

tt()

Geo data



Schedule

1. Google Maps
2. Leaflet / OpenStreetmap
3. D3
4. Summary



Schedule

1. Google Maps

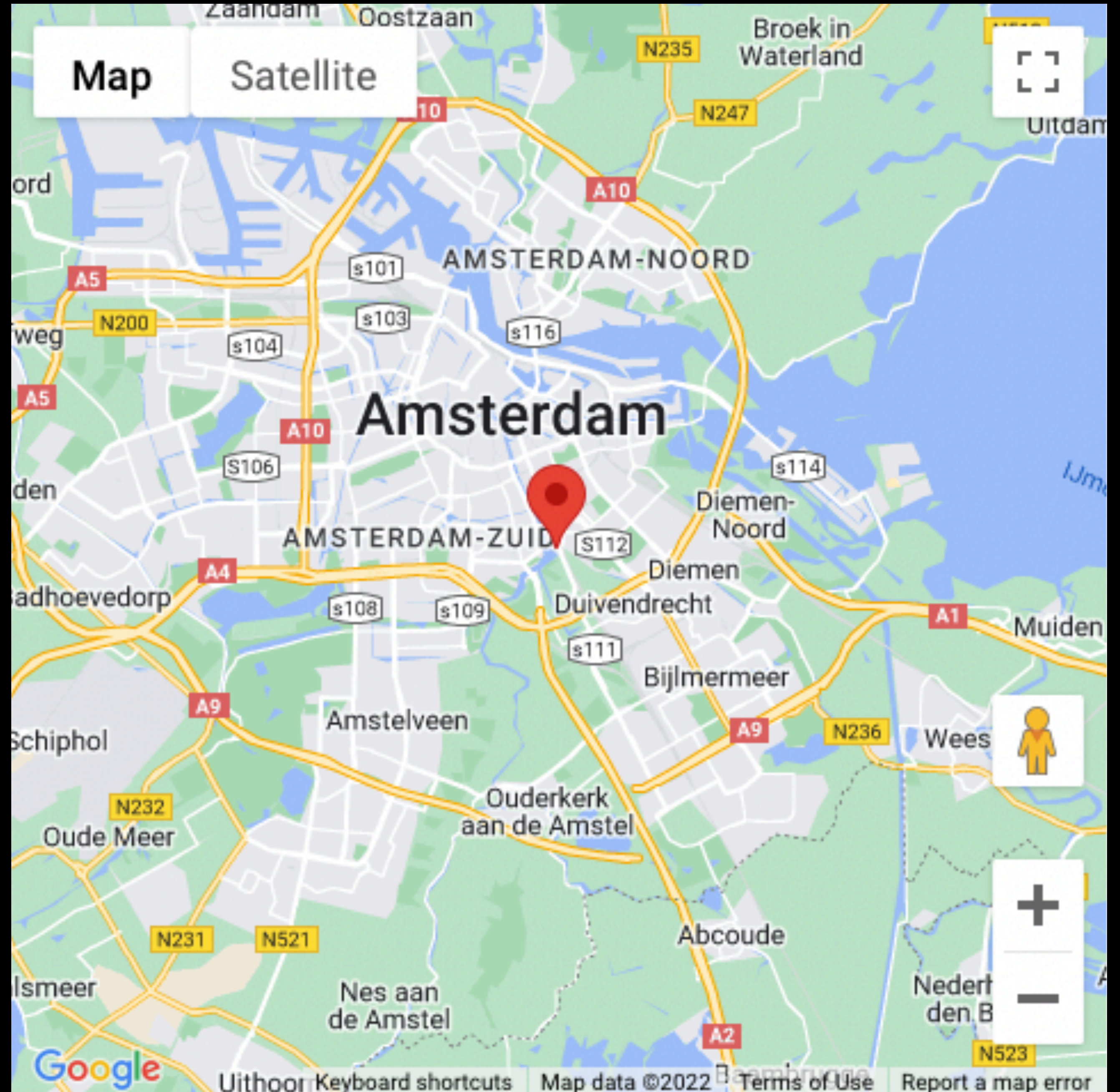
2. Leaflet / OpenStreetmap

3. D3

4. Summary



Google Maps



Custom Map Styles



Conditions

- Paid after x number of map requests
- Geocoder only in combination with Google Map
- No caching
- Can't use for internal apps on local network
- Etc.

