

# Data Management Plan

## Okeanos Explorer (EX1602): Mission System Shakedown/CAPSTONE Mapping



### *OER Data Management Objectives*

*Integrate new systems into data management pipelines; test deck-to-deck telestream video recording system; train onboard sampling operations assistant to use EX SODA; protect data from marine archaeology dive, if underwater cultural heritage is located; confirm that the new video compression routines (naming, consolidation, push, etc) are working on the new VES stations; verify that the recalibrated ROV environmental sensors are accurate; compare CTD systems and compare vertical profiles from recovery to a ship CTD cast; ensure that ROV navigation is being captured; verify that all cameras on the submersibles have been added to the camera list; add camera angle nmea string transmission to SCS feed;*

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## **1. General Description of Data to be Managed**

### **1.1 Name and Purpose of the Data Collection Project**

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### **1.2 Summary description of the data to be collected.**

Operations will use the ship's deep water mapping systems (Kongsberg EM302 multibeam sonar, EK60 split-beam fisheries sonars, Knudsen 3260 chirp sub-bottom profiler sonar, Teledyne RDI Workhorse Mariner and Ocean Surveyor ADCPs), NOAA's two-body 6,000 m remotely operated vehicle (ROVs Deep Discoverer and Seirios) system, CTD rosette, and the ship's high-bandwidth satellite connection for real-time ship to shore communications. ROV dives will mostly be conducted during the day, while CTD casts, and multibeam, singlebeam, and sub-bottom acoustic mapping will occur when the ROV is on deck. Exact locations of discrete ROV dives and mapping operations will be determined during the cruise as results of engineering and shakedown tests are evaluated and once weather and operational constraints are factored in.

### **1.3 Keywords or phrases that could be used to enable users to find the data.**

Davisville, expedition, exploration, explorer, Hawaiian Islands, Kaiwi Channel, Kealaikahiki Channel, Lanai Island, mapping survey, marine education, Mission Shakedown, Molokai Fracture Zone, Molokai Island, multibeam, multibeam backscatter, multibeam sonar, multi-beam sonar, Murray Fracture Zone, noaa, noaa fleet, ocean, ocean discovery, ocean education, ocean exploration, ocean exploration and research, ocean literacy, ocean research, OER, okeanos, okeanos explorer, Penguin Bank, R337, Rhode Island, science, scientific computing system, scientific mission, scientific research, SCS, sea, single beam sonar, singlebeam sonar, single-beam sonar, stewardship, sub-bottom profile, systematic exploration, technology, transformational research, undersea, underwater, Waianae Slump, water column backscatter

### **1.4 If this mission is part of a series of missions, what is the series name?**

Okeanos Mapping Cruises

### **1.5 Planned or actual temporal coverage of the data.**

Dates: 2/12/2016 to 2/17/2016

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**1.6 Planned or actual geographic coverage of the data.**

Latitude Boundaries: 20.5 to 21.5

Longitude Boundaries: -158.8 to -156.5

**1.7 What data types will you be creating or capturing and submitting for archive?**

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

**1.8 What platforms will be employed during this mission?**

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

**2. Point of Contact for this Data Producing Project**

Overall POC: Lindsay McKenna, Physical Scientist, NOAA Office of Ocean Exploration and Research, Lindsay.McKenna@noaa.gov

Title: Principal Investigator

Affiliation/Dept: University of New Hampshire CCOM/JHC

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**3. Point of Contact for Managing the Data**

Data POC Name: Susan Gottfried

Title: OER Data Management Coordinator

E-Mail: susan.gottfried@noaa.gov

**4. Resources**

**4.1 Have resources for management of these data been identified?** True

**4.2 Approximate percentage of the budget devoted to data management. (specify % or "unknown")**  
unknown

**5. Data Lineage and Quality****5.1 What is the processing workflow from collection to public release?**

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

**5.2 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).

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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.

## 6. Data Documentation

### 6.1 Does the metadata comply with the Data Documentation Directive?

True

#### 6.1.1 If metadata are non-existent or non-compliant, please explain:

not applicable

### 6.2 Where will the metadata be hosted?

Organization: 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 NCEI-MS for public discovery and access. The record will be harvested by data.gov.

URL: [www.ncddc.noaa.gov/oer-waf/ISO/](http://www.ncddc.noaa.gov/oer-waf/ISO/)

Meta Std: 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.

### 6.3 Process for producing and maintaining metadata:

Metadata will be generated via xml editors or metadata generation tools.

## 7. Data Access

### 7.1 Do the data comply with the Data Access Directive?

True

#### 7.1.1 If the data will not be available to the public, or with limitations, provide a valid reason.

Some data may be subject to the National Historic Preservation Act of 1966. All other data will not be restricted.

#### 7.1.2 If there are limitations, describe how data are protected from 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.

### 7.2 Name and URL of organization or facility providing data access.

Org: National Centers for Environmental Information

URL: [explore.noaa.gov/digitalatlas](http://explore.noaa.gov/digitalatlas)

### 7.3 Approximate delay between data collection and dissemination. By what authority?

Hold Time: No, data shall be released as soon as possible except for those data protected under the National Historic Preservation Act

Authority:

### 7.4 Prepare a Data Access Statement

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

## 8. Data Preservation and Protection

### 8.1 Actual or planned long-term data archive location:

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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.

**8.2 If no archive planned, why?**

**8.3 If any delay between data collection and submission to an archive facility, please explain.**

**8.4 How will data be protected from accidental or malicious modification or deletion?**

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

**8.5 Prepare a Data Use Statement**

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