Chapter 20
Perceptions of and Attitudes Toward Climate Change in the Southeastern United States

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Abstract Despite a global scientific consensus on the anthropogenic nature of climate change, the issue remains highly contentious in the United States, stifling public debate and action on the issue. Local perceptions of and attitudes toward climate change—how different groups of people outside of the professional climate science community make sense of changes in climate in light of their personal experiences and social, political, economic, and environmental contexts—are critical foci for understanding ongoing conflicts over climate change. Contributing to a growing body of literature on the social science of climate change, we use an ethnographic approach to examine these perceptions and attitudes in three sites in Georgia across the urban–rural continuum. Our research demonstrates that the way people view the concept of climate change, its potential effects, and mitigation strategies are mediated by a range of factors, including political and religious affiliation, race and ethnicity, personal experience, economic status, environmental context, media exposure, and sense of community and place. We argue that an ethnographic approach that explores the perceptions

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and attitudes of specific communities in detail can add nuance to the broad-scale surveys that have dominated the field to date.

Keywords Climate change • Perceptions • Social dimensions • Southeastern US • Georgia

Introduction

Climate scientists overwhelmingly agree that the climate is changing in ways unprecedented in climate cycles over the past 600,000 years and that such change is in part anthropogenic (IPCC 2007). However, climate change remains a contentious issue, especially in the United States (Antonio and Brulle 2011). Mainstream news outlets present conflicting views about the reality of climate change, and surveys indicate that in the US, belief in climate change has decreased slightly over the past decade (Boykoff 2011; Hulme 2009; Malone 2009). Hoffman (2012: 33) observes that the increased polarization of attitudes toward climate change has stifled the robust public debate necessary for mitigating, coping with, and adapting to the predicted changes in climate.

The fields of social science are uniquely positioned to contribute to an understanding of contemporary climate debates (Barnes et al. 2013; Crate and Nuttall 2009; Kempton et al. 1996). Local perceptions of and attitudes toward climate change—how different groups of people outside of the professional climate science community make sense of changes in climate in light of their personal experiences and social, political, economic, and environmental contexts—are critical foci for climate change research (Crate 2011; Roncoli et al. 2009). Vedwan and Rhoades (2001: 109) argue that "understanding local perceptions of the relative amounts, direction, and impact of climate change are key to arriving at an understanding of patterns in human responses."

Recent investigations of perceptions of climate change have used surveys to examine the views of large populations (e.g. Leiserowitz and Smith 2012). While highly useful, by nature, these surveys cannot capture the nuance of social context and sense of place, which researchers have found influence people's understandings of climate change (Crate and Nuttall 2009; Strauss and Orlove 2003). Anthropologists have suggested that an ethnographic approach can contribute the nuance absent from larger-scale methods (Crate 2011; Roncoli 2006). To date, ethnographic studies of climate change have focused primarily on rural contexts in the Global South (e.g. Carey 2010; Strauss and Orlove 2003; Vedwan and Rhoades 2001). However, researchers have recently expanded their view to include urban and peri-urban environments in the Global North (Crate 2011; e.g. Norgaard 2011; Schelhas et al. 2012; Stone 2012).

Anthropologists can contribute to an understanding of how people perceive and respond to climate change by elucidating the ways that personal observations are shaped by cultural values, political relations, power dynamics, and social status and

by examining the ways that scientific understandings are transformed when they enter other social contexts (Barnes et al. 2013). For example, earlier research by Kempton et al. (1996) found that publicity about global warming provided people with a framework through which they interpreted their personal observations of weather such that they often reported personal observations of global warming even when actual changes could not be observed in weather records. More recent research, however, focuses on climate change denial and how it may be socially organized to protect individual identity, sense of empowerment, and the maintenance of culturally produced conceptions of reality (Antonio and Brulle 2011; Norgaard 2011). Even natural resource-dependent communities, who are often seen as being keenly aware of their environment, see weather changes through cultural lenses and draw on diverse cultural models from domains beyond the strictly environmental, for example media discourses or popular culture, to interpret these observations (Barnes et al. 2013; Roncoli et al. 2009). Norgaard (2011) emphasizes the social nature of these processes, highlighting the importance of studying perceptions in a community context rather than focusing on individuals through surveys. An ethnographic approach to perceptions of climate change can reveal the ways perceptions are shaped by these diverse social, cultural, and political interactions and thereby guide constructive intervention in societal debates (Barnes et al. 2013).

