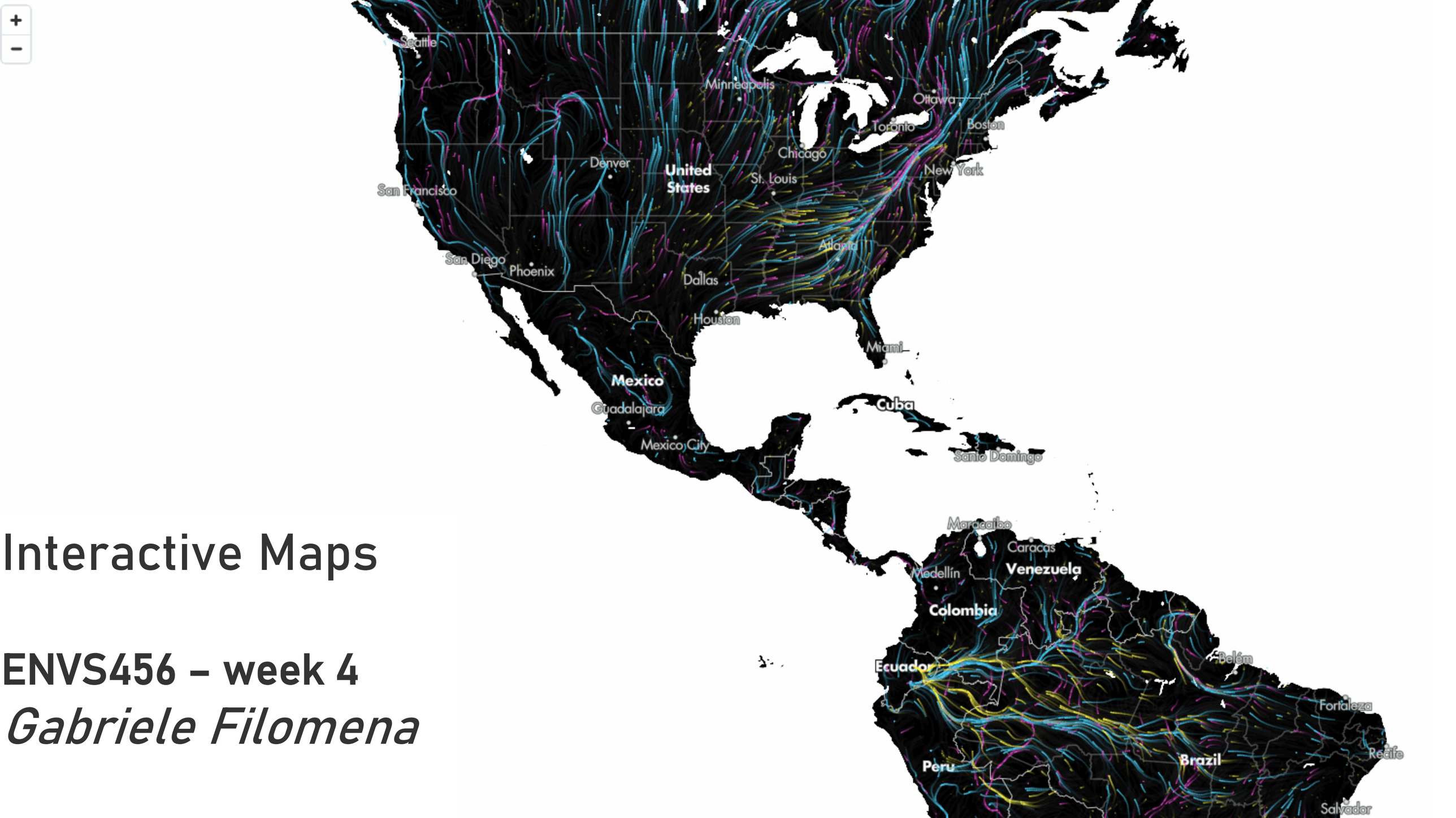


Interactive Maps

ENVS456 – week 4

Gabriele Filomena

Agenda

- Interactivity
- Interactive (Web) Maps
- Interactivity building blocks

Design Principles

- Legibility: Maps should be clear and straightforward
- Accuracy: maps should be a consistent representation of reality.
- Aesthetic Appeal: visually engage the audience

Important: Sourcing

Interactivity

Interactivity: ***What***

- Ability to dynamically modify a visualisation
- Action/response as part of the experience

"[…] two-way flow of information, […] responding immediately to the latter's [user's] input" (Oxford English Dictionary)

Interactivity: ***Why***

Munzner, 2014:

- Handle complexity.
- Cause the view to change.
- Support investigation at multiple levels of detail.
- Expand the capabilities of vis (many *idioms* depend on it).

