

## **Dissolved Fe, Mn, Cu, Cd and Zn and size fractionated Fe colloids and Fe solubility**

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### **1. Scientific Objectives:**

We are interested in participating in the 2018 US GEOTRACES Alaska-Tahiti section cruise to determine a subset of the key trace elements (Fe, Mn, Zn, Cd and Cu) and 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 in the Pacific Ocean, and to use such understanding to help constrain processes that influence the cycling of these TEIs in oceanic waters of the world oceans.

### **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 at all main stations of the cruise and size fractionated ( $<10 \text{ kD}$ ,  $30 \text{ kD}$ ,  $100 \text{ kD}$ ,  $300 \text{ kD}$ ,  $1000 \text{ kD}$ ) Fe at every 2 depths and 2 station 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 1000 ml filtered seawater sample to further process for determining size fractionated Fe colloids and solubility. We request one berth to process samples on board the ship.

### **2. Anticipated Collaborators:**

We anticipate collaboration with any PIs interested in the analysis of dissolved and particulate trace elements, metal-binding organic ligands and trace metal isotopes.