

**NOAA Office of Ocean Exploration and Research**

# **MAPPING DATA ACQUISITION AND PROCESSING REPORT**

**CRUISE EX-13-02**

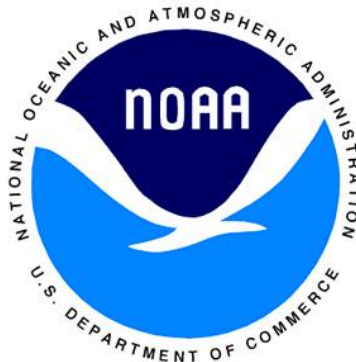
Ship Shakedown & Multibeam Patch Test,  
ROV Shakedown & Field Trials,  
NE Canyons Exploration

May 13- June 6, 2013  
Charleston, South Carolina to North Kingstown, Rhode Island

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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 the basic research required to document discoveries, and seamlessly disseminate data and information-rich products to a multitude of users. OER strives to develop technological solutions and innovative applications to critical problems in undersea exploration and to provide resources for developing, testing, and transitioning solutions to meet these needs.

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

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

## Table of Contents

1. Introduction .....	2
2. Report Purpose .....	4
3. Cruise Objectives .....	4
4. Participating Mapping Personnel .....	4
5. Summary of Major Findings .....	5
Cruise Map .....	5
Features of Interest .....	7
Multibeam Calibration Test - Cape Fear Diapir.....	7
Multibeam Reference Surface - Unnamed Diapir at 33° 28.7 N, 75° 41.0 W .....	7
Washington Canyon seeps.....	8
Knauss Seamount .....	10
Mytilus Seamount.....	10
ROV Dive Targets.....	12
6. Mapping Statistics .....	12
7. Mapping Sonar Setup .....	13
8. Data Acquisition Summary .....	13
EM 302 Data .....	13
EK 60 Singlebeam Data .....	13
Knudsen Subbottom Profiler Data .....	13
Sound Velocity .....	14
9. Sonar Data Quality Assessment and Data Processing.....	14
EM 302 MultibeamBathymetry Data .....	14
EM 302 MultibeamCrossline Analysis .....	14
EM 302 Built In System Tests(BISTs).....	17
EK 60 Singlebeam Sonar Data .....	20
Knudsen 3260 Subbottom Profiler Data .....	21
10. Telepresence .....	21
11. Data Archival Procedures.....	21
12. Cruise Calendar .....	21
13. Daily Cruise Log .....	22
14. References .....	27
15. Appendices .....	28
Appendix A: EX-13-02 Data Management Plan.....	28
Appendix B: Categorical Exclusion Letter .....	41
Appendix C: SURVEY OF OPPORTUNITY: NASA Maritime Aerosols Network .....	42
Appendix D: EM 302 Processing Parameters .....	43
Appendix E: EM 302 Built In System Test (BIST) Results.....	49
Appendix F: Data Tables.....	54

Appendix G: Kongsberg EM 302 Multibeam Sonar Description and Operational Specifications 128

Appendix H: Acronyms..... 131

Appendix I: Weather Log..... 133

**2. Report Purpose**

The purpose of this report is to briefly describe the mapping data collection and processing methods utilized during EX-13-02, and to report the cruise results with respect to mapping data. This report does not attempt to summarize overall ROV shakedown cruise results, which were the main objective for the latter two weeks of the cruise.

For a detailed description of the *Okeanos Explorer* mapping capabilities, see the appendix section 'Kongsberg EM 302 Multibeam Sonar Description and Operational Specifications' and the ship's readiness report, which can be obtained by contacting the ship's operations officer (ops.explorer@noaa.gov) or the *Okeanos Explorer* Mapping team ([oar.oer.mapping@noaa.gov](mailto:oar.oer.mapping@noaa.gov)).

**3. Cruise Objectives**

The cruise objectives for EX-13-02 as defined in the project instructions are summarized below.

*Post Dry Dock Mapping Shakedown (May 13-17, 2013):*

All scientific sonar systems were tested to ensure they are in proper working order following the May 2013 dry dock and subbottom profiler noise mitigation work. This included conducting a multibeam calibration ("patch") test, surveying a multibeam reference surface, conducting an EK 60 calibration, testing the newly installed Reson 70 sound velocity probe, and assessing the impact of noise mitigation measures undertaken on the subbottom transducers.

*ROV Shakedown (May 18- June 6, 2013):*

EX-13-02 was the first cruise with NOAA's new 6000 meter rated ROV *Deep Discoverer (D2)*. Following a successful USBL calibration, operational system tests of *D2* were conducted. Deck and bridge personnel practiced underway launch and recovery procedures, and training was ongoing for ROV and video engineer positions in the control room. 24-hour ROV operations were tested to determine staffing constraints.

Opportunistic mapping operations were conducted during overnight transit between ROV dive sites as staffing levels allowed. Key ROV dive sites were remapped to confirm the presence and seabed locations of previously detected seeps.

**4. Participating Mapping Personnel**

NAME	ROLE	AFFILIATION
CDR Ricardo Ramos	Commanding Officer	NOAA Corps
LT Laura Gallant	Field Operations Officer	NOAA Corps
Brian Kennedy	Expedition Coordinator	NOAA Corps
Elizabeth "Meme" Lobecker	Mapping Team Lead	NOAA OER (ERT Inc.)
Jacklyn James	Survey Technician	NOAA OMAO
Richard Conway	Chief Electronics Technician	NOAA OMAO - EEB
Vanessa Self-Miller	Physical Scientist	NOAA AHB

Ash Harris	Mapping Watchstander	NOAA OER / UCAR
Jennifer Kist	Mapping Watchstander	NOAA OER (ERT Inc.)

## 5. Summary of Major Findings

### *Cruise Map*

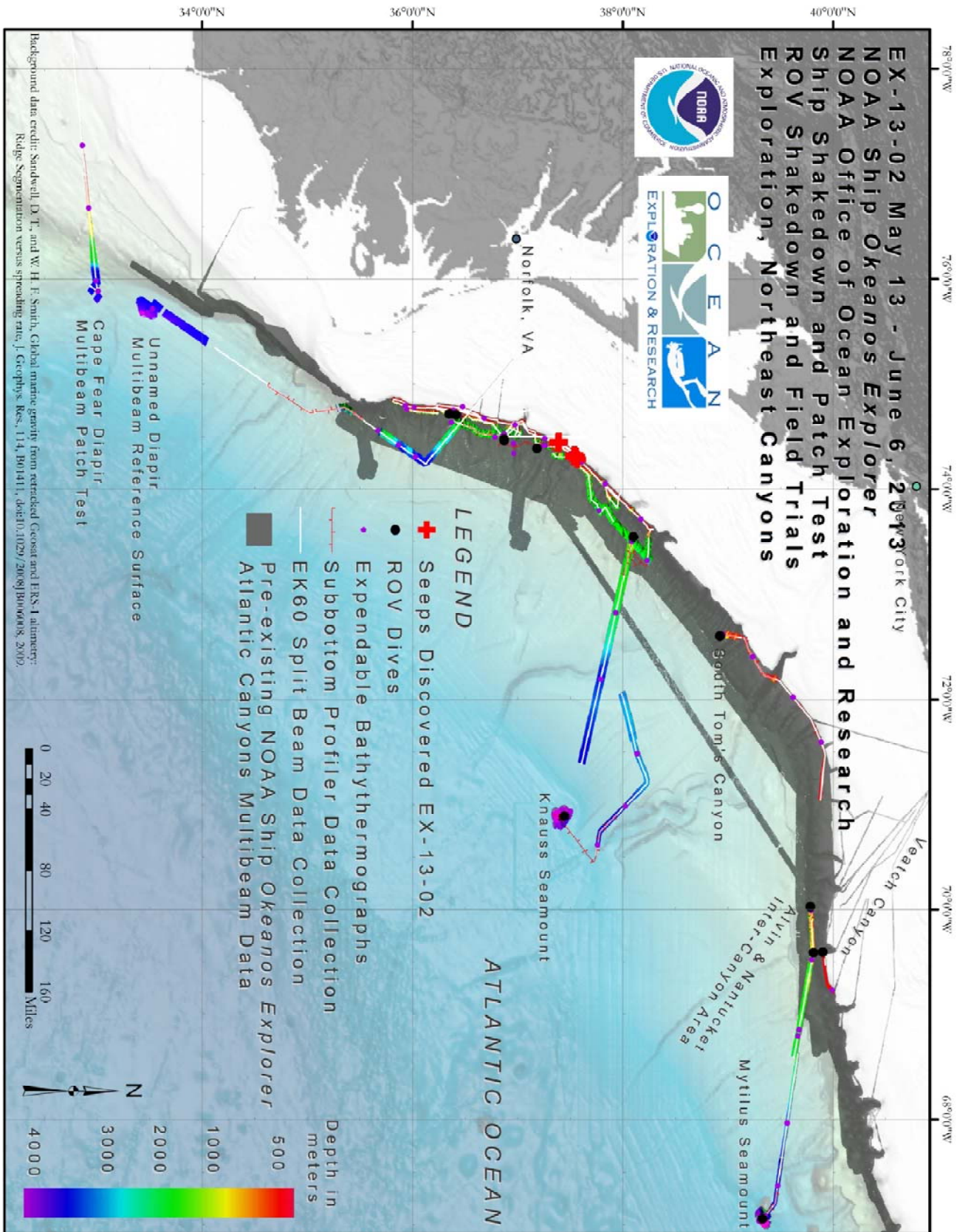


Figure 1. Cruise map made in ArcMap 10 showing overall cruise track and key operational areas.

## *Features of Interest*

### *Multibeam Calibration Test - Cape Fear Diapir*

The Cape Fear Diapir was selected as the multibeam calibration site due to the existence of prior *Okeanos Explorer* EM 302 data from expedition EX-12-05 Leg 1, and for the presence of flat areas adjacent to 10° to 20° slopes on the diapir. Additionally, the presence of at least eight previously detected seeps at the diapir provided the opportunity to test the water column capability of both the EM 302 and the EK 60 sonars. The results of the calibration are provided in the Sonar Data Quality Assessment section of this report.

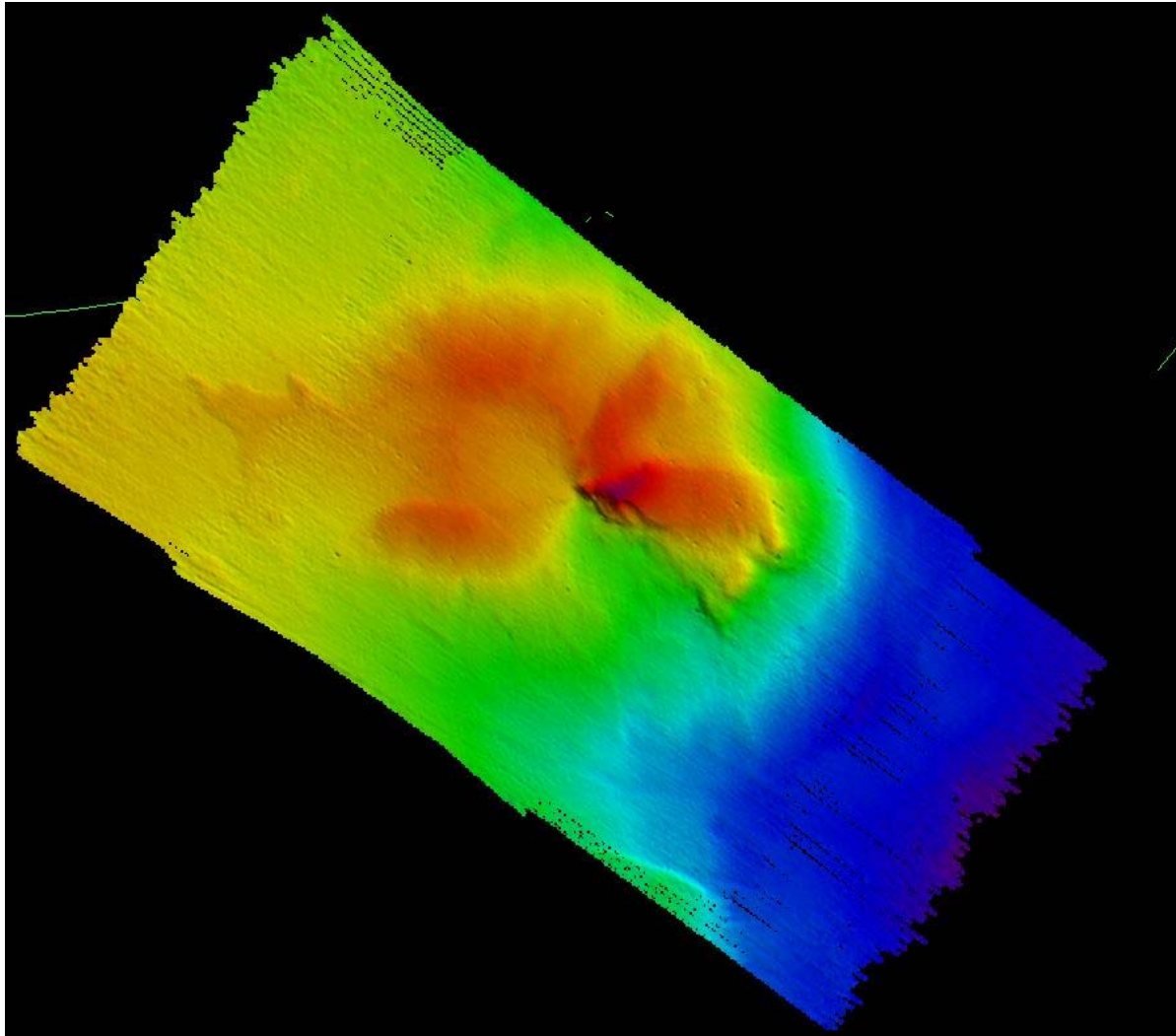


Figure 2. EM 302 multibeam sonar patch test data collected over Cape Fear Diapir. Screenshot of data gridded to 25 meter cell size in CARIS HIPS 7.1.

### *Multibeam Reference Surface - Unnamed Diapir at 33° 28.7 N, 75° 41.0 W*

The unnamed diapir located at 32° 28.7 N, 75° 41.0 W was chosen for the multibeam reference surface, and provided an opportunity to collect baseline comprehensive mapping data over a previously unexplored feature. There were no water column anomalies detected at the diapir. The reference surface collected over the unnamed diapir was comprised of the following lines:

0016\_20130515\_095731\_EX-13-02\_MB.all (299°)  
0008\_20130515\_061721\_EX1302\_MB.all(210°)  
0010\_20130515\_073051\_EX1302\_MB.all(030°)  
0012\_20130515\_084823\_EX1302\_MB.all(210°)

A detailed examination of reference surface showed close agreement amongst different line passes. No apparent artifacts were observed in the reference surface (Figure 3)

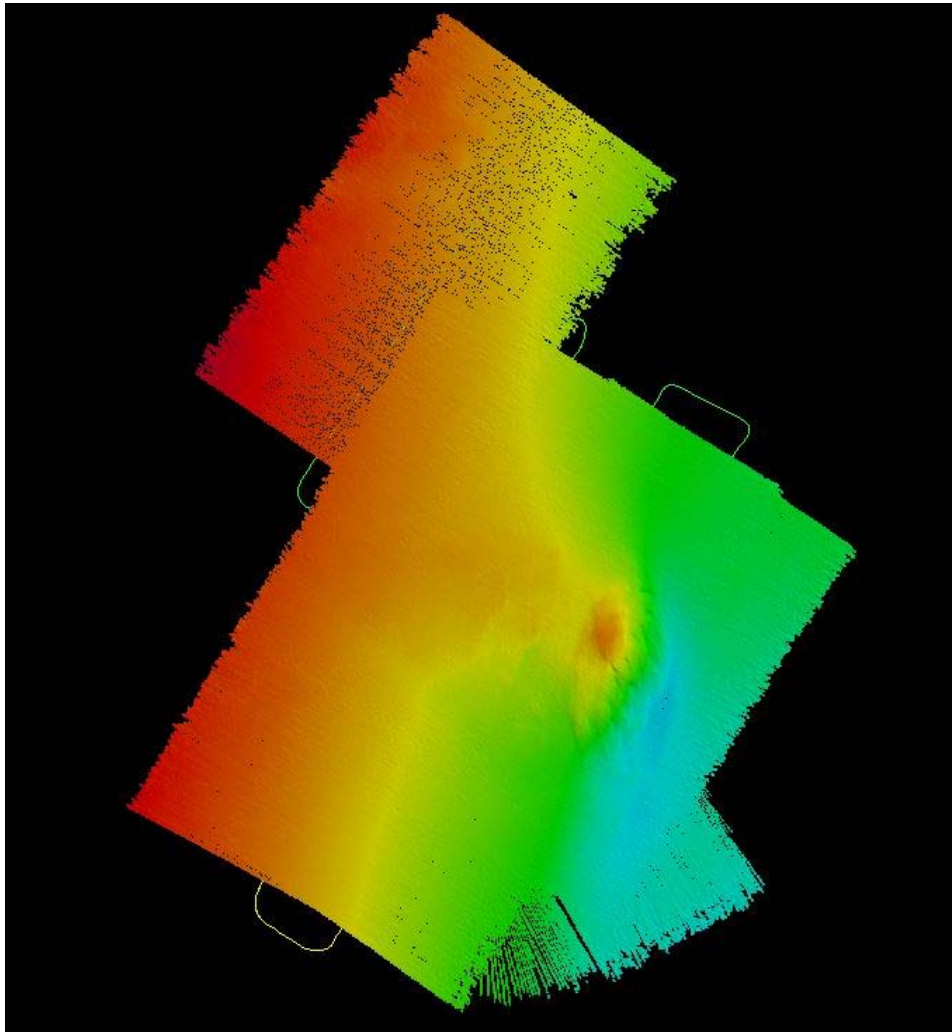


Figure 3. EM 302 multibeam sonar data collected over an unnamed, previously unmapped diapiir. Screenshot of data gridded to 25 meter cell size in CARIS HIPS 7.1.

### *Washington Canyon seeps*

Previously unknown seeps were discovered while developing the shallow portion of the continental shelf break near Washington Canyon.



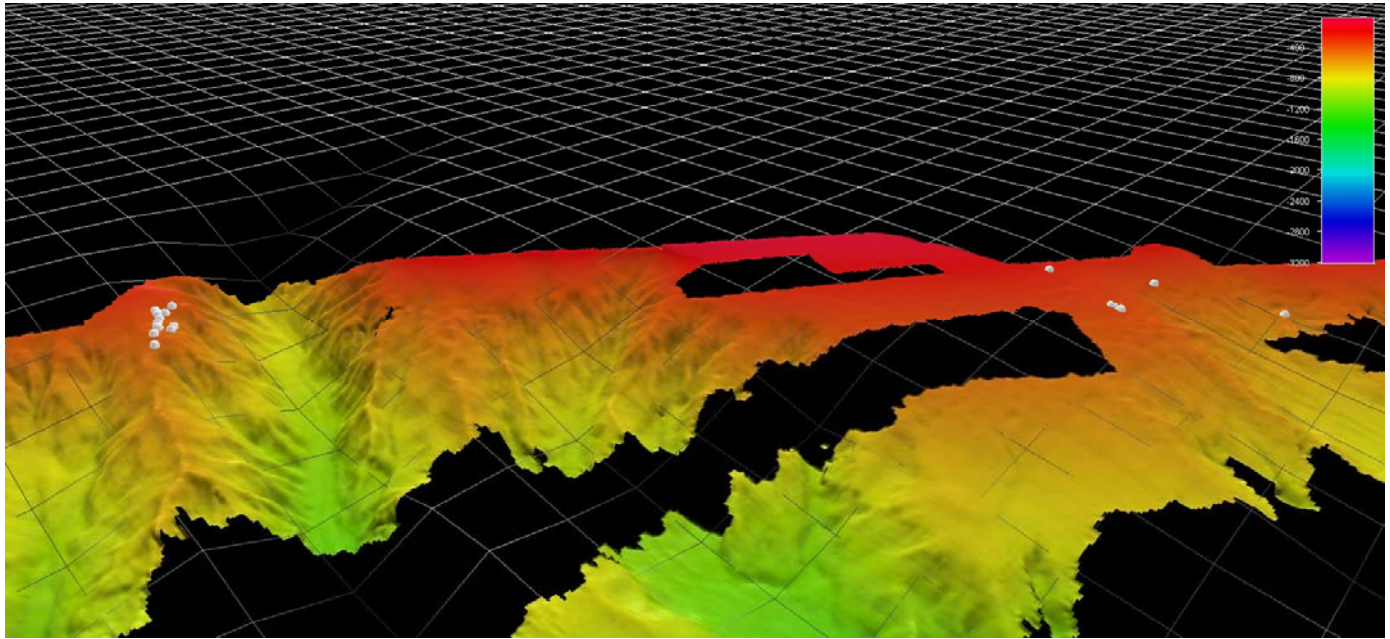


Figure 4. New seeps discovered near Washington Canyon, indicated by white spheres. Background data: Okeanos Explorer EM 302 bathymetry collected during EX-13-02 and Sandwell and Smith satellite altimetry. Color scale bar indicates Okeanos data depths in meters. Image created in Fledermaus v7.

<b>EX-13-02 Seeps Discovered</b>	
<b>Latitude</b>	<b>Longitude</b>
37.5359083	-74.30862126
37.53569853	-74.30846694
37.53599707	-74.30772716
37.53653066	-74.30653786
37.53582854	-74.30661007
37.53615532	-74.30633326
37.53577902	-74.30631679
37.53570384	-74.30615601
37.56733451	-74.2825218
37.39084105	-74.45116818
37.38856838	-74.44921657
37.38706741	-74.45037964
37.38709921	-74.4495844
37.3868719	-74.44890647
37.38652574	-74.44702331
37.38806549	-74.44404366
37.38539041	-74.44506285
37.38683778	-74.44207689
37.38485186	-74.44392203
37.3847776	-74.44297663
37.38302528	-74.44063255
37.38180026	-74.43759896

37.55513699	-74.30666975
37.53941174	-74.32441388

*Knauss Seamount*

Knauss Seamount was mapped on May 28 in preparation for the day's ROV dive.

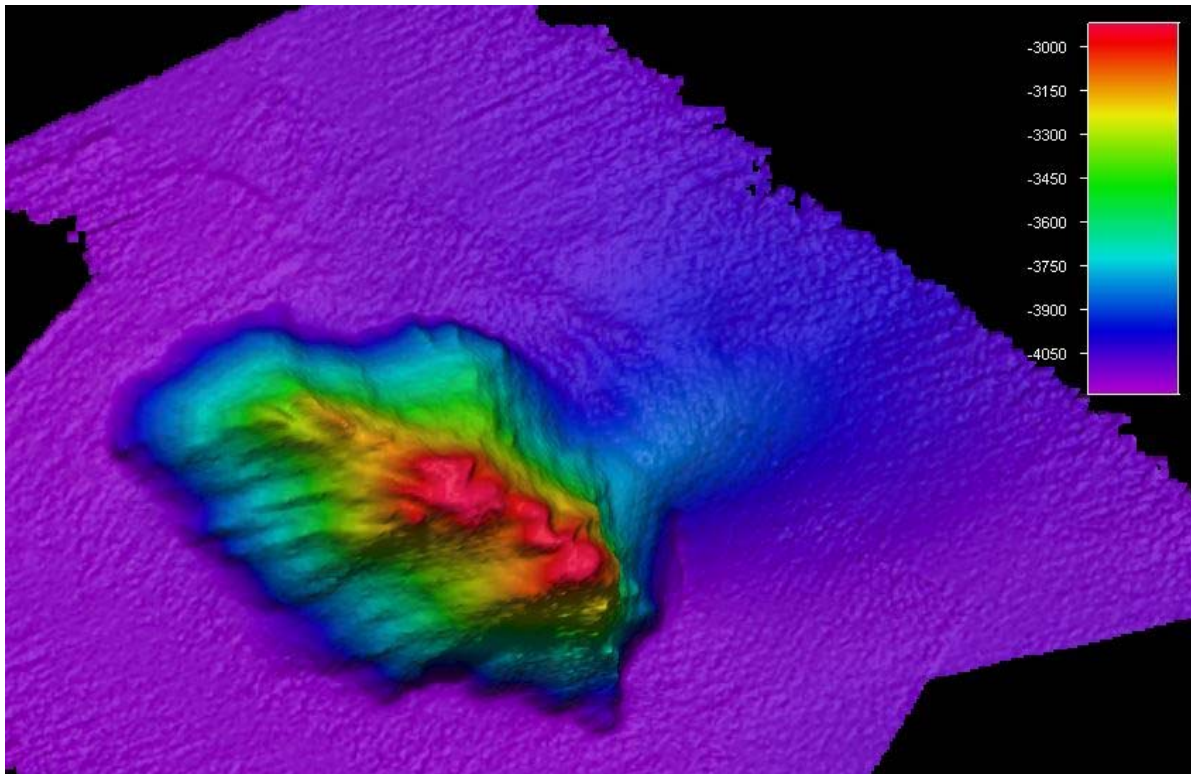


Figure 5. Gridded EM 302 multibeam bathymetry of Mytilus Seamount shown in Fledermaus v7. colored by depth. Color scale bar in meters.

*Mytilus Seamount*

Mytilus Seamount was mapped on June 3 in preparation for the day's ROV dive.

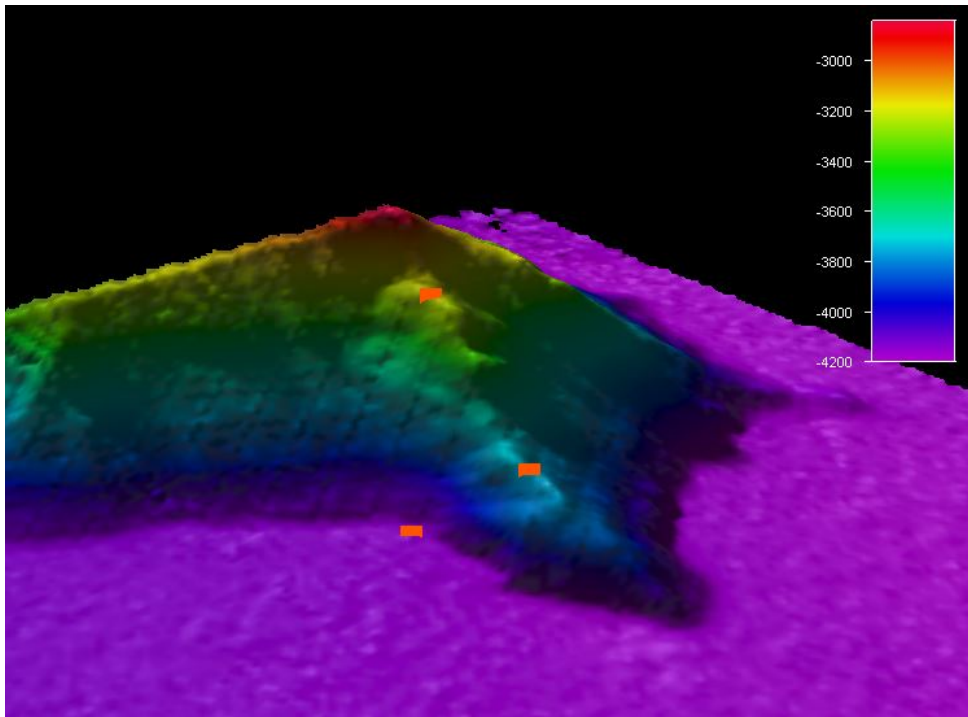


Figure 6. Gridded EM 302 multibeam bathymetry of Mytilus Seamount shown in Fledermaus v7, colored by depth. Planned ROV track indicated with orange cubes. Color scale bar in meters.

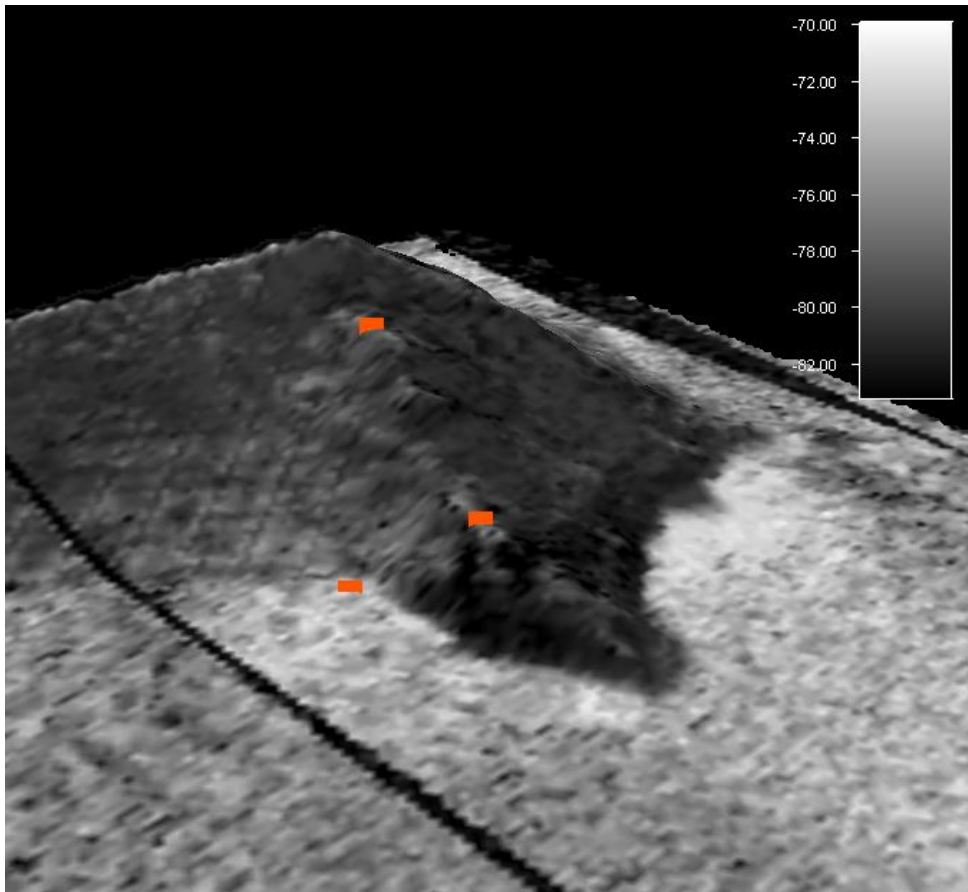


Figure 7. EM 302 multibeam seabed backscatter mosaic draped over gridded bathymetry of Mytilus Seamount shown in Fledermaus v7, colored by depth. Planned ROV track indicated with orange cubes. Color scale bar in decibels.

## ROV Dive Targets

The following table shows ROV dive locations chosen based on gridded bathymetry, bottom backscatter, slope, and water column data.

EX-13-02 ROV Dive Locations					
DIVE ID	Date	Latitude	Longitude	Approximate Depth (meters)	Description
1	5/18/2013	36 24.893 N	074 42.354 W	950	Flat area
2	5/19/2013	36 24.893 N	074 42.354 W	950	Flat area
3	5/20/2013	36 24.893 N	074 42.354 W	950	Flat area
4	5/21/2013	36 21.000 N	074 43.000 W	900	Flat area
5	5/22/2013	36 52.286 N	074 27.874 W	1500	Inter-Canyon
6	5/23/2013	36 52.295 N	074 28.547 W	1475	Inter-Canyon
7	5/26/2013	37 10.931 N	074 23.364 W	1326	Inter-Canyon
8	5/27/2013	38 6.027 N	073 32.737 W	1410	Inter-Canyon
9	5/28/2013	37 26.68 N	070 53.375 W	4075	Knauss Seamount
10	5/31/2013	37 33.825 N	074 16.985 W	500	Shallow Seep
11	6/1/2013	38 55.387 N	072 36.130 W	1700	South Toms Canyon
12	6/2/2013	39 47.023 N	070 1.5655 W	1790	Inter-Canyon
13	6/3/2013	39 19.636 N	067 3.334 W	4120	Mytilus Seamount
14	6/4/2013	39 48.663 N	069 35.338 W	1450	Veatch Canyon Seep
15	6/5/2013	39 54.055 N	069 35.737 W	1130	Veatch Canyon

## 6. Mapping Statistics

Dates	May 13 - June 6, 2013
Mapping time lost to weather	16 hours
Partial mapping days	25 days
Total non-mapping days	0 days
Line kilometers of survey	2,751.8 km
Square kilometers mapped	9,514.2 km <sup>2</sup>
Number / Data Volume of EM 302 raw bathymetric / bottom backscattermultibeam files	200 / 20.3 GB
Number / Data Volume of EM 302 water column multibeam files	195 / 63.7 GB
Number / Data Volume of EK 60 water column singlebeam files	948 / 2.44 GB
Number / Data Volume of subbottom sonar files	264 / 800 MB
Number of XBT casts	60
Number of CTD casts (including test casts)	1
Beginning draft	Forward: 15' ; Aft: 14'03"

## 7. Mapping Sonar Setup

A full readiness report is available by contacting the ship (ops.explorer@noaa.gov). Following is a brief description of mapping equipment. The NOAA Ship *Okeanos Explorer* is equipped with a 30 kHz Kongsberg EM 302 multibeam sonar capable of mapping the seafloor in 0 to 8000 meters of water. The system generates a 150° beam fan containing up to 432 soundings per ping in waters deeper than 3000 meters. In waters less than 3000 meters, the system is operated in multiping, or dual swath mode, and obtains up to 864 soundings per ping, by generating two swaths per ping cycle. The appendix section of this report contains a detailed description of sonar system functionality and technical specifications, including crosstrack and alongtrack data resolutions.

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.

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

## 8. Data Acquisition Summary

EX-13-02 operations included EM 302 multibeam, EK 60 singlebeam, and Knudsen 3260 subbottom profile data collection. Background data used for mapping planning included multibeam data collected by the U.S. Extended Continental Shelf Project (<http://continentalshef.gov/> last accessed 09/10/13) and Sandwell and Smith satellite altimetry bathymetric data ([http://topex.ucsd.edu/marine\\_topo/](http://topex.ucsd.edu/marine_topo/) last accessed 10/9/13).

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

### *EM 302 Data*

EM 302 multibeam data was collected during evening hours after the ROV was recovered.

### *EK 60 Singlebeam Data*

EK 60 singlebeam sonar data was collected in conjunction with all times of EM 302 data collection, with the exception of the May 15 noise level testing. Tracklines for all EK 60 data collected are shown in Figure 1.

### *Knudsen Subbottom Profiler Data*

Knudsen subbottom sonar data collection occurred daily following evening ROV recovery until 0200 UTC (2200 local ship time). The subbottom was also operated opportunistically during daylight hours if ROV dives were cancelled. Focused subbottom surveys were planned in conjunction with USGS scientists over a

seep cluster discovered by Okeanos Explorer offshore Virginia and over the Currituck Landslide offshore North Carolina. Tracklines for all subbottom profiler data are shown in Figure 1.

### ***Sound Velocity***

Expendable bathythermographs were deployed every two to four hours to observe changes in sound speed in the water column, and the resulting processed profiles were applied in real time using Seafloor Information Software (SIS). Sound speed at the multibeamsonar head was determined using the thermosalinograph from May 13 - May 17, and using the Reson SVP-70 probe from May 18 to the end of the cruise, with the exception June 3, when the TSG was performing better in heavy seas. Data from these two systems was monitored for consistency throughout the cruise, and are available in the NODC archives.

## **9. Sonar Data Quality Assessment and Data Processing**

### ***EM 302 Multibeam Bathymetry Data***

A multibeam calibration "patch" test was run on May 14 over the Cape Fear Diapir. The results were analyzed by three experienced mapping scientists using Kongsberg's SIS Calibration Tool and the CARIS Calibration Tool. All results were consistent and agreed with currently applied offsets (?). The results of patch test are tabulated below.

<b>Offset Test</b>	<b>Line Numbers</b>	<b>Speed (kts)</b>	<b>Heading</b>	<b>Offset</b>
Timing	0000_20130514_151828_EX1302_MB.all 0002_20130514_171416_EX1302_MB.all	4 8	35°	0 seconds
Pitch	0000_20130514_151828_EX1302_MB.all 0001_20130514_142318_EX1302_MB.all - 0002_20130514_171416_EX1302_MB.all 0001_20130514_162553_EX1302_MB.all	4 4 - 8 8	35° 215° - 35° 215°	-0.73° - -
Heading	0000_20130514_212142_EX1302_MB.all 0002_20130514_230116_EX1302_MB.all	7.5 7.5	35° 35°	-0.1°
Roll	0004_20130515_000238_EX1302_MB.all 0005_20130515_003546_EX1302_MB.all 0006_20130515_005226_EX1302_MB.all	8 8 8	40° 220° 220°	0°

**Table 1. EM 302 transducer offset values determined during EX-13-02 calibration.**

### ***EM 302 Multibeam Crossline Analysis***

Two crosslines were run during the cruise and are analyzed according to the following method. Mainscheme lines were cleaned and gridded in CARIS and were exported as ASCII xyz data. Ascii data were imported into FledermausDMagic, and converted to a SD surface. The SD surface was then compared to the unedited .all crossline file using Fledermaus Crosscheck utility. Following are the EM 302 crossline analysis statistics from Fledermaus Crosscheck, showing multibeam data adherence to the International Hydrographic Organization's Order 1 survey standards.

**The crossline collected on 5/15/13 was:**

0016\_20130515\_095731\_EX-13-02\_MB.all (299°)

**The mainscheme lines compared to this crossline were:**

0008\_20130515\_061721\_EX1302\_MB.all(210°)

0010\_20130515\_073051\_EX1302\_MB.all(030°)

0012\_20130515\_084823\_EX1302\_MB.all(210°)

**Results:**

209136 # Number of Points of Comparison

-3041.680219 # Data Mean

-3041.224559 # Reference Mean

-0.455660 # Mean

0.524570 # Median

5.328300 # Std. Deviation

-3337.61 -2805.55 # Data Z - Range

-3225.57 -2945.64 # Ref. Z - Range

-338.07 177.53 # Diff Z - Range

11.112339 # Mean + 2\*stddev

11.181247 # Median + 2\*stddev

39.539082 #Ord 1 Error Limit

69.955315 #Ord 2 Error Limit

22.810555 # Special Order Error Limit

0.000000 # Custom Error Limit

0.000540 #Ord 1 P-Statistic

0.000220 #Ord 2 P-Statistic

0.005781 # Special Order P-Statistic

1.000000 # Custom P-Statistic

113 #Ord 1 - # Rejected

46 #Ord 2 - # Rejected

1209 # Special Order - # Rejected

209136 # Custom - # Rejected

**1 # Order 1 Survey ACCEPTED**

**1 # Order 2 Survey ACCEPTED**

**1 # Special Order Survey ACCEPTED**

**0 # Custom Survey REJECTED**

**The crossline collected on 5/28/13 was recorded in two files:**

0109\_20130528\_120205\_EX1302\_MB.all (40°)

0110\_20130528\_124321\_EX1302\_MB.all (40°)

**The mainscheme lines compared to this crossline were:**

0099\_20130528\_081832\_EX1302\_MB.all (130°)

0103\_20130528\_094040\_EX1302\_MB.all (310°)  
0107\_20130528\_104941\_EX1302\_MB.all (130°)

**Results:**

126452 # Number of Points of Comparison  
-3924.380614 # Data Mean  
-3923.589916 # Reference Mean  
-0.790700 # Mean  
-0.779460 # Median  
15.350000 # Std. Deviation  
-4497.01 -2924.25 # Data Z - Range  
-4140.95 -3927.61 # Ref. Z - Range  
-393.46 472.23 # Diff Z - Range  
31.491185 # Mean + 2\*stddev  
31.479944 # Median + 2\*stddev  
51.009121 # Ord 1 Error Limit  
90.248108 # Ord 2 Error Limit  
29.427986 # Special Order Error Limit  
0.000000 # Custom Error Limit  
0.005931 # Ord 1 P-Statistic  
0.002333 # Ord 2 P-Statistic  
0.031878 # Special Order P-Statistic  
1.000000 # Custom P-Statistic  
750 # Ord 1 - # Rejected  
295 # Ord 2 - # Rejected  
4031 # Special Order - # Rejected  
126452 # Custom - # Rejected  
**1 # Order 1 Survey ACCEPTED**  
**1 # Order 2 Survey ACCEPTED**  
**1 # Special Order Survey ACCEPTED**  
**0 # Custom Survey REJECTED**

Throughout the cruise, multibeam data quality was monitored in realtime at all times by acquisition watchstanders. XBTs were conducted every two to four hours as necessary to maintain data quality. Ship speed was adjusted to maintain data quality as necessary. Line spacing was planned to ensure ¼ to ½ overlap between lines at all times. Swath cutoff angles in SIS were generally set wide open to 75° on both the port and starboard sides to obtain maximum seafloor coverage.



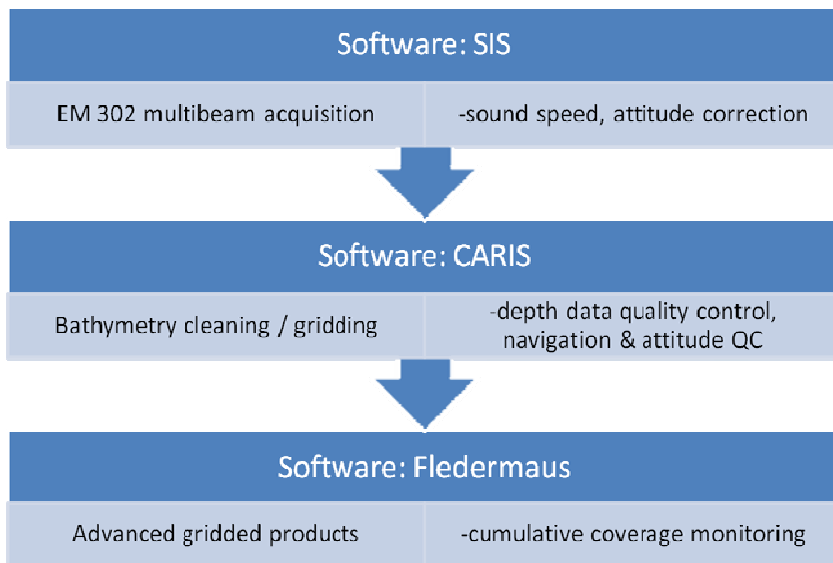


Figure 8. Shipboard multibeam data flow.

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

### ***EM 302 Multibeam Water Column Backscatter Data Processing***

All water column backscatter data files collected by the EM 302 multibeam sonar were reviewed daily for the presence of seeps using Fledermaus Midwater. On an as-needed basis, detected seeps were exported to point cloud SD files and viewed in Fledermaus along with other datasets, including gridded bathymetry and bottom backscatter.

### ***EM 302 Multibeam Bottom Backscatter Data Processing***

On an as-needed basis for exploration decision making purposes, multibeam bottom backscatter data were imported into Fledermaus FMGT, and mosaics were generated. These mosaics aided in selecting ROV dive target locations based on relative acoustic backscatter reflective strength of the seabed.

### ***EM 302 Built In System Tests (BISTs)***

Ten full BISTs were conducted during the cruise to monitor the performance of the EM 302 sonar electronics. Initial BISTs conducted while and alongside and while transiting out of Narragansett Bay showed several failures, which is often the case when leaving the dock due to high noise levels and was not cause for alarm. All subsequent BISTs conducted throughout the cruise showed healthy system status. A summary table of BIST results and a sample full BIST result is provided in the appendices of this report.

On May 15, a series of RX Noise Level BISTs were conducted to assess noise levels received at each transducer element. All other ship's sonars were secured, and generators 1, 2, and 4 were online. A baseline test was run at 0 RPM. Test RPMs started at 50 and were increased incrementally by 5, until 175 RPMs were reached. The RX Noise Level BIST was run 20 times per each RPM setting. The test lasted approximately 4 hours, from 0121 UTC to 0530 UTC. Throughout the test, the ship maintained a heading of 30°. For the four hour period, and the wind and sea state remained relatively steady, shown in the table below.

**Table 2. Environmental conditions during RX Noise Level testing.**

UTC Time	UTC Date	Wind Direction (deg)	Wind Speed (kts)	Wave Height (ft)	Swell Direction (deg)	Swell Height (ft)
0100	5/15/2013	310	15	1-2	010	2-4
0200	5/15/2013	290	10	1-2	010	2-4
0300	5/15/2013	270	10	1-2	010	2-4
0400	5/15/2013	250	08	1-2	010	2-4
0500	5/15/2013	250	12	1-2	010	2-3
0600	5/15/2013	260	9	1-2	010	2-3

Test results were analyzed in consultation with UNH-CCOM-based members of the UNOLS Multibeam Advisory Committee ([mac.unols.org](http://mac.unols.org)), which strives to ensure consistent high-quality multibeam data collection across the U.S. academic research vessel fleet.

Overall low noise levels were in the high 30's to low 40's dB range (deep and light blues), with periodic high noise levels across the entire receive array (shown in green, yellow, and red spectrum). The highest average noise levels were observed at 7 and 8.5 knots. The source of the high noise levels is unknown and is under investigation at the time of the writing of this report.

