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Telling Stories about Climate Change

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Recent years have seen many calls for climate scientists to become better storytellers. Storytelling has intuitive appeal: In a world made increasingly nonsensical by climate change, storytelling helps make sense of the world, as it always has. Yet, despite calls for climate scientists to be better storytellers, there is no consensus about what counts as a story or about how scientists should tell stories. This article responds to calls for climate scientists to become better storytellers. Specifically, it relates three lessons drawn from extensive interviews and fieldwork with storytellers in Appalachia and Alaska, in which they responded to questions regarding what advice they would give to scientists struggling to communicate their research. The three lessons center on the importance of context and connection, the utility of ambiguity, and the importance of listening, as well as speaking, to intended audiences. **Key Words:** applied geography, climate change communication, public outreach, science communication, storytelling.

近年来人们越来越希望气象科学家能够成为更好的故事讲述者，其故事讲述要有一种直觉的吸引力：气象变化让我们的世界变得越来越复杂，故事讲述必须要让世界理解这种复杂性。然而，尽管大家普遍认为气象科学家需要成为更好的故事讲述者，但关于这些故事中需要包含哪些内容或科学家讲述故事的方式，却众说纷纭。本文对要求气象科学家成为更好故事讲述者的呼声做出回应。具体而言，本文作者对阿巴拉契亚和阿拉斯加故事讲述者进行的大量采访，开展了大量式地工作，在这期间，作者请他们为那些苦于如何阐述自己研究的科学家提供一些建议，对此，他们给予了答复。在此基础上，作者围绕着实际背景和联系、歧义的实用性、倾听目标观众并向其讲述的重要性，总结了三条经验教训。**关键词：**应用地理学，气候变化沟通，公众推广，科学沟通，故事讲述。

Los años recientes han visto numerosos llamados a los científicos del clima para se conviertan en mejores narradores de historias. La narración tiene un atractivo intuitivo: En un mundo que se ha vuelto cada vez más absurdo a cuenta del cambio climático, la narración ayuda a darle sentido, como siempre ha sido el caso. No obstante, pese a los reclamos que se les hace a los científicos para que sean mejores narradores, no hay consenso de lo que cuenta como historia, o sobre cómo deberían los científicos contar sus relatos. Este artículo responde a los reclamos que se les hace a los científicos de ser mejores en ese sentido. El artículo considera específicamente tres lecciones sacadas de recientes entrevistas y trabajo de campo con cuentistas de los Apalaches y Alaska, en donde ellos respondieron a preguntas sobre qué consejo darían a los científicos que luchan por comunicar el fruto de sus investigaciones. Las tres lecciones se centran en la importancia del contexto y la conexión, la utilidad de la ambigüedad, y la importancia de escuchar, lo mismo que de hablar a presuntos auditorios. **Palabras clave:** compromiso público, comunicación científica, comunicación del cambio climático, geografía aplicada, narración.

In an article critiquing the March for Science, Young (2017), wary of how the march could make issues of climate communication more difficult, argued, “We need storytellers not marchers.” Although marching certainly has its place, stories are necessary for relating to people who are otherwise already opposed to climate science. Young’s intervention takes place alongside countless other articles, both popular and academic (see MacDonald et al. 2013; Tschaket et al. 2019), projects (e.g., The Story Collider), and conferences all calling for climate scientists to be better storytellers. Importantly, these interventions are taking place in a national context in which science—and climate science, specifically—has come under public scrutiny. Although this scrutiny stems from U.S. residents, it is amplified globally given the disproportionate role of the United States in both contributions to global climate change and influence over policy and action (Norgaard 2011; Roberts 2011).