This study builds on recent ethnographic analyses of climate change in the complex social landscapes of the US and the Southeast in particular, a region largely absent from the climate change literature (cf. Crane et al. 2010). We present the preliminary phase of a broader project to integrate qualitative and quantitative approaches to social vulnerability and climate change in Georgia. We focus on three sites that represent much of the social, economic, and environmental diversity found in the contemporary Southeast. In the urban Cascade Road Corridor of Atlanta, suburban Norcross (adjacent to Atlanta), and rural Jasper County communities, we examine: (1) climate change belief and skepticism; (2) observed changes in weather and climate; (3) effects experienced and anticipated; (4) perceived causes; and (5) attitudes toward mitigation.

As survey-based studies on public perceptions of climate change have found (Leiserowitz and Smith 2012), we also find a continuum of acceptance of the scientific explanations for climate change, from "believers" to "skeptics" to "deniers." In keeping with the large-scale surveys, we find that these categories of belief in climate change are likely to fall along political and social lines, with more acceptance among Democrats and racial and ethnic minorities and less among Republicans and the racial majority. However, our research demonstrates that attitudes toward the concept of climate change and its potential effects are also mediated by personal experience and religious affiliation, environmental context, media exposure, and sense of community and place. These influences not captured to date in public surveys or explored in depth in climate research in the Global North, and they complicate the generalizations of the categories of belief. Further, we find that skepticism about or rejection of the concept of anthropogenic climate change is not a result of lack of knowledge about the scientific explanation of climate change, so simply providing more climate education is not likely

to increase belief in climate change or spur individual or communal actions to mitigate it. Many intertwined factors influence public perceptions of climate change, and our preliminary results show that an ethnographic approach can reveal connections between experiences, beliefs, and ideas that can complement and add nuance to survey results.

Methods

This qualitative research project used semi-structured interviews, focus groups, and, to a lesser extent, participant observation. Sites were selected to represent the range of urban to rural environments that characterize Georgia. Within each site, we endeavored to reach a heterogeneous group of participants based on recommendations from key informants and referrals from other interviewees. Initial contacts were made with local non-profits, government representatives, and churches. We followed up with focus groups and interviews aimed at representing the diversity in each community. The same interview guide was used at all sites, but the ways that we met with and talked to people were adapted to local conditions and opportunities. Interviews and focus groups began by eliciting impressions and histories of participants' communities, followed by questions about resiliency, awareness, and understanding of weather and climate change and its effects, and sources of information about climate change. To gain perspective into community relations and to recruit interview and focus group subjects, participant observation was carried out at church ceremonies, at informal gatherings in mobile home parks, and community organization meetings. We recorded focus groups and interviews where possible and took notes. Transcripts and field notes were coded, organized, and analyzed thematically using Nvivo qualitative analysis software.

Site Descriptions

The Cascade Road Corridor follows an 11-mile stretch of road in southwest Atlanta. It begins close to the city center in the West End neighborhood and extends on a diagonal through business and residential areas, from lower-income rental properties and public housing, to small residences, and multi-million dollar mansions in gated complexes. The 14 census tracts encompass approximately 32 neighborhoods and subdivisions with a population of approximately 58,000 (US Census Bureau 2010a). The Cascade Corridor population is 97 % African American and economically diverse, with the poorest residents closest to the city center and the wealthiest out toward the intersection of Cascade Road and Interstate 285, or "The Perimeter" (US Census Bureau 2010a). We conducted six focus groups and interviewed 30 individuals. All but three participants identified as African American.

