

**Climate Change Denial in Canada:
An Evaluation of the Fraser Institute and Friends of Science
Positions**

by

Aldous Sperl

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Abstract

Anthropogenic climate change is one of the greatest challenges facing our civilization, yet collective action is being hindered by the existence and promotion of a climate denial discourse. This research uses discourse analysis to critically examine the climate-related online web-output of two prominent climate change denial organizations found in Canada: the Friends of Science and the Fraser Institute. Rooted in the climate denial literature, and drawing on the framework of Argumentative Discourse Analysis, this research demonstrates the existence of a 'discourse- coalition' working to counteract the creation of meaningful climate policy in Canada over the last decade. The findings of this analysis support previous conclusions about the nature and purpose of the climate denial industry, thus showing that the general denial discourse is highly resilient over time and space. It is further argued that that climate denial in Canada is part of a wider philosophical struggle linked to the modern conservative movement defending the Dominant Social Paradigm.

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This work has been both a struggle and an incredible journey of self-development. I am pleased to say that, looking back at it, I have both learned about the subject under study and, perhaps more importantly, have learned something about myself. Indeed, this journey has sparked new questions in how I wish to live my life and what path I should follow. For this new and unexpected perspective I am incredibly grateful.

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Chapter 1 – Introduction and Thesis Overview

“Facts do not cease to exist because they are ignored.”

Aldous Huxley, 1927.

1.1 Introduction

The world’s climate is changing and it is changing faster than previously anticipated. In 2007 the IPCC with its fourth assessment report (AR4) indicated that in some predictions “late summer sea ice disappears almost entirely by the latter part of the 21st century” (IPCC, 2007). Fast forward to Sept 16, 2012 where arctic sea-ice reached another unprecedented historic low and predictions of when the arctic will be ice-free have moved to within a decade or two timeframe (Kerr, 2012). With observable effects of climate change happening sooner than anticipated, as well as increased knowledge of positive feedback loops and the looming possibility of ‘tipping points’ the timeframe of being able to effectively tackle climate change appears to be quickly shrinking.

We live in an era of uncertainty where human impacts are now having global consequences which are complex, uncertain, and potentially dangerous. This is the age of the Anthropocene (Crutzen, 2005). The resounding scientific consensus says that the global temperature change since 1950 has been very likely induced by human activity on this planet – primarily through the release of greenhouse gas emissions through the burning of fossil fuels (IPCC, 2007). The climate has changed in the past but the current change happening on our planet is largely human-induced and is thus not natural but anthropogenic global warming (AGW). Yet while the science of this phenomenon has become increasingly certain (Oreskes, 2004; Doran & Zimmerman, 2009), action on addressing the issue has not followed apace. Perhaps even more troubling, public opinion in North America towards “acceptance” of the concept of AGW has apparently decreased in recent years (Borick et al., 2011; Hoffman, 2011b; Whitmarsh, 2011). As public policy is obviously crucially dependent on public opinion (Leiserowitz, 2007), there can be little

hope of substantial action on the mitigation or even adaptation towards climate change without the public perceiving climatic change as a significant threat to our society.

Climate change is one of the defining challenges of our present human civilization; the multiple threats that climate change poses for our human civilization are serious and potentially devastating (Weaver, 2008; IPCC, 2007; Dyer, 2008). Tackling the issue through reducing global emissions is a multifaceted process that has thus far met with little success (Saxifrage, 2012). Multiple dimensions, from technical solutions to issues of social justice are at play, with the result being an incredibly complex and almost insolvable process of global governance (Hulme, 2009). Widespread ignorance, uncertainty, doubt, and denial of the accepted facets of climate science are complicating this process further (Oreskes & Conway, 2010).

Given the importance of the problem and the overwhelming evidence of AGW-induced climate change, the consistent and even increasing uncertainty in public opinion is quite concerning. Despite three decades of pleas and calls to action from increasingly concerned climate scientists there is still a distinct lack of meaningful climate policy in most of the world (Schneider, 2009). Is this indicative of a general communication failure from the scientific community to both the public and the governing politicians, or is there more underlying this phenomenon? Although, there is no single answer, there are many influential contributing factors; one of the more prominent is the deliberate and organized spread of misinformation on AGW.

The 'denial industry' refers to a group of organizations, businesses, libertarian think tanks, conservative ideologues, outlying dissenting scientists, and prominent politicians (Oreskes & Conway, 2010; Hoggan & Littlemore, 2009; Washington & Cook, 2011; Gelbspan, 1997). As the scope and understanding of climate change implications and impacts have increased, this web of actors and organizations has produced and led a powerful countermovement focused on opposing action on climate change and

maintaining the status quo. The countermovement is also heavily tied to the large promotion of a counter-discourse; one that seeks to explain climate change as a 'non-problem' (McCright & Dunlap, 2000, 2003, 2010). To do this, the issue of climate change is portrayed in a variety of ways: climate science is 'junk' science or very biased and not to be trusted, prominent advocates have a hidden agenda that is self-interested, observable evidence shows that the climate is not changing or is cooling, science shows that this is a natural phenomenon, the costs of acting on climate change are far higher than the theory warrants, climate change is just a 'front issue' for implementing a more socialist government. Although there are many aspects to this counter-discourse, at a fundamental level it rejects the widespread scientific consensus of anthropogenic climate change and its implications, preferring to value other 'evidence' that disagrees with this consensus.

The discourse that this countermovement has produced has been widespread. It has been covered disproportionately in the media (Boykoff & Boykoff, 2004) and has heavily influenced and been used by conservative politicians in North America (Antonio & Brulle, 2011). Arguably, the discourse produced by the denial industry has had a large impact on the public's understanding and acceptance of mainstream climate science (Washington & Cook, 2011; PBS Frontline, 2012). While this discourse has been most prevalent in the United States, it also exists in Canada (Hoggan & Littlemore, 2009).

In order to critically examine the climate denial discourse in Canada, within the wider context of the climate denial industry, this research uses discourse analysis to uncover the central messages and main argumentative discursive elements employed by two leaders of this discourse: the Friends of Science and the Fraser Institute. The central aim of the project is to gain a better understanding of the denial discourse employed in the Canadian context and how it relates to previous scholarship. This then may speak to the resilience and power of the discourse across national borders as well as over time. Rooted in environmental discourse literature, as well as in the critical exposition of the denial industry, this

research is premised on the belief that mainstream climate science is our best form of knowledge regarding the changing climate and should thus be taken seriously. Likewise, this research is situated in the understanding that the alternative discourse under study is part of a countermovement opposed to acting on climate change and it is not about the pursuit of exposing ‘truth’, ‘injustice’, or ‘corruption’ – claims ‘the deniers’ often make. There is a widespread understanding that the politicization of climate change has created two competing forces that are seemingly incommensurable – drastically reducing the possibility of public policy implementation (Antonio & Brulle, 2011). This thesis answers a call for more research into understanding the denier discourse and how it is communicated (Hoffman, 2011b, Marquart-Pyatt et al. 2009). By engaging with this discourse this research aims to assist in moving our society in a progressive direction towards addressing the great challenge of climate change.

To accomplish the aims of this research project the online texts produced by two leading denial organizations in Canada were chosen as representative samples of this discourse (Friends of Science and the Fraser Institute). Documents produced by the two organizations from 2002 to October, 2012, were identified as a reasonable data set from which to identify the central claims of this discourse as well as the most frequent discursive elements employed (e.g., themes, frames). These documents were then analyzed through an Argumentative Discourse Analysis approach. In this context, the notion of discourse is seen through a Foucauldian lens as a contested and political entity through which ideology and worldview are communicated and through which meaning and ‘truth’ are imposed. In essence, a discourse creates our common conception of reality; where there are competing discourses (as over the notion of climate change) they represent an area of contestation and struggle for power (see Chapter 3).

Through multiple readings and re-readings the central messages and dominant discursive elements of this set of texts have been identified and have come to form the basis of this discourse analysis.

However, the analysis also looked at elements present in the set of texts that could speak to the

resilience and power of the discourse (e.g., the underlying narrative, notable changes over time, inconsistencies and silences produced). The two organizations were chosen as representational of the denial discourse because of their prominent role in the Canadian context. Rather than simply looking at one organization, a comparison of the two separate analyses was thought to allow for a deeper understanding of the shape of the discourse in Canada.

1.2 Research Question & Significance:

This research project aims to analyse the discourse of climate change denial in Canada. This research used an Argumentative Discourse Analysis on texts from two organizations: the Friends of Science and the Fraser Institute, both of which are important leaders in the climate denial movement of Canada (Hoggan & Littlemore, 2009; Gutstein, 2005, 2009; Knight & Greenberg, 2011). The following questions guided the research: What are the main themes and messages these organizations have promoted over the last decade? What are the core concepts/beliefs that are repeatedly emphasized and that underlie this discourse? How has this discourse been framed and then communicated, especially in relation to the general public? What can be said about the resilience of this discourse over time?

Hoffman (2011b) has noted that the majority of focus by the academic community has thus far been on the scientific, technical and policy components of the issue. Equally important, however, is that climate change has become a “highly contested cultural issue in which competing movements engage in discursive elements – or framing battles – over the interpretation of the problem and the necessity of solutions” (p.77). Indeed, it is arguably not the issue of climate change per se, but how the issue is framed and discussed that has had the greatest influence on the public realm. Furthermore, addressing climate change requires significant policy changes that will require broad support across political and ideological spectrums. Understanding the climate denier discourse may provide insights into how to effectively engage the movement and counter the impact it may be having.

1.3 Thesis Overview

In Chapter Two I provide a context for climate change by discussing the history and evolution of the science and how the concept of climate change is highly malleable. Next I discuss some of the possible factors that may have influenced a relative lack of engagement with climate change in the public sphere before explaining the idea of denial and the denial industry itself. A brief look into the history, central actors, and methods of the organized climate denial movement is then given, followed by an explanation of how this phenomenon exists in Canada. Last, the academic literature focusing on this particular issue is briefly discussed and summarized.

Chapter Three explains the theoretical and methodological foundations of this thesis. The philosophical notions which underlie discourse analysis (i.e., poststructuralism) and the competing ideas about what a discourse entails are explained and defined. In this section the work of Foucault and Hajer is identified and discussed as their work has provided important conceptual tools used in this research. Next, the theoretical and research frameworks which guided my approach to discourse analysis are described with an explanation of the specific methods used in this thesis. Last I explain my data set to the reader noting its strengths as well as its limits.

In Chapter Four I present the results of the two separate discourse analyses of this research. I first explain how each analysis followed an identical structure which examined the storyline, narrative, central messages, frames, themes, and issue-categories that were present in each set of texts. In addition each analysis noted the changes, inconsistencies and silences that the texts produced. The use of these concepts is also explained here. I then show the results of the analysis done on the Friends of Science, followed by the results of the analysis done on the Fraser Institute.

Chapter Five is a discussion on what these results signify and what can be concluded about the broader denial discourse in Canada. To start, I first describe the socio-historical context in which these texts were

produced and note any patterns that emerge in relation to this context. I then highlight the key differences found between the two micro-discourses noting that these differences can largely be explained by the distinct starting positions of each organization. Next I argue why merging these two analyses makes theoretical sense as they are part of a 'discourse-coalition' (Hajer, 1997) which is promoting a common storyline about climate change. Following from this argument, I explain how the common elements found between both analyses are likely to be representative of the overall denial discourse in Canada. With this in mind, I then provide an answer to my research questions explaining the central messages of this discourse, the core concepts and beliefs that seem to underlie the discourse, and how this discourse has been communicated to the public. I also note the changes, inconsistencies and silences that were a common feature of both analyses and thus likely to be representative of the larger discourse. Next I compare these findings and conclusions to previous literature on the topic and then speculate about why this discourse exists in the first place. I end the chapter by introducing a moral question on the proper role of skepticism and trust in society in light of a changing planet.

The thesis ends with a short conclusion which discusses the overall issue of climate change, how this research has been informed by mainstream climate science, how my research has created new and difficult questions to answer, and how the role of organized climate change denial is hindering action on climate change.

Chapter 2 – Setting the Stage: Climate Change and Discourse Analysis

In order to best situate this research, the reader must have at least a basic grasp of the complex nature of climate change and how it is understood. Hence this chapter begins by outlining some key points about our current state of knowledge regarding the climate and gives a brief history of climate science. Next I discuss climate change as a concept, one that is highly malleable and which can be interpreted in many ways. This then leads into a short discussion outlining some possible reasons for why there is an apparently large gap between what the science says and what the public believes; some other factors that have hindered society in addressing climate change with the seriousness it deserves are also explained. I next discuss the ideas of denial and the denial industry, describing the highly effective merger of conservative ideology and industry in creating a widespread climate denial movement. Last I outline how this movement exists in Canada and explain how previous literature has studied this movement.

2.1 The Evolution of Climate Science

The theory that human-produced greenhouse gas emissions, primarily in the form of CO₂, could change the global temperature of the planet is not a new idea – it was originally proposed in 1896 (Weart, 2008). It is now accepted by virtually all major scientific organizations in the world. Similarly, the notion that anthropogenic climate change could have potentially grave consequences for the natural world is also not new – it was proposed in front of a US congress in 1956 (Weart, 2003). In 2009 over 100 heads of state convened in Copenhagen to try to work out a global agreement on how to reduce global emissions and deal with the consequences of a warming planet (CBC, 2009). Over the past century, the increasing scientific evidence supporting the theory of AGW has slowly produced a much-publicised and widespread ‘scientific consensus’ on climate change (NASA, 2012).

Here it is important to note that this 'scientific consensus' refers solely to the theory that human-induced emissions are most likely responsible for the observed global warming over the last century. As stated by the IPCC, "most of the observed increase in global average temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic GHG concentrations" (IPCC, 2007). However, there is no consensus on how fast the climate will change; what effect natural feedback mechanisms may have; what the specific impacts will be, when they will happen, and how they will occur; and how best to approach mitigation or adaptation measures. These ideas are widely debated and contested within the scientific community. Indeed, despite the substantial advances in climate science, there remain great uncertainties and unknowns about the climate. However, there is growing physical evidence, such as the observed dramatic arctic ice melt, that these changes are coming faster and will be more severe than previously anticipated (Weaver, 2008).

The global climate consists of an array of incredibly complex and dynamic physical processes interacting with one another at various spatial and temporal scales. Unsurprisingly, climate science mirrors this natural complexity. Our understanding of the climate system arises from a high level of expertise and specialization in a multitude of fields. From computer modellers, to ice-core drillers, geologists, oceanographers and atmospheric chemists, the science and evidence supporting AGW theory is complicated, diverse, and often incredibly technical. Our knowledge of the climate system and how it is changing or could change does not arise solely from one scientific field, but instead results from a combination of numerous fields, and a multitude of experts (Weart, 2008). Understanding how our state of current knowledge has come to exist, and why there now exists such a widespread scientific consensus around AGW, as well as increasing concern over AGW, helps to situate the reader in this topic.

2.1.1 A Brief History of Climate Science

The beginnings of climate science stretch back to the 1820s where French scientist Joseph Fourier speculated on how our atmosphere was keeping heat trapped, allowing for a much warmer planet than would otherwise be expected. The next big step on this theory was made by John Tyndall in 1859, when he discovered the heat-trapping properties of methane and CO₂ – what we now refer to as ‘greenhouse gases’ (Weart, 2003). Thirty-seven years later, Svante Arrhenius postulated that significant changes to the level of CO₂ in the atmosphere could have, in theory, large effects on the global climate; although this was only one of a number of contending theories at the time (Weaver, 2008). By the 1930s there was significant agreement that a global warming trend was underway and in 1938 Guy Callendar announced before the Royal Meteorological Society in London that the cause of this recent warming was human industry – specifically CO₂ emissions. It was regarded skeptically by the scientific community at the time, and put on a shelf as one of many possible reasons for why the earth was warming (Weart, 2003).

Although the warming trend had now been noticed, and various theories were competing in trying to explain this phenomenon no one really thought it was a problem –many experts seemed to think that it would be a good thing (Weart, 2003). By the 1950s, through the work of Roger Revelle and David Keeling, a baseline of CO₂ in the atmosphere was established and the famous ‘Keeling curve’ was born. The first research station looking at CO₂ levels, created by Keeling and based in Hawaii, began measuring the concentration of CO₂ in our atmosphere in 1958; it has recorded a yearly increase that has continued to this day. It was also during this decade that Revelle brought the issue of the greenhouse effect and global warming to the attention of congress in 1956 and 1957 – testifying that the greenhouse effect, amplified by CO₂ emissions, could have severe negative environmental consequences in the US and around the world. At this time the scientific community was also coming to terms with the idea that a relatively small change in one factor of the physical world, could manifest itself, through

feedbacks, into a planetary climatic shift – and this shift could be much more abrupt than previously thought (Weart, 2003).

However, the theory of global warming was thrown in to dispute by the 1960s as it was confirmed that the global temperature had actually been cooling since the 1940s. As Weart (2003) notes, scientists were “unable to agree whether the world was likely to get warmer or colder” – although the notion that humanity was likely affecting the climate in some way was largely agreed upon (p. 94). Media outlets ran stories on the coming of the next ice age, or of coming global warming – sometimes within a year of each other. Although as Andrew Weaver (2008) notes there was only one peer-reviewed scientific study in 1971 that hinted at the possibility of humanity triggering an ice age.¹ However, by the late 1970s most of the mainstream scientific community stood again behind the global warming hypothesis. Indeed, 1976 saw a series of congressional hearings specifically devoted to the topic of climate change and how CO₂ emissions could alter the climate and bring calamity (Weart, 2003). In 1978 the US Congress passed a National Climate Act which established a National Climate Program office within the National Oceanic and Atmospheric Administration (NOAA). The trend of rising global temperatures was confirmed by the end of the decade and the National Academy of Sciences issued a report in 1979 giving high credibility to the idea that a doubling of CO₂ would result in 1.5-4.5 degree rise in global temperature; shortly afterwards, 1981 was recorded as the warmest year on record (Weart, 2003). The increase in attention towards global warming reached a head in the US in 1988 with massive heat waves and droughts in the US. On June 23, 1988, James Hanson gave his now-famous testimony before the US senate noting that

¹ Another important event which discredited the ideas of global climate models and climate scientists was the dispute over the effects of a nuclear war on the atmosphere in the 1980s. Here the idea that nuclear war could create a formidable ‘nuclear winter’ was contrasted with more complex models which noted that it could likely only create a ‘nuclear fall’ a substantial difference in terms of how much sunlight would hit the affected regions. This dispute in the science, occurring between leading climate scientists and amplified in the media, highlighted the idea that climate models and climate science was full of uncertainties and that this was an emerging science but that could be used to further political agendas (Schneider, 2009).

“the global warming now is large enough that we can ascribe with a high degree of confidence a cause-and-effect relationship to the greenhouse effect” (Schneider, 2009, p.114).

Also during this decade the international scientific community had begun to rally around the notion and validity of AGW. The first World Climate Conference, sponsored by the World Meteorological Organization (WMO), was held in 1979 in Geneva (UNFCC, 2012). Five years later, the first international ‘consensus’ statement about climate science came in 1985 in Villach, Austria, where the assembled scientists issued a statement that confirmed that an unprecedented rise in world temperature could occur in the next half century and stated that governmental policies could profoundly shape this anticipated future warming (Weart, 2003). The significant ‘Toronto Conference’ (officially titled as ‘Our Changing Atmosphere: Implications for Global Security’) followed in 1988. This conference brought together hundreds of scientists and policymakers from around the world with the goal of initiating action on climate change and to put climate change on the global agenda. The conference ended with a warning statement: “Humanity is conducting an unintended, uncontrolled, globally pervasive experiment whose ultimate consequences could be second only to a global nuclear war”. In addition, this conference, hosted by Canada, issued a call for a 20% reduction in CO₂ emissions (below 1988 levels) by 2005 (May, 2008). A number of other international conferences followed in 1989 and 1990 which helped to raise international concern about the issue.²

1988 also saw the creation of the Intergovernmental Panel on Climate Change (IPCC), a scientific body with the mandate “to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts” (IPCC, 2012). By this time, mainstream science was ardently highlighting the probability that increased emissions would lead to global warming and there was widespread (and partisan) agreement that the issue should be dealt with

² These included: the Ottawa Conference (February 1989), the Tata Conference (February 1989), the Hague Conference and Declaration (March 1989), the Noordwijk Ministerial Conference (November 1989), the Cairo Compact (December 1989), the Bergen Conference (May 1990), and the Second World Climate Conference (November 1990).

(Weart, 2003). Four years later the United Nations Framework Convention on Climate Change (UNFCCC) was established. This was an international treaty designed to allow national governments to “cooperatively consider what they could do to limit average global temperature increases and the resulting climate change, and to cope with whatever impacts were, by then, inevitable” (UNFCCC, 2012). In 2007, following from the first and second IPCC reports in 1990 and 1995, the Kyoto protocol was established. This international protocol set binding emission reduction targets on signatories relative to 1990 levels; however, the agreement only included the Annex 1 industrialized nations and did not include the US. The protocol only came into force in 2005 when it was ratified by Russia (Weart, 2008). Throughout the decade climate science continued to progress and by 2007 the IPCC AR4 report stated that the warming of the climate is now “unequivocal” and that it is “very likely” (>90%) due to human causes (IPCC, 2007). In 2009 thirteen national academies of science from around the world issued a joint statement highlighting that “the need for urgent action to address climate change is now indisputable” and that “it is essential that world leaders agree on the emission reductions needed to combat negative consequences of anthropogenic climate change” (G8+5 Academies Joint Statement, 2009). Indeed the theory of anthropogenic global warming has now become so established that there are few legitimate scientific organizations that dispute this general consensus (some exceptions do exist – e.g., the American Association of Petroleum Geologists) (Siegel, 2012; NASA, 2012). Further evidence of this general consensus on the nature and importance of anthropogenic climate change is abundant and there have been a few key studies that highlight the degree of this agreement within the academic community (Oreskes, 2004; Doran & Zimmerman, 2009; Powell, 2011). Within the mainstream scientific literature then, it appears that there is very little, if any, debate on if anthropogenic climate change is occurring.

2.1.2 Summary of Key Events

The table below has been compiled through the use of information provided by Weart (2003; 2008), Schneider (2010), Weaver, (2008) as well as through the website of NASA (2012). The table provides the reader with a summary of key events which show a scientific, public policy, and physical phenomena convergence on anthropogenic warming.

Table 1- Key Events in the History of Climate Science

| | |
|------|---|
| 1896 | Svante Arrhenius theorizes that changes in CO ₂ levels could increase global temperatures. CO ₂ levels are around 290 ppm. |
| 1938 | Guy Callendar announces that recent warming trend is due to human industry and the release of CO ₂ into the atmosphere. |
| 1956 | Roger Revelle testifies before congress that CO ₂ -induced warming may have adverse effects at some point in the future (e.g., creation of deserts). |
| 1958 | Keeling Curve starts – baseline of CO ₂ in atmosphere established. CO ₂ levels have risen to around 315ppm. |
| 1976 | Series of Congressional Hearings in the US on dangers of CO ₂ -induced climate change. |
| 1978 | National Climate Act is passed in the US. |
| 1981 | Warmest Year on Record. Strong global warming since mid-1970s reported. CO ₂ levels are above 338ppm. |
| 1985 | Villach Conference – the conference gives a consensus statement noting that some increased warming appears unavoidable. In addition, a call for governments to act on restricting emissions is given. |
| 1988 | James Hansen testifies before the senate. IPCC is created. Margret Thatcher calls for climate action. Toronto Conference is held – call for international action is made. |
| 1990 | IPCC issues first report – world has been warming, future warming seems likely. CO ₂ levels are at 354ppm. |
| 1992 | UNFCCC established. |
| 1995 | IPCC issues second report – serious warming likely in the coming century. |
| 1997 | Kyoto Protocol is formed: an international treaty where certain nations pledge to reduce emissions if enough nations sign on to the agreement. |
| 1998 | New warmest year on record. Large weather disasters caused by a Super El Nino. Extraordinary warming trend confirmed. |
| 2001 | IPCC issues third report – global warming, unprecedented since last ice age, is very likely. Possibility of severe surprises in the future. CO ₂ levels are above 370ppm |
| 2002 | Canada formally ratifies Kyoto. Global temperatures roughly tied with 1998 for warmest year on record. |
| 2005 | Kyoto goes into effect. New warmest Year on record. |
| 2007 | IPCC issues fourth report. Global warming is now certain. Above 90% confidence that it has been caused by anthropogenic emissions. |
| 2009 | COP 15 – Copenhagen conference on climate change. Over 100 heads of state attend. 13 National Academies of Science issue a joint statement calling for action to reduce emissions. |
| 2010 | New warmest year on record. CO ₂ levels pass 390ppm. |

2.1.3 The evidence for climate science and AGW

The brief historical description above has highlighted a few of the noteworthy moments in the evolution of climate science and the theory of AGW. It helps to situate the reader in a broader understanding of how the 'scientific consensus' around climate change has occurred and why it has garnered such attention in the scientific community. Calls for action on this issue are not new. They have been coming from large scientific conferences and bodies, as well as leading climate scientists, for over three decades. I believe this historical record provides increased support of AGW for two central reasons: (1) It is not a new theory but has slowly evolved over a lengthy time and (2) the evidence supporting the theory has also accumulated over time and is now at the point whereby almost all national academies of science endorse it. Hence those who support and endorse the basic AGW theory are not a minority of outlying scientists supporting an unwarranted view, but do indeed represent the mainstream scientific understanding on this issue. The same cannot be said for those opposed to AGW theory.³

2.2 Public Opinion and Climate Change

The science of climate change is clear – CO₂ emissions caused by humans are warming the planet and taking us into an unprecedented climatic shift. If one values a climate that is relatively stable and predictable, and presumably most of us do, then the need for large-scale action is also clear. Yet, in looking at the rise of emissions over the last three decades, as well as the lack of a binding international agreement that could reverse this trend, it becomes painfully obvious that our global civilization has not taken the hard and difficult steps needed to counter this dangerous phenomenon.

One reason why this has not happened, particularly in developed nations, is found in the role of an unconvinced public. Of central importance in the implementation of public policy in functioning

³ Here I must note that there are certainly outlying scientists and groups of scientists who fall on both sides of the 'mainstream'. Some scientists feel that large scientific organizations (e.g., the IPCC) are far too conservative in their views of climate change (Hansen, 2008; Santer & Wigley, 2013). On the other hand there are also dissenting scientists that think AGW has little evidence to support it (Lindzen, 2009). The mainstream scientific consensus, however, supports the theory of AGW.

democracies is public opinion. Indeed, public opinion strongly influences the options available to policymakers as it can fundamentally compel or constrain political, economic and social action at multiple levels (Burstein, 2003). In the context of climate change, the scope of the problem means that any effective mitigation or adaptation policy to global warming will require changes in the behaviour of billions of human beings (Leiserowitz, 2007). Clearly, any significant action on climate change from democratic governments will hinge, in part, on citizen's belief that the issue is important enough to warrant this type of policy implementation. With climate change, however, the public has had difficulty in effectively understanding the issue. As Malone (2009) notes, "a wide-ranging survey literature tells us that people do not understand the mechanisms or the potential impacts of climate change; they do not realize the scale of effort required to reduce greenhouse gas emissions; and they may think of climate change as a far-off issue that will not affect their lives". Furthermore, with the issue of climate change public opinion has wavered in uncertainty – over what to do, the extent of climate change, and most importantly whether the problem actually exists. Although opinion polls should not be given too much credence, as they are subject to numerous errors (such as question wording, and sampling techniques) and can change rapidly, they often provide the only measure of gauging the state of public knowledge or opinion. Despite their shortcomings, all studies and surveys that I have been able to find looking at recent western opinions on climate change demonstrate that public 'belief' in climate change peaked in 2007/2008, before seeing a moderate to substantial decline (depending on the poll used) (Krosnick, 2010; Pew Research Center, 2009; Jones, 2011; Saad, 2012; Borick et al., 2011). In some cases the decline noted has been dramatic – in 2011 for example, the public in Canada, the US, and the UK, was sampled for its belief in climate change being a problem – Canada had the highest rating at a stunning 52% (followed by the US, then the UK) (Angus Reid, 2011). Although there is wide disagreement on just how much public belief in the problem has declined, there seems to be fairly wide agreement that it did

suffer a decline post 2007/2008 (Marquart-Pyatt et al.,2011; Hoffman, 2011; Whitmarsh, 2011; Borick et al., 2011).

2.2.1 Climate Change – A highly malleable concept that defies social mobilization

Although climate change is a physical phenomenon it is also a concept. It literally represents a changing world, which necessarily has implications for all sorts of ideas, philosophies, issues, and movements. As an idea, climate change can conflict with widespread prevailing philosophies such as the earth having a natural balance, that Mother Nature is immune to human interference, that the future will be more prosperous than the past, and even that the capitalist growth economic model is the best way forward. It can challenge notions of progress, prosperity, and stewardship. Indeed, climate change is an incredibly multi-faceted idea; it encompasses a wide array of actors, ideas, and interests. It can mean different things to different people and in this sense climate change has become the issue of issues, one which virtually any type of social movement can project its goals and aspirations onto (Hulme, 2009).

Proponents and advocates in the fields of health, security, inequality, terrorism, wealth distribution, food, water, environmental protection, anti-capitalism, religion, etc. have all used climate change as a platform to promote their goals and objectives. In so doing it has led to a plethora of interests, often conflicting, all of which use the notion of climate change in diverse ways.

Not surprisingly the responses to this concept have been equally diverse. Largely depending on how climate change is framed and communicated, people respond in completely different ways: despair, hope, excitement, dread, skepticism, apathy, and denial. Within our interpretations we have differing underlying philosophies on notions of risk, science, what we value or fear, how we should progress, and how we should govern (Hulme, 2009). Given the powerful idea of climate change it is not surprising that there is widespread disagreement over what it means and what should be done about it. Indeed, the communication of climate change is perhaps best summarized by Hulme (2009): “one of the reasons we

disagree about climate change is that we receive multiple and conflicting messages about climate change and we interpret them in different ways” (p.215).

The ways in which climate change has been communicated not only help to explain the scope of views on climate change but also helps to explain the reasons for relative societal inaction. For example, the media and its underlying journalistic norms have had a substantial impact on how climate change has been articulated, explained and what elements have been emphasized. The underlying journalistic norms of fairness, balance, objectivity, conflict, novelty have greatly favoured a bias towards the climate denier position and controversy (Boykoff & Boykoff, 2007). The notion of self-censorship on more controversial topics (e.g., tipping points) is also a part of this media influence (Antilla, 2010).⁴ Indeed, the degree to which the skeptic message has been allowed to act as a counterweight to mainstream climate science is staggering. The most prominent effect of this phenomenon has been the promotion of the idea of a “dueling scientists” debate; that there is controversy and disagreement not only on how to solve or tackle the problem, but if the problem even exists. This phenomenon has been well documented in the American and British press and is likely one of the most significant factors explaining the high level of climate skepticism in the public (Antilla, 2005; Boykoff, 2007; Boykoff & Boykoff, 2004). The underlying ideology of certain newspapers and media outlets has also helped to promote the skeptic message (Carvalho, 2007; McKnight, 2010).

Another explanation for why there has been no sustained societal push to counter climate change is found in how various messages strongly in favour of acting on climate change can still paradoxically inspire inaction. For example, a common argument is that momentous societal change must occur if any solution to climate change is to be achieved (Dyer, 2008). This of course challenges the dominant way of

⁴ The notion of ‘self-censorship’ stems from the idea that news agencies may refrain from producing pieces they perceive as overly alarmist/sensationalist. Some agencies may fear that printing such articles would characterize the organization as having a political agenda or perhaps being untrustworthy and thus losing some of their readers (Antilla, 2010).

life and underlying ideology of capitalism most prevalent in our society, making many uneasy and reluctant to support change. Another theme has been the use of apocalyptic framing, which has in some instance galvanized individuals, but has also alienated others (Foust et al., 2009). Similarly the language of urgency, for example, the use of tipping-points/point of no return (Russill, 2008) and even of collapse (Leahy et al., 2010; Diamond, 2005), a theme used in both popular and academic literature, often produces a sense of fatalism. In addition, climate change has most often been communicated in the genre of persuasion (rather than through the genres of social movement mobilization or deliberation) which may also have been partially responsible for why society has not mobilized effectively to address climate change (Johnson, 2012).

That climate change is framed in a multitude of ways (from costs to the economy to species extinction) and that these messages are then filtered and reinterpreted by the world-views of those listening to these messages, ensures a cacophony of ideas and meanings in the public realm regarding climate change and what to do about it. This fact has had profound effects on the communication of climate change but has also shown that the idea of a unified front towards tackling climate change verges on the impossible. Indeed this is perhaps one of the reasons why the proponents of acting on climate change, particularly in the environmental community, have not effectively mobilized to keep climate change on the national political agenda or have convinced the general public of its urgency (McCright & Dunlap, 2003).

Aside from the issues around the communication of climate change, Brulle et al. (2011) highlight several other external factors that have affected public engagement with climate change: extreme weather events, a lack of exposure to and understanding of scientific information, the work of advocacy groups,

elite cues,⁵ and economic and political factors. Indeed, day-to-day influences such as weather events and political/economic factors certainly play a large role in how individuals interpret the importance of climate change. Yet there are three other central factors that are especially important in explaining why climate change remains an issue that has defied a concerted push from society to address its underlying causes.

First is the nature of the problem: Climate change is a crecive problem. It is incremental, long-term, cumulative, globally diffuse, future-oriented, and has a slow onset – as opposed to immediate and acute. As McCright and Dunlap (2003) note, these “characteristics of global warming hinder the portrayal of global warming as a problem deserving immediate action” (p. 367). In addition, the considerable uncertainty of the scale of impacts and when these may happen are countered with the perceived costs of acting in the present. The idea that policy-makers generally tend to discount the future, and that the likelihood of policy action is often inversely related to its apparent costs, makes the notion of climate change even more susceptible to attack and non-action (McCright & Dunlap, 2003).

Second, climate change is, as Hulme (2009) aptly notes, a ‘wicked problem’: it defies rational and optimal solutions; it is a unique “situation defined by uncertainty, inconsistent and ill-defined needs, preferences and values; [there is an] unclear understanding of the means, consequences, or cumulative impacts of collective actions; and [there is] fluid participation in which multiple, partisan, participants vary in the amount of resources they invest in resolving problems” (p.334). Indeed, the issue of climate change is historically unprecedented, extremely complex, and potentially devastating. In addition, climate change can be seen as a “super-wicked problem”, as time is an enemy, the actors responsible for the problem have the least motivation towards addressing it, and no institutional framework exists to adequately confront the problem (Smart, 2012). Furthermore, the solutions to climate change are

⁵ Here ‘elite cues’ refers to the signals that prominent and influential members in society (politicians, actors, singers, CEOs, etc.) provide the public through what they say or how they act (e.g. fashion, political causes).

“difficult to recognize because of complex interdependencies in the system affected; a solution to one aspect of the problem often reveals or creates other, even more complex, problems demanding further solutions” (Hulme, 2009, p.334).

Last is that climate change, arguably the ultimate environmental issue, has witnessed a strong and coordinated conservative-ideological backlash, which, particularly when partnered with industry, has created a strong counter-movement that has vigorously challenged the science and importance of climate change (Oreskes & Conway, 2010; Washington & Cook, 2011; Armitage, 2005; Gelbspan, 2004; Gutstein, 2009; Hoggan & Littlemore, 2009; Jacques et al., 2008; McCright & Dunlap, 2000, 2003, 2010, 2011). Its central unifying tenet has been an attempt to create a non-problem of the issue (McCright & Dunlap, 2010). This movement has been influential in sowing doubt in the public as to the reality and importance of climate change, and is what I now focus on.

2.3 Climate Change Denial

Climate change denial is a phrase that has been used to cover a range of responses to climate change itself. Some examples of this include: (1) climate change doesn't exist, (2) climate change is naturally occurring therefore requiring no mitigating action, (3) AGW may be a serious issue but the science is unsettled so we need to be more certain before we act, (4) AGW is happening but other problems require more of our attention, (5) AGW is a serious problem but the costs of addressing it are too great, (6) AGW is a very serious issue but the likelihood of international cooperation is slim and therefore we should not sacrifice our economies for no benefit. However, for this thesis I choose to define denial as a deliberate belief that is contrary to the mainstream scientific consensus. Thus the first four statements listed above fall into this category as the science is clear enough to act on, and if the risks are understood properly then there are few, if any, other problems that warrant our attention more.

It is true that the above arguments could also be seen simply as statements of ignorance, or skepticism, not necessarily denial. On an individual case it is impossible to know what level of knowledge the individual has been exposed to and given the problems discussed earlier with climate change communication, this individual may be simply ignorant or rightfully skeptical. Even if they are in the actual process of denial (in that they completely understand the scientific consensus but still believe climate change isn't an issue) there are many psychological and ideological reasons that could explain why. While there are many actors that deny the existence of anthropogenic climate change for a variety of reasons, the purpose of this research is not to examine this social phenomenon. Rather it is based in examining the very active community of actors who publically advocate that anthropogenic climate change is not a problem: this is what I refer to as the organized denial movement, or the denial industry. In order to do this they must deny the validity of mainstream climate science – hence the term denial.

It is also worth explaining why I use the term denial as opposed to skepticism or contrarianism: simply put, I believe it to be a more accurate term. Skepticism is about seeking truth, of being critical of trends, superstition and dogma. When someone is a skeptic they take in both sides of an argument and come to a conclusion based on the available evidence. Conversely, 'denial' is essentially a refusal to believe in something no matter what the evidence. It has predetermined conclusions that demonstrate willful ignorance. While skepticism promotes critical thought, denial promotes ideology. They are two very different terms and I believe that in the face of the evidence, global warming 'skepticism' is a misleading term that paints the 'skeptic' as being rational and looking at all the evidence before coming to a conclusion. Although many individuals may consider themselves 'skeptics' (and based on the information they have received this term may be used accurately), this is not the case for the majority of climate change self-proclaimed 'skeptics' active in promoting a very clear anti-AGW viewpoint and hence I agree with Washington and Cook's (2011) idea that the use of the term 'deniers' is much more appropriate. The organized climate denial movement can also be justified as a denial movement

because it involves defending a threatened ideology, its true objectives are camouflaged, and the tactics of this movement include sowing confusion by creating apparently legitimate knowledge claims to the general public (Jacques, 2012). Henceforth, I will use the term denial exclusively to refer to this specific community.

2.3.1 The Organized Denial Movement

The denial industry consists of a network of industry elites, conservative politicians, conservative/libertarian think-tanks, dissenting scientists, and public relations professionals – all working ‘together’ under a climate denial framework (Oreskes & Conway, 2010; Gelbspan, 1997, 2004; Hoggan & Littlemore, 2009; Washington & Cook, 2011). The discourse that this community has produced has focused on denying central aspects of mainstream climate science, opposing climate policies, and actively promoting their ideas of climate change to the public: emphasizing ideas such as scientific uncertainty, large economic costs, that climate science is ‘junk’ science, and that climate change is just a front for a threatening underlying liberal agenda. This has had serious ramifications, not only on dealing with climate change but has also created acute democratic and civic problems – for example a ‘science trap’ where people cannot differentiate between an authentic scientific controversy and a manufactured one (Jacques, 2012, p.11; Schneider, 2009).

The denial movement can be seen as a large community involving individuals from all around the world who deny the existence, severity, or necessity of acting on climate change. However, the leaders of this general movement are almost exclusively a part of (or heavily linked to) the modern conservative movement – which although worldwide is most visible in the US. It is thus necessary to explain the role of conservative think-tanks, politics, and ideology (primarily seen in the US) and how it relates to climate change as well as its role in the creation and promotion of climate denial.

