

# Air pollution in the 5 biggest Chinese and UK cities compared

Tableau Data Visualisation Project

Mark MacArdle

## Tableau Files

First draft:

<https://public.tableau.com/profile/mark.macardle#!/vizhome/UKvChinaAirPollution/Dashboard1>

Final submission:

[https://public.tableau.com/profile/mark.macardle#!/vizhome/UKvChinaAirPollution\\_final/Story1](https://public.tableau.com/profile/mark.macardle#!/vizhome/UKvChinaAirPollution_final/Story1)

## Summary

The UK government has been [losing court cases](#) over its insufficient plans for dealing with the country's unhealthy air quality. Meanwhile, China, which I've always associated with terrible air quality, has been [receiving praise](#) for the progress it's making. This made me wonder if UK air quality is still better than China, or if it has been overtaken. The Tableau workbook shows that although China is improving quickly, it has a long way to go to catch the UK.

## Design

Across all the line and bar charts of the story and dashboards China is in blue and the UK in Orange. This was done to make it clear that it is the countries, rather than the individual cities that are being compared.

The middle slide of the story is maps with shaded red circles sized to the pollution levels. This was done to show where the cities are as most viewers probably won't know where the Chinese cities are. The combination of size and color to show the pollution levels gives a strong visual representation of the difference in levels too.

There is a dashboard with these maps animated year by year, along with a bar chart underneath to better show the exact figures.

The third slide of the story again has the blue and orange line plot from the first story slide but with curving exponential trend lines extended out until they meet the axis. This may not be a great way of predicting as it shows both countries hitting zero pollution which is unlikely. However I believe it provides an interesting insight into the path that China is on.

## Feedback

Initially started with a visualisation using maps and pollution as the size of circles at each city's location. It was animated year by year to show the changes. Initial feedback was that there wasn't much difference between the groups. This was most obviously from an oversight of not matching the sizes of the markers used in each map, so the UK's were far bigger than should have been.

I had been eager to show off the fancy capabilities of Tableau by using the maps and animation, but realised that a line graph would show the differences clearer. Coloring the lines blue for China and Orange for the UK made the difference very easy to see.

Initially I was also looking at the top 10 cities of each country. However the question asked about the line graph was what cities does it represent and where are they.

This lead to a third change of style to displaying the city names as labels and only using the top 5 cities to see the labels easier. I also created a dashboard with the cities shown on maps and a bar chart below to show the figures better. This was animated to change year by year.

I did include the animated dashboard in the story, but feedback was that it wasn't playing. I found it is not possible to have animations play in stories, or automatically play on dashboards on Tableau public or server. So in the story I switched to a non-animated map displaying the the values for the latest year.

# Resources

Pollution data taken from the World Health Organisation's database which, for the cities being examined, covered 2013 to 2016.

Main database page:

<http://www.who.int/airpollution/data/cities/en/>

Database file:

[http://www.who.int/airpollution/data/aap\\_air\\_quality\\_database\\_2018\\_v9.xlsx?ua=1](http://www.who.int/airpollution/data/aap_air_quality_database_2018_v9.xlsx?ua=1)

Biggest cities taken by urban area from the following lists.

UK: [https://en.wikipedia.org/wiki/List\\_of\\_urban\\_areas\\_in\\_the\\_United\\_Kingdom](https://en.wikipedia.org/wiki/List_of_urban_areas_in_the_United_Kingdom)

China: [https://en.wikipedia.org/wiki/List\\_of\\_cities\\_in\\_China\\_by\\_population\\_and\\_built-up\\_area](https://en.wikipedia.org/wiki/List_of_cities_in_China_by_population_and_built-up_area)

Negative news story about UK air pollution:

<http://www.bbc.co.uk/news/science-environment-43141467>

<https://www.theguardian.com/environment/2018/feb/21/high-court-rules-uk-air-pollution-plans-unlawful>

Positive news story about China air pollution:

<https://www.bloomberg.com/news/articles/2018-01-11/china-is-winning-its-war-on-air-pollution-at-least-in-beijing>