Despite various approaches to climate change communication, such as the information deficit

model (Callison 2014), the fear and security argument (O’Neill and Nicholson-Cole 2009), or the economic argument (Morton et al. 2011), research has shown that efforts to communicate climate science based on such models largely do not work (Bernauer and McGrath 2016; Palm, Lewis, and Feng 2017). With regard to climate denialism, there has been much research that suggests that it is not as straightforward as a person simply not “believing” in the science. Rather, there are significant political, cultural, social, and psychological barriers that mitigate a person’s relationship to climate awareness (Cameron, Mearns, and McGrath 2015; Lee et al. 2015). Given storytelling’s ability to address and navigate complex issues like climate change in culturally accessible ways (Rice, Burke, and Heynen 2015) and its unique relationship to human psychology (László 2008), especially when considering people’s environmental perceptions (Lejano, Ingram, and Ingram 2013), it seems that the draw to storytelling as a form of climate communication is well founded. Although there is much written about storytelling and its potential

applications, including multiple sessions at the 2019 annual meeting of the American Association of Geographers and recent calls for more critically engaged storytelling in this journal (see Alderman and Inwood 2019), there has been little research that connects storytelling specifically to climate science and climate communication. This article responds directly to these calls by asking what kinds of advice practicing storytellers would give climate scientists to help them tell better stories about their work. The results, discussed here, culminate in three lessons: (1) context and connection matter, (2) ambiguity is a tool, and (3) climate scientists need to listen if they want to be listened to.

A Case for Climate Stories

Following from research that argues for a more culturally inclined approach to climate studies (Wisner 2010; Adger et al. 2013), climate scientists have recently turned to the arts and humanities as a way of engaging more emotionally with broader audiences (Wang et al. 2018). Artistic interventions often attempt to make climate change more visceral for people largely removed from its impacts (Renssen 2017), allowing for a more personal understanding of abstract issues like thawing permafrost and melting sea ice. Although important for reaching certain populations, many of these interventions take place in art galleries and museums in major cities, making them culturally and geographically inaccessible to many, especially rural populations. Storytelling, on the other hand, is accessible. It can happen anywhere.

Humans make sense of the world through storytelling (László 2008; Gottschall 2013). Relationships with both the human and nonhuman world are bonded through networks of stories (Lejano, Ingram, and Ingram 2013). Much contemporary scholarship claims to address or use storytelling in some way; however, there is no clear consensus as to what it means to do storytelling or how to operationalize it in research. Storytelling has been studied from various angles (Cameron 2012): psychological development (László 2008), oral histories (Smith 2012), knowledge transmission (Kruikshank 1998; Cameron, Mearns, and McGrath 2015), prefigurative politics (Gibson-Graham 2008; Haraway 2016), analytical tool (Roe 1994; Jones, Shanahan, and McBeth 2014), discursive analytical practice (Lorimer 2003), and even as a form of material analytical practice (Cameron 2016), to name only some. Storytelling has also been used in reference to global events. For example, scholars have recently argued that the stories told about the apparent Anthropocene matter for how it is understood and politicized (Veland and Lynch 2016) and that stories have a fundamental role to play in our collective ability to address the complex realities of climate change (Ghosh 2016). In the same

way that there are competing definitions of what it means to do storytelling, there are also many claims about what storytelling does in practice.

Storytelling engages directly with the politics of perception, identity, and imagination (Gottschall 2013). It is useful for communicating and translating complex realities across different audiences (Cameron, Mearns, and McGrath 2015). It is often derived from and enacts counterepistemological and ontological projects (Blaser 2010). It is a democratic form of information creation and sharing (Rice, Burke, and Heynen 2015) and can be a culturally appropriate way of representing multiple truths in which the storyteller, rather than the researcher, retains control (Bishop 1999). Further, as an art form, it is able to respatialize and retemporalize a listener's experience of the world (Hawkins and Kanngieser 2017). If climate change is difficult to perceive because of its spatial and temporal span (Markowitz and Shariff 2012), then it seems that storytelling has much to offer in the study of climate change specifically (Moezzi, Janda, and Rotmann 2017).

