

Recognitions and Responsibilities

On the Origins and Consequences of the Uneven Attention to Climate Change around the World

by Ben Orlove, Heather Lazrus, Grete K. Hovelsrud, and
Alessandra Giannini

Though climate change is a global process, current discussions emphasize its local impacts. A review of media representations, public opinion polls, international organization documents, and scientific reports shows that global attention to climate change is distributed unevenly, with the impacts of climate change seen as an urgent concern in some places and less pressing in others. This uneven attention, or specificity, is linked to issues of selectivity (the inclusion of some cases and exclusion of others), historicity (the long temporal depth of the pathways to inclusion or exclusion), and consequentiality (the effects of this specificity on claims of responsibility for climate change). These issues are explored through a historical examination of four cases—two (the Arctic, low-lying islands) strongly engaged with climate change frameworks, and two (mountains, deserts) closely associated with other frameworks of sustainable development rather than climate change. For all four regions, the 1960s and 1970s were a key period of initial involvement with environmental issues; the organizations and frameworks that developed at that time shaped the engagement with climate change issues. In turn, the association of climate change with a few remote areas influences climate change institutions and discourses at a global scale.

We seek to present and examine a claim: in recent years, global attention to climate change has been distributed unevenly, with the impacts of climate change seen as an urgent concern in some places and less pressing in others. Some changes—the melting of ice in polar regions, the rising sea levels that threaten low-lying islands—are recognized as harmful con-

sequences of climate change, while other changes—shifts in mountain ecosystems, the spread of deserts—are not seen as serious or as closely linked to it. We focus on these four regions to argue that the distribution of concern about climate change impacts is historically situated and constructed rather than solely a reflection of environmental dynamics.

Ben Orlove is a Professor in the School of International and Public Affairs, the Department of Anthropology, and the Earth Institute at Columbia University (420 West 118th Street, Room 833, New York, NY 10025, U.S.A. [bso5@columbia.edu]), where he also directs the Center for Research on Environmental Decisions and the MA Program in Climate and Society and serves as a Senior Research Scientist at the International Research Institute for Climate and Society. **Heather Lazrus** is a Project Scientist at the National Center for Atmospheric Research (P.O. Box 3000, Boulder, Colorado, 80301, U.S.A.) and an Adjunct Assistant Professor in the Department of Anthropology at the University of Colorado. **Grete K. Hovelsrud** is Research Director at Nordland Research Institute (Universitetsalléen 11, 8049 Bodø, Norway) and Senior Researcher at the Center for International Climate and Environmental Institute–Oslo (CICERO) (Gautstadalléen 21, 0349 Oslo, Norway). **Alessandra Giannini** is a Research Scientist at the International Research Institute for Climate and Society, a unit of the Earth Institute at Columbia University (Lamont Campus, 61 Route 9W, Palisades, New York 10964-8000, U.S.A.) and an Adjunct Associate Professor in the Department of Earth and Environmental Sciences at Columbia. This paper was submitted 9 VIII 12, accepted 22 VII 13, and electronically published 15 V 14.

In asking how and why impacts of climate change are more apparent in some regions than in others, we raise questions of recognizability. We examine, on the one hand, how some places become linked to climate change and, on the other hand, how climate change as a whole is understood through specific places.

We also move from recognition to the related question of responsibility: if global actions have had negative effects in some places, these places may serve as locations from which claims for redress can be made.¹ We note that for climate change, as for other matters of public concern, there is a gap between recognition and responsibility, between noting a problem and feeling an obligation to address it. In a later section, we discuss the possible relations between the uneven attention to climate change and the diffuse and often absent willingness to take action to address it.

1. This redress includes mitigation (reducing greenhouse gas emissions and supporting the capacity of sinks, such as forests and oceans, to absorb such gases) and adaptation (improving the ability to cope with changes brought about by climate change).

To speak of recognition is to speak not only of frameworks that render places visible and intelligible but also of people and organizations that recognize. We locate these individual and collective recognizers in what Castells calls the “global public sphere” (2008). He argues that this sphere is the site of the elements of public opinion and social engagement that have extended to a global scale and that address global institutions, markets, and migration patterns. This global public sphere is concretized in discussions in global media and is expressed through transnational social movements, nonstate organizations, and forms of cultural expression. We note affinities as well with Ulrich Beck’s work (1999), which discusses the global scale of risk discussions and governance in an era of international trade, new forms of technology and monitoring, and shifting forms of violence. In addition to considering the global public sphere in general, we discuss two specific institutions, also global in scale but with narrower participation and scope of action: the international domain of science—which uses data and models to detect natural phenomena, including climate change, and to offer predictions about them—and the international entities known as intergovernmental organizations, composed of member states that meet to address global issues, including climate change. These two institutions have a broadly reciprocal relation. Science lies largely on the side of recognition, though funding and other forms of support for scientific research on climate change reflect the sense of responsibility to address climate change. Science can observe and describe climate change and offer projections of future change. It does not take steps to address climate change, though it can evaluate the effectiveness of proposed plans of action, including those developed by intergovernmental organizations. Conversely, intergovernmental organizations center on the side of responsibility, though they remain engaged with the science of climate change; they play an important role in framing discussion of climate change adaptation, including establishing priorities for adaptation and constructing systems to finance adaptation (Orlove 2009). These organizations strive to establish agreements to address climate change, such as the Kyoto Protocol. They generally do not conduct scientific research, though they can support research institutionally and financially and draw heavily on it. These intergovernmental organizations overlap with other organizations in the global public sphere; they provide contexts in which states negotiate with one another and NGOs make statements, and they are covered extensively in global media.

Our first and most important claim notes the specificity of places associated with climate change in the global public sphere. This claim is a contested one. Others emphasize the globality and unity of climate change. Gupta (1998) and others describe how globally unifying discourses of environmentalism and sustainability are used to inspire action around the world but result in erasing important cultural, economic, and political differences. Demeritt’s influential article (2001) stresses the global scale of climate change and the importance

of general circulation models within the geosciences for framing the problem. Jasanoff states that “climate change . . . can be linked to a place, but that place is the whole Earth.” She continues, “ideas of belonging and stewardship can develop on a planetary scale: the slogan ‘think globally, act locally’ affirms both the possibility and the promise of connecting global issues back to more personal scales of meaning. Yet . . . the idea of the Earth as a single place is itself contingent on particular histories of exploration and dominance” (2010: 241). These views resonate strongly in the present moment in anthropology, in which an attention to universalisms (human rights, science, development, etc.) has replaced an earlier interest in globalization (Tsing 2004).

However, several lines of evidence point to the association of climate change with specific places, especially the Arctic and low-lying islands. Public opinion polls in the United States and elsewhere (Leiserowitz 2005; Lorenzoni et al. 2006; Reynolds et al. 2010) show that people, when asked about climate change, express knowledge and concern about melting ice and sea level rise at islands and coasts. References to climate change impacts in specific places, such as the low-lying island nation of Tuvalu, in advocacy, popular, and scientific material serve to provide evidence for climate change (Farbotko and Lazrus 2012). Visual images, especially of polar bears and melting ice, and also of floods and threatened islands, also appear frequently in newspapers (Smith and Joffe 2009) and in NGO publications (Manzo 2010) as evidence of climate change and have been featured in cartoons and on the covers of leading magazines to illustrate the topic. Though other images are widely circulated to show environmental problems, they are less tightly linked to climate change. Pandas and tigers, unlike polar bears, are understood to be the victims of deforestation or hunting. Images of water scarcity, such as cracked mud or young girls carrying heavy water containers, are associated with a general water crisis, tied more to growing populations and demand than to climate change.

In suggesting that the globality of anthropogenic climate change is constructed and contested, we acknowledge the planetary scale of climate change (Latour 2004). Greenhouse gas emissions diffuse through the atmosphere and alter the balance between the solar energy reaching the earth and the energy radiating back out into space, so that efforts to address climate change must include the coordinated efforts of many, if not all, nations. We also recognize that many consequences of climate change, such as pressures on food production, are worldwide in scale.² Nonetheless, we argue that specific places,

2. We note that climate change is a complex process and that it interacts with other environmental changes, as well as with economic and social changes. Even the processes that appear most directly and exclusively tied to climate change are associated with other dynamics. For example, sea level rise is unevenly distributed around the globe because of the effects of ocean circulation and isostatic shifts in land levels. It is also influenced by human land use practices that affect the stability of coastal landforms and that alter the deposition of silt in river deltas. Other processes that are often attributed to climate change, such as

rather than the planet as a whole, are emphasized in public understandings and debates about climate change.

Key Questions

This specificity—the association of climate change with particular places—raises three questions, which can be called the *selectivity* question, the *historicity* question, and the *consequentiality* question. The first of these, the selectivity question, emphasizes the partial and somewhat arbitrary nature of this set of places. It asks whether other places could have been selected and whether the places that were selected could have been bounded or defined differently (Latour 2004). This selectivity question may be answered in the positive. We contrast the Arctic and low-lying islands, which receive a great deal of attention as sites of climate change impacts, with mountains and deserts, which figure less prominently in discussions of climate change.³ We note the highly specific boundaries of these areas. Within the Arctic and sub-Arctic, sea ice and adjacent coastal areas are the most important focus of concern, with some attention going to the tundra and permafrost, and relatively less devoted to boreal forests, though all these zones are highly sensitive to climate change (Hovelsrud et al. 2011). Low-lying islands form only a small portion of coastal regions that are threatened by sea level rise, but the public pays more attention to island nations such as Tuvalu and the Maldives than to densely populated deltas of rivers such as the Nile, the Brahmaputra-Ganges, the Mekong, and the Mississippi (Ericson et al. 2006). Similarly, one portion of mountain regions, namely, the glaciers at high elevations, is discussed more extensively than the grasslands and forests in middle-elevation regions, which also face serious impacts.

The selectivity question is a variant of familiar constructivist arguments, emphasizing the social and cultural factors that shape knowledge (Hacking 1999). Constructivist arguments often have a shallow temporal depth, since they examine the social interactions through which scientists engage with each other and with wider social circles. This shallow temporal depth has been reinforced by developments in the history and philosophy of science that follows Kuhn's work on paradigm shifts, Lakatos's notion of progressive scientific programs, Feyerabend's diverse exploration of scientific change, and Laudan's discussion of research traditions. In recent decades, actor-network theory researchers have extended these interactions to include nonhuman entities, but they continue the

short time contexts of ethnographic research. By contrast, our work has led us to consider a great temporal depth and leads us to the second of our three questions, the historicity question. In this vein, we join other anthropologists who call for deep historical readings of recent entanglements between local peoples and global discourses and institutions, such as the accounts of disputes over land rights and environmental management in Mexico (Matthews 2011), Central Africa (Hardin 2011), and Papua New Guinea (West 2006); this work, like ours, shows the influence of political ecology and other approaches with long time horizons.

The histories of the four cases share important characteristics, despite particular features that might appear to render them entirely distinct. We wish to underscore the following points, each corresponding to a specific historical period. First, each of the encounters between Europe and the four regions—the Arctic, islands, mountains, and deserts—has a long history, which began before the major European expansion and even before the Age of Discovery, conventionally associated with the fifteenth century, which saw Columbus's landfall in America at its close. Second, the regions were the targets of colonial attention for material reasons (whether directly for the extraction of economically important resources or indirectly for geopolitical and strategic motives), but the regions, and their indigenous inhabitants, also appealed deeply to the cultural imagination of colonial travelers and scientists and of the colonial public at large; both these material and cultural forces contribute to the positioning of the regions in relation to climate change. Third, in the postwar period, the regions (some as newly independent nations, some as regions of older nations) gained visibility as key exemplars of environmental discourses and projects. Two (deserts, mountains) emerged as leading examples of environmental fragility, understood as destructive land use practices on a local scale; two (the Arctic, low-lying islands) emerged as examples of global environmental injustice, understood as pollution or resource exploitation on a global scale. The latter regions, building on identities and organizations that crystallized in the first decades of the postwar period, became closely associated with climate change, while the former, retaining a concern with local land use, did not and instead remained associated with sustainable development, an environmental framework that, though linked to climate change, is different from it in significant ways. We examine this contrast more fully in the discussion, in which we explore the third and last of our core questions, the consequentiality question. Following a brief overview of major climate change conferences and organizations and some of the central features of sustainable development, we will examine the specificity of place in climate change work and the first two of our three key questions—selectivity, historicity, and consequentiality—in relation to the four regions of the Arctic, low-lying islands, mountains, and deserts, parsing out the trajectories behind attention to sustainable development and climate change. Each section begins with a discussion of the early encounters

changes in vegetation and hydrology, are similarly tied to other dynamics. Nonetheless, the processes remain strongly associated with climate change, produced by increasing greenhouse gas concentrations. In a similar vein, we note other environmental problems—loss of biodiversity, contamination of water and air—have causes separate from climate change, though they can be exacerbated by climate change.

3. As we discuss in greater detail in later sections, mountains and deserts are more commonly examined through other frameworks of environmental degradation, particularly those associated with sustainable development.

with particular places in the regions, demonstrating the roles of the regions in global processes and public awareness. The question of consequentiality is discussed more extensively in the final section.

Climate change organizations and sustainable development features.—The ideas of climate change and sustainable development are both relatively old, the former dating to the late nineteenth century, when scientists traced the links among atmospheric carbon dioxide concentrations, radiation, and global temperatures (Weart 2003), and the latter to the late eighteenth and early nineteenth centuries, when developments in the study of soils and agriculture directed attention to the cycling of nutrients and to the possibility of permanent soil degradation (Warde 2011). Supported by global environmental movements in the 1970s, climate change and sustainable development both achieved great prominence as explanatory and policy frameworks in the late 1980s, the former with a focus on greenhouse gases and their consequences, the latter with a broader scope of environmental and social systems.

