



Getting map data into R



Making maps is complex

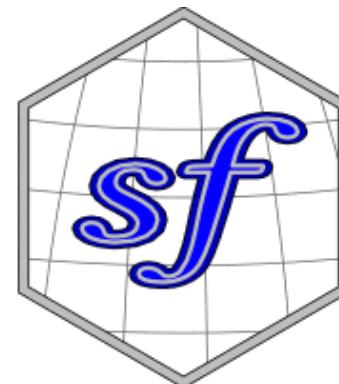




R for maps

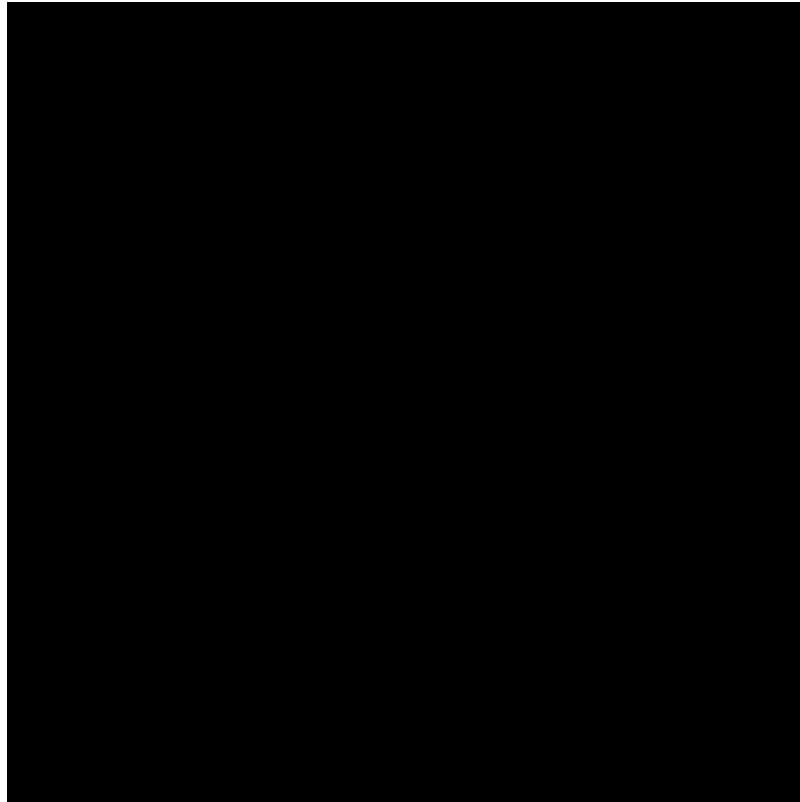
R has packages for every part of the mapping workflow:

- importing map data
- wrangling and cleaning map data
- computing geographic distances, areas, intersections and more..
- visualising map data





Maps flatten a complex world (I)





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Animating the Mercator projection to the true size of each country in relation to all the others.

Focusing on a single country helps to see effect best.

