FIRE AND ICE:
THE VISUAL RHETORIC OF ONLINE CLIMATE CHANGE IMAGES

by

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Abstract

In the last twenty years, there has been extensive analysis of print and broadcast coverage of climate change, but few scholars have specifically examined the visual images presented with climate change coverage. As a prominent issue of public discourse, climate change has developed its own specific lexicon of cultural signifiers and visual idioms, including images of melting glaciers, polar animals, and a “burning” planet Earth.

This project examines visual images associated with climate change coverage from several online (website) sources, including two Google image searches, three media outlet sites, and four non-governmental organization websites that generate literature or information about climate change for an international audience.

By analyzing content, thematic elements, and rhetorical issues relating to the displayed images, this project attempts to develop a discussion of the significance of images used by online sources featuring climate change content. Images featuring “ice” and “fire” motifs are still popular, although other generalized, iconic imagery was also evident, depicting smokestacks, alternative energy projects, and extreme weather scenarios. In general, media outlets tended to feature more specific photographic content, while other organizations used more generalized content, often featuring images of de-populated “wild” landscapes that conform to Western cultural rhetoric associated with the natural world.
Preface

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# Table of Contents

Abstract................................................................................................................................. ii  
Preface........................................................................................................................................ iii  
Table of Contents .................................................................................................................. iv  
List of Tables ........................................................................................................................... v  
List of Figures ........................................................................................................................ vi  
Acknowledgements ................................................................................................................ vii  
Dedication ............................................................................................................................... viii  

1 Chapter: INTRODUCTION ................................................................................................. 1  
1.1 Methodology ....................................................................................................................... 2  
1.2 Climate change and the Media ............................................................................................ 4  
1.2.1 Climate change background ............................................................................................ 4  
1.2.2 Media issues and climate change ...................................................................................... 7  
1.2.3 Environmental issues in the media .................................................................................... 12  
1.3 The Visual Spectacle .......................................................................................................... 16  
1.3.1 Photography ..................................................................................................................... 16  
1.3.2 The digital universe .......................................................................................................... 20  
1.4 A Sublime Landscape ......................................................................................................... 22  
1.4.1 The search for Eden ......................................................................................................... 22  
1.4.2 Virgin ice and polar animals ............................................................................................. 24  
1.4.3 Burning Earth .................................................................................................................... 26  

2 Chapter: ONLINE IMAGES OF CLIMATE CHANGE ......................................................... 29  
2.1 The digital scrapbook .......................................................................................................... 29  
2.2 Examining sites / sights ....................................................................................................... 31  
2.2.1 Google searches ............................................................................................................... 32  
2.2.2 Media outlets ................................................................................................................... 40  
2.2.2.1 The Globe and Mail ...................................................................................................... 42  
2.2.2.2 The New York Times ..................................................................................................... 43  
2.2.2.3 The Guardian ............................................................................................................... 44  
2.2.2.4 Media sites summary ..................................................................................................... 46  
2.2.3 Organizations .................................................................................................................. 48  
2.2.3.1 David Suzuki Foundation ............................................................................................ 48  
2.2.3.2 Intergovernmental Panel on Climate Change ............................................................... 53  
2.2.3.3 National Geographic Society ....................................................................................... 54  
2.3 Emerging patterns .............................................................................................................. 58  

3 Chapter: CONCLUSION ....................................................................................................... 68  
3.1 The empty mirror ............................................................................................................... 68  
3.2 A patchwork narrative ........................................................................................................ 72  

BIBLIOGRAPHY ..................................................................................................................... 76
List of Tables

Table 1: Categories .............................................................................................................. 32
Table 2: Google searches (combined) .................................................................................. 60
Table 3: Media search results (combined) .......................................................................... 63
Table 4: Organizations' websites (combined) .................................................................... 64
Table 5: Google, media, and NGO results (combined) ....................................................... 66
List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Google &quot;global warming&quot; image search</td>
<td>34</td>
</tr>
<tr>
<td>2</td>
<td>&quot;Burning earth&quot; images</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>&quot;Melting ice&quot; images</td>
<td>38</td>
</tr>
<tr>
<td>4</td>
<td>Polar animal images</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td><em>The Globe and Mail</em> &quot;Science&quot; page</td>
<td>43</td>
</tr>
<tr>
<td>6</td>
<td><em>The New York Times</em> &quot;global warming&quot; icon</td>
<td>44</td>
</tr>
<tr>
<td>7</td>
<td>The <em>Guardian</em> &quot;environment&quot; page</td>
<td>46</td>
</tr>
<tr>
<td>8</td>
<td>The <em>Guardian</em> &quot;climate change&quot; page</td>
<td>47</td>
</tr>
<tr>
<td>9</td>
<td>David Suzuki Foundation &quot;climate change&quot; page</td>
<td>50</td>
</tr>
<tr>
<td>10</td>
<td>Greenpeace International &quot;climate change&quot; page</td>
<td>51</td>
</tr>
<tr>
<td>11</td>
<td>Greenpeace International &quot;please donate&quot; button</td>
<td>52</td>
</tr>
<tr>
<td>12</td>
<td>IPCC report covers</td>
<td>54</td>
</tr>
<tr>
<td>13</td>
<td>National Geographic &quot;global warming&quot; page</td>
<td>56</td>
</tr>
<tr>
<td>14</td>
<td>National Geographic &quot;causes&quot; page</td>
<td>57</td>
</tr>
</tbody>
</table>
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Dedication

To my father, Richard Greyson, whose love of science and the natural world has been a lifelong inspiration. After sending me articles and books about climate change for almost a decade, my father’s concern about this issue became my concern, and I’m grateful for his interest and enthusiasm.

In memory of my mother, Dorothy, who showed me a Lawren Harris painting of a snow-capped mountain long before I entered kindergarten. Her deep love of literature and painting remains a strong current in my life, and I hope she would have enjoyed the cross-disciplinary scholarship of this thesis.
1 Chapter: INTRODUCTION

This idea for this project began, appropriately enough, with an image. The image in question is a printed copy of a photograph, taken over a decade ago and now glued into a battered blue scrapbook. Snapped by a friend on a cardboard disposable camera, the photograph shows me sitting on the side of a snow face, anchored with ropes, harness, and ice axe. Participating in a week-long mountaineering course near Whistler, B.C., my memories now recall the hot August sun beating down on Blackcomb Glacier, and streams of clear glacial melt-water trickling along the edges of granite boulders.

This photograph recalls a personal excursion, but it also symbolizes the genesis of awareness. In the late 1990’s, I was more aware of logging in west coast forests than of global warming. I recall learning about melting glaciers and climate change in later years, and my concern was forever linked to the vivid memories I carried after my first (and only) traverse of a glacier.

Over ten years later, my understanding of climate change has altered. Now, the issue is shaped not only by my personal experience, but also by the particular types of public discourse that the issue has engendered. In the last fifteen years, the widespread dissemination of scientific reports, scholarly analysis, and mass media stories have covered the issue extensively, discussing the state of this environmental crisis and its implications for local and international stability.

While the focus of this coverage has varied depending upon content and context, news stories about climate change have discussed scientific research findings, ecological impacts, and government policy regarding greenhouse gas emissions in detail (Adam 2007, Kleiner 2009, Bhanoo 2010, Revkin 2009, Revkin and Kanter 2009, Chang 2009, Pope 2010, McKie
Public concern over climate change has even permeated popular culture (Maslin 2009).

With every article and broadcast, various visual images have been employed by media producers in an attempt to illustrate climate change for readers or viewers. In addition to graphs and charts used to show global warming trends, various types of photographic images are utilized repeatedly. In particular, two types of thematic choices predominate, and can be classified as either “fire” or “ice” images. In many of these images, visual motifs of heat or fire is repeatedly used, particularly in multi-layered illustrations of flames superimposed on an image of Planet Earth. Images of ice, ranging from melting blue icebergs to cracking ice sheets, are also used repeatedly in broadcast, print, and online sources.

While a number of scholars have examined mass media coverage of climate change from a variety of perspectives, few studies have specifically examined the visual images associated with climate change coverage. For my master’s thesis for the Graduate School of Journalism at the University of British Columbia, I will develop an analysis of images of climate change, sourced from mass media and non-governmental organizations’ websites. By discussing these images within a cultural and historical context, I hope to present an analysis that is cross-disciplinary in approach, thereby adding to current communications scholarship on this issue.

1.1 Methodology

For this project, the sources for these images will consist of several online web pages focusing on climate change. These web pages can be classified according to three categories. The first set of web pages will be generated by a Google image search using “climate
change” and “global warming” search terms. The second set of web pages will consist of online feature articles and climate change information pages produced by three national newspapers from three countries: The Globe and Mail (Canada), The New York Times (U.S.), and the Guardian (U.K.). The third group of online pages to be examined will be from the websites of four organizations who are leading producers of information and visual images related to climate change: the David Suzuki Foundation, Greenpeace International, the UN Intergovernmental Panel on Climate Change (IPCC), and the National Geographic Society.

By examining the images available on these web pages, I hope to develop a specific discussion regarding the use, prevalence, and context of images related to climate change. By developing my own adaptation of the critical discourse analysis method utilized by Carvahlo and Burgess (2005), I will examine these images as “texts”, identifying general “morphological” characteristics, thematic elements, and rhetorical issues relating to the images. Twenty-two categories of specific thematic content and image type will govern the classification of each image, and these classifications will be compared to determine the dominant motifs that are presented on the web pages.

As well as identifying content and type of image, other visual and design considerations will be noted, including the relative size of images, the number of icons or images per page, and the placement of images related to text content. The structural “architecture” of these websites will also be considered, in order to ascertain how easily users can navigate the site and how prominently the relevant information is displayed. These components will not only be commented on individually, but comparisons will also be drawn between the groups of websites examined.
1.2 Climate change and the Media

1.2.1 Climate change background

Climate change, as presented as part of public discourse, is primarily understood as a geophysical phenomenon associated with rising global temperatures. Caused primarily by greenhouse gas emissions associated with human activities since the industrial revolution, climate change has been called the “story of the century” by media analysts, citing scientific predictions that climate change will undoubtedly produce widespread ecological impacts, affecting communities and biological organisms around the globe (Ward 2007, Ward 2008).

Climate change, however, does not exist merely in graphs, charts, and reports produced by scientists and researchers. Over forty years of discussion and debate have re-shaped climate change as a contemporary cultural construct, acting like a “mutating hybrid entity” that blurs the boundaries between the natural and cultural spheres (Hulme 2008, 5). Without a sophisticated comprehension of how our cultural understanding of climate change operates within public discourse, we have little hope of developing effective strategies to combat the problem.

But before diving into these complex cultural issues, it is important to re-examine the historical context of climate change research. While public consciousness of this issue has slowly developed within the last few decades, scientists and researchers have been examining changing climate models for many years. As far back as the 18th century, explorers noted extensive deforestation and a resulting impact on the climate of Mauritius (Grove 1995, 91). In 1824, French physicist Joseph Fourier developed a theoretical description of what is now known as the “greenhouse effect”, or the warming of the earth from solar energy trapped by
the atmosphere (Flannery 2005, 38-9). And Swedish scientist Svante Arrhenius expanded this work at the end of the 19th century, identifying the burning of fossil fuels as a cause of increasing carbon dioxide in the atmosphere, which he posited would result in the warming of the Earth’s temperature (Flannery 2005, 40, Hoggan 2009, 17, Weart 2004).

In the modern era, discussions of climate change began to surface in the political realm in the 1960s, with President Lyndon Johnson addressing the issue in a message to Congress, and subsequent American politicians citing their concern with research presented by prominent scientists (Hoggan 2010, 16-20). In 1988, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) established the Intergovernmental Panel on Climate Change (IPCC), considered one of the preeminent international consortiums of scientific knowledge on the subject. Four reports have been generated by the IPCC and circulated internationally, the latest being the 2007 Fourth Assessment Report. While earlier reports were less conclusive, the 2007 report stated that global climate change was “unequivocal”, and that much of the current increases in globally averaged temperatures was occurring as a direct result of anthropogenic (human) activities (IPCC 2007).

