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POLAR PROGRAMS

# NSF Report to the AIACC

Frank R. Rack, Ph.D., Program Manager, Arctic Research Support and Logistics Program  
NSF Office of Polar Programs, Arctic Sciences Section



# NSF Structure

The Director, Office of Budget, Office of International Science & Engineering, Finance, & Award Management, etc.

Directorate for  
**Biological Sciences (BIO)**

Directorate for  
**Geosciences  
(GEO)**

Directorate for  
**Engineering (ENG)**

Directorate for  
**Social, Behavioral & Economic  
Sciences (SBE)**

Directorate for  
**Computer & Information  
Science & Engineering (CISE)**

Directorate for  
**Education & Human  
Resources (EHR)**

Directorate for  
**Mathematical & Physical  
Sciences (MPS)**

Directorate for  
**Technology, Innovation and  
Partnerships (TIP)**

## Our mission is to support:

fundamental research in all fields of the geosciences and at the poles  
integration of research and education in geosciences  
infrastructure, instrumentation, facilities

# Welcome to the Office of Polar Programs!



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**Kate Ruck**

*Program Manager*

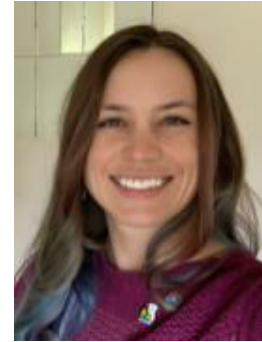
Arctic Research Support  
and Logistics



**Liam Frink**

*Program Director*

Arctic Social Sciences



**Beverly Walker**

*Interim Executive Secretary*

Interagency Arctic Research  
Policy Committee



**Katy Smith**

*Contractor*

Arctic Research Support  
and Logistics



**Andrew Titmus**

*Environmental Program Manager*

Office of Polar Programs



**Marc Tunstall**

*Station Manager*

Antarctic Infrastructure and Logistics



**Rebecca Gast**

*Program Director*

Organisms and Ecosystems  
Antarctic Sciences



**Arctic Sciences Section Head:** Jennifer Mercer

## **AAAS Science and Technology Policy**

**Fellow:** Xoco Shinbrot

**Science Assistant:** Kayla Hubbard

**Program Specialists:** Linda Izzard (supporting RSL),  
Angela Lyons (moving to OCE)

## **Arctic Research Support and Logistics (RSL)**

The RSL Program supports the fieldwork of research projects funded through science programs in the Arctic Sciences Section. Created to make Arctic fieldwork safer, more efficient, and cost-effective.

*Renee Crain, Frank Rack, Kate Ruck, and  
Katy Smith (contractor)*

## **Arctic Policy Program (ARPS)**

"...supports short- and long-term efforts to enhance communication, coordination, and collaboration across the research enterprise."

*Colleen Strawhacker*

## **Crosscutting Programs**

**Polar Education:** education research , to promote an informed citizenry and the next generation of scientists. *Lisa Rom*

**Polar Cyberinfrastructure:** collaboration between Polar and cyberinfrastructure researchers. *Allen Pope*



## Arctic Natural Sciences (ANS)

“...supports projects focused on hypotheses-driven and process-based science that informs an understanding of the larger Arctic region.”

*Rainer Amon, Colene Haffke, Marc Stieglitz*

## Arctic Observing Network (AON)

“...supports proposals to make field observations to detect and understand Arctic system change occurring on time scales longer than the duration of a typical NSF research grant.”

*Roberto Delgado, Olivia Lee*

## Arctic System Science (ARCSS)

“...proposals that advance our understanding of the Arctic as a coupled system, and how the Arctic system interacts with the Earth System...often interdisciplinary...with emphasis on the interactions among system components.”

*Colleen Strawhacker, Kelly Brunt, Greg Anderson  
(currently on detail to OIA)*

## Arctic Social Sciences (ASSP)

“...supports research on Arctic social and cultural systems, present and past, and research relevant to understanding these systems.”

*Erica Hill, Liam Frink*

**Notify the OPP Communications Team  
and your PO about any media efforts.**

Send us your stories, media, science  
publications and press releases for  
further amplification!