Schedule

1. D3

2. Google Maps

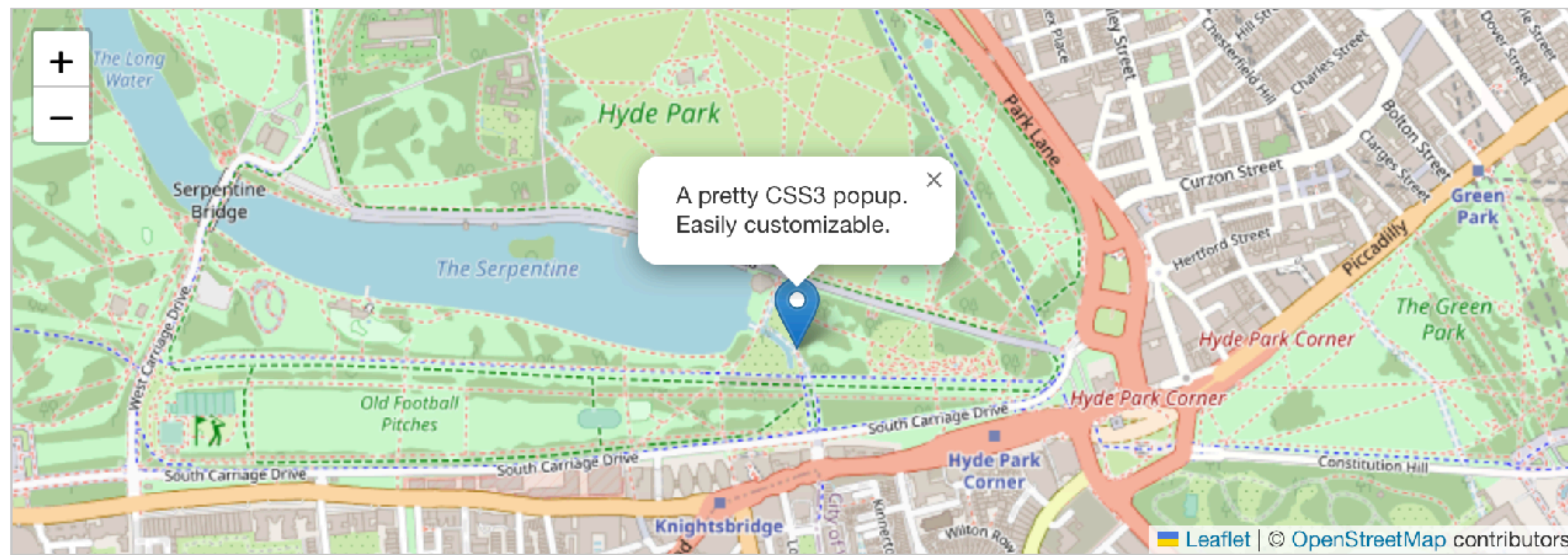
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Leaflet

leafletjs.com



Here we create a map in the 'map' div, add tiles of our choice, and then add a marker with some text in a popup:

```
var map = L.map('map').setView([51.505, -0.09], 13);

L.tileLayer('https://tile.openstreetmap.org/{z}/{x}/{y}.png', {
  attribution: '&copy; <a href="https://www.openstreetmap.org/copyright">OpenStreetMap</a> contribu
}).addTo(map);

L.marker([51.5, -0.09]).addTo(map)
  .bindPopup('A pretty CSS3 popup.<br> Easily customizable.')
  .openPopup();
```


Pick a tile server

- [OpenStreetMap](#)
- [MapBox](#)
- [HERE](#)
- [Stamen](#) ->
- [Your own?](#)
- [NLMaps](#)



Toner

These high-contrast B+W (black and white) maps are featured in our Dotspotting project. They are perfect for data mashups and exploring river meanders and coastal zones. Available in six flavors: [standard toner](#), [hybrid](#), [labels](#), [lines](#), [background](#), and [lite](#).

Available worldwide.



Terrain

Orient yourself with our terrain maps, featuring hill shading and natural vegetation colors. These maps showcase advanced labeling and linework generalization of dual-carriageway roads. Terrain was developed in collaboration with Gem Spear and Nelson Minar. Available in four flavors: [standard terrain](#), [labels](#), [lines](#), and [background](#).

Available worldwide.



Watercolor

Reminiscent of hand drawn maps, our watercolor maps apply raster effect area washes and organic edges over a paper texture to add warm pop to any map. Watercolor was inspired by the [Bicycle Portraits project](#). Thanks to [Cassidy Curtis](#) for his early advice.

Available worldwide.

NL Maps



<https://nlmaps.nl/>

GeoCoder

```
Convert "Wibautstraat 2, Amsterdam"  
To 52.35940413649428, 4.908656298091917
```

Most commercial mapping providers come with their own geocoder API, but you're only allowed to use them if you also use their map.