2.3.2 Conservative Backlash to Climate Change

Counter to the idea of environmentalism representing a new ideology, which is distinct from traditional conceptions of liberalism-conservatism, repeated studies have shown that modern conservatism is consistently negatively related to pro-environmental attitudes and actions, particularly in the US (McCright & Dunlap, 2011a; Jacques et al., 2008). A central reason for this is that the pursuit of environmental protection often involves government action that is seen as threatening economic liberalism (this despite the fact that most environmental legislation to date has not posed a major threat to industrial capitalism) (McCright & Dunlap, 2003). In the 1970s the doctrine of neoliberalism emerged blaming the left-leaning economic and social policies of the time as the cause for the economic slowdown and general American malaise (Antonio & Brulle, 2011). This idea quickly turned into a campaign against social liberalism and the welfare state, promoting instead free-market ideology. A coalition of neoconservatives, the religious right, and big business, called for deregulation, privatization, welfare cuts, and reduced taxation to revive economic growth. In this way democracy was equated with economic freedom, property rights, contracts, and consumer choice. Indeed, the regulating nature of environmental policies has increasingly made anti-environmentalism (also known as 'environmental skepticism') a keystone of neoliberal antiregulatory politics (Antonio & Brulle, 2011) and a strong part of the conservative backlash (Armitage, 2005). However, unlike other environmental issues to date, global warming is arguably the defining issue for this movement. The possibility of large-scale social change (in order to ameliorate the phenomenon) is viewed as a significant threat to not only industry, prosperity, lifestyles, but also the entire "American way of Life" (McCright & Dunlap, 2003). Indeed, a growing concern over climate change has clearly threatened the core ideology and interests of the conservative movement. Limiting emissions, particularly via an international binding treaty, is perceived as threatening sustained economic growth, the free market, national sovereignty, and the concept of deregulation – key goals of the conservative movement (McCright & Dunlap, 2003). Added to this has

been the conspiracy belief that climate policy is a covert way for liberal environmentalists and the government to interfere in the market and diminish our individual freedoms – in essence that there is a liberal agenda at work behind the issue of climate change (Hoffman, 2011b). As Antonio and Brulle argue (2011), it has become the “pivotal issue in battles against environmental regulations [because] neoliberals hold that the issue provides license for wholesale intervention everywhere” (p.197). Taking the science of climate change at face value means a challenge to the belief in the Dominant Social Paradigm – the idea that modern societies are able to control nature, and that the industrial-capitalist growth imperative is the best way forward. This belief) also includes a faith in science and technology, support for economic growth, a faith in material abundance, and a faith in future prosperity. It also prioritizes the idea that human welfare is dependent upon unlimited access to natural resources for commodification (McCright & Dunlap, 2000). Climate change thus shakes the foundation of neoconservative ideology and a ‘business as usual’ approach.

Given the ideological and political dimensions of the reality of climate change it is not surprising to see the backlash of conservative think-tanks, big business, and politicians against governmental attempts to ameliorate the problem. Indeed, challenging the seriousness of climate change (all the way to its existence) is a part of a bigger ‘war of ideas’ whereby the conservative movement (particularly conservative think-tanks) has employed a central tactic of creating an “endless flow of printed material from books to editorials designed for public policy consumption to policy briefs aimed at policy makers and journalists, combined with frequent appearances by spokespersons on TV and radio” (Jacques et al., 2008). The evidence for this deliberate obfuscation is sometimes stunning. For example, in a now-famous memo from the influential political strategist Frank Luntz to the US Republican Party in 2002, he states “should the public come to believe that the scientific issues are settled, their views about global warming will change accordingly. Therefore, you need to continue to make the lack of scientific certainty a primary issue” (cited in Weaver, 2008, p.66). Following from this disturbing clue, one of the keys to the

success of this movement has been the ability of conservative think tanks to promote themselves as having equal legitimacy with “leftist” mainstream science and academia – hence the argument that their input provides needed balance. Indeed the conservative movement, led by conservative think tanks, and often supported by industry, has achieved remarkable success in opposing mainstream scientific views on climate change. As noted by Brulle et al. (2011), in the US it is the polarization of the issue (in terms of Democrats versus Republicans) that has had the most impact on the public’s understanding. Indeed, many studies have shown how political orientation is now the best predictor of if an individual believes in the seriousness of climate change (Brulle et al., 2011; Antonio & Brulle, 2011; McCright & Dunlap, 2011b; McCright, 2011; Marquart et al, 2011).

2.3.3 The Denial Industry

In the 1980s while climate science was increasingly solidifying around the theory of AGW and the role that CO₂ emissions was having on our climate, big business and heavy industry, were also taking note. Yet the denial industry did not fully mobilize until the US government looked as if it was about to pass significant legislation on the issue. As Schneider (2009) notes “once Congress and other legislatures around the world started talking about adopting real policy measures, the industry [opposing action on the limit of CO₂ emissions] got organized at breakneck speed” (p.120). Propagated initially by US conservative think tanks, with close ties to the Republican Party and big industry, the denial industry recognized that widespread acceptance of the issue being a problem would threaten profits, inspire sweeping regulation, and challenge free-market ideology. As a result, beginning in the 1990s, the industry worked hard in order to manufacture a climate of doubt in the public (Hoggan & Littlemore, 2009; Washington & Cook, 2011, Gelbspan, 1997). In this respect it mirrored past attempts at causing doubt over the health effects of smoking, the causes of acid rain, and the science of the ozone hole (Oreskes & Conway, 2010). Experts were found who could testify against mainstream science, seemingly ‘independent’ front groups were created that challenged scientific findings – labeling mainstream

science as 'junk science' and creating fake grassroots campaigns to demonstrate public anger against attempts to regulate. The denial industry took heavy advantage of the media's journalistic norms of fairness to create the idea of 'unsettled science', by advocating for needed 'balance'. In addition, the heavy political ties between the denial industry and government allowed for continued and effective lobbying, and policy-influencing testimonials favouring the dissenting scientists' viewpoint (Schneider, 2009). Arguably this industry has had a large impact on how the US has responded to climate change. For example, McCright & Dunlap (2003) argue that one of the central reasons for why the US never engaged with Kyoto was because of the efforts of the denial industry. Similar evidence can be found in explaining the defeat of the US Waxman-Markey climate bill in 2010 (PBS Frontline). Lastly, the 2009 'climategate' event⁶ has been used extensively as evidence of the untrustworthiness of climate scientists by the denial industry, despite repeated investigations that have cleared the scientists (Antonio & Brulle, 2011). Thus, from the dangers of smoking to the reality of climate change, the denial industry – often comprised of the same think-tanks, organizations, spokespeople, and even scientists – has worked hard to create doubt in the public as to the legitimacy of the science (Oreskes & Conway, 2010). It continues to do so (PBS Frontline, 2012).

Looking at the history of the denial industry the central objectives of this movement have remained relatively static. This movement has never been able to seriously challenge the science of climate change through the use of legitimate scientific arguments – at least within the scientific community. Arguably this has never been the intention; rather, it has been to frame climate change as a non-problem (McCright & Dunlap, 2010). As the widespread acceptance of climate change being seen as a problem could facilitate broad and sweeping regulatory changes, the goal has been to keep that from happening (Oreskes & Conway, 2010). Hence, the ultimate objective is to keep the *status-quo* and the

⁶'Climategate' refers to the hacking of thousands of emails from the climate researchers in 2009. In these emails were sentences and phrases which were used as 'evidence' that climate scientists were fabricating their results. Multiple independent investigations have cleared the scientists of any wrongdoing.

climate change denial industry has promoted any ideas that aid this objective – that climate change doesn't exist, that it is a 'natural' phenomenon, that CO₂ emissions have only a minor impact or that they are even beneficial, that the costs are way too high to consider acting, and that there is too much uncertainty and that more research is needed. Arguments such as these are intended to manufacture controversy about the conclusions of the scientific community and thus avoid widespread support for regulatory changes (Washington & Cook, 2011). At the same time the denial industry has full-heartedly embraced the concept of environmental skepticism.⁷ This concept encompasses several themes, most fundamentally a rejection of scientific literature on environmental problems (the science is seen to be corrupted by political agendas) (Jacques et al., 2008). However, environmental skepticism also prioritizes economic problems over social or environmental problems. Following this hierarchy of prioritization there is a strong theme of anti-regulation and anti-corporate liability and lastly there is a theme that sees environmentalism/environmental protection as threatening the development and progress of western modernity (Jacques et al., 2008). Indeed the concept and use of environmental skepticism is almost exclusively associated with the conservative movement in the United States (Jacques et al., 2008).

The organized denial movement is strongest in the United States, where it largely originated, but it has also spread to have a notable influence in the United Kingdom, New Zealand, Australia, and Canada. Perhaps as a result of their influence, combined with the spread of modern conservatism, there seems to be a disposition for these Anglo-Saxon nations to give climate science more doubt than in other nations around the world (Painter, 2011; Painter & Ashe, 2012). However, its main messages have also reverberated throughout the world in the more general denial community – particularly through the web and mass media.

⁷ 'Environmental Skepticism' is a term that is quite distinct from how I use skepticism. It refers to the widespread perspective, particularly associated with conservatism, of generally discounting environmental science and environmental problems. The ideas of 'junk science' are highly associated with this perspective.

As climate science has become more and more certain in how humans are affecting the planet, the perceived need for dealing with the problem has also increased. Indeed the IPCC, as well as numerous scientific bodies, have increasingly argued for the urgent need to address climate change. In response, the climate denial industry has also increased their efforts to counter this message (PBS Frontline, 2012).

2.3.4 Denial in Canada

The climate change denial industry in Canada appears relatively small in comparison to what exists in the US, but it is nonetheless likely to be having a discernible influence in the Canadian public's conception of climate science. The actors and organizations that comprise this community have not only promoted their stance to their own organizations members but have actively and aggressively promoted their views in various media outlets, have actively lobbied government on various issues relating to climate change, have run controversial and blatant radio messages questioning climate science during key federal elections , have sponsored high-profile climate denier speakers on cross-national speaking tours, have taught denier -oriented university classes , and have participated in hearings informing the Canadian senate on the state of climate science (FOS, 2012; Montgomery, 2006; DeSouza, 2008; Chung, 2012; Senate Standing Committee, 2011).The breadth and impact of this relatively small community thus appears significant. What unites this community is its fundamental belief that Canada should not attempt to reduce greenhouse gas emissions because climate change is essentially a non-problem.

What is remarkable about this group of actors, however, is how linked both the individuals and organizations are. In fact the organizations often refer to each other and have direct links from one website to another in order to support the messages they promote. For example, the International Climate Science Coalition has a 'quiz' which, when you start the quiz, takes you directly to the Frontier Centre for Public Policy's page (ICSC, 2012; FCPP, 2012). Indeed it is a relatively small group of individual

actors that are either consistently cited, or have distinct roles and influence in multiple denier organizations.

Through a fairly extensive online search there appear to be seven prominent organizations that are (or have been) actively promoting a climate denier message in Canada: the Friends of Science (FOS) (2002-present), the International Climate Science Coalition (ICSC) (2007-present), the Frontier Centre for Public Policy (FCPP) (1999-present), the Fraser Institute (FI) (1974-present), Energy Probe (EP)(1969-present), the Natural Resources Stewardship Project (NRSP) (2005-2008), and the Canadian Coalition for Responsible Environmental Solutions (CCRES) (2002-2003). Of these seven organizations the last two are now defunct, leaving a total of five organizations actively promoting climate denial. The first two organizations (FOS & ICSC) share a commonality in that their sole raison d'être is to promote a climate denial message, while the latter groups (FCPP, FI, & EP) are free-market oriented 'independent' think-tanks that promote a variety of messages, but which under their 'environment' sections include a message of climate change denial. From a purely Canadian context (therefore excluding the ICSC) two of the most prominent leaders of this movement that are arguably having the most impact are the Friends of Science (FOS) and the Fraser Institute (FI).

2.3.4.1 The Friends of Science

The Friends of Science is a non-profit advocacy organization that is based in Calgary, Alberta. The organization started in 2002, launching its website in October of that year. It is dedicated to *"providing insight on climate change"* and their stated goal is *"to educate the public about climate science and through them bring pressure to bear on governments to engage in public debates on the scientific merits of the hypothesis of human induced global warming and the various policies that intend to address the issue"* (FOS, 2012). In essence it is an organization opposed to the theory of AGW. Their position is that any global warming that has occurred in the past century is largely due to natural forces (primarily the

sun) and that the underlying science promoting the AGW hypothesis is faulty. As such, interfering in the economy to change the consumption of fossil fuels is unnecessary and will do nothing to stop climate change from occurring, but may produce adverse economic effects. Similarly, keeping the status quo (in terms of continuing to use fossil fuels) will also not affect the climate in any way. Supporting this conclusion, the organization states that it was originally created in order to provide a *“critical assessment that challenges premises of the Kyoto Protocol, and presents causes for climate change that are more plausible than carbon dioxide”*(FOS, 2002). In other words, the group formed to counteract Canada’s involvement with Kyoto and advocate against the limiting of Canadian emissions. Indeed, their original messages were heavily focused on arguing against Canada’s adoption of the Kyoto Protocol and the country’s attempts to follow it (Montgomery, 2006). However, as Kyoto has become less important, the focus has shifted to arguing against any Canadian policy aimed at reducing CO₂ emissions and generally promoting the climate denier viewpoint to both Canadians and Canadian policymakers (FOS, 2012).

The sole focus and purpose of the Friends of Science is to deny the theory of AGW and to spread this message – a position which has garnered significant national attention. Numerous news articles portray the FOS as a leading and prominent denier organization in Canada (Gorrie, 2007; Kay, 2011; Moore, 2012) and the FOS even promotes itself as “Canada’s leading public advocate for natural climate change” (FOS Newsletter, 2010). According to Greenberg, Knight and Westersund, “one of the most visible and controversial third-party advocacy groups to emerge in the past decade is the Calgary-based non-profit organization Friends of Science” (2011, p. 72). Lastly, Hoggan and Littlemore (2009) as well as Gutstein (2009), all discuss the Friends of Science extensively in looking at the denial industry at work in Canada. There can be no doubt that the FOS is a leader of the climate denial movement in Canada.

In describing itself, the Friends of Science offer the following statement:

The Friends of Science is a non-profit organization run by dedicated volunteers comprised mainly of active and retired earth and atmospheric scientists, engineers, and other professionals. We have assembled a Scientific Advisory Board of esteemed climate scientists from around the world to offer a critical mass of current science on global climate and climate change to policy makers, as well as any other interested parties. We also do extensive literature research on these scientific subjects. Concerned about the abuse of science displayed in the politically inspired Kyoto protocol, we offer critical evidence that challenges the premises of Kyoto and present alternative causes of climate change. (FOS, 2012, About Us)

As is evident, the FOS portrays itself as an educational and research-based grassroots organization comprised of climate science experts who volunteer their time in order to provide a more accurate portrayal of the science behind climate change. They describe their activities as “*educational work [that they] are doing in the field of science*” (FOS, 2012). However, their actions seem to be more political than educational. Throughout the last decade they have been actively promoting their views across the country through speaking tours, luncheons, letters to the editor, news releases, newsletters, website creation, open debates, radio advertisements, and have participated in stakeholder meetings in Parliament (FOS website, 2012). Their radio advertisements in particular have caught the attention of many media outlets, as they have been often controversial, and ‘opportunistically’ timed.⁸ Indeed, the organization has been accused of political interference, particularly at key election times (by indirectly supporting the Conservative Party), and has been criticized by ‘green’ or environmental groups, university spokespeople, reporters and journalists, and teachers unions for promoting a biased, political, and unscientific/unsubstantiated message (De Souza, 2008; Montgomery, 2006; Sourcewatch, 2012; Deep Climate, 2012; Desmogblog, 2012). Hoggan and Littlemore, in their book *Climate Cover-Up*, extensively detail the work of the Friends of Science, highlighting how some of their “activities were

⁸ Particular media attention to ‘the Friends’ happened in the aftermath of their radio campaign of 2006 in Ontario key ridings for the Federal election (disputing the evidence of climate change – one of the ruling Liberal Party’s priorities) (De Souza, 2008). The series of anti-Kyoto and anti-AGW radio advertisements happened once during the 2006 federal election and then again in November of 2009 in fifteen major Canadian cities (Mittelstaedt, 2009; Montgomery, 2006). One of their stated purposes was “to have a major impact on the next election” although Elections Canada later acquitted them of any wrong doing (Hoggan & Littlemore, 2009)

apparently designed to affect a federal election in a way that is specifically proscribed in law” (Hoggan & Littlemore, 2009, p. 59). In response, the Friends of Science consider these attacks as “smear campaigns” (FOS Newsletters, Sept. 2011).

According to their website, “[the FOS] does not represent any industry group, and operate[s] on an extremely limited budget. Our operational funds are derived from membership dues and donations” (FOS, 2012). However, the group appears to have received significant funding from the oil and gas industry, particularly with companies involved in the oil sands development (Sourcewatch, 2012; De Souza, 2011).⁹ Hoggan and Littlemore (2009) describe the FOS as “an industry-funded political action group” (p. 53) – a theme echoed by Greenpeace, Deep Climate and Desmogblog (Stewart, 2011; DeepClimate, 2012; Littlemore, 2011). A particularly good exposé of the FOS was done by journalist Charles Montgomery in which he showed that the organization had received funding through anonymous, indirect donations from the oil industry, channelled through the Calgary Foundation and a Science Education Fund associated with the University of Calgary (Montgomery, 2006).¹⁰

Lastly, it is worth noting that the group appears to have some notable political affiliations with both the federal and provincial Conservative parties. For example, Barry Cooper, who funneled the anonymous charitable donations to the FOS, is apparently a long-time associate of Stephen Harper (Roe, 2008). Morten Paulsen, a previously registered lobbyist for the FOS, is described by Montgomery (2006) as “a long-time Tory/Reform/Canadian Alliance activist, the co-chair of the Alberta Conservatives' 2006 convention, and one-time director of communications for Preston Manning”. David McGuinty, an MP for the Liberal Party in 2008, accused the Conservative government of unlawful behaviour with colluding with the FOS in the 2006 election and alleged that the FOS were advising John Baird on his climate

⁹ For example, in 2005 the FOS received in partnership with Barry Cooper a \$175,000 donation from Talisman Energy for the purposes of creating a video to cast doubt on climate science (De Souza, 2011).

¹⁰ In 2008 the University of Calgary stated that it would no longer accept donations destined for the FOS and insisted the university had never endorsed FOS activities (Sourcewatch, 2012; DeSouza, 2011).

change policy (Roe, 2008). There is also a suspect correlation between the arguments the FOS has made and what the Conservative Party has publically stated, particularly prior to 2006 (i.e., Hockey stick is broken,¹¹ no solid evidence supporting Kyoto, extreme weather is not related to global warming, CO2 is not a pollutant) (Sourcewatch, 2012).

The Friends of Science is an organization that has been very vocal and political in its views towards AGW theory and emission reduction policies in Canada. It has links to the oil and gas sector and to various conservative figures. It has been accused as being a leader of the Canadian climate denial industry by journalists and environmentalists, and it has undertaken and supported political and advocacy activities across Canada. Hence, to understand the Canadian climate denial discourse, it makes sense to look at the texts produced by the Friends of Science.

2.3.4.6 The Fraser Institute

The Fraser Institute (FI) is a Canadian think tank based in Vancouver, British Columbia, although it also has offices in Calgary, Toronto and Montreal. It describes itself as *“an independent non-partisan research and educational organization”* and its stated mission is to *“measure, study, and communicate the impact of competitive markets and government interventions on the welfare of individuals”* (FI, 2012). According to the organization, *“the Fraser Institute provides a useful public service by reporting objective information about the economic and social effects of current public policies. We offer evidence-based research and education about policy options that can improve the quality of life”* (FI, 2012).

Created in 1974 the institute has worked hard to change *“the way people think about governments and the role of markets”* and has had *“a number of notable successes in changing the climate of public opinion”* on this topic (FI, 2012). Arising from a neo-liberal perspective, the institute generally argues

¹¹ The ‘Hockey Stick’ is a visual representation of a number of temperature proxies that highlight how the last 50 years have seen a higher temperature than at any point during the last 1000 years. Using dozens of different temperature proxies (tree-ring cores, ice cores, etc.) the representation shows a slight downward trend in temperature until the 1900s where it then started to shoot up – hence a ‘hockey stick’ (IPCC, 2007),

against the use of regulation and government intervention in the economy, greatly favouring market-based solutions (Gutstein, 2012). To promote its messages and influence the public and policymakers the Fraser Institute participates in a wide array of activities. First and foremost, *“the Institute produces research on a wide variety of topics including health care, education, government spending, taxation, energy, and the environment”* (FI, 2012). The majority of research done by this organization analyzes the likely consequences of public policies and critiques public policies if they are found lacking. The institute explains that the purpose of the research is to promote policies that will *“lead to greater prosperity and improved health for all levels of society”* and *“all research is subject to rigorous review by external experts, and is conducted and published separately from the Institute’s Board of Trustees and its donors”* (FI, 2012). This research activity produces specific research studies which are then published – but are often available for free from their website. The researchers also write articles in the *Fraser Forum*, a quarterly magazine of the institute, and in commentaries found in news outlets across Canada. News releases highlighting these studies are frequent. The organization also produces two other magazines: the *Canadian Student Review*, and the French-language *Perspectives*. In addition to the research-oriented activity the Fraser Institute has *“developed a number of innovative programs and initiatives”* including awards, ranking indices (for example measuring the economic freedom of a country or province), and country audits (FI, 2012). They produce educational materials and workshops for students, teachers, parents and journalists as well as podcasts and videos. Lastly, the organization often hosts and facilitates large events with high profile speakers (FI, 2012).

Unlike the Friends of Science, this organization clearly does not only focus solely on climate change or even on environmental subjects, but looks at a wide range of topics. Yet, the institution has produced notable documents on climate change, repeatedly arguing against measures to mitigate emissions and has promoted a denial viewpoint towards the mainstream scientific consensus of anthropogenic climate change. Although not as prominent of an advocate against action on climate change as the FOS, the

Fraser Institute's stance on climate change appears in local and national newspapers across the country (CanWest News, 2006; Maher, 2012; Hong, 2012; Gorrie, 2007; Stoymenoff, 2012). The Fraser Institute has been labeled one of Canada's leading denier organizations by numerous 'green' advocacy groups (e.g., Greenpeace), media groups, and various authors (Deep Climate, 2012; Greenpeace, 2012; One Blue Marble, 2012). Some blogs quote the Fraser Institute as being "one of the most vocal [think tanks] denying the science of climate change" (Dee, 2009), and the outspoken "Desmogblog" also demonstrates how the Fraser Institute is a significant part of the denial industry – particularly in Canada (Desmogblog, 2012). Hoggan and Littlemore (2009) in their book *Climate Cover-Up*, highlight the Fraser Institute's large role in the Canadian 'denial machine'. Lastly, Donald Gutstein, a professor and analyst of communications, has noted that "the Fraser Institute has supported climate change skeptics for nearly a decade" (Gutstein, 2005) and discusses how the Fraser Institute is very much a part of organized climate denial in Canada (2009, p.234, pp.248-260). In addition, the organization has been criticized and viewed suspiciously because of its connections to the oil industry(exxonsecrets.org), and other denial organizations in the US (e.g., the Heartland Institute). As a free-market think tank, the texts of the Fraser Institute frequently voice a denier perspective towards climate change (e.g., primarily arguing it is overhyped, exaggerated, not a problem, or impossible to fix).

The organization states that its "*activities are funded by charitable donations, unrestricted grants, ticket sales and sponsorships from events, the licensing of products for public distribution, and the sale of publications*" (FI, 2012). The institute appears to operate on a yearly budget of several million, for example, in 2005 it brought in \$6.6 million in revenue – over 90% of this funding comes in from organizations or foundations (Gutstein, 2005). Critics of the institute point out how most of this funding comes from Big Industry¹² or conservative/right-wing foundations. For example, the institute has

¹² Big Industry or Big Business is a term that refers to large-scale, corporate-controlled, financial or business activities. It represents a concentration of economic power in the hands of a few major corporations.

received significant funding from both American and Canadian oil money: ExxonMobil, the Koch Foundation, Gwyn Morgan of EnCana, R. J. Pirie of Sabre Energy, and TransCanada Corporation (Gutstein, 2005; Deep Climate, 2012; Hong, 2012; Sourcewatch, 2012).

Lastly, like the FOS, the Fraser Institute appears to have significant connections to Conservative figures in Canada. For example, Tom Flanagan is a 'senior fellow' of the Fraser Institute and was also the campaign manager for Stephen Harper in 2004 and 2005 (FI, 2012; Sourcewatch, 2012). Preston Manning and Mike Harris, notable political names in conservative circles, are also listed as senior fellows (FI, 2012). There are also a number of similarities in the arguments put forth against Kyoto from the Fraser Institute that were mirrored by the Conservative Party prior to 2006 (e.g., advocating for a 'made-in-Canada' plan rather than Kyoto).

Like the Friends of Science the Fraser Institute has promoted a denial viewpoint in texts relating to climate change and emissions regulations. It has links to the oil and gas sector, various conservative foundations, and notable conservative figures. Like the FOS it has been accused by 'green' organizations as well as journalists and academics of consistently supporting a climate denial message and has a notable influence across the country. Thus, in studying the climate denial discourse, an analysis of the texts of the Fraser Institute also make sense.

Comparing the Friends of Science with the Fraser Institute

Clearly these two NGO's are leaders in the Canadian climate denial movement and, as such, their website output provides an opportunity to analyze a representative sample of the climate denial discourse in Canada. The brief summaries above highlighted the role and purpose of each organization as well as their involvement with climate change. The funding of each organization shows how the position of these organizations may be related to the benefit of their donors, although it may also be coincidence. Lastly, the links to conservative politicians and parties in Canada were highlighted as a way

of noting how conservative ideology and climate change denial are often related. The main points of these summaries are found in the simplified table below.

Table 2 - Comparison of the FOS and FI Positions

| | Friends of Science | Fraser Institute |
|--|--|--|
| Date Created | 2002 | 1974 |
| Stated Mission | "To educate the public about climate science and through them bring pressure to bear on governments to engage in public debates on the scientific merits of the hypothesis of human induced global warming and the various policies that intend to address the issue" (FOS, 2012). | "Our mission is to measure, study, and communicate the impact of competitive markets and government interventions on the welfare of individuals." (FI, 2012) |
| Presumed Primary Purpose | Advocate against the theory of AGW and any policy that limits emissions within Canada. | Support neoliberal economic policies. Anti-regulation/anti-gov't intervention in economy. |
| Funding | Deny links to Oil and Gas industry. Insist funding comes from charitable foundations and individuals. Critics have highlighted links to big industry in oil and gas. | Funded by "charitable donations, unrestricted grants, ticket sales and sponsorships from events, the licensing of products for public distribution, and the sale of publications." (FI, 2012) Critics link the Fraser Institute with Big Industry, including members of the Oil and Gas industry. |
| Scope of Funding and Political Connections | Calgary-based with limited budget. Links to industry and oil sands money. Links to the Conservative Party. | Offices in four major cities. Large operating budget. Significant funding from oil industry and Conservative foundations. Links to the Conservative Party. |
| Summarized Position on Climate Change | Climate change is natural and its effects are highly exaggerated. | Climate science is full of uncertainties and problems. The costs of acting on climate change are simply too large. |
| Involvement with Climate Change | Everything the organization does is related to climate change. | Climate change is just one of many topics the institute looks at. |
| Climate Change Related Activity | Speakers, presentations (to public and government), websites, news releases, radio campaigns, newsletters, multimedia, open letters | Speakers, research studies, articles, magazines, multimedia, educational materials. |
| Impact on Canadian Understanding of Climate Change? | Self-described as "Canada's leading public advocate for natural climate change" (FOS Newsletters, 2011). Accused of being leader in of the climate denial discourse in Canada | Widely read, studies/reports featured in national media outlets. Accused of being leader in of the climate denial discourse in Canada. |

2.3.5 Past academic work on the Denial Industry

The organized climate change denial movement has been well researched and documented, particularly in the United States. The links between industry funding, conservative politicians, dissenting scientists, have been exposed in detail, and the effect of this movement has been considered (Oreskes & Conway, 2010; Washington & Cook, 2011; Hoggan & Littlemore, 2009; Gelbspan, 1997, 2004; Weart, 2003, 2008; Gutstein, 2009). The central arguments, underlying rationale, and deliberate misrepresentations have been shown and researched thoroughly and it is clear that conservative think-tanks and related organizations have played the most central role in the denial movement (Jacques et al., 2008; McCright & Dunlap, 2000, 2003, 2010; Kolmes, 2011; Armitage, 2005; Weber & Stern, 2011; Hoffman, 2011a; Antonio & Brulle, 2011; Jacques, 2006).

Similarly, the effect of the media on climate change denial has been well researched in the US and also in Britain. One factor considered has been how the ideology of the news outlet has influential consequences in how climate change (particularly climate science) has been portrayed (Carvalho, 2007). Extensive analysis on how journalistic norms such as balance, neutrality, and novelty have led to the media disproportionately favouring climate denier arguments has also been well documented (Boykoff, 2007a; Boykoff, 2007b; Boykoff & Boykoff, 2004, 2007; Antilla, 2005, 2010; McKnight, 2010).

Less work in the academic community has focused on how the climate change denier movement has operated in terms of analysing the denier discourse itself: how they have framed issues and arguments, and the themes, claims and messages they have promoted. That being said there have been some prominent members of the academic community who have engaged in this task. The issue of how denier organizations have framed and communicated their messages has been researched by some authors (Greenberg & Knight, 2011; Greenberg et al., 2011) while others have looked at how the arguments put forth by the denier movement stem from certain logics and ideas that are

incommensurate to meaningful dialogue with the opposing perspective (Hoffman, 2011a). Smart (2011) has looked at the argumentative discourses of climate change, particularly seen through web-based discourses, with a focus on both the denial discourse as well as the advocate discourse. However, the work of Aaron McCright and Riley Dunlap stand out in particular in the climate change field. These two authors have looked extensively at the climate denial movement and the discourse it has produced (particularly in relation to the role of conservative think tanks) in the United States producing valuable research on the movement's core claims, messages, and themes, and how the movement has effectively countered action on climate change (McCright & Dunlap, 2000, 2003, 2010).

The work of the above scholars is crucial to my understanding of the topic and has provided needed context for this research project. In addition, due to the dearth of research specifically on understanding the denial movement as well as the decline in the public opinion's belief in climate change, some authors have actively called for more research in this area (Hoffman, 2011b; Marquart-Pyatt et al. 2011).

2.4 Justifying the Research Agenda

The analysis of climate denial discourse is thus important for a few reasons. First, there is a relative dearth of social science studies relating to this phenomenon – with some notable exceptions most social science researchers have ignored the debates on the reality of climate change, preferring to assess options available to address the issue or to study the implications of climate change (Hoffman, 2011b). Additionally, the academic community has tended to take a relatively dismissive attitude towards challengers of the scientific view that climate change is real (Hoffman, 2011b). Hence there is a gap in the literature that needs to be filled. Second, as is now evident, there is clearly more than science at play in shaping both public perception and public policy towards climate change. There are cultural, ideological, and political forces that hinder changes in sustainability behaviour and the passing of legislation that need to be understood, and thoroughly examined if we wish to comprehend shifting

public opinion on climate change and how to achieve any substantial progress. Thirdly, a continued neglect of the denial movement does nothing to alleviate the continued polarization of the climate legislative debate happening around the world. Hoffman (2011b) argues that because deniers will continue to retain a seat in the policy debate, “it is impossible to evaluate the most effective way to counter their views without understanding the underlying motivations and cultural foundations of their arguments” (p.78). He continues to say that “few contemporary problems warrant the social and cultural analysis by academics more than climate change” [and that] “social scientists have a duty to bring this type of research into the public sphere to help resolve such a pressing debate” (p.82). Indeed, addressing climate change requires significant policy changes that are not likely to come about if the public is apathetic about the issue or do not align with the scientific consensus that humans are a substantive driver of global climate change.

In Canada, this denial discourse is active and has notable players, with suspected links to the national Conservative Party. Its influence has likely not been inconsequential; however, little academic work has focused on analyzing the discourse this group has produced or how much of an effect it has had in Canada. Examining a sample of this discourse is a first step in this direction. The main purpose of this project is to gain a better understanding of the denial discourse employed in the Canadian context and how it relates to previous scholarship, particularly that done in the US. This discourse analysis of a representative sample of the denial discourse in Canada adds to the literature and scholarship on climate denial by both lending support to previous conclusions, but from a distinctly Canadian perspective, and by highlighting certain discursive elements found in this discourse that have received relatively little attention.

2.5 Conclusion

Climate change is one of the defining challenges of our present human civilization. Tackling the issue is a multifaceted process that has thus far met with little success. Multiple dimensions, from technical solutions to issues of social justice are at play, with the result being an incredibly complex and almost insolvable process of global governance. Indeed, even if everyone believed fully in the seriousness of climate change it would still prove to be a very difficult problem to address. Yet this is not the case. A central explanation for why significant national and international action has not occurred is that not everyone believes in the seriousness of climate change. There remains a large unconvinced public.

As Stephen Schneider (2009) notes:

If the public understood the basics of the real risks to nature and to themselves, their posterity, and their world, they would be much more likely to send strong signals to their representatives to act in a precautionary way [...] but if daunting complexity, fueled by deliberate special interest distortion and knee-jerk media balance, is what we hear predominantly, then democracy has a hard time dealing with slowly evolving, large-scale, complex problems such as climate change. (p.260).

A prominent factor influencing public opinion in North America has been the denial industry. The effects, reach, and significance of the organized denial movement have been well documented but there has been relatively little analysis, particularly in Canada, on the discourse this movement produces. This research takes a step in this direction.

Chapter 3 – Theoretical and Research Frameworks

This chapter begins by explaining the theoretical notions behind the concept of discourse and why the study of discourse is thus important in our society. Next I note my own positionality in this research and the importance of reflexivity in doing a discourse analysis. Following from this, I explain and define my use of the term ‘discourse’ and the type of discourse analysis I have done in this research. I then discuss my methods through first describing the fundamentally necessary components of a discourse analysis and then showing how my research has incorporated these components. My entire research framework is then briefly described to give an overall picture of the research project to the reader. Next, the merits and considerations of my data set are discussed. The chapter concludes with a brief summary of why my theoretical and research frameworks make sense for the study of the climate denial discourse in Canada.

3.1 Poststructuralism

Poststructuralism is a key philosophical foundation of my research and thus warrants some explanation. It emerged in 1980s as a part of the widespread ‘linguistic turn’ in the humanities, which emphasized the production of meaning and the social construction of reality. It brought a rigorous critique of many of the core concepts that underlie not just geography but also much of academic thought: objectivity and subjectivity, materialism and idealism, truth and fiction. Indeed the critique poststructuralism brought to the table disturbed the very ontological and epistemological foundations of the dominant metanarratives and theoretical frameworks of the time. At its essence, poststructuralist thought recognized that all ‘knowledge’ is socially constructed and highly contextualized (Woodward et al., 2009). Our collective understandings of knowledge (including our conceptions of reality, morality and truth) changes over time and space, and, in this sense, knowledge is a fluid concept that cannot be discovered but is produced in various social contexts over time. As noted by Cresswell (2009),

“knowledge, texts, truths, practices and realities are all products of particular times and spaces. They are not universal but contextual” (p. 213).

Within the theoretical construct of poststructuralism, the ideas of language and discourse play a large role as they are the medium through which ‘knowledge’ is produced and given value. Using a poststructuralist lens allows the researcher to see text as more than words, noting its power and ability to indeed create the world it describes (Agger, 1994). The role of language and discourse is key in maintaining the political arrangements of domination and oppression in society and “constitutes the conditions under which we ‘know’ reality”. Thus, much of the poststructural argument rests on the realization that “language lies at the heart of all knowledge” (Berg, 2009, p.216)

While language and discourse construct our understandings of the material world, they also limit what can be understood of this world. As Berg (2009) notes:

Such texts at once are created by, impose, and maintain particular discursive formations that involve specific epistemological claims, circumscribe legitimacy, and provide the intellectual conditions of possibility of particular institutional and political arrangements (p. 216).

Thus, what we can say, think, or do is both facilitated through language and discourse but at the same time this medium also limits what is possible. Understanding language and discourse in such a way allows us to see the power embedded within texts to produce, constrain, reinforce and continuously alter our world in numerous ways.

3.2 Types of Discourse

The idea of discourse can be used and interpreted in many, often conflicting, ways. For example, it can refer to any aspect of text longer than a sentence, but can also refer to broad and sweeping notions such as entire cultural practices and even our collective societal knowledge. From the applied linguistics understanding to the Foucauldian understanding, and everything in between, the defining of ‘discourse’

and how to analyze it is a task with many avenues open to it. Indeed, while an applied linguistics definition generally sees the idea of discourse as simply larger units of language (paragraphs or conversations) resulting from communication, a Foucauldian definition would argue that discourse is a “structuring principal of society, in social institutions, modes of thought and individual subjectivity” (Pennycook, 1995, p. 127). There are many other definitions and understandings of discourse that fall in-between these two fundamentally different ways of considering discourse; however, in Human Geography, Foucault’s conception of discourse has been widely employed. This version of discourse is immediately applicable to the theorizing of the relationship between power and knowledge in the structuration of society and space – fundamental concepts of Human Geography (Berg, 2009). As a result, the use of discourse analysis in the discipline most often has the theoretical underpinnings of social constructivism and poststructuralism associated with it. This theoretical backdrop has an anti-essentialist ontology which assumes the existence of multiple, socially constructed realities instead of a single reality governed by immutable laws (Hajer & Versteeg, 2005). Following this general trend, my research uses a constructivist analytical foundation in its conception of discourse.

3.2.1 Foucault and Discourse

Under a Foucauldian lens, discourse is considerably more than spoken or written words but also includes “a whole set of words, actions, institutions, and infrastructures that are more or less logically coherent and produce new regimes of truth” (Creswell, 2009). In Foucault’s conception of discourse new realities are created through the use of specific discourses that both constrain and enable what is possible to think, say and do. Language lies at the heart of all knowledge and thus does not mirror some pre-existing reality but in fact constitutes the conditions under which we know reality (Berg, 2009). In doing a discourse analysis, researchers are not looking to uncover some hidden truth but to understand what the discourse has produced. In this sense a discourse is both the product of a particular time and space (and in this way is not universal but highly contextual) and at the same time produces places and

the judgement of people's practices within places (e.g., what is acceptable behaviour) (Creswell, 2009). Foucault's conception of discourse also highlights its role in creating social change; as Sharp & Richardson (2001) point out, "different systems of meaning or discourses compete for influence in society and, consequently, structural changes in society can be conceptualized as shifts in the relative influence of different discourses" (p. 196).

However, as noted by Waitt (2010) Foucault did not stick to one definition of discourse but used the term in three distinct ways: (1) all meaningful statements or texts that have effects on the world, (2) a group of statements that appear to have a common theme that provides them with a unified effect, (3) the rules and structures that underpin and govern the unified, coherent, and forceful statements that are produced (p. 218). Indeed due to the varied use of the term, as well as the deep theoretical connotations of the concept, the idea of discourse has been a constant source of misunderstanding.

Understanding these varied conceptions of discourse is important for the practice of discourse analysis as it opens the doors of possibility. At the same time, the discourse one studies must be defined and explained as the possibility for misinterpretation is large. Regardless of how one defines discourse, the activity of discourse analysis most often uses approaches that are based in the 'social constructionist' vein. Here four common elements are found: (1) a critical stance towards taken for granted knowledge, (2) an emphasis on historical and cultural specificity, (3) an understanding that knowledge is sustained by social processes, (4) and a belief that knowledge and action go together (Sharp & Richardson, 2001). As noted by Sharp et al. (2001) "this critical stance towards 'truth' means that the objective of such investigations becomes not the discovery of some ultimate 'truth' but rather a means of providing a coherent and consistent explanation for events" (p. 194).

3.2.2 Environmental Discourse

It is now evident that there are many ways to interpret the meaning and use of discourse. Certainly, it has been appropriated by many academic disciplines and has focused on many diverse topics. However, examining a discourse regarding climate change is perhaps best situated within the literature of environmental discourse. In this field there is much literature on how various social groups (from environmental NGOs, to corporations, and even government) use different discourses in advancing arguments about the realities and implications of various environmental problems. Usually this is done with the intention of either influencing public opinion or public policy or both.

