# Constructing Threat and Vulnerability in Climate Change Geopolitical Narratives: A View from Critical Geopolitics

By



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## Abstract

This research examines the dominant representation of climate change as a dystopian serial narrative. Defined by no present length or ending, a serial narrative requires continuity so that a body of knowledge becomes linked by prior events. In a two-part analysis that examines the ways in which science has been used to turn a crisis into a social norm, this research applies discourse analysis through a Critical Geopolitics perspective to go beyond the binary of "denial or doomsday." Shown to be a reproduction of Malthusian scarcity narratives, climate change as an existential threat to modern civilization is shown to have direct connections to Cold War security practices legitimized by scientific and state security discourse. This work in Political Geography engages with the ways in which types of science and state security inform the geopolitical culture for political and economic purpose.

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# Chapter 1: Overview and Research Context

In November of 2017, 15,364 scientists signed a petition to warn humanity about the projected impacts of anthropogenic climate change. "A great change in our stewardship of the Earth and the life on it is required, if vast human misery is to be avoided" (Ripple et al 2017). Climate change is commonly framed in popular culture as a survival crisis that will cause "starvation, destruction, migration, disease and war" (Flavelle 2018). Such dystopian narratives enable conversation and behaviors that were once on the extremes to become normalized to the extent that people "swap tips on gas masks, bunkers, and locations safe from the effects of climate change" (Osnos 2017). From the perspective of the U.S. security apparatus, climate change is a "threat multiplier" (CNA 2007) that will exacerbate and extend the war on terror. The above examples represent types of discourse within a geopolitical culture as seen through the framework of critical geopolitics.

This thesis takes a critical geopolitics approach to analyze the discourse of climate change in published works representing formal, practical, and popular geopolitics. The dataset is comprised of 45 samples subdivided into 15 samples for each type of discourse. I examine the data through the primary research question: What constitutes threat and vulnerability in climate change geopolitical narratives? Critical geopolitics views language through a series of representations as the basis for which commonsense geopolitical knowledge is produced (Dittmer & Sharp 2014, 5). Much of climate change discourse relies on measurable and quantifiable observations but does so as to inform a variety of potential human impacts. This research is designed as a two-part analysis to examine the ways in which the potential impacts of climate change have come to be represented as a dystopian serial narrative.

## Research Goals

It is useful to clarify at the outset that this research does not question the quantitative research of climate change science, or its anthropogenic causes. Rather, the goal is to critically engage with the ways in which our current geopolitical culture constitutes climate danger and speculation concerning societal collapse. This research in political geography has two main goals:

- To assess the ways in which threat and vulnerability are constructed and represented by climate change geopolitical narratives.
- To identify the ways in which the dominant representation of climate change is a "dystopian serial narrative."

The first goal is focused on the word "constitute," as it is an integral part of the primary research question of this work. To constitute a characteristic, the act involves a form of composition, or the total sum that amounts to ways of viewing the world so that commonsense understandings become a part of the dominant representation within a particular discourse. As discussed throughout this work, the ways in which threat and vulnerability are imagined by the geopolitics of state and national security share in both patterns and processes that are as old as print literature. According to Dalby (2009), security discourse relies on narratives that set in motion "policies and actions on the basis of presenting matters as threatening" (p. 47). To address the first goal of this thesis, discourse analysis is used to examine how threat and vulnerability are composed within climate discourse. To set the stage for this, it is necessary to discuss the identification of vulnerability and threat and to critically engage with the circumstances that privilege particular types of discourse and policy initiatives.

## Identifying Vulnerability

The implementation of policy in the climate context is often discussed in relation to adaptation efforts that attempt to reduce "the vulnerability of human, natural and social systems to the impacts of climate change" (Buxton and Hayes 2016, 11). Vulnerability has relationships with geography, time, and agency in ways that can be framed both in terms of natural hazards and socio-ecological systems. Under the context of natural hazards, vulnerability has been described as "characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard" (Blaikie *et al.* 1995, 9). Being designated as vulnerable to natural hazards is largely determined by economic class, levels of development, and accessibility to types of resources. According to Pielke and Sarewitz (2005), "policy debate and advocacy on the issue of climate change frequently focus on the potential future impacts of climate on society, usually expressed through economic damages or other human outcomes." Resource accessibility, geographic space and supporting climates then become a primary factor in both the preparedness of (pre) and response to (post) natural hazards. In this way, who and/or what becomes classified as vulnerable are measured by a preferred style of economic resilience.

The socio-ecological component of vulnerability asserts that "society and ecology are coupled and the contexts in which disasters happen are not just natural events but the unfolding of social and economic factors during and especially in the aftermath of the physical event" (Dalby 2009, 111). In this sense, the socio-ecological component of vulnerability is more focused on the social aspects that create vulnerabilities rather than natural hazards. Pielke and Sarewitz (2005) claimed that research studies focused on socio-ecological impacts "repeatedly show that societal vulnerability is the single most important factor in the growing damage related

to extreme events." Time and geography both have important roles in understanding socio-ecological vulnerability. Time, in the sense of time to recovery, becomes a factor for "those who take the longest to recover their livelihood" (Dalby 2009, 108). In examples like Hurricane Katrina and Superstorm Sandy, these natural events became hazardous by the ways in which they impacted and exposed the vulnerability of socio-ecological systems. Although the damage caused by extreme weather events has grown in both frequency and intensity, the trend does not reflect an increased frequency and strength of natural hazards. Rather, research shows that between 1900 and 2001, the material development of human civilization and the space which it consumed is the larger factor for the vulnerability of socio-ecological systems (Pielke and Sarewitz, 2005).

## Identifying Threat

The threat of a climate catastrophe has been framed as an existential risk in environmental security literature. According to Dalby (2009) a primary circumstance of environmental security is to safeguard against existential threats "that make civilization possible, and these (threats) need to be secured as the precondition for all other human activities" (p. 34). A threat is context dependent, but needs to be viewed as credible enough to warrant some sort of response. From the United States military perspective, climate change is a "threat multiplier" that will "aggravate stressors abroad such as poverty, environmental degradation, political instability and social tensions – conditions that can enable terrorist activity and other forms of violence" (QDR 2014, 8). This narrative details an already established concept of threat, and does so in ways that insert climate discourse into preexisting concepts of security. As noted by Admiral T. Joseph Lopez of the U.S. Navy, "climate change will provide the conditions that will extend the war on terror" (CNA 2007, 17).

Yuen (2012) noted that scholarly literature described "one of the most frightening" threats of climate danger as the "potential collapse of the food system" (p. 34). Here, food scarcity narratives are seen as legitimizing security concerns by which "militaries worldwide are already modeling scenarios based on such prognostications" (Yuen 2012, 34). Predictions of climate insecurity further include the threat of uncontrolled migration. Narratives about climate refugees are said to "exacerbate existing problems in poor and under-developed countries" (Buxton and Hayes 2016, 113), and do so in ways that could potentially lead to "new conflicts over refugees and resources" (Hartmann 2014). How a threat is defined and by whom, is intrinsic to state security discourse supported by the continual deployment of insecurity narratives (Marzec 2015, 197).

### Dystopian Serial Narratives

The second goal of this research is to identify the ways in which the dominant representation of climate change is a dystopian serial narrative. How a dystopia is defined can be subject to different interpretations. For the context of my research, a dystopia is a fictional story premised on metaphors and painted with broad brush strokes in order imagine a future filled with rampant violence and resource scarcity. These dystopian fictions attempt to associate human behavior with having misplaced the prospect for peace and stability in the event that the status quo experiences unexpected change. For a more detailed representation in the environmental context, the words of Swyngedouw (2010) are fitting:

> The apocalyptic imaginary of a world without water, or at least with endemic water shortages, ravaged by hurricanes whose intensity is amplified by climate change; pictures of scorched land as global warming shifts the geo-pluvial regime and the spatial variability of droughts and floods; icebergs that disintegrate around the poles as ice melts into the sea, causing sea level to rise; alarming reductions in biodiversity as species disappear or are threatened by extinction; post-apocalyptic images of waste lands reminiscent of the silent ecologies of the region around Chernobyl; the threat of peak oil

> that, without proper management and technological innovative foresight, would return society to a Stone Age existence; the devastation of wildfires, tsunamis, disease like SARS , avian flu, Ebola or HIV, all these imaginaries of a Nature out of synch, destabilized, threatening and out of control are paralleled by equally disturbing images of a society that continues piling up waste, pumping CO2 into the atmosphere, deforesting the earth, etc…In sum, our ecological predicament is sutured by millennial fears, sustained by an apocalyptic rhetoric and representational tactics, and by a series of performative gestures signaling an overwhelming, mind-boggling danger, one that threatens to undermine the very coordinates of our everyday lives and routines, and may shake up the foundations of all we took and take for granted.

Dystopian narratives, as explained through fictional stories of conflict and struggle, are the antithesis of a utopian society. According to Dittmer (2010, 84), a serial narrative has no present length or ending, and requires continuity so that a body of knowledge becomes linked by prior events. The continuity of knowledge discussed throughout this work explores how dystopian narratives differ by context, but all share in representation so that the stories can become familiar to the audience. As an example, the apocalypse can be defined as a world changing event. What initiates "the event" can be attributed to a variety of different causes such as nuclear war, economic collapse, dinosaur extinction, a pandemic, and/or climate change. While each event is completely different, all have been represented by near identical characteristics in the Western context since the beginning of the printing press. One identifying characteristic of a serial narrative is that the solutions presented in response to conflict are routinely in favor of maintaining the status quo. Dittmer (2010) further explained the context of serial narratives so that as a particular style, they include fictional accounts that resemble the reader's world, the plot consists of conflict as a ploy to hold the reader's interest, and the narrative concludes with the fictional world resembling what the reader is familiar with.

Much of climate-security discourse in the modern era has both relationships and continuity with Cold War security discourse (Buxton and Hayes 2016; Marzec 2015; Masco

2013; Dalby 2009). It was through several aspects of the Cold War that "a nascent understanding of the impacts of technology on the biosphere was established, formulating the research questions that would ultimately inform a theory of climate change" (Masco 2013, 171). Both nuclear war and climate change discourse further combine in ways so that dystopian speculation is now suggested to have become "an important cultural and political phenomenon in its own right" (Hayes 2016, 54). Such cultural and political imaginations frame violent weather events as symptoms of climate change which have been imagined through the lens of nuclear war. As an example, Masco (2013) showed that "Hurricane Katrina was, in the first case, understandable to America's political leadership, and many of its citizens, only in terms of nuclear catastrophe" (p. 183).

According to Yuen (2012), "the spectre of apocalypse haunts the world today. Every political, cultural, and aesthetic field that we look at is replete with talk of catastrophe" (p. 15). Dystopian fears are said to be premised on a wide range of false ideas that include "right-wing racial paranoia, religious millenarianism, liberal panics over fascism, leftist fetishization of capitalist collapse, capitalist invocation of the 'shock doctrine,' and pop culture cliché" (Yuen 2012, 15-16). Within this literature dedicated to explaining the falsehoods of impending catastrophe, anthropogenic climate change and its impacts on the environment are viewed as being somehow different. "Of all the forms of catastrophic discourse on offer, the collapse of ecological systems is unique in that it is definitively verified by a consensus within the scientific community" (Yuen 2012, 15).

Any scientific "consensus" about a climate change dystopia that has been described by the collapse of ecosystems was also a predicted result of nuclear war. As Ehrlich *et al* (1983) put it, "It is clear that the ecosystem effects *alone* resulting from a large-scale thermonuclear war

could be enough to destroy civilization in at least the Northern Hemisphere." It was within this Cold War scientific disaster scenario that threat and vulnerability in relation to time began to emphasize the long-term after-effects being just as important as immediate impacts. "Accordingly, the longer-term and global scale after-effects of nuclear war might prove to be as important as the immediate consequences of the war" (Sagan *et al* 1983).

The objective to be achieved by identifying climate change as a predominantly dystopian discourse is to acknowledge the ways in which formal, practical, and popular geopolitical discourse have worked together to generate "a constant state of anxiety that has turned 'crisis into a social norm" (Marzec 2015, 200). This research seeks to contribute to a conversation that is beyond a climate change binary of "denial or doomsday," a conversation that, as Hartman (2017) recognized, has "descended into the either/or extremes of US political discourse" (p. 204). A way in which my research contributes to this "beyond the binary" conversation is to acknowledge that a trait of extremist behavior was once doomsday thinking. "Extremists often predict dire or catastrophic consequences from a situation or from a failure to follow a specific course…for extremists, any setback or defeat is 'the beginning of the end'" (George and Wilcox 1996, 59). This type of extremist narrative is one in which climate policies and politics may find dystopian speculation as "opportunity to evidence their own moral superiority" (Hartman 2017, 215). As an example, Representative Alexandria Ocasio-Cortez claimed in an interview that "the world is going to end in 12 years if we don't address climate change" (Cummings 2019). By identifying the dominant representation of climate change as a dystopian serial narrative, the second goal of this research considers climate change as a variable within a much larger "end of the world" discourse.

## Hypotheses

When a discourse is situated as the dominant representation, it is to say that a particular framing is the superior, i.e., most influential and widespread, conception of that particular discourse. My hypothesis is that if the dominant representation of climate change is a dystopian serial narrative, then through its shared representations, climate change is not unique when analyzing the discourse of the projected impacts. Furthermore, should climate change include a serial component, I hypothesize that the dystopian discourse of climate change is an extension of classical geopolitics. As further discussed below, classical geopolitics is a framework that positions the purpose of a geopolitical culture as one of survival, supported by narratives of competition and conflict. Examining what constitutes threat and vulnerability, my hypothesis includes that there exists a relationship to economic power, types of development, and resource accessibility, all of which are under the theater of different political agendas.

A common theme for situations characterized by uncertainty is that speculation is a fundamental and necessary effort to better understand that situation. When those in a position of authority do not fully understand the end result(s) of a particular field of inquiry, speculation is a natural and often useful approach of assessment. However, it is the amount of alarming rhetoric in that speculation that may provide a sense of certainty through familiar narratives of conflict in order to justify increased security measures. It is through uncertainty that increased desires for security may come to dominate political agendas and policy goals which permeate the geopolitical culture. If security discourse presents matters as threatening so as to set in motion desired policies and actions (Dalby 2009, 47), then my hypothesis includes the idea that narratives of uncertainty tend to rely on "the principle of scarcity." According to Cialdini *et al.* (2003),

> The principle of scarcity provides that items and opportunities become more desirable as they become less accessible. As a result, an effective mediator or negotiator should never fail to describe the unique or otherwise unattainable advantages of any recommendation or offer. Moreover, research on the principle of scarcity has demonstrated that, in situations characterized by uncertainty, presenting these unique advantages as what stands to be lost by a failure to take action is more persuasive than emphasizing what stands to be gained by taking action.

In an effort to show stability, I hypothesize that security doctrine may present uncertainty through the principle of scarcity in ways that infer any failure to implement particular solutions and policies is said to result in a dystopian future. In turn, the discourse becomes a dystopian serial narrative that differs by event, but remains familiar through shared representations that describe what our society should expect to lose if we fail to act.

## Geopolitics – Classical to Critical

Classical geopolitics is a framework that studies the relationships between geography, state territory, and power. Generally accredited to the work of Ratzel (1897), classical geopolitics applied Charles Darwin's theory of national selection to state sovereignty. The actual term "geopolitics" was coined in 1899 by Swedish political scientist Rudolf Kjellen, who was a pupil of Ratzel's. Applying the "survival of the fittest" perspective to state territory and the natural environment, states were framed as organic entities that required territorial expansion in order to survive. A key part of geopolitics was the concept of *Lebensraum*, which inspired an intellectual movement among German and Scandinavian scholars during early parts of the 20$^{th}$ century.

Classical geopolitics positioned the field of geography, and Germany as the land of geographers, as having been born of a "gods eye view" for how the world "really" worked. Following retirement from the German military in 1919, Karl Haushofer taught geography at the University of Munich. Having been an advocate of Ratzel's theory, Haushofer taught

Lebensraum at the University and it was there that he was introduced to and taught Rudolf Hess. Later becoming one of five key members of the Nazi Party, Hess was incarcerated following the Beer Hall Putsch of 1923 in which Haushofer would visit Hess in prison, and thus became introduced to Hitler. It was at that point that the geopolitics of Lebensraum became instrumental to Nazi Germany's geopolitical strategy (Dodds 2007).

At the end of World War II, classical geopolitics became discredited due to its association with the atrocities committed by Nazi Germany. Classical geopolitics later reemerged during the Cold War in large part due to Henry Kissinger (Dodds 2007). After the Cold War, a renewed interest in the spatiality of power that was beyond the superpower rivalry between the U.S. and USSR inspired the critical examination of geography as a discipline. Out of this renewed examination, critical geopolitics grew as a sub-discipline within political geography during the early 1980s.

The term "critical geopolitics" was coined by Simon Dalby (1990), and the sub-field is focused on questioning and acknowledging that classical geopolitical theory is a highly ideological and politicized form of analysis. From a critical geopolitics perspective, a central theme of classical geopolitics was "the production of knowledge to aid the practice of statecraft and further the power of the state" (O'Tuathail and Agnew 1992). A primary distinction between classical and critical geopolitics is that "traditional geopolitics treats geography as a nondiscursive terrain that pre-exists geopolitical claims, (whereas) critical geopolitics approaches geographical knowledge as an essential part of the modern discourses of power" (Kuus 2010, 4). Through critical examination of types of power, critical geopolitics aims to question the geographical and imagined binaries of classical geopolitics.

> The concerns of critical geopolitics are problem-based and present-oriented; they have to do not so much with sources and structures of power as with the everyday technologies of power relations. The field's key claim is that although (classical) geopolitics proclaims to understand "geographical facts," it in fact disengages from geographical complexities in favor of simplistic territorial demarcations of inside and outside, Us and Them. Critical geopolitics seeks to destabilize such binaries so that new space for debate and action can be established (Kuus 2010, 5-6).

As described by O'Tuathail (2006), critical geopolitics conceptualizes classical geopolitics as a type of culture through three primary structures:

- State Structures: History, Geography, Identity, State Apparatus, and Power Networks.
- Geopolitical Imaginations: Geopolitical traditions characterized by particular schools of thought on foreign policy and the state.
- Geopolitical Discourse: Subdivided by formal, practical and popular.

Geopolitical cultures are perceived to have legitimacy through particular discourses surrounding world politics. The types of discourse are a product of a "state-centered society at multiple sites" (O'Tuathail 2006). Described in more detail below, critical geopolitics makes a distinction between three types of discourses within a geopolitical culture.

### Formal Geopolitics

Formal geopolitical discourse is communicated by academics and researchers in universities, think tanks, and similar institutions. To be critical of formal discourse is to acknowledge the ways in which academics, researchers, and commentators appeal to, borrow from, and continue the intellectual tradition of realist geopolitics. To do so is to recognize that "theorists have their views shaped by the other sites of discursive production just as much as they shape them (through they may loathe to admit it)" (Dittmer & Sharp 2014, 6).

### Practical Geopolitics

Practical geopolitics is the discourse relayed by politicians, the military, and those communicating the perspective of the state. Practical geopolitics is comprised of policy initiatives that include some sort of action; that is, the process of *doing* by applying geopolitical knowledge through policy and action. In doing so, practical discourse can utilize "inherited forms of geographical knowledge to enframe particular questions and tacitly deploying cultural geographic discourses to explain certain dramas and events" (O' Tuathail 1999).

### Popular Geopolitics

Popular geopolitics, the third branch of critical geopolitics, is a discourse relayed by media platforms such as movies, the internet, television, and news articles. "Popular geopolitical discourse is how particular geographical understandings of the world come to be made common sense" (Dittmer & Sharp 2014, 7). Popular culture can often be a point of contention and may be considered a less reliable source of information, but it is also a type of discourse that amplifies and is connected to geopolitical rhetoric, agendas, and policy. "Media culture articulates dominant discourses and circulates opposing political positions around class, race, gender, sexuality, politics, and other crucial concerns of the present" (Kellner 2003, 27).

