1st Project: Exploring Weather Trends

2nd September, 2020

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I. Outline of steps taken to prepare the visualization

1. Tools that I used:

First, I looked up in the “city_list” which cities from Germany it contains. I used **SQL query** to extract from “city_data” containing only the data for Munich. And then with another SQL query, I pulled all the data from “global_data” and downloaded them into CSV.

```
SELECT *
FROM city_list
WHERE country = ‘Germany’;

SELECT *
FROM city_data
WHERE city = 'Munich’;

SELECT *
FROM global_data;
```

I. Outline of steps taken to prepare the visualization

2. How I calculated the moving average

I calculated 10 year moving averages for both global and local data on **MS Excel**.

The function that I used is “=**AVERAGEIF(D2:D11,"<>0")**” in order to exclude nulls in the calculation.

I. Outline of steps taken to prepare the visualization

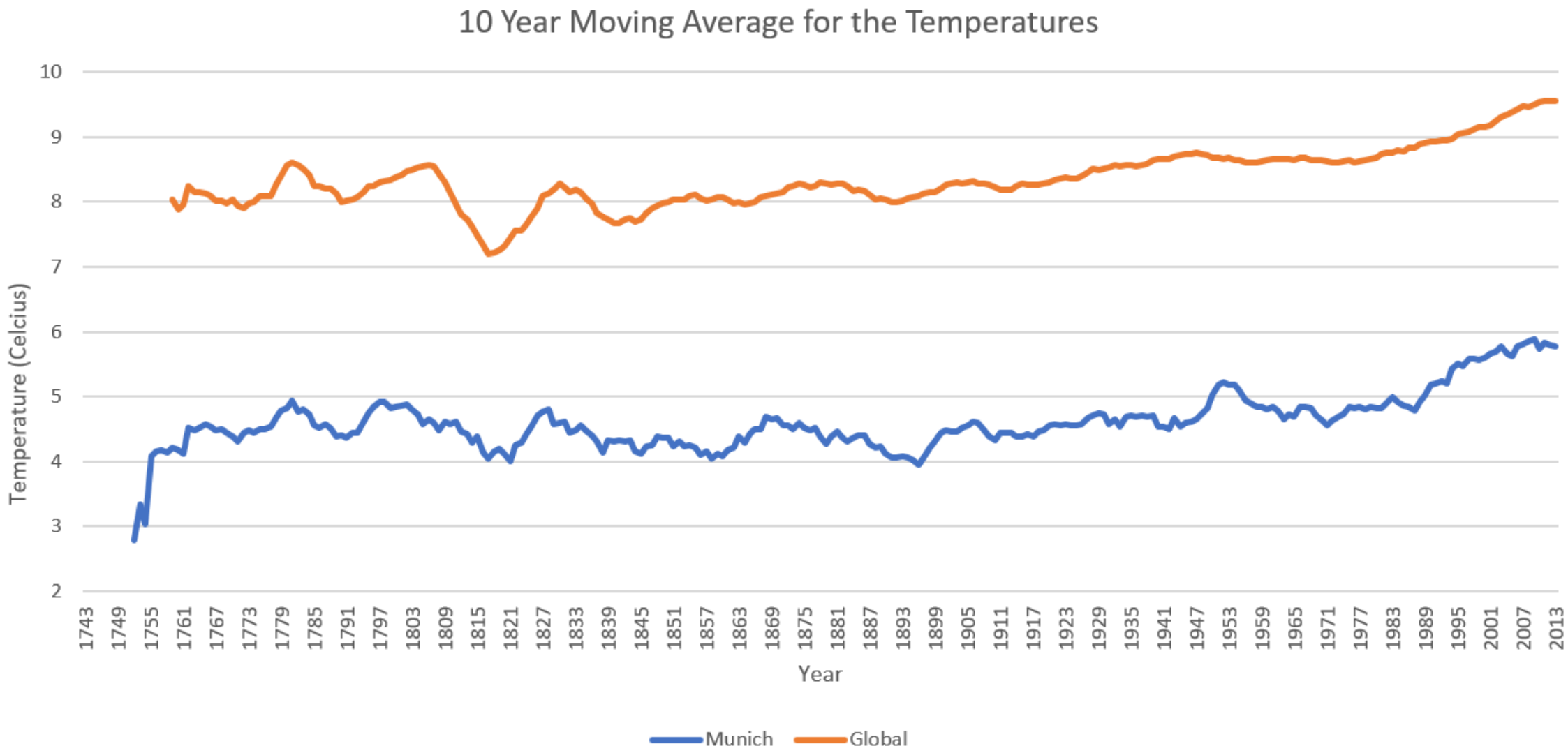
3. My key considerations when deciding how to visualize the trends

First of all, I tried to choose the right chart. In this case, the line graph best serves the purposes of comparing yearly data.