One aspect that makes environmental discourse so fascinating is the underlying concept of 'nature'. Although we may have opinions and ideas about what constitutes the 'natural world' in reality it is a concept or an associated set of ideas and cultural values that we construct through our use of language (Herndl & Brown, 1996, p. 3). Our use of the concept of 'the environment' is a political, cultural, and even moral phenomenon. Indeed, 'the environment', beyond its physical presence, is simply a social creation. It is as much a social construct as a physical presence. As Cronon (1996) notes, "nature is a human idea, with a long and complicated cultural history which has led different human beings to conceive of that natural world in very different ways" (p.20). Environmental discourses then are not simply innocent statements about the physical world but are more accurately seen as politicized representations. Environmental 'truths' are made, rather than found (Benton & Short, 1999). With this understanding of the fluidity and changing nature of the term 'environment' in mind – combined with the fact that environmental problems tend to be interconnected, multidimensional and complex – it is no wonder that there are divergent views on environmental issues. Language thus matters. The way we construct, interpret, discuss, and analyze environmental problems has all kinds of consequences and, similarly, the discourses surrounding environmental issues condition the way we define, interpret and address these issues (Dryzek, 1997, pp.3-10). The value of doing a discourse analysis on such a

phenomenon is best articulated through Hajer and Versteeg (2005): "Because reality is seen as socially constructed, the analysis of meaning becomes central; for interpretive environmental policy research, it is not an environmental phenomenon in itself that is important, but the way in which society makes sense of the phenomenon" (p. 176).

Understanding an 'environmental discourse' is aided by the realization that it is not a unified whole but is comprised of many different discourses, often competing against each other, around a single issue. Even within a single environmental discourse, with a particular conception of the 'problem' (e.g., mercury accumulation in a species of fish), it is often comprised of aspects from many other discourses. As noted by Hajer (1997) using the example of acid rain, "a policy document on acid rain may easily involve discursive elements from disciplines as various as physics, tree physiology, terrestrial ecology, mathematical modelling, economics, accounting, engineering and philosophy" (p.45). Thus, to acknowledge, explain, and persuade, environmental discourses make use of many different types of knowledges in many different disciplines.

As is now evident, like the notion of 'discourse' itself the notion of 'environmental discourse' is quite complex. It is not surprising, therefore, that there are many avenues a researcher could follow in doing an environmental discourse analysis. Some authors have examined a particular discourse to see how an environmental problem is defined, others look at this discourse to see how it is communicated, some look at the framing and argumentation style employed by various actors, and others compare and contrast competing discourses. From the micro-analysis of a particular document to the macro-analysis of an entire movement or issue, the practice of doing an environmental discourse analysis encompasses an incredibly wide array of options (from choosing what 'type' or 'size' of discourse to which methods are employed in analyzing it). However, despite the variety of approaches, an environmental discourse analysis has three central strengths: (1) the capacity to reveal the role of language in politics, (2) the

ability to reveal the embeddedness of language in practice and (3) the capability to illuminate the mechanisms of language and answer “how” questions (Hajer & Versteeg, 2005). In addition, the use of discourse analysis in environmental politics in general has four primary functions: (1) to show nature as a contested notion, (2) to highlight that discourses shape what can and cannot be thought and delimit the range of policy options (and thereby serve as precursors to policy outcomes), (3) to examine, through discourse analysis, cultural politics, particularly the analysis of bias in the discourses and practices through which policy is made and (4) to apply Foucault’s concept of governmentality (the controlling of knowledge/power in order to discipline society) (Hajer & Versteeg, 2005).

Climate change can be viewed in a number of ways and is not by any means solely an “environmental” discourse. An overwhelming amount has been written, researched, and studied on the topic of climate change. A small subtopic of this incredibly large discourse is the idea of climate change denial. Yet even here a large amount of literature already exists. More specific still has been the literature surrounding how this discourse has been communicated. It is in this body of research that my thesis falls. In doing a discourse analysis on climate-denial texts, how the environmental phenomenon of climate change is conceived and articulated is of key importance; as such, I believe my research to be best situated within an ‘environmental discourse’.

3.3 Positionality and Reflexivity

With this type of research an acknowledgement of the reader’s positionality is a crucial component of the research process. Texts are not simply interpreted the same way by all readers; rather, the meaning found in the texts is very much influenced by the temporal, spatial, cultural influences that the reader brings to their interpretation of the text (Sharp & Richardson, 2001). This problematizes the idea of analyzing a text as the person employed in this activity brings their own partial, incomplete, and situated knowledge with them. Obviously this makes discourse analysis empirically difficult as any analysis is thus

an inherently subjective process. In addition, how the texts are selected and which theoretical framework is employed are both deliberate choices the reader must make, which again is a subjective process that can greatly influence the results of the research. Certainly both the theoretical framework as well as the conception of discourse employed will contain distinct critical assumptions about the value in doing a discourse analysis and the effect of discourse on broader social change (Sharp & Richardson, 2001).

Acknowledging these subjective influences points to the potential limitations of this type of research, yet doing this is also an essential part of good scholarship. To address these concerns, documentation of the research process and constant reflexivity are the best tools available to the researcher engaged in discourse analysis (Wait, 2010; Berg, 2009). As the study of discourse is subject to many concerns of the imposition of the researcher's subjective opinions and bias, Richardson and Sharp (2001) argue that a reflexive approach "is crucial to the success of a discourse analytic approach" (p. 194). Thus, throughout the research process I have attempted to document the methods and approaches used so as to provide some level of verifiability to my results. For example, I have thoroughly documented and explained the process through which the texts under study were chosen, and the underlying rationale for this selection, in an effort to increase the validity of the research. In addition, I have consistently aimed to be reflexive in how I 'read' the texts and what language I have used to communicate my research.¹³

Within this theoretical backdrop, I, as the reader of these texts, openly take the position of being on one side of this 'discursive struggle'. My underlying motivation for doing this thesis was to somehow contribute to solving a problem that I see as one of humanities defining challenges of the 21st century. However, this view then shapes what I view as legitimate knowledge (i.e., I inherently do not accept truth-claims which posit that anthropogenic climate change is not a problem). Despite my position, it is

¹³ This brings up an important paradox in the underlying theoretical approach used – namely, that a certain language and discourse is employed in order to explain and communicate the findings of the language and discourse analysis.

important to note that the analysis itself is not focused on either supporting or discrediting the climate denial discourse. Rather it is aimed at understanding the discourse as a way to explain world events – such as a declining belief in climate change. Throughout this analysis I have attempted to let the texts speak for themselves. Hence, the claims and arguments I relate in this thesis are reflective of what the texts say, not what is necessarily consistent with mainstream science or my own views on AGW. In presenting my findings I do not dispute the claims made by the texts but rather have used these claims to simply demonstrate what this discourse is saying and how it is saying it.

While I have attempted to make the analysis itself as objective as possible, and to not let my own worldview affect those specific findings, my positionality does affect how my results are communicated. The underlying motivation for doing the analysis, the context I provide in Chapter 2, and the discussion of what the analysis results signify in Chapter 5, all portray the denial industry as a force in society working against action on climate change. I do not claim to hold a ‘neutral’ view towards the actions of this group of actors, however, I have strived to be objective with my analytical work. I openly acknowledge that my positionality is in opposition to many of the truth-claims made by these two organizations,¹⁴ but, in aiming to be more reflexive, I have tried to distance myself from the texts wherever possible and to see them solely as part of a discourse that is having an impact on society.

I also understand that this line of thinking (of seeing a certain group of actors’ claims as illegitimate) is highly problematic for notions of democracy. I realize that doing so shuts out potentially constructive

¹⁴ In this thesis I could have taken an arguably more ‘neutral’ position (e.g., I could have used the word ‘skeptical’ rather than ‘denier’), however, I chose not to. I believe that there is ample evidence supporting my position and that taking a more ‘neutral’ position would undermine the purpose and integrity of this thesis. For example, by using the term skeptic rather than denier (as a more ‘neutral’ term) I would inadvertently be giving more credibility to this group of actors than I believe is warranted. Language is not a transparent medium through which we communicate, and my choice of language is deliberate; yet it is also what I believe to be the most accurate. In deciding how to characterize this group of actors, I used the work of previous scholars as well as my own knowledge.

debate, and that it prioritizes and values a certain group of actors over others. Yet at the same time, I fully believe that in an era of expertise-driven knowledge, we must value the opinions of larger, accredited bodies of science, over that of individual opinions. There are a number of dissenting scientists who disagree with the mainstream scientific community (i.e., IPCC, NASA, National Academies of Science, etc.) in their views of AGW. Some of these scientists can be labeled as deniers, contrarians or skeptics, while others can be labelled as alarmists. Indeed, there is a large spectrum of opinion on anthropogenic climate change with outlying viewpoints at either end. For example James Hansen, a well-known advocate scientist, has been vocal in his belief that we are fast approaching various ‘tipping points’, possibly within the next decade, and that once we pass them the climate system could spiral out of control (Hansen, 2008). Although there is evidence for his views, his position is generally not endorsed by the major mainstream science organizations. In direct contrast, Richard Lindzen, a vocal dissenting scientist, has the perspective that carbon dioxide cannot explain the recent warming and that the possibility of human-induced catastrophic climate change has little supporting evidence (Lindzen, 2009). In light of the broad range of opinions on scientific knowledge regarding climate change I believe that our greatest source of legitimate knowledge comes from the institutions of mainstream science (seen through major organizations such as the IPCC, NASA and the National Academies of Science of numerous countries). Hence, the organizations that discount the findings of these central organizations and promote only the views of dissenting or outlying scientists are not portraying the values of skepticism (as I have defined them) but instead portray the tenants of denial. In aiming to be reflexive, I acknowledge that this thesis only investigates one group of organizations (i.e., those with a dissenting view towards AGW) and that a similar analysis of contrasting organizations (i.e., those who see AGW as an event in the near future that will destroy human civilization) is warranted but beyond the scope of this thesis.

3.4 The Approach - Defining Discourse and Explaining the Analytical Framework

For this research project I looked solely at a series of written texts, produced by two organizations, that have a unified theme – the denial of the mainstream scientific consensus on the importance of climate change. Hence I explain ‘discourse’ by using the second of Foucault’s definitions “a group of statements that appear to have a common theme that provides them with a unified effect” (Waitt, 2010, p.218).

Using this understanding of discourse allows for the narrowed focus of an analysis on a specific set of texts – without incorporating an analysis of the larger discourse (i.e., the climate denial movement).

However, although my actual analysis uses this narrow and focused conception of discourse (what I refer to as a micro-discourse), I also repeatedly reference how these texts are situated in a broader discourse about climate change denial (what I refer to as a macro-discourse). Indeed, understanding the wider context of the production and dissemination of these texts within the climate denial movement is a central part of explaining the importance of my research as it can lead to insights about the macro-discourse of climate change denial. In sum, the texts I analyse are a part of a much broader social movement and thus a two-tiered understanding of discourse is necessary.

Crucial in the analysis of discourse is the analytical framework underpinning the research process.

Discourse analysis can look not only at the various genres of spoken and written discourse (e.g., speeches, advertisements, positional statements) but also examine the various discursive features employed – speech acts, rhetorical strategies, metaphors, synecdoche, intertextuality and argumentation (Smart, 2011). Here I use a specific genre of written discourse (online texts) and examine these texts through the analytical and theoretical framework of Hajer’s Argumentative Discourse Analysis.

3.4.1 Argumentative Discourse Analysis

As stated above the micro-discourses specifically under study (the texts produced by the Friends of Science and the Fraser Institute) are situated within a broader discourse of climate change denial.¹⁵ This macro-discourse can be conceived as a broad form of collective argumentation that goes beyond the limits of a single actor. This type of conceptual framework looks at the “collective formation of argumentation across networks of texts produced by various professional organizations as they engage in public debates over major social issues” (Smart, 2011, p. 363). Particularly relevant for the study of public debate, this conceptual model of argumentation looks at how various actors within the debate tend to form unintentional coalitions whereby unconnected and unaffiliated actors will agree with each other on a particular side of a debate.¹⁶

The work of Maarten Hajer and his neo-Foucauldian theory of Argumentative Discourse Analysis has been highly influential in allowing me to combine a constructivist analytical framework of discourse, and the conceptual model of collective argumentation in this thesis. Hajer (1997) sees public debates as two (or more) competing discourses – discourses as examples of collective argumentation. Indeed, he sees competing discourses as “struggles for discursive hegemony in which actors try to secure support for their definition of reality” (p.59). The analysis of this ‘struggle’ focuses on trying to understand why a particular understanding of a problem gains dominance and thus comes to be seen as authoritative while other understandings become discredited. He thus provides a conceptual frame for recognizing broad discursive patterns across multiple texts, with the aim of identifying arguments shared by groups of social actors. In so doing, his analytical framework examines the use of narratives and metaphors in

¹⁵ The two micro-discourses could also be seen as a part of the broader neoliberal/conservative discourse with strong links to big industry. However, focusing on the climate change denial aspect of these discourses is where this research lies.

¹⁶ For example, in the current development of the tar sands, there is a collective argument that the tar sands development in Canada is happening at too rapid a pace. Various actors from environmental groups, to government agencies, native organizations, and unions may all enforce this position for various reasons that are unrelated. This is an example of collective argumentation.

helping to persuade the reader. This analysis of a discursive struggle also focuses on how actors not only try to make others see the problems according to their views but also seek to position other actors in a specific way. The purpose of such an analysis both allows for a better understanding of controversies, particularly in terms of the argumentative rationality people bring to a discussion, but also provides insight into how political change occurs.

Hajer's approach also places a heavy emphasis on context. In understanding a discourse the analyst needs to understand the social background and history behind the statements and practices of the discourse. In addition, this type of discourse analysis is best practiced by examining the social context underlying a statement (i.e., looking at who made the statement and to whom it was directed) was, as well as looking at the actual content of what was said. For example, in looking at a 'problem' that is creating a discursive struggle, special attention should be given to how that problem is defined and who defines it that way. As Hajer (2006) explains:

[Discourse analysis] is especially powerful when done in the context of the study of the social-historical conditions in which the statements were produced and received. Discourse analysis then opens up methodologically sound ways to combine the analysis of the discursive production of meaning with the analysis of the socio-political practices from which social constructs emerge and in which the actors that make these statements engage (p.67).

To better understand this theoretical lens I break down the key components of Hajer's approach (discourse, storyline, and discourse-coalition), and then relate them to the discursive struggle occurring on anthropogenic climate change.

Hajer defines 'discourse' as "an ensemble of ideas, concepts, and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices"; as such, "discourse analysis sets out to trace a particular linguistic regularity that can be found in discussions or debates" (Hajer & Versteeg, 2005, p.175). With the subject of climate change we can see two competing 'discourses' (catastrophic AGW (CAGW) is happening versus AGW is not

occurring/not problematic) vying for discursive hegemony.¹⁷ Each discourse is composed of several ideas, and concepts which define how the physical phenomenon of climate change is understood, as well as how the social reaction to climate change is perceived.

Next, the concept of a storyline is central to this approach as it is the medium through which a 'discourse- coalition' is formed. Hajer (1997) defines storylines as follows: "Storylines are narratives on social reality through which elements from many different domains are combined and that provide actors with a set of symbolic references that suggest a common understanding" (p.62). Yet they are also "the medium through which actors try to impose their view on reality on others, suggest certain social positions and practices, and criticize alternative social arrangements" (Hajer, 1993, p.45, cited in Smart, 2011). This idea of a storyline allows various unrelated actors to support a common storyline or macro-argument as part of a discursive struggle. The 'discursive struggle' concept highlights the idea that the 'conflict' over which this 'struggle' occurs is not a conflict over which sorts of action should be taken (or not) but is a conflict over the meaning of the physical and social phenomena. As Hajer (1997) explains:

In this process story-lines fulfil a key role. They determine the interplay between physical and social realities. Story-lines are seen as the vehicles of change and are analysed in connection to the specific discursive practices in which they are produced (p. 72).

Importantly, the power of the storyline is not based on its facts or argumentative style, but more if it 'sounds right' – employing the notions of trust, acceptability, and plausibility. Here we can understand that with the storyline of climate change denial – that AGW either does not exist, or is not an issue that we need to focus on – many actors may support this storyline for a variety of reasons (e.g., Big Oil¹⁸ and profit loss, conservative ideology and government intrusion, those that fear large impacts to the economy, resource extraction proponents, etc.). Why they support the storyline is not important but their combined support of this storyline unintentionally forms a 'discourse-coalition'.

¹⁷ For a good example of an analysis looking at both sides of this 'discursive struggle' please see Smart (2011).

¹⁸ Big Oil, similar to Big Industry, is a term that refers to the major petroleum and gas producers as a collective group. It is a term that emphasizes their economic power and perceived political influence.

The last central idea of Hajer's work is the concept of a discourse-coalition. As Hajer (1997) describes:

The argumentative approach holds that in the struggle for discursive hegemony, coalitions are formed among actors (that might perceive their position and interest according to widely different discourses) that, for various reasons are attracted to a specific (set of) story-lines. Discourse-coalitions are defined as the ensemble of (1) a set of story-lines; (2) the actors who utter these story-lines; and (3) the practices in which this discursive activity is based. Story-lines are here seen as the discursive cement that keeps a discourse-coalition together (p.65).

Also important in the idea of a discourse coalition is that this is not a coherent and concerted effort. The actors who engage as a part of this discourse-coalition are not necessarily aware of each other, and may indeed be talking at cross-purposes, but through misunderstanding or diverse interpretations of the storylines, are attracted to the same sets of storylines. Indeed, "precisely the effect of misunderstanding can be very functional for creating a political coalition" (Hajer & Versteeg, 2005, p. 178). Such an analysis helps to illuminate how different actors and organizational practices help to reproduce or fight a given bias without necessarily coordinating their actions or sharing values.

3.5 Methodology and Methods

3.5.1 Employing Argumentative Discourse Analysis

Following Hajer's Argumentative Discourse Analysis approach makes sense for an analysis of this nature for a number of reasons: this macro-discourse of climate change denial takes a clear position on an issue of contention (AGW); climate change can be seen as an environmental problem that has had broad shifting conceptualizations of its character (and continues to do so); the denial discourse is in opposition to the advocate discourse and thus there is a discursive struggle occurring, vying for discursive hegemony; actors engaged in this discursive struggle are not only trying to make others see the problems according to their views but also attempt to position opposing actors in a negative light; these texts show clear examples of argumentative structure and argumentative rationality with claims and supporting evidence to back up their arguments which are enhanced through the use of narratives and

metaphors; and there is a central storyline to these texts that is supported by the use of other discourses in a variety of ways.

In using an Argumentative Discourse Analysis framework the analysis focused on trying to determine the specific ideas, concepts, and categories that appeared regularly across the texts. It also focused on how these texts sought to position various actors in certain frames in order to enhance the central storyline of the texts. The underlying themes and narrative of the texts are considered particularly in how they aid in persuasion by attempting to establish and maintain sets of ideas, practices and attitudes as both common sense and legitimate. Lastly the analysis looked at the context of where texts originated and the audience for which specific texts were targeted, and the context of these particular texts in relation to the socio-historical conditions of the time.

Although Hajer's framework has fundamentally guided the theoretical approach for this thesis, from an analytical perspective I have combined Hajer's recommendations for discourse analysis with those of Gordon Waitt (2010) (explained below). Hence, in addition to the elements discussed previously, this analysis also comments on the inconsistencies and silences found in the texts, and speculates on what this means for the discourse as a whole in terms of its changing nature, resilience and effectiveness.

Discourse and language are of course not neutral and have profound implications that can shift power balances, which can then impact on institutions and policy making. Analyzing this discourse within the theoretical frameworks explained can provide insights into how and why this counter-discourse is likely a significant force against action on climate change.

3.5.2 Considerations of Discourse Analysis – Following a rough guide

While Hajer's argumentative approach has guided the objectives of my analysis, as well as providing an excellent theoretical context for the importance of the discourse under study, his work does not give an easily followed step-by-step guide to doing a discourse analysis. Here, Hajer is not alone. With its links

to poststructuralism, many social theorists are “wary of the idea of a simple list of methods that can be applied to discourse analysis” (Berg 2009, p.218). Few social scientists will write about their methods in discourse analysis as it is often perceived to be a ‘craft skill’, utilizing rigorous scholarship, human intellect, intuition, and is promoted through ‘learning by doing’. Despite its widespread use, the lack of methodological explanations in the work of scholars employing discourse analysis appears frequently in Human Geography (Berg, 2009). The best guideline I have discovered for this project is the checklist/guide that was produced by Gordon Waitt (2010), although Berg (2009) also provides a condensed version of this guide. Based on the work Gillian Rose (2001), Waitt (2010) and Berg (2009) provide a helpful conceptual map for students new to discourse analysis. This guide to discourse analysis is based in the vein of the social constructivist worldview and heavily uses the work and ideas of Foucault – hence, it is highly applicable to my own research. It argues that the point of doing discourse analysis in this way is to reveal how certain ideas can help create social realities that eventually are equated with common sense – again, quite compatible with Hajer’s argumentative approach.

The guide gives an overview of seven key considerations that can be used as starting points in discourse analysis: the selection of materials, suspension of pre-existing categories, the familiarization with texts, the coding of texts, an investigation for ‘effects of truth’, the identification of inconsistencies and the acknowledgement of silences. Each of these categories is explained in further detail shortly with examples of how my own research has used these considerations.

This guide also provides the student new to discourse analysis with a review of some crucial concepts. One is that reflexivity, as previously discussed, is a central tenet of discourse analysis. Second, as also previously noted, is that the point of discourse analysis is not to discover the true or false nature of statements but to understand the temporal and spatial circumstances that privilege particular

discourses.¹⁹ Indeed a thorough understanding of the texts' social circumstances (authorship, production, and circulation) is an integral part of discourse analysis. Third is the idea that researchers should be aware of the contestation of knowledges that is ongoing – how authors attempt to persuade audiences that a particular form of knowledge is better. Last, and perhaps the most important aspect that this guide has reinforced in my own research, is how discourse is unstable and changing and how an effective analysis will make note of the resilience and rupture of the discourses under study. I now explain the guide and how I have applied it to this research process.

Selecting the Texts

The first step in doing a discourse analysis is the selection of materials/texts. What is considered a text is virtually unlimited – for example, lyrics, speeches, photographs, paintings, and advertisements can all be considered 'texts'. For effective discourse analysis the selection of rich or in-depth texts is helpful although there are no 'rules' for sample size or text selection. It is also important to note that although selecting 'texts' is a necessary process of discourse analysis, the subjective process of selection can produce significant limitations on what the data set can say. Good scholarship dictates that the researcher must note the limitations of their data and this is done in the following section of this chapter.

My selection of texts pertains only to written online documents but within this category includes a variety of newsletters, media releases, talking points, oral presentations, research articles, and policy-advising documents and is thus 'rich'. In order to have as comprehensive a sample size as possible I looked at all written texts that were produced by the Friends of Science, available on their website up to

¹⁹ I must emphasize that this analysis is not trying to discredit the denier discourse by pointing out errors in truth claims. Theoretically speaking, to do this would simply show my bias in that I preference the opposing truth claims of mainstream science. Rather the analysis has focused on understanding what this discourse is trying to say as a way to explain world events – e.g., why this discourse may be influential in causing public opinion to be divided on climate change.

Oct.31, 2012.²⁰ Similarly, for the Fraser Institute, all research studies and *Fraser Forum* articles on this topic (produced prior to Oct.31, 2012) that were available from the website were considered.²¹ More detail on these data sets and the limitations of both data sets are discussed further on in this chapter (a full list of texts that comprise the data set is given in Appendix 1).

This data set comes exclusively from both organizations' website output. This decision was made for three prominent reasons. First, it allows for the timely and inexpensive collecting of data from both organizations, over a decade. Second, the internet is an important tool used by organizations to disseminate information quickly and cheaply, and thus it seems unlikely that other types of data from these organizations (radio advertisements, letters, seminars, etc.) would be significantly different. Third, the internet is actively being used by increasing numbers of the public to find information quickly. Thus it stands to reason that the website output of these organizations would provide an ample evidence base from which to undertake this discourse analysis.

The timeframe I chose to guide this research begins in 2002 and continues to the present. This is for the primary reason that prior to 2002 the Friends of Science did not exist, and the Fraser Institute had not yet published any research studies or articles on the issue of climate change.²² Thus from a purely data-collection standpoint, this timeframe makes sense. As well, as found by several polls across North America (see Chapter 2), there was a steady growth in the public opinion's belief in climate change which culminated in 2007/2008 before experiencing a decline. There are many speculations as to why this phenomenon occurred; however, one possible explanation for a part of this phenomenon may lie with the effectiveness of climate change denial messaging. With this in mind I have examined the

²⁰ These materials can be found at www.friendsofscience.org

²¹ These materials can be found at www.fraserinstitute.org

²² It is important to note that the Fraser Institute did publish texts about climate change prior to 2002. However, these texts are classified as books and were considered too lengthy for this analysis. This is discussed in the Data Set section.

messaging prior to this peak in belief and in the years following it, paying particular attention to any changes found through an analysis of this time period.

Suspending Pre-existing categories

The second consideration noted by Waitt (2010) in doing discourse analysis is that the researcher should suspend pre-existing categories. In the pursuit of a more objective or neutral analysis the researcher should try to approach the texts with 'fresh' eyes and ears. Although Foucault himself recognizes that there is no independent position, it is possible for researches to be self-critical through recognizing the ideas that influence their understandings of a subject. This includes being aware of the dominant discourses that are imbedded within the texts and also remaining reflexive of one's positionality while doing the analysis (Berg, 2009). Throughout the research process I continually attempted to explore elements of the texts that reinforced a dominant or hegemonic discourse in our society, paying particular attention to the narratives, or underlying themes and metaphors that reinforced a certain worldview (e.g., economic progress). I also have attempted to be aware of my own positionality and how it has affected this research: what knowledge I privilege, the embodied knowledge I hold, and what effects the research process has had on me. Indeed, this idea is critically important for me as I strongly favour the mainstream scientific perspective on climate change (both because I favour the knowledge from large scientific bodies versus contrarian claims and because of my previous scholarship in the topic) and thus am inherently biased against the information produced in the climate denial discourse. In aiming to be reflexive, I have attempted to maintain a position of constant vigilance towards appreciating how my own views have shaped this research. In doing the analysis I first read all texts without any type of coding or critical examination in an attempt to allow the texts to 'speak for themselves'.

Familiarization & Social Context

Third is the concept of familiarization. Here the researcher should think critically about the social production of the text under study – noting the authorship, technology used, and intended audience. As discourses operate as a process of subtle control and power, a look at these social dimensions helps to critically interpret the text through anchoring it within a particular historical and geographic context. Indeed, a central part of the familiarization process is to do extensive background research on the context of the texts under study as well as to reflect on what social dynamics may have created the text. Who, what, where, when and how are all questions of the text that need to be understood (i.e., looking at the social circumstances of authorship and of intended audience). Although this process is outlined by Waitt as an essential component of discourse analysis, it also is a clear element of Hajer's Argumentative Discourse Analysis, leading me to pay particular attention to how the texts fit within the broader social history and context. As my previous chapter outlined, the who, what, where, when and how are all elements central to understanding the evolution and propagation of the climate change denial discourse. Before undertaking this analysis I did extensive research in trying to understand the climate change denial industry and what had been previously researched on it. It is my interest in this social phenomenon that guided this research and it has been an integral part in how I have engaged with the process of analyzing these texts. Authorship and audience are also explicitly examined in the analysis and it was found that they often had a large impact on the messages of these texts. Here I might add that an important assumption of this process was that the documents analyzed represent, broadly speaking, the position of the institution from which they arose (this assumption is explained in further detail at the end of this chapter). Although the previous chapter briefly outlined the social context of both organizations under study, Chapter 5 will highlight the social conditions that may have influenced the production of these texts (e.g., Canada's ratification of Kyoto, the IPCC AR4, Copenhagen and Climategate).

The familiarization process also includes the idea of absorbing oneself in the texts. As Berg (2009) notes, “this involves becoming fully familiar with the texts that one is studying, and beginning, through the process of ‘reading’ and ‘re-reading’, to identify any particular themes that arise in the reading of the texts” (p.219). A careful reading of the texts was an important part of this analytic process. All texts were read at least three times: once to familiarize myself with the overall picture, a second time to highlight and do a more through reading, and a third time to code and make notes on the key elements of the text. Often texts were reread again in order to clarify or search for a new theme or idea that had recently arisen in my findings. During the third reading I coded areas of the text by highlighting relevant passages and then later making notes on them, fitting them into emerging categories and condensing the text into a brief set of notes (an example of this process is given in Appendix 2). As this was done for each text it allowed me to then compare the notes I had formulated in order to effectively see changes over time, common elements that resonated in all texts, the importance of audience in shaping a particular genre of common texts (e.g., FOS Newsletters), and helped me gain an understanding of the nuances of the texts as part of a bigger whole.

Coding

The fourth element noted by Waitt’s guide is the process of coding – the process by which researchers structure and interpret qualitative data. Here there are two types: descriptive (manifest) and analytical (latent). The descriptive category looks at themes or content and the texts are coded in more of a quantitative fashion – for example, noting the frequency of certain claims or metaphors. After a descriptive coding an analytical coding of the text allows for the researcher to interpret the texts. This type of coding typically provides insights into why the texts may hold certain sets of ideas by which the world is interpreted. However, the process of selecting the themes or categories from which to code a text is a form of the researcher’s bias, hence reflexivity is needed. To ensure this reflexivity, to the best of my ability, I first read and re-read the texts in order to let the texts speak for themselves and allow

these categories arise naturally, rather than imposing preconceived categories onto the texts. It quickly became apparent, however, that since the focus of my analysis was not simply directed towards identifying the central messages that this discourse espouses but was also engaged in looking at how various discursive elements may have affected the resonance of these messages in the public sphere, that a coding structure was needed.

It appeared most practical to first code the texts by looking for the central themes, messages and frames that were employed. I then did an initial trial run of coding, examining six FOS Newsletters; this process was then evaluated with the assistance of my supervisor. Once the above categories (themes, messages and frames) were more established I undertook an analysis of all FOS texts, then did the same for the texts of the Fraser Institute. The coding process allowed for each document to be coded into the above three categories, with supporting evidence, into a series summarized point-form notes (for an example of this coding process please see Appendix 2). After this initial coding, I then looked for ways in which these messages, frames and themes were enhanced or hindered through the use of other discursive features. To do this I compared and analyzed my coded notes in order to identify the storyline or macro-argument, the underlying narrative, issue categories employed, as well as the changes, inconsistencies, and silences produced - often with reference back to the original texts (see table below for a brief definition of these categories). The following chapter explains the results of this analytic process and explains the use of these categories in more detail.

Table 3 - Definition of Coding Categories

| Category | Definition/Explanation |
|----------------------------|--|
| Storyline / Macro-argument | The storyline or macro-argument is the overarching argument of a set of texts. The primary statement to which all texts can relate, and that all arguments, messages, frames, support. In this context it is the unifying statement of the texts analyzed. It is the condensed statement for which the texts collectively argue. |
| Narrative | A narrative, as I use it in this analysis, is the underlying story that puts everything into context. Looking at the narrative emphasized in a set of texts can both help to provide the needed context for a viewpoint or argument, and, if it is a narrative that the target audience also believes in, it aids in the persuasion of the storyline and is thus an 'effect of truth' (see below). |
| Theme | Themes can be described as commonly held ideas or concepts which can often help to promote the storyline (e.g., rationality, uncertainty). Although never explicitly referred to in the texts these underlying themes come to light repeatedly through multiple readings of the texts. |
| Message | I define 'message' as the key information the reader was supposed to take from the supporting claims provided. It is the 'take home message' of a portion of text. The analysis focused on identifying messages that were related to the storyline. |
| Frame | The use of language to position an actor in a certain light. Most commonly used in positioning actors in how they support or are against the central storyline or dominant narratives of the text. |
| Issue - Category | Issue-categories, as I define them, are essentially knowledge domains that are underpinned by certain logics and commonly held beliefs (e.g., science is associated with objectivity and truth). |
| Other | Changes, Inconsistencies and Silences were omitted from this definition chart as they are self-explanatory. |

Regimes or Effects of Truth

The fifth element of this guide is the idea of persuasion and/or 'effects of truths'. In this sense the discourse is attempting to establish and maintain sets of ideas, practices and attitudes as both common sense and legitimate. The researcher should try to find discursive structures (e.g., valuation of scientific knowledge), looking for the ways in which particular kinds of knowledge become understood as valid, legitimate, trustworthy or authoritative. As Berg (2009) notes, it is "useful to try to understand the mechanisms by which a particular discourse is seen to have both validity and worth" (p.219). The analysis should identify both the 'effects of truth' as well as how they are supported. For example, the use of "experts" may support the discourse of "science" (seen as an issue-category in this analysis) which in turn promotes claims and ideas found in the analysis as being legitimate. Underlying themes such as support for the Dominant Social Paradigm may also serve to create 'effects of truth', thus

validating the messages and macro-arguments or storylines of the texts. The 'effects of truth' aspect of this analysis is most clearly seen in the use of narrative, underlying themes, and issue-categories.

Inconsistencies and Silences

When performing a discourse analysis Waitt (2010) and Berg (2009) both point out that it is important to note how the text may contradict itself, as well as considering what the text is leaving out. Discourses are consistently changing and the discursive structures of a particular discourse are thus fragile and continually ruptured. Hence the inconsistencies or contradictions found in a sample of texts may point to a challenge to aspects of that discourse, something a thorough discourse analysis will take note of – it may then be possible to speculate on the changing nature or resilience of the discourse itself. Similarly, an effective discourse analysis will not only note what is said, but will also acknowledge what has been left out. To do this the researcher must have a thorough understanding of the broader social and cultural context in which the discourse rests – something that was already discussed and has been incorporated into this analysis. This also important to do in order to demonstrate the effect of a privileged discourse and how it operates to silence different understandings of the world. The noting of inconsistencies, changes and silences has been an important part of this analysis as these discursive elements can speak to the resilience and effectiveness of the discourse as a whole.

3.5.3 The Research Framework

To aid the reader in understanding how the various theoretical, analytical, and historical components interrelate to form this thesis I have created an inclusive diagram (see below – Figure 1). It has three main components: the theoretical and analytical concepts (Theoretical Importance of Discourse), the previous literature on climate change and climate change denial (Organized Climate Change Denial Discourse), and my actual research that focused on representational texts of the climate change denial movement in Canada (Analysis of Representational Texts). In my writing of this thesis each pillar has

informed my understandings of the other two pillars and thus all elements in the chart are highly interrelated.

The diagram initially was created to help me conceptualize how this research would look but now helps to explain how the central components of the thesis interact. Each pillar is composed of the external components surrounding it. Thus the “Analysis of Representational Texts” (the top pillar) was done partially through the use of “Waitt’s 7-step guide to discourse analysis” (2010) and also through Hajer’s “Argumentative Discourse Analysis” – it thus includes the elements most influential in how I did the actual analysis of these representational texts. Surrounding the other two pillars are the external elements, concepts, and knowledge that have defined those pillars.

RESEARCH FRAMEWORK

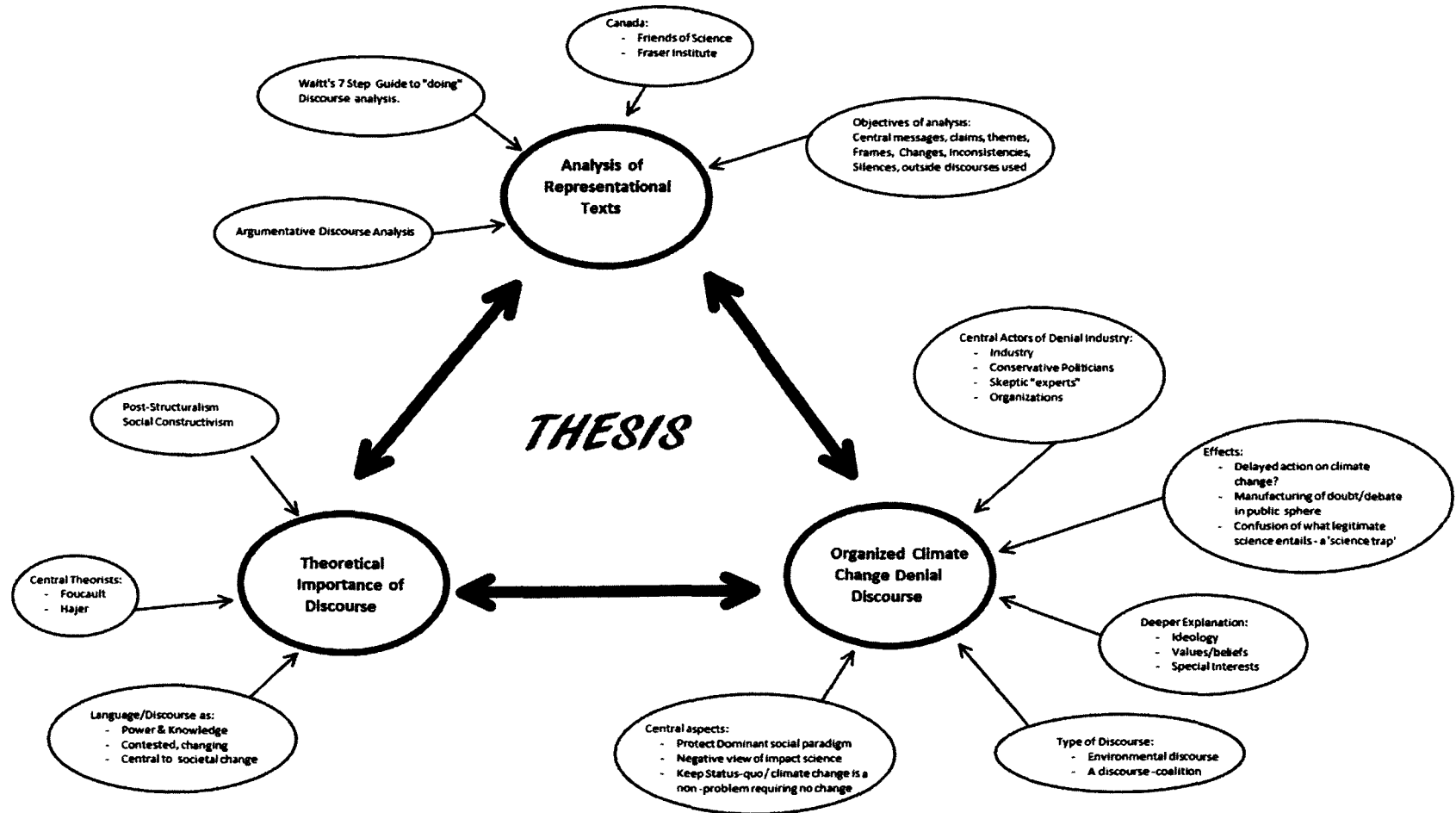


Figure 1 - The Research Framework

3.6 The Data Set

The data set for this research project consists of roughly 400 pages of in-depth texts from both organizations. I first explain what comprises each data set and how the data set was compiled before discussing the limitations of the data. Please see Appendix 1 for a full list of the documents which compile this data set.

3.6.1 Friends of Science

Every available document prior to Oct. 31, 2012, explicitly authored by the Friends of Science, was included in this data set. Although the website www.friendsofscience.com as well as their subsidiary website www.climatechange101.com has a wealth of links, and articles by outside 'experts', this analysis focused solely on FOS-authored documents found on their core website (www.friendsofscience.com). This data set comprises: quarterly newsletters (2007-present); political documents (transcripts of their participation at parliamentary meetings and letters written) (2005-present); documents aimed at the layperson; FOS news releases of 2012; and commentaries and critiques of policies, people, or organizations (for further detail of this data set please see Appendix 1.). In addition, small paragraphs of text found on their website pages (but which do not appear as separate documents) were incorporated in this analysis (for example their webpage - Readers' Comments & Questions). The data set, including their singular web pages, comprises a total of 43 documents or roughly 200 pages of in-depth text with two PowerPoint presentations (40 slides).

