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MAPPING DATA ACQUISITION AND PROCESSING REPORT

CRUISE EX-15-02 Leg 2

Caribbean Exploration (Mapping)

March 16 - April 4, 2015

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1. Introduction

The NOAA Office of Ocean Exploration and Research and the NOAA Ship *Okeanos Explorer*

Commissioned in August 2008, the NOAA Ship *Okeanos Explorer* is the nation's only federal vessel dedicated to ocean exploration. With 95% of the world's oceans left unexplored, the ship's combination of scientific and technological tools uniquely positions it to systematically explore new areas of our largely unknown ocean. These exploration cruises are explicitly designed in collaboration with the broad science community to provide a foundation of publicly accessible baseline data and information to support science and management needs. This baseline information often leads to further more detailed investigations by other parties.

The unique combination of mission capabilities including a high-resolution multibeam sonar deep water remotely operated vehicles, telepresence technology, and integrated data management system quicken the scientific discovery and dissemination process. These systems enable us to identify new targets in real time, dive on those targets shortly after initial detection, and then send this information back to shore for immediate near-real-time collaboration with scientists and experts at Exploration Command Centers around the world. The integrated data management system provide for the quick dissemination of information-rich products to the scientific community. This ensures that discoveries are immediately available to experts in relevant disciplines for research and analysis.

Through the operation and maintenance of the mission capabilities, NOAA's Office of Ocean Exploration and Research (OER) provides the nation with unparalleled capacity to discover and investigate new oceanic regions and phenomena, conduct the basic research required to document discoveries, and seamlessly disseminate data and information-rich products to a multitude of users. OER strives to develop technological solutions and innovative applications to critical problems in undersea exploration and to provide resources for developing, testing, and transitioning solutions to meet these needs.

***Okeanos Explorer* Management – a unique partnership within NOAA**

The*Okeanos Explorer*mode of operations systematic telepresence-enabled exploration, requires a robust with shore-based high speed network and infrastructure.. The ship is operated, managed and maintained by NOAA's Office of Marine and Aviation Operations, which includes commissioned officers of the NOAA Corps and civilian wage mariners. OER owns and is responsible for operating and managing the cutting-edge ocean exploration systems on the vessel (ROV, mapping and telepresence) and ashore including Exploration Command Centers and terrestrial high speed networks. The ship and shore-based infrastructure combine to be the only federal program dedicated to systematic telepresence-enabled exploration of the planet's largely unknown ocean.

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2. Report Purpose

The purpose of this report is to briefly describe the mapping data collection and processing methods used during the cruise, and to report the initial mapping results. For a detailed description of *Okeanos Explorer* mapping capabilities, see the appendices section 'Kongsberg EM 302 Multibeam Sonar Description and

Operational Specifications' and the ship's 2015 readiness report, which can be obtained by contacting the Okeanos Mapping Team (oar.oer.mappingteam@noaa.gov).

This report focuses on exploration expedition EX-15-02 Leg 2. The objectives for this cruise were defined in EX-15-02 Leg 2Project Instructions. All objectives were achieved unless otherwise noted below.

3. Cruise Objectives

The primary objective of the cruise was exploratory mapping of two priority areas previously unmapped using modern multibeam sonar and to provide an initial reconnaissance of the region prior to the follow-on Remote Operated Vehicle (ROV) cruise EX-15-02 Leg 3 (Figure 4). Both areas were identified for exploration by participants of the Caribbean Exploration Ocean Exploration Planning Workshop held in 2012.Mapping priority area 1(P1) was located 2.5 km to 37 km north of Puerto Rico encompassing a 260 x 40 km section of the continental slope heavily incised by an extensive series of small canyons. Mapping priority area 2 (P2) focused on a 200 x 70 km section of seafloor just north of the Puerto Rico Trench (PRT) within the U.S. EEZ boundary. The bathymetric data collected in both areas provided insights into the geomorphology of the Puerto Rico Trench.

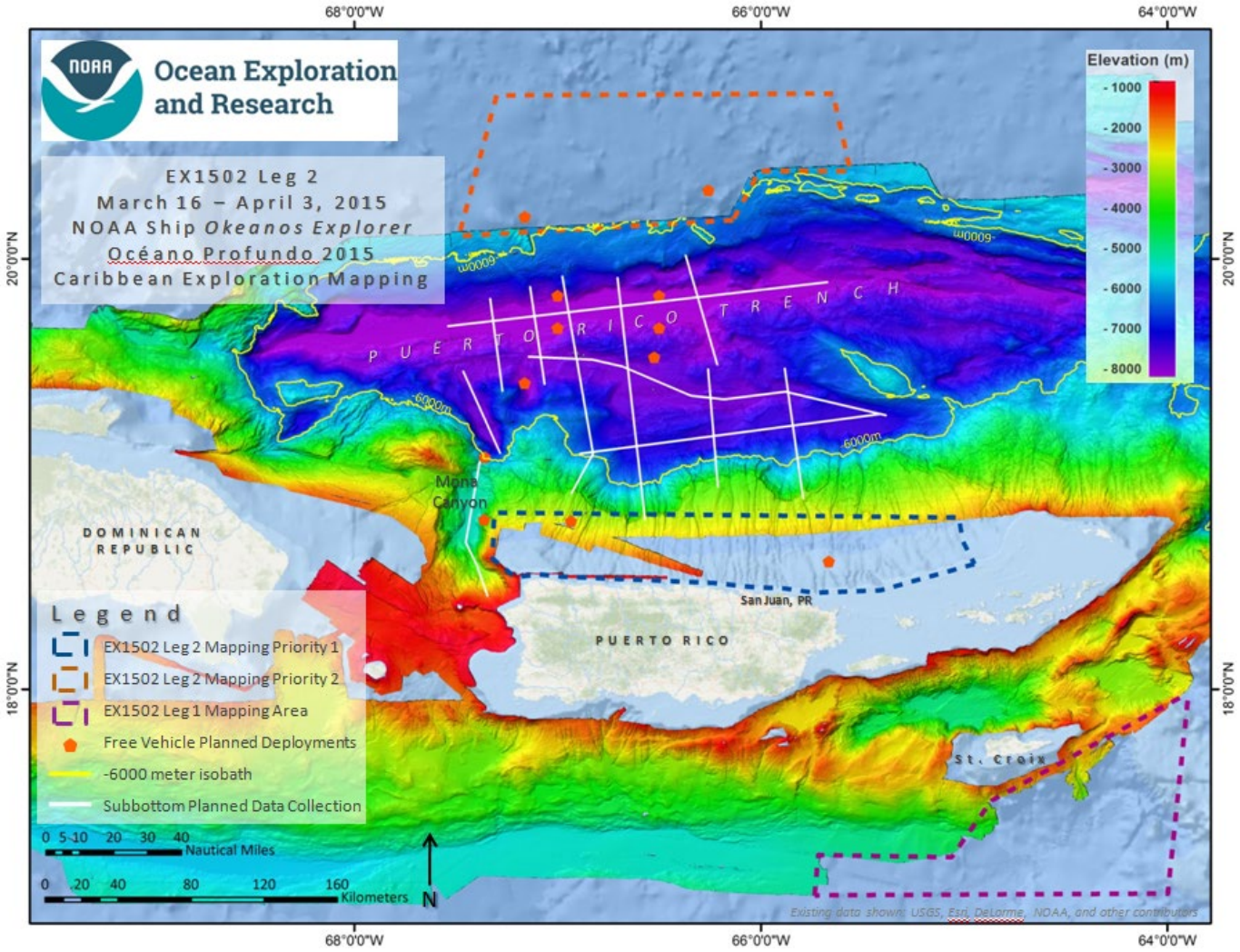

Figure 1. Cruise plan map created in ArcMap, showing PI and P2 mapping areas. Background data from USGS. For actual cruise results see Fig. 4.

Sonar Data Collection

During EX-15-02 Leg II, data from EM 302, EK 60 and Knudsen SBP were generally collected 24 hours per day, with exceptions noted in the daily log. Mapping operations within 9 km (~5 nautical miles) of land in P1wereconducted during daylight hours only for safety of navigation reasons. Expendable bathythermograph (XBT) casts were conducted every four to six hours.

Surveys of Opportunity

Surveys of opportunity are small projects, exploratory in nature, whichallows OER to partner with regional scientists to help acquire additional data or test new sensors within the vessel's operating area. Three surveys of opportunity were conducted during the cruise. These included (1) the long-standing NASA Marine Aerosols Network Sun Photometer data acquisition , (2) the University of Puerto Rico, Mayaguez free vehicle operations, and (3) the U.S. Navy / NOAA National Centers for Coastal Ocean Science(NCCOS) Slocum glider deployment. Details of proposed surveys of opportunity are provided in Appendix C..

The NOAA Ship *Okeanos Explorer* has contributed data to the NASA Maritime Aerosols Network Project continuously since 2012. The project provides ship-borne aerosol optical depth measurements from sun photometers, which provide an alternative to observations from islands as well as establish validation points for satellite and aerosol transport models. Sun photometer measurements are taken several times per day when the sun is unobstructed by clouds. Data is sent in at the end of every cruise and becomes publically available through http://aeronet.gsfc.nasa.gov/new_web/maritime_aerosol_network.html (last accessed 30 June 2015).

The goal of the free vehicle project is to develop low-cost sampling packages which can be deployed to explore the hadal zone (> 6000 meters) of the world's oceans. Even with modern ocean exploration technologies, very few data collection methods for these depths are available to scientists, and their general geographic remoteness and extreme bottom-pressures (> 600 atmospheres) have made the deployment of sampling techniques difficult. The cable lengths required for deep deployments (> 6.5 km) make tethered sampling challenging in terms of cost and successful data acquisition. Recent developments in the manufacture of glass housings offer scientific investigators and engineers the opportunity to sample the Earth’s deepest trenches at a fraction of the cost of currently available methods.

The free vehicle project was led onboard by Dr. Wilford Schmidt, University of Puerto Rico, Mayaguez (UPRM), and was developed under OER federal funding award NA14OAR40110262 and National Science Foundation federal funding award 0801809. This cruise provided deep water test deployment opportunities over the Puerto Rico Trench. The free vehicle consisted of a CTD and two glass spheres which controlled the buoyancy to take the sampling package to the seafloor. The package was deployed using EX crane (Figure 2, 3) a five locations (Table 1).

Table 1. Free vehicle deployment/recovery locations.

Date	Comment	Location (Latitude, Longitude, decimal degrees)
3/19/2015	Deploy	18.62312 -65.34528
	Recover	18.62270 -65.34897

3/21/2015	Deploy	18.75572 -66.20272
	Recover	18.75567 -66.19967
3/24/2015	Deploy	18.8995 -66.5900
	Recover	18.90093 -66.50031
3/30/2015	Deploy	19.81447 -66.49550
	Recover	19.82219 -66.47322
4/1/2015	Deploy	19.76002 -66.50031
	Recover	19.75632 -66.51192

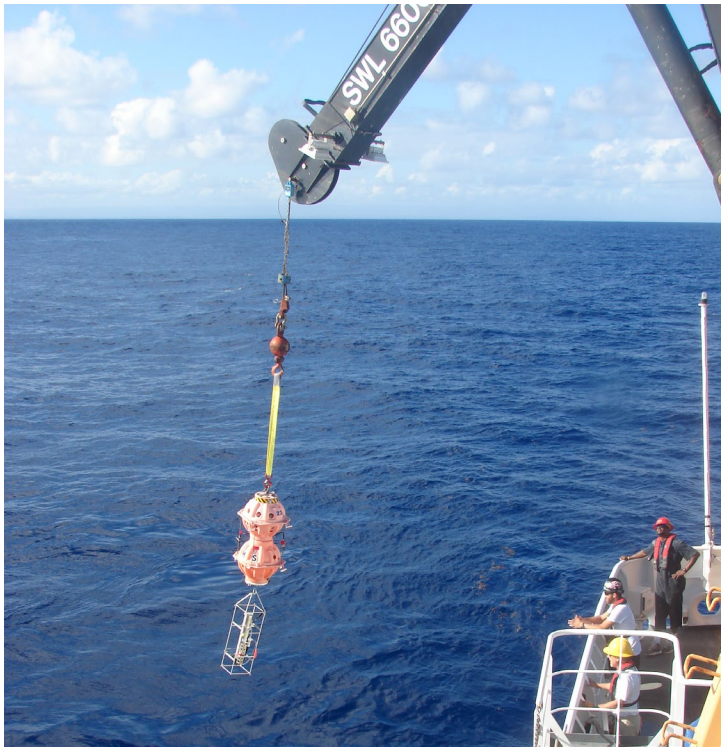

Figure 2.Free vehicle with two spheres and CTD payload deployment off of Okeanos Explorer during EX15-02 Leg 2. Photo courtesy NOAA Teacher-At-Sea Theresa Paulsen.

Figure 3. Free vehicle detail on deck of UPRM research vessel preparing for deployment. Photo courtesy Dr. Wilford Schmidt.

The last survey of opportunity consisted of deploying a glider developed by NCCOS and the Naval Oceanographic Office. The objectives of glider deployment was to collect current data in insular shelf waters in the Caribbean that will feed into current models for the region. The gliders also host passive acoustic recording devices which record noise levels from fish, marine mammals, weather, and anthropogenic sources. The glider deployment was deferred to this cruise from the previous Okeanos cruise EX-15-02 Leg 1 due to glider technical challenges. The glider was deployed approximately 40 km north of Culebra Island. The glider is expected to be in operations for several months and is expected to be retrieved by NOAA Ship *Nancy Foster* early to mid April 2016.

NOAA Teacher At Sea
Theresa Paulsen, a high school science teacher from Ashland, Wisconsin, sailed on the cruise through the NOAA Teacher At Sea program. Theresa produced an ongoing blog throughout the cruise detailing her at-sea experience, and contributed to sunphotometer data collection and helping with XBTs. She also produced Fledermaus fly-through movies showing the final cruise dataset, and will use these files with her students in science class. A blog describing Theresa's experience is available on http://teacheratsea.noaa.gov/#/home/ (last accessed 9/28/2015).

Explorers in Training
Three Explorers in Training participated in the cruise through OER internship program. Training was provided to acquire and process multibeam data in SIS, CARIS, and Fledermaus. Trainees were encouraged to work on a mapping project of their choice. Chelsea Wagner produced a map indicating likely coral habitat based on mosaiced, draped bottom backscatter data and slope bathymetry (see report appendix). Kristen Mello and Josue Milan produced a video demonstrating the proper procedure to conduct an XBT on the EX.

3. Participating Mission Personnel

NAME	ROLE	AFFILIATION
CDR Mark Wetzler	Commanding Officer	NOAA Corps
LT Emily Rose	Field Operations Officer	NOAA Corps
Elizabeth “Meme” Lobecker	Expedition Coordinator / Mapping Team Lead	NOAA OER (ERT Corp.)
Jason Meyer	Mapping Watch Lead	NOAA OER / UCAR
Chelsea Wegner	Mapping Watchstander, Explorer-in-Training	NOAA OER / UCAR
Scott Allen	Augmenting Senior Survey Technician	NOAA OMAO
Melody Ovard	Physical Scientist, Mapping Watch Lead	NOAA Atlantic Hydrographic Branch
Kristin Mello	Mapping Watchstander, Explorer-in-Training	NOAA OER / UCAR
Josue Millan	Mapping Watchstander, Explorer-in-Training	NOAA OER / UCAR
Wilford "Bill" Schmidt	Free Vehicle Lead Scientist	UPRM
Zamara Fuentes	Free Vehicle Scientist	UPRM
Rolf-Martin Vieten	Free Vehicle Scientist	UPRM
Theresa Paulsen	Teacher At Sea	NOAA Teacher At Sea Program

4. Summary of Major Findings

Cruise Maps

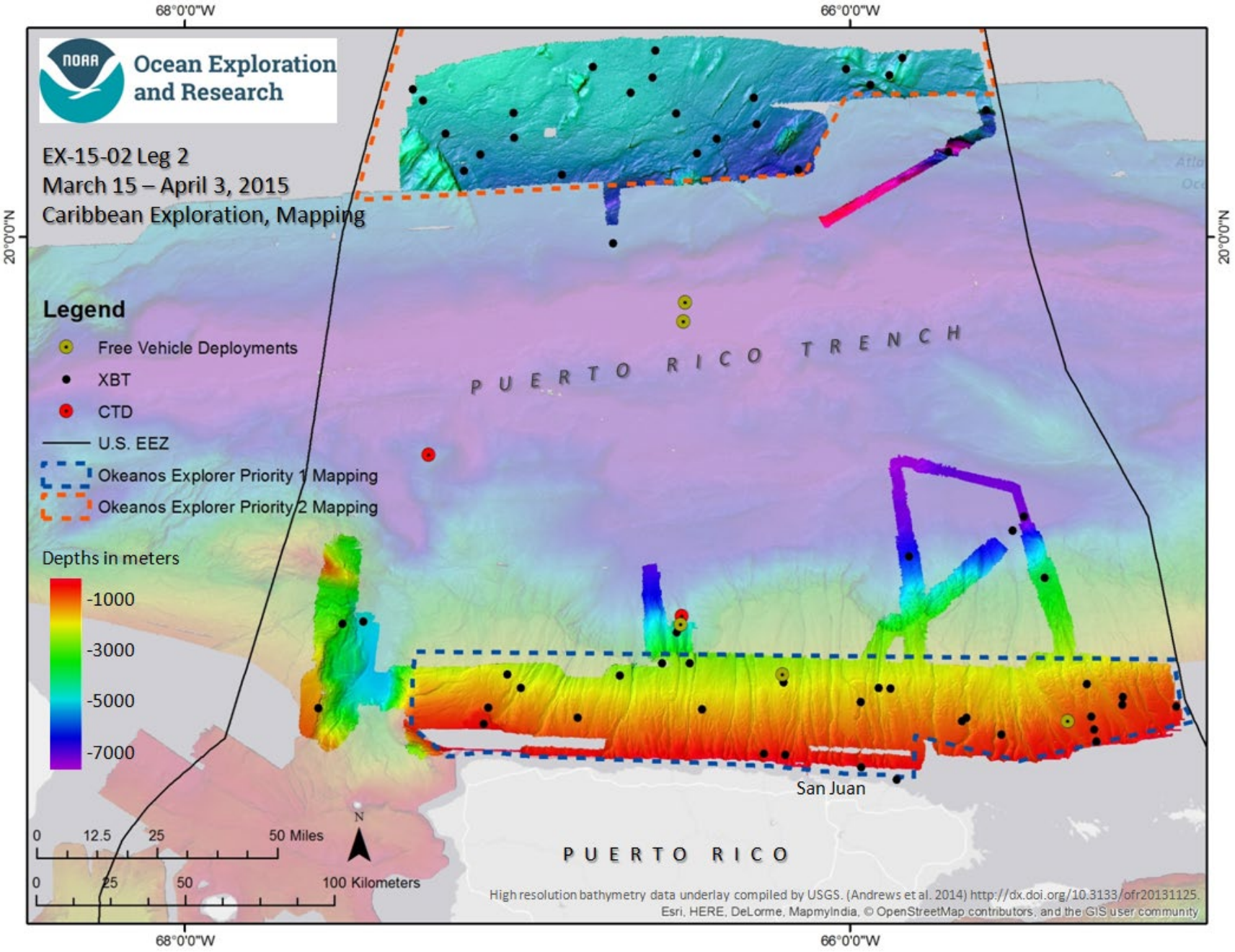

Figure 4.Cruise map showing overall EX-15-02-Leg 2 operations. Generated in ArcMap.

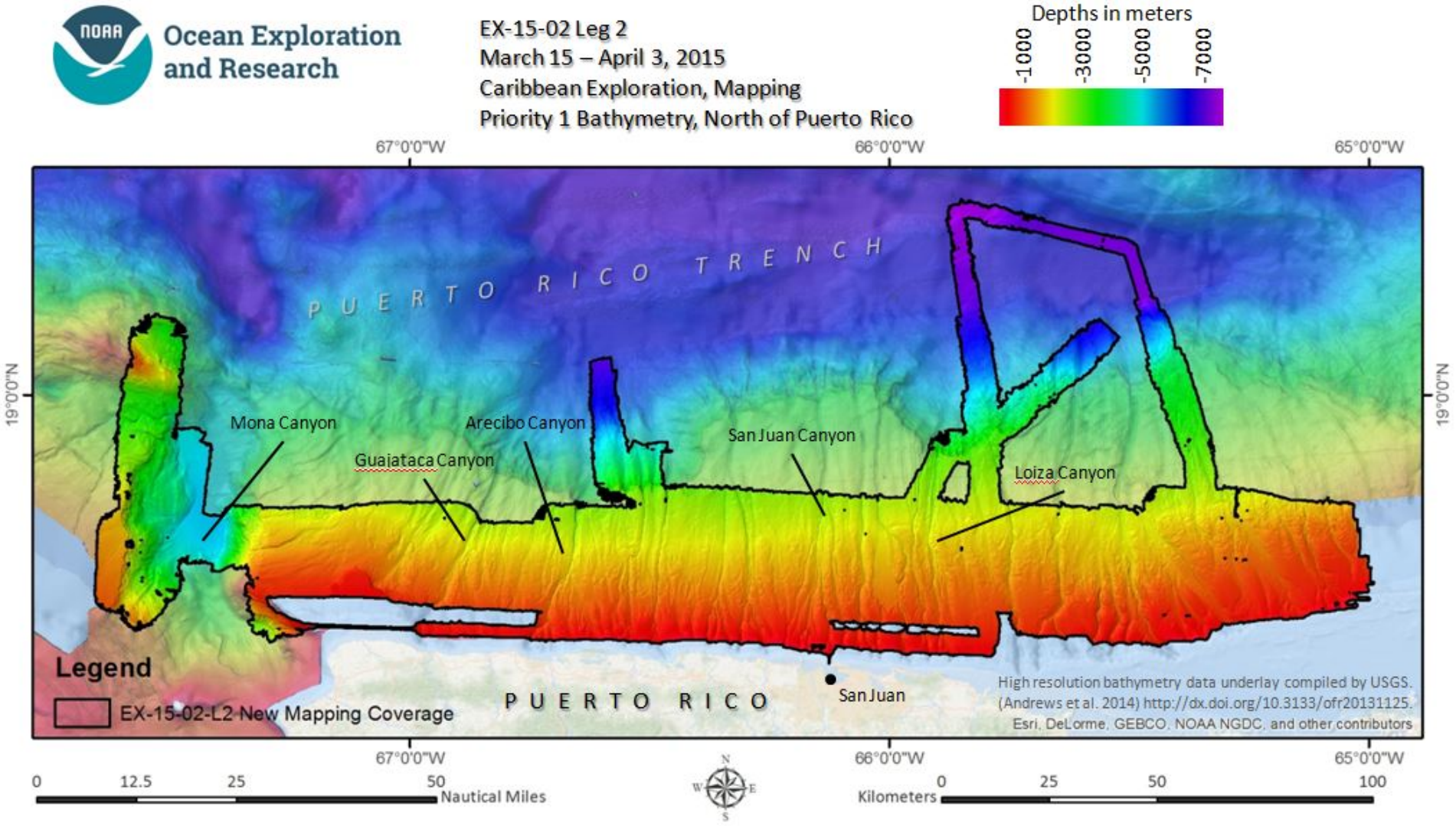

Figure 5. Map of EX-15-02 Leg 1 Priority 2 Mapping Area. Map generated in ArcMap.

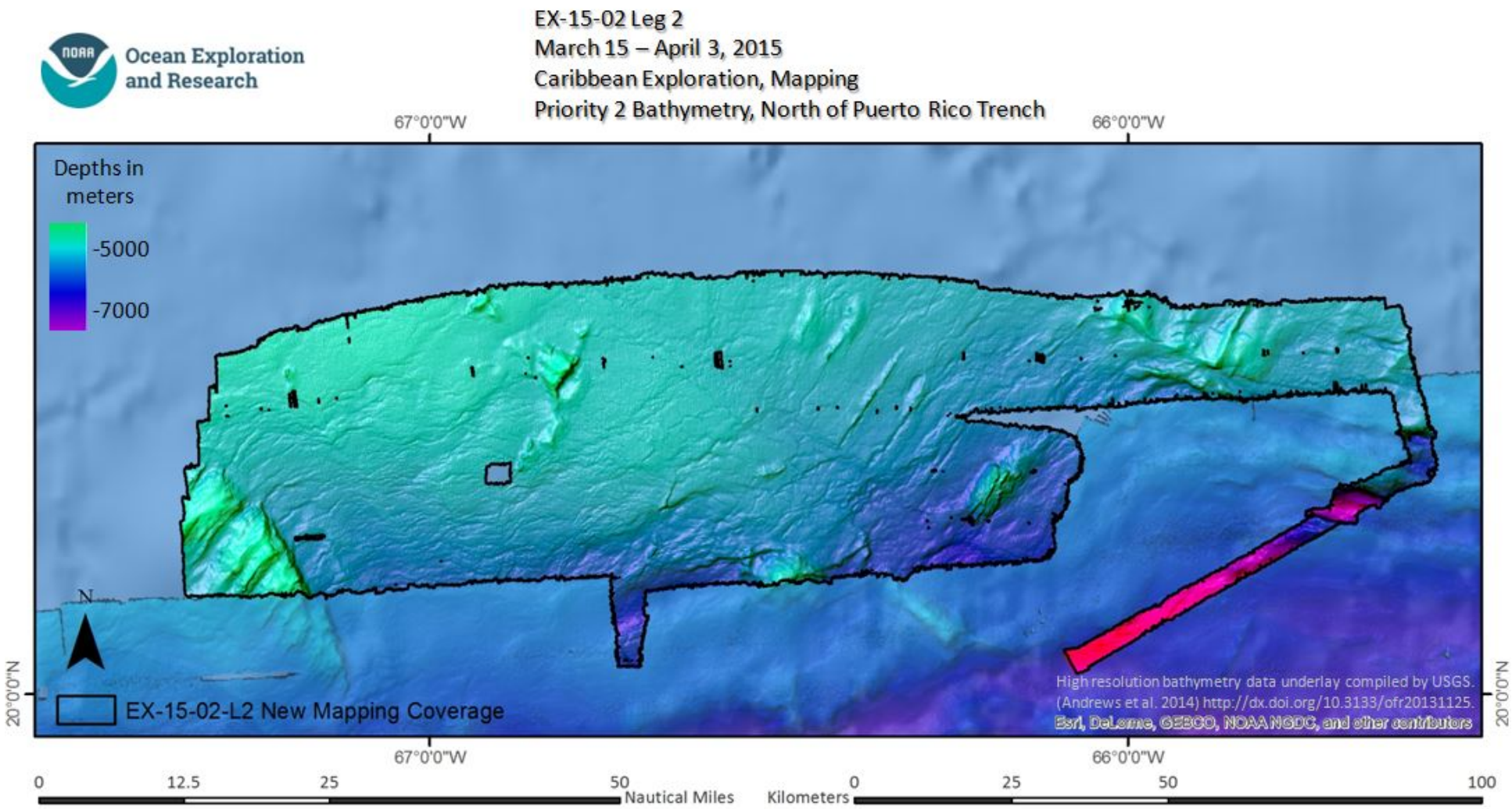

Figure 6.Map of EX-15-02 Leg 2 Priority 2 Mapping Area. Map generated in ArcMap.

5. Mapping Statistics

Dates	March 16 - April 3, 2015
Days lost to weather	0 days
Total mapping days	18 days
Total non-mapping days	1 days
Line kilometers of survey	4394
Square kilometers mapped	17291
Number / Data Volume of EM 302 raw bathymetric / bottom backscattermultibeam files	365 files/ 24.6 GB
Number / Data Volume of EM 302 water column multibeam files	364 files / 78.9 GB
Number / Data Volume of EK 60 water column singlebeam files	1425 files / 3.3 GB
Number / Data Volume of subbottom sonar files	670 files / 2.6 GB
Number of XBT casts	60
Number of CTD casts (including test casts)	2
Beginning draft	Forward: 15' 6"; Aft: 14' 3"
Ending draft	Forward: 14' 9"; Aft: 14'7"
Average ship speed for survey	8.4 knots

6. Mapping Sonar Setup

The NOAA Ship *Okeanos Explorer* is equipped with a 30 kHz Kongsberg EM 302 multibeam sonar capable of mapping the seafloor in 0 to 8000 meters of water. The system generates a 150° beam fan containing up to 432 soundings per ping in waters deeper than 3000 meters. In waters less than 3000 meters, the system is operated in multiping, or dual swath mode, and obtains up to 864 soundings per ping, by generating two swaths per ping cycle. The appendix section contains a detailed description of sonar system functionality and technical specifications, including crosstrack and along track data resolutions.

The ship is also equipped with a Kongsberg EK 60 split beam fisheries sonar. The transducer operates at 18 kHz and transmits a 7° beam fan.

Additionally the ship is equipped with a Knudsen 3260 subbottom profiler. The transducers produce a 3.5 kHz chirp signal.

7. Data Acquisition Summary

EX-15-02 Leg 2operations included EM 302 multibeam, EK 60 singlebeam, and Knudsen subbottom profile data collection. The schedule of operations during transits included continuous 24 hour per day multibeam, split beam, and subbottom data collection. All data was collected in U.S. waters.

Expendable bathythermographs were collected every four to six hours to correct multibeam data for changes in sound speed in the water column, and were applied in real time using Seafloor Information Software (SIS). Sound speed at the sonar head was determined using a Reson SVP-70 probe and the thermosalinograph. Data from these two systems was monitored for consistency throughout the cruise. The Reson SVP-70 was applied to the multibeam data throughout the cruise.

Background data used for exploration mapping included multibeam data collected by the Extended Continental Shelf project and Sandwell and Smith satellite altimetry bathymetric data.

Tables listing all sonar data and sound velocity data files collected and products created during the cruise are provided in the appendices of this report.

Throughout the cruise, multibeam data quality was monitored in realtime by acquisition watchstanders.. Ship speed was adjusted to maintain data quality as necessary. Line spacing during focused mapping surveys was planned to ensure ¼ to ½ overlap between lines at all times. Cutoff angles in SIS were generally set to 75° on both the port and starboard sides for maximum data coverage.

EK 60 data was collected continuously throughout the cruise, with exceptions for equipment troubleshooting and during focused subbottom operations over the center of the Puerto Rico Trench. EK 60 data collection tracklines are shown in Figure 8. Pulse length 4 ms and power 2000 watts was used during all data collection. Range was adjusted periodically to stay within ~150% of water depth. Raw data was recorded to the files.

Subbottom data was collected continuously throughout the cruise. Power was generally set to 1 to 3, and pulse lengths generally 1 to 2 milliseconds. Focused data collected occurred over the Puerto Rico Trench in consultation with Dr. Jason Chaytor of the U.S. Geological Survey. Subbottom data collection tracklines are shown in Figure 9.

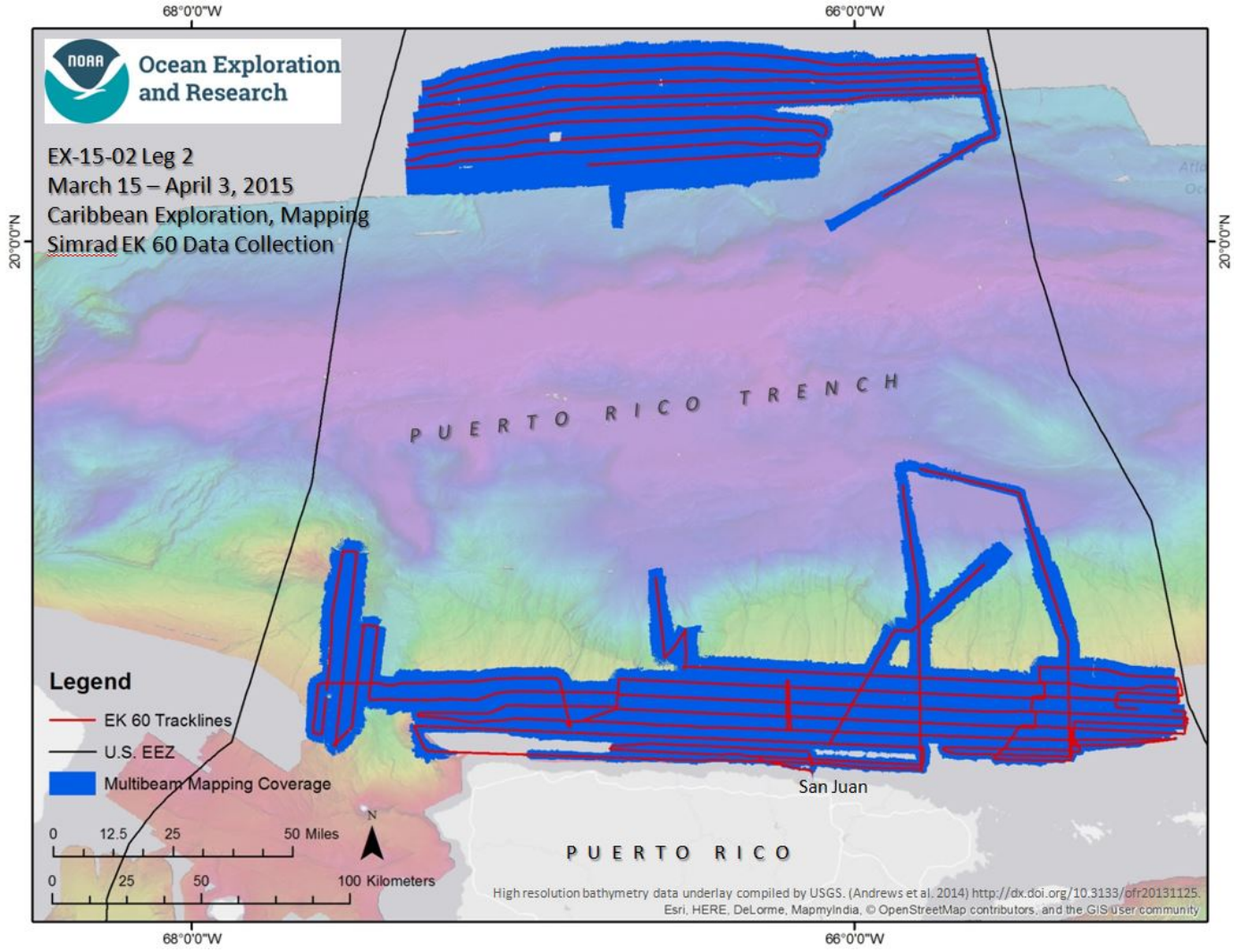

Figure 7. Map showing Simrad EK 60 tracklines overlain over Kongsberg EM 302 multibeam data coverage. Generated in ArcMap.

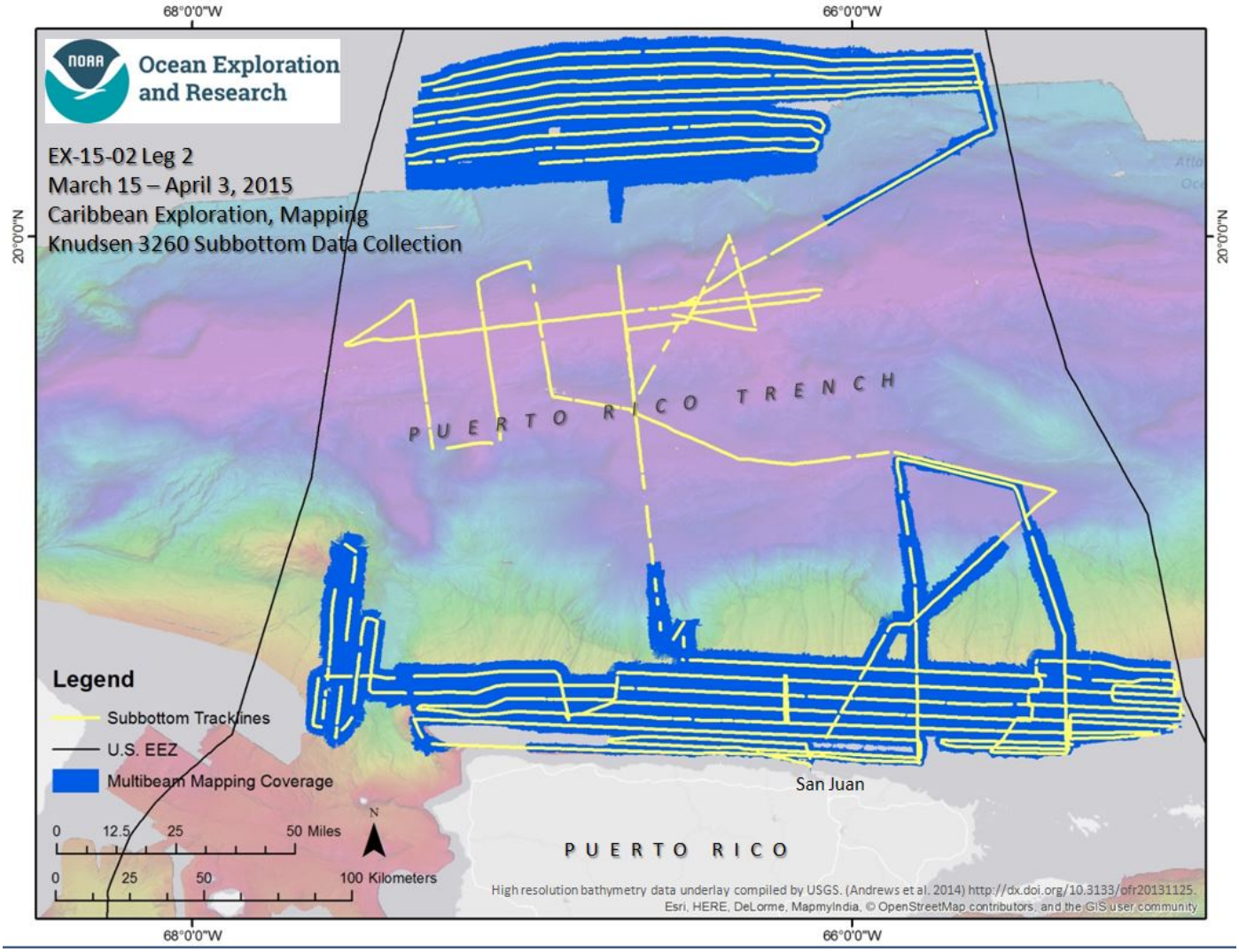

Figure 8.Map showing Knudsen 3260 tracklines overlain over Kongsberg EM 302 multibeam data coverage. Generated in ArcMap.

8. Sonar Data Quality Assessment and Data Processing

EM 302 Multibeam Bathymetry Data

An annual patch test was run in March 2015. The offsets were consistent with previous years.

Offset Test	Offset
Timing	0 seconds
Pitch	-.725°
Heading	0.07°
Roll	0°

Table 2. EM 302 transducer offset values determined during EX-15-02 Leg 1, March 2015.

Raw multibeam bathymetry data files were acquired by SIS, and were imported into CARIS. In CARIS, attitude and navigation data stored in each file were checked, and erroneous soundings were removed using CARIS Swath Editor and Subset Editor. Once per day, cleaned, gridded bathymetric data were exported to ASCII text files (y,x,z) at 50 meter cell size in WGS84 datum. The ASCII files were then used to create Fledermaus SD objects. These SD objects were then exported to geotiff and Google Earth KMZ, which were copied to the shoreside FTP on a daily basis for shoreside scientist participation.

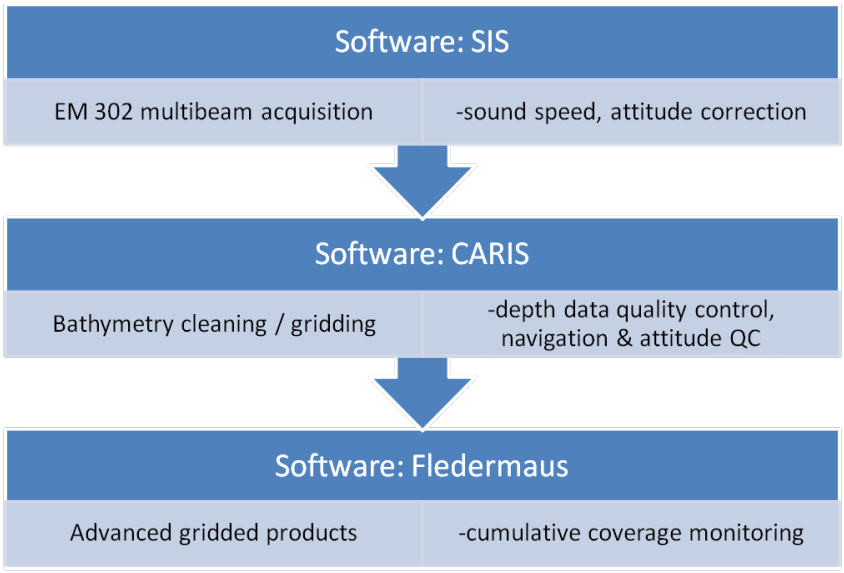

Figure 9. Shipboard multibeam data flow.

EM 302 Multibeam Water Column Backscatter Data Processing

Water column data was reviewed daily throughout the cruise to examine for the presence of seeps and other water column anomalies. No water column anomalies were detected.

EM 302 Multibeam Bottom Backscatter Data Processing

Bottom backscatter mosaics were produced daily throughout the cruise to verify data quality and identify potential exploration targets for EX-15-02 Leg 3.

EM 302 Built In System Tests(BISTs)

BISTs were run throughout the cruise to monitor multibeam sonar system status. Sound levels were well within acceptable levels throughout the cruise.

Transmit transducer elements 9, 12 and 17 failed impedance tests but these failures were not observed to affect data quality.

EM 302 MultibeamCrossline Analysis

Two crosslines were collected. Gridded mainscheme lines were imported into Fledermaus Crosscheck and converted to an SD surface. The Crosscheck analysis routine was utilized to compare gridded mainscheme data to the raw crossline file, and the results for each comparison are shown below.

Crossing 1

Due to the automated file splitting routine in use during data collection, the crossline was comprised of two consecutive files, which spanned water depths from 352 meters to 2172 meters. The files were:

0046_20150318_201043_EX1502L2_MB.all
0047_20150318_211042_EX1502L2_MB.all

The mainscheme lines were:

0018_20150317_224944_EX1502L2_MB.all
0019_20150317_230131_EX1502L2_MB.all
0023_20150317_232542_EX1502L2_MB.all
0044_20150318_191704_EX1502L2_MB.all
0123_20150321_080713_EX1502L2_MB.all
0192_20150323_123857_EX1502L2_MB.all
0199_20150323_173140_EX1502L2_MB.all
0216_20150324_052739_EX1502L2_MB.all
0222_20150324_104442_EX1502L2_MB.all

945761 # Number of Points of Comparison
-1181.898458 # Data Mean
-1182.193254 # Reference Mean
0.294800 # Mean
0.465220 # Median
4.018700 # Std. Deviation
-2172.51 -351.96 # Data Z - Range
-1322.24 -1206.26 # Ref. Z - Range
-250.76 90.11 # Diff Z - Range
8.332238 # Mean + 2*stddev
8.502665 # Median + 2*stddev
15.376644 # Ord 1 Error Limit
27.208828 # Ord 2 Error Limit
8.869973 # Special Order Error Limit
0.000000 # Custom Error Limit
0.017143 # Ord 1 P-Statistic
0.001538 # Ord 2 P-Statistic
0.071063 # Special Order P-Statistic
1.000000 # Custom P-Statistic
16213 # Ord 1 - # Rejected
1455 # Ord 2 - # Rejected
67209 # Special Order - # Rejected
945761 # Custom - # Rejected
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1 # Order 2 Survey ACCEPTED
0 # Special Order Survey REJECTED
0 # Custom Survey REJECTED

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-804.665565 # Reference Mean
0.367610 # Mean
0.598160 # Median
3.787800 # Std. Deviation
-1363.51 -351.96 # Data Z - Range
-1322.24 -357.40 # Ref. Z - Range
-64.16 31.54 # Diff Z - Range
7.943200 # Mean + 2*stddev
8.173758 # Median + 2*stddev
4.672994 # Ord 1 Error Limit
8.280746 # Ord 2 Error Limit
2.692114 # Special Order Error Limit
0.000000 # Custom Error Limit
0.028776 # Ord 1 P-Statistic
0.002370 # Ord 2 P-Statistic
0.115228 # Special Order P-Statistic
1.000000 # Custom P-Statistic
15423 # Ord 1 - # Rejected
1270 # Ord 2 - # Rejected
61759 # Special Order - # Rejected
535974 # Custom - # Rejected
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1 # Order 2 Survey ACCEPTED
0 # Special Order Survey REJECTED
0 # Custom Survey REJECTED
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-1675.974233 # Reference Mean
0.199570 # Mean
0.260700 # Median
4.300200 # Std. Deviation
-2172.51 -1204.55 # Data Z - Range
-2173.37 -1206.26 # Ref. Z - Range
-250.76 90.11 # Diff Z - Range
8.800009 # Mean + 2*stddev
8.861141 # Median + 2*stddev
15.689284 # Ord 1 Error Limit
27.761883 # Ord 2 Error Limit
9.050366 # Special Order Error Limit
0.000000 # Custom Error Limit
0.001928 # Ord 1 P-Statistic
0.000451 # Ord 2 P-Statistic
0.013300 # Special Order P-Statistic
1.000000 # Custom P-Statistic
790 # Ord 1 - # Rejected
185 # Ord 2 - # Rejected
5450 # Special Order - # Rejected
409787 # Custom - # Rejected
1 # Order 1 Survey ACCEPTED
1 # Order 2 Survey ACCEPTED

1 # Special Order Survey ACCEPTED
0 # Custom Survey REJECTED

Crossing 2

Due to the automated file splitting routine in use during data collection, the crossline was comprised of three consecutive files, which spanned water depths 296 meters to 2935 meters. The files were:
0061_20150319_094417_EX1502L2_MB.all
0062_20150319_104418_EX1502L2_MB.all
0063_20150319_114415_EX1502L2_MB.all

The mainscheme lines were:
0066_20150319_180136_EX1502L2_MB.all
0080_20150320_014709_EX1502L2_MB.all
0081_20150320_024706_EX1502L2_MB.all
0086_20150320_072718_EX1502L2_MB.all
0088_20150320_084757_EX1502L2_MB.all
0093_20150320_131636_EX1502L2_MB.all
0094_20150320_141633_EX1502L2_MB.all
0110_20150321_001325_EX1502L2_MB.all
0114_20150321_005502_EX1502L2_MB.all
0119_20150321_040711_EX1502L2_MB.all
0120_20150321_050713_EX1502L2_MB.all

According to FM CrossCheck, Crossing 2 filespassed criteria for IHO order 1, 2 surveys.Two files passed special order survey criteria.

