



UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration
NOAA Marine and Aviation Operations
Marine Operations Center
439 W. York Street
Norfolk, VA 23510-1114

MEMORANDUM FOR: Commander Mark Wetzler, NOAA
Commanding Officer, NOAA Ship *Okeanos Explorer*

FROM: 
Captain Anne K. Lynch, NOAA
Commanding Officer, NOAA Marine Operations Center-Atlantic

SUBJECT: Project Instruction for October 2015 Transit

Attached is the final Project Instruction for October 2015 Transit, which is scheduled aboard NOAA Ship *Okeanos Explorer* during the period of October 5 - 15, 2015. Of the 11 DAS scheduled for this project, 11 DAS are funded by OMAO allocations, 0 DAS are funded by a Line Office Allocation, 0 DAS are Program Funded, and 0 DAS are other agency funded. This project is estimated to exhibit a Low Operational Tempo. Acknowledge receipt of these instructions via e-mail to OpsMgr.MOA@noaa.gov at Marine Operations Center-Atlantic.





Project Instructions

Date Submitted: September 20, 2015

Platform: NOAA Ship *Okeanos Explorer*

Project Number: N/A

Project Title: October 2015 Transit: Honolulu, HI to Alameda, CA

Project Dates: October 5 - October 15, 2015

Prepared by: Elizabeth "Meme" Lobecker, NOAA Expedition Coordinator
Office of Ocean Exploration & Research
Frank Cantelas

Dated: 9/16/2015

Approved by: Frank Cantelas
for John McDonough
Deputy Director
Office of Ocean Exploration & Research

Dated: 10/2/2015

Approved by: Anne Lynch
Captain Anne Lynch, NOAA
Commanding Officer
Marine Operations Center - Atlantic

Dated: 10/5/2015

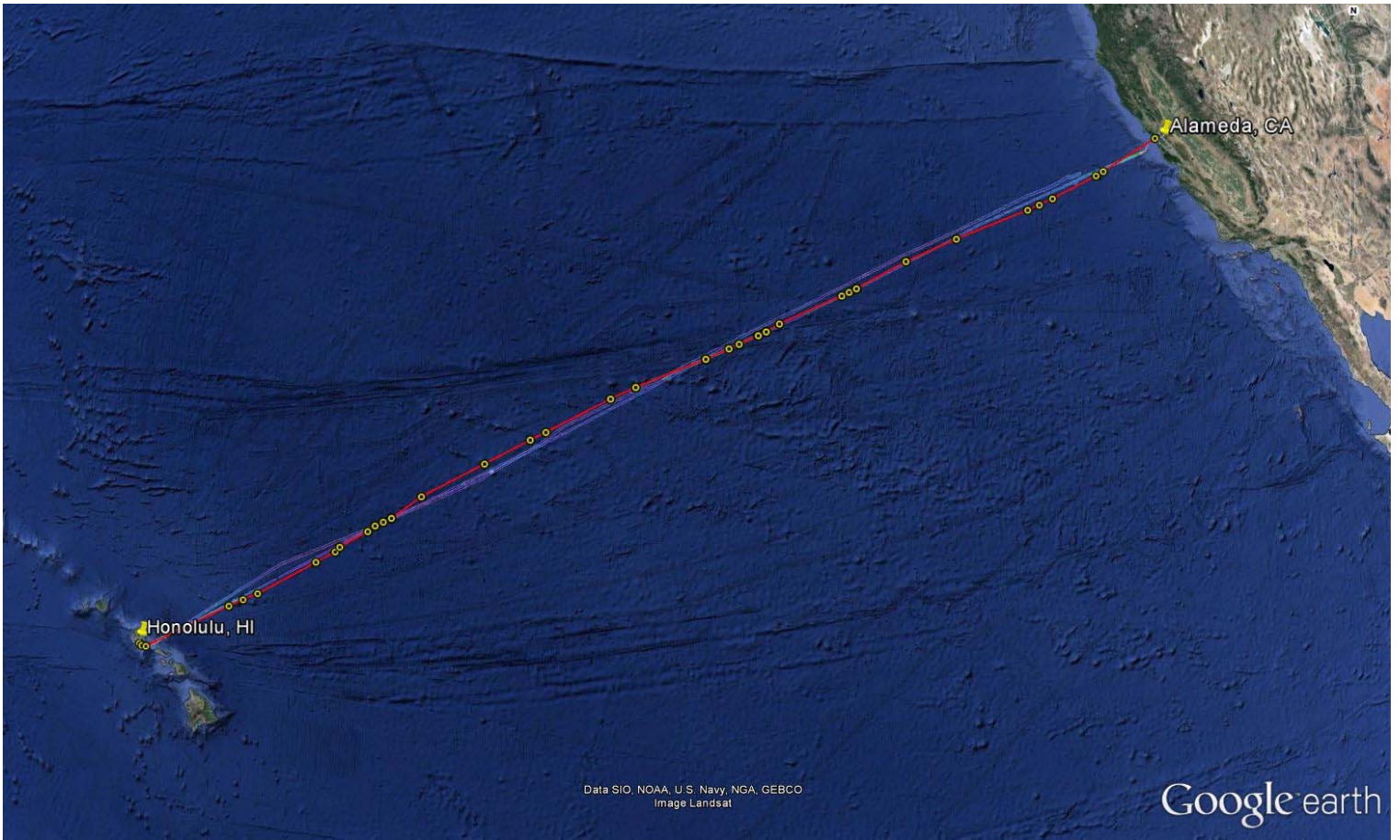


Figure 1. Figure showing EX-16-01 transit line in red, with way points in yellow. Previous Okeanos Explorer mapping coverage from EX-09-08 and EX-10-06 shown. Created in Google Earth Pro.

