



# Preparing for Catastrophe on the Polar Frontier

## An Antarctic Field Training Manual

JESSICA O'REILLY

*International Studies, Indiana University, USA*

**Abstract** From a distance, Antarctica invokes extreme imaginaries and possibilities. In the practice of everyday human Antarctic life, however, daily tasks and risks are heavily managed, mitigated, and overseen. To analyze the spectacular and mundane natures of human life in Antarctica, I will compare the paramilitary practicalities of Antarctic research station and field camp life with the visions of the Antarctic as a place of sublime wild nature, violent death, and climate disaster. Using three signature events in Antarctic field training—predeparture, orientation, and navigation—I consider how people visiting the Antarctic are trained to order their lives and work, especially in preparation for emergencies. Notions of risk, danger, and catastrophe hinge on the broader historical and cultural contexts of Antarctica as a frontier zone, making preparedness in the Antarctic gendered, militaristic, and highly ritualized. Finally, I compare climate catastrophe at a global scale—the other sort and scale of emergency Antarctic people are occupied with—with how traditional field preparedness maps onto this potential disaster. In field training, Antarctic people counter the tropes of wild nature with extreme and exaggerated performances of bureaucracy; this analysis, then, considers the generative potential of technocratic practices in the face of the Anthropocene, an environmental expression of human triumph and disaster. Practicing risk management requires practices of embodiment as well as literal and figurative orientations to potential hazards.

**Keywords** extreme nature, bureaucracy, disaster, Antarctic, climate

### Introduction

Antarctica is one of our earthly edges of existence, a place that cannot sustain human life in the long term without logistical support from elsewhere, a place of extreme environments and treacherous landscapes. Human life in Antarctica, particularly with its focus on technoscientific knowledge production, requires logistical, bureaucratic, and governmental support in order to work. This article analyzes the borders between habitability and inhospitality, between knowledge and ignorance, through the processes of training, especially those related to emergency situations.

---

*Environmental Humanities* 9:2 (November 2017)

DOI 10.1215/22011919-4215370 © 2017 Duke University Press

This is an open access article distributed under the terms of a Creative Commons license (CC BY-NC-ND 3.0).

Antarcticans keep cool about the end times: violent dystopian futures are kept at bay through paperwork and other practices of everyday bureaucratic life. Here, the ridiculous and sublime are friends with each other, and people who choose to live and work in the Antarctic are comfortable with that notion. From a distance, Antarctica invokes extreme imaginaries and possibilities. In texts produced by Antarctic travelers, the Antarctic becomes pastoral, transformative of selves, and a critique of conventional notions of the sublime.<sup>1</sup> In the practice of everyday human Antarctic life, however, daily tasks and risks are heavily managed, mitigated, and overseen. To analyze the spectacular and mundane natures of human life in Antarctica, I compare the paramilitary histories and practicalities of Antarctic research station life with the visions of the Antarctic as a place of sublime wild nature, violent death, and climate disaster. In particular, this article considers notions of frontier human settlement to investigate the ways Antarctic people organize life around these tropes and alongside others of scientific discovery and international governance. People living and working in Antarctica perform extreme and exaggerated bureaucratic practices in part, I suggest, as a relational counterpoint to tropes of wild danger and extremes.

The frontier zone in Antarctica, like all frontiers, is made through human labor in nature. It marks an intimacy to the otherworldly as well as a commitment to mundane and procedural practices that temper the sublime Antarctic wildness. This romantic-meets-utilitarian vision can come at high personal cost as people live with these extremes. For example, the now-defunct website *Bigdeadplace.com* was a source of limitless inspiration and procrastination as I prepared to travel to Antarctica. The author, Nicholas Johnson, wrote an advice list for FiNGies, or Fucking New Guys, that I tried to follow as a means of acculturation (a completely FiNGie thing to do). Tips included suggestions like “never act like you almost died, unless you literally almost died,” and “never ‘pop into medical’ for a quick question, they’ll keep notes about you.” Johnson published a book with the same title while I was in the field.<sup>2</sup> Johnson, who worked for Raytheon Polar Services, the contractor then serving the United States Antarctic Program, reveled in the mundane details of work and social life as a contract laborer at McMurdo station. After several Antarctic summer seasons and a winter-over, Johnson continued as a military contract employee, working in Iraq and Afghanistan. He would try to talk his friends into coming to work with him, making spreadsheets in a war zone. Johnson committed suicide in Seattle in 2012. A few months prior, his offer of employment back at McMurdo had been rescinded after the contractors realized that he had authored *Big Dead Place*.

