

Political Geography 27 (2008) 549-569

Political Geography

www.elsevier.com/locate/polgeo

The cultural politics of climate change discourse in UK tabloids

Maxwell T. Boykoff*

James Martin Research Fellow, Environmental Change Institute, University of Oxford, South Parks Road, Oxford, OX1 3QY, UK

Abstract

In the United Kingdom (UK), daily circulation figures for tabloid newspapers are as much as ten times higher than broadsheet sources. Nonetheless, studies of media representations of climate change in the UK to date have focused on broadsheet newspapers. Moreover, readership patterns correlate with socio-economic status; the majority of readers of tabloids are in 'working class' demographics. With a growing need to engage wider constituencies in awareness and potential behavioral change, it is important to examine how these influential sources represent climate change for a heretofore understudied segment of citizenry. This paper links political geographies with cultural issues of identity and discourse, through claims and frames on climate change in four daily 'working class' tabloid newspapers in UK - TheSun (and News of the World), Daily Mail (and Mail on Sunday), the Daily Express (and Sunday Express), and the Mirror (and Sunday Mirror). Through triangulated Critical Discourse Analysis, investigations of framing and semi-structured interviews, this project examines representations of climate change in these newspapers from 2000 through 2006. Data show that news articles on climate change were predominantly framed through weather events, charismatic megafauna and the movements of political actors and rhetoric, while few stories focused on climate justice and risk. In addition, headlines with tones of fear, misery and doom were most prevalent. These analyses then enable discussions of how these representations may influence ongoing climate science and governance interactions as well as political geographies, and (re)shape the contemporary cultural politics of climate change discourse. © 2008 Elsevier Ltd. All rights reserved.

Keywords: Climate change; Media; United Kingdom; Discourse; Newspapers; Cultural politics; Tabloids; Class

^{*} Tel.: +44 (0) 1865 285531; fax: +44 (0) 1865 275850. *E-mail address:* maxwell.boykoff@eci.ox.ac.uk

^{0962-6298/\$ -} see front matter © 2008 Elsevier Ltd. All rights reserved. doi:10.1016/j.polgeo.2008.05.002

Introduction: climate change and United Kingdom (UK) tabloids

'[Media] is like a feral beast, just tearing people and reputations to bits' – statement by outgoing UK Prime Minister Tony Blair to the Reuters Institute, 12 June 2007 (Baldwin, 2006).

If mass media as a whole are like feral beasts, one may wonder what Tony Blair may think of UK tabloids. Meanings signified by the term 'tabloids' vary. While for some this generates populist sentiments, for others this can be a denigrating term. Nonetheless, through previous assessments of tabloid journalism (as well as their relations to 'quality' press reporting) (e.g. Sparks, 2000; Uribe & Gunter, 2004), tabloid journalism can be commonly defined by three metrics:

- 1) *tenor*: opinion and commentary as well as personalized approaches drive reporting and coverage (thus deemphasizing 'objective', or 'straight' news reporting tendencies) (van Zoonen, 1998);
- breadth: greater attention is paid to domestic stories as well as scandal and conflict, particularly as they relate to subjects such as sports and celebrity (thereby deemphasizing stories on international politics and economy) (Connell, 1998; Rooney, 2000); and
- depth: greater emphasis is placed on surface-level topics such as entertainment, sports and personal lives, and representations are often more visual, simplistic and sensationalist (thereby limiting in-depth political economic and societal analyses) (Djupsund & Carlson, 1998).

While these characteristics hold across various tabloid medium (e.g. television: Winston, 2002), the focus is most often on newspapers (Sparks, 2000). Despite that these features may make coverage of the complex topic of climate change a daunting task, it has been an issue increasingly covered in the UK tabloid press.

Mass media are an influential and heterogeneous set of non-nation state actors that function as key conduits to both informal and formal discourses and imaginaries within the spaces of cultural politics and geopolitics (Castree, 2006; Dalby, 1996). Media contribute to and often embody articulations of political identity and culture in society (Dittmer, 2005), and significantly influence ongoing public understanding of climate science and policy (Wilson, 1995). Ways of knowing, through media depictions, help to shape ongoing discourses and imaginaries, circulating in various cultural and political contexts and scales. Furthermore, varying media representational practices contribute – amid a complex web of factors – to divergent priorities. While media portrayals simply do not translate scientific truths or truth-claims nor do they fill knowledge gaps for citizens and policy actors to make 'the right choices' (Boykoff, 2007; Demeritt, 2006), access to information, as well as the content of the information accessed, influence individual to community-level perceptions of climate change as well as considerations of international climate governance. Castree (2004) has commented, "Geographical imaginations matter. This is precisely why we need constantly to interrogate their presuppositions, as well as the kind of world they aim to engender" (p. 163). Examining news media representations and texts thus provide opportunities to interrogate how particular narratives are translated, and how they make (in)visible certain discourses.

This project delves into the cultural politics of climate change discourse through an investigation of frames and claims in the UK tabloid news. This paper extends previous analyses of 'prestige-press', 'broadsheet' or 'quality' newspapers (e.g. Boykoff, 2007; Carvalho, 2007). While the 'quality' press sources have had a reputation as primary influences on policy and decision-making at national and international levels, when considering links between media representations and informal spaces of discourse, there has been a need to engage with texts that are more widely read such as UK tabloids. Average daily circulations in each of the tabloid newspapers in this study - *The Sun* (and *News of the World*), *Daily Mail* (and *Mail on Sunday*), the *Daily Express*, and the *Mirror* (and Sunday *Mirror*) - are as much as ten times higher than their counterparts in broadsheet newspaper readership. Also, tabloid papers are more traditionally 'shared' in public spaces (e.g. on the train) and in the workplace, thus pushing some estimates of daily readership to double that of circulation figures (Newspaper Marketing Agency, 2007).

Moreover, it is important to consider the demographics of tabloid and broadsheet press readership. National Readership Survey (NRS) social grades are a common UK demographic classification scheme that is based on the occupation of the 'chief income earner' of the household. While these may simplify intricacies in class positions in society, they help reveal the clear socio-economic differences between broadsheet and tabloid newspaper readership habits. Readers defined as A (upper middle class), or B (middle class) comprise over half of broadsheet press readership, while C (lower middle class/skilled working class), D (working class) and E (underclass) citizens comprise the majority of tabloid readership (Newspaper Marketing Agency, 2007). Grouped by broadsheet and tabloid newspapers, 2007 NRS figures show that while 60% of broadsheet readers are deemed A or B on the NRS social grade, this makes up just 20% of tabloid readers. Instead, the large majority of UK tabloid readership occupies the socio-economic categories dubbed 'working class' (Table 1). Readers of these newspapers are not necessarily comprised of a coherent and self-acknowledged 'working class', and readership habits are not a simple function of socio-economic status; rather, habits are formed and perpetuated in this heterogeneous group of readers through complex factors and feedback processes that are part economic (e.g. the price for tabloids is lower than broadsheets), and part cultural (e.g. identities shaped by 'working class' newspapers feedback into and fuel readership habits) (Newton, 1999).

The history of UK governance and climate change has been infused with socio-economic factors. In the 1970s the UK was often called "the dirty man of Europe", for at the time having placed a low priority on environmental issues (Cass, 2007: p. 40). But when then-British Prime Minister Margaret Thatcher ushered in neoliberal initiatives of deregulation and privatization, she also dismantled a number of unions, such as those in the coal industry. These decisions also then facilitated eventual movements from heavy reliance on coal for energy that served to help lower UK greenhouse gas emissions in the 1990s and 2000s, but the policy reforms also had socio-economic implications, as they hurt working class interests.

This research project is both possible and advantageous for four primary reasons. First, robust analyses of discourse and framing of UK tabloid media representations of climate change are now possible due to a dramatic increase in the quantity of news articles on the subject in recent years (Fig. 1).¹ Second, analyses of UK tabloid news in other disciplines, such as cultural studies and media studies, provide a foundation for these examinations (e.g. Deuze, 2005; Newton, 1999). Third, UK daily news readership is distinctly marked by the aforementioned varied

¹ Fig. 1 depicts the number of stories on climate change and global warming in the tabloids, and shows a marked increase. However, it could be possible though that the percentage of coverage devoted to climate stories relative to others is not increasing as dramatically. Further research could undertake quantitative analyses of the 'news hole' and examine which topics gain more attention though time and why.

