

Culture and Climate Change: A Select Annotated Bibliography

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As the Australian scientist Dr Tim Flannery has stated in a recent television commercial, ‘climate change is the greatest threat facing humanity today’. The human dimensions of global environmental change more generally, and climate change in particular, have emerged as a significant area of interest for researchers and commentators across a range of disciplines. Central to our understanding of human dimensions of climate change is the notion of ‘culture’, which, while difficult to define, can be understood as ‘the common way in which a community of persons makes sense of the world’¹. As Proctor has pointed out, culture ‘always plays a role in informing human practices connected with global environmental change’². Culture can be viewed as both a cause of climate change, for example consumerist culture, and as something that in itself will be affected by climate change – for example, demands for changes in patterns of consumption. Furthermore, culture underlies the ways in which we understand climate change and the measures we are prepared/able to undertake to address climate change.

The aim of this annotated bibliography is to present a selection of works that address the interplay between culture and climate change. Literature searches were conducted using a range of social science and humanities databases, including Web of Science, Science Direct, EbscoHost, Sociofile and Psyclit, using a combination of the search terms ‘climate change / global warming’, ‘culture’, ‘media’ and ‘discourse’. The genealogy approach was also used to consult work that may not have been uncovered by these searches. A range of popular fiction and non-fiction were also sourced. The annotated bibliography that follows includes work from a range of disciplines which foreground the cultural dimensions of climate change – some explicitly and some more implicitly. It also includes works that are in themselves cultural representations of climate change. The scope of this article does not allow for the presentation of all published works on culture and climate change. The references are instead selected in order to represent the diversity of topic areas and disciplines exploring the issue of culture and climate change.

The references are grouped under seven main headings: ‘Popular non-fiction’, ‘popular fiction’, ‘cultural dimensions of global environmental change’, ‘climate change and Cultural Theory’, ‘discourse and climate change’, ‘media analysis’, and ‘climate change and tourism’.

Climate Change: Popular Non-Fiction

Flannery, Tim. *The Weather Makers: The History and Future Impact of Climate Change*. Melbourne: Text, 2005.

This highly popular book was funded by a corporate philanthropist as an act of awareness-raising about climate change. Flannery

speaks from a range of scientific perspectives to a non-specialist audience about historical climate change, recent histories of emissions, changing technologies, corporate interests and the prospects for change. Some space is devoted to the anti-libertarian consequences of waiting too long to adjust to living in a carbon-constrained world, and the book ends in a discussion about how cultural activities (at both the individual and community level) can drive positive environmental change.

Lynas, Mark. *High Tide: The Truth About Our Climate Crisis*. New York: Picador, 2004.

In this book Lynas presents a personal account of his direct experience of climate change. His account is framed with photographs that demonstrate how a glacier prominent in his family history has all-but disappeared in one generation. The book demonstrates the power and potential of linking scientific knowledges with the very immediate experiences of those at the 'front-line' of climate change through culturally and socially aware non-fiction.

Pittock, A Barrie. *Climate Change: Turning up the Heat*. Collingwood, Victoria: CSIRO Publishing, 2005.

This book provides an interesting example of public-awareness raising from the perspective of institutional science. It ranges across a variety of scientific disciplines and includes a discussion of domestic (Australian) and international political dimensions. Significantly, it demonstrates how science-based popular non-fiction on climate change can proceed without discussing cultural (or even many social) dimensions of climate change.

Ross, Andrew. *Strange Weather: Culture, Science and Technology in the Age of Limits*. New York/London: Verso, 1991.

This book is one of a range of works of cultural criticism produced by Ross. In this book he explores the issue of 'who speaks for science in a technologically dominated society?' He notes that a wide range of people in our present technoculture speak about, for and against science and technology. Ross argues that science can only ever be understood as a social artifact, and emphasises the importance of cultural critics contributing to the debates that shape our future. The book includes a chapter on how climate change influences our culture.

Speth, James Gustave. *Red Sky at Morning: America and the Crisis of the Global Environment*. New Haven: Yale University Press, 2004.

In this optimistic book Speth presents an overview of global environmental challenges, responses to these challenges and their underlying causes. The book concludes with a discussion of how we might demand action and accountability from corporations and government. In the final chapter Speth argues that 'a transition in culture and consciousness' is the most fundamental change necessitated by the environmental challenges facing Americans and the rest of the world.

