Note from the authors:

Respect the immense work and emotional labor required to create this document. This is the product of people who have already done the work of marginalized groups in realizing some of the organization's privilege, and the privilege of individuals within the organization. It is your responsibility to continue learning independently, and internalize how you play a role in this story. We respectfully ask you to read this document to prepare for incorporating new ideas into all of our sessions this retreat. Together, we will incorporate these principles into our community's being.

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Retreat JEDI Pre-Reading

Our organization is exploring our position in topics related to justice, equity, diversity, and inclusion (JEDI). Our first JEDI statement with the Black Lives Matter movement was long overdue, and we need to do our due diligence in evaluating how we can do better. The purpose of this document is to orient you to the injustices that have shaped our field of climate science and education, and our/your role in perpetuating these unjust practices. You may find certain topics below to be triggering, and possibly related to your own experiences. This document may make you sad or angry for the state of our field, but you can walk away with hope for the future of of our organization. We ask that you take what you have learned throughout your experience at the retreat, and approach our decision-making process with a JEDI lens at all times. There will be a designated person responsible for explicitly highlighting areas for JEDI growth in each session, and we encourage you to contribute to their brainstorming process. Our ideas will be culminated in the penultimate session of the retreat, where we will decide our values relating to JEDI and how we plan to translate these values into actionable goals. It is also important for you to understand that there are three main audiences of our organization, and therefore three different areas of growth we must address (although we acknowledge this action will not be immediate across the board). The three main audiences you should keep in mind are:

1. The alumni network (existing members)
2. People who engage with our training materials (potential members)
3. Members of the public who engage with our communication materials (public audiences)

We have room to grow in the equitable and inclusive engagement of all of our audiences. However, increasing JEDI in our practices will not happen overnight. The first step is becoming aware of how we are currently benefiting from the *status quo* in climate science and education.

> *Your assignment for this pre-work is to come up with a list of barriers/biases we currently perpetuate for **at least one** of our identified audiences.*

Critical definitions
- Axes of diversity:
  - Race: A categorization of humans based on shared physical or social qualities, often including descent from regions of the world.
    - BIPOC: "Black, Indigenous, and People Of Color". BIPOC most commonly refers to people of Native, Hispanic, Southeastern Asian, Pacific Islander, and African descent. Do not assume people are American, and do not use antiquated terms from our segregated history.
    - Indigenous: Refers to the original inhabitants of any land, also referred to as Native people. Putting the word "American" as a qualifier frames this community in the perspective of their colonizers and is not appropriate.
  - Gender: A spectrum of identities defined by social and cultural expectations including male, female, transgender, and non-binary.
  - Age: Discrimination on the basis of age is called "ageism", and it can work in both directions based on circumstance.
  - Socioeconomic status: Social and economic power held by an individual, often systematically ingrained within certain communities or racial groups due to oppression and discrimination.

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- o <u>Physical disability</u>: Limitation on a person's physical functioning (e.g., physiological or genetic conditions), mobility, dexterity, or stamina. See "ableism".
- o <u>Neurodiversity</u>: The range of differences in individual brain function and behavioral traits, including phenomena such as the autism spectrum and learning disabilities. See "ableism".
- o <u>Residence</u>: Rural vs. urban residing peoples have different priorities and values, and may also differ in socioeconomic status. Also includes regional differences in priorities, as well as landowner vs. non-landowners.
- o <u>Immigration status</u>: Language like "citizens" and "Americans" excludes our diverse immigrant population in the process of becoming citizens or those prevented from doing so.
- o <u>Religious beliefs</u>: We must acknowledge the importance of religion in shaping other axes of diversity and promoting certain value systems in our communities.
- o <u>Education level</u>: Our society is set up to be run by the "educated" and served by the "uneducated" for lesser compensation. Capitalism perpetuates a modern form of servitude and promotes widening gaps between socioeconomic classes.
- <u>Social justice</u>: The equal distribution of wealth, opportunities, and privileges within a society.
  - o <u>Environmental justice</u>: A fair distribution of environmental benefits and burdens among members of society. Often used with reference to the effects of pollution.
- <u>Inclusion</u>: Access for diverse groups of people to decision-making, resources, and opportunities.
- <u>Inequity</u>: When two or more groups (see: axes of diversity) are not on approximately equal footing. Active or passive policies/actions that perpetuate an unequal balance of power.
- <u>Intersectional</u>: When two or more forms of segregation/power (i.e., race and gender, socioeconomic status and climate effects) act simultaneously.
- <u>Ableism</u>: Discrimination in favor of able-bodied people, apparent in the design of virtual, classroom, and public spaces with few or no default accessibility measures.
- <u>Classism</u>: Prejudice against or in favor of people belonging to a social class, as defined by socioeconomic status and/or education level and/or residence and/or immigration status.
- <u>Minoritized</u>: A group of people subordinate to the dominant group in political, financial, or social power without regard to the size of these groups. The word "minoritized" specifically highlights how the dominant group has actively, viciously perpetuated the subordination of this group. We prefer this term over "minorities", which is a passive reflection of the direct actions performed by the dominant group. Additionally, "minoritized" allows the subordinate group to maintain their identities outside of their minoritization.
- <u>Marginalization</u>: The act of pushing certain peoples to the edges of society by taking away power. We often consider marginalized groups to include indigenous, poor, disabled, or elderly communities.
- <u>Underrepresented groups</u>: A subset of the population that holds a smaller percentage within a community (i.e., the field of climate science) than that subset holds in the