Photon is a free alternative without restrictions:
<https://photon.komoot.io/> or for NL: [PDOK](#)

Schedule

1. Google Maps

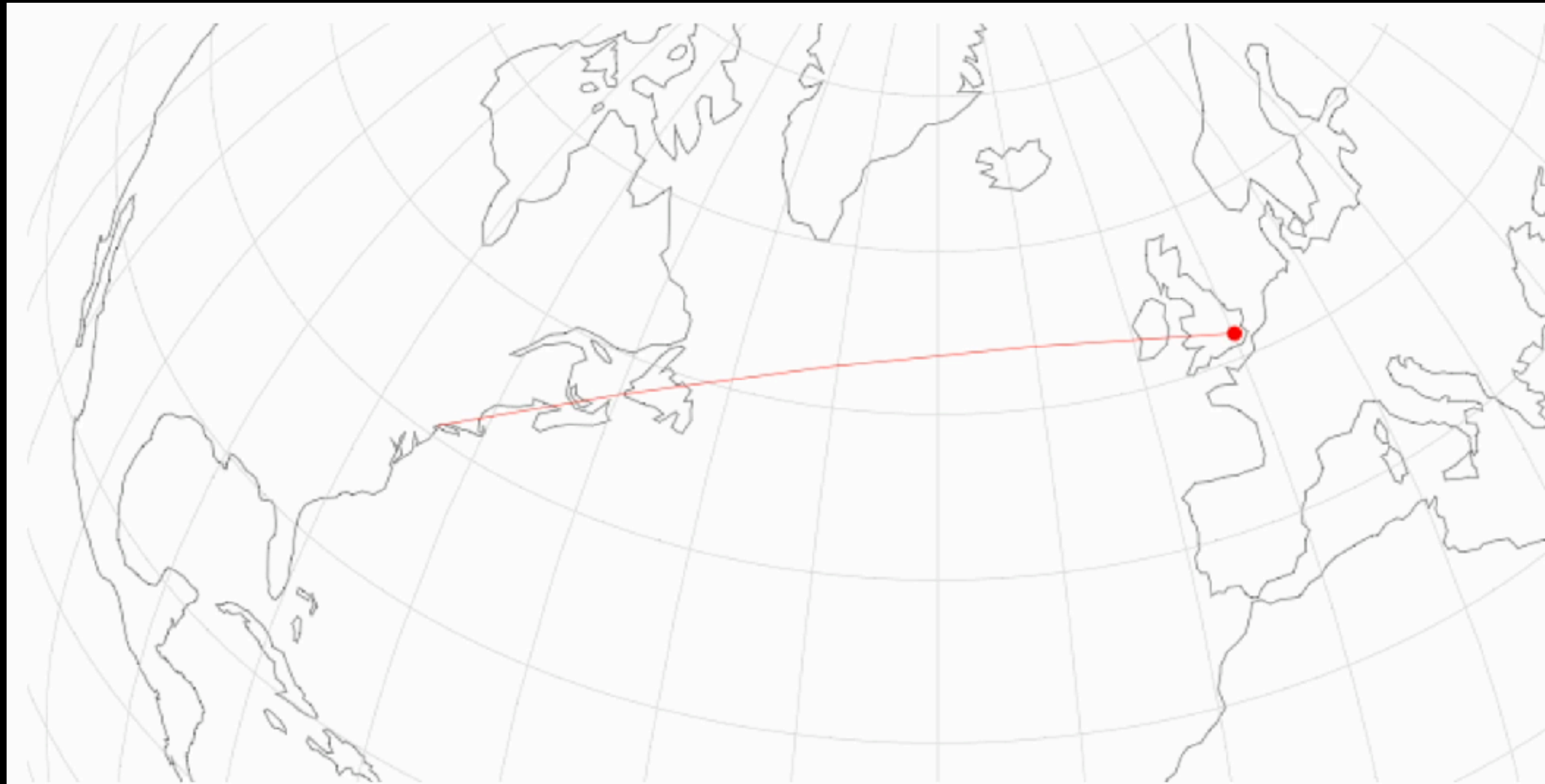
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D3