*OPP Communications alias: [oppcomms@nsf.gov](mailto:oppcomms@nsf.gov)*

Terri Edillon  
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# NSF/OPP/ARC funded Cruises Completed in 2022



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Ashjian (ARCSS-2053098) 2022 U.S. Synoptic Arctic Survey cruise on **USCGC Healy**

<https://www.iarpccollaborations.org/research-expeditions.html>

<https://synopticarcticsurvey.w.uib.no/>



Donnelly (ANS-2040375) 2022 Bering Sea Storms cruise on **RV Sikuliaq**

<https://www.iarpccollaborations.org/research-expeditions.html>

<https://www2.whoi.edu/site/coastalgroup/research/climate/>

By U.S. Coast Guard/DoD - DoDMedia, Public Domain,  
<https://commons.wikimedia.org/w/index.php?curid=2338112>

Pickart (AON-1733564) 2022 Monitoring the Western Arctic Boundary Current cruise on **RV Sikuliaq**

<https://www.iarpccollaborations.org/research-expeditions.html>

[https://nsf.gov/awardsearch/showAward?AWD\\_ID=1733564&HistoricalAwards=false](https://nsf.gov/awardsearch/showAward?AWD_ID=1733564&HistoricalAwards=false)

Zimmerman (DFO) and Timmermans/Proshutinsky (NSF: AON-1950077 and AON-1845877) 2022 Canada-US Joint Ocean Ice Studies/Beaufort Gyre Exploration Project (JOIS/BGEP) cruise on **CCGS Louis S. St-Laurent**

<https://www2.whoi.edu/site/beaufortgyre/>

<https://people.earth.yale.edu/research/mary-louise-timmermans>

Grebmeier (AON-1917469) 2022 DBO Canada-US collaborative cruise on **CCGC Sir Wilfred Laurier**

<https://dbo.cbl.umces.edu/index.html>

<https://www.iarpccollaborations.org/research-expeditions.html>

# OPP Communication Team, with NOAA, IARPC and R/V Sikuliaq: Social Media Campaign (November 2022)



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## OVERVIEW

Between November 1 and December 3, 2022, the R/V Sikuliaq embarked on a research cruise of the Chukchi Sea and the Alaskan and Canadian Beaufort Seas.

Principal Investigator Robert Pickert (1733564) lead the research cruise and broad aboard a photographer and videographer to document the work.

Through conversations prior to the cruise departure, a plan to promote the work on the vessel via social media was developed. The general plan was to post one Twitter thread each week using information provided by cruise researchers.



## SUMMARY INSIGHTS

Throughout the month of content, NSF successfully shared information about sea ice development, sediment coring, water chemistry, and more.

Content saw a total **3,680** engagements with an average **1.8%** engagement rate.

## KEY PERFORMANCE INDICATORS

**162,451**

TOTAL IMPRESSIONS

**3,680**

TOTAL ENGAGEMENTS

**1.8%**

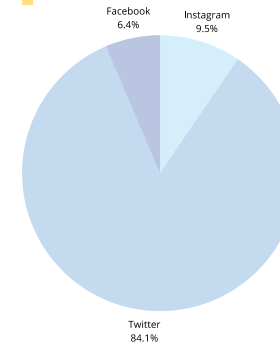
AVERAGE ENGAGEMENT RATE



The R/V Sikuliaq cruise content saw success across Key Performance Indicators (KPI). Popular understanding of social media KPIs note that an engagement rate of 1-2% is extremely successful, and it is understood that engagement rate is one of the best indicators of success, rather than raw metrics such as total impressions and engagements.

## KPI BY PLATFORM

### IMPRESSIONS

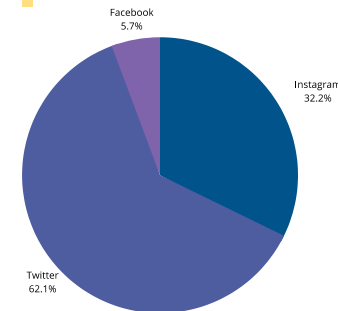


As anticipated, Twitter content made up the majority of campaign impressions with **84%**. On average, each post on social media received 7,384 impressions and 167 engagements.