Interactivity: ***When***

- Too much to visualise all at once
- Both “big picture” and “detail” matter

“[when] seeing the dataset structure in detail is better than seeing only a brief summary of it”

Munzner (2014)

Interactive (Web) Maps

Interactive (Web) Maps

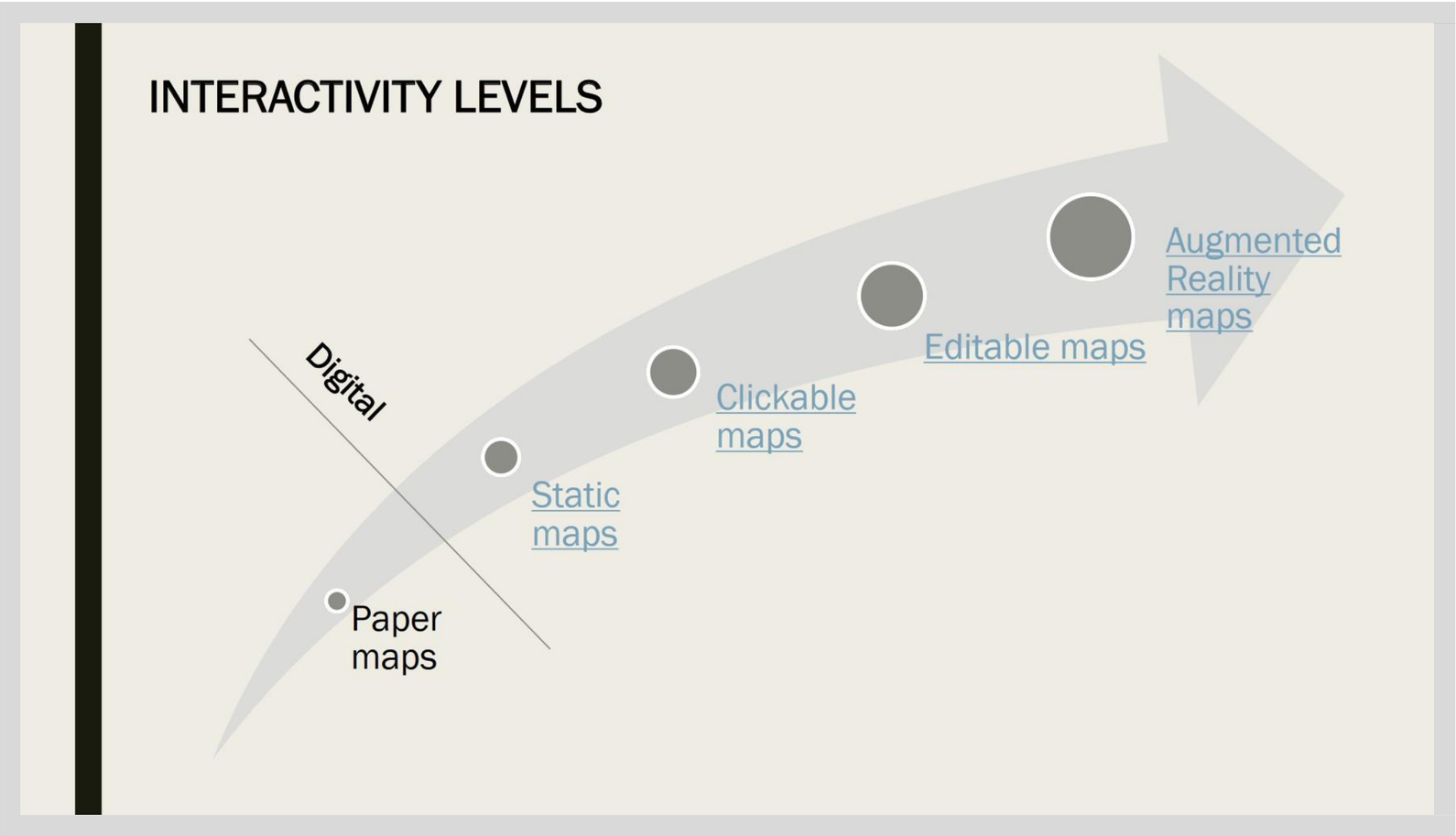


Image: A. Calafiore