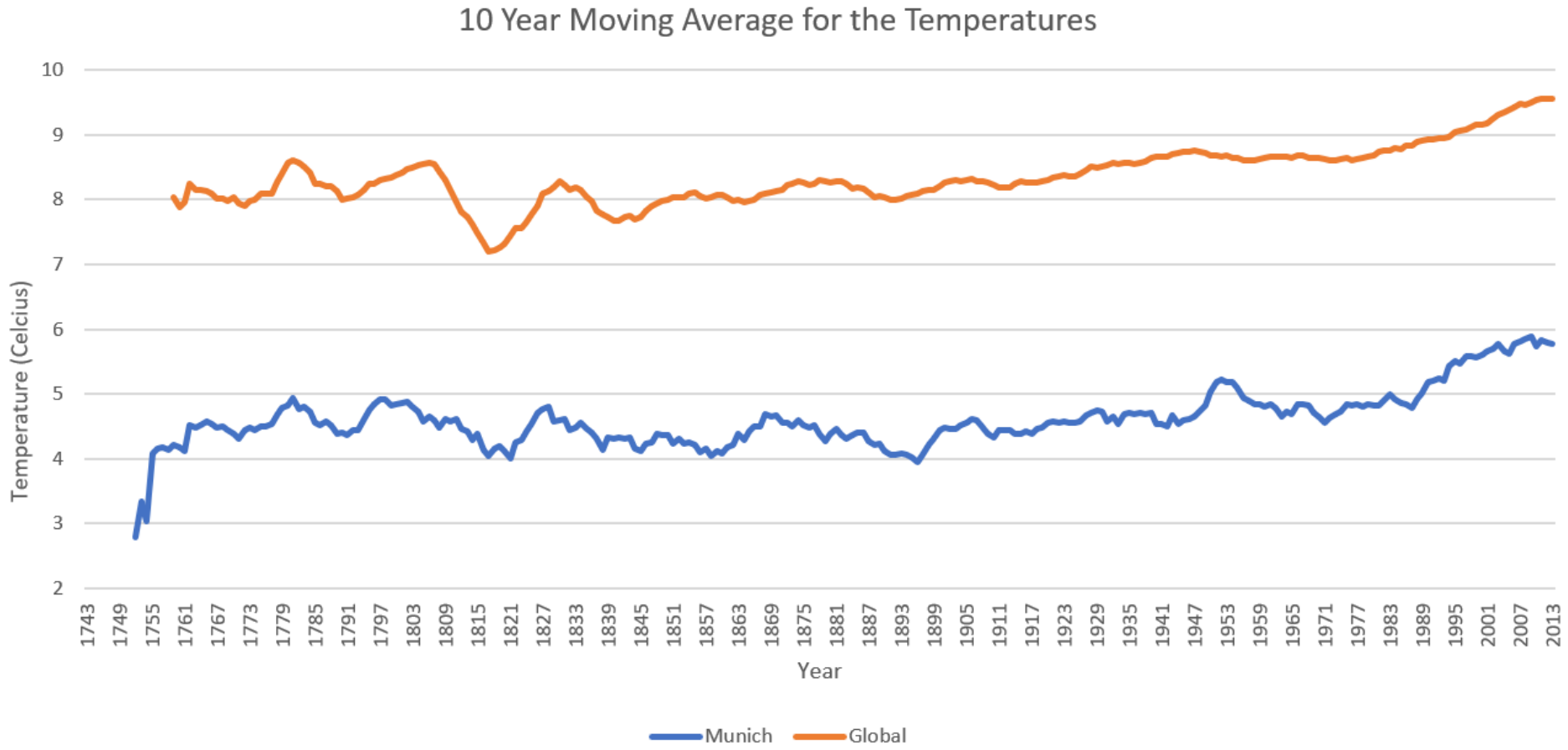
Secondly, I tried several different scales in the vertical axis. Because the differences in the temperature were subtle, I switched from different bounds and units in the settings to show the trends more visiblely.

