Data Management Plan
Okeanos Explorer (EX1402L2): Gulf of Mexico Mapping and Exploration

Data Management Objectives

On this mapping cruise, data management objectives are to ensure that the mapping survey data is received, documented, and archived within 45-60 days of the end of cruise.

1. General Description of Data to be Managed

1.1 Name of the Dataset of Data Collection Project

Okeanos Explorer (EX1402L2): Gulf of Mexico Mapping and Exploration

EX-14-02 Leg 2 will be primarily focused on mapping the area to the south and southeast of Flower Garden Banks NMS in the western Gulf of Mexico. Objectives are: 1. Collect deep water multibeam bathymetry sonar data; 2. collect ancillary sonar data (single beam and sub-bottom profile); 3. XBT operations; 4. train new personnel in all data collection and processing procedures; 5. test new or modified mission hardware and software; 6. maintain single live stream video from ship to shore.

1.2 If this mission is part of a series of missions, what is the series name?

Okeanos Explorer

1.2 Keywords that could be used to characterize the data.

expedition, exploration, explorer, marine education, noaa, ocean, ocean discovery, ocean education, ocean exploration, ocean exploration and research, ocean literacy, ocean research, OER, science, scientific mission, scientific research, sea, stewardship, systematic exploration, technology, transformational research, undersea, underwater, Davisville, mapping survey, multibeam, multibeam backscatter, multibeam sonar, multi-beam sonar, noaa fleet, okeanos, okeanos explorer, R337, Rhode Island, scientific computing system, SCS, single beam sonar, singlebeam sonar, single-beam sonar, sub-bottom profile, water column backscatter, oceans, Galveston, TX, Pascagoula, MS, continental shelf break, Flower Garden Banks National Marine Sanctuary, FGBNMS, Claypile Bank, NASA Maritime Aerosol Network

1.4 Summary description of the data to be generated.

Transit mapping operations will collect bathymetry, sub-bottom profiles, water column backscatter, and seafloor backscatter over the continental shelf and Claypile Bank in accordance with request from the scientific community. Survey mapping operations will collect continuous bathymetry, sub-bottom profiles, water column backscatter, and seafloor backscatter over the area to the south of Flower Garden Banks NMS, also in accordance with the scientific community. Data will provide details about biological habitats in the area and improve understanding of the ecological connection between mid-water and deepwater biological communities. During EX-14-02 Leg 2, multibeam, single beam, and sub-bottom profile data will be collected 24 hours a day and XBT casts will be conducted at an interval defined by prevailing oceanographic conditions, but not to exceed 6 hours.

1.5 Anticipated temporal coverage of the data.

Cruise Dates: 3/19/2014 to 4/4/2014

1.6 Anticipated geographic coverage of the data.

Latitude Boundaries:	30.3	to	26.6
Longitude Boundaries:	-94.67	to	-88.5

1.7 What platforms will be employed during this mission?

NOAA Ship Okeanos Explorer

1.8 What data types will you be creating or capturing?

Data Management Plan, Quick Look Report, Bottom Backscatter, CTD (processed), CTD (product), CTD (raw), EK60 Singlebeam Data, Mapping Summary, Multibeam (image), Multibeam (processed), Multibeam (product), Multibeam (raw), SCS Output (compressed), SCS Output (native), Sub-Bottom Profile data, Water Column Backscatter, XBT (raw), Cruise Plan, Cruise Summary

1.8 What data types will you be submitting for archive?

Data Management Plan, Quick Look Report, Bottom Backscatter, CTD (processed), CTD (product), CTD (raw), EK60 Singlebeam Data, Mapping Summary, Multibeam (image), Multibeam (processed), Multibeam (product), Multibeam (raw), SCS Output (compressed), SCS Output (native), Sub-Bottom Profile data, Water Column Backscatter, XBT (raw), Cruise Plan, Cruise Summary

1.9 What volume of data is anticipated to be collected in the Project Time Frame?

160 GB

2. Points of Contact

2.1 Who is the overall point of contact for the data collection?

Lindsay McKenna, Physical Scientist, NOAA Office of Ocean Exploration and Research

2.2 Who is responsible for verifying the quality of the data?

Lindsay McKenna, Physical Scientist, NOAA Office of Ocean Exploration and Research; lindsay.mckenna@noaa.gov

