

Make It Rain with Mapbox GL

Franz Neubert

Me

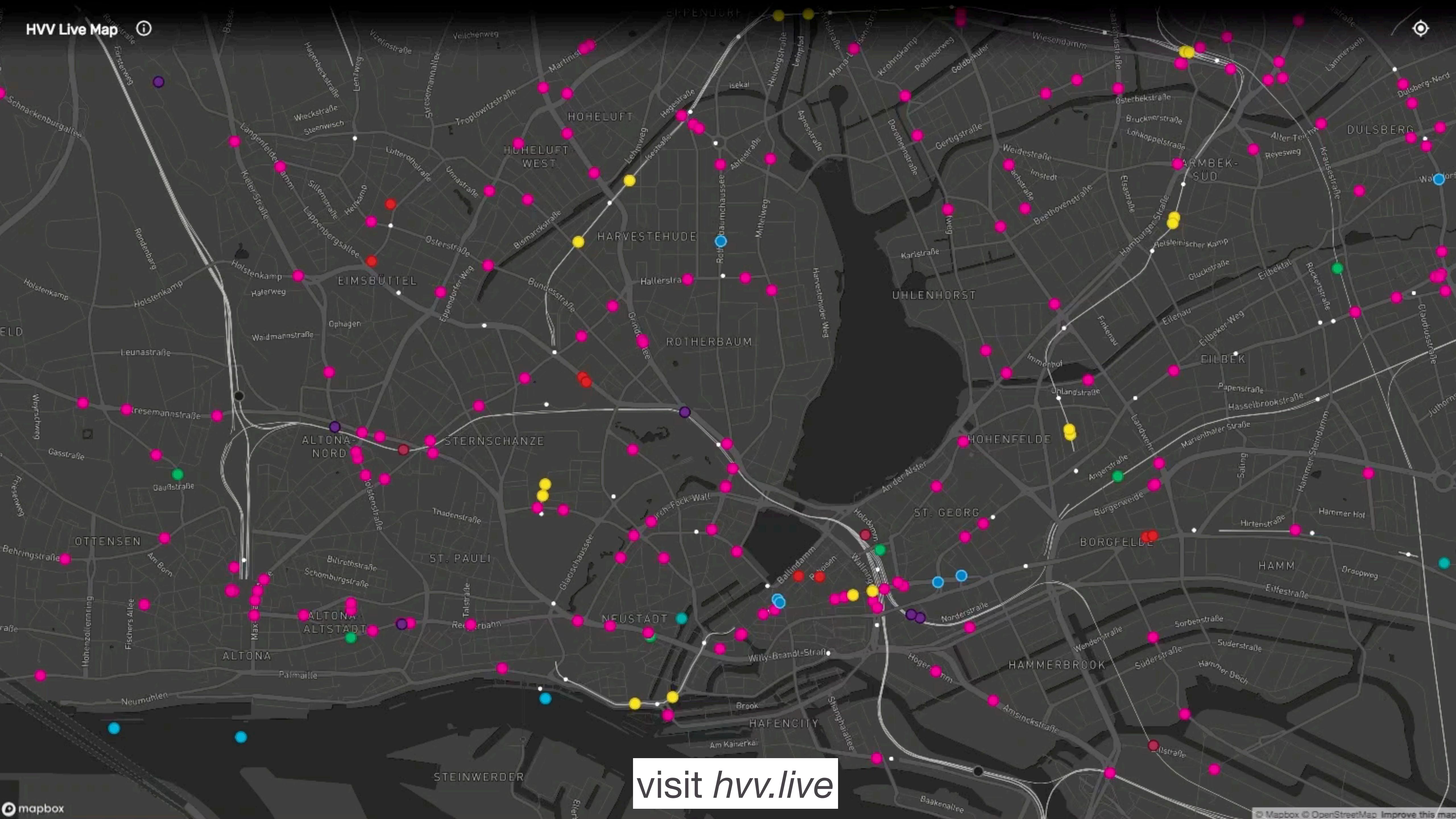
- Software Engineer
- Javascript, Maps, Data Visualisation



@Scarysize



/Scarysize



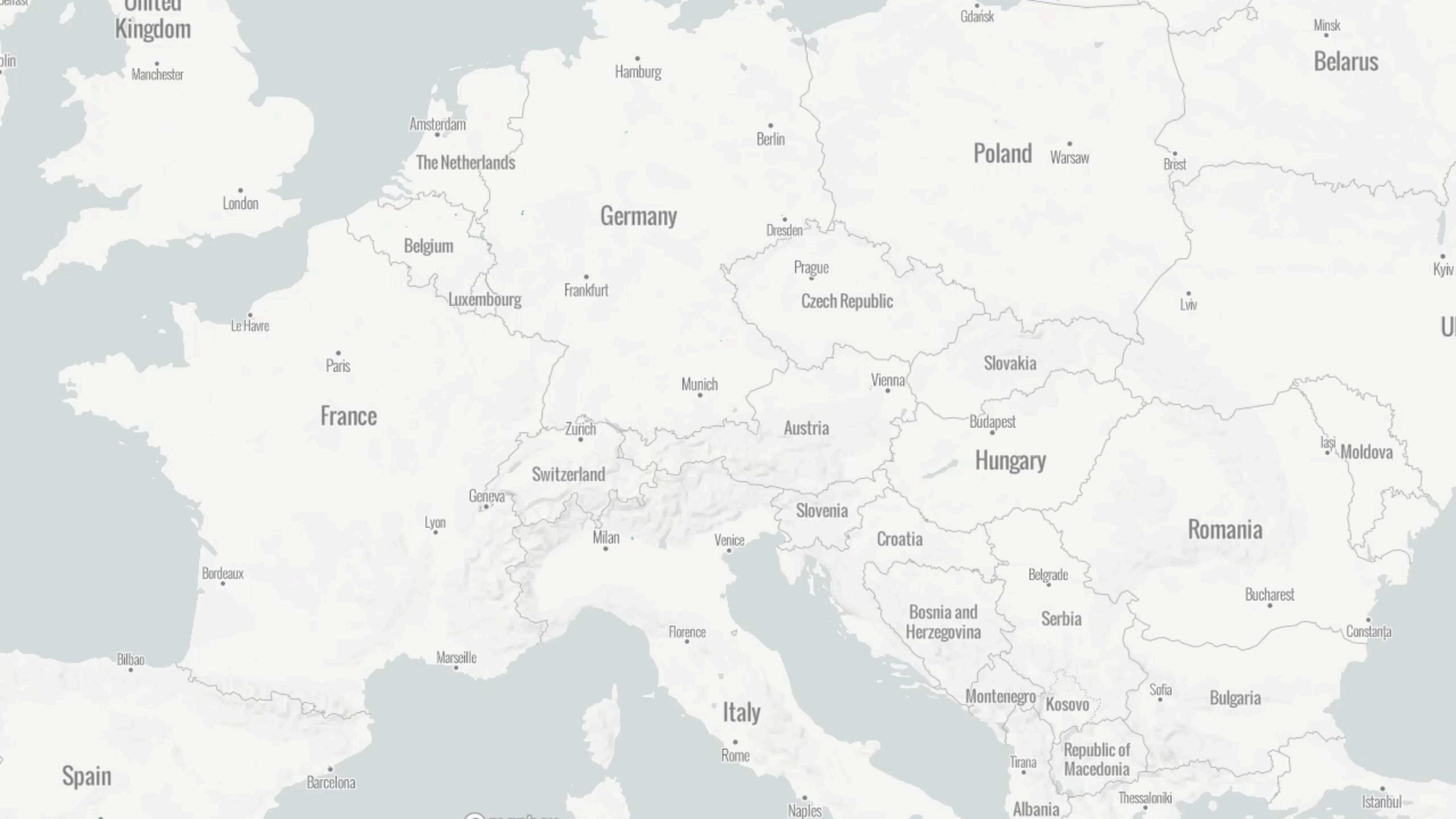
visit *hvv.live*





Ubillabs

- Interactive map applications
- Data visualisation
- VR
- Google Maps Partner



United
Kingdom

Manchester

London

Le Havre

Paris

France

Bordeaux

Bilbao

Spain

Barcelona

Amsterdam

The Netherlands

Belgium

Luxembourg

Switzerland

Geneva

Lyon

Milan

Marseille

Florence

Italy

Rome

Naples

Germany

Frankfurt

Munich

Zurich

Venice

Slovenia

Croatia

Bosnia and
Herzegovina

Montenegro

Kosovo

Serbia

Tirana

Republic of
Macedonia

Albania

Istanbul

Gdańsk

Hamburg

Berlin

Dresden

Prague

Czech Republic

Vienna

Slovakia

Budapest

Hungary

Poland

Warsaw

Brest

Lviv

Romania

Bucharest

Constanta

Bulgaria

Sofia

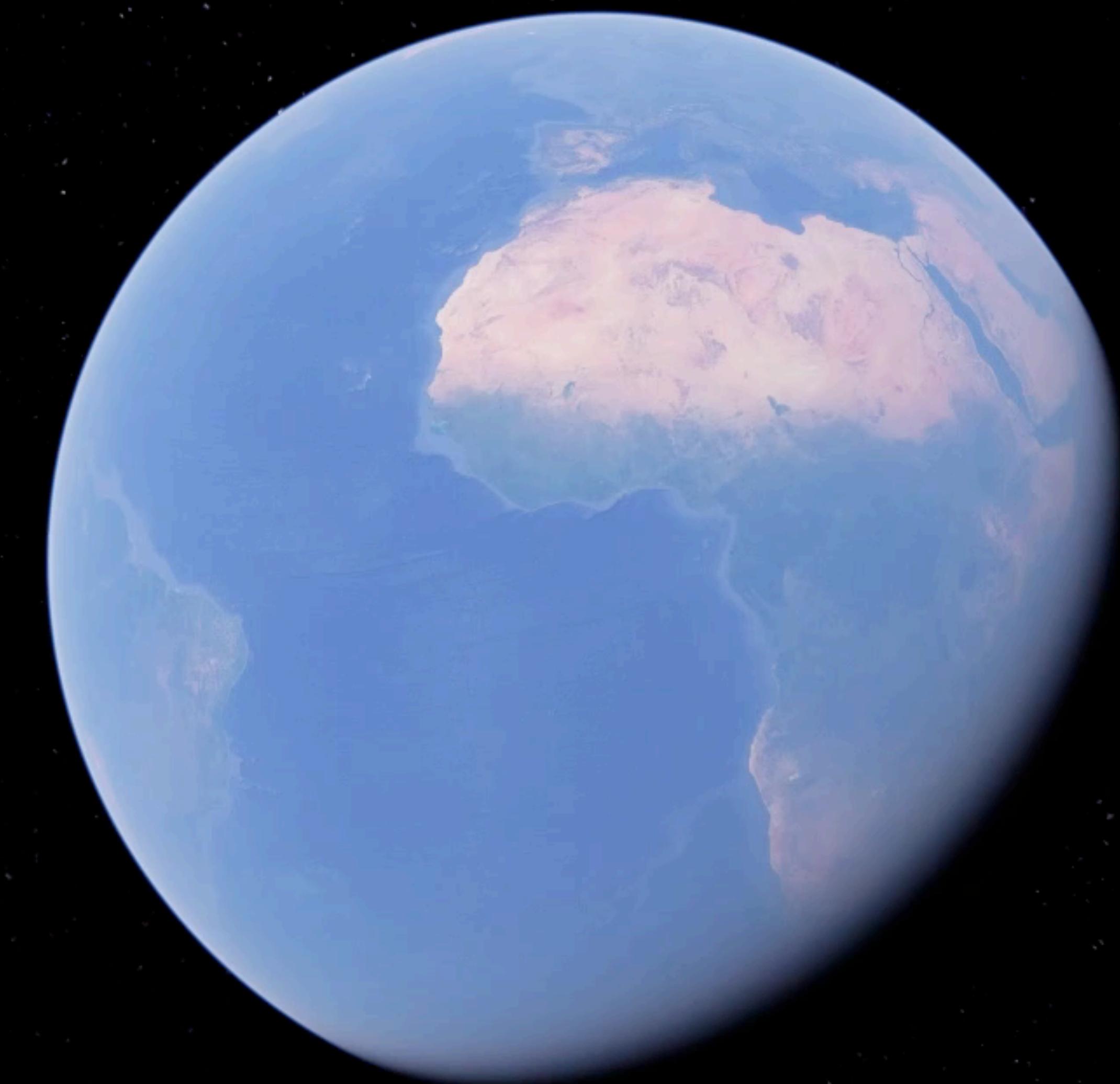
Thessaloniki

Minsk

Belarus

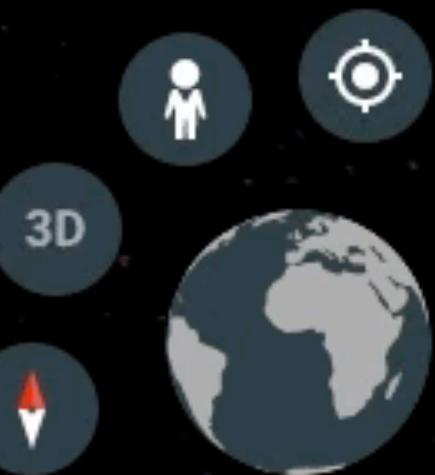
Kyiv

Istanbul



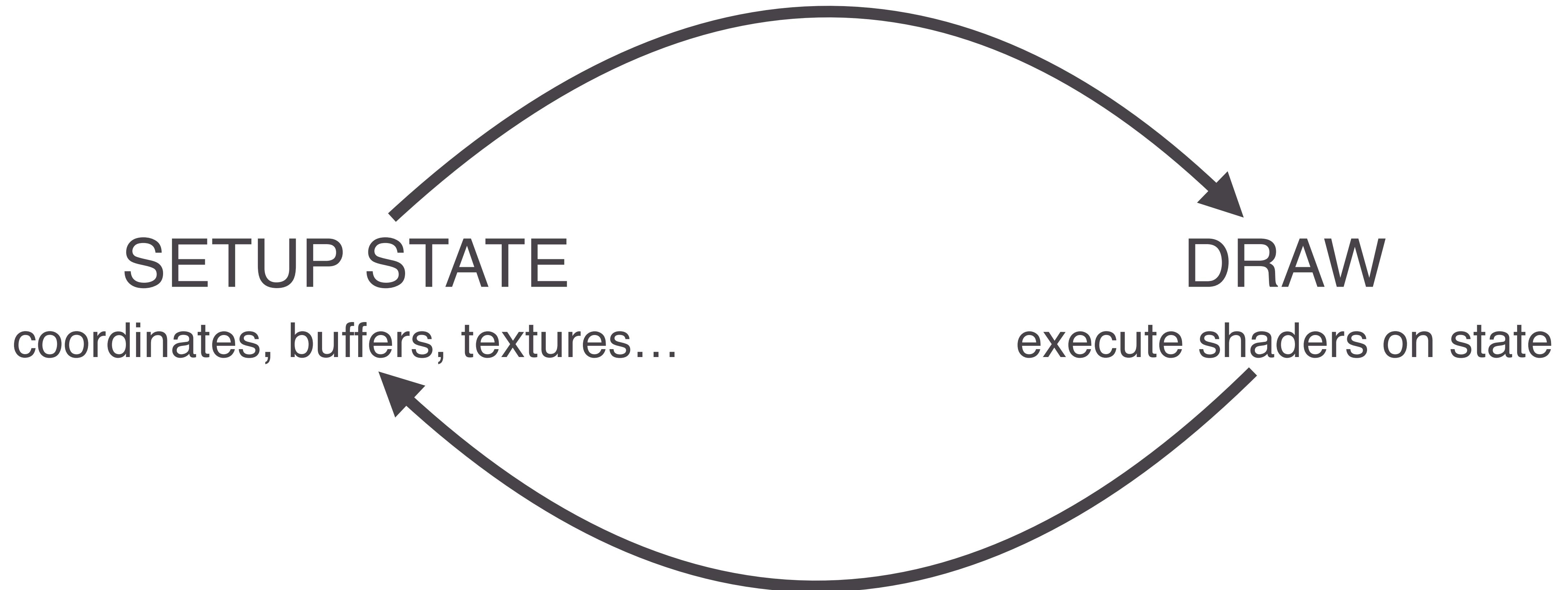
Google^{DE}

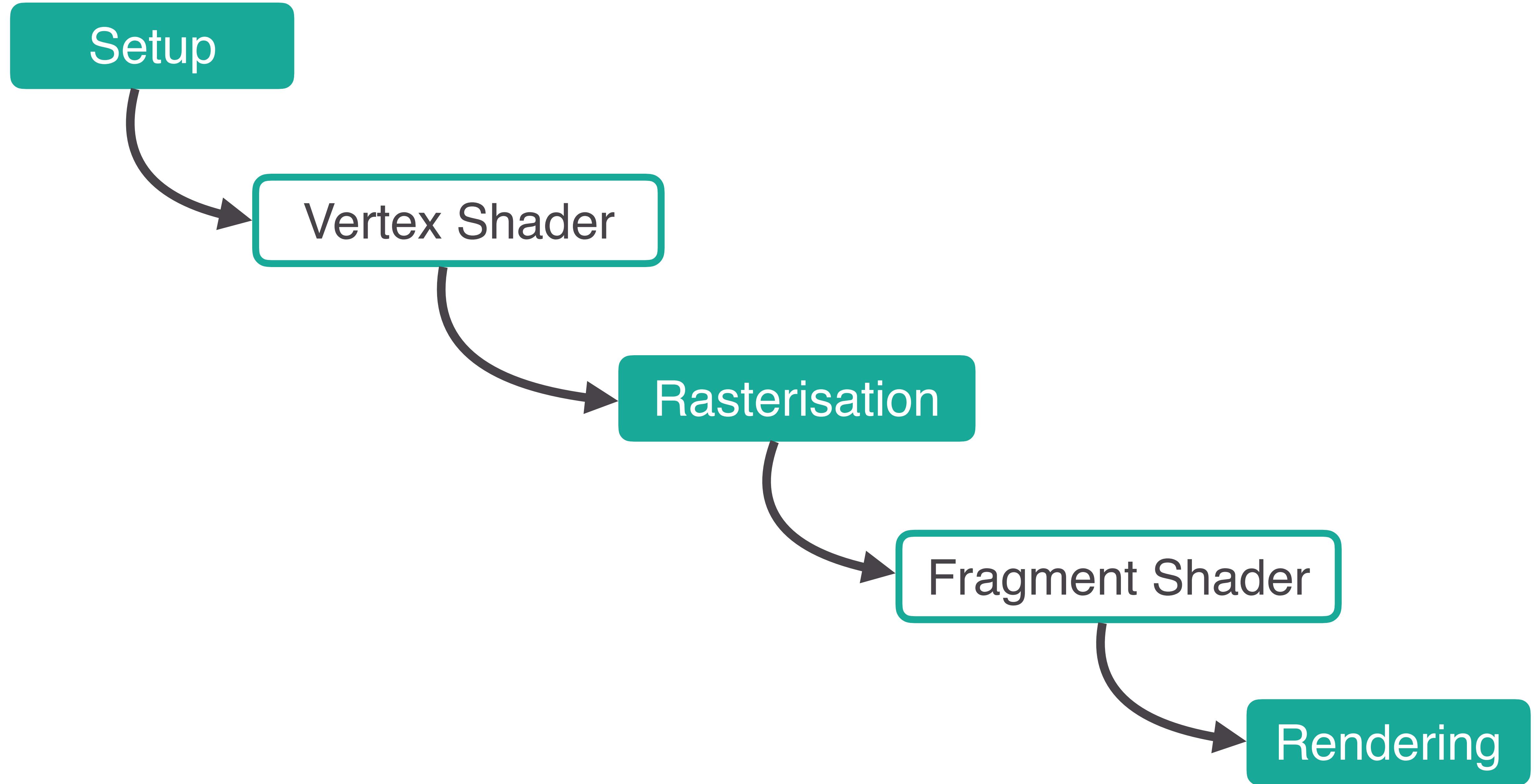
U.S. Geological Survey IBCAO Data SIO, NOAA, U.S. Navy, NGA, GEBCO Landsat / Copernicus 0°00'00"N 1°54'59"W 22,251.75 km