This wasn’t the first strong statement on climate change from scientists. In 1988, this link between anthropogenic activity and global warming was acknowledged publicly in a widely reported testimony given before the U.S. Senate. James Hansen, the head of NASA’s Goddard Institute for Space Studies, testified before the U.S. Energy and Natural Resources Committee that record high temperatures were the direct result of anthropogenic activity (Maslin 2009 28). This testimony became headline news in the American media, and is now
regarded as a pivotal moment in the development of climate change as an issue of public concern (Sheppard 2008).

In addition to the IPCC reports, national and international science academies and organizations have agreed with or endorsed the findings of the IPCC. In 2004, the intergovernmental Arctic Council and the non-governmental International Arctic Science Committee produced a synthesis report, the Arctic Climate Impact Assessment, which stated that the polar regions were experiencing rapid environmental changes due to rising temperatures. According to the report, climate change impacts would be likely be more severe in the Arctic and Antarctic than in other regions, and that “there is international scientific consensus that most of the warming observed over the last 50 years is attributable to human activities” (UNEP/GRID Arendal 2004).

Since 2001, 32 national science academies have issued joint declarations confirming anthropogenic global warming, including the Royal Society of the United Kingdom and the Royal Society of Canada. In 2001, following the publication of the IPCC Third Assessment Report, seventeen national science academies issued a joint statement, entitled “The Science of Climate Change”, endorsing scientific consensus on the issue. This statement was published as an editorial in Science on May 18, 2001 (Royal Society et al. 2001).

In an attempt to bridge the divide between scientific research and the general public, a number of authors have written popular books describing the issue of climate change. The first of these works, written by New York Times reporter Andrew Revkin in 1992, followed the Hansen testimony to the U.S. Senate. The majority of well-known works, however, were published in the last decade (see Wohlforth 2004, Flannery 2005, and Kolbert 2006, for example). This sudden rise in public attention in recent years may be partially attributed to
the success of Al Gore’s 2006 film *An Inconvenient Truth*, which won international accolades, and was credited with raising the public profile of the issue significantly (Maslin 2009, 37).

But despite the popularity of many of these works, some activists and researchers are concerned that public opinion has not kept pace with the seriousness of the threat of climate change. Mass media coverage has been critiqued by scholars as being rife with bias, riddled with policy concerns, and subject to confusing, misleading debates (Gelbspan 1998, Monbiot 2006, Maslin 2009, Hoggan 2010, Oreskes and Conway 2010). According to some, the mass media has “failed to inform their readers and listeners about what is surely the most important and dangerous environmental issue in the history of humankind” (Hoggan and Littlemore 2010, 153).

Recent research suggests that this concern is warranted, as a 2009 poll from the Pew Research Centre indicated that only 35% of Americans see climate change as a serious problem, a decline of 9% from the previous year (Pew Research Centre 2009). Some have blamed the so-called “climate gate” scandal of 2009 as the cause of this decline. Hacked emails from the University of East Anglia’s Climatic Research Unit were published, leading to charges that climate scientists had manipulated data or attempted to silence critics. Despite several independent investigations indicating no evidence of unethical practice, concern remains that this issue eroded public confidence in climate research (Tollefson 2010).

1.2.2 Media issues and climate change

Despite widespread scientific acknowledgement and political confirmation of the importance of climate change as an issue of concern, Western mass media has not necessarily
responded with coverage reflecting this perspective. Scholars acknowledge that mass media has a great influence on the public’s perception of the issue of climate change (Trumbo and Shanahan 2000, Carvahlo and Burgess 2005, Hansen 2010). Part of the challenge of presenting accurate information about climate change for the general public lies in the divide between the practice of science and the practice of journalism (Dean 2009, Callison 2010).

In particular, there have been widespread critiques of the mass media coverage of so-called “debates” within the scientific community regarding climate change. In an attempt to shed light on this issue, science historian Naomi Oreskes published a widely cited report in 2004, asserting that no such debate was a factor within the scientific community. Oreskes’ study, titled “Beyond the Ivory Tower: The Scientific Consensus on Climate Change”, analyzed 928 scientific abstracts published between 1993 and 2003. Her report noted that 75 per cent of the examined abstracts either explicitly or implicitly backed the consensus view of climate change supported by the IPCC and other organizations, with the remaining 25 per cent detailing methodology or other issues and taking no position on the issue. Oreskes noted that out of the 928 published reports, none dissented from this perspective (Oreskes 2004).

George Monbiot, a syndicated columnist with the Guardian newspaper, has also written extensively about media coverage of climate change. In Monbiot’s 2006 book, Heat: How to Stop the Planet Burning, he critiqued industry-funded opinion groups and individuals campaigning to discredit climate change science who were given credence by journalists as “experts”. In a syndicated column article titled “The Fossil Fools”, Monbiot argued that more often than not, media outlets were acting like the “public relations arms of fossil fuel companies” (Monbiot 2004).
Max Boykoff, currently working at the Center for Science and Technology Policy Research at the University of Colorado, has written a number of academic articles examining the coverage of climate change by U.S. and U.K. media outlets. His 2005 article, “The Disconnect of News Reporting from Scientific Evidence”, argued that “balanced” coverage of climate change had generated a misleading public perception that there is not consensus in the scientific community regarding climate change (Boykoff 2005).

Boykoff has also examined print and television broadcast coverage of climate change in the U.S. and the U.K. His 2007 article, titled “Flogging a dead norm?”, noted specific differences between newspaper coverage of climate change in the U.S. and U.K. between 2003 and 2006. The American newspapers Boykoff examined tended to downplay or ignore scientific consensus regarding climate change during this time period, while the U.K. newspapers he examined did not, indicating that regional concerns and policy complicated media coverage (Boykoff 2007). Other articles by Boykoff show that television coverage in the U.S. has also been subject to the same biased climate change coverage evident in print journalism, and that traditional journalistic practices plays an important role in climate change coverage (Boykoff 2005, Boykoff and Rajan 2007, Boykoff M. and J., 2007).

Other scholars have shown that media outlets have presented climate change with varying levels of coverage. Two studies examining national U.S. newspapers identified specific “issue attention cycles” evident in press coverage of climate change. In a ten year study of five national U.S. papers between 1985 – 1995, Craig Trumbo identified that media coverage of the issue was almost non-existent before 1988, but that media coverage rose between 1989 and 1992, peaking with the 1992 Rio Earth Summit. After 1992, media interest waned once more (Trumbo 1996, McComas and Shanahan 1999).
In a 2005 article, Anabela Carvahlo and Jacquelin Burgess presented a similar study, this time examining climate change coverage in U.K. newspapers between 1985 and 2003. Their research identified three distinct time periods associated with British newspaper coverage of climate change, with coverage rising dramatically between 1997 to 2003, as extreme weather events “provided news organizations with concrete evidence strengthening the argument” that climate change was occurring. (Carvahlo and Burgess 2005, 1466). Carvahlo and Burgess’ study also noted that the dominant ideological standpoints of the examined newspapers played a role in the type of coverage offered.

While British and American media coverage of climate change has been examined fairly extensively, fewer scholars have done the same type of analysis for Canadian media coverage. In a 2008 article published in the *Canadian Journal of Communication*, Jennifer Good compared climate change coverage “framing” in Canadian, American and international newspapers from January – December, 2007. Using Noam Chomsky’s media propaganda model (Chomsky 1999), Good noted that all three regions examined showed a hesitancy to frame climate change within the context of political policy recommendations, and that Canadian newspapers were more likely to talk about climate change and global warming than either the U.S. or international newspapers over the 2007 time period (Good 2008).

While the critiques of media coverage concerning climate change are warranted, it is also important to acknowledge the complexities involved for journalists and media outlets in producing news on scientific issues. Climate change is a particularly difficult issue to cover, partly due to the complexity of the research, which involves “abstract and probabilistic science, labyrinthine laws, grandstanding politicians, [and] speculative economics” (Wilson 2000, 206). Bridging the gap between scientists and the public is a problem, particularly in an
era of increasing research specialization on one hand, and widespread lack of basic “science literacy” in the general public on the other (Blum 2006, Revkin 2006, Kennedy 2010, 5, Miller 2010, Mooney 2010).

At the same time, it is important to move beyond reductionist assumption about public understandings of scientific research. The transfer of scientific knowledge is not always enough to promote political change and citizen engagement (Wynne 1996, Lahsen 2005, Jasanoff 2005, Callison 2010). If public knowledge of science is trivialized, the potential for rational, informed responses from many sectors of society is ignored, “reduc[ing] human cognition to a one-dimensional scale” (Jasanoff 2005, 270).

Offering in-depth coverage of scientific issues in the mass media is an important step, but this has been made more challenging in recent years. The rapid shifts in the media industry have had a serious impact on science coverage, as fewer writers specializing in science are employed at media outlets, and science stories are often farmed out to journalists without a science background (Russell 2010). As well, media outlets with fewer resources are less able to cover science issues effectively, often eliminating science sections altogether. The rise of online publishing has also led to many “unreliable, inaccurate” websites, particularly fueling “anti-science sentiment” and “anti-climate science” (Russell 2010, 20-23).

Science historian Naomi Oreskes offers perspective on this issue, in her 2004 paper, “Science and public policy: What’s proof got to do with it?”, published in Environmental Science and Policy. In this article, Oreskes critiques the general assumption that science must provide “proof” in order to claim validity for their research, and she argues that this type of response is misguided. Instead, Oreskes notes that science findings can provide informed opinions about possible outcomes and consequences of our actions and activities,
but should not be regarded as debatable according to the standards that many critics of climate change appear to demand (Oreskes 2004).

For journalists, these concerns all play a part in the challenge of providing critical, careful coverage of the climate change issue. Navigating research jargon while ignoring the temptation to highlight the “juiciest” elements of a story is an essential part of careful climate change reporting (Revkin 2006, 225). And as one of the most politicized areas of science journalism, coverage of climate change requires not only careful research, but a “thick skin” in order to weather the criticisms of concerned stakeholders on different sides of the issue (McFarling 2006, 243).

1.2.3 Environmental issues in the media

Developing a clear understanding of the mass media’s role in developing public discussions about environmental issues continues to be an ongoing concern for journalists, scholars, and activists. Faced with the challenges of presenting complex stories to an ever-shrinking audience, journalists and media professionals are often unable to adequately research or report on important news items. As a result, coverage of environmental issues in the mass media has often suffered, with many stories either under-reported, or overly sensationalized (Cox 2006, 164, Revkin 2010, Ward 2010).

The shifting nature of the media news cycle also affects the coverage of environmental news items, including coverage of the climate change issue (Mazur and Lee 1993, Shabecoff 2000, McComas, Shanahan and Butler 2001). While some scholars have examined the strategies of environmental activists designed to generate media attention, few critics have examined the specific rhetorical construction of mass media coverage of environmental
issues, or how this shapes our cultural understanding of the natural world (Wilson 1990, Deluca 1999, Meister 2002, 2).

Various communications theorists have worked within the premise that the mass media have a significant role to play within the public arena, although the extent of this influence has been broadly debated (see, for example, Lippman 1922, Dewey 1927, Habermas 1962). Other scholars have acknowledged that the mass media has been subject to various societal, political and economic pressures that have impacted the development of journalistic production (Bourdieu 1998, Curran 2002). The traditional reporting model emphasizing events-based news is not necessarily the best avenue to discuss the complexities of various environmental issues, particularly long-term and accumulative (non-visible) problems like climate change (Hansen 1993, Allen et al. 2000).

Analysis of media coverage of climate change has generated discussion and research among scholars for approximately twenty years, with a specific focus located on media coverage in the United States and United Kingdom. Each of these studies, however, has predominantly been focused on the textual content of the media coverage, examining the types of coverage according to the issues raised, angle of article, type of analysis, and use of expert opinion. And few scholars have examined the presentation of images linked to this text or broadcast content.

The presentation of many environmental issues relies upon the use of effective, eye-catching visual images (Deluca 1999, Cox 2006). While there are certainly debates about the types of media strategies and images used to publicize environmental campaigns, years of discussion about issues like deforestation, air pollution, and loss of biodiversity has created a companion lexicon of imagery that are now largely understood by the general public. Images
of hillsides marred by clear-cuts logging and smog pouring from smokestacks are relatively
easy to comprehend, and can be “read” as linking to specific discourse about an
environmental issue.