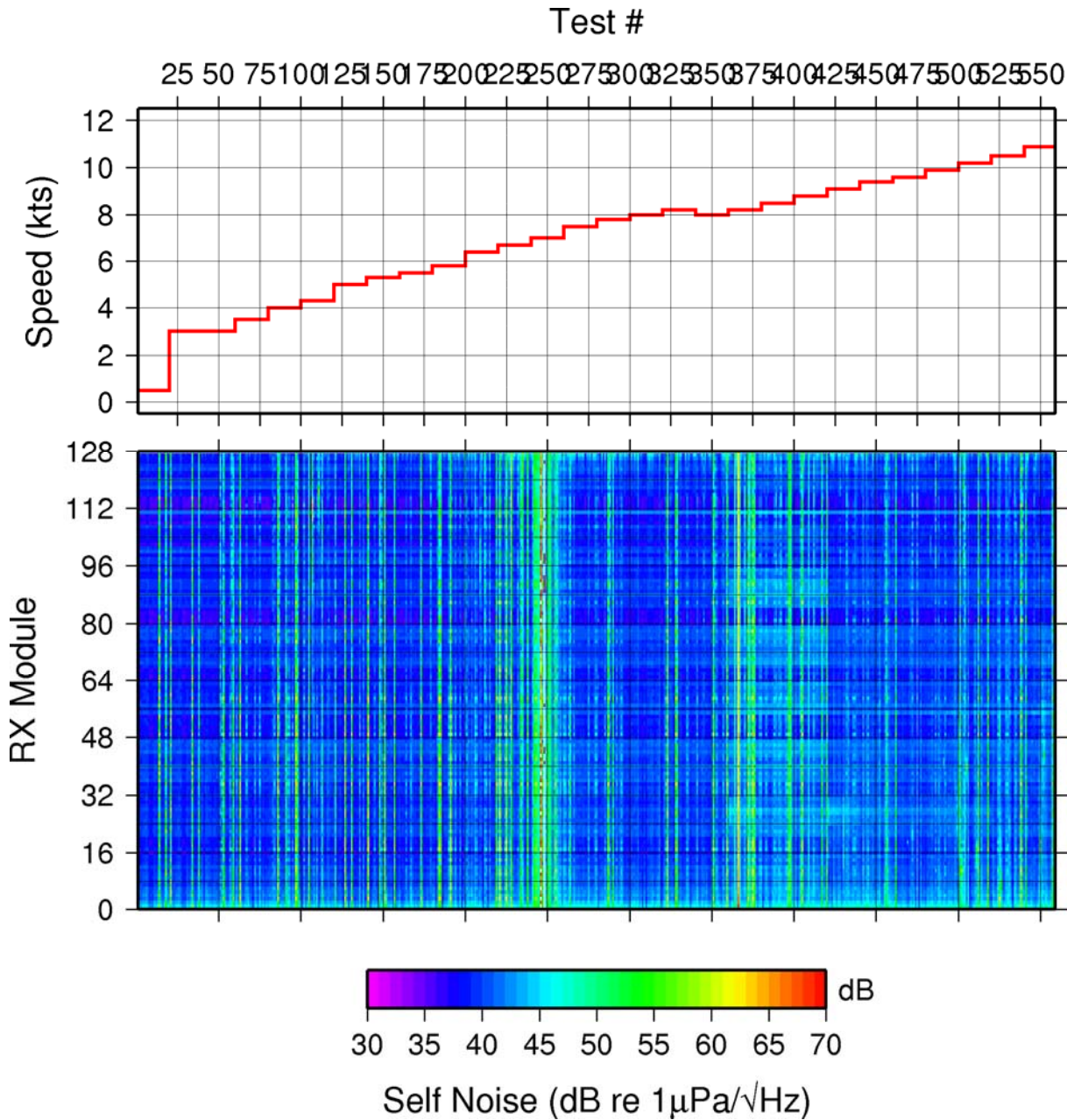


Figure 9. Plot of noise levels received across EM 302 receive array at increasing speed/RPM levels.

# Okeanos Explorer EM302 Self Noise vs Speed

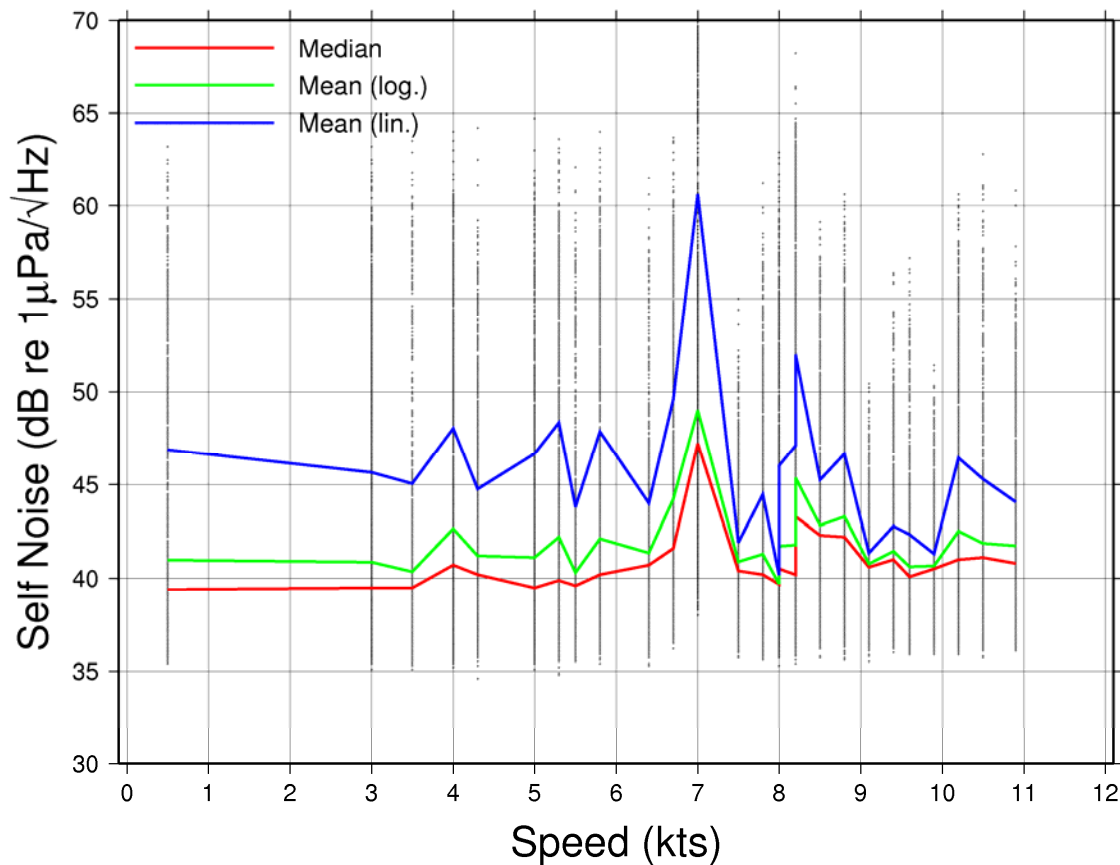


Figure 10. Plot of average noise levels received across entire receive array with increasing speed.

## ***EK 60 Singlebeam Sonar Data***

EK 60 data was collected at all times during mapping operations. Data were monitored in realtime for the presence of seeps but were not processed. All instances of seeps observed in EK 60 data were also observed in EM 302 water column data.

On May 16, an EK 60 calibration was conducted offshore from Virginia in 85 meters of water. A sub-surface current hampered the calibration throughout the day, and calibration efforts were suspended in the late evening in order to arrive at the sea-buoy on time in the morning. In absence of a newly acquired calibration data and till next calibration test can be conducted, Kongsberg engineers advised to use calibration data from the 2013 field season if necessary.

The calibration files used during the current cruise were:  
 EX1302\_EK60\_-D20130516-T180749.raw  
 EX1302\_EK60\_-D20130517-T002740.raw

**Knudsen 3260 Subbottom Profiler Data**

Knudsen 3260 subbottom profiler data were monitored in realtime for data quality and for the presence of gas pockets and intrusions under the seabed.

**10. Telepresence**

A 10mb/sec ship-to-shore connection was available throughout the cruise.

Two live video feeds were sent to shore for the majority of the cruise and were available at <http://oceanexplorer.noaa.gov/oceanos/media/exstream/exstream.html>.

**11. 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 a partnership with the National Coastal Data Development Center. Data are made available through the National Geophysical Data Center's (NGDC) online archives. Data can be accessed via the following websites (last accessed 01/09/2014):

- the NGDC Bathymetry Data Viewer at <http://maps.ngdc.noaa.gov/viewers/bathymetry/>
- the NGDC Multibeam Survey List at [http://www.ngdc.noaa.gov/nndc/struts/results?op\\_0=l&v\\_0=&op\\_1=l&v\\_1=&t=101378&s=300&d=21&d=411&d=79](http://www.ngdc.noaa.gov/nndc/struts/results?op_0=l&v_0=&op_1=l&v_1=&t=101378&s=300&d=21&d=411&d=79)

The complete EX-13-02*Okeanos Explorer* data management plan is provided in the appendices of this report.

**12. Cruise Calendar.**

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

May 2013						
Sun	Mon	Tues	Wed	Thur	Fri	Sat
						5/11 Kongsberg engineer onboard in Charleston, SC. Electrical tests of TRU following dry dock.

5/12 Mission personnel arrive.	5/13 Depart dock for multibeam patch test area at Cape Fear Diapir.	5/14 Conducted multibeam patch test. Multibeam noise level tests conducted.	5/15 Transit to EK 60 calibration site near Norfolk, VA.	5/16 Conducted EK 60 calibration.	5/17 Personnel transfer in Norfolk, VA. Kongsberg engineer disembarks, ROV personnel embark. Transit to USBL calibration site.	5/18 Conducted overnight mapping, including remapping of Mid Atlantic Seeps discovered during EX1206.
5/19 Overnight multibeam and singlebeam ACUMEN holiday mapping. Remapped Mid Atlantic Seeps.	5/20 Subbottom lines collected over Currituck Landslide. Overnight multibeam and singlebeam ACUMEN holiday mapping.	5/21 Overnight multibeam and singlebeam ACUMEN holiday mapping.	5/22 Overnight multibeam and singlebeam ACUMEN holiday mapping. New seep discovery.	5/23 Loaned spare multibeam board to nearby NOAA Ship <i>Ronald Brown</i> via small boat. Overnight multibeam and singlebeam ACUMEN holiday mapping and inshore development. New seep discovery.	5/24 Daytime subbottom ops over Mid Atlantic seeps site. Overnight multibeam and singlebeam holiday mapping.	5/25 Conducted daytime subbottom ops.
5/26 Overnight multibeam ACUMEN holiday mapping, including bottom backscatter reshoots.	5/27 Overnight multibeam and singlebeam data collection en route to Knauss Seamount.	5/28 Morning mapping of Knauss Seamount prior to ROV dive.	5/29 Subbottom profiler data collected in vicinity of Knauss Seamount and Hudson Valley. Overnight multibeam and singlebeam transit mapping.	5/30 Daytime subbottom profiler ops. Overnight multibeam holiday fill lines.	5/31 Personnel transfer to shore via small boat for medical emergency. Overnight multibeam holiday mapping.	6/1 Overnight transit mapping to Nantucket Canyon including multibeam ACUMEN holiday fill lines and backscatter reshoots.
6/2 Subbottom mapping between Nantucket and Atlantis Canyons. Multibeam ops over known Veatch Canyon seeps. Overnight transit exploration mapping to Mytilus Seamount.	6/3 Morning mapping of southeast portion of Mytilus Seamount. Evening transit exploration mapping to Veatch Canyon.	6/4 CTD cast conducted. Overnight mapping of canyon heads.	6/5 Mapping data wrap-up.	6/6 Arrive in port, North Kingstown, RI. Mapping compliment departs ship.		

### 13. Daily Cruise Log

***\* \* \* All times listed are local ship time, which was -4 hours from UTC. \* \* \****

*May 11, 2013*

Kongsberg engineer Tony Dalheim was onboard to conduct impedance tests on the EM 302 transducer following the inadvertent power washing of the transmit array during the May dry dock period. The results showed that several channels had high Z values, however, out of approximately 1600 elements, the amount was determined by Kongsberg to be statistically irrelevant and not unexpected due to the age of the *EX-13-02 Mapping Data Report*

system. Additionally, the high Z values do not appear correlated spatially with the damaged elements seen in the photo mosaic generated by Kongsberg engineer Barbee in the shipyard.

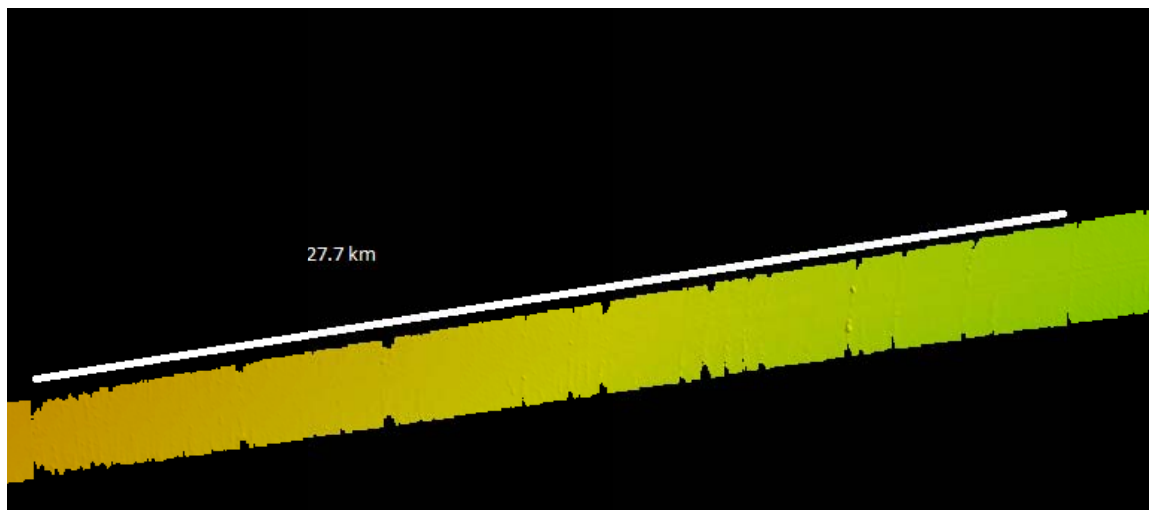
*May 12, 2013*

Mission personnel arrived at the ship in Charleston, South Carolina, were given orientation, and began settling into watch schedules. Mapping systems were powered up. One of four RX32 boards was replaced in the EM 302 TRU, due to a long-standing but minor anomaly seen in BISTs and the stave display in SIS. Replacing the board cleared the anomaly. The RX board that was swapped out will be held onboard as a spare, and will likely be sent to Kongsberg for repair after the survey season.

*May 13, 2013*

The ship got underway just after lunch and proceeded to the Cape Fear Diapir to conduct the EM 302 patch test. The subbottom profiler was run for about an hour after dinner in shallow water and was audible in berthing spaces. Further testing will be conducted throughout the cruise. During the dry dock period, sound sensors were installed in the faring to monitor noise levels, however the deck equipment has not been installed yet so they cannot be used to assess the effectiveness of the modifications at this time. This will be an item for the 2014 shakedown cruise.

EM 302 data collection commenced in 100 meters of water. Data quality artifacts were observed overnight, and are possibly correlated with troubleshooting activities the bridge was conducting, including RPM changes. Weather is not thought to be the cause as environmental conditions were mild. The graphic below shows the artifact observed in 700m water over the course of 27.7 kilometers.



EK 60 transducer evaluation is ongoing following inadvertent power washing of the transducer during the recent drydock period.

The UPS alarm is tripping at times other than the normal occurrence of when we pass over 165 RPMs, for example when we are holding steady at 175 RPMs.

*May 14, 2013*

The EM 302 patch test was completed over the Cape Fear Diapir. Results are provided in the multibeam data quality section of this report. A CTD cast was planned but ultimately not conducted due to a cable termination issue, and the patch test was conducted using XBTs for sound velocity.

*EX-13-02 Mapping Data Report*

As per discussion with Kongsberg engineer heading data input to the EM 302 was switched from the Teledyne TSS on the bridge to the POS MV.

RPM noise level testing was performed. Receive noise BISTs were run while the ship was running at RPMs from 0 to 175 to determine increases in noise at the transducers. The connection to the EM 302 TRU failed four times during testing, requiring full restarts of SIS and the TRU. The results of the testing are provided in the multibeam data quality section of this report.

A reference surface, including a crossline, was mapped over the unnamed diapir north of the Cape Fear Diapir. Data quality was observed to be high. No water column anomalies were observed over the diapir.

#### *May 15, 2013*

The ship transited north towards Norfolk, Virginia, and the offshore EK 60 calibration site.

#### *May 16, 2013*

The majority of the day was spent conducting the EK 60 calibration. Acquiring the calibration sphere at the initial calibration site too difficult, and a deeper site with 85 meter water depths was selected. A sub-surface current hampered the calibration throughout the day, and calibration efforts were suspended in the late evening in order to arrive at the sea-buoy on time in the morning. Calibration results are discussed in the EK 60 data quality section of this report. Kongsberg engineers ultimately determined that the results of the calibration are adequate for use in calibration of 2013 field season data.

#### *May 17, 2013*

A personnel transfer was conducted at Little Creek Navy Base in Norfolk, Virginia. All mapping mission personnel departed the ship, and ROV personnel embarked for the remainder of the cruise. While alongside, the ship's dive team conducted two dives on the ship's hull to work on the recently installed spare Reson SVP 70 probe. The probe was removed, reprogrammed by the Chief ET, reinstalled, and communications with the EM 302 TRU and ship's SCS were confirmed. The ship got underway in the late afternoon and began transit to the USBL calibration site.

The remainder of the cruise focused on engineering testing of the new 6000 meter ROV. For the remainder of the cruise, mapping operations occurred overnight and opportunistically during the day as ROV operations and environmental conditions allowed. Mapping operations focused on subbottom data collection over key areas chosen in consultation with USGS, and on holiday fill and shallow development lines complimentary to existing Atlantic Canyons Undersea Mapping Expeditions (ACUMEN) data.

#### *May 19, 2013*

Overnight mapping operations were conducted with the EM 302 and EK 60. The Mid-Atlantic seeps discovered during EX-12-06 were remapped as ongoing evaluation of EM 302 and EK 60 system health after inadvertent power washing incident during the drydock period.

#### *May 19, 2013*

Opportunistic subbottom lines were run over the Mid-Atlantic seep sites when the ROV recovered early due to electrical problems. Lines were planned in consultation with personnel from USGS Gas Hydrates Project. The CO permitted subbottom profiler operations later into the night than normal in order to gather key data. Multibeam holiday fill lines were conducted overnight.



*May 20, 2013*

Two subbottomlines were collected over Currituck landslide in consultation with USGS. Multibeam holiday lines were conducted overnight.

*May 21, 2013*

Multibeam holiday fill lines were run overnight. Several EM 302 BISTs were run and all passed.

*May 22, 2013*

At least one new seep was discovered at near Washington Canyon. The seep rises 135 meters from the seafloor and is located in 285 meters of water. There are several large pockmarks nearby, with diameters of up to 85 meters and depths of up to 6 meters.

*May 23, 2013*

In the early morning, the NOAA Ship *Ronald Brown* was nearby, and called inquiring if we had a spare PCB board for their Kongsberg EM 122. We had the part in our EM 302 spares kit, and a small boat came from the *Brown* to pick up the board. The *Brown* confirmed the part solved their multibeam issue, and they continued with their survey plans. The *Brown* will order a new board for *Okeanos* immediately during their next inport.

A new group of up to four seeps was observed in 300 meters of water at 74 26 49.41W, 37 23 7.80N. The highest of the seeps rise 130m meters into the water column.

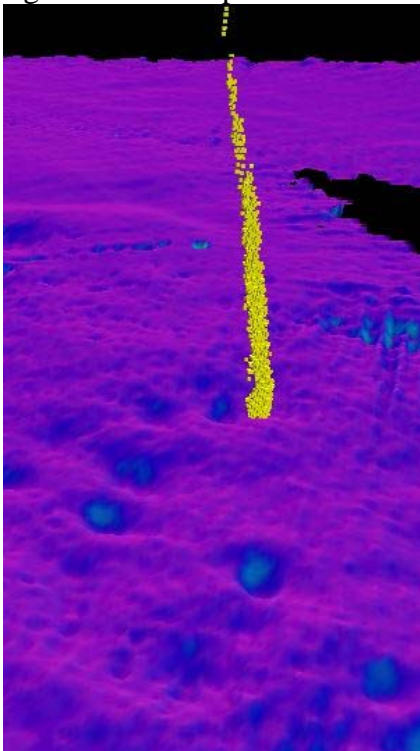


Figure 11. New shallow water seep discovered on 23 May 2013 by NOAA Ship *Okeanos Explorer* Program, using EM 302 water column data. Screenshot taken in Fledermaus, background data layer multibeam bathymetry colored by slope.

Multibeam holiday fill lines were run over night.

The ROV dive target for the day was the Mid Atlantic seep site identified by the EX during EX1206. Extensive chemosynthetic communities were found during the dive as well as multiple sources of bubbles.

During the dive the ship participated in 2 live media events with the Aquarium of the Pacific. During overnight mapping operations, another new seep was found in shallow water.

*May 24, 2013*

The ROV dive for the day was canceled due to weather. In consultation with USGS, the survey department ran tightly spaced lines over the Mid-Atlantic seep site to examine subsurface structure and gas activity using the subbottom profiler. The subbottom profiler data collection screen was sent to shore for real-time data monitoring by shoreside scientists. Survey operations were secured at 2200 and the ship hove to overnight in heavy seas.

*May 25, 2013*

Heavy seas prevented the ROV launch for the second day in a row. During the day, a long subbottom line was collected running southwest, parallel to the shelf break contours, and with following seas. Running south was the only direction where data quality was acceptable. Survey operations were secured at 2200 and the ship hove to overnight in heavy seas.

*May 26, 2013*

Overnight, multibeam holiday lines were run, including recollection of poor quality bottom backscatter data. The May 27 ROV dive site was chosen to help ground truth multibeam backscatter data. The dive site was on a slope, and acoustically very reflective in relation to the surrounding area.

*May 27, 2013*

Multibeam and singlebeam data collection commenced in the early evening, and continued through the night during transit to Knauss Seamount for the May 28 ROV deepwater engineering dive. Transit was at speeds of up to 11.5 knots to maximize seamount mapping time upon arrival.

*May 28, 2013*

In the morning, Knauss Seamount was mapped prior to the ROV dive. A deepwater crossline was collected during the survey and the results are analyzed in the multibeam data quality section above.

*May 29, 2013*

The ROV dive was aborted early. Throughout the day, subbottom profiler, multibeam, and singlebeam data were collected over Knauss Seamount and the offshore reaches of Hudson Valley. Overnight transit mapping was conducted with the EM 302 and EK 60 sonars.

*May 30, 2013*

Subbottom profiler, multibeam, and singlebeam data were collected throughout the day. Multibeam holiday lines were conducted overnight.

*May 31, 2013*

In the morning, small boat transfer brought a member of the crew to shore for a personal emergency. The ROV dove on one of the new shallow water seep sites (~450 meters depth) discovered during this cruise. Overnight, multibeam holiday fill lines were conducted.

*June 1, 2013*

In the evening, transit mapping occurred on the way to Nantucket Canyon. Multibeam data collection focused on holiday lines and reshooting poor quality backscatter data.

*June 2, 2013*

In the evening, a single subbottom line was collected between Nantucket and Veatch Canyons. A single multibeam line was collected over the Veatch Canyon seeps discovered during EX1206. Transit exploration mapping was conducted during overnight transit to Mytilus Seamount.

*June 3, 2013*

In the morning, the southeast section of Mytilus Seamount was mapped in preparation for the day's ROV dive. In the evening, additional mapping lines were attempted at Mytilus Seamount, however multibeam backscatter data quality was poor due to heavy seas, and transit to Veatch Canyon for the June 4 dive commenced. Transit mapping data was collected.

*June 4, 2013*

A CTD cast was conducted at the southernmost group of seeps discovered at Veatch Canyon. Overnight mapping focused on development of coverage of canyon heads between Veatch and Shallop Canyons.

*June 5, 2013*

Data collection continued between Veatch and Shallop Canyons until the sonars were secured at 0403. The ship commenced transit to port. Data wrap up began.

*June 6, 2013*

The ship was tied up alongside at 1001 in North Kingstown, RI. Mission personnel began departing the ship and data wrap up continued.

#### **14. References**

The 2013 Survey Readiness Report can be obtained by contacting NOAA Ship *Okeanos Explorer* at [ops.explorer@noaa.gov](mailto:ops.explorer@noaa.gov).

EX-13-02 Cruise Instructions can be obtained by contacting NOAA Ship *Okeanos Explorer* at [ops.explorer@noaa.gov](mailto:ops.explorer@noaa.gov).

Sandwell, D. T., and W. H. F. Smith, Global marine gravity from retracked Geosat and ERS-1 altimetry: Ridge Segmentation versus spreading rate, *J. Geophys. Res.*, 114, B01411, doi:10.1029/2008JB006008, 2009.

## 15. Appendices

### Appendix A: EX-13-02 Data Management Plan

#### *Document Purpose*

*This document is an addendum to the overarching Okeanos Explorer FY13 Data Management Plan (EX\_FY13\_DMP.pdf) and is specific to the EX-13-02 mission entitled “Ship Shakedown, Patch Test and Exploration, NE Canyons” For more detailed information on the data management effort for the Okeanos Explorer in FY13, please refer to that document.*

#### **General Description of the Data to be Managed**

EX1302 operations are expected to begin on May 13 from the dry dock location in Charleston, SC and return June 6, 2013 to North Kingstown, RI. Patch tests will be conducted during the first week of the cruise to verify the equipment is fully functional following the drydock. During the patch tests, data will be collected using the subbottom profiler, the multibeam sonar system, the single beam sonar system, the ship’s CTD, and hull mounted atmospheric and sea surface sensors. Upon completion of the patch tests, the new 6000m ROV will be tested. ROV sensor data, broadcast quality video, and screenshots will be captured. In addition to the ProRes broadcast quality video, the streamed H.264 video streams encompassing the full dive will be captured. Data management procedures are fully documented in the data management plan for the *Okeanos Explorer* for the FY13 field season (EX\_FY13\_DMP.pdf)

- Name of Dataset
  - : “EX1302: Ship Shakedown, Patch Test, and Exploration, NE Canyons”
- Mission Specific Keywords:
  - Place Specific:
    - Blake Plateau
    - Western North Atlantic Ocean
    - US-Canadian territorial boundary
    - Northeast Seamounts
    - New England Seeps
    - Mid-Atlantic Seeps
    - Davisville
    - New England Canyons
    - Mid-Atlantic Canyons
    - Canadian Maritime Border
  - Theme Specific:
    - Multibeam
    - Multibeam sonar
    - Multi-beam sonar
    - Subbottomprofile
    - Mapping survey
    - Multibeam backscatter
    - Water column backscatter
    - Singlebeam sonar

- Singe beam sonar
- Single-beam sonar
- New England Seamounts
- Continental shelf mapping
- EX1201
- EX1204
- EX1106
- EX1205L2
- EX1206
- ACUMEN
- Atlantic Canyons Undersea Mapping Expedition

Summary description: Between May 13 and May 18, shakedown operations will: ensure all scientific sonars are in good working order after dry dock operations; assess noise reduction modifications to the subbottom profiler; update software and install new multibeam acquisition computer; conduct multibeam patch test; and calibrate the EK60. After May 18, the new 6000 meter ROV will be put through rigorous engineering tests, calibrated, and exercised. Video acquisition procedures and pathways will be tested on the new system, both in terms of broadcast quality video clips as well as testing the new system to record the outgoing video streams. Ship personnel will be trained on video acquisition and image generation protocols.

- Temporal Bounds:
  - May 13 – June 6, 2013
- Spatial Bounds:
  - Northern: 41.2
  - Southern: 38.4
  - Western: -71.4
  - Eastern: -63.5
- Data Type Collections for Preservation/Stewardship:
  - Multibeam Bathymetry – continuous collection during the duration of the expedition.
  - Bottom Backscatter – continuous collection during the entire duration of the expedition
  - Water Column Backscatter – continuous collection during the entire duration of the expedition
  - Scientific Computing System (SCS) output – continuous collection of navigational, meteorological, integrated oceanographic sensor data
  - XBT – casts will be conducted at an interval defined by prevailing oceanographic conditions, but not to exceed 6 hours. Casts will collect water temperature at depth for sound velocity calculations to maintain multibeam data quality
  - Knudsen CHIRP 3260 – subbottom profiler data collected between 1000 and 1800 each day

- EK60 – single beam sonar for water column features during the entire duration of the expedition
- Data Product/Product Collections for Preservation/Stewardship:
  - Gridded bathymetry (.txt)
  - Gridded bathymetric image (.tif)
  - Fledermaus gridded bathymetry imagery (.sd)
  - Fledermaus gridded backscatter imagery (.sd)
  - Google Earth gridded bathymetry (.kml)
  - ArcView gridded bathymetry (.asc)
  - SCS data output in NetCDF
  - Final Mapping Summary document
  - Final Cruise Summary document
- Volume of Data Expected
  - The volume of data expected from this cruise is approximately 120 GB.
- Personally Identifiable Information (PII) concerns
  - No PII will be included in these data.

### Points of Contact

- Overall Point of Contact (POC) for the data:
  - Data Acquisition: EX Mapping Team: [oar.oer.exmappingteam@noaa.gov](mailto:oar.oer.exmappingteam@noaa.gov)
  - Data Management: OER Data Management Team ([oer.info.mgmt@noaa.gov](mailto:oer.info.mgmt@noaa.gov))
- Responsible for Data Quality:
  - Seafloor mapping and water column data:
    - EX Mapping Team: [oar.oer.exmappingteam@noaa.gov](mailto:oar.oer.exmappingteam@noaa.gov)
  - SCS data: Office of Marine and Aviation Operations (OMAO): Lt. Laura Gallant, Okeanos Explorer Operations Officer ([Ops.Explorer@noaa.gov](mailto:Ops.Explorer@noaa.gov))
- Responsible for data documentation and metadata activities:
  - National Coastal Data Development Center (NCDDC); OER Data Management Team ([oer.info.mgmt@noaa.gov](mailto:oer.info.mgmt@noaa.gov))
- Responsible for the data storage and data disaster recovery activities:
  - NOAA National Data Centers; National Oceanographic Data Center (NODC), National Geophysical Data Center (NGDC), NOAA Central Library (NCL)
- Responsible for ensuring adherence to this data management plan, including resources are made available to implement the DMP:
  - Data Acquisition: Lt. JG Brian Kennedy, Expedition Coordinator
  - Data Acquisition: Elizabeth “Meme” Lobecker, Mapping Team Lead
  - Data Acquisition: Lt. Laura Gallant, OMAO, Okeanos Explorer Operations Officer
  - Data Management: OER Data Management Team

## **Data Stewardship**

- 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 XBT firings are archived in their native format and are not quality controlled.
- What is the overall lifecycle of the data from collection or acquisition to making it available to customer?
  - All ship data from this mission is expected to be archived and accessible within 60-90 days post-mission.
  - METOC data from the SCS are converted in a post-mission model into archive-ready compressed NetCDF3 format and stored within the NCDDC THREDDS open-access server.
  - CTD data from casts are processed in a post-mission model and converted into archive-ready compressed NetCDF3 format and stored within the NCDDC THREDDS open-access server.

## **Data Documentation**

- An ISO format metadata record to document the mission will be generated during pre-cruise planning and published in an OER catalog for public discovery and access. Documentation templates will be provided for post-mission products with references back to the overall mission metadata documents. Data collections and products will be documented with ISO or FGDC CSDGM metadata and published at the appropriate NOAA Data Center.
- ISO 19115-2 Geographic Information with Extensions for Imagery and Gridded Data will be the metadata standard employed.

## **Data Sharing**

- All data recorded, observed, generated or otherwise produced on the *Okeanos Explorer* are considered non-proprietary and will be made available to the public as soon as possible after a period of due diligence in performing quality assurance and data documentation procedures.

## **Initial Data Storage and Protection**

- Data are recorded and stored on NOAA shipboard systems compliant with NOAA IT procedures. Data are moved from ship to shore using a variety of standard, documented data custody transfer procedures. Data are transferred to NOAA data centers using digital and physical data transfer models depending upon data volume.

## Long-Term Archiving and Preservation

- Data from this mission will be preserved and stewarded through the NOAA National Data Centers. Refer to the *Okeanos Explorer* FY13 Data Management Plan (EX\_FY13\_DMP.pdf) for detailed descriptions of the processes, procedures, and partners involved in this collaborative process. Appendix A has an excerpt from EX\_FY13\_DMP.pdf) that illustrates the data and product pipelines that will be employed for this mission.

## Data Management Objectives

The DMT's specific objectives for this mission are:

- Test dual video stream capture and consolidation protocols.
- Integrate captured streams into hourly ship to shore rsync
- Usage test of Rsync rule interface
- Ensure that the new ROV is integrated into the existing data workflow
- Explore possibility of dual mode rsync protocol to maximize the available bandwidth

The DMT's common objectives for this mission are:

- Ensure the near real-time update of the *Okeanos Atlas* with
  - Ship track and hourly observations received via email.
  - Daily logs pulled from URI through RSS feeds and links to related images on oceanexplorer.noaa.gov website.
  - Daily cumulative bathymetric image overlays received via URI SRS.
- Execute multibeam and oceanographic data pipelines according to the FY13 DMP (EX\_FY13\_DMP.pdf).
- Develop ISO metadata for collection-level and dataset-level records collected from the ship(multibeam, singlebeam sonar, subbottom profiler, XBT, CTD, EX METOC,)

## Expedition Principals for Data Management

Webb Pinner, OER Telepresence, EX Data and Information Lead, [Webb.Pinner@noaa.gov](mailto:Webb.Pinner@noaa.gov)

Sharon Mesick, NCDDC, Federal Program Manager, Data Management IPT Chair,

[Sharon.Mesick@noaa.gov](mailto:Sharon.Mesick@noaa.gov)

Susan Gottfried, NCDDC, OER Data Management Coordinator, [Susan.Gottfried@noaa.gov](mailto:Susan.Gottfried@noaa.gov)

Andy Navard, NCDDC, Okeanos Atlas Developer, [Andrew.Navard@noaa.gov](mailto:Andrew.Navard@noaa.gov)

Dan Price, NGDC, Geophysical Data Officer, [Daniel.Price@noaa.gov](mailto:Daniel.Price@noaa.gov)

Tom Ryan, NODC, Oceanographic Data Officer, [Thomas.Ryan@noaa.gov](mailto:Thomas.Ryan@noaa.gov)

Anna Fiolek, NCL, Multimedia Librarian, [Anna.Fiolek@noaa.gov](mailto:Anna.Fiolek@noaa.gov)



**Appendix A: Data and Product Pipelines (excerpt from EX\_FY13\_DMP.pdf)**  
*Oceanographic/Meteorological/Navigational Data Archive Pipeline*

Data from hull-mounted and off-board oceanographic and meteorological (METOC) sensors; integrated oceanographic sensors from the submersibles; and navigational instrumentation on both the vessel and its submersibles are monitored through the ship's Scientific Computer System (SCS). Some of these data will be used in a near real-time mode to update the *Okeanos Atlas*. All of these data will be archived at the National Oceanographic Data Center (NODC) Marine Data Stewardship Division (MDSD) in Silver Spring, MD. A cruise-level and several collection level metadata records describing the data inventory to be archived at the NODC/MDSD will be included with the data submission.

**Near Real-Time:**

At periodic (currently fifteen minutes) intervals, an email from the ship to NCDDC is delivered with the ship's position and a snapshot of the SCS sensor suite.

As CTD casts are deployed, the results of the cast are included in the periodic synchronizations to the SRS.

The GIS team at NCDDC processes:

- CTD cast data into thinned profiles for comparison to World Ocean Atlas historical profiles in the same region and month. The thinned profiles are geo-located on the *Okeanos Atlas*. The corresponding temperature profile plot from the World Ocean Atlas is added for comparison.
- Ship track and sensor snapshot readings are geo-located on the *Okeanos Atlas*.

**Post-Mission**

All SCS data, including navigation and CTD/XBT cast data are delivered to NCDDC either via ftp or through a Collection Service.

SCS navigation data are used to apply a thinning algorithm and return an optimized thinned navigation track, which is added to the GeoDatabase for GIS applications.

Using the SCS configuration file, a header line is appended to each SCS ASCII data file.

All of the SCS data files are used to generate an archive-ready compressed NetCDF-3 formatted file.

The CTD Cast raw data are used to generate a second NetCDF-3 formatted file.

ncISO metadata records are generated for the NetCDF-3 files, and FGDC CSDGM metadata records are generated for the SCS ASCII files, the NAV data set, and the CTD and XBT data sets.

All data sets and the corresponding metadata are uploaded to the National Oceanographic Data Center (NODC), where they will be accessioned and archived.

The NetCDF3 file will be ingested into an NCDDC hosted Thematic Real-time Environmental Distributed Data Services (THREDDS) server for user discoverability and access.

Data Class	Instrument	Data Type	Format	Metadata Granularity	ArchiveCenter
OCN/ MET	All SCS monitored sensors	Meteorological and Oceanographic data sensors	ASCII	1 meta rec	NODC/MDS
NAV	DGPS, CNAV	EX, ROV, and sled navigation	ASCII	1 meta rec	NODC/MDS
ALL	All	Archive Ready	NetCDF-3	1 meta rec	NODC/MDS

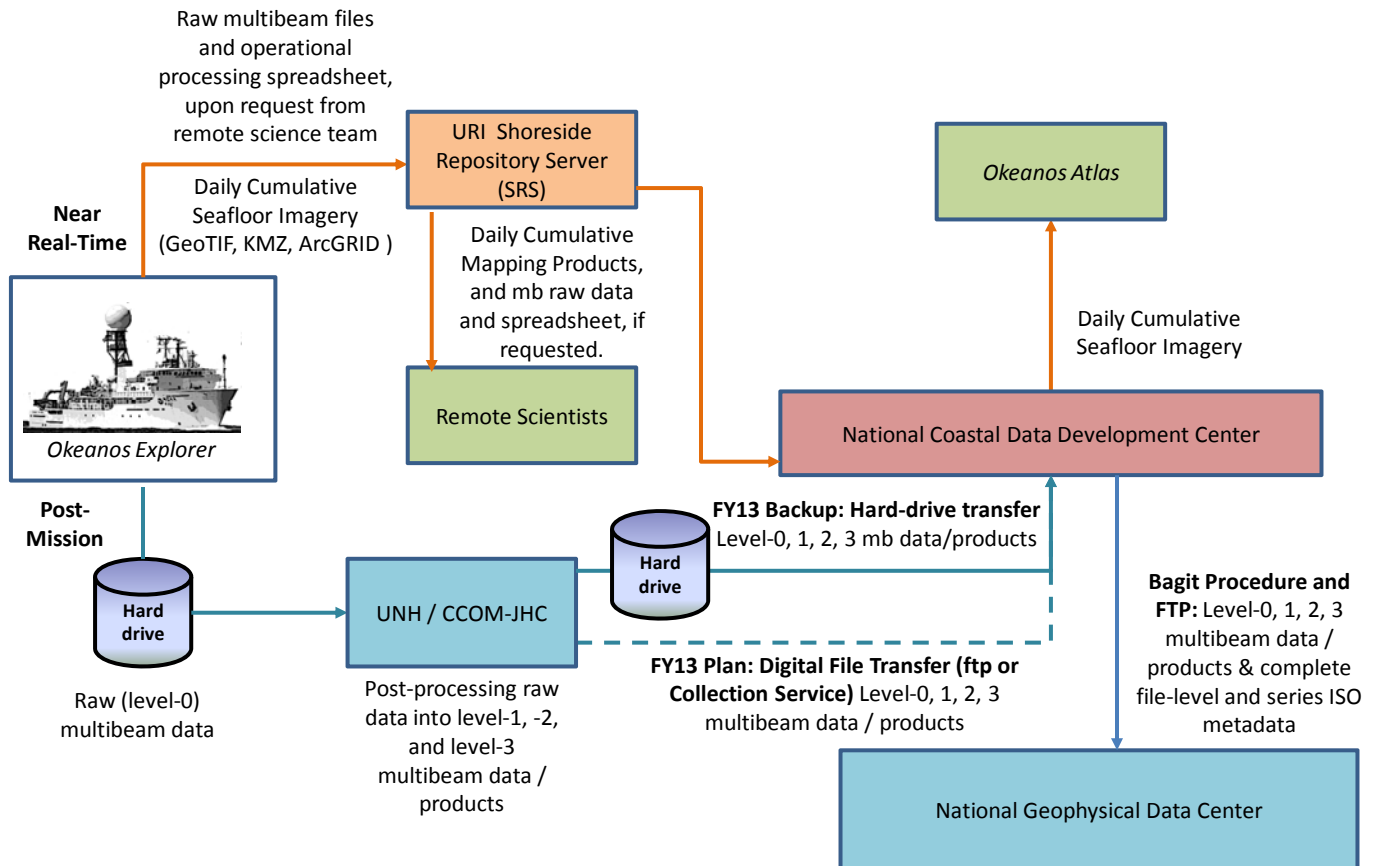
Table 3: Oceanographic/Meteorological/Navigational Metadata Granularity and Target Archive

### ***Multibeam Survey Data Archive Pipeline***

The multibeam survey data collected by bottom-looking and complementary sensors, data from the calibration instruments, and the products generated after the data is returned to and post-processed at UNH will be archived at the NGDC. These data will be accompanied with a collection level metadata record for the NGDC as well as individual metadata records for each raw (level-0) file, each edited (level-1) file and each data product (level-2) and report (level-3) generated as a result. In addition, the submission to NGDC will include the following:

- raw (level-0) mapping survey and water column data files,
- CTD and/or XBT profile data used for calibration in multibeam survey,
- post-processed, quality assured, and edited (level-1) data files,
- specific data products (level-2) from the Fledermaus software, including cumulative GeoTIF images, gridded bathymetric files, KML files, KMZ images, .sd output files, and an ArcGrid format, and
- comprehensive mapping survey data summary (level-3) report.

## Multibeam Data/Products Pipeline



2/6/2013

**Fig. 5: Okeanos Explorer Multibeam Data Pipeline**

### Near Real-Time

If the remote science team has requested that some raw multibeam data be transferred in near real-time to the SRS, the raw data and a current copy of the processing spreadsheet will be transmitted during the Rsync process.

As operational GeoTIFF images are created, these will also be transmitted to the SRS by the Rsync process.

The data management team at NCDDC will pull the GeoTIFF images and the operational bathymetry processing spreadsheet for near real-time metadata generation. Participating scientists

wanting access to the raw multibeam in near real-time can pull the individual files with the metadata that provides operational and provisional processing steps and a disclaimer for non-QC status of the data.

Daily cumulative GeoTIFF images of the seafloor imagery will be geo-located on the Okeanos Atlas by the GIS team at NCDDC.

### **Post-Mission**

All bottom-looking sensor data and complementary data (water column and sound velocity) are saved to a hard-drive. This hard-drive will be either brought back or shipped to the University of New Hampshire Center for Coastal and Ocean Mapping (UNH CCOM) for post-processing.

A full complement of multibeam data from a 30-day EX cruise on which the Kongsberg EM302 multibeam system runs continuously will produce 200-300 Gigabytes of raw multibeam (37.5% of total volume) and water column data (62.5% of total volume). At UNH, the mapping team will post-process the multibeam data through the following steps:

- The raw (level-0) data will be saved to the CCOM file servers, where they will be quality checked and post-processed.
- The edited level-0 data is saved as level-1 data files in a non-proprietary format – ASCII xyz files (cleaned not gridded).
- The post-processing steps used to produce the level-1 data will be documented.
- Level-2 products will be generated from the level-1 data files.
- The post-processing steps used to produce the level-2 data products will be documented.
- The level-1 data, level-2 products, post-processing steps, and working data processing spreadsheets will be copied to the hard drive in a new folder. A processing spreadsheet for FY13 will contain the temporal and spatial limits of each file and any supplemental information documenting problems or issues that affected the quality of the data in that file.

In FY13, an attempt to use an ftp protocol or collection service to transfer the multibeam data and products from UNH is planned. A normal hard-drive delivery will remain in effect as a backup until the digital file transfer process is sufficiently tested and becomes normal operations.

At NCDDC, all multibeam related files will be post-processed through metadata generation procedures. Metadata will be generated for each individual survey track file (level-0 and -1), for accompanying CTD/XBT profile data sets, for composite xyz files, KMZs, GeoTIFFs, png images, and Fledermaus output (level-2), and a set of data products and reports (level-3). Finalized data/metadata will be compressed and bundled using the Bagit software and delivered to NGDC via ftp protocol.