## Research Context

Climate change has been linked to security by numerous authors and researchers (Dalby 2009; Holbraad & Penderson 2013; Marzec 2015; Anshelm *et al* 2015; Buxton and Hayes 2016). Dalby (2009) argued that the term "security" is highly contested in both scholarly and political discourse (p. 46). Securitization is a mode of analysis that is associated with the Copenhagen school of security studies, and invokes "a desired state as well as a threat to that state" (Dalby 2009, 47). State security initiatives focus on resource mobilization in response to a declared

emergency in ways that "necessitate the suspension of normal rules of law, and the granting of additional powers to police or military agencies" (Dalby 2009, 47). Security policy is an inherently political act through the ways in which supporting narratives attempt to define threat and vulnerability, and whether the receiving audience accepts those definitions of danger. Linking climate change to security is premised on an environmental discourse and ecological crisis. Similar to Cold War security concerns where Communism was portrayed as an existential threat to Western society that required a large-scale militarized response, global environmental change and climate change have become framed as existential threats for contemporary society (Dalby 2009, 49-55). In this way, climate change has been linked to a militarized response through a type of political discourse.

Robert Marzec, in *Militarizing the Environment: Climate Change and the Security State* (2015), asserts that militarizing the environment has normalized an unknown and dangerous frontier: "The argument that nature's ontological ground is the fight for one's security and the securitization of one's territory is essentially a *militarized* argument that interprets the basis of life as warfare and survival" (Marzec 2015, 203). Securitizing the climate includes speculation about future disasters and making sense of the present through relationships between climate science, national security, and the geopolitical imagination. Marzec described this relationship as a "state of exception" in which security discourse necessitates a response that supersedes the law. "These calculative moves, which work by preying on the fears of geopolitical insecurity ('extremism'), are designed to camouflage the violence of a reductive logic that shrinks all environmental concerns to the world of 'security policy'" (Marzec 2015, 219). Such fears of insecurity have relationships to a more defined geopolitical imagination about resource scarcity supported by Malthusian narratives.

Malthusian narratives focus on a concern that humans reproduce faster than our ability to feed ourselves (Dalby 2009, 16). Malthusian narratives are also selective in identifying which humans there is concern for in the context of a growing population. These concerns are attached to binary framing so that "Malthusian fears are not usually about us but about 'them,' the poor and the foreign, who breed too profusely for 'our' comfort" (Dalby 2009, 17). Scarcity narratives support the argument that subsistence living is a destructive force on society and that private property rights are the solution. The solutions are framed as technological so that the technique of doing "is now sacred such that the search for efficiency mediates all human action" (Stock 2015, 175). It is within these binary narratives and the technological relationship to resource accessibility that environmental scarcity narratives contribute to and reinforce a "fortress mentality."

As discussed by White in *Environmental Insecurity and Fortress Mentality* (2014), a fortress mentality is created by geopolitical discourse so as to develop new consumer markets. The concept of "markets of insecurity" has origins in Cold War security practices supported by political antagonisms that normalize an "underground-conscious" society (Seed 2013). A fortress mentality serves to inspire the nation to defend "our' lifestyle and 'our' way of life" which is "built upon notions of entitlement and in-group benefit that have historically been shaped from the European colonial era onwards" (White 2014). When paying particular attention to a discourse, it is unlikely that narratives of security are unaware of the ways in which such representations are presented. According to Hansen (2006), it is "politically unsavvy" for politicians to be unaware or without concern for the representations in which a policy initiative is presented (p. 7). Such a process links ontological assumptions to a series of epistemological

choices. “Policy and identity are therefore conceptualized as ontologically interlinked” (Hansen 2006, 17).

The notion of what climate security means has direct relationships with Cold War security practices (Dalby 2009; Marzec 2015; Buxton and Hayes 2016). Similar to Cold War security discourse in which “the debate about nuclear war rapidly turned into a series of speculations about which areas of normal social life would be the first to collapse” (Seed 2013), climate change discourse has increasingly become framed in apocalyptic terms (Buxton and Hayes 2016; Anshelm *et al* 2015; Dalby 2009). As early as 2003, climate change as a dystopian future (Schwartz & Randall 2003) entered the geopolitical imagination through formal, practical, and popular geopolitical representations of security. The apocalyptic framing of climate change gained momentum from 2004 through 2009 through assertions that linked Hurricane Katrina to Hiroshima (Masco 2013, 183), Al Gore’s documentary *An Inconvenient Truth,* and the publication of the IPCC’s Fourth Assessment Report on climate change (Anshelm *et al* 2015, 5).

As Swyngedow discussed in *Apocalypse Forever? Post-Political Populism and the Spectre of Climate Change* (2010), climate change is framed as an apocalyptic discourse which sustains public concern. This dystopian framing is supported by scientific expertise focused on the changing of the atmosphere’s composition, especially in terms of the anthropogenic addition of greenhouse gases, and their predicted impacts. “These undisputed facts are, without proper political intermediation, translated into matters of concern” (Swyngedow 2010). These matters of concern are not open for discussion and are consensually framed as beyond dispute. “In this consensual setting, environmental problems are generally staged as universally threatening to the survival of humankind, announcing the premature termination of civilization as we know it” (Swyngedow 2010). In doing so, climate change as a dystopian narrative replaces the democratic

with “consensual policing arrangements (and) is organized through post-democratic institutions of governance (Swyngedow 2010).

## Expected Contribution

My research seeks to contribute to the literature of critical geopolitics, and more broadly to climate change discourse, by identifying the ways in which dystopian narratives share key similarities. By critically analyzing what constitutes threat and vulnerability and then contextualizing trends within the dystopian discourse of climate change, my contribution is to look beyond the apocalyptic visions to focus on the ways in which such narratives grow, and capitalize on, consumer markets of insecurity (Foster 2016).

## Thesis Structure and Chapter Outlines

To address the two goals of this research, the body of this thesis is divided into two parts, each consisting of two chapters. The first part (consisting of chapters 2 and 3) is designed to address the first goal of the thesis by primarily assessing the ways in which threat and vulnerability are constructed and represented within climate change geopolitical narratives. Chapter 2 explains the research method of discourse analysis and provides in-depth detail about my approach for analyzing the discourse of climate change geopolitical narratives as found in 45 selected works (15 each for formal, practical, and popular geopolitics). I provide the systematic approach used to examine the data by the descriptive and analytical codes that I have selected for this study. In chapter 3, the results are presented in their descriptive context and then cross-examined in relation to the analytical coding structure.

An integral part of discourse analysis is to locate the wider historical context that privileges particular types of discourse. I do this in the second part of the thesis body, comprising

chapters 4 and 5. Chapter 4 provides an introductory overview by briefly discussing colonial constructs and the development of imagined communities. Expanding on the concept of "survival," I examine the geopolitical culture during the Cold War in order to address the second goal of this study, identifying the ways in which the dominant representation of climate change is a "dystopian serial narrative." In chapter 5, I extend the Cold War dystopian projections to demonstrate how they inform the serial component of climate danger. Beginning in 2003, climate change began to be discussed as a national security issue. The style in which climate security developed was, in part, an extension of Cold War security culture. I then examine the ways in which climate change rhetoric became increasingly alarmist as time progressed so that climate change in its most recent rhetoric is imagined through the lens of World War. Chapter 6 provides an overall summary and conclusions.

# Chapter 2: Methods – Discourse Analysis

This thesis utilizes discourse analysis (DA) to examine the research question: What constitutes threat and vulnerability in climate change geopolitical narratives? Discourse analysis is a qualitative research method that aims to "uncover the social mechanisms that maintain structures and rules of validity over statements about particular people, animals, plants, things, events, and places" (Waitt 2010, 218). Research that analyzes a discourse relies on the inductive literary coding of text in ways that is not quantified but rather organizes and interprets how particular systems of knowledge make sense of meaning, attitude, and practice. DA offers insights into how types of knowledge, referred to as discursive formations, become the dominant representation of a particular type of discourse.

According to Foucault (1972), a discourse is a "group of statements in so far as they belong to the same discursive formation" (p. 117). Groups of statements are made possible by a specific context that exists across different texts, types of discourse and even time periods. Discursive formations "refer to the same object, are made in the same enunciative modality, share a system of conceptual organization and share similar themes and theories" (Sawyer 2002). However, statements that are grouped by object are different from statements organized by subject. In this sense, a discourse is not fixed by the limits of a particular subject, but rather includes descriptions which can be grouped by concepts. The purpose of discourse analysis not only identifies how discursive formations are created but also how they are put into practice. When discursive formations are put into practice, the process imposes limits on the ways in which knowledge is constructed as well as defining what types of knowledge become valued as legitimate (Hay 2010, 233). The effort to legitimize certain ways of knowing the world, and our place in it, becomes framed as the "truth" and can be used as a modality to support and organize

hierarchical structures through commonsense understandings, i.e., the dominant representations. Once a particular discourse has been identified, the analysis aims to locate a wider historical context in order to understand how a particular type of "common sense" knowledge was socially constructed (Turner 1996, 32-33).

Incorporating discourse analysis within the framework of critical geopolitics, this thesis organizes and interprets a narrow selection of data across formal, practical, and popular discourse. The aggregate of the three types of discourse captures the essence of a geopolitical culture. Critical geopolitics is an appropriate framework for this thesis because the framework "strives to expose…power politics to scrutiny and public debate in the name of deepening democratic politics" (O' Tuathail 1999).

## Data selection

This thesis is designed as an intensive study about the ways in which geopolitical discourse constitutes climate danger. The dataset consists of 45 written texts that have been subdivided into 15 samples for each type of discourse. I surveyed approximately 100 articles about the projections of climate impacts and was careful to account for the ways in which formal, practical, and popular discourse differ in writing style and how each discourse addresses a particular audience. When selecting which articles to analyze, I determined that one of several key characteristics for data selection would be the quality of detail that each sample provides, i.e., the richness of description, the depth of discussion, along with how the discursive formation of climate impacts are framed within and across each type of discourse. In order to narrow the data to a set that is manageable, all data selected for this research share the characteristic that they describe in detail the types of threat and vulnerability our future "should" expect in response to climate change impacts.

I reduced the data to cover the period between the years 2010 and 2019 from the U.S. and U.K. perspective because I am particularly interested in the most recent and descriptive context of climate change geopolitical discourse. In an effort to contribute to the literature of political geography, new insights into what constitutes climate change as a dystopian serial narrative requires the most recent reflection of our geopolitical culture. Discussed in the succeeding chapters of this work, I follow the systematic approach of discourse analysis by focusing on the historical context of state security initiatives and dystopian future projections. Research context for the second part of this study is then presented for how climate concern gained momentum during the Cold War that later extended into the decade of the 2000s. The articles examined in this study are listed below in tables 1, 2, and 3.

**Table 1 - Formal Discourse data**

| Author | Year | Publication | Title of Article |
|---|---|---|---|
| Ehrlich, P. R., & Ehrlich, A. H. | 2013 | *Proceedings of the Royal Society B: Biological Sciences*. | Can a collapse of global civilization be avoided? |
| Femina, F., & Werrell, C. E. | 2014 | The Center for Climate and Security, Briefer, (23) | Update: climate and security 101: Why the US national security establishment takes climate change seriously. |
| Gleick, P. H. | 2014 | Weather, Climate, and Society, 6(3), 331–340. | Water, Drought, Climate Change, and Conflict in Syria. |
| Hsiang, S. M., Burke, M., & Miguel, E. | 2013 | Science, 341(6151), 1235367–1235367. | Quantifying the Influence of Climate on Human Conflict. |
| Mach, K. J., Kraan, C. M., *et al* | 2019 | Nature, 571(7764), 193–197. | Climate as a risk factor for armed conflict. |
| Mares, D. | 2013 | Journal of Urban Health, 90(4), 768–783. | Climate Change and Levels of Violence in Socially Disadvantaged Neighborhood Groups |
| McMichael, A. J. | 2012 | Proceedings of the National Academy of Sciences, 109(13), 4730–4737. | Insights from past millennia into climatic impacts on human health and survival. |
| Moss, R. H., Edmonds, J. A., *et al* | 2010 | Nature, 463(7282), 747–756. | The next generation of scenarios for climate change research and assessment. |
| Ripple, W. J., Wolf, C., *et al* | 2017 | BioScience, 67(12), 1026–1028. | World Scientists' Warning to Humanity: A Second Notice. |
| Ripple, W. J., Wolf, C., *et al* | 2019 | BioScience. | World Scientists' Warning of a Climate Emergency. |
| Scheffran, J., Brzoska, M., *et al* | 2012 | Science, 336(6083), 869–871. | Climate Change and Violent Conflict. |
| Sunga, L. S. | 2014 | International Journal on Minority and Group Rights, 21(1), 1–24. | Does Climate Change Worsen Resource Scarcity and Cause Violent Ethnic Conflict? |
| Tong, S., & Ebi, K. | 2019 | Environmental Research, 174, 9–13. | Preventing and mitigating health risks of climate change. |
| Zimmerer, J. | 2014 | The International Journal of Human Rights, 18(3), 265–280. | Climate change, environmental violence and genocide. |
| IPCC. Field, C.B., *et al* | 2014 | Cambridge University Press, | Summary for policymakers. Impacts, Adaptation, and Vulnerability. Part A: Global Sectoral Aspects. |

**Table 2 - Practical Discourse data**

| Author | Year | Publication | Title of Article |
|---|---|---|---|
| Davila , C. | 2018 | City Council of Berkeley, CA. | Climate Emergency |
| Department of Defense | 2014 | U.S. Department of Defense | Climate Change Adaptation Roadmap |
| Department of Defense | 2014 | U.S. Department of Defense | Quadrennial Defense Review |
| Department of Defense | 2015 | U.S. Department of Defense | National Security Implications of Climate-Related Risks and a Changing Climate. |
| Department of Defense | 2018 | U.S. Department of Defense | Climate-related risk to DoD infrastructure initial vulnerability assessment survey (SLVAS) report |
| Department of Defense | 2019 | U.S. Department of Defense | Reports on Effects of a Changing Climate to the Department of Defense. |
| President Obama: Executive Order | 2013 | The White House | Preparing the United States for the Impacts of Climate Change. |
| President Obama: FACT SHEET | 2013 | The White House | President Obama's Climate Action Plan. |
| Melillo, Jerry M., *et al* | 2014 | U.S. Global Change Research Program, 841 pp. doi:10.7930/J0Z31WJ2 | Climate Change Impacts in the United States: The Third National Assessment. |
| Public Law 115-91. | 2018 | United States Congress | National Defense Authorization Act for Fiscal Year 2018. |
| U.S. Department of the Interior | 2014 | Bureau of Reclamation: | Managing Water in the West - Climate change adaptation strategy |
| U.S. Department of Agriculture | 2012 | USDA | Climate Change and U.S. Agriculture: An Assessment of Effects and Adaption Responses |
| Crimmins, A., J *et al* | 2016 | U.S. Global Change Research Program Washington, DC | The Impacts of Climate Change on Human Health in the United States |
| U.S Army of War College | 2019 | U.S. Army of War College | Implications of Climate Change for the U.S. Army. |
| U.S. Navy | 2010 | U.S. Navy | Navy Climate Change Road Map. |

**Table 3 - Popular Discourse data**

| Author | Year | Publication | Title of Article |
|---|---|---|---|
| Anderson, L. | 2014 | Reuters | US Homeland Security moves to tackle climate change risks |
| Borenstein, S | 2013 | Associated Press | Warming report sees violent, sicker, poorer future. |
| Conca, J | 2017 | Forbes | Does Our Military Know Something We Don't About Global Warming? |
| Davenport, C | 2014 | New York Times | Pentagon Signals Security Risks of Climate Change. |
| Flavelle, C. | 2018 | Bloomberg | New Climate Debate: How to Adapt to the End of the World |
| Goldenberg, S. | 2016 | The Guardian | Climate change threat to public health worse than polio, White House warns |
| Leman, J. | 2019 | Popular Mechanics | Welp, the Latest UN Climate Change Report Sure Is Bleak. |
| Parker , L. | 2018 | National Geographic | 143 Million People May Soon Become Climate Migrants. |
| The Washington Post, Post Staff Opinion | 2019 | The Washington Post | Opinion: Here are 11 climate change policies to fight for in 2019. Retrieved from |
| Reuters | 2014 | Reuters | John Kerry Calls Climate Change A 'Weapon Of Mass Destruction' And Mocks Deniers. |
| Roberts, D. | 2019 | Vox | Scientists have gotten predictions of global warming right since the 1970s. |
| Scher, A | 2019 | NBC News | 'Climate grief': The growing emotional toll of climate change. |
| Stern, N. | 2014 | The Guardian | Climate change is here now and it could lead to global conflict |
| Wallace-Wells, D. | 2017 | Intelligencer | When Will the Planet Be Too Hot for Humans? Much, Much Sooner Than You Imagine. |
| Weise, E., & Rice, D. | 2019 | USA Today | 99.9999% chance humans are causing global warming, and other science-based facts on climate change for Earth Day. |

Although peer-reviewed articles in the formal geopolitics category are frequently behind journal paywalls, I selected the practical and popular data so that anyone with internet availability would have open access to the data in those categories. I found this to be important so that for those who are interested, they have the ability, as far as possible, to critically examine the sources used in this study.

A primary criterion for selecting the formal data was that *all* literature must be peer-reviewed. While this approach to selecting formal data imposes limits to open access, as noted above, I found this limit to be a necessary step for establishing rigor. Selecting peer-reviewed scholarly literature, as opposed to scholarly books or opinion pieces penned by scholars and published by media outlets, was a fundamental and necessary approach to researching climate change geopolitical narratives. By selecting only peer-reviewed literature for the formal data, the goal was to critically engage with what is sometimes referred to as the gold standard of research.

During the initial stages of my research, I noticed several recurring themes, as well as certain literature that was repeatedly cited across each of the three types of discourse. As an example, Gleick (2014) was repeatedly cited across a wide range of literature in relation to humanitarian disasters, and in particular, drought contributing to resource scarcity said to have resulted, in part, in increased levels of violence as seen in Syria. This particular article by Gleick is included in the data not only because of the richness of the text, but also for how widely cited it is. When paying attention to the descriptive themes across each type of discourse, the projected impacts of climate change can be broadly framed in terms of the natural environment, the human environment, and/or food production as represented by surpluses or shortages. In the early stages of my research I also noticed several differences within climate change discourse which focused on specific geographic scales, ranging from states and geographic regions to all of humanity.

Further differences included a focus on specific cultures and economic classes. However, I found these descriptions to be too broad to be meaningful because while they capture representations of climate impacts, they do not account for the serial context of its dystopian discourse.

## Coding

Discourse analysis relies on the inductive literary coding of text in order to identify key themes that span the data (Phillips and Jorgenson 2002, 124). The two primary functions of coding serve to organize and interpret the discourse across the selected data (Waitt 2010, 231). I organized the data by three primary descriptive codes and then reduced the context into a more narrow set of sub-codes. The descriptive codes used in this study are listed in Table 4.