| Longitude | Latitude | Remarks |
|------------------|-----------------|---|
| 157 52.932W | 21 15.252N | Depart Pearl Harbor, HI, commence data collection upon passing sea buoy |
| 157 46.867W | 21 12.705N | |
| 157 37.406W | 21 13.25N | |
| 154 40.822W | 23 3.986N | |
| 154 11.752W | 23 20.655N | |
| 153 42.085W | 23 36.754N | |
| 151 47.585W | 24 50.637N | |
| 151 10.37W | 25 13.963N | |
| 151 1.946W | 25 23.509N | |
| 150 8.741W | 25 57.317N | |
| 149 55.129W | 26 8.92N | |
| 149 55.127W | 26 8.918N | |
| 149 39.492W | 26 17.375N | |
| 149 23.937W | 26 25.77N | |
| 149 23.936W | 26 25.768N | |
| 148 28.637W | 27 8.787N | |
| 146 30.58W | 28 15.533N | |
| 145 5.417W | 29 2.5N | |
| 144 36.131W | 29 17.452N | |
| 142 34.797W | 30 20.457N | |
| 141 47.102W | 30 42.202N | |
| 139 32.345W | 31 34.179N | |
| 139 32.344W | 31 94.174N | |
| 138 47.191W | 31 52.765N | |
| 138 27.42W | 32 0.89N | |
| 137 50.5W | 32 16.025N | |
| 137 49.595W | 32 16.097N | |
| 137 34.049W | 32 22.755N | |
| 137 34.047W | 32 22.749N | |
| 137 7.7W | 32 36.461N | |
| 135 1.229W | 33 24.857N | |
| 134 45.991W | 33 31.036N | |
| 134 30.734W | 33 37.181N | |
| 134 30.734W | 33 37.179N | |
| 132 45.341W | 34 23.263N | |
| 130 54.33W | 35 0.716N | |
| 128 9.425W | 35 48.053N | |
| 127 41.327W | 35 56.466N | |
| 127 8.99W | 36 6.764N | |
| 125 17.611W | 36 44.504N | |

| | | |
|-------------|------------|--|
| 124 58.473W | 36 51.764N | |
| 122 32.275W | 37 47.767N | Arrive sea buoy San Francisco, CA, secure all sonars |

Table 1: Approximate waypoints for the October 2015 Honolulu, Hawaii to Alameda, California transit. The actual cruise track will vary due to prevailing conditions and the discretion of the Commanding Officer.

D. Summary of Objectives

OCT 5 - OCT 15 (Pearl Harbor, Hawaii to Alameda, California)

In pursuit of the "Always Exploring" and telepresence operating paradigms of NOAA Ship *Okeanos Explorer*, there are three main objectives to this cruise.

(1) The first main objective is to utilize this transit to test the operational feasibility of conducting 24 hour/day transit mapping through telepresence. It is recognized that VSAT connectivity has not been reliable recently, however this transit cruise still provides a good opportunity to test the telepresence transit mapping model. It should be noted that this was demonstrated successfully in 2010 during EX-10-05 and has not been attempted since. Throughout this cruise, multibeam data will be collected 24 hours a day and XBT casts will be conducted every 6 hours. Additionally, EK 60 (split beam) and sub-bottom profile data will be collected 24 hours per day, with subbottom profile data collection at the discretion of the CO. Onboard multibeam data processing will be minimal due to limited staffing. Daily or bi-daily multibeam products will be produced according to established shipboard SOP and sent to shore through established shipboard SOP. Onshore mapping physical scientists will monitor data quality, cruise progress, and discovery potential. Raw EK 60 and subbottom data will be sent to the shoreside repository through established shipboard automated archival procedure.

