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NOAA Office of *Ocean Exploration and Research*

MAPPING DATA ACQUISITION AND PROCESSING REPORT

CRUISE EX-15-03 Legs 1 & II

Tropical Exploration (Mapping)

May 7 to June 9, 2015
San Juan, PR to Bellingham, WA

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August 4, 2015

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1. Introduction

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 baseline 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

Okeanos Explorer combines the capabilities of a NOAA research ship with shore-based high speed networks and infrastructure to conduct systematic telepresence-enabled exploration of the world ocean. 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, and to report the results of the mapping portion of the cruise. 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 readiness report, which can be obtained by contacting the ships operations officer (ops.explorer@noaa.gov).

This report focuses on the transit mapping exploration of EX-15-03 Legs I and II.

3. Cruise Objectives

EX-15-03 operations focused on transit mapping from San Juan, Puerto Rico to Panama City, Panama and onto Honolulu, Hawaii. The primary goals for this cruise included collecting exploratory mapping data. See Section 4 for the specific cruise objectives.

Outreach objectives for this cruise included engagement of the general public in ocean exploration through live video and timely content (mission logs, imagery, and mapping products) posted on the Ocean Explorer website. Education objectives during this cruise focused on the training and integration into the science team of four Explorers-in-Training as part of OER's dedication to developing the next generation of ocean explorers.

Cruise objective also included conducting three additional partner projects with NOAA's Pacific Marine Environmental Lab (PMEL), including recovering two PICO-Prawler moorings, deploying ARGO floats, and towing a seasnake salinity instrument. The seasnake is a long hose that is dragged from a 30-foot long boom outside the ship's wake at the very surface of the ocean. A powerful pump collects surface water which is then carefully filtered, de-bubbled, sterilized, and analyzed by a thermosalinograph on the wet lab on the ship. The seasnake measures the salinity in the top 1-2 cm of the water column to validate salinity measurements made remotely by satellites (NASA's Aquarius and the European Space Agency's SMOS [Soil Moisture and Ocean Salinity] satellites). ARGO is a global array of free-drifting floats that measure temperature and salinity in the upper 2000 m of the water column. The PICO-Prawler moorings measure temperature and salinity in the water column, and contribute valuable data to climate and global water cycle models.

4. Cruise Objectives Defined in the Project Instructions

1) Collect deep water multibeam bathymetry sonar data (MBES) of the Clipperton Fracture Zone and during transit
    a. Conduct 24-hour mapping operations for the duration of the cruise (where permissible)
    b. Collect bathymetric, seafloor backscatter, and water column backscatter data (where permissible)

2. Collect ancillary sonar data
    a. EK60 single beam sonar (24 hours/day, where permissible)
    b. Knudsen sub-bottom profiler (24 hours/day, where permissible)

3. XBT operations
    a. XBT casts will be collected at regular intervals of no more than 6 hours

4. Deploy ARGO floats

5. Recover PICO-Prawler moorings

4. Run Seasnake instrument for supplementary project data collection

5. Train new personnel in all data collection and processing procedures, continuous throughout cruise)
    a. Training of mapping watch leads new to ship
    b. Train mapping interns (UCAR)

6. Test new or modified mission hardware and software

7. Telepresence (VSAT 5 mbps ship to shore; T1 shore to ship)
    a. Maintain single live stream video from ship to shore
    b. Transition to pacific satellites and earth station
    c. Test multicast video traffic through new teleport and DS3 link connection to the NOAA NOC

8. Swing compass in San Juan, PR on May 5 before getting underway

5. Cruise Summary

EX-15-03 Leg I was initially scheduled to depart the morning of May 5, 2015. However, maintenance to the ship's air conditioning system took an extra 48 hours, so the departure date was delayed until May 8, 2015. Two days into the cruise, there was a problem with the UPS battery backup power system, and as a precautionary measure all mission systems were shut down for the rest of Leg I. Permits to map in Columbia and Panama had not been secured at that point, so only a total of half a day of mapping was lost due to the UPS battery backup going down.

The start of EX-15-03 Leg II was delayed two days, due to carryover delays from Leg I, and departed Panama City, Panama on May 16, 2015. As the ship left port, some crew members noticed an oil slick trailing the ship. As soon as the ship was offshore and out of the shipping channel, the stern and bow thrusters were tested for oil leaks. The stern thrusters were confirmed to be leaking oil, so the ship was instructed to head to dry dock. The dry dock procurement process took several days, so the ship continued to transit west, and on May 20 turned north towards San Francisco, CA. The ship was tied up in San Francisco for four days while the dry dock procurement was finalized. On June 4, the ship left San Francisco and transited north to Bellingham, WA for dry dock. The ship pulled into Bellingham on June 9 and entered dry dock on June 10. Work on the stern thrusters was completed on June 14. The ship then sailed to Hawaii on June 15-June 24, but no exploration or mapping was conducted on this portion of the transit.

During EX-15-03 Leg I, multibeam, single beam, and sub-bottom profile data was collected for about 36 hours while the ship was in US and Dominican Republic waters, where a permit had been secured. Multibeam, single beam, and sub-bottom profile data were generally collected 24-hours a day during Leg II when the ship was in US, international, or foreign-permitted waters.

During both legs, sonar data quality was monitored in real time by mapping watch standers. There were times during the cruise when the seas were very rough, particularly on the transit from San Francisco to Bellingham, so the sonars were secured because the data was too poor quality to justify collecting. There

were also disruptions in data collection when marine mammals were sighted with 200 m of the ship, requiring the sonars to be secured.

A small targeted survey in 250 m of water offshore of the Juan de Fuca Straits was conducted for the NOAA Olympic Coast National Marine Sanctuary (OCNMS). For this targeted survey, three multibeam lines 9 km in length with 100% overlap were collected at 6 knots.

Expendable bathythermograph (XBT) casts were conducted at an interval defined by prevailing oceanographic conditions, generally every three to four hours, to maintain data quality. The ship was transiting as fast as possible, sometimes up to 12 knots, so multibeam data quality was compromised at times. Cutoff angles in multibeam acquisition software, Seafloor Information Software (SIS), were adjusted on both the port and starboard sides depending on ocean depth and prevailing weather conditions.

All multibeam sonar data was fully processed according to established onboard procedures and was archived with the National Center for Environmental Information. Ancillary sonar datasets were archived at the National Oceanographic Data Center or the National Geophysical Data Center.

Salinity data was collected with the seasnake when the ship was in international and permitted waters. No ARGO floats were deployed, and the PICO-Prawler moorings were not recovered, due to the last minute changes to the trackline.

6. Participating Mapping Personnel

EX-15-03 Leg I

NAME	ROLE	AFFILIATION
CDR Mark Wetzler	Commanding Officer	NOAA Corps.
LT Emily Rose	Operations Officer	NOAA Corps.
Lindsay McKenna	Expedition Coordinator/ Mapping Team Lead	NOAA OER/ERT. Inc.
Alan Leonardi	NOAA OER Director	NOAA OER
Chris Kelley	Scientist/Watch Lead	University of Hawaii
Mike Barber	Mapping Intern	UCAR
Dan Freitas	Augmenting Survey Tech	NOAA OMAO

EX-15-03 Leg II

NAME	ROLE	AFFILIATION
CDR Mark Wetzler	Commanding Officer	NOAA Corps.
LT Emily Rose	Operations Officer/Watch Lead	NOAA Corps.
Lindsay McKenna	Expedition Coordinator/ Mapping Team Lead	NOAA OER/ERT. Inc.
James Miller	Watch Lead	NOAA AHB
Kasey Cantwell	Web Coordinator/Watch Lead	NOAA OER/Accentia
Dan Freitas	Augmenting Survey Tech	NOAA OMAO
Mike Barber	Mapping Intern	UCAR
Jonathan Cotugno	Mapping Intern	UCAR
Abigail Casavant	Mapping Intern	UCAR
Kate von Krusenstiern	Mapping Intern	UCAR
Kevin Michael	Support Scientist	NOAA Corps

Dave Rivera	Support Scientist	NOAA PMEL
Julian Schanze	Research Associate	Earth and Space Research

7. Mapping Statistics

Dates	May 5 – June 9
Days lost to weather	2 days
Total mapping days	12 days
Total non-mapping days	8 days
Unscheduled days alongside	5 days
Line kilometers of survey	3800.5 km
Square kilometers mapped	22,500 km^2
Number / Data Volume of EM 302 raw bathymetric / bottom backscatter multibeam files	391 files / 25 GB
Number / Data Volume of EM 302 water column multibeam files	391 files / 90 GB
Number / Data Volume of EK 60 water column singlebeam files	511 files / 3.0 GB
Number / Data Volume of subbottom sonar files	217 files / 2.4 GB
Number of XBT casts	51
Number of CTD casts (including test casts)	1
Beginning draft	Forward: 15'; Aft: 14'3”
Ending draft	Forward: 12'10”; Aft: 14'10"
Average ship speed for survey	8.9 kts

8. Cruise Calendar

May/June						
Sun	Mon	Tues	Wed	Thur	Fri	Sat
		5/5 Originally scheduled departure	5/6 Delayed dockside in San Juan	5/7 Delayed dockside in San Juan	5/8 Depart San Juan and start mapping	5/9 Shutdown mission systems due to UPS failure
5/10 Continue transit, no data collected	5/11 Continue transit, no data collected	5/12 Began transit through Panama Canal	5/13 Arrive in port in Panama City, Panama	5/14 Scheduled alongside in Panama City	5/15 Scheduled alongside in Panama City	5/16 Depart for EX1503L1, start exploration mapping and collecting salinity measurements
5/17 Continue mapping and collecting salinity measurements; test thrusters for oil leak	5/18 Continue mapping and collecting salinity measurements; test thrusters for oil leak	5/19 Continue mapping and collecting salinity measurements	5/20 Continue mapping and collecting salinity measurements; turn north for emergency dry dock	5/21 Continue mapping and collecting salinity measurements	5/22 Continue mapping and collecting salinity measurements	5/23 Enter Mexican EEZ, no data collected
5/24 Transit through Mexican EEZ, no data collected	5/25 Transit through Mexican EEZ, no data collected	5/26 Transit through Mexican EEZ, no data collected	5/27\ Transit through Mexican EEZ, no data collected	5/28 Complete transit through Mexican EEZ, enter US and start mapping and collecting	5/29 Continue mapping and collecting salinity measurements; pull into San Francisco	5/30 Alongside in San Francisco

				salinity measurements		
5/31 Alongside in San Francisco	6/1 Alongside in San Francisco	6/2 Alongside in San Francisco	6/3 Alongside in San Francisco	6/4 Depart for Bellingham, WA, start mapping but then stop due to weather	6/5 No mapping due to very rough weather	6/6 Turn on sonars and being mapping
6/7 Continue mapping	6/8 Continue mapping, collect mapping box in OCNMS; arrive in Bellingham, WA	6/9 Watch standers and interns depart ship	6/10 Ship enters dry dock	6/11 Dry dock repairs and departure of remaining mission personnel	6/12 Dry dock repairs	6/13 Dry dock repairs
6/14 Dry dock repairs complete	6/15 Ship departs for Honolulu, HI	6/16 Ship underway, no data collected	6/17 Ship underway, no data collected	6/18 Ship underway, no data collected	6/19 Ship underway, no data collected	6/20 Ship underway, no data collected
6/21 Ship underway, no data collected	6/22 Ship underway, no data collected	6/23 Ship underway, no data collected	6/24 Ship arrives in Honolulu, HI. Expedition complete			

9. Daily Cruise Log

All times listed are local ship time.

May 07, 2015
The ship was originally scheduled to depart San Juan on May 5, 2015. Due to AC repairs, the ship was still in port through May 7. Due to the change in plans two mission personnel could not sail on EX1503L1. Survey watch-lead, Josh Humberston, had to depart the ship; and Susan Haynes from the OER education team also had to depart. Chris Kelley offered to sit as a watch-lead.

May 08, 2015
The ship departed San Juan at 0930 local time. The compass was swung just outside the harbor and then small boat ops were conducted to transfer personnel for the compass back to shore. Ship got underway for Panama around noon. Transit mapping began with all three sonars. Data quality was good. The ship transitioned from +4 GMT to +5 GMT at 2300.

May 09, 2015
Survey operations continued through the late afternoon, surveyed over canyon terrain and then over the deep abyssal plain throughout the day. Data quality was good. In the morning, there were reports that fumes were coming from the UPS batteries in the motor room. It was discovered that the room with the UPS had overheated to 190 degrees, and the UPS system had failed. As a precautionary measure, all OER mission equipment was shut down between 1630 and 1900 local time.

May 10, 2015

No mapping was conducted. The sonars remained secured due to the UPS issue. Entered the Columbian EEZ and the SCS systems was secured.

May 12, 2015
Begin transit through the Panama Canal

May 13, 2015
Arrive at port in Panama City, Panama

May 15, 2015
All mission personnel arrived at the ship. Lead watch stander, Ashton Flinders, was deemed too sick to sail by the medical officer and departed the ship. The watch scheduled was re-arranged. All mission systems were brought online.

May 16, 2015
The ship departed at 0930 from Panama City, Panama. Sonar systems were brought fully online and mapping began. During departure, the Chief Engineer and Boatswain noticed oil slick in wake of the ship possibly leaking from the ship. An oil leak from the stern thruster was confirmed later in the day, on the order of 10-20 drops per minute. The ship continued to travel west awaiting further instructions from whether to continue to Hawaii or head north to the west coast of the US.

May 17, 2015
Mapping operations were conducted all day with good data quality despite needle gunning and high transit speeds. Conducted a second stern thruster test, and still saw a large number of oil droplets when the thruster was engaged. The ship continued to travel west.

May 18, 2015
Mapping operations were conducted all day with good data quality despite needle gunning and high transit speeds.

May 19, 2015
Mapping operations continued with good data quality despite needle gunning and high transit speeds. Weather was favorable so transit speeds were faster than anticipated.

May 20, 2015
Continued mapping with all three sonars. Data quality was good to excellent. Received confirmation to head north for dry dock on the west coast of the US.

May 21, 2015
Continued to map with all three sonars. Data quality was good to excellent. Continued transit north towards the US west coast.

May 22, 2015
Continued to map with all three sonars. Data quality was good to excellent.

May 23, 2015
Continued to map with all three sonars until 0300 local time (on 5/24) when ship entered the Mexican EEZ. All data collection systems (sonars, SCS, and seasnake) were secured while passing through Mexican EEZ.

May 24, 2015
In the Mexican EEZ. All scientific data collection systems remained secured.

May 25-27, 2015
Continue to transit through Mexican EEZ. No decision will be made on dry dock until June 1, so ship will pull into San Francisco on May 30 and wait for word on dry dock location.

May 28, 2015
Entered US waters at 1000 local time. All sonars and data acquisition systems were turned on without issues. Successfully redeployed the Salinity Snake. There were a few issues with navigation input, hard reboot of IMU and CNAV fixed the issue. Weather started to decline through the day, the ship was pitching into seas, so there were some data dropouts.

May 29, 2015
Heavy pitching caused all the sonars to frequently lose bottom, so data quality was fair at best. Weather decks were secured for part of the morning due to the heavy seas, so there was a stretch of time mapping continued without a new SVP being applied. 24 hours mapping operations continued until 0830 when sonars were secured after a whale sighting in 100 m of water. Sonars were not turned on again because the ship was already in the shipping channel approaching San Francisco.

May 30 to June 03, 2015
Along-side in San Francisco. Received word that dry dock will be in Bellingham, WA. Visiting scientists depart ship.

June 04, 2015
Depart for Bellingham, WA. Started sonars, but turned them off shortly after entering open water because seas were 12-17 feet and several humpback whales were observed. The ship was pitching directly into the swell, and the sonars could not track bottom.

June 05, 2015
Seas were too heavy to map. Ship speed slowed to 3-5 knots.

June 06, 2015
Started mapping in the evening with all three sonars. Data quality was fair, and improved over night as the seas continued to lay down and the dominant swell direction caused the ship to start rolling instead of pitching.

June 07, 2015
Continued mapping with all three sonars. Data quality was good. Started mapping along a transit line recommended by the NOAA Office of Marine Sanctuaries. The ship was still pitching heavily at times, so the TGS was turned off periodically when it was sucking in air. There were several whale sightings starting around 1630 local time. Mapping was interrupted periodically for 2-3 hours for whale (humpback) sightings while transiting through a very productive area off the Oregon coast.

June 08, 2015
Continued mapping with all three sonars. Data quality was good. Mapped an approximate 20 sq km area inside the OCNMS requested by the NOAA Office of Marine Sanctuaries. The CNAV monitor continued to

drop out periodically, the CNAV is fed into the POS-MV system this could cause EM302 attitude artifact in the data. The artifact was more defined at higher speeds (> 9 kts) and less defined at 5 knots. Reached the Fairhaven Dry Dock at approximately 2000 local time and tied up alongside.

June 09, 2015
Watch-standers and interns depart ship. Ship entered dry dock for repairs.

June 10-14
Dry dock repairs continue and are completed on June 14.

June 15- 24
Ship departs dry dock and transits to Hawaii. No data is collected during this transit.

10. Summary of Major Findings

Cruise Map

EM 302 bathymetry and backscatter (bottom and water column) data were collected during transit, see Figures 1, 2, and 3 for bathymetry maps. The data acquisition was limited to depth greater than 50 m. The transit trackline was chosen based on getting to each destination as quickly as possible, while also maximizing time within international and permitted waters. For visual purposes, the EX1503 Leg II trackline was broken up into three sections, Section A - prior to securing equipment in the Mexican EEZ; Section B - data collection after exiting the Mexican EEZ and before arriving in San Francisco; and Section C – data collection between San Francisco, CA and Bellingham, WA.

EM302 water column backscatter data was not processed during the cruise. No water column anomalies were observed by mapping watch standers during real-time data acquisition monitoring. Multibeam bottom backscatter was processed for the first portion of EX-15-03 Leg II, the weather was too rough to get good quality backscatter during the transit between San Francisco and Bellingham.

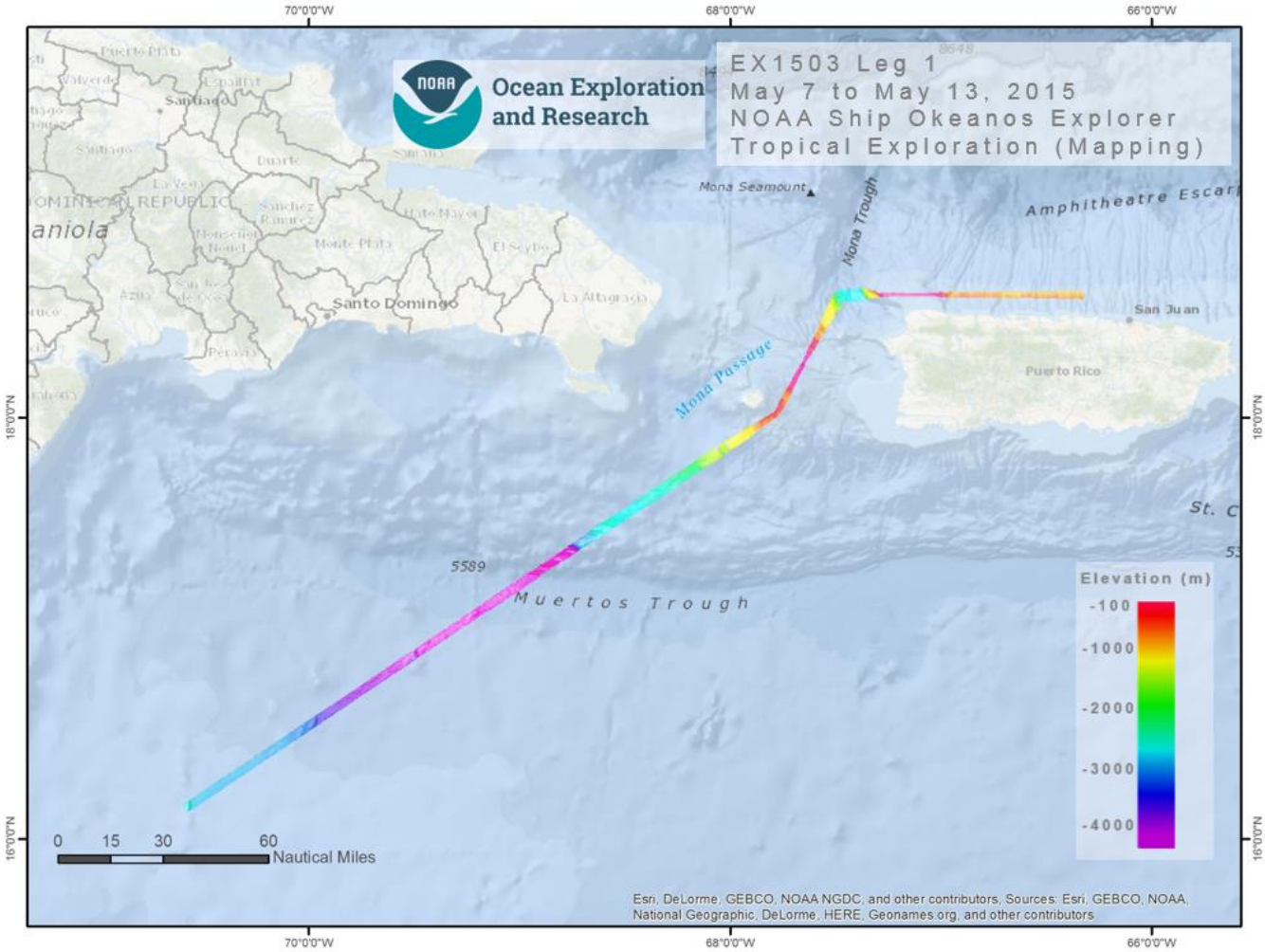


Figure 1. EX-15-03 Leg I cruise map made in ArcMap 10.3 showing overall cruise bathymetry.

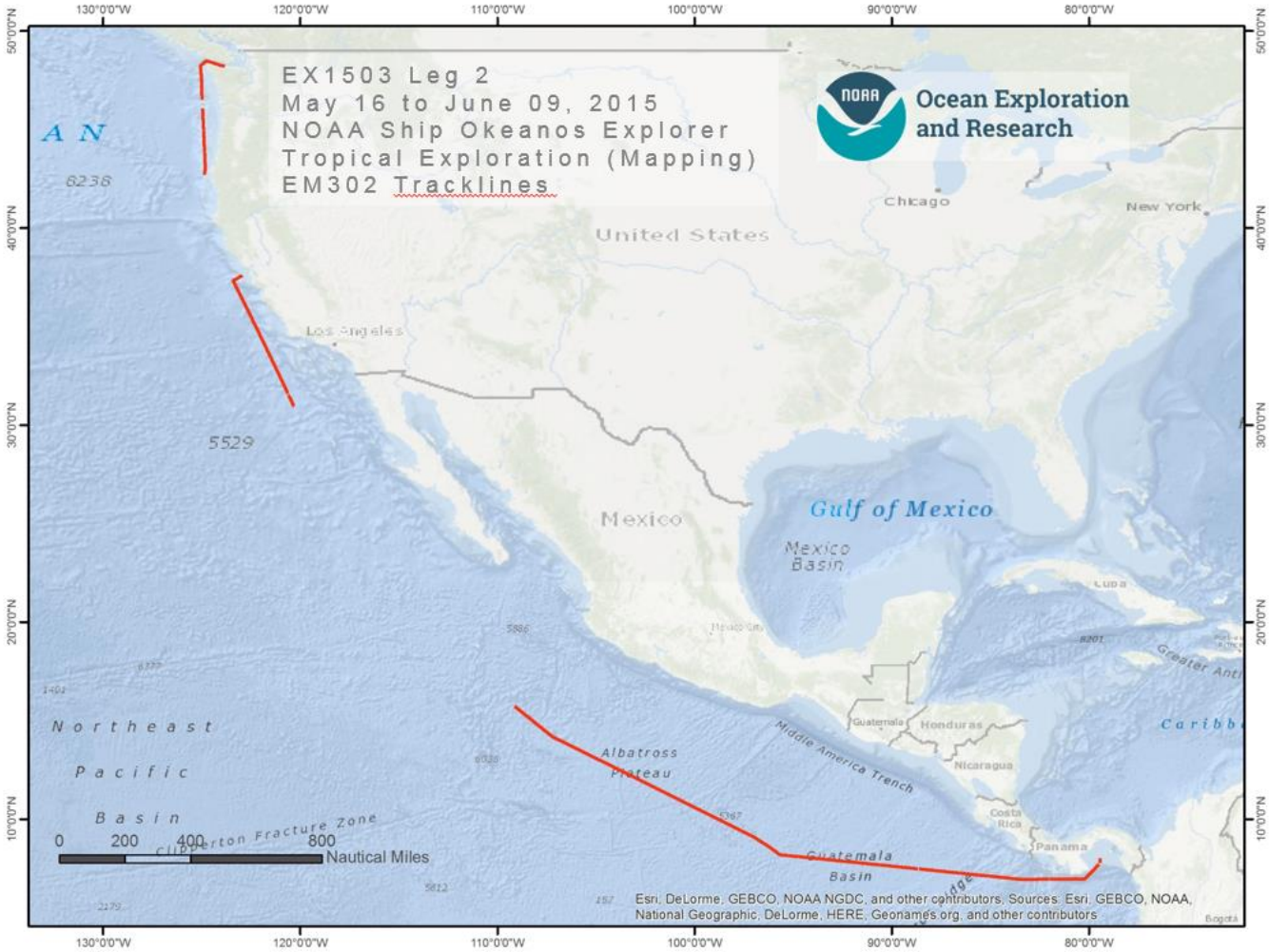


Figure 2. EX-15-03 Leg II EM302 track lines, showing overall cruise track, map made in ArcMap 10.3. No data were collected inside the Mexican EEZ or when the weather was too rough to survey.

Figure 3a. EX-15-03 Leg II, Section A bathymetry, cruise map made in ArcMap 10.3.

Figure 3b. EX-15-03 Leg II, Section B bathymetry, cruise map made in ArcMap 10.3.

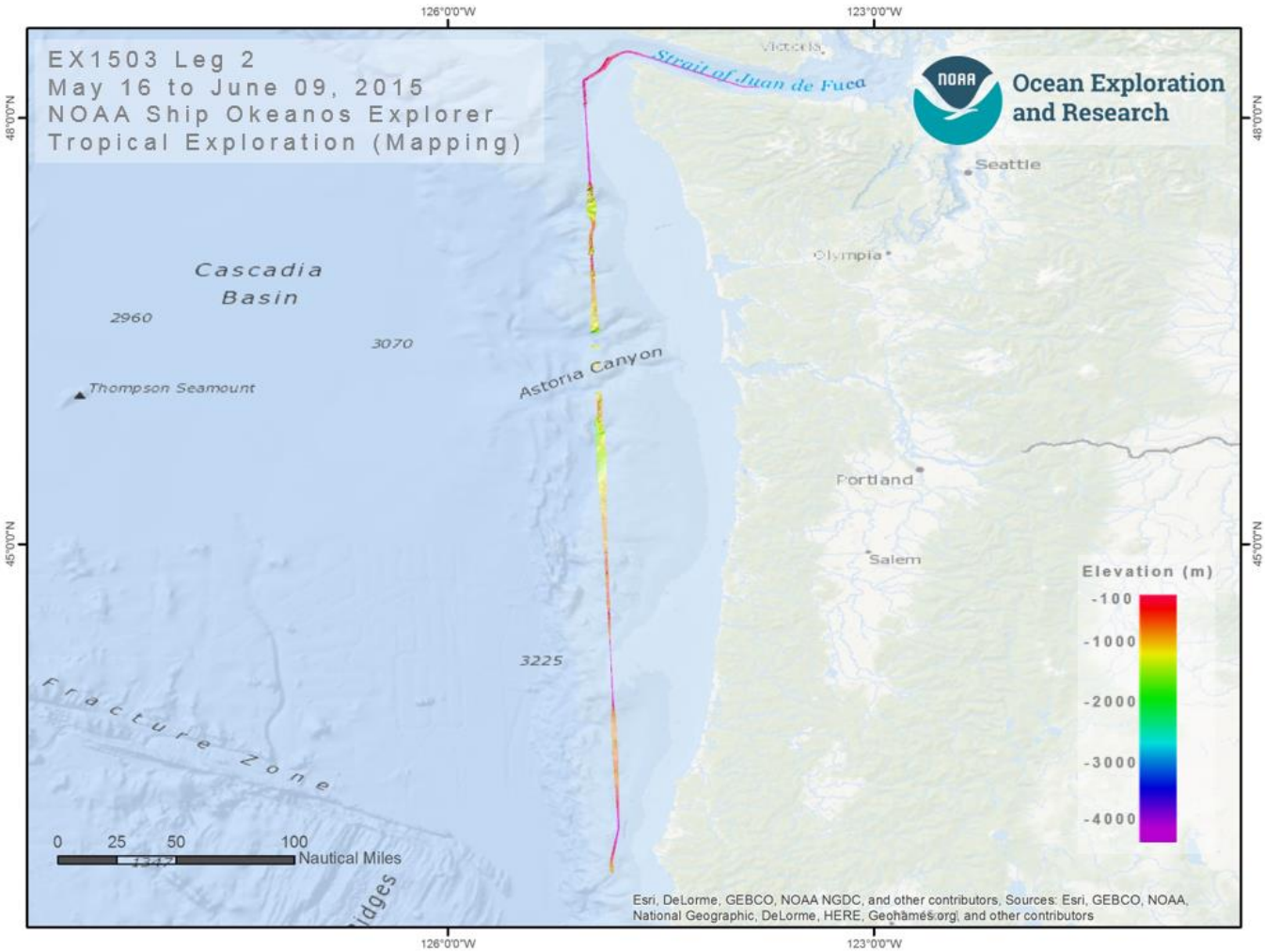


Figure 3c. EX-15-03 Leg II, Section C bathymetry, cruise map made in ArcMap 10.3. Sonars were secured near Astoria Canyon due to multiple marine mammal sightings.

Features of Interest

This expedition transited over the East Pacific Rise, a region marked by chains of seamounts and small undersea mountains called knolls. Many of these volcanic underwater mountains have recently been identified through new seafloor maps derived by satellite altimetry. However, multibeam sonar mapping provides much higher resolution. In Figure 4, the top maps shows the derived bathymetry, from gravity anomalies, map over the region we transited (Sandwell and Smith, 2014). Numerous seafloor features are visible at this scale. However when zoomed in (bottom left), it is difficult to distinguish any fine-scale characteristics. The bottom right image shows an overlay of multibeam bathymetry collected during this expedition. This feature is over 3000 m deep, and is mapped at a spatial resolution of 65 m. Figure 5 shows the detailed view of the knoll.

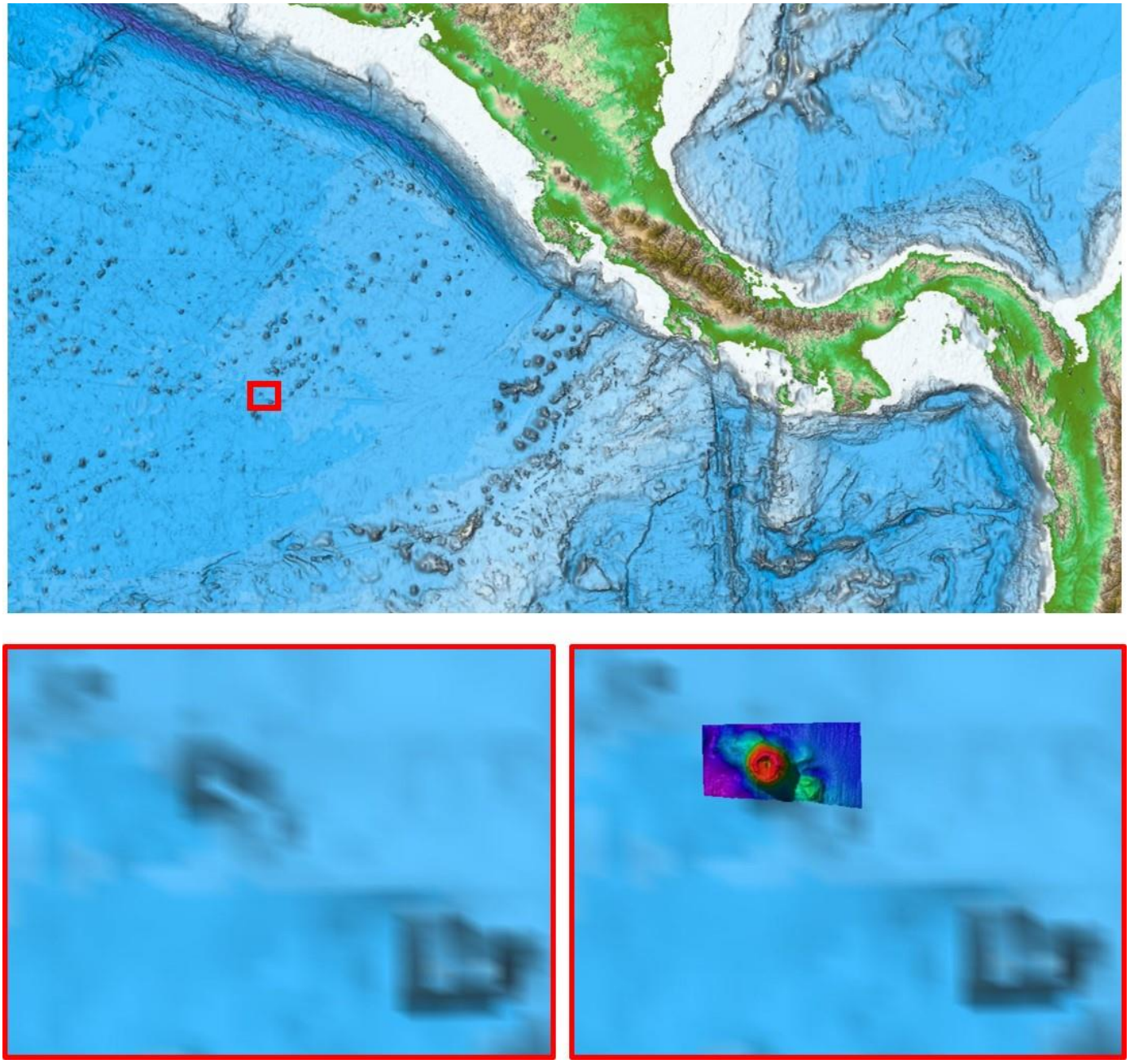
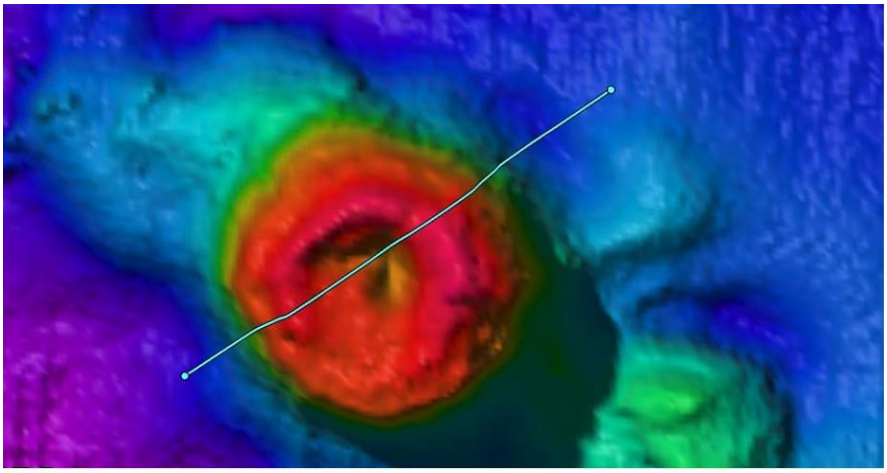


Figure 4. Showing the level of detail mapped by the EM302 multibeam, versus satellite derived bathymetry.



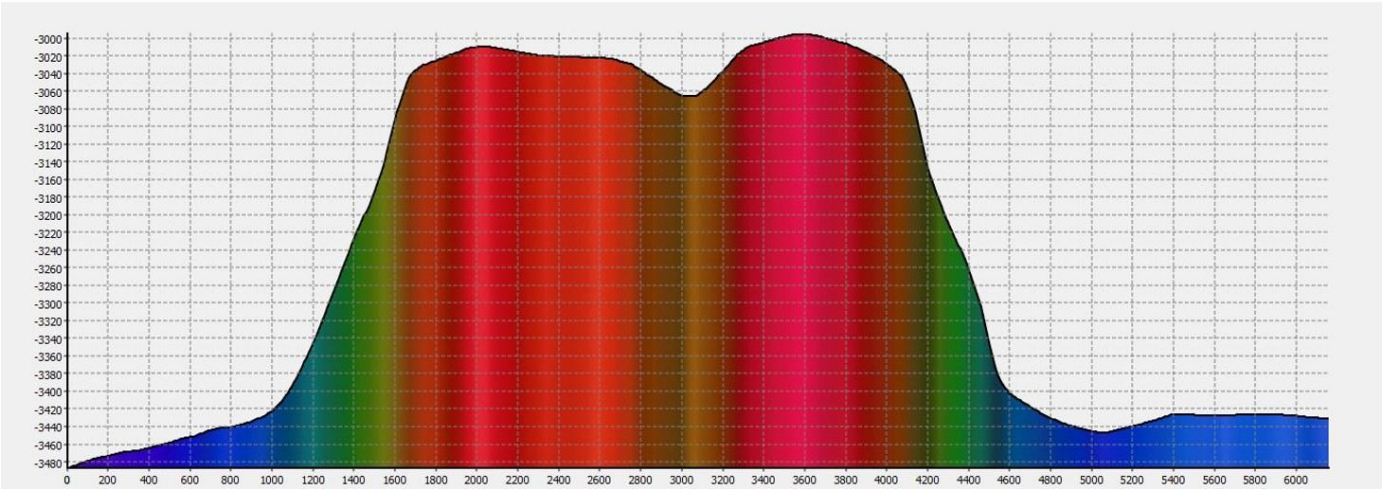


Figure 5. Cross-section of a knoll. The feature rises 500 m above the surrounding seafloor and has sloped sides as steep as 38. Further investigation is required to determine if the sunken feature in the middle of the knoll is a caldera.

A knoll with a possible collapsed caldera, located on the flank of a larger seamount in the eastern Pacific Ocean about 200 miles off the Costa Rican coast in 2500 m of water was also mapped, see Figure 6. The feature has a noticeable debris field located downslope of the mound, suggesting a collapsed caldera.

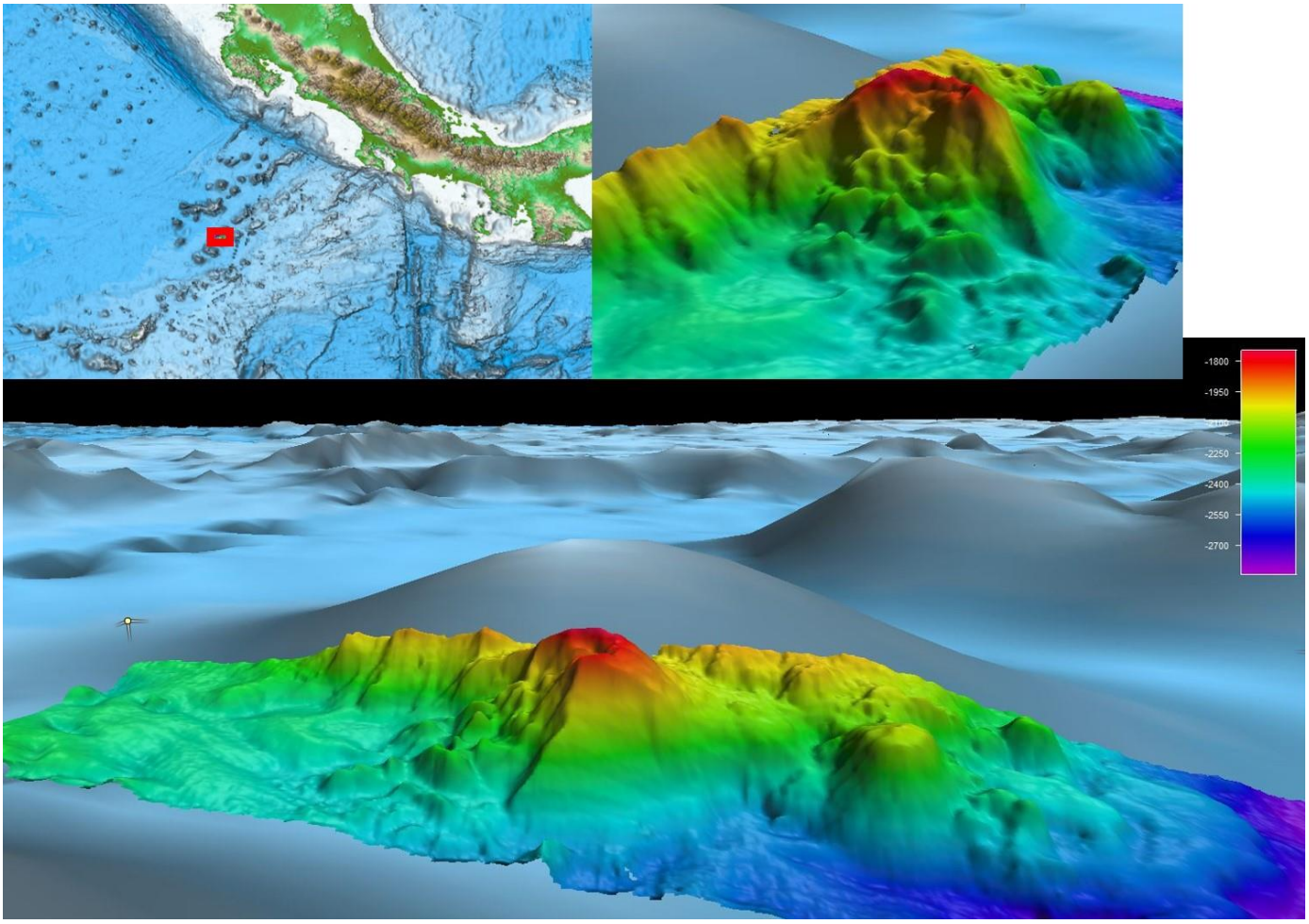


Figure 6. Images viewed in QPS, Inc. software Fledermaus at 3x vertical exaggeration, the top left image is a marine gravity model, (Sandwell and Smith, 2014).

11. Mapping Sonar Setup and Data Processing

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. Appendix D contains a detailed description of sonar system functionality and technical specifications, including crosstrack and alongtrack data resolutions.

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 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.

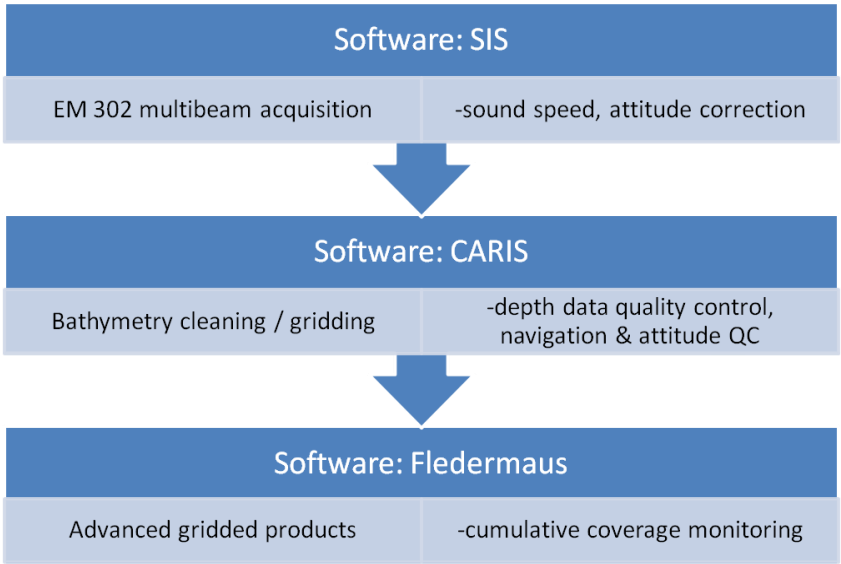


Figure 7. Shipboard multibeam data flow.

The ship is also equipped with a Kongsberg EK 60 singlebeam fisheries sonar. The transducer operates at 18 kHz and transmits a 7° beam fan. Data was monitored in realtime, but was not processed. The power was set to 2000 W, and pulse duration was set to 4096 kHz.

Additionally, the ship is equipped with a Knudsen 3260 subbottom profiler. The transducers produce a 3.5 kHz chirp signal. Data was monitored in realtime but was not processed. The subbottom profiler was run during all survey operations in > 500 m of water, weather and seafloor terrain permitting.

12. Data Acquisition Summary

Sonars

EX-15-03 Legs I and II operations included exploratory mapping with the EM 302 multibeam, EK 60 split beam, and Knudsen subbottom profiler. Figure 8 shows the Leg II EK60 split-beam sonar tracklines. The general schedule of operations included 24-hour multibeam, singlebeam, and subbottom mapping. No data was collected over a four day period when the ship was within the Mexican EEZ. Tables listing all sonar files collected and products created during the cruise are provided in the appendices of this report.

