

## **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 US GEOTRACES Pacific Meridional Transect (GEOTRACES Section GP16) began during a community planning workshop held at the University of Southern California in 2008.

A cruise management proposal was submitted by cruise leaders (Greg Cutter, Karen Casciotti and Phoebe Lam) to NSF in August 2016. That proposal, which secures ship time and sampling logistics, has been tentatively recommended for funding. 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 in La Jolla, California, in October 2016. A final cruise planning meeting will be held for funded PIs at a yet to be determined date, probably in Fall 2017 or Winter 2018. 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. The management proposal will support collection of particulate material by in situ filtration and we anticipate that the cruise leaders will provide us with an aliquot of that material for analysis. Depending on which other projects are funded, we hope to obtain a few samples of surface sediments 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 follow those used for Th-Pa studies, who have similar requirements and with whom we will share samples if we are both funded. The sampling protocols will follow those described in the following publication:

Anderson RF, Fleisher MQ, Robinson LF, Edwards RL, Hoff JA, Moran SB, et al. GEOTRACES intercalibration of  $^{230}\text{Th}$ ,  $^{232}\text{Th}$ ,  $^{231}\text{Pa}$ , and prospects for  $^{10}\text{Be}$ . *Limnology and Oceanography: Methods*, 10, 179-213, 2012.

#### 4. Post-cruise

All of our sample analyses occur post cruise back in the home lab.

Our analytical protocols are described in three (LDEO) and two (OSU) inter-calibration papers where we took part. We will reference these publications to document our analytical methods, and note any changes.

Behrens, M., Muratli, J., Pradoux, C., Wu, Y., Böning, P., Brumsack, H.-J., Goldstein, S.L., Haley, B., Jeandel, C., Pena, L.D., Paffrath, R., Schnetger, B., Pahnke, K., “Rapid and precise analysis of rare earth elements in small volumes of seawater - method and intercomparison”, *Marine Chemistry*, 186, 110-120, doi:10.1016/j.marchem.2016.08.006, 2016.

Pahnke, K., van de Flierdt, T., Jones, K., Hemming, S.R., Goldstein, S.L., “GEOTRACES intercalibration of neodymium isotopes and rare earth elements in seawater and particulates – Part 2: systematic tests and baseline profiles”, *Limnology and Oceanography: Methods*, 10, p. 252-269, 2012.

van de Flierdt, T., Pahnke, K., Amakawa, H., Andersson, P., Basak, C., Colin, C., Crocket, K., Frank, M., Frank, N., Goldstein, S.L., Goswami, V., Haley, B.A., Hathorne, E.C., Hemming, S.R., Henderson, G.M., Jeandel, C., Jones, K., Kreissig, K., Lacan, F., Martin, E.E., Newkirk, D., Pena, L., Piotrowski, A.M., Pradoux, C., Scher, H.D., Schöberg, H., Singh, S.K., Tazoe, H., Vance, D., Yang, J., “GEOTRACES intercalibration of neodymium isotopes and rare earth elements in seawater and marine particulates – Part 1: international intercomparison”, *Limnology and Oceanography: Methods*, 10, p. 234-251, 2012.

The participating labs will comply with GEOTRACES requirements for intercalibration. In our case, that involves comparing results from overlapping stations.

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/>).