Science as Culture
Vol. 16, No. 2, 129–150, June 2007

Routledge
Taylor & Francis Group

Picturing the Clima(c)tic: Greenpeace and the Representational Politics of Climate Change Communication

JULIE DOYLE

University of Brighton, UK

Introduction

Images of melting glaciers dominate the pictorial language of climate change, powerful symbols of a fragile earth at risk from the impacts of climate change (Figure 1).[1] The environmental campaign group Greenpeace has been instrumental in documenting these impacts through film and photography. Since 1997, Greenpeace has led expeditions to the Arctic and Antarctic in order to observe and record climate change effects witnessed through retreating or cracked glaciers. The discourse of visual 'truth' invested in the photograph functions here in a powerful way when considered in the context of historical struggles by Greenpeace, and other environmental NGOs, to communicate the reality of global warming to sceptical governments and a disinterested public since the Intergovernmental Panel on Climate Change (IPCC) published its first assessment report in 1990.[2] Yet concurrently, photographs of melting glaciers engender a representational problem concerning the visual communication of environmental issues. The photographs of glaciers represent temporally the *already seen* effects of climate change; a distinct problem when considered within the context of the historical efforts by environmental NGOs to bring attention to the global problem of climate change, *before its impacts could be seen*.

Understood within the discourse of photography, the comparative photographs of melting glaciers signify as the certainty of what is, or as Barthes would say, 'what has been' (Barthes, [1980] 2000, p. 85). In other words, the potential effects of climate change upon the landscape have become actual, recorded and made evident by the photograph (Doyle, 2008).[3] The visualisation of climate change through photography thus calls attention to the problems associated with trying to communicate environmental issues that are both temporal (long term and developmental) and unseen (not always visible), through a medium that privileges the 'here and now' of the visual.

Correspondence Address: Julie Doyle, Division of Information and Media Studies, CMIS, Watts Building, Lewes Road, Moulsecoomb, Brighton, BN2 4GJ, UK. Email: j.doyle@brighton.ac.uk

0950-5431 Print/1470-1189 Online/07/020129–22
DOI: 10.1080/09505430701368938

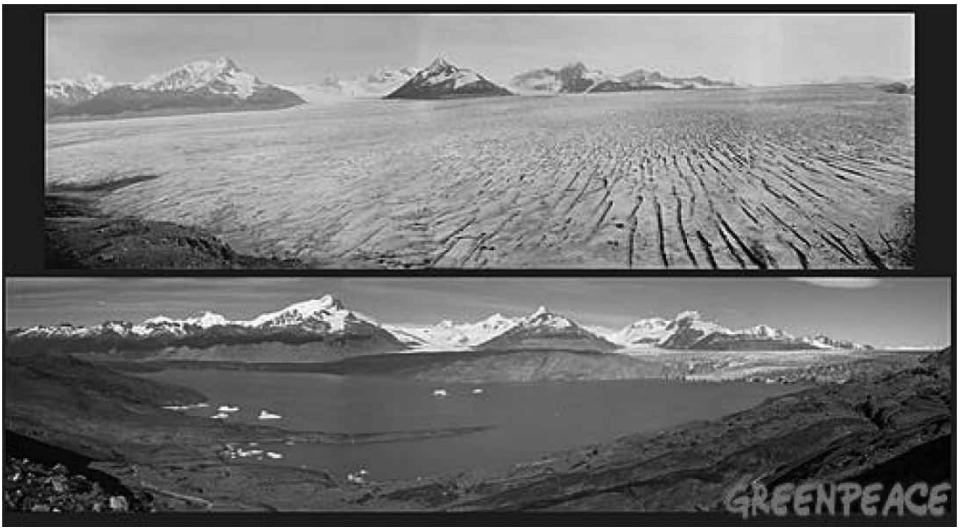

Figure 1. Comparative photographs of Patagonian Glaciers taken in 1928 and January 2004. *Source*: © Archivo Museo Salesiano © Greenpeace/Daniel Beltra

In this paper, I examine the problems associated with communicating a temporal environmental issue such as climate change, by analysing the history of climate change communication produced by Greenpeace since the early 1990s. Through historical analysis, my intention is to consider how Greenpeace has sought to make 'real' the potential and often invisible risks of climate change. Given Greenpeace's commitment to photographic documentation, what limitations has this mode of representation posed for the communication of climate change?

Climate change is constituted by a rise in global temperatures as a result of the increased production of CO_2 and other greenhouse gases, which accumulate in the atmosphere from the burning of fossil fuels. The effects of climate change, however, such as melting glaciers or changing weather patterns, only become visible over time. Barbara Adam, Ulrich Beck and Joost Van Loon characterise the very nature of technologically induced risks such as climate change as inaccessible to the senses:

> They operate outside the capacity of (unaided) human perception. This im/materiality gives risks an air of unreality until the moment they materialise as symptoms. In other words, without visual presences, the hazards associated with these technologies are difficult to represent as risks. (Allan *et al.*, 2000, p. 3)

Seeing/sight is arguably the most dominant of the senses in western culture. However, as Barbara Adam observes, it is difficult to communicate and validate current environmental risks because 'emphasis is placed on visible materiality at the expense of that which is latent, immanent and hidden from view' (Adam, 1998, p. 12).

This emphasis on visibility also underpins traditional laws of science by way of linear perspective, the central characteristics of which are 'abstraction from context, objective observation, quantification of sense data and the single fixed focus all of which associate

"the real" with visibility' (Adam, 1998, p. 39). Given that the identification of climate change has been reliant upon science and technology, then the problematic privileging of visibility as a form of (scientific) knowledge affects not only the legitimation of the science of climate change, but also the ways in which this science can be communicated and given meaning.

In light of these problems of representation, I will analyse Greenpeace's public campaigns on climate change since 1994, in order to see in retrospect how Greenpeace has negotiated these problems and attempted to make the potential and unseen nature of climate change meaningful and 'real' through visual communication.[4] As climate change has been dependent upon science for its legitimation, my analysis will also take into account how climate change science has been framed and represented by Greenpeace during this period. Furthermore, as environmental problems do not gain legitimacy as problems outside of social, economic and political conditions, my analysis of the campaigns takes these changing conditions into account and considers how these may have impacted upon the communication strategies of Greenpeace.

Why a focus upon Greenpeace? Firstly, as an environmental group they were instrumental in helping establish the science of climate change and communicating this to the public (Mormont and Dasnoy, 1995). Secondly, their prioritisation of the photograph as a form of environmental campaigning is unprecedented when compared with other environmental NGOs. Furthermore, whilst much critical work on environmental communication has focused upon the role of the media (Hansen, 1991, 1993, 2000; Anderson, 1991; Allan *et al.*, 2000), comparatively little attention has been given to the role of environmental NGOs (Eden *et al.*, 2006).

Before I engage directly with Greenpeace's climate change campaign materials, I will discuss the historical constraints that have affected the communication of climate change. Firstly, I will be looking at the role of the visual within Greenpeace campaigns and environmental politics more generally, and, secondly, at the socio-political role of science within the validation and communication of climate change.

Greenpeace and the Problem of Imaging Climate Change

> Greenpeace can be regarded as an organisation with photography as its vital medium... Greenpeace's strategy is implicitly based upon the premise that it can and must counter images of power with forceful images of its own. (Boettger, 2001, p. 12)

> Above all, environment stories really need good pictures... global warming is very difficult because you can't actually see global warming. (Former BBC news environment correspondent, 1990, quoted by Anderson, 1997, p. 121)

The image is a well known communication strategy for Greenpeace, used to document environmental destruction and to convey the visual beauty of nature at risk. Photography is also central to the non-violent direct action that forms the basis of Greenpeace's philosophy of 'bearing witness' to environmental damage, where the photographic framing of an action – how it will look visually – is a constitutive aspect of the action (Wapner, 2000). This focus upon the visual mediation of environmental protest has been present since the groups' inception in Vancouver, Canada, in 1970. On their first

whaling protest in 1974, they produced their own film footage of the action in order to inform the media (Brown and May, 1989).