The city of Norcross lies in western Gwinnett County in metropolitan Atlanta. The city transitions from suburban developments and shopping centers in the west to large-lot subdivisions in the east. Norcross has a diverse population of just under 10,000 inhabitants, about 40 % of whom are Latino, 25 % white, 18 % black, and 15 % Asian (US Census Bureau 2010b). Our research focused on the Latino population, with sites including a mobile home park, an apartment complex, two elementary schools, and a community-based Latino organization. We conducted six focus groups and 15 interviews, which were conducted in Spanish where necessary.

Jasper County is located about 60 miles southeast of Atlanta. While there are some bedroom housing developments in the northern part of the county, from which some residents commute to jobs in Atlanta, the remainder of the county is rural with two small towns, Monticello and Shady Dale. The agrarian economy focuses on cattle and timber/pulp production. The population of 14,000 is approximately 75 % white, 22 % black, and 2 % Latino (US Census Bureau 2010c). We conducted one focus group and 18 interviews in Jasper County.

Climate Change Belief and Skepticism

In the United States, where climate change has become a politically polarized and contentious issue, any discussion of how people perceive local changes in weather and environment must begin with an examination of people's attitudes toward the concept of climate change advanced by mainstream science. We found that avowed belief or skepticism in the concept of climate change influenced where participants sought information about climate and provided a lens through which they interpreted their personal observations, perceptions of risk, and attitudes toward climate change mitigation.

All but one of our participants in Cascade and Norcross expressed at least some belief in the scientific concept of climate change.[1] While some voiced a lack of specific scientific knowledge regarding climate change, most people—especially, but not limited to, those with college and post-graduate levels of education—seemed comfortable using the basic terms of climate science, making reference to the greenhouse effect, ozone layer, and greenhouse gases. Those who subscribed to scientific explanations connected their personal observations with broader scale phenomena such as melting glaciers and sea level rise, which they understood as the products of global fossil fuel consumption. They asserted the authoritativeness of scientific information, which they gleaned from television, newspapers, the Internet, and personal research.

[1] It is important to note that the widespread belief in and concern for climate change in Cascade and Norcross, and to a lesser degree Jasper County may not be representative of the populations of these areas as a whole. Participation in the research was based on personal interest, which may have skewed the sample. Participants often remarked that their level of concern was not shared by many in their communities.

For most Cascade residents and some in Jasper County, climate change belief had strong political associations with the political left through the work of former Vice President Al Gore. The population of Cascade is overwhelmingly aligned with the Democratic Party and participants told us that such connections encouraged their acceptance of the climate change concept. Political affiliation did not seem to influence residents of Norcross, who tended to view themselves (perhaps because of their often ambiguous immigration status) outside of the electoral political sphere.

We encountered the most striking division on the concept of climate change in Jasper County, where five out of 18 interviewees and five out of seven focus group participants opposed the standard scientific explanation of climate change. For most, though not all participants, their beliefs had strong political associations (with believers, like those in Cascade, tending to identify with the political left and skeptics with the right). Two skeptics in Jasper fell outside the political divide, preferring to attribute any potential change to divine intervention or the manifestation of Biblical prophesy. Some skeptics denied any change while others felt that if change was occurring (and they were not definitively saying that it was), then it was likely due to natural, not anthropogenic, causes. "They're trying to blame that [climate change] on fossil fuels, which I don't agree with," one farmer told us. He and others referenced politically conservative talk shows and news programs that supported the skeptical perspective. Among several of the skeptics, the concept of climate change was inextricable from what they perceived as unpalatable social, ethical, and economic ideologies and policies prevalent in more urban (and implicitly more politically liberal) communities, including environmentalism, animal rights, social welfare, and economic regulation.

Observed Changes in Weather and Climate

While pointing out the difficulties of identifying broad trends and the challenges of disentangling personal experience from media exposure, residents across sites described similar changes in weather patterns over their lifetimes. From the concrete city-center neighborhoods and verdant subdivisions of Cascade, to the trailer parks and strip malls of Norcross, and the cattle pastures and pine plantations of Jasper County, participants described rising temperatures, weather and seasonal unpredictability, increased drought, and more frequent severe storms.