Although there has been much written about storytelling's capacity for thinking about and communicating differently about issues like climate change, it should also be noted that storytelling can potentially be manipulative. Salmon (2017) argued that the rise in interest in storytelling maps onto the conditions of late-stage neoliberalism, as evidenced in at least one way by the increased use of storytelling in corporate marketing strategies. Due in part to antibrand movements in the 1990s, corporations were forced to think differently about their relationships to consumers in the new millennium. The promises of neoliberalism—of ultimate freedom of personal choice—began to backfire on corporations as they lost the loyalty of their customers. Salmon (2017) noted, "In less than fifteen years, marketing has moved from products to logos, and then from logos to stories, from brand image to brand story" (24). Corporations turned to stories to connect with consumers, invoking a sense of authenticity by aligning with consumers' personal values. It is in the same social, cultural, and political context in which there has been a rise in the global spread in authoritarian populist politics (Scoones et al. 2018; McCarthy 2019). This shift is tied to a pervasive sense of hopelessness and fear attributed to multiple forms of crises. People are drawn to these leaders because they are perceived as authentic, endearing themselves to their constituents through storytelling (Montgomery 2017; Salmon 2017; de Vreese et al. 2018). This sentiment—the desire for something genuinely authentic—was echoed by many interviewees in this project when asked why they were interested in storytelling events. Given the deeply emotional elements of storytelling and given how storytelling has been used by corporations and politicians, it is critical to note that there is a real

potential danger in associating climate science with storytelling. On the one hand, in a context where climate science is already under increased scrutiny, it is critical that scientists are taken seriously. Further, and on the other hand, other sources of climate knowledge with ulterior motives, such as the organization Friends of Coal that has a large presence in Appalachia and is well known for climate denialism, are also telling compelling stories. It is with this tension in mind that this article argues for climate scientists to become better storytellers in the hopes of telling better, more convincing stories about climate change before others do.

Methods

The term *storytelling* is widespread but rarely precisely defined, running the risk of meaning everything and nothing. Amidst competing definitions, though, there are people who have been practicing storytelling for decades, often as part of centuries-old traditions, and who identify as storytellers. Within the storytelling community, there is discrepancy between different approaches to storytelling, but there is a shared sense that storytelling is, and has always been, a persistent part of human history and that it is critical for addressing many social concerns, climate change being one of them discussed in this project.

Research for this article is based on extensive fieldwork that took place over twelve months in Appalachia and Alaska, two regions that are climatically precarious, economically bound to the potential impacts of a changing climate through deep ties to fossil fuel industries, and culturally rich in storytelling traditions. More than fifty semistructured interviews were conducted with self-identified storytellers who were contacted through sustained engagement with six organizations—three in each region—that do storytelling work, albeit each one practicing differently. Of the three organizations based in Appalachia, one organization is a guild for storytellers, providing access to a network of tellers from different backgrounds (e.g., folklorists, balladeers, etc.) who work across the region; another organization was founded at the peak of the U.S.-based folk revivalist movement in 1973 and has been hosting an internationally attended storytelling festival since; and the final organization has been collecting stories from their community as a part of their ongoing mission to preserve Southern Appalachian culture since 1966. Of the three organizations based in Alaska, one organization works with indigenous communities in the Arctic to document their experiences of climate change (among other shifting realities); one organization, founded in 1988, houses an archive of multiple kinds of oral histories, much of which are story based and come from both Native and non-Native communities; and another

organization focuses more explicitly on personal storytelling, similar to more contemporarily recognizable storytelling projects like *The Moth*. Semistructured interviews were conducted with members of each of these organizations. The interviews typically lasted from sixty to ninety minutes and focused largely on five questions:

1. When did you begin identifying as a storyteller or become interested in storytelling?
2. How do you define storytelling?
3. Why do you think storytelling is important?
4. What do you hope people take away from your stories?
5. What kinds of advice would you give climate scientists who want to be better storytellers?

In addition to having different approaches to storytelling work, these organizations span significant climatic variability (from temperate rain forests in West Virginia to Arctic Alaska) and span different cultural, economic, and social spectrums. Importantly, both Appalachia and Alaska are experiencing profound changes due to warming temperatures and are also key sites for climate denialism. In a state like West Virginia, climate denialism can, at least superficially, be tied to the perceived relationship between declining coal jobs and increased environmental regulations. In Alaska, where climate change is perhaps the most severe in the United States, one of the newly appointed state government's first orders was to dissolve its climate advisory board and fire many employees associated with it. Storytellers in these communities, then, are well suited to provide advice for climate scientists who are trying to relate their research to broader audiences. The following lessons work in unison, each one reinforcing the others.

