

Communicating environmental change through narrative visualization

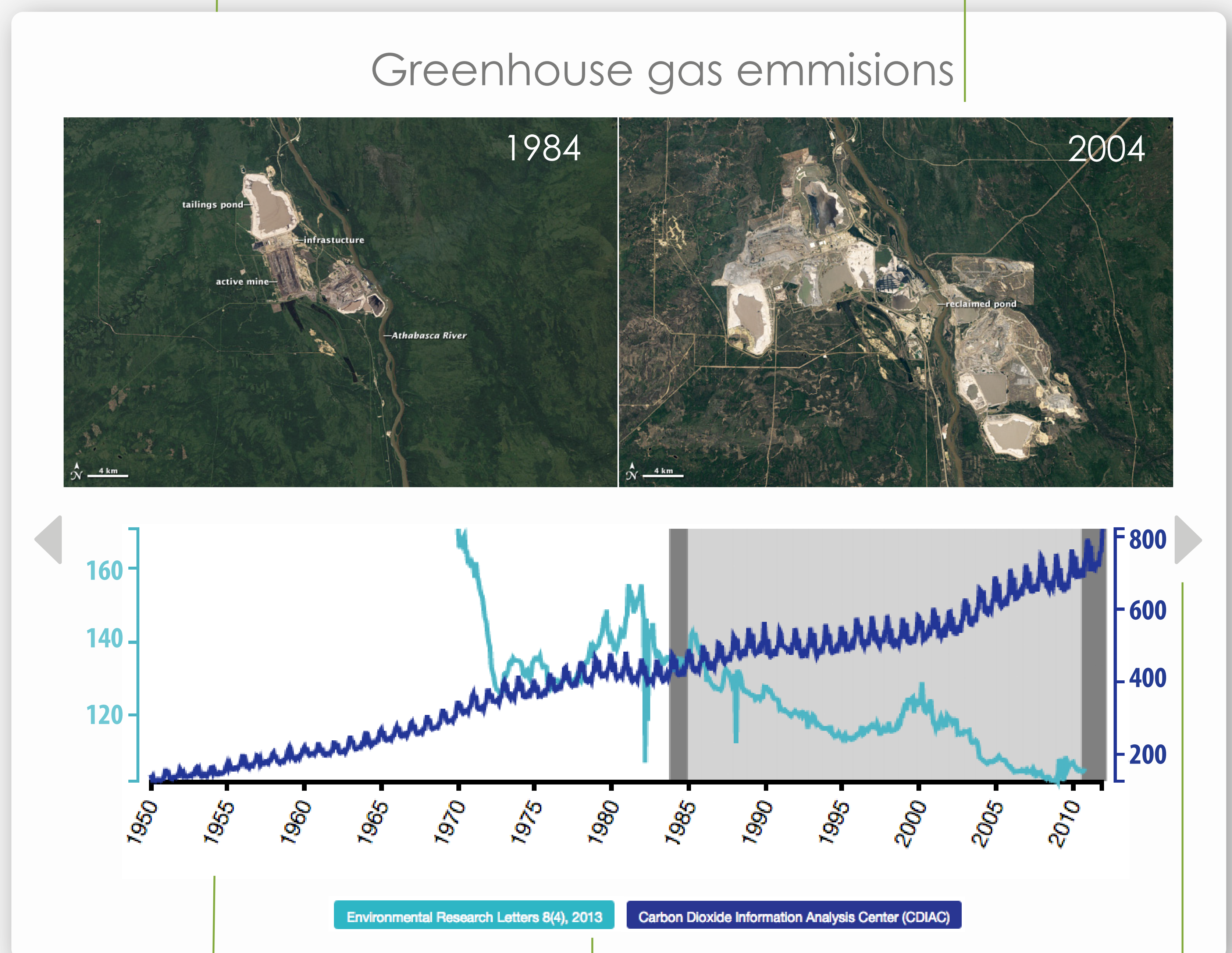
Navigate locations using up/down arrows, or by clicking on the chevron icons.



Globe rotates in response to mouse click and drag, and clicking on locations brings up the relevant information pane.

Take a guided tour to see impactful images of change along with accompanying data and links to the relevant scientific literature.

Compare images of the same location at different points in time.



View plots showing related datasets illustrating both local and global trends.

Explore source literature for the datasets and images.

Left and right arrows move through time steps to shift the both the "before" image and the plot annotations

The Problem

One of the greatest challenges in visualizing climate change is how to accurately display multiple sources of variable data in a way that is both engaging and convincing to the general public.

Motivation

Effective science communicators excel at curating information to avoid either overwhelming or talking down to their audience. Many existing visualizations over-simplify concepts while others seem too complex. Our goal was to empower our audience by creating an inviting interactive interface that provides access to several layers of information with varying degrees of complexity.

Approach

Images of changing landscapes are known to stimulate audience engagement [1]. We used satellite images to show the impact of climate change and fossil fuel consumption on the surface of our planet. Although climate change is a global problem, audiences feel more empowered and engaged when shown local rather than remote imagery [2]. We tried to show images from many different locations and we paired the images with specific data from the site as well as data showing a causal or related global phenomenon. We also added links to the data and image sources to encourage further exploration if users are interested.

Results

Our visualization can be found at http://bit.ly/github_fp_climate. It is open source with a simple input file format for straightforward modification of locations and the associated graphs and figures.

Future work

Informal user studies could help improve future iterations of this visualization. Input from non-scientists would be particularly valuable. Image and data curation is time consuming, but critical for effective communication. Ideally we would work with different climate scientists to compile the most relevant and engaging examples.

References

[1] S. R. J. Sheppard, "Landscape visualisation and climate change: The potential for influencing perceptions and behaviour," *Environ. Sci. Policy*, vol. 8, no. 6, pp. 637–654, 2005

[2] S. A. Nicholson-Cole, "Representing climate change futures: A critique on the use of images for visual communication," *Comput. Environ. Urban Syst.*, vol. 29, no. 3 SPEC. ISS., pp. 255–273, 2005.