As examples of change, Cascade residents pointed to the loss of clear divisions between seasons, the increasing absence of iconic flora and fauna, and increased incidence of storms. In Norcross, most participants had migrated to the area within the last 10–20 years from a variety of locations in Latin America and noted that conditions in Norcross paralleled the increasing unpredictability and warmer temperatures occurring in their countries of origin. Many emphasized the diminishing frequency and intensity of cold weather to illustrate their descriptions of the weather unpredictability and warming trend. Norcross residents also described

increased incidence and severity of droughts, as manifested by shrinking lakes and tree and vegetation die-off around their homes as well as an increase in extreme weather events such as tornadoes that threatened their trailer homes.

Climate believers in Jasper County also emphasized changes in seasonality. Drawing on dates when certain plants bloomed or leafed out, they observed that summer was becoming longer and that there was less distinction between seasons. Respondents also identified the increased incidence and severity of both drought and tornadoes in recent years. Local officials said that between the lack of rain and increased commercial and household water use, they were facing serious challenges in managing a dwindling water supply. As evidence of the drought, participants like those in Norcross pointed to the drying of creeks and reservoirs, the lack of sufficient forage for cattle, and the necessity of drilling deeper to find water for wells. Several participants felt that tornadoes posed an increasing threat to the county, especially as public resources have dwindled.

Skeptics in Jasper County did not necessarily deny the presence of unusual weather conditions, but were largely unwilling to connect those conditions with broader trends, pointing to times in the past that were hotter or drier than the present to illustrate natural climate variability. As one government official observed, "People notice differences in the weather, but they don't marry it with the concept of climate change." Some felt that if change was occurring, then it was likely due to natural, not anthropogenic, causes.

Effects Experienced and Anticipated

Respondents expressed varying levels of concern about the effects of these changes on their lives and livelihoods in the present and in the future. While few participants felt that their lives had been deeply affected by climate change to date, participants in all three sites recognized the potential of climate change to transform their daily lives and economic opportunities over time, exacerbating existing economic disparities. Though participants shared some concerns, site-specific economic, environmental, and housing conditions tended to influence the range of effects and concerns identified.

For residents in Cascade, Norcross, and Jasper County, an increase in energy bills was the most commonly observed present effect of higher temperatures. During times of extreme heat, all respondents noted that they depended on their air conditioning units to stay cool. While higher energy expenses were not of major concern for upper-middle class or wealthy individuals, those with more limited means had less capacity to absorb the extra expense. Not only do lower income households have fewer resources to pay the bills, but their consumption costs are higher because they tend to live in poor quality, energy inefficient housing.

Most Cascade participants reported changing their daily schedules and activities to avoid heat exposure. For some, heat was merely a discomfort. Elderly respondents and those with health problems were more seriously affected. Several

older people noted that the heat prevented them from leaving the house. Heat also exacerbated the experience of allergies and asthma, common afflictions in urban areas such as Atlanta, posing severest risk for the very young, elderly, and poorest segments of the population.

Sustained drought, elevated temperatures, and heavy storms were viewed as threats to the Cascade Corridor's iconic tree canopy, widely valued for its contribution to residents' sense of place and community. Vegetable gardens, important dietary supplements for several participants, have also fallen victim to increasingly dry and hot conditions.

Increased frequency of tornadoes and strong storms that felled trees and caused flooding held particular menace for those living in mobile homes in Norcross. Several respondents described harrowing encounters with severe storms, where strong winds tore away pieces from their trailers and floods threatened to carry their homes away. Government officials in Jasper County similarly expressed their fears regarding severe storms. The local government's dwindling budget in recent years, they explained, increased Jasper County's vulnerability to tornadoes. An official said, "A tornado would kill us…This is a small, poor town. We're on a thin edge."

