Images of climate change in the news: Visual framing of a global environmental issue

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GC23A-1048

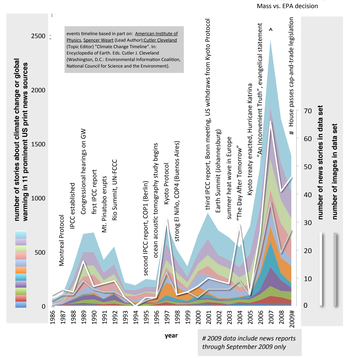
news imagery

How does US news imagery 'frame' the issue of climate change, and how have dominant visual frames changed over time?

data sources

Image-containing print stories from prominent US newspapers and magazines were randomly selected from a corpus of ~90,000 US news stories about climate change/global warming published between 1969 and September 2009 that were collected from the LexisNexis news database and used in a related text mining study.[1] Three-hundred fifty (350) images and associated captions and headlines were collected from 200 news stories that were available at UCSB in hard copy or microfilm form. Once images had been identified, web and image database searches were used to obtain higher quality images, when available. News publications from which the images were collected include *The New York Times, The Washington Post, Wall Street Journal, USA Today, U.S. News and World Report, Newsweek, The Economist, Los Angeles Times, San Francisco Chronicle, San Jose Mercury News,* and *Sacramento Bee.*

How much news about climate change?



methods

Thematic and representational information contained in the images, their associated captions, and headlines was coded using a 'semantic tagging' approach. Using this approach, an image was coded as containing a theme if any element of the image, caption, or headline contained that theme, so that any single image could be associated with multiple codes. Coding categories were developed based upon 1) coding schemes described in existing literature about media representation of climate, and 2) themes that were salient during initial data browsing, and 3) and a few unique themes that emerged through the coding process. A detailed codebook[2] describing the theme codes was developed iteratively through several coder training stages. Once the codebook was finalized, three coders (1st, 4th, and 5th authors) coded each of the images independently. Average Krippendorf's alpha was .86 for all codes, and further discussion led to 100% agreement in each case where coders initially disagreed. The image on the right of this poster visually represents relationships between the codes based upon patterns of co-occurrence in the image dataset. Hierarchical cluster analysis (average linkage, cosine distance) and a partitioning algorithm[3] were used to group codes into 'frames', or clusters of related themes. Temporal, geographic, representational, and co-occurrence patterns were visualized using the Circos[5] data visualization tool.

The 350 images in the dataset organized so that similar images are near each other. Layout based upon a Self-Organizing Map[5] representation of patterns of code co-occurrence.

interesting patterns

image type

The image set is dominated by photographs in general, but charts are often used to depict evidence, especially related to energy production, greenhouse gases, and changes in temperature. Illustrations are often used to represent visions of the impacts of industrialization, and maps are often used to present information about water-related impacts.

geography

Images that refer to the US in general or to specific locations within the US make up a strong majority. California is prominently represented, especially in conjunction with solar energy, state government, and visions of future landscapes related to sea level rise. Beyond the US, Europe receives the most visual representation, especially related to alternative energies. international government, and water-related impacts. Asia in general receives scant visual attention except in the context of emissions calculations and projections and carbon markets. References to polar regions, while relatively rare, are usually associated with climate change impacts, scientific research, or energy generation.Very rare representations of Africa or Latin/South America are generally associated with impacts.

CA vs. national media

Images from California news sources were more likely to contain images related to sea level rise and future landscapes, political figures, celebrity awareness efforts, state government, impacts on agriculture, human response to natural disasters or changing environmental conditions, and tourism. Images related to scientific research or energy production and greenhouse gas emissions were less common in CA media.

themes and frames

The relationships between energy generation and greenhouse emissions, along with the economic implications of these relationships, dominate (at least in terms of frequency) the visual framing of climate change. Images related to this frame, however, are very likely to be charts that are abstract in nature, and therefore unlikely to make the issue seem immediate or 'real' to many viewers. Government, politics, and negotiation, the next most common visual frame, was, on the other hand, dominated by photographs. The immediately-recognizable faces of beloved/reviled political figures were generously distributed throughout the data set, leaving little room for wonder or amazement at the increasing politicization of the issue. The climate science, research, and scientists frame was the third most prevalent frame, suggesting that scientists have been more successful than they might think at getting access to news media for communication of their work.

