

PACEO ongoing activities

Sung-Ho Kang

Member, PAG Executive Committee

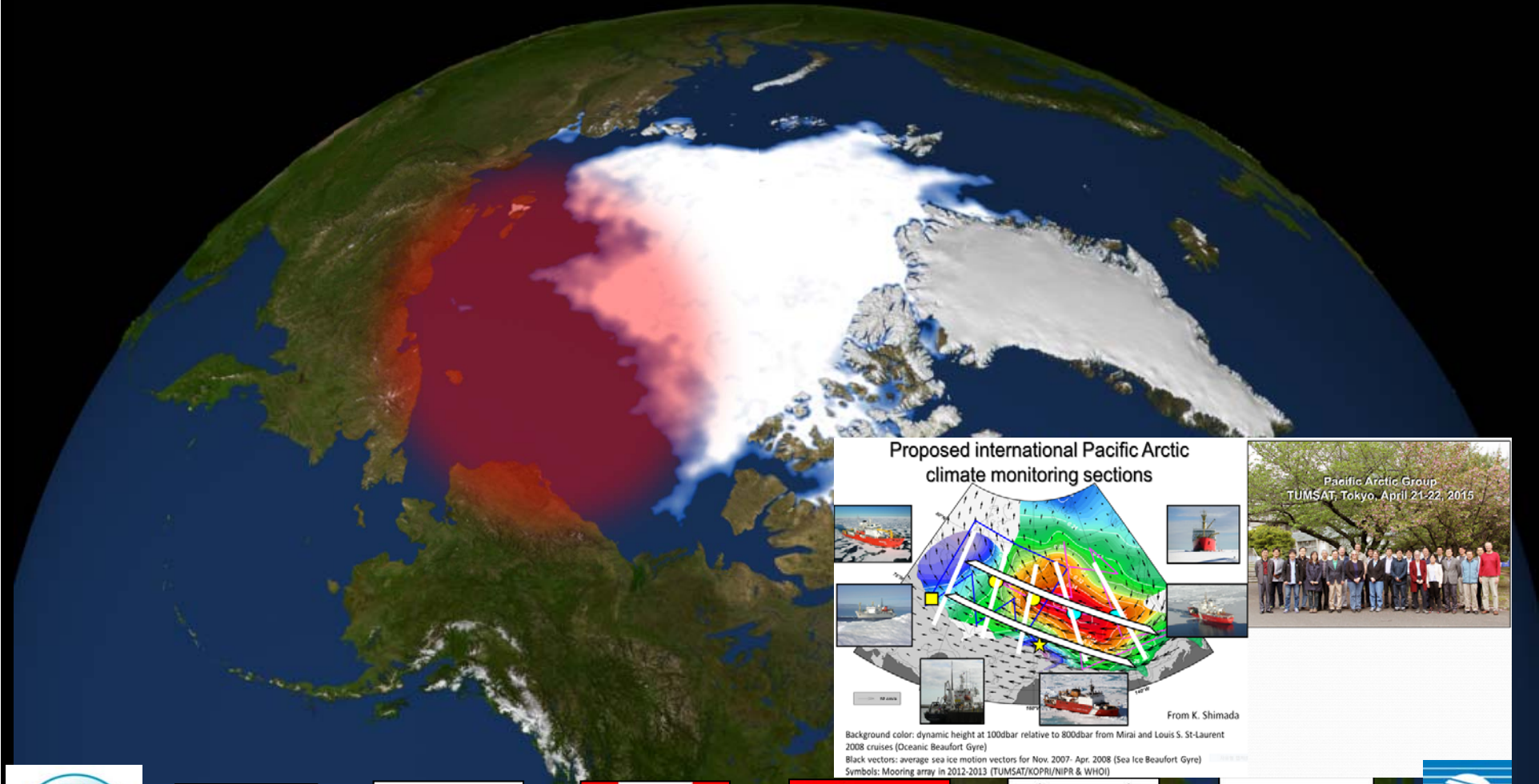
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Korea Polar Research Institute (KOPRI), Incheon, Korea

Pacific Arctic Group Fall Meeting
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Seattle, USA



New development and of long-term monitoring activity in the higher Pacific Arctic - the Pacific Arctic Climate Ecosystem Observatory (PACEO)



PACEO Joint Statement

JOINT STATEMENT

Letter of Intent Cooperation of the Pacific Arctic Group Members on: Developing a Pacific Arctic Climate Observing System

April 23, 2015
Toyama, Japan

The Pacific Arctic Group (PAG) is an informal group of organizations and individuals having a Pacific perspective on Arctic science. Originally organized under the International Arctic Science Committee (IASC), the PAG is now an independent affiliate of the IASC and has as its mission to serve as a Pacific Arctic regional partnership to plan, coordinate and collaborate on science activities of mutual interest. **The PAG has established five objectives:**

- To **identify gaps** in knowledge and priority research needs across the Pacific Arctic Region and seek means to implement programs and activities that address them.
- To **facilitate and coordinate science operations** among PAG member countries.
- To promote and **facilitate data accessibility** and integrated data bases for the region.
- To serve as a **forum for information exchange** on Pacific Arctic Region (PAR) science programs.
- To establish and maintain a **direct link between PAG and other relevant science organisations.**

In October, 2014, the Pacific Arctic Group fall meeting focused on a review of accomplishments during the previous summer and outlooks for the future research plans.