Finally, I tried to choose line colors for global and local (Munich) that can be easily distinguished from each other.

II. Line chart with local and global temperature trends



III. Four Observations on the Temperature Trend



First observation: in general, the moving temperatures throughout the years in both Munich and worldwide shows similar patterns. Munich has been always about 3.7 - 4 Celcius colder than the global temperature.

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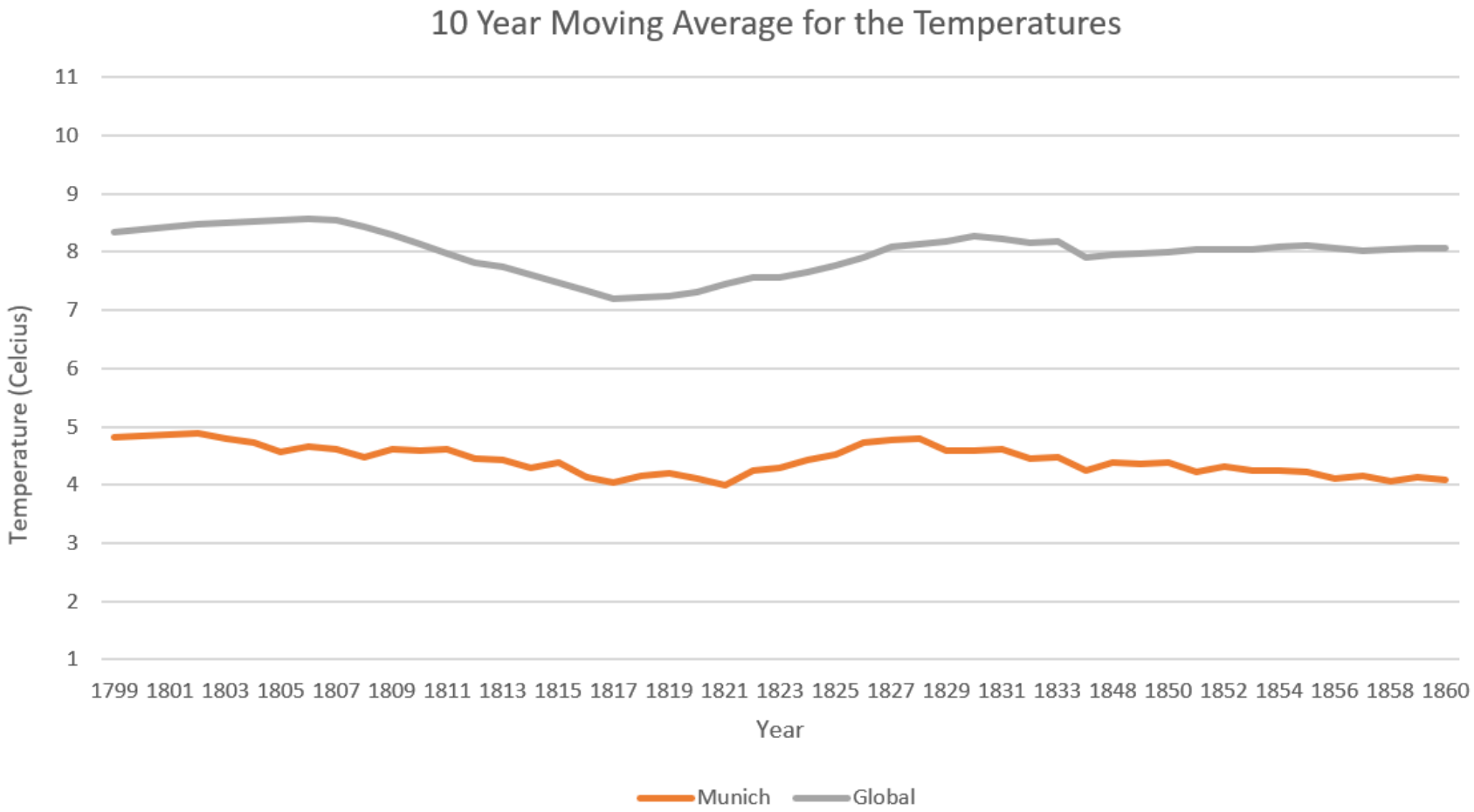

Second observation: especially from the year 1799 to 1860, the moving temperatures in Munich and global show similar up-and-down movements.