In comparison, presenting the issue of climate change within a visual context is
incredibly difficult. While critiqued as a misleading source of data, the “Mann hockey stick”
was one of the few charts, graphs, and diagrams published by climate scientists and
researchers that was visually eye-catching enough to warrant public attention (National
Academy of Sciences 2006). Even Al Gore’s use of a mechanical lift device to illustrate
temperature elevations during his lectures, while engaging to watch, has not translated into
imagery that has been widely reproduced or commented upon.

In contrast with other environmental issues, climate change is a phenomenon that is
occurring on a broad scale, with many impacts still only existing as hypothetical projections.
Rising temperatures, changing oceans, and the other challenges associated with climate
change are almost impossible to represent in the visual language we are accustomed to. As a
“technologically induced” environmental issue, climate change is largely “inaccessible to the
senses”, and therefore difficult to present as a hazard or risk (Allen et al. 2000, 3).

As a result, few communications scholars and climate change researchers have bothered
to examine the visual images presented in mass media coverage or other communications
materials. In many of the published studies examining public discourse about climate change,
textual content has been the sole focus of analysis. Images, whether photographs,
illustrations, or diagrams, tend to be considered mere “supplements” to the accompanying
written content, and therefore not relevant to the specific study at hand (Remillard 2011,
129).
Within the last decade, that trend has slowly begun to shift, with a handful of scholars beginning to pay attention to the types of images and image content associated with climate change publications and news content (Brönnimann 2002, Doyle 2007, Smith and Joffe 2009, Hulme 2009b, Manzo 2010). While these studies do develop new insights into the cultural significance of climate change images, the reports are limited primarily to examining images generated within British media or non-governmental organization campaign materials. Currently, there are no studies that compare images between international publications, or examine materials specifically presented on the Internet.

Two articles by British researchers examine images presented by non-governmental organizations for climate change action campaigns. One of the recent studies was completed by Julie Doyle, a lecturer at the University of Brighton. Her 2007 article, “Picturing the Clima(c)tic”, examines the photographs used in climate change campaigns by the international environmental organization, Greenpeace, over a fifteen-year period. Kate Manzo, a lecturer from Newcastle University, presents a similar discussion in her 2010 article, “Imaging vulnerability: The iconography of climate change”. In the article, Manzo studied images from climate change action campaigns in Britain between 2007-2008.

While both studies limit their discussion to the examination of images within a social action campaign focus, they offer a great deal of useful discussion regarding the use of imagery within public discourse. Many of the images used in these types of climate action campaigns have parallels or tie-ins with media images, and both articles offer keen insight into the role of nature images and photography used to discuss environmental issues.

In her article, Manzo identifies two types of climate change campaigns, “social marketing campaigns”, which emphasize an ethos of personal responsibility, and “bearing witness”
campaigns”, attempting to engage individuals as citizens and consumers (Manzo 2010, 96). The images used in the climate action campaigns, including images of melting glaciers and ice caps, operated as “visual fingerprints” and “harbingers” of climate change and its possible consequences (Manzo 2010, 96).

1.3 The Visual Spectacle

1.3.1 Photography

Before examining how images were specifically analyzed for this thesis, it’s important to discuss terminology in greater detail, starting with a brief description of how the term “images” is utilized. In this thesis, the term “images” refers to visual content produced to illustrate or describe the concept of global warming. This visual content is limited to work created in the public realm, posted on the Internet and produced by mass media outlets, non-governmental organizations, or educational organizations.

The visual content described and examined in this research is primarily photographic, either entirely composed of a single photographic image, or using photographic images in combination with illustrative elements and other photographs in montage. The images examined are visually realistic, or contain identifiable elements (i.e. planet Earth).

For centuries, humans have used visual imagery to document events, illustrate myths, convey sacred beliefs, and record political and economic structures. Containing sophisticated and coded references to social norms, historical legacies, and cultural attitudes, visual images are singularly powerful elements in our society. In order to fully engage with a study of
visual images, it is essential to appreciate their pivotal role in Western culture, and their impact on our daily lives (Burnett 2004, 8-10, Berger 1973, Lidchi 1999, Sontag 2001).

Technological innovations, like the development of printing press and photography, have altered our relationship to visual representations in countless ways (Benjamin 1936). Older methods of visual representation, like painting, have been produced for centuries as unique, one-time creations, subject to the whims of the artist and often intended for limited viewing within one home or building. With the development of printing technology, images could be reproduced in multiple copies, extending not only the potential audience for the image but also expanding the artist’s meanings and intentions of the visual image.

With the emergence of photography, the public’s relationship to visual images shifted once again. Developed during the nineteenth century, photography re-conceptualized the world in a multitude of new ways for viewers. A radically new form of visual presentation and mediated largely by technology and chemistry, photography was a true product of the industrial age. Mechanical and technological processes were embodied within the photograph, distinguishing photographic reproduction from painted or hand-drawn images (Benjamin 1936, Flusser 1983, Crary 1999, Wheeler 2002).

For media producers and newspaper editors, photography was adopted as another means of communicating with their target audience. In the eighteenth and nineteenth century, hand-drawn illustrations published in news journals increased circulation numbers and brought in more revenue. With advances in print technology, photography eventually replaced hand-drawn illustrations. Quicker to produce, photographs came to be considered to be reliable records, an “immortal” archive of public events (Schwartz 2003, 28, Sontag 2001, 11).
As theorists have noted, photography altered viewers’ visual perspectives, presenting the world as a two-dimensional, silent, monochrome image. The world seen through the lens of a camera was literally flattened and frozen. Mass-printed and produced, images could be replicated endlessly, and distributed to audiences living many miles away. The natural world, as seen through the photograph lens and printed in multiple copies for viewers, became a “new nature”, framed in a way never before conceptualized (Elliot 2006, 147, Bell 2002).

With the development of photography, visual perception was isolated, removed from the world of tactile understanding and privileged as a primary method of transmitting and receiving information. The photograph effectively abstracted the real world, transforming the subjects seen through the lens into objects that were simultaneously familiar and mysterious. The camera became an instrument of control, rapidly appropriating images while also decontextualizing them (Lidchi 1999, 89, Barthes 1984, Flusser 1983, Sontag 2001).

There is an odd tension existing between our cultural associations of “reality” in photography, and the actual technical complexities of producing a photograph. The mechanical and chemical processes that produced a photograph supposedly rendered it a verifiable document, recording the world with impartiality and accuracy (Perlmutter 2003, Schwartz 2003). However, the practice of photography has always included numerous opportunities for editorializing, editing, and alteration. From the initial composition of an image seen through a lens, to the multitude of “hand-made” alterations that happen within the darkroom, lab, or editing suite, photography has always included multiple opportunities for human intervention (Wheeler 2002).

While most individuals tend to regard photographs as fixed and stable entities, it is more valuable to understand photographic images as dynamic, referring not only to one moment in
time but also to multiple moments, multiple sources of engagement, and multiple modes of understanding. Photographs may indicate a particular event, but they also bear innumerable traces of cultural expectations and assumptions, including our need for historical archives to “validate” collective memory (Burnett 2004, 23-29).

The desire to understand photographs as “real” played a key role in their establishment as significant elements of the news-making process. Since photographs were included in news journals in the nineteenth century, photography has become a privileged component of mass media production. These photographs, considered impartial “windows on the world”, have often become image icons, showing pivotal political and social events for eager news audiences (Perlmutter 2003, Schwartz 2003).

The role of photographs within mass media production is to illustrate specific stories, and to provide visual context for viewers and audiences. Photographs, more than text, can translate the content of a story more rapidly, so editors highlight photographs within both the printed and online versions of a publication. Photographs that contain particularly striking visual images of drama, tension, or suffering, may be labeled “iconic”, and featured prominently within a news publication. Pivotal iconic images, often taken under duress during times of war or disaster, may be reproduced and awarded for their photographic or editorial qualities.

But it is just this type of reverence for news photography that is problematic, as photojournalism, no more so than photography itself, cannot faithfully record the world in a measurable way. As mentioned previously, photographs are never impartial, but are carefully cropped, composed, and edited versions of an event or situation. According to one writer, this is the “big lie” of photojournalism, as photographic images are chosen to convey specific
information about events to an audience, acting as a “political construct” as much as documentation of an event (Pelmutter 2003, 11-17).

1.3.2 The digital universe

Like the printing press and photography in earlier centuries, the development of digital technology and the Internet has irrevocably altered public discourse. With the rapid acceleration of our networked and multi-platform society, images and information is now circulated at dizzying speeds. The impact of digital technology on the dissemination of information is extensive, echoing the chaotic transition period following the development of the Gutenberg Press in the sixteenth century (Shirky 2009).

With these advances, it is almost impossible to appreciate how many images flash before our eyes during any given day. Advertisements, news broadcasts, online journals, social media feeds, and a multitude of other sources push image after image into our consciousness. Monitoring an array of backlit screens on laptops and smartphones, citizens spend their waking moments swimming in an endless “spectacle” of photographs, illustrations, and animation (Debord 1967, Crary 1999, Flusser 1983).

Predictably, our society’s understanding and relationship to images has shifted as digital technology has developed. While the industrial replication of images has been part of Western culture for centuries, the advent of digital technology has allowed us to copy, replicate, alter, crop, manipulate and distribute images more easily than ever before. Technology has, once more, launched us into an age where the aura of an original artwork is almost impossible to locate (Benjamin [1936] 1969).
With the development of digital technology, new concerns about integrity and veracity have surfaced, notably within the context of news photojournalism. The widespread use of inexpensive software allowing the seamless alteration of images has stimulated discussion and consternation about the appropriate use of technology to alter photographs for a media audience, leading to a declining level of trust in the photograph as a “trusted vehicle of truth” (Schwartz 2003, 30, Wheeler 2002).

The practice of photography has, however, always involved manipulation of some sort. From the earliest development of the medium, photographers have altered their images according to whim and desire, carefully posing subjects for the lens, and using various processing techniques to produce a “perfect” image. Altering pixels in Photoshop then is only the latest technological development in a century of photographic experimentation.

Contemporary consumption of images is undercut continually with tension, between the “real” and the “fake”. Real events in the world are continually transformed into images for our consumption, but our proximity to the event is so distant that we are unable to trust the image implicitly. This shift means that images no longer act simply as static representations of the world, but act now as “mediators” connecting humans and technology, “as much reference points for information and knowledge as visualizers of human creativity” (Burnett 2004 xiv, Sontag 2001).

How does the digital universe operate as a forum for public discourse? Theorists have debated the potentials and pitfalls of the new era of online communication, alternately heralding the opportunities for progressive sharing of information, and critiquing the corporate culture of the Internet. The sheer volume of content online has caused concern for some, potentially undermining “political opportunity and efficacy” (Dean 2010).
The development of digital technology and the Internet has impacted mass media outlets dramatically, as new modes of publication begin to dominate the public sphere (Castells 2000, Sunstein 2002, Curran 2002, Shirky 2008). With the emergence of new media technologies, the relationship between mass media and audiences is rapidly being altered. Passive consumers are now transformed into active, participatory partners, or “users”, offering new opportunities for engagement and interaction (Shirky 2008, boyd 2010, Jenkins 2006).

With images now dominating our interactions with new media, developing effective critiques of their significance is even more crucial. Even more than analogue images, digital images evoke layers of complex meaning and cultural associations for viewers. Digital images are no longer static, fixed images, but act as “multimedia arrays” that can be interpreted in multiple ways and engender multiple realities (Perlmutter 2003, 20, Burnett 2004, Rose 2007).

1.4 A Sublime Landscape

1.4.1 The search for Eden

While analyzing the technology of production, presentation and display of images provides one key node of analysis, it is also essential to consider the content of an image. Content, perhaps more than any other ingredient, translates meaning and coded significance to the viewer, detailing a specific vision of the world from creator to audience (Rose 2007 2, Hall 1997).
Many of the images examined in this thesis present a particular vision of the natural world, using iconic content that conforms to specific rhetorical constructions related to the natural world. As Western culture has re-shaped the natural world over centuries, so has our cultural relationship to the natural world also been re-worked and re-navigated, expressed in changing modes of visual expression and creative production. As a number of critics have noted, images of the natural world in Western culture recall an ever-shifting tension between ideals of nature-as-resource and nature-as-divine (Remillard 2010, 132, Wilson 1990, Daniels and Cosgrove 1998, Elliot 2006).