**Table 4 - Descriptive Coding**

1. The impacts of climate change
   - Explicit discussion of short-term weather events.
   - Explicit discussion of long-term climate events.
   - Explicit discussion of humanitarian disasters.
2. Communicating the danger
   - Employing alarming language.
   - Citing across formal, practical and popular discourse.
   - Direct mention of thresholds (2°C, 1.5°C), and or tipping points.
3. Addressing climate change
   - Proposed solutions and or mitigation efforts in response to climate change

The descriptive codes that I selected first examine how the impacts of climate change are communicated in the data. As an introductory concept in atmospheric science, the differences between meteorology and climatology are important to note. Focused primarily on smaller geographic scales, weather is a term that refers to "tangible aspects" of the atmosphere and is studied by the field of meteorology. Involving the present, the immediate past, and the very near future, meteorology studies weather events "over time spans of a few days at most" (Rohil &

Vega 2012, 3). Climatology is different because the field studies normals, extremes, and frequencies to gauge the state of the atmosphere over much longer time periods and larger geographic scales. "Climatic normals are typically calculated for 30-year periods and give a view of the type of expected weather conditions for a location through the course of the year" (Rohil & Vega 2012, 3-4). Recognizing the difference in both the temporal scales and geographic regions that separates climate and weather is an important distinction for the purpose of critical analysis.

For instance, extreme natural hazards are characterized as extreme because they are not normal. Yet, in climate geopolitical discourse, short-term extremities can both directly and indirectly shape perceptions for how short-term events are said to become normal over the long-term. Furthermore, humanitarian disasters can be an identifier of extreme situations in ways that specific weather events become proxies for climate concern. Coding for the impacts of climate change is important in order to group statements that link short and long-term weather, and extreme representations, to climate projections.

The second primary code examines the ways in which the danger of climate change is communicated in the data. Divided by the sub-codes of alarming language, citing across discourse, as well as any direct mention of threshold and tipping points, the purpose is to engage with the style in which climate change is communicated in the data. Discussed later in this work, each sub-code which communicates the danger of climate change is placed in its historical context as a way to map the continuity of dystopian metaphors to show how they became attached to our modern imagining. The style in which climate danger is communicated in our modern era is an integral aspect to understanding the relationship to dystopian serial rhetoric.

Addressing climate change is the third primary code, and is used to organize the ways in which solutions are presented within the data while paying particular attention to the style in which they are presented. As previously discussed, I theorize that climate discourse framed as a matter of security may rely on the principles of scarcity. The goal with the third primary code is to examine any patterns within the data under the context of fear-based narratives that are said to be resolved and or mitigated by a particular solution. I am particularly interested to understand if the solutions offered differ by discourse or if the solutions share in similar themes and theories.

In addition to the descriptive codes, I use two analytical codes to interpret the constitution of threat and vulnerability within climate change geopolitical narratives. The analytical codes used in this study are:

- Development
- Accessibility

Development as an interpretive code pays attention to how geopolitical narratives frame a threat and or vulnerability in the context of preferred types of development. Drawing from colonial and Cold War constructs, certain types of development have been used historically as an ideological tool to mitigate perceived threats to a geopolitical culture. As one example, water management strategies carried out by the U.S. Bureau of Reclamation under the direction of the U.S. State Department during the Cold War were used as a tool to combat the ideological threat of communism (Sneddon 2015). As an interpretive code, development is used in order to pay careful attention to the context in which types of innovation are presented as solutions to the climate problem.

Accessibility as an interpretive code is useful when paying attention to relationships with how threat and vulnerability are constructed. In the context of this research, I am looking at accessibility in relationship to different levels of access to resources. Malthusian scarcity narratives tend to associate those of a lower economic class as being a threat and/or a vulnerable class due to their level of access to, and development of, particular types of resources. However, dystopian degradation narratives themselves were commonly explained by those in positions of authority and their point of view may expose the geopolitical actors' own measure of accessibility to resources.

As discussed throughout this work, scholars during the colonial period would author survival literature so that those narratives were told, in part, for the purpose of obtaining funding for future research expeditions. A similar pattern is discussed throughout the Cold War chapter with the development of the military-industrial-academic complex. That military/academic relationship was described as unique given the nuclear context, but also familiar due to the shared (historical) descriptive representations (Masco 2015). Given the historical context that blends together geopolitical constructs from the colonial and the Cold War era, the coding that I have selected examines climate change discourse through similar patterns and processes that routinely situate different geopolitical cultures as repeatedly being near the end of civilization.

It is important to acknowledge that my descriptive and interpretive codes within the formal, practical, and population geopolitical discourses are not always distinct and neatly separated but can often be overlapping and work in relationship with each other. To systematically approach the dataset, I organize, reduce, and summarize the dominant themes in the context of my descriptive codes for each geopolitical discourse. I further identify if, and in what ways, the dominant theme expands across each of the three discourses. This approach is

useful in addressing my primary research question and is discussed in the context of my analytical codes. To demonstrate how I will approach this research, below is a brief sample of analysis for each geopolitical narrative.

### Example of Discourse Analysis – Formal

An example of a formal geopolitical text and my systems approach is found in Ehrlich and Ehrlich's work: *Can a collapse of global civilization be avoided?* (2013). The context of this formal discourse is that for the first time in humanity's *global* interconnectivity, civilization is threatened with collapse due to the rate of environmental degradation and anthropogenic climate change. Climate change and its projected impacts are referred to as "the human predicament," described by overpopulation and overconsumption of "natural" resources. "No civilization can avoid collapse if it fails to feed its population" (Ehrlich and Ehrlich 2013). Food scarcity is a primary concern in this sample and becomes the context of what global collapse looks like. This formal narrative mentions food distribution in passing (accessibility), but the primary focus of this text is industrial agricultural production. The key to avoiding collapse of civilization is transforming humanity's entire system to avoid "climate-related mass famines" (Ehrlich and Ehrlich 2013). Further issues beyond food scarcity include global toxification (a mention linked to the overreliance on antibiotics), epidemics as a result of rapid population growth, military conflict in response to resource scarcity that could lead to nuclear war, and widespread social disruptions. The primary description of social disruption is represented by environmental refugees that are said to increase in size as a result of "severe droughts, floods, famines and epidemics" (Ehrlich and Ehrlich 2013).

Grouped by description, this sample of formal discourse uses alarming language to describe climate impacts. Using short-term weather events such as droughts and floods, these

modalities are discussed as proxies for long-term climate projections. This sample also discusses admission thresholds in the context of climate danger.

> Warming must be held well below a potential 5°C rise in global average temperature, a level that would bring down civilization. The best estimate today may be that, failing rapid concerted action, the world is already committed to a 2.4°C increase in global average temperatures. This is significantly above the 2°C estimated a decade ago (no citation) by climate scientists to be a 'safe' limit but now considered by some analysts to be too dangerous...

On the other hand, there is no evidence of citing across discourse and no mention of specific regions or which states may experience different types or amounts of vulnerability. Rather, this sample of formal discourse claims that the entire world is equally vulnerable and that climate change is a threat to global stability. Due to the predicted climate impacts, this formal geopolitical discourse frames the relationship to threat and vulnerability predominantly through food production.

While a variety of solutions are offered under the sub-headings of "what needs to be done to avoid collapse?" as well as "Dealing with problems beyond food supply," it is the sub-section of "The role of science" that stands out in the context of my interpretive coding. Ehrlich and Ehrlich ask, "How can scientists do more to reduce the odds of a collapse?" Offering potential directions for future research endeavors, scientists are encouraged "to understand the mechanisms through which cooperation evolves, because avoiding collapse will require unusual levels of international cooperation." Or, said differently, this narrative uses the principles of scarcity to demonstrate what we will lose if we, in a global sense, fail to act accordingly.

What is interesting is that this particular narrative promotes the threat of a dystopian future at the global scale, while justifying further securitization of the patterns and processes that

contribute to climate change. Here, agriculture is directly identified as the process that made civilization possible and any disruption or hardship in relation to food production will likely result in the collapse of global civilization.

### Example of Discourse Analysis - Practical

An example of a practical geopolitical discourse can be found in the Department of Defense report *National Security Implications of Climate-Related Risks and a Changing Climate* (2015). This practical discourse was created in response to a Congressional request to address U.S. military capabilities and mitigation efforts resulting from anthropogenic climate change. In the report, climate change is projected to have a wide range of implications for U.S. national security interests over the foreseeable future. The report states that there are four general areas of climate-related security risks.

- Persistently recurring conditions such a flooding, drought, and higher temperatures
- More frequent and/or more severe extreme weather events
- Sea level rise and temperature changes
- Decrease in Arctic ice cover, type, and thickness

The four areas of climate risk are redundant in that they each overlap and focus on weather events and similar related descriptions. These four areas of climate-related risk are said to, "increase strain on fragile states and vulnerable populations by dampening economic activity and burdening public health through the loss of agriculture and electricity production, the change in known infectious disease patterns and the rise of new ones, and increases in respiratory and cardiovascular diseases" (DOD 2015, 4). In this practical data sample, climate change contributes to vulnerability through diminished economic activity in fragile states. Food scarcity is a primary focus due to the projected impacts that climate change may have on agriculture. Flooding is linked to extreme weather events and sea level rise that could contribute to

vulnerability through the threat of migration along with damage to or a disruption of transportation infrastructure.

Citing across discourse, this practical example cites Gleick (2014), as evidence of climate change impacting Syria. Drought is said to have contributed to migration from rural to urban areas that coincided with refugees from the U.S.-involved conflict in Iraq also migrating to Syria. The aggregate is said to have overwhelmed the Syrian government and its institutional capacity to respond to increased service demands.

New York and New Jersey are discussed in relation to the extreme weather event, Superstorm Sandy. However, vulnerability in this U.S. case was mitigated due to the DoD's capacity to respond to and reconnect services in the region. This practical narrative informs my research in that vulnerability has a relationship to economic activity and the development of infrastructure through the logistics of resource accessibility. Climate change in this practical geopolitical discourse threatens the connectivity of resource supply lines. Through this narrative, climate-related risk requires a securitized response to ensure that economic activity can remain interconnected to global markets. Otherwise, food scarcity, migration, and potential conflict, both intra-state and inter-state, are said to become likely. In this example of a practical narrative, my research becomes informed in a way that frames climate change as a threat to vulnerable states through logistical issues such as distribution to, and accessibility of, economic activity.

### Example of Discourse Analysis - Popular

An example of a popular geopolitical narrative is the article "New Climate Debate: How to Adapt to the End of the World" published by *Bloomberg Businessweek* and authored by Christopher Flavelle (2018). As the title of the article underscores, this popular geopolitical

narrative frames climate change as a process that will end the world. This news article is formatted by interviewing scientists to describe and provide meaning for what climate change impacts will look like. The threats of climate change are described as widespread social, economic, and political unrest as a result of negative agricultural production along with damage to, and dislocation of, infrastructure. Together, such impacts will be responsible for "starvation, destruction, migration, disease and war" (Flavelle 2018). Although resource scarcity is identified as the primary impact of climate change, this popular geopolitical narrative focuses on adaptation that frames the "new debate" of climate change as the "deep adaptation agenda." Ordinarily, climate change adaptation is focused on "ways to blunt the immediate effects of extreme weather, such as building sea walls, conserving drinking water, updating building codes, and helping more people get disaster insurance" (Flavelle 2018). In contrast, the deep adaption agenda is defined not only by "rapid decarbonization and storm resistant infrastructure, but also building water and communication systems that won't fail if the power grid collapses and searching for ways to safeguard the food supply by protecting pollinating insects" (Flavelle 2018).

For the appearance of balance, this popular geopolitical narrative also includes some less alarmist perspectives by quoting a Harvard professor who advises state governments on climate change adaptation. This academic states that the narrative of social collapse is overblown. However, the author of the article directly follows this quote by noting that human extinction as a result of climate change is a discussion that has recently become widespread in academia. The dominant narrative in the article is that resource scarcity and social unrest are established facts of climate change impacts. "The question of when climate change might shake the Western social order is less important than beginning to talk about how to prepare for it" (Flavelle 2018). The

geographic component of this popular narrative is the Western way of life and organization, with direct mention of England and the United States. Both states are said to be vulnerable to the impacts of climate change, and governments need to be responsible for funding adaptation efforts. This example of a popular geopolitical discourse informs my research question in that what is vulnerable is framed as the Western way of life. The threats of climate impacts are to global interconnectivity, in which any disruption will lead to resource scarcity, conflict, and violence everywhere. The aggregate of both threat and vulnerability frame climate change as a process that will be the end of the world if radical change is not implemented now.

# Chapter 3: Results – Discourse Analysis

The results of this research are first presented through the dominant theme that spans across the data in the context of each particular code. I further narrow the focus by grouped statements within the geopolitical culture. I report the primary themes, and then discuss in detail a sample that represents the discourse for the given specific descriptive code. While quantifying data is not required for discourse analysis, bar-graphs are provided to display the coding order, which is useful when assessing the dominant theme within a given discourse.

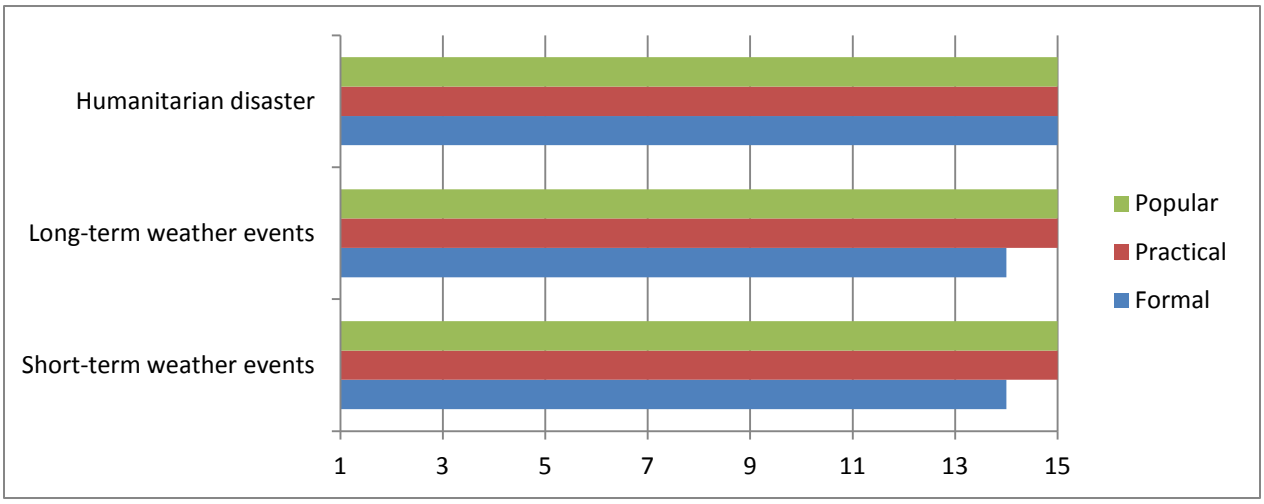
## Climate Change Impacts

A widely adopted theme unanimously supported across the data was that climate change impacts will result in humanitarian disasters. Shown in Figure 1, the impacts of climate change were communicated throughout the entire sample size (n=45), and encompassed a variety of humanitarian disasters. Predicted disasters included mass migration, resource scarcity, environmental destruction, terrorism, increased levels of violence, and warfare and/or social unrest. These characteristics of climate danger were described as being a result of short-term weather-related events becoming more frequent with long-term climate projections.

For instance, a sample taken from the formal data discussed short and long-term weather patterns under the heading "Should Climate Change Warnings Be Taken Seriously?" According to Sunga (2014), "When first researching the present article in August of 2012 in sunny Rome, Italy, I could not help noticing the record high temperatures and that a casual glance at current global climate conditions gave cause for alarm" (p. 2-3). Sunga proceeded with citing a U.S. National Oceanic and Atmospheric Administration report on monthly average weather patterns. Framed as global temperature patterns, Sunga (2014) jumped several geographic scales under the

context of monthly temperature averages in order to set the stage as to why climate change impacts may be potentially responsible for a future prospect of genocide. In doing so, short and long-term weather was transformed into a climate projection that would result in a humanitarian disaster.

**Figure 1 - The Impacts of Climate Change**




Another example which discussed short-term weather events in the context of climate disaster is found in the New York Times article *Climate Change is Accelerating, Bringing World 'Dangerously Close' to Irreversible Change* (2019).

> Warming can make wildfires worse, for example – it makes vegetation drier and more combustible – but forest management practices, as well as decisions about where to build, also affect the degree of devastation. Yet, a growing number of studies have shown the influence of global warming in many disasters. Heat waves in Europe in June and July, extreme rainfall in Texas during Tropical Storm Imelda in September, the drought that precipitated the 'Day Zero' water crisis in Cape Town in 2018 are among many events shown to have been made more likely, more intense, or both, by climate change.

Short-term weather disasters described as a long-term symptom of climate change was a theme found in 98% (n=44/45) of the articles reviewed. As shown in Figure 1, 14 of 15 samples of

formal discourse described similar themes of climate impacts as in the practical and popular discourse samples. The exception was one sample of formal discourse which did not explicitly discuss short-term weather or long-term climate events in relation to the impacts of climate change. Within the article *World Scientists' Warning to Humanity: a Second Notice* (Ripple *et al* 2017), this sample of formal discourse represented 15,364 scientists from 184 countries and did not mention extreme weather or include a discussion of climate. The sample did insert the projected impacts of climate change into a list of human behaviors said to be responsible for catastrophically destroying the planet.

> By failing to adequately limit population growth, reassess the role of an economy rooted in growth, reduce greenhouse gases, incentivize renewable energy, protect habitat, restore ecosystems, curb pollution, halt defaunation, and constrain invasive alien species, humanity is not taking the urgent steps needed to safeguard our imperiled biosphere (Ripple *et al* 2017).

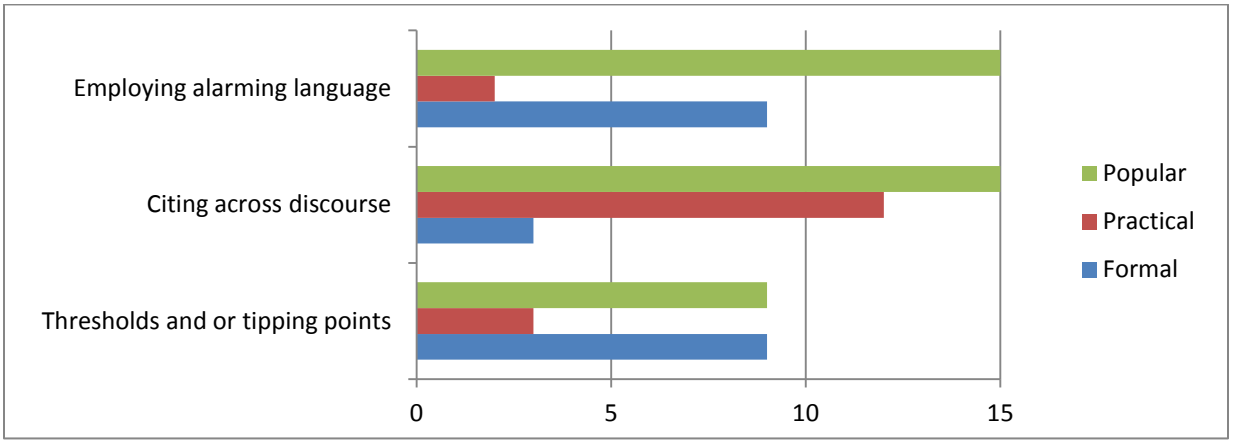
This particular group of authors published a follow-up paper in 2019 that was supported by 11,258 scientists from 153 countries which is also included in the dataset examined in this research. While the 2017 publication did not directly deal with weather and or climate, it did conclude that climate change will result in humanitarian disasters. This collection of descriptive codes offers insight into how widely perceived the impacts of climate change are within our current geopolitical culture. The next set of descriptive codes examines how the impacts of climate change are communicated across the data.

## Communicating the danger

The second descriptive code examined how the three types of discourse communicated the danger of climate change. I further reduced how climate change was communicated into three sub-codes:

- Employing alarming language.
- Citing across formal, practical and popular discourse.
- Direct mention of thresholds (2°C, 1.5°C), and or tipping points.

