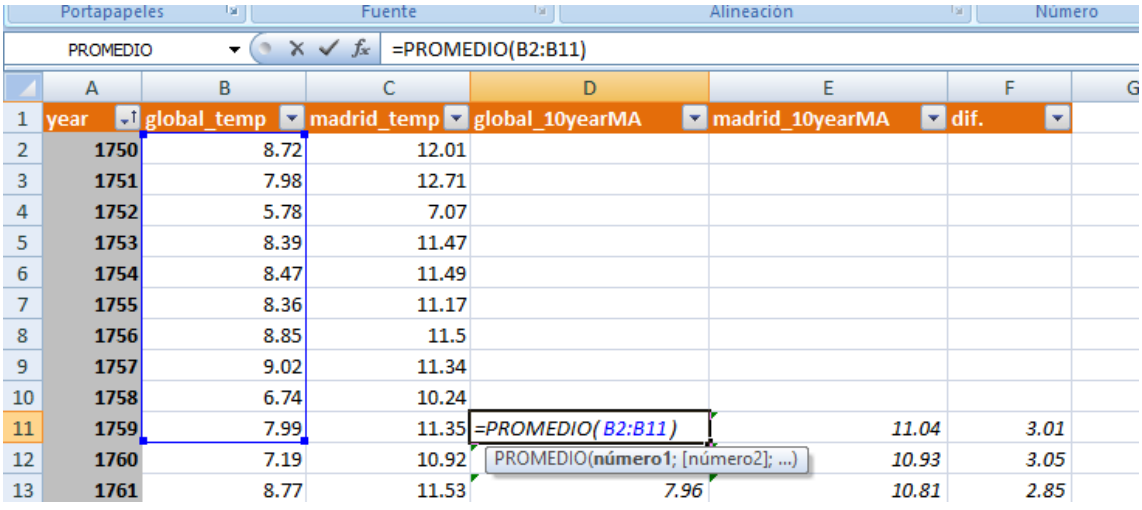
Exploring Weather Trends

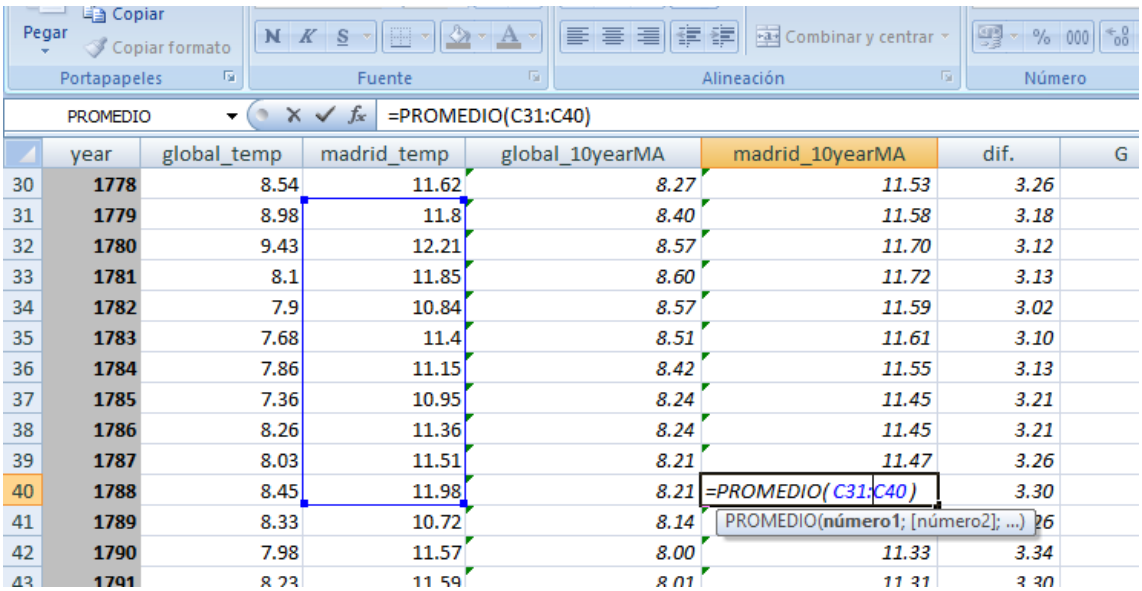
Preparation:

With this sql statement I've obtained the temperature data I need (global and Madrid) in one single table:

```
select a.year, a.avg_temp as global_temp, b.avg_temp as madrid_temp
from global_data a left join city_data b
on a.year=b.year
where b.city='Madrid'
```

After downloaded the csv file, I´ve opened it with Excel and calculated the moving averages. I've chosen a 10 years interval because it´s long enough to smooth the data but we don´t miss information like with larger intervals.