The place of nature photography and filmmaking has a particular significance here, as photographic technology has shaped our perception of the natural world within the last century. Just like news photojournalism, nature photography has been seen to present a particular vision of the world that is impartial and authentic. Photographs of the natural world, more than paintings or hand-drawn illustrations, are “windows on the world”, providing a glimpse of landscapes, creatures and ecosystems that are apparently untainted by human concerns (Bousé 2003).

As many critics have noted, however, the production and practice of nature photography and filmmaking has never been this simplistic. These visual presentations of the natural world are just as subject to the vagaries of technology and the whims of the photographer as any other type of archival documentation. As Bousé notes, “…the status of nature films and photographs as reliable science inscription, factual reportage, or documentary evidence is in question” (Bousé 2003, 235, Mitman 1999).

Despite this, the vision of the natural world presented in wildlife and nature photography over the last century has not strayed significantly, as images of unpopulated, untouched
wilderness continue to be generated and re-produced. Evoking the 18th century Romantic notion of the sublime, contemporary wilderness photographs and films continue to showcase the natural world as a pristine environment, stripped of all references to the modern world (Bell 2002, 7, Elliot 2006).

Despite these criticisms, idealized images of a pristine natural world continue to be circulated widely, including in the digital domain. This visual conception of the natural world as a place of refuge that exists separately from human culture is not merely aesthetic fancy, but is only the latest embodiment of Western culture’s complex relationship to the natural world. Visual images showing only untouched, un-spoilt landscapes echo a “dream of an unworked natural landscape”, a dualistic ideal that underscores contemporary cultural alienation from the natural world (Cronon 1996, 80-81, Wilson 1990, Bell 2002).

1.4.2 Virgin ice and polar animals

Many of the types of images utilized within climate change coverage and campaigns tend to correspond with this aesthetic of the depopulated and de-cultured landscape. These kinds of images are not new, but have been central to the discourse surrounding environmental politics for decades, arguably since landscape photographs in the late 1800s were utilized to argue for the establishment of conservation areas in the United States (Deluca 1999, xii, Dobrin 2009, 7, Cronon 1996).

One of the predominant types of image associated with climate change utilizes this aesthetic of the idealized landscape. For the purposes of this thesis, these images show “ice” in some type of specific scenario and location, linked to the widespread popular concern that rising global temperatures are causing the melting of glacial and polar ice regions (Doyle
These images are predominantly photographs, showing mountain glaciers, icebergs, or ice and snow in the Arctic and Antarctica (see Figure 5 for examples of these images).

Contemporary photographs depicting the Arctic and Antarctic regions as depopulated, “unsullied” wildernesses recall not only the “picturesque” tradition of 18th century English landscape painting, but also the work of Canadian landscape painters like the Group of Seven, known for their iconographic representations of the North. Famous for paintings of snow-capped mountain peaks and icy vistas, Canadian artists like Lawren Harris’ presented an idealized view of the North that was “pure”, “virginal” and “timeless”, devoid of human (particularly aboriginal) communities (Osborne 1988, 171-172, Elliot 2006, 99).

This cultural context is, however, rarely commented upon or critiqued. It is true that images associated with the concept of “melting ice” (including photographs of icebergs, glaciers, and the polar regions) have been a predominant ingredient for mass media and public discourse concerning climate change (Smith 2009, O’Neill and Nicolson-Cole 2009). Few studies, however, have bothered to examine these images closely, or contextualize their historical and cultural importance.

There is no doubt that images of glaciers, icebergs and polar ice are visually persuasive, using the rugged beauty of these environments to capture the dramatic scale and impact of climate change (Smith 2009). But these images are also problematic, gaining legitimacy by idealizing an aestheticized vision of the landscape. By presenting visions of distant, depopulated regions, these images effectively “relegate climate change impacts to a remote and inaccessible place” (Doyle 2007, 142).

For contemporary viewers, photographic images of glaciers, icebergs and polar ice not only de-historicize (and de-politicize) the issue of climate change. These types of images are
also unable to effectively communicate the very issue they are linked to. As photography
privileges the present moment in visual form, these images simultaneously attempt to signify
a long term, developmental issue that is primarily unseen, or only visible over time (Doyle

As Doyle noted in her study of climate change campaign literature, the use of photographs
depicting cracking polar ice shelves and melting glaciers for environmental campaigns was
additionally complex. By showing photographs of climate change impacts (i.e. the cracking
of the Larsen B shelf in Antarctica), that have already happened, an artificial tension is set in
place between the effects that have occurred, and the campaign’s efforts to prevent similar
impacts occurring in the future (Doyle 2007, 129-131). These photographs operate as
“evidence” designed to convince the viewer of the impacts of climate change, but the
complexities of environmental claims and scientific research remain unacknowledged in
these images (Oreskes 2004).

1.4.3 Burning Earth

Another significant image that appears repeatedly to illustrate articles about climate
change contain visual references to heat, flames or fire. More specifically, many images
show representations of a “burning” planet Earth (see Figure 3 for examples). In these
images, a photograph or an illustration of planet Earth is layered with images of fire, flames
or heat.

Images of planet Earth recall the “classic” photographs taken of Earth during the 1972
Apollo 17 mission, NASA’s eleventh manned spaced mission (NASA “Visible Earth”,
accessed 2011). Taken from a “God’s-eye” viewpoint of approximately 45,000 km above the
planet’s surface, the photographs from Apollo 17 showed an un-shadowed Earth set against a backdrop of dark space. The first photographs to show the Earth floating as a planet in space, the images of a stunning “blue marble” would become some of the most widely reproduced photographs in human history (Sagan 1994, Cosgrove 2010).

The Apollo 17 photographs became a powerful icon for the environmental and other social movements, acting as a visual stand-in for concepts like global unity, international cooperation, and the fragility of natural ecosystems. However, the cultural associations generated by the image of planet Earth can also be seen as potentially problematic, embodying a de-politicized and de-historicized discourse linked to imperialism and colonialization (Bossen 1985, 2, Ingold 1993, 31-32, Cosgrove 2001, 263, Jasanoff 2004, Cosgrove 2010).

After being adopted by environmental campaigns, it was only a matter of time before images of the Earth were utilized to signify an issue like climate change. In 2007, for example, a series of massive 24-hour public “Live Earth” concerts on seven continents organized by Al Gore to draw attention to climate change efforts used photographs of the Earth extensively in backdrops and promotional materials (Manzo 2010, 98).

Images of the planet Earth have also been used to denote rising temperatures and global warming, often layered with images of flames or tinted with the colour red (Manzo 2010, 98, Doyle 2007, 138, Smith 2009). But, as Manzo notes, any attempt to present a visual image of a warming planet is inherently politicized. Any “geopolitical visions of the present and the past” embody much of our unspoken cultural expectations regarding the changing natural world, often incorporating Western discourses of unity and diversity, as well as identifying
the global South as a “zone of vulnerability in need of Western intervention and rescue” 
(Manzo 2010, 97, 105).
2 Chapter: ONLINE IMAGES OF CLIMATE CHANGE

2.1 The digital scrapbook

For many contemporary writers and theorists, the digital sphere is often described in utopic terms, highlighting endless “smooth” flows of data and information unhampered by borders, boundaries, or limits. Cyberspace is perceived as a slick realm of images and text, and “users” are techno-wizard tourists, surfing lightly through a tidal wave that is continuously re-circulated and re-freshed (van Loon 2000, Castells 2000).

An examination of online information could echo this framework, by producing surveys and analysis that emphasize the capture of data, comprehensive statistics, and conclusions asserted within the confines of academic expertise. Of course, such an analysis might threaten to perpetuate the idealized conceptualization of a digital realm of “endless and equal opportunity”, a view that has been critiqued as a “fantasy” (Dean 2010).

By examining online content with reference to cultural, historical and social context, and by re-visiting another form of “technology” that exists in opposition to the hyper-modernist arena of cyberspace, this project is an attempt to re-interpret, or interrupt, this model.

Introduced briefly in the first chapter of this thesis, my battered, blue photo scrapbook is an example of an outdated form of information and image storage, and it serves as a kind of model for this research project. Rooted in the domestic realm, the collection and display of personalized images and text recall contemporary forms of online social media, but contain none of the smoothness of digital technology. Containing torn scraps of paper, hand-scribbled notes, and cheaply printed photographs attached with tape and glue, the scrapbook is an anachronistic forum for memory and nostalgia.
As a model for this project, the scrapbook can potentially function as a forum for investigating image and content, and a multi-layered bricolage pulling from disparate sources (Benjamin 2002, Sontag 2001). As a messy, non-smooth technology, the scrapbook model up-ends assumptions about digital content, re-linking the digital realm with the pre-digital models of information management that are still in social circulation, despite our desires to be liberated of the untidy models of the past. By utilizing an unusual format, the disruption of “a certain drive to clarity [and] transparency…in a translucent text” may offer new opportunities for discussion and debate (Deluca 1999, xiii).

In some regards, the scrapbook also evokes elements of the digital information gathering process. Absorbing information online is decidedly less linear than research using traditional print materials, as users are confronted with multiple layers of images, text, and references through overlapping windows and parallel programs. There is a haphazard nature to the experience of finding information online, bearing the traces of other users who have altered, commented, and interpreted the information in various ways.

Like a scrapbook, this project was not designed to be an exhaustive survey of online image content linked to climate change. Instead, a limited selection of images and websites was examined, offering enough material to generate some perspective on the content and context of images of climate change. This bundling of images is not meant to provide an authoritative overview of data, but instead attempts to approach the representation of climate change in a new way.

With this model, I’m not only interested in investigating the framework of our conceptions of the digital world, but also in re-invigorating some of the academic dialogue concerning climate change research. As some writers have acknowledged, the phenomenon
of climate change is not a discrete, simple problem that responds well to “elegant”, top-down policy initiatives, but is instead immensely complex (Prins and Rayner 2007, Hulme 2009b).

2.2 Examining sites / sights

As part of this “scrapbook” approach, several websites containing information about climate change were examined in detail, including the pages from two Google image searches, three media outlets, and four non-governmental organizations. In total, 485 images were surveyed according to content and format. While these sites cannot be considered all, or even a significant portion, of the content generated concerning climate change research, these websites do offer valuable perspectives concerning the climate change debate.

Images were examined from the chosen websites, and sorted according to twenty-two categories related to content and format, defined according to the type of climate change content depicted in the image. These categories included images of alternative energy (i.e. solar energy panels or wind farms), planet Earth, planet Earth on fire or with flames, extreme weather (i.e. floods or snowstorms), ice (i.e. glaciers, icebergs or polar regions), polar animals (i.e. penguins, polar bears), and smokestacks / air pollution (see Table 1 for a complete list of categories).

<table>
<thead>
<tr>
<th>Category</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative energy</td>
<td>photograph</td>
</tr>
<tr>
<td>Cartoon or other image</td>
<td>photo / illus.</td>
</tr>
<tr>
<td>Climate summit (i.e. Cancun, UN, etc.)</td>
<td>photograph</td>
</tr>
<tr>
<td>Displaced community / refugees</td>
<td>photograph</td>
</tr>
<tr>
<td>Environmental activism / protests</td>
<td>photograph</td>
</tr>
<tr>
<td>Environmental pollution / destruction</td>
<td>photograph</td>
</tr>
<tr>
<td>Extreme weather</td>
<td>photograph</td>
</tr>
<tr>
<td>Extreme weather / ice combo</td>
<td>photo / illus.</td>
</tr>
<tr>
<td>Fire / heat</td>
<td>illustration</td>
</tr>
</tbody>
</table>
The visual images examined were primarily photographs, but there were also a significant number that incorporated illustrative components, or were purely illustrative, including hand-drawn cartoons or graphics. Charts, diagrams and graphs were also noted as part of the project.

An overview of the websites will be examined initially, followed by an analysis of the content of the 485 images and a discussion of the findings of the research. The placement of climate change information on the pages was considered, in order to ascertain how prominently climate change content is placed within the site, and how easily users can access this information (the Google searches and IPCC site were not discussed in this way, as only climate change content was displayed on those pages).