1377091 # Number of Points of Comparison
-1199.450177 # Data Mean
-1199.975569 # Reference Mean
0.525390 # Mean
0.598020 # Median
3.933100 # Std. Deviation
-2935.78 -296.15 # Data Z - Range
-2711.14 -299.90 # Ref. Z - Range
-395.02 69.70 # Diff Z - Range
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8.464130 # Median + 2*stddev
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27.617548 # Ord 2 Error Limit
9.003288 # Special Order Error Limit
0.000000 # Custom Error Limit
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0.086187 # Special Order P-Statistic
1.000000 # Custom P-Statistic
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7219 # Ord 2 - # Rejected
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0 # Custom Survey REJECTED
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4.432200 # Std. Deviation
-2935.78 -1428.22 # Data Z - Range
-2711.14 -1435.10 # Ref. Z - Range
-395.02 69.70 # Diff Z - Range
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86.712120 # Median + 2*stddev
18.662994 # Ord 1 Error Limit
33.022438 # Ord 2 Error Limit
10.766150 # Special Order Error Limit
0.000000 # Custom Error Limit
0.001437 # Ord 1 P-Statistic
0.000790 # Ord 2 P-Statistic
0.003407 # Special Order P-Statistic
1.000000 # Custom P-Statistic
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314 # Ord 2 - # Rejected
1354 # Special Order - # Rejected
397366 # Custom - # Rejected
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1 **# Order 2 Survey ACCEPTED**
1 **# Special Order Survey ACCEPTED**
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-1129.791567 # Reference Mean
0.512350 # Mean
-34.557000 # Median
3.754300 # Std. Deviation
-1733.93 -653.45 # Data Z - Range
-1678.84 -659.85 # Ref. Z - Range
-259.44 66.00 # Diff Z - Range
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42.065569 # Median + 2*stddev
8.592561 # Ord 1 Error Limit
15.209374 # Ord 2 Error Limit
4.955158 # Special Order Error Limit
0.000000 # Custom Error Limit
0.006699 # Ord 1 P-Statistic
0.001091 # Ord 2 P-Statistic
0.035184 # Special Order P-Statistic
1.000000 # Custom P-Statistic
3403 # Ord 1 - # Rejected
554 # Ord 2 - # Rejected

17873 # Special Order - # Rejected
507990 # Custom - # Rejected
1 # Order 1 Survey ACCEPTED
1 # Order 2 Survey ACCEPTED
1 # Special Order Survey ACCEPTED
0 # Custom Survey REJECTED
#DATA_RECORD:
M:\For_NCDDC\EX1502L2\EX1502L2_MB_001\Level_00\0063_20150319_114415_EX1502L2_MB.all
471735 # Number of Points of Comparison
-540.636884 # Data Mean
-541.353542 # Reference Mean
0.716660 # Mean
1.054600 # Median
3.654800 # Std. Deviation
-864.33 -296.15 # Data Z - Range
-865.69 -299.90 # Ref. Z - Range
-55.55 26.69 # Diff Z - Range
8.026261 # Mean + 2*stddev
8.364195 # Median + 2*stddev
3.930672 # Ord 1 Error Limit
6.969883 # Ord 2 Error Limit
2.263124 # Special Order Error Limit
0.000000 # Custom Error Limit
0.048839 # Ord 1 P-Statistic
0.013463 # Ord 2 P-Statistic
0.210839 # Special Order P-Statistic
1.000000 # Custom P-Statistic
23039 # Ord 1 - # Rejected
6351 # Ord 2 - # Rejected
99460 # Special Order - # Rejected
471735 # Custom - # Rejected
1 # Order 1 Survey ACCEPTED
1 # Order 2 Survey ACCEPTED
0 # Special Order Survey REJECTED
0 # Custom Survey REJECTED

EK 60 Splitbeam Sonar Data

An EK 60 calibration was conducted from in March 2015 during cruise EX-15-02 Leg 1, between Vieques and Culebra Islands at 18.2N, 65.2 W. The following pulse durations were calibrated: 512 milliseconds (ms), 1024 ms, and 2096 ms, and 4096 ms. The calibration files are in the NODC archives and included the following:
Cal_512us-D20150304-T150504.raw
Cal_1024us-D20150304-T155357.raw
Cal_2048us-D20150304-T162512.raw
Cal_4096us-D20150304-T172106.raw

Knudsen 3260 Subbottom Profiler Data

Subbottom data quality was high throughout the cruise. Overall subbottom dataset was not processed by the offshore team. Jason Chaytor provided preliminary analysis of a few subbottom lines in order to monitor data quality.

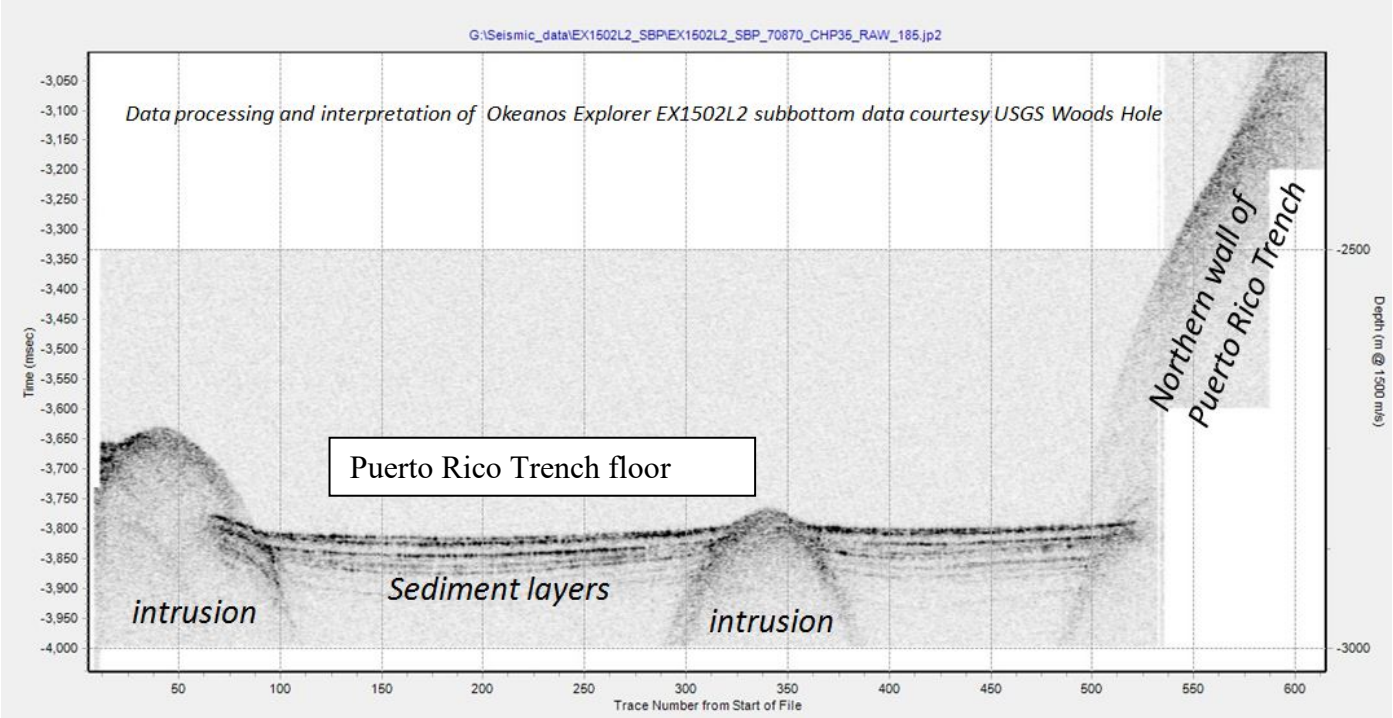

Figure 20. Processed subbottom data line EX1502L2_SBP_70870_CHP35_RAW_185, preliminary processing courtesy Dr. Jason Chaytor, USGS Woods Hole.

9. Telepresence

A 5 mb/s ship-to-shore connection was available throughout the cruise.

A telepresence event was conducted on March 28th in coordination with the "How Do We Explore" education training conducted by the OER Education Team at the National Aquarium in Baltimore.Over twenty educators participated in the interaction. During the event, ship based EX staffed briefed the training participants on the current EX operations and important data results.

10. Data Archival Procedures

All mapping data collected by *Okeanos Explorer*are archived and publically available within 90 days of the end of each cruise via the National Centers for Environmental Information (NCEI) online archives.The complete EX-15-02 Leg 2*Okeanos Explorer* data management plan is provided in the appendices of this report.

11. Cruise Calendar.

All times listed are in local. Local ship time was -4 hours from UTC.

March / April 2015						
Sun	**Mon**	**Tues**	**Wed**	**Thur**	**Fri**	**Sat**
					13 Expedition Coordinator arrives to ship alongside USCG Sector San Juan PR.	14 Visiting mission personnel arrive to ship.
15 Mapping training in port.	16 Depart San Juan for working grounds at 1030. Return to port for crew medical emergency.	17 Depart San Juan for working grounds at 1400.	18 Normal survey day. Crossline collected. Water making at least 20 nm offshorein PRT.	19 Slocum glider deployment. Free vehicle deployment. Normal survey operations.	20 Normal survey operations. Water making conducted 20 nm north of Culebra Island.	21 Free vehicle deployment. Normal survey operations. CTD deck test.
22 Normal survey operations at Mona Canyon. Water making 20 nm from western PR.	23 Continue Priority Area 1 survey.	24 Transit across Puerto Rico Trench towards Priority Area 2.	25 Commence Priority Area 2 survey.	26 Continue Priority Area 2 survey. Free vehicle dunk test.	27 Continue Priority Area 2 survey. Canceled free vehicle test deployment due to sea state.	28 Continue Priority Area 2 survey. Telepresence interaction with OER teacher workshop @ NAIB.
29 Continue Priority Area 2 survey. Free vehicle ascent rate test. Transit to PRT for free vehicle deployment.	30 Deploy FV in 8350m water in PRT. Collect PRT subbottom data.	31 Subbottom data collection over PRT. 2000m test of CTD.	1 Subbottom data collection over PRT.	2 Normal transit survey operations in morning. Alongside USGS Sector San Juan PR in afternoon.	3 Alongside USCG Sector San Juan PR.	4 Alongside USCG Sector San Juan PR. Mission personnel depart ship.

12. Daily Cruise Log

All timeslistedare local ship time, which was -4 hours from UTC.

March 13, 2015
Free vehicle equipment loaded on ship. Expedition Coordinator arrived to ship alongside in at USCG base in San Juan, PR.

March 14, 2015
Mission personnel arrived to ship: Fuentes, Mello,Meyer, Ovard, Paulsen, Schmidt, Vieten, Wegner.

March 15, 2015
Mission personnel arrived to ship: Millan. EM 302 BISTs were run successfully with all boards showing clean boot up processes. The heading offset in SIS was updated to +0.07 as a result of the Leg 1 patch test, and new settings were confirmed and recorded in processor unit parameters export.Watchstander training was conducted including introduction to control room, mission

equipment and standard procedures, XBTs, roles and responsibilities, and ship safety procedures. Training will continue as watches commence upon departure.

March 16, 2015
The ship departed at 1015 for survey working grounds. Sonar data was collected heading west directly north and nearshoreSan Juan for three hours, safety drills were conducted, then the ship turned to return to port for a crew member medical emergency. Watchstander training continued as the watchstanders stood their first watches. Data quality on all sonars was high. Alongside USCG Sector San Juan, PR for the evening.

March 17, 2015
After the crew member returned to the ship with clean bill of health, the ship departed at 1400 for the survey working grounds. Watchstander training continued as the watchstanders stood their second watches. Data quality on all sonars was high.

March 18, 2015
Survey continued throughout the day. Weather was fair and data quality on all sonars was high. Watchstander training continued as the watchstanders stood their third watches. A crossline was collected as we transited offshore for the night to make water, discharge tanks, and conduct subbottom data collection over the Puerto Rico Trench. All sonars were able to collect data in ~8000 meters water depth. EM 302 reliable swath was ~3000-~3200 meters in 8000m water.

March 19, 2015
The Slocum Navy Glider was deployed at 0845 approximately 22 km north of Culebra Island. Test dives were initiated by shorebased Navy personnel via satellite communication control. Test dives were successful, so the glider was left to do its work and be picked up by another vessel in approximately one month's time. The first free vehicle deployment/recovery routine occurred in 1000 meters of water approximately 32 km north of Culebra Island. A dummy payload was used during this initial test deployment. Multibeam survey of Priority Area 1 continued. Water was made overnight into Friday morning in area north of Culebra and 20 nm NE of Puerto Rico.Watchstander training continued as the watchstanders stood their fourth watches. Data quality on all sonars was high.

March 20, 2015
Multibeam survey of Priority Area 1 continued in the eastern end northeast of Culebra Island. Water was made overnight into Friday morning in the area north of Culebra and 20 nm northeast of Puerto Rico. Watchstander training continued as the watchstanders stood their fifth watches. Data quality on all sonars was high. The gyro values in the Navigation Editor of Caris are showing a brief (subsecond) dropout about once an hour starting today.

March 21, 2015
Multibeam survey of Priority Area 1 within 20 nm of PR mainland continued. Weather was fair and data quality was high on all sonars. One whale was spotted inside the NMFS 750 m safety zone and sonars were secured for 20 minutes. The free vehicle was deployed in 2000 meters water. Deployment and recovery went smoothly. There was a minor hiccup with the memory SD

card, which carries the mission program, not being read, which is the final step before deployment. A successful CTD deck test was conducted by the augmenting SST.

March 22, 2015
In the morning, multibeam survey focused on the western wall of Mona Canyon as the ship stayed 20 nautical milesoffshore from Puerto Rico to make water. In the evening, survey of Priority Area 1 resumed in the canyon-incised area north of PR within 20 miles of shore. A brief period of needle gunning on the 01deck port exterior bulkhead in the morning affected sonar data quality. The multibeam had trouble tracking the bottom at nadir along the western wall of Mona Canyon. During this time, one multibeam .all file was not written although it looked like it was recording in SIS realtime; and one water column file was not recorded, although the .all file for that timeframe was. It is believed this is a software glitch and not expected to be repeated.The ETs worked on communications port settings for the EK 60. The feed was not going to the scientific computing system (SCS) although data was being collected.

March 23, 2015
Survey of Priority Area 1 continued in the area north of PR within 20 miles of shore. Weather was fair and data quality on all sonars was satisfactory. The multibeam had trouble tracking the bottom at nadir on the steep walls of the canyons. Forcing the system into very deep mode fixes this. Tweaking filters and along track direction tilt angle do not seem to help at all. A brief period of needle gunning did not visibly affect sonar data quality.

March 24, 2015
Data quality on all sonars was high in the morning. Survey of Priority Area 1 was completed by the afternoon. A free vehicle (FV) deployment was conducted in 4503 meters of water over a small 1.8km x 1.8km flat plateau on the southern side of the Puerto Rico Trench. The vehicle was deployed at 1307 and recovered at 1635 at position 18 53.959N, 66 30.565W. A single north-south subbottom line was run overnight at 6-6.5 kts across the trench. While crossing the trench, multibeam and split beam sonars were turned off because the trigger jigger was not allowing subbottom to ping if they were enabled. It is suspected that the ping rates were so slow due to water depth that the subbottom was timing out waiting for the trigger signal.

While the FV was deployed, a CTD cast was conducted to 2100 meters. The exterior cable integrity lookedgood, however CTD data quality did not. At about 560 meters the CTD indicated it had started ascending but it was still descending. The data is also in general 'spikier' than normal. The termination and connection to temperature sensor are under analysis by SST and CET.

March 25, 2015
Survey of Priority Area 2 commenced in ~6000m water. Weather was fair and multibeam sonar data quality was high for these water depths. Safety drills were conducted.Trigger jigger was troubleshot. The EK 60 and subbottom sonars would not ping when the trigger jigger was enabled. These sonars were not for most run today because without the trigger jigger they create interference with the multibeam. Ultimately it was determined that the EM 302 input into the trigger jigger required soldiering.Water was found in the lower sphere of the free vehicle and the

next deployment was put on hold as the Free Vehicle team troubleshoots the ingress point for the water.

March 26, 2015
Survey of Priority Area 2 continued in ~5500m water depth. Weather was fair and data quality on all sonars was high for these water depths. A free vehicle 'dunk test' was conducted with one non-leaky sphere and the CTD payload to test buoyancy.

March 27, 2015
Survey of Priority Area 2 continued in ~5500m water depth. Sonar data quality was fair in seas 7-9 ft, winds 15-18 kts. Heavier seas reduced data quality and swath width, but data quality was acceptable in both line directions.A free vehicle test deployment was planned but ultimately cancelled due to sea state.

March 28, 2015
Survey of Priority Area 2 continued in ~5500m water depth. Sonar data quality was generally good in seas 4-6 ft, winds 15-18 kts, with the exception of a few sections of poorer quality in slightly heavy seas in the evening.

An interaction with shore during teacher workshop at National Aquarium in Baltimore occurred from 1100-1130. The interaction went very well. VoIP was good enough throughout. Video dropouts were present but minimal.

March 29 , 2015
Survey speed is 8-8.5 kts to achieve best possible sonar data quality. XBTs are conducted every ~5 hrs. Heavier seas reduced data quality and swath width, but data quality was still acceptable in both line directions.A free vehicle test was conducted to determine ascent rate with only one sphere rather than the original design of two spheres, with CTD payload attached. The ascent rate test was to determine total time it will take for the FV to ascend from Trench depths, which will indicate if a FV deployment in the trench is possible this cruise. The FV was attached to two buoys, the package was put overboard, and the ship moved away in DP. The FV burn wire released the weights as planned at ~100m and the FV surfaced. The ascent rate was determined to be .4 m/s. With two spheres the observed ascent rate had been 1 m/s. A deployment is planned for 3/30 in the deepest section of the trench.

March 30, 2015
The ship exited mapping Priority Area 2 and commenced transit to the first PRT free vehicle deployment site. In collaboration with USGS, subbottom data was collected in the Trench while the FV was deployed and during transit to deployment site 2 in the PRT. Weather was fair and sonar data quality was high. Survey speed was 6 - 6.5 kts for optimal subbottom data collection. The free vehicle was deployed in 8350 meters of water in the deepest section of the Trench with one sphere and the CTD payload. This was the first ever CTD to reach the bottom of the trench. The deployment occurred from 0700 to 1600. The vehicle CTD was fully functional during the deployment.

March 31, 2015

Subbottom data collection continued over the deepest sections of the trench. Survey speed was 6 - 6.5 kts for optimal subbottom data collection. EM 302 and EK 60 are secured during subbottom lines for optimal subbottom ping rate in >8000 m water. The free vehicle deployment was postponed until tomorrow to give the FV team time to analyze why the vehicle reported receiving 28 'end mission' commands while it was on the bottom. A full bench test mission was run with no errors so a deployment is planned for 4/1. A test of the ship's CTD was conducted to 2000m to check the maintenance done by the SST and to provide the deck department time to refresh CTD winch operations. The previously seen anomaly at 560m did not occur. The secondary CTD provided cleaner data than the primary, and both were acceptable on the downcast. SST is troubleshooting poor quality primary CTD upcast data, and suspects improperly set calibration coefficients. The oxygen sensor data was still spikey. Cause is unknown and under analysis by SST and ET. The Slocum Glider was reported likely lost at sea.

April 1
Subbottom data collection focused on the deepest sections of the trench. The free vehicle was deployed in 8376 m water at 0649 EDT and recovered 1500. The CTD data from the vehicle was good, and vehicle mission data is under analysis. This was the last deployment of the cruise. We successfully collected two CTDs to the full depth of the Puerto Rico Trench. These are the full trench-depth CTDs in the history of science.Transit to shallow water for holiday fill lines commenced in the evening.

April 2
Mapping data collection continued through the morning. The cruise ended one day early today for a personal emergency of one mission crew member. The ship was alongside at USCG Sector San Juan by 1430 EDT.

April 3
The ship was alongside at USCG Sector San Juan. Mission personnel finalized projects and data packages, and prepared to disembark the ship.

April 4
The ship was alongside at USCG Sector San Juan. Mission personnel disembarked from the ship.

13. References

The 2015 Survey Readiness Report can be obtained by contacting NOAA Ship *Okeanos Explorer* at ops.explorer@noaa.gov.

EX-15-02 Leg 2 ProjectInstructions can be obtained by contacting NOAA Ship *Okeanos Explorer* at ops.explorer@noaa.gov.

The following data was used as background data throughout the cruise:
1) Sandwell, D. T., and W. H. F. Smith, Global marine gravity from retrackedGeosat and ERS-1 altimetry: Ridge Segmentation versus spreading rate, J. Geophys. Res., 114, B01411, doi:10.1029/2008JB006008, 2009.

2) NOAA Nautical Charts in S-57 format.

3) USGS Open File Report 2013-1125. Bathymetric Terrain Model of the Puerto Rico Trench and the Northeastern Caribbean Region for Marine Geological Investigations, *(Andrews, ten Brink, Danforth, Chaytor et al. 2014; http://dx.doi.org/10.3133/ofr20131125)*

14. Appendices

Appendix A: EX-15-02 Leg 2 Data Management Plan

Data Management Plan
Okeanos Explorer (EX1502L2): Caribbean Exploration (Mapping)

OER Data Management Objectives

No specific data management objectives other than normal data pipelines and standard operating procedures.

1. General Description of Data to be Managed

1.1 Name and Purpose of the Data Collection Project

Okeanos Explorer (EX1502L2): Caribbean Exploration (Mapping)

1.2 Summary description of the data to be collected.

EM302 multibeam data will be collected 24 hours a day and will be gathered over previously unexplored regions. Data will be used to better understand the bathymetry of the Puerto Rican trench and allow reconnaissance of the region prior to the ROV cruise. Multibeam operations within 5 miles of land in priority area 1 will be conducted during daylight hours. XBT casts will be conducted at an interval defined by prevailing oceanographic conditions, but not to exceed 6 hours. XBT data will be used to correct the sound velocity of the multibeam data. Additionally, EK 60 (single beam) and sub-bottom profile data will be collected 24 hours per day.

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, Puerto Rico Trench, NASA maritime aerosol network, free vehicles, University of Puerto Rico

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: 3/16/2015 to 3/3/2015

1.6 Planned or actual geographic coverage of the data.

Latitude Boundaries: 21.85 to 18.45

Longitude Boundaries: -67.5 to -64.95

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, NetCDF, Multibeam (raw), Multibeam (image), Multibeam (processed), Multibeam (product), Mapping Summary, GSF, HDCS, Floating Point GeoTIF, EK60 Singlebeam Data, XBT (raw), Water Column Backscatter, Sub-Bottom Profile data, Expedition Cruise Report, CTD (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, Contractor (ERT, Inc.), NOAA Office of Ocean Exploration and Research
Affiliation/Dept:	Center for Coastal and Ocean Mapping (CCOM) Joint Hydrography Center (JHC), University of New Hampshire (UNH)
E-Mail:	elizabeth.lobecker@noaa.gov
Phone:	401-662-9297

3. Point of Contact for Managing the Data

Data POC Name:	Susan Gottfried
Title:	OER Data Management Coordinator, NOAA National Centers for Environmental Information
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 NODC; multibeam data and metadata will be compressed and delivered in a bagit format to NGDC.

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:

6.2 Where will the metadata be hosted?

Organization: An ISO format collection-level metadata record will be generated during pre-cruise planning
URL: http://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: NOAA National Centers for Environmental Information

URL: explore.noaa.gov/digitalatlas

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

Hold Time: no

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 Centers for Environmental Information. Refer to the Okeanos Explorer FY15 Data Management Plan at NOAA's EDMC DMP Repository (EX_FY15_DMP_Final.pdf) for detailed descriptions of the processes, procedures, and partners involved in this collaborative effort.

8.2 If no archive planned, why?

not applicable

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

30-90 days

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 Letter

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

January 7, 2015

MEMORANDUM FOR: The Record

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

John Mcdonough
Digitally signed by John Mcdonough
DN: cn=John Mcdonough, o=Ocean Exploration, ou=NOAA/OAR, email=john.mcdonough@noaa.gov, c=US
Date: 2015.01.08 17:20:48 -05'00'

SUBJECT: Categorical Exclusion for NOAA Ship *Okeanos Explorer* Cruise EX-15-02 Leg 1 and 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-15-02 Legs 1 and 2 Exploration, Caribbean (Mapping)" and will be led by Lindsay McKenna (Leg 1), and Elizabeth Lobecker (Leg 2), both Physical Scientists for the *Okeanos Explorer* program within OER. NOAA Ship *Okeanos Explorer* will depart on Leg 1 from North Kingstown, RI on February 18, 2015, and arrive in port in San Juan, Puerto Rico on March 11, 2015. Leg 2 will depart San Juan, Puerto Rico on March 16, 2015 and arrive in port in San Juan, Puerto Rico on April 3, 2015. NOAA Ship *Okeanos Explorer* will conduct sonar mapping operations at all times during the cruise. Focused mapping operations will occur along a transit path from Rhode Island to Puerto Rico, then within top priority exploration target areas in U.S. federal waters around Puerto Rico and St. Croix islands. 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 C: Surveys of Opportunity Documentation
(NOTE: deployment locations differed from those listed in this form)

Survey or Project Name

Exploration of the Muertos Trough and Puerto Rico Trench via un-tethered free vehicles

Points of Contact (POC)

Supporting Team Members ashore Co-PI Manuel Jimenez, UPRM Graduate students HaiboXu, Jesus Torrado, and Danilo Rojas (all UPRM)	*Lead POC or Principle Investigator (PI & Affiliation)* PI Wilford Schmidt – University of Puerto Rico, Mayaguez (UPRM) wilford.schmidt@upr.edu
Supporting Team Members aboard (if required) PI and/or 1 student	

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

We propose to develop and extend new free vehicle (FV) technology and associated sampling packages described in NOAA OER award NA14OAR40110262 in the largely un-sampled abyssal (> 4000 m) waters south of Puerto Rico (Muertos Trough (MT)), and apply the advanced FV technology in a multi-disciplinary survey of the hadal (>6000 m) depths of the Puerto Rico Trench (PRT). Our survey of opportunity proposal consists of four synergistic parts:

CTD casts
Niskin casts
ADCP casts
Invertebrate/sediment collection

Any of these activities can be performed with the same platform by simply switching payloads. Ideally, we would sample with each of these in both the MT and PRT, but are flexible in this respect due to the largely un-sampled nature of both areas, and due to the novelty of our FV technology.

List of Participating Organizations

UPRM
United States Geological Survey (USGS)
Teledyne RDI (RDI)
Aanderaa Instruments (AI)

Duration *(specific start and end dates, or expected length of survey)*

Depending on payload and depth at deployment location, each FV deployment typically lasts between 3 and 30 hr.

Area of Survey and Cruise Track Descriptions *(please attach appropriate charts and include chart reference numbers)*

Areas of interest are MT (1-3) south of La Parguera, PR and PRT (1 - 8) north of Arecibo, PR (please see attached Table 1 and Figure 1).

Conditions and Dependencies *(e.g. water depths, special sea conditions, time constraints, sample storage, etc.)*

Our FV are rated to 9000 m, so water depth is not a factor. We will have satellite transponder, RF beacon, and strobe for location determination, so sea state should not be a factor (within reason). If sediment, invertebrates, or other biota are recovered, simple freezer storage is required.

Procedures *(e.g. deployment & recovery of instrument, required ship speed, instrument max depth, etc.)*

Deployment and recovery should be performed while the ship is not underway. FV assembly including payload and ballast is less than 50 kg and 3 m. A suitable davit can be used, or the ship's A-frame, for deployment and recovery. FV do not require surface signals to return to surface, and the ship can conduct other operations during the FV deployment.

Sample Daily Operations Schedule *(e.g. deployments per day, time per deployment, data recorded, etc.)*

Our proposal consists of four synergistic parts:

CTD casts
Niskin casts
ADCP casts
Invertebrate/sediment collection

Items 1 – 2 can be accomplished in as little as approximately 2 s/m of water depth, e.g., 5 hr in full depth PRT. Items 3&4 require extended bottom time, say 24 hr, plus 2 s/m of water depth. Data collected will consist of: 1) conductivity, temperature, and pressure; 2) water samples for dissolved oxygen, nitrates, nitrites, silicates and phosphates analysis; 3) acoustic-Doppler current profiles with temperature and backscatter intensity; and 4) invertebrate and other biota/ surficial benthic sediments.

Equipment/Systems Needed

▢Telepresence	▢Dynamic Positioning
▢ROV ▢Sled	▢A-Frame
	▢J-Frame
▢Hazardous Storage	
Describe:	▢Multibeam (EM302)
	▢EK60 (ES18)
	▢Sub-Bottom Profiler (Chirp 3260)
▢Other ship's equipment(s):	▢Seawater flow-through system
Describe All:	▢CTD Rosette
	▢XBT launcher
	▢SCS Outputs

Special Equipment *(identify any PI-supplied gear that the ship will be requested to deploy)*

UPRM free vehicle, scientific payload, and ballast.

Lead Time and Long Lead Time Items*(e.g., permits, foreign nationals participation, etc)*

No permits are anticipated for this work. Of our 3 graduate students, 2 are foreign nationals but 1 is a U.S. citizen.

Shore-side support*(besides staffing, what other coordination is needed, e.g. telepresence center)*

UPRM has a functioning telepresence center.

Data, Products and Outputs *(requested shipboard data processing, archiving and product generation, such as sonar processing, GIS layer creation, mosaic, video archiving, etc)*

None

QUALITATIVE PARAMETERS

Why is this project considered "exploration"?

Although twelve people have walked on the Moon and numerous spacecraft are now exploring our solar system and beyond, very little in situ sampling of the Earth's oceanic trenches has occurred. Their general geographic remoteness and extreme bottom-pressures (>600 atmospheres) have made all sampling techniques difficult. Cable lengths needed (>6.5 km) make tethered sampling cost-prohibitive, and problematic in terms of successful data acquisition. Recent autonomous (AUV), remotely-operated (ROV), and free-vehicle sampling attempts have proved equally technically difficult and expensive (cf. EV Nautilus 2013, Deepsea Challenger, Nereus, Kaiko, and Big Alfie). However, developments in the manufacture of glass housings offer scientific investigators and engineers the opportunity to sample the Earth's deepest trenches at a fraction of the cost of previous methods.

These low-cost, untethered free vehicles (FV) can be thought of as the oceanographic analog to unmanned or small-satellite space missions, which have been shown to(Baker and Worden, 2008):

Be a cost effective method for addressing key scientific questions
Have the capability for quick response to targets of opportunity
3) Be a means for the development and demonstration of new technology and design concepts
4) Facilitate opportunity for multi-disciplinary and international collaborations

How is this survey multidisciplinary? *(Will various types of data be acquired by different user groups during the survey? Will the data products will be used by different users after the survey?)*

The proposed project consists of 4 overlapping activities and 2 UPRM Co-PIs (Marine Sciences and Electrical Engineering). Government and industry partners (USGS, RDI, and AI) will lend significant expertise and resources to the project.
The 4 activities are: 1) CTD casts 2) Niskin casts; 3)ADCP casts; and 4) Invertebrate/sediment collection.
These 4 activities encompass the fields of biology, geology, chemistry, and physics.

What is the public outreach potential for this project?

UPR is one of the largest under-represented minority serving institutions. The 2013/14 EV Nautilus Caribbean field seasons engendered enthusiastic support across the island of Puerto Rico, and UPRM in particular. Homeport activities can be scheduled and UPRM has an existing telepresence center.

What will become of the data, imagery, information and samples after this survey? *(Who is responsible for data archiving? How will the information be archived? Are there any intended publications from this survey? Will this data be used as leverage for follow-up investigation?)*

Please see below for NOAA Award NA14OAR40110262 data sharing plan (DSP).

What restrictions of confidentiality are placed on this request? *(Can this request be shared with OER partners operating in the area who might be able to acquire these data? Is any part of this intended dataset sensitive and restricted? Are you willing to work with NOAA public affairs officials to report any discoveries made by this survey?*

Please see below for NOAA Award NA14OAR40110262 data sharing plan (DSP).

If this project is maritime archeologically focused, what is the site's archaeological or historical importance?

Not applicable

If this project is maritime archeologically focused, who has jurisdiction over the site, and have the appropriate agencies been contacted?

Not applicable

Description	~Depth (m)	Lon (°W)	Lat (°N)	Location and year
UPRM DMS Magueyes Marine Station (MMS)				**La Parguera&Guanica FY1**
Shallow test site	100	67.900	17.920	LPG 1
Deep test site	1000	66.900	17.840	LPG 2
				MuertosTrough FY1
25 km S UPRM DMS MMS	2000	67.100	17.700	MT site 1
52 km S UPRM DMS MMS	4000	67.050	17.511	MT site 2

75 km S UPRM DMS MMS	5100	67.051	17.323	MT site 3
				PRT FY1 & 2
CTD/ADCP/ Niskin station	8250	67.000	19.68	PRT site 1
"	8050	67.000	19.83	PRT site 2
"	8375	66.875	19.75	PRT site 3
"	8050	66.750	19.68	PRT site 4
"	8275	66.750	19.83	PRT site 5
"	8325	66.625	19.75	PRT site 6
"	8350	66.500	19.83	PRT site 7
"	8050	66.500	19.68	PRT site 8

Table 1. Proposed sample sites, chronology, locations, approximate depths, and descriptions (where applicable). LPG sites serve as nearby shallow and deep test locations. MT sites serve as "sea trials" for all systems and, along with LPG sites, represent a multi-disciplinary, high-resolution sublittoral-to-abyssal transect. PRT sites represent a multi-disciplinary, 0.5° x 16 km resolution hadal PRT transect.

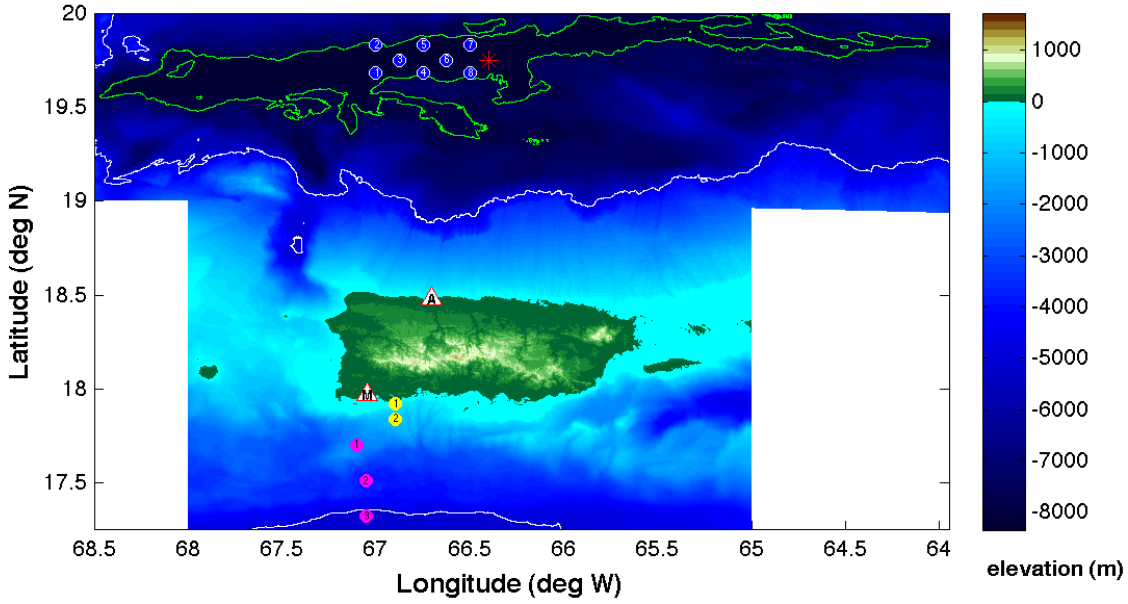

Fig. 2.Proposed sample and support sites. Triangles: UPRM DMS Magueyes Marine Station (south) and Arecibo Harbor (north). Circles: LPG test sites (yellow); MT transect (magenta); PRT stations (blue). Red asterisk denotes previous 2006/2008 sample site. Contours: -5000 m (white) and -8000 m (green). Bathymetry from USGS and NGDC.

Survey or Project Name

Maritime Aerosol Network

Points of Contact (POC)

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

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

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.