The data set was compiled easily by simply going to the FOS website and downloading all of the above documents. For documents prior to 2007 that were unavailable on the current website I used an internet archive tool called the *Internet Wayback Machine* which allowed me to retrieve a few older

documents produced by FOS.²³ I then printed out each document and coded it, first completing a preliminary analysis and then a full analysis of all documents.

3.6.2 Fraser Institute

As the Fraser Institute produces publications on many issues not related to climate change I first had to search their website for climate-related material. To find articles, commentaries, books, publications, research studies, and educational materials, I searched all headings under ‘the environment’ category from 1995 to the present. I also typed key-words (e.g., climate change, global warming, Kyoto) into the organization’s search bar. This general search produced many results and I decided to focus exclusively on all applicable *Fraser Forum* articles (as these seemed to be representative of the institute and provided a yearly data set) and all research studies and educational materials the organization has produced on climate change.

From my examination of their website, it appears that the Fraser Institute first began advocating the climate denier position in 1997 (www.fraserinstitute.org). One book was published in 1997, one in 2001, and one in 2002. Also in 2002 the Fraser Institute started publishing articles in their monthly *Fraser Forum* on the subject of climate change. With the exception of 2006, climate change was subsequently addressed in this forum at least once in every year until 2010, with additional research studies on the side. In 2007 the institute released an *Independent Summary for Policymakers* (ISPM) on the IPCC AR4 report, and a research study on adaptation to climate change risks. In 2008 one research study was released addressing the ‘facts’ of climate change and in 2009 there was an increased review of the 2007 *Independent Summary for Policymakers* document, as well as the development of a lesson-plan kit for teaching climate change in schools. These documents (excluding the books) were all downloaded from the website and printed before being analyzed.

²³ This program (found at <http://archive.org/web/web.php>) is an internet archive that stores past websites (and often their content).

3.6.3 Considerations of the Data Set

As previously mentioned, good scholarship dictates that the researcher should be aware of the limits of what their data can say. Indeed, understanding the limitations and implications of the selection of data, particularly for a discourse analysis, is crucial in this type of scholarly work. Why the FOS and Fraser Institute were chosen as organizations for study is explained by their large role in the climate denial community of Canada (see Chapter 2). Yet focusing my research on only these two organizations limits what the data set can then say about the broader denial community. Hence, it is recognized that an analysis on these two organizations is solely a representative sample of the climate denial discourse in Canada. Even within this representative sample, however, there are three further limiting elements of the data set that are now explained: the selection of texts, the authorship of the texts, and the timeframe under study.

Selection of Texts

Within each organization I attempted to achieve a selection of texts that was big enough for a fairly robust analysis, but was also doable given the academic timeframe of one year. Hence my selection of texts in both organizations was limited to certain types of ‘texts’ and thus may be considered only as representative of the micro-discourse of each organization.

First, I selected texts that were only available from each organization’s respective website. While the Fraser Institute and the FOS may have produced other materials relevant to their position on climate change, I limited my selection to what was easily accessible from each organization’s core website. Links to other websites were disregarded for this analysis.

Second, I included only *written* material highly associated with each organization. Although there are audio and visual materials on both websites my analysis looked only at written documents. The focus on written materials allowed for a more consistent analytic process). Furthermore, texts that were chosen

were either exclusively produced by the organization, or were likely to be highly representative of the views of the organization. Hence written material found on either the FOS website or the FI website that was authored by another organization or unaffiliated person was excluded as the analysis was focused on the discourse that these organizations specifically produced.

Third, commentaries, repetitive texts and very large texts were excluded. The FOS produces a climate science newsletter and a summary document called 'FOS extracts'. Both of these texts were excluded because the majority of their content seems to appear again in the FOS Newsletters (which were included in my analysis), and, in addition, these texts are very basic summaries with links to articles that were not authored by FOS. The Fraser Institute, on the other hand, has a few books, as well as hundreds of commentaries which can be found on the Fraser Institute's website, and thus could be considered part of their online output. Excluding these documents (from both the FOS and the FI) was a deliberate decision in order to narrow the data set under study. However, I believe it is unlikely that these extra texts would add significantly to my overall findings.

Despite this distinct selection process, I believe the decision to focus on these specific written texts provides adequate insight into the most prevalent messages and discursive elements present in the discourse produced by each organization.

Authorship

Authorship is another element of the data that warrants explanation. While the FOS documents under study were all produced by the organization or its core members, and thus can be easily seen as representative of the organization itself, the documents of the Fraser Institute are produced by a variety of authors. In addition the Fraser Institute explicitly states that *"The opinions expressed by staff or author(s) are those of the individuals themselves, and should not be interpreted to reflect those of the Institute, its Board of Trustees, or its donors and supporters"* (FI, 2012). However, it is unclear what

explicitly entails “opinions”. For example, can their research studies be reduced to the “opinions” of the authors or are they representative of the institute? Or do “opinions” refer to what Fraser Institute researchers may say or publish outside of the organization itself? The institute also repeatedly references itself as a single coherent organization that is involved with research, developing programs, holding events and giving workshops around a set theme. For example, their website states that “*The Fraser Institute measures and studies the impact of markets and government interventions on the welfare of individuals*” and that “*We are a completely independent research organization that develops independent conclusions and recommendations*” (FI, 2012). For this research I have chosen to view articles arising in the *Fraser Forum* magazine as well as specific research studies and educational materials as implicitly endorsed by the institute and thus representative of its position on climate change.

The Timeframe

I explained earlier why the timeframe of 2002-2012 was appropriate for this research; however, while the data set from the Fraser Institute covers this selected timeframe quite well (see Fig. 3), the data set from the FOS is substantially biased towards documents that originate after 2007 as their website has undergone numerous changes over the decade and past documents produced by the organization have been difficult to obtain. Although I have analyzed FOS documents from 2002, 2005, and 2007, the majority of documents analyzed have been produced since 2008 (see Fig. 2). FOS documents that have no date were also assumed to have been produced since 2008. This may have skewed the analysis from a timescale perspective, even though the findings comparing earlier and later documents do not show substantial differences.²⁴

²⁴ When comparing changes over time, this lack of earlier documents is a definite problem. Thus the portion of this analysis that examines the ‘changes over time’ is quite limited. Indeed, the only documents I was able to analyze in order to reasonably gauge these changes were the FOS newsletters: these were the only documents to follow a consistent pattern that was repeated every 4-5 months from 2007 to the present.

The following charts give visual representations of documents produced by each organization over the last decade.

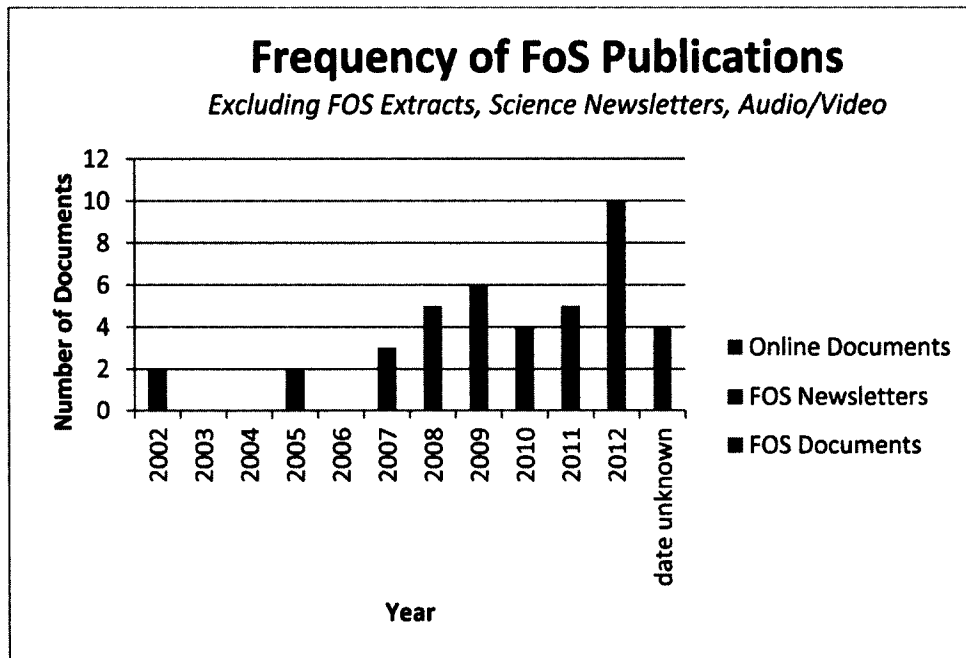


Figure 2 - Frequency of FOS Texts

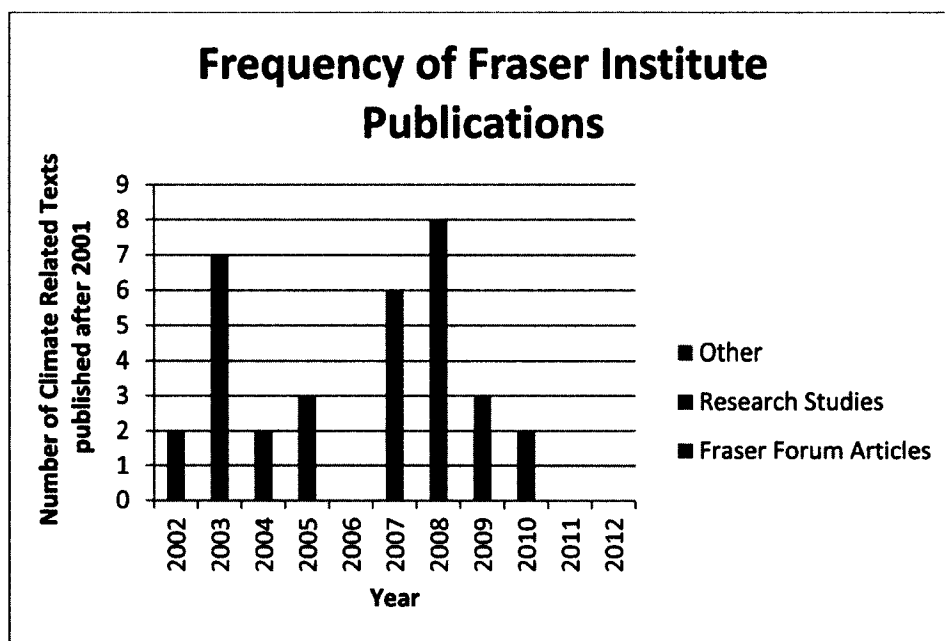


Figure 3 - Frequency of FI Climate-Related Texts

3.6 Concluding Thoughts

Climate change denial is a social phenomenon that is complex and multifaceted. Proponents of climate change denial engage with the production of this broad discourse for a number of reasons that are not necessarily supportive to each other. Thus one cannot claim that there is deliberate continuity in the central messages and claims proposed by the actors engaging in this process. However, despite the varying nature of actors (from corporate CEOs to environmental scientists), and despite the cacophony of contradicting messages, ideas, and claims, there is unity around a central argument – that climate change is a ‘non-issue’ or ‘non-problem’.²⁵ The socio-historical production of this discourse is incredibly important to take note of as climate change itself has become a highly politicized subject over the last three decades, particularly in the US. Also from a broader standpoint, the influence of this discourse should be acknowledged as a possible reason explaining why public opinion has not rallied around the scientific consensus of this issue or why policymakers have not enacted substantial climate legislation (McCright & Dunlap, 2003). Here, the literature on the climate denial industry has been invaluable in providing this context to my research.

Using Hajer’s Argumentative Approach allows for the theoretical idea of seeing the climate change denial discourse as: (1) part of a discursive struggle between AGW acceptance vs. AGW denial, (2) unified by a common ‘storyline’ (that climate change is a non-problem) (3) a discourse-coalition supporting this storyline. The poststructural and Foucauldian theoretical lens allows for a more removed and critical understanding of ‘truth’ or ‘expertise’, which has allowed me to see the denial industry’s claims as “truth-claims” in the public sphere. This theoretical lens also aided my attempts at reflexivity which I have engaged in throughout the research process. Conceptions of what ‘discourse’ is, its

²⁵ Using the idea of climate change as a ‘non-issue’ allows me to group a large range of deniers together under one unified front. For example; some deniers will support the idea that climate change is anthropogenic, but will not support the idea that this means catastrophic change is about to happen; while others will deny that climate change is even happening at all (natural or anthropogenic).

importance, and how I have examined a 'micro-discourse' (or the texts of key organizations) as part of a macro-discourse (that of climate change denial) have also been heavily influenced by these theoretical lenses. Lastly, the guide by Waitt (2010) and Berg (2009) has provided the initial guiding structure for doing the actual analysis.

Chapter 4 – Analysing Climate Change Denial in Canada: FOS and FI Positions

4.1 Introduction

This chapter presents the results of the discourse analysis done on the web-output of the Friends of Science and the Fraser Institute. During the discourse analysis each organization's texts were analyzed separately. Accordingly, I provide the results of each analysis separately. Each section begins by describing the central storyline of the texts and the general narrative in which this storyline is situated. Next I look at the central messages arising from this set of texts, and highlight whether these messages seem to be targeted towards certain audiences. Third I explain the framing patterns that were most extensively employed in the texts. Next I highlight the most common themes that reverberate through the texts and the most common issue-categories that were employed. I conclude each section by noting the changes, inconsistencies and silences discovered in both analyses.

It is important to explain that in this chapter I am quite selective in my use of passages of text which support my findings. Certain elements of the analysis (e.g., storyline, narrative) do not have specific supporting quotes as they are the result of the process of making notes on hundreds of pages of texts and then comparing these notes to draw out key dominant elements of the discourse. Hence, only in combination with numerous texts can these findings be replicated. In addition, my findings have been condensed into concise statements that often reflect a number of different claims from numerous documents. Hence, when appropriate, I provide only a representative quote to support these findings. However, I have also provided a detailed appendix (see Appendix 3) of representative quotes for the reader to consult if they wish to see further examples of supporting quotations and documents justifying my findings. Yet before providing the results of these analyses, it is necessary to further define and explain each category employed in this discourse analysis.

Storyline

The storyline or macro-argument is the overarching argument of a set of texts (Smart, 2011). The primary statement to which all texts can relate and that all arguments, messages, and frames support. In this context it is the unifying statement of the texts analyzed. It is the condensed statement for which the texts collectively argue.

For both organizations I created a specific storyline for which all texts collectively argued. As each organization produced many climate denial texts, I used Hajer's conception of a storyline (see Chapter 3) to see whether the texts produced a macro-argument or storyline applicable to each organization. After a detailed analysis of each set of texts it became apparent that almost all claims, messages, and discursive elements employed in each set of texts could relate to a bigger overarching message or macro-argument (storyline) of that organization. Hence the two analyses focused on the claims and discursive elements that were related to each storyline.²⁶

Narrative

A narrative, as I use it in this analysis, is the underlying story that puts everything into context. A fact means nothing unless we understand how it fits into a larger picture (Carvalho, 2000).²⁷ We process new information, and even our own beliefs, based on how they fit into a narrative. For example our own history is a narrative which has characters, a setting, actions, and an outcome – it is essentially a collective story that we believe in. Thus, looking at the narrative emphasized in a set of texts can both

²⁶ This idea allowed for me to differentiate between useful claims (e.g., “present levels of CO₂ are near historic lows”) and claims that are meaningless to this analysis (e.g., “the Friends completed their ninth AGM on Tuesday” (FOS Newsletters, June 2011). It is also important to note that I could not simply use the mission statement as an effective macro-argument (i.e., “the sun is the primary driver of climate change”) because numerous messages did not necessarily support that claim.

²⁷ Carvalho (2000) refers to many elements of narrative analysis that are not touched upon in this research. Here I am looking at the broad historical narrative that give context for their storyline, namely of progress and support for the Dominant Social Paradigm. I have avoided looking at many narratives produced by the organization. For example, the evolution of climate science from the point of view of the FOS texts (e.g. they argue ‘climate scientists’ have deceived society – this is a narrative).

help to provide the needed context for a viewpoint or argument, and, if it is a narrative that the target audience also believes in, it aids in the persuasion of the storyline. This concept is also related to the idea of a persuasive ‘effect of truth’ mentioned in the previous chapter.

Central Messages

In this section of the analysis I highlight the central messages that arose out of the texts. Each document was read and re-read with the goal of highlighting what these messages are and how they are supported. In so doing I reduced each document to the central messages it conveyed, and noted the claims that supported these messages (see Appendix 2 for examples of the process). As a result, each of the central messages has a small paragraph beside it of summarized claims which support that message. When applicable, I also highlight the most frequent sub-arguments that support each specific central message (these sub-arguments are also supported by a paragraph of summarized claims). I deliberately provide only a single quote as supporting evidence for each message or sub-argument; however further evidence can be found in Appendix 3. These central messages are organized into three categories – Scientific, Political, and Economic. The order of these categories represents their rough frequency in the texts (i.e., if the section starts with “Scientific Messages” it is because more scientific claims were made than political or economic claims).

In addition, the texts under study have produced a notable phenomenon in terms of how various texts appear to be targeted for certain audiences. As Argumentative Discourse Analysis is concerned with what was said to whom and in what context, I have looked for and discovered patterns around texts with a target audience that seem to be relatively consistent. Indeed, it appears that for the FOS texts the target audience had a large impact on what messages were emphasized and how various actors were framed. Hence, following each “*Central Messages*” section, I describe these presumed target audiences and what trends were noted.

Frame

Framing, what I have defined as the positioning of actors who oppose or agree with the central storyline, is a key rhetorical device used in argumentative discourse.²⁸ Both analyses have found the clear use of framing in the texts particularly when the texts describe actors who are opposed to the storyline the texts promote. In identifying framing patterns the use of metaphors in these texts has been especially useful (Carvalho, 2000). Each section thus discusses the framing patterns discovered in the analyses by showing which groups of actors were framed and by explaining how they were most commonly framed.

Theme

Underlying the messages and specific claims of the texts under study were prevalent themes which help to aid in the promotion of the storyline. Although never explicitly referred to in the texts these underlying themes come to light repeatedly in almost every document. These concepts or ideas have surfaced through multiple readings of the texts.

Issue-Category

In discussing environmental discourse, Hajer (1997) notes that storylines combine meanings from the discourses of many domains in order to provide actors with a “set of symbolic references that suggest a common understanding” (p.62). I have used this concept to look at how there are underlying norms about certain issue-categories that serve to aid the persuasiveness of an argument (Hoffman, 2011a; Hulme, 2009). Issue-categories, as I define them, are essentially knowledge domains that are underpinned by certain logics and commonly held beliefs. For example, using a scientific fact is only helpful if everyone involved in the argument has a common understanding of the ‘discourse of science’

²⁸ There are many ways frame analysis can be incorporated into discourse analysis. Here the idea of frame is linked to perspective – certain aspects of a perceived reality are selected in order to promote a particular idea (Carvalho, 2000, p.7). For example, in the FOS texts the AGW movement is described in negative terms in order to promote the idea that the AGW community is untrustworthy – thus aiding the storyline.

being relatively impartial and authoritative (what I refer to as the issue-category of science). So while science is seen as distant and unbiased, the issue category of 'politics' can be seen as the opposite (in this case having the underlying norms of self-interest and ideology). The use of these issue-categories invoke commonly held meanings and understandings that can then be used in order to have the message resonate with the reader.²⁹ My analysis produced the issue categories of science, economics, politics, and ethics which are now explained. Each of these categories was used effectively to add to the persuasiveness of the central storyline, and is thus an 'effect of truth'.

First, the issue category of science conveys authority and truth on a subject. 'Science' is presumed to be objective, rational, cautious and truth-seeking. It is also presumed to be apolitical and operating on the basis of extensive evidence. Hence, the use of scientific articles, scientifically dressed arguments, and scientists themselves, all aid in presenting the storyline as believable and persuasive – it is supported by the 'facts' and trusted knowledge.

Second, the issue category of economics carries with it ideas of numbers, statistics, and equations which often denote authority. Hence, like 'Science', the use of 'Economics' conveys authority and significance. It also has an added element of increased importance to the reader because of its large scope – the 'health' of the economy affects everyone. Thus the use of economic arguments may carry more weight in persuading the audience. In our consumer driven society, policies that induce higher costs for goods we take for granted (electricity, fuel) is likely to be a strong motivator for getting people to oppose climate action.

²⁹ It is important to note that although I have taken this idea largely from the work of Andrew Hoffman (2011a) there are no set definitions for what elements are featured in each issue-category. I created these categories and the elements that compose them as a way to help structure these underlying and hidden assumptions present in the discourse. (e.g. politicians and governments are framed as distrustful and self-interested – it seems likely to me that this would reflect common conceptions of the underlying elements found in politics).

Third the issue-category of 'Politics' is seen to be about people outmaneuvering each other for their own gain. It is dominated by self-interest and by actors who are highly untrustworthy, and who generally do not cooperate (unless in their self-interest). Corruption, greed, bias, and ideology are strong elements of this category. The issue-category is most used in attempting to persuade the reader against an idea, policy, or group of actors.

Last, the issue-category of 'Ethics' is employed in order to give moral authority and weight to the storyline. This issue category carries with it certain norms that are likely to trigger an emotional response in the reader. For example, by displaying an 'immoral' action (i.e., data manipulation for self-benefit) the reader will feel less sympathy or empathy with those doing this action. Most effectively seen in how the texts frame proponents or opponents of the storyline, the use of the 'Ethics' issue-category tugs on the emotions and sense of justice of the audience, again helping to persuade the reader. This issue-category is also used frequently to evoke feelings of fairness, righteousness, and disdain.

Changes, Inconsistencies and Silences

The last part of each section discusses the changes, inconsistencies, and silences found while doing each analysis. How the discourse changed over time (in terms of what messages changed or how the use of various discursive elements changed) is first discussed. Second, I note the inconsistencies of the discourse; where certain claims or arguments seem to contradict one another.³⁰ Third, I discuss the silences that the analysis uncovered, mostly seen in competing truth-claims or major events which were notably absent.

³⁰ It is important to note, however, the difference between inconsistencies and changes. For example, facts that contradict each other may simply be a change in the discourse over time, rather than an inconsistency. However, the inconsistencies which I discuss in this chapter did not seem to follow any type of temporal pattern and hence I have categorized them as inconsistencies, rather than changes to the discourse.

4.1 Analysis Results for FOS Texts

4.1.1 Storyline & Narrative

My findings show that the central storyline or macro-argument employed in these texts can be summarized as follows: *Anthropogenic climate change is a false theory, and that acting on this theory by way of attempting to reduce CO₂ emissions poses significant threats for our way of life.* All claims, messages, frames, and other discursive elements employed by these texts are united by their relation to the above statement. Hence it is a storyline or macro-argument of this particular discourse.

However, this storyline only makes sense in relation to the underlying narrative most present in this discourse: *economic progress* and the *Dominant Social Paradigm*. The texts support this narrative through advocating for a continuation of 'business as usual' or defending the '*status-quo*'.³¹ Central features of this narrative are the capitalist system, economic growth and development, and the use of inexpensive energy (fossil fuels). Here I mean to say that these three factors in combination largely account for the lifestyle we currently have and thus we cannot threaten the 'business as usual approach' as doing so would threaten our way of life. In this sense, the AGW movement, which calls for changes in how energy is consumed and produced (and often promotes much larger societal changes), is a direct threat to the foundations of this narrative.

In addition, this narrative also incorporates an underlying idea of governance, often alluding to what the right mode and level of governance should be. One level of this is seen in the idea of the democratic nation-state as the best mode of governance, as opposed to ideas of a world government (e.g., directives coming from the UN), and that Canadian interests should not be sacrificed for the greater

³¹ *Status-quo* here refers to the idea that large-scale societal change is not needed. This perspective argues that the current economic and social model is working perfectly fine and should continue to be supported. Indeed, this idea is further enhanced by opposition to relatively minor changes (i.e., by supporting green energy through subsidies). How global markets work and how our energy system currently works is promoted as the best option at this point in time, and therefore no changes are needed – hence the *status-quo*.

good (e.g., climate change legislation for the benefit of others in the world could mean that we lose our competitive advantage with trading partners, decreasing our standard of life through higher energy prices). As such, international bodies and treaties are viewed as suspect for undermining the sovereign interests of Canada. This is particularly relevant in how developing countries' interests are portrayed, as well as the motives and aspirations of the UN and IPCC. Yet while the nation-state is promoted, it is also critiqued. Indeed, another level of governance indirectly criticized, although not nearly as frequent or as explicit, is the overarching role of the Canadian government and national institutions such as Environment Canada – found in the idea of 'green policies' fueling western alienation.³² The final and perhaps most fundamental level at which the notion of governance arises is in the idea of individual freedoms. The texts promote a 'small' government approach where regulating bodies and government institutions are criticized as intervening, incompetent and often misguided.

Last is the economic dimension of this narrative. Following the more dominant neo-liberal economic worldview, the narrative promotes the idea of minimal governmental involvement, similar to the above idea of governance but with the added economic argument that this will create the best model for wealth generation in society. Policies aimed at reducing CO₂ emissions, whether through a tax or a cap and trade framework, are viewed as highly invasive government actions and costly to the market. CO₂ regulation is seen as highly inefficient, full of bureaucracy, and ultimately pointless, but with disastrous economic consequences. For example, it will lead to "dramatically" higher energy prices for the average consumer to the point whereby we will "have to monitor our use of lights at night" (FOS Newsletter, June 2010).

³² The texts allude to the idea that 'green' directives from Ottawa (seen through federal agencies) are opposed in western provinces (particularly the prairies) and are thus breaking up national cohesion through fueling western alienation.

4.1.2 Central Messages

The following section displays the main messages or arguments that support the storyline:

Anthropogenic climate change is a false theory, and that acting on this theory by way of attempting to reduce CO₂ emissions poses significant threats for our way of life. These central messages are the result of synthesising the most frequent claims and messages of the data set into the overarching ‘take-home’ messages for the reader. They have been organized into three categories: Scientific, Political/Social and Economic – roughly reflecting the order of dominance of each category found in the texts.³³ Under each section of claims I have provided a table. Here the main messages are supported by sub-messages which are composed of summarized claims. Supportive quotes are provided as evidence (for further evidence please see Appendix 3).

Central Scientific Messages

In relation to the above storyline, the majority of claims the FOS texts make are scientifically-oriented in nature. Within this scientific theme, the FOS texts make numerous claims which collectively argue that AGW theory is false, fossil fuel emissions are beneficial, and that global warming is not a problem. As such, the scientific claims which the FOS texts produce have been synthesised into four central messages:

1. AGW Science is flawed
2. Climate Change is natural.
3. More CO₂ in the atmosphere is beneficial.
4. Warming is good or at least has no real negative consequences.

³³ I have deliberately omitted two other messages that arguably arise from the text: that FOS/the denier (“skeptic”) position is to be trusted, and that the AGW movement is not. This is a deliberate omission as I feel these messages are better placed in the analysis portion of framing, found in the following section.

Table 4 - FOS Central Scientific Messages

| Central Message | Sub-argument | Synthesized claims and arguments | Supporting quote |
|------------------------|--|--|--|
| AGW Science is Flawed. | Climate Models have not worked in the past and continue to not work now. | <i>Based on false premises (i.e., positive feedbacks, all other factors held constant), observational and satellite data do not match up, there are poor initial assumptions that do not take into account other factors of climate change (i.e., the sun).</i> | "huge discrepancy between climate models and satellite data" (FOS Newsletter, Sept, 2011) |
| | Problems with Data: Measurement and Analysis. | <i>The urban heat island effect and the placement of temperature stations have greatly biased the recorded temperatures. Data and calculations have been mishandled, omitted, and in some cases fabricated to suit desired results (i.e., hockey stick proven false, climate gate reveals data doctoring). CO₂ levels are not accurately recorded from ice cores. CO₂ levels follow, not lead, temperature changes historically.</i> | "the institute adjusts the raw temperature data to create a temperature index used to support political action such as cap and trade legislation" (FOS Newsletters, March 2010) |
| | Negative feedbacks neutralize any disturbances to the greenhouse effect. | <i>The climate system is full of negative feedbacks (i.e., cloud changes, water vapour concentration levels cannot increase, natural greenhouse gas stabilization – all negate (or will negate) any warming caused by CO₂).</i> | "the greenhouse effect is at its maximum value and cannot be increased by CO₂ emissions" (FOS Newsletter, Sept 2010) |
| | CO ₂ as a greenhouse gas is negligible. | <i>No meaningful correlation between CO₂ levels and the earth's temperature, CO₂ has been more prevalent in the distant past, doubling of CO₂ is only 0.5 – 1.1 C (not a significant factor). Water vapour is a much more important GHG.</i> | "carbon dioxide is largely irrelevant to the Earth's climate" (FOS Newsletter, Jan 2007) |
| | AGW theory trivializes obvious other factors explaining climate change. | <i>The sun, cosmic rays, ocean currents and oscillations, aerosols, black carbon particles – all of which are more credible in explaining global warming than CO₂.</i> | "half of the observed warming is associated with the brown clouds of aerosols, not greenhouse gasses" (FOS SEEDS critique, June 2008) |
| | Observed phenomenon as contradicting evidence. | <i>No recent increases in temperature, or a decline in temperatures over the last decade, despite increasing CO₂ levels. Local weather phenomena (e.g., cold snowstorm) are direct evidence against the theory. Temperatures declined in 1940s-70s despite rising emissions.</i> | "observations show that the oceans are getting colder, not warmer" (FOS Newsletter, June 2009) |

| Central Message | Synthesized claims and arguments | Supporting quote |
|--|--|--|
| Climate Change is Natural. | <i>Natural events such as the variations in the suns output, the impact of cosmic rays, and the natural ocean cycles are stronger evidence for explaining climate change than increases in CO₂ levels. Past climates have changed and even been warmer than today (i.e., medieval warm period). Sea level rise, glacial and ice melting, is normal and has been ongoing for thousands of years.</i> | “the sun is the primary driver of climate change. The temperatures have increased from 1979 through 2002 primarily due to changes in the sun” (FOS, Readers comments and questions, 2012) |
| More CO ₂ in the atmosphere is beneficial. | <i>CO₂ is a naturally occurring gas that is necessary for photosynthesis and thus all life on earth. Increasing its concentration is beneficial for plant and crop productivity, has the effect of increasing crop yields significantly.</i> | “[there is a] significant fertilization effect of elevated CO₂ concentrations on plant growth. CO₂ is a major plant fertilizer” (FOS Response to Environment Canada’s CO ₂ Emission Reduction Plan, Sept 2011) |
| Warming is good / there are no real negative consequences. | <i>Warming climates in past centuries was a positive thing for the civilizations at the time. The human health and agriculture benefits of a warming planet are significant and greatly outweigh any negative effects. There is no reason to suspect increasing severe weather, droughts or floods, or abnormal ice melting.</i> | “the health benefits of a warmer planet are many times greater than the harmful effects” (FOS Talking Points, 2012) |

Central Political Messages

In addition to scientifically-oriented claims, the FOS texts also made many politically-oriented claims that promote the storyline. Under this political theme, the FOS texts have numerous claims which collectively argue that because AGW theory is false (as shown through the scientific messages), focusing on reducing AGW is wasting valuable resources and is misdirecting government priorities. In addition, increasing numbers of people are beginning to understand that AGW theory is indeed false as the only reason the theory has been so widely accepted to date is because of the concerted and conspiracy-like effort of many climate scientists and governments. Last, even if there were no problems with AGW theory, trying to mitigate AGW is pointless because large-scale climate policies will never work politically on an international scale. These arguments have been summarized into the four central messages below:

1. There are more important priorities to focus on than efforts to mitigate AGW.
2. AGW theory is not widely accepted.
3. The promotion of AGW is part of a widespread conspiracy.
4. Policies to mitigate AGW are doomed politically. Thus it is an exercise in futility.

Table 5 - FOS Central Political Messages

| Central Message | Sub-argument | Synthesized claims and arguments | Supporting quote |
|---|--|--|--|
| There are more important priorities to focus on than efforts to mitigate AGW. | Money could be better spent on 'real' problems. | <i>AGW is a fictional problem that is taking resources and attention away from real issues like healthcare, education, infrastructure, the military, the environment and worldwide human tragedies.</i> | "Our province and our nation should not be spending monies on hypothetical problems when we have actual problems that need addressing" (FOS Newsletter, March 2011) |
| | There has been an incredible waste of resources to date. | <i>Vast sums of money have been spent in the world to research, negotiate and act on this fictional problem. It has had no benefit to the environment or any real world problem and hence is a vast waste of resources.</i> | "the world spent more than \$1 trillion reducing CO₂ emissions over the last 10 years for no benefit" (FOS News Release, August 1, 2012) |
| AGW theory is not widely accepted. | There is no scientific consensus. | <i>There are tens of thousands of scientists who disagree with AGW theory, particularly Catastrophic Anthropogenic Global Warming (CAGW). More research is coming out that refutes AGW theory every year.</i> | "the science of global warming is far from settled, in spite of what the Kyoto supporters would have us believe" (FOS Newsletter, Jan 2007) |
| | The skeptic position is increasing at all levels. ³⁴ | <i>The public, policymakers, and the scientific community are increasingly questioning AGW theory. Governments are backing out of 'green' policies, and public opposition is mounting against public policies attempting to mitigate AGW. Skeptic message is being more widely heard, more and more skeptics arising.</i> | "about 50% of the population do not accept the teachings of the Church of Gore but are now beginning to understand reality" (FOS Newsletter, Sept 2011) |
| The promotion of AGW theory is part of a widespread conspiracy. | The theory and movement of AGW have co-opted institutions of science, institutions of education, political processes, the media, and cultural sensitivity. | <i>Scientific dissent and debate have been stifled and crushed by political maneuvering, biased focus groups, and special interests. This has led to a widespread acceptance that the science is settled when it is not, resulting in misinformation propagation from national governments to elementary school curriculums.</i> | "our politicians seem determined to accept the model predictions of the IPCC, which show the contrary [of a cooling climate]" (FOS Newsletter, June, 2009) |

³⁴ Here the term skeptic is used rather than denial because it is what the texts specifically argue.

| Central Message | Sub-argument | Synthesized claims and arguments | Supporting quote |
|--|---|---|---|
| The promotion of AGW theory is part of a widespread conspiracy. | There is a bigger agenda at work. | <i>The AGW movement and special interests who have been most active in promoting the theory AGW have hidden interests and agendas. Its aim is suspected to promote a more socialist agenda, potentially moving towards a world government. At the very least it is due to their own interests (e.g., green energy, promoting deep ecology values).</i> | “many of the parties supporting carbon emissions reductions, carbon taxes, or cap ‘n trade, have hidden agendas” (FOS News Release, August 1, 2012) |
| | AGW theory and the false scientific consensus have been incorrectly portrayed as valid. | <i>Certain institutions in the scientific establishment (IPCC, NASA) have pushed out debate and controversy about AGW theory (e.g., papers not published and grants not given to dissenters of the theory), with the result that there appears to be a unified consensus. Proponents have, at the same time, mishandled, lied, and fabricated data in order to convince others of the validity of AGW theory and the degree of apparent consensus. This unethical, corrupt and at times illegal activity has now resulted in the widespread acceptance of AGW theory.</i> | “They were deleting, hiding, and ignoring data that contradicted the theory, conspiring to illegally avoid freedom of information requests, corrupting the peer review process to prevent the publication of contrary data and views, while privately expressing grave doubts about the validity of their own CAGW theory.” (FOS News Release, June 6, 2012) |
| Policies to mitigate AGW are doomed politically. Thus it is an exercise in futility. | International considerations make a global agreement unlikely. | <i>International agreements and conferences (e.g., COPs) continually show that nations generally are not following pledges or doing anything substantial to act on reducing emissions – despite promises. There is a stalemate in that developing countries want a hand-out and do not want to be burdened by emission controls, while industrialized countries feel that everyone needs to participate. There is no point in following agreements like Kyoto if everyone is not on board – it amounts to self-sacrifice and will have no impact on the end result.</i> | “the group with the most to gain from the process are the fast-growing emitters – Brazil, South Africa, India, and China – wanting to extract billions in climate reparations from the rich countries but without reducing their own emissions.” (FOS Newsletter, Dec 2011) |
| | National considerations make a global agreement unlikely. | <i>In many nations there is large political opposition towards implementing climate policies at a national level (e.g., the US, Australia, UK), making it unlikely that all developed nations will be able to implement meaningful climate policies.</i> | “[Julia Gillard] is ramming a carbon tax through parliament. [...]Protests around the country are growing, with the leader of the opposition vowing to scrap the carbon tax if elected.” (FOS Newsletter, Sept 2011) |

Central Economic Messages

Last the FOS texts make numerous claims that fall into an economic category. Under this economic theme, the FOS texts essentially argue that climate policies trying to reduce CO₂ emissions will hurt our economy. Although many specific economic claims are made, they all support a single message:

1. Trying to mitigate AGW will result in large and negative economic consequences.

Table 6 - FOS Central Economic Messages

| Central Message | Sub-argument | Synthesized claims and arguments | Supporting quote |
|--|---|--|--|
| Trying to mitigate AGW will result in large economic consequences. | Policies aimed at reducing CO ₂ emissions will hurt the economy. | <i>Carbon taxes, cap and trade, or ideas of carbon neutrality are economically disastrous to institute at a wide level, particularly for Canada. International competition and fairness is jeopardized and markets are distorted. Businesses and consumers/taxpayers will suffer, with large economic consequences. Nations and jurisdictions that have done this are already suffering and are backing out of these commitments.</i> | “ordinary Canadians need to speak out against these economically destructive carbon tax policies” (FOS News Release, May 29, 2012) |
| | Green energy is an expensive myth. | <i>In pursuing green energy (as an attempt to produce energy without emissions) there are several problems: green energy is not financially viable (huge subsidies needed to support it), it often causes more emissions than it saves (through the use of back-up generators and through the production of these green technologies), and due to its small scale and intermittency issues, it cannot realistically provide an alternative to fossil fuels. Thus supporting this industry is a wasteful endeavor that hurts taxpayers and consumers, and has negative economic consequences.</i> | “for every green job created by taxpayer subsidy, another 2.2 jobs are lost in the real economy” (FOS Newsletter, Sept 2012) |

4.1.3 Target Audiences and Changes in Emphasis

There are three audiences for whom different texts appear to have been targeted: a sympathetic audience (e.g., already FOS members), a government audience (parliamentary committees, government institutions, or policymakers), and the undecided layperson.³⁵

A Sympathetic Audience

The FOS texts emphasize certain messages and employ extensive framing patterns with their texts intended for a sympathetic audience. Although all central messages can be found in these texts, there is a distinct emphasis on the messages highlighting the political and economic arguments against acting on AGW. Although numerous scientific claims are put forth, it appears that, as the audience is likely already convinced that AGW theory has significant problems, there is little need to emphasize this category, except to point out new developments or alternative theories. The texts targeting this audience also emphasize how important the “fight” is and how much they rely on continued support.

The texts intended for a sympathetic audience also are consistent in their negative framing of the AGW movement. Indeed, outside of the FOS newsletters, there is comparatively little framing of the AGW movement.³⁶ Additionally, the positive framing of denier organizations, particularly the FOS, is emphasized to this audience, although not to the same degree as the negative framing employed against the AGW movement.

A Government Audience

In contrast, the texts targeting a government or policy-maker audience emphasize the scientific messages. This can be explained by the idea that the government is simply misinformed as to the actual

³⁵ The ‘target audiences’ I refer to arose naturally from my analysis. Certain documents portrayed distinctive characteristics that made them distinct to other documents in the analysis. For example, the “Newsletters” notably framed the AGW movement more extensively than other documents. Thus I felt this category of texts might be addressing a certain audience which could explain this distinction.

³⁶ There are two articles in exception – the FOS response to Hanson, and the summary of Monckton’s address – although the latter is likely to have had a sympathetic target audience.

science behind AGW theory, thus an emphasis on why the theory is flawed, plus an explanation of counter theories, should lead to government and policymakers changing their policies. Consistent with the apparent purpose of this emphasis, the texts frame the FOS in a positive light, but do not engage in framing the AGW movement. As well, the economic and political arguments against acting on climate change are barely mentioned.