<https://www.d3indepth.com/geographic/>

GeoJSON

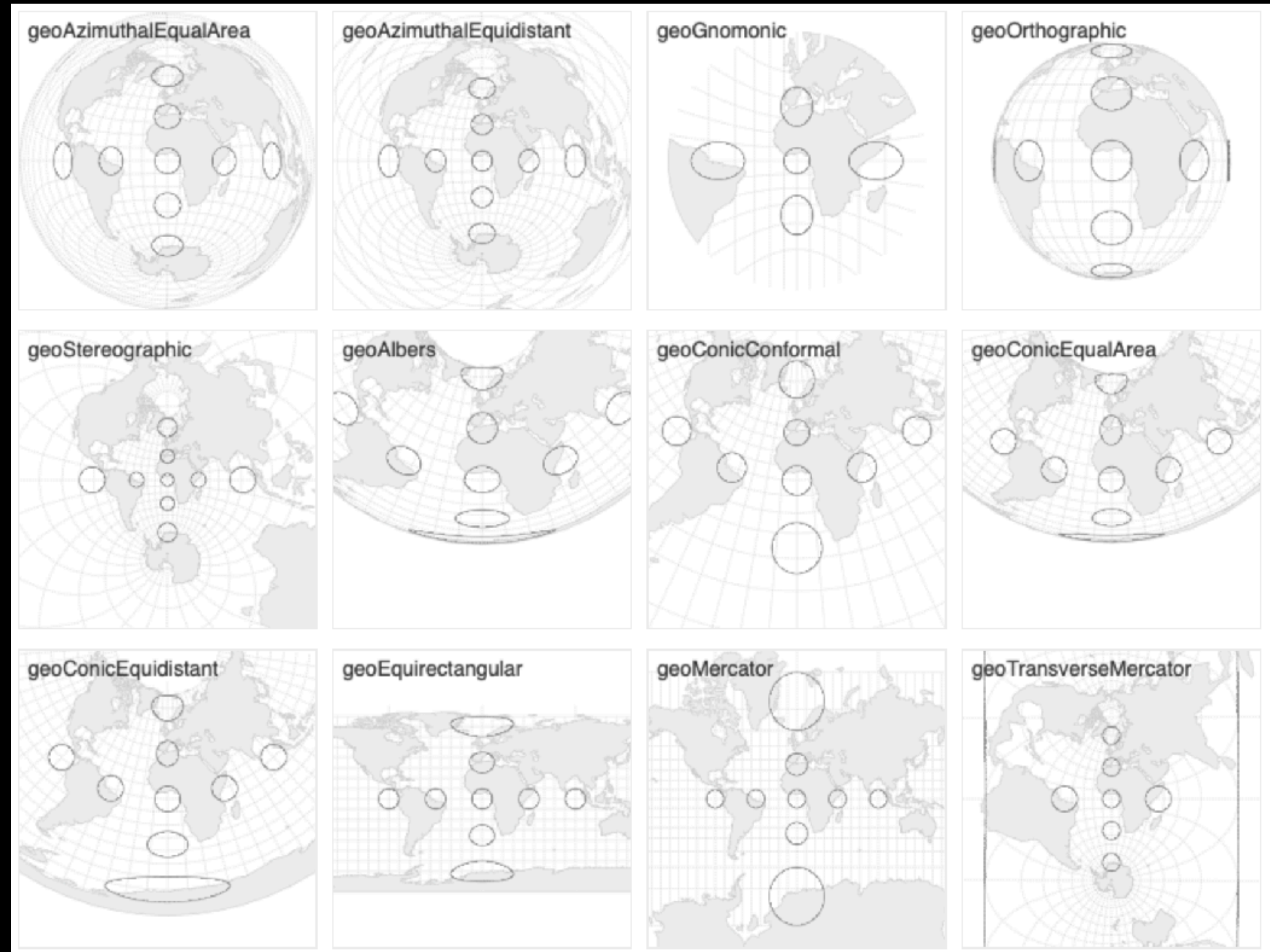
```
{
  "type": "FeatureCollection",
  "features": [
    {
      "type": "Feature",
      "properties": {
        "name": "Africa"
      },
      "geometry": {
        "type": "Polygon",
        "coordinates": [[[-6, 36], [33, 30], ... , [-6, 36]]]
      }
    },
    {
      "type": "Feature",
      "properties": {
        "name": "Australia"
      },
      "geometry": {
        "type": "Polygon",
        "coordinates": [[[143, -11], [153, -28], ... , [143, -11]]]
      }
    }
  ],
}
```

Map Projections

All map projections are a compromise. Pick the one that fits with your dataviz.