Appendix D: EM 302 Processing Parameters in use during the cruise

```
#// Database Parameters

#// Seafloor Information System
#// Kongsberg Maritime AS
#// Saved:  2015.03.14 17:59:08

#// Build info:
#* SIS:              [Version: 4.1.3, Build:
14, DBVersion 24.0 CD generated: Fri
Dec 13 10:06:08 2013]
[Fox ver = 1.6.47]
[dbver = 24, proc = 24.0]
[OTL = 4.0.-95]
[ACE ver = 5.8.3]
[Coin ver = 2.5.0]
[Simagever = 1.6.2a]
[Dime ver = DIME v0.9]
[FreeTypever = 2.3.7]
[TIFF ver = 3.9.2]
[GeoTIFFver = 1250]
[GridEnginever = 3.1.5]

#* Language          [3] #// Current
language, 1-Norwegian, 2-German,3-
English, 4-Spanish|Remember to restart
SIS after a change.
German is currently not available.

#* Type              [302]
#* Serial no.        [101]
#* Number of heads   [2]
#* System descriptor  [50331650] #//
03000002

#//
**********
**********
***
#{ User comment #//

after heading offset update to .07
#} User comment

#//
**********
**********
***

#//
**********
**********
***
#// Installation parameters


#{ Input Setup #// All Input setup
parameters

#{ COM1 #// Link settings.

#{ Com. settings #// Serial line
parameter settings.
      #* Baud rate:       [9600]
      #* Data bits        [8]
      #* Stop bits:       [1]
      #* Parity:          [NONE]
      #* Interface:       [RS232]
   #} Com. settings

#{ Position #// Position input settings.
      #* None            [1] [0]
      #* GGK             [1] [0]
      #* GGA             [1] [1]
      #* GGA_RTK         [1] [0]
      #* SIMRAD90        [1] [0]
   #} Position

#{ Input Formats #// Format input
settings.
      #* Attitude        [0] [0]
      #* MK39 Mod2 Attitude,  [0] [0]
      #* ZDA Clock       [1] [1]
      #* HDT Heading     [0] [0]
      #* SKR82 Heading   [0] [0]
      #* DBS Depth       [1] [0]
      #* DPT Depth       [1] [0]
      #* EA500 Depth     [0] [0]
#* ROV.depth       [0] [0]
      #* Height, special purp [1] [0]
      #* Attitude/Velocity    [0] [0]
   #} Input Formats

  #} COM1

#{ COM2 #// Link settings.

#{ Com. settings #// Serial line
parameter settings.
      #* Baud rate:       [19200]
      #* Data bits        [8]
      #* Stop bits:       [1]
      #* Parity:          [NONE]
      #* Interface:       [RS232]
   #} Com. settings

#{ Position #// Position input settings.
      #* None            [0] [1]
      #* GGK             [0] [0]
      #* GGA             [0] [0]
      #* GGA_RTK         [0] [0]
      #* SIMRAD90        [0] [0]
   #} Position

#{ Input Formats #// Format input
settings.
      #* Attitude        [1] [1]
      #* MK39 Mod2 Attitude,  [0] [0]
      #* ZDA Clock       [0] [0]
      #* HDT Heading     [0] [0]
      #* SKR82 Heading   [0] [0]
      #* DBS Depth       [0] [0]
      #* DPT Depth       [0] [0]
      #* EA500 Depth     [0] [0]
#* ROV.depth       [0] [0]
      #* Height, special purp [0] [0]
      #* Attitude/Velocity    [0] [0]
   #} Input Formats

  #} COM2

#{ COM3 #// Link settings.

#{ Com. settings #// Serial line
parameter settings.
      #* Baud rate:       [4800]
      #* Data bits        [8]
      #* Stop bits:       [1]
      #* Parity:          [NONE]
      #* Interface:       [RS232]
   #} Com. settings

#{ Position #// Position input settings.
      #* None            [1] [1]
      #* GGK             [1] [0]
      #* GGA             [1] [0]
      #* GGA_RTK         [1] [0]
      #* SIMRAD90        [1] [0]
   #} Position

#{ Input Formats #// Format input
settings.
      #* Attitude        [0] [0]
      #* MK39 Mod2 Attitude,  [0] [0]
      #* ZDA Clock       [0] [0]
      #* HDT Heading     [1] [1]
      #* SKR82 Heading   [0] [0]
      #* DBS Depth       [1] [0]
      #* DPT Depth       [1] [0]
      #* EA500 Depth     [0] [0]
#* ROV.depth       [0] [0]
      #* Height, special purp [1] [0]
      #* Attitude/Velocity    [0] [0]
   #} Input Formats

  #} COM3

#{ COM4 #// Link settings.

#{ Com. settings #// Serial line
parameter settings.
      #* Baud rate:       [9600]
      #* Data bits        [8]
      #* Stop bits:       [1]
      #* Parity:          [NONE]
      #* Interface:       [RS232]
   #} Com. settings

#{ Position #// Position input settings.
      #* None            [1] [1]
      #* GGK             [1] [0]
      #* GGA             [1] [0]
      #* GGA_RTK         [1] [0]
      #* SIMRAD90        [1] [0]
   #} Position

#{ Input Formats #// Format input
settings.
      #* Attitude        [0] [0]
      #* MK39 Mod2 Attitude,  [0] [0]
      #* ZDA Clock       [0] [0]
      #* HDT Heading     [0] [0]
      #* SKR82 Heading   [0] [0]
      #* DBS Depth       [1] [0]
      #* DPT Depth       [1] [0]
      #* EA500 Depth     [0] [0]
#* ROV.depth       [0] [0]
      #* Height, special purp [1] [0]
      #* Attitude/Velocity    [0] [0]
   #} Input Formats

  #} COM4

#{ UDP2 #// Link settings.
```

```
#{ Com. settings #// Serial line
parameter settings.
        #// N/A
    #} Com. settings

#{ Position #// Position input settings.
        #* None              [1] [1]
        #* GGK               [1] [0]
        #* GGA               [1] [0]
        #* GGA_RTK           [1] [0]
        #* SIMRAD90          [1] [0]
    #} Position

#{ Input Formats #// Format input
settings.
        #* Attitude          [0] [0]
        #* MK39 Mod2 Attitude,  [0] [0]
        #* ZDA Clock          [0] [0]
        #* HDT Heading        [0] [0]
        #* SKR82 Heading      [0] [0]
        #* DBS Depth          [0] [0]
        #* DPT Depth          [0] [0]
        #* EA500 Depth        [1] [0]
#* ROV.depth         [0] [0]
        #* Height, special purp [0] [0]
        #* Attitude/Velocity   [0] [0]
    #} Input Formats

  #} UDP2

#{ UDP3 #// Link settings.

#{ Com. settings #// Serial line
parameter settings.
        #// N/A
    #} Com. settings

#{ Position #// Position input settings.
        #* None              [0] [1]
        #* GGK               [0] [0]
        #* GGA               [0] [0]
        #* GGA_RTK           [0] [0]
        #* SIMRAD90          [0] [0]
    #} Position

#{ Input Formats #// Format input
settings.
        #* Attitude          [0] [0]
        #* MK39 Mod2 Attitude,  [0] [0]
        #* ZDA Clock          [0] [0]
        #* HDT Heading        [1] [0]
        #* SKR82 Heading      [0] [0]
        #* DBS Depth          [1] [0]
        #* DPT Depth          [1] [0]
        #* EA500 Depth        [0] [0]
#* ROV.depth         [0] [0]
        #* Height, special purp [1] [0]
        #* Attitude/Velocity   [0] [0]
    #} Input Formats

  #} UDP3

#{ UDP4 #// Link settings.

#{ Com. settings #// Serial line
parameter settings.
        #// N/A
    #} Com. settings

#{ Position #// Position input settings.
        #* None              [0] [1]
        #* GGK               [0] [0]
        #* GGA               [0] [0]
        #* GGA_RTK           [0] [0]
        #* SIMRAD90          [0] [0]
    #} Position

#{ Input Formats #// Format input
settings.
        #* Attitude          [1] [0]
        #* MK39 Mod2 Attitude,  [0] [0]
        #* ZDA Clock          [0] [0]
        #* HDT Heading        [1] [0]
        #* SKR82 Heading      [0] [0]
        #* DBS Depth          [1] [0]
        #* DPT Depth          [1] [0]
        #* EA500 Depth        [0] [0]
#* ROV.depth         [0] [0]
        #* Height, special purp [1] [0]
        #* Attitude/Velocity   [0] [0]
    #} Input Formats

  #} UDP4

#{ UDP5 #// Link settings.

#{ Com. settings #// Serial line
parameter settings.
        #// N/A
    #} Com. settings

#{ Position #// Position input settings.
        #* None              [0] [0]
        #* GGK               [0] [0]
        #* GGA               [0] [0]
        #* GGA_RTK           [0] [0]
        #* SIMRAD90          [0] [0]
    #} Position

#{ Input Formats #// Format input
settings.
        #* Attitude          [0] [0]
        #* MK39 Mod2 Attitude,  [0] [0]
        #* ZDA Clock          [0] [0]
        #* HDT Heading        [0] [0]
        #* SKR82 Heading      [0] [0]
        #* DBS Depth          [0] [0]
        #* DPT Depth          [0] [0]
        #* EA500 Depth        [0] [0]
#* ROV.depth         [0] [0]
        #* Height, special purp [1] [1]
        #* Attitude/Velocity   [1] [1]
    #} Input Formats

#{ Ethernet Interface Settings #// Only
relevant for UDP5 on EM122, EM302,
EM710, EM2040 currently
        #* VSU               [5602] #//
UDP5:
        #* VSE               [2] #// 0= Not in
use, 1= Use legacy Ethernet, 2=Use
Ethernet 2
        #* VSI               [192.168.2.20]
#// IP addr.:
        #* VSM
[255.255.255.0] #// Net mask:
    #} Ethernet Interface Settings

  #} UDP5

#{ UDP6 #// Link settings.

#{ Com. settings #// Serial line
parameter settings.
        #// N/A
    #} Com. settings

#{ Position #// Position input settings.
        #* None              [0] [0]
        #* GGK               [0] [0]
        #* GGA               [0] [0]
        #* GGA_RTK           [0] [0]
        #* SIMRAD90          [0] [0]
    #} Position

#{ Input Formats #// Format input
settings.
        #* Attitude          [0] [0]
        #* MK39 Mod2 Attitude,  [0] [0]
        #* ZDA Clock          [0] [0]
        #* HDT Heading        [0] [0]
        #* SKR82 Heading      [0] [0]
        #* DBS Depth          [0] [0]
        #* DPT Depth          [0] [0]
        #* EA500 Depth        [0] [0]
#* ROV.depth         [0] [0]
        #* Height, special purp [0] [0]
        #* Attitude/Velocity   [1] [0]
    #} Input Formats

#{ Ethernet Interface Settings #// Only
relevant for UDP6 on EM122, EM302,
EM710, EM2040 currently
        #* VTU               [3000] #//
UDP6:
        #* VTE               [0] #// 0= Not
in use, 1= Use legacy Ethernet, 2=Use
Ethernet 2
        #* VSI               [192.168.2.20]
#// IP addr.:
        #* VSM
[255.255.255.0] #// Net mask:
    #} Ethernet Interface Settings

  #} UDP6

#{ MCAST1 #// Link settings.

#{ Com. settings #// Serial line
parameter settings.
        #// N/A
    #} Com. settings

#{ Position #// Position input settings.
        #* None              [1] [1]
        #* GGK               [0] [0]
        #* GGA               [0] [0]
        #* GGA_RTK           [0] [0]
        #* SIMRAD90          [0] [0]
    #} Position

#{ Input Formats #// Format input
settings.
        #* Attitude          [0] [0]
        #* MK39 Mod2 Attitude,  [0] [0]
        #* ZDA Clock          [1] [0]
        #* HDT Heading        [0] [0]
        #* SKR82 Heading      [0] [0]
        #* DBS Depth          [0] [0]
        #* DPT Depth          [0] [0]
```

```
      #* EA500 Depth         [0] [0]
#* ROV.depth          [0] [0]
      #* Height, special purp [0] [0]
      #* Attitude/Velocity    [1] [0]
    #} Input Formats

  #} MCAST1

#{ MCAST2 #// Link settings.

#{ Com. settings #// Serial line
parameter settings.
      #// N/A
    #} Com. settings

#{ Position #// Position input settings.
      #* None               [1] [1]
      #* GGK                [1] [0]
      #* GGA                [1] [0]
      #* GGA_RTK            [1] [0]
      #* SIMRAD90           [1] [0]
    #} Position

#{ Input Formats #// Format input
settings.
      #* Attitude           [0] [0]
      #* MK39 Mod2 Attitude,  [0] [0]
      #* ZDA Clock           [1] [0]
      #* HDT Heading         [0] [0]
      #* SKR82 Heading       [0] [0]
      #* DBS Depth           [0] [0]
      #* DPT Depth           [0] [0]
      #* EA500 Depth         [0] [0]
#* ROV.depth          [0] [0]
      #* Height, special purp [0] [0]
      #* Attitude/Velocity    [1] [0]
    #} Input Formats

  #} MCAST2

#{ MCAST3 #// Link settings.

#{ Com. settings #// Serial line
parameter settings.
      #// N/A
    #} Com. settings

#{ Position #// Position input settings.
      #* None               [1] [1]
      #* GGK                [1] [0]
      #* GGA                [1] [0]
      #* GGA_RTK            [1] [0]
      #* SIMRAD90           [1] [0]
    #} Position

#{ Input Formats #// Format input
settings.
      #* Attitude           [0] [0]
      #* MK39 Mod2 Attitude,  [0] [0]
      #* ZDA Clock           [1] [0]
      #* HDT Heading         [0] [0]
      #* SKR82 Heading       [0] [0]
      #* DBS Depth           [0] [0]
      #* DPT Depth           [0] [0]
      #* EA500 Depth         [0] [0]
#* ROV.depth          [0] [0]
      #* Height, special purp [0] [0]
      #* Attitude/Velocity    [1] [0]
    #} Input Formats

  #} MCAST3

#{ MCAST4 #// Link settings.

#{ Com. settings #// Serial line
parameter settings.
      #// N/A
    #} Com. settings

#{ Position #// Position input settings.
      #* None               [0] [1]
      #* GGK                [0] [0]
      #* GGA                [0] [0]
      #* GGA_RTK            [0] [0]
      #* SIMRAD90           [0] [0]
    #} Position

#{ Input Formats #// Format input
settings.
      #* Attitude           [0] [0]
      #* MK39 Mod2 Attitude,  [0] [0]
      #* ZDA Clock           [1] [0]
      #* HDT Heading         [0] [0]
      #* SKR82 Heading       [0] [0]
      #* DBS Depth           [0] [0]
      #* DPT Depth           [0] [0]
      #* EA500 Depth         [0] [0]
#* ROV.depth          [0] [0]
      #* Height, special purp [0] [0]
      #* Attitude/Velocity    [1] [0]
    #} Input Formats

  #} MCAST4


#{ Misc. #// Misc. input settings.
    #* External Trigger     [1] [0]
#} Misc.

#} Input Setup

#{ Output Setup #// All Output setup
parameters

  #* Log watercolumn to s [1] [1]

#{ Host UDP1 #// Host UDP1 Port:
16100

#{ Datagram subscription #//
      #* Depth              [0] [0]
      #* Raw range and beam a [0] [0]
      #* Seabed Image        [0] [0]
      #* Central Beams       [0] [0]
      #* Position            [0] [0]
      #* Attitude            [0] [0]
      #* Heading              [0] [0]
      #* Height              [0] [0]
      #* Clock               [0] [0]
      #* Single beam echosoun [0] [0]
      #* Sound Speed Profile  [0] [1]
      #* Runtime Parameters   [0] [1]
      #* Installation Paramet [0] [1]
      #* BIST Reply          [0] [1]
      #* Status parameters    [0] [1]
      #* PU Broadcast        [0] [0]
      #* Detection quality    [0] [0]
      #* Stave Display       [0] [0]
      #* Water Column         [0] [0]
      #* Internal, Range Data [0] [0]
      #* Internal, Scope Data [0] [0]
    #} Datagram subscription

  #} Host UDP1


#{ Host UDP2 #// Host UDP2 Port:
16101

#{ Datagram subscription #//
      #* Depth              [1] [1]
      #* Raw range and beam a [1] [1]
      #* Seabed Image        [1] [1]
      #* Central Beams       [1] [0]
      #* Position            [1] [1]
      #* Attitude            [1] [1]
      #* Heading              [1] [1]
      #* Height              [1] [1]
      #* Clock               [1] [1]
      #* Single beam echosoun [1] [1]
      #* Sound Speed Profile  [0] [1]
      #* Runtime Parameters   [0] [1]
      #* Installation Paramet [0] [1]
      #* BIST Reply          [1] [1]
      #* Status parameters    [0] [1]
      #* PU Broadcast        [1] [0]
      #* Detection quality    [1] [0]
      #* Stave Display       [0] [1]
      #* Water Column         [0] [1]
      #* Internal, Range Data [1] [0]
      #* Internal, Scope Data [1] [0]
    #} Datagram subscription

  #} Host UDP2


#{ Host UDP3 #// Host UDP3 Port:
16102

#{ Datagram subscription #//
      #* Depth              [0] [1]
      #* Raw range and beam a [0] [0]
      #* Seabed Image        [0] [0]
      #* Central Beams       [0] [0]
      #* Position            [0] [0]
      #* Attitude            [0] [1]
      #* Heading              [0] [0]
      #* Height              [0] [1]
      #* Clock               [0] [0]
      #* Single beam echosoun [0] [1]
      #* Sound Speed Profile  [0] [1]
      #* Runtime Parameters   [0] [0]
      #* Installation Paramet [0] [1]
      #* BIST Reply          [0] [0]
      #* Status parameters    [0] [0]
      #* PU Broadcast        [0] [0]
      #* Detection quality    [0] [0]
      #* Stave Display       [0] [0]
      #* Water Column         [0] [0]
      #* Internal, Range Data [0] [0]
      #* Internal, Scope Data [0] [1]
    #} Datagram subscription

  #} Host UDP3


#{ Host UDP4 #// Host UDP4 Port
16103

#{ Datagram subscription #//
```

```
        #* Depth              [1] [1]
        #* Raw range and beam a [1] [0]
        #* Seabed Image       [1] [0]
        #* Central Beams      [1] [0]
        #* Position           [1] [1]
        #* Attitude           [1] [0]
        #* Heading            [1] [0]
        #* Height             [1] [0]
        #* Clock              [1] [0]
        #* Single beam echosoun [1] [0]
        #* Sound Speed Profile  [1] [1]
        #* Runtime Parameters   [1] [1]
        #* Installation Paramet [1] [0]
        #* BIST Reply          [1] [0]
        #* Status parameters    [1] [0]
        #* PU Broadcast        [1] [0]
        #* Detection quality    [1] [0]
        #* Stave Display       [1] [0]
        #* Water Column        [1] [0]
        #* Internal, Range Data [1] [0]
        #* Internal, Scope Data [1] [0]
    #} Datagram subscription

  #} Host UDP4


#{Watercolumn #// Host UDP4 Port
16103

#{ Datagram subscription #//
        #* Depth              [1] [0]
        #* Raw range and beam a [1] [0]
        #* Seabed Image       [1] [0]
        #* Central Beams      [1] [0]
        #* Position           [1] [1]
        #* Attitude           [1] [1]
        #* Heading            [1] [1]
        #* Height             [1] [0]
        #* Clock              [1] [0]
        #* Single beam echosoun [1] [0]
        #* Sound Speed Profile  [1] [1]
        #* Runtime Parameters   [1] [1]
        #* Installation Paramet [1] [1]
        #* BIST Reply          [1] [0]
        #* Status parameters    [1] [0]
        #* PU Broadcast        [1] [0]
        #* Detection quality    [1] [0]
        #* Stave Display       [1] [0]
        #* Water Column        [1] [1]
        #* Internal, Range Data [1] [0]
        #* Internal, Scope Data [1] [0]
    #} Datagram subscription

  #} Watercolumn

#} Output Setup

#{ Clock Setup #// All Clock setup
parameters

#{ Clock #// All clock settings.
    #* Source:           [1] #// External
ZDA Clock
    #* 1PPS Clock Synch.   [1] #//
Falling Edge
    #* Offset (sec.):     [0]
  #} Clock

#} Clock Setup

#{ Settings #// Sensor setup parameters

#{ Positioning System Settings #//
Position related settings.

#{ COM1 #// Positioning System Ports:
        #* P1S              [1] #// Serial
        #* P1T              [1] #// Datagram
        #* P1M              [0] #// Enable
position motion correction
        #* P1D              [0.000] #//
Position delay (sec.):
        #* P1G              [WGS84] #//
Datum:
        #* P1Q              [1] #// Enable
        #* Pos. qual. indicator [] #//
    #} COM1

  #} Positioning System Settings

#{ Attitude Sensor Settings #// Attitude
related settings.

#{ COM2 #// Attitude Sensor Ports:
        #* MRP              [RP] #//
Rotation (POSMV/MRU)
        #* MSD              [0] #// Attitude
Delay (msec.):
        #* MAS              [1.00] #//
Motion Sensor Roll Scaling:
    #} COM2

#{ UDP5 #// Attitude Sensor Ports:
        #* MRP              [RP] #//
Rotation (POSMV/MRU)
        #* MSD              [0] #// Attitude
Delay (msec.):
        #* MAS              [1.00] #//
Motion Sensor Roll Scaling:
    #} UDP5

  #} Attitude Sensor Settings

#{ Active Sensors #//
    #* APS              [0] [COM1] #//
Position:
    #* ARO              [2] [COM2] #//
Attitude:
    #* AHE              [2] [COM2] #//
Attitude:
    #* AHS              [2] [COM2] #//
Heading:
    #* VSN              [1] [UDP5] #//
Velocity:
  #} Active Sensors

#} Settings

#{ Locations #// All location parameters

#{ Location offset (m) #//

#{Pos, COM1: #//
        #* P1X              [0.00] #//
Forward (X)
        #* P1Y              [0.00] #//
Starboard (Y)
        #* P1Z              [0.00] #//
Downward (Z)
    #} Pos, COM1:

#{Pos, COM3: #//
        #* P2X              [0.00] #//
Forward (X)
        #* P2Y              [0.00] #//
Starboard (Y)
        #* P2Z              [0.00] #//
Downward (Z)
    #} Pos, COM3:

#{Pos, COM4/UDP2: #//
        #* P3X              [0.00] #//
Forward (X)
        #* P3Y              [0.00] #//
Starboard (Y)
        #* P3Z              [0.00] #//
Downward (Z)
    #} Pos, COM4/UDP2:

#{ TX Transducer: #//
        #* S1X              [6.147] #//
Forward (X)
        #* S1Y              [1.822] #//
Starboard (Y)
        #* S1Z              [6.796] #//
Downward (Z)
    #} TX Transducer:

#{ RX Transducer: #//
        #* S2X              [2.497] #//
Forward (X)
        #* S2Y              [2.481] #//
Starboard (Y)
        #* S2Z              [6.790] #//
Downward (Z)
    #} RX Transducer:

#{ Attitude 1, COM2/UDP5: #//
        #* MSX              [0.00] #//
Forward (X)
        #* MSY              [0.00] #//
Starboard (Y)
        #* MSZ              [0.00] #//
Downward (Z)
    #} Attitude 1, COM2/UDP5:

#{ Attitude 2, COM3/UDP6: #//
        #* NSX              [0.00] #//
Forward (X)
        #* NSY              [0.00] #//
Starboard (Y)
        #* NSZ              [0.00] #//
Downward (Z)
    #} Attitude 2, COM3/UDP6:

#{ Waterline: #//
        #* WLZ              [4.42] #//
Downward (Z)
    #} Waterline:

  #} Location offset (m)

#} Locations

#{ Angular Offsets #// All angular offset
parameters

#{ Offset angles (deg.) #//

#{ TX Transducer: #//
```

```
        #* S1R              [0.00] #// Roll
        #* S1P              [0.00] #// Pitch
        #* S1H              [359.98] #//
Heading
#* SonarHead1 orient.  [1] #// 1=port,
2=starb.
    #} TX Transducer:

#{ RX Transducer: #//
        #* S2R              [0.00] #// Roll
        #* S2P              [0.00] #// Pitch
        #* S2H              [0.03] #//
Heading
#* SonarHead2 orient.  [1] #// 1=forw.,
2=aft
    #} RX Transducer:

#{ Attitude 1, COM2/UDP5: #//
        #* MSR              [0.00] #// Roll
        #* MSP              [-0.725] #//
Pitch
        #* MSG              [.07] #//
Heading
    #} Attitude 1, COM2/UDP5:

#{ Attitude 2, COM3/UDP6: #//
        #* NSR              [0.00] #// Roll
        #* NSP              [0.00] #// Pitch
        #* NSG              [0.00] #//
Heading
    #} Attitude 2, COM3/UDP6:

#{ Stand-alone Heading: #//
        #* GCG              [0.00] #//
Heading
    #} Stand-alone Heading:

  #} Offset angles (deg.)

#} Angular Offsets

#{ ROV. Specific #// All ROV specific
parameters

#{ Depth/Pressure Sensor #//
    #* DSF              [1.00] #// Scaling:
    #* DSO              [0.00] #// Offset:
    #* DSD              [0.00] #// Delay
(msec.):
    #* DSH              [NI] #// Disable
Heave Sensor
  #} Depth/Pressure Sensor

#} ROV. Specific

#{ System Parameters #// All system
parameters

#{ System Gain Offset #//
    #* GO1              [0.0] #// BS
Offset (dB)
  #} System Gain Offset

#{ Opening angles #//
    #* S1S              [0] #// TX
Opening angle: 0.5
    #* S2S              [1] #// RX
Opening angle: 1
  #} Opening angles

#{ Misc. parameters #//
    #* SNL              [0] #// Ship's
noise level: NORMAL
  #} Misc. parameters

#} System Parameters

#//
**********
**********
***
#// Runtime parameters


#{ Sounder Main #//

#{ Sector Coverage #//

#{ Max. angle (deg.): #//
        #* MPA              [75] #// Port
        #* MSA              [75] #//
Starboard
#} Max.angle (deg.):

#{ Max. Coverage (m): #//
        #* MPC              [5000] #// Port
        #* MSC              [5000] #//
Starboard
#} Max. Coverage (m):

    #* ACM              [1] #// Angular
Coverage mode: AUTO
    #* BSP              [2] #// Beam
Spacing: HD EQDST

  #} Sector Coverage

#{ Depth Settings #//
    #* FDE              [350] #// Force
Depth (m):
    #* MID              [50] #// Min.
Depth (m):
    #* MAD              [3000] #// Max.
Depth (m):
    #* DSM              [2] #// Dual
swath mode: DYNAMIC
    #* PMO              [0] #// Ping
Mode: AUTO
    #* FME              [1] #// FM
disable
  #} Depth Settings

#{ Stabilization #//
#// For EM 122, EM 302, EM 710, EM
2040, EM 2040C, EM 2040Q this block
is now called Transmit Control in SIS
GUI.
    #* YPS              [1] #// Pitch
stabilization
    #* MPK              [0.0] #// Min.
Swath Dist. (m)        Required
minimum distance between individual
swats. 0 is off.
    #* TXA              [0] #// Along
Direction (deg.):

#{ Yaw Stabilization #//
        #* YSM              [2] #// Mode:
REL. MEAN HEADING
        #* YMA              [300] #//
Heading:
        #* HFI              [1] #// Heading
filter: MEDIUM
    #} Yaw Stabilization

#{ 3D Scanning #//
        #* Enable scanning     [1] [0]
        #* SM1              [-10] #// Min.
(deg.):
        #* SM2              [10] #// Max.
(deg.):
        #* SCS              [0.0] #// Step
(deg.):
    #} 3D Scanning

  #} Stabilization
#} Sounder Main

#{ Sound Speed #//

#{ Sound Speed at Transducer #//
    #* SHS              [0] #// Source
SENSOR
    #* SST              [15000] #// Sound
Speed (dm/sec.):
    #* Sensor Offset (m/sec [0] #//
    #* Filter (sec.):      [4] #//
  #} Sound Speed at Transducer

#} Sound Speed

#{ Filter and Gains #//

#{ Filtering #//
    #* SFS              [2] #// Spike Filter
Strength: MEDIUM
    #* PEF              [0] #// Penetration
Filter Strength: OFF
    #* RGS              [1] #// Range
Gate: NORMAL
    #* PHR              [1] #// Phase
ramp: NORMAL
    #* SLF              [0] #// Slope
    #* AEF              [0] #// Aeration
    #* STF              [0] #// Sector
Tracking
    #* IFF              [0] #// Interference
  #} Filtering

#{ Absorption Coefficient #//
    #* Source:           [0] #// Salinity.
Note: This is not a PU parameter.
    #* ABS315            [6.215] #// 31.5
kHz
  #} Absorption Coefficient

#{ Backscatter Adjustment #//
    #* TCA              [6] #// Normal
incidence corr. (deg.):
    #* BIC              [0] #// Use
Lambert's law
  #} Backscatter Adjustment


#{ Mammal protection #//
    #* TXP              [0] #// TX power
level (dB): Max.
    #* SSR              [5] #// Soft startup
ramp time (min.):
```

```
  #} Mammal protection

#{ Water Column #//
    #* WCX              [30] #// log R
    #* WCO              [20] #// dB
Offset
  #} Water Column

#{ Special Mode #//
    #* SOM              [0] #// Sonar
    #* PAM              [0] #// Passive
  #} Special Mode
#} Filter and Gains

#{ Data Cleaning #//
  #* Number of user rules [1]
  #* User rule 1        [STANDARD] #//

  #* Active rule:       [AUTOMATIC1]
#//

#{ AUTOMATIC1 #//
    #* PingProc.maxPingCountRadius
[10]
    #* PingProc.radiusFactor
[0.050000]
    #* PingProc.medianFactor
[1.500000]
    #* PingProc.beamNumberRadius
[3]
    #* PingProc.sufficientPointCount
[40]
    #* PingProc.neighborhoodType
[Elliptical]
    #* PingProc.timeRule.use
[false]
    #* PingProc.overhangRule.use
[false]
    #* PingProc.medianRule.use
[false]
    #*
PingProc.medianRule.depthFactor
[0.050000]
    #*
PingProc.medianRule.minPointCount
[6]
    #* PingProc.quantileRule.use
[false]
    #* PingProc.quantileRule.quantile
[0.100000]
    #*
PingProc.quantileRule.scaleFactor
[6.000000]
    #*
PingProc.quantileRule.minPointCount
[40]
    #* GridProc.minPoints
[8]
    #* GridProc.depthFactor
[0.200000]
    #* GridProc.removeTooFewPoints
[false]
    #*
GridProc.surfaceFitting.surfaceDegree
[1]
    #*
GridProc.surfaceFitting.tukeyConstant
[6.000000]
    #*
GridProc.surfaceFitting.maxIteration
[10]
    #*
GridProc.surfaceFitting.convCriterion
[0.010000]
    #*
GridProc.surfaceDistanceDepthRule.use
[false]
    #*
GridProc.surfaceDistanceDepthRule.dep
thFactor      [0.050000]
    #*
GridProc.surfaceDistancePointRule.use
[false]
    #*
GridProc.surfaceDistancePointRule.scal
eFactor      [1.000000]
    #*
GridProc.surfaceDistanceUnitRule.use
[false]
    #*
GridProc.surfaceDistanceUnitRule.scale
Factor       [1.000000]
    #*
GridProc.surfaceDistanceStDevRule.use
[false]
    #*
GridProc.surfaceDistanceStDevRule.scal
eFactor      [2.000000]
    #* GridProc.surfaceAngleRule.use
[false]
    #*
GridProc.surfaceAngleRule.minAngle
[20.000000]
    #* SonarProc.use
[false]
    #* SonarProc.gridSizeFactor
[4]
    #* SonarProc.mergerType
[Average]
    #* SonarProc.interpolatorType
[TopHat]
    #* SonarProc.interpolatorRadius
[1]
    #* SonarProc.fillInOnly
[true]
  #} AUTOMATIC1
#{ STANDARD #//
    #* PingProc.maxPingCountRadius
[10]
    #* PingProc.radiusFactor
[0.050000]
    #* PingProc.medianFactor
[1.500000]
    #* PingProc.beamNumberRadius
[3]
    #* PingProc.sufficientPointCount
[40]
    #* PingProc.neighborhoodType
[Elliptical]
    #* PingProc.timeRule.use
[false]
    #* PingProc.overhangRule.use
[false]
    #* PingProc.medianRule.use
[false]
    #*
PingProc.medianRule.depthFactor
[0.050000]
    #*
PingProc.medianRule.minPointCount
[6]
    #* PingProc.quantileRule.use
[false]
    #* PingProc.quantileRule.quantile
[0.100000]
    #*
PingProc.quantileRule.scaleFactor
[6.000000]
    #*
PingProc.quantileRule.minPointCount
[40]
    #* GridProc.minPoints
[8]
    #* GridProc.depthFactor
[0.200000]
    #* GridProc.removeTooFewPoints
[false]
    #*
GridProc.surfaceFitting.surfaceDegree
[1]
    #*
GridProc.surfaceFitting.tukeyConstant
[6.000000]
    #*
GridProc.surfaceFitting.maxIteration
[10]
    #*
GridProc.surfaceFitting.convCriterion
[0.010000]
    #*
GridProc.surfaceDistanceDepthRule.use
[false]
    #*
GridProc.surfaceDistanceDepthRule.dep
thFactor      [0.050000]
    #*
GridProc.surfaceDistancePointRule.use
[false]
    #*
GridProc.surfaceDistancePointRule.scal
eFactor      [1.000000]
    #*
GridProc.surfaceDistanceUnitRule.use
[false]
    #*
GridProc.surfaceDistanceUnitRule.scale
Factor       [1.000000]
    #*
GridProc.surfaceDistanceStDevRule.use
[false]
    #*
GridProc.surfaceDistanceStDevRule.scal
eFactor      [2.000000]
    #* GridProc.surfaceAngleRule.use
[false]
    #*
GridProc.surfaceAngleRule.minAngle
[20.000000]
    #* SonarProc.use
[false]
    #* SonarProc.gridSizeFactor
[4]
    #* SonarProc.mergerType
[Average]
    #* SonarProc.interpolatorType
[TopHat]
    #* SonarProc.interpolatorRadius
[1]
```

#* SonarProc.fillInOnly [true]
#} STANDARD

#{ Seabed Image Processing #//
#* Seabed Image Process [1] [0]
#} Seabed Image Processing
#} Data Cleaning

#{ Advanced param. #//
#} Advanced param.

Appendix E: EM 302 Built In System Test (BIST) Results

Saved: 2015.03.16 14:28:08

Sounder Type: 302, Serial no.: 101

Date Time Ser. No. BIST Result

2015.03.16 14:17:33.306 101 0 OK

Number of BSP67B boards: 2

BSP 1 Master 2.2.3 090702 4.3 070913 4.3 070913

BSP 1 Slave 2.2.3 090702 4.4 070911

BSP 1 RXI FPGA 3.6 080821

BSP 1 DSP FPGA A 4.0 070531

BSP 1 DSP FPGA B 4.0 070531

BSP 1 DSP FPGA C 4.0 070531

BSP 1 DSP FPGA D 4.0 070531

BSP 1 PCI TO SLAVE A1 FIFO: ok

BSP 1 PCI TO SLAVE A2 FIFO: ok

BSP 1 PCI TO SLAVE A3 FIFO: ok

BSP 1 PCI TO SLAVE B1 FIFO: ok

BSP 1 PCI TO SLAVE B2 FIFO: ok

BSP 1 PCI TO SLAVE B3 FIFO: ok

BSP 1 PCI TO SLAVE C1 FIFO: ok

BSP 1 PCI TO SLAVE C2 FIFO: ok

BSP 1 PCI TO SLAVE C3 FIFO: ok

BSP 1 PCI TO SLAVE D1 FIFO: ok

BSP 1 PCI TO SLAVE D2 FIFO: ok

BSP 1 PCI TO SLAVE D3 FIFO: ok

BSP 1 PCI TO MASTER A HPI: ok

BSP 1 PCI TO MASTER B HPI: ok

BSP 1 PCI TO MASTER C HPI: ok

BSP 1 PCI TO MASTER D HPI: ok

BSP 1 PCI TO SLAVE A1 HPI: ok

BSP 1 PCI TO SLAVE A2 HPI: ok

BSP 1 PCI TO SLAVE A3 HPI: ok

BSP 1 PCI TO SLAVE B1 HPI: ok

BSP 1 PCI TO SLAVE B2 HPI: ok

BSP 1 PCI TO SLAVE B3 HPI: ok

BSP 1 PCI TO SLAVE C1 HPI: ok

BSP 1 PCI TO SLAVE C2 HPI: ok

BSP 1 PCI TO SLAVE C3 HPI: ok

BSP 1 PCI TO SLAVE D1 HPI: ok

BSP 1 PCI TO SLAVE D2 HPI: ok

BSP 1 PCI TO SLAVE D3 HPI: ok

BSP 2 Master 2.2.3 090702 4.3 070913 4.3 070913

BSP 2 Slave 2.2.3 090702 4.4 070911

BSP 2 RXI FPGA 3.6 080821

BSP 2 DSP FPGA A 4.0 070531

BSP 2 DSP FPGA B 4.0 070531

BSP 2 DSP FPGA C 4.0 070531

BSP 2 DSP FPGA D 4.0 070531

BSP 2 PCI TO SLAVE A1 FIFO: ok

BSP 2 PCI TO SLAVE A2 FIFO: ok

BSP 2 PCI TO SLAVE A3 FIFO: ok

BSP 2 PCI TO SLAVE B1 FIFO: ok

BSP 2 PCI TO SLAVE B2 FIFO: ok

BSP 2 PCI TO SLAVE B3 FIFO: ok

BSP 2 PCI TO SLAVE C1 FIFO: ok

BSP 2 PCI TO SLAVE C2 FIFO: ok

BSP 2 PCI TO SLAVE C3 FIFO: ok

BSP 2 PCI TO SLAVE D1 FIFO: ok

BSP 2 PCI TO SLAVE D2 FIFO: ok

BSP 2 PCI TO SLAVE D3 FIFO: ok

BSP 2 PCI TO MASTER A HPI: ok

BSP 2 PCI TO MASTER B HPI: ok

BSP 2 PCI TO MASTER C HPI: ok

BSP 2 PCI TO MASTER D HPI: ok

BSP 2 PCI TO SLAVE A1 HPI: ok

BSP 2 PCI TO SLAVE A2 HPI: ok

BSP 2 PCI TO SLAVE A3 HPI: ok

BSP 2 PCI TO SLAVE B1 HPI: ok

BSP 2 PCI TO SLAVE B2 HPI: ok

BSP 2 PCI TO SLAVE B3 HPI: ok

BSP 2 PCI TO SLAVE C1 HPI: ok

BSP 2 PCI TO SLAVE C2 HPI: ok

BSP 2 PCI TO SLAVE C3 HPI: ok

BSP 2 PCI TO SLAVE D1 HPI: ok

BSP 2 PCI TO SLAVE D2 HPI: ok

BSP 2 PCI TO SLAVE D3 HPI: ok

Summary:

BSP 1: OK

BSP 2: OK

2015.03.16 14:17:36.157 101 1 OK

High Voltage Br. 1

TX36 Spec: 90.0 - 145.0

0-1 121.7

0-2 121.7

0-3 120.9

0-4 121.3

0-5 121.3

0-6 121.3

0-7 120.5

0-8 120.1

0-9 121.3

0-10 121.3

0-11 120.5

0-12 120.9

0-13 120.5

0-14 122.1

0-15 120.9

0-16 121.7

0-17 120.5

0-18 120.9

0-19 121.7

0-20 120.9

0-21 121.3

0-22 120.9

0-23 121.7

0-24 120.1

High Voltage Br. 2

TX36 Spec: 90.0 - 145.0

0-1 121.7

0-2 121.3

0-3 120.9

0-4 120.5

0-5 120.9

0-6 120.5

0-7 120.9

0-8 120.5

0-9 121.3

0-10 121.3

0-11 121.3

0-12 121.3

0-13 119.7

0-14 121.7

0-15 121.3

0-16 121.3

0-17 120.9

0-18 120.9

0-19 121.7

0-20 121.3

0-21 121.3

0-22 120.9

0-23 121.3

0-24 120.1

Input voltage 12V

TX36 Spec: 11.0 - 13.0

0-1 11.9

0-2 11.9

0-3 11.9

0-4 11.9

0-5 11.9

0-6 11.9

0-7 11.8

0-8 11.8

0-9 11.8

0-10 11.9

0-11 11.9

0-12 11.8

0-13 11.8

0-14 11.8

0-15 11.9

0-16 11.9

0-17 11.8

0-18 11.8

0-19 11.8

0-20 11.8

0-21 11.9

0-22 11.8

0-23 11.8

0-24 11.8

Digital 3.3V

TX36 Spec: 2.8 - 3.5

0-1 3.3

0-2 3.3

0-3 3.3

0-4 3.3

0-5 3.3

0-6 3.3

0-7 3.3

0-8 3.3

0-9 3.3

0-10 3.3

0-11 3.3

0-12 3.3

0-13 3.3

0-14 3.3

0-15 3.3

0-16 3.3

0-17 3.3

0-18 3.3

0-19 3.3

0-20 3.3

0-21 3.3
0-22 3.3
0-23 3.3
0-24 3.3

Digital 2.5V

TX36 Spec: 2.4 - 2.6
0-1 2.5
0-2 2.5
0-3 2.5
0-4 2.5
0-5 2.5
0-6 2.5
0-7 2.5
0-8 2.5
0-9 2.5
0-10 2.5
0-11 2.5
0-12 2.5
0-13 2.5
0-14 2.5
0-15 2.5
0-16 2.5
0-17 2.5
0-18 2.5
0-19 2.5
0-20 2.5
0-21 2.5
0-22 2.5
0-23 2.5
0-24 2.5

Digital 1.5V

TX36 Spec: 1.4 - 1.6
0-1 1.5
0-2 1.5
0-3 1.5
0-4 1.5
0-5 1.5
0-6 1.5
0-7 1.5
0-8 1.5
0-9 1.5
0-10 1.5
0-11 1.5
0-12 1.5
0-13 1.5
0-14 1.5
0-15 1.5
0-16 1.5
0-17 1.5
0-18 1.5
0-19 1.5
0-20 1.5
0-21 1.5
0-22 1.5
0-23 1.5
0-24 1.5

Temperature

TX36 Spec: 15.0 - 75.0
0-1 27.2
0-2 25.6
0-3 26.4
0-4 26.4
0-5 26.8
0-6 27.2
0-7 27.2
0-8 27.6
0-9 27.2
0-10 24.8
0-11 25.2
0-12 25.6
0-13 27.2
0-14 26.0
0-15 26.8
0-16 25.2
0-17 25.6
0-18 25.2
0-19 25.6
0-20 26.0
0-21 25.6
0-22 24.8
0-23 25.6
0-24 26.4

Input Current 12V

TX36 Spec: 0.3 - 1.5
0-1 0.6
0-2 0.5
0-3 0.5
0-4 0.5
0-5 0.5
0-6 0.6
0-7 0.5
0-8 0.5
0-9 0.5
0-10 0.5
0-11 0.4
0-12 0.5
0-13 0.5
0-14 0.6
0-15 0.6
0-16 0.5
0-17 0.5
0-18 0.7
0-19 0.5
0-20 0.7
0-21 0.6
0-22 0.6
0-23 0.7
0-24 0.5

TX36 power test passed

IO TX PPC Embedded PPC
Download
2.11 1.14 Mar 5 2007/1.07 May 7
2013/1.11

TX36 unique firmware test OK

2015.03.16 14:17:36.457 101 2
OK
Input voltage 12V

RX32 Spec: 11.0 - 13.0
7-1 11.7
7-2 11.7
7-3 11.7
7-4 11.7

Input voltage 6V

RX32 Spec: 5.0 - 7.0
7-1 5.7
7-2 5.7
7-3 5.7
7-4 5.7

Digital 3.3V

RX32 Spec: 2.8 - 3.5
7-1 3.3
7-2 3.3
7-3 3.3
7-4 3.3

Digital 2.5V

RX32 Spec: 2.4 - 2.6
7-1 2.5
7-2 2.5
7-3 2.4
7-4 2.5

Digital 1.5V

RX32 Spec: 1.4 - 1.6
7-1 1.5
7-2 1.5
7-3 1.5
7-4 1.5

Temperature

RX32 Spec: 15.0 - 75.0
7-1 24.0
7-2 26.0
7-3 26.0
7-4 22.0

Input Current 12V

RX32 Spec: 0.4 - 1.5
7-1 0.7
7-2 0.7
7-3 0.7
7-4 0.6

Input Current 6V

RX32 Spec: 2.4 - 3.3
7-1 2.7
7-2 2.8
7-3 2.9
7-4 2.8

RX32 power test passed

IO RX MB Embedded PPC Embedded PPC Download
1.12 1.14 May 5 2006/1.06 May 5 2006/1.07 Feb 18 2010/1.11

RX32 unique firmware test OK

2015.03.16 14:17:36.590 101 3
OK
High Voltage Br. 1

TX36 Spec: 90.0 - 145.0
0-1 121.7
0-2 121.3
0-3 120.9
0-4 121.3
0-5 121.3
0-6 121.3
0-7 120.5
0-8 120.1
0-9 121.3
0-10 121.7
0-11 120.5
0-12 120.9
0-13 120.5
0-14 122.1
0-15 120.9
0-16 121.7
0-17 120.5
0-18 120.9
0-19 121.7
0-20 120.9
0-21 121.3
0-22 120.9
0-23 121.7
0-24 119.7

High Voltage Br. 2

TX36 Spec: 90.0 - 145.0
0-1 121.7
0-2 121.3
0-3 120.9
0-4 120.5
0-5 120.9
0-6 120.5
0-7 120.9
0-8 120.5
0-9 121.3
0-10 121.3
0-11 121.3
0-12 121.3
0-13 120.1
0-14 121.7
0-15 121.7
0-16 121.3
0-17 120.9
0-18 120.9
0-19 121.7
0-20 121.7
0-21 121.3
0-22 120.9
0-23 121.3
0-24 120.1

Input voltage 12V

TX36 Spec: 11.0 - 13.0
0-1 11.9
0-2 11.9
0-3 11.9
0-4 11.9
0-5 11.9
0-6 11.9
0-7 11.8
0-8 11.8
0-9 11.8
0-10 11.9
0-11 11.9
0-12 11.8
0-13 11.8
0-14 11.8
0-15 11.9
0-16 11.9
0-17 11.8
0-18 11.8
0-19 11.8
0-20 11.8
0-21 11.9
0-22 11.8
0-23 11.8
0-24 11.8

RX32 Spec: 11.0 - 13.0
7-1 11.6
7-2 11.7
7-3 11.7
7-4 11.7

Input voltage 6V

RX32 Spec: 5.0 - 7.0
7-1 5.7
7-2 5.7
7-3 5.7
7-4 5.7

TRU power test passed

2015.03.16 14:17:36.773 101 4
OK
EM 302 High Voltage Ramp Test
Test Voltage:20.00 Measured Voltage: 18.00 PASSED
Test Voltage:40.00 Measured Voltage: 38.00 PASSED
Test Voltage:60.00 Measured Voltage: 59.00 PASSED
Test Voltage:80.00 Measured Voltage: 79.00 PASSED
Test Voltage:100.00 Measured Voltage: 100.00 PASSED
Test Voltage:120.00 Measured Voltage: 119.00 PASSED
Test Voltage:120.00 Measured Voltage: 119.00 PASSED
Test Voltage:100.00 Measured Voltage: 106.00 PASSED
Test Voltage:80.00 Measured Voltage: 85.00 PASSED
Test Voltage:60.00 Measured Voltage: 65.00 PASSED
Test Voltage:40.00 Measured Voltage: 45.00 PASSED

11 of 11 tests OK

2015.03.16 14:20:12.633 101 5
OK

BSP 1 RXI TO RAW FIFO: ok
BSP 2 RXI TO RAW FIFO: ok

2015.03.16 14:20:18.100 101 6
OK
Receiver impedance limits [600.0 1000.0] ohm
Board 1 2 3 4
1: 852.0 852.0 818.8 860.7
2: 830.5 844.6 824.8 863.8
3: 811.3 848.4 852.1 858.2
4: 836.6 833.7 843.6 854.9
5: 841.8 844.2 773.4 867.2
6: 847.0 854.9 833.1 868.7
7: 833.0 853.4 839.7 873.0
8: 836.1 843.6 857.4 848.7
9: 362.4* 845.0 830.5 842.2
10: 812.7 858.6 791.8 857.0
11: 835.2 835.2 838.1 842.2
12: 840.1 811.8 831.8 379.0*
13: 839.1 834.7 823.1 854.0
14: 823.1 838.0 858.5 857.0
15: 817.9 848.1 852.2 852.7
16: 843.7 828.9 855.2 846.9
17: 819.8 974.3 848.8 855.5
18: 839.7 832.0 860.1 862.7
19: 810.0 837.4 825.7 850.7
20: 825.2 874.5 850.9 857.1
21: 852.7 842.3 889.9 860.9
22: 871.5 849.2 837.7 860.2
23: 863.3 866.6 855.1 860.1
24: 874.1 887.2 874.0 869.6
25: 834.1 841.3 849.3 862.5
26: 837.8 832.4 853.9 856.7
27: 820.4 838.3 847.1 858.4
28: 808.3 834.8 820.9 857.0
29: 809.9 852.4 841.3 858.2
30: 848.7 832.2 848.6 860.3
31: 823.7 831.4 854.4 848.4
32: 846.7 876.3 858.3 861.7

Transducer impedance limits [250.0 2000.0] ohm
Board 1 2 3 4
1: 325.6 351.2 352.1 354.4
2: 345.1 356.4 354.3 353.6
3: 332.8 337.4 361.5 343.2
4: 333.8 352.1 369.9 346.9
5: 326.3 361.4 373.2 334.8
6: 316.9 340.1 346.8 347.3

```
 7: 329.6  345.6  378.4  354.8
 8: 324.9  335.2  352.7  356.0
 9: 148.6* 351.2  370.5  352.2
10: 349.4  344.2  366.4  345.1
11: 319.9  356.4  354.6  355.8
12: 329.7  364.4  356.9  145.2*
13: 327.3  338.7  371.3  340.0
14: 352.1  344.1  366.4  333.7
15: 320.9  340.3  364.0  329.4
16: 322.3  353.6  365.1  334.2
17: 322.5  339.3  348.7  347.1
18: 338.5  348.6  359.4  351.8
19: 343.0  351.6  358.9  353.8
20: 340.2  337.9  354.3  334.8
21: 333.5  344.4  344.1  349.2
22: 346.2  353.9  369.5  344.9
23: 354.1  341.5  352.2  351.9
24: 349.9  353.0  348.3  333.8
25: 338.1  362.8  358.7  345.8
26: 340.6  365.5  358.3  349.9
27: 334.6  353.2  361.3  349.8
28: 351.8  361.4  359.7  334.4
29: 346.5  358.3  369.6  348.6
30: 323.7  341.9  344.0  361.3
31: 339.1  361.4  354.7  349.2
32: 333.7  354.4  350.3  347.5

Receiver Phase limits [-50.0 20.0] deg
Board  1     2     3     4
 1: -1.9    2.9   5.0   2.0
 2:  0.5    0.2   3.7   0.7
 3:  3.6   -1.4  -1.0   0.0
 4: -0.6    3.0   0.8   0.5
 5: -1.1    1.8   9.3  -1.1
 6: -2.8   -2.0   0.7  -1.8
 7:  1.2    0.0   2.5  -1.0
 8: -1.4    0.9  -4.3   1.0
 9:  0.0    3.2   3.0   2.1
10:  3.4   -2.6   6.8  -0.3
11: -2.7    3.1  -1.5   3.2
12: -0.8    5.4   0.5  -0.5
13:  0.5    2.1   3.8  -0.7
14:  2.1    0.8  -0.6  -1.7
15:  1.2   -3.5  -1.8   0.2
16: -1.9    3.7  -2.5  -1.6
17:  0.6  -29.2  -1.4   1.6
18: -2.8    5.1  -3.3  -1.9
19:  2.2    3.5   0.5   2.5
20:  1.8   -3.5  -1.1   1.0
21: -0.5    3.5  -7.5  -1.9
22: -2.3   -0.6   1.2  -1.3
23:  0.0   -3.0  -0.3  -1.8
24: -2.6   -3.7  -4.3  -2.8
25: -0.2    2.5   0.8   0.4
26: -1.0    5.2  -4.1  -0.2
27:  2.0   -0.4  -0.5  -0.3
28:  5.8    0.5   1.6  -1.4
29:  2.8    2.1   0.6   0.3
30: -2.9    1.6  -1.6   1.6
31:  1.2    2.5  -2.2   3.3
32: -3.3   -3.8  -2.7  -0.3

Transducer Phase limits [-100.0 0.0] deg
Board  1     2     3     4
 1: -33.6  -36.0  -33.9  -32.5
 2: -36.3  -36.1  -31.6  -37.1
 3: -30.4  -40.0  -34.4  -34.9
 4: -37.2  -34.0  -37.6  -28.9
 5: -37.2  -38.1  -35.8  -30.9
 6: -35.3  -33.3  -34.8  -30.9
 7: -33.4  -37.8  -35.1  -31.9
 8: -35.5  -38.2  -41.6  -30.9
 9: -37.2  -34.1  -34.6  -32.7
10: -40.6  -37.2  -28.3  -27.8
11: -37.4  -36.5  -42.1  -30.6
12: -34.4  -34.0  -42.9  -32.0
13: -34.8  -40.2  -33.3  -35.4
14: -36.4  -41.7  -35.4  -32.1
15: -29.9  -44.4  -37.7  -23.9
16: -37.1  -36.4  -35.1  -31.8
17: -27.6  -67.2  -39.5  -29.1
18: -33.1  -31.6  -38.8  -32.3
19: -34.3  -34.5  -34.3  -31.3
20: -32.7  -38.9  -41.4  -30.7
21: -32.3  -35.5  -36.4  -31.3
22: -35.6  -38.5  -32.2  -30.3
23: -34.9  -41.1  -33.7  -29.5
24: -35.7  -38.1  -39.1  -25.0
25: -28.9  -33.4  -35.5  -30.5
26: -40.6  -34.8  -35.0  -32.8
27: -31.6  -36.2  -34.8  -32.6
28: -35.4  -36.8  -33.2  -29.8
29: -36.8  -37.9  -37.8  -28.7
30: -33.5  -36.1  -38.5  -26.2
31: -39.3  -38.7  -35.0  -23.3
32: -39.2  -38.3  -35.7  -33.6
Rx Channels test passed

------------------------------------------------
---------------------------------
2015.03.16 14:20:46.269  101        7
OK
Tx Channels test passed

------------------------------------------------
---------------------------------
2015.03.16 14:23:27.262  101        8
OK
RX NOISE LEVEL

Board No: 1        2         3         4

 0:      68.2      65.9      66.7      66.2
dB
 1:      68.3      65.9      68.8      65.4
dB
 2:      67.0      65.4      69.2      64.9
dB
 3:      67.4      66.0      67.5      65.3
dB
 4:      66.1      68.0      68.3      65.5
dB
 5:      65.2      66.2      66.0      66.2
dB
 6:      65.7      66.3      65.9      65.7
dB
 7:      66.2      65.9      67.0      66.6
dB
 8:      60.1      65.4      68.2      65.1
dB
 9:      65.6      64.9      66.0      67.5
dB
10:      65.3      66.3      68.3      66.9
dB
11:      65.8      68.3      66.1      60.3
dB
12:      65.6      65.9      65.9      65.0
dB
13:      65.5      65.9      67.0      64.9
dB
14:      65.1      67.2      67.7      64.3
dB
15:      65.0      66.4      65.6      65.6
dB
16:      65.1      68.0      64.4      64.1
dB
17:      66.1      65.0      65.3      65.7
dB
18:      65.4      65.5      64.7      66.6
dB
19:      65.7      65.6      66.3      67.8
dB
20:      66.1      64.8      64.9      66.8
dB
21:      65.8      65.1      65.1      64.8
dB
22:      66.3      65.5      66.7      64.4
dB
23:      65.5      65.8      64.9      67.1
dB
24:      65.7      66.8      66.3      65.8
dB
25:      67.8      65.1      64.0      64.6
dB
26:      65.6      64.8      66.9      65.9
dB
27:      67.0      65.4      70.0      67.3
dB
28:      66.1      67.8      67.7      67.3
dB
29:      64.9      68.9      64.2      66.9
dB
30:      65.6      66.8      65.3      66.3
dB
31:      66.9      65.0      64.7      67.1
dB

Maximum noise at Board 3 Channel 27
Level:  70.0 dB

Broadband noise test
------------------
Average noise at Board 1   66.0 dB
OK
Average noise at Board 2   66.3 dB
OK
Average noise at Board 3   66.7 dB
OK
Average noise at Board 4   65.9 dB
OK

------------------------------------------------
---------------------------------
2015.03.16 14:23:34.096  101        9
OK
RX NOISE SPECTRUM

Board No:    1        2        3        4

26.1 kHz:    66.6     66.3     65.5
65.7   dB
26.3 kHz:    66.6     65.8     65.6
65.8   dB
26.5 kHz:    66.2     65.6     66.0
65.9   dB
```