(2) The second main objective is to make slight course deviations in order to map seamounts adjacent to the great circle route with one swath of the EM302 multibeam during the transit from Hawaii to California. As discussed in the March 2010 *Oceanography* article "Seamount Discovery Tool Aids Navigation to Uncharted Seafloor Features", by David Sandwell and Paul Wessel, "transits usually follow a great circle route to minimize ship time, but in many instance this track results in repeated surveys of the same seafloor. In these cases, minor diversions from the great circle route could be used to survey new areas, using little or no extra ship time. Thus, we propose that this transit time could be optimized to chart seamounts. Opportunistic mapping of these features during transit enables the discovery of previously unknown seafloor features, and new bathymetric data may provide new insight into the complex history of the Pacific Plate." (*article available here http://www.tos.org/oceanography/archive/23-1_sandwell.pdf, last accessed 9/23/15*)

In summary, the following are cruise objectives:

1. Test operational reality of conducting a 24 hour/day mapping transit cruise through telepresence.
2. Opportunistically collect deep water multibeam bathymetry sonar data (MBES) of previously unmapped seamounts during transit.
 - a. Conduct 24-hour mapping operations for the duration of the cruise
 - b. Collect bathymetric, seafloor backscatter, and water column backscatter data
3. Collect ancillary sonar data

- a. EK60 single beam sonar (24 hours/day)
 - b. Knudsen sub-bottom profiler (24 hours/day, where permissible)
4. XBT operations
- a. XBT casts will be collected at regular preplanned intervals of no more than 6 hours.
5. Baseline Data Processing
- a. Produce daily or bi-daily multibeam bathymetry products according to standard operating procedures at a resolution of 100 meters.
6. Telepresence (VSAT 5 mbps ship to shore; T1 shore to ship)
- a. Maintain single live stream video from ship to shore. The live stream will show sonar data acquisition streams.
 - b. Utilize chatroom, email, and RTS communication for communications between onboard technicians and shorebased scientists.
 - c. Shorebased scientists will stand watches as necessary at Exploration Command Centers at the University of New Hampshire and NOAA Headquarters Silver Spring, MD.
7. At the completion of the cruise, the standard mapping data package will be assembled by the Senior Survey Technician and delivered via external hard drive to OER physical scientists at the University of New Hampshire (UNH) for final data QC and archival procedures.
8. Following cruise completion, all multibeam data will be fully processed by NOAA OER physical scientists at UNH according to standard procedures for final data QC and archival procedure with National Coastal Data Development Center and National Centers for Environmental Information.

E. Participating Institutions

National Oceanic and Atmospheric Administration (NOAA) - Office of Ocean Exploration and Research (OER) - 1315 East-West Hwy, Silver Spring, MD 20910

University of New Hampshire (UNH) Center for Coastal and Ocean Mapping (CCOM) Jere A. Chase Ocean Engineering Lab, 24 Colovos Road, Durham, NH 03824

National Coastal Data Development Center, Stennis Space Center MS, 39529

University of Rhode Island, Graduate School of Oceanography's Inner Space Center, 215 South Ferry Rd. Narragansett, RI 02882

F. Personnel/Science Party: name, title, gender, affiliation, and nationality

Onboard Mission Personnel

Watchstanders will be a combination of ship's force and contracted individuals. The Mapping Watch Leads are responsible for collecting sonar data, carrying out baseline bathymetry data processing (i.e. swath editing with Caris for major outliers), and communicating status of mapping sensors to personnel on shore. Survey watches will be minimal, with a single watchstander available in the control room at all times, and a second person available once every six hours to assist in performing an XBT. Several onboard personnel have been trained in XBT deployment procedures. As necessary, watch leads can take breaks during their assigned watches after setting sonar settings appropriately. Additionally, sonars can be left alone for up to two hours if there are lapses between personnel coverage.

Onshore Mission Personnel

Required onshore mission personnel include a Mapping Lead/Expedition Coordinator as well as two Physical Scientists to provide additional watch support as necessary.

| Name | Title | Date Aboard | Date Disembark | Affiliation | Gender | Nationality |
|-------------------|---|-------------|----------------|----------------------|--------|-------------|
| Nalley, Joy | Onboard Mapping Watch Lead | 10/5/2015 | 10/15/15 | NOAA OMAO | F | US Citizen |
| Freitas, Daniel | Onboard Mapping Watch Lead | 10/5/2015 | 10/15/15 | NOAA OMAO | M | US Citizen |
| Bittenger, Amanda | Onboard Mapping Watch Lead | 10/3/2015 | 10/15/15 | NOAA OER / UCAR | F | US Citizen |
| Lobecker, Meme | Expedition Coordinator/ Onshore Physical Scientist | n/a | n/a | NOAA OER (ERT, Inc.) | n/a | US Citizen |
| McKenna, Lindsay | Onshore Physical Scientist | n/a | n/a | NOAA OER (ERT, Inc.) | n/a | US Citizen |
| Sowers, Derek | Onshore Physical Scientist | n/a | n/a | NOAA OER (ERT, Inc.) | n/a | US Citizen |
| Malik, Mashkoor | Onshore Physical Scientist | n/a | n/a | NOAA OER (ERT, Inc.) | n/a | US Citizen |

Table 2: Full list of the science party members and their affiliation.

