

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 Planning: Pre-cruise planning will be done via teleconferencing and a planning workshop between PIs Brandes, Stubbins, and Powers, the PhD students and two undergraduates who will join the South Atlantic Bight cruise. 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 several observational, experimental, and model 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 a two South Atlantic Bight research cruises planned to take place during the spring and summer of 2018 (5 days cruises in April and July 2018).

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, cast number, 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 modeling procedures.

Data Storage and Access During the Project: The investigators will store project data (including spreadsheets, ASCII files, images, videos, Matlab® files, model code, 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 daily to an onsite external hard drive, and weekly to an offsite hard drive. Data will be compiled at SkIO, UGA for consolidated archiving and quality assessment. Data will be shared between project PIs by email (small files) and file sharing (DropBox, larger files).

Mechanisms and Policies for Access, Sharing, Re-Use, and Re-Distribution: Immediately after cruise completion, data and metadata will be submitted to the Rolling Deck to Repository (R2R) project. CDOM data will be submitted to BCO-DMO in Excel and metadata provided using the BCO-DMO Dataset Metadata submission form. 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 NSFOCE 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, ocean remote sensing community, and climate scientists interested in the role of photochemistry 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: Brandes, as lead PI, will be ultimately responsible for all data management tasks, including being the primary person responsible for ultimately ensuring compliance with the Data Management Plan. Powers and Stubbins will be responsible for cruise and data generated at SkIO, UGA.

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, O₂, 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, .bt) ASCII files. Repository: BCO-DMO

Event log: Cruise scientific sampling event log; will include event numbers, start/end dates, times & locations CTD casts. Will be recorded using the R2R event logger (if available), in Excel and on paper log sheets. File types: Excel file converted to .csv; scanned PDFs. Repository: BCO-DMO and Rolling Deck to Repository (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.

EXPERIMENTAL DATASETS:

Colored dissolved organic matter: Colored dissolved organic matter (CDOM) absorbance spectra (200-800 nm) will be recorded at sea and in the laboratory at SkIO, UGA. Samples will be depth profiles collected from CTD Niskin bottles (South Atlantic Bight cruises) or from surface (~10 m) samples (BATS and HOTS). Samples will be filtered then analyzed using an Ultrathin Waveguide spectrophotometer (2 – 200 cm pathlength). Samples analyzed, locations, depths, dates, and times 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 CDOM spectra. Repository: BCO-DMO.

Dissolved organic carbon (DOC): DOC will be analyzed at SkIO, 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.

DIC, H₂O₂, and CO photoproduction rates and apparent quantum yields (AQYs): Full-sun broadband photoproduction rates and AQYs will be determined at SkIO, UGA. Samples irradiated, their physical characteristics (e.g. S, pH), their irradiation dates, times and conditions will be recorded by hand on log sheets. Information from log will be transferred into an Excel spreadsheet and Matlab® matrices. File types: PDF files of scanned log sheets; Excel files of sampling logs; Excel and Matlab® files of resultant DIC, H₂O₂ and light data, plus calculated AQYs including analytical and sampling metadata. Repository: BCO-DMO.

MODEL AND MODEL GENERATED DATA:

Photochemical model and output: Details of the AQY model, regional/global DIC photoproduction rate models, and resultant data will be generated at SkIO, UGA. File types: Matlab® code; Matlab® matrices of photon fluxes in the water column and absorbed by CDOM; Excel files of DIC photoproduction. Repository: BCO-DMO.