Figure 2 - Communicating the danger




As detailed in Figure 2, the results across each discourse support the claim in the literature of critical geopolitics that popular discourse may be better understood as a reflection of formal and practical geopolitics.[1] Across the entire set of popular discourse (n=15), all articles incorporated alarming language and also cited either formal and/or practical discourse as evidence of climate danger. Statements grouped by thresholds and/or tipping points showed that popular discourse reflected the same number of references as formal discourse (n=9). Practical discourse demonstrated the least amount of alarming language (n=2), as well as statements about thresholds and tipping points (n=3). However, 80% of the practical articles cited regularly across discourses in support of communicating climate danger (n=12). To further examine how climate impacts were represented across the geopolitical culture, I discuss the results for each sub-code.

[1] See the Cold War chapter of this work.

### Employing alarming language

Examples of alarming language varied across the three types of discourse. Sixty percent of the formal articles (n=9) used alarming language to portray climate impacts, ranging from increased levels of violence and resource scarcity to being the potential cause of genocide. An example of alarming language within formal data explained that:

> On the basis of the methods that were applied here, we conclude that there is agreement that climate variability and change shape the risk of organized armed conflict within countries. In conflicts to date, however, the role of climate is judged to be small compared to other drivers of conflict, and the mechanisms by which climate affects conflict are uncertain. As risk grows under future climate change, many more potential climate-conflict linkages become relevant and extend beyond historical experiences (Mach *et al* 2019).

This quote demonstrates alarming language because the research states that climate change will be responsible for organized armed conflict. Even though climate impacts on organized armed conflict to date are said to be lower than other causes and the role of climate is uncertain, the interpretation of the data projected increased levels of organized armed conflict under future climate change. In doing so, this sample of formal discourse supports the premise that society should expect increased levels of violence due to the projected impacts of climate change.

Figure 2 shows only two samples of practical discourse using alarming language when describing climate impacts. An example of alarming language within practical discourse was discussed in relation to risk management. Drawing directly from the IPCC, the *Implications of Climate Change for the U.S. Army* (2019), claimed to have "relied upon the Intergovernmental Panel on Climate Change (IPCC) and the Representative Concentration Pathway (RCP) 4.5" (p. 5) for its assessment of climate change risk. RCP 4.5 was said to be the "middle ground

prediction" for temperature and precipitation projections within climate change studies. "Use of this model is intended to provide a realistic anticipation of future impacts of climate change without forecasting either extremely dire and catastrophic impacts or minimizing them to such an extent that they are meaningless" (U.S. Army War College 2019, 5). Through the framework of risk management and drawing from the IPCC middle prediction, this sample of practical discourse stated:

> The only justification for doing nothing to mitigate and prepare for climate change is enough certainty that climate change is not occurring to justify the very considerable risk of doing nothing. The strength of scientific arguments in favor of such significant warming projections suggests that such certainty is not defensible. Prudent risk management therefore suggests that we should work to avoid the catastrophic outcome and prepare for and mitigate climate change (U.S. Army War College 2019, 6).

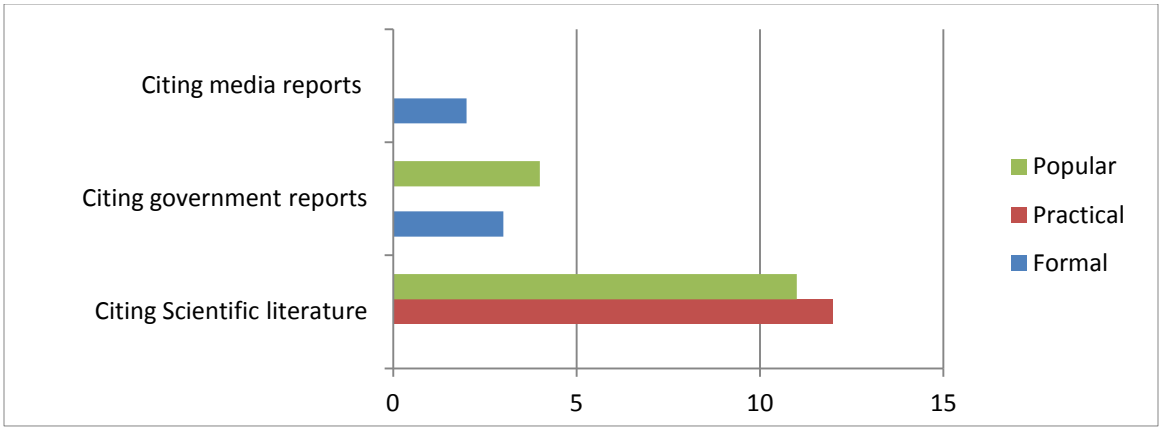
One hundred percent of the popular data employed alarming language which ranged from predictions of increased levels of violence to climate impacts being referred to collectively as a weapon of mass destruction. Alarming language included statements such as, "The evidence before us suggests that we are set for disruptive and uncontrollable levels of climate change, bringing starvation, destruction, migration, disease and war" (Flavelle 2019). This particular quote was taken from the popular data and was in the context of scholars concerned about catastrophic climate change. Within these examples of alarming language, a pattern emerged that both popular and practical discourse were drawing from formal discourse when discussing climate impacts. I further examined this link by coding for how the sources cited other categories (formal, practical, or popular) across the three types of discourse.

### Citing across formal, practical and popular discourse

Examining the citations for the ways in which each type of discourse cited another discourse, the goal was to understand where the representations of climate change derive their authority. Recognizing that each of the three discourses speak to different audiences, I did not account for instances where a discourse cited sources within its own discourse. This is to say that when a formal discourse sample cited other scholarly work, I did not include that within the descriptive code. Doing so would have been redundant in the sense that it is customary for scientific literature to cite other scholarly work. I accounted for citations across each discourse when, as an example, formal discourse cited popular culture, and only in the context of climate change.

Figure 3 shows citations across each of the three categories of discourse. A dominant finding within this descriptive code showed that both popular and practical discourse cited formal discourse within a majority of their articles. A second finding was that practical discourse did not cite popular discourse at all. When popular (n=11) and practical discourse (n=12) cited formal discourse, it was not in the form of in-depth discussions in relation to anthropogenic addition of greenhouse gases in the atmosphere (although they cited by way of background), but rather the focus was on predicted climate change impacts.

Figure 3 - Citing across discourse




In understanding Figures 1 and 2, the context of the descriptive codes was in response to the impacts of climate change, and the style in which climate impacts were communicated. The significance of what Figure 3 demonstrates, however, is that the discursive formation that informs the geopolitical culture of what to expect from climate change impacts is largely derived from formal discourse.

As an example, total citations within the popular discourse articles totaled 16, with one sample citing both formal and practical discourse. According to the article by Leman (2019), "In the last decade, global greenhouse gas emissions have risen by about 1.5 percent each year. We're already living through implications of these changes, scientists say." Climate change impacts were then portrayed by events such as wildfires, disease, and destruction of ecosystems leading to resource scarcity. Melting glaciers were predicted to flood infrastructure, suburban neighborhoods, and cemeteries. This particular sample went further by making a future projection that claimed that "Thawing permafrost in northern latitudes threatens to unseat the dead, too" (Leman 2019). Taking a moment to imagine this portrayal, climate change impacts were framed by current events and projected onto the future in a way that directly states that

increased levels of wildfires, disease, resource scarcity, floods and "unseated" corpses floating in the streets are to be expected.

Further citing across discourse, the popular culture article by Leman (2019) appeals to the legitimacy of these dystopian descriptions as not only supported by science (formal discourse), but also the military (practical discourse). "The U.S. military is already bracing for the impacts of climate change," Leman (2019) notes. This particular sample demonstrates how climate impacts are represented in popular culture in ways that legitimize the dystopian portrayals as a process supported by both formal and practical discourse. However, given the results shown in Figure 2, only two samples (13%) within the practical data used alarming language when communicating the dangers of climate change. One pattern of alarming language within climate discourse is measured by carbon thresholds which are often portrayed by "tipping point" rhetoric. I further examined the data for how widely discussed these metrics of catastrophe were.

### Direct mention of thresholds (2°C, 1.5°C), and or tipping points

Discussed in more detail later this work, thresholds and tipping points within climate change geopolitical narratives are primarily derived from estimations and intuition, and not empirical evidence.[2] However, such metaphors exist within climate change discourse and are portrayed as the point at which the catastrophic future arrives. Taking this discursive formation into account, I analyzed the data for any direct mention of both thresholds and tipping points in order to understand how widely reproduced these metaphors were.

According to Figure 2, 47% of the data (n=21/45) discussed the thresholds of 2°C, 1.5°C and/or directly mentioned specific "tipping points" when communicating climate danger. Formal and popular discourse both contained an equal number of references (n=9), while practical

[2] See the climate change chapter of this work.

discourse showed the least (n=3). However, it is important to note that the use of threshold and tipping point metaphors carries with it different weight and validity when supported by a particular agency or group widely regarded as having a high level of authority. As an example, according to the IPCC SR15 report:

> Some risks of climate change are considerable at 1 or 2°C above preindustrial levels. Global climate change risks are high to very high with global mean temperature increase of 4°C or more above preindustrial levels in all reasons for concern, and include severe and widespread impacts on unique and threatened systems, substantial species extinction, large risks to global and regional food security, and the combination of high temperatures and humidity compromising normal human activities, including growing food or working outdoors in some areas for parts of the year. The precise levels of climate change sufficient to trigger tipping points (thresholds of abrupt and irreversible change) remain uncertain, but the risk associated with crossing multiple tipping points in the earth system or in interlinked human and natural systems increases with rising temperature (IPCC 2014, 14).

While I did not code the data specifically for the frequency at which the three types of discourse cited the IPCC, it is worth mentioning that it was more common than not for each of the three discourses to reference IPCC reports as justification for communicating the danger of climate change.

For instance, a popular culture example which cited the IPCC in support of dystopian thresholds and tipping points is found in *The Uninhabitable Earth* (2017). According to David Wallace-Wells:

> Two degrees of warming used to be considered the threshold of catastrophe: tens of millions of climate refugees unleashed upon an unprepared world. Now two degrees is our goal, per the Paris climate accords, and experts give us only slim odds of hitting it. The U.N. Intergovernmental Panel on Climate Change issues serial reports, often called the 'gold standard' of climate research; the most recent one projects us to hit four degrees of warming by the beginning of the next century, should we stay on the present course.

Wallace-Wells further discussed IPCC projections under the 4°C scenario in the context of mass extinction. According to this dystopian narrative, the earth had previously experienced five mass extinctions prior the sixth event we are said to be currently living through. The author argued that the climate predicament was supported by science and portrayed the geopolitical culture as one living at the end of days.[3]

> But the many sober-minded scientists I interviewed over the past several months — the most credentialed and tenured in the field, few of them inclined to alarmism and many advisers to the IPCC who nevertheless criticize its conservatism — have quietly reached an apocalyptic conclusion, too: No plausible program of emissions reductions alone can prevent climate disaster

In this display of linkage between formal and popular discourse, an article from popular culture used threshold and tipping point metaphors drawn from the IPCC to support the validity of a climate dystopia. Even though the IPCC also used threshold and tipping point metaphors to describe climate catastrophe, the organization was framed as conservative because it offered solutions to the climate problem.

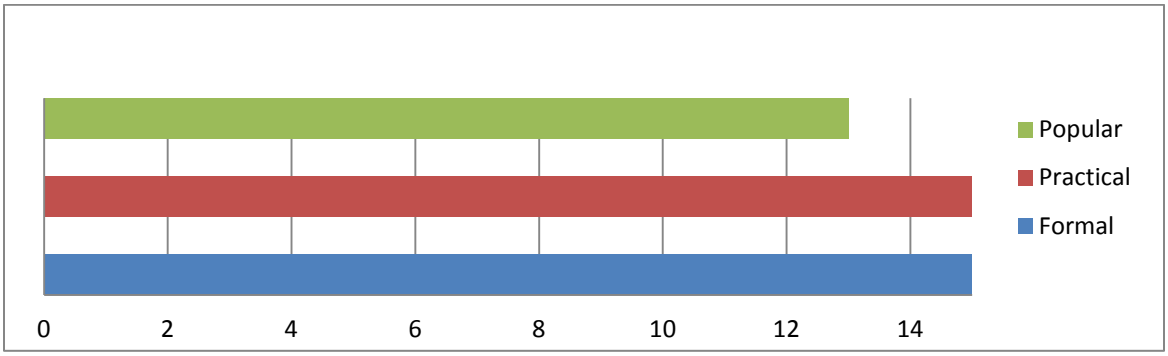
## Addressing climate change

Addressing the impacts of climate change was a theme that was significant across all the articles examined. When communicating the danger of climate change, 96% (n=43/45) of the data included some form of discussion about solutions to the climate problem. Two samples of popular discourse did not offer solutions, but did use alarming language when communicating the impacts of climate change. Grouped by the more widely adopted themes across the data, popular discourse offered solutions such as international agreements between states, with 53% of the popular data mentioning the Paris Climate Accord. A common theme of practical discourse

[3] See the Cold War chapter of this work.

was advocating the further development of, and resilience for, infrastructure and resource supply lines.

Figure 4 - Addressing Climate Change




As an example, the U.S. Department of Defense *Climate Change Adaptation Road Map* (2014) discussed risk management strategies in the context of the Defense Critical Infrastructure Program. "Decisions on where and how to locate future infrastructure will become increasingly reliant on robust risk management processes that account for dynamic factors associated with climate change" (p. 11). Infrastructure security and development was the more widely discussed solution throughout the practical data, while, perhaps not unsurprisingly, the most widely adopted theme within formal discourse was the call for more science. The style in which solutions were presented provides insight into how each discourse not only communicated climate danger, but also how climate change becomes a matter of security. I further discuss a sample of formal discourse to demonstrate how solutions to the climate problem were presented.

According to Scheffran *et al* (2012), the security implications of climate change had "intensified" following the IPCC's fourth assessment. Climate impacts were said to cause humanitarian disasters such as resource scarcity and increased levels of violence. The solution to these climate problems were seen as requiring more science. The balance between political and social factors and climate change could shift when the global temperatures reach levels that have

been unprecedented in human history. There is reason to believe that such a change might overwhelm adaptive capacities and response mechanisms of both social and natural systems and thus lead us to "tipping points" toward societal instability and an increased likelihood of violent conflict.

> Although some fundamental issues have been raised in previous research, numerous interdisciplinary questions still need to be investigated to understand the feedback loops involved. Models of the various linkages can build on a rich set of tools from complexity science, multi-agent systems, social-network analysis, and conflict assessment into future scenarios that cover different social, economic, and political contexts. Research across different scientific disciplines will be needed to identify opportunities and coherent strategies to address societal challenges related to climate change (Scheffran *et al* 2012, 871).

Climate change portrayed as a threatening future potential could lead society to a "tipping point," resulting in instability and the increased likelihood of violence. Drawing directly from the tipping point metaphor, this style of rhetoric called for more research to identify opportunities to address societal challenges.

## Analytical results – Threat and Vulnerability

The descriptive coding used to examine themes within climate change narratives demonstrates an analytical pattern within dystopian future projections. I further organized and interpreted the data by asking: What constitutes threat and vulnerability in climate change geopolitical narratives? A dominant description of vulnerability within the articles examined for this study was derived from the 2007 IPCC report about adaptation and vulnerability. The IPCC definition extended across each of the three discourses in a variety of ways which I then examined in relation to the themes of accessibility and development. According to a sample of formal discourse (Scheffran *et al* 2012), vulnerability was defined by three factors:

- Exposure to climate change
- Sensitivity to climate change
- Adaptive capacity

The three factors of vulnerability were commonly discussed in the context of both people and nations with low-economic status. As an example, "Many of the world's poorest people are exposed to various risks to life, health, and well-being. If climate change adds to these risks, it can increase humanitarian crises and aggravate existing conflicts without directly causing them" (Scheffran *et al* 2012, 870). Vulnerability was also described by the same three factors (exposure, sensitivity and adaptive capacity) in a sample of practical discourse. According to the report *The Impacts of Climate Change on Human Health in the United States* (2016), "people with limited economic resources living in areas with deteriorating infrastructure are more likely to experience disproportionate impacts and are less able to recover following extreme events" (p. 249/250).

What becomes interesting about vulnerability is that its discourse attempts to measure both the amount and type of exposure to which particular groups are said to be more vulnerable than others. Focusing on the third factor of vulnerability, adaptive capacity is measured by the ability to maintain, to defend against, or to return to "normal" ways of living following an event. This style of narrative is right in line with the political component of survival literature as discussed in more detail later in this work.[4] Vulnerability designates groups of people that have limited to no power in response to climate change projections, who are viewed as being more vulnerable based upon their economic status. However, vulnerability can, and does within the

[4] See the Cold War chapter of this work.

data examined in this research, transform into a threat should the capacity to adapt not satisfy particular state and social constructs.

For instance, a sample taken from the formal data portrayed climate change as being responsible for increasing levels of physical violence in disadvantaged communities. Using data from St. Louis, Missouri, this sample of formal discourse showed that "the findings indicate that climate change is likely having a greater impact on levels of violence in disadvantaged communities than levels of violence in more affluent communities" (Mares 2013). Disadvantaged communities were discussed as vulnerable due to climate change impacts, and as a result of increasing temperatures people of low-economic status were shown to display increased levels of physical violence. In this study, an increase in temperature was not a characteristic of the summer months, but rather became a factor for violence due to mild winters. In this way, people of lower economic status were initially framed as being vulnerable, but in response to the projected impacts of climate change, their communities became transformed into a threat because mild winters provide more opportunity for poor people to interact with other people and therefore create more potential for violence. What is more, "results show that the 20% of most disadvantaged neighborhoods are predicted to absorb over 50% of climate change-related increases in violence. On the other hand, the least disadvantaged neighborhoods in the study display no significant correlation between violence and temperature anomalies" (Mares 2013). Accordingly, people of a higher economic status displayed no correlation with climate change-induced increased levels of community violence based upon their economic status.

Another example with a similar theme is found within the popular culture data that blends together each geopolitical discourse. An article by the New York Times reported on the ways in which the U.S. military had incorporated into their strategic thinking that climate change may

result in resource scarcity which would lead to political and social unrest in developing nations. "Climate change and water shortages may have triggered the drought that caused farmers to relocate to Syrian cities and triggered situations where youth were more susceptible to joining extremist groups" (Davenport 2014). The source of the Syrian climate refugee narrative, which is included in the dataset, is Gleick's often-cited research in *Water, Drought, Climate Change, and Conflict in Syria* (2014).

According to Gleick (2014), an early environmental contributor to Syria's violent civil war was a multi-year drought that forced the migration of poor rural people to urban centers. The Syrian climate refugee narrative then provided the conditions for violent conflict. Gleick's research has become a leading indicator for the context of climate change-induced drought and violence. As an example, Gleick is directly cited in the Department of Defense's *National Security Implications of Climate-Related Risk and a Changing Climate* (2015), under the context of climate-related security risks:

> Persistently recurring conditions such as flooding, drought, and higher temperatures increase the strain on fragile states and vulnerable populations by dampening economic activity and burdening public health through loss of agriculture and electricity production, the change in known infectious disease patterns and the rise of new ones, and increases in respiratory and cardiovascular diseases. This could result in increased intra- and inter-state migration, and generate other negative effects of human security. For example, from 2006-2011, a severe multi-year drought affected Syria (Gleick 2014), and contributed to massive agriculture failures and population displacements. Large movements of rural dwellers to city centers coincided with the presence of large numbers of Iraqi refugees in Syrian cities, effectively overwhelming institutional capacity to respond constructively to the changing service demands. These kinds of impacts in regions around the world could necessitate greater DoD involvement in the provisions of humanitarian assistance and other aid.