2.3 Who is responsible for data documentation and metadata activities?

OER Data Management Coordinator, National Coastal Data Development Center, Stennis Space Center, MS 228-688-2936, oer.info.mgmt@noaa.gov

2.4 Who is responsible for data storage and data disaster recovery activities?

NOAA National Data Centers (National Geophysical Data Center, National Oceanographic Data Center, NOAA Central Library)

3. Data Stewardship

3.1 What quality control procedures will be employed?

Quality control procedures for the data from the Kongsberg EM302 is handled at UNH CCOM/JHC. Raw (level-0) bathymetry files are cleaned/edited into new data files (level-1) and converted to a variety of products (level-2). Data from sensors monitored through the SCS are archived in their native format and are not quality controlled. Data from CTD casts and XBT firings are archived in their native format and are not quality controlled. CTDs are processed into profiles for display only on the Okeanos Atlas.

4. Data Documentation

4.1 Which metadata repository will be used to document this data collection?

An ISO format collection-level metadata record will be generated during pre-cruise planning and published in an OER catalog and Web Accessible Folder (WAF) hosted at NCDDC for public discovery and access. The record will be harvested by data.gov.

4.2 What additional metadata or other documentation is necessary to fully describe the data and ensure its long-term usefulness?

Additional metadata includes: Multibeam metadata to file level; Scientific Computing System (SCS) metadata; MAchine Readable Catalog (MARC) metadata for Library items.

4.3 What standards will be used to represent data and metadata elements in this data collection?

ISO 19115-2 Geographic Information with Extensions for Imagery and Gridded Data will be the metadata standard employed; a NetCDF-4 standard for oceanographic data will be employed for the SCS data; the Library of Congress standard, MAchine Readable Catalog (MARC), will be employed for NOAA Central Library records.

5. Data Sharing

5.1 What date will the data be made available to the public?

All data from this mission is expected to be documented, archived and accessible within 60-90 days post-mission through the NOAA National Data Centers and public access GIS map applications. Meteorological and Oceanographic (METOC) sensor data from the SCS, and CTD data are converted in a post-mission model into archive ready compressed NetCDF-4 format and stored within the NCDDC THREDDS open-access server.

5.2 If the data are not to be made publicly available, under what authority are the data restricted?

Not Applicable

5.2a Access Constraints Statement?

No data access constraints, unless data are protected under the National Historic Preservation Act of 1966.

5.2b Use Constraints Statement?

Data use shall be credited to NOAA Office of Ocean Exploration and Research.

6. Initial Data Storage and Protection

6.1 Where and how will the data be stored initially (prior to archive submission)?

Data are recorded and stored on NOAA shipboard systems compliant with NOAA IT procedures. Data are moved from ship to shore using a variety of standard, documented data custody transfer procedures. Data are transferred to NOAA Data Centers using digital and physical data transfer models depending upon the data volume.

6.2 Discuss data back-up, disaster recovery, contingency planning and off-site storage relevant to this data collection.

Data management standard operating procedures minimizing accidental or malicious modification or deletion are in place aboard the Okeanos Explorer and will be enforced.

6.3 Describe how the data will be protected from unauthorized access, how permissions will be managed and what process will be followed in the event of unauthorized access.

Account access to mission systems are maintained and controlled by the Program. Data access prior to public accessiblity is documented through the use of Data Request forms and standard operating procedures.

7. Long-Term Archiving and Preservation

7.1 In what NOAA Data Center(s) will the data be archived and preserved?

Data from this mission will be preserved and stewarded through the NOAA National Data Centers. Refer to the Okeanos Explorer FY14 Data Management Plan at NOAA's EDMC DMP Repository (EX_FY14_DMP_Final.pdf) for detailed descriptions of the processes, procedures, and partners involved in this collaborative effort.

7.1a If you do not plan to archive in the NOAA Data Centers, what is your long-term strategy for maintaining, curating, and archiving the data?

Not Applicable

7.2 What transformations or procedures will be necessary to prepare data for preservation or sharing?

SCS data shall be delivered in its native format as well as an archive-ready, documented, and compressed NetCDF-4 format to NODC; multibeam data and metadata will be compressed and delivered in a bagit format to NGDC.