



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 Ricardo Ramos, NOAA
Commanding Officer, NOAA Ship *Okeanos Explorer*

FROM: Captain Anne K. Lynch, NOAA *Mary Hare*, *COW/NOAA*
Commanding Officer, NOAA Marine Operations Center-Atlantic

SUBJECT: Project Instruction for EX-14-02 Leg 2
Gulf of Mexico Mapping

Attached is the final Project Instruction for EX-14-02 Leg 2, Gulf of Mexico Mapping, which is scheduled aboard NOAA Ship *Okeanos Explorer* during the period of 19 March to 4 April, 2014. Of the 17 DAS scheduled for this project, 17 days are funded by OMAO Allocation. This project is estimated to exhibit a Medium Operational Tempo. Acknowledge receipt of these instructions via e-mail to OpsMgr.MOA@noaa.gov at Marine Operations Center-Atlantic.

Attachment

cc:
MOA1





Project Instructions

Date Submitted: March 11, 2014

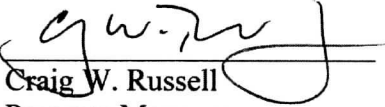
Platform: NOAA Ship *Okeanos Explorer*

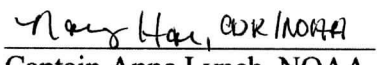
Project Number: EX 14-02 LEG 2

Project Title: Gulf of Mexico Mapping

Project Dates: March 19, 2014 - April 4, 2014

Prepared by: Lindsay McKenna, NOAA Dated: _____
Expedition Coordinator
Office of Ocean Exploration & Research

Approved by:  Dated: 3/11/14
Craig W. Russell
Program Manager
Office of Ocean Exploration & Research

Approved by:  Dated: 13 Mar 14
Captain Anne Lynch, NOAA
Commanding Officer
Marine Operations Center - Atlantic

I. OVERVIEW

A. Brief Summary and Project Period

This document contains project instructions for EX-14-02 LEG 2. EX-14-02 LEG 2 operations are expected to commence on March 19, 2014 at Galveston, TX and conclude on April 4, 2014 at Pascagoula, MS. Multibeam, singlebeam, and sub-bottom mapping operations will be conducted 24 hours a day throughout the cruise.

B. Days at Sea (DAS)

Of the 17 DAS scheduled for this project, 17 DAS are funded by an OMAO allocation, 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 Medium Operation Tempo.

C. Operating Area

The operating area is the western Gulf of Mexico offshore from Texas and Louisiana at the continental shelf break in the vicinity south and southeast of Flower Garden Banks National Marine Sanctuary. All operations will be conducted within the U.S. EEZ.