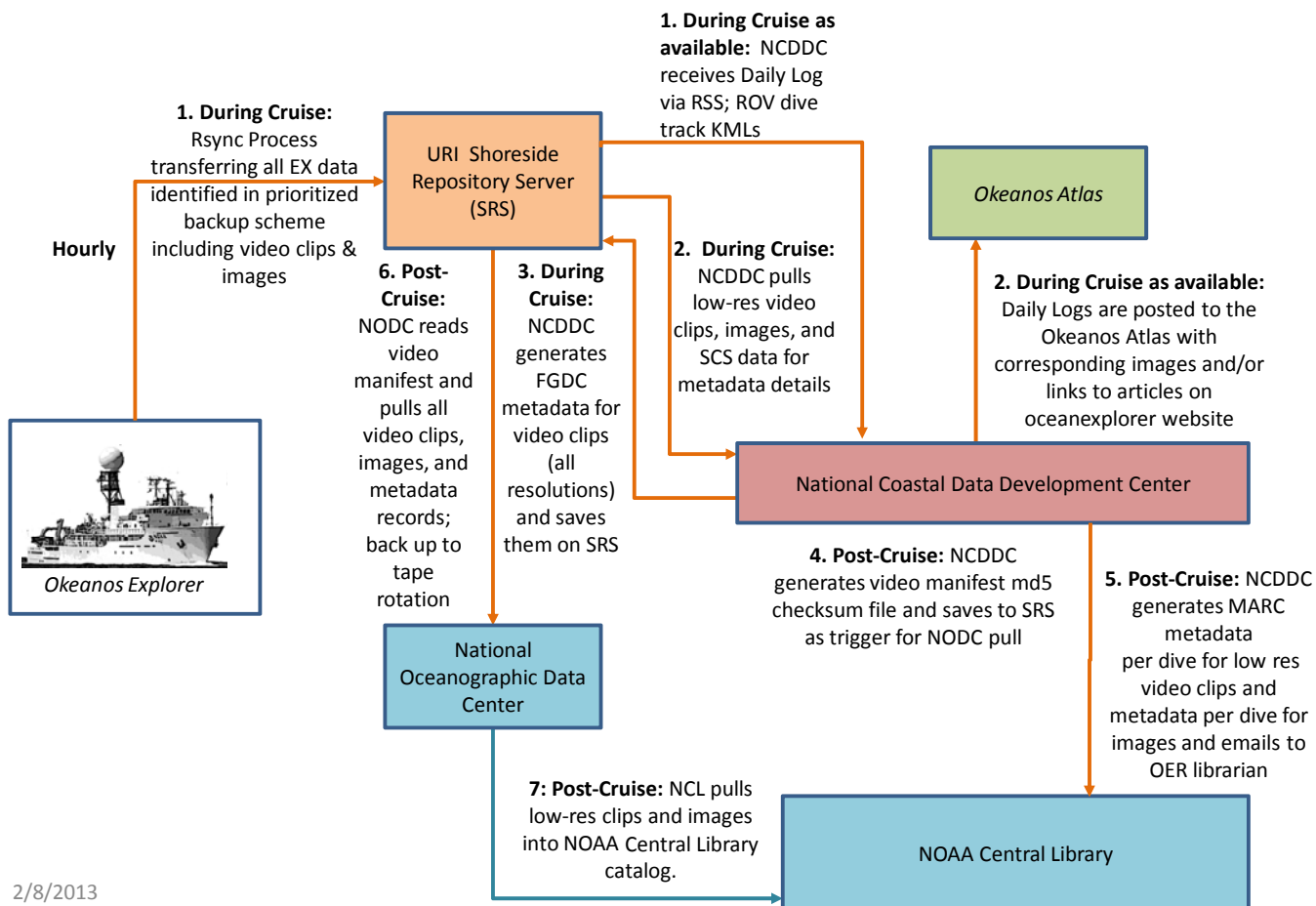
Data Class	Instrument	Data Type	Format	Metadata Granularity	Archive Center
<b>GEO</b>	Kongsberg EM302 (30 kHz)	Multibeam Bathymetry, Bottom Backscatter, Water Column Backscatter (proprietary format read into MBSsystem)	.all, .wcd (proprietary)	1 meta rec per .all file in Multibeam Data folder and subfolders	NGDC
<b>GEO</b>	Simrad EK60	Singlebeam (time,depth)	.txt, (ASCII), .raw (proprietary)	Included in the SCS feed	TBD
<b>GEO</b>	Knudsen CHIRP 3260 (3.5 kHz)	Subbottomprofile	.sgy, .kea, .keb (proprietary)	1 meta rec = Subbottom Profile Data folder	NGDC
<b>OCN</b>	SeaBird SBE-911plus	CTD Cast	.hex, .con (Proprietary); .cnv, .hdr, .bl, .jpg (processed)	1 meta rec = CTD folder	NGDC
<b>OCN</b>	Sippican MK-21 eXpendableBathyThermograph (XBT)	XBT	.edf (ASCII), .rdf (proprietary)	1 meta rec = XBT folder	NGDC
<b>OCN</b>	RESON	Sound Velocity (m/s)	TBD	1 meta rec = RESON folder	NGDC
<b>OCN</b>	Calculated	Sound Velocity (m/s)	.asvp (ASCII)	1 meta rec = Profile_Data/SVP or Profile_Data/ASVP	NGDC

*Table 4: Multibeam Survey Metadata Granularity and Target Archive*

### Video Data Archive Pipeline

Low-resolution video segments will be archived at the NOAA Central Library (NCL) in Silver Spring, MD, a division of NODC. All available resolutions of the underwater video and their metadata will be temporarily stored in private and dedicated storage space on the NODC server and periodically backed up in a scheduled tape rotation.

### Current Video Data/Products Pipeline



2/8/2013

Fig 6: Okeanos Explorer Video Data Pipeline

## **Near Real-Time**

Video segments to be preserved will be marked and saved onboard the EX by onboard videographers through collaboration with the onboard and remote science team. These clips will be saved with embedded metadata – cruise ID, camera ID, date/time, lat/lon, and file name and saved in the Ship Board Repository Server (SBRS). These enhanced multimedia files will be transmitted via an automated process (outlined in Section VI-B) to the Shoreside Repository Server (SRS) and saved in web-streaming low-resolution quality and, if possible, a medium-to-high resolution. The files will be named using a strict naming convention outlined in the “Okeanos Shore-Side FTP Server Standard Operating Procedures” document and in Section VI-C of this document.

Low-resolution video clips and images will be downloaded by NCDDC from the SRS for metadata generation routines. Image and video files will have embedded metadata and the file name will also include fields for the metadata.

Daily logs generated by the Expedition Coordinator will also be pulled from the SRS as they become available. Dive tracks in kml format are pulled from the SRS as they become available.

Daily Logs and representative images and dive tracks and links to representative video clips are displayed on the Okeanos Atlas,

The embedded information and the file names of the downloaded low-res video clips will be used in the routines to produce the FGDC metadata for each. An FGDC metadata record will also be generated for the medium-to-high resolution counterpart to the clip, although that clip will not be downloaded from the SRS. The generated metadata records will be named similarly to the video clips they represent and all metadata will be uploaded to the SRS in the same folder with the video clips. A manifest file with md5 checksum values will be generated daily for all of the video clips and metadata records available on the SRS. The manifest file will be uploaded to the SRS.

## **Post-Mission**

At the end of the mission, MARC metadata for each dive will be generated for video clips and framegrab images. All MARC metadata records are emailed to the NOAA Central Library for the mission catalog.

A final manifest file and md5checksum file are generated and uploaded to the SRS.

NODC automated routines will be in place to recognize when the md5 checksum file is available for processing. Video clips and corresponding metadata will be saved to NODC dedicated storage space and backed up to tape until such time that a permanent solution to high-definition video archive is available.

The NOAA Central Library will pull all of the low-res video clips from the NODC server and do a bulk ingest into their system, cataloging these clips by corresponding dive in their online video data management system (VDMS).

Data Class	Instrument	Data Type	Format	Metadata Granularity	ArchiveCenter
MUL	ROV/Sled Cameras	Low-res video clips	h.264 low	1 MARC meta rec per each dive	NCL
MUL	ROV/Sled Cameras	Medium-res video clips	h.264 med	1 FGDC meta rec per each	NODC/MDSD (temporary hold)
MUL	ROV/Sled Cameras	Highlight Images	.jpg	1 MARC meta rec for the folder	NCL
MUL	ROV/Sled Cameras	Still images	.jpg	1 MARC meta rec for the folder	NCL
MUL	Topside Cameras	Still images	.jpg	1 MARC meta rec for the folder	NCL

*Table 5: Video Metadata and Target Archive*



## 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 1, 2013

### 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 EX1302**

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.

#### **Description of Project:**

This project is part of the Office of Ocean Exploration and Research's "Science Program". It will conduct remotely operated vehicle (ROV) operations and ocean mapping activities designed to increase knowledge of the marine environment. This project is entitled "Ship Shakedown & Patch Test, ROV Shakedown & Field Trials: New England Canyons" and will be led by LTJG Brian Kennedy, an Expedition Coordinator for NOAA OER. The work will be conducted in May and June at various locations along the Eastern Seaboard inside the US EEZ. A tandem 6,000 meter ROV system will be deployed and CTD rosette casts may be conducted during the expedition. The Kongsberg EM 302 multi-beam (30 kHz) and the Kongsberg EK 60 single-beam (18 kHz) will be operated during the project. A Knudsen 3260 Sub-Bottom Profiler will also be operated. Additionally, expendable bathythermographs (XBTs) will be deployed in conjunction with multi-beam data collection. Multi-beam mapping operations will be conducted at all times during the expedition.



## Appendix C: SURVEY OF OPPORTUNITY: NASA Maritime Aerosols Network

### Survey or Project Name

Maritime Aerosol Network
--------------------------

### Points of Contact (POC)

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

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

<p><b>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.</b></p>
---

## Appendix D: EM 302 Processing Parameters

```

// Database Parameters
// Seafloor Information System
// Kongsberg Maritime AS
// Saved: 2013.06.06 05:04:08

// Build info:
#* SIS: [Version: 3.9.2, Build: 187,
DBVersion 20.0 CD generated: Thu Sep 6
12:42:32 2012]
[Fox ver = 1.6.40]
[dbver = 20, proc = 20.0]
[OTL = 4.0.-95]
[ACE ver = 5.8.3]
[Coin ver = 2.5.0]
[Simagever = 1.6.2a]
[Dime ver = DIME v0.9]
[STLPortver = 8.0]
[FreeTypever = 2.3.7]
[TIFF ver = 3.9.2]
[GeoTIFFver = 1250]
[GridEnginever = 3.0.0]

#* 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 [50331648] //
03000000

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

#} 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]
#} 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 [1] [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]
#} 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 [1] [0]
#* Height, special purp [1] [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]
#} 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

#} COM3

#{ COM4 // Link settings.

#{ Com. settings // Serial line parameter
settings.
#* Baud rate: [9600]
#* Data bits [8]
#* Stop bits: [1]
#* Parity: [NONE]
#} 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 [1] [0]
#* Height, special purp [1] [0]
#* Attitude/Velocity [0] [0]
#} Input Formats

#} COM4

```



```

#* 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          [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]
#) Position

#{ 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]
#) Position

```

```

#* 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

```

```

#} 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]
#} Datagram subscription

#* 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
#* MSD [0] #// Attitude Delay
(msec.):
#* MAS [1.00] #// Motion
Sensor Roll Scaling:
#} COM2
#{ UDP5 #// Attitude Sensor Ports:
#* MRP [RP] #// Rotation
#* 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
#} TX Transducer:

#{ RX Transducer: ##
  #* S2R      [0.00] ## Roll
  #* S2P      [0.00] ## Pitch
  #* S2H      [0.03] ## Heading
#} RX Transducer:

#{ Attitude 1, COM2/UDP5: ##
  #* MSR      [0.00] ## Roll
  #* MSP      [-0.725] ## Pitch
  #* MSG      [-0.13] ## 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      [3421] ## Force Depth
(m):
  #* MID      [50] ## Min. Depth (m):
  #* MAD      [4500] ## Max. Depth
(m):
  #* DSM      [2] ## Dual swath
mode: DYNAMIC
  #* PMO      [0] ## Ping Mode:
AUTO
  #* FME      [1] ## FM disable
#} Depth Settings

  #} Stabilization ##
## For EM122, EM302, EM710, EM2040 this
block is now called Transmit Control in GUI.
  #* YPS      [1] ## Pitch stabilization
  #* MPK      [0.0] ## Min. Swath
Dist. (m) Required minimum distance
between individual swats. 0 is off.
  #* TXA      [0.0] ## Along Direction
(deg.):

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

  #} Stabilization
#} Sounder Main

#{ Sound Speed ##

  #} Sound Speed at Transducer ##
  #* SHS      [0] ## Source SENSOR
  #* SST      [14700] ## Sound
Speed (dm/sec.):
  #* Sensor Offset (m/sec [0] ##
  #* Filter (sec.): [4] ##
#} Sound Speed at Transducer

#} Sound Speed

#{ Filter and Gains ##

  #} Filtering ##
  #* SFS      [2] ## Spike Filter
Strength: MEDIUM

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

  #} Absorption Coefficient ##
  #* Source: [0] ## Salinity. Note:
This is not a PU parameter.
  #* ABC      [6.847] ## 31.5 kHz
#} Absorption Coefficient

  #} Normal incidence sector ##
  #* TCA      [6] ## Angle from nadir
(deg.):
  #} Normal incidence sector

  #} Mammal protection ##
  #* TXP      [0] ## TX power level
(dB): Max.
  #* SSR      [5] ## Soft startup ramp
time (min.):
#} Mammal protection
#} 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.depthFactor
[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.scaleFactor
[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.depthFactor
[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.scaleFactor
[2.000000]
    #* GridProc.surfaceAngleRule.use
[false]
    #* GridProc.surfaceAngleRule.minAngle
[20.000000]
    #* SonarProc.use
[false]
    #* SonarProc.gridSizeFactor
[4]
    #* SonarProc.mergerType
[Average]
    #* SonarProc.interpolatorType
[TopHat]
    #* SonarProc.interpolatorRadius
[1]
    #* SonarProc.fillInOnly
[true]
    #} STANDARD
    #} Seabed Image Processing #//
    #* Seabed Image Process [1] [0]
    #} Seabed Image Processing
    #} Data Cleaning
    #} Advanced param. #//
    #} Advanced param.

```



## Appendix E: EM 302 Built In System Test

Sounder Type: 302, Serial no.: 101

Date	Time	Ser. No.	BIST	Result
2013.05.22	10:37:57.739	101	0	OK
Number of BSP67B boards: 2				
BSP 1 Master 2.3 090702 4.3 070913 4.3 070913				
BSP 1 Slave 2.3 090702 6.0 080902				
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 2.3 090702 4.3 070913 4.3 070913				

## (BIST) Results

BSP 2 Slave 2.3 090702 6.0 080902	0-2	123.0
BSP 2 RXI FPGA 3.6 080821	0-3	122.6
BSP 2 DSP FPGA A 4.0 070531	0-4	123.0
BSP 2 DSP FPGA B 4.0 070531	0-5	123.0
BSP 2 DSP FPGA C 4.0 070531	0-6	122.1
BSP 2 DSP FPGA D 4.0 070531	0-7	123.0
BSP 2 PCI TO SLAVE A1 FIFO: ok	0-8	121.7
BSP 2 PCI TO SLAVE A2 FIFO: ok	0-9	123.0
BSP 2 PCI TO SLAVE A3 FIFO: ok	0-10	123.4
BSP 2 PCI TO SLAVE B1 FIFO: ok	0-11	123.4
BSP 2 PCI TO SLAVE B2 FIFO: ok	0-12	121.7
BSP 2 PCI TO SLAVE B3 FIFO: ok	0-13	123.4
BSP 2 PCI TO SLAVE C1 FIFO: ok	0-14	123.0
BSP 2 PCI TO SLAVE C2 FIFO: ok	0-15	123.8
BSP 2 PCI TO SLAVE C3 FIFO: ok	0-16	123.4
BSP 2 PCI TO SLAVE D1 FIFO: ok	0-17	122.6
BSP 2 PCI TO SLAVE D2 FIFO: ok	0-18	123.4
BSP 2 PCI TO SLAVE D3 FIFO: ok	0-19	122.6
BSP 2 PCI TO MASTER A HPI: ok	0-20	123.0
BSP 2 PCI TO MASTER B HPI: ok	0-21	122.6
BSP 2 PCI TO MASTER C HPI: ok	0-22	123.4
BSP 2 PCI TO MASTER D HPI: ok	0-23	122.1
BSP 2 PCI TO SLAVE A1 HPI: ok	0-24	122.6
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		
-----		
2013.05.22 10:38:00.589	101	1 OK
High Voltage Br. 1		
-----		
TX36 Spec: 90.0 - 145.0		
0-1	123.4	

Saved: 2013.05.22 11:36:16

0-2	123.0
0-3	122.6
0-4	123.0
0-5	123.0
0-6	122.1
0-7	123.0
0-8	121.7
0-9	123.0
0-10	123.4
0-11	123.4
0-12	121.7
0-13	123.4
0-14	123.0
0-15	123.8
0-16	123.4
0-17	122.6
0-18	123.4
0-19	122.6
0-20	123.0
0-21	122.6
0-22	123.4
0-23	122.1
0-24	122.6

### High Voltage Br. 2

TX36 Spec: 90.0 - 145.0	
0-1	123.0
0-2	123.0
0-3	122.6
0-4	122.2
0-5	122.6
0-6	122.6
0-7	122.2
0-8	122.2
0-9	123.0
0-10	123.0
0-11	122.6
0-12	123.0
0-13	121.7
0-14	123.4
0-15	123.4
0-16	123.4
0-17	122.6
0-18	123.0
0-19	122.6

0-20	123.0
0-21	123.4
0-22	123.4
0-23	122.6
0-24	122.6

### Input voltage 12V

TX36 Spec: 11.0 - 13.0	
0-1	11.9
0-2	11.9
0-3	11.9
0-4	11.9
0-5	11.9
0-6	11.9
0-7	11.9
0-8	11.9
0-9	11.9
0-10	11.9
0-11	11.9
0-12	11.9
0-13	12.0
0-14	11.9
0-15	11.9
0-16	12.0
0-17	11.9
0-18	11.9
0-19	11.9
0-20	12.0
0-21	11.9
0-22	11.9
0-23	11.8
0-24	11.9

### 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 17.6  
0-2 17.6  
0-3 18.8  
0-4 18.8  
0-5 18.8  
0-6 19.2  
0-7 19.6  
0-8 19.6  
0-9 19.2  
0-10 17.2  
0-11 17.2  
0-12 17.2  
0-13 18.0  
0-14 19.6  
0-15 18.0  
0-16 18.0  
0-17 18.0  
0-18 18.4  
0-19 17.6  
0-20 18.0  
0-21 18.0

0-22 18.0  
0-23 18.0  
0-24 17.6

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 0.5  
0-7 0.6  
0-8 0.5  
0-9 0.5  
0-10 0.5  
0-11 0.6  
0-12 0.6  
0-13 0.6  
0-14 0.6  
0-15 0.6  
0-16 0.5  
0-17 0.8  
0-18 0.7  
0-19 0.6  
0-20 0.6  
0-21 0.7  
0-22 0.5  
0-23 0.5  
0-24 0.6

TX36 power test passed

IO TX MB Embedded PPC Embedded  
PPC Download  
2.11 One CPU1.13 Reduced Performance: 1  
voice/Mar 5 2007/1.07 Jun 17 2008/1.11

TX36 unique firmware test OK

-----  
-----  
2013.05.22 10:38:00.889 101 2 OK  
Input voltage 12V  
-----

RX32 Spec: 11.0 - 13.0  
7-1 11.7  
7-2 11.7  
7-3 11.7  
7-4 11.8

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 2.5  
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 20.0  
7-2 22.0  
7-3 22.0  
7-4 16.0

Input Current 12V

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

Input Current 6V

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

RX32 power test passed

IO RX MB Embedded PPC Embedded  
PPC Download  
1.12 Generic1.14 GenericMay 5 2006/1.06  
May 5 2006/1.07 Feb 18 2010/1.11

RX32 unique firmware test OK

-----  
-----  
2013.05.22 10:38:00.989 101 3 OK  
High Voltage Br. 1  
-----

TX36 Spec: 90.0 - 145.0  
0-1 123.4  
0-2 123.4  
0-3 122.6  
0-4 123.0  
0-5 123.0  
0-6 122.1  
0-7 123.0  
0-8 121.7  
0-9 123.0  
0-10 123.4  
0-11 123.4  
0-12 121.7  
0-13 123.4

0-14 123.0  
0-15 123.8  
0-16 123.4  
0-17 122.6  
0-18 123.4  
0-19 122.6  
0-20 123.0  
0-21 122.6  
0-22 123.4  
0-23 122.1  
0-24 123.0

High Voltage Br. 2

-----  
TX36 Spec: 90.0 - 145.0  
0-1 123.0  
0-2 123.0  
0-3 122.6  
0-4 122.2  
0-5 122.6  
0-6 122.6  
0-7 122.2  
0-8 122.2  
0-9 123.0  
0-10 122.6  
0-11 122.6  
0-12 123.0  
0-13 121.7  
0-14 123.4  
0-15 123.4  
0-16 123.4  
0-17 122.6  
0-18 123.0  
0-19 122.6  
0-20 123.0  
0-21 123.4  
0-22 123.4  
0-23 122.6  
0-24 122.6

Input voltage 12V

-----  
TX36 Spec: 11.0 - 13.0  
0-1 11.9  
0-2 11.9  
0-3 11.9  
0-4 11.9  
0-5 11.9

0-6 11.9  
0-7 11.9  
0-8 11.9  
0-9 11.9  
0-10 11.9  
0-11 11.9  
0-12 11.9  
0-13 12.0  
0-14 11.9  
0-15 11.9  
0-16 12.0  
0-17 11.9  
0-18 11.9  
0-19 11.9  
0-20 12.0  
0-21 11.9  
0-22 11.9  
0-23 11.8  
0-24 11.9

RX32 Spec: 11.0 - 13.0

7-1 11.7  
7-2 11.7  
7-3 11.7  
7-4 11.8

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

-----  
-----  
2013.05.22 10:38:01.139 101 4 OK  
EM 302 High Voltage Ramp Test  
Test Voltage:20.00 Measured Voltage: 18.00  
PASSED  
Test Voltage:40.00 Measured Voltage: 39.00  
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:  
121.00 PASSED  
Test Voltage:120.00 Measured Voltage:  
121.00 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

-----  
-----  
2013.05.22 10:40:36.966 101 5 OK

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

-----  
-----  
2013.05.22 10:40:42.450 101 6 OK  
Receiver impedance limits [600.0 1000.0] ohm  
Board 1 2 3 4  
1: 861.4 866.5 836.7 861.4  
2: 837.7 843.5 848.0 864.4  
3: 830.3 861.9 867.2 858.8  
4: 846.7 849.2 860.1 855.7  
5: 848.6 861.5 778.2 868.0  
6: 860.9 869.1 850.8 868.8  
7: 846.4 866.8 857.9 872.0  
8: 848.0 858.5 867.0 849.8  
9: 844.1 857.7 849.6 841.3  
10: 825.9 866.0 807.5 857.9  
11: 842.8 850.9 851.0 844.2  
12: 850.0 823.4 830.1 856.2  
13: 850.5 850.3 839.5 854.6  
14: 834.8 853.7 875.6 857.1  
15: 827.8 853.1 861.2 853.2

16: 853.9 847.1 867.7 846.8  
 17: 831.2 893.6 860.2 855.6  
 18: 849.4 859.0 873.9 863.3  
 19: 821.8 855.1 831.7 852.1  
 20: 842.4 880.5 867.9 858.5  
 21: 861.8 858.3 893.1 861.4  
 22: 882.4 860.6 857.2 861.1  
 23: 880.4 876.3 873.5 860.8  
 24: 884.2 889.8 886.7 869.9  
 25: 845.9 858.4 860.0 863.7  
 26: 848.4 849.0 864.8 857.9  
 27: 836.1 851.7 863.3 859.7  
 28: 829.5 850.6 838.2 857.9  
 29: 823.9 869.4 857.3 858.6  
 30: 858.0 848.5 858.5 862.7  
 31: 840.6 848.0 863.7 849.4  
 32: 855.5 883.7 865.8 863.8

Transducer impedance limits [250.0 2000.0]  
ohm

Board 1 2 3 4  
 1: 334.5 355.8 351.4 361.6  
 2: 349.6 367.0 358.5 358.5  
 3: 334.2 336.9 368.9 345.5  
 4: 343.2 354.6 379.2 349.6  
 5: 331.1 357.0 380.4 337.5  
 6: 299.0 344.0 352.3 352.7  
 7: 335.6 344.3 384.1 354.4  
 8: 326.5 337.1 361.6 356.1  
 9: 361.0 359.8 376.0 354.0  
 10: 355.7 350.2 374.7 353.1  
 11: 326.4 360.8 361.9 353.5  
 12: 342.8 369.8 373.3 344.6  
 13: 332.5 346.7 379.3 344.8  
 14: 366.6 345.0 374.5 341.3  
 15: 328.5 342.7 368.0 337.0  
 16: 332.1 357.5 377.7 338.0  
 17: 328.1 360.7 353.9 354.9  
 18: 340.2 347.9 363.8 356.7  
 19: 349.9 356.3 363.8 360.7  
 20: 344.2 344.7 351.7 340.0  
 21: 343.5 350.4 350.8 357.8  
 22: 353.8 358.7 365.9 345.6  
 23: 356.1 341.5 362.2 353.6  
 24: 356.1 362.9 346.8 337.8  
 25: 339.6 362.2 353.8 347.6  
 26: 346.5 373.6 361.7 350.4  
 27: 310.3 355.7 359.1 355.0  
 28: 352.0 369.1 365.0 336.3  
 29: 349.2 359.3 374.7 356.8

30: 331.8 345.3 346.5 363.7  
 31: 344.8 360.2 358.6 356.9  
 32: 339.5 361.0 364.5 362.5

Receiver Phase limits [-50.0 20.0] deg

Board 1 2 3 4  
 1: -0.4 2.0 4.5 2.0  
 2: 2.7 2.4 2.2 0.8  
 3: 3.9 -2.7 -1.5 0.0  
 4: 1.0 1.9 0.3 0.5  
 5: 1.0 0.3 11.3 -1.0  
 6: -20.7 -3.5 -0.2 -1.5  
 7: 2.2 -1.1 1.8 -0.4  
 8: -0.5 -0.4 -4.0 1.1  
 9: 0.6 2.6 2.3 2.4  
 10: 4.7 -2.6 7.0 -0.4  
 11: -0.9 2.1 -1.6 2.9  
 12: 0.7 5.3 3.5 -1.1  
 13: 1.8 0.7 3.6 -0.8  
 14: 3.6 -0.6 -1.3 -1.7  
 15: 2.9 -2.8 -0.8 0.3  
 16: -0.8 2.1 -2.6 -1.5  
 17: 1.9 -3.4 -1.0 2.1  
 18: -1.5 2.2 -3.8 -1.9  
 19: 3.6 2.1 2.1 2.5  
 20: 2.0 -2.9 -2.0 1.0  
 21: 1.1 2.4 -5.4 -1.8  
 22: -1.2 -1.1 0.1 -1.4  
 23: 0.0 -3.5 -1.5 -1.8  
 24: -1.4 -2.3 -4.7 -2.6  
 25: 1.0 0.9 0.5 0.2  
 26: 0.4 4.3 -4.0 -0.3  
 27: -15.6 -1.7 -1.6 -0.5  
 28: 6.0 -1.1 0.9 -1.5  
 29: 4.0 0.7 0.0 0.3  
 30: -1.5 0.0 -1.1 1.4  
 31: 1.3 1.0 -1.5 3.5  
 32: -1.9 -3.7 -1.5 -0.5

Transducer Phase limits [-100.0 0.0] deg

Board 1 2 3 4  
 1: -32.4 -36.1 -34.0 -33.1  
 2: -33.5 -35.0 -31.6 -37.6  
 3: -29.3 -40.6 -34.5 -36.7  
 4: -35.3 -34.6 -36.5 -29.7  
 5: -35.2 -39.0 -35.5 -32.7  
 6: -59.0 -34.9 -34.6 -32.3  
 7: -31.9 -38.6 -35.4 -33.2  
 8: -34.4 -39.0 -41.0 -32.5  
 9: -37.4 -34.6 -34.4 -34.1

10: -38.7 -36.9 -27.3 -28.7  
 11: -35.5 -37.2 -41.8 -31.5  
 12: -32.6 -33.6 -41.5 -33.0  
 13: -33.4 -40.7 -32.0 -36.6  
 14: -34.3 -42.3 -35.0 -33.4  
 15: -28.2 -44.9 -36.6 -25.8  
 16: -35.6 -38.4 -34.9 -31.7  
 17: -27.2 -35.4 -39.3 -30.4  
 18: -31.0 -33.6 -39.8 -33.6  
 19: -33.9 -35.0 -34.0 -32.4  
 20: -31.6 -39.2 -40.9 -32.3  
 21: -31.2 -36.7 -35.5 -32.7  
 22: -33.6 -39.0 -31.4 -32.0  
 23: -34.2 -42.4 -35.2 -30.0  
 24: -34.6 -38.1 -39.5 -26.9  
 25: -27.8 -34.7 -36.7 -31.7  
 26: -38.1 -35.4 -34.3 -34.7  
 27: -55.2 -36.6 -34.6 -34.1  
 28: -33.8 -36.8 -33.4 -31.2  
 29: -34.8 -40.1 -37.8 -30.8  
 30: -32.0 -37.4 -37.7 -27.5  
 31: -37.8 -39.5 -34.3 -25.4  
 32: -37.0 -39.1 -34.6 -33.6

Rx Channels test passed

-----  
 -----  
 2013.05.22 10:41:10.635 101 7 OK  
 Tx Channels test passed

-----  
 -----  
 2013.05.22 10:43:51.862 101 8 OK  
 RX NOISE LEVEL

Board No: 1 2 3 4  
 0: 50.9 42.3 41.5 40.5 dB  
 1: 48.9 42.6 41.9 41.0 dB  
 2: 46.5 43.0 41.7 40.8 dB  
 3: 45.0 42.2 41.2 41.2 dB  
 4: 44.9 43.5 42.5 41.4 dB  
 5: 44.4 43.7 42.5 41.6 dB  
 6: 44.1 43.6 42.5 40.0 dB  
 7: 42.7 43.0 41.5 40.1 dB  
 8: 43.0 43.6 41.7 41.6 dB  
 9: 44.2 42.5 41.5 40.8 dB  
 10: 43.8 43.2 42.4 40.8 dB

11: 43.5 42.9 41.6 41.8 dB  
 12: 43.8 43.2 42.4 40.1 dB  
 13: 43.8 42.9 42.1 41.2 dB  
 14: 42.9 43.2 42.3 40.5 dB  
 15: 43.6 43.4 41.5 42.6 dB  
 16: 41.8 42.3 40.5 40.7 dB  
 17: 44.2 42.8 40.4 40.7 dB  
 18: 43.3 42.6 40.7 40.9 dB  
 19: 43.2 42.2 40.3 40.8 dB  
 20: 43.3 42.7 40.4 41.3 dB  
 21: 43.7 42.5 41.6 41.4 dB  
 22: 44.0 41.7 41.3 41.9 dB  
 23: 43.8 43.0 41.1 41.4 dB  
 24: 42.7 41.8 41.6 42.2 dB  
 25: 43.0 42.6 40.8 41.5 dB  
 26: 43.7 42.4 41.7 42.2 dB  
 27: 43.2 42.4 41.0 42.9 dB  
 28: 43.6 42.7 41.9 42.9 dB  
 29: 43.2 41.9 40.7 43.6 dB  
 30: 41.7 41.6 40.7 45.8 dB  
 31: 42.2 42.5 40.8 48.6 dB

Maximum noise at Board 1 Channel 0 Level:  
50.9 dB

Broadband noise test

-----  
 -----  
 Average noise at Board 1 44.5 dB OK  
 Average noise at Board 2 42.8 dB OK  
 Average noise at Board 3 41.5 dB OK  
 Average noise at Board 4 42.2 dB OK

-----  
 -----  
 2013.05.22 10:43:58.696 101 9 OK  
 RX NOISE SPECTRUM

Board No: 1 2 3 4  
 26.1 kHz: 44.9 43.5 43.3 42.6 dB  
 26.3 kHz: 41.5 40.1 38.7 39.5 dB  
 26.5 kHz: 42.7 40.3 39.1 39.5 dB  
 26.7 kHz: 43.8 41.1 39.6 40.0 dB

26.9 kHz: 44.3 41.6 40.1 40.5 dB  
 27.1 kHz: 42.5 40.9 40.2 40.1 dB  
 27.3 kHz: 42.3 41.0 39.9 40.4 dB  
 27.5 kHz: 43.3 41.4 40.0 40.0 dB  
 27.7 kHz: 43.5 41.6 41.3 40.5 dB  
 27.9 kHz: 43.1 42.6 42.5 41.1 dB  
 28.1 kHz: 43.1 42.4 41.9 41.1 dB  
 28.3 kHz: 42.6 41.6 41.4 40.8 dB  
 28.5 kHz: 42.5 41.6 41.2 41.8 dB  
 28.7 kHz: 42.2 41.2 41.2 40.9 dB  
 28.9 kHz: 41.7 40.9 40.3 40.6 dB  
 29.1 kHz: 41.7 40.7 40.4 40.0 dB  
 29.3 kHz: 42.0 41.0 40.2 40.0 dB  
 29.5 kHz: 42.0 40.9 40.5 40.1 dB  
 29.7 kHz: 41.9 40.9 40.4 39.8 dB  
 29.9 kHz: 41.6 41.1 40.8 40.1 dB

30.1 kHz: 43.4 41.9 41.7 40.8 dB  
 30.3 kHz: 41.8 41.0 40.8 40.4 dB  
 30.5 kHz: 41.3 40.7 40.2 40.1 dB  
 30.7 kHz: 40.4 40.4 40.1 40.1 dB  
 30.9 kHz: 40.4 40.3 39.8 39.5 dB  
 31.1 kHz: 40.9 40.5 40.5 41.4 dB  
 31.4 kHz: 40.5 40.8 40.6 39.5 dB  
 31.6 kHz: 40.5 41.8 40.6 41.0 dB  
 31.8 kHz: 39.6 41.6 41.1 39.9 dB  
 32.0 kHz: 39.8 39.8 39.0 38.6 dB  
 32.2 kHz: 40.3 39.5 38.3 38.2 dB  
 32.4 kHz: 39.7 39.7 38.8 38.4 dB  
 32.6 kHz: 39.9 39.3 38.6 39.0 dB  
 32.8 kHz: 39.1 39.0 38.2 38.6 dB  
 33.0 kHz: 38.9 38.6 38.6 38.6 dB  
 33.2 kHz: 40.2 39.8 39.7 39.6 dB

33.4 kHz: 38.3 39.0 38.1 39.1 dB  
 33.6 kHz: 37.1 37.1 37.0 36.5 dB  
 33.8 kHz: 36.8 36.7 36.8 36.7 dB  
 34.0 kHz: 36.9 37.1 37.3 36.9 dB

Maximum noise at Board 1 Frequency 26.1 kHz Level: 44.9 dB

Spectral noise test

Average noise at Board 1 41.6 dB OK  
 Average noise at Board 2 40.7 dB OK  
 Average noise at Board 3 40.2 dB OK  
 Average noise at Board 4 40.0 dB OK

2013.05.22 10:44:05.530 101 10  
 OK  
 CPU: KOM CP6011  
 Clock 1795 MHz  
 Die 21 oC (peak: 24 oC @ 2013-05-22 - 10:38:00)

Board 19 oC (peak: 19 oC @ 2013-05-22 - 10:39:00)  
 Core 1.33 V  
 3V3 3.30 V  
 12V 12.05 V  
 -12V -12.04 V  
 BATT 0.00 V  
 Primary network: 157.237.14.60:0xffff0000  
 Secondary network: 192.168.2.20:0xfffff00

2013.05.22 10:44:05.596 101 15  
 OK  
 EM 302  
 BSP67B Master: 2.2.3 090702  
 BSP67B Slave: 2.2.3 090702  
 CPU: 1.5.5 120622  
 DDS: 3.5.4 120124  
 DSV: 3.1.4 120508  
 RX32 version : Feb 18 2010 Rev 1.11  
 TX36 LC version : Jun 17 2008 Rev 1.11  
 VxWorks 5.5.1 Build 1.2/2-IX0100 May 16 2007, 11:31:17

## Appendix F: Data Tables

EX1302 Dive Planning Scene Files
EX1302 Fledermaus .scene file name
EX1302_MB_FNL_DivePlanning_May21_2013.scene
EX1302_MB_FNL_DivePlanning_May28_2013.scene
EX1302_MB_FNL_DivePlanning_June01_2013.scene
EX1302_MB_FNL_DivePlanning_June02_2013.scene
EX1302_MB_FNL_DivePlanning_June03_2013.scene
EX1302_MB_FNL_DivePlanning_June04_2013.scene
EX1302_MB_FNL_DivePlanning_June05_2013.scene

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG														
MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comm ents	Level 02 Files (.xyz, .sd, .tif, .kmz)
0000_20130512_2002 16_EX1302_MB.all	N/A	5/12/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	FILE NOT PROCE SSED	n/a
0000_20130514_0104 00_EX1302_MB.all	EX1302_XBT001_130514. asvp	5/14/13	10.8	84.2	EX1302_Okeanos_ March_2011_2013- 154_0000_20130514 _010400_EX1302_M B.txt	3,363, 104	078- 30.50 450W	078- 30.32 303W	32- 44.13 778N	32- 44.25 754N	2013- 05-14 01:04: 00.234	2013- 05-14 01:04: 49.233		EX1302_MB_FNL_ 01_50m_WGS84
0000_20130514_0150 43_EX1302_MB	EX1302_XBT001_130514. asvp	5/14/13	11.0	82.4	EX1302_Okeanos_ March_2011_2013- 134_0000_20130514 _015043_EX1302_M B.txt	1,367, 751	078- 20.30 1W	078- 20.46 7W	32- 44.87 1N	32- 45.19 1N	2013- 05-14 01:50: 43.745	2013- 05-14 01:51: 19.744		EX1302_MB_FNL_ 01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0001_20130514_0156 32_EX1302_MB	EX1302_XBT001_130514. asvp	5/14/13	10.7	81.4	EX1302_Okeanos_ March_2011_2013- 134_0000_20130514 _151828_EX1302_M B.txt	8,245, 204	077- 53.86 8W	078- 19.22 3W	32- 45.01 2N	32- 48.05 6N	2013- 05-14 01:56: 32.244	2013- 05-14 03:56: 31.776		EX1302_MB_FNL_ 01_50m_WGS84
0002_20130514_0356 31_EX1302_MB	EX1302_XBT001_130514. asvp	5/14/13	9.8	81.4	EX1302_Okeanos_ March_2011_2013- 134_0000_20130514 _212142_EX1302_M B.txt	4,853, 432	077- 30.80 6W	077- 53.98 1W	32- 47.56 3N	32- 50.46 7N	2013- 05-14 03:56: 32.276	2013- 05-14 05:56: 31.303		EX1302_MB_FNL_ 01_50m_WGS84
0003_20130514_0556 31_EX1302_MB	EX1302_XBT002_130514. asvp EX1302_XBT001_130514. asvp	5/14/13	10.3	81.2	EX1302_Okeanos_ March_2011_2013- 134_0001_20130514 _015632_EX1302_M B.txt	261,8 65,42 8	077- 06.56 7W	077- 30.93 0W	32- 49.82 5N	32- 53.08 0N	2013- 05-14 05:56: 31.803	2013- 05-14 07:56: 32.328		EX1302_MB_FNL_ 01_50m_WGS84
0004_20130514_0756 32_EX1302_MB	EX1302_XBT002_130514. asvp EX1302_XBT003_130514. asvp	5/14/13	11.0	81.0	EX1302_Okeanos_ March_2011_2013- 134_0001_20130514 _162553_EX1302_M B.txt	3,557, 114	076- 40.65 8W	077- 06.61 1W	32- 52.11 4N	32- 55.92 6N	2013- 05-14 07:56: 32.828	2013- 05-14 09:56: 32.359		EX1302_MB_FNL_ 01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) MDD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0005_20130514_095632_EX1302_MB	EX1302_XBT002_130514.asvp EX1302_XBT003_130514.asvp	5/14/13	10.9	80.7	EX1302_Okeanos_March_2011_2013-134_0001_20130514_221344_EX1302_MB.txt	4,260,982	076-14.935W	076-40.889W	32-54.471N	32-59.329N	2013-05-14 09:56:32.859	2013-05-14 11:56:35.388	line shows slight change in depth due to the application of sound velocity	EX1302_MB_FNL_01_50m_WGS84
0006_20130514_115635_EX1302_MB	EX1302_XBT003_130514.asvp/EX1302_XBT004_130514.asvp	5/14/13	10.5	79.7	EX1302_Okeanos_March_2011_2013-134_0002_20130514_035631_EX1302_MB.txt	197,019,88	072-55-750W	075-15.065W	32-57.821N	32-59.995N	2013-05-14 11:56:35.888	2013-05-14 13:30:33.413		EX1302_MB_FNL_01_50m_WGS84
0000_20130514_135036_EX1302_MB.all	EX1302_XBT004_130514.asvp	5/14/13	3.5	42.2	EX1302_Okeanos_March_2011_2013-154_0000_20130514_135036_EX1302_MB.txt	41,344	075-56.87062W	075-53.11658W	32-59.59140N	33-01.99893N	2013-05-14 13:50:36.915	2013-05-14 13:51:07.914		EX1302_MB_FNL_01_50m_WGS84
0001_20130514_142318_EX1302_MB.all	EX1302_XBT004_130514.asvp	5/14/13	4.6	214.7	EX1302_Okeanos_March_2011_2013-154_0001_20130514_142318_EX1302_MB.txt	5,341,536	075-57.48567W	075-51.69809W	32-55.67342N	33-00.99539N	2013-05-14 14:23:18.926	2013-05-14 14:54:31.935		EX1302_MB_FNL_01_50m_WGS84



EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0000_20130514_151828_EX1302_MB	EX1302_XBT004_130514.asvp	5/14/13	4.1	31.9	EX1302_Okeanos_March_2011_2013-134_0002_20130514_171416_EX1302_MB.txt	3,201,236	075-51.54 4W	075-58.26 1W	32-55.35 1N	33-00.34 5N	2013-05-14 16:05: 51.946	2013-05-14 16:05: 51.946	Pitch Line 1	EX1302_MB_FNL_01_50m_WGS84
0001_20130514_162553_EX1302_MB	EX1302_XBT004_130514.asvp	5/14/13	7.9	212.6	EX1302_Okeanos_March_2011_2013-134_0002_20130514_230116_EX1302_MB.txt	4,594,964	075-51.69 3W	075-57.79 5W	32-55.47 3N	33-00.36 5N	2013-05-14 16:46: 15.458	2013-05-14 16:46: 15.458		EX1302_MB_FNL_01_50m_WGS84
0002_20130514_171416_EX1302_MB	EX1302_XBT004_130514.asvp	5/14/13	8.2	32.8	EX1302_Okeanos_March_2011_2013-134_0003_20130514_055631_EX1302_MB.txt	143,393,085	075-52.03 5W	075-58.15 3W	32-55.34 7N	32-59.75 1N	2013-05-14 17:14: 16.965	2013-05-14 17:32: 14.471	Timing line 2: Pitch Line 2	EX1302_MB_FNL_01_50m_WGS84
0003_20130514_174746_EX1302_MB	EX1302_XBT004_130514.asvp	5/14/13	9.5	291.0	EX1302_Okeanos_March_2011_2013-134_0003_20130514_174746_EX1302_MB.txt	33,898	075-53.52 1W	075-55.80 7W	32-58.86 9N	33-01.29 1N	2013-05-14 17:47: 46.477	2013-05-14 17:48: 07.974		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) MDD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0004_20130514_182338_EX1302_MB.all	EX1302_XBT004_130514.asvp/EX1302_XBT005_130514.asvp	5/14/13	4.5	225.8	EX1302_Okeanos_March_2011_2013-154_0004_20130514_182338_EX1302_MB.txt	1,167,050	075-56.17998W	075-51.49438W	32-56.80836N	33-00.97181N	2013-05-14 18:23:38.983	2013-05-14 18:30:20.484		EX1302_MB_FNL_01_50m_WGS84
0005_20130514_195219_EX1302_MB	EX1302_XBT005_130514.asvp	5/14/13	3.7	212.7	EX1302_Okeanos_March_2011_2013-134_0003_20130514_232857_EX1302_MB.txt	50,898	075-51.591W	075-57.383W	32-56.123N	33-00.562N	2013-05-14 19:52:19.508	2013-05-14 20:29:07.012	Slow Pitch	EX1302_MB_FNL_01_50m_WGS84
0007_20130514_203048_EX1302_MB.all	EX1302_XBT005_130514.asvp	5/14/13	3.6	215.3	EX1302_Okeanos_March_2011_2013-154_0007_20130514_203048_EX1302_MB.txt	14,348	075-56.34420W	075-54.12050W	32-56.58922N	32-57.90976N	2013-05-14 20:30:49.015	2013-05-14 20:31:00.513		EX1302_MB_FNL_01_50m_WGS84
0000_20130514_212142_EX1302_MB	EX1302_XBT006_130514.asvp	5/14/13	7.5	32.8	EX1302_Okeanos_March_2011_2013-134_0004_20130514_075632_EX1302_MB.txt	89,253,615	075-50.499W	075-56.978W	32-54.443N	32-59.670N	2013-05-14 21:21:42.023	2013-05-14 21:48:05.030	Corrupted in HDCS data; Reconverted on JD 135 by VSM	EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0001_20130514_221344_EX1302_MB	EX1302_XBT006_130514.asvp	5/14/13	8.3	212.3	EX1302_Okeanos_March_2011_2013-134_0005_20130514_095632_EX1302_MB.txt	56,376,853	075-53.107W	075-59.238W	32-55.935N	33-01.473N	2013-05-14 22:13:45.042	2013-05-14 22:37:21.047		EX1302_MB_FNL_01_50m_WGS84
0002_20130514_230116_EX1302_MB	EX1302_XBT006_130514.asvp	5/14/13	7.5	32.1	EX1302_Okeanos_March_2011_2013-134_0005_20130514_195219_EX1302_MB.txt	6,524,158	075-53.071W	075-59.507W	32-56.123N	33-01.155N	2013-05-14 23:01:16.551	2013-05-14 23:26:41.055		EX1302_MB_FNL_01_50m_WGS84
0003_20130514_232857_EX1302_MB	EX1302_XBT006_130514.asvp	5/14/13	8.5	34.2	EX1302_Okeanos_March_2011_2013-134_0006_20130514_115635_EX1302_MB.txt	20,556,740	075-52.911W	075-56.949W	32-58.870N	33-01.443N	2013-05-14 23:28:57.556	2013-05-14 23:29:20.557		EX1302_MB_FNL_01_50m_WGS84
0004_20130515_000238_EX1302_MB	EX1302_XBT006_130514.asvp	5/15/13	8.9	36.2	EX1302_Okeanos_March_2011_2013-135_0004_20130515_000238_EX1302_MB.txt	3,853,186	075-45.498W	075-51.837W	32-57.878N	33-03.021N	2013-05-15 00:02:38.563	2013-05-15 00:25:25.069		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) MDD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0005_20130515_003546_EX1302_MB	EX1302_XBT006_130514.asvp	5/15/13	8.5	215.2	EX1302_Okeanos_March_2011_2013-135_0004_20130515_231121_EX1302_MB.txt	13,046,514	075-45.693W	075-51.612W	32-58.478N	33-02.981N	2013-05-15 00:35:46.076	2013-05-15 00:52:26.577		EX1302_MB_FNL_01_50m_WGS84
0006_20130515_005226_EX1302_MB	EX1302_XBT006_130514.asvp	5/15/13	4.4	217.8	EX1302_Okeanos_March_2011_2013-135_0005_20130515_003546_EX1302_MB.txt	2,923,626	075-47.39099W	075-51.64241W	32-58.41459N	33-01.03630N	2013-05-15 00:52:27.077	2013-05-15 00:52:57.081		EX1302_MB_FNL_01_50m_WGS84
0007_20130515_054923_EX1302_MB	EX1302_XBT006_130514.asvp	5/15/13	10.6	28.9	EX1302_Okeanos_March_2011_2013-135_0006_20130515_005226_EX1302_MB.txt	56,508	075-41.699W	075-43.820W	33-29.860N	33-32.718N	2013-05-15 05:49:23.847	2013-05-15 06:17:21.352		EX1302_MB_FNL_01_50m_WGS84
0008_20130515_061721_EX1302_MB	EX1302_XBT006_130514.asvp	5/15/13	9.0	207.4	EX1302_Okeanos_March_2011_2013-135_0007_20130515_054923_EX1302_MB.txt	5,005,582	075-47.010W	075-41.706W	33-25.108N	33-32.712N	2013-05-15 06:17:21.853	2013-05-15 07:16:02.867		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0009_20130515_071603_EX1302_MB	EX1302_XBT006_130514.asvp	5/15/13	8.5	116.5	EX1302_Okeanos_March_2011_2013-135_0008_20130515_061721_EX1302_MB.txt	10,640,538	075-47.00 1W	075-45.62 5W	33-24.44 9N	33-25.12 6N	2013-05-15 07:16:03.367	2013-05-15 07:30:50.869		EX1302_MB_FNL_01_50m_WGS84
0010_20130515_073051_EX1302_MB	EX1302_XBT006_130514.asvp	5/15/13	8.7	27.5	EX1302_Okeanos_March_2011_2013-135_0009_20130515_071603_EX1302_MB.txt	2,622,250	072-45.62 5W	075-40.26 0W	33-24.44 2N	33-32.14 3N	2013-05-15 07:30:51.370	2013-05-15 08:32:30.384		EX1302_MB_FNL_01_50m_WGS84
0011_20130515_083230_EX1302_MB	EX1302_XBT006_130514.asvp	5/15/13	8.7	121.9	EX1302_Okeanos_March_2011_2013-135_0010_20130515_073051_EX1302_MB.txt	10,881,768	075-40.22 7W	075-38.85 6W	33-31.35 7N	33-32.12 7N	2013-05-15 08:32:30.884	2013-05-15 08:48:22.884		EX1302_MB_FNL_01_50m_WGS84
0012_20130515_084823_EX1302_MB	EX1302_XBT006_130514.asvp, EX1302_XBT007_130514.asvp	5/15/13	9.3	208.1	EX1302_Okeanos_March_2011_2013-135_0011_20130515_083230_EX1302_MB.txt	2,830,738	075-43.09 5W	075-38.87 4W	33-25.46 6N	33-31.35 1N	2013-05-15 08:48:3.39	2013-05-15 09:32:48.901		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) MDD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0013_20130515_093248_EX1302_MB	EX1302_XBT007_130514.asvp	5/15/13	8.1	72.1	EX1302_Okeanos_March_2011_2013-135_0012_20130515_084823_EX1302_MB.txt	7,979,664	075-40.756W	075-45.26W	33-23.327N	33-27.286N	2013-05-15 09:32:49.400	2013-05-15 09:39:23.899		EX1302_MB_FNL_01_50m_WGS84
0014_20130515_093924_EX1302_MB	EX1302_XBT007_130514.asvp	5/15/13	10.2	57.7	EX1302_Okeanos_March_2011_2013-135_0013_20130515_093248_EX1302_MB.txt	1,172,660	075-38.234W	075-43.460W	33-23.692N	33-28.739N	2013-05-15 09:39:24.398	2013-05-15 09:55:10.402		EX1302_MB_FNL_01_50m_WGS84
0015_20130515_095510_EX1302_MB	EX1302_XBT007_130514.asvp	5/15/13	7.5	318.4	EX1302_Okeanos_March_2011_2013-135_0014_20130515_093924_EX1302_MB.txt	2,635,272	075-37.124W	075-41.987W	33-25.3888N	33-28.769N	2013-05-15 09:55:10.903	2013-05-15 09:27:31.405		EX1302_MB_FNL_01_50m_WGS84
0016_20130515_095510_EX1302_MB	EX1302_XBT007_130514.asvp	5/15/13	9.0	299.5	EX1302_Okeanos_March_2011_2013-135_0015_20130515_095510_EX1302_MB.txt	198,084	075-38.301W	075-47.44W	33-25.371N	33-32.455N	2013-05-15 09:57:31.906	2013-05-15 10:40:43.15	Computer time changed to correlate with UTC	EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0017_20130515_104043_EX1302_MB	EX1302_XBT007_130514.asvp	5/15/13	11.1	27.7	EX1302_Okeanos_March_2011_2013-135_0016_20130515_095731_EX1302_MB.txt	7,101,886	075-39.853W	075-48.849W	33-28.617N	33-37.853N	2013-05-15 10:40:43.916	2013-05-15 11:20:24.924		EX1302_MB_FNL_01_50m_WGS84
0000_20130515_112920_EX1302_MB.all	EX1302_XBT007_130514.asvp	5/15/13	12.1	30.1	EX1302_Okeanos_March_2011_2013-155_0000_20130515_112920_EX1302_MB.txt	21,265,028	075-42.70173W	075-23.99695W	33-37.04984N	34-00.10584N	2013-05-15 11:29:20.425	2013-05-15 13:29:16.458		EX1302_MB_FNL_01_50m_WGS84
0001_20130515_132916_EX1302_MB.all	EX1302_XBT007_130514.asvp	5/15/13	12.8	30.0	EX1302_Okeanos_March_2011_2013-155_0001_20130515_132916_EX1302_MB.txt	3,679,616	075-28.51857W	075-21.36006W	33-58.14153N	34-03.87990N	2013-05-15 13:29:16.956	2013-05-15 13:49:39.960		EX1302_MB_FNL_01_50m_WGS84
0002_20130515_201924_EX1302_MB.all	EX1302_XBT008_130514.asvp	5/15/13	9.2	350.2	EX1302_Okeanos_March_2011_2013-155_0002_20130515_201924_EX1302_MB.txt	294,202	074-48.20366W	074-43.59828W	35-15.89485N	35-17.74570N	2013-05-15 20:19:25.060	2013-05-15 20:22:01.060		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0003_20130515_203146_EX1302_MB.all	EX1302_XBT008_130514.asvp	5/15/13	9.9	14.9	EX1302_Okeanos_March_2011_2013-155_0003_20130515_203146_EX1302_MB.txt	10,535,886	074-48.64385W	074-41.64606W	35-17.81120N	35-26.37332N	2013-05-15 20:31:46.565	2013-05-15 21:19:40.074		EX1302_MB_FNL_01_50m_WGS84
0004_20130515_231121_EX1302_MB	EX1302_XBT008_130514.asvp	5/15/13	9.4	25.8	EX1302_Okeanos_March_2011_2013-135_0017_20130515_104043_EX1302_MB.txt	6,023,508	074-24.833W	074-34.891W	35-40.565N	35-50.118N	2013-05-15 23:11:22.101	2013-05-16 00:10:01.141		EX1302_MB_FNL_01_50m_WGS84
0005_20130516_001001_EX1302_MB	EX1302_XBT009_130514.asvp	5/16/13	8.4	25.7	EX1302_Okeanos_March_2011_2013-136_0005_20130516_001001_EX1302_MB.txt	24,164,038	074-14.584W	074-29.274W	35-48.732N	36-04.751N	2013-05-16 00:10:01.616	2013-05-16 02:10:04.646		EX1302_MB_FNL_01_50m_WGS84
0006_20130516_021005_EX1302_MB	EX1302_XBT010_130514.asvp	5/16/13	9.1	326.1	EX1302_Okeanos_March_2011_2013-136_0006_20130516_021005_EX1302_MB.txt	25,145,448	074-12.331W	074-28.091W	36-03.219N	36-18.980N	2013-05-16 02:10:05.146	2013-05-16 04:10:04.680		EX1302_MB_FNL_01_50m_WGS84



EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) MDD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0007_20130516_0410_04_EX1302_MB	EX1302_XBT010_130514.asvp	5/16/13	10.4	312.7	EX1302_Okeanos_March_2011_2013-136_0007_20130516_041004_EX1302_MB.txt	36,002,236	074-25.015W	074-44.229W	36-16.189N	36-32.887N	2013-05-16 04:10:05.178	2013-05-16 06:09:58.212		EX1302_MB_FNL_01_50m_WGS84
0008_20130516_0609_58_EX1302_MB	EX1302_XBT010_130514.asvp	5/16/13	11.2	313.3	EX1302_Okeanos_March_2011_2013-136_0008_20130516_060958_EX1302_MB.txt	6,407,031	074-43.866W	074-45.522W	36-32.594N	36-33.915N	2013-05-16 06:09:58.709	2013-05-16 06:22:45.710	rapid decrease in depth then loss of bottom detection at end of line	EX1302_MB_FNL_01_50m_WGS84
0009_20130516_0624_21_EX1302_MB	EX1302_XBT010_130514.asvp	5/16/13	10.7	312.6	EX1302_Okeanos_March_2011_2013-136_0009_20130516_062421_EX1302_MB.txt	568,088,864	074-46.313W	075-04.756W	36-34.518N	36-50.039N	2013-05-16 06:24:21.213	2013-05-16 08:24:20.737		EX1302_MB_FNL_01_50m_WGS84
0010_20130516_0824_21_EX1302_MB	EX1302_XBT010_130514.asvp	5/16/13	10.5	312.9	EX1302_Okeanos_March_2011_2013-136_0010_20130516_082421_EX1302_MB.txt	246,893,952	075-04.676W	075-13.323W	36-49.973N	36-57.264N	2013-05-16 08:24:21.238	2013-05-16 09:21:27.751		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0011_20130518_221317_EX1302_MB.all	EX1302_XBT011_130518.asvp	5/18/13	8.9	39.7	EX1302_Okeanos_March_2011_2013-138_0011_20130518_221317_EX1302_MB.txt	44,257,560	36-44.20 3N	36-27.08 4N	074-43.01 8W	074-36.85 2W	2013-05-18 22:13: 17.500	2013-05-19 00:13: 19.026		EX1302_MB_FNL_01_50m_WGS84
0012_20130519_001319_EX1302_MB	EX1302_XBT011_130518.asvp, EX1302_XBT012_130519.asvp	5/19/13	8.7	223.5	EX1302_Okeanos_March_2011_2013-139_0012_20130519_001319_EX1302_MB.txt	32,461,421	074-24.91 6W	074-38.80 9W	36-43.90 8N	36-54.97 0N	2013-05-19 00:13: 19.525	2013-05-19 02:13: 22.549		EX1302_MB_FNL_01_50m_WGS84
0013_20130519_021322_EX1302_MB	EX1302_XBT012_130519.asvp, EX1302_XBT013_130519.asvp	5/19/13	8.3	205.3	EX1302_Okeanos_March_2011_2013-139_0013_20130519_021322_EX1302_MB.txt	28,514,492	074-24.93 8W	074-36.27 6W	36-46.20 7N	36-54.92 0N	2013-05-19 02:13: 23.049	2013-05-19 04:13: 19.074		EX1302_MB_FNL_01_50m_WGS84
0014_20130519_041319_EX1302_MB	EX1302_XBT013_130519.asvp, EX1302_XBT014_130519.asvp	5/19/13	8.1	42.2	EX1302_Okeanos_March_2011_2013-139_0014_20130519_041319_EX1302_MB.txt	39,775,168	074-33.46 9W	074-42.54 0W	36-36.48 5N	36-48.51 8N	2013-05-19 04:13: 19.574	2013-05-19 05:46: 03.095		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0015_20130519_054603_EX1302_MB	EX1302_XBT014_130519.asvp	5/19/13	7.8	188.8	EX1302_Okeanos_March_2011_2013-139_0015_20130519_054603_EX1302_MB.txt	15,901,114	074-40.532W	074-43.153W	36-36.427N	36-38.329N	2013-05-19 05:46:03.595	2013-05-19 06:02:13.596		EX1302_MB_FNL_01_50m_WGS84
0016_20130519_060213_EX1302_MB	EX1302_XBT014_130519.asvp	5/19/13	8.5	9.9	EX1302_Okeanos_March_2011_2013-139_0016_20130519_060213_EX1302_MB.txt	58,128,147	074-40.572W	074-45.286W	36-27.075N	36-37.523N	2013-05-19 06:02:14.097	2013-05-19 07:23:16.609	speed spikes 0651-0723	EX1302_MB_FNL_01_50m_WGS84
0017_20130519_171913_EX1302_MB	EX1302_XBT015_130519.asvp	5/19/13	9.6	8.7	EX1302_Okeanos_March_2011_2013-139_0017_20130519_171913_EX1302_MB.txt	22,820,204	074-32.099W	074-40.989W	36-21.206N	36-36.933N	2013-05-19 17:19:13.733	2013-05-19 19:01:28.754		EX1302_MB_FNL_01_50m_WGS84
0018_20130519_190226_EX1302_MB	EX1302_XBT015_130519.asvp	5/19/13	6.7	124.7	EX1302_Okeanos_March_2011_2013-139_0018_20130519_190226_EX1302_MB.txt	27,782,726	074-26.656W	074-34.927W	36-34.206N	36-54.639N	2013-05-19 19:02:26.752	2013-05-19 21:02:27.281		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0019_20130519_210227_EX1302_MB	EX1302_XBT015_130519.asvp, EX1302_XBT016_130519.asvp	5/19/13	7.5	252.3	EX1302_Okeanos_March_2011_2013-139_0019_20130519_210227_EX1302_MB.txt	2,084,914	074-26.716W	074-30.362W	36-50.430N	36-53.877N	2013-05-19 21:02:27.783	2013-05-19 21:11:34.782		EX1302_MB_FNL_01_50m_WGS84
0020_20130519_211135_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	7.6	31.3	EX1302_Okeanos_March_2011_2013-139_0020_20130519_211135_EX1302_MB.txt	3,112,258	074-25.523W	074-31.172W	36-49.499N	36-53.487N	2013-05-19 21:11:35.283	2013-05-19 21:26:36.287		EX1302_MB_FNL_01_50m_WGS84
0021_20130519_212636_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	7.4	336.4	EX1302_Okeanos_March_2011_2013-139_0021_20130519_212636_EX1302_MB.txt	1,383,358	074-25.913W	074-30.656W	36-50.816N	36-53.737N	2013-05-19 21:26:36.786	2013-05-19 21:33:19.785		EX1302_MB_FNL_01_50m_WGS84
0022_20130519_213320_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	7.4	207.8	EX1302_Okeanos_March_2011_2013-139_0022_20130519_213320_EX1302_MB.txt	1,236,512	074-25.801W	074-30.213W	36-51.308N	36-54.553N	2013-05-19 21:33:20.286	2013-05-19 21:39:00.789		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0023_20130519_213901_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	6.5	181.9	EX1302_Okeanos_March_2011_2013-139_0023_20130519_213901_EX1302_MB.txt	2,125,646	074-26.15 2W	074-30.64 9W	36-50.82 7N	36-54.05 1N	2013-05-19 21:39:01.289	2013-05-19 21:48:16.792		EX1302_MB_FNL_01_50m_WGS84
0025_20130519_214816_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	6.6	255.9	EX1302_Okeanos_March_2011_2013-139_0025_20130519_214816_EX1302_MB.txt	688,568	074-26.41 5W	074-31.73 7W	36-50.13 2N	36-52.94 0N	2013-05-19 21:48:17.292	2013-05-19 21:52:16.293		EX1302_MB_FNL_01_50m_WGS84
0026_20130519_215216_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	7.6	10.6	EX1302_Okeanos_March_2011_2013-139_0026_20130519_215216_EX1302_MB.txt	1,191,836	074-25.95 9W	074-31.53 0W	36-49.30 5N	36-52.84 6N	2013-05-19 21:52:16.792	2013-05-19 21:58:35.293		EX1302_MB_FNL_01_50m_WGS84
0027_20130519_215835_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	7.0	33.5	EX1302_Okeanos_March_2011_2013-139_0027_20130519_215835_EX1302_MB.txt	1,106,224	074-26.58 7W	074-31.64 3W	36-50.34 1N	36-53.49 9N	2013-05-19 21:58:35.792	2013-05-19 22:04:23.795		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0028_20130519_220424_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	6.4	114.0	EX1302_Okeanos_March_2011_2013-139_0028_20130519_220424_EX1302_MB.txt	1,079,534	074-26.188W	074-31.066W	36-50.450N	36-54.095N	2013-05-19 22:04:24.296	2013-05-19 22:11:00.297		EX1302_MB_FNL_01_50m_WGS84
0029_20130519_221100_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	6.9	210.2	EX1302_Okeanos_March_2011_2013-139_0029_20130519_221100_EX1302_MB.txt	2,280,482	074-25.617W	074-30.670W	36-51.651N	36-54.700N	2013-05-19 22:11:00.796	2013-05-19 22:20:57.800		EX1302_MB_FNL_01_50m_WGS84
0030_20130519_222058_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	6.2	326.9	EX1302_Okeanos_March_2011_2013-139_0030_20130519_222058_EX1302_MB.txt	2,029,732	074-26.239W	074-30.694W	36-50.753N	36-53.746N	2013-05-19 22:20:58.303	2013-05-19 22:30:06.301		EX1302_MB_FNL_01_50m_WGS84
0031_20130519_223006_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	7.1	21.5	EX1302_Okeanos_March_2011_2013-139_0031_20130519_223006_EX1302_MB.txt	1,903,762	074-26.512W	074-31.527W	36-49.911N	36-52.980N	2013-05-19 22:30:06.801	2013-05-19 22:38:43.801		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0032_20130519_223844_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	6.4	185.8	EX1302_Okeanos_March_2011_2013-139_0032_20130519_223844_EX1302_MB.txt	2,186,506	074-25.945W	074-30.976W	36-50.781N	36-54.155N	2013-05-19 22:38:44.302	2013-05-19 22:49:10.804		EX1302_MB_FNL_01_50m_WGS84
0033_20130519_224910_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	3.3	189.4	EX1302_Okeanos_March_2011_2013-139_0033_20130519_224910_EX1302_MB.txt	4,479,704	074-25.845W	074-31.760W	36-50.812N	36-54.703N	2013-05-19 22:49:11.304	2013-05-19 23:09:37.312		EX1302_MB_FNL_01_50m_WGS84
0034_20130519_230937_EX1302_MB	EX1302_XBT016_130519.asvp	5/19/13	4.2	299.8	EX1302_Okeanos_March_2011_2013-139_0034_20130519_230937_EX1302_MB.txt	6,585,630	074-25.75952W	074-34.13777W	36-49.04989N	36-54.27051N	2013-05-19 23:09:37.810	2013-05-19 23:40:52.818		EX1302_MB_FNL_01_50m_WGS84
0035_20130519_234053_EX1302_MB	EX1302_XBT016_130519.asvp, EX1302_XBT017_130519.asvp	5/19/13	4.6	3.4	EX1302_Okeanos_March_2011_2013-139_0035_20130519_234053_EX1302_MB.txt	17,338,913	074-30.47598W	074-36.17470W	36-51.96979N	37-01.91854N	2013-05-19 23:40:53.319	2013-05-20 00:43:18.327		EX1302_MB_FNL_01_50m_WGS84

## EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comm ents	Level 02 Files (.xyz, .sd, .tif, .kmz)
0036_20130520_0043 18_EX1302_MB	EX1302_XBT017_130519. asvp	5/20/13	4.1	160.0	EX1302_Okeanos_ March_2011_2013- 140_0036_20130520 _004318_EX1302_M B.txt	7,264, 428	074- 27.44 073W	074- 33.38 344W	36- 57.32 321N	37- 03.17 338N	2013- 05-20 00:43: 18.830	2013- 05-20 01:11: 55.839		EX1302_MB_FNL_ 01_50m_WGS84
0037_20130520_0111 55_EX1302_MB	EX1302_XBT017_130519. asvp	5/20/13	4.6	299.3	EX1302_Okeanos_ March_2011_2013- 140_0037_20130520 _011155_EX1302_M B.txt	4,638, 208	074- 29.59 136W	074- 34.19 539W	36- 57.36 329N	37- 01.18 711N	2013- 05-20 01:11: 56.339	2013- 05-20 01:28: 38.839		EX1302_MB_FNL_ 01_50m_WGS84
0038_20130520_0128 39_EX1302_MB	EX1302_XBT017_130519. asvp	5/20/13	4.3	251.1	EX1302_Okeanos_ March_2011_2013- 140_0038_20130520 _012839_EX1302_M B.txt	11,51 5,165	074- 33.18 495W	074- 37.14 668W	36- 58.46 453N	37- 01.10 983N	2013- 05-20 01:28: 39.339	2013- 05-20 01:51: 35.347		EX1302_MB_FNL_ 01_50m_WGS84
0039_20130520_0151 35_EX1302_MB	EX1302_XBT017_130519. asvp, EX1302_XBT018_130520. asvp	5/20/13	4.0	188.5	EX1302_Okeanos_ March_2011_2013- 140_0039_20130520 _015135_EX1302_M B.txt	49,45 3,107	074- 35.47 808W	074- 39.22 748W	36- 49.15 376N	36- 59.22 047N	2013- 05-20 01:51: 35.847	2013- 05-20 03:09: 29.364		EX1302_MB_FNL_ 01_50m_WGS84



EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0040_20130520_0309 29_EX1302_MB	EX1302_XBT018_130520. asvp, EX1302_XBT019_130520. asvp	5/20/13	4.0	195.6	EX1302_Okeanos_ March_2011_2013- 140_0040_20130520 _030929_EX1302_M B.txt	132,3 58,94 1	074- 37.01 887W	074- 43.54 994W	36- 35.16 701N	36- 49.44 126N	2013- 05-20 03:09: 29.863	2013- 05-20 05:09: 29.389		EX1302_MB_FNL_ 01_50m_WGS84
0041_20130520_0509 29_EX1302_MB	EX1302_XBT019_130520. asvp	5/20/13	3.9	185.7	EX1302_Okeanos_ March_2011_2013- 140_0041_20130520 _050929_EX1302_M B.txt	87,03 1,494	074- 42.69 120W	074- 45.48 653W	36- 24.96 917N	36- 35.34 703N	2013- 05-20 05:09: 29.888	2013- 05-20 06:31: 33.909		EX1302_MB_FNL_ 01_50m_WGS84
0042_20130520_2234 24_EX1302_MB	EX1302_XBT020_130520. asvp	5/20/13	4.4	343.3	EX1302_Okeanos_ March_2011_2013- 140_0042_20130520 _223424_EX1302_M B.txt	12,27 3,855	074- 42.18 687W	074- 45.39 226W	36- 23.53 699N	36- 27.33 312N	2013- 05-20 22:34: 24.143	2013- 05-20 23:03: 27.624		EX1302_MB_FNL_ 01_50m_WGS84
0043_20130520_2303 28_EX1302_MB	EX1302_XBT020_130520. asvp	5/20/13	4.1	186.1	EX1302_Okeanos_ March_2011_2013- 140_0043_20130520 _230328_EX1302_M B.txt	59,53 1,571	074- 43.41 269W	074- 46.39 576W	36- 13.46 121N	36- 25.83 082N	2013- 05-20 23:03: 28.143	2013- 05-21 00:35: 25.645		EX1302_MB_FNL_ 01_50m_WGS84

## EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0044_20130521_003526_EX1302_MB	EX1302_XBT020_130520.asvp	5/21/13	4.6	290.6	EX1302_Okeanos_March_2011_2013-141_0044_20130521_003526_EX1302_MB.txt	2,992,341	074-45.98326W	074-46.70452W	36-13.46238N	36-14.18508N	2013-05-21 00:35:26.147	2013-05-21 00:37:38.647		EX1302_MB_FNL_01_50m_WGS84
0045_20130521_003739_EX1302_MB	EX1302_XBT020_130520.asvp, EX1302_XBT021_130521.asvp	5/21/13	4.4	353.7	EX1302_Okeanos_March_2011_2013-141_0045_20130521_003739_EX1302_MB.txt	1,473,879	074-46.01908W	074-46.85771W	36-13.79318N	36-14.07906N	2013-05-21 00:37:39.147	2013-05-21 00:38:47.643		EX1302_MB_FNL_01_50m_WGS84
0046_20130521_003847_EX1302_MB	EX1302_XBT021_130521.asvp	5/21/13	4.9	4.3	EX1302_Okeanos_March_2011_2013-141_0046_20130521_003847_EX1302_MB.txt	99,929,280	074-43.58851W	074-46.88276W	36-14.06449N	36-31.10612N	2013-05-21 00:38:48.143	2013-05-21 02:26:26.674		EX1302_MB_FNL_01_50m_WGS84
0047_20130521_022627_EX1302_MB	EX1302_XBT021_130521.asvp	5/21/13	4.2	338.3	EX1302_Okeanos_March_2011_2013-141_0047_20130521_022627_EX1302_MB.txt	11,898,352	074-44.55607W	074-45.43213W	36-30.96431N	36-31.76823N	2013-05-21 02:26:27.173	2013-05-21 02:32:17.671		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0048_20130521_023218_EX1302_MB	EX1302_XBT021_130521.asvp	5/21/13	4.0	111.8	EX1302_Okeanos_March_2011_2013-141_0048_20130521_023218_EX1302_MB.txt	9,358,465	074-44.11019W	074-45.35658W	36-31.43511N	36-32.05876N	2013-05-21 02:32:18.174	2013-05-21 02:37:59.677		EX1302_MB_FNL_01_50m_WGS84
0049_20130521_023759_EX1302_MB	EX1302_XBT021_130521.asvp	5/21/13	4.1	190.8	EX1302_Okeanos_March_2011_2013-141_0049_20130521_023759_EX1302_MB.txt	82,318,996	074-44.17317W	074-46.41759W	36-25.93508N	36-31.60862N	2013-05-21 02:38:00.177	2013-05-21 03:21:06.688		EX1302_MB_FNL_01_50m_WGS84
0050_20130521_032106_EX1302_MB	EX1302_XBT021_130521.asvp, EX1302_XBT022_130521.asvp	5/21/13	4.1	300.1	EX1302_Okeanos_March_2011_2013-141_0050_20130521_032106_EX1302_MB.txt	5,424,573	074-45.48945W	074-46.77434W	36-25.50304N	36-26.29657N	2013-05-21 03:21:07.188	2013-05-21 03:25:49.687		EX1302_MB_FNL_01_50m_WGS84
0051_20130521_032549_EX1302_MB	EX1302_XBT022_130521.asvp	5/21/13	4.4	186.1	EX1302_Okeanos_March_2011_2013-141_0051_20130521_032549_EX1302_MB.txt	249,293,256	074-45.56955W	074-47.94638W	36-16.45973N	36-29.85051N	2013-05-21 03:25:50.186	2013-05-21 05:25:48.711		EX1302_MB_FNL_01_50m_WGS84

## EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0052_20130521_052548_EX1302_MB	EX1302_XBT022_130521.asvp	5/21/13	4.5	185.6	EX1302_Okeanos_March_2011_2013-141_0052_20130521_052548_EX1302_MB.txt	38,669,202	074-47.53191W	074-48.22942W	36-14.30369N	36-16.50710N	2013-05-21 05:25:49.211	2013-05-21 05:40:49.715		EX1302_MB_FNL_01_50m_WGS84
0053_20130521_054049_EX1302_MB	EX1302_XBT022_130521.asvp	5/21/13	4.4	167.9	EX1302_Okeanos_March_2011_2013-141_0053_20130521_054049_EX1302_MB.txt	240,240	074-47.79438W	074-48.23380W	36-14.28424N	36-14.30834N	2013-05-21 05:40:50.214	2013-05-21 05:40:56.714		EX1302_MB_FNL_01_50m_WGS84
0054_20130521_054056_EX1302_MB	EX1302_XBT022_130521.asvp	5/21/13	4.8	104.5	EX1302_Okeanos_March_2011_2013-141_0054_20130521_054056_EX1302_MB.txt	22,145,046	074-45.77150W	074-48.22162W	36-13.82369N	36-14.45809N	2013-05-21 05:40:57.213	2013-05-21 05:52:07.217		EX1302_MB_FNL_01_50m_WGS84
0055_20130521_055207_EX1302_MB	EX1302_XBT022_130521.asvp	5/21/13	4.6	182.3	EX1302_Okeanos_March_2011_2013-141_0055_20130521_055207_EX1302_MB.txt	14,167,989	074-45.53180W	074-46.78061W	36-11.74030N	36-13.95760N	2013-05-21 05:52:07.718	2013-05-21 06:06:32.224		EX1302_MB_FNL_01_50m_WGS84

## EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comm ents	Level 02 Files (.xyz, .sd, .tif, .kmz)
0056_20130521_2314 15_EX1302_MB	EX1302_XBT023_130521. asvp	5/21/13	4.2	206.2	EX1302_Okeanos_ March_2011_2013- 141_0056_20130521 _231415_EX1302_M B.txt	23,50 4,297	074- 41.41 756W	074- 46.65 258W	36- 14.00 035N	36- 20.34 289N	2013- 05-21 23:14: 15.456	2013- 05-22 00:01: 11.467		EX1302_MB_FNL_ 01_50m_WGS84
0057_20130522_0001 11_EX1302_MB	EX1302_XBT023_130521. asvp	5/22/13	4.8	184.4	EX1302_Okeanos_ March_2011_2013- 142_0057_20130522 _000111_EX1302_M B.txt	19,74 0,930	074- 45.91 026W	074- 47.08 326W	36- 11.95 660N	36- 14.31 671N	2013- 05-22 00:01: 11.967	2013- 05-22 00:16: 02.971		EX1302_MB_FNL_ 01_50m_WGS84
0058_20130522_0016 03_EX1302_MB	EX1302_XBT023_130521. asvp, EX1302_XBT024_130522. asvp, EX1302_XBT025_130522. asvp	5/22/13	4.7	184.3	EX1302_Okeanos_ March_2011_2013- 142_0058_20130522 _001603_EX1302_M B.txt	92,84 5,713	074- 45.41 928W	074- 49.01 678W	35- 53.61 604N	36- 12.00 816N	2013- 05-22 00:16: 03.471	2013- 05-22 02:16: 05.001		EX1302_MB_FNL_ 01_50m_WGS84
0059_20130522_0216 05_EX1302_MB	EX1302_XBT025_130522. asvp	5/22/13	4.7	199.1	EX1302_Okeanos_ March_2011_2013- 142_0059_20130522 _021605_EX1302_M B.txt	15,05 7,132	074- 46.92 896W	074- 50.87 293W	35- 47.94 960N	35- 54.13 183N	2013- 05-22 02:16: 05.501	2013- 05-22 02:52: 01.506		EX1302_MB_FNL_ 01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0060_20130522_025201_EX1302_MB	EX1302_XBT025_130522.asvp	5/22/13	4.7	322.9	EX1302_Okeanos_March_2011_2013-142_0060_20130522_025201_EX1302_MB.txt	3,515,787	074-49.92986W	074-51.92787W	35-47.86726N	35-49.80770N	2013-05-22 02:52:02.006	2013-05-22 02:59:06.013		EX1302_MB_FNL_01_50m_WGS84
0061_20130522_025906_EX1302_MB	EX1302_XBT025_130522.asvp	5/22/13	4.9	14.4	EX1302_Okeanos_March_2011_2013-142_0061_20130522_025906_EX1302_MB.txt	38,373,357	074-48.41394W	074-51.68915W	35-49.50492N	35-56.26210N	2013-05-22 02:59:06.512	2013-05-22 03:42:26.017		EX1302_MB_FNL_01_50m_WGS84
0062_20130522_034226_EX1302_MB	EX1302_XBT025_130522.asvp, EX1302_XBT026_130522.asvp	5/22/13	4.7	16.7	EX1302_Okeanos_March_2011_2013-142_0062_20130522_034226_EX1302_MB.txt	54,994,365	074-42.10572W	074-49.31814W	35-54.11667N	36-10.59117N	2013-05-22 03:42:26.517	2013-05-22 05:42:25.543		EX1302_MB_FNL_01_50m_WGS84
0063_20130522_054225_EX1302_MB	EX1302_XBT025_130522.asvp	5/22/13	4.5	3.6	EX1302_Okeanos_March_2011_2013-142_0063_20130522_054225_EX1302_MB.txt	10,164,780	074-41.76466W	074-44.89488W	36-10.61176N	36-14.45087N	2013-05-22 05:42:26.047	2013-05-22 06:08:53.549		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0064_20130522_230712_EX1302_MB	EX1302_XBT025_130522.asvp, EX1302_XBT027_130522.asvp	5/22/13	4.1	320.2	EX1302_Okeanos_March_2011_2013-142_0064_20130522_230712_EX1302_MB.txt	17,068,995	074-25.89603W	074-35.79773W	36-49.20049N	36-58.68872N	2013-05-22 23:07:12.787	2013-05-23 00:13:36.803		EX1302_MB_FNL_01_50m_WGS84
0065_20130523_001337_EX1302_MB	EX1302_XBT027_130522.asvp	5/23/13	4.6	15.2	EX1302_Okeanos_March_2011_2013-143_0065_20130523_001337_EX1302_MB.txt	74,769,380	074-28.44396W	074-38.57653W	36-57.35247N	37-13.20449N	2013-05-23 00:13:37.303	2013-05-23 02:13:36.828		EX1302_MB_FNL_01_50m_WGS84
0066_20130523_021336_EX1302_MB	EX1302_XBT027_130522.asvp	5/23/13	4.4	16.7	File not processed		074-29.68711W	074-29.68984W	37-13.07263N	37-13.07935N	2013-05-23 02:13:37.328	2013-05-23 02:13:40.327	FILE NOT PROCESSED	EX1302_MB_FNL_01_50m_WGS84
0067_20130523_021340_EX1302_MB	EX1302_XBT027_130522.asvp, EX1302_XBT028_130523.asvp	5/23/13	4.5	15.4	EX1302_Okeanos_March_2011_2013-143_0067_20130523_021340_EX1302_MB.txt	36,908,184	074-24.82872W	074-30.50397W	37-12.87021N	37-23.62909N	2013-05-23 02:13:40.827	2013-05-23 03:28:12.344		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0068_20130523_0328 12_EX1302_MB	EX1302_XBT028_130523. asvp, EX1302_XBT029_130523. asvp	5/23/13	4.4	33.0	EX1302_Okeanos_ March_2011_2013- 143_0068_20130523 _032812_EX1302_M B.txt	52,05 3,457	074- 18.84 457W	074- 26.99 508W	37- 22.82 526N	37- 32.51 186N	2013- 05-23 03:28: 12.847	2013- 05-23 04:42: 59.367		EX1302_MB_FNL_ 01_50m_WGS84
0069_20130523_0442 59_EX1302_MB	EX1302_XBT029_130523. asvp	5/23/13	4.1	126.7	EX1302_Okeanos_ March_2011_2013- 143_0069_20130523 _044259_EX1302_M B.txt	12,65 2,728	074- 15.80 337W	074- 18.91 507W	37- 30.60 789N	37- 32.52 214N	2013- 05-23 04:42: 59.866	2013- 05-23 04:58: 52.368		EX1302_MB_FNL_ 01_50m_WGS84
0070_20130523_0458 52_EX1302_MB	EX1302_XBT029_130523. asvp	5/23/13	3.8	188.5	EX1302_Okeanos_ March_2011_2013- 143_0070_20130523 _045852_EX1302_M B.txt	730,2 24	074- 15.55 598W	074- 17.74 477W	37- 30.20 664N	37- 31.18 538N	2013- 05-23 04:58: 52.869	2013- 05-23 05:00: 45.367		EX1302_MB_FNL_ 01_50m_WGS84
0071_20130523_0500 45_EX1302_MB	EX1302_XBT029_130523. asvp	5/23/13	4.6	187.9	EX1302_Okeanos_ March_2011_2013- 143_0071_20130523 _050045_EX1302_M B.txt	23,18 0,600	074- 15.79 937W	074- 20.77 866W	37- 21.53 949N	37- 31.07 735N	2013- 05-23 05:00: 45.867	2013- 05-23 06:04: 12.387		EX1302_MB_FNL_ 01_50m_WGS84



EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0072_20130523_060412_EX1302_MB	EX1302_XBT029_130523.asvp	5/23/13	4.4	205.3	EX1302_Okeanos_March_2011_2013-143_0072_20130523_060412_EX1302_MB.txt	65,518	074-17.00 601W	074-20.37 775W	37-21.04 104N	37-22.32 181N	2013-05-23 06:04: 12.887	2013-05-23 06:04: 44.880		EX1302_MB_FNL_01_50m_WGS84
0073_20130523_060445_EX1302_MB	EX1302_XBT029_130523.asvp	5/23/13	4.5	230.7	EX1302_Okeanos_March_2011_2013-143_0073_20130523_060445_EX1302_MB.txt	3,189,035	074-17.14 420W	074-21.20 196W	37-19.13 504N	37-22.61 895N	2013-05-23 06:04: 45.381	2013-05-23 06:16: 57.383		EX1302_MB_FNL_01_50m_WGS84
0074_20130523_223652_EX1302_MB	EX1302_XBT030_130523.asvp	5/23/13	4.3	20.8	EX1302_Okeanos_March_2011_2013-143_0074_20130523_223652_EX1302_MB.txt	145,637,728	074-31.94 572W	074-39.39 565W	36-58.22 218N	37-09.95 512N	2013-05-23 22:36: 52.103	2013-05-24 00:16: 47.139		EX1302_MB_FNL_01_50m_WGS84
0075_20130524_001647_EX1302_MB	EX1302_XBT030_130523.asvp	5/24/13	4.1	57.5	EX1302_Okeanos_March_2011_2013-144_0075_20130524_001647_EX1302_MB.txt	1,356,123	074-31.97 250W	074-32.86 872W	37-09.53 367N	37-10.29 004N	2013-05-24 00:16: 47.623	2013-05-24 00:18: 14.138		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0076_20130524_0018 14_EX1302_MB	EX1302_XBT030_130523. asvp, EX1302_XBT031_130524. asvp	5/24/13	4.6	20.7	EX1302_Okeanos_ March_2011_2013- 144_0076_20130524 _001814_EX1302_M B.txt	42,31 5,160	074- 21.69 798W	074- 32.41 009W	37- 08.41 886N	37- 22.76 271N	2013- 05-24 00:18: 14.624	2013- 05-24 02:18: 14.655		EX1302_MB_FNL_ 01_50m_WGS84
0077_20130524_0218 14_EX1302_MB	EX1302_XBT031_130524. asvp	5/24/13	4.6	18.1	EX1302_Okeanos_ March_2011_2013- 144_0077_20130524 _021814_EX1302_M B.txt	33,62 7,462	074- 23.64 349W	074- 27.96 086W	37- 22.03 399N	37- 27.92 954N	2013- 05-24 02:18: 15.155	2013- 05-24 03:00: 23.159		EX1302_MB_FNL_ 01_50m_WGS84
0078_20130524_0300 23_EX1302_MB	EX1302_XBT031_130524. asvp	5/24/13	4.6	30.3	EX1302_Okeanos_ March_2011_2013- 144_0078_20130524 _030023_EX1302_M B.txt	49,57 7,385	074- 21.24 446W	074- 24.44 357W	37- 27.60 771N	37- 31.55 889N	2013- 05-24 03:00: 23.659	2013- 05-24 03:28: 29.667		EX1302_MB_FNL_ 01_50m_WGS84
0079_20130524_0328 30_EX1302_MB	EX1302_XBT031_130524. asvp	5/24/13	4.6	77.6	EX1302_Okeanos_ March_2011_2013- 144_0079_20130524 _032830_EX1302_M B.txt	16,65 5,001	074- 19.28 875W	074- 21.51 737W	37- 31.22 817N	37- 31.92 528N	2013- 05-24 03:28: 30.167	2013- 05-24 03:38: 17.166		EX1302_MB_FNL_ 01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0080_20130524_033817_EX1302_MB	EX1302_XBT031_130524.asvp	5/24/13	4.6	27.7	EX1302_Okeanos_March_2011_2013-144_0080_20130524_033817_EX1302_MB.txt	15,469,707	074-17.81644W	074-19.97364W	37-31.52522N	37-33.77803N	2013-05-24 03:38:17.667	2013-05-24 03:53:01.171		EX1302_MB_FNL_01_50m_WGS84
0081_20130524_035301_EX1302_MB	EX1302_XBT031_130524.asvp	5/24/13	4.1	3.8	EX1302_Okeanos_March_2011_2013-144_0081_20130524_035301_EX1302_MB.txt	4,884,858	074-17.79509W	074-18.91777W	37-33.45885N	37-34.46339N	2013-05-24 03:53:01.671	2013-05-24 03:57:44.176		EX1302_MB_FNL_01_50m_WGS84
0082_20130524_035744_EX1302_MB	EX1302_XBT031_130524.asvp	5/24/13	3.3	162.6	EX1302_Okeanos_March_2011_2013-144_0082_20130524_035744_EX1302_MB.txt	4,771,470	074-17.49310W	074-18.69891W	37-33.55484N	37-34.44296N	2013-05-24 03:57:44.676	2013-05-24 04:02:28.176		EX1302_MB_FNL_01_50m_WGS84
0083_20130524_040228_EX1302_MB	EX1302_XBT031_130524.asvp	5/24/13	3.3	205.3	EX1302_Okeanos_March_2011_2013-144_0083_20130524_040228_EX1302_MB.txt	22,977,999	074-17.56709W	074-19.93707W	37-31.36783N	37-33.81110N	2013-05-24 04:02:28.676	2013-05-24 04:25:34.679		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comm ents	Level 02 Files (.xyz, .sd, .tif, .kmz)
0084_20130524_0425 34_EX1302_MB	EX1302_XBT031_130524. asvp	5/24/13	3.2	188.4	File not processed		074- 19.51 157W	074- 19.51 173W	37- 31.45 113N	37- 31.45 197N	2013- 05-24 04:25: 35.179	2013- 05-24 04:25: 35.679	FILE NOT PROCE SSED	EX1302_MB_FNL_ 01_50m_WGS84
0085_20130527_0017 22_EX1302_MB	EX1302_XBT033_130527. asvp	5/27/13	4.8	4.8	EX1302_Okeanos_ March_2011_2013- 147_0085_20130527 _001722_EX1302_M B.txt	35,19 7,199	074- 22.28 711W	074- 26.67 168W	37- 15.53 913N	37- 28.58 522N	2013- 05-27 00:17: 22.442	2013- 05-27 01:40: 12.462		EX1302_MB_FNL_ 01_50m_WGS84
0086_20130527_0140 12_EX1302_MB	EX1302_XBT033_130527. asvp	5/27/13	4.4	28.1	EX1302_Okeanos_ March_2011_2013- 147_0086_20130527 _014012_EX1302_M B.txt	17,54 5,869	074- 20.70 650W	074- 23.67 491W	37- 28.08 567N	37- 31.47 219N	2013- 05-27 01:40: 12.961	2013- 05-27 02:04: 21.965		EX1302_MB_FNL_ 01_50m_WGS84
0087_20130527_0204 22_EX1302_MB	EX1302_XBT033_130527. asvp	5/27/13	4.2	54.4	EX1302_Okeanos_ March_2011_2013- 147_0087_20130527 _020422_EX1302_M B.txt	8,225, 679	074- 20.35 390W	074- 21.20 886W	37- 31.27 285N	37- 31.95 991N	2013- 05-27 02:04: 22.465	2013- 05-27 02:08: 56.965		EX1302_MB_FNL_ 01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0088_20130527_020857_EX1302_MB	EX1302_XBT033_130527.asvp	5/27/13	4.2	69.8	EX1302_Okeanos_March_2011_2013-147_0088_20130527_020857_EX1302_MB.txt	19,254,180	074-16.66412W	074-20.41152W	37-31.39551N	37-32.85422N	2013-05-27 02:08:57.466	2013-05-27 02:26:51.472		EX1302_MB_FNL_01_50m_WGS84
0089_20130527_022651_EX1302_MB	EX1302_XBT033_130527.asvp	5/27/13	4.4	352.1	EX1302_Okeanos_March_2011_2013-147_0089_20130527_022651_EX1302_MB.txt	5,528,919	074-16.69948W	074-18.51353W	37-32.46522N	37-33.94450N	2013-05-27 02:26:51.972	2013-05-27 02:35:59.972		EX1302_MB_FNL_01_50m_WGS84
0090_20130527_023600_EX1302_MB	EX1302_XBT033_130527.asvp	5/27/13	4.6	35.7	EX1302_Okeanos_March_2011_2013-147_0090_20130527_023600_EX1302_MB.txt	5,340,687	074-16.29010W	074-18.31804W	37-33.53488N	37-34.91261N	2013-05-27 02:36:00.472	2013-05-27 02:43:35.974		EX1302_MB_FNL_01_50m_WGS84
0091_20130527_024336_EX1302_MB	EX1302_XBT033_130527.asvp, EX1302_XBT034_130527.asvp	5/27/13	4.4	38.3	EX1302_Okeanos_March_2011_2013-147_0091_20130527_024336_EX1302_MB.txt	74,700,948	074-02.23877W	074-17.35611W	37-34.41962N	37-48.59688N	2013-05-27 02:43:36.474	2013-05-27 04:43:38.997		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) MDD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0092_20130527_044339_EX1302_MB	EX1302_XBT034_130527.asvp	5/27/13	4.4	38.0	EX1302_Okeanos_March_2011_2013-147_0092_20130527_044339_EX1302_MB.txt	45,271,123	073-53.93479W	074-04.69364W	37-47.29972N	37-56.86561N	2013-05-27 04:43:39.498	2013-05-27 05:59:35.015		EX1302_MB_FNL_01_50m_WGS84
0093_20130527_204236_EX1302_MB	EX1302_XBT035_130527.asvp	5/27/13	5.9	104.9	EX1302_Okeanos_March_2011_2013-147_0093_20130527_204236_EX1302_MB.txt	24,305,206	073-00.04867W	073-29.25353W	37-56.46758N	38-06.52826N	2013-05-27 20:42:36.187	2013-05-27 22:42:39.211		EX1302_MB_FNL_02_50m_WGS84
0094_20130527_224239_EX1302_MB	EX1302_XBT035_130527.asvp, EX1302_XBT036_130527.asvp	5/27/13	5.8	104.6	EX1302_Okeanos_March_2011_2013-148_0094_20130527_224239_EX1302_MB.txt	16,390,890	072-39.95208W	073-01.52758W	37-51.93342N	38-00.48772N	2013-05-27 22:42:39.714	2013-05-28 00:10:51.230		EX1302_MB_FNL_02_50m_WGS84
0095_20130528_001051_EX1302_MB	EX1302_XBT036_130527.asvp, EX1302_XBT037_130528.asvp	5/28/13	5.6	104.4	EX1302_Okeanos_March_2011_2013-148_0095_20130528_001051_EX1302_MB.txt	17,286,450	072-13.39034W	072-41.48658W	37-45.88768N	37-55.95292N	2013-05-28 00:10:51.729	2013-05-28 02:10:48.758		EX1302_MB_FNL_02_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0096_20130528_021049_EX1302_MB	EX1302_XBT037_130528.asvp	5/28/13	5.8	104.1	EX1302_Okeanos_March_2011_2013-148_0096_20130528_021049_EX1302_MB.txt	11,607,770	071-46.41465W	072-14.82380W	37-39.76731N	37-50.00411N	2013-05-28 02:10:49.257	2013-05-28 04:10:50.784		EX1302_MB_FNL_02_50m_WGS84
0097_20130528_041051_EX1302_MB	EX1302_XBT037_130528.asvp	5/28/13	6.0	103.8	EX1302_Okeanos_March_2011_2013-148_0097_20130528_041051_EX1302_MB.txt	8,966,718	071-22.63872W	071-47.52053W	37-34.48833N	37-43.81426N	2013-05-28 04:10:51.284	2013-05-28 05:51:28.805		EX1302_MB_FNL_02_50m_WGS84
0098_20130528_080424_EX1302_MB	EX1302_XBT038_130528.asvp	5/28/13	3.2	132.2	EX1302_Okeanos_March_2011_2013-148_0098_20130528_080424_EX1302_MB.txt	748,136	070-52.20616W	070-57.50323W	37-28.14796N	37-31.09971N	2013-05-28 08:04:24.830	2013-05-28 08:18:32.335		EX1302_MB_FNL_02_50m_WGS84
0099_20130528_081832_EX1302_MB	EX1302_XBT038_130528.asvp	5/28/13	4.4	130.8	EX1302_Okeanos_March_2011_2013-148_0099_20130528_081832_EX1302_MB.txt	4,571,742	070-44.65168W	070-56.68971W	37-23.16172N	37-30.16161N	2013-05-28 08:18:32.836	2013-05-28 09:13:51.347		EX1302_MB_FNL_02_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0100_20130528_091351_EX1302_MB	EX1302_XBT038_130528.asvp	5/28/13	2.8	201.9	EX1302_Okeanos_March_2011_2013-148_0100_20130528_091351_EX1302_MB.txt	1,118,328	070-45.61240W	070-49.70119W	37-20.68285N	37-24.51476N	2013-05-28 09:13:51.847	2013-05-28 09:33:20.350		EX1302_MB_FNL_02_50m_WGS84
0101_20130528_093320_EX1302_MB	EX1302_XBT038_130528.asvp	5/28/13	3.3	219.7	EX1302_Okeanos_March_2011_2013-148_0101_20130528_093320_EX1302_MB.txt	230,996	070-46.27081W	070-50.16583W	37-20.33274N	37-24.02839N	2013-05-28 09:33:20.850	2013-05-28 09:36:37.352		EX1302_MB_FNL_02_50m_WGS84
0102_20130528_093637_EX1302_MB	EX1302_XBT038_130528.asvp	5/28/13	3.8	300.8	EX1302_Okeanos_March_2011_2013-148_0102_20130528_093637_EX1302_MB.txt	284,274	070-46.80299W	070-50.05918W	37-20.00096N	37-24.24905N	2013-05-28 09:36:37.854	2013-05-28 09:40:40.353		EX1302_MB_FNL_02_50m_WGS84
0103_20130528_094040_EX1302_MB	EX1302_XBT038_130528.asvp	5/28/13	4.4	310.7	EX1302_Okeanos_March_2011_2013-148_0103_20130528_094040_EX1302_MB.txt	4,094,484	070-47.67915W	070-56.68938W	37-20.30272N	37-28.97070N	2013-05-28 09:40:40.853	2013-05-28 10:30:43.864		EX1302_MB_FNL_02_50m_WGS84



EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0104_20130528_103044_EX1302_MB	EX1302_XBT038_130528.asvp	5/28/13	4.0	242.1	EX1302_Okeanos_March_2011_2013-148_0104_20130528_103044_EX1302_MB.txt	503,472	070-53.93 934W	070-58.14 683W	37-24.98 736N	37-29.33 322N	2013-05-28 10:30: 44.363	2013-05-28 10:37: 20.864		EX1302_MB_FNL_02_50m_WGS84
0105_20130528_103721_EX1302_MB	EX1302_XBT038_130528.asvp	5/28/13	4.1	218.3	EX1302_Okeanos_March_2011_2013-148_0105_20130528_103721_EX1302_MB.txt	697,952	070-54.01 706W	070-59.07 756W	37-24.62 134N	37-28.32 592N	2013-05-28 10:37: 21.366	2013-05-28 10:46: 26.866		EX1302_MB_FNL_02_50m_WGS84
0106_20130528_104626_EX1302_MB	EX1302_XBT038_130528.asvp	5/28/13	4.8	138.8	EX1302_Okeanos_March_2011_2013-148_0106_20130528_104626_EX1302_MB.txt	235,212	070-54.49 064W	070-59.49 715W	37-24.25 062N	37-27.27 952N	2013-05-28 10:46: 27.366	2013-05-28 10:49: 41.366		EX1302_MB_FNL_02_50m_WGS84
0107_20130528_104941_EX1302_MB	EX1302_XBT038_130528.asvp, EX1302_XBT039_130528.asvp	5/28/13	4.3	129.8	EX1302_Okeanos_March_2011_2013-148_0107_20130528_104941_EX1302_MB.txt	3,064,488	070-49.75 462W	070-58.46 690W	37-21.69 365N	37-27.29 426N	2013-05-28 10:49: 41.867	2013-05-28 11:26: 26.880		EX1302_MB_FNL_02_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0108_20130528_112627_EX1302_MB	EX1302_XBT039_130528.asvp	5/28/13	3.5	267.0	EX1302_Okeanos_March_2011_2013-148_0108_20130528_112627_EX1302_MB.txt	2,851,036	070-49.24592W	070-58.15054W	37-19.24584N	37-24.34388N	2013-05-28 11:26:27.381	2013-05-28 12:02:04.882		EX1302_MB_FNL_02_50m_WGS84
0109_20130528_120205_EX1302_MB	EX1302_XBT039_130528.asvp	5/28/13	4.3	40.7	EX1302_Okeanos_March_2011_2013-148_0109_20130528_120205_EX1302_MB.txt	3,301,502	070-48.18573W	070-56.96920W	37-20.59001N	37-27.55148N	2013-05-28 12:02:05.381	2013-05-28 12:43:21.391		EX1302_MB_FNL_02_50m_WGS84
0110_20130528_124321_EX1302_MB	EX1302_XBT039_130528.asvp, EX1302_XBT040_130529.asvp	5/28/13	4.2	39.0	EX1302_Okeanos_March_2011_2013-148_0110_20130528_124321_EX1302_MB.txt	1,309,986	070-46.41853W	070-52.88738W	37-25.28582N	37-29.19172N	2013-05-28 12:43:21.891	2013-05-28 12:59:51.393		EX1302_MB_FNL_02_50m_WGS84
0111_20130529_200101_EX1302_MB	EX1302_XBT040_130529.asvp	5/29/13	4.9	307.8	EX1302_Okeanos_March_2011_2013-149_0111_20130529_200101_EX1302_MB.txt	14,230,496	070-37.56485W	070-55.97433W	37-44.58285N	37-58.07590N	2013-05-29 20:01:01.353	2013-05-29 22:01:04.382		EX1302_MB_FNL_02_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0112_20130529_220104_EX1302_MB	EX1302_XBT040_130529.asvp EX1302_XBT041_130529.asvp	5/29/13	5.5	317.8	EX1302_Okeanos_March_2011_2013-149_0112_20130529_220104_EX1302_MB.txt	15,625,414	070-54.00 533W	071-12.90 992W	37-56.78 080N	38-15.03 213N	2013-05-29 22:01: 04.881	2013-05-30 00:01: 05.409		EX1302_MB_FNL_02_50m_WGS84
0113_20130530_000105_EX1302_MB	EX1302_XBT041_130529.asvp EX1302_XBT042_130530.asvp	5/30/13	5.6	246.6	EX1302_Okeanos_March_2011_2013-150_0113_20130530_000105_EX1302_MB.txt	15,150,128	071-11.93 309W	071-38.19 425W	38-04.02 131N	38-15.11 903N	2013-05-30 00:01: 05.909	2013-05-30 02:01: 02.938		EX1302_MB_FNL_02_50m_WGS84
0114_20130530_020103_EX1302_MB	EX1302_XBT042_130530.asvp	5/30/13	6.0	249.8	EX1302_Okeanos_March_2011_2013-150_0114_20130530_020103_EX1302_MB.txt	11,353,382	071-36.84 489W	072-04.56 596W	37-57.51 244N	38-07.83 259N	2013-05-30 02:01: 03.440	2013-05-30 03:51: 06.465		EX1302_MB_FNL_02_50m_WGS84
0115_20130530_205107_EX1302_MB	EX1302_XBT043_130530.asvp	5/30/13	5.5	273.5	EX1302_Okeanos_March_2011_2013-150_0115_20130530_205107_EX1302_MB.txt	16,448,172	073-20.82 684W	073-35.78 593W	38-12.40 910N	38-16.58 056N	2013-05-30 20:51: 07.703	2013-05-30 21:55: 35.218		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0116_20130530_215535_EX1302_MB	EX1302_XBT043_130530.asvp	5/30/13	4.6	309.8	EX1302_Okeanos_March_2011_2013-150_0116_20130530_215535_EX1302_MB.txt	990,726	073-34.38930W	073-36.22604W	38-14.39004N	38-16.25636N	2013-05-30 21:55:35.718	2013-05-30 21:58:37.720		EX1302_MB_FNL_01_50m_WGS84
0117_20130530_215838_EX1302_MB	EX1302_XBT043_130530.asvp	5/30/13	4.4	313.9	EX1302_Okeanos_March_2011_2013-150_0117_20130530_215838_EX1302_MB.txt	4,743,981	073-34.94450W	073-37.37813W	38-14.67827N	38-16.91198N	2013-05-30 21:58:38.219	2013-05-30 22:08:48.720		EX1302_MB_FNL_01_50m_WGS84
0118_20130530_220848_EX1302_MB	EX1302_XBT043_130530.asvp	5/30/13	4.2	21.8	EX1302_Okeanos_March_2011_2013-150_0118_20130530_220848_EX1302_MB.txt	9,097,044	073-36.07751W	073-37.87854W	38-16.00421N	38-17.45971N	2013-05-30 22:08:49.220	2013-05-30 22:19:09.725		EX1302_MB_FNL_01_50m_WGS84
0119_20130530_221910_EX1302_MB	EX1302_XBT043_130530.asvp. EX1302_XBT044_130530.asvp	5/30/13	4.4	215.0	EX1302_Okeanos_March_2011_2013-151_0119_20130530_221910_EX1302_MB.txt	97,530,403	073-35.74565W	073-49.93898W	38-02.71007N	38-16.93449N	2013-05-30 22:19:10.224	2013-05-31 00:19:09.751		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0120_20130531_0019 10_EX1302_MB	EX1302_XBT044_130530. asvp	5/31/13	4.5	218.6	EX1302_Okeanos_ March_2011_2013- 151_0120_20130531 _001910_EX1302_M B.txt	86,27 8,995	073- 48.75 641W	074- 04.06 508W	37- 49.21 650N	38- 03.53 752N	2013- 05-31 00:19: 10.250	2013- 05-31 02:18: 39.776		EX1302_MB_FNL_ 01_50m_WGS84
0121_20130531_0218 40_EX1302_MB	EX1302_XBT044_130530. asvp	5/31/13	4.5	82.6	EX1302_Okeanos_ March_2011_2013- 151_0121_20130531 _021840_EX1302_M B.txt	4,273, 236	074- 01.76 002W	074- 04.25 355W	37- 48.62 607N	37- 50.40 589N	2013- 05-31 02:18: 40.275	2013- 05-31 02:25: 46.779		EX1302_MB_FNL_ 01_50m_WGS84
0122_20130531_0225 47_EX1302_MB	EX1302_XBT044_130530. asvp, EX1302_XBT045_130531. asvp	5/31/13	4.8	55.7	EX1302_Okeanos_ March_2011_2013- 151_0122_20130531 _022547_EX1302_M B.txt	29,63 0,959	073- 48.06 665W	074- 02.33 424W	37- 49.28 536N	37- 57.38 461N	2013- 05-31 02:25: 47.280	2013- 05-31 03:43: 52.292		EX1302_MB_FNL_ 01_50m_WGS84
0123_20130531_0343 52_EX1302_MB	EX1302_XBT045_130531. asvp	5/31/13	4.2	6.4	EX1302_Okeanos_ March_2011_2013- 151_0123_20130531 _034352_EX1302_M B.txt	444,8 95	073- 47.60 330W	073- 51.72 574W	37- 55.45 668N	37- 57.33 697N	2013- 05-31 03:43: 52.794	2013- 05-31 03:45: 58.295		EX1302_MB_FNL_ 01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0124_20130531_034558_EX1302_MB	EX1302_XBT045_130531.asvp	5/31/13	5.3	286.7	EX1302_Okeanos_March_2011_2013-151_0124_20130531_034558_EX1302_MB.txt	170,620,280	073-47.96455W	074-06.82072W	37-55.20595N	38-01.00160N	2013-05-31 03:45:58.795	2013-05-31 05:09:49.314		EX1302_MB_FNL_01_50m_WGS84
0125_20130531_232006_EX1302_MB	EX1302_XBT045_130531.asvp, EX1302_XBT046_130531.asvp	5/31/13	4.7	58.8	EX1302_Okeanos_March_2011_2013-151_0125_20130531_232006_EX1302_MB.txt	41,911,578	073-59.50243W	074-17.54006W	37-31.36316N	37-42.91581N	2013-05-31 23:20:06.538	2013-06-01 01:20:09.062		EX1302_MB_FNL_01_50m_WGS84
0126_20130601_012009_EX1302_MB	EX1302_XBT046_130531.asvp, EX1302_XBT047_130601.asvp	6/1/13	4.6	42.2	EX1302_Okeanos_March_2011_2013-152_0126_20130601_012009_EX1302_MB.txt	26,468,660	073-44.15774W	073-59.87342W	37-39.64005N	37-50.50761N	2013-06-01 01:20:09.562	2013-06-01 03:12:45.088		EX1302_MB_FNL_01_50m_WGS84
0127_20130601_031245_EX1302_MB	EX1302_XBT047_130601.asvp	6/1/13	4.4	40.7	EX1302_Okeanos_March_2011_2013-152_0127_20130601_031245_EX1302_MB.txt	268,816	073-47.93458W	073-51.29933W	37-49.26310N	37-51.17757N	2013-06-01 03:12:45.588	2013-06-01 03:14:01.587		EX1302_MB_FNL_01_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0128_20130601_0314_01_EX1302_MB	EX1302_XBT047_130601.asvp	6/1/13	5.0	48.7	EX1302_Okeanos_March_2011_2013-152_0128_20130601_031401_EX1302_MB.txt	15,953,495	073-36.89099W	073-51.00997W	37-49.23157N	37-58.44187N	2013-06-01 03:14:02.087	2013-06-01 04:23:35.137		EX1302_MB_FNL_01_50m_WGS84
0129_20130601_0423_35_EX1302_MB	EX1302_XBT047_130601.asvp	6/1/13	5.9	39.4	EX1302_Okeanos_March_2011_2013-152_0129_20130601_042335_EX1302_MB.txt	26,633,115	073-18.02279W	073-40.41924W	37-56.17104N	38-16.14393N	2013-06-01 04:23:35.601	2013-06-01 06:23:39.628		EX1302_MB_FNL_01_50m_WGS84
0130_20130601_0623_40_EX1302_MB	EX1302_XBT047_130601.asvp	6/1/13	5.9	39.4	EX1302_Okeanos_March_2011_2013-152_0130_20130601_062340_EX1302_MB.txt	2,013,140	073-16.46873W	073-21.81732W	38-13.49140N	38-17.58382N	2013-06-01 06:23:40.138	2013-06-01 06:33:17.142		EX1302_MB_FNL_01_50m_WGS84
0131_20130601_1807_49_EX1302_MB	EX1302_XBT048_130601.asvp	6/1/13	5.9	6.7	EX1302_Okeanos_March_2011_2013-152_0131_20130601_180749_EX1302_MB.txt	25,109,912	072-33.61599W	072-38.72701W	38-58.54400N	39-09.47655N	2013-06-01 18:07:49.776	2013-06-01 19:04:10.791		EX1302_MB_FNL_02_50m_WGS84

## EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0132_20130601_190410_EX1302_MB	EX1302_XBT048_130601.asvp	6/1/13	4.4	45.7	EX1302_Okeanos_March_2011_2013-152_0132_20130601_190410_EX1302_MB.txt	5,788,596	072-33.67 834W	072-35.41 258W	39-08.97 115N	39-10.26 808N	2013-06-01 19:04: 11.292	2013-06-01 19:11: 02.795		EX1302_MB_FNL_02_50m_WGS84
0133_20130601_191103_EX1302_MB	EX1302_XBT048_130601.asvp	6/1/13	4.7	66.5	EX1302_Okeanos_March_2011_2013-152_0133_20130601_191103_EX1302_MB.txt	23,609,355	072-28.39 678W	072-34.22 445W	39-09.48 017N	39-11.91 530N	2013-06-01 19:11: 03.294	2013-06-01 19:39: 42.798		EX1302_MB_FNL_02_50m_WGS84
0134_20130601_193942_EX1302_MB	EX1302_XBT048_130601.asvp, EX1302_XBT049_130601.asvp	6/1/13	4.8	42.8	EX1302_Okeanos_March_2011_2013-152_0134_20130601_193942_EX1302_MB.txt	107,260,461	072-10.87 954W	072-29.13 314W	39-10.91 345N	39-24.66 469N	2013-06-01 19:39: 43.298	2013-06-01 21:39: 42.324		EX1302_MB_FNL_02_50m_WGS84
0135_20130601_213942_EX1302_MB	EX1302_XBT049_130601.asvp, EX1302_XBT050_130601.asvp	6/1/13	4.7	34.3	EX1302_Okeanos_March_2011_2013-152_0135_20130601_213942_EX1302_MB.txt	106,506,396	071-58.47 614W	072-13.68 264W	39-24.26 148N	39-39.10 000N	2013-06-01 21:39: 42.824	2013-06-01 23:39: 41.848		EX1302_MB_FNL_02_50m_WGS84



EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0136_20130601_233942_EX1302_MB	EX1302_XBT050_130601.asvp	6/1/13	4.9	41.0	EX1302_Okeanos_March_2011_2013-152_0136_20130601_233942_EX1302_MB.txt	40,961,877	071-51.98337W	071-59.27315W	39-38.55132N	39-44.40864N	2013-06-01 23:39:42.349	2013-06-02 00:25:41.360		EX1302_MB_FNL_02_50m_WGS84
0137_20130602_002541_EX1302_MB	EX1302_XBT050_130601.asvp, EX1302_XBT051_130602.asvp	6/2/13	4.8	54.6	EX1302_Okeanos_March_2011_2013-153_0137_20130602_002541_EX1302_MB.txt	105,687,615	071-32.25850W	071-52.89956W	39-43.86445N	39-54.69292N	2013-06-02 00:25:41.860	2013-06-02 02:25:41.385		EX1302_MB_FNL_02_50m_WGS84
0138_20130602_022541_EX1302_MB	EX1302_XBT051_130602.asvp	6/2/13	4.8	90.5	EX1302_Okeanos_March_2011_2013-153_0138_20130602_022541_EX1302_MB.txt	86,780,364	071-08.35679W	071-32.57420W	39-52.33158N	39-55.80653N	2013-06-02 02:25:41.887	2013-06-02 04:25:40.913		EX1302_MB_FNL_02_50m_WGS84
0139_20130602_042541_EX1302_MB	EX1302_XBT051_130602.asvp	6/2/13	5.3	94.4	EX1302_Okeanos_March_2011_2013-153_0139_20130602_042541_EX1302_MB.txt	12,659,361	071-02.28401W	071-08.77675W	39-51.61615N	39-54.26360N	2013-06-02 04:25:41.413	2013-06-02 04:54:00.419		EX1302_MB_FNL_02_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0140_20130602_211746_EX1302_MB	EX1302_XBT052_130602.asvp	6/2/13	4.0	82.4	EX1302_Okeanos_March_2011_2013-153_0140_20130602_211746_EX1302_MB.txt	34,117,844	069-39.07189W	069-59.07393W	39-45.92097N	39-49.79191N	2013-06-02 21:17:46.617	2013-06-02 23:17:44.645		EX1302_MB_FNL_02_50m_WGS84
0141_20130602_231745_EX1302_MB	EX1302_XBT052_130602.asvp	6/2/13	3.4	87.0	EX1302_Okeanos_March_2011_2013-153_0141_20130602_231745_EX1302_MB.txt	8,987,866	069-33.90990W	069-39.03885W	39-46.91197N	39-49.98870N	2013-06-02 23:17:45.145	2013-06-02 23:49:53.652		EX1302_MB_FNL_02_50m_WGS84
0142_20130602_234953_EX1302_MB	EX1302_XBT052_130602.asvp	6/2/13	4.8	100.7	EX1302_Okeanos_March_2011_2013-153_0142_20130602_234953_EX1302_MB.txt	3,764,684	069-31.18993W	069-35.02650W	39-46.56099N	39-49.79959N	2013-06-02 23:49:54.150	2013-06-03 00:04:02.654		EX1302_MB_FNL_02_50m_WGS84
0143_20130603_000403_EX1302_MB	EX1302_XBT052_130602.asvp, EX1302_XBT053_130603.asvp	6/3/13	6.0	99.7	EX1302_Okeanos_March_2011_2013-154_0143_20130603_000403_EX1302_MB.txt	31,692,012	069-01.90663W	069-32.19509W	39-41.20930N	39-49.17292N	2013-06-03 00:04:03.153	2013-06-03 02:04:01.683		EX1302_MB_FNL_02_50m_WGS84

## EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) MDD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comm ents	Level 02 Files (.xyz, .sd, .tif, .kmz)
0144_20130603_0204 01_EX1302_MB	EX1302_XBT053_130603. asvp, EX1302_XBT054_130603. asvp, EX1302_XBT055_130603. asvp	6/3/13	5.7	99.4	EX1302_Okeanos_ March_2011_2013- 154_0144_20130603 _020401_EX1302_M B.txt	29,96 9,844	068- 35.25 070W	069- 02.75 764W	39- 36.15 105N	39- 43.85 320N	2013- 06-03 02:04: 02.181	2013- 06-03 03:59: 17.703		EX1302_MB_FNL_ 02_50m_WGS84
0145_20130603_1034 53_EX1302_MB	EX1302_XBT056_130603. asvp	6/3/13	4.3	42.6	EX1302_Okeanos_ March_2011_2013- 154_0145_20130603 _103453_EX1302_M B.txt	1,559, 614	066- 59.13 707W	067- 04.94 806W	39- 18.61 829N	39- 23.61 029N	2013- 06-03 10:34: 53.790	2013- 06-03 10:53: 32.296		EX1302_MB_FNL_ 02_50m_WGS84
0146_20130603_1053 32_EX1302_MB	EX1302_XBT056_130603. asvp	6/3/13	4.3	136.0	EX1302_Okeanos_ March_2011_2013- 154_0146_20130603 _105332_EX1302_M B.txt	819,5 70	066- 57.37 357W	067- 03.01 930W	39- 19.77 031N	39- 24.52 695N	2013- 06-03 10:53: 32.795	2013- 06-03 11:03: 15.800		EX1302_MB_FNL_ 02_50m_WGS84
0147_20130603_1103 16_EX1302_MB	EX1302_XBT056_130603. asvp	6/3/13	4.4	220.6	EX1302_Okeanos_ March_2011_2013- 154_0147_20130603 _110316_EX1302_M B.txt	2,321, 350	066- 58.53 706W	067- 05.21 826W	39- 17.19 162N	39- 23.25 140N	2013- 06-03 11:03: 16.296	2013- 06-03 11:28: 45.303		EX1302_MB_FNL_ 02_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0148_20130603_112845_EX1302_MB	EX1302_XBT056_130603.asvp	6/3/13	4.4	216.8	EX1302_Okeanos_March_2011_2013-154_0148_20130603_112845_EX1302_MB.txt	951,830	067-01.88 925W	067-06.62 036W	39-16.07 444N	39-20.44 788N	2013-06-03 11:28: 45.803	2013-06-03 11:39: 22.305		EX1302_MB_FNL_02_50m_WGS84
0149_20130603_114115_EX1302_MB	EX1302_XBT056_130603.asvp	6/3/13	3.7	286.9	EX1302_Okeanos_March_2011_2013-154_0149_20130603_114115_EX1302_MB.txt	333,064	067-04.02 893W	067-07.35 196W	39-15.30 756N	39-19.90 513N	2013-06-03 11:41: 15.807	2013-06-03 11:45: 11.808		EX1302_MB_FNL_02_50m_WGS84
0150_20130603_114512_EX1302_MB	EX1302_XBT056_130603.asvp	6/3/13	4.1	312.9	EX1302_Okeanos_March_2011_2013-154_0150_20130603_114512_EX1302_MB.txt	1,633,020	067-03.96 563W	067-09.64 538W	39-16.03 638N	39-20.77 718N	2013-06-03 11:45: 12.307	2013-06-03 12:02: 57.309		EX1302_MB_FNL_02_50m_WGS84
0151_20130603_120257_EX1302_MB	EX1302_XBT056_130603.asvp	6/3/13	5.2	37.9	EX1302_Okeanos_March_2011_2013-154_0151_20130603_120257_EX1302_MB.txt	1,354,492	067-04.77 529W	067-10.31 086W	39-18.02 833N	39-21.46 262N	2013-06-03 12:02: 57.810	2013-06-03 12:11: 43.311		EX1302_MB_FNL_02_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0152_20130603_121143_EX1302_MB	EX1302_XBT056_130603.asvp	6/3/13	5.0	42.3	EX1302_Okeanos_March_2011_2013-154_0152_20130603_121143_EX1302_MB.txt	3,894,836	067-00.53053W	067-07.81830W	39-19.34602N	39-24.69513N	2013-06-03 12:11:43.809	2013-06-03 12:36:44.317		EX1302_MB_FNL_02_50m_WGS84
0153_20130603_195910_EX1302_MB	EX1302_XBT057_130603.asvp	6/3/13	4.3	317.7	EX1302_Okeanos_March_2011_2013-154_0153_20130603_195910_EX1302_MB.txt	3,267,774	067-01.33391W	067-05.74140W	39-18.40894N	39-21.96915N	2013-06-03 19:59:10.925	2013-06-03 20:22:04.433		EX1302_MB_FNL_02_50m_WGS84
0154_20130603_202204_EX1302_MB	EX1302_XBT057_130603.asvp	6/3/13	4.6	309.5	EX1302_Okeanos_March_2011_2013-154_0154_20130603_202204_EX1302_MB.txt	7,142,652	067-04.44633W	067-12.85968W	39-20.85639N	39-27.44107N	2013-06-03 20:22:04.933	2013-06-03 21:12:13.943		EX1302_MB_FNL_02_50m_WGS84
0155_20130603_211214_EX1302_MB	EX1302_XBT057_130603.asvp, EX1302_XBT058_130603.asvp	6/3/13	4.4	276.4	EX1302_Okeanos_March_2011_2013-154_0155_20130603_211214_EX1302_MB.txt	13,327,388	067-11.13666W	067-33.56262W	39-25.75324N	39-30.94337N	2013-06-03 21:12:14.443	2013-06-03 23:12:10.973		EX1302_MB_FNL_02_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comments	Level 02 Files (.xyz, .sd, .tif, .kmz)
0156_20130603_231211_EX1302_MB	EX1302_XBT058_130603.asvp	6/3/13	4.7	275.6	EX1302_Okeanos_March_2011_2013-154_0156_20130603_231211_EX1302_MB.txt	2,819,994	067-33.53 820W	067-37.95 327W	39-28.99 338N	39-31.50 981N	2013-06-03 23:12: 11.473	2013-06-03 23:34: 34.477		EX1302_MB_FNL_02_50m_WGS84
0157	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	NO LINE 0157.	n/a
0158_20130603_233553_EX1302_MB	EX1302_XBT058_130603.asvp	6/3/13	4.7	276.1	N/A	N/A	067-38.11 654W	067-38.09 056W	39-30.62 733N	39-30.63 128N	2013-06-03 23:35: 53.478	2013-06-03 23:36: 01.482	FILE NOT PROCESSED. NO VALID DATA.	n/a
0159_20130603_233728_EX1302_MB	EX1302_XBT058_130603.asvp, EX1302_XBT059_130604.asvp	6/3/13	5.3	276.8	EX1302_Okeanos_March_2011_2013-155_0159_20130603_233728_EX1302_MB.txt	21,758,810	067-38.30 887W	068-04.43 714W	39-29.73 787N	39-35.52 437N	2013-06-03 23:37: 28.480	2013-06-04 01:37: 25.511		EX1302_MB_FNL_02_50m_WGS84
0160_20130604_013725_EX1302_MB	EX1302_XBT059_130604.asvp	6/4/13	5.8	276.9	EX1302_Okeanos_March_2011_2013-155_0160_20130604_013725_EX1302_MB.txt	36,860,624	068-04.15 297W	068-32.95 122W	39-33.95 127N	39-39.83 404N	2013-06-04 01:37: 26.011	2013-06-04 03:37: 28.039		EX1302_MB_FNL_02_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comm ents	Level 02 Files (.xyz, .sd, .tif, .kmz)
0161_20130604_0337 28_EX1302_MB	EX1302_XBT059_130604. asvp	6/4/13	5.9	277.2	EX1302_Okeanos_ March_2011_2013- 155_0161_20130604 _033728_EX1302_M B.txt	7,287, 390	068- 32.70 076W	068- 38.17 514W	39- 38.35 627N	39- 40.59 747N	2013- 06-04 03:37: 28.538	2013- 06-04 03:59: 04.545		EX1302_MB_FNL_ 02_50m_WGS84
0162_20130605_0146 00_EX1302_MB	EX1302_CTD001_130604 .cnv	6/5/13	4.6	66.7	EX1302_Okeanos_ March_2011_2013- 156_0162_20130605 _014600_EX1302_M B.txt	91,67 8,528	069- 13.56 167W	069- 36.14 651W	39- 53.21 804N	39- 59.15 302N	2013- 06-05 01:46: 00.316	2013- 06-05 03:45: 58.340		EX1302_MB_FNL_ 02_50m_WGS84
0163_20130605_0345 58_EX1302_MB	EX1302_CTD001_130604 .cnv	6/5/13	4.9	39.4	EX1302_Okeanos_ March_2011_2013- 156_0163_20130605 _034558_EX1302_M B.txt	13,88 2,935	069- 11.75 769W	069- 14.43 564W	39- 58.49 241N	40- 00.65 782N	2013- 06-05 03:45: 58.840	2013- 06-05 03:59: 10.848		EX1302_MB_FNL_ 02_50m_WGS84
0164_20130605_0359 10_EX1302_MB	EX1302_CTD001_130604 .cnv	6/5/13	4.1	354.8	EX1302_Okeanos_ March_2011_2013- 156_0164_20130605 _035910_EX1302_M B.txt	4,700, 520	069- 11.42 923W	069- 12.54 945W	40- 00.08 126N	40- 01.12 934N	2013- 06-05 03:59: 11.347	2013- 06-05 04:03: 43.846		EX1302_MB_FNL_ 02_50m_WGS84

EX1302 EM 302 MULTIBEAM ACQUISITION / PROCESSING LOG

MB Line Filename (.all)	SVP File Applied	Date (GMT) M/DD/YY	SOG (KTS)	Heading	Level 01 Filename	Level 01 File Size (bytes)	Min Lon (dm)	Max Lon (dm)	Min Lat (dm)	Max Lat (dm)	Min Time	Max Time	Comm ents	Level 02 Files (.xyz, .sd, .tif, .kmz)
0165_20130605_0403 44_EX1302_MB	EX1302_CTD001_130604 .cnv, EX1302_XBT060_130605. asvp	6/5/13	4.6	245.8	EX1302_Okeanos_ March_2011_2013- 156_0165_20130605 _040344_EX1302_M B.txt	106,1 78,16 0	069- 11.84 599W	069- 31.31 674W	39- 54.61 497N	40- 00.97 158N	2013- 06-05 04:03: 44.348	2013- 06-05 05:54: 01.867		EX1302_MB_FNL_ 02_50m_WGS84



EX1302 EM 302 Water Column Data		
Date (GMT)	Filename	File Size (bytes)
5/14/2013	0001_20130514_015632_EX1302_MB.wcd	3,617,526
5/14/2013	0000_20130514_135036_EX1302_MB.wcd	277,924,404
5/14/2013	0000_20130514_151828_EX1302_MB.wcd	162,057,282
5/15/2013	0002_20130514_035631_EX1302_MB.wcd	753,911,566
5/13/2013	0003_20130514_055631_EX1302_MB.wcd	2,229,105,096
5/14/2013	0004_20130514_075632_EX1302_MB.wcd	191,960,874
5/14/2013	0005_20130514_095632_EX1302_MB.wcd	117,366,628
5/14/2013	0006_20130514_115635_EX1302_MB.wcd	133,089,064
5/14/2013	0001_20130514_142318_EX1302_MB.wcd	125,575,652
5/14/2013	0001_20130514_162553_EX1302_MB.wcd	1,436,039,798
5/14/2013	0002_20130514_171416_EX1302_MB.wcd	105,736,610
5/14/2013	0003_20130514_174746_EX1302_MB.wcd	144,640,824
5/14/2013	0004_20130514_182338_EX1302_MB.wcd	16,599,128
5/14/2013	0007_20130514_203048_EX1302_MB.wcd	1,180,489,056
5/14/2013	0000_20130514_212142_EX1302_MB.wcd	2,658,644
5/14/2013	0001_20130514_221344_EX1302_MB.wcd	2,521,418
5/14/2013	0002_20130514_230116_EX1302_MB.wcd	264,747,270
5/14/2013	0003_20130514_232857_EX1302_MB.wcd	985,373,550
5/14/2013	0004_20130515_000238_EX1302_MB.wcd	39,548,882
5/14/2013	0005_20130515_003546_EX1302_MB.wcd	146,986,422
5/15/2013	0006_20130515_005226_EX1302_MB.wcd	313,399,376
5/14/2013	0007_20130515_054923_EX1302_MB.wcd	499,462,900
5/14/2013	0008_20130515_061721_EX1302_MB.wcd	102,737,020
5/15/2013	0009_20130515_071603_EX1302_MB.wcd	690,733,610
5/14/2013	0010_20130515_073051_EX1302_MB.wcd	520,049,714
5/14/2013	0011_20130515_083230_EX1302_MB.wcd	3,724,712
5/16/2013	0012_20130515_084823_EX1302_MB.wcd	703,623,016
5/14/2013	0013_20130515_093248_EX1302_MB.wcd	1,151,830
5/15/2013	0014_20130515_093924_EX1302_MB.wcd	176,818,328
5/16/2013	0015_20130515_095510_EX1302_MB.wcd	648,475,926
5/15/2013	0016_20130515_095731_EX1302_MB.wcd	362,029,448
5/16/2013	0017_20130515_104043_EX1302_MB.wcd	176,342,906
5/15/2013	0000_20130515_112920_EX1302_MB.wcd	96,873,582
5/16/2013	0001_20130515_132916_EX1302_MB.wcd	1,505,703,404
5/15/2013	0002_20130515_201924_EX1302_MB.wcd	384,153,394
5/16/2013	0003_20130515_203146_EX1302_MB.wcd	641,237,394
5/15/2013	0004_20130515_231121_EX1302_MB.wcd	102,146,204
5/18/2013	0005_20130516_001001_EX1302_MB.wcd	541,469,340
5/15/2013	0006_20130516_021005_EX1302_MB.wcd	284,235,446
5/18/2013	0007_20130516_041004_EX1302_MB.wcd	629,091,098
5/15/2013	0008_20130516_060958_EX1302_MB.wcd	43,889,608
5/19/2013	0009_20130516_062421_EX1302_MB.wcd	600,653,604
5/15/2013	0010_20130516_082421_EX1302_MB.wcd	98,358,650
5/19/2013	0011_20130518_221317_EX1302_MB.wcd	542,286,054
5/15/2013	0012_20130519_001319_EX1302_MB.wcd	7,855,326
5/19/2013	0013_20130519_021322_EX1302_MB.wcd	187,945,618

EX1302 EM 302 Water Column Data		
Date (GMT)	Filename	File Size (bytes)
5/15/2013	0014_20130519_041319_EX1302_MB.wcd	238,678,448
5/19/2013	0015_20130519_054603_EX1302_MB.wcd	743,323,820
5/15/2013	0016_20130519_060213_EX1302_MB.wcd	250,607,212
5/19/2013	0017_20130519_171913_EX1302_MB.wcd	511,415,836
5/19/2013	0018_20130519_190226_EX1302_MB.wcd	594,637,842
5/19/2013	0019_20130519_210227_EX1302_MB.wcd	45,812,980
5/19/2013	0020_20130519_211135_EX1302_MB.wcd	76,159,448
5/19/2013	0021_20130519_212636_EX1302_MB.wcd	32,772,340
5/19/2013	0022_20130519_213320_EX1302_MB.wcd	28,206,436
5/19/2013	0023_20130519_213901_EX1302_MB.wcd	45,199,328
5/19/2013	0025_20130519_214816_EX1302_MB.wcd	19,691,532
5/19/2013	0026_20130519_215216_EX1302_MB.wcd	31,409,752
5/19/2013	0027_20130519_215835_EX1302_MB.wcd	29,261,616
5/19/2013	0028_20130519_220424_EX1302_MB.wcd	29,968,364
5/19/2013	0029_20130519_221100_EX1302_MB.wcd	50,685,896
5/19/2013	0030_20130519_222058_EX1302_MB.wcd	45,044,046
5/19/2013	0031_20130519_223006_EX1302_MB.wcd	45,418,712
5/19/2013	0032_20130519_223844_EX1302_MB.wcd	50,182,946
5/19/2013	0033_20130519_224910_EX1302_MB.wcd	103,521,292
5/19/2013	0034_20130519_230937_EX1302_MB.wcd	152,956,508
5/19/2013	0035_20130519_234053_EX1302_MB.wcd	286,437,856
5/19/2013	0036_20130520_004318_EX1302_MB.wcd	137,598,672
5/19/2013	0037_20130520_011155_EX1302_MB.wcd	88,646,994
5/19/2013	0038_20130520_012839_EX1302_MB.wcd	149,317,692
5/19/2013	0039_20130520_015135_EX1302_MB.wcd	731,247,316
5/20/2013	0040_20130520_030929_EX1302_MB.wcd	1,596,955,882
5/20/2013	0041_20130520_050929_EX1302_MB.wcd	1,109,696,120
5/20/2013	0042_20130520_223424_EX1302_MB.wcd	135,372,956
5/20/2013	0043_20130520_230328_EX1302_MB.wcd	867,924,726
5/20/2013	0044_20130521_003526_EX1302_MB.wcd	35,115,584
5/20/2013	0045_20130521_003739_EX1302_MB.wcd	18,504,236
5/20/2013	0046_20130521_003847_EX1302_MB.wcd	1,119,632,958
5/20/2013	0047_20130521_022627_EX1302_MB.wcd	90,481,826
5/20/2013	0048_20130521_023218_EX1302_MB.wcd	92,213,014
5/20/2013	0049_20130521_023759_EX1302_MB.wcd	572,404,530
5/20/2013	0050_20130521_032106_EX1302_MB.wcd	67,114,508
5/21/2013	0051_20130521_032549_EX1302_MB.wcd	1,832,046,860
5/21/2013	0052_20130521_052548_EX1302_MB.wcd	229,567,534
5/21/2013	0053_20130521_054049_EX1302_MB.wcd	1,829,616
5/21/2013	0054_20130521_054056_EX1302_MB.wcd	176,607,708
5/21/2013	0055_20130521_055207_EX1302_MB.wcd	198,667,756
5/21/2013	0056_20130521_231415_EX1302_MB.wcd	280,779,096
5/21/2013	0057_20130522_000111_EX1302_MB.wcd	229,814,478
5/21/2013	0058_20130522_001603_EX1302_MB.wcd	1,058,342,504
5/21/2013	0059_20130522_021605_EX1302_MB.wcd	194,852,284
5/21/2013	0060_20130522_025201_EX1302_MB.wcd	49,349,450