The Stockholm Conference (the United Nations Conference on the Human Environment) of 1972 was the first major environmental conference held by the United Nations, building on broad environmental social movements worldwide and the spirit of transformation and renewal of the 1960s. It was associated with the establishment of the United Nations Environmental Programme (UNEP) in the same year. It was followed 20 years later by the Earth Summit of 1992. These two summits have been crucial in shaping international debates about environmental issues, including sustainable development and climate change. They overlap with major climate organizations. The first is the Intergovernmental Panel on Climate Change (IPCC), organized in 1988 by the UNEP and the World Meteorological Organization. It is nominally independent of the UN. It reviews scientific studies of climate, and produces major reports, called Assessment Reports, every 5 years or so, which discuss observational data of changes that have already occurred, projections of anticipated future changes, projected impacts of such changes on people and the environment, and analyses of adaptation and mitigation policies, with a strong focus on the twenty-first century. These reports represent scientific consensus and are fundamental references for climate research and policy development by international organizations and nation-states. Their emphasis on the year 2100 as the outer limit of projections and policies contains the hope that greenhouse gas emissions will have declined sharply by that year, but also limits discussion of more remote futures. We follow the convention of referring to them by their acronyms: FAR for the First Assessment Report (1990), SAR for the second (1995), TAR for the third (2001), AR4 for the fourth (2007), and AR5 for the fifth (2014). The UN established a convention on climate at the Rio Summit in 1992. It is known as the United Nations Framework Convention on Climate Change (UNFCCC). The convention holds annual Conferences of Parties, known by their acronym COP, where major issues are discussed, many

NGOs and international organizations hold side events, and media coverage is extensive. The UNFCCC gave rise to the Kyoto Protocol, established in 1997. It was hoped that the Kyoto Protocol would lead to effective action in two areas: mitigation (the reduction of greenhouse gases that contribute to climate change) and adaptation (coping with present and future changes). Initially scheduled to expire in 2012, it was extended till 2020. A legally binding agreement to include all UNFCCC nations is scheduled to be prepared by 2015 and to be enacted in 2020.

The 1972 Stockholm and 1992 Rio Summits also overlap with sustainable development as a framework for guiding policy and collective action. The term emerged from the World Commission on Environment and Development (1987), a body that operated from 1983 to 1987, when it issued its report *Our Common Future*, generally known as the Brundtland Report, after its head. It emphasized key elements of sustainable development, particularly its definition as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” and its emphasis on economic growth, social equity and environmental protection. Its great generality gives it wide scope, covering water, energy, biodiversity, agriculture and other systems, but also can diffuse its focus and make it difficult to assess and implement. The concept of sustainable development was highlighted in *Agenda 21* (UN 1992), the key document from the Rio Summit of 1992, and provided the central theme of the third summit, the 2012 United Nations Conference on Sustainable Development, also known as the second Rio Summit.

The Arctic

The remote regions of high latitudes, settled millennia ago by hunter-gatherers, were the subject of ancient myth but little visited by outsiders until the Viking expansion from southern Scandinavia in the ninth and tenth centuries. As a result of this movement, European settlements were established in northern Scandinavia, Iceland, and Greenland. This expansion brought far northern regions and their products, such as fish, furs, and ivory, into closer contact with Europe. There was retreat and abandonment of Viking settlements in the northernmost regions, in particular Greenland, following a shift to colder climates during the Little Ice Age, population declines after the Black Death, and competition of African ivory.

With the growth of trade in the early modern period, European powers competed to discover sea routes from Europe to Asia, across the top of North America through the Northwest Passage, and over Europe and Siberia in the Northeast Passage.⁴ The Dutch reached Svalbard north of Norway in 1596. Russians, traveling close to the northern shore of Asia,

4. Currently, a more commonly used term for this is the “Northern Sea Route.”

arrived in the Pacific in the seventeenth century. They continued on to Alaska, exploring it in the 1740s and establishing settlements soon after in the Aleutian chain. This expansion involved interactions with indigenous populations, who provided food and served as guides.

The search for the Northwest Passage led to early exploration of the eastern coast of North America in the sixteenth and seventeenth centuries. The thick sea ice of the high Arctic was a major obstacle for explorers. Nonetheless, exploration of the high Arctic was active. Whaling became an important commercial activity in the seventeenth century and continued well into the nineteenth century. Significant coal deposits led to permanent settlements in Svalbard. It was not until the first half of the nineteenth century, though, that the Canadian Arctic was well explored and the early twentieth century that the North Pole was reached. These expeditions also were conducted with support from indigenous peoples, whose familiarity with the Arctic environment was crucial, especially for the expedition parties that overwintered. By the end of the nineteenth century, all portions of the Arctic had been incorporated into the territories of the nations adjacent to them.

In addition to economic and geopolitical interests, scientific exploration developed in the late nineteenth century. A number of countries sent expeditions on their own and held five major conferences. The high point of their efforts was the first International Polar Year (1882–1883), which was initiated by Austro-Hungarian explorers and also involved the United States, Canada, Russia, and Germany, as well as other European countries. An intergovernmental organization of a sort, it concentrated predominantly on the Arctic, with less effort in the Antarctic. A number of research stations were set up and staffed for periods of months or years. The researchers recorded data on weather, ice, and ocean conditions and observed the aurora borealis and the earth's magnetic field. This effort advanced the Arctic as an object of study and also established the group of nations involved in the region. An International Polar Year has been held roughly every 50 years, with the latest taking place in 2007–2008, in which for the first time social scientists and Arctic indigenous peoples were fully included in research efforts. If the Arctic was the object of international science and international conferences, it also held a broad cultural fascination. Its wildness was of great appeal to Romantic painters and to writers. Eskimo exhibits, as they were then called, were popular at the 1893 Columbian Exposition in Chicago and the 1904 Louisiana Purchase Exposition in St. Louis. Native artifacts from the Arctic were prized in collections of ethnographic and natural history museums across North America and Europe. The 1922 film *Nanook of the North* attracted wide audiences. There was a parallel, though perhaps lesser, fascination with the Saami of Scandinavia, peoples whose traditional lifeways centered on fishing, reindeer hunting and herding, and some agriculture.

By the time global attention to climate change was raised in the 1980s, the Arctic was well established as a coherent

region in the far north. The most widely recognized of the high Arctic indigenous peoples, the Inuit (previously known as Eskimos) are featured in many cartoons (along with igloos and kayaks, items whose English names come from the indigenous languages) and in over 150 patents and trademarks in the United States alone.⁵ A new element of this global attention can be found in the mobilization in recent decades by indigenous peoples, who focused on environmental and political issues in the years before the emergence of climate change as a global issue. An important beginning of this mobilization was the first Arctic Peoples Conference, organized in Copenhagen in 1973. It drew Inuit from Greenland and Canada, Saami from Norway, Finland, and Sweden, and a diverse group of First Nations from Canada. The first Inuit Circumpolar Conference (ICC), held in 1977 in Barrow, Alaska, reflected the strong engagement of Alaskan Inuit and the growing influence of global indigenous movements. The first conference issued 17 resolutions, focusing on autonomy, self-determination, and freedom of movement; several of them addressed environmental issues, particularly hunting rights and wildlife conservation. Highly conscious of a major nuclear accident at Thule, Greenland, in 1968, conference participants proposed banning nuclear weapons and waste from the Arctic. The awareness of transboundary movements of pollutants grew in 1986, when fallout from the explosion of the Chernobyl nuclear reactor reached the Arctic; radioactive substances accumulated in lichens, a principal food of reindeer, and affected the traditional Saami diet. The Inuit were concerned about the high concentrations of persistent organic pollutants, or POPs, in the atmosphere in the 1990s and lobbied to reduce these threats to their well-being. The ICC issued declarations about POPs at their meeting in 1998, contributing to the efforts that led to the regulation of these pollutants by the Stockholm Convention of 2001. Inuit communities have reported climate change, particularly in terms of temperature, ice conditions and wildlife, since the 1980s and 1990s, and the ICC focused on the issue by the late 1990s. The organization, which renamed itself the Inuit Circumpolar Council in 2006, continues to be active in climate change issues and has sent delegates to a number of Conferences of Parties (COPs), including COP 11 (Montreal, 2003), COP 13 (Bali, 2007), COP 15 (Copenhagen, 2009), and COP 17 (Durban, 2011), influencing, though not directly authoring, official documents issued at these events.

From the beginning of the Arctic Council in 1996, indigenous peoples have been active, with status as permanent participants. This consensus-based intergovernmental orga-

5. The registry of the US Patent and Trademark Office lists 162 trademarks since 1905 and two patents since 1976 associated with the term *Eskimo*, including the chocolate-covered ice cream bar known as "Eskimo Pie." The Australian Trade Marks Online Search System at IP Australia indicates that the name "Eskey" for the portable cooler was trademarked in 1961, though similar coolers under the same name were first produced in 1884 (<http://superbrands.com.au/index.php/volumes/volume-2/79-volumes/volume-2/247-esky-vol-2>).

nization, composed of the eighth high Arctic countries, addresses issues of climate change as well as pollution, conservation, and sustainable development more broadly. It was instrumental in the Arctic Climate Impact Assessment of 2005, a major evaluation of the negative effects of climate change on Arctic environments and populations, with particular attention to the effects of climate change on indigenous peoples; like the Intergovernmental Panel on Climate Change (IPCC) Assessments Reports, the Arctic Climate Impact Assessment projected changes to the year 2100. The ICC, the Saami Council, and Russian organizations of indigenous peoples were active participants in this assessment. The Arctic Council has not been very active in the COPs, in part because some member nations have resisted such participation.

The international scientific community has also heightened awareness of the sensitivity of the Arctic to climate change. The Arctic has featured prominently in IPCC reports since the First Assessment Report (FAR) and the Second Assessment Report (SAR) of the 1990s, which often conflated the Arctic with Antarctica. The polar regions were accorded a chapter in both the Third Assessment Report (TAR) and Assessment Report 4 (AR4). The reports paid particular attention to warming in the summer, the melting of sea ice, permafrost melting, and vegetation change. They also discussed impacts on human populations, including indigenous communities, and reported easier transportation and increased income from petroleum production as positive features; TAR and AR4 offered longer discussions of polar regions as a separate topic than the earlier reports did and considered human impacts and adaptation more extensively as well.

Low-Lying Islands

As with the Arctic, the discussion of low-lying islands dates back centuries before the major waves of European colonial expansion. Medieval Europeans knew of the Canary Islands off Africa, which had long been settled, and probably of the Azores and Madeira; their stories echoed a long-standing fascination with the remoteness of islands and bore traces of Greek myths of Atlantis and of accounts of Arab travelers (Gillis 2004). Europeans visited these Atlantic islands in the fourteenth century and settled them in the early fifteenth century, displacing the native populations of the Canaries and establishing vineyards and plantations of sugar cane. This momentum continued with the discovery and conquest of the Caribbean from the end of the fifteenth century onward and with Spanish exploration of the Pacific in the sixteenth and seventeenth centuries. The Spanish controlled the Caribbean, with serious challenges from the British and French beginning in the mid-seventeenth century; the region had highly productive slave-run plantations. The Indian Ocean, with its long history of trade dominated by Arabs, also received European explorers, first Portuguese and then Dutch, French, and English, who conquered the few large islands. The low-lying Maldives, long settled by South Indian peoples,

were an Islamic sultanate that became a British protectorate in the late nineteenth century. Major European exploration of the Pacific developed in the eighteenth century. The French and British concentrated on the larger, more mountainous islands, which offered more resources and greater possibilities of establishing colonies. They valued these islands for their geopolitical importance in supporting commercial and military control and for economic production of plantation crops; they were fascinated with the chiefdoms and kingdoms that they encountered and with the traditions of interisland travel and exchange as well (Grove 1995).

The explorers had long been aware of these low-lying islands but did not direct their efforts toward them. The word *atoll*, which comes to English from the Maldivian language, first appeared in print in 1625 but was not common until the mid-nineteenth century. Visits to atolls began in the first half of the nineteenth century, when imperial competition was strong, with important French expeditions in the late 1820s. Charles Darwin stopped at a number of atolls during the voyages of the *Beagle* in 1831–1836, and the United States, developing a presence in the Pacific, conducted the Exploring Expedition of 1838–1842. These travelers gathered information on local populations and collected specimens for natural history and ethnographic museums. Atolls attracted some attention of scientists (Darwin correctly explained their formation, based on observations from his voyages), but, unlike the Arctic, they were not constituted as a major subject of scientific research. The first significant international organization for the study of coral reefs, associated with atolls, is the International Society for Reef Studies, which was not founded till 1980. Much like the Arctic, tropical islands have had a long importance in world culture, seen sometimes as benign paradises, with balmy climates and pleasant, peaceful inhabitants, and at other times as dangerous places, filled with diseases and savage, even cannibal, natives (Grove 1995). They are now widely familiar as tourist destinations and the subject of countless films.

Generally lacking major geopolitical importance and resources that could be exploited commercially, low-lying islands attracted little attention from imperial powers. Though the Spanish islands in the Caribbean drew attacks from other colonial powers, most of Micronesia remained under Spanish rule until the late nineteenth century, when Germans, Japanese, and later the United States gained control. Some of the last places to be claimed by imperial powers were atolls, such as Tuvalu. The United States established the Guano Islands Act in 1854, laying claim to uninhabited islands that contained guano, an important fertilizer, and took possession of some atolls in the Pacific and a few small islands in the Caribbean. These Pacific islands remained minor colonies and possessions through World War II and into the 1950s, gaining independence in the 1960s and 1970s and forming a number of separate countries. They established the South Pacific Forum in 1971 to promote cooperation. Atolls elsewhere had a similar history; for example, the Maldives, a British protec-

torate since the 1880s, became independent in the 1960s. As with the Arctic, these small islands are often represented in cartoons—a few castaways under a palm tree on a tiny bit of sand in an immense ocean.

As has been the case with the Arctic, the low-lying islands have been involved in international environmental politics since the second half of the twentieth century, before the emergence of climate change as a global issue. Atmospheric tests of nuclear weapons on Pacific atolls began in the late 1940s, accompanied by the removal of some native populations and the exposure of others to radioactive fallout. In part from pressure from island groups, then still largely under colonial rule, the nuclear test ban treaty ended such tests in 1963, though France (which had lost access to its nuclear test sites in Algeria after that country's independence in 1962) continued carrying out such tests until 1996. Another important environmental issue for island nations is fisheries management. The delimitation of territorial waters and of exclusive economic zones in oceans expanded in the 1970s, initially from pressure from Ecuador and Peru, which sought to gain control over their highly productive coastal fisheries. The Pacific Islands Forum Fisheries Agency (FFA), established in 1979 with support from the South Pacific Forum, linked over a dozen island nations (Barnett and Campbell 2010). It lobbied effectively to establish this control. In 1982, the Third United Nations Convention on the Law of the Sea extended the limit to 200 miles, a move which granted large fishing zones to island nations and increased their bargaining power in international arenas.