Interactive (Web) Maps

- Efficient medium for high information throughput (Tufte)
- Maps as “windows” into large datasets

“A map of many maps”

Interactivity Building Blocks

Interactivity Building Blocks

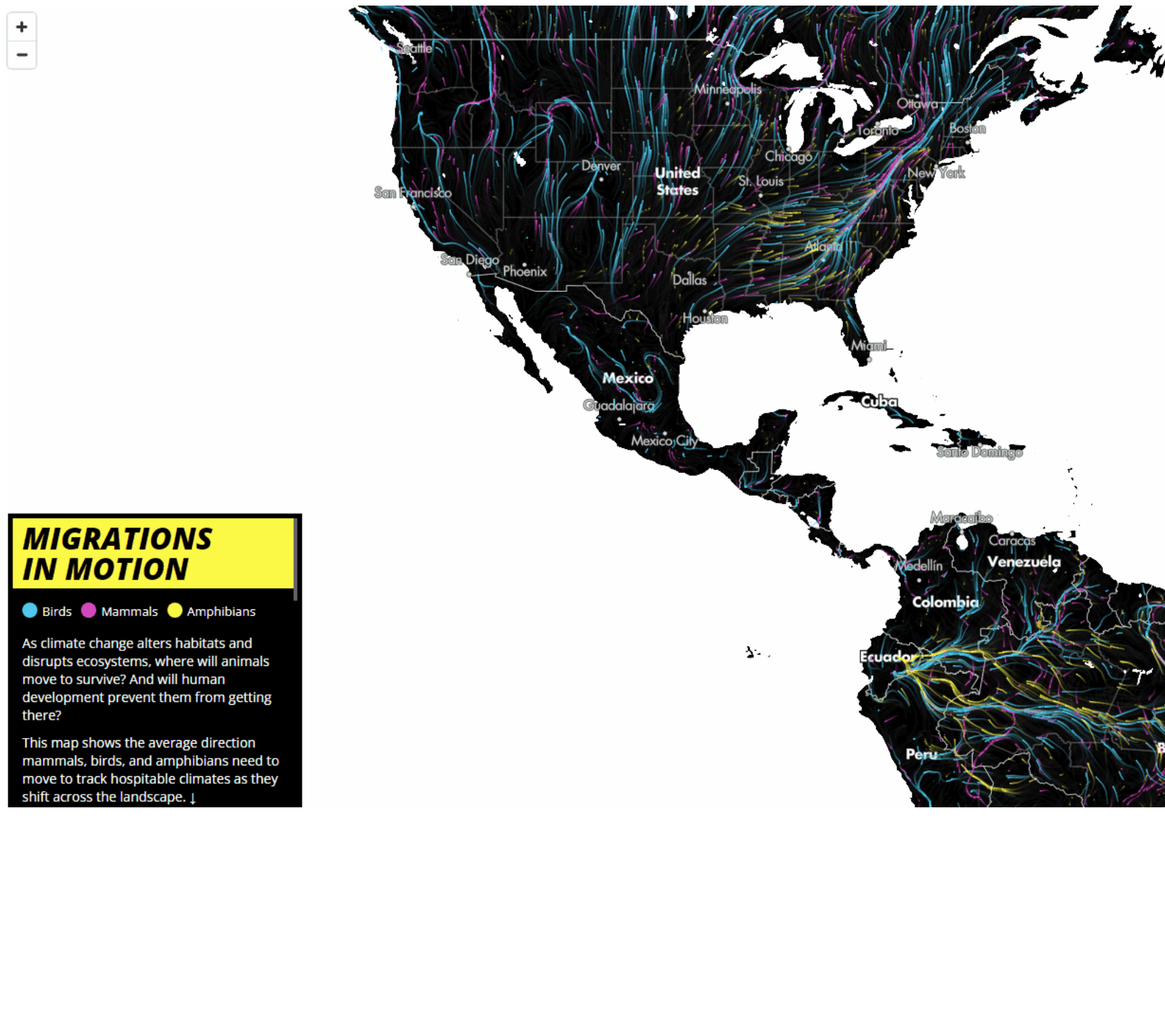
- Filtering
  - Pan
  - Zoom
  - Subset
- Perspectives/Volumes
- Tooltips
- Split
- Animate