WebGL

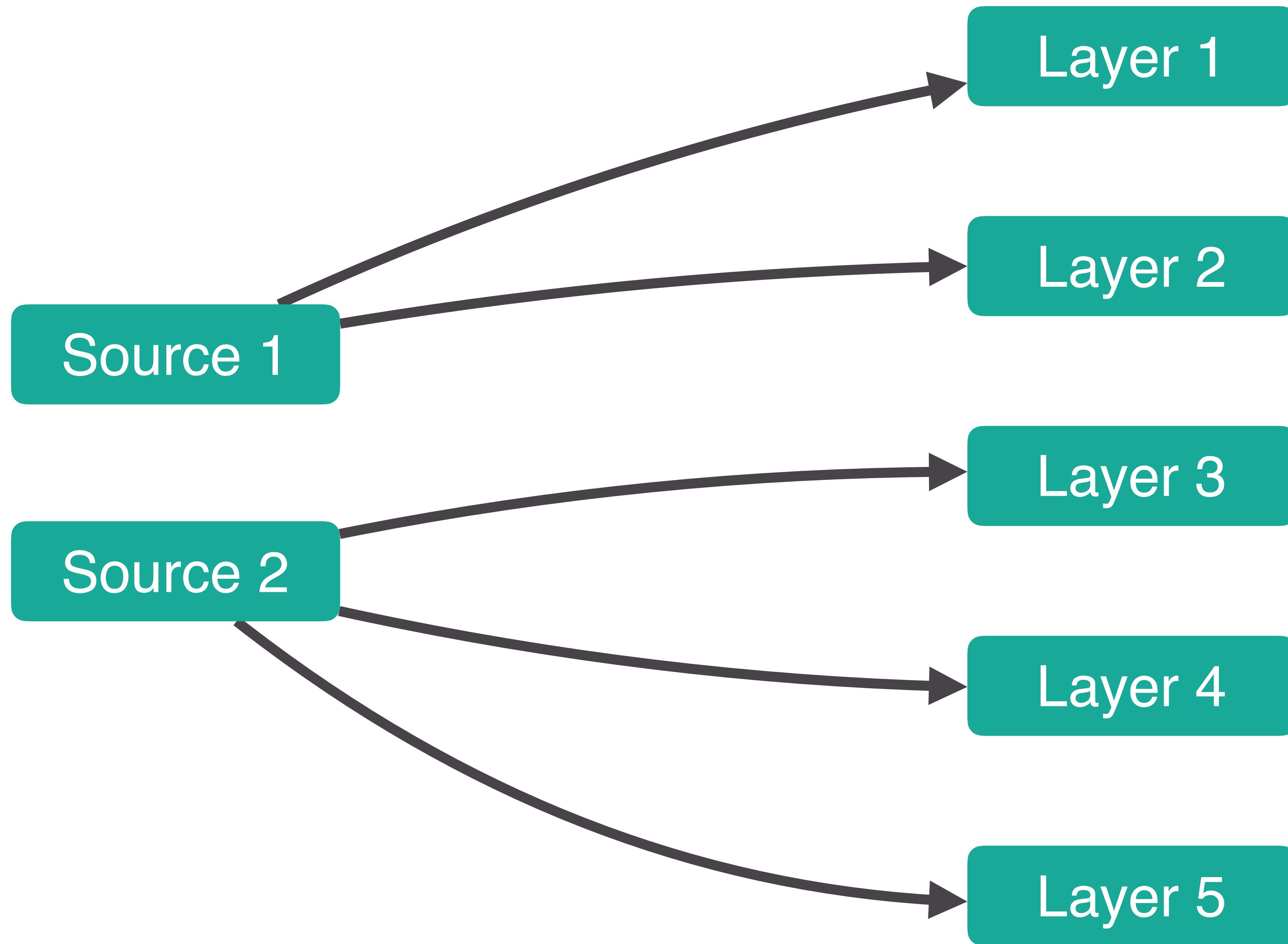
- Rasterisation engine
- Drawing points, lines & triangles
- *Shaders* running on the GPU

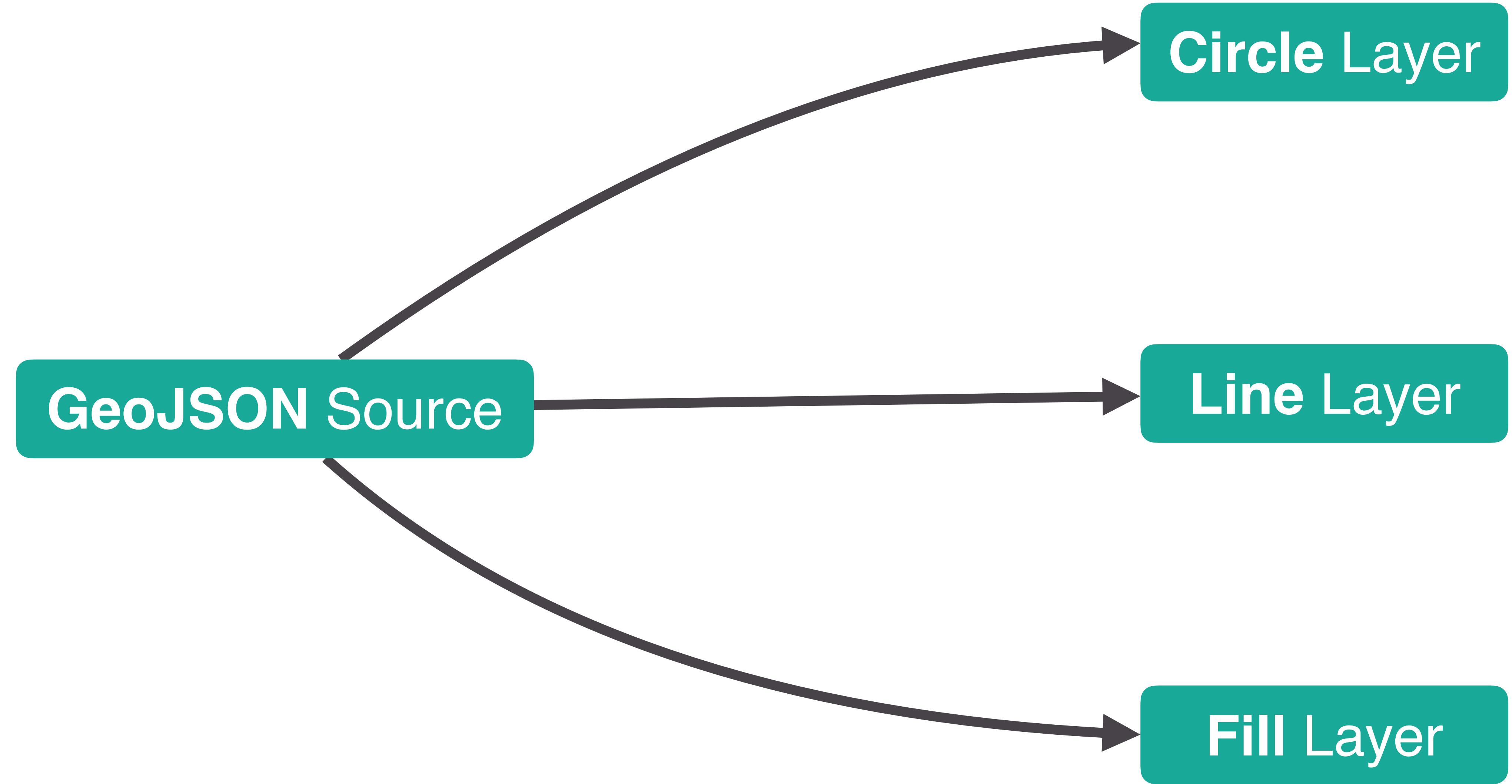




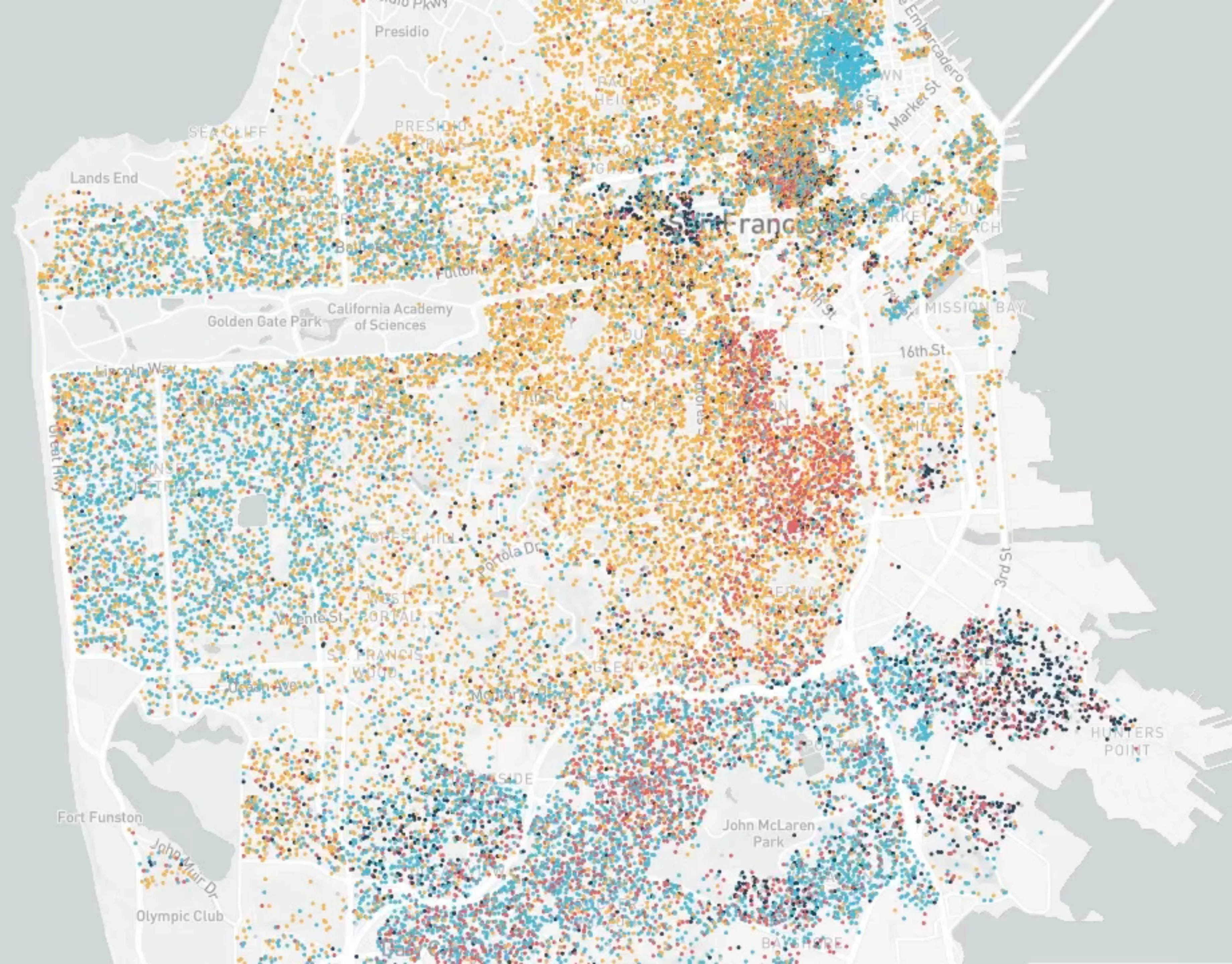
Mapbox GL JS

- Interactive Maps with Vector Tiles
- WebGL based
- Comprehensive







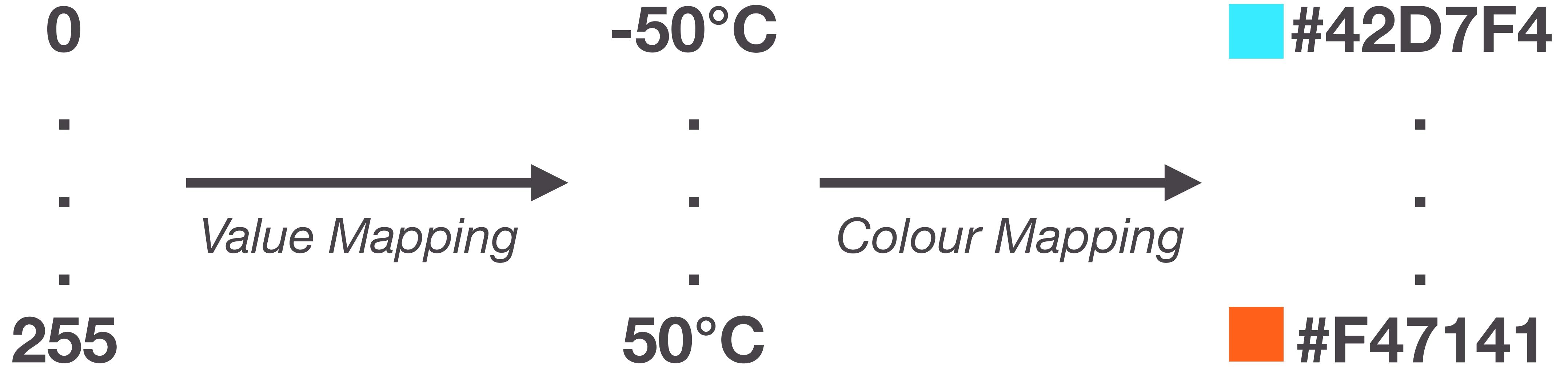


Data-driven Raster Tiles

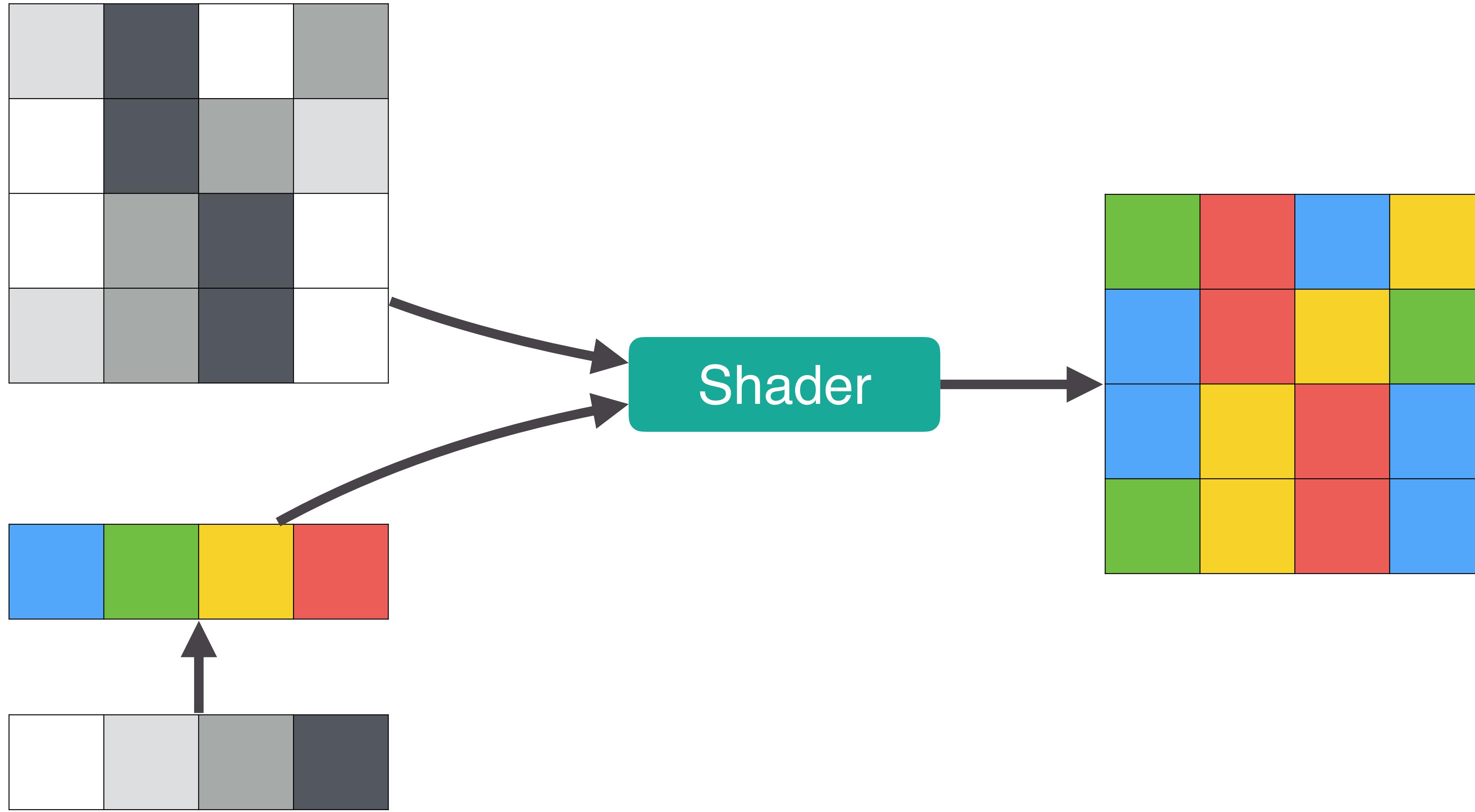
- Minimise data transmission
- Minimise server load & cost
- Maximise flexibility on the client