Table 1

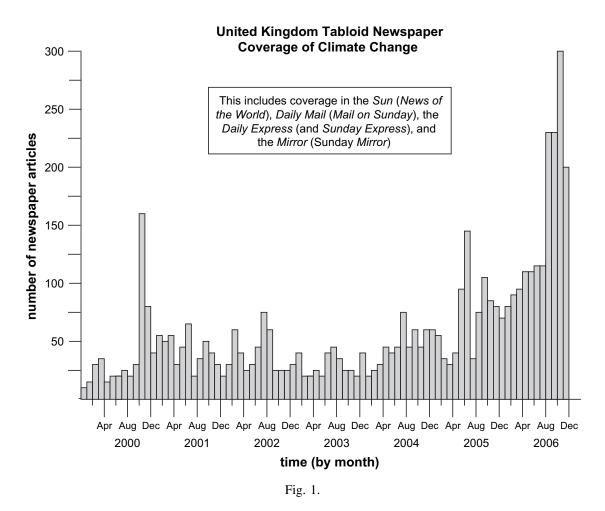
Average daily circulation and socio-economic distribution of readership for broadsheet and tabloid UK press

Newspaper	Average daily circulation/ circulation per issue	Socio-economic distribution of readership (NRS social grade: %)
The Sun (and News of the World)	3,300,208	A/B: 11 C1/C2: 56 D/E: 32
The Daily Mail (and Sunday Mail)	2,373,756	A/B: 31 C1/C2: 55 D/E: 13
Daily Mirror (and Sunday Mirror)	1,741,740	A/B: 13 C1/C2: 56 D/E: 30
Daily Telegraph (and Sunday Telegraph)	904,283	A/B: 59 C1/C2: 35 D/E: 6
Daily Express (and Sunday Express)	831,373	A/B: 25 C1/C2: 57 D/E: 18
The Times (and Sunday Times)	718,221	A/B: 63 C1/C2: 34 D/E: 3
The Guardian (and Observer)	375,666	A/B: 61 C1/C2: 33 D/E: 6
The Independent (and Sunday Independent)	233,058	A/B: 57 C1/C2: 40 D/E: 3

Note: The United Kingdom newspaper circulation information is based on information between 27 November and 31 December 2006 (Audit Bureau of Circulations, 2007). The Sunday circulation is weighted (1/7). The NRS social grade is based on the occupation of the 'chief income earner' of the household, and is classified as follows: A – upper (middle) class; B – middle class; C1 – lower middle class; C2 – skilled working class; D – working class; E – underclass. The NRS social grade information by percentages is assembled by weighting the Sunday edition by circulation figures and number of days each week (1/7), and through information from Newspaper Marketing Agency (2007) figures.

socio-economic demographics. Fourth, previous UK tabloid coverage of other science, technology and environment issues such as MMR vaccines (e.g. Jewell, 2001; Robson, 2002) and genetically modified food (e.g. Shaw, 2002; Wilson, 1999) influenced public views and policy actions on these politicized issues; thus it is useful to examine UK tabloid influences in this issue. Therefore, this study investigates frames, claims and representations in seven years of UK tabloid news coverage of climate change and asks 'Wat about Di Workin' Claas?'²

² The phrasing/spelling here is from Patois. It is used here to open up this question of 'working class', and also to symbolize predominant and historicized working-class discourses in the UK. This allusion also raises relevant questions of intersecting features of race and class. While taking up the intertwined issue of race is beyond the scope of this article, it is certainly an important aspect that deserves and demands ongoing critical reflection as well as analysis. This particular phrase is found in lyrics by the popular Jamaican born and Brixton London raised dub reggae poet Linton Kwesi Johnson (LKJ). Inspired by W.E.B. Du Bois, a great deal of LKJ's body of work tells stories of class struggle in UK society.



Historically, the tabloids have focused coverage on crime, disasters, political scandal and conflict, accidents, sex, celebrity gossip, and sport (Connell, 1998; Sparks & Tulloch, 2000), though in recent years there has been more reporting on environmental issues. Interviewee Emma Morton, correspondent for *The Sun* said, "We're doing a bit of catch up on environmental stories like climate change in recent years". Rises in coverage can be attributed to many factors, from cultural to biophysical and political economic. Examples include increasing attention in the public arena as well as increased rhetoric by policy actors and published research in science, and increasing anecdotal and everyday evidence linked to climate anomalies. Such increases can also be attributed to expansion by the newspapers themselves, which then gives more space in the newspaper for issues like climate change as well as labor-power to cover more of these issues.

Three distinct increases in coverage can be seen. The first rise – in November and December of 2000 – was mainly due to considerable coverage of the intense flooding in the northeast of England, with particular devastation centered in Yorkshire. Moreover, the Sixth United Nations Conference of Parties (COP) meeting took place in The Hague simultaneous to this flooding. This political event earned considerable coverage as well. At this COP, talks broke down after a United States and the European Union disagreement on the terms of the discussion for emissions reductions regarding forests-as-carbon-sinks. Many newspaper articles focused on the "bitter row over the failed world environmental summit" and the dueling personalities of UK Prime Minister Blair, Deputy Prime Minister John Prescott, and French Environment Minister Dominique Voynet and United States lead envoy Frank Loy (Deans, 2000: p. 4). The

second rise came in June and July of 2005. Articles here focused primarily on European Union Emissions Trading Scheme proposal debates at the time, and the Group of Eight (G8) Summit in Gleneagles, Scotland. The G8 summit prompted headlines such as 'Blair salvages deal as G8 leaders set aside their doubts' and 'Blair wrings concessions out of the US'. Reports also focused on Bush's landmark statement just before the conference where he acknowledged anthropogenic climate change by proclaiming, "I recognise that the surface of the Earth is warmer and that an increase in greenhouse gases is contributing to the problem" (Daily Mail, 2005: p. 22). The third distinct increase was from September through November 2006. This can be primarily attributed to four intertwined events. First, the film 'An Inconvenient Truth' featuring Al Gore was released in the UK in mid-September, and this sparked a great deal of tabloid coverage and commentary. For instance, The Sun solicited readers' comments on the film, by stating, "The Sun is urging readers to think green in the debate on global warming. Ex US vice president Al Gore warns we have ten years to save the planet but some, like leading bio-geography professor Philip Stott, say climate change is normal" (The Sun, 2006: p. 1). Second, in late September Virgin Group Ltd. chief Richard Branson made a multi-billion dollar 'donation' to renewable energy initiatives and biofuel research, and this garnered much tabloid attention. Headlines such as 'Branson the green pounds 1.6bn in promise' in the Daily Mail and 'Branson green air blue print' in the Mirror were published at this time. Third, on the penultimate day of October, Sir Nicholas Stern released the 'Stern Review' and this generated intense media coverage in the following weeks. Fourth, these events fed into continued abundant news coverage on climate change by way of attention paid to the November Twelfth Conference of the Parties to the United Nations Framework Convention on Climate Change meeting in Nairobi, Kenya.

Methods: 'phew what a scorcher!'³

Through explorations of framing and Critical Discourse Analysis as well as interviews with journalists and editors, this study sought to determine which aspects of climate change were being covered as well as how they were being covered. In so doing, this study examined temporal dimensions of textual narratives in two ways: through historically sensitive sequences of representations (also called diachronic analyses), and through 'snapshot' or comparative simultaneous depictions (also called synchronic analyses) (Carvalho, 2005).

The population of tabloid news articles was compiled through the *Lexis Nexis* searchable archive, through a Boolean query with the keywords 'climate change' or 'global warming'. This search produced 4945 articles published in these sources from 2000 through 2006. The sample set of textual representations was assembled by random selection of every fifth article as it appeared chronologically, thus compiling approximately 20% of the population (N = 974). This was compiled by systematically opting in from a random starting point in January of each year.

