# **NSF Report to the UNOLS AICC**

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https://www.nsf.gov/geo/opp/arctic/res\_log\_sup.jsp



# **NSF Arctic Field Project Locations in 2022**



https://armap.utep.edu/armap\_viewer/



# **Arctic Section Field Activity and Contractor Support**





## Cryosphere/Ocean Distributed Acoustic Sensing (CODAS) Experiment

## TECHNICAL ARTICLES, VOL 26,3 CLIMATE CHANGE AND CRITICAL ZONE GEOPHYSICS Distributed Acoustic Sensing of Seasonal Wavefields in the Coastal Polar Waters of the Beaufort Sea, Alaska

#### By Michael G. Baker<sup>1</sup> and Robert E. Abbott<sup>1</sup>

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#### NSF ANS-2214651 – Madison Smith (WHOI) and Jim Thomson (UW) – EAGER: Persistent measurements of surface waves in landfast ice using fiber optic telecommunication cables.

**Goal**: Deploy a fleet of microSWIFT wave buoys at 3 km spacing and a single moored SWIFT wave buoy along the fiber optic cable from ~8 km to 35 km offshore distance, during spring (June), summer (August), and fall (October).

The NSF-funded (**ANS-1818485**) Coastal Ocean Dynamics in the Arctic (CODA) project (Thomson, UW) demonstrated that surface waves are often completely attenuated by the presence of landfast ice – but understanding of landfast ice processes and predictability of its presence are limited.



https://fasttimesonline.co/distributed-acousticsensing-of-seasonal-wavefields-in-the-coastalpolar-waters-of-the-beaufort-sea-alaska/

# ARCTIC Science Sessions

An Arctic Science Podcast from Battelle ARO

Hosted by: Eben Hopson

Arctic Science Sessions is a podcast from Battelle Arctic Research Operations with support from the National Science Foundation. Scientists travel to the North Slope from all around the U.S. to study the effects of climate change and to see how it affects local Inupiaq communities and their subsistence activities. In this series of podcasts we introduce you to a few NSF-funded groups working at the Barrow Arctic Research Center for Climate Change studying changes in the Arctic. Tune in to learn about them, their work, and how their interesting findings relate to everyday life on the North Slope Photo by: Colby Wright 1: Permafrost monitoring across the North Slope. Vladimir Romanovsky and Dmitry Nicolsky

**2: Waves, erosion, and the journey of sediment**. Jim Thomson and Emily Eidam

**3: From thawing permafrost to the clouds**. Jessie Creamean, Thomas Hill, Marina Nieto-Caballero, Kevin Barry, and Rick Minnich

**4: Arctic vegetation change**. Robert Hollister and Mackenzie Lift

**5: Team Vole**. Jess Steketee and Austin Roy

6: Long-Term Ecological Research at the Land-Sea Interface. Kenneth Dunton

Scientists travel to the North Slope from all around the U.S. to study the effects of climate change and to see how it affects local Inupiaq communities and their subsistence activities. Battelle-ARO and UIC-Science introduce you to NSF-funded groups working at the Barrow Arctic Research Center (BARC) studying changes in the Arctic. Tune in to learn about them and their work.

#### https://battellearcticgateway.org/local-engagement/science-sessions



#### NSF-funded 2022 Arctic Cruises (UNOLS, USCG, Chartered US Vessels)

**R/V Sikuliaq** – High-resolution records of storminess S. Bering Sea – Donnelly (WHOI) – 7/29/22 to 8/24/22, Seward, AK to Seward, AK, [NSF-OPP-ANS-2040375].

**R/V Sikuliaq** – Western Arctic Boundary Current Monitoring – Pickart (WHOI) – 11/01/22 to 11/28/22, Nome, AK to Seward, AK, [NSF-OPP-AON-1733564].

**USCGC Healy** – U.S. Synoptic Arctic Survey – Ashjian (WHOI) – 9/04/22 to 10/28/22, Dutch Harbor, AK to Dutch Harbor, AK; [NSF-OPP-ARCSS-2053098].

**R/V Norseman II** – Bering Strait AON – Woodgate (UW) – 7/9/22 to 7/16/22, Nome, AK to Nome, AK [NSF-OPP-AON-1758565] – Contract Charter

**R/V Norseman II** – Toxic Algal Blooms – Anderson, Pickart (WHOI) – 7/19/22 to 8/15/22, Nome, AK to Nome, AK [NSF-OPP-ANS-1823002] – Contract Charter

**R/V Norseman II** – High-resolution Multi-tracer Biogeochemical Study – Goni, Juranek (OSU), Stockwell (UAF) – 8/16/22 to 9/21/22, Nome, AK to Nome, AK [NSF-OPP-ANS-1949593] – Contract Charter

**R/V Ukpik** – Arctic Shelf Sediment Pathways – Eidam (UNC-CH) – 7/26/22 to 8/9/22, West Dock, Prudhoe Bay, AK to Harrison Bay, return [NSF-OPP-ANS-1913195] – Contract Charter

Note: all cruise dates are estimated and are subject to change.