Telling Better Stories: Three Lessons for Climate Communication

Context and Connections Matter

Although most U.S. residents are at least aware that climate change is taking place, a very large number of them remain confused or mistaken about what kinds of changes are taking place, where they are taking place, and who or what is driving these changes (Marlon et al. 2016). Researchers have shown that difficulties in understanding climate change are partly due to many of the phenomena described by the term being so abstract (Markowitz and Shariff 2012; Leombruni 2015; Chu and Yang 2018; Mildenberger, Lubell, and Hummel 2019).

Storytelling relies on abstraction to some extent, but a well-crafted story makes sense of abstraction through ties to context.

According to research participants, a storyteller's job is to communicate a truth, something that is meant to be universally accepted. To approach a universal truth, however, the teller has to find ways to connect with people through "whatever's going on," as one storyteller noted (W1 2018). In other words, the teller needs to find ways to wrap a presumably universal truth in something specific, connecting that truth to the listener's contextualized experiences. Note that context here does not necessarily mean personalized, even if the personal is often a great place to start. Context can also be an understanding of collective experience (e.g., unemployment trends among coal miners). Following from other climate communication researchers, knowing the audience is key (Leiserowitz et al. 2016). Knowing the audience and speaking directly to their contextualized experiences is different, though. A storyteller's work is to be deeply embedded in a community, even if the teller is not a part of that community. Tellers invest themselves; they are accountable to their community of listeners. Once an understanding of community is established, the teller is then able to begin crafting a story around a truth using contextualized specificity. Regarding abstraction, then, the storyteller uses it to his or her advantage. As one storyteller put it, "The beauty of story is that the individual represents the macro. ... It is through the personal that the bigger picture is seen or experienced" (W6 2018). They hold the contextual—personal or collective—in tension with the presumably universal, navigating and using the complexities of abstraction as a function of their craft. When done well, a story holds listeners in a similar tension, between engaged and receptive to new ideas.

Regarding climate research, a storyteller had the following to say:

I wouldn't take the route of, "Let's tell what you have to say as a story, so that other people can understand it." I would take the route of, "We need to build a community to trust you, and we're going to use story to do that ... because story builds community, and it keeps communities together. ... Once the community is established, then we can begin to address issues that are pressing." (W4 2018)

Here, the storyteller avoids the typical information deficit model that climate communication researchers have debunked. Rather, he insists on the need for building community first and foremost. Once the community is established—once attention to and deep understanding of context is brought into focus—the teller is then able to address pressing

issues. In the case of climate change, these pressing issues are myriad and all paramount. For example, an interviewee in West Virginia discussed his experience in coming to terms with climate change after a major flood event devastated his community in 2016. Prior to the flood, he was skeptical of climate change, but now he feels compelled to use his craft to better educate his community about predicted future flood events, which are only expected to increase as a result of heavier and more sporadic rain in the region. Interestingly, as a pastor, he also sees ties between climate change, rising unemployment, and opioid abuse in his community through the shared hopelessness they create. He attempts to use storytelling to counter this hopelessness through crafting intentionally hopeful stories for his community (W48 2019).

Following advice from the storytellers interviewed in this project, the climate scientist-as-storyteller's job is to find ways to contextualize his or her research within the concerns of a specific community first. Then, the climate scientist-as-storyteller can begin finding ways to bring the universal concerns of climate change—rising global temperatures, for example—into focus, holding the contextual and the universal in tension as they communicate to a trusting, engaged, and receptive group of listeners.

