DATA MANAGEMENT PLAN

General:

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. Hard disc backup of data will be made daily onto a local, physical external hard disk and also loaded to a remote cloud based server.

Mechanisms and Policies for Access, Sharing, Re-Use, and Re-Distribution:

PIs will primarily work with the Biological and Chemical Oceanography Data Management Office (BCO-DMO; http://bco-dmo.org/) as required for projects funded by NSF Chemical Oceanography to ensure that data resulting from this project will be submitted to the appropriate national data centers in support of its ultimate usefulness within the oceanographic community. BCO-DMO will also archive all the data they manage at the appropriate national archive facility, such as NODC and NGDC. BCO-DMO will advise on standards for metadata and data formats compatible with eventual submission to national archives. Through the BCO-DMO, we plan to ensure quality, timeliness, dissemination, and improved access to our unique data set, thus facilitating regional, national, and international data and information exchange. 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 as described at (http://www.bcodmo.org/terms-use).

Description of Data Types:

Most data generated from this project will be time course chemical measurements from laboratory investigations, rather than large oceanographic data sets such as those produced on ships. Our project will produce chemical and optical data from samples reconstructed for the purpose of investigating chemical compositional influences of photochemistry, using purchased organic matter standards as well as dissolved organic matter (DOM) isolated from seawater samples. Samples collected in the field will also be used for photochemical laboratory experiments. Optical data for any collected samples would include fluorescent dissolved organic matter (FDOM), fluorescent excitation-emission matrix spectra (EEMS), PARAFAC model output for FDOM components, and chromophoric dissolved organic matter (CDOM). Chemical data from laboratory work would include concentrations of superoxide & hydrogen peroxide (mol/L), “antioxidants” (ascorbic acid equivalents, nM), O_2 saturation, along with calculated rates of change for these in irradiated seawater samples.

Photoproduction rates and apparent quantum yield spectra (AQYs) will be generated, along with full-sun broadband photoproduction rates. Samples irradiated, their physical characteristics (e.g. S, pH, IOPs), their irradiation dates, times and conditions will be recorded by hand on log sheets. Information from logs will be transferred into Excel spreadsheets and Matlab® matrices. File types: PDF files of scanned log sheets; Excel files of sampling logs; Excel and Matlab® files of resultant chemical and light data, plus calculated AQYs including analytical and sampling metadata.

Model and Model Generated Data:

For scaling photochemical models to regional and global estimates, details of the AQY model, regional/global ROS photoproduction rate models, and other resultant data will be generated at UGA. File types: Matlab® code; Matlab® matrices of photon fluxes in the water

column and absorbed by CDOM; Excel files of DIC photoproduction. BCO-DMO will be the primary repository for these data.

Fieldwork Planning, Documentation, and Data Disposition:

While not essential to successful completion of this project, it may be possible to participate on one or more UNOLS “cruises of opportunity” aboard the RV Savannah. If so, we will coordinate data formats and protocols to match those accumulated by others, and contribute our metadata to a formal cruise report that will be distributed by the designated chief scientist following any cruise, and will follow UNOLS data policy.

Additional Plans for Archiving and Preserving Optical Data for Access:

Ocean optical data for CDOM and FDOM distributions that are not suited for BCO-DMO will be deposited into NASA’s SeaBASS database (http://seabass.gsfc.nasa.gov/). This repository archives data that includes measurements of apparent and inherent optical properties, phytoplankton pigment concentrations, and other related oceanographic and atmospheric data, such as water temperature, salinity, stimulated fluorescence, and aerosol optical thickness. The use of this database by the oceanographic community is open and leads to algorithm development for eventual use by the general scientific community.