Greenpeace is honest about the power of images to record, communicate and to persuade. Conny Boettger, a former Greenpeace picture editor, comments, 'it has been said that the messages of Greenpeace's actions would have been difficult to understand had they not been translated into the language of photography, in other words an internationally comprehensible, easily remembered language, which is also used by the mass media' (Boettger, 2001, p. 12). It is this commitment to the visual documentation of environmental destruction and affirmative action that has resulted in the organisation being extremely successful, in terms of their credibility with the public as well as international governments.[5]

Greenpeace's claim for the transparency of photography as internationally comprehensible corresponds to the global nature of Greenpeace as an organisation and its campaign messages. As a 'global environmental organisation', Greenpeace consists of 'Greenpeace International ... in Amsterdam' with '27 national and regional offices around the world, providing a presence in 41 countries' (Greenpeace International, 2006). As an international organisation, Greenpeace focuses upon environmental issues of a global concern. Coordinated by Greenpeace International, the global campaigns encompass eight key messages, aiming to: 'stop climate change, protect ancient forests, save the oceans, say no to genetic engineering, stop the nuclear threat, eliminate toxic chemicals and encourage sustainable trade' (Greenpeace International, 2007a). Whilst the national offices have autonomy, all of the campaigns need to be approved by Greenpeace International and follow the messages of the global campaigns. The national/regional offices rework the global campaign messages within a specific geographical and political context, making the campaign message relevant to a national/regional audience. Local campaign groups then communicate the international and/or national message to a local audience.[6]

Global in nature, with 2.8 million supporters worldwide, Greenpeace is funded solely by supporter subscriptions and donations, and does not accept funding from industry or government (Greenpeace International, 2007a). Its dependence upon public donations makes its media presence an important aspect of its environmental campaigning, as well as its public profile. Boettger claims that, 'one of the reasons for Greenpeace's great popularity is that the organisation does provide material for the spectacular, not to say – by aesthetic standards where politics are involved – beautiful pictures' (Boettger, 2001, p. 20). The aesthetics of the image is thus integral to the production and successful reception of the photographs as representative of an environment in need of protection.

Such aesthetics corresponds to the discursive production of the landscape and environment since the Enlightenment. As many cultural theorists have shown, images of the landscape have come to define what the environment is and how it is to be understood (Urry, 1990; Wilson, 1992; Macnaughten and Urry, 1998). Where the visualisation of the environment can be understood as an epistemology of environmental discourse, Greenpeace, I would argue, subscribes to and reinforces these representational conditions.

Yet this commitment to the beautiful and spectacular becomes problematic in the context of climate change communication. The persuasive power of current comparative photographs of melting glaciers as evidence of climate change gain part of their legitimacy through an aestheticisation of the landscape. Aestheticising the landscape, arguably, renders its loss all the more shocking.

The shock inscribed in this aesthetic framing of the landscape also corresponds to the events-based tactics of the news media coverage of the environment. This issue has been examined by a number of environmental theorists (Hansen, 1993; Anderson, 1997; Allan *et al.*, 2000), who have argued that such events-based tactics do not enable the communication of long term and accumulative (non-visible) environmental problems.

The communication strategies of Greenpeace – the use of beautiful and shocking images, as well as the visual framing of their actions – fall prey to the limitations of events-based reportage. Given that Greenpeace has been committed, more than any other international NGO, to communicating and giving meaning to the science of climate change before impacts could be seen, its investment in photographing the beautiful and spectacular as a means of environmental communication is thus constrained by the temporal nature of climate change as an ongoing and accumulative problem, not always visible.

Environmental groups, however, play an important role in framing environmental issues. Mormont and Dasnoy (1995) have acknowledged the significant role that Greenpeace played in first identifying the problem and science of climate change. Yet, like Hansen, they argue that for environmental issues to be made meaningful to the public, frameworks of interpretation need to be established.

> When it comes to climate change, the facts completely escape common experience for it is only by communication that the issue is given meaning. . .The taking account of these facts (or hypotheses) by public opinion presupposes an interpretative context, one that may designate the risks and the victims, in short, the social context which gives these facts meaning. (Mormont and Dasnoy, 1995, p. 61)

The framing of climate change science is crucial to bringing attention to, and legitimating, the issue.

The legitimacy of environmental issues and perceived risks can be linked to 'questions about the ease with which some issues link into powerful, historically established, symbolic imagery' (Hansen, 1991, p. 451). In a similar vein, Alison Anderson points out that certain issues gain public legitimacy through their capacity to signify symbolically: '(t)hese issues tend to have particular "carrying capacities"; they become icons or symbols for a wide range of concerns that people can easily identify with' (Anderson, 1997, pp. 5–6). I would maintain that, in the case of climate change predictions, the lack of visible evidence of this problem made it difficult for the issue to be linked to an established set of symbolic imagery. This lack of visual evidence, related to the temporal aspect of climate change as a risk that develops over time, also contributed to the lack of international politics addressing the issue, as well as low public perception.

Socio-Politics of Climate Change Science

It is not merely the unseen nature of climate change that has proven difficult for its communication. Environmental issues require articulating as problems in the first instance for them to gain legitimacy as matters of public and political concern. Anders Hansen argues that environmental issues, 'like any other social problems . . . need to be identified and defined as such, and made visible in the public sphere or in public arenas before they

can acquire the status of "social problems" that the public should be concerned about' (Hansen, 2000, p. 55).

Identification of an environmental problem does not in itself guarantee that the issue will gain public or political attention. Neither is the legitimacy of an issue simply based upon the magnitude a threat may pose, as seen historically (although not currently) in the low media coverage of climate change.[7] Hansen (1991, p. 451) states that 'we must examine the wider notion of cultural resonances . . . in order to account for the very different careers of environmental problems'. Cultural resonances are widely held beliefs within society; in the case of environmental discourse for example, this is the belief in scientific authority and the need for scientists to legitimate claims to truth about risk.

The role of science in identifying climate change has been significant. Since the publication of the First Assessment Report by the IPCC in 1990, scientists have been central to legitimizing the risk. Unlike with any other environmental issue it was scientists, rather than environmentalists/activists, who first drew attention to the issue of climate change.[8] Yet Greenpeace has been committed to communicating and validating this science, having published a reader's guide to the IPCC's report in 1990 (Greenpeace, 1990). The validation of climate change science, however, has been constrained by the institutional and political processes involved in the authentication of scientific knowledge. As Robert Weart (2003) has shown, the slow and non-linear processes of scientific legitimation were particularly acute in the case of climatology, which remained underfunded and isolated from other disciplines for years.

The development and acceptance of climate change science has also been negatively affected by its reliance upon computer models to predict the rate of increasing global temperatures, by the oil industry's financing of scientists who were global warming sceptics, as well as the political management of the IPCC, whose scientists are also representatives of their respective governments (Weart, 2003; see also Carter, 2001). All of these factors have contributed to the low public and political concern, until fairly recently, about this issue.

Given the institutional, political and economic complexities of legitimising scientific knowledge, Greenpeace maintains the view that 'science is crucial to environmental protection', particularly in the case of climate change, which it concurs 'can only be detected and understood through science' (Greenpeace International, 2007b). Greenpeace also demonstrate awareness that science 'is used to justify the existence and deployment of environmental threats, such as nuclear power', and characterises this as a 'double-edged relationship with science' (Greenpeace International, 2007b). This continual negotiation of the authority and uses of scientific knowledge is not unusual for environmental NGOs, who often use science to legitimate their arguments (Eden *et al.*, 2006). For Greenpeace, this negotiation is aided by the specific production of its 'own' science through work carried out at the Greenpeace Science Laboratory at University of Exeter, UK, which helps to shape its campaigns, influence policy and change opinions (Greenpeace International, 2007b).