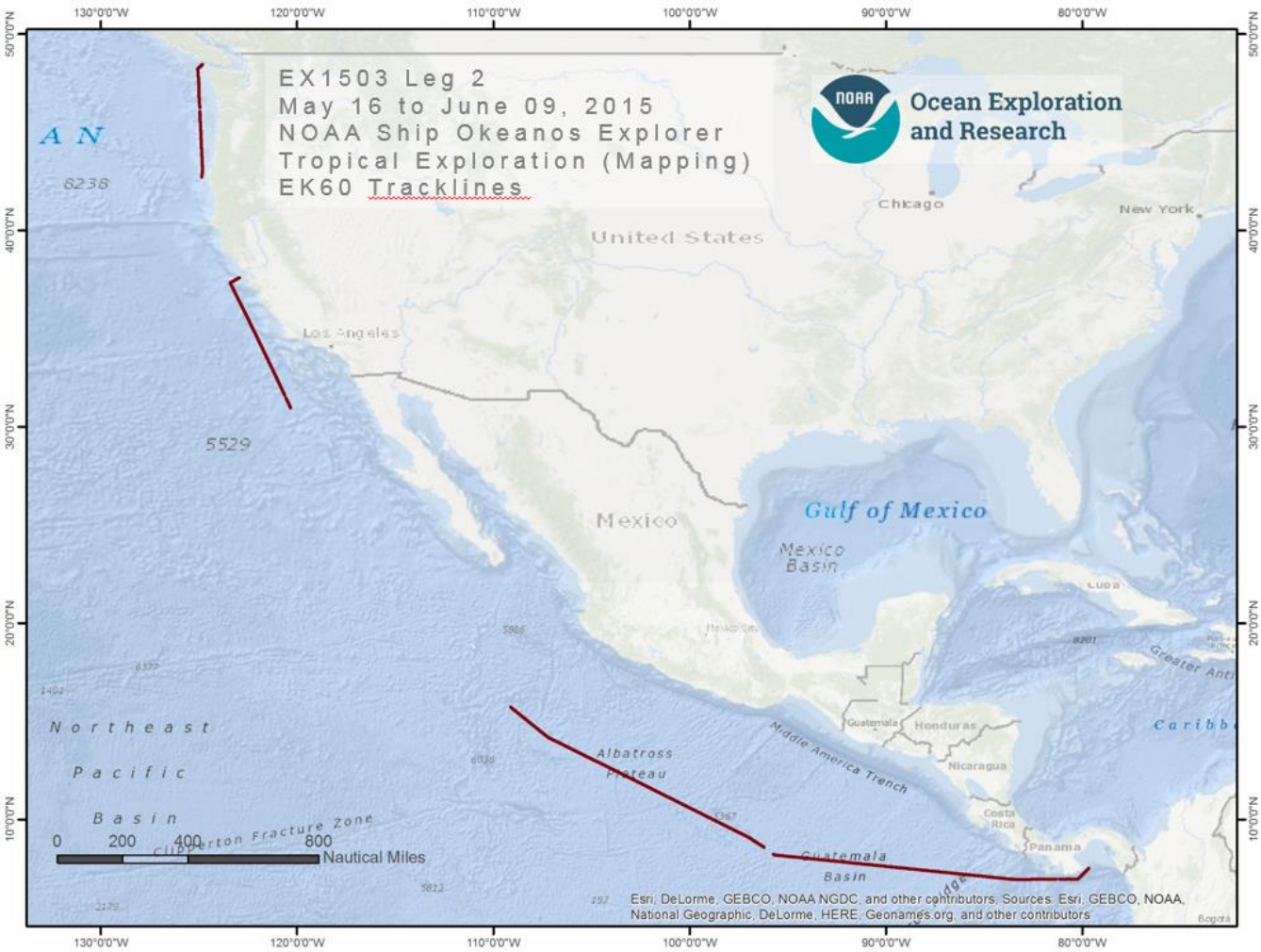


Figure 8. Tracklines of EK 60 singlebeam sonar data collected in the targeted mapping areas during EX-15-03 Leg II.

Sound Velocity

Expendable bathythermographs were collected every three to six hours to correct multibeam data for changes in sound speed in the water column, and were applied in real time using SIS. Sound speed at the sonar head was determined using a Reson SVP-70 probe.

13. Sonar Data Quality Assessment

EM 302 Bottom Tracking

During transit mapping, the ship's speed was often 11 knots or above. Transit mapping in greater than 4000 m caused sparse coverage of the seafloor. Where there were several gaps in the data due to the high speeds, the bathymetric products were gridded to 75m.

In general the ping mode in the multibeam data acquisition software, SIS, was set to auto. In auto mode the ping mode automatically changes based on the depth of the seafloor. In water depths greater than 5000 m,

SIS auto selects the Extra Deep ping mode. This resulted in some outer beam artifacts on the starboard side. Manually adjusting the ping mode to Very Deep alleviated the problem. In water depths greater than 5420 m, the nadir artifact transitioned from a single artifact to a double parallel artifact (or railroad track).

EM 302 Built In System Tests (BISTs)

To check on the health of the TRU system, built-in system test (BIST) tests were conducted prior to data collection and periodically throughout the cruise. A summary table of BIST results and a sample full BIST result is provided in the appendices of this report. Five BIST tests failed prior to the start of EX1503 Leg I but the multibeam data being collected looked clean. Unfortunately there was not enough time to trouble shoot why the BIST tests had failed before the mission systems had to be secured due to the UPS failure. The first BIST test of EX1503 Leg II failed a noise test, but subsequent tests all passed.

Cross-lines

No cross-lines were collected during this transit mapping cruise.

14. 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 Center for Environmental Intelligence (NCEI, formerly NGDC) online archives. Data can be accessed via the following websites (last accessed 7/14/2015):

- the NGDC Interactive Bathymetry Data Viewer at http://maps.ngdc.noaa.gov/viewers/bathymetry/
- the NGDC Interactive Multibeam Data Viewer at http://maps.ngdc.noaa.gov/viewers/multibeam/

The complete 2015 Field Season *Okeanos Explorer* Data Management Plan can be found in the Data Management Report, accessible through http://service.ncddc.noaa.gov/rdn/oer-waf/media/docs/EX_FY15_DMP.pdf.

15. Telepresence

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

The 1-panel multicast feed was transmitted to shore throughout the cruise and was available at http://oceanexplorer.noaa.gov/okeanos/media/exstream/exstream.html.

16. Suggested Citation

McKenna, L. and K. Cantwell. (2015) Mapping data acquisition and processing report: Cruise EX-15-03 Legs I and II *Tropical Exploration (Mapping)*. Office of Ocean Exploration and Research, Office of Oceanic &Atmospheric Research, NOAA, Silver Spring, MD 20910.

17. References

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

EX-15-03 Project Instructions can be obtained by contacting NOAA Ship *Okeanos Explorer* at ops.explorer@noaa.gov.

Sandwell, D. T., R. D. Müller, W. H. F. Smith, E. Garcia, R. Francis, New global marine gravity model from CryoSat-2 and Jason-1 reveals buried tectonic structure, Science, Vol. 346, no. 6205, pp. 65-67, doi: 10.1126/science.1258213, 2014.

17. Appendices

Appendix A: EX-15-03 Data Management Plan

Data Management Plan
Okeanos Explorer (EX1503L1): Tropical Exploration (Mapping I)

OER Data Management Objectives
Normal data management objectives for mapping and underway data.

13-Apr-15 Page 1

1. General Description of Data to be Managed

13.1 Name and Purpose of the Data Collection Project

Okeanos Explorer (EX1503L1): Tropical Exploration (Mapping I)

13.2 Summary description of the data to be collected.

Multibeam data will be collected 24 hours a day and XBT casts will be conducted at an interval defined by prevailing oceanographic conditions, but not to exceed 6 hours. Additionally, EK60 single beam and sub-bottom profile data will be collected 24 hours per day. Data will only be collected in foreign waters where clearance has been granted. If no permit was obtained, all data collection systems will be shut down in those foreign waters. All multibeam data will be fully processed according to standard onboard procedures.

13.3 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, Panama City, Panama, Panama Canal, Puerto Rico, San Juan

13.4 If this mission is part of a series of missions, what is the series name?

Okeanos Mapping Cruises

13.5 Planned or actual temporal coverage of the data.

Dates: 5/5/2015 to 5/10/2015

13.6 Planned or actual geographic coverage of the data.

Latitude Boundaries: 18.5 to 9

Longitude Boundaries: -80 to -67.5

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

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

1.8 What platforms will be employed during this mission?

Okeanos Explorer (EX1503L1): Tropical Exploration (Mapping I)

NOAA Ship Okeanos Explorer

2. Point of Contact for this Data Producing Project

Overall POC:	Lindsay McKenna, Physical Scientist, NOAA Office of Ocean Exploration and Research, Lindsay.McKenna@noaa.gov
Title:	Mission Expedition Coordinator, Mapping Lead, Principal Investigator
Affiliation/Dept:	UNH CCOM/JHC
E-Mail:	lindsay.mckenna@noaa.gov
Phone:	(603) 862-5246

3. Point of Contact for Managing the Data

Data POC Name:	Susan Gottfried
Title:	OER Data Management Coordinator
E-Mail:	susan.gottfried@noaa.gov

4. Resources

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

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

unknown

5. Data Lineage and Quality

5.1 What is the processing workflow from collection to public release?

SCS data shall be delivered in its native format as well as an archive-ready, documented, and compressed NetCDF-3 format to 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:

not applicable

6.2 Where will the metadata be hosted?

Organization:	An ISO format collection-level metadata record will be generated during pre-cruise planning
URL:	http://www.ncddc.noaa.gov/oer-waf/

discovery and access. The record will be harvested by data.gov.

Meta Std: ISO 19115-2 Geographic Information with Extensions for Imagery and Gridded Data will be the metadata standard employed; a NetCDF-4 standard for oceanographic data will be employed for the SCS data; the Library of Congress standard, MAchine Readable Catalog (MARC), will be employed for NOAA Central Library records.

6.3 Process for producing and maintaining metadata:

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

7. Data Access

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

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

Not Applicable

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

Account access to mission systems are maintained and controlled by the Program. Data access prior to public accessibility is documented through the use of Data Request forms and standard operating procedures.

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

Org: National Centers for Environmental Information

URL: http://explore.noaa.gov/digitalatlas

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

Hold Time: Okeanos Explorer data is made publicly accessible as soon as possible

Authority: not applicable.

7.4 Prepare a Data Access Statement

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

8. Data Preservation and Protection

8.1 Actual or planned long-term data archive location:

Data from this mission will be preserved and stewarded through the NOAA National Data Centers. Refer to the Okeanos Explorer FY15 Data Management Plan at NOAA's EDMC DMP Repository (EX_FY14_DMP_Final.pdf) for detailed descriptions of the processes, procedures, and partners involved in this collaborative effort.

8.2 If no archive planned, why?

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.

Data Management Plan

Okeanos Explorer (EX1503L2): Tropical Exploration (Mapping II)

OER Data Management Objectives

Normal data management objectives for mapping and underway data. Surveys of Opportunity include NASA Aerosol Network and recovering PMEL-Prawler moorings, deploying ARGO floats, and towing a seasnake salinity instrument.

1. General Description of Data to be Managed

13.1 Name and Purpose of the Data Collection Project

Okeanos Explorer (EX1503L2): Tropical Exploration (Mapping II)

13.2 Summary description of the data to be collected.

During EX-15-03L2, multibeam data will be collected 24 hours a day and XBT casts will be conducted at an interval defined by prevailing oceanographic conditions, but not to exceed 6 hours. Additionally, EK 60 (single beam) and sub-bottom profile data will be collected 24 hours per day. Data will only be collected in foreign waters where clearance has been granted. If no permit was obtained, all data collection systems will be shut down in those foreign waters. All multibeam data will be fully processed according to standard onboard procedures and will be archived with the National Geophysical Data Center. Ancillary sonar datasets will be archived at the National Oceanographic Data Center.

13.3 Keywords or phrases that could be used to enable users to find the data.

Hawaii, moorings, PICO-Prawler Mooring, ARGO float, seasnake salinity instrument, 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, Clipperton Fracture Zone, Panama City, Clipperton Islands, Eastern Pacific Ocean, Pearl Harbor

13.4 If this mission is part of a series of missions, what is the series name?

Okeanos Mapping Cruises

13.5 Planned or actual temporal coverage of the data.

Dates: 5/14/2015 to 6/9/2015

13.6 Planned or actual geographic coverage of the data.

Latitude Boundaries:	21.2	to	2
Longitude Boundaries:	-158	to	-79

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

Multibeam (product), Multibeam (raw), SCS Output (compressed), SCS Output (native), Sub-Bottom Profile data, Water Column Backscatter, XBT (raw), Cruise Plan, Cruise Summary, Data Management Plan, Highlight Images, Quick Look Report, EK60 Singlebeam Data, Expedition Cruise Report, Floating Point GeoTIF, GSF, Mapping Summary, Multibeam (image), Multibeam (processed)

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:	Lindsay McKenna, Physical Scientist, NOAA Office of Ocean Exploration and Research, Lindsay.McKenna@noaa.gov
Title:	Expedition Coordinator, Mapping Lead, Principal Investigator
Affiliation/Dept:	UNH CCOM/JHC
E-Mail:	Lindsay.McKenna@noaa.gov
Phone:	603-862-5246

3. Point of Contact for Managing the Data

Data POC Name:	Susan Gottfried
Title:	OER Data Management Coordinator
E-Mail:	susan.gottfried@noaa.gov

4. Resources

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

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

unknown

5. Data Lineage and Quality

5.1 What is the processing workflow from collection to public release?

SCS data shall be delivered in its native format as well as an archive-ready, documented, and compressed NetCDF-3 format to 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:

not applicable

6.2 Where will the metadata be hosted?

Organization: An ISO format collection-level metadata record will be generated during pre-cruise planning

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

Meta Std: ISO 19115-2 Geographic Information with Extensions for Imagery and Gridded Data will be the metadata standard employed; a NetCDF-4 standard for oceanographic data will be employed for the SCS data; the Library of Congress standard, MAchine Readable Catalog (MARC), will be employed for NOAA Central Library records.

6.3 Process for producing and maintaining metadata:

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

7. Data Access

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

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

Not Applicable

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

Account access to mission systems are maintained and controlled by the Program. Data access prior to public accessibility is documented through the use of Data Request forms and standard operating procedures.

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

Org: National Centers for Environmental Information

URL: http://explore.noaa.gov/digitalatlas

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

Hold Time: data are made publicly accessible as soon as possible after cruise end

Authority: not applicable

7.4 Prepare a Data Access Statement

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

8. Data Preservation and Protection

8.1 Actual or planned long-term data archive location:

Data from this mission will be preserved and stewarded through the NOAA National Data Centers. Refer to the Okeanos Explorer FY15 Data Management Plan at NOAA's EDMC DMP Repository (EX_FY14_DMP_Final.pdf) for detailed descriptions of the processes, procedures, and partners involved in this collaborative effort.

8.2 If no archive planned, why?

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

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

April 9, 2015

MEMORANDUM FOR: The Record

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

SUBJECT: Categorical Exclusion for NOAA Ship *Okeanos Explorer* Cruise EX-15-03 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-15-03 Legs 1 and 2 Exploration, Tropical (Mapping)" and will be led by Lindsay McKenna, Physical Scientist for the *Okeanos Explorer* program within OER. NOAA Ship *Okeanos Explorer* will depart San Juan, Puerto Rico for Leg 1 on May 5, 2015, and arrive in port in Panama City, Panama on May 10, 2015. Leg 2 will depart Panama City, Panama on May 14, 2015 and arrive in port in Pearl Harbor, Hawaii on June 9, 2015. NOAA Ship *Okeanos Explorer* will conduct sonar mapping operations at all times during the cruise. Focused mapping and sonar testing operations will occur along (1) a transit path from San Juan to Panama City, and (2) a transit path along the Clipperton Fracture Zone feature from Panama to Pearl Harbor. 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. Two moored instruments that belong to NOAA PMEL will be recovered in Kiribati waters, and a dozen Argo floats will be deployed during the Leg 2 transit.

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 **5.5** 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: NASA Maritime Aerosols Survey of Opportunity

Survey or Project Name

Maritime Aerosol Network

Points of Contact (POC)

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

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 and BISTs

FILE NAME	DATE (Local)	TIME (Local)
EX1503L1_BIST_04_FAIL.txt	5/8/2015	12:09 PM
EX1503L1_BIST_03_FAIL.txt	5/8/2015	12:00 PM
EX1503L1_BIST_05_FAIL.txt	5/8/2015	12:30 PM
EX1503L1_BIST_02_FAIL.txt	5/8/2015	11:14 AM
EX1503L1_BIST_01_FAIL.txt	5/8/2015	10:54 AM
EX1503L2_Start_PU_Parameters.txt	5/16/2015	10:12 AM
EX1503L2_BIST_01_FAIL.txt	5/16/2015	9:53 AM
EX1503L2_BIST_02_PASS.txt	5/16/2015	2:12 PM
EX1503L2_BIST_03_PASS.txt	5/28/2015	4:29 PM
EX1503L2_End_PU_Parameters.txt	5/31/2015	12:44 PM
EX1503L2_BIST_04.txt	5/31/2015	12:43 PM
EX1503L2_BIST_06_PASS.txt	6/4/2015	5:57 PM
EX1503L2_BIST_05_FAIL.txt	6/4/2015	5:47 PM
EX1503L2_START2WA_PU_Parameters.txt	6/4/2015	5:49 PM
EX1503L2_FINAL_PU_Parameters.txt	6/8/2015	6:18 PM
EX1503L2_BIST_FINAL.txt	6/8/2015	6:16 PM

Post-cruise PU parameters:

#// Database Parameters

#// Seafloor Information System
#// Kongsberg Maritime AS

#// Saved: 2015.06.08 22:18:10

#// 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]

```
[db ver = 24, proc = 24.0]
[OTL = 4.0.-95]
[ACE ver = 5.8.3]
[Coin ver = 2.5.0]
[Simage ver = 1.6.2a]
[Dime ver = DIME v0.9]
[FreeType ver = 2.3.7]
[TIFF ver = 3.9.2]
[GeoTIFF ver = 1250]
[GridEngine ver = 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 #//

Automatically generated PU parameter backup
file for EM302.

#} 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 [0] [0]
    #* 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              [795] #// Force Depth
(m):
    #* MID              [50] #// Min. Depth (m):
    #* MAD              [600] #// 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              [0] #// Spike Filter
Strength: OFF
    #* 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           [7.063] #// 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.depthFact
or     [0.050000]
    #* GridProc.surfaceDistancePointRule.use
[false]
    #*
GridProc.surfaceDistancePointRule.scaleFactor
[1.000000]
    #* GridProc.surfaceDistanceUnitRule.use
[false]
    #*
GridProc.surfaceDistanceUnitRule.scaleFactor
[1.000000]
    #* GridProc.surfaceDistanceStDevRule.use
[false]
    #*
GridProc.surfaceDistanceStDevRule.scaleFacto
r     [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.depthFact
or     [0.050000]
    #* GridProc.surfaceDistancePointRule.use
[false]
    #*
GridProc.surfaceDistancePointRule.scaleFactor
[1.000000]
    #* GridProc.surfaceDistanceUnitRule.use
[false]
    #*
GridProc.surfaceDistanceUnitRule.scaleFactor
[1.000000]
    #* GridProc.surfaceDistanceStDevRule.use
[false]
    #*
GridProc.surfaceDistanceStDevRule.scaleFacto
r     [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 Final Built In System Test (BIST) Results

Saved: 2015.06.08 22:16:48

Sounder Type: 302, Serial no.: 101

Date Time Ser. No. BIST Result

2015.06.08 22:08:56.160 101 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

2015.06.08 22:08:59.010 101 1 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
0-5 120.9
0-6 121.3
0-7 120.5
0-8 119.7

0-9 120.9
0-10 121.3
0-11 120.1
0-12 120.9
0-13 120.5
0-14 121.7
0-15 120.9
0-16 121.3
0-17 120.1
0-18 120.9
0-19 121.7
0-20 120.9
0-21 120.9
0-22 120.9
0-23 121.3
0-24 119.7

High Voltage Br. 2

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

Input voltage 12V

TX36 Spec: 11.0 - 13.0
0-1 11.9
0-2 11.8
0-3 11.8
0-4 11.8
0-5 11.9
0-6 11.8
0-7 11.8
0-8 11.8
0-9 11.8
0-10 11.9
0-11 11.8
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 38.0
0-2 35.6
0-3 35.6
0-4 34.8
0-5 35.2
0-6 36.0
0-7 36.8
0-8 37.2
0-9 36.4
0-10 33.6
0-11 32.8
0-12 34.0
0-13 36.8
0-14 35.2
0-15 36.4
0-16 35.2
0-17 36.8
0-18 36.8
0-19 37.6
0-20 37.6
0-21 37.2
0-22 36.0
0-23 37.2
0-24 38.4

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 0.6
0-10 0.5
0-11 0.5
0-12 0.5
0-13 0.6
0-14 0.6
0-15 0.6
0-16 0.5
0-17 0.6
0-18 0.8
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

2015.06.08 22:08:59.160 101 2 OK
Input voltage 12V

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

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 41.0
7-2 43.0
7-3 43.0
7-4 36.0

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 2.7
7-3 2.8
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

2015.06.08 22:08:59.260 101 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
0-5 120.9
0-6 121.3
0-7 120.5
0-8 119.7
0-9 120.9
0-10 121.3
0-11 120.1
0-12 120.5
0-13 120.5
0-14 121.7
0-15 120.9
0-16 121.7
0-17 120.1
0-18 120.5
0-19 121.7
0-20 120.5
0-21 120.9
0-22 120.5
0-23 121.3
0-24 119.7

High Voltage Br. 2

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

Input voltage 12V

TX36 Spec: 11.0 - 13.0
0-1 11.9
0-2 11.8
0-3 11.8
0-4 11.8
0-5 11.9
0-6 11.8
0-7 11.8
0-8 11.8
0-9 11.8
0-10 11.9
0-11 11.8
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

2015.06.08 22:08:59.410 101 4 OK
EM 302 High Voltage Ramp Test
Test Voltage:20.00 Measured Voltage: 19.00
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

2015.06.08 22:11:35.236 101 5 OK

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

2015.06.08 22:11:40.670 101 6 OK
Receiver impedance limits [600.0 1000.0] ohm

Board	1	2	3	4
1:	853.0	847.7	824.1	389.6*
2:	831.0	855.9	822.5	856.2
3:	810.9	845.8	847.9	851.9
4:	837.4	832.1	839.8	849.0
5:	842.3	840.5	791.4	861.2
6:	850.7	851.6	831.0	862.9
7:	831.5	845.5	831.5	866.4
8:	839.1	840.1	850.2	842.4
9:	366.9*	841.3	826.7	835.6
10:	812.0	0.0*	788.0	850.6
11:	834.5	830.6	833.0	834.1
12:	839.7	815.7	844.3	375.3*
13:	839.6	831.3	815.4	848.3
14:	822.4	833.9	853.8	851.9
15:	816.0	839.9	843.7	399.5*
16:	844.6	822.6	848.0	840.2
17:	823.7	0.1*	852.2	848.2
18:	841.7	824.7	854.6	857.6
19:	809.6	832.9	837.8	843.3
20:	826.6	865.6	847.5	850.3
21:	855.2	841.9	873.3	855.8
22:	874.6	847.3	834.1	855.7
23:	865.3	862.3	853.3	855.5
24:	878.6	881.5	870.0	866.3
25:	836.0	834.1	843.6	856.1
26:	839.6	822.6	846.1	851.3
27:	819.8	835.2	842.7	853.0
28:	810.7	834.4	814.9	851.7
29:	811.5	849.1	837.3	851.4
30:	851.1	827.8	842.6	853.1
31:	825.0	822.6	845.4	841.6
32:	848.8	873.7	854.1	856.4

Transducer impedance limits [250.0 2000.0] ohm

Board	1	2	3	4
1:	337.0	360.8	359.8	164.5*
2:	354.1	361.1	361.7	366.8
3:	338.9	344.1	370.9	350.5
4:	343.9	355.2	375.3	354.7
5:	331.1	358.0	371.4	344.0
6:	330.2	346.9	352.1	363.0
7:	339.8	351.6	388.7	356.7
8:	328.1	341.1	360.9	360.4
9:	155.7*	356.1	376.1	359.5
10:	362.7	0.0*	378.5	355.1
11:	330.6	362.7	360.5	363.5
12:	347.8	365.8	363.2	149.0*
13:	337.0	347.9	378.6	349.3
14:	371.0	346.8	377.8	345.7
15:	334.3	342.2	364.8	158.6*
16:	336.2	360.3	377.3	339.7
17:	334.0	0.0*	352.5	360.3
18:	341.3	352.5	362.5	354.8
19:	353.9	358.2	358.7	361.0
20:	349.7	344.1	362.3	345.9
21:	350.1	349.8	359.1	355.4
22:	353.7	354.3	367.3	348.5
23:	361.3	343.6	366.3	355.9
24:	360.8	362.8	345.8	340.8
25:	343.6	367.5	360.1	351.5
26:	348.9	377.7	361.1	358.1
27:	340.0	356.3	362.9	355.8
28:	357.8	366.6	368.8	340.8
29:	350.9	360.8	376.2	361.7
30:	337.4	347.1	349.3	374.2
31:	349.1	362.8	363.1	354.6
32:	340.7	358.5	363.4	360.6

Receiver Phase limits [-50.0 20.0] deg
Board 1 2 3 4

1:	-1.8	1.9	5.0	2.8
2:	0.7	-4.4	3.5	0.8
3:	3.9	-2.6	-0.8	0.1
4:	-0.5	1.6	0.9	0.4
5:	-0.9	0.6	6.3	-0.9
6:	-3.4	-3.0	0.3	-1.6
7:	1.7	-0.1	3.2	-0.7
8:	-1.8	-0.1	-3.5	0.9
9:	0.3	2.0	3.0	1.8
10:	3.7	-75.1*	6.9	-0.1
11:	-2.4	2.1	-1.0	3.2
12:	-0.4	3.0	-2.9	-0.6
13:	0.4	1.2	4.4	-0.7
14:	2.3	-0.2	-0.5	-1.5
15:	1.8	-3.4	-0.9	0.8
16:	-1.9	3.1	-1.7	-1.6
17:	0.2	104.9*	-3.1	1.7
18:	-3.0	3.9	-3.1	-2.0
19:	2.5	2.4	-2.9	2.5
20:	1.8	-3.2	-1.3	1.0
21:	-0.7	1.9	-4.2	-1.8
22:	-2.7	-2.0	1.1	-1.6
23:	-0.1	-3.9	-0.8	-2.1
24:	-3.4	-4.1	-4.2	-3.2
25:	-0.3	2.0	1.2	0.3
26:	-1.1	5.0	-3.1	-0.3
27:	2.3	-1.5	-0.2	-0.6
28:	5.6	-1.4	2.1	-1.4
29:	2.7	0.9	0.4	0.3
30:	-3.2	0.7	-1.1	1.6
31:	1.2	2.4	-0.7	3.2
32:	-3.5	-5.0	-2.4	-0.5

Transducer Phase limits [-100.0 0.0] deg

Board	1	2	3	4
1:	-38.0	-40.0	-36.9	-34.6
2:	-40.4	-45.0	-34.4	-41.7
3:	-34.5	-44.8	-37.0	-39.6
4:	-40.4	-38.5	-39.2	-33.8
5:	-41.5	-42.1	-40.2	-36.1
6:	-40.0	-36.3	-37.6	-36.4
7:	-37.2	-42.7	-37.6	-37.4
8:	-40.0	-42.2	-43.9	-36.8
9:	-40.4	-40.0	-37.5	-37.7
10:	-43.9	-135.0*	-31.2	-32.1
11:	-40.7	-40.5	-43.6	-35.8
12:	-38.2	-38.3	-46.3	-35.9
13:	-38.1	-44.3	-35.0	-39.8
14:	-40.1	-46.3	-37.7	-36.8
15:	-34.0	-48.4	-40.0	-28.2
16:	-40.7	-41.9	-37.2	-35.3
17:	-32.7	137.9*	-43.0	-34.3
18:	-37.0	-37.4	-41.9	-36.5
19:	-39.4	-39.1	-39.6	-35.2
20:	-36.7	-43.1	-44.2	-36.1
21:	-37.5	-42.7	-39.0	-35.3
22:	-39.4	-45.4	-34.8	-35.9
23:	-39.7	-45.5	-38.0	-33.7
24:	-41.0	-42.4	-42.3	-30.9
25:	-33.6	-38.2	-39.9	-35.6
26:	-43.1	-39.1	-37.8	-38.7
27:	-35.7	-40.7	-38.1	-37.4
28:	-38.9	-42.0	-35.9	-34.8
29:	-40.3	-45.0	-40.3	-34.1
30:	-37.5	-39.4	-40.9	-29.8
31:	-42.9	-43.2	-37.2	-29.8
32:	-42.4	-43.1	-38.2	-36.7

Rx Channels test passed

2015.06.08 22:12:08.788 101 7 OK
Tx Channels test passed

2015.06.08 22:14:49.781 101 8 OK
RX NOISE LEVEL

Board No:	1	2	3	4	
0:	56.7	56.4	56.7	56.0	dB
1:	55.9	55.3	55.4	56.2	dB
2:	55.7	55.6	56.9	55.7	dB
3:	55.2	55.2	56.4	56.4	dB
4:	56.6	56.4	56.8	56.8	dB
5:	56.5	56.2	56.5	56.1	dB
6:	56.2	56.2	57.3	55.7	dB
7:	55.6	55.6	56.9	55.7	dB
8:	54.5	55.4	56.5	55.7	dB
9:	56.3	-Inf	56.3	56.0	dB
10:	55.9	56.3	56.9	55.1	dB
11:	55.4	56.2	55.8	55.4	dB
12:	56.4	56.1	56.4	55.3	dB
13:	56.7	55.5	56.5	55.1	dB
14:	56.0	56.0	57.0	56.3	dB
15:	56.7	56.8	56.7	56.0	dB
16:	55.5	61.7	56.3	56.3	dB
17:	55.6	55.0	55.5	55.9	dB
18:	55.7	55.9	55.8	55.2	dB
19:	55.1	55.5	55.4	55.8	dB
20:	55.8	55.8	55.8	55.6	dB
21:	56.4	56.2	56.0	55.6	dB
22:	56.7	56.5	56.3	55.5	dB
23:	56.3	56.5	55.6	55.3	dB
24:	55.8	55.3	54.9	56.1	dB

25:	56.2	55.6	54.8	55.7	dB
26:	56.4	56.2	55.6	55.7	dB
27:	55.2	55.4	54.8	56.2	dB
28:	55.9	55.7	56.0	56.0	dB
29:	56.0	55.4	55.5	55.5	dB
30:	56.5	56.1	56.1	55.6	dB
31:	56.8	57.1	56.3	55.9	dB

Maximum noise at Board 2 Channel 16 Level: 61.7 dB

Broadband noise test

Average noise at Board 1 56.0 dB OK
Average noise at Board 2 56.2 dB OK
Average noise at Board 3 56.2 dB OK
Average noise at Board 4 55.8 dB OK

2015.06.08 22:14:56.615 101 9 OK
RX NOISE SPECTRUM

Board No:	1	2	3	4
26.1 kHz:	59.1	63.4	56.6	58.9
26.3 kHz:	59.2	56.1	56.6	56.6
26.5 kHz:	58.1	56.5	57.0	56.2
26.7 kHz:	58.1	56.4	56.7	56.8
26.9 kHz:	59.1	57.8	57.4	56.8
27.1 kHz:	59.0	57.4	57.3	57.0
27.3 kHz:	58.1	56.9	58.0	57.2
27.5 kHz:	58.3	57.0	57.1	56.2
27.7 kHz:	58.9	56.9	57.1	56.9
27.9 kHz:	59.6	57.0	57.4	57.1
28.1 kHz:	58.7	57.4	57.4	57.5
28.3 kHz:	58.0	57.0	57.5	57.1
28.5 kHz:	58.5	57.7	57.9	57.2
28.7 kHz:	59.5	57.0	57.9	56.6
28.9 kHz:	58.9	57.0	57.6	58.0
29.1 kHz:	58.4	56.6	57.8	57.4
29.3 kHz:	58.9	56.2	57.1	56.9
29.5 kHz:	60.0	57.1	57.9	57.4
29.7 kHz:	59.3	56.3	57.4	57.0
29.9 kHz:	58.3	57.1	57.3	57.2
30.1 kHz:	58.6	57.0	57.1	56.5
30.3 kHz:	59.5	57.1	57.2	56.8
30.5 kHz:	59.1	57.2	57.4	57.4
30.7 kHz:	57.7	56.5	57.2	57.4
30.9 kHz:	58.5	57.3	57.4	57.3
31.1 kHz:	59.4	57.0	57.3	57.8
31.4 kHz:	59.1	56.8	57.7	57.6
31.6 kHz:	58.1	56.6	57.4	57.5
31.8 kHz:	58.2	57.4	57.7	57.9
32.0 kHz:	58.9	57.2	57.3	58.4
32.2 kHz:	58.3	56.8	57.3	56.7
32.4 kHz:	57.6	56.4	56.9	57.0
32.6 kHz:	57.4	56.3	57.2	57.6
32.8 kHz:	58.2	56.8	57.2	56.4
33.0 kHz:	59.3	57.6	57.5	57.2
33.2 kHz:	57.8	56.0	56.7	56.2
33.4 kHz:	56.6	55.9	56.2	56.2
33.6 kHz:	57.6	55.6	55.8	55.4
33.8 kHz:	58.8	55.5	55.5	55.9
34.0 kHz:	59.1	54.9	55.8	55.3

Maximum noise at Board 2 Frequency 26.1 kHz Level: 63.4 dB

Spectral noise test

Average noise at Board 1 58.7 dB OK
Average noise at Board 2 57.2 dB OK
Average noise at Board 3 57.2 dB OK
Average noise at Board 4 57.1 dB OK

2015.06.08 22:15:03.432 101 10 OK
CPU: KOM CP6011
Clock 1795 MHz
Die 37 oC (peak: 54 oC @ 2015-06-07 - 01:35:18)
Board 38 oC (peak: 49 oC @ 2015-06-04 - 23:15:42)
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

2015.06.08 22:15:03.499 101 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

EX-15-03 LEG I										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0000_20150508_173157_EX1503_MB	XBT 001	10.48	271	5/8/2015	17:31:57.089	18:31:58.140	066-30.18W	066-18.85W	18-33.61N	18-36.41N
0001_20150508_183158_EX1503_MB	XBT 001	10.69	269	5/8/2015	18:31:44.140	19:31:56.623	066-41.40W	066-30.15W	18-34.12N	18-36.20N
0002_20150508_193156_EX1503_MB	XBT 001	10.78	269	5/8/2015	19:31:42.144	20:32:11.140	066-52.75W	066-41.39W	18-34.08N	18-36.02N
0003_20150508_203157_EX1503_MB	XBT 001	10.53	269	5/8/2015	20:31:42.142	21:32:11.659	067-03.83W	066-52.72W	18-34.25N	18-36.04N
0004_20150508_213156_EX1503_MB	XBT 001	10.38	269	5/8/2015	21:31:42.659	22:32:12.672	067-14.77W	067-03.82W	18-34.58N	18-35.59N
0005_20150508_223158_EX1503_MB	XBT 001	10.60	269	5/8/2015	22:31:43.179	23:31:59.692	067-25.97W	067-14.75W	18-32.97N	18-37.23N
0006_20150508_233200_EX1503_MB	XBT 001	10.50	237	5/8/2015	23:32:00.193	00:03:55.203	067-31.73W	067-25.89W	18-31.87N	18-37.21N
0007_20150509_000340_EX1503_MB	XBT 002	9.94	206	5/9/2015	00:03:26.699	01:03:52.717	067-35.68W	067-28.45W	18-23.22N	18-33.02N
0008_20150509_010338_EX1503_MB	XBT 002	9.84	206	5/9/2015	01:03:23.718	02:03:50.734	067-39.97W	067-33.94W	18-14.68N	18-24.04N
0009_20150509_020335_EX1503_MB	XBT 002	10.10	206	5/9/2015	02:03:21.733	03:03:51.752	067-45.22W	067-39.11W	18-05.37N	18-15.02N
0010_20150509_030337_EX1503_MB	XBT 002	9.91	207	5/9/2015	03:03:22.752	03:35:41.261	067-47.48W	067-43.35W	18-00.43N	18-06.19N
0011_20150509_033526_EX1503_MB	XBT 002	10.32	234	5/9/2015	03:35:11.764	04:35:43.281	067-56.58W	067-46.22W	17-54.12N	18-01.79N
0012_20150509_043529_EX1503_MB	XBT 002	10.65	234	5/9/2015	04:35:14.280	05:35:42.296	068-05.93W	067-55.04W	17-47.85N	17-56.36N
0013_20150509_053527_EX1503_MB	XBT 002	10.69	234	5/9/2015	05:35:13.295	06:35:46.819	068-14.97W	068-04.00W	17-41.77N	17-50.47N
0014_20150509_063532_EX1503_MB	XBT 003	10.45	234	5/9/2015	06:35:17.813	07:35:41.331	068-24.03W	068-13.35W	17-35.84N	17-44.16N
0015_20150509_073526_EX1503_MB	XBT 003	10.59	235	5/9/2015	07:35:11.830	08:35:48.849	068-33.12W	068-22.27W	17-29.83N	17-38.29N
0016_20150509_083534_EX1503_MB	XBT 003	10.93	235	5/9/2015	08:35:19.848	09:35:46.368	068-42.47W	068-31.42W	17-23.77N	17-32.14N
0017_20150509_093531_EX1503_MB	XBT 003	11.15	235	5/9/2015	09:35:16.868	10:35:42.885	068-51.86W	068-40.90W	17-17.49N	17-25.74N
0018_20150509_103528_EX1503_MB	XBT 003	11.11	235	5/9/2015	10:35:13.887	11:35:48.906	069-01.44W	068-50.73W	17-10.78N	17-19.31N
0019_20150509_113534_EX1503_MB	XBT 004	11.20	235	5/9/2015	11:35:20.399	12:35:44.918	069-11.03W	068-59.95W	17-04.65N	17-12.95N
0020_20150509_123530_EX1503_MB	XBT 004	11.01	235	5/9/2015	12:35:15.919	13:35:45.436	069-20.37W	069-09.81W	16-58.32N	17-06.53N
0021_20150509_133530_EX1503_MB	XBT 004	11.10	235	5/9/2015	13:35:15.941	14:35:44.454	069-29.75W	069-19.22W	16-51.97N	17-00.14N
0022_20150509_143530_EX1503_MB	XBT 004	11.17	235	5/9/2015	14:35:15.453	15:35:42.471	069-39.51W	069-28.73W	16-45.44N	16-53.69N
0023_20150509_153527_EX1503_MB	XBT 004	11.33	235	5/9/2015	15:35:13.470	16:35:41.989	069-49.27W	069-38.13W	16-39.04N	16-47.42N
0024_20150509_163527_EX1503_MB	XBT 004	11.43	235	5/9/2015	16:35:12.991	17:35:44.007	069-59.06W	069-47.75W	16-32.46N	16-40.94N

EX-15-03 LEG I										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0025_20150509_173529_EX1503_MB	XBT 004	11.40	235	5/9/2015	17:35:15.504	17:51:21.009	070-01.57W	069-57.57W	16-30.73N	16-34.40N
0026_20150509_175106_EX1503_MB	XBT 005	11.07	235	5/9/2015	17:50:51.512	18:51:25.030	070-11.27W	070-00.06W	16-24.40N	16-32.71N
0027_20150509_185110_EX1503_MB	XBT 005	10.85	235	5/9/2015	18:50:56.029	19:51:22.046	070-20.29W	070-09.58W	16-18.20N	16-26.36N
0028_20150509_195107_EX1503_MB	XBT 005	10.71	235	5/9/2015	19:50:52.545	20:51:20.567	070-29.43W	070-18.83W	16-12.11N	16-20.14N
0029_20150509_205106_EX1503_MB	XBT 005	10.84	235	5/9/2015	20:50:52.063	21:33:00.075	070-35.92W	070-27.92W	16-07.87N	16-13.97N

EX-15-03 LEG II										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0000_20150516_200009_EX1503L2_MB	XBT 002	12.01	179	5/16/2015	20:00:09.476	21:00:24.492	079-27.72W	079-27.32W	07-50.18N	08-02.26N
0001_20150516_210009_EX1503L2_MB	XBT 002	9.78	183	5/16/2015	20:59:54.995	21:21:24.999	079-27.98W	079-27.31W	07-46.69N	07-50.21N
0002_20150516_220908_EX1503L2_MB	XBT 002	12.41	223	5/16/2015	22:09:09.014	23:09:24.034	079-39.59W	079-30.52W	07-32.54N	07-41.90N
0003_20150516_230909_EX1503L2_MB	XBT 002	12.22	223	5/16/2015	23:08:55.530	00:09:09.050	079-48.21W	079-39.19W	07-23.63N	07-33.00N
0004_20150517_000909_EX1503L2_MB	XBT 002	12.40	223	5/17/2015	00:09:09.552	01:09:26.063	079-57.30W	079-47.67W	07-14.16N	07-24.25N
0005_20150517_010911_EX1503L2_MB	XBT 002	12.20	223	5/17/2015	01:08:56.568	02:09:29.584	080-06.40W	079-55.80W	07-04.98N	07-15.72N
0006_20150517_020914_EX1503L2_MB	XBT 002	12.28	224	5/17/2015	02:09:00.086	02:36:27.590	080-10.22W	080-03.91W	07-01.18N	07-07.48N
0007_20150517_023613_EX1503L2_MB	XBT 003	12.06	229	5/17/2015	02:35:59.089	03:08:37.600	080-15.08W	080-07.95W	06-56.73N	07-03.45N
0008_20150517_030822_EX1503L2_MB	XBT 003	11.58	266	5/17/2015	03:08:08.104	03:12:54.600	080-15.08W	080-12.91W	06-56.09N	06-59.77N
0009_20150517_031240_EX1503L2_MB	XBT 003	10.73	270	5/17/2015	03:12:25.101	04:12:47.620	080-25.72W	080-14.66W	06-56.06N	07-00.10N
0010_20150517_041233_EX1503L2_MB	XBT 003	9.75	269	5/17/2015	04:12:33.619	05:12:51.635	080-35.51W	080-25.46W	06-56.12N	07-00.77N
0011_20150517_051237_EX1503L2_MB	XBT 003	9.93	271	5/17/2015	05:12:22.142	06:12:49.152	080-45.32W	080-35.25W	06-56.25N	07-00.92N
0012_20150517_061235_EX1503L2_MB	XBT 003	10.01	268	5/17/2015	06:12:20.154	07:12:37.669	080-55.12W	080-44.80W	06-56.21N	07-00.05N
0013_20150517_071238_EX1503L2_MB	XBT 003	10.34	270	5/17/2015	07:12:23.171	08:12:53.686	081-05.54W	080-55.06W	06-56.24N	06-59.88N
0014_20150517_081239_EX1503L2_MB	XBT 003	10.62	270	5/17/2015	08:12:24.189	09:10:58.704	081-15.89W	081-05.45W	06-56.24N	06-59.78N
0015_20150517_091058_EX1503L2_MB	XBT 004	10.92	270	5/17/2015	09:10:44.206	10:11:15.223	081-26.88W	081-15.89W	06-56.38N	06-59.52N
0016_20150517_101100_EX1503L2_MB	XBT 004	11.00	270	5/17/2015	10:10:45.723	11:10:57.241	081-37.99W	081-26.87W	06-56.56N	06-59.28N
0017_20150517_111057_EX1503L2_MB	XBT 004	11.10	270	5/17/2015	11:10:42.740	12:10:58.758	081-49.10W	081-37.89W	06-56.28N	06-59.33N

EX-15-03 LEG II										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0018_20150517_121059_EX1503L2_MB	XBT 004	11.32	270	5/17/2015	12:10:44.758	13:11:12.275	082-00.46W	081-49.07W	06-55.87N	07-00.08N
0019_20150517_131057_EX1503L2_MB	XBT 004	9.94	269	5/17/2015	13:10:43.275	13:19:31.778	082-01.91W	082-00.44W	06-55.74N	07-00.17N
0020_20150517_142148_EX1503L2_MB	XBT 004	11.28	269	5/17/2015	14:21:48.793	15:22:01.810	082-14.11W	082-02.74W	06-55.85N	07-00.14N
0021_20150517_152147_EX1503L2_MB	XBT 004	11.39	269	5/17/2015	15:21:32.314	15:32:54.813	082-16.26W	082-14.11W	06-55.97N	06-59.72N
0022_20150517_153255_EX1503L2_MB	XBT 005	11.72	269	5/17/2015	15:32:40.314	16:32:51.332	082-28.03W	082-16.21W	06-55.42N	07-00.16N
0023_20150517_163251_EX1503L2_MB	XBT 005	11.68	269	5/17/2015	16:32:37.331	17:32:45.349	082-39.75W	082-27.99W	06-55.64N	06-59.69N
0024_20150517_173245_EX1503L2_MB	XBT 005	11.30	269	5/17/2015	17:32:31.348	18:32:53.366	082-51.12W	082-39.69W	06-55.10N	06-59.88N
0025_20150517_183253_EX1503L2_MB	XBT 005	11.19	269	5/17/2015	18:32:39.364	19:32:45.385	083-02.35W	082-51.09W	06-55.33N	06-59.64N
0026_20150517_193245_EX1503L2_MB	XBT 005	11.42	269	5/17/2015	19:32:31.382	20:33:06.902	083-13.89W	083-02.31W	06-55.32N	06-59.22N
0027_20150517_203252_EX1503L2_MB	XBT 005	11.32	269	5/17/2015	20:32:37.401	20:41:42.402	083-15.59W	083-13.76W	06-55.33N	06-59.16N
0028_20150517_204142_EX1503L2_MB	XBT 006	11.15	269	5/17/2015	20:41:27.905	21:40:49.424	083-26.65W	083-15.41W	06-55.22N	06-59.11N
0029_20150517_214049_EX1503L2_MB	XBT 006	11.01	275	5/17/2015	21:40:35.420	22:41:03.437	083-37.55W	083-26.45W	06-55.31N	06-59.94N
0030_20150517_224048_EX1503L2_MB	XBT 006	11.75	276	5/17/2015	22:40:33.940	23:40:48.457	083-49.37W	083-37.53W	06-56.41N	07-00.68N
0031_20150517_234048_EX1503L2_MB	XBT 006	12.29	276	5/18/2015	23:40:48.957	00:41:03.476	084-01.67W	083-49.22W	06-57.98N	07-02.31N
0032_20150518_004049_EX1503L2_MB	XBT 006	12.15	276	5/18/2015	00:40:34.473	01:17:23.483	084-09.04W	084-01.44W	06-59.08N	07-03.25N
0033_20150518_011723_EX1503L2_MB	XBT 007	11.35	276	5/18/2015	01:17:08.986	02:17:40.002	084-20.46W	084-08.86W	06-59.65N	07-04.11N
0034_20150518_021725_EX1503L2_MB	XBT 007	10.90	276	5/18/2015	02:17:11.004	03:17:27.023	084-31.34W	084-20.16W	07-00.94N	07-05.30N
0035_20150518_031727_EX1503L2_MB	XBT 007	11.40	276	5/18/2015	03:17:13.021	04:17:40.042	084-42.67W	084-31.05W	07-02.02N	07-06.55N
0036_20150518_041725_EX1503L2_MB	XBT 007	11.80	276	5/18/2015	04:17:11.039	05:17:42.559	084-54.46W	084-42.49W	07-03.29N	07-07.74N
0037_20150518_051728_EX1503L2_MB	XBT 007	12.03	276	5/18/2015	05:17:14.059	06:17:25.077	085-06.38W	084-54.29W	07-04.45N	07-09.11N
0038_20150518_061725_EX1503L2_MB	XBT 007	12.39	276	5/18/2015	06:17:10.576	07:17:39.593	085-18.91W	085-06.37W	07-05.54N	07-10.38N
0039_20150518_071724_EX1503L2_MB	XBT 007	12.25	276	5/18/2015	07:17:10.594	08:06:37.607	085-28.83W	085-18.56W	07-06.84N	07-11.17N
0040_20150518_080623_EX1503L2_MB	XBT 008	12.07	276	5/18/2015	08:06:08.144	09:06:27.143	085-40.85W	085-28.61W	07-08.01N	07-12.30N
0041_20150518_090627_EX1503L2_MB	XBT 008	12.02	276	5/18/2015	09:06:12.627	10:06:38.644	085-52.92W	085-40.73W	07-09.39N	07-13.83N
0042_20150518_100624_EX1503L2_MB	XBT 008	12.26	276	5/18/2015	10:06:09.641	11:06:22.661	086-05.17W	085-52.56W	07-10.39N	07-15.21N
0043_20150518_110623_EX1503L2_MB	XBT 008	12.07	276	5/18/2015	11:06:08.657	12:06:42.177	086-17.20W	086-04.77W	07-11.56N	07-16.44N
0044_20150518_120628_EX1503L2_MB	XBT 008	11.99	276	5/18/2015	12:06:13.179	13:06:42.696	086-29.15W	086-16.83W	07-12.71N	07-17.71N
0045_20150518_130628_EX1503L2_MB	XBT 008	10.91	276	5/18/2015	13:06:14.194	13:34:37.701	086-34.27W	086-28.80W	07-13.94N	07-18.34N

EX-15-03 LEG II										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0046_20150518_135613_EX1503L2_MB	XBT 008	11.30	277	5/18/2015	13:56:13.209	14:56:23.727	086-45.92W	086-34.43W	07-14.23N	07-19.44N
0047_20150518_145609_EX1503L2_MB	XBT 008	10.55	276	5/18/2015	14:55:54.726	15:34:45.238	086-52.76W	086-45.57W	07-15.61N	07-20.21N
0048_20150518_153445_EX1503L2_MB	XBT 008	11.04	276	5/18/2015	15:34:30.740	16:34:43.756	087-03.66W	086-52.25W	07-16.24N	07-21.21N
0049_20150518_163443_EX1503L2_MB	XBT 009	11.63	276	5/18/2015	16:34:29.257	17:34:57.274	087-15.12W	087-03.32W	07-17.47N	07-22.30N
0050_20150518_173443_EX1503L2_MB	XBT 009	11.24	276	5/18/2015	17:34:28.273	18:34:43.792	087-26.41W	087-15.03W	07-18.73N	07-23.05N
0051_20150518_183443_EX1503L2_MB	XBT 009	10.88	276	5/18/2015	18:34:29.792	19:34:41.808	087-37.22W	087-26.13W	07-20.27N	07-24.17N
0052_20150518_193442_EX1503L2_MB	XBT 009	11.04	276	5/18/2015	19:34:27.308	20:34:40.827	087-48.15W	087-36.97W	07-21.38N	07-25.35N
0053_20150518_203441_EX1503L2_MB	XBT 009	10.96	276	5/18/2015	20:34:26.823	21:34:41.843	087-59.00W	087-47.99W	07-22.45N	07-26.48N
0054_20150518_213441_EX1503L2_MB	XBT 010	11.14	276	5/18/2015	21:34:27.344	22:34:40.361	088-10.03W	087-58.94W	07-23.56N	07-27.62N
0055_20150518_223440_EX1503L2_MB	XBT 010	10.89	276	5/18/2015	22:34:25.860	23:34:45.376	088-20.90W	088-10.05W	07-24.66N	07-29.01N
0056_20150518_233445_EX1503L2_MB	XBT 010	10.64	276	5/18/2015	23:34:30.879	00:34:45.895	088-31.45W	088-20.86W	07-25.51N	07-30.14N
0057_20150519_003446_EX1503L2_MB	XBT 010	9.69	277	5/18/2015	00:34:31.398	01:21:21.411	088-38.94W	088-31.45W	07-26.57N	07-30.98N
0058_20150519_015554_EX1503L2_MB	XBT 010	10.79	281	5/19/2015	01:55:54.921	02:56:00.940	088-52.61W	088-41.96W	07-26.76N	07-32.31N
0059_20150519_025546_EX1503L2_MB	XBT 010	10.09	276	5/19/2015	02:55:31.938	03:49:29.953	089-01.59W	088-52.61W	07-28.71N	07-33.20N
0060_20150519_034930_EX1503L2_MB	XBT 010	10.66	276	5/19/2015	03:49:15.455	04:49:45.973	089-12.19W	089-01.57W	07-29.66N	07-34.26N
0061_20150519_044931_EX1503L2_MB	XBT 011	10.90	276	5/19/2015	04:49:16.972	05:49:32.491	089-22.97W	089-12.12W	07-30.75N	07-35.39N
0062_20150519_054933_EX1503L2_MB	XBT 011	10.89	276	5/19/2015	05:49:17.993	06:49:43.508	089-33.81W	089-22.95W	07-31.86N	07-36.48N
0063_20150519_064928_EX1503L2_MB	XBT 011	10.73	276	5/19/2015	06:49:14.508	07:49:35.027	089-44.46W	089-33.69W	07-32.99N	07-37.64N
0064_20150519_074935_EX1503L2_MB	XBT 011	10.75	277	5/19/2015	07:49:21.027	08:49:46.045	089-55.13W	089-44.34W	07-34.04N	07-38.45N
0065_20150519_084932_EX1503L2_MB	XBT 012	10.93	277	5/19/2015	08:49:17.045	09:49:44.063	090-05.94W	089-54.96W	07-35.19N	07-39.77N
0066_20150519_094929_EX1503L2_MB	XBT 012	11.07	276	5/19/2015	09:49:15.062	09:53:54.065	090-06.75W	090-05.76W	07-36.27N	07-39.86N
0067_20150519_095354_EX1503L2_MB	XBT 012	10.85	277	5/19/2015	09:53:40.062	10:54:01.083	090-17.47W	090-06.57W	07-36.34N	07-40.94N
0068_20150519_105346_EX1503L2_MB	XBT 012	10.59	277	5/19/2015	10:53:32.082	11:53:45.600	090-27.96W	090-17.28W	07-37.43N	07-42.02N
0069_20150519_115345_EX1503L2_MB	XBT 012	10.98	277	5/19/2015	11:53:31.598	12:53:58.616	090-38.76W	090-27.72W	07-38.46N	07-43.09N
0070_20150519_125344_EX1503L2_MB	XBT 012	10.98	277	5/19/2015	12:53:29.619	13:53:48.635	090-49.66W	090-38.60W	07-39.60N	07-44.26N
0071_20150519_135349_EX1503L2_MB	XBT 013	10.21	277	5/19/2015	13:53:34.139	14:54:00.655	090-59.68W	090-49.42W	07-40.69N	07-45.46N
0072_20150519_145346_EX1503L2_MB	XBT 013	9.62	277	5/19/2015	14:53:32.152	15:47:43.168	091-08.24W	090-59.55W	07-41.57N	07-46.14N
0073_20150519_154743_EX1503L2_MB	XBT 013	10.70	277	5/19/2015	15:47:28.672	16:47:43.190	091-18.80W	091-08.07W	07-42.63N	07-47.24N

EX-15-03 LEG II										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0074_20150519_164743_EX1503L2_MB	XBT 013	10.90	277	5/19/2015	16:47:29.189	17:47:37.206	091-29.54W	091-18.62W	07-43.66N	07-48.28N
0075_20150519_174737_EX1503L2_MB	XBT 013	10.79	277	5/19/2015	17:47:22.705	18:47:42.221	091-40.18W	091-29.35W	07-44.76N	07-49.21N
0076_20150519_184742_EX1503L2_MB	XBT 013	10.63	277	5/19/2015	18:47:27.722	19:47:35.745	091-50.63W	091-40.01W	07-45.93N	07-50.46N
0077_20150519_194736_EX1503L2_MB	XBT 013	10.78	277	5/19/2015	19:47:21.243	20:18:59.248	091-56.14W	091-50.43W	07-46.93N	07-51.03N
0078_20150519_201844_EX1503L2_MB	XBT 014	10.83	277	5/19/2015	20:18:30.251	21:18:48.766	092-06.77W	091-55.96W	07-47.54N	07-52.13N
0079_20150519_211848_EX1503L2_MB	XBT 014	11.30	277	5/19/2015	21:18:34.271	22:18:49.284	092-17.88W	092-06.66W	07-48.66N	07-53.26N
0080_20150519_221849_EX1503L2_MB	XBT 014	11.29	277	5/19/2015	22:18:34.785	23:18:50.803	092-28.97W	092-17.79W	07-49.72N	07-54.41N
0081_20150519_231850_EX1503L2_MB	XBT 014	11.18	277	5/19/2015	23:18:36.802	00:01:03.817	092-36.66W	092-28.91W	07-50.90N	07-55.23N
0082_20150520_000048_EX1503L2_MB	XBT 014	11.12	277	5/20/2015	00:00:34.815	01:00:43.835	092-47.56W	092-36.58W	07-51.50N	07-56.28N
0083_20150520_010044_EX1503L2_MB	XBT 014	11.07	277	5/20/2015	01:00:29.336	02:01:02.851	092-58.47W	092-47.48W	07-52.76N	07-57.44N
0084_20150520_020048_EX1503L2_MB	XBT 014	10.97	277	5/20/2015	02:00:33.353	02:16:40.354	093-01.24W	092-58.34W	07-53.83N	07-57.71N
0085_20150520_021640_EX1503L2_MB	XBT 015	10.97	277	5/20/2015	02:16:25.859	03:16:48.373	093-12.01W	093-01.25W	07-54.15N	07-58.81N
0086_20150520_031634_EX1503L2_MB	XBT 015	10.78	277	5/20/2015	03:16:19.376	04:16:38.394	093-22.58W	093-11.97W	07-55.21N	07-59.92N
0087_20150520_041638_EX1503L2_MB	XBT 015	10.58	277	5/20/2015	04:16:24.392	05:16:38.909	093-33.01W	093-22.56W	07-56.30N	08-00.99N
0088_20150520_051639_EX1503L2_MB	XBT 015	10.15	277	5/20/2015	05:16:24.408	06:16:51.427	093-42.95W	093-32.85W	07-57.39N	08-01.97N
0089_20150520_061637_EX1503L2_MB	XBT 015	10.12	277	5/20/2015	06:16:22.430	07:16:34.948	093-52.86W	093-42.80W	07-58.36N	08-02.94N
0090_20150520_071635_EX1503L2_MB	XBT 015	10.27	277	5/20/2015	07:16:20.450	08:16:38.963	094-02.95W	093-52.67W	07-59.39N	08-04.01N
0091_20150520_081639_EX1503L2_MB	XBT 015	10.24	277	5/20/2015	08:16:24.467	09:16:49.482	094-13.01W	08-00.47N	094-02.69W	08-05.14N
0092_20150520_091635_EX1503L2_MB	XBT 015	9.74	277	5/20/2015	09:16:19.986	10:16:35.999	094-22.50W	08-01.55N	094-12.60W	08-05.83N
0093_20150520_101636_EX1503L2_MB	XBT 015	9.83	277	5/20/2015	10:16:21.503	11:16:52.023	094-32.13W	08-02.68N	094-22.15W	08-06.80N
0094_20150520_111637_EX1503L2_MB	XBT 015	10.26	277	5/20/2015	11:16:23.024	12:16:50.538	094-42.14W	08-03.70N	094-31.69W	08-07.80N
0095_20150520_121636_EX1503L2_MB	XBT 016	10.43	278	5/20/2015	12:16:21.538	12:17:24.537	094-42.29W	08-04.75N	094-41.70W	08-07.81N
0096_20150520_121724_EX1503L2_MB	XBT 016	10.37	268	5/20/2015	12:17:10.536	12:37:00.043	094-45.60W	08-04.54N	094-41.83W	08-08.01N
0097_20150520_123645_EX1503L2_MB	XBT 016	10.13	264	5/20/2015	12:36:30.545	12:42:11.044	094-46.30W	08-04.36N	094-44.94W	08-07.59N
0098_20150520_124156_EX1503L2_MB	XBT 016	10.30	281	5/20/2015	12:41:42.542	13:41:57.062	094-56.24W	08-04.40N	094-45.91W	08-09.01N
0099_20150520_134157_EX1503L2_MB	XBT 016	10.13	277	5/20/2015	13:41:42.563	14:42:13.081	095-06.18W	08-06.38N	094-55.86W	08-10.09N
0100_20150520_144158_EX1503L2_MB	XBT 016	10.37	278	5/20/2015	14:41:44.079	15:42:12.598	095-16.23W	08-07.28N	095-05.66W	08-11.19N
0101_20150520_154158_EX1503L2_MB	XBT 016	10.40	277	5/20/2015	15:41:44.097	16:42:00.615	095-26.38W	08-08.33N	095-15.78W	08-12.19N

EX-15-03 LEG II										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0102_20150520_164200_EX1503L2_MB	XBT 016	10.39	277	5/20/2015	16:41:46.614	17:42:12.634	095-36.39W	08-09.38N	095-25.88W	08-13.22N
0103_20150520_174158_EX1503L2_MB	XBT 017	10.43	277	5/20/2015	17:41:44.140	18:17:51.142	095-42.48W	08-10.62N	095-36.00W	08-13.84N
0104_20150520_181736_EX1503L2_MB	XBT 017	9.88	294	5/20/2015	18:17:22.141	18:22:11.146	095-43.75W	08-10.90N	095-41.84W	08-13.94N
0105_20150520_182211_EX1503L2_MB	XBT 017	10.20	309	5/20/2015	18:21:56.647	18:40:11.648	095-46.84W	08-11.50N	095-42.04W	08-15.60N
0106_20150520_204752_EX1503L2_MB	XBT 018	10.31	310	5/20/2015	20:47:52.686	21:48:09.205	095-54.33W	08-13.62N	095-44.37W	08-22.35N
0107_20150520_214754_EX1503L2_MB	XBT 018	10.43	309	5/20/2015	21:47:39.706	22:47:54.219	096-02.33W	08-19.46N	095-51.98W	08-28.46N
0108_20150520_224754_EX1503L2_MB	XBT 018	10.48	307	5/20/2015	22:47:40.221	23:48:06.237	096-10.61W	08-25.72N	096-00.12W	08-34.31N
0109_20150520_234751_EX1503L2_MB	XBT 018	10.76	305	5/20/2015	23:47:36.739	00:07:38.249	096-13.49W	08-31.62N	096-08.47W	08-36.22N
0110_20150521_000738_EX1503L2_MB	XBT 018	10.68	306	5/21/2015	00:07:38.748	01:07:40.762	096-22.17W	08-33.51N	096-11.41W	08-41.96N
0111_20150521_010741_EX1503L2_MB	XBT 018	10.84	304	5/21/2015	01:07:26.760	01:54:11.277	096-29.05W	08-39.23N	096-20.05W	08-46.40N
0112_20150521_015411_EX1503L2_MB	XBT 019	11.18	305	5/21/2015	01:53:57.274	02:54:09.792	096-38.20W	08-43.64N	096-26.90W	08-51.97N
0113_20150521_025410_EX1503L2_MB	XBT 019	11.62	305	5/21/2015	02:53:55.293	03:54:04.311	096-47.63W	08-49.49N	096-36.31W	08-58.44N
0114_20150521_035404_EX1503L2_MB	XBT 019	11.73	307	5/21/2015	03:53:50.310	04:50:20.827	096-56.22W	08-55.74N	096-45.43W	09-04.23N
0115_20150521_045021_EX1503L2_MB	XBT 019	12.00	299	5/21/2015	04:50:06.328	05:50:23.847	097-06.44W	09-01.99N	096-54.52W	09-09.58N
0116_20150521_055024_EX1503L2_MB	XBT 019	12.21	299	5/21/2015	05:50:09.845	06:50:25.364	097-16.97W	09-07.25N	097-05.08W	09-14.95N
0117_20150521_065025_EX1503L2_MB	XBT 019	12.31	299	5/21/2015	06:50:10.864	07:50:26.383	097-27.62W	09-12.48N	097-15.77W	09-20.37N
0118_20150521_075026_EX1503L2_MB	XBT 019	11.91	299	5/21/2015	07:50:11.883	08:50:39.403	097-37.95W	09-17.85N	097-26.42W	09-25.51N
0119_20150521_085025_EX1503L2_MB	XBT 019	11.77	299	5/21/2015	08:50:10.901	09:05:47.405	097-40.55W	09-23.03N	097-36.74W	09-26.81N
0120_20150521_090547_EX1503L2_MB	XBT 020	11.75	299	5/21/2015	09:05:32.905	10:05:58.424	097-50.66W	09-24.38N	097-39.35W	09-31.93N
0121_20150521_100544_EX1503L2_MB	XBT 020	11.51	299	5/21/2015	10:05:29.424	11:05:58.440	098-00.71W	09-29.47N	097-49.56W	09-36.99N
0122_20150521_110543_EX1503L2_MB	XBT 020	11.46	299	5/21/2015	11:05:29.440	12:06:01.458	098-10.61W	09-34.34N	097-59.49W	09-42.11N
0123_20150521_120546_EX1503L2_MB	XBT 020	11.64	299	5/21/2015	12:05:32.457	13:05:55.475	098-20.60W	09-39.25N	098-09.37W	09-47.09N
0124_20150521_130540_EX1503L2_MB	XBT 020	11.67	299	5/21/2015	13:05:26.477	14:05:43.495	098-30.71W	09-44.38N	098-19.37W	09-51.94N
0125_20150521_140544_EX1503L2_MB	XBT 021	11.64	299	5/21/2015	14:05:29.494	15:05:57.010	098-40.80W	09-49.62N	098-29.52W	09-57.00N
0126_20150521_150542_EX1503L2_MB	XBT 021	11.80	299	5/21/2015	15:05:27.514	15:31:05.021	098-45.19W	09-54.59N	098-39.56W	09-59.39N
0127_20150521_153105_EX1503L2_MB	XBT 021	11.66	300	5/21/2015	15:30:51.020	16:31:06.039	098-55.33W	09-56.50N	098-43.77W	10-04.56N
0128_20150521_163106_EX1503L2_MB	XBT 021	11.70	300	5/21/2015	16:30:52.037	17:31:01.555	099-05.30W	10-01.48N	098-53.72W	10-09.54N
0129_20150521_173101_EX1503L2_MB	XBT 021	11.58	300	5/21/2015	17:30:47.553	18:31:05.070	099-15.30W	10-06.67N	099-03.86W	10-14.43N

EX-15-03 LEG II										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0130_20150521_183105_EX1503L2_MB	XBT 021	11.44	300	5/21/2015	18:30:50.572	19:31:15.594	099-25.04W	10-11.65N	099-13.91W	10-19.31N
0131_20150521_193101_EX1503L2_MB	XBT 021	11.31	300	5/21/2015	19:30:46.590	20:31:03.610	099-34.78W	10-16.82N	099-23.75W	10-24.09N
0132_20150521_203104_EX1503L2_MB	XBT 021	11.27	300	5/21/2015	20:30:49.605	21:31:19.143	099-44.57W	10-21.66N	099-33.54W	10-29.03N
0133_20150521_213104_EX1503L2_MB	XBT 022	11.15	300	5/21/2015	21:30:50.144	22:14:25.641	099-51.52W	10-26.42N	099-43.12W	10-32.45N
0134_20150521_221425_EX1503L2_MB	XBT 022	11.40	300	5/21/2015	22:14:11.145	23:14:41.656	100-01.27W	10-29.91N	099-50.03W	10-37.37N
0135_20150521_231427_EX1503L2_MB	XBT 022	11.37	300	5/21/2015	23:14:13.155	00:03:02.172	100-09.14W	10-34.96N	099-59.75W	10-41.48N
0136_20150522_000302_EX1503L2_MB	XBT 022	11.77	300	5/22/2015	00:03:02.673	01:03:05.185	100-19.30W	10-38.75N	100-07.63W	10-46.37N
0137_20150522_010305_EX1503L2_MB	XBT 022	11.96	300	5/22/2015	01:02:50.685	02:03:05.705	100-29.82W	100-17.80W	10-43.89N	10-51.67N
0138_20150522_020306_EX1503L2_MB	XBT 022	12.21	300	5/22/2015	02:02:51.205	03:03:19.222	100-39.99W	100-27.85W	10-48.68N	10-57.15N
0139_20150522_030304_EX1503L2_MB	XBT 022	12.06	300	5/22/2015	03:02:50.221	03:11:09.724	100-41.39W	100-38.21W	10-54.28N	10-57.89N
0140_20150522_031110_EX1503L2_MB	XBT 023	11.89	300	5/22/2015	03:10:55.224	04:11:02.241	100-51.65W	100-39.71W	10-54.84N	11-03.02N
0141_20150522_041102_EX1503L2_MB	XBT 023	12.12	300	5/22/2015	04:10:47.743	05:11:01.759	101-02.05W	100-49.92W	10-59.74N	11-07.78N
0142_20150522_051102_EX1503L2_MB	XBT 023	12.08	300	5/22/2015	05:10:47.260	06:11:05.777	101-12.32W	101-00.33W	11-04.95N	11-13.00N
0143_20150522_061106_EX1503L2_MB	XBT 023	11.91	301	5/22/2015	06:10:51.279	07:11:07.296	101-22.50W	101-10.63W	11-10.28N	11-18.08N
0144_20150522_071107_EX1503L2_MB	XBT 023	11.59	301	5/22/2015	07:10:52.796	08:11:03.814	101-32.42W	101-20.80W	11-15.30N	11-22.95N
0145_20150522_081104_EX1503L2_MB	XBT 023	11.65	301	5/22/2015	08:10:49.312	09:09:35.329	101-42.06W	101-30.73W	11-20.16N	11-27.92N
0146_20150522_090935_EX1503L2_MB	XBT 024	11.82	301	5/22/2015	09:09:20.831	10:09:48.350	101-52.11W	101-40.34W	11-24.99N	11-32.66N
0147_20150522_100934_EX1503L2_MB	XBT 024	11.94	301	5/22/2015	10:09:19.351	11:09:38.864	102-02.25W	101-50.61W	11-30.06N	11-37.81N
0148_20150522_110939_EX1503L2_MB	XBT 024	11.90	301	5/22/2015	11:09:24.365	12:09:48.885	102-12.23W	102-00.79W	11-35.12N	11-42.77N
0149_20150522_120934_EX1503L2_MB	XBT 024	11.99	301	5/22/2015	12:09:19.883	13:09:34.400	102-22.26W	102-10.98W	11-40.27N	11-47.90N