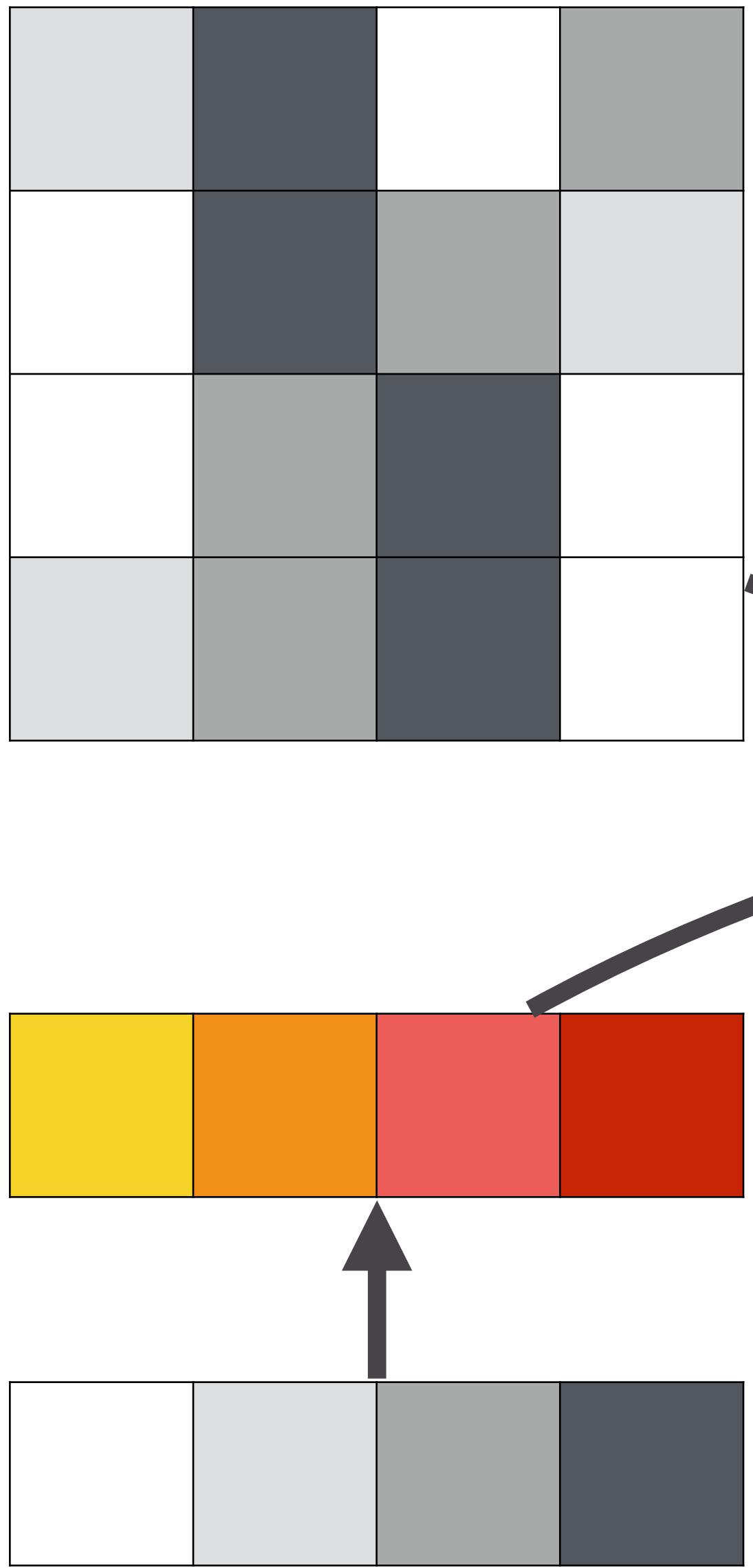
- Encode data as grey value
- Transmit “data” PNG tiles
- Colour tiles on the client

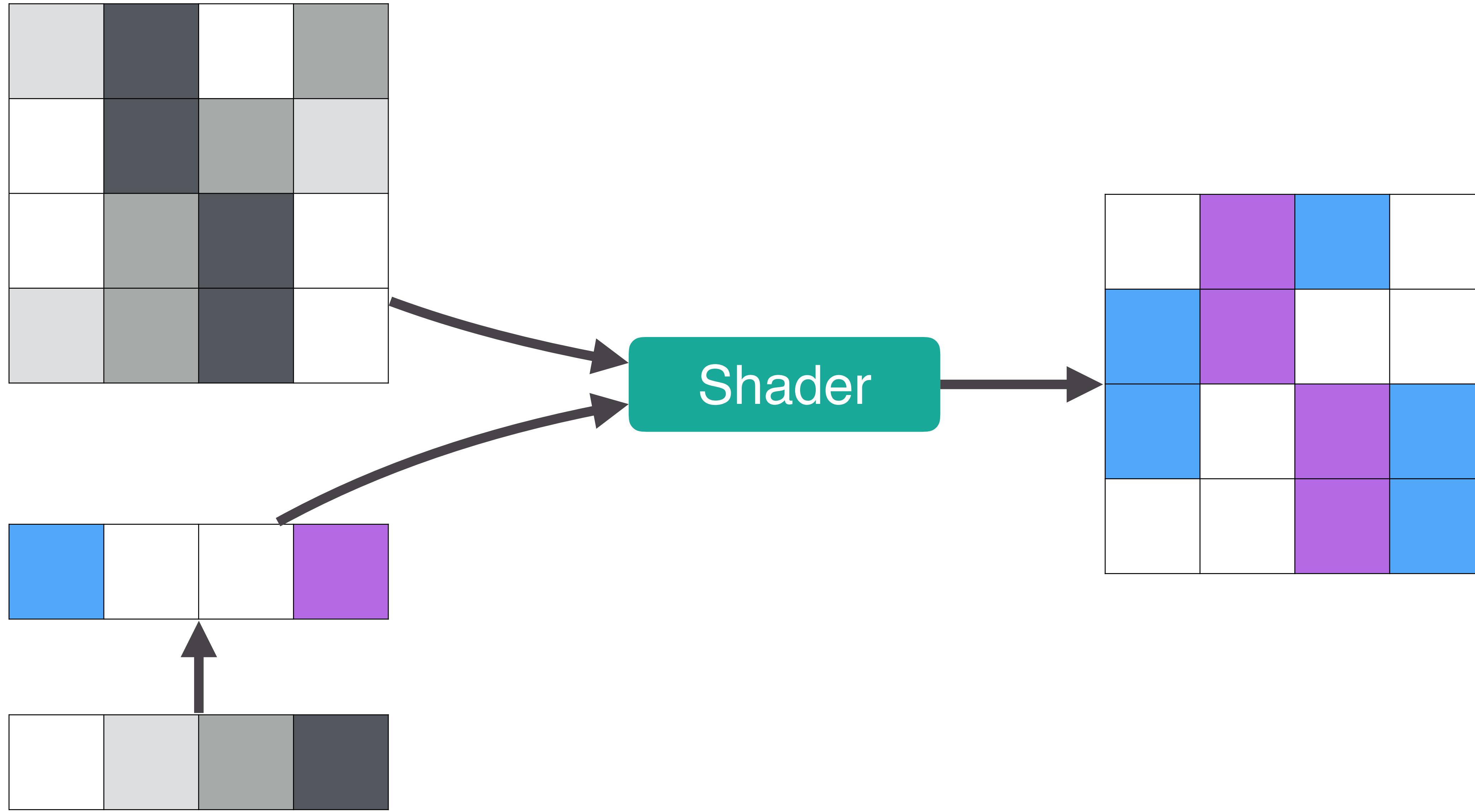




- Create $256 * 1$ look-up texture
- Use grey value as index into the look-up texture
- Can be static or generated dynamically

