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Large Canadian Arctic climate change study cancelled due to Climate Change

June 12, 2017 - The Science Team of the Canadian Research Icebreaker CCGS *Amundsen* has cancelled the first leg of the 2017 Expedition due to complications associated with the southward motion of hazardous Arctic sea ice, caused by Climate Change. This regrettably postpones the much-anticipated Hudson Bay System Study (BaySys) involving 40 scientists from five universities across Canada. Timing was key for this $17M, four-year, University of Manitoba-led project. The need to deal with extreme ice conditions in the south meant the ship would arrive too late on site to meet research objectives.

The Arctic deployment of the Canadian Research Icebreaker CCGS *Amundsen* is undertaken through a long-standing collaboration between the Canadian Coast Guard (CCG) and University-led Arctic science in Canada. This productive partnership has been providing Canadian researchers and their international colleagues with the ability to monitor and understand the impacts of climate change and resource development on Arctic marine and coastal ecosystems and northern communities since 2003.

This year the Expedition Logistics and Science Teams accelerated the mobilization of the 2017 Arctic Expedition to permit departure of the *Amundsen* six days ahead of schedule. This would allow CCG to carry out critical marine safety and security operations in the unusually severe ice conditions in the Strait of Belle Isle and along the northeast coast of Newfoundland before beginning the Science Mission. Unfortunately, the conditions required much more extended support than anticipated. Fleet management issues and inadequate alternative ships forced the cancellation of the science program due to significant safety concerns.

This decision to cancel the BaySys 2017 program was not made lightly. Although the cancellation was due to circumstances beyond control of the Expedition Team, every effort was made to develop a viable option to allow this valuable work to proceed. The decision to terminate the 2017 program has significant impacts on partners and the large number of graduate students involved.

'*Considering the severe ice conditions and the increasing demand for Search And Rescue operations (SAR) and ice escort, we decided to cancel the BaySys mission. A second week of delay meant our research objectives just could not be safely achieved - the challenge for us all was that the marine ice hazards were exceedingly difficult for the maritime industry, the CCG, and science*.'

- Dr. David Barber, Expedition Chief Scientist and BaySys Scientific Lead.

Dr. Barber and his team of experts were able to use the state-of-the-art equipment onboard the *Amundsen* to confirm that a significant proportion of the sea ice present originated from the high Arctic. He noted that, '*Climate-related changes in Arctic sea ice not only reduce its extent and thickness but also increase its mobility meaning that ice conditions are likely to become more variable and severe conditions such as these will occur more often*.' The Sea Ice Research Team collected a comprehensive dataset on the physics of the ice, ocean and atmosphere in the area and these data will contribute to the understanding of these events and assist Canada in preparing for climate change driven increases in marine ice hazards.

'*This extremely unfortunate event is not expected to affect the remainder of the 2017 Amundsen Expedition resuming on July 6. We believe that the oceanographic studies will proceed as planned and do not anticipate an impact on the Nunavik Inuit Health Survey. The Amundsen Science Team is committed to working with Canadian Coast Guard and our industrial partners to plan a 2018 BaySys program*.'

- Dr. Louis Fortier, Scientific Director of the *Amundsen* and ArcticNet Science programs

The research of our scientists clearly indicate that climate change is not something that is going to happen in the future – it is already here. Research results from scientists onboard the *Amundsen* and innovative Networks like ArcticNet show the impacts of climate change in Canada's Arctic and Arctic Ocean affect not only northern ecosystems and communities, but also the environments and people living in the south of Canada - as so dramatically seen off the coast of Newfoundland. The provision of the best information possible is essential for proper planning, decision–making and adaptation to the realities of climate change.

Contacts:

Dr. David G. Barber,
Chief Scientist, BaySys Project Lead
University of Manitoba.
C: 204- 510-6981
Email: David.Barber@umanitoba.ca

Dr. Louis Fortier,
Scientific Director, ArcticNet and Amundsen Science
Université Laval
T: 418-656-5646
C: 418-559-5646
Email: Louis.Fortier@bio.ulaval.ca

Mrs. Katrine Chalut,
Communications Officer, ArcticNet and Amundsen Science
T: 418-656-3717
C: 418-208-1794
Email : Katrine.Chalut@arcticnet.ulaval.ca

About BaySys
The BaySys program seeks to understand the relative contributions of freshwater regulation relative to that of climate change on freshwater-marine coupling in Hudson Bay (http://umanitoba.ca/ceos). The main sponsors of the study are Manitoba Hydro, the Natural Sciences and Engineering Research Council (NSERC), Canada Foundation for Innovation (CFI), and ArcticNet, with additional contributions from Hydro Quebec and Ouranos. The Science Team onboard has collected high-resolution video of the ice, science operations and key researcher interviews. These can be viewed at:

https://www.dropbox.com/sh/k1rth72kro5dkv5/AACQjAVXrNME5jD_ot80lvz5a?dl=0

These files are large so download them to your local computer before viewing. Questions regarding these materials should be directed to Lucette Barber (Lucette.Barber@umanitoba.ca).

About CCGS *Amundsen*
Since 2003, the vessel has spent 1800+ research days at sea and accommodated over 1500 scientists, researchers, technicians, students, professionals and media from 20 different countries, travelling over 223 000 nautical miles or almost 10 times the circumference of the earth. For more information on the research icebreaker *Amundsen*, please visit: http://www.amundsen.ulaval.ca/

About ArcticNet
ArcticNet is a Network of Centres of Excellence of Canada that brings together scientists and managers in the natural, human health and social sciences with their partners from Inuit organizations, northern communities, federal and provincial agencies and the private sector. Over 150 ArcticNet researchers and 1000 graduate students, postdoctoral fellows, research associates, technicians and other specialists from 34 Canadian universities, and various federal, provincial and regional agencies and departments collaborate on 41 research projects with more than 150 partner organizations in 14 countries. For more information, please visit the following page: http://www.arcticnet.ulaval.ca/index.php.