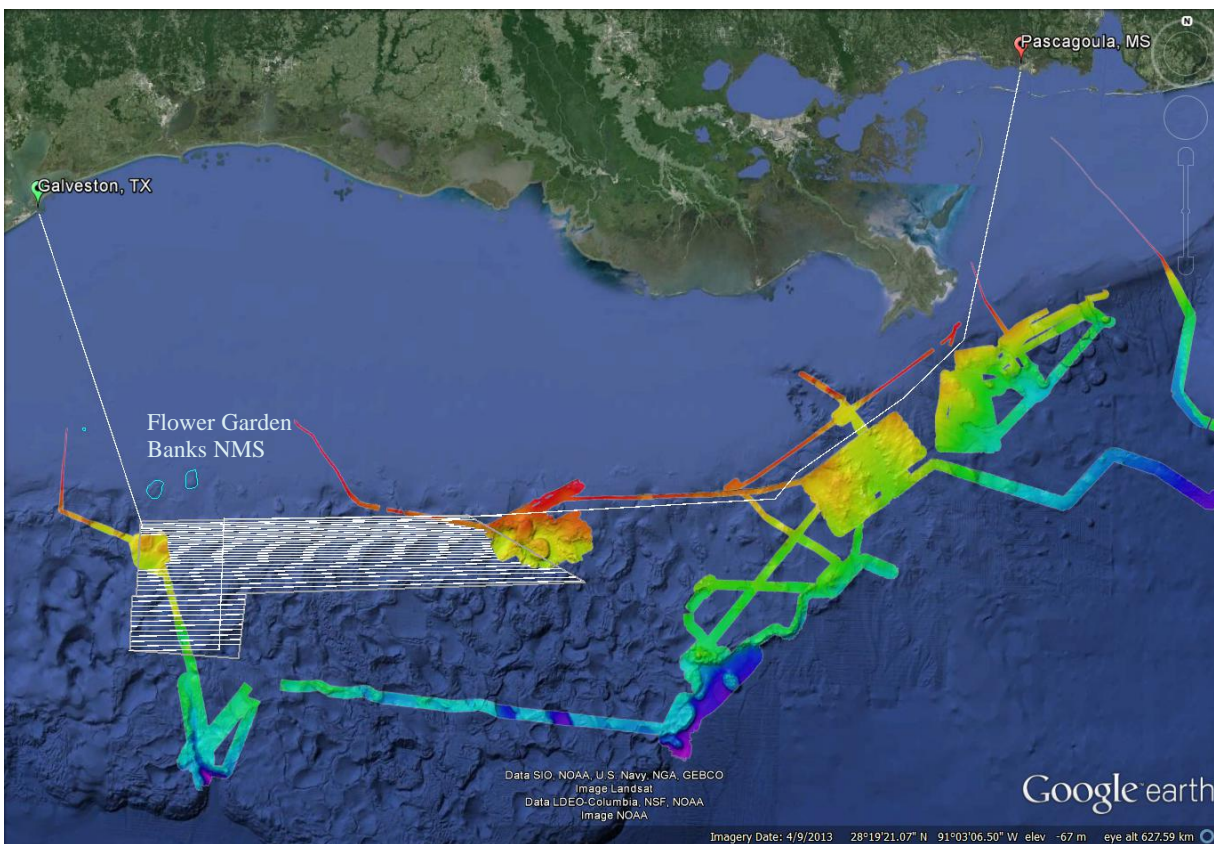


Figure 1: Mapping area indicated with gray polygon. Preliminary transit and survey lines

shown in white. Note that survey line spacing is subject to change throughout the survey as new depths are mapped, and transit lines may be adjusted to survey over known areas of seeps. Existing available bathymetry collected by Okeanos Explorer shown in background.

EX-14-02 LEG 2 Transit Waypoints (approximate)		Remarks
94 42.708 W	29 18.804 N	Exit Galveston
93 54.911 W	27 41.214 N	Arrive survey area
91 55.032 W	27 49.585 N	Exit survey area
90 3.932 W	27 58.604 N	Transit to Pascagoula
89 56.778 W	28 7.343 N	Transit to Pascagoula
88 55.786 W	28 51.547 N	Transit to Pascagoula
88 35.147 W	30 19.950 N	Enter Pascagoula

Table 1: *Approximate waypoints for EX-14-02 LEG 2. The transit to survey area will occur via safety fairway. The actual cruise track will vary due to prevailing conditions and the discretion of the Commanding Officer.*

Survey Area Bounding Box Coordinates		Remarks
93 54.911 W	27 41.214 N	Northwest Corner (same as arrive)
91 55.032 W	27 49.585 N	Northeast Corner (same as exit)
91 11.929 W	27 29.963 N	Southeast Corner (upper box)
93 15.562 W	26 59.630 N	Southeast/Mid Corner (lower box)
93 13.937 W	27 20.643 N	Middle Adjoining Corner
93 55.502 W	27 0.081 N	Southwest Corner

Table 2: *Survey bounding box coordinates. Note the survey area is "L" shaped, consisting of a horizontally long upper box, and a smaller lower box. Exact survey lines will be finalized as mapping commences and seafloor depths are confirmed real time.*

D. Summary of Objectives

MAR 19 2014 - APR 4 2014 (Galveston, Texas to Pascagoula, Mississippi)

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. 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. All multibeam data and sub-bottom profiler data will be fully processed according to standard onboard procedures and will be archived with the National Geophysical Data Center. Splitbeam EK60 data will be archived at the National Oceanographic Data Center. The following are cruise objectives for EX-14-02 LEG 2:

1. Collect deep water multibeam bathymetry sonar data (MBES)
 - a. Conduct 24-hour mapping operations for the duration of the cruise
 - b. Collect bathymetric, seafloor backscatter, and water column backscatter data
2. Collect ancillary sonar data
 - a. EK60 single beam sonar (24 hours/day)
 - b. Knudsen sub-bottom profiler (24 hours/day per CO's discretion)
3. XBT operations
 - a. XBT casts will be collected at regular intervals of no more than 6 hours
4. Train new personnel in all data collection and processing procedures, continuous throughout cruise)
 - a. Training of physical scientist new to ship (NOAA OSC)
 - b. Train mapping interns (UCAR)
5. Test new or modified mission hardware and software
6. Telepresence (VSAT 5 mbps ship to shore; T1 shore to ship)
 - a. Maintain single live stream video from ship to shore

E. Participating Institutions

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

National Oceanic and Atmospheric Administration (NOAA) - Office of Coast Survey- 1315 East-West Hwy, Silver Spring, MD 20910 USA

University Corporation for Atmospheric Research Joint Office for Science Support (JOSS),

PO Box 3000 Boulder, CO 80307 USA

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

F. Personnel (Science Party)

A full mapping complement is necessary for this cruise. Required mission personnel include a mapping lead/expedition coordinator as well as two qualified watchstanders for each of the three eight hour watches. The mapping lead is responsible for facilitating overall mapping operations, including participating in operational meetings, providing guidance for mapping/survey troubleshooting, and communicating status of mapping sensors to personnel on shore.

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
McKenna, Lindsay	Map Lead	2/24/2014	4/5/2014	F	NOAA OER (ERT Inc)	US
Weller, Erin	Watch Leader	2/24/2014	4/5/2014	F	NOAA AHB	US
Faulkes, Tyanne	Watch Leader	3/17/2014	4/5/2014	F	NOAA PHB	US
Parine, Kevin	Mapping Watchstander/ Intern	3/17/2014	4/5/2014	M	UCAR	US
Penna, Shannon	Mapping Watchstander/ Intern	3/17/2014	4/5/2014	F	UCAR	US
Dahn, Marah	Mapping Watchstander/ Intern	3/17/2014	4/5/2014	F	UCAR	US

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

G. Administrative

1. Points of Contact:

Ship Operations

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

LT Laura Gibson, NOAA
Chief, Operations Division, Atlantic
(MOA)
Telephone: (757) 441-6842
E-mail: Laura.Gibson@noaa.gov

Mission Operations

Lindsay McKenna, Expedition
Coordinator/Mapping Team Lead
NOAA Office of Ocean Exploration
and Research (ERT, Inc)
Phone : (518) 669-2285/(603)862-5246
E-mail : lindsay.mckenna@noaa.gov

CDR Ricardo Ramos, NOAA
Commanding Officer
NOAA Ship *Okeanos Explorer*
Phone: (401) 378-8284
Email: CO.Explorer@noaa.gov

LT Emily Rose, NOAA
Operations Officer
NOAA Ship *Okeanos Explorer*
Phone:(808) 659-9197
E-mail: Ops.Explorer@noaa.gov

Other Mission Contacts

Craig Russell, EX Program Manager
NOAA Ocean Exploration & Research
Phone: 206-526-4803 / 206-518-1068
E-mail: Craig.Russell@noaa.gov

LCDR Nicola VerPlanck, NOAA
NOAA Ocean Exploration & Research
Phone: 206-526-4801
E-mail: Nicola.Verplanck@noaa.gov

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

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

2. Diplomatic Clearances:

None Required.

3. Licenses and Permits:

See Appendix C for categorical exclusion documentation

II. OPERATIONS

The Chief Scientist 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, March 17

- Mission personnel arrive to ship, particularly air travelers

Tuesday, March 18

- Mission personnel orientation, ops meeting, and preparation for departure

Wednesday, March 19

- Departure day; commence survey mapping operations (24 hours/day)

Friday, April 4

- Arrive in Pascagoula, Mississippi

Saturday, April 5

- Mission personnel depart ship

B. Telepresence Events

No telepresence events scheduled.

