

NOAA Arctic Research Program
Office of Oceanic and Atmospheric Research
PAG October 2019 meeting, Hangzhou, China

Arctic Research Program's Mission
Renee Crain, Acting Director (ends Sept 2019)
New Director Dr. David Allen (Nov 2019)

To improve fundamental understanding of oceanic and atmospheric processes and to support NOAA mission capabilities across the Arctic through targeted sustained observing, synthesis and science communication efforts.



www.arctic.noaa.gov



Completed and Ongoing Activities

Fieldwork in 2019:

- HEALY Cruise for Distributed Biological Observatory (DBO)
- Sept 2019: The Multidisciplinary drifting Observatory for the Study of Arctic Climate (MOSAIC) deployments
- Buoy and glider deployments for sea ice, ocean acidification and other measurements
- Ongoing atmospheric measurements part of International Arctic Systems for Observing the Atmosphere (IASOA) and in support of the Year of Polar Prediction



Distributed Biological Observatory

<http://www.arctic.noaa.gov/dbo>



Distributed Biological Observatory – Northern Chukchi Integrated Study (PMEL + CINAR)

The Distributed Biological Observatory (DBO): Hydrography, Sediment, and Macrofaunal Population Dynamics (CINAR)

Ocean Acidification in the Distributed Biological Observatory (PMEL)

Distribution and Prevalence of Harmful Algal Blooms in Arctic Waters (CINAR)



Monitoring Sea Ice and Modeling Change

<http://iabp.apl.washington.edu/>

<http://imb-crrel-dartmouth.org/imb.crrel/>



Coordination and Data Collection of the U.S. Interagency Arctic Buoy Program (University of Washington- Grant)



Arctic Sea Ice Thickness Observations: Seasonal Ice Mass Balance Buoys (Dartmouth- Grant)

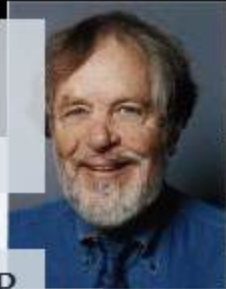


Seasonal to Decadal Sea Ice Projection (PMEL + JISAO)

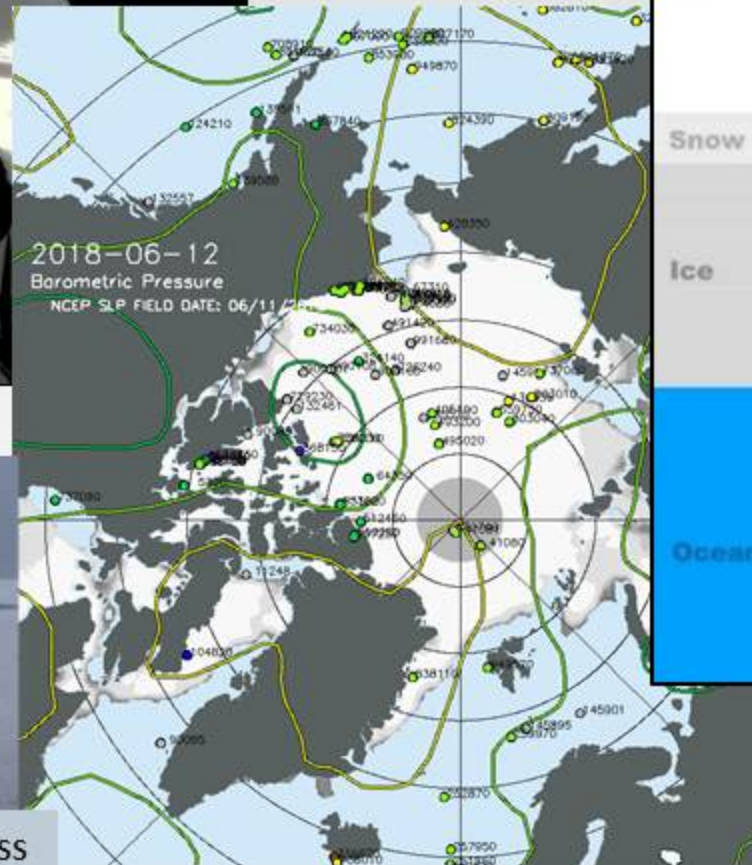


Arctic Climate Assessment for AMAP and the Arctic Council (PMEL)