However, according to updated research (Selby *et al* 2016), "there is no clear and reliable evidence that drought-related migration was a contributing factor in civil war onset. In our

assessment, there is thus no good evidence to conclude that global climate change-related drought in Syria was a contributory causal factor in the country's civil war." Yet, the main premise of Gleick's research is still widely reproduced.

In a sample from drawn the practical dataset entitled *A Declaration of Climate Emergency* from the city of Berkeley, California (2018), climate change impacts were described through alarmist rhetoric. In providing supporting evidence of the climate emergency declaration, this sample of practical discourse communicated the impacts of climate change through all metrics of descriptive coding used in my analysis (alarming language, 2°C, 1.5°C thresholds, climate "tipping points," and citing both practical and formal discourse as legitimizing the dystopian representations). In a display of continuity, the Berkeley declaration included the following:

> Climate change has been called a 'threat multiplier' that exacerbates preexisting tensions and political instability in regions across the globe by both the United States Department of Defense and North Atlantic Treaty Organization, and has been linked to the Syrian war, the rise of Boko Haram in Nigeria, as well as the famines, water shortages, and resulting conflicts in Yemen, Somalia and South Sudan.

The Syrian climate refugee narrative was more recently cited within the practical data in the document *The Implications of Climate Change for the U.S. Army* (2019). Interestingly, this article did cite Shelby *et al* (2016) in a footnote as evidence that climate change "may not" have played a part in the Syrian conflict. However, in the body of the report it states:

> There is, however, no question that the conflict erupted coincident with a major drought in the region which forced rural people into Syrian cities as large numbers of Iraqi refugees arrived. The Syrian civil war has reignited civil war in Iraq, and brought the U.S. and Russian militaries into close contact under difficult circumstances.

The Syrian climate refugee narrative is one specific example that represents developing nations and states as being vulnerable in response to climate impacts. As previously discussed, economically disadvantaged communities in the U.S. have also been characterized as vulnerable by those in positions of authority. Each example discussed describes a theme that is consistent throughout the data. That pattern demonstrates a discourse of perspective which can be addressed by asking: what constitutes threat and vulnerability in climate change geopolitics?

According to Ross (2000), themes about the development of, and access to, types of resources are reproductions of Malthusian narratives. "Malthus's theory had always presumed that the poor were not the equals of the more privileged" (Ross 2000, 5). Malthusian narratives capture a particular type of discourse about population growth which portrays vulnerable communities as being a threat to developed nations. Malthusian narratives were attached to Cold War development ideologies, and later inserted into the then "new rhetoric" of "sustainable development" and "globalization." According to Ross (2000), "Increasingly prevalent in Northern development thinking is the view that regional conflicts arise chiefly from environmental crises in which Malthusian pressures play a paramount role" (p. 18). This explanation of Malthusian rhetoric captures the essence of the Syrian climate change refugee narrative.

Hartman (2017) further critiqued Malthusian narratives so that as a point of view the dystopian rhetoric is not only about numbers and the projected apocalyptic impacts "but also about the authority of the scientists who are self-proclaimed experts" (p. 165). Hartman discussed relationships between formal discourse and dystopian projections in the context of how population control became synonymous with nuclear apocalypse during the 1960s. Specifically, she exposed a connection between Ehrlich's *Population Bomb* (1968) and a propaganda

campaign throughout the U.S. that was funded by millions of dollars. That propaganda campaign was said to have contributed to "thousands of earnest and idealistic Americans of all ages (who) were swapping their 'End the Killing in Vietnam' buttons for more modish buttons bearing the words 'People Pollute'" (Hartman 2017, 169). Furthermore, Hartman claimed that dystopian rhetoric became a dominant theme in the West in two parts. One, doomsday predictions have long histories within American culture, so when familiar representations became attached to new processes they were perceived as stable and legitimate. Two, "It has to do with the politics and economics of why certain scientists make a big splash in the public arena while others do not" (Hartman 2017, 168). In this way, dystopian discourses have a financial component in which certain scientists and their theories inform the dominant representation of environmental catastrophe more than others (Hartman 2017, 163-197). This pattern demonstrates the development of marketing campaigns and funding accessibility.

One article from the formal dataset, *Climate change, environmental violence and genocide* (2014), explored the discourse of climate change under the context of genocide studies. At the outset, Zimmerer (2014) stated:

> Climate change has had an astonishing career over the last three decades. Almost unknown in the 1980s – although the phenomena is much older – climate change had become somewhat of a hegemonic discourse at the end of the first decade of the new millennium. This 'career' is reflected in the history of the Intergovernmental Panel on Climate Change (IPCC), founded in 1988.

Zimmerer's research further examined climate discourse by providing a balance of alarming versus alarmist debates but utilized Malthusian discourse so that environmental impacts were framed through resource scarcity and increased levels of violence. In a reproduction of

Malthusian descriptions, the field of genocidal studies was discussed as being paramount to the solutions of the climate problem.

> Insurmountable as this task seems, genocide studies cannot shy away from what is probably the biggest challenge of the twentieth century. This special issue on climate change and genocide will mark a start by exploring the connection between climate change and genocide from a variety of disciplinary and geographical perspectives…If this volume initiates a change in how we think about the future of collective violence and prevention by accepting that environmental violence is a key part of the history of genocide, if this volume initiates discussion on the global nature of the problem in the sense that we might all become victims and many of us are perpetrators, the special issue will have fulfilled its main task (Zimmerer 2014).

According to the dominant themes within the dataset, climate change was unanimously asserted to result in a wide variety of humanitarian disasters. The way in which those impacts were described was alarming in the majority of formal and popular discourse samples in the dataset. Ninety-six percent of the data offered solutions to the climate problem, but each solution was different, varying by discourse. Formal discourse called for more science, while practical discourse called for more security which largely related to resource supply lines and infrastructure. Popular discourse reproduced fear-based climate change narratives by appealing to new consumer habits and political solutions. As an example, according to Flavelle (2018), climate change adaptation will consist of "building seawalls, conserving drinking water, updating building codes, and helping more people get disaster insurance." Political solutions were framed as essential so that "the government seizes this opportunity to foster the wave of low-carbon technological development and innovation that will drive economic growth and avoid the enormous risks of unmanaged climate change" (Stern 2014). Together, the geopolitical culture portrayed the level of access not only to material goods, but also to information (science) as a deciding factor for a person or group as either being safe, vulnerable, or a threat. Solutions

to the climate problem were then presented as the development of, and access to, particular types of resources to benefit the status quo.

Ongoing discussions in political geography have focused on climate security initiatives in ways that scholars have attempted to define the interrelated roles of formal and practical discourses. Using a metaphor centered on cartography, Edenhofer and Minx (2014) claimed that scientists become the map-makers and policy-makers are the navigators. O'Lear (2015) expanded on that metaphor by stating "We might explore that map metaphor by questioning the vehicle being driven and who is driving." My effort to contribute to political geography explores what type of environment the geopolitical culture has been navigating through, and why. As declared in the introduction of this work, this research project has two main goals:

- To assess the ways in which threat and vulnerability are constructed and represented by climate change geopolitical narratives.
- To identify the ways in which the dominant representation of climate change is a "dystopian serial narrative."

Both goals blend together in ways that are not entirely distinct and separated. The second goal of this research further explores the historical context and relationship to dystopian projections as explained by those in positions of authority. The goal is to understand that climate change discourse is not only a dystopian projection, but a discourse that reproduces patterns and processes throughout history so each representation, such as Malthusian discourse, is a serial narrative that requires continuity of particular ways of viewing the world, and our place in it.

# Chapter 4: The Cold War

The way in which geopolitical discourse describes the world at any moment, over different time periods, can influence the ways in which people act. According to Kuus (2014) expert claims about world affairs need to be studied not only as policy put in to action, but also in terms of how types of knowledge are produced to support expert claims. "Such geographical tracing of knowledge enables a more processual understanding of how geopolitical actors….constitute themselves and others as specific kinds of subjects in particular kinds of places" (p. 32). In this chapter I examine the geopolitical traditions of "survival" as a narrative of state security and dystopian projections. I begin at the origin of print literature to provide a summary for how state security problems constructed a political component to what it means to "survive." Expanding on the concept of survival, I examine how formal and practical discourse during the Cold War was reflected within popular culture so as to reproduce colonial survival techniques of the past. In doing so, geopolitical traditions, and the imagination that fuels them, are described by the very same symptoms of climate change impacts that have turned crisis into a social norm in our modern imagining.

In Dittmer's (2010) view, the media is political "because it occurs in ways that associate values and behaviors with various parts of the world, which in turn influences the ways in which people interact" (p. 16). The types of influence on human attitudes are in part, an imagining, or a representation of the world, its histories, and our place in it. A concept that is influential in popular geopolitics literature that articulates this process is called "imagined communities." According to Anderson (1991), imagined communities are societies that are brought into existence through tangible artifacts interlaced with political ideologies that can persuade our

interpretations of the world. A useful and introductory way to appreciate the concept of imagined communities is to understand the difference between a nation and a state.

It is common that in everyday language the terms "nation" and "state" are used interchangeably. Yet a more succinct difference is that "state" refers to a country, its border, the state apparatus and power networks, whereas "nation" reflects the geopolitical culture of the citizens within a state (Dittmer 2010, 16-17). The "nation" defines a shared identity – one described by Anderson (1991) as "imagined communities." Nations became distinguished, "not by their falsity/genuineness, but by the style in which they are imagined" (p. 6). Anderson argued that imagining the national only arose when, and where, three cultural constructs lost influence on human thinking. The first of these was when print literature began appearing in languages other than Latin. Second was the belief that society was organized under "high centre-monarchs" (Anderson 1991, 36), thought of as divine rulers that derive authority by some form of cosmological privilege. Third was a conception of temporality that includes ways of viewing the world so that the origins of Earth, and humans, were essentially identical. According to Anderson,

> The slow, uneven decline of these interlinked certainties, first in Western Europe, later elsewhere, under the impact of economic change, 'discoveries' (social and scientific), and the development of increasingly rapid communications, drove a harsh wedge between cosmology and history. No surprise then that the search was on, so to speak, for a new way of linking fraternity, power and time meaningfully together. Nothing perhaps more precipitated this search, nor made it more fruitful, than print-capitalism, which made it possible for rapidly growing numbers of people to think about themselves, and to relate themselves to others, in profoundly new ways (p. 36).

A key to understanding types of geopolitical traditions is the concept of simultaneity. Defined as a temporal marker that assembles the history of tomorrow so as to make sense of today, Anderson (1991) contextualized simultaneity at the transition from medieval religious

thinking to the rise of both the nation and the state. Sacred society "had no conception of history as an endless chain of cause and effect or of radical separations between past and present" (p. 23). Rather, society during that time period was imagined on a temporal timeline marked by the alpha and omega, but far enough along in time to be near the end of days. The omega served as the temporal marker in which the end of the human species and civilization was believed to be a prospect that could occur at any moment. For those who dedicated themselves to prayer, "nothing was further from their thoughts than the prospect of a long future for a young and vigorous human race" (Anderson 1991, 23).

Imagined communities became further developed with the invention of the printing press in which the basic structure of print literature relied on the novel and the newspaper. Through these tangible artifacts, the novel and newspaper provided a technical means for "re-presenting" a particular *kind* of community (Anderson 1991, 25-36). Profit-minded capitalists began publishing in vernacular languages during a time of economic struggle in an attempt to standardize mass consumption through more readily affordable literature. According to Dittmer (2010), this resulted in three effects: First, it began to standardize regional dialects, creating a group of people with a recognizable common cultural characteristic (language). Second, it undermined the power of the Latin-reading elites by providing access to religiously and politically sensitive texts to the masses. Finally, and crucially for popular geopolitics, it created an avenue (or medium) through which consumers of popular texts and culture could gain common understandings of what was going on in the life of this new community, this new nation (p. 17).

## The politics of "survival"

A process that coincided with the growth of print culture is what Pratt (2008) described as the emergence of Europe's "planetary consciousness." A blending of formal and practical discourse, the colonial Eurocentric view was structured around measurements and classifications that constructed "global-scale meaning through the descriptive apparatuses of natural history" (p. 15). A popular culture reflection of formal and practical discourse of that time was the literary genre of "survival literature." Gaining in popularity from Europe's first wave of expansion, survival narratives were "interwoven with a story of suffering and hardship" (Pratt 2008, 18). By blending together formal, practical, and popular discourse, survival narratives were written from a European perspective so as to define state borders in ways that particular types of development, logistics, and culture within a state were framed as a safe space. Beyond that border lay-in-wait an assemblage of threat and vulnerability that was represented by monstrous races (othering), dangerous climatic conditions, resource scarcity, and descriptions of nature so harsh that it became a space that could only be "survived."

Pratt (2008) argued that survival literature was a low-brow popular culture artifact that was derived from early scientists who returned to their geopolitical culture following the completion of their expeditions. These explorers would then author survival tales as a means to finance their future expeditions (p. 84). Pratt described "survival" as being "safe' for transgressive plots, since the very existence of a text presupposed the imperially correct outcome: the survivor survived, and sought reintegration into the home society" (p. 85). Survival discourse portrayed what it meant to be secure because the narratives were always from the viewpoint of the European who returned. This is an important distinction because had the explorer not returned to the norms of European society after experiencing hardship, yet

continued living and even thriving, then the explorer had adapted to new ways of obtaining resources and interpreting the world. This relationship was transgressive in the sense that for those who lived outside of the European context, their way of life was not socially acceptable to Europeans.

An example that can be found in an early imagination is from the La Condamine expedition. The author found himself "in a new world, far from all human commerce, upon a sea of fresh water…I met there new plants, new animals, and new men" (Pratt 2008, 20). Thinking critically about this quote, it describes a new geographic location in which the traveler was not familiar with the region, human culture, flora and fauna, or the supporting climate. The author and his companions would have had an almost childlike dependency in the sense that they were unable to communicate with the local culture, unable to differentiate between poisonous or edible plants, and had no knowledge of animal behavior. All of which would have been critical for obtaining the basic necessities to continue life. In turn, the narrative of survival focuses on what the author was familiar with: the connection to human commerce as a means to obtain resources. The narrative asserts that, absent logistical supply lines that commodify and define how and what types of resources are required to continue living, the unfamiliar biome is inhospitable and one that can only be survived.

At the origins of state security and imagined communities, the geopolitical perspective provides insight into the ways in which mass-produced survival literature became linked to types of development, ideology, and innovation that had been centuries in the making. Within this early Eurocentric focus, survival literature was a popular culture artifact that, when placed under a critical lens, created a discourse about particular ways to respond to both unfamiliar environments and cultures, because they were represented in print literature as dangerous by

those in positions of authority. Sharp (2008) argued that such geopolitical imaginations were important to the projection of European power because "these texts preceded experience, so empirical evidence was included but was fitted into categories that were already constructed" (p. 16). Pre-existing categories that became interwoven with "empirical evidence" is what allowed particular types of narratives to seem stable and familiar to that geopolitical culture.

With the development of geopolitical traditions, novels and newspapers transformed modes of cultural production through mass produced literature. At the same time, classifications of nature and climatic phenomena reduced the diversity of different biomes, and cultures, to a single planetary consciousness. Explained by dystopian narratives at different geographic scales through the genre of survival literature, those modes of geopolitical imagination were strategically authored, in part, as a means to fund future research.

A similar relationship reemerged during the Cold War that further intensified global classification and state security initiatives. Those narratives of state security were again packaged through survival discourse which saturated the nation with dystopian projections. The Cold War era is worth further exploration because the relationship between geopolitical traditions and dystopian projections is widely documented. In addition, the technological innovations and state security initiatives that developed during the Cold War became an integral part of the modern context for anthropogenic climate change and its construction of threat and vulnerability.

## Cold War Military Industrial Academic Complex

A concept that is mostly absent from scholarly discussion and security discourse is the context of the Cold War's classification of unconventional warfare (UW). While the Cold War

battlefield experienced proxy wars that were indeed hot and violent, the larger context of the Cold War was categorized as unconventional. From the U.S. perspective, the Cold War was unconventional in the sense that it was a battle for the hearts and minds of populations in pursuit of a particular organizing goal. According to 2008 Department of Defense Army doctrine, the definition of UW has evolved over time,[5] but for the early parts of the Cold War, UW was defined as a process that "involves ideological, religious, political and social factors which promote intense, emotional partisanship."[6]

According to Marzec (2015), post-World War II national security initiatives saturated new levels of intellectual activity (formal discourse) so that information could be "processed' at greater and greater levels of speed that were beyond the mental scope of any individual human brain" (p. 183). Referred to as C3i, it was a style of management concerned with how to organize aspects of command, control, communication, and information. Very similar in style to early European expansion that constructed a "planetary consciousness," C3i was doctrine interested in global scale mapping and definition. According to Marzec (2015) the goal of C3i was to eradicate insecurity. However, C3i "has the opposite effect, for it cannot exist without constantly uncovering and targeting new threats to reality. This effect appears in constant need for data" (p. 188). C3i was informed by data that "requires more than the accumulation of datasets in specific scientific disciplines; it requires a systematic means of measuring environmental conditions over time and of integrating diverse and huge data sets into a collective portrait of the biosphere (Masco 2015, 171). All data are not equal, however. As a marker or identifier of elements, data are required to constitute what is useable and what is not for a particular interest.

[5] FM 3-05.130: p.1-2
[6] FM 31-21 p.169

As discussed by Barnes and Farish (2006), a central question that links formal and practical discourse between World War II and Cold War security was the relationship between military funding and the sciences. The formal and practical connection shaped particular types of data geared toward particular research goals. Referred to as the "military-industrial-academic-complex," military funding influenced the trajectory of research in the fields of physics, meteorology, ecology, oceanography, geology, human geography, economics, anthropology, molecular biology, and psychology, to only name a few. The military/academic relationship was one of two threats described by President Eisenhower during his 1961 farewell speech. President Eisenhower warned of a military-industrial-academic revolution which he described as an unprecedented threat in American history. "In this revolution, research has become central; it has also become formalized, complex, and costly. A steadily increasing share is conducted for, by, or at the direction of, the Federal government" (Eisenhower 1961).

The relationship between the military and science that Eisenhower warned of has been defined under different names by scholars in different research fields so as to make sense of different time periods. As an example, the term "planetary consciousness" that scholars developed to make sense of human behavior during the colonial period described the formal and practical geopolitical relationship. Within the state security lexicon, policy became increasingly focused on integrating human behavior and technology through the goals of 3Ci (command, control, communication, and information) later evolving into 4Ci with the forth "C" referring to computers. Haraway (1997) described that blending of formal and practical discourse as the "technoscientific" and one that "designates dense nodes of human and nonhuman actors that are brought into alliance by the material, social and semiotic technologies through which what will count as nature and as a matter of fact get constituted" (p. 50). This is to say that formal and

practical discourse became "mangled" in ways that rely, in part, on semiotic technologies (portrayals) to define types of threat and vulnerability. Those definitions of insecurity were then projected, supported, and reproduced within popular culture.

One example of particular interest that represents how formal and practical discourse were assembled and projected throughout popular culture during the Cold War can be found in the 1956 study: *The Human Effects of Nuclear Weapons Development.* Commissioned by the National Security Council together with the Federal Civil Defense Administration, this research was classified from the time of its inception until 1981. Its focus was the psychological impacts on human attitudes and behavior in relation to the threat of nuclear annihilation. The primary characteristic of threat as detailed by the 1956 study was that following a nuclear attack on American cities, people who were not prepared for a nuclear attack were feared to no longer support the government's war efforts. In order to defend against the threat of deteriorating national support, the research argued that "proper" psychological preparation would strengthen the post-catastrophe government response. A psychological campaign would also be of great assistance during the "pre-war" period. According to the report:

> It should be emphasized that the same weakness in the psychological preparation of the people that would result in negative behavior following attack make them psychologically vulnerable at the present time. To the extent that they lack knowledge and real understanding of basic national security considerations, they are in danger of accepting wild exaggerations and misinterpretations of news events. Furthermore, they are likely to believe unfounded rumors and to react to them in inappropriate ways (Human Effects 1956, 14).