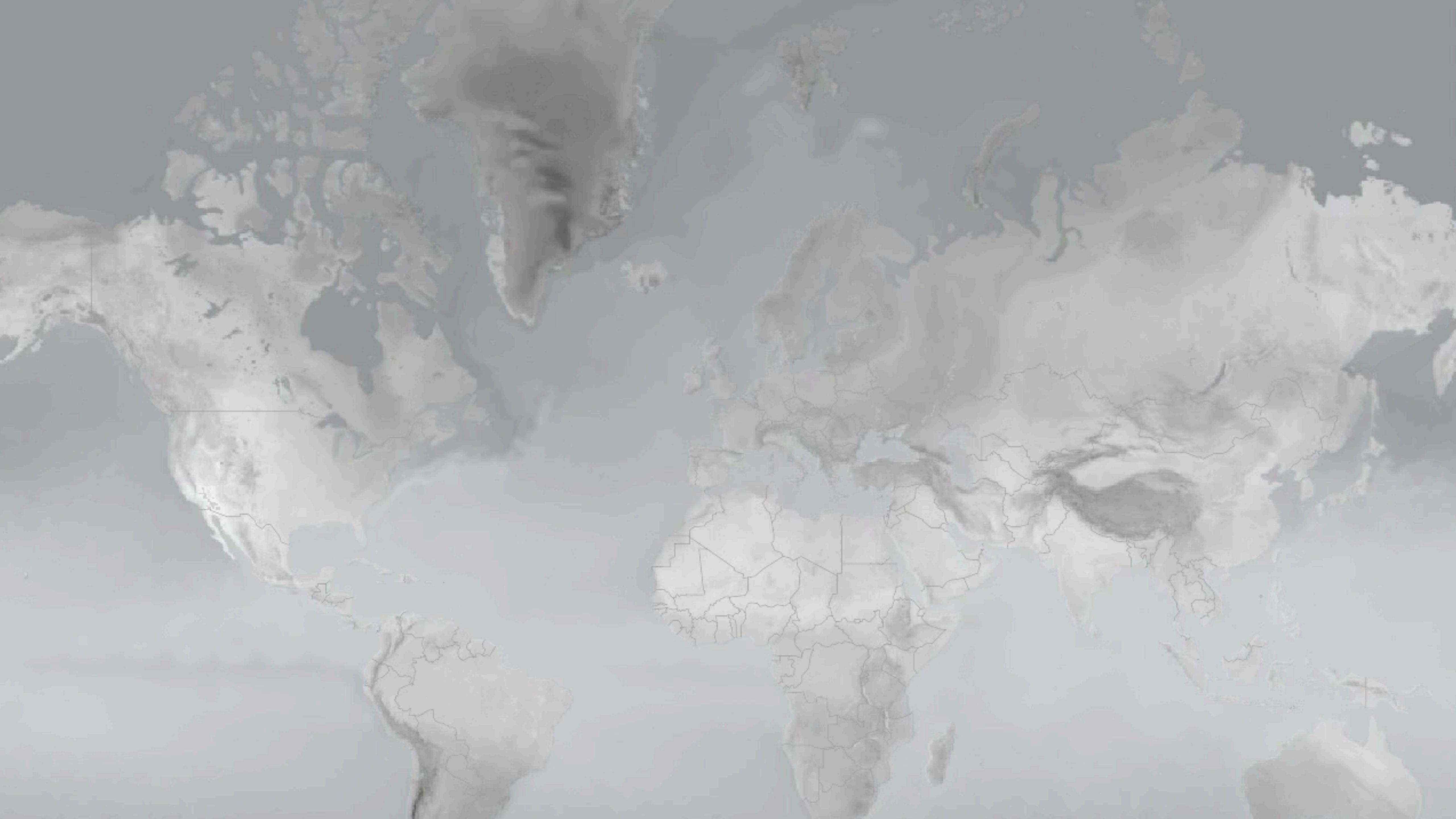


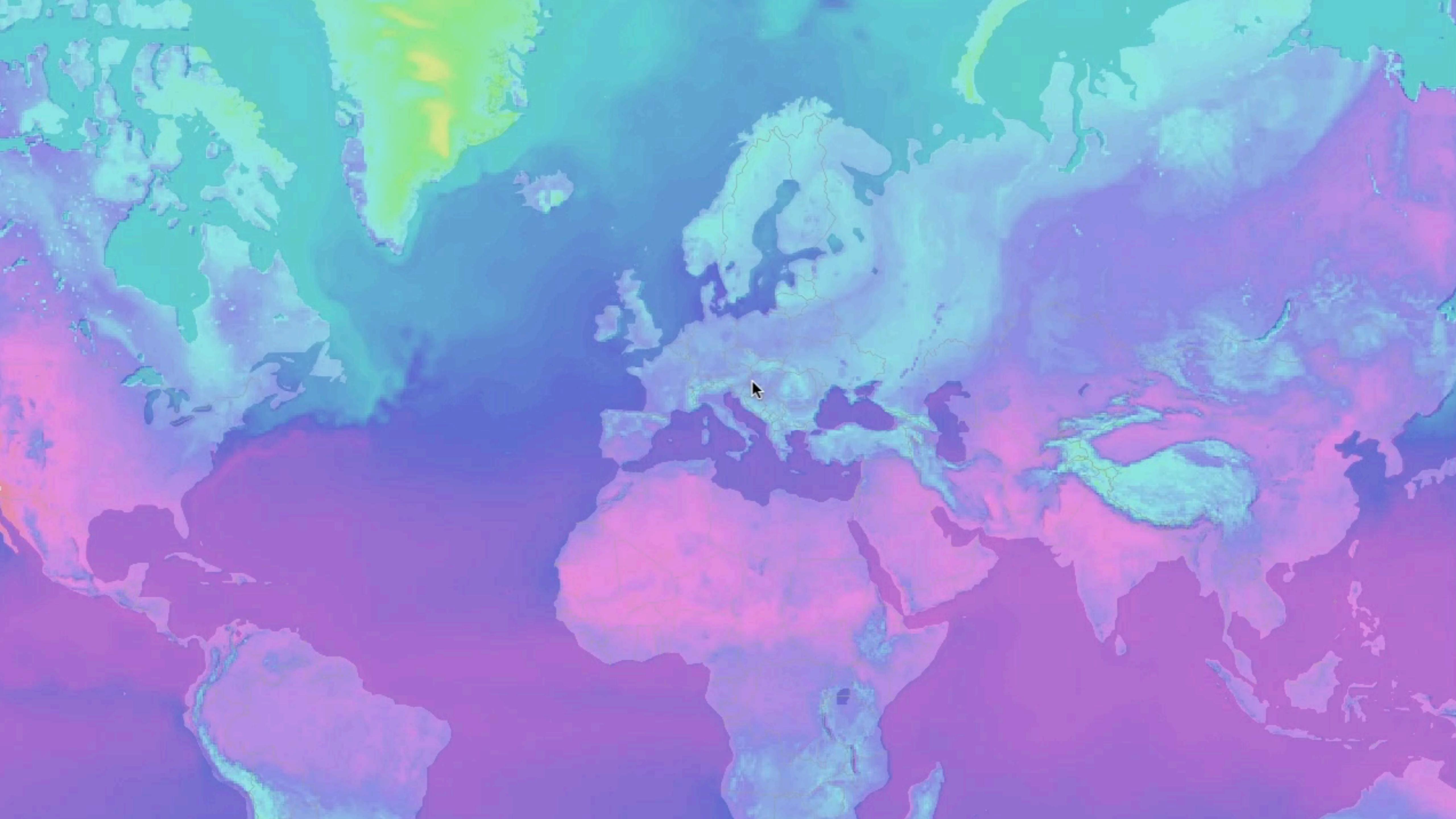


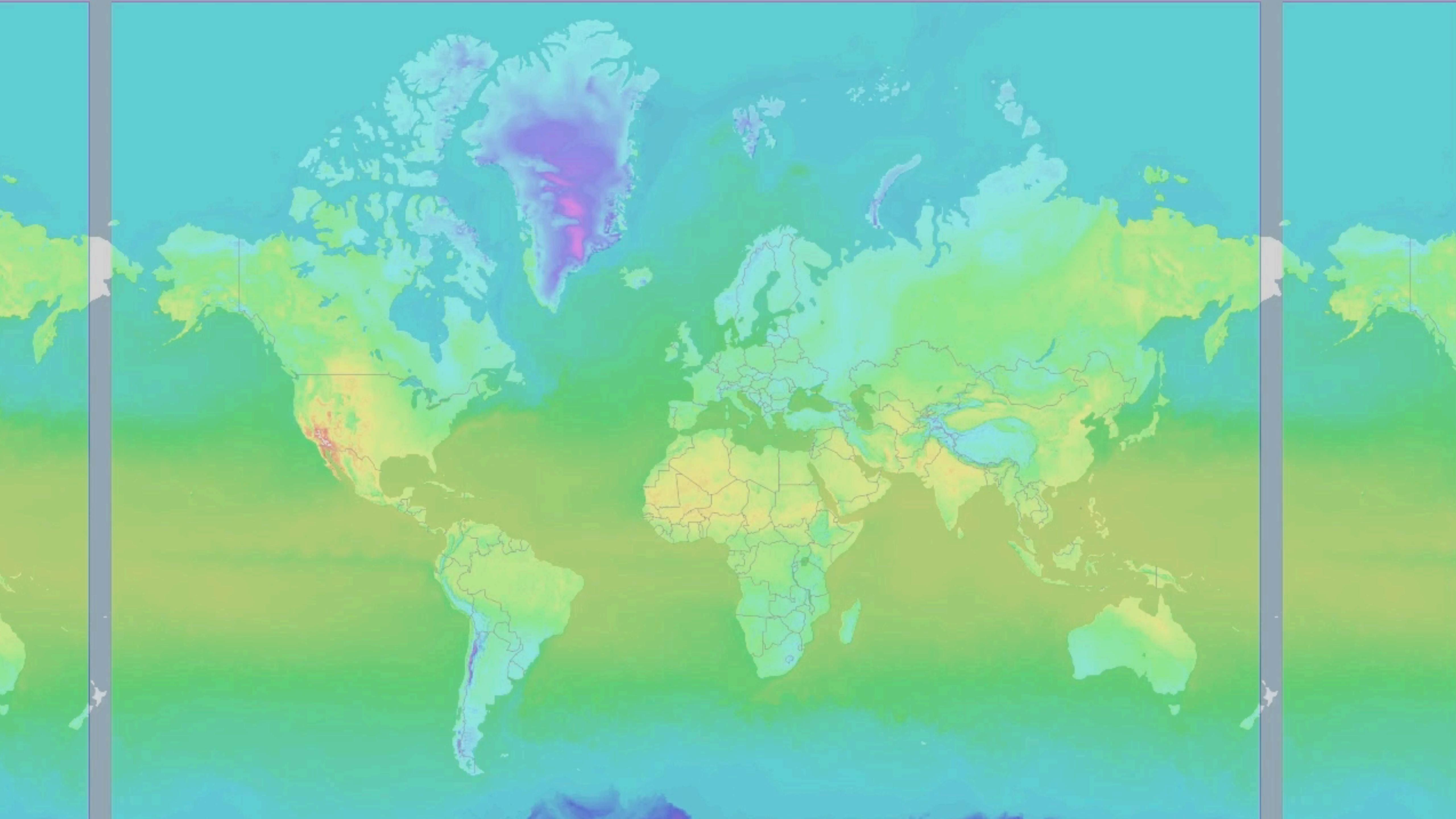


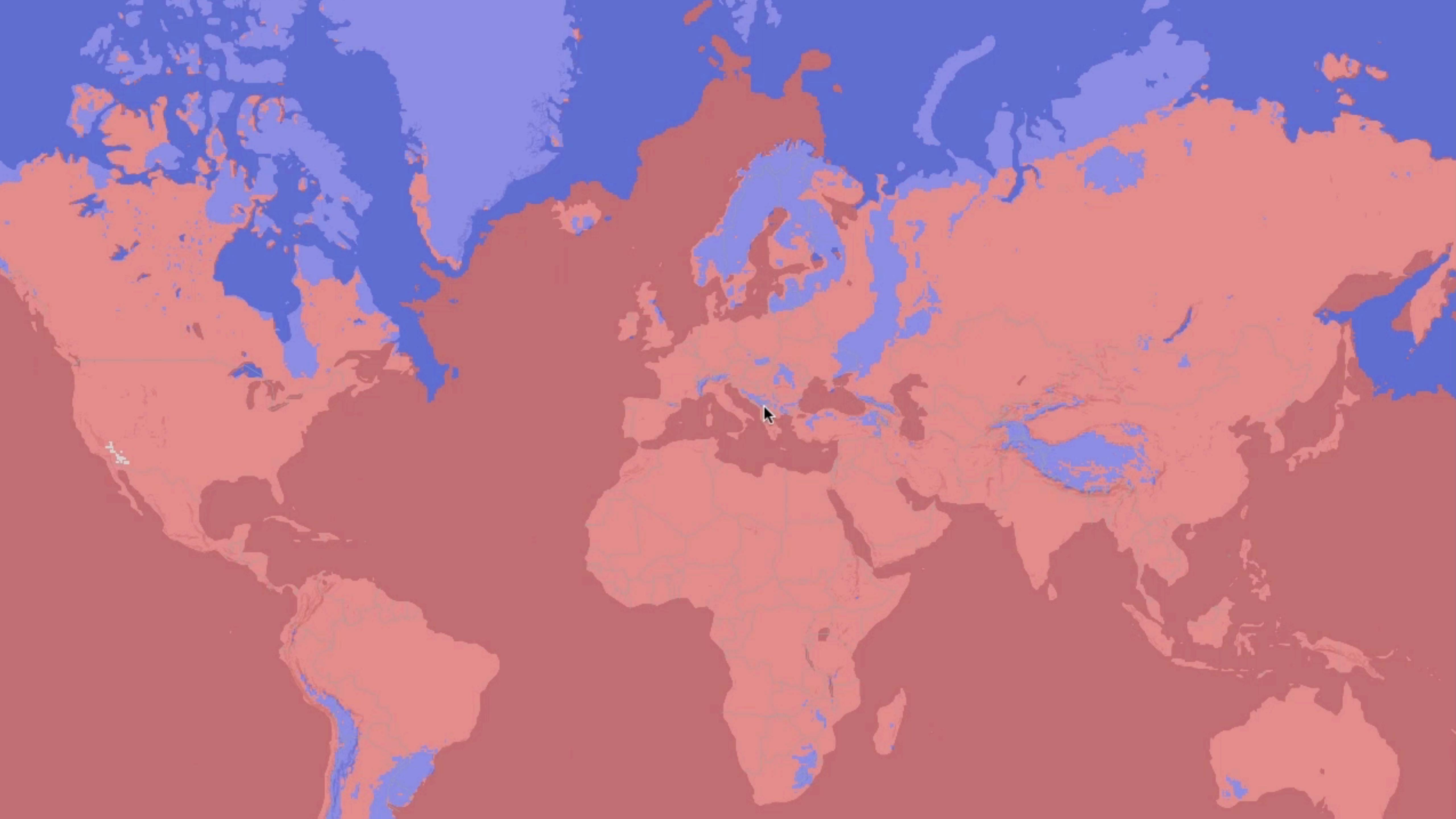
- $3072 * 1536$ values
- Gray scale 0 - 100

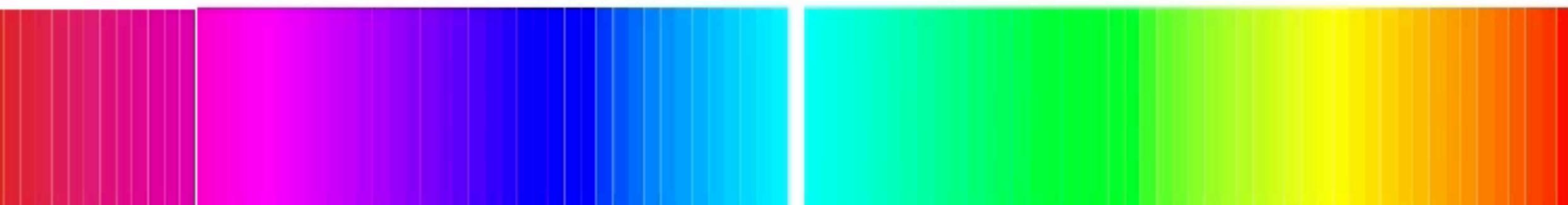
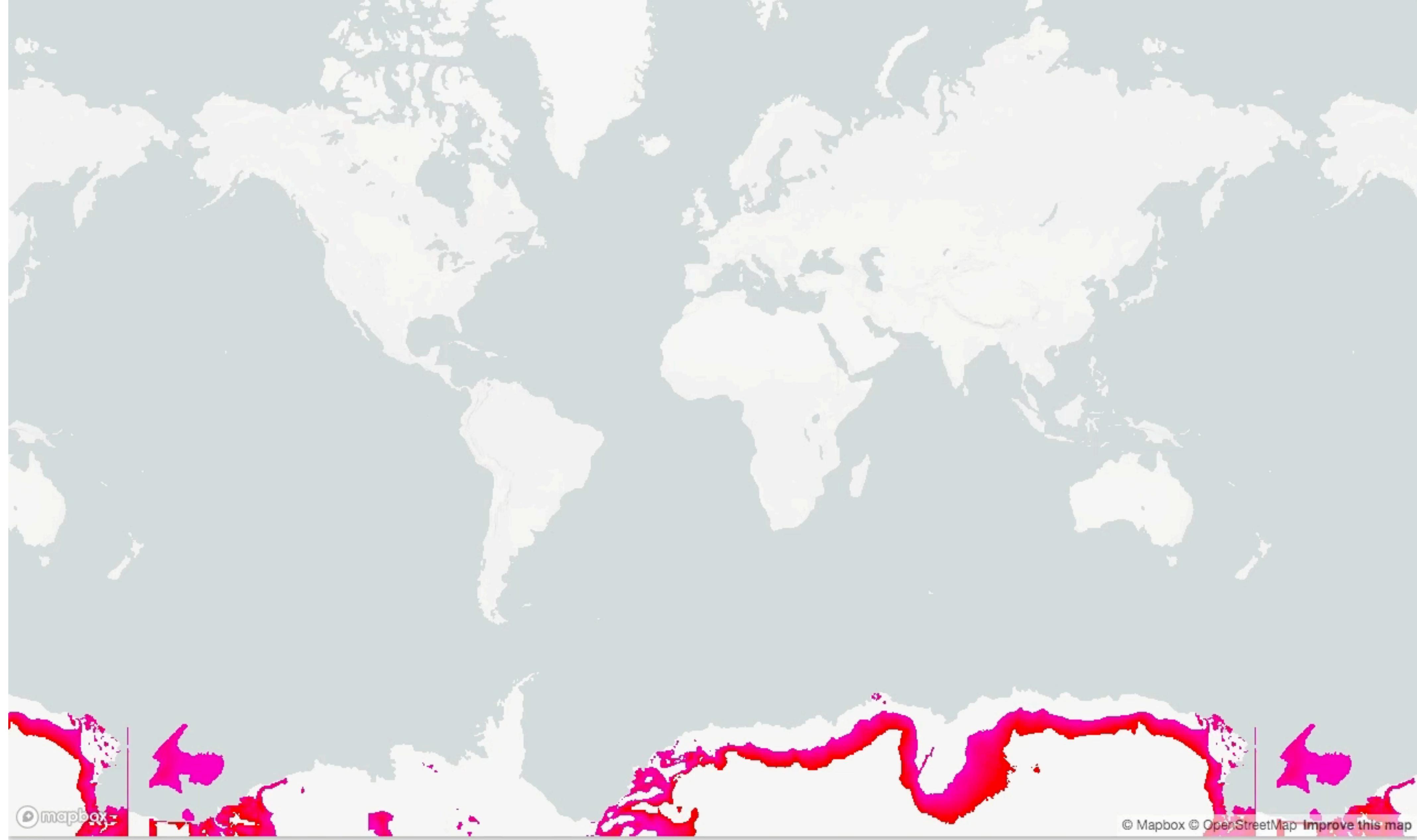