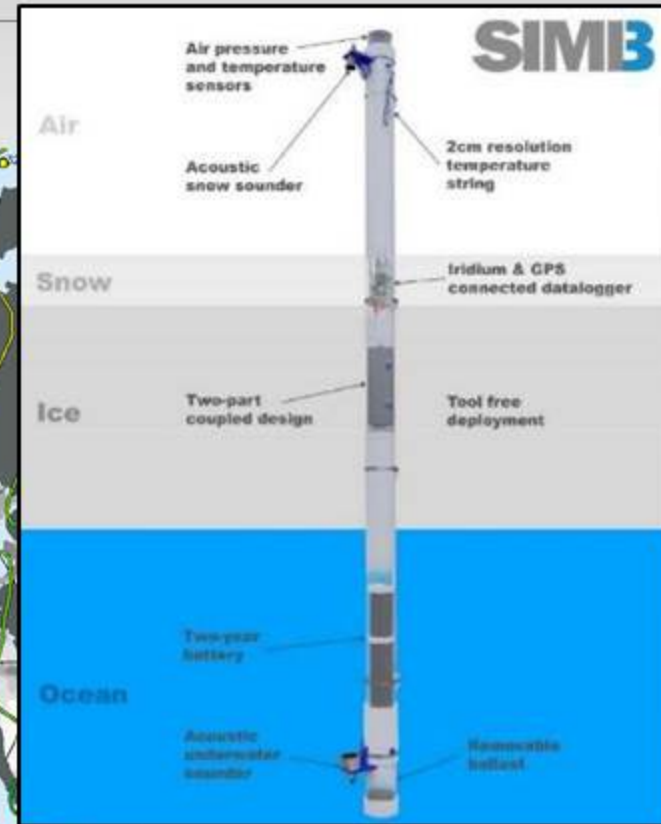
Modeling ice-ocean circulation and ice characteristics in the Arctic Ocean (GLERL)



Seasonal ice mass balance buoys

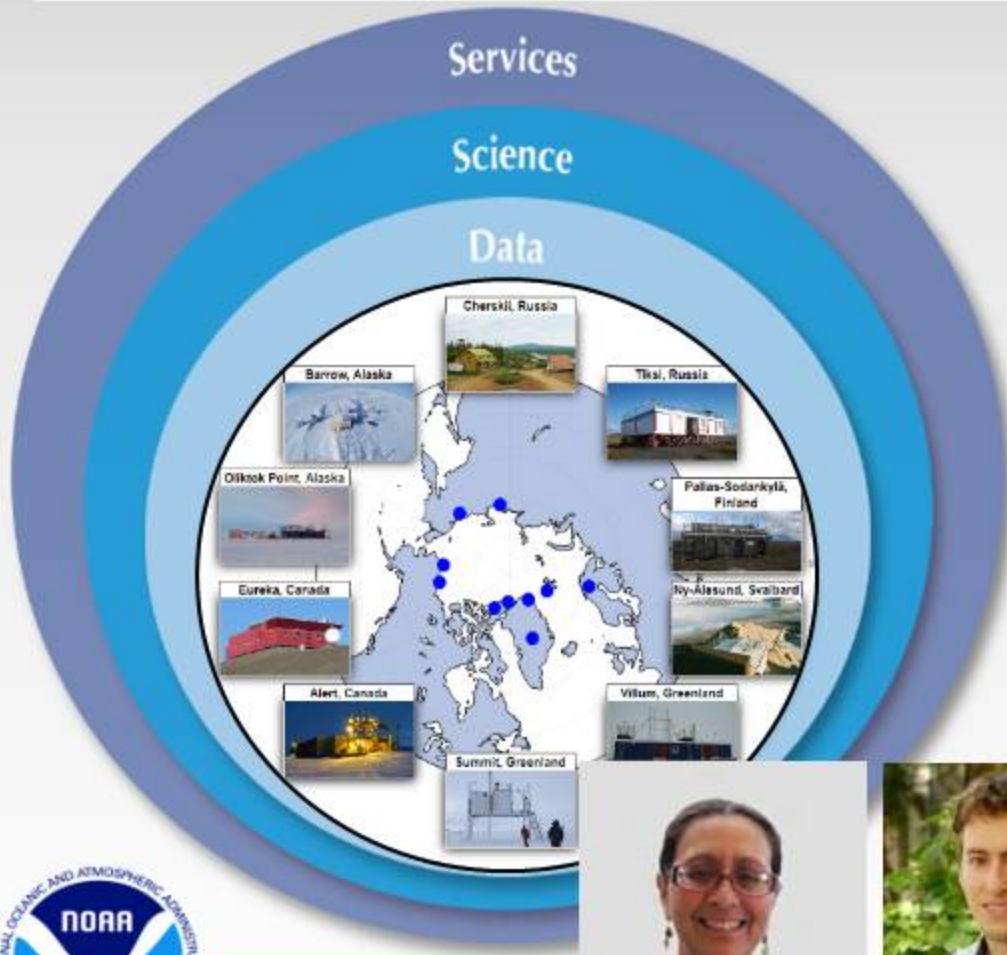


International Arctic Buoy Programme



Arctic Atmospheric Observatories

International Arctic Systems for Observing the Atmosphere (IASOA)
<https://www.esrl.noaa.gov/psd/iasoa/home2>



