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## U.S. HIGH ARCTIC RESEARCH CENTER

**Sandia National Laboratories' and the University of Alaska's proposed research center will create permanent facilities to provide researchers and stakeholders with support for High Arctic operations.**

### A Rapidly Changing Arctic

Rapidly changing conditions in the Arctic have increased access to natural resources and maritime routes, enabling more commercial shipping, resource extraction, or an increased security presence. Permafrost melt and coastal erosion impact infrastructure, communities, and ecosystems. Security and environmental issues are exacerbated by the enormity of the region, a lack of infrastructure (including communications and rescue operation capabilities), and scarce monitoring. Evolving Arctic conditions also present significant challenges for scientists and policy makers looking to gain a better understanding of long term consequences. To ensure proper stewardship and security of this critical region, many issues must be addressed in the near future.

### USHARC: Mission in the High Arctic

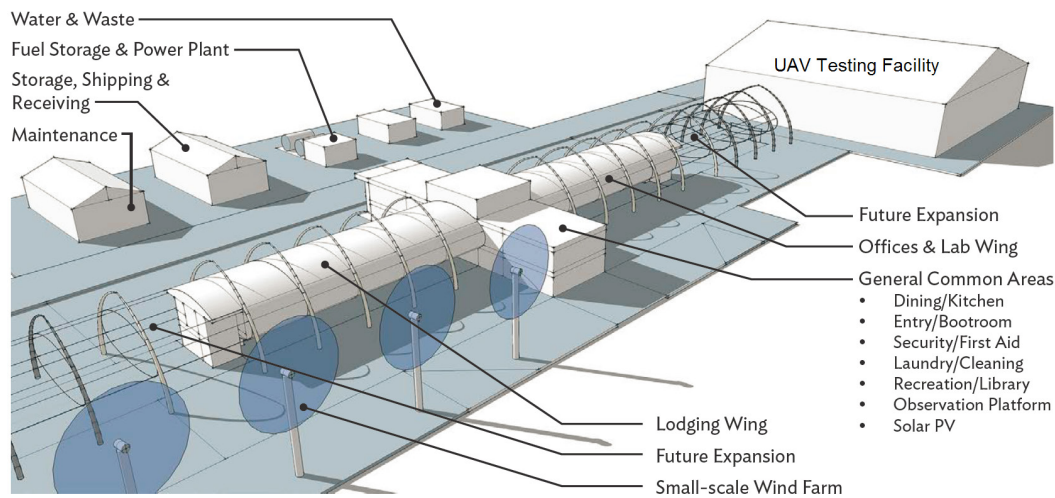
Sandia and the University of Alaska-Fairbanks (UAF) have proposed USHARC, the U.S. High Arctic Research Center at Oliktok Point, Alaska. The proposed center would partner stakeholders from science, safety, and security to develop comprehensive solutions for Arctic challenges. The center would include an unmanned aircraft systems (UAS) facility. The center would also offer year-round use; logistical support; access to varied ecological settings; and it could support testing for technologies such as autonomous platforms, renewable energies, microgrids, and sensors. The USHARC would utilize existing Sandia and UAF assets and capabilities to serve national needs.

### University of Alaska + Sandia Partnerships

Sandia and UAF have maintained a strong relationship for over a decade. Sandia operates facilities in the High Arctic for the Department of Energy, and UAF has extensive research experience throughout the Arctic.

### Sandia's Experience in the Arctic

Sandia's experience includes twenty years of climate measurement on the arctic coast, energy assessments for Alaska native villages, nuclear materials management for the Air Force, search and rescue drills with the coast guard, remote sensing of permafrost, computer modeling of the melting of the Greenland ice sheet, and airborne synthetic aperture radar (SAR) to detect crevasses and subsurface changes in land and sea ice.



## USHARC will include:

- Labs for research, testing, and technology development
- A facility for unmanned aircraft systems (UAS) and autonomous platform operations,
- Staff and researcher lodging,
- Operational support,
- Spaces for teaching and training.

## USHARC Concept

USHARC will provide a multi-disciplinary, year-round High Arctic Center to conduct cooperative scientific research, identify appropriate arctic technologies, and support field tests and exercises. This will enable advances in the development, resilience, preservation, and stewardship of Arctic resources, communities, and environment.

Inter-stakeholder collaborations and establishment of an Arctic station network (USHARC, Barrow/Utqiagvik, and Toolik Lake) will advance U.S. knowledge and monitoring of the Arctic to improve environmental stewardship, security, and sustained economic opportunity.

## Facility and Site Assets

**Location:** 1 km from the Arctic Ocean; with access to the lower 48 States via the northern-most road.

**Controlled Airspace:** Restricted and Warning Areas provide access to the airspace at Oliktok Point and 700 miles across the Arctic Ocean.

**Research Support:** Lab space, logistical and operational support, UAS facilities, lodging, and test equipment.

**Collaboration:** Space for Arctic stakeholders; e.g. federal agencies, local governments, industry, and universities.

**Ocean Access:** A road from USHARC to the Arctic shore.

**Shared Use:** On-site support equipment, a UAS hangar, real-time observations, and meteorological data.

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