G. Administrative

1. Points of Contacts:

Ship Operations

Marine Operations Center, Atlantic (MOA)
439 West York Street
Norfolk, VA 23510-1145
Telephone: (757) 441-6776
Fax: (757) 441-6495

Chief, Operations Division, Atlantic (MOA)
LCDR Donald Beaucage
Telephone: (757) 441-6842
E-mail: : ChiefOps.MOA@noaa.gov

Mission Operations

Meme Lobecker, Expedition Coordinator
NOAA Office of Ocean Exploration
and Research (ERT, Inc)
Phone : (603) 862-1475
E-mail : elizabeth.lobecker@noaa.gov

CDR Mark Wetzler, NOAA
Commanding Officer
NOAA Ship *Okeanos Explorer*
Phone: Iridium - (808) 659 9179
Email: CO.Explorer@noaa.gov

LTJG Nikolai Pawlenko, NOAA
Acting Operations Officer
NOAA Ship *Okeanos Explorer*
Phone: (808) 659-9179
E-mail: Ops.Explorer@noaa.gov

Other Mission Contacts

John McDonough, Deputy Director
NOAA Ocean Exploration & Research
Phone: (301) 734-1023 / (240) 676-5206
E-mail: John.McDonough@noaa.gov

LT Brian Kennedy
Acting Deputy EX Program Manager
NOAA Office of Ocean Exploration
and Research
Phone : (401) 874-6150/ (401) 603-6017
E-mail : Brian.Kennedy@noaa.gov

CDR Thomas Pelzer
Associate Director for Operations Pacific Marine
Environmental Lab (PMEL)
Phone : (206) 526-4485
E-mail : pmel.dir.ops@noaa.gov

Jared Drewniak, Telepresence Lead
NOAA Office of Ocean Exploration & Research
(Acentia)
Phone: (401) 874-6250 (o) / (401) 330-9662 (c)
E-mail: jared.drewniak@noaa.gov

2. Diplomatic Clearances

Not applicable.

3. Licenses and Permits

See Appendix B for categorical exclusion documentation.

II. Operations

The Expedition Coordinator is responsible for ensuring the scientific staff are trained in planned operations and are knowledgeable of project objectives and priorities. The Commanding Officer is responsible for ensuring all operations conform to the ship's accepted practices and procedures.

A. Project Itinerary (*All times and dates are subject to prevailing conditions and the discretion of the commanding officer*):

Monday, October 5

- Morning departure from Pearl Harbor, HI

Tuesday, October 6 - Thursday, October 15

- Conduct transit mapping at 9 - 10 knots with strategic minor course alterations for seamount mapping.

Friday, October 15

- ~0700 arrive at San Francisco Bay sea buoy

Telepresence Events

There are no scheduled telepresence events.

In-Port Events

There are no in-port events scheduled.

- B. Staging and Destaging:
Not applicable.

- C. Operations to be Conducted:

Sonar Operations

Multibeam, EK 60, and Knudsen sub-bottom profiler data acquisition is planned for this cruise. The mapping team will ensure that all the standard protocols, as laid out by the Commanding Officer and mapping lead directives will be followed for efficient and safe mapping operations. The final decision to operate and collect sub-bottom profiler data will be at the discretion of the Commanding Officer.

- D. Dive Plan

All dives are to be conducted in accordance with the requirements and regulations of the NOAA Diving Program (<http://www.ndc.noaa.gov/dr.html>) and require the approval of the ship's Commanding Officer.

Dives are not planned for this project.

- E. Applicable Restrictions

Conditions which preclude normal operations: (1) XBTs will not be conducted in poor weather. (2) If rough sea state is resulting in poor data quality, sonar data may not be collected for that period of time.

III. Equipment

- A. Equipment and Capabilities provided by the ship (itemized)
- Kongsberg EM302 Multibeam Echosounder (MBES)
 - Kongsberg Simrad EK60 Deepwater Echosounder
 - Knudsen Chirp 3260 Sub-bottom profiler (SBP)
 - LHM Sippican XBT (Deep Blue probes)
 - Seabird SBE 911 Plus CTD
 - Seabird SBE 32 Carousel and 24 2.5 L Niskin Bottles
 - Light Scattering Sensor (LSS)
 - Oxidation – Reduction Potential (ORP)
 - Dissolved Oxygen (DO) sensor
 - Altimeter Sensor and battery pack
 - CNAV GPS

- POS/MV
 - Seabird SBE-45 (Micro TSG)
 - Kongsberg Dynamic Positioning-1 System
 - NetApps mapping storage system
 - CARIS HIPS Software
 - IVS Fledermaus Software
 - SIS Software
 - Hypack Software
 - Scientific Computing System (SCS)
 - ECDIS
 - Met/Wx Sensor Package
 - Telepresence System
 - VSAT High-Speed link (Comtech5Mbps ship to shore; 1.54 Mbps shore to ship)
 - Cruise Information Management System (CIMS)
- B. Equipment and Capabilities provided by the scientists (itemized)
- None

IV. Hazardous Materials

A. Policy and Compliance

The Expedition Coordinator is responsible for complying with FEC 07 Hazardous Materials and Hazardous Waste Management Requirements for Visiting Scientific Parties (or the OMAO procedure that supersedes it). By Federal regulations and NOAA Marine and Aviation Operations policy, the ship may not sail without a complete inventory of all hazardous materials by name and quantity, MSDS, appropriate spill cleanup materials (neutralizing agents, buffers, or absorbents) in amounts adequate to address spills of a size equal to the amount of chemical brought aboard, and chemical safety and spill response procedures. . Documentation regarding those requirements will be provided by the Chief of Operations, Marine Operations Center, upon request.