Weart, Spencer R. *The Discovery of Global Warming*. Cambridge, MA: Harvard University Press, 2003.

This accessible and engaging account of the development of scientific understandings of global warming and climate change draws on the conventions of narrative history and popular non-fiction. The pathways required for new scientific knowledges to cross into political and popular discourses are also discussed.

Climate Change: Popular Fiction

Crichton, Michael. *State of Fear*. London: Harper Collins, 2004.

Crichton's recent novel, marketed as a 'techno-thriller', is based on the premise that public concern about global warming and climate change has been manufactured by a coalition of political, media and environmental NGO interests. The novel is an uneasy blend of polemic and genre fiction, and produced a fervent debate about the relationships between popular culture and professional scientific discourses and institutions.

Stanley Robinson, Kim. *Forty Signs of Rain*. New York: Bantam, 2004.

This is a novel of science more so than science fiction and explores the political and scientific institutional, personal and familial consequences of living through near-future climate change. The novel is part of a trilogy in which Robinson is struggling with the challenges of making appealing drama out of our existing institutions to head off the dystopian future that climate change science-fiction depicts.

Sterling, Bruce. *Heavy Weather*. New York: Bantam, 1996.

This novel is a key example of the science-fiction genre engaging with issues of climate change. The story follows a group of storm-chasers who track, record and broadcast the monster-storms of the twenty-first century. It is a demonstration of how science-fiction can use climate change to produce dystopian settings, but does not explore how science-fiction producers and audiences can do more than accept these futures.

Cultural Dimensions of Global Environmental Change

Aguirre, Benigno. "“Sustainable Development” as Collective Surge'. *Social Science Quarterly*. 83:1 (2002): 101-118.

Aguirre examines the popularity of the concept of 'sustainable development' in the sciences, using an understanding of fads as collective surges in order to allow for an appreciation of the continuity and embeddedness of fads in social organisation. Six elements of the surge are explored: 1) time and space boundaries, 2) basic units of social organisation participating in the surge, 3)

consequentiality, 4) cultural-organisational features, 5) fear and hope, and 6) social boundaries. Finally, Aguirre explores internal and external opposition to the surge to explain why such surges stop.

Magistro, J. and C. Roncoli. ‘Anthropological Perspectives and Policy Implications of Climate Change Research’. *Climate Research*. 19:2 (2001): 91-96.

This article focuses on the relevance of anthropological research to climate science. Given the complexities of real life decisions that cannot be fully captured in global modelling, the authors argue that anthropological research drawing on localised scales of analysis can complement global modelling. In addition, anthropological studies of human vulnerability and adaptation to environmental stresses can illuminate the cultural dimensions that mediate and are produced by the interaction between humans and climate. Anthropology here offers a microanalysis of risk management and decision making strategies to help integrate science and policy. Finally, the authors propose that the tools and insights of cognitive anthropology can facilitate effective communication of climate information that is consistent with local knowledge frameworks.

Macnaghten, Phil and Michael Jacobs. ‘Public Identification with Sustainable Development: Investigating Cultural Barriers to Participation’. *Global Environmental Change*. 7:1 (1997): 5-24.

The authors present the findings of an analysis of focus group interviews with different sections of the Lancashire public. The focus groups aimed to explore the cultural and political salience of the sustainable development discourse. Two key themes were identified: *quality of life and public anxieties*, and *public perceptions of environmental sustainability*. The authors found that while the participants supported the idea that present drives towards economic growth contribute to environmental and social problems, there is a general mistrust in the idea that sustainability can be achieved through business and government initiatives. There was a deep mistrust in the role of government in sustainable development, and a weak sense of personal agency in relation to environmental and social problems. The authors conclude that, irrespective of the level of individual concern for environmental issues, behavioural responses are primarily determined by an institutional or relational context.

Orr, Matthew. ‘Environmental Decline and the Rise of Religion’. *Zygon*. 38:4 (2003): 895-910.

