



## Addressing unconscious coloniality and decolonizing practice in geoscience

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Unconscious coloniality reinforces inequity and exclusion of Indigenous peoples in STEM. Métis paleobiologist Az Klymiuk outlines ways individuals can become agents for cultural change by implementing decolonizing actions.



Geoscience is fundamentally based in Land. From the formation of cratons billions of years ago to ice sheets that grind rock to dust, we study processes that constitute the heartbeat of our planet. Not only are geosystems processes intrinsically linked, they are major catalysts of events ranging from mass extinctions to biogeographic speciation.

Like geoscience, Indigenous ways of knowing encompass an understanding of life, land, air and water as components of an integrated system. Global Indigenous cultures, while by no means monolithic, developed out of absolute reliance on intimate knowledge of Land. As geoscientists, we also value experience-based knowledge: there is a well-worn axiom in field geology that the best practitioners have seen the most rocks. Geoscience knowledge and systems thinking inherently accord with many Indigenous ways of knowing. Yet, Indigenous people are barely represented in geosciences.

There has been no increase in diversity in US geoscience programmes over the past 40 years. In 2019, Native American or Alaska Natives accounted for only 0.2% of doctoral degrees awarded in all physical and Earth sciences, despite comprising 2.9% of the US population. It is clear that comprehensive actions at national, state and institutional levels are necessary to improve representation of Indigenous peoples in STEM. ‘Decolonization’ has emerged as a buzzword in this context, but intended goals of decolonization movements are self-determination and sovereignty (of land, health care, education, justice and governmental structure), and the dismantling of colonial systems that fuel inequity. Individuals and nations may or may not be interested in economic parity or equity within a Eurocentric system of values, therefore EDI (equality, diversity and inclusion) enhancements are usually understood as anticipated results of decolonization, not ultimate goals themselves.

At institutional levels, decolonization requires individual learning and self-reflection to identify coloniality in systems of beliefs and values. Holding Western and/or Eurocentric behavioural and cultural norms as superior, objectification of the natural world and compartmentalization of human identities into context-based roles are

all examples of coloniality. Much as structural racism produces unconscious racial bias, living within colonial systems of value results in unconscious coloniality.

Unconscious coloniality is **endemic in geoscience**. Because language is a window to worldviews, consider the word ‘colonization’ itself, widely used in historical geology and paleobiology (‘colonization of land by plants or animals’). Try flipping that language: what if plants invaded land? Invariably, I am told this is negative framing. Our **experiences** with colonization, however, involve genocide, dislocation, starvation, biological warfare, forced assimilation and incarceration of children in residential ‘schools’. Experiencing the word colonization as neutral reflects the privilege of not having these realities in your history.

Tackling unconscious coloniality involves learning Indigenous histories, cultures and worldviews. Here are some ways to begin a decolonizing practice.

### Acknowledge Indigenous lands

Territorial acknowledgements can be an entry point for personal learning, but they can be problematic. Oral boilerplate and standardized additions to email signatures have become common. Although often explicitly meant to ‘honour and celebrate’ first peoples whose homelands and unceded territories are being occupied, for many Indigenous people, land acknowledgements are performative, and can even serve to **undermine understanding of treaties and land sovereignty**. Naming nations can combat systemic erasure of Indigenous peoples from institutional dialogues, so there is value in doing them properly: learn whose lands you occupy or where you perform fieldwork; learn social and justice issues facing these nations; learn historic and ongoing impacts of colonization; and develop your own acknowledgment from a place of personal knowledge. This is work. That’s the point.

### Be mindful of appropriating identity

Ancestral connection is not Indigenous identity. Citizenship requirements vary among nations, but commonly include ongoing relationships (or the realistic potential

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<https://doi.org/10.1038/s43017-021-00235-y>