Per OMAO procedure, the scientific party will include with their project instructions and provide to the CO of the respective ship 30 days before departure:

- List of chemicals by name with anticipated quantity
- List of spill response materials, including neutralizing agents, buffers, and absorbents
- Chemical safety and spill response procedures, such as excerpts of the program's Chemical Hygiene Plan or SOPs relevant for shipboard laboratories
- For bulk quantities of chemicals in excess of 50 gallons total or in containers larger than 10 gallons each, notify ship's Operations Officer regarding quantity, packaging and chemical to verify safe stowage is available as soon as chemical quantities are known.

Upon embarkation and prior to loading hazardous materials aboard the vessel, the scientific party will provide to the CO or their designee:

- An inventory list showing actual amount of hazardous material brought aboard
- An MSDS for each material
- Confirmation that neutralizing agents and spill equipment were brought aboard sufficient to contain and cleanup all of the hazardous material brought aboard by the program
- Confirmation that chemical safety and spill response procedures were brought aboard

Upon departure from the ship, scientific parties will provide the CO or their designee an inventory showing that all chemicals were removed from the vessel. The CO's designee will maintain a log to track scientific party hazardous materials. MSDS will be made available to the ship's complement, in compliance with Hazard Communication Laws.

Scientific parties are expected to manage and respond to spills of scientific hazardous materials. Overboard discharge of hazardous materials is not permitted aboard NOAA ships.

B. Inventory

None.

C. Chemical safety and spill response procedures

D. Radioactive Materials

No Radioactive Isotopes are planned for this project.

V. Additional Projects

A. Supplementary ("Piggyback") Projects

None planned.

B. NOAA Fleet Ancillary Projects

No NOAA Fleet Ancillary Projects are planned.

VI. Disposition of Data and Reports

Disposition of data gathered aboard NOAA ships will conform to NAO 216-101 *Ocean Data Acquisitions* and NAO 212-15 *Management of Environmental Data and Information*. To guide the implementation of these NAOs, NOAA's Environmental Data Management Committee (EDMC) provides the *NOAA Data Documentation Procedural Directive* (data documentation) and *NOAA Data Management Planning Procedural Directive* (preparation of Data Management Plans). OMAO is developing procedures and allocating resources to manage OMAO data and Programs are encouraged to do the same for their Project data.

A. Data Classifications: *Under Development*

a. OMAO Data

b. Program Data

B. Responsibilities: *Under Development*

VII. Meetings, Vessel Familiarization, and Project Evaluations

A. Pre-Project Meeting: The Expedition Coordinator and Commanding Officer will conduct a meeting of pertinent members of the scientific party and ship's crew to discuss required equipment, planned operations, concerns, and establish mitigation strategies for all concerns. This meeting shall be conducted before the beginning of

the project with sufficient time to allow for preparation of the ship and project personnel. The ship's Operations Officer usually is delegated to assist the Expedition Coordinator in arranging this meeting.

- B. Vessel Familiarization Meeting: The Commanding Officer is responsible for ensuring scientific personnel are familiarized with applicable sections of the standing orders and vessel protocols, e.g., meals, watches, etiquette, drills, etc. A vessel familiarization meeting shall be conducted in the first 24 hours of the project's start and is normally presented by the ship's Operations Officer.
- C. Post-Project Meeting: The Commanding Officer is responsible for conducted a meeting no earlier than 24 hrs before or 7 days after the completion of a project to discuss the overall success and short comings of the project. Concerns regarding safety, efficiency, and suggestions for future improvements shall be discussed and mitigations for future projects will be documented for future use. This meeting shall be attended by the ship's officers, applicable crew, the Expedition Coordinator, and members of the scientific party and is normally arranged by the Operations Officer and Expedition Coordinator.
- D. Project Evaluation Report

Within seven days of the completion of the project, a Customer Satisfaction Survey is to be completed by the Expedition Coordinator. The form is available at <http://www.oma.noaa.gov/fleeteval.html> and provides a "Submit" button at the end of the form. Submitted form data is deposited into a spreadsheet used by OMAO management to analyze the information. Though the complete form is not shared with the ships', specific concerns and praises are followed up on while not divulging the identity of the evaluator.

VIII. Miscellaneous

A. Meals and Berthing

The ship will provide meals for the scientist listed above. Meals will be served 3 times daily beginning one hour before scheduled departure, extending throughout the project, and ending two hours after the termination of the project. Since the watch schedule is split between day and night, the night watch may often miss daytime meals and will require adequate food and beverages (for example a variety of sandwich items, cheeses, fruit, milk, juices) during what are not typically meal hours. Special dietary requirements for scientific participants will be made available to the ship's command at least seven days prior to the project.