0150_20150522_130934_EX1503L2_MB	XBT 024	11.96	301	5/22/2015	13:09:19.902	14:09:49.918	102-32.60W	102-21.21W	11-45.29N	11-52.95N
0151_20150522_140935_EX1503L2_MB	XBT 024	12.00	301	5/22/2015	14:09:20.919	15:09:34.436	102-42.75W	102-31.41W	11-50.28N	11-58.00N
0152_20150522_150934_EX1503L2_MB	XBT 025	12.15	301	5/22/2015	15:09:19.939	16:09:50.958	102-52.98W	102-41.59W	11-55.42N	12-03.21N
0153_20150522_160936_EX1503L2_MB	XBT 025	12.00	301	5/22/2015	16:09:21.959	17:09:34.976	103-03.19W	102-51.93W	12-00.78N	12-08.16N
0154_20150522_170935_EX1503L2_MB	XBT 025	11.89	301	5/22/2015	17:09:20.477	18:09:52.496	103-13.28W	103-02.14W	12-05.87N	12-13.18N
0155_20150522_180938_EX1503L2_MB	XBT 025	12.19	301	5/22/2015	18:09:23.493	19:09:35.509	103-23.58W	103-12.10W	12-10.87N	12-18.39N
0156_20150522_190935_EX1503L2_MB	XBT 025	12.08	301	5/22/2015	19:09:21.009	20:09:49.529	103-33.77W	103-22.38W	12-15.97N	12-23.49N
0157_20150522_200934_EX1503L2_MB	XBT 025	11.71	301	5/22/2015	20:09:20.530	21:09:35.049	103-43.70W	103-32.60W	12-21.07N	12-28.43N

EX-15-03 LEG II										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0158_20150522_210935_EX1503L2_MB	XBT 025	11.79	302	5/22/2015	21:09:20.546	22:09:51.069	103-54.03W	103-42.51W	12-25.85N	12-34.02N
0159_20150522_220936_EX1503L2_MB	XBT 026	11.99	301	5/22/2015	22:09:22.564	22:12:18.065	103-54.49W	103-52.14W	12-30.17N	12-34.31N
0160_20150522_221218_EX1503L2_MB	XBT 026	11.99	302	5/22/2015	22:12:03.566	23:12:34.585	104-04.55W	103-52.52W	12-30.34N	12-39.15N
0161_20150522_231220_EX1503L2_MB	XBT 026	12.32	302	5/22/2015	23:12:05.584	00:00:34.600	104-12.87W	104-02.69W	12-35.54N	12-43.23N
0162_20150523_000034_EX1503L2_MB	XBT 026	12.55	302	5/23/2015	00:00:35.100	01:00:31.146	104-23.44W	104-11.18W	12-39.83N	12-48.43N
0163_20150523_010031_EX1503L2_MB	XBT 026	12.66	302	5/23/2015	01:00:17.142	02:00:48.142	104-33.96W	104-21.66W	12-44.93N	12-53.87N
0164_20150523_020033_EX1503L2_MB	XBT 026	12.52	302	5/23/2015	02:00:19.140	03:00:29.652	104-44.49W	104-32.38W	12-50.27N	12-59.05N
0165_20150523_030029_EX1503L2_MB	XBT 026	12.43	302	5/23/2015	03:00:15.650	04:00:46.665	104-54.97W	104-42.92W	12-55.51N	13-04.33N
0166_20150523_040032_EX1503L2_MB	XBT 026	12.39	302	5/23/2015	04:00:17.667	04:18:28.673	104-58.13W	104-53.33W	13-00.56N	13-05.73N
0167_20150523_041829_EX1503L2_MB	XBT 027	12.28	302	5/23/2015	04:18:14.174	05:18:22.691	105-08.37W	104-56.43W	13-02.13N	13-10.91N
0168_20150523_051822_EX1503L2_MB	XBT 027	12.45	302	5/23/2015	05:18:08.190	06:18:16.208	105-18.74W	105-06.76W	13-07.39N	13-15.99N
0169_20150523_061816_EX1503L2_MB	XBT 027	12.42	302	5/23/2015	06:18:01.710	07:18:16.726	105-29.18W	105-17.14W	13-12.62N	13-21.23N
0170_20150523_071817_EX1503L2_MB	XBT 027	12.51	302	5/23/2015	07:18:02.722	08:18:18.742	105-39.54W	105-27.53W	13-17.62N	13-26.29N
0171_20150523_081819_EX1503L2_MB	XBT 027	12.43	302	5/23/2015	08:18:04.242	09:18:24.260	105-50.00W	105-38.08W	13-22.89N	13-31.44N
0172_20150523_091824_EX1503L2_MB	XBT 027	12.45	303	5/23/2015	09:18:09.761	10:12:13.278	105-59.33W	105-48.55W	13-27.93N	13-36.18N
0173_20150523_101158_EX1503L2_MB	XBT 028	12.17	303	5/23/2015	10:11:44.276	11:12:01.297	106-09.44W	105-57.70W	13-32.56N	13-41.00N
0174_20150523_111201_EX1503L2_MB	XBT 028	12.28	303	5/23/2015	11:11:47.295	12:11:58.810	106-19.71W	106-07.96W	13-37.80N	13-46.06N
0175_20150523_121159_EX1503L2_MB	XBT 028	12.37	303	5/23/2015	12:11:44.315	13:11:55.330	106-30.03W	106-18.15W	13-42.80N	13-51.12N
0176_20150523_131155_EX1503L2_MB	XBT 028	12.22	303	5/23/2015	13:11:40.829	14:11:58.348	106-40.26W	106-28.45W	13-47.93N	13-56.22N
0177_20150523_141158_EX1503L2_MB	XBT 028	12.32	303	5/23/2015	14:11:44.344	15:12:01.362	106-50.54W	106-38.54W	13-52.94N	14-01.26N
0178_20150523_151201_EX1503L2_MB	XBT 028	12.20	303	5/23/2015	15:11:47.364	16:11:56.379	107-00.43W	106-48.81W	13-58.01N	14-06.02N
0179_20150523_161156_EX1503L2_MB	XBT 029	12.01	303	5/23/2015	16:11:41.882	17:12:03.402	107-10.48W	106-59.11W	14-03.28N	14-11.24N
0180_20150523_171203_EX1503L2_MB	XBT 029	11.96	312	5/23/2015	17:11:49.398	18:11:59.421	107-19.89W	107-08.99W	14-08.00N	14-17.32N
0181_20150523_181159_EX1503L2_MB	XBT 029	12.03	316	5/23/2015	18:11:44.921	19:12:00.932	107-28.41W	107-17.57W	14-14.45N	14-24.11N
0182_20150523_191201_EX1503L2_MB	XBT 029	12.15	316	5/23/2015	19:11:46.433	20:12:01.450	107-37.12W	107-26.32W	14-21.50N	14-31.36N
0183_20150523_201202_EX1503L2_MB	XBT 029	11.98	316	5/23/2015	20:11:46.952	21:12:17.970	107-45.63W	107-34.88W	14-28.44N	14-38.04N
0184_20150523_211203_EX1503L2_MB	XBT 029	11.63	317	5/23/2015	21:11:48.471	22:12:16.985	107-53.94W	107-43.60W	14-35.45N	14-45.07N
0185_20150523_221202_EX1503L2_MB	XBT 029	11.93	317	5/23/2015	22:11:47.488	22:28:16.492	107-56.22W	107-51.71W	14-41.97N	14-46.90N

EX-15-03 LEG II										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0186_20150523_222816_EX1503L2_MB	XBT 030	12.19	317	5/23/2015	22:28:02.492	23:28:33.508	108-04.98W	107-54.09W	14-43.85N	14-53.77N
0187_20150523_232819_EX1503L2_MB	XBT 030	12.30	317	5/23/2015	23:28:04.512	00:00:09.520	108-09.54W	108-02.88W	14-50.91N	14-57.48N
0188_20150524_000009_EX1503L2_MB	XBT 030	12.29	317	5/24/2015	00:00:10.019	01:00:08.540	108-18.50W	108-07.60W	14-54.82N	15-04.90N
0189_20150524_010008_EX1503L2_MB	XBT 030	12.53	317	5/24/2015	00:59:54.534	02:00:01.552	108-27.54W	108-16.00W	15-01.62N	15-12.07N
0190_20150524_020001_EX1503L2_MB	XBT 030	12.79	317	5/24/2015	01:59:47.056	03:00:01.573	108-36.62W	108-24.70W	15-08.82N	15-19.39N
0191_20150524_030002_EX1503L2_MB	XBT 030	12.70	317	5/24/2015	02:59:47.073	03:38:09.588	108-42.45W	108-33.90W	15-16.20N	15-23.90N
0192_20150524_033809_EX1503L2_MB	XBT 031	12.04	317	5/24/2015	03:37:55.582	04:38:02.603	108-51.03W	108-39.70W	15-20.86N	15-30.95N
0193_20150524_043803_EX1503L2_MB	XBT 031	11.96	317	5/24/2015	04:37:48.104	05:38:17.142	108-59.38W	108-48.13W	15-27.69N	15-37.53N
0194_20150524_053802_EX1503L2_MB	XBT 031	12.21	317	5/24/2015	05:37:48.144	06:38:22.143	109-07.97W	108-56.77W	15-34.68N	15-44.70N
0195_20150524_063807_EX1503L2_MB	XBT 031	12.13	317	5/24/2015	06:37:53.140	06:44:54.145	109-08.95W	109-05.44W	15-41.67N	15-45.40N
0196_20150528_172328_EX1503L2_MB	XBT 032	10.39	336	5/28/2015	17:23:29.369	18:23:45.385	120-26.57W	120-17.42W	30-57.80N	31-08.99N
0197_20150528_182330_EX1503L2_MB	XBT 032	10.29	336	5/28/2015	18:23:16.883	19:21:18.400	120-30.82W	120-21.85W	31-07.37N	31-18.12N
0198_20150528_192103_EX1503L2_MB	XBT 032	10.30	336	5/28/2015	19:20:48.902	19:37:01.407	120-32.06W	120-26.11W	31-16.61N	31-20.61N
0199_20150528_193646_EX1503L2_MB	XBT 032	10.26	336	5/28/2015	19:36:32.406	20:20:08.914	120-35.26W	120-27.33W	31-19.11N	31-27.50N
0200_20150528_203505_EX1503L2_MB	XBT 032	10.32	336	5/28/2015	20:35:05.421	20:39:40.421	120-36.60W	120-31.69W	31-28.43N	31-30.60N
0201_20150528_203926_EX1503L2_MB	XBT 032	10.16	336	5/28/2015	20:39:11.420	20:47:24.421	120-37.27W	120-31.94W	31-29.05N	31-31.85N
0202_20150528_212017_EX1503L2_MB	XBT 032	9.92	336	5/28/2015	21:20:17.220	21:27:01.222	120-40.23W	120-34.98W	31-35.49N	31-38.02N
0203_20150528_212701_EX1503L2_MB	XBT 032	9.99	336	5/28/2015	21:26:46.724	22:27:14.735	120-44.16W	120-35.42W	31-36.39N	31-47.23N
0204_20150528_222700_EX1503L2_MB	XBT 032	9.88	336	5/28/2015	22:26:45.235	23:27:21.253	120-48.51W	120-39.99W	31-45.85N	31-56.46N
0205_20150528_232706_EX1503L2_MB	XBT 033	9.91	336	5/28/2015	23:26:52.251	23:34:02.252	120-49.02W	120-44.52W	31-54.97N	31-57.49N
0206_20150528_233402_EX1503L2_MB	XBT 033	10.04	336	5/28/2015	23:33:47.752	00:06:40.259	120-51.55W	120-45.07W	31-56.01N	32-02.58N
0207_20150529_000640_EX1503L2_MB	XBT 033	9.84	336	5/29/2015	00:06:40.762	01:06:56.775	120-55.73W	120-47.31W	32-01.10N	32-11.73N
0208_20150529_010642_EX1503L2_MB	XBT 033	9.69	337	5/29/2015	01:06:28.274	02:06:56.291	120-59.96W	120-51.68W	32-10.26N	32-20.66N
0209_20150529_020642_EX1503L2_MB	XBT 033	9.98	336	5/29/2015	02:06:27.291	02:17:33.792	121-00.80W	120-55.95W	32-19.34N	32-22.35N
0210_20150529_021734_EX1503L2_MB	XBT 034	9.75	337	5/29/2015	02:17:19.791	03:17:33.306	121-05.28W	120-56.70W	32-20.99N	32-31.35N
0211_20150529_031733_EX1503L2_MB	XBT 034	9.40	337	5/29/2015	03:17:19.307	04:17:31.822	121-09.33W	121-01.01W	32-30.11N	32-40.06N
0212_20150529_041732_EX1503L2_MB	XBT 034	9.28	337	5/29/2015	04:17:17.322	05:17:46.336	121-13.13W	121-05.11W	32-38.88N	32-48.45N
0213_20150529_051731_EX1503L2_MB	XBT 034	9.19	337	5/29/2015	05:17:17.335	05:31:43.339	121-14.10W	121-10.14W	32-47.75N	32-50.60N

EX-15-03 LEG II										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0214_20150529_053143_EX1503L2_MB	XBT 035	9.30	337	5/29/2015	05:31:28.843	06:31:39.853	121-17.68W	121-10.38W	32-49.63N	32-59.02N
0215_20150529_063140_EX1503L2_MB	XBT 035	9.25	337	5/29/2015	06:31:25.357	07:31:40.369	121-21.93W	121-15.02W	32-58.21N	33-07.59N
0216_20150529_073140_EX1503L2_MB	XBT 035	9.09	337	5/29/2015	07:31:25.870	08:31:45.884	121-25.71W	121-18.87W	33-06.64N	33-16.02N
0217_20150529_083146_EX1503L2_MB	XBT 035	9.20	337	5/29/2015	08:31:31.883	09:31:39.897	121-29.78W	121-23.19W	33-15.16N	33-24.61N
0218_20150529_093140_EX1503L2_MB	XBT 035	8.64	337	5/29/2015	09:31:25.398	10:30:26.414	121-33.47W	121-27.24W	33-23.60N	33-32.41N
0219_20150529_103012_EX1503L2_MB	XBT 036	8.80	337	5/29/2015	10:29:57.415	11:30:09.929	121-37.43W	121-31.06W	33-31.48N	33-40.53N
0220_20150529_113010_EX1503L2_MB	XBT 036	8.50	337	5/29/2015	11:29:55.927	12:30:26.440	121-41.24W	121-34.99W	33-39.69N	33-48.42N
0221_20150529_123011_EX1503L2_MB	XBT 036	8.46	337	5/29/2015	12:29:56.941	13:30:30.458	121-45.09W	121-38.79W	33-47.60N	33-56.28N
0222_20150529_133015_EX1503L2_MB	XBT 036	8.79	337	5/29/2015	13:30:00.958	13:33:48.457	121-45.25W	121-42.60W	33-55.52N	33-56.74N
0223_20150529_133348_EX1503L2_MB	XBT 037	8.74	337	5/29/2015	13:33:33.955	14:33:45.970	121-49.20W	121-42.92W	33-56.04N	34-04.77N
0224_20150529_143346_EX1503L2_MB	XBT 037	9.03	337	5/29/2015	14:33:46.470	15:33:50.484	121-53.30W	121-46.80W	34-04.23N	34-13.28N
0225_20150529_153350_EX1503L2_MB	XBT 037	9.29	337	5/29/2015	15:33:36.485	16:34:01.998	121-57.53W	121-50.79W	34-12.52N	34-21.95N
0226_20150529_163347_EX1503L2_MB	XBT 037	9.45	337	5/29/2015	16:33:32.501	17:33:50.011	122-01.92W	121-54.88W	34-21.04N	34-30.88N
0227_20150529_173350_EX1503L2_MB	XBT 037	9.75	337	5/29/2015	17:33:35.511	18:33:49.526	122-06.88W	121-59.03W	34-29.80N	34-40.06N
0228_20150529_183349_EX1503L2_MB	XBT 037	9.83	337	5/29/2015	18:33:35.027	19:33:47.542	122-11.39W	122-03.10W	34-38.92N	34-49.26N
0229_20150529_193347_EX1503L2_MB	XBT 037	9.95	337	5/29/2015	19:33:33.539	20:34:08.554	122-16.04W	122-07.38W	34-48.01N	34-58.64N
0230_20150529_203354_EX1503L2_MB	XBT 037	9.84	336	5/29/2015	20:33:39.557	20:37:44.054	122-16.35W	122-11.84W	34-57.09N	34-59.25N
0231_20150529_203744_EX1503L2_MB	XBT 038	9.53	337	5/29/2015	20:37:29.558	21:37:59.070	122-20.37W	122-12.07W	34-57.68N	35-07.92N
0232_20150529_213745_EX1503L2_MB	XBT 038	9.50	337	5/29/2015	21:37:30.072	22:37:48.086	122-24.79W	122-16.76W	35-06.80N	35-16.85N
0233_20150529_223748_EX1503L2_MB	XBT 038	9.62	337	5/29/2015	22:37:34.082	23:37:58.599	122-29.34W	122-20.95W	35-15.57N	35-25.86N
0234_20150529_233743_EX1503L2_MB	XBT 038	9.40	337	5/29/2015	23:37:29.098	00:04:38.607	122-31.42W	122-25.17W	35-24.40N	35-29.80N
0235_20150530_000438_EX1503L2_MB	XBT 038	9.44	337	5/30/2015	00:04:39.109	01:04:40.617	122-35.79W	122-26.99W	35-28.34N	35-38.58N
0236_20150530_010440_EX1503L2_MB	XBT 038	9.77	337	5/30/2015	01:04:26.143	02:04:49.633	122-39.25W	122-31.24W	35-37.05N	35-47.58N
0237_20150530_020435_EX1503L2_MB	XBT 038	9.79	337	5/30/2015	02:04:21.142	02:20:27.636	122-41.09W	122-36.06W	35-46.51N	35-49.91N
0238_20150530_022027_EX1503L2_MB	XBT 039	9.88	337	5/30/2015	02:20:13.140	03:20:21.650	122-45.53W	122-37.16W	35-48.75N	35-59.03N
0239_20150530_032021_EX1503L2_MB	XBT 039	9.87	338	5/30/2015	03:20:07.150	04:20:27.663	122-49.97W	122-41.94W	35-57.93N	36-08.25N
0240_20150530_042028_EX1503L2_MB	XBT 039	10.04	337	5/30/2015	04:20:13.663	05:20:26.682	122-54.52W	122-46.55W	36-07.10N	36-17.57N
0241_20150530_052027_EX1503L2_MB	XBT 039	10.18	338	5/30/2015	05:20:12.681	06:20:22.196	122-59.19W	122-51.18W	36-16.47N	36-26.93N

EX-15-03 LEG II										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0242_20150530_062022_EX1503L2_MB	XBT 039	10.51	338	5/30/2015	06:20:08.193	07:20:39.707	123-04.09W	122-56.04W	36-25.99N	36-36.71N
0243_20150530_072025_EX1503L2_MB	XBT 039	10.57	338	5/30/2015	07:20:10.707	08:20:36.220	123-09.02W	123-00.89W	36-35.74N	36-46.56N
0244_20150530_082021_EX1503L2_MB	XBT 039	10.66	337	5/30/2015	08:20:06.721	08:24:07.721	123-09.35W	123-05.75W	36-45.54N	36-47.19N
0245_20150530_082408_EX1503L2_MB	XBT 040	10.33	338	5/30/2015	08:23:53.222	09:24:17.235	123-14.58W	123-06.06W	36-46.15N	36-56.92N
0246_20150530_092402_EX1503L2_MB	XBT 040	10.05	338	5/30/2015	09:23:48.238	10:23:56.749	123-19.28W	123-10.32W	36-55.61N	37-06.24N
0247_20150530_102357_EX1503L2_MB	XBT 040	10.20	338	5/30/2015	10:23:42.251	11:24:17.263	123-24.30W	123-15.27W	37-04.86N	37-15.49N
0248_20150530_112402_EX1503L2_MB	XBT 040	10.53	339	5/30/2015	11:23:47.764	11:50:43.272	123-26.00W	123-20.33W	37-14.47N	37-19.86N
0249_20150530_115028_EX1503L2_MB	XBT 040	10.35	046	5/30/2015	11:50:14.268	11:54:20.766	123-25.80W	123-21.83W	37-18.28N	37-20.74N
0250_20150530_115421_EX1503L2_MB	XBT 040	9.38	054	5/30/2015	11:54:06.768	12:54:39.281	123-24.35W	123-12.82W	37-18.44N	37-26.75N
0251_20150530_125424_EX1503L2_MB	XBT 040	6.35	061	5/30/2015	12:54:09.783	13:13:54.285	123-15.26W	123-11.02W	37-24.31N	37-27.73N
0252_20150530_131339_EX1503L2_MB	XBT 041	2.65	064	5/30/2015	13:13:25.286	13:48:55.293	123-12.43W	123-08.63W	37-25.26N	37-28.09N
0253_20150530_141505_EX1503L2_MB	XBT 041	10.38	053	5/30/2015	14:15:05.299	15:15:18.312	123-11.47W	122-59.80W	37-26.58N	37-33.65N
0254_20150530_151503_EX1503L2_MB	XBT 041	10.81	056	5/30/2015	15:14:48.813	15:31:43.815	123-00.19W	122-56.73W	37-33.20N	37-35.20N
0256_20150607_010216_EX1503L2_MB	XBT 041	8.34	003	6/7/2015	01:02:16.456	02:02:14.963	124-51.44W	42-41.01N	124-49.64W	42-49.39N
0257_20150607_020215_EX1503L2_MB	XBT 042	8.91	010	6/7/2015	02:02:00.463	03:02:29.979	124-50.62W	42-49.27N	124-47.90W	42-58.16N
0258_20150607_030215_EX1503L2_MB	XBT 042	8.70	001	6/7/2015	03:02:00.980	04:02:29.995	124-48.60W	42-58.10N	124-47.47W	43-06.81N
0259_20150607_040215_EX1503L2_MB	XBT 042	8.39	359	6/7/2015	04:02:00.998	05:02:29.509	124-49.06W	43-06.78N	124-47.55W	43-15.19N
0260_20150607_050215_EX1503L2_MB	XBT 042	8.78	359	6/7/2015	05:02:00.507	06:02:31.025	124-49.81W	43-15.13N	124-47.72W	43-23.94N
0261_20150607_060217_EX1503L2_MB	XBT 042	9.26	359	6/7/2015	06:02:02.021	06:16:34.526	124-49.78W	43-23.91N	124-48.01W	43-26.15N
0262_20150607_061635_EX1503L2_MB	XBT 043	9.31	359	6/7/2015	06:16:20.523	07:16:49.540	124-50.55W	43-26.13N	124-47.96W	43-35.44N
0263_20150607_071635_EX1503L2_MB	XBT 043	9.39	359	6/7/2015	07:16:20.544	07:59:37.552	124-50.86W	43-35.42N	124-48.30W	43-42.15N
0264_20150607_075922_EX1503L2_MB	XBT 044	9.13	359	6/7/2015	07:59:08.553	08:59:20.070	124-50.92W	43-42.08N	124-48.66W	43-51.28N
0265_20150607_085920_EX1503L2_MB	XBT 044	9.02	359	6/7/2015	08:59:05.570	09:59:34.085	124-50.75W	43-51.25N	124-49.61W	44-00.30N
0266_20150607_095919_EX1503L2_MB	XBT 044	8.81	359	6/7/2015	09:59:05.083	10:59:34.103	124-51.05W	44-00.29N	124-50.34W	44-09.10N
0267_20150607_105920_EX1503L2_MB	XBT 044	8.95	359	6/7/2015	10:59:05.099	11:59:19.609	124-51.56W	44-09.10N	124-50.82W	44-18.04N
0268_20150607_115920_EX1503L2_MB	XBT 044	9.18	359	6/7/2015	11:59:05.140	12:48:51.138	124-52.17W	44-18.04N	124-51.08W	44-25.58N
0269_20150607_124836_EX1503L2_MB	XBT 045	9.33	359	6/7/2015	12:48:22.138	13:48:51.142	124-52.85W	44-25.57N	124-51.20W	44-34.89N
0270_20150607_134836_EX1503L2_MB	XBT 045	9.42	359	6/7/2015	13:48:22.639	14:48:51.653	124-53.33W	44-34.89N	124-51.51W	44-44.30N

EX-15-03 LEG II										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0271_20150607_144836_EX1503L2_MB	XBT 046	9.44	359	6/7/2015	14:48:22.155	15:10:34.658	124-53.41W	44-44.30N	124-51.87W	44-47.72N
0272_20150607_151019_EX1503L2_MB	XBT 046	9.54	359	6/7/2015	15:10:05.162	16:10:32.677	124-53.97W	44-47.70N	124-52.17W	44-57.25N
0273_20150607_161018_EX1503L2_MB	XBT 046	9.51	359	6/7/2015	16:10:03.678	17:10:33.190	124-54.55W	44-57.23N	124-52.29W	45-06.77N
0274_20150607_171018_EX1503L2_MB	XBT 046	9.66	359	6/7/2015	17:10:04.192	18:10:34.707	124-55.34W	45-06.71N	124-52.72W	45-16.41N
0275_20150607_181020_EX1503L2_MB	XBT 046	9.31	359	6/7/2015	18:10:05.706	19:10:20.719	124-56.39W	45-16.38N	124-52.88W	45-25.69N
0276_20150607_191020_EX1503L2_MB	XBT 046	9.29	359	6/7/2015	19:10:06.715	20:10:33.736	124-57.01W	45-25.69N	124-52.86W	45-34.96N
0277_20150607_201019_EX1503L2_MB	XBT 046	9.25	359	6/7/2015	20:10:04.735	21:10:38.256	124-57.59W	45-34.95N	124-52.86W	45-44.24N
0278_20150607_211023_EX1503L2_MB	XBT 047	8.99	359	6/7/2015	21:10:09.251	22:10:36.269	124-57.82W	45-44.16N	124-53.42W	45-53.22N
0279_20150607_221021_EX1503L2_MB	XBT 047	8.93	359	6/7/2015	22:10:07.268	23:10:34.781	124-57.65W	45-53.10N	124-54.34W	46-02.14N
0280_20150607_231020_EX1503L2_MB	XBT 047	9.01	359	6/7/2015	23:10:05.782	23:21:47.285	124-58.05W	46-02.05N	124-54.53W	46-03.86N
0281_20150608_003109_EX1503L2_MB	XBT 047	8.97	359	6/8/2015	00:31:09.807	00:45:38.311	124-58.32W	46-14.27N	124-55.48W	46-16.52N
0282_20150608_012834_EX1503L2_MB	XBT 047	9.15	358	6/8/2015	01:28:34.818	01:35:02.321	124-59.31W	46-22.75N	124-55.43W	46-23.91N
0283_20150608_021111_EX1503L2_MB	XBT 047	9.08	359	6/8/2015	02:11:11.829	03:11:09.347	124-59.85W	46-29.16N	124-55.45W	46-38.40N
0284_20150608_031109_EX1503L2_MB	XBT 047	9.12	359	6/8/2015	03:10:54.847	04:11:22.363	124-59.52W	46-38.31N	124-56.84W	46-47.45N
0285_20150608_041107_EX1503L2_MB	XBT 047	9.14	359	6/8/2015	04:10:53.356	04:29:40.368	124-59.36W	46-47.45N	124-57.53W	46-50.26N
0286_20150608_042925_EX1503L2_MB	XBT 048	8.92	359	6/8/2015	04:29:11.368	05:29:26.382	125-00.13W	46-50.22N	124-57.41W	46-59.15N
0287_20150608_052926_EX1503L2_MB	XBT 048	9.06	359	6/8/2015	05:29:11.884	06:29:41.400	125-00.91W	46-59.11N	124-57.99W	47-08.17N
0288_20150608_062926_EX1503L2_MB	XBT 048	9.07	004	6/8/2015	06:29:11.899	07:29:27.413	125-00.70W	47-08.13N	124-57.18W	47-17.21N
0289_20150608_072927_EX1503L2_MB	XBT 048	9.27	358	6/8/2015	07:29:12.914	08:29:42.927	125-01.47W	47-17.06N	124-56.91W	47-26.45N
0290_20150608_082928_EX1503L2_MB	XBT 048	9.38	358	6/8/2015	08:29:14.428	09:29:25.942	125-01.49W	47-26.29N	124-58.22W	47-35.80N
0291_20150608_092926_EX1503L2_MB	XBT 048	9.44	359	6/8/2015	09:29:11.444	10:29:40.459	125-01.02W	47-35.75N	124-59.64W	47-45.21N
0292_20150608_102926_EX1503L2_MB	XBT 049	9.44	359	6/8/2015	10:29:11.957	11:29:39.974	125-01.48W	47-45.17N	125-00.29W	47-54.62N
0293_20150608_112925_EX1503L2_MB	XBT 049	9.42	358	6/8/2015	11:29:10.973	11:39:53.476	125-01.59W	47-54.60N	125-00.98W	47-56.22N
0294_20150608_113938_EX1503L2_MB	XBT 049	9.93	359	6/8/2015	11:39:23.979	12:39:53.493	125-02.66W	47-56.20N	125-01.10W	48-06.15N
0295_20150608_123939_EX1503L2_MB	XBT 049	10.34	359	6/8/2015	12:39:24.991	13:35:14.003	125-03.01W	48-06.08N	125-01.32W	48-15.66N
0296_20150608_133459_EX1503L2_MB	XBT 049	8.85	033	6/8/2015	13:34:45.004	13:41:01.004	125-02.89W	48-15.61N	125-01.57W	48-16.65N
0297_20150608_134046_EX1503L2_MB	XBT 049	8.62	052	6/8/2015	13:40:32.005	14:01:37.012	125-02.27W	48-15.95N	124-57.89W	48-18.49N
0298_20150608_140137_EX1503L2_MB	XBT 049	7.89	044	6/8/2015	14:01:22.509	14:23:50.014	124-58.95W	48-17.90N	124-54.87W	48-20.49N

EX-15-03 LEG II										
MB LINE FILENAME	SVP FILE APPLIED	SOG (kt)	HDG	DATE (UTC)	MIN TIME (UTC)	MAX TIME (UTC)	MIN LONG (dec min)	MAX LONG (dec min)	MIN LAT (dec min)	MAX LAT (dec min)
0299_20150608_142335_EX1503L2_MB	XBT 049	5.70	027	6/8/2015	14:23:21.013	14:30:31.018	124-56.12W	48-20.09N	124-54.42W	48-20.98N
0300_20150608_143016_EX1503L2_MB	XBT 050	5.66	025	6/8/2015	14:30:02.014	15:09:37.027	124-55.60W	48-20.71N	124-52.13W	48-24.32N
0301_20150608_150922_EX1503L2_MB	XBT 050	7.39	022	6/8/2015	15:09:08.026	15:17:46.031	124-53.46W	48-24.09N	124-51.59W	48-25.24N
0302_20150608_151731_EX1503L2_MB	XBT 050	7.51	123	6/8/2015	15:17:17.029	15:22:50.031	124-52.92W	48-24.73N	124-51.05W	48-25.69N
0303_20150608_152235_EX1503L2_MB	XBT 050	7.17	205	6/8/2015	15:22:20.533	15:29:53.033	124-52.98W	48-23.88N	124-51.14W	48-25.16N
0304_20150608_152939_EX1503L2_MB	XBT 050	5.48	204	6/8/2015	15:29:24.034	15:57:15.041	124-54.45W	48-21.64N	124-51.64W	48-24.44N
0305_20150608_155700_EX1503L2_MB	XBT 050	7.47	205	6/8/2015	15:56:46.039	16:06:43.042	124-55.20W	48-20.58N	124-53.17W	48-22.14N
0306_20150608_160628_EX1503L2_MB	XBT 050	7.72	086	6/8/2015	16:06:13.545	16:11:19.041	124-55.23W	48-20.17N	124-53.28W	48-21.16N
0307_20150608_161104_EX1503L2_MB	XBT 050	8.38	026	6/8/2015	16:10:50.043	16:21:26.547	124-54.64W	48-20.70N	124-52.43W	48-22.30N
0308_20150608_162112_EX1503L2_MB	XBT 050	5.38	023	6/8/2015	16:20:58.046	16:46:07.052	124-53.77W	48-21.99N	124-51.07W	48-24.34N
0309_20150608_164552_EX1503L2_MB	XBT 050	5.33	026	6/8/2015	16:45:38.053	16:57:30.053	124-52.58W	48-24.00N	124-50.57W	48-25.40N
0310_20150608_165730_EX1503L2_MB	XBT 050	8.17	073	6/8/2015	16:57:15.556	17:57:44.072	124-51.70W	48-24.81N	124-40.28W	48-28.51N
0311_20150608_175730_EX1503L2_MB	XBT 050	9.22	116	6/8/2015	17:57:15.072	18:57:44.587	124-40.68W	48-23.25N	124-27.74W	48-27.81N
0312_20150608_185729_EX1503L2_MB	XBT 050	9.34	116	6/8/2015	18:57:15.087	19:57:43.601	124-28.13W	48-19.25N	124-15.08W	48-23.78N
0313_20150608_195729_EX1503L2_MB	XBT 050	9.41	115	6/8/2015	19:57:14.600	20:57:43.614	124-15.45W	48-15.32N	124-02.33W	48-19.83N
0314_20150608_205729_EX1503L2_MB	XBT 050	9.46	113	6/8/2015	20:57:14.615	21:36:04.626	124-02.68W	48-13.01N	123-54.16W	48-15.79N
0315_20150608_213550_EX1503L2_MB	XBT 050	9.20	091	6/8/2015	21:35:36.137	22:01:21.628	123-54.28W	48-12.97N	123-48.35W	48-13.48N

EX-15-03 LEG I Water Column Profile Files		
Filename	Date (Local)	File Size (bytes)
0000_20150508_173157_EX1503_MB.wcd	5/8/2015	278,832,120
0001_20150508_183158_EX1503_MB.wcd	5/8/2015	278,321,934
0002_20150508_193156_EX1503_MB.wcd	5/8/2015	252,736,082
0003_20150508_203157_EX1503_MB.wcd	5/8/2015	357,147,048
0004_20150508_213156_EX1503_MB.wcd	5/8/2015	528,101,960
0005_20150508_223158_EX1503_MB.wcd	5/8/2015	410,986,276
0013_20150509_053527_EX1503_MB.wcd	5/9/2015	420,347,504
0014_20150509_063532_EX1503_MB.wcd	5/9/2015	248,944,694
0015_20150509_073526_EX1503_MB.wcd	5/9/2015	225,092,670
0016_20150509_083534_EX1503_MB.wcd	5/9/2015	242,587,482

EX-15-03 LEG I Water Column Profile Files		
Filename	Date (Local)	File Size (bytes)
0017_20150509_093531_EX1503_MB.wcd	5/9/2015	259,852,200
0018_20150509_103528_EX1503_MB.wcd	5/9/2015	278,933,726
0019_20150509_113534_EX1503_MB.wcd	5/9/2015	278,538,106
0020_20150509_123530_EX1503_MB.wcd	5/9/2015	267,695,930
0021_20150509_133530_EX1503_MB.wcd	5/9/2015	257,857,506
0022_20150509_143530_EX1503_MB.wcd	5/9/2015	253,307,272
0023_20150509_153527_EX1503_MB.wcd	5/9/2015	251,423,006
0024_20150509_163527_EX1503_MB.wcd	5/9/2015	249,586,852
0025_20150509_173529_EX1503_MB.wcd	5/9/2015	64,470,388
0027_20150509_185110_EX1503_MB.wcd	5/9/2015	245,851,692

EX-15-03 LEG I Water Column Profile Files		
Filename	Date (Local)	File Size (bytes)
0028_20150509_195107_EX1503_MB.wcd	5/9/2015	245,096,068

EX-15-03 LEG I Water Column Profile Files		
Filename	Date (Local)	File Size (bytes)
0029_20150509_205106_EX1503_MB.wcd	5/9/2015	171,324,452

EX-15-03 LEG II Water Column Profile Files		
Filename	Date (Local)	File Size (bytes)
0000_20150516_200009_EX1503L2_MB.wcd	5/16/2015	1,014,221,232
0001_20150516_210009_EX1503L2_MB.wcd	5/16/2015	366,988,176
0002_20150516_220908_EX1503L2_MB.wcd	5/16/2015	1,026,669,162
0003_20150516_230909_EX1503L2_MB.wcd	5/16/2015	636,828,704
0004_20150517_000909_EX1503L2_MB.wcd	5/16/2015	447,559,654
0005_20150517_010911_EX1503L2_MB.wcd	5/16/2015	332,255,748
0006_20150517_020914_EX1503L2_MB.wcd	5/16/2015	162,252,600
0007_20150517_023613_EX1503L2_MB.wcd	5/16/2015	214,859,980
0008_20150517_030822_EX1503L2_MB.wcd	5/16/2015	29,742,050
0009_20150517_031240_EX1503L2_MB.wcd	5/17/2015	404,125,586
0010_20150517_041233_EX1503L2_MB.wcd	5/17/2015	368,208,100
0011_20150517_051237_EX1503L2_MB.wcd	5/17/2015	359,822,040
0012_20150517_061235_EX1503L2_MB.wcd	5/17/2015	372,236,768
0013_20150517_071238_EX1503L2_MB.wcd	5/17/2015	344,228,454
0014_20150517_081239_EX1503L2_MB.wcd	5/17/2015	305,207,636
0015_20150517_091058_EX1503L2_MB.wcd	5/17/2015	298,980,874
0016_20150517_101100_EX1503L2_MB.wcd	5/17/2015	286,650,108
0017_20150517_111057_EX1503L2_MB.wcd	5/17/2015	243,829,984
0018_20150517_121059_EX1503L2_MB.wcd	5/17/2015	375,448,056
0019_20150517_131057_EX1503L2_MB.wcd	5/17/2015	58,337,666
0020_20150517_142148_EX1503L2_MB.wcd	5/17/2015	419,546,430
0021_20150517_152147_EX1503L2_MB.wcd	5/17/2015	88,262,178
0022_20150517_153255_EX1503L2_MB.wcd	5/17/2015	308,403,340
0023_20150517_163251_EX1503L2_MB.wcd	5/17/2015	206,909,576
0024_20150517_173245_EX1503L2_MB.wcd	5/17/2015	259,295,500
0025_20150517_183253_EX1503L2_MB.wcd	5/17/2015	365,463,630
0026_20150517_193245_EX1503L2_MB.wcd	5/17/2015	373,507,044
0027_20150517_203252_EX1503L2_MB.wcd	5/17/2015	52,020,272
0028_20150517_204142_EX1503L2_MB.wcd	5/17/2015	352,760,322
0029_20150517_214049_EX1503L2_MB.wcd	5/17/2015	342,186,300
0030_20150517_224048_EX1503L2_MB.wcd	5/17/2015	321,114,292
0031_20150517_234048_EX1503L2_MB.wcd	5/17/2015	311,411,374
0032_20150518_004049_EX1503L2_MB.wcd	5/17/2015	205,602,994
0033_20150518_011723_EX1503L2_MB.wcd	5/17/2015	331,542,784

EX-15-03 LEG II Water Column Profile Files		
Filename	Date (Local)	File Size (bytes)
0034_20150518_021725_EX1503L2_MB.wcd	5/17/2015	328,979,906
0035_20150518_031727_EX1503L2_MB.wcd	5/18/2015	346,249,828
0036_20150518_041725_EX1503L2_MB.wcd	5/18/2015	347,766,158
0037_20150518_051728_EX1503L2_MB.wcd	5/18/2015	343,601,700
0038_20150518_061725_EX1503L2_MB.wcd	5/18/2015	367,149,674
0039_20150518_071724_EX1503L2_MB.wcd	5/18/2015	224,634,554
0040_20150518_080623_EX1503L2_MB.wcd	5/18/2015	198,101,744
0041_20150518_090627_EX1503L2_MB.wcd	5/18/2015	198,208,388
0042_20150518_100624_EX1503L2_MB.wcd	5/18/2015	203,224,800
0043_20150518_110623_EX1503L2_MB.wcd	5/18/2015	203,048,462
0044_20150518_120628_EX1503L2_MB.wcd	5/18/2015	203,378,852
0045_20150518_130628_EX1503L2_MB.wcd	5/18/2015	96,261,294
0046_20150518_135613_EX1503L2_MB.wcd	5/18/2015	205,083,988
0047_20150518_145609_EX1503L2_MB.wcd	5/18/2015	131,827,388
0048_20150518_153445_EX1503L2_MB.wcd	5/18/2015	207,856,842
0049_20150518_163443_EX1503L2_MB.wcd	5/18/2015	210,670,870
0050_20150518_173443_EX1503L2_MB.wcd	5/18/2015	227,524,144
0051_20150518_183443_EX1503L2_MB.wcd	5/18/2015	227,861,932
0052_20150518_193442_EX1503L2_MB.wcd	5/18/2015	229,967,738
0053_20150518_203441_EX1503L2_MB.wcd	5/18/2015	232,764,632
0054_20150518_213441_EX1503L2_MB.wcd	5/18/2015	234,137,998
0055_20150518_223440_EX1503L2_MB.wcd	5/18/2015	225,468,996
0056_20150518_233445_EX1503L2_MB.wcd	5/18/2015	226,043,414
0057_20150519_003446_EX1503L2_MB.wcd	5/18/2015	173,871,466
0058_20150519_015554_EX1503L2_MB.wcd	5/18/2015	219,107,682
0059_20150519_025546_EX1503L2_MB.wcd	5/18/2015	196,006,180
0060_20150519_034930_EX1503L2_MB.wcd	5/19/2015	218,781,714
0061_20150519_044931_EX1503L2_MB.wcd	5/19/2015	217,828,084
0062_20150519_054933_EX1503L2_MB.wcd	5/19/2015	218,196,890
0063_20150519_064928_EX1503L2_MB.wcd	5/19/2015	218,094,498
0064_20150519_074935_EX1503L2_MB.wcd	5/19/2015	218,325,246
0065_20150519_084932_EX1503L2_MB.wcd	5/19/2015	218,540,650
0066_20150519_094929_EX1503L2_MB.wcd	5/19/2015	16,082,426
0067_20150519_095354_EX1503L2_MB.wcd	5/19/2015	218,774,616

EX-15-03 LEG II Water Column Profile Files		
Filename	Date (Local)	File Size (bytes)
0068_20150519_105346_EX1503L2_MB.wcd	5/19/2015	217,812,336
0069_20150519_115345_EX1503L2_MB.wcd	5/19/2015	218,741,144
0070_20150519_125344_EX1503L2_MB.wcd	5/19/2015	219,664,518
0071_20150519_135349_EX1503L2_MB.wcd	5/19/2015	216,067,698
0072_20150519_145346_EX1503L2_MB.wcd	5/19/2015	196,435,380
0073_20150519_154743_EX1503L2_MB.wcd	5/19/2015	219,955,190
0074_20150519_164743_EX1503L2_MB.wcd	5/19/2015	219,556,150
0075_20150519_174737_EX1503L2_MB.wcd	5/19/2015	220,570,328
0076_20150519_184742_EX1503L2_MB.wcd	5/19/2015	220,308,240
0077_20150519_194736_EX1503L2_MB.wcd	5/19/2015	115,085,630
0078_20150519_201844_EX1503L2_MB.wcd	5/19/2015	220,735,210
0079_20150519_211848_EX1503L2_MB.wcd	5/19/2015	220,503,726
0080_20150519_221849_EX1503L2_MB.wcd	5/19/2015	221,745,470
0081_20150519_231850_EX1503L2_MB.wcd	5/19/2015	152,354,230
0082_20150520_000048_EX1503L2_MB.wcd	5/19/2015	218,640,206
0083_20150520_010044_EX1503L2_MB.wcd	5/19/2015	219,525,846
0084_20150520_020048_EX1503L2_MB.wcd	5/19/2015	57,854,696
0085_20150520_021640_EX1503L2_MB.wcd	5/19/2015	218,120,638
0086_20150520_031634_EX1503L2_MB.wcd	5/20/2015	220,195,108
0087_20150520_041638_EX1503L2_MB.wcd	5/20/2015	219,978,794
0088_20150520_051639_EX1503L2_MB.wcd	5/20/2015	220,883,046
0089_20150520_061637_EX1503L2_MB.wcd	5/20/2015	220,229,896
0090_20150520_071635_EX1503L2_MB.wcd	5/20/2015	233,604,320
0091_20150520_081639_EX1503L2_MB.wcd	5/20/2015	243,286,062
0092_20150520_091635_EX1503L2_MB.wcd	5/20/2015	233,143,196
0093_20150520_101636_EX1503L2_MB.wcd	5/20/2015	232,254,494
0094_20150520_111637_EX1503L2_MB.wcd	5/20/2015	229,998,020
0095_20150520_121636_EX1503L2_MB.wcd	5/20/2015	3,178,018
0096_20150520_121724_EX1503L2_MB.wcd	5/20/2015	82,320,892
0097_20150520_123645_EX1503L2_MB.wcd	5/20/2015	23,277,178
0098_20150520_124156_EX1503L2_MB.wcd	5/20/2015	242,553,616
0099_20150520_134157_EX1503L2_MB.wcd	5/20/2015	236,290,926
0100_20150520_144158_EX1503L2_MB.wcd	5/20/2015	235,476,004
0101_20150520_154158_EX1503L2_MB.wcd	5/20/2015	235,862,902
0102_20150520_164200_EX1503L2_MB.wcd	5/20/2015	236,927,430
0103_20150520_174158_EX1503L2_MB.wcd	5/20/2015	140,291,778
0104_20150520_181736_EX1503L2_MB.wcd	5/20/2015	17,966,112
0105_20150520_182211_EX1503L2_MB.wcd	5/20/2015	71,994,418
0106_20150520_204752_EX1503L2_MB.wcd	5/20/2015	233,057,022
0107_20150520_214754_EX1503L2_MB.wcd	5/20/2015	219,304,818

EX-15-03 LEG II Water Column Profile Files		
Filename	Date (Local)	File Size (bytes)
0108_20150520_224754_EX1503L2_MB.wcd	5/20/2015	221,993,528
0109_20150520_234751_EX1503L2_MB.wcd	5/20/2015	74,575,624
0110_20150521_000738_EX1503L2_MB.wcd	5/20/2015	225,231,988
0111_20150521_010741_EX1503L2_MB.wcd	5/20/2015	177,239,930
0112_20150521_015411_EX1503L2_MB.wcd	5/20/2015	225,848,540
0113_20150521_025410_EX1503L2_MB.wcd	5/20/2015	233,915,224
0114_20150521_035404_EX1503L2_MB.wcd	5/21/2015	241,864,148
0115_20150521_045021_EX1503L2_MB.wcd	5/21/2015	266,120,844
0116_20150521_055024_EX1503L2_MB.wcd	5/21/2015	265,552,602
0117_20150521_065025_EX1503L2_MB.wcd	5/21/2015	267,938,186
0118_20150521_075026_EX1503L2_MB.wcd	5/21/2015	261,014,118
0119_20150521_085025_EX1503L2_MB.wcd	5/21/2015	65,433,424
0120_20150521_090547_EX1503L2_MB.wcd	5/21/2015	270,796,788
0121_20150521_100544_EX1503L2_MB.wcd	5/21/2015	240,630,650
0122_20150521_110543_EX1503L2_MB.wcd	5/21/2015	249,466,074
0123_20150521_120546_EX1503L2_MB.wcd	5/21/2015	242,248,192
0124_20150521_130540_EX1503L2_MB.wcd	5/21/2015	245,899,298
0125_20150521_140544_EX1503L2_MB.wcd	5/21/2015	243,126,332
0126_20150521_150542_EX1503L2_MB.wcd	5/21/2015	99,015,096
0127_20150521_153105_EX1503L2_MB.wcd	5/21/2015	237,475,094
0128_20150521_163106_EX1503L2_MB.wcd	5/21/2015	242,651,370
0129_20150521_173101_EX1503L2_MB.wcd	5/21/2015	238,376,320
0130_20150521_183105_EX1503L2_MB.wcd	5/21/2015	240,349,884
0131_20150521_193101_EX1503L2_MB.wcd	5/21/2015	241,515,984
0132_20150521_203104_EX1503L2_MB.wcd	5/21/2015	236,555,372
0133_20150521_213104_EX1503L2_MB.wcd	5/21/2015	169,585,322
0134_20150521_221425_EX1503L2_MB.wcd	5/21/2015	242,565,932
0135_20150521_231427_EX1503L2_MB.wcd	5/21/2015	178,006,048
0136_20150522_000302_EX1503L2_MB.wcd	5/21/2015	229,740,554
0137_20150522_010305_EX1503L2_MB.wcd	5/21/2015	239,738,366
0138_20150522_020306_EX1503L2_MB.wcd	5/21/2015	227,143,502
0139_20150522_030304_EX1503L2_MB.wcd	5/21/2015	30,200,392
0140_20150522_031110_EX1503L2_MB.wcd	5/22/2015	216,221,692
0141_20150522_041102_EX1503L2_MB.wcd	5/22/2015	216,972,638
0142_20150522_051102_EX1503L2_MB.wcd	5/22/2015	222,689,402
0143_20150522_061106_EX1503L2_MB.wcd	5/22/2015	221,423,226
0144_20150522_071107_EX1503L2_MB.wcd	5/22/2015	220,909,316
0145_20150522_081104_EX1503L2_MB.wcd	5/22/2015	216,057,782
0146_20150522_090935_EX1503L2_MB.wcd	5/22/2015	223,784,872
0147_20150522_100934_EX1503L2_MB.wcd	5/22/2015	223,228,254

EX-15-03 LEG II Water Column Profile Files		
Filename	Date (Local)	File Size (bytes)
0148_20150522_110939_EX1503L2_MB.wcd	5/22/2015	219,931,244
0149_20150522_120934_EX1503L2_MB.wcd	5/22/2015	219,450,132
0150_20150522_130934_EX1503L2_MB.wcd	5/22/2015	223,126,724
0151_20150522_140935_EX1503L2_MB.wcd	5/22/2015	221,903,788
0152_20150522_150934_EX1503L2_MB.wcd	5/22/2015	229,878,268
0153_20150522_160936_EX1503L2_MB.wcd	5/22/2015	229,960,042
0154_20150522_170935_EX1503L2_MB.wcd	5/22/2015	230,810,726
0155_20150522_180938_EX1503L2_MB.wcd	5/22/2015	261,876,254
0156_20150522_190935_EX1503L2_MB.wcd	5/22/2015	230,055,630
0157_20150522_200934_EX1503L2_MB.wcd	5/22/2015	226,208,100
0158_20150522_210935_EX1503L2_MB.wcd	5/22/2015	228,380,948
0159_20150522_220936_EX1503L2_MB.wcd	5/22/2015	16,427,594
0160_20150522_221218_EX1503L2_MB.wcd	5/22/2015	356,371,056
0161_20150522_231220_EX1503L2_MB.wcd	5/22/2015	236,812,560
0162_20150523_000034_EX1503L2_MB.wcd	5/22/2015	236,309,986
0163_20150523_010031_EX1503L2_MB.wcd	5/22/2015	287,820,062
0164_20150523_020033_EX1503L2_MB.wcd	5/22/2015	344,373,398
0165_20150523_030029_EX1503L2_MB.wcd	5/23/2015	213,898,290
0166_20150523_040032_EX1503L2_MB.wcd	5/23/2015	59,588,830
0167_20150523_041829_EX1503L2_MB.wcd	5/23/2015	204,327,642
0168_20150523_051822_EX1503L2_MB.wcd	5/23/2015	209,663,430
0169_20150523_061816_EX1503L2_MB.wcd	5/23/2015	209,467,332
0170_20150523_071817_EX1503L2_MB.wcd	5/23/2015	209,831,864
0171_20150523_081819_EX1503L2_MB.wcd	5/23/2015	210,212,820
0172_20150523_091824_EX1503L2_MB.wcd	5/23/2015	188,459,684
0173_20150523_101158_EX1503L2_MB.wcd	5/23/2015	217,984,938
0174_20150523_111201_EX1503L2_MB.wcd	5/23/2015	220,212,538
0175_20150523_121159_EX1503L2_MB.wcd	5/23/2015	220,224,676
0176_20150523_131155_EX1503L2_MB.wcd	5/23/2015	219,865,864
0177_20150523_141158_EX1503L2_MB.wcd	5/23/2015	221,735,548
0178_20150523_151201_EX1503L2_MB.wcd	5/23/2015	235,619,894
0179_20150523_161156_EX1503L2_MB.wcd	5/23/2015	226,990,884
0180_20150523_171203_EX1503L2_MB.wcd	5/23/2015	226,926,198
0181_20150523_181159_EX1503L2_MB.wcd	5/23/2015	224,763,560
0182_20150523_191201_EX1503L2_MB.wcd	5/23/2015	227,008,052
0183_20150523_201202_EX1503L2_MB.wcd	5/23/2015	225,648,260
0184_20150523_211203_EX1503L2_MB.wcd	5/23/2015	225,262,602
0185_20150523_221202_EX1503L2_MB.wcd	5/23/2015	62,310,254
0186_20150523_222816_EX1503L2_MB.wcd	5/23/2015	227,270,286