In the sample, 28% (N = 271) came from the *Mirror* (and Sunday *Mirror*), 27% (N = 264) from the *Daily Mail* (and *Mail on Sunday*), 26% (N = 255) from the *Daily Express*, and 19% (N = 184) from *The Sun* (and *News of the World*). The sample set included news reports, op-eds, letters to the editor, and commentaries.

From this sample, framing analyses were undertaken on the articles. Three stages of pilot testing were undertaken independently on these framing measures across the seven-year period to evaluate assessments. These produced inter-coder reliability rates of 94%, 96% and 96%,

³ This was a 1976 headline in *The Sun*, remarking on a heat wave that spread across the UK.

thus diminishing possibilities of spurious results.⁴ Framing is an inherent part of cognition, employed to contextualize and organize the dynamic swirl of issues, events and occurrences. Goffman (1974) has defined it as the ways in which elements of discourse are assembled that then privilege certain interpretations and understandings over others. Media framing involves an inevitable series of choices to cover certain events within a larger current of dynamic activities. Bennett (2002) defines media framing as the process of "choosing a broad organizing theme for selecting, emphasizing, and linking the elements of a story such as the scenes, the characters, their actions, and supporting documentation" (p. 42).

This project developed the categories of framing analyses from previous projects that examined framing of nanotechnology (Anderson, Allan, Petersen, & Wilkinson, 2005) and plant biotechnology (Nisbet & Huge, 2006) in the mass media. These were also assembled by expanding on the climate change categories developed by Boykoff and Boykoff (2007), which described reasons for increases in media coverage over time. Through these influences, four nested framing categories were developed. These are described in Table 2. Through reading each article in its entirety, 'primary' as well as 'secondary' frames were assigned. The combined determination of frames was contingent on salience of elements in the text, who was quoted and/or referred to, terms used, and relationships between clusters of messages. This two-tiered approach enabled more nuanced and textured assessments that could capture subtle factors as well as the explicit ones that shape representational practices.

Furthermore, a second framing scheme was developed to capture the tone of the headlines for each news article. This framing exercise was conducted for three primary reasons: first, analyses of headlines provide an opportunity to examine relationships between journalists (who typically write the stories) and their editors (who typically write the headlines); second, newspaper readers typically scan headlines rather than reading each article in a newspaper in its entirety; and third, UK tabloid headlines have a reputation for being ingenious and pithy. So an assessment of the tone of the headlines can help to provide indications of how climate change-related issues are construed for the public (Dahlgren & Sparks, 1992; McManus, 2000).

Combined, these framing exercises provide a window into climate change representations in UK tabloid press. These analyses were also extended by drawing on tools of Critical Discourse Analysis, where texts are considered as they are situated in context (van Dijk, 1987), and where attention is paid to how the constitution of certain discursive frames privileges (and marginalizes) particular ways of knowing, as well as how they structure spaces of interaction (Fairclough, 1995). Carvalho (2007) points out, "Critical Discourse Analysis allows for a richer examination of the resource used in any type of text for producing meaning. It shares with framing analysis an interest in the variable social construction of the world but puts a stronger emphasis on language and on the relation between discourse and particular social, political, and cultural contexts" (p. 227). In fact, meanings are partially fixed as well as negotiated as they are constructed in the texts over time (Laclau & Mouffe, 2001). These textual representations contribute to discursive narratives that — while anchored to social, economic and cultural norms —dynamically shape

⁴ 'Inter-coder reliability rates' signify the levels of consistency that independent coders reach regarding the interpretation of characteristics/content of a message, artifact, article, segment, etc. These are commonly used as quality standards for the reliability and validity of content analysis research. Piloting was conducted in coordination with Maria Mansfield, from the University of Oxford and Michael K. Goodman, from King's College London. In three stages, two reviewers each analyzed fifty articles independently and assigned each a 'primary' and 'secondary' frame. Therefore, one hundred fifty articles were pre-tested in total (15.4% of sample) with two frames assigned for each piece. These rates are above established accepted criteria for inter-coder reliability (Rubin & Babbie, 2005).

Table 2News frames for coverage of climate change

- \rightarrow Ecological/meteorological
 - Weather events (e.g. heat waves, droughts, floods)
 - O Biodiversity (e.g. plants, animals)
- \rightarrow Political economic
 - O Political actors (e.g. UN meetings; rhetoric, action)
 - \bigcirc Economics and business
- \rightarrow Culture and society
 - O Popular culture (e.g. celebrity movements, royal family, films and books)
 - O Justice and risk, public health (ethics, inequality, and adaptation)
 - Transport
 - O Public understanding, knowledge, education (e.g. poll results, consumer reports)
- \rightarrow Scientific
 - O Discoveries, fundamentals, new studies
 - Science funding and processes
 - O Applied science, technologies (e.g. renewables)

 \rightarrow General

○ Other

ongoing considerations and actions (Phillips & Hardy, 2002). In other words, this approach helps to focus on how discursive constellations – emergent through texts – challenge or sustain unequal power relations (Fairclough & Wodak, 1997). Thus, in this study, it was important to account for contextual factors that permeate discursive activities, including elements of working class identity, socio-economic difference, and feedbacks therein. Consistent with previous forays into Critical Discourse Analysis, this research examined context while paying attention to forms and content of the texts (such as headlines, framing techniques, salience of elements, ideological stances, tone and tenor, and relationships between clusters of messages) (Carvalho, 2008).

Complementing and triangulating with these analyses, two-dozen semi-structured interviews were conducted from October 2006 through October 2007. I interviewed authors of climate change articles in these news sources, and media workers in other sources and arenas connected to climate change. Interviews range in length from ten minutes to one hour. I sought to ascertain their views regarding climate change representations and frames in the media, and to validate as well as discuss the framing analyses in these tabloid news articles. Questions put to the interviewees covered a range of issues regarding media representations of climate science and connections to climate policy as well as public understanding of climate science research. For instance, interviewees were asked:

- How do you consider UK tabloid audiences? Do you think this then influences (your) reporting on climate change?
- How do headline and text relationships function in terms of journalist–editor interactions?
- How do various factors from institutional to individual training constraints/advantages affect how you (or others) represent climate change in the (UK tabloid) media?

Further interview content followed on comments made by interviewees therein.

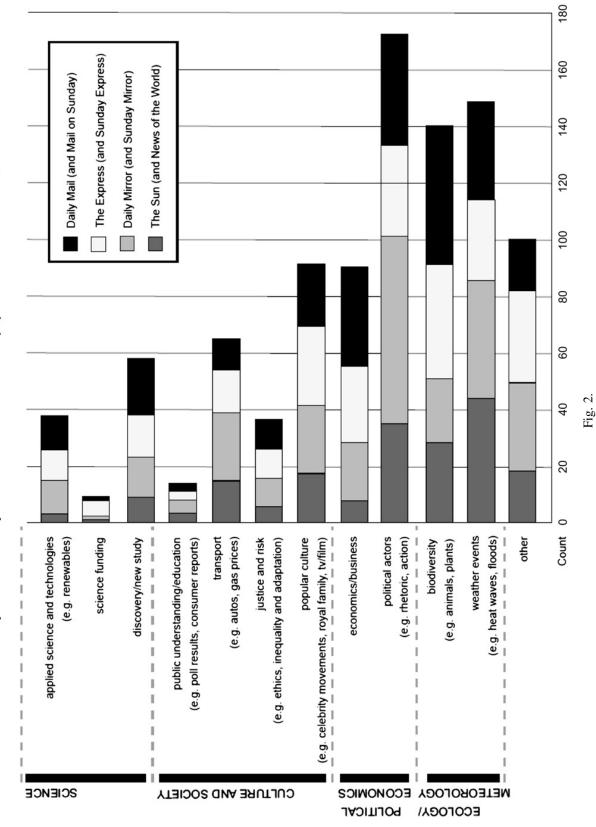
(Con)textual analyses of UK tabloids: operation shock and awe