In Johnson’s memory, I would like to take you on a tour of the end of the world from the ends of the earth. I analyze the tension between extreme nature and extreme bureaucracy in terms of three moves—(1) the predeparture preparations that equip

1. Leane, *Antarctica in Fiction*.

2. Johnson, *Big Dead Place*.

Antarctic travelers with the technological and behavioral tools mandated by Antarctic existence in terms of extreme environment and geopolitical arrangements; (2) orientation to Antarctic base and field life, militaristic, gendered, and laden with risk management; and (3) the movement of people and machines over the Antarctic terrain as a key practice in Antarctic arrangements between everyday life and sublime danger. I analyze predeparture preparations, the ordering of activity at Antarctic bases and field camps, and travel on Antarctic terrain as signature training events that situate Antarctic life between the everyday and the sublime. Finally, I relate these training events as risk management practices to the broader question of managing anthropogenic climate change as a pervasive, future-oriented, large-scale, long-term, and irreversible risk. Embodiment and orientation to risk are formed through materials, practices, histories, and rehearsed futures that situate people in resilient relation to disaster.

### **Antarctic Risk, Disaster, and Catastrophe**

Preparedness is a bureaucratic dream of a state of being, in which people are oriented to a novel experience, ready to participate and anticipate risk and opportunity. Antarctica's risk-management potential is almost elegant, when we bring together the remote and extreme Antarctic environment with its human history grounded in state exploration, military logistic support, and grand scientific projects. Risk forms and is formed by modern, rational, and technocratic approaches to managing society.<sup>3</sup> Orienting management toward future catastrophes involves particular styles, practices, and logics of imagining futures as potentially threatening.<sup>4</sup> Risk is created through the anticipation and enactment of catastrophe, made legible through scientific expertise, as well as through accounting practices, in which risks are rendered likely or not through statistics.<sup>5</sup> Risk, then, is an "organizing concept," which reflects and delimits the ideas and values of the managers, often the state.<sup>6</sup>

Risk also carries with it the valence of history and memory, the impact of tragic events, mistakes, happenstance, and luck, to shape future decisions and behavior. As Jasanoff claims, "risk is a disciplined projection of archived historical memory onto the blank screen of the future."<sup>7</sup> For those planning for potential future scenarios, the past makes particular futures possible. Those events outside the realm of past events—nearly unimaginable occurrences—are catastrophes, pushing past humanity's ability to organize, cope, and respond.

Alongside the rationalization of risk is the specter of danger. Terror and catastrophe, while statistically rare, are discursively powerful. The symbolic might of the

3. Beck, *World at Risk*.

4. Anderson, "Preemption, Precaution, Preparedness."

5. Collier, "Enacting Catastrophe"; Lakoff, "Generic Biothreat."

6. Power, *Risk Management of Everything*.

7. Jasanoff, "Beyond Calculation," 15.

bottom of the world—and the tangible difficulties presented in emergency situations in such a remote location—makes the treacherous adventures and misadventures of Antarctic explorers fraught with peril and suffering. Modern risk management seeks to counter the seduction of hazardous adventuring, packaging it firmly and cheerfully within a careful set of rituals.

Floating over the human dramas of Antarctic risk management is the threat of planetary disaster. The contrast between the micromanagement of camp life and the collapse of the Antarctic ice sheet is almost incomprehensible, though the threads of preparedness, uncertainty, and routine weave between the two scales of emergency. This article analyzes the vast space between these scales to find the resonances and discordances between managing risk for discrete Antarctic emergencies as logistical practices and the more fluid, pervasive, and widespread emergency of global climate change. To get there, we begin with the rituals of preparing for, training for, and navigating through everyday Antarctic life.

### **Predeparture: Risk and Preparedness**

The first preparedness ritual in Antarctic training begins with the liminal stage of Antarctic predeparture.<sup>8</sup> The rituals of Antarctic life begin elsewhere, in the preparatory days before leaving. Going to Antarctica typically requires layers of authorizations from governments, Antarctic programs, research teams, and environmental impact assessors. Each approval shunts you closer to leaving and comes with a fresh to-do list.

In contrast to onsite orientations, in which newcomers are enculturated into a new social and natural environment upon arrival, predeparture preparedness involves a more vague invocation of expectations, rules, cautions, memories, and prompts. Preparedness is speculative, imaginative, future-oriented, and also kind of funny, with the opportunity to form informed imaginaries about Antarctic life and then enjoy contrasting your experiences with your inaccurate expectations when you arrive.

Our group had several stages of preparation, perhaps more than typical because most of us were graduate students and first-time Antarctic travelers. I was affiliated with the group as part of my fifteen months of ethnographic research on the practices of science and policy in Antarctica. We spent a weekend camping at the University of Canterbury's Cass Field Station in the Southern Alps of New Zealand, learning to light primus stoves and set up polar tents and watching *The Thing* in physical and metaphysical preparation for our journey.