C. Staging and Destaging:

Not applicable to this project.

D. Operations to be Conducted:

Continuous EM 302, EK 60, and sub-bottom profiler data acquisition is planned for this cruise. All data acquisition will be conducted in accordance with established standard operating procedures under the direction of the mapping team lead. The final decision to operate and collect sub-bottom profiler data will be at the discretion of the Commanding Officer.

E. 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 ships Commanding Officer.

Dives are not planned for this project.

F. Applicable Restrictions

Conditions which preclude normal operations: poor weather conditions, equipment failure, safety concerns, unforeseen circumstances, as well as marine mammal sighting mitigation strategies.

III. EQUIPMENT

A. Equipment and capabilities provided by the ship

- Kongsberg Simrad 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 (Comtech 5Mbps ship to shore; 1.54 Mbps shore to ship)

- Cruise Information Management System (CIMS)

B. Equipment and capabilities provided by the scientists

- Microtops II Ozone Monitor -Sunphotometer and handheld GPS required for NASA Marine Aerosols Network supplementary project.

IV. HAZARDOUS MATERIALS

A. Policy and Compliance

No Hazardous Materials are being brought aboard the ship for this project.

B. Radioactive Materials

No Radioactive Isotopes are planned for this project.

V. ADDITIONAL PROJECTS

A. Supplementary Projects

NASA Maritime Aerosol Network

During the cruise the marine aerosol layer observations will be collected for the NASA Maritime Aerosol Network (MAN). Observations will be made by mission personnel (mapping interns) with a sun photometer instrument provided by the NASA MAN program. Resulting data will be delivered to the NASA MAN primary investigator Alexander Smirnov by the expedition coordinator. All collected data will be archived and publically available at: http://aeronet.gsfc.nasa.gov/new_web/maritime_aerosol_network.html

Equipment resides on the ship and is stewarded by ENS Pawlenko.

See Appendix D for full Survey of Opportunity Form.

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. All data acquired on *Okeanos Explorer* will be provided to the public archives without proprietary rights. All data management activities shall be executed in accordance with NAO 212-15, Management of Environmental and Geospatial Data and Information

[http://www.corporateservices.noaa.gov/ames/administrative_orders/chapter_212/212-15.html].

A. Data Classifications: *Under Development*

- a. OMAO Data
- b. Program Data

B. Responsibilities:

Ship Responsibilities

The Commanding Officer is responsible for all data collected for missions until those data have been transferred to mission party designees. Data transfers will be documented on NOAA Form 61-29. Reporting and sending copies of project data to NESDIS (ROSCOP form) is the responsibility of OER.

NOAA OER Responsibilities

The Expedition Coordinator will work with the *Okeanos Explorer* Operations Officer to ensure data pipeline protocols are followed for final archive of all data acquired on *Okeanos Explorer* without proprietary rights.

Deliverables

- a. At sea
 - Daily plans of the Day (POD)
 - Daily situation reports (SITREPS)
 - Daily summary bathymetry data files
- b. Post cruise
 - Refined SOPs for all pertinent operational activities
 - Assessments of all activities
- c. Science
 - Multibeam and XBT raw and processed data (see appendix B for the formal cruise data management plan)

- EK 60 raw data
- Knudsen 3260 sub-bottom profiler raw data
- Mapping data report

Archive

The Program and ship will work together to ensure documentation and stewardship of acquired data sets in accordance with NAO 212-15. The Cruise Information Management System is the primary tool used to accomplish this activity.

VII. Meetings, Vessel Familiarization, and Project Evaluations

- A. Pre-Project Meeting: The Chief Scientist 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 Chief Scientist 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 Chief Scientist, and members of the scientific party and is normally arranged by the Operations Officer and Chief Scientist.
- D. Project Evaluation Report: Within seven days of the completion of the project, a Customer Satisfaction Survey is to be completed by the Chief Scientist. The form is available at <http://www.oma.noaa.gov/fleeteval.html> and provides a "Submit" button at the end.