26.7 kHz: 66.7 66.3 66.4 65.8 dB
26.9 kHz: 66.8 65.9 66.3 65.7 dB
27.1 kHz: 66.9 67.0 66.7 65.2 dB
27.3 kHz: 67.1 66.1 66.1 65.2 dB
27.5 kHz: 67.2 66.0 65.7 65.4 dB
27.7 kHz: 66.6 65.8 66.4 65.3 dB
27.9 kHz: 66.4 65.9 66.1 65.8 dB
28.1 kHz: 66.6 67.0 66.5 65.4 dB
28.3 kHz: 65.9 66.1 65.7 65.2 dB
28.5 kHz: 65.7 65.7 65.9 64.8 dB
28.7 kHz: 66.4 66.3 66.0 65.3 dB
28.9 kHz: 66.7 65.3 66.3 65.3 dB
29.1 kHz: 67.2 66.3 66.1 65.2 dB
29.3 kHz: 66.6 66.3 66.4 64.8 dB
29.5 kHz: 66.6 65.9 65.4 64.8 dB
29.7 kHz: 66.0 65.6 65.1 65.1 dB
29.9 kHz: 65.9 65.7 65.1 65.2 dB
30.1 kHz: 65.9 65.4 64.7 64.6 dB
30.3 kHz: 65.2 65.3 64.5 64.3 dB
30.5 kHz: 65.8 65.0 64.6 64.5 dB
30.7 kHz: 65.6 65.1 64.9 64.4 dB
30.9 kHz: 65.3 65.5 64.4 64.5 dB
31.1 kHz: 65.1 64.6 64.8 64.6 dB
31.4 kHz: 65.4 64.3 64.6 63.9 dB
31.6 kHz: 65.6 64.0 64.1 63.7 dB
31.8 kHz: 65.0 64.2 64.0 64.0 dB
32.0 kHz: 64.7 64.1 63.9 63.9 dB
32.2 kHz: 65.3 64.1 64.5 64.1 dB
32.4 kHz: 64.6 63.8 63.9 63.5 dB
32.6 kHz: 64.5 63.5 63.4 63.2 dB
32.8 kHz: 63.8 63.2 63.3 62.8 dB
33.0 kHz: 63.8 63.2 63.1 62.1 dB
33.2 kHz: 63.7 62.6 62.7 61.8 dB
33.4 kHz: 62.8 62.4 62.2 61.2 dB
33.6 kHz: 62.8 61.6 61.8 61.5 dB
33.8 kHz: 62.4 61.1 60.9 61.0 dB
34.0 kHz: 62.6 60.9 60.5 60.4 dB

Maximum noise at Board 1 Frequency 29.1 kHz Level: 67.2 dB

Spectral noise test

Average noise at Board 1 65.7 dB
OK
Average noise at Board 2 65.1 dB
OK
Average noise at Board 3 65.0 dB
OK
Average noise at Board 4 64.5 dB
OK

2015.03.16 14:23:40.930 101 10
OK
CPU: KOM CP6011
Clock 1795 MHz
Die 29 oC (peak: 32 oC @ 2015-03-16 - 14:20:14)
Board 27 oC (peak: 27 oC @ 2015-03-16 - 14:21:38)
Core 1.34 V
3V3 3.28 V
12V 12.05 V
-12V -12.04 V
BATT 0.00 V
Primary network:
157.237.14.60:0xffff0000
Secondary network:
192.168.2.20:0xffffff00

2015.03.16 14:23:40.997 101 15
OK
EM 302
BSP67B Master: 2.2.3 090702
BSP67B Slave: 2.2.3 090702
CPU: 1.5.7 140129
DDS: 3.5.9 130926
DSV: 3.1.6 130104
RX32 version : Feb 18 2010 Rev 1.11
TX36 LC version : May 7 2013 Rev 1.11
VxWorks 5.5.1 Build 1.2/2-IX0100 May 16 2007, 11:31:17

Appendix F: Data Tables

EX1502L2 MB ACQUISITION / FIELD PROCESSING LOG										
MB LINE FILENAME	**SVP FILE APPLIED**	**SOG (kt)**	**HDG**	**DATE (UTC)**	**MIN LONG (DMS)**	**MAX LONG (DMS)**	**MIN LAT (DMS)**	**MAX LAT (DMS)**	**MIN TIME**	**MAX TIME**
0001_20150316_154153_EX1502L2_MB	EX1502L2_XBT001_150316	8.7	272.4	03/16/2015	066-23-38.50W	066-14-28.65W	18-31-06.00N	18-33-32.18N	2015-03-16 15:41:53.577	2015-03-16 16:41:54.595
0002_20150316_164154_EX1502L2_MB	EX1502L2_XBT001_150316	8.5	271.5	03/16/2015	066-32-36.36W	066-23-32.67W	18-31-32.73N	18-34-03.34N	2015-03-16 16:41:45.094	2015-03-16 17:42:02.609
0003_20150316_174153_EX1502L2_MB	EX1502L2_XBT001_150316	8.8	272.0	03/16/2015	066-41-49.97W	066-32-29.59W	18-31-47.34N	18-34-14.33N	2015-03-16 17:41:43.609	2015-03-16 18:42:03.144
0004_20150316_184154_EX1502L2_MB	EX1502L2_XBT001_150316	9.0	272.6	03/16/2015	066-44-23.88W	066-41-42.57W	18-31-55.03N	18-34-31.55N	2015-03-16 18:41:44.141	2015-03-16 18:57:12.149
0005_20150316_190601_EX1502L2_MB	EX1502L2_XBT001_150316	10.1	88.3	03/16/2015	066-43-34.58W	066-32-45.64W	18-32-30.67N	18-35-33.27N	2015-03-16 19:06:01.628	2015-03-16 20:06:11.146
0006_20150316_200601_EX1502L2_MB	EX1502L2_XBT001_150316	10.5	91.7	03/16/2015	066-32-49.81W	066-21-40.90W	18-32-26.64N	18-35-15.32N	2015-03-16 20:05:51.645	2015-03-16 21:06:09.666
0007_20150316_210600_EX1502L2_MB	EX1502L2_XBT001_150316	10.7	92.2	03/16/2015	066-21-45.62W	066-10-25.68W	18-31-58.85N	18-34-47.45N	2015-03-16 21:05:50.666	2015-03-16 22:06:10.182
0008_20150316_220600_EX1502L2_MB	EX1502L2_XBT001_150316	8.8	91.4	03/16/2015	066-10-31.96W	066-08-43.53W	18-31-53.68N	18-34-21.20N	2015-03-16 22:05:50.683	2015-03-16 22:17:08.684
0009_20150316_221659_EX1502L2_MB	EX1502L2_XBT001_150316	6.5	135.2	03/16/2015	066-09-19.60W	066-07-07.58W	18-31-59.51N	18-33-58.74N	2015-03-16 22:16:49.686	2015-03-16 22:27:30.190
0010_20150316_222730_EX1502L2_MB	EX1502L2_XBT001_150316	5.9	162.1	03/16/2015	066-09-00.58W	066-06-53.91W	18-29-30.98N	18-32-29.97N	2015-03-16 22:27:20.690	2015-03-16 22:54:27.195
0011_20150316_225417_EX1502L2_MB	EX1502L2_XBT001_150316	3.1	105.7	03/16/2015	066-07-35.21W	066-06-59.27W	18-29-21.41N	18-30-30.15N	2015-03-16 22:54:07.698	2015-03-16 22:57:51.197
0012_20150317_183248_EX1502L2_MB	EX1502L2_XBT001_150316	8.8	289.9	03/17/2015	066-15-39.63W	066-07-28.74W	18-28-12.19N	18-31-39.80N	2015-03-17 18:32:48.518	2015-03-17 19:32:50.041
0013_20150317_193250_EX1502L2_MB	EX1502L2_XBT001_150316	8.7	281.8	03/17/2015	066-17-19.34W	066-15-23.80W	18-30-23.05N	18-32-10.65N	2015-03-17 19:32:41.037	2015-03-17 19:43:34.543
0014_20150317_194324_EX1502L2_MB	EX1502L2_XBT001_150316	7.7	22.1	03/17/2015	066-17-49.10W	066-16-30.76W	18-30-59.73N	18-32-49.25N	2015-03-17 19:43:15.047	2015-03-17 19:49:52.040
0015_20150317_194942_EX1502L2_MB	EX1502L2_XBT002_150317	8.7	91.9	03/17/2015	066-16-53.16W	066-07-41.63W	18-30-43.87N	18-33-00.56N	2015-03-17 19:49:32.542	2015-03-17 20:49:52.557
0016_20150317_204943_EX1502L2_MB	EX1502L2_XBT002_150317	8.6	92.1	03/17/2015	066-07-42.85W	065-58-37.69W	18-30-16.78N	18-32-42.65N	2015-03-17 20:49:33.059	2015-03-17 21:49:43.074
0017_20150317_214943_EX1502L2_MB	EX1502L2_XBT002_150317	8.5	92.0	03/17/2015	065-58-40.62W	065-49-43.49W	18-29-48.32N	18-32-23.71N	2015-03-17 21:49:33.577	2015-03-17 22:49:53.093
0018_20150317_224944_EX1502L2_MB	EX1502L2_XBT002_150317	8.7	91.8	03/17/2015	065-49-44.26W	065-47-55.57W	18-29-50.42N	18-31-31.97N	2015-03-17 22:49:34.094	2015-03-17 23:01:40.096
0019_20150317_230131_EX1502L2_MB	EX1502L2_XBT002_150317	8.5	79.1	03/17/2015	065-47-59.90W	065-47-09.42W	18-29-48.99N	18-31-25.47N	2015-03-17 23:01:21.094	2015-03-17 23:04:15.094

0020_20150317_230405_EX1502L2_MB	EX1502L2_XBT002_150317	7.9	15.8	03/17/2015	065-48-16.97W	065-46-41.41W	18-30-07.23N	18-31-10.13N	2015-03-17 23:03:55.596	2015-03-17 23:05:38.094
0021_20150317_230528_EX1502L2_MB	EX1502L2_XBT002_150317	8.7	357.5	03/17/2015	065-48-47.45W	065-46-23.23W	18-30-39.73N	18-33-23.61N	2015-03-17 23:05:18.598	2015-03-17 23:23:26.603
0022_20150317_232316_EX1502L2_MB	EX1502L2_XBT002_150317	8.6	309.7	03/17/2015	065-48-43.75W	065-46-27.57W	18-32-25.33N	18-34-34.21N	2015-03-17 23:23:07.605	2015-03-17 23:25:42.605
0023_20150317_232542_EX1502L2_MB	EX1502L2_XBT003_150317	8.6	271.4	03/17/2015	065-56-53.69W	065-47-43.91W	18-32-23.27N	18-35-40.80N	2015-03-17 23:25:33.605	2015-03-18 00:25:44.140
0024_20150318_002544_EX1502L2_MB	EX1502L2_XBT003_150317	8.6	271.5	03/18/2015	066-05-58.44W	065-56-50.34W	18-32-34.21N	18-35-55.48N	2015-03-18 00:25:34.622	2015-03-18 01:25:42.639
0025_20150318_012543_EX1502L2_MB	EX1502L2_XBT003_150317	8.4	271.5	03/18/2015	066-14-52.02W	066-05-53.96W	18-32-58.18N	18-36-02.01N	2015-03-18 01:25:33.143	2015-03-18 02:25:44.157
0026_20150318_022544_EX1502L2_MB	EX1502L2_XBT004_150318	8.7	271.6	03/18/2015	066-23-59.90W	066-14-44.21W	18-33-15.27N	18-36-38.24N	2015-03-18 02:25:35.156	2015-03-18 03:25:46.674
0027_20150318_032547_EX1502L2_MB	EX1502L2_XBT004_150318	8.5	271.6	03/18/2015	066-32-56.35W	066-23-52.94W	18-33-40.24N	18-37-05.08N	2015-03-18 03:25:37.674	2015-03-18 04:25:44.689
0028_20150318_042545_EX1502L2_MB	EX1502L2_XBT004_150318	8.7	271.7	03/18/2015	066-42-03.48W	066-32-46.68W	18-34-00.54N	18-37-22.98N	2015-03-18 04:25:35.688	2015-03-18 05:25:47.706
0029_20150318_052547_EX1502L2_MB	EX1502L2_XBT004_150318	8.7	271.7	03/18/2015	066-51-08.84W	066-41-54.12W	18-34-06.42N	18-37-32.63N	2015-03-18 05:25:38.206	2015-03-18 06:25:47.224
0030_20150318_062547_EX1502L2_MB	EX1502L2_XBT004_150318	8.6	271.7	03/18/2015	067-00-11.29W	066-51-05.65W	18-34-40.59N	18-38-01.62N	2015-03-18 06:25:38.222	2015-03-18 07:25:43.239
0031_20150318_072543_EX1502L2_MB	EX1502L2_XBT004_150318	8.6	271.8	03/18/2015	067-09-10.48W	067-00-06.61W	18-35-21.61N	18-37-49.21N	2015-03-18 07:25:33.740	2015-03-18 08:25:43.259
0032_20150318_082543_EX1502L2_MB	EX1502L2_XBT005_150318	8.5	271.8	03/18/2015	067-18-07.16W	067-09-09.73W	18-36-02.52N	18-38-17.71N	2015-03-18 08:25:33.762	2015-03-18 09:25:44.773
0033_20150318_092545_EX1502L2_MB	EX1502L2_XBT005_150318	8.5	269.8	03/18/2015	067-19-36.75W	067-18-05.81W	18-36-08.32N	18-38-23.36N	2015-03-18 09:25:35.275	2015-03-18 09:36:18.277
0034_20150318_093618_EX1502L2_MB	EX1502L2_XBT005_150318	8.4	143.7	03/18/2015	067-20-40.60W	067-16-17.86W	18-30-49.22N	18-37-47.13N	2015-03-18 09:36:08.778	2015-03-18 10:17:08.791
0035_20150318_101709_EX1502L2_MB	EX1502L2_XBT005_150318	8.7	91.8	03/18/2015	067-16-45.51W	067-07-20.46W	18-31-21.10N	18-34-05.49N	2015-03-18 10:16:59.289	2015-03-18 11:17:04.303
0036_20150318_111704_EX1502L2_MB	EX1502L2_XBT005_150318	8.5	91.2	03/18/2015	067-07-20.82W	066-58-21.26W	18-31-33.94N	18-33-12.15N	2015-03-18 11:16:54.806	2015-03-18 12:17:05.823
0037_20150318_121706_EX1502L2_MB	EX1502L2_XBT005_150318	8.6	91.2	03/18/2015	066-58-24.59W	066-49-19.56W	18-31-26.24N	18-33-19.60N	2015-03-18 12:16:56.324	2015-03-18 13:17:16.336
0038_20150318_131706_EX1502L2_MB	EX1502L2_XBT005_150318/ EX1502L2_XBT006_150318	8.5	91.2	03/18/2015	066-49-22.80W	066-40-26.44W	18-30-52.63N	18-33-04.46N	2015-03-18 13:16:57.338	2015-03-18 14:17:05.857
0039_20150318_141706_EX1502L2_MB	EX1502L2_XBT006_150318	8.4	91.1	03/18/2015	066-40-27.91W	066-31-35.75W	18-30-50.06N	18-32-35.02N	2015-03-18 14:16:56.356	2015-03-18 15:17:05.375
0040_20150318_151705_EX1502L2_MB	EX1502L2_XBT006_150318	8.5	89.7	03/18/2015	066-31-38.72W	066-22-38.10W	18-30-38.05N	18-32-21.81N	2015-03-18 15:16:55.875	2015-03-18 16:17:04.888
0041_20150318_161705_EX1502L2_MB	EX1502L2_XBT006_150318	8.7	91.0	03/18/2015	066-22-39.73W	066-13-31.91W	18-30-24.19N	18-32-22.83N	2015-03-18 16:16:55.388	2015-03-18 17:17:05.404
0042_20150318_171705_EX1502L2_MB	EX1502L2_XBT006_150318	8.9	91.6	03/18/2015	066-13-32.42W	066-04-10.75W	18-30-03.60N	18-32-01.63N	2015-03-18	2015-03-18

									17:16:55.907	18:17:04.426
0043_20150318_181704_EX1502L2_MB	EX1502L2_XBT006_150318	8.7	93.4	03/18/2015	066-04-18.95W	065-55-06.06W	18-29-16.90N	18-31-41.69N	2015-03-18 18:16:55.420	2015-03-18 19:17:04.438
0044_20150318_191704_EX1502L2_MB	EX1502L2_XBT006_150318	8.7	91.2	03/18/2015	065-55-07.07W	065-47-18.50W	18-29-10.69N	18-31-01.84N	2015-03-18 19:16:54.940	2015-03-18 20:06:17.960
0045_20150318_200608_EX1502L2_MB	EX1502L2_XBT006_150318	7.6	260.2	03/18/2015	065-48-32.09W	065-47-00.76W	18-29-04.93N	18-30-11.28N	2015-03-18 20:05:58.957	2015-03-18 20:10:42.955
0046_20150318_201043_EX1502L2_MB	EX1502L2_XBT007_150318	8.7	358.0	03/18/2015	065-49-52.26W	065-46-13.73W	18-29-41.23N	18-38-38.03N	2015-03-18 20:10:33.454	2015-03-18 21:10:42.471
0047_20150318_211042_EX1502L2_MB	EX1502L2_XBT007_150318	8.6	358.1	03/18/2015	065-50-18.91W	065-45-59.26W	18-38-14.44N	18-47-08.94N	2015-03-18 21:10:33.471	2015-03-18 22:10:43.988
0048_20150318_221044_EX1502L2_MB	EX1502L2_XBT007_150318	8.6	358.1	03/18/2015	065-50-56.73W	065-45-54.96W	18-47-01.30N	18-55-49.08N	2015-03-18 22:10:34.490	2015-03-18 23:10:49.505
0049_20150318_231049_EX1502L2_MB	EX1502L2_XBT007_150318	8.4	357.2	03/18/2015	065-51-04.54W	065-45-51.74W	18-55-45.98N	19-01-00.05N	2015-03-18 23:10:50.002	2015-03-18 23:46:34.518
0050_20150318_234634_EX1502L2_MB	EX1502L2_XBT007_150318	6.2	350.4	03/18/2015	065-51-18.34W	065-46-42.37W	19-00-36.59N	19-07-12.02N	2015-03-18 23:46:35.021	2015-03-19 00:46:29.536
0051_20150319_004629_EX1502L2_MB	EX1502L2_XBT008_150318	6.3	350.4	03/19/2015	065-51-49.83W	065-47-44.33W	19-06-34.87N	19-13-24.71N	2015-03-19 00:46:30.039	2015-03-19 01:46:28.555
0052_20150319_014628_EX1502L2_MB	EX1502L2_XBT008_150318	6.3	350.7	03/19/2015	065-52-26.68W	065-49-20.62W	19-12-53.36N	19-19-37.92N	2015-03-19 01:46:29.057	2015-03-19 02:46:29.574
0053_20150319_024629_EX1502L2_MB	EX1502L2_XBT008_150318	6.4	356.6	03/19/2015	065-52-52.31W	065-50-24.48W	19-19-09.03N	19-22-21.50N	2015-03-19 02:46:30.072	2015-03-19 03:13:58.081
0054_20150319_031358_EX1502L2_MB	EX1502L2_XBT008_150318	8.4	102.0	03/19/2015	065-51-47.56W	065-42-49.59W	19-19-23.74N	19-23-00.43N	2015-03-19 03:13:58.578	2015-03-19 04:13:53.592
0055_20150319_041354_EX1502L2_MB	EX1502L2_XBT008_150318	9.2	102.4	03/19/2015	065-43-03.82W	065-33-21.41W	19-17-11.26N	19-20-50.09N	2015-03-19 04:13:54.095	2015-03-19 05:13:51.616
0056_20150319_051351_EX1502L2_MB	EX1502L2_XBT008_150318	7.8	112.4	03/19/2015	065-33-35.43W	065-28-56.36W	19-16-22.10N	19-18-50.37N	2015-03-19 05:13:52.145	2015-03-19 05:44:22.620
0057_20150319_054422_EX1502L2_MB	EX1502L2_XBT008_150318/ EX1502L2_XBT009_150319	6.6	161.0	03/19/2015	065-30-39.50W	065-26-34.42W	19-09-58.70N	19-16-35.81N	2015-03-19 05:44:23.141	2015-03-19 06:44:17.142
0058_20150319_064417_EX1502L2_MB	EX1502L2_XBT009_150319	6.4	160.4	03/19/2015	065-29-10.26W	065-23-38.43W	19-03-29.38N	19-10-29.92N	2015-03-19 06:44:17.638	2015-03-19 07:44:15.654
0059_20150319_074416_EX1502L2_MB	EX1502L2_XBT010_150319	6.2	160.3	03/19/2015	065-27-57.26W	065-21-25.14W	18-57-34.34N	19-04-44.04N	2015-03-19 07:44:16.155	2015-03-19 08:44:13.172
0060_20150319_084413_EX1502L2_MB	EX1502L2_XBT010_150319	6.5	160.4	03/19/2015	065-25-29.53W	065-19-38.62W	18-51-14.08N	18-58-52.97N	2015-03-19 08:44:03.669	2015-03-19 09:44:17.689
0061_20150319_094417_EX1502L2_MB	EX1502L2_XBT010_150319	7.9	177.7	03/19/2015	065-23-16.00W	065-19-09.15W	18-43-54.39N	18-52-34.51N	2015-03-19 09:44:08.189	2015-03-19 10:44:17.705
0062_20150319_104418_EX1502L2_MB	EX1502L2_XBT010_150319	8.5	177.9	03/19/2015	065-23-04.13W	065-19-07.37W	18-35-32.44N	18-44-09.63N	2015-03-19 10:44:08.205	2015-03-19 11:44:15.223
0063_20150319_114415_EX1502L2_MB	EX1502L2_XBT010_150319	7.8	177.9	03/19/2015	065-22-11.67W	065-19-45.43W	18-31-54.43N	18-35-32.56N	2015-03-19 11:44:06.223	2015-03-19 12:12:05.230
0064_20150319_131755_EX1502L2_MB	EX1502L2_XBT010_150319	8.3	356.0	03/19/2015	065-22-22.47W	065-19-22.26W	18-31-51.14N	18-37-08.05N	2015-03-19 13:17:55.747	2015-03-19 13:54:59.763

0065_20150319_175035_EX1502L2_MB	EX1502L2_XBT011_150319	8.5	207.5	03/19/2015	065-20-02.13W	065-18-13.19W	18-32-12.80N	18-34-11.82N	2015-03-19 17:50:35.826	2015-03-19 18:01:35.830
0066_20150319_180136_EX1502L2_MB	EX1502L2_XBT011_150319	8.7	271.7	03/19/2015	065-29-00.98W	065-19-47.29W	18-31-54.14N	18-34-43.36N	2015-03-19 18:01:26.827	2015-03-19 19:01:34.847
0067_20150319_190135_EX1502L2_MB	EX1502L2_XBT011_150319	8.5	270.3	03/19/2015	065-37-59.84W	065-28-59.23W	18-31-58.12N	18-34-49.70N	2015-03-19 19:01:25.350	2015-03-19 20:01:34.360
0068_20150319_200134_EX1502L2_MB	EX1502L2_XBT011_150319	9.0	270.3	03/19/2015	065-43-46.16W	065-37-54.34W	18-32-04.75N	18-34-59.91N	2015-03-19 20:01:24.861	2015-03-19 20:38:50.371
0069_20150319_203840_EX1502L2_MB	EX1502L2_XBT011_150319	8.7	258.0	03/19/2015	065-44-10.41W	065-43-36.61W	18-32-23.46N	18-34-57.44N	2015-03-19 20:38:30.870	2015-03-19 20:39:30.371
0070_20150319_203920_EX1502L2_MB	EX1502L2_XBT011_150319	7.3	175.1	03/19/2015	065-45-10.27W	065-42-44.22W	18-32-18.98N	18-35-00.84N	2015-03-19 20:39:10.873	2015-03-19 20:43:30.374
0071_20150319_204330_EX1502L2_MB	EX1502L2_XBT011_150319	8.3	94.7	03/19/2015	065-44-22.53W	065-35-08.71W	18-31-08.83N	18-34-20.90N	2015-03-19 20:43:20.875	2015-03-19 21:43:31.887
0072_20150319_214332_EX1502L2_MB	EX1502L2_XBT011_150319	8.8	90.3	03/19/2015	065-35-13.34W	065-25-52.39W	18-30-53.16N	18-33-32.59N	2015-03-19 21:43:22.388	2015-03-19 22:43:30.904
0073_20150319_224331_EX1502L2_MB	EX1502L2_XBT011_150319	8.6	90.4	03/19/2015	065-25-56.67W	065-20-51.90W	18-31-18.32N	18-33-10.49N	2015-03-19 22:43:21.903	2015-03-19 23:16:45.415
0074_20150319_231635_EX1502L2_MB	EX1502L2_XBT011_150319	8.2	186.5	03/19/2015	065-21-22.77W	065-20-08.46W	18-31-02.99N	18-32-44.61N	2015-03-19 23:16:25.917	2015-03-19 23:23:33.919
0075_20150319_232334_EX1502L2_MB	EX1502L2_XBT011_150319	8.7	269.6	03/19/2015	065-30-12.60W	065-21-01.56W	18-30-16.15N	18-32-47.22N	2015-03-19 23:23:24.419	2015-03-20 00:23:33.436
0076_20150320_002333_EX1502L2_MB	EX1502L2_XBT011_150319	8.8	270.4	03/20/2015	065-34-41.56W	065-30-09.15W	18-30-25.40N	18-32-42.48N	2015-03-20 00:23:23.935	2015-03-20 00:52:22.446
0077_20150320_005212_EX1502L2_MB	EX1502L2_XBT011_150319	8.1	325.2	03/20/2015	065-35-28.23W	065-33-40.86W	18-30-40.21N	18-32-22.78N	2015-03-20 00:52:02.948	2015-03-20 00:54:01.446
0078_20150320_005352_EX1502L2_MB	EX1502L2_XBT012_150320	8.5	37.7	03/20/2015	065-35-33.56W	065-28-31.88W	18-31-15.85N	18-38-09.36N	2015-03-20 00:53:42.940	2015-03-20 01:45:09.461
0079_20150320_014500_EX1502L2_MB	EX1502L2_XBT012_150320	7.8	77.3	03/20/2015	065-31-11.95W	065-28-33.41W	18-35-43.06N	18-39-08.86N	2015-03-20 01:44:50.458	2015-03-20 01:47:08.457
0080_20150320_014709_EX1502L2_MB	EX1502L2_XBT012_150320	8.3	91.9	03/20/2015	065-29-53.60W	065-20-59.33W	18-35-25.61N	18-39-17.29N	2015-03-20 01:46:59.456	2015-03-20 02:47:05.973
0081_20150320_024706_EX1502L2_MB	EX1502L2_XBT012_150320	8.6	91.7	03/20/2015	065-21-06.91W	065-11-58.31W	18-35-24.52N	18-38-23.11N	2015-03-20 02:46:56.474	2015-03-20 03:47:07.491
0082_20150320_034707_EX1502L2_MB	EX1502L2_XBT012_150320	8.6	91.7	03/20/2015	065-12-05.57W	065-02-57.07W	18-35-11.77N	18-37-39.10N	2015-03-20 03:46:57.991	2015-03-20 04:47:06.509
0083_20150320_044706_EX1502L2_MB	EX1502L2_XBT012_150320	8.6	90.9	03/20/2015	065-02-59.25W	065-00-09.35W	18-35-32.00N	18-36-36.71N	2015-03-20 04:46:57.508	2015-03-20 05:05:35.512
0084_20150320_052718_EX1502L2_MB	EX1502L2_XBT012_150320	8.8	271.2	03/20/2015	065-09-21.84W	064-59-59.98W	18-37-42.74N	18-40-27.33N	2015-03-20 05:27:18.523	2015-03-20 06:27:19.038
0085_20150320_062719_EX1502L2_MB	EX1502L2_XBT013_150320	8.7	271.2	03/20/2015	065-18-30.10W	065-09-15.05W	18-37-46.20N	18-40-55.82N	2015-03-20 06:27:09.539	2015-03-20 07:27:18.557
0086_20150320_072718_EX1502L2_MB	EX1502L2_XBT013_150320	8.9	271.5	03/20/2015	065-28-08.74W	065-18-23.19W	18-37-48.00N	18-41-37.20N	2015-03-20 07:27:09.056	2015-03-20 08:27:20.075
0087_20150320_082720_EX1502L2_MB	EX1502L2_XBT013_150320	7.6	4.4	03/20/2015	065-29-58.27W	065-25-36.42W	18-38-39.11N	18-43-30.73N	2015-03-20 08:27:11.077	2015-03-20 08:47:56.580

0088_20150320_084757_EX1502L2_MB	EX1502L2_XBT013_150320	8.0	90.6	03/20/2015	065-28-12.07W	065-19-05.81W	18-40-16.53N	18-44-21.60N	2015-03-20 08:47:47.577	2015-03-20 09:47:54.592
0089_20150320_094754_EX1502L2_MB	EX1502L2_XBT013_150320	8.0	91.6	03/20/2015	065-19-14.59W	065-10-40.10W	18-39-57.74N	18-43-52.62N	2015-03-20 09:47:45.096	2015-03-20 10:47:57.612
0090_20150320_104757_EX1502L2_MB	EX1502L2_XBT014_150320	8.0	91.5	03/20/2015	065-10-50.44W	065-02-15.80W	18-39-57.58N	18-43-04.93N	2015-03-20 10:47:48.142	2015-03-20 11:47:55.628
0091_20150320_114756_EX1502L2_MB	EX1502L2_XBT014_150320	8.2	91.6	03/20/2015	065-02-24.73W	065-01-30.02W	18-39-59.26N	18-42-22.27N	2015-03-20 11:47:46.137	2015-03-20 11:53:13.629
0092_20150320_121632_EX1502L2_MB	EX1502L2_XBT014_150320	8.8	268.0	03/20/2015	065-10-55.54W	065-01-42.93W	18-41-56.86N	18-45-35.96N	2015-03-20 12:16:32.144	2015-03-20 13:16:35.654
0093_20150320_131636_EX1502L2_MB	EX1502L2_XBT014_150320	9.0	273.6	03/20/2015	065-20-29.70W	065-10-55.02W	18-42-02.76N	18-46-08.37N	2015-03-20 13:16:26.155	2015-03-20 14:16:33.174
0094_20150320_141633_EX1502L2_MB	EX1502L2_XBT014_150320	8.8	272.5	03/20/2015	065-27-09.23W	065-20-03.63W	18-42-46.47N	18-46-31.38N	2015-03-20 14:16:24.173	2015-03-20 14:56:38.685
0095_20150320_145638_EX1502L2_MB	EX1502L2_XBT014_150320	7.7	358.2	03/20/2015	065-28-37.20W	065-24-33.17W	18-43-24.31N	18-47-32.35N	2015-03-20 14:56:29.685	2015-03-20 15:16:38.188
0096_20150320_151628_EX1502L2_MB	EX1502L2_XBT014_150320	6.8	80.5	03/20/2015	065-28-06.76W	065-24-53.78W	18-45-38.66N	18-49-14.34N	2015-03-20 15:16:19.188	2015-03-20 15:19:26.187
0097_20150320_151926_EX1502L2_MB	EX1502L2_XBT015_150320	7.9	91.3	03/20/2015	065-26-19.29W	065-17-43.24W	18-45-00.55N	18-49-15.82N	2015-03-20 15:19:16.691	2015-03-20 16:19:28.203
0098_20150320_161928_EX1502L2_MB	EX1502L2_XBT015_150320	8.1	97.5	03/20/2015	065-17-56.04W	065-09-20.62W	18-44-02.48N	18-49-04.22N	2015-03-20 16:19:18.703	2015-03-20 17:19:22.720
0099_20150320_171922_EX1502L2_MB	EX1502L2_XBT015_150320	7.8	91.2	03/20/2015	065-09-39.16W	065-02-06.74W	18-43-49.98N	18-47-48.76N	2015-03-20 17:19:13.224	2015-03-20 18:12:40.739
0100_20150320_185424_EX1502L2_MB	EX1502L2_XBT015_150320	8.7	272.0	03/20/2015	065-06-58.05W	065-01-23.20W	18-41-10.48N	18-44-19.81N	2015-03-20 18:54:24.751	2015-03-20 19:30:38.761
0101_20150320_193029_EX1502L2_MB	EX1502L2_XBT015_150320	8.9	271.6	03/20/2015	065-12-09.89W	065-06-49.07W	18-41-10.89N	18-44-39.55N	2015-03-20 19:30:19.263	2015-03-20 20:04:22.270
0102_20150320_200413_EX1502L2_MB	EX1502L2_XBT015_150320	7.9	221.2	03/20/2015	065-13-38.35W	065-11-01.75W	18-41-42.86N	18-44-24.89N	2015-03-20 20:04:03.272	2015-03-20 20:06:17.771
0103_20150320_200618_EX1502L2_MB	EX1502L2_XBT015_150320	8.6	186.6	03/20/2015	065-14-15.73W	065-11-00.58W	18-40-31.35N	18-43-14.78N	2015-03-20 20:06:08.272	2015-03-20 20:21:44.274
0104_20150320_202134_EX1502L2_MB	EX1502L2_XBT015_150320	7.8	133.3	03/20/2015	065-13-54.92W	065-11-23.82W	18-39-17.92N	18-41-37.31N	2015-03-20 20:21:25.274	2015-03-20 20:23:30.274
0105_20150320_202330_EX1502L2_MB	EX1502L2_XBT016_150320	7.6	92.4	03/20/2015	065-12-57.04W	065-04-27.98W	18-38-40.83N	18-41-43.85N	2015-03-20 20:23:20.779	2015-03-20 21:23:28.290
0106_20150320_212328_EX1502L2_MB	EX1502L2_XBT016_150320	7.7	91.6	03/20/2015	065-04-29.83W	065-00-21.41W	18-38-41.08N	18-41-09.57N	2015-03-20 21:23:19.289	2015-03-20 21:53:45.799
0107_20150320_220853_EX1502L2_MB	EX1502L2_XBT016_150320	8.8	184.4	03/20/2015	065-01-06.11W	064-59-28.85W	18-37-38.77N	18-37-51.43N	2015-03-20 22:08:53.805	2015-03-20 22:10:18.807
0108_20150320_221326_EX1502L2_MB	EX1502L2_XBT016_150320	8.7	270.9	03/20/2015	065-09-34.77W	065-00-17.13W	18-36-22.46N	18-38-51.78N	2015-03-20 22:13:26.307	2015-03-20 23:13:26.823
0109_20150320_231327_EX1502L2_MB	EX1502L2_XBT016_150320	8.6	271.1	03/20/2015	065-18-41.24W	065-09-33.02W	18-36-20.44N	18-39-17.37N	2015-03-20 23:13:17.330	2015-03-21 00:13:34.842
0110_20150321_001325_EX1502L2_MB	EX1502L2_XBT016_150320	8.4	271.1	03/21/2015	065-20-04.74W	065-18-35.15W	18-36-35.09N	18-39-26.66N	2015-03-21 00:13:15.342	2015-03-21 00:23:12.844

0111_20150321_002303_EX1502L2_MB	EX1502L2_XBT016_150320	7.2	223.3	03/21/2015	065-21-26.95W	065-18-58.08W	18-36-44.90N	18-39-09.12N	2015-03-21 00:22:53.343	2015-03-21 00:24:43.343
0112_20150321_002434_EX1502L2_MB	EX1502L2_XBT016_150320	8.2	179.7	03/21/2015	065-21-47.72W	065-18-43.64W	18-33-57.07N	18-38-06.77N	2015-03-21 00:24:24.843	2015-03-21 00:53:25.353
0113_20150321_005316_EX1502L2_MB	EX1502L2_XBT016_150320	6.6	144.3	03/21/2015	065-21-04.49W	065-19-12.82W	18-33-11.08N	18-34-42.35N	2015-03-21 00:53:06.355	2015-03-21 00:55:01.854
0114_20150321_005502_EX1502L2_MB	EX1502L2_XBT017_150321	7.9	87.0	03/21/2015	065-20-14.98W	065-11-47.11W	18-32-51.44N	18-35-15.07N	2015-03-21 00:54:52.851	2015-03-21 01:55:01.869
0115_20150321_015501_EX1502L2_MB	EX1502L2_XBT017_150321	8.5	83.2	03/21/2015	065-11-53.37W	065-02-54.85W	18-33-30.70N	18-35-32.40N	2015-03-21 01:54:52.870	2015-03-21 02:55:10.384
0116_20150321_025500_EX1502L2_MB	EX1502L2_XBT017_150321	8.3	77.3	03/21/2015	065-02-57.74W	065-01-56.98W	18-34-46.20N	18-35-07.66N	2015-03-21 02:54:51.384	2015-03-21 03:01:20.387
0117_20150321_030120_EX1502L2_MB	EX1502L2_XBT017_150321	7.0	218.0	03/21/2015	065-02-09.39W	065-01-42.95W	18-34-49.98N	18-35-19.76N	2015-03-21 03:01:10.889	2015-03-21 03:07:21.393
0118_20150321_030711_EX1502L2_MB	EX1502L2_XBT017_150321	8.6	268.5	03/21/2015	065-11-07.65W	065-02-06.35W	18-34-01.69N	18-36-08.81N	2015-03-21 03:07:01.893	2015-03-21 04:07:20.909
0119_20150321_040711_EX1502L2_MB	EX1502L2_XBT017_150321	8.5	268.4	03/21/2015	065-20-05.97W	065-11-06.57W	18-33-39.90N	18-36-20.25N	2015-03-21 04:07:02.407	2015-03-21 05:07:12.929
0120_20150321_050713_EX1502L2_MB	EX1502L2_XBT017_150321	8.7	270.0	03/21/2015	065-29-18.99W	065-20-05.77W	18-33-29.81N	18-36-53.98N	2015-03-21 05:07:03.926	2015-03-21 06:07:13.445
0121_20150321_060713_EX1502L2_MB	EX1502L2_XBT018_150321	8.8	271.0	03/21/2015	065-38-35.45W	065-29-10.00W	18-33-35.26N	18-37-07.28N	2015-03-21 06:07:04.444	2015-03-21 07:07:15.959
0122_20150321_070716_EX1502L2_MB	EX1502L2_XBT018_150321	8.6	271.1	03/21/2015	065-47-34.62W	065-38-28.07W	18-33-46.19N	18-37-25.46N	2015-03-21 07:07:06.460	2015-03-21 08:07:12.979
0123_20150321_080713_EX1502L2_MB	EX1502L2_XBT018_150321	8.8	271.3	03/21/2015	065-56-46.52W	065-47-28.71W	18-34-13.23N	18-37-47.44N	2015-03-21 08:07:03.978	2015-03-21 09:07:16.494
0124_20150321_090716_EX1502L2_MB	EX1502L2_XBT018_150321	8.9	271.1	03/21/2015	066-06-10.07W	065-56-42.01W	18-34-24.06N	18-37-56.61N	2015-03-21 09:07:07.493	2015-03-21 10:07:15.009
0125_20150321_100715_EX1502L2_MB	EX1502L2_XBT018_150321	8.7	271.8	03/21/2015	066-12-34.71W	066-06-02.25W	18-34-39.58N	18-38-18.86N	2015-03-21 10:07:05.509	2015-03-21 10:46:13.024
0126_20150321_104613_EX1502L2_MB	EX1502L2_XBT018_150321	8.4	357.5	03/21/2015	066-14-21.91W	066-10-10.03W	18-35-35.92N	18-44-50.55N	2015-03-21 10:46:04.023	2015-03-21 11:44:29.033
0127_20150321_160434_EX1502L2_MB	EX1502L2_XBT019_150321	8.8	176.5	03/21/2015	066-14-04.10W	066-09-45.98W	18-38-10.44N	18-45-12.14N	2015-03-21 16:04:34.614	2015-03-21 16:50:17.627
0128_20150321_165007_EX1502L2_MB	EX1502L2_XBT019_150321	8.8	177.8	03/21/2015	066-13-31.34W	066-09-56.10W	18-35-22.26N	18-38-33.00N	2015-03-21 16:49:58.626	2015-03-21 17:02:56.140
0129_20150321_170256_EX1502L2_MB	EX1502L2_XBT019_150321	8.2	271.1	03/21/2015	066-20-21.98W	066-11-31.65W	18-34-58.12N	18-38-41.27N	2015-03-21 17:02:46.632	2015-03-21 18:02:56.647
0130_20150321_180257_EX1502L2_MB	EX1502L2_XBT019_150321	8.9	271.2	03/21/2015	066-29-44.13W	066-20-09.81W	18-35-11.69N	18-38-57.99N	2015-03-21 18:02:47.148	2015-03-21 19:02:58.664
0131_20150321_190259_EX1502L2_MB	EX1502L2_XBT019_150321	8.9	272.6	03/21/2015	066-39-14.29W	066-29-35.66W	18-35-43.03N	18-39-25.28N	2015-03-21 19:02:49.664	2015-03-21 20:02:53.680
0132_20150321_200253_EX1502L2_MB	EX1502L2_XBT019_150321	8.6	271.5	03/21/2015	066-48-11.62W	066-38-48.34W	18-35-50.86N	18-39-44.57N	2015-03-21 20:02:44.681	2015-03-21 21:03:04.198
0133_20150321_210254_EX1502L2_MB	EX1502L2_XBT019_150321	8.9	271.4	03/21/2015	066-50-09.32W	066-48-02.11W	18-36-28.68N	18-39-46.48N	2015-03-21 21:02:45.198	2015-03-21 21:15:38.702

