

Data Management Plan

Cruises are scheduled in years 2 and 3, during which biogeochemical data will be collected (see Tables 1 & 2). Measurements of DMS, DMSP, DMSO, O₂, Ar, and CO₂ partial pressures within surface seawater samples will be collected periodically with frequencies ranging from a few seconds for gases to approximately hourly for soluble compounds as the ship moves along LineP between Vancouver Island and Ocean Station Papa. Similar measurements will be made for samples taken from the water column at stations along the transect. Actual sampling events will be recorded in computer files and in a dedicated event log.

Shortly after the completion of the cruise underway data will be delivered by the vessel operator (UW) to the UNOLS central repository at <http://www.rvdata.us/catalog>, which is maintained by the Rolling Deck to Repository (R2R) project. R2R will further archive the underway data to national centers such as NODC. The measurements made by the science party for this project will be managed in cooperation with the Biological and Chemical Data Management Office (BCO-DMO, <http://bco-dmo.org>). BCO-DMO will further archive this project's data to the appropriate national archive.

Table 1: Summary description of mass spectrometer measurements of surface seawater samples

Measurement	Instrument	Record Content	Sampling Period
Partial Pressure of Select Surface Water Gases	Membrane Inlet Mass Spectrometer (MIMS)	Date/time, Location, DMS, O ₂ , Ar, CO ₂	20 seconds

Table 2: Summary description of aqueous DMS, DMSP, and DMSO measurements made by GC.

Measurement	Instrument	Record Content	Sampling Rate
Concentrations [nmol/L] of DMS, DMSO, DMSP in surface seawater.	Gas chromatograph	Sample ID Sample Date/time Lat/Long Aqueous Concentration	90 minutes/sample
Concentrations [nmol/L] of DMS, DMSO, DMSP from water column samples.	Gas chromatograph	Sample ID Sample Date/time, Depth Lat/Long, Aqueous Concentrations	Discrete
Stable Isotope and Radioisotope Tracer Rate Measurements	Mass Spec Scintillation Counter Gas chromatograph	Sample ID Sample Date/time, Depth Lat/Long Aqueous Transformation Rates	Discrete

Standard presentation of these data include

- The measurement records offered as collected, ASCII format when possible.
- The level1 product, which offers aqueous dimethylsulfide partial pressure along the ship's track, perhaps with positional and/or sample smoothing.
- Higher level products.e.g., the level1 measurements co-registered with other measurements from ship's systems and science collaborators.
- Records of instrument calibrations, which typically occur twice or more per day.

1. Data and Metadata Standards

Field data of DMS-related measurements from the two cruises will be stored online on project computers in ASCII format for universal ease of access. These data will be shared via the BCO-DMO portal using BCO-DMO methods and protocols. Post-processed products will also be shared in ASCII format or in well-known binary formats, e.g. Matlab .mat format. Data quality will be expressed as propagated statistical error based on sample and standard measurement variability for each instrument. Project and file-level metadata will be produced consistent with BCO-DMO methods and standards.

These data products will be managed by Scott McCue, WHOI Technical Staff, Data Manager for the National Deep Submergence Facility and WHOI's Shipboard Scientific Services Group.

2. Data Access and Sharing

All field data collected under this program will be delivered to BCO-DMO within two years of collection. Prior to this delivery level0, level1, and post-processed products will be housed upon a data repository and server that will be maintained at UBC or WHOI using redundant drive technology for project data protection.

Additional analyses and model outputs will be shared via publicly available final reports to NSF/OCE and publications in recognized journals.

3. Data Archiving and Preservation

We will rely on the facilities at BCO-DMO and the appropriate national archive for community access and long-term storage of the project's data results. Final archival formats will be implemented in consultation with BCO-DMO prior to and upon project completion.