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Surface sampling on the North Atlantic GEOTRACES transect.

Bruland's lab currently has GEOTRACES funding for the Intercalibration Cruises and activities that extend through March 2010. For this reason, it is premature for us to write a new GEOTRACES proposal for the February 2009 target date. It is more appropriate to wait until the August 2009 submission date. At that time we will be submitting a GEOTRACES proposal for the Atlantic transect. The proposal will entail sending Geoffrey Smith on the cruise together with our surface towed-fish pumping system and our trace metal-clean sampling van to collect uncontaminated, capsule filtered surface samples while underway between the vertical stations. We will propose being responsible for collecting trace-metal-clean surface samples that will increase the surface sample density by more than an order-of-magnitude over what could be obtained with the vertical station sampling alone. We also will collect surface samples just prior to arrival at the vertical stations to compare with the near surface samples from the GEOTRACES clean carousel sampler. We will collect samples for shore-based analyses of a suite of key trace metals including dissolved Fe, Al, Mn, Zn, Cd, Cu, Ni, Pb and Co by ICP-MS after concentration with chelating resins. Geoffrey Smith also will be able to collect limited samples for other investigators. We require one berth for Geoffrey Smith to perform this activity taking place between each of the vertical profiles. We argue that the program needs a person like Geoffrey Smith, focused on this aspect of additional surface sample coverage, to make the North Atlantic GEOTRACES transect complete.

As a second effort we will propose preparing a large set of 0.5 liter 100% low density polyethylene bottles which have been shown to work well for long term storage of the above key trace metals in pH 1.7 HCl acidified seawater samples collected during the GEOTRACES Intercalibration 2008 efforts. These will be used to store an archive of one capsule-filtered, acidified sample from each depth collected by the trace metal-clean GEOTRACES carousel. This library of 0.5 liter samples will be available for future assays of samples for key trace elements that either were not analyzed, or where analytical problems developed, and questions about data emerge. We feel that this is particularly important on the initial GEOTRACES field effort in the North Atlantic to ensure a quality data set for all the key trace elements.