Analyses of these frames in headlines and text indicated that emphases were consistently placed on ecological/meteorological stories, evident in approximately 30% of articles. Secondary frames on weather events and biodiversity each garnered about half of this coverage each year. Ecological and meteorological frames included articles that covered storm events, insect outbreaks and animal migrations. Fewer stories focused on conservation and protection per se; numerous stories focused on charismatic megafauna, and these stories then were tied to issues of climate change and impacts. For example, discussions and concerns for changing feeding ranges of shark species, and their threat to humans prompted a range of stories. For instance, a story entitled 'Jaws...of Hartlepool' by Dan Parkinson (2005) appeared in the Daily Mail, and a piece called, 'Great Whites to Stalk UK beaches' by John Coles (2006) prominently made the pages of The Sun. Political economic frames were the focus of roughly 27% of pieces over the study period, and reporting on the action and claims of political actors accounted for about twice the amount of this coverage than was afforded to economics and business activities. As a representative example of political economic articles, the Sunday Mirror examined the 'costs of global warming' in a 'Meltdown: Exclusive' on 5 November 2006 (Blundell, 2006). Another article covered the 2006 release of the Stern Review. Entitled, 'Climate is threat to economy', author Oonagh Blackman (2006) wrote, "Chaos from climate change could trigger the worst ever global recession, an economist fears. [Stern] believes floods, storms and natural disasters may cause a downturn that will surpass the Wall Street Crash and the Great Depression" (p. 12). Culture and society frames then accounted for around 20% of the total, with popular culture earning most attention followed by transport issues. Last, science frames were most dominant in about 11% of stories and new studies or discoveries were most frequently featured within science. Despite that certain events and issues increased the overall quantity of coverage during certain periods of the years under study (as described above), there were no sustained trends that emerged in either primary or secondary frames in year-by-year analyses over the seven-year study period.

However, looking at these data over the seven-year time period by newspaper, assessments of primary and secondary frames over the study period reveal key trends and differences (Fig. 2). By examining texts in comparative-synchronic and historical-diachronic context, overall trends here showed that 'political actors' frames garnered the most coverage (18%), followed by news generated around the 'weather events' frame (16%).

Along with 'biodiversity' (14%), these frames captured almost half of the overall coverage across this time period (48%). Conversely, among the least utilized frames were those of 'justice and risk'.

In regards to these trends, interviewees consistently pointed to two intersecting factors. First, stories for example on what then-Secretary of State for Environment, Food and Rural Affairs Margaret Beckett said about climate change or on how flooding in Oxfordshire might relate to climate change could be much more clear and uncomplicated stories to cover. On the other hand, stories making links between climate impacts and questions of unequal capacity to adapt might be more difficult to work through. The second related factor related to the pressures of covering various climate change issue of varying complexity while under tight deadlines and in a small number of column inches. Moreover, with these demands, more straightforward news frames are preferred over those addressing more complex questions and issues within climate



change. Such tendencies are also consistent with the breadth and depth characteristics of tabloid news reporting described above.

In terms of instances of key differences, articles particularly appearing in the Daily Mirror (and Sunday Mirror) wove climate change coverage through political economics frames and more specifically the rhetorical movements and actions of political actors. Stories focusing on ecological and meteorological facets of climate change were more abundant in The Sun (and *News of the World*) and the *Daily Mail* (and *Mail on Sunday*); particularly, both of these sources framed much coverage of climate change through weather events while the Daily Mail (and Mail on Sunday) focused on biodiversity or charismatic megafauna. The Express (and Sunday Express) consistently mobilized a range of frames on climate change reporting, while The Sun (and News of the World) had a relative dearth of story framing based around 'economics and business' issues. All the UK tabloid sources framed stories much less frequently through the primary 'science' frame, though this was particularly the case in The Sun (and News of the World). Focusing specifically on the content of articles primarily drawing on the 'science' frame, through quantitative content analysis Boykoff and Mansfield (2008) examined UK tabloid representations of human contributions to climate change. This study found that coverage significantly diverged from the scientific consensus on the issue, and attributed this to the twin factors of contrarian commentary and balanced reporting.

Again, few articles framed climate change as issues of 'justice and risk', with The Sun (and *News of the World*) particularly representing a small number of climate change articles in this way. As a result, this trend in framing UK tabloid news articles has the effect of muting unequal structural, political or institutional conditions. Grundy-Warr and Sidaway (2006) have pointed out that examinations of "the political geographies of ... silence and erasure demand our critical and careful scrutiny" (p. 481). De-naturalizing these silences (Fairclough, 1995) as well considering the 'discursive effects' of them through examinations of factors linked to but not necessarily found in the texts (Carvalho, 2008) reveals how UK tabloids contribute to the ongoing cultural politics of climate change discourse. Considering the readership trends of lower socioeconomic demographics in these UK tabloid newspapers, these sources are positioned to potentially offer readers a relevant critical assessment of power structures that shape asymmetrical vulnerability to and impacts from climate change. However, these data show that across all the tabloid sources, journalists and editors focus frequently on the movements and rhetoric of individual political actors or storm events at the expense of attention paid to questions such as the ethics surrounding differentiated vulnerability and abilities to cope with climate change. So rather than frames and analyses of climate 'justice and risk' that may be relevant to UK tabloid readership, this study has instead found a prevalence of discourses that do not confront existing power asymmetries and inequalities.⁵

Commenting on the oft-employed frames in tabloid reporting, interviewee Jane Hamilton from *The Sun* said, "The key is relevancy...we cover the issues that most immediately effect our readers, and most in our readership are working class. They are not as interested in theoretical science papers at an academic conference". A useful illustration of these varied uses of frames can draw on a comparative-synchronic example of the 2003 heat wave in Europe. This generated a number of stories that focused on meteorology and ecology such as 'Scorched Earth' and 'Why English Oak May be Banished to Scotland' in the *Daily Mail*, 'Hotter by the Minute' in *the Express*, 'Hot a lot of Anchovies' in *The Sun*, and 'Melting Points' in the

⁵ Similarly, Dalby (1996: p. 593) found that the focus of *New York Times* coverage of the 1992 United Nations Conference on Environment and Development largely reinforced "contemporary geopolitical order of modernity".

Mirror. However, very few stories drew on frames around scientific links between heat waves and climate change, justice and risk, or public understanding of causes or consequences. Furthermore, links made between the heat wave and climate change also prompted a number of deliberately whimsical or contrarian commentaries (to be discussed further below), such as 'Global Warming is Just a Load of Hot Air' in *News of the World*. Author Eilis O'Hanlon (2003) wrote:

Thank God the heat wave's nearly over. We weren't made for hot weather. Just like Darren Day wasn't made for monogamy and Lisa Reilly wasn't made for Swan Lake. But it was worth enduring the swelter just to hear all the doom mongers carping on about global warming...Some headlines in recent days have gone so far as to declare that the last few weeks saw the "hottest weather ever". How the hell do they know that? Records have only been collected for a few hundred years. For all we know, the summer of 1075 might have made this one feel like a second Ice Age. There may have been record sales of suncream amongst mediaeval polar bears. Penguins may have emigrated to the Sahara for some much-needed relief from the sun. All we DO know is that what we call Europe was once down near the equator and had a sub-tropical climate dominated by jungles and exploding volcanoes — so it's highly unlikely that the last few days were as hot as it's ever got. But then why let the facts get in the way of a good story? (p. 25)

Moreover, with heat related deaths reportedly reaching 30,000 people, another article in the *Mirror* was entitled 'Whingers Pour Cold Water on Fun in the Sun'. The author quipped, "I love hearing the weather forecaster say: "There is no end in sight to the heat wave," knowing I can plan a barbecue, picnic or day out without the risk of rain. If the heat wave lasts right up to Christmas I'll be happy" (Sibley, 2003: p. 17).