Within this government/science discourse, people failing to support government policy after the catastrophic attack, more than the nuclear impact itself, were viewed as the greater threat. People were then said to be vulnerable before an attack because they had not been prepared ideologically. A solution to this particular limitation of state security was an appeal to

simultaneity. As discussed, simultaneity is a temporal narrative that assembles the history of tomorrow so as to make sense of today. More specifically in the report, however, was an appeal to "national traditions."

> In approaching such a difficult task, we have vast resources for success in our national traditions. Our pioneer background and inheritance predispose us to count hardships a challenge and fortify us against complacency. We are a resourceful people, inventive no less socially and politically than technologically. We have turned every form of association to cultural account…What is required is such a leadership to re-dedicate our people to responsible involvement, such as our forefathers were able to find, in less complex times, through the familiar town meeting (Human Effects 1956, 12).

While the recommendations of the "Human Effects" report were never fully implemented (Vandercook 1986), the "rally around the flag" rhetoric was put into practice in ways that saturated popular geopolitical narratives and produced increased funding for the sciences. That funding purchased data and findings that not only created new fields of research, it also shaped the trajectory of existing scientific study. The 1956 report further recommended that the Eisenhower administration call on the leaders of industry for support. "What we are proposing would be a monumental effort in the field of public enlightenment, formal and informal, using mass media and individual media; and all educational leaders and publicists should be called upon for their best contributions to the program" (Human Effects 1956, 12). According to several scholars focused on military representation and popular culture, the U.S. military had been involved in the popular culture industry since the end of World War I (Virilo 1989, Der Derian 2001, Suid 2002, Robb 2004, Dittmer 2010, Alford 2017). Virilio (1989) claimed that there had long been an interdependent relationship between war and representation that "laid the ground for a veritable *logistics of military perception,* in which a supply of images would become the equivalent of an ammunition supply" (p. 1). The ways in which the military was portrayed within

popular culture was an imagining that Suid (2002) argued "has helped shape the perceptions that the American people have had of war, violence, and of its armed services…I believe that it helps (geopolitical traditions) explain how the government and cultural institutions can shape the minds of its population, for good or for evil (p. xiii).

The context of unconventional warfare as defined during the Cold War was made possible through an extraordinary commitment to defining threat and vulnerability at the global scale. That commitment made possible "a new vision of the globe as integrated political, technological, and environmental space" (Masco 2015, 165). As a style, or a repetitive form of geopolitical imagination, the Cold War from the U.S perspective defined a nation situated at the end of times through a discourse of temperature gradient war. That is, the binary threat of a hot nuclear end delivered through cold ideological vulnerabilities. As a narrower form of discourse "representations tend to treat their objects as unchanging – the representation assumes that there is something stable and essential about its object to be represented" (Dittmer 2010, 49). Practical discourse in benefit of state security had long been interested in standardization (McNeil 1982, Scott 1991). It was a particular style of state security which reinforced types of geopolitical traditions because they seem stable and familiar to policy makers, scientists, and popular culture. That connection becomes clearer through the repeated technoscientific assemblage that defines the essence of Western geopolitical discourse.

As a form of tradition, the technoscientific assembled narratives that describe what failure to implement certain types of policy looks like. Otherwise, state security discourse absent shared representations fails to capture meaning. "There is no way to independently describe somewhere, it can only be done through the use of analogy to other ideas, places and peoples" (Dittmer 2010, 49). Dittmer's thoughts are further supported when linked to the "planetary

consciousness" discourse of the colonial period and again through the technoscientific emphasis of the Cold War. Any collaboration between or a reflection of formal and practical discourse within popular culture reproduced portrayals of threats and vulnerabilities that may seem new in a specific context (state expansion, nuclear war, and/or climate change), yet remain familiar through shared representations.

## Cold War Military Industrial Entertainment Complex

Among several constructs that were unique to the early Cold War era was the frequency and scale at which information could be mediated. Avenues of information such as books, newspapers, and/or nightly television news broadcasts can be thought of as a "medium" through which popular culture artifacts are widely circulated. However, at its origin, the word "media" refers to information that is *mediated* to an audience, and is a discourse that reconciles practical and formal geopolitics. For information to become popular, it must be widely circulated to reach a large audience. The information must also be reduced and simplified in meaning so that it *can* be broadly dispersed (Hilgartner 1990). What has been considered a form of entertainment, the media, together with consumerism, has grown into a relationship that influences the types of material products we buy and informs our motivation as to why we buy them. Yet popular culture is more than entertainment. It includes ideologies that are connected to agendas, policies, and political rhetoric.

The ways in which popular culture reflected formal and practical discourse during the Cold War were that, according to Masco, portrayals of threat and vulnerability were "unprecedented, uncontrollable, and yet also oddly familiar (p. 163). It is useful here to question the ways in which something unprecedented could also be familiar. Popular culture portrayed nuclear survival discourse in ways that the narratives became a re-hashed version of survival

literature of the colonial period. Increased government funding of science resulted in widely publicized research so that the empirical meaning of planetary crisis was incorporated into US civil defense programs. Those civil defense programs, described as "an explicit effort to psychologically and emotionally mobilize citizens as Cold Warriors" attributed any unusual geological and atmospheric phenomena such as "earthquakes, drought, floods, changes in agricultural cycles, hurricanes, insect plagues, changing animal migrations and strange weather patterns" (Masco 2015, 170) to nuclear testing.

Masco (2015) defined 1953 as a pivotal marker for when nuclear testing became coupled with an early form of ecological risk and national security in America. The iconic representation of nuclear destruction coupled with ecological crisis surfaced within the film footage of "Operation Upshot-Knothole, 1953" produced by Hollywood with the U.S. Air Force Lookout Mountain Laboratory Air Photogenic and Charting Services. In this portrayal of a nuclear impact, three seconds of footage capture a stand of ponderosa pine trees that bend, sway, and shatter from the effects of a nuclear blast. According to Masco (2015):

> The Cold War nuclear arms race produced an unprecedented commitment to research in the earth sciences, enabling a new vision of the globe as integrated political, technological, and environmental space. The US nuclear project was linked very early on to concerns about weather and climate, enabling new public fears and visions of planetary threat. But, by elevating nuclear fear to the core instrument of state power, the Cold War arms race established a nationalized vision of planetary danger on very specific terms (p. 165).

Fear of the nuclear bomb reflected crisis in ways that geopolitical debate about nuclear war between superpowers became overshadowed by survival narratives focused on the collapse of civil society. A common theme of symbolic function and dystopian narratives throughout the entire Cold War period was continued reference to the 1945 atomic bombings of Japan as the

beginning of the nuclear era. The impact of nuclear weapons used on Japan represented the temporal and semiotic marker that became the baseline measurement for all other nuclear devastation scenarios. According to Seed (2013), "only Hiroshima (and of course Nagasaki, which is usually implicitly included in 'Hiroshima') could offer any concrete image of the new bomb's destructive capacity" (p. 42). Hiroshima served as the semiotic marker for what nuclear destruction looked like in an urban setting, while "Operation Upshot-Knothole, 1953," influenced visions of the planet as an integrated natural ecosystem (Masco 2015).

Media reports during the early Cold War period had a unique style that was not designed as fiction, but also did not represent authentic reports. A number of media outlets in America published special issues describing the immediate effects of a nuclear attack (Seed 2013). Within the debate over how the average citizen was instructed to take nuclear refuge, many narratives drew on the concept of simultaneity by focusing on the present tense through generic descriptions offering "a kind of future reportage of a dreaded event" (Seed 2013, 43). As an example, popular culture discourse on post-attack nuclear fallout, referred to as the "silent killer," and similar to modern climate change discourse was, according to Weart (1988), "perfectly suited to induce anxiety…something rests upon helplessness and uncertainty, on the feeling that a threat cannot be escaped nor perhaps even comprehended before it's too late" (p. 206). Many popular culture fictions of the Cold War were authored by people who were involved in civil defense organizations (Seed 2013). As one of many examples during the Cold War that drew from the colonial survival literature genre, the discourse of *Alas, Babylon* by Frank (1959) is of particular interest.

The title *Alas, Babylon* is taken from the Book of Revelation, the apocalyptic final book of the New Testament. In order to make sense of an instantaneous present, the first nuclear blast

is described in the book as "threatening and apocalyptic, signaling an end to the order of American society, even nature itself" (Seed 2013, 65). There are three geographic scales within the plot of the novel, with the first focused on the geopolitical context of the Mediterranean region, specifically Syria, as the locale of the tipping point that led to nuclear war. The secondary scale is at the national and subnational level, with the U.S. represented by the state of Florida which was the target of the nuclear attack. Third, and the primary focus of the plot, is the fictional small town of Fort Repose, Florida. Fort Repose was impacted not by nuclear war directly, but through the disruption of resource supply lines in response to destroyed urban centers in the surrounding area:

> Like most small towns, Fort Repose's food and drug supply was dependent upon daily or thrice weekly deliveries from warehouses in the larger cities. Each day tank trucks replenished its filling stations. For all other merchandise, it was dependent upon shipments by mail, express, and highway freight, from jobbers and manufacturers elsewhere. With the Red Alert, all of these services halted entirely and at once. Like thousands of other towns and villages not directly seared by war, Fort Repose became an island. From that moment, its inhabitants would have to subsist on whatever was already within its boundaries, plus what they might scrounge from the countryside (Frank 1959, 117).

As can be seen here, the local is reduced to a tale of community survival with representations of threat and vulnerability that reflect traditional geopolitics and social Darwinism (imagined community and survival of the fittest). *Alas, Babylon* is a prime example of popular culture nuclear survival literature not only due to its status as a literary classic, having never gone out of print, but also because the text has been cited and discussed in peer reviewed literature (Schelling 1960). The relationship between dystopian projections and popular culture continued throughout the entire Cold War period, which reached peak-fear during the early 1980s. It was during the late Cold War period that geopolitical imaginations fixated on climatic threats to a vulnerable

society gained momentum, and further shared in representations of survival that are as old as print literature.

## The Cold War during the 1980s

The relationship between nuclear war and climate impacts became elevated through a series of geopolitical discourses that, in Masco's view (2015), coalesced in 1983. The dystopian discourse of the 1980s was placed in previously constructed categories and became attached to new theories about the ways in which climate impacts can affect biological support systems (Alvarez *et al* 1980, Crutzen and Birks 1982, Ehrlich *et al* 1983, Sagan *et al* 1983). These new theories would "eventually pit the national security logics of the state against a new, postnational view of security focused on a fragile biosphere" (Masco 2015, 174). A primary component of that discourse was that climatic impacts following a nuclear impact event, would be, at the least, as serious as the nuclear event itself. This "new" discourse had part of its origin with the report *The Effects of Nuclear War* by the U.S. Office of Technology and Assessment (OTA 1979). The goal of the OTA report was to "put what have been abstract measures of strategic power into more comprehensible terms" by focusing on "intermediate and long-term impacts" (OTA 1979). A way in which this report did so was with the use of fiction (a first for an official government report) in Appendix C that focused on life in Charlottesville, Virginia after the nuclear destruction of nearby cities.

*The Effects of Nuclear War* (OTA 1979) was framed in popular culture as a legitimate representation because it had the "imprimatur" of government scientists. However, the impact of the report was said to have been short lived and seemed to disappear from the national conversation. "It was, after all, a technical document, no matter how striking its fictional component happened to be" (Madrigal 2018). However, Appendix C – Charlottesville became a

source of influence for two works of fiction by similar names, the first being *The Day After Midnight*: *The Effects of Nuclear War* (1982), authored by Stanford physicist Michael Riordan. *The Day After Midnight* was a calculated effort to remove sections of the OTA report that were "relevant only to internal government debates," so as to "bring forth the more human element of the original report" (Riordan 1982, 13). *The Day After Midnight* was written in the colonial survival literature style that blended empirical evidence with stories of suffering and hardship to place front and center the human aspect of both the immediate and long-term impacts of an event in order to make sense of the present.

According to the New York Times, nuclear survival fiction was a saturated market during the early 1980s, with as many as 130 titles all attempting to "trade on the popularity of Jonathan Schell's best-selling *The Fate of Earth"* (McDowell 1982). However, sales in the nuclear survival genre overall were said to be generally disappointing, with *The Day After Midnight* being an exception. "It did extremely well. We sold a lot of copies and we sold a lot of foreign rights. It kept us alive for another year" (Riordan quoted in Madrigal 2018). This was an interesting quote in the sense that the sales of dystopian literature kept the author alive because it mirrors the ways in which scientists of the colonial era would author survival literature as a means to obtain funding. *The Day After Midnight* impacted popular culture in ways that further supported the previous forty years of dystopian discourse. The title explicitly drew from *The Bulletin of Atomic Scientists'* "Doomsday Clock," so that the representations in the text were measured by the 1947 popular culture meaning of "midnight." Premised on "the imagery of apocalypse (midnight) and the contemporary idiom of nuclear explosion (countdown to zero)" (Mecklin 2014), it was a representation that portrayed particular threats and vulnerabilities to all of humanity at the global scale. Such dystopian narratives were used to weave together nuclear

and ecological crises into everyday American culture. The most influential popular culture artifact that drew from the 1979 OTA report was the made-for-TV movie *The Day After*. Based on a fictional nuclear exchange between the U.S. and the U.S.S.R, *The Day After* was set in Lawrence, Kansas and Kansas City, Missouri.

For popular culture discourse as it relates to this research focus, *The Day After* (1983) is particularly interesting in several ways. The made-for-TV movie drew the second largest audience to that point in history and was viewed by half of the adult population in the U.S. (Niccum 2003). The film had an unprecedented budget for its time ($7 million), and was considered so disturbing that two advisory pleas were shown: a parental advisory at the beginning of the film, and at the end a plea of warning to world leaders and viewers to explore the political means to prevent nuclear war (Smith 1983). The American Broadcasting Company (ABC) set up 1-800 hotlines and distributed "viewer guides" as a way to assist "the Cold War-paranoid audience (to) psychologically deal with the subject matter" (Niccum 2003). According to a review of the film published in the Bulletin of Atomic Scientists, "by drawing its information largely from a study by the U.S. Office of Technology Assessment (OTA 1979), it avoided any reasonable charges of exaggeration" (Shinn 1984). This declaration attempted to establish the legitimacy of the film as an accurate portrayal due to a formal and practical discourse connection to the 1979 OTA report. As a reminder, though, the 1979 report was premised on fiction. That being the case, it might be useful to question the ways in which fiction based upon fiction constitutes a form of legitimate reality. Nevertheless, the film would go on to be nominated for 12 Emmy awards, winning in two categories, and it was released in theaters in 40 different countries. The film was also shown in Russia, which was in and of itself a unique accomplishment considering the existing ideological divisions over Cold War propaganda. The

representations within *The Day After* were so widespread that it was said to be partially responsible for influencing both Gorbachev and Reagan to sign the 1986 Intermediate Range Nuclear Forces Treaty (INF) (Niccum 2003).

The history surrounding *The Day After* is a clear indication of what it means to reach popular culture success. Following the broadcast of *The Day After*, there was an after-show special hosted by Ted Koppel,[7] and panel guests included Henry Kissinger,[8] Carl Sagan,[9] William F. Buckley Jr.,[10] and Robert McNamara.[11] It is here that the term "nuclear winter" was first introduced to the popular culture lexicon, a phenomenon that was also depicted in *The Day After*. Sagan together with a group of scientists referred to as TTAPS (based on the first initials of their last names), had published *Nuclear Winter: Global Consequences of Multiple Nuclear Explosions* (1983). "With Sagan as its public face, the TTAPS project not only addressed the scientific community and policy makers, but also communicated the science of 'nuclear winter' directly to the American public" (Masco 2015, 177). In addition to the TTAPS two-part scientific report and the discourse within *The Day After*, an article by Sagan had been published in *Parade Magazine* simplifying in layman's terms the relationship between nuclear winter and climate change. Sagan further published *The Cold and the Dark: The World after Nuclear War* (1985) in which the cover art openly drew from the first image of Earth taken from space, known as "Earthrise." This now iconic photo taken during the 1968 Apollo 8 Mission became the symbol of "the green decade" that inspired "new" ideologies and debate centered on global scale

[7] Koppel is an award winning American journalist best known as the host *Nightline* for 25 years. Koppel authored *Lights Out* (2016), a tale of survival described by the collapse of America's power grid.
[8] Kissinger, credited with the reemergence of traditional geopolitics (Dodds 2007) was the U.S. Secretary of State and National Security Advisor who served a pivotal role in American foreign policy between 1969 and 1977.
[9] Sagan, with a PhD from Chicago in astronomy, became a prolific scientific pundit in formal and popular geopolitics.
[10] William Buckley Jr., a political pundit and host of Firing Line (1966-1999).
[11] McNamara, U.S. Secretary of Defense (1961-1968), and developed systems analysis for public policy.

meaning. “There is no avoiding the fact that as common expressions, the word ‘globalization’ and the phrases ‘global environment,’ ‘global economy,’ and ‘global humanity’ simply did not exist before the Earthrise era’” (Lazier 2011). As depicted in Sagan’s 1985 cover art, the Earth was depicted as black with only a small portion of the southern hemisphere unaffected by the climate change resulting from nuclear warfare.

Barnes and Farish (2006) argued that the Cold War military/academic relationship was one that “directly or indirectly promoted an American geopolitical agenda” (p. 811), and did so in ways that was in line with the objective of the Cold War definition of unconventional warfare. This mangling of the technoscientific, as Haraway (1997) described it, not only relied on the connection between formal and practical discourse to establish legitimacy, but also on semiotic legacies as found in popular geopolitics. Through portrayals that defined state security and its antithesis, a portrait was imagined through a militarized style injected with ethical and moral justifications. It was a portrayal that defined state borders and types of development through narratives of survival which were represented by particular threats and vulnerabilities. Popular culture discourse and the nuclear winter representations that were portrayed throughout American geopolitical culture between 1979 and 1985 attached themselves to new interpretations about ecological and atmospheric crisis at global scale.

An issue with the popularization of scientific discourse is that it acts as a feedback loop for the research process (Whitley 1985, Hilgartner 1990, Weingart 2002). Researchers often learn about fields outside of their particular specialization from popular culture, and this site of knowledge production can “shape their beliefs about content and the conduct of science” (Hiltgartner 1990, 522). As an example, several scholarly theories and government policies during the Cold War became focused on climate insecurity as the cause for very different “end of

the world" events. Such theories included the extinction of dinosaurs (Alvarez *et al* 1980), wildfire impacting climate as a result of nuclear war (Crutzen and Birks 1982), as well as the already discussed nuclear winter (Sagan *et al* 1983). As can be found within these examples of formal discourse, they put forward and supported a dystopian discourse during the 1980s that acted as a quantitative nuclear baseline measured in Hiroshima (literally) so as to describe the global threat of long-term apocalyptic climatic impacts.[12]

Even though these new theories differed by event (dinosaur extinction, wildfires, nuclear winter), they shared in representation, many of which are still in wide circulation today. To focus on the ideology of such narratives and how they represent a particular kind of community, the next chapter shows a similar pattern that emerged in 2003 with climate change discourse.

[12] It is important to note that long-term climate variability within these sources was measured not in years or decades but in months, yet the conclusions all share similar representations. This is an important distinction because data in climatology traditionally are derived from three properties that are based on normals, extremes, and frequencies. Climatic normals are calculated on 30-year periods for a single data point and the extremes describe the minimum and maximum measurements over several long periods of observation (Rohil & Vega 2012, p. 4). As can be found within these Cold War scholarly discourses that explain climate insecurity, the narratives are described in terms of short-term weather events which are not suitable for making sense of climate data.