0134_20150321_212154_EX1502L2_MB	EX1502L2_XBT020_150321	8.9	271.5	03/21/2015	067-00-25.96W	066-51-07.82W	18-36-28.93N	18-40-13.85N	2015-03-21 21:21:54.704	2015-03-21 22:21:40.220
0135_20150321_222140_EX1502L2_MB	EX1502L2_XBT020_150321	8.8	265.9	03/21/2015	067-09-43.00W	067-00-22.04W	18-36-53.67N	18-40-11.22N	2015-03-21 22:21:30.721	2015-03-21 23:21:41.238
0136_20150321_232141_EX1502L2_MB	EX1502L2_XBT020_150321	8.7	277.1	03/21/2015	067-11-30.29W	067-09-35.61W	18-37-00.55N	18-39-17.98N	2015-03-21 23:21:31.739	2015-03-21 23:32:36.243
0137_20150321_233236_EX1502L2_MB	EX1502L2_XBT020_150321	8.7	275.9	03/21/2015	067-19-06.82W	067-11-07.98W	18-37-08.37N	18-40-20.80N	2015-03-21 23:32:27.244	2015-03-22 00:23:21.257
0138_20150322_002321_EX1502L2_MB	EX1502L2_XBT020_150321	7.9	335.2	03/22/2015	067-20-26.12W	067-17-54.12W	18-37-57.62N	18-39-53.61N	2015-03-22 00:23:21.756	2015-03-22 00:25:08.755
0139_20150322_002459_EX1502L2_MB	EX1502L2_XBT020_150321	7.9	50.4	03/22/2015	067-20-24.82W	067-17-54.44W	18-38-07.62N	18-40-51.88N	2015-03-22 00:24:49.756	2015-03-22 00:28:22.254
0140_20150322_002822_EX1502L2_MB	EX1502L2_XBT020_150321	8.6	89.1	03/22/2015	067-19-26.44W	067-09-40.04W	18-38-08.61N	18-41-16.77N	2015-03-22 00:28:12.757	2015-03-22 01:28:26.272
0141_20150322_012826_EX1502L2_MB	EX1502L2_XBT021_150322	8.6	80.6	03/22/2015	067-09-43.02W	067-00-49.99W	18-38-08.76N	18-42-46.97N	2015-03-22 01:28:16.772	2015-03-22 02:28:20.790
0142_20150322_022821_EX1502L2_MB	EX1502L2_XBT021_150322	8.4	89.9	03/22/2015	067-01-01.75W	066-52-04.31W	18-38-46.14N	18-42-50.06N	2015-03-22 02:28:11.289	2015-03-22 03:28:21.808
0143_20150322_032901_EX1502L2_MB		0.0								
0144_20150322_033105_EX1502L2_MB	EX1502L2_XBT021_150322	8.4	89.7	03/22/2015	066-51-37.32W	066-43-11.00W	18-38-46.32N	18-42-35.19N	2015-03-22 03:31:05.311	2015-03-22 04:27:48.826
0145_20150322_042749_EX1502L2_MB	EX1502L2_XBT021_150322	8.5	355.5	03/22/2015	066-44-52.33W	066-40-55.25W	18-38-50.24N	18-44-52.06N	2015-03-22 04:27:39.328	2015-03-22 04:50:07.333
0146_20150322_045007_EX1502L2_MB	EX1502L2_XBT021_150322	8.6	269.7	03/22/2015	066-52-30.01W	066-43-24.46W	18-41-04.85N	18-45-19.14N	2015-03-22 04:49:57.835	2015-03-22 05:50:05.852
0147_20150322_055006_EX1502L2_MB	EX1502L2_XBT022_150322	8.6	269.9	03/22/2015	067-01-37.86W	066-52-27.78W	18-41-03.72N	18-45-10.90N	2015-03-22 05:49:56.852	2015-03-22 06:50:09.867
0148_20150322_065010_EX1502L2_MB	EX1502L2_XBT022_150322	8.5	259.7	03/22/2015	067-10-24.01W	067-01-32.14W	18-39-59.87N	18-45-01.51N	2015-03-22 06:50:00.867	2015-03-22 07:50:06.885
0149_20150322_075007_EX1502L2_MB	EX1502L2_XBT022_150322	8.7	269.1	03/22/2015	067-19-32.35W	067-10-08.41W	18-39-49.70N	18-43-46.30N	2015-03-22 07:49:57.386	2015-03-22 08:50:05.906
0150_20150322_085006_EX1502L2_MB	EX1502L2_XBT022_150322	8.5	273.5	03/22/2015	067-29-30.54W	067-19-14.49W	18-39-10.40N	18-44-11.39N	2015-03-22 08:49:56.406	2015-03-22 09:50:10.416
0151_20150322_095010_EX1502L2_MB	EX1502L2_XBT022_150322	8.4	6.5	03/22/2015	067-29-42.31W	067-25-20.37W	18-42-13.64N	18-50-44.43N	2015-03-22 09:50:00.920	2015-03-22 10:50:06.934
0152_20150322_105007_EX1502L2_MB	EX1502L2_XBT022_150322	8.1	4.7	03/22/2015	067-28-14.68W	067-24-50.65W	18-50-21.82N	18-54-25.61N	2015-03-22 10:49:57.932	2015-03-22 11:18:08.447
0153_20150322_111808_EX1502L2_MB	EX1502L2_XBT023_150322	8.4	256.7	03/22/2015	067-31-00.65W	067-25-38.02W	18-52-26.60N	18-56-09.87N	2015-03-22 11:17:59.445	2015-03-22 11:42:47.954
0154_20150322_114248_EX1502L2_MB	EX1502L2_XBT023_150322	8.7	186.7	03/22/2015	067-31-52.50W	067-27-16.06W	18-45-01.59N	18-54-02.83N	2015-03-22 11:42:38.953	2015-03-22 12:42:51.470
0155_20150322_124251_EX1502L2_MB	EX1502L2_XBT023_150322	8.4	186.8	03/22/2015	067-32-59.88W	067-28-03.35W	18-35-57.35N	18-45-14.69N	2015-03-22 12:42:42.472	2015-03-22 13:41:07.987
0156_20150322_134108_EX1502L2_MB	EX1502L2_XBT023_150322	8.5	224.3	03/22/2015	067-32-52.84W	067-29-28.50W	18-35-26.91N	18-38-05.84N	2015-03-22 13:40:58.489	2015-03-22 13:47:05.487

0157_20150322_134705_EX1502L2_MB	EX1502L2_XBT023_150322	8.6	223.9	03/22/2015	067-35-11.34W	067-30-28.67W	18-32-57.68N	18-37-32.06N	2015-03-22 13:46:55.989	2015-03-22 14:07:57.996
0158_20150322_140758_EX1502L2_MB	EX1502L2_XBT023_150322	7.2	194.2	03/22/2015	067-36-04.36W	067-32-03.08W	18-32-09.19N	18-35-41.20N	2015-03-22 14:07:48.497	2015-03-22 14:18:45.496
0159_20150322_141845_EX1502L2_MB	EX1502L2_XBT023_150322	8.4	5.7	03/22/2015	067-36-03.53W	067-31-00.81W	18-34-03.62N	18-42-42.70N	2015-03-22 14:18:36.494	2015-03-22 15:18:44.513
0160_20150322_151844_EX1502L2_MB	EX1502L2_XBT023_150322	8.6	5.9	03/22/2015	067-35-15.96W	067-30-13.82W	18-42-22.96N	18-51-17.01N	2015-03-22 15:18:35.014	2015-03-22 16:18:47.526
0161_20150322_161847_EX1502L2_MB	EX1502L2_XBT024_150322	8.4	6.0	03/22/2015	067-34-01.69W	067-28-43.36W	18-50-54.73N	18-59-45.55N	2015-03-22 16:18:38.526	2015-03-22 17:18:44.549
0162_20150322_171845_EX1502L2_MB	EX1502L2_XBT024_150322	8.1	5.6	03/22/2015	067-33-12.59W	067-27-55.60W	18-59-06.82N	19-07-08.75N	2015-03-22 17:18:35.044	2015-03-22 18:14:42.564
0163_20150322_181433_EX1502L2_MB	EX1502L2_XBT024_150322	7.9	283.4	03/22/2015	067-32-01.00W	067-28-05.60W	19-05-15.24N	19-09-00.19N	2015-03-22 18:14:24.064	2015-03-22 18:20:05.067
0164_20150322_182005_EX1502L2_MB	EX1502L2_XBT024_150322	8.2	270.6	03/22/2015	067-34-02.13W	067-30-38.52W	19-04-51.91N	19-09-27.94N	2015-03-22 18:19:55.569	2015-03-22 18:32:55.569
0165_20150322_183255_EX1502L2_MB	EX1502L2_XBT024_150322	7.2	171.0	03/22/2015	067-34-30.70W	067-30-28.31W	19-06-35.48N	19-07-31.93N	2015-03-22 18:32:56.068	2015-03-22 18:34:45.571
0166_20150322_183445_EX1502L2_MB	EX1502L2_XBT024_150322	8.5	189.8	03/22/2015	067-36-11.08W	067-30-22.67W	18-58-19.38N	19-07-48.84N	2015-03-22 18:34:36.072	2015-03-22 19:34:41.086
0167_20150322_193441_EX1502L2_MB	EX1502L2_XBT024_150322	8.6	183.8	03/22/2015	067-36-58.38W	067-31-53.88W	18-50-00.54N	18-58-51.33N	2015-03-22 19:34:31.586	2015-03-22 20:34:45.605
0168_20150322_203446_EX1502L2_MB	EX1502L2_XBT024_150322	8.2	185.2	03/22/2015	067-37-00.34W	067-32-45.24W	18-43-14.94N	18-50-05.61N	2015-03-22 20:34:36.603	2015-03-22 21:23:43.142
0169 MISSING		0.0								
0170_20150322_213238_EX1502L2_MB	EX1502L2_XBT024_150322/ EX1502L2_XBT025_150322	8.8	186.1	03/22/2015	067-38-02.25W	067-34-03.27W	18-35-45.94N	18-42-05.99N	2015-03-22 21:32:38.623	2015-03-22 22:14:35.144
0171_20150322_221425_EX1502L2_MB	EX1502L2_XBT025_150322	8.4	261.7	03/22/2015	067-38-00.55W	067-34-33.10W	18-34-17.14N	18-37-18.93N	2015-03-22 22:14:16.143	2015-03-22 22:18:35.145
0172_20150322_221835_EX1502L2_MB	EX1502L2_XBT025_150322	8.9	278.4	03/22/2015	067-38-13.53W	067-36-43.40W	18-34-22.29N	18-37-30.46N	2015-03-22 22:18:26.143	2015-03-22 22:24:48.141
0173_20150322_222438_EX1502L2_MB	EX1502L2_XBT025_150322	7.8	328.2	03/22/2015	067-39-24.31W	067-36-33.45W	18-34-44.51N	18-37-20.21N	2015-03-22 22:24:28.637	2015-03-22 22:26:41.140
0174_20150322_222641_EX1502L2_MB	EX1502L2_XBT025_150322	8.243	6.016	03/22/2015	067-39-26.66W	067-35-16.34W	18-36-04.36N	18-44-42.72N	2015-03-22 22:26:32.140	2015-03-22 23:26:48.653
0175_20150322_232639_EX1502L2_MB	EX1502L2_XBT025_150322	8.0	25.8	03/22/2015	067-38-43.50W	067-35-40.15W	18-43-59.07N	18-44-56.50N	2015-03-22 23:26:29.653	2015-03-22 23:27:02.155
0176_20150322_232652_EX1502L2_MB	EX1502L2_XBT025_150322	7.6	62.0	03/22/2015	067-38-37.71W	067-35-39.53W	18-42-56.95N	18-46-13.97N	2015-03-22 23:26:43.154	2015-03-22 23:28:44.651
0177_20150322_232845_EX1502L2_MB	EX1502L2_XBT025_150322	8.1	88.9	03/22/2015	067-37-01.53W	067-28-18.88W	18-42-31.92N	18-47-03.80N	2015-03-22 23:28:35.153	2015-03-23 00:28:43.672
0178_20150323_002843_EX1502L2_MB	EX1502L2_XBT025_150322	8.0	89.5	03/23/2015	067-28-21.91W	067-19-57.78W	18-42-09.82N	18-47-00.63N	2015-03-23 00:28:44.171	2015-03-23 01:28:46.186
0179_20150323_012846_EX1502L2_MB	EX1502L2_XBT025_150322	8.1	88.4	03/23/2015	067-20-00.11W	067-11-24.42W	18-42-31.44N	18-47-00.97N	2015-03-23 01:28:36.686	2015-03-23 02:28:41.203

0180_20150323_022841_EX1502L2_MB	EX1502L2_XBT025_150322	8.4	85.0	03/23/2015	067-11-26.70W	067-02-33.11W	18-42-52.79N	18-47-17.01N	2015-03-23 02:28:32.202	2015-03-23 03:28:44.222
0181_20150323_032844_EX1502L2_MB	EX1502L2_XBT026_150323	8.428	090.373	03/23/2015	067-02-44.47W	066-53-03.27W	18-43-23.86N	18-47-29.98N	2015-03-23 03:28:34.723	2015-03-23 04:28:26.740
0182_20150323_042826_EX1502L2_MB	EX1502L2_XBT026_150323	8.5	163.5	03/23/2015	066-55-02.97W	066-49-53.29W	18-36-44.67N	18-46-57.26N	2015-03-23 04:28:17.241	2015-03-23 05:28:37.759
0183_20150323_052828_EX1502L2_MB	EX1502L2_XBT026_150323	8.1	236.6	03/23/2015	066-52-40.76W	066-50-02.62W	18-35-54.17N	18-38-20.66N	2015-03-23 05:28:18.759	2015-03-23 05:29:25.260
0184_20150323_052925_EX1502L2_MB	EX1502L2_XBT026_150323	8.4	349.4	03/23/2015	066-53-36.45W	066-50-19.91W	18-35-51.26N	18-39-25.91N	2015-03-23 05:29:15.760	2015-03-23 05:39:00.757
0185_20150323_053901_EX1502L2_MB	EX1502L2_XBT026_150323	8.4	74.2	03/23/2015	066-51-49.08W	066-42-45.89W	18-36-29.13N	18-41-47.37N	2015-03-23 05:38:51.759	2015-03-23 06:39:00.778
0186_20150323_063901_EX1502L2_MB	EX1502L2_XBT026_150323	8.3	91.5	03/23/2015	066-43-36.22W	066-34-20.17W	18-38-03.81N	18-42-01.04N	2015-03-23 06:38:51.278	2015-03-23 07:39:03.795
0187_20150323_073904_EX1502L2_MB	EX1502L2_XBT026_150323	8.3	91.9	03/23/2015	066-34-32.85W	066-25-36.19W	18-37-45.22N	18-41-47.55N	2015-03-23 07:38:54.793	2015-03-23 08:39:02.309
0188_20150323_083902_EX1502L2_MB	EX1502L2_XBT027_150323	8.6	91.7	03/23/2015	066-25-47.22W	066-16-36.40W	18-37-12.27N	18-41-12.03N	2015-03-23 08:38:53.310	2015-03-23 09:38:59.328
0189_20150323_093859_EX1502L2_MB	EX1502L2_XBT027_150323	8.6	91.6	03/23/2015	066-16-39.65W	066-07-31.44W	18-36-47.49N	18-40-47.05N	2015-03-23 09:38:49.831	2015-03-23 10:38:59.845
0190_20150323_103900_EX1502L2_MB	EX1502L2_XBT027_150323	8.7	91.8	03/23/2015	066-07-40.26W	065-58-23.60W	18-36-30.23N	18-40-34.96N	2015-03-23 10:38:50.845	2015-03-23 11:39:00.862
0191_20150323_113900_EX1502L2_MB	EX1502L2_XBT027_150323	8.9	91.5	03/23/2015	065-58-32.59W	065-49-01.29W	18-36-00.97N	18-40-05.71N	2015-03-23 11:38:51.361	2015-03-23 12:38:57.381
0192_20150323_123857_EX1502L2_MB	EX1502L2_XBT028_150323	8.7	91.5	03/23/2015	065-49-09.82W	065-39-52.60W	18-35-45.59N	18-39-46.26N	2015-03-23 12:38:47.882	2015-03-23 13:39:00.398
0193_20150323_133900_EX1502L2_MB	EX1502L2_XBT028_150323	8.5	91.5	03/23/2015	065-39-59.01W	065-30-48.16W	18-35-18.79N	18-39-11.43N	2015-03-23 13:38:50.898	2015-03-23 14:38:59.915
0194_20150323_143900_EX1502L2_MB	EX1502L2_XBT028_150323	8.6	90.2	03/23/2015	065-31-09.68W	065-26-25.37W	18-35-09.67N	18-38-59.41N	2015-03-23 14:38:50.417	2015-03-23 15:03:49.924
0195_20150323_150340_EX1502L2_MB	EX1502L2_XBT028_150323	9.1	2.4	03/23/2015	065-29-02.96W	065-25-27.21W	18-36-21.49N	18-39-43.46N	2015-03-23 15:03:31.420	2015-03-23 15:20:36.931
0196_20150323_152037_EX1502L2_MB	EX1502L2_XBT028_150323	8.8	276.1	03/23/2015	065-28-47.02W	065-25-25.02W	18-37-57.27N	18-41-30.19N	2015-03-23 15:20:27.927	2015-03-23 15:31:37.933
0197_20150323_153138_EX1502L2_MB	EX1502L2_XBT028_150323	8.7	269.2	03/23/2015	065-37-58.10W	065-28-46.03W	18-37-42.41N	18-41-46.74N	2015-03-23 15:31:28.432	2015-03-23 16:31:38.951
0198_20150323_163139_EX1502L2_MB	EX1502L2_XBT028_150323	8.6	271.9	03/23/2015	065-47-01.29W	065-37-57.94W	18-37-50.40N	18-41-59.21N	2015-03-23 16:31:29.949	2015-03-23 17:31:39.967
0199_20150323_173140_EX1502L2_MB	EX1502L2_XBT028_150323	8.9	271.6	03/23/2015	065-56-21.16W	065-46-56.47W	18-38-23.29N	18-42-34.95N	2015-03-23 17:31:30.467	2015-03-23 18:31:39.984
0200_20150323_183140_EX1502L2_MB	EX1502L2_XBT029_150323	8.5	271.6	03/23/2015	066-05-14.40W	065-56-14.06W	18-38-45.34N	18-42-54.18N	2015-03-23 18:31:30.981	2015-03-23 19:31:38.999
0201_20150323_193139_EX1502L2_MB	EX1502L2_XBT029_150323	8.7	271.7	03/23/2015	066-14-31.84W	066-05-12.18W	18-39-08.37N	18-43-14.11N	2015-03-23 19:31:29.500	2015-03-23 20:31:35.517
0202_20150323_203135_EX1502L2_MB	EX1502L2_XBT029_150323	8.6	271.7	03/23/2015	066-23-27.17W	066-14-17.23W	18-39-31.36N	18-43-44.16N	2015-03-23 20:31:26.017	2015-03-23 21:31:38.034

0203_20150323_213138_EX1502L2_MB	EX1502L2_XBT029_150323	8.5	271.8	03/23/2015	066-32-26.35W	066-23-21.92W	18-39-58.24N	18-44-12.38N	2015-03-23 21:31:29.032	2015-03-23 22:31:36.549
0204_20150323_223136_EX1502L2_MB	EX1502L2_XBT029_150323	8.7	271.8	03/23/2015	066-41-37.66W	066-32-19.25W	18-40-16.73N	18-44-39.98N	2015-03-23 22:31:27.550	2015-03-23 23:31:41.071
0205_20150323_233141_EX1502L2_MB	EX1502L2_XBT029_150323	9.1	272.7	03/23/2015	066-42-45.36W	066-41-21.39W	18-40-45.96N	18-44-24.49N	2015-03-23 23:31:31.571	2015-03-23 23:39:05.571
0206_20150323_233855_EX1502L2_MB	EX1502L2_XBT029_150323	7.8	333.8	03/23/2015	066-44-40.09W	066-40-58.81W	18-41-05.76N	18-44-18.78N	2015-03-23 23:38:46.071	2015-03-23 23:40:50.567
0207_20150323_234040_EX1502L2_MB	EX1502L2_XBT029_150323	8.5	1.9	03/23/2015	066-44-42.92W	066-40-44.02W	18-42-38.52N	18-45-18.43N	2015-03-23 23:40:31.070	2015-03-23 23:57:09.574
0208_20150323_235659_EX1502L2_MB	EX1502L2_XBT029_150323	7.6	52.3	03/23/2015	066-44-30.44W	066-40-47.78W	18-43-33.88N	18-46-58.27N	2015-03-23 23:56:50.075	2015-03-23 23:58:36.074
0209_20150323_235836_EX1502L2_MB	EX1502L2_XBT030_150324	8.4	91.4	03/24/2015	066-42-45.01W	066-39-37.28W	18-43-14.13N	18-47-08.68N	2015-03-23 23:58:26.575	2015-03-24 00:17:43.082
0210_20150324_001743_EX1502L2_MB	EX1502L2_XBT030_150324	8.6	91.7	03/24/2015	066-39-44.90W	066-38-04.98W	18-43-05.38N	18-47-21.11N	2015-03-24 00:17:43.582	2015-03-24 00:27:40.084
0211_20150324_002740_EX1502L2_MB	EX1502L2_XBT030_150324	8.9	91.9	03/24/2015	066-38-20.17W	066-28-45.93W	18-42-46.52N	18-47-09.80N	2015-03-24 00:27:30.584	2015-03-24 01:27:40.601
0212_20150324_012740_EX1502L2_MB	EX1502L2_XBT030_150324	8.9	91.8	03/24/2015	066-28-56.60W	066-19-21.54W	18-42-14.65N	18-46-37.90N	2015-03-24 01:27:31.102	2015-03-24 02:27:37.618
0213_20150324_022738_EX1502L2_MB	EX1502L2_XBT030_150324	8.7	91.7	03/24/2015	066-19-40.27W	066-10-21.34W	18-42-04.11N	18-46-20.71N	2015-03-24 02:27:28.144	2015-03-24 03:27:37.634
0214_20150324_032737_EX1502L2_MB	EX1502L2_XBT030_150324	8.8	91.7	03/24/2015	066-10-26.72W	066-01-04.45W	18-41-31.94N	18-45-53.37N	2015-03-24 03:27:28.141	2015-03-24 04:27:46.653
0215_20150324_042736_EX1502L2_MB	EX1502L2_XBT030_150324	8.5	91.6	03/24/2015	066-01-16.23W	065-52-08.23W	18-41-14.74N	18-45-32.52N	2015-03-24 04:27:27.653	2015-03-24 05:27:38.670
0216_20150324_052739_EX1502L2_MB	EX1502L2_XBT031_150324	8.8	91.6	03/24/2015	065-52-22.85W	065-42-51.52W	18-40-45.26N	18-45-00.05N	2015-03-24 05:27:29.170	2015-03-24 06:27:40.188
0217_20150324_062740_EX1502L2_MB	EX1502L2_XBT031_150324	8.5	91.6	03/24/2015	065-43-06.35W	065-33-52.43W	18-40-30.54N	18-44-29.63N	2015-03-24 06:27:30.688	2015-03-24 07:27:34.704
0218_20150324_072735_EX1502L2_MB	EX1502L2_XBT031_150324	8.4	91.5	03/24/2015	065-34-12.45W	065-25-42.96W	18-40-03.26N	18-44-15.51N	2015-03-24 07:27:25.703	2015-03-24 08:23:26.722
0219_20150324_082327_EX1502L2_MB	EX1502L2_XBT031_150324	9.0	354.9	03/24/2015	065-27-52.42W	065-23-22.22W	18-39-58.98N	18-46-14.84N	2015-03-24 08:23:17.721	2015-03-24 08:44:41.228
0220_20150324_084441_EX1502L2_MB	EX1502L2_XBT031_150324	8.8	271.5	03/24/2015	065-35-17.25W	065-26-00.81W	18-42-33.33N	18-47-01.25N	2015-03-24 08:44:31.729	2015-03-24 09:44:42.744
0221_20150324_094442_EX1502L2_MB	EX1502L2_XBT032_150324	8.6	271.6	03/24/2015	065-44-23.26W	065-35-17.16W	18-43-05.38N	18-47-20.12N	2015-03-24 09:44:33.744	2015-03-24 10:44:42.261
0222_20150324_104442_EX1502L2_MB	EX1502L2_XBT032_150324	8.7	271.7	03/24/2015	065-53-36.30W	065-44-16.54W	18-43-15.07N	18-47-50.66N	2015-03-24 10:44:32.762	2015-03-24 11:44:42.278
0223_20150324_114442_EX1502L2_MB	EX1502L2_XBT032_150324	8.9	271.7	03/24/2015	066-02-54.92W	065-53-24.48W	18-43-44.60N	18-48-13.90N	2015-03-24 11:44:32.782	2015-03-24 12:44:45.297
0224_20150324_124445_EX1502L2_MB	EX1502L2_XBT032_150324	9.0	271.8	03/24/2015	066-12-28.67W	066-02-50.00W	18-44-13.05N	18-48-41.72N	2015-03-24 12:44:35.798	2015-03-24 13:44:42.315
0225_20150324_134442_EX1502L2_MB	EX1502L2_XBT032_150324	8.8	271.8	03/24/2015	066-21-41.56W	066-12-07.98W	18-44-41.18N	18-49-14.25N	2015-03-24 13:44:32.816	2015-03-24 14:44:45.334

0226_20150324_144445_EX1502L2_MB	EX1502L2_XBT032_150324	8.8	271.9	03/24/2015	066-30-46.50W	066-21-26.62W	18-45-00.31N	18-49-21.86N	2015-03-24 14:44:36.330	2015-03-24 15:43:33.848
0227_20150324_154324_EX1502L2_MB	EX1502L2_XBT033_150324	7.5	337.8	03/24/2015	066-32-52.96W	066-28-41.85W	18-45-13.53N	18-49-33.25N	2015-03-24 15:43:14.350	2015-03-24 15:52:01.847
0228_20150324_155201_EX1502L2_MB	EX1502L2_XBT033_150324	8.2	358.4	03/24/2015	066-33-19.56W	066-28-16.89W	18-47-12.87N	18-54-11.14N	2015-03-24 15:51:52.346	2015-03-24 16:35:59.363
0229_20150324_195051_EX1502L2_MB	EX1502L2_XBT033_150324	5.7	188.8	03/24/2015	066-31-35.28W	066-27-20.65W	18-53-16.34N	18-54-24.11N	2015-03-24 19:50:51.919	2015-03-24 19:57:07.920
0230_20150324_205319_EX1502L2_MB	EX1502L2_XBT034_150324	8.7	216.3	03/24/2015	066-35-39.95W	066-28-39.74W	18-47-47.99N	18-54-34.66N	2015-03-24 20:53:19.437	2015-03-24 21:34:40.950
0231_20150324_213431_EX1502L2_MB	EX1502L2_XBT034_150324	7.6	328.0	03/24/2015	066-36-47.73W	066-32-22.25W	18-47-16.23N	18-50-40.66N	2015-03-24 21:34:21.948	2015-03-24 21:38:36.446
0232_20150324_213836_EX1502L2_MB	EX1502L2_XBT034_150324	6.8	353.1	03/24/2015	066-37-24.56W	066-32-17.94W	18-49-15.52N	18-56-17.87N	2015-03-24 21:38:36.946	2015-03-24 22:38:31.467
0233_20150324_223831_EX1502L2_MB	EX1502L2_XBT034_150324	6.3	352.5	03/24/2015	066-37-35.54W	066-33-27.10W	18-55-57.63N	19-02-42.59N	2015-03-24 22:38:31.967	2015-03-24 23:38:31.983
0234_20150324_233832_EX1502L2_MB	EX1502L2_XBT034_150324	6.2	352.9	03/24/2015	066-37-27.73W	066-34-14.68W	19-02-13.86N	19-04-24.81N	2015-03-24 23:38:32.484	2015-03-24 23:55:48.987
0235_20150325_090351_EX1502L2_MB	EX1502L2_XBT035_150324	8.4	3.7	03/25/2015	066-44-31.71W	066-41-19.43W	20-02-10.75N	20-11-01.90N	2015-03-25 09:03:51.143	2015-03-25 09:59:21.657
0236_20150325_095922_EX1502L2_MB	EX1502L2_XBT035_150324	8.1	85.6	03/25/2015	066-42-28.42W	066-33-35.94W	20-07-58.09N	20-11-30.66N	2015-03-25 09:59:22.157	2015-03-25 10:59:23.181
0237_20150325_105923_EX1502L2_MB	EX1502L2_XBT035_150324	7.8	85.7	03/25/2015	066-33-49.32W	066-25-21.37W	20-08-35.81N	20-11-58.86N	2015-03-25 10:59:23.681	2015-03-25 11:59:25.694
0238_20150325_115925_EX1502L2_MB	EX1502L2_XBT035_150324	7.9	85.5	03/25/2015	066-25-24.60W	066-16-59.55W	20-09-04.71N	20-12-29.09N	2015-03-25 11:59:26.194	2015-03-25 12:59:26.711
0239_20150325_125927_EX1502L2_MB	EX1502L2_XBT035_150324	7.7	85.6	03/25/2015	066-17-05.55W	066-08-48.40W	20-10-01.27N	20-12-31.93N	2015-03-25 12:59:27.210	2015-03-25 13:59:25.231
0240_20150325_135925_EX1502L2_MB	EX1502L2_XBT036_150324	7.7	85.3	03/25/2015	066-08-56.84W	066-07-26.37W	20-10-36.47N	20-12-38.82N	2015-03-25 13:59:25.731	2015-03-25 14:09:35.231
0241_20150325_140935_EX1502L2_MB	EX1502L2_XBT036_150324	7.8	353.8	03/25/2015	066-08-36.57W	066-06-21.15W	20-10-45.05N	20-14-51.01N	2015-03-25 14:09:35.731	2015-03-25 14:33:19.743
0242_20150325_143320_EX1502L2_MB	EX1502L2_XBT036_150324	8.8	266.0	03/25/2015	066-16-55.79W	066-07-27.14W	20-11-27.26N	20-14-43.68N	2015-03-25 14:33:20.241	2015-03-25 15:33:22.256
0243_20150325_153322_EX1502L2_MB	EX1502L2_XBT036_150324	8.5	265.6	03/25/2015	066-26.01W	066-16.94W	20-10.62N	20-14.22N	2015-03-25 15:33:22.756	2015-03-25 16:33:22.773
0244_20150325_163323_EX1502L2_MB	EX1502L2_XBT036_150324	8.8	265.7	03/25/2015	066-35.42W	066-25.95W	20-09.77N	20-13.64N	2015-03-25 16:33:23.273	2015-03-25 17:33:24.291
0245_20150325_173324_EX1502L2_MB	EX1502L2_XBT036_150324	8.4	265.7	03/25/2015	066-44.29W	066-35.17W	20-09.56N	20-13.14N	2015-03-25 17:33:09.792	2015-03-25 18:33:25.311
0246_20150325_183325_EX1502L2_MB	EX1502L2_XBT036_150324	8.1	265.8	03/25/2015	066-52.79W	066-44.09W	20-09.05N	20-12.71N	2015-03-25 18:33:11.309	2015-03-25 19:33:22.328
0247_20150325_193322_EX1502L2_MB	EX1502L2_XBT037_150324	8.0	265.8	03/25/2015	067-01.35W	066-52.73W	20-08.55N	20-12.23N	2015-03-25 19:33:08.327	2015-03-25 20:33:22.843
0248_20150325_203323_EX1502L2_MB	EX1502L2_XBT037_150324	8.0	265.8	03/25/2015	067-09.91W	067-01.22W	20-07.61N	20-11.70N	2015-03-25 20:33:08.345	2015-03-25 21:33:29.361

0249_20150325_213329_EX1502L2_MB	EX1502L2_XBT037_150324	8.1	265.9	03/25/2015	067-18.44W	067-09.68W	20-07.68N	20-11.33N	2015-03-25 21:33:15.359	2015-03-25 22:33:22.877
0250_20150325_223322_EX1502L2_MB	EX1502L2_XBT037_150324	8.0	266.3	03/25/2015	067-21.18W	067-18.24W	20-07.73N	20-10.77N	2015-03-25 22:33:08.877	2015-03-25 22:52:50.384
0251_20150325_230806_EX1502L2_MB	EX1502L2_XBT037_150324	8.0	85.9	03/25/2015	067-21.24W	067-12.66W	20-09.22N	20-12.98N	2015-03-25 23:08:06.886	2015-03-26 00:08:03.903
0252_20150326_000804_EX1502L2_MB	EX1502L2_XBT038_150326	8.0	85.9	03/26/15	067-12.81W	067-04.13W	20-09.04N	20-13.25N	2015-03-26 00:08:04.403	2015-03-26 01:08:12.418
0253_20150326_010812_EX1502L2_MB	EX1502L2_XBT038_150326	7.9	81.8	03/26/15	067-04.37W	066-55.82W	20-09.90N	20-14.10N	2015-03-26 01:07:57.921	2015-03-26 02:08:05.939
0254_20150326_020806_EX1502L2_MB	EX1502L2_XBT038_150326	8.0	85.8	03/26/15	066-56.23W	066-47.37W	20-11.13N	20-14.86N	2015-03-26 02:07:51.439	2015-03-26 03:08:05.457
0255_20150326_030805_EX1502L2_MB	EX1502L2_XBT038_150326	7.7	85.8	03/26/15	066-47.63W	066-39.25W	20-11.53N	20-15.49N	2015-03-26 03:07:50.957	2015-03-26 04:08:09.973
0256_20150326_040810_EX1502L2_MB	EX1502L2_XBT038_150326	7.7	85.7	03/26/15	066-39.42W	066-31.04W	20-11.98N	20-15.77N	2015-03-26 04:07:55.971	2015-03-26 05:08:08.488
0257_20150326_050808_EX1502L2_MB	EX1502L2_XBT039_150326	7.9	85.6	03/26/15	066-31.33W	066-22.70W	20-12.38N	20-16.16N	2015-03-26 05:07:53.991	2015-03-26 06:08:09.512
0258_20150326_060809_EX1502L2_MB	EX1502L2_XBT039_150326	7.7	85.6	03/26/15	066-22.97W	066-14.61W	20-12.75N	20-16.47N	2015-03-26 06:07:55.506	2015-03-26 07:08:07.526
0259_20150326_070807_EX1502L2_MB	EX1502L2_XBT039_150326	7.5	91.0	03/26/15	066-14.66W	066-06.37W	20-13.47N	20-16.78N	2015-03-26 07:07:53.523	2015-03-26 08:08:24.042
0260_20150326_080809_EX1502L2_MB	EX1502L2_XBT039_150326	7.6	26.2	03/26/15	066-07.46W	066-05.93W	20-13.90N	20-15.59N	2015-03-26 08:07:55.540	2015-03-26 08:09:06.544
0261_20150326_080852_EX1502L2_MB	EX1502L2_XBT039_150326	8.4	322.2	03/26/15	066-08.25W	066-05.25W	20-14.30N	20-17.95N	2015-03-26 08:08:37.543	2015-03-26 08:35:14.054
0262_20150326_083514_EX1502L2_MB	EX1502L2_XBT039_150326	8.0	268.6	03/26/15	066-16.59W	066-07.89W	20-14.79N	20-18.49N	2015-03-26 08:35:00.051	2015-03-26 09:35:12.568
0263_20150326_093512_EX1502L2_MB	EX1502L2_XBT040_150326	8.0	270.1	03/26/15	066-25.04W	066-16.45W	20-14.86N	20-18.57N	2015-03-26 09:34:58.566	2015-03-26 10:35:10.086
0264_20150326_103510_EX1502L2_MB	EX1502L2_XBT040_150326	8.0	265.7	03/26/15	066-33.56W	066-24.99W	20-14.43N	20-18.34N	2015-03-26 10:34:55.587	2015-03-26 11:35:11.603
0265_20150326_113512_EX1502L2_MB	EX1502L2_XBT040_150326	8.0	265.7	03/26/15	066-42.04W	066-33.55W	20-13.92N	20-17.82N	2015-03-26 11:34:57.105	2015-03-26 12:35:14.141
0266_20150326_123514_EX1502L2_MB	EX1502L2_XBT040_150326	8.1	265.8	03/26/15	066-50.77W	066-41.98W	20-13.37N	20-17.35N	2015-03-26 12:35:00.139	2015-03-26 13:35:13.143
0267_20150326_133513_EX1502L2_MB	EX1502L2_XBT040_150326	8.3	266.2	03/26/15	066-59.40W	066-50.54W	20-13.17N	20-17.05N	2015-03-26 13:34:58.638	2015-03-26 14:35:06.156
0268_20150326_143506_EX1502L2_MB	EX1502L2_XBT041_150326	8.0	264.0	03/26/15	067-07.95W	066-59.40W	20-12.36N	20-16.31N	2015-03-26 14:34:51.655	2015-03-26 15:35:05.171
0269_20150326_153505_EX1502L2_MB	EX1502L2_XBT041_150326	8.0	261.3	03/26/15	067-16.51W	067-07.76W	20-11.41N	20-15.37N	2015-03-26 15:34:50.674	2015-03-26 16:35:10.190
0270_20150326_163510_EX1502L2_MB	EX1502L2_XBT041_150326	8.3	265.4	03/26/15	067-21.41W	067-16.11W	20-10.77N	20-14.64N	2015-03-26 16:34:56.188	2015-03-26 17:08:49.702
0271_20150326_175219_EX1502L2_MB	EX1502L2_XBT041_150326	7.3	77.8	03/26/15	067-21.23W	067-13.48W	20-12.20N	20-16.90N	2015-03-26 17:52:20.209	2015-03-26 18:52:25.224

0272_20150326_185225_EX1502L2_MB	EX1502L2_XBT041_150326	7.6	82.6	03/26/15	067-13.69W	067-05.52W	20-13.39N	20-17.61N	2015-03-26 18:52:10.725	2015-03-26 19:52:21.742
0273_20150326_195222_EX1502L2_MB	EX1502L2_XBT042_150326	7.7	81.6	03/26/15	067-05.63W	066-57.52W	20-14.62N	20-18.95N	2015-03-26 19:52:07.739	2015-03-26 20:52:20.759
0274_20150326_205221_EX1502L2_MB	EX1502L2_XBT042_150326	7.7	87.4	03/26/15	066-57.56W	066-55.23W	20-15.56N	20-19.07N	2015-03-26 20:52:06.259	2015-03-26 21:09:16.264
0275_20150326_212459_EX1502L2_MB	EX1502L2_XBT042_150326	7.7	85.8	03/26/15	066-53.09W	066-44.83W	20-15.74N	20-19.61N	2015-03-26 21:24:59.269	2015-03-26 22:24:52.284
0276_20150326_222452_EX1502L2_MB	EX1502L2_XBT042_150326	7.8	85.7	03/27/15	066-44.97W	066-36.57W	20-16.24N	20-20.14N	2015-03-26 22:24:37.786	2015-03-26 23:24:53.804
0277_20150326_232453_EX1502L2_MB	EX1502L2_XBT042_150326	7.5	85.5	03/27/15	066-36.73W	066-28.66W	20-16.80N	20-20.63N	2015-03-26 23:24:39.801	2015-03-27 00:24:58.319
0278_20150327_002458_EX1502L2_MB	EX1502L2_XBT042_150326	7.5	86.3	03/27/15	066-28.70W	066-20.74W	20-17.08N	20-20.99N	2015-03-27 00:24:58.818	2015-03-27 01:24:56.340
0279_20150327_012456_EX1502L2_MB	EX1502L2_XBT043_150327	7.5	90.0	03/27/15	066-20.80W	066-12.77W	20-17.28N	20-20.93N	2015-03-27 01:24:42.335	2015-03-27 02:25:00.354
0280_20150327_022500_EX1502L2_MB	EX1502L2_XBT043_150327	7.6	98.7	03/27/15	066-12.81W	066-05.28W	20-16.78N	20-20.49N	2015-03-27 02:24:45.854	2015-03-27 03:21:29.872
0281_20150327_032130_EX1502L2_MB	EX1502L2_XBT043_150327	8.2	350.4	03/27/15	066-06.32W	066-03.94W	20-16.92N	20-20.82N	2015-03-27 03:21:15.871	2015-03-27 03:40:39.378
0282_20150327_034039_EX1502L2_MB	EX1502L2_XBT043_150327	8.6	274.7	03/27/15	066-15.19W	066-05.38W	20-18.96N	20-22.23N	2015-03-27 03:40:25.377	2015-03-27 04:40:41.893
0283_20150327_044042_EX1502L2_MB	EX1502L2_XBT043_150327	8.7	271.3	03/27/15	066-24.22W	066-14.72W	20-19.34N	20-22.88N	2015-03-27 04:40:27.398	2015-03-27 05:40:44.413
0284_20150327_054044_EX1502L2_MB	EX1502L2_XBT044_150327	8.7	267.4	03/27/15	066-33.51W	066-24.08W	20-19.09N	20-23.05N	2015-03-27 05:40:30.410	2015-03-27 06:40:46.430
0285_20150327_064046_EX1502L2_MB	EX1502L2_XBT044_150327	8.8	267.4	03/27/15	066-42.83W	066-33.40W	20-18.82N	20-22.64N	2015-03-27 06:40:31.930	2015-03-27 07:40:41.946
0286_20150327_074042_EX1502L2_MB	EX1502L2_XBT044_150327	8.5	267.4	03/27/15	066-51.94W	066-42.85W	20-18.36N	20-22.43N	2015-03-27 07:40:27.944	2015-03-27 08:40:38.964
0287_20150327_084039_EX1502L2_MB	EX1502L2_XBT044_150327	8.4	262.0	03/27/15	067-01.00W	066-51.85W	20-17.77N	20-22.10N	2015-03-27 08:40:24.462	2015-03-27 09:40:46.978
0288_20150327_094047_EX1502L2_MB	EX1502L2_XBT044_150327	8.3	260.7	03/27/15	067-09.64W	067-00.49W	20-16.70N	20-20.82N	2015-03-27 09:40:32.482	2015-03-27 10:40:44.998
0289_20150327_104045_EX1502L2_MB	EX1502L2_XBT045_150327	8.1	260.8	03/27/15	067-18.19W	067-09.28W	20-15.16N	20-19.40N	2015-03-27 10:40:30.499	2015-03-27 11:40:48.013
0290_20150327_114048_EX1502L2_MB	EX1502L2_XBT045_150327	8.0	260.7	03/27/15	067-21.09W	067-17.77W	20-14.95N	20-18.56N	2015-03-27 11:40:34.013	2015-03-27 12:01:28.019
0291_20150327_122835_EX1502L2_MB	EX1502L2_XBT045_150327	8.1	81.2	03/27/15	067-19.85W	067-15.12W	20-17.10N	20-21.01N	2015-03-27 12:28:35.530	2015-03-27 13:01:00.534
0292_20150327_141752_EX1502L2_MB	EX1502L2_XBT045_150327	7.6	84.3	03/27/15	067-15.33W	067-07.13W	20-18.01N	20-21.64N	2015-03-27 14:17:52.556	2015-03-27 15:17:45.577
0293_20150327_151745_EX1502L2_MB	EX1502L2_XBT046_150327	8.3	80.5	03/27/15	067-07.43W	066-58.29W	20-18.88N	20-23.04N	2015-03-27 15:17:31.577	2015-03-27 16:17:45.593
0294_20150327_161746_EX1502L2_MB	EX1502L2_XBT046_150327	8.2	81.0	03/27/15	066-58.80W	066-49.77W	20-19.81N	20-24.09N	2015-03-27 16:17:31.590	2015-03-27 17:17:47.142

0295_20150327_171747_EX1502L2_MB	EX1502L2_XBT046_150327	8.2	87.4	03/27/15	066-49.98W	066-41.21W	20-20.89N	20-24.83N	2015-03-27 17:17:33.139	2015-03-27 18:17:48.141
0296_20150327_181748_EX1502L2_MB	EX1502L2_XBT046_150327	8.3	87.3	03/27/15	066-41.22W	066-32.37W	20-21.16N	20-24.92N	2015-03-27 18:17:34.141	2015-03-27 19:17:46.644
0297_20150327_191747_EX1502L2_MB	EX1502L2_XBT046_150327	8.4	87.3	03/27/15	066-32.38W	066-23.43W	20-21.49N	20-25.22N	2015-03-27 19:17:32.144	2015-03-27 20:17:45.664
0298_20150327_201745_EX1502L2_MB	EX1502L2_XBT046_150327/ EX1502L2_XBT047_150327	8.1	87.2	03/27/15	066-23.46W	066-14.75W	20-21.83N	20-25.40N	2015-03-27 20:17:31.661	2015-03-27 21:17:46.681
0299_20150327_211747_EX1502L2_MB	EX1502L2_XBT047_150327	8.4	87.2	03/27/15	066-14.77W	066-05.83W	20-22.25N	20-25.42N	2015-03-27 21:17:32.677	2015-03-27 22:17:47.696
0300_20150327_221747_EX1502L2_MB	EX1502L2_XBT047_150327	8.4	83.6	03/27/15	066-05.83W	065-56.90W	20-22.77N	20-26.23N	2015-03-27 22:17:33.197	2015-03-27 23:17:47.215
0301_20150327_231747_EX1502L2_MB	EX1502L2_XBT047_150327	8.8	87.0	03/27/15	065-56.96W	065-47.51W	20-23.47N	20-26.68N	2015-03-27 23:17:33.214	2015-03-28 00:17:48.229
0302_20150328_001748_EX1502L2_MB	EX1502L2_XBT047_150327	8.7	87.1	03/28/15	065-47.50W	065-38.25W	20-23.84N	20-26.60N	2015-03-28 00:17:48.729	2015-03-28 01:17:53.247
0303_20150328_011753_EX1502L2_MB	EX1502L2_XBT047_150327	8.4	87.0	03/28/15	065-38.30W	065-36.91W	20-24.18N	20-26.64N	2015-03-28 01:17:38.748	2015-03-28 01:27:09.752
0304_20150328_014053_EX1502L2_MB	EX1502L2_XBT047_150327	8.5	266.6	03/28/15	065-45.85W	065-36.73W	20-24.92N	20-27.92N	2015-03-28 01:40:53.257	2015-03-28 02:40:56.773
0305_20150328_024057_EX1502L2_MB	EX1502L2_XBT047_150327	8.6	267.1	03/28/15	065-54.91W	065-45.78W	20-24.39N	20-27.52N	2015-03-28 02:40:42.275	2015-03-28 03:40:49.287
0306_20150328_034049_EX1502L2_MB	EX1502L2_XBT048_150327	8.5	267.2	03/28/15	066-04.00W	065-54.87W	20-24.35N	20-27.14N	2015-03-28 03:40:34.789	2015-03-28 04:40:51.309
0307_20150328_044051_EX1502L2_MB	EX1502L2_XBT048_150327	8.4	267.2	03/28/15	066-12.91W	066-03.90W	20-23.81N	20-26.88N	2015-03-28 04:40:37.308	2015-03-28 05:40:54.327
0308_20150328_054054_EX1502L2_MB	EX1502L2_XBT048_150327	8.6	267.3	03/28/15	066-22.08W	066-12.89W	20-23.26N	20-27.02N	2015-03-28 05:40:39.827	2015-03-28 06:40:51.343
0309_20150328_064051_EX1502L2_MB	EX1502L2_XBT048_150327	8.5	267.3	03/28/15	066-31.18W	066-22.04W	20-22.92N	20-26.85N	2015-03-28 06:40:37.339	2015-03-28 07:40:48.858
0310_20150328_074049_EX1502L2_MB	EX1502L2_XBT048_150327	8.4	267.4	03/28/15	066-40.11W	066-31.08W	20-22.58N	20-26.57N	2015-03-28 07:40:34.359	2015-03-28 08:40:53.372
0311_20150328_084053_EX1502L2_MB	EX1502L2_XBT049_150327	8.3	267.4	03/28/15	066-48.93W	066-40.01W	20-22.35N	20-26.40N	2015-03-28 08:40:38.877	2015-03-28 09:40:52.391
0312_20150328_094052_EX1502L2_MB	EX1502L2_XBT049_150327	8.2	264.7	03/28/15	066-57.93W	066-48.75W	20-21.86N	20-25.95N	2015-03-28 09:40:37.895	2015-03-28 10:40:55.411
0313_20150328_104055_EX1502L2_MB	EX1502L2_XBT049_150327	8.3	260.8	03/28/15	067-06.71W	066-57.33W	20-20.83N	20-25.49N	2015-03-28 10:40:41.407	2015-03-28 11:40:59.428
0314_20150328_114059_EX1502L2_MB	EX1502L2_XBT049_150327	8.4	260.9	03/28/15	067-15.38W	067-05.99W	20-19.55N	20-23.80N	2015-03-28 11:40:45.428	2015-03-28 12:41:04.442
0315_20150328_124049_EX1502L2_MB	EX1502L2_XBT049_150327	8.4	260.9	03/28/15	067-19.97W	067-14.91W	20-18.64N	20-22.51N	2015-03-28 12:40:34.945	2015-03-28 13:12:13.950
0316_20150328_133432_EX1502L2_MB	EX1502L2_XBT050_150327	7.8	82.7	03/28/15	067-18.98W	067-10.68W	20-21.42N	20-25.68N	2015-03-28 13:34:32.456	2015-03-28 14:34:30.476
0317_20150328_143430_EX1502L2_MB	EX1502L2_XBT050_150327	7.8	80.9	03/28/15	067-11.11W	067-02.41W	20-22.45N	20-26.66N	2015-03-28 14:34:15.976	2015-03-28 15:34:48.489