Within these primary and secondary climate change-related frames, aforementioned characteristics of tabloid journalism run through. For instance, from commentaries and op-eds to straight news reporting, there are numerous illustrations of deliberately contrarian positions taken with ironic tones. In a previous set of interviews with tabloid journalists, Deuze (2005) found that, "instead of directly confronting issues like the objectivity or ethics of certain newsgathering and storytelling practices, [journalists] would sometimes retreat into an ironic repertoire...irony further contributes to judgments about mainstream news journalism as being too repressed..." (p. 874). As an example, we can turn to a well-known *Sun* commentator and columnist, Jeremy Clarkson. Through numerous articles in the sample set, Clarkson utilized variants of frames to present government regulations on climate emissions as unpopular and threats to individual freedom. In a piece on a new gasoline tax on automobiles, Clarkson (2000) reasoned:

It seems likely that, from November, the amount you pay for car tax will be based on the amount of carbon dioxide your car produces. This is not sensible....I've just had tea with my daughter who spent the entire time telling me that trees need carbon dioxide to live. And she's five. She was therefore a little perplexed when I explained the new plan..."But what about the trees?" she wailed. "It's not fair." Quite right, it isn't...Let me put it this way. If carbon dioxide really is such a bad thing, and the Government really is worried about its effects, then how come they are deliberately introducing measures to slow cars down? Surely, the best thing you can do is get the motorist to his destination, and parked, as quickly as possible, because that way his engine will be running for the shortest possible time. In fact, they should go further. People caught speeding should be given bonus points on their license and car tax discount for helping to prolong the life of the planet.

My daughter thinks this is a great idea. But then she would because, of course, she's five. Our rulers, sadly, aren't that grown-up (p. 25).

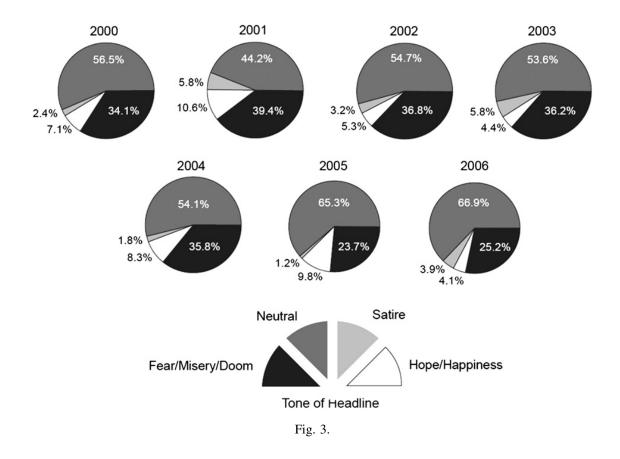
In commentaries such as this one, Clarkson consistently employs discourses focused on techno-centered administration of nature, rather than infusing his commentary with socio-economic tropes that may resonate with working-class readership. Moreover, Clarkson displaces possible differential financial or environmental risk by instead posing issues as public—private conflicts and freedom—constraint predicaments. Apropos such a framing, Barnett (2007) has noted that a "class-based view of climate geopolitics is hidden by the popular geopolitical imaginary of climate change as a 'global' and environmental problem to be addressed by the community states" (p. 1372). Under the guise of irony and cynicism, such Clarkson comments also then effectively cohere with and sustain his political economic interests, be they narrowly perceived through the success of his BBC ode-to-automobiles program 'Top Gear' or a penchant for market-led and anti-regulatory management of the environment. Moreover, Clarkson consistently invokes cultural frames, such as family values and nature-as-other, to divert attention from political economic restructuring. These frames have resonated with a highly urbanized society,⁶ and have woven through numerous related commentaries, such as that by Sue Carroll (2006) entitled, 'I refuse to waste my time on green myth'.

Across all the years of study, apart from the stories with a neutral tone, fear, misery and doom headlines dominated the coverage. Fig. 3 shows a consistent trend, where over a third of stories across the years contained headlines with this tone. This figure also illustrates consistency across tones of hope and happiness as well as satire over the study period. Data show that these trends consistently as well throughout all the tabloid newspapers under study. Representative examples of fear, misery and doom headlines include:

- IT'S THE END OF THE WORLD...MAINLY FOR CHILDREN *The Express* 17 January 2000
- HOW THE WORLD WILL END *Daily Mail* 28 December 2002
- WAVE IT GOODBYE: RAGING FLOODS COULD SWAMP OUR CITIES WITHIN A LIFETIME *The Mirror* 16 September 2002
- POLLUTION IS TURNING THE SEAS INTO ACID Daily Mail 11 November 2006

The dominance of headlines of 'fear' can be partly attributed primarily to three related factors. The first point may be the most obvious, yet one that is frequently overlooked. In fact, many aspects of the climate change that get picked up in the media – such as ecological forecasts and societal impacts – are inherently quite gloomy subjects. Therefore it is difficult to put a hopeful tone on headlines like those covering displaced communities from sea level rise. Second, throughout the history of media coverage, dramatic stories of fear and disaster often drive coverage. Moreover, previous research investigating media coverage of climate change has demonstrated that dramatic and personalized issues and events are more conducive to story formation (Boykoff & Boykoff, 2007), and these aspects frequently dovetail with headlines. Third, the aforementioned trends of sensationalist coverage that drives UK tabloid journalism also then contribute to these patterns (Sparks & Tulloch, 2000). The tabloid style of journalism also privileges conflict and scare stories (Connell, 1998). Interviewee Alexandra Seno from

⁶ Dalby (2007) has called these combined factors 'glurbanization'; Moser (2006) has written about various efforts to engage urbanites with climate change issues, as now nearly 90% of UK society lives in urban spaces.



Tone of UK Tabloid Newspaper Headlines, by Year, N=974

Newsweek pointed out that the combined effects of these contributing factors to fearful tones of headlines can be unhelpful in terms of public understanding, contingent on the aspect of climate change is being covered. Interviewee Mike Hulme (2007) has warned of the pitfalls of 'scare headlines'. He has also commented that media coverage of these related issues has developed a discourse of 'catastrophic' climate change. He said, "It seems that mere 'climate change' was not going to be bad enough, and so now it must be 'catastrophic' to be worthy of attention. The increasing use of this pejorative term - and its bedfellow qualifiers 'chaotic', 'irreversible', 'rapid' - has altered the public discourse around climate change..." (Hulme, 2006)

While media representations clearly do not dictate particular behavioral responses, they influence — in non-linear and dynamic ways — individual to community- and international-level perceptions of climate science and governance. Research has shown that fear-inducing and catastrophic tones in climate change stories can inspire feelings of paralysis through powerlessness and disbelief rather than motivation and engagement. Krosnick, Holbrook, Lowe, and Visser (2006) have found that, "knowledge about an issue per se will not necessarily increase support for a relevant policy. It will do so only if existence beliefs, attitudes, and beliefs about human responsibility are in place to permit the necessary reasoning steps to unfold" (p. 37). Furthermore, through analyses of fifteen years of climate change perception polling and research, Lorenzoni and Pidgeon (2006) have found that conceptualizations of agency are key determinants of (dis)engagement, amid the complexities of perceptions about climate change. They concluded, "Successful action is only likely to take place if individuals feel they can and should make a difference..." (p. 88). In terms of the UK tabloid news sources reaching a primarily working-class readership, fearful and catastrophic tones in climate change stories contribute to inertial acceptance of status quo inequities rather than motivation to address associated issues of climate change, socio-economic disparity and differential vulnerability.

The presence of satire and irony is evident not only in the article texts, as mentioned above, but also in the headlines themselves. This is a journalistic approach cited as characteristic to tabloid press reporting (Deuze, 2005). It was also readily apparent throughout UK tabloid headlines over the study period in this data set. Representative illustrations of satirical headlines include the following:

- JUST 100 YEARS TO GO FOLKS! [on climate forecasts] *News of the World* 3 February 2002
- PAY A POUND AND SAVE THE PLANET [on carbon offsets] Daily Mail 26 August 2002
- GAS WHAT! COWS GET WIND CURE [on methane emissions] The Sun 30 April 2003
- A THIRD OF FROGS SET TO CROAK [on climate impacts] *The Mirror* 15 October 2004
- LIGHTS ON BUT NOBODY HOME [on government action on climate change] *The Express* 9 January 2006
- SNOW JOKE [on climate impacts] The Sun 13 December 2006

The pithiness of these headlines serves important functions in tabloid coverage. Journalist Mike Swan from the *Mirror* said, "Tabloids have smaller space, competing with showbiz and crime so stories have to have a pretty big impact...we need something that is going to leap off the page a bit". Jane Hamilton from *The Sun* said, "We are always looking for something quirky, or a good pun for the headline." Consistent with aforementioned study findings, the data indicate, however, that these ironic tones did not address issues such as asymmetrical vulnerability to and impacts from climate change but rather stayed within framing trends such as those of 'political actors' and 'weather events'.