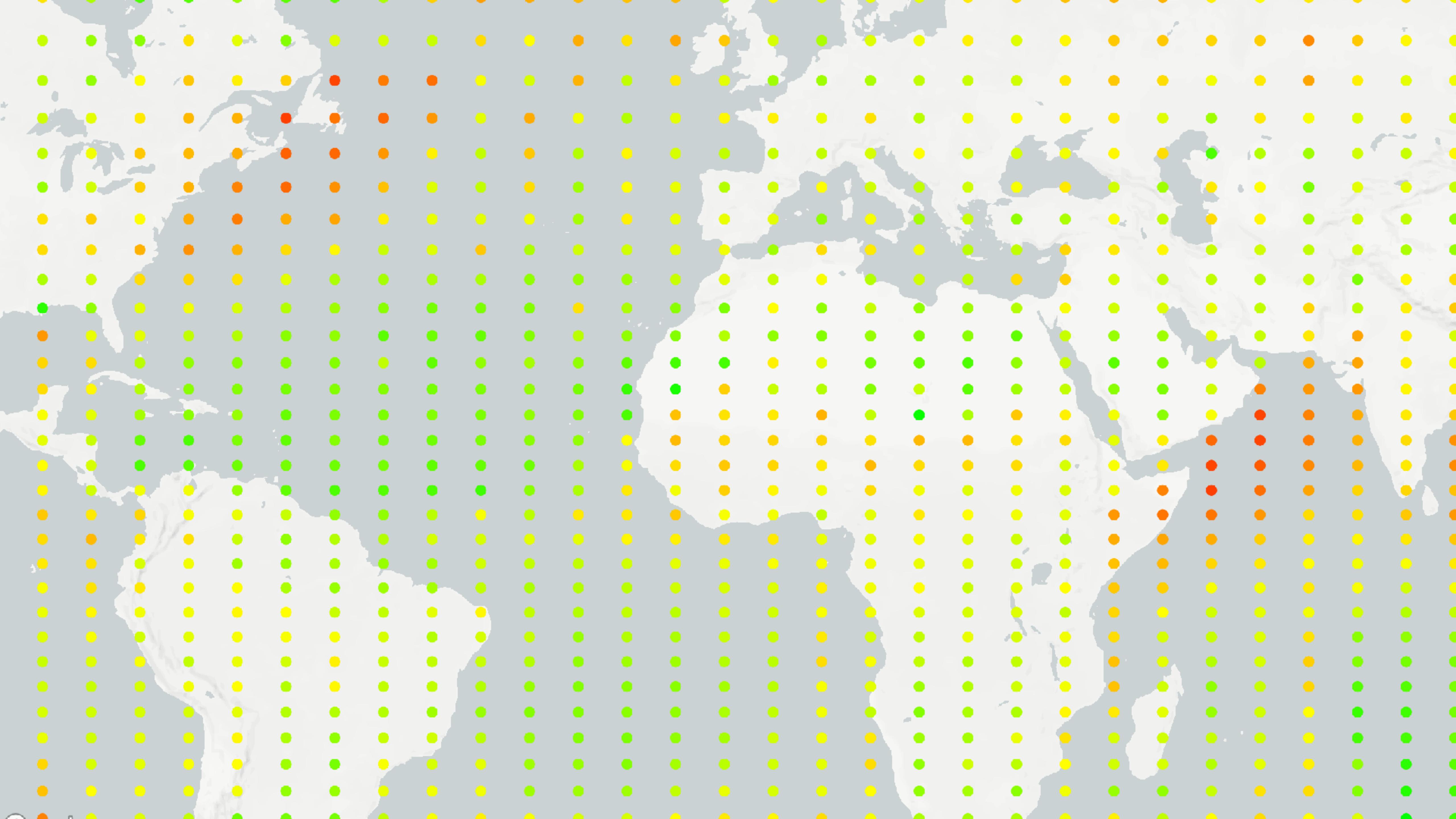




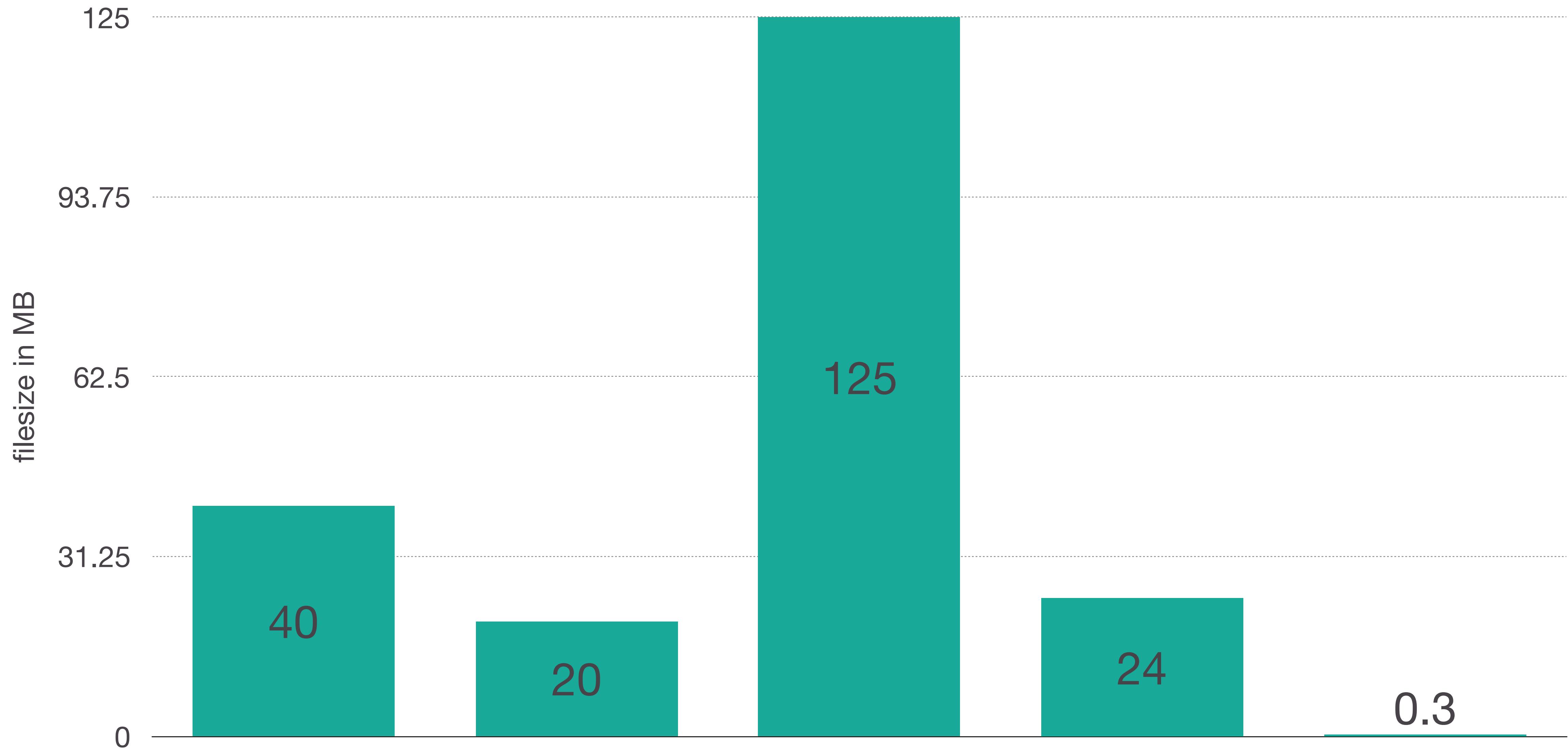


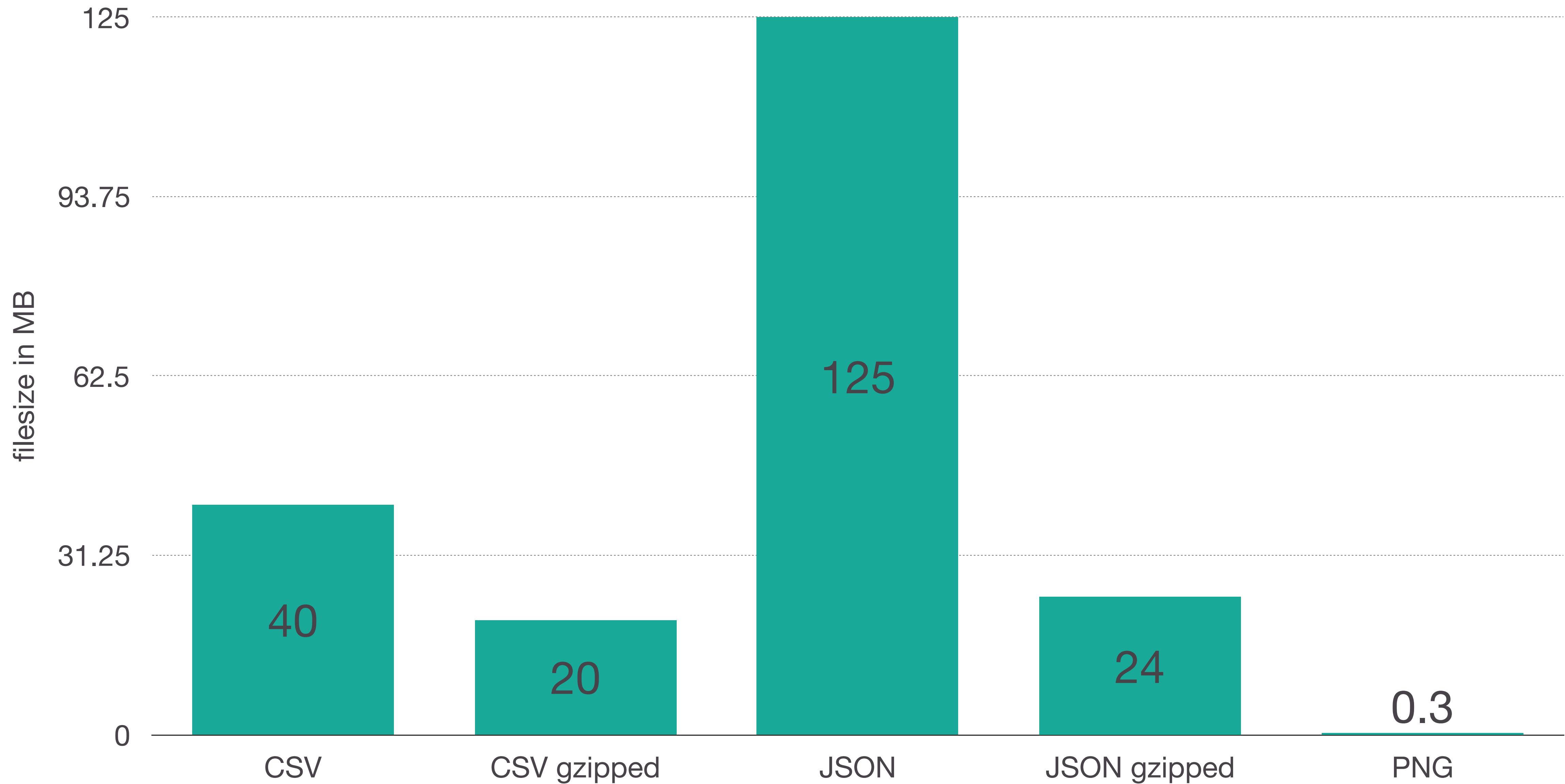
- Use grey “data” tiles
- Map colour to domain value
- Flexibly colorise tiles on the client 

Grid Data

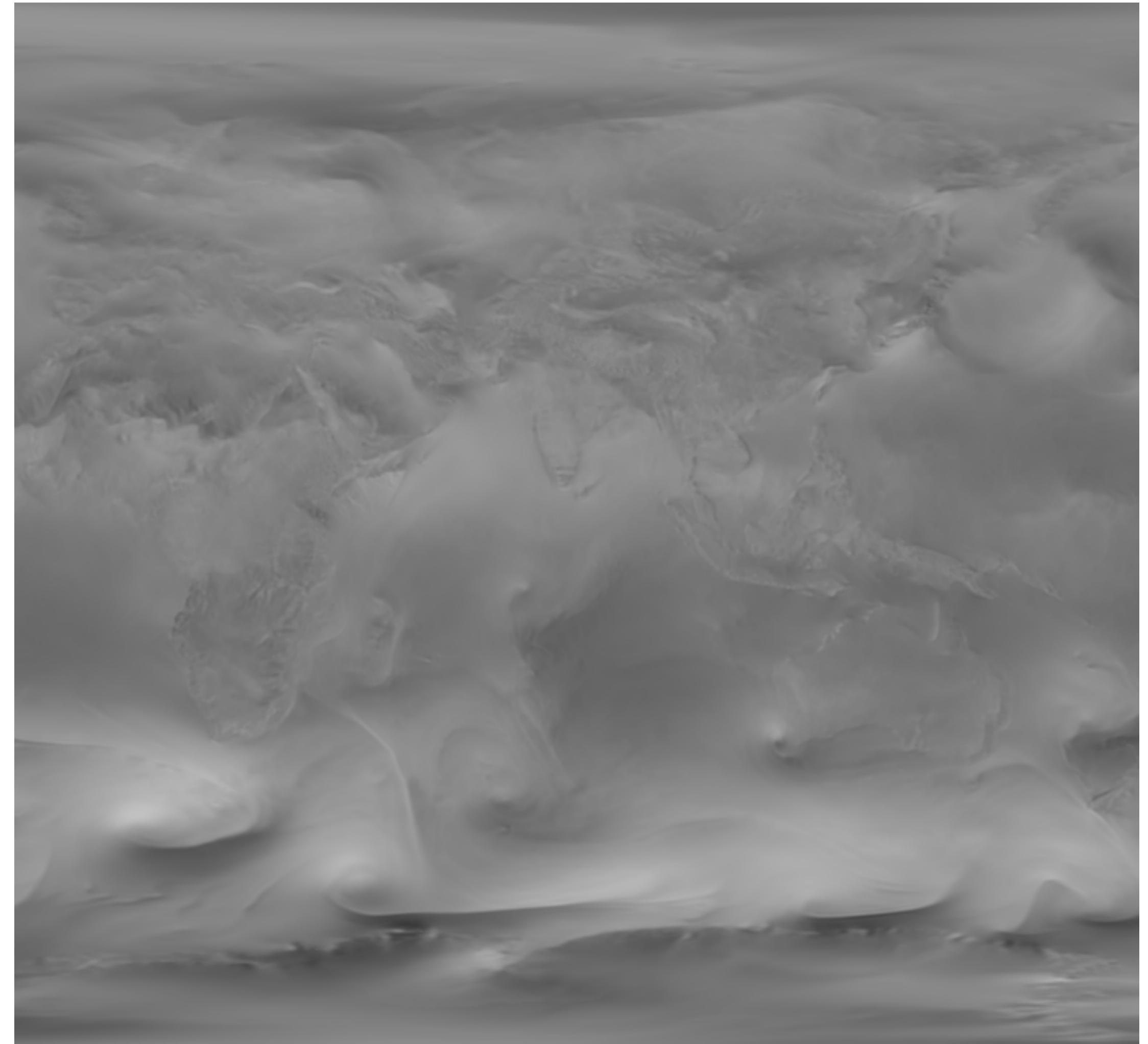


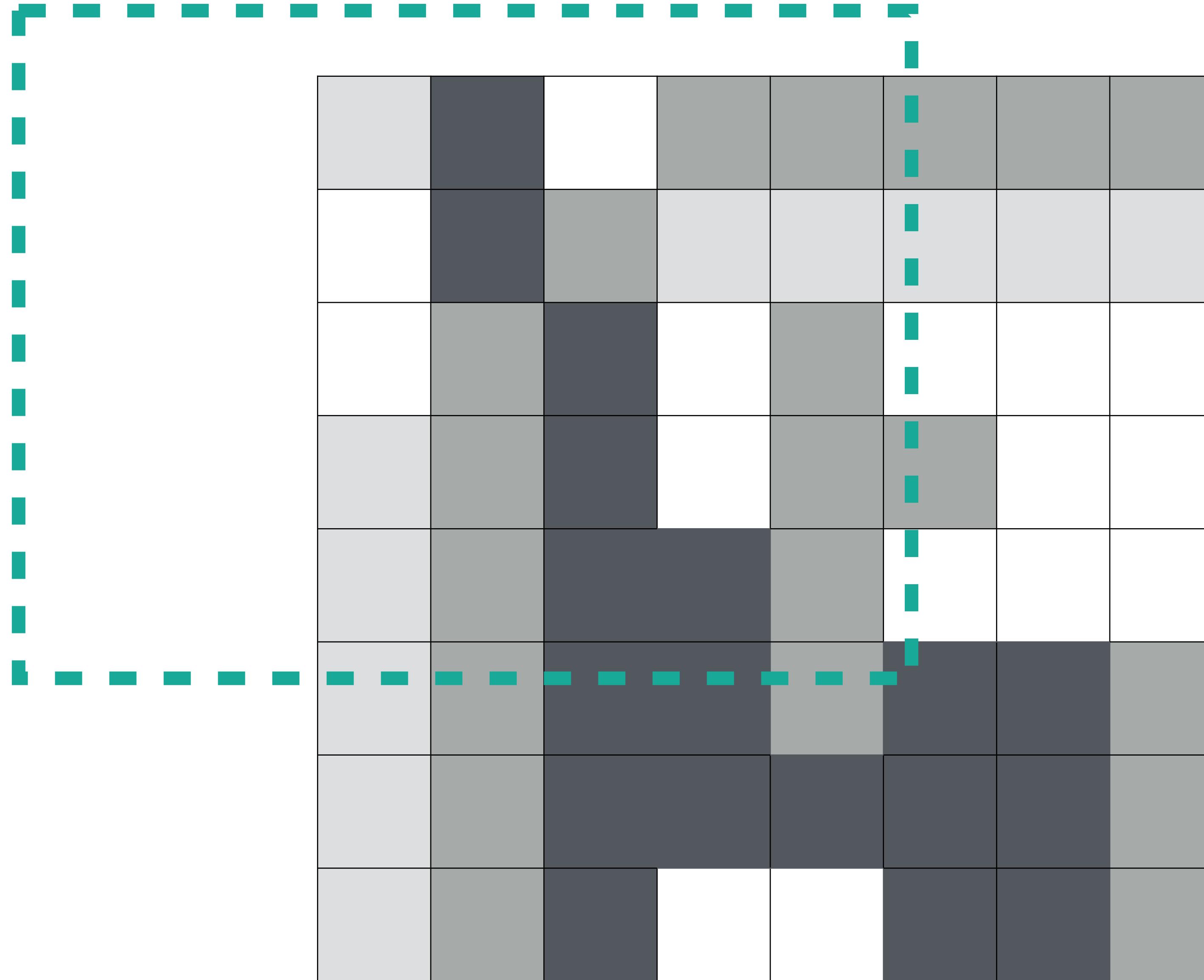
- Minimise data transmission
- Minimise server load & cost
- Maximise flexibility on the client