We also visited the Antarctica New Zealand (ANZ) offices in small groups for kitting out. ANZ is the government institute that manages Scott Base as well as the logistics of New Zealand's Antarctic research programs and some of New Zealand's Antarctic policy. We had to purchase our own thermal underwear, but apart from that, our

8. Research conducted in and about Antarctica since 2003; this article describes a trip at the end of 2005 to a camp near Scott Base (NZ).

fleece midlayers, our lightweight snow pants and parka, our Extreme Cold Weather Gear (ECW), our two pairs of boots, our sun goggles, gloves, and hats were loaned to us by ANZ.

After checking out our gear and stuffing it into standard issue duffel bags, we watched a compulsory predeparture video in ANZ's break room about environmental practices. We had already filled out environmental impact paperwork, but the video restated some of the regulations we were expected to encounter. Mostly a reiteration of standard Leave No Trace camping practices, it reminded us to keep a distance from Antarctic wildlife and to pack up all of our trash. It covered what to do in the event of an oil spill: ensure our safety and then contain the spill.

The next day, in our layers of clothing, we arrived at the Antarctic departure lounge of the Christchurch airport. Upon arrival, we learned that poor weather conditions in Antarctica would delay our flight until the next day. However, the employees there requested that we screen a second set of predeparture videos so we would not have to do it the next day. These films, produced by the United States Antarctic Program, covered essential information for one's first few days in Antarctica. The video was meant to convey institutional values and prepare us for life in Antarctica. Take it easy, the narrator urged, and drink a lot of water. Ask for help instead of trying to figure things out on your own, or improvising. Do not take vehicles without permission (a story had been circulating about a recent firing, which occurred after a base employee drove a vehicle up Mt. Erebus, unauthorized). More exhortations about safety and environmental protection, and in a calm voiceover, a reminder that we might experience feelings of isolation and loneliness.

The predeparture video underscored the process of Antarctic enculturation that we were embarking upon, a process grounded in the idea of carefully managing risk in an environment beyond the scope of most earthly experience. The film also noted some of the psychological challenges of living in Antarctica. Psychological testing of overwinterers is mandatory; psychological studies of people in Antarctica, especially those overwintering, have a long tradition.<sup>9</sup>

We shuffled off again for another twenty-four hours in Christchurch before loading back into the plane the next morning. We cruised on the runway for a few minutes in our Royal New Zealand Air Force C-130 Hercules plane, sitting in mesh seats along the walls and center. The safety briefing was full of bravado, jokes, and fatalism, with the officer noting that he had lost the sample life vest, which was fine with him, he said, "because I am not an air hostess." We had been distributed enormous sack lunches. The plane stopped on the tarmac, and we were directed to exit due to a "fuel problem." We were bussed back to the waiting room but reboarded and were airborne twenty minutes later. Wearing protective ear muffs against the noise of the plane, we slept, ate, read, and peered out the windows at the rear of the plane. We awaited news

9. Cravalho, "Toast on Ice"; Palinkas, "Effects of Physical and Social Environments on the Health and Well-Being of Antarctic Winter-Over Personnel."

from the cockpit that we had successfully passed “the point of no return,” guaranteeing our landing in Antarctica. Then we watched the ocean slowly freeze up below us, first spotting ice patches here and there, then later, observing the sea ice taking on a jigsaw-like appearance before completely freezing up. We landed.

Predeparture is a classic liminal stage, in which people work on transitioning between identities.<sup>10</sup> This process is deeply embodied, as the materials and practices of preparation orient people toward styling themselves as Antarctic travelers. Enfolding messages of bureaucratic risk management prepares novices for immediate Antarctic risks, which become elaborated during in-field orientation.

### **Tented Field Camp: Orientation**

While I spent most of my time south in a field camp, I landed near McMurdo and stayed a few nights at New Zealand's Scott Base, two kilometers away. Norwegian adventurer Eirik Sonneland called McMurdo Station “Antarctica's asshole,” with the appearance of a frontier mining town and the impersonal petty bureaucracy of *Office Space*. Though Sonneland's website showcased Antarctic adventures like skiing to the South Pole and his heroic reception upon his return, he continues to fume over the faceless directives produced when he asked the United States for assistance to transport him and his colleague out of Antarctica when they missed their return boat. The United States charged him \$50,000.<sup>11</sup>

Scott Base is aesthetically more organized than McMurdo, with all the buildings interconnected and painted green. Everyone walking through the halls touches the metal poles that frame the tunnels, to release the static electricity that can become an intense shock in the ultra-dry air. Workers on base for the season scan the newcomers for romantic possibilities or avoid them and their novel contributions to the community's immune system. Everyone washes their own dishes in the dining hall, and everyone participates in camp chores, which, for me, involved beating on a block of accumulated ice with a shovel.

