

URGE

Unlearning Racism in Geoscience



URGE Policies for Working with Communities of Color for University/Organization

This is what was found by Princeton GEO/AOS Pod at Princeton University on Policies for Working with Communities of Color as well as plans for improved processes and/or needed resources.

Pods may have members from a range of career stages and involvement in the development and execution of research projects, and pod members may have different experiences or different perspectives when responding to these questions. Consider this in the summary document and focus on capturing responses that are representative of the range in your pod.

- **Audit of previous interactions with communities of color at our organization:**

E.g. How many research projects were undertaken in countries or regions with communities of color, how many of those included meaningful interactions with those communities of color? Briefly describe one or more example projects to provide context for the following questions.

We conducted a survey on academic experience of working with communities of color in March 2021. The results from 30 respondents of Princeton University Department of Geosciences, including Atmospheric and Oceanic Sciences (AOS) program, are summarized in the pages 3 and 4. Half of the respondents have worked with communities of color. Three quarters of the respondents have educated themselves regarding the cultural and societal aspects of the collaborators prior to conducting the projects. Around 70% of the respondents shared the research data with those communities, and similar percentages acknowledged the minority communities in their academic results. More than half of the respondents seek out local liaison to build trust with the local community and tried to create a long-term collaborative relationship. We note that the number of responses to each question varied. We provide three examples of the research projects carried out with the domestic and international indigenous communities by Princeton University's scientists in a non-geosciences field in the past (Example 1) and recently in the geosciences field (Examples 2 and 3).

Example 1: The Manhattan Project. The United States government led the Manhattan Project (1942-1946) to develop the nuclear weapon during World War II. Two dozen faculty at Princeton University and Princeton Plasma Physics Laboratory (PPPL) played



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a pivotal role in this project. The atomic bomb was tested in the North American coastal and inland regions where indigenous people of color had settled ("The Manhattan Project").

Example 2: Biogeochemistry of Tropical Ocean. The Ward lab of the Department of Geosciences and High Meadows Environmental Institute has explored the microbial nitrogen transformation process in the Arabian Sea and the Eastern Tropical North and South Pacific ("Nitrogen cycling in oxygen deficient zones"; Ward et al., 2009; Babbitt et al., 2015, 2019). Professor Bess B. Ward said "We collaborated with scientists representing the countries in whose waters we wished to do research. We always contact "observers" from their collaborating countries, offer them berths on the ship and try to facilitate their participation, either by supporting their science projects (equipment, supplies, wire time) or incorporating them into our projects. That usually means supporting their travel expenses as well."

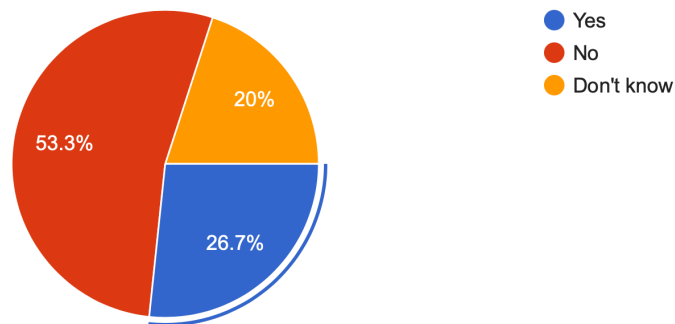
Example 3: Geochronology of Deccan Traps in India. The Thermal Ionization Mass Spectrometer Laboratory (TIMS Lab) led by Professor Blair Schoene has conducted field projects in the massive Deccan volcanic province in western India (Schoene et al., 2015). Professor Schoene said "We focused on understanding the timing of volcanic eruptions that covered most of what is now India 66 million years ago. We have worked with local geologists who did a lot of the original fieldwork to benefit from their knowledge and include them in our work and publications. We go in the field with them, bring their students, and often (not yet in the Indian case) bring their students to Princeton to participate in laboratory work."



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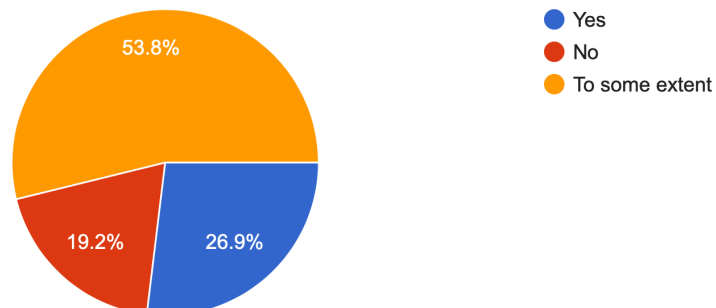
Are you involved in research or use data that originated with communities of color in the United States or abroad?