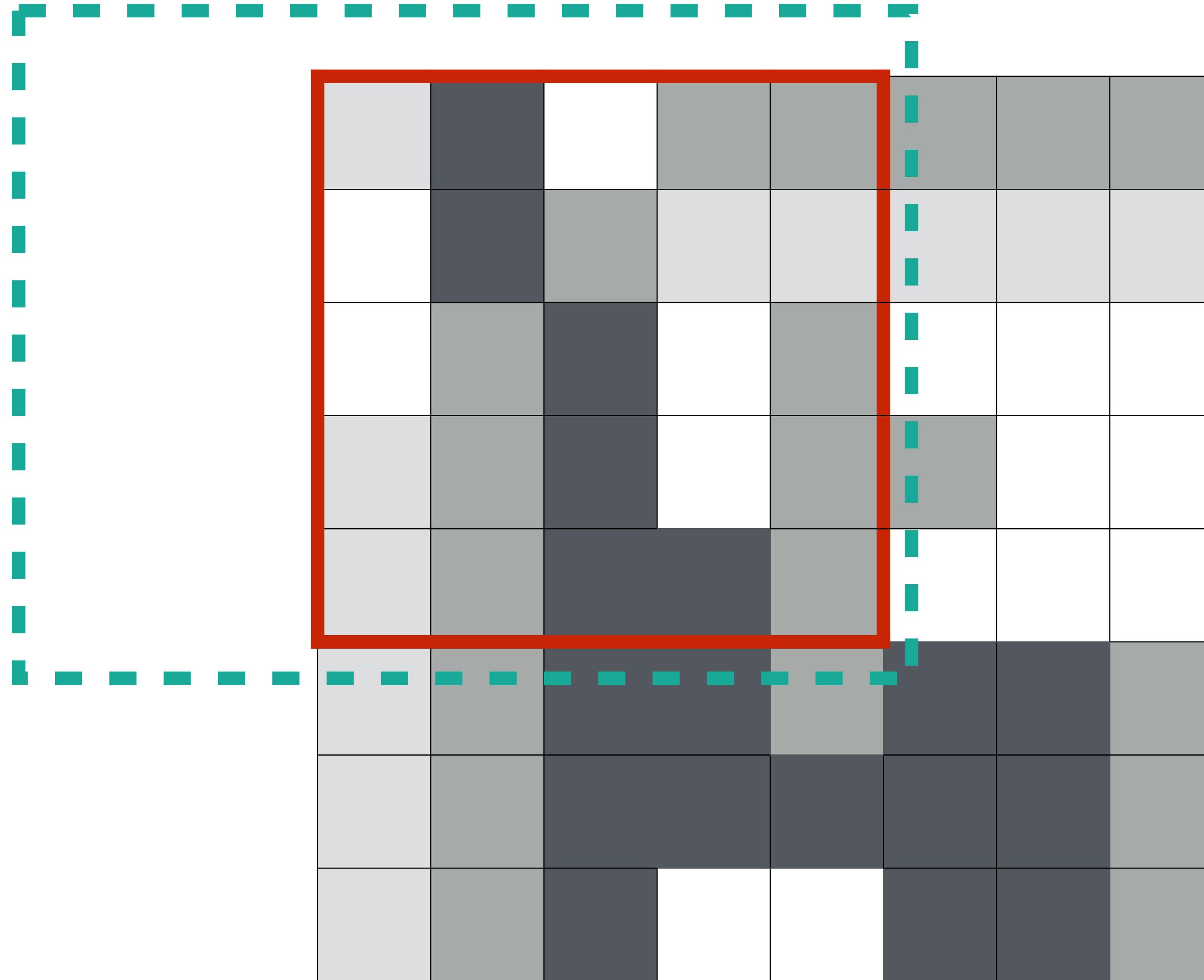


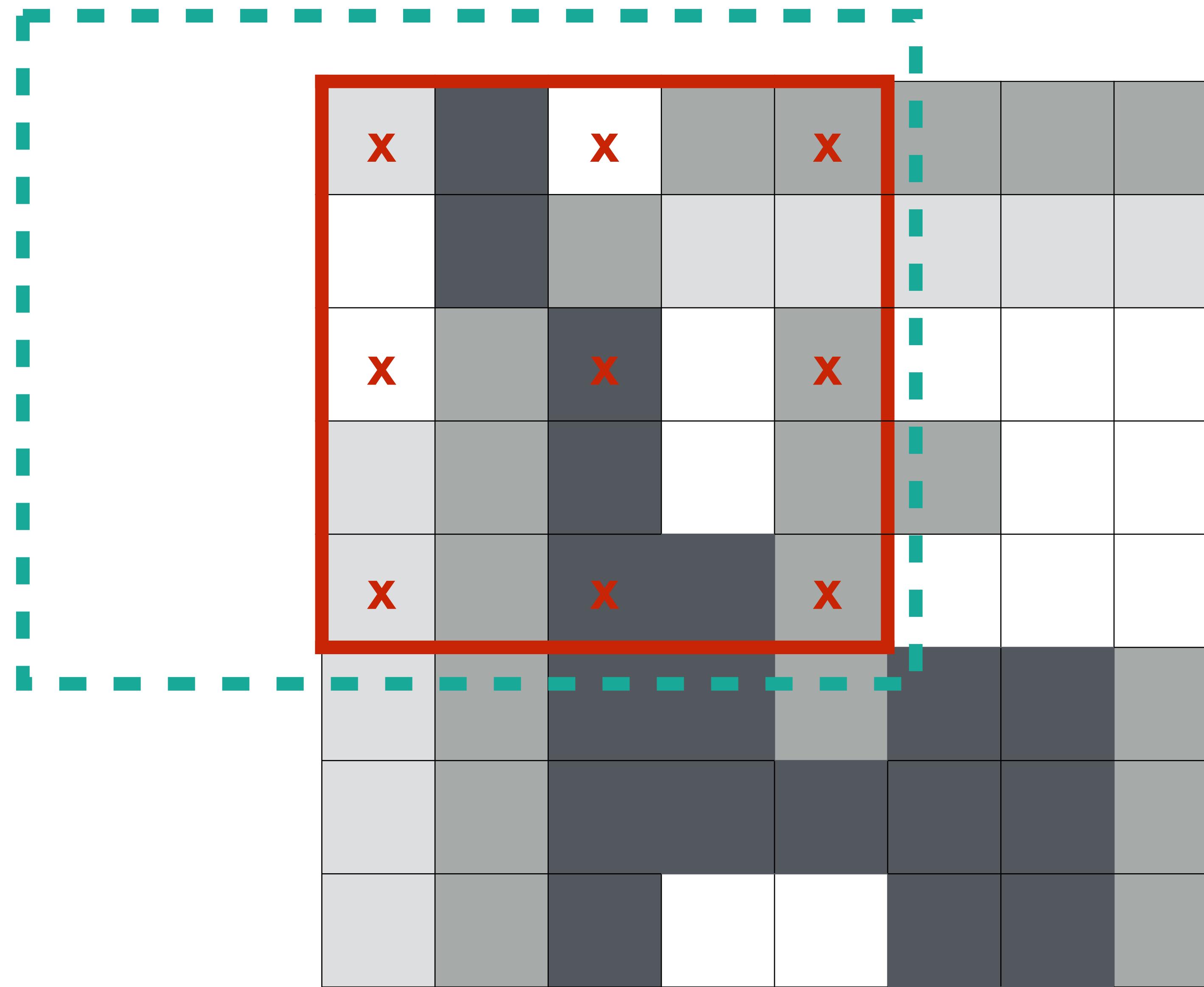


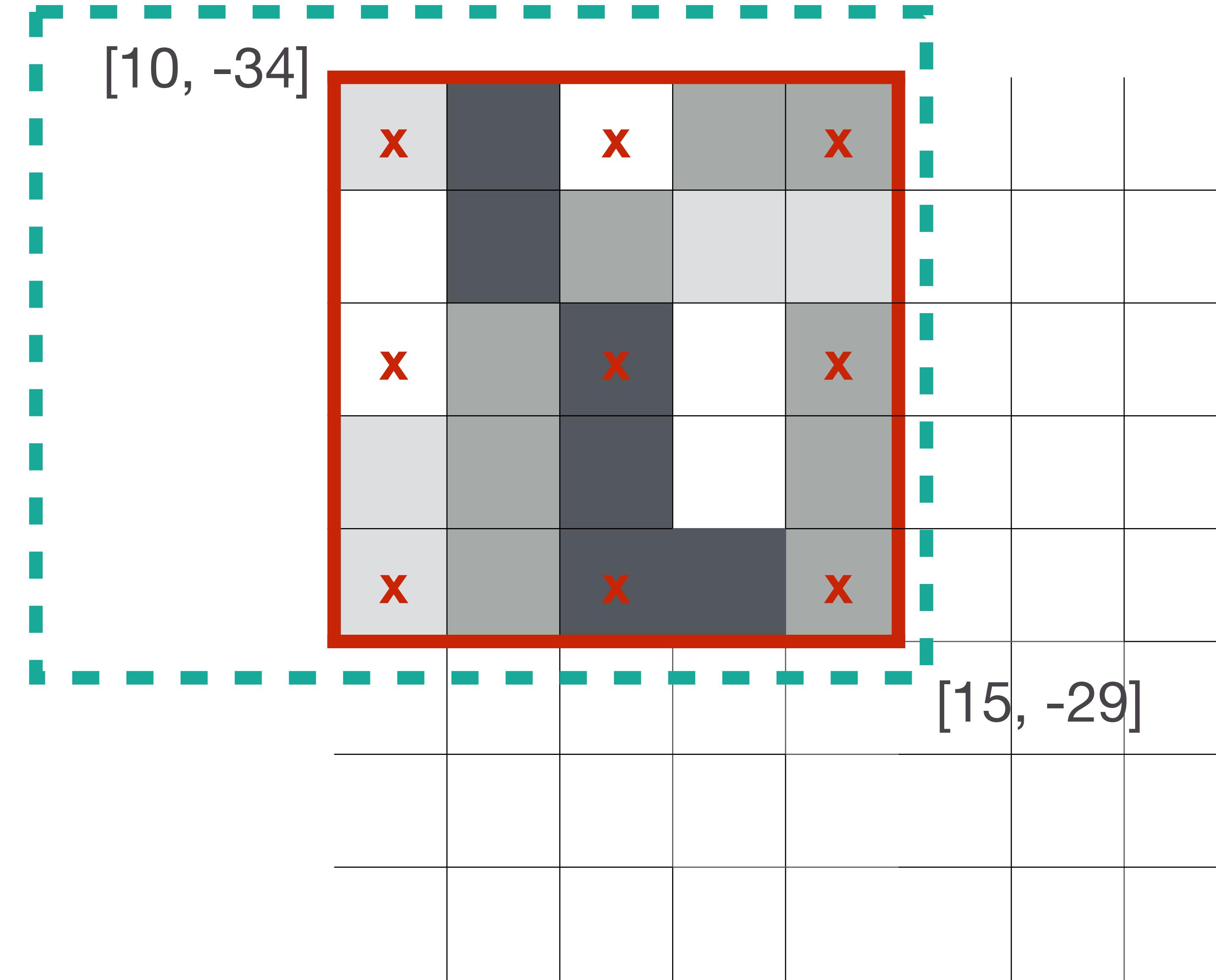
- Encode data as grey value
- Transmit “data” PNG images
- Sample images based on current viewport

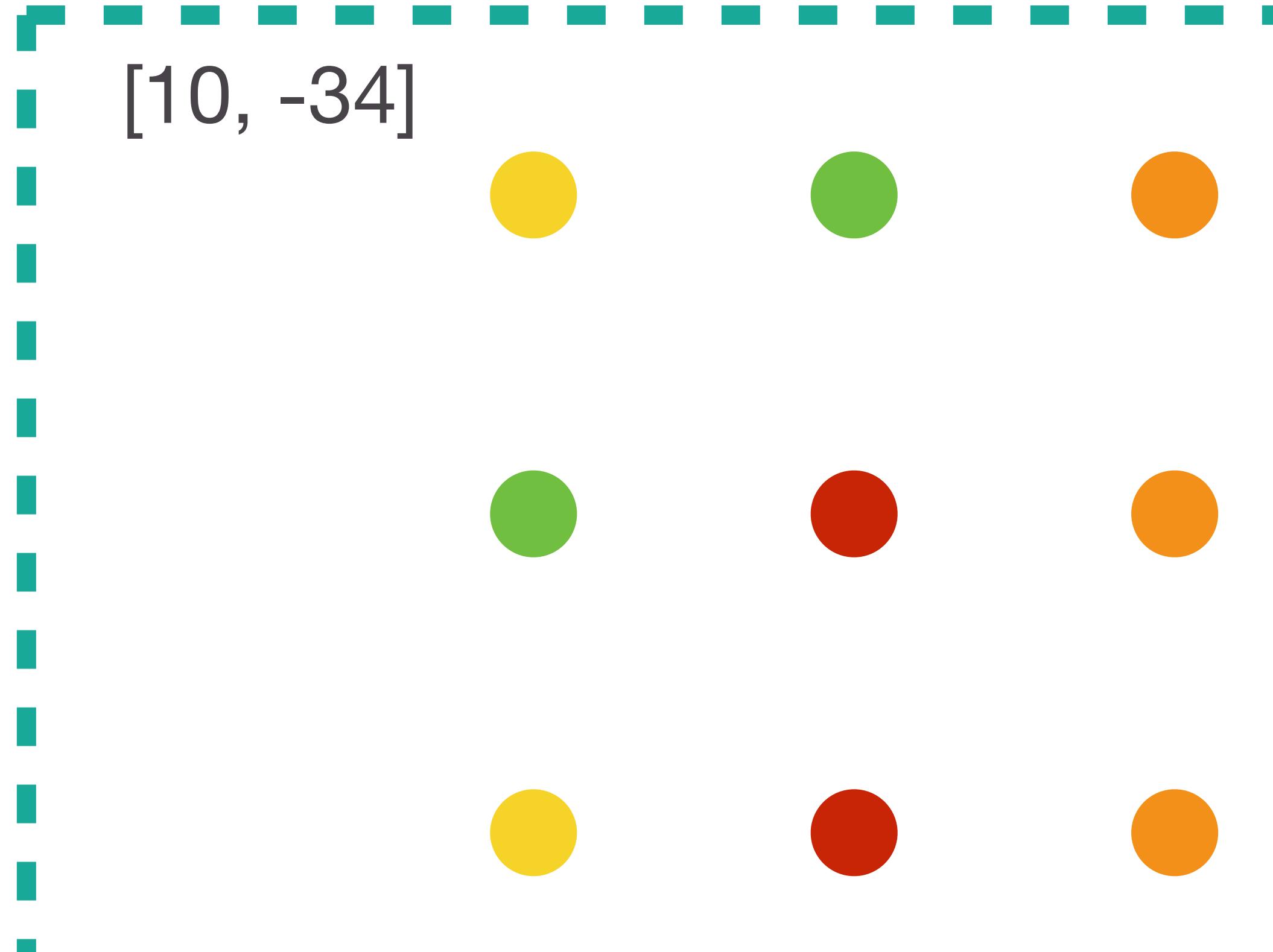


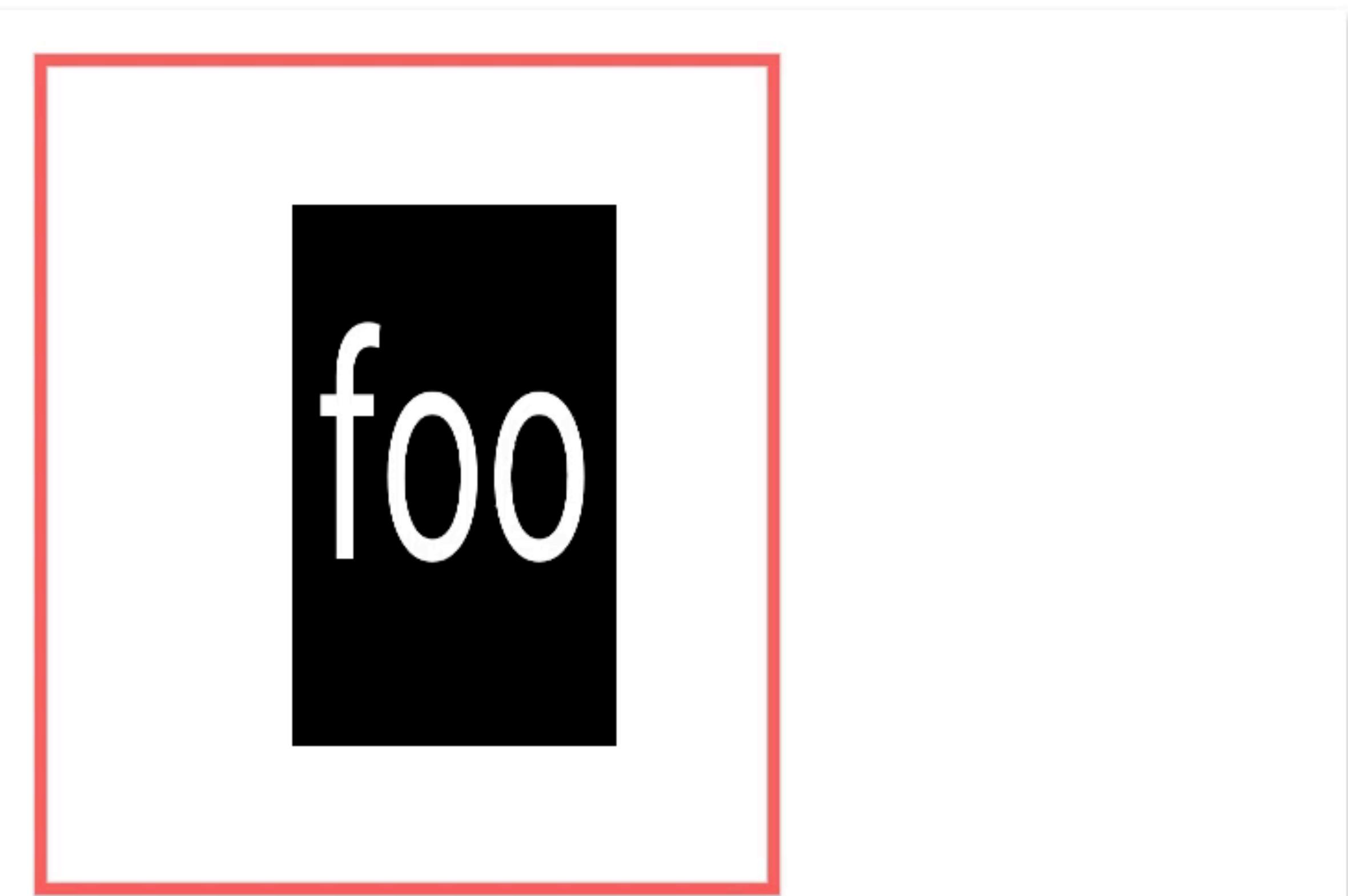
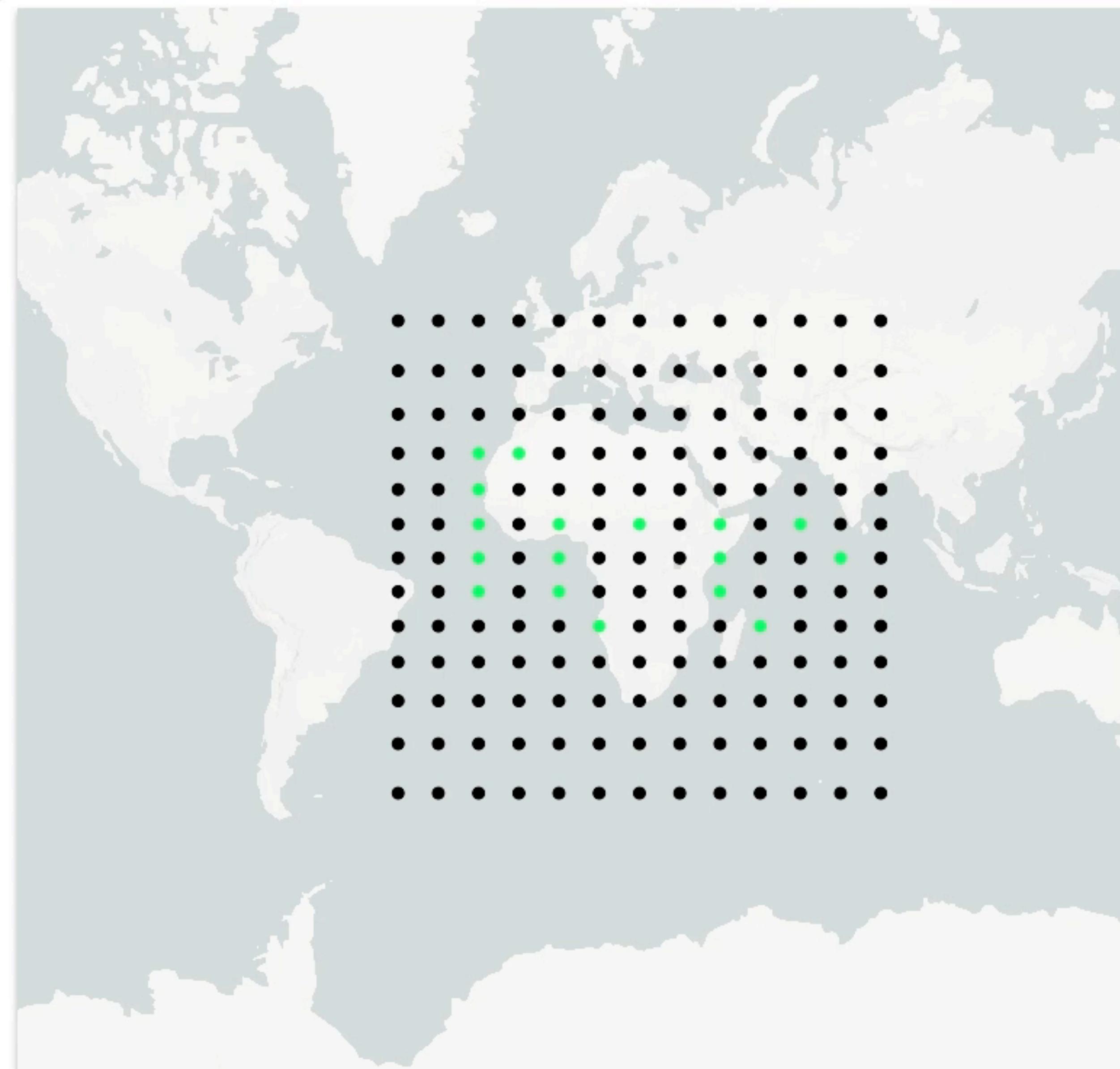