Filtering

Widely used design choice in visualisation
Reduction of the set of elements being displayed
Discard geographically or attribute-based

Filtering: *Pan*

- What: Travels within a single scale
- Use: Segment a map geographically
- Abuse: Map is meant to focus on just a single region

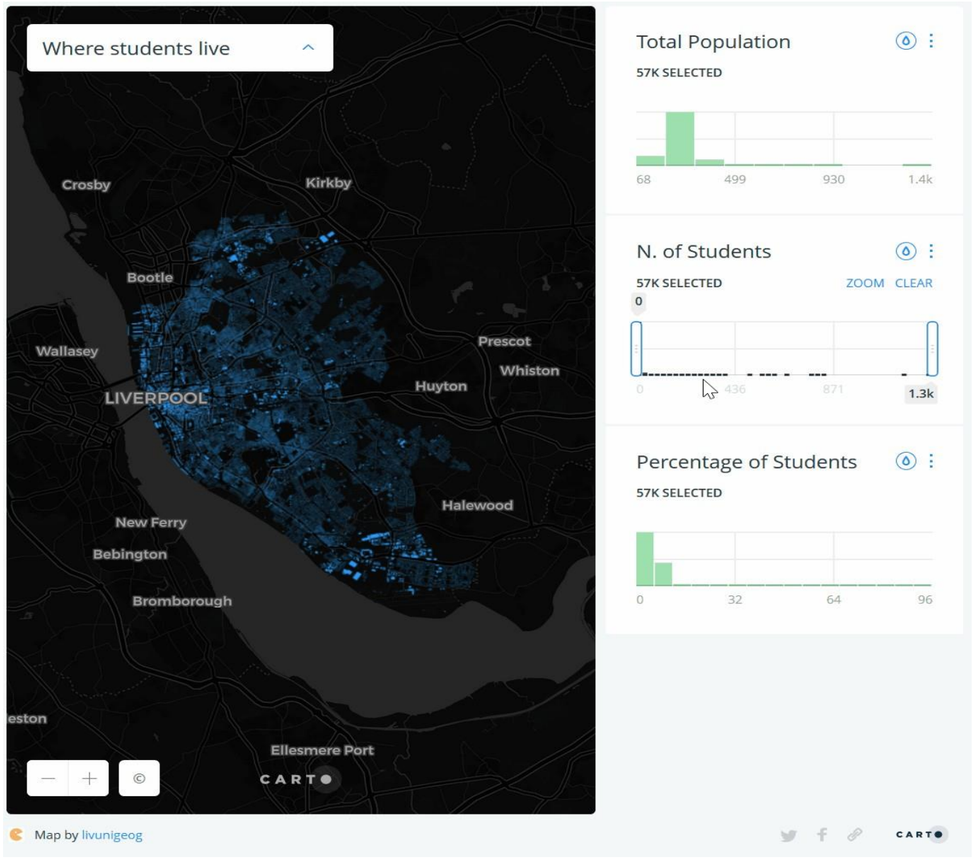


Filtering: *Zoom*

- What: “Travel” across scales
- Use: Present different degree of detail
- Abuse: Focus is on the global pattern

Filtering: *Subset*

- What: Restrict data showed (by attribute)
- Use: Explore patterns by value or category
- Abuse: Focus is on the global pattern

