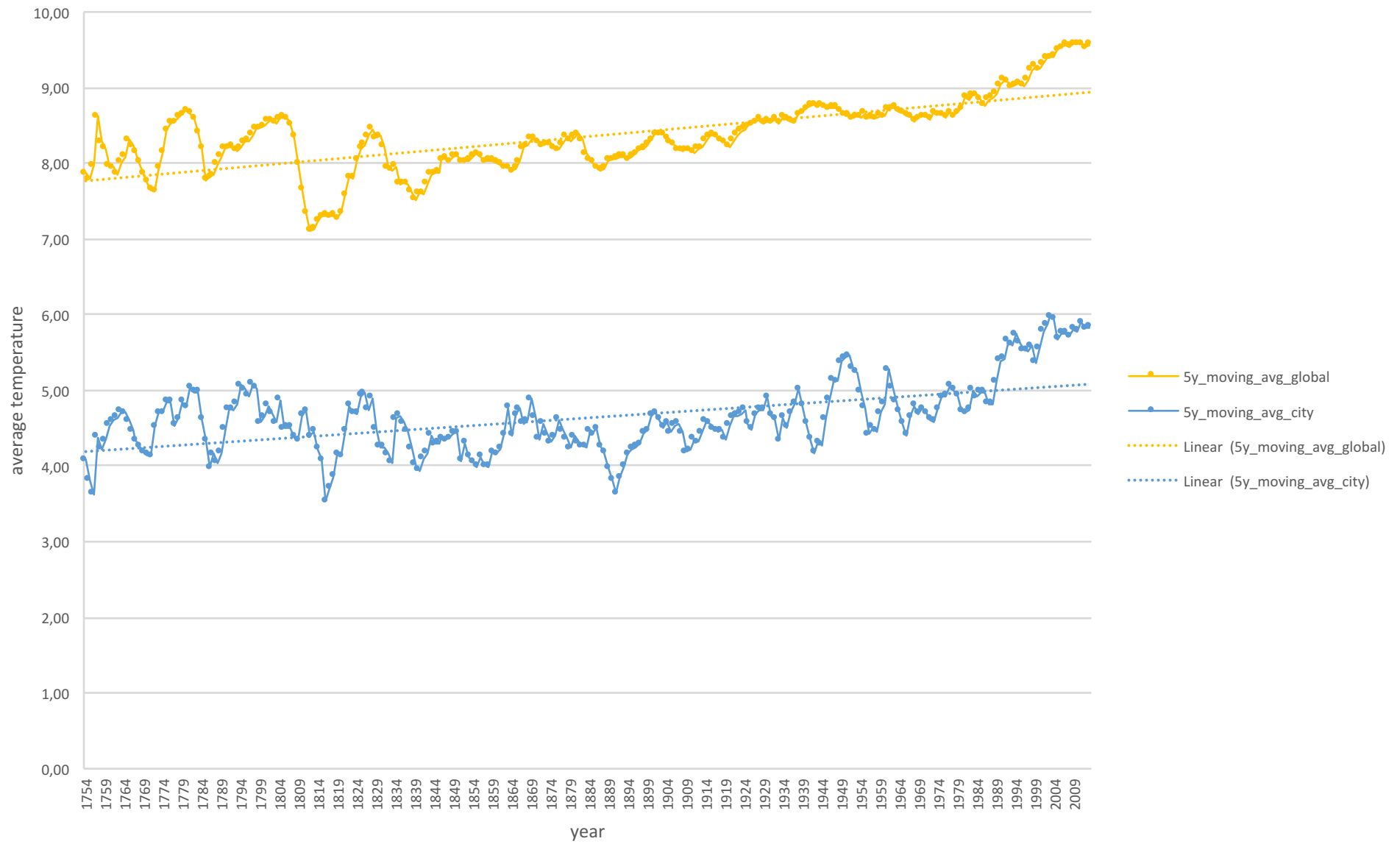
### **Key considerations about visualizing the trends**

- A 5 year moving average still generates too much / too drastic swings so I added a chart showing the 10 year moving average.
- The 10 year moving average is a little smoother and allows an easier comparison between global and city avg\_temps.
- I added a trendline for each graph to visualize the general development which is: rising average temperatures.

### **Observations (10y moving average)**

- Both trends show a rise in the average temperature.
- The global average temperature rose steadily beginning around 1894 whereas the average temperature in Munich was subject to fluctuations.
- The trend for the global average temperatures shows a decline starting in 1807 after a constant rise up until 1806.
- The trend for the average temperature on the city level started to decline almost 10 years earlier (in 1798).
- Both trends show a rapid rise starting in 1990 compared to the years before where the rise was noticeable but not that intense.

5 year moving average



10 year moving average