2.2.1 Google searches

Google, an Internet search engine and advertising corporation establishing in 1998, dominates Internet searches, boasting 66% of Internet searches in the U.S. in recent months (Comscore 2010). In addition to indexing web pages, Google also offers a searchable catalog
of listed images. While some critics acknowledge that the technical parameters associated with Google searches may exclude relevant sites, as the predominant search engine it remains a useful index of images ranked by image tags, file titles, and text associated with the website (Nissenbaum 2000, Jing and Baluja 2008, Auletta 2009).

As part of this project, two Google image searches were conducted on February 3, 2011, using the terms “climate change” and “global warming”. For the search term “climate change”, over 51 million results were listed, while the search for “global warming” images posted over 55 million results. For both searches, the first two “pages” of each search were examined, resulting in approximately 150 images for each search.

The sources for these images come from a variety of web pages, including mass media, activist or non-governmental organizations’ publications and educational material. Sorted according to page rank and tags, the Google pages are akin to a scrap bag of images sorted according to Google’s algorithms. Each page displays a rich repository of photographs and illustrations, dominated by the “fire” and “ice” images that provided the inspiration for this project (see Figure 1 for a screenshot of the “global warming” search).
Figure 1: Figure removed for copyright reasons. It was a screenshot of the first twenty-five images listed in a Google "global warming" image search. Original source: http://www.google.ca/images?hl=en&source=hp&biw=1474&bih=968&q=global+warming&gbv=2&aq=f&aqi=g10&aql=&oq=

The “fire” images were the dominant image type in the “global warming” image search, presumably because of the verbal link between heat and “warming”. These pages had multiple illustrations or of planet Earth touched by every type of heat source imaginable, from candles and matches to stove elements and large suns with solar rays. These illustrations were particularly colourful, contrasting the “blue marble” of Earth with the red, orange and yellow of the heat source (see Figure 2).
The globe, as pictured in these illustrations, echoes the original Apollo 17 photographs, showing the planet centered in the middle of the frame and lit by daylight. These images, however, are not exact replicas of the original photographs. In the original Apollo
photographs, the continent of Africa is centrally placed, and the southern pole region is visible at the bottom of the planet. Like many reproductions published since 1972, the “global warming” images have illustrated the planet in a different configuration, erasing the continent of Africa and tilting the axis of the globe to place North America in a visually dominant position (Cosgrove 2010, 86).

While the central placement of the globe in the frame does echo the Apollo photographs, it emphasizes the status of the planet as isolated, suspended against a dark or blank background. In a number of illustrations, the globe is also scaled as a tiny sphere, small enough to fit inside a match flame, or be cradled in a human hand. Engulfed by flames, these images depict planet Earth as fragile and vulnerable, susceptible to frightening forces that are beyond control. As a “lonely speck” adrift in an unfriendly cosmos, these images recall images of the globe used in environmental campaigns, demanding that we “make a stand” to save the planet (Sagan 1994, Jasanoff 2005, Manzo 2010, Cosgrove 2010).

In the Google searches, the “ice” images were also striking, and were evident in both the “global warming” and “climate change” searches. The images of glaciers, icebergs and polar regions were primarily photographs, and represented the opposite colour palette to the “fire” images, with crisp white and ivory expanses contrasted with deep blue, emerald green, and black expanses of water or rock. While these images are generally more concrete than the fanciful burning Earth illustrations, the “ice” images still evoked a specific view of the natural world.

In each of these photographs, the icy regions are depicted without any evidence of human presence. The vistas are grand and magnificent, almost alien with their vast emptiness and dramatic formations of ice and snow. But even with the minimalist display, an internal
message is still evident and easily accessible to contemporary viewers. There can be little
doubt that these images are linked to climate change content or context. One image, for
example, is a composite of two photographs, comparing a glaciated region over an eighty-
year period. Another image shows a landscape of snow-peaked mountains undercut with a
layered image of dry, cracked earth.

Sourced from online news outlets, aggregator sites, and environmental blogs, these
photographs show that the snow and ice of the polar regions and mountain ranges are
melting, quite literally. One photograph, for example, focuses on a melting water droplet
from an ice shelf, isolating this element from the blue glacial ice in the background. Another
shot depicts a splash as ice cracks from an iceberg and crashes into deep water (see Figure 3).
Figure 3: Figure removed for copyright reasons. It was a screenshot detail of five photographs of glaciers, icebergs and polar ice, sourced from a Google "climate change" image search. Original source: http://www.google.ca/images?hl=en&source=hp&biw=1474&bih=968&q=global+warming&gbv=2&aq=f&aqi=g10&aql=&oq=

Images of polar animals, particularly polar bears, also were evident in the Google searches. While massive numbers of organisms are threatened in multiple ecosystems around the planet as a result of a changing climate, polar bears have become identified with climate change in a unique and specific way. As a number of writers have noted, polar bears have become visual markers of a species that is vulnerable to climate change, and their image is
used with in conjunction with climate change information perhaps more than any other species (Hulme 2009b, 242).

Designated as a threatened species under the U.S. Endangered Species Act in 2008 despite controversy, the polar bear is the first species to be given this status due to the impact of climate change (Wiess 2008). In the Google searches, a few illustrations or cartoons of polar bears were evident, but most of the images were photographs. The photographs in particular are aesthetically similar, with the bears viewed from a distance or from an aerial view. The ivory-furred bears are part of the visually dramatic polar landscape, standing out against the bleak ice and dark water.

These types of photographs of polar bears are used frequently, evident on magazine covers and scientific research reports (Time 2006, ACIA 2005). While these images fit into the conventions of photojournalism or wildlife photography, there is an underlying message that corresponds with the other “melting” motif images. These photographs of polar bears embody a dialogue of isolation, vulnerability and instability that reverberates through climate change discussions. Pictured alone or in small groups on fractured ice floes or adrift in deep water, the polar bear’s status as an endangered species is underscored. Frequently, images are circulated of a bear balanced precariously on an ice floe that has melted, and looks particularly unstable or dangerous (see Figure 4).
2.2.2 Media outlets

In the past ten years, the rise of online technology has impacted print media dramatically, and newspaper publishers have suffered dramatic losses in readership and revenue as audiences gather more information from online sources (Pew 2011). To use Marshall McLuhan’s terminology, the “hot” world of exclusionary, output-based print content has lost
ground to the “cool” medium of a new, participatory digital realm (McLuhan 1969). In a frantic effort to stay relevant, print publications have developed parallel online websites, publishing their print content as companion digital text, images, and multimedia.

Developing this online content in an era of decreasing budgets and changing technology has not been an easy process, and the websites associated with print media outlets often vary widely in the coverage and content offered online (Shirky 2009, Sack 2008, Sunstein 2009, Dean 2010,). Some sites are easier to navigate, and feature rapidly updated content, while other sites struggle to adapt to the demands of mediating comment streams, 24-hour news cycles, and the uncertain benefits of online advertising.

With these complexities in mind, the websites for three national newspapers from three countries were examined for this project: The Globe and Mail (Canada), The New York Times (U.S.), and the Guardian (U.K.). As linked to national and international “papers of record”, these three websites differ in scale, size and budget, and feature varying levels of content and coverage.

While each of these media outlets do provide coverage of climate change issues, this coverage is presented online in different ways. The Globe and Mail, for example, does not have a stand-alone web page devoted to climate change issues, while The New York Times and the Guardian does. As well, the volume of content differs significantly between the three sites.

As a result, it was necessary to develop a slightly altered approach to examine the images associated with climate change coverage from these websites. A search for feature articles was conducted on each media website, using the terms “climate change” and “global warming”. Fourteen of the most recent and relevant feature articles were examined from each
website, and their associated images were organized according to the twenty-two different categories noted previously.

2.2.2.1 The Globe and Mail

Of the three media outlets, The Globe and Mail is the smallest, focused on the production of an English-language newspaper distributed nationally in Canada. Based in Toronto and printed in six cities across the country, the newspaper features national and international news stories, and has a weekly readership of approximately 1 million (Audit Bureau of Circulation Report 2010).

The Globe and Mail’s website has been online for over ten years, and consists of the main news site (www.globeandmail.com), along with other linked websites corresponding both to newspaper sections and stand-alone financial management sites, as part of the “Globe Web Centre”. The Globe and Mail website attracts an average of 600,000 readers daily, and 3.2 million unique visitors each month (Comscore Metrix 2010).

While there is no stand-alone “climate change” page in The Globe and Mail website, stories about climate change are often featured prominently on a stand-alone “Science” web page. On February 3, 2011, for example, a climate change article was featured, placed on the left-hand side of the web page under a “climate change” heading, illustrated with a photograph of workers monitoring equipment in the Alberta Tar Sands. On the same day, other environmental articles and videos were highlighted under the headings “Environment” and “Climate” on the right hand side of the page (see Figure 5).
2.2.2.2 **The New York Times**

In contrast to *The Globe and Mail*, *The New York Times* does feature a stand-alone page devoted to climate change issues. Widely regarded as a national “newspaper of record”, *The New York Times* has been published continuously in the U.S. since 1851, and boasts one of the largest circulations in the country (Boston Globe 2010). Despite falling circulation numbers for its print edition, the online edition of the *Times* attracts more than 30 million monthly unique visitors per month (Clabaugh 2010).

While at times subject to critique for its coverage of climate change (Hoggan 2010, 9), *The New York Times* has managed to devote sizable resources and space to environmental
coverage. Journalists Andrew Revkin and Elizabeth Rosenthal, for example, have been on the forefront of climate change coverage, writing many comprehensive and well-researched articles.

On *The New York Times* website, the stand-alone “climate change” page is linked as a sub-heading on a third-tier “Environment” page, and is presented under the title “Global Warming”. On the Environment page, this page’s menu button is placed next to a small photo icon, depicting a polar bear striding on an ice floe. This tiny photograph is another example of the use of an iconic image, recalling the many images of polar animals and ice evident in the Google image searches (see Figure 6).

Figure 6: Figure removed for copyright reasons. It was a screenshot detail of The New York Time’s “Global Warming” button icon located on their “Environment” webpage. Original source: [http://www.nytimes.com/pages/science/earth/index.html](http://www.nytimes.com/pages/science/earth/index.html)

2.2.2.3 The *Guardian*

In contrast to *The Globe and Mail* and *The New York Times*, even a rapid examination of the *Guardian* website reveals that a great deal of resources have been placed into their online climate change content. The web design of the *Guardian* site is much more sophisticated than either *The Globe and Mail* or *The New York Times* websites, with skillful use of colour, text, and interactive features. This impression is confirmed by statements from the organization, who proudly boast that their website embraces a “mutualized” approach to journalism with a strong emphasis on digital engagement (Guardian Media Group 2010).
The *Guardian* is a British national daily newspaper, with the third largest average daily circulation in the U.K. (Reynolds 2010). Formerly known as the *Manchester Guardian*, the *Guardian* has been financially supported by the not-for-profit Scott Trust since 1936 (Guardian Media Group 2010). While the print edition of the newspaper remains popular, the *Guardian* website also draws a large audience, generating approximately 35 million visitors per month (Reid 2010).

The *Guardian* features articles and opinion pieces by prominent environmental writers, including George Monbiot, who is internationally known for his work discussing climate change. On the *Guardian* website, an easily navigable top banner displays “Environment” as a key category, placed in the first tier of menu options and displayed in eye-catching green text. In contrast with *The Globe and Mail* and *The New York Times*, the *Guardian*’s “Environment” page is not linked as part of the “Science” and “Technology” pages, but is a separate, stand-alone page (see Figure 7).
2.2.2.4 Media sites summary

The Guardian’s “Environment” page features a second-tier list of menu options, with “Climate Change” as the second choice. This links to a stand-alone “Climate Change” page, featuring a mix of stories and images. As well, the “Climate Change” page lists another tier of clickable page options that are linked specifically to the issue: “Carbon Emissions”, “Climate Talks”, “Energy”, “Fossil Fuels”, and the “IPCC”. One separate page has even been created to address the “Climategate” issue, listed under a less controversial “Hacked climate science emails” title (see Figure 8).
In the three media sites surveyed, the images associated with the climate change feature articles were all photographs, primarily containing subject matter that related in some way to the feature article. Captions were included, describing the specific content of each photograph and how it related to the article. Overall, the photographs on the media sites tended to be more specific in content, presented as straightforward “news” photographs without the illustrative elements seen in the Google search images.
While the illustrative images of burning globes and melting glaciers were largely absent on the media sites, these websites still tended to present images that largely conformed to generalized content categories. But while “fire” and “ice” images were less commonly used, other types of images were seen frequently, particularly photographs of smokestacks and extreme weather conditions (see section 2.3 for a more detailed examination).

