
Climate Change Science and Policy

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Carbonundrums: The Role of the Media

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Introduction

Media are key contributors—among a number of others—that shape climate change science and policy discourse as well as action. Previous studies have found that the public garners much of its knowledge about science (and more specifically climate change) from the mass media.¹ For one thing, citizens typically do not start their day with a morning cup of coffee and the latest peer-reviewed journal article. For another, Ungar has asserted, “science is an encoded form of knowledge that requires translation to be understood.”² Mass media fill these roles.

“Mass media” have been broadly defined as the publishers, editors, journalists, and others who constitute the communications industry and profession, and who produce, translate, interpret, and disseminate information, largely through newspapers, magazines, television, radio, and the Internet. The mass media serve a vital role in communication processes between science, policy, and the public; thus, representations of climate change shape many perceptions and considerations for action. These interactions are dynamic and

highly contested. As discussed in other chapters in this volume, discussions surrounding climate change mitigation and adaptation cut to the heart of our carbon-based societal structures and behaviors.

First, this chapter briefly surveys historical interactions at this “triple-interface” of climate change science, policy, and media. Next, it explores multifaceted external and internal pressures at the triple-interface by touching on the salient challenges of language/translation and uncertainty. Then the chapter looks at these interactions by way of “climate contrarian” influences. The chapter aims to provide another insight into climate science and policy processes, and to particularly complement the accompanying chapters in this volume that address media and climate change.³

A Brief History of the Climate Change Science-Policy-Media Triple-Interface

Modern scientific investigations into various aspects of climate change and the development of mass media communications began

concurrently in the 1700s and 1800s. Commercialization and increased dissemination in the early 1900s carried conflicting impulses of expanding democratic speech and corporate capitalist pursuits of profit. As these developments continued, the power of mass media became both amplified and more entrenched in society.⁴ Concurrently, military interests developed and used media technologies and climate science to achieve strategic goals, as a sort of “military-climate industrial complex.” Besides the advantages of intra-military battlefield communications, propaganda campaigns were launched in order to weaken foreign enemies while whipping up domestic patriotism (dubbed “the manufacture of consent”).⁵

At the same time, funding for particular military programs also served to contribute significantly to the progress of climate science research, effectively catalyzing many climate science inquiries. For example, in the 1950s Gilbert Plass used military funding to conduct research on atmospheric CO₂ and infrared radiation absorption.⁶ While this helped with the study of infrared absorption of heat-seeking missiles, it also added to a growing body of anthropogenic climate science research. Also in the 1950s, funding from the U.S. Navy and the U.S. Atomic Energy Commission supported Hans Seuss and Roger Revelle’s research on radiocarbon dating and isotope decay, to both examine fallout from nuclear bomb tests and trace the distinct isotopic signature of anthropogenic carbon emissions into the atmosphere. During this time, Charles David Keeling began studying the interactions of atmospheric CO₂ and temperature. The initial stages of his research were paid for by funds from the U.S. Atomic Energy Commission (after 1963, funding was

continued through the U.S. National Science Foundation).⁷ This research—now referred to as the “Keeling Curve”—is considered some of the most valid and reliable evidence regarding anthropogenic climate change.

The two spheres of climate science and mass media first came together in coverage of climate change beginning in the 1930s. In 1932, *New York Times* staff wrote, “The earth must be inevitably changing its aspect and its climate. How the change is slowly taking place and what the result will be has been considered.”⁸ Media coverage of human contributions to climate change appeared more clearly in the 1950s. For instance, the *Saturday Evening Post* published a story entitled “Is the World Getting Warmer?” that explored links between atmospheric temperature change and agricultural shifts as well as sea-level rise.⁹ In 1956, Waldemar Kaempffert wrote in the *New York Times*:

Today more carbon dioxide is being generated by man’s technological processes than by volcanoes, geysers, and hot springs. Every century man is increasing the carbon dioxide content of the atmosphere by 30 percent—that is, at the rate of 1.1 degrees Celsius in a century. It may be a chance coincidence that the average temperature of the world since 1900 has risen by about this rate. But the possibility that man had a hand in the rise cannot be ignored.¹⁰