The Undecided Layperson

Many documents, as well as pages on the FOS website, appear to be targeted towards people who are ignorant of the science of climate change or who could be persuaded that AGW is an unviable theory. However, the documents that appear to be directed towards this group have few notable features. Most central messages found elsewhere in the texts are found in these texts as well. In fact, the only notable change I have found with this grouping of texts is that there is comparatively little framing of the AGW movement, although the denier side (particularly FOS) does receive significant positive framing. This can perhaps be explained through wanting to appear open and not vindictive towards those who disagree with their position, which in turn could aid in convincing the undecided of the denier arguments.

4.1.4 Framing

As mentioned previously, the audience for whom the texts were intended had a great impact on how framing was employed. Framing the AGW movement in a negative light happens primarily in texts intended for a sympathetic audience (primarily the FOS newsletters). A positive framing the FOS/denier movement happens for all three audiences.

Framing the Advocate Side of AGW

In analyzing the texts one of the first frames that repeatedly emerges is a religious lens, casting the advocate side as followers and believers with fundamentalist beliefs. In invoking repeated metaphors and keywords such as “the church of Gore”, “Al Gorites”, “dogma”, “doom-laden prophecies”,

“acolytes” or the “new religion of global warming” that is “indoctrinating our children”, the texts aim to frame the proponents of AGW as following a type of religion-based ideology that is devoid of critical thought and rational behaviour.

Another prominent way the advocate side is framed is through a lens of extremism. Actors that promote action on AGW are framed as extreme through keywords such as “hysterical”, “radical”, “Eco-fascist”, “alarmist”, “warmist”, “rabid warmers”. Actors on the advocate side are accused of spreading fear (particularly to our children), giving “canned catastrophe talks”, and that if we let them have their way we would live in a world similar to impoverished areas of Africa whereby basic electricity is too expensive to afford (FOS Newsletter, June 2010). The tactics used by the AGW movement are viewed as scaremongering while the actors themselves have extreme views and that what they are trying to achieve will also result in extreme measures (e.g., “eco-gulags” for “skeptics” of AGW).

The advocate side is also framed as being coordinated and effective, with a single purpose. References to the ‘Al Gore Team’, the ‘alarmists’, the ‘warmists’ all highlight the idea that it is a singular group of individuals with a common purpose, that is pushing the advocate side and has produced a concerted effort to undermine those who do not believe in AGW. However the public and government institutions have only been presented “one side” of this scientific issue and thus have followed this movement to the conclusion of a “misguided belief” that has now become so dominant it is “politically correct”. The media has played a key role through promoting these unwarranted views. Within this framing there is a metaphor of a war being waged against the “enemies” where the “battle” is still being fought, and the “war is not yet won”. Using the war metaphor also emphasises the claim that the “alarmists” are losing, in addition to strengthening the idea of joining the “winning” and righteous side who, in this case, are also the underdogs (FOS Newsletter, June 2009).

Last, the advocate side is framed as distrustful, devious, and self-interested through a moral or ethical lens. References to “data doctoring,” misleading the public”, “refusing to debate their position”, engaging in “criminal and unethical activity”, making “fundamental blunders”, and having scientific claims full of “critical errors”, are abundant in the texts and, in addition, advocates are accused of following their actions for selfish reasons. Al Gore is a frequent target (making lots of money by scaring people around the world), as is the IPCC and notable climate scientists (scaring people so more money is allocated for their research). Indeed, one of the explanations FOS gives in explaining why the belief in AGW is so widespread is because there are many “influential economic, academic, political and cultural interests vested in this theory” (FOS Newsletter, Sept. 2009).

Framing the Government and the Media

Although these two sets of actors are not often directly framed, the texts both highlight how they have, knowingly or not, aided the AGW movement. Certain governmental organizations are directly criticized for promoting AGW (e.g., Environment Canada) and for not following sound policy by favouring the controversial AGW climate science. The media is framed as being predisposed towards sensationalist news, thus favouring the AGW movement.

Framing the Denier Position

In stark contrast to how the AGW movement is framed, the texts frame the FOS and the denier cause in general in very favourable lighting. The first and most dominant frame employed is one of rational thought and openness. The FOS in particular is framed as open to engagement, of encouraging debate, and of being able to understand the complex science and decipher the central points that unequivocally refute the central theory of AGW. The theme of Truth is large in this framing technique as the FOS, and

“skeptics” (deniers)³⁷ in general, are seen to be promoters of the Truth. The texts argue that “skeptics” should be referred to as “realists” that are engaging in “well-grounded skepticism” that are critical of insufficient evidence, and refuse to go along with the “bandwagon”. Indeed, simply the constant referral to the term ‘skeptic’ as opposed to ‘contrarian’ or ‘denier’ frames the FOS position as seeking truth and weighing all the evidence (FOS Newsletter, Sept 2012).

This brings me to another prominent frame found in the texts, one of victimization and innocence. There are numerous references to how the FOS in particular, although the texts do mention others, has had “smear campaigns” against them, despite their innocence. They are often framed as victims of the AGW aggressive campaign to shut off debate and maintain that their actions are innocent and that the attacks against them are of an ad-hominem nature and without substance (FOS Newsletter, Sept 2011). In this way the texts also frame the actors of the denial side as courageous and brave in standing up for what is right (Truth) despite having the deck stacked against them – a sort of David and Goliath situation.

Lastly the FOS and denier movement in general is framed as waging an effective and legitimate campaign (or battle) in this discursive struggle. The texts emphasize the growing skeptic movement in every newsletter, as well as in numerous other documents, and are keen on demonstrating how their actions have had results (e.g., a radio campaign followed by hits to their website). The texts also note that they are working hard to sway the public and the policymakers on this issue, emphasizing volunteer aspects of the organization and how it is run purely on donations (FOS Newsletter, June 2009).

4.1.5 Underlying Themes

In this analysis four major underlying themes were discovered. The first and most prominent theme is the concept of rationality and the search for truth. Rationality and calm-deliberative thought is praised

³⁷ Skeptic is a term that is described earlier and which I believe to be inappropriate, as discussed earlier in the thesis. However, the texts exclusively use the term skeptic, and do not mention the term denier when describing their position.

and reinforced as the most beneficial way to look at arguments and this new proposed phenomenon of AGW. Indeed, FOS texts make hundreds of “truth” claims, which logically support their arguments. Similarly the search for and promotion of ‘Truth’ is framed as an overwhelmingly positive trait for society to appreciate. Those who are skeptical of the concept of AGW are framed as falling into this theme (interested in the pursuit of ‘Truth’), while those who are advocates are framed as well outside of this theme (AGW advocates are not interested in the ‘Truth’). For those who praise rationality and scientific inquiry, the prevalence of this theme adds to the persuasiveness of the storyline.

The next prominent theme found is the concept of individuality and choice. The texts promote the concept of the individual and seem wary of large organizations – often depicted as corrupt, political, and wasteful. This is related to the dominant narrative in terms of favouring a more neo-liberal economic perspective, with less regulation and government interference, as the desirable model that maximizes overall benefit. Yet it also appears in the emphasis of FOS being an independent organization with no ties to a bigger agenda, industry, or a movement (unlike their opponents). Last, the individual in society is promoted as being rational and independent from dogma or superstition, and thus the target audience often feels empowered to make their own decisions – presumably enforcing the idea of getting off the ‘bandwagon’ of AGW.

Next, and in direct opposition to the previous theme, is the underlying theme of conspiracy. Here I mean to say that the texts allude to a dominance of a specific worldview (that AGW exists and we need to do something about it) that has come about through political means, that has no real scientific basis, and that those who voice opposing arguments against AGW are consistently ostracized. The texts often indicate that the public/policymakers/organizations have been misled, that the whole idea of AGW is an elaborate hoax, that climate change is part of a bigger agenda (presumed to be more socialist in nature) and that the education system, as well as misled policymakers, are reinforcing this agenda.

The last major underlying theme that arose in this analysis is the dichotomy of uncertainty and certainty. In essence, the science is portrayed as conflicting and uncertain, while the costs and impracticalities of climate policies are portrayed as very certain. Indeed, throughout the texts the science of AGW is reinforced as being uncertain and that policy changes, particularly large sweeping policy changes, should not be based on anything less than the absolute certainty of necessity. In contrast, the texts reinforce the idea that any policy promoting the reduction of emissions due to belief in AGW is certain to have large and sweeping negative outcomes, particularly for Canadian taxpayers and businesses.

4.1.6 Issue-Categories

In my analysis of the FOS texts four central issue categories arose: science, economics, politics and ethics. Each of these categories was used effectively to add to the persuasiveness of the central storyline, and is thus an ‘effect of truth’.

First and most notable is the issue-category of science. Ironically the texts use the common understandings of science to justify a message that is in opposition to mainstream scientific opinion. My findings show that these texts use the language of science, cite scientific studies, and even use scientific experts to increase the appeal of their storyline to the reader. The scientific discourse is employed extensively by the texts to convey authority and truth on a subject. The FOS promotes the idea that scientific “facts” are why the theory of AGW is flawed. By following the scientific method, anthropogenic climate change is refuted because there is so much evidence that is brushed aside by the AGW movement. Indeed, the texts emphasize corruption and inaccuracy of climate science (that climate science itself does not follow the basic principles of science) in order to discredit the theory of AGW.

Second, but highly related to the issue-category of science is the issue category of economics. The texts use this issue-category in order to persuade the reader as to why we should not act on climate change – because of the economic cost. The misguided climate policies of governments will hurt the economy and

by extension the reader should be concerned. Indeed, the idea that climate policies could have catastrophic economic consequences may be the best way to catch the reader's attention.

In contrast the issue category of politics is employed by the texts to cast doubt and uncertainty on the character and statements of those opposing the storyline (e.g., AGW scientists, governments, green NGOs). The issue category of politics, particularly in describing international political events, is also used to show the futility in acting alone in mitigation efforts, and to argue how an international agreement is virtually impossible.

Last, the issue-category of ethics is employed in order to give moral authority and weight to the FOS storyline. Most effectively seen in how the texts frame proponents or opponents of the storyline, the use of the ethics category tugs on the emotions and sense of justice of the audience, again helping to persuade the reader. The issue-category of ethics is also heavily drawn upon to highlight misplaced priorities (doing more harm than good), highlighting the immoral actions of the AGW movement, and the righteousness of the "skeptic" cause.

4.1.7 Changes Silences and Inconsistencies

Notable Changes over time

As mentioned previously, due to the nature of my data set I have only one group of documents on which I was effectively able to compare changes in the discourse over time. These are the FOS quarterly newsletters which began in 2007 and have continued to the present. As each document is virtually identical in format it allows for an effective analysis on changing messages, particularly in relation to what is stressed or emphasized and how this is done. While there are notable changes in this particular section of the data set (e.g., increasing political messages as compared to scientific ones), when the entire data set is analyzed there appear to be no significant changes between what has been emphasized over time. For example, the core messages put forth in 2002, 2005, and 2007, are repeated

throughout the later documents, and there is no reliable way to see whether a change in emphasis (e.g., framing of the AGW movement) has occurred for the entire organization. One change, although this may simply be a factor of the nature of the texts available, is that although the same arguments and claims are made throughout, as time progresses more claims and arguments are added. In other words, it seems that earlier messages are constant throughout, but also that more messages are added as time has passed. This supports the idea that this particular micro-discourse of the FOS is both evolving, in that it is growing more complex, and paradoxically simultaneously static, as the core underlying messages continue to remain the same.

Surprisingly the texts also continue to reference figures and treaties that seem to be no longer in the mainstream. For example, it makes sense that the texts often criticized Al Gore when he was 'in the spotlight' in 2006-2009, but as of 2012 the FOS was still targeting Al Gore, even though his public presence has been greatly diminished. Similarly Kyoto continued to be attacked right up until the conservative government pulled out of the accord. Arguments against Kyoto continued to be made, even though it had become quite clear that Canada would not be able to meet its commitments for a number of years before that (Hoggan & Littlemore, 2011).

Inconsistencies

The first major inconsistency that this analysis has identified comes in the form of differing numbers. Various and contradicting dates and numbers are found for many of the texts' central messages. For example, one text may claim that the earth has been cooling since 1998; while another claims it has been 2002, or 2003. Similarly, the accusation that models are inaccurate rests on shifting numbers (sometimes the models have increased real values by 4 times, sometimes by 6 times), as does the effect CO₂ has in the atmosphere (it has had no effect, some, or it is responsible for up to 25% of the heating). Is the ocean's heat capacity to absorb the intensified sun's radiance of the 1980s two decades, or one

decade? There are numerous examples of simple claims that have differing numbers or percentages attached to them. Normally this was found over a selection of documents, although sometimes even within the same document (see Appendix 4 for an example).³⁸

Second are the basic argument inconsistencies. The most obvious example of this type of inconsistency is the lack of a coherent theory explaining global warming. For example: if CO₂ is inconsequential than why are negative feedbacks important? Is the sun responsible for global warming, or is the slow reduction in aerosols responsible? Are cosmic rays and their influence on clouds the main driver of climate change, or is it periodic oscillations of the oceans? All of these arguments are made to explain global warming, although they cannot all be true at the same time.

Last are the more nuanced inconsistencies. These inconsistencies did not appear immediately to me but came with a more detailed study of the texts. One is that if the data records for gauging temperature rise are biased (by the urban heat island effect) then the sun's activity correlating with these temperature records is meaningless. The warming is thus exaggerated when talking about the effect of CO₂ but is totally accurate when discussing the impact of the sun's activity – obviously a contradiction. Clouds and cloud formation dynamics are also given as both a negative feedback and an explanation for why warming has occurred, this again appears counterintuitive.³⁹

³⁸ I am well aware of the probability that these inconsistencies may simply reflect different authors' viewpoints and arguments. However, most FOS documents are simply FOS authored and thus it seems probable that the viewpoints arise from the same small group of people, as the organization is fairly small. Hence, I believe it fair to argue that these are in fact inconsistencies of the micro-discourse these texts represent.

³⁹ I also recognize that the current science on this matter points to the fact that depending on the type and location of clouds it may have a positive or negative feedback effect in regards to the Earth's temperature. However the FOS texts simply state that either increasing cloud cover is the reason why warming has happened, OR that cloud cover will increase as the Earth warms up thus creating a negative feedback through the increased albedo.

Silences

Silences are of course a very subjective category to incorporate into this analysis. However, a few notable silences have arisen. The texts under study fail to counteract large scientific organizations that have endorsed AGW theory (such as the National Academies of Science or NASA) or even mention them, although they have certainly attempted to counteract the message from the IPCC. The texts have not discussed any apparent “facts” backing up AGW theory, except for ones that they then discredit. Last, and perhaps this is too obvious, they do not provide any room for the debate they seem to be open towards – AGW theory is false, all the evidence points this way. Indeed, the language of certainty is often used when discussing how AGW theory is wrong, in effect silencing the possibility that AGW theory may be right. These silences are not unexpected as they are part of an argumentative discourse, thus highlighting facts or arguments against the storyline would be counterintuitive, and might detract from the force and persuasiveness of the texts.

4.2 Analysis Results for Fraser Institute texts

4.2.1 Storyline and Narrative

The central storyline or macro-argument made by the Fraser Institute can be summarized as follows:

Due to the significant uncertainties and unknowns of climate science, emission reduction policies are unwarranted but will cause inordinate economic damage if enacted. All claims, messages, and frames employed by these texts are united by their relation to the above statement. Hence it is a storyline or macro-argument of this particular discourse.

The dominant underlying narrative employed by these texts is one of economic progress. For example, our history is seen through the lens of improvement or advancement – from the past to the present and that this will continue into the future. The concept of wealth creation is the underlying rationale, taken

for granted as being highly beneficial and common-sense. Indeed, this narrative argues that the pursuit of wealth creation has allowed society to flourish and has led to a host of social and environmental benefits. The narrative then promotes the idea that the best way to address world poverty, health issues, environmental concerns, and social inequalities, is to promote economic growth. As GDP rises, history has shown that environmental benefits and social benefits follow quickly behind. Lastly, future concerns (such as climate change impacts) are only a concern if economic growth is impacted by them. In other words, in the future (assuming constant economic growth and progress) societies will be much more resilient to any climate issues, and will have the technology to easily transfer over to less-carbon intensive societies if it is deemed necessary at that time. This underlying narrative shapes how the organization views climate change and climate-related policies – through a distinctly economic lens.

This narrative is also heavily linked to protecting the Dominant Social Paradigm and to a particular neoliberal economic version of this paradigm. The ‘market’ is portrayed as an impartial and efficient phenomenon that will provide the best options, and is where we should look to assess risk (i.e., if there is no ‘risk’ of carbon emissions seen on the market, then there is no risk to society). In contrast to this conception of the ‘market’, are invasive government policies, particularly regulatory policies. These are portrayed as political, inefficient, unintelligent/poorly researched, self-motivated, and cumbersome. Most importantly, however, policies leaning towards emissions controls or carbon taxes are viewed as costly to economic growth as they would impact all sectors of society and lead to a decline in overall wealth accumulation and economic progress. Thus, according to this underlying narrative the texts highlight that policies which hurt economic growth in order to counteract an environmental threat will actually result in a worse environment in the long run. As such these policies do not make rational sense.

Following from this dominance of the economic lens, the metaphor of the economy is regularly used as a way of simplifying this perspective. For example, texts emphasize the health and importance of ‘the economy’ thus giving the reader a sense that it is a ‘whole’ of sorts, a complete entity that we can have large impacts on. It is something that requires protection and certain types of action to remain stable. Thus the texts imbed this term with common-sense values, and a taken-for-granted reality and assume that the direction (growth or shrinking) of the economy is something we can predict or at least understand. Climate change can then impact this entity through either climate policies or through the actual physical impacts of a changing climate. The economy metaphor is also often effectively contrasted to the government metaphor – where ‘the economy’ is impartial, efficient and productive, ‘the government’ is the opposite. Like these metaphors ‘the market’ is another term that is treated as a reality rather than the product of social construction. All of these terms and metaphors strengthen the narrative put forward in this set of texts.

4.2.2 Central Messages

The following section displays the main messages or arguments of the Fraser Institute that support the storyline: *Due to the significant uncertainties and unknowns of climate science, emission reduction policies are unwarranted but will cause inordinate economic damage if enacted.* These central messages are the result of synthesising the most frequent claims and messages of the data set into the overarching ‘take-home’ messages for the reader. The messages are organized into three categories: Economic, Scientific, Political/Social – roughly reflecting the order of dominance of each category found in the texts. Like the previous section of the chapter, under each section of claims I have provided a table. Here the central messages are supported by sub-messages, which are composed of summarized claims. Supportive quotes are provided as evidence (for further evidence please see Appendix 3).

Central Economic Messages

The most frequent claims made by the FI texts fall under an economic theme. These economically-oriented claims collectively argue that climate policies are unwarranted because they will result in large-scale negative economic consequences without any significant accompanying benefits. In addition, regardless of the validity of AGW theory, economic growth is the best way to reduce poverty, to adapt to future problems, and to deal with environmental concerns. Thus, through a market-friendly lens, government intervention in the economy should be avoided whenever possible as it distorts the market. Hence, the economic claims which the FI texts produce have been synthesised into four central messages:

1. Policies limiting emissions will entail a high economic cost.
2. Under a cost/benefit scenario emission reductions have high costs but few benefits.
3. Economic growth through market-based solutions is the best policy to follow.
4. Market distortion, through government intervention, should be avoided.

Table 7 - FI Central Economic Messages

| Central Message | Sub-Argument | Synthesized Claims and Arguments | Supportive Quote |
|---|--|--|--|
| Policies limiting emissions will entail a high economic cost. | Kyoto and similar CO ₂ reduction policies will shock the economy. | <i>Regulating CO₂ emissions will cause energy and fuel prices to increase dramatically which will have a high cost on the economy. The higher the carbon tax (or related policy) and how fast it is introduced, the higher the consequences will be. To achieve Kyoto would be a complete shock to the Economy.</i> | "any attempt to meet Kyoto through a crash-course plan over the next 5 years will result in unacceptably high costs" (Fraser Forum, Welcome Back Kyoto, 2007) |
| | Cheap energy is the foundation of our economic growth. | <i>Our economic system is built on abundant and cheap energy combined with economic freedom. Carbon emissions regulations would destroy that foundation by enormously increasing the cost of energy and limiting our economic freedom.</i> | "Imposing higher costs on energy generally slows economic growth" (Greenhouse Gas Reductions, 2003) |
| | International trade will decrease. | <i>By partaking in emissions controls a nation will lose their competitive advantage to nations that do not follow these regulations. This will result in protectionist measures being implemented, worldwide economic loss and even trade wars.</i> | "costly regulations would likely drive domestic businesses abroad to countries with less stringent requirements" (Fraser Forum, Regulating Greenhouses Gases, 2004) |

| Central Message | Sub-Argument | Synthesized Claims and Arguments | Supportive Quote |
|---|--|---|---|
| Under a cost/benefit scenario emission reductions have high costs but few benefits. | Emission Reductions will have no effect or tangible benefit. | <i>There are no benefits to emissions reductions policies. Any local carbon reduction policies will have a minimal effect on the total human CO₂ emissions of the planet. Even if all nations signed onto Kyoto and followed through with their commitments, it would still fall well short of the CO₂ emission reductions being called for. If climate change is a natural phenomenon there are no benefits to these types of policies, and if it is human made the policies will not be enough to ensure future benefits.</i> | "even if all the countries named in the protocol were to reach their targets, global warming would only be delayed by a very limited amount of time" (Fraser Forum, A Skeptics View on Climate Change, 2008) |
| Under a cost/benefit scenario emission reductions have high costs but few benefits. | Governments have limited resources – should not be spent on CO ₂ emission policies. | <i>Governments have limited resources and must make hard choices with these resources. CO₂ reduction policies divert scarce resources towards a hypothetical problem which could amount to a fruitless policy or, more likely, a harmful policy.</i> | "[climate policies may] divert scarce resources into potentially fruitless, or even harmful policies that hurt individuals by raising the costs of energy" Greenhouse Reductions not warranted, 2003 |
| | Policies based on future consequences are of limited value. | <i>Basing policies on supposed future benefits to supposed future risks is not good policy when there are problems that can be targeted with effective policy now which would have a real impact (e.g., on hunger, malaria, environmental protection).</i> | "[adaptive management] would advance human and environmental well-being further and faster than costly but ineffective policies such as the Kyoto protocol and even costlier policies directed towards stabilizing greenhouse gases" (Adaptive Management to CC Risks, 2007) |
| Economic growth through market-based solutions is the best policy to follow. | Economic growth makes us more prepared for future risks. | <i>As GDP rises the health of people and the environment also rises. Poverty, hunger, malaria, coastal wetland protection, etc. are all best addressed through economic growth. Wealthier societies are more resilient and less vulnerable to future threats, including any climate change threats. With more economic growth the future will see more wealth accumulation and thus more resilience to deal with future threats.</i> | "future generations are expected to be many times wealthier than we are today" (Fraser Forum, Economists Respond to the Stern Review, 2007) |
| | Follow a no-regrets policy. | <i>Policies should follow a no-regrets approach, where the policy makes sense to do regardless if there is climate change or not (e.g., ending fossil fuel subsidies).</i> | "the government should also implement policies that would be justifiable even in the absence of climate change" (Adaptive Management of Climate Change Risks) |

| Central Message | Sub-Argument | Synthesized Claims and Arguments | Supportive Quote |
|--|--------------|---|---|
| Market distortion, through government intervention, should be avoided. | | <i>Subsidies to green technology are wasteful as they do not achieve a substantial net reduction in CO₂ and are not able to match industrial society's needs. Green energy in particular is not commercially viable and cannot compete with standard energy sources. Green energy faces currently unsolvable problems for its widespread use and these new technologies often come with unanticipated problems (e.g., fuel-efficiency and cars = more deaths from lighter vehicles).</i> | "massive amounts of public and private money have been and continue to be spent on research in Canada and other countries to develop clean energy sources. [...]but renewables] continue to require heavy subsidies" (Fraser Forum, Greenhouse Gases and Recycling, 2007 |

Central Scientific Messages

Under a scientific theme, the FI texts have produced numerous claims highlight how AGW science is problematic, biased, and that it discounts other factors for explaining global warming. Thus, these claims have been synthesized into two central messages:

1. Climate Science is dubious /'junk science'.
2. AGW theory trivializes other factors explaining global warming.

Table 8 - FI Central Scientific Messages

| Central Message | Sub – Argument | Synthesized Claims and Arguments | Supportive Quote |
|--|---|--|--|
| Climate Science is dubious / 'junk science'. | Climate science does not follow the scientific norms. Corrupt practices in place. | <i>Climate science often does not follow the scientific method and relies too much on models that cannot hope to mirror reality and are frequently wrong. Climate scientists have been engaged with criminal and fraudulent activity (e.g. climategate), often manipulating and hiding data to suit their pre-determined hypothesis. The IPCC is a non-transparent political institution that has corrupted the science.</i> | "the unfounded claims in the UN assessment, coupled with the CRU e-mails, reveal a concerted effort to masquerade propaganda as scientific fact in order to convince the world of a scientific consensus" (Fraser Forum, Global warming on trial, 2010) |
| | There are extensive data management issues in climate science. | <i>The hockey stick has been refuted, the urban heat island effect has huge implications for historical temperature data that are not adequately accounted for, and there is an inadequate data base from which to draw global conclusions (positions of stations, number and changes in stations, sparse + inconsistent data, discrepancy between different types of data (surface vs. satellite).</i> | "the trend estimation techniques used in recent IPCC Assessments likely overstate the statistical significance of observed changes and the results of trend analysis often depend on the statistical model used" (ISPM, 2007) |

| Central Message | Sub – Argument | Synthesized Claims and Arguments | Supportive Quote |
|--|---|--|---|
| Climate Science is dubious / 'junk science'. | No proof that CO ₂ causes warming. | <i>No proof of CO₂ having an effect on the climate. There is a missing sink that we can't account for – highlights how little we know.</i> | "there is no proof of a direct link between human-caused emissions of CO₂ and global warming" (Fraser Forum, Global Warming on Trial, 2010) |
| | The warming effect of CO ₂ is exaggerated. | <i>The amount of anthropogenic emissions of CO₂ is miniscule compared to the amount of CO₂ that is in constant flux as part of a natural cycle. The emission scenarios are exaggerated thus the climate scenarios are exaggerated. Models are highly problematic as they often exaggerate CO₂ forcing and future risks.</i> | "many of the assumptions used in modeling the climate are of dubious merit, with biases that then to project catastrophic warming" (The Science isn't settled, 2004) |
| Climate Science is dubious / 'junk science'. | Observed weather phenomena contradicts AGW theory. | <i>There has been no warming in the last 15 years, and no globally consistent pattern in the long terms trends of Antarctic Sea Ice, storm intensity, or precipitation. More snowfall and colder temperatures in certain locations is evidence against AGW.</i> | "contrary to global warming theory there's no trend in Montreal toward warmer temperatures" (Fraser Forum, Cars and Climate Change, 2008) |
| AGW theory trivializes other factors explaining global warming (natural and human) | The sun and cosmic rays could be causing climate change. | <i>The sun and total solar irradiance can explain much of the warming of the last century and correlates better with temperature than CO₂ does. New research highlights the combined effect of the sun's output and cosmic rays – which also can explain the warming.</i> | "it may be that, [...], solar variance is a much more important driver for climate change than is currently assumed" (Supplementary Analysis for ISPM, 2009) |
| | The oceans movement can partially explain the warming. | <i>The oceans are not well understood but multidecadal oscillations likely have a large effect on global temperatures. The warming effects of more frequent El Ninos can explain much of the temperature rises in recent years.</i> | "multidecadal oscillations in the Pacific and the Atlantic [...] can explain much of the temperature variances of the past 110 years" (Sup. Analysis for ISPM, 2009). |
| | Climate has changed before naturally due to our position in space. | <i>The current global temperatures are well within the range of natural variability. The Earth's rotation and position in space could be changing, and this would have large effects on the climate.</i> | "the most recent warming pales in comparison to past climatic shifts" (Lesson Plans for the classroom, Chapter 5, 2009) |
| | Land-use change and the production of aerosols are not accounted for. ⁴⁰ | <i>Land use change by human activity (e.g., deforestation, agriculture) has dramatic effects on the warming of the planet (e.g., by reducing albedo, or modifying local climate conditions) that are largely unaccounted for in AGW theory. Aerosols also have a huge impact that is largely unaccounted for in AGW theory.</i> | "changes in the land surface over the 20th century have likely had large regional and possibly global effects on the climate, but the effects do not fit into the conceptual model used for assessing AGW" (ISPM, 2007) |

⁴⁰ This argument is given as an example in the silences section whereby the texts highlight a partial 'truth' to promote their argument. Land-use change for example does have a powerful effect on the climate, but it is also a part of AGW theory.

Central Political Messages

Last, the FI texts make many politically-oriented claims. These claims collectively argue that past emission-control measures have largely failed as countries will not act against their self-interest and the political obstacles are too great for meaningful policy. Thus, future climate policies are likely fail as well. In addition, climate policies are distinctly unfair – both for Canada (as opposed to other nations), and for the poor in general (as they will be most affected by these policies). Furthermore, these politically-oriented claims aim to persuade the reader that there is substantial disagreement on why the climate is changing, and that climate threats are generally exaggerated. Hence, these claims have been synthesised into five distinct messages:

1. Emission control measures have not worked and will not work.
2. Climate change policies are inherently unfair.
3. The scientific community is divided on the issue. .
4. Climate change threats are exaggerated and suspicious.

Table 9 - FI Central Political Messages

| Central Message | Sub - Argument | Synthesized Claims and Arguments | Supporting Quote |
|--|--|---|--|
| Emission control measures have not worked and will not work. | Climate policies are hypocritical. | <i>National emission reduction policies have been hypocritical thus far for the simple reason that governments do not want to harm their national economies. (Canada's weak campaign, EUs cap + trade with too many allocated credits, Norway's carbon tax exempting key industrial players).</i> | "[Norway's carbon tax] exempted a broad range of fossil fuel intensive industries, such as metal production, where the tax would have had the most impact" (Fraser Forum, Small successes in Changing Climate Policy, 2007) |
| | Climate policies have not been well constructed. | <i>Driven by politics and poor science, climate policies have not been well constructed or analyzed in terms of their economic impact. In addition, emission controls are very difficult to accurately regulate (too many loopholes, too much bureaucracy).</i> | "the government of Canada intends to impose on citizens the world's toughest greenhouse gas regulations without an accurate accounting of either the costs or benefits" (Fraser Forum, Turning the Wrong Corner, 2008) |

| Central Message | Sub -Argument | Synthesized Claims and Arguments | Supporting Quote |
|--|--|---|--|
| Emission control measures have not worked and will not work. | The political obstacles facing a global emissions agreement are tremendous. | <i>To halt emissions worldwide is an impossible task. To achieve global reductions with everyone on board (no exceptions for developing countries) to the level called for is also a near impossible task.</i> | "even the impossible task of halting climate change, the costs of which would dwarf the annual \$165 billion estimated for achieving the Kyoto Protocol..." (Adaptive Management of Climate Change Risks) |
| Climate policies are inherently unfair. | Climate policies hurt the poor the most. | <i>Emission controls and associated economic costs will impact the poor the most by increasing the price of basic commodities such as food and electricity.</i> | "higher energy costs would hit low-income and fixed-income households the hardest" (Fraser Forum, Turning the Wrong Corner, 2008) |
| Climate policies are inherently unfair. | It is particularly difficult for Canada to reduce emissions. | <i>Canada's situation makes emission regulations more unfair for our country than others (e.g. natural-resource based economy, so much renewable energy production already (hydro)). Developing countries are not involved giving them an unfair advantage.</i> | "the cost of meeting the Kyoto targets was much higher for Canada then for almost all other countries" (Fraser Forum, Small Successes in Changing Climate Policy) |
| The scientific community is divided on the issue. | <i>The evidence for AGW is mixed with many scientists changing their position on AGW theory based on new evidence. Other equally valid hypotheses can explain global warming. Whether AGW exists or not is really just a 'judgement call'.</i> | | "there are considerable uncertainties and scientific debate about the causes of climate change and what it may portend for the future" (Fraser Forum, Facts not Fiction, 2008) |
| Climate change threats are exaggerated and suspicious. | Bigger agenda or goal behind use of these threats. | <i>The climate threat is exaggerated and politically motivated by self-interested individuals often with a socialist agenda. Actual 'threats' (malaria, hunger) are better addressed in other ways than through climate mitigation.</i> | "[Al Gore's books] together constitute an environmental manifesto of governmental expansion" (Fraser Forum, Eco-extremism 2008) |
| | Environmental goals seem to remain the same. Just the cause changes. | <i>The advocates of AGW are calling for the same measures and policies as those 30 years ago. It points to the idea that AGW is just another way for their alarmist claims and extreme measures to gain traction.</i> | "What makes us think that environmental alarmism is any more correct today, now that environmentalists have switched their tune to man-made global warming" (Fraser Forum, Environmentalist's wild predictions, 2008) |

4.2.3 Target Audiences

The target audience for the Fraser Institute texts is somewhat unclear, they have a substantial number of subscribers, they occasionally host conferences or speakers, and their messages certainly receive a more sympathetic audience from those of a more right-wing persuasion. However, as a think-tank/research organization their online documents do not seem to be targeted towards a particular audience, but more towards the general public. That being said, it is important to note the differences between the two main types of documents under study: *Fraser Forum* articles and Research Studies (please see Appendix 1 for a list). While the Research Studies primarily looked at the science of climate change, mostly by highlighting unknowns, uncertainties, and flaws, the *Forum* articles focused on issues of economic cost, social problems and the role of government, and engaged more in the process of framing the AGW movement. I speculate then that the research studies are intended for a more climate-science oriented audience.

4.2.4 Framing

In my analysis of Fraser Institute documents I was unable to find evidence that certain texts were targeting a distinct audience. However, it is important to note that the use of framing occurred much more frequently in the *Fraser Forum* articles, rather than the Research Studies.

Framing the Government

By far the most prominent framing employed by these texts is towards the national government of Canada, although other national governments and regulatory bodies are also framed in a similar way (e.g., the US and EPA). Consistent with neo-liberal economic theory, government intervention in the economy through proposed climate policies is highly criticized. The texts frame the government in three central ways: untrustworthy, inept, and self-interested.

The texts frame the government as untrustworthy by highlighting how the government has manipulated public opinion and science towards its views. The government is framed as having downplayed economic risks while exaggerating hypothetical climate change risks in order to push through poorly thought out policies. Government emission reduction policies are also explained as policies that will have grave economic consequences, that will affect the lay-person's standard of living and reduce their economic freedom of choice.

The government is also framed as being inept. The texts highlight how the policies proposed by government institutions are poorly planned, either in terms of how they will be implemented or through not fully understanding of the economic and political consequences these policies will have. The policies are often criticised as lacking a basic cost/benefit analysis, and thus are an example of extremely unintelligent public policy. How democratic governments work is also explained as a reason for the adoption of these poor policies (in terms of trying to satisfy numerous constituents – i.e., environmentalists) and how politicians often follow popular opinion rather than rationality. Yet the texts also argue that current policies have been largely ineffectual because the governments instituting them have behaved very hypocritical by not actually wanting to harm their industrial base. Lastly, the texts frame the government of not understanding the basic climate science – choosing only one side, and ignoring non-AGW ideas.

The final way the government is framed is through the lens of self-interest. The regulatory policies proposed or those already in action are seen as an expansion of bureaucracy and power. Governments and particularly governmental regulatory bodies are portrayed as self-interested by abusing their power and pushing towards a system that ultimately sees much more government involvement in people's lives. This frame is employed help to explain the “aggressive” and “hostile” behaviour of government

bodies, and politicians, towards those who are against the theory of AGW and policies aimed at mitigating AGW.

Framing the AGW movement

The AGW movement as I define it consists of anyone who believes in AGW and wants to enact policies towards addressing the issue. It can include environmentalists, lay-persons, politicians, professionals, scientists, and organizations. The texts frame this group of actors in three central ways: uncritical, idealistic, and deceptive/untrustworthy.

The texts frame the AGW movement as uncritical by highlighting how their actions and opinions are often poorly conceived. For example, although they may feel their 'extreme views' are warranted, this extremism alienates many that might be sympathetic to their views, and has also created a large social opposition towards this extremism – thus they are working against their own interests. The texts often highlight how the 'green energy' promoted by the AGW movement is full of problems and often has significant environmental issues associated with it. Lastly, but likely most frequently the texts highlight how the AGW movement does not really understand the consequences of what they are advocating for, (e.g., higher energy costs having disastrous effects on third world poverty).

Closely related to the first frame employed is the idea that the AGW movement is far too idealistic. The texts argue that this movement has ideas that are not based in reality, and are clueless as to how the real world works. Most often this is seen in the context of the economy and how reducing the CO₂ emissions of an entire economy cannot simply be done overnight – and that any extreme policy would plunge the economy into a deep recession. The texts frame the AGW arguments for green energy and social change as conceptual ideas that will never work or have the desired outcomes.

Lastly, the AGW movement is also framed as being highly deceptive. The advocates of AGW theory exaggerate the threats of climate change in order to receive more sympathy for their views – in effect

they are scaring the public to their side. While exaggerating the threats this movement also sidelines the possible benefits of climate change. Their prophetic claims are eerily similar to past apocalyptic predictions (e.g., global cooling) and yet they claim the same “green” ideas as solutions to this new crisis.

A separate part of the AGW movement is the IPCC and various climate science organizations which have generally been framed by the texts as untrustworthy. The IPCC (and certain climate scientists) are selective in the data they use, ignore problems with the data, are overly reliant on models that have limited functionality, exaggerate threats by creating unrealistic scenarios, and show very limited consideration to natural factors outside of AGW theory. This leads the reader to see their conclusions as biased, and not up to the standards of scientific rigor they claim to ascribe to.

Framing the Media

The media is framed by the texts as biased towards the AGW hypothesis. The texts argue that the media often highlight inaccurate information, and that it is predisposed towards highlighting doomsday scenarios, as this gets the attention of the public. In this sense it is and has been misleading the public towards a certain conclusion that is completely unwarranted.

Framing the Fraser Institute

Limited mention is given to other denier organizations or individuals who go against AGW theory (the exception being a few scientists); however, the Fraser Institute itself is framed in the texts as being an independent think-tank that is comprised of trustworthy experts who do research to further the well-being of Canadians. It is framed as being quite objective, as it only concerns itself with “the numbers” and simply looks at what the data says to draw conclusions. The texts draw on the ideas of health, environmental values, fairness, alleviation of poverty, and social well-being, which all help to frame the

institute in a certain positive light. These concepts frame the Fraser Institute as a responsible organization promoting a balanced and prudent approach towards a hotly debated topic.

4.2.5 Underlying Themes

This analysis has uncovered four major themes arising in the texts. First, highly linked to the underlying narrative (economic progress), was the notion of rational economic self-interest. The texts used economic concepts to illustrate that acting on climate change was not an economically rational thing to do (largely defined by looking at costs and benefits). For example the allegory of the ‘tragedy of the commons’ was often invoked, not to promote world government action, but to highlight the ineffectiveness of one nation embarking on carbon emissions regulation, while others will not as it is not in their economic rational self-interest.⁴¹ Thus without meaningful climate policies in all major emitting nations, Canada’s emission control policies would do nothing to solve the problem and would simultaneously hurt our economy. Another economic concept frequently used to highlight this theme was that of ‘opportunity cost’.⁴² As governments have scarce resources the texts implied that by embarking on mitigation measures in order to solve or reduce other world issues that would be amplified through climate change, they were forgoing the chance to simply address these other world issues directly. For example, the spread of malaria, which is an anticipated future effect of a warmer planet, could be better counteracted through direct research, funding, and policies, than by promoting mitigation efforts. Similarly, the notion of a cost/benefit analysis was often invoked to highlight ‘better’ and less costly ways of dealing with the threats of climate change than through mitigation (portrayed as having a very high cost with very little benefit). This idea was best seen in how the texts promoted adaptation over mitigation. Adaptation is framed as being cheaper, more effective, and falls into a no-

⁴¹ It is assumed here that using fossil-fuel inexpensive energy will create the best economic growth. Hence it is in every nation’s interest to not switch into costly energy reform (i.e., use of renewables) but use the most inexpensive sources of energy most readily accessible. If every nation does this, however, the global atmosphere becomes the polluted ‘commons’.