2.2.3 Organizations

The websites of four organizations were surveyed for this project: Greenpeace International, the David Suzuki Foundation, the Intergovernmental Panel on Climate Change (IPCC), and the National Geographic Society. While each of these organizations operates from a not-for-profit standpoint, the aims and relevance within the climate change community vary greatly for each group.

Two organizations (the David Suzuki Foundation and Greenpeace International) are environmental organizations, promoting public environmental campaigns with accompanying reports and promotional material designed for a general audience. While both organizations have different approaches to their public campaigns, the Suzuki Foundation and Greenpeace place climate change activism prominently in their online site, with stand-alone pages devoted to this content.

2.2.3.1 David Suzuki Foundation

Founded in 1991 by Canadian scientist and environmental activist David Suzuki, the David Suzuki Foundation advocates for various environmental issues, targeting a primarily
Canadian audience. Based in Vancouver, B.C., the Suzuki Foundation has approximately 40,000 individual donors, and an annual budget of approximately $7 million (David Suzuki Foundation 2010).

On the Suzuki Foundation website, images are used sparingly, and there is much less visual content than on the other websites examined. Overall, the majority of visual images depicted generalized content linked to the subject of each article or page. In fact, each photograph appeared to be stock photographs, with no recognizable identifying trait or feature distinguishing it as an original shot taken for the organization specifically.

On the pages featuring climate change content, the displayed photographs fit into a number of different categories. On the “Science and Policy” page, for example, there are three photographs listed under the title, “Climate Change Basics”, depicting a set of smokestacks, clouds rising from a smokestack, and a wind turbine. Other images found on the climate change content pages of the website included photographs of glaciers, polar ice, and extreme weather (see Figure 9).
Like the Suzuki Foundation, the Greenpeace International website features a stand-alone page devoted to climate change information. Established in 1970 in Vancouver, BC, Greenpeace gained prominence with widely publicized, “media savvy” activist campaigns targeting various environmental issues, including international whaling operations and offshore drilling (Dale 1996). Relying on individual donations and foundation grants, the organization now has an international office based in Amsterdam, and a multi-million dollar annual budget (Greenpeace 2010).

While there are photographs related to specific Greenpeace activist campaigns on their website, there are also a number of images that fit with the generalized content seen on other websites. On the “Stop climate change” page, a large photograph of an alternative energy
wind farm is displayed. Below this image, there is a photograph of smokestacks. And on the “Global Melting” page, describing the impacts of climate change, a picture of polar ice is featured (see Figure 10).

Figure 10: Figure removed for copyright reasons. It was a screenshot of Greenpeace International’s “Climate Change” webpage. Original source: http://www.greenpeace.org/international/en/campaigns/climate-change/

A photograph of polar bears is also evident, used on a “Please donate” link near their climate change content, and also on the “Arctic and Antarctic” climate change information page. The photograph depicts a polar bear in a precarious position, jumping onto an adjacent ice floe over a dark current of water below, another example of the image of a polar bear used as a recurring and familiar icon of climate change (see Figure 11).
Images of “charismatic” animals (i.e. polar bears, whales, etc.) have been used often in Greenpeace campaigns, partly as a tool to elicit public response (Dale 1996). One campaign director for a local Greenpeace office stated last fall in an interview that “…[p]eople definitely respond to charismatic megafauna, like whales [and] polar bears…Images of destruction and animals in distress invoke a response for sure - it helps them understand what’s at risk or what’s at stake” (Interview conducted November 10, 2010 - Greyson 2010). A communications director for another Vancouver-based environmental organization agreed, saying, “[w]e always try to get images of a creature that people can relate to, like a marine mammal.” (Interview conducted November 12, 2010 - Greyson 2010). In an attempt to solicit attention and support, environmental organizations continue to rely on the use images of recognizable flagship species with iconic appeal (Clucas, McHugh and Caro 2008).
2.2.3.2 Intergovernmental Panel on Climate Change

While the Intergovernmental Panel on Climate Change (IPCC) does not engage in the same types of public campaigns that Greenpeace and the Suzuki Foundation do, it is recognized as a leading authority and disseminator of climate change information and content. Founded by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO), the IPCC is widely recognized as an international authority on the scientific research concerning climate change, generating reports based on recent scientific, technical and socio-economic information (IPCC website, accessed 2010).

As a generator of scientific and technical reports, the IPCC website pages are predominantly text-based. As this project was concerned with digital images displayed on accessible webpages, the scientific diagrams located within the reports were examined, but not included as part of the content study. Instead, the digital scans of the report covers of the IPCC reports posted on the website were surveyed, as these images contained the illustrative content useful to this study. While these images were not given additional illustrative elements (like fire or flames, for example), the images were still generalized photographs that conformed to many of the content categories in this survey. Photographic images of planet Earth, for example, did recur several times. In the sample screenshot, the 2007 IPCC reports show two images of the globe – one using a photographic representation similar to the Apollo image, and one using a traditional map layout. Other images showed alternative energy projects, extreme weather, or smokestacks or air pollution (see Figure 12).
2.2.3.3 National Geographic Society

In contrast to the other organizations, the National Geographic Society is not primarily identified as an advocacy group for environmental causes. While their mandate is educational, with a focus on the promotion and conservation of natural and cultural resources, the organization is primarily identified as a media outlet responsible for the publication of iconic, widely distributed magazines and multimedia content.

Headquartered in Washington, D.C., the National Geographic Society was established in 1888, and is perhaps best well known for their flagship magazine publication, National Geographic. This magazine features photo-essays and text content, and is published in 28 languages and with an estimated circulation of 30-50 million. Natural history and ecological issues are some of the key subjects covered in the magazine, which features full-colour, iconic photographic content (Remillard 2011).
Like the magazine, the National Geographic website features large-scale photographs, placed more prominently than images on the other websites surveyed. Many of these photographs are dramatic landscapes shot in vivid colour, similar to the visual iconography featured in the print magazines published by the Society. These photo-essays, while ostensibly presenting a conservationist ethic, often present an ambiguous vision of environmental risk (Remillard 2010, 139).

On the website, images illustrating climate change content conform to the idealized photographs reproduced on calendars and tourist postcards. Landscapes, for example, are shown largely as depopulated, without evidence of human communities. Other images show “charismatic” or “flagship” wildlife species, usually mammals that are “memorable” and easily recognized (Clucas et al. 2008, 1518).

For example, on the day the site was surveyed (February 9, 2011), the “Global Warming” page featured a prominent photograph of “rapidly shrinking” Greenland ice, displayed with the title “Melt Zone”. This photograph echoes other “ice” images illustrating climate change from the Google image search. Shot from a low angle against a pale blue sky, the white formations are particularly dramatic, curving above a vivid blue stream of water that slices through the core of the ice (see Figure 13).
Below the main feature photograph on the “Global Warming” page, three other photographs depict other idealized, photogenic landscapes. One photograph, linked to a page titled “Effects”, shows an image of a snow-topped mountain range with wildflowers in the foreground. Another photograph shows glistening sea ice in front of a setting sun, and another depicts a brilliant white iceberg set against a blue sky.

While the photographs on the National Geographic website display skilled composition and beautiful aesthetics, they echo the de-personalized stock photos displayed on the Suzuki Foundation website. Each photograph slots in to the accompanying subject matter, like an icon from a children’s colouring book. On the “Causes” page, for example, a large
photograph of four smokestacks is featured, showing billowing clouds of smoke (greenhouse gas emissions? Steam?) clouding the sky (see Figure 14).

Figure 14: Figure removed for copyright reasons. It was a screenshot of the National Geographic Society’s “Causes” page, linked from their “Global Warming” webpage. Original source: http://environment.nationalgeographic.com/environment/global-warming/gw-causes
2.3 Emerging patterns

While the scope of this project is limited due to time and research constraints, it is still possible to track the emergence of a pattern of prevalent types of images illustrating climate change content. After months of skimming through online content, these visual landmarks become evident everywhere I look. Silent, icy landscapes and steadfast polar bears pop up on magazine covers, for example (see *Nature*, Dec. 16, 2010). In news items, book covers, and campaign materials, planets burn helplessly, and factories belch billowing clouds into hazy skies.

These formulaic compositions aren’t simply anomalies, but form a dense, recursive patchwork of images. While articles, essays and reports discuss the endlessly varying minutiae of rapidly changing government policy, research findings, and public debate, the images illustrating this content perform the opposite function, cycling through a pat, narrow set of visual options that are numbingly familiar.

For this project, defining the content of the surveyed images indicates a pattern of predominant, even iconic images illustrating climate change. In the Google image searches, for example, “fire” and “ice” images are continuously recycled. Images of planet Earth, for example, were the most common, accounting for 28.6% of the surveyed images, with approximately half of these images displaying a fire or heat motif.

Images of ice were also commonly found in the Google searches. Photographs of ice, glaciers and polar caps accounted for 12.7% of the images generated in the two searches, and photographs of ice and polar images represented 7.1% of the total images. Of the total 308
images examined in the Google searches, 72 contained some reference to ice, accounting for 22.4%. By adding images of polar animals without ice, the total number rises to 24.3%.

One point of comparison between the two Google image searches is the different number of graphs and charts, which accounted for 16.1% of the total images in the “climate change” search, but only 3.3% in the “global warming” search. As the term “climate change” is more prominently used by agencies and organizations that are responsible for academic and policy discussions and dissemination of information (including scientific research, professional organizations, and government bodies), this may explain this discrepancy.

As well, photographs of extreme weather were represented in the “climate change” search (3.2%), and an additional 2.6% of the images depicting extreme weather combined with ice, for a combined total of 5.8%. In contrast, there were no images of extreme weather or extreme weather combined with ice in the “global warming” search.

In the “global warming” search, images of planet Earth (represented with fire elements and without) were predominant, accounting for 34.7% of the total images. In contrast, images of planet Earth (represented with fire elements and without) accounted for only 22.5% of the total images of the “climate change” search.

In the “climate change” search, other images were more commonly represented. For example, images of smokestacks or air pollution accounted for 12.3% of the images surveyed. In comparison, only 3.9% of the images listed in the “global warming” search depicted air pollution or smokestacks.

There were some images of extreme weather, but some types of images were absent. For example, there were no images of alternative energy sources, like wind farms or solar power (see Table 2).
GOOGLE SEARCHES (combined)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>TOTAL</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Globe (fire/heat)</td>
<td>illustration</td>
<td>45</td>
<td>14.6</td>
</tr>
<tr>
<td>Cartoon or other image</td>
<td>photo / illus.</td>
<td>45</td>
<td>14.6</td>
</tr>
<tr>
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<td>photo / illus.</td>
<td>43</td>
<td>14.0</td>
</tr>
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<td>photograph</td>
<td>39</td>
<td>12.7</td>
</tr>
<tr>
<td>Graph or chart</td>
<td>illustration</td>
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<td>9.7</td>
</tr>
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</tr>
<tr>
<td>Ice &amp; polar animals</td>
<td>photograph</td>
<td>22</td>
<td>7.1</td>
</tr>
<tr>
<td>Fire / heat</td>
<td>illustration</td>
<td>19</td>
<td>6.2</td>
</tr>
<tr>
<td>Flooding</td>
<td>illustration</td>
<td>11</td>
<td>3.6</td>
</tr>
<tr>
<td>Polar animals</td>
<td>illustration</td>
<td>6</td>
<td>1.9</td>
</tr>
<tr>
<td>Extreme weather</td>
<td>photograph</td>
<td>5</td>
<td>1.6</td>
</tr>
<tr>
<td>Ice / snow</td>
<td>illustration</td>
<td>4</td>
<td>1.3</td>
</tr>
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<td>Extreme weather / ice combo</td>
<td>photograph</td>
<td>4</td>
<td>1.3</td>
</tr>
<tr>
<td>Climate summit (i.e. Cancun, UN, etc.)</td>
<td>photograph</td>
<td>4</td>
<td>0.0</td>
</tr>
<tr>
<td>Fire / ice combo</td>
<td>illustration</td>
<td>3</td>
<td>0.0</td>
</tr>
<tr>
<td>Globe (flooding)</td>
<td>photo / illus.</td>
<td>1</td>
<td>0.0</td>
</tr>
<tr>
<td>Environmental activism / protests</td>
<td>photograph</td>
<td>1</td>
<td>0.0</td>
</tr>
<tr>
<td>Displaced community / refugees</td>
<td>photograph</td>
<td>1</td>
<td>0.0</td>
</tr>
<tr>
<td>Profiled person (political figure, etc.)</td>
<td>photograph</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Other natural phenomenon</td>
<td>photograph</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Environmental pollution /destruction</td>
<td>photograph</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Alternative energy</td>
<td>photograph</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

308 96.8

Table 2: Google searches (combined)

In the media searches, the feature articles examined using the search terms “climate change” and “global warming” discussed various issues, including the appointment of a new Federal Environment Minister, and the recent United Nations Framework Convention on Climate Change in Cancun, Mexico (November 29 – December 10, 2010). Some articles did use specific photographs linked to this content, but other articles were illustrated with more generic images of smokestacks or extreme weather.
Of the fourteen articles examined from *The Globe and Mail*, three contained images of smokestacks or air pollution, and three showed images from the Cancun summit. Two showed photographs of a specific person profiled in the article (i.e. political figure), and two articles showed images of extreme weather (i.e. snowstorms, flooding, etc.). Two articles showed other natural phenomenon linked to information presented in the feature article (i.e. algae on a lake in Saskatchewan). There was one image of refugees displaced by climate change impacts.

