

Arctic Coastlines:
Frontlines Of Rapidly Transforming Ecosystems (FORTE)
Investigation Inclusion Plan

FORTE EVS-4 Mission
Investigation Inclusion Plan

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1. FORTE Goals and Activities for Creating and Sustaining a Positive and Inclusive Working Environment

Change in the coastal Arctic has profound implications for humans, resources, and ecosystems worldwide. Yet not all people are equally affected. Climate change is deeply intertwined with global patterns of racial, income, and gender inequality. Vulnerable communities across the world face disproportionate challenges in terms of impacts from climate change hazards. In the coastal Arctic, local Indigenous communities are adapting their lives to the “new Arctic”, facing pressure from increasing development, enormous changes in subsistence resources and livelihood security, forced displacement, and loss of cultural identity. Understanding climate change impacts on coastal Arctic systems *and beyond* more comprehensively, and building innovative, sustainable solutions, requires an inclusive approach and a diverse team working collaboratively with local indigenous communities at the forefront of climate resilience [1]. Yet, there continues to be limited engagement by Indigenous people, minorities, and people of color within Arctic research teams, due to a centuries-long history of exclusion and overlooked input [1]. Women from many nations were largely excluded from polar research and exploration until the 20th century [2]. Although there is now a growing number of women participating in Arctic field expeditions, research crews on research vessels are still very male dominated and women still face unique challenges in the field [2]. **To promote, create, and sustain an inclusive and positive working environment, FORTE will plan specific activities focusing on (i) reducing barriers to participation of minority groups and female scientists in Arctic research, (ii) elevating voices and actively collaborating with Indigenous communities, (iii) fostering communication and openness amongst the team and collaborators, and (iv) seeking and valuing stakeholder engagement.**

Addressing the FORTE science objectives requires building a diverse Science Team that contributes expertise across a wide range of disciplines. Moreover, the FORTE PI team will ensure student recruitment plans include underrepresented individuals to increase participation of a diverse talent pool in climate change science.

“Helicopter Science” or “Parachute Science” is a primary concern in remote areas that are historically underserved [3, 4], and structures and plans have been or will be established to prevent this harmful practice in FORTE. This begins with establishing strong collaborations with local Indigenous communities in the FORTE region, as has been paramount in previous research activities in the coastal Arctic by the FORTE PIs [5]. In addition, working with the local indigenous communities, the North Slope Borough government, and other partners will ensure a fruitful and mutually beneficial collaboration for all parties. Respecting the local customs, practices, cultural sensitivities, and priorities will be a prime concern in all stages of planning and research execution. The Indigenous *Iñupiat* communities from the village of Nuiqsut and the North Slope Borough government were contacted by the PI team during the proposal stage and initial discussions of plans to engage locally and potential science questions of local interest were held (see letters of support). Participatory inclusion of Indigenous Peoples in research and monitoring activities are highly valued and the PI team will work to ensure inclusion throughout the project lifetime. This includes the incorporation of Indigenous perspectives and concerns and integration of local Indigenous knowledge into this study. Below are specific items that will be implemented in the FORTE project in addition to the level of effort required to successfully implement the Inclusion Plan. The planned activities align with the Strategic Goals and Strategic Objectives of the NASA Strategic Plan for Diversity, Equity, Inclusion, and Accessibility (DEIA) [6].

2. Fostering Meaningful Partnerships with Local Communities

In order to successfully carry out the complex research in FORTE, collaboration and partnership with local Indigenous people of the North Slope will be key. This includes at all stages from planning, logistics, field work execution, training, communication, and synthesis. We will use the Global Code of Conduct for Research in Resource-Poor Settings [7] as a guide to foster the four principles of Fairness, Respect, Care, and Honesty. Specific actions during the project include:

1. Hold an in-person meeting and town hall with Alaskan North Slope stakeholders during the year 1 planning phase.
2. Have an open call for local collaborators to be funded to work with the science team throughout the field season, co-develop training programs, and provide paid internship opportunities for local indigenous students to participate in the field campaign.
3. Host workshops in year 2 and 3 in a central location to provide information to local collaborators and interested community members on science goals and updates. Provide travel funds for local participation,
4. Support travel for interested local partners to conduct outreach beyond the Alaskan Arctic, potentially at regional or national science meetings.