Ambiguity Is a Tool

Given the sometimes-tense political context in which climate scientists work (e.g., the Freedom of Information Act requests surrounding Mann's [2013] now infamous "Hockey Stick" graph) and, more important, the increasingly dire physical realities of planetary warming, the stakes of what is known or unknown are increasingly critical. This drive for understanding what is known and what is unknown is evidenced in everything from the language used by the Intergovernmental Panel on Climate Change (IPCC 2013) in their reporting (e.g., "high confidence" or "very high confidence") to ongoing debates about which year—2040, 2050, or 2100—certain climate thresholds will be crossed with specific consequences (IPCC 2018). Striving for a sense of certainty is necessary for policy relevance and, by proxy, saving lives. As such, the suggestion to intentionally be ambiguous with climate communication might seem suspicious if not outright irresponsible. Yet, storytellers interviewed in this project argue that some degree of ambiguity is critical for telling better climate stories.

When asked how they would define a story, many interviewed storytellers began intuitively by suggesting that a story has to have a beginning, a middle, and an end. When asked about climate change, however, an event that is ongoing and therefore does not have a clear ending, storytellers began to think more expansively about their

responses. One teller mentioned that the difference between preaching and storytelling is that the listener has a choice to make and that no one really likes being told what to do (W8 2018). Based on storytellers' insights, the listener has to come to his or her own understanding of what he or she is being told, which requires some degree of ambiguity on the part of the teller. As an example, one storyteller remembered the types of stories her grandfather would tell her:

My grandfather used to end some stories ... if they didn't live happily ever after ... they lived the best they could, and I think that is the best we can hope for in this type of storytelling. These are the best outcomes ... not necessarily best being "this is a good outcome," but these are the clearest possibilities of what could happen. (W1 2018)

She characterized these kinds of stories as riddle tales, discussing how these types of tales have been used in multiple cultures for centuries as deliberate calls for collective thought, communication, and decision making. A formative part of this collective thought exercise is the intentional casting of doubt. According to another storyteller, doubt creates possibility, which, he argued, is critical for a listener to think about the message being conveyed in his or her own terms (W6 2018). These conversations dovetail with an apparent divergence of thought in the storytelling community, as another storyteller noted, an "issue that's really hot in the storytelling community right now: what is fact and what is truth? ... Is there a way to talk about the truth without it being a fact?" (W5 2018). She went on to suggest that stories help communicate the truth by not necessarily bypassing or manipulating facts but by allowing listeners to come to facts through their own decision-making process enabled by some degree of ambiguity.

Intentionally being ambiguous while communicating research will inevitably be a challenge to climate scientists, who are trained to be clear about what is known and unknown. It might be helpful to overcome this challenge by understanding that truth does not always have to be communicated as fact. A storyteller can discuss truths without simply stating facts, which is not to say that the storyteller is being intentionally manipulative. Rather, following from another storyteller's advice, "a story dresses up the truth" (W18 2018). It helps make the truth more approachable. A story allows a person to understand the truth through his or her own imaginative terms, rather than simply being told to accept fact. In the case of Arctic Alaska, stories help to navigate the complexities of climate change "facts" in a region that is experiencing the frontline realities of climate impacts (e.g., rapidly melting sea ice) while also largely depending on fossil fuel production for both sustenance and commerce. A storyteller from Utqiagvik has been running

storytelling workshops that hold these multiple facts in tension, while also highlighting the colonial and racial histories that underpin the climate crises in their community. These are harsh truths, but they are nuanced and made more approachable through story (W36 2019). For climate scientists, this might mean finding ways to engage with audiences through venues other than academic writing or presentations, which might be challenging when these are the expected outputs of climate research. Perhaps there could be opportunities for climate scientists to work more closely with storytellers in their presentations. For example, a hybrid scientific-storytelling presentation, in which audience members are invited to participate in almost a workshop-style event, could be a useful starting point for retooling how climate science facts are communicated as truths.

Although differentiating between truth and fact is still a bit abstract, this distinction might help climate scientists be better storytellers by finding ways to communicate the truth of their research to audiences without depending solely on exchanging facts. This practice, in many ways, goes against not only a climate scientist's training but also their perceived role in society as experts in their field, meaning that they have the authority to speak on matters of climate change. Although also potentially uncomfortable, the next lesson presents yet another challenge for people who study climate change.