While *The New York Times* does use the term “Global Warming” in their coverage, a search using the term “climate change” also generated sufficient articles to ensure comparisons with *The Globe and Mail* and the *Guardian*. As in *The Globe and Mail* coverage, only photographs were presented associated with the feature articles. These photographs, as with *The Globe and Mail*, appeared to be selected to refer specifically to the topic of the article, and there were no examples of generalized iconic illustrations of “burning Earth”.

Of these selected articles in *The New York Times* articles, there was only one image of smokestacks or air pollution, compared with three images in *The Globe and Mail* survey. In *The New York Times* articles, three included images of a profiled person (i.e. political figure), and three showed images of other natural phenomenon that were linked specifically to the article. Two of the images showed evidence of extreme weather (i.e. snowstorms on the East Coast), and two articles showed examples of alternative energy (i.e. wind power turbines). Again, in comparison with the Google searches, there were few images of polar ice, glaciers, and polar animals, with only one image featured of each.
As with *The Globe and Mail* and *The New York Times* survey, the fourteen feature articles selected from the Guardian website were chosen using the search terms “climate change” and “global warming” (seven articles from each term). Like the other outlets, each feature article used only photographs to illustrate these articles, and the photograph was placed on the left hand side of the page, near the first paragraph.

In the *Guardian* articles, photographs of smokestacks and air pollution were more commonly used than in *The Globe and Mail* and *The New York Times* articles, accounting for six of the fourteen articles examined. As well, there were three pictures of alternative energy sources (i.e. windfarms or solar panels), and two photographs of extreme weather. As with *The Globe and Mail* and *The New York Times* articles, there were no generalized images associated with “fire” or “ice” motifs.

After examining all three media sources, it is evident that there is a distinct break from the imagery evident in the Google search. In contrast with the images generated by Google and sourced from media outlets, news aggregators, and various blogs, these media sites used photographs almost exclusively to complement their text content, and generally did not use graphic images with layering or illustrative elements. There were no images using the “burning Earth” motif, or any other type of play on the term “global warming”. In the articles examined, there were also no cartoons evident. All the images in the media coverage examined were “news” photographs, presented without additional elements, colours, or overlaid text.

As well, instead of the vague, conceptual illustrations of “fire” and “ice” found in the Google searches, the feature articles from the three media sites predominantly tried to use photographs that related directly to the subject matter. Beyond *The New York Times* polar
bear icon, few of the iconic “fire and ice” images evident in the Google searches were used (see Table 3).

<table>
<thead>
<tr>
<th>MEDIA SOURCES - FEATURE ARTICLES</th>
<th>TOTAL</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smokestacks / air pollution</td>
<td>photograph</td>
<td>10</td>
</tr>
<tr>
<td>Extreme weather</td>
<td>photograph</td>
<td>6</td>
</tr>
<tr>
<td>Other natural phenomenon</td>
<td>photograph</td>
<td>6</td>
</tr>
<tr>
<td>Profiled person (political figure, etc.)</td>
<td>photograph</td>
<td>6</td>
</tr>
<tr>
<td>Alternative energy</td>
<td>photograph</td>
<td>5</td>
</tr>
<tr>
<td>Climate summit (i.e. Cancun, UN, etc.)</td>
<td>photograph</td>
<td>3</td>
</tr>
<tr>
<td>Displaced community / refugees</td>
<td>photograph</td>
<td>2</td>
</tr>
<tr>
<td>Ice &amp; polar animals</td>
<td>photograph</td>
<td>2</td>
</tr>
<tr>
<td>Environmental pollution /destruction</td>
<td>photograph</td>
<td>1</td>
</tr>
<tr>
<td>Ice</td>
<td>photograph</td>
<td>1</td>
</tr>
<tr>
<td>Cartoon or other image</td>
<td>photo / illus.</td>
<td>0</td>
</tr>
<tr>
<td>Environmental activism / protests</td>
<td>photograph</td>
<td>0</td>
</tr>
<tr>
<td>Extreme weather / ice combo</td>
<td>photo / illus.</td>
<td>0</td>
</tr>
<tr>
<td>Fire / heat</td>
<td>illustration</td>
<td>0</td>
</tr>
<tr>
<td>Fire / ice combo</td>
<td>illustration</td>
<td>0</td>
</tr>
<tr>
<td>Flooding</td>
<td>illustration</td>
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<td>photo / illus.</td>
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<td>photo / illus.</td>
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<tr>
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<td>Ice / snow</td>
<td>illustration</td>
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</tr>
<tr>
<td>Polar animals</td>
<td>illustration</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3: Media search results (combined)

While it was feasible to develop a fairly close comparison of the type of images used by media sites to illustrate climate change coverage, it’s more difficult to draw the same types of comparisons between images used on the profiled organizations websites. As discussed above, the website of each of these organizations profiled varies widely, according to scope, mandate, design, and audience.

Despite these differences, the organizations’ websites used imagery that closely paralleled the photographs and illustrations found in the media and Google searches. Photographs of ice
(glaciers, polar ice and icebergs), for example, were the most common type of image on these websites, accounting for 17.8% of the images examined. Images of extreme weather events, alternative energy projects, and smokestacks were also used extensively. Images of the globe were also evident, although there were few of the “burning Earth” illustrations displayed.

One key difference with this search was the placement of images of environmental activism and protest campaigns. These images, accounting for 8.1% of the total, were found primarily on the Greenpeace site, which has a long history of documenting and publicizing their activist campaigns (Dale 1996) (see Table 4).

<table>
<thead>
<tr>
<th>ORGANIZATIONS</th>
<th>TOTAL</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ice</td>
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<td>Globe</td>
<td>photo / illus.</td>
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<tr>
<td>Graph or chart</td>
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<td>5</td>
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<td>Climate summit (i.e. Cancun, UN, etc.)</td>
<td>photograph</td>
<td>4</td>
</tr>
<tr>
<td>Fire / heat</td>
<td>illustration</td>
<td>3</td>
</tr>
<tr>
<td>Displaced community / refugees</td>
<td>photograph</td>
<td>2</td>
</tr>
<tr>
<td>Profiled person (political figure, etc.)</td>
<td>photograph</td>
<td>2</td>
</tr>
<tr>
<td>Ice &amp; polar animals</td>
<td>photograph</td>
<td>1</td>
</tr>
<tr>
<td>Ice / snow</td>
<td>illustration</td>
<td>0</td>
</tr>
<tr>
<td>Extreme weather / ice combo</td>
<td>photo / illus.</td>
<td>0</td>
</tr>
<tr>
<td>Fire / ice combo</td>
<td>illustration</td>
<td>0</td>
</tr>
<tr>
<td>Flooding</td>
<td>illustration</td>
<td>0</td>
</tr>
<tr>
<td>Globe (fire/heat)</td>
<td>illustration</td>
<td>0</td>
</tr>
<tr>
<td>Globe (flooding)</td>
<td>photo / illus.</td>
<td>0</td>
</tr>
<tr>
<td>Polar animals</td>
<td>illustration</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4: Organizations’ websites (combined)
After examining all the websites, the content of many of dominant images associated with climate change coverage still conforms to the original “fire” and “ice” motifs described in this thesis. Images of ice, snow and polar animals are slightly more common, accounting for 21% of the total images. Taken as separate categories, photographs of ice (including glaciers, icebergs and polar regions) are the second-most common category, with 13.2% of the total images.

Images of the globe were also common, either with or without the “fire” motif. Images of the globe without fire elements were the third most popular category, accounting for 10.3% of the images, while the two categories combined equaled 19.6% of the total images.

Photographs of smokestacks and air pollution were the fourth-most popular category, accounting for 9.7% of the images (see Table 5).
GOOGLE SEARCHES, MEDIA & ORGANIZATION RESULTS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Type</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cartoon or other image</td>
<td>photo / illus.</td>
<td>65</td>
<td>13.4</td>
</tr>
<tr>
<td>Ice</td>
<td>photograph</td>
<td>64</td>
<td>13.2</td>
</tr>
<tr>
<td>Globe</td>
<td>photograph</td>
<td>64</td>
<td>13.2</td>
</tr>
<tr>
<td>Smokestacks / air pollution</td>
<td>photograph</td>
<td>47</td>
<td>9.7</td>
</tr>
<tr>
<td>Globe (fire/heat)</td>
<td>illustration</td>
<td>45</td>
<td>9.3</td>
</tr>
<tr>
<td>Graph or chart</td>
<td>illustration</td>
<td>35</td>
<td>7.2</td>
</tr>
<tr>
<td>Ice &amp; polar animals</td>
<td>photograph</td>
<td>25</td>
<td>5.2</td>
</tr>
<tr>
<td>Fire / heat</td>
<td>illustration</td>
<td>22</td>
<td>4.5</td>
</tr>
<tr>
<td>Alternative energy</td>
<td>photograph</td>
<td>21</td>
<td>4.3</td>
</tr>
<tr>
<td>Extreme weather</td>
<td>photograph</td>
<td>19</td>
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</tr>
<tr>
<td>Other natural phenomenon</td>
<td>photograph</td>
<td>18</td>
<td>3.7</td>
</tr>
<tr>
<td>Environmental activism / protests</td>
<td>photograph</td>
<td>12</td>
<td>2.5</td>
</tr>
<tr>
<td>Climate summit (i.e. Cancun, UN, etc.)</td>
<td>photograph</td>
<td>11</td>
<td>2.3</td>
</tr>
<tr>
<td>Flooding</td>
<td>illustration</td>
<td>11</td>
<td>2.3</td>
</tr>
<tr>
<td>Environmental pollution / destruction</td>
<td>photograph</td>
<td>9</td>
<td>1.9</td>
</tr>
<tr>
<td>Profiled person (political figure, etc.)</td>
<td>photograph</td>
<td>8</td>
<td>1.6</td>
</tr>
<tr>
<td>Polar animals</td>
<td>illustration</td>
<td>6</td>
<td>1.2</td>
</tr>
<tr>
<td>Displaced community / refugees</td>
<td>photograph</td>
<td>5</td>
<td>1.0</td>
</tr>
<tr>
<td>Ice / snow</td>
<td>illustration</td>
<td>4</td>
<td>0.8</td>
</tr>
<tr>
<td>Extreme weather / ice combo</td>
<td>photo / illus.</td>
<td>4</td>
<td>0.8</td>
</tr>
<tr>
<td>Fire / ice combo</td>
<td>illustration</td>
<td>3</td>
<td>0.6</td>
</tr>
<tr>
<td>Globe (flooding)</td>
<td>photo / illus.</td>
<td>1</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Table 5: Google, media, and NGO results (combined)

While the scope of this research is limited, it is evident that the websites surveyed do continue to utilize certain types of content to illustrate coverage of climate change issues. Images of burning planets, icy landscapes, and forlorn polar bears, continually re-circulating in a variety of online venues and formats, repeats specific narratives about fragile landscapes, pristine natural environments, and the uneasy role humans play in the natural world.