Discussion: the veracity of climate claims and frames

The framing of news content as well as tone of headlines analyzed here combine with previously mentioned elements of tenor, breadth and depth to provide insights into how features media representations can influence potential engagement with the issue of climate change. These dynamic and interacting factors can be illustrated through three representative cases: (1) an illustrative moment, (2) an influential actor, and (3) a guiding theme. The first example draws on synchronic analyses while the other two focus on diachronic explorations. First, in a 6 December 2000 issue of the *Daily Mail*, Julian Champkin (2000) wrote an article that began, "Whatever happened to desert Britain; Three years ago experts were queuing up to tell us our climate was becoming ever hotter. How could they have got it so wrong?" The piece continued:

Yet it was only four years ago that experts were queuing up to forecast that temperatures would consistently rise and lead to dustbowl droughts. They had pointed to evidence that greenhouse gases (from car exhausts and factories) would change the world's atmosphere by trapping the sun's heat in an invisible blanket around the Earth. At the same time, harmful gases, such as CFCs given off by fridges and aerosols, were blamed for thinning the ozone layer and increasing the intensity of the sun's rays. So, what has happened to

those desperate predictions? The truth is that those who believe in global warming claim that the storms we have been experiencing are all part of the same pattern: the world is heating up, which creates a mixture of droughts, devastating spring floods and violent winter storms. They warn that these will be regular features of Britain's weather over the next 100 years. On the other hand, those experts who disagree with global warming believe that the unpredictable weather is because the Earth is going through a phase of cooling linked to a scarcity of sunspot activity. So, what for the future? The Met Office will not commit itself. So look at these 'then' and 'now' pictures, marvel at our changeable climate - and treat with due scepticism the claims of all those so-called experts who pretend to know what is really happening (p. 10).

Through a combination of opinion-driven reporting with satirical tones, sensationalized villains (the Met Office as 'so-called experts'), and skeptical claims and frames, the piece casts doubt on the legitimacy of scientific assertions, and specifically the veracity of claims regarding anthropogenic contributions.

A second illustration can be drawn from some representative quotes from frequent *Daily Mail* journalist and columnist Michael Hanlon. Hanlon wrote on 8 April 2003 "it is still too early to say for certain whether we are looking forward to a greenhouse hell – or whether the story of global warming is no more than a load of hot air" (Hanlon, 2003: p. 17). In a 15 September 2004 commentary entitled 'Global warming? No, just hot air from politicians', he wrote, "…the threat from climate change is still largely unproven. For all their posturing over their green policies, Tony Blair and Michael Howard may find they have declared war on an enemy that doesn't exist and instead of weapons of mass destruction, we now have weather of mass deception" (2004: p. 12). Throughout the seven-year period of study, Hanlon espoused consistently contrarian views on climate change. As another example, on 15 January 2005 he wrote an article called 'The Great Climate Conspiracy' on Michael Crichton's novel 'State of Fear', and stated:

It takes a brave man to challenge this consensus; to point out that, despite the cries from the environmentalists, there is actually very little scientific agreement about whether any of these extreme weather events can be blamed on anything other than normal and natural variation. Step forward Michael Crichton...(his) new work, which essentially says that the global warming panic is no more than a modern myth, has not made him many friends. Yet what is happening is pernicious and sinister. Climate change has now become a global industry, with a multibillion-pound budget, and hundreds, if not thousands, of scientists whose careers are predicated upon their agreement with the central thesis: 'Climate change is real, Man is causing it; it's going to get worse and we are going to have to do something about it otherwise there will be hell to pay.' This is why you hear little from those who don't believe — or at least are sceptical about — this theory. It is difficult to get hard and fast statistics, for instance, in just how far sea levels have risen in the past century (2005: p. 48).

Hanlon is among a handful of journalists in these UK tabloid newspapers who has written most on this issue. Consequently, his voice – though often counter to widespread views in the climate scientific community – is influential.

A third example draws attention to guiding frames that bound and shape perceptions, and places this in a wider context of narratives through reference-dependent perceptions

(Kahneman & Tversky, 1973). It interacts with themes of 'nonproblematicity' in sociology literature (Freudenburg, 2000), and Festinger's (1957) notion of cognitive dissonance in psychology in that tension arises when there are inconsistencies between beliefs and behaviors. Instead of modifying discourses or actions to mesh with beliefs, in fact beliefs are adjusted to cohere with behaviors or articulations. In this case, considering regional warming as a welcome change becomes an adaptive strategy where the adaptation action is inaction. To illustrate, Zoe Nauman (2001) wrote a 2001 piece for *the Express* entitled, 'On balance, the weather's going to be wonderful' (p. 17). As another example, Clare McKeon (2001) commented in the *Sunday Mirror*:

The consequences of global warming are supposed to be dire for everyone on the planet. Mediterranean regions will become like central Africa, and will be too hot to visit. Water temperatures will rise and the Gulf Stream will alter its course. Well, October has been the warmest one on record, and it's been wonderful. Long balmy days with wonderful mild weather and sunshine. I planted tomatoes late this year and all the know-alls told me "They'll never ripen." Guess what, they did, and this week and last I have had an abundance of sweet organic tomatoes. Global warming can't be all that bad (p. 27).

This particular news frame focuses on meteorological frames that consistently dominated coverage across time and newspapers, where reporting focuses on how warmer weather would be considered welcome in the UK context.⁷ Comments such as these, noted through illustrations also provided above, are consistently evidenced in the UK tabloids in the period of analysis.

The UK context is one where class remains a significant part of identity and culture, as captured somewhat by aforementioned NRS readership figures. An October 2007 Guardian/ICM poll showed that, "Britain remains a nation dominated by class division, with a huge majority certain that their social standing determines the way they are judged" (Glover, 2007: p. 1). Among the findings, class identity remained an important facet of UK society, as 53% of respondents considered themselves working class and 89% of people felt that people are still judged by class. Amid great nuance and complexity regarding class position and associated perspectives on a range of political, economic, cultural, societal and environmental issues, thinking through class in relation to media representations of climate change issues is useful. Specifically considering class issues and UK tabloid news coverage, *Mirror* journalist and interviewee Mike Swan said, "We are very conscious of our readers' lives…something like [carbon] taxes on flights are going to hit our readers a lot harder than broadsheet readers".

The cultural politics of climate change are dynamic and contested spaces battled out by various actors. Through various frames and claims, non-nation state actors – from mass media to celebrities to NGOs and businesses – influence ongoing climate science, governance and public understanding. In this new millennium, climate-related discourse has increasingly pervaded the lexicon. For instance, the New Oxford American Dictionary word of the year for 2006 was 'carbon neutral'. Editor-in-chief Erin McKean said, "The increasing use of the word carbon neutral reflects not just the greening of our culture, but the greening of our language. When you see first graders trying to make their classrooms carbon neutral, you know the word has become mainstream" (Oxford University Press, 2007). Competing with, and perhaps complementing the discursive traction of 'carbon neutral', Merriam-Webster named 'truthiness' their 2006 word of the year (Gorlick, 2006). 'Truthiness' – a term coined by US-based satirist

⁷ In contrast, in the Alaskan Inuit context, leading figure Sheila Watt-Cloutier addresses regional warming from a justice perspective by referring to it as 'the right to be cold' (Boswell, 2007).

Stephen Colbert — signifies contested spaces where 'the truth' is defined and maintained, thereby shaking one's belief in 'objectivity'. Through the cultural resonance of this term, Colbert has tapped into an increasingly recognized space of claims-makers and their claims about truth. Together, these decorated terms mark the visible interactions taking place in this high-stakes and dynamic arena of carbon-based industry and society. Key actors within climate science, policy and the public — often via the mass media — have waged pitched battles over varying meanings relating to human—environment interactions. Scientific findings on climate change are not 'the truth' translated, but rather offerings of legitimized 'truthiness' for critical inputs into multiple scale climate governance.