In the 1990s, two international entities—loosely building on the format and success of the FFA—were formed to represent island nations worldwide and to address climate change and sea level rise; they now work in close coordination. The first, the Alliance of Small Island States (AOSIS), grew out of a conference on sea level rise organized by the government of Maldives, soon after major flooding there in 1987. The conference participants, including Kiribati, Trinidad and Tobago, Mauritius, and Malta, issued a declaration on global warming and sea level rise. Representatives from island nations attended the Second Climate Conference in Geneva in 1990, where the first IPCC assessment report was presented and steps were taken that led to the establishment of the UNFCCC in 1992. At this meeting, AOSIS was formed, with strong participation from the Caribbean (Heileman 1993). It pressed for forceful wording in the declarations issued by the Second Climate Conference and has participated actively in the United Nations Framework Convention on Climate Change (UNFCCC) process to limit greenhouse gas emissions and to support adaptation for island nations (Roddick 1997). It currently has 39 members, including island nations in the Pacific, Indian, and Atlantic Oceans and the Caribbean, a few Caribbean mainland countries (Belize, Guyana, and Suriname), and one African coastal country (Guinea-Bissau). It plays a very active role at the COPs and contributed to formulating the National Action Programmes for Adaptation

(NAPAs), promulgated at COP 7 held in Marrakech in 2001 (Barnett and Dessai 2002). Between 2004 and 2012 AOSIS contributed 44 major documents to COPs and the associated Subsidiary Bodies for Scientific and Technological Advice and for Implementation; AOSIS often evokes the powerful image of entire nations disappearing under rising seas, an event unprecedented in history and reminiscent of the myth of Atlantis (Lazrus 2012).

The Alliance of Small Island States contributed to the second international entity, Small Island Developing States (SIDS). Unlike AOSIS, which is an organization, SIDS is a category, officially recognized by the United Nations; AOSIS pressed for the inclusion of small island issues in the Earth Summit and the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992, which, in turn, gave rise to the 1994 Global Conference on the Sustainable Development of Small Island Developing States in Barbados. The Declaration of Barbados, issued at this conference, recognized the SIDS category and considered a wide range of issues, including climate change, sea level rise, natural hazards, fisheries, and coastal management. A number of United Nations entities designate SIDS as a category, particularly in the United Nations Development Program and the United Nations Department of Economic and Social Affairs. Nearly all 39 members of AOSIS are included in the 51 SIDS states, and the two work closely together.

The IPCC Assessments Reports have directed considerable attention to low-lying islands and to coastal regions. These islands are discussed extensively in the FAR in a chapter on world oceans and coastal zones. Much discussion focuses on measuring and projecting sea level rise, tasks made difficult by the constant fluctuation of ocean surfaces with tides and currents and the rising and falling of coastlines. The SAR contains a chapter on coastal zones and small islands and mentions specific vulnerabilities of small island states stemming from physical, economic, and institutional factors, and it refers specifically to AOSIS; the TAR and AR4 each contain a chapter dedicated to small islands. They discuss adaptation in detail, with particular attention to the specific vulnerabilities of small island states, and the potential for local institutions to support adaptation.

Mountains

Bronze Age materials found in the Alps show that Europeans have traveled across mountain passes for millennia. Herders, hunters, miners, and foresters in medieval times visited high mountain regions as well, though they, and others, saw them as harsh and dangerous areas (Nicolson 1959). Travelers who crossed mountain passes avoided glaciers, and local people dreaded the glaciers' downslope advances as they covered pastures, forests, and farms, particularly during the Little Ice Age from the mid-sixteenth to the mid-nineteenth centuries.

Mountain climbing developed slowly in Europe. The oft-cited beginning was the ascent of Mont Ventoux in France

by the Italian poet Petrarch in 1336, an early expression of Renaissance interest in empirical observation and curiosity about the natural world. Other ascents took place sporadically in following centuries. Inspired by the Romantic fascination with wild nature and intense personal experience, a wave of ascents of glacierized peaks began in the eighteenth century in the Alps and at the beginning of the nineteenth century in Norway; these relied heavily on local guides and porters. A group of British mountaineers founded the Alpine Club in 1857 and climbed actively, ascending the last major unclimbed peak in the Alps, the Matterhorn, in 1865. They and other mountaineers moved on to the Pyrenees and the Caucasus (both of which have small glaciers) and to high mountains around the world, a trend that culminated in the ascent of Everest by Hillary and a Sherpa guide, Tenzing Norgay, in 1953. The Alps have remained at the center of sport climbing internationally (the Union Internationale des Associations d'Alpinisme [UIAA], or International Mountaineering and Climbing Federation, was founded in Chamonix, France, near Mont Blanc, in 1932 and is headquartered in Bern, Switzerland). The travels of European climbers, especially in Asia, led to encounters with non-Western traditions that emphasized the spiritual quality of mountains as realms of purity and enlightenment. This exploration has been paralleled by a broad cultural interest in mountains, with extensive tourism and recreation in mountain regions. As in the other cases, mountains have had a long importance in world culture; they are seen as sublime, inspiring places, sites of pilgrimage and renewal, and the preferred destination of poets, such as Wordsworth. Like the Arctic and small islands, mountains are featured prominently in cartoons, often depicting a lone climber who reaches a cave, inhabited by an old hermit.

Overlapping the general cultural appeal of mountains and the specific engagement with sport climbing were two other phenomena, cartography and science (Orlove 1993). In the former, many nations and colonial powers in Europe, Asia, Africa, North America, and South America carefully mapped the rugged mountains, particularly the highest uninhabited zones, that marked their boundaries and that had not been measured precisely; a number of international border commissions in the nineteenth and early twentieth centuries resolved disputes that arose over geopolitical or resource issues in these mountains. The latter involved the scientific study of glaciers (Orlove, Wiegandt, and Luckman 2008). This research was prompted by natural disasters related to glaciers, such as the devastating 1818 floods in the Rhone Valley in Switzerland, which resulted from the outburst of a lake that had been dammed by glacial ice. During the nineteenth century, Swiss and Norwegian researchers began mapping glaciers. They drew on these observations and from the knowledge of local residents to propose the existence of an ice age in the remote past. Systematic data collection began in Switzerland in 1893 and in Norway a few years later. Swiss delegates to the Sixth International Geological Congress in 1894 established an International Glacier Commission, with the

goal of studying long-term cycles of ice ages and shorter-term fluctuations of individual glaciers. Several glacier-related disasters in the Alps between 1892 and 1901 stimulated this interest. A Swiss geographer established a new glacier commission, the Permanent Service on the Fluctuations of Glaciers, within UNESCO in 1967; this organization planned a world glacier inventory in the 1970s, which led to the establishment in 1986 of the World Glacier Monitoring Service, whose activities were supported by several contemporary developments, including fuller understanding of ice dynamics, satellite observations, and expanded computer networks. The public interest in the topic increased greatly in 1991, when hikers in the Alps discovered a man's body at the edge of an ice field. Research showed that his body, covered soon after his death with snow that turned into ice, had been preserved for over 5,000 years, when the glacier receded and exposed him.

Recent scientific and development programs in mountain regions stem from the program Man and the Biosphere (MAB). Proposed at a UNESCO conference in Paris in 1968, MAB was launched by UNESCO in 1970. It played a major role in the United Nations Conference on the Human Environment, held in Stockholm in 1972 (di Castri 1976). In 1976, MAB began establishing biosphere reserves, protected areas designated to encourage harmony between people and nature. Reflecting the strong influence of researchers from Alpine nations in Europe, MAB identified mountains as a priority area, and many MAB reserves were located in mountain regions in the Alps and elsewhere (Battiste 1993). They sought to encourage economic development that maintained environmental values and supported traditional cultural forms. A program to develop climate change research, centered in MAB mountain biosphere reserves, was established at a conference in Scotland in 2005 (Greenwood et al. 2005). These focus on vegetated regions of mountains, at lower elevations than where glaciers are found. Researchers affiliated with UNESCO also were instrumental in founding the Switzerland-based International Mountain Society in the early 1970s. Supported partly by German development funds, the society publishes a journal on scientific and programmatic aspects of mountain environments. A similar set of concerns about preserving mountain environments from overexploitation was expressed by the UIAA in its 1982 Kathmandu Declaration on Mountain Activities, which previously had focused more on the safety of climbing equipment, classifying climbing route difficulty, and limiting the construction of cable car routes to major summits.

The International Centre for Integrated Mountain Development (ICIMOD) was founded in 1983 with support from UNESCO and Swiss and German aid programs (Orlove 2010). Based in Nepal, it centers on the Himalayas and the neighboring Hindu Kush. It first promoted watershed management, off-farm income generation, and environmentally sensitive engineering, with the goal of avoiding erosion and other forms of degradation of mountain environments. In later years it

has addressed hazard risk reduction and conservation of biodiversity as well. It remains active and fairly well funded, unlike the smaller and less stable mountain organizations in the Andes, East Africa, and elsewhere. The center has begun to mention climate change, and has attended most of the COPs since 2004, but its emphasis remains land use and economic activity. It has not contributed documents to the COPs and their subsidiary bodies.

The MAB mountain program pressed for the inclusion of mountain concerns at the 1992 Earth Summit. The conference report, *Agenda 21* (UN 1992), contains a chapter titled “Managing Fragile Ecosystems: Sustainable Mountain Development,” which argues that mountain environments are being degraded—often irreversibly—through deforestation and overexploitation of agricultural and grazing land and links these causes to poverty and poor management practices. It emphasizes soil erosion as the most important problem, though it includes others, such as loss of biodiversity and deterioration of watersheds. It seeks to redress these problems by scientific research, the encouragement of environment-friendly technology, training programs, promotion of off-farm income sources, and participatory land use and watershed management. It proposes promoting these activities through the support of UN agencies, bilateral aid, the International Mountain Society, and regional organizations such as ICIMOD. These concerns and priorities match the framework of sustainable development as proposed in the Brundtland Report (World Commission on Environment and Development 1987).

Though mountains were proclaimed a priority at the Earth Summit in 1992, no major mountain organizations were formed.⁶ Instead, mountain issues are dispersed across a number of UN agencies. The International Year of Mountains was declared for 2002, with a major forum held in Bishkek, Kyrgyzstan. The Mountain Partnership was set up to coordinate activities afterward, but it has accomplished relatively little. It held conferences in Italy in 2003 and Peru in 2004 but none afterward. It serves as a sort of umbrella organization for bilateral and international groups working in mountainous areas, among whom the Swiss have been particularly active. It publishes a newsletter, which has appeared less frequently since 2005. The UIAA issued a resolution that declared climate change a priority at its annual meeting in 2006, and it maintains a website on the topic.⁷

Mountains are mentioned in all the assessment reports, with a focus on glacier retreat, well documented in recent decades and projected, with strong confidence, to continue. The reports point to the impacts of this retreat on the avail-

ability of water for agriculture and hydropower in regions adjacent to mountains. The SAR contains a chapter on mountains, in which it is suggested that agriculture and forestry are vulnerable. The TAR and AR4 continue the emphasis on glacier retreat and hydrology. They introduce the issue of conservation, indicating that the ranges of plant and animal species have shifted upslope and will continue to do so, with the species at highest elevations facing extinction.

Deserts

Deserts constitute the fourth and final case. Unlike the other three cases, where climate change makes areas, or portions of them, vulnerable to disappearance (low-lying islands, glaciers) or to loss of fundamental characteristics (the Arctic), the risk in this case is of expansion—specifically the disappearance of areas with extensive vegetation and their replacement by more barren zones. The word *desertification* that describes this process first appeared in 1949, in a work that depicted it as irreversible (Aubreville 1949).

Though Europe contains a number of arid areas, the true deserts, in the minds of Europeans, lay across the Mediterranean, south of the moist strip along the North Africa coast and associated highlands. Following the Arabo-Muslim conquest of North Africa in the seventh and eighth centuries, trans-Saharan trade increased, with gold, salt, and slaves traded north and horses and manufactured goods shipped south. In subsequent centuries a number of Islamic kingdoms, such as Mali and Songhai, were based in the Sahel, just to the south of the Sahara. Knowledge of these kingdoms reached Europe, particularly through Leo Africanus, a Muslim born in Spain in the late fifteenth century who traveled extensively in North Africa and in the Sahel; he was captured by Spaniards and brought to Rome, where he wrote geographical treatises and other works. His reports of Timbuktu, a large Muslim city in the Sahara, excited the imagination of Europeans.

The European exploration of the coasts of Africa began in the late fifteenth century and proceeded rapidly. Exploration of the interior occurred later, and the Sahara was among the last areas reached by the Europeans. A group of British founded the Association for Promoting the Discovery of the Interior Parts of Africa in 1788. A number of its members had ties to abolitionist organizations, to scientific exploration in the Pacific and elsewhere, and to commerce. They were eager to discover the source of the Niger and to locate Timbuktu, but the first confirmed visit to the city by a European did not occur until 1826. Saharan expeditions brought back materials for natural history and ethnographic museums. The Berlin Conference of 1884–1885—also a kind of intergovernmental organization—marked the full partition of Africa among European powers, principally Britain and France; they controlled large desert areas, though their rule was centered in moister, more populated regions. They expressed concern that the Sahara might encroach on these regions (Batterbury and Warren 2001; Fairhead and Leach 1996). Much as in the

6. Geopolitics may have played a role in this absence. Though a few countries, such as Nepal and Bhutan, promote themselves as mountain nations, they do not have the number or weight of small island nations. Switzerland supports mountain development internationally but cannot construct a group as powerful as the Arctic Council, because some of the most important potential members, such as China, India, and Pakistan, are more preoccupied with international tensions in the Himalayas.