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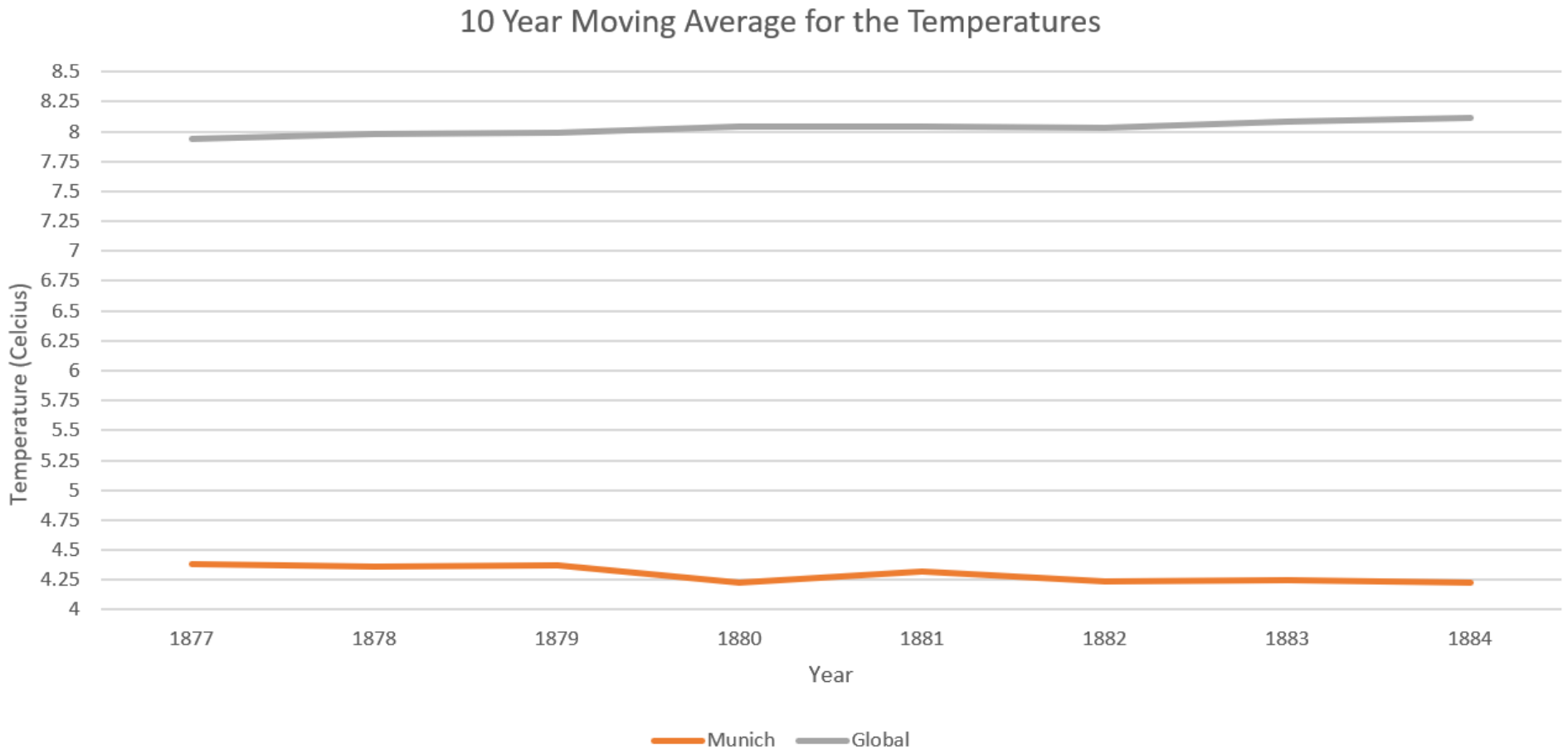

Third observation: the period from 1877 to 1884 are where the local and global temperature trends show differences. In Munich, the temperature is plummeting meanwhile globally, the temperature is rising.

