

Introduction

The 22-minute documentary [*Listening for the Rain*](#) introduces some impacts of climate change on Indian Country in the central USA. Here I describe how (and why) the video emerged out of a series of InterTribal Workshops on Climate Change undertaken during the summer of 2013 and supported by the newly established South Central Climate Science Center at the University of Oklahoma (OU). I situate our collective efforts within a larger movement to reconfigure climate change by not only including Indigenous peoples' environmental problems, perspectives, and knowledge production practices, but also striving to make space for fuller Indigenous participation and better serve **an Indigenous public**.

Part one provides an overview of recent transformations in climate science that have resulted from the interdisciplinary field's growing recognition and respect for the value of Indigenous environmental knowledge. Part two suggests these changing attitudes and related actions informed the creation of several innovative federally-supported initiatives, such as the climate science center at OU that enabled the production of *Listening for the Rain*.

Indigenizing climate change

Indigeneity emerged when western Europeans crossed the Atlantic Ocean and created a category to contain the humans they encountered living in the part of the world now known as the Americas. Clumping together the multitude of lifeways and a multiplicity of Peoples allowed Europeans to differentiate themselves, from not only the Native inhabitants, but also the Africans forcibly relocated to these shores as slaves. European colonizers and their descents have regularly mobilized ideas about and images of Indigeneity to justify destruction and geographic dislocations, and to design and deliver physical, social and structural violence. Settler societies also have used this category to disseminate 'Western' ways through abstract notions of "improvement."

Assumptions about environmental difference commonly serve as a lynchpin to colonialist conceptualizations of Indigeneity. From the first encounters, researchers eagerly documented how communities identified as Indigenous engage differently with phenomena that Western sciences describe as environmental, and tend to manage as resources. Often over the past five hundred years, administrators and managers deemed Indigenous differences primitive and inefficient, making them disposable and in dire need of reform. On the other hand, for more than five centuries many intellectuals – including Indigenous intellectuals as well as their allies and some of their detractors, have celebrated these 'non-Western' cultural-environmental differences as symbolic of a more harmonious and a better-balanced way of living.

My point here is not to rehash such debates, but rather to underscore how Indigenous cultural difference remains indelibly linked to common representations of, and expectations about, environmental practices. Somewhat similar, but also radically

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different, narratives inform contemporary reformulations of colonialist categorical assumptions about Indigeneity mobilized by those who identify as Indigenous. Many Peoples identifying with Indigeneity declare and demarcate their cultural and environmental differences along lines that can both recall and reconfigure colonialist classifications. The same might be said of many regional and international forums and organizations that bring them together (e.g. the UN's Permanent Forum for Indigenous Rights and the [Indigenous Environmental Network](#)). Indigenous leaders, activists, intellectuals and artists use reworked categories of Indigeneity to articulate political, cultural and territorial claims of self-determination. As a geographer, I am especially interested in how these articulations have also revamped geographical research (e.g., Louis 2007). In what follows, I consider how such articulations of the cultural and environmental politics of Indigeneity have informed recent conversations about climate change.

Indigenous peoples are at the forefront of climate change. Colonization, internal colonialism and neo-colonialism have politically, economically and geographically marginalized many Indigenous populations. With horrifying frequency, hostile states forcibly relocated Indigenous peoples to often marginal and always reduced amounts of land. Although some Indigenous communities survived such deadly circumstances with resourcefulness, and often resolve to live more sustainably than the settler societies with which they must co-exist. Sometimes such circumstances meant that communities could withdraw, avoid forced acculturation and better maintain a cultural heritage embedded in resource-dependent livelihoods, albeit across grossly reduced territory.

