

# Interactive Earthquake Visualization with Open Data

Ac Hýbl, Dr. Harvey Alférez, Ben Clausen

matoush@southern.edu harveya@southern.edu bclausen@llu.edu

## Introduction:

Because earthquakes claim thousands of lives and billions of dollars yearly, there is a great need to recognize patterns in seismic data [1, 2]. While some tools for analysis exist, most geological software is expensive and open earthquake visualizations are limited [3]. In this project, we provide accessible earthquake visualizations aimed to encourage geologists, and science enthusiasts in general, to explore open data using accessible, yet powerful, tools.

## Method:

To produce high-quality, interactive visualizations, we:

1. Obtained an open dataset from Kaggle.com
2. Cleaned the data using OpenRefine
3. Created several visualizations with Tableau
4. Included various forms of interactivity
5. Published our results on Tableau Public

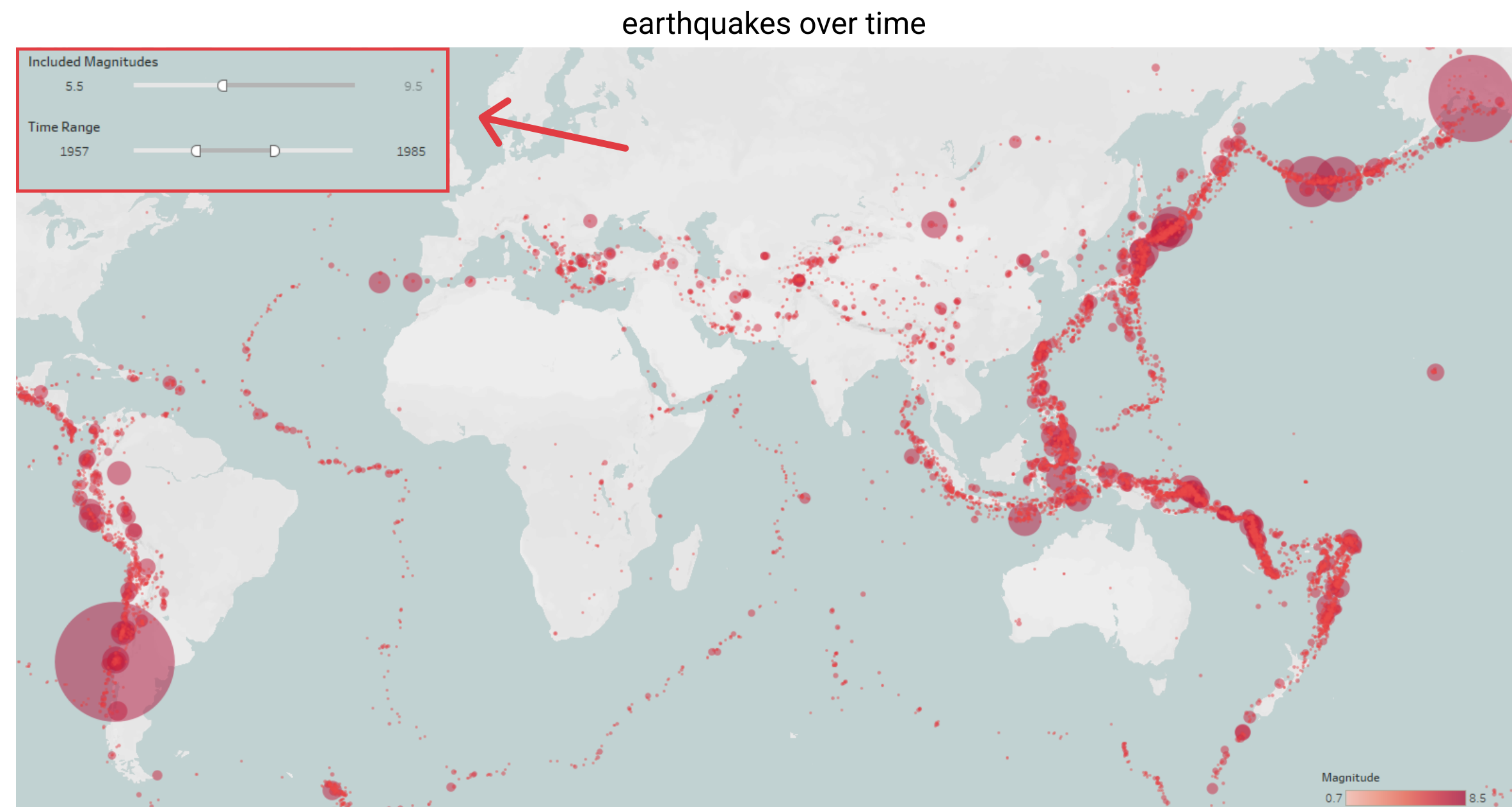
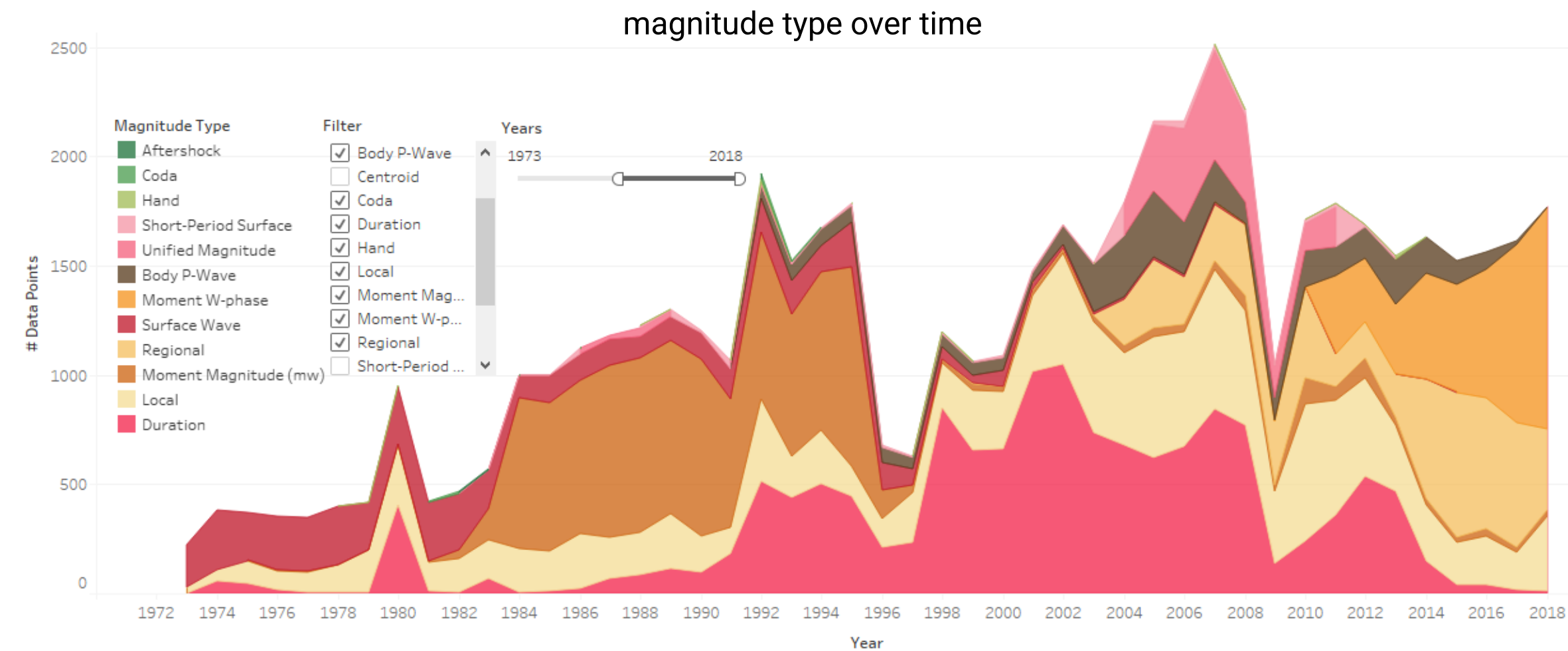


## Results:

Using only earthquake location, the visualizations show clear boundaries between tectonic plates, especially among the lower magnitude quakes. Additionally, the amount of data per year reflects a steep increase in seismic stations (not the number of quakes) over the past few decades [4]. Overall, the maps of earthquakes displayed over time provided the most interaction, allowing users to learn about each time periods seismic activity and even individual earthquakes and their magnitude type.

## References:

- [1] USGS. (n.d.). Lists, maps, and Statistics. U.S. Geological Survey. Retrieved February 8, 2022, from <https://www.usgs.gov/programs/earthquake-hazards/lists-maps-and-statistics>
- [2] Insurance Information Institute. (n.d.). Facts + statistics: Earthquakes and tsunamis. III. Retrieved February 8, 2022, from <https://www.iii.org/fact-statistic/facts-statistics-earthquakes-and-tsunamis>
- [3] <https://earthquake.usgs.gov/earthquakes/map/>
- [4] Why are we having so many earthquakes? USGS. (n.d.). Retrieved February 13, 2022, from <https://www.usgs.gov/faqs/why-are-we-having-so-many-earthquakes-has-naturally-occurring-earthquake-activity-been>
- [5] <https://www.usgs.gov/programs/earthquake-hazards/magnitude-types>



## measurement types