Residents in Norcross and Jasper County expressed concern that erratic temperatures, droughts, and extreme weather events would impact employment opportunities and production in the construction and agricultural sectors. For now, participants in Norcross felt that such effects were minimal, but parents were worried for their children's prospects. Climate believers in Jasper County, an area reliant on agricultural production, felt that changes in climate were already seriously affecting agricultural production. "We're not producing the crops like we [do] normally," one woman observed. Between the changes in temperature and season, ongoing drought, and the arrival of new invasive weed and pest species, the mainstays of the economy—row crops, cattle, and timber and pulp production—were becoming increasingly precarious.

The climate skeptics took a different perspective on the phenomena that concerned climate believers. Without belief that the climate would continue to get hotter and drier, skeptics tended not to be as worried about the future. The farmers among them did not deny the effects that intense heat or drought might have. Instead, they preferred to take a deeper historical view: "There's nothing new that's [not] been going on for tens of thousands of years." Several challenged the notion of climate change by referring to times of similar hardship in the past, indicating that they had seen weather variability long before the popularization of climate change.

Perceived Causes

Consistent with the standard scientific explanation of climate change, participants in Cascade, Norcross, and climate believers in Jasper County viewed the changes they had observed as anthropogenic, or as one person in Cascade put it, "things we're doing as humans." Participants in all three sites agreed that such factors were occurring at multiple scales.

On the individual or household scale, people noted that heavy reliance on cars and air conditioning and lack of household recycling contributed to climate change-inducing pollution. Some respondents felt that the culture of consumption and waste in the US influenced their peers' ecologically damaging behaviors. One respondent in Norcross originally from Mexico observed that the "US consumes all the natural resources they can;" another concurred, "In my country water is very valued, but here it is wasted."

On a local scale, participants in Cascade pointed to recent residential development as a contributor to rising temperatures. While earlier subdivisions left some trees standing to preserve the urban canopy, developers now "clear out all the trees." A subdivision resident described how 10 years ago she used to be able to detect a drop in temperature on her drive home from work in the city-center to her well-wooded neighborhood on the outskirts of Cascade. Now that many of the trees have been replaced with houses, she can no longer feel the change.

To most participants across sites, however, the most significant contributor to climate change came from large-scale industrial emissions. Participants in Cascade and Norcross mentioned the factories and power plants that are scattered across the urban landscapes surrounding their homes. Some in Cascade and Norcross connected industrial production with the degradation of the ozone layer. Emphasizing the disproportionate contribution of emissions by large corporations, respondents in Cascade, an area noted for its historical role in the Civil Rights Movement, framed climate change as a social justice issue. Referencing the history of corporations concentrating environmental hazards in marginalized communities and lax regulatory policies associated with the political right, an urban food activist described climate change as "not something that's just happening to us. It's being done to us."

In two focus groups and two interviews in Cascade, older participants proposed the notion that various kinds of scientific intervention had contributed to climate change, a view we did not encounter in Norcross or Jasper County. An older woman explained her view that "The climate now is not natural…They've [scientists] been experimenting for years on how climate can be manipulated in warfare." Space exploration and cell phone technology were also seen as possible influences on climate. Those who voiced such views qualified them as speculation, were vague as to the specific nature of the experiments or technological mechanisms, and were not confident in their scientific literacy.

Attitudes Toward Mitigation

Participants indicated that accepting the scientific concept of climate change entailed embracing the anthropogenic nature of such change and, by extension, human capacity to mitigate the causes of such change. Aside from recycling, reducing waste, and reducing their driving, participants identified few options for climate change mitigation on the individual scale, and most expressed little inclination to dramatically change their lifestyles to address climate change.

Despite the relatively high degree of awareness and concern about climate change, participants expressed a feeling of disconnection between their understanding of climate change and their personal lifestyle decisions. Wealthier individuals observed that they were able to draw on their personal financial resources to insulate themselves from the effects of climate change. Though they were uncertain of the future, "until it gets extreme," as one Cascade woman said, she and her peers were unlikely to substantially reduce their consumption. Another participant in Jasper agreed, noting that "It's a hard sell to ask people to change their creature comforts."