After a couple of days at Scott Base, we drove to our site in Windless Bight in our first jumbled Hagglund ride over the ice shelf. I was facing backward in my seat in the front compartment of the Hagglund, a massive tracked vehicle that maneuvers well on snow, turning around now and then to prevent motion sickness and to try to see where we were going. The first two days at our campsite were devoted to Antarctic Field Training (AFT), led by three Gore-tex-clad young men, two New Zealanders, and a British national, all with mountaineering backgrounds and abounding risk-management swagger. They had an air of burden about them, training hapless scientists with seemingly no business being in such an environment.

Some time into the drive, our AFT driver pointed out our camp. Two small structures, a blue tent and a yellow tent, had already been erected, and we could see them,

10. Turner, “Liminality and Communitas.”

11. Johnson, *Big Dead Place*.

far off and tiny, in the distance. We lumbered ahead in our vehicles, and the two tents slowly became clearer and larger. The Haggblunds pulled up to the tents and were shut off. We gracelessly exited the vehicles in our ECW gear. The AFT guys gathered us around them, introduced themselves as “Doctor” and “Professor,” and told us to “give our camp our signature” upon arrival, by bowing down and planting our faces in the unblemished snow. To the AFT guys, we were tremendous liabilities, knowing much intellectually while practically begging to careen down a crevasse with our minute experience in surviving the Antarctic environment. The lead AFT guy was named James, a British national who made fun of us for “being on holiday” and was more interested in how long I spent using the toilet than anyone I had ever met. I was a couple of minutes late to an early lesson on building emergency snow shelters that began a multiday tease about how I luxuriate in my Antarctic toilet, a ditch dug in snow with an orange bucket in it.

The AFT guys had a job to do—to teach us to order ourselves to the Antarctic in a particularly masculinist way, one that conforms with environmental policy, and more importantly, to the exploration legacies of the Antarctic, which were always about testing oneself in the name of one’s nation.<sup>12</sup> The rituals of AFT were rituals of precaution, in which we may enact emergency scenarios in the hope of reenacting them in a time of true crisis. Our AFT guys’ primary pedagogical strategy was of narrative shaming in relation to the inadequacy to our attempts at first aid (“Dead! You killed all of them!”) and the building of survival shelters (“Dig! Dig! Dig! This is an emergency—you’re dying of exposure!”). Their orders stood in contrast to the sublime and silent white world around us.

The campsite did not feel far away. In the far-reaching whiteness of the ice shelf, it was difficult to focus on anything but the colorful bustle of the twenty-two people, and their tents, food bags, fuel containers, bundles of flags, boxes of climatological equipment, personal luggage, primus sets, kitchen boxes, and water containers.

The sense of emergency and panic the AFT guys tried to impart in our training has been described by Anderson and Adey as *affective equivalence*, in which people practicing emergency scenarios learn to embody a state of urgency and peril in order to be prepared for a real-time disaster.<sup>13</sup> While such scenarios are played out by disaster managers at every bureaucratic level in diverse places internationally, these AFT guys also had to contend with the novelty of the Antarctic around us.

We hauled the tents out first: half Scott polar tents and half Macpac dome tents.<sup>14</sup> Tent pairs—two people per tent—grabbed a tent, and our leaders pointed us in two

12. Bloom, *Gender on Ice*.

13. Anderson and Adey, “Affect and Security.”

14. Scott polar tents are the yellow, teepee-shaped tents called so because the Scott Expedition used this style. Macpac is a New Zealand-based, high-end mountaineering brand—these tents were robust, modern backpacking tents.

directions, shaping the camp in a V, each wing emanating from the blue tent. We set the tents up with some difficulty, all facing Mt. Erebus and the inside of the right angle the structures made. Yellow and yellow-gray structures popped up, each about five meters from the other.

In front of each row of tents the snow was in turmoil, breaking up from the shuffle of mukluks over it. This would eventually pack down into trails, more or less, that we could walk on without slipping into the soft snow with every step.

We were also instructed to construct wind walls around our dome tents. The AFT guys pointed south, explaining that the strongest winds would blow from that direction in the strongest storms. Since the dome tent flies were simple backpacking-grade nylon tied down with tiny camouflaging white cords (a hazard to a distracted camper carrying coffee cups or trying to rush to the Hagglands for a day of science), they would need additional protection from this serious southerly wind in the event of such a storm. So we gathered up in a knot around one of the AFT guys, watching while he demonstrated how to saw snow bricks out from under the powder layer. We were to cut these bricks out of the snow and to stack them up in front of the dome tents, protecting them.