Conclusions

Through this case-study of UK tabloid press coverage of climate change, this paper unpacks and interrogates frames and practices that shape conceptions of this 'truthiness' in context. It has evaluated frames and tropes that pervade daily print media coverage in the four working-class UK newspapers – *The Sun* (and *News of the World*), *Daily Mail* (and *Mail on Sunday*), the *Daily Express* (and *Sunday Express*), and the *Mirror* (and *Sunday Mirror*) – in order to assess how these representations may influence the contemporary cultural politics of climate change discourse. Through these analyses, the paper has sought to both outline the articulations as well as the silences that contribute to particular ways of knowing through time. Climate change science, policy and public activities clearly continue to shape media reporting; however, journalism – specifically UK tabloid press coverage – in turn shapes ongoing discourses on climate change.

UK tabloids have played important roles in other science, technology and environment issues: along with the aforementioned examples is the 2008 'banish the (plastic) bags' campaign by the *Daily Mail* (Humphrys, 2008). Therefore, these findings are relevant to ongoing examinations of how media representational practices may contribute – in non-linear and dynamic ways – individual to community- and international-level perceptions of climate science and governance as well as pressure for climate mitigation or adaptation actions. Particularly, this case of UK tabloid portrayals of climate change is vital, given high circulation of these sources and their primarily working-class readership.

Embedded in these analyses is recognition of the need for ongoing work that links political geographies with cultural issues of identity and discourses (Marston, 2004). In a study of climate change and conflict, Nordås and Gleditsch (2007) called for further work to disaggregate and map more subtle factors that contribute to differentiated vulnerability through climate change. Moreover, these analyses complement associated work in political geography across other socio-economic contexts and environmental issues, such as Miller's (1997) investigation into defense investments in Massachusetts, Harrison's (2006) analysis of pesticide regulations in California agriculture, and Kurtz's (2003) work in citing a polyvinylchloride production facility in rural Louisiana. This endeavor can be further situated within discursive and material interrogations: while political and spatial contexts shape imaginaries and discourses, media representations and translations (re)constitute and maintain material conditions over time (Bialasiewicz et al., 2007; Cox, 1998).

Ultimately, this project seeks to contribute to more-textured investigations of media coverage of climate change, and thus, explorations of the cultural politics of climate change discourse. This paper has examined various contributions – from articulations to silences – that (re)shape and (re)configure discourses. It works in accordance with Dalby (2007), who has written about the importance of examining framing processes and their effects of marginalizing some discourses while contributing to the entrenchment of others. This work has engaged with questions that then relate to what the emergent media representations mean for ongoing climate science-policy—public interactions as well as political geographies. Re-configuring (or re-organizing) discourse can open up new possibilities for climate change action (Swyngedouw, 1992). Media translations and interpretations here are not viewed as reified markers of culture, but rather windows into the processes that contribute dynamically to the formation and maintenance of cultural identity as well as the cumulative characteristics of society (Maleuvre, 2004). While working-class segments of the population have been of secondary importance in science-policy analyses, examinations such as these need to take on a more central role: these citizens are differentially impacted by 'modern global climate change',⁸ and are potentially critical contributors to calls for improved climate policy governance.

Acknowledgements

I benefited greatly from comments on the paper from Editors James Sidaway and John O'Loughlin as well as the four anonymous reviewers. The following people also provided valuable comments at various stages in the development of the research: Diana Liverman, Simon Batterbury, Jerry Ravetz, Monica Boykoff, Emily Boyd, John Cole, Judy Ford, Polly Ericksen, Nicholas Howarth, Julie Doyle and Dave Frame. I thank Maria Mansfield for her great help with the piloting, data gathering and framing assessments in this project. I also thank Debs Strickland for her help in designing the figures, and Mike Goodman for his additional piloting assistance as well as his collaboration to further develop research around 'the cultural politics of climate change'. An earlier version of the project was shared at the Society for the Social Studies of Science conference in October 2007.

References

- Anderson, A., Allan, S., Petersen, A., & Wilkinson, C. (2005). The framing of nanotechnologies in the British newspaper press. *Science Communication*, 27(2), 200–220.
- Audit Bureau of Circulations. (2007). Standard certificates of circulation: UK newspapers.
- Baldwin, K. (2006, June 12). Blair attacks "feral" media he once tamed. Reuters. London.
- Barnett, J. (2007). The geopolitics of climate change. Geography Compass, 1(6), 1361-1375.
- Bennett, W. L. (2002). News: The politics of illusion. New York: Longman.
- Bialasiewicz, L., Campbell, D., Elden, S., Graham, S., Jeffrey, A., & Williams, A. J. (2007). Performing security: the imaginative geographies of current US strategy. *Political Geography*, 26(4), 405–422.
- Blackman, O. (2006, October 28). Climate is threat to economy. The Mirror12., London.
- Blundell, N. (2006, November 5). Meltdown: exclusive; man behind the BBC's planet earth reveals the devastating cost of global warming. *Sunday Mirror*4., London.
- Boswell, R. (2007, October 7). Inuit activist awaits Nobel call: Watt-Cloutier may just snag peace prize along with Gore. *Winnipeg Free Press*1., Winnipeg, Canada.
- Boykoff, M. T. (2007). From convergence to contention: United States mass media representations of anthropogenic climate change science. *Transactions of the Institute for British Geography*, 32(4), 477–489.
- Boykoff, M. T., & Boykoff, J. M. (2007). Climate change and journalistic norms: a case study of U.S. mass-media coverage. *Geoforum*, 38(6), 1190–1204.

⁸ This phrase comes from a climate modeling study by Karl and Trenberth (2003) that found that human activities have primarily influenced climate change since the industrial revolution.

- Boykoff, M. T., & Mansfield, M. (2008). 'Ye Olde Hot Aire': reporting on human contributions to climate change in the UK tabloid press. *Environmental Research Letters*, 3(2), 1–8.
- Carroll, S. (2006, November 1). I refuse to waste my time on green myth. The Mirror25., London.

Carvalho, A. (2005). Representing the politics of the greenhouse effect. Critical Discourse Studies, 2(1), 1–29.

Carvalho, A. (2007). Ideological cultures and media discourses on scientific knowledge: re-reading news on climate change. *Public Understanding of Science*, *16*(2), 223–243.

Carvalho, A. (2008). Media(ted) discourse and society. Journalism Studies, 9(2), 161-177.

- Cass, L. R. (2007). Measuring the domestic salience of international environmental norms: climate change norms in American, German and British climate policy debates. In M. E. Pettenger (Ed.), *The social construction of climate change* (pp. 24–50). London: Ashgate Ltd..
- Castree, N. (2004). Differential geographies: place, indigenous rights and 'local' resources. *Political Geography*, 23(2), 133–167.
- Castree, N. (2006). Research assessment and the production of geographical knowledge. *Progress in Human Geogra*phy, 30(6), 747–782.
- Champkin, J. (2000, December 6). Whatever happened to desert Britain? Daily Mail10., London.
- Clarkson, J. (2000, February 25). Tony's gas tax makes me fume. The Sun25., London.

Coles, J. (2006, June 15).). Great whites to stalk UK beaches. The Sun1., London.