0187_20150523_232819_EX1503L2_MB.wcd	5/23/2015	120,533,372

EX-15-03 LEG II Water Column Profile Files		
Filename	Date (Local)	File Size (bytes)
0188_20150524_000009_EX1503L2_MB.wcd	5/23/2015	218,200,070
0189_20150524_010008_EX1503L2_MB.wcd	5/23/2015	210,080,496
0190_20150524_020001_EX1503L2_MB.wcd	5/23/2015	225,700,728
0191_20150524_030002_EX1503L2_MB.wcd	5/23/2015	141,760,136
0192_20150524_033809_EX1503L2_MB.wcd	5/24/2015	219,825,460
0193_20150524_043803_EX1503L2_MB.wcd	5/24/2015	230,756,746
0194_20150524_053802_EX1503L2_MB.wcd	5/24/2015	226,047,400
0195_20150524_063807_EX1503L2_MB.wcd	5/24/2015	25,808,312
0196_20150528_172328_EX1503L2_MB.wcd	5/28/2015	203,786,562
0197_20150528_182330_EX1503L2_MB.wcd	5/28/2015	198,549,292
0198_20150528_192103_EX1503L2_MB.wcd	5/28/2015	54,620,208
0199_20150528_193646_EX1503L2_MB.wcd	5/28/2015	152,443,610
0200_20150528_203505_EX1503L2_MB.wcd	5/28/2015	15,297,136
0201_20150528_203926_EX1503L2_MB.wcd	5/28/2015	28,221,068
0202_20150528_212017_EX1503L2_MB.wcd	5/28/2015	23,607,178
0203_20150528_212701_EX1503L2_MB.wcd	5/28/2015	216,154,304
0204_20150528_222700_EX1503L2_MB.wcd	5/28/2015	223,648,144
0205_20150528_232706_EX1503L2_MB.wcd	5/28/2015	25,935,840
0206_20150528_233402_EX1503L2_MB.wcd	5/28/2015	121,832,476
0207_20150529_000640_EX1503L2_MB.wcd	5/28/2015	220,978,470
0208_20150529_010642_EX1503L2_MB.wcd	5/28/2015	221,349,518
0209_20150529_020642_EX1503L2_MB.wcd	5/28/2015	39,932,568
0210_20150529_021734_EX1503L2_MB.wcd	5/28/2015	226,225,998
0211_20150529_031733_EX1503L2_MB.wcd	5/29/2015	233,195,430
0212_20150529_041732_EX1503L2_MB.wcd	5/29/2015	256,201,814
0213_20150529_051731_EX1503L2_MB.wcd	5/29/2015	62,705,884
0214_20150529_053143_EX1503L2_MB.wcd	5/29/2015	279,370,996
0215_20150529_063140_EX1503L2_MB.wcd	5/29/2015	275,402,418
0216_20150529_073140_EX1503L2_MB.wcd	5/29/2015	273,230,534
0217_20150529_083146_EX1503L2_MB.wcd	5/29/2015	275,976,288
0218_20150529_093140_EX1503L2_MB.wcd	5/29/2015	268,558,244
0219_20150529_103012_EX1503L2_MB.wcd	5/29/2015	276,298,374
0220_20150529_113010_EX1503L2_MB.wcd	5/29/2015	268,938,818
0221_20150529_123011_EX1503L2_MB.wcd	5/29/2015	266,070,846
0222_20150529_133015_EX1503L2_MB.wcd	5/29/2015	15,899,810
0223_20150529_133348_EX1503L2_MB.wcd	5/29/2015	275,056,572
0224_20150529_143346_EX1503L2_MB.wcd	5/29/2015	269,752,686
0225_20150529_153350_EX1503L2_MB.wcd	5/29/2015	265,978,410
0226_20150529_163347_EX1503L2_MB.wcd	5/29/2015	256,090,172
0227_20150529_173350_EX1503L2_MB.wcd	5/29/2015	234,999,042

EX-15-03 LEG II Water Column Profile Files		
Filename	Date (Local)	File Size (bytes)
0228_20150529_183349_EX1503L2_MB.wcd	5/29/2015	233,628,946
0229_20150529_193347_EX1503L2_MB.wcd	5/29/2015	225,410,042
0230_20150529_203354_EX1503L2_MB.wcd	5/29/2015	14,772,224
0231_20150529_203744_EX1503L2_MB.wcd	5/29/2015	233,284,746
0232_20150529_213745_EX1503L2_MB.wcd	5/29/2015	238,602,684
0233_20150529_223748_EX1503L2_MB.wcd	5/29/2015	225,714,302
0234_20150529_233743_EX1503L2_MB.wcd	5/29/2015	96,704,688
0235_20150530_000438_EX1503L2_MB.wcd	5/29/2015	212,708,994
0236_20150530_010440_EX1503L2_MB.wcd	5/29/2015	225,198,506
0237_20150530_020435_EX1503L2_MB.wcd	5/29/2015	112,435,440
0238_20150530_022027_EX1503L2_MB.wcd	5/29/2015	280,137,978
0239_20150530_032021_EX1503L2_MB.wcd	5/30/2015	240,319,114
0240_20150530_042028_EX1503L2_MB.wcd	5/30/2015	229,068,744
0241_20150530_052027_EX1503L2_MB.wcd	5/30/2015	231,908,954
0242_20150530_062022_EX1503L2_MB.wcd	5/30/2015	224,032,988
0243_20150530_072025_EX1503L2_MB.wcd	5/30/2015	224,339,364
0244_20150530_082021_EX1503L2_MB.wcd	5/30/2015	14,119,710
0245_20150530_082408_EX1503L2_MB.wcd	5/30/2015	211,440,730
0246_20150530_092402_EX1503L2_MB.wcd	5/30/2015	201,840,094
0247_20150530_102357_EX1503L2_MB.wcd	5/30/2015	196,090,742
0248_20150530_112402_EX1503L2_MB.wcd	5/30/2015	85,149,138
0249_20150530_115028_EX1503L2_MB.wcd	5/30/2015	12,710,752
0250_20150530_115421_EX1503L2_MB.wcd	5/30/2015	240,486,626
0251_20150530_125424_EX1503L2_MB.wcd	5/30/2015	95,202,980
0252_20150530_131339_EX1503L2_MB.wcd	5/30/2015	130,147,634
0253_20150530_141505_EX1503L2_MB.wcd	5/30/2015	357,522,152
0254_20150530_151503_EX1503L2_MB.wcd	5/30/2015	273,969,744
0256_20150607_010216_EX1503L2_MB.wcd	6/6/2015	363,622,316
0257_20150607_020215_EX1503L2_MB.wcd	6/6/2015	755,518,886
0258_20150607_030215_EX1503L2_MB.wcd	6/7/2015	921,973,814
0259_20150607_040215_EX1503L2_MB.wcd	6/7/2015	603,873,586
0260_20150607_050215_EX1503L2_MB.wcd	6/7/2015	492,997,248
0261_20150607_060217_EX1503L2_MB.wcd	6/7/2015	137,911,042
0262_20150607_061635_EX1503L2_MB.wcd	6/7/2015	385,714,482
0263_20150607_071635_EX1503L2_MB.wcd	6/7/2015	159,719,408
0264_20150607_075922_EX1503L2_MB.wcd	6/7/2015	446,720,434
0265_20150607_085920_EX1503L2_MB.wcd	6/7/2015	976,682,942
0266_20150607_095919_EX1503L2_MB.wcd	6/7/2015	1,074,835,872
0267_20150607_105920_EX1503L2_MB.wcd	6/7/2015	1,344,542,566
0268_20150607_115920_EX1503L2_MB.wcd	6/7/2015	655,989,728

EX-15-03 LEG II Water Column Profile Files		
Filename	Date (Local)	File Size (bytes)
0269_20150607_124836_EX1503L2_MB.wcd	6/7/2015	622,173,756
0270_20150607_134836_EX1503L2_MB.wcd	6/7/2015	611,851,282
0271_20150607_144836_EX1503L2_MB.wcd	6/7/2015	235,424,122
0272_20150607_151019_EX1503L2_MB.wcd	6/7/2015	593,913,410
0273_20150607_161018_EX1503L2_MB.wcd	6/7/2015	275,660,946
0274_20150607_171018_EX1503L2_MB.wcd	6/7/2015	236,174,214
0275_20150607_181020_EX1503L2_MB.wcd	6/7/2015	260,520,056
0276_20150607_191020_EX1503L2_MB.wcd	6/7/2015	306,877,974
0277_20150607_201019_EX1503L2_MB.wcd	6/7/2015	319,897,628
0278_20150607_211023_EX1503L2_MB.wcd	6/7/2015	312,516,936
0279_20150607_221021_EX1503L2_MB.wcd	6/7/2015	308,627,238
0280_20150607_231020_EX1503L2_MB.wcd	6/7/2015	45,065,432
0281_20150608_003109_EX1503L2_MB.wcd	6/7/2015	60,303,872
0282_20150608_012834_EX1503L2_MB.wcd	6/7/2015	34,821,302
0283_20150608_021111_EX1503L2_MB.wcd	6/7/2015	289,670,916
0284_20150608_031109_EX1503L2_MB.wcd	6/8/2015	230,761,080
0285_20150608_041107_EX1503L2_MB.wcd	6/8/2015	135,889,054
0286_20150608_042925_EX1503L2_MB.wcd	6/8/2015	504,191,876
0287_20150608_052926_EX1503L2_MB.wcd	6/8/2015	526,752,784
0288_20150608_062926_EX1503L2_MB.wcd	6/8/2015	557,043,038
0289_20150608_072927_EX1503L2_MB.wcd	6/8/2015	307,906,494
0290_20150608_082928_EX1503L2_MB.wcd	6/8/2015	583,232,614
0291_20150608_092926_EX1503L2_MB.wcd	6/8/2015	905,692,866
0292_20150608_102926_EX1503L2_MB.wcd	6/8/2015	927,213,814
0293_20150608_112925_EX1503L2_MB.wcd	6/8/2015	172,065,058
0294_20150608_113938_EX1503L2_MB.wcd	6/8/2015	955,171,946
0295_20150608_123939_EX1503L2_MB.wcd	6/8/2015	546,774,680
0296_20150608_133459_EX1503L2_MB.wcd	6/8/2015	49,075,678
0297_20150608_134046_EX1503L2_MB.wcd	6/8/2015	167,027,470
0298_20150608_140137_EX1503L2_MB.wcd	6/8/2015	190,215,574
0299_20150608_142335_EX1503L2_MB.wcd	6/8/2015	56,937,122
0300_20150608_143016_EX1503L2_MB.wcd	6/8/2015	331,879,986
0301_20150608_150922_EX1503L2_MB.wcd	6/8/2015	64,616,460
0302_20150608_151731_EX1503L2_MB.wcd	6/8/2015	42,316,880
0303_20150608_152235_EX1503L2_MB.wcd	6/8/2015	56,775,556
0304_20150608_152939_EX1503L2_MB.wcd	6/8/2015	222,882,226
0305_20150608_155700_EX1503L2_MB.wcd	6/8/2015	79,530,792
0306_20150608_160628_EX1503L2_MB.wcd	6/8/2015	37,947,836
0307_20150608_161104_EX1503L2_MB.wcd	6/8/2015	84,393,588
0308_20150608_162112_EX1503L2_MB.wcd	6/8/2015	211,778,584

EX-15-03 LEG II Water Column Profile Files		
Filename	**Date (Local)**	**File Size (bytes)**
0309_20150608_164552_EX1503L2_MB.wcd	6/8/2015	93,681,734
0310_20150608_165730_EX1503L2_MB.wcd	6/8/2015	483,182,630
0311_20150608_175730_EX1503L2_MB.wcd	6/8/2015	863,208,926
0312_20150608_185729_EX1503L2_MB.wcd	6/8/2015	949,561,990

EX-15-03 LEG II Water Column Profile Files		
Filename	**Date (Local)**	**File Size (bytes)**
0313_20150608_195729_EX1503L2_MB.wcd	6/8/2015	943,783,124
0314_20150608_205729_EX1503L2_MB.wcd	6/8/2015	605,995,962
0315_20150608_213550_EX1503L2_MB.wcd	6/8/2015	401,451,614

EX-15-03 LEG I Subbottom Profile Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L1_SBP_000.kea	5/9/2015	323,424
EX1503L1_SBP_000.keb	5/9/2015	26,483,328
EX1503L1_SBP_023.kea	5/9/2015	21,810
EX1503L1_SBP_023.keb	5/9/2015	2,246,130
EX1503L1_SBP_70870_CHP3.5_RAW_000.sgy	5/8/2015	9,661,024
EX1503L1_SBP_70870_CHP3.5_RAW_001.sgy	5/8/2015	12,335,238
EX1503L1_SBP_70870_CHP3.5_RAW_002.sgy	5/8/2015	21,856
EX1503L1_SBP_70870_CHP3.5_RAW_003.sgy	5/8/2015	29,765,750
EX1503L1_SBP_70870_CHP3.5_RAW_004.sgy	5/8/2015	12,728
EX1503L1_SBP_70870_CHP3.5_RAW_005.sgy	5/8/2015	25,172
EX1503L1_SBP_70870_CHP3.5_RAW_006.sgy	5/8/2015	8,000,072
EX1503L1_SBP_70870_CHP3.5_RAW_007.sgy	5/8/2015	7,999,728
EX1503L1_SBP_70870_CHP3.5_RAW_008.sgy	5/8/2015	7,947,664
EX1503L1_SBP_70870_CHP3.5_RAW_009.sgy	5/8/2015	8,656,944

EX-15-03 LEG I Subbottom Profile Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L1_SBP_70870_CHP3.5_RAW_010.sgy	5/8/2015	3,035,970
EX1503L1_SBP_70870_CHP3.5_RAW_011.sgy	5/8/2015	21,856
EX1503L1_SBP_70870_CHP3.5_RAW_012.sgy	5/8/2015	3,238,128
EX1503L1_SBP_70870_CHP3.5_RAW_013.sgy	5/8/2015	7,689,248
EX1503L1_SBP_70870_CHP3.5_RAW_014.sgy	5/8/2015	26,062
EX1503L1_SBP_70870_CHP3.5_RAW_015.sgy	5/8/2015	21,139,132
EX1503L1_SBP_70870_CHP3.5_RAW_016.sgy	5/8/2015	26,171,830
EX1503L1_SBP_70870_CHP3.5_RAW_017.sgy	5/8/2015	16,306,208
EX1503L1_SBP_70870_CHP3.5_RAW_018.sgy	5/8/2015	5,978,492
EX1503L1_SBP_70870_CHP3.5_RAW_019.sgy	5/8/2015	495,124
EX1503L1_SBP_70870_CHP3.5_RAW_020.sgy	5/9/2015	43,040,792
EX1503L1_SBP_70870_CHP3.5_RAW_021.sgy	5/9/2015	2,194,320
EX1503L1_SBP_70870_CHP3.5_RAW_022.sgy	5/9/2015	126,621,894
EX1503L1_SBP_70870_CHP3.5_RAW_023.sgy	5/9/2015	11,705,696

EX-15-03 LEG II Subbottom Profile Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2_SBP_000.kea	5/17/2015	115,548
EX1503L2_SBP_000.keb	5/17/2015	11,605,405
EX1503L2_SBP_001.kea	5/17/2015	4,011
EX1503L2_SBP_001.keb	5/17/2015	515,761
EX1503L2_SBP_002.kea	5/17/2015	27,284
EX1503L2_SBP_002.keb	5/17/2015	3,488,256
EX1503L2_SBP_003.kea	5/17/2015	15,418
EX1503L2_SBP_003.keb	5/17/2015	2,175,178
EX1503L2_SBP_004.kea	5/17/2015	441
EX1503L2_SBP_004.keb	5/17/2015	53,475
EX1503L2_SBP_005.kea	5/18/2015	139,994
EX1503L2_SBP_005.keb	5/18/2015	17,557,408
EX1503L2_SBP_006.kea	5/18/2015	8,074

EX-15-03 LEG II Subbottom Profile Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2_SBP_006.keb	5/18/2015	778,372
EX1503L2_SBP_007.kea	5/18/2015	9,587
EX1503L2_SBP_007.keb	5/18/2015	960,998
EX1503L2_SBP_008.kea	5/18/2015	89,164
EX1503L2_SBP_008.keb	5/18/2015	9,052,491
EX1503L2_SBP_011.kea	5/19/2015	125,170
EX1503L2_SBP_011.keb	5/19/2015	14,183,651
EX1503L2_SBP_014.kea	5/19/2015	21,147
EX1503L2_SBP_014.keb	5/19/2015	2,586,650
EX1503L2_SBP_016.kea	5/19/2015	322
EX1503L2_SBP_016.keb	5/19/2015	57,153
EX1503L2_SBP_017.kea	5/19/2015	17,373
EX1503L2_SBP_017.keb	5/19/2015	2,164,978

EX-15-03 LEG II Subbottom Profile Files		
File Name	Date (Local)	File size (bytes)
EX1503L2_SBP_018.kea	5/20/2015	104,362
EX1503L2_SBP_018.keb	5/20/2015	15,456,595
EX1503L2_SBP_029.kea	5/20/2015	7,683
EX1503L2_SBP_029.keb	5/20/2015	1,006,938
EX1503L2_SBP_030.kea	5/20/2015	23,969
EX1503L2_SBP_030.keb	5/20/2015	3,296,946
EX1503L2_SBP_032.kea	5/21/2015	197,012
EX1503L2_SBP_032.keb	5/21/2015	27,901,717
EX1503L2_SBP_042.kea	5/22/2015	133,024
EX1503L2_SBP_042.keb	5/22/2015	18,881,564
EX1503L2_SBP_055.kea	5/23/2015	223,957
EX1503L2_SBP_055.keb	5/23/2015	32,012,740
EX1503L2_SBP_079.kea	5/24/2015	56,184
EX1503L2_SBP_079.keb	5/24/2015	8,154,365
EX1503L2_SBP_085.kea	5/28/2015	1,087
EX1503L2_SBP_085.keb	5/28/2015	149,376
EX1503L2_SBP_086.kea	5/28/2015	18,325
EX1503L2_SBP_086.keb	5/28/2015	2,626,132
EX1503L2_SBP_087.kea	5/29/2015	221,373
EX1503L2_SBP_087.keb	5/29/2015	25,254,050
EX1503L2_SBP_099.kea	5/30/2015	87,277
EX1503L2_SBP_099.keb	5/30/2015	8,365,131
EX1503L2_SBP_108.kea	5/30/2015	730
EX1503L2_SBP_108.keb	5/30/2015	61,062
EX1503L2_SBP_110.kea	5/30/2015	5,456
EX1503L2_SBP_110.keb	5/30/2015	462,136
EX1503L2_SBP_112.kea	5/30/2015	7,564
EX1503L2_SBP_112.keb	5/30/2015	546,821
EX1503L2_SBP_113.kea	5/30/2015	15,418
EX1503L2_SBP_113.keb	5/30/2015	1,421,328
EX1503L2_SBP_114.kea	6/6/2015	13,361
EX1503L2_SBP_114.keb	6/6/2015	1,681,021
EX1503L2_SBP_115.kea	6/7/2015	182,103
EX1503L2_SBP_115.keb	6/7/2015	22,914,596
EX1503L2_SBP_120.kea	6/7/2015	55,759
EX1503L2_SBP_120.keb	6/7/2015	7,539,895
EX1503L2_SBP_123.kea	6/7/2015	3,569
EX1503L2_SBP_123.keb	6/7/2015	519,780
EX1503L2_SBP_125.kea	6/7/2015	1,087
EX1503L2_SBP_125.keb	6/7/2015	147,872

EX-15-03 LEG II Subbottom Profile Files		
File Name	Date (Local)	File size (bytes)
EX1503L2_SBP_127.kea	6/7/2015	51,645
EX1503L2_SBP_127.keb	6/7/2015	7,536,374
EX1503L2_SBP_132.kea	6/7/2015	62,338
EX1503L2_SBP_132.keb	6/7/2015	5,121,774
EX1503L2_SBP_134.kea	6/7/2015	201,109
EX1503L2_SBP_134.keb	6/7/2015	21,088,659
EX1503L2_SBP_145.kea	6/7/2015	3,994
EX1503L2_SBP_145.keb	6/7/2015	561,646
EX1503L2_SBP_146.kea	6/8/2015	51,475
EX1503L2_SBP_146.keb	6/8/2015	6,472,683
EX1503L2_SBP_149.kea	6/8/2015	10,879
EX1503L2_SBP_149.keb	6/8/2015	1,445,642
EX1503L2_SBP_151.kea	6/8/2015	16,693
EX1503L2_SBP_151.keb	6/8/2015	2,178,995
EX1503L2_SBP_153.kea	6/8/2015	1,070
EX1503L2_SBP_153.keb	6/8/2015	133,729
EX1503L2_SBP_154.kea	6/8/2015	2,379
EX1503L2_SBP_154.keb	6/8/2015	218,679
EX1503L2_SBP_161.kea	6/8/2015	31,449
EX1503L2_SBP_161.keb	6/8/2015	4,441,692
EX1503L2_SBP_165.kea	6/8/2015	3,484
EX1503L2_SBP_165.keb	6/8/2015	455,219
EX1503L2_SBP_166.kea	6/8/2015	5,286
EX1503L2_SBP_166.keb	6/8/2015	718,783
EX1503L2_SBP_168.kea	6/8/2015	1,393
EX1503L2_SBP_168.keb	6/8/2015	152,297
EX1503L2_SBP_170.kea	6/8/2015	3,246
EX1503L2_SBP_170.keb	6/8/2015	323,277
EX1503L2_SBP_171.kea	6/8/2015	2,464
EX1503L2_SBP_171.keb	6/8/2015	281,773
EX1503L2_SBP_172.kea	6/8/2015	12,681
EX1503L2_SBP_172.keb	6/8/2015	1,301,365
EX1503L2_SBP_173.kea	6/8/2015	951
EX1503L2_SBP_173.keb	6/8/2015	96,525
EX1503L2_SBP_175.kea	6/8/2015	12,392
EX1503L2_SBP_175.keb	6/8/2015	1,681,424
EX1503L2_SBP_177.kea	6/8/2015	594
EX1503L2_SBP_177.keb	6/8/2015	72,616
EX1503L2_SBP_178.kea	6/8/2015	134,112
EX1503L2_SBP_178.keb	6/8/2015	14,589,510

EX-15-03 LEG II Subbottom Profile Files		
File Name	Date (Local)	File size (bytes)
EX1503L2_SBP_181.kea	6/8/2015	128,502
EX1503L2_SBP_181.keb	6/8/2015	12,552,155
EX1503L2_SBP_70870_CHP3.5_RAW_000.sgy	5/17/2015	152,453,194
EX1503L2_SBP_70870_CHP3.5_RAW_001.sgy	5/17/2015	5,282,170
EX1503L2_SBP_70870_CHP3.5_RAW_002.sgy	5/17/2015	35,920,338
EX1503L2_SBP_70870_CHP3.5_RAW_003.sgy	5/17/2015	40,442,620
EX1503L2_SBP_70870_CHP3.5_RAW_004.sgy	5/17/2015	231,800
EX1503L2_SBP_70870_CHP3.5_RAW_005.sgy	5/18/2015	184,888,322
EX1503L2_SBP_70870_CHP3.5_RAW_006.sgy	5/18/2015	10,650,588
EX1503L2_SBP_70870_CHP3.5_RAW_007.sgy	5/18/2015	12,649,706
EX1503L2_SBP_70870_CHP3.5_RAW_008.sgy	5/18/2015	21,859,126
EX1503L2_SBP_70870_CHP3.5_RAW_009.sgy	5/18/2015	26,219,216
EX1503L2_SBP_70870_CHP3.5_RAW_010.sgy	5/18/2015	12,764,544
EX1503L2_SBP_70870_CHP3.5_RAW_011.sgy	5/19/2015	26,219,216
EX1503L2_SBP_70870_CHP3.5_RAW_012.sgy	5/19/2015	26,219,216
EX1503L2_SBP_70870_CHP3.5_RAW_013.sgy	5/19/2015	14,772,704
EX1503L2_SBP_70870_CHP3.5_RAW_014.sgy	5/19/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_015.sgy	5/19/2015	1,665,788
EX1503L2_SBP_70870_CHP3.5_RAW_016.sgy	5/19/2015	807,912
EX1503L2_SBP_70870_CHP3.5_RAW_017.sgy	5/19/2015	22,937,302
EX1503L2_SBP_70870_CHP3.5_RAW_018.sgy	5/19/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_019.sgy	5/19/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_020.sgy	5/20/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_021.sgy	5/20/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_022.sgy	5/20/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_023.sgy	5/20/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_024.sgy	5/20/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_025.sgy	5/20/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_026.sgy	5/20/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_027.sgy	5/20/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_028.sgy	5/20/2015	11,263,968
EX1503L2_SBP_70870_CHP3.5_RAW_029.sgy	5/20/2015	10,089,038
EX1503L2_SBP_70870_CHP3.5_RAW_030.sgy	5/20/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_031.sgy	5/20/2015	5,439,404
EX1503L2_SBP_70870_CHP3.5_RAW_032.sgy	5/20/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_033.sgy	5/20/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_034.sgy	5/21/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_035.sgy	5/21/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_036.sgy	5/21/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_037.sgy	5/21/2015	26,216,754

EX-15-03 LEG II Subbottom Profile Files		
File Name	Date (Local)	File size (bytes)
EX1503L2_SBP_70870_CHP3.5_RAW_038.sgy	5/21/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_039.sgy	5/21/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_040.sgy	5/21/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_041.sgy	5/21/2015	23,566,238
EX1503L2_SBP_70870_CHP3.5_RAW_042.sgy	5/21/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_043.sgy	5/21/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_044.sgy	5/21/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_045.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_046.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_047.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_048.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_049.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_050.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_051.sgy	5/22/2015	5,857,204
EX1503L2_SBP_70870_CHP3.5_RAW_052.sgy	5/22/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_053.sgy	5/22/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_054.sgy	5/22/2015	1,643,326
EX1503L2_SBP_70870_CHP3.5_RAW_055.sgy	5/22/2015	26,062
EX1503L2_SBP_70870_CHP3.5_RAW_056.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_057.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_058.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_059.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_060.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_061.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_062.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_063.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_064.sgy	5/22/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_065.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_066.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_067.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_068.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_069.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_070.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_071.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_072.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_073.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_074.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_075.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_076.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_077.sgy	5/23/2015	26,233,108

EX-15-03 LEG II Subbottom Profile Files		
File Name	Date (Local)	File size (bytes)
EX1503L2_SBP_70870_CHP3.5_RAW_078.sgy	5/23/2015	11,353,336
EX1503L2_SBP_70870_CHP3.5_RAW_079.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_080.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_081.sgy	5/23/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_082.sgy	5/24/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_083.sgy	5/24/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_084.sgy	5/24/2015	16,491,996
EX1503L2_SBP_70870_CHP3.5_RAW_085.sgy	5/28/2015	2,818,692
EX1503L2_SBP_70870_CHP3.5_RAW_086.sgy	5/28/2015	24,172,712
EX1503L2_SBP_70870_CHP3.5_RAW_087.sgy	5/28/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_088.sgy	5/28/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_089.sgy	5/29/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_090.sgy	5/29/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_091.sgy	5/29/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_092.sgy	5/29/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_093.sgy	5/29/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_094.sgy	5/29/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_095.sgy	5/29/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_096.sgy	5/29/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_097.sgy	5/29/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_098.sgy	5/29/2015	3,687,368
EX1503L2_SBP_70870_CHP3.5_RAW_099.sgy	5/29/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_100.sgy	5/30/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_101.sgy	5/30/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_102.sgy	5/30/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_103.sgy	5/30/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_104.sgy	5/30/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_105.sgy	5/30/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_106.sgy	5/30/2015	26,233,108
EX1503L2_SBP_70870_CHP3.5_RAW_107.sgy	5/30/2015	19,396,456
EX1503L2_SBP_70870_CHP3.5_RAW_108.sgy	5/30/2015	812,232
EX1503L2_SBP_70870_CHP3.5_RAW_109.sgy	5/30/2015	271,704
EX1503L2_SBP_70870_CHP3.5_RAW_110.sgy	5/30/2015	14,213,112
EX1503L2_SBP_70870_CHP3.5_RAW_111.sgy	5/30/2015	48,524
EX1503L2_SBP_70870_CHP3.5_RAW_112.sgy	5/30/2015	9,976,728
EX1503L2_SBP_70870_CHP3.5_RAW_113.sgy	5/30/2015	20,286,786
EX1503L2_SBP_70870_CHP3.5_RAW_114.sgy	6/6/2015	17,523,960
EX1503L2_SBP_70870_CHP3.5_RAW_115.sgy	6/6/2015	26,219,216
EX1503L2_SBP_70870_CHP3.5_RAW_116.sgy	6/6/2015	26,219,216
EX1503L2_SBP_70870_CHP3.5_RAW_117.sgy	6/7/2015	26,219,216

EX-15-03 LEG II Subbottom Profile Files		
File Name	Date (Local)	File size (bytes)
EX1503L2_SBP_70870_CHP3.5_RAW_118.sgy	6/7/2015	18,825,536
EX1503L2_SBP_70870_CHP3.5_RAW_119.sgy	6/7/2015	722,384
EX1503L2_SBP_70870_CHP3.5_RAW_120.sgy	6/7/2015	15,306,228
EX1503L2_SBP_70870_CHP3.5_RAW_121.sgy	6/7/2015	58,368
EX1503L2_SBP_70870_CHP3.5_RAW_122.sgy	6/7/2015	26,062
EX1503L2_SBP_70870_CHP3.5_RAW_123.sgy	6/7/2015	4,630,772
EX1503L2_SBP_70870_CHP3.5_RAW_124.sgy	6/7/2015	12,728
EX1503L2_SBP_70870_CHP3.5_RAW_125.sgy	6/7/2015	551,280
EX1503L2_SBP_70870_CHP3.5_RAW_126.sgy	6/7/2015	48,524
EX1503L2_SBP_70870_CHP3.5_RAW_127.sgy	6/7/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_128.sgy	6/7/2015	25,610,280
EX1503L2_SBP_70870_CHP3.5_RAW_129.sgy	6/7/2015	505,640
EX1503L2_SBP_70870_CHP3.5_RAW_130.sgy	6/7/2015	1,081,776
EX1503L2_SBP_70870_CHP3.5_RAW_131.sgy	6/7/2015	5,617,320
EX1503L2_SBP_70870_CHP3.5_RAW_132.sgy	6/7/2015	26,219,216
EX1503L2_SBP_70870_CHP3.5_RAW_133.sgy	6/7/2015	7,141,696
EX1503L2_SBP_70870_CHP3.5_RAW_134.sgy	6/7/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_135.sgy	6/7/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_136.sgy	6/7/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_137.sgy	6/7/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_138.sgy	6/7/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_139.sgy	6/7/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_140.sgy	6/7/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_141.sgy	6/7/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_142.sgy	6/7/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_143.sgy	6/7/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_144.sgy	6/7/2015	3,125,818
EX1503L2_SBP_70870_CHP3.5_RAW_145.sgy	6/7/2015	5,259,708
EX1503L2_SBP_70870_CHP3.5_RAW_146.sgy	6/7/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_147.sgy	6/8/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_148.sgy	6/8/2015	14,828,520
EX1503L2_SBP_70870_CHP3.5_RAW_149.sgy	6/8/2015	1,746,276
EX1503L2_SBP_70870_CHP3.5_RAW_150.sgy	6/8/2015	13,480,800
EX1503L2_SBP_70870_CHP3.5_RAW_151.sgy	6/8/2015	21,499,734
EX1503L2_SBP_70870_CHP3.5_RAW_152.sgy	6/8/2015	204,416
EX1503L2_SBP_70870_CHP3.5_RAW_153.sgy	6/8/2015	569,536
EX1503L2_SBP_70870_CHP3.5_RAW_154.sgy	6/8/2015	277,440
EX1503L2_SBP_70870_CHP3.5_RAW_155.sgy	6/8/2015	1,194,086
EX1503L2_SBP_70870_CHP3.5_RAW_156.sgy	6/8/2015	1,120,700
EX1503L2_SBP_70870_CHP3.5_RAW_157.sgy	6/8/2015	48,524

EX-15-03 LEG II Subbottom Profile Files		
File Name	Date (Local)	File size (bytes)
EX1503L2_SBP_70870_CHP3.5_RAW_158.sgy	6/8/2015	67,496
EX1503L2_SBP_70870_CHP3.5_RAW_159.sgy	6/8/2015	138,372
EX1503L2_SBP_70870_CHP3.5_RAW_160.sgy	6/8/2015	92,968
EX1503L2_SBP_70870_CHP3.5_RAW_161.sgy	6/8/2015	11,889,544
EX1503L2_SBP_70870_CHP3.5_RAW_162.sgy	6/8/2015	26,216,754
EX1503L2_SBP_70870_CHP3.5_RAW_163.sgy	6/8/2015	8,965,938
EX1503L2_SBP_70870_CHP3.5_RAW_164.sgy	6/8/2015	140,520
EX1503L2_SBP_70870_CHP3.5_RAW_165.sgy	6/8/2015	1,856,584
EX1503L2_SBP_70870_CHP3.5_RAW_166.sgy	6/8/2015	6,944,358
EX1503L2_SBP_70870_CHP3.5_RAW_167.sgy	6/8/2015	48,284
EX1503L2_SBP_70870_CHP3.5_RAW_168.sgy	6/8/2015	3,086,796
EX1503L2_SBP_70870_CHP3.5_RAW_169.sgy	6/8/2015	93,448
EX1503L2_SBP_70870_CHP3.5_RAW_170.sgy	6/8/2015	4,271,380

EX-15-03 LEG II Subbottom Profile Files		
File Name	Date (Local)	File size (bytes)
EX1503L2_SBP_70870_CHP3.5_RAW_171.sgy	6/8/2015	6,438,096
EX1503L2_SBP_70870_CHP3.5_RAW_172.sgy	6/8/2015	16,715,328
EX1503L2_SBP_70870_CHP3.5_RAW_173.sgy	6/8/2015	2,282,484
EX1503L2_SBP_70870_CHP3.5_RAW_174.sgy	6/8/2015	48,524
EX1503L2_SBP_70870_CHP3.5_RAW_175.sgy	6/8/2015	16,108,854
EX1503L2_SBP_70870_CHP3.5_RAW_176.sgy	6/8/2015	40,112
EX1503L2_SBP_70870_CHP3.5_RAW_177.sgy	6/8/2015	313,952
EX1503L2_SBP_70870_CHP3.5_RAW_178.sgy	6/8/2015	26,219,216
EX1503L2_SBP_70870_CHP3.5_RAW_179.sgy	6/8/2015	26,219,216
EX1503L2_SBP_70870_CHP3.5_RAW_180.sgy	6/8/2015	19,555,776
EX1503L2_SBP_70870_CHP3.5_RAW_181.sgy	6/8/2015	26,219,216
EX1503L2_SBP_70870_CHP3.5_RAW_182.sgy	6/8/2015	26,219,216
EX1503L2_SBP_70870_CHP3.5_RAW_183.sgy	6/8/2015	16,561,792

EX-15-03 LEG I EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L1_EK60-D20150508-T173411.bot	5/8/2015	6,040
EX1503L1_EK60-D20150508-T173411.idx	5/8/2015	9,928
EX1503L1_EK60-D20150508-T173411.raw	5/8/2015	1,672,972
EX1503L1_EK60-D20150508-T174419.bot	5/8/2015	8,376
EX1503L1_EK60-D20150508-T174419.idx	5/8/2015	14,016
EX1503L1_EK60-D20150508-T174419.raw	5/8/2015	2,545,132
EX1503L1_EK60-D20150508-T180033.bot	5/8/2015	14,552
EX1503L1_EK60-D20150508-T180033.idx	5/8/2015	24,824
EX1503L1_EK60-D20150508-T180033.raw	5/8/2015	6,724,440
EX1503L1_EK60-D20150508-T182900.bot	5/8/2015	15,320
EX1503L1_EK60-D20150508-T182900.idx	5/8/2015	26,168
EX1503L1_EK60-D20150508-T182900.raw	5/8/2015	6,980,852
EX1503L1_EK60-D20150508-T185735.bot	5/8/2015	14,712
EX1503L1_EK60-D20150508-T185735.idx	5/8/2015	25,104
EX1503L1_EK60-D20150508-T185735.raw	5/8/2015	6,108,804
EX1503L1_EK60-D20150508-T192521.bot	5/8/2015	14,776
EX1503L1_EK60-D20150508-T192521.idx	5/8/2015	25,216
EX1503L1_EK60-D20150508-T192521.raw	5/8/2015	6,735,644
EX1503L1_EK60-D20150508-T195302.bot	5/8/2015	16,248
EX1503L1_EK60-D20150508-T195302.idx	5/8/2015	27,792
EX1503L1_EK60-D20150508-T195302.raw	5/8/2015	7,223,136
EX1503L1_EK60-D20150508-T202056.bot	5/8/2015	16,952
EX1503L1_EK60-D20150508-T202056.idx	5/8/2015	29,024

EX-15-03 LEG I EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L1_EK60-D20150508-T202056.raw	5/8/2015	7,464,532
EX1503L1_EK60-D20150508-T204903.bot	5/8/2015	16,888
EX1503L1_EK60-D20150508-T204903.idx	5/8/2015	28,912
EX1503L1_EK60-D20150508-T204903.raw	5/8/2015	7,473,148
EX1503L1_EK60-D20150508-T211731.bot	5/8/2015	18,200
EX1503L1_EK60-D20150508-T211731.idx	5/8/2015	31,208
EX1503L1_EK60-D20150508-T211731.raw	5/8/2015	7,923,172
EX1503L1_EK60-D20150508-T214623.bot	5/8/2015	18,936
EX1503L1_EK60-D20150508-T214623.idx	5/8/2015	32,496
EX1503L1_EK60-D20150508-T214623.raw	5/8/2015	8,148,288
EX1503L1_EK60-D20150508-T221507.bot	5/8/2015	16,312
EX1503L1_EK60-D20150508-T221507.idx	5/8/2015	27,904
EX1503L1_EK60-D20150508-T221507.raw	5/8/2015	7,314,716
EX1503L1_EK60-D20150508-T224354.bot	5/8/2015	12,376
EX1503L1_EK60-D20150508-T224354.idx	5/8/2015	21,016
EX1503L1_EK60-D20150508-T224354.raw	5/8/2015	6,429,368
EX1503L1_EK60-D20150508-T231209.bot	5/8/2015	7,288
EX1503L1_EK60-D20150508-T231209.idx	5/8/2015	12,112
EX1503L1_EK60-D20150508-T231209.raw	5/8/2015	7,386,328
EX1503L1_EK60-D20150508-T234024.bot	5/8/2015	8,056
EX1503L1_EK60-D20150508-T234024.idx	5/8/2015	13,456
EX1503L1_EK60-D20150508-T234024.raw	5/8/2015	8,108,052
EX1503L1_EK60-D20150509-T000919.bot	5/8/2015	6,424

EX-15-03 LEG I EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L1_EK60-D20150509-T000919.idx	5/8/2015	10,600
EX1503L1_EK60-D20150509-T000919.raw	5/8/2015	6,876,012
EX1503L1_EK60-D20150509-T003903.bot	5/8/2015	13,560
EX1503L1_EK60-D20150509-T003903.idx	5/8/2015	23,088
EX1503L1_EK60-D20150509-T003903.raw	5/8/2015	7,557,572
EX1503L1_EK60-D20150509-T010948.bot	5/8/2015	18,712
EX1503L1_EK60-D20150509-T010948.idx	5/8/2015	32,104
EX1503L1_EK60-D20150509-T010948.raw	5/8/2015	8,240,508
EX1503L1_EK60-D20150509-T014038.bot	5/8/2015	17,240
EX1503L1_EK60-D20150509-T014038.idx	5/8/2015	29,528
EX1503L1_EK60-D20150509-T014038.raw	5/8/2015	7,698,024
EX1503L1_EK60-D20150509-T021035.bot	5/8/2015	13,560
EX1503L1_EK60-D20150509-T021035.idx	5/8/2015	23,088
EX1503L1_EK60-D20150509-T021035.raw	5/8/2015	6,489,576
EX1503L1_EK60-D20150509-T024006.bot	5/8/2015	17,368
EX1503L1_EK60-D20150509-T024006.idx	5/8/2015	29,752
EX1503L1_EK60-D20150509-T024006.raw	5/8/2015	7,736,288
EX1503L1_EK60-D20150509-T031000.bot	5/8/2015	18,712
EX1503L1_EK60-D20150509-T031000.idx	5/8/2015	32,104
EX1503L1_EK60-D20150509-T031000.raw	5/8/2015	8,192,356
EX1503L1_EK60-D20150509-T034014.bot	5/9/2015	17,336
EX1503L1_EK60-D20150509-T034014.idx	5/9/2015	29,696
EX1503L1_EK60-D20150509-T034014.raw	5/9/2015	7,661,816
EX1503L1_EK60-D20150509-T040919.bot	5/9/2015	12,600
EX1503L1_EK60-D20150509-T040919.idx	5/9/2015	21,408
EX1503L1_EK60-D20150509-T040919.raw	5/9/2015	6,445,308
EX1503L1_EK60-D20150509-T043816.bot	5/9/2015	10,424
EX1503L1_EK60-D20150509-T043816.idx	5/9/2015	17,600
EX1503L1_EK60-D20150509-T043816.raw	5/9/2015	5,545,052
EX1503L1_EK60-D20150509-T050646.bot	5/9/2015	8,408
EX1503L1_EK60-D20150509-T050646.idx	5/9/2015	14,072
EX1503L1_EK60-D20150509-T050646.raw	5/9/2015	5,821,648
EX1503L1_EK60-D20150509-T053440.bot	5/9/2015	8,824
EX1503L1_EK60-D20150509-T053440.idx	5/9/2015	14,800
EX1503L1_EK60-D20150509-T053440.raw	5/9/2015	5,794,588
EX1503L1_EK60-D20150509-T060228.bot	5/9/2015	8,600
EX1503L1_EK60-D20150509-T060228.idx	5/9/2015	14,408
EX1503L1_EK60-D20150509-T060228.raw	5/9/2015	6,030,760
EX1503L1_EK60-D20150509-T063042.bot	5/9/2015	8,504
EX1503L1_EK60-D20150509-T063042.idx	5/9/2015	14,240

EX-15-03 LEG I EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L1_EK60-D20150509-T063042.raw	5/9/2015	6,276,048
EX1503L1_EK60-D20150509-T065912.bot	5/9/2015	8,440
EX1503L1_EK60-D20150509-T065912.idx	5/9/2015	14,128
EX1503L1_EK60-D20150509-T065912.raw	5/9/2015	6,600,856
EX1503L1_EK60-D20150509-T072759.bot	5/9/2015	8,472
EX1503L1_EK60-D20150509-T072759.idx	5/9/2015	14,184
EX1503L1_EK60-D20150509-T072759.raw	5/9/2015	6,605,760
EX1503L1_EK60-D20150509-T075637.bot	5/9/2015	8,152
EX1503L1_EK60-D20150509-T075637.idx	5/9/2015	13,624
EX1503L1_EK60-D20150509-T075637.raw	5/9/2015	6,924,556
EX1503L1_EK60-D20150509-T082454.bot	5/9/2015	7,864
EX1503L1_EK60-D20150509-T082454.idx	5/9/2015	13,120
EX1503L1_EK60-D20150509-T082454.raw	5/9/2015	6,813,908
EX1503L1_EK60-D20150509-T085244.bot	5/9/2015	7,416
EX1503L1_EK60-D20150509-T085244.idx	5/9/2015	12,336
EX1503L1_EK60-D20150509-T085244.raw	5/9/2015	6,957,148
EX1503L1_EK60-D20150509-T092010.bot	5/9/2015	7,416
EX1503L1_EK60-D20150509-T092010.idx	5/9/2015	12,336
EX1503L1_EK60-D20150509-T092010.raw	5/9/2015	6,915,876
EX1503L1_EK60-D20150509-T094702.bot	5/9/2015	6,808
EX1503L1_EK60-D20150509-T094702.idx	5/9/2015	11,272
EX1503L1_EK60-D20150509-T094702.raw	5/9/2015	7,251,248
EX1503L1_EK60-D20150509-T101406.bot	5/9/2015	6,424
EX1503L1_EK60-D20150509-T101406.idx	5/9/2015	10,600
EX1503L1_EK60-D20150509-T101406.raw	5/9/2015	7,532,112
EX1503L1_EK60-D20150509-T104102.bot	5/9/2015	6,488
EX1503L1_EK60-D20150509-T104102.idx	5/9/2015	10,712
EX1503L1_EK60-D20150509-T104102.raw	5/9/2015	7,751,860
EX1503L1_EK60-D20150509-T110807.bot	5/9/2015	6,296
EX1503L1_EK60-D20150509-T110807.idx	5/9/2015	10,376
EX1503L1_EK60-D20150509-T110807.raw	5/9/2015	7,830,724
EX1503L1_EK60-D20150509-T113457.bot	5/9/2015	6,136
EX1503L1_EK60-D20150509-T113457.idx	5/9/2015	10,096
EX1503L1_EK60-D20150509-T113457.raw	5/9/2015	7,648,828
EX1503L1_EK60-D20150509-T120133.bot	5/9/2015	4,632
EX1503L1_EK60-D20150509-T120133.idx	5/9/2015	7,464
EX1503L1_EK60-D20150509-T120133.raw	5/9/2015	6,043,180
EX1503L1_EK60-D20150509-T122820.bot	5/9/2015	4,024
EX1503L1_EK60-D20150509-T122820.idx	5/9/2015	6,400
EX1503L1_EK60-D20150509-T122820.raw	5/9/2015	5,259,420

EX-15-03 LEG I EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L1_EK60-D20150509-T125528.bot	5/9/2015	5,432
EX1503L1_EK60-D20150509-T125528.idx	5/9/2015	8,864
EX1503L1_EK60-D20150509-T125528.raw	5/9/2015	6,631,416
EX1503L1_EK60-D20150509-T132255.bot	5/9/2015	3,704
EX1503L1_EK60-D20150509-T132255.idx	5/9/2015	5,840
EX1503L1_EK60-D20150509-T132255.raw	5/9/2015	4,948,564
EX1503L1_EK60-D20150509-T134957.bot	5/9/2015	3,736
EX1503L1_EK60-D20150509-T134957.idx	5/9/2015	5,896
EX1503L1_EK60-D20150509-T134957.raw	5/9/2015	4,990,548
EX1503L1_EK60-D20150509-T141708.bot	5/9/2015	3,800
EX1503L1_EK60-D20150509-T141708.idx	5/9/2015	6,008
EX1503L1_EK60-D20150509-T141708.raw	5/9/2015	5,043,700
EX1503L1_EK60-D20150509-T144411.bot	5/9/2015	3,768
EX1503L1_EK60-D20150509-T144411.idx	5/9/2015	5,952
EX1503L1_EK60-D20150509-T144411.raw	5/9/2015	4,979,700
EX1503L1_EK60-D20150509-T151051.bot	5/9/2015	3,832
EX1503L1_EK60-D20150509-T151051.idx	5/9/2015	6,064
EX1503L1_EK60-D20150509-T151051.raw	5/9/2015	5,058,520
EX1503L1_EK60-D20150509-T153744.bot	5/9/2015	3,800
EX1503L1_EK60-D20150509-T153744.idx	5/9/2015	6,008
EX1503L1_EK60-D20150509-T153744.raw	5/9/2015	4,991,632
EX1503L1_EK60-D20150509-T160410.bot	5/9/2015	3,832
EX1503L1_EK60-D20150509-T160410.idx	5/9/2015	6,064
EX1503L1_EK60-D20150509-T160410.raw	5/9/2015	5,016,676
EX1503L1_EK60-D20150509-T163032.bot	5/9/2015	3,864
EX1503L1_EK60-D20150509-T163032.idx	5/9/2015	6,120
EX1503L1_EK60-D20150509-T163032.raw	5/9/2015	5,041,740
EX1503L1_EK60-D20150509-T165649.bot	5/9/2015	3,864
EX1503L1_EK60-D20150509-T165649.idx	5/9/2015	6,120
EX1503L1_EK60-D20150509-T165649.raw	5/9/2015	5,041,684

EX-15-03 LEG I EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L1_EK60-D20150509-T172308.bot	5/9/2015	3,864
EX1503L1_EK60-D20150509-T172308.idx	5/9/2015	6,120
EX1503L1_EK60-D20150509-T172308.raw	5/9/2015	5,031,216
EX1503L1_EK60-D20150509-T174919.bot	5/9/2015	3,960
EX1503L1_EK60-D20150509-T174919.idx	5/9/2015	6,288
EX1503L1_EK60-D20150509-T174919.raw	5/9/2015	5,166,580