In 1957—the International Geophysical Year—Robert Cowen wrote an article in the *Christian Science Monitor* called “Are Men Changing the Earth’s Weather?” He began:

Industrial activity is flooding the air with carbon dioxide gas. This gas acts like the glass in a greenhouse. It is changing the

Earth's heat balance. It could bring anything from an ice age to a tropical epoch. . . . Every time you start a car, light a fire, or turn on a furnace you're joining the greatest weather "experiment" men have ever launched. You are adding your bit to the tons of carbon dioxide sent constantly into the air as coal, oil, and wood are burned at unprecedented rates.¹¹

In the subsequent three decades, mass media coverage regarding climate change remained sparse. There was scant newspaper, radio, and television news coverage on topics such as U.S. National Academy of Sciences reports in the 1960s and 1970s that made repeated reference to emergent climate science and links to anthropogenic sources. However, coverage increased again in the 1980s at a time when international and domestic climate policy began to take shape. These media-science-policy spheres collided prominently in 1988, when media coverage of climate change science and policy increased substantially. Many factors contributed to this rise in coverage. Among them was NASA scientist James Hansen's testimony to Congress that summer. Hansen testified that he was "99 percent certain" that warmer temperatures were caused by the burning of fossil fuels and not solely a result of natural variation, and that "it is time to stop waffling so much and say that the evidence is pretty strong that the greenhouse effect is here."¹² This statement served to generate substantial media coverage and became a spectacle that signified solidified scientific concern for anthropogenic climate change. Moreover, that 1988 summer was one marked by extreme drought and high temperatures throughout North America. These concomitant events were thought to sensitize many in the climate science and pol-

icy communities, as well as the media and public, to the issue of climate change. In the science and policy spheres, 1988 was also the year in which the United Nations Environment Program and the World Meteorological Organization created the Intergovernmental Panel on Climate Change (IPCC). These climate change science and policy events and activities were pivotal in shaping media coverage from 1988 forward, during the time when multinational media corporations underwent further and significant consolidation, through various mergers and acquisitions.¹³ Since the late 1980s, this triple-interface has become an increasingly politicized arena. Many factors, such as the emergence of a cohesive group of "climate contrarians" (discussed later in this chapter), have fueled an atmosphere of contention and conflict up to the present time.

Contemporary Media Coverage of Climate Change

Mass media have become significantly influential translators between science, policy, and citizen communities. W. Lance Bennett has commented, "Few things are as much a part of our lives as the news . . . it has become a sort of instant historical record of the pace, progress, problems, and hopes of society."¹⁴ Research on multifarious factors involved in the processes of media reporting on climate science and policy has been pursued through a variety of methods and approaches (see chapters 40 and 41 in this volume). Overall, these studies have sought to carefully examine the role of the media by moving beyond anecdotes and platitudes to provide explicit, detailed, and empirical examples of factors shaping these dynamic and contested spaces.

Climate change science and policy have shaped media reporting and public understanding; however, journalism and public concern have also shaped ongoing climate science and policy decisions. Focusing on media, editors and reporters must navigate through many pressures while reporting the news, ranging from political economic to social, cultural, ethical, biophysical, and journalistic norms and values. These permeate multiple scales, from the global to the community to the individual. These challenges are very difficult to disentangle, as many of these pressures are interrelated and cross scales, and are nested within others. These multiscale factors interact, feedback, and re-embed themselves through time. For instance, everyday journalistic practices are made in the context of larger political economic pressures, where journalist's constraints on time-to-deadlines and space exist within a predominantly corporate-controlled media environment.¹⁵ Research has documented that deadlines and space considerations constrain journalists, as do editorial preferences and pressure from publishers.¹⁶ Moreover, economic considerations have led to decreased mass-media budgets for investigative journalism and fewer independent news sources, and quick deadlines can lead to one-source stories.¹⁷ Together, such pressures can be particularly troubling when covering a multifaceted and complex issue like climate change. Furthermore, these multiple pressures shape the ongoing process of media production as well as framing of news on climate change for policy and the public. In this mix of pressures and influences, two challenges to media coverage of climate change science and policy gain salience: issues of language and translation, and dealing with uncertainty.