#dataviz #maps #GIS #projectionmapping
#mapping

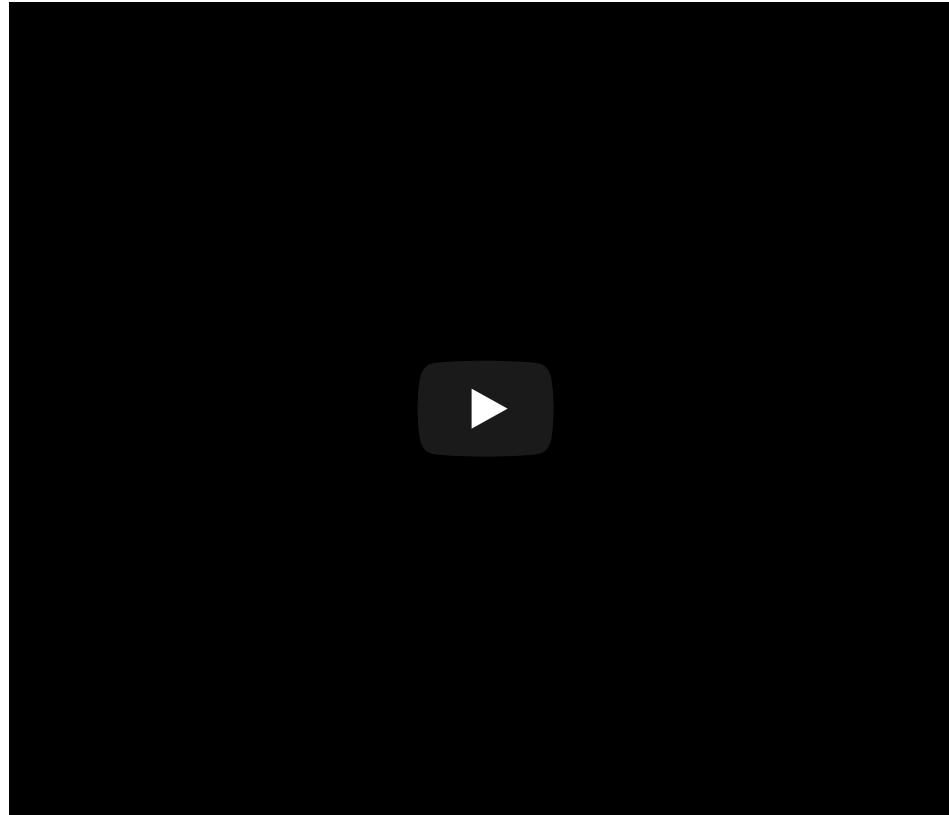


Jakub Nowosad replicated this GIF in {ggplot2} on their blog:
nowosad.github.io/post/maps-distortion





All maps are wrong...



All map projections distort the surface of the Earth to some extent.

Some regions or countries may be better represented with specific projections.



... but CRS 4326 is a good default

The Coordinate Reference System (CRS) of a geospatial dataset specifies the projection of the dataset.



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The Coordinate Reference System (CRS) of a geospatial dataset specifies the projection of the dataset.

- WGS84 is the most common [geographic] CRS used in the world.
- It's more usually referred to by the EPSG code 4326
- This "magic number" will appear often in our code

```
quakes %>%
  st_as_sf(coords = c("long", "lat"), crs = 4326) %>%
  mapview()
```



Maps flatten a complex world (II)



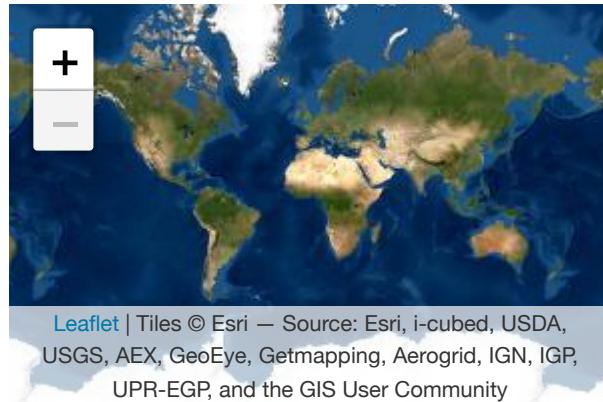
- There are more than 100 territorial disputes.
- There are more than 30 naming disputes, including seas and other bodies of water.
- Making maps is political, consider your audience and intent.

Interactive dispute map: metrocosm.com/disputed-territories-map



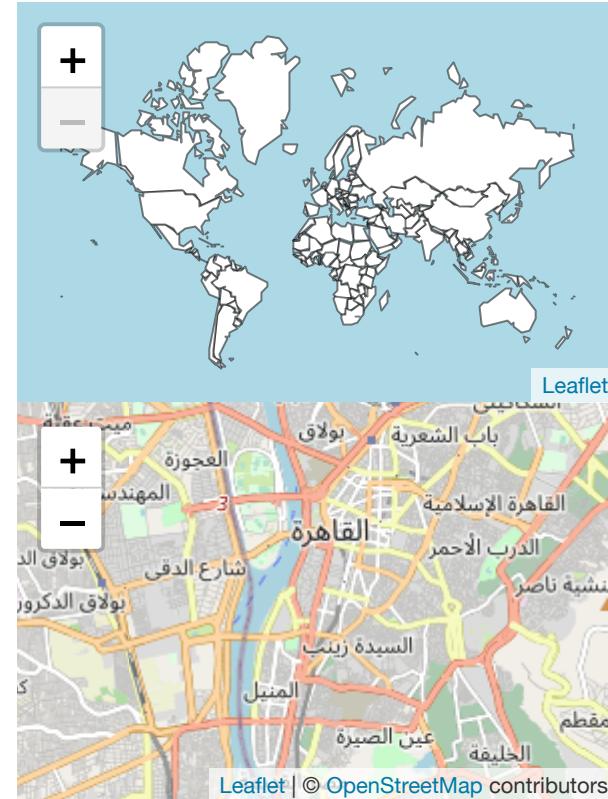
Maps flatten a complex world (III)

Base maps (or map tiles) live behind the data we add to our maps and add flavour to the map.