International observing system that provides research and climate grade atmospheric and surface measurements encircling the Arctic Ocean

Mission: is to advance coordinated and collaborative research objectives from independent pan-Arctic atmospheric observatories

- (1) strategically developing comprehensive **observational capacity**,
- (2) facilitating **data access** and usability through a single gateway,
- and (3) mobilizing contributions to **synergistic science** and **socially-relevant services** derived from IASOA assets and expertise.



MOSAIC as a part of YOPP

The Multidisciplinary drifting Observatory for the Study of Arctic Climate

September 2019 **Drift** September 2020

The German research icebreaker Polarstern will be at the heart of the expedition.



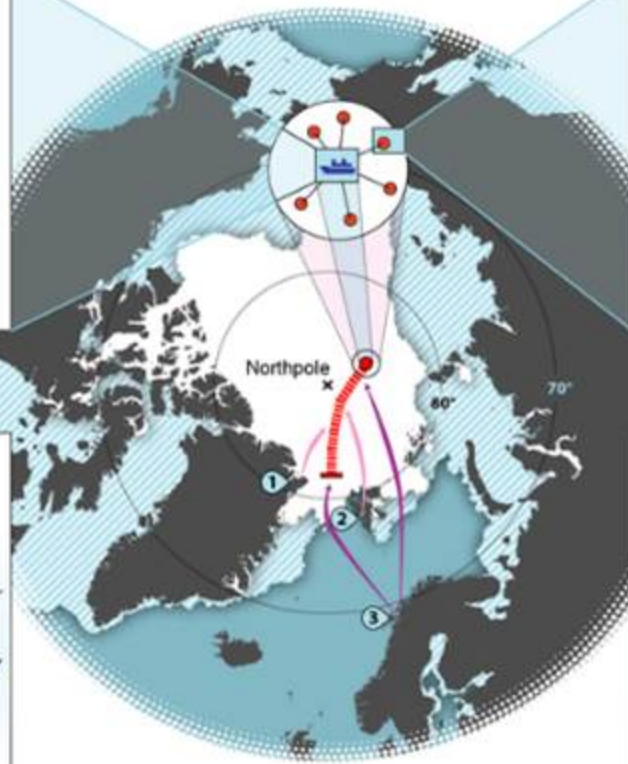
During the expedition, at least three research aircraft will be deployed.



Surrounding Polarstern, a several-kilometre-wide network of monitoring stations will be set up



Four icebreakers from Russia, China and Sweden will resupply the expedition with fuel and exchange personnel.



Ice expanse:



Contact routes:



Harbours / Airports:



Direct in-situ observations of the climate processes that couple the atmosphere, ocean, sea ice, bio-geochemistry and ecosystem.

Enhance understanding of the regional and global consequences of Arctic climate change and sea-ice loss and improve weather and climate predictions.

- The Arctic is a key area of global climate change, with warming rates exceeding twice the global average
- The observed rate of climate change in the Arctic is not well reproduced in climate models .
- Many processes in the Arctic climate system are poorly represented in climate models because they are not sufficiently understood.
- Understanding of Arctic climate processes is limited by a lack of year round observations in the central Arctic.

Recent Activities

- Arctic Research Program Review – A look at the past 5 years and discussion of where the program should
- New program manager hired as of November 2019 for the Arctic Research Program: Dr. David Allen
- Updated Arctic Action Plan expected this calendar year 2019



Additional Updates for PAG

The U.S. Arctic Research Commission released its Goals and Objectives report
https://www.arctic.gov/reports_goals.html

The 14 U.S. Federal agencies that fund research in the Arctic adopted a revised set of Principles for Conducting Research in the Arctic. These Principles are guidance for planning, behavior, and communication with communities in the Arctic.

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

Through the Interagency Arctic Research Policy Committee, the Field Operations Working Group shares a matrix of planned vessel traffic with communities in the Arctic through the Arctic Waterways Safety Committee and Alaska Eskimo Whaling Commission

<https://www.iarpccollaborations.org/members/people/teams/1985>

