

Dissolved Fe, Mn, Cu, Cd and Zn and colloidal Fe in the western Arctic Ocean

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1. Scientific Objectives:

We are interested in participating in the 2015 US western Arctic Ocean cruise to determine a subset of the key trace elements (Fe, Mn, Zn, Cd and Cu) highlighted in the GEOTRACES Science Plan, that are expected to be determined on all GEOTRACES section cruises. These measurements will be used, to provide data for the above key parameters at each of the main stations that are required by the GEOTRACES program, to identify major processes controlling the sources, sinks and internal cycling of these TEIs that are related to characteristics of the Arctic Ocean, and to use such understanding gained in the unique Arctic Ocean environment to help constrain processes that influence the cycling of these TEIs in oceanic water

2. Sampling and analysis:

We plan to carry out isotope dilution ICPMS determination of dissolved ($< 0.2 \mu\text{m}$) Fe, Zn, Mn, Cu and Cd and soluble ($< 10 \text{ kD}$) Fe in all main stations of the cruise. We request 500 ml seawater sample collected using trace metal-clean rosette and filtered using GEOTRACES protocol by "super tech". These samples will be used for the analysis of dissolved Fe, Zn, Mn, Cu and Cd. We request additional 500 ml filtered seawater sample using the same protocol to further process for determining soluble and colloidal Fe. We request one berth for this colloidal Fe sample process.