30 responses



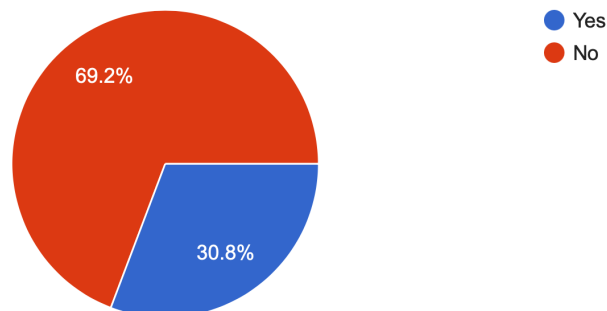
Do you educate yourself / team about local politics, culture, customs, and knowledge including the history of colonialism / settler colonialism in the regions of your projects and data sources?

26 responses



Have you shared data and findings with the local / regional community in a way that was accessible?

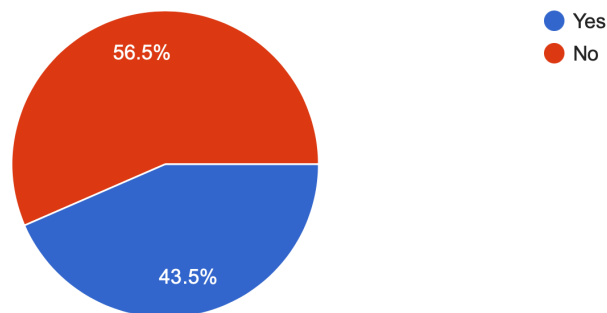
26 responses



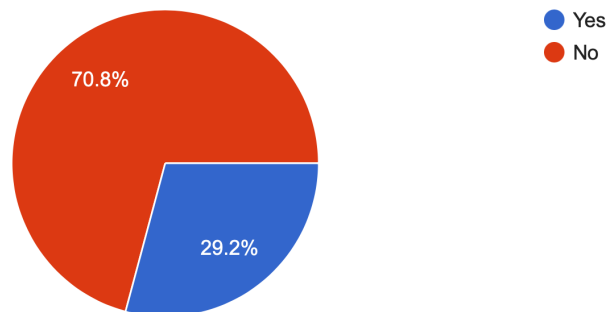


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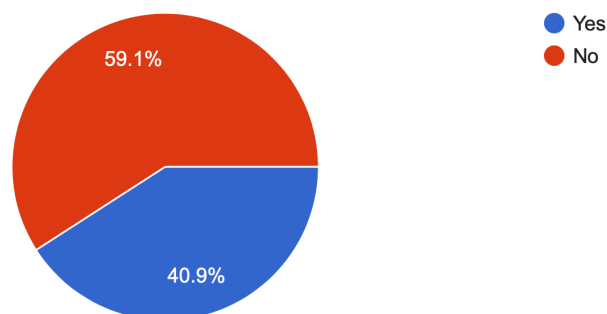
Do you actively seek out local collaborators / liaisons / guides? (we are referring to the local community of color in the area where field research...onducted, i.e. not necessarily the Princeton area)
23 responses



Do you acknowledge local communities of color / Indigenous tribes in your research results?
24 responses



Do you build trust and long-term connections and collaborations with local organizations or institutions if the project is multi-year / ongoing?
22 responses



- What worked well in these interactions?



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- *E.g. Using local names for landmarks or features, adhering to restrictions and customs such as not scheduling outreach meetings/events during hunting season*

Example 1: The Manhattan Project. The United States government notified the native community ahead of time for the tests, so that the indigenous people were not exposed to the threat of the nuclear weapon by not practicing outdoor activities, including hunting, fishing, camping, and religious rites ("The Manhattan Project"). Minimal compensation was offered to some tribes although not to all participating native communities across the country. The project team included indigenous scientists, such as Mohawk, Cherokee, and Pueblo tribes, from the United States national laboratories at Berkeley, Los Alamos, and Oak Ridge. They contributed to the success of the Manhattan Project ("Impacts on Indigenous Communities").

