



Climates of anxiety: Comparing experience of glacier retreat across three mountain regions

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ABSTRACT

This paper explores the role of emotion in understanding why repeated and increasingly urgent warnings about the effects of global warming have failed to motivate significant actions to address it. It draws on a comparative anthropological study on perceptions of and responses to glacier retreat in communities in three glaciated mountain regions: the Cordillera Blanca in the Peruvian Andes, the South Tirol in the Italian Alps, and the North Cascades in the U.S. The massive retreat of mountain glaciers during the last half-century is one of the most visible and high confidence level indicators of global warming. Although glacier retreat is well documented scientifically in each of these regions, our study found that the level of concern about it varied widely between the three study sites. The paper begins with an explanation of the ecological model of emotion we are using and a consideration of emotions associated with glaciers historically. Next it describes the three study sites and the ways that residents of each site feel about the loss of glaciers and its effects. Finally, it draws on this comparative perspective and recent research from several social science disciplines on the role of emotion in human beliefs and behaviors to suggest ways that emotion can help explain the observed variation. The paper concludes by extending these suggestions to responses to climate change more generally.

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1. Introduction

The massive retreat of mountain glaciers in recent decades is one of the most visible and high confidence level indicators of global warming. The scientific consensus holds that global warming is caused by increased concentrations of greenhouse gases in the atmosphere resulting from human activities, and could bring about drastic and rapid changes in climate throughout the world that would affect the ability of humans and non-human species to survive on the planet. Repeated calls for immediate action to address global climate change have come from many quarters, however, to date, little broad-scale action has been taken. It would appear that, despite these warnings, many people, including world leaders, are not very concerned about climate change, or at least not concerned enough to take action (Moser and Dilling, 2007). As

a result, proponents of action on climate change seek to motivate people by providing more and better information and developing more effective ways to communicate it to the public. However, underlying these strategies are assumptions about human rationality that recent research on emotion in a variety of discipline has brought into question.

Focusing on the role of emotion, this paper explores the reasons why repeated and ever more urgent warnings about the effects of global warming have failed to motivate action on a large scale. It does so by drawing on the results of a comparative study by four anthropologists on perceptions of and responses to glacier retreat among communities in three glaciated mountain regions: the Cordillera Blanca in the Peruvian Andes, the South Tirol in the Italian Alps, and the North Cascades in the U.S. Glacier retreat is well documented scientifically in each of the regions. Studies show that glaciers in the Cordillera Blanca have shrunk by 27% in the last 30 years (UGRH, 2010); throughout the Alps, glaciers have been retreating since 1850 with very significant loss since 1985 (Paul et al., 2007); and in the North Cascades, there has been a 40–60% decrease the volume of glaciers since 1984 (Pelto, 2008). Of the three regions, glaciers in the North Cascades have the highest rate of loss

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(Kaltenborn et al., 2010). Our study used ethnographic methods to investigate the significance of glaciers in these communities and the level and kinds of concerns about their disappearance.

We found that, despite the strength and consistency of scientific evidence, the level of concern about glacier retreat, and climate change more generally, varied widely between our research sites. In this paper, we explore the role of emotion among the factors that may contribute to the observed variation. The comparative perspective offered by the study makes it possible to identify physical, economic, social, and political factors that differ between sites and to draw on recent work on emotion in several disciplines to consider how the interplay between these factors and emotional responses to them may affect perceptions of glacier retreat, and climate change more generally. We did not initially set out to study the role of emotion in explaining regional differences in levels of concern about glacier retreat. However, the exploratory nature of our research makes it possible to suggest explanatory theories which could be tested by further research. Our purpose is not to offer causal explanations, but to enhance the capacity to understand differences in individual and collective responses to climate change in a way that reflects the complexity, ambiguity and depth of human experience and enriches the discussion of possible responses.¹

A variety of definitions of emotion can be found in the social science literature on emotion. This variety may reflect attempts to encompass the as yet not well understood relationship between internal (biology, physiology, and cognition) and external (physical environment, social structure, and culture) influences on emotion. In this paper, we do not attempt to define emotion. Instead, following anthropologist John Leavitt (1996), we use “emotion” or “feeling” to mean what Western and Western-trained social scientists ordinarily mean when they think and talk about emotions, and what categories of other cultures they tend to “recognize” as emotion rather than something else: that is, “experiences that involve both meaning and feeling, mind and body, culture and biology” (1996: 516). Leavitt argues that: “It is their bridging character that makes emotion concepts both constantly apt and useful in our everyday lives and language and simultaneously ‘hard to think’ in most theoretical discourse” (1996: 517).

