

URGE

Unlearning Racism in Geoscience

URGE Policies for Working with Communities of Color for the JPL Sea Level and Ice Group at the California Institute of Technology, Jet Propulsion Laboratory (JPL)

This is what was found by the JPL Earth Sciences Pod at the Jet Propulsion Laboratory on Policies for Working with Communities of Color as well as plans for improved processes and/or needed resources.

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

Personal Interactions:

- *Mid-Career Scientist* (JPL PI Carbon Cycles and Ecosystems):

Carried out field work in Africa (Gabon) and Latin America (Colombia, Brazil, Peru). Has taken initiative to collaborate with local communities, often allowing liaisons within these communities to assist in field work efforts (i.e. data collection, planning). In many cases, because they were involved with NASA, SERVIR and Agency for International Development these communities became long term partners. Additionally, students from these communities were able to come to JPL for internship opportunities.

-*Mid career scientist* (Sea-level and Ice Group):

Involved with Ocean's Melting Greenland project which involves field campaigns to Greenland. Outreach and collaboration has been poor, but was able to collaborate with researchers at the Greenland Institute of Natural Resources (GINR). This led to collaborations involving data collection and publications. Unfortunately, many of these researchers are Danish, with native Greenlanders involved with research focussing more on marine biology and ecosystems.

-*Early Career scientist* (Sea-level and Ice Group): (NSF projects) Research working in Patagonia sought to establish relationships with the indigenous Mapuche (on whose land research will be conducted) group by offering training in remote sensing techniques to students from these backgrounds. This was highlighted by Mapuche leaders in hopes that training students would offer skills that would be helpful to future science projects taking place in this region.

Conferences

Ocean Obs 2019 did a great job at including native people in the discussion at the conference (they had session dedicated to their work, they were session to inform scientist on how to better include them in their work, they invited a lot of native people to the conference). But what did really come out of this?

Employee Groups at JPL

An employee resource group, Native Engagement in Building a Unified Leadership Alliance (NEBULA) was formed to support the Indigenous community at JPL. The aim of this group is to foster Native representation at JPL and NASA by sharing culture, resources, learning, and storytelling to enrich JPL and NASA.

Institutional programs (NASA)



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The Indigenous Peoples Pilot Program (NASA): This program has worked with many indigenous communities to provide place-based training of remote sensing that has implications on indigenous lands and territories. This partnership aims to strengthen relationships with NASA and indigenous communities through knowledge sharing and training to provide indigenous communities with data and resources needed to address specific needs facing their land.

- **What worked well in these interactions?**

- (For the NSF project described above): Fortunately, a graduate student working on the proposal at University in the USA, was from a community in Chile and had a deep awareness of maintaining cultural sensitivity and humility in discussions with the Mapuche. The student also helped engage with local university faculty members who have built relationships with the Mapuche community. By having someone involved directly in the proposal that understood the difficulties and care needed to establish a relationship with the Mapuche group in Chile was incredibly important and helpful for the other researchers who had little to no experience working or establishing relationships with indigenous groups.

- **What did not work well, and how can this be better addressed in future plans?**

-Salinity field campaign in the Arctic (NASA ROSES): We did not include any Alaskan native people. In the future, we should find a way to collaborate or at least establish communication that can lead to knowledge sharing, opportunities for student internship of jobs, training or delivery of scientific knowledge pertinent to indigenous communities.

-(For the NSF project described above): Our initial proposal submission was very weak with respect to broader impacts and working with the Mapuche group. Often scientists make the mistake wanting to 'teach' indigenous groups about the research that is occurring, and that was our initial mistake. Although we did our best to maintain cultural sensitivity, our goals were 1-sided and did not include feedback and collaboration that met/satisfied the needs or wants of the indigenous community. We made the mistake of assuming what the indigenous community wanted (if anything) from us, and did not do enough work to build a relationship before proposing outreach. We learned that relationships first need to be established before these communities have desire (if any) to allow us to work with them.

-For the mid career scientist at JPL working in Africa and South America: Because of all the rules at NASA and JPL, it is easier to establish collaboration with indigenous communities through a University (Caltech, UCLA). Security rules, administrative rules, etc limit opportunities at NASA/JPL. Additionally, there is very little freedom to receive money to carry out such



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collaborations (i.e. Institutional roadblocks). No Institutional support and collaboration is mainly driven by individual PI's.

- **Are there ways to improve the outcome of projects already undertaken?**

- For existing collaborations that involve training, especially using equipment, funding should include money to buy equipment for these community members involved. By having personal access to equipment within indigenous communities and through project training, we are promoting future involvement with scientific research.

- Funding should become available to promote collaboration with indigenous communities. Travel/Stipends should be available to bring in leaders from indigenous groups to foster dialogue and partnerships that promote knowledge sharing.

- Training should be mandatory before embarking into research on indigenous lands: Cultural sensitivity.

- JPL offers a "Maximizing Student Potential in Stem" internship for underrepresented students pursuing undergrad - graduate degrees. PI's can tap into this program and leverage its success to recruit interested students from indigenous communities. This may be very relevant to JPL cryosphere research in Alaska.

- **Are there specific resources or guidelines that are needed to improve the process for planning ahead and working with communities of color?**

Programmatic Guidelines/Codes of Conduct:

NSF Polar Programs has posted guidelines for research conduct particularly as it pertains to indigenous communities following the Interagency Arctic Research Policy Committee (IARPC). I believe NASA follows these guidelines set out by the IARPC but they are never explicitly stated in NASA proposals (at least ROSES).

- Guidelines: Codes of conduct should be more specific in proposal calls. This should be the bare minimum.

- NASA proposal calls (e.g. ROSES) lack any discernible Broader Impacts beyond the research. This severely limits PI opportunities to engage communities as funding calls offer no monetary support nor requirements for these endeavors.

- Acknowledging lands and indigenous communities in research.

Reaching out to Native/Indigenous groups at JPL

A good start may be to reach out to the Native Engagement in Building a Unified Leadership Alliance (NEBULA) at JPL. If possible, NEBULA may be a place to learn more about how to



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approach indigenous communities - perhaps acting as a liaison. We produce data (observations, etc) that may be of use for indigenous communities. So discussion can focus on how do we make sure the knowledge sharing is equal?

-If we bring in external collaborators to recruit students from indigenous communities, we need to make sure there is monetary compensation (stipend/travel).

International Travel or Field Work

Training modules prior to engaging in fieldwork ('Htsauce'). Before leaving for international travel, we are required to take training modules. No module exists regarding cultural sensitivity training regarding indigenous communities.

Programmatic/Proposals

Calls for proposals (NASA, NSF, NOAA, JPL) should specify that it is a requirement/suggestion to involve communities impacted by or concerned by the work.

- Give resources to JPLers about where to find information to reach out to communities who would be interested in collaborating based on the topic of research and/or region of study
- Bring people from communities to JPL to share, give talks
- Give a list of conferences that could be of interest for JPLers, other than the usual ones.
- JPL could have training, a framework, guidelines to interact with locals.
- Talk with NASA program managers about the education and outreach program that used to be in place, to put it back in place.