

DATA MANAGEMENT PLAN:

This project will involve the generation of considerably large data sets, on the order tens of TB. Each aggregate experiment will produce thousands of ~4 MP, 14 bit high-definition images associated with the PIV and particle tracking. The raw PIV images will be processed into velocity vector and scalar (temperature) concentration fields using software analysis tools (DaVis, MATLAB). The raw data will be stored in the industry-standard open-source HDF5 format, which, in addition to its portability, is well suited to store data hierarchically. To facilitate collaboration across project participants and outside parties, data will be converted to MATLAB format. MATLAB is widely used within the oceanographic community. Open-source software (Octave) is available that can read MATLAB files. The data will be stored internally on 12 TB Network-Attached-Storage (NAS) devices to be made quickly available to all project participants on the local network.

All raw and processed data, including raw image files will be archived on the UNC Mass Storage facility. It would not be feasible to support a full-time server hosting these data to outside parties. Nonetheless, any of the data on mass storage that underlies published research results will be made freely available or at minimal cost upon request by interested parties, immediately following publication of the results. The aforementioned data types will be archived in perpetuity.

All collected data will be managed with the assistance of the staff of the Biological and Chemical Oceanography Data Management Office (BCO-DMO, <http://www.bco-dmo.org>). This office was created by NSF Biological and Chemical Oceanography Sections as a facility where data from scientific research projects can be disseminated and protected. The office will assist with data quality control, maintaining inventory, field names definitions, meta data and facilitate data exchange. Repositories of the data sets will be in the national archive facility National Oceanographic Data Center (NODC, <http://www.nodc.noaa.gov/>) and the Rolling Deck to Repository (R2R, <http://www.rvdata.us/catalog/>).

Smaller data files associated with experimental PIV, aggregate tracking, and biochemical analyses including published data sets and plots, can be archived in UNC resources such as the Carolina Digital Repository and in the national archive facility National Oceanographic Data Center (NODC, <http://www.nodc.noaa.gov/>). For this archiving, we will include appropriate metadata for variable names and details of the experiments/simulations. This storage will be feasible for file sizes ranging from 1 to 100 megabytes. Smaller files can be deposited as supplementary digital data associated with a specific journal article, where available by the journal.