**A Planning Workshop for an International Research Program on the Coupled North Atlantic-Arctic System**

April 14-16, 2014

Hilton Arlington, Arlington, VA

**WORKSHOP AGENDA**

**MONDAY, APRIL 14**

**7:30-8:30** Breakfast (Hilton Arlington)

**8:30-8:40 Welcome** (Eileen Hofmann, ODU; Heather Benway, OCB)

**8:40-9:00 Introduction and overview** (Eileen Hofmann, ODU; Michael St. John, Danish Technical Univ.) – 15 minutes to talk, 5 minutes for questions

**9:00-10:15 Opening remarks from agency representatives**

* + - * **EU Representative** (James Gavigan)
			* **NSF** (Roger Wakimoto, Debbie Bronk)
			* **NASA** (Paula Bontempi, Eric Lindstrom)
			* **NOAA** (Craig McLean)
			* **DOE** (Renu Joseph)
			* **Canada Representative** (Alain Vezina, Doug Wallace, Paul Myers)

**10:15-10:30** Break

**10:30 Plenary talks** (\*speaker)**:** These talks will include 45 minutes total for presentation and 5 minutes for questions.

**10:30-11:20 Human implications and management strategies in the coupled North Atlantic-Arctic system** (Melanie Austen\*, Plymouth Marine Laboratory; Angel Borja, AZTI-Tecnalia; Jon Hare, NOAA Northeast Fisheries Science Center)

**11:20-12:10 North Atlantic bloom dynamics: Insights from an interdisciplinary, multi-platform process study** (Mary Jane Perry\*, Univ. of Maine; Eric d’Asaro\*, Univ. of Washington, Craig Lee\*, Univ. of Washington)

**12:15-1:15** Lunch (Hilton Arlington)

**1:15-2:05 Rapid changes in Arctic biogeochemistry and marine ecosystems** (three 15-minute talks)

***Primary productivity*** (Patricia Matrai\*, Bigelow Laboratory)

***Nutrient fluxes*** (Jean-Éric Tremblay\*, Laval Univ.)

***CO2 fluxes and biogeochemistry*** (Jeremy Mathis\*, NOAA/PMEL)

**2:05-2:55 Large-scale circulation in the North Atlantic-Arctic system: Past and present** (three 15-minute talks)

***Atlantic Meridional Overturning Circulation*** (Susan Lozier\*, Duke Univ.)

***Arctic circulation* (**Michael Steele\*, Univ. of Washington)

***Insights from the paleoceanographic record of deep circulation in the North Atlantic and Arctic Oceans*** (Jerry McManus\*, Lamont-Doherty Earth Observatory)

**2:55-3:00 Break down into smaller groups** (see breakout list in meeting folder)

**3:00-4:00 Breakout Session 1: Overarching interdisciplinary science questions Goal:** *To gather participant feedback and refine overarching questions*

* + - * What is the mechanistic link between climate and circulation in the North Atlantic-Arctic system, and what are the physical, biological, and biogeochemical implications of future changes in climate and circulation?
* How will biogeochemistry of shelf and deep waters of the North Atlantic and Arctic respond to climate change and increasing human pressures?
* How will marine ecosystems and associated biodiversity respond to changes in ocean physics and chemistry?
	+ - * How will marine ecosystem changes impact the health and well being of human populations, and what scientific information is most critical for developing sustainable management practices that will help human populations adapt to changes in the coupled North Atlantic-Arctic system?

**4:00-4:15** Break

**4:15-5:30 Breakout Session 2. Relevant international activities and resourcesGoal:** *To compile information on relevant ongoing or upcoming observing campaigns, research activities, etc.*

* **U.S.**
* **European Union**
* **Canada**

**5:30-7:30** Welcome reception hosted by EU Delegation (Hilton Arlington)

**TUESDAY, APRIL 15**

**7:30-8:30** Breakfast (Hilton Arlington)

**8:30-9:30 Breakout reports and discussion from day 1**

**9:30-10:20 Mesoscale and submesoscale dynamics in the North Atlantic-Arctic system** (three 15-minute talks)

***Mesoscale and submesoscale physical-biogeochemical interactions in the North Atlantic*** (Dennis McGillicuddy\*, Woods Hole Oceanographic Inst.)

***Arctic*** (Craig Lee\*, Univ. of Washington)

***Modeling shelf seas dynamics, ecosystems, and ocean-shelf coupling in the North Atlantic and Arctic*** (Jason Holt\*, National Oceanography Centre)

**10:20-10:40** Break

**10:40-11:30 Marine ecosystem health and biodiversity** (Paul Snelgrove\*, Memorial Univ. of Newfoundland; Michael Fogarty, NOAA Northeast Fisheries Science Center)

**11:30-12:20 Developing our predictive capacity**

***Theory and models of marine ecosystems*** (Mick Follows\*, Massachusetts Inst. of Technology; Mike Heath, Univ. of Strathclyde)

***Arctic climate and sea ice projections*** (Wieslaw Maslowski\*, Naval Postgraduate School)

***AMOC perturbation experiments*** (Andreas Schmittner\*, Oregon State Univ.)

**12:20-1:30** Lunch (Hilton Arlington)

**1:30-5:30 Breakout session 3: Research foci in coastal and open ocean settings – Knowledge gaps and future needs**

 **Goal:** *To identify specific high-priority research areas under each subheading that are needed to advance our holistic understanding of the North Atlantic-Arctic system*

* Physical circulation and climate
* Biogeochemistry
* Food web dynamics and community structure
* Ecosystem health and biodiversity
* Human implications, management, and adaptation strategies

**3:00-3:30** Break

**6:30-9:00** Workshop dinner (Hilton Arlington)

**WEDNESDAY, APRIL 16**

**7:30-8:30** Breakfast (Hilton Arlington)

**8:30-9:30 Breakout 3 reports**

**9:30-12:30 Breakout session 4: Research tools and approaches**

**Goal:** *To identify highest-priority needs in each of these categories for addressing research foci above*

* Integrated observations and monitoring
* Modeling and prediction
* Process studies
* Management and decision support

**10:15-10:45** Break

**12:30-1:30** Lunch (Hilton Arlington)

**1:30-2:30 Agency remarks**

**2:30-3:15** **Breakout 4 reports**

**3:15-3:30** Break

**3:30-5:00 Science Plan Outline discussion and next steps**

**5:00** Adjourn

We wish to acknowledge the sponsors of this workshop, the U.S. National Science Foundation and the European Union, including the EU Delegation for hosting the welcome reception. We also wish to acknowledge the Ocean Carbon & Biogeochemistry (OCB) Program for its scientific leadership and coordination efforts.

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