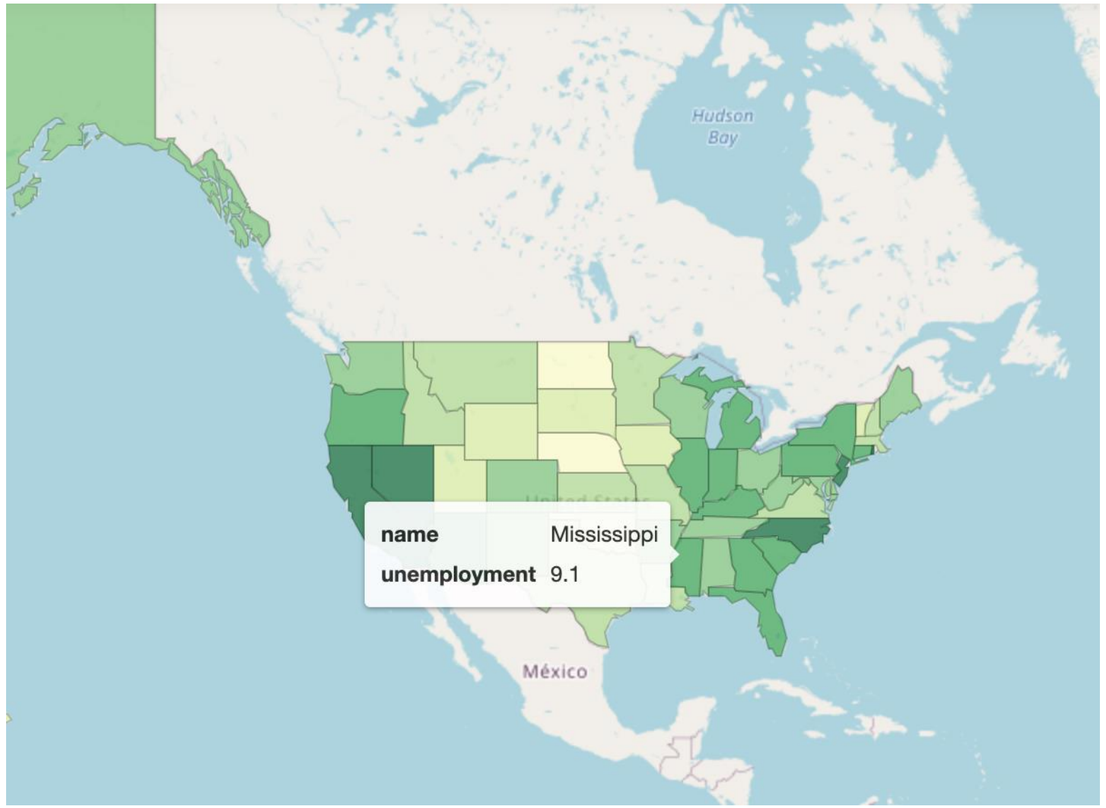


Volumes/Perspectives

- What: Add a 3rd dimension (or a 2.5d)
- Use: Volumes or perspectives are relevant
- Abuse: Any other case

