

## DATA MANAGEMENT PLAN

We will conform to NSF policy on the dissemination and sharing of research results by making data from this project freely available to the general public and to other scientists. In particular, we will follow GO-SHIP's data policy (<http://www.go-ship.org/DatReq.html>). We will also register with BCO-DMO (<https://www.bco-dmo.org/>) in year 1 of the funding and submit data timely.

Two cruises are planned for 2022 on transect A13.5 and in 2024 on transect 16S. During these cruises, about 1000 samples will be analyzed of  $\delta^{13}\text{C}$ -DIC and DIC concentration on board ship and 2000 more will be brought home for analysis. The  $\delta^{13}\text{C}$ -DIC data are ranked as level 2 and are highly desirable as augmentation and addition for the science objectives executed on GO-SHIP cruises. GO-SHIP recommends that level 2 data should be collected on board ship or shored based when possible and submitted within 6 months of the cruise or within 6 months of the shore-based analysis.

1. **Data policy compliance:** We will share and archive data collected as part of this research project in compliance with NSF policy and the Division of Ocean Science Sample and Data Policy- All data collected through this project will be freely and openly available to any interested investigator as soon as practical, but no later than 6 months following collection.
2. **Pre-cruise planning:** Pre-cruise planning will be done in Cai's lab. Detailed plans for station locations, instrument calibration procedure, water sampling and storage procedure will be written up as a science implementation plan for the cruises following GO-SHIP protocol for DIC analysis and following instructions from the Chief Scientist. Analytical procedure and standardization methods will also be evaluated before cruise 1 and continue into the period before cruise 2.
3. **During the cruise:** We will collect samples and data following a cruise implementation plan that we develop during the pre-cruise planning period. The actual sampling events will be recorded on paper logs (scanned into PDF documents) and in a digital event log. The operator will use a check list and take notes of various issues to assure a proper implementation of the plan. These will be incorporated into the cruise report.
4. **Post-cruise:** Post-cruise sample analysis and comparison with onboard analysis are anticipated to last into year 2. We will follow analytical and data management protocols established during the pre-cruise planning period, again following the requirement by GO-SHIP. Any deviations from these protocols will be justified and noted. Hand written notes will be transferred to digital form as well.
5. In addition to our own quality control measures and comparison with the IRMS-based data on a sub-set of samples, we will also join **data quality control efforts** such as inter-laboratory comparison activities by the community.
6. **Submission of data and meta-data.** We will first submit  $\delta^{13}\text{C}$ -DIC and DIC concentration data information to the cruise Chief Scientists before the end of each cruise and shortly after other sample analysis back home. Then after additional QA/QC activities, these data will be submitted to the National Centers for Environmental Information ([noaa.ocads@noaa.gov](mailto:noaa.ocads@noaa.gov)) within 6 months as required by GO-SHIP and to the Biological and Chemical Oceanography Data Management Office (BCO-DMO) within 12 months as required by NSF.
7. **Data sharing with others.** Finally, we will encourage data sharing with colleagues in carbon cycle community. Co-authorships and acknowledgments will be discussed when the data are requested and revised as needed in light of contributions to subsequent data analyses and writing efforts.