Language and Translation

Scientists have a tendency to speak in cautious language when describing their research findings and have a propensity to discuss implications of their research in terms of probabilities. For journalists and policy actors, this is difficult to translate smoothly into the crisp, unequivocal commentary often valued in communications and decision making.¹⁸

In combination, these factors feed into ongoing differences in language use in media coverage. Moreover, in order to compete in the mass-media "attention economy," many journalists feel pressure to keep stories short and simple.²⁰ Through these factors, media translations of complex climate science inevitably shape perceptions and, in turn, influence policy considerations.

Uncertainty

Uncertainty is an inherent feature of inquiry and action. It crops up in places such as business, marketing, and insurance endeavors; it informs, yet does not prohibit action. All scientific inquiry contains uncertainty by definition, as it operates past the bounds of certainty in examinations, critiques, and analyses of the unknown. At the interface of climate change science, policy, and media, uncertainty often garners a great deal of attention and is a battlefield for meaning. Inaccurate amplification or diminution of uncertainty can cause troubles in communications across this interface and obfuscate or confuse many important aspects of the subject.¹⁹

Climate scientists often have difficulty placing the uncertainty associated with their research into a familiar context, through an

appropriate analogy; in other words, “translating error bars into ordinary language.”²¹ Unfortunately, admission of various forms of scientific uncertainty can be reframed as scientific incompetence, contention, and confusion in order to “invalidate the overall public concern for global warming as an environmental-social problem.”²²

Contemporary Media Courtesans: Climate Contrarians

In the case of climate change and media influence, a cohesive opposition group emerged in the late 1980s with activities often funded by carbon-based industry interests. These climate contrarians—also dubbed “climate skeptics” or the “carbon club”—gained significant discursive traction through the media and, as a result, have significantly affected policy and public understanding.²³ Research by McCright and Dunlap focused on this movement and examined how climate contrarians developed competing discourses that disempowered top climate science and reframed climate change science and policy issues with greater uncertainty, thus breeding greater public confusion and doubt. The authors also examined links between contrarians and conservative think tanks, antienvironment movements, and carbon-based industry.²⁴ Climate contrarians include scientists S. Fred Singer, Sallie Baliunas, Robert Balling, Richard Lindzen, David Legates, Sherwood Idso, Frederick Seitz, and Patrick Michaels. This camp of contrarians—while heterogeneous in some ways—has spoken out stridently against dominant views in climate science over time. By taking advantage of media outlets, these dissenting views have been able to signifi-

cantly shape public perception as well as climate policy considerations (also see chapter 40 in this volume).²⁵

Organizational entities often housing climate contrarians have also staged deliberate disinformation campaigns through the media. There have been many revelations of such activities over the last two decades in relation of climate change. For instance, in February 2007 *The Guardian* uncovered an effort by the American Enterprise Institute (AEI)—an ExxonMobil-funded think tank—to undermine the recently released IPCC Working Group I Summary for Policy Makers. Letters were sent by AEI to many scientists and economists offering \$10,000 to write articles that would emphasize uncertainties and weaknesses in the IPCC report.²⁶

It is important to point out that the funding of these individuals and organizations by carbon-based industry itself is not necessarily a problem. As demonstrated above through the historical links between climate science and military funding, there is a complex history of funding streams and their actual effects. However, ethical concerns arise when such funding comes with implicit or explicit demands, and when inductive scientific inquiry is turned on its head so that the desired result (such as emphasizing uncertainties in the recent IPCC report) drives and structures the process. Naomi Oreskes has pointed out, “the issue is that the research is supported by a sponsor who wants a *particular* result . . . and the researchers know in advance what that outcome is, producing an explicit conflict of interest, which undermines the integrity of the research performed.”²⁷

