



Arctic Research Consortium of the U.S. (ARCUS)

Building Better Collaboration Structures & Norms: An Arctic Perspective on Advancing Environmental Change Research



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Research to Inform a New ARCUS Strategic Plan

In 2018, the Arctic Research Consortium of the U.S. undertook a strategic planning initiative to help guide the future research support and facilitation efforts of our organization. One of our new strategic goals— **shared here >>>>>>>>** emphasizes understanding the research support needs of our community as well as improving collaborative research best practices.

As a first step in this direction, ARCUS staff have begun a comparative assessment of key Arctic research initiatives. To date, this comparison has allowed us to develop a typology of current Arctic research programs, which we are exploring further through the lens of organizational design and team collaboration theories. The overall aim of this effort is to help identify how ARCUS might improve our research support & facilitation services.

ARCUS will lead in facilitating collaborative efforts with Arctic research and apply expertise in professional support of such collaborations

- We seek a more balanced distribution of collaborations among natural and social science, Indigenous knowledge holders, and early career researchers, focusing on inclusion and diversity.
- ARCUS will have a thorough understanding of who is engaging in these collaborations, the perspectives and needs of these participants, and to diversify that group.
- We will work to improve the best practices in collaborations across boundaries within the Arctic research community.
- ARCUS will focus on support and facilitation of U.S.-based research in the context of the global Arctic research community.
- ARCUS will prioritize support for NSF-sponsored activities that advance our mission and vision.
- ARCUS will focus on our core community, starting with those closest to us and building out as specific research support needs or goals are identified
- We will primarily support research efforts that are big picture, multi-disciplinary, system science initiatives that help move research forward and that make a clear impact in the world. We will become the go-to place for information and resources in support of emergent efforts such as these.
- ARCUS will provide assistance for people and institutions new to Arctic research in cultural awareness, best practices, engagement, and opportunities to work in collaboration with Indigenous organizations.
- Support for the research community does not mean advocacy.

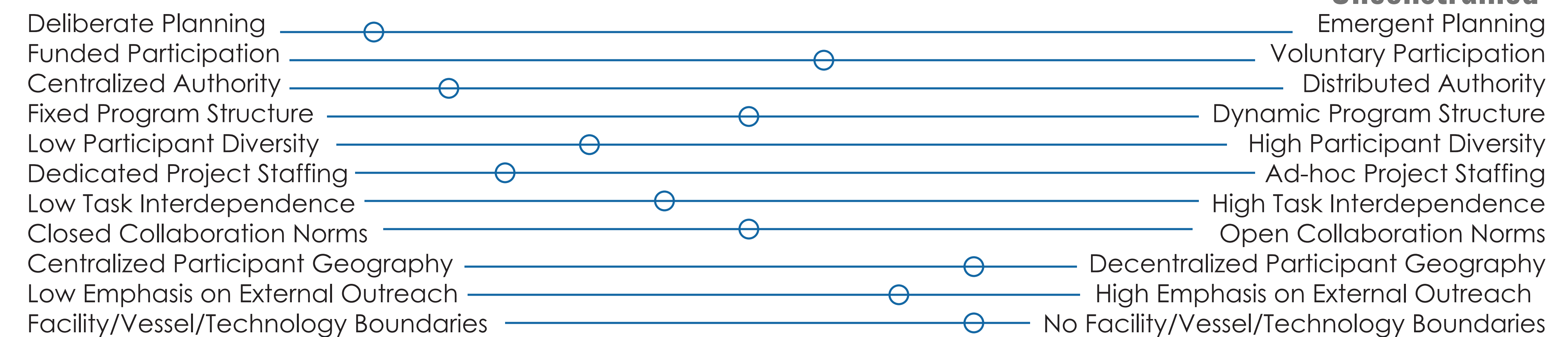
Study Subjects

- Study of Environmental Arctic Change
- Distributed Biological Observatory
- Permafrost Carbon Network
- IARPC Collaboration Teams
- Sea Ice Prediction Network
- Sea Ice for Walrus Outlook
- NASA Arctic Boreal Vulnerability Experiment
- Arctic Long-Term Ecological Research Site
- Multidisciplinary Drifting Observatory for the Study of Arctic Climate
- Forum on Arctic Modeling & Observational Synthesis
- National Ecological Observing Network

Using document analysis, observations, and key informant interviews, ARCUS staff explored the Arctic research programs listed above and used this assessment to create a typology for Multi-Team System Arctic research collaborations.

A Multi-Team System (MTS) Typology for Arctic Research

Type A: Constrained



Project Management Skill Set Emphasized

Both of course!