7. See <http://www.theuiaa.org>.

other cases, deserts have had a long importance in world culture; they are seen as difficult, dangerous places, as sites of adventure and daring, often with ferocious tribal warriors. The film *Lawrence of Arabia* draws on earlier images (Caton 1999), as do the frequent cartoons that depict one or several travelers, who crawl beneath a blazing sun across sandy wastes toward an oasis—or a mirage. The nineteenth century was also the period of explorations of other deserts in Central Asia, Australia, and elsewhere. Some deserts had economic importance as well; the Atacama Desert on the Pacific coast of South America contained large deposits of sodium nitrate, a valuable fertilizer.

Despite this scientific, cultural, and economic interest, no organizations proposed deserts as a distinct object of scientific inquiry. Two major international centers that are part of the Consultative Group on International Agricultural Research (CGIAR) address crop breeding and effective management of soils and water in semiarid areas: the International Center for Agricultural Research in the Dry Areas (ICARDA) and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), both founded in 1972. The former has a greater emphasis in the Middle East and North Africa, with a focus on legumes, the latter in South Asia and sub-Saharan Africa, with more attention to dryland grains, particular sorghum and millet.

Of great importance to the status of deserts in climate change politics is the African drought that lasted from the late 1960s through the early 1980s, beginning roughly a decade after many countries reached independence. It was particularly severe in the Sahel from 1968 to 1974 and served to reawaken earlier colonial concerns about the spread of deserts, understood to be an irreversible march of sand. The high mortality of people and livestock during this period created one of the great humanitarian crises of the postwar period.

Several organizations grew out of this period, including a regional organization, the Comité permanent Inter-États de Lutte contre la Sécheresse dans le Sahel (CILSS), or Permanent Inter-state Committee of Struggle against Drought in the Sahel. Its nine members, whose territories are contiguous, are largely Francophone countries (Mauritania, Senegal, Burkina Faso, Mali, Niger, and Chad), though it also includes one Anglophone country (the Gambia), and two Portuguese-speaking countries (Guinea-Bissau and Cape Verde, which are both members of AOSIS). It works on food security, water management, family planning, and other related issues. It receives support from overseas development assistance programs from the United States, Canada, and a number of European countries and from the OECD and coordinates with United Nations agencies as well. The committee has recently begun to refer to climate change, but the topic remains a minor theme in its publications and activities, and it has attended just one COP in the last 7 years.

The other organizations are associated with the United Nations. Faced with the drought in the Sahel, the UNEP convened the UN Conference on Desertification (UNCOD)

in 1977 to conduct studies on drought and desertification and to develop plans to improve conditions in areas that had already suffered desertification. This conference proposed the UN Plan of Action to Combat Desertification (PACD), which was passed by the UN General Assembly in the same year. Its 28 recommendations, covering a wide range of activities, proposed establishing national organizations to combat desertification, running workshops and training programs to address the problem, and the creating, financing, and coordinating projects to halt desertification and promote recovery in affected areas. It shared the belief, widely held at the time, that the droughts in the Sahel and elsewhere were due to poor land use practices; in the Sahel, these included overgrazing and shortening of fallow cycles. By the last 1980s, PACD was widely faulted by the UNEP and others for lack of coordination of national and international level, weak monitoring, poor financial planning, and technical failures. It was also challenged for its weak scientific basis and vague, unworkable definitions of desertification (Rhodes 1991; Stringer 2008). The PACD officials argued that their problems stemmed from the lack of funding (Stiles 1984).

During the buildup to the highly visible 1992 Earth Summit, the UNEP recognized its evident failure. The issue of desertification was raised repeatedly in Rio de Janeiro. Another key chapter in *Agenda 21* (UN 1992) is titled “Managing Fragile Ecosystems: Combating Desertification and Drought.” This report also placed soil as a central concern, focusing on loss of fertility and degradation of soil structure rather than on erosion. It attributed these changes to overuse that stemmed from poverty and to the absence of effective land management; it also mentioned climate variability as a cause. It sought to redress these problems by scientific research, soil conservation, reforestation, training programs, promotion of alternative income sources, and participatory land use management—a set of practices generally consistent with the framework of sustainable development, as enunciated in the Brundtland Report (World Commission on Environment and Development 1987). As a result, the UN created a second convention, the United Nations Convention to Combat Desertification (UNCCD). Though this convention sought to distinguish itself from its predecessor, in particular adopting the more current language of participation and decentralization, it also suffered from an imprecision in definition of deserts and desertification and from a lack of methods to assess progress toward its goal of reducing or ending desertification. The UNCCD had a membership of 193 countries. Some of these, such as Botswana, were largely desert, and others, such as Chile and Mongolia, had large desert regions. But others, not associated with desertification, used the convention to seek support. Moldova, claiming that crops sometimes failed because of insufficient rains, requested funding, as did Guyana, a largely forested country with a small population, seeking to forestall any risk of land degradation.

The UNCCD encouraged the UN to declare 2006 the International Year of Deserts and Desertification, but this effort,

too, did not achieve success (Rhodes 1991). Other critiques emerged of the UNCCD: for example, the discussion of desertification led government officials to focus on long-term changes in vegetation cover, rather than on short-term drought, which is of greater concern to farmers (Slegers and Stroosnijder 2008). Moreover, climatological studies documented the association of the drought of 1968–1974 with sea surface temperatures in the Atlantic and Indian Oceans (Giannini, Biasutti, and Verstraete 2008). However, the UNCCD continues to focus on desertification very broadly and to propose strategies that focus on land use and water management to address this problem.

The scientific literature which links climate change and deserts is somewhat more tentative than for other areas. Recent work has shown that climate change warms sea-surface temperatures in ways that can lead to drying in the Sahel and elsewhere and that other atmospheric processes, particularly the increase in aerosols, may exacerbate this effect (Giannini, Biasutti, and Verstraete 2008). Unlike the direct connections that link increasing greenhouse gas concentrations and rising temperatures with Arctic warming, sea level rise, and glacier retreat, desertification depends on rainfall as well as on warming, and shifts in precipitation are not as well established, or as well understood, as increases in temperature. There is nonetheless agreement that many (though not all) zones in the world are becoming drier and warmer and that these trends will continue; researchers continue to refine drought indices and projections (Liu et al. 2013; Sheffield, Wood, and Roderick 2012).

The assessment reports focus less directly on deserts than on polar regions and small islands, though they discuss regions that experience, or are projected to experience, a decrease in precipitation, an increase in number and intensity of droughts, or both. The FAR devoted attention to the Sahel, and the SAR contained two chapters on deserts, which traced the interactions of climatic and local human land use practices in changing vegetation and soils. The TAR indicated areas that have increasing drought risk and drying; AR4 talked about these regions (in the subtropics, the Mediterranean, Central Asia, and elsewhere) in greater detail and expressed stronger confidence in its projections. It stressed the importance of human factors in increasing vulnerability to impacts in these regions. Though TAR and AR4 indicate that a number of areas—including some semiarid zones bordering on deserts—are likely to become drier in coming decades, they describe these shifts as changes in precipitation or in droughts, rather than as instances of desertification. This choice of terminology suggests that climate change frameworks and desertification discourses remain separate.

This scientific basis seems sufficient to allow deserts to become strongly linked with climate change in the global public sphere. However, some factors have blocked this connection. Unlike the Arctic, low-lying islands, and glaciers, deserts are poorly defined, and the risk with deserts involves

the spread of deserts to nondesert areas, rather than the loss of deserts. More seriously, major international organizations maintain the notion that desertification is due to local and regional human-induced land use changes and that international aid, distributed nationally, can reduce the problem, diffusing the problem of desertification around the world and thus weakening it. Captured by other environmental and development discourses and organizations, deserts are not drawn as systematically as other places into climate change discussions. The regional CILSS maintains its ties to the United Nations through the United Nations Convention to Combat Desertification and has attended only one of the last seven Conferences of Parties of the UNFCCC.

Discussion

These cases suggest the importance of the concepts mentioned earlier, which are the overarching concept of specificity—the association of climate change with a set of particular places—and three related concepts, namely, selectivity (the somewhat arbitrary inclusion of some places and exclusion of others), historicity (the great temporal depth of this specificity and selectivity), and consequentiality (the effects of this specificity on climate politics and policy). The specificity and selectivity are seen in the way that two regions—the Arctic and low-lying islands—are closely associated with climate change, and the changes they face are understood in the global public sphere, in science, and in intergovernmental organizations as the consequence of increased emissions of greenhouse gases. These cases demonstrate the urgent need to mitigate climate change and to adapt to it. Mountains and deserts are more closely linked to the idea of sustainable development and, more concretely, to the need for projects that support alternative land use patterns and livelihoods. This idea and the associated projects are framed and funded differently from climate change adaptation. The mountain case is striking because it contains glaciers, also closely associated with climate change but less linked in public understandings and in international organizations to human populations. This allocation of some regions to a climate change framework and of others to a sustainable development framework can be found both in the documents of international organizations and more broadly in the global public sphere.⁸ For the latter, we offer as examples the cartoons discussed earlier for each region. Internet searches reveal many cartoons of tropical plants and animals near igloos, and partially or wholly submerged desert islands, but offer no cartoons depicting climate

8. We note that, in a realist sense, all four regions are affected both by climate change (e.g., shifts in temperature, precipitation, and frequency of extreme events) and by the problems associated with unsustainable development (e.g., depletion of natural resources, loss of biodiversity, and declining water quality and availability); we seek rather to emphasize, in a constructivist sense, that regions are tied discursively and organizationally to one or the other of the frameworks.

change around desert oases or mirages, or in the high mountain caves with resident hermits.

The historicity is shown in the long trajectories of engagement of all four regions with Europe and the West. These trajectories predominantly began with the onset of European expansion and were further shaped by economic, political, scientific, and cultural dynamics of the colonial period. As a result of these histories, each region is understood as a highly specific kind of place, and each is associated with specific indigenous or localized populations. Though their political statuses varied in the postwar period (the islands and deserts as newly independent nations, the Arctic as a set of high-latitude areas of developed nations, and the mountains largely as the periphery of lowland states), all four engaged during the 1960s, 1970s, and 1980s with postwar environmental discourses. These engagements set the course for their highly distinctive involvements with the sustainable development and climate change frameworks, which emerged fully in a brief run of years in the late 1980s and early 1990s—a period that opened with the declaration of sustainable development in the Brundtland Report (World Commission on Environment and Development 1987) and the founding of the IPCC in 1988 and continued until the Earth Summit of 1992, which produced key documents (e.g., *Century 21*) and accords (UNFCCC, UNCCD). The bifurcation that allocates specific regions to one framework or the other has continued into the twenty-first century.

The mountains were the earliest to begin these engagements, promoted by scientists at the UNESCO Man and the Biosphere program and the Stockholm Earth Summit of 1972. The deserts were next, following the devastating Sahel droughts, via UNCOD in 1977. Both of these were discussed extensively in the Brundtland Report (World Commission on Environment and Development 1987). These two cases were featured prominently in the Earth Summit of 1992, whose conference report spoke of both as fragile ecosystems to be managed through sustainable local land use practices; these practices would prevent desertification of semiarid areas and erosion of the thin soils on steep mountain slopes. These two cases shared a focus on soil and sought local remedies to the poverty that drove overexploitation of land (led in part by the newly formed UNCCD). Though this framing emphasized poverty alleviation and called for international organizations to support appropriate development projects, it also placed the responsibility for the environmental problems with the local inhabitants, whose practices supposedly degraded local environments. It suggested local development and improved environmental management as solutions. Desert organizations like CILSS and mountain organizations like ICIMOD have maintained this focus.

The Arctic and low-lying islands both had significant postwar histories of regional environmental movements, with strong indigenous participation concerning nuclear contamination and persistent organic pollutants in the former and

concerning nuclear testing and fishing rights in the latter. (Low-lying islands were mentioned briefly in the Brundtland Report [World Commission on Environment and Development 1987], which makes no reference at all to the Arctic.) Importantly, these movements placed responsibility outside the regions—with nuclear powers, with the industrial nations that produced pollution that reached the Arctic, and with powerful nations whose governments and commercial fishing fleets exploited resources that properly belonged to island nations. They proposed new international policies as solutions. The framings were continued directly into climate issues. The small island states joined early in the movements that gave rise to the United Nations Framework Convention on Climate Change and the Kyoto Protocol, and they have played continued to play a major role in it. The Inuit Circumpolar Council and the Arctic Council put pressure on the UNFCCC. The Arctic has also benefited from its geographical continuity; though spread across the tops of eight countries that span three continents and several major islands, it remains a single region.

As we have indicated, these divergent outcomes reflect a combination of different factors. Some of these have deep historical roots, such as the nineteenth-century scientific organizations that studied the Arctic and glaciers or earlier cultural framings of islands as exotic alternative worlds, of deserts as hostile, and of mountains and the Arctic as pristine. Some of these are more recent, such as postwar environmental movements and the availability of sustainable development framings and organizations that can influence international aid. Science, too, has played a role. In particular, the linkages of climate change to the Arctic, glaciers, and low-lying islands are quite direct, namely, through changes in temperature that melt ice in the first two, contributing to sea level rise that affects the third. The connections with desertification center on shifts in precipitation, with some from alteration of broad precipitation belts globally, and others from complex regional linkages between ocean warming and storm patterns.⁹ Moreover, the specificity argument suggests linkages in both directions between politics and science. Though the claims about the vulnerability of low-lying islands in the IPCC reports are well established empirically, attention to these islands is owing in part to the strong influence of AOSIS—much as the lack of discussion of desertification in these reports reflects the weaker presence of CILSS—and to the existence of the UNCCD as an alternative to the UNFCCC.

9. We note that the Arctic and low-lying islands face other serious environmental issues that are loosely connected to climate change or that may be quite distant from it. The expansion of petroleum drilling and shipping will be challenging in the Arctic. Fisheries in both areas are overexploited, while in the Arctic new species are moving in as a result of ocean warming. Solid waste management is also a challenge to human settlements in both areas. These examples indicate that sustainable development frameworks are applicable to these regions, much as climate change frameworks are applicable to mountains and deserts.