general population. Characteristics of underrepresented groups vary based on community. For example, women are underrepresented in geosciences but not science education.

- Privilege: A right or advantaged gained by belonging to the "majority" (ruling group) within axes of diversity. Having privilege in one axis (i.e., education level) does not preclude you from being underprivileged in other axes (i.e., gender). *Being discriminated against for certain characteristics also does not make you not privileged for others.* You can acknowledge your conditional privilege while keeping space for those who have less. This is why we say Black Lives Matter, and not All Lives Matter.
- Belonging: An emotional connection to a group, fostered by shared experiences and similarities among group members.
- Colonialism: The practice of invading, controlling, and exploiting another community's land, people, and resources. Broaden your thinking beyond historical colonialism to include modern exploitation such as oil drilling, agriculture, and toxic waste dumping, and the resulting repatriation.
- Patriarchy: A system of society or community organized by and benefitting white men. Includes capitalism, government, and class structure. Systematically discriminates against women and BIPOC. Even academic and non-profit institutions operate in a capitalist scheme, and are therefore products of the patriarchy.
- White fragility: Discomfort and defensiveness on the part of a white person when confronted by information about racial inequality and injustice. Often seen as "not all X people…". Defensiveness leads to inaction, and an inability to acknowledge privilege.
- Bias: An active or passive method of evaluation that is either systematic or personal, and results in fewer people from diverse backgrounds joining a community. Some examples include achievement awards based on notoriety, implicit bias against pregnant women during hiring, and company-wide decisions made by male-dominated leadership teams.
- Barrier: An active or passive method of exclusion that is either systematic or personal, and results in fewer people from diverse backgrounds joining a community. Some examples include inflexible working hours and locations, fees for participation, and mission statements that are not actively anti-racist.
- Recruitment: The active pursuit of including diverse peoples by lowering barriers to inclusion, increasing targeted solicitation, and incentivizing participation.
- Retention: The active, continuous process of fostering a sense of belonging, providing worth, and maintaining a diverse, equitable, and inclusive environment for recruited individuals on a long timescale.

Addressing Legacies of Colonialism in Science

As a child, you probably imagined a scientist traveling to distant forests and shores, discovering new species and new lands. But what about the peoples that stewarded those lands and already had a rich natural history in their society? Science has a dark history of colonialism, heralding back to the original institutions of scientific discovery in Europe. The structures of our institutions are built on the premise of "going out and discovering". The key word there being "out" – science is often done outside of the scientist's local community and ecosystem. Science has perpetuated colonialism into the present day by conducting research in foreign countries and even in different socioeconomic classes without consent of the local community. For example, research on the health effects of living near EPA-designated Superfund sites is a form of colonialism with respect to environmental injustice. The researchers benefit from the publication

output, receive funding for the research, and have no long-term obligations to help the community recover. The underlying problem is a sense of elitism, where certain institutions are granted the societal ability to conduct research, despite being outsiders. Even further, local communities attempting to conduct research on their own habitats and peoples are excluded from institutional (administrative and funding) support for these endeavors. In the US, the practice of acknowledging native lands we occupy has become more popular, but this is not enough. Indigenous communities have rich knowledge of the stewardship, both in management and appreciation, of their historic lands and we continue to ignore their knowledge, characterizing it as "non-traditional" and "not scientific". The legacy of colonialism in our work is also present in the way we promote our social science-based framework for communication. The aspect that sets us apart from other organizations, our academic-assimilated scientific methods of studying communication, is also our tie into traditional structures of colonialism and gatekeeping in higher education. We must use our platform to advocate for diverse types of knowledge, and include "non-traditional" perspectives into our future research as a means of broadening our field and stepping away from colonialism in our practices. Additionally, we must be cautious when expanding into new communities to avoid colonialist tendencies, such as promoting our viewpoints as authority and for the "betterment" of their situation. Progressive efforts and liberal-leaning groups often fall prey to this moral superiority, especially in rural communities and places of lower socioeconomic status. We must continuously evaluate our recruitment messaging in these areas so that it is genuine and free of implicit themes of colonialism. **We have the opportunity to rise above institutionally-inbred systems of colonialism in our research and in the expansion of our network.**