The Need to Be Better Listeners

Climate scientists are experts on climate change. They are asked to lecture to audiences, to engage with various media outlets, and to testify to political bodies. In short, as a day-to-day function of their jobs, they do lots of telling. As nearly every storyteller interviewed noted, however, a good teller is only as good at telling stories as he or she is at listening.

As one storyteller noted, "Storytelling is the 'storyteller' and the 'storyer,' meaning the person who is experiencing the story" (W4 2018). Storytelling requires both: a teller and a listener. Another interviewee mentioned that storytellers need a listener or else the tellers are just talking to themselves (W11 2018). Storytelling is a conversation. It is an exchange between the teller and the audience, both parts being equally necessary; it "is a co-creation between the audience and the teller" (W5 2018). Almost every storyteller noted that even during the act of telling, even if the teller is alone on a stage speaking to a large audience, he or she is "listening" to the audience, taking visual cues from the audience's body language, taking stock of people's facial expressions, and maintaining eye contact. Translating this more broadly for climate scientists might mean reading online comments or opinion pieces from sources outside of their typical purview.

It might also mean taking time to try to better understand people's anxieties about climate change, whether or not they are opposed to the science. Listening inspires better telling; the entire exercise is relational. Tellers watch and listen to their audience and respond accordingly. Before even getting to the stage (if they are the kinds of storytellers that use a stage), though, storytellers are listening to their communities, either taking stock of their own membership in a community or doing the harder work of understanding the context of another community. They are sometimes quite literally listening to other stories, incorporating those stories into their own telling. By the time the storyteller is ready to tell, the experience is akin to a journey, as one storyteller noted:

Together they create the story, which means that they have to be transported into another place. Not like a vision necessarily, but something not unlike a vision too ... where each of them together agree to accept the responsibility of being a part of the story. (W2 2018)

In sum, being a storyteller means being a good listener. Good telling requires that the teller be perceptive of his or her audience, deeply engaged with them, before, during, and after a story is told. In fact, as the preceding teller just argued, the teller and the listener have a responsibility to one another in the context of storytelling.

In a national context in which there is mistrust of expert climate knowledge (Rice, Burke, and Heynen 2015; Marlon et al. 2016), there is perhaps an opportunity not only for climate scientists to be better storytellers but to also become better listeners. As noted earlier, there are other sources of climate knowledge—Friends of Coal, for example—that tell stories about climate denialism. Their stories resonate because they listen deeply to their communities. It should be acknowledged that there are efforts made by scientists to engage with their communities (e.g., Coffee with a Scientist). These are good starts. As storytellers have noted, context and community are important for building trust, and establishing trust is necessary to communicate complex truths through storytelling. Although it is a formative part of a climate scientist's job to tell others about their research, a better approach to climate change communication through storytelling asks that scientists listen deeply, and not just to other scientists: Listen for context, listen to build community, and listen to communicate important truths about climate change. Climate scientists already have plenty of work, but finding opportunities to listen, whether this is done through more community-based research or through collaborations with storytellers, is a fundamental part of becoming a better storyteller.

Conclusions

Despite unprecedented amounts of research, climate scientists continue to struggle to connect their findings meaningfully to broader audiences in a way that effects the social or political change necessary to curb runaway climate crises. Amidst these efforts, storytelling has been cited as a potentially useful way to better communicate climate research; yet, there is hardly any consensus about what kinds of stories, and to what audiences, climate scientists should be telling. This research, based on work with storytellers in both Appalachia and Alaska, presents three lessons for climate scientists to be better storytellers: (1) paying attention to context and community provides opportunities for deeper engagement; (2) although climate scientists strive for certainty, ambiguity is a useful tool for allowing listeners to come to their own terms with the truths of climate change; and (3) to be better storytellers, climate scientists need to be better listeners. These lessons are meant to work in unison, each one affirming the other. Although they might present some challenges to the day-to-day work of climate science, they are meant to help climate scientists find more meaningful ways to tell their stories to the people who need to hear them most. ■

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