# Chapter 5 - Climate Change

In this chapter I examine climate change framed as a national security issue by tracing the origins of how types of knowledge have been produced to support the dominant representation of climate change. As a dystopian serial narrative, the meaning of climate change is premised both on the intentional and unintentional use of metaphors that mischaracterize scientific discourse. Some scholars have noted that climate change portrayed as a national security threat is an extension of Cold War security policies (Hartman 2017, Buxton and Hayes 2016, Marzec 2015, Masco 2015, Dalby 2009). The ways in which climate change has been portrayed as a dystopian future is said to be "an important cultural and political phenomenon in its own right" (Hayes 2016, 54). Such cultural and political imaginations frame violent weather events as symptoms of climate change so that they are imagined through the lens of war. While the origins of environmental security and short-term climatic danger were a part of the Cold War concerns of the 1980s (Dalby 2009, 23-24), climate change framed as a national security issue in the period of 2003 to 2019 further demonstrates how climate concern borrows from and contributes to formal, practical, and popular geopolitical imaginations.

## Constructing the metaphor

A key part of the reinvigorated climate change security discourse began, as with the 1979 OTA report on the effects of nuclear war, with a government study followed by popular culture fiction that propounded the same themes. The Pentagon-commissioned report *An abrupt climate change scenario and its implications for United States national security* (Schwartz and Randall 2003) was published to "imagine the unthinkable – to push the boundaries of current research on climate change so we may better understand the potential implications of United States national security" (Schwartz and Randall 2003). Similar in style to nuclear security discourse, the

Schwartz and Randall paper reads as an empirical report that blends in stories of suffering and hardship that resembles a clear reproduction of colonial survival literature. The report claimed that its purpose was to "dramatize the impact of climate change," and did so through representations of immediate extreme weather events that cause global insecurity.

### The Day after Tomorrow

A work of popular culture fiction that followed the Schwartz and Randall report was the Hollywood blockbuster The Day After Tomorrow (2004). In a play on words from the 1983 nuclear winter film The Day After, the 2004 climate change fictional drama was said to draw directly from the Cold War security argument through the genre of "atomic cinema." According to Masco (2015), the goal of atomic cinema demonstrates how,

> The apocalypse is harnessed directly to the power of the nation-state, promoting a perverse kind of nation building through images of collective sacrifice and death. For sixty years now Hollywood has produced big-budget, special effects-driven stories about nuclear warfare (often allegorized), playing off of the civil defense promises and nuclear fears of the Cold War state… The film The Day After Tomorrow ultimately uses the devices of atomic cinema – a focus on the destruction of cities, collective sacrifice, and a militarized response – to address a form of catastrophe larger than the national politics of the security state: radical climate change (p. 178-179).

When examining the representations found within The Day After Tomorrow, one can observe an assemblage of geopolitical discourses that re-imagine traditional concepts of national survival narratives.

In The Day After Tomorrow (2004) story, a National Oceanic and Atmospheric Administration (NOAA) paleoclimatologist witnesses a massive break-off of an Antarctic ice shelf during a research expedition. The scientist returns from the expedition to warn the world about the possibility of an abrupt climate change scenario at a United Nations conference on

global warming. The scenario, premised on a shutdown of the North Atlantic thermohaline circulation system, would lead to a new ice age over the coming decades. The warning by the NOAA climatologist goes unheeded, while extreme and dramatic weather events begin taking place in the northern hemisphere. The NOAA scientist is befriended by an oceanographer who not only supports the NOAA scientist's theory but provides new data that show temperature decline at many different buoy weather stations in the Atlantic Ocean. From this data, the NOAA scientist's forecast model is updated to show that the theory of a new ice age developing over decades was too optimistic; the new and updated forecast shows that the ice age is imminent, and is visually represented by three abnormally large hurricanes that cover the entire northern hemisphere in a matter of days. The plot of the film then follows the paleoclimatologist on a survival journey to save his son and a group of survivors who had found refuge in the New York City Public Library. It is here that the original context of survival literature comes full circle. The entire library collection had been used as fuel in a fire so that the survivors could remain above freezing temperatures. This representation portrays that all of human history as found in the print literature had been lost due to climate change. The only book later revealed to have weathered the storm was the Christian Bible, thus situating the context of this popular culture climate change representation near the origins of survival literature.

While The Day After Tomorrow (2004) was a fictional account that dramatized the projected impacts of climate danger, research showed that among those who viewed the film, as well as among those who had not, both groups surveyed had increased concerns about climate change risk. According to Leiserowitz (2004), The Day After Tomorrow had "a significant impact on the climate change risk perceptions, conceptual models, behavioral intentions, policy priorities, and even voting intentions of moviegoers" (p. 34). Among those surveyed, 83% of

people who viewed the film were increasingly concerned about climate change risk perceptions. Interestingly enough, 73% of those surveyed who did not view the film also showed increased concern about climate change risk perception. When asked "in the United States, how likely do you think it is that each of the following will occur during the next 50 years due to global warming?," the participants were given a choice of six events. Ranked in order of likelihood from the responses of those surveyed, the six events include,

- More intense storms: hurricanes, tornadoes
- Flooding of major cities
- Food shortages
- Standards of living decrease
- Gulf-stream shutdown
- New ice age

The participants who viewed the film responded more strongly in each of the six categories than the participants who did not view the film. However, the participants who did not view the film ranked the likelihood of each event in an almost identical way. The exception was that for those who did not view the film, the category of food shortages ranked slightly higher than flooding of major cities. Otherwise, the ranking of likelihood among the six events showed similar trends between those who did and did not view the film.

Leiserowitz's research is clear that the representation of climate change in The Day After Tomorrow also influenced public perception in ways that inspired real world behavior. Those who viewed the film were found more likely to engage in behavioral changes such as purchasing an electric vehicle, initiating discussion about how to reduce or prevent global warming, joining or donating money to a climate change organization, as well as contacting their Congressional representatives about political change. The film also served as a platform to elevate scientific

discourse in popular culture in ways that focused on the relationship between climate science and the catastrophic representations within the film.

As discussed by Von Burg (2012), some scholars "adopted an uncharacteristic rhetorical gesture to promote global warming awareness, employing The Day After Tomorrow to dramatize the harms of global warming" (p. 7). Von Burg's research analyzed the ways in which the film not only had been used, but should continue to be used as a "rhetorical resource" in the dominant understanding of climate change. Von Burg referred to this approach as an "upstream effect," a concept drawn from Hilgartner (1990) that accounts for the ways in which a dominant discourse relies on simplified narratives. For Hilgartner, scientific discourse in popular culture relies on simplified narratives because both policy makers and the public are not capable of understanding the complexities found within formal discourse, i.e., the scientific literature. The process of simplification was referred to as a "political resource" designed to establish scientific knowledge as the cultural symbol of authority, which is framed as the "gold standard" of "genuine knowledge" (Hilgartner 1990, 520). An issue with formal discourse reflected in popular culture is that the narratives can in turn impact the research process (Whitley 1985, Hilgartner 1990, Weingart 2002). As noted earlier, it is not uncommon for scientists to learn about research that differs from their specialized fields from popular culture, and, according to Hiltgartner (1990), popular culture can "shape their beliefs about content and the conduct of science" (p. 522).

As discussed in the Cold War chapter of this work, military funding helped establish new fields of research, and the different sites of knowledge production can interact in ways that shape the geopolitics of insecurity. The Day After Tomorrow is a prime example of a popular culture artifact that mixed together survival imaginations and geopolitical traditions. It therefore

becomes useful to question the ways in which different sites of knowledge production and supporting climate security discourse could be both new and unprecedented, but also familiar through shared representations. Climate discourse, during its early transition from being portrayed as a secondary impact of an event (nuclear war) to becoming the event itself, initially lacked a real-world example (e.g., a Hiroshima) as evidence of a dystopian beginning.

### Katrina and An Inconvenient Truth

For climate change made real, an integral part of its dystopian beginning is found only in hindsight in the discourse surrounding Hurricane Katrina in 2005, together with Al Gore's 2006 documentary film An Inconvenient Truth. For much of America's leadership, and in media reports in response to Hurricane Katrina, the initial framing was in terms of nuclear catastrophe. According to Masco (2015), the ways in which Katrina had been initially reported in popular culture was not about violent weather, or any potential relationship to climate change. Rather, the initial discourse included "the national security state's ability to respond to a nuclear attack" (p. 184). As one example, during a press briefing by President Bush he described the immediate aftermath of Katrina in ways that transformed a disaster into a threat, thus justifying militarized response. "It – for those who have not – trying to conceive what we're talking about, it's as if the entire Gulf Coast were obliterated by a – the worst kind of weapon you can imagine" (Bush 2005). Through the discourse of Katrina, we begin to see the ways in which a securitized response became part of the dominant framing for how natural disasters, emergency management, and security are assembled. Masco (2015) further explored the discourse surrounding Katrina to question how the event was not only a measure of nature's power, but also how powerful the psychological impact of the atomic bomb had been on American culture:

"For how is it that so many Americans, from so many different social positions, could understand this nonnuclear, nonmilitary event, in decidedly nuclear terms?" (p. 185).

Part of Katrina's semiotic legacy was found within the images throughout popular culture that have linked flooding, hurricanes, resource scarcity, urban chaos, and Malthusian mobs to the necessity of a militarized response. "Many of these themes of alarm were replayed in the discussion of climate change in the aftermath of Hurricane Katrina and Al Gore's movie An Inconvenient Truth" (Dalby 2009, 53). According to Mellor (2009), at no point does An Inconvenient Truth actually claim a relationship between climate change and Hurricane Katrina, but the film is said to openly draw on semiotic images to make a connection through metaphor.

> Taken as metonymic images, this suggests an attribution of a causal relationship between this particular hurricane (the subject of images) and global warming (the reality to which the film refers). Yet read metaphorically, as a figure of similarity rather than contiguity, the images serve to demonstrate what the climate-changed future might be like, with extreme weather events similar to Katrina. As a visual metonymy, this scene makes a claim that cannot be justified. As a metaphor, it tells a truth that is compatible with the IPCC consensus (Mellor 2009, 147).

This is to say that a popular culture artifact of climate change as metaphor tells "a truth" regarding the IPCC consensus for what the future might be like. Hartman (2017) claimed that one of the strongest legacies of An Inconvenient Truth was that the film made disaster imagery a common staple in our national imagination of climate change.

> An Inconvenient Truth, combines classic disaster imagery – glaciers melting with thunderous sound effects, the swirling chaos of Hurricane Katrina, harrowing scenes of flood and drought in Asia, power plants spewing pollution – with scientific appeal of charts and graphs and the personal touch of Gore's love for his family home in Tennessee…one critic writes that, even though the film takes you on 'a nature hike through the Book of Revelation' it ends with the upbeat message that we can do something about global warming (p. 210-211).

Much of dystopian climate change geopolitical discourse as reflected in popular culture has become a rebranded fictional genre in order to separate and make distinct, fictional accounts of climate change threat and vulnerability. Whitely et al (2016) point out that over the past decade a new generation of climate fiction, coined "cli-fi," has become a measure of our cultural consensus that climate change could end modern civilization. "While primarily motivated by our current climate crisis, such writing also has roots in ancient myths and parables such as Christianity's story of the Flood in the book of Genesis, as well as in science and speculative fiction from the past century inspired by nuclear holocaust" (p. 28). Whitely's research moves forward analyzing the discourse within cli-fi novels, but an important aspect as it relates to my research was the direct, brief, and marginalized connection to Western history that provided familiar context for the modern climate change dystopian imagining.

Returning to the ways in which Hiltgartner (1990) argued that popular culture can influence researchers and the conduct of science, Yuen (2012) claimed "every political, cultural and aesthetic field that we look at is replete with talk of catastrophe" (p. 15). Yuen discussed the connections between climate change and dystopian narratives but argued that with all of the different dystopian projections that Western thought has had to offer, climate change is different. In doing so, Yuen framed climate insecurity as legitimate and in competition with other forms of false apocalyptic narrative. According to Yuen:

> The ubiquity of apocalypse in recent decades has led to a banalization of the concept – it is seen as normal, expected, in a sense comfortable. When a crisis does occur, people immediately reference it to movies, and there are now CGI images that serve as reference points for any conceivable disaster. Environmentalists and scientists must compete in this marketplace of catastrophe, and find themselves struggling to be heard above the din (p. 20).

Competition infers binary framing that simplifies thoughtful discussion, and any relationship between science and popular culture is one Weingart (2002) argued can become irrelevant to the origins of empirical intention.

> In the beginning are dire warnings in the media about a looming danger, if not catastrophe. The scientists promise to find solutions, which results in funds for research. Once established, the new research field starts its life cycle; the knowledge increases, becomes more differentiated, specialized, abstract and increasingly irrelevant to the solution of the original problem (p. 705).

Along with the disaster imagery that tells us what climate change means, there exists a cultural fascination with points of no return. The term "tipping point" that is commonly used to describe the point at which climate change can no longer be mitigated or, as a dystopian construct, passes the point at which human civilization is able to survive, further demonstrates how scientists can be influenced by popular culture, and geopolitical traditions.

### Tipping Points

According to Antilla (2010), public perception of climate change is strongly influenced by how the media covers scientific knowledge. The goal of Antilla's research was to "unpack the problem of the apparent lack of urgency among U.S. citizens and policymakers on the issue of global climate change" (p. 240). To do so, Antilla compared and contrasted media publications for the years 2006 and 2007 in the U.S. and abroad to account for the ways in which climate risk "is followed by a description of feedback mechanisms and abrupt climate change" (p. 241). Antilla drew from Gladwell (2000) to define the term "tipping point" as the point at which "radical change is more than a possibility [but is] a certainty" (Gladwell 2002, 14, cited by Antilla 2010, 244). Connecting the term to climate change, Antilla drew from Lenton (2008), who introduced the term "tipping element" to describe small quantitative changes in an Earth

system that can lead to a "tipping point" so that the future state of that Earth system is qualitatively altered. Antilla directly followed those points of definition by explaining that "Passing these thresholds can lead to nonlinear responses known as rapid or abrupt climate change or climate surprises" (p. 244). In doing so, Antilla situated the discourse, perhaps unknowingly, in Cold War security concerns.

What is particularly interesting about the term "tipping point" is that Gladwell (2000), who is a journalist, used the term in a completely different context than climate change or environmental crisis. Gladwell's use of the term "tipping point" according to Russill and Lavin (2012) was an "epidemiological imaginary," that was not "entailed logically by epidemiological inquiry" (p. 144). Furthermore, Russill and Lavin argued:

> It is important to refute this supposition fostered explicitly by Gladwell and a raft of commentators influenced by him – because presenting his theory as derived from the study of epidemics and non-linear sciences has obscured the need to engage in ethical and political debate over the validity of tipping-point conceptualizations (p. 144).

The influences to which Russill and Lavin refer were the use of the term to describe aspects of the Iraq war, Hurricane Katrina and, later, climate change danger within popular culture. In January 2005, the term "tipping point" was used by Donald Rumsfeld in a press briefing to describe elections in Iraq. In Russill and Lavin's (2012) view, Rumsfeld's use of the word was evidence that the tipping point discourse was implicated in efforts to reshape public perception surrounding the geopolitics of the Iraq war. In February of 2005, Ted Koppel asked Gladwell during an interview which factors were tipping points for the Iraq war. This interview, and its supporting tipping point discourse, was followed up by several popular culture news articles that further developed the "point of no return" discourse (Russill and Lavin 2012). In September of 2005, FEMA administrator Michael Brown used the term "tipping point" in a Congressional

testimony about the failures of government response during Hurricane Katrina. Lastly, in 2005, James Hansen used the term to describe climate danger. According to Russill and Lavin (2012):

> This claim (by Hansen) helped initiate a trend toward tipping-point forewarnings of climate-change danger that has since become a matter of significant concern and public debate. The terminology has appeared in scientific research and congressional testimony, while proliferating rapidly in mainstream media and popular discourse. Only two years later, Science reporter Richard A. Kerr would conclude that the use of "tipping points" had entered the mainstream in climate change warnings (p. 147-148).

Worth further consideration in the climate tipping point discourse is an understanding of the temperature increase at which climate danger is believed to manifest itself. As discussed by Jaeger and Jaeger (2011), a widely endorsed goal of climate policy has become the limit of 2 degrees Celsius. The "2°C" narrative is premised on an assertion that the amount of carbon dioxide placed in the atmosphere by human influence needs to be kept at, or below, a threshold of 2 degrees Celsius. Jaeger and Jaeger (2011) traced the origin of the 2°C narrative to a paper by Nordhaus (1977), in which the economist made comments regarding the 2°C limit in passing. Nordhaus (1977) directly stated in his work that "It must be emphasized that the process of setting standards used in this section is deeply unsatisfactory, both from an empirical point of view and from a theoretical point of view" (p. 41). The initial mention of 2°C by Nordhaus drew from Manabe and Wetherald (1975), in which a doubling of carbon in the atmosphere was predicted to be correlated geographically to increasing temperatures that would increase with latitude. "The effect on surface temperature is generally around 2°C up to about 40 degree latitude (roughly New York), then increases dramatically to 4.5 degrees at 60 degrees, up to over 10°C in the polar regions" (Nordhaus 1977).

A way in which that particular comment by Nordhaus becomes interesting is that his initial mention of 2°C was for up to 40 degrees latitude with specific mention of a geographic

location in the U.S (New York). The 2°C figure for that particular latitude, which Nordhaus directly cautioned was not fit for setting any standard from an empirical or theoretical inquiry, had moved forward to distinguish three views of global climate change discourse (Jaeger and Jaeger 2011). The three views inspired by the 2°C narrative are the catastrophe view, the cost-benefit view, and the focal point. According to Jaeger and Jaeger (2011), there is no consensus in the academic community about a 2°C threshold, or any "tipping point" threshold for that matter. Rather, the 2°C narrative has become metaphor in ways that policy makers treat the 2°C value as a scientific result and scientists treat it as a political issue (Jaeger and Jaeger 2011).[13]

Similar in style to how Von Burg (2012) argued that The Day After Tomorrow should be used as a "rhetorical resource" in the dominant framing of climate change, Jaeger and Jaeger (2011) proposed that the 2°C "tipping point" discourse should be used "as a focal point in a coordination game" (p. 25). As a rhetorical resource, the use of metaphors in formal discourse can repackage the meaning of popular culture security representations in ways that become characteristic of a serial narrative. According to Dittmer (2010), a serial narrative unfolds in a particular order so as to provide continuity for the context that precedes it. "If representation frequently involves places, and what they are like (or are perceived like), then narrative is about time: about events unfolding in a way that makes sense to the reader or listener" (Dittmer 2010, p. 69). Critical geopolitics views language through a series of representations as the basis for which commonsense geopolitical knowledge is produced (Dittmer and Sharp 2014), and knowledge production is generally agreed by academics to be the construction of narratives (White 1973, Dittmer 2010). In this way, "if one could identify the specific point where the

[13] Beginning in around 2008, some nations began calling on the IPCC to adopt a lower limit of 1.5°. Although initially viewed with skepticism, it has now been adopted and promulgated in the IPCC Special Report 15 (SR15) in late 2018, as discussed further, below.

genuine, scientific knowledge was first created, then one could argue that all downstream representations were popularization" (Hiltgartner 1990, 525).

In the case of climate change and dystopian future projections, many of the specific points that describe what the future may look like have part of their origins in nuclear security metaphors that precede the meaning of climate insecurity. Scholars recognize that climate change discourse became increasingly apocalyptic between 2006 and 2009 (Hartman 2017, Buxton and Hayes 2016, Dalby 2016, Anshelm et al 2015, Swyngedouw 2010, Dalby 2009), and according to Risbey (2008), an observable shift in climate rhetoric between 2005 and 2008 was evident in segments of science, government, and industry (p. 26). That shift, in Risbey's (2008) view, was significant in the sense that climate discourse reflected a growing divide between two views: alarming and alarmist. "This distinction is an important one, as it implies that we are either on the verge of committing ourselves to serious climate change, or else we are in danger of fooling ourselves that we are" (p. 26).