This varied presence of the regions in IPCC reports is one aspect of the question of consequentiality, the third of our key questions. This question asks how the discussions of climate change, and the efforts to address it, have been influenced by this attention to specific places. To return to the terms first mentioned in the introduction, the consequentiality question moves from recognition to responsibility, from knowledge to action. In the current period of transition from the Kyoto Protocol to its yet-to-be-determined successor, it is difficult to discern the outlines of the policies and institutions that will shape future responses to climate change. Nonetheless, we note that some programs have begun to address the impacts in these specific regions; important early examples include the planned relocation, starting around 2000 and increasing in activity around 2007, of coastal native villages in Alaska that were impacted by coastal erosion due to sea ice loss (Yardley 2007) and also the long discussions (resulting in recognition in the Nuie Declaration made at the Pacific Islands Forum in 2008) about the resettlement of Pacific atoll populations affected by sea level rise to New Zealand (McAdam 2012). We suggest that further consequences of this selectivity are likely to lie in at least two areas: the perceived severity of the threat of climate change, and the types of actors in climate change policy. Regarding the severity, some argue that the vividness of examples of climate change at present supports efforts to address the problem, since, without these examples, many more people would dismiss climate change as uncertain or as a process that lies in the distant future; these examples also serve as evidence against climate change skeptics and deniers. Others claim that this association of climate change with remote places suggests that climate change is not immediate or pressing; they hope that alternate ways of representing climate change, less tied to specific places, might lead to more effective action on this crucial issue (Leiserowitz 2005). Our inclinations dispose us toward the former, since we think that the existing examples serve to invite others—residents of coastal cities and deltas, for example—to identify their regions as vulnerable.

Regarding the types of actors in climate policy, we suggest that the discussions of vulnerable places may reinforce the distinction between those who suffer the effects of climate change and those who have caused it by emitting greenhouse gases—in short, between victims and perpetrators (Doulton and Brown 2009). Moreover, these discussions may separate adaptation activities, which cope with the effects of climate change, from mitigation activities, which reduce its causes. By oversimplifying complex issues and by polarizing nations into stereotyped roles, these dichotomies can impede the urgent discussions about the fair allocation of costs of mitigation and adaptation. In this regard, it is worth noting that several nations within the Arctic Council—the United States, Canada, Russia, and Norway—are major producers of oil and gas, as is at least one member of AOSIS, Trinidad and Tobago (Hughes 2013), so that they cannot easily be classified either

as perpetrators or victims but rather combine aspects of both. Our inclinations, once again optimistic, lead us to hope that the specificity that we have discussed may serve to expand the discussion of responsibility. By showing the enormity of the losses that climate change is already bringing to the Arctic and with which it is threatening low-lying islands, it shows the urgency of mitigation and the challenges of adaptation, promoting rather than inhibiting the search for a framework to address both. By linking these concerns with remote places settled long before European colonialism, it links the responsibility for mitigation and adaptation not only to economic concerns but to concerns of more broadly defined human well-being and of human rights, particularly but not exclusively indigenous rights. This responsibility, in turn, has led many individuals, organizations, and municipalities to adopt both adaptation and mitigation efforts, often in the absence of support or policy guidelines from national governments. Such responsibility is also reflected in local adaptation efforts designed to protect local populations and communities against climate change impacts.

Our review of different regions has shown the long historical depth of the engagements that link these regions to colonial, international, and global orders. Though these engagements demonstrate the great unevenness of power in global economic and political systems, they also show the capacity of some small groups in remote areas to gain wide recognition, to pressure powerful nations to take responsibility for their actions, and to influence intergovernmental organizations that manage issues such as nuclear testing, fishing rights, and pollution in the direction of greater equity and sustainability. In the earlier decades when these issues were unfolding, the urgency and difficulty of establishing a new order seemed broadly as challenging as the tasks that climate change now raises—grounds, perhaps, for optimism. However, our review of the different regions also shows the lasting power of nonclimate framings to limit recognition of climate impacts in other cases, such as the mountains and deserts, and to deflect responsibility for these regions. It is in this complex terrain of recognition and responsibility that future climate politics will unfold.

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Comments

The Impossible Geographies of Climate Change

Jon Barnett

Resource Management and Geography, The University of Melbourne, Victoria 3010, Australia (jbarn@unimelb.edu.au). 30 X 13

In contrasting the lack of focus on deserts and mountainous regions relative to the Arctic and small islands, Orlove and colleagues point to the absurd and yet powerful geographical imaginaries bound up in representations of climate change. Climate change science has strong globalizing tendencies, producing knowledge about everywhere and therefore nowhere in particular (Hulme 2010). Yet selective representations of selected places as “vulnerable” are integral to most discursive formulations of the dangers of climate change (Liverman 2009). From the perspective of those with situated knowledges, the impossible geography of climate science as a problem of everywhere viewed from nowhere is exposed in these repeated and simple characterizations of places as vulnerable.

The Arctic and islands, and deserts and mountains, are all marginal places, distant in space and the consciousness from the metropolises that consume their products, appropriate their cultures, produce the emissions that endanger them, and make decisions about ways to do climate change adaptation to them. Indeed, marginality is a social production and is a more important driver of vulnerability to climate change than the environmental facts of the places where people live (Adger 2006; Wisner 1998).

Whereas the characteristic that initially defines these places as vulnerable is their exposure and sensitivity to climate change (ice melts, sea level rise, glaciers retreat, and desert expansion), it is social marginality (and often indigeneity) that makes these particular places iconic in climate change discourses. For not all arid places, low-lying small islands, mountainous regions, and cold places are said to be vulnerable (e.g., Australia, Singapore, Switzerland, and the Antarctic): it is only the risks to the socially marginal within these otherwise equally exposed places that are the focus of climate change discourses.

Of course, there are people in otherwise powerful and seemingly unexposed societies who are vulnerable to climate change (consider the homeless in New York), and people in seemingly marginalized and exposed societies who are not (e.g., the nobility in Tonga). Similarly, responsibility for emissions is not so easily cartographically delimited, for as Paul Baer (2006) shows, the richest 10% of people in developed countries emit several times more carbon dioxide than the poorest decile in developed countries.

Casting Indigenous peoples in the Arctic, deserts, islands and mountains as vulnerable to climate change can lead to impacts arising from policies. Vulnerability strongly implies

“powerlessness,” and this denial of agency creates a neocolonial opportunity to save the imperiled through adaptation (Veland et al. 2013). Adaptation—somewhat like “development” for most of the history of that project—is often described as a thing to be done to vulnerable people rather than by them. In islands, for example, there is talk of moving people around like freight cars and of major environmental modifications, both of which would transform cultural practices and heritage in a manner not unlike but well in advance of that expected to arise from climate change per se (Barnett and O’Neill 2012).

However, as Orlove and colleagues explain so well, marginal places that are associated climate change are not passive: they are often active participants in the description themselves as endangered by climate change. Tuvalu, for example, is known around the world for its voice on—and as a symbol of the dangers of—climate change. Consider that in 2009, through the use of NGOs, the media, negotiating skill, and emotion, Tuvalu held the attention of the world—and its leaders—for an entire day during the climate change negotiations (Farbotko and McGregor 2010). One wonders how it is then that this undeniable political agency of marginal peoples does not give rise to a more nuanced understanding of their vulnerability to climate change. Therefore, the ambiguity that Orlove and his colleagues have about the effects of associating climate change with certain places is justified, for it empowers as it disempowers, and it is too early to tell if the more nuanced geography of risk and responsibility that it identifies will translate into new solutions.

The simple geographical imaginaries of climate change are perpetuated in the international climate change regime. The important dimensions of class and knowledge/power are lost in the intergovernmental negotiations on climate change. The elites who negotiate on behalf of the developing South are no more inclined to acknowledge their own emissions than the bureaucrats who negotiate for the developed North are to acknowledge the poverty they see when they drive from home to the airport. The lacunae point to the problem, for as long as climate change is “global,” and imperils only environmentally and socially marginal Others, then reducing emissions will be an option, responsibility will remain a principle that applies to governments alone, and (in)action will remain in the hands of the procedurally flawed cul-de-sac that is the United Nations Framework Convention on Climate Change.

Michael Bollig and Sara de Wit

Department of Cultural and Social Anthropology, University of Cologne, Albertus-Magnus-Platz, 50923 Köln, Germany (michael.bollig@uni-koeln.de; sdwit@uni-koeln.de). 3 XI 13

This contribution by Orlove and colleagues is a timely and important contribution to the anthropology of climate

change. It frames and structures the rapidly developing knowledge on the complex interrelationship between cultural and social dynamics and the geobiophysical and discursive processes summarized under the label “climate change.” The authors begin with a very relevant yet simple question: Why has global attention to climate change been unevenly distributed across the world? While the social-ecological systems of the arctic and of small low-lying islands (mainly in the Pacific and the Indian Oceans) have received tremendous attention, other areas that have also been pronounced ecologically fragile—for example, mountainous areas and desert margins—have not featured prominently in the climate change debate. In order to answer this question, Orlove et al. make use of two guiding principles: recognizability (how climate change is understood through its impacts on specific places) and responsibility (how responsibility is allocated once specific places are connected with detrimental environmental changes), as well as three operational concepts: selectivity, historicity and consequentiality. The first concept details how specific places are chosen and how the boundaries of such areas are depicted. The historicity concept directs our attention to the manifold linkages between contemporary visions of the effects of climate change in specific places and earlier bodies of knowledge on (detrimental) environmental change in these very places. The consequentiality concept focuses on political outcomes, programs, and strategies. Orlove et al. explain their four cases in a convincing manner with reference to these concepts, but is this analytical framework transferable to other regions of the world? Sub-Saharan Africa is described as the region most vulnerable to climate change, but the translation of the global climate change paradigm to local African settings is highly uneven. Do the concepts outlined by Orlove et al. help us to analyze these ambiguities?

We will here focus on the social-ecological systems that we have personally been dealing with for some time: those of northwestern Namibia and northern Tanzania. Northwestern Namibia is currently afflicted with a disastrous drought. In May 2013 the president of Namibia declared a state of emergency and suggested that the current drought is a clear evidence of global climate change. His opinion is echoed in a myriad of newspaper articles and internet presentations on the drought. The Himba pastoralists, an indigenous community, are challenged by the local consequences of global climatic change, a problem to which they did not contribute at all. Indeed, public reports deal much more with the current drought (read “climate change effects”) among the Himba and in the picturesque Kaokoveld than with adjoining drought-stricken areas inhabited by populations much more involved in labor migration and practicing smallholder agriculture. The motif of “indigenous community and landscape under threat” has had considerable historical continuity. In a contribution to *Visual Anthropology*, Bollig and Heinemann (2002) describe how, through visual presentations, the Himba are made into an indigenous community, their image feminized, and their indigeneity and connectedness with the land-

scape progressively fostered. Indeed, the Himba/Kaokoveld landscape has been seen as threatened for over a century. Poaching, overgrazing, and the misuse of fire were “threats” analyzed by the colonial regime. In more recent times the plans for a large hydroelectrical dam, a major tar road, alcohol abuse, and uncontrolled tourism have been pinpointed as major problems. That such a system is under threat comes as no surprise: it has always been threatened.

The case of northern Tanzania also bears witness to the importance of applying a political ecology approach, along with historical contextualization, in order to understand the entanglement of landscape, people, and global discourses and institutions. By tracing the genealogy of global environmental narratives it becomes clear that the drylands of northern Tanzania, which form part of Maasailand, have a long history of being subjected to the “production of nature,” generally motivated by Western conceptions of pastoral inefficiency and conservation ideologies, but perpetuated by the Tanzanian government (Sachedina 2008). In line with Orlove et al. we observe that both northwestern Namibia and the drylands of northern Tanzania have a history of being associated with local destructive practices such as overgrazing and poaching; hence, these social-ecological systems have by and large remained the focus of sustainable development and broader environmental paradigms. Yet, recent catastrophic droughts have prompted the discussion of climate change as a new explanatory framework for these “threatened” environments. In 2009 northern Tanzania suffered from a severe drought that resulted in massive losses of livestock among Maasai pastoralists. While, on the one hand, the consequentiality of framing this disaster as climate change has led the government to invest in a (short-term) restocking program, on the other hand, President Kikwete of Tanzania embraced the climate change discourse as offering a welcome scapegoat, blaming global climate change as the major reason why the Maasai families “became suddenly poor.” This statement must be understood in a broader political context, as it was put forward in a period of escalation in an ongoing land conflict between the government and the Maasai pastoralists of Loliondo district. The conflict received widespread international attention after the government announced its plans to create a buffer zone for alleged “conservation purposes,” while granting hunting rights to the private investor OBC from the United Arab Emirates, which resulted in the eviction of thousands of Maasai from their grazing lands (see Eguavoen et al. 2013). In this instance, the global climate change paradigm rather veils ongoing processes of marginalization and encapsulation.

Our case studies from northern Tanzania and northwestern Namibia largely support the analytical framework as stipulated by Orlove et al., for they reveal the arbitrary nature and opportunistic recognition of climate change by different stakeholders in particular regions and within specific time horizons. However, our findings also show that the overarching specificity question, as employed by the authors of

the “global public sphere,” requires more in-depth analysis of particular contexts across different scales and more nuanced methodological tools if we wish to understand how, within which frameworks, and under which conditions certain “global” selectivity dynamics are made “local.” Put in another way, the authors’ vital contribution to constructivist insights could be enriched if complemented with ethnographies that go beyond the global sphere into more diverse specific localities, where these discourses are subject to continuous contestation, modification, and appropriation (cf. Weisser et al. 2013).

Todd A. Crane¹⁰

Livestock Systems and Environment, International Livestock Research Institute, Nairobi, Kenya (T.Crane@cgiar.org). 30 XII 13

This paper makes the case that public concern over the impacts of climate change is a function of historically situated and socially constructed discourses of human–environmental interactions that vary with geographic regions. Furthermore, the authors propose that variation in these discourses materially affects the ways that institutions respond to climate change. The study of how institutions of global governance and research create, adopt, and perpetuate particular discourses that frame environmental issues is fundamentally important for analyzing how networks of understanding and practice affect global public responses.