Next, we hauled out and untied some of our bundle of red, green, and black flags and set out to flag appropriate features around camp. This was both to prevent injury—to prevent someone from falling into a dug hole in conditions difficult to distinguish between gray sky, gray snow, and gray holes, as well as to mark important tracks around camp in the event of white-out conditions. We placed some by our quarry that we had been sawing snow bricks for our wind wall from. We made trails from the end of each wing to the blue tent. We marked the toilet holes and placed flags between each tent and its respective toilet hole. Later, flags popped up around a “freezer” pit dug to store frozen meat and keep it frozen, around the four-meter deep snow pit that we conducted research projects within, and in a solemn green line stretching away from camp to our weather station. The flags marked hazard and safety if visibility became reduced.

In AFT, embodiment of risk extends beyond the person and into the surrounding environment. People reshape the environment for everyday life and in anticipation of extreme events, like a whiteout. Antarctic human life is designed to accommodate procedural anticipation of future events, mitigating disaster in the face of environmental change.

### **Navigation: Travel on Antarctic Terrain**

Apart from camp life and the research we conducted there, we also ventured afield in our Hagglands to collect data in a few other environments, like a seal colony and a crevasse. The long, slow, warm drives afforded us time to contemplate the landscape. Antarctic roads, called flagged routes, severely bounded us to only certain tiny parts of the Antarctic landscape we inhabited. Some unknown persons with a Global Positioning System (GPS) device and the time to move slowly over the snow, checking for crevasses, had mapped out the roads. These workers lined up green or red flags at regular



intervals, stretching out, each so tiny, over the great ice shelf. Green and red means port and starboard on a ship, but Antarctic road makers are not always familiar with which side they are facing—since we are not on a ship but an arbitrary snow road—and so use red and green interchangeably now.

The flags flap, stapled onto a skinny bamboo pole. Their incessant movement frays the end of the cloth, millimeter by millimeter. Months of sunlight fade the crayon-shade green and red into washed out pales, the red flags sometimes becoming yellow.

The bamboo poles initially waver a bit after being placed in the snow, but a few cycles of melting and freezing of the top snow layers eventually encrust the pole within it, sticking it fast. In places, blowing snow shifts the altitude of local landscapes. Flags in these places poke only a foot or so above the white.

Sometimes, pairs of black flags crisscross ominously along the line of cheerful green and red flags. These mark danger along the Antarctic roads, usually poised on either side of a crevasse. Larger crevasses can be bridged over with snow-moving machinery and checked once in a while for stability, while a Haggglund or skier or hiker can drive or move or just step over the smaller cracks. Near one road, the crevasse had begun to swallow the black marker flags as it stretched out, incorporating them into the hole.

The flags diligently mark safe travel in a place where a benign white landscape can gash open to reveal deep, icicle-laden chambers. They mark the narrow paths in which prior human knowledge has deemed it safe to travel. The two directions that the road spread out from our camp at Windless Bight marked the only two directions from which we could come or go, on foot, skis, or Haggglunds. I paced the two directions when I had the time and inclination to move a few minutes away from the camp, always with at least one other person, a radio, information written on a white board, and a leader's permission. For my safety, I paid attention to the visibility of the line of flags that marked my way.

When driving along Antarctic roads, the visual presence of the flagged route is paramount, even as a GPS image of the road scrolls out on a small screen on the Haggglund's dashboard. On a blowy day, we crept along to the next flag, slowing and then stopping as the next green flag blanked out of view. We paused in the loud heated vehicle, staring out the window, until the next flag shimmered into view. We would drive out to the next flag and not leave it until another one was in sight. The flags anchored us to a safe track in an uncertain landscape, tracked out by a previous, hopefully knowledgeable expert. If there was not a flag in sight, we did not move.

One day, James drove us in the Haggglund to a research site. The 50°F interior of the vehicle was warm to us, who had become used to our layers and the cold air. My colleagues fell asleep, and so did James. Our Haggglund gently veered off the flagged route, the trail that marks safe passage. For a few moments I felt smugly superior to this AFT guy asleep behind the wheel as we rolled out on the ice shelf and the horizon that merged greyly onto it, away from the thin strip of civilization marked by flags. Then I quickly remembered the many dead in crevasses, elbowed James awake, and

enjoyed limitless toilet time without comment the rest of my stay. The dangerous potential of the seemingly flat Antarctic landscape at once made me submit to the risk-and-preparedness training drilled into us and allowed me to leverage a bit of relief from James's comments and navigate our group back into the small human domain of the Antarctic, alarmingly small, at once almost nothing and yet all-consuming on the icy continent.