Example 2: Biogeochemistry of Tropical Ocean. What worked well was respecting our colleagues and accommodating their needs. We did not "do outreach". Unless you count posts cruise dinners and data planning meetings.

Example 3: Geochronology of Deccan Traps in India. We look to our collaborators for all advice regarding local customs, and because we are always with them, this is a good way to try to be respectful and learn as much as we can about the culture and customs and of course the geology.

- **What did not work well, and how can this be better addressed in future plans?**
 - *E.g., We did not include priorities of local communities of color when developing our proposal, and to address this in the future we will include community member(s) in the early stages of proposal planning and writing as collaborators*

Example 1: The Manhattan Project. While the tests were conducted in collaboration with the indigenous communities, banning a few activities for life, recreation, and religion in the sites during the tests threatened the native people's traditional way of life. Also, during the Uranium boom in the Colorado mines between 1948 and the 1980s, the knowledge of indigenous communities of the Uranium mines was mercilessly exploited, and the mine development has disrupted their ancestral land for decades (Moore-Nall, 2015). Some indigenous communities at the Yakama, WA, Nez Perce, ID, and Umatilla, OR, were not financially compensated for their sacrificing the dwelling ground during and after the tests ("Native Americans and the Manhattan Project").

Example 2: Biogeochemistry of Tropical Ocean. "We include our foreign collaborators in various stages of the planning, sometimes starting at the stage of proposal preparation.



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But often, we do not know who the official observers will be until the ship is scheduled, long after the proposal is funded. If I already know the potential collaborators, or can find them early on, I always contact them during proposal preparation. But that is not always possible and you sometimes end up with an official observer that the foreign government just sends without any prior consultation,” Professor Ward said.

Example 3: Geochronology of Deccan Traps in India. “There are cases (both in India and elsewhere) where our following collaborators’ needs and recommendations are not enough to demonstrate appropriate respect for local communities. Perhaps this is because they themselves are being disrespectful or because we don’t fully understand the needs and expectations of local people. I have many examples of when this worked well and not so well from trips to India, Bolivia, the SW US, Swaziland, Myanmar, among other places,” Professor Schoene said.

- **Are there ways to improve the outcome of projects already undertaken?**
 - *E.g., Work with and compensate community members to translate research results and outreach materials into local language, include acknowledgements in forthcoming publications and presentations*

As those affected tribes have existed in the country although the generation changed, the United States federal and local governments and the academic institutions involved in those projects are able to and have a responsibility to aid the affected communities.

For example, those aids regarding the Manhattan project could include:

- creating science and engineering projects to decontaminate the test areas;
- offering priority to the offsprings from those influenced communities in university (college and grad school) admission and research institute job application (affirmative actions);
- obligating to include people from those affected communities in an environmental policy making process in the local governments; and
- monitoring if any attempt to raise issues of the residual negative effects of the project to the press was interrupted.

Our organization has improved monetary and non-financial outcomes of past projects through diverse outreach endeavor. **A short-term outreach event** enhances the understanding of the aim and activities of a research organization of the local communities of color. **The Princeton Plasma Physics Laboratory (PPPL)** has held the **Young Women’s Conference** every year to improve the awareness of the local people



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about the recent scientific and environmental issues. The conference is supported by the New Jersey government to encourage more women students, including those from communities of color, to work in the STEM fields (Mishikin, 2018). The PPPL hosts other various events for the local college students including Rutgers University to address and resolve the diversity issues, particularly the intersectionality between the race and the gender, in the STEM academia (DeVoe, 2017).

A summer internship program of a research or educational institute can increase the accessibility of the students from its local POC communities to higher education. This type of programs encourages the POC students to choose an academic career path by offering hands-on experience of the scientific projects and creating the connection to the scientists and university faculties. For example, ***Cooperative Institute for Modeling the Earth System (CIMES)***, which is a collaboration between the National Oceanic and Atmospheric Administration's Geophysical Fluid Dynamics Laboratory (NOAA/GFDL) and Princeton University, invites the undergraduate students from any institution in the United States to apply for ***a summer research internship*** ("BCC Students to Intern at Princeton university This Summer"). A future initiative that the Princeton Geosciences Department may take is to join **the AGU Bridge Program** ("AGU Bridge Program"). This program aims to promote inclusion within geosciences by offering career advancement and academic opportunities to students, identifying as part of underrepresented minority groups. Students can apply to graduate-level studies with partnering institutions using the program's application.