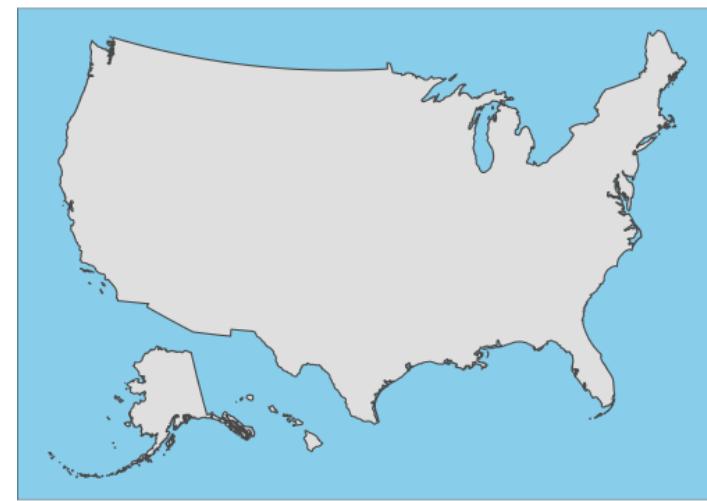
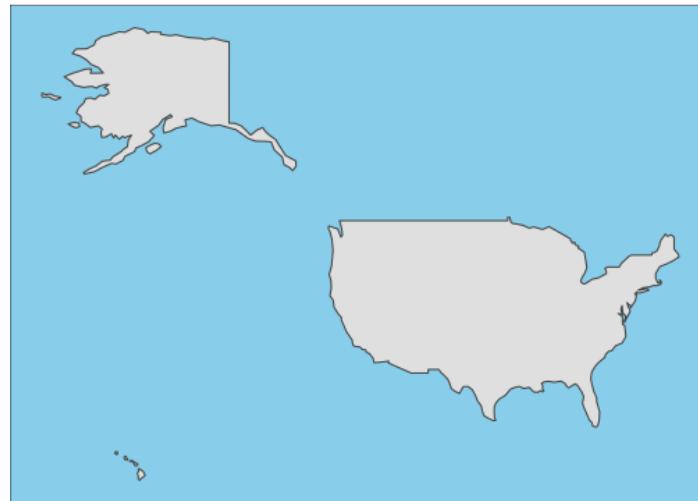
Maps flatten a complex world (III)





Maps flatten a complex world (IV)

Sometimes the maps we want to build require us to manipulate the relative positions of regions.





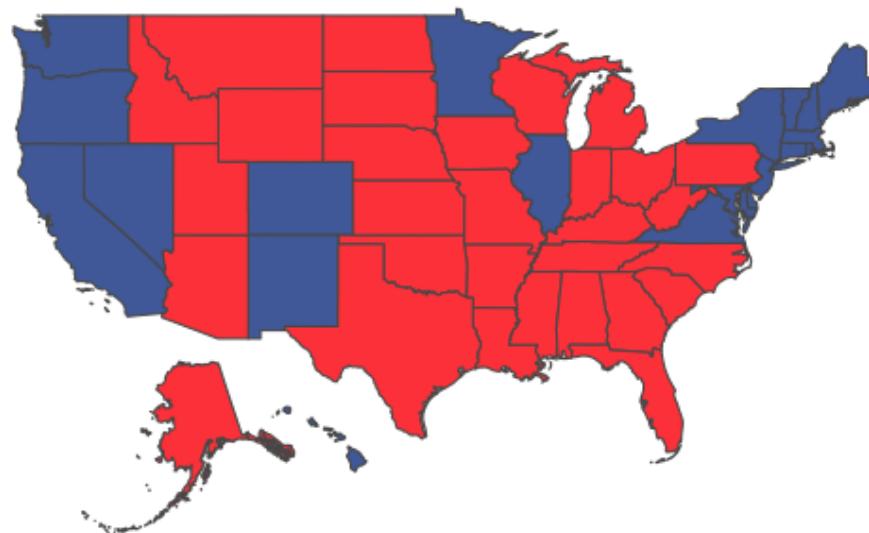
Are maps worth it?