No MTS is static and helping to maintain the right balance between Type A & Type B is an important part of the research project/community role.

Community Management Skill Set Emphasized

Collaborative Structures & Norms From the Literature



Organizational Design



Team Collaboration

*Salas et al. 2015 - DOI:10.1002/hrm.21628



Interdisciplinarity by Design

- What degree of synthesis across disciplines is desired?
- How will it be designed, measured, managed, & evaluated?
- Aboelela et al. 2007 - DOI: 10.1111/j.1475-6773.2006.00621.x

Boundary Spanning or Intermediary Needs

- Who is the best party to set up and mediate relationships in multi-institutional, multi-sector, or multi-knowledge system collaborations and what role will they play in filling knowledge, capability, or competency gaps?
- How will everyone - including boundary spanning or intermediary support organizations - benefit or generate internal value?
- DeSilva, Howells, & Meyer 2018 - https://doi.org/10.1016/j.respol.2017.09.011
- Kennedy 2018 - https://doi.org/10.1002/gch2.201800018

Legacy & Longevity

- How do you give programs, projects, networks, or teams that are often in constant flux a longer lifespan/persistent legacy?

Results Delivery Timelines

- Are built networks poised to ingest new observations and deliver results on the timeframe needed by end users?
- Ted Schuur presentation at 2018 Permafrost Carbon Network Annual Meeting

Professional Development

- Are compensation, reward, or leadership development structures & norms in place to incentivize collaboration.

Cooperation*

- How is trust being established?
- How is a shared sense of efficacy being created?

Conflict*

- Is conflict addressed or ignored?
- Are expectations about how to handle conflict shared?

Coordination*

- Is goal setting a collective effort?
- How do teams self-correct?
- Are roles clear to all team members?

Communication*

- Are closed-loop communication patterns used?
- Is information shared and coordinated across teams?

Coaching*

- Are leadership responsibilities clearly distributed?
- Are there coaches diagnosing and addressing teamwork issues?

Cognition*

- Does cross-training occur?
- Are roles, how they fit together, and team functioning well understood by all?

Composition*

- Are team members selected for team orientation?
- Are teams built so individual characteristics or traits complement one another?

Context*

- Are contextual challenges anticipated and planned for?
- Do policies/practices/procedures exist to promote teamwork?

Culture*

- Do all members feel safe to voice ideas or concerns?
- Are pro-team values and a respect for differences demonstrated?

Want to learn more? Please find us at AGU:

ARCUS staff will be hosting the Arctic Research Community Meeting Rooms at the Cambria Hotel (Duke Ellington 1 & 2) all week. We invite you to visit us there. To learn more or reserve meeting space please visit us online at: <https://bit.ly/2BWW513>

We also invite you to attend the **ARCUS Annual Meeting &/or the Arctic Research Community Reception on Wednesday, 12 December, 6-8:30pm**. Please take a postcard invite below!

ARCUS Project Office Support Examples

Study of Environmental Arctic Change Supporting Science Synthesis & Stakeholder Engagement



National Science Foundation Award: 1331083

ARCUS Principal Investigator: Helen Wiggins

Awarded Amount to Date: \$1,398,763.00

Project Office FTE Staffing Level: 1.3

ARCUS Project Managers: Brit Myers & Lisa Sheffield Guy

Role of the Arctic Research Consortium of the the U.S.

- Grants management & funder communications
- Strategic planning
- Program operations
- Leadership and Action Team staffing support
- Project management
- Day-to-day task and milestone tracking
- Conference, Workshop, & Meeting planning & facilitation
- Program communications and outreach
- Website development & graphic design
- Product dissemination

Sea Ice Prediction Network (SIPN2) Improving Arctic Sea Ice Forecasts using an Interdisciplinary Approach



National Science Foundation Award: 1748308

ARCUS Principal Investigator: Helen Wiggins

Awarded Amount to Date: \$430,093.00

Project Office FTE Staffing Level: 0.4

ARCUS Project Managers: Betsy Turner-Bogren & Stacey Stoudt

Role of the Arctic Research Consortium of the the U.S.

- Strategic planning
- Program operations & project management
- Grants management & funder communications
- Project Team & Key Collaborator coordination
- Sea Ice Outlook report production management
- Action Team coordination
- SIPN2 webinars host
- Meeting planning and participant support
- Program communications and outreach
- Website development
- Day-to-day tasks & milestone tracking

What Else Might We Do as an Arctic Research Project Office?

- Leading corrective program evaluations
- Interdisciplinary training
- Leading team and leadership development efforts
- Additional support for boundary spanning efforts



What Kind of Questions Should We Be Asking When Evaluating Existing Programs or Designing New Collaborations?