The Customer Satisfaction Survey is one of the primary methods OMAO and Marine Operations (MO) utilize to improve ship customer service. Information submitted through the form is automatically input into a spreadsheet accessible to OMAO and MO management for use in preparing quarterly briefings. Marine Operations Centers (MOC)

address concerns and praise with the applicable ship. Following the quarterly briefings the data are briefed to the Deputy Director of OMAO.

- E. Shipboard Meetings: Daily Operations Briefing meetings will be held at 1430 in the forward lounge to review the current day, and define operations, associated requirements, and staffing needs for the following day. A Plan of the Day (POD) will be posted each evening for the next day in specified locations throughout the ship. A safety brief and overview of POD will occur on the Bridge each morning at 0800. Daily Situation Reports (SITREPS) will be posted as well and shared daily through e-mail and/or the EX PLONE site (<http://tethys.gso.uri.edu/OkeanosExplorerPortal>).

VII. MISCELLANEOUS

A. Meals and Berthing

Meals and berthing are required for 6 scientists. Meals will be served 3 times daily beginning one hour before scheduled departure, extending throughout the cruise, and ending two hours after the termination of the cruise. 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 twenty-one days prior to the survey (e.g., Expedition Coordinator is allergic to fin fish). Berthing requirements, including number and gender of the scientific party, will be provided to the ship by the Expedition Coordinator. The Expedition Coordinator and Operations 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 cruise 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 7, 1999 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, Revised: 02 JAN 2012) must be completed in advance by each participating scientist. The NHSQ can be obtained from the Chief Scientist or the NOAA website <http://www.corporateservices.noaa.gov/~noaaforms/eforms/nf57-10-01.pdf>. The completed form should be sent to the Regional Director of Health Services at Marine Operations Center. The participant can mail, fax, or scan and send via secure e-mail the form using the contact information below; participants should take precautions to protect their Personally Identifiable Information (PII) and medical information. The NHSQ should reach the Health Services Office no later than 4 weeks prior to the project to allow time for the participant to obtain and submit additional information that health services might require before clearance to sail can be granted. Please contact MOC Health Services with any questions regarding eligibility or completion of the NHSQ. Be sure to include proof of tuberculosis (TB) testing, sign and date the 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.

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
E-mail: MOA.Health.Services@noaa.gov

Please make sure the medical.explorer@noaa.gov email address is cc'd on all medical correspondence.

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

Emergency contact form is included as Appendix A.

C. Shipboard Safety

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. Steel-toed shoes are required to participate in any work dealing with suspended loads, including CTD deployments and recovery. The ship does not provide steel-toed boots. The ship's Operations Officer should be consulted by the Chief Scientist to ensure members of the scientific party report aboard with the proper attire.

Hard hats are also 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.

Operational Risk Management: For every operation to be conducted aboard the ship (NOAA-wide initiative), risk management procedures will be followed. For each operation, risks will be identified and assessed for probability and severity. Risk mitigation strategies / measures will be investigated and implemented where possible. After mitigation, the residual risk will have to be assessed to make Go-No Go decisions for the operations. Particularly with new operations, risk assessment will be ongoing and updated as necessary. This does not only apply to over-the-side operations, but to everyday tasks aboard the vessel that pose risk to personnel and property.

- CTD, ROV (and other pertinent) ORM documents will be followed by all personnel working on board *Okeanos Explorer*.
- All personnel on board are in the position of calling a halt to operations/activities in the event of a safety concern.

D. Communications

A daily situation report (SITREP) on operations prepared by the Expedition Coordinator will 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 modes of communication, the ship is able to maintain contact with the Marine Operations Center on an as needed basis. These methods will be made available to the Expedition Coordinator upon request, in order to conduct official business. The ship's primary means of communication with the Marine Operations Center is via e-mail 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 it must be arranged at least 30 days in advance.