In this paper Orr attempts to connect current environmental challenges to a concomitant rise in religious interest. The article begins with a discussion of Anthony Wallace’s 1956 argument that most of the world’s religious phenomena arise as a result of crisis – in this case, environmental – through a process called revitalisation. Revitalisation involves four processional stages: the ‘Steady State’, the ‘Period of Increased Individual Stress’, the ‘Period of Cultural Distortion’, and the ‘Period of Revitalisation’. Orr argues that these stages can be seen in the contemporary emergence of the environment as an issue of concern, and the development of certain perspectives for addressing environmental problems. The components of the environmental movement that contain characteristics of

an incipient religion are then described, concluding with a discussion of the implications of the essay for the science-religion dialogue.

Proctor, James. 'The Meaning of Global Environmental Change – Retheorizing Culture in Human Dimensions Research'. *Global Environmental Change*. 8:3 (1998): 227-248.

Proctor discusses the place of culture in contemporary research into the human dimensions of global environmental change. He identifies three trends surrounding the use of the term 'culture' in this research – separability (which assumes that culture can be separated from other human dimensions of global environmental change), methodological individualism (which assumes that culture is equivalent to the beliefs and attitudes of individuals), and externality (which assumes that the researcher stands apart from the object of research). He goes on to retheorise the role of culture in environmental change, proposing a 'strong' version of culture as a necessary force of social process, emphasising the importance of meaning in all human dimensions of global environmental change. Finally, Proctor discusses research opportunities relating to this retheorisation.

Ungar, Sheldon. 'Knowledge, Ignorance and the Popular Culture: Climate Change versus the Ozone Hole'. *Public Understanding of Science*. 9:3 (2000): 297-312.

This article explores the differences between the ozone hole and climate change in scientific understanding and public knowledge. Ungar argues that the ozone problem was rendered potentially understandable by way of bridging metaphors available in popular culture, while no such metaphors are available for climate change. In addition, the ozone problem was able to be created as a 'hot crisis' – a dread-inspiring event and an imminent personal threat, while climate change is too future-oriented to create a hot crisis. These differences are used to illustrate a sociological model of how the 'knowledge society' favours celebrity facts and militates against the acquisition of scientific knowledge.

Williams, Jerry. 'Natural and Epistemological Pragmatism: Democracy and Environmental Problems'. *Sociological Inquiry*. 37:4 (2003): 529-544.

Williams discusses the importance of understanding how humans experience the environment in order to facilitate the resolution of environmental problems. He argues against rational humanism – where humans are viewed as endowed with reason through which the human condition can be improved – as a way of understanding this relationship between humans and the environment, and proposes instead that a phenomenology of environmental problems must be formulated. Williams uses the example of grassroots environmentalism as evidence that combining democratic social organisation with the real-world consequences of tangible environmental problems can lead to solutions for these.

Climate Change and Cultural Theory

O’Riordan, Timothy and Andrew Jordan. ‘Institutions, Climate Change and Cultural Theory: Towards a Common Analytical Framework’. *Global Environmental Change*. 9:2 (1999): 81-93.

In this paper the authors explore the value of institutional theories for interpreting and resolving the issue of climate change. The paper begins with a discussion of the importance of social institutions for understanding and responding to global environmental change, followed by a discussion of ‘new’ institutionalism and climate change politics. The authors argue that new institutional theories are so contradictory that a synthesis will never be possible. Cultural theory is discussed as a possible interpretive framework for understanding the role of institutions in interpreting and resolving climate change.

Pendergraft, Curtis. ‘Human Dimensions of Climate Change: Cultural Theory and Collective Action’. *Climatic Change*. 39 (1998): 643-666.

Pendergraft begins with a discussion of the difficulties associated with mobilising collective action to address climate change, particularly focusing on cultural diversity and the difficulty of balancing public and private spheres. The author then goes on to describe a study exploring the cultural belief systems around environmental issues, using cultural theory (CT) as a framework for locating participants in a taxonomy of world views (hierarchical, individualistic, egalitarian and fatalistic). Responses to statements drawn from public discourse on the environment were analysed and the 441 survey participants assigned a location on the cultural index. The results indicate that the participants mix elements of the four cultural types, although they clearly lean towards one or another, and that there is a melding of individualistic and hierarchical elements in opposition to egalitarian elements. The author concludes that CT is a useful analytic tool for exploring cultural differences and overlaps.

Yazici, Adnan, Fred Petry, and Curt Pendergraft. ‘Fuzzy Modelling Approach for Integrated Assessments using Cultural Theory’. *Turkish Journal of Electrical Engineering*. 9:1 (2001): 31-42.