Acknowledging the difficulties climate change science has posed for public engagement, Chief scientist for Greenpeace UK, Doug Parr, has identified the need for framing this science in order for it to make sense to the public.[9] Greenpeace can therefore be viewed as being involved in the public communication of science by framing science, as well as reflexively critiquing this, for popular consumption (see Eden *et al.*, 2006, for a discussion of environmental NGOs as scientific actors).

Communication Strategies of Greenpeace

Greenpeace is involved in a variety of campaigning strategies, which include producing scientific reports, lobbying governments for policy change, working with industry to promote change in practices, staging direct actions, and providing environmental information for the public, governments and industries. However, it is the public campaign literature, often distributed by the local Greenpeace groups, which I am directly examining in this paper (with some reference to other Greenpeace activities) As Greenpeace stated in 2004, 'If the issues of biotechnology and global warming are ever to truly command the attention of politicians, they will need to infiltrate popular culture' (Greenpeace International, 2004c). Greenpeace's public campaigns seek to do just that: infiltrate popular culture through a media presence by making environmental issues culturally meaningful and symbolically recognisable.

The printed public campaign literature that provides the basis of my analysis was sourced from visits to the Greenpeace UK offices and focuses primarily upon Greenpeace UK campaigns. Greenpeace UK does not have a systematised archive of campaign materials, making it difficult to obtain an overview of its climate change campaigns. This is exacerbated by the fact that Greenpeace campaigners often change every few years to be replaced by new staff, either from within or outside of the organisation. Accessing the material, and constructing a historical overview of its campaigns was thus based upon knowledge provided by interviews with current campaigners,[10] as well as my own knowledge of Greenpeace UK climate change campaigns through my involvement with the organisation as a volunteer from 1995–2002.

This paper now examines the strategies employed by Greenpeace to communicate climate change in light of the problems of communication already discussed. The five representational strategies identified in my analysis establish particular relations between the temporal and the visual in the very process of making climate change meaningful and relevant. Given the investment of the organisation in communicating the science and effects of climate change before visible impacts, how then have the temporal limitations of photography been negotiated in Greenpeace's climate change communication?

Phase One. Immanent and Inevitable Destruction from a Warming Planet

> Greenpeace has been monitoring scientific and news reports of major extreme weather events and natural climate-related disasters since the IPCC's [Intergovernmental Panel on Climate Change] first warning in 1990. Greenpeace believes that the only conclusion that can be drawn from this 'catalogue of disasters' is that global warming is now detectable and the first impacts of human-induced climate change are in fact already being felt. (Greenpeace International, 1994)

It is widely acknowledged that Margaret Thatcher's speech to the Royal Society in September 1988 put the issue of climate change on the UK political agenda, accompanied by a subsequent increase in media coverage (Farrow, 2000; Weart, 2003; Carvalho and Burgess, 2005). However, whilst the IPCC's First Assessment Report in 1990 asserted that human activities were increasing the atmospheric levels of greenhouse gases, by 1992 political and media interest in the issue had waned. Uncertainties over of

the extent of climate change, as identified by the IPCC, were now being highlighted by some as a way of preventing policy changes (Carvalho and Burgess, 2005).

Having published a readers' guide to the IPCC's First Assessment Report in 1990, which explained in lay terms the main scientific findings, Greenpeace's attempt to engage the public on climate change four years later was thus during a period of low political and public concern about this issue. Unlike the readers' guide, its 1994 publication entitled *Climate Time Bomb: Signs of Climate Change from the Greenpeace Database* (Figure 2) sought to engage the public through images and text, and can be understood as a first attempt to give the issue symbolic meaning. At the same time, through its explicit reference to the monitoring of scientific and news reports since the IPCC's 1990 report, Greenpeace has positioned itself as both legitimator and interpreter of scientific knowledge.

Given that the first impacts are 'being felt' rather than explicitly seen, the publication establishes early frameworks of interpretation by foregrounding the potential magnitude of impacts upon the natural and human environment through a visual and textual language of danger and threat. The temporality of climate change is explicitly foregrounded as an issue that represents an imminent future anchored in the present: a time bomb ticking away. The font of the large yellow text, which takes up half the cover, is blurred in order to signify fast movement and the quick passing of time. The shape of the yellow glowing sun is reminiscent of the mushroom cloud of an atomic bomb, thus setting up

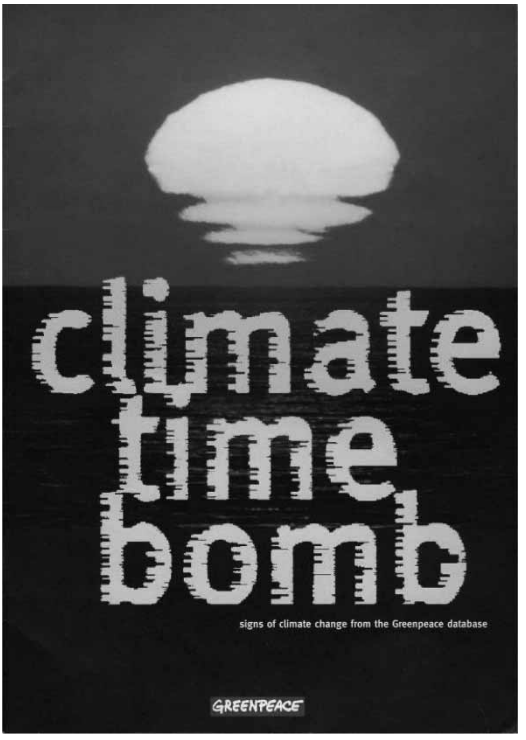

Figure 2. *Climate Time Bomb: Signs of Climate Change from the Greenpeace Database*, 1994. *Source*: Greenpeace International (1994)

a metaphorical relation between the devastation brought about by nuclear weaponry, and the potential destruction wrought by human induced climate change.

The metaphorical relation made between nuclear disaster and climate change corresponds with the temporal discourse of environmentalism, what Harré *et al.* (1999) term 'Greenspeak'. These are the ways in which environmental issues are temporally presented: 'Environmentalism, above all, links the past with the future. The present is always presented as the sum of the consequences of the past... The future and past are presented as imminent in the present' (Harré *et al.*, 1999, p. 7). The need to visually reference the past, in order to communicate the present and the future, is, in this instance, contingent upon the temporal nature of climate change as a future possibility.

Signified on the front cover as a matter of time, inside, the future of climate change is conveyed by photographic images and text, which identify 12 likely environmental and human impacts. These include rising temperatures; thinner ice; spread of disease; more pests; windstorms and increasing insurance claims. Each potential impact occupies a page in the publication, with half taken up by a photograph and the other half by text.

On their own, the photographs of a wave, the close up shot of an insect or the idyllic deserted beach tell us little about what will be the impacts of climate change. The photographs that portray destruction, such as a flooded road, or hurricane devastated house, convey impacts more immediately as they function as indexical signs of the visibly damaging effects of weather. The limits of photographic signification, however, are shown here. The sets of images need to be read together in order to signify the, as yet unrepresentable, future of climate change, through the visible authentication of its present effects.

Read as a series of interconnected images, the photographs require explanatory text to anchor their meaning as signs of climate change impacts. The text beneath each presents a timeline of extreme weather occurrences already witnessed, e.g. 'The eight hottest years on record have all occurred since 1980' and 'August 1991: The worst flooding in 50 years hits Burma'. The timelines begin from 1990 and end in 1994, recording present impacts, whilst implying future threats. The temporality of climate change as a long term, accumulative problem is thus negotiated in the publication by reference to both present impacts and future threats. The quotes, which appear between the photographs at the top of each page and the weather timelines below, refer to future scenarios based upon present (scientific) observations, e.g. 'Recent Studies have reinforced concern that drought is the area in which climate change poses the greatest risk for agriculture (IPCC, 1992)'.