This study also reveals the strong emergence of other images, particularly the photographs of smokestacks and extreme weather conditions. With the numerous natural disasters and extreme weather episodes that have occurred in recent years, photographs of flooding, snowfalls, or hurricanes tend to relate to current events in specific locations. In an interview
conducted for this project, a media editor noted that using these photographs brought climate change issues “closer to home”, enabling greater sympathy for audiences (Smith and Joffe 2009).

The images of smokestacks are particularly intriguing, since they were evident in both the media and organizations’ websites. Rarely identified as linked to a specific industry or location, there is no clear notation describing the type of emission or what (if anything) is actually burning or being released. Without labels or context, these photographs of smokestacks are menacing, but it is unclear what the nature of the threat is.

As an icon of modernity and industrial production, the smokestack image reinforces the endangerment of contemporary risk in our society (Beck 1992, Spiegel 2001, 16). There have been enough of these images used to provide a conceptual link between the images of smokestacks and the concept of greenhouse gas emissions. A quick Google image search using the terms “greenhouse gas” reveals many pages of smokestack photographs. Al Gore’s film *An Inconvenient Truth*, for example, used an illustration of smokestacks for their poster and promotional campaign.
3 Chapter: CONCLUSION

3.1 The empty mirror

Scrapbooks function traditionally as an empty repository for images and objects linked to personal experience, with a one-way trajectory from blank page to scribbled, layered catalogue of memory and nostalgia. Attempting to collect online images of climate change does not follow a parallel path, however, as re-cycled photographs and illustrations circulate endlessly, providing little traction for engagement or understanding. Empty of context, these images reflect what the viewer projects (Bolter 2003, 20, Burnett 2004, 205).

This may be due to the surprising lack of contextual resonance found in many of these images, particularly those photographs and illustrations of de-populated or isolated landscapes. From the icy plains of the polar regions to the detached, suspended illustrations of planet Earth, these images seem to have been scoured of any reference to human activity or agency.

It is perhaps more than mere irony that these images, apparently divorced from human content, have come to be linked to one of the most challenging environmental and political issues of our age. The phenomenon of climate change emerged initially from the journals of scientific research and has been largely defined within the boundaries of scientific discussion. The images that have been associated with climate change content have, in an odd way, also fallen into this rubric of impartiality and objectivity. Unsullied by the “hand at work in the human fabric of science”, these de-personalized images uphold the “sanctity of objectivity” (Latour 2002, 18). While not necessarily containing references to scientific research, these images have been placed in conjunction with scientific findings so frequently
that they appear to be impartial as well. In Gore’s companion book, *An Inconvenient Truth*, for example, photographs of melting glaciers and planet Earth recur frequently next to graphs and charts describing various elements of climate research, imparting the photographs and illustrations the same “impartiality” given to the other illustrations (Gore 2006).

In an odd double blind, however, these images are linked to an issue that inspires deep passions, inspiring almost-evangelical displays of devotion or dismissal. As a “plastic” phenomenon, climate change exposes “both our individual selves and our collective societies” (Hulme 2009b, 357). Emptied of meaning, these images act like “untroubled mirror[s]” reflecting our own images back to ourselves (Foucault 1994, 27).

Functioning as blank mirrors, climate change images can arguably be utilized as a type of rhetoric. Traditionally, propaganda studies have examined the efforts of various interests to influence or sway public opinion towards a particular cause or idea. While the use of climate change images does not tidily fall into such an analysis, there are elements of this scholarship that can provide insight into the use of these photographs or illustrations.

Images, like text, can be useful tools of rhetorical persuasion, and many scholars have examined the particular significance of visual imagery in political propaganda (Jowett and O’Donnell 1999, Corner and Richardson 1993). Invoking emotion, visual images can be “powerful political tools, engaging people’s attention”, and ultimately changing our beliefs (Perlmutter 2003, 2, Deluca 1999).

But can images of climate change be seen purely as persuasive devices? Many of the images described in this thesis can be associated with messages about risk. Images of melting glaciers and cracking ice floes, for example, can symbolize a “beautiful devastation”, creating a sense of shock when viewers understand that this landscape is endangered (Doyle
Photographs illustrating climate change content can be classified as potent symbols of “collective danger and individual vulnerability” to viewers and audiences (Manzo 2010, 97).

While environmental risk communication is a well-developed field of scholarship, there are few, if any, examinations of visual images associated with risk communications, like the images of smokestacks and melting glaciers evident in this study (Remillard 2011, 129). Visual images, even more than text, can create new cognitive associations and potentially strengthen the impact of risk messages (Smith 2005). As a result, the importance of visual imagery should not be discounted when discussing public discourse concerning climate change.

As some scholars have noted, the inclusion of text or visual elements that induce fear in an audience has often been utilized both in mass media coverage and environmental campaign literature. Alarmist, inflammatory language and imagery have often been utilized in order to create a sense of drama, draw attention, and inspire action from the public (Cox 2006, Doyle 2007, O’Neill and Nicolson-Cole 2009).

One survey of U.K. media coverage, for example, noted that media outlets consistently used inflammatory language in their coverage of the release of the IPCC 2007 report. Although each of these newspapers appeal to various demographics, nine of the ten outlets surveyed presented a uniform message of “rising anxiety”, using adjectives like “shocking”, “terrifying”, or “devastating” in their articles. As well, words like “final”, “fears”, and “disaster” in the headlines, all terms that were not used in either the IPCC report or corresponding public presentations by the IPCC in Paris (Hulme 2007). Other critics warn that the publicizing of climate research, through the efforts of organizations like the IPCC
and individual works like *An Inconvenient Truth*, often incorporates a level of “emotionalizing” that may prove to deter rational debate (Buse 2007).

Interestingly, a corresponding online search of leading newspapers in the United States for the same time period showed headlines that were much more measured in tone, suggesting a “more neutral” representation of the IPCC’s key message in the U.S. In a letter to the British science journal *Nature*, researcher Mike Hulme argued that the tone of coverage in the U.K. was appealing to fear in order to generate a sense of urgency, but was ultimately misguided, as such appeals “often lead to denial, paralysis [or] apathy” (Hulme 2007).

Others scholars concur with this assessment, and studies on hazards and risks have determined that detailed, accurate information is not enough to influence public concern about specific issues. While access to factual information is important, people are also largely affected by emotional concerns, of which images play an important role (Lorenzoni 2006, Smith 2009).

There is a lack of consensus about the efficacy of using strong, powerful appeals in order to sway public opinion. It is understandable that a tone of urgency has been utilized in the development of rhetoric concerning climate change issues, partly because this type of terminology and framework has been a component of environmental activist campaigns for many years (Dale 1996). Some argue that this type of rhetoric is necessary in order to draw attention to important issues, and underline the critical nature of the cause (Hulme 2009b, 233).

But does this type of tactic produce effective social change? Two studies were conducted in the U.K. to determine the influence of visual and iconic representations of climate change, and concluded that images designed to appeal to a viewer’s sense of fear may be assumed to
be more memorable and attract greater attention. However, iconic images like melting glaciers, cracking polar ice caps, and extreme weather scenes “can also act to distance and disempower individuals”, effectively disabling a sense of personal engagement with the issue (O’Neill and Nicolson-Cole 2009, 374-5).

3.2 A patchwork narrative

While many may not necessarily concur on the proper tactics needed to address climate change, it would not be hard to agree that the results from over twenty years of “science, economics, international relations, diplomacy and politics” have not yielded comprehensive, satisfactory solutions to the problem (Hulme 2009b). The awkward, stilted circulation of images illustrating climate change content emphasizes the scope of this problem. Our current visual imagination seems to be stuck on an “either/or” groove, cycling through a predictable mix of smokestacks or polar bears, burning planets or melting glaciers.

Used repeatedly, images have been blamed for causing complacency or “numbness” in audiences weary of visual stimulation (Green, Mann and Story 2006). While generating complacency may not be the goal of campaigners or web editors, it may be useful to acknowledge that the repetition of climate change images may partly hinge on their iconic status. It may be easier to illustrate the new and often confusing articles, research and reports generated about climate change with images that are easy to comprehend.

Should these images of melting glaciers and polar bears on thin ice be discarded completely? American photojournalist Gary Braasch, for example, has spent a decade documenting the effects of climate change around the world, and many of his published images depict smokestacks, floods, and melting ice (Braasch 2007). These images may
contain overused content, but others would argue that accurate, vivid photo-documentation is useful, inspiring greater awareness with its “sobering” message (Ward 2007).

However, by narrowing our collective gaze solely on the images of risk and impact, we may have impaired our ability to understand and address the issue of climate change more carefully. There seems to be a deeper reluctance to acknowledge the complexities of our understanding of climate as a cultural construct, and an absence of discussion about how we have used the context of climate in various ways over many centuries. Just like the natural world, our climate has been the subject of both benign indifference and imperialistic attempts at dominance, identified at times as fragile and pristine, or dangerous and chaotic (Hulme 2009b, 22-7).

Some may argue that all we need to re-invigorate our visual language regarding climate change is a fresh aesthetic perspective, using the creative talents of artists to develop “fresh understandings” of environmental issues (Ridgeway 2009). In 2006, for example, the Cape Farewell project brought visual artists and writers to the Arctic to create new types of creative engagement with current scientific research and the northern landscape, resulting in educational exhibitions and publications (Buckland 2006).

While projects like Cape Farewell offer an interesting step in a new direction, I think there are still echoes of old dialogues emerging in art projects like this. There is certainly value to the collaborative nature and collective discussion of these events, but projects like Cape Farewell still seem to navigate in a familiar landscape, where climate change is defined as occurring in remote realms within a context of nostalgia for lost or altered natural ecosystems (Jasanoff 2005, Doyle 2007, Remillard 2011).
Even if art projects can develop new visual strategies for engagement and representation with climate issues, these images will likely not crossover successfully into journalistic frameworks, which operate using different sets of criteria for images and illustrations. While presenting overused, generic illustrations may be a losing strategy for media outlets and other types of organizations, I’m uncertain how new forms of visual representation can be utilized or created for this type of content.

Perhaps our visual language concerning climate change may eventually become more hybridized, reflecting not only our increasingly “human weather” climate (Hulme 2009a), but also the user-oriented, participatory tone of many visual experiments in the digital realm. Optimally, we could apply the “re-mix” spirit of digital engagement to climate change, with greater encouragement of messy, personalized responses to the issue.

Certainly, contemporary discourse could benefit from some questioning of the deeper narratives attached to our understanding of climate change. Our presentation of climate change content currently appears to be in lock-step, rigidly linked to scientific research and public policy that is “strip[ped]…of cultural anchors and ideological meanings” (Hulme 2009b, 355).

Perhaps it is time to develop new narratives, conceding that our focus has been restrained by our efforts to remain impartial and sustain public urgency. In examining an overlooked area of research, I’ve attempted to create a type of “patchwork” narrative, in an effort to contribute to more complex, nuanced discussions of climate change. Developing a cross-disciplinary, “bricolage” approach to this research may offer new insights and opportunities (Benjamin 2002, Sontag 2001). After decades of discourse moderated by objective perspectives and detached observation, it may be valuable to incorporate more unorthodox
methods into the mix, in order to comprehend how our understandings of climate change are framed, shaped, and presented.
BIBLIOGRAPHY


http://www.spiegel.de/international/world/0,1518,480766,00.html


http://www.bizjournals.com/washington/stories/2010/06/14/daily34.html


Hulme, Mike. 2004. “Pictures, scenarios or probabilities: how should we portray dangerous climate change?” Paper presented at the conference *Perspectives on dangerous climate change*, 28-29 June, Norwich U.K.

Hulme, Mike. 2007. “Newspaper scare headlines can be counter-productive”. *Nature* 445 (22 February), 818.


Merchant, Carolyn. 1996. “Reinventing Eden: Western Culture as a Recovery Narrative.” In


http://www.guardian.co.uk/commentisfree/2008/jun/23/climatechange.carbonemissions2


http://www.yaleclimatemediaforum.org/2010/04/andy-revkin-communicator/

Ward, Bud. 2010b. “A year / decade of great change on climate and on journalism.” Yale Forum on Climate Change and the Media (January 7).


89