To overcome the division between nature and culture in most social science studies of emotion, and to encompass its bridging character, anthropologist Kay Milton (2002, 2005) suggests an ecological model of emotion in which emotions are treated as ecological mechanisms that operate in the relationship between an individual human being and their physical and social environment. Milton builds on the model of emotion proposed by neuroscientist Antonio Damasio (1999),² and draws on the work of psychologists who have argued that emotions play an important role in learning, to suggest three points in the emotion process at which learning can play a role: 1) we can learn to respond differently to specific stimuli; 2) we can learn to perceive bodily responses differently, and 3) we can learn to express the feeling differently. In the discussion that follows, Milton’s ecological model of emotion is helpful for understanding how emotion mediates learning about how to respond to the emerging physical and social phenomenon of climate change in different physical, social, economic, and political environments.

¹ In this goal, our study is informed by the approach taken by Sheila Jasanoff (2005) in her comparative study of the political reception of biotechnology in Britain, Germany, and the U.S.

² Damasio’s model distinguishes between emotions and feelings. He proposes that an emotion is an observable physical response to a stimulus, and a feeling is the internal perception of the emotion which is directly caused by it. Culture enters the model “at the point at which emotions are induced by various stimuli, which may be learned, and in the culturally variable ways in which feelings are expressed and acted upon” (Milton, 2005: 201).

We begin by examining the relationship between glaciers and emotion historically. Next we describe our research methods, sites, and findings. Finally, we show how recent work on the role of emotion in risk perception in psychology, and social science studies of trust can shed light on our results and on perceptions of and responses to climate change more generally.

2. Feelings about glaciers historically

Historically, glaciers have occupied an ambiguous position in the landscape of human emotion. Anthropologist Julie Cruikshank (2001, 2005) describes the ways that the oral traditions and narratives of native peoples of northwestern North America capture the accumulating, vanishing, and changing meanings associated with glaciers from the distant time of ice ages to the present era of parks. For them, glaciers continue to be part of a rich but uncertain social and spiritual world. They are considered sentient beings that smell, hear, are alert to the behavior of humans, and quick to respond to their indiscretions. Glaciers are feared, but, as with other sentient beings, it is also possible to negotiate with them. Awareness of their dislikes and ways of communicating helps to ensure safe passage across them and to protect villages from glacier advances and outburst floods. Cruikshank points out that the suppression of similar ideas in Medieval Europe made possible the rise of Western science, which was seen to be characterized by certainty and detachment from ideology and emotion, and expected to contribute to the advancement of human society.

Environmental historian Mark Carey (2007) investigated representations of glaciers in western European narratives going back to the 17th century. In the earliest of these, glaciers inspired fear, of cold, snow, and wild inhabitants, as well as of periodic advances or outburst floods that could destroy human communities. Glaciers were often written of as living things, indicating an understanding similar to that of northwestern Native Americans. The Enlightenment transformed glaciers into scientific laboratories, where, in the early 19th century Swiss naturalists established the occurrence of the Ice Age. This discovery inspired a new fear that advancing glaciers presaged a returning ice age, which lingered into the 20th century. In the second half of the 18th century, the influence of romanticism, which originated as a reaction to the Industrial Revolution, inspired perceptions of glaciers as sublime landscapes and symbols of wilderness, attracting mountaineers, tourists, and artists seeking awe-inspiring or physically challenging experience. Carey argues that the latter perceptions informed the U.S. government’s creation, beginning in the early 20th century, of important national parks to protect glaciated landscapes.

Today, glaciers contribute significantly both to the science of climate change and to its public awareness (Brönniman, 2002; Carey, 2007). According to Carey, climate change has conferred on them an iconic status. He finds traces of historical narratives of fear, respect, and awe in glaciers’ current representation as “endangered” in contemporary global warming narratives, with fears of menacing or advancing glaciers transformed into fears of their retreat, and suggests that their impending loss can evoke feelings akin to those for the loss of a living species such as the polar bear, of untrammelled nature, or of a valuable repository of scientific knowledge. However, he cautions that, because glaciers encompass so many diverse meanings, embedded within this endangered glacier narrative “are entangled historical views of nature, science, imperialism, race, recreation, wilderness, and global power dynamics” (2007: 502), and at its center are questions of power: “the power to define nature and, in turn, the power to create specific laws and policies (and not others)” (2007: 503).

The discussion of our study results in Section Four will reveal traces of these diverse narratives and feelings about glaciers in

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