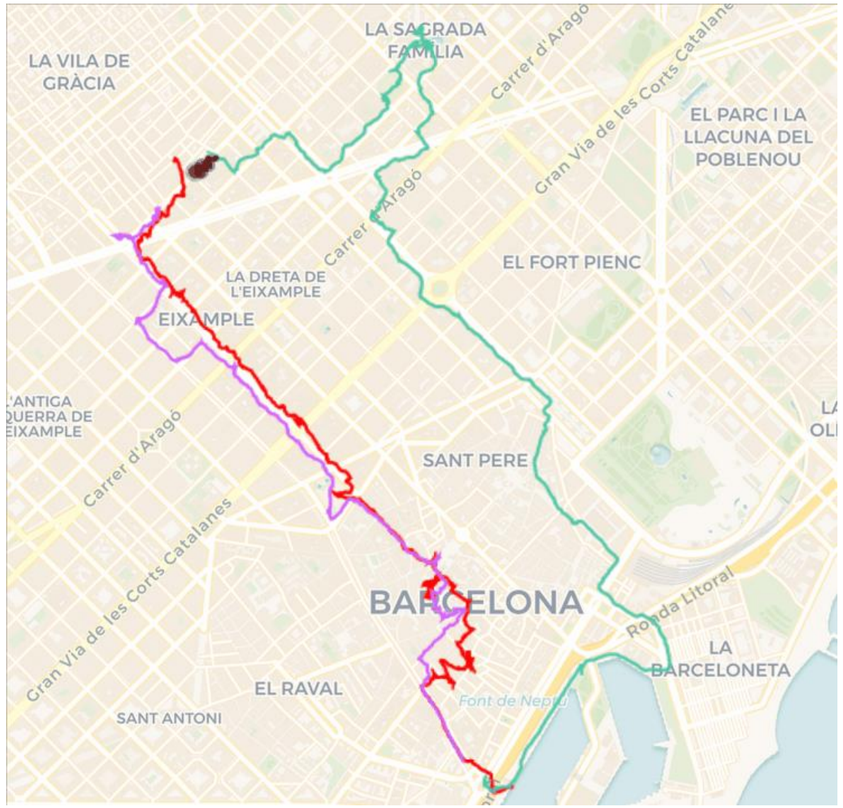
Tooltips

- What: Contextual (non-geo) information, on demand
- Use: Let the user explore the feature's attributes
- Abuse: Include too much data in the tooltip.



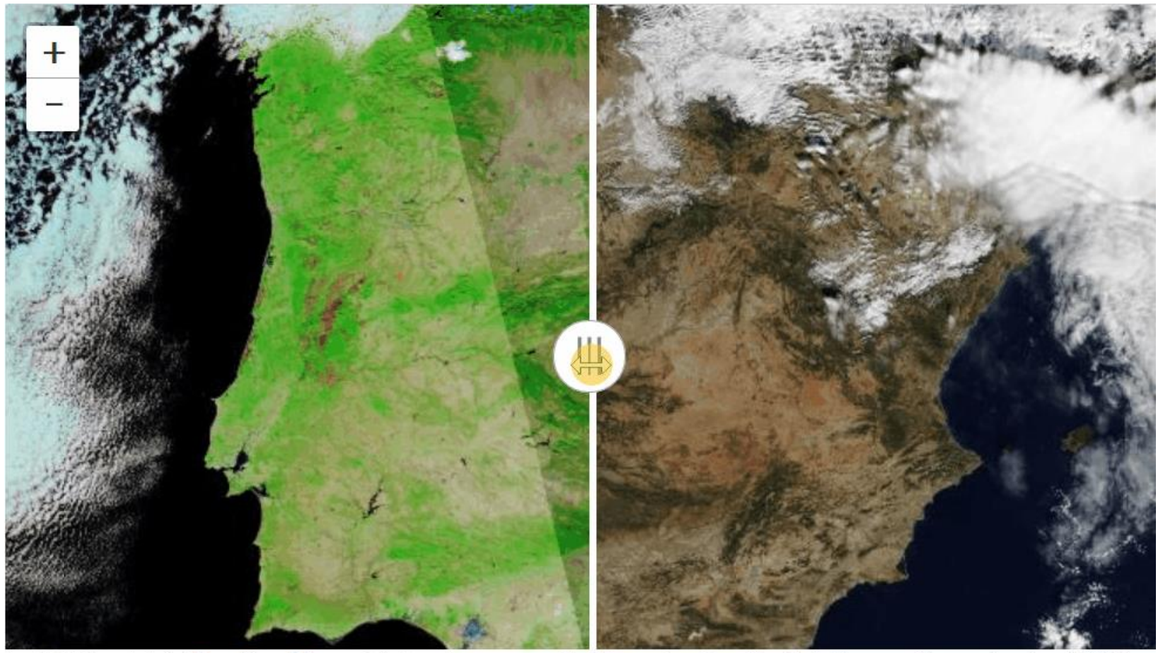
Animate

- What: Add temporal dimension through compilation of slices
- Use: Explore space-time Patterns
- Abuse: Communicate cross-sectional insights



Split

- What: Overlay two maps of the same location
- Use: Compare pattern changes
- Abuse: When you need to see the same location in both maps



General tips

- Think about the experience first, then consider the technology.
- Avoid feature overload.
- Interactivity is not binary.

Let's talk about Assignment I

References

- Tamara, Munzner. *Visualization Analysis and Design*.

CRC Press, 2014