The authors deliberately approach the issue from a constructivist perspective, briefly acknowledging that more realist perspectives readily recognize that climate change is affecting all parts of the world. Yet, I can’t help but feel disappointed that realist perspectives were relegated to a couple of footnotes. It is true that all issues, climate change or otherwise, are given meaning through social processes that are unavoidably historically situated. However, this does not mean that those issues do not have a material reality that also affects the social construction and response. The overall argument is that social construction of issues has material outcomes, yet the authors give little consideration to how materiality (“environmental dynamics,” in their words) informs the social construction.

Taking materiality seriously is not incompatible with understanding the politics of discourses, but it requires us to grapple with complexity in a more substantial way. For example, while the desertification discourse has without a doubt been used politically in the last few decades (as the climate adaptation discourse begins to), environmental change emerging from human activity is more than just a discourse; it is well documented in the archaeological and ethnographic record in many parts of the world. Consequently, it seems

appropriate that local use practices should form a key reference point for political and scientific attention in understanding environmental change in mountainous and dryland environments. This is not to say that climate change is irrelevant but that in these areas, human livelihood practices interact with the effects of global climate change in ways that suggest a sustainable development framework (which I disagree is clearly distinct from adaptation frameworks, as the authors suggest). In contrast, the observed effects in polar regions and low-lying islands are clearly not resulting from local land use practices, and thus the responses to address them differ. Considering these important material differences, it should be unsurprising that they are socially constructed in different ways.

Historicity also demands that we take materiality seriously. For example, the West African Sahel has a very long and well-documented history of extraordinary rainfall variability, with cycles of extreme drought that can span years, decades, centuries, or even millenia. These cycles correlate with eras of expansion and contraction of the Sahara Desert. This long-term environmental history complicates any attempts to unequivocally attribute contemporary patterns of drought stress to anthropogenic climate change (or local land use practices, for that matter), something a constructivist approach is ill equipped to address.

The authors take a very broad, interpretive approach that is notably loose in both systematicity and references. For example, it is true that quick searches of “climate change pictures” and “climate change cartoons” in Google Images delivers an overwhelming number of polar bears and small islands, but there is also a significant thread of images depicting dessication as well. Furthermore, a vast acronymic sea of organizations and projects are currently working on climate change adaptation and mitigation in dryland Africa and mountainous zones of Asia, including the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Why were such points of evidence ignored or overlooked?

To close, I agree with the overall argument that discursive framing by research and governance bodies is mutually reinforcing and has material consequences, yet the article falls short of presenting this case robustly. In essence, this article has developed a series of grand narratives around the four zones of the world and then woven them together into an even grander narrative about the nature of perception and response to climate change in the global public sphere. While the argumentation is alluring, the grand narrative approach has left me with the uneasy feeling that a very sweeping claim is being built upon somewhat shaky evidential foundation.

All that being said, this article’s general focus of how the discursive construction of environmental change interacts with concrete responses in the intertwined fields of governance and research is both compelling and timely. While I have been critical of the evidential robustness of this paper, I also recognize that it establishes an important agenda for

10. Formerly of Knowledge, Technology, and Innovation, Wageningen University.

follow-up research that more closely and empirically analyzes how practices and actions of global institutions shape and are shaped by various discourses relating to climate change, as well as how those institutions materially link scientists, policy makers, “local people,” and the biophysical environment in which we all live.

David Demeritt

Department of Geography, King’s College London, K4. L10, Kings Building, Strand, London WC2R 2LS, United Kingdom
(david.demeritt@kcl.ac.uk). 22 XI 13

Orlove and colleagues highlight unevenness in the attention paid to climate change and its impacts. Focusing on four iconic cases—the Arctic, low-lying islands, mountains, and deserts—they explain this selectivity in terms of what, if any, climate impacts are recognized; how; and by whom are shaped long histories of colonial contact that in turn also shape attributions of responsibility for climate change and its consequences. Their attention to history and to the particularities of the places “through which climate change as a whole is understood” provides a welcome corrective to the tendency for claims about the constructedness of climate change to ignore the historical embeddedness of its understanding and experience. But if, as Raymond Williams (1980:67) once noted, the “concept of nature contains . . . an extraordinary amount of human history,” its geographies are no less important, and the analysis provided by Orlove and colleagues might be made sharper still through closer attention to geography, in the sense both of discipline and spatial relations.

As a discipline, geography can clarify the units represented by their four case studies. Orlove and colleagues alternatively refer to the Arctic, low-lying islands, mountains, and deserts as “regions” or “places” or “environments,” but these terms have subtly different meanings. Region and place, for example, are often understood in terms of a nested hierarchy, with a number of distinct places encompassed within wider regions. The concept of place acknowledges the sedimented cultural histories that impart a sense of place above and beyond mere location on a coordinate grid in the Cartesian cartography of abstract space, but there has been long-standing debate about whether regions should be defined ethnoculturally, like Bosnian cultural areas, physically, in terms of climatological variables sometimes said to determine those cultural distributions, or holistically, “in respect to its total combination of major characteristics,” both human and physical (Hartshorne 1939:393). Environment has an altogether different genealogy, strongly associated with cybernetics and an understanding of the world as a system of interlinked physical systems, and its emergence as a defining focus for geographical research has been associated with subdisciplinary specialization (Demeritt 2009), which in turn has tended to displace the integrative concerns of old-style regional geographers for whom looking

“upon a landscape without any recognition of the labour expended in producing it or of the extraordinary adjustments of streams to structures . . . is like visiting Rome in the ignorant belief that the Romans of today had no ancestors” (Wooldridge 1958:34).

These distinctions matter because place, region, and environment name different configurations involving their own selective forms of recognition. Fueled by a budding indigenous rights movement, the Inuit Circumpolar Council has forged new transnational links across an Arctic region defined in ethnohistorical terms very different from the physicalist focus of the US National Science Foundation’s Division of Polar Programs, which funds research in the Arctic and Antarctic, including a landmark program of ice core research using oil-drilling technology to recover continuous records of the earth’s temperature and atmospheric chemistry stretching back hundreds of thousands of years (Alley 2000). These different framings of a peopled Arctic region and of polar environments highlight very different features of climate change that appeal in different ways to different audiences.

To understand the unevenness of those appeals and the processes of selective recognition and responsabilization they involve, it is also helpful to think about geography in the sense of spatial relations. Perhaps more so now than ever before, connectivity in our globalized age is not simply a function of physical proximity in absolute time and space. Rather connectivity can be conceptualized topologically in terms of relational space and various multidimensional forms of “distance” (Créton-Cazanave 2010; Murdoch 2005), including the cognitive distance between interlocutors seeking a hermeneutic fusion of horizons, the social distance separating often physically proximate but socially excluded out-groups from in-groups, and the network distances involved in various technologically mediated interaction and arrangement highlighted by actor-network theorists (e.g., Jones 2009).

Recognition of global climate change is helping to bring previously distant things into closer relationship with one another—whether it is the financial equivalences among atmospheric constituents produced through emissions trading (Lovell *et al.* 2013) or the way that sea level rise provides the basis for mutual identification among island states of Polynesia, Micronesia, and the Caribbean with otherwise very different cultural histories. But if identity and connectivity are functions of spatial relations rather than absolute physical proximity, it is also important to appreciate how recognizing climate change can divide the otherwise proximate. The national focus for emission reduction strategies, for example, has tended to downplay inequalities within states and the effects of carbon taxes and duties on fuel poverty. Similarly, the deliberation at the latest UN Framework Convention Conference of the Parties in Warsaw has focused much more on the responsibility of rich nations for climate disasters in poor ones, rather than on the differential vulnerabilities within nations to severe weather. Orlove and colleagues rightly high-

light selectivity in recognition as a key obstacle to organizing collective responses to climate change, but collectivities also involve spatial relations that demand more attention as well.

Hildegard Diemberger

Mongolia and Inner Asia Studies Unit, University of Cambridge, The Mond Building, Free School Lane, Cambridge CB2 3RF, United Kingdom (hgmd2@cam.ac.uk). 4 XI 13

The authors poignantly show that climate change is not just about the changing climate but also about what is done in its name, reflecting the uneven attention given to different affected areas of the world. Entangled with a wide range of other issues, climate change is perceived on a global scale through powerful images of specific localities that lend themselves to communication. Melting ice in the polar regions and on high mountains and rising sea level threatening to submerge low-lying islands offer to the public eye what seems evidence of a process that can be understood in terms of causality and accountability.

The places that seem to have become the epitome of climate change have done so for several reasons; the sense of vulnerability of the affected people certainly elicits a moral and political response that can be mobilized by the communities involved as is shown in the article. However, much more prominent is the use of images from these places in response to a global search for indicators, and this often creates a range of oversimplifications and can draw emotional reactions. As the glaciologist and meteorologist Georg Kaser has highlighted “proxies are of different kinds, their links to climate drivers are complex, and each proxy tells just part of the climate story. . . . The retrieval of related climate signals is never straightforward, and only the combination of a series of proxies gives confidence in a reconstructed climate history” (Diemberger et al. 2012:14 [comment by Georg Kaser]).

Working as indicators, images of these places can be mobilized to drive action and elicit the feeling that the uncertainty that fuels debates and controversies can be contained. They also provide the backdrop for popular interpretations of contingent events perceived as abnormal (which may or may not actually be connected to changing weather patterns) and may contribute to the conceptualization of what is actually perceived as a global threat. Paradoxically, one of the drawbacks of this heightened attention on particular areas that have become the epitome of climate change is that in fact this perception may mask the complexity of the specific phenomena at stake so that “anomalies,” such as the non-retreating Kharakorum glaciers, can be manipulated to fuel controversies. Also, dealing with climate related environmental transformations in terms of simplified causality can easily fuel divisive local/global and rural/urban blame games.

An important consequence of this is that in areas where climate signals lend themselves less straightforwardly to pop-

ular communication, these might be dealt with under less powerful rubrics as is shown in the article in relation to mountains and deserts. To the powerful argument made in the article that the uneven attention given to different areas of the world affected by the changing climate has a range of far-reaching consequences, it can be added that global narratives generally seem to be perceived in localized ways and at specific times (in a certain area an extreme meteorological event may skew public perception toward the feeling of climate change urgency, while an acute problem of a different nature may imply a drop in significance). The issue of uneven attention is something that can be observed not only on a global scale but also locally; for example, it has been noticed that in the Khumbu area of Nepal the Imjia glacial lake, which threatens to generate a glacial lake outburst flood, has grabbed a lot of attention, while further down the valley the Pharak area, which is likely to be also affected in such an event, is given much less prominence and it is little considered in terms of other climate related environmental transformations (Sherpa, forthcoming). Reinforced by the skew caused by uneven attention, extreme events are much more likely to be seen as connected to climate change than are incremental changes that might in the long run be more significant.

There is certainly the risk that narratives of climate change, in all its gravity, may obscure other important issues with which the changing climate is invariably entangled. Perceived through the lenses of specific places and events, this global threat may be understood and acted upon in a skewed way with a wide range of unintended social, political, and environmental consequences.

Carol Farbotko

CSIRO Ecosystem Sciences, GPO Box 2583, Brisbane, QLD 4102, Australia (carol.farbotko@csiro.au). 3 XI 13

Climate change, it is argued in Orlove et al.’s paper, is imagined unevenly across ice, mountain, desert, and island. This unevenness is not due to any inherent characteristic of these geographies but is shaped by temporally deep forces such as imperialism, science, and culture. An achievement of this paper is the way it urges readers to question anew those (often Eurocentric) assumptions about the place of humans in the world, and how place shapes human fields of care. Why, we are given pause to ask, does a desert often figure negatively, as unproductive, barren space? Is an island valuable in and of itself? What makes iciness special? And why are mountains both feared and revered? This paper reminds us that our geographies are indeed always ordered hierarchically, albeit often implicitly. Hierarchical orderings take for granted that “my place is what I care about,” and that “my place is not yours.” In such orderings, faraway places seem to require a visceral, financial, ancestral, or imaginative tie for them to matter to those not rooted in place—by birth or residence,

or both. Islophilia, for instance, is perhaps a condition of continental dwellers prone to utopian myth making (Baldacchino 2005). Those who worry about disappearing islands, such as myself, are being asked to think, for example, about why the fate of small island inhabitants grips our geographic imagination and yet the fate of millions of delta dwellers facing the same sea level rise may not.

On the other hand, climate change debate has, to an extent, challenged some localisms away from the defensive, insular, and parochial. Civil society in particular has shown us that human fields of care can reach to places never seen, in some cases never before even heard of. Distant others are not beyond the reaches of emotion and meaning. It is possible to make sense, ethically, of distant worlds and people. However, while climate change may challenge some treasured illusions of temporal and spatial boundedness, it may also be understood as nothing more than a rearrangement of very familiar lines of power. Climate change may be simply a new form of imperialism, a new justification for the devouring of the resources of many (and polluting their places) for the benefit of a distant favored few. Or it may be a reworking of an even more timeworn project to find and make much of boundaries in nature that seem to demarcate a “natural” division between my place and your place. Ice, mountain, desert, and island are geographies that may seem, to many on their constitutive outsides, remote, extreme, exotic and Other (Said 1978). If we believe that poles, mountains, deserts, and islands are fundamentally different from cities and villages, what of assumptions therein of their “essence”? Are they permanent? Natural? Pole, mountain, desert, and island are too easily imagined as geographies that are essentially nonhuman, with their indigenous populations too easily erased from yearnings for a pure, unpopulated Nature. Orlove et al. remind us that understanding these changing landscapes, and what it is like to dwell in them in a changing climate, has only just begun.

David McDermott Hughes

Department of Anthropology, Rutgers University, New Brunswick, New Jersey 08901, U.S.A. (dhughes@AESOP.Rutgers.edu). 1 XI 13

As “Recognition and Responsibilities” indicates, fairness and balance have not characterized the Anthropocene thus far. Indeed, one has to look hard to find a just or redistributive impact, measure, or meme wafting, like so much carbon dioxide, into the atmosphere. I commend the authors for dissecting the biases with respect to landscape types—how policy makers treat some people and places as the firstborn and others as the stepchild.