temporal trends

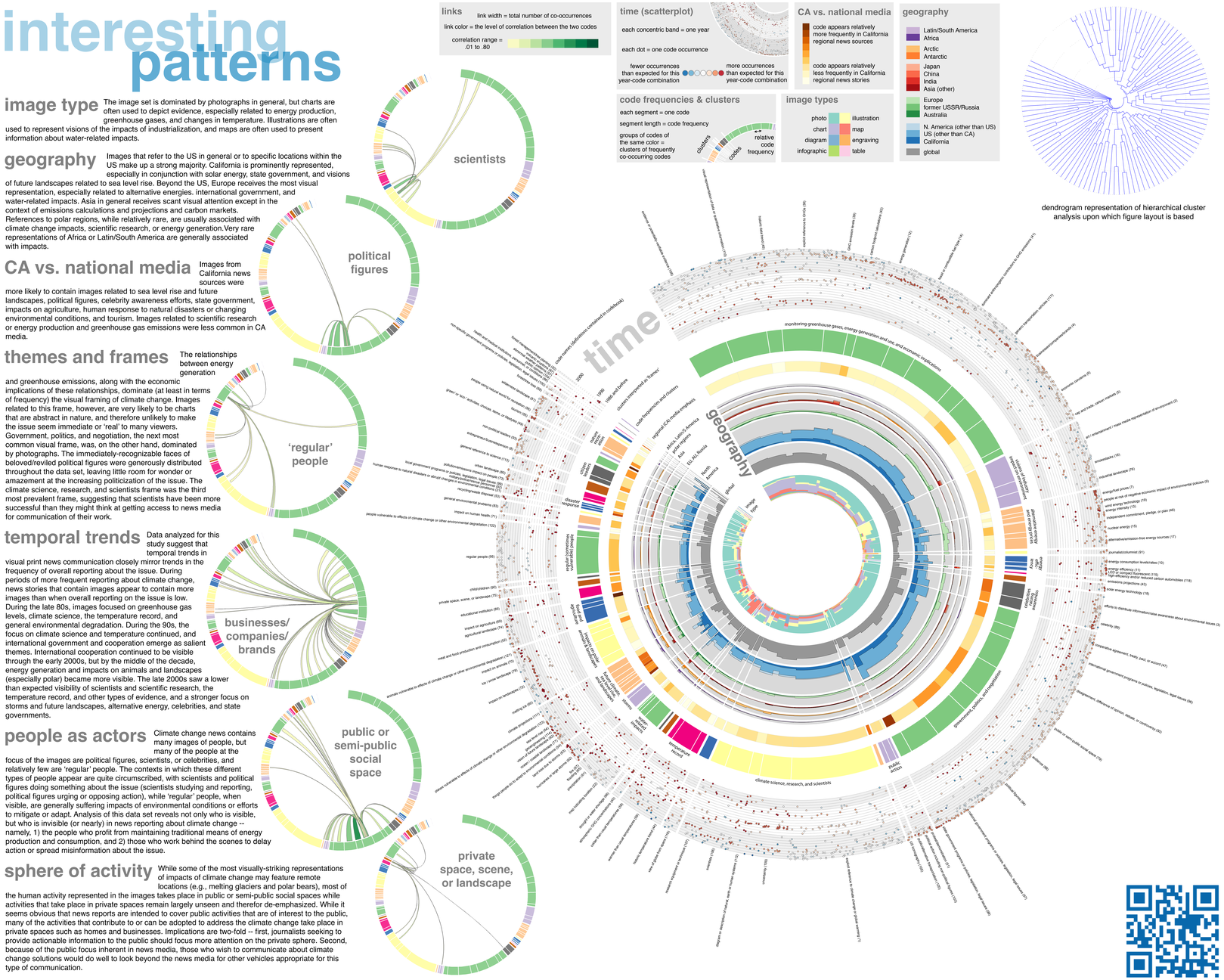
Data analyzed for this study suggest that temporal trends in visual print news communication closely mirror trends in the frequency of overall reporting about the issue. During periods of more frequent reporting about climate change, news stories that contain images appear to contain more images than when overall reporting on the issue is low. During the late 80s, images focused on greenhouse gas levels, climate science, the temperature record, and general environmental degradation. During the 90s, the focus on climate science and temperature continued, and international government and cooperation emerge as salient themes. International cooperation continued to be visible through the early 2000s, but in the middle of the decade, energy generation and impacts on animals and landscapes (especially polar) became more visible. The late 2000s saw a lower than expected visibility of scientists and scientific research, the temperature record, and other types of evidence, and a stronger focus on storms and future landscapes, alternative energy, celebrities, and state governments.

people as actors

Climate change news contains many images of people, but many of the people at the focus of the images are political figures, scientists, or celebrities, and relatively few are 'regular' people. The contexts in which these different types of people appear are quite circumscribed, with scientists and political figures doing something about the issue (scientists studying and reporting, political figures urging or opposing action), while 'regular' people, when visible, are generally suffering impacts of environmental conditions or efforts to mitigate or adapt. Analysis of this data set reveals not only who is visible, but who is invisible (or nearly) in news reporting about climate change -- namely, 1) the people who profit from maintaining traditional means of energy production and consumption, and 2) those who work behind the scenes to delay action or spread misinformation about the issue.

sphere of activity

While some of the most visually-striking representations of impacts of climate change may feature remote locations (e.g., melting glaciers and polar bears), most of the human activity represented in the images takes place in public or semi-public social spaces while activities that take place in private spaces remain largely unseen and therefor de-emphasized. While it seems obvious that news reports are intended to cover public activities that are of interest to the public, many of the activities that contribute to or can be adopted to address the climate change take place in private spaces such as homes and businesses. Implications are two-fold -- first, journalists seeking to provide actionable information to the public should focus more attention on the private sphere. Second, because of the public focus inherent in news media, those who wish to communicate about climate change solutions would do well to look beyond the news media for other vehicles appropriate for this type of communication.



dendrogram representation of hierarchical cluster analysis upon which figure layout is based

references

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acknowledgements

The first author's dissertation work on this project has been supported by a UCSB Graduate Opportunity Fellowship and a UC President's Dissertation Fellowship. Continued discretionary effort on this project has been part of a postdoctoral appointment with DataONE. The Carsey-Wolf Center at UCSB hosted the coding effort and provided facilities and coding materials. Special thanks to Fanny Agniel, who assisted with collection of the images that make up the dataset.