Politics of Doing Science
There has always been a history of domination in cultures represented in science and science education. The types of science that are valued and have risen to the forefront of our communication efforts have deep roots in politics, despite science being a non-partisan topic. For example, the proposed telescope at Mauna Kea has been met with heavy opposition from the native community, despite there being multiple telescopes on this mountain peak already. Historical politics of doing science on Mauna Kea have been dominated by white, male scientists hailing from outside of the local Hawaiian community. Scientists in the current time are attempting to use their historical domination to continue building on native land. Here, we see that decisions "in the name of science" still marginalize groups that are not against the pursuit of knowledge, rather, they are protesting the installation of invasive scientific tools on their land. Similarly, the designation of national and state parks for conservation is in stark contrast with the seizure and occupation of native lands that had previously enjoyed responsible stewardship by indigenous peoples. Historically, the way we communicate with the public about conservation and scientific discovery has not reflected the history of domination facilitating their educational value. We may remember the phrase here, "history is written by the victors". Instead, think of this: history is written by the dominators. Our organization has benefitted from and perpetuated this domination-driven value structure in our educational framework, along with the rest of our field. For one, our organization has received years of funding support from a federal agency, at which decisions are made by a select few, historically white male, academic panels. Our science and educational mission have been validated by the *status quo* because of our ability to assimilate and prove our qualifications with PhDs. **Remember that the *practice and procedure of science, and therefore education, is always political.***

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<u>Identity and Belonging in Science Education</u>
Every individual feels a different sense of belonging to their field. Some of us may identify as educators, others as scientists, and others as both – even more of us may identify as multiple roles in our fields. We are privileged to feel this way. There are large groups of individuals that do not feel a sense of identity and belonging in their fields because of systemic bias and oppression that have made them lonely islands fighting against a system designed by the majority. This majority in science is white, and while it may not be necessarily male in science education, the same patriarchal tendencies are still present. Many of us have experienced what it is like to be a woman in science, to have an extra barrier to respect in our fields. As a woman of color, these barriers are increased. As an immigrant woman of color, even further. As an immigrant of color belonging to the LGBTQIA+ community, the barriers are overwhelming. Fighting for respect at every step by masking their identities (and values) is something that underrepresented groups face daily, and it means they spend all of their energy assimilating instead of belonging with their own identities. Think about what it means to belong to our organization, and what it means to be alumni. ***There is a training barrier to reaching this status.*** Trainings are facilitated by a subset of our existing community, and those facilitators implicitly impose their values upon the experience. Additionally, we have failed to provide accessible accommodations in our trainings for disabled, neurodiverse, and multilingual peoples. We may all share similar values (e.g., science communication is important), but to assume our complete value sets and needs are identical or even remotely similar is naïve. When a new member comes into a training where their needs and values *outside of science communication* are not shared, they do not feel the same sense of belonging as others might. Some examples of different identities represented in the present community are: regional identities (west vs. east coast), religious identities (atheist vs. Christian denominations), and age/career stage (early career vs. established in your field). The time, place, and circumstance of where you were raised and currently live plays a large part in your identity and sense of belonging in a community. Our organization was started on the east coast at long-standing, historically white male & upper class-dominated institutions in the academic and education spheres. This foundation shapes our values as an organization and implicitly excludes potential members that do not feel a sense of belonging within these institutional structures. Additionally, current members that have assimilated to our foundational values appear to have a sense of belonging, but they often do not feel comfortable expressing their full identities within our community. This reflects societal customs that have forced assimilation of underrepresented groups, but also our individual commitments to broadening acceptance of ideas outside of our echo chambers. **Our lack of acknowledgement of our patriarchal foundational elements under the guise of remaining "neutral" do more harm and result in the exclusion of potential members from underrepresented groups.**

