RV Langseth
Data Reduction Summary

MGL1106

Puerto Caldera, Costa Rica – Puerto Caldera, Costa Rica

FINAL

Thurs May 12 18:00:00 2011

Date	Julian Date	Time	Port
2011-04-07	2011-097	0000 UTC, 1800L	Puerto Caldera, Costa Rica
2011-05-12	2011-132	0000 UTC, 1800L	Puerto Caldera, Costa Rica

Prepared by:

David Ng
IT/Navigation
dng@ldeo.columbia.edu

Table of Contents

Please refer to the Langseth Data Report Supplement for information regarding data formats.

I. Background and Scientific Objectives

None provided.

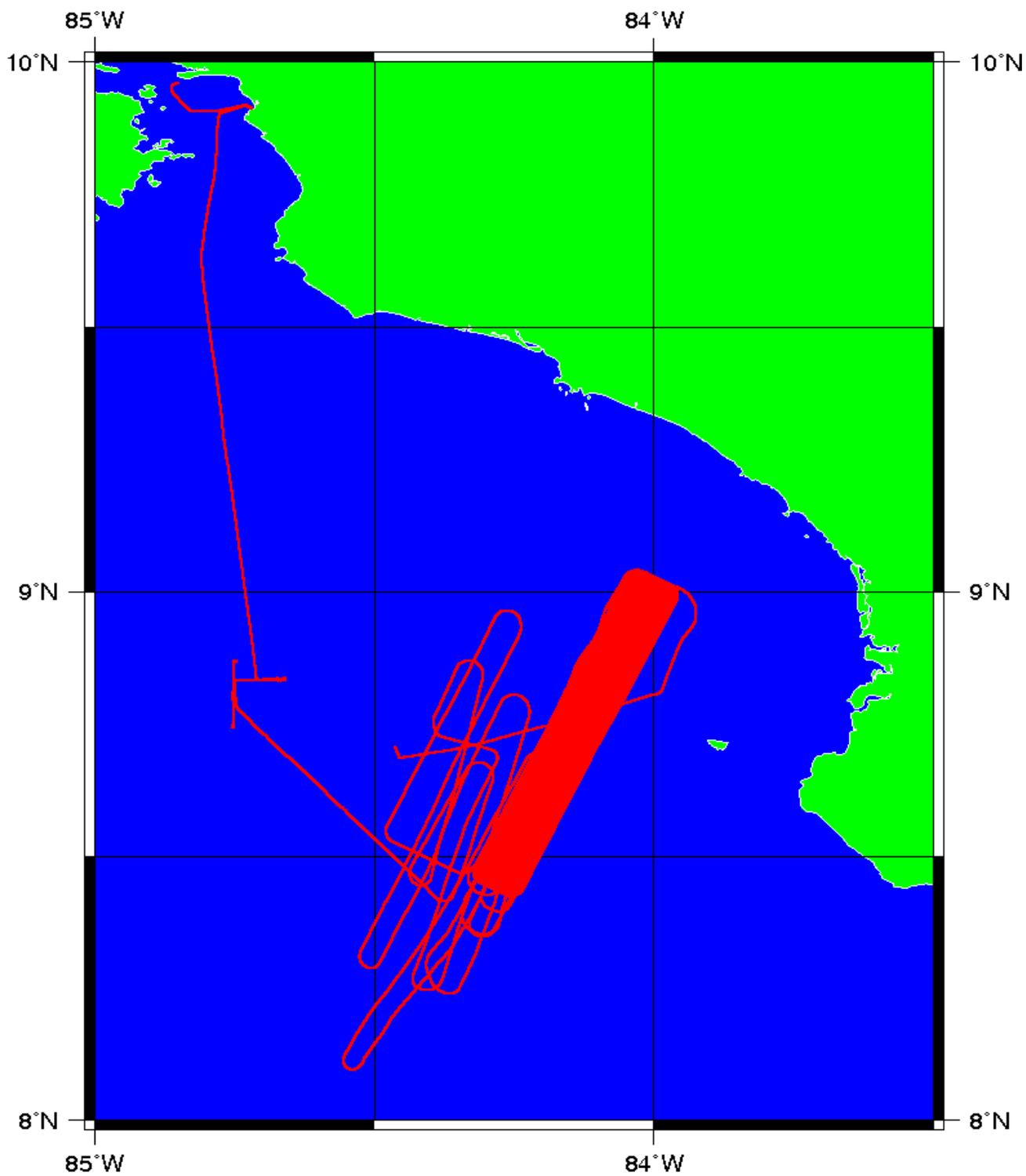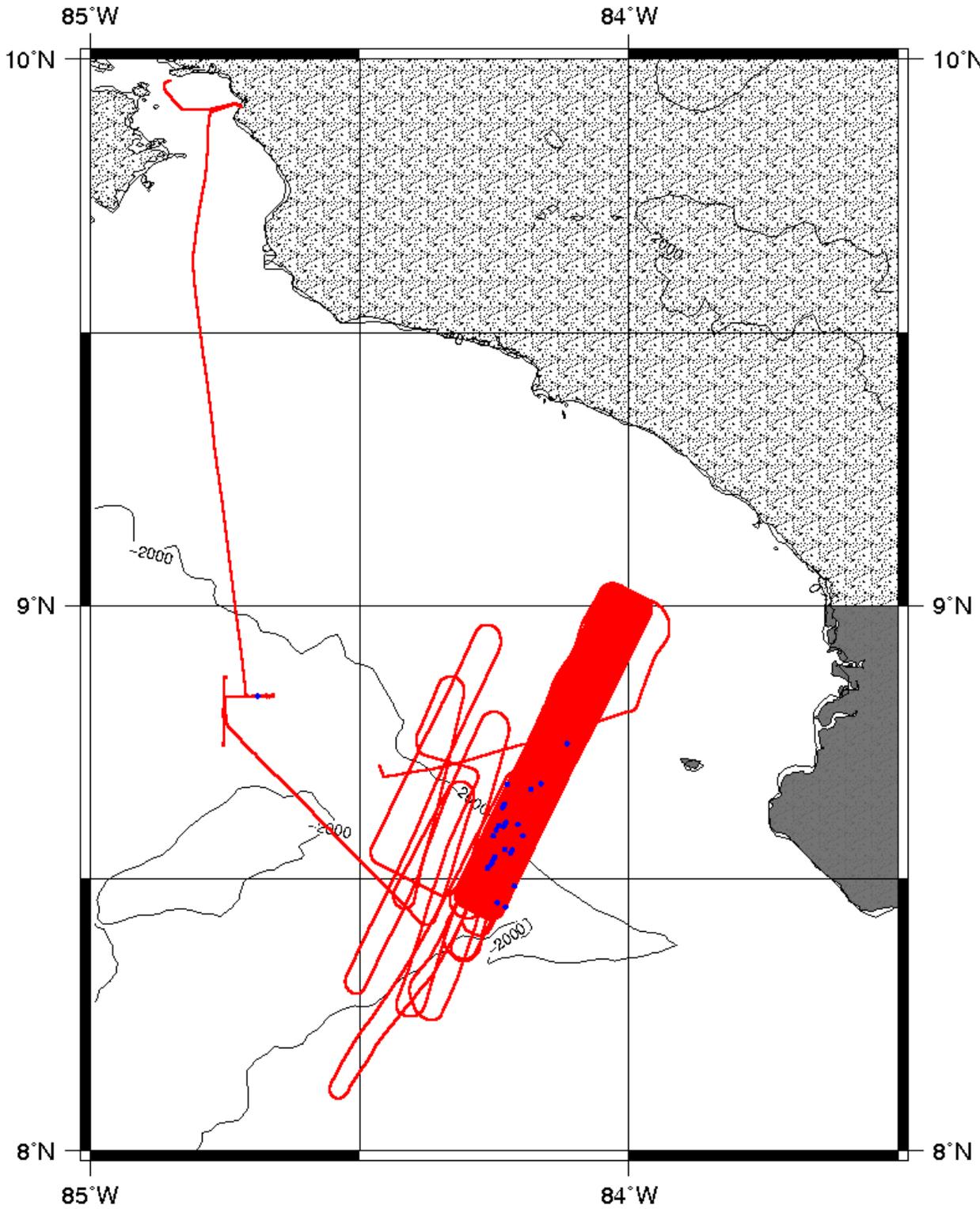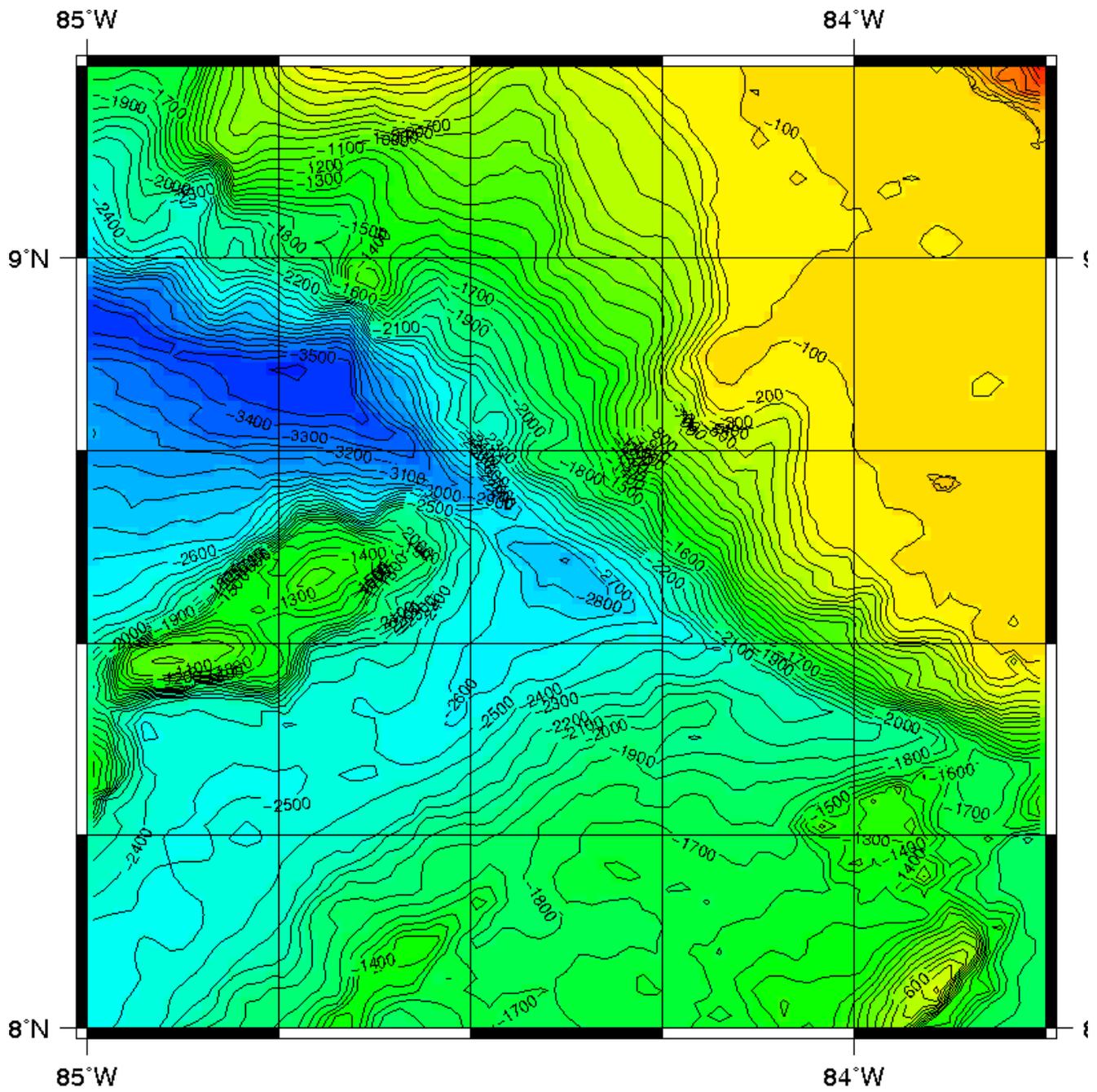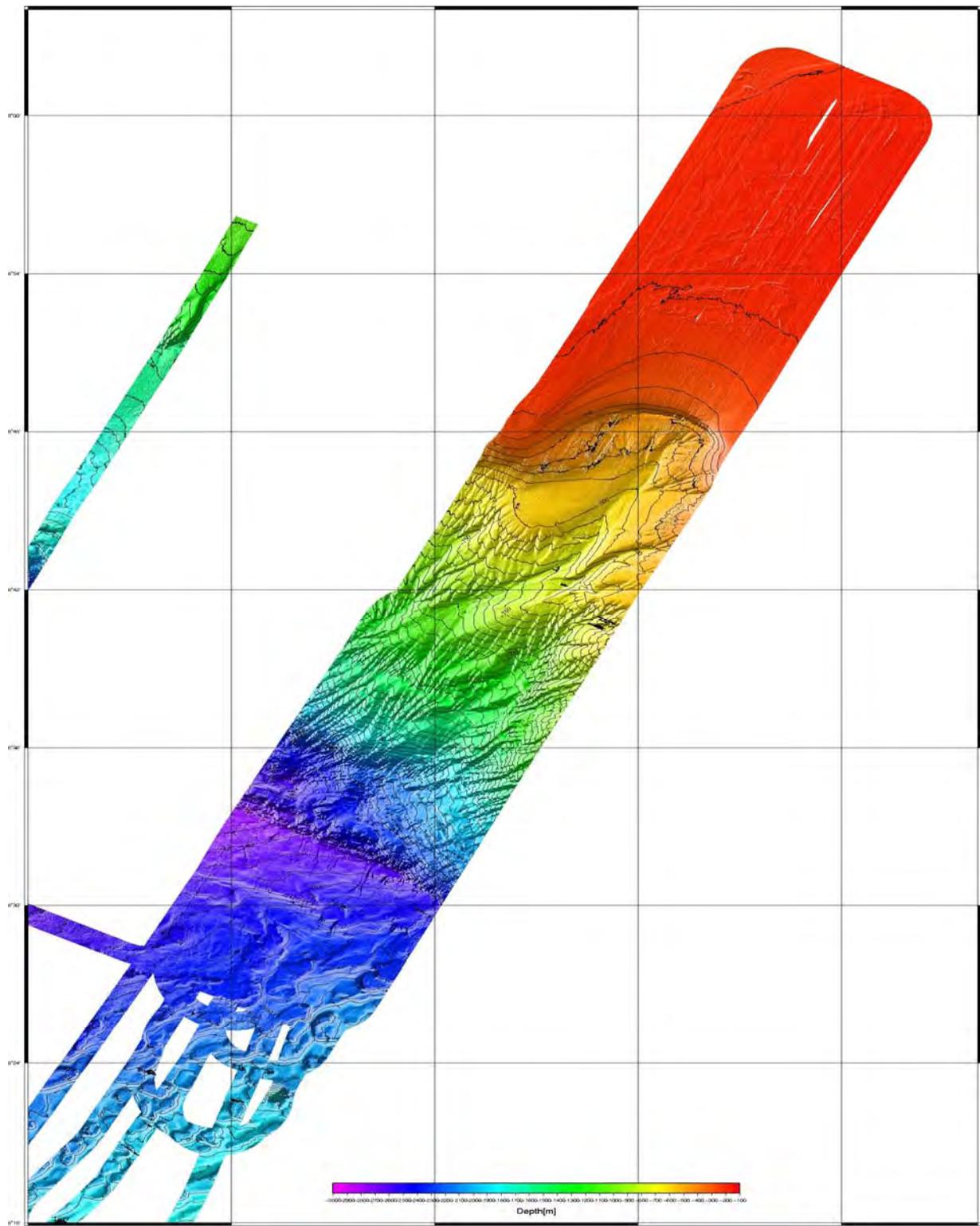**Figure 1 – Cruise Track**