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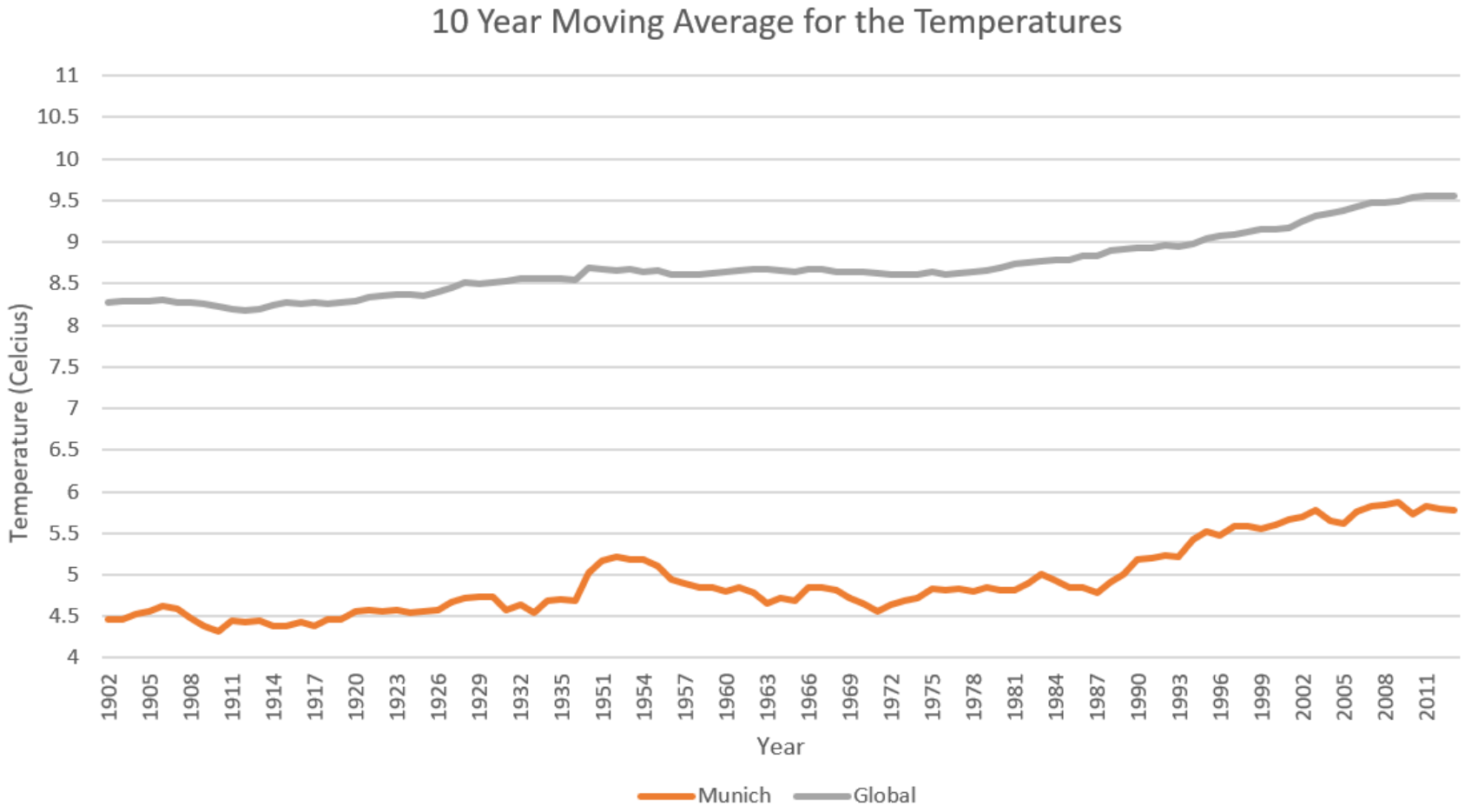

Fourth observation: after the period in the third observation, since 1902, the temperature is moving similarly, increasing in general on both local and global level.