Navigating Antarctic terrain and risk management procedures means averting disaster through recollections of past events and standard training. While disaster is manageable, catastrophe invokes the unimaginable. Applying the everyday practices of risk management to potentially catastrophic events requires an expansion of both skill and imagination.

### **Preparing for Catastrophe: On the Precipice of Other Worlds**

How can we make climate disaster and the disaster of driving a Haggglund into a crevasse commensurate? And can the policy and regulatory practices that mitigate risk on the ice do the same *for* the ice? If the Anthropocene is a "disaster to end all disasters," one that destroys conventional earthly politics, what are we supposed to do in the rubble?<sup>15</sup> Throughout this article, the rituals of risk management are focused on embodiment, in which people order themselves, the environment, and their decision-making behaviors in ways attuned to potential disasters. The pragmatic suite of approaches described above helps us consider the ways conventional risk management enables preparedness while failing to encompass the full scope of potential catastrophes, in which the world is remade.

Antarctic human settlements cannot sustain human life without technological and logistical networks with the rest of the world. Managing human life in Antarctica involves engagement with technological, technocratic, and narrative legacies that help people navigate between the nearly unearthly, wild, foreboding blankness of the Antarctic environment and the almost unbearably mundane reasons for being there—notably, as minor human figures propping up their roles in geopolitical dramas and supporting scientific research almost always done in the name of a state.<sup>16</sup>

Many people have elaborately theorized that the Antarctic is a portal to the otherworldly, whether in speculation about the poles as portals to the center of Earth, which contains humanoid species, or in stories and films about alien encounters in the Antarctic.<sup>17</sup> The people in this article challenge these tropes of the Antarctic-as-otherworldly through a thick gloss of militaristic and bureaucratic practices meant to render human Antarctic experiences legible, human, and conversant with the worldly

15. Clark, "Geo-politics and the Disaster of the Anthropocene."

16. Examples include Pyne, *Ice*; and Dodds, "Post-colonial Antarctica."

17. Verne, *Journey to the Center of the Earth*, and Campbell and Stewart, "Who Goes There?" are two prominent examples.

structures that we are all entangled in. Elena Glasberg has coined the term “post-Heroic” to capture the sense of living in Antarctica without the gloss and glory of our predecessors.<sup>18</sup> In this article, the suggestion of Antarctica as a portal to other worlds and other lives is contrasted with these awkward rituals as practices of the frontier and the wild: lacking the heroism but maintaining, even producing the spectacle of imminent danger. These rituals, we have seen, can appear to manage risks at an immediate scale, but they do not map easily onto the impending specter of catastrophic climate change.

These rituals are attempts at sense-making in practice, something that others have done with or about Antarctica. Stephen Pyne, for example, levered ice as a tool to try to render Antarctica sensible when faced with its almost stupefying scope.<sup>19</sup> In another literary analysis, Elizabeth Leane reoriented Antarctica as proximal to earthly extremes. “The continent exceeds all attempts to contain it,” she writes, “the usual list of superlatives (highest, coldest, driest, windiest) gesturing inanely towards its inexpressible extremes.”<sup>20</sup> In this article, I have included militaristic and technocratic practices as mediating human gestures toward the absurd extremes. These practices described above are not meant to be ridiculous but are presented as a means for rapidly downscaling almost inexpressibly awesome nature into quotidian human life.

One way forward is to think about the pacing of disasters, considering that classic disaster events are “fast” disasters, while “slow” disasters—less charismatic, more centered on the violence of accrual or neglect—may cause significant suffering or loss over a longer time period.<sup>21</sup> Slow disasters emerge through infrastructural neglect, delayed maintenance, and degradation. Others have similar concepts at play: Fortun calls these events *chronic disasters*,<sup>22</sup> while Beck claims that we have begun to inhabit a permanent state of *living in disaster*.<sup>23</sup> When science communicators seek out watershed moments to illustrate climate change as a disaster-in-the-making, they privilege the violent spectacle of fast disasters. Coming to terms with slower-paced events as disasters can help us think with and through disaster on a planetary scale.

Another possibility is to think of the Anthropocene as a boundary event and work for its reversal.<sup>24</sup> Donna Haraway argues that we might aim to make the Anthropocene “as short/thin as possible and to cultivate with each other in every way imaginable epochs to come that can replenish refuge.”<sup>25</sup> That is, the Anthropocene as a phenomenon of our own making can be steered to change course instead of being inexorable and permanent.