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After centuries of state policies concerned with extermination and exploitation, many Indigenous peoples now live in often isolated and resource-depleted regions, where they are especially hard-pressed to grapple with the vagaries of a changing climate. They are less likely to possess the financial resources to respond to the increased risk of disasters such as sea level rise, drought and severe weather. Their situations and concerns also receive far less attention from not only government, but also from most media (Callison 2017). Furthermore, cultural differences in understandings of concepts such as risk complicate the implementation of even the best-intentioned adaptation policies, especially when hegemonic forces—be they national, regional or more globalized—propose and promulgate frameworks that do not take into account Indigenous peoples and their heterogeneous practices. Given these too often dire straits, Indigenous peoples are often identified as extremely vulnerable to environmental change.¹ Nonetheless, difficult circumstances do not exclusively define Indigenous peoples. While no one should forget the historical and ongoing violence of colonization, it is unwise, unhelpful, and untrue to represent Indigenous peoples as needy, impotent victims ever confronted with cruelty and crisis. Why not instead heed how skillfully and successfully they are *Asserting Native Resilience* (Grossman and Parker 2012)?

Growing numbers of researchers, bureaucrats and other officials embrace this shift in attitude and see Indigenous peoples as a source of hope. As emphasized in UNESCO's report *Weathering Uncertainty: Indigenous Knowledge for Assessment and Adaptation*, Indigenous lifeways, coping strategies, and knowledge production practices should be considered invaluable human resources because they “provide a crucial foundation for community-based adaptation measures” (Nakashima et al. 2012, 6). In his 2009 book

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Red Alert! Daniel Wildcat (Yuchi member of the Muscogee Nation of Oklahoma) articulates similar sentiment and strategy. Utilizing innovative terms such as “experiential positioning system – EPS,” “indigenuity” and “homeland maturity” Wildcat argues that Indigenous communities’ “deep spatial knowledge” will save the planet. He says, “The examination of knowledges embodied in the lifeways of indigenous peoples offers hope” (Wildcat 2009, 16). More specifically, he explains,

Hopefulness resides with the peoples who continue to find their identities emerge out of what I call a nature-culture nexus, a symbiotic relationship that recognizes the fundamental connectedness and relatedness of human communities and societies to the natural environment and the other-than-human relatives they interact with daily (20).

Such hopeful calls for recognition and self-determination have impacted climate science. A striking sixty percent increase in mentions of Indigenous peoples’ place-based environmental knowledge – commonly called *traditional [ecological] knowledge* (TK or TEK) – between the IPCC’s Fourth Assessment Report (2007) and the IPCC’s Fifth Assessment Report (2014) suggests the degree to which a growing number of institutions and agencies of various shapes and sizes increasingly share this hope (Ford et al. 2016, 350). President Barack Obama made a similar observation during a Tribal Chairs meeting at the White House in November 2009 when he said, “We have a lot to learn from your nations in order to create the kind of sustainability in our environment that we so desperately need” (cited in Parker and Grossman 2012, 16). Although, as Ford et al. (2016) and the growing body of literature they review makes abundantly clear, mentions are hardly enough. The socio-spatial and technological practices of climate change research must be transformed in order to benefit from the complexities of Indigenous experiences.

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Environmental philosopher Kyle Whyte (Citizen Potawatomi) provides guidance for moving in this direction. He recommends careful consideration of exactly how and by whom TEK gets defined, operationalized, and prioritized. He cautions against a common tendency to treat TEK “as an archive that is continually updated or an archive of a society that no longer exists, yet biologists or ecologists can nonetheless find the knowledge and incorporate it into their research” (Whyte 2013, 3). Approaching TEK as a resource that bureaucrats and scientists can mine for corroborating content and/or theoretical confirmation is absolutely insufficient. Indeed, it severs Peoples from their practices. Whyte suggests a better approach wherein “TEK is not just an archive, but a part of what members of a particular culture think, believe and do. It is situated knowledge” (3). Witnessed from this angle, instead of an object or tidy category, TEK becomes a processual cultural practice that shapes personal and collective relationships to the features and forces of particular places.

TEK is, therefore, much more than an archive or a singular stewardship practice that one can just “plug and play” into environmental governance. It is not just a special way of doing things learned through training. Indigenous researchers – like Wildcat and Whyte – emphasize another key element in a robust definition of TEK: a moral sense of “responsibilities that cannot be detached from the character traits required to fulfill the moral demands of these systems [that sustain life]” (Whyte 2013, 4). TEK embodies a geographically specific spiritual obligation, and its inclusion in climate science and policy requires that “the people who participate fully in it must be at the table equally with non-indigenous scientists and policy makers” (5). In short, without Indigenous peoples’ full

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participation, efforts to learn from and employ Indigenous knowledge and related environmental practices are inept at best and inevitably insulting.