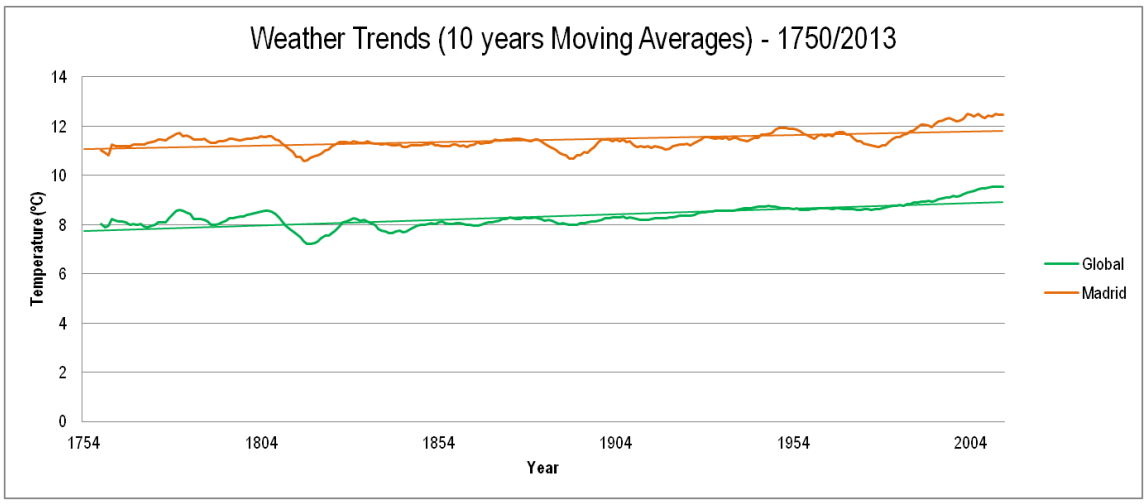


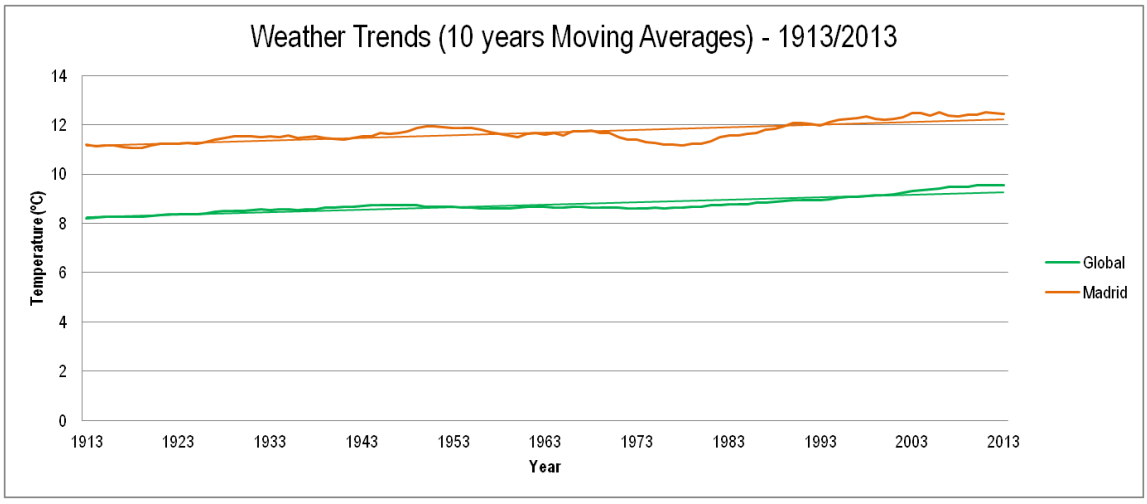


(Notice that the PROMEDIO() function is the Spanish version of the AVERAGE() function)

To get the MA (moving average) for each year, I only had to sum the last ten years and then divide by ten.

Outputs:





Conclusions:

- As we can see in the chart, Madrid has always been hotter than the global average (3 degrees approximately).
- In Madrid, as in the rest of the world, there was a cold wave in the 1810s and the 1820s. In 1816, the temperature in Madrid was 10.53 ºC (almost 1 degree less than the average) and the global temperature was 7.33 ºC (also 1 degree less than the average).
- During the XX Century, the global temperature was stable. In the other hand, the temperature in Madrid during that period of time suffered several changes, like an increase during the 1940s and 1950s or a decrease in the 1970s decade.
- The temperature of both series has slightly go up during these years, but it seems that the global temperature is growing faster than the Madrid's temperature.