

Status Report on PAG-endorsed PACEO ongoing and planned activities

Pacific Arctic Group April 2, 2017
Prague, CZECH REPUBLIC



Arctic Ocean Currents Changed Due To Global Warming

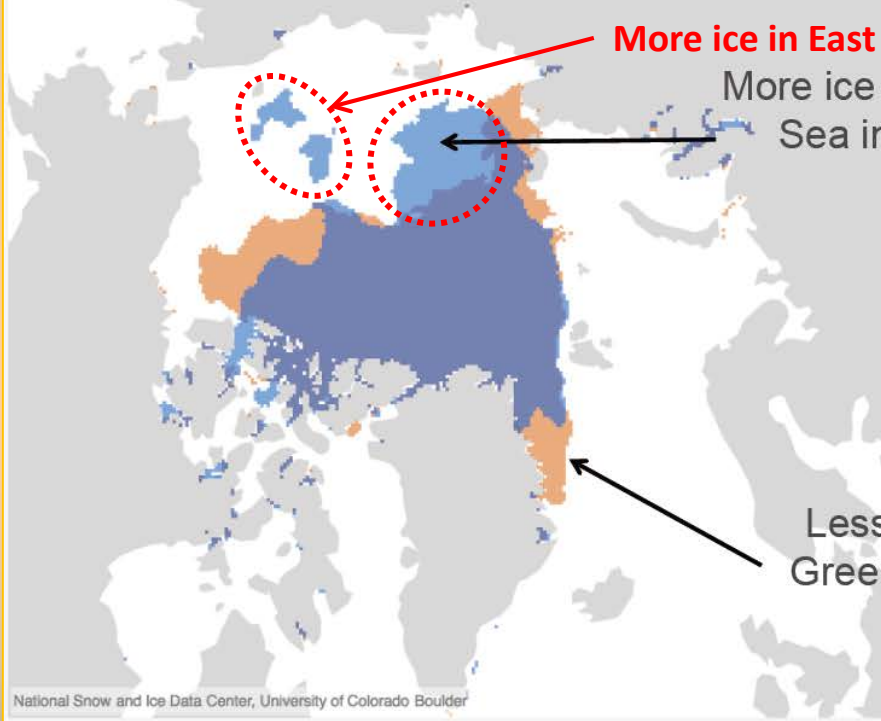
Russian Runoff Freshening
the Arctic Ocean



2016 Compared to 2007 and 2012

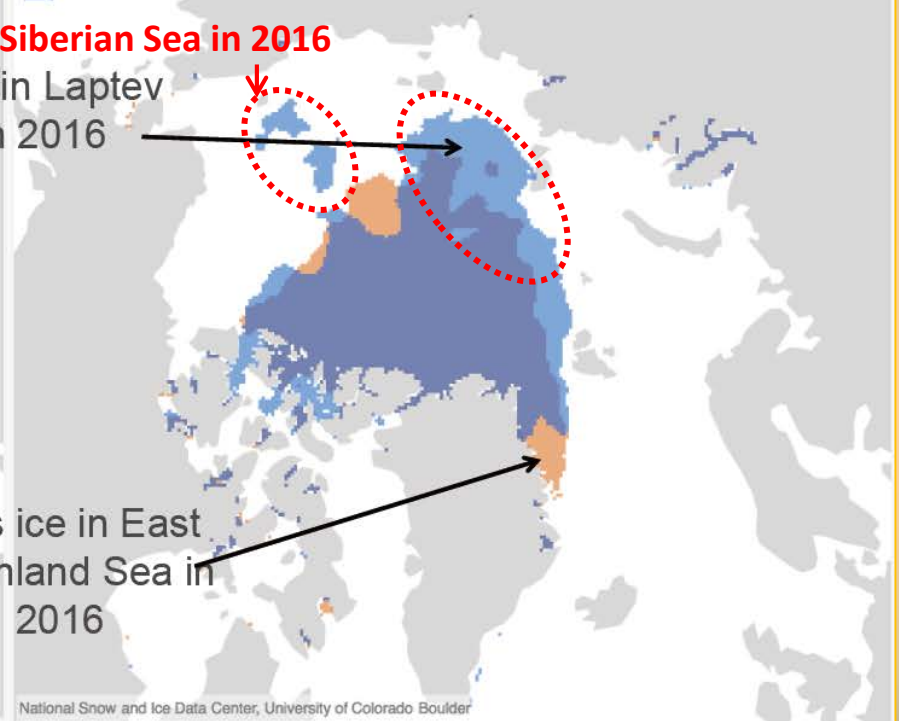
Ice on:

- 14 Sep 2007
- 10 Sep 2016
- Both dates

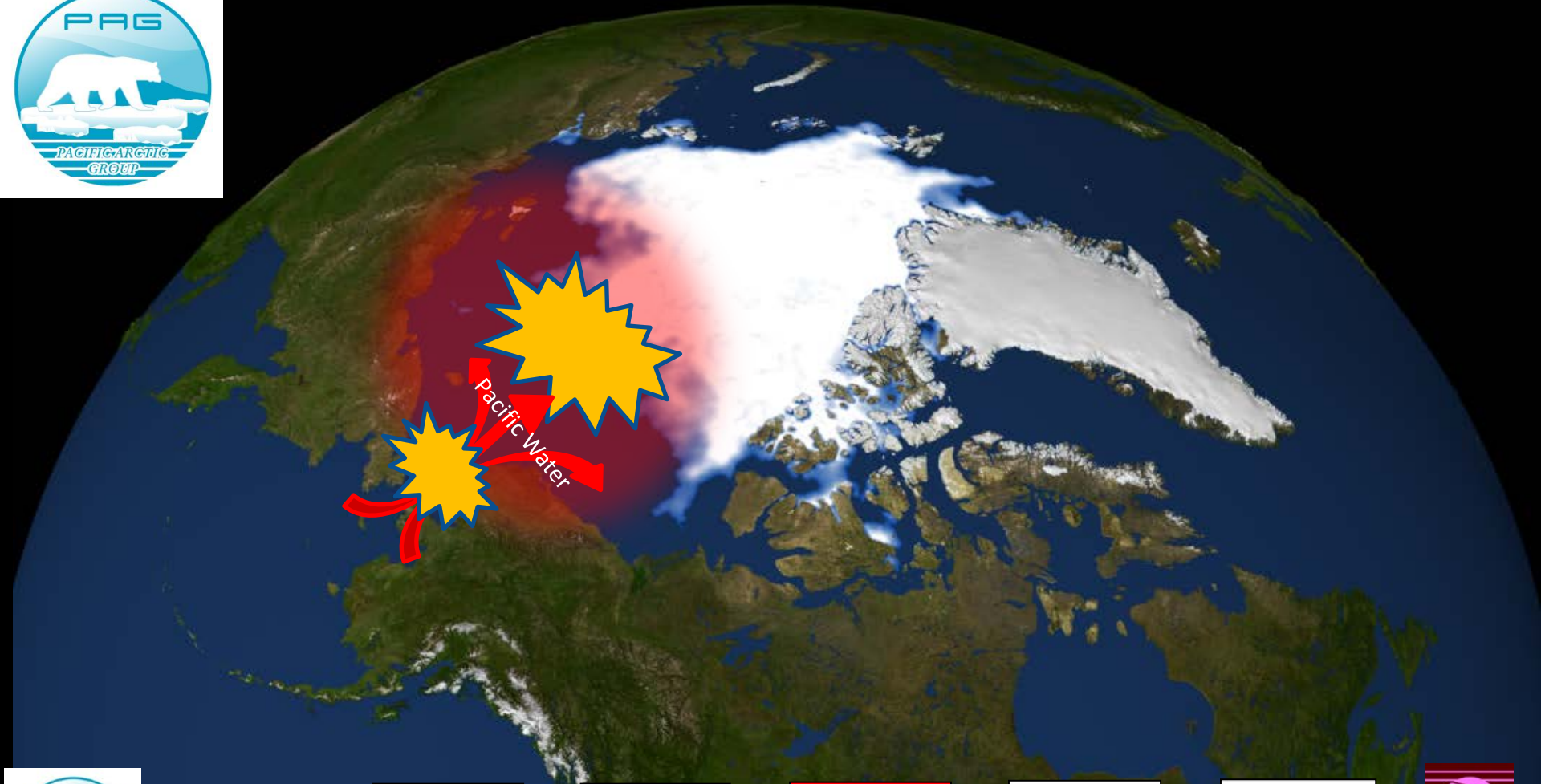


Ice on:

- 16 Sep 2012
- 10 Sep 2016
- Both dates

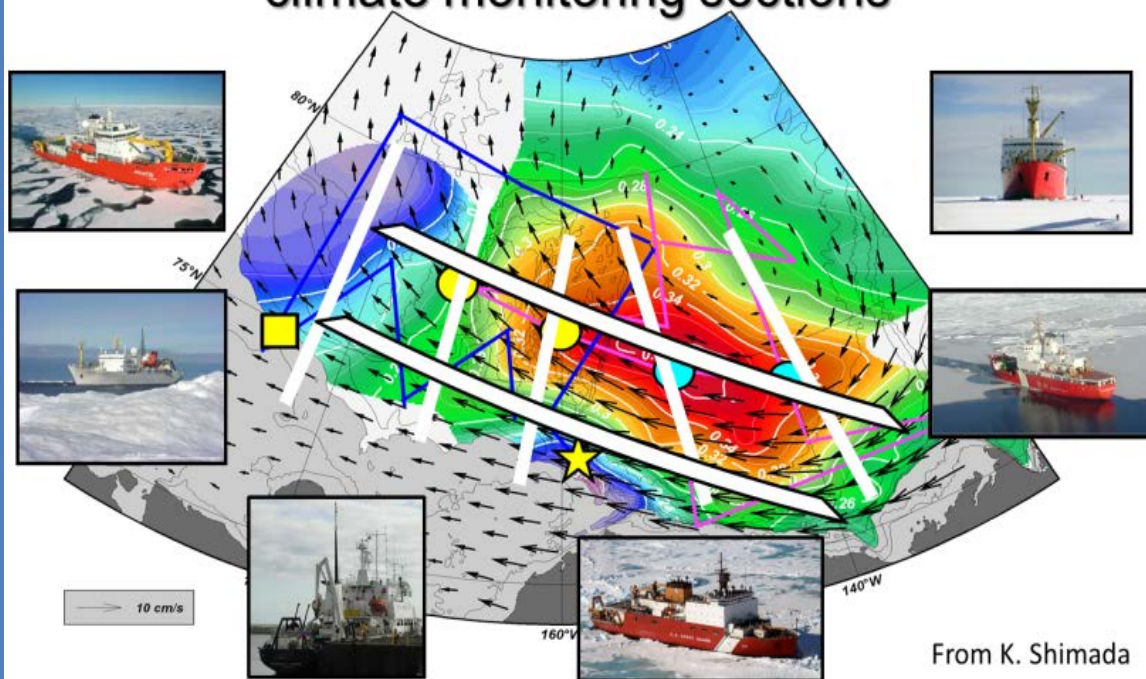


PAG is engaged in **project development and sampling in the Pacific Arctic region** in rapid transition to investigate climate, oceanography, air-sea ice interactions, physical oceanography, and modeling



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

Proposed international Pacific Arctic climate monitoring sections

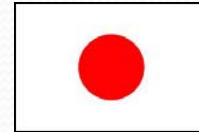
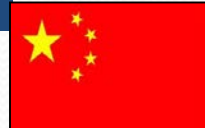


From K. Shimada

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)



PACEO Joint Statement (Letter of Intent)

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



PACEO Session Speakers

- 3-2. Pacific Arctic Climate Ecosystem Observatory (PACEO) (Sung-Ho Kang-lead)
- Physical oceanography (Kyoung-Ho Cho)
 - Biological oceanography (Jisoo Park presented by Eun Jin Yang)
 - Chemical oceanography (Jinyoung Jung presented by Eun Jin Yang)
 - Ocean Acidification (Dong Seon Kim)
 - Atmosphere and Sea Ice (Joo-Hong Kim)
 - Satellite observation (Hyun-Cheol Kim)
 - Modelling (Baek-Min Kim presented by Joo-Hong Kim)
 - *p*-WebGIS (Hyun-Cheol Kim)