Growing interest in TEK and associated changes in legal frameworks means that (some) Indigenous peoples are now more often “at the table” (see Abate and Kronk 2013). Thanks to their recently revalued capabilities and growing technoscientific capacities, “Indigenous peoples can begin to build institutions of environmental governance that are integrated with non-indigenous institutions in ways that benefit indigenous communities and respect the stewardship goals of their worldviews” (Whyte 2013, 8). Whyte argues that instead of an add-on measure, easy answer or quick fix, “TEK must play the role of inviting cross-cultural and cross-situational learning for indigenous and non-indigenous policy makers, natural resource managers, scientists, activists, elders, and youth” (10). Cross-cultural learning about “differences in worldview, language, lifestyle and so on” that can distinguish Indigenous from non-Indigenous communities matters, a lot. So too cross-situational “differences in capacities for environmental governance” matter mightily. Indigenous people “may have access to fewer financial resources than the neighboring state or province, have limited political control over the entire region where its members live, and have less representation in national decision-making than representatives of the neighboring state or province” (8).

The growing recognition that wider participation requires attentiveness to the local conditions where heterogeneous actors unevenly produce and share authoritative knowledge about climate change spreads beyond Indigenous communities. Abundant research suggests climate change adaptation works best when downscaled to local communities so that planning documents, decisions and directions address the

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particularities of place. Likewise, researchers increasingly recognize the need to integrate knowledge systems, bringing together different epistemologies, disciplines, and cultural communities, distinguished by differing ontologies. Moreover, these more inclusive conceptualizations of climate increasingly, usefully, and more respectfully highlight the interconnectedness of human and environmental systems. They also underscore the need for institutional remodeling.

Pursuing pluricultural climate science

In what follows, I note some recent developments in the USA that respond to calls to collaborate more closely and more carefully with Indigenous peoples. I pay particular attention to an initiative at the University of Oklahoma that academics and administrators designed to expand Indigenous participation, diversify delivery of climate science products, and build partnerships with new sources of funding. Then I recount how these new institutional relationships gave rise to *Listening for the Rain*, an Indigenous video project we hoped would catalyze pluricultural conversations about climate in which no one cultural perspective would dominate the discussion. I end this section by noting some (but hardly all) outcomes of this video project.

At the end of 1998, the National Aeronautics and Space Administration (NASA) sponsored their first *Native Peoples-Native Homelands* climate change workshop in Albuquerque, New Mexico. Afterward NASA senior research scientist Nancy Maynard edited [a summary of the discussion](#) during the workshop's "Wisdom Circles" or breakout sessions. The results of this workshop also informed the preparation of a multi-authored chapter, "Potential Consequences of Climate Variability and Change for Native Peoples

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and Homelands,” featured in the report on climate change impacts on the USA that the U.S. Global Change Research Program published in 2001 ([Houser et al. 2001](#)). A second *Native Peoples-Native Homelands* climate change workshop took place in Prior Lake, Minnesota during November 2009. This time [the final report](#) listed as key contacts Daniel Wildcat as well as Maynard.

Between these two NASA workshops, in 2006, the American Indian Alaska Native Climate Change Working Group emerged out of the Environmental Research Studies Center that Wildcat directs at the Haskell Indian Nations University in Lawrence, Kansas. Now called the Indigenous Peoples Climate Change Working Group (IPCCWG), this collective has gathered regularly to discuss and disseminate (among other things) the research and activism of students who are studying or have studied at Tribal Colleges in the USA. In turn, individuals associated with the IPCCWG have contributed to the formation and fostering of the [Rising Voices: Collaborative Science with Indigenous Knowledge for Climate Solutions](#) program embedded within the National Center for Atmospheric Research (NCAR), a scientific community located in Boulder, Colorado and initially supported by the National Science Foundation (NSF).² The Rising Voices group has convened five annual workshops since June 2013. Some of its key organizers co-authored the chapter “[Indigenous Peoples, Land, and Resources](#)” featured in the U.S. Global Change Research Program’s Third National Climate Assessment (Bennet et al. 2014; see also Maldonado et al. 2015).