EX1503L1_EK60-D20150509-T181602.bot	5/9/2015	4,440
EX1503L1_EK60-D20150509-T181602.idx	5/9/2015	7,128
EX1503L1_EK60-D20150509-T181602.raw	5/9/2015	5,656,376
EX1503L1_EK60-D20150509-T184313.bot	5/9/2015	7,384
EX1503L1_EK60-D20150509-T184313.idx	5/9/2015	12,280
EX1503L1_EK60-D20150509-T184313.raw	5/9/2015	8,521,108
EX1503L1_EK60-D20150509-T191104.bot	5/9/2015	7,288
EX1503L1_EK60-D20150509-T191104.idx	5/9/2015	12,112
EX1503L1_EK60-D20150509-T191104.raw	5/9/2015	8,396,704
EX1503L1_EK60-D20150509-T193833.bot	5/9/2015	7,320
EX1503L1_EK60-D20150509-T193833.idx	5/9/2015	12,168
EX1503L1_EK60-D20150509-T193833.raw	5/9/2015	8,445,980
EX1503L1_EK60-D20150509-T200614.bot	5/9/2015	7,384
EX1503L1_EK60-D20150509-T200614.idx	5/9/2015	12,280
EX1503L1_EK60-D20150509-T200614.raw	5/9/2015	8,532,520
EX1503L1_EK60-D20150509-T203413.bot	5/9/2015	7,480
EX1503L1_EK60-D20150509-T203413.idx	5/9/2015	12,448
EX1503L1_EK60-D20150509-T203413.raw	5/9/2015	8,637,752
EX1503L1_EK60-D20150509-T210223.bot	5/9/2015	7,064
EX1503L1_EK60-D20150509-T210223.idx	5/9/2015	11,720
EX1503L1_EK60-D20150509-T210223.raw	5/9/2015	8,200,176
EX1503L1_EK60-D20150509-T213003.bot	5/9/2015	1,304
EX1503L1_EK60-D20150509-T213003.idx	5/9/2015	1,640
EX1503L1_EK60-D20150509-T213003.raw	5/9/2015	683,912

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2_EK60-D20150516-T232149.bot	5/16/2015	38,776
EX1503L2_EK60-D20150516-T232149.idx	5/16/2015	67,216
EX1503L2_EK60-D20150516-T232149.raw	5/16/2015	5,136,960
EX1503L2_EK60-D20150516-T234614.bot	5/16/2015	33,336
EX1503L2_EK60-D20150516-T234614.idx	5/16/2015	57,696
EX1503L2_EK60-D20150516-T234614.raw	5/16/2015	4,698,284
EX1503L2_EK60-D20150517-T001041.bot	5/16/2015	30,008
EX1503L2_EK60-D20150517-T001041.idx	5/16/2015	51,872
EX1503L2_EK60-D20150517-T001041.raw	5/16/2015	4,408,016
EX1503L2_EK60-D20150517-T003456.bot	5/16/2015	21,944
EX1503L2_EK60-D20150517-T003456.idx	5/16/2015	37,760
EX1503L2_EK60-D20150517-T003456.raw	5/16/2015	4,288,156
EX1503L2_EK60-D20150517-T005906.bot	5/16/2015	11,640
EX1503L2_EK60-D20150517-T005906.idx	5/16/2015	19,728
EX1503L2_EK60-D20150517-T005906.raw	5/16/2015	4,596,120
EX1503L2_EK60-D20150517-T012320.bot	5/16/2015	8,632
EX1503L2_EK60-D20150517-T012320.idx	5/16/2015	14,464
EX1503L2_EK60-D20150517-T012320.raw	5/16/2015	4,850,140
EX1503L2_EK60-D20150517-T014759.bot	5/16/2015	7,352
EX1503L2_EK60-D20150517-T014759.idx	5/16/2015	12,224
EX1503L2_EK60-D20150517-T014759.raw	5/16/2015	5,158,472
EX1503L2_EK60-D20150517-T021244.bot	5/16/2015	7,320
EX1503L2_EK60-D20150517-T021244.idx	5/16/2015	12,168
EX1503L2_EK60-D20150517-T021244.raw	5/16/2015	5,118,084
EX1503L2_EK60-D20150517-T023709.bot	5/16/2015	7,128
EX1503L2_EK60-D20150517-T023709.idx	5/16/2015	11,832
EX1503L2_EK60-D20150517-T023709.raw	5/16/2015	5,147,380
EX1503L2_EK60-D20150517-T030152.bot	5/16/2015	7,288
EX1503L2_EK60-D20150517-T030152.idx	5/16/2015	12,112

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2_EK60-D20150517-T030152.raw	5/16/2015	5,694,928
EX1503L2_EK60-D20150517-T032724.bot	5/16/2015	7,960
EX1503L2_EK60-D20150517-T032724.idx	5/16/2015	13,288
EX1503L2_EK60-D20150517-T032724.raw	5/16/2015	6,270,436
EX1503L2_EK60-D20150517-T035524.bot	5/17/2015	8,536
EX1503L2_EK60-D20150517-T035524.idx	5/17/2015	14,296
EX1503L2_EK60-D20150517-T035524.raw	5/17/2015	6,803,352
EX1503L2_EK60-D20150517-T042601.bot	5/17/2015	8,920
EX1503L2_EK60-D20150517-T042601.idx	5/17/2015	14,968
EX1503L2_EK60-D20150517-T042601.raw	5/17/2015	7,048,564
EX1503L2_EK60-D20150517-T045700.bot	5/17/2015	9,240
EX1503L2_EK60-D20150517-T045700.idx	5/17/2015	15,528
EX1503L2_EK60-D20150517-T045700.raw	5/17/2015	7,155,868
EX1503L2_EK60-D20150517-T052706.bot	5/17/2015	9,208
EX1503L2_EK60-D20150517-T052706.idx	5/17/2015	15,472
EX1503L2_EK60-D20150517-T052706.raw	5/17/2015	7,171,804
EX1503L2_EK60-D20150517-T055740.bot	5/17/2015	8,600
EX1503L2_EK60-D20150517-T055740.idx	5/17/2015	14,408
EX1503L2_EK60-D20150517-T055740.raw	5/17/2015	6,752,592
EX1503L2_EK60-D20150517-T062715.bot	5/17/2015	8,952
EX1503L2_EK60-D20150517-T062715.idx	5/17/2015	15,024
EX1503L2_EK60-D20150517-T062715.raw	5/17/2015	6,996,104
EX1503L2_EK60-D20150517-T065724.bot	5/17/2015	8,984
EX1503L2_EK60-D20150517-T065724.idx	5/17/2015	15,080
EX1503L2_EK60-D20150517-T065724.raw	5/17/2015	6,967,604
EX1503L2_EK60-D20150517-T072700.bot	5/17/2015	8,824
EX1503L2_EK60-D20150517-T072700.idx	5/17/2015	14,800
EX1503L2_EK60-D20150517-T072700.raw	5/17/2015	6,835,140
EX1503L2_EK60-D20150517-T075602.bot	5/17/2015	9,048

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2_EK60-D20150517-T075602.idx	5/17/2015	15,192
EX1503L2_EK60-D20150517-T075602.raw	5/17/2015	6,915,648
EX1503L2_EK60-D20150517-T082433.bot	5/17/2015	4,696
EX1503L2_EK60-D20150517-T082433.idx	5/17/2015	7,576
EX1503L2_EK60-D20150517-T082433.raw	5/17/2015	3,205,732
EX1503L2-D20150517-T093201.bot	5/17/2015	6,520
EX1503L2-D20150517-T093201.idx	5/17/2015	10,768
EX1503L2-D20150517-T093201.raw	5/17/2015	3,972,592
EX1503L2-D20150517-T094822.bot	5/17/2015	11,512
EX1503L2-D20150517-T094822.idx	5/17/2015	19,504
EX1503L2-D20150517-T094822.raw	5/17/2015	7,317,840
EX1503L2-D20150517-T101519.bot	5/17/2015	11,768
EX1503L2-D20150517-T101519.idx	5/17/2015	19,952
EX1503L2-D20150517-T101519.raw	5/17/2015	7,462,028
EX1503L2-D20150517-T104232.bot	5/17/2015	12,280
EX1503L2-D20150517-T104232.idx	5/17/2015	20,848
EX1503L2-D20150517-T104232.raw	5/17/2015	7,714,976
EX1503L2-D20150517-T110953.bot	5/17/2015	13,144
EX1503L2-D20150517-T110953.idx	5/17/2015	22,360
EX1503L2-D20150517-T110953.raw	5/17/2015	8,125,936
EX1503L2-D20150517-T113714.bot	5/17/2015	12,312
EX1503L2-D20150517-T113714.idx	5/17/2015	20,904
EX1503L2-D20150517-T113714.raw	5/17/2015	7,681,104
EX1503L2-D20150517-T120357.bot	5/17/2015	8,856
EX1503L2-D20150517-T120357.idx	5/17/2015	14,856
EX1503L2-D20150517-T120357.raw	5/17/2015	6,017,248
EX1503L2-D20150517-T123032.bot	5/17/2015	7,064
EX1503L2-D20150517-T123032.idx	5/17/2015	11,720
EX1503L2-D20150517-T123032.raw	5/17/2015	5,454,340

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150517-T125711.bot	5/17/2015	6,040
EX1503L2-D20150517-T125711.idx	5/17/2015	9,928
EX1503L2-D20150517-T125711.raw	5/17/2015	4,731,664
EX1503L2-D20150517-T142304.bot	5/17/2015	6,776
EX1503L2-D20150517-T142304.idx	5/17/2015	11,216
EX1503L2-D20150517-T142304.raw	5/17/2015	5,832,712
EX1503L2-D20150517-T144936.bot	5/17/2015	7,096
EX1503L2-D20150517-T144936.idx	5/17/2015	11,776
EX1503L2-D20150517-T144936.raw	5/17/2015	6,160,004
EX1503L2-D20150517-T151607.bot	5/17/2015	7,480
EX1503L2-D20150517-T151607.idx	5/17/2015	12,448
EX1503L2-D20150517-T151607.raw	5/17/2015	6,382,068
EX1503L2-D20150517-T154222.bot	5/17/2015	7,096
EX1503L2-D20150517-T154222.idx	5/17/2015	11,776
EX1503L2-D20150517-T154222.raw	5/17/2015	6,081,784
EX1503L2-D20150517-T160755.bot	5/17/2015	6,840
EX1503L2-D20150517-T160755.idx	5/17/2015	11,328
EX1503L2-D20150517-T160755.raw	5/17/2015	5,920,456
EX1503L2-D20150517-T163330.bot	5/17/2015	6,808
EX1503L2-D20150517-T163330.idx	5/17/2015	11,272
EX1503L2-D20150517-T163330.raw	5/17/2015	5,898,852
EX1503L2-D20150517-T165903.bot	5/17/2015	6,808
EX1503L2-D20150517-T165903.idx	5/17/2015	11,272
EX1503L2-D20150517-T165903.raw	5/17/2015	5,916,468
EX1503L2-D20150517-T172451.bot	5/17/2015	6,936
EX1503L2-D20150517-T172451.idx	5/17/2015	11,496
EX1503L2-D20150517-T172451.raw	5/17/2015	6,010,236
EX1503L2-D20150517-T175047.bot	5/17/2015	6,712
EX1503L2-D20150517-T175047.idx	5/17/2015	11,104

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150517-T175047.raw	5/17/2015	5,917,864
EX1503L2-D20150517-T181722.bot	5/17/2015	6,840
EX1503L2-D20150517-T181722.idx	5/17/2015	11,328
EX1503L2-D20150517-T181722.raw	5/17/2015	6,029,308
EX1503L2-D20150517-T184417.bot	5/17/2015	7,896
EX1503L2-D20150517-T184417.idx	5/17/2015	13,176
EX1503L2-D20150517-T184417.raw	5/17/2015	6,685,456
EX1503L2-D20150517-T191102.bot	5/17/2015	8,088
EX1503L2-D20150517-T191102.idx	5/17/2015	13,512
EX1503L2-D20150517-T191102.raw	5/17/2015	6,811,676
EX1503L2-D20150517-T193750.bot	5/17/2015	7,672
EX1503L2-D20150517-T193750.idx	5/17/2015	12,784
EX1503L2-D20150517-T193750.raw	5/17/2015	6,505,980
EX1503L2-D20150517-T200408.bot	5/17/2015	7,480
EX1503L2-D20150517-T200408.idx	5/17/2015	12,448
EX1503L2-D20150517-T200408.raw	5/17/2015	6,382,788
EX1503L2-D20150517-T203025.bot	5/17/2015	7,640
EX1503L2-D20150517-T203025.idx	5/17/2015	12,728
EX1503L2-D20150517-T203025.raw	5/17/2015	6,512,816
EX1503L2-D20150517-T205704.bot	5/17/2015	7,576
EX1503L2-D20150517-T205704.idx	5/17/2015	12,616
EX1503L2-D20150517-T205704.raw	5/17/2015	6,461,688
EX1503L2-D20150517-T212335.bot	5/17/2015	7,992
EX1503L2-D20150517-T212335.idx	5/17/2015	13,344
EX1503L2-D20150517-T212335.raw	5/17/2015	6,827,020
EX1503L2-D20150517-T215122.bot	5/17/2015	7,960
EX1503L2-D20150517-T215122.idx	5/17/2015	13,288
EX1503L2-D20150517-T215122.raw	5/17/2015	6,753,768
EX1503L2-D20150517-T221826.bot	5/17/2015	8,280

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150517-T221826.idx	5/17/2015	13,848
EX1503L2-D20150517-T221826.raw	5/17/2015	6,967,092
EX1503L2-D20150517-T224537.bot	5/17/2015	8,344
EX1503L2-D20150517-T224537.idx	5/17/2015	13,960
EX1503L2-D20150517-T224537.raw	5/17/2015	6,911,164
EX1503L2-D20150517-T231135.bot	5/17/2015	8,280
EX1503L2-D20150517-T231135.idx	5/17/2015	13,848
EX1503L2-D20150517-T231135.raw	5/17/2015	6,798,776
EX1503L2-D20150517-T233638.bot	5/17/2015	6,072
EX1503L2-D20150517-T233638.idx	5/17/2015	9,984
EX1503L2-D20150517-T233638.raw	5/17/2015	5,365,712
EX1503L2-D20150518-T000119.bot	5/17/2015	6,872
EX1503L2-D20150518-T000119.idx	5/17/2015	11,384
EX1503L2-D20150518-T000119.raw	5/17/2015	5,844,300
EX1503L2-D20150518-T002539.bot	5/17/2015	8,504
EX1503L2-D20150518-T002539.idx	5/17/2015	14,240
EX1503L2-D20150518-T002539.raw	5/17/2015	6,269,732
EX1503L2-D20150518-T004959.bot	5/17/2015	8,056
EX1503L2-D20150518-T004959.idx	5/17/2015	13,456
EX1503L2-D20150518-T004959.raw	5/17/2015	4,920,944
EX1503L2-D20150518-T011446.bot	5/17/2015	8,152
EX1503L2-D20150518-T011446.idx	5/17/2015	13,624
EX1503L2-D20150518-T011446.raw	5/17/2015	5,024,708
EX1503L2-D20150518-T014022.bot	5/17/2015	9,176
EX1503L2-D20150518-T014022.idx	5/17/2015	15,416
EX1503L2-D20150518-T014022.raw	5/17/2015	5,529,316
EX1503L2-D20150518-T020710.bot	5/17/2015	10,072
EX1503L2-D20150518-T020710.idx	5/17/2015	16,984
EX1503L2-D20150518-T020710.raw	5/17/2015	5,736,132

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150518-T023452.bot	5/17/2015	10,360
EX1503L2-D20150518-T023452.idx	5/17/2015	17,488
EX1503L2-D20150518-T023452.raw	5/17/2015	5,308,908
EX1503L2-D20150518-T030223.bot	5/17/2015	9,592
EX1503L2-D20150518-T030223.idx	5/17/2015	16,144
EX1503L2-D20150518-T030223.raw	5/17/2015	5,019,688
EX1503L2-D20150518-T032922.bot	5/17/2015	8,824
EX1503L2-D20150518-T032922.idx	5/17/2015	14,800
EX1503L2-D20150518-T032922.raw	5/17/2015	4,728,492
EX1503L2-D20150518-T035547.bot	5/18/2015	8,728
EX1503L2-D20150518-T035547.idx	5/18/2015	14,632
EX1503L2-D20150518-T035547.raw	5/18/2015	5,083,428
EX1503L2-D20150518-T042152.bot	5/18/2015	8,344
EX1503L2-D20150518-T042152.idx	5/18/2015	13,960
EX1503L2-D20150518-T042152.raw	5/18/2015	5,090,336
EX1503L2-D20150518-T044719.bot	5/18/2015	7,992
EX1503L2-D20150518-T044719.idx	5/18/2015	13,344
EX1503L2-D20150518-T044719.raw	5/18/2015	4,939,848
EX1503L2-D20150518-T051238.bot	5/18/2015	8,280
EX1503L2-D20150518-T051238.idx	5/18/2015	13,848
EX1503L2-D20150518-T051238.raw	5/18/2015	5,069,688
EX1503L2-D20150518-T053807.bot	5/18/2015	7,992
EX1503L2-D20150518-T053807.idx	5/18/2015	13,344
EX1503L2-D20150518-T053807.raw	5/18/2015	4,908,144
EX1503L2-D20150518-T060302.bot	5/18/2015	7,416
EX1503L2-D20150518-T060302.idx	5/18/2015	12,336
EX1503L2-D20150518-T060302.raw	5/18/2015	4,621,240
EX1503L2-D20150518-T062714.bot	5/18/2015	7,224
EX1503L2-D20150518-T062714.idx	5/18/2015	12,000

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150518-T062714.raw	5/18/2015	4,512,652
EX1503L2-D20150518-T065100.bot	5/18/2015	7,352
EX1503L2-D20150518-T065100.idx	5/18/2015	12,224
EX1503L2-D20150518-T065100.raw	5/18/2015	4,891,388
EX1503L2-D20150518-T071548.bot	5/18/2015	7,448
EX1503L2-D20150518-T071548.idx	5/18/2015	12,392
EX1503L2-D20150518-T071548.raw	5/18/2015	5,209,568
EX1503L2-D20150518-T074039.bot	5/18/2015	7,576
EX1503L2-D20150518-T074039.idx	5/18/2015	12,616
EX1503L2-D20150518-T074039.raw	5/18/2015	5,226,868
EX1503L2-D20150518-T080459.bot	5/18/2015	7,768
EX1503L2-D20150518-T080459.idx	5/18/2015	12,952
EX1503L2-D20150518-T080459.raw	5/18/2015	5,355,896
EX1503L2-D20150518-T082945.bot	5/18/2015	7,992
EX1503L2-D20150518-T082945.idx	5/18/2015	13,344
EX1503L2-D20150518-T082945.raw	5/18/2015	5,481,564
EX1503L2-D20150518-T085445.bot	5/18/2015	8,184
EX1503L2-D20150518-T085445.idx	5/18/2015	13,680
EX1503L2-D20150518-T085445.raw	5/18/2015	5,571,612
EX1503L2-D20150518-T091945.bot	5/18/2015	7,800
EX1503L2-D20150518-T091945.idx	5/18/2015	13,008
EX1503L2-D20150518-T091945.raw	5/18/2015	5,391,740
EX1503L2-D20150518-T094448.bot	5/18/2015	7,256
EX1503L2-D20150518-T094448.idx	5/18/2015	12,056
EX1503L2-D20150518-T094448.raw	5/18/2015	5,598,860
EX1503L2-D20150518-T100950.bot	5/18/2015	6,936
EX1503L2-D20150518-T100950.idx	5/18/2015	11,496
EX1503L2-D20150518-T100950.raw	5/18/2015	5,902,316
EX1503L2-D20150518-T103424.bot	5/18/2015	6,744

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150518-T103424.idx	5/18/2015	11,160
EX1503L2-D20150518-T103424.raw	5/18/2015	5,769,288
EX1503L2-D20150518-T105851.bot	5/18/2015	6,776
EX1503L2-D20150518-T105851.idx	5/18/2015	11,216
EX1503L2-D20150518-T105851.raw	5/18/2015	5,829,748
EX1503L2-D20150518-T112348.bot	5/18/2015	6,712
EX1503L2-D20150518-T112348.idx	5/18/2015	11,104
EX1503L2-D20150518-T112348.raw	5/18/2015	5,778,008
EX1503L2-D20150518-T114839.bot	5/18/2015	6,744
EX1503L2-D20150518-T114839.idx	5/18/2015	11,160
EX1503L2-D20150518-T114839.raw	5/18/2015	5,815,984
EX1503L2-D20150518-T121340.bot	5/18/2015	6,648
EX1503L2-D20150518-T121340.idx	5/18/2015	10,992
EX1503L2-D20150518-T121340.raw	5/18/2015	5,741,160
EX1503L2-D20150518-T123832.bot	5/18/2015	6,744
EX1503L2-D20150518-T123832.idx	5/18/2015	11,160
EX1503L2-D20150518-T123832.raw	5/18/2015	5,838,008
EX1503L2-D20150518-T130351.bot	5/18/2015	6,840
EX1503L2-D20150518-T130351.idx	5/18/2015	11,328
EX1503L2-D20150518-T130351.raw	5/18/2015	5,953,456
EX1503L2-D20150518-T132947.bot	5/18/2015	1,976
EX1503L2-D20150518-T132947.idx	5/18/2015	2,816
EX1503L2-D20150518-T132947.raw	5/18/2015	1,117,480
EX1503L2-D20150518-T135621.bot	5/18/2015	6,904
EX1503L2-D20150518-T135621.idx	5/18/2015	11,440
EX1503L2-D20150518-T135621.raw	5/18/2015	6,057,344
EX1503L2-D20150518-T142306.bot	5/18/2015	6,776
EX1503L2-D20150518-T142306.idx	5/18/2015	11,216
EX1503L2-D20150518-T142306.raw	5/18/2015	5,936,120

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150518-T144921.bot	5/18/2015	6,904
EX1503L2-D20150518-T144921.idx	5/18/2015	11,440
EX1503L2-D20150518-T144921.raw	5/18/2015	6,058,864
EX1503L2-D20150518-T151608.bot	5/18/2015	7,608
EX1503L2-D20150518-T151608.idx	5/18/2015	12,672
EX1503L2-D20150518-T151608.raw	5/18/2015	6,808,624
EX1503L2-D20150518-T154635.bot	5/18/2015	6,936
EX1503L2-D20150518-T154635.idx	5/18/2015	11,496
EX1503L2-D20150518-T154635.raw	5/18/2015	6,090,628
EX1503L2-D20150518-T161329.bot	5/18/2015	7,000
EX1503L2-D20150518-T161329.idx	5/18/2015	11,608
EX1503L2-D20150518-T161329.raw	5/18/2015	6,078,516
EX1503L2-D20150518-T163944.bot	5/18/2015	6,680
EX1503L2-D20150518-T163944.idx	5/18/2015	11,048
EX1503L2-D20150518-T163944.raw	5/18/2015	5,847,548
EX1503L2-D20150518-T170537.bot	5/18/2015	7,192
EX1503L2-D20150518-T170537.idx	5/18/2015	11,944
EX1503L2-D20150518-T170537.raw	5/18/2015	6,185,836
EX1503L2-D20150518-T173141.bot	5/18/2015	7,640
EX1503L2-D20150518-T173141.idx	5/18/2015	12,728
EX1503L2-D20150518-T173141.raw	5/18/2015	6,472,796
EX1503L2-D20150518-T175744.bot	5/18/2015	8,024
EX1503L2-D20150518-T175744.idx	5/18/2015	13,400
EX1503L2-D20150518-T175744.raw	5/18/2015	6,797,804
EX1503L2-D20150518-T182448.bot	5/18/2015	8,248
EX1503L2-D20150518-T182448.idx	5/18/2015	13,792
EX1503L2-D20150518-T182448.raw	5/18/2015	7,011,928
EX1503L2-D20150518-T185245.bot	5/18/2015	8,216
EX1503L2-D20150518-T185245.idx	5/18/2015	13,736

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150518-T185245.raw	5/18/2015	6,979,952
EX1503L2-D20150518-T192033.bot	5/18/2015	8,024
EX1503L2-D20150518-T192033.idx	5/18/2015	13,400
EX1503L2-D20150518-T192033.raw	5/18/2015	6,807,148
EX1503L2-D20150518-T194745.bot	5/18/2015	7,864
EX1503L2-D20150518-T194745.idx	5/18/2015	13,120
EX1503L2-D20150518-T194745.raw	5/18/2015	6,699,256
EX1503L2-D20150518-T201451.bot	5/18/2015	8,024
EX1503L2-D20150518-T201451.idx	5/18/2015	13,400
EX1503L2-D20150518-T201451.raw	5/18/2015	6,853,648
EX1503L2-D20150518-T204237.bot	5/18/2015	8,056
EX1503L2-D20150518-T204237.idx	5/18/2015	13,456
EX1503L2-D20150518-T204237.raw	5/18/2015	6,885,352
EX1503L2-D20150518-T211031.bot	5/18/2015	7,864
EX1503L2-D20150518-T211031.idx	5/18/2015	13,120
EX1503L2-D20150518-T211031.raw	5/18/2015	6,701,152
EX1503L2-D20150518-T213740.bot	5/18/2015	7,896
EX1503L2-D20150518-T213740.idx	5/18/2015	13,176
EX1503L2-D20150518-T213740.raw	5/18/2015	6,731,568
EX1503L2-D20150518-T220456.bot	5/18/2015	7,800
EX1503L2-D20150518-T220456.idx	5/18/2015	13,008
EX1503L2-D20150518-T220456.raw	5/18/2015	6,639,180
EX1503L2-D20150518-T223149.bot	5/18/2015	7,736
EX1503L2-D20150518-T223149.idx	5/18/2015	12,896
EX1503L2-D20150518-T223149.raw	5/18/2015	6,652,652
EX1503L2-D20150518-T225922.bot	5/18/2015	7,480
EX1503L2-D20150518-T225922.idx	5/18/2015	12,448
EX1503L2-D20150518-T225922.raw	5/18/2015	6,516,168
EX1503L2-D20150518-T232713.bot	5/18/2015	7,512

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150518-T232713.idx	5/18/2015	12,504
EX1503L2-D20150518-T232713.raw	5/18/2015	6,548,128
EX1503L2-D20150518-T235512.bot	5/18/2015	7,640
EX1503L2-D20150518-T235512.idx	5/18/2015	12,728
EX1503L2-D20150518-T235512.raw	5/18/2015	6,672,224
EX1503L2-D20150519-T002344.bot	5/18/2015	7,640
EX1503L2-D20150519-T002344.idx	5/18/2015	12,728
EX1503L2-D20150519-T002344.raw	5/18/2015	6,682,672
EX1503L2-D20150519-T005222.bot	5/18/2015	7,512
EX1503L2-D20150519-T005222.idx	5/18/2015	12,504
EX1503L2-D20150519-T005222.raw	5/18/2015	6,615,420
EX1503L2-D20150519-T015504.bot	5/18/2015	7,096
EX1503L2-D20150519-T015504.idx	5/18/2015	11,776
EX1503L2-D20150519-T015504.raw	5/18/2015	6,232,868
EX1503L2-D20150519-T022226.bot	5/18/2015	7,288
EX1503L2-D20150519-T022226.idx	5/18/2015	12,112
EX1503L2-D20150519-T022226.raw	5/18/2015	6,428,976
EX1503L2-D20150519-T025042.bot	5/18/2015	7,672
EX1503L2-D20150519-T025042.idx	5/18/2015	12,784
EX1503L2-D20150519-T025042.raw	5/18/2015	7,181,952
EX1503L2-D20150519-T032039.bot	5/18/2015	7,704
EX1503L2-D20150519-T032039.idx	5/18/2015	12,840
EX1503L2-D20150519-T032039.raw	5/18/2015	7,361,472
EX1503L2-D20150519-T035028.bot	5/19/2015	7,512
EX1503L2-D20150519-T035028.idx	5/19/2015	12,504
EX1503L2-D20150519-T035028.raw	5/19/2015	7,137,644
EX1503L2-D20150519-T041913.bot	5/19/2015	7,384
EX1503L2-D20150519-T041913.idx	5/19/2015	12,280
EX1503L2-D20150519-T041913.raw	5/19/2015	6,979,612

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150519-T044719.bot	5/19/2015	7,384
EX1503L2-D20150519-T044719.idx	5/19/2015	12,280
EX1503L2-D20150519-T044719.raw	5/19/2015	6,981,524
EX1503L2-D20150519-T051528.bot	5/19/2015	7,224
EX1503L2-D20150519-T051528.idx	5/19/2015	12,000
EX1503L2-D20150519-T051528.raw	5/19/2015	6,819,904
EX1503L2-D20150519-T054257.bot	5/19/2015	7,128
EX1503L2-D20150519-T054257.idx	5/19/2015	11,832
EX1503L2-D20150519-T054257.raw	5/19/2015	6,712,388
EX1503L2-D20150519-T060959.bot	5/19/2015	7,480
EX1503L2-D20150519-T060959.idx	5/19/2015	12,448
EX1503L2-D20150519-T060959.raw	5/19/2015	7,053,220
EX1503L2-D20150519-T063809.bot	5/19/2015	7,576
EX1503L2-D20150519-T063809.idx	5/19/2015	12,616
EX1503L2-D20150519-T063809.raw	5/19/2015	7,164,944
EX1503L2-D20150519-T070650.bot	5/19/2015	7,416
EX1503L2-D20150519-T070650.idx	5/19/2015	12,336
EX1503L2-D20150519-T070650.raw	5/19/2015	7,020,772
EX1503L2-D20150519-T073509.bot	5/19/2015	7,224
EX1503L2-D20150519-T073509.idx	5/19/2015	12,000
EX1503L2-D20150519-T073509.raw	5/19/2015	6,829,228
EX1503L2-D20150519-T080248.bot	5/19/2015	7,416
EX1503L2-D20150519-T080248.idx	5/19/2015	12,336
EX1503L2-D20150519-T080248.raw	5/19/2015	7,015,324
EX1503L2-D20150519-T083102.bot	5/19/2015	7,576
EX1503L2-D20150519-T083102.idx	5/19/2015	12,616
EX1503L2-D20150519-T083102.raw	5/19/2015	7,141,628
EX1503L2-D20150519-T085925.bot	5/19/2015	7,384
EX1503L2-D20150519-T085925.idx	5/19/2015	12,280

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150519-T085925.raw	5/19/2015	6,956,496
EX1503L2-D20150519-T092709.bot	5/19/2015	7,288
EX1503L2-D20150519-T092709.idx	5/19/2015	12,112
EX1503L2-D20150519-T092709.raw	5/19/2015	6,873,884
EX1503L2-D20150519-T095443.bot	5/19/2015	7,256
EX1503L2-D20150519-T095443.idx	5/19/2015	12,056
EX1503L2-D20150519-T095443.raw	5/19/2015	6,858,228
EX1503L2-D20150519-T102220.bot	5/19/2015	7,416
EX1503L2-D20150519-T102220.idx	5/19/2015	12,336
EX1503L2-D20150519-T102220.raw	5/19/2015	7,023,628
EX1503L2-D20150519-T105036.bot	5/19/2015	7,608
EX1503L2-D20150519-T105036.idx	5/19/2015	12,672
EX1503L2-D20150519-T105036.raw	5/19/2015	7,214,924
EX1503L2-D20150519-T111937.bot	5/19/2015	7,448
EX1503L2-D20150519-T111937.idx	5/19/2015	12,392
EX1503L2-D20150519-T111937.raw	5/19/2015	7,059,560
EX1503L2-D20150519-T114807.bot	5/19/2015	7,224
EX1503L2-D20150519-T114807.idx	5/19/2015	12,000
EX1503L2-D20150519-T114807.raw	5/19/2015	6,843,016
EX1503L2-D20150519-T121558.bot	5/19/2015	7,288
EX1503L2-D20150519-T121558.idx	5/19/2015	12,112
EX1503L2-D20150519-T121558.raw	5/19/2015	6,888,148
EX1503L2-D20150519-T124347.bot	5/19/2015	7,096
EX1503L2-D20150519-T124347.idx	5/19/2015	11,776
EX1503L2-D20150519-T124347.raw	5/19/2015	6,702,756
EX1503L2-D20150519-T131052.bot	5/19/2015	7,224
EX1503L2-D20150519-T131052.idx	5/19/2015	12,000
EX1503L2-D20150519-T131052.raw	5/19/2015	6,871,260
EX1503L2-D20150519-T133855.bot	5/19/2015	7,320

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150519-T133855.idx	5/19/2015	12,168
EX1503L2-D20150519-T133855.raw	5/19/2015	6,953,280
EX1503L2-D20150519-T140708.bot	5/19/2015	7,576
EX1503L2-D20150519-T140708.idx	5/19/2015	12,616
EX1503L2-D20150519-T140708.raw	5/19/2015	7,238,428
EX1503L2-D20150519-T143636.bot	5/19/2015	7,832
EX1503L2-D20150519-T143636.idx	5/19/2015	13,064
EX1503L2-D20150519-T143636.raw	5/19/2015	7,585,340
EX1503L2-D20150519-T150809.bot	5/19/2015	8,024
EX1503L2-D20150519-T150809.idx	5/19/2015	13,400
EX1503L2-D20150519-T150809.raw	5/19/2015	7,704,332
EX1503L2-D20150519-T153926.bot	5/19/2015	7,864
EX1503L2-D20150519-T153926.idx	5/19/2015	13,120
EX1503L2-D20150519-T153926.raw	5/19/2015	7,515,568
EX1503L2-D20150519-T160946.bot	5/19/2015	7,224
EX1503L2-D20150519-T160946.idx	5/19/2015	12,000
EX1503L2-D20150519-T160946.raw	5/19/2015	6,856,080
EX1503L2-D20150519-T163737.bot	5/19/2015	7,224
EX1503L2-D20150519-T163737.idx	5/19/2015	12,000
EX1503L2-D20150519-T163737.raw	5/19/2015	6,849,712
EX1503L2-D20150519-T170524.bot	5/19/2015	7,384
EX1503L2-D20150519-T170524.idx	5/19/2015	12,280
EX1503L2-D20150519-T170524.raw	5/19/2015	6,976,596
EX1503L2-D20150519-T173320.bot	5/19/2015	7,320
EX1503L2-D20150519-T173320.idx	5/19/2015	12,168
EX1503L2-D20150519-T173320.raw	5/19/2015	6,949,444
EX1503L2-D20150519-T180136.bot	5/19/2015	7,352
EX1503L2-D20150519-T180136.idx	5/19/2015	12,224
EX1503L2-D20150519-T180136.raw	5/19/2015	6,976,728

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150519-T182949.bot	5/19/2015	7,544
EX1503L2-D20150519-T182949.idx	5/19/2015	12,560
EX1503L2-D20150519-T182949.raw	5/19/2015	7,121,152
EX1503L2-D20150519-T185807.bot	5/19/2015	7,384
EX1503L2-D20150519-T185807.idx	5/19/2015	12,280
EX1503L2-D20150519-T185807.raw	5/19/2015	7,041,968
EX1503L2-D20150519-T192652.bot	5/19/2015	7,384
EX1503L2-D20150519-T192652.idx	5/19/2015	12,280
EX1503L2-D20150519-T192652.raw	5/19/2015	7,039,276
EX1503L2-D20150519-T195534.bot	5/19/2015	7,256
EX1503L2-D20150519-T195534.idx	5/19/2015	12,056
EX1503L2-D20150519-T195534.raw	5/19/2015	6,907,616
EX1503L2-D20150519-T202347.bot	5/19/2015	7,256
EX1503L2-D20150519-T202347.idx	5/19/2015	12,056
EX1503L2-D20150519-T202347.raw	5/19/2015	6,898,444
EX1503L2-D20150519-T205153.bot	5/19/2015	7,320
EX1503L2-D20150519-T205153.idx	5/19/2015	12,168
EX1503L2-D20150519-T205153.raw	5/19/2015	6,948,240
EX1503L2-D20150519-T212004.bot	5/19/2015	7,096
EX1503L2-D20150519-T212004.idx	5/19/2015	11,776
EX1503L2-D20150519-T212004.raw	5/19/2015	6,696,896
EX1503L2-D20150519-T214713.bot	5/19/2015	7,064
EX1503L2-D20150519-T214713.idx	5/19/2015	11,720
EX1503L2-D20150519-T214713.raw	5/19/2015	6,666,012
EX1503L2-D20150519-T221411.bot	5/19/2015	7,032
EX1503L2-D20150519-T221411.idx	5/19/2015	11,664
EX1503L2-D20150519-T221411.raw	5/19/2015	6,644,660
EX1503L2-D20150519-T224118.bot	5/19/2015	7,032
EX1503L2-D20150519-T224118.idx	5/19/2015	11,664

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150519-T224118.raw	5/19/2015	6,633,120
EX1503L2-D20150519-T230815.bot	5/19/2015	7,064
EX1503L2-D20150519-T230815.idx	5/19/2015	11,720
EX1503L2-D20150519-T230815.raw	5/19/2015	6,659,280
EX1503L2-D20150519-T233511.bot	5/19/2015	7,096
EX1503L2-D20150519-T233511.idx	5/19/2015	11,776
EX1503L2-D20150519-T233511.raw	5/19/2015	6,756,168
EX1503L2-D20150520-T000304.bot	5/19/2015	7,288
EX1503L2-D20150520-T000304.idx	5/19/2015	12,112
EX1503L2-D20150520-T000304.raw	5/19/2015	6,884,300
EX1503L2-D20150520-T003045.bot	5/19/2015	7,160
EX1503L2-D20150520-T003045.idx	5/19/2015	11,888
EX1503L2-D20150520-T003045.raw	5/19/2015	6,767,440
EX1503L2-D20150520-T005804.bot	5/19/2015	7,160
EX1503L2-D20150520-T005804.idx	5/19/2015	11,888
EX1503L2-D20150520-T005804.raw	5/19/2015	6,801,860
EX1503L2-D20150520-T012549.bot	5/19/2015	7,064
EX1503L2-D20150520-T012549.idx	5/19/2015	11,720
EX1503L2-D20150520-T012549.raw	5/19/2015	6,715,732
EX1503L2-D20150520-T015322.bot	5/19/2015	7,064
EX1503L2-D20150520-T015322.idx	5/19/2015	11,720
EX1503L2-D20150520-T015322.raw	5/19/2015	6,732,284
EX1503L2-D20150520-T022106.bot	5/19/2015	7,032
EX1503L2-D20150520-T022106.idx	5/19/2015	11,664
EX1503L2-D20150520-T022106.raw	5/19/2015	6,700,668
EX1503L2-D20150520-T024844.bot	5/19/2015	7,160
EX1503L2-D20150520-T024844.idx	5/19/2015	11,888
EX1503L2-D20150520-T024844.raw	5/19/2015	6,842,024
EX1503L2-D20150520-T031659.bot	5/19/2015	7,224

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150520-T031659.idx	5/19/2015	12,000
EX1503L2-D20150520-T031659.raw	5/19/2015	6,914,080
EX1503L2-D20150520-T034534.bot	5/20/2015	7,160
EX1503L2-D20150520-T034534.idx	5/20/2015	11,888
EX1503L2-D20150520-T034534.raw	5/20/2015	6,859,880
EX1503L2-D20150520-T041402.bot	5/20/2015	7,128
EX1503L2-D20150520-T041402.idx	5/20/2015	11,832
EX1503L2-D20150520-T041402.raw	5/20/2015	6,842,356
EX1503L2-D20150520-T044235.bot	5/20/2015	7,288
EX1503L2-D20150520-T044235.idx	5/20/2015	12,112
EX1503L2-D20150520-T044235.raw	5/20/2015	7,014,108
EX1503L2-D20150520-T051151.bot	5/20/2015	7,416
EX1503L2-D20150520-T051151.idx	5/20/2015	12,336
EX1503L2-D20150520-T051151.raw	5/20/2015	7,139,220
EX1503L2-D20150520-T054132.bot	5/20/2015	7,640
EX1503L2-D20150520-T054132.idx	5/20/2015	12,728
EX1503L2-D20150520-T054132.raw	5/20/2015	7,374,832
EX1503L2-D20150520-T061208.bot	5/20/2015	7,608
EX1503L2-D20150520-T061208.idx	5/20/2015	12,672
EX1503L2-D20150520-T061208.raw	5/20/2015	7,347,964
EX1503L2-D20150520-T064243.bot	5/20/2015	7,544
EX1503L2-D20150520-T064243.idx	5/20/2015	12,560
EX1503L2-D20150520-T064243.raw	5/20/2015	7,278,832
EX1503L2-D20150520-T071259.bot	5/20/2015	7,480
EX1503L2-D20150520-T071259.idx	5/20/2015	12,448
EX1503L2-D20150520-T071259.raw	5/20/2015	7,176,492
EX1503L2-D20150520-T074233.bot	5/20/2015	8,120
EX1503L2-D20150520-T074233.idx	5/20/2015	13,568
EX1503L2-D20150520-T074233.raw	5/20/2015	7,682,468

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150520-T081242.bot	5/20/2015	8,184
EX1503L2-D20150520-T081242.idx	5/20/2015	13,680
EX1503L2-D20150520-T081242.raw	5/20/2015	7,727,620
EX1503L2-D20150520-T084252.bot	5/20/2015	8,024
EX1503L2-D20150520-T084252.idx	5/20/2015	13,400
EX1503L2-D20150520-T084252.raw	5/20/2015	7,590,688
EX1503L2-D20150520-T091243.bot	5/20/2015	8,216
EX1503L2-D20150520-T091243.idx	5/20/2015	13,736
EX1503L2-D20150520-T091243.raw	5/20/2015	7,852,456
EX1503L2-D20150520-T094350.bot	5/20/2015	8,312
EX1503L2-D20150520-T094350.idx	5/20/2015	13,904
EX1503L2-D20150520-T094350.raw	5/20/2015	8,556,776
EX1503L2-D20150520-T101547.bot	5/20/2015	8,312
EX1503L2-D20150520-T101547.idx	5/20/2015	13,904
EX1503L2-D20150520-T101547.raw	5/20/2015	8,531,280
EX1503L2-D20150520-T104727.bot	5/20/2015	8,152
EX1503L2-D20150520-T104727.idx	5/20/2015	13,624
EX1503L2-D20150520-T104727.raw	5/20/2015	8,346,176
EX1503L2-D20150520-T111824.bot	5/20/2015	7,864
EX1503L2-D20150520-T111824.idx	5/20/2015	13,120
EX1503L2-D20150520-T111824.raw	5/20/2015	8,042,156
EX1503L2-D20150520-T114825.bot	5/20/2015	7,864
EX1503L2-D20150520-T114825.idx	5/20/2015	13,120
EX1503L2-D20150520-T114825.raw	5/20/2015	8,034,996
EX1503L2-D20150520-T121822.bot	5/20/2015	7,864
EX1503L2-D20150520-T121822.idx	5/20/2015	13,120
EX1503L2-D20150520-T121822.raw	5/20/2015	8,037,024
EX1503L2-D20150520-T124822.bot	5/20/2015	8,280
EX1503L2-D20150520-T124822.idx	5/20/2015	13,848

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150520-T124822.raw	5/20/2015	8,363,416
EX1503L2-D20150520-T131817.bot	5/20/2015	8,280
EX1503L2-D20150520-T131817.idx	5/20/2015	13,848
EX1503L2-D20150520-T131817.raw	5/20/2015	8,359,260
EX1503L2-D20150520-T134809.bot	5/20/2015	8,120
EX1503L2-D20150520-T134809.idx	5/20/2015	13,568
EX1503L2-D20150520-T134809.raw	5/20/2015	8,209,292
EX1503L2-D20150520-T141744.bot	5/20/2015	8,568
EX1503L2-D20150520-T141744.idx	5/20/2015	14,352
EX1503L2-D20150520-T141744.raw	5/20/2015	8,712,260
EX1503L2-D20150520-T144909.bot	5/20/2015	8,088
EX1503L2-D20150520-T144909.idx	5/20/2015	13,512
EX1503L2-D20150520-T144909.raw	5/20/2015	8,197,736
EX1503L2-D20150520-T151854.bot	5/20/2015	8,056
EX1503L2-D20150520-T151854.idx	5/20/2015	13,456
EX1503L2-D20150520-T151854.raw	5/20/2015	8,177,384
EX1503L2-D20150520-T154844.bot	5/20/2015	8,088
EX1503L2-D20150520-T154844.idx	5/20/2015	13,512
EX1503L2-D20150520-T154844.raw	5/20/2015	8,193,864
EX1503L2-D20150520-T161826.bot	5/20/2015	8,056
EX1503L2-D20150520-T161826.idx	5/20/2015	13,456
EX1503L2-D20150520-T161826.raw	5/20/2015	8,165,768
EX1503L2-D20150520-T164806.bot	5/20/2015	8,056
EX1503L2-D20150520-T164806.idx	5/20/2015	13,456
EX1503L2-D20150520-T164806.raw	5/20/2015	8,176,160
EX1503L2-D20150520-T171753.bot	5/20/2015	8,120
EX1503L2-D20150520-T171753.idx	5/20/2015	13,568
EX1503L2-D20150520-T171753.raw	5/20/2015	8,218,672
EX1503L2-D20150520-T174735.bot	5/20/2015	8,024

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150520-T174735.idx	5/20/2015	13,400
EX1503L2-D20150520-T174735.raw	5/20/2015	8,145,408
EX1503L2-D20150520-T181720.bot	5/20/2015	6,424
EX1503L2-D20150520-T181720.idx	5/20/2015	10,600
EX1503L2-D20150520-T181720.raw	5/20/2015	6,319,668
EX1503L2-D20150521-T000603.bot	5/20/2015	7,128
EX1503L2-D20150521-T000603.idx	5/20/2015	11,832
EX1503L2-D20150521-T000603.raw	5/20/2015	7,313,576
EX1503L2-D20150521-T003418.bot	5/20/2015	7,416
EX1503L2-D20150521-T003418.idx	5/20/2015	12,336
EX1503L2-D20150521-T003418.raw	5/20/2015	7,640,404
EX1503L2-D20150521-T010344.bot	5/20/2015	7,192
EX1503L2-D20150521-T010344.idx	5/20/2015	11,944
EX1503L2-D20150521-T010344.raw	5/20/2015	7,411,680
EX1503L2-D20150521-T013233.bot	5/20/2015	7,192
EX1503L2-D20150521-T013233.idx	5/20/2015	11,944
EX1503L2-D20150521-T013233.raw	5/20/2015	7,379,064
EX1503L2-D20150521-T020059.bot	5/20/2015	7,000
EX1503L2-D20150521-T020059.idx	5/20/2015	11,608
EX1503L2-D20150521-T020059.raw	5/20/2015	7,187,780
EX1503L2-D20150521-T022858.bot	5/20/2015	6,968
EX1503L2-D20150521-T022858.idx	5/20/2015	11,552
EX1503L2-D20150521-T022858.raw	5/20/2015	7,126,280
EX1503L2-D20150521-T025629.bot	5/20/2015	6,840
EX1503L2-D20150521-T025629.idx	5/20/2015	11,328
EX1503L2-D20150521-T025629.raw	5/20/2015	6,987,940
EX1503L2-D20150521-T032333.bot	5/20/2015	6,808
EX1503L2-D20150521-T032333.idx	5/20/2015	11,272
EX1503L2-D20150521-T032333.raw	5/20/2015	6,909,768

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150521-T034958.bot	5/21/2015	7,192
EX1503L2-D20150521-T034958.idx	5/21/2015	11,944
EX1503L2-D20150521-T034958.raw	5/21/2015	7,219,080
EX1503L2-D20150521-T041627.bot	5/21/2015	7,896
EX1503L2-D20150521-T041627.idx	5/21/2015	13,176
EX1503L2-D20150521-T041627.raw	5/21/2015	7,789,708
EX1503L2-D20150521-T044305.bot	5/21/2015	7,832
EX1503L2-D20150521-T044305.idx	5/21/2015	13,064
EX1503L2-D20150521-T044305.raw	5/21/2015	7,720,988
EX1503L2-D20150521-T050929.bot	5/21/2015	7,704
EX1503L2-D20150521-T050929.idx	5/21/2015	12,840
EX1503L2-D20150521-T050929.raw	5/21/2015	7,578,460
EX1503L2-D20150521-T053523.bot	5/21/2015	7,608
EX1503L2-D20150521-T053523.idx	5/21/2015	12,672
EX1503L2-D20150521-T053523.raw	5/21/2015	7,472,884
EX1503L2-D20150521-T060056.bot	5/21/2015	7,608
EX1503L2-D20150521-T060056.idx	5/21/2015	12,672
EX1503L2-D20150521-T060056.raw	5/21/2015	7,473,500
EX1503L2-D20150521-T062628.bot	5/21/2015	7,640
EX1503L2-D20150521-T062628.idx	5/21/2015	12,728
EX1503L2-D20150521-T062628.raw	5/21/2015	7,507,128
EX1503L2-D20150521-T065207.bot	5/21/2015	7,576
EX1503L2-D20150521-T065207.idx	5/21/2015	12,616
EX1503L2-D20150521-T065207.raw	5/21/2015	7,438,104
EX1503L2-D20150521-T071731.bot	5/21/2015	7,544
EX1503L2-D20150521-T071731.idx	5/21/2015	12,560
EX1503L2-D20150521-T071731.raw	5/21/2015	7,405,244
EX1503L2-D20150521-T074249.bot	5/21/2015	7,640
EX1503L2-D20150521-T074249.idx	5/21/2015	12,728

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150521-T074249.raw	5/21/2015	7,509,504
EX1503L2-D20150521-T080829.bot	5/21/2015	7,576
EX1503L2-D20150521-T080829.idx	5/21/2015	12,616
EX1503L2-D20150521-T080829.raw	5/21/2015	7,510,964
EX1503L2-D20150521-T083446.bot	5/21/2015	7,416
EX1503L2-D20150521-T083446.idx	5/21/2015	12,336
EX1503L2-D20150521-T083446.raw	5/21/2015	7,400,588
EX1503L2-D20150521-T090116.bot	5/21/2015	6,008
EX1503L2-D20150521-T090116.idx	5/21/2015	9,872
EX1503L2-D20150521-T090116.raw	5/21/2015	6,279,484
EX1503L2-D20150521-T092747.bot	5/21/2015	7,704
EX1503L2-D20150521-T092747.idx	5/21/2015	12,840
EX1503L2-D20150521-T092747.raw	5/21/2015	7,643,460
EX1503L2-D20150521-T095429.bot	5/21/2015	7,160
EX1503L2-D20150521-T095429.idx	5/21/2015	11,888
EX1503L2-D20150521-T095429.raw	5/21/2015	7,217,660
EX1503L2-D20150521-T102115.bot	5/21/2015	7,192
EX1503L2-D20150521-T102115.idx	5/21/2015	11,944
EX1503L2-D20150521-T102115.raw	5/21/2015	7,276,920
EX1503L2-D20150521-T104827.bot	5/21/2015	7,160
EX1503L2-D20150521-T104827.idx	5/21/2015	11,888
EX1503L2-D20150521-T104827.raw	5/21/2015	7,285,960
