

DATA MANAGEMENT PLAN

Two experiments at the SUSTAIN wind-wave tank at the University of Miami will be conducted as part of this proposed research. All chemical and physical data generated from these experiments will be managed by the Biological and Chemical Oceanography Data Management Office (BCO-DMO); data will be available online from the BCO-DMO system (<http://bco-dmo.org/data/>) within two years of sample collection at the latest. BCO-DMO will archive all the data at the appropriate national archive facility, such as NODC. Prior to beginning the experiments, the PIs will consult staff from BCO-DMO in order to set up a system for organizing and storing data and to ensure that the appropriate metadata is recorded. Also prior to beginning the experiments, the PIs will develop a science implementation plan that will detail timelines, procedures, and sampling strategies.

One of the main objectives of this work is to provide data on gas fluxes and bubble parameters collected concurrently to the bubble modeling community. Thus every effort will be taken to make sure all the processed data is easily and quickly available. During the experiments, a large amount of data will be generated on many different gases, and chemical and physical parameters. Data on noble gases (Ne, Ar, Kr and Xe) will be generated continuously with resolution of minutes. This will lead to large data files that will be submitted to BCO-DMO in their processed form. The raw data will be available to researchers on request. Discrete samples of five noble gases (He as well as the ones mentioned above), and ^3He isotopes will be measured in the Isotope Geochemistry Facility at Woods Hole Oceanographic Institution. Data from the discrete samples, as well as metadata pertaining to their collection, will be submitted to BCO-DMO. Laboratory data on physical parameters collected during SUSTAIN laboratory experiments will be archived on a Network Accessed Server with Raid 5 redundancy, which will be mirrored in cloud based box-storage administered by the University of Miami Central Computing Services. The image files will be very large (order of Tbyte) and thus will not be submitted to BCO-DMO though they will be available to any researcher on request. The processed form of the data, such as void fractions, bubble size spectra, etc., will be submitted to BCO-DMO within 60 days of publication or within two years of acquisition, whichever comes first. Data from the 8 capacitance wave gauges, 32 velocity, humidity and temperature sensors, the Campbell Scientific Irgasonde wind velocity sensors (wind speed, wind stress), the Aquadopp profiler (water flow), and the Nortek vectrino profiler (for turbulence) will all be submitted in their processed form to BCO-DMO. Infrared imaging will be used to detect the presense of microbreaking. The processed quantification of microbreaking will be submitted to BCO-DMO and the images will be available on request.

All data will be properly referenced with tank experiment number, time of day, tank conditions, and other relevant metadata. Additionally, all laboratory/field notebooks will be scanned and stored electronically, along with other information relevant to the collection, processing, and analysis of the samples. These documents will be available upon request after all data are open to public.

Monthly telecom meetings will be held between Haus and Stanley to plan for the experiments and to interpret the data. More frequent meeting will be held when necessary. Both Haus and Stanley will be physically present during the field experiments. Additional in person meetings will occur at national conferences. Stanley will hold weekly meetings (or more frequent) with her team of students in order to prepare for the experiment and in order to interpret the wealth of data resulting from it. All data from the first experiment will be interpreted fully by both Haus and Stanley and their teams before the second year's experiment.

We believe the most direct method of disseminating results is via publication. Manuscripts will be prepared promptly, and we will make an effort to select open access journals where appropriate. When appropriate, relevant datasets will be published as online appendixes.