Uncertainties over the exact nature and the extent of climate threat are conveyed in these quotes by words and phrases such as 'potentially', 'probability', 'could be', 'will include', 'may be', 'we seem to be', 'expected', 'threaten' and 'increasing'. Overall, the publication negotiates the past, present and future of climate change through photographic and textual reference to the 'what is' and 'what may' be of climate change.

Climate Time Bomb presents climate change as a complex issue whose effects are wide ranging and varied, giving precedence to the language of destruction over one of solution and hope. The visual aestheticisation of nature is minimally present here; the majority of images picture an environment already destroyed, by wind, water, fire, drought and disease. Only the last page is given over to providing an indication of solutions, through images of a solar panelled wood timbered house, a wind turbine and a train, intended to symbolise the positive impacts of solar energy, wind energy and public transport.

The phrase climate change, rather than global warming, is used throughout, demonstrating Greenpeace's adherence to the scientific terminology used by the IPCC. However, the choice to frame climate change visually through the symbolic resonancy of the colour red (on the front page), frames this science through the more easily understood link between rising temperatures and global warming. Viewed in retrospect, framing climate change as an imminent catastrophe about to happen draws attention to the issue through shock tactics; understandable given the political and media climate at the time, which had acknowledged (in 1988) then ignored (from 1992) the issue. Yet this early example of climate change discourse in the making also highlights the problems in communicating the complexity of the issue, resorting to cataclysmic images that render the viewer powerless in terms of agency

Phase Two. Identifying Causes, Present Impacts and Future Solutions – Dirty Oil versus Pristine Habitats

The UK Government's opening up of the North Atlantic off the North West Coast of Scotland for new oil exploration in 1997 signalled an opportunity for the issue of climate change to be linked more directly to the oil industry, made relevant to a national audience. Greenpeace UK launched its 'Atlantic Frontier Campaign' communicating a stronger message about climate change by linking the potential impacts to the causes: the burning of fossil fuels. The campaign message continued with the temporal theme used in *Climate Time Bomb*, sharing a similar colour scheme of red, yellow and black to signify the danger of a warming planet (Figure 3). However, where the discourse of *Climate Time Bomb* communicated a catastrophic event about to happen, the title of

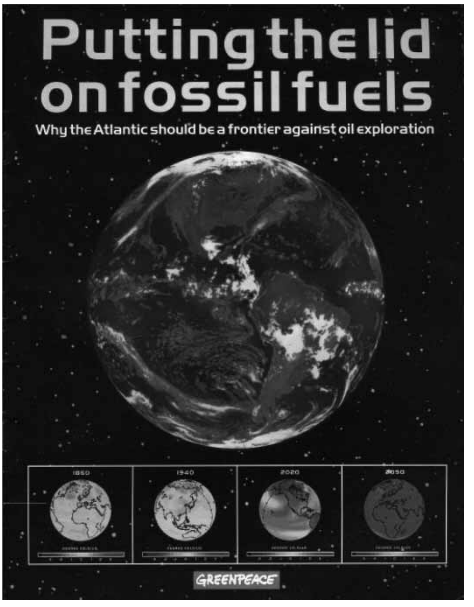

Figure 3. *Putting the Lid on Fossil Fuels*, 1997. *Source*: Greenpeace UK (1997)

this report *Putting the Lid on Fossil Fuels* (Greenpeace UK, April 1997) shifts the temporal dimension to one in which present action can be effective.

Whilst the verb 'putting' places emphasis upon present action, this is underpinned by the urgency with which this action is required, communicated visually by the redness of the globe as representative of a possible future. However, as Tim Ingold (1993) has discussed, 'the significance of the image of globe in the language of contemporary debate about the environment' is problematic, because it renders the world 'as an object of contemplation detached from the domain of lived experience' (Ingold, 1993, pp. 31–32). Thus, whilst Greenpeace has chosen the globe as a means of conveying the potential future impacts of global climate change, precisely because it is a recognisable image, this also problematically reinforces a distance between humans and the environment in the very process of establishing a popular discourse of climate change.

Climate change science is given an authoritative voice throughout the report, translated on the front cover in the form of computer-model predictions of rising temperatures, which both demonstrate and forecast rising temperatures from 1860 to 2090. The report also directly quotes the IPCC's second assessment report of 1995 on the opening page: '"The balance of evidence suggests a discernible human influence on global climate" IPCC, 1995', although this science is somewhat simplified by Greenpeace's translation of this into an affirmation by the IPCC that 'climate change had arrived' (Greenpeace UK, April 1997). In contrast to the truth status assigned to climate change scientists, Greenpeace critiques the politics of climate change by appealing to the world's governments to 'take these opportunities to agree a fossil fuels budget for the world and commit to a phaseout' at the forthcoming Kyoto Climate Convention in December 1997 (*ibid.*).

The report offers a linear, visual narrative of cause, effects and solutions, which functions to convey a less alarming message than in *Climate Time Bomb*. The inclusion of photographs of oil platforms on the opening page is intended to establish an associative link between oil and climate change. The effects of climate change are conveyed by a series of four photographs placed together, depicting devastation wrought to buildings and the landscape by wind and water, and thus indexical signs of an already warming world. At the end of the report, a photograph of a group of children surrounding a solar panel is used to signify metonymically the future, and solution to climate change.

The temporal dilemma that underpins climate change communication, that is, the need to communicate both the present reality and future threats, without extensive visual evidence, is negotiated in the report through the inclusion of photographs of existing destruction wreaked by weather, alongside the future possibility of a warming planet signified by the computer model predictions.

The tying of the impacts of climate change to a particular location, the Atlantic, utilises the more usual discursive strategy of aestheticising nature and humanising animals (Soper, 1995) to create an emotional resonancy. The beauty and pristineness of a specific ocean habitat is set in visual opposition to industrial oil pollution, 'a wilderness which the industrial world can well afford to leave alone' (Greenpeace UK, April 1997).

The 'risks and the victims' (Mormont and Dasnoy, 1995, p. 61) of climate change designated here are more clearly (and narrowly) identified than in the previous publication. The burning of fossil fuels as the cause of climate change is communicated through the destructive image of an oil platform producing a fiery plume, with the risk of flood and hurricane damage communicated via photographs. Yet more significantly, humans are not identified as victims, rather the loss of beautiful ocean habitats and its wildlife are

presented as victims of the dirty oil industry, with the clean technology of solar panels on the final page setting up an opposition between dirty versus clean energy.

A Greenpeace campaigner has reflected that, in retrospect, the Atlantic Frontier campaign suffered from the lack of a coherent message, as it attempted to link too many issues together. The campaign's intention was to prevent new oil exploration, presented as destroying the ocean habitat of the World Heritage Site of St Kilda (off the North West coast of Scotland). Oil exploration was then also identified as one of the causes of climate change, which would also negatively impact upon this ocean habitat. What is identified by the Greenpeace campaigner as a lack of coherency could also be read as a demonstration of the difficulties of trying to communicate the complexity of climate change through the public campaigning strategies of environmental NGOs, who often rely upon a simplified visual/textual narrative to frame the issue (and to gain media coverage).

Phase Three. Glacial Impacts and Renewable Solutions

The production of the first photographic 'evidence' of climate change impacts in 1997 signalled a shift in Greenpeace climate change communication, when the splitting of the Larsen B ice shelf in Antarctica was photographed by those on board Greenpeace ship MV Arctic Sunrise (Figure 4). Through existing environmental knowledge that climate change involves rising global temperatures, the photograph of the cracked ice functions indexically as evidence of climate change impact. However, this image also works on a symbolic level. The visual pristineness of Antarctica as a seemingly virginal unspoilt land is brought into stark visual contrast with the environmental devastation signified by the split. The cropping of the image places greater emphasis upon the size of this split, which is further amplified by the inclusion of the small human figure in the frame.