## U.S. Synoptic Arctic Survey 2022 Cruise on USCGC HEALY



#### There will be three phases to the U.S. SAS cruise (ARCSS-2053098, Ashjian, PI, WHOI):

- 1. Recovery and deployment of moorings at the Chukchi Ecosystem Observatory.
- 2. Shelf-Basin Transect along historic line (EHS stations on waypoints; waypoints 1-16)
- 3. Sampling along east line to the north pole and along west line from the north pole.

#### **NSF-funded 2022 Arctic Cruises on UNOLS and International Vessels**

**R/V Neil Armstrong** – Davis Strait Observing System cruise – Craig Lee (UW) – 10/1/22 to 10/23/22, Nuuk, Greenland and back – [NSF-OPP-AON-1902595]

**CCGS Louis S. St-Laurent** (Department of Fisheries and Oceans, Canada) – Joint Ocean Ice Study/Beaufort Gyre Observing System (JOIS/BGOS) NSF-DFO joint cruise – Mary-Louise Timmermans (Yale U) – 9/15/22 to 10/13/22, Kugluktuk, Nunavut, Canada and back; [NSF-OPP-AON-1950077]

**CCGC Sir Wilfred Laurier** (Department of Fisheries and Oceans, Canada) – NSF-DFO joint cruise related to the Distributed Biological Observatory (DBO) – Jackie Grebmeier (UMD-CBL) – 7/5/22 to 7/26/22, Victoria, BC, Canada to Utqiagvik, AK [NSF-OPP-AON-1917469]



Note: all cruise dates are estimated and are subject to change.



### NSF-funded 2023 Arctic Cruises (UNOLS, USCG, Chartered US Vessels)

**R/V Sikuliaq** – The Tale of Three Systems: Fate of Primary Production in the Chukchi Sea – Kevin Arrigo (Stanford U.), June to mid-July; [NSF-OPP-ANS-2135316].

**R/V Sikuliaq** – Submarine Basins, Steppe, and Sea Ice: Paleoclimate and Paleoecology of the Late Pleistocene and Holocene Bering Sea Shelf – Sarah Fowell (UAF), mid-July to late-August; [NSF-OPP-ANS-2117052].

**USCGC Healy** – TBD

**R/V Norseman II** – Bering Strait AON – Woodgate (UW) – Nome, AK to Nome, AK; [NSF-OPP-AON-2153942] – Contract Charter

**CCGS Louis S. St-Laurent** – Joint Ocean Ice Study/Beaufort Gyre Observing System (JOIS/BGOS) NSF-DFO joint cruise – Mary-Louise Timmermans (Yale U) – Kugluktuk, Nunavut, Canada and return; [NSF-OPP-AON-1950077]

**CCGC Sir Wilfred Laurier** (Department of Fisheries and Oceans, Canada) – NSF-DFO joint DBO cruise – Jackie Grebmeier (UMD-CBL) – Victoria, BC, Canada to Utqiagvik, AK; [NSF-OPP-AON-1917469].

**Vessel TBD** – Nansen and Amundsen Basins Observational System (NABOS) – Igor Polyakov (UAF) – Ports TBD, Timing TBD; [NSF-OPP-AON-1724523].



## Ship-based Science Technical Support in the Arctic (STARC)

### **STARC solicitation (NSF 22-528)**

- Deadline for submission of proposals was March 1, 2022.
- Only one proposal was submitted to NSF led by Bruce Appelgate (PI, UCSD, SIO), Lee Ellett (Co-PI, UCSD, SIO), Andrew Woogen (Co-PI, OSU), Robert Kamphaus (Co-PI, UW).
- This proposal has been recommended for award (OPP-2222245) based on ad hoc mail reviews and internal discussions.
- The award will be made through a Cooperative Agreement with NSF.
- The award is pending review and processing by the NSF Division of Grants and Agreements (DGA).

A new STARC business model is being developed by NSF-RSL to manage the reimbursement of costs associated with support of non-NSF, agency-funded and/or ancillary projects implemented on USCGC HEALY.

The NSF-USCG Memoranda of Agreement (MOA) from 2010 is being updated.

NSF-RSL is participating in monthly HEALY Service Life Extension Program (SLEP) Integrated Product Team (IPT) meetings with the Surface Force Logistic Center (SFLC), Engineering Services Design (ESD), and In Service Vessel Sustainment (ISVS) groups, among others.

## **US Antarctic Research Vessel (ARV) Project**

Purpose of the ARV Project: This project is dependent on funding approvals from the NSF Director, and the National Science Board, and appropriations from Congress. The ARV project will produce a modern, world-class, ice-breaking research vessel coupled with modern scientific tools and enhanced capabilities compared to those of the RVIB Nathaniel B. Palmer (NBP). The ARV will ensure uninterrupted science operation in the Southern Ocean and the Antarctic for decades to come. The new research vessel will support the National Science Foundation's science mission goals by increasing access to ice protected hard-to-reach study sites, allowing for longer mission durations, and delivering more scientists and equipment to the Antarctic theatre.

https://future.usap.gov/ https://future.usap.gov/arv/



Figure 1 Size comparison: ARV concept design, R/V Sikuliaq, and R/V Nathaniel B. Palmer



## **Thank You! Any Questions?**



Photo by Bill Schmoker (PolarTREC 2010), ARCUS

https://www.supportvesselsofalaska.com/



https://inter-j01.dfo-mpo.gc.ca/fdat/vessels/81

UAF-CFOS, Photo by Mark Teckenbrock