18. Glasberg, *Antarctica as Cultural Critique*.

19. Pyne, *Ice*.

20. Leane, *Antarctica in Fiction*, 1.

21. Knowles, “Learning from Disaster?”

22. Fortun, “Late Industrialism.”

23. Beck, *World at Risk*.

24. Haraway, “Anthropocene, Capitalocene, Plantationocene, Chthulucene”; Crutzen, “Geology of Mankind.”

25. Haraway “Anthropocene, Capitalocene, Plantationocene, Chthulucene,” 160.

The affordances, rituals, and procedures described above are comforting in their tradition, though this article argues that we also need to consider the dangers that such rituals can bring about as they prevent and mitigate others. In particular, specific styles of Antarctic life can form blind spots. When rationalizations of behaviors and practices are so concretized, these blind spots emerge, especially when particular sets of subjectivities are overdetermined and others overlooked.

The performance of masculine and militaristic affect by the AFT guys is part of a long tradition of living and working in remote, dangerous field locations. In particular, the relationship between male mountaineers in the service of empire and science has been explicit within the British Empire since at least the 1850s.<sup>26</sup> There are alternatives to such approaches, which could provide training that is more inclusive of different subjectivities, cultures, and experiences.<sup>27</sup> Learning to style one's field camp in anticipation and practice for emergency scenarios makes good sense in places where people must cope with emergencies without guarantees of expert support.

On the converse side, though, rationalization and ritualization of risk management should not be discarded as a masculine, militaristic relic in a postmodern world: these practices also open up particular imaginations that are brought to life through technocratic procedures. In other words, these practices are not simply reproductive of long Antarctic histories but also productive and generative, potentially responsive to new and emerging situations. If our futures are bound up with how we consider the past, Antarctic futures are refracted through frontier practices in which humans confront inhospitable and spectacular worlds, on the very fringe of earthly livability. Antarctic histories, in all their nationalism, heroics, and failures, tell stories about human innovations toward life in an environment that is virtually unlivable.<sup>28</sup>

One key way in which traditional Antarctic risk managers will need to innovate is conceptual. The practices above are oriented toward mitigating wildness—a frontier in which people encounter and produce nature through their activities with it. The Anthropocene, though, cannot be considered an encounter with wild nature but the environmental expression of both human successes and disasters in one boundary event.

What about these legacy practices can be brought to bear on future climatic changes? And which practices are remnants of history with no appreciable benefit under environmental change? People in Antarctica manage not only to live everyday life in an extreme environment but to conduct state-of-the-art scientific research under these conditions. The logistical might of the careful ordering of Antarctic human life in an apparently harsh and blank environment holds considerable power; orderly

26. Hevly, "Heroic Science of Glacier Motion."

27. Carey et al., "Glaciers, Gender, and Science."

28. Two considerations beyond the scope of this article: (1) particular species, including some lichens and mosses, are able to live in the interior of Antarctica, so "livability" here is anthropocentric; and (2) many of the technical innovations by Antarctic explorers are adapted from indigenous technologies of Arctic people.

hierarchical practices can help make sense of a place at a fundamental level, which can open up space for researchers to make deeper sorts of sense from Antarctic nature. I suggest using the power of technocratic rituals and the policies that enable them in the Antarctic as a means for coping with the slowly unfolding climate disaster, adopting ways of living that acknowledge the state of the planet and that can take steps toward beginning to mitigate anthropogenic change. Combined with the hopeful gestures of contemporary climate geopolitics—such as the Paris Agreement<sup>29</sup>—exaggerated, hyper-managed practices in the Antarctic may pose a strong counterpoint to the dystopian future of an irreversible Anthropocene.

### Conclusion

The training described in this article is based upon particular histories and environmental affordances. These histories and affordances emerge from specific nationalist or empiricist origins, including the policy documents that now underpin managed human life in contemporary Antarctica. Antarctic people continue to navigate between the almost otherworldly wildness of the place and the careful logistical scrutiny that national Antarctic programs layer upon it. This legacy is at once violent and hopeful, constraining and adaptive; it is a legacy of exploration in the name of adventure, state, and science with moments of profound crisis woven throughout.

This article has explored how people are trained to order themselves, their gear, and their movements in the Antarctic, arguing that their exaggerated rituals of preparedness and risk management help them cope with the wildness of the place. Pre-departure preparations introduce Antarctic travelers to novel sets of concerns about language, gear, regulations, and psychology. AFT and the making of the field camp, heavily managed by AFT professionals, brings the legacies of polar exploration, paramilitary history, masculine affect, and environmental affordances to bear in a tangible manner. Travel over the Antarctic landscape signifies careful safety protocols and the everyday potential treachery at hand. Finally, I use these signature training events to think about how such approaches can be mapped onto responses to climate change as a part of everyday life. Navigating preparedness, uncertainty, and routine may provide one way forward in a cacophonous, wild future. Preparing for catastrophe requires embodiment of risk management, particularly in orientation—both as a form of training and as a posture of anticipation.

