Opportunity to Plan and Develop a Comprehensive US Arctic Research Infrastructure Network Hub at the Prudhoe Bay Area

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Pending Workshops and Conference Sessions:
- Wilson Center Ice-Diminished Arctic Symposium (July 2019, Washington, DC)
- NSF HARC Workshop for science need (Fall 2019, Fairbanks, AK)
- NAS-PRB HARC Workshop for agencies coordination (Late 2019, Wash., DC)
- ASM2019 Pan-Am Arctic research coordination (Dec. 2019, Halifax, Canada)

Introduction: Arctic Change > Response > Opportunity
US High Arctic Research Center (USHARC):

Need and Opportunity: The rapidly changing Arctic will change the world...physically, economically, politically, and in many ways. U.S. interests are increasingly vulnerable due to these changes. To respond as a resilient nation, a proper research infrastructure throughout the US Arctic is needed.

Leveraging Resources for Arctic Research
Large region + high costs = Leverage resources to realize greatest benefits
- “It’s all about sharing at the end of the day and having the ability to maneuver. It’s expensive to work in the Arctic and sharing resources makes sense.”

USHARC Facility
USHARC is to adapt and evolve through phased development:
- Master Plan: Adaptive plan to align investments with evolving priorities
- Phase 1: Master Plan; construct roads, pads, infrastructure
- Phase 2: Core facility for basic year-round capability of small scale operations; Commons core, Lodging, Lab, UAS Center, Maintenance & Support Center; ~$50,500 sq. ft. total
- Phase 3: Update Master Plan; expand facility scale, systems, and capabilities: Marine dock and support facilities, marine vessels, portable lab trailer, portable shelter(s): ~14,000 sq. ft. added building area, new pads
- Phase 4: Future phases, dictated by subsequent evaluations and Master Plans

USHARC + Arctic Network > Opportunities
Fill gaps in research and operating capability in the U.S. Arctic

Data Sparsity: Research stations perform an important function to enable research and understand rapid changes in the observation-sparse Arctic.

High Arctic Research Infrastructure Network: While the U.S. operates several facilities in Alaska, they are constrained in their missions, which limits our ability to support safe, secure and sustainable development of the Arctic.

Partnering: Public and Private stakeholders for comprehensive and responsible solutions to address mutual needs and interests, including:
- State and Federal Government agencies
- Military/Defense/Emergency Response
- Non-Government Organizations
- Pan-American and Pan-Arctic
- Research Institutions
- Local Communities
- Law/Constabulary
- Industry

USHARC > Increase U.S. Presence in the High Arctic
U.S. has the smallest active presence in the Arctic among Arctic Nations (and less than some non-Arctic Nations)

USHARC can increase the U.S. Arctic presence:
- Permanent, year-round facility
- Infrastructure for Arctic research, technology, and training
- Shoreline location for campaigns across land, sea, air, ice
- Increase domain awareness (and research for same)
- Increase logistic capabilities (and research for same)
- Increase communications (and research for same)

Leveraging Resources for Arctic Research

Global Effects: Increased greenhouse gas levels
Regional Effects: Black carbon emissions, ice cover changes, temperature changes, agriculture

Global Effects: Shell sea ice, increased population
Regional Effects: Localized permafrost, new sea ice, increased population

Global Effects: Projected increase of sea level rise
Regional Effects: Increased population

Global Effects: Increased greenhouses, agriculture, urbanization
Regional Effects: Increased greenhouses, agriculture, urbanization

Global Effects: Decreased sea ice, increased population
Regional Effects: Increased greenhouses, agriculture, urbanization

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