⁴² By embarking on a certain course of action or using limited funds, the ‘opportunity cost’ is essentially what is given up, what is sacrificed.

regrets approach (no-regrets here is implying that even if climate change did not exist this would still be a good approach).

Another prominent theme arising from the texts, and highly linked to the narrative previously explained, is the idea of a prosperous future. In stark contrast to much of the climate change literature that the texts comment on, there is an underlying theme that because of economic growth and technological development the future will be better than the present. This idea argues that we will be wealthier in the future and thus better able to adapt to any problems or issues that may arise from any threats, climate change included.

A third theme which arose is the uncertainty versus certainty dichotomy. The science of climate change is shrouded in the language of uncertainty, the unknowns of climate science and the impossibility of knowing the future risks of climate change are emphasized, and the level of consensus towards the science is constantly questioned. This produces an underlying message that the climate science community is a fledgling science with lots of disagreement, many unknowns, and no real understanding of how the climate works or why it is changing. Contrasting this theme is the certainty theme with regards to the economy and government policy. Here, the reader is left in no doubt that climate policies will have largely negative effects on the economy.

The last theme which consistently arose in the texts is the pursuit of truth and of rationality. The scientific method is upheld as the best method of learning and discovering facts about the world, but climate science is often portrayed as not following the basic tenets of this method. The political nature of climate science (particularly at the level of the IPCC) has tainted the 'science' and promoted a pre-determined view – which flies in the face of the principles of scientific discovery. The manipulation and questionable interpretation of data and the lack of transparency are messages that emphasize this theme, and how climate scientists are not following it. Hence those who are skeptical of AGW and the

‘enormous costs’ associated with various climate change policies are naturally much more ‘rational’ and are seen as effective critical thinkers who are not swept up in the ‘hype’ of the media and ‘alarmists’.

4.2.6 Issue-Categories

In analyzing the Fraser Institute texts, I have discovered four main issue categories that have aided in the persuasiveness of this storyline: economics, science, politics, and ethics. These issue categories contain the largely the same elements as discussed in the previous section; however, their emphasis and focus is slightly different.

In this set of texts, economics (not science) is the most heavily employed issue category. Economic projections, theories, and knowledge are prioritized over science and scientific findings with regard to climate change. While economic predictions are viewed with authority, climate science predictions are viewed with skepticism and uncertainty. In addition, this issue-category carries with it the power of importance. How the economy functions is largely understood as affecting virtually all working members of society, thus the use of this issue-category links the issue of climate change and climate policies to people’s daily lives.

Next, the issue-category of science is employed by these texts to convey authority and truth on a subject. Science and the norms it brings with it help to persuade us into believing a certain story. Climate science, however, does not fit into this domain because of the numerous issues making it ‘unscientific’ (e.g., bias of researchers, political aspects, inability to follow the scientific method). In this sense the discourse of science is used both to credit alternate theories on AGW and to discredit AGW science (e.g., by claiming it is ‘unscientific’).

The issue-category of politics is employed by the texts of the Fraser Institute to cast doubt and uncertainty on the character and statements of those opposing the storyline. The texts of the Fraser

Institute most often use this issue-category to negatively portray government actions or policies, or to describe the AGW movement.

Last, the issue-category of ethics is employed in order to give moral authority and weight to the storyline. Although the texts use this issue-category in their framing of actors (both supporting the storyline and against it) it is mainly used to invoke feelings of unfairness in the reader, particularly by arguing why emission reduction policies to Canada are unfair in comparison to other nations. The use of ethics creates an emotional connection to the storyline that aids in legitimizing it in the reader's mind. The issue category of ethics was also heavily drawn upon to highlight misplaced priorities (e.g., climate policies doing more harm than good), and in showcasing the immoral actions of the AGW movement.

4.2.7 Changes, Inconsistencies and Silences

Notable Changes over time

Given the various and changing authors, as well as non-consistent format of texts, the findings of this section of the analysis are limited. However, as explained previously, if we conceive of the texts analyzed representing the Fraser Institute's general position on an issue, then there are some notable trends that arise. First, there is an increasing tendency to frame the AGW advocate movement in a negative light. In the time period from 2002 – 2010 the *Fraser Forum* articles in particular become more and more aggressive towards proponents of AGW theory, particularly post 2007. Second, the texts shift from a focus on Kyoto to a focus on any type of climate policy. Kyoto was originally critiqued and a 'made-in-Canada' plan promoted; as time passes the texts argue against any type of regulations on emissions. Third, climate science itself comes under increasing attack as time moves forward. Originally skeptical but also somewhat accepting of the science, both *Fraser Forum* articles and Research Studies become more aggressive in their attempt to 'debunk' the science as time passes (seen in both articles

and research studies). The most vocal attacks against the science and the AGW movement come in the last years under study (2009 & 2010).⁴³

Inconsistencies

Many of the same inconsistencies appeared in both analyses. Issues with varying numbers and claims are frequent across the texts from the Fraser Institute, although not nearly to the same degree as found in the FOS texts (e.g., it has warmed vs. it has not warmed). There is also the same problem with regards to the lack of a consistent counter-theory to explain global warming – there are many counter explanations given but they are at odds with one another (e.g., is the sun warming the earth, or is it land-use change). Where the Fraser Institute differs from the inconsistencies of the FOS discourse is in its framing of the AGW movement and the IPCC. Although never overly praised, the texts range in their views of these two actors quite dramatically. At times the IPCC is acknowledged for doing good work, and modellers for doing the best they can. At other times they are attacked as biased, political, and untrustworthy.

Another difference between the two discourses with regards to inconsistencies is how much the discourse is affected by these inconsistencies. With the texts from the Fraser Institute there is a clear message of economic suffering if emission policies are enacted. The actual occurrence of AGW is a side-argument that is full of inconsistencies but does not change this central message. In this sense the uncertainty generated by the inconsistencies of the text may reinforce the dominant message that these policies are not prudent in the face of the probable economic consequences.

Silences

This section of the analysis has been difficult to do from an objective standpoint; however, I have tried my best to let the texts simply speak for themselves. The texts clearly produce a notable silence with

⁴³ This is possibly related to the lead up to the 2009 Copenhagen COP15 meeting – something that will be discussed in the following chapter.

regard to data and arguments that are against their overarching storyline. They do not mention major scientific organizations or leaders that have endorsed AGW theory. However, it is important to note that at times the texts give cautious support to the IPCC and its climate scientists for doing the best work they can, given the inherent uncertainties and complexities of their work - yet they also discount their conclusions.

Another prominent use of silences is found in how the texts cherry-pick data and arguments to support their messages. Certain aspects are chosen, others are left out.⁴⁴ However, the only reason I was able to pick up on this phenomenon was because of previous knowledge and claims to truth that I privilege over the ones arising in the texts. As this was not the focus or purpose of this analysis I have largely disregarded these findings in this chapter although I expand on their significance in the next chapter.

4.3 Conclusion

In this chapter I have provided the reader with an overview of the results of my discourse analysis on both the Friends of Science and the Fraser Institute. I have defined and explained how each analysis used the concepts of storyline, narrative, central message, frame, theme, and issue-category. I then discussed the results of each analysis highlighting the storyline and narrative, the central messages and the effect of target audiences, the use of framing towards certain actors or groups of actors, and the use of themes and issue-categories to aid in persuading the reader. I have also described any changes, inconsistencies, or silences that were produced by each set of texts. While there are many similarities between the two analyses there are also some key differences. My next chapter will discuss the significance of these findings.

⁴⁴ The texts often use common knowledge and facts to bolster their claims, yet often leave out the whole fact or story. For example, the idea that the Earth's orbit has changes as an explanation for climate change is only partly true – yes the Earth's orbit changes and yes this causes climate change, *but* the next cycle is not predicted for thousands of years. Similarly, the link between economic growth and environmental benefit may have currency over the long term, *but* the initial transition to an industrial economy is often highly detrimental to the surrounding environment. Another example is that land-use change *does* have significant effects on the climate *but* this is acknowledged in AGW theory.

Chapter 5 - Discussion

5.1 Introduction

The Argumentative Discourse Analysis undertaken in this research allowed for the identification of storylines (or macro-arguments), dominant narratives, central messages, frames employed, underlying themes, and issue-categories used in two different sets of texts. Within each respective data set the analysis also noted the major changes, inconsistencies and silences that each micro-discourse produced. However, as this research project was undertaken in order to gain further insights into the denial discourse of Canada as a whole, the focus of this chapter is to discuss what these results suggest about the larger climate denial discourse thus answering my original research questions. Due to the differing nature of the organizations studied,⁴⁵ the common elements of these two discourses are likely to be representative of the general climate denial discourse in Canada. Highlighting the key messages and discursive elements arising from this combined discourse as well as how these messages are commonly communicated can provide insights towards better understanding the climate denial discourse in Canada. After discussing what my results have shown about this discourse, I relate these findings to previous literature on the denial industry, noting how my research has generally supported the conclusions of other authors. I then elaborate on why this general denial discourse exists in the first place, in Canada and around the world, arguing that it appears to be defending a threatened dominant social paradigm. I conclude the chapter by questioning the role of skepticism in society in view of our rapidly changing climate.

Before highlighting the common features found between analyses, however, I will first explain why merging these two discourses makes theoretical sense. My analysis has shown that these two

⁴⁵ The FOS appears to be an advocacy organization on a single issue. The Fraser Institute is a think-tank covering many issues. The Fraser Institute has more reach and is better known but the FOS is highly active in pursuit of their objective of debunking AGW theory.

organizations have produced different discourses, are composed of different actors, have different organizational objectives, and are largely unaffiliated with each other. Yet, despite their differences, they form a great example of Hajer's discourse-coalition concept and of collective argumentation. Once this idea is thoroughly explained I can then highlight what this broader discourse emphasizes and note the major discursive elements present in the discourse (based on my two separate discourse analyses).

It is recognized that the FOS and the Fraser Institute are only two organizations contributing to the climate denial discourse in Canada; there are also a number of other organizations, corporations, political groups, and actors, all with different agendas and goals that interact and collide in creating this general climate denial discourse. In addition, the limited ability of these actors to influence the governing regime through competing in this discursive struggle is recognized. There are of course many other factors, as mentioned in Chapter Two that are a cause of climate change inaction, apathy, or denial. However, as leading contributors to the Canadian climate denial discourse, the analysis of these two organizations together presents a valuable opportunity to gain insight into the key elements present in the discourse and why the central arguments of this discourse may resonate in the public.

To start this chapter I begin by noting the broader historical and socio-political context in which both sets of texts were produced. Particularly evident in the Fraser Institute texts, the production of texts seem to be correlated with various historical events – a finding I felt was significant.

5.2 The Production of Texts in Recent History

In Canada, the denial discourse really began to take shape only after the Kyoto Protocol was ratified in Parliament in 2002. This act put climate change mitigation on the federal agenda and fear of government imposed emission reduction regulations likely had a significant impact on the initial production of this discourse (Montgomery, 2006). Indeed, the goal of this discourse was arguably to

counter the possibility of regulatory action on climate change, through trying to shift public opinion (by arguing that the climate science did not warrant these policies, and/or that the economic consequences of such policies would be quite large). In 2006 Al Gore's film *An Inconvenient Truth* had a wide impact on explaining climate change to the public, and in 2007 with the release of the IPCC AR4 report, climate change had gained significant attention in the public sphere (Weaver, 2008). Following this trend, the governing Liberal Party in 2008 under Stephane Dion proposed the implementation of a national carbon tax as part of their *Green Shift* platform (Fitzpatrick, 2008).⁴⁶ The defeat of the Liberal Party took climate change off the agenda of the federal government for a short time; however, the UNFCCC Conference of Parties in Copenhagen in 2009 was another event that brought climate change into the spotlight. With over 100 heads of state in attendance, the climate conference received significant media attention (CBC, 2009). Also a significant event at this time was the 'climategate' scandal, in which thousands of emails between leading climate scientists were hacked and then widely distributed as 'evidence' that climate scientists were fabricating and misusing data (Carrington, 2011). This was a huge opportunity for the denial movement and has been repeatedly used as a vehicle for promoting the idea of corrupt and untrustworthy climate science (FOS Newsletters, 2009).

In reference to the above major socio-political events regarding climate change the graph below (Fig. 4) highlights the production of texts from both organizations to demonstrate the correlation between climate-related Canadian federal events and the production of Fraser Institute and FOS climate denial texts.

⁴⁶ Within this social and political context the denial discourse appears to have become increasingly vocal in questioning the IPCC and climate science itself, criticizing proposed climate policies, and questioning the moral character of the leaders of the AGW movement. The economic costs of the policies proposed were also heavily promoted as a way of deterring support for such policies.

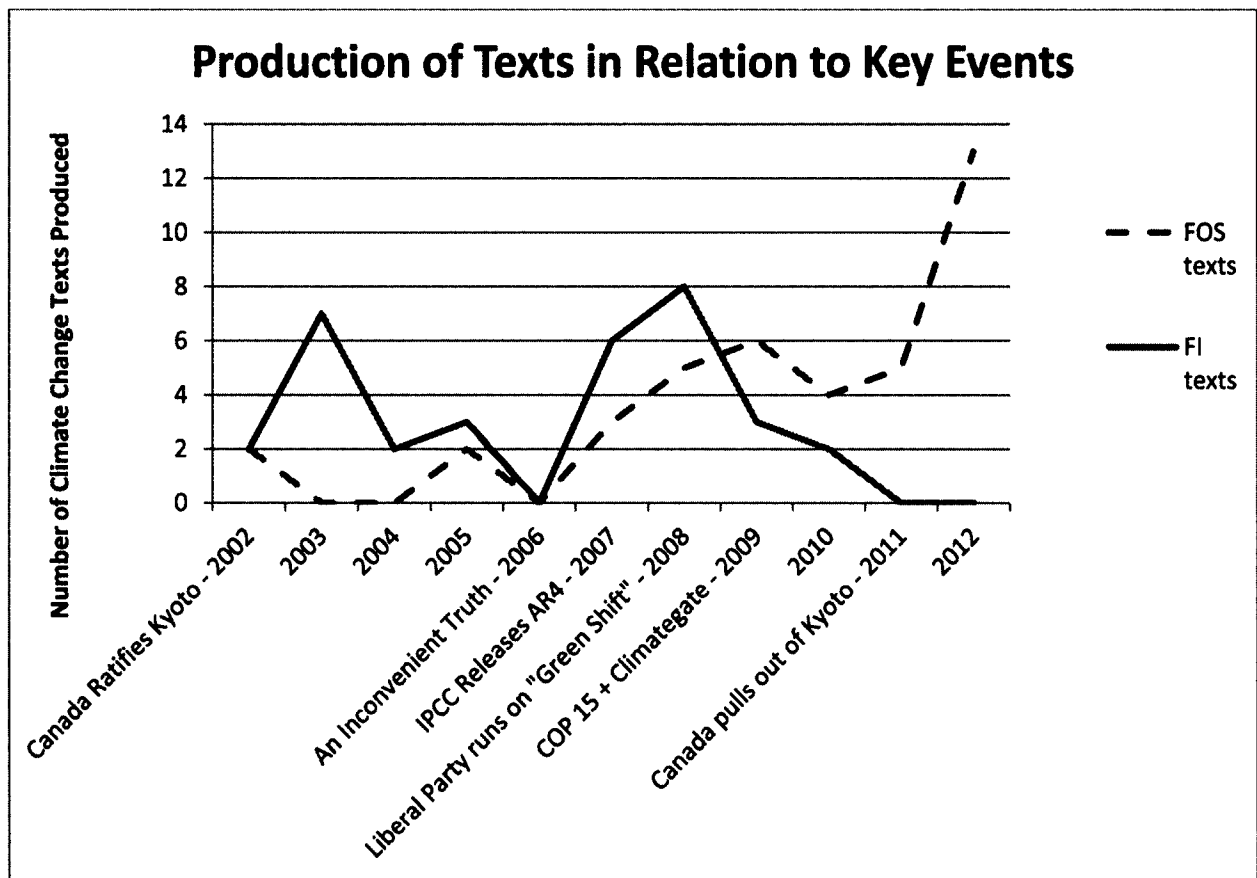


Figure 4 - Production of Texts in Historical Context

The graph above highlights the production of climate denial texts in relation to key climate-related events in Canada over the past decade. The dotted line, representing the texts of the Friends of Science, does not correlate well with these events. However, this may be attributed to problems with the data set used, as most texts originated post-2008. In contrast, there appears to be a high degree of correlation between these significant events and the publication of texts coming from the Fraser Institute. After the adoption of Kyoto in 2002 it seemed likely the federal government would implement some sort of climate policy limiting emissions. The solid line (representing the Fraser Institute) shows an increase in the amount of climate denial publications at this time. However no serious emission reduction policy was implemented and the graph shows a corresponding decline of publications. After 2006 when the public began again to pay serious attention to climate change (Inconvenient Truth, AR4 report) the organization increasingly published texts – possibly responding to this trend. A strong climate policy was the dominant feature of the Liberal Party platform of 2008 – the graph shows the most amount of climate-related texts at this time. After the large defeat of the Liberal platform, and the corresponding unlikelihood of a federal policy regulating emissions, the institute published fewer texts.

Although this graph simply notes a correlation between climate related socio-political events and publications produced by the Fraser Institute, it provides limited support for the notion that the goal of these texts is to counteract governmental climate policies from being implemented. On the FOS side, however, the texts do not follow any similar pattern with regard to these major events – although this could be explained through the limitations of my data set (biased towards texts after 2008). In addition, it is important to note that both FOS texts (particularly FOS newsletters) and Fraser Institute texts are highly attuned to these world events and often comment on them (e.g., both texts often cited the ‘climategate’ controversy in the texts produced after 2009; the Fraser Institute did two extensive “independent” reports on the AR4). Lastly, one of the changes seen in the FI discourse over time was how it increasingly attacked climate science – this finding may be related to the lead up and aftermath of the Copenhagen conference and ‘climategate’.

5.3 Key Differences

Although the two micro-discourses are similar, in doing each analysis I have noted key differences between them. These differences support the notion that each organization is unaffiliated with the other, and that they are coming from distinct starting positions. Hence, rather than giving a comparison of each analytic section, I outline how each organization has approached climate change from fundamentally different positions as this can then explain most of the differences.

The starting position of each organization obviously influences why they have produced climate denial texts in the first place, yet it also guides what elements are repeatedly emphasized. For example, the FOS focuses on “providing insight on climate change” (FOS, 2012), which necessarily prioritizes the science of climate change. The FOS texts overwhelmingly emphasize how the science of AGW theory is flawed and how climate change is either natural or minimal to non-existent. The objective of the FOS (based on the storyline of the FOS) is to discredit AGW theory – this is done through citing scientific

sounding claims and facts to justify this position and oppose AGW theory and/or the AGW movement. Indeed simply the organization's name 'Friends of Science' highlights the goal of this organization – promote the idea that science does not support AGW theory. In contrast, the Fraser Institute comes from the position of being market-oriented and generally opposed to major government interventions in the economy. Thus, the Fraser Institute is focused on the economy and governmental policies that will affect the economy – AGW theory is only important if it results in governmental policy that will negatively affect 'the market'. As a result, although the Fraser texts often cast doubt on the reliability of AGW science, they also sometimes offer cautious acknowledgement of AGW science, sending a mixed message of whether the organization is fully against AGW theory or not. Thus the main objective of the Fraser texts appears to be convincing the reader of 'certain' economic consequences that will result from government imposed CO₂ emission control measures, regardless of AGW theory.

The differing starting position of each organization results in a difference of emphasis that reverberates through the texts: the FOS emphasizes the flaws of climate science, while the FI emphasizes the economic consequences of climate policy. Related to this difference in emphasis is how opposing actors to the two storylines are framed. The FOS texts often frame the AGW movement as corrupt, alarmist, devious, immoral, illegal, and irrational. At the same time, the texts promote the concept of conspiracy in society arguing that the AGW movement has co-opted leaders and institutions into supporting a faulty concept (the proponents of AGW having a very large and unwarranted influence). In contrast, the FI texts only infrequently discuss the AGW movement but instead focus on framing the government as incompetent, self-interested, inefficient, unintelligent, and generally harmful to society. The table below summarizes these key differences.

Table 10 - Comparison of Key Differences

| | Friends of Science | Fraser Institute |
|--|----------------------------------|---|
| Starting Position + Purpose | Discredit AGW Theory. | Look at the economic impact of various policies. |
| Prioritization of Messages | Scientific Messages | Economic Messages |
| Views on Climate Science and AGW Theory | Wrong/False | Problematic |
| Negative Framing Primarily Directed Towards.... | AGW Movement (Canada and Abroad) | Government (mostly at the Canadian Federal level) |

5.4 The Fraser Institute and the Friends of Science as part of a Discourse-Coalition

As is now evident, the two organizations that were selected for study are quite different in their approach and mandate. The FOS is an organization dedicated solely to discrediting the theory of AGW, whereas the Fraser Institute is a neo-liberal economic think tank which looks at a variety of issues and policies. The FOS is also a much more politically active organization on this specific topic than is the Fraser Institute, although as an influential Canadian think tank the Fraser Institute may have more widespread influence on the topic. Both organizations are funded in part by the fossil-fuel industry but also through various foundations and individuals (see Chapter 2).

A discourse-coalition is a central feature in the use of Hajer's argumentative approach to discourse analysis. It is based on the idea that unaffiliated actors/organizations are unified in promoting a common storyline – even if the reasons for doing so are not aligned. As the previous chapters have shown, each organization was analyzed separately from each other and thus each set of texts has a distinctive macro-argument (or storyline) which all the texts of that organization are structured around. The texts analyzed from the Friends of Science produced the following macro-argument: *Anthropogenic climate change is a false theory and that acting on this theory by way of attempting to reduce CO₂*

emissions poses significant threats for our way of life. In contrast, the Fraser Institute's macro-argument is that: *Due to the significant uncertainties and unknowns of climate science, emission reduction policies are unwarranted for now but will cause inordinate economic damage if enacted today.*

These two storylines are noticeably different as one organization refutes the mainstream scientific consensus on climate change completely, while the other simply highlights the uncertainties and unknowns present in climate science – again this difference in storylines arises from a different starting position. However, both storylines are united in their opposition to emission reduction policies as both sets of texts portray emission reduction policies as being unwarranted, producing significant economic harm, and giving few realistic benefits. Thus, despite the differences in storylines, there is a joint argument that they both support: the government should not focus on climate change mitigation strategies because the science behind climate change does not warrant this type of action at the present time. When combined with the messaging of significant harms to come if emission policies are enacted, this produces a common storyline shared by both organizations: *The science behind climate change is weak and does not warrant such invasive government control measures. In addition, if enacted, these measures will result in large economic harm to Canada.* Thus climate change mitigation policies are not in the national interest of Canada. As the texts of both organizations support this common storyline, both organizations can be said to be a part of a discourse-coalition that is unified by this singular storyline.

This finding, although limited to the two organizations studied, is also broad enough to be indicative of a likely common storyline that most denial organizations in Canada would support. Because of the difference in starting positions, apparent objectives, emphasis as well as the diversity of arguments and actors represented in the two sets of texts, the fact that there is a common storyline between these two

unaffiliated organizations, lends credibility that this common storyline may have a much wider appeal and could indeed represent a much larger number of denial organizations in Canada.⁴⁷

5.5 Answering the Research Questions: Common Elements and Key Insights into the Broader Denial Discourse of Canada

Understanding the two organizations as part of a discourse-coalition supporting a unified storyline allows me to combine the central features of both discourses that support this new unifying storyline. As this new storyline is likely to be representative of the broad climate change denial discourse in Canada, highlighting the central messages as well as the most common discursive elements employed (which aid in the persuasiveness of these messages) can help in understanding how this discourse may resonate with the public.⁴⁸ The following section is an attempt to highlight findings that are most likely to be a representation of the central elements found in the broader denial discourse of Canada, thus answering my original research questions. I follow the same outline used in previous chapters.

5.5.1 Narrative

The analysis has shown that both sets of texts support a similar neo-liberal, small government, narrative that explains the past, present, and future through the ideas of economic progress and supports the Dominant Social Paradigm. In so doing both texts support maintaining a business as usual approach. In essence this common narrative explains our history as one of economic development, fueled by

⁴⁷ My understanding of a discourse-coalition between the FOS and Fraser Institute has been informed by Smart (2011) who did a similar study on a much broader selection of texts not limited to any particular nation. The macro-argument/storyline that he uncovers for the denial side is quite similar to my own: “The theory of anthropogenic climate change is false, and we must avoid misguided remedial governmental policies that would undermine our economies and way of life” (Smart, 2011, p.371). Although the storyline that my findings collectively support is one that views AGW science as merely weak and not warranting governmental policies – not necessarily false – the similarities between these two findings lend support to my analytic work.

⁴⁸ However, in this summary I focus only on the elements that are specific to a better understanding of the climate denial discourse itself. For example, although a prevalent theme aiding the persuasiveness of the arguments of both sets of texts is the idea of rationality, this is likely not a unique feature of climate change denial discourse – most arguments are likely to employ this theme.

inexpensive energy. The success of this story accounts for the lifestyle we currently have and the continuation of this story is central to a prosperous future. To threaten this basic story (e.g. through regulations making energy more expensive and harming economic growth) thus threatens our way of life and our future. The AGW movement, or action towards mitigation of AGW, is thus seen as a direct threat to this narrative.

5.5.2 Common Central Messages

While both sets of texts provide a number of messages for the reader, there are common ones that appear frequently between both organizations and support their common storyline. As in the previous chapters, these most prominent messages are classified into the scientific, economic, and political categories.

The most important common messages between the two organizations arise in the scientific category. The dominant argument at its core is that the science is not reliable either because it is fundamentally flawed or because there are simply too many unknowns. Both organizations discuss the issues with using climate models, point out apparently unaccounted for problems in the historical record of temperatures, argue that there is no consensus of experts and that the effect of CO₂ on global temperatures has been exaggerated, highlight that observed weather often counters AGW theory, and explain that there is strong evidence for natural causes of climate change.

Second are the common messages arising in the economic category. The dominant argument here is that emission controls will lead to very real and very large economic consequences with few benefits (environmental, social, or economic). Both organizations highlight how emission controls will lead to higher energy prices which will dramatically harm the economy through making everything more expensive; how by engaging in such a policy without every other country doing the same thing will have virtually no effect even if AGW is a real phenomenon; how such a policy will harm the economy through

reducing our competitive advantage with our trading partners; and that in a world of limited resources governments should make decisions based on a rational cost-benefit analysis (that emission controls offer a high cost, but no benefit). Importantly, both organizations are also adamantly against the prioritization of 'green' energy technology as they see it as unviable without taxpayer support and inefficient when compared to fossil-fuel energy – which is more reliable and less expensive.

In the political category, the dominant message is that the whole theory and movement of AGW is an inherently political phenomenon based on values, power, and control. The science of climate change is merely a vehicle used by those for a more expansive government, based on a view of the world that is questionable (e.g., catastrophic climate change). In this sense both organizations argue that emission controls will not work politically as there is rising opposition against AGW theory or that people are unwilling to accept the economic consequences of such policies; that climate science is portrayed as political and corrupt but also an idea that works well with the ambitions of expanding government; that the AGW movement is irrational and possessing alarmist views that are often considered extreme yet are effective in gathering support; proposed policies will impact various regions quite differently (and this is economically unfair); and that there are much more urgent problems that require our attention and the focus on climate change is hindering action on these other pressing issues.

5.5.3 Common Frames Employed

AGW Movement

Both organizations frame the AGW movement in a negative fashion. Although the FOS does so more critically, and makes more wide-sweeping claims about who is allegedly a part of this movement (everyone from climate scientists to politicians). From the Fraser Institute, the movement of AGW is closely tied to environmental advocates, but encompasses little else. Collectively the AGW movement is thus framed as out-of-touch with reality, too idealistic or naïve, yet also deceptive. In many cases in

both sets of texts the language of extremism or alarmism is used to describe this movement, and the claims made by this movement are classified as highly exaggerated statements or outright lies. Both organizations also note how the AGW movement is totally blinded to the possibility of positive benefits arising from climate change.

Climate Scientists

Although the two organizations often differ dramatically in how they portray this group of experts it is important to note the commonalities here as well. While the Fraser Institute at times gives them cautious praise, they also frame the practice of climate science in a fairly negative light. While they do not engage in ad hominem attacks on organizations or individuals (as the FOS does) they do insinuate that climate scientists are overly reliant on models, create unrealistic projections and scenarios, and tend to ignore natural explanations for climate change – all points that the FOS texts also highlight. In short, collectively the two organizations most frequently frame the nature of climate science as simply biased opinions that often fall short of the standards of scientific practice that they claim to use.

Media

The media is subtly framed by both organizations as an ally of the AGW movement. Repeatedly both sets of texts claim that the media is biased in favour of AGW theory, by way of favouring liberal views as well as having a predisposition towards novelty and alarmist ideas, and that the public is subject to a resulting barrage of inaccurate and misleading doomsday scenarios. The media is blamed in part for why AGW has received such widespread attention, which it clearly does not warrant.

The Government

Lastly, both the Canadian federal government and the provincial governments are framed in a negative light as institutions that have been co-opted and led astray by the AGW advocates. Governmental climate policies are consistently critiqued (from green industry subsidies to emission regulatory

measures proposed) and the government is portrayed as inept, highly bureaucratic, inefficient, self-interested and above all a political body subject to trying to balance the will of its constituents – rather than follow a ‘sound’ policy. In this sense they collectively frame government as a cumbersome, unintelligent institution that does not undertake a rational evaluation of the science or any cost-benefit analysis before proposing climate policies. Rather it seeks to expand its own powers, or simply follow the path of least resistance that will score them political points (i.e., a meaningless climate policy to gain popular support).

5.5.4 Underlying Themes

One common theme to this discourse-coalition is that of the dichotomy of uncertainty and certainty. Both organizations portray the science of climate change as conflicting/uncertain or even completely inaccurate, while the costs and impracticalities of climate change legislation are seen as very certain. Climate science is consistently evaluated on a spectrum of large uncertainties to being completely flawed, leading to the conclusion that any action on AGW would be irresponsible in light of the limited and even questionable evidence of its existence. However, the texts as a whole are particularly adamant that any policy promoting the reduction of emissions due to belief in AGW will certainly have large and sweeping negative outcomes (economically and politically). Lastly, both sets of texts argue with certainty that a political solution (internationally) will not happen.

Another common theme is found with the idea of individual choice. This theme promotes the concept of the individual and is wary of large organizations – particularly governmental ones. This is related to the dominant narrative in terms of favouring a more neo-liberal economic perspective, with less regulation and government interference, as the desirable model that maximizes overall benefit. Furthermore, the UN, as a higher level of ‘governance’ transcending the power of the nation-state, is seen as imposing its views and threatening our ‘freedom’. This theme also appears in the form of both organizations being

promoted as independent organizations with no ties to a bigger agenda, industry, or movement (particularly independent of government). Last, the individual in society is promoted as being rational and independent from dogma or superstition, and thus the reader feels empowered through this rational and common-sense approach, perhaps aiding in the persuasiveness of the storyline.

A final theme that spreads across the texts is the idea that pursuing a climate policy has a high 'opportunity-cost'. Although the two organizations differ in how they employ this concept they both note that there are better things government policy should focus on or better ways to go about achieving a desired result. For example, the FOS repeatedly emphasizes that AGW science and policy are taking away scarce resources for 'real' issues like health, education, and infrastructure. In contrast, the Fraser Institute frequently argues that climate change policy is not the best way to address the problems that will arise from a changing climate (e.g., the spread of malaria). Instead of mitigation policies, a particular worrisome 'impact' of climate change could be addressed directly (often through encouraging economic growth) which would cost far less and have a better end result.

5.5.5 Issue-Categories Employed

Both sets of texts used the issue categories of Science, Economics, Politics, and Ethics as a way to validate and persuade the reader of their arguments. The issue-category of science was used to convey authority and truth. Thus any climate-related claims against AGW (i.e., the sun as a natural driver of climate change) were 'scientific' claims, while AGW-related claims were most often portrayed as 'unscientific' or 'junk science'. The issue-category of economics was used to demonstrate why climate policies would negatively affect the reader (e.g., economic downturn) and as such gave the topic more importance to a wider audience. The issue-category of politics was used to cast a negative light on international climate bodies (i.e., IPCC), to negatively paint the AGW movement, and to undermine governmental bodies and leaders acting on AGW. Last, the issue-category of ethics was employed to

give moral weight and emotional connection to the arguments being made. In particular the notion of fairness (i.e., that climate policies are unfair to Canadians) was used extensively to aid in persuading the reader of the follies of emission regulations.

5.5.6 Common Inconsistencies and Silences

One of the most interesting insights arising from this combined analysis is found in the inconsistencies and silences discovered. Taken as a whole both sets of texts are full of inconsistencies that often contradict each other – for example both texts highlight different percentages, or dates, or ‘facts’. This is true within the broader discourse (containing both sets of texts), but also within the micro-discourse (within one set of texts) and even sometimes in the same documents (please see Appendix 4 for a sample of these inconsistencies within the same document). Depending on the text, warming may have stopped in 2002, or 1998; CO₂ is responsible for virtually no additional heating of the atmosphere, or it may account for up to 25% of the recent heating. These types of inconsistencies are also part of a bigger and more fundamental inconsistency: the argument towards global warming. Both discourses have multiple explanations for why climate change is either not occurring, is a largely natural phenomena, or is highly exaggerated. However, this is a bit of a contradiction – either climate change is occurring or it is not. Yet the texts as a whole argue that it is both not occurring or is occurring but has been exaggerated, yet at the same time point to natural explanations explaining climate change (taking no issue with the rise in temperature). This analytic discovery points to the lack of a consistent counter-theory to AGW that is lacking in both sets of texts – individually and combined.

Another prominent insight gained is how silences are used to enhance the arguments of both organizations. There are of course large silences in the texts when it comes to discussing the evidence of AGW theory. However, as an argumentative discourse, this is an understandable omission. Yet more importantly is that both sets of text use silence as an effective instrument to persuade the reader of

their claim. This finding can be described as “cherry-picking” or “misrepresentations” and I have been reluctant to make note of it earlier because to ‘discover’ such a use of ‘silence’ I had to impose my own preconceptions and knowledge – thus not letting the texts speak for themselves. However, because both discourses do this so often it must be a part of my final analysis – although this finding must also be taken with reservations. Regardless, cherry-picking occurs when the reader is given a set of numbers that work for a specific period (e.g. global temperatures have declined since 2002). This may be true for the period between 2002-2005 but does not at all counter the period of 1970-2005, which shows the opposite trend. Misrepresentation happens when the reader is given a fairly well-known fact (e.g., that the earth’s climate is greatly influenced by the sun, or that tilts in the Earth’s axis can change the climate) as evidence against AGW theory, but the texts do not then relate how this fact is accounted for in AGW theory or is accounted for by general knowledge in a specific discipline (e.g., astrophysics).⁴⁹ However, by only presenting a portion of this knowledge claim (without showing how the sun’s output in all probability cannot account for the recent warming), the reader is more easily persuaded that this can then be a reasonable explanation for why the Earth’s climate is warming. There are numerous examples of this “cherry-picking” or “misrepresentations” of facts, theories, historical events, and quotations in the texts, pointing to a highly effective use of ‘silences’.

Counter-intuitively, I believe that these inconsistencies and silences prevalent throughout both sets of texts have the effect of adding to the resilience of the discourse as a whole. As we can see, the mixed messages and silences, give a wide variety of arguments against AGW theory but act as opposing forces towards presenting a credible counter-theory. However, this is not at odds with the apparent goals of these two discourses. Indeed, the main objective of the FOS texts appears to be to sow doubt into the

⁴⁹ For example, in making the argument that climate change is natural both sets of texts used the argument that it may be caused by a tilt in the Earth’s axis. They present the fact that the Earth’s natural orbit and rotation produces a tilt in the Earth’s axis which is one explanation for why the climate has shifted in the past and thus, can explain the current climate change as a natural phenomenon. The silence employed in this instance is that the earth’s axis is indeed currently shifting but that this should produce a cooling trend that will last for the next 50,000 years, thus it cannot currently explain the rapidly changing global temperatures (NOAA, 2012).

theory of AGW, while the main objective of the Fraser texts appears to be convincing the reader of the 'certain' economic consequences that will result from CO₂ emission control measures. Hence, collectively, the texts are not proposing a valid counter-argument to AGW theory, but are simply arguing for delay; that the economic consequences of substantial actions to reduce emissions currently outweigh the risks of AGW. In this sense, the reader is presented with claims and arguments that may systematically be disproven one by one, but, because of the sheer number of substantially different claims, it is hard if not impossible for the average reader to disprove them all at once.

The discourse under study is clearly sending mixed messages. An appropriate metaphor might be the idea of 'firing buckshot' – many arguments and numbers are given in the hopes that something sticks. While this is a useful tactic in that it may prevent action from happening as it causes delay, which might be the goal, it is not a useful tactic in 'winning' the argument. Indeed, it appears improbable that such a contradictory discourse would ever reach discursive hegemony and replace the discourse of AGW. However, this may not be the central aim of the actors producing this discourse in the first place.

From my position of analytic scholar, these inconsistencies appear as obvious detractors to the arguments these texts make. However, I also believe that the inconsistencies are such that without detailed study they are not always that obvious, and in fact may aid in promoting the storyline. If we accept that the goal of this micro-discourse may not actually be to 'provide insight into climate change' but rather to promote the idea of doubt about AGW, then the inconsistencies in the texts support this underlying objective. Indeed, the lack of a coherent theory and the existence of conflicting numbers and explanations may point towards the resilience of the discourse – if one aspect is disproved, another can simply take its place. The malleability of this discourse is in its opposition to a theory, not in promoting an alternative theory. Hence its central storyline has a range of topics and discourses it can draw on repeatedly and in a novel fashion. As such, I argue that these texts are not actually trying to pursue a

theoretical discursive hegemony whereby a different explanation for a changing planet is widely accepted, but are instead simply seeking to prevent AGW theory from occupying that position. Collectively the texts are not seeking to 'win' any argument, but are instead seeking to create doubt and increase skepticism towards AGW theory and the AGW movement.

5.6 Comparing the Results with the Literature

The central findings of my analysis support the claims of previous literature on the denial industry in four central ways: (1) my findings support the specific claims made by other authors on what the denial industry often argues and how it does so, (2) they support and enhance the idea that the denial industry is not promoting a coherent argument but instead is seeking to confound the public, (3) my findings support the notion that the rationale underpinning this discourse is to avoid government imposed regulations on industry, and (4) my research supports the claim that the climate denial discourse has strong links to a conservative/neoliberal ideology.

First, my analysis showed that the central claims made by these organizations, as well as the frames employed are not distinct to Canada but in fact mirror the claims made by other denial organizations in the US. In Chapter 2 I explained that the denial industry is known for producing a discourse that focused on denying the central aspects of mainstream climate science, opposing climate policies and actively promoting their ideas of climate change to the public. In particular by emphasizing ideas such as scientific uncertainty and 'junk science', economic cost, and that there is a liberal agenda behind it all (Oreskes & Conway, 2010; Gelbspan 1997; Hoggan & Littlemore, 2009; Washington & Cook, 2011). My analysis fully supports these previous ideas on the denial industry. Aside from these general observations, my analysis also supports specific findings in the literature. For example, McCright and Dunlap (2000) produced an influential paper on climate change denial based on the online content of numerous think tanks in the US during the 1990's. Their findings highlighted three central claims

collectively produced by these organizations: (1) *The evidentiary base of global warming is weak and even wrong*, (2) *global warming would be beneficial if it were to occur*, (3) *global warming policies would do more harm than good* (p.47). A decade later and in a different country, my analysis generally lends support to their conclusions.⁵⁰ In addition, the framing patterns my analysis discovered support the previous observations of Greenberg and Knight (2011): similarities were found in how climate scientists were attacked or discounted, how governments were framed as being misled, and how the AGW movement consists of alarmists and extremists, often with a hidden socialist agenda.⁵¹ Furthermore, as Peter Jacques (2006) notes, “skeptics often describe themselves as underdogs who are speaking ‘truth to power’ while debunking ‘junk science’ that has been constructed ignorantly or maliciously by environmentalists” (p.79). The ‘framing’ and ‘underlying themes’ sections of my analysis support this particular conclusion. Lastly, Washington and Cook (2011) highlight five common types of denial argument: conspiracy theories (e.g., climategate), fake experts (e.g., petitions showing controversy, that there is no consensus), impossible expectations (e.g., climate models unreliable), misrepresentations and logical fallacies (e.g., climate has changed in the past) and cherry picking (e.g., temperature has not increased since 1998). Through my analysis of *silences* and *central messages*, all of these common denial arguments appeared frequently in both sets of texts that I studied. The many similarities between my findings and what these authors have shown, implies that the climate denial discourse is relatively static across time and borders. This then points to the resilience and the generalizability of the climate denial discourse in our North American society.