Another manifestation of burgeoning interest in Indigenous peoples, climate change, and environmental governance in the USA is an order issued on September 14, 2009 by the country’s Secretary of the Interior, Ken Salazar. [Secretarial Order No. 3289](#)

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addressed “the Impacts of Climate Change on America’s Water, Land, and Other Natural and Cultural Resources” and stipulated the creation of eight Climate Science Centers and twenty-two Landscape Conservation Cooperatives. These two intersecting initiatives embodied the Department of the Interior’s new climate strategy. The Department of Interior (DOI) designed these new entities to be more flexible and thus better able to collaborate with a broader range of actors. These partners included traditional agencies already operating under the aegis of the DOI (e.g., US Fish and Wildlife Services and the National Park Service), newer sorts of non-profit organizations, private landowners, and Tribal and Alaska Native agencies that the DOI had historically seen largely as beneficiaries, but more recently began to see as stakeholders. A National Climate Change and Wildlife Science Center (now the [National Climate Adaptation Science Center](#)) established within the US Geological Survey ([USGS](#) – another DOI bureau) a year before Secretary Salazar’s Order No. 3289, manages the DOI’s eight Climate Science Centers (CSC – now [Climate Adaptation Science Centers](#)). Each CSC is hosted by a university (sometimes with a networked consortium) that successfully bid to represent one of the eight regions.

The South Central CSC ([SCCSC](#))³ was established in 2012 on the University of Oklahoma (OU) campus. The SCCSC is unique in that in addition to four universities – OU, Texas Tech University, Louisiana State University, and Oklahoma State University – and one federal agency – [NOAA](#)’s Geophysical Fluid Dynamics Laboratory, the SCCSC consortium includes two Tribal nations – The Chickasaw Nation and The Choctaw Nation of Oklahoma. Through a hosting agreement with OU, the USGS has financially supported a citizen of The Chickasaw Nation who is a sustainability scientist and works as a Tribal

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liaison at the SCCSC. Outside of the hosting agreement, the USGS provides a competitive grant process for proposals that address specific CSCs' science plans. During the SCCSC's first round of funding in early 2012, Laurel Smith and Renee McPherson, who served as the new SCCSC's Director of Research, worked together to prepare a project proposal.

While workshops including Tribal representatives had been held in the region previously, for example, those organized by the NOAA-funded Southern Climate Impact Planning Program ([SCIPP](#)), which is also based at OU, our most recent inspiration was an InterTribal workshop hosted in OU's National Weather Center on December 12, 2011. This event brought together representatives from 22 of the 38 federally recognized Tribes in the state of Oklahoma, as well as representatives from a Tribe in Texas (see [Riley et al. 2012](#)). Cognizant of the many previous workshops that brought together Indigenous peoples and asked them to share their knowledge of climate change impacts—in particular, the December 2011 one that was just held at OU, McPherson wanted to return the favor with the production of climate knowledge that might be useful for Tribal communities. She proposed a new series of InterTribal workshops for which the SCCSC would prepare climate products for each of the climate regions where Tribal communities were located in the SCCSC service region (Texas, New Mexico and Oklahoma).

In consultation with my husband Filoteo Gómez Martínez (an Ayuuk media maker from Oaxaca, Mexico), I augmented the plan by proposing to follow the workshops with participatory projects involving any InterTribal workshop (ITW) participant(s) interested in making a video about the impacts of climate change in their homelands. Our proposal was successful and the funding earmarked for January 2013. But eager to get going, the

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team started meeting during the 2012 fall semester. At the very first meeting of the team in the SCCSC's newly established office, I noted the uncertainty of participatory research and mentioned the possibility that no participatory video projects would arise of the ITWs due the lack of workshop attendees' interest in pursuing such an endeavor during the short time covered by the funding cycle. I was then reminded that the USGS is a product-oriented agency accustomed to working with the physical science community. In short, the USGS expected results (i.e., at least one video) within a much tighter timeframe that we had anticipated. Visions of having the luxury of following up afterward with workshop participants interested in a participatory video project dissipated; instead, we would have record interviews during the ITWs, something we had not intended to do.

