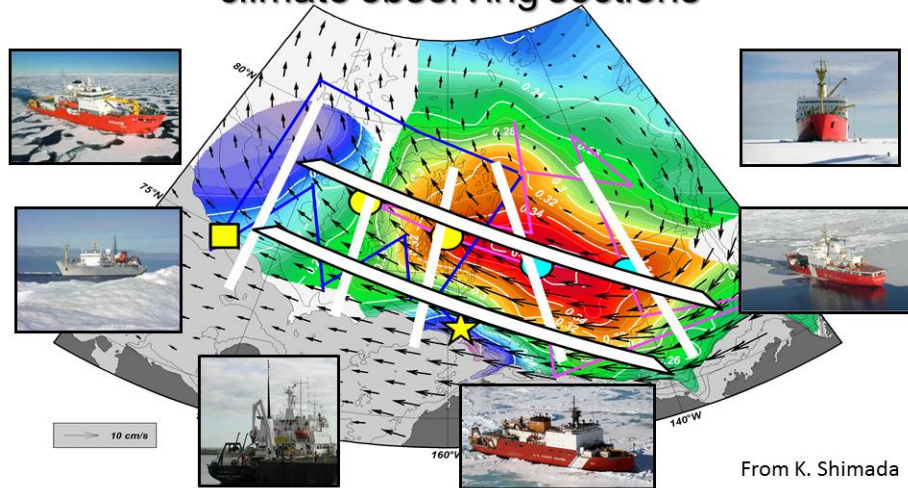


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|---|-----------------|--------------|
| Title of activity | | |
| The Pacific Arctic Group Climate Observing System: An international effort to understand the causes and consequences of sea ice loss in the 'Hot Spot' of the Arctic Ocean | | |
| Type of activity | Date | Place |
| Pacific Arctic Group ICARP III initiative | 27 October 2014 | Seattle, USA |
| Main organizer(s) (name and/or organization) and additional partners | | |
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| Abstract¹ | | |
| <ul style="list-style-type: none"> • The nations of the Pacific Arctic Group are proposing to carry out 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 loss of 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 warm Pacific Water from the Chukchi Sea, which accelerates the positive ice/ocean albedo feedback cycle, leading to rapid loss of summer sea ice. • We also propose to carry out a census of the ecosystem in this region which is likely in rapid transition due to the extreme physical changes. • Repeat observational transects and time-series records from moorings will be planned to reveal year-round the interplay between the amount of heat that is being lost into the atmosphere from this part of the Pacific Arctic Ocean, the enhanced mixing of both surface and intermediate waters in response to increased storms, increased 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 WMO's Year of Polar Prediction (YOPP). | | |

- We propose to coordinate this work with the vessels of our respective countries from 2015-2020, which will provide a unique suite of synoptically collected data made available for joint analysis, assessment, and modeling/data assimilation via the mechanisms already set up within the Pacific Arctic Group.

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Proposed international Pacific Arctic climate observing sections



From K. Shimada

Background color: dynamic height at 100dbar relative to 800dbar from Mirai and Louis S. St-Laurent 2008 cruises (Oceanic Beaufort Gyre)
 Black vectors: average sea ice motion vectors for Nov. 2007- Apr. 2008 (Sea Ice Beaufort Gyre)
 Symbols: Mooring array in 2012-2013 (TUMSAT/KOPRI/NIPR & WHOI)

Main contributions to ICARP III in terms of the ICARP III priorities

- PAG works with a pan-Arctic perspective to promote synergies across the Arctic Ocean.
- PAG recognizes the value of the ICARP III as a means to identify and prioritize overarching Arctic science issues, and to improve international coordination of research agendas.
- PAG's ICARP III contribution as data sharing and publications from results of the Distributed Biological Observatory (DBO), continued development of the Climate Observing System, and implementation of the project.
- PAG can provide a valuable dataset for ongoing research and development of cooperative synthesis in the Pacific and Atlantic marine sector.
- European research activity can complement PAG studies with its research in the Atlantic side of the Arctic.