EX1503L2-D20150521-T111602.bot	5/21/2015	7,000
EX1503L2-D20150521-T111602.idx	5/21/2015	11,608
EX1503L2-D20150521-T111602.raw	5/21/2015	7,128,860
EX1503L2-D20150521-T114315.bot	5/21/2015	6,840
EX1503L2-D20150521-T114315.idx	5/21/2015	11,328
EX1503L2-D20150521-T114315.raw	5/21/2015	7,278,772
EX1503L2-D20150521-T121032.bot	5/21/2015	6,488

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150521-T121032.idx	5/21/2015	10,712
EX1503L2-D20150521-T121032.raw	5/21/2015	7,149,016
EX1503L2-D20150521-T123732.bot	5/21/2015	6,488
EX1503L2-D20150521-T123732.idx	5/21/2015	10,712
EX1503L2-D20150521-T123732.raw	5/21/2015	7,143,872
EX1503L2-D20150521-T130428.bot	5/21/2015	6,680
EX1503L2-D20150521-T130428.idx	5/21/2015	11,048
EX1503L2-D20150521-T130428.raw	5/21/2015	7,317,040
EX1503L2-D20150521-T133129.bot	5/21/2015	7,000
EX1503L2-D20150521-T133129.idx	5/21/2015	11,608
EX1503L2-D20150521-T133129.raw	5/21/2015	7,574,860
EX1503L2-D20150521-T135814.bot	5/21/2015	7,064
EX1503L2-D20150521-T135814.idx	5/21/2015	11,720
EX1503L2-D20150521-T135814.raw	5/21/2015	7,649,912
EX1503L2-D20150521-T142513.bot	5/21/2015	7,160
EX1503L2-D20150521-T142513.idx	5/21/2015	11,888
EX1503L2-D20150521-T142513.raw	5/21/2015	7,736,536
EX1503L2-D20150521-T145213.bot	5/21/2015	7,128
EX1503L2-D20150521-T145213.idx	5/21/2015	11,832
EX1503L2-D20150521-T145213.raw	5/21/2015	7,690,868
EX1503L2-D20150521-T151859.bot	5/21/2015	6,712
EX1503L2-D20150521-T151859.idx	5/21/2015	11,104
EX1503L2-D20150521-T151859.raw	5/21/2015	7,318,064
EX1503L2-D20150521-T154539.bot	5/21/2015	6,744
EX1503L2-D20150521-T154539.idx	5/21/2015	11,160
EX1503L2-D20150521-T154539.raw	5/21/2015	7,381,572
EX1503L2-D20150521-T161241.bot	5/21/2015	7,096
EX1503L2-D20150521-T161241.idx	5/21/2015	11,776
EX1503L2-D20150521-T161241.raw	5/21/2015	7,681,948

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150521-T163941.bot	5/21/2015	7,064
EX1503L2-D20150521-T163941.idx	5/21/2015	11,720
EX1503L2-D20150521-T163941.raw	5/21/2015	7,641,156
EX1503L2-D20150521-T170632.bot	5/21/2015	7,096
EX1503L2-D20150521-T170632.idx	5/21/2015	11,776
EX1503L2-D20150521-T170632.raw	5/21/2015	7,682,700
EX1503L2-D20150521-T173331.bot	5/21/2015	7,576
EX1503L2-D20150521-T173331.idx	5/21/2015	12,616
EX1503L2-D20150521-T173331.raw	5/21/2015	8,105,308
EX1503L2-D20150521-T180035.bot	5/21/2015	7,544
EX1503L2-D20150521-T180035.idx	5/21/2015	12,560
EX1503L2-D20150521-T180035.raw	5/21/2015	8,096,704
EX1503L2-D20150521-T182751.bot	5/21/2015	7,192
EX1503L2-D20150521-T182751.idx	5/21/2015	11,944
EX1503L2-D20150521-T182751.raw	5/21/2015	7,828,212
EX1503L2-D20150521-T185535.bot	5/21/2015	6,968
EX1503L2-D20150521-T185535.idx	5/21/2015	11,552
EX1503L2-D20150521-T185535.raw	5/21/2015	7,605,680
EX1503L2-D20150521-T192301.bot	5/21/2015	7,256
EX1503L2-D20150521-T192301.idx	5/21/2015	12,056
EX1503L2-D20150521-T192301.raw	5/21/2015	7,863,704
EX1503L2-D20150521-T195030.bot	5/21/2015	7,704
EX1503L2-D20150521-T195030.idx	5/21/2015	12,840
EX1503L2-D20150521-T195030.raw	5/21/2015	8,298,980
EX1503L2-D20150521-T201833.bot	5/21/2015	7,672
EX1503L2-D20150521-T201833.idx	5/21/2015	12,784
EX1503L2-D20150521-T201833.raw	5/21/2015	8,273,684
EX1503L2-D20150521-T204636.bot	5/21/2015	7,576
EX1503L2-D20150521-T204636.idx	5/21/2015	12,616

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150521-T204636.raw	5/21/2015	8,195,036
EX1503L2-D20150521-T211444.bot	5/21/2015	7,608
EX1503L2-D20150521-T211444.idx	5/21/2015	12,672
EX1503L2-D20150521-T211444.raw	5/21/2015	8,218,804
EX1503L2-D20150521-T214251.bot	5/21/2015	7,576
EX1503L2-D20150521-T214251.idx	5/21/2015	12,616
EX1503L2-D20150521-T214251.raw	5/21/2015	8,212,244
EX1503L2-D20150521-T221112.bot	5/21/2015	7,608
EX1503L2-D20150521-T221112.idx	5/21/2015	12,672
EX1503L2-D20150521-T221112.raw	5/21/2015	8,199,256
EX1503L2-D20150521-T223905.bot	5/21/2015	7,256
EX1503L2-D20150521-T223905.idx	5/21/2015	12,056
EX1503L2-D20150521-T223905.raw	5/21/2015	7,883,252
EX1503L2-D20150521-T230652.bot	5/21/2015	6,840
EX1503L2-D20150521-T230652.idx	5/21/2015	11,328
EX1503L2-D20150521-T230652.raw	5/21/2015	7,521,628
EX1503L2-D20150521-T233441.bot	5/21/2015	6,968
EX1503L2-D20150521-T233441.idx	5/21/2015	11,552
EX1503L2-D20150521-T233441.raw	5/21/2015	7,623,976
EX1503L2-D20150522-T000222.bot	5/21/2015	7,352
EX1503L2-D20150522-T000222.idx	5/21/2015	12,224
EX1503L2-D20150522-T000222.raw	5/21/2015	7,915,592
EX1503L2-D20150522-T002929.bot	5/21/2015	7,384
EX1503L2-D20150522-T002929.idx	5/21/2015	12,280
EX1503L2-D20150522-T002929.raw	5/21/2015	7,923,908
EX1503L2-D20150522-T005621.bot	5/21/2015	7,544
EX1503L2-D20150522-T005621.idx	5/21/2015	12,560
EX1503L2-D20150522-T005621.raw	5/21/2015	8,043,060
EX1503L2-D20150522-T012259.bot	5/21/2015	7,160

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150522-T012259.idx	5/21/2015	11,888
EX1503L2-D20150522-T012259.raw	5/21/2015	7,706,648
EX1503L2-D20150522-T014936.bot	5/21/2015	6,584
EX1503L2-D20150522-T014936.idx	5/21/2015	10,880
EX1503L2-D20150522-T014936.raw	5/21/2015	7,158,120
EX1503L2-D20150522-T021538.bot	5/21/2015	6,680
EX1503L2-D20150522-T021538.idx	5/21/2015	11,048
EX1503L2-D20150522-T021538.raw	5/21/2015	7,246,548
EX1503L2-D20150522-T024145.bot	5/21/2015	6,456
EX1503L2-D20150522-T024145.idx	5/21/2015	10,656
EX1503L2-D20150522-T024145.raw	5/21/2015	7,040,524
EX1503L2-D20150522-T030743.bot	5/21/2015	6,552
EX1503L2-D20150522-T030743.idx	5/21/2015	10,824
EX1503L2-D20150522-T030743.raw	5/21/2015	7,168,996
EX1503L2-D20150522-T033415.bot	5/22/2015	6,712
EX1503L2-D20150522-T033415.idx	5/22/2015	11,104
EX1503L2-D20150522-T033415.raw	5/22/2015	7,344,976
EX1503L2-D20150522-T040114.bot	5/22/2015	6,616
EX1503L2-D20150522-T040114.idx	5/22/2015	10,936
EX1503L2-D20150522-T040114.raw	5/22/2015	6,496,056
EX1503L2-D20150522-T042735.bot	5/22/2015	6,776
EX1503L2-D20150522-T042735.idx	5/22/2015	11,216
EX1503L2-D20150522-T042735.raw	5/22/2015	6,400,396
EX1503L2-D20150522-T045346.bot	5/22/2015	7,224
EX1503L2-D20150522-T045346.idx	5/22/2015	12,000
EX1503L2-D20150522-T045346.raw	5/22/2015	6,730,088
EX1503L2-D20150522-T052005.bot	5/22/2015	7,160
EX1503L2-D20150522-T052005.idx	5/22/2015	11,888
EX1503L2-D20150522-T052005.raw	5/22/2015	6,685,672

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150522-T054624.bot	5/22/2015	7,224
EX1503L2-D20150522-T054624.idx	5/22/2015	12,000
EX1503L2-D20150522-T054624.raw	5/22/2015	6,738,240
EX1503L2-D20150522-T061249.bot	5/22/2015	7,192
EX1503L2-D20150522-T061249.idx	5/22/2015	11,944
EX1503L2-D20150522-T061249.raw	5/22/2015	6,733,096
EX1503L2-D20150522-T063927.bot	5/22/2015	7,352
EX1503L2-D20150522-T063927.idx	5/22/2015	12,224
EX1503L2-D20150522-T063927.raw	5/22/2015	6,864,468
EX1503L2-D20150522-T070617.bot	5/22/2015	7,576
EX1503L2-D20150522-T070617.idx	5/22/2015	12,616
EX1503L2-D20150522-T070617.raw	5/22/2015	7,065,528
EX1503L2-D20150522-T073337.bot	5/22/2015	7,448
EX1503L2-D20150522-T073337.idx	5/22/2015	12,392
EX1503L2-D20150522-T073337.raw	5/22/2015	6,988,888
EX1503L2-D20150522-T080109.bot	5/22/2015	7,512
EX1503L2-D20150522-T080109.idx	5/22/2015	12,504
EX1503L2-D20150522-T080109.raw	5/22/2015	7,040,236
EX1503L2-D20150522-T082845.bot	5/22/2015	7,608
EX1503L2-D20150522-T082845.idx	5/22/2015	12,672
EX1503L2-D20150522-T082845.raw	5/22/2015	7,090,492
EX1503L2-D20150522-T085607.bot	5/22/2015	7,320
EX1503L2-D20150522-T085607.idx	5/22/2015	12,168
EX1503L2-D20150522-T085607.raw	5/22/2015	6,868,828
EX1503L2-D20150522-T092317.bot	5/22/2015	7,416
EX1503L2-D20150522-T092317.idx	5/22/2015	12,336
EX1503L2-D20150522-T092317.raw	5/22/2015	6,926,628
EX1503L2-D20150522-T095019.bot	5/22/2015	7,704
EX1503L2-D20150522-T095019.idx	5/22/2015	12,840

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150522-T095019.raw	5/22/2015	7,138,144
EX1503L2-D20150522-T101726.bot	5/22/2015	7,512
EX1503L2-D20150522-T101726.idx	5/22/2015	12,504
EX1503L2-D20150522-T101726.raw	5/22/2015	6,967,612
EX1503L2-D20150522-T104408.bot	5/22/2015	7,512
EX1503L2-D20150522-T104408.idx	5/22/2015	12,504
EX1503L2-D20150522-T104408.raw	5/22/2015	6,985,924
EX1503L2-D20150522-T111104.bot	5/22/2015	7,544
EX1503L2-D20150522-T111104.idx	5/22/2015	12,560
EX1503L2-D20150522-T111104.raw	5/22/2015	7,015,592
EX1503L2-D20150522-T113804.bot	5/22/2015	7,512
EX1503L2-D20150522-T113804.idx	5/22/2015	12,504
EX1503L2-D20150522-T113804.raw	5/22/2015	6,973,380
EX1503L2-D20150522-T120451.bot	5/22/2015	7,608
EX1503L2-D20150522-T120451.idx	5/22/2015	12,672
EX1503L2-D20150522-T120451.raw	5/22/2015	7,045,000
EX1503L2-D20150522-T123140.bot	5/22/2015	7,576
EX1503L2-D20150522-T123140.idx	5/22/2015	12,616
EX1503L2-D20150522-T123140.raw	5/22/2015	7,013,900
EX1503L2-D20150522-T125824.bot	5/22/2015	7,544
EX1503L2-D20150522-T125824.idx	5/22/2015	12,560
EX1503L2-D20150522-T125824.raw	5/22/2015	6,998,388
EX1503L2-D20150522-T132513.bot	5/22/2015	7,480
EX1503L2-D20150522-T132513.idx	5/22/2015	12,448
EX1503L2-D20150522-T132513.raw	5/22/2015	6,947,844
EX1503L2-D20150522-T135159.bot	5/22/2015	7,704
EX1503L2-D20150522-T135159.idx	5/22/2015	12,840
EX1503L2-D20150522-T135159.raw	5/22/2015	7,120,980
EX1503L2-D20150522-T141855.bot	5/22/2015	7,704

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150522-T141855.idx	5/22/2015	12,840
EX1503L2-D20150522-T141855.raw	5/22/2015	7,119,808
EX1503L2-D20150522-T144549.bot	5/22/2015	7,960
EX1503L2-D20150522-T144549.idx	5/22/2015	13,288
EX1503L2-D20150522-T144549.raw	5/22/2015	7,274,852
EX1503L2-D20150522-T151221.bot	5/22/2015	8,120
EX1503L2-D20150522-T151221.idx	5/22/2015	13,568
EX1503L2-D20150522-T151221.raw	5/22/2015	7,087,880
EX1503L2-D20150522-T153820.bot	5/22/2015	8,440
EX1503L2-D20150522-T153820.idx	5/22/2015	14,128
EX1503L2-D20150522-T153820.raw	5/22/2015	7,057,096
EX1503L2-D20150522-T160521.bot	5/22/2015	8,184
EX1503L2-D20150522-T160521.idx	5/22/2015	13,680
EX1503L2-D20150522-T160521.raw	5/22/2015	6,868,660
EX1503L2-D20150522-T163203.bot	5/22/2015	8,280
EX1503L2-D20150522-T163203.idx	5/22/2015	13,848
EX1503L2-D20150522-T163203.raw	5/22/2015	6,943,420
EX1503L2-D20150522-T165856.bot	5/22/2015	8,440
EX1503L2-D20150522-T165856.idx	5/22/2015	14,128
EX1503L2-D20150522-T165856.raw	5/22/2015	7,080,268
EX1503L2-D20150522-T172612.bot	5/22/2015	8,216
EX1503L2-D20150522-T172612.idx	5/22/2015	13,736
EX1503L2-D20150522-T172612.raw	5/22/2015	6,934,496
EX1503L2-D20150522-T175326.bot	5/22/2015	8,216
EX1503L2-D20150522-T175326.idx	5/22/2015	13,736
EX1503L2-D20150522-T175326.raw	5/22/2015	6,885,180
EX1503L2-D20150522-T182002.bot	5/22/2015	8,184
EX1503L2-D20150522-T182002.idx	5/22/2015	13,680
EX1503L2-D20150522-T182002.raw	5/22/2015	6,851,200

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150522-T184627.bot	5/22/2015	8,216
EX1503L2-D20150522-T184627.idx	5/22/2015	13,736
EX1503L2-D20150522-T184627.raw	5/22/2015	6,887,016
EX1503L2-D20150522-T191305.bot	5/22/2015	8,088
EX1503L2-D20150522-T191305.idx	5/22/2015	13,512
EX1503L2-D20150522-T191305.raw	5/22/2015	6,797,240
EX1503L2-D20150522-T193937.bot	5/22/2015	8,248
EX1503L2-D20150522-T193937.idx	5/22/2015	13,792
EX1503L2-D20150522-T193937.raw	5/22/2015	6,932,668
EX1503L2-D20150522-T200632.bot	5/22/2015	8,440
EX1503L2-D20150522-T200632.idx	5/22/2015	14,128
EX1503L2-D20150522-T200632.raw	5/22/2015	7,119,728
EX1503L2-D20150522-T203416.bot	5/22/2015	8,408
EX1503L2-D20150522-T203416.idx	5/22/2015	14,072
EX1503L2-D20150522-T203416.raw	5/22/2015	7,079,848
EX1503L2-D20150522-T210145.bot	5/22/2015	8,312
EX1503L2-D20150522-T210145.idx	5/22/2015	13,904
EX1503L2-D20150522-T210145.raw	5/22/2015	7,014,360
EX1503L2-D20150522-T212910.bot	5/22/2015	8,472
EX1503L2-D20150522-T212910.idx	5/22/2015	14,184
EX1503L2-D20150522-T212910.raw	5/22/2015	7,125,836
EX1503L2-D20150522-T215643.bot	5/22/2015	7,448
EX1503L2-D20150522-T215643.idx	5/22/2015	12,392
EX1503L2-D20150522-T215643.raw	5/22/2015	6,445,516
EX1503L2-D20150522-T222353.bot	5/22/2015	6,776
EX1503L2-D20150522-T222353.idx	5/22/2015	11,216
EX1503L2-D20150522-T222353.raw	5/22/2015	6,014,300
EX1503L2-D20150522-T225101.bot	5/22/2015	6,840
EX1503L2-D20150522-T225101.idx	5/22/2015	11,328

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150522-T225101.raw	5/22/2015	6,040,852
EX1503L2-D20150522-T231759.bot	5/22/2015	6,776
EX1503L2-D20150522-T231759.idx	5/22/2015	11,216
EX1503L2-D20150522-T231759.raw	5/22/2015	5,962,196
EX1503L2-D20150522-T234429.bot	5/22/2015	6,776
EX1503L2-D20150522-T234429.idx	5/22/2015	11,216
EX1503L2-D20150522-T234429.raw	5/22/2015	5,902,604
EX1503L2-D20150523-T001022.bot	5/22/2015	6,744
EX1503L2-D20150523-T001022.idx	5/22/2015	11,160
EX1503L2-D20150523-T001022.raw	5/22/2015	5,889,228
EX1503L2-D20150523-T003621.bot	5/22/2015	6,776
EX1503L2-D20150523-T003621.idx	5/22/2015	11,216
EX1503L2-D20150523-T003621.raw	5/22/2015	5,902,416
EX1503L2-D20150523-T010215.bot	5/22/2015	6,648
EX1503L2-D20150523-T010215.idx	5/22/2015	10,992
EX1503L2-D20150523-T010215.raw	5/22/2015	5,787,156
EX1503L2-D20150523-T012741.bot	5/22/2015	6,808
EX1503L2-D20150523-T012741.idx	5/22/2015	11,272
EX1503L2-D20150523-T012741.raw	5/22/2015	5,929,352
EX1503L2-D20150523-T015331.bot	5/22/2015	6,904
EX1503L2-D20150523-T015331.idx	5/22/2015	11,440
EX1503L2-D20150523-T015331.raw	5/22/2015	5,997,964
EX1503L2-D20150523-T021932.bot	5/22/2015	7,160
EX1503L2-D20150523-T021932.idx	5/22/2015	11,888
EX1503L2-D20150523-T021932.raw	5/22/2015	6,150,940
EX1503L2-D20150523-T024526.bot	5/22/2015	7,192
EX1503L2-D20150523-T024526.idx	5/22/2015	11,944
EX1503L2-D20150523-T024526.raw	5/22/2015	6,191,212
EX1503L2-D20150523-T031138.bot	5/22/2015	7,032

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150523-T031138.idx	5/22/2015	11,664
EX1503L2-D20150523-T031138.raw	5/22/2015	6,092,656
EX1503L2-D20150523-T033752.bot	5/23/2015	6,680
EX1503L2-D20150523-T033752.idx	5/23/2015	11,048
EX1503L2-D20150523-T033752.raw	5/23/2015	5,864,444
EX1503L2-D20150523-T040403.bot	5/23/2015	6,616
EX1503L2-D20150523-T040403.idx	5/23/2015	10,936
EX1503L2-D20150523-T040403.raw	5/23/2015	5,846,348
EX1503L2-D20150523-T043030.bot	5/23/2015	6,616
EX1503L2-D20150523-T043030.idx	5/23/2015	10,936
EX1503L2-D20150523-T043030.raw	5/23/2015	5,868,236
EX1503L2-D20150523-T045707.bot	5/23/2015	6,680
EX1503L2-D20150523-T045707.idx	5/23/2015	11,048
EX1503L2-D20150523-T045707.raw	5/23/2015	5,908,764
EX1503L2-D20150523-T052349.bot	5/23/2015	6,648
EX1503L2-D20150523-T052349.idx	5/23/2015	10,992
EX1503L2-D20150523-T052349.raw	5/23/2015	5,839,620
EX1503L2-D20150523-T054953.bot	5/23/2015	6,680
EX1503L2-D20150523-T054953.idx	5/23/2015	11,048
EX1503L2-D20150523-T054953.raw	5/23/2015	5,881,232
EX1503L2-D20150523-T061616.bot	5/23/2015	6,776
EX1503L2-D20150523-T061616.idx	5/23/2015	11,216
EX1503L2-D20150523-T061616.raw	5/23/2015	5,942,792
EX1503L2-D20150523-T064239.bot	5/23/2015	6,712
EX1503L2-D20150523-T064239.idx	5/23/2015	11,104
EX1503L2-D20150523-T064239.raw	5/23/2015	5,902,408
EX1503L2-D20150523-T070902.bot	5/23/2015	6,648
EX1503L2-D20150523-T070902.idx	5/23/2015	10,992
EX1503L2-D20150523-T070902.raw	5/23/2015	5,854,124

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150523-T073512.bot	5/23/2015	6,648
EX1503L2-D20150523-T073512.idx	5/23/2015	10,992
EX1503L2-D20150523-T073512.raw	5/23/2015	5,861,340
EX1503L2-D20150523-T080128.bot	5/23/2015	6,584
EX1503L2-D20150523-T080128.idx	5/23/2015	10,880
EX1503L2-D20150523-T080128.raw	5/23/2015	5,809,988
EX1503L2-D20150523-T082741.bot	5/23/2015	6,648
EX1503L2-D20150523-T082741.idx	5/23/2015	10,992
EX1503L2-D20150523-T082741.raw	5/23/2015	5,861,604
EX1503L2-D20150523-T085404.bot	5/23/2015	6,680
EX1503L2-D20150523-T085404.idx	5/23/2015	11,048
EX1503L2-D20150523-T085404.raw	5/23/2015	5,896,416
EX1503L2-D20150523-T092035.bot	5/23/2015	6,584
EX1503L2-D20150523-T092035.idx	5/23/2015	10,880
EX1503L2-D20150523-T092035.raw	5/23/2015	6,179,664
EX1503L2-D20150523-T094655.bot	5/23/2015	6,552
EX1503L2-D20150523-T094655.idx	5/23/2015	10,824
EX1503L2-D20150523-T094655.raw	5/23/2015	6,261,712
EX1503L2-D20150523-T101319.bot	5/23/2015	6,776
EX1503L2-D20150523-T101319.idx	5/23/2015	11,216
EX1503L2-D20150523-T101319.raw	5/23/2015	6,443,948
EX1503L2-D20150523-T104001.bot	5/23/2015	7,192
EX1503L2-D20150523-T104001.idx	5/23/2015	11,944
EX1503L2-D20150523-T104001.raw	5/23/2015	6,789,572
EX1503L2-D20150523-T110718.bot	5/23/2015	7,160
EX1503L2-D20150523-T110718.idx	5/23/2015	11,888
EX1503L2-D20150523-T110718.raw	5/23/2015	6,775,772
EX1503L2-D20150523-T113440.bot	5/23/2015	7,032
EX1503L2-D20150523-T113440.idx	5/23/2015	11,664

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150523-T113440.raw	5/23/2015	6,629,152
EX1503L2-D20150523-T120119.bot	5/23/2015	6,808
EX1503L2-D20150523-T120119.idx	5/23/2015	11,272
EX1503L2-D20150523-T120119.raw	5/23/2015	6,447,124
EX1503L2-D20150523-T122744.bot	5/23/2015	6,872
EX1503L2-D20150523-T122744.idx	5/23/2015	11,384
EX1503L2-D20150523-T122744.raw	5/23/2015	6,493,724
EX1503L2-D20150523-T125411.bot	5/23/2015	7,000
EX1503L2-D20150523-T125411.idx	5/23/2015	11,608
EX1503L2-D20150523-T125411.raw	5/23/2015	6,628,164
EX1503L2-D20150523-T132111.bot	5/23/2015	6,872
EX1503L2-D20150523-T132111.idx	5/23/2015	11,384
EX1503L2-D20150523-T132111.raw	5/23/2015	6,530,624
EX1503L2-D20150523-T134808.bot	5/23/2015	6,808
EX1503L2-D20150523-T134808.idx	5/23/2015	11,272
EX1503L2-D20150523-T134808.raw	5/23/2015	6,508,556
EX1503L2-D20150523-T141519.bot	5/23/2015	6,648
EX1503L2-D20150523-T141519.idx	5/23/2015	10,992
EX1503L2-D20150523-T141519.raw	5/23/2015	6,688,596
EX1503L2-D20150523-T144214.bot	5/23/2015	6,744
EX1503L2-D20150523-T144214.idx	5/23/2015	11,160
EX1503L2-D20150523-T144214.raw	5/23/2015	6,901,168
EX1503L2-D20150523-T150902.bot	5/23/2015	6,936
EX1503L2-D20150523-T150902.idx	5/23/2015	11,496
EX1503L2-D20150523-T150902.raw	5/23/2015	7,050,960
EX1503L2-D20150523-T153551.bot	5/23/2015	7,416
EX1503L2-D20150523-T153551.idx	5/23/2015	12,336
EX1503L2-D20150523-T153551.raw	5/23/2015	7,473,672
EX1503L2-D20150523-T160310.bot	5/23/2015	7,352

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150523-T160310.idx	5/23/2015	12,224
EX1503L2-D20150523-T160310.raw	5/23/2015	7,432,236
EX1503L2-D20150523-T163036.bot	5/23/2015	6,968
EX1503L2-D20150523-T163036.idx	5/23/2015	11,552
EX1503L2-D20150523-T163036.raw	5/23/2015	7,151,736
EX1503L2-D20150523-T165822.bot	5/23/2015	6,840
EX1503L2-D20150523-T165822.idx	5/23/2015	11,328
EX1503L2-D20150523-T165822.raw	5/23/2015	7,036,936
EX1503L2-D20150523-T172603.bot	5/23/2015	6,808
EX1503L2-D20150523-T172603.idx	5/23/2015	11,272
EX1503L2-D20150523-T172603.raw	5/23/2015	7,035,152
EX1503L2-D20150523-T175357.bot	5/23/2015	6,776
EX1503L2-D20150523-T175357.idx	5/23/2015	11,216
EX1503L2-D20150523-T175357.raw	5/23/2015	6,981,628
EX1503L2-D20150523-T182129.bot	5/23/2015	6,872
EX1503L2-D20150523-T182129.idx	5/23/2015	11,384
EX1503L2-D20150523-T182129.raw	5/23/2015	7,058,144
EX1503L2-D20150523-T184903.bot	5/23/2015	7,064
EX1503L2-D20150523-T184903.idx	5/23/2015	11,720
EX1503L2-D20150523-T184903.raw	5/23/2015	7,224,796
EX1503L2-D20150523-T191645.bot	5/23/2015	7,128
EX1503L2-D20150523-T191645.idx	5/23/2015	11,832
EX1503L2-D20150523-T191645.raw	5/23/2015	7,247,940
EX1503L2-D20150523-T194408.bot	5/23/2015	6,744
EX1503L2-D20150523-T194408.idx	5/23/2015	11,160
EX1503L2-D20150523-T194408.raw	5/23/2015	6,935,076
EX1503L2-D20150523-T201125.bot	5/23/2015	6,808
EX1503L2-D20150523-T201125.idx	5/23/2015	11,272
EX1503L2-D20150523-T201125.raw	5/23/2015	6,991,624

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150523-T203848.bot	5/23/2015	7,256
EX1503L2-D20150523-T203848.idx	5/23/2015	12,056
EX1503L2-D20150523-T203848.raw	5/23/2015	7,411,536
EX1503L2-D20150523-T210658.bot	5/23/2015	7,512
EX1503L2-D20150523-T210658.idx	5/23/2015	12,504
EX1503L2-D20150523-T210658.raw	5/23/2015	7,664,176
EX1503L2-D20150523-T213546.bot	5/23/2015	6,872
EX1503L2-D20150523-T213546.idx	5/23/2015	11,384
EX1503L2-D20150523-T213546.raw	5/23/2015	7,135,692
EX1503L2-D20150523-T220420.bot	5/23/2015	6,680
EX1503L2-D20150523-T220420.idx	5/23/2015	11,048
EX1503L2-D20150523-T220420.raw	5/23/2015	6,934,676
EX1503L2-D20150523-T223219.bot	5/23/2015	3,448
EX1503L2-D20150523-T223219.idx	5/23/2015	5,392
EX1503L2-D20150523-T223219.raw	5/23/2015	3,070,624
EX1503L2-D20150523-T224533.bot	5/23/2015	6,520
EX1503L2-D20150523-T224533.idx	5/23/2015	10,768
EX1503L2-D20150523-T224533.raw	5/23/2015	6,721,840
EX1503L2-D20150523-T231228.bot	5/23/2015	6,648
EX1503L2-D20150523-T231228.idx	5/23/2015	10,992
EX1503L2-D20150523-T231228.raw	5/23/2015	6,832,424
EX1503L2-D20150523-T233929.bot	5/23/2015	7,032
EX1503L2-D20150523-T233929.idx	5/23/2015	11,664
EX1503L2-D20150523-T233929.raw	5/23/2015	7,156,688
EX1503L2-D20150524-T000645.bot	5/23/2015	6,328
EX1503L2-D20150524-T000645.idx	5/23/2015	10,432
EX1503L2-D20150524-T000645.raw	5/23/2015	6,613,536
EX1503L2-D20150524-T003410.bot	5/23/2015	6,296
EX1503L2-D20150524-T003410.idx	5/23/2015	10,376

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150524-T003410.raw	5/23/2015	6,543,148
EX1503L2-D20150524-T010104.bot	5/23/2015	6,296
EX1503L2-D20150524-T010104.idx	5/23/2015	10,376
EX1503L2-D20150524-T010104.raw	5/23/2015	6,549,824
EX1503L2-D20150524-T012801.bot	5/23/2015	6,008
EX1503L2-D20150524-T012801.idx	5/23/2015	9,872
EX1503L2-D20150524-T012801.raw	5/23/2015	6,221,832
EX1503L2-D20150524-T015432.bot	5/23/2015	6,104
EX1503L2-D20150524-T015432.idx	5/23/2015	10,040
EX1503L2-D20150524-T015432.raw	5/23/2015	5,954,204
EX1503L2-D20150524-T022108.bot	5/23/2015	6,296
EX1503L2-D20150524-T022108.idx	5/23/2015	10,376
EX1503L2-D20150524-T022108.raw	5/23/2015	6,047,676
EX1503L2-D20150524-T024711.bot	5/23/2015	6,392
EX1503L2-D20150524-T024711.idx	5/23/2015	10,544
EX1503L2-D20150524-T024711.raw	5/23/2015	6,124,212
EX1503L2-D20150524-T031319.bot	5/23/2015	6,296
EX1503L2-D20150524-T031319.idx	5/23/2015	10,376
EX1503L2-D20150524-T031319.raw	5/23/2015	6,087,560
EX1503L2-D20150524-T033950.bot	5/24/2015	6,520
EX1503L2-D20150524-T033950.idx	5/24/2015	10,768
EX1503L2-D20150524-T033950.raw	5/24/2015	6,332,172
EX1503L2-D20150524-T040724.bot	5/24/2015	6,616
EX1503L2-D20150524-T040724.idx	5/24/2015	10,936
EX1503L2-D20150524-T040724.raw	5/24/2015	6,445,220
EX1503L2-D20150524-T043532.bot	5/24/2015	7,128
EX1503L2-D20150524-T043532.idx	5/24/2015	11,832
EX1503L2-D20150524-T043532.raw	5/24/2015	6,851,012
EX1503L2-D20150524-T050409.bot	5/24/2015	7,032

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150524-T050409.idx	5/24/2015	11,664
EX1503L2-D20150524-T050409.raw	5/24/2015	6,717,636
EX1503L2-D20150524-T053159.bot	5/24/2015	6,808
EX1503L2-D20150524-T053159.idx	5/24/2015	11,272
EX1503L2-D20150524-T053159.raw	5/24/2015	6,531,512
EX1503L2-D20150524-T055930.bot	5/24/2015	6,712
EX1503L2-D20150524-T055930.idx	5/24/2015	11,104
EX1503L2-D20150524-T055930.raw	5/24/2015	6,460,680
EX1503L2-D20150524-T062658.bot	5/24/2015	4,600
EX1503L2-D20150524-T062658.idx	5/24/2015	7,408
EX1503L2-D20150524-T062658.raw	5/24/2015	4,130,444
EX1503L2-D20150528-T171454.bot	5/28/2015	6,328
EX1503L2-D20150528-T171454.idx	5/28/2015	10,432
EX1503L2-D20150528-T171454.raw	5/28/2015	6,709,368
EX1503L2-D20150528-T174337.bot	5/28/2015	6,136
EX1503L2-D20150528-T174337.idx	5/28/2015	10,096
EX1503L2-D20150528-T174337.raw	5/28/2015	6,553,660
EX1503L2-D20150528-T181217.bot	5/28/2015	6,424
EX1503L2-D20150528-T181217.idx	5/28/2015	10,600
EX1503L2-D20150528-T181217.raw	5/28/2015	6,801,736
EX1503L2-D20150528-T184110.bot	5/28/2015	6,456
EX1503L2-D20150528-T184110.idx	5/28/2015	10,656
EX1503L2-D20150528-T184110.raw	5/28/2015	6,813,712
EX1503L2-D20150528-T190954.bot	5/28/2015	6,584
EX1503L2-D20150528-T190954.idx	5/28/2015	10,880
EX1503L2-D20150528-T190954.raw	5/28/2015	6,937,240
EX1503L2-D20150528-T193854.bot	5/28/2015	6,552
EX1503L2-D20150528-T193854.idx	5/28/2015	10,824
EX1503L2-D20150528-T193854.raw	5/28/2015	6,924,152

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150528-T200803.bot	5/28/2015	4,536
EX1503L2-D20150528-T200803.idx	5/28/2015	7,296
EX1503L2-D20150528-T200803.raw	5/28/2015	4,692,924
EX1503L2-D20150528-T212137.bot	5/28/2015	6,552
EX1503L2-D20150528-T212137.idx	5/28/2015	10,824
EX1503L2-D20150528-T212137.raw	5/28/2015	6,964,468
EX1503L2-D20150528-T215116.bot	5/28/2015	6,744
EX1503L2-D20150528-T215116.idx	5/28/2015	11,160
EX1503L2-D20150528-T215116.raw	5/28/2015	7,148,700
EX1503L2-D20150528-T222120.bot	5/28/2015	7,000
EX1503L2-D20150528-T222120.idx	5/28/2015	11,608
EX1503L2-D20150528-T222120.raw	5/28/2015	7,370,052
EX1503L2-D20150528-T225137.bot	5/28/2015	7,128
EX1503L2-D20150528-T225137.idx	5/28/2015	11,832
EX1503L2-D20150528-T225137.raw	5/28/2015	7,471,168
EX1503L2-D20150528-T232153.bot	5/28/2015	7,256
EX1503L2-D20150528-T232153.idx	5/28/2015	12,056
EX1503L2-D20150528-T232153.raw	5/28/2015	7,562,044
EX1503L2-D20150528-T235200.bot	5/28/2015	7,000
EX1503L2-D20150528-T235200.idx	5/28/2015	11,608
EX1503L2-D20150528-T235200.raw	5/28/2015	7,341,556
EX1503L2-D20150529-T002155.bot	5/28/2015	7,288
EX1503L2-D20150529-T002155.idx	5/28/2015	12,112
EX1503L2-D20150529-T002155.raw	5/28/2015	7,626,976
EX1503L2-D20150529-T005232.bot	5/28/2015	7,512
EX1503L2-D20150529-T005232.idx	5/28/2015	12,504
EX1503L2-D20150529-T005232.raw	5/28/2015	7,831,572
EX1503L2-D20150529-T012328.bot	5/28/2015	7,608
EX1503L2-D20150529-T012328.idx	5/28/2015	12,672

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150529-T012328.raw	5/28/2015	7,896,884
EX1503L2-D20150529-T015415.bot	5/28/2015	7,416
EX1503L2-D20150529-T015415.idx	5/28/2015	12,336
EX1503L2-D20150529-T015415.raw	5/28/2015	7,712,836
EX1503L2-D20150529-T022439.bot	5/28/2015	7,480
EX1503L2-D20150529-T022439.idx	5/28/2015	12,448
EX1503L2-D20150529-T022439.raw	5/28/2015	7,774,104
EX1503L2-D20150529-T025512.bot	5/28/2015	7,576
EX1503L2-D20150529-T025512.idx	5/28/2015	12,616
EX1503L2-D20150529-T025512.raw	5/28/2015	7,882,424
EX1503L2-D20150529-T032608.bot	5/28/2015	7,960
EX1503L2-D20150529-T032608.idx	5/28/2015	13,288
EX1503L2-D20150529-T032608.raw	5/28/2015	8,240,184
EX1503L2-D20150529-T035744.bot	5/29/2015	8,184
EX1503L2-D20150529-T035744.idx	5/29/2015	13,680
EX1503L2-D20150529-T035744.raw	5/29/2015	8,488,980
EX1503L2-D20150529-T043013.bot	5/29/2015	8,632
EX1503L2-D20150529-T043013.idx	5/29/2015	14,464
EX1503L2-D20150529-T043013.raw	5/29/2015	8,898,776
EX1503L2-D20150529-T050321.bot	5/29/2015	8,856
EX1503L2-D20150529-T050321.idx	5/29/2015	14,856
EX1503L2-D20150529-T050321.raw	5/29/2015	9,200,464
EX1503L2-D20150529-T053802.bot	5/29/2015	8,888
EX1503L2-D20150529-T053802.idx	5/29/2015	14,912
EX1503L2-D20150529-T053802.raw	5/29/2015	9,058,584
EX1503L2-D20150529-T061039.bot	5/29/2015	9,624
EX1503L2-D20150529-T061039.idx	5/29/2015	16,200
EX1503L2-D20150529-T061039.raw	5/29/2015	9,651,568
EX1503L2-D20150529-T064321.bot	5/29/2015	9,016

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150529-T064321.idx	5/29/2015	15,136
EX1503L2-D20150529-T064321.raw	5/29/2015	9,176,952
EX1503L2-D20150529-T071610.bot	5/29/2015	8,440
EX1503L2-D20150529-T071610.idx	5/29/2015	14,128
EX1503L2-D20150529-T071610.raw	5/29/2015	8,668,044
EX1503L2-D20150529-T074820.bot	5/29/2015	9,336
EX1503L2-D20150529-T074820.idx	5/29/2015	15,696
EX1503L2-D20150529-T074820.raw	5/29/2015	9,472,508
EX1503L2-D20150529-T082140.bot	5/29/2015	9,240
EX1503L2-D20150529-T082140.idx	5/29/2015	15,528
EX1503L2-D20150529-T082140.raw	5/29/2015	9,368,704
EX1503L2-D20150529-T085438.bot	5/29/2015	5,880
EX1503L2-D20150529-T085438.idx	5/29/2015	9,648
EX1503L2-D20150529-T085438.raw	5/29/2015	6,682,256
EX1503L2-D20150529-T092723.bot	5/29/2015	6,296
EX1503L2-D20150529-T092723.idx	5/29/2015	10,376
EX1503L2-D20150529-T092723.raw	5/29/2015	7,197,692
EX1503L2-D20150529-T100225.bot	5/29/2015	9,976
EX1503L2-D20150529-T100225.idx	5/29/2015	16,816
EX1503L2-D20150529-T100225.raw	5/29/2015	9,475,968
EX1503L2-D20150529-T103706.bot	5/29/2015	6,776
EX1503L2-D20150529-T103706.idx	5/29/2015	11,216
EX1503L2-D20150529-T103706.raw	5/29/2015	7,480,380
EX1503L2-D20150529-T111133.bot	5/29/2015	6,104
EX1503L2-D20150529-T111133.idx	5/29/2015	10,040
EX1503L2-D20150529-T111133.raw	5/29/2015	6,985,580
EX1503L2-D20150529-T114552.bot	5/29/2015	6,328
EX1503L2-D20150529-T114552.idx	5/29/2015	10,432
EX1503L2-D20150529-T114552.raw	5/29/2015	7,298,060

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150529-T122151.bot	5/29/2015	6,456
EX1503L2-D20150529-T122151.idx	5/29/2015	10,656
EX1503L2-D20150529-T122151.raw	5/29/2015	7,446,744
EX1503L2-D20150529-T125826.bot	5/29/2015	5,976
EX1503L2-D20150529-T125826.idx	5/29/2015	9,816
EX1503L2-D20150529-T125826.raw	5/29/2015	6,907,120
EX1503L2-D20150529-T133302.bot	5/29/2015	6,968
EX1503L2-D20150529-T133302.idx	5/29/2015	11,552
EX1503L2-D20150529-T133302.raw	5/29/2015	7,775,448
EX1503L2-D20150529-T140838.bot	5/29/2015	6,456
EX1503L2-D20150529-T140838.idx	5/29/2015	10,656
EX1503L2-D20150529-T140838.raw	5/29/2015	7,200,636
EX1503L2-D20150529-T144208.bot	5/29/2015	7,928
EX1503L2-D20150529-T144208.idx	5/29/2015	13,232
EX1503L2-D20150529-T144208.raw	5/29/2015	8,345,536
EX1503L2-D20150529-T151521.bot	5/29/2015	9,720
EX1503L2-D20150529-T151521.idx	5/29/2015	16,368
EX1503L2-D20150529-T151521.raw	5/29/2015	9,759,120
EX1503L2-D20150529-T154827.bot	5/29/2015	9,272
EX1503L2-D20150529-T154827.idx	5/29/2015	15,584
EX1503L2-D20150529-T154827.raw	5/29/2015	9,341,524
EX1503L2-D20150529-T162048.bot	5/29/2015	9,144
EX1503L2-D20150529-T162048.idx	5/29/2015	15,360
EX1503L2-D20150529-T162048.raw	5/29/2015	9,215,132
EX1503L2-D20150529-T165252.bot	5/29/2015	9,048
EX1503L2-D20150529-T165252.idx	5/29/2015	15,192
EX1503L2-D20150529-T165252.raw	5/29/2015	9,165,252
EX1503L2-D20150529-T172513.bot	5/29/2015	8,312
EX1503L2-D20150529-T172513.idx	5/29/2015	13,904

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150529-T172513.raw	5/29/2015	8,482,152
EX1503L2-D20150529-T175620.bot	5/29/2015	7,736
EX1503L2-D20150529-T175620.idx	5/29/2015	12,896
EX1503L2-D20150529-T175620.raw	5/29/2015	7,989,644
EX1503L2-D20150529-T182702.bot	5/29/2015	7,864
EX1503L2-D20150529-T182702.idx	5/29/2015	13,120
EX1503L2-D20150529-T182702.raw	5/29/2015	8,116,464
EX1503L2-D20150529-T185802.bot	5/29/2015	7,416
EX1503L2-D20150529-T185802.idx	5/29/2015	12,336
EX1503L2-D20150529-T185802.raw	5/29/2015	7,732,632
EX1503L2-D20150529-T192841.bot	5/29/2015	7,288
EX1503L2-D20150529-T192841.idx	5/29/2015	12,112
EX1503L2-D20150529-T192841.raw	5/29/2015	7,600,728
EX1503L2-D20150529-T195858.bot	5/29/2015	7,064
EX1503L2-D20150529-T195858.idx	5/29/2015	11,720
EX1503L2-D20150529-T195858.raw	5/29/2015	7,424,288
EX1503L2-D20150529-T202916.bot	5/29/2015	7,320
EX1503L2-D20150529-T202916.idx	5/29/2015	12,168
EX1503L2-D20150529-T202916.raw	5/29/2015	7,711,352
EX1503L2-D20150529-T210036.bot	5/29/2015	7,800
EX1503L2-D20150529-T210036.idx	5/29/2015	13,008
EX1503L2-D20150529-T210036.raw	5/29/2015	8,118,320
EX1503L2-D20150529-T213216.bot	5/29/2015	8,088
EX1503L2-D20150529-T213216.idx	5/29/2015	13,512
EX1503L2-D20150529-T213216.raw	5/29/2015	8,345,252
EX1503L2-D20150529-T220354.bot	5/29/2015	8,056
EX1503L2-D20150529-T220354.idx	5/29/2015	13,456
EX1503L2-D20150529-T220354.raw	5/29/2015	8,328,312
EX1503L2-D20150529-T223540.bot	5/29/2015	7,768

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150529-T223540.idx	5/29/2015	12,952
EX1503L2-D20150529-T223540.raw	5/29/2015	8,043,680
EX1503L2-D20150529-T230645.bot	5/29/2015	7,704
EX1503L2-D20150529-T230645.idx	5/29/2015	12,840
EX1503L2-D20150529-T230645.raw	5/29/2015	8,031,308
EX1503L2-D20150529-T233819.bot	5/29/2015	7,608
EX1503L2-D20150529-T233819.idx	5/29/2015	12,672
EX1503L2-D20150529-T233819.raw	5/29/2015	8,005,604
EX1503L2-D20150530-T001029.bot	5/29/2015	7,576
EX1503L2-D20150530-T001029.idx	5/29/2015	12,616
EX1503L2-D20150530-T001029.raw	5/29/2015	7,946,016
EX1503L2-D20150530-T004214.bot	5/29/2015	7,736
EX1503L2-D20150530-T004214.idx	5/29/2015	12,896
EX1503L2-D20150530-T004214.raw	5/29/2015	8,082,560
EX1503L2-D20150530-T011407.bot	5/29/2015	7,832
EX1503L2-D20150530-T011407.idx	5/29/2015	13,064
EX1503L2-D20150530-T011407.raw	5/29/2015	8,098,744
EX1503L2-D20150530-T014513.bot	5/29/2015	8,056
EX1503L2-D20150530-T014513.idx	5/29/2015	13,456
EX1503L2-D20150530-T014513.raw	5/29/2015	8,239,492
EX1503L2-D20150530-T021552.bot	5/29/2015	8,408
EX1503L2-D20150530-T021552.idx	5/29/2015	14,072
EX1503L2-D20150530-T021552.raw	5/29/2015	8,516,324
EX1503L2-D20150530-T024630.bot	5/29/2015	8,856
EX1503L2-D20150530-T024630.idx	5/29/2015	14,856
EX1503L2-D20150530-T024630.raw	5/29/2015	8,355,472
EX1503L2-D20150530-T031652.bot	5/29/2015	8,984
EX1503L2-D20150530-T031652.idx	5/29/2015	15,080
EX1503L2-D20150530-T031652.raw	5/29/2015	8,337,888

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150530-T034735.bot	5/30/2015	8,568
EX1503L2-D20150530-T034735.idx	5/30/2015	14,352
EX1503L2-D20150530-T034735.raw	5/30/2015	8,020,092
EX1503L2-D20150530-T041803.bot	5/30/2015	8,568
EX1503L2-D20150530-T041803.idx	5/30/2015	14,352
EX1503L2-D20150530-T041803.raw	5/30/2015	7,999,740
EX1503L2-D20150530-T044816.bot	5/30/2015	8,440
EX1503L2-D20150530-T044816.idx	5/30/2015	14,128
EX1503L2-D20150530-T044816.raw	5/30/2015	7,893,412
EX1503L2-D20150530-T051817.bot	5/30/2015	8,472
EX1503L2-D20150530-T051817.idx	5/30/2015	14,184
EX1503L2-D20150530-T051817.raw	5/30/2015	7,906,324
EX1503L2-D20150530-T054810.bot	5/30/2015	8,536
EX1503L2-D20150530-T054810.idx	5/30/2015	14,296
EX1503L2-D20150530-T054810.raw	5/30/2015	7,918,972
EX1503L2-D20150530-T061740.bot	5/30/2015	8,664
EX1503L2-D20150530-T061740.idx	5/30/2015	14,520
EX1503L2-D20150530-T061740.raw	5/30/2015	7,934,240
EX1503L2-D20150530-T064619.bot	5/30/2015	8,664
EX1503L2-D20150530-T064619.idx	5/30/2015	14,520
EX1503L2-D20150530-T064619.raw	5/30/2015	7,960,756
EX1503L2-D20150530-T071510.bot	5/30/2015	8,472
EX1503L2-D20150530-T071510.idx	5/30/2015	14,184
EX1503L2-D20150530-T071510.raw	5/30/2015	7,825,568
EX1503L2-D20150530-T074407.bot	5/30/2015	8,344
EX1503L2-D20150530-T074407.idx	5/30/2015	13,960
EX1503L2-D20150530-T074407.raw	5/30/2015	7,678,516
EX1503L2-D20150530-T081223.bot	5/30/2015	8,280
EX1503L2-D20150530-T081223.idx	5/30/2015	13,848

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150530-T081223.raw	5/30/2015	7,660,992
EX1503L2-D20150530-T084056.bot	5/30/2015	7,864
EX1503L2-D20150530-T084056.idx	5/30/2015	13,120
EX1503L2-D20150530-T084056.raw	5/30/2015	7,410,076
EX1503L2-D20150530-T091004.bot	5/30/2015	8,216
EX1503L2-D20150530-T091004.idx	5/30/2015	13,736
EX1503L2-D20150530-T091004.raw	5/30/2015	7,758,928
EX1503L2-D20150530-T094024.bot	5/30/2015	8,600
EX1503L2-D20150530-T094024.idx	5/30/2015	14,408
EX1503L2-D20150530-T094024.raw	5/30/2015	7,981,428
EX1503L2-D20150530-T101013.bot	5/30/2015	8,152
EX1503L2-D20150530-T101013.idx	5/30/2015	13,624
EX1503L2-D20150530-T101013.raw	5/30/2015	7,685,548
EX1503L2-D20150530-T104014.bot	5/30/2015	8,344
EX1503L2-D20150530-T104014.idx	5/30/2015	13,960
EX1503L2-D20150530-T104014.raw	5/30/2015	7,774,872
EX1503L2-D20150530-T110938.bot	5/30/2015	7,800