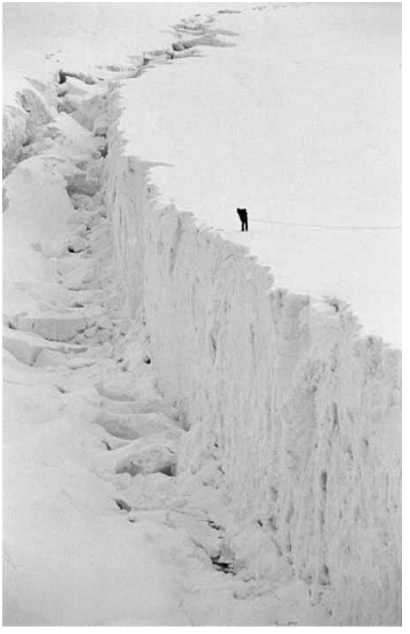

Figure 4. Crack in the Larsen B Ice Shelf, Antarctica, 1997. *Source*: © Greenpeace/Steve Morgan

This visual and epistemological opposition between human and nature also stages a moral opposition, where the negative impacts of human activities are conveyed by the visible damage wrought on the ice. Yet, the problem with such an image, and its subsequent circulation within the news media, is that it simplifies the impact of climate change, reducing it to a single dramatic instance. In other words, it becomes a synecdochal sign for climate change, which is still present today.

The synecdochal function of the image of cracked ice in the visual language of climate change brought about a shift in the discourse of Greenpeace climate change communication during 1998. The image established a dominant visual language of climate change through the beauty and destruction of glacial ice and the fragility of the polar ice caps. The photograph of the Larsen B ice shelf crack dominates the cover of the first publication called *Nature's Bottom Line: Climate Protection and the Carbon Logic* (Greenpeace UK, July 1998). The visible damage is intended as an indexical sign of the existence of climate change and provides a visual testimony to the question posed on the cover, what more can nature take? The text foregrounds the need for 'protection' of nature, a common discursive trope in environmental discourse, which in this context, frames climate change as of consequence for the natural landscape, rather than humans.

From establishing the evidence of climate change upon the ice shelves of Antarctica, *New Power for Britain: A Strategy for a Renewable Energy Industry* (Greenpeace UK, April 1998) attempts to communicate a positive message in terms of the development of a renewable energy industry for Britain (Figure 5). The image of the wind turbine, which dominates the cover, is supported by images of the natural elements, which are

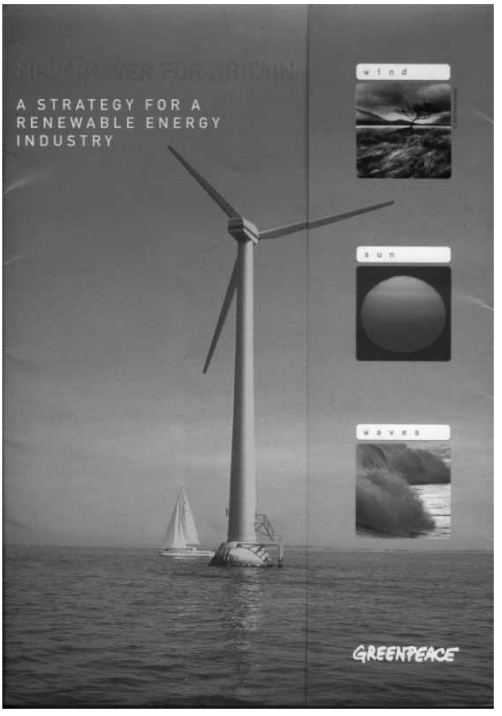

Figure 5. *New Power for Britain*, 1998. *Source*: Greenpeace UK (1998)

intended to identify the raw materials of nature used for renewable energy. The symbolic resonancy (Hansen, 1991) of images of natural energy in the form of wind, sun and waves confers meaning upon the technology of the wind turbine. A positive meaning is acquired by its referential links with the natural power of energy forms that can be harnessed and made useful for energy production, as well as for British Industry.

Both publications make use of images of the natural world, but in different ways: one that signifies the fragility of nature, the other connoting the power of natural forces that will ultimately help protect the fragile earth. Furthermore, a temporal shift is established: now that the symptoms of climate change have become visible in the present (Allan *et al.*, 2000), authenticated by the photographic sign, Greenpeace appear to re-focus its message to promoting solutions to the problem. This is also consistent with requests from NGO members and the public, at the time, for NGOs to offer more solutions to climate change rather than present doom scenarios (Farrow, 2000).

The move towards solutions is enabled because of the visible evidence of climate change impact in the present. This evidence, however, means that the polar ice caps function as privileged signs within the discourse of climate change. Indeed, one of the most used news media images in 1998 was a photograph produced by Greenpeace of a Walrus stranded on a melting piece of ice, an image still in demand by news media today.[11] Whilst undoubtedly providing an important impetus to the politics of climate change, particularly in light of the formation of the Kyoto Protocol in 1997, at the same time such images produce a distancing effect, relegating climate change impacts to a remote and inaccessible place, where animals and habitats are affected rather than humans.

Whilst promoting solutions, attempts to explain the complex science of climate change were renewed by Greenpeace. In 1997 a lengthy report by Greenpeace International was published, entitled *Fossil Fuels and Climate Protection: The Carbon Logic* (Greenpeace International, September 1997). The report outlined the science of carbon logic, which calculated the amount of carbon dioxide (the major causer of global warming) that could safely be released into the atmosphere without causing irreparable climate change. Public and political perception at the time was that fossil fuel reserves would eventually run out, thereby encouraging the search for new oil reserves. This belief is countered here by the prediction that fossil fuel reserves outnumber the carbon budget and should therefore not be used. It was an important claim to make in order to demonstrate the need to switch to renewable forms of energy through phased development.

The Carbon Logic provided the scientific rationale for the next phase of climate change campaigning: a focus upon, and attempts to stop, new oil exploration. Thus, whilst critical of the distancing effect engendered in the new visual language of climate change, I also acknowledge the efforts by Greenpeace to explain the causes of, and offer solutions to, climate change, to some extent enabled by the very production of photographic evidence.

Phase Four. Dirty Oil, Dirty Politics

Greenpeace climate change campaigns during the latter years of the 1990s continued targeting oil companies and new oil exploration, whilst also promoting renewable energy. Oil companies were the main targets of campaigning, particularly BP and its oil exploration off the North coast of Alaska. The Arctic campaign in 1999 focused upon drawing attention to the opening up of new oil reserves in the Arctic region off the coast of Alaska. In contrast to the Atlantic Frontier Campaign of 1997, this campaign had stronger symbolic

resonancy due to the geographic location of the area and its associations with the pristine polar landscapes already identified as being affected by climate change. In conjunction, exploration in the Arctic was being led by British oil company BP, thus making the area potentially more relevant to a UK audience.

Given that BP was promoting itself as a company with high environmental credentials, Greenpeace UK set up a campaign called Sane BP, comprising BP shareholders (actually Greenpeace supporters) against new oil exploration.[12] With a presence at the BP AGM for the next 3 years, specific motions were tabled by Sane BP to demand that the company switch its investments from oil to renewable energy. The campaign literature produced made the specific visual link between clean, pristine, ice landscapes and the dirtiness of oil. The use of images of polar bears became part of the symbolic repertoire of climate change images and the contribution of oil to this.

The targeting of oil companies in the campaign against climate change led to the development in 2001 of the biggest international campaign aimed at bringing global awareness to the issue of climate change. Stop Esso (Figure 6) highlighted not only the role of oil in contributing to climate change, but the specific links between governments and oil industries, demonstrated by ExxonMobil's financial backing of Bush's election campaign, and the subsequent withdrawal by Bush of the US from the Kyoto Protocol in 2001. Significantly, this was the first Greenpeace public climate change campaign to not use images of climate impacts, instead using the Esso logo and images of Bush to promote the message.