Berthing requirements, including number and gender of the scientific party, will be provided to the ship by the Expedition Coordinator. The Expedition Coordinator and Commanding Officer will work together on a detailed berthing plan to accommodate the gender mix of the scientific party taking into consideration the current make-up of the ship's complement. The Expedition Coordinator is responsible for ensuring the scientific berthing spaces are left in the condition in which they were received; for stripping bedding and linen return; and for the return of any room keys which were issued. The Expedition Coordinator is also responsible for the cleanliness of the laboratory spaces and the storage areas utilized by the scientific party, both during the project and at its conclusion prior to departing the ship.

All NOAA scientists will have proper travel orders when assigned to any NOAA ship. The Expedition Coordinator will ensure that all non NOAA or non Federal scientists aboard also have proper orders. It is the responsibility of the Expedition Coordinator to ensure that the entire scientific party has a mechanism in place to provide lodging and food and to be reimbursed for these costs in the event that the ship becomes uninhabitable and/or the galley is closed during any part of the scheduled project.

All persons boarding NOAA vessels give implied consent to comply with all safety and security policies and regulations which are administered by the Commanding Officer. All spaces and equipment on the vessel are subject to inspection or search at any time. All personnel must comply with OMAO's Drug and Alcohol Policy dated May 17, 2000 which forbids the possession and/or use of illegal drugs and alcohol aboard NOAA Vessels.

B. Medical Forms and Emergency Contacts

The NOAA Health Services Questionnaire (NHSQ, NF 57-10-01 (3-14)) must be completed in advance by each participating scientist. The NHSQ can be obtained from the Expedition Coordinator or the NOAA website <http://www.corporateservices.noaa.gov/noaforms/eforms/nf57-10-01.pdf>.

All NHSQs submitted after March 1, 2014 must be accompanied by [NOAA Form \(NF\) 57-10-02](#)- Tuberculosis Screening Document in compliance with [OMAO Policy 1008](#) (Tuberculosis Protection Program).

The completed forms should be sent to the Regional Director of Health Services at the applicable Marine Operations Center. The NHSQ and Tuberculosis Screening Document should reach the Health Services Office no later than 4 weeks prior to the start of the project to allow time for the participant to obtain and submit additional information should health services require it, before clearance to sail can be granted. Please contact MOC Health Services with any questions regarding eligibility or completion of either form. Ensure to fully complete each form and indicate the ship or ships the participant will be sailing on. The participant will receive an email notice when medically cleared to sail if a legible email address is provided on the NHSQ.

The participant can mail, fax, or email the forms to the contact information below. Participants should take precautions to protect their Personally Identifiable Information (PII) and medical information and ensure all correspondence adheres to DOC guidance (http://ocio.os.doc.gov/ITPolicyandPrograms/IT_Privacy/PROD01_008240).

The only secure email process approved by NOAA is [Accellion Secure File Transfer](#) which requires the sender to setup an account. [Accellion's Web Users Guide](#) is a valuable aid in using this service, however to reduce cost the DOC contract doesn't provide for automatically issuing full functioning accounts. To receive access to a "Send Tab", after your Accellion account has been established send an email from the associated email account to accellionAlerts@doc.gov requesting access to the "Send Tab" function. They will notify you via email usually within 1 business day of your approval. The "Send Tab" function will be accessible for 30 days.

Contact information:

Regional Director of Health Services
Marine Operations Center – Atlantic
439 W. York Street
Norfolk, VA 23510
Telephone 757-441-6320
Fax 757-441-3760
Email MOA.Health.Services@noaa.gov

Prior to departure, the Expedition Coordinator must provide an electronic listing of emergency contacts to the Executive Officer for all members of the scientific party, with the following information: contact name, address, relationship to member, and telephone number.

C. Shipboard Safety

Hard hats are required when working with suspended loads. Work vests are required when working near open railings and during small boat launch and recovery operations. Hard hats and work vests will be provided by the ship when required.

Wearing open-toed footwear or shoes that do not completely enclose the foot (such as sandals or clogs) outside of private berthing areas is not permitted. At the discretion of the ship CO, safety shoes (i.e. steel or composite toe protection) may be required to participate in any work dealing with suspended loads, including CTD deployment and recovery. The ship does not provide safety-toed shoes/boots. The ship's Operations Officer should be consulted by the Expedition Coordinator to ensure members of the scientific party report aboard with the proper attire.

D. Communications

A progress report on operations prepared by the Expedition Coordinator may be relayed to the program office. Sometimes it is necessary for the Expedition Coordinator to communicate with another vessel, aircraft, or shore facility. Through various means of communications, the ship can usually accommodate the Expedition Coordinator. Special radio voice communications requirements should be listed in the project instructions. The ship's primary means of communication with the Marine Operations Center is via email and the Very Small Aperture Terminal (VSAT) link. Standard VSAT bandwidth at 128kbs is shared by all vessels staff and the science team at no charge. Increased bandwidth in 30 day increments is available on the VSAT systems at increased cost to the scientific party. If increased bandwidth is being considered, program accounting is required and it must be arranged through the ship's Commanding Officer at least 30 days in advance.