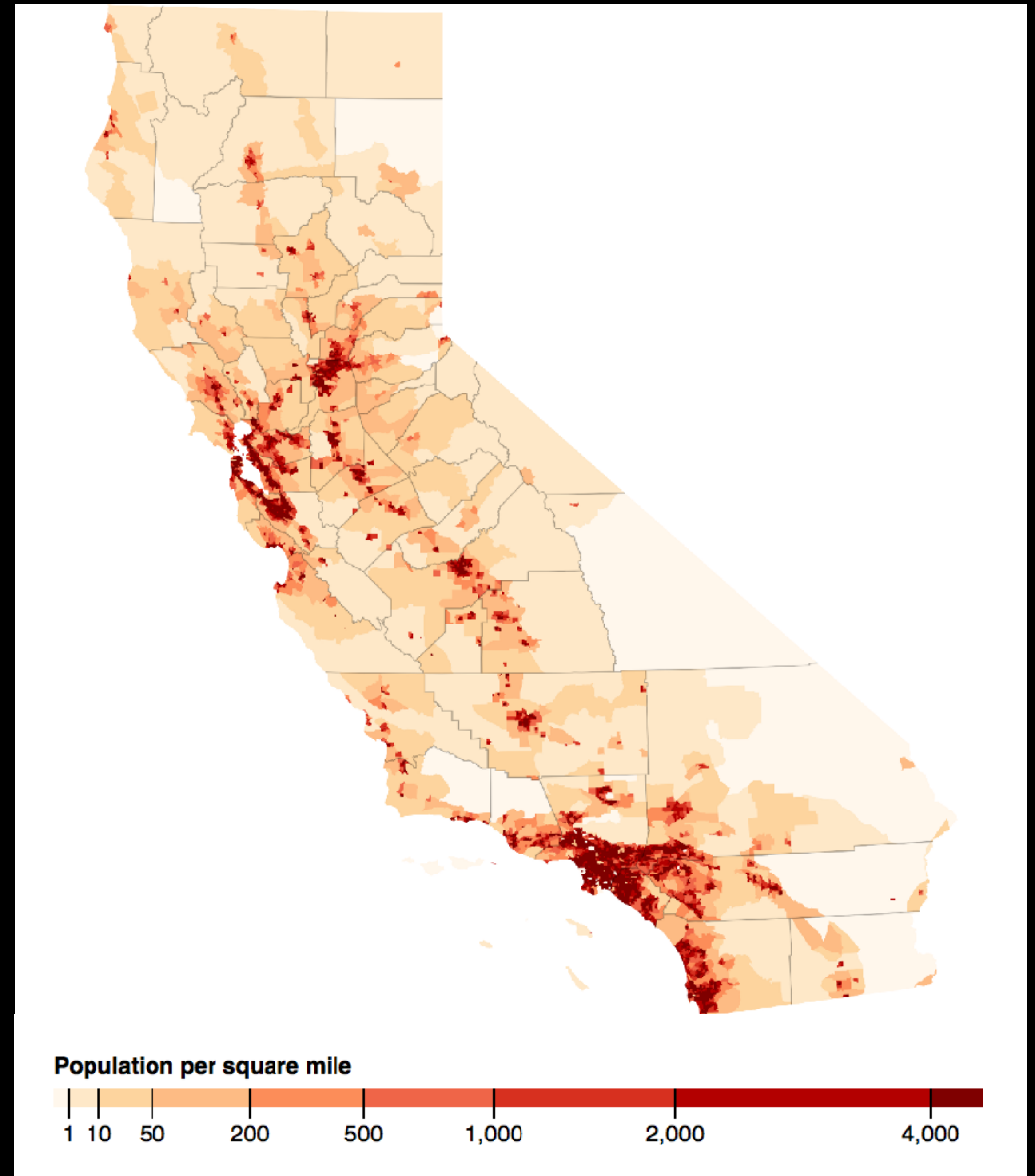
See differences here:

<http://metrocosm.com/mercator/>



Drawing on the map

Usually these are SVG <path> elements (or <canvas>)



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Summary

	Google Maps	Leaflet / OSM	D3
Price	Paid, \$ x free credits/month	Mostly free (depends on your map provider)	Completely free
Restrictions	Short selection from their ToS: no caching/downloading data, no applications targeting kids, no in-car systems, can't use APIs separately, no text-to-speech	Depends on your map provider, but plenty of options with few restrictions + you can host your own	None
Flexibility	Can be styled with your own colours + choose how much info is shown. Can't pick projections or focus on one part of map	Very flexible options for styling. Can't pick your own projection or focus on one part of the map.	Extremely flexible. You can pick your own projection + bring your own map files and show only one province
Use when	When street-level details are important or when you need access to their POI data	When street-level details are important but you don't need Google's POI data	When you want more flexible ways to visualise your data and don't need street-level detail

Uncaught SyntaxError
Unexpected end of input