Previously, Schneider and Kuntz-Duriseti evaluated ways forward amid the perennial challenges of uncertainty in climate change

policy. Focusing on analytical frames and methodological approaches to climate change uncertainty (based on assumptions and research decisions), the authors concluded that—among a number of considerations—there is a vital need for “improved communication of uncertainties” between groups of researchers and policy makers.²⁸ Furthermore, research by Corbett and Durfee examines issues of controversy and context in climate change news reporting. Through an experiment design of four treatment groups given four different articles on the subject of the Antarctic ice sheet, the authors were able to control for particular elements of context and controversy. They conclude, “The media’s attraction to controversy, no matter the source or topic, is unlikely to wane. It is heartening, however, that the simple inclusion of scientific context may help mitigate the uncertainty stirred by scientific controversy.”²⁹ These are just a few among many suggestions and opportunities to improve interactions at this triple-interface.

Conclusion

The many factors, pressures, and processes surveyed above help to explain why climate change science and policy have struggled for fair and accurate attention in the media over time. Through many interlocking factors, the mass media have contributed to a complex and dynamic terrain of ongoing environmental, political, and discursive struggle. Through time, research at the climate science–policy–media triple-interface has demonstrated that understanding the role of the media and improving reporting on climate change science and policy are critical to promoting better international environmental governance on cli-

mate policy, better links between climate science and policy, and improved public understanding of climate change science and policy. William Ruckelshaus—first U.S. Environmental Protection Agency administrator—has said, “If the public isn’t adequately informed [about climate change], it’s difficult for them to make demands on government, even when it’s in their own interest.”³⁰ Research has shown that accurate knowledge of the causes of global climate change is the strongest predictor of a person’s stated intentions to act.³¹

Overall, the way that climate change is covered in news media can have far-reaching consequences in terms of ongoing climate scientific inquiry as well as policy makers’ and the public’s perceptions of climate change. These factors all contribute to the perceived range of possibilities for action. Through media representational practices, people’s behaviors can range from being galvanized into action to being resigned to passivity, and our collective future rests on these critical choices.

Notes

1. Nelkin, D., *Selling Science: How the Press Covers Science and Technology* (New York: W.H. Freeman, 1987); Wilson, K., Mass media as sources of global warming knowledge. *Mass Communication Review* 22, no. 1&2 (1995): 75–89.

2. Ungar, S., Knowledge, ignorance, and the popular culture: Climate change versus the ozone hole. *Public Understanding of Science* 9 (2000): 308.

3. This chapter focuses attention primarily on Western media in English-speaking countries; therefore, analyses inevitably can only produce a partial reading of this wide-ranging subject.

4. McChesney, R. W., *Rich Media, Poor Democracy: Communication Politics in Dubious*

Times (Urbana and Chicago: University of Illinois Press, 1999).

5. Lippman, W., *Liberty and the News* (New York: Harcourt, Brace and Howe, 1920).

6. Plass worked at Johns Hopkins University and served as a consultant for the Office of Naval Research as well as Lockheed Aircraft Corporation. Weart, S., *The Discovery of Global Warming* (Cambridge, MA: Harvard University Press, 2003).

7. Fleming, J., *Historical Perspectives on Climate Change* (Oxford University Press, Oxford, UK, 1998).

8. Next great deluge forecast by science, *New York Times*, 1932.

9. Abarbanel, A., and T. McClusky, Is the world getting warmer? *Saturday Evening Post*, July 1, 1950: 22–23, 57, 60–63.

10. Kaempffert, W., Science in review: Warmer climate on Earth may be due to more carbon dioxide in the air. *New York Times*, 1956.