Also, the students and scientists of geosciences can contribute to **building a legal guideline** at the local level. They are encouraged to learn the US environmental law and to be involved in its legislation. For example, a group of undergraduate and graduate students of our institution organized ***the Princeton Student Climate Initiative (PSCI)*** and is involved in developing the local government's carbon taxation policy ("Main Projects.") One of the PSCI's projects aimed to raise the consciousness of environmental justice and racism regarding the recent climate change. They share their research results with the public through their webpage (Patnaik et al., 2020).

- **Are there specific resources or guidelines that are needed to improve the process for planning ahead and working with communities of color?**
 - *E.g., Additional support/funding for early planning process of projects to include forming productive and mutually beneficial connections with communities, establish a point of contact for interfacing with communities so as not to overwhelm with individual requests from researchers and collaborators*



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Specific instruction and training are needed to refine the process for planning and conducting research projects with people of color. The guidelines clarify:

- an effective way to share the intellectual output of the projects in a timely manner (i.e., no delay in sharing knowledge and its implication);
- the scope of right and obligation of the scientists while working with communities of color in field sites and off-site laboratory;
- a description of the cultural and historical background of the communities of color;
- the importance of making an effort to better communicate with the indigenous communities at the personal- and group-levels; and
- budgetary provisions to include payment to Indigenous people who are facilitating research in any way.

Examples of guidelines include [the University of Montana](#) ("Collaborating With Indigenous People.") which has a dedicated section under their Institutional Review Board (IRB) for the Protection of Human Subjects in Research, and [Memorial University of Newfoundland](#) in Canada ("Indigenous Research at Memorial"). Formal agreements approved by an institutional body can help to ensure researcher compliance with these guidelines, and level the power dynamic between researchers and Indigenous communities. For example, at the University of Montana, they include provisions for allowing tribes to initiate an IRB review, and also for signing a Memorandum of Understanding (MOU) before research commences. The [Memorial University of Newfoundland](#) provides an additional example for how an Indigenous Research Agreement can look like.

As other STEM fields have revised their universal research guidelines, such as in medical sciences ("Upholding the Highest Bioethical Standards"), the field of geosciences ought to create and refine the research guidelines including field and lab code of conduct. Our organization, Princeton Geosciences, protects the right and equality of every participant in a department-led field study (Schoene et al., 2020). This guideline explains 'responsible conduct and leadership in the field' abided by the university's Rights, Rules, and Responsibilities 2020 (Simons et al., 2020; Princeton University, 2020).

In addition, when working with local communities, researchers should make use of liaisons where available, with support at the institutional level to foster these relationships. Liaisons could take the form of individuals or also local organisations.



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Establishing contact through these liaisons can help relieve the burden from local communities by not overwhelming them with individual requests from researchers and collaborators. Furthermore, these liaisons can facilitate meaningful and long-term engagements between researchers and local communities, allowing for more fruitful research and academic collaborations with research outputs that benefit the local communities.

A highly successful example of this comes from ***Prof. John Higgins at the Princeton Geosciences department*** (“Combining science and service: Studying lead contamination in Trenton, N.J.”) Higgins works with the non-profit organization [Isles](#) to measure lead concentrations in paint and drinking water in low-income housing in Trenton. Isles renovates old homes and buildings that are unhealthy and unsafe. Since Isles has strong ties to the local community and an established base of trust, it is possible to gain access to private homes and take samples for research. At the same time, Princeton can provide the measurements free of charge and thereby make an important contribution to the local community. Moreover, Higgins has framed his environmental geochemistry class around the Trenton project and takes undergraduate students to Trenton to collect samples, which they later process in the lab. Here is a [link to an article](#) on the ongoing work with Isles in Trenton. Evidently, such partnerships are desirable and should be encouraged.

However, currently, the burden lies on individual researchers, like Higgins in the above example, to foster these relationships, and this reflects an institutional deficit. These partnerships can be greatly encouraged if relationships with liaisons are fostered at the institutional (departmental or university) level. This would reflect the institution’s commitment to effective and respectful engagement with local communities, and greatly facilitate the formation of researcher-liaison partnerships.



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