- Connell, I. (1998). Mistaken identities: tabloid and broadsheet news discourse. Javnost The Public, 5(3), 11-31.
- Cox, K. R. (1998). Representation and power in the politics of scale. Political Geography, 17(1), 41-44.
- Dahlgren, P., & Sparks, C. (Eds.). (1992). Journalism and popular culture. London: Sage.
- Daily Mail. (2005, July 7). Blair wrings concessions out of U.S. Daily Mail22., London.
- Dalby, S. (1996). Reading Rio, writing the world: the New York Times and the 'Earth Summit'. *Political Geography*, 15(6/7), 593-613.
- Dalby, S. (2007). Anthropocene geopolitics: globalisation, empire, environment and critique. *Geography Compass*, 1, 1–16.
- Deans, J. (2000, November 27). Blair rescue mission: backing for Prescott as he rages at talks failure. *Daily Mail4.*, London.
- Demeritt, D. (2006). Science studies, climate change and the prospects for constructivist critique. *Economy and Society*, 35(3), 453–479.
- Deuze, M. (2005). Popular journalism and professional ideology: tabloid reporters and editors speak out. *Media*, *Culture and Society*, 27(6), 861–882.
- van Dijk, T. A. (1987). News as discourse. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Dittmer, J. (2005). Captain America's empire: reflections on identity, popular culture, and post-9/11 geopolitics. *Annals of the Association of American Geographers*, 95(3), 626–643.
- Djupsund, G., & Carlson, T. (1998). Trivial stories and fancy pictures? Tabloidization tendencies in Finnish and Swedish regional and national newspapers, 1982–1997. *Nordicom*, 19(1), 101–115.

Fairclough, N. (1995). Media discourse. London: Edward Arnold.

- Fairclough, N., & Wodak, R. (1997). Critical discourse analysis. In T. A. van Dijk (Ed.), Discourse as social interaction, Vol. 1 (pp. 258–284). London: Sage.
- Festinger, L. (1957). A theory of cognitive dissonance. Palo Alto, CA: Stanford University Press.
- Freudenburg, W. R. (2000). Social construction and social constrictions: toward analyzing the social construction of 'the naturalized' and well as 'the natural'. In G. Spaargaren, A. P. J. Mol, & F. H. Buttel (Eds.), *Environment and global modernity* (pp. 103–119). London: Sage.
- Glover, J. (2007, October 20). Riven by class and no social mobility Britain in 2007. The Guardian1., London.
- Goffman, E. (1974). Frame analysis: An essay on the organization of experience. Harvard University Press.
- Gorlick, A. (2006). 'Truthiness' is named word of the year. New York, NY: Associated Press.
- Grundy-Warr, C., & Sidaway, J. D. (2006). Political geographies of silence and erasure. *Political Geography*, 25(5), 479-481.
- Hanlon, M. (2003, April 8). Ye old hot aire. Daily Mail17., London.
- Hanlon, M. (2004, September 15). Global warming? No, just hot air from politicians. Daily Mail12., London.
- Hanlon, M. (2005, January 15). The great climate conspiracy. Daily Mail48., London.
- Harrison, J. (2006). 'Accidents' and invisibilities: scaled discourse and the naturalization of regulatory neglect in California's pesticide drift conflict. *Political Geography*, 25(5), 506–529.
- Hulme, M. (2006, November 4). Chaotic world of climate truth. BBC News. http://news.bbc.co.uk/1/hi/sci/tech/ 6115644.stm. Accessed 04.04.08.
- Hulme, M. (2007, February 22). Newspaper scare headlines can be counter-productive. Nature, 445, 818.

- Humphrys, J. (2008, February 27). Alone, I can do nothing. But if all of us banish the bags, we'll make a real difference. *Daily Mail*14., London.
- Jewell, D. (2001). MMR and the age of unreason. British Journal of General Practice, 51(472), 875-876.
- Kahneman, D., & Tversky, A. (1973). On the psychology of prediction. Psychological Review, 80, 237–251.
- Karl, T. R., & Trenberth, K. E. (2003, December 5). Modern global climate change. Science, 302, 1719–1723.
- Krosnick, J. A., Holbrook, A. L., Lowe, L., & Visser, P. S. (2006). The origins and consequences of democratic citizens' policy agendas: a study of popular concern about global warming. *Climatic Change*, 77(1), 7–43.
- Kurtz, H. E. (2003). Scale frames and counter-scale frames: constructing the problem of environmental injustice. *Political Geography*, 22(8), 887–916.
- Laclau, E., & Mouffe, C. (2001). Hegemony and socialist strategy. London: Verso.
- Lorenzoni, I., & Pidgeon, N. F. (2006). Public views on climate change: European and USA perspectives. *Climatic Change*, 77(1), 73–95.
- McKeon, C. (2001, November 21). I like it warm. Sunday Mirror27., London.
- McManus, P. A. (2000). Beyond Kyoto? Media representation of an environmental issue. Australian Geographical Studies, 38(3), 306–319.
- Maleuvre, D. (2004). Beyond culture. Journal of Human Values, 10(2), 131-141.
- Marston, S. A. (2004). Space, culture, state: uneven developments in political geography. *Political Geography*, 23(1), 1–16.
- Miller, B. A. (1997). Political action and the geography of defense investment: geographical scale and the representation of the Massachusetts miracle. *Political Geography*, *16*(2), 171–185.
- Moser, S. (2006). Talk of the city: engaging urbanites on climate change. Environmental Research Letters, 1, 1-10.
- Nauman, Z. (2001, July 27). On balance, the weather's going to be wonderful. The Express17., London.
- Newspaper Marketing Agency. (2007). http://www.nmauk.co.uk/nma/do/live/factsAndFigures. Accessed 26.09.07.
- Newton, K. (1999). Mass media effects: mobilization or media malaise? *British Journal of Political Science*, 29, 577–599.
- Nisbet, M. C., & Huge, M. (2006). Attention cycles and frames in the plant biotechnology debate: managing power and participation through the press/policy connection. *Press/Politics*, 11(2), 3–40.
- Nordås, R., & Gleditsch, N. P. (2007). Climate change and conflict. *Political Geography*, 26(6), 627–638.
- O'Hanlon, E. (2003, August 17). Global warming is just a load of hot air. News of the World25., London.
- Oxford University Press. (2007). Carbon neutral: Oxford word of the year. Available from. Oxford, UK: Oxford University Press. http://blog.oup.com/oupblog/2006/11/what_do_al_gore.html.
- Parkinson, D. (2005, September 5). Jaws...off Hartlepool. Daily Mail4., London.
- Phillips, N., & Hardy, C. (2002). Discourse analysis: Investigating processes of social construction. Thousand Oaks, CA: Sage.
- Robson, D. (2002, February 9). The Prime Minister's insistence on his family's privacy has stirred up confusion but why don't we believe what doctors tell us any more? *The Express* 17.
- Rooney, D. (2000). Thirty years of competition in the British tabloid press. In C. Sparks, & J. Tulloch (Eds.), *Tabloid tales: Global debates over media standards* (pp. 91–110). Lanham, MD: Rowman and Littlefield.
- Rubin, A., & Babbie, E. R. (2005). Research methods for social work. Belmont, CA: Wadsworth.
- Shaw, A. (2002). 'It just goes against the grain.' Public understandings of genetically modified (GM) food in the UK. *Public Understanding of Science*, 11(3), 273–291.
- Sibley, P. (2003, August 13). Whingers pour cold water on fun in the sun. The Mirror17., London.
- Sparks, C. (2000). Introduction: the panic over tabloid news. In C. Sparks, & J. Tulloch (Eds.), *Tabloid tales: Global debates over media standards* (pp. 1–40). Lanham, MD: Rowman and Littlefield.
- Sparks, C., & Tulloch, J. (Eds.). (2000). *Tabloid tales: Global debates over media standards*. Lanham, MD: Rowman and Littlefield.
- Swyngedouw, E. A. (1992). Territorial organization and the space/technology nexus. Transactions of the Institute of British Geographers, 17(4), 417–433.
- The Sun. (2006, September 15). Sun will save our planet. The Sun1., London.
- Uribe, R., & Gunter, B. (2004). The tabloidization of British tabloids. *European Journal of Communication*, 19(3), 3870402.
- Wilson, E. (1999, January 28). Gene-switch foods could open door to superbugs. Daily Mail 19.
- Wilson, K. M. (1995). Mass media as sources of global warming knowledge. *Mass Communications Review*, 22(1–2), 75–89.
- Winston, B. (2002). The tabloidisation of television: 1975–2001. Journalism Studies, 3(1), 1–24.
- van Zoonen, L. (1998). A tyranny of intimacy? Women, femininity and television news. London: Sage.