EX1302 EM 302 Water Column Data		
Date (GMT)	Filename	File Size (bytes)
5/21/2013	0061_20130522_025906_EX1302_MB.wcd	478,945,410
5/22/2013	0062_20130522_034226_EX1302_MB.wcd	553,324,356
5/22/2013	0063_20130522_054225_EX1302_MB.wcd	95,254,090
5/22/2013	0064_20130522_230712_EX1302_MB.wcd	332,150,602
5/22/2013	0065_20130523_001337_EX1302_MB.wcd	1,114,344,846
5/22/2013	0066_20130523_021336_EX1302_MB.wcd	648,900
5/22/2013	0067_20130523_021340_EX1302_MB.wcd	659,965,274
5/23/2013	0068_20130523_032812_EX1302_MB.wcd	651,306,806
5/23/2013	0069_20130523_044259_EX1302_MB.wcd	140,247,790
5/23/2013	0070_20130523_045852_EX1302_MB.wcd	12,661,568
5/23/2013	0071_20130523_050045_EX1302_MB.wcd	350,671,496
5/23/2013	0072_20130523_060412_EX1302_MB.wcd	2,638,870
5/23/2013	0073_20130523_060445_EX1302_MB.wcd	54,500,496
5/23/2013	0074_20130523_223652_EX1302_MB.wcd	1,418,684,368
5/23/2013	0075_20130524_001647_EX1302_MB.wcd	16,538,920
5/23/2013	0076_20130524_001814_EX1302_MB.wcd	614,959,078
5/23/2013	0077_20130524_021814_EX1302_MB.wcd	423,457,596
5/23/2013	0078_20130524_030023_EX1302_MB.wcd	412,800,592
5/23/2013	0079_20130524_032830_EX1302_MB.wcd	152,548,280
5/23/2013	0080_20130524_033817_EX1302_MB.wcd	184,561,410
5/23/2013	0081_20130524_035301_EX1302_MB.wcd	58,250,818
5/24/2013	0082_20130524_035744_EX1302_MB.wcd	46,518,752
5/24/2013	0083_20130524_040228_EX1302_MB.wcd	251,690,318
5/24/2013	0084_20130524_042534_EX1302_MB.wcd	371,456
5/26/2013	0085_20130527_001722_EX1302_MB.wcd	462,208,906
5/26/2013	0086_20130527_014012_EX1302_MB.wcd	348,743,270
5/26/2013	0087_20130527_020422_EX1302_MB.wcd	72,348,804
5/26/2013	0088_20130527_020857_EX1302_MB.wcd	204,391,016
5/26/2013	0089_20130527_022651_EX1302_MB.wcd	78,931,268
5/26/2013	0090_20130527_023600_EX1302_MB.wcd	65,342,860
5/27/2013	0091_20130527_024336_EX1302_MB.wcd	960,296,162
5/27/2013	0092_20130527_044339_EX1302_MB.wcd	622,340,586
5/27/2013	0093_20130527_204236_EX1302_MB.wcd	660,820,806
5/27/2013	0094_20130527_224239_EX1302_MB.wcd	521,892,388
5/27/2013	0095_20130528_001051_EX1302_MB.wcd	585,145,072
5/28/2013	0096_20130528_021049_EX1302_MB.wcd	395,844,850
5/28/2013	0097_20130528_041051_EX1302_MB.wcd	337,745,080
5/28/2013	0098_20130528_080424_EX1302_MB.wcd	50,613,024
5/28/2013	0099_20130528_081832_EX1302_MB.wcd	199,523,462
5/28/2013	0100_20130528_091351_EX1302_MB.wcd	69,109,940
5/28/2013	0101_20130528_093320_EX1302_MB.wcd	11,540,476
5/28/2013	0102_20130528_093637_EX1302_MB.wcd	14,389,392
5/28/2013	0103_20130528_094040_EX1302_MB.wcd	179,642,480
5/28/2013	0104_20130528_103044_EX1302_MB.wcd	23,624,644
5/28/2013	0105_20130528_103721_EX1302_MB.wcd	32,870,232
5/28/2013	0106_20130528_104626_EX1302_MB.wcd	11,912,524

EX1302 EM 302 Water Column Data		
Date (GMT)	Filename	File Size (bytes)
5/28/2013	0107_20130528_104941_EX1302_MB.wcd	136,603,186
5/28/2013	0108_20130528_112627_EX1302_MB.wcd	128,914,492
5/28/2013	0109_20130528_120205_EX1302_MB.wcd	145,076,772
5/28/2013	0110_20130528_124321_EX1302_MB.wcd	58,203,290
5/29/2013	0111_20130529_200101_EX1302_MB.wcd	490,903,776
5/29/2013	0112_20130529_220104_EX1302_MB.wcd	470,474,098
5/29/2013	0113_20130530_000105_EX1302_MB.wcd	445,156,662
5/29/2013	0114_20130530_020103_EX1302_MB.wcd	360,701,984
5/30/2013	0115_20130530_205107_EX1302_MB.wcd	295,059,588
5/30/2013	0116_20130530_215535_EX1302_MB.wcd	11,583,350
5/30/2013	0117_20130530_215838_EX1302_MB.wcd	82,102,048
5/30/2013	0118_20130530_220848_EX1302_MB.wcd	90,238,032
5/30/2013	0119_20130530_221910_EX1302_MB.wcd	1,142,411,796
5/30/2013	0120_20130531_001910_EX1302_MB.wcd	1,073,303,184
5/30/2013	0121_20130531_021840_EX1302_MB.wcd	61,764,450
5/30/2013	0122_20130531_022547_EX1302_MB.wcd	380,035,344
5/30/2013	0123_20130531_034352_EX1302_MB.wcd	10,332,062
5/31/2013	0124_20130531_034558_EX1302_MB.wcd	1,049,182,422
5/31/2013	0125_20130531_232006_EX1302_MB.wcd	503,338,800
5/31/2013	0126_20130601_012009_EX1302_MB.wcd	565,933,102
5/31/2013	0127_20130601_031245_EX1302_MB.wcd	6,463,840
6/1/2013	0128_20130601_031401_EX1302_MB.wcd	342,794,924
6/1/2013	0129_20130601_042335_EX1302_MB.wcd	607,253,738
6/1/2013	0130_20130601_062340_EX1302_MB.wcd	50,603,784
6/1/2013	0131_20130601_180749_EX1302_MB.wcd	316,643,532
6/1/2013	0132_20130601_190410_EX1302_MB.wcd	65,445,452
6/1/2013	0133_20130601_191103_EX1302_MB.wcd	251,365,412
6/1/2013	0134_20130601_193942_EX1302_MB.wcd	924,864,114
6/1/2013	0135_20130601_213942_EX1302_MB.wcd	1,070,792,508
6/1/2013	0136_20130601_233942_EX1302_MB.wcd	370,653,516
6/1/2013	0137_20130602_002541_EX1302_MB.wcd	958,655,950
6/2/2013	0138_20130602_022541_EX1302_MB.wcd	979,632,832
6/2/2013	0139_20130602_042541_EX1302_MB.wcd	105,505,520
6/2/2013	0140_20130602_211746_EX1302_MB.wcd	719,836,988
6/2/2013	0141_20130602_231745_EX1302_MB.wcd	185,049,058
6/2/2013	0142_20130602_234953_EX1302_MB.wcd	84,886,704
6/2/2013	0143_20130603_000403_EX1302_MB.wcd	729,864,872
6/2/2013	0144_20130603_020401_EX1302_MB.wcd	847,957,458
6/3/2013	0145_20130603_103453_EX1302_MB.wcd	71,376,002
6/3/2013	0146_20130603_105332_EX1302_MB.wcd	37,191,714
6/3/2013	0147_20130603_110316_EX1302_MB.wcd	97,459,352
6/3/2013	0148_20130603_112845_EX1302_MB.wcd	40,511,762
6/3/2013	0149_20130603_114115_EX1302_MB.wcd	15,132,498
6/3/2013	0150_20130603_114512_EX1302_MB.wcd	68,463,190
6/3/2013	0151_20130603_120257_EX1302_MB.wcd	61,514,020
6/3/2013	0152_20130603_121143_EX1302_MB.wcd	158,228,834

EX1302 EM 302 Water Column Data		
Date (GMT)	Filename	File Size (bytes)
6/3/2013	0153_20130603_195910_EX1302_MB.wcd	119,878,708
6/3/2013	0154_20130603_202204_EX1302_MB.wcd	264,181,332
6/3/2013	0155_20130603_211214_EX1302_MB.wcd	504,767,772
6/3/2013	0158_20130603_233553_EX1302_MB.wcd	749,042
6/3/2013	0159_20130603_233728_EX1302_MB.wcd	765,045,952
6/3/2013	0160_20130604_013725_EX1302_MB.wcd	979,221,782
6/3/2013	0161_20130604_033728_EX1302_MB.wcd	174,117,606
6/4/2013	0162_20130605_014600_EX1302_MB.wcd	1,086,475,288
6/4/2013	0163_20130605_034558_EX1302_MB.wcd	169,188,388
6/5/2013	0164_20130605_035910_EX1302_MB.wcd	38,650,936
6/5/2013	0165_20130605_040344_EX1302_MB.wcd	1,096,058,350

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130514-T005409.bot	5/13/2013	28920
EX1302_EK60_-D20130514-T005409.idx	5/13/2013	49968
EX1302_EK60_-D20130514-T005409.raw	5/13/2013	25852992
EX1302_EK60_-D20130514-T012153.bot	5/13/2013	7512
EX1302_EK60_-D20130514-T012153.idx	5/13/2013	12504
EX1302_EK60_-D20130514-T012153.raw	5/13/2013	22664228
EX1302_EK60_-D20130514-T014912.bot	5/13/2013	7832
EX1302_EK60_-D20130514-T014912.idx	5/13/2013	13064
EX1302_EK60_-D20130514-T014912.raw	5/13/2013	23707880
EX1302_EK60_-D20130514-T021638.bot	5/13/2013	8664
EX1302_EK60_-D20130514-T021638.idx	5/13/2013	14520
EX1302_EK60_-D20130514-T021638.raw	5/13/2013	26438256
EX1302_EK60_-D20130514-T024449.bot	5/13/2013	8472
EX1302_EK60_-D20130514-T024449.idx	5/13/2013	14184
EX1302_EK60_-D20130514-T024449.raw	5/13/2013	25814280
EX1302_EK60_-D20130514-T031259.bot	5/13/2013	8504
EX1302_EK60_-D20130514-T031259.idx	5/13/2013	14240
EX1302_EK60_-D20130514-T031259.raw	5/13/2013	25925936
EX1302_EK60_-D20130514-T034121.bot	5/14/2013	8344
EX1302_EK60_-D20130514-T034121.idx	5/14/2013	13960
EX1302_EK60_-D20130514-T034121.raw	5/14/2013	25411524
EX1302_EK60_-D20130514-T040954.bot	5/14/2013	8568
EX1302_EK60_-D20130514-T040954.idx	5/14/2013	14352
EX1302_EK60_-D20130514-T040954.raw	5/14/2013	26150416
EX1302_EK60_-D20130514-T043845.bot	5/14/2013	8536
EX1302_EK60_-D20130514-T043845.idx	5/14/2013	14296
EX1302_EK60_-D20130514-T043845.raw	5/14/2013	26066756
EX1302_EK60_-D20130514-T050809.bot	5/14/2013	9880
EX1302_EK60_-D20130514-T050809.idx	5/14/2013	16648
EX1302_EK60_-D20130514-T050809.raw	5/14/2013	30649128
EX1302_EK60_-D20130514-T054332.bot	5/14/2013	9080
EX1302_EK60_-D20130514-T054332.idx	5/14/2013	15248
EX1302_EK60_-D20130514-T054332.raw	5/14/2013	27866396
EX1302_EK60_-D20130514-T061349.bot	5/14/2013	8728
EX1302_EK60_-D20130514-T061349.idx	5/14/2013	14632
EX1302_EK60_-D20130514-T061349.raw	5/14/2013	26715548
EX1302_EK60_-D20130514-T064354.bot	5/14/2013	8568
EX1302_EK60_-D20130514-T064354.idx	5/14/2013	14352
EX1302_EK60_-D20130514-T064354.raw	5/14/2013	26154308
EX1302_EK60_-D20130514-T071250.bot	5/14/2013	7800

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130514-T071250.idx	5/14/2013	13008
EX1302_EK60_-D20130514-T071250.raw	5/14/2013	23645316
EX1302_EK60_-D20130514-T074124.bot	5/14/2013	8536
EX1302_EK60_-D20130514-T074124.idx	5/14/2013	14296
EX1302_EK60_-D20130514-T074124.raw	5/14/2013	26026552
EX1302_EK60_-D20130514-T080940.bot	5/14/2013	7704
EX1302_EK60_-D20130514-T080940.idx	5/14/2013	12840
EX1302_EK60_-D20130514-T080940.raw	5/14/2013	23300988
EX1302_EK60_-D20130514-T083718.bot	5/14/2013	7384
EX1302_EK60_-D20130514-T083718.idx	5/14/2013	12280
EX1302_EK60_-D20130514-T083718.raw	5/14/2013	22238904
EX1302_EK60_-D20130514-T090421.bot	5/14/2013	8088
EX1302_EK60_-D20130514-T090421.idx	5/14/2013	13512
EX1302_EK60_-D20130514-T090421.raw	5/14/2013	24542452
EX1302_EK60_-D20130514-T093147.bot	5/14/2013	7512
EX1302_EK60_-D20130514-T093147.idx	5/14/2013	12504
EX1302_EK60_-D20130514-T093147.raw	5/14/2013	22685356
EX1302_EK60_-D20130514-T095935.bot	5/14/2013	6840
EX1302_EK60_-D20130514-T095935.idx	5/14/2013	11328
EX1302_EK60_-D20130514-T095935.raw	5/14/2013	20477208
EX1302_EK60_-D20130514-T102649.bot	5/14/2013	6840
EX1302_EK60_-D20130514-T102649.idx	5/14/2013	11328
EX1302_EK60_-D20130514-T102649.raw	5/14/2013	20499080
EX1302_EK60_-D20130514-T105439.bot	5/14/2013	7896
EX1302_EK60_-D20130514-T105439.idx	5/14/2013	13176
EX1302_EK60_-D20130514-T105439.raw	5/14/2013	23920044
EX1302_EK60_-D20130514-T112212.bot	5/14/2013	6104
EX1302_EK60_-D20130514-T112212.idx	5/14/2013	10040
EX1302_EK60_-D20130514-T112212.raw	5/14/2013	18103640
EX1302_EK60_-D20130514-T114958.bot	5/14/2013	6040
EX1302_EK60_-D20130514-T114958.idx	5/14/2013	9928
EX1302_EK60_-D20130514-T114958.raw	5/14/2013	17899604
EX1302_EK60_-D20130514-T121750.bot	5/14/2013	8056
EX1302_EK60_-D20130514-T121750.idx	5/14/2013	13456
EX1302_EK60_-D20130514-T121750.raw	5/14/2013	21113228
EX1302_EK60_-D20130514-T124605.bot	5/14/2013	7448
EX1302_EK60_-D20130514-T124605.idx	5/14/2013	12392
EX1302_EK60_-D20130514-T124605.raw	5/14/2013	6472716
EX1302_EK60_-D20130514-T131521.bot	5/14/2013	8120
EX1302_EK60_-D20130514-T131521.idx	5/14/2013	13568

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130514-T131521.raw	5/14/2013	7363948
EX1302_EK60_-D20130514-T135406.bot	5/14/2013	17496
EX1302_EK60_-D20130514-T135406.idx	5/14/2013	29976
EX1302_EK60_-D20130514-T135406.raw	5/14/2013	15697596
EX1302_EK60_-D20130514-T145150.bot	5/14/2013	3704
EX1302_EK60_-D20130514-T145150.idx	5/14/2013	5840
EX1302_EK60_-D20130514-T145150.raw	5/14/2013	6565592
EX1302_EK60_-D20130515-T141131.bot	5/15/2013	9112
EX1302_EK60_-D20130515-T141131.idx	5/15/2013	15304
EX1302_EK60_-D20130515-T141131.raw	5/15/2013	5589168
EX1302_EK60_-D20130515-T143426.bot	5/15/2013	9112
EX1302_EK60_-D20130515-T143426.idx	5/15/2013	15304
EX1302_EK60_-D20130515-T143426.raw	5/15/2013	5589568
EX1302_EK60_-D20130515-T145721.bot	5/15/2013	8952
EX1302_EK60_-D20130515-T145721.idx	5/15/2013	15024
EX1302_EK60_-D20130515-T145721.raw	5/15/2013	5413684
EX1302_EK60_-D20130515-T151955.bot	5/15/2013	8824
EX1302_EK60_-D20130515-T151955.idx	5/15/2013	14800
EX1302_EK60_-D20130515-T151955.raw	5/15/2013	5396448
EX1302_EK60_-D20130515-T154202.bot	5/15/2013	8632
EX1302_EK60_-D20130515-T154202.idx	5/15/2013	14464
EX1302_EK60_-D20130515-T154202.raw	5/15/2013	5268236
EX1302_EK60_-D20130515-T160337.bot	5/15/2013	8536
EX1302_EK60_-D20130515-T160337.idx	5/15/2013	14296
EX1302_EK60_-D20130515-T160337.raw	5/15/2013	5203456
EX1302_EK60_-D20130515-T162456.bot	5/15/2013	9656
EX1302_EK60_-D20130515-T162456.idx	5/15/2013	16256
EX1302_EK60_-D20130515-T162456.raw	5/15/2013	5958524
EX1302_EK60_-D20130515-T164921.bot	5/15/2013	2520
EX1302_EK60_-D20130515-T164921.idx	5/15/2013	3768
EX1302_EK60_-D20130515-T164921.raw	5/15/2013	2897568
EX1302_EK60_-D20130515-T174049.bot	5/15/2013	2168
EX1302_EK60_-D20130515-T174049.idx	5/15/2013	3152
EX1302_EK60_-D20130515-T174049.raw	5/15/2013	890120
EX1302_EK60_-D20130515-T174427.bot	5/15/2013	1720
EX1302_EK60_-D20130515-T174427.idx	5/15/2013	2368
EX1302_EK60_-D20130515-T174427.raw	5/15/2013	933968
EX1302_EK60_-D20130515-T184000.bot	5/15/2013	8280
EX1302_EK60_-D20130515-T184000.idx	5/15/2013	13848
EX1302_EK60_-D20130515-T184000.raw	5/15/2013	5033376

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130515-T190037.bot	5/15/2013	9528
EX1302_EK60_-D20130515-T190037.idx	5/15/2013	16032
EX1302_EK60_-D20130515-T190037.raw	5/15/2013	5877996
EX1302_EK60_-D20130515-T192441.bot	5/15/2013	10424
EX1302_EK60_-D20130515-T192441.idx	5/15/2013	17600
EX1302_EK60_-D20130515-T192441.raw	5/15/2013	6479260
EX1302_EK60_-D20130515-T195114.bot	5/15/2013	12792
EX1302_EK60_-D20130515-T195114.idx	5/15/2013	21744
EX1302_EK60_-D20130515-T195114.raw	5/15/2013	8069044
EX1302_EK60_-D20130515-T202421.bot	5/15/2013	9144
EX1302_EK60_-D20130515-T202421.idx	5/15/2013	15360
EX1302_EK60_-D20130515-T202421.raw	5/15/2013	5947752
EX1302_EK60_-D20130515-T205627.bot	5/15/2013	8024
EX1302_EK60_-D20130515-T205627.idx	5/15/2013	13400
EX1302_EK60_-D20130515-T205627.raw	5/15/2013	5224464
EX1302_EK60_-D20130515-T212627.bot	5/15/2013	4568
EX1302_EK60_-D20130515-T212627.idx	5/15/2013	7352
EX1302_EK60_-D20130515-T212627.raw	5/15/2013	3276400
EX1302_EK60_-D20130515-T215711.bot	5/15/2013	4440
EX1302_EK60_-D20130515-T215711.idx	5/15/2013	7128
EX1302_EK60_-D20130515-T215711.raw	5/15/2013	3214580
EX1302_EK60_-D20130515-T222812.bot	5/15/2013	8568
EX1302_EK60_-D20130515-T222812.idx	5/15/2013	14352
EX1302_EK60_-D20130515-T222812.raw	5/15/2013	14191696
EX1302_EK60_-D20130515-T225914.bot	5/15/2013	8952
EX1302_EK60_-D20130515-T225914.idx	5/15/2013	15024
EX1302_EK60_-D20130515-T225914.raw	5/15/2013	5815124
EX1302_EK60_-D20130515-T233054.bot	5/15/2013	9176
EX1302_EK60_-D20130515-T233054.idx	5/15/2013	15416
EX1302_EK60_-D20130515-T233054.raw	5/15/2013	5961536
EX1302_EK60_-D20130516-T000305.bot	5/15/2013	9016
EX1302_EK60_-D20130516-T000305.idx	5/15/2013	15136
EX1302_EK60_-D20130516-T000305.raw	5/15/2013	5865456
EX1302_EK60_-D20130516-T003508.bot	5/15/2013	9560
EX1302_EK60_-D20130516-T003508.idx	5/15/2013	16088
EX1302_EK60_-D20130516-T003508.raw	5/15/2013	6286152
EX1302_EK60_-D20130516-T011013.bot	5/15/2013	10232
EX1302_EK60_-D20130516-T011013.idx	5/15/2013	17264
EX1302_EK60_-D20130516-T011013.raw	5/15/2013	6781556
EX1302_EK60_-D20130516-T014820.bot	5/15/2013	10904

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130516-T014820.idx	5/15/2013	18440
EX1302_EK60_-D20130516-T014820.raw	5/15/2013	7175564
EX1302_EK60_-D20130516-T022646.bot	5/15/2013	10328
EX1302_EK60_-D20130516-T022646.idx	5/15/2013	17432
EX1302_EK60_-D20130516-T022646.raw	5/15/2013	6743420
EX1302_EK60_-D20130516-T030207.bot	5/15/2013	9016
EX1302_EK60_-D20130516-T030207.idx	5/15/2013	15136
EX1302_EK60_-D20130516-T030207.raw	5/15/2013	5880816
EX1302_EK60_-D20130516-T033416.bot	5/16/2013	8888
EX1302_EK60_-D20130516-T033416.idx	5/16/2013	14912
EX1302_EK60_-D20130516-T033416.raw	5/16/2013	5767596
EX1302_EK60_-D20130516-T040521.bot	5/16/2013	8696
EX1302_EK60_-D20130516-T040521.idx	5/16/2013	14576
EX1302_EK60_-D20130516-T040521.raw	5/16/2013	5620740
EX1302_EK60_-D20130516-T043525.bot	5/16/2013	8568
EX1302_EK60_-D20130516-T043525.idx	5/16/2013	14352
EX1302_EK60_-D20130516-T043525.raw	5/16/2013	5532316
EX1302_EK60_-D20130516-T050501.bot	5/16/2013	9272
EX1302_EK60_-D20130516-T050501.idx	5/16/2013	15584
EX1302_EK60_-D20130516-T050501.raw	5/16/2013	5917008
EX1302_EK60_-D20130516-T053411.bot	5/16/2013	9048
EX1302_EK60_-D20130516-T053411.idx	5/16/2013	15192
EX1302_EK60_-D20130516-T053411.raw	5/16/2013	5743200
EX1302_EK60_-D20130516-T060205.bot	5/16/2013	10872
EX1302_EK60_-D20130516-T060205.idx	5/16/2013	18384
EX1302_EK60_-D20130516-T060205.raw	5/16/2013	6768340
EX1302_EK60_-D20130516-T062932.bot	5/16/2013	11928
EX1302_EK60_-D20130516-T062932.idx	5/16/2013	20232
EX1302_EK60_-D20130516-T062932.raw	5/16/2013	7384476
EX1302_EK60_-D20130516-T065721.bot	5/16/2013	12248
EX1302_EK60_-D20130516-T065721.idx	5/16/2013	20792
EX1302_EK60_-D20130516-T065721.raw	5/16/2013	7585196
EX1302_EK60_-D20130516-T072540.bot	5/16/2013	12280
EX1302_EK60_-D20130516-T072540.idx	5/16/2013	20848
EX1302_EK60_-D20130516-T072540.raw	5/16/2013	7601496
EX1302_EK60_-D20130516-T075357.bot	5/16/2013	12504
EX1302_EK60_-D20130516-T075357.idx	5/16/2013	21240
EX1302_EK60_-D20130516-T075357.raw	5/16/2013	7749508
EX1302_EK60_-D20130516-T082248.bot	5/16/2013	12536
EX1302_EK60_-D20130516-T082248.idx	5/16/2013	21296

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130516-T082248.raw	5/16/2013	7769364
EX1302_EK60_-D20130516-T085142.bot	5/16/2013	12408
EX1302_EK60_-D20130516-T085142.idx	5/16/2013	21072
EX1302_EK60_-D20130516-T085142.raw	5/16/2013	7682836
EX1302_EK60_-D20130516-T092016.bot	5/16/2013	1496
EX1302_EK60_-D20130516-T092016.idx	5/16/2013	1976
EX1302_EK60_-D20130516-T092016.raw	5/16/2013	472896
EX1302_EK60_-D20130516-T180749.bot	5/16/2013	146712
EX1302_EK60_-D20130516-T180749.idx	5/16/2013	256104
EX1302_EK60_-D20130516-T180749.raw	5/16/2013	97248516
EX1302_EK60_-D20130517-T002740.bot	5/16/2013	31160
EX1302_EK60_-D20130517-T002740.idx	5/16/2013	53888
EX1302_EK60_-D20130517-T002740.raw	5/16/2013	20215740
EX1302_EK60_-D20130518-T214009.bot	5/18/2013	920
EX1302_EK60_-D20130518-T214009.idx	5/18/2013	968
EX1302_EK60_-D20130518-T214009.raw	5/18/2013	33540
EX1302_EK60_-D20130518-T224817.bot	5/18/2013	10904
EX1302_EK60_-D20130518-T224817.idx	5/18/2013	18440
EX1302_EK60_-D20130518-T224817.raw	5/18/2013	7075600
EX1302_EK60_-D20130518-T232326.bot	5/18/2013	8984
EX1302_EK60_-D20130518-T232326.idx	5/18/2013	15080
EX1302_EK60_-D20130518-T232326.raw	5/18/2013	5897792
EX1302_EK60_-D20130518-T235639.bot	5/18/2013	10008
EX1302_EK60_-D20130518-T235639.idx	5/18/2013	16872
EX1302_EK60_-D20130518-T235639.raw	5/18/2013	6462932
EX1302_EK60_-D20130519-T002912.bot	5/18/2013	11128
EX1302_EK60_-D20130519-T002912.idx	5/18/2013	18832
EX1302_EK60_-D20130519-T002912.raw	5/18/2013	7134232
EX1302_EK60_-D20130519-T010232.bot	5/18/2013	10328
EX1302_EK60_-D20130519-T010232.idx	5/18/2013	17432
EX1302_EK60_-D20130519-T010232.raw	5/18/2013	6698156
EX1302_EK60_-D20130519-T013627.bot	5/18/2013	10840
EX1302_EK60_-D20130519-T013627.idx	5/18/2013	18328
EX1302_EK60_-D20130519-T013627.raw	5/18/2013	7034480
EX1302_EK60_-D20130519-T021128.bot	5/18/2013	10936
EX1302_EK60_-D20130519-T021128.idx	5/18/2013	18496
EX1302_EK60_-D20130519-T021128.raw	5/18/2013	7089048
EX1302_EK60_-D20130519-T024625.bot	5/18/2013	10680
EX1302_EK60_-D20130519-T024625.idx	5/18/2013	18048
EX1302_EK60_-D20130519-T024625.raw	5/18/2013	6950420



EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130519-T032137.bot	5/18/2013	10296
EX1302_EK60_-D20130519-T032137.idx	5/18/2013	17376
EX1302_EK60_-D20130519-T032137.raw	5/18/2013	6682196
EX1302_EK60_-D20130519-T035532.bot	5/19/2013	11544
EX1302_EK60_-D20130519-T035532.idx	5/19/2013	19560
EX1302_EK60_-D20130519-T035532.raw	5/19/2013	7437460
EX1302_EK60_-D20130519-T043036.bot	5/19/2013	10680
EX1302_EK60_-D20130519-T043036.idx	5/19/2013	18048
EX1302_EK60_-D20130519-T043036.raw	5/19/2013	7034712
EX1302_EK60_-D20130519-T050811.bot	5/19/2013	11224
EX1302_EK60_-D20130519-T050811.idx	5/19/2013	19000
EX1302_EK60_-D20130519-T050811.raw	5/19/2013	7280868
EX1302_EK60_-D20130519-T054358.bot	5/19/2013	13688
EX1302_EK60_-D20130519-T054358.idx	5/19/2013	23312
EX1302_EK60_-D20130519-T054358.raw	5/19/2013	8769872
EX1302_EK60_-D20130519-T062150.bot	5/19/2013	13912
EX1302_EK60_-D20130519-T062150.idx	5/19/2013	23704
EX1302_EK60_-D20130519-T062150.raw	5/19/2013	8915360
EX1302_EK60_-D20130519-T070012.bot	5/19/2013	7384
EX1302_EK60_-D20130519-T070012.idx	5/19/2013	12280
EX1302_EK60_-D20130519-T070012.raw	5/19/2013	4443616
EX1302_EK60_-D20130519-T171536.bot	5/19/2013	10776
EX1302_EK60_-D20130519-T171536.idx	5/19/2013	18216
EX1302_EK60_-D20130519-T171536.raw	5/19/2013	7026580
EX1302_EK60_-D20130519-T175139.bot	5/19/2013	10520
EX1302_EK60_-D20130519-T175139.idx	5/19/2013	17768
EX1302_EK60_-D20130519-T175139.raw	5/19/2013	6854104
EX1302_EK60_-D20130519-T182655.bot	5/19/2013	10808
EX1302_EK60_-D20130519-T182655.idx	5/19/2013	18272
EX1302_EK60_-D20130519-T182655.raw	5/19/2013	7031992
EX1302_EK60_-D20130519-T190232.bot	5/19/2013	9112
EX1302_EK60_-D20130519-T190232.idx	5/19/2013	15304
EX1302_EK60_-D20130519-T190232.raw	5/19/2013	5831668
EX1302_EK60_-D20130519-T193148.bot	5/19/2013	9112
EX1302_EK60_-D20130519-T193148.idx	5/19/2013	15304
EX1302_EK60_-D20130519-T193148.raw	5/19/2013	5765964
EX1302_EK60_-D20130519-T195921.bot	5/19/2013	8568
EX1302_EK60_-D20130519-T195921.idx	5/19/2013	14352
EX1302_EK60_-D20130519-T195921.raw	5/19/2013	5459808
EX1302_EK60_-D20130519-T202704.bot	5/19/2013	10680

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130519-T202704.idx	5/19/2013	18048
EX1302_EK60_-D20130519-T202704.raw	5/19/2013	6941512
EX1302_EK60_-D20130519-T210234.bot	5/19/2013	3512
EX1302_EK60_-D20130519-T210234.idx	5/19/2013	5504
EX1302_EK60_-D20130519-T210234.raw	5/19/2013	1862976
EX1302_EK60_-D20130519-T211157.bot	5/19/2013	6584
EX1302_EK60_-D20130519-T211157.idx	5/19/2013	10880
EX1302_EK60_-D20130519-T211157.raw	5/19/2013	4079924
EX1302_EK60_-D20130519-T213334.bot	5/19/2013	12088
EX1302_EK60_-D20130519-T213334.idx	5/19/2013	20512
EX1302_EK60_-D20130519-T213334.raw	5/19/2013	7995608
EX1302_EK60_-D20130519-T221531.bot	5/19/2013	13976
EX1302_EK60_-D20130519-T221531.idx	5/19/2013	23816
EX1302_EK60_-D20130519-T221531.raw	5/19/2013	9238420
EX1302_EK60_-D20130519-T230147.bot	5/19/2013	11352
EX1302_EK60_-D20130519-T230147.idx	5/19/2013	19224
EX1302_EK60_-D20130519-T230147.raw	5/19/2013	7462568
EX1302_EK60_-D20130519-T234028.bot	5/19/2013	12088
EX1302_EK60_-D20130519-T234028.idx	5/19/2013	20512
EX1302_EK60_-D20130519-T234028.raw	5/19/2013	7707920
EX1302_EK60_-D20130520-T001425.bot	5/19/2013	11768
EX1302_EK60_-D20130520-T001425.idx	5/19/2013	19952
EX1302_EK60_-D20130520-T001425.raw	5/19/2013	7524072
EX1302_EK60_-D20130520-T004824.bot	5/19/2013	12280
EX1302_EK60_-D20130520-T004824.idx	5/19/2013	20848
EX1302_EK60_-D20130520-T004824.raw	5/19/2013	7895292
EX1302_EK60_-D20130520-T012419.bot	5/19/2013	13272
EX1302_EK60_-D20130520-T012419.idx	5/19/2013	22584
EX1302_EK60_-D20130520-T012419.raw	5/19/2013	8472812
EX1302_EK60_-D20130520-T020034.bot	5/19/2013	14200
EX1302_EK60_-D20130520-T020034.idx	5/19/2013	24208
EX1302_EK60_-D20130520-T020034.raw	5/19/2013	9113324
EX1302_EK60_-D20130520-T023949.bot	5/19/2013	13784
EX1302_EK60_-D20130520-T023949.idx	5/19/2013	23480
EX1302_EK60_-D20130520-T023949.raw	5/19/2013	8834064
EX1302_EK60_-D20130520-T031755.bot	5/19/2013	14936
EX1302_EK60_-D20130520-T031755.idx	5/19/2013	25496
EX1302_EK60_-D20130520-T031755.raw	5/19/2013	9516888
EX1302_EK60_-D20130520-T035640.bot	5/20/2013	14840
EX1302_EK60_-D20130520-T035640.idx	5/20/2013	25328

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130520-T035640.raw	5/20/2013	9489624
EX1302_EK60_-D20130520-T043610.bot	5/20/2013	14008
EX1302_EK60_-D20130520-T043610.idx	5/20/2013	23872
EX1302_EK60_-D20130520-T043610.raw	5/20/2013	8984324
EX1302_EK60_-D20130520-T051454.bot	5/20/2013	15096
EX1302_EK60_-D20130520-T051454.idx	5/20/2013	25776
EX1302_EK60_-D20130520-T051454.raw	5/20/2013	9628948
EX1302_EK60_-D20130520-T055410.bot	5/20/2013	1560
EX1302_EK60_-D20130520-T055410.idx	5/20/2013	2088
EX1302_EK60_-D20130520-T055410.raw	5/20/2013	477208
EX1302_EK60_-D20130520-T223157.bot	5/20/2013	10168
EX1302_EK60_-D20130520-T223157.idx	5/20/2013	17152
EX1302_EK60_-D20130520-T223157.raw	5/20/2013	6635644
EX1302_EK60_-D20130520-T230649.bot	5/20/2013	13624
EX1302_EK60_-D20130520-T230649.idx	5/20/2013	23200
EX1302_EK60_-D20130520-T230649.raw	5/20/2013	8771504
EX1302_EK60_-D20130520-T234542.bot	5/20/2013	12952
EX1302_EK60_-D20130520-T234542.idx	5/20/2013	22024
EX1302_EK60_-D20130520-T234542.raw	5/20/2013	8347316
EX1302_EK60_-D20130521-T002329.bot	5/20/2013	12408
EX1302_EK60_-D20130521-T002329.idx	5/20/2013	21072
EX1302_EK60_-D20130521-T002329.raw	5/20/2013	7850680
EX1302_EK60_-D20130521-T005622.bot	5/20/2013	11352
EX1302_EK60_-D20130521-T005622.idx	5/20/2013	19224
EX1302_EK60_-D20130521-T005622.raw	5/20/2013	7167612
EX1302_EK60_-D20130521-T012717.bot	5/20/2013	11160
EX1302_EK60_-D20130521-T012717.idx	5/20/2013	18888
EX1302_EK60_-D20130521-T012717.raw	5/20/2013	7083608
EX1302_EK60_-D20130521-T015851.bot	5/20/2013	13432
EX1302_EK60_-D20130521-T015851.idx	5/20/2013	22864
EX1302_EK60_-D20130521-T015851.raw	5/20/2013	8481100
EX1302_EK60_-D20130521-T023249.bot	5/20/2013	15640
EX1302_EK60_-D20130521-T023249.idx	5/20/2013	26728
EX1302_EK60_-D20130521-T023249.raw	5/20/2013	9919428
EX1302_EK60_-D20130521-T031131.bot	5/20/2013	12760
EX1302_EK60_-D20130521-T031131.idx	5/20/2013	21688
EX1302_EK60_-D20130521-T031131.raw	5/20/2013	8087880
EX1302_EK60_-D20130521-T034522.bot	5/21/2013	14648
EX1302_EK60_-D20130521-T034522.idx	5/21/2013	24992
EX1302_EK60_-D20130521-T034522.raw	5/21/2013	9259984

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130521-T042136.bot	5/21/2013	14072
EX1302_EK60_-D20130521-T042136.idx	5/21/2013	23984
EX1302_EK60_-D20130521-T042136.raw	5/21/2013	8912864
EX1302_EK60_-D20130521-T045718.bot	5/21/2013	14008
EX1302_EK60_-D20130521-T045718.idx	5/21/2013	23872
EX1302_EK60_-D20130521-T045718.raw	5/21/2013	8842312
EX1302_EK60_-D20130521-T053202.bot	5/21/2013	13240
EX1302_EK60_-D20130521-T053202.idx	5/21/2013	22528
EX1302_EK60_-D20130521-T053202.raw	5/21/2013	8360728
EX1302_EK60_-D20130521-T060539.bot	5/21/2013	1208
EX1302_EK60_-D20130521-T060539.idx	5/21/2013	1472
EX1302_EK60_-D20130521-T060539.raw	5/21/2013	395444
EX1302_EK60_-D20130521-T230215.bot	5/21/2013	11064
EX1302_EK60_-D20130521-T230215.idx	5/21/2013	18720
EX1302_EK60_-D20130521-T230215.raw	5/21/2013	7405892
EX1302_EK60_-D20130521-T234449.bot	5/21/2013	12568
EX1302_EK60_-D20130521-T234449.idx	5/21/2013	21352
EX1302_EK60_-D20130521-T234449.raw	5/21/2013	7955672
EX1302_EK60_-D20130522-T001827.bot	5/21/2013	11960
EX1302_EK60_-D20130522-T001827.idx	5/21/2013	20288
EX1302_EK60_-D20130522-T001827.raw	5/21/2013	7577068
EX1302_EK60_-D20130522-T005103.bot	5/21/2013	11864
EX1302_EK60_-D20130522-T005103.idx	5/21/2013	20120
EX1302_EK60_-D20130522-T005103.raw	5/21/2013	7536552
EX1302_EK60_-D20130522-T012401.bot	5/21/2013	11480
EX1302_EK60_-D20130522-T012401.idx	5/21/2013	19448
EX1302_EK60_-D20130522-T012401.raw	5/21/2013	7339880
EX1302_EK60_-D20130522-T015746.bot	5/21/2013	10040
EX1302_EK60_-D20130522-T015746.idx	5/21/2013	16928
EX1302_EK60_-D20130522-T015746.raw	5/21/2013	6500092
EX1302_EK60_-D20130522-T023107.bot	5/21/2013	10072
EX1302_EK60_-D20130522-T023107.idx	5/21/2013	16984
EX1302_EK60_-D20130522-T023107.raw	5/21/2013	6497072
EX1302_EK60_-D20130522-T030357.bot	5/21/2013	11800
EX1302_EK60_-D20130522-T030357.idx	5/21/2013	20008
EX1302_EK60_-D20130522-T030357.raw	5/21/2013	7443088
EX1302_EK60_-D20130522-T033548.bot	5/22/2013	10072
EX1302_EK60_-D20130522-T033548.idx	5/22/2013	16984
EX1302_EK60_-D20130522-T033548.raw	5/22/2013	6387492
EX1302_EK60_-D20130522-T040826.bot	5/22/2013	9080

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130522-T040826.idx	5/22/2013	15248
EX1302_EK60_-D20130522-T040826.raw	5/22/2013	5895908
EX1302_EK60_-D20130522-T044036.bot	5/22/2013	9240
EX1302_EK60_-D20130522-T044036.idx	5/22/2013	15528
EX1302_EK60_-D20130522-T044036.raw	5/22/2013	6043888
EX1302_EK60_-D20130522-T051409.bot	5/22/2013	9112
EX1302_EK60_-D20130522-T051409.idx	5/22/2013	15304
EX1302_EK60_-D20130522-T051409.raw	5/22/2013	5994944
EX1302_EK60_-D20130522-T054829.bot	5/22/2013	5688
EX1302_EK60_-D20130522-T054829.idx	5/22/2013	9312
EX1302_EK60_-D20130522-T054829.raw	5/22/2013	3587192
EX1302_EK60_-D20130522-T231841.bot	5/22/2013	10552
EX1302_EK60_-D20130522-T231841.idx	5/22/2013	17824
EX1302_EK60_-D20130522-T231841.raw	5/22/2013	6798400
EX1302_EK60_-D20130522-T235224.bot	5/22/2013	10264
EX1302_EK60_-D20130522-T235224.idx	5/22/2013	17320
EX1302_EK60_-D20130522-T235224.raw	5/22/2013	6601808
EX1302_EK60_-D20130523-T002453.bot	5/22/2013	11160
EX1302_EK60_-D20130523-T002453.idx	5/22/2013	18888
EX1302_EK60_-D20130523-T002453.raw	5/22/2013	7160452
EX1302_EK60_-D20130523-T005829.bot	5/22/2013	12312
EX1302_EK60_-D20130523-T005829.idx	5/22/2013	20904
EX1302_EK60_-D20130523-T005829.raw	5/22/2013	7802100
EX1302_EK60_-D20130523-T013143.bot	5/22/2013	11256
EX1302_EK60_-D20130523-T013143.idx	5/22/2013	19056
EX1302_EK60_-D20130523-T013143.raw	5/22/2013	7228016
EX1302_EK60_-D20130523-T020550.bot	5/22/2013	11128
EX1302_EK60_-D20130523-T020550.idx	5/22/2013	18832
EX1302_EK60_-D20130523-T020550.raw	5/22/2013	7180260
EX1302_EK60_-D20130523-T024039.bot	5/22/2013	11064
EX1302_EK60_-D20130523-T024039.idx	5/22/2013	18720
EX1302_EK60_-D20130523-T024039.raw	5/22/2013	7136880
EX1302_EK60_-D20130523-T031514.bot	5/22/2013	11064
EX1302_EK60_-D20130523-T031514.idx	5/22/2013	18720
EX1302_EK60_-D20130523-T031514.raw	5/22/2013	7127040
EX1302_EK60_-D20130523-T034932.bot	5/23/2013	12088
EX1302_EK60_-D20130523-T034932.idx	5/23/2013	20512
EX1302_EK60_-D20130523-T034932.raw	5/23/2013	7761504
EX1302_EK60_-D20130523-T042512.bot	5/23/2013	13144
EX1302_EK60_-D20130523-T042512.idx	5/23/2013	22360

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130523-T042512.raw	5/23/2013	8427396
EX1302_EK60_-D20130523-T050208.bot	5/23/2013	10872
EX1302_EK60_-D20130523-T050208.idx	5/23/2013	18384
EX1302_EK60_-D20130523-T050208.raw	5/23/2013	7015788
EX1302_EK60_-D20130523-T053611.bot	5/23/2013	11800
EX1302_EK60_-D20130523-T053611.idx	5/23/2013	20008
EX1302_EK60_-D20130523-T053611.raw	5/23/2013	7542996
EX1302_EK60_-D20130523-T061005.bot	5/23/2013	3224
EX1302_EK60_-D20130523-T061005.idx	5/23/2013	5000
EX1302_EK60_-D20130523-T061005.raw	5/23/2013	1680124
EX1302_EK60_-D20130523-T211203.bot	5/23/2013	14488
EX1302_EK60_-D20130523-T211203.idx	5/23/2013	24712
EX1302_EK60_-D20130523-T211203.raw	5/23/2013	9536788
EX1302_EK60_-D20130523-T215832.bot	5/23/2013	11224
EX1302_EK60_-D20130523-T215832.idx	5/23/2013	19000
EX1302_EK60_-D20130523-T215832.raw	5/23/2013	7163060
EX1302_EK60_-D20130523-T223101.bot	5/23/2013	14296
EX1302_EK60_-D20130523-T223101.idx	5/23/2013	24376
EX1302_EK60_-D20130523-T223101.raw	5/23/2013	9052028
EX1302_EK60_-D20130523-T230705.bot	5/23/2013	13176
EX1302_EK60_-D20130523-T230705.idx	5/23/2013	22416
EX1302_EK60_-D20130523-T230705.raw	5/23/2013	8381968
EX1302_EK60_-D20130523-T234233.bot	5/23/2013	14104
EX1302_EK60_-D20130523-T234233.idx	5/23/2013	24040
EX1302_EK60_-D20130523-T234233.raw	5/23/2013	8967908
EX1302_EK60_-D20130524-T001936.bot	5/23/2013	11192
EX1302_EK60_-D20130524-T001936.idx	5/23/2013	18944
EX1302_EK60_-D20130524-T001936.raw	5/23/2013	7171720
EX1302_EK60_-D20130524-T005301.bot	5/23/2013	12056
EX1302_EK60_-D20130524-T005301.idx	5/23/2013	20456
EX1302_EK60_-D20130524-T005301.raw	5/23/2013	7668856
EX1302_EK60_-D20130524-T012638.bot	5/23/2013	11768
EX1302_EK60_-D20130524-T012638.idx	5/23/2013	19952
EX1302_EK60_-D20130524-T012638.raw	5/23/2013	7521176
EX1302_EK60_-D20130524-T020039.bot	5/23/2013	11192
EX1302_EK60_-D20130524-T020039.idx	5/23/2013	18944
EX1302_EK60_-D20130524-T020039.raw	5/23/2013	7209556
EX1302_EK60_-D20130524-T023459.bot	5/23/2013	11928
EX1302_EK60_-D20130524-T023459.idx	5/23/2013	20232
EX1302_EK60_-D20130524-T023459.raw	5/23/2013	7588456