11. Cowen, R., Are men changing the Earth's weather? *Christian Science Monitor* (1957): 13.

12. Shabecoff, P., Global warming has begun, expert tells Senate. *New York Times*, June 24, 1988.

13. Bagdikian, B., *The New Media Monopoly* (Boston: Beacon Press, 2004).

14. Bennett, W. L., *News: The Politics of Illusion*, 5th Ed. (New York: Longman, 2002), p. 10.

15. Bagdikian, 2004 op. cit.

16. Schudson, M., *Discovering the News: A Social History of American Newspapers* (New York: Basic Books, 1978); Schoenfeld, A., R. Meier, and R. Griffin, Constructing a social problem: The press and the environment. *Social Problems* 271 (1979): 38–61.

17. McChesney, 1999 op. cit.; Dunwoody, S., The science writing inner club: A communication link between science and the lay public, in *Scientists and Journalists: Reporting Science as News*, eds. S. Friedman, S. Dunwoody, and C. Rogers (New York: The Free Press, 1986), 155–69.

18. Boykoff, M., and J. Boykoff, Climate change and journalistic norms: A case study of U.S. mass-media coverage. *Geoforum* 38, no. 6 (2007): 1190–1204.

19. Scientific uncertainty can take on multiple characteristics, as described by Wynne's four-part taxonomy: *risk* (knowing the odds), *uncertainty* (don't know odds but know the parameters), *ignorance* (unknown unknowns), and *indeterminacy* (causal chains are open, thus defying prediction).

Wynne, B., Uncertainty and environmental learning: Reconciling science and policy in the preventive paradigm. *Global Environmental Change* 2, no. 2 (1992): 111–27.

20. Ungar, 2000 op. cit.

21. Pollack, H., Can the media help science? *Skeptical* 102 (2003): 77.

22. Williams, J., The phenomenology of global warming: The role of proposed solutions as competitive factors in the public arenas of discourse. *Human Ecology Review* 72 (2000): 70.

23. Leggett, J., *The Carbon War: Global Warming and the End of the Oil Era* (New York: Routledge, 2001). In terms of environmental issues more broadly, William Freudenberg discusses constructions of “non-problematicity.” Through embedded power and leveraged legitimacy, “if one person or social group is able to obtain privileged access to valued resources without having other persons or groups challenge that privilege—or perhaps even notice it—so much the better.” Freudenberg, W., Social construction and social constrictions: Toward analyzing the social construction of “the naturalized” as well as “the natural,” in *Environment and Global Modernity*, eds. G. Spaargaren, A. Mol, and F. H. Buttel (London: Sage, 2000), 106.

24. McCright, A., and R. Dunlap, Defeating Kyoto: The conservative movement's impact on U.S. climate change policy. *Social Problems* 503 (2003): 348–73.

25. See Boykoff, M., Lost in translation? United States television news coverage of anthropogenic climate change, 1995–2004. *Climatic Change* 86, no. 1 (2008): 1–11; Boykoff, M., From convergence to contention: United States mass media representations of anthropogenic climate science. *Transactions of the Institute of British Geographers* 32, no. 4 (2007): 477–89; and Boykoff, M., Flogging a dead norm? Media coverage of anthropogenic climate change in United States and United Kingdom, 2003–2006. *Area* 39, no. 4 (2007): 470–81.

26. Sample, I. Scientists offered cash to dispute climate study. *The Guardian*, February 2, 2007.

27. Oreskes, N., Science and public policy: What's proof got to do with it? *Environmental Science and Policy* 7 (2004): 381.

28. Schneider, S. H., and Kuntz-Duriseti, K., Uncertainty and climate change policy, in *Climate*

Change Policy: A Survey, ed. S. H. Schneider, A. Rosencranz, and J. O. Niles (Washington, DC: Island Press, 2002), 66.

29. Corbett, J., and J. Durfee, Testing public uncertainty of science: Media representations of global warming. *Science Communication* 26 (2004): 142.

30. Ruckelshaus, W., Journalists/Scientists

Science Communications and the News Workshop, organizers Anthony Socci and Bud Ward, University of Washington, November 8–10, 2004.

31. Bord, R., R. O'Connor, and A. Fisher, In what sense does the public need to understand global climate change? *Public Understanding of Science* 9 (2000): 205–18.