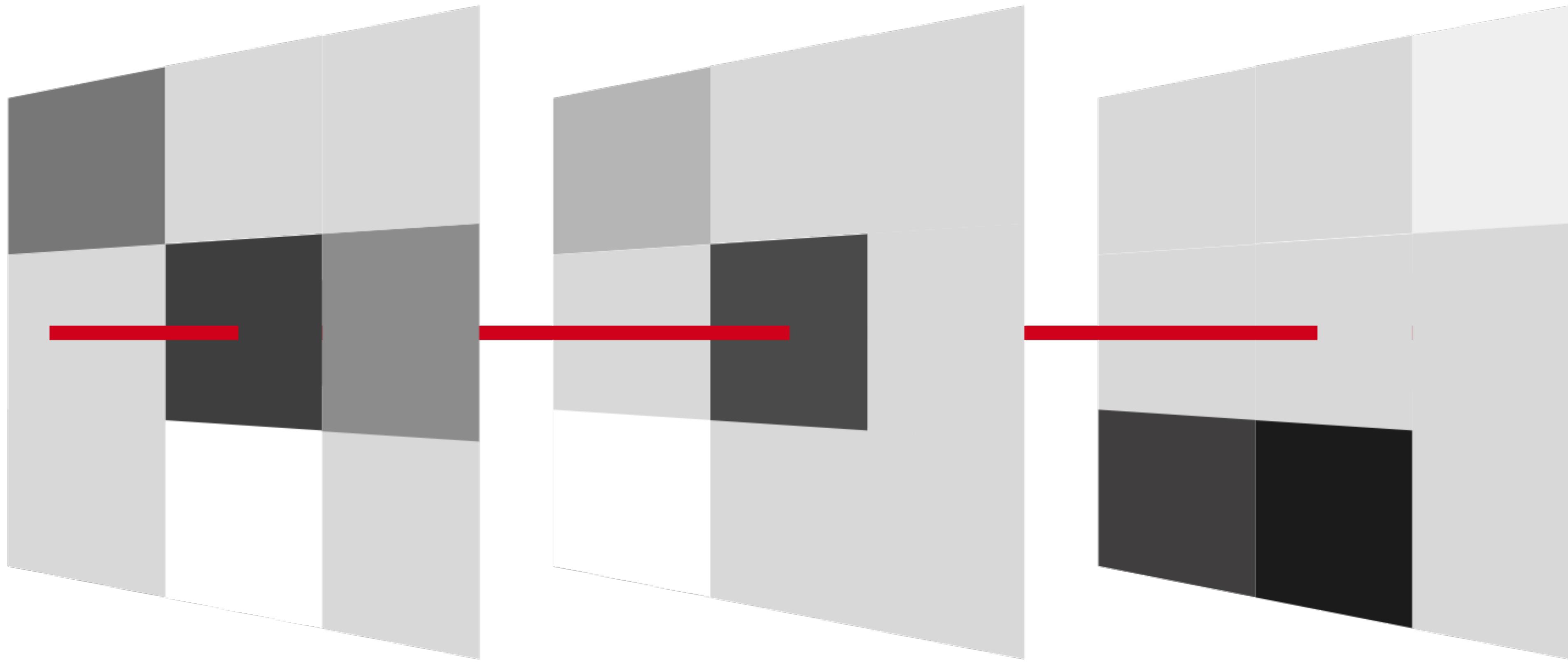




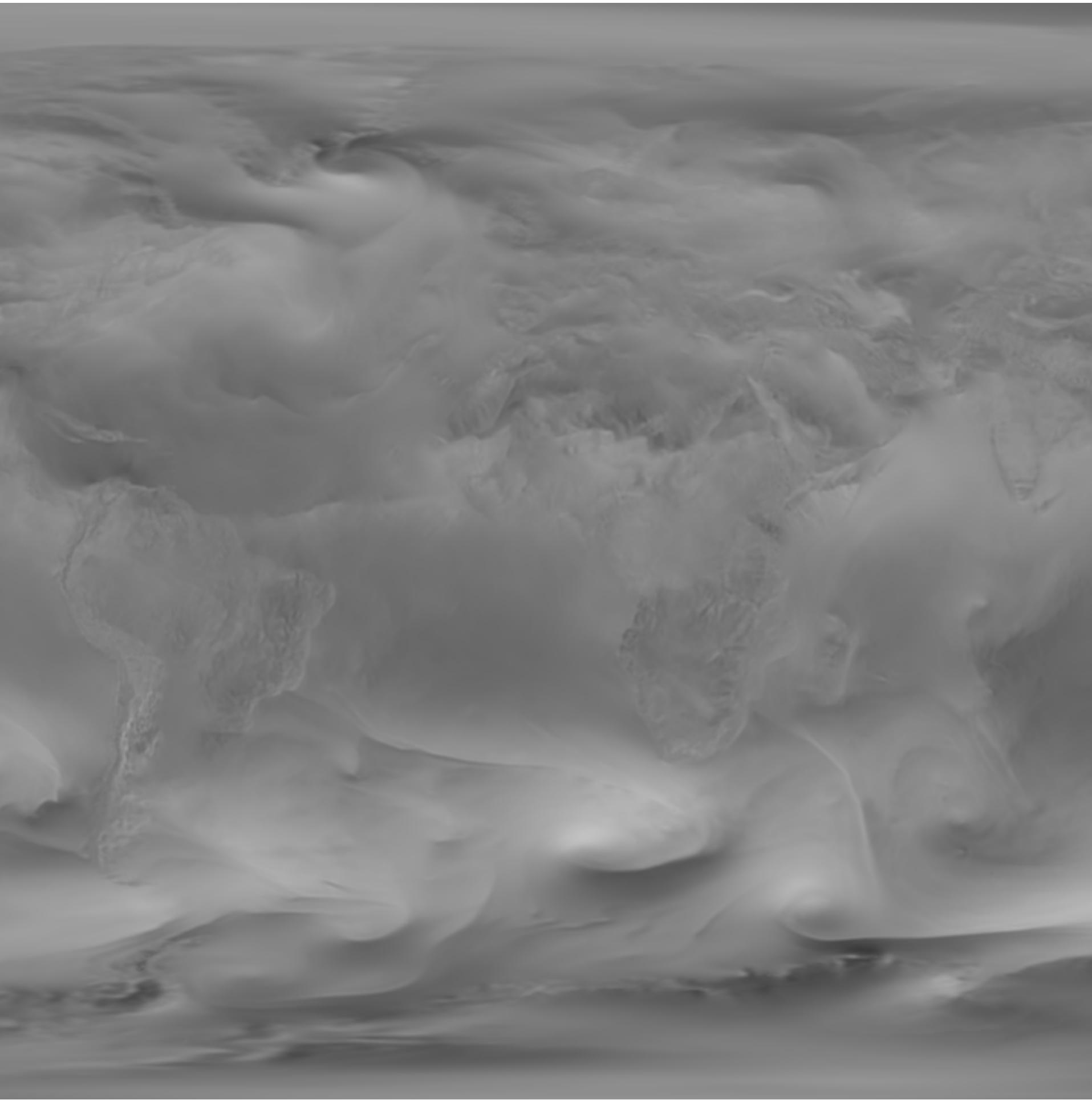




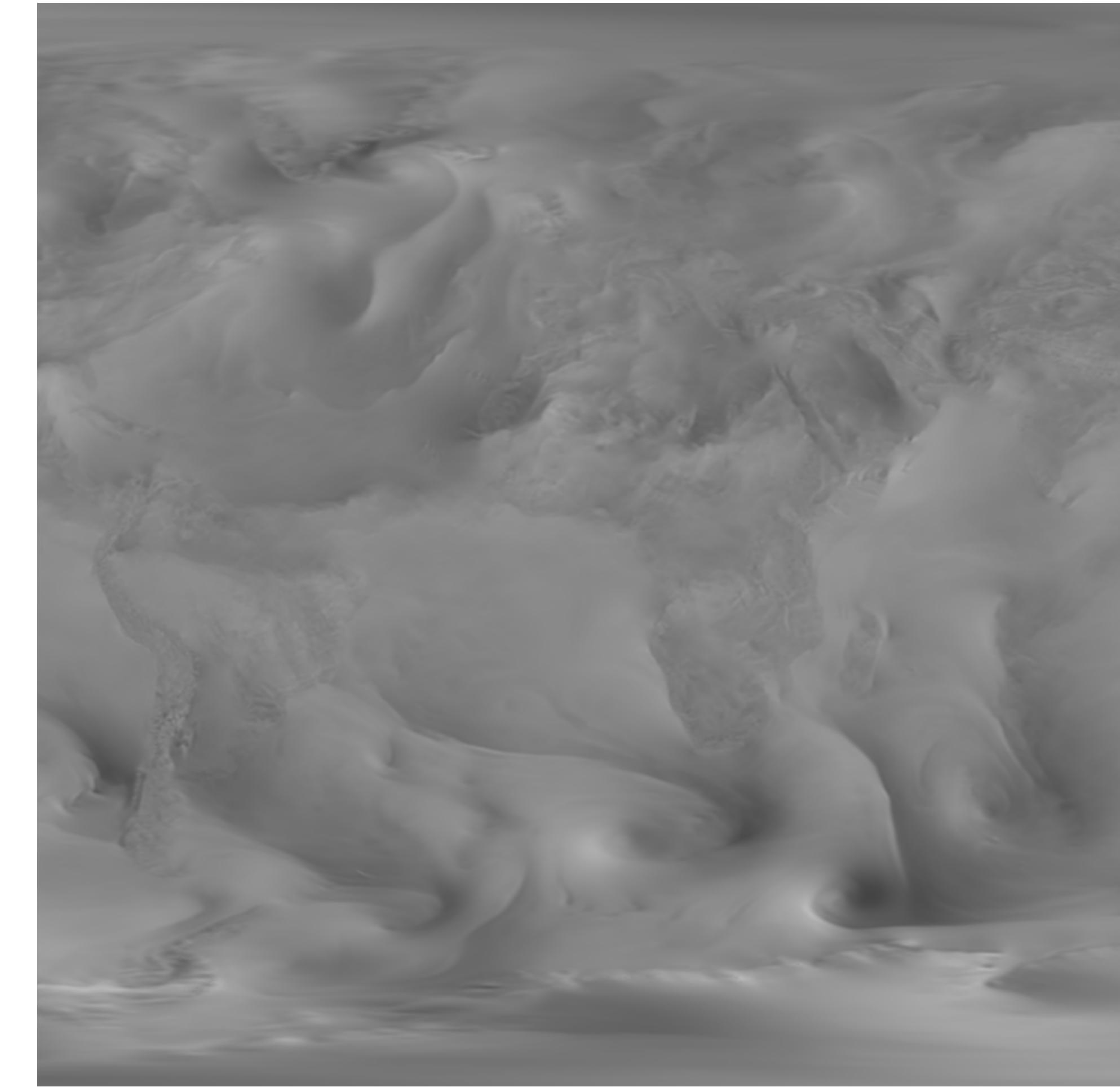


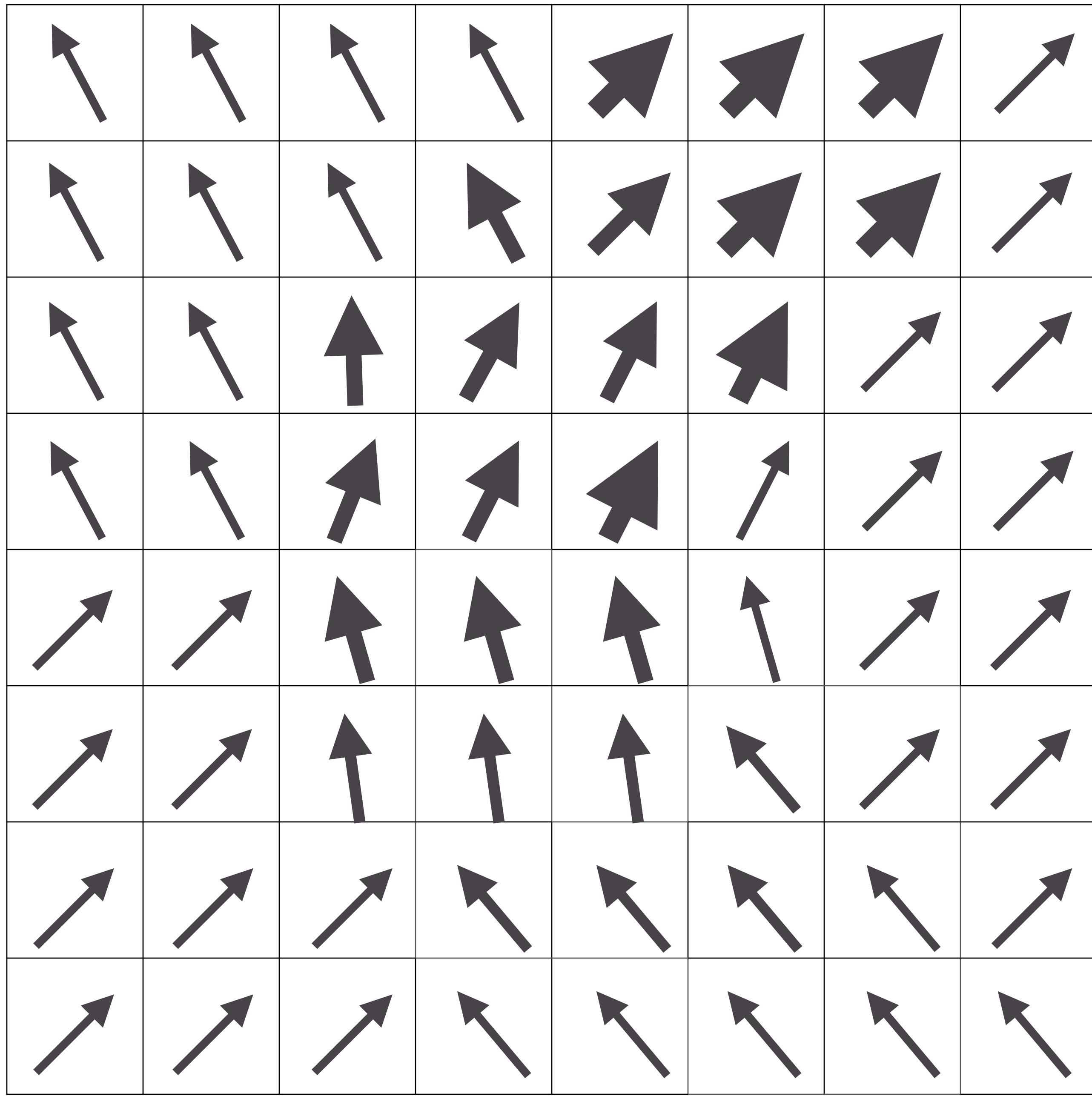


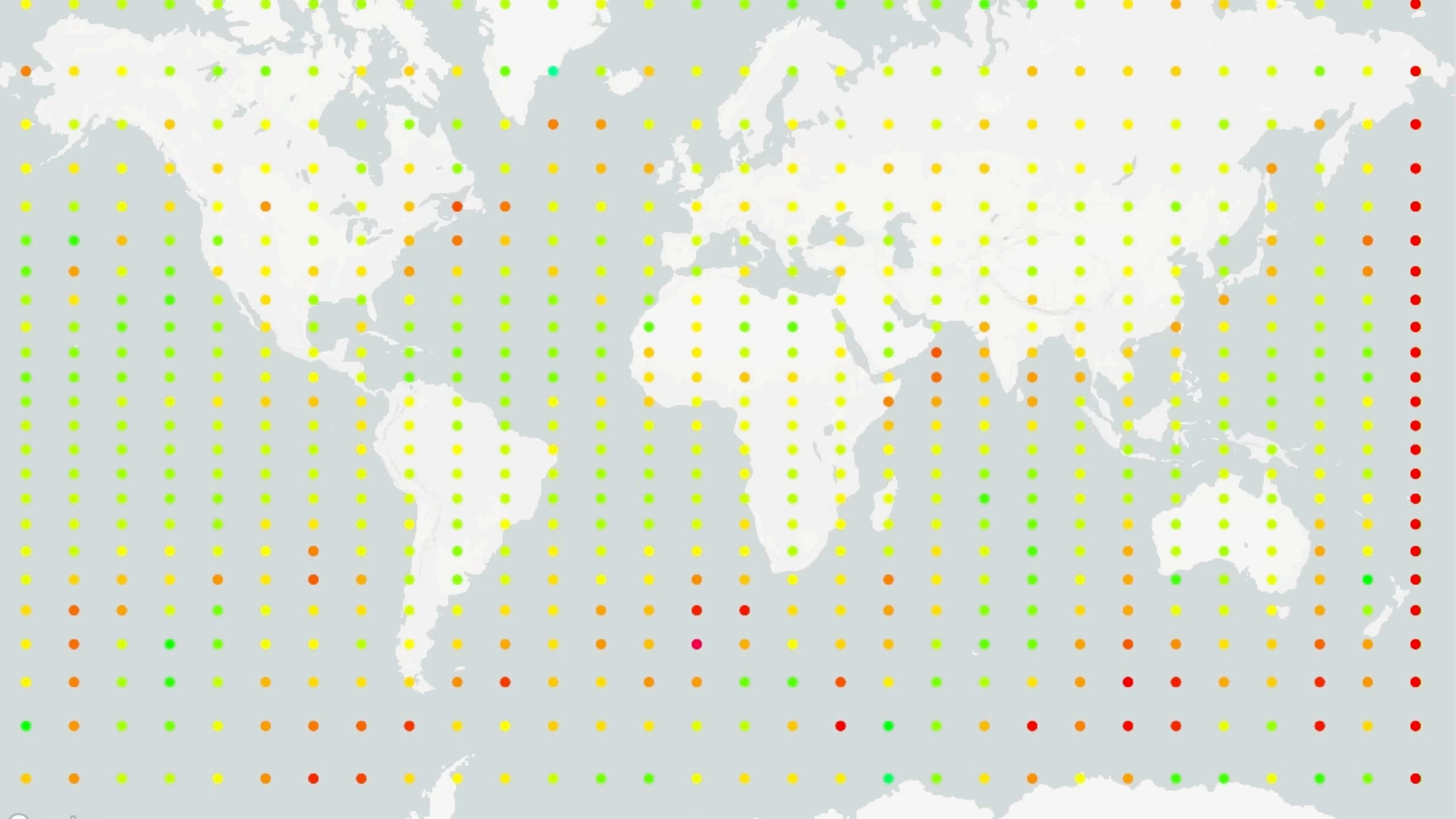
X Component

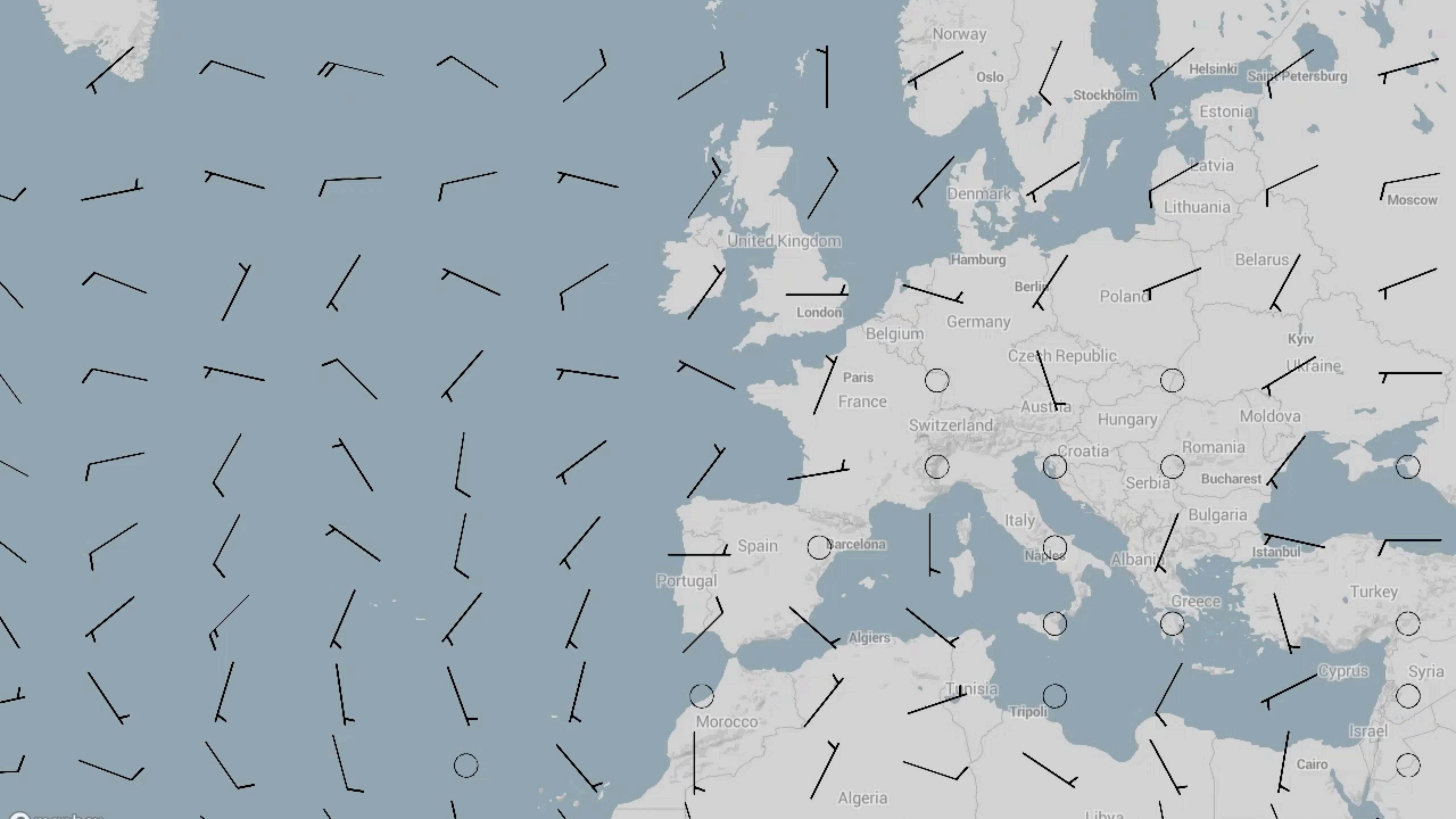


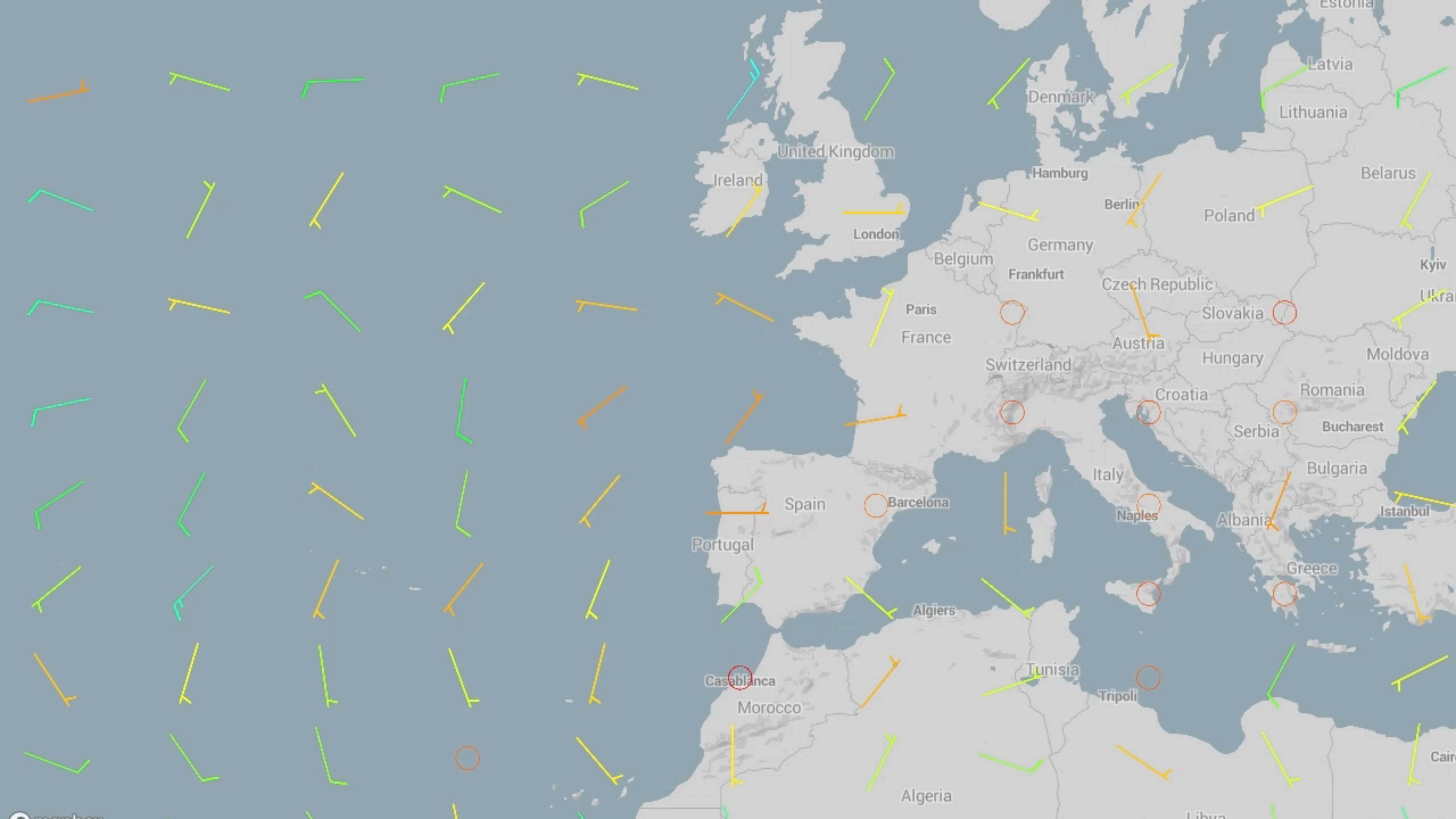
Y Component