Figure 2 – Cruise Track & XBT Drops

Figure 3 – Pacific Coast, Costa Rica Topography & Bathymetry

MGL1106 – Pacific Coast, Costa Rica Bathymetry & Topography

Figure 4 – Multibeam Survey

II. Personnel

Shipboard Technical Staff

1	Robert Steinhaus	Chief Science Officer
2	Anthony Johnson	Chief IT

3	David Martinson	Chief Navigation
4	Bern McKiernan	Watch Leader/Acquisition
5	Ryan Eaton	Watch Leader/Acquisition
6	David Ng	IT/Nav
7	Mike Martello	Navigation
8	Tom Spoto	Chief Sound Source Mechanic
9	Carlos Gutierrez	Sound Source Mechanic
10	Mike Tatro	Sound Source Mechanic
11	Emanuel Guerrero	Sound Source Mechanic
12	Luis Barrantes	Sound Source Mechanic

Ship's Crew

1	Mark Landow	Captain
2	Ryan Sweeney	Chief Mate
3	Breckenridge Crum	2nd Mate
4	Daniel Wright	3rd Mate
5	Jason Woronowicz	Bosun
6	George Cereno	AB
7	Petronio Paragas	AB
8	Ben Nadler	AB
9	Joshua Schaffner	OS
10	Nicky Applewhite	OS
11	Steve Pica	Chief Engineer
12	Matt Tucke	1st Asst. Engineer
13	Ryan Vetting	2nd Asst. Engineer
14	Ian Antoine	3rd Asst. Engineer
15	Jack Schwartz	Electrician
16	Fernando Uribe	Oiler
17	Jack Billings	Oiler
18	Lee Dresselhaus	Oiler
19	Michael Duffy	Steward
20	Ricardo Rios	Cook