Such a shift in visual communication demonstrates how the issue of climate change had been perceived by Greenpeace to have developed a sufficient cultural resonancy for the public to understand without including evidence of climate impacts. Instead, climate change is framed in relation to the production and use of oil, and the economic-political role of governments in supporting the oil industry, as well as their funding of climate change sceptics (Greenpeace International, 2002b). In the science of climate change, however, such sceptics were outnumbered by the consensus of scientists who 'overwhelmed objections from industry-oriented' detractors (Weart, 2003, p. 187). The IPCC's Third Assessment Report in 2001 presented strong evidence that the increase in global temperatures during the last 50 years 'was likely…due to the increase in

Figure 6. Stop Esso Campaign, 2002. *Source*: Greenpeace UK (2002)

greenhouse gas concentrations' (*ibid*.). As Weart has argued, the uncertainty now lay not in the science but in 'what people will choose to do' about it (Weart, 2003, p. 192).

Phase Five. The 'Here and Now' of Climate Change

> *New visual evidence* of the impacts of climate change was released by Greenpeace in Patagonia today. *Dramatic new photos* of Patagonian glaciers . . . show the extent to which climate change has caused the ice to melt this century, when compared to photos of the same glaciers taken in 1928. (Greenpeace International, 2004a, my emphasis)

Since 2002, the photographic documentation of the world's melting glaciers has figured prominently in the climate change communication strategies of Greenpeace. This documentation relies upon recreating in the present, historic photographs taken in the past, during early 20th century geological expeditions. The visual evidence of current climate impacts upon melting glaciers is thus authenticated by the photographic evidence of the past, when compared with the present.

Yet the present impact of climate change, shown by the 'dramatic new photos' (*ibid*.), simultaneously assigns climate change to the past. This is achieved through the use of comparative before (climate change) and after (climate change) shots that present a linear perspective, identified by Adam as representative of an 'abstraction from context' which underpins scientific knowledge and its emphasis upon visible materiality as a sign of 'the real' (Adam, 1998, p. 39).

Such images also signify as the beautiful and the spectacular, already identified as a key strategy of Greenpeace's success (Boettger, 2001). In the context of climate change communication, such beautiful devastation could quickly be interpreted as inevitable and unavoidable loss, where nostalgia for the irretrievable past is engendered by the fixing of the passing of time within the photograph.

It has been noted that since 2000, there has been 'a new sense of urgency attached to risks from climate change' (Carvalho and Burgess, 2005, p. 1466) due to the increase in everyday experiences of extreme weather events. The heatwaves that swept across Europe in 2002, along with the increased occurrences of local flooding, have meant that the evidence of climate change has been brought closer to many European homes. Alongside the documentation of climate change impacts upon the world's glaciers, since 2002, Greenpeace UK climate campaigns have also been increasingly focused upon the human impacts of a changing climate and the need for action on both a UK governmental and personal level. Public campaigns have focused upon promoting renewable energy and 'tackling global warming' in the present through wind power (Greenpeace UK, 2002; Greenpeace UK, 2004).

The need for a political commitment to renewables has developed in the context of the political framing of nuclear as a safe option for addressing climate change. This discursive reframing of nuclear by the UK government has occurred over the last few years, with debates first appearing in the UK media during 2003–2004 (Carvalho and Burgess, 2005).[13] Greenpeace's response to this has been to dispel the myths around the safety of nuclear, by foregrounding the problems of radioactive waste, critiquing its economic viability, and by linking nuclear to concerns about national security through discourses of terrorism.

Interestingly, the shock tactics associated with using images of melting glaciers have been replaced by shock tactics associated with terrorist attacks. A recent public campaigning video by Greenpeace depicts a young heterosexual family playing on a beach near a nuclear power station, when suddenly a plane crashes into the station, ending with an appeal to 'Tell Tony Blair nuclear power is not the answer' (Greenpeace UK, 2005). The recent outcome of the UK Government's rebranding of nuclear resulted in the Energy Review (DTI, 2006) which called for a programme of new nuclear power stations to be built as a means of tackling climate change. However, through a High Court decision, Greenpeace has temporarily halted this programme on the grounds that the decision is unlawful, due to the lack of a full public review (Greenpeace UK, 2007a).

Given the increasing global awareness of climate change in recent years, evident in the success of Al Gore's film *An Inconvenient Truth* (2006), and in the increasing coverage of this issue by the UK news media, Greenpeace UK has shifted some of its attention to the solutions available on a local/regional level. Decentralising energy production has been a key message of Greenpeace UK climate change campaigns since 2006 (Greenpeace UK, 2007b). The promotion of more localised energy production through the generation of heat and power together has been communicated as a common-sense option that is already happening in other countries (Denmark and Finland) and, as such, presents a positive message about tackling climate change.

Conclusion: Limitations of the Visual within Environmental Discourse

This paper has drawn upon the perspectives offered by a range of environmental sociologists and theorists, in order to show how the privileging of the visual/visible within environmental and scientific discourse has proven problematic for the representation and communication of climate change. Sociologists such as Adam, Beck and Van Loon have identified how contemporary environmental problems are not always accessible to the senses, giving them an 'air of unreality until ... they materialise as symptoms' (Allan *et al.*, 2000, p. 3). Adam (1998) has argued further that the very nature of environmental problems means that they happen over a long period of time and are often invisible. A prioritisation of the visible, at the expense of that which is hidden, thus reinforces the view that 'seeing is believing', based, as this is, upon the empiricism of scientific knowledge. This belief in the visible has contributed to the difficulties encountered in the communication of climate change as a 'real' and credible threat since the early 1990s.

Adherence to the visible as a form of (scientific) knowledge is reinforced further by the media coverage of the environment. Environmental theorists such as Hansen (1991, 1993, 2000) and Anderson (1997) have shown how the media employ events-based tactics to cover environmental issues, rendering climate change difficult to cover given its nature as a long-term and not always visible risk. This prioritisation of the immediacy of the visual is also characteristic of environmental discourse more generally. Sociologists such as Urry (1990), Wilson (1992), Macnaughten and Urry (1998) and Ingold (1993) have shown how a visual aestheticisation of the landscape, as representative of the environment, has come to define environmental discourse since the Enlightenment, placing vision/sight as one its key features.

Whilst drawing upon these perspectives in order to illustrate the difficulties encountered in the representation of climate change, I have also called more specific attention to the role of photography within the discourse of the environment, and in the communication

strategies of the environmental NGO, Greenpeace. Where the discourse of photography places emphasis upon the indexical nature of the photographic sign as a form of truth (Barthes, [1980], 2000), I have argued that this proves particularly problematic in the context of climate change communication. The moment climate change can be photographed is the moment it becomes visible as a symptom (Allan *et al.*, 2000), and thus too late for preventative action. What makes this temporal dilemma particularly problematic is the investment by Greenpeace in the language of photography as 'internationally comprehensible' (Boettger, 2001, p. 12).

Where Greenpeace have been committed to communicating the reality of climate change since 1990 (Mormont and Dasnoy, 1995), they have also been committed to the use of photography as a privileged form of environmental documentation and communication. By identifying the representational problems encountered in communicating a temporal, and not always visible, environmental risk such as climate change, my intention in this paper has been to examine how Greenpeace negotiated these problems in their own climate change communication. Attention has been focused upon how Greenpeace sought to make 'real' the potential and invisible risks of climate change, in light of their commitment to photographic communication. Through historical analysis of Greenpeace public campaign literature on climate change since 1994, I have identified five representational phases that illustrate how Greenpeace has framed climate change in its attempt to make it meaningful to the public (Mormont and Dasnoy, 1995).

Phase one (1994–1997) established the dangers of a warming planet by presenting the future as an imminent and catastrophic present, communicated through metaphors of heat and nuclear catastrophe. Phase two (1997) shifted attention to the causes (both present and past), and solutions to climate change, making the issue meaningful by designating the victims (Mormont and Dasnoy, 1995) as the habitats and wildlife of the Atlantic Ocean. The publication of the first photographic evidence of climate change impacts in Antarctica in 1997 helped create a synecdochal sign for climate change in the present, with phase three (1997–1999) focusing upon the fragility of the polar regions, as well as offering renewable solutions.