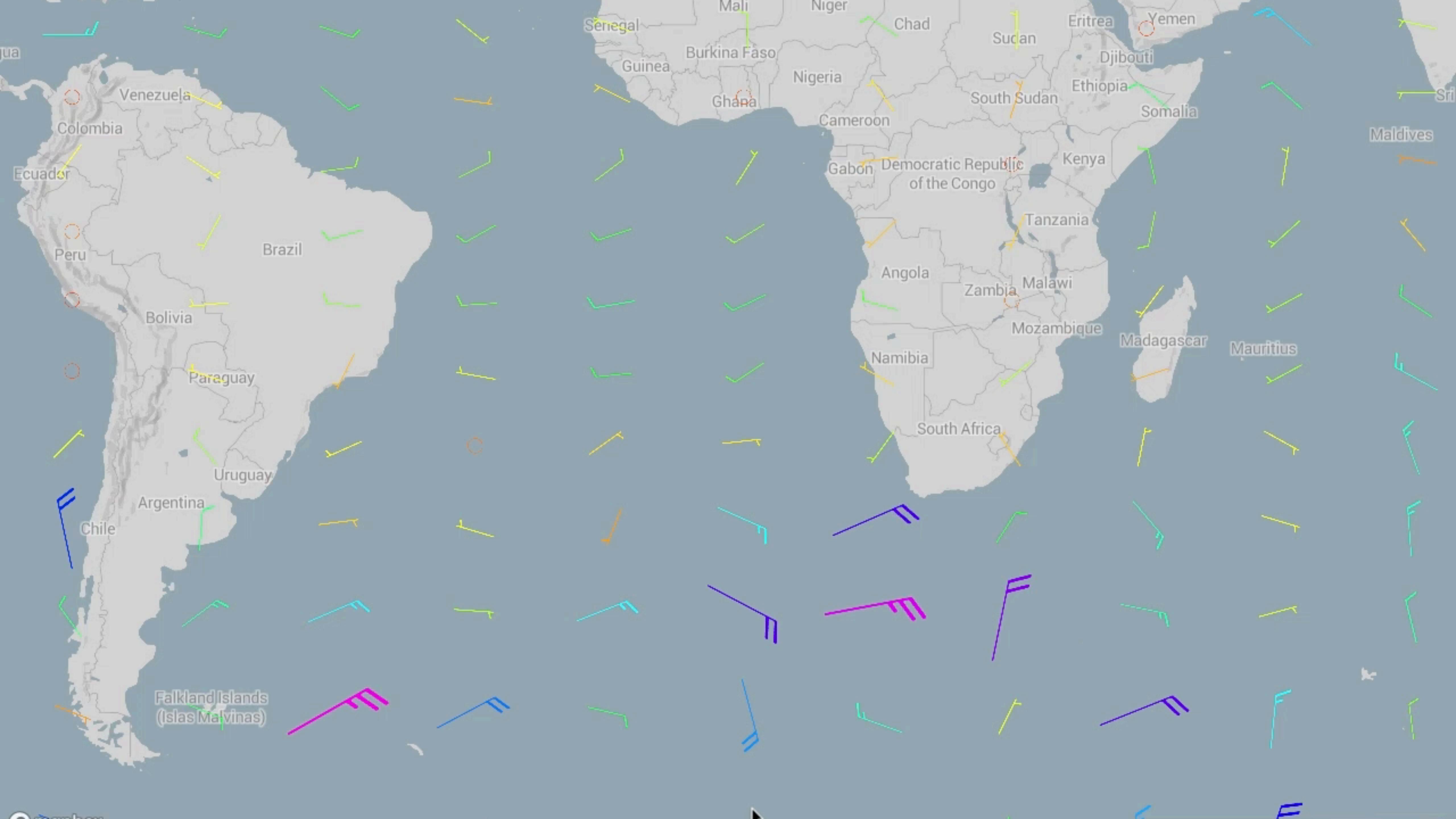










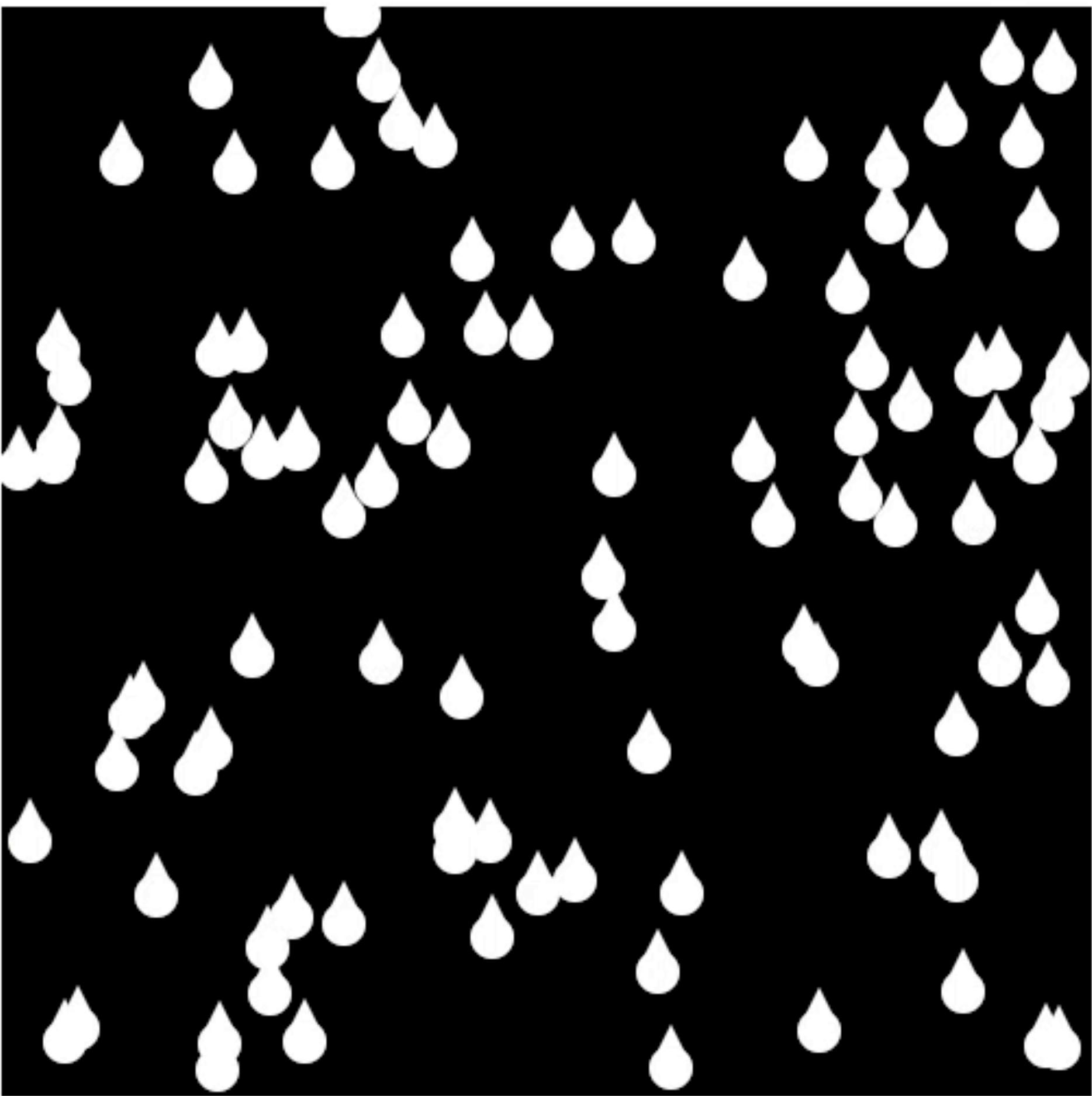


- Massively reduce file size using images
- Sample images based on viewport
- Render as GeoJSON



mapbox

© Mapbox © OpenStreetMap Improve this map

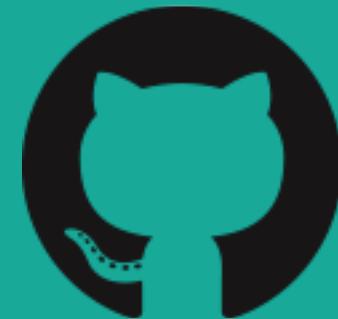


Thanks

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