UC SANTA CRUZ
Baskin Engineering

Capstone Project

Visualizing Climate Change (ViCC)

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ViCC

Abstract

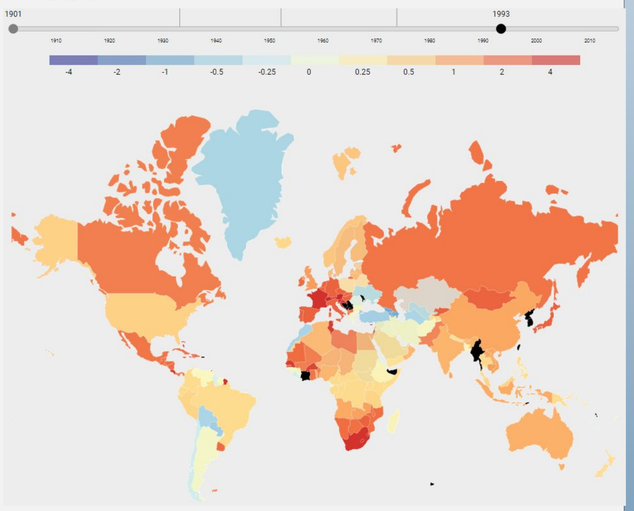
Climate change is a serious and ever-growing concern. However, many people lack knowledge on the subject. This project targets any user interested in climate change regardless of their level of expertise.

We discuss the past, present, and future status of our changing world using visuals as a supportive elements. Each visual features interactive elements to let the user investigate and experience climate change.

Temperature Visualized

Difference between 1901 and 1993

The visual below is a "**choropleth**" which binds data values to colors. This snapshot shown is a temperature comparison from 1999 to 1901. The red indicates an increase in temperature while the blue indicates a decrease in temperature. The color scale above the map ranges from -4 to 4 Celcius.

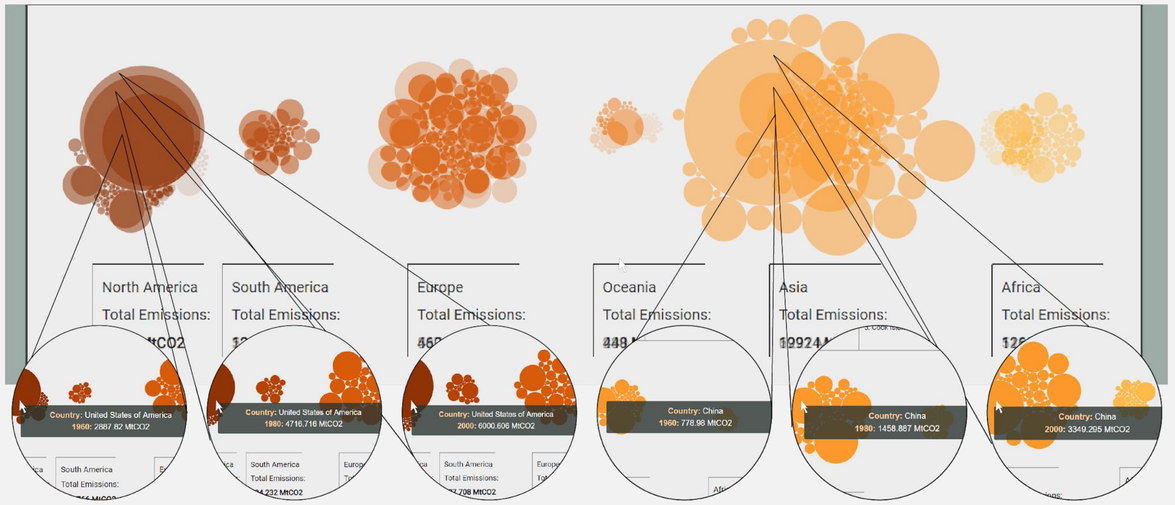


Overview

Climate change is an expansive and convoluted phenomenon which affects all living things on Earth. However, most online learning resources are plagued by scientific jargon and dated web-design. We set out to create a website featuring sleek design coupled with intuitive and interactive visuals to inform users about climate change.

CO2 Bubble Map

CO_2 production visualized by country, time (1960, 1980, 2000), and amount



The bubble map above displays the CO_2 production at different points in time for countries around the world. Three different time slices are represented by the opacity of the circle. The size of each circle represents the amount of CO_2 produced. Finally, the countries are grouped by continent as a method to organize the visual.

Notice the U.S. increases its CO_2 production every twenty years. However, the increase over time is significantly less compared to China. Furthermore, by grouping by continent, users can see the net growth of CO_2 production rise the most in Asia.

On the website, users can hover over each country to view its appropriate data and the data can be displayed as a percent or raw number.

Approach

- Investigate and evaluate current climate change education resources
- Acquire and parse data for temperature, co2, energy, and sea level.
- Generate visualization via formatted data-file
- Add filters, features, and text to each visual
- **Inform users** about climate change using visualizations as supplemental material with descriptive text.

Results

- Created unique **interactive visuals** based on different datasets
  - Implemented filter options
    - Compare and Isolated
    - By number and by percent
- Developed website and integrated firebase hosting for data
- A climate change **story** about the past, present, and future

Conclusion

We've created a user-friendly webpage aimed to educate users about climate change. The website features interactive visuals which grabs users' attention and lets them actively explore climate change.

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https://data-vizuals.herokuapp.com/