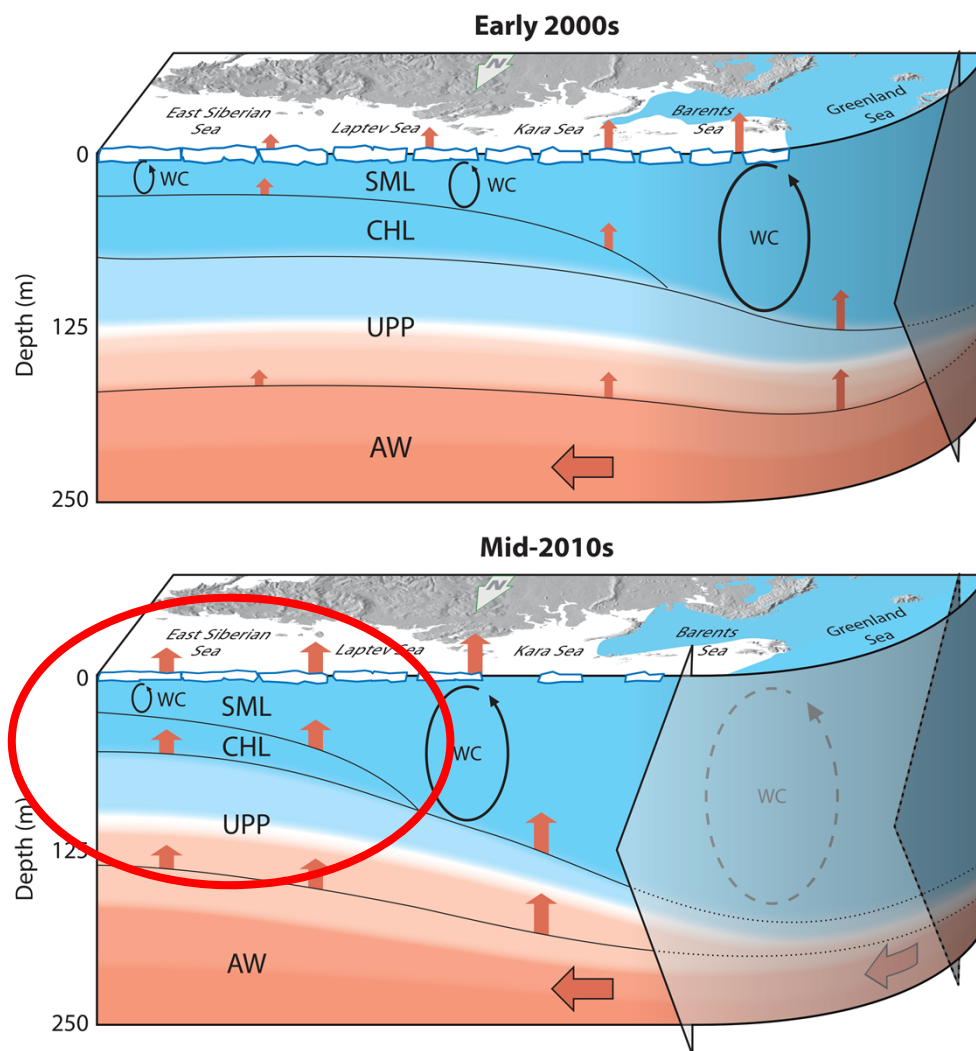
The goals are:

- To carry out **atmospheric, sea ice and upper ocean observations to determine the causes of rapid sea ice loss in the region and its impact on ecosystems and local and global climate.** This effort will also incorporate atmospheric observations to support the WMO's Polar Prediction Project (PPP).
- To study the **evolution, structure, and variability of Pacific Arctic upper ocean water masses, including heat transport of Atlantic Water and its interaction with northward flowing Pacific Water.**
- To carry out **repeat observations of the marine ecosystem, from lower to higher trophics,** documenting status and trends and identifying indicator species and their relationship to physical forcing and biogeochemical conditions.
- To carry out **time-series observations from long-term moorings** to reveal annual and inter-annual variability.
- To coordinate this work with the vessels of our respective countries from 2015-2020 and beyond, **to provide a unique suite of synoptically collected data made available for joint analysis and assessment** via the mechanisms already set up within the Pacific Arctic Group.

www.pag.arcticportal.org



Rapid “atlantification” of Pacific Arctic Ocean?



Conceptual model of “atlantification”:

- (1) increased penetration of signature of AW
- (2) reduction in ice cover
- (3) greater surface heat and moisture flux and
- (4) increased depth of winter penetrative convection
- (5) increased seasonality

From Polyakov et al. (Science, 2017)

PACEO Session Speakers

3-1. Pacific Arctic Climate Ecosystem Observatory (PACEO) (Sung-Ho Kang-lead) (1.5-2 hr)

Brief overview of 2017 PACEO results in context of prior years from national and international members (5-10 min each)

- **Joo-Hong Kim**: Arctic Sea-ice Field Activities in Summer 2017
- **Kyoung-Ho Cho**: Physical oceanography 'PACEO: KOPRI's PO Activity in 2017
- **Jinyoung Jung**: Interannual variability of dissolved organic carbon
- **Keyhong Park**: Climate gases dissolved in seawater
- **Youngju Lee**: Phytoplankton community distribution
- **Jisoo Park**: Spatial distributions of phytoplankton physiological status
- **Hyoung Sul La**: Zooplankton acoustics
- **So Young Kim**: Palynological analysis of recent marine sediments from the western Arctic Ocean: Results from a preliminary investigation
- **Jonaotaro Onodera**: Sediment trap mooring
- **Hyun-Cheol Kim**: *p*-WebGIS