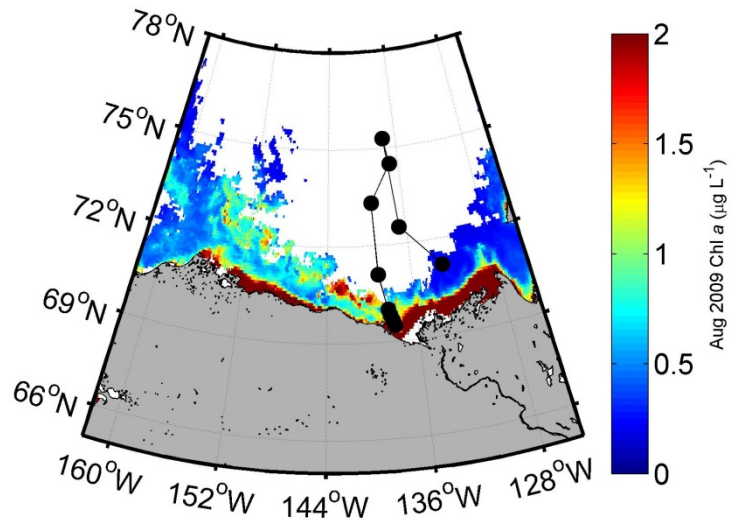


GEOTRACES: Multi-tracer investigation of the effect of climate change on nutrient and carbon cycles in the Arctic Ocean

This project is a contribution to the international GEOTRACES program (<http://www.geotraces.org/>) whose goals are to document the processes that control the oceanic distribution of chemical elements which occur in seawater at very low concentration (called trace elements) and regulate or record processes that affect the structure and productivity of marine ecosystems, ocean circulation, contaminant dispersion, greenhouse gas emissions, and global climate.



Our sampling program took place from August 27, 2009 to September 12, 2009 from the Mackenzie River delta into the Beaufort Sea. We occupied 10 stations to measure key physical, chemical and biological parameters in relation to proximity to the Mackenzie River delta, water depth and ice cover. Through a combination of on-board measurements, experiments and subsequent laboratory analysis, our research program is: (i) documenting the pathways of addition, removal and cycling of those trace elements which act as biological micronutrients or tracers of changes in the carbon cycle and water circulation in the Arctic Ocean; (ii) elucidating the potential effects of changing ice cover and river discharge on productivity, carbon sequestration and greenhouse gas emission in the Arctic Ocean; (iii) developing ways to establish a record of past climate changes in the Arctic from the analysis of sediments accumulating at the bottom of the ocean.

