Data Management Plan

Primary Investigator: Xinping Hu

Institution: Texas A&M University – Corpus Christi

Project Title: CAREER: The Impact of Hydrologic State on CO_2 Flux and Acidification in Subtropical Estuaries

NSF Division: Ocean Sciences

Submission Date: July 22, 2016

Overview: This project will examine estuarine CO_2 flux and acidification under hydrologic control using a coastal estuary - Mission Aransas Estuary as a case study. CO_2 flux and organic alkalinity contribution across climatic and hydrologic gradients in estuaries along the northwestern Gulf of Mexico will also be examined. Alkalinity consumption through benthic processes will be investigated using lab sediment incubation experiments.

Data description: Data will be obtained from laboratory experiments (pCO_2, pH, total dissolved CO_2, total alkalinity, organic alkalinity, and nutrients), field data (coordinates, field physical conditions - salinity, temperature and wind speed).

Data analysis summary: PI Hu and his team will be responsible all data collection and analysis.

Includes field/experimental work? Yes

Description of field/experimental work: Hu's group will conduct multiple field expeditions to Mission-Aransas Estuary (Y1-Y5) and a broader expanse of northwestern Gulf of Mexico estuaries (Y2) to collect both underway pCO_2 data using SuperCO_2 package and discrete water samples. Lab analyses of water samples for pH, alkalinity (total and organic), total dissolved CO_2 will be performed at TAMU-CC lab. Sediment incubation (Y2-Y4) will be conducted to examine alkalinity consumption flux during simulated drought conditions.

Expected data product #1

Data type: Observational, Analytical

Responsible investigator: Hu

Product description: Water chemical data include total titration alkalinity, total dissolved CO_2, nutrients, organic alkalinity, pH (spectrophotometric method on total scale), Ca^{2+}, and sulfate in discrete samples. Hu's group will also collect underway data, which include pCO_2, pH (electrode, on NBS scale), temperature, salinity, wind speed, and coordinates. Sediment incubation experiments will generate alkalinity flux and sulfate production data. These data will be saved in comma delimited format (i.e., CSV) and will be posted on the PI's website at TAMU-CC upon the completion of QA/QC. Public access to the data used in publications once manuscripts are accepted will be provided by submission to the Biological and Chemical Oceanography Data Management Office (BCO-DMO) located in the Woods Hole Oceanographic Institution. Figures generated using the dataset will be maintained on PI's university server.

Timeline for data release: No later than two years from acquisition/analysis.

Intended Repository: BCO-DMO.

Expected Data: Field and experimental work will generate less than 200 Mbytes of data.