Likes were the most prevalent engagement, followed by shares.

Interestingly, Instagram saw a higher proportion of impressions and engagements than Facebook, despite only having one Instagram post. Furthermore, Instagram's single post had an engagement rate of **7.6%**, reflecting the content's success.

### ENGAGEMENTS



R/V Sikuliaq Social Media

2

R/V Sikuliaq Social Media

5

R/V Sikuliaq Social Media

6

E&O participant onboard was **Amanda Kowalski**, Forge Photography: <https://www.forgephotography.com/about>  
**Lloyd Pikok, Jr.** was the community observer from UIC Science.



# NSF/OPP/ARC funded Cruises Completed in 2022



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Anderson/Pickart 2022 Toxic Algal Blooms collaborative cruise(s) on **Norseman II**

<https://www2.who.edu/site/andersonlab/current-projects/arctic-habs/>

Goni/Juranek 2022 High-Resolution Multi-Tracer Biogeochemical Study of the Pacific Arctic collaborative cruise(s) on **Norseman II**

<https://blogs.oregonstate.edu/oceangastracer/research/>

Woodgate - Bering Strait: Pacific Gateway to the Arctic cruise on **Norseman II**

<http://psc.apl.washington.edu/HLD/Bstrait/bstrait.html>



<https://www.supportvesselsofalaska.com/our-vessels/norseman-ii/>

Eidam 2022 Arctic Shelf Sediment Pathways cruise on **RV Ukpik**

<https://blogs.oregonstate.edu/coastalseds/>

<https://blogs.oregonstate.edu/coastalseds/projects/alaskan-beaufort-shelf/>



<https://rvukpik.com/>

<https://rvukpik.com/r%2Fv-ukpik>

# NSF/OPP's Arctic Sciences Section and the Arctic Research Support and Logistics Program



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NSF and Battelle ARO are committed to fostering meaningful engagement between NSF-funded scientists and the Arctic communities where research activities are carried out. In marine research, Community Observers may be required.

Battelle ARO staff facilitate community engagement and outreach activities in the Arctic.



*Battelle ARO supported Lloyd Pikok Jr onboard the R/V Skuliaq as the remote community contact for the cruise conducting outreach from the vessel. His daily updates shared images like this from the cruise. The science and deck teams perform in Van Veen Sediment Grab in Arctic Conditions. Photo: Amanda Kowlaski*

## IARPC Principles for Conducting Research in the Arctic

**The core Principles for Conducting Research in the Arctic are:**

- **Be Accountable**
- **Establish Effective Communication**
- **Respect Indigenous Knowledge and Cultures**
- **Build and Sustain Relationships**
- **Pursue Responsible Environmental Stewardship**

<https://www.iarpcollaborations.org/principles.html>

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



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**STARC solicitation (NSF 22-528):** The 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 was recommended for award ([OPP-222245](#)) based on ad hoc mail reviews and internal discussions. The **STARC Cooperative Agreement** was negotiated among the awardee institutions and NSF and the Programmatic Terms and Conditions were finalized and approved by July 14, 2022.

The award was made by the NSF Division of Grants and Agreements (DGA) effective September 1, 2022.

A new STARC business model was 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 USCG-NSF Memoranda of Agreement (MOA) was updated and fully signed on January 4, 2023.**