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130524-T030818.bot	5/23/2013	13528
EX1302_EK60_-D20130524-T030818.idx	5/23/2013	23032
EX1302_EK60_-D20130524-T030818.raw	5/23/2013	8515576
EX1302_EK60_-D20130524-T034155.bot	5/24/2013	15384
EX1302_EK60_-D20130524-T034155.idx	5/24/2013	26280
EX1302_EK60_-D20130524-T034155.raw	5/24/2013	9869524
EX1302_EK60_-D20130524-T042322.bot	5/24/2013	1784
EX1302_EK60_-D20130524-T042322.idx	5/24/2013	2480
EX1302_EK60_-D20130524-T042322.raw	5/24/2013	678800
EX1302_EK60_-D20130524-T135704.bot	5/24/2013	6488
EX1302_EK60_-D20130524-T135704.idx	5/24/2013	10712
EX1302_EK60_-D20130524-T135704.raw	5/24/2013	5423308
EX1302_EK60_-D20130524-T145619.bot	5/24/2013	6872
EX1302_EK60_-D20130524-T145619.idx	5/24/2013	11384
EX1302_EK60_-D20130524-T145619.raw	5/24/2013	5784148
EX1302_EK60_-D20130524-T155935.bot	5/24/2013	7416
EX1302_EK60_-D20130524-T155935.idx	5/24/2013	12336
EX1302_EK60_-D20130524-T155935.raw	5/24/2013	6301084
EX1302_EK60_-D20130524-T170834.bot	5/24/2013	7352
EX1302_EK60_-D20130524-T170834.idx	5/24/2013	12224
EX1302_EK60_-D20130524-T170834.raw	5/24/2013	6250524
EX1302_EK60_-D20130524-T181652.bot	5/24/2013	7608
EX1302_EK60_-D20130524-T181652.idx	5/24/2013	12672
EX1302_EK60_-D20130524-T181652.raw	5/24/2013	6491580
EX1302_EK60_-D20130524-T192752.bot	5/24/2013	6680
EX1302_EK60_-D20130524-T192752.idx	5/24/2013	11048
EX1302_EK60_-D20130524-T192752.raw	5/24/2013	5610676
EX1302_EK60_-D20130524-T202907.bot	5/24/2013	6072
EX1302_EK60_-D20130524-T202907.idx	5/24/2013	9984
EX1302_EK60_-D20130524-T202907.raw	5/24/2013	5029152
EX1302_EK60_-D20130524-T212358.bot	5/24/2013	10360
EX1302_EK60_-D20130524-T212358.idx	5/24/2013	17488
EX1302_EK60_-D20130524-T212358.raw	5/24/2013	9110948
EX1302_EK60_-D20130524-T230349.bot	5/24/2013	7544
EX1302_EK60_-D20130524-T230349.idx	5/24/2013	12560
EX1302_EK60_-D20130524-T230349.raw	5/24/2013	6412056
EX1302_EK60_-D20130525-T001409.bot	5/24/2013	6328
EX1302_EK60_-D20130525-T001409.idx	5/24/2013	10432
EX1302_EK60_-D20130525-T001409.raw	5/24/2013	5257364
EX1302_EK60_-D20130525-T011141.bot	5/24/2013	6136

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130525-T011141.idx	5/24/2013	10096
EX1302_EK60_-D20130525-T011141.raw	5/24/2013	5071480
EX1302_EK60_-D20130525-T020713.bot	5/24/2013	5976
EX1302_EK60_-D20130525-T020713.idx	5/24/2013	9816
EX1302_EK60_-D20130525-T020713.raw	5/24/2013	4913396
EX1302_EK60_-D20130525-T030103.bot	5/24/2013	5880
EX1302_EK60_-D20130525-T030103.idx	5/24/2013	9648
EX1302_EK60_-D20130525-T030103.raw	5/24/2013	4827416
EX1302_EK60_-D20130525-T035353.bot	5/25/2013	6392
EX1302_EK60_-D20130525-T035353.idx	5/25/2013	10544
EX1302_EK60_-D20130525-T035353.raw	5/25/2013	5314204
EX1302_EK60_-D20130525-T045206.bot	5/25/2013	7032
EX1302_EK60_-D20130525-T045206.idx	5/25/2013	11664
EX1302_EK60_-D20130525-T045206.raw	5/25/2013	5918936
EX1302_EK60_-D20130525-T055703.bot	5/25/2013	7096
EX1302_EK60_-D20130525-T055703.idx	5/25/2013	11776
EX1302_EK60_-D20130525-T055703.raw	5/25/2013	5978508
EX1302_EK60_-D20130525-T070240.bot	5/25/2013	6584
EX1302_EK60_-D20130525-T070240.idx	5/25/2013	10880
EX1302_EK60_-D20130525-T070240.raw	5/25/2013	5481700
EX1302_EK60_-D20130525-T080254.bot	5/25/2013	5656
EX1302_EK60_-D20130525-T080254.idx	5/25/2013	9256
EX1302_EK60_-D20130525-T080254.raw	5/25/2013	4636012
EX1302_EK60_-D20130525-T085322.bot	5/25/2013	6072
EX1302_EK60_-D20130525-T085322.idx	5/25/2013	9984
EX1302_EK60_-D20130525-T085322.raw	5/25/2013	5043876
EX1302_EK60_-D20130525-T094813.bot	5/25/2013	6648
EX1302_EK60_-D20130525-T094813.idx	5/25/2013	10992
EX1302_EK60_-D20130525-T094813.raw	5/25/2013	5598512
EX1302_EK60_-D20130525-T104908.bot	5/25/2013	6808
EX1302_EK60_-D20130525-T104908.idx	5/25/2013	11272
EX1302_EK60_-D20130525-T104908.raw	5/25/2013	5749944
EX1302_EK60_-D20130525-T115143.bot	5/25/2013	6872
EX1302_EK60_-D20130525-T115143.idx	5/25/2013	11384
EX1302_EK60_-D20130525-T115143.raw	5/25/2013	5776836
EX1302_EK60_-D20130525-T125429.bot	5/25/2013	1080
EX1302_EK60_-D20130525-T125429.idx	5/25/2013	1248
EX1302_EK60_-D20130525-T125429.raw	5/25/2013	213268
EX1302_EK60_-D20130527-T000201.bot	5/26/2013	14360
EX1302_EK60_-D20130527-T000201.idx	5/26/2013	24488

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130527-T000201.raw	5/26/2013	8954300
EX1302_EK60_-D20130527-T003452.bot	5/26/2013	14136
EX1302_EK60_-D20130527-T003452.idx	5/26/2013	24096
EX1302_EK60_-D20130527-T003452.raw	5/26/2013	8809968
EX1302_EK60_-D20130527-T010712.bot	5/26/2013	13752
EX1302_EK60_-D20130527-T010712.idx	5/26/2013	23424
EX1302_EK60_-D20130527-T010712.raw	5/26/2013	8556744
EX1302_EK60_-D20130527-T013835.bot	5/26/2013	15288
EX1302_EK60_-D20130527-T013835.idx	5/26/2013	26112
EX1302_EK60_-D20130527-T013835.raw	5/26/2013	9569836
EX1302_EK60_-D20130527-T021342.bot	5/26/2013	15352
EX1302_EK60_-D20130527-T021342.idx	5/26/2013	26224
EX1302_EK60_-D20130527-T021342.raw	5/26/2013	9612616
EX1302_EK60_-D20130527-T024859.bot	5/26/2013	15352
EX1302_EK60_-D20130527-T024859.idx	5/26/2013	26224
EX1302_EK60_-D20130527-T024859.raw	5/26/2013	9611908
EX1302_EK60_-D20130527-T032416.bot	5/26/2013	15352
EX1302_EK60_-D20130527-T032416.idx	5/26/2013	26224
EX1302_EK60_-D20130527-T032416.raw	5/26/2013	9611608
EX1302_EK60_-D20130527-T035933.bot	5/27/2013	15480
EX1302_EK60_-D20130527-T035933.idx	5/27/2013	26448
EX1302_EK60_-D20130527-T035933.raw	5/27/2013	9696688
EX1302_EK60_-D20130527-T043509.bot	5/27/2013	15640
EX1302_EK60_-D20130527-T043509.idx	5/27/2013	26728
EX1302_EK60_-D20130527-T043509.raw	5/27/2013	9801644
EX1302_EK60_-D20130527-T051107.bot	5/27/2013	15064
EX1302_EK60_-D20130527-T051107.idx	5/27/2013	25720
EX1302_EK60_-D20130527-T051107.raw	5/27/2013	9421764
EX1302_EK60_-D20130527-T054542.bot	5/27/2013	6968
EX1302_EK60_-D20130527-T054542.idx	5/27/2013	11552
EX1302_EK60_-D20130527-T054542.raw	5/27/2013	4051872
EX1302_EK60_-D20130527-T203435.bot	5/27/2013	7928
EX1302_EK60_-D20130527-T203435.idx	5/27/2013	13232
EX1302_EK60_-D20130527-T203435.raw	5/27/2013	5044680
EX1302_EK60_-D20130527-T210031.bot	5/27/2013	7288
EX1302_EK60_-D20130527-T210031.idx	5/27/2013	12112
EX1302_EK60_-D20130527-T210031.raw	5/27/2013	4678416
EX1302_EK60_-D20130527-T212630.bot	5/27/2013	7032
EX1302_EK60_-D20130527-T212630.idx	5/27/2013	11664
EX1302_EK60_-D20130527-T212630.raw	5/27/2013	5777000

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130527-T215247.bot	5/27/2013	6968
EX1302_EK60_-D20130527-T215247.idx	5/27/2013	11552
EX1302_EK60_-D20130527-T215247.raw	5/27/2013	6023884
EX1302_EK60_-D20130527-T221946.bot	5/27/2013	6904
EX1302_EK60_-D20130527-T221946.idx	5/27/2013	11440
EX1302_EK60_-D20130527-T221946.raw	5/27/2013	5977288
EX1302_EK60_-D20130527-T224650.bot	5/27/2013	6904
EX1302_EK60_-D20130527-T224650.idx	5/27/2013	11440
EX1302_EK60_-D20130527-T224650.raw	5/27/2013	5978876
EX1302_EK60_-D20130527-T231358.bot	5/27/2013	6680
EX1302_EK60_-D20130527-T231358.idx	5/27/2013	11048
EX1302_EK60_-D20130527-T231358.raw	5/27/2013	5776480
EX1302_EK60_-D20130527-T234035.bot	5/27/2013	6712
EX1302_EK60_-D20130527-T234035.idx	5/27/2013	11104
EX1302_EK60_-D20130527-T234035.raw	5/27/2013	5815904
EX1302_EK60_-D20130528-T000736.bot	5/27/2013	6776
EX1302_EK60_-D20130528-T000736.idx	5/27/2013	11216
EX1302_EK60_-D20130528-T000736.raw	5/27/2013	5878048
EX1302_EK60_-D20130528-T003456.bot	5/27/2013	6744
EX1302_EK60_-D20130528-T003456.idx	5/27/2013	11160
EX1302_EK60_-D20130528-T003456.raw	5/27/2013	5851612
EX1302_EK60_-D20130528-T010214.bot	5/27/2013	6840
EX1302_EK60_-D20130528-T010214.idx	5/27/2013	11328
EX1302_EK60_-D20130528-T010214.raw	5/27/2013	5925992
EX1302_EK60_-D20130528-T012926.bot	5/27/2013	6904
EX1302_EK60_-D20130528-T012926.idx	5/27/2013	11440
EX1302_EK60_-D20130528-T012926.raw	5/27/2013	6000084
EX1302_EK60_-D20130528-T015716.bot	5/27/2013	6680
EX1302_EK60_-D20130528-T015716.idx	5/27/2013	11048
EX1302_EK60_-D20130528-T015716.raw	5/27/2013	5811240
EX1302_EK60_-D20130528-T022454.bot	5/27/2013	6680
EX1302_EK60_-D20130528-T022454.idx	5/27/2013	11048
EX1302_EK60_-D20130528-T022454.raw	5/27/2013	5794904
EX1302_EK60_-D20130528-T025205.bot	5/27/2013	6776
EX1302_EK60_-D20130528-T025205.idx	5/27/2013	11216
EX1302_EK60_-D20130528-T025205.raw	5/27/2013	5863456
EX1302_EK60_-D20130528-T031859.bot	5/27/2013	6808
EX1302_EK60_-D20130528-T031859.idx	5/27/2013	11272
EX1302_EK60_-D20130528-T031859.raw	5/27/2013	5881696
EX1302_EK60_-D20130528-T034539.bot	5/28/2013	6712

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130528-T034539.idx	5/28/2013	11104
EX1302_EK60_-D20130528-T034539.raw	5/28/2013	5808592
EX1302_EK60_-D20130528-T041228.bot	5/28/2013	6456
EX1302_EK60_-D20130528-T041228.idx	5/28/2013	10656
EX1302_EK60_-D20130528-T041228.raw	5/28/2013	5573380
EX1302_EK60_-D20130528-T043835.bot	5/28/2013	6072
EX1302_EK60_-D20130528-T043835.idx	5/28/2013	9984
EX1302_EK60_-D20130528-T043835.raw	5/28/2013	5235140
EX1302_EK60_-D20130528-T050401.bot	5/28/2013	6136
EX1302_EK60_-D20130528-T050401.idx	5/28/2013	10096
EX1302_EK60_-D20130528-T050401.raw	5/28/2013	5293228
EX1302_EK60_-D20130528-T052936.bot	5/28/2013	5336
EX1302_EK60_-D20130528-T052936.idx	5/28/2013	8696
EX1302_EK60_-D20130528-T052936.raw	5/28/2013	4500248
EX1302_EK60_-D20130529-T191527.bot	5/29/2013	10520
EX1302_EK60_-D20130529-T191527.idx	5/29/2013	17768
EX1302_EK60_-D20130529-T191527.raw	5/29/2013	9446164
EX1302_EK60_-D20130529-T195717.bot	5/29/2013	11192
EX1302_EK60_-D20130529-T195717.idx	5/29/2013	18944
EX1302_EK60_-D20130529-T195717.raw	5/29/2013	9973840
EX1302_EK60_-D20130529-T203831.bot	5/29/2013	8696
EX1302_EK60_-D20130529-T203831.idx	5/29/2013	14576
EX1302_EK60_-D20130529-T203831.raw	5/29/2013	7548916
EX1302_EK60_-D20130529-T210856.bot	5/29/2013	8440
EX1302_EK60_-D20130529-T210856.idx	5/29/2013	14128
EX1302_EK60_-D20130529-T210856.raw	5/29/2013	7271540
EX1302_EK60_-D20130529-T213725.bot	5/29/2013	8664
EX1302_EK60_-D20130529-T213725.idx	5/29/2013	14520
EX1302_EK60_-D20130529-T213725.raw	5/29/2013	7442832
EX1302_EK60_-D20130529-T220537.bot	5/29/2013	6648
EX1302_EK60_-D20130529-T220537.idx	5/29/2013	10992
EX1302_EK60_-D20130529-T220537.raw	5/29/2013	5812464
EX1302_EK60_-D20130529-T223417.bot	5/29/2013	5112
EX1302_EK60_-D20130529-T223417.idx	5/29/2013	8304
EX1302_EK60_-D20130529-T223417.raw	5/29/2013	4557620
EX1302_EK60_-D20130529-T230256.bot	5/29/2013	8216
EX1302_EK60_-D20130529-T230256.idx	5/29/2013	13736
EX1302_EK60_-D20130529-T230256.raw	5/29/2013	7084732
EX1302_EK60_-D20130529-T233126.bot	5/29/2013	8600
EX1302_EK60_-D20130529-T233126.idx	5/29/2013	14408

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130529-T233126.raw	5/29/2013	7372500
EX1302_EK60_-D20130529-T235915.bot	5/29/2013	8856
EX1302_EK60_-D20130529-T235915.idx	5/29/2013	14856
EX1302_EK60_-D20130529-T235915.raw	5/29/2013	7611508
EX1302_EK60_-D20130530-T002752.bot	5/29/2013	8760
EX1302_EK60_-D20130530-T002752.idx	5/29/2013	14688
EX1302_EK60_-D20130530-T002752.raw	5/29/2013	7525628
EX1302_EK60_-D20130530-T005615.bot	5/29/2013	8472
EX1302_EK60_-D20130530-T005615.idx	5/29/2013	14184
EX1302_EK60_-D20130530-T005615.raw	5/29/2013	7259596
EX1302_EK60_-D20130530-T012348.bot	5/29/2013	8440
EX1302_EK60_-D20130530-T012348.idx	5/29/2013	14128
EX1302_EK60_-D20130530-T012348.raw	5/29/2013	7220892
EX1302_EK60_-D20130530-T015100.bot	5/29/2013	7032
EX1302_EK60_-D20130530-T015100.idx	5/29/2013	11664
EX1302_EK60_-D20130530-T015100.raw	5/29/2013	6036004
EX1302_EK60_-D20130530-T021713.bot	5/29/2013	6712
EX1302_EK60_-D20130530-T021713.idx	5/29/2013	11104
EX1302_EK60_-D20130530-T021713.raw	5/29/2013	5759756
EX1302_EK60_-D20130530-T024303.bot	5/29/2013	6680
EX1302_EK60_-D20130530-T024303.idx	5/29/2013	11048
EX1302_EK60_-D20130530-T024303.raw	5/29/2013	5723552
EX1302_EK60_-D20130530-T030834.bot	5/29/2013	6648
EX1302_EK60_-D20130530-T030834.idx	5/29/2013	10992
EX1302_EK60_-D20130530-T030834.raw	5/29/2013	5694040
EX1302_EK60_-D20130530-T033359.bot	5/29/2013	4632
EX1302_EK60_-D20130530-T033359.idx	5/29/2013	7464
EX1302_EK60_-D20130530-T033359.raw	5/29/2013	3718496
EX1302_EK60_-D20130530-T203422.bot	5/30/2013	6808
EX1302_EK60_-D20130530-T203422.idx	5/30/2013	11272
EX1302_EK60_-D20130530-T203422.raw	5/30/2013	5978988
EX1302_EK60_-D20130530-T210410.bot	5/30/2013	7576
EX1302_EK60_-D20130530-T210410.idx	5/30/2013	12616
EX1302_EK60_-D20130530-T210410.raw	5/30/2013	6576716
EX1302_EK60_-D20130530-T213307.bot	5/30/2013	6840
EX1302_EK60_-D20130530-T213307.idx	5/30/2013	11328
EX1302_EK60_-D20130530-T213307.raw	5/30/2013	6005252
EX1302_EK60_-D20130530-T220254.bot	5/30/2013	3064
EX1302_EK60_-D20130530-T220254.idx	5/30/2013	4720
EX1302_EK60_-D20130530-T220254.raw	5/30/2013	2141468

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130530-T221310.bot	5/30/2013	1080
EX1302_EK60_-D20130530-T221310.idx	5/30/2013	1248
EX1302_EK60_-D20130530-T221310.raw	5/30/2013	207696
EX1302_EK60_-D20130530-T221533.bot	5/30/2013	9752
EX1302_EK60_-D20130530-T221533.idx	5/30/2013	16424
EX1302_EK60_-D20130530-T221533.raw	5/30/2013	8609340
EX1302_EK60_-D20130530-T225112.bot	5/30/2013	9880
EX1302_EK60_-D20130530-T225112.idx	5/30/2013	16648
EX1302_EK60_-D20130530-T225112.raw	5/30/2013	8674060
EX1302_EK60_-D20130530-T232604.bot	5/30/2013	9208
EX1302_EK60_-D20130530-T232604.idx	5/30/2013	15472
EX1302_EK60_-D20130530-T232604.raw	5/30/2013	8119828
EX1302_EK60_-D20130531-T000045.bot	5/30/2013	8952
EX1302_EK60_-D20130531-T000045.idx	5/30/2013	15024
EX1302_EK60_-D20130531-T000045.raw	5/30/2013	7914468
EX1302_EK60_-D20130531-T003535.bot	5/30/2013	9208
EX1302_EK60_-D20130531-T003535.idx	5/30/2013	15472
EX1302_EK60_-D20130531-T003535.raw	5/30/2013	8106644
EX1302_EK60_-D20130531-T010953.bot	5/30/2013	9272
EX1302_EK60_-D20130531-T010953.idx	5/30/2013	15584
EX1302_EK60_-D20130531-T010953.raw	5/30/2013	8188508
EX1302_EK60_-D20130531-T014502.bot	5/30/2013	9688
EX1302_EK60_-D20130531-T014502.idx	5/30/2013	16312
EX1302_EK60_-D20130531-T014502.raw	5/30/2013	8518752
EX1302_EK60_-D20130531-T021955.bot	5/30/2013	8568
EX1302_EK60_-D20130531-T021955.idx	5/30/2013	14352
EX1302_EK60_-D20130531-T021955.raw	5/30/2013	7533892
EX1302_EK60_-D20130531-T025301.bot	5/30/2013	7416
EX1302_EK60_-D20130531-T025301.idx	5/30/2013	12336
EX1302_EK60_-D20130531-T025301.raw	5/30/2013	6568868
EX1302_EK60_-D20130531-T032526.bot	5/30/2013	6296
EX1302_EK60_-D20130531-T032526.idx	5/30/2013	10376
EX1302_EK60_-D20130531-T032526.raw	5/30/2013	5691480
EX1302_EK60_-D20130531-T035854.bot	5/31/2013	7960
EX1302_EK60_-D20130531-T035854.idx	5/31/2013	13288
EX1302_EK60_-D20130531-T035854.raw	5/31/2013	6911540
EX1302_EK60_-D20130531-T042828.bot	5/31/2013	8536
EX1302_EK60_-D20130531-T042828.idx	5/31/2013	14296
EX1302_EK60_-D20130531-T042828.raw	5/31/2013	7325356
EX1302_EK60_-D20130531-T045628.bot	5/31/2013	4632

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130531-T045628.idx	5/31/2013	7464
EX1302_EK60_-D20130531-T045628.raw	5/31/2013	3792624
EX1302_EK60_-D20130531-T232014.bot	5/31/2013	8888
EX1302_EK60_-D20130531-T232014.idx	5/31/2013	14912
EX1302_EK60_-D20130531-T232014.raw	5/31/2013	7819260
EX1302_EK60_-D20130531-T235357.bot	5/31/2013	8184
EX1302_EK60_-D20130531-T235357.idx	5/31/2013	13680
EX1302_EK60_-D20130531-T235357.raw	5/31/2013	7222548
EX1302_EK60_-D20130601-T002709.bot	5/31/2013	6680
EX1302_EK60_-D20130601-T002709.idx	5/31/2013	11048
EX1302_EK60_-D20130601-T002709.raw	5/31/2013	5978460
EX1302_EK60_-D20130601-T005953.bot	5/31/2013	6360
EX1302_EK60_-D20130601-T005953.idx	5/31/2013	10488
EX1302_EK60_-D20130601-T005953.raw	5/31/2013	5688236
EX1302_EK60_-D20130601-T013148.bot	5/31/2013	9464
EX1302_EK60_-D20130601-T013148.idx	5/31/2013	15920
EX1302_EK60_-D20130601-T013148.raw	5/31/2013	8255164
EX1302_EK60_-D20130601-T020439.bot	5/31/2013	9208
EX1302_EK60_-D20130601-T020439.idx	5/31/2013	15472
EX1302_EK60_-D20130601-T020439.raw	5/31/2013	8032988
EX1302_EK60_-D20130601-T023708.bot	5/31/2013	8088
EX1302_EK60_-D20130601-T023708.idx	5/31/2013	13512
EX1302_EK60_-D20130601-T023708.raw	5/31/2013	7234704
EX1302_EK60_-D20130601-T031251.bot	5/31/2013	8952
EX1302_EK60_-D20130601-T031251.idx	5/31/2013	15024
EX1302_EK60_-D20130601-T031251.raw	5/31/2013	7829612
EX1302_EK60_-D20130601-T034529.bot	6/1/2013	5976
EX1302_EK60_-D20130601-T034529.idx	6/1/2013	9816
EX1302_EK60_-D20130601-T034529.raw	6/1/2013	4894996
EX1302_EK60_-D20130601-T181031.bot	6/1/2013	5816
EX1302_EK60_-D20130601-T181031.idx	6/1/2013	9536
EX1302_EK60_-D20130601-T181031.raw	6/1/2013	5033800
EX1302_EK60_-D20130601-T183634.bot	6/1/2013	6968
EX1302_EK60_-D20130601-T183634.idx	6/1/2013	11552
EX1302_EK60_-D20130601-T183634.raw	6/1/2013	6007736
EX1302_EK60_-D20130601-T190333.bot	6/1/2013	9464
EX1302_EK60_-D20130601-T190333.idx	6/1/2013	15920
EX1302_EK60_-D20130601-T190333.raw	6/1/2013	8275444
EX1302_EK60_-D20130601-T193658.bot	6/1/2013	9112
EX1302_EK60_-D20130601-T193658.idx	6/1/2013	15304

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130601-T193658.raw	6/1/2013	7955348
EX1302_EK60_-D20130601-T200928.bot	6/1/2013	8856
EX1302_EK60_-D20130601-T200928.idx	6/1/2013	14856
EX1302_EK60_-D20130601-T200928.raw	6/1/2013	7709240
EX1302_EK60_-D20130601-T204056.bot	6/1/2013	8792
EX1302_EK60_-D20130601-T204056.idx	6/1/2013	14744
EX1302_EK60_-D20130601-T204056.raw	6/1/2013	7666256
EX1302_EK60_-D20130601-T211239.bot	6/1/2013	9144
EX1302_EK60_-D20130601-T211239.idx	6/1/2013	15360
EX1302_EK60_-D20130601-T211239.raw	6/1/2013	8017152
EX1302_EK60_-D20130601-T214610.bot	6/1/2013	8312
EX1302_EK60_-D20130601-T214610.idx	6/1/2013	13904
EX1302_EK60_-D20130601-T214610.raw	6/1/2013	7360752
EX1302_EK60_-D20130601-T222018.bot	6/1/2013	9656
EX1302_EK60_-D20130601-T222018.idx	6/1/2013	16256
EX1302_EK60_-D20130601-T222018.raw	6/1/2013	8448916
EX1302_EK60_-D20130601-T225411.bot	6/1/2013	9368
EX1302_EK60_-D20130601-T225411.idx	6/1/2013	15752
EX1302_EK60_-D20130601-T225411.raw	6/1/2013	8152596
EX1302_EK60_-D20130601-T232621.bot	6/1/2013	9112
EX1302_EK60_-D20130601-T232621.idx	6/1/2013	15304
EX1302_EK60_-D20130601-T232621.raw	6/1/2013	7930740
EX1302_EK60_-D20130601-T235810.bot	6/1/2013	8952
EX1302_EK60_-D20130601-T235810.idx	6/1/2013	15024
EX1302_EK60_-D20130601-T235810.raw	6/1/2013	7792096
EX1302_EK60_-D20130602-T002945.bot	6/1/2013	8728
EX1302_EK60_-D20130602-T002945.idx	6/1/2013	14632
EX1302_EK60_-D20130602-T002945.raw	6/1/2013	7601936
EX1302_EK60_-D20130602-T010109.bot	6/1/2013	8632
EX1302_EK60_-D20130602-T010109.idx	6/1/2013	14464
EX1302_EK60_-D20130602-T010109.raw	6/1/2013	7525032
EX1302_EK60_-D20130602-T013234.bot	6/1/2013	9240
EX1302_EK60_-D20130602-T013234.idx	6/1/2013	15528
EX1302_EK60_-D20130602-T013234.raw	6/1/2013	8082868
EX1302_EK60_-D20130602-T020541.bot	6/1/2013	9368
EX1302_EK60_-D20130602-T020541.idx	6/1/2013	15752
EX1302_EK60_-D20130602-T020541.raw	6/1/2013	8215004
EX1302_EK60_-D20130602-T023936.bot	6/1/2013	9144
EX1302_EK60_-D20130602-T023936.idx	6/1/2013	15360
EX1302_EK60_-D20130602-T023936.raw	6/1/2013	8042048

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130602-T031324.bot	6/1/2013	8984
EX1302_EK60_-D20130602-T031324.idx	6/1/2013	15080
EX1302_EK60_-D20130602-T031324.raw	6/1/2013	7865964
EX1302_EK60_-D20130602-T034553.bot	6/2/2013	7576
EX1302_EK60_-D20130602-T034553.idx	6/2/2013	12616
EX1302_EK60_-D20130602-T034553.raw	6/2/2013	6644920
EX1302_EK60_-D20130602-T041623.bot	6/2/2013	8056
EX1302_EK60_-D20130602-T041623.idx	6/2/2013	13456
EX1302_EK60_-D20130602-T041623.raw	6/2/2013	7005324
EX1302_EK60_-D20130602-T044600.bot	6/2/2013	2680
EX1302_EK60_-D20130602-T044600.idx	6/2/2013	4048
EX1302_EK60_-D20130602-T044600.raw	6/2/2013	1761348
EX1302_EK60_-D20130602-T205606.bot	6/2/2013	10552
EX1302_EK60_-D20130602-T205606.idx	6/2/2013	17824
EX1302_EK60_-D20130602-T205606.raw	6/2/2013	9986756
EX1302_EK60_-D20130602-T215211.bot	6/2/2013	8504
EX1302_EK60_-D20130602-T215211.idx	6/2/2013	14240
EX1302_EK60_-D20130602-T215211.raw	6/2/2013	7923548
EX1302_EK60_-D20130602-T223724.bot	6/2/2013	5624
EX1302_EK60_-D20130602-T223724.idx	6/2/2013	9200
EX1302_EK60_-D20130602-T223724.raw	6/2/2013	4996120
EX1302_EK60_-D20130602-T230634.bot	6/2/2013	7160
EX1302_EK60_-D20130602-T230634.idx	6/2/2013	11888
EX1302_EK60_-D20130602-T230634.raw	6/2/2013	6588340
EX1302_EK60_-D20130602-T234502.bot	6/2/2013	5848
EX1302_EK60_-D20130602-T234502.idx	6/2/2013	9592
EX1302_EK60_-D20130602-T234502.raw	6/2/2013	5265152
EX1302_EK60_-D20130603-T001602.bot	6/2/2013	4856
EX1302_EK60_-D20130603-T001602.idx	6/2/2013	7856
EX1302_EK60_-D20130603-T001602.raw	6/2/2013	4262636
EX1302_EK60_-D20130603-T004148.bot	6/2/2013	4920
EX1302_EK60_-D20130603-T004148.idx	6/2/2013	7968
EX1302_EK60_-D20130603-T004148.raw	6/2/2013	4320856
EX1302_EK60_-D20130603-T010743.bot	6/2/2013	4920
EX1302_EK60_-D20130603-T010743.idx	6/2/2013	7968
EX1302_EK60_-D20130603-T010743.raw	6/2/2013	4323272
EX1302_EK60_-D20130603-T013341.bot	6/2/2013	4984
EX1302_EK60_-D20130603-T013341.idx	6/2/2013	8080
EX1302_EK60_-D20130603-T013341.raw	6/2/2013	4386420
EX1302_EK60_-D20130603-T015957.bot	6/2/2013	5304



EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130603-T015957.idx	6/2/2013	8640
EX1302_EK60_-D20130603-T015957.raw	6/2/2013	4656324
EX1302_EK60_-D20130603-T022628.bot	6/2/2013	5432
EX1302_EK60_-D20130603-T022628.idx	6/2/2013	8864
EX1302_EK60_-D20130603-T022628.raw	6/2/2013	4799324
EX1302_EK60_-D20130603-T025403.bot	6/2/2013	5240
EX1302_EK60_-D20130603-T025403.idx	6/2/2013	8528
EX1302_EK60_-D20130603-T025403.raw	6/2/2013	4643412
EX1302_EK60_-D20130603-T032139.bot	6/2/2013	5144
EX1302_EK60_-D20130603-T032139.idx	6/2/2013	8360
EX1302_EK60_-D20130603-T032139.raw	6/2/2013	4558128
EX1302_EK60_-D20130603-T034905.bot	6/2/2013	2456
EX1302_EK60_-D20130603-T034905.idx	6/2/2013	3656
EX1302_EK60_-D20130603-T034905.raw	6/3/2013	1726952
EX1302_EK60_-D20130603-T192624.bot	6/3/2013	12824
EX1302_EK60_-D20130603-T192624.idx	6/3/2013	21800
EX1302_EK60_-D20130603-T192624.raw	6/3/2013	11480780
EX1302_EK60_-D20130603-T201211.bot	6/3/2013	8664
EX1302_EK60_-D20130603-T201211.idx	6/3/2013	14520
EX1302_EK60_-D20130603-T201211.raw	6/3/2013	7693836
EX1302_EK60_-D20130603-T204715.bot	6/3/2013	9688
EX1302_EK60_-D20130603-T204715.idx	6/3/2013	16312
EX1302_EK60_-D20130603-T204715.raw	6/3/2013	8471888
EX1302_EK60_-D20130603-T212043.bot	6/3/2013	11096
EX1302_EK60_-D20130603-T212043.idx	6/3/2013	18776
EX1302_EK60_-D20130603-T212043.raw	6/3/2013	9812144
EX1302_EK60_-D20130603-T215929.bot	6/3/2013	7864
EX1302_EK60_-D20130603-T215929.idx	6/3/2013	13120
EX1302_EK60_-D20130603-T215929.raw	6/3/2013	6971156
EX1302_EK60_-D20130603-T223236.bot	6/3/2013	8792
EX1302_EK60_-D20130603-T223236.idx	6/3/2013	14744
EX1302_EK60_-D20130603-T223236.raw	6/3/2013	7767540
EX1302_EK60_-D20130603-T230649.bot	6/3/2013	9496
EX1302_EK60_-D20130603-T230649.idx	6/3/2013	15976
EX1302_EK60_-D20130603-T230649.raw	6/3/2013	8313232
EX1302_EK60_-D20130603-T234013.bot	6/3/2013	5688
EX1302_EK60_-D20130603-T234013.idx	6/3/2013	9312
EX1302_EK60_-D20130603-T234013.raw	6/3/2013	5159304
EX1302_EK60_-D20130604-T001222.bot	6/3/2013	5528
EX1302_EK60_-D20130604-T001222.idx	6/3/2013	9032

EX1302 EK60 DATA ACQUISITION LOG		
EK60 Filename	Date (GMT)	File Size (bytes)
EX1302_EK60_-D20130604-T001222.raw	6/3/2013	4944452
EX1302_EK60_-D20130604-T004212.bot	6/3/2013	5432
EX1302_EK60_-D20130604-T004212.idx	6/3/2013	8864
EX1302_EK60_-D20130604-T004212.raw	6/3/2013	4810080
EX1302_EK60_-D20130604-T011028.bot	6/3/2013	5272
EX1302_EK60_-D20130604-T011028.idx	6/3/2013	8584
EX1302_EK60_-D20130604-T011028.raw	6/3/2013	4638720
EX1302_EK60_-D20130604-T013737.bot	6/3/2013	5336
EX1302_EK60_-D20130604-T013737.idx	6/3/2013	8696
EX1302_EK60_-D20130604-T013737.raw	6/3/2013	4693884
EX1302_EK60_-D20130604-T020451.bot	6/3/2013	5496
EX1302_EK60_-D20130604-T020451.idx	6/3/2013	8976
EX1302_EK60_-D20130604-T020451.raw	6/3/2013	4821664
EX1302_EK60_-D20130604-T023201.bot	6/3/2013	5496
EX1302_EK60_-D20130604-T023201.idx	6/3/2013	8976
EX1302_EK60_-D20130604-T023201.raw	6/3/2013	4804340
EX1302_EK60_-D20130604-T025841.bot	6/3/2013	5496
EX1302_EK60_-D20130604-T025841.idx	6/3/2013	8976
EX1302_EK60_-D20130604-T025841.raw	6/3/2013	4794064
EX1302_EK60_-D20130604-T032504.bot	6/3/2013	5656
EX1302_EK60_-D20130604-T032504.idx	6/3/2013	9256
EX1302_EK60_-D20130604-T032504.raw	6/3/2013	4928588
EX1302_EK60_-D20130604-T035133.bot	6/3/2013	2072
EX1302_EK60_-D20130604-T035133.idx	6/3/2013	2984
EX1302_EK60_-D20130604-T035133.raw	6/3/2013	1240408
EX1302_EK60_-D20130605-T053840.bot	6/5/2013	4696
EX1302_EK60_-D20130605-T053840.idx	6/5/2013	7576
EX1302_EK60_-D20130605-T053840.raw	6/5/2013	3767340

EX1302 SOUND VELOCITY PROFILE LOG					
DATE (GMT) M/DD/YYYY	TIME (GMT) HHMM	XBT/CTD FILE NAME	LATITUDE (WGS84) (Decimal Minutes)	LONGITUDE (WGS84) (Decimal Minutes)	PROBE TYPE
5/14/2013	0112	EX1302_XBT001_130514.EDF	32 44.40063N	78 28.69141W	DEEP BLUE
5/14/2013	0710	EX1302_XBT002_130514.EDF	32 51.6272N	77 16.20459W	DEEP BLUE
5/14/2013	0957	EX1302_XBT003_130514.EDF	32 55.22388N	76 40.48779W	DEEP BLUE
5/14/2013	1314	EX1302_XBT004_130514.EDF	32 59.44165N	75 58.8584W	DEEP BLUE
5/14/2013	1926	EX1302_XBT005_130514.EDF	33 0.57568N	75 52.96094W	DEEP BLUE
5/15/2013	0550	EX1302_XBT006_130515.EDF	33 31.6687N	75 42.89355W	DEEP BLUE
5/15/2013	0908	EX1302_XBT007_130515.EDF	33 28.72778N	75 40.79053W	DEEP BLUE
5/15/2013	2303	EX1302_XBT008_130515.EDF	35 40.28735N	74 33.43311W	DEEP BLUE
5/16/2013	0029	EX1302_XBT009_130516.EDF	35 52.03931N	74 25.23828W	DEEP BLUE
5/16/2013	0149	EX1302_XBT010_130516.EDF	36 1.75537N	74 18.46289W	DEEP BLUE
5/18/2013	2203	EX1302_XBT011_130518.EDF	36 26.57N	74 42.01W	DEEP BLUE
5/19/2013	0038	EX1302_XBT012_130519.EDF	36 52.48N	74 27.26W	DEEP BLUE
5/19/2013	0235	EX1302_XBT013_130519.EDF	36 52.08N	74 28.77W	DEEP BLUE
5/19/2013	0427	EX1302_XBT014_130519.EDF	36 46.9932N	74 29.670W	DEEP BLUE
5/19/2013	1657	EX1302_XBT015_130519.EDF	36 22.110N	74 38.110W	DEEP BLUE
5/19/2013	2037	EX1302_XBT016_130519.EDF	36 51.25781N	74 30.08496W	DEEP BLUE
5/19/2013	2332	EX1302_XBT017_130519.EDF	36 52.33545N	74 31.51904W	DEEP BLUE
5/20/2013	0157	EX1302_XBT018_130520.EDF	36 58.43359N	74 36.61523W	DEEP BLUE
5/20/2013	0422	EX1302_XBT019_130520.EDF	36 40.86792N	74 40.43408W	DEEP BLUE
5/20/2013	2224	EX1302_XBT020_130520.EDF	36 22.07495N	74 43.25879W	DEEP BLUE
5/21/2013	0136	EX1302_XBT021_130521.EDF	36 23.38452N	74 45.07373W	DEEP BLUE
5/21/2013	0400	EX1302_XBT022_130521.EDF	36 28.63843N	74 47.01953W	DEEP BLUE
5/21/2013	2306	EX1302_XBT023_130521.EDF	36 20.52539N	74 42.55371W	DEEP BLUE
5/22/2013	0128	EX1302_XBT024_130522.EDF	36 0.90161N	74 46.60889W	DEEP BLUE
5/22/2013	0202	EX1302_XBT025_130522.EDF	35 55.87476N	74 47.69727W	DEEP BLUE
5/22/2013	0409	EX1302_XBT026_130522.EDF	35 56.71729N	74 45.69873W	DEEP BLUE
5/22/2013	2301	EX1302_XBT027_130522.EDF	36 51.74097N	74 28.12402W	DEEP BLUE
5/23/2013	0229	EX1302_XBT028_130523.EDF	37 15.30737N	74 28.87549W	DEEP BLUE
5/23/2013	0427	EX1302_XBT029_130523.EDF	37 30.40259N	74 20.37061W	DEEP BLUE
5/23/2013	2234	EX1302_XBT030_130523.EDF	36 57.80127N	74 20.37061W	DEEP BLUE
5/24/2013	0127	EX1302_XBT031_130524.EDF	37 15.70166N	74 24.90234W	DEEP BLUE
5/24/2013	1322	EX1302_XBT032_130524.EDF	36 57.60913N	74 26.01074W	DEEP BLUE
5/27/2013	0006	EX1302_XBT033_130527.EDF	37 13.98071N	74 24.51611W	DEEP BLUE
5/27/2013	0258	EX1302_XBT034_130527.EDF	37 36.44629N	74 15.5083W	DEEP BLUE
5/27/2013	2035	EX1302_XBT035_130527.EDF	38 5.1394N	73 30.16602W	DEEP BLUE
5/27/2013	2333	EX1302_XBT036_130527.EDF	37 55.90747N	72 49.2959W	DEEP BLUE
5/28/2013	0222	EX1302_XBT037_130528.EDF	37 47.34717N	72 11.46143W	DEEP BLUE

EX1302 SOUND VELOCITY PROFILE LOG					
DATE (GMT) M/DD/YYYY	TIME (GMT) HHMM	XBT/CTD FILE NAME	LATITUDE (WGS84) (Decimal Minutes)	LONGITUDE (WGS84) (Decimal Minutes)	PROBE TYPE
5/28/2013	0759	EX1302_XBT038_130528.EDF	37 30.24902N	70 55.88965W	DEEP BLUE
5/28/2013	1050	EX1302_XBT039_130528.EDF	37 25.61963N	70 56.76367W	DEEP BLUE
5/29/2013	1955	EX1302_XBT040_130529.EDF	37 45.6355N	70 36.85059W	DEEP BLUE
5/29/2013	1229	EX1302_XBT041_130529.EDF	38 1.38745N	70 59.0249W	DEEP BLUE
5/30/2013	0122	EX1302_XBT042_130530.EDF	38 8.08008N	71 28.95361W	DEEP BLUE
5/30/2013	2043	EX1302_XBT043_130530.EDF	38 13.98584N	73 19.33643W	DEEP BLUE
5/30/2013	2317	EX1302_XBT044_130530.EDF	38 10.35913N	73 42.82715W	DEEP BLUE
5/31/2013	0218	EX1302_XBT045_130531.EDF	37 49.86084N	74 3.0708W	DEEP BLUE
5/31/2013	2312	EX1302_XBT046_130531.EDF	37 33.32886N	74 17.27783W	DEEP BLUE
6/1/2013	0234	EX1302_XBT047_130601.EDF	37 46.41113N	73 47.71973W	DEEP BLUE
6/1/2013	1800	EX1302_XBT048_130601.EDF	38 57.19482N	72 37.12402W	DEEP BLUE
6/1/2013	2008	EX1302_XBT049_130601.EDF	39 14.18359N	72 24.18262W	DEEP BLUE
6/1/2013	2324	EX1302_XBT050_130601.EDF	39 37.09106N	72 1.03076W	DEEP BLUE
6/2/2013	0207	EX1302_XBT051_130602.EDF	39 53.0752N	71 35.52686W	DEEP BLUE
6/2/2013	2113	EX1302_XBT052_130602.EDF	39 47.26294N	69 59.49023W	DEEP BLUE
6/3/2013	0006	EX1302_XBT053_130603.EDF	39 47.76123N	69 31.11768W	DEEP BLUE
6/3/2013	0251	EX1302_XBT054_130603.EDF	39 40.48511N	68 51.32373W	DEEP BLUE
6/3/2013	0307	EX1302_XBT055_130603.EDF	39 39.81445N	68 47.66504W	DEEP BLUE
6/3/2013	1019	EX1302_XBT056_130603.EDF	39 21.01025N	67 5.18066W	DEEP BLUE
6/3/2013	1908	EX1302_XBT057_130603.EDF	39 17.70801N	67 2.08789W	DEEP BLUE
6/3/2013	2211	EX1302_XBT058_130603.EDF	39 28.28784N	67 22.23242W	DEEP BLUE
6/4/2013	0110	EX1302_XBT059_130604.EDF	39 33.74976N	67 57.93945W	DEEP BLUE
6/4/2013	2354	EX1302_CTD001_130604.cnv	39 48.37 N	069 35.53 W	Seabird SBE9+
6/5/2013	0416	EX1302_XBT060_130605.EDF	39 59.5686N	69 13.85254W	DEEP BLUE