Specific information on how to contact NOAA Ship *Okeanos Explorer* and all other fleet vessels can be found at <http://www.moc.noaa.gov/MOC/phone.html#EX>

Important Telephone and Facsimile Numbers and E-mail Addresses

Ocean Exploration and Research (OER):

OER Program Administration:

Phone: (301) 734-1010

Fax: (301) 713-4252

E-mail: Firstname.Lastname@noaa.gov

University of New Hampshire, Center for Coastal and Ocean Mapping

Phone: (603) 862-3438

Fax: (603) 862-0839

NOAA Ship *Okeanos Explorer* - Telephone methods listed in order of increasing expense:

Okeanos Explorer Cellular: (401) 713-4114

Okeanos Explorer Iridium: (808) 659-9179

OER Mission Iridium (dry lab): (808) 851-3827

EX INMARSAT B

Line 1: 011-870-764-852-328

Line 2: 011-870-764-852-329

Voice Over IP (VoIP) Phone:

301-713-7772 (expect a delay once picked up by directory)

301-713-7785

301-713-7791

301-713-7792

E-Mail: Ops.Explorer@noaa.gov - (mention the person's name in SUBJECT field)

expeditioncoordinator.explorer@noaa.gov - For dissemination of all hands emails by Expedition Coordinator while on board. See ET for password.

E. IT Security

Any computer that will be hooked into the ship's network must comply with the NMAO Fleet IT Security Policy 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 these 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

Foreign National access to the NOAA ship or Federal Facilities is not required for this project.

VIII. Appendices

Appendix A

EMERGENCY DATA SHEET NOAA OKEANOS EXPLORER

Scientists sailing aboard the *Okeanos Explorer* should fill out the form found at the following link location:

https://docs.google.com/a/noaa.gov/forms/d/1pcoSgPluUVxaY64CM1hJ7511iIYirTk48G-lv37Am_k/viewform with their emergency contact information

Appendix B

EX-14-02 Data Management Plan

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.

06-Mar-14

Page 1

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.

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

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?

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

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 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?

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

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.


Appendix C 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

March 1, 2014

MEMORANDUM FOR: The Record

FROM: John McDonough 
Acting Director NOAA Office of Ocean Exploration
and Research (OER)

SUBJECT: Categorical Exclusion for NOAA Ship *Okeanos Explorer*
Cruise EX-14-02 LEG 2

NAO 216-6, Environmental Review Procedures, requires all proposed projects to be reviewed with respect to environmental consequences on the human environment. This memorandum addresses the NOAA Ship *Okeanos Explorer's* scientific sensors possible effect on the human environment.

This project is part of the NOAA Office of Ocean Exploration and Research's "Science Program" and entails multi-disciplinary ocean mapping and exploration activities designed to increase knowledge of the marine environment. This project is entitled "EX-14-02 LEG 2 Exploration, Gulf of Mexico (Mapping)" and will be led by Lindsay McKenna, Physical Scientist for the *Okeanos Explorer* program within OER. NOAA Ship *Okeanos Explorer* will depart Galveston, Texas on March 19, 2014, and arrive in port in Pascagoula, Mississippi on April 4, 2014, and will conduct sonar mapping operations at all times during the cruise. Focused priority area mapping will occur in the northwestern Gulf of Mexico, in U.S. federal waters, south and southeast of the Flower Garden Banks National Marine Sanctuary. Transit mapping will occur along safety fairways from Galveston to the priority mapping area and from the priority mapping area to Pascagoula. Acoustic instruments that will be operational during the project are a 30 kHz multibeam echosounder (Kongsberg EM 302), an 18 kHz singlebeam echosounder (Kongsberg EK 60), 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.

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.



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 an environmental assessment.

Appendix D. NASA Maritime Aerosols Network Survey of Opportunity

Survey or Project Name

Maritime Aerosol Network

Points of Contact (POC)

<i>Lead POC or Principle Investigator (PI & Affiliation)</i>	<i>Supporting Team Members ashore</i>
POC: Dr. Alexander Smirnov	<i>Supporting Team Members aboard (if required)</i>

Activities Description(s) *(Include goals, objectives and tasks)*

<p>The Maritime Aerosol Network (MAN) component of AERONET provides ship-borne aerosol optical depth measurements from the Microtops II sun photometers. These data provide an alternative to observations from islands as well as establish validation points for satellite and aerosol transport models. Since 2004, these instruments have been deployed periodically on ships of opportunity and research vessels to monitor aerosol properties over the World Oceans.</p>
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