0318_20150328_153433_EX1502L2_MB	EX1502L2_XBT050_150327	7.9	79.3	03/28/15	067-02.73W	066-54.18W	20-23.26N	20-28.20N	2015-03-28 15:34:19.491	2015-03-28 16:34:28.010
0319_20150328_163428_EX1502L2_MB	EX1502L2_XBT050_150327	8.1	87.5	03/28/15	066-54.41W	066-45.59W	20-24.55N	20-28.47N	2015-03-28 16:34:14.007	2015-03-28 17:34:31.024
0320_20150328_173431_EX1502L2_MB	EX1502L2_XBT050_150327	8.1	85.6	03/28/15	066-45.79W	066-37.09W	20-24.88N	20-29.03N	2015-03-28 17:34:16.523	2015-03-28 18:34:31.041
0321_20150328_183431_EX1502L2_MB	EX1502L2_XBT051_150327	8.2	87.4	03/28/15	066-37.17W	066-28.41W	20-25.33N	20-29.24N	2015-03-28 18:34:16.540	2015-03-28 19:34:34.057
0322_20150328_193434_EX1502L2_MB	EX1502L2_XBT051_150327	8.1	89.2	03/28/15	066-28.43W	066-19.84W	20-25.47N	20-29.40N	2015-03-28 19:34:19.556	2015-03-28 20:34:31.075
0323_20150328_203431_EX1502L2_MB	EX1502L2_XBT051_150327	8.0	88.0	03/28/15	066-19.84W	066-11.29W	20-25.71N	20-29.05N	2015-03-28 20:34:16.574	2015-03-28 21:34:31.591
0324_20150328_213432_EX1502L2_MB	EX1502L2_XBT051_150327	7.9	92.1	03/28/15	066-11.40W	066-02.95W	20-25.95N	20-28.87N	2015-03-28 21:34:17.090	2015-03-28 22:34:36.142
0325_20150328_223436_EX1502L2_MB	EX1502L2_XBT051_150327	7.9	87.0	03/28/15	066-03.05W	065-54.65W	20-25.94N	20-28.35N	2015-03-28 22:34:22.142	2015-03-28 23:34:32.623
0326_20150328_233432_EX1502L2_MB	EX1502L2_XBT052_150328	8.0	86.3	03/28/15	065-54.66W	065-46.12W	20-26.05N	20-28.74N	2015-03-28 23:34:18.140	2015-03-29 00:34:33.141
0327_20150329_003433_EX1502L2_MB	EX1502L2_XBT052_150328	7.8	87.6	03/29/15	065-46.12W	065-37.71W	20-26.65N	20-28.82N	2015-03-29 00:34:33.640	2015-03-29 01:34:35.161
0328_20150329_013435_EX1502L2_MB	EX1502L2_XBT052_150328	7.8	85.6	03/29/15	065-37.81W	065-37.20W	20-26.89N	20-28.84N	2015-03-29 01:34:35.658	2015-03-29 01:38:32.659
0329_20150329_015904_EX1502L2_MB	EX1502L2_XBT052_150328	8.4	266.7	03/29/15	065-46.94W	065-37.67W	20-27.38N	20-30.53N	2015-03-29 01:59:05.168	2015-03-29 02:59:10.686
0330_20150329_025911_EX1502L2_MB	EX1502L2_XBT052_150328	8.4	267.2	03/29/15	065-55.90W	065-46.95W	20-27.29N	20-30.34N	2015-03-29 02:58:56.684	2015-03-29 03:59:01.700
0331_20150329_035902_EX1502L2_MB	EX1502L2_XBT053_150328	8.5	267.2	03/29/15	066-04.97W	065-55.83W	20-27.02N	20-30.37N	2015-03-29 03:58:47.699	2015-03-29 04:59:01.716
0332_20150329_045902_EX1502L2_MB	EX1502L2_XBT053_150328	8.6	272.6	03/29/15	066-14.22W	066-04.88W	20-27.02N	20-30.47N	2015-03-29 04:58:47.217	2015-03-29 05:59:02.236
0333_20150329_055902_EX1502L2_MB	EX1502L2_XBT053_150328	8.9	271.8	03/29/15	066-23.65W	066-13.85W	20-27.18N	20-31.32N	2015-03-29 05:58:48.233	2015-03-29 06:59:03.753
0334_20150329_065904_EX1502L2_MB	EX1502L2_XBT053_150328	8.9	269.0	03/29/15	066-33.10W	066-23.34W	20-27.41N	20-31.49N	2015-03-29 06:58:49.755	2015-03-29 07:59:03.769
0335_20150329_075904_EX1502L2_MB	EX1502L2_XBT053_150328	8.7	266.7	03/29/15	066-42.27W	066-32.83W	20-27.02N	20-31.29N	2015-03-29 07:58:49.272	2015-03-29 08:59:08.284
0336_20150329_085908_EX1502L2_MB	EX1502L2_XBT054_150328	8.6	267.4	03/29/15	066-51.45W	066-42.06W	20-26.74N	20-30.94N	2015-03-29 08:58:54.284	2015-03-29 09:59:03.800
0337_20150329_095903_EX1502L2_MB	EX1502L2_XBT054_150328	8.6	263.1	03/29/15	067-00.80W	066-51.12W	20-25.97N	20-30.68N	2015-03-29 09:58:49.800	2015-03-29 10:59:10.817
0338_20150329_105911_EX1502L2_MB	EX1502L2_XBT054_150328	8.5	258.7	03/29/15	067-09.74W	066-59.97W	20-24.59N	20-29.51N	2015-03-29 10:58:56.318	2015-03-29 11:59:02.335
0339_20150329_115902_EX1502L2_MB	EX1502L2_XBT054_150328	8.3	258.2	03/29/15	067-17.41W	067-08.84W	20-23.50N	20-27.87N	2015-03-29 11:58:48.333	2015-03-29 12:53:36.352
0340_20150329_152158_EX1502L2_MB	EX1502L2_XBT055_150328	8.0	74.5	03/29/15	067-18.41W	067-10.03W	20-24.22N	20-29.55N	2015-03-29 15:21:58.391	2015-03-29 16:22:00.906

0341_20150329_162201_EX1502L2_MB	EX1502L2_XBT055_150328	8.3	76.4	03/29/15	067-10.34W	067-01.37W	20-26.36N	20-31.72N	2015-03-29 16:21:46.407	2015-03-29 17:22:00.427
0342_20150329_172200_EX1502L2_MB	EX1502L2_XBT055_150328	8.1	80.0	03/29/15	067-01.69W	066-52.95W	20-28.06N	20-32.93N	2015-03-29 17:21:45.926	2015-03-29 18:22:01.441
0343_20150329_182201_EX1502L2_MB	EX1502L2_XBT055_150328	8.1	87.5	03/29/15	066-53.00W	066-44.32W	20-29.13N	20-33.47N	2015-03-29 18:21:47.440	2015-03-29 19:21:54.959
0344_20150329_192155_EX1502L2_MB	EX1502L2_XBT055_150328	8.1	87.4	03/29/15	066-44.39W	066-35.67W	20-29.14N	20-33.90N	2015-03-29 19:21:40.957	2015-03-29 20:21:55.973
0345_20150329_202156_EX1502L2_MB	EX1502L2_XBT056_150329	8.2	87.3	03/29/15	066-35.70W	066-26.92W	20-29.31N	20-34.20N	2015-03-29 20:21:41.474	2015-03-29 21:21:53.988
0346_20150329_212154_EX1502L2_MB	EX1502L2_XBT056_150329	8.4	90.3	03/29/15	066-27.02W	066-18.06W	20-29.69N	20-34.08N	2015-03-29 21:21:39.491	2015-03-29 22:21:54.005
0347_20150329_222154_EX1502L2_MB	EX1502L2_XBT056_150329	8.3	94.4	03/29/15	066-18.06W	066-09.14W	20-29.55N	20-33.56N	2015-03-29 22:21:40.004	2015-03-29 23:21:53.023
0348_20150329_232153_EX1502L2_MB	EX1502L2_XBT056_150329	8.6	94.2	03/29/15	066-09.42W	066-00.16W	20-28.93N	20-32.32N	2015-03-29 23:21:38.525	2015-03-30 00:21:58.539
0349_20150330_002158_EX1502L2_MB	EX1502L2_XBT056_150329	8.4	87.5	03/30/15	066-00.33W	065-51.23W	20-28.75N	20-32.33N	2015-03-30 00:21:59.039	2015-03-30 01:21:59.056
0350_20150330_012159_EX1502L2_MB	EX1502L2_XBT057_150330	8.2	87.3	03/30/15	065-51.30W	065-42.35W	20-28.77N	20-31.75N	2015-03-30 01:21:45.055	2015-03-30 02:22:00.573
0351_20150330_022200_EX1502L2_MB	EX1502L2_XBT057_150330	8.1	88.3	03/30/15	065-42.63W	065-38.02W	20-29.31N	20-31.86N	2015-03-30 02:21:46.075	2015-03-30 02:53:04.583
0352_20150330_030249_EX1502L2_MB	EX1502L2_XBT057_150330	8.3	164.3	03/30/15	065-39.17W	065-34.63W	20-22.66N	20-31.19N	2015-03-30 03:02:50.084	2015-03-30 04:02:53.104
0353_20150330_040253_EX1502L2_MB	EX1502L2_XBT058_150330	8.5	165.0	03/30/15	065-37.03W	065-33.54W	20-17.83N	20-23.32N	2015-03-30 04:02:39.101	2015-03-30 04:38:20.614
0354_20150330_043821_EX1502L2_MB	EX1502L2_XBT059_150330	10.3	241.4	03/30/15	065-44.83W	065-33.65W	20-12.67N	20-19.12N	2015-03-30 04:38:06.144	2015-03-30 05:38:21.631
0355_20150330_053821_EX1502L2_MB	EX1502L2_XBT059_150330	10.8	239.2	03/30/15	065-54.53W	065-43.87W	20-07.48N	20-14.05N	2015-03-30 05:38:07.145	2015-03-30 06:38:20.148
0356_20150330_063820_EX1502L2_MB	EX1502L2_XBT059_150330	10.6	239.3	03/30/15	066-04.35W	065-53.84W	20-02.12N	20-08.71N	2015-03-30 06:38:06.147	2015-03-30 07:38:15.164
0357_20150330_073815_EX1502L2_MB	EX1502L2_XBT059_150330	9.6	239.5	03/30/15	066-05.53W	066-03.52W	20-01.61N	20-03.58N	2015-03-30 07:38:00.665	2015-03-30 07:44:40.163
0358_20150402_115230_EX1502L2_MB	EX1502L2_XBT060_150330	8.5	226.3	04/02/15	065-40.65W	065-31.45W	19-00.88N	19-08.82N	2015-04-02 11:52:30.935	2015-04-02 12:52:45.951
0359_20150402_125231_EX1502L2_MB	EX1502L2_XBT060_150330	8.8	226.5	04/02/15	065-47.82W	065-37.97W	18-54.99N	19-03.50N	2015-04-02 12:52:16.950	2015-04-02 13:52:36.965
0360_20150402_135222_EX1502L2_MB	EX1502L2_XBT060_150330	8.9	226.2	04/02/15	065-50.94W	065-45.06W	18-52.51N	18-57.97N	2015-04-02 13:52:07.469	2015-04-02 14:18:47.473
0361_20150402_141833_EX1502L2_MB	EX1502L2_XBT060_150330	8.6	259.9	04/02/15	065-51.13W	065-48.23W	18-51.81N	18-55.71N	2015-04-02 14:18:18.472	2015-04-02 14:23:18.474
0362_20150402_142304_EX1502L2_MB	EX1502L2_XBT060_150330	8.6	269.9	04/02/15	065-53.10W	065-49.84W	18-51.87N	18-55.88N	2015-04-02 14:22:49.475	2015-04-02 14:40:33.477
0363_20150402_144019_EX1502L2_MB	EX1502L2_XBT060_150330	7.8	214.3	04/02/15	065-55.09W	065-51.17W	18-52.12N	18-55.53N	2015-04-02 14:40:04.478	2015-04-02 14:46:11.480

0364_20150402_144611_EX1502L2_MB	EX1502L2_XBT060_150330	10.2	209.1	04/02/15	065-59.90W	065-51.57W	18-43.34N	18-54.02N	2015-04-02 14:45:57.479	2015-04-02 15:46:15.498
0365_20150402_154615_EX1502L2_MB	EX1502L2_XBT060_150330	10.4	209.2	04/02/15	066-05.09W	065-56.78W	18-34.62N	18-44.94N	2015-04-02 15:46:00.998	2015-04-02 16:46:12.514
0366_20150402_164612_EX1502L2_MB	EX1502L2_XBT060_150330	6.4	207.9	04/02/15	066-05.73W	066-02.89W	18-33.45N	18-35.79N	2015-04-02 16:45:58.014	2015-04-02 16:59:17.015

EX1502L2 EM 302 WATER COLUMN PROCESSING LOG	
FILENAME	**REVIEWED**
0001_20150316_154153_EX1502L2	no water column anomalies detected
0002_20150316_164154_EX1502L2	no water column anomalies detected
0003_20150316_174153_EX1502L2	no water column anomalies detected
0004_20150316_184154_EX1502L2	no water column anomalies detected
0005_20150316_190601_EX1502L2	no water column anomalies detected
0006_20150316_200601_EX1502L2	no water column anomalies detected
0007_20150316_210600_EX1502L2	no water column anomalies detected
0008_20150316_220600_EX1502L2	no water column anomalies detected
0009_20150316_221659_EX1502L2	no water column anomalies detected
0010_20150316_222730_EX1502L2	no water column anomalies detected
0011_20150316_225417_EX1502L2	no water column anomalies detected
0012_20150317_183248_EX1502L2	no water column anomalies detected
0013_20150317_193250_EX1502L2	no water column anomalies detected
0014_20150317_194324_EX1502L2	no water column anomalies detected
0015_20150317_194942_EX1502L2	no water column anomalies detected
0016_20150317_204943_EX1502L2	no water column anomalies detected
0017_20150317_214943_EX1502L2	no water column anomalies detected
0018_20150317_224944_EX1502L2	no water column anomalies detected
0019_20150317_230131_EX1502L2	no water column anomalies detected
0020_20150317_230405_EX1502L2	no water column anomalies detected
0021_20150317_230528_EX1502L2	no water column anomalies detected
0022_20150317_232316_EX1502L2	no water column anomalies detected
0023_20150317_232542_EX1502L2	no water column anomalies detected
0024_20150318_002544_EX1502L2	no water column anomalies detected
0025_20150318_012543_EX1502L2	no water column anomalies detected
0026_20150318_022544_EX1502L2	no water column anomalies detected
0027_20150318_032547_EX1502L2	no water column anomalies detected
0028_20150318_042545_EX1502L2	no water column anomalies detected
0029_20150318_052547_EX1502L2	no water column anomalies detected
0030_20150318_062547_EX1502L2	no water column anomalies detected
0031_20150318_072543_EX1502L2	no water column anomalies detected
0032_20150318_082543_EX1502L2	no water column anomalies detected
0033_20150318_092545_EX1502L2	no water column anomalies detected
0034_20150318_093618_EX1502L2	no water column anomalies detected
0035_20150318_101709_EX1502L2	no water column anomalies detected
0036_20150318_111704_EX1502L2	no water column anomalies detected
0037_20150318_121706_EX1502L2	no water column anomalies detected
0038_20150318_131706_EX1502L2	no water column anomalies detected
0039_20150318_141706_EX1502L2	no water column anomalies detected
0040_20150318_151705_EX1502L2	no water column anomalies detected
0041_20150318_161705_EX1502L2	no water column anomalies detected
0042_20150318_171705_EX1502L2	no water column anomalies detected
0043_20150318_181704_EX1502L2	no water column anomalies detected
0044_20150318_191704_EX1502L2	no water column anomalies detected
0045_20150318_200608_EX1502L2	no water column anomalies detected
0046_20150318_201043_EX1502L2	no water column anomalies detected
0047_20150318_211042_EX1502L2	no water column anomalies detected
0048_20150318_221044_EX1502L2	no water column anomalies detected
0049_20150318_231049_EX1502L2	no water column anomalies detected
0050_20150318_234634_EX1502L2	no water column anomalies detected
0051_20150319_004629_EX1502L2	no water column anomalies detected
0052_20150319_014628_EX1502L2	no water column anomalies detected
0053_20150319_024629_EX1502L2	no water column anomalies detected
0054_20150319_031358_EX1502L2	no water column anomalies detected
0055_20150319_041354_EX1502L2	no water column anomalies detected
0056_20150319_051351_EX1502L2	no water column anomalies detected
0057_20150319_054422_EX1502L2	no water column anomalies detected
0058_20150319_064417_EX1502L2	no water column anomalies detected
0059_20150319_074416_EX1502L2	no water column anomalies detected
0060_20150319_084413_EX1502L2	no water column anomalies detected
0061_20150319_094417_EX1502L2	no water column anomalies detected
0062_20150319_104418_EX1502L2	no water column anomalies detected
0063_20150319_114415_EX1502L2	no water column anomalies detected
0064_20150319_131755_EX1502L2	no water column anomalies detected
0065_20150319_175035_EX1502L2	no water column anomalies detected
0066_20150319_180136_EX1502L2	no water column anomalies detected
0067_20150319_190135_EX1502L2	no water column anomalies detected
0068_20150319_200134_EX1502L2	no water column anomalies detected
0069_20150319_203840_EX1502L2	no water column anomalies detected
0070_20150319_203920_EX1502L2	no water column anomalies detected
0071_20150319_204330_EX1502L2	no water column anomalies detected
0105_20150320_202330_EX1502L2	no water column anomalies detected
0104_20150320_202134_EX1502L2	no water column anomalies detected
0103_20150320_200618_EX1502L2	no water column anomalies detected
0102_20150320_200413_EX1502L2	no water column anomalies detected
0101_20150320_193029_EX1502L2	no water column anomalies detected
0100_20150320_185424_EX1502L2	no water column anomalies detected
0099_20150320_171922_EX1502L2	no water column anomalies detected
0098_20150320_161928_EX1502L2	no water column anomalies detected
0097_20150320_151926_EX1502L2	no water column anomalies detected
0096_20150320_151628_EX1502L2	no water column anomalies detected
0095_20150320_145638_EX1502L2	no water column anomalies detected

0094_20150320_141633_EX1502L2	no water column anomalies detected	0126_20150321_104613_EX1502L2	no water column anomalies detected
0093_20150320_131636_EX1502L2	no water column anomalies detected	0127_20150321_160434_EX1502L2	no water column anomalies detected
0092_20150320_121632_EX1502L2	no water column anomalies detected	0128_20150321_165007_EX1502L2	no water column anomalies detected
0091_20150320_114756_EX1502L2	no water column anomalies detected	0129_20150321_170256_EX1502L2	no water column anomalies detected
0090_20150320_104757_EX1502L2	no water column anomalies detected	0130_20150321_180257_EX1502L2	no water column anomalies detected
0089_20150320_094754_EX1502L2	no water column anomalies detected	0131_20150321_190259_EX1502L2	no water column anomalies detected
0088_20150320_084757_EX1502L2	no water column anomalies detected	0132_20150321_200253_EX1502L2	no water column anomalies detected
0087_20150320_082720_EX1502L2	no water column anomalies detected	0133_20150321_210254_EX1502L2	no water column anomalies detected
0086_20150320_072718_EX1502L2	no water column anomalies detected	0134_20150321_212154_EX1502L2	no water column anomalies detected
0085_20150320_062719_EX1502L2	no water column anomalies detected	0135_20150321_222140_EX1502L2	no water column anomalies detected
0084_20150320_052718_EX1502L2	no water column anomalies detected	0136_20150321_232141_EX1502L2	no water column anomalies detected
0083_20150320_044706_EX1502L2	no water column anomalies detected	0137_20150321_233236_EX1502L2	no water column anomalies detected
0082_20150320_034707_EX1502L2	no water column anomalies detected	0138_20150322_002321_EX1502L2	no water column anomalies detected
0081_20150320_024706_EX1502L2	no water column anomalies detected	0139_20150322_002459_EX1502L2	no water column anomalies detected
0080_20150320_014709_EX1502L2	no water column anomalies detected	0140_20150322_002822_EX1502L2	no water column anomalies detected
0079_20150320_014500_EX1502L2	no water column anomalies detected	0141_20150322_012826_EX1502L2	no water column anomalies detected
0078_20150320_005352_EX1502L2	no water column anomalies detected	0142_20150322_022821_EX1502L2	no water column anomalies detected
0077_20150320_005212_EX1502L2	no water column anomalies detected	0143_20150322_032901_EX1502L2	no water column anomalies detected
0076_20150320_002333_EX1502L2	no water column anomalies detected	0144_20150322_033105_EX1502L2	no water column anomalies detected
0075_20150319_232334_EX1502L2	no water column anomalies detected	0145_20150322_042749_EX1502L2	no water column anomalies detected
0074_20150319_231635_EX1502L2	no water column anomalies detected	0146_20150322_045007_EX1502L2	no water column anomalies detected
0073_20150319_224331_EX1502L2	no water column anomalies detected	0147_20150322_055006_EX1502L2	no water column anomalies detected
0072_20150319_214332_EX1502L2	no water column anomalies detected	0148_20150322_065010_EX1502L2	no water column anomalies detected
0106_20150320_212328_EX1502L2	no water column anomalies detected	0149_20150322_075007_EX1502L2	no water column anomalies detected
0107_20150320_220853_EX1502L2	no water column anomalies detected	0150_20150322_085006_EX1502L2	no water column anomalies detected
0108_20150320_221326_EX1502L2	no water column anomalies detected	0151_20150322_095010_EX1502L2	no water column anomalies detected
0109_20150320_231327_EX1502L2	no water column anomalies detected	0152_20150322_105007_EX1502L2	no water column anomalies detected
0110_20150321_001325_EX1502L2	no water column anomalies detected	0153_20150322_111808_EX1502L2	no water column anomalies detected
0111_20150321_002303_EX1502L2	no water column anomalies detected	0154_20150322_114248_EX1502L2	no water column anomalies detected
0112_20150321_002434_EX1502L2	no water column anomalies detected	0155_20150322_124251_EX1502L2	no water column anomalies detected
0113_20150321_005316_EX1502L2	no water column anomalies detected	0156_20150322_134108_EX1502L2	no water column anomalies detected
0114_20150321_005502_EX1502L2	no water column anomalies detected	0157_20150322_134705_EX1502L2	no water column anomalies detected
0115_20150321_015501_EX1502L2	no water column anomalies detected	0158_20150322_140758_EX1502L2	no water column anomalies detected
0116_20150321_025500_EX1502L2	no water column anomalies detected	0159_20150322_141845_EX1502L2	no water column anomalies detected
0117_20150321_030120_EX1502L2	no water column anomalies detected	0160_20150322_151844_EX1502L2	no water column anomalies detected
0118_20150321_030711_EX1502L2	no water column anomalies detected	0161_20150322_161847_EX1502L2	no water column anomalies detected
0119_20150321_040711_EX1502L2	no water column anomalies detected	0162_20150322_171845_EX1502L2	no water column anomalies detected
0120_20150321_050713_EX1502L2	no water column anomalies detected	0163_20150322_181433_EX1502L2	no water column anomalies detected
0121_20150321_060713_EX1502L2	no water column anomalies detected	0164_20150322_182005_EX1502L2	no water column anomalies detected
0122_20150321_070716_EX1502L2	no water column anomalies detected	0165_20150322_183255_EX1502L2	no water column anomalies detected
0123_20150321_080713_EX1502L2	no water column anomalies detected	0166_20150322_183445_EX1502L2	no water column anomalies detected
0124_20150321_090716_EX1502L2	no water column anomalies detected	0167_20150322_193441_EX1502L2	no water column anomalies detected
0125_20150321_100715_EX1502L2	no water column anomalies detected	0170_20150322_213238_EX1502L2	no water column anomalies detected

0171_20150322_221425_EX1502L2	no water column anomalies detected	0214_20150324_032737_EX1502L2	no water column anomalies detected
0172_20150322_221835_EX1502L2	no water column anomalies detected	0215_20150324_042736_EX1502L2	no water column anomalies detected
0173_20150322_222438_EX1502L2	no water column anomalies detected	0216_20150324_052739_EX1502L2	no water column anomalies detected
0174_20150322_222641_EX1502L2	no water column anomalies detected	0217_20150324_062740_EX1502L2	no water column anomalies detected
0175_20150322_232639_EX1502L2	no water column anomalies detected	0218_20150324_072735_EX1502L2	no water column anomalies detected
0176_20150322_232652_EX1502L2	no water column anomalies detected	0219_20150324_082327_EX1502L2	no water column anomalies detected
0177_20150322_232845_EX1502L2	no water column anomalies detected	0220_20150324_084441_EX1502L2	no water column anomalies detected
0178_20150323_002843_EX1502L2	no water column anomalies detected	0221_20150324_094442_EX1502L2	no water column anomalies detected
0179_20150323_012846_EX1502L2	no water column anomalies detected	0222_20150324_104442_EX1502L2	no water column anomalies detected
0180_20150323_022841_EX1502L2	no water column anomalies detected	0223_20150324_114442_EX1502L2	no water column anomalies detected
0181_20150323_032844_EX1502L2	no water column anomalies detected	0224_20150324_124445_EX1502L2	no water column anomalies detected
0182_20150323_042826_EX1502L2	no water column anomalies detected	0225_20150324_134442_EX1502L2	no water column anomalies detected
0183_20150323_052828_EX1502L2	no water column anomalies detected	0226_20150324_144445_EX1502L2	no water column anomalies detected
0184_20150323_052925_EX1502L2	no water column anomalies detected	0227_20150324_154324_EX1502L2	no water column anomalies detected
0185_20150323_053901_EX1502L2	no water column anomalies detected	0228_20150324_155201_EX1502L2	no water column anomalies detected
0186_20150323_063901_EX1502L2	no water column anomalies detected	0229_20150324_195051_EX1502L2	no water column anomalies detected
0187_20150323_073904_EX1502L2	no water column anomalies detected	0230_20150324_205319_EX1502L2	no water column anomalies detected
0188_20150323_083902_EX1502L2	no water column anomalies detected	0231_20150324_213431_EX1502L2	no water column anomalies detected
0189_20150323_093859_EX1502L2	no water column anomalies detected	0232_20150324_213836_EX1502L2	no water column anomalies detected
0190_20150323_103900_EX1502L2	no water column anomalies detected	0233_20150324_223831_EX1502L2	no water column anomalies detected
0191_20150323_113900_EX1502L2	no water column anomalies detected	0234_20150324_233832_EX1502L2	no water column anomalies detected
0192_20150323_123857_EX1502L2	no water column anomalies detected	0235_20150325_090351_EX1502L2	no water column anomalies detected
0193_20150323_133900_EX1502L2	no water column anomalies detected	0236_20150325_095922_EX1502L2	no water column anomalies detected
0194_20150323_143900_EX1502L2	no water column anomalies detected	0237_20150325_105923_EX1502L2	no water column anomalies detected
0195_20150323_150340_EX1502L2	no water column anomalies detected	0238_20150325_115925_EX1502L2	no water column anomalies detected
0196_20150323_152037_EX1502L2	no water column anomalies detected	0239_20150325_125927_EX1502L2	no water column anomalies detected
0197_20150323_153138_EX1502L2	no water column anomalies detected	0240_20150325_135925_EX1502L2	no water column anomalies detected
0198_20150323_163139_EX1502L2	no water column anomalies detected	0241_20150325_140935_EX1502L2	no water column anomalies detected
0199_20150323_173140_EX1502L2	no water column anomalies detected	0242_20150325_143320_EX1502L2	no water column anomalies detected
0200_20150323_183140_EX1502L2	no water column anomalies detected	0243_20150325_153322_EX1502L2	no water column anomalies detected
0201_20150323_193139_EX1502L2	no water column anomalies detected	0244_20150325_163323_EX1502L2	no water column anomalies detected
0202_20150323_203135_EX1502L2	no water column anomalies detected	0245_20150325_173324_EX1502L2	no water column anomalies detected
0203_20150323_213138_EX1502L2	no water column anomalies detected	0246_20150325_183325_EX1502L2	no water column anomalies detected
0204_20150323_223136_EX1502L2	no water column anomalies detected	0247_20150325_193322_EX1502L2	no water column anomalies detected
0205_20150323_233141_EX1502L2	no water column anomalies detected	0248_20150325_203323_EX1502L2	no water column anomalies detected
0206_20150323_233855_EX1502L2	no water column anomalies detected	0249_20150325_213329_EX1502L2	no water column anomalies detected
0207_20150323_234040_EX1502L2	no water column anomalies detected	0250_20150325_223322_EX1502L2	no water column anomalies detected
0208_20150323_235659_EX1502L2	no water column anomalies detected	0251_20150325_230806_EX1502L2	no water column anomalies detected
0209_20150323_235836_EX1502L2	no water column anomalies detected	0252_20150326_000804_EX1502L2	no water column anomalies detected
0210_20150324_001743_EX1502L2	no water column anomalies detected	0253_20150326_010812_EX1502L2	no water column anomalies detected
0211_20150324_002740_EX1502L2	no water column anomalies detected	0254_20150326_020806_EX1502L2	no water column anomalies detected
0212_20150324_012740_EX1502L2	no water column anomalies detected	0255_20150326_030805_EX1502L2	no water column anomalies detected
0213_20150324_022738_EX1502L2	no water column anomalies detected	0256_20150326_040810_EX1502L2	no water column anomalies detected

0257_20150326_050808_EX1502L2	no water column anomalies detected	0300_20150327_221747_EX1502L2	no water column anomalies detected
0258_20150326_060809_EX1502L2	no water column anomalies detected	0301_20150327_231747_EX1502L2	no water column anomalies detected
0259_20150326_070807_EX1502L2	no water column anomalies detected	0302_20150328_001748_EX1502L2	no water column anomalies detected
0260_20150326_080809_EX1502L2	no water column anomalies detected	0303_20150328_011753_EX1502L2	no water column anomalies detected
0261_20150326_080852_EX1502L2	no water column anomalies detected	0304_20150328_014053_EX1502L2	no water column anomalies detected
0262_20150326_083514_EX1502L2	no water column anomalies detected	0305_20150328_024057_EX1502L2	no water column anomalies detected
0263_20150326_093512_EX1502L2	no water column anomalies detected	0306_20150328_034049_EX1502L2	no water column anomalies detected
0264_20150326_103510_EX1502L2	no water column anomalies detected	0307_20150328_044051_EX1502L2	no water column anomalies detected
0265_20150326_113512_EX1502L2	no water column anomalies detected	0308_20150328_054054_EX1502L2	no water column anomalies detected
0266_20150326_123514_EX1502L2	no water column anomalies detected	0309_20150328_064051_EX1502L2	no water column anomalies detected
0267_20150326_133513_EX1502L2	no water column anomalies detected	0310_20150328_074049_EX1502L2	no water column anomalies detected
0268_20150326_143506_EX1502L2	no water column anomalies detected	0311_20150328_084053_EX1502L2	no water column anomalies detected
0269_20150326_153505_EX1502L2	no water column anomalies detected	0312_20150328_094052_EX1502L2	no water column anomalies detected
0270_20150326_163510_EX1502L2	no water column anomalies detected	0313_20150328_104055_EX1502L2	no water column anomalies detected
0271_20150326_175219_EX1502L2	no water column anomalies detected	0314_20150328_114059_EX1502L2	no water column anomalies detected
0272_20150326_185225_EX1502L2	no water column anomalies detected	0315_20150328_124049_EX1502L2	no water column anomalies detected
0273_20150326_195222_EX1502L2	no water column anomalies detected	0316_20150328_133432_EX1502L2	no water column anomalies detected
0274_20150326_205221_EX1502L2	no water column anomalies detected	0317_20150328_143430_EX1502L2	no water column anomalies detected
0275_20150326_212459_EX1502L2	no water column anomalies detected	0318_20150328_153433_EX1502L2	no water column anomalies detected
0276_20150326_222452_EX1502L2	no water column anomalies detected	0319_20150328_163428_EX1502L2	no water column anomalies detected
0277_20150326_232453_EX1502L2	no water column anomalies detected	0320_20150328_173431_EX1502L2	no water column anomalies detected
0278_20150327_002458_EX1502L2	no water column anomalies detected	0321_20150328_183431_EX1502L2	no water column anomalies detected
0279_20150327_012456_EX1502L2	no water column anomalies detected	0322_20150328_193434_EX1502L2	no water column anomalies detected
0280_20150327_022500_EX1502L2	no water column anomalies detected	0323_20150328_203431_EX1502L2	no water column anomalies detected
0281_20150327_032130_EX1502L2	no water column anomalies detected	0324_20150328_213432_EX1502L2	no water column anomalies detected
0282_20150327_034039_EX1502L2	no water column anomalies detected	0325_20150328_223436_EX1502L2	no water column anomalies detected
0283_20150327_044042_EX1502L2	no water column anomalies detected	0326_20150328_233432_EX1502L2	no water column anomalies detected
0284_20150327_054044_EX1502L2	no water column anomalies detected	0327_20150329_003433_EX1502L2	no water column anomalies detected
0285_20150327_064046_EX1502L2	no water column anomalies detected	0328_20150329_013435_EX1502L2	no water column anomalies detected
0286_20150327_074042_EX1502L2	no water column anomalies detected	0329_20150329_015904_EX1502L2	no water column anomalies detected
0287_20150327_084039_EX1502L2	no water column anomalies detected	0330_20150329_025911_EX1502L2	no water column anomalies detected
0288_20150327_094047_EX1502L2	no water column anomalies detected	0331_20150329_035902_EX1502L2	no water column anomalies detected
0289_20150327_104045_EX1502L2	no water column anomalies detected	0332_20150329_045902_EX1502L2	no water column anomalies detected
0290_20150327_114048_EX1502L2	no water column anomalies detected	0333_20150329_055902_EX1502L2	no water column anomalies detected
0291_20150327_122835_EX1502L2	no water column anomalies detected	0334_20150329_065904_EX1502L2	no water column anomalies detected
0292_20150327_141752_EX1502L2	no water column anomalies detected	0335_20150329_075904_EX1502L2	no water column anomalies detected
0293_20150327_151745_EX1502L2	no water column anomalies detected	0336_20150329_085908_EX1502L2	no water column anomalies detected
0294_20150327_161746_EX1502L2	no water column anomalies detected	0337_20150329_095903_EX1502L2	no water column anomalies detected
0295_20150327_171747_EX1502L2	no water column anomalies detected	0338_20150329_105911_EX1502L2	no water column anomalies detected
0296_20150327_181748_EX1502L2	no water column anomalies detected	0339_20150329_115902_EX1502L2	no water column anomalies detected
0297_20150327_191747_EX1502L2	no water column anomalies detected	0340_20150329_152158_EX1502L2	no water column anomalies detected
0298_20150327_201745_EX1502L2	no water column anomalies detected	0341_20150329_162201_EX1502L2	no water column anomalies detected
0299_20150327_211747_EX1502L2	no water column anomalies detected	0342_20150329_172200_EX1502L2	no water column anomalies detected

0343_20150329_182201_EX1502L2	no water column anomalies detected
0344_20150329_192155_EX1502L2	no water column anomalies detected
0345_20150329_202156_EX1502L2	no water column anomalies detected
0346_20150329_212154_EX1502L2	no water column anomalies detected
0347_20150329_222154_EX1502L2	no water column anomalies detected
0348_20150329_232153_EX1502L2	no water column anomalies detected
0349_20150330_002158_EX1502L2	no water column anomalies detected
0350_20150330_012159_EX1502L2	no water column anomalies detected
0351_20150330_022200_EX1502L2	no water column anomalies detected
0352_20150330_030249_EX1502L2	no water column anomalies detected
0353_20150330_040253_EX1502L2	no water column anomalies detected
0354_20150330_043821_EX1502L2	no water column anomalies detected

0355_20150330_053821_EX1502L2	no water column anomalies detected
0356_20150330_063820_EX1502L2	no water column anomalies detected
0357_20150330_073815_EX1502L2	no water column anomalies detected
0358_20150402_115230_EX1502L2	no water column anomalies detected
0359_20150402_125231_EX1502L2	no water column anomalies detected
0360_20150402_135222_EX1502L2	no water column anomalies detected
0361_20150402_141833_EX1502L2	no water column anomalies detected
0362_20150402_142304_EX1502L2	no water column anomalies detected
0363_20150402_144019_EX1502L2	no water column anomalies detected
0364_20150402_144611_EX1502L2	no water column anomalies detected
0365_20150402_154615_EX1502L2	no water column anomalies detected
0366_20150402_164612_EX1502L2	no water column anomalies detected

EX1502L2 SUBBOTTOM ACQUISITION LOG

DATE (UTC)	TIME (UTC)		FILENAME
3/16/2015	6:24	PM	EX1502L2_SBP_002.kea
3/16/2015	6:24	PM	EX1502L2_SBP_002.keb
3/16/2015	6:24	PM	EX1502L2_SBP_70870_CHP3.5_RAW_002.sgy
3/16/2015	6:47	PM	EX1502L2_SBP_70870_CHP3.5_RAW_003.sgy
3/16/2015	6:47	PM	EX1502L2_SBP_003.keb
3/16/2015	6:47	PM	EX1502L2_SBP_003.kea
3/16/2015	11:50	AM	EX1502L2_SBP_70870_CHP3.5_RAW_001.sgy
3/16/2015	11:50	AM	EX1502L2_SBP_000.kea
3/16/2015	11:50	AM	EX1502L2_SBP_70870_CHP3.5_RAW_000.sgy
3/16/2015	11:50	AM	EX1502L2_SBP_000.keb
3/17/2015	2:37	PM	EX1502L2_SBP_70870_CHP3.5_RAW_004.sgy
3/17/2015	2:37	PM	EX1502L2_SBP_004.keb
3/17/2015	2:37	PM	EX1502L2_SBP_004.kea
3/17/2015	2:38	PM	EX1502L2_SBP_70870_CHP3.5_RAW_005.sgy
3/17/2015	2:42	PM	EX1502L2_SBP_70870_CHP3.5_RAW_006.sgy
3/17/2015	3:43	PM	EX1502L2_SBP_70870_CHP3.5_RAW_007.sgy
3/17/2015	3:43	PM	EX1502L2_SBP_005.kea
3/17/2015	3:43	PM	EX1502L2_SBP_005.keb
3/17/2015	3:45	PM	EX1502L2_SBP_70870_CHP3.5_RAW_008.sgy
3/17/2015	3:45	PM	EX1502L2_SBP_008.keb
3/17/2015	3:45	PM	EX1502L2_SBP_009.kea
3/17/2015	3:45	PM	EX1502L2_SBP_008.kea
3/17/2015	3:45	PM	EX1502L2_SBP_009.keb
3/17/2015	3:45	PM	EX1502L2_SBP_70870_CHP3.5_RAW_009.sgy
3/17/2015	4:23	PM	EX1502L2_SBP_70870_CHP3.5_RAW_010.sgy
3/17/2015	4:23	PM	EX1502L2_SBP_010.keb
3/17/2015	4:23	PM	EX1502L2_SBP_010.kea
3/17/2015	6:21	PM	EX1502L2_SBP_70870_CHP3.5_RAW_011.sgy
3/17/2015	7:04	PM	EX1502L2_SBP_011.kea
3/17/2015	7:04	PM	EX1502L2_SBP_011.keb
3/17/2015	7:04	PM	EX1502L2_SBP_70870_CHP3.5_RAW_012.sgy
3/17/2015	7:05	PM	EX1502L2_SBP_013.kea
3/17/2015	7:05	PM	EX1502L2_SBP_70870_CHP3.5_RAW_013.sgy
3/17/2015	7:05	PM	EX1502L2_SBP_013.keb
3/17/2015	7:23	PM	EX1502L2_SBP_014.kea
3/17/2015	7:23	PM	EX1502L2_SBP_70870_CHP3.5_RAW_014.sgy
3/17/2015	7:23	PM	EX1502L2_SBP_014.keb
3/17/2015	7:25	PM	EX1502L2_SBP_015.keb
3/17/2015	7:25	PM	EX1502L2_SBP_70870_CHP3.5_RAW_015.sgy
3/17/2015	7:25	PM	EX1502L2_SBP_015.kea
3/18/2015	2:27	PM	EX1502L2_SBP_70870_CHP3.5_RAW_022.sgy
3/18/2015	2:27	PM	EX1502L2_SBP_70870_CHP3.5_RAW_020.sgy
3/18/2015	2:27	PM	EX1502L2_SBP_70870_CHP3.5_RAW_021.sgy
3/18/2015	3:39	PM	EX1502L2_SBP_70870_CHP3.5_RAW_023.sgy
3/18/2015	4:06	PM	EX1502L2_SBP_017.keb
3/18/2015	4:06	PM	EX1502L2_SBP_70870_CHP3.5_RAW_024.sgy
3/18/2015	4:06	PM	EX1502L2_SBP_017.kea
3/18/2015	4:10	PM	EX1502L2_SBP_025.keb
3/18/2015	4:10	PM	EX1502L2_SBP_70870_CHP3.5_RAW_025.sgy
3/18/2015	4:10	PM	EX1502L2_SBP_025.kea
3/18/2015	5:25	PM	EX1502L2_SBP_70870_CHP3.5_RAW_027.sgy
3/18/2015	5:25	PM	EX1502L2_SBP_70870_CHP3.5_RAW_026.sgy
3/18/2015	5:57	PM	EX1502L2_SBP_70870_CHP3.5_RAW_028.sgy
3/18/2015	5:58	PM	EX1502L2_SBP_70870_CHP3.5_RAW_029.sgy
3/18/2015	6:17	AM	EX1502L2_SBP_016.kea
3/18/2015	6:17	AM	EX1502L2_SBP_016.keb