E. IT Security

Any computer that will be hooked into the ship's network must comply with the *OMAO Fleet IT Security Policy* 1.1 (November 4, 2005) prior to establishing a direct connection to the NOAA WAN. Requirements include, but are not limited to:

- (1) Installation of the latest virus definition (.DAT) file on all systems and performance of a virus scan on each system.
- (2) Installation of the latest critical operating system security patches.
- (3) No external public Internet Service Provider (ISP) connections.

Completion of the above requirements prior to boarding the ship is required.

Non-NOAA personnel using the ship's computers or connecting their own computers to the ship's network must complete NOAA's IT Security Awareness Course within 3 days of embarking.

F. Foreign National Guests Access to OMAO Facilities and Platforms

All foreign national access to the vessel shall be in accordance with NAO 207-12 and RADM De Bow's March 16, 2006 memo (<http://deemedexports.noaa.gov>). National Marine Fisheries Service personnel will use the Foreign National Registration System (FNRS) to submit requests for access to NOAA facilities and ships. The Departmental Sponsor/NOAA (DSN) is responsible for obtaining clearances and export licenses and for providing escorts required by the NAO. DSNs should consult with their designated Line Office Deemed Export point of contact to assist with the process.

Full compliance with NAO 207-12 is required.

Responsibilities of the Expedition Coordinator:

1. Provide the Commanding Officer with the email generated by the Servicing Security Office granting approval for the foreign national guest's visit. (For NMFS-sponsored guests, this email will be transmitted by FNRS.) This email will identify the guest's DSN and will serve as evidence that the requirements of NAO 207-12 have been complied with.
2. Escorts – The Expedition Coordinator is responsible to provide escorts to comply with NAO 207-12 Section 5.10, or as required by the vessel's DOC/OSY Regional Security Officer.
3. Ensure all non-foreign national members of the scientific party receive the briefing on Espionage Indicators (NAO 207-12 Appendix A) at least annually or as required by the Servicing Security Office.
4. Export Control - Ensure that approved controls are in place for any technologies that are subject to Export Administration Regulations (EAR).

The Commanding Officer and the Expedition Coordinator will work together to implement any access controls necessary to ensure no unlicensed export occurs of any controlled technology onboard regardless of ownership.

Responsibilities of the Commanding Officer:

1. Ensure only those foreign nationals with DOC/OSY clearance are granted access.
2. Deny access to OMAO platforms and facilities by foreign nationals from countries controlled for anti-terrorism (AT) reasons and individuals from Cuba or Iran without written approval from the Director of the Office of Marine and Aviation Operations and compliance with export and sanction regulations.
3. Ensure foreign national access is permitted only if unlicensed deemed export is not likely to occur.
4. Ensure receipt from the Expedition Coordinator or the DSN of the FNRS or Servicing Security Office email granting approval for the foreign national guest's visit.
5. Ensure Foreign Port Officials, e.g., Pilots, immigration officials, receive escorted access in accordance with maritime custom to facilitate the vessel's visit to foreign ports.
6. Export Control - 8 weeks in advance of the project, provide the Expedition Coordinator with a current inventory of OMAO controlled technology onboard the vessel and a copy of the vessel Technology Access Control Plan (TACP). Also notify the Expedition Coordinator of any OMAO-sponsored foreign nationals that will be onboard while program equipment is aboard so that the Expedition Coordinator can take steps to prevent unlicensed export of Program controlled technology. The Commanding Officer and the Expedition Coordinator will work together to implement any access controls necessary to ensure no unlicensed export occurs of any controlled technology onboard regardless of ownership.
7. Ensure all OMAO personnel onboard receive the briefing on Espionage Indicators (NAO 207-12 Appendix A) at least annually or as required by the Servicing Security Office.

Responsibilities of the Foreign National Sponsor:

1. Export Control - The foreign national's sponsor is responsible for obtaining any required export licenses and complying with any conditions of those licenses prior to the foreign national being provided access to the controlled technology onboard regardless of the technology's ownership.
2. The DSN of the foreign national shall assign an on-board Program individual, who will be responsible for the foreign national while on board. The identified individual must be a U.S. citizen and a NOAA or DOC employee. According to DOC/OSY, this requirement cannot be altered.
3. Ensure completion and submission of Appendix C (Certification of Conditions and Responsibilities for a Foreign National)

VIII. Appendices

Appendix A. Data Management Plan

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Data Management Plan

October 2015 Transit: Honolulu, HI to Alameda, CA



OER Data Management Objectives

Normal data management pipelines.

28-Sep-15

Page 1

1. General Description of Data to be Managed

1.1 Name and Purpose of the Data Collection Project

October 2015 Transit: Honolulu, HI to Alameda, CA

1.2 Summary description of the data to be collected.

Throughout this cruise, multibeam data will be collected 24 hours a day and XBT casts will be conducted every 6 hours. Additionally, EK 60 (split beam) and sub-bottom profile data will be collected 24 hours per day, with subbottom profile data collection at the discretion of the CO. Onboard multibeam data processing will be minimal due to limited staffing. Daily or bi-daily multibeam products will be produced according to established shipboard SOP and sent to shore through established shipboard SOP. Onshore mapping physical scientists will monitor data quality, cruise progress, and discovery potential. Raw EK 60 and subbottom data will be sent to the shoreside repository through established shipboard automated archival procedure.