With photographic evidence of climate impact upon polar ice, and increasing public consciousness, phase four (2001–2003) concentrated upon the links between dirty oil and dirty politics, identifying Esso and George W. Bush as the climate change villains. More recently, phase five (2002–2007) has returned to the visual trope of melting glaciers, explicitly using the indexical power of the photograph as a sign of climate change truth. At the same time, this photographic 'truth' has enabled Greenpeace to shift its campaign messages to solutions on a national/regional level, through decentralised energy production and the promotion of non-nuclear energy sources.

The temporality of all environmental discourse, or 'Greenspeak' (Harré *et al.*, 1999), which makes present environmental problems relevant through reference to the past and the future, has been present in all phases of Greenpeace climate change communication. Yet in the case of climate change, this has been shown to be complicated by its non-visible nature. This means that Greenpeace has had to 'run against time' in order to make climate change meaningful as a real and present threat, before its impacts could be seen. To its credit, an examination of the history of its climate change communication shows that Greenpeace has always sought to present climate change as a present threat.

So what of the role of photography? Undoubtedly the production of photographic evidence of climate impacts upon the Antarctic ice sheets in 1997 proved a significant

moment in public and governmental acknowledgement of climate change (as seem in the Kyoto Protocol in 1997). This also enabled Greenpeace, to some extent, to shift its campaign focus to being more solutions led. However, I would maintain that the continued adherence to 'the language of photography ... which is also used by the mass media' (Boettger, 2001: 12) subscribes to and serves to reinforce the very problems encountered in the communication of environmental issues, including the science upon which they are often dependent for legitimation.

Greenpeace's commitment to the photograph as a powerful tool of environmental persuasion and documentation is inscribed by the representational limitations of the visual as a discourse of seeing and truth. Glacial retreat 'as one of the most visible signs that warming and climate change is real' (Greenpeace International, 2002a) could quickly figure climate change as observable from a distance, where fatalistic images operate to disempower human agency. Interestingly, the most recent report released by the IPCC frames the existing evidence of climate change impact as a means of showing what has already happened, precisely as a result of political inaction (IPCC, 2007). However, recent attempts by Greenpeace to offer credible solutions through the option of de-centralised energy, signals a more hopeful narrative based upon climate change solutions rather than one of catastrophe.

To conclude, it is worth thinking about how the representational limitations of the visual in relation to the communication of environmental issues has broader implications for a world that has invested in the visual as a form of truth; an investment seen in this instance as having detrimental impacts upon the environment. Thus, rather than proving that climate change is real through visible means, it might be more useful for environmental NGOs, and environmental scientists, to persuade the public that not all environmental problems can be seen.[14]

Acknowledgements

Thanks go to the staff of Greenpeace UK, Canonbury Villas, London, for allowing me access to campaign material. Particular thanks go to Stokely Webster, Greenpeace UK campaigner and Angela Glienicke, Greenpeace UK Picture Editor for the time they spent with me and the access they allowed me to images and publications. My thanks also go to Emma Gibson, Greenpeace UK GM Campaigner, for organising the interviews. All views expressed in the article are my own, and not those of Greenpeace, unless specified. Thanks also to Irmi Karl, Kate O'Riordan, Tara Brabazon, Les Levidow and the three anonymous journal reviewers for comments upon an earlier draft.

Notes

[1]For example, a report on climate change on the BBC News website, 'In pictures: How the world is changing' (BBC News, 2005), uses images of melting glaciers produced by Greenpeace alongside work from the environmental photographer Gary Braasch. Since 1999, Braasch, like Greenpeace, has been documenting glacial retreat as a sign of global warming (Braasch, 2005). A recent front page cover story in *The Independent* which 'reveals how climate change is destroying the world's most spectacular landscapes' (Simpson, 2005, p. 1) further demonstrates the dominancy of the use of photographs of retreating glaciers as proof of climate change within the popular news media. See also Perlman (2004).

[2]The IPCC (Intergovernmental Panel on Climate Change) was established in 1988 by UNEP (United Nations Environment Programme) and WMO (World Meteorological Organisation) 'to provide

independent scientific advice on the complex and important issue of climate change' (Houghton, 2004, Foreword). Conducting no new research, the role of the IPCC was, and is, to assess existing scientific reports published by the international scientific community in order to provide a comprehensive overview of the scientific basis of human-induced climate change. Comprised of scientists from a broad range of countries and a number of scientific disciplines, the IPCC has constituted the most authoritative scientific voice on the causes, impacts and effects of climate change.

[3]I have explored in more detail elsewhere the problematic use of (documentary) photography as a discourse of seeing/seen and truth in climate change communication. See Doyle (2008).

[4]I am taking 1994 as the start point because this was the year that Greenpeace International published its first public campaign report on climate change, *Climate Time Bomb: Signs of Climate Change from the Greenpeace Database*, June 1994.

[5]This credibility, however, was sorely damaged by the Brent Spar oil incident in 1995, where Greenpeace incorrectly calculated the amount of toxic chemicals contained in the redundant, and soon to be sunk, Royal Dutch/Shell oil platform in the North Sea. Even though the group admitted their mistake, and argued that the quantity of toxic chemicals did not alter the campaign message, it still led to a questioning of the scientific credibility of Greenpeace by the media, the public and politicians. See Hansen (2000).

[6]This structure of communication is different from other environmental NGOs. Friends of the Earth, for example, is an international organisation but varies its campaign messages according to a local context, with specific local environmental issues identified and campaigns organised by local and regional groups.

[7]There is now a considerably higher coverage of climate change in the news media, particularly with the recent publication of the Stern report (November 2006) into the economic impacts of climate change. *The Independent* newspaper had a very high level of news coverage of climate change during 2006.

[8]Doug Parr speaking with Sally Eden, 'How do NGOs commission, communicate and contest science?', *Science in Society* seminar, Dana Centre, London, 6 June 2006.

[9]*Ibid*.

[10]Informal interviews were conducted with Stokely Webster, Greenpeace UK campaigner, and Angela Glienicke, Greenpeace UK Picture editor, on 9 December 2004.

[11]A recent example is Robin McKie, 'You're Getting Warmer', *The Observer*, 27 June 2004, p 16. The current Greenpeace UK picture editor, Angela Glienicke, also made this observation.

[12]The rebranding of BP as an environmentally responsible oil company involved a change in the meaning of the BP initials, from British Petroleum to Beyond Petroleum, accompanied by a new logo to resemble a flower. More recently, BP has produced an advertising campaign (2005–2006) that extols their environmental credentials by acknowledging climate change, and in doing so erases their own involvement as an oil company in contributing to climate change (see Doyle, 2007).

[13]It is important to note that in the context of the UK, this signals a u-turn on the Labour Government's commitment to the decommissioning of all nuclear power stations by 2025 and is in opposition to public opinion on the safety of nuclear power. See Bickerstaff *et al.* (2006).

[14]I'd like to thank one of the anonymous reviewers for posing this question in their report, and for making me articulate my view more clearly.

Bibliography/References

Adam, B. (1998) *Timescapes of Modernity: The Environment and Invisible Hazards* (London: Routledge).

Allan, S., Adam, B. and Carter, C. (Eds) (2000) *Environmental Risks and the Media* (London: Routledge).

Anderson, A. (1991) Source strategies and the communication of environmental affairs, *Media, Culture and Society*, 13, pp. 459–476.

Anderson, A. (1997) *Media, Culture and the Environment* (London: UCL Press).

Barthes, R. [1980] (2000) *Camera Lucida: Reflections on Photography* (London: Vintage).

BBC News (2005) In pictures: How the world is changing, available at: http://news.bbc.co.uk/2/shared/spl/hi/picture_gallery/05/sci_nat_how_the_world_is_changing/html/1.stm.