EX1503L2-D20150530-T110938.idx	5/30/2015	13,008
EX1503L2-D20150530-T110938.raw	5/30/2015	7,368,916
EX1503L2-D20150530-T113851.bot	5/30/2015	8,408
EX1503L2-D20150530-T113851.idx	5/30/2015	14,072
EX1503L2-D20150530-T113851.raw	5/30/2015	7,780,236
EX1503L2-D20150530-T120751.bot	5/30/2015	6,776
EX1503L2-D20150530-T120751.idx	5/30/2015	11,216
EX1503L2-D20150530-T120751.raw	5/30/2015	6,631,680
EX1503L2-D20150530-T123705.bot	5/30/2015	11,352
EX1503L2-D20150530-T123705.idx	5/30/2015	19,224
EX1503L2-D20150530-T123705.raw	5/30/2015	11,547,688
EX1503L2-D20150530-T132648.bot	5/30/2015	8,696

EX-15-03 LEG II EK 60 Data Files		
File Name	Date (Local)	File size (bytes)
EX1503L2-D20150530-T132648.idx	5/30/2015	14,576
EX1503L2-D20150530-T132648.raw	5/30/2015	5,109,244
EX1503L2-D20150530-T141509.bot	5/30/2015	13,976
EX1503L2-D20150530-T141509.idx	5/30/2015	23,816
EX1503L2-D20150530-T141509.raw	5/30/2015	5,883,156
EX1503L2-D20150530-T144429.bot	5/30/2015	18,360
EX1503L2-D20150530-T144429.idx	5/30/2015	31,488
EX1503L2-D20150530-T144429.raw	5/30/2015	6,567,864
EX1503L2-D20150530-T151318.bot	5/30/2015	14,712
EX1503L2-D20150530-T151318.idx	5/30/2015	25,104
EX1503L2-D20150530-T151318.raw	5/30/2015	5,255,832
EX1503L2-D20150607-T010609.bot	6/6/2015	22,744
EX1503L2-D20150607-T010609.idx	6/6/2015	39,160
EX1503L2-D20150607-T010609.raw	6/6/2015	5,852,808
EX1503L2-D20150607-T014258.bot	6/6/2015	37,464
EX1503L2-D20150607-T014258.idx	6/6/2015	64,920
EX1503L2-D20150607-T014258.raw	6/6/2015	7,548,844
EX1503L2-D20150607-T021719.bot	6/6/2015	30,008
EX1503L2-D20150607-T021719.idx	6/6/2015	51,872
EX1503L2-D20150607-T021719.raw	6/6/2015	6,515,388
EX1503L2-D20150607-T025050.bot	6/6/2015	58,168
EX1503L2-D20150607-T025050.idx	6/6/2015	101,152
EX1503L2-D20150607-T025050.raw	6/6/2015	6,061,064
EX1503L2-D20150607-T032450.bot	6/7/2015	66,360
EX1503L2-D20150607-T032450.idx	6/7/2015	115,488
EX1503L2-D20150607-T032450.raw	6/7/2015	6,171,996
EX1503L2-D20150607-T040000.bot	6/7/2015	54,200
EX1503L2-D20150607-T040000.idx	6/7/2015	94,208
EX1503L2-D20150607-T040000.raw	6/7/2015	7,178,492

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150607-T043530.bot	6/7/2015	46,168
EX1503L2-D20150607-T043530.idx	6/7/2015	80,152
EX1503L2-D20150607-T043530.raw	6/7/2015	6,662,568
EX1503L2-D20150607-T051139.bot	6/7/2015	30,520
EX1503L2-D20150607-T051139.idx	6/7/2015	52,768
EX1503L2-D20150607-T051139.raw	6/7/2015	6,860,424
EX1503L2-D20150607-T054603.bot	6/7/2015	28,088
EX1503L2-D20150607-T054603.idx	6/7/2015	48,512
EX1503L2-D20150607-T054603.raw	6/7/2015	7,083,196
EX1503L2-D20150607-T061906.bot	6/7/2015	24,248
EX1503L2-D20150607-T061906.idx	6/7/2015	41,792
EX1503L2-D20150607-T061906.raw	6/7/2015	6,414,160
EX1503L2-D20150607-T065121.bot	6/7/2015	21,336
EX1503L2-D20150607-T065121.idx	6/7/2015	36,696
EX1503L2-D20150607-T065121.raw	6/7/2015	5,971,916
EX1503L2-D20150607-T072355.bot	6/7/2015	19,512
EX1503L2-D20150607-T072355.idx	6/7/2015	33,504
EX1503L2-D20150607-T072355.raw	6/7/2015	6,456,648
EX1503L2-D20150607-T075600.bot	6/7/2015	22,840
EX1503L2-D20150607-T075600.idx	6/7/2015	39,328
EX1503L2-D20150607-T075600.raw	6/7/2015	7,969,264
EX1503L2-D20150607-T082845.bot	6/7/2015	21,976
EX1503L2-D20150607-T082845.idx	6/7/2015	37,816
EX1503L2-D20150607-T082845.raw	6/7/2015	7,807,848
EX1503L2-D20150607-T090158.bot	6/7/2015	25,208
EX1503L2-D20150607-T090158.idx	6/7/2015	43,472
EX1503L2-D20150607-T090158.raw	6/7/2015	8,595,568
EX1503L2-D20150607-T093523.bot	6/7/2015	26,904
EX1503L2-D20150607-T093523.idx	6/7/2015	46,440

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150607-T093523.raw	6/7/2015	9,001,656
EX1503L2-D20150607-T100850.bot	6/7/2015	28,440
EX1503L2-D20150607-T100850.idx	6/7/2015	49,128
EX1503L2-D20150607-T100850.raw	6/7/2015	9,494,516
EX1503L2-D20150607-T104350.bot	6/7/2015	60,952
EX1503L2-D20150607-T104350.idx	6/7/2015	106,024
EX1503L2-D20150607-T104350.raw	6/7/2015	5,489,100
EX1503L2-D20150607-T111721.bot	6/7/2015	72,024
EX1503L2-D20150607-T111721.idx	6/7/2015	125,400
EX1503L2-D20150607-T111721.raw	6/7/2015	4,721,044
EX1503L2-D20150607-T115123.bot	6/7/2015	45,432
EX1503L2-D20150607-T115123.idx	6/7/2015	78,864
EX1503L2-D20150607-T115123.raw	6/7/2015	5,851,040
EX1503L2-D20150607-T122449.bot	6/7/2015	39,224
EX1503L2-D20150607-T122449.idx	6/7/2015	68,000
EX1503L2-D20150607-T122449.raw	6/7/2015	6,801,852
EX1503L2-D20150607-T125720.bot	6/7/2015	47,672
EX1503L2-D20150607-T125720.idx	6/7/2015	82,784
EX1503L2-D20150607-T125720.raw	6/7/2015	7,005,280
EX1503L2-D20150607-T132940.bot	6/7/2015	35,288
EX1503L2-D20150607-T132940.idx	6/7/2015	61,112
EX1503L2-D20150607-T132940.raw	6/7/2015	6,622,604
EX1503L2-D20150607-T140157.bot	6/7/2015	37,272
EX1503L2-D20150607-T140157.idx	6/7/2015	64,584
EX1503L2-D20150607-T140157.raw	6/7/2015	7,026,704
EX1503L2-D20150607-T143358.bot	6/7/2015	32,504
EX1503L2-D20150607-T143358.idx	6/7/2015	56,240
EX1503L2-D20150607-T143358.raw	6/7/2015	6,201,096
EX1503L2-D20150607-T150544.bot	6/7/2015	34,520

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150607-T150544.idx	6/7/2015	59,768
EX1503L2-D20150607-T150544.raw	6/7/2015	6,302,644
EX1503L2-D20150607-T153719.bot	6/7/2015	32,792
EX1503L2-D20150607-T153719.idx	6/7/2015	56,744
EX1503L2-D20150607-T153719.raw	6/7/2015	6,236,252
EX1503L2-D20150607-T160906.bot	6/7/2015	25,272
EX1503L2-D20150607-T160906.idx	6/7/2015	43,584
EX1503L2-D20150607-T160906.raw	6/7/2015	6,227,584
EX1503L2-D20150607-T164036.bot	6/7/2015	24,024
EX1503L2-D20150607-T164036.idx	6/7/2015	41,400
EX1503L2-D20150607-T164036.raw	6/7/2015	7,025,132
EX1503L2-D20150607-T171219.bot	6/7/2015	22,488
EX1503L2-D20150607-T171219.idx	6/7/2015	38,712
EX1503L2-D20150607-T171219.raw	6/7/2015	6,722,272
EX1503L2-D20150607-T174324.bot	6/7/2015	18,872
EX1503L2-D20150607-T174324.idx	6/7/2015	32,384
EX1503L2-D20150607-T174324.raw	6/7/2015	6,051,264
EX1503L2-D20150607-T181447.bot	6/7/2015	17,944
EX1503L2-D20150607-T181447.idx	6/7/2015	30,760
EX1503L2-D20150607-T181447.raw	6/7/2015	5,968,644
EX1503L2-D20150607-T184726.bot	6/7/2015	13,624
EX1503L2-D20150607-T184726.idx	6/7/2015	23,200
EX1503L2-D20150607-T184726.raw	6/7/2015	5,104,644
EX1503L2-D20150607-T191935.bot	6/7/2015	11,960
EX1503L2-D20150607-T191935.idx	6/7/2015	20,288
EX1503L2-D20150607-T191935.raw	6/7/2015	4,831,452
EX1503L2-D20150607-T195209.bot	6/7/2015	11,928
EX1503L2-D20150607-T195209.idx	6/7/2015	20,232
EX1503L2-D20150607-T195209.raw	6/7/2015	6,182,856

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150607-T202420.bot	6/7/2015	11,928
EX1503L2-D20150607-T202420.idx	6/7/2015	20,232
EX1503L2-D20150607-T202420.raw	6/7/2015	6,207,676
EX1503L2-D20150607-T205648.bot	6/7/2015	11,448
EX1503L2-D20150607-T205648.idx	6/7/2015	19,392
EX1503L2-D20150607-T205648.raw	6/7/2015	6,079,768
EX1503L2-D20150607-T212934.bot	6/7/2015	12,120
EX1503L2-D20150607-T212934.idx	6/7/2015	20,568
EX1503L2-D20150607-T212934.raw	6/7/2015	6,365,588
EX1503L2-D20150607-T220314.bot	6/7/2015	18,008
EX1503L2-D20150607-T220314.idx	6/7/2015	30,872
EX1503L2-D20150607-T220314.raw	6/7/2015	8,285,392
EX1503L2-D20150607-T223721.bot	6/7/2015	18,296
EX1503L2-D20150607-T223721.idx	6/7/2015	31,376
EX1503L2-D20150607-T223721.raw	6/7/2015	8,307,912
EX1503L2-D20150607-T231038.bot	6/7/2015	6,136
EX1503L2-D20150607-T231038.idx	6/7/2015	10,096
EX1503L2-D20150607-T231038.raw	6/7/2015	2,620,208
EX1503L2-D20150608-T003118.bot	6/7/2015	8,152
EX1503L2-D20150608-T003118.idx	6/7/2015	13,624
EX1503L2-D20150608-T003118.raw	6/7/2015	6,595,172
EX1503L2-D20150608-T012335.bot	6/7/2015	5,176
EX1503L2-D20150608-T012335.idx	6/7/2015	8,416
EX1503L2-D20150608-T012335.raw	6/7/2015	2,292,740
EX1503L2-D20150608-T020528.bot	6/7/2015	13,432
EX1503L2-D20150608-T020528.idx	6/7/2015	22,864
EX1503L2-D20150608-T020528.raw	6/7/2015	6,754,328
EX1503L2-D20150608-T023844.bot	6/7/2015	16,024
EX1503L2-D20150608-T023844.idx	6/7/2015	27,400

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150608-T023844.raw	6/7/2015	7,547,556
EX1503L2-D20150608-T031134.bot	6/7/2015	18,040
EX1503L2-D20150608-T031134.idx	6/7/2015	30,928
EX1503L2-D20150608-T031134.raw	6/7/2015	8,201,996
EX1503L2-D20150608-T034433.bot	6/8/2015	13,400
EX1503L2-D20150608-T034433.idx	6/8/2015	22,808
EX1503L2-D20150608-T034433.raw	6/8/2015	6,721,280
EX1503L2-D20150608-T041736.bot	6/8/2015	16,536
EX1503L2-D20150608-T041736.idx	6/8/2015	28,296
EX1503L2-D20150608-T041736.raw	6/8/2015	7,749,180
EX1503L2-D20150608-T045055.bot	6/8/2015	18,552
EX1503L2-D20150608-T045055.idx	6/8/2015	31,824
EX1503L2-D20150608-T045055.raw	6/8/2015	8,455,256
EX1503L2-D20150608-T052459.bot	6/8/2015	18,616
EX1503L2-D20150608-T052459.idx	6/8/2015	31,936
EX1503L2-D20150608-T052459.raw	6/8/2015	8,399,868
EX1503L2-D20150608-T055808.bot	6/8/2015	17,144
EX1503L2-D20150608-T055808.idx	6/8/2015	29,360
EX1503L2-D20150608-T055808.raw	6/8/2015	7,950,112
EX1503L2-D20150608-T063132.bot	6/8/2015	16,696
EX1503L2-D20150608-T063132.idx	6/8/2015	28,576
EX1503L2-D20150608-T063132.raw	6/8/2015	7,767,900
EX1503L2-D20150608-T070435.bot	6/8/2015	15,864
EX1503L2-D20150608-T070435.idx	6/8/2015	27,120
EX1503L2-D20150608-T070435.raw	6/8/2015	7,529,308
EX1503L2-D20150608-T073750.bot	6/8/2015	12,280
EX1503L2-D20150608-T073750.idx	6/8/2015	20,848
EX1503L2-D20150608-T073750.raw	6/8/2015	6,317,356
EX1503L2-D20150608-T081014.bot	6/8/2015	16,088

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150608-T081014.idx	6/8/2015	27,512
EX1503L2-D20150608-T081014.raw	6/8/2015	7,560,508
EX1503L2-D20150608-T084257.bot	6/8/2015	16,408
EX1503L2-D20150608-T084257.idx	6/8/2015	28,072
EX1503L2-D20150608-T084257.raw	6/8/2015	7,601,836
EX1503L2-D20150608-T091456.bot	6/8/2015	20,472
EX1503L2-D20150608-T091456.idx	6/8/2015	35,184
EX1503L2-D20150608-T091456.raw	6/8/2015	8,886,028
EX1503L2-D20150608-T094645.bot	6/8/2015	19,320
EX1503L2-D20150608-T094645.idx	6/8/2015	33,168
EX1503L2-D20150608-T094645.raw	6/8/2015	8,534,604
EX1503L2-D20150608-T101845.bot	6/8/2015	18,968
EX1503L2-D20150608-T101845.idx	6/8/2015	32,552
EX1503L2-D20150608-T101845.raw	6/8/2015	8,404,972
EX1503L2-D20150608-T105033.bot	6/8/2015	33,144
EX1503L2-D20150608-T105033.idx	6/8/2015	57,360
EX1503L2-D20150608-T105033.raw	6/8/2015	7,798,540
EX1503L2-D20150608-T112236.bot	6/8/2015	68,728
EX1503L2-D20150608-T112236.idx	6/8/2015	119,632
EX1503L2-D20150608-T112236.raw	6/8/2015	4,965,336
EX1503L2-D20150608-T115427.bot	6/8/2015	64,920
EX1503L2-D20150608-T115427.idx	6/8/2015	112,968
EX1503L2-D20150608-T115427.raw	6/8/2015	4,708,440
EX1503L2-D20150608-T122445.bot	6/8/2015	44,824
EX1503L2-D20150608-T122445.idx	6/8/2015	77,800
EX1503L2-D20150608-T122445.raw	6/8/2015	5,249,292
EX1503L2-D20150608-T125426.bot	6/8/2015	41,752
EX1503L2-D20150608-T125426.idx	6/8/2015	72,424
EX1503L2-D20150608-T125426.raw	6/8/2015	6,392,884

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150608-T132325.bot	6/8/2015	34,808
EX1503L2-D20150608-T132325.idx	6/8/2015	60,272
EX1503L2-D20150608-T132325.raw	6/8/2015	5,534,368
EX1503L2-D20150608-T135501.bot	6/8/2015	45,624
EX1503L2-D20150608-T135501.idx	6/8/2015	79,200
EX1503L2-D20150608-T135501.raw	6/8/2015	7,692,244
EX1503L2-D20150608-T143535.bot	6/8/2015	57,112
EX1503L2-D20150608-T143535.idx	6/8/2015	99,304
EX1503L2-D20150608-T143535.raw	6/8/2015	9,467,184

EX-15-03 LEG II EK 60 Data Files		
File Name	**Date (Local)**	**File size (bytes)**
EX1503L2-D20150608-T152415.bot	6/8/2015	52,344
EX1503L2-D20150608-T152415.idx	6/8/2015	90,960
EX1503L2-D20150608-T152415.raw	6/8/2015	8,933,964
EX1503L2-D20150608-T161147.bot	6/8/2015	56,792
EX1503L2-D20150608-T161147.idx	6/8/2015	98,744
EX1503L2-D20150608-T161147.raw	6/8/2015	9,584,436
EX1503L2-D20150608-T170218.bot	6/8/2015	22,328
EX1503L2-D20150608-T170218.idx	6/8/2015	38,432
EX1503L2-D20150608-T170218.raw	6/8/2015	3,735,932

EX-15-03 LEG I SVP LOG						
DATE (UTC)	TIME (UTC)	XBT/CTD FILE NAME	LAT (WGS84) (dec min)	LONG (WGS84) (dec min)	PROBE TYPE	NOTES
5/8/2015	17:21	EX1503L1_XBT001_150508	18 33.65955	66 17.37207	Deep Blue	
5/8/2015	23:51	EX1503L1_XBT002_150508	18 34.44861	67 29.1626	Deep Blue	
5/8/2015	06:24	EX1503L1_XBT003_150508	17 44.1759	68 12.48096	Deep Blue	
5/8/2015	11:53	EX1503L1_XBT004_150508	17 10.00391	69 3.68311	Deep Blue	
5/9/2015	17:35	EX1503L1_XBT005_150508	16 33.51086	69 58.19434	Deep Blue	

EX-15-03 LEG II SVP LOG						
DATE (UTC)	TIME (UTC)	XBT/CTD FILE NAME	LAT (WGS84) (dec min)	LONG (WGS84) (dec min)	PROBE TYPE	NOTES
5/16/2015	19:25	EX1503L2_XBT001_150516	8 8.77325N	79 27.49756W	Deep Blue	
5/16/2015	19:51	EX1503L2_XBT002_150516	8 3.91046N	79 27.49756W	Deep Blue	
5/17/2015	02:15	EX1503L2_XBT003_150517	7 5.36066N	80 6.00342W	Deep Blue	
5/17/2015	08:35	EX1503L2_XBT004_150517	6 57.99799N	81 9.63574W	Deep Blue	
5/17/2015	15:18	EX1503L2_XBT005_150517	6 57.86206N	82 13.47363W	Deep Blue	
5/17/2015	20:30	EX1503L2_XBT006_150517	6 57.86774N	82 12.87598W	Deep Blue	
5/18/2015	00:52	EX1503L2_XBT007_150518	6 57.86774N	82 12.87598W	Deep Blue	Position same as cast 006
5/18/2015	07:49	EX1503L2_XBT008_150518	6 57.86774N	82 12.87598W	Deep Blue	Position same as cast 006
5/18/2015	15:26	EX1503L2_XBT009_150518	7 18.06915N	86 51.18945W	Deep Blue	
5/18/2015	19:41	EX1503L2_XBT010_150518	7 22.90387N	87 38.35059W	Deep Blue	
5/19/2015	03:36	EX1503L2_XBT011_150518	7 31.20551N	88 59.46387W	Deep Blue	
5/19/2015	09:47	EX1503L2_XBT012_150519	7 37.97174N	90 5.44727W	Deep Blue	
5/19/2015	15:39	EX1503L2_XBT013_150519	7 44.25342N	91 6.86816W	Deep Blue	
5/19/2015	20:07	EX1503L2_XBT014_150519	7 49.10199N	91 54.18164W	Deep Blue	
5/20/2015	02:10	EX1503L2_XBT015_150520	7 55.86255N	93 0.19434W	Deep Blue	
5/20/2015	12:10	EX1503L2_XBT016_150520	8 6.15125N	94 40.93457W	Deep Blue	
5/20/2015	17:34	EX1503L2_XBT017_150520	8 11.69073N	95 35.06348W	Deep Blue	
5/20/2015	20:41	EX1503L2_XBT018_150520	8 13.97681N	95 44.41797W	Deep Blue	
5/21/2015	01:49	EX1503L2_XBT019_150521	8 44.55359N	96 27.24902W	Deep Blue	
5/21/2015	08:53	EX1503L2_XBT020_150521	9 24.51306N	97 37.81934W	Deep Blue	
5/21/2015	15:22	EX1503L2_XBT021_150521	9 57.24164N	98 43.00195W	Deep Blue	
5/21/2015	22:00	EX1503L2_XBT022_150521	10 30.11902N	99 48.5957W	Deep Blue	
5/22/2015	03:06	EX1503L2_XBT023_150522	10 55.76379N	100 39.82422W	Deep Blue	
5/22/2015	08:57	EX1503L2_XBT024_150522	11 25.43127N	101 39.19727W	Deep Blue	
5/22/2015	14:57	EX1503L2_XBT025_150522	11 55.84277N	102 40.15625W	Deep Blue	
5/22/2015	21:59	EX1503L2_XBT026_150522	12 31.31274N	103 51.46191W	Deep Blue	
5/23/2015	04:13	EX1503L2_XBT027_150523			Deep Blue	Navigation not generated for cast
5/23/2015	10:01	EX1503L2_XBT028_150523	13 33.4812N	105 56.75879W	Deep Blue	
5/23/2015	16:04	EX1503L2_XBT029_150523	14 4.00513N	106 58.47461W	Deep Blue	
5/23/2015	22:10	EX1503L2_XBT030_150523	14 43.32654N	107 52.64062W	Deep Blue	
5/24/2015	03:33	EX1503L2_XBT031_150524	15 21.86365N	108 40.37598W	Deep Blue	
5/28/2015	17:17	EX1503L2_XBT032_150524	30 57.65332N	120 19.25977W	Deep Blue	First XBT in American Waters/Renamed after applied in SIS (wrong date), should be correct on D drive and correct named file copied to network
5/28/2015	23:10	EX1503L2_XBT033_150524	31 53.22412N	120 45.32617W	Deep Blue	
5/29/2015	02:12	EX1503L2_XBT034_150524	32 20.90454N	120 58.40527W	Deep Blue	
5/29/2015	05:26	EX1503L2_XBT035_150524	32 49.40771N	121 11.94824W	Deep Blue	
5/29/2015	10:21	EX1503L2_XBT036_150524	33 31.01416N	121 31.84668W	Deep Blue	

5/29/2015	13:30	EX1503L2_XBT037_150524	33 55.91089N	121 43.82715W	Deep Blue	
5/29/2015	20:30	EX1503L2_XBT038_150524	34 57.50952N	122 13.72559W	Deep Blue	
5/30/2015	02:06	EX1503L2_XBT039_150524	35 47.34473N	122 38.20703W	Deep Blue	
5/30/2015	08:19	EX1503L2_XBT040_150530	36 46.01123N	123 7.34375W	Deep Blue	
5/30/2015	13:08	EX1503L2_XBT041_150530	37 26.2312N	123 12.36719W	Deep Blue	
6/7/2015	00:51	EX1503L2_XBT042_150607			Deep Blue	Navigation not generated for cast
6/7/2015	06:03	EX1503L2_XBT043_150607			Deep Blue	Navigation not generated for cast
6/7/2015	07:52	EX1503L2_XBT044_150607	43 41.1709N	124 49.64453W	Deep Blue	
6/7/2015	12:38	EX1503L2_XBT045_150607	44 24.0166N	124 51.62695W	Deep Blue	
6/7/2015	14:59	EX1503L2_XBT046_150607	44 45.96045N	124 52.63574W	Deep Blue	
6/7/2015	21:10	EX1503L2_XBT047_150607	45 44.16699N	124 55.40234W	Deep Blue	
6/8/2015	04:19	EX1503L2_XBT048_150608	46 48.74902N	124 58.45801W	Deep Blue	
6/8/2015	11:22	EX1503L2_XBT049_150608	47 53.49805N	125 1.14551W	Deep Blue	
6/8/2015	14:26	EX1503L2_XBT050_150608	48 20.51709N	124 55.33496W	Deep Blue	

Appendix G: Kongsberg EM 302 Multibeam Sonar Description and Operational Specifications

Several features of the *Okeanos Explorer's* 30 kHz multibeam make it an excellent tool for ocean exploration. The following is a brief description of these features.

Depth Range

The system is designed to map the seafloor in water depths of 10 to 7000 meters. This leaves only the deepest parts of the deeper ocean trenches out of the EM 302's reach. In fact, when the ship transited over the Mariana Trench going to and from Indonesia in 2010, the system was able to detect the bottom at depths of up to 8000 meters.

High Density Data

In multibeam data, the denser the data, the finer resolution maps can be produced. In water deptsh 3000 meters and shallower, the system can operate in dual swath, or multiping mode, which results in increased along track data density. This is achieved by detecting two swaths per ping cycle, resulting in up to 864 beams per ping.

The *Okeanos Explorer* mapping team typically operates the multibeam in high density equidistant ping mode, which results in up to 864 evenly spaced soundings on the seafloor per ping.

Multiple Data Types Collected

The system collects seafloor backscatter data, which provides information about the character of the seafloor in terms of bottom type.

The system also collects water column backscatter data, which has the ability to detect gaseous plumes in the water column. The full value of this feature is still being realized.

FM chirp mode is utilized in water depths greater than 1000 meters, and allows for the detection of the bottom further out from nadir than with previous 30 kHz systems. This results in wider swath widths, giving a higher likelihood of new discoveries as well as efficiency of survey operations.

Multibeam Primer

The area of the seafloor covered, or ensonified, by a single beam within a pulse of sound, or ping, is called the beam footprint. This beam footprint is defined in terms of the across track and along track values. Both of these values are dependent on water depth and the beam width at which the sound pulse is transmitted

and received. The across track beam width value is also dependent on the receive angle, or “listening” angle, of the system, and the angle from nadir which it is received. The transmit angle for the transmit transducer is 0.5°, which is the smallest possible angle currently available for the EM302 system. The further out from nadir a sounding occurs, the larger the footprint will be. The receive angle for the receive transducer is 1°. As an example, as seen in Table 1 below, in 2000 meters of water, a beam footprint will have a radius of 18 meters at nadir but 25 meters by the time it hits the seafloor at an angle 140 degrees out from nadir.

Calculated acrosstrack acoustic beam footprint in meters for EM 302 (high density ping mode, 432 soundings/profile)				
Water depth (m)	**Angle from nadir**			
50	1 deg RX center	90 deg	120 deg	140 deg
100	1	0.5	1	1
200	2	1	2	3
400	4	2	3	5
1000	7	4	6	10
2000	18	9	16	25
4000	35	19	32	-
6000	70	37	-	-
7000	105	56	-	-

Table 1. Calculated across track EM302 beam footprint. Reference: Kongsberg Product description, Kongsberg document 302675 Rev B, Date 14/06/06, p. 17.

Calculated acrosstrack sounding density for EM 302 (high density ping mode, 432 soundings/profile)			
Water depth (m)	**Swath Width**		
50	90 deg	120 deg	140 deg
100	0.2	0.4	0.9
200	0.5	0.8	1.7

400	0.9	1.6	3.5
1000	1.9	3.2	6.9
2000	4.6	8.1	17.4
4000	9.3	16.2	-

Table 2. Calculated across track EM302 sounding density. Reference: Kongsberg Product description, Kongsberg document 302675 Rev B, Date 14/06/06, p. 17.

Acrosstrack sounding density describes the spacing between individual soundings on the seafloor in the acrosstrack direction. The maximum swath of the EM 302 is 150 degrees. At this swath, the sounding density will be the least dense, since the beams will be spread out over a larger horizontal distance over the seafloor. As the swath angle (width) is decreased, the sounding density will increase, as the same number of beams are now spread out over a smaller horizontal distance over the seafloor.

Calculated ping rate and alongtrack resolution for EM 302					
140 deg swath, one profile per ping					
			Alongtrack distance between profiles (m)		
Water depth (m)	Swath Width (m)	Ping Rate (pings/second)	@4 kts	@8 kts	@12 kts
50	275	3.2	0.7	1.2	1.9
100	550	1.8	1.1	2.2	3.3
200	1100	1	2.1	4.2	6.3
400	2200	0.5	4.1	8.2	12.2
1000	5500	0.2	10	20	30
2000	8000	0.1	15.2	30.5	45.7
4000	8000	0.06	19.2	38.5	57.7
6000	8000	0.04	24.5	49	73.4

Table 3. Calculated ping rate and along track EM302 sounding density, one profile per ping. Reference: Kongsberg Product description, Kongsberg document 302675 Rev B, Date 14/06/06, p. 15.

Calculated ping rate and alongtrack resolution for EM 302					
140 deg swath, two profiles per ping					
			Alongtrack distance between profiles (m)		
Water depth (m)	Swath Width (m)	Ping Rate	@4 kts	@8 kts	@12 kts
50	275	3.2	0.3	0.6	0.9
100	550	1.8	0.6	1.1	1.7
200	1100	1	1.1	2.1	3.2
400	2200	0.5	2	4.1	6.1
1000	5500	0.2	5	10	15
2000	8000	0.1	7.6	15.2	22.8

Table 4. Calculated ping rate and along track EM302 sounding density, two profiles per ping. Reference: Kongsberg Product description, Kongsberg document 302675 Rev B, Date 14/06/06, p. 15.

Reference: Kongsberg Product Description: EM 302 multibeam echosounder

Appendix H: Acronyms

- AERONET – Aerosols Robotic Network
- AHB – Atlantic Hydrographic Branch
- ASCII – American Standard Code for Information Interchange
- BIST – built in system test
- CDR – Commander
- CO – Commanding Officer
- CTD – conductivity, temperature, depth
- dB - decibel
- DNP – do not process
- DP - dynamic position(ing)
- ERT – Earth Resources Technology Inc.
- ET – Electronics Technician
- EX – NOAA Ship *Okeanos Explorer*
- FM – frequency modulated / modulation
- FTP – file transfer protocol
- 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)
- NASA – National Aeronautics and Space Agency
- NCDDC – National Coastal Data Development Center
- 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
- ROV – remotely operated vehicle
- SBP – subbottom profiler
- SCS – scientific computer system
- SIS – Seafloor Information System
- SVP – sound velocity profile
- TRU – transceiver unit
- TSG - thermosalinograph
- TX – transmit boards
- USGS – United States Geological Survey

- W - watt
- XBT – expendable bathythermograph
- XO – Executive Officer

Appendix I: Weather Log

This weather log is provided to give environmental conditions related to multibeam data quality.

EX1503L1 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)	NOTES
05/08/2015	12:00	16:00	05/08/2015	080	20	1-3	060	2-4	
05/08/2015	15:00	19:00	05/08/2015	-	-	-	-	-	
05/08/2015	18:00	22:00	05/08/2015	090	18	2-3	080	2-4	
05/08/2015	21:00	1:00	05/09/2015	130	13	1-3	070	2-4	
05/09/2015	0:00	5:00	05/09/2015	100	22	1-3	110	2-4	Went through time change from +4 to +5
05/09/2015	3:00	8:00	05/09/2015	090	20	1-2	110	2-4	
05/09/2015	6:00	11:00	05/09/2015	090	18	1-2	105	2-4	
05/09/2015	9:00	14:00	05/09/2015	080	21	3-4	120	5-6	
05/09/2015	12:00	17:00	05/09/2015	090	22	2-4	130	4-6	
05/09/2015	15:00	20:00	05/09/2015	-	-	2-4	160	5-7	

EX1503L2 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)	NOTES
5/16/2015	11:00	16:00	5/16/2015	320	14	0-1	310	1-2	
5/16/2015	14:00	19:00	5/16/2015	345	13	01	330	1-2	
5/16/2015	17:00	22:00	5/16/2015	005	13	1-2	350	2-3	
5/16/2015	20:00	01:00	5/17/2015	005	10	1-2	330	2-3	
5/16/2015	23:00	04:00	5/17/2015	010	5	1-2	330	2-3	
5/17/2015	02:00	07:00	5/17/2015	180	5	1-2	330	1-3	
5/17/2015	05:00	10:00	5/17/2015	027	.1	1-2	210	1-2	
5/17/2015	08:00	13:00	5/17/2015	110	5	0-1	320	1-2	
5/17/2015	11:00	16:00	5/17/2015	150	9	1	27	1-2	
5/17/2015	14:00	19:00	5/17/2015	170	15	0-1	290	1-2	
5/17/2015	17:00	22:00	5/17/2015	100	17	2-3	200	2-3	
5/17/2015	20:00	01:00	5/18/2015	170	2	1-2	100	2-3	
5/17/2015	23:00	04:00	5/18/2015	160	10	1-2	100	2-3	
5/18/2015	02:00	07:00	5/18/2015	030	6	1-2	100	2-3	
5/18/2015	05:00	10:00	5/18/2015	196	4	1	100	2-3	
5/18/2015	08:00	13:00	5/18/2015	190	2	1	080	1-2	
5/18/2015	11:00	16:00	5/18/2015	20	3	1	280	1-2	
5/18/2015	14:00	19:00	5/18/2015	161	5.8	0-1	280	1-2	
5/18/2015	17:00	22:00	5/18/2015	VAR	LIGHT	0-1	350	1-2	
5/18/2015	20:00	01:00	5/19/2015	00	1	0-1	150	0-1	
5/18/2015	23:00	04:00	5/19/2015	330	CALM	1	200	1-2	
5/19/2015	02:00	07:00	5/19/2015	100	3	0-1	200	1-2	
5/19/2015	05:00	10:00	5/19/2015	163	6	0-1	200	1-2	
5/19/2015	08:00	13:00	5/19/2015	135	4	0-1	040	2-3	

EX1503L2 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)	NOTES
5/19/2015	11:00	16:00	5/19/2015	VAR	2	0-1	070	1-2	
5/19/2015	14:00	19:00	5/19/2015	190	6	0-1	040	1-2	
5/19/2015	17:00	22:00	5/19/2015	180	6	0-1	040	2-3	
5/19/2015	20:00	01:00	5/20/2015	060	15	0-1	040	2-3	
5/19/2015	23:00	04:00	5/20/2015	100	5	0-1	040	2-3	
5/20/2015	02:00	08:00	5/20/2015	180	5	0-1	040	1-3	Time changed from +5 to +6
5/20/2015	05:00	11:00	5/20/2015	174	2	0-1	045	1-3	
5/20/2015	08:00	14:00	5/20/2015	205	5	0-1	050	2-3	
5/20/2015	11:00	17:00	5/20/2015	140	8	0-1	190	1-2	
5/20/2015	14:00	20:00	5/20/2015						
5/20/2015	17:00	23:00	5/20/2015	340	6	0-1	060; 180	0-1	
5/20/2015	20:00	02:00	5/21/2015	200	10	0-1	060	1-2	
5/20/2015	23:00	05:00	5/21/2015	185	11	0-1	060	1-2	
5/21/2015	02:00	08:00	5/21/2015	200	18	1-2	060	2-3	
5/21/2015	05:00	11:00	5/21/2015	222	7	-	060	0-1	
5/21/2015	08:00	14:00	5/21/2015	230	4	0-1	220	1-2	
5/21/2015	11:00	17:00	5/21/2015	015	5	0-1	250	1-2	
5/21/2015	14:00	20:00	5/21/2015	045	7	0-1	330	1-2	
5/21/2015	17:00	23:00	5/21/2015	068	8	0-1	060; 120	1-2	
5/21/2015	20:00	02:00	5/22/2015	070	12	0-1	090	1-2	
5/21/2015	23:00	05:00	5/22/2015	080	15	0-1	090	1-2	
5/22/2015	02:00	08:00	5/22/2015	130	14	0-1	090	1-2	
5/22/2015	05:00	11:00	5/22/2015	052	9	0-1	130	2-3	
5/22/2015	08:00	14:00	5/22/2015	130	11	1	090	2-3	
5/22/2015	11:00	17:00	5/22/2015	125	7	1-2	090; 060	1-2; 2-3	
5/22/2015	14:00	20:00	5/22/2015	090	6	1-2	090	2-3	
5/22/2015	17:00	23:00	5/22/2015	100	8	1-2	090	2-3	
5/22/2015	20:00	02:00	5/23/2015	130	8	1-2	090	2-4	
5/22/2015	23:00	05:00	5/23/2015	150	10	1-2	090	2-4	
5/23/2015	02:00	08:00	5/23/2015	160	5	1-2	090	24	
5/23/2015	05:00	11:00	5/23/2015	035	13	1-2	090	3-4	
5/23/2015	08:00	14:00	5/23/2015	070	12	0-1	150	2-3	
5/23/2015	11:00	17:00	5/23/2015	0775	8	01	060	1-2	
5/23/2015	14:00	20:00	5/23/2015	055	9	0-1	343	1-2	
5/23/2015	17:00	23:00	5/23/2015	033	6	0-1	325;130	1-3	
5/23/2015	20:00	02:00	5/24/2015	020	6	0-1	330;130	2-4; 1-3	
5/23/2015	23:00	05:00	5/24/2015	050	8	0-1	330	2-4	
5/24/2015	02:00	08:00	5/24/2015	040	6	1-2	330	2-4	
5/24/2015	05:00	12:00	5/24/2015	010	10	1-2	330	3-4	
5/24/2015	08:00	15:00	5/24/2015	020	12	2-3	330	5-6	
5/24/2015	11:00	18:00	5/24/2015	045	14	2-3	330	4-5	
5/24/2015	14:00	21:00	5/24/2015	040	10	2-3	330	3-5	
5/24/2015	17:00	00:00	5/24/2015	040	10	2-3	340	3-5	
5/24/2015	20:00	03:00	5/25/2015	020	17	2-3	340	4-5	
5/24/2015	23:00	06:00	5/25/2015	020	13	2-3	340	4-5	

EX1503L2 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)	NOTES
5/28/2015	11:00	18:00	5/28/2015	330	18	2-3	330	5-6	
5/28/2015	14:00	21:00	5/28/2015	340	16	2-3	340	3-5	
5/28/2015	17:00	00:00	5/29/2015	320	16	2-3	330	3-6	
5/28/2015	20:00	03:00	5/29/2015	310	20	3-4	340	3-6	
5/28/2015	23:00	06:00	5/29/2015	320	19	3-4	330	4-6	
5/29/2015	02:00	09:00	5/29/2015	300	22	2-4	330	5-7	
5/29/2015	05:00	12:00	5/29/2015	310	22	2-4	330	5-7	
5/29/2015	08:00	15:00	5/29/2015	320	18	2-4	330	5-7	
5/29/2015	11:00	18:00	5/29/2015	330	17	2-4	330	5-7	
5/29/2015	14:00	21:00	5/29/2015	330	15	2-4	330	5-7	
5/29/2015	17:00	00:00	5/30/2015	320	18	2-4	320	5-7	
5/29/2015	20:00	03:00	5/30/2015	310	20	2-4	320	5-7	
5/29/2015	23:00	06:00	5/30/2015	335	15	2-4	320	5-7	
5/30/2015	02:00	09:00	5/30/2015	320	13	2-4	320	4-6	
5/30/2015	05:00	12:00	5/30/2015	330	17	2-4	320	4-6	
5/30/2015	08:00	15:00	5/30/2015	310	10	1-3	320	3-5	
5/30/2015	11:00	18:00	5/30/2015						**In Port, San Francisco**
5/30/2015	14:00	21:00	5/30/2015						
5/30/2015	17:00	00:00	5/31/2015						
5/30/2015	20:00	03:00	5/31/2015						
5/30/2015	23:00	06:00	5/31/2015						
5/31/2015	02:00	09:00	5/31/2015						
5/31/2015	05:00	12:00	5/31/2015						
5/31/2015	08:00	15:00	5/31/2015						
5/31/2015	11:00	18:00	5/31/2015						
5/31/2015	14:00	21:00	5/31/2015						
5/31/2015	17:00	00:00	6/1/2015						
5/31/2015	20:00	03:00	6/1/2015						
5/31/2015	23:00	06:00	6/1/2015						
6/1/2015	02:00	09:00	6/1/2015						
6/1/2015	05:00	12:00	6/1/2015						
6/1/2015	08:00	15:00	6/1/2015						
6/1/2015	11:00	18:00	6/1/2015						
6/1/2015	14:00	21:00	6/1/2015						
6/1/2015	17:00	00:00	6/2/2015						
6/1/2015	20:00	03:00	6/2/2015						
6/1/2015	23:00	06:00	6/2/2015						
6/2/2015	02:00	09:00	6/2/2015						
6/2/2015	05:00	12:00	6/2/2015						
6/2/2015	08:00	15:00	6/2/2015						
6/2/2015	11:00	18:00	6/2/2015						
6/2/2015	14:00	21:00	6/2/2015						
6/2/2015	17:00	00:00	6/3/2015						
6/2/2015	20:00	03:00	6/3/2015						
6/2/2015	23:00	06:00	6/3/2015						
6/3/2015	02:00	09:00	6/3/2015						

EX1503L2 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)	NOTES
6/3/2015	05:00	12:00	6/3/2015						
6/3/2015	08:00	15:00	6/3/2015						
6/3/2015	11:00	18:00	6/3/2015						
6/3/2015	14:00	21:00	6/3/2015						
6/3/2015	17:00	00:00	6/4/2015						
6/3/2015	20:00	03:00	6/4/2015						
6/3/2015	23:00	06:00	6/4/2015						
6/4/2015	02:00	09:00	6/4/2015						
6/4/2015	05:00	12:00	6/4/2015						
6/4/2015	08:00	15:00	6/4/2015						
6/4/2015	11:00	18:00	6/4/2015						
6/4/2015	14:00	21:00	6/4/2015						
6/4/2015	17:00	00:00	6/5/2015	325	14	2	305	6-8	
6/4/2015	20:00	03:00	6/5/2015	307	35	4-6	315	11-15	
6/4/2015	23:00	06:00	6/5/2015	320	27	4-6	315	11-15	
6/5/2015	02:00	09:00	6/5/2015	340	25	6-8	315	10-14	
6/5/2015	05:00	12:00	6/5/2015	340	26	6-8	315	10-14	
6/5/2015	08:00	15:00	6/5/2015	325	29	6-8	330	10-14	
6/5/2015	11:00	18:00	6/5/2015	330	26	5-7	330	9-13	
6/5/2015	14:00	21:00	6/5/2015	320	33	5-7	330	8-12	
6/5/2015	17:00	00:00	6/6/2015	330	41	5-7	340	10-13	
6/5/2015	20:00	03:00	6/6/2015	50	22	3-5	340	6-8	
6/5/2015	23:00	06:00	6/6/2015	350	14	3-5	340	6-8	
6/6/2015	02:00	09:00	6/6/2015	320	20	4-6	340	8-10	
6/6/2015	05:00	12:00	6/6/2015	010	20	4-7	340	8-10	
6/6/2015	08:00	15:00	6/6/2015	000	30	4-7	340	8-11	
6/6/2015	11:00	18:00	6/6/2015	345	30	5-7	345	9-12	
6/6/2015	14:00	21:00	6/6/2015	340	33	5-7	350	9-12	
6/6/2015	17:00	00:00	6/7/2015	005	32	5-7	350	9-12	
6/6/2015	20:00	03:00	6/7/2015	020	20	4-6	350	8-10	
6/6/2015	23:00	06:00	6/7/2015	000	20	5-7	350	7-9	
6/7/2015	02:00	09:00	6/7/2015	000	16	3-5	350	6-8	
6/7/2015	05:00	12:00	6/7/2015	350	16	3-5	350	4-6	
6/7/2015	08:00	15:00	6/7/2015	345	18	2-4	350	5-7	
6/7/2015	11:00	18:00	6/7/2015	340	19	3-5	350	5-7	
6/7/2015	14:00	21:00	6/7/2015	320	23	3-5	350	5-7	
6/7/2015	17:00	00:00	6/8/2015	325	20	3-5	340/350	5-7	
6/7/2015	20:00	03:00	6/8/2015	325	19	3-5	330	6-8	
6/7/2015	23:00	06:00	6/8/2015	330	25	3-5	310	6-8	
6/8/2015	02:00	09:00	6/8/2015	340	20	3-5	310	5-7	
6/8/2015	05:00	12:00	6/8/2015	320	20	3-5	320	5-7	
6/8/2015	08:00	15:00	6/8/2015	275	12	2-4	315	5-6	
6/8/2015	11:00	18:00	6/8/2015	240	12	1-3	290	3-4	
6/8/2015	14:00	21:00	6/8/2015	295	13	1-3	300	2-4	
6/8/2015	17:00	00:00	6/9/2015	270	12	1-2	300	2-3	

Appendix J: Software Inventory

Software	Version	Computer	License	Expiration Date	Agreements	Hot fix	Contract Duration	Warranty Expiration	Contact	Notes
SIS EM 302	4.1.3	Multibeam	[redacted]	N/A	N/A	N/A	No info available	No info available	Support email:km.support.lynnwood@kongsberg.com Email:tony.dahlheim@kongsberg.com	purchased & maintained by OER personel
Velocipy	13.2 (r4441)	CTD	[redacted]	N/A	N/A	N/A	N/A	N/A		
POS Controller/Applanix	POS MV V4 Firmware v5.08 and POSView v4.0.2.0 SN# 2572	Wetlab	[redacted]	N/A	N/A	N/A	N/A		NOAA Internal - HSTP Caryn Arnold - 206.526.4762 (caryn.arnold@noaa.gov)	
Caris HIPS	8.1.11	MBPROC1	[redacted]	12/31/2014 Yearly update via website	all	all	5 years for both dongles (2014)		Leon Quick at CARIS customer support (leon.quick@caris.com) Downloads: http://support.caris.com	
	8.1.11	MBPROC2								
	build 2014-12-11_19-30-23									
Fledermaus (IVS 3D)	7.4.2a build 114	MBPROC2	[redacted]	8/31/2014		N/A	1 year (09/2015)	30-Sep-15	support@ivs3d.com, 1.506.454.4487 License # 1601472614 use dongle ID to download	purchased & maintained by OER personel
	7.4.2a build 114	MBPROC3		8/31/2014	1 yr of support w/ dongle	N/A	1 year (09/2015)			
	7.4.2a	MBPROC1								
KAP Converter	4.0.0.10	N/A	[redacted]	N/A	N/A	N/A	N/A		NOAA Internal - HSTP Caryn Arnold - 206.526.4762 (caryn.arnold@noaa.gov)	
Pydro	13.2m (r4441)	CTD	[redacted]	1/1/2010	N/A	N/A	N/A		NOAA Internal - HSTP Caryn Arnold - 206.526.4762 (caryn.arnold@noaa.gov)	
Hypack ROV	14.0.023	EX-Hypack	[redacted]	9/30/2014	Maintenance	N/A	N/A	8/30/2012	Mike Annis (HSTP POC) Michael.J.Annis@noaa.gov	
Hypack	15.0.1.1	EXPlanning	[redacted]	2/18/2012	Maintenance	N/A	N/A	2/18/2012	www.hypack.com| http://support.hypack.com/support	purchased & maintained by OER personel
Seasave 7	7.23.2	CTD & Hydrophone	[redacted]	N/A	N/A	www.seabird.com	N/A	N/A	1.425.643.9954 Sea-Bird Electronics, Bellingham WA	
SCS	v4.9.0.2769	SCS-A	[redacted]	N/A	N/A	N/A	N/A	N/A	EEB - Tom Stepka 240.472.5351 (cell) 301.713.7678 (work) 703.641.0195 (home); tom.stepka@noaa.gov	Client on SCS Display, Engineering Computer, and Bridge
C-NAV	5.1.18	N/A	[redacted]	8/6/2015	6 mos	N/A	6 mos		CC Technology - 1.337.261.0660 cnav.support@cctechnol.com	
Knudson SBP, Sounder Suite Echo Control Server and Client	Client: V.271 Server: V.2.73	Knudsen SBP	[redacted]	N/A	N/A	N/A	N/A		Technical Operations Manager - Darren Gibson - 613.267.1165	Server= V.273 Part# D409-04185 Client=V 2.71 | software updated March 3, 2013 Chirp Firmware 2.85; Client v2.73; Server v2.77
SEG-Y JP2 & Viewer	1	EXSCSCL2	[redacted]							
SonarWiz	5.04.0006	EXSCSCL2	[redacted]	10-Apr-15	EMA 05/14/12	N/A	3 Years	7-Feb-14	Cheasapeake Technologies Inc. Eileen Gann (etgann@chesapeaketech.com)	purchased & maintained by OER personel
ESRI ArcMap	10.3	EXSCSCL2	[redacted]	25-Sep-14	Software Updates	N/A	1 year		Andra Bobbitt	purchased & maintained by OER personel
Global Mapper	16.1 (B021115)	EXSCSCL2	[redacted]	1-Apr-16	Support	N/A	1 year		Global Mapper Support - support@globalmapper.com	
SIMRAD ER60	2.4.0	EK60	[redacted]						Support email:km.support.lynnwood@kongsberg.com Email:tony.dahlheim@kongsberg.com	
FileZilla		**SCS Server A**	[redacted]							