For lower-income individuals in all three sites, respondents said climate change and other environmental concerns were beyond the purview of their daily economic struggles. One woman who lived in a low-income housing complex in Cascade said, "people are so caught up in 'I have to eat today,' so global warming is. That's off. I gotta eat today, I gotta put gas in my car, I gotta get my kids to school. I gotta make sure no one hits me over the head." Environmental concerns like climate change, in the words of one Cascade social activist, were "for rich white folks who don't have anything else to do."

While respondents in Cascade, Norcross, and Jasper County reported taking steps to reduce their carbon footprints, they questioned the impact potential of their actions considering that the majority of emissions came from industrial activity. They argued that meaningful change must happen at a larger political scale. As a Norcross woman put it, "It doesn't matter what we do individually if the big companies do not change their ways. The change needs to be more dramatically on their part since the changes are rapid and dramatic." Left-leaning individuals doubted that the US government would be able to initiate large-scale industrial regulations, citing the close relationship between corporations and government actors.

For the climate change skeptics in Jasper County, the path ahead was straightforward: nothing needed to be done to mitigate climate change. Issues of climate, in their view, were beyond human control, for better or for worse. One farmer said: "I don't think that it's a thing we should be concerned about at this point… We don't call the shots. I don't think we can change it." Other religiously inclined skeptics took comfort in this lack of human influence, noting that, as one interviewee put it, "The good Lord is in control."

Conclusions

As Braman et al. (2011) observe, the enduring controversy over climate change is commonly attributed to the public's limited knowledge of science (e.g. Ungar 2000). This preliminary investigation in three locations in Georgia suggests that, while many were uncertain of the specifics, most people we spoke to across social, economic, and urban–rural continua possessed a basic understanding of climate change as elaborated by climate scientists. Even those who

rejected the concept of climate change expressed familiarity with the scientific argument. Further, our findings support recent social science research that has shown how attitudes toward the concept of climate change and people's willingness to adopt mitigation strategies are not a simple function of scientific literacy, but are also dependent upon both the social and natural context of community (see Barnes et al. 2013; Crate 2011; Braman et al. 2011; Roncoli et al. 2009). In terms of adopting mitigation strategies, our data suggest that Cascade Corridor and Jasper County residents, in particular, are likely to face constraints in adopting mainstream prescriptions. Well-intentioned interest groups, for instance, prescribe alternatives to the private automobile—walking or public transportation—as mitigation tactics. However, these options may either not be available in rural settings (Jasper County) or deemed unacceptable by middle-class, urban residents because of their association with crime. While a large literature has addressed climate change perceptions and awareness, relatively little research has focused on place-based factors that may encourage or limit people's ability to respond to climate change at the local level, particularly when these actions take place outside of the house and involve transportation alternatives.

In all three sites, individuals described how their understandings were formed through the interplay between their personal experiences and observations and information derived from a variety of sources, including community leaders, social relations, and broadcast media. Nevertheless, belief/disbelief in the scientific concept of climate change did seem to act as a powerful frame for how people evaluated their experiences and other information sources. Respondents throughout Cascade, Norcross, and Jasper County, regardless of their position on climate change, identified the same recent weather phenomena: high temperatures, unpredictable seasonality, drought, and severe storms. Whether they viewed such phenomena as part of global-scale trends, how they attributed causation, and what they felt should be done seemed to depend on their belief in the scientific concept of climate change. In Cascade and Jasper County, climate belief was incorporated into broader social and political issues, where taking one stance or the other was fraught with cultural significance.

Due to the time and resource constraints of this exploratory phase, we were not able to represent the full diversity of views in the large and diverse research sites or put participant observation to its fullest use. The opportunistic way participants were solicited may have resulted in the under- or over-representation of certain views or certain categories of people. Nevertheless, this research forms an important basis for future research in the Southeast. Our findings suggest the diversity of viewpoints found within the climate believer/skeptic categories and the ways that climate belief and skepticism become intertwined with pre-existing cultural narratives and conflicts, in particular, deserve further scrutiny. As policy makers and scientists devise responses to climate change, we argue that failure to recognize and grapple with the complex social processes that produce public understandings of climate change risks exacerbating the cultural polarization that has to date prevented meaningful public debate and action.

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