In this paper the authors present an approach for melding Integrated Assessment Models with cultural theory to explore the human and natural dimensions of climate change. The paper begins with a summary of cultural theory (CT), followed by a discussion of how CT is used to analyse policy decisions. The authors then present a ‘fuzzy-based cultural theory model’, based on Fuzzy Set Theory, to assess policy decisions, using the example of an evaluation of a policy concerned with the deregulation of electric power production. The authors conclude that this approach provides a means for understanding the reaction of the populace to environmental policy decisions.

Discourse and Climate Change

Bulkeley, H. 'Discourse Coalitions and the Australian Climate Change Policy Network'. *Environment and Planning C – Government and Policy*. 18:6 (2000): 727-748.

The aim of this paper is to demonstrate how a policy-network approach can contribute to the analysis of the Australian response to climate change. Bulkeley explores the role of discourse coalitions and advocacy coalitions within policy networks, and discusses a discourse-coalition approach to explaining coalition formation, interaction and policy learning. This approach, which emphasises the essential role played by the dynamics of meaning, legitimacy and knowledge in policymaking, is recommended as useful for the analysis of policy networks.

Linder, Stephen H. 'Cashing in on Risk Claims: On the For-Profit Inversions of Signifiers for "Global Warming"'. *Social Semiotics*. 16:1 (2006): 103-133.

Linder highlights selected social marketing campaigns concerned with global warming that have framed their message in terms of the cultural impact of climate change. These campaigns represent climate change as fundamentally – and usefully – a public issue. He goes on to explain how commercial interests have high-jacked these discursive techniques in a “parody of risk” for their own, non-socially responsible ends, and as a result have perverted the original message intended by these campaigns. A range of visual and print media are analysed for evidence of these effects.

McCright, Aaron and Riley Dunlap. 'Challenging Global Warming as a Social Problem: an Analysis of the Conservative Movement's Counter-Claims'. *Social Problems*. 47:4 (2000): 499-522.

This article reports on the results of a content analysis of internet publications produced by key US conservative think tanks, and examines the nature of the conservative movement's counter claims regarding the threat of global warming. The article begins with a review of the social scientific literature on global warming, arguing that it is dominated by a social constructionist approach that has a social problems orientation. In order to overcome limitations in this body of work, the authors draw on the notion of framing processes and movement/counter-movement interaction to guide their analysis of the publications, conceptualising the global warming controversy as a framing contest between the environmental establishment and the conservative movement. Three counter-claims are identified in the conservative movements' publications: 1) the evidentiary basis of global warming is weak and even wrong, 2) global warming would be beneficial if it were to occur, and 3) global warming policies would do more harm than good. The authors conclude by emphasising the importance of the impact of powerful counter-movements in keeping global warming off the public agenda.

McCright, Aaron and Riley Dunlap. 'Defeating Kyoto: the Conservative Movement's Impact on US Climate Change Policy'. *Social Problems*. 50:3 (2003): 348-373.

In this study the authors explore how, between 1990 and 1997, major conservative think tanks in the US mobilised a countermovement to challenge the legitimacy of climate change as a social problem. They draw on William Freudenburg's concept of the social construction of non-problematicity, and social movement theorising, to drive their analysis of how the think tanks were able to redefine climate change as non-problematic. The authors focus on the relationship between a selection of 14 think tanks and the leading US 'climate change skeptics'. In particular, they explore the attention that these skeptics received in congressional hearings and US print media between 1990 and 1997. The authors discuss the mobilising activities of the think tanks and the effect of a change in the political opportunity structure on their ability to impact on US climate change policy.

Slocum, Rachel. 'Consumer Citizens and the Cities for Climate Protection Campaign'. *Environment and Planning A*. 36:5 (2004): 763-782.

In this article Slocum explores the construction of the consumer citizen through the Cities for Climate Protection campaign, an international initiative enlisting 403 cities worldwide to address the issue of climate change. The discussion is based on an analysis of 135 in-person interviews conducted in three participating US cities, and telephone interviews with city administrators in twelve others. Data from local action plans, campaign material and participant observation of meetings were also analysed. The article begins with a discussion of both the dangerous as well as the redeeming possibilities of consumer citizenship. Slocum presents both her own interpretation of the data that focuses on the issues associated with the construction and normalisation of the consumer citizen, and her participants' interpretations of the pragmatism and necessity of constructing consumer citizens as the primary means to address climate change at a local level.

