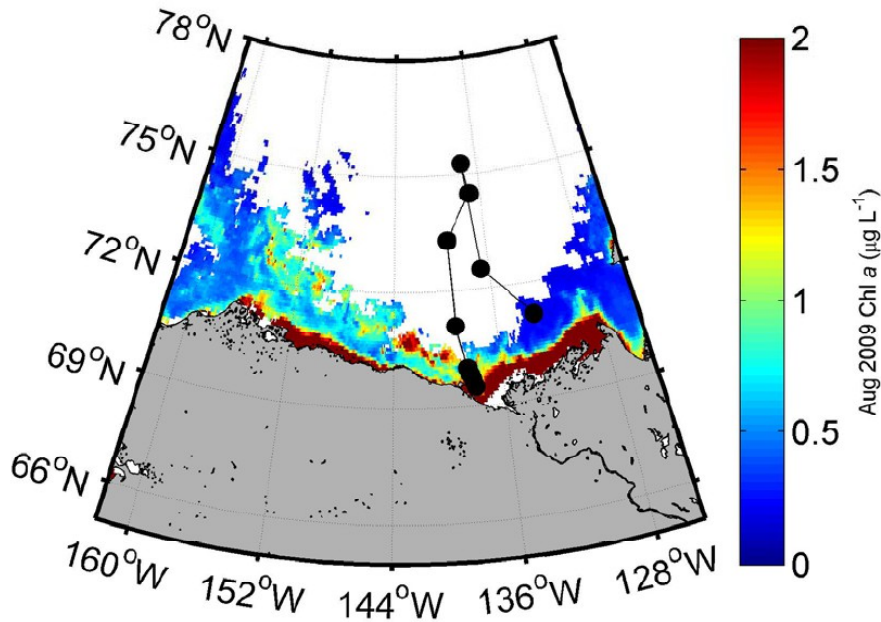


## Canada

Canadian scientists successfully completed an IPY-GEOTRACES cruise aboard the CCGS Amundsen from 27 August - 12 September, 2009 in support of the project entitled “Multi-tracer investigation of the effect of climate change on nutrient and carbon cycles in the Arctic Ocean”. This cruise is the last in a series of IPY-GEOTRACES cruises encompassing both Arctic and Antarctic regions. Samples were collected for all key GEOTRACES parameters with the exception of aerosols. The cruise track is shown below superimposed on a monthly composite of chlorophyll concentration.



A total of 44 standard rosette casts and 18 casts of a trace metal clean rosette were completed. In addition, particulate material was collected with in situ pumps during 14 casts. In addition to studies of the biogeochemical cycles of trace elements and their isotopes, experiments were conducted to examine interactions between trace elements (micronutrients) and biota.

Preliminary findings indicate that melting sea ice is a significant source of iron, and that by late summer primary production is limited by nitrate rather than iron. Over the course of a year, iron and nitrate may each serve as limiting factors for phytoplankton growth. In deep waters, large changes in the distribution of dissolved  $^{230}\text{Th}$  over the past 15 years record changes in circulation and exchange among the deep basing of the Arctic Ocean.

The Canadian GEOTRACES community is developing plans for a strategic network that would include collaboration with other nations in a larger study of the Arctic Ocean.