3. Field Safety and Anti-Harassment

Field safety and anti-harassment is paramount to having an inclusive and successful project and field campaign. A recent workshop and publication [8] laid out the challenges with field safety and sexual harassment in the ocean sciences and provided guidelines and resources to address field safety at all stages of planning. FORTE will implement recommendations of this article to make all members of the team aware of the expectation of conduct while in the field. This will prevent harassment and bullying and foster inclusivity, provide means of reporting to address incidents as they arise, and collect feedback year-over-year to continually improve policies and procedures around harassment as a safety issue. Specific plans include:

1. Mandatory training will be provided to cover: **sexual harassment, bystander intervention, unconscious bias, allyship, respecting cultural diversity, microaggressions, and reporting**. Training will be mandatory for all participants during the annual field planning stage (prior to start of fieldwork).
2. Identify **agency and institutional resources** for reporting and require each PI team to submit an annual plan prior to the field season, within the bounds of their institution.
3. Establish **multiple Points of Contact (POCs)** during fieldwork and the duration of the science investigation for reporting. POCs will represent different genders and career levels, to ensure all FORTE team members are comfortable reporting any issues or concerns.
4. Debrief the team and conduct an **anonymous survey with standardized questions** for all team members upon completion of the field campaign.

4. Specific Science Team Activities, Methods for Reporting, and Inclusion Plan Updates

A FORTE **Code of Conduct** will be developed of which adherence will be expected based on the American Geophysical Union Code of Conduct. All FORTE (leadership, management, science) team members must read and agree to the Code of Conduct prior to each investigation year in the spring. In addition, an **anonymous reporting mechanism** will be established via the secure side of the project website to allow all FORTE team members a mechanism of providing feedback

relevant to the project; both in terms of reporting any issues as they arise as well as in terms of highlighting cases of successful engagement that should be encouraged/continued in the future.

An **anonymous survey** beyond that associated with the field work debrief will be conducted by the PI Team and Investigation Manager annually in the winter to assess overall science team demographics and identity, satisfaction, retention, and to acquire feedback on overall inclusivity. This survey will be specifically tailored to the peculiarities of the FORTE mission (i.e., working in remote Alaska, isolated ground-based field work, living aboard a research vessel for extended periods of time), and will gather information on potential power dynamics among the team, building off the expectations from the various trainings and Code of Conduct mentioned above. Information from the survey will be used by the Investigation Manager and PI Team to: (a) track metrics of team inclusion such as meeting attendance and participation, the frequency reporting mechanisms are used, and how team participation changes over time; (b) identify and monitor specific issues that arise during the science investigation implementation; (c) inform breakout group discussions about inclusion within the FORTE mission team; (d) update the Inclusion Plan annually to include emergent issues.

Breakout sessions at the annual science team meeting to address general topics related to inclusion (e.g., microaggression awareness, unconscious bias, and allyship) and specific issues for the FORTE science team will be conducted each year at the annual science team meeting. Reports generated from the data collected will be included in the periodic reporting to the Program Managers during the duration of the mission.

5. Proposed Level of Effort

The FORTE PI team will carry out the proposed activities. The proposed level of effort is up to 1 week per year per PI team member and Investigation Manager, to plan the proposed activities, participate in meetings, plan breakout sessions, as well as administer and assess evaluation materials/metrics from proposed activities (e.g., surveys, training, identification of institutional resources). Up to an additional 1 week per year will be required from the Investigation Manager to compile data, produce reports, and update the Inclusion Plan annually working with the PI team.

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