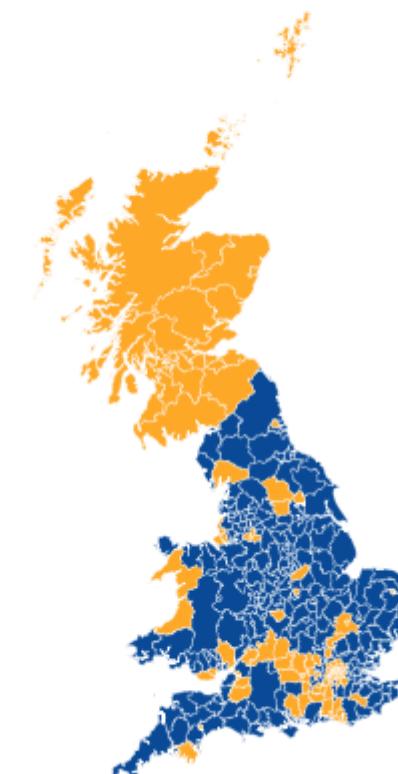


Choropleth are the gold standard for election data

States won by **Hillary Clinton** and **Donald Trump** in the 2016 Presidential race

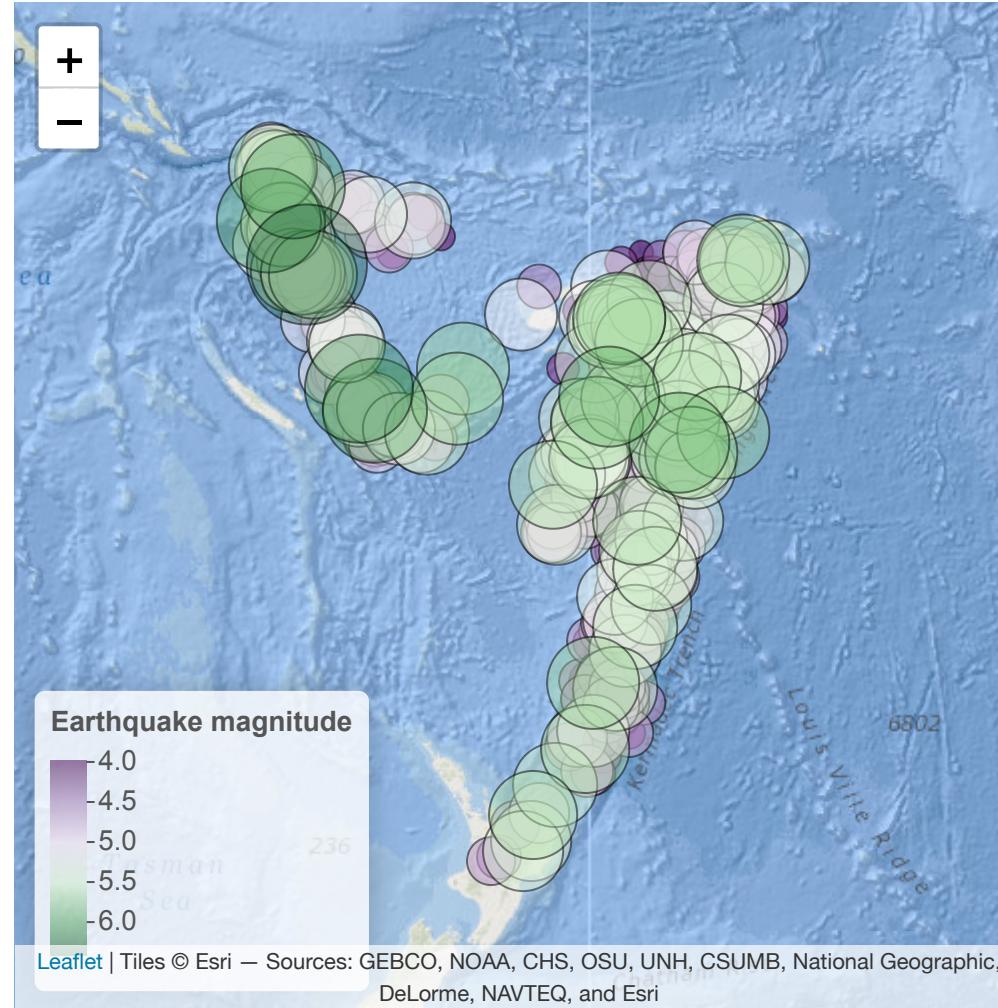


Constituencies that voted **Leave** and
Remain in the 2016 Brexit Referendum





Maps show where things happen





R is a complete GIS system

Software designed to work with geospatial data is called GIS (Geospatial Information System) software.

Most dedicated GIS tools are expensive and extremely technical to use.

R is without doubt a complete and powerful GIS system. We can use it to map or manipulate any and all geospatial datasets.

