

The value of place-based and in-field education for climate literacy in the Great Lakes: What role for climate and ecological researchers?

Ankur R Desai, Center for Climatic Research, University of Wisconsin-Madison

Hey you ecologist or climate scientist! Do you struggle with engaging students and the public about climate change?

Come share ideas and commiserate on challenges!



The problem: Climate change is an abstract concept. Global mean temperature is meaningless to most people. Words like bias, feedback, significance have different meanings.

Claim: Best way to learn about climate is to be in the climate. Great Lakes provides an immense variety for this

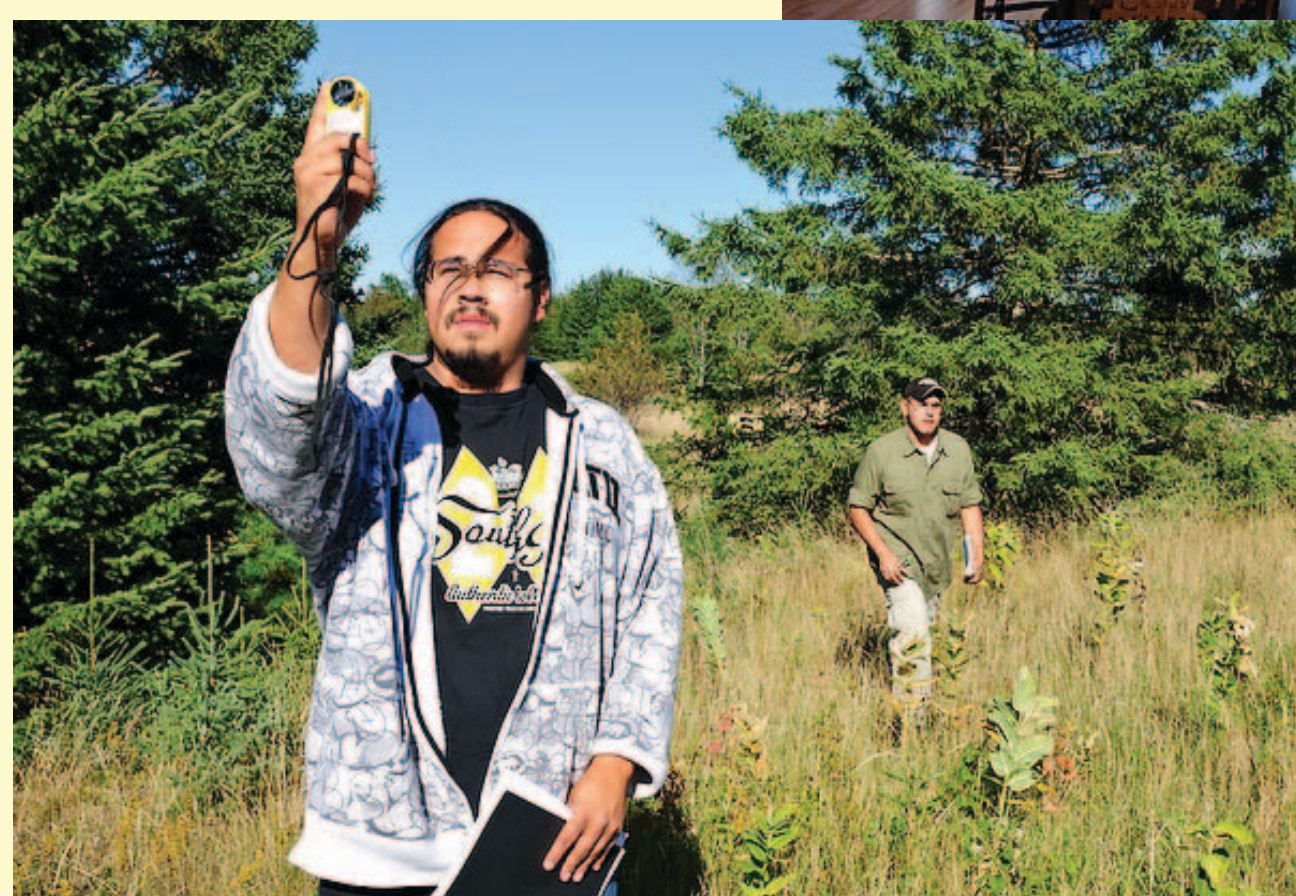
Some examples:

UNDERGRADUATE



Each fall, undergraduate students from the College of Menominee Nation tribal college visit Desai lab field sites and make global change observations with field instrumentation as part of NSF funded For-CLIMATE (Forest and Climate Leaders in Menominee and the Environment) course.

Lectures at field stations can provide a more informal environment to discuss data analysis, climate science, and careers in global change ecology. Desai lab graduate students and instructors can share personal career narratives over meals and explore cultural differences.



Student designed field projects mentored by graduate students and instructors lead to high engagement with the process of scientific inquiry and data analysis. Field course can later lead into summer REU internships for students with strong interest and aptitude.

GRADUATE



In particular for graduate students in the climate sciences, field work may be minimal and direct exposure to research instrumentation limited. Great Lakes are lake rich, which provide great ecological/climate testbeds. Here, students in one of my atmospheric science courses install carbon flux monitoring station on a campus rooftop overlooking Lake Mendota. The students installed instruments, took weekly observations, downloaded data, and conducted independent analyses with the eddy covariance flux data on a variety of lower atmosphere topics.

Sometimes, it's not research instrumentation, but just exposure to private installations that's best. Great Lakes area is rich in wind resources, so as part of a renewable energy course, I took graduate students to inspect a local wind farm and discussed climate change impacts to energy resources and the challenge of modeling and predicting those.



ADULT & YOUNG LEARNERS



Outreach to adult and young learners in the field can best be done with short field-trips, discussions, and explorations. Here, US Forest Service meeting attendees discuss the finer points of carbon cycling and silviculture at one of my flux tower sites. Similar field trips to tower sites and other forest ecology plots across the upper Midwest have been conducted, including groups of journalists. Conference attendees are often looking for ways to get outside!



With youth, simple experiments can go a long way. Here, one of my graduate students participates on a lake macro-invertebrate exploration for Wisconsin Grandparent's University, which pairs children with elderly relatives to discover science and learning across campus.

Photo credits: Bryce Richter, Ankur Desai, Matt Rydzik, B Badger

Overarching challenges: Preparation time, experience in the field, sustaining outreach, engaging partners, educational background of audience, scientific literacy, climate change misinformation

What are your challenges? Add them here:

What do you plan to do about it?