3/18/2015	6:18	AM	EX1502L2_SBP_70870_CHP3.5_RAW_016.sgy
3/18/2015	7:05	PM	EX1502L2_SBP_70870_CHP3.5_RAW_030.sgy
3/18/2015	7:45	PM	EX1502L2_SBP_70870_CHP3.5_RAW_031.sgy
3/18/2015	7:45	PM	EX1502L2_SBP_026.kea
3/18/2015	7:45	PM	EX1502L2_SBP_026.keb
3/18/2015	8:02	PM	EX1502L2_SBP_032.kea
3/18/2015	8:02	PM	EX1502L2_SBP_032.keb
3/18/2015	8:02	PM	EX1502L2_SBP_70870_CHP3.5_RAW_032.sgy
3/18/2015	8:14	AM	EX1502L2_SBP_70870_CHP3.5_RAW_017.sgy
3/18/2015	8:21	AM	EX1502L2_SBP_70870_CHP3.5_RAW_018.sgy
3/18/2015	8:58	AM	EX1502L2_SBP_70870_CHP3.5_RAW_019.sgy
3/18/2015	9:04	PM	EX1502L2_SBP_70870_CHP3.5_RAW_033.sgy
3/18/2015	9:07	PM	EX1502L2_SBP_70870_CHP3.5_RAW_034.sgy
3/18/2015	10:01	PM	EX1502L2_SBP_70870_CHP3.5_RAW_035.sgy
3/18/2015	10:02	PM	EX1502L2_SBP_033.keb
3/18/2015	10:02	PM	EX1502L2_SBP_033.kea
3/18/2015	10:02	PM	EX1502L2_SBP_70870_CHP3.5_RAW_036.sgy
3/18/2015	10:16	PM	EX1502L2_SBP_70870_CHP3.5_RAW_037.sgy
3/18/2015	11:13	PM	EX1502L2_SBP_037.kea
3/18/2015	11:13	PM	EX1502L2_SBP_037.keb
3/18/2015	11:14	PM	EX1502L2_SBP_70870_CHP3.5_RAW_038.sgy
3/19/2015	3:00	AM	EX1502L2_SBP_70870_CHP3.5_RAW_039.sgy
3/19/2015	4:38	PM	EX1502L2_SBP_70870_CHP3.5_RAW_044.sgy
3/19/2015	4:38	PM	EX1502L2_SBP_044.keb
3/19/2015	4:38	PM	EX1502L2_SBP_044.kea
3/19/2015	4:43	PM	EX1502L2_SBP_045.kea
3/19/2015	4:43	PM	EX1502L2_SBP_045.keb
3/19/2015	4:43	PM	EX1502L2_SBP_70870_CHP3.5_RAW_045.sgy
3/19/2015	5:53	PM	EX1502L2_SBP_70870_CHP3.5_RAW_046.sgy
3/19/2015	5:54	PM	EX1502L2_SBP_70870_CHP3.5_RAW_047.sgy
3/19/2015	6:08	AM	EX1502L2_SBP_70870_CHP3.5_RAW_040.sgy
3/19/2015	7:16	PM	EX1502L2_SBP_046.keb
3/19/2015	7:16	PM	EX1502L2_SBP_70870_CHP3.5_RAW_048.sgy
3/19/2015	7:16	PM	EX1502L2_SBP_046.kea
3/19/2015	7:19	AM	EX1502L2_SBP_70870_CHP3.5_RAW_041.sgy
3/19/2015	7:23	PM	EX1502L2_SBP_049.kea
3/19/2015	7:23	PM	EX1502L2_SBP_049.keb
3/19/2015	7:23	PM	EX1502L2_SBP_70870_CHP3.5_RAW_049.sgy
3/19/2015	8:12	AM	EX1502L2_SBP_039.kea
3/19/2015	8:12	AM	EX1502L2_SBP_039.keb
3/19/2015	8:12	AM	EX1502L2_SBP_70870_CHP3.5_RAW_042.sgy
3/19/2015	9:42	PM	EX1502L2_SBP_70870_CHP3.5_RAW_050.sgy
3/19/2015	9:45	PM	EX1502L2_SBP_050.keb
3/19/2015	9:45	PM	EX1502L2_SBP_050.kea
3/19/2015	9:45	PM	EX1502L2_SBP_70870_CHP3.5_RAW_051.sgy
3/19/2015	9:54	AM	EX1502L2_SBP_043.keb
3/19/2015	9:54	AM	EX1502L2_SBP_043.kea
3/19/2015	9:55	AM	EX1502L2_SBP_70870_CHP3.5_RAW_043.sgy
3/19/2015	10:20	PM	EX1502L2_SBP_70870_CHP3.5_RAW_052.sgy
3/20/2015	1:01	AM	EX1502L2_SBP_052.keb
3/20/2015	1:01	AM	EX1502L2_SBP_052.kea
3/20/2015	1:02	AM	EX1502L2_SBP_70870_CHP3.5_RAW_053.sgy
3/20/2015	3:41	AM	EX1502L2_SBP_70870_CHP3.5_RAW_054.sgy
3/20/2015	4:04	PM	EX1502L2_SBP_065.keb
3/20/2015	4:04	PM	EX1502L2_SBP_065.kea
3/20/2015	4:04	PM	EX1502L2_SBP_70870_CHP3.5_RAW_067.sgy
3/20/2015	4:42	AM	EX1502L2_SBP_70870_CHP3.5_RAW_055.sgy
3/20/2015	8:14	AM	EX1502L2_SBP_70870_CHP3.5_RAW_056.sgy
3/20/2015	8:14	AM	EX1502L2_SBP_054.kea
3/20/2015	8:14	AM	EX1502L2_SBP_054.keb
3/20/2015	8:24	PM	EX1502L2_SBP_068.kea
3/20/2015	8:24	PM	EX1502L2_SBP_70870_CHP3.5_RAW_068.sgy
3/20/2015	8:24	PM	EX1502L2_SBP_068.keb
3/20/2015	8:31	AM	EX1502L2_SBP_70870_CHP3.5_RAW_057.sgy
3/20/2015	8:53	PM	EX1502L2_SBP_70870_CHP3.5_RAW_323.sgy
3/20/2015	8:53	PM	EX1502L2_SBP_323.keb
3/20/2015	8:53	PM	EX1502L2_SBP_323.kea
3/20/2015	10:02	PM	EX1502L2_SBP_70870_CHP3.5_RAW_324.sgy
3/20/2015	10:02	PM	EX1502L2_SBP_324.keb
3/20/2015	10:02	PM	EX1502L2_SBP_324.kea
3/20/2015	10:04	AM	EX1502L2_SBP_70870_CHP3.5_RAW_059.sgy
3/20/2015	10:04	AM	EX1502L2_SBP_70870_CHP3.5_RAW_058.sgy
3/20/2015	10:10	PM	EX1502L2_SBP_325.kea
3/20/2015	10:10	PM	EX1502L2_SBP_325.keb
3/20/2015	10:10	PM	EX1502L2_SBP_70870_CHP3.5_RAW_325.sgy
3/20/2015	10:11	PM	EX1502L2_SBP_326.keb
3/20/2015	10:11	PM	EX1502L2_SBP_70870_CHP3.5_RAW_326.sgy
3/20/2015	10:11	PM	EX1502L2_SBP_326.kea
3/20/2015	10:22	PM	EX1502L2_SBP_327.kea
3/20/2015	10:22	AM	EX1502L2_SBP_70870_CHP3.5_RAW_060.sgy
3/20/2015	10:22	PM	EX1502L2_SBP_70870_CHP3.5_RAW_327.sgy
3/20/2015	10:22	PM	EX1502L2_SBP_327.keb
3/20/2015	10:23	AM	EX1502L2_SBP_057.keb
3/20/2015	10:23	AM	EX1502L2_SBP_70870_CHP3.5_RAW_062.sgy
3/20/2015	10:23	AM	EX1502L2_SBP_70870_CHP3.5_RAW_063.sgy
3/20/2015	10:23	AM	EX1502L2_SBP_70870_CHP3.5_RAW_064.sgy

3/20/2015	10:23	AM	EX1502L2_SBP_057.kea
3/20/2015	10:23	AM	EX1502L2_SBP_70870_CHP3.5_RAW_061.sgy
3/20/2015	10:47	PM	EX1502L2_SBP_069.keb
3/20/2015	10:47	PM	EX1502L2_SBP_70870_CHP3.5_RAW_069.sgy
3/20/2015	10:47	PM	EX1502L2_SBP_069.kea
3/20/2015	10:54	PM	EX1502L2_SBP_070.kea
3/20/2015	10:54	PM	EX1502L2_SBP_70870_CHP3.5_RAW_070.sgy
3/20/2015	10:54	PM	EX1502L2_SBP_070.keb
3/20/2015	11:12	AM	EX1502L2_SBP_70870_CHP3.5_RAW_065.sgy
3/20/2015	11:24	AM	EX1502L2_SBP_70870_CHP3.5_RAW_066.sgy
3/21/2015	1:52	PM	EX1502L2_SBP_70870_CHP3.5_RAW_075.sgy
3/21/2015	2:12	PM	EX1502L2_SBP_70870_CHP3.5_RAW_076.sgy
3/21/2015	2:24	PM	EX1502L2_SBP_70870_CHP3.5_RAW_077.sgy
3/21/2015	2:26	PM	EX1502L2_SBP_70870_CHP3.5_RAW_078.sgy
3/21/2015	2:37	AM	EX1502L2_SBP_70870_CHP3.5_RAW_071.sgy
3/21/2015	3:00	PM	EX1502L2_SBP_70870_CHP3.5_RAW_079.sgy
3/21/2015	3:01	PM	EX1502L2_SBP_70870_CHP3.5_RAW_080.sgy
3/21/2015	3:21	PM	EX1502L2_SBP_70870_CHP3.5_RAW_081.sgy
3/21/2015	3:22	PM	EX1502L2_SBP_70870_CHP3.5_RAW_082.sgy
3/21/2015	4:20	PM	EX1502L2_SBP_70870_CHP3.5_RAW_083.sgy
3/21/2015	4:31	PM	EX1502L2_SBP_70870_CHP3.5_RAW_084.sgy
3/21/2015	5:16	PM	EX1502L2_SBP_073.keb
3/21/2015	5:16	PM	EX1502L2_SBP_073.kea
3/21/2015	5:16	PM	EX1502L2_SBP_70870_CHP3.5_RAW_085.sgy
3/21/2015	7:44	AM	EX1502L2_SBP_071.keb
3/21/2015	7:44	AM	EX1502L2_SBP_071.kea
3/21/2015	8:07	AM	EX1502L2_SBP_70870_CHP3.5_RAW_072.sgy
3/21/2015	8:23	PM	EX1502L2_SBP_70870_CHP3.5_RAW_086.sgy
3/21/2015	8:23	PM	EX1502L2_SBP_086.keb
3/21/2015	8:23	PM	EX1502L2_SBP_086.kea
3/21/2015	8:28	PM	EX1502L2_SBP_087.kea
3/21/2015	8:28	PM	EX1502L2_SBP_087.keb
3/21/2015	8:28	PM	EX1502L2_SBP_70870_CHP3.5_RAW_087.sgy
3/21/2015	9:01	PM	EX1502L2_SBP_70870_CHP3.5_RAW_088.sgy
3/21/2015	9:04	PM	EX1502L2_SBP_70870_CHP3.5_RAW_089.sgy
3/21/2015	11:06	PM	EX1502L2_SBP_70870_CHP3.5_RAW_090.sgy
3/21/2015	11:14	PM	EX1502L2_SBP_70870_CHP3.5_RAW_091.sgy
3/21/2015	12:06	PM	EX1502L2_SBP_70870_CHP3.5_RAW_073.sgy
3/21/2015	12:30	PM	EX1502L2_SBP_70870_CHP3.5_RAW_074.sgy
3/22/2015	1:28	PM	EX1502L2_SBP_70870_CHP3.5_RAW_106.sgy
3/22/2015	2:06	PM	EX1502L2_SBP_70870_CHP3.5_RAW_107.sgy
3/22/2015	2:33	PM	EX1502L2_SBP_70870_CHP3.5_RAW_108.sgy
3/22/2015	2:56	PM	EX1502L2_SBP_70870_CHP3.5_RAW_109.sgy
3/22/2015	2:59	PM	EX1502L2_SBP_70870_CHP3.5_RAW_110.sgy
3/22/2015	3:01	PM	EX1502L2_SBP_70870_CHP3.5_RAW_111.sgy
3/22/2015	3:16	PM	EX1502L2_SBP_70870_CHP3.5_RAW_112.sgy
3/22/2015	3:28	PM	EX1502L2_SBP_70870_CHP3.5_RAW_113.sgy
3/22/2015	5:02	AM	EX1502L2_SBP_70870_CHP3.5_RAW_093.sgy
3/22/2015	5:04	PM	EX1502L2_SBP_70870_CHP3.5_RAW_114.sgy
3/22/2015	5:23	PM	EX1502L2_SBP_106.keb
3/22/2015	5:23	PM	EX1502L2_SBP_106.kea
3/22/2015	5:24	PM	EX1502L2_SBP_70870_CHP3.5_RAW_115.sgy
3/22/2015	5:43	PM	EX1502L2_SBP_116.kea
3/22/2015	5:43	PM	EX1502L2_SBP_116.keb
3/22/2015	5:43	PM	EX1502L2_SBP_70870_CHP3.5_RAW_116.sgy
3/22/2015	6:15	PM	EX1502L2_SBP_70870_CHP3.5_RAW_117.sgy
3/22/2015	6:15	PM	EX1502L2_SBP_117.keb
3/22/2015	6:15	PM	EX1502L2_SBP_117.kea
3/22/2015	6:21	PM	EX1502L2_SBP_70870_CHP3.5_RAW_118.sgy
3/22/2015	7:29	PM	EX1502L2_SBP_118.kea
3/22/2015	7:29	PM	EX1502L2_SBP_70870_CHP3.5_RAW_119.sgy
3/22/2015	7:29	PM	EX1502L2_SBP_118.keb
3/22/2015	7:31	PM	EX1502L2_SBP_70870_CHP3.5_RAW_120.sgy
3/22/2015	7:36	PM	EX1502L2_SBP_70870_CHP3.5_RAW_121.sgy
3/22/2015	8:19	AM	EX1502L2_SBP_70870_CHP3.5_RAW_094.sgy
3/22/2015	8:21	PM	EX1502L2_SBP_70870_CHP3.5_RAW_122.sgy
3/22/2015	9:08	PM	EX1502L2_SBP_70870_CHP3.5_RAW_123.sgy
3/22/2015	9:31	PM	EX1502L2_SBP_70870_CHP3.5_RAW_124.sgy
3/22/2015	9:34	AM	EX1502L2_SBP_088.keb
3/22/2015	9:34	AM	EX1502L2_SBP_088.kea
3/22/2015	9:34	AM	EX1502L2_SBP_70870_CHP3.5_RAW_095.sgy
3/22/2015	9:41	PM	EX1502L2_SBP_70870_CHP3.5_RAW_125.sgy
3/22/2015	10:08	AM	EX1502L2_SBP_70870_CHP3.5_RAW_096.sgy
3/22/2015	10:35	AM	EX1502L2_SBP_70870_CHP3.5_RAW_097.sgy
3/22/2015	11:22	AM	EX1502L2_SBP_70870_CHP3.5_RAW_098.sgy
3/22/2015	11:39	AM	EX1502L2_SBP_70870_CHP3.5_RAW_099.sgy
3/22/2015	11:55	AM	EX1502L2_SBP_70870_CHP3.5_RAW_100.sgy
3/22/2015	11:56	AM	EX1502L2_SBP_70870_CHP3.5_RAW_101.sgy
3/22/2015	12:00	PM	EX1502L2_SBP_70870_CHP3.5_RAW_102.sgy
3/22/2015	12:03	PM	EX1502L2_SBP_70870_CHP3.5_RAW_103.sgy
3/22/2015	12:07	PM	EX1502L2_SBP_70870_CHP3.5_RAW_104.sgy
3/22/2015	12:16	PM	EX1502L2_SBP_096.kea
3/22/2015	12:16	PM	EX1502L2_SBP_096.keb
3/22/2015	12:16	PM	EX1502L2_SBP_70870_CHP3.5_RAW_105.sgy
3/22/2015	12:44	AM	EX1502L2_SBP_70870_CHP3.5_RAW_092.sgy
3/23/2015	1:06	PM	EX1502L2_SBP_135.kea

3/23/2015	1:06	PM	EX1502L2_SBP_135.keb
3/23/2015	1:06	PM	EX1502L2_SBP_70870_CHP3.5_RAW_135.sgy
3/23/2015	2:55	PM	EX1502L2_SBP_70870_CHP3.5_RAW_136.sgy
3/23/2015	2:56	PM	EX1502L2_SBP_136.keb
3/23/2015	2:56	PM	EX1502L2_SBP_136.kea
3/23/2015	2:56	PM	EX1502L2_SBP_70870_CHP3.5_RAW_137.sgy
3/23/2015	3:21	PM	EX1502L2_SBP_70870_CHP3.5_RAW_138.sgy
3/23/2015	3:21	PM	EX1502L2_SBP_138.keb
3/23/2015	3:21	PM	EX1502L2_SBP_138.kea
3/23/2015	3:54	PM	EX1502L2_SBP_139.kea
3/23/2015	3:54	PM	EX1502L2_SBP_139.keb
3/23/2015	3:54	PM	EX1502L2_SBP_70870_CHP3.5_RAW_139.sgy
3/23/2015	7:16	AM	EX1502L2_SBP_70870_CHP3.5_RAW_126.sgy
3/23/2015	7:18	PM	EX1502L2_SBP_140.kea
3/23/2015	7:18	PM	EX1502L2_SBP_140.keb
3/23/2015	7:19	PM	EX1502L2_SBP_70870_CHP3.5_RAW_140.sgy
3/23/2015	7:29	AM	EX1502L2_SBP_70870_CHP3.5_RAW_127.sgy
3/23/2015	7:38	PM	EX1502L2_SBP_141.keb
3/23/2015	7:38	PM	EX1502L2_SBP_141.kea
3/23/2015	7:39	PM	EX1502L2_SBP_70870_CHP3.5_RAW_141.sgy
3/23/2015	7:42	AM	EX1502L2_SBP_70870_CHP3.5_RAW_128.sgy
3/23/2015	7:57	PM	EX1502L2_SBP_142.kea
3/23/2015	7:57	PM	EX1502L2_SBP_142.keb
3/23/2015	7:57	PM	EX1502L2_SBP_70870_CHP3.5_RAW_142.sgy
3/23/2015	8:25	AM	EX1502L2_SBP_70870_CHP3.5_RAW_129.sgy
3/23/2015	8:25	AM	EX1502L2_SBP_120.keb
3/23/2015	8:25	AM	EX1502L2_SBP_120.kea
3/23/2015	8:34	AM	EX1502L2_SBP_130.kea
3/23/2015	8:34	AM	EX1502L2_SBP_70870_CHP3.5_RAW_130.sgy
3/23/2015	8:34	AM	EX1502L2_SBP_130.keb
3/23/2015	10:13	AM	EX1502L2_SBP_131.keb
3/23/2015	10:13	AM	EX1502L2_SBP_70870_CHP3.5_RAW_131.sgy
3/23/2015	10:13	AM	EX1502L2_SBP_131.kea
3/23/2015	10:56	AM	EX1502L2_SBP_132.kea
3/23/2015	10:56	AM	EX1502L2_SBP_132.keb
3/23/2015	10:56	AM	EX1502L2_SBP_70870_CHP3.5_RAW_132.sgy
3/23/2015	11:14	AM	EX1502L2_SBP_70870_CHP3.5_RAW_133.sgy
3/23/2015	11:14	AM	EX1502L2_SBP_133.keb
3/23/2015	11:14	AM	EX1502L2_SBP_133.kea
3/23/2015	11:44	AM	EX1502L2_SBP_70870_CHP3.5_RAW_134.sgy
3/23/2015	11:44	AM	EX1502L2_SBP_134.keb
3/23/2015	11:44	AM	EX1502L2_SBP_134.kea
3/24/2015	3:57	PM	EX1502L2_SBP_70870_CHP3.5_RAW_148.sgy
3/24/2015	3:57	PM	EX1502L2_SBP_148.keb
3/24/2015	3:57	PM	EX1502L2_SBP_148.kea
3/24/2015	5:27	PM	EX1502L2_SBP_149.kea
3/24/2015	5:27	PM	EX1502L2_SBP_149.keb
3/24/2015	5:27	PM	EX1502L2_SBP_70870_CHP3.5_RAW_149.sgy
3/24/2015	5:38	PM	EX1502L2_SBP_70870_CHP3.5_RAW_150.sgy
3/24/2015	5:38	PM	EX1502L2_SBP_150.keb
3/24/2015	5:38	PM	EX1502L2_SBP_150.kea
3/24/2015	5:44	PM	EX1502L2_SBP_151.kea
3/24/2015	5:44	PM	EX1502L2_SBP_151.keb
3/24/2015	5:44	PM	EX1502L2_SBP_70870_CHP3.5_RAW_151.sgy
3/24/2015	6:03	PM	EX1502L2_SBP_152.keb
3/24/2015	6:03	PM	EX1502L2_SBP_70870_CHP3.5_RAW_152.sgy
3/24/2015	6:03	PM	EX1502L2_SBP_152.kea
3/24/2015	6:05	PM	EX1502L2_SBP_153.kea
3/24/2015	6:05	PM	EX1502L2_SBP_70870_CHP3.5_RAW_153.sgy
3/24/2015	6:05	PM	EX1502L2_SBP_153.keb
3/24/2015	6:30	PM	EX1502L2_SBP_154.kea
3/24/2015	6:30	PM	EX1502L2_SBP_70870_CHP3.5_RAW_154.sgy
3/24/2015	6:30	PM	EX1502L2_SBP_154.keb
3/24/2015	6:38	PM	EX1502L2_SBP_70870_CHP3.5_RAW_155.sgy
3/24/2015	6:40	PM	EX1502L2_SBP_70870_CHP3.5_RAW_156.sgy
3/24/2015	6:40	PM	EX1502L2_SBP_155.keb
3/24/2015	6:40	PM	EX1502L2_SBP_155.kea
3/24/2015	6:44	PM	EX1502L2_SBP_70870_CHP3.5_RAW_157.sgy
3/24/2015	6:46	PM	EX1502L2_SBP_70870_CHP3.5_RAW_158.sgy
3/24/2015	6:55	PM	EX1502L2_SBP_70870_CHP3.5_RAW_159.sgy
3/24/2015	6:55	PM	EX1502L2_SBP_157.keb
3/24/2015	6:55	PM	EX1502L2_SBP_157.kea
3/24/2015	7:04	PM	EX1502L2_SBP_70870_CHP3.5_RAW_160.sgy
3/24/2015	7:05	PM	EX1502L2_SBP_70870_CHP3.5_RAW_162.sgy
3/24/2015	7:05	PM	EX1502L2_SBP_70870_CHP3.5_RAW_163.sgy
3/24/2015	7:05	PM	EX1502L2_SBP_70870_CHP3.5_RAW_161.sgy
3/24/2015	7:06	PM	EX1502L2_SBP_70870_CHP3.5_RAW_165.sgy
3/24/2015	7:06	PM	EX1502L2_SBP_70870_CHP3.5_RAW_164.sgy
3/24/2015	7:07	PM	EX1502L2_SBP_160.keb
3/24/2015	7:07	PM	EX1502L2_SBP_160.kea
3/24/2015	7:07	PM	EX1502L2_SBP_70870_CHP3.5_RAW_166.sgy
3/24/2015	7:08	PM	EX1502L2_SBP_70870_CHP3.5_RAW_167.sgy
3/24/2015	7:30	PM	EX1502L2_SBP_167.keb
3/24/2015	7:30	PM	EX1502L2_SBP_167.kea
3/24/2015	7:30	PM	EX1502L2_SBP_70870_CHP3.5_RAW_168.sgy
3/24/2015	7:40	PM	EX1502L2_SBP_169.keb

3/24/2015	7:40	PM	EX1502L2_SBP_169.kea	3/24/2015	12:35	PM	EX1502L2_SBP_147.keb
3/24/2015	7:45	PM	EX1502L2_SBP_70870_CHP3.5_RAW_169.sgy	3/25/2015	1:02	AM	EX1502L2_SBP_70870_CHP3.5_RAW_182.sgy
3/24/2015	7:45	PM	EX1502L2_SBP_170.kea	3/25/2015	1:43	AM	EX1502L2_SBP_70870_CHP3.5_RAW_183.sgy
3/24/2015	7:45	PM	EX1502L2_SBP_70870_CHP3.5_RAW_170.sgy	3/25/2015	1:45	AM	EX1502L2_SBP_70870_CHP3.5_RAW_184.sgy
3/24/2015	8:13	AM	EX1502L2_SBP_70870_CHP3.5_RAW_143.sgy	3/25/2015	5:04	AM	EX1502L2_SBP_182.kea
3/24/2015	8:13	AM	EX1502L2_SBP_143.keb	3/25/2015	5:04	AM	EX1502L2_SBP_182.keb
3/24/2015	8:13	AM	EX1502L2_SBP_143.kea	3/25/2015	5:05	AM	EX1502L2_SBP_70870_CHP3.5_RAW_185.sgy
3/24/2015	8:34	PM	EX1502L2_SBP_70870_CHP3.5_RAW_172.sgy	3/25/2015	10:02	PM	EX1502L2_SBP_70870_CHP3.5_RAW_187.sgy
3/24/2015	8:34	PM	EX1502L2_SBP_70870_CHP3.5_RAW_171.sgy	3/25/2015	10:19	PM	EX1502L2_SBP_70870_CHP3.5_RAW_188.sgy
3/24/2015	8:37	PM	EX1502L2_SBP_70870_CHP3.5_RAW_173.sgy	3/25/2015	10:59	PM	EX1502L2_SBP_187.kea
3/24/2015	8:37	PM	EX1502L2_SBP_171.keb	3/25/2015	10:59	PM	EX1502L2_SBP_70870_CHP3.5_RAW_189.sgy
3/24/2015	8:37	PM	EX1502L2_SBP_171.kea	3/25/2015	10:59	PM	EX1502L2_SBP_187.keb
3/24/2015	9:31	PM	EX1502L2_SBP_70870_CHP3.5_RAW_174.sgy	3/25/2015	11:19	AM	EX1502L2_SBP_70870_CHP3.5_RAW_186.sgy
3/24/2015	9:31	PM	EX1502L2_SBP_174.keb	3/25/2015	11:19	AM	EX1502L2_SBP_186.kea
3/24/2015	9:31	PM	EX1502L2_SBP_174.kea	3/26/2015	1:09	PM	EX1502L2_SBP_197.keb
3/24/2015	9:39	PM	EX1502L2_SBP_70870_CHP3.5_RAW_175.sgy	3/26/2015	1:09	PM	EX1502L2_SBP_70870_CHP3.5_RAW_197.sgy
3/24/2015	9:40	PM	EX1502L2_SBP_175.kea	3/26/2015	1:09	PM	EX1502L2_SBP_197.kea
3/24/2015	9:40	PM	EX1502L2_SBP_175.keb	3/26/2015	2:28	PM	EX1502L2_SBP_198.kea
3/24/2015	9:41	PM	EX1502L2_SBP_70870_CHP3.5_RAW_176.sgy	3/26/2015	2:28	PM	EX1502L2_SBP_198.keb
3/24/2015	9:51	PM	EX1502L2_SBP_70870_CHP3.5_RAW_177.sgy	3/26/2015	2:28	PM	EX1502L2_SBP_70870_CHP3.5_RAW_198.sgy
3/24/2015	9:55	PM	EX1502L2_SBP_177.kea	3/26/2015	2:47	PM	EX1502L2_SBP_70870_CHP3.5_RAW_199.sgy
3/24/2015	9:55	PM	EX1502L2_SBP_70870_CHP3.5_RAW_178.sgy	3/26/2015	2:47	PM	EX1502L2_SBP_199.keb
3/24/2015	9:55	PM	EX1502L2_SBP_177.keb	3/26/2015	2:47	PM	EX1502L2_SBP_199.kea
3/24/2015	10:22	PM	EX1502L2_SBP_179.kea	3/26/2015	5:23	PM	EX1502L2_SBP_70870_CHP3.5_RAW_200.sgy
3/24/2015	10:22	PM	EX1502L2_SBP_179.keb	3/26/2015	5:23	PM	EX1502L2_SBP_200.keb
3/24/2015	10:22	PM	EX1502L2_SBP_70870_CHP3.5_RAW_179.sgy	3/26/2015	5:23	PM	EX1502L2_SBP_200.kea
3/24/2015	10:35	PM	EX1502L2_SBP_180.kea	3/26/2015	7:56	PM	EX1502L2_SBP_201.kea
3/24/2015	10:35	PM	EX1502L2_SBP_180.keb	3/26/2015	7:56	PM	EX1502L2_SBP_201.keb
3/24/2015	10:35	PM	EX1502L2_SBP_70870_CHP3.5_RAW_180.sgy	3/26/2015	7:56	PM	EX1502L2_SBP_70870_CHP3.5_RAW_201.sgy
3/24/2015	10:47	PM	EX1502L2_SBP_70870_CHP3.5_RAW_181.sgy	3/26/2015	8:20	PM	EX1502L2_SBP_202.keb
3/24/2015	10:47	PM	EX1502L2_SBP_181.keb	3/26/2015	8:20	PM	EX1502L2_SBP_70870_CHP3.5_RAW_202.sgy
3/24/2015	10:47	PM	EX1502L2_SBP_181.kea	3/26/2015	8:20	PM	EX1502L2_SBP_202.kea
3/24/2015	11:44	AM	EX1502L2_SBP_70870_CHP3.5_RAW_144.sgy	3/26/2015	10:02	AM	EX1502L2_SBP_190.keb
3/24/2015	11:44	AM	EX1502L2_SBP_144.keb	3/26/2015	10:02	AM	EX1502L2_SBP_70870_CHP3.5_RAW_190.sgy
3/24/2015	11:44	AM	EX1502L2_SBP_144.kea	3/26/2015	10:02	AM	EX1502L2_SBP_190.kea
3/24/2015	11:53	AM	EX1502L2_SBP_145.kea	3/26/2015	10:26	AM	EX1502L2_SBP_191.kea
3/24/2015	11:53	AM	EX1502L2_SBP_145.keb	3/26/2015	10:26	AM	EX1502L2_SBP_70870_CHP3.5_RAW_191.sgy
3/24/2015	11:53	AM	EX1502L2_SBP_70870_CHP3.5_RAW_145.sgy	3/26/2015	10:26	AM	EX1502L2_SBP_191.keb
3/24/2015	12:02	PM	EX1502L2_SBP_146.keb	3/26/2015	11:21	PM	EX1502L2_SBP_203.kea
3/24/2015	12:02	PM	EX1502L2_SBP_146.kea	3/26/2015	11:21	PM	EX1502L2_SBP_70870_CHP3.5_RAW_203.sgy
3/24/2015	12:03	PM	EX1502L2_SBP_70870_CHP3.5_RAW_146.sgy	3/26/2015	11:21	PM	EX1502L2_SBP_203.keb
3/24/2015	12:35	PM	EX1502L2_SBP_147.kea	3/26/2015	12:15	PM	EX1502L2_SBP_70870_CHP3.5_RAW_192.sgy
3/24/2015	12:35	PM	EX1502L2_SBP_70870_CHP3.5_RAW_147.sgy	3/26/2015	12:15	PM	EX1502L2_SBP_192.keb

3/26/2015	12:15	PM	EX1502L2_SBP_192.kea
3/26/2015	12:15	PM	EX1502L2_SBP_70870_CHP3.5_RAW_193.sgy
3/26/2015	12:16	PM	EX1502L2_SBP_70870_CHP3.5_RAW_194.sgy
3/26/2015	12:20	PM	EX1502L2_SBP_70870_CHP3.5_RAW_195.sgy
3/26/2015	12:20	PM	EX1502L2_SBP_193.kea
3/26/2015	12:20	PM	EX1502L2_SBP_193.keb
3/26/2015	12:36	PM	EX1502L2_SBP_196.kea
3/26/2015	12:36	PM	EX1502L2_SBP_70870_CHP3.5_RAW_196.sgy
3/26/2015	12:36	PM	EX1502L2_SBP_196.keb
3/27/2015	7:33	PM	EX1502L2_SBP_70870_CHP3.5_RAW_207.sgy
3/27/2015	7:33	PM	EX1502L2_SBP_207.keb
3/27/2015	7:33	PM	EX1502L2_SBP_207.kea
3/27/2015	7:44	PM	EX1502L2_SBP_208.kea
3/27/2015	7:44	PM	EX1502L2_SBP_70870_CHP3.5_RAW_208.sgy
3/27/2015	7:44	PM	EX1502L2_SBP_208.keb
3/27/2015	7:57	AM	EX1502L2_SBP_204.kea
3/27/2015	7:57	AM	EX1502L2_SBP_70870_CHP3.5_RAW_204.sgy
3/27/2015	7:57	AM	EX1502L2_SBP_204.keb
3/27/2015	8:02	AM	EX1502L2_SBP_205.keb
3/27/2015	8:02	AM	EX1502L2_SBP_70870_CHP3.5_RAW_205.sgy
3/27/2015	8:02	AM	EX1502L2_SBP_205.kea
3/27/2015	9:01	AM	EX1502L2_SBP_206.kea
3/27/2015	9:01	AM	EX1502L2_SBP_206.keb
3/27/2015	9:01	AM	EX1502L2_SBP_70870_CHP3.5_RAW_206.sgy
3/27/2015	9:28	PM	EX1502L2_SBP_209.keb
3/27/2015	9:28	PM	EX1502L2_SBP_70870_CHP3.5_RAW_209.sgy
3/27/2015	9:28	PM	EX1502L2_SBP_209.kea
3/27/2015	9:51	PM	EX1502L2_SBP_210.kea
3/27/2015	9:51	PM	EX1502L2_SBP_70870_CHP3.5_RAW_210.sgy
3/27/2015	9:51	PM	EX1502L2_SBP_210.keb
3/28/2015	1:23	PM	EX1502L2_SBP_212.kea
3/28/2015	1:23	PM	EX1502L2_SBP_212.keb
3/28/2015	1:23	PM	EX1502L2_SBP_70870_CHP3.5_RAW_212.sgy
3/28/2015	3:56	PM	EX1502L2_SBP_70870_CHP3.5_RAW_213.sgy
3/28/2015	3:56	PM	EX1502L2_SBP_213.keb
3/28/2015	3:56	PM	EX1502L2_SBP_213.kea
3/28/2015	5:16	PM	EX1502L2_SBP_70870_CHP3.5_RAW_214.sgy
3/28/2015	5:16	PM	EX1502L2_SBP_214.keb
3/28/2015	5:16	PM	EX1502L2_SBP_214.kea
3/28/2015	9:12	AM	EX1502L2_SBP_211.keb
3/28/2015	9:12	AM	EX1502L2_SBP_70870_CHP3.5_RAW_211.sgy
3/28/2015	9:12	AM	EX1502L2_SBP_211.kea
3/28/2015	9:40	PM	EX1502L2_SBP_215.kea
3/28/2015	9:40	PM	EX1502L2_SBP_215.keb
3/28/2015	9:40	PM	EX1502L2_SBP_70870_CHP3.5_RAW_215.sgy
3/28/2015	9:59	PM	EX1502L2_SBP_216.keb
3/28/2015	9:59	PM	EX1502L2_SBP_70870_CHP3.5_RAW_216.sgy
3/28/2015	9:59	PM	EX1502L2_SBP_216.kea
3/29/2015	3:31	PM	EX1502L2_SBP_70870_CHP3.5_RAW_218.sgy
3/29/2015	3:31	PM	EX1502L2_SBP_218.keb
3/29/2015	3:31	PM	EX1502L2_SBP_218.kea
3/29/2015	4:09	PM	EX1502L2_SBP_219.kea
3/29/2015	4:09	PM	EX1502L2_SBP_219.keb
3/29/2015	4:09	PM	EX1502L2_SBP_70870_CHP3.5_RAW_219.sgy
3/29/2015	5:26	PM	EX1502L2_SBP_220.kea
3/29/2015	5:26	PM	EX1502L2_SBP_70870_CHP3.5_RAW_220.sgy
3/29/2015	5:26	PM	EX1502L2_SBP_220.keb
3/29/2015	8:53	AM	EX1502L2_SBP_217.kea
3/29/2015	8:53	AM	EX1502L2_SBP_70870_CHP3.5_RAW_217.sgy
3/29/2015	8:53	AM	EX1502L2_SBP_217.keb
3/29/2015	10:56	PM	EX1502L2_SBP_221.keb
3/29/2015	10:56	PM	EX1502L2_SBP_70870_CHP3.5_RAW_221.sgy
3/29/2015	10:56	PM	EX1502L2_SBP_221.kea
3/29/2015	11:03	PM	EX1502L2_SBP_222.kea
3/29/2015	11:03	PM	EX1502L2_SBP_222.keb
3/29/2015	11:03	PM	EX1502L2_SBP_70870_CHP3.5_RAW_222.sgy
3/30/2015	2:36	PM	EX1502L2_SBP_235.keb
3/30/2015	2:36	PM	EX1502L2_SBP_70870_CHP3.5_RAW_235.sgy
3/30/2015	2:36	PM	EX1502L2_SBP_235.kea
3/30/2015	4:37	PM	EX1502L2_SBP_236.kea
3/30/2015	4:37	PM	EX1502L2_SBP_236.keb
3/30/2015	4:37	PM	EX1502L2_SBP_70870_CHP3.5_RAW_236.sgy
3/30/2015	4:53	AM	EX1502L2_SBP_70870_CHP3.5_RAW_223.sgy
3/30/2015	4:54	AM	EX1502L2_SBP_70870_CHP3.5_RAW_224.sgy
3/30/2015	4:57	AM	EX1502L2_SBP_70870_CHP3.5_RAW_225.sgy
3/30/2015	4:58	AM	EX1502L2_SBP_70870_CHP3.5_RAW_226.sgy
3/30/2015	5:38	PM	EX1502L2_SBP_70870_CHP3.5_RAW_237.sgy
3/30/2015	5:39	PM	EX1502L2_SBP_70870_CHP3.5_RAW_239.sgy
3/30/2015	5:39	PM	EX1502L2_SBP_70870_CHP3.5_RAW_238.sgy
3/30/2015	5:40	PM	EX1502L2_SBP_70870_CHP3.5_RAW_240.sgy
3/30/2015	5:40	PM	EX1502L2_SBP_70870_CHP3.5_RAW_241.sgy
3/30/2015	5:54	AM	EX1502L2_SBP_70870_CHP3.5_RAW_227.sgy
3/30/2015	6:01	PM	EX1502L2_SBP_70870_CHP3.5_RAW_242.sgy
3/30/2015	6:01	PM	EX1502L2_SBP_237.keb
3/30/2015	6:01	PM	EX1502L2_SBP_237.kea
3/30/2015	6:22	AM	EX1502L2_SBP_70870_CHP3.5_RAW_228.sgy

3/30/2015	6:25	AM	EX1502L2_SBP_70870_CHP3.5_RAW_229.sgy
3/30/2015	8:12	AM	EX1502L2_SBP_223.keb
3/30/2015	8:12	AM	EX1502L2_SBP_223.kea
3/30/2015	8:12	AM	EX1502L2_SBP_70870_CHP3.5_RAW_230.sgy
3/30/2015	9:57	AM	EX1502L2_SBP_231.kea
3/30/2015	9:57	AM	EX1502L2_SBP_231.keb
3/30/2015	9:57	AM	EX1502L2_SBP_70870_CHP3.5_RAW_231.sgy
3/30/2015	10:10	AM	EX1502L2_SBP_232.keb
3/30/2015	10:10	AM	EX1502L2_SBP_70870_CHP3.5_RAW_232.sgy
3/30/2015	10:10	AM	EX1502L2_SBP_232.kea
3/30/2015	10:59	AM	EX1502L2_SBP_233.kea
3/30/2015	10:59	AM	EX1502L2_SBP_70870_CHP3.5_RAW_233.sgy
3/30/2015	10:59	AM	EX1502L2_SBP_233.keb
3/30/2015	11:20	AM	EX1502L2_SBP_234.kea
3/30/2015	11:20	AM	EX1502L2_SBP_70870_CHP3.5_RAW_234.sgy
3/30/2015	11:20	AM	EX1502L2_SBP_234.keb
3/31/2015	1:58	PM	EX1502L2_SBP_70870_CHP3.5_RAW_253.sgy
3/31/2015	1:58	PM	EX1502L2_SBP_253.keb
3/31/2015	1:58	PM	EX1502L2_SBP_253.kea
3/31/2015	2:00	PM	EX1502L2_SBP_70870_CHP3.5_RAW_254.sgy
3/31/2015	2:00	PM	EX1502L2_SBP_254.keb
3/31/2015	2:00	PM	EX1502L2_SBP_254.kea
3/31/2015	2:01	PM	EX1502L2_SBP_70870_CHP3.5_RAW_255.sgy
3/31/2015	2:02	PM	EX1502L2_SBP_70870_CHP3.5_RAW_256.sgy
3/31/2015	2:07	PM	EX1502L2_SBP_70870_CHP3.5_RAW_257.sgy
3/31/2015	2:07	PM	EX1502L2_SBP_255.kea
3/31/2015	2:07	PM	EX1502L2_SBP_255.keb
3/31/2015	2:29	PM	EX1502L2_SBP_70870_CHP3.5_RAW_258.sgy
3/31/2015	2:29	PM	EX1502L2_SBP_258.keb
3/31/2015	2:29	PM	EX1502L2_SBP_258.kea
3/31/2015	2:52	PM	EX1502L2_SBP_259.kea
3/31/2015	2:52	PM	EX1502L2_SBP_259.keb
3/31/2015	2:52	PM	EX1502L2_SBP_70870_CHP3.5_RAW_259.sgy
3/31/2015	3:07	AM	EX1502L2_SBP_70870_CHP3.5_RAW_243.sgy
3/31/2015	5:32	PM	EX1502L2_SBP_260.kea
3/31/2015	5:32	PM	EX1502L2_SBP_70870_CHP3.5_RAW_260.sgy
3/31/2015	5:32	PM	EX1502L2_SBP_260.keb
3/31/2015	5:42	AM	EX1502L2_SBP_70870_CHP3.5_RAW_244.sgy
3/31/2015	6:16	PM	EX1502L2_SBP_261.keb
3/31/2015	6:16	PM	EX1502L2_SBP_70870_CHP3.5_RAW_261.sgy
3/31/2015	6:16	PM	EX1502L2_SBP_261.kea
3/31/2015	6:20	AM	EX1502L2_SBP_70870_CHP3.5_RAW_245.sgy
3/31/2015	7:32	AM	EX1502L2_SBP_70870_CHP3.5_RAW_247.sgy
3/31/2015	7:32	AM	EX1502L2_SBP_70870_CHP3.5_RAW_246.sgy
3/31/2015	7:35	PM	EX1502L2_SBP_262.kea
3/31/2015	7:35	PM	EX1502L2_SBP_262.keb
3/31/2015	7:35	PM	EX1502L2_SBP_70870_CHP3.5_RAW_262.sgy
3/31/2015	7:44	AM	EX1502L2_SBP_70870_CHP3.5_RAW_249.sgy
3/31/2015	7:44	AM	EX1502L2_SBP_70870_CHP3.5_RAW_248.sgy
3/31/2015	7:54	PM	EX1502L2_SBP_70870_CHP3.5_RAW_263.sgy
3/31/2015	7:56	PM	EX1502L2_SBP_70870_CHP3.5_RAW_264.sgy
3/31/2015	7:56	PM	EX1502L2_SBP_263.keb
3/31/2015	7:56	PM	EX1502L2_SBP_263.kea
3/31/2015	8:06	PM	EX1502L2_SBP_70870_CHP3.5_RAW_265.sgy
3/31/2015	8:08	AM	EX1502L2_SBP_70870_CHP3.5_RAW_251.sgy
3/31/2015	8:08	AM	EX1502L2_SBP_70870_CHP3.5_RAW_250.sgy
3/31/2015	8:08	AM	EX1502L2_SBP_243.kea
3/31/2015	8:08	AM	EX1502L2_SBP_243.keb
3/31/2015	8:11	PM	EX1502L2_SBP_70870_CHP3.5_RAW_266.sgy
3/31/2015	8:12	PM	EX1502L2_SBP_265.kea
3/31/2015	8:12	PM	EX1502L2_SBP_265.keb
3/31/2015	8:12	PM	EX1502L2_SBP_70870_CHP3.5_RAW_267.sgy
3/31/2015	8:32	PM	EX1502L2_SBP_70870_CHP3.5_RAW_268.sgy
3/31/2015	8:32	PM	EX1502L2_SBP_268.keb
3/31/2015	8:32	PM	EX1502L2_SBP_268.kea
3/31/2015	8:33	PM	EX1502L2_SBP_70870_CHP3.5_RAW_269.sgy
3/31/2015	8:40	PM	EX1502L2_SBP_70870_CHP3.5_RAW_270.sgy
3/31/2015	8:41	PM	EX1502L2_SBP_269.kea
3/31/2015	8:41	PM	EX1502L2_SBP_70870_CHP3.5_RAW_271.sgy
3/31/2015	8:41	PM	EX1502L2_SBP_269.keb
3/31/2015	8:48	AM	EX1502L2_SBP_252.kea
3/31/2015	8:48	AM	EX1502L2_SBP_252.keb
3/31/2015	8:48	AM	EX1502L2_SBP_70870_CHP3.5_RAW_252.sgy
3/31/2015	9:45	PM	EX1502L2_SBP_272.keb
3/31/2015	9:45	PM	EX1502L2_SBP_70870_CHP3.5_RAW_272.sgy
3/31/2015	9:45	PM	EX1502L2_SBP_272.kea
3/31/2015	9:46	PM	EX1502L2_SBP_70870_CHP3.5_RAW_273.sgy
3/31/2015	11:25	PM	EX1502L2_SBP_273.kea
3/31/2015	11:25	PM	EX1502L2_SBP_70870_CHP3.5_RAW_274.sgy
3/31/2015	11:25	PM	EX1502L2_SBP_273.keb
3/31/2015	11:47	PM	EX1502L2_SBP_275.keb
3/31/2015	11:47	PM	EX1502L2_SBP_70870_CHP3.5_RAW_275.sgy
3/31/2015	11:47	PM	EX1502L2_SBP_275.kea
3/31/2015	11:47	PM	EX1502L2_SBP_70870_CHP3.5_RAW_276.sgy
4/1/2015	1:30	AM	EX1502L2_SBP_70870_CHP3.5_RAW_278.sgy
4/1/2015	1:56	PM	EX1502L2_SBP_301.kea

