Data Management Plan
Okeanos Explorer (EX1402L3): Gulf of Mexico Mapping and ROV Exploration

Data Management Objectives

Data management objectives: to provide a foundation of publicly accessible data and information products to spur further exploration, research, and management activities; to provide daily cumulative multibeam products to shore for operational decision making purposes; to record 2 channels of streamed video footage of ROV dives onboard the ship; to prepare for data warehouse upgrades; to evaluate a new video annotation tool brought aboard by the lead biologist; and to test production of a post-mission data product capturing environmental variables along a dive track corresponding to highlight images.

1. General Description of Data to be Managed

1.1 Name of the Dataset of Data Collection Project

Okeanos Explorer (EX1402L3): Gulf of Mexico Mapping and ROV Exploration

The overall goal of this cruise is to collect data to aid in the development of a baseline characterization of the targeted operating areas. Science objectives are to identify and explore the diversity and distribution of benthic habitats and features in the region; to conduct ROV dives along the Sigsbee Escarpment and in adjacent deep-water canyons; to locate and characterize underwater cultural heritage sites; to groundtruth acoustic seep data and characterize associated habitat; to recover long deployment experiments from the seafloor; and to deploy Argo floats.

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.

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, archaeological, archaeology, conservation, conserve, crm, cultural resource management, historic, marine archaeology, maritime, maritime archaeology, nautical, nautical archaeology, preserve, protect, protection, submerged cultural heritage, submerged cultural resource, uch, underwater cultural heritage, oceans, St. Petersburg, Pascagoula, Flower Garden Banks, FGBNMS, Sigsbee Escarpment, benthic habitat, benthic ecosystems, shipwreck, Argo float, expedition

1.4 Summary description of the data to be generated.

Multibeam mapping, single beam, water column sonar, sub-bottom profile, water column profile, ship sensor, ROV sensor, video and image data will all be collected during this mission.

1.5 Anticipated temporal coverage of the data.

Cruise Dates: 4/10/2014 to 5/1/2014

1.6 Anticipated geographic coverage of the data.

Latitude Boundaries:	30	to	24
Longitude Boundaries:	-95	to	-83

1.7 What platforms will be employed during this mission?

NOAA Ship *Okeanos Explorer*, Deep Discoverer ROV, SEIRIOS Camera Sled

1.8 What data types will you be creating or capturing?

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

1.8 What data types will you be submitting for archive?

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

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

7-10 TB

2. Points of Contact

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

Kelley Elliott, Contractor (Acentia/2020 LLC), NOAA Office of Ocean Exploration and Research, kelley.elliott@noaa.gov

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

Elizabeth Lobecker, Multibeam Mapping Expert, Contractor (ERT, Inc.), NOAA Office of Ocean Exploration and Research, elizabeth.lobecker@noaa.gov

2.3 Who is responsible for data documentation and metadata activities?

Susan Gottfried, Data Management Coordinator, NOAA National Coastal Data Development Center, susan.gottfried@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 non-sensitive 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. Any data considered sensitive due to protection of potential underwater cultural resources will be protected from public access under the Historic Preservation Act.

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

accessibility 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.

7.1 a 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.