<u>Identifying Bias in Scientific Research</u>
The histories of exclusion in science have become embedded in our field, from scientific procedures to funding, and from language to metaphors. As we established above, the politics of science have benefitted our organization in the funding landscape. Our organization performs social science research on human subjects, a field rife with bias and problematic scientific procedures. Our research is most literally the study of language and society values. We have specifically developed metaphors and targeted language for a specific audience. The basis of our organization perpetuates implicit and explicit bias in language and metaphor in the field of

science communication research. But is our tested audience representative of our intended audience? Should our intended audience be broader? For example, we have tested our communication framework for the "American public". But who is the American public? Did the focus groups contain only citizens from the "baby boomer" generation, did it accidentally recruit a majority white demographic, and were there enough people represented from poor communities in states like Mississippi and Oklahoma? We must acknowledge our research is inherently biased. There is no way to *remove* all biases from our research and therefore our communication framework, but simply acknowledging our shortcomings will help us address bias in future research. This also means that our current values and metaphors may not have the same efficacy with all types of audiences, and we must respect this. For example, our framing may not be effective with younger voters that have been growing up in a society undergoing extreme civil unrest alongside dynamic climate change effects. Similarly, immigrants will not have the same values as those who have experienced the last 50 years in American history. **We have a long way to go before our communication framework explicitly addresses all groups present in our audiences at informal education centers and academic institutions.**

Addressing Race and Gender

Race and gender are sociocultural constructs. Yet they have real impacts on our daily lives and well-being. We have a duty to acknowledge these designations in our practices without marginalizing or tokenizing their members further. Our organization often toes the line between tokenizing and including historically underrepresented groups within our ranks, as almost every organization attempting to grow has done. As alumni know so well, we need to better understand the values our intended audience has in order to provide honest services to diverse audiences, instead of recruiting new members without existing support. Remember, we must actively foster a sense of belonging for *all* members of different identities than our historic and current membership. What practices can we put in place to facilitate our recruitment and acceptance of all identities? For example, we have already put in place an anonymous reporting system for biases and inappropriate behavior. How do we learn from these anonymous reports to restructure our interactions so they do not continue? Additionally, we may consider targeted community-building practices that are explicitly addressing race, sex, and gender in the context of developing a sense of belonging for retention in our community. **While our organization is made up of some underrepresented groups, we have not done our due diligence in including other groups explicitly in recruitment and retention efforts.**

Hierarchy and Accountability in Science

Educational institutions, both formal and informal, operate on a highly structured system of power. Certain administrative structures hold decision-making power over workers, and funding agencies hold some directional power over their awardees. Individuals faced with these restrictions are acutely aware of what they must do for their work to be funded and incorporated into the structure of their institutions. Consequently, the production and dissemination of knowledge is directly impacted by funding and administrative structures in education. For example, a scientist working on the impacts of ocean acidification for marine mollusks on the Gulf Coast may be persuaded to prefer aquaculture species for their research projects because of increased available funding and "benefit" to society. In the social sciences, a researcher working on the negative impacts of discrimination in the classroom may be persuaded to study communities outside of their own workplace, as institutions fear any scrutiny on their own

operations. As we learned above, science and education are always political, and the power structures in place directly dictate the type of knowledge we produce and disseminate. Our organization has evolved in its administration over the last few years and will continue to do so in the near future. Our governing council is set up as an oligarchy, with its executive chair elected as a democratic position. Governing council members are selected by the current governing council, and applicants are self-selected from the community at large. The direction for our organization is decided at this governing council level, with regular communication filtered to the whole network. This is not necessarily a bad thing, but we must consider the methods of recruitment for our power structures in order to represent the true interests of our network. Are we holding ourselves to the broadest standards of accountability, or have we sequestered the governing council in an echo chamber? Additionally, our organization has undergone many transitions in the funding accountability present: from full federal funding, to support from parent non-profits, and finally into a new frontier now. We must consider how beholden we are willing to be to organizations outside of our own, and make priorities for our funding targets as such. We may also consider a diversity of funding opportunities that allow for freedom of scientific exploration outside of the current scientific *status quo*, including the incorporation of non-traditional knowledge in indigenous groups. Lastly, our organization is undergoing a major administrative transition above the level of governing council. We must think long and hard about the consequences of affiliating with other organizations participating in exclusionary practices, as well as our own responsibility to become an equitable, inclusive, and diverse independent organization. **We are at a critical point in our history with the opportunity to restructure our own hierarchies and accountability to external organizations in order to address JEDI and grow in a sustainable, inclusive way.**