Boettger, C. (2001) The role of photography in Greenpeace's strategy, in: C. Boettger and F. Hamdan (Eds) *Greenpeace, Changing the World: The Photographic Record*, pp. 12–25 (Steinfurt: Rasch & Rohring).

Brown, M. and May, J. (1989) *The Greenpeace Story* (London: Dorling Kindersley).

Bickerstaff, K., Lorenzoni, I., Pidgeon, N.F., Poortinga, W. and Simmons, P. (2006) Reframing nuclear power in the UK energy debate: nuclear power, climate change mitigation and radioactive waste, *Public Understanding of Science*, 15, pp. 1–25.

Braasch, G. (2005) Global warming at the extremes of the earth: Habitats and cultures everywhere react to climate's rapid changes, available at: http://www.worldviewofglobalwarming.org/.

Carter, N. (2001) *The Politics of the Environment: Ideas, Activism, Policy* (Cambridge: Cambridge University Press).

Carvalho, A. and Burgess, J. (2005) Cultural circuits of climate change in U.K. broadsheet newspapers, 1985–2003, *Risk Analysis*, 25(6), pp. 1457–1469.

Doyle, J. (2007, forthcoming) Where has all the oil gone?: BP branding and the discursive elimination of climate change risk, in: D. Wragg and N. Hefernan (Eds) *Culture, Environment and Eco-Politics: History/Theory/Practice* (Newcastle: Cambridge Scholars Press).

Doyle, J. (2008, forthcoming) Seeing the climate?: The problematic status of visual evidence in climate change campaigning, in: S. Dobrin and S. Morey (Eds) *Ecosee: Image, Rhetoric, and Nature* (New York: State University of New York Press).

DTI (2006) Energy Review: The Energy Challenge, available at http://www.dti.gov.uk/energy/review/page31995_print.html

Eden, S., Donaldson, A. and Walker, G. (2006) Green groups and grey areas: scientific boundary-work, nongovernmental organisations, and environmental knowledge, *Environment and Planning*, 38, pp. 1061–1076.

Farrow, C. (2000) Communicating about climate change: an NGO view, in J. Smith (Ed.) *The Daily Globe: Environmental Change, the Public and the Media* (London: Earthscan).

Greenpeace International (2002a) Arctic environment melts before our eyes, available at: http://www.greenpeace.org/international/news/glaciers-melt-before-our-eyes

Greenpeace International (2002b) Exxon's weapons of mass deception, available at: http://www.greenpeace.org.uk/MultimediaFiles/Live/FullReport/5291.pdf

Greenpeace International (2004a) Pictures of climate change from the disappearing glaciers of Patagonia, available at: http://www.greenpeace.org/international/press/releases/pictures-of-climate-change-fro#

Greenpeace International (2004b) Where has all the ice gone?: Patagonia revisited, available at: http://www.greenpeace.org/international/news/patagonia-revisited

Greenpeace International (2004c) Alexis Rockman: our true nature: an artist's view of the future, available at: http://www.greenpeace.org/international/news/alexis-rockman-our-true-nature

Greenpeace International (2005) 12 Steps, available at: http://www.greenpeace.org/international/campaigns/climate-change/take_action/12_steps

Greenpeace International (2006) How is Greenpeace Structured, available at: http://www.greenpeace.org/international/about/how-is-greenpeace-structured#

Greenpeace International (2007a) About Greenpeace, available at: http://www.greenpeace.org/international/about

Greenpeace International (2007b) Greenpeace Science Unit, available at: http://www.greenpeace.org/international/about/greenpeace-science-unit-2

Greenpeace UK (2005) Friday the Thirteenth (video), available at: http://www.greenpeace.org.uk/fridaythe13th/

Greenpeace UK (2007a) Success as government's nuclear plans ruled unlawful, available at: http://www.greenpeace.org.uk/climate/climate.cfm?CFID=5908180&CFTOKEN=73353361&UCIDParam=20070215173120

Greenpeace UK (2007b) Decentralised energy, available at: http://www.greenpeace.org.uk/climate/solution/revolution.cfm

Harré, R., Brockmeier, J. and Muhlhausler, P. (1999) *Greenspeak: A Study of Environmental Discourse* (London: Sage).

Hansen, A. (1991) The media and the social construction of the environment, *Media, Culture and Society*, 13, pp. 443–456.

Hansen, A. (1993) Greenpeace and press coverage of environmental issues, in: A. Hansen (Ed.) *The Mass Media and Environmental Issues* (Leicester: Leicester University Press).

Hansen, A. (2000) Claims-making and framing in British newspaper coverage of the 'Brent Spar' controversy, in: S. Allan, B. Adam and C. Carter (Eds) *Environmental Risks and the Media* (London: Routledge).

Houghton, J. (2004) *Global Warming: The Complete Briefing*, 3rd edn (Cambridge: Cambridge University Press).

Ingold, T. (1993) Globes and spheres: the topology of environmentalism, in: K. Milton (Ed.) *Environmentalism: The View from Anthropology* (London: Routledge).

IPCC (2004) 16 Years of Scientific Assessment in Support of the Climate Convention, available at: http://www.ipcc.ch/about/anniversarybrochure.pdf

IPCC (2007) Working Group 1 contribution to the fourth assessment report by Susan Solomon and Dahe Qin, Presentation at Paris, 2 February 2007, available at: http://www.empreinte.com/richmediaevent/20070202/vod/ipc_audio_en_900x540_WindowsLD.htm

Macnaughten, P. and Urry, J. (1998) *Contested Natures* (London: Sage).

McKie, R. (2004) You're getting warmer, *The Observer*, 27 June 2004, p. 16.

Mormont, M. and Dasnoy, C. (1995) Source strategies and the mediatization of climate change, *Media, Culture and Society*, 17, pp. 49–64.

Perlman, D. (2004) Shrinking glaciers evidence of global warming: differences seen by looking at photos from 100 years ago, available at: http://sfgate.com/cgi-bin/article.cgi?f=/c/a/2004/12/17/MNGARADH401.DTL

Simpson, J. (2005) The melting mountains, *The Independent*, 5 November 2005, pp. 1–3.

Soper, K. (1995) *What is Nature? Culture, Politics and the Non-Human* (Oxford: Blackwell).

Urry, J. (1990) *The Tourist Gaze: Leisure and Travel in Contemporary Societies* (London: Sage).

Wapner, P. (2000) Greenpeace and Political Globalism, in: F. Lechner and J. Boli (Eds) *The Globalisation Reader*, pp. 385–391 (Oxford: Blackwell).

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

Wilson, A. (1992) *The Culture of Nature: North American Landscape from Disney to Exxon Valdez* (Oxford: Blackwell).

Greenpeace Print Publications

Greenpeace International, Amsterdam

(1994, June) *Climate Time Bomb: Signs of Climate Change from the Greenpeace Database*.

(1994) *The Carbon Bomb: Climate Change and the Fate of the Northern Boreal Forests.*

(1997, September) *Fossil Fuels and Climate Protection: The Carbon Logic.*

(1997) *Polar Meltdown: The Changing Climate in Antarctica.*

(1997, December) *Impacts of Climate Change: Clear and Present Danger*.

(1998, August) *The Oil Industry and Climate Change*.

(2004) *Sea, Wind, Europe: Clean, Green Energy for Every Home in Europe.*

Greenpeace UK, London, Canonbury Villas

(1990, October). *Climate Change: A Reader's Guide to the IPCC Reports.*

(1995, September) *Climate Change*.

(1997, April) *Putting the Lid on Fossil Fuels: Why the Atlantic should be a Frontier against Oil Exploration*.

(1998, April) *New Power for Britain: A Strategy for a Renewable Energy Industry.*

(1998, July) *Nature's Bottom Line: Climate Protection and the Carbon Logic.*

(1998, December) *The Atlantic Frontier: Britain's Last Ocean Wilderness.*

(2002) *Speak Out!: No to Nuclear, Yes to Wind.*

(2004) *Sea, Wind, Europe: Clean, Green Energy for every Home in Europe.*