⁵⁰ It should be noted however, that the claim that global warming would be beneficial was not shown to be a central claim of both organizations, perhaps reflecting a change in this section of the discourse.

⁵¹ The work of Greenberg and Knight (2011) looked at how framing was used by a now-defunct skeptic organization in Canada (NRSP) against the AGW movement. In particular the authors noted how Tim Ball as a prominent writer of the NRSP attacked climate scientists on the process of climate science, on discounting contrary evidence, and as secretive, self-interested, and non-transparent. They also noted how he framed governments as being misled, or devious, and how he portrayed AGW realists as alarmists and extremists that had a hidden (socialist) agenda. Last they note how he offered alternative evidence for natural causes of climate change. All of these findings are supported by my analysis of the Friends of Science, and to a lesser extent the Fraser Institute.

Second, my research supports the claim made by previous authors that the denial industry is not trying to 'win' any argument through presenting legitimate scientific claims but is trying to create doubt in the public sphere; it is trying to deliberately obfuscate the public understanding of the issue, in effect making the issue a 'non-problem'⁵² (Weaver, 2008; Jacques et al. 2008; McCright & Dunlap, 2010; Oreskes & Conway, 2010; Hoggan & Littlemore, 2009; Washington & Cook, 2011). The inconsistencies and contradictions that my analysis uncovered lend support and enhance the idea that there is not a coherent theory or 'truth' that denial organizations are promoting but rather that they are attempting to create confusion and doubt around the theory of AGW. The silences uncovered during the analysis also promote this argument (i.e., only telling a portion of a fact).

Third, my analysis supports the idea that the rationale for the existence of this discourse is to counter the possibility of widespread and sweeping CO₂ regulations in the economy (particularly towards the oil industry). Both organizations were shown to have funding links to the oil industry and the texts of both organizations have been highly attuned to major climate events that could trigger emissions controls (e.g., Kyoto). The analysis showed how the texts condemn all regulatory attempts at controlling emissions (seen in other countries and in Canada) as both unnecessary and harmful to the economy. These findings support the argument that the ultimate objective of the denial industry is to maintain the status-quo, where carbon emissions are not regulated (Oreskes & Conway, 2010; Washington & Cook, 2011).

Last, through looking at the narrative and underlying themes, as well as specific claims, the texts of my analysis showed that climate change denial and a conservative/neo-liberal ideology are heavily linked.

As such, my findings support the arguments of McCright and Dunlap (2003), Antonio and Brulle, (2011),

⁵² McCright and Dunlap (2010) argue that climate deniers are a force of anti-reflexivity in society as they promote the concept of non-decision – whereby their actions make a decision on climate change hard to achieve (i.e., by promoting doubt) and thus it is a 'non-decision' or 'non-problem' where the status-quo remains unchanged.

and Hoffman, (2011b) in showing that the two organizations studied perceive climate change, and the expected accompanying governmental regulation, as a threat to economic liberalism and that the texts often insinuate that there is a 'socialist' agenda behind the issue. As well, in noting the conservative ties of each organization, as well as their conservative views, my analysis also supports the statement by Jacques (2006) that "the vast majority of skeptics are contemporary conservative" (p.78). Lastly, I argued in Chapter 2 that the concept of 'environmental skepticism' has been embraced by the denial industry. This perspective tends to reject scientific literature (as it is seen to be corrupted by political agendas), prioritize economic problems over social or environmental problems, promote anti-regulation and anti-corporate liability arguments, and sees environmentalism as a threat to the progress of western modernity (Jacques et al. 2008). Once again, my findings showed that the ideas underlying 'environmental skepticism' are prevalent throughout both sets of texts.

5.6.2 World Context – is Canada distinct?

One of the reasons for this analysis is that relatively little scholarly work has been done analyzing the climate denial discourse in Canada. Indeed, most of the literature has focused on understanding the climate denial discourse found in the US. My findings have shown that there is indeed a climate denial discourse that is alive and well in Canada, but that, aside from specific references to Canadian politics and Canadian policies, this discourse generally mirrors what previous literature has found on the denial industry in other countries, particularly south of the border. Although the denial discourse in Canada is not therefore particularly unique, my research supports the idea that the climate denial discourse seems to be more active in an Anglo-Saxon nations than elsewhere. For example, Painter and Ashe (2012) found that out of six nations examined (US, UK, France, India, Brazil, and China) the prevalence of climate change denial texts in the media was much higher in the Anglo-Saxon countries than in the other four nations – likely due to the combined influence of organized interests, politicians espousing denial, and partisan media receptive to climate skeptic views. My research arguably highlights the role of

‘organized interests’ in Canada, and thus it is likely that Canada would fit into this Anglo-Saxon category when looking at climate denial around the world.

5.7 Denial as a Defense of the Dominant Social Paradigm?

In Chapter 2 I argued that the existence of the denial industry was mostly due to the perception that an acceptance of climate change science would inspire sweeping regulations, a loss of national sovereignty, and would hinder economic growth (McCright & Dunlap, 2003). Hence, climate change denial, and environmental skepticism in general, is part of a bigger war of ideas whereby the ideological foundations of neo-liberalism and modern conservatism are called into question by the existence of climate science and the implications of climate change. In addition, the fear of corporate profits being affected by climate policies has provided extensive capital and support for the implementation and continuation of the climate denial message (Goldenberg, 2013). However, I believe that the existence the climate denial discourse is about more than simply a defense of profits and neo-liberalism; I believe it may signal the existence of a societal reaction defending a threatened dominant social paradigm.

My findings, which support the conclusions of previous literature, have shown that climate change denial is largely based in the perspective of ‘environmental skepticism’ (which some authors also describe as anti-environmentalism and/or anti-reflexivity), whereby mainstream environmental claims and values are treated skeptically, yet there is a dominant faith in contemporary conservative values and issues, such as faith in industrial and agricultural chemical benefits, as well as the industrial capitalist social order (McCright & Dunlap, 2010; Jacques, 2006). Environmental science is discounted as ‘junk science’ (politically motivated, not following rigorous scientific practice), environmental problems are largely discounted and environmentalism itself is seen as an obstacle to development (Antonio & Brulle, 2011). Fundamentally, this perspective rejects the possibility that environmental problems threaten the sustainability of modern human societies. There is an underlying narrative to this

perspective that equates our modern 'success' with the domination of nature, and that modernity itself is a great story of progress and increasing affluence. Importantly, this idea is also mirrored in our dominant social paradigm – seen in the widely shared idea of 'civilization' being independent and superior to 'nature' or the 'wild' (Jacques, 2006). Even the use of apparently 'neutral' cost-benefit analyses towards environmental problems are structured around the value to humans as independent from nature. Hence, if environmental problems are conceptually distinct from human society, they cannot theoretically threaten the powerful ideas of modernity or its institutions⁵³ (Jacques, 2006).

My analysis showed that the two sets of texts studied fit into this perspective of 'environmental skepticism' well. Indeed, the denial industry and the discourse it has produced as a whole are faithful to the above interpretation of 'environmental skepticism'. However, the existence of this perspective appears to be in part a reaction to the idea that our dominant social paradigm is being seriously questioned. As Peter Jacques (2006) argues:

What is at stake is the legitimacy of the status quo of world politics nestled in our dominant core civic paradigm of Enlightenment Liberalism that keeps the structure of obligations national and market based. Consequently, this struggle automatically includes the modern institutions of the state system and world capitalism that accompany the DSP. An alternative paradigm that sees humanity as a civic member with rights and obligations to the community of life on earth writ large (nature in an international/global sense) is pressuring the modern frame of the world that is embodied in the DSP, and skepticism has been marshalled from contemporary conservatism to defend it. (p.91).

As I described in Chapter 2, the Dominant Social Paradigm (DSP) reflects a modernist worldview about humans and nature that includes some core elements of conservative ideology as well as a faith in science and technology, support for economic growth, and a faith in material abundance as well as future prosperity (McCright & Dunlap, 2010). Yet, as noted above by Peter Jacques, it also incorporates our core collective values and beliefs in such things as the modern nation-state, individuality, the role of markets, capitalism and resource extraction for human benefit. In effect, the DSP provides a hegemonic

⁵³ Proponents may claim that technology and ingenuity will overcome any environmental threat as it has done many times in the past.

discourse that directs human-nature relations and is expressed primarily through economic exploitation (Jacques, 2006). Indeed, the root of our current ecological crisis arguably stems from the common values and beliefs prevalent in western modernity (also described as Enlightenment Liberalism).⁵⁴

In many ways the ‘environmental skepticism’ viewpoint, prevalent in the conservative movement towards many environmental issues, although particularly seen with climate change, is based in a defense of this paradigm (McCright & Dunlap, 2010, Antonio & Brulle, 2011). It protects not only conservative values and a neo-liberal ideology but also a consumptive elite class against the possibility of systemic change through defending the structure of dominant social values (e.g., consumerism). In world politics this perspective defends the system of the nation-state, expansive resource exploitation under world capitalism, and the existence of a hegemonic and consumptive North (Jacques, 2006).

When we consider the numerous global ecological crises we are facing, combined with the impending climate catastrophe, we must question whether the benefits of the growth-oriented economy and nation-state level of governance are indeed indisputable. When the life-support systems that have historically allowed us to flourish as a species are increasingly under attack, this model comes under further scrutiny. To effectively address these unfolding global environmental disasters is likely to require global cooperation that transcends the power of the nation-state, and the imposition of widespread regulations which may limit our individual ‘freedoms’ (e.g., flying, consumer choice). More fundamentally it is likely to require a shift in how we view the ‘human versus nature’ relationship. Yet, to not address these environmental time-bombs is to risk a collapse of our global civilization as we know it (Diamond, 2006; Dyer 2008). Therefore, as noted by Jacques (2006), “environmental skepticism is more than a defense of profiteering; indeed it is a defense against an impending cognitive and cultural

⁵⁴ Enlightenment Liberalism encompasses the core values that frame citizenship: commitment to limited government, support for free enterprise, devotion to private property rights, emphasis on individualism, fear of planning and support for the status quo, faith in the efficacy of science and technology, support for economic growth, faith in future abundance (Jacques, 2006).

revolution that would change the way material power is concentrated and accumulated” (p. 92). He further argues that ‘environmental skepticism’ “is not just defending business, but the structural world in which ‘industria’⁵⁵ can survive” (p.93). In sum, the function of ‘environmental skepticism’ or anti-environmentalism, seen particularly through the climate denial discourse, is to defend an “incredibly maladaptive system that is being called into question as a threat to human sustainability” (Jacques, 2006).

To accept both the science and observations of widespread environmental malaise as well as the repercussions these ecological crises are likely to have on human populations that rely on the provision stable ecological services (e.g., water), requires a realization that a new conception of planetary stewardship is increasingly necessary. At the same time, to defend the Dominant Social Paradigm of industrial modernity, ultimately requires one to discount the necessity of global ecological services and the consequences of major environmental crises. Hence, climate change denial.

5.8 The Right Level of Skepticism?

Throughout this thesis I have taken the view that those who promote a view against anthropogenic climate change, in light of the overwhelming evidence, are deniers, not skeptics. I have chosen to view skepticism as a healthy perspective that looks at all the evidence before coming to a conclusion, a view that avoids superstition and is based in critical thought. This position has not changed. However, in the process of doing this analysis my knowledge has been constantly questioned. Although I felt fairly versed in the subject of climate change, the discourses I looked at repeatedly brought up claims and apparent “facts” that I had never encountered before. I thus felt compelled to research these claims, not as a part of the analysis, but for my own knowledge. What these texts were in fact doing, was making me more skeptical of the knowledge I thought was on fairly solid ground. Indeed, the persuasiveness of

⁵⁵ Industria – the modern comprehensive and predatory world system of knowledge and power that includes the world state system, world military apparati, and world capitalism (Jacques, 2006).

the texts and numerous truth claims made often filled me with self-doubt, and at one point I legitimately wondered if the 'liberal' cause had brainwashed my perspective on the issue. Because of this personal experience, I feel that the denial literature is likely to be having an important impact on increasing the level of skepticism towards AGW theory.

Given that 'environmental skepticism' is not really about promoting a valid skeptic viewpoint, but instead is about defending an ideological viewpoint (e.g., 'junk science' as used by this community has little to do with science or fraud but more to do with whom that science serves), it seems reasonable to conclude that the promotion of this viewpoint does nothing to inform civic dialogue but in fact works to confuse public understanding of environmental science and its applications. As Jacques (2006) and others argue, "environmental skepticism appears to be organized on several fronts to shatter informed and critical dialogue" (p.84). Supporting this conclusion, the central claim of McCright and Dunlap (2010) was that this movement (environmental skepticism/anti-environmentalism) is a force of anti-reflexivity in the US. Meaning to say that under the theory of reflexive modernity (McCright & Dunlap, 2010), competing truth claims should open up civic dialogue over high-stakes decisions with uncertain environmental risks (generally seen as preferable to technocratic and monolithic decision making processes). This 'reflexive' discourse, however, requires decision makers and the general public to be better equipped to critically judge science – the denial discourse acts against this and is thus a force of anti-reflexivity (McCright & Dunlap, 2010). If we accept the large risks of impending environmental catastrophe that environmental science is increasingly pointing towards, then this type of 'skepticism' presents a grave threat to the critical life support systems found in ecological goods and services globally as it limits our collective human ability to act and, more importantly, challenges the political will and momentum to do so.

The situation we are then faced with is deeply ironic. Climate change denial, as part of the larger environmental skepticism movement, is morally-based in prioritizing human development through the use of the natural world. Thus, as previously mentioned, the environmental movement/environmental science is simply hindering 'progress', as problems in the natural world cannot fundamentally threaten modernity. However, by believing in and promoting this worldview, 'modernity' is increasingly threatened by the large-scale environmental crises that are destabilizing the natural world on which our civilization is based.

Normally skepticism is a healthy intellectual trait. One where all sides are evaluated, evidence is found, and rational decisions are made. However, given the complexity of climate science it becomes increasingly difficult for the layperson to make their own informed decisions without extensively reading into the subject. While the promotion of the denial discourse is helping to create a more skeptic public and is working against responsible civic dialogue on addressing the climate crisis, at a more fundamental level the climate crisis raises questions about the role of legitimate skepticism itself in society. Given the stakes facing our world, do we need to have increased and even absolute trust in large scientific institutions and the processes that underlie them?⁵⁶ At what level does skepticism itself become irresponsible?

In many ways it seems that the unfolding climate crisis is presenting a fork in the road for human development: do we continue with the Dominant Social Paradigm and believe in our own ingenuity to counter the climate crisis, or do we collectively undergo a rapid social paradigm shift? As Martin Schonfeld (2011) argues, "from a philosophical look at the fork, all empirical trends point to the same conceptual conclusion: taking the right path – the path of sustainability, mitigation, and resilience –

⁵⁶ Smart (2012), makes the argument that in the age of post-normal science (particularly related to climate science) the public is faced with increasing levels of scientist-advocates which conflict with the 'disinterested scientist' notion and may negatively affect public trust towards science. He notes that in this case a level of 'super-trustworthiness' from the public towards such scientists is required.

requires civilization to put as much distance as possible between itself and the paradigm whose implementation unleashed the climate crisis” (p. 133). Yet to achieve such a rapid paradigm shift will necessarily place enormous trust in the conclusions and recommendations of certain institutions, both scientific and political. We are then presented with a dilemma: Can we afford to be skeptical of the science and necessity of solutions? Can we afford not to be skeptical of such a concentration of power?

5.9 Conclusion

My research has shown that the central elements of the denial discourse appear to be quite similar over time and space. This then points to the resilience and generalizability of the discourse and what it represents. In addition, the production and dissemination of this discourse can help to explain why climate change has not been fully accepted by the public, and is thus a counter-force against acting on climate change. I have also argued that there are deeper ideological and philosophical issues at play in understanding this discourse, which can help to explain why this discourse may have had, and may continue to have a large impact on the public’s understanding of climate change. Last, this research has brought up fundamentally important questions about the role of trust, power, and skepticism in our changing world.

The denial discourse, in defending the DSP, cannot simply be dismissed as much of the academic community has done (Hoffman, 2011b). It will continue to exist and ‘retain a seat at the table’ and thus must be engaged with at some level. Yet, at the same time, to engage with the denial community is at some level to validate their claims (e.g., having a debate between a denier scientist and an advocate scientist only further reinforces the message that the science is uncertain). Thus I believe the academic community must walk a fine line between engaging with the underlying philosophical components of the denial discourse, and simultaneously not giving credence to its climate-specific claims.

Chapter 6 - Conclusion

This research has used discourse analysis to critically examine central elements present in a sample of the climate denial discourse of Canada. Argumentative Discourse Analysis allowed for the identification of a shared storyline and discourse coalition between the Fraser Institute and the Friends of Science. Premised on the assumption that the denial industry is having a significant impact on the public's understanding of climate change, and that without large public support it is unlikely that significant climate policy will be enacted, this research has demonstrated that the denial industry in Canada is active and is part of a discursive struggle over the meaning of climate change. The main purpose and overarching goal of this discourse appears to convince the public that climate change is a non-issue. My analysis has also shown that although unaffiliated and unconnected the two organizations are linked in their advocacy of a common storyline, and as such, this storyline has increased power in working against action on climate change in Canada.

This research has answered my original research questions by demonstrating that there are common messages and discursive elements present in the texts of two denial organizations that are thus likely representative of the broader denial discourse in Canada. In addition, what this analysis has recognizes that this discourse is portraying a complex and varied, and often contradictory message that serves to counter the arguments for addressing climate change. It is aimed towards a Canadian audience (as there are repeated references to Canadian politicians, Canadian environmental NGOs, and Canadian policies), but supports the claims of previous literature focused on the climate change denial industry. Indeed, while there were elements specific to Canada, the research showed that over time and space the main elements of the Canadian denial discourse appear to be quite similar to those found in the US and elsewhere. This finding demonstrates that the denial discourse in Canada is not unique to Canada but is better seen as part of a larger international climate denial discourse. This then points to the resilience, generalizability, and effectiveness of this larger denial discourse over time and space.

My findings supported the idea that the denial discourse is consistently linked to conservative and neo-liberal ideologies and values. It is further linked to big industry, particularly the oil and gas industry, and conservative foundations. More importantly, however, my research supports the idea that the denial discourse, situated in the perspective of environmental skepticism, is part of a larger philosophical defense of the Dominant Social Paradigm that appears to be under threat. This may help to explain why the denial discourse is persuasive and powerful as it draws on the elements that underlie our common understandings of progress, growth, and development.

The power of the denial discourse is further aided by numerous social elements present in our society. For example, McCright (2007) notes that “institutional inertia, the entrenchment of vested interests, and the relative disempowerment, disengagement, and apathy of many members of the general public all conspire against solving most social problems” (p.201). This unfortunate combination of factors is quite prevalent in addressing climate change and helps to explain why there has been so much resistance against meaningful action. The denial industry has exploited these factors through its sustained assault on the basic science of climate change in an attempt to confuse both policy-makers and the general public about climate change. As McCright (2007) explains:

The fossil fuels industry, conservative think tanks, and the contrarians they promote advance their objective of maintaining the status quo merely by obstructing communication of these new knowledge claims. Only a minimal amount of confusion about climate change may be necessary to reinforce the social inertia that perpetuates the status quo, even in the face of considerable scientific evidence otherwise (p.201).

These social elements favour the importance and impact of the climate denial discourse. It thus becomes ever more important to fully understand what this discourse is saying and how it is saying it, as its existence is a detracting force on our collective ability to respond to this global environmental crisis. In sum, climate change is happening and human activity is largely the cause; to promote information to the contrary is irresponsible and is helping to stall meaningful action on mitigation and even adaptation.

6.1 Areas for further research

This research set out to determine what the main components of the climate change denial discourse in Canada have been in the last decade. In the process of doing this research and writing this thesis, however, I have realized that there are many areas warranting future research.

One area for further research would be to examine the impact that these denial organizations are having in Canada. For example, one might look at all major media outlets in Canada and try to determine how many 'denier – orientated' articles also have links to a denier organization. It would also be useful to try and determine whether the same language and arguments made by the denial organizations are repeated in federal or provincial policy documents, or public statements. Another idea would be to do a series of interviews, questionnaires, and surveys which could provide important information on what elements of the denial discourse have the most impact in changing peoples' opinions on climate change in Canada. Given the stakes, more research on how the denial industry operates and the impact it is having is certainly justified.

Similarly, further research is needed in how to best effectively engage with the denier viewpoint. The philosophy behind this viewpoint needs to be addressed as the nuances in the denial discourse are about much more than money and regulation. In this sense the denial viewpoint needs to be considered by the academic community, not in order to give value to their specific scientific arguments, but to better address and understand the underlying philosophical dimensions that may be driving this denial perspective.

Related to this is philosophical query are questions about our Dominant Social Paradigm, and how climate denial relates to it. While I believe that the denial discourse is indeed defending a DSP that seems to be increasingly questioned, I do not claim to know what is replacing it, or even what is possible. This raises interesting personal, philosophical and societal questions that, in the face of our

changing planet, take on increasing importance. For example: How can we conceive of a future without this paradigm – what will replace it? Which elements of the DSP are politically and socially unchangeable in our society? Can we in fact counter the DSP with another social paradigm that people will accept? Is it actually being structurally questioned on a wide scale or are these simply cosmetic shifts to an otherwise stable DSP? Can we simply tweak elements of the DSP in order to deal with the climate and ecological crises facing our world or do we need to fundamentally change it?

Last, this research has raised other philosophical questions with regard to our changing planet in terms of the ideas and roles of skepticism, individualism, power, and trust in our society. It has raised questions on our fundamental rights (e.g., free speech: should deniers be given a voice?), and on the role of ethics in prioritizing human needs over those of nature. Questions of stewardship and the human-nature dichotomy have also been raised on both a personal and societal level. Although these more abstract questions may not be directly researchable I believe they are nonetheless of key importance to ponder and deliberate as our global civilization moves forward.

6.2 Final Conclusions

The climate denial industry in Canada is alive and well. This is important to understand because facts and well-established knowledge claims do not necessarily translate into action. In a democracy at least, people need to first believe and be in widespread agreement of the ‘facts’ because if the ‘facts’ are not accepted, then, as seen in the case of climate change, there is no accepted ‘problem’ which needs to be addressed. This can be viewed theoretically as a discursive struggle over knowledge claims, where there are two distinct sides which advocate opposing discourses on the basic understanding of the phenomenon. Yet each ‘side’ is composed of a complex discourse- coalition, the members of which may be coming from different perspectives and articulating different ideas, yet in the end promote the same overall message. This then strengthens the power and impact of the discourse considerably by creating

a broad-based appeal for the storyline. This research has shown this phenomenon is occurring with both the Fraser Institute and Friends of Science being part of the broader climate change denial discourse.

This research has looked at a part of the climate change denial discourse operating in Canada in an attempt to better understand the central elements of this discourse and gain insights into why it may be seen as persuasive. The research has shown how the denial discourse examined is a complex phenomenon which encompasses many viewpoints, concepts, ideologies, and numerous scientific, economic, political, and ethical claims. Indeed, the complexity of the denial discourse mirrors the complexity of the topic of climate change itself, and highlights the value of discourse analysis in uncovering this complexity. Furthermore, in the case of climate change denial we have seen that there is no likely objective to ‘win’ any discursive struggle through a rational argument, but to simply make the issue contentious – to make climate change a ‘non-issue’ for policymakers. Thus the complexity of the discourse enhances the power of the overarching message by making it harder to counter, particularly for those who do not have a strong grasp of the science.

Climate change is a problem that requires urgent attention from all across the various levels of society. There are no silver bullets to solve the problem, and indeed we may be past the point of meaningful mitigation options already. Yet by continuing to spread doubt and misinformation into the public realm, the denial industry is attempting to counter any progress on the issue and is leaving our society woefully unprepared for a brave new world.

Appendix 1 – The Data Sets

Friends of Science: available at www.friendsofscience.org

The data set originating from this website amounts to 45 separate texts, amounting to roughly 200 pages of in depth textual material, with two additional PowerPoint presentations. Please be informed that the website has now been updated and there are additional documents that were unavailable at the time of this research.

| Date | Type | Document Title |
|-------------|----------------------|--|
| 2002 | Press Release | Global Warming: A Science Viewpoint |
| | Article | Likely Causes of Climate Change |
| 2005 | Presentation Minutes | FOS Presentation to Standing Committee on Environment and Sustainable Development |
| | Open Letter | Open Letter to Environment Minister Stephen Dion |
| 2007 | Review | A Rational Look at Climate Change |
| | FOS Newsletters | January, July |
| 2008 | Critique | SEEDS – A Climate Critique |
| | FOS Newsletters | June, September, December |
| 2009 | Summary | Review of Christopher Monckton's Presentation |
| | PowerPoint | A Skeptical View of AGW |
| | FOS Newsletters | March, June, September, December |
| 2010 | FOS Newsletters | March, June, September, December |
| 2011 | Policy Critique | FOS Response to Environment Canada's CO ₂ Emission Reduction Plan |
| | FOS Newsletters | March, June, September, December |
| 2012 | Website pages | Talking Points; Myths and Facts; Readers: Comments and Questions; Climate Science Overview |
| | Critiques | FOS Response to Hansen; James Hansen: Its Game Over for CAGW |
| | News Releases | May 9, May 29, June 6, June 30, July 18, August 1, Oct 18 |
| | FOS Newsletters | March, June, September |
| Unknown | PowerPoint | Is Global Warming A Threat? |
| | Critique | FOS Response to Canada's CO ₂ Emissions Reduction plan |
| | Presentation Summary | Monckton's Address Summary |

Fraser Institute: available at www.fraserinstitute.org

The data set originating from this website amounts to 32 separate texts, amounting to roughly 450 pages of text or roughly 200 pages of in- depth and rich textual material. Please be informed that the website may have been updated and there may be additional documents after 2010 that were unavailable at the time of this research.

| Date | Type | Document Title |
|------|-----------------------|---|
| 2002 | Fraser Forum Articles | A long Term Perspective on Climate Change; Signing Kyoto is NOT Sound Environmental Policy |
| 2003 | Research Studies | Greenhouse Gas Reductions: Not Warranted, Not Beneficial |
| | Fraser Forum Articles | Like lipstick on a Pig; Kyoto Crazy; Ontario Manufacturers Kept in the Dark on Kyoto; The Varying Sun and Climate Change; Emission Scenarios and Recent Global Warming Projections; A Constitutional Firewall Against Kyoto |
| 2004 | Research Studies | The Science isn't Settled |
| | Fraser Forum Article | Pentagonal Misunderstanding |
| 2005 | Fraser Forum Articles | A Win for Kyoto so Where's the Party?; The Kyoto Protocol: Economically Beneficial or Detrimental; Is the Climate Really Changing Abnormally? |
| 2007 | Research Studies | Independent Summary for Policymakers; Adaptive Management of Climate Change Risks |
| | Fraser Forum Articles | Greenhouse Gases and Recycling; Economists Respond to the Stern Review; Welcome Back Kyoto; Small Successes in Changing Climate Policy |
| 2008 | Fraser Forum Articles | Facts not Fiction; Environmentalists Wild Predictions; Cars and Climate Change; Skeptics View on Climate Change; Doctors on Climate Change; To Stop Global Warming and Eco-Extremism; Turning the Wrong Corner |
| 2009 | Research Studies | Supplementary Analysis of the Independent Summary for Policymakers |
| | Fraser Forum Articles | Cap and Don't Trade |
| | Other | Lessons for the Classroom |
| 2010 | Fraser Forum Articles | Global Warming on Trial; Regulating Greenhouse Gases |

Appendix 2 – The Coding Process

Below are two examples of how texts were coded. One is from the Friends of Science the other is from the Fraser Institute. The notes made through this coding process were then compared to look for major trends, storylines, narratives, changes, inconsistencies and silences.

Friends of Science

| | |
|---|---|
| <p><i>Text: Readers Comments and Questions (FOS 2012). The following paragraphs are copied directly from the website in responses to questions 1 & 2 of this document.</i></p> | <p>Analysis of text.</p> |
| <p>“CO₂ traps heat: This is true, but this is not evidence that the increase in CO₂ has caused any warming. If water vapour and clouds did not change in response to CO₂, then the increase would cause warming, BUT water vapour and clouds change with increasing CO₂ to keep the strength of the greenhouse effect constant. If fact, there has been no increase in the heat trapping ability of greenhouse gases in the atmosphere over the last 60 years according to the NOAA radiosonde (weather balloon) data, so there has been no increase in the effective amount of greenhouse gases in the atmosphere over that period. Also, clouds change in response to warming to allow more heat to be released to space.”</p> <p>“The only constant about climate is that it changes, and therefore the trend will change. The FOS position based on science is that the Sun is the primary driver of climate change. The temperatures have increased from 1979 through 2002 primarily due to changes in the Sun. The Sun has been increasing in intensity and magnetic influence during most of the 20th century. There is some controversy over how much the Sun's irradiance has increased since 1980, but the ACRIM data shows increasing intensity after 1980. Since 1980 or 1990 there has been no increase, and the Sun has become very quiet. However, due to the huge heat capacity of the oceans, the Sun would continue to cause warming for about 2 decades after its intensity became constant or starts to decline.”</p> | <p>Messages:</p> <ul style="list-style-type: none"> • AGW theory is faulty because CO₂ doesn't actually have the effect the theory gives it • Climate change is a natural phenomenon <p>Claims</p> <ul style="list-style-type: none"> • CO₂ is a greenhouse gas but there is no evidence for increased CO₂ causing global warming <ul style="list-style-type: none"> ○ “water vapour and clouds change with increasing CO₂ to keep the strength of the greenhouse effect constant” (natural equilibrium) • No increase in the effective amount of greenhouse gasses in the atmosphere over the past 60 years <ul style="list-style-type: none"> ○ “clouds change in response to warming to allow more heat to be released to space” • The Sun is what has caused climate change from 1979-2002. • The ocean's heat capacity is responsible for why the planet has continued to heat after the sun became “quiet” <ul style="list-style-type: none"> ○ “due to the huge heat capacity of the oceans the sun would continue to cause warming for about 2 decades after its intensity became constant or starts to decline” <p>Issue Category employed: science</p> <p>Themes: Truth, Rationality</p> <p>Frames: No specific frames promoting or discrediting other actors is employed.</p> |

Fraser Institute

| | |
|---|--|
| <p><i>Text: Environmentalists Wild Predictions, Fraser Forum 2008.</i></p> | <p>Analysis of text.</p> |
| <p>"Here are my questions: In 1970, when environmentalists predicted man-made global cooling and a coming ice age, and warned us that millions of Americans would starve to death, what kind of government policy should the United States have undertaken to prevent such a calamity? When Ehrlich predicted that England would not exist in the year 2000, what steps should the British Parliament have taken in 1970 to prevent such a dire outcome?</p> <p>In 1939, when the US Department of the Interior warned that Americans only had oil supplies for another 13 years, what actions should President Roosevelt have taken? Finally, what makes us think that environmental alarmism is any more correct today, now that environmentalists have switched their tune to man-made global warming?</p> <p>Here are a few facts: Over 95% of the greenhouse effect is the result of water vapour in Earth's atmosphere. Without the greenhouse effect, Earth's average temperature would be zero degrees Fahrenheit.</p> <p>Most climate change is a result of the orbital eccentricities of the Earth and variations in the sun's output. In addition, natural wetlands produce more greenhouse gas contributions annually than all human sources combined."</p> | <p>Messages:</p> <ul style="list-style-type: none"> • Alarmists/Environmentalists/Government have been wrong before and are likely wrong now. • Greenhouse effect is natural • Human impact is minimal in comparison to natural causes that explain climate change <p>Claims:</p> <ul style="list-style-type: none"> • Environmentalists predicted: global cooling and a coming ice age (1970), England would not exist in the year 2000 (1970), • Government predicted: American oil would run out in 13 years (1939) • 95% of greenhouse effect is due to water vapour Greenhouse effect allows us to live in a hospitable climate on Earth. • Natural causes explain climate change <ul style="list-style-type: none"> ◦ "Most climate change is a result of the orbital eccentricities of the Earth and variations in the sun's output" • Humans' impact is minimal in the climate system. <ul style="list-style-type: none"> ◦ "natural wetlands produce more greenhouse gas contributions annually than all human sources combined" <p>Frames:</p> <ul style="list-style-type: none"> • Environmentalists – prone to exaggeration and doomsday scenarios, fickle • Government agencies – inaccurate predictions <p>Themes:</p> <ul style="list-style-type: none"> • Truth, rationality, prosperous future, progress <p>Issue Categories:</p> <ul style="list-style-type: none"> • Science, Politics |

Working notes and accompanying original documents can be provided upon request.

Appendix 3 – Supporting Evidence for Central Messages

To provide evidence for my findings I have included a representative sample of quotes that support the key findings of the discourse analysis. Further evidence for each claim below (with supporting quotations) can found repeatedly throughout the set of texts (within different documents and with different authorship) and is available upon request.

Friends of Science

| Finding | Document and Date | Quote |
|---|---|---|
| Theme: truth + rationality Frame: FOS rational, FOS doing a worthy thing | FOS Newsletter, Dec. 2008 | <i>"We need people to undertake the difficult task of sifting real science from alarmist advocacy who will draw the boundaries between climate activism and cold analysis"</i> |
| Theme: Individuality and Choice Frame: AGW movement is alarmist | PowerPoint, 2009 | <i>"AGW alarmism[will] eliminate our right to choose"</i> |
| Theme: Conspiracy Frame: Media | A Rational Look At Climate Change, 2007 | <i>"unfortunately censorship and intimidation, plus politically driven media scare-mongering are inhibiting rational scientific study"</i> |
| Theme: rationality Frame: FOS open, truth-seeking | FOS Newsletter, September 2011 | <i>"To stress the science of climate change and attempt to inform and educate the public as well as various governments. We encourage debate and discussions concerning the facts."</i> |
| Frame: AGW movement effective, fear-mongering | Letter to Hansen, 2011 | <i>"governments around the world, responding to the terrible fear the global warming cult has spread amongst ordinary citizens, have implemented carbon taxes"</i> |
| Frame: IPCC + AGW movement is corrupt | FOS Newsletter, December, 2010 | <i>"the consensus claimed by the IPCC with regard to AGW has collapsed under the weight of the scientific fraud, lies, distortions and utter hypocrisy demonstrated by its proponents"</i> |
| Frame: AGW movement as untrustworthy + alarmist | FOS Newsletter, June, 2010 | <i>"alarmists who consistently refuse to place their arguments under public scrutiny" "the alarmists have misrepresented the data and science of climate change"</i> |
| Frame: AGW movement as unethical, illegal, and self-interested | FOS Newsletter, June 2011 | <i>"these showed alarmists corrupting data records, misplacing important information, suppressing publications contrary to their interests, and materially profiting from their advocacy of alarmist positions"</i> |
| Frame: AGW movement is extreme | FOS Newsletter, December 2008 | <i>"David Suzuki, for example, has suggested that those who question his position should be placed in prison"</i> |
| Claim: Problems with Data – Heat Island Effect | PowerPoint, 2009 | <i>"in the USA only 11% of stations are in suitable locations, 69% are within 10m of an artificial heat source"</i> |
| Claim: CO ₂ measuring problems | SEEDS Critique, 2008 | <i>"CO₂ levels are higher today than any time in the past 420,000 years.' This statement is very likely false"</i> |
| Claim: Negative Feedbacks counter CO ₂ warming | PowerPoint, 2009 | <i>☐"water vapour plus clouds may provide near 100% negative feedback so that CO₂ a negligible effect"</i> |

| Finding | Document and Date | Quote |
|--|--|--|
| Claim: CO ₂ is not responsible for climate change | Letter to Stephane Dion, 2005; FOS News Release, June 6 2012 | <i>"CO₂ is not a significant cause of global climate change"</i> <i>"CO₂ has no significant impact on climate, contrary to popular belief"</i> |
| Claim: climate science discounts other natural explanations Frame: IPCC discounting evidence | Response to Hansen, 2012 | <i>"all climate models used by the IPCC do not include significant factors like solar cycles or oceanic influences"</i> |
| Claim: warming not caused by greenhouse gases | SEEDS Critique, 2008 | <i>☒"half of the observed warming is associated with the brown clouds of aerosols, not greenhouse gases"</i> |
| Claim: global temperatures cooling | FOS News Release, May 29, 2012 | <i>☒"over the past 15 years global temperatures have cooled"</i> |
| Claim: Climate Policy is a waste of resources Theme: Uncertainty vs. certainty | FOS Newsletter, Sept. 2008 | <i>"we should not be wasting valuable resources on a hypothetical problem when we have many real problems that need addressing: better education system, more money for health care, better infrastructure"</i> |
| Claim: No scientific consensus on the theory of CO ₂ causing climate change Frame: UN + IPCC untrustworthy | Readers' Comments + Questions, 2012 | <i>"literally tens of thousands of scientists have signed the Leipzig, Heidelberg, and Oregon declarations/statements/petitions protesting the abuse of science and the politicized going on at the UN's IPCC"</i> |
| Claim: The Sun is to blame for the warming planet | Response to Hansen, 2012 | <i>"the sun has caused at least 75% of the warming of the last century"</i> |
| Claim: increasing support for skepticism of AGW | FOS Newsletter, Sept. 2009 | <i>"man-made global warming theory is a construct that is being demolished [that is] a fact"</i> |
| Claim: Bigger Agenda behind AGW movement Frame: AGW movement/government are untrustworthy Theme: conspiracy | FOS News Release, August 1, 2012 | <i>"many of the parties supporting carbon emission reductions, carbon taxes, or cap and trade, have hidden agendas"</i> |
| Claim: Models don't work | FOS Response to Environment Canada's CO ₂ Emission Reduction Plan, 2011 | <i>☒"climate models have completely failed to match observations"</i> <i>"the model projections of many key climate parameters do not even remotely respond to climate observations"</i> |
| Claim: emission policies will cause economic disaster | FOS Newsletter, March, 2010 | <i>"nowhere does it get more dismal than the economic consequences of the policies to restrict CO₂ emissions"</i> |
| Claim: developing countries won't be part of the solution | FOS Newsletter, Sept, 2011 | <i>☒"the other developing countries are simply looking for free money and technology"</i> |
| Claim: inexpensive Green Energy is a myth Theme: individuality + choice | FOS News Release, July 18, 2012 | <i>"massively subsidized by taxpayers and don't provide sufficient or reliable energy output to justify their cost and on-going maintenance"</i> <i>"energy output is highly unreliable"</i> |
| Claim: CO ₂ levels higher in the past | Seeds Critique, 2008 | <i>"in the more distant past, CO₂ levels were up to 15 times present levels"</i> |

| Finding | Document and Date | Quote |
|--|---|--|
| Claim: observational evidence of a cooling climate | FOS Newsletter, September, 2008 | <i>evidence of a cooling climate continues to mount [...] snow fell in Canmore Alberta during the last day of August and New Brunswick has experienced early killing frosts"</i> |
| Claim: climate change is natural | Standing Committee, 2005 | <i>"we certainly have no chance of stopping this natural phenomena"</i> |
| Climate change occurs frequently and is not a concern | A Rational Look at Climate Change, 2007 | <i>"during the period from 1000 to 1350 AD the world was warmer by about 2-4 degrees C than it is now"</i> |
| Claim: Sea Level Rise is natural and normal | Response to Environment Canada, 2011 | <i>"sea level rise has been occurring for 1000s of years with no noticeable cost to humans"</i> |
| Claim: CO ₂ emissions are good, warming is good | Response to Environment Canada, 2011 | <i>"the benefit to Canadian's of CO₂ enrichment is likely about 7.2 billion for a 300ppm increase of CO₂ concentrations. This is additional to the warming benefits"</i> |
| Claim: a warmer planet is better | Response to Hansen, 2012 | <i>"the health benefits of a warmer planet are many times greater than any harmful effects"</i> |
| Claim: huge amounts of money wasted on climate policies Theme: individuality and choice Frame: government wasteful | SEEDs Critique, 2008 | <i>"in the past decade global governments have spent a trillion dollars trying to control CO₂ emissions, for no benefit to the environment and to the detriment of taxpaying citizens"</i> |
| Claim: climate policies are a fraud Theme: conspiracy; individuality and choice | FOS News Release, August 1, 2012 | <i>"carbon reduction, cap and trade, and being carbon neutral are useless money sinks that impoverish the general public while making a few clever investors rich on 'climate wealth'"</i> |
| Claim: green energy doesn't really reduce emissions | FOS News Release, Oct 18, 2012 | <i>"wind developments usually cause extra fuel consumption instead of fuel saving" (back-up generators needed)</i> |
| Claim: international climate policy is unlikely | Response to Environment Canada, 2011 | <i>"alleged benefits could only be realized if all countries took similar action, which will likely not happen"</i> |
| Claim: domestic opposition to climate policy is strong in various nations | FOS Newsletter, June, 2011 | <i>"the republicans in the house of representatives are attacking the Obama Administration's climate policy on three fronts"</i> |
| Claim: AGW theory is broken | FOS Newsletter, September, 2009 | <i>"we have yet another failure of the greenhouse gas theory to predict physical phenomena"</i> |
| Claim: CO ₂ levels are at historic lows | FOS Newsletter, June 2011 | <i>"present levels of CO₂ are near historic lows with respect to the geological time scale"</i> |
| Claim: Socialist world government through climate policy Theme: conspiracy; loss of individuality and choice Frame: government expansion | Monckton's Address Summary | <i>"the UN's secretariat plant to establish a world "government"[...] would subordinate our democracy to a complex, costly, multi-tentacled oligarchy which the UN says will rule governments, economies, and markets worldwide and pre-empt national taxes at will"</i> |

