Long-Term Observatories in Canadian Arctic Waters

Summary

Project Leader
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The past decades witnessed a spectacular reduction of Arctic sea ice (Maslanik et al. 2011), culminating in September 2012 when both extent (-50%) and volume (-82%) reached all time record lows relative to the recent climatology (last 1500 years). The ice cover insulates the ocean from the atmosphere. A shrinking ice cover means that more light and heat enter the surface Arctic Ocean, drastically changing the temperature, storm, and ice regimes, as well as conditions for life. The objective of this project is to track such changes in the physical, biological and geochemical properties of Canadian Arctic waters. In the past, we have deployed ocean observatories in Hudson Bay, Hudson Strait, Baffin Bay, Beaufort Sea and the Eastern Arctic Ocean. These observatories are the oceanic equivalent of atmospheric meteorological stations. They are deployed every fall and recovered one year later. While moored, they record temperature, salinity, water velocity, dissolved oxygen, nutrients, light intensity, fluorescence (an indicator of micro-algae biomass), the vertical flux of particles, and ice motion. In addition, hydrophones record the vocalization of whales and other marine mammals. The data is used to describe seasonal, annual and interannual variations in the Arctic environment and its local ecosystems. This, in turn, enables us to understand how global warming is affecting the Arctic and how fast.

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Publications

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