JESSICA O'REILLY is an assistant professor of international studies at Indiana University. An environmental anthropologist, she studies how scientists participate in environmental management, both in Antarctica and in regard to global climate change. Her first book, *The Technocratic Antarctic: An Ethnography of Scientific Expertise and Environmental Governance*, was published in 2017.

29. Parties to the United Nations Framework Convention on Climate Change, *Paris Agreement*.

### Acknowledgments

Research for this article was funded by the Wenner-Gren Foundation, the Social Science Research Council, and the Fulbright Institute of International Education. I am indebted to Lisa Messeri, Valerie Olson, Juan Francisco Salazar, Cristian Simonetti, and two anonymous reviewers for suggestions during the writing process.

### References

- Anderson, Ben. "Preemption, Precaution, Preparedness: Anticipatory Action and Future Geographies." *Progress in Human Geography* 34 (2010): 777–98.
- Anderson, Ben, and Peter Adey. "Affect and Security: Exercising Emergency in 'UK Civil Contingencies.'" *Environment and Planning D: Society and Space* 29 (2011): 1092–1109.
- Beck, Ulrich. *World at Risk*. Cambridge: Polity, 2009.
- Bloom, Lisa. *Gender on Ice: American Ideologies of Polar Expeditions*. Minneapolis: University of Minnesota Press, 1993.
- Campbell, John W., Jr., and Don A. Stewart. "Who Goes There?" *Astounding Science Fiction*, August 1938, 60–97.
- Carey, M., M. Jackson, A. Antonello, and J. Rushing. "Glaciers, Gender, and Science: A Feminist Glaciology Framework for Global Environmental Change Research." *Progress in Human Geography* 40, no. 6 (2016): 770–93.
- Clark, Nigel. "Geo-politics and the Disaster of the Anthropocene." *Sociological Review* 62 (2014): 19–37.
- Collier, Stephen J. "Enacting Catastrophe: Preparedness, Insurance, Budgetary Rationalization." *Economy and Society* 37 (2008): 224–50.
- Cravalho, Mark A. "Toast on Ice: The Ethnopsychology of the Winter-Over Experience in Antarctica." *Ethnos* 24 (1996): 628–56.
- Crutzen, P. J. "Geology of Mankind." *Nature* 415 (2002): 23–23.
- Dodds, Klaus J. "Post-colonial Antarctica: An Emerging Engagement." *Polar Record* 42, no. 1 (2006): 59–70.
- Fortun, Kim. "Late Industrialism: Eco-technological, Discursive, and Temporal Challenges." Paper presented at the Conference on Imaginative Environments, National University of Singapore, July 2013.
- Glasberg, Elena. *Antarctica as Cultural Critique: The Gendered Politics of Scientific Exploration and Climate Change*. New York: Palgrave Macmillan, 2012.
- Haraway, Donna. "Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin." *Environmental Humanities* 6 (2015): 159–65.
- Hevly, B. "The Heroic Science of Glacier Motion." *Osiris* 11 (1996): 66–86.
- Jasanoff, Sheila. "Beyond Calculation: A Democratic Response to Risk." *Disaster and the Politics of Intervention*, edited by Andrew Lakoff. New York: Columbia University Press, 2009: 14–40.
- Johnson, Nicholas. *Big Dead Place: Inside the Strange and Menacing World of Antarctica*. Los Angeles: Feral House, 2005.
- Knowles, Scott Gabriel. "Learning from Disaster?: The History of Technology and the Future of Disaster Research." *Technology and Culture* 55 (2014): 773–84.
- Lakoff, Andrew. "The Generic Biothreat, or, How We Became Unprepared." *Cultural Anthropology* 23 (2008): 399–428.
- Leane, Elizabeth. *Antarctica in Fiction: Imaginative Narratives of the Far South*. Cambridge: Cambridge University Press, 2012.
- Palinkas, Lawrence A. "Effects of Physical and Social Environments on the Health and Well-Being of Antarctic Winter-Over Personnel." *Environment and Behavior* 23 (1991): 782–99.

- Parties to the United Nations Framework Convention on Climate Change. *Paris Agreement*. Paris: UNFCCC, December 12, 2015.
- Power, Michael. *The Risk Management of Everything: Rethinking the Politics of Uncertainty*. London: Demos, 2004.
- Pyne, Stephen J. *The Ice: A Journey to Antarctica*. Seattle: University of Washington Press, 1998.
- Turner, Victor. "Liminality and Communitas." *The Ritual Process: Structure and Anti-structure* 94 (1969): 130.
- Verne, Jules. *A Journey to the Center of the Earth*. France: Pierre-Jules Hetzel, 1864.