

Data Management Plan

The PIs of this proposal will conform to NSF policy on the dissemination and sharing of research results as described in the Grant Proposal Guide.

1. Data Policy Compliance

Data generated during the proposed research project will be submitted to the NSF-OCE-supported BCO-DMO system as a contribution to the GEOTRACES database. Submission to BCO-DMO is required as a part of the US GEOTRACES data policy.

BCO-DMO will be responsible for linking US GEOTRACES data to the international GEOTRACES data management system hosted at the British Oceanographic Data Centre.

The international GEOTRACES data policy is modeled after the US NSF policy and will be implemented to the extent possible by peer pressure, even in cases where the policies of other nations do not require that data be made publicly available.

2. Pre-cruise Planning

Planning for the Arctic section began during several discussions of the US GEOTRACES Scientific Steering Committee.

A cruise management proposal was submitted by cruise leaders (Dave Kadko, Bill Landing and Greg Cutter) to NSF in October 2012. A revised proposal was submitted in August 2013 and subsequently funded. That proposal provides for the collection of water samples to be used in the work proposed here. It also establishes a preliminary data management system set up by the SIO-ODF group, who will be supporting the cruise. The SIO-ODF group will create a master spreadsheet that links every measurement planned for samples to be collected using the Niskin rosette to the meta data concerning sample collection. We will enter all of our data into a copy of that spreadsheet to ensure that the agreed sample IDs and collection meta data are linked to our data.

Further cruise planning occurred at a science planning workshop held at NSF in June 2012. A final cruise planning meeting will held for funded PIs at a yet to be determined date, probably in Winter 2015. Detailed plans for station locations, instrument deployment, water sampling strategy and water sample allocation will be developed at that meeting.

Most of our samples will be collected using the SIO-ODF rosette equipped with 30-liter Niskin bottles. We anticipate that another group will be funded to collect particulate material by in situ filtration and that they will provide us with an aliquot of that material for analysis (see letter attached in supplementary material).

Depending on which other projects are funded, we hope to obtain a few samples of surface sediments, sea ice, melt-pond water and of aerosols as well.

3. During the Cruise

The chief scientists will maintain a cruise log and prepare a cruise report. Our sampling protocols will follow those described in a paper that we published in *Limnology and Oceanography: Methods* (Reference #8 in Anderson's CV). We reference that publication to document our sampling methods.

4. Post-cruise

All of our sample analyses occur post cruise back in the home lab. Our analytical protocols will follow those described our paper in *Limnology and Oceanography: Methods*. We will reference that publication to document our analytical methods.

As a quality control measure we will compare the results of our work with the results generated by colleagues in Canada and in Germany at "crossover stations"; that is, stations where the cruise tracks of two ships intersect, and each group collects samples. Although the ships may not occupy the station at the same moment, we anticipate that concentrations of species to be analyzed in deep water will be stable over the duration of the sampling program. Therefore, comparing results from different labs provides a measure of quality control. Comparing results from crossover stations represents one of the principal QC measures of the GEOTRACES program. The international GEOTRACES Standards and Intercalibration committee reviews results for all parameters at crossover stations on an annual basis, and provides feedback to the PIs involved to help address inconsistencies where they are found.

In compliance with US GEOTRACES policy our results will be submitted to the Biological and Chemical Oceanography Data Management Office (BCO-DMO) and the data sets will be available online from the BCO-DMO data system (<http://bco-dmo.org/data/>).