## Alarming or Alarmist?

Exploring the divide in language between alarm and alarmist climate rhetoric, Risbey (2008) examined a BBC article authored by Hulme (2006). A climatologist and director of the Tyndall Centre for Climate Change Research, Hulme (2006) acknowledged that climate change is a reality and that science confirmed the human contribution. Hulme further argued that climate change discourse had become increasingly alarmist:

> It seems that mere 'climate change' was not going to be bad enough, and so now it must be 'catastrophic' to be worthy of attention. The increasing use of this pejorative term – and its bedfellow qualifiers 'chaotic', 'irreversible', 'rapid' – has altered the public discourse around climate change (Hulme 2006).

Hulme's (2006) article explored the question of "what has pushed the debate between climate change scientists and climate skeptics to now being between climate change scientists and climate alarmists?" In Hulme's view, the change in discourse was in response to three catastrophic narratives that arose in response to the failures of the Kyoto Protocol.

- Catastrophe as a campaigning device for failures to meet emission reduction targets.
- Catastrophe as a political and rhetorical tool to "re-frame" the continued negotiations.
- Catastrophe discourse provided space for "the retrenchment of science budgets."

Hulme's concern about an alarmist view was that the catastrophe discourse was not supported by, nor was a part of, the language of science, and the catastrophe discourse could potentially lead to radical behavior. "Framing climate change as an issue which evokes fear and personal stress becomes a self-fulfilling prophecy. By 'sexing it up' we exacerbate, through psychological amplifiers, the very risks we are trying to avoid" (Hulme 2006).

Risbey (2008) examined these portrayals described by Hulme to explore whether climate science research supported the new assessment of climate change as "catastrophic, rapid, urgent, (and) irreversible" (p. 27). In doing so, Risbey drew from the tipping point metaphor and the 2°C narrative to arrive at the Cold War temporal marker of rapid and urgent. He attempted to provide transparency by stating he was among those who viewed climate change as alarming, but was not promulgating an alarmist assessment of the climate problem. He concluded by confirming his view: "This review of the language of the new discourse has focused on terms selected by a critic of the discourse [i.e., Hulme] and finds that the terms used to describe the science are at least arguably reasonable and consistent with it" (p. 35). In other words, while claiming to not be an alarmist, Risbey embraced terms described by Hulme as promoting an alarmist viewpoint.

Both Hulme's and Risbey's arguments used language that was descriptive of a serial narrative in ways that each view was situated in the context that precedes it. Within the alarm or alarmist debate, there exists a binary frame over which view is correct, with each side gathering sources and arguments to support its view. Be that as it may, what the alarm or alarmist debate did confirm was that its discourse further supports the dominant frame of climate change as a dystopian serial narrative. This distinction is made clear due to the observable shift in "denial or doomsday" rhetoric between climate scientists, skeptics and alarmists.

### A Display of Continuity

The ways in which climate change has been portrayed in our most recent decade further provides insight into the dominant representation and geopolitical discourse. An example of continuity is found in October of 2018 when the Intergovernmental Panel on Climate Change (IPCC) released SR15.[14] Prepared as a key scientific product for the Katowice Climate Change Conference in December of 2018, SR15 "highlights a number of climate change impacts that could be avoided by limiting global warming to 1.5°C compared to 2°C, or more" (IPCC 2018). Updating the threshold of climate impacts, the content of SR15 offered different levels of policy recommendations for the years 2030, 2050, and 2100 in the context of acceptable (1.5°C) and catastrophic (2°C) climate change impacts. Considered to be a politically unrealistic threshold (Webster 2015), the 1.5C discourse offered an updated metric of climate risk that increases urgency beyond 1.5C and approaching 2°C

A popular culture representation of SR15 was produced by Watts (2018) and published in The Guardian under the headline, We have 12 years to limit climate change catastrophe, warns

[14] Full title of SR15: *Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.*

UN. According to Watts (2018), "The world's leading climate scientists have warned there is only a dozen years for global warming to be kept to a maximum of 1.5C, beyond which even half a degree will significantly worsen the risks of drought, floods, extreme heat and poverty for hundreds of millions of people." That 12-year narrative by Watts was defined as the period between the years 2018 and 2030, under the acceptable threshold of 1.5C. The updated threshold was portrayed as an urgent matter in that we only have 12 years to limit emissions to 1.5C, beyond which any increase in emissions was represented by the 2°C narrative and said to result in catastrophe. This narrative was then reproduced as a form of practical discourse in context of the U.S. Congressional bill known as "The New Green Deal." Co-sponsored by Senator Ed Markey and Representative Alexandria Ocasio-Cortez, the New Green Deal was estimated to cost $93 trillion over a ten-year period (Crowe 2019). Representative Ocasio-Cortez, in a display of continuity with Watts' (2018) interpretation of SR15, claimed during an interview that "The world is going to end in 12 years if we don't address climate change, and your biggest issue is how are we gonna pay for it?" (Cummings 2019).

The actual language used in SR15 was not consistent with Watts' (2018) interpretation, nor could SR15 support Representative Ocasio-Cortez's comment. The IPCC report did utilize both the 1.5 and 2°C narrative as if the thresholds were established facts, and some media outlets ran stories in an attempt to correct the 12-year tipping point discourse. As one example, Marshall (2018) argued that media outlets that supported the 12 years until catastrophe discourse were:

> certainly correct to emphasize that climate change is an extreme threat to our civilization and that we need to take urgent action. But the claim there are 12 years until the point of no return is at best questionable, and at worst actively confusing. The reality is that there is no such cut-off: just a problem that gets worse and worse the later we leave it (Marshall 2018).

Marshall's effort to critically engage with the 12-year narrative is another signifier of a serial narrative because the author removed any preset length or ending, and did so by maintaining the context of extreme climate threats to civilization. In addition, Freedman (2019) interviewed climate scientists in the context of SR15 together with the 12-year narrative. According to Kate Marvel, a climate scientist with NASA whose comments also promoted the dystopian serial narrative while discrediting the 12-year rhetoric said:

> 12 years isn't a deadline, and climate change isn't a cliff we fall off – it's a slope we slide down. We don't have 12 years to prevent climate change – we have no time. It's already here. And even under a business-as-usual scenario, the world isn't going to end in exactly twelve years (Marvel cited by Freedman 2019).

Freedman (2019) further claimed that the rhetoric used by Ocasio-Cortez, among others, infers that formal and popular discourses which use the climate dystopian frame as one supported by the IPCC mischaracterize the report. Yet, at the time of this writing, there has been no official statement by the IPCC or peer-reviewed literature that attempts to correct the mischaracterization. However, in Freedman's (2019) view "the bottom line: Even if hard deadlines are scientifically flawed, they can be effective when it comes to activism. The 12-year timeframe, in particular, has been widely adopted by proponents of climate action." Among these examples of popular culture that attempt to provide a critical assessment of climate concern, there are efforts to rebrand and or reframe climate change so that the dominant representation is more alarming.

## The Climate Emergency

The Oxford University Press annually designates a word of the year, which signifies expressions that "reflect the ethos, mood, or preoccupations of the passing year, and have lasting

potential as a term of cultural significance" (Oxford University Press 2019). For 2019, the Oxford word of the year was "climate emergency," defined as "a situation in which urgent action is required to reduce or halt climate change and avoid potentially irreversible environmental damage resulting from it" (Oxford University Press 2019). To account for the increased use of the word in 2019, Oxford University Press cited how one media publication, The Guardian, purposefully changed the way it reported on climate change beginning in May of 2019. "The newspaper stated that instead of climate change, its preferred terms are 'climate emergency, crisis, or breakdown' to describe the broader impact of climate change" (Oxford University Press 2019). A wide variety of media companies followed the climate emergency frame and did so in ways that amplified the catastrophe narrative prior to the United Nations climate summit in September of 2019 (Tracy 2019).

Just as Hulme (2006) argued that the climate catastrophe discourse of the mid-2000s was, in part, situated around the Kyoto Protocol, the climate emergency discourse of 2019 followed a similar path. Tens of thousands of high-school students in a nationwide protest gathered with a message "aimed directly at the adults who they say are ignoring the destruction of the planet" (Weise 2019). The protests were organized around the United Nations climate summit in September of 2019, and young people said "they want politicians to act as if the world is on fire and begin curbing carbon emissions and taking the fight against global warming seriously" (Weise 2019). What is more, an article by Hall (2019) demonstrates a calculated discussion on how and why selecting an "appropriate" climate change term can motivate the public. Hall (2019) stated that "After the global climate strikes this past September, I found myself thinking about the terms 'climate change' and 'global warming.' Are these scientific terms too neutral? Do they do enough to grab the attention and inspire people to take action?" Hall continued by

discussing what “re-branding” climate change needs to include in an effort to reach 7.5 billion people not trained in scientific jargon and under the representation of a global threat; the new climate message “could be a call to action, be more descriptive or use familiar metaphors that emotionally connect us to the issue” (Hall 2019).

Climate change discourse means little in the way of geopolitical traditions without continuity of particular threats and vulnerabilities that precede the modern context. Just as scholars had suggested formal discourse should utilize metaphors in the dominant representation of climate change (Von Burg 2012, Jaeger and Jaeger 2011), Hall (2019) offers an open letter on ways to intentionally frame climate change as the collapse of civilization. As a focal point for coordination situated around the unthinkable, the focal point framework originated with Schelling (1958), and later became attached to climate change discourse (Jaeger and Jaeger 2011). As cited in the Cold War chapter of this work, Schelling (1960) discussed nuclear fiction novels in abstract scenarios about how accidents may occur and how those accidents may lead to war. A similar focal point regarding climate change is taking shape.

## The War against Climate Change

World War Zero is a bipartisan initiative launched by former U.S. senator and secretary of state John Kerry, in partnership the American Security Project. The goal of World War Zero is to reach “millions of Americans to build an army to beat climate change” (ASP 2019). According to its mission statement, World War Zero brings together world leaders and Hollywood celebrities to prepare for a war that “will be won through large-scale public education, content, and community-by-community effort to elevate climate change among public priorities” (World War Zero 2019). The American Security Project is a political think tank

formed by Senator Chuck Hagel together with John Kerry, and is self-described as "a thought leader in defining the threats climate change poses to national security" (ASP 2019).

In a press release that mediates the climate war discourse, World War Zero is said to "evoke both the national security threat posed by the earth's warming and the type of wartime mobilization that Mr. Kerry argued would be needed to stop the rise in carbon emissions before 2050" (Friedman 2019). According to Kerry, World War Zero does not promote any particular plan, and Katie Eder, executive director of the Future Coalition who organized the youth climate protests in September of 2019, believes that people who care about climate change need to look past their differences. "While I may be disagreeing with some of the things that other folks involved in World War Zero believe, that doesn't mean we can't work together. Collaboration is our key to survival" (Friedman 2019). Climate change imagined as a world war is premised on evoking national security threats and wartime mobilization as practiced during World War II, yet World War Zero is said to not promote any particular plan. In this way, World War Zero is a bipartisan coalition in agreement that climate change, if nothing else, is a dystopian future that requires large scale societal wartime mobilization.

According to Anshelm and Hultman (2015) apocalyptic climate scenarios are a prerequisite for political change (p. 9). However, Hartman (2017) argued that doomsday climate scenarios are self-defeating because they:

> Paralyze efforts to forge social, economic, political, and technological solutions to climate change. And it ends up boosting the authority and power of the military-industrial complex, encouraging responses that call out the troops and beef up our borders to prepare for the coming crisis. The risks of apocalyptic rhetoric about climate change far outweigh the benefits (p. 203).

Matters of climate concern seem to not be open for discussion and are consensually framed by strong majorities, academics, media voices, and policy makers as lying beyond dispute. According to Swyngedow (2010), “In this consensual setting, environmental problems are generally staged as universally threatening to the survival of humankind, announcing the premature termination of civilization as we know it.”

# Chapter 6 – Conclusion

The purpose of this study was to identify the ways in which the dominant representations of climate change manifest dystopian serial narratives. Utilizing discourse analysis as the primary research method, this thesis was structured in two parts. First, I analyzed the discourse of climate change geopolitical narratives between the years 2010 and 2019. I organized the data so as to narrow the research focus to the three types of discourse as defined by the framework of critical geopolitics. I examined the data by using both descriptive and analytical codes within the context of my primary research question: What constitutes threat and vulnerability in climate change geopolitical narratives?

The descriptive results showed that the projected impacts of climate change were unanimously asserted across formal, practical and popular discourse to result in humanitarian disasters. The style in which climate impacts were communicated varied across formal, practical and popular discourse. A dominant theme for how climate impacts were communicated showed that peer reviewed scientific literature (formal discourse) was the leading discourse that legitimized the dystopian representations of climate danger. Further examining the data for solutions presented in response to climate change, the results showed that each discourse offered different solutions, but shared in similar themes and theories. Those similarities showed that each discourse offered solutions in the context of their primary designation. This is to say that formal discourse promoted more scientific research as a solution to the climate problem, while practical discourse advocated for the protection of supply lines and further development of infrastructure as a solution (state security), and popular discourse framed climate change as a potential dystopian future that could be resolved by a change in consumer habits.

Cross examining the data with analytical codes, the goal was to look beyond the detailed and specific representations of climate danger as presented by each discourse. The analytical results showed that a primary portrayal of threat and vulnerability was access to and development of resources. Accessibility and the development of resources (to include distribution pathways) were most commonly discussed in the context of economically disadvantaged people, cultures, and developing nations. As explained by those in positions of authority, descriptions of threat and vulnerability framed groups of people and nations of low-economic status as being most vulnerable to the threat of climate change. However, once designated as vulnerable, groups of people and nations of low economic status transformed into a threat should the solutions to the climate problem fail to be implemented. The context of this style of discourse was shown to be a reproduction of Malthusian narratives that have a long history of framing vulnerable groups as a threat to state security. The aggregate of our current geopolitical culture communicated the dangers of climate change as a dystopian future potential, said to materialize should there be any failure to both understand and implement the solutions as presented by each type of discourse.

The second part of this research was designed to link together with the discourse analysis in part one by exploring the historical relationship of dystopian future projections and state security. Climate change framed as a unique event in modern times was placed under a critical lens to show the serial connection and the continuity of "common sense" knowledge. A key aspect of discourse analysis is to critically engage with expert claims about patterns and processes by tracing the geographical and historical relationships (Kuus 2014). To do so, the second part of the study began at the origins of print literature by drawing from established scholarly work to show how dystopian futures had been used as a political and ideological tool

for state expansion and preferred types of development. Primarily derived from early scientific enterprise, scientists would embark on research expeditions to map geographic areas in ways that framed unknown cultures, types of climate, and unfamiliar biota as spaces occupied by a variety of dangerous and wild imaginations. I then examined several of those colonial techniques in the context of Cold War security strategies. It was during the Cold War that many scientific theories were developed that later informed the dystopian serial component of anthropogenic climate change as they are imagined in our current geopolitical culture.

Beginning in 2003, climate change began to be discussed in the context of threats and vulnerabilities to state security. As climate change was represented as a dystopian discourse, it progressed into its own unique niche characterized by several apocalyptic identifiers, such as carbon thresholds and tipping point rhetoric. These identifiers were shown to be political in construction and not actually based upon empirical evidence. Many of the widely circulated representations of climate danger were shown to be based upon metaphors for both political and economic purpose.

The two primary goals of this study assessed the ways in which threat and vulnerability have been constructed in order to identify the proper context of climate change as a dystopian serial narrative. This research did not question atmospheric science that has and continues to uncover new understandings of human influences that impact the natural environment. Rather, this research was designed as a two-part analysis in order to recognize the ways in which different geopolitical cultures share in similarities such that those in positions of authority have made sense of their own geopolitical culture as being one repeatedly positioned near the end of civilization. Dystopian future projections have been a motivating aspect to geopolitical imaginations for different political and economic purposes since the invention of the printing

press. Thus, climate change discourse as analyzed in this research has been shown to not be unique in its current geopolitical imagination.

It is important to reiterate that this thesis does not question atmospheric science that has and continues to uncover new understandings of human influences that impact the natural environment. Identifying the dominant representation of climate change as a dystopian serial narrative serves to question the ways in which formal, practical, and popular geopolitical representation work together to generate "a constant state of anxiety that has turned 'crisis into a social norm" (Marzec 2015, 200). Rather than being included in a conversation that, in Hartman's view (2017), has "descended into the either/or extremes of US political discourse" (p. 204), my research seeks to contribute to a conversation that is beyond a climate change binary of "denial or doomsday." Doing so considers the ways in which the dominant frame of climate change as a dystopian serial narrative reproduces representations and metaphors that share in style with much older "end of the world" narratives and in doing so, becomes an extension of traditional geopolitics.

## Research Limitations

This study was limited both by the sample size and the wide range of research disciplines that focus on climate change. Having a background in Environmental Studies and taking a personal interest in the natural environment, I have been exposed to a wide range of research and course curriculum about climate science, anthropogenic climate change, and the implications of those climate impacts on the human environment. It was not until graduate school that I was inspired to "pull things apart," in an effort to critically engage with environmental research and political geography. I recognize that the research conducted in this thesis is limited in the sense

that analyzing 45 data samples spanning three different discourses drawn from a wide range of disciplines over a ten-year period is understood to be a very small sample when analyzing the relationship between dystopian futures and state security dating back hundreds of years. The research performed in this thesis could occupy an entire academic career.

Further limitations of this research include the method of discourse analysis (DA). A cause for concern when studying DA literature was that no two examples of research offered a systemic approach to the method in a similar way. This is to say there are many different ways to approach discourse analysis and those differences were apparent in works that employed DA, including theses and dissertations, as well as in established scholarly work published in journals. It was common across the literature examined that a systematic approach for replication was lacking and/or non-existent. This was most commonly found in the descriptive and analytical coding used to organize and interpret the data of different research. Due to the limitations of a systemic approach offered by a variety of discourse analysis research, the approach used in this study offered a system that people could replicate in order to gauge the authenticity of the results.

## Looking Forward

In looking forward to areas of future study, I became curious during this research about the ways in which science and religion share similarities as cultural authorities in relation to dystopian future projections. For instance, Zelinsky (1975) put forward the idea that science had become the dominant religion of the late twentieth century. In the progression of his argument, Zelinsky recognized science as a social activity that has its own history, code of etiquette, myths, and folklore. He provided several examples that underlined the ways in which science as a social

activity had experienced types of social stratifications such as “class, racial, ethnic, and sex biases, lusting after power, and interpersonal frictions found elsewhere in our society” (Zelinsky 1975). What particularly drew my attention were the examples of environmental calamity that Zelinsky had used to further illustrate his point. Scholarly literature during the 1970s was said to have “grown so luxuriantly, an apocalyptic sense of impending calamity, of mischievous events spinning ever faster out of control, is now so widespread that if you are not already convinced of the merits of the argument, nothing I could write here can possibly change your mind” (Zelinsky 1975).

It is here that future research could benefit by further studying what science is, and what science is not. In what ways can a technique become a form of identity? Is there a stronger connection to, and the possible critical examination of, the patterns and processes that have positioned different epochs, cultural histories, and theories as one where entire civilizations are repeatedly near the end? The goal here would not be to criticize science in the sense of rendering the pursuit meaningless. Rather, future research could benefit by further critically engaging with the economic aspect of science that may inspire hyper-competitive fields of scholarly research. Of particular interest would be the intersection between quantitative and qualitative research that not only provides explanations of what things are, and how things work, but also what those things actually mean in the context of being useful for the progression of human enlightenment.

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