Exploring Weather Trends

Udacity Data Analyst Nanodegree - Assignment 1

Work Performed

- Using SQL, performed a join on city_data and global_data tables and filtered on city_data for the city 'London' and the country 'United Kingdom'

  SQL query used:

  SELECT city_data.*, global_data.year AS global_year, global_data.avg_temp AS global_avg_temp

  FROM city_data

  JOIN global_data

  ON city_data.year = global_data.year

  WHERE city = 'London'

  AND country = 'United Kingdom';

- Extracted the data to a csv file and using google sheets, calculated the 3 year moving averages for London and Global locations.
- Calculated the 3 year moving averages by taking an average of the first 3 years (1750 - 1752) and extrapolating that to the most recent year available.
- Performed the same work to analyse two further cities - Shanghai and Oslo.
- The slides on the subsequent pages discuss the findings.

Average temperature - London vs Global

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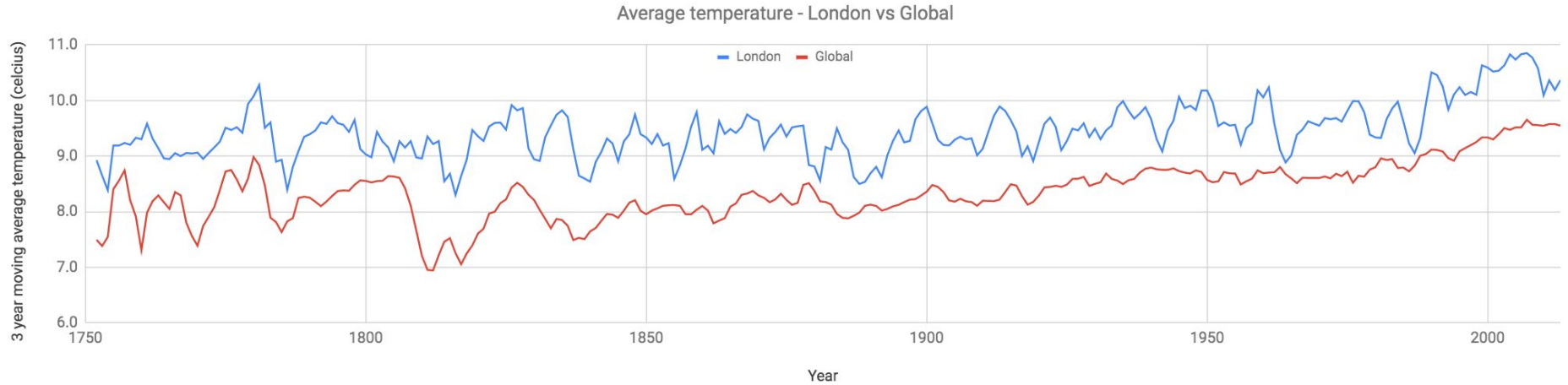
- London's average temperature is consistently higher than the Global average since 1750.
- The largest margin is in 1811 when London's average temperature was 9.4°C, 2.4°C or 34.5% higher than the Global average
- Global average temperatures over the last 100 years has been steadily rising due to global warming and the effect of greenhouse gases released.
- London average temperature over the the late 90's have remained at over 10.0°C peaking in 2007 at 10.9°C, 1.2°C or 12.4% higher than the Global average.

Average temperature - Other cities vs Global

Average temperature
London, Oslo, Shanghai vs Global 3 year moving average
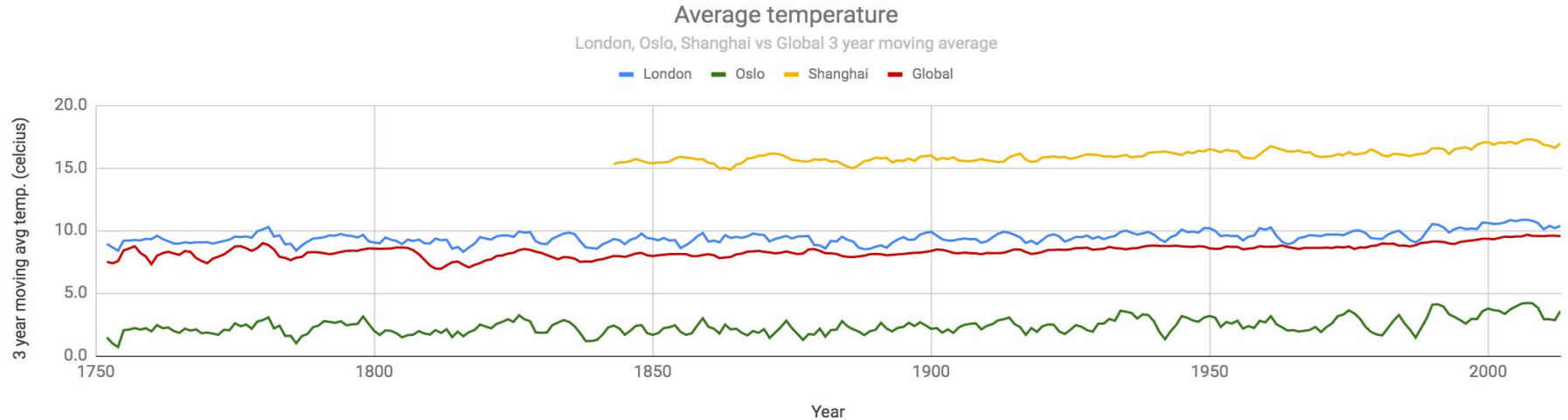
- Since records began, average temperature in Shanghai has remained consistently above the Global average.
- Average temperature in Shanghai peaked in 2007/2008 at 17.3°C approximately 8% higher than the Global average.
- Shanghai is a major manufacturing city in China, contributing to increased greenhouse gas emissions and global warming.
- Average temperature in Oslo is significantly lower than the Global average largely due to its geographic location in North-West Europe.
- However, it is evident that the average temperature since the late 90's is increasing following the Global trend of increasing temperatures.

Conclusion

- From the global data reviewed, it is clear that average temperatures are increasing.

- Global citizens are influencing the climate and temperature by burning fossil fuels, cutting down rainforests and farming livestock.

- All these contribute to increased greenhouse gases increasing the greenhouse effect and global warming.

- The increase in global temperature is a concern as it can lead to more dramatic weather patterns: eg, droughts and heatwaves are expected to become more intense as the climate gets warmer and the amount of rainfall during a storm is expected to increase.

- Finding a way to slow down or stop climate change is one of our biggest challenges.