

Global Climate Change

Messaging

This visualization is designed to compare important factors that impacts the global climate change vs the actual increase. The data is based on NASA models to predict the temperature changes if only “one of the factors were to exist” and disregarding other factors. The single factor modeled temperatures are compared against the actual temperature changes to determine correlation. The graph uses delta changes instead of absolute temperatures.

The factors being discussed are:

- Volcanic
- Orbital
- Solar
- Aerosol
- Green house

At the end of visualization, the user can clearly conclude the most important factor that's causing global warming.

Narrative Structure

The visualization follows the *martini glass format*. The visualization goes through 7 scenes in one order initially without user exploration. At the end the user is given an option to explore the visualization by selecting the factors individually via check boxes and comparing their effects against greenhouse effect via line graphs.

Visual Structure:

The visualization uses line graphs that are accumulated with same scale and axis as user steps through the scene by pressing next button. The line graph transition across time axis in 4000ms to indicate trajectory of temp change with time and drawing the user attention to the current graph over already existing graphs.

The accumulative structure helps user compare the effect of each factor. At the end the conclusion is highlighted in red.

Scenes:

There are 7 scenes in the visualization. The first scene is only text description to motivate the problem. Next 6 scenes in the visualization add a line graph for the contributing factor and contrasting against the actual temp. Increase with common axis. The scenes for non-contributing factors is presented first. The line graph for primary factor is presented on last scene to guide the user naturally reach conclusion at the end along with option for user to explore further by subsampling the graphs via checkboxes.

Annotation

Supporting annotation is added to a rectangular area in the blank area of canvas. The text is replaced in the same rectangle with transition effect as users' moves through scene to draw user attention to the message.

Parameters

The parameter of visualization are

- Scene number
- Model type (volcanic model, orbital model etc).
- Color of graph.
- Legend color and text
- Draw_axis
- Tooltip text

Triggers

Scene number is the primary trigger which is incremented by user and triggers the model type, color of graph/legend and tooltip text to change as well.

The affordances are:

- Checkboxes which appear as already checked at the end of the visualization in user interaction phase. This indicates to user that they can be unchecked and a sub selection of parameters can be made.
- Raised start button at start and in middle of visualization to indicate it can be pressed
- Depressed reset button at start of visualization with greyed out text to indicate it's not available yet
- After user goes to first scene reset button becomes raised to indicate its available to be pressed.
- At the end of visualization, next button is depressed and text greyed out to indicate its unavailability.