EX1302 SUBBOTTOM PROFILER DATA ACQUISITION LOG		
Date	File size (bytes)	Filename
5/24/2013	14,421	EX1302_SBP_035.kea
5/24/2013	1,147,816	EX1302_SBP_035.keb
5/24/2013	13,849	EX1302_SBP_036.kea
5/24/2013	1,102,186	EX1302_SBP_036.keb
5/24/2013	5,797	EX1302_SBP_037.kea
5/24/2013	459,856	EX1302_SBP_037.keb
5/24/2013	12,001	EX1302_SBP_038.kea
5/24/2013	954,766	EX1302_SBP_038.keb
5/24/2013	17,105	EX1302_SBP_039.kea
5/24/2013	1,361,926	EX1302_SBP_039.keb
5/24/2013	5,005	EX1302_SBP_040.kea
5/24/2013	396,676	EX1302_SBP_040.keb
5/24/2013	5,841	EX1302_SBP_041.kea
5/24/2013	463,366	EX1302_SBP_041.keb
5/24/2013	9,361	EX1302_SBP_042.kea
5/24/2013	744,166	EX1302_SBP_042.keb
5/24/2013	5,929	EX1302_SBP_043.kea
5/24/2013	470,386	EX1302_SBP_043.keb
5/24/2013	9,009	EX1302_SBP_044.kea
5/24/2013	716,086	EX1302_SBP_044.keb
5/24/2013	5,929	EX1302_SBP_045.kea
5/24/2013	470,386	EX1302_SBP_045.keb
5/24/2013	10,549	EX1302_SBP_046.kea
5/24/2013	838,936	EX1302_SBP_046.keb
5/24/2013	5,049	EX1302_SBP_047.kea
5/24/2013	400,186	EX1302_SBP_047.keb
5/24/2013	7,733	EX1302_SBP_048.kea
5/24/2013	614,296	EX1302_SBP_048.keb
5/24/2013	6,149	EX1302_SBP_049.kea
5/24/2013	487,936	EX1302_SBP_049.keb
5/24/2013	10,153	EX1302_SBP_050.kea
5/24/2013	807,346	EX1302_SBP_050.keb
5/24/2013	5,665	EX1302_SBP_051.kea
5/24/2013	449,326	EX1302_SBP_051.keb
5/24/2013	9,361	EX1302_SBP_052.kea
5/24/2013	744,166	EX1302_SBP_052.keb
5/24/2013	3,993	EX1302_SBP_053.kea
5/24/2013	315,946	EX1302_SBP_053.keb
5/24/2013	10,241	EX1302_SBP_054.kea
5/24/2013	814,366	EX1302_SBP_054.keb
5/24/2013	8,745	EX1302_SBP_055.kea
5/24/2013	695,026	EX1302_SBP_055.keb
5/24/2013	4,829	EX1302_SBP_056.kea
5/24/2013	382,636	EX1302_SBP_056.keb
5/24/2013	5,885	EX1302_SBP_057.kea
5/24/2013	466,876	EX1302_SBP_057.keb
5/24/2013	10,725	EX1302_SBP_058.kea

EX1302 SUBBOTTOM PROFILER DATA ACQUISITION LOG		
Date	File size (bytes)	Filename
5/24/2013	852,976	EX1302_SBP_058.keb
5/24/2013	6,193	EX1302_SBP_059.kea
5/24/2013	491,446	EX1302_SBP_059.keb
5/24/2013	8,041	EX1302_SBP_060.kea
5/24/2013	638,866	EX1302_SBP_060.keb
5/24/2013	6,853	EX1302_SBP_061.kea
5/24/2013	544,096	EX1302_SBP_061.keb
5/24/2013	12,661	EX1302_SBP_062.kea
5/24/2013	1,007,416	EX1302_SBP_062.keb
5/24/2013	5,577	EX1302_SBP_063.kea
5/24/2013	442,306	EX1302_SBP_063.keb
5/24/2013	9,141	EX1302_SBP_064.kea
5/24/2013	726,616	EX1302_SBP_064.keb
5/24/2013	6,457	EX1302_SBP_065.kea
5/24/2013	512,506	EX1302_SBP_065.keb
5/24/2013	12,177	EX1302_SBP_066.kea
5/24/2013	968,806	EX1302_SBP_066.keb
5/24/2013	7,161	EX1302_SBP_067.kea
5/24/2013	568,666	EX1302_SBP_067.keb
5/24/2013	10,329	EX1302_SBP_068.kea
5/24/2013	821,386	EX1302_SBP_068.keb
5/24/2013	4,697	EX1302_SBP_069.kea
5/24/2013	372,106	EX1302_SBP_069.keb
5/24/2013	11,341	EX1302_SBP_070.kea
5/24/2013	902,116	EX1302_SBP_070.keb
5/24/2013	6,237	EX1302_SBP_071.kea
5/24/2013	494,956	EX1302_SBP_071.keb
5/24/2013	9,009	EX1302_SBP_072.kea
5/24/2013	716,086	EX1302_SBP_072.keb
5/24/2013	9,405	EX1302_SBP_073.kea
5/24/2013	747,676	EX1302_SBP_073.keb
5/24/2013	9,625	EX1302_SBP_074.kea
5/24/2013	765,226	EX1302_SBP_074.keb
5/24/2013	6,061	EX1302_SBP_075.kea
5/24/2013	480,916	EX1302_SBP_075.keb
5/24/2013	8,393	EX1302_SBP_076.kea
5/24/2013	666,946	EX1302_SBP_076.keb
5/24/2013	7,513	EX1302_SBP_077.kea
5/24/2013	596,746	EX1302_SBP_077.keb
5/24/2013	10,285	EX1302_SBP_078.kea
5/24/2013	817,876	EX1302_SBP_078.keb
5/24/2013	8,041	EX1302_SBP_079.kea
5/24/2013	638,866	EX1302_SBP_079.keb
5/24/2013	7,513	EX1302_SBP_080.kea
5/24/2013	596,746	EX1302_SBP_080.keb
5/24/2013	8,833	EX1302_SBP_081.kea
5/24/2013	702,046	EX1302_SBP_081.keb

EX1302 SUBBOTTOM PROFILER DATA ACQUISITION LOG		
Date	File size (bytes)	Filename
5/27/2013	30,921	EX1302_SBP_100.kea
5/27/2013	2,464,066	EX1302_SBP_100.keb
5/25/2013	429	EX1302_SBP_107.kea
5/25/2013	31,636	EX1302_SBP_107.keb
5/25/2013	121,957	EX1302_SBP_108.kea
5/25/2013	9,726,262	EX1302_SBP_108.keb
5/25/2013	38,929	EX1302_SBP_109.kea
5/25/2013	3,102,886	EX1302_SBP_109.keb
5/25/2013	2,189	EX1302_SBP_110.kea
5/25/2013	172,036	EX1302_SBP_110.keb
5/25/2013	56,353	EX1302_SBP_111.kea
5/25/2013	4,492,846	EX1302_SBP_111.keb
5/25/2013	171,061	EX1302_SBP_112.kea
5/25/2013	13,643,416	EX1302_SBP_112.keb
5/29/2013	4,081	EX1302_SBP_113.kea
5/29/2013	322,966	EX1302_SBP_113.keb
5/29/2013	132,341	EX1302_SBP_114.kea
5/29/2013	10,554,616	EX1302_SBP_114.keb
5/29/2013	70,521	EX1302_SBP_115.kea
5/29/2013	5,623,066	EX1302_SBP_115.keb
5/30/2013	15,433	EX1302_SBP_118.kea
5/30/2013	1,228,546	EX1302_SBP_118.keb
5/30/2013	11,957	EX1302_SBP_119.kea
5/30/2013	951,256	EX1302_SBP_119.keb
5/30/2013	3,421	EX1302_SBP_120.kea
5/30/2013	270,316	EX1302_SBP_120.keb
5/30/2013	82,049	EX1302_SBP_121.kea
5/30/2013	6,542,686	EX1302_SBP_121.keb
5/30/2013	11,209	EX1302_SBP_122.kea
5/30/2013	891,586	EX1302_SBP_122.keb
5/30/2013	38,357	EX1302_SBP_123.kea
5/30/2013	3,057,256	EX1302_SBP_123.keb
5/30/2013	10,549	EX1302_SBP_124.kea
5/30/2013	838,936	EX1302_SBP_124.keb
6/1/2013	25,157	EX1302_SBP_130.kea
6/1/2013	2,004,256	EX1302_SBP_130.keb
6/1/2013	10,549	EX1302_SBP_131.kea
6/1/2013	838,936	EX1302_SBP_131.keb
6/1/2013	126,709	EX1302_SBP_132.kea
6/1/2013	10,105,336	EX1302_SBP_132.keb
6/1/2013	119,889	EX1302_SBP_133.kea
6/1/2013	9,561,286	EX1302_SBP_133.keb
6/3/2013	61,149	EX1302_SBP_141.kea
6/3/2013	4,875,436	EX1302_SBP_141.keb
6/2/2013	31,625	EX1302_SBP_147.kea
6/2/2013	2,520,226	EX1302_SBP_147.keb
5/13/2013	8,050,856	EX1302_SBP_70870_3.5kHz_001.sgy

EX1302 SUBBOTTOM PROFILER DATA ACQUISITION LOG		
Date	File size (bytes)	Filename
5/15/2013	26,223,780	EX1302_SBP_70870_3.5kHz_002.sgy
5/24/2013	4,545,630	EX1302_SBP_70870_3.5kHz_0025.sgy
5/24/2013	4,365,060	EX1302_SBP_70870_3.5kHz_0026.sgy
5/24/2013	1,823,190	EX1302_SBP_70870_3.5kHz_0027.sgy
5/24/2013	3,781,680	EX1302_SBP_70870_3.5kHz_0028.sgy
5/24/2013	5,392,920	EX1302_SBP_70870_3.5kHz_0029.sgy
5/15/2013	20,438,910	EX1302_SBP_70870_3.5kHz_003.sgy
5/24/2013	1,573,170	EX1302_SBP_70870_3.5kHz_0030.sgy
5/24/2013	1,837,080	EX1302_SBP_70870_3.5kHz_0031.sgy
5/15/2013	31,272	EX1302_SBP_70870_3.5kHz_004.sgy
5/15/2013	15,475,560	EX1302_SBP_70870_3.5kHz_005.sgy
5/15/2013	26,223,780	EX1302_SBP_70870_3.5kHz_006.sgy
5/15/2013	5,720,010	EX1302_SBP_70870_3.5kHz_007.sgy
5/19/2013	3,700,236	EX1302_SBP_70870_3.5kHz_008.sgy
5/19/2013	210,888	EX1302_SBP_70870_3.5kHz_009.sgy
5/19/2013	72,696	EX1302_SBP_70870_3.5kHz_010.sgy
5/19/2013	26,225,532	EX1302_SBP_70870_3.5kHz_011.sgy
5/19/2013	20,352,372	EX1302_SBP_70870_3.5kHz_012.sgy
5/19/2013	2,871,084	EX1302_SBP_70870_3.5kHz_013.sgy
5/19/2013	4,287,552	EX1302_SBP_70870_3.5kHz_014.sgy
5/19/2013	1,903,740	EX1302_SBP_70870_3.5kHz_015.sgy
5/19/2013	2,007,384	EX1302_SBP_70870_3.5kHz_016.sgy
5/19/2013	3,665,688	EX1302_SBP_70870_3.5kHz_017.sgy
5/19/2013	1,800,096	EX1302_SBP_70870_3.5kHz_018.sgy
5/19/2013	3,354,756	EX1302_SBP_70870_3.5kHz_019.sgy
5/19/2013	3,112,920	EX1302_SBP_70870_3.5kHz_020.sgy
5/19/2013	2,732,892	EX1302_SBP_70870_3.5kHz_021.sgy
5/19/2013	2,698,344	EX1302_SBP_70870_3.5kHz_022.sgy
5/19/2013	3,182,016	EX1302_SBP_70870_3.5kHz_023.sgy
5/19/2013	2,283,768	EX1302_SBP_70870_3.5kHz_024.sgy
5/20/2013	603,966	EX1302_SBP_70870_3.5kHz_025.sgy
5/20/2013	1,561,296	EX1302_SBP_70870_3.5kHz_026.sgy
5/20/2013	434,190	EX1302_SBP_70870_3.5kHz_027.sgy
5/20/2013	4,865,100	EX1302_SBP_70870_3.5kHz_028.sgy
5/20/2013	1,017,570	EX1302_SBP_70870_3.5kHz_029.sgy
5/20/2013	864,780	EX1302_SBP_70870_3.5kHz_030.sgy
5/20/2013	4,323,390	EX1302_SBP_70870_3.5kHz_031.sgy
5/24/2013	2,948,280	EX1302_SBP_70870_3.5kHz_032.sgy
5/24/2013	1,864,860	EX1302_SBP_70870_3.5kHz_033.sgy
5/24/2013	2,837,160	EX1302_SBP_70870_3.5kHz_034.sgy
5/24/2013	1,864,860	EX1302_SBP_70870_3.5kHz_035.sgy
5/24/2013	3,323,310	EX1302_SBP_70870_3.5kHz_036.sgy
5/24/2013	1,587,060	EX1302_SBP_70870_3.5kHz_037.sgy
5/24/2013	2,434,350	EX1302_SBP_70870_3.5kHz_038.sgy
5/24/2013	1,934,310	EX1302_SBP_70870_3.5kHz_039.sgy
5/24/2013	3,198,300	EX1302_SBP_70870_3.5kHz_040.sgy
5/24/2013	1,781,520	EX1302_SBP_70870_3.5kHz_041.sgy

EX1302 SUBBOTTOM PROFILER DATA ACQUISITION LOG		
Date	File size (bytes)	Filename
5/24/2013	2,948,280	EX1302_SBP_70870_3.5kHz_042.sgy
5/24/2013	1,253,700	EX1302_SBP_70870_3.5kHz_043.sgy
5/24/2013	3,226,080	EX1302_SBP_70870_3.5kHz_044.sgy
5/24/2013	2,753,820	EX1302_SBP_70870_3.5kHz_045.sgy
5/24/2013	1,517,610	EX1302_SBP_70870_3.5kHz_046.sgy
5/24/2013	1,850,970	EX1302_SBP_70870_3.5kHz_047.sgy
5/24/2013	3,378,870	EX1302_SBP_70870_3.5kHz_048.sgy
5/24/2013	1,948,200	EX1302_SBP_70870_3.5kHz_049.sgy
5/24/2013	2,531,580	EX1302_SBP_70870_3.5kHz_050.sgy
5/24/2013	2,156,550	EX1302_SBP_70870_3.5kHz_051.sgy
5/24/2013	3,990,030	EX1302_SBP_70870_3.5kHz_052.sgy
5/24/2013	1,753,740	EX1302_SBP_70870_3.5kHz_053.sgy
5/24/2013	2,878,830	EX1302_SBP_70870_3.5kHz_054.sgy
5/24/2013	2,031,540	EX1302_SBP_70870_3.5kHz_055.sgy
5/24/2013	3,837,240	EX1302_SBP_70870_3.5kHz_056.sgy
5/24/2013	2,253,780	EX1302_SBP_70870_3.5kHz_057.sgy
5/24/2013	3,253,860	EX1302_SBP_70870_3.5kHz_058.sgy
5/24/2013	1,475,940	EX1302_SBP_70870_3.5kHz_059.sgy
5/24/2013	3,573,330	EX1302_SBP_70870_3.5kHz_060.sgy
5/24/2013	1,962,090	EX1302_SBP_70870_3.5kHz_061.sgy
5/24/2013	2,837,160	EX1302_SBP_70870_3.5kHz_062.sgy
5/24/2013	2,962,170	EX1302_SBP_70870_3.5kHz_063.sgy
5/24/2013	3,031,620	EX1302_SBP_70870_3.5kHz_064.sgy
5/24/2013	1,906,530	EX1302_SBP_70870_3.5kHz_065.sgy
5/24/2013	2,642,700	EX1302_SBP_70870_3.5kHz_066.sgy
5/24/2013	2,364,900	EX1302_SBP_70870_3.5kHz_067.sgy
5/24/2013	3,239,970	EX1302_SBP_70870_3.5kHz_068.sgy
5/24/2013	2,531,580	EX1302_SBP_70870_3.5kHz_069.sgy
5/24/2013	2,364,900	EX1302_SBP_70870_3.5kHz_070.sgy
5/24/2013	2,781,600	EX1302_SBP_70870_3.5kHz_071.sgy
5/25/2013	129,186	EX1302_SBP_70870_3.5kHz_072.sgy
5/25/2013	394,312	EX1302_SBP_70870_3.5kHz_073.sgy
5/25/2013	141,696	EX1302_SBP_70870_3.5kHz_074.sgy
5/25/2013	26,223,166	EX1302_SBP_70870_3.5kHz_075.sgy
5/25/2013	11,976,132	EX1302_SBP_70870_3.5kHz_076.sgy
5/25/2013	12,338,936	EX1302_SBP_70870_3.5kHz_077.sgy
5/25/2013	687,346	EX1302_SBP_70870_3.5kHz_078.sgy
5/25/2013	17,864,720	EX1302_SBP_70870_3.5kHz_079.sgy
5/25/2013	26,223,166	EX1302_SBP_70870_3.5kHz_080.sgy
5/25/2013	26,223,166	EX1302_SBP_70870_3.5kHz_081.sgy
5/25/2013	1,803,666	EX1302_SBP_70870_3.5kHz_082.sgy
5/27/2013	9,799,308	EX1302_SBP_70870_3.5kHz_100.sgy
5/29/2013	1,287,368	EX1302_SBP_70870_3.5kHz_101.sgy
5/29/2013	1,399,000	EX1302_SBP_70870_3.5kHz_102.sgy
5/29/2013	279,792	EX1302_SBP_70870_3.5kHz_103.sgy
5/29/2013	10,321,356	EX1302_SBP_70870_3.5kHz_104.sgy
5/29/2013	26,224,020	EX1302_SBP_70870_3.5kHz_105.sgy

EX1302 SUBBOTTOM PROFILER DATA ACQUISITION LOG		
Date	File size (bytes)	Filename
5/29/2013	9,363,120	EX1302_SBP_70870_3.5kHz_106.sgy
5/29/2013	15,928,548	EX1302_SBP_70870_3.5kHz_107.sgy
5/29/2013	6,232,710	EX1302_SBP_70870_3.5kHz_108.sgy
5/30/2013	12,195,858	EX1302_SBP_70870_3.5kHz_112.sgy
5/30/2013	675,504	EX1302_SBP_70870_3.5kHz_113.sgy
5/30/2013	143,580	EX1302_SBP_70870_3.5kHz_115.sgy
5/30/2013	4,902,900	EX1302_SBP_70870_3.5kHz_116.sgy
5/30/2013	3,797,058	EX1302_SBP_70870_3.5kHz_117.sgy
5/30/2013	1,081,446	EX1302_SBP_70870_3.5kHz_118.sgy
5/30/2013	26,095,872	EX1302_SBP_70870_3.5kHz_119.sgy
5/30/2013	3,559,092	EX1302_SBP_70870_3.5kHz_120.sgy
5/30/2013	3,349,122	EX1302_SBP_70870_3.5kHz_121.sgy
6/1/2013	7,478,532	EX1302_SBP_70870_3.5kHz_125.sgy
6/1/2013	1,285,206	EX1302_SBP_70870_3.5kHz_126.sgy
6/1/2013	3,349,122	EX1302_SBP_70870_3.5kHz_130.sgy
6/1/2013	1,384,492	EX1302_SBP_70870_3.5kHz_131.sgy
6/1/2013	26,221,854	EX1302_SBP_70870_3.5kHz_132.sgy
6/1/2013	11,355,978	EX1302_SBP_70870_3.5kHz_133.sgy
6/1/2013	10,718	EX1302_SBP_70870_3.5kHz_134.sgy
6/1/2013	758,108	EX1302_SBP_70870_3.5kHz_135.sgy
6/1/2013	26,221,854	EX1302_SBP_70870_3.5kHz_136.sgy
6/1/2013	10,432,110	EX1302_SBP_70870_3.5kHz_137.sgy
6/2/2013	7,002,600	EX1302_SBP_70870_3.5kHz_138.sgy
6/2/2013	5,614,956	EX1302_SBP_70870_3.5kHz_139.sgy
6/2/2013	675,504	EX1302_SBP_70870_3.5kHz_140.sgy
6/3/2013	5,798,772	EX1302_SBP_70870_3.5kHz_141.sgy
6/3/2013	15,659,976	EX1302_SBP_70870_3.5kHz_142.sgy
6/3/2013	521,526	EX1302_SBP_70870_3.5kHz_143.sgy
6/3/2013	3,434,476	EX1302_SBP_70870_3.5kHz_144.sgy

EX1302 EM 302 BUILT IN SYSTEM TEST (BIST) LOG									
BIST FILE NAME	DATE (UTC) (MM/DD/YY)	TIME (GMT)	BIST TYPE	Broadband Max RX Noise (dB)/Board/Channel	Broadband Avg RX Noise Board 1 (dB)	Broadband Avg RX Noise Board 2 (dB)	Broadband Avg RX Noise Board 3 (dB)	Broadband Avg RX Noise Board 4 (dB)	NOTES
BIST_May_12_2013_HWS_N3	5/12/2013	1603	ALL	Board 4 Channel 9 Level: 74.8 d	69.6 dB	68.2 dB	69.8 dB	70.7 dB	HIGH NUMBERS AT THE DOCK
BIST_May_13_2013_HWS_N3	5/13/2013	1325	ALL	Board 1 Channel 0 Level: 56.1 dB	52.7 dB	51.9 dB	52.2 dB	51.8 dB	HIGH NUMBERS IN NARRAGANSETT BAY
BIST_May_13_2013_HWS_051613_duringEK60cal	5/16/2013	1841	ALL	Board 2 Channel 17 Level: 64.8 dB	63.4 dB	62.9 dB	62.3 dB	60.6 dB	HIGH NUMBERS POSSIBLY DUE TO EK 60 CAL OPS
BIST_May_22_EX1302	5/22/2013	1037	ALL	Board 1 Channel 0 Level: 47.6 dB	41.6 dB	40.4 dB	40.2 dB	40.4 dB	ALL PASS EXCEPT RX32
BIST_May_22_EX1302-RX32pass	5/22/2013	1037	RX32	-	-	-	-	-	RX32 OK
BIST_May_22_2_EX1302	5/22/2013	1136	ALL	Board 1 Channel 0 Level: 50.9 dB	44.5 dB	44.5 dB	44.5 dB	44.5 dB	ALL PASS
BIST_May_28_EX1302	5/28/2013	1312	ALL	Board 1 Channel 0 Level: 48.0 dB	44.0 dB	43.3 dB	42.7 dB	41.6 dB	ALL PASS
BIST_Jun_03_EX1302	6/3/2013	1246	ALL	Board 1 Channel 0 Level: 47.3 dB	41.3 dB	40.1 dB	39.7 dB	39.9 dB	ALL PASS
BIST_June_06_EX1302	6/6/2013	529	ALL	Board 4 Channel 0 Level: 66.3 dB	61.9 dB	61.4 dB	61.9 dB	62.2 dB	TX36 & RX32 TEMPERATURE TEST FAILURES. REPORTED TEMPS JUST BELOW SPEC.
BIST_June_06_TX36_RX32_PASS_EX1302	6/6/2013	1118	ALL	Board 4 Channel 14 Level: 66.1 dB	59.7 dB	62.1 dB	63.2 dB	63.0 dB	TEMPS STILL IN SAME RANGE.

## 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 depth 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			
	1 deg RX center	90 deg	120 deg	140 deg
50	1	0.5	1	1
100	2	1	2	3
200	4	2	3	5
400	7	4	6	10
1000	18	9	16	25
2000	35	19	32	-



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6000	70	37	-	-
7000	105	56	-	-

**Table 3. Calculated across track EM 302 beam footprint. Reference: Kongsberg Product description, Kongsberg document 302675 Rev B, Date 14/06/06, p. 17.**

<b>Calculated across track sounding density for EM 302 (high density ping mode, 432 soundings/profile)</b>			
<b>Water depth (m)</b>	<b>Swath Width</b>		
	90 deg	120 deg	140 deg
50			
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 4. Calculated across track EM 302 sounding density. Reference: Kongsberg Product description, Kongsberg document 302675 Rev B, Date 14/06/06, p. 17.**

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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.

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<b>Calculated ping rate and alongtrack resolution for EM 302</b>					
<b>140 deg swath, one profile per ping</b>					
<b>Water depth (m)</b>	<b>Swath Width (m)</b>	<b>Ping Rate (pings/second)</b>	<b>Alongtrack distance between profiles (m)</b>		
			<b>@4 kts</b>	<b>@8 kts</b>	<b>@12 kts</b>
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 5. Calculated ping rate and along track EM 302 sounding density, one profile per ping. Reference: Kongsberg Product description, Kongsberg document 302675 Rev B, Date 14/06/06, p. 15.**

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<b>Calculated ping rate and alongtrack resolution for EM 302</b>					
<b>140 deg swath, two profiles per ping</b>					
<b>Water depth (m)</b>	<b>Swath Width (m)</b>	<b>Ping Rate</b>	<b>Alongtrack distance between profiles (m)</b>		
			<b>@4 kts</b>	<b>@8 kts</b>	<b>@12 kts</b>
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 6. Calculated ping rate and along track EM 302 sounding density, two profiles per ping. Reference: Kongsberg Product description, Kongsberg document 302675 Rev B, Date 14/06/06, p. 15.**

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Reference: Kongsberg Product Description: EM 302 MultibeamEchosounder

## Appendix H: Acronyms

- ASCII – American Standard Code for Information Interchange
- ACUMEN - Atlantic Canyons Undersea Mapping Expeditions
- AUV – autonomous underwater vehicle
- BIST – built in system test
- CDR – Commander
- CO – Commanding Officer
- CTD – conductivity, temperature, depth
- dB - decibel
- CW – continuous wave
- DEG - degrees
- DNP – do not process
- DO - dissolved oxygen
- DP - dynamic position(ing)
- ECS – Extended Continental Shelf
- ERT – Earth Resources Technology Inc.
- ET – Electronics Technician
- EX – NOAA Ship *Okeanos Explorer*
- FM – frequency modulated / modulation
- FT - feet
- FTP – file transfer protocol
- IFREMER - Institutfrançais de recherche pour l'exploitation de la mer
- GB - gigabytes(s)
- KB - kilobytes(s)
- kHz – kilohertz
- km – kilometer
- kts – knots
- LT – Lieutenant
- LSS - light scattering sensor
- m - meters
- MB – multibeam sonar
- MB – megabytes(s)
- 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
- NOPP – National Ocean Partnership Program
- OER – NOAA Office of Ocean Exploration and Research
- OMAO – NOAA Office of Marine and Aviation Operations
- OPS – Operations Officer
- ORP - oxygen reduction potential
- ROV – remotely operated vehicle
- RPM - rotations per minute
- RX - receive

- SBP – subbottom profiler
- SCS – scientific computer system
- SIS – Seafloor Information System
- SVP – sound velocity profile
- TRU – transceiver unit
- TSG - thermosalinograph
- TX - transmit
- UCAR – University Corporation for Atmospheric Research
- UPS – uninterruptable power supply
- USBL – ultrashort baseline
- USGS – United States Geological Survey
- UTC - Coordinated Universal Time
- VA - Virginia
- WD – water depth
- WHOI – Woods Hole Oceanographic Institution
- XBT – expendable bathythermograph
- XO – Executive Officer

## Appendix I: Weather Log

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

EX1302 Weather Log								
Local Date	Local Time	UTC Time	UTC Date	Wind Direction (deg)	Wind Speed (kts)	Wave Height (ft)	Swell Direction (deg)	Swell Height (ft)
3/19/2013	0200	0600	3/19/2013	110	34	5-7	110	5-7
3/19/2013	0500	0900	3/19/2013	110	41	8-10	110	8-10
5/13/2013	2000	0000	5/14/2012	280	5	0-1	040	3-4
5/13/2013	2300	0300	5/14/2012	na	na	1-2	035	3-4
5/14/2012	0200	0600	5/14/2012	350	15	1-2	40	3-4
5/14/2012	0500	0900	5/14/2012	345	15	2-3	050	3-5
5/14/2012	0800	1200	5/14/2012	000	18	2-3	070	4-5
5/14/2012	1100	1500	5/14/2012	338	12	2-3	050	3-5
5/14/2012	1400	1800	5/14/2012	340	16	2-3	040	3-4
5/14/2012	1700	2100	5/14/2012	280	10	2-3	050	3-4
5/14/2012	2000	0000	5/15/2013	305	20	1-2	010	3-4
5/14/2012	2100	0100	5/15/2013	310	15	1-2	010	2-4
5/14/2012	2200	0200	5/15/2013	290	10	1-2	010	2-4
5/14/2012	2300	0300	5/15/2013	270	10	1-2	010	2-4
5/15/2013	0000	0400	5/15/2013	250	08	1-2	010	2-4
5/15/2013	0100	0500	5/15/2013	250	12	1-2	010	2-3
5/15/2013	0200	0600	5/15/2013	260	9	1-2	010	2-3
5/15/2013	0300	0700	5/15/2013	275	8	1-2	010	2-3
5/15/2013	0400	0800	5/15/2013	250	9	1-2	030	2-3
5/15/2013	0500	0900	5/15/2013	240	10	1-2	020	2-3
5/15/2013	0600	1000	5/15/2013	210	8	1-2	030	2-3
5/15/2013	0700	1100	5/15/2013	240	8	1-2	030	2-3
5/15/2013	0800	1200	5/15/2013	220	13	1-2	040	2-3
5/15/2013	0900	1300	5/15/2013	230	13	1-2	040	2-3
5/15/2013	1000	1400	5/15/2013	225	20	1-2	30	2-3
5/15/2013	1100	1500	5/15/2013	223	18	1-2	30	2-3
5/15/2013	1200	1600	5/15/2013	210	19	1-2	210/40	2-3
5/15/2013	1300	1700	5/15/2013	200	26	2-3	210/40	2-3
5/15/2013	1400	1800	5/15/2013	215	26	2-3	210/40	2-4
5/15/2013	1500	1900	5/15/2013	210	25	2-3	210	3-4
5/15/2013	1600	2000	5/15/2013	220	27	2-3	230	4-6
5/15/2013	1700	2100	5/15/2013	225	25	2-3	230	4-6
5/15/2013	1800	2200	5/15/2013	230	31	2-3	230	4-6
5/15/2013	2000	0000	5/16/2013	220	30	2-3	220	5
5/15/2012	2300	0300	5/16/2013	220	25	2-4	220-250	5-7
5/16/2013	0200	0600	5/16/2013	215	23	3-4	220	4-5

EX1302 Weather Log								
Local Date	Local Time	UTC Time	UTC Date	Wind Direction (deg)	Wind Speed (kts)	Wave Height (ft)	Swell Direction (deg)	Swell Height (ft)
5/16/2013	0500	0900	5/16/2013	220	17	2-3	170/250	3-5
5/16/2013	0800	1200	5/16/2013	230	13	1-2	170	3-4
5/18/2013	0200	0600	5/18/2013	095	11	1-2	060/110	2-3
5/18/2013	0500	0900	5/18/2013	105	13	1-2	090	2-3
5/18/2013	0800	1200	5/18/2013	075	15	1-2	090	2-3
5/18/2013	1100	1500	5/18/2013	035	10	1-2	090	2-3
5/18/2013	1400	1800	5/18/2013	085	12	1-2	080	2-3
5/18/2013	1700	2100	5/18/2013	120	14	1-2	090	2-3
5/18/2013	2000	0000	5/19/2013	135	15	1-3	080	3-4
5/18/2013	2300	0300	5/19/2013	na	na	na	na	na
5/19/2013	0200	0600	5/19/2013	150	17	2-3	080	3-4
5/19/2013	0500	0900	5/19/2013	165	15	2-3	100	3-5
5/19/2013	0800	1200	5/19/2013	185	10	2-3	030/140	5-6
5/19/2013	1100	1500	5/19/2013	200	8	2-3	120-165	3-5
5/19/2013	1400	1800	5/19/2013	060	4	1-2	140/170	3-4/2-3
5/19/2013	1700	2100	5/19/2013	140	20	1-3	085/185	4-2
5/19/2013	2000	0000	5/20/2013	150	15	1-3	085/160	3-5
5/19/2013	2300	0300	5/20/2013	na	na	na	na	na
5/20/2013	0200	0600	5/20/2013	180	14	1-2	080/180	3-4
5/20/2013	0500	0900	5/20/2013	200	17	1-2	150	3-4
5/20/2013	0800	1200	5/20/2013	170	8	1-2	190	3-4
5/20/2013	1100	1500	5/20/2013	180	6	1-2	140/080	3-4
5/20/2013	1400	1800	5/20/2013	175	10	1-2	140/090	3-4
5/20/2013	1700	2100	5/20/2013	180	13	1-2	140	3-4
5/20/2013	2000	0000	5/21/2013	200	15	1-2	170	2-4
5/20/2013	2300	0300	5/21/2013	200	20	1-2	175	2-3
5/21/2013	0200	0600	5/21/2013	220	13	1-2	140	3-4
5/21/2013	0500	0900	5/21/2013	205	10	1-2	140	3-4
5/21/2013	0800	1200	5/21/2013	200	10	1-2	140	3-4
5/21/2013	1100	1500	5/21/2013	190	14	1-2	160	2-4
5/21/2013	1400	1800	5/21/2013	200	15	1-2	160	2-3
5/21/2013	1700	2100	5/21/2013	205	18	1-2	170	2-3
5/21/2013	2000	0000	5/22/2013	205	15	1-2	185	2-3
5/21/2013	2300	0300	5/22/2013	205	15	1-2	190	1-3
5/22/2013	0200	0600	5/22/2013	210	12	1-2	160	2-3
5/22/2013	0500	0900	5/22/2013	200	14	1-2	190	2-3
5/22/2013	0800	1200	5/22/2013	210	16	1-2	180	3-4
5/22/2013	1100	1500	5/22/2013	195	18	1-2	190	3-4
5/22/2013	1400	1800	5/22/2013	200	16	1-3	170	3-4

EX1302 Weather Log								
Local Date	Local Time	UTC Time	UTC Date	Wind Direction (deg)	Wind Speed (kts)	Wave Height (ft)	Swell Direction (deg)	Swell Height (ft)
5/22/2013	1700	2100	5/22/2013	190	20	1-2	180	3-4
5/22/2013	2000	0000	5/23/2013	185	20	1-2	200	3-4
5/22/2013	2300	0300	5/23/2013	190	12	1-2	200	1-3
5/23/2013	0200	0600	5/23/2013	210	20	1-2	170	2-3
5/23/2013	0500	0900	5/23/2013	185	14	1-2	170	2-3
5/23/2013	0800	1200	5/23/2013	170	15	1-2	170	3-4
5/23/2013	1100	1500	5/23/2013	180	13	2-3	170	3-4
5/23/2013	1400	1800	5/23/2013	185	17	2-4	170	4-6
5/23/2013	1700	2100	5/23/2013	175	17	3-4	170	5-6
5/23/2013	2000	0000	5/24/2013	170	12	1-3	175	1-3
5/23/2013	2300	0300	5/24/2013	195	20	1-3	180	2-4
5/24/2013	0200	0600	5/24/2013	205	16	3-4	160	4-5
5/24/2013	0500	0900	5/24/2013	250	11	3-4	170	5-6
5/24/2013	0800	1200	5/24/2013	215	10	3-4	155	5-6
5/24/2013	1100	1500	5/24/2013	270	10	3-4	170	5-7
5/24/2013	1400	1800	5/24/2013	350	16	3-4	170	4-6
5/24/2013	1700	2100	5/24/2013	340	28	5-6	310	6-8
5/24/2013	2000	0000	5/25/2013	320	32	5-6	335	5-8
5/24/2013	2300	0300	5/25/2013	325	25	3-5	335	5-8
5/25/2013	0200	0600	5/25/2013	325	27	4-5	330	6-8
5/25/2013	0500	0900	5/25/2013	310	22	4-5	330	6-8
5/25/2013	0800	1200	5/25/2013	320	30	4-5	330	6-8
5/25/2013	1100	1500	5/25/2013	300	22	5-6	300	8-10
5/25/2013	1400	1800	5/25/2013	295	27	4-6	300	7-9
5/25/2013	1700	2100	5/25/2013	305	18	3-4	310	6-8
5/25/2013	2000	0000	5/26/2013	285	15	1-3	320	3-5
5/25/2013	2300	0300	5/26/2013	260	13	1-3	315	3-5
5/26/2013	0200	0600	5/26/2013	295	23	2-3	320	3-5
5/26/2013	0500	0900	5/26/2013	345	11	2-3	310	3-5
5/26/2013	0800	1200	5/26/2013	310	8	2-3	350	3-4
5/26/2013	1100	1500	5/26/2013	300	13	2-3	340	2-3
5/26/2013	1400	1800	5/26/2013	260	15	2-3	350/300	2-3
5/26/2013	1700	2100	5/26/2013	250	11	2-3	270	2-3
5/26/2013	2000	0000	5/27/2013	250	10	1-3	300	1-3
5/26/2013	2300	0300	5/27/2013	240	10	1-3	300	1-2
5/27/2013	0200	0600	5/27/2013	230	10	1-2	300	1-2
5/27/2013	0500	0900	5/27/2013	310	11	1-2	260	1-2
5/27/2013	0800	1200	5/27/2013	245	12	1-2	220	1-2
5/27/2013	1100	1500	5/27/2013	236	11	1-2	220	1-2

EX1302 Weather Log										
Local Date	Local Time	UTC Time	UTC Date	Wind Direction (deg)	Wind Speed (kts)	Wave Height (ft)	Swell Direction (deg)	Swell Height (ft)		
5/27/2013	1400	1800	5/27/2013	240	12	1-2	150	1-2		
5/27/2013	1700	2100	5/27/2013	220	17	1-2	230	1-2		
5/27/2013	2000	0000	5/28/2013	220	15	1	245/150	1-2		
5/27/2013	2300	0300	5/28/2013	220	13	1	150	1-2		
5/28/2013	0200	0600	5/28/2013	223	14	1	240	1-2		
5/28/2013	0500	0900	5/28/2013	230	11	0-1	200	1-2		
5/28/2013	0800	1200	5/28/2013	195	10	1	190	1-2		
5/28/2013	1100	1500	5/28/2013	220	9	1	180	1-2		
5/28/2013	1400	1800	5/28/2013	195	8	1	170	1-2		
5/28/2013	1700	2100	5/28/2013	195	8	0-1	160/200	1-2		
5/28/2013	2000	0000	5/29/2013	180	13	CALM				
5/28/2013	2300	0300	5/29/2013	n/a						
5/29/2013	0200	0600	5/29/2013	200	18	1-2	150	2-3		
5/29/2013	0500	0900	5/29/2013	220	18	1-2	180	2-3		
5/29/2013	0800	1200	5/29/2013	230	16	1-2	190	2-3		
5/29/2013	1100	1500	5/29/2013	225	18	1-2	180	2-3		
5/29/2013	1400	1800	5/29/2013	210	20	2-3	180	2-3		
5/29/2013	1700	2100	5/29/2013	205	18	2-3	210	4-5		
5/29/2013	2000	0000	5/30/2013	200	20	2-3	200	2-4		
5/29/2013	2300	0300	5/30/2013	195	20	3-4	210	3-5		
5/30/2013	0200	0600	5/30/2013	210	18	2-3	200	3-4		
5/30/2013	0500	0900	5/30/2013	220	18	2-3	230	3-4		
5/30/2013	0800	1200	5/30/2013	220	20	2-3	220	3-4		
5/30/2013	1100	1500	5/30/2013	220	17	4-5	Combined			
5/30/2013	1400	1800	5/30/2013	230	15	1-3	210/170	2-3		
5/30/2013	1700	2100	5/30/2013	205	18	1-2	210	2-3		
5/30/2013	2000	0000	5/31/2013	200	15	1-3	185	3-4		
5/30/2013	2300	0300	5/31/2013	210	15	1-2	190	3-4		
5/31/2013	0200	0600	5/31/2013	210	19	1-2	160	2-3		
5/31/2013	0500	0900	5/31/2013	210	12	1-2	170	2-3		
5/31/2013	0800	1200	5/31/2013	210	10	0-1	160	1-2		
5/31/2013	1100	1500	5/31/2013	224	13	1-2	170	2-3		
5/31/2013	1400	1800	5/31/2013	200	12	1-2	170	2-3		
5/31/2013	1700	2100	5/31/2013	210	16	1-2	170	2-3		
5/31/2013	2000	0000	06/01/2013	200	13	1-2	190	2-3		
5/31/2013	2300	0300	06/01/2013	210	15	1-2	175	2-3		
06/01/2013	0200	0600	06/01/2013	210	15	1-2	180	2-3		
06/01/2013	0500	0900	06/01/2013	215	15	1-2	180	2-3		
06/01/2013	0800	1200	06/01/2013	220	17	1-2	200	2-3		



EX1302 Weather Log								
Local Date	Local Time	UTC Time	UTC Date	Wind Direction (deg)	Wind Speed (kts)	Wave Height (ft)	Swell Direction (deg)	Swell Height (ft)
06/01/2013	1100	1500	06/01/2013	215	15	2-3	170	2-3
06/01/2013	1400	1800	06/01/2013	205	15	2-3	170	2-3
06/01/2013	1700	2100	06/01/2013	210	14	1-2	200	2-3
06/01/2013	2000	0000	06/02/2013	200	15	1-3	190	2-4
06/01/2013	2300	0300	06/02/2013	210	20	1-2	190	2-3
06/02/2013	0200	0600	06/02/2013	215	20	1-2	200	2-3
06/02/2013	0500	0900	06/02/2013	215	20	1-2	200	2-3
06/02/2013	0800	1200	06/02/2013	200	18	1-3	230	2-3
06/02/2013	1100	1500	06/02/2013	195	19	2-3	230	2-3
06/02/2013	1400	1800	06/02/2013	200	18	2-4	250	2-3
06/02/2013	1700	2100	06/02/2013	190	19	2-4	240	2-3
06/02/2013	2000	0000	06/03/2013	200	20	1-3	165	3-4
06/02/2013	2300	0300	06/03/2013	210	22	1-3	170	2-4
06/03/2013	0200	0600	06/03/2013	215	21	2-3	180	2-4
06/03/2013	0500	0900	06/03/2013	220	24	2-3	220	3-4
06/03/2013	0800	1200	06/03/2013	215	17	3-4	220	3-4
06/03/2013	1100	1500	06/03/2013	200	16	5	220	4-5
06/03/2013	1400	1800	06/03/2013	200	21	6-8	Combined	
06/03/2013	1700	2100	06/03/2013	205	20	3-4	220	4-5
06/03/2013	2000	0000	06/04/2013	200	25	3-5	220	4-6
06/03/2013	2300	0300	06/04/2013	190	20	2-3	220	2-4
06/04/2013	0200	0600	06/04/2013	195	20	2-3	220	3-4
06/04/2013	0500	0900	06/04/2013	240	15	2-3	220	3-4
06/04/2013	0800	1200	06/04/2013	350	13	1-2	220	3-4
06/04/2013	1100	1500	06/04/2013	340	18	2-3	170	3-4
06/04/2013	1400	1800	06/04/2013	300	17	2-3	170	2-4
06/04/2013	1700	2100	06/04/2013	305	15	2-3	240	3-4
06/04/2013	2000	0000	06/05/2013	305	15	1-3	300/340	3-5
06/04/2013	2300	0300	06/05/2013	315	10	1-3	300	2-4
06/05/2013	0200	0600	06/05/2013	300	8	1-2	300	2-3
06/05/2013	0500	0900	06/05/2013	355	8	1-2	250	2-3
06/05/2013	0800	1200	06/05/2013	var	lt	n/a	320	2
06/05/2013	1100	1500	06/05/2013	033	6	n/a	320	2
06/05/2013	1400	1800	06/05/2013	072	5	0-1	320	1-2
06/05/2013	1700	2100	06/05/2013	070	9	0-1	190/320	1-2
06/05/2013	2000	0000	06/06/2013	115	10	n/a		
06/05/2013	2300	0300	06/06/2013	140	7	n/a		