MMO

1	Diana Anthochiw	PSO
2	Amanda Dubuque	PSO
3	Stephanie Milne	PSO
4	David Palacios	PSO
5	Meghan Piercy	PSO

Science Party

1	Nathan Bangs	Chief Scientist	UTIG
2	Kirk McIntosh	Co-chief Scientist	UTIG
3	Eli Silver	Scientist	University of California at Santa Cruz
4	Cesar Ranero	Scientist	Instituto de Ciencias del Mar
5	Shannon Cavanaugh	Grad Student	UTIG
6	Stephen Graf	Grad Student	UTIG
7	Evelyn Nunez Alpizar	Grad Student	Universidad Nacional, Costa Rica
8	Agnese Munoz Baracco	Grad Student	Instituto de Ciencias del Mar
9	Alejandra Lago Cameselle	Grad Student	Instituto de Ciencias del Mar
10	Volkmar Damm	Observer	BGR Hannover Germany
11	Jared Kluesner	Postdoc	University of California at Santa Cruz

III. Instrumentation Summary

All science instruments aboard the Langseth are listed in the science_sensors spreadsheet in the docs section of the cruise archive. Summary notes on operation during this cruise are listed below. Seismic equipment is not listed here; refer to Part IV for the seismic summary. Other instruments not listed were not in operation.

For details on the data formats and interpretation notes, see Appendix A, Data Formats, included on the cruise archive.

Instrument Data Files

Instrument	Description	Data Set	Data Outputs	Files	Interval
FE700	Furuno FE700 Echosounder	Full	serial logs	MGL-bath01.*	1s
EM122	Kongsberg EM122 Multibeam Sonar	Full	raw output to file	See below	variable
			centerbeam serial logs	MGL-bath02.*	variable
KNUDSEN	Knudsen Engineering 3260 Sub-bottom Profiler	Full	KEA, KEB, SEG-Y	See below	variable
DS50	Furuno DS50 Doppler Speedlog	Full	serial logs	MGL-slog01.*	1s
XBT	Sippican MK21 XBT Launcher	52 Drops	raw output to file	See below	n/a
			converted output to file	See below	n/a
WX1	RM Young 5103 Weather Bird and Translator	Full	serial logs	MGL-wx01.*	1s
			mwv conversion	MGL-mwv01.*	1s
TSG	SeaBird SBE23 Thermosalinograph	Full	raw serial logs	MGL-tsgraw.*	1s
			converted data	MGL-tsgconv.*	1s
CNAV	C&C Tech. CNAV 2000 DGPS Receiver	Full	serial logs	MGL-cnav.*	1s
CNAV3050	C&C Tech. CNAV 3050 DGPS Receiver	Full	serial logs	MGL-cnav3050.*	1s
MAG01	GeoMetrics 882 Magnetometer	On Deploy	serial logs	MGL-mag01.*	1s
BGM	Bell Aerospace BGM-3 Gravimeter	Full	serial logs	MGL-vc01.*	1s
GYRO	Simrad GC80 Gyrocompass/AD100	Full	serial logs	MGL-gy01.*	1s
POSMV	Applanix POSMV Integrated Nav System	Full	serial logs	MGL-posmv.*	1s
SEAPATH	Konsberg SeaPath Integrated Nav System	Full	serial logs	MGL-seapath.*	1s
STU	Sercel Streamer Tension	None	serial logs	MGL-stu1.*	15s
TAGGER	Spectrum Instruments intelligent reference TM-4	None	serial logs	MGL-tagger01.*	shot
			filtered logs	MGL-shot01.*	shot
MICROSV	Applied Microsystems Sound Velocity Pod Unit #1	Full	serial logs	MGL-svpod01.*	1s
MICROSV	Applied Microsystems Sound Velocity Pod	Full	serial logs	MGL-svpod02.*	1s

	Unit #2					
MICROSV	Applied Microsystems Sound Velocity USS Unit	Full	serial logs	MGL-svuss01.*	1s
SBE38	SeaBird SBE38 Pod Thermometer Pod Unit #1	Full	serial logs	MGL-temppod01.*	1s
SBE