DATA MANAGEMENT PLAN

Data Policy Compliance: The project investigators will comply with the data management and dissemination policies described in the NSF Award and Administration Guide (AAG, Chapter VI.D.4) and the NSF Division of Ocean Sciences Sample and Data Policy.

Pre-Cruise/Fieldwork Planning: Pre-cruise/fieldwork planning will be done via a planning workshop between PIs Wagner, Stubbins, and Brandes, with individuals involved in supporting sampling efforts contacted via teleconference for each relevant sampling campaign (i.e. David Karl for HOT; Nicholas Bates for BATS; Robert Spencer for Congo and Yukon Rivers; Jose Moura for Amazon; see relevant letters of support and proposal for further details). Detailed plans for station locations, water sampling strategy, and water sample allocation will be written up as a science implementation plan. Actual sampling events will be recorded on paper logs (scanned into PDF documents) and in a digital event log within Excel.

Description of Data Types: The project will produce observational, experimental, and geochemical datasets, described in the list below. In addition to the datasets described below, educational resources produced by the project, including data and images, will be made available for public use on the COSEE.net website. Observational data will be collected on each of the cruise/fieldwork expeditions.

Data and Metadata Formats and Standards: Field observation data will be stored in flat ASCII files, which can be read easily by different software packages. Field data will include date, time, latitude, longitude, salinity, cast number (for shipboard work), and depth, as appropriate. Quality flags will be assigned according to the ODS IODE Quality Flag scheme (IOC Manuals and Guides, 54, volume 3; http://www.iode.org/mg54_3). Metadata will be prepared in accordance with BCO-DMO conventions (i.e. using the BCO-DMO metadata forms) and will include detailed descriptions of collection, analysis and experimental procedures.

Data Storage and Access During the Project: The investigators will store project data (including spreadsheets, ASCII files, images, videos, Matlab® files, and PDFs of scanned logs) on laboratory computers that are backed up by the University's central IT organization. Personal computers in all laboratories are backed up continuously to local and remote servers, creating 3 copies of all data. Data will be compiled at Northeastern University for consolidated archiving and quality assessment. Data will be shared between project PIs by cloud-based file sharing.

Mechanisms and Policies for Access, Sharing, Re-Use, and Re-Distribution: BATS and HOT have data management policies in place to handle their cruise data. Immediately after cruise completion, data and metadata will be submitted to the Rolling Deck to Repository (R2R) project. Other field and laboratory data produced by the science party will be made available through BCO-DMO within two-years of quality assurance. PIs will work with BCO-DMO to make data available online as per NSF-OCE policy. Data, samples, and other information from this project can be made publically available without restriction once at public repositories. Data produced may be of interest to chemical, physical and biological oceanographers and other biogeochemists and climate scientists interested in the role of black carbon in the global climate system. We will adhere to and promote standards, policies, and provisions for data and metadata submission, access, re-use, distribution, and ownership as prescribed by the BCO-DMO Terms of Use (http://www.bco-dmo.org/terms-use).

Plans for Archiving: R2R will ensure original cruise data are archived permanently at NODC and/or NGDC as appropriate. BCO-DMO will also ensure project data are submitted to appropriate national data archive. PI will work with R2R and BCO-DMO to ensure data are archived appropriately along with proper and complete documentation.

Roles and Responsibilities: Wagner, as lead PI, will ultimately be responsible for all data management tasks, including being the primary person responsible for ensuring compliance with the Data Management Plan.

OBSERVATIONAL DATASETS:

CTD & Niskin Bottle Data: CTD data collected using a SeaBird SBE CTD; processing to be done using SeaBird's SeaSave software data will include standard environmental measurements (such as pressure, temperature, salinity, O_2, DOM fluorescence, Chl-fluorescence). Samples types collected and meta data about how samples were collected will be included. File types: Raw (.con, .hdr, .hex, .bl) and processed and .cnv, .asc, .btl) ASCII files. Repository: BCO-DMO

Event Log: Cruise and fieldwork scientific sampling event log; will include event numbers, start/end dates, times, and locations. Will be recorded using the R2R event logger (shipboard work), in Excel, and on paper log sheets (river fieldwork). File types: Excel file converted to .csv; scanned PDFs. Repository: BCO-DMO and R2R.

Cruise Underway Data: Routine underway data collected along the ship's track (e.g. SST, salinity, met data, fluorescence, ADCP) will be collected by shipboard instrumentation. File types: .csv ASCII files. Repository: BCO-DMO and R2R.

River Field Data: Routine data (water temperature, conductivity, pH) will be collected by handheld instrumentation. Discharge data will be accessed from the relevant national hydrological agency. File types: .csv ASCII files. Repository: BCO-DMO and R2R.

GEOCHEMICAL DATASETS:

Dissolved Organic Carbon (DOC), SPE-DOC, Benzenepolycarboxylic Acid (BPCA) Concentrations, and Isotope Data: DOC, δ^{13}C-DOC, SPE-DOC, δ^{13}C-SPE-DOC, BPCAs, and δ^{13}C-BPCAs will be analyzed at Northeastern University and Skidaway, UGA. Samples analyzed, dates, and times of analysis will be recorded by hand on log sheets. Information from log will be transferred into an Excel spreadsheet. File types: PDF files of scanned log sheets; Excel files of sampling logs; Excel files of resultant DOC data, including analytical and sampling metadata. Repository: BCO-DMO.

EXPERIMENTAL DATA:

Degradation Experiments: Details of the experiment and resultant data will be generated at Northeastern University and Skidaway, UGA. Samples from the experiments will be analyzed and their data managed as noted above for geochemical datasets. File types: Excel files of resultant DOC data, including analytical and sampling metadata. Repository: BCO-DMO.