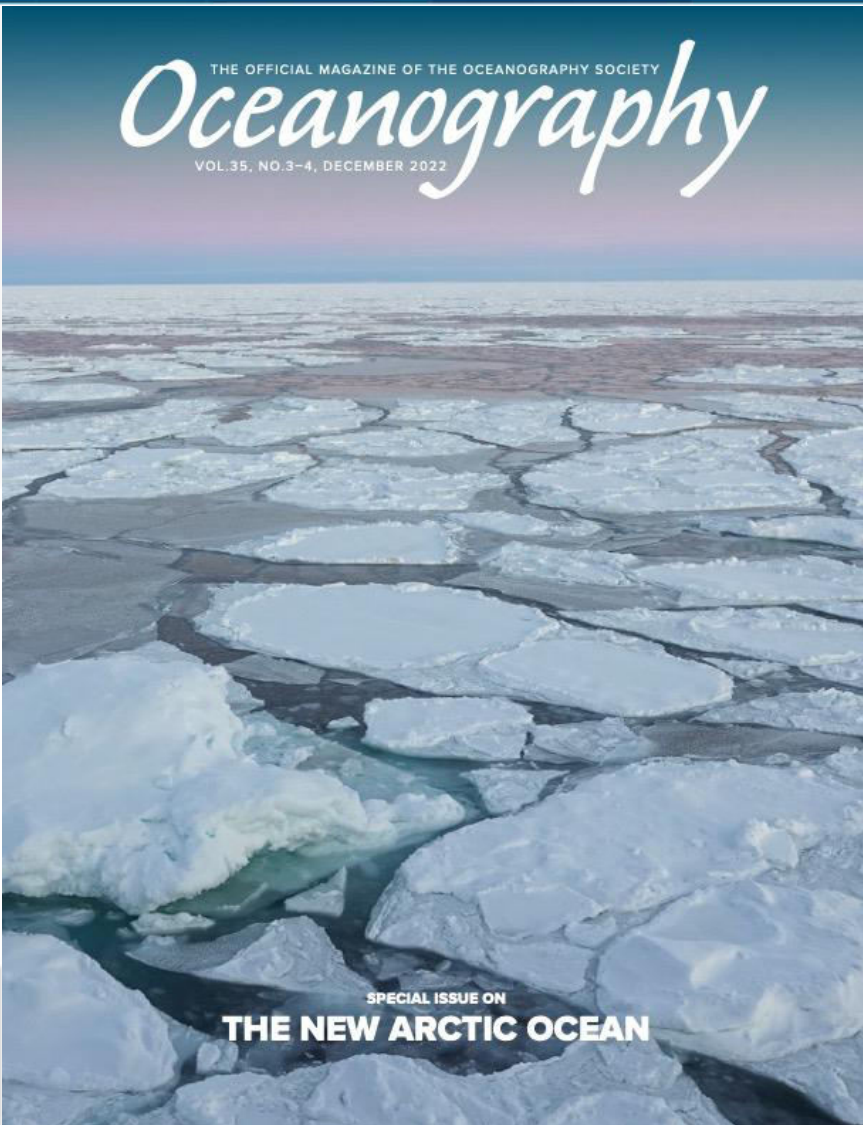
NSF-RSL is participating in monthly HEALY Service Life Extension Program (SLEP) Integrated Product Team (IPT) meetings with the Surface Force Logistic Center (SFLC), Engineering Services Design (ESD), and In Service Vessel Sustainment (ISVS) groups, among others. STARC is participating in the SLEP Engineering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

# OCEANOGRAPHY, Volume 35, Number 3-4, December 2022

## Special Issue on The New Arctic Ocean



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**On the Cover:** A sunset view of Arctic sea ice freeze-up from R/V Polarstern at 11.8°E, 81.5°N on September 29, 2020. The photo was taken during the transit home after the year-long Multidisciplinary drifting Observatory for the Study of Arctic Climate (MOSAiC) expedition. Photo credit: Melinda Webster, University of Alaska Fairbanks.

### Special Issue Guest Editors

- Tom Weingartner, University of Alaska Fairbanks
- Carin Ashjian, Woods Hole Oceanographic Institution
- Lawson Brigham, Wilson Center
- Thomas Haine, The Johns Hopkins University
- Liza Mack, Aleut International Association
- Don Perovich, Dartmouth College
- Benjamin Rabe, Alfred Wegener Institute

Support for this special issue was provided by the US Arctic Research Commission; National Science Foundation, Office of Polar Programs, Arctic Sciences Section; and Office of Naval Research.