Fraser Institute

| Finding | Document and Date | Quote |
|--|--|--|
| Claim: Acting on Kyoto will hurt the economy Theme: economic self-interest; certainty vs. uncertainty | <i>Fraser Forum, A Win for Kyoto, 2005</i> | "there is a consensus that these efforts will significantly compromise the Canadian economy and our standard of living" |
| Claim: Kyoto will cause political tensions Frame: government is inept | <i>Fraser Forum, A Constitutional Firewall, 2003</i> | "implementation will be nasty, brutish, and long, requiring new federal legislation and the cooperation of the provinces whose jurisdiction will be infringed" |
| Claim: Emission Reductions are unfair for Canada Theme: economic self interest | <i>Fraser Forum, A win for Kyoto, 2005</i> | "Among the Kyoto signatories, Canada may have the most difficulty achieving its Kyoto targets. The Canadian economy uses more energy per dollar of GDP" |
| Frame: IPCC + Climate Science is Corrupt | <i>Fraser Forum, Global Warming on Trial, 2010</i> | "recent revelations of scientific deceit among the research institutions tasked with guiding the international response to global warming" |
| Claim: Global Warming is exaggerated Theme: uncertainty vs. certainty Frame: UN exaggerates | <i>Fraser Forum, Kyoto Crazy, 2003</i> | "threat of global warming is overstated by the United Nations" |
| Claim: Green energy is unviable | <i>Fraser Forum, Recycling, 2007</i> | "the problem lies with the present insolubility of the technological problems" |
| Claim: Climate Models are problematic Frame: climate scientists untrustworthy | Research Study, Supplementary Analysis, 2009 | "climatologists and modellers maintain no hope whatsoever of forecasting what particular conditions will be in future climates"; "its all done with pseudo physics" |
| Claim: There is no scientific consensus Theme: uncertainty | <i>Fraser Forum, Cap & Don't Trade, 2009</i> | "there exists considerable uncertainty about the interplay between CO ₂ and global temperatures, and there is no scientific consensus about the causes or consequences of climate change" |
| Claim: Climate Science is poor science Frame: gov't & climate science untrustworthy | Research Study, Adaptive Management of Climate Change Risk, 2007 | "science was admittedly sacrificed in hot pursuit of a pre-determined policy objective" |
| Claim: Climate Science + IPCC discount natural causes of climate change | Research Study, Supplementary Analysis, 2009 | "natural causes are generally discounted when it comes to explaining recent climatic changes" |
| Claim: No one really knows why the climate is changing Theme: uncertainty | Research Study, Independent Summary for Policymakers, 2007 | "due to the uncertainties involved, attribution of climate change to human cause is ultimately a judgement call" |
| Claim: Unfair for Canada (LDC non-participation) Theme: economic self-interest | <i>Fraser Forum, Ontario in the Dark, 2003</i> | "developing countries are not required to adhere to the strictures of the accord" |
| Claim: Problem with Temperature Data | Research Study, Supplementary Analysis, 2009 | "data from cities, as collected from meteorological stations, is contaminated by urban heat island" |
| Finding | Document and Date | Quote |
| Claim: Climate Change is | <i>Fraser Forum,</i> | "most climate change is a result of the orbital |

| | | |
|---|--|---|
| caused natural causes Theme: truth | Environmentalists Wild Predictions, 2008 | eccentricities of the Earth and Variations in the sun's output" |
| Claim: Climate change is a natural phenomenon | <i>Fraser Forum</i> , A Win for Kyoto, 2005 | "shows the late twentieth century to be pretty in the middle of natural climate fluctuations" |
| Claim: The Sun is the main driver of climate change | Research Study, Supplementary Analysis, 2009 | "total solar irradiance accounted for up to 50% of the warming since 1900 and 25-35% since 1980" |
| Theme: Economic Self-Interest; truth and rationality Frame: FI as rational and responsible | Research Study, Adaptive Management of Climate Change Risks, 2007 | ""focused adaptation could deliver far greater benefits than would halting climate change"; "reduction of vulnerability, appropriately focused will provide greater benefits at lower costs than mitigation" |
| Theme: Prosperous Future/Economic Progress | <i>Fraser Forum</i> , Emission Scenarios, 2003 | "global warming is a short-run problem, and beyond a planning horizon of 100 years the problem declines over time under any reasonable scenario of technological change" |
| Theme: Prosperous Future/Economic Progress | Economists Respond to the Stern Review, 2007 | "future generations are expected to be much wealthier than we are today" |
| Claim: emission policies will hurt the poor Frame: FI as responsible Theme: economic self interest | <i>Fraser Forum</i> , Turning the Wrong Corner, 2008 | ☒ "higher energy costs would hit low-income house-holds the hardest because they spend a larger proportion of their earnings on electricity, heating oil, and gasoline" |
| Claim: Climate Policy will result in protectionism/trade wars Theme: economic self interest | <i>Fraser Forum</i> , Cap and Don't Trade, 2009 | "prompted US industries and labour unions to demand protections against imports from countries where regulations are either not as strict or not in force" |
| Claim: Climate Policy hurts economic freedom Theme: economic self interest Frame: gov't untrustworthy/inept | <i>Fraser Forum</i> , Greenhouse Gas Reductions, 2003 | ""[climate policies] will hurt societies by reducing their economic freedom that is the wellspring of safety and environmental quality in developed countries" |
| Claim: Climate Policy hurts the economy and is a political nightmare Theme: economic self interest | <i>Fraser Forum</i> , Cap & Don't Trade, 2009 | "[Cap + Trade] would dramatically increase energy costs for goods managed in the US" "will result in a bonafide political fiasco" |
| Claim: Climate Policies will not stop climate change Theme: uncertainty vs. certainty | <i>Fraser Forum</i> , Economists Respond to the Stern Review, 2007 | "Even extreme levels of mitigation could only slow future climate change, rather than stopping it all together" |
| Claim: Climate Policies will have a minimal effect on the climate and will cost our competitive advantage | <i>Fraser Forum</i> , Regulating Greenhouse Gases, 2010 | "costly regulations would likely drive domestic businesses abroad to countries with less stringent requirements. The ensuing shift in the manufacturing base, they argue, would result in no net reduction in global emissions of greenhouse gases" |
| Finding | Document and Date | Quote |
| Frame: Environmentalists | <i>Fraser Forum</i> , To Stop | "Suzuki's climate action plan calls for increasing |

| | | |
|--|--|--|
| are extreme, not helpful to the solutions, AGW movement uncritical | Global Warming and Eco-extremism, 2008 | governmental control over virtually all aspects of Canadian life"; "with extremists like David Suzuki regularly politicizing what should really be more of an engineering exercise" |
| Claim: human-produced CO ₂ is inconsequential Theme: truth and rationality | <i>Fraser Forum</i> , 2008, Environmentalists Wild Predictions | "natural wetlands produce more greenhouse gas contributions annually than all human sources combined" |
| Claim: Market does not accept risks of climate change Theme: economic self interest | <i>Fraser Forum</i> , Turning the Wrong Corner, 2008 | "these prices already have been set by the market and reflect a relative absence of risk. Altering that price through government action would invite economic instability." |
| Claim: no recent warming | <i>Fraser Forum</i> , Global Warming on Trial, 2010 | "there has been no global warming for the past 15 years" |
| Claim: Effect of Aerosols and Land-use change are largely discounted Frame: IPCC biased | Research Study, Independent Summary for Policymakers, 2007 | "The IPCC gives limited consideration to aerosols, solar activity and land-use change for explaining 20th century climate changes. Aerosols have a large potential impact on climate but their influence is poorly understood."; "Land use changes are assumed by the IPCC to have only a minor role in explaining observed climate change" |
| Claim: too much is unknown to justify climate policies Theme: uncertainty vs. certainty; economic self interest | Research Study, Greenhouse Gas Reductions: Not warranted, not beneficial, 2003 | "We must know what the causes of observed changes are before we take actions that will divert scarce resources into potentially fruitless or even harmful policies that hurt individuals by raising the costs of energy and forcing them into less safe technologies, and hurt societies by reducing their economic freedom and ability to compete in a global setting." |

Appendix 4 – Example of Inconsistencies

Although inconsistencies appeared frequently across both sets of texts, certain documents produced numerous inconsistencies within the same text. The best example of this is found in the FOS document *FOS Response to Environment Canada's CO2 Emission Reduction Plan* (2011) where five major inconsistencies were discovered. The inconsistency is explained with supporting quotes below.

| Inconsistency | Contradicting Quotes which support Inconsistency | |
|--|---|--|
| The text argues that there has been no warming in the last 13 years (since 1998) and that global temperatures may soon fall - due to a decrease in the sun's output – but then argues for the benefits of a warming world. | "no global warming since 1998" + "now that the solar forcing has stopped increasing, and may decline" | "in total warmer temperatures result in a significant benefit, not a social cost" |
| The document states that the warming of the last century has been mostly caused by increasing Total Solar Irradiance, but then argue that the global temperature record is faulty. | "there is good correspondence between temperature and solar irradiance proxy reconstructions" + "hundreds of studies show strong correlations between solar changes and global temperatures" | "correcting the surface temperature record for the effects of urban development would reduce the warming trend over land from 1980 by half" |
| Differing explanations for why the Earth has warmed are given. | "a large part of the global warming since 1975 that the IPCC has attributed to GHG emissions may be due to natural ocean cycle variability" | "decreasing amounts of sulphates and increasing amounts of black carbon aerosols likely account for 45% or more of the warming that has occurred in the arctic during the thirty years up to 2005" |
| | "air pollution control measures which have reduced sulphate aerosols from the 1980s to the 2000s, resulting in solar brightening which significantly contributed to global warming" | "the sun is the primary cause of climate change" |
| Effect of CO ₂ is unclear. The texts argue that it is negligible for warming and quite beneficial but then also say that it could warm certain areas. | "the larger evaporation response, the reduction of water vapour in the upper atmosphere, and the cloud response allow heat to escape which reduces the small warming effect of CO ₂ emissions" | "it causes slightly warmer temperatures by about 0.5 degrees C at double CO ₂ , in about 200 years" |
| | | "if CO ₂ warms the Polar Regions there will be smaller temperatures and less severe storms" |
| The texts give countering information by stating that there has been no warming this century and then providing a graph that shows a warming trend since 2000 (p. 10). | | |

Acronyms

Below is a list of acronyms used throughout the thesis.

| | |
|-------|--|
| AGW | Anthropogenic Global Warming |
| CAGW | Catastrophic Anthropogenic Global Warming |
| CCRES | Canadian Coalition for Responsible Environmental Solutions |
| DSP | Dominant Social Paradigm |
| EP | Energy Probe |
| FCPP | Frontier Centre for Public Policy |
| FI | Fraser Institute |
| FOS | Friends of Science |
| ICSC | International Climate Science Coalition |
| IPCC | Intergovernmental Panel on Climate Change |
| ISPM | Independent Summary for Policy Makers |
| NRSP | Natural Resources Stewardship Project |
| UNFCC | United Nations Framework Convention on Climate Change |
| WMO | World Meteorological Organization |

References

Agger, B. (1994). Derrida for Sociology? A comment on Fuchs and Ward. *American Sociological Review*, 59 (4), 501-504.

Angus Reid Public Opinion. (2011). Britons question global warming more than Americans and Canadians. *A Three-Country Public Opinion Poll: Global Warming*. Retrieved March 4, 2012 from <http://www.angus-reid.com/polls/44037/britons-question-global-warming-more-than-americans-and-canadians/>

Antilla, L. (2005). Climate of scepticism: US newspaper coverage of the science of climate change. *Global Environmental Change*, 15(4), 338-352.

Antilla, L. (2010). Self-censorship and science: a geographical review of media-coverage of climate tipping points. *Public Understanding of Science*, 19 (2), 240-256.

Antonio, R. J., & Brulle, R. J. (2011). The Unbearable Lightness of Politics: Climate change denial and political polarization. *Sociological Quarterly*, 52(2), 195-202.

Armitage, K. C. (2005). State of Denial: The United States and the Politics of Global Warming. *Globalizations*, 2(3), 417-427.

Benton, L.M. & Short, J.R. (1999). *Environmental Discourse and Practice*. Oxford: Blackwell.

Berg, L.D. (2009). Discourse Analysis. In R. Kitchin & N. Thrift (Eds.), *International Encyclopedia of Human Geography* (pp. 215-221). Oxford, UK: Elsevier.

Borick, C., Lachapelle, E. & Rabe, B. (2011). Public Opinion on Climate Change in the United States and Canada. Executive Summary. *Issues in Governance Studies* 39. Retrieved Sept 23, 2012 from <http://www.brookings.edu/research/papers/2011/04/climate-change-opinion>

Boykoff, M. T., & Boykoff, J. M. (2004). Balance as bias: Global warming and the US prestige press. *Global Environmental Change*, 14(2), 125-136.

Boykoff, M.T. & Boykoff, J.M. (2007). Climate change and journalistic norms: A case-study of US mass-media coverage. *Geoforum*, 38(6), 1190-1204.

Boykoff, M. T. (2007a). Flogging a dead norm? Newspaper coverage of anthropogenic climate change in the United States and United Kingdom from 2003 to 2006. *Area*, 39(4), 470-481.

Boykoff, M. T. (2007b). From convergence to contention: United States mass media representations of anthropogenic climate change science. *Transactions of the Institute of British Geographers*, 32(4), 477-489.

Brulle, R., Carmichael, J., & Jenkins, J. (2012). Shifting public opinion on climate change: An empirical assessment of factors influencing concern over climate change in the U.S., 2002–2010. *Climatic Change*, 114(2), 169-188.

Burstein, P. (2003). The Impact of Public Opinion on Public Policy: A Review and Agenda. *Political Research Quarterly*, 56(1), 29-40.

Canwest News Service. (2006, Oct. 16). Climate change skeptics 'hopeful' Harper accepts their view. Canwest News. Original article in the Vancouver Sun. Retrieved September 20, 2012 from <http://www.canada.com/vancouversun/news/story.html?id=4399cb65-c847-4d63-ac8c-21c045ec90ed&k=50786>

Carrington, D. (Nov 22, 2011). Q & A: 'Climategate'. *The Guardian*. Retrieved Jan 23, 2013 from <http://www.guardian.co.uk/environment/2010/jul/07/climate-emails-question-answer>

Carvalho, A. (2000). Discourse Analysis and Media Texts: a Critical Reading of Analytical tools. Paper presented at the International Conference on Logic and Methodology, RC 33 meeting (International Sociology Association), Koin, 3-6 October.

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

CBC. (2009). Canada part of Copenhagen Climate Deal. Retrieved Jan 23, 2013 from <http://www.cbc.ca/news/world/story/2009/12/18/copenhagen-last-day.html>

Chung, E. (2012, March 2). Climate Change skeptic's university course criticized. *CBC News*. Retrieved Sept 20, 2012 from <http://www.cbc.ca/news/canada/story/2012/03/01/environment-climate-change-carleton-course.html>

- Cresswell T. (2009). Discourse. In R. Kitchin & N. Thrift (Eds.), *International Encyclopedia of Human Geography* (pp. 211-214) Oxford, UK: Elsevier.
- Crang M. (2003). Telling Materials. In Pryke M. et al. (Eds), *Using Social Theory: Thinking through Research* (pp. 128-144). London, UK: Sage Publications.
- Cronon, W. (Ed.). (1996). *Uncommon Ground: Rethinking the Human Place in Nature*. London: W.W. Norton and Company.
- Crutzen, P.J. (2005). Human Impact on Climate has made this the “Anthropocene Age”. *New Perspectives Quarterly* 22(2), 14-16.
- Dear, M. (1988). The postmodern challenge: reconstructing human geography. *Transactions of the Institute of British Geographers* 13, 262-274.
- Dee, E. (2009, October 30). Stephen Harper and the Fraser Institute wage war on Climate Science. *Pushed to the left and loving it*. Retrieved Sept 21, 2012 from <http://pushedleft.blogspot.ca/2009/10/stephen-harper-and-fraser-institute.html>
- Deep Climate (2009, July 16). Friends of Science: They’re back! Retrieved Sept 20, 2012 from <http://deepclimate.org/2009/07/16/friends-of-science-theyre-back/>
- DeSmogBlog. (2012). Available at: <http://www.desmogblog.com/> (accessed Sept 21, 2012).
- De Souza, M. (2008, Feb 17). Elections Canada to Investigate Anti-Kyoto group. *Canwest News Service*. Retrieved Sept, 20, 2012 from <http://www.canada.com/topics/news/national/story.html?id=b2307acc-cc2a-42dc-b562-3ed737847a4d&k=81087>
- De Souza, M. (2011, September 16). University Funds used in PR war. *Ottawa Citizen*. Article linked through Sierra Club. Retrieved Sept 20, 2012 from: <http://www.sierraclub.ca/climate-change/in-the-news/university-funds-used-pr-war-files-show>
- Diamond, J. M. (2005). *Collapse: How Societies Choose to Fail or Succeed*. New York: Penguin Group.
- Doran, P.T., Zimmerman, M.K. (2009). Examining the scientific consensus on climate change. *EOS. Transactions American Geophysical Union*, 90, 22-23.
- Dyer, G. (2008). *Climate Wars*. Toronto: Random House.

- Dryzek, J. (1997). *The Politics of the Earth: Environmental Discourses*. New York: Oxford University Press.
- Energy Probe. (2012). Available at: <http://ep.probeinternational.org/> (accessed Sept 21, 2012).
- Fitzpatrick, M. (June 19, 2008). Liberal Carbon Tax Plan Good for Planet, Wallet: Dion. *National Post*. Retrieved Jan 22, 2013 from <http://www.nationalpost.com/news/story.html?id=599498>
- Foust, C. R., & O'Shannon Murphy, W. (2009). Revealing and reframing apocalyptic tragedy in global warming discourse. *Environmental Communication*, 3(2), 151-167.
- Fraser Institute. (2012). Available at: <http://www.fraserinstitute.org/> (accessed Nov 30, 2012).
- Friends of Science (2012). <http://www.friendsofscience.org/> (accessed Nov 30, 2012).
- Friends of Science (2002). Found through the Internet Archive: Wayback Machine. Available at <http://archive.org/web/web.php>
- Frontier Centre for Public Policy (2012). Available at: http://www.fcpp.org/issues.php?issue_id=12 (accessed Nov 30, 2012).
- Frontline. (2012). Climate of Doubt. PBS Documentary. Retrieved Dec. 5, 2012 from <http://www.pbs.org/wgbh/pages/frontline/climate-of-doubt/>
- G8+5 Academies' joint statement. (2009). Climate change and the transformation of energy technologies for a low carbon future. Retrieved March 21, 2012 from <http://www.nationalacademies.org/includes/G8+5energy-climate09.pdf>
- Gelbspan, R. (1997). *The Heat is On: The High Stakes Battle over the Earth's Threatened Climate*. New York: Addison-Wesley Publishing Co.
- Gelbspan, R. (2004). *Boiling Point*. New York: Basic Books.
- Goldenberg, S. (2013, Feb 14). Secret Funding Helped Build Vast Network of Climate Denial Thinktanks. *The Guardian*. Retrieved, Feb 23 2013 from <http://www.guardian.co.uk/environment/2013/feb/14/funding-climate-change-denial-thinktanks-network>
- Gorrie, P. (2007, Jan 28). Who's still cool on global warming? *The Star*. Retrieved Sept 21, 2012 from <http://www.thestar.com/news/article/175673--who-s-still-cool-on-global-warming>

- Graham, Elspeth. (2005). Theory and Theorizing. In Castree, N., Rogers, A. & Sherman, D. (Eds.), *Questioning Geography* (pp. 258-371). Oxford: Blackwell.
- Giddens, A. (2009). *The Politics of Climate Change*. Cambridge: Polity Press.
- Greenberg, J., Knight, G., & Westersund, E. (2011). Spinning climate change: Corporate and NGO public relations strategies in Canada and the United States. *International Communication Gazette*, 73(1-2), 65-82.
- Greenpeace. (2012). Koch Industries Climate Denial Front Group: Fraser Institute. Retrieved Sept 21, 2012 from <http://www.greenpeace.org/usa/en/campaigns/global-warming-and-energy/polluterwatch/koch-industries/fraser-institute/>
- Greenpeace. (2012). Fact Sheet: Fraser Institute. Exxonsecrets.org. Retrieved Sept 21, 2012 from <http://www.exxonsecrets.org/html/orgfactsheet.php?id=107>
- Gutstein, D. (2005). Who funds the Fraser Institute? BC Teachers Federation. *Teachers Magazine*, 14 (4). Retrieved Sept 30, 2012 from <http://bctf.ca/publications/NewsMagArticle.aspx?id=7914>
- Gutstein, D. (2009). *Not a Conspiracy Theory: How business propaganda hijacks democracy*. Toronto: Key Porter Books.
- Gutstein, D. (2012). Stoking the False war between generations. *The Tyee*. Retrieved Jan 23, 2013 from <http://donaldgutstein.com/press/stoking-the-false-war-between-generations/>
- Hajer, M. & Versteeg, W. (2005). A Decade of Discourse Analysis of Environmental Politics: Achievements, Challenges, Perspectives. *Journal of Environmental Policy and Planning*, 7(3), 175-184.
- Hajer, M. (1997). *The politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford: Oxford University Press. Published to Oxford Scholarship online in 2003.
- Hajer, M. (2006). Doing Discourse Analysis: coalitions, practices, meaning. In Brink, M.V.D. & Metze, T. (Eds.), *Words matter in policy and planning*. Utrecht: Labor Grafimedia.
- Hamilton, C. (2010). *Requiem for a Species: Why we resist the truth about climate change*. London: Earthscan.

Hansen, J. (2008). Twenty Years Later: Tipping Points Near on Global Warming. *Huffington Post*. Retrieved April 10, 2013 from http://www.huffingtonpost.com/dr-james-hansen/twenty-years-later-tippin_b_108766.html

Herndl, C. & Brown, S. (Eds.). (1996). *Green culture: Environmental rhetoric in contemporary America*. Madison Wis: University of Wisconsin Press.

Hoffman, A. (2011a). Talking past each other? Cultural framing of skeptical and convinced logics in the climate change debate. *Organization & Environment*, 24(1), 3-33.

Hoffman, A. (2011b). The culture and discourse of climate skepticism. *Strategic Organization*, 9 (1), 77-83.

Hoggan, J. (2009, April 20). New Fraser Institute video both patronizing and wrong. *Desmogblog*. Retrieved Oct. 20, 2012 from <http://www.desmogblog.com/new-fraser-institute-video-both-patronizing-and-wrong>

Hoggan, J. & Littlemore, R. (2009). *Climate Cover-Up: The Crusade to Deny Global Warming*. Vancouver: Greystone Books, D&M Publishers Inc.

Hong, B. (2012, August 10). Dramatic Turnaround from Leading Climate Change Skeptic blows open debate. *Vancouver Observer*. Retrieved Sept 23, 2012 from <http://www.vancouverobserver.com/sustainability/dramatic-turnaround-leading-climate-change-skeptic-blows-open-debate>

Hong, B. (2012, August 30). Charitable Fraser Institute received 4.3 million in foreign funding since 2000. *Vancouver Observer*. Retrieved Jan 23, 2013 from <http://www.vancouverobserver.com/politics/charitable-fraser-institute-received-43-million-foreign-funding-2000>

Hulme, M. (2009). *Why We Disagree About Climate Change: Understanding Controversy Inaction and Opportunity*. Cambridge, UK: Cambridge University Press.

International Climate Science Coalition. (2012). Available at: <http://www.climatescienceinternational.org/> (accessed Sept 19, 2012).

Intergovernmental Panel on Climate Change. 2007. AR4. See Pachauri, R.K. and Reisinger, A. (Eds.). (2007).

Jacques, P. (2006). The Rearguard of Modernity: Environmental Skepticism as a Struggle of Citizenship. *Global Environmental Politics*, 6(1), 76-101.

Jacques, P.J.; Dunlap, R.E. & Freeman, M. (2008). The organization of denial: Conservative think tanks and environmental scepticism. *Environmental Politics*, 17(3) 349-385.

Jacques, P. (2012). A general theory of climate denial. *Global Environmental Politics*, 12(2), 9-17.

Johnson, B. B. (2012). Climate change communication: A provocative inquiry into motives, meanings, and means. *Risk Analysis*, 32(6), 973-991.

Jones, J. (2011). In the US Concerns about global warming stable at lower levels. Gallup Politics. Retrieved Oct 24, 2012 from <http://www.gallup.com/poll/146606/concerns-global-warming-stable-lower-levels.aspx>

Kay, J. (2011, September 15). The 'climate gate shoe is now on the other foot' . *National Post*. Retrieved Sept 25, 2012 from <http://fullcomment.nationalpost.com/2011/09/15/jonathan-kay-on-global-warming-the-climategate-shoe-is-now-on-the-other-foot/>

Kerr, R.A. (2012). Ice-Free Arctic Sea May Be Years, Not Decades, Away. *Science*, 337 (6102), 1591.

Klein, N. (2011). Capitalism vs. the Climate. *The Nation*. Retrieved April 17, 2012 from <http://www.thenation.com/article/164497/capitalism-vs-climate?page=full>

Knight, G. & Greenberg, J. (2011). Talk of the Enemy: Adversarial Framing and Climate Change Discourse. *Social Movement Studies*, 10(4), 323-340.

Kolmes, S. (2011). A Disinformation Campaign. *Environmental Magazine*, 53(4), 33-37.

Krosnick, J. (2010). The Climate Majority. *New York Times*. Retrieved Jan 12, 2013 from <http://www.nytimes.com/2010/06/09/opinion/09krosnick.html?pagewanted=all&r=0>

Lahsen, M. (2005). Technocracy, democracy, and U.S. climate politics: The need for demarcations. *Science, Technology, & Human Values*, 30(1), 137-169.

Leahy, T. Bowden, V. & Threadgold, S. (2010). Stumbling towards collapse: coming to terms with the climate crisis. *Environmental Politics*, 19(6), 851-868.

Leiserowitz, A. (2007). *Understanding Public Opinion, Perception, and Understanding of Global Climate Change*. UNDP: Human Development Report. Retrieved Nov 23, 2012 from http://hdr.undp.org/en/reports/global/hdr2007-8/papers/leiserowitz_anthony6.pdf

Lindzen, R. (2009). Resisting Climate Hysteria. *Free Republic*. Retrieved April 10, 2013 from <http://www.freerepublic.com/focus/news/2316241/posts>

Littlemore, R. (2011). Talisman Funded Friends of Science Skeptic Film. *Desmogblog*. Retrieved Jan 23, 2013 from <http://www.desmogblog.com/directory/vocabulary/655>

Maher, S. (2012, August 10). Critics of Climate Change are losing their PR battle. *Postmedia News*. Retrieved Sept 21, 2012 from <http://www.canada.com/business/Critics+climate+change+losing+their+battle/7073763/story.html>

Malone, E. L. (2009). Attitudes and responses to climate change: The intersection of worldviews and immediate concerns. IOP Conference Series: *Earth and Environmental Science*, 6(57), 572001.

Marquart-Pyatt, S. T., Shwom, R. L., Dietz, T., Dunlap, R. E., Kaplowitz, S. A., McCright, A. M., & Zahran, S. (2011). Understanding public opinion on climate change: A call for research. *Environment: Science and Policy for Sustainable Development*, 53(4), 38-42.

May, E. (2008). Roundtable marking 20th anniversary of first international climate conference releases statement. Green Party of Canada. Retrieved April 11, 2013 from <http://www.greenparty.ca/releases/30.06.2008>

McCright, A. M., & Dunlap, R. E. (2000). Challenging global warming as a social problem: An analysis of the conservative movement's counter-claims. *Social Problems*, 47(4), 499-522.

McCright, A. M., & Dunlap, R. E. (2003). Defeating kyoto: The conservative movement's impact on U.S. climate change policy. *Social Problems*, 50(3), 348-373.

McCright, A.M. & Dunlap, R.E. (2010). Anti-reflexivity: The American Conservative Movement's Success in Undermining Climate Science and Policy. *Theory, Culture and Society*, 27(2-3), 100-133.

- McCright, A. M., & Dunlap, R. E. (2011a). Cool dudes: The denial of climate change among conservative white males in the united states. *Global Environmental Change*, 21(4), 1163-1172. doi: 10.1016/j.gloenvcha.2011.06.003
- McCright, A. M., & Dunlap, R. E. (2011b). The politicization of climate change and polarization in the American Public's views of global warming, 2001-2010. *Sociological Quarterly*, 52(2), 155-194.
- McCright, A.M. (2007). Dealing with Climate Change Contrarians. In Moser, S. & Dilling L. (Eds.), *Creating a climate for change* (pp. 200-212).. New York: Cambridge University Press.
- McCright, A. M. (2011). Political Orientation moderates American's beliefs and concern about climate change. *Climatic Change*, 104, 243-253.
- McKnight, D. (2010). A change in the climate? The journalism of opinion at News Corporation. *Journalism*, 11(6), 693-706.
- Mittelstaedt, M. (2009). Ad campaign takes aim at climate change. *The Globe and Mail*. Retrieved April 3, 2012 from <http://www.theglobeandmail.com/news/national/ad-campaign-takes-aim-at-climate-change/article1367291/>
- Montgomery, C. (2006). Mr. Cool: Nurturing Doubt about Climate Change is big business. *The Globe and Mail*. Retrieved April 12 from <http://www.charlesmontgomery.ca/mrcool.html>
- Moore, J. (2012, February 23). A peek into the climate industry. *National Post*. Retrieved Sept 21, 2012 from <http://fullcomment.nationalpost.com/2012/02/23/john-moore-a-peek-into-the-climate-denier-industry/>
- NASA. (2012). Global Climate Change. Accessed Feb 24, 2013 from <http://climate.nasa.gov/index>
- NOAA. (2012). Astronomical Theory of Climate Change. National Climatic Data Center. Retrieved Jan 23, 2013 from <http://www.ncdc.noaa.gov/paleo/milankovitch.html>
- One Blue Marble. (2012). *The Climate Change Denial Industry*. Retrieved Sept 30, 2012 from <http://one-blue-marble.com/climate-change-denial-industry.html>
- Oreskes, N. (2004). Beyond the ivory tower: the scientific consensus on climate change. *Science*, 306(5702), 1686.

- Oreskes, N. & Conway, E. (2010). *Merchants of Doubt*. New York: Bloomsbury Press.
- Pachauri, R.K. and Reisinger, A. (Eds.). (2007). *Fourth Assessment Report: Climate Change 2007. Synthesis Report: Summary for Policy Makers*. IPCC. Retrieved March 30, 2012 from http://www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html
- Paehlke, R. (1989). *Environmentalism and the Future of Progressive Politics*. New Haven: York University.
- Painter J. (2011). *Poles Apart: The International Reporting of Climate Skepticism*. Executive Summary. Oxford: Reuters Institute for the Study of Journalism.
- Painter J. & Ashe, T. (2012). Cross-national comparison of the presence of climate scepticism in the print media in six countries, 2007–10. *Environmental Research Letters*, 7(4), 2-8.
- PBS Frontline. (2012). Climate of Doubt. Retrieved Jan 24, 2013 from <http://www.pbs.org/wgbh/pages/frontline/climate-of-doubt/>
- Pennycook, A. (1995). Incommensurable Discourses? *Applied Linguistics*, 15(2), 115-138.
- Pew Research Center. (2009). Modest Support for Cap and Trade Policy. Retrieved Jan 13, 2013 from <http://people-press.org/http://people-press.org/files/legacy-pdf/556.pdf>
- Powell, L. J. (2011). *The Inquisition of Climate Science*. New York: Columbia University Press.
- Pryke, M.; Rose, G.; & Whatmore, S. (2003) *Using Social Theory: Thinking through research*. London UK: Sage Publications.
- Reynolds, K. (2011, Feb. 28). The Frontier Centre's dubious numbers about public sector wages. Policy Note. Retrieved Sept 21, 2012 from <http://www.policynote.ca/the-frontier-centres-dubious-numbers-about-public-sector-wages/>
- Roe, J. (2008). Friends of Science Audit Released. *The Gauntlet*. Retrieved Jan 23, 2013 from <http://www.thegauntlet.ca/story/friends-science-audit-released>
- Russill, C. (2008). Tipping point forewarnings in climate change communication: Some implications of an emerging trend. *Environmental Communication: A Journal of Nature and Culture*, 2(2), 133-153.

Saad, L. (2012). In the US Global Warming Views Stay Steady Despite Warm Winter. *Gallup Politics*. Retrieved Jan 15, 2013 from <http://www.gallup.com/poll/153608/global-warming-views-steady-despite-warm-winter.aspx>

Santer, B. & Wigley T.M.L. (2013). A probabilistic quantification of the anthropogenic component of 20th century warming. *Climate Dynamics*, 40(5), 1087-1102.

Saxifrage, B. (Dec 11, 2012). Climate Failure from Kyoto to Doha in one simple chart. *The Vancouver Observer*. Retrieved Jan 29, 2013 from <http://www.vancouverobserver.com/blogs/climatesnapshot/climate-failure-kyoto-doha-one-simple-chart>

Schneider, S. (2009). *Science as a Contact Sport: Inside the Battle to Save Earth's Climate*. Washington: National Geographic.

Schonfeld, M. (2011). Plan B: Global Ethics on Climate Change. *Journal of Global Ethics*, 7 (2), 129-136.

Sharp, L. & Richardson, T. (2001). Reflections on Foucauldian Discourse Analysis in Planning and Environmental Policy Research. *Journal of Environmental Policy and Planning*, 3, 193-209.

Siegel, A. (2012). Climate Change Consensus: A Simple Table for Comprehension. *Huffington Post Canada*. Retrieved Jan 14, 2013 from http://www.huffingtonpost.com/a-siegel/climate-change-science-b_1290259.html

Smart, G. (2011). Argumentation across Web-Based Organization Discourses: The Case of Climate Change. In Sarangi & Candlin (Eds.), *Handbook of Communication in Organizations and Progressions* (pp. 363-386). New York: Mouton de Gruyter.

Smart, G. (2012). The discursive production and impairment of public trust through rhetorical representations of science: The case of global climate change. In C. Candlin & J. Crichton (Eds.), *Discourses of trust: The discursive construction of 'trust' within applied linguistic research*. New York: Palgrave Macmillan.

Sourcewatch. (2012). Friends of Science. Retrieved, Sept 14, 2012, from http://www.sourcewatch.org/index.php?title=Friends_of_Science#.22Friends_of_Science.22_.28FoS.29_is_not_.22Friends_Of_Science.22_.28FOS.29

- Sourcewatch. (2012). Global Warming Skeptic Groups. Retrieved Sept 21, 2012 from [http://www.sourcewatch.org/index.php/Climate_skeptic#List of global warming skeptic groups](http://www.sourcewatch.org/index.php/Climate_skeptic#List_of_global_warming_skeptic_groups)
- Standing Senate Committee on Energy, the Environment and Natural Resources. (Dec 11, 2011). Parliament of Canada. Retrieved Sept 21, 2012 from http://www.parl.gc.ca/Content/SEN/Committee/411/enev/49279e.htm?Language=E&Parl=41&Ses=1&comm_id=5
- Stewart, K. (2011). Oil Money Funded to Climate Denier Group. Greenpeace Canada. Retrieved Sept 20, 2012 from <http://www.greenpeace.org/canada/en/Blog/oil-money-funnelled-to-climate-denier-group/blog/36895/>
- Stoymenoff, A. (2012, April 25). "Charitable" Fraser Institute accepted \$500K in foreign funding from Koch Oil Billionaires. *Vancouver Observer*. Retrieved Sept, 21, 2012 from <http://www.vancouverobserver.com/politics/2012/04/25/%E2%80%9Ccharitable%E2%80%9D-fraser-institute-accepted-500k-foreign-funding-oil-billionaires>
- UNFCCC. (2012). Essential Background. Retrieved Jan 23, 2013 from http://unfccc.int/essential_background/background_publications_htmlpdf/climate_change_information_kit/items/300.php
- Waitt, G. (2010). Doing Foucauldian Discourse Analysis – Revealing Social Realities. In Hay, I. (Ed.), *Qualitative Research Methods in Human Geography*. (3rd ed.) (pp.217-240). Don Mills, Ont: Oxford University Press.
- Washington, H. & Cook, J. (2011). *Climate Change Denial: Heads in the Sand*. London: Earthscan.
- Weart, S. (2003). *The Discovery of Global Warming*. Cambridge, Mass: Harvard University Press.
- Weart, S. (2008). *The Discovery of Global Warming: Revised and Expanded Edition*. Cambridge, Mass: Harvard University Press.
- Weaver, A. (2008). *Keeping Our Cool: Canada in a warming world*. Toronto, ON: Penguin Group.
- Weber, E.U. & Stern, P.C. (2011). Public Understanding of climate change in the United States. *American Psychologist*, 66(4), 315-328.

Whitmarsh, L. (2011). Scepticism and uncertainty about climate change: Dimensions, determinants, and change over time. *Global Environmental Change*, 21, 690-700.

Woodward, K., Dixon, D.P. & Jones J.P. (2009). Poststructuralism / Postructuralist Geographies. In R. Kitchin & N. Thrift (Eds.), *International Encyclopedia of Human Geography* (pp. 553-559). Oxford, UK: Elsevier.

Verstraeten, H. (1996). The Media and Transformation of the Public Sphere: A Contribution for a Critical Political Economy of the public sphere. *European Journal of Communication*, 11 (3), 347- 370.