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The Next Decade of RUSALCA



By Kathleen Crane

From 2015 until 2025, the domain of the RUSALCA program will likely expand from three transects in the Chukchi Sea to include observations across the East Siberian Sea into the Makharov Basin (Figure 1) as part of the newly developing Pacific Arctic Group (PAG) Climate-Ecosystem Observatory:

- The nations of the Pacific Arctic Group (China, Japan, Korea, Russia, Canada, and the United States) are proposing a series of repeat observations in the Arctic Ocean, north of the Chukchi Sea, extending from the Makharov Basin in the west to the Canada Basin in the east.
- This region has undergone the most extreme reduction in sea ice extent and thickness within the Arctic Ocean and yet is very poorly observed. We propose to study the evolution, structure, variability, and heat transport of Atlantic water in this region and its interaction with northward-flowing Pacific water from the Chukchi Sea.
- We also propose to carry out a census of the ecosystem in this region, which is likely in rapid transition due to extreme physical changes.
- We expect to conduct repeat observational transects and collect time-series records using moorings and gliders to reveal the interplay between the amount of heat being lost into the atmosphere from this part of the Pacific Arctic Ocean, enhanced mixing of both surface and intermediate waters in response to increased storms, and greater ocean absorption of solar radiation and the consequent impacts on the changing weather and climate of the Northern Hemisphere.
- The observing period will also incorporate atmospheric observations to support the World Meteorological Organization's Year of Polar Prediction (YOPP).
- We propose to coordinate this work with the schedules of research vessels from Pacific Arctic Group countries from 2015–2025 in order to provide a unique suite of synoptically collected data that will be available for joint analysis and assessment via the mechanisms already set up within the PAG.

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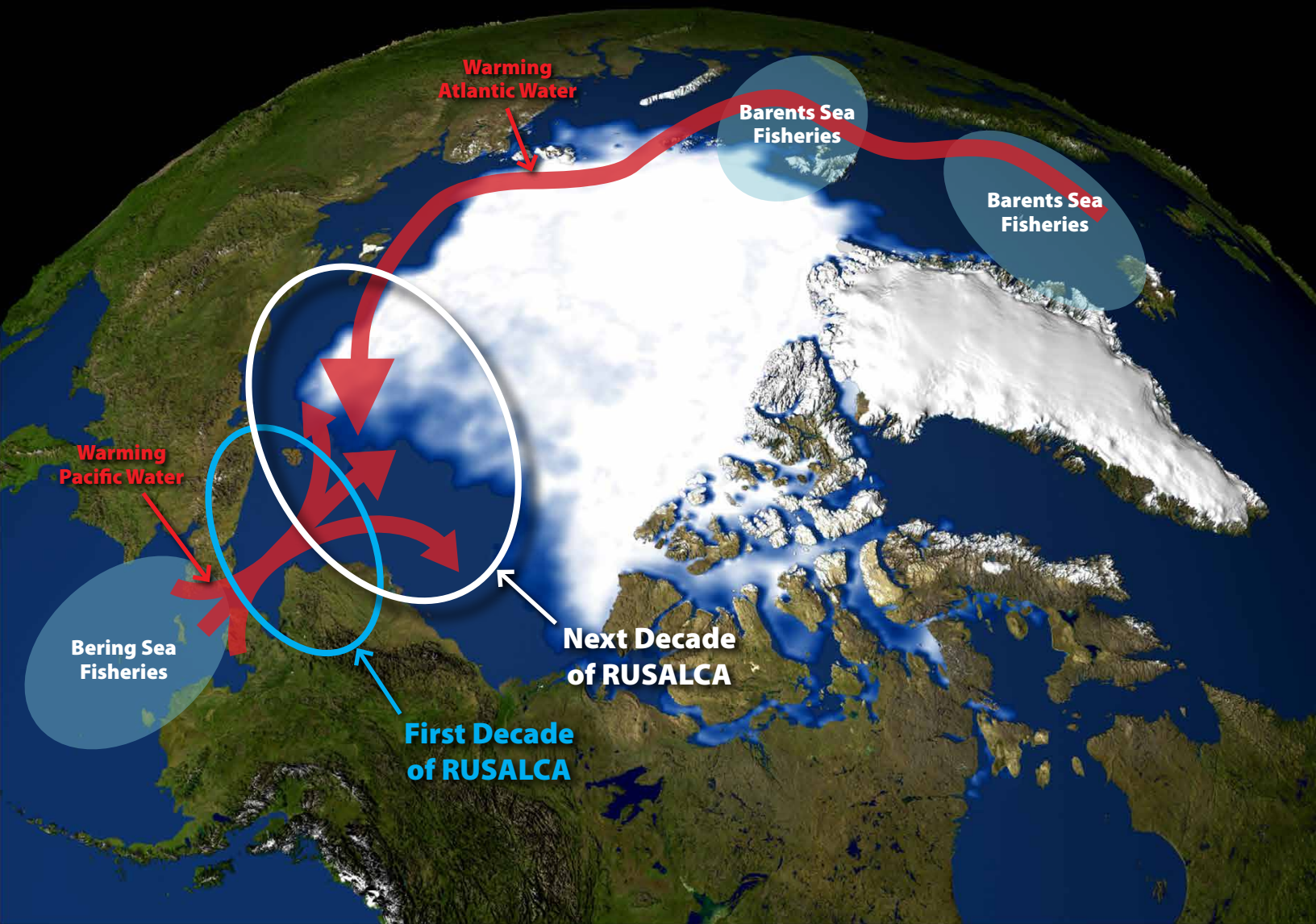


FIGURE 1. The next decade of RUSALCA will expand observations northward as part of the newly developing Pacific Arctic Group's Climate-Ecosystem Observatory. Basemap is 2002 Arctic sea ice extent. Credit: NASA/Goddard Space Flight Center Scientific Visualization Studio The Next Generation Blue Marble, data courtesy of Reto Stockli (NASA/GSFC)