<https://tos.org/oceanography/issue/volume-35-issue-3-4>

# NSF/OPP/ARC funded Cruises Planned in 2023



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**USCGC Healy (tentative):** Polyakov (AON-1724523) Nansen and Amundsen Basins Observational System (NABOS) cruise - potentially supported for first priority objectives (mooring recovery and deployment). See: [https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1724523](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1724523) and <https://uaf-iarc.org/nabos/>

**USCGC Healy (tentative):** Rigor (AON-1951762) Collaborative Research: Coordination, Data Management and Enhancement of the International Arctic Buoy Programme (IABP), and US Interagency Arctic Buoy Program (USIABP). See: [https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1951762](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1951762)

**RV Sikuliaq:** Arrigo (ANS-2135316) The Tale of Three Systems: Fate of Primary Production in the Chukchi Sea cruise. See: [https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=2135316](https://www.nsf.gov/awardsearch/showAward?AWD_ID=2135316) and <https://earth.stanford.edu/people/kevin-arrigo>

**RV Sikuliaq:** Fowell (ANS-2117052) Submarine Basins, Steppe, and Sea Ice: Paleoclimate and Paleoecology of the Late Pleistocene and Holocene Bering Sea Shelf. See: [https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=2117052](https://www.nsf.gov/awardsearch/showAward?AWD_ID=2117052)



<https://www.uaf.edu/cfos/sikuliaq/about-rv-sikuliaq.php> Photo by Mark Teckenbrock

# NSF/OPP/ARC funded Cruises Planned in 2023



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**CCGS Louis S. St-Laurent:** Zimmerman (DFO) and Timmermans/Proshutinsky (NSF: AON-1950077 and AON-1845877) 2023 Canada-US Joint Ocean Ice Studies/Beaufort Gyre Exploration Project (JOIS/BGEP) cruise.

<https://www2.who.edu/site/beaufortgyre/>

[https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1950077&HistoricalAwards=false](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1950077&HistoricalAwards=false)

**CCGC Sir Wilfred Laurier:** Grebmeier (AON-1917469) 2023 DBO Canada-US cruise

<https://dbo.cbl.umces.edu/index.html>

[https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1917469&HistoricalAwards=false](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1917469&HistoricalAwards=false)



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



<https://inter-j01.dfo-mpo.gc.ca/fdat/vessels/100>

# NSF/OPP/ARC funded Cruises and Projects in 2023



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**Norseman II: Woodgate - Bering Strait: Pacific Gateway to the Arctic**

<http://psc.apl.washington.edu/HLD/Bstrait/bstrait.html>



<https://www.supportvesselsofalaska.com/our-vessels/norseman-ii/>



R/V Tiglax

<https://www.fws.gov/refuge/alaska-maritime>

**TBD Vessel: Avery – (ARCSS-1935816) - Collaborative Research: Mercury dynamics from the Holocene to the Anthropocene: Tracking Aleutian mercury in ocean species important to Native Alaskan diets**

[https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1935816&HistoricalAwards=false](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1935816&HistoricalAwards=false)

**Team needs to be dropped off on and picked up from Agattu Island in the far western Aleutian Islands to conduct archeological fieldwork on land for several weeks.**

# NSF/OPP/ARC and GEO/AGS funded researchers Collaborative Cruise with SPRS in 2023



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**Swedish Icebreaker ODEN: ARTofMELT cruise - May-June 2023**

<https://www.polar.se/en/expeditions/artofmelt-2023/>

The expedition will not have a predetermined route but instead targets the North-Atlantic sector of the ice-covered Arctic Ocean, relatively far north of the ice edge. The purpose is to get to the areas where hot air from the south penetrates into the Arctic and affects the melting period. With the help of specialized weather forecasts, I/B Oden will navigate in advance to positions where atmospheric rivers are expected to occur and detailed observations can be made when the hot air arrives.

**Megan Willis (CSU) – GEO (AGS-2211153)**

[https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=2211153](https://www.nsf.gov/awardsearch/showAward?AWD_ID=2211153)

**Jessie Creamean (CSU) – OPP (ANS-2226864) - TBD**

**Penny Vlahos (UCONN-Avery Point) – OPP (ANS-2227313) - TBD**





# COVID Considerations for the 2023 Field Season



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- **NSF travel procedures will be posted to the Battelle Arctic Gateway**
- All research teams should have a written protective plan describing mitigation measures and response to COVID signed by an authorized institutional representative; this documents informed consent of the responsible institution and team members
- Where NSF enforces testing requirements, those become part of the required protective plan
- Travelers should always follow national, state, local and tribal travel restrictions

<https://battlearcticgateway.org/>



Photo: Eitan Shelef