4/1/2015	1:56	PM	EX1502L2_SBP_301.keb
4/1/2015	2:21	AM	EX1502L2_SBP_70870_CHP3.5_RAW_279.sgy
4/1/2015	2:22	AM	EX1502L2_SBP_70870_CHP3.5_RAW_280.sgy
4/1/2015	4:11	AM	EX1502L2_SBP_70870_CHP3.5_RAW_281.sgy
4/1/2015	4:12	AM	EX1502L2_SBP_70870_CHP3.5_RAW_282.sgy
4/1/2015	5:04	PM	EX1502L2_SBP_302.keb
4/1/2015	5:04	PM	EX1502L2_SBP_70870_CHP3.5_RAW_302.sgy
4/1/2015	5:04	PM	EX1502L2_SBP_302.kea
4/1/2015	5:04	PM	EX1502L2_SBP_70870_CHP3.5_RAW_303.sgy
4/1/2015	5:24	PM	EX1502L2_SBP_70870_CHP3.5_RAW_304.sgy
4/1/2015	5:26	PM	EX1502L2_SBP_70870_CHP3.5_RAW_306.sgy
4/1/2015	5:26	PM	EX1502L2_SBP_70870_CHP3.5_RAW_305.sgy
4/1/2015	5:26	PM	EX1502L2_SBP_304.kea
4/1/2015	5:26	PM	EX1502L2_SBP_304.keb
4/1/2015	5:35	PM	EX1502L2_SBP_70870_CHP3.5_RAW_307.sgy
4/1/2015	5:35	PM	EX1502L2_SBP_307.keb
4/1/2015	5:35	PM	EX1502L2_SBP_70870_CHP3.5_RAW_308.sgy
4/1/2015	5:35	PM	EX1502L2_SBP_307.kea
4/1/2015	6:16	PM	EX1502L2_SBP_308.kea
4/1/2015	6:16	PM	EX1502L2_SBP_308.keb
4/1/2015	6:17	PM	EX1502L2_SBP_70870_CHP3.5_RAW_309.sgy
4/1/2015	6:27	PM	EX1502L2_SBP_310.kea
4/1/2015	6:27	PM	EX1502L2_SBP_70870_CHP3.5_RAW_310.sgy
4/1/2015	6:27	PM	EX1502L2_SBP_310.keb
4/1/2015	6:29	PM	EX1502L2_SBP_311.keb
4/1/2015	6:29	PM	EX1502L2_SBP_70870_CHP3.5_RAW_311.sgy
4/1/2015	6:29	PM	EX1502L2_SBP_311.kea
4/1/2015	7:57	AM	EX1502L2_SBP_277.keb
4/1/2015	7:57	AM	EX1502L2_SBP_277.kea
4/1/2015	7:57	AM	EX1502L2_SBP_70870_CHP3.5_RAW_283.sgy
4/1/2015	8:02	AM	EX1502L2_SBP_70870_CHP3.5_RAW_285.sgy
4/1/2015	8:02	AM	EX1502L2_SBP_284.kea
4/1/2015	8:02	AM	EX1502L2_SBP_284.keb
4/1/2015	8:02	AM	EX1502L2_SBP_70870_CHP3.5_RAW_284.sgy
4/1/2015	8:03	AM	EX1502L2_SBP_70870_CHP3.5_RAW_286.sgy
4/1/2015	8:04	AM	EX1502L2_SBP_286.kea
4/1/2015	8:04	AM	EX1502L2_SBP_70870_CHP3.5_RAW_287.sgy
4/1/2015	8:04	AM	EX1502L2_SBP_286.keb
4/1/2015	8:04	AM	EX1502L2_SBP_70870_CHP3.5_RAW_288.sgy
4/1/2015	8:33	AM	EX1502L2_SBP_288.kea
4/1/2015	8:33	AM	EX1502L2_SBP_70870_CHP3.5_RAW_289.sgy
4/1/2015	8:33	AM	EX1502L2_SBP_288.keb
4/1/2015	8:56	AM	EX1502L2_SBP_290.kea
4/1/2015	8:56	AM	EX1502L2_SBP_290.keb
4/1/2015	8:57	AM	EX1502L2_SBP_70870_CHP3.5_RAW_290.sgy
4/1/2015	8:59	AM	EX1502L2_SBP_70870_CHP3.5_RAW_291.sgy
4/1/2015	8:59	AM	EX1502L2_SBP_291.keb
4/1/2015	8:59	AM	EX1502L2_SBP_291.kea
4/1/2015	9:27	AM	EX1502L2_SBP_292.kea
4/1/2015	9:27	AM	EX1502L2_SBP_70870_CHP3.5_RAW_292.sgy
4/1/2015	9:27	AM	EX1502L2_SBP_292.keb
4/1/2015	9:51	AM	EX1502L2_SBP_293.keb
4/1/2015	9:51	AM	EX1502L2_SBP_70870_CHP3.5_RAW_293.sgy
4/1/2015	9:51	AM	EX1502L2_SBP_293.kea
4/1/2015	10:03	AM	EX1502L2_SBP_294.keb
4/1/2015	10:03	AM	EX1502L2_SBP_294.kea
4/1/2015	10:04	AM	EX1502L2_SBP_70870_CHP3.5_RAW_294.sgy
4/1/2015	10:08	AM	EX1502L2_SBP_295.kea
4/1/2015	10:08	AM	EX1502L2_SBP_295.keb
4/1/2015	10:09	AM	EX1502L2_SBP_70870_CHP3.5_RAW_295.sgy
4/1/2015	10:11	AM	EX1502L2_SBP_70870_CHP3.5_RAW_296.sgy
4/1/2015	10:11	AM	EX1502L2_SBP_296.keb
4/1/2015	10:11	AM	EX1502L2_SBP_296.kea
4/1/2015	10:38	AM	EX1502L2_SBP_297.kea
4/1/2015	10:38	AM	EX1502L2_SBP_297.keb
4/1/2015	10:38	AM	EX1502L2_SBP_70870_CHP3.5_RAW_297.sgy
4/1/2015	10:49	AM	EX1502L2_SBP_298.keb
4/1/2015	10:49	AM	EX1502L2_SBP_70870_CHP3.5_RAW_298.sgy
4/1/2015	10:49	AM	EX1502L2_SBP_298.kea
4/1/2015	11:03	AM	EX1502L2_SBP_299.kea
4/1/2015	11:03	AM	EX1502L2_SBP_70870_CHP3.5_RAW_299.sgy
4/1/2015	11:03	AM	EX1502L2_SBP_299.keb
4/1/2015	12:07	AM	EX1502L2_SBP_70870_CHP3.5_RAW_277.sgy
4/1/2015	12:15	PM	EX1502L2_SBP_70870_CHP3.5_RAW_300.sgy
4/1/2015	12:15	PM	EX1502L2_SBP_300.keb
4/1/2015	12:15	PM	EX1502L2_SBP_70870_CHP3.5_RAW_301.sgy
4/1/2015	12:15	PM	EX1502L2_SBP_300.kea
4/2/2015	1:00	PM	EX1502L2_SBP_322.kea
4/2/2015	1:00	PM	EX1502L2_SBP_322.keb
4/2/2015	1:00	PM	EX1502L2_SBP_70870_CHP3.5_RAW_322.sgy
4/2/2015	1:54	AM	EX1502L2_SBP_70870_CHP3.5_RAW_314.sgy
4/2/2015	2:19	AM	EX1502L2_SBP_70870_CHP3.5_RAW_315.sgy
4/2/2015	7:21	AM	EX1502L2_SBP_70870_CHP3.5_RAW_316.sgy
4/2/2015	10:56	AM	EX1502L2_SBP_312.kea
4/2/2015	10:56	AM	EX1502L2_SBP_312.keb
4/2/2015	10:57	AM	EX1502L2_SBP_70870_CHP3.5_RAW_317.sgy

4/2/2015	11:51	AM	EX1502L2_SBP_70870_CHP3.5_RAW_318.sgy
4/2/2015	11:51	AM	EX1502L2_SBP_318.keb
4/2/2015	11:51	AM	EX1502L2_SBP_318.kea
4/2/2015	11:52	AM	EX1502L2_SBP_70870_CHP3.5_RAW_319.sgy
4/2/2015	12:29	PM	EX1502L2_SBP_319.kea
4/2/2015	12:29	PM	EX1502L2_SBP_319.keb

4/2/2015	12:29	PM	EX1502L2_SBP_70870_CHP3.5_RAW_320.sgy
4/2/2015	12:45	AM	EX1502L2_SBP_70870_CHP3.5_RAW_312.sgy
4/2/2015	12:50	AM	EX1502L2_SBP_70870_CHP3.5_RAW_313.sgy
4/2/2015	12:55	PM	EX1502L2_SBP_321.keb
4/2/2015	12:55	PM	EX1502L2_SBP_70870_CHP3.5_RAW_321.sgy
4/2/2015	12:55	PM	EX1502L2_SBP_321.kea

EX1502L2 EK 60 DATA ACQUISITION LOG

FILENAME	DATE (UTC)
EX1502L2_EK60-D20150316-T154612.bot	3/16/2015
EX1502L2_EK60-D20150316-T154612.idx	3/16/2015
EX1502L2_EK60-D20150316-T154612.raw	3/16/2015
EX1502L2_EK60-D20150316-T162014.bot	3/16/2015
EX1502L2_EK60-D20150316-T162014.idx	3/16/2015
EX1502L2_EK60-D20150316-T162014.raw	3/16/2015
EX1502L2_EK60-D20150316-T165449.bot	3/16/2015
EX1502L2_EK60-D20150316-T165449.idx	3/16/2015
EX1502L2_EK60-D20150316-T165449.raw	3/16/2015
EX1502L2_EK60-D20150316-T173002.bot	3/16/2015
EX1502L2_EK60-D20150316-T173002.idx	3/16/2015
EX1502L2_EK60-D20150316-T173002.raw	3/16/2015
EX1502L2_EK60-D20150316-T180447.bot	3/16/2015
EX1502L2_EK60-D20150316-T180447.idx	3/16/2015
EX1502L2_EK60-D20150316-T180447.raw	3/16/2015
EX1502L2_EK60-D20150316-T183840.bot	3/16/2015
EX1502L2_EK60-D20150316-T183840.idx	3/16/2015
EX1502L2_EK60-D20150316-T183840.raw	3/16/2015
EX1502L2_EK60-D20150316-T191250.bot	3/16/2015
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EX1502L2_EK60-D20150316-T194231.raw	3/16/2015
EX1502L2_EK60-D20150316-T201130.bot	3/16/2015
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EX1502L2_EK60-D20150316-T204008.bot	3/16/2015
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EX1502L2_EK60-D20150316-T204008.raw	3/16/2015
EX1502L2_EK60-D20150316-T210816.bot	3/16/2015
EX1502L2_EK60-D20150316-T210816.idx	3/16/2015
EX1502L2_EK60-D20150316-T210816.raw	3/16/2015
EX1502L2_EK60-D20150316-T213630.bot	3/16/2015
EX1502L2_EK60-D20150316-T213630.idx	3/16/2015
EX1502L2_EK60-D20150316-T213630.raw	3/16/2015
EX1502L2_EK60-D20150316-T220423.bot	3/16/2015
EX1502L2_EK60-D20150316-T220423.idx	3/16/2015
EX1502L2_EK60-D20150316-T220423.raw	3/16/2015
EX1502L2_EK60-D20150316-T222520.bot	3/16/2015
EX1502L2_EK60-D20150316-T222520.idx	3/16/2015
EX1502L2_EK60-D20150316-T222520.raw	3/16/2015
EX1502L2_EK60-D20150317-T183812.bot	3/17/2015
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EX1502L2_EK60-D20150317-T191155.bot	3/17/2015
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EX1502L2_EK60-D20150317-T205327.bot	3/17/2015
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EX1502L2_EK60-D20150317-T220303.bot	3/17/2015
EX1502L2_EK60-D20150317-T220303.idx	3/17/2015
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EX1502L2_EK60-D20150317-T223838.bot	3/17/2015
EX1502L2_EK60-D20150317-T223838.idx	3/17/2015
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EX1502L2_EK60-D20150317-T230420.bot	3/17/2015
EX1502L2_EK60-D20150317-T230420.idx	3/17/2015

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EX1502L2_EK60-D20150317-T230539.raw	3/17/2015
EX1502L2_EK60-D20150317-T232328.bot	3/17/2015
EX1502L2_EK60-D20150317-T232328.idx	3/17/2015
EX1502L2_EK60-D20150317-T232328.raw	3/17/2015
EX1502L2_EK60-D20150317-T232550.bot	3/17/2015
EX1502L2_EK60-D20150317-T232550.idx	3/17/2015
EX1502L2_EK60-D20150317-T232550.raw	3/17/2015
EX1502L2_EK60-D20150318-T000016.bot	3/17/2015
EX1502L2_EK60-D20150318-T000016.idx	3/17/2015
EX1502L2_EK60-D20150318-T000016.raw	3/17/2015
EX1502L2_EK60-D20150318-T003521.bot	3/17/2015
EX1502L2_EK60-D20150318-T003521.idx	3/17/2015
EX1502L2_EK60-D20150318-T003521.raw	3/17/2015
EX1502L2_EK60-D20150318-T011002.bot	3/17/2015
EX1502L2_EK60-D20150318-T011002.idx	3/17/2015
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EX1502L2_EK60-D20150318-T014450.bot	3/17/2015
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EX1502L2_EK60-D20150318-T022048.bot	3/17/2015
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EX1502L2_EK60-D20150318-T025529.bot	3/17/2015
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EX1502L2_EK60-D20150318-T032950.bot	3/18/2015
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EX1502L2_EK60-D20150318-T044036.bot	3/18/2015
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EX1502L2_EK60-D20150318-T054923.bot	3/18/2015
EX1502L2_EK60-D20150318-T054923.idx	3/18/2015
EX1502L2_EK60-D20150318-T054923.raw	3/18/2015
EX1502L2_EK60-D20150318-T062355.bot	3/18/2015
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EX1502L2_EK60-D20150318-T065844.bot	3/18/2015
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EX1502L2_EK60-D20150318-T065844.raw	3/18/2015
EX1502L2_EK60-D20150318-T073347.bot	3/18/2015
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EX1502L2_EK60-D20150318-T073347.raw	3/18/2015
EX1502L2_EK60-D20150318-T080839.bot	3/18/2015
EX1502L2_EK60-D20150318-T080839.idx	3/18/2015
EX1502L2_EK60-D20150318-T080839.raw	3/18/2015
EX1502L2_EK60-D20150318-T084352.bot	3/18/2015
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EX1502L2_EK60-D20150318-T091907.bot	3/18/2015
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EX1502L2_EK60-D20150318-T095446.bot	3/18/2015
EX1502L2_EK60-D20150318-T095446.idx	3/18/2015
EX1502L2_EK60-D20150318-T095446.raw	3/18/2015
EX1502L2_EK60-D20150318-T102949.bot	3/18/2015
EX1502L2_EK60-D20150318-T102949.idx	3/18/2015
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EX1502L2_EK60-D20150318-T110430.bot	3/18/2015
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EX1502L2_EK60-D20150326-T203211.raw	3/26/2015
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EX1502L2_EK60-D20150326-T235911.idx	3/26/2015
EX1502L2_EK60-D20150326-T235911.raw	3/26/2015

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EX1502L2_EK60-D20150327-T003925.raw	3/26/2015
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EX1502L2_EK60-D20150327-T011949.idx	3/26/2015
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EX1502L2_EK60-D20150327-T023922.idx	3/26/2015
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EX1502L2_EK60-D20150329-T053130.raw	3/29/2015
EX1502L2_EK60-D20150329-T060558.bot	3/29/2015
EX1502L2_EK60-D20150329-T060558.idx	3/29/2015
EX1502L2_EK60-D20150329-T060558.raw	3/29/2015
EX1502L2_EK60-D20150329-T063942.bot	3/29/2015
EX1502L2_EK60-D20150329-T063942.idx	3/29/2015
EX1502L2_EK60-D20150329-T063942.raw	3/29/2015
EX1502L2_EK60-D20150329-T071333.bot	3/29/2015
EX1502L2_EK60-D20150329-T071333.idx	3/29/2015
EX1502L2_EK60-D20150329-T071333.raw	3/29/2015
EX1502L2_EK60-D20150329-T074714.bot	3/29/2015
EX1502L2_EK60-D20150329-T074714.idx	3/29/2015
EX1502L2_EK60-D20150329-T074714.raw	3/29/2015
EX1502L2_EK60-D20150329-T082129.bot	3/29/2015
EX1502L2_EK60-D20150329-T082129.idx	3/29/2015
EX1502L2_EK60-D20150329-T082129.raw	3/29/2015
EX1502L2_EK60-D20150329-T085613.bot	3/29/2015
EX1502L2_EK60-D20150329-T085613.idx	3/29/2015
EX1502L2_EK60-D20150329-T085613.raw	3/29/2015
EX1502L2_EK60-D20150329-T093059.bot	3/29/2015
EX1502L2_EK60-D20150329-T093059.idx	3/29/2015
EX1502L2_EK60-D20150329-T093059.raw	3/29/2015
EX1502L2_EK60-D20150329-T100556.bot	3/29/2015
EX1502L2_EK60-D20150329-T100556.idx	3/29/2015
EX1502L2_EK60-D20150329-T100556.raw	3/29/2015
EX1502L2_EK60-D20150329-T104050.bot	3/29/2015
EX1502L2_EK60-D20150329-T104050.idx	3/29/2015
EX1502L2_EK60-D20150329-T104050.raw	3/29/2015
EX1502L2_EK60-D20150329-T111547.bot	3/29/2015
EX1502L2_EK60-D20150329-T111547.idx	3/29/2015
EX1502L2_EK60-D20150329-T111547.raw	3/29/2015
EX1502L2_EK60-D20150329-T115050.bot	3/29/2015
EX1502L2_EK60-D20150329-T115050.idx	3/29/2015
EX1502L2_EK60-D20150329-T115050.raw	3/29/2015
EX1502L2_EK60-D20150329-T122707.bot	3/29/2015
EX1502L2_EK60-D20150329-T122707.idx	3/29/2015
EX1502L2_EK60-D20150329-T122707.raw	3/29/2015
EX1502L2_EK60-D20150329-T152229.bot	3/29/2015
EX1502L2_EK60-D20150329-T152229.idx	3/29/2015
EX1502L2_EK60-D20150329-T152229.raw	3/29/2015
EX1502L2_EK60-D20150329-T160010.bot	3/29/2015
EX1502L2_EK60-D20150329-T160010.idx	3/29/2015
EX1502L2_EK60-D20150329-T160010.raw	3/29/2015
EX1502L2_EK60-D20150329-T163652.bot	3/29/2015
EX1502L2_EK60-D20150329-T163652.idx	3/29/2015
EX1502L2_EK60-D20150329-T163652.raw	3/29/2015
EX1502L2_EK60-D20150329-T171240.bot	3/29/2015
EX1502L2_EK60-D20150329-T171240.idx	3/29/2015
EX1502L2_EK60-D20150329-T171240.raw	3/29/2015
EX1502L2_EK60-D20150329-T174934.bot	3/29/2015
EX1502L2_EK60-D20150329-T174934.idx	3/29/2015
EX1502L2_EK60-D20150329-T174934.raw	3/29/2015
EX1502L2_EK60-D20150329-T182558.bot	3/29/2015
EX1502L2_EK60-D20150329-T182558.idx	3/29/2015
EX1502L2_EK60-D20150329-T182558.raw	3/29/2015
EX1502L2_EK60-D20150329-T190231.bot	3/29/2015
EX1502L2_EK60-D20150329-T190231.idx	3/29/2015
EX1502L2_EK60-D20150329-T190231.raw	3/29/2015
EX1502L2_EK60-D20150329-T193958.bot	3/29/2015
EX1502L2_EK60-D20150329-T193958.idx	3/29/2015
EX1502L2_EK60-D20150329-T193958.raw	3/29/2015
EX1502L2_EK60-D20150329-T201631.bot	3/29/2015
EX1502L2_EK60-D20150329-T201631.idx	3/29/2015
EX1502L2_EK60-D20150329-T201631.raw	3/29/2015
EX1502L2_EK60-D20150329-T205323.bot	3/29/2015
EX1502L2_EK60-D20150329-T205323.idx	3/29/2015
EX1502L2_EK60-D20150329-T205323.raw	3/29/2015
EX1502L2_EK60-D20150329-T212944.bot	3/29/2015
EX1502L2_EK60-D20150329-T212944.idx	3/29/2015
EX1502L2_EK60-D20150329-T212944.raw	3/29/2015
EX1502L2_EK60-D20150329-T220517.bot	3/29/2015
EX1502L2_EK60-D20150329-T220517.idx	3/29/2015
EX1502L2_EK60-D20150329-T220517.raw	3/29/2015
EX1502L2_EK60-D20150329-T224041.bot	3/29/2015
EX1502L2_EK60-D20150329-T224041.idx	3/29/2015
EX1502L2_EK60-D20150329-T224041.raw	3/29/2015
EX1502L2_EK60-D20150329-T231733.bot	3/29/2015
EX1502L2_EK60-D20150329-T231733.idx	3/29/2015
EX1502L2_EK60-D20150329-T231733.raw	3/29/2015
EX1502L2_EK60-D20150329-T235223.bot	3/29/2015
EX1502L2_EK60-D20150329-T235223.idx	3/29/2015
EX1502L2_EK60-D20150329-T235223.raw	3/29/2015
EX1502L2_EK60-D20150330-T002753.bot	3/29/2015
EX1502L2_EK60-D20150330-T002753.idx	3/29/2015

EX1502L2_EK60-D20150330-T002753.raw	3/29/2015
EX1502L2_EK60-D20150330-T010307.bot	3/29/2015
EX1502L2_EK60-D20150330-T010307.idx	3/29/2015
EX1502L2_EK60-D20150330-T010307.raw	3/29/2015
EX1502L2_EK60-D20150330-T013933.bot	3/29/2015
EX1502L2_EK60-D20150330-T013933.idx	3/29/2015
EX1502L2_EK60-D20150330-T013933.raw	3/29/2015
EX1502L2_EK60-D20150330-T021545.bot	3/29/2015
EX1502L2_EK60-D20150330-T021545.idx	3/29/2015
EX1502L2_EK60-D20150330-T021545.raw	3/29/2015
EX1502L2_EK60-D20150330-T025244.bot	3/29/2015
EX1502L2_EK60-D20150330-T025244.idx	3/29/2015
EX1502L2_EK60-D20150330-T025244.raw	3/29/2015
EX1502L2_EK60-D20150330-T025625.bot	3/29/2015
EX1502L2_EK60-D20150330-T025625.idx	3/29/2015
EX1502L2_EK60-D20150330-T025625.raw	3/29/2015
EX1502L2_EK60-D20150330-T030330.bot	3/29/2015
EX1502L2_EK60-D20150330-T030330.idx	3/29/2015
EX1502L2_EK60-D20150330-T030330.raw	3/29/2015
EX1502L2_EK60-D20150330-T033932.bot	3/30/2015
EX1502L2_EK60-D20150330-T033932.idx	3/30/2015
EX1502L2_EK60-D20150330-T033932.raw	3/30/2015
EX1502L2_EK60-D20150330-T041514.bot	3/30/2015
EX1502L2_EK60-D20150330-T041514.idx	3/30/2015
EX1502L2_EK60-D20150330-T041514.raw	3/30/2015
EX1502L2_EK60-D20150330-T044942.bot	3/30/2015
EX1502L2_EK60-D20150330-T044942.idx	3/30/2015
EX1502L2_EK60-D20150330-T044942.raw	3/30/2015
EX1502L2_EK60-D20150330-T051827.bot	3/30/2015
EX1502L2_EK60-D20150330-T051827.idx	3/30/2015
EX1502L2_EK60-D20150330-T051827.raw	3/30/2015
EX1502L2_EK60-D20150330-T054629.bot	3/30/2015
EX1502L2_EK60-D20150330-T054629.idx	3/30/2015
EX1502L2_EK60-D20150330-T054629.raw	3/30/2015
EX1502L2_EK60-D20150330-T061431.bot	3/30/2015
EX1502L2_EK60-D20150330-T061431.idx	3/30/2015
EX1502L2_EK60-D20150330-T061431.raw	3/30/2015
EX1502L2_EK60-D20150330-T064219.bot	3/30/2015
EX1502L2_EK60-D20150330-T064219.idx	3/30/2015
EX1502L2_EK60-D20150330-T064219.raw	3/30/2015
EX1502L2_EK60-D20150402-T122329.bot	4/2/2015
EX1502L2_EK60-D20150402-T122329.idx	4/2/2015
EX1502L2_EK60-D20150402-T122329.raw	4/2/2015
EX1502L2_EK60-D20150402-T125835.bot	4/2/2015
EX1502L2_EK60-D20150402-T125835.idx	4/2/2015
EX1502L2_EK60-D20150402-T125835.raw	4/2/2015
EX1502L2_EK60-D20150402-T133239.bot	4/2/2015
EX1502L2_EK60-D20150402-T133239.idx	4/2/2015
EX1502L2_EK60-D20150402-T133239.raw	4/2/2015
EX1502L2_EK60-D20150402-T140602.bot	4/2/2015
EX1502L2_EK60-D20150402-T140602.idx	4/2/2015
EX1502L2_EK60-D20150402-T140602.raw	4/2/2015
EX1502L2_EK60-D20150402-T144030.bot	4/2/2015
EX1502L2_EK60-D20150402-T144030.idx	4/2/2015
EX1502L2_EK60-D20150402-T144030.raw	4/2/2015
EX1502L2_EK60-D20150402-T151224.bot	4/2/2015
EX1502L2_EK60-D20150402-T151224.idx	4/2/2015
EX1502L2_EK60-D20150402-T151224.raw	4/2/2015
EX1502L2_EK60-D20150402-T154105.bot	4/2/2015
EX1502L2_EK60-D20150402-T154105.idx	4/2/2015
EX1502L2_EK60-D20150402-T154105.raw	4/2/2015
EX1502L2_EK60-D20150402-T160944.bot	4/2/2015
EX1502L2_EK60-D20150402-T160944.idx	4/2/2015
EX1502L2_EK60-D20150402-T160944.raw	4/2/2015
EX1502L2_EK60-D20150402-T163833.bot	4/2/2015
EX1502L2_EK60-D20150402-T163833.idx	4/2/2015
EX1502L2_EK60-D20150402-T163833.raw	4/2/2015

EX1502 LEG 2 SVP LOG

DATE (UTC)	TIME (UTC)	XBT/CTD FILE NAME	LAT (WGS84) (dec min)	LONG (WGS84) (dec min)	PROBE TYPE
3/15/2015	15:22:44	EX1502L2_XBT001_150316	18 31.69788N	66 11.61914W	DEEP BLUE
3/17/2015	19:58:10	EX1502L2_XBT002_150317	18 31.92822N	66 15.56592W	DEEP BLUE
3/17/2015	23:37:18	EX1502L2_XBT003_150317	18 38.04100N	65 38.98316W	DEEP BLUE

3/18/2015	02:17:16	EX1502L2_XBT004_150318	18 47.36733N	66 33.91300W	DEEP BLUE
3/18/2015	08:01:00	EX1502L2_XBT005_150318	18 37.01233N	67 06.09633W	DEEP BLUE
3/18/2015	13:59:47	EX1502L2_XBT006_150318	18 27.41933N	65 51.50233W	DEEP BLUE
3/18/2015	20:34:15	EX1502L2_XBT007_150318	18 29.60666N	65 57.97033W	DEEP BLUE
3/19/2015	00:35:31	EX1502L2_XBT008_150319	19 48.53383N	67 40.93283W	DEEP BLUE
3/19/2015	06:22:17	EX1502L2_XBT009_150319	19 04.78650N	64 46.58233W	DEEP BLUE
3/19/2015	08:05:05	EX1502L2_XBT010_150319	19 37.59816N	67 40.11833W	DEEP BLUE
3/19/2015	17:34:46	EX1502L2_XBT011_150319	18 36.04233N	65 15.90666W	DEEP BLUE
3/20/2015	01:19:31	EX1502L2_XBT012_150320	18 38.26500N	65 16.37016W	DEEP BLUE
3/20/2015	06:23:02	EX1502L2_XBT013_150320	18 39.95350N	65 01.01350W	DEEP BLUE
3/20/2015	10:47:05	EX1502L2_XBT014_150320	18 44.41900N	64 47.84966W	DEEP BLUE
3/20/2015	15:28:12	EX1502L2_XBT015_150320	18 43.81816N	65 17.24350W	DEEP BLUE
3/20/2015	20:36:00	EX1502L2_XBT016_150320	18 40.29736N	65 10.76758W	DEEP BLUE
3/21/2015	01:30:36	EX1502L2_XBT017_150321	18 33.97559N	65 15.53027W	DEEP BLUE
3/21/2015	06:28:37	EX1502L2_XBT018_150321	18 35.12158N	65 32.68262W	DEEP BLUE
3/21/2015	16:10:45	EX1502L2_XBT019_150321	18 44.12646N	66 11.97461W	DEEP BLUE
3/21/2015	21:09:21	EX1502L2_XBT020_150321	18 38.07971N	66 49.13672W	DEEP BLUE
3/22/2015	01:57:48	EX1502L2_XBT021_150322	18 39.7782N	67 5.30078W	DEEP BLUE
3/22/2015	06:34:59	EX1502L2_XBT022_150322	18 43.15747N	66 59.35449W	DEEP BLUE
3/22/2015	11:27:18	EX1502L2_XBT023_150322	18 54.48865N	67 27.82178W	DEEP BLUE
3/22/2015	16:40:13	EX1502L2_XBT024_150322	18 54.10034N	67 31.63428W	DEEP BLUE
3/22/2015	21:48:35	EX1502L2_XBT025_150322	18 39.69568N	67 36.01025W	DEEP BLUE
3/23/2015	03:33:47	EX1502L2_XBT026_150323	18 45.44031N	67 1.88135W	DEEP BLUE
3/23/2015	08:32:10	EX1502L2_XBT027_150323	18 39.47302N	66 26.69873W	DEEP BLUE
3/23/2015	13:40:06	EX1502L2_XBT028_150323	18 37.46924N	65 39.74609W	DEEP BLUE
3/23/2015	18:43:15	EX1502L2_XBT029_150323	18 40.70251N	65 57.99902W	DEEP BLUE
3/24/2015	00:05:25	EX1502L2_XBT030_150324	18 45.24927N	66 41.50342W	DEEP BLUE
3/24/2015	05:24:47	EX1502L2_XBT031_150324	18 43.09631N	65 52.67432W	DEEP BLUE
3/24/2015	10:34:54	EX1502L2_XBT032_150324	18 43.18445N	65 54.78906W	DEEP BLUE
3/24/2015	15:32:24	EX1502L2_XBT033_150324	18 47.37805N	66 28.94678W	DEEP BLUE
3/24/2015	21:02:32	EX1502L2_XBT034_150324	18 52.67798N	66 31.26416W	DEEP BLUE
3/25/2015	08:41:32	EX1502L2_XBT035_150324	19 58.97717N	66 42.77588W	DEEP BLUE
3/25/2015	13:55:45	EX1502L2_XBT036_150324	20 11.46106N	66 9.35156W	DEEP BLUE
3/25/2015	19:27:43	EX1502L2_XBT037_150324	20 10.63184N	66 51.97119W	DEEP BLUE
3/26/2015	00:29:20	EX1502L2_XBT038_150326	20 11.26001N	67 9.66357W	DEEP BLUE
3/26/2015	05:33:36	EX1502L2_XBT039_150326	20 14.21204N	66 27.64307W	DEEP BLUE
3/26/2015	10:27:59	EX1502L2_XBT040_150326	20 16.66541N	66 24.01904W	DEEP BLUE
3/26/2015	15:26:53	EX1502L2_XBT041_150326	20 14.02087N	67 6.74268W	DEEP BLUE
3/26/2015	20:29:00	EX1502L2_XBT042_150326	20 16.83838N	67 0.64941W	DEEP BLUE
3/27/2015	01:53:59	EX1502L2_XBT043_150327	20 19.18445N	66 16.88477W	DEEP BLUE
3/27/2015	06:26:41	EX1502L2_XBT044_150327	20 20.9707N	66 31.32227W	DEEP BLUE
3/27/2015	11:05:20	EX1502L2_XBT045_150327	20 17.53809N	67 12.99805W	DEEP BLUE
3/27/2015	16:02:54	EX1502L2_XBT046_150327	20 21.11206N	67 0.68066W	DEEP BLUE

3/27/2015	21:00:16	EX1502L2_XBT047_150327	20 23.62097N	66 17.30371W	DEEP BLUE
3/28/2015	03:50:15	EX1502L2_XBT048_150327	20 25.79761N	65 56.32715W	DEEP BLUE
3/28/2015	08:37:41	EX1502L2_XBT049_150327	20 24.51257N	66 39.63037W	DEEP BLUE
3/28/2015	13:48:25	EX1502L2_XBT050_150327	20 23.14307N	67 17.09668W	DEEP BLUE
3/28/2015	18:44:19	EX1502L2_XBT051_150327	20 27.11951N	66 35.66553W	DEEP BLUE
3/28/2015	23:46:20	EX1502L2_XBT052_150328	20 27.41748N	65 52.91162W	DEEP BLUE
3/29/2015	04:30:55	EX1502L2_XBT053_150328	20 28.53003N	66 0.72852W	DEEP BLUE
3/29/2015	09:26:32	EX1502L2_XBT054_150328	20 28.90002N	66 46.3833W	DEEP BLUE
3/29/2015	15:13:33	EX1502L2_XBT055_150328	20 25.08252N	67 18.95264W	DEEP BLUE
3/29/2015	20:25:40	EX1502L2_XBT056_150329	20 31.61816N	66 35.10645W	DEEP BLUE
3/30/2015	01:26:45	EX1502L2_XBT057_150330	20 30.3606N	65 50.53711W	DEEP BLUE
3/30/2015	04:13:19	EX1502L2_XBT058_150330	20 21.50732N	65 35.43506W	DEEP BLUE
3/30/2015	05:25:53	EX1502L2_XBT059_150330	20 14.45789N	65 42.18994W	DEEP BLUE
4/2/2015	11:31:29	EX1502L2_XBT060_150330	19 10.04993N	65 30.60107W	DEEP BLUE

Appendix G: Acronyms

AERONET – Aerosols Robotic Network
AHB – Atlantic Hydrographic Branch
ASCII – American Standard Code for Information Interchange
AUV - autonomous underwater vehicle
BIST – built in system test
CDR – Commander
CO – Commanding Officer
CTD – conductivity, temperature, depth
dB - decibel
DNP – do not process
EEZ - Exclusive Economic Zone
ERT – Earth Resources Technology Corp.
ET – Electronics Technician
EX – NOAA Ship Okeanos Explorer
FM – frequency modulated / modulation
FTP – file transfer protocol
FV - free vehicle
GB - gigabytes(s)
KB - kilobytes(s)
kHz – kilohertz
km – kilometer
kts – knots
LT – Lieutenant
LSS - light scattering sensor
m - meters
MAN – Maritime Aerosols Network
MB – multibeam sonar
MB – megabytes(s)
ms – millisecond
NASA – National Aeronautics and Space Agency
NCDDC – National Coastal Data Development Center
NCEI - National Center for Environmental Intelligence
NCCOS - National Centers for Coastal Ocean Science
NGDC – National Geophysical Data Center
NMEA – National Marine Electronics Association
NOAA – National Oceanic and Atmospheric Administration
NODC – National Oceanographic Data Center
OER – NOAA Office of Ocean Exploration and Research
OMAO – NOAA Office of Marine and Aviation Operations
OPS – Operations Officer
PRT - Puerto Rico Trench
ROV – remotely operated vehicle
SBP – subbottom profiler
SCS – scientific computer system
SIS – Seafloor Information System
SST - Senior Survey Technician

SVP – sound velocity profile
TRU – transceiver unit
TSG - thermosalinograph
TX – transmit
UCAR - University Corporation for Atmospheric Research
UPRM - University of Puerto Rico, Mayaguez
USGS – United States Geological Survey
W - watt
XBT – expendable bathythermograph
XO – Executive Officer

Appendix H: Weather Log

EX1502 Leg 2 WEATHER LOG								
LOCAL DATE	LOCAL TIME	UTC TIME	UTC DATE	WIND DIRECTION (deg)	WIND SPEED (kt)	WAVE HEIGHT (ft)	SWELL DIRECTION (deg)	SWELL HEIGHT (ft)
02/24/2015	12:00	17:00	02/24/2015	230	7	0	190	0-1
03/16/2015	15:46	19:46	03/16/2015	040	15	1	050	2-4
03/17/2015	15:00	19:00	03/17/2015	050	12	1-2	070	2-4
03/17/2015	18:00	22:00	03/17/2015	045	13	0-2	060	2-3
03/17/2015	21:00	1:00	03/18/2015	060	10	0-1	060	1-2
03/18/2015	0:00	4:00	03/18/2015	075	11	1-2	050	2-3
03/18/2015	3:00	7:00	03/18/2015	110	9	1	060	2
03/18/2015	6:00	10:00	03/18/2015	090	11	0-1	060	1-2
03/18/2015	9:00	13:00	03/18/2015	100	13	0-1	060	2-3
03/18/2015	12:00	16:00	03/18/2015	045	16	1-2	070	1-2
03/18/2015	15:00	19:00	03/18/2015	060	13	2-3	060	2-3
03/18/2015	18:00	22:00	03/18/2015	100	14	1-3	060	2-4
03/18/2015	21:00	1:00	03/19/2015	090	14	1-3	060	2-3
03/19/2015	0:00	4:00	03/19/2015	020	11	2-3	060	2-4
03/19/2015	3:00	7:00	03/19/2015	060	10	2-3	060	2-4
03/19/2015	6:00	10:00	03/19/2015	130	8	1-3	060	2-4
03/19/2015	9:00	13:00	03/19/2015	080	13	1-3	060	2-4
03/19/2015	15:00	19:00	03/19/2015	090	13	1-3	070	2-4
03/19/2015	18:00	22:00	03/19/2015	085	14	1-3	070	2-4
03/19/2015	21:00	1:00	03/20/2015	090	16	1-3	070	2-4
03/20/2015	0:00	4:00	03/20/2015	060	16	1-3	070	2-4
03/20/2015	3:00	7:00	03/20/2015	100	14	1-3	070	2-4
03/20/2015	6:00	10:00	03/20/2015	090	9	0-2	070	1-3
03/20/2015	9:00	13:00	03/20/2015	075	10	0-2	070	1-3
03/20/2015	12:00	16:00	03/20/2015	070	12	1-2	070	1-3
03/20/2015	15:00	19:00	03/20/2015	070	10	1-2	070	1-3
03/20/2015	21:00	1:00	03/21/2015	040	15	0-2	070	2-4
03/21/2015	0:00	4:00	03/21/2015	060	12	2-3	070	3-4
03/21/2015	3:00	7:00	03/21/2015	060	13	2-3	070	3-4
03/21/2015	6:00	10:00	03/21/2015	060	10	0-3	070	2-4
03/21/2015	9:00	13:00	03/21/2015	089	8	0-3	030	2-4
03/21/2015	15:00	19:00	03/21/2015	040	12	2	040	2-4
03/21/2015	18:00	22:00	03/21/2015	050	10	1-2	040	2-4
03/21/2015	21:00	1:00	03/22/2015	030	12	1-2	040	2-4
03/22/2015	0:00	4:00	03/22/2015	090	11	1-2	040	2-4
03/22/2015	3:00	7:00	03/22/2015	130	8	1	040	2-4
03/22/2015	6:00	10:00	03/22/2015	115	4	0-1	060	2-3

03/22/2015	9:00	13:00	03/22/2015	100	9	1-2	060	2-4
03/22/2015	12:00	16:00	03/22/2015	110	7	1	030	2-4
03/22/2015	15:00	19:00	03/22/2015	040	7	1	030	2-4
03/22/2015	18:00	22:00	03/22/2015	035	9	1	030	2-4
03/22/2015	21:00	1:00	03/23/2015	090	14	1-2	010	2-4
03/23/2015	0:00	4:00	03/23/2015	100	13	1-2	040	2-4
03/23/2015	3:00	7:00	03/23/2015	120	9	2	040	2-4
03/23/2015	6:00	10:00	03/23/2015	110	10	1-2	040	2-4
03/23/2015	9:00	13:00	03/23/2015	090	12	1-2	070	2-4
03/23/2015	12:00	16:00	03/23/2015	100	10	1-2	070	2-3
03/23/2015	15:00	19:00	03/23/2015	090	9	1-2	070	2-3
03/23/2015	18:00	22:00	03/23/2015	080	17	1-2	070	2-4
03/23/2015	21:00	1:00	03/24/2015	250	14	1-2	070	2-3
03/24/2015	0:00	4:00	03/24/2015	200	6	1	070	2-3
03/24/2015	3:00	7:00	03/24/2015	120	8	1-2	070	2-3
03/24/2015	6:00	10:00	03/24/2015	110	9	0-1	070	2-3
03/24/2015	9:00	13:00	03/24/2015	105	11	0-1	070	2-3
03/24/2015	12:00	16:00	03/24/2015	100	10	1	070	2-3
03/24/2015	15:00	19:00	03/24/2015	070	12	1-2	070	3-4
03/24/2015	18:00	22:00	03/24/2015	090	16	1-2	070	3-4
03/24/2015	21:00	1:00	03/25/2015	095	10	1-2	080	2-3
03/25/2015	0:00	4:00	03/25/2015	100	11	1-2	060	2-3
03/25/2015	3:00	7:00	03/25/2015	100	10	1-2	060	2-3
03/25/2015	6:00	10:00	03/25/2015	100	10	0-2	110	2-3
03/25/2015	9:00	13:00	03/25/2015	100	9	0-1	110	2-3
03/25/2015	12:00	16:00	03/25/2015	100	10	1	110	2-3
03/25/2015	18:00	22:00	03/25/2015	090	8	0-2	110	2-3
03/25/2015	21:00	1:00	03/26/2015	065	11	0-2	110	2-3
03/26/2015	0:00	4:00	03/26/2015	050	14	1-2	070	2-3
03/26/2015	3:00	7:00	03/26/2015	060	13	1-2	070	2-4
03/26/2015	6:00	10:00	03/26/2015	075	12	1-2	070	2-3
03/26/2015	9:00	13:00	03/26/2015	081	13	1-2	090	2-4
03/26/2015	12:00	16:00	03/26/2015	090	16	2-3	090	2-4
03/26/2015	15:00	19:00	03/26/2015	110	14	2-3	090	2-4
03/26/2015	18:00	22:00	03/26/2015	100	16	2-3	090	2-5
03/26/2015	21:00	1:00	03/27/2015	090	16	2-3	090	2-5
03/27/2015	0:00	4:00	03/27/2015	100	14	2-4	090	3-5
03/27/2015	3:00	7:00	03/27/2015	100	14	2-4	090	3-5
03/27/2015	6:00	10:00	03/27/2015	110	18	2-4	090	3-6
03/27/2015	9:00	13:00	03/27/2015	111	17	2-4	050/100	3-6/2-3
03/27/2015	12:00	16:00	03/27/2015	120	20	3-4	050/110	3-6/2-4
03/27/2015	15:00	19:00	03/27/2015	130	17	3-4	050/110	3-5/2-4
03/27/2015	18:00	22:00	03/27/2015	135	19	3-4	050/120	3-6/3-5

03/27/2015	21:00	1:00	03/28/2015	120	18	3-4	050/120	3-6/2-5
03/28/2015	0:00	4:00	03/28/2015	120	17	3-4	050/130	3-6/3-5
03/28/2015	3:00	7:00	03/28/2015	130	16	3-4	050/130	3-6/3-5
03/28/2015	6:00	10:00	03/28/2015	130	13	2-4	050/130	3-6/3-5
03/28/2015	9:00	13:00	03/28/2015	120	13	2-3	050/110	3-6/3-5
03/28/2015	12:00	16:00	03/28/2015	150	16	2-3	050/110	3-6/2-5
03/28/2015	15:00	19:00	03/28/2015	150	14	2-3	050/110	3-6/2-5
03/28/2015	18:00	22:00	03/28/2015	140	19	2-3	105	3-6
03/28/2015	21:00	1:00	03/29/2015	140	18	2-3	090	3-6
03/29/2015	0:00	4:00	03/29/2015	120	16	2-3	090/150	3-6/2-4
03/29/2015	3:00	7:00	03/29/2015	130	16	2-3	090/150	3-6/2-4
03/29/2015	6:00	10:00	03/29/2015	130	15	1-3	090/140	2-4
03/29/2015	9:00	13:00	03/29/2015	143	12	1-3	120	3-6/2-4
03/29/2015	12:00	16:00	03/29/2015	153	14	2-3	090/150	3-5/3-4
03/29/2015	15:00	19:00	03/29/2015	150	15	2-3	110	3-5
03/29/2015	18:00	22:00	03/29/2015	150	6	2-3	110	3-6
03/29/2015	21:00	1:00	03/30/2015	080	2	2-3	110	3-5
03/30/2015	0:00	4:00	03/30/2015	070	11	0-1	110	3-5
03/30/2015	3:00	7:00	03/30/2015	040	8	0-1	110	3-5
03/30/2015	6:00	10:00	03/30/2015	065	9	0-1	110	3-5
03/30/2015	9:00	13:00	03/30/2015	080	13	0-2	080	3-5
03/30/2015	12:00	16:00	03/30/2015	090	8	1-2	110	4-6
03/30/2015	18:00	22:00	03/30/2015	120	13	0-2	100	3-5
03/30/2015	21:00	1:00	03/31/2015	080	5	0-2	090	3-5
03/31/2015	0:00	4:00	03/31/2015	080	5	0-1	330	3-5
03/31/2015	3:00	7:00	03/31/2015	090	8	0-1	320	3-5
03/31/2015	6:00	10:00	03/31/2015	100	12	0-2	320/090	3-6/2-4
03/31/2015	9:00	13:00	03/31/2015	099	11	1-2	090/350	3-4
03/31/2015	18:00	22:00	03/31/2015	090	10	1-2	350/040	3-6
03/31/2015	21:00	1:00	04/01/2015	070	12	1-2	350/090	3-6/2-4
04/01/2015	0:00	4:00	04/01/2015	080	12	1-2	350	3-6
04/01/2015	3:00	7:00	04/01/2015	090	12	1-2	350/110	3-6/2-4
04/01/2015	6:00	10:00	04/01/2015	120	15	1-2	350/030	3-6
04/01/2015	9:00	13:00	04/01/2015	125	15	1-2	070	3-6
04/01/2015	12:00	16:00	04/01/2015	100	20	2-3	110	3-6
04/01/2015	15:00	19:00	04/01/2015	130	15	3-4	110	3-5
04/01/2015	18:00	22:00	04/01/2015	090	15	2-3	110	3-6
04/01/2015	21:00	1:00	04/02/2015	075	18	2-3	110	3-6
04/02/2015	0:00	4:00	04/02/2015	100	15	2-3	110	3-6
04/02/2015	3:00	7:00	04/02/2015	100	11	2-3	100	3-6
04/02/2015	6:00	10:00	04/02/2015	075	15	1-3	100	3-6
04/02/2015	9:00	13:00	04/02/2015	080	11	1-3	100	3-5