Media Analysis and Climate Change

Antilla, Liisa. 'Climate of Scepticism: US Newspaper Coverage of the Science of Climate Change'. *Global Environmental Change*. 15:4 (2005): 338-352.

This article begins by pointing to the tendency of some of the US media to emphasise the uncertainty of climate change, despite strong scientific evidence to the contrary. The aim of the paper is to explore the breadth and sourcing of US newspaper coverage of climate change, and to analyse the framing of this coverage over a one-year period. Four frames were uncovered: 'valid science', 'ambiguous cause or effects', 'uncertain science' and 'controversial science'. Although most of the items were constructed within the valid science frames, the author pays specific attention to those items constructed within the frames emphasising uncertainty, controversy and climate scepticism.

Boykoff, Maxwell and Jules Boykoff. 'Balance as Bias: Global Warming and the US Prestige Press'. *Global Environmental Change*. 14:2 (2004): 125-136.

In this article the authors present a content analysis of stories on climate change reported in the US prestige press from 1988 to 2002. The paper is concerned with the divergence of popular discourse from the scientific discourse on climate change, and focuses on the proclivity of the norm of balanced reporting in the articles and the impact this has on the way in which climate change is represented. The authors suggest that the norm of balanced reporting, which involves reporters attempting to represent 'both sides' of any issue, ultimately leads to biased coverage of the anthropogenic contributions to climate change and resultant action.

Henderson-Sellers, A. 'Climate Whispers: Media Communication about Climate Change'. *Climate Change*. 40:3-4 (1998): 421-456.

This article was written by a scientist involved in research on the potential for changes in tropical cyclone intensity as an outcome of global warming, and whose work was reported in the Australian press. The author notes that two days of media coverage ultimately rewrote the research findings. In order to better understand the miscommunication the media of the findings, Henderson-Sellers conducted a case study of the media coverage. The paper reports on the processes involved in the miscommunication of science to and through the media, and points to lessons learned from the experience.

McComas, Katherine and Shanahan, James. 'Telling Stories about Global Climate Change: Measuring the Impact of Narratives on Issue Cycles'. *Communication Research*. 26:1 (1999): 30-57.

This article begins with a detailed discussion of issue-attention cycles, and the impact of narrative factors on how environmental issues are constructed. The authors report on the results of a content analysis of the coverage of climate change in two national US newspapers from 1980 to 1995. The aim of the analysis was to explore how climate change is constructed as narrative in the newspaper stories, and whether narrative/dramatic choices influenced the narrative cycles of the media coverage of climate change over this period. The authors identified 8 themes in the media coverage of climate change: 'new evidence or research', 'general science background', 'controversy among scientists', 'consequences of warming', 'economics/costs of remedy', 'domestic politics', 'international relations' and 'current weather'. While all themes were present during the attention cycles, different themes were dominant during different phases of the cycle. The authors conclude that the 'master story' of climate change may discourage future attention to the issue.

Climate Change and Tourism

Martin, M.B.G. 'Weather, Climate and Tourism – A Geographical Perspective'. *Annals of Tourism Research*. 32:3 (2005): 571-591.

This article discusses the influence of climate and weather on tourism, focusing specifically on the geographical space, demand, supply and market agents of the tourism system. The author discusses climate as a factor of location choice for tourism, as a tourism resource and as an attraction in itself. Climate change enters the discussion in terms of its potential to impact on tourism planning due to the possibility that existing tourist settings may be modified as a result of climate change.

Dr Candice Oster is a qualitative researcher with an interest in discourse and Governmentality. She is currently researching climate change within a discursive framework.

Dr Paul Starr completed a PhD in cultural studies at the University of Queensland in 2004. He has written and researched on a range of culture and sustainability topics, including sustainable consumption, environmental journalism, and commodity biography. He currently works for the Australian Government on improving the environmental performance of the public sector.

¹ Gross, J.L and S. Rayner. *Measuring Culture: A Paradigm for the Analysis of Social Organization*. New York: Columbia University Press, 1985: 2.

² Proctor, James. 'The Meaning of Global Environmental Change – Rethorizing Culture in Human Dimensions Research'. *Global Environmental Change*. 8:3 (1998): 239.