1.3 Keywords or phrases that could be used to enable users to find 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, Molokai Fracture Zone, Alameda, CA, Pearl Harbor, HI

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: 10/5/2015 to 10/16/2015

1.6 Planned or actual geographic coverage of the data.

Latitude Boundaries: 20 to 38

Longitude Boundaries: -158 to -122

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, Multibeam (processed), Multibeam (product), Multibeam (raw)

1.8 What platforms will be employed during this mission?

NOAA Ship Okeanos Explorer

2. Point of Contact for this Data Producing Project

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

Title: Multibeam Mapping Expert

Affiliation/Dept: Contractor (ERT, Inc.), NOAA Office of Ocean Exploration and Research

E-Mail: elizabeth.lobecker@noaa.gov

Phone: 603.862.1475

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-3 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). 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

URL: www.ncddc.noaa.gov/oer-waf/ISO/ discovery and access. The record will be harvested by data.gov.

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 are not to be made available to the public at all, or with limitations, provide a valid reason.

Not Applicable

7.1.2 If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure.

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

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

Hold Time: not applicable

Authority: not applicable

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:

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.

Appendix B. Categorical Exclusion



UNITED STATES DEPARTMENT OF COMMERCE
 National Oceanic and Atmospheric Administration
 OCEANIC AND ATMOSPHERIC RESEARCH
 Office of Ocean Exploration and Research
 Silver Spring, MD 20910

June 24, 2015

MEMORANDUM FOR: The Record
 FROM: *John McDonough* for John McDonough
 Deputy Director, NOAA Office of Ocean Exploration
 and Research (OER)
 SUBJECT: Categorical Exclusion for NOAA Ship *Okeanos Explorer*
 Cruise EX-16-01

NAO 216-6, Environmental Review Procedures, requires all proposed projects to be reviewed with respect to environmental consequences on the human environment. This memorandum is assessing the possible effects of this NOAA Ship *Okeanos Explorer* ocean mapping survey on the human environment.

This project is part of the NOAA Office of Ocean Exploration and Research's "Science Program" and entails ocean mapping activities designed to increase knowledge of the marine environment. This project is entitled "EX-16-01, Exploration Transit Mapping, Pearl Harbor, HI to Alameda, CA" and will be led from shore by Elizabeth Lobecker, Physical Scientist for the *Okeanos Explorer* program within OER. NOAA Ship *Okeanos Explorer* will depart Pearl Harbor, Hawaii on October 5, 2015 and arrive in port in Alameda, California on October 15, 2015.

The ship will conduct a single straight transit line for ten days from Pearl Harbor to Alameda.

As is standard procedure for mapping exploration cruises with this vessel, the ship will conduct sonar mapping operations at all times during the cruise. Acoustic instruments that will be operational during the project are a 30 kHz multibeam echosounder (Kongsberg EM 302), an 18 kHz singlebeam echosounder (Kongsberg EK60), and a 3.5 kHz sub-bottom profiler (Knudsen Chirp 3260). Additionally, expendable bathythermographs (XBTs) will be deployed at regular intervals in association with multibeam data collection. All of these systems are routinely used by this exploration vessel and have provided invaluable scientific data for marine researchers and managers, including numerous National Marine Sanctuaries, the Bureau of Ocean Energy Management and the U.S. Geological Survey.



Marine mammal observers will be on watch during all daylight hours to look for marine mammals and other observable species potentially sensitive to the sound of the sonars. If cetacean species are present within 400 m of the ship, the vessel would stop until the animals depart the area. In addition to a dedicated observer monitoring for the presence of protected species during daylight hours, standard practice during all *Okeanos Explorer* cruises and operations include Officers or Watch Standers on the Bridge around-the-clock, monitoring the surrounding ocean for the presence of other ships, unanticipated hazards, and marine animals – especially cetaceans. If a cetacean is observed, the Mapping Watch Leader is notified, and if appropriate, the ship will slow down or stop until the animal has departed the area. When marine mammals are able to be identified by Bridge Officers or Watch Standers, these observations are noted in the NOAA fleet marine mammal observation log as part of standard practice.

Depth ranges surveyed will range from ~50--5000 meters. As expected for ocean research with limited duration or presence in the marine environment, this project will not have the potential for significant impacts. Knowledgeable experts who are aware of the sensitivities of the marine environment will conduct the at-sea portions of this project. The potential gains or beneficial effects of the project seem to outweigh any potential adverse effects. This expedition will provide baseline characterization of poorly understood deep water habitats on the seamounts of the Pacific.

This project would not result in any changes to the human environment. As defined in Sections 5.05 and 6.03.c.3 (a) of NAO 216-6, this is a research project of limited size or magnitude or with only short-term effects on the environment and for which any cumulative effects are negligible. As such, this project is categorically excluded from the need to prepare a NEPA environmental assessment.