Given the circumstances, Filo and I invested our time and energy into composing another proposal to procure further funding for a second Indigenous media maker to help us meet funder expectations. More specifically, we hoped to involve Jeffrey Palmer, a Kiowa filmmaker from Norman, Oklahoma who had recently received his MFA from the University of Iowa, a Robert Flaherty Fellowship, and a Sundance Institute Native Lab Fellowship, and just returned from a Visiting Lectureship at Cornell University. Fortunately, we secured a grant from the family-run [Farnley Tyas Foundation](#) to support the Filo's participation, and were thus able to re-purpose the SCCSC funding to support Jeff's participation. The spring 2013 semester was hectic as we scrambled to organize five ITWs while also preparing an IRB protocol. Between the challenges of teaching and taking coursework, and the complications we all faced as we worked (with many others) to organize five day-long workshops, it was an incredibly demanding time, and I think we all felt rather overwhelmed.

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Nevertheless, we pulled together and during the summer of 2013 undertook five ITWs – four in Oklahoma and one in New Mexico – that appeared to please participants as well as our funders. Each ITW opened with an overview of our research project. Next, the SCCSC's Tribal Liaison, April Taylor, introduced the new agency. McPherson or a colleague then discussed the regional climate histories prepared by the SCCSC, along with drought tools featured on the SCIPP website. Just before lunch, I offered an overview of participatory video. Afterward, members of the team conducted focus group discussions about climate change and more. During most of these activities, while Filo and Jeff interviewed workshop attendees who volunteered to talk with them.

By January 2014, Filo had edited a rough cut of the video footage, which Palmer polished with his cinematic expertise. At the end of February, the 22-minute video [*Listening for the Rain*](#) premiered at OU's Second Annual Native Crossroads Film Festival, screening alongside Isuma Production's stunning documentary [*Inuit Knowledge and Climate Change*](#). From this debut, on to subsequent screenings (e.g., during the second Rising Voices conference June 2014 and as part of the [Native American Film Series](#) at Augsburg College in October 2014), and through more than 1,800 Vimeo views in more than 40 countries and 575 views on YouTube; all signs suggest many audiences have warmly received this documentary.⁴ Additionally, the video merited mention in the SCCSC's [Tribal Engagement Strategy](#) published in September 2014, and the next year, the SCCSC won the DOI's 2015 Environmental Achievement Award for "[Climate Science and Partnerships – Increasing the Tribal Capacity for Climate Change Adaptation](#)." And by the start of 2018, several more of the DOI's Climate Science Centers employed Tribal Liaisons.

ENDNOTES

¹ Ample research documents the entangled calamities of climate change, colonization, state development schemes and related resource extraction (e.g., Bodenhorn and Ulturgasheva 2017, Callison 2014, Chochran et al. 2013, Marino 2015, Nakashima et al. 2012, Norton-Smith et al. 2016, Whyte 2017, Wright 2014). However, endlessly and thoughtlessly identifying Indigenous peoples as “vulnerable,” especially in the climate change arena, reduces their agency in the production of authoritative knowledge. Haalboom and Natcher (2013) provide a valuable discussion of the importance of utilizing great caution with such labels. It is not useful to assume that “vulnerability” is an inherent essence of Indigeneity; rather, each Indigenous community – like many other communities – has specific vulnerabilities, and varying capacities to address them. See, for example, Cameron (2012), who offers a geographically-specific critique of simplistic renderings of Indigenous “vulnerability.”

² Alas, the NSF program that provides base funding for NCAR, the Atmospheric and Geospace Sciences, recently decided to only support projects that align with its core mission. This shift left social science endeavors at NCAR outside the aegis of NSF funding. Fortunately, the positions of key personnel responsible for the Rising Voices initiative remains funded, for now, with other sorts of research grants.

³ In 2018, this entity underwent a name change; it is now the South Central Climate Adaptation Science Center (SC CASC).

⁴ These online viewing platforms, Vimeo and YouTube, allowed organizations to embed the video in their website, expanding the viewing audience. For example, the Center for World Indigenous Studies [embedded *Listening for the Rain* in their online publication *Intercontinental Cry*](#).