I want to enlarge this analysis with respect to the narrative’s particular Cinderella: deserts. Arid lands, the anthropologists indicate, are the only one of their four ecosystems expanding under climate change. In Africa, for instance, the Sahel and the savannah are experiencing desertification, whereby grasses

and open woodland give way to dunes and sparse vegetation. In contrast with this proliferation, ocean atolls, the Arctic cryosphere, and mountain glaciers are all shrinking. Activists and technocrats of climate change consider the dwindling of these three biomes to be a global problem. Meanwhile, they treat the growth of the fourth as a merely regional issue. Does this opposition between increase and decrease account for the lopsided degree and scale of concern? Certainly, vanishing—a form of extinction—compels the attention of those trained in Darwinian natural history. Extinction, after all, killed God, in the sense that the fossil record of long-gone species—discovered in the century before Darwin—proved that Noah had not succeeded. Now, climatologists anticipate and dread the failure of contemporary policy to save coral islands and polar bears. Imagine Earth in 2300 completely devoid of surface ice. Deserts, by contrast, can look forward to a healthy future. All the scientist has to fear here is too much of a good thing.

But—and here is the cultural point—deserts are not a good or lovely thing in the minds of many of the scientists and policy makers analyzed in “Recognition and Responsibilities.” I do not have space in this brief comment to demonstrate the northern European ancestry, origins, or training of many of these specialists. Their outlook reflects deep historical associations with moist temperate biomes, rather than with deserts. In this sense, international policy vis-à-vis climate change may recapitulate intercontinental exploration. Eighteenth-century surveyors of Australia found its interior deeply foreign. As Paul Carter (1987) writes, it contained few of the “features”—valleys, mountains, lakes, or rivers reaching the sea—through which Britons conventionally packaged, categorized, and “read” their own country. Across the Pacific, droughts and deluges in California shocked colonists from the East Coast, like “Walden Pond on LSD” (Davis 1998:14). Spanish settlers and, of course, native inhabitants understood the desert, but for others it was unknowable—not pregnant with meaning but barren in every sense. Scientists travel with at least some of this historical baggage. Indeed, the late twentieth-century attention to species diversity has only thickened the antiarid bias. In popular discourse, rainforests hold the “genetic reservoir” and “lungs of our planet.” Deserts appear to belong more on Mars.

These sentiments represent a limited imagination, rather than a diagnosis of unalterable biophysical qualities. Indeed, one should not have to look hard to see the flip side of desertification: the vanishing of water from arid environments. “In the desert,” writes the outdoorsman Craig Childs, “water in any amount is a tincture, so holy that it will burn through your heart when you see it” (Childs 2000:xiii). An oasis—to continue the metaphor—will burn through every part of you. The Jordanian-born Abdelrahman Munif begins his epic *Cities of Salt* with a description of Wadi al-Uyoun: “an outpouring of green in the harsh obdurate desert . . . dazzling you with curiosity and wonder. . . . It was one of those rare cases of nature expressing its genius and willfulness”

(Munif 1987:1). Dates and palms constitute the negative space of the desert, always available for a positive reversal. Oasis is to desert as atoll is to ocean. If one were to flip negative and positive space in this way, one might rephrase spreading “desertification” as “desiccation,” or the contraction of wetlands. But, in a contingent fashion, activists and policy makers fighting climate change have forgone this lingo. They approach it only through a linguistic slip: AOSIS, the Association of Small Island States, sounds very close to “oasis.” The founders of AOSIS, informants in my own research, designed their acronym precisely to encourage this conflation, and today even experts from small islands refer to their caucus as a palm-fringed pool of water. Not entirely neglected, deserts obtain recognition in the puns and humor of climate change policy.

Jean Michaud

Département d'anthropologie, Université Laval Québec, Pavillon Charles-De Koninck, bureau 3431 1030, avenue des Sciences-Humaines, Québec G1V 0A6, Canada
(Jean.Michaud@ant.ulaval.ca). 3 XI 13

Readers acquainted with the evolution of development discourse since World War II, and in particular with the global/local riddle that it has become mandatory to refer to since the 1990s, may sense reiteration in this article by Orlove, Lazrus, Hovelsrud, and Giannini. The authors' main claim is to discuss “the specificity of places associated with climate change in the global public sphere.” Questions are raised on three fronts—selectivity, historicity, and consequentiality—appraised in four locales—the Arctic, deserts, low-lying islands, and mountains. The authors “focus on these four regions to argue that the distribution of concern about climate change impacts is historically situated” and want to show “how climate change as a whole is understood through specific places.” Discourse, thus, is located historically and geographically, and “culture sits in places” (Escobar 2001)—which should come as little surprise.

An underlying question springs to mind, not explicitly formulated by the authors: Can science and its institutions be trusted to understand the intricacies of global climate change while knowing very little about its impacts on local populations, and crucially, on how local populations face, understand, and interpret climate change? Or, moving one step further: Can the global public interest be safely put in the hands of experts—the “international domain of science”—and practitioners—the “intergovernmental organizations”? This is the difficult dilemma of objectivity versus accountability, positive science versus social complexity, technical proficiency versus indigenous knowledge. One thinks of critical authors such as Nancy Scheper-Hugues (1995) on the anthropologist as “spectator” versus “witness” or Tim Forsyth (2003) on the uneasy marriage of science with environmental politics.

Upon declaring “we argue that specific places, rather than the planet as a whole, are emphasized in public understandings and debates about climate change,” the authors discuss a series of supranational organizations related to their four geographical regions. One's immediate reaction might be to ask, How does such a division of the object of concern (climate change discourse) into ecological niches (deserts, mountains, etc.) help us to better understand the peoples and societies inhabiting these and their (re)actions, their agency in the face of the climate variation, and a growing occurrence of extreme weather events? I raise this question because examining “the specificity of place in climate change work,” an overt aim of the paper, does not extend here to examining the specificity of peoples, practices, and aspirations in these same locales. If one judges from the treatment applied to “mountains,” a space I am reasonably familiar with, the authors' argument is indeed challenged by the impediment of scale. The examination is from such a distance from the ground that particular societies in any given place disappear, along with their specificity and projects. While the authors announce their interest in “people and organizations” and “individual and collective recognizers,” they instead offer an outline of (a selection of) institutional representations and discourse on such peoples from high above, with the type of generalizations akin to those impairing recent influential books on the social history of mountains by Scott (2009) and Mathieu (2011)—but not Debarbieux (2010).

This piece can conceivably be thought provoking to newcomers to this field. However, to return to the initial question, placing this demonstration against the background of Castells's “global public sphere” remains problematic and entails technocentric assumptions. Communication is only global for the world's elite participating in the latest forms of volatile technologies, accessible only to a minority on this planet. It is doubtful that on the topic of climate change, as on any other “global” issue, one would extract genuinely analogous discourse from Denmark, Fiji, Chile, Cambodia, and Qatar, to say nothing of comparing these and drawing firm conclusions.

I cannot share the authors' optimism when they conclude their exposé by stating: “Our review of different regions has shown the long historical depth of the engagements that link these regions to colonial, international, and global orders.” The density of the historical survey in a short piece spreading over the entire world can simply not support such an across-the-board statement. It is even more difficult to unreservedly agree that this demonstration provides evidence of “the capacity of some small groups in remote areas to gain wide recognition, to pressure powerful nations to take responsibility for their actions, and to influence intergovernmental organizations that manage issues such as nuclear testing, fishing rights, and pollution, generally in the direction of greater equity and sustainability.” If social change were that simple, wouldn't hegemony and domination be things of the past?

Politics of Misrecognition: Framing Out Liability under a Changing Sky

Jesse Ribot

Department of Geography and Geographic Information Science, University of Illinois, 220 Davenport Hall M/C 150 Urbana, Illinois 61801, U.S.A. (ribot@illinois.edu). 13 XI 13

There are districts in which the position of the rural population is that of a man standing permanently up to the neck in water, so that even a ripple is sufficient to drown him. (R. H. Tawney, quoted by Scott [1976:1])

The brilliance of this article is in its identification and explanation of skewed global geographic attention to climate risk and social vulnerability. It lays the groundwork for a direly needed recalibration. Through histories of place the authors show how visible Arctic and island climate change effect are iconized in iceberg-bound polar bears and islands swallowed by a rising sea, whereas the complex risks faced by mountain and desert peoples are disturbingly framed as matters of their own sustainability. The authors outline the political and institutional paths that shape this selective inclusion and occlusion of place, problem, and cause.

Vulnerability is always rooted in social relations. Yet the social framing as sustainable development turns responsibility back on the victims. This framing gives climate change a clean slate, limiting responsibility for redress. For example, 90% of the world's drylands fall in developing countries, they cover over 40% of the earth's surface, house 34% of the world's population, and are home to almost half of the world's poor (UNCCD 2011:6,14). Drylands' poor are already deeply vulnerable in the face of ordinary climate variability and change. But by calling their problems social—a matter of sustainable development—risk is naturalized as a preexisting condition. With this slight of framing, the emitting nations absolve themselves of responsibility for redress for the vast majority of the earth's vulnerable. Is this an accident of institutional histories or the slight of images? Is it part of a well-crafted politics of selective attention?

The UN Framework Convention on Climate Change has set up an adaptation fund that further formalizes the exclusion of the vulnerable—those with preexisting conditions need not apply. Adaptation funds from emitting nations are earmarked to redress only the damages of the additional stress that climate change might cause. This additionality stance implicitly acknowledges that climate change is anthropogenic and that the responsible parties should fund adaptation (Khan and Roberts 2013:182). But additionality also implies a turn away from responsibility for the preexisting precarity of those at risk—most of whom were vulnerable in the face of climate stress well before climate change met the horizon. The UNFCCC is laying down a cutoff for vulnerability redress.

The convention only acknowledges the increment of suffering associated with added stress—preexisting precarity, the very condition that turns any climate stress into disaster, is framed out.

The targeting of adaptation funds toward the anthropogenic increment accepts that nature has been cultured but, paradoxically, requires that the chronic misery of precarity be naturalized—as background. The setting of this increment and the cordoning off of liability for vulnerability is a carefully debated absolutism. It is not an accident that vulnerability—which is socially produced within a larger set of national and global forces (cf. Rodney 1973; Wallerstein 1974; Wolf 1981; Watts and Bohle 1993)—is occluded, naturalized, made blameless. In explaining the balance of attention across regions, I think it would be fruitful to extend the analysis into a broader politics of cause and blame. Why is it that UNFCCC is willing only to restore people to their state of prechange misery? Why do they cordon off liability and obscure the root causes of the very problem they are charged with solving? Where is the broader responsibility for preexisting vulnerabilities equally produced in the crucible of global relations? Like the increment, the Arctic and small islands seem easier to focus on—less daunting liabilities.

I am concerned with the focus that the Anthropocene brings to climate while turning attention away from suffering. Were suffering the center of analysis, climate (and climate change) would be one important stressor among many embedded in a set of social, political, and economic processes that produce and maintain marginality and precarity. With rigorous causal analysis, responsibility for suffering and attention among regions would be rebalanced. The climate community is focusing too intently on the tip of the iceberg of causal histories. It has long been clear that the best solution to climate-related vulnerability is to reduce vulnerabilities of those who are already at risk (e.g., Drèze and Sen 1989:60; European Commission 2013:5; Field et al. 2012:76). Yet despite that the poor live precarious lives and that redressing their current precarity would reduce future risk, we seem to be much more horrified by images of future disasters than the present ongoing crisis. Attention needs to be recalibrated. This article is a brilliant start to that rebalancing process. Nobody in 2014, in the world's wealthiest generation in history, should be left up to his neck awaiting the wave that will drown him.

Peter Rudiak-Gould

Department of Anthropology, University of Toronto, 19 Russell Street, Toronto, ON M5S 2S2, Canada
(peter.rudiak.gould@utoronto.ca). 11 X 13

Greenhouse gases do not respect national boundaries, and their effects will leave no part of the biosphere unscathed. In this sense climate change is inherently global; yet in culpa-

bility, in vulnerability, and (as this article ably demonstrates) in public and institutional attention, climate change is radically uneven in distribution and inherently localized. Progressive scholars tend to advocate that second understanding of climate change: by rejecting universalizing framings of climate change, we can perceive and address the inequities that lie at its heart (see, e.g., Smith 2007). Orlove and colleagues' contribution is to demonstrate that, on the contrary, localizing climate change does not inevitably unmask injustice but may instead create its own inequities, emphasizing some regions at the expense of others and entrenching unhelpful monocausal accounts of socioecological distress in particular locations.

The authors' explanations for this pattern of "selectivity" are compelling. Even so, I would like to propose a few additional explanations that the article does not fully address. I offer these in the spirit of discussion rather than critique. One explanation hinges on loss. "Lamenting Eden" is the name that Mike Hulme (2009:342–344) gives to framings of climate change that invoke such a feeling or story: climate change as irrevocable, heartrending disappearance. Low-lying islands slot into that schema easily, since they face not only injury but indeed obliteration and have already, for centuries, been associated in Western minds with a vanishing primitive past or prelapsarian Garden (Farbotko 2005). Loss is also easily applied to arctic regions and to glaciers, as they are considered, respectively, the most latitudinally and most horizontally remote places on earth and therefore the last places to feel the fatal touch of humanization. Moreover, ice, like islands, can entirely disappear. In contrast, mountains cannot disappear on any human time scale. The novel *Lost Horizon* (Hilton 1933) places its object of yearning (Shangri-La) in the mountains, but what is lost is youth, innocence, and beauty, not the unmovable mountains themselves. As for deserts, the authors astutely note that we do not dread their disappearance but rather their expansion; they are objects of fear rather than anticipatory nostalgia.

Web searches, a crude but serviceable indicator of what is on the public mind, back up this explanation based on suitability to narratives of loss. In English, with quotations surrounding each phrase, "disappearing islands" yields 57,000 Google hits, "disappearing arctic" 35,000, "disappearing glaciers" 30,000, while "disappearing mountains" yields less than 4,000 and "disappearing deserts" a paltry 816. "Loss of islands" yields about 33,000, "loss of the arctic" over 5 million, "loss of glaciers" 115,000, but "loss of mountains" only about 6,000, and "loss of deserts" a mere 272.

Low-lying islands have another point in their favor in terms of narrative fittingness: there are nation-states that consist entirely of such land forms, allowing arresting headlines of "entire nations" vanishing. The authors take note of this attention-grabbing discourse, but I would like to push the analysis further. A few nations are composed almost entirely of mountainous terrain, but (as the article makes clear) they have attracted little attention to themselves as mountain coun-

tries. Moreover, they cannot claim to be vanishing because mountains cannot vanish. No countries are wholly deserts, and the ones that come the closest are, for Western publics, more often associated with danger than with sympathy. There are no entirely arctic nations, and the closest approximations do not qualify as nation-states (Greenland) or appear far too prosperous to be seriously imperiled (Iceland, Finland), though evidently this narrative handicap is not so crippling as to preclude attention to arctic climate change.

These explanations for uneven attention have the virtue of deep historicity that the authors rightly insist on. Narratives of loss draw upon millennia-old Judeo-Christian mythology, a centuries-old cult of nature, and a long colonial history in which, to borrow from Kipling, some objects of conquest are devils, demanding destruction, while others are children, demanding protection. Narratives of a country's right to stay above water call back to the nineteenth-century rise of the nation-state as the preeminent identity-claiming polity, a bounded cultural unit with a right to self-determination—which in turn depends on the older Enlightenment ethic of individual autonomy, extended and reapplied to larger collective entities. The loss of an "entire nation" is especially impactful, I think, in the era of the UN, whose "one country, one vote" system in its General Assembly assumes that all nations are equal even though they vary in population size by a factor of more than one million. The reification and essentialization of the nation-state dies hard, and the public's habitual failure to recognize that national territories are not the only homelands makes prophecies of ten thousand displaced Tuvaluans more alarming than prophecies of ten million displaced Egyptians. The authors have asked some important questions, and I hope that additional answers will be forthcoming from the scholarly community.

Reply

We would like to open with a double expression of thanks, first, to the commentators, who took the time and care to read our article with close attention and to provide thoughtful and articulate responses and, second, to the members of the *Current Anthropology* editorial office, who selected a wide range of commentators, corresponding to the broad spatial and temporal scale of our article, and in this way assured it a thorough set of readings. The commentators are drawn from several continents and from different traditions within anthropology and related disciplines, and they include specialists across the regions that we discuss. In addition, they focus on a variety of spatial and temporal scales—a point of particular importance for our paper, which seeks to cover several centuries' history across wide swathes of the globe in a small number of (rather large) pages.

We are grateful for the generally positive reception of our

article and are gladdened by the words of praise. But we are grateful as well for the more critical readings that raise questions about the theoretical approaches and methodologies that shaped our research, about the cogency of our findings, and about the implications that we trace from our work. Indeed, we are gladdened by these critical readings as well, since they suggest that the commentators find our topic to merit attention and our arguments to deserve engagement. We group the various comments into two broad categories: ones that address the overall framing that structures the research and discussion, and others that consider specific key elements within this research and discussion.

With regard to the overall framing, there are three major questions, all linked explicitly to spatial issues. Demeritt accurately recognizes that we set up a comparison of four cases (the Arctic, low-lying islands, mountains, and deserts), and that the strict parallelism of our treatment and our discussion indicate that we consider our cases, not as disparate but rather as instances of some more general spatial entity. He notes, also accurately, that we are quite lax in the terms that we use to characterize these cases and entities. We alternate between “place,” “region,” and “environment” to name the kind of broad spatial entity (at a large but subglobal scale) of which these four cases are instances. He sketches some elements of the discussions within geography that place these different terms into clearer relations to one another. We acknowledge this deficiency. Demeritt’s question leads us to recognize that we had left implicit a point that we could have developed more overtly: these cases received attention not only from scholars who classify them neatly but also from the peoples who inhabited them, from others who traveled to them, and yet others who wrote about these places. Some of these people focused on one case, while others considered several. We suggest that these others often treated the cases as disparate, rather than as parallel cases of some broad spatial entity. For example, Europeans in the premodern era viewed the Arctic in near-mythic terms but were more familiar with deserts. We recognize the importance of geographical systems of classification, but our coverage of several continents and centuries leads us to consider a range of material that may not sit well within any one such system. On a related note, Demeritt also suggests that we should pay more attention to the spatial relations within and between the cases, in physical, cultural, and moral terms. Here, too, we could have foregrounded more clearly the different patterns of spatialization within each of our cases in different periods, pressing more on the term *recognition* in our title to indicate the emergence of awareness—among residents and outsiders—of each case as a coherent unit. In a somewhat different vein, Hughes encourages us to consider the unique characteristics of each case and sketches out some distinctive features of deserts; we appreciate his discussion of these specific qualities, treated only summarily in our overview. We thank him for his elaboration of ideas surrounding deserts and desertification and for his

attention to the literal and symbolic roles of deserts in human imagination and politics.

A second question of overall framing, like the first one, addresses spatial issues, but at a planetary rather than regional scale. Several commentators raised questions about the existence of the global public sphere or about the evidence we presented for it. Michaud questions whether the global public sphere is of significance for any except a small elite minority; our research points to wider participation in this space, much as Bollig and de Wit, included in these comments, document for two remote regions in African countries, presumably the sort of area Michaud finds as being excluded from this sphere. Others suggest additional lines of evidence about the global public sphere. Crane discusses photographs in addition to the cartoons that we mentioned at several points, and Rudiak-Gould tallies websites. We welcome this expansion; as we discussed in our review of our methodology, we looked for multiple lines of evidence and recognize that there are more.

A final question of overall framing is also spatial in nature. There were several calls for finer-grained analysis, suggesting that our focus on four cases presented the cases as relatively uniform and in this way neglected the variation within them—as if we had selected just a few primary colors to paint a map of a world that consists of many different shades. Michaud says that our perspective is “from high above.” In a similar vein, Bollig and de Wit ask for more “nuance” and, in a related fashion, call for looking more “in depth.” They suggest that our ideas could be “enriched” by studies on a smaller scale, since we would see more variety in the circulation and response to the broad discourses—climate change, sustainable development—which we present so sketchily. We wholeheartedly agree; studies on different scales complement, support, and indeed enrich each other. Our point in this article was to make the larger claim that we hope will be followed up with additional empirical insight at other scales. The examples that Bollig and de Wit provide, as well as Diemberger’s contrast of two cases in Nepal, whet our appetite to see more of them.

The second set of comments center on key elements of our evidence and discussion. Some address the way that we divide our four cases into two sets of two, and others press us to develop more fully our central notions of recognition and responsibility within the global public sphere. A few commentators accepted the division of the cases into those (the Arctic, low-lying islands) where change is largely attributed to climate change and those (mountains, deserts) where it is linked by many to sustainable development, particularly regarding local land management practices, but wanted different accounts of this classification. Diemberger agrees with our bipartite division but offers a complementary explanation, saying that in mountains and deserts “climate signals lend themselves less straightforwardly to popular communication” than in the Arctic and on low-lying islands; in other words, the cases differ in the directness of the climate impacts, as well as in the political and cultural histories that we empha-

size. Seeing that our argument is largely a constructivist one, Crane called for realist perspective as well. Crane also suggests that local land use practices are not a source of environmental harm in the Arctic and on low-lying islands, though they are in mountains and deserts; in other words, the cases differ on the presence or absence of local unsustainable land use practices, as well as in the global political and cultural histories. (Diemberger's suggestion is also a realist addition to our constructivist account.) These points are reasonable ones, and we acknowledge that our (necessarily brief) contrast of the two sets of cases involves simplification. Nonetheless, we retain the emphasis that we place on political and cultural histories.

To Diemberger, we would suggest that the apparently straightforward character of climate signals in the Arctic and low-lying islands is, at least in part, the product of steady pressure by representatives of those regions to bring their plight to the attention of scientists. In low-lying islands, for example, the processes by which sea level rise interact with coasts is highly complex, with some islands even experiencing accretion. In other words, it is a simplified understanding of sea level rise that circulates in the global sphere. To Crane, we would suggest—rather delicately, since we do not wish to blame local residents for impacts—that colonial and post-colonial transformations have indeed brought shifts in livelihoods and settlement patterns in the Arctic and low-lying islands, rendering some inhabitants in the Arctic less able to move from village sites affected by coastal erosion or less able to follow marine resources shifting northward as a result of increasing ocean temperatures, and encouraging residents of atolls to mine coral for construction and to increase groundwater withdrawals. In some low-lying island communities the desire for cement homes—and the status that comes with them—drive extensive coastal mining that disrupts the ability of coastlines to buffer storms and may enhance erosion due to sea level rise. Ironically, cement made from ground coral is also sometimes used to build sea walls with often perverse effects of accelerated erosion. We do concur strongly with Crane's point about the importance of climate variability in the Sahel and Sahara and agree that climate was not fixed before anthropogenic climate change became so significant. (The same is true of glaciers, as we discussed in our section on mountains.) As these readings suggest, we might have stressed more fully the points in which we stated our full recognition in the objective nature of climate change, and linked our readings of the IPCC's Assessment Reports more extensively to other sections of the article. Anthropogenic climate change, like natural climate variability, is a complex process that involves a number of our planet's physical and biological systems; it interacts in many ways with social, economic and political processes as well. Our task was to examine how climate change has (and has not) been taken up in the powerful sphere of public perception and action—the sphere in which mitigation and adaptation efforts are hashed out and implemented, with more or less attention paid to responsibilities to those affected.

Other comments point to gaps in our accounts, to deficiencies in the evidence that we present to support our accounts, and to the omission of evidence that runs counter to our accounts. For example, Crane points out that we mischaracterize the relative neglect of climate change frameworks on the part of international organizations that work in deserts. He cites specifically CCAFS, the Climate Change, Agriculture, and Food Security program, one of the organizations within the umbrella of CGIAR, which works globally on agricultural development. This program, which began operations in 2010, has grown in importance in the last few years and deserves attention. However, we did include other examples of engagement with climate change issues among organizations in the desert case (CILSS) and in the mountain case (ICIMOD) as well. We acknowledge that our discussion of specific programs and organizations was selective and that there were some omissions; this was also an issue for our discussion of the mountain case, where a large number of small- and medium-sized international organizations operate. Moreover, climate discourses, policies, and institutions are changing rapidly, a pace that created challenges for us. If we were beginning to conduct our research right now, we might find ourselves discussing other cases, such as cities and deltas, or other policy frameworks, such as the loss and damage perspective (Oliver-Smith et al. 2012).

Finally, some commentators ask us to go further with our discussion of recognition and responsibility. Michaud, citing an article by Scheper-Hughes in this journal, presses us to acknowledge that anthropologists can act as spectators, who are disengaged from the social worlds they observe, or as witnesses, who are committed to social transformation. We share this concern; indeed, though all four of us are active as academic researchers, we also all work in organizations that engage directly with social issues that arise out of climate variability and change, and we all participate directly in programs with local communities, policy makers, and NGOs. In a similar vein, Barnett cautions us to consider the hidden dangers of the climate policy frameworks that strip many people of their capacity to act, in some cases making adaptation something that is “done to vulnerable people rather than by them.” But, there is also strong evidence that local communities engage in developing reactive and proactive adaptations, and that this is driven from within. Very few nations indeed have developed national policies for climate adaptation. We certainly agree that the people who bear the present impacts of climate change should be active participants in the establishment and implementation of frameworks to address climate change; we regret that this agreement was not more widely evident to all readers of the article. Indeed, the motivation for the article was precisely to identify and expose some of the reasons why those most affected are often excluded climate policy processes. Ribot makes this even more explicit in his discussion of the naturalization of vulnerability. We agree as well with the commentators who encourage the adoption of simpler, more gripping language. Farbotko's

phrase “human fields of care” is an effective, and less cerebral, rephrasing of “recognition and responsibility,” as is Ribot’s call to acknowledge human suffering, especially in reference to the Anthropocene, which tends to deflect suffering from the center of analysis so that, as he states, “we seem to be much more horrified by images of future disasters than the present ongoing crisis.” Hughes and Rudiak-Gould both write of “loss,” using the word in both its material and emotional meanings. We find this use of language to be effective, both within academic journals and beyond them. However, our words were also chosen with care to convey specific processes that we see in contemporary, global climate discourse—namely, that some places are recognized as affected while others are not and that responsibilities are likewise unevenly distributed. As Farbotko reminds us, this is not necessarily a negative effect: “distant others are not beyond the reaches of emotion and meaning” in productive ways.

The word *loss* has led us to identify another word that serves to encapsulate our argument: habitability. The Europeans who traveled around the globe in the fifteenth and sixteenth centuries, encountering new lands and the people who lived in them, came to recognize what Headley (1997) has called “the earth’s total habitability.” Anthropologists and other researchers later traced the movements of peoples and the development of technologies and cultures that allowed humans to settle virtually everywhere on the world in pre-industrial times. By contrast, climate change is eroding and ending the potential of many zones to support human life (even more than prior threats to habitability from other aspects of industrialization, such as mining and toxic wastes); in some cases, adaptation efforts will not be sufficient to address these threats. Discussions of managed retreat from sea level rise (de la Vega-Leinert and Nicholls 2008) and governance system to protect climate refugees (Biermann and Boas 2010) point to the limits of habitability, as do, on a smaller scale, the increased frequency of evacuations from climate change–related hazards (Birkmann, Seng, and Setiadi 2013). In our article, we have examined the widespread views that attribute the declining habitability of the Arctic and low-lying islands to global forces external to these regions (climate change), while explaining this decline in mountain and desert regions to local forces internal to these regions (unsustainable land use).

On a number of occasions, as we were working on this article, we thought that our ideas might be developed more effectively if we had decided to write a book, with one chapter for each case and other chapters for frameworks and discussions. Our other commitments prevented us from taking that route, but we also realized that writing a book would entail long delays. We wanted to get word out more quickly. These comments confirm our choice to us, even though we would have welcomed more pages to develop our arguments and evidence in greater detail. They suggest to us that we were able to convey and support our core view, that climate debates are strongly influenced by the earlier exchanges from which

they emerge, rather than being entirely new discussions. As such, they reflect global histories of inequality and power differentials. Our aim is not to normalize these discourses but rather to illuminate their tenacity and role in contemporary framings of anthropogenic climate change. We are particularly grateful for the attentive reception and active engagement that the commentators have given us. They give us hope that anthropology can contribute to the global discussions of this urgent topic.

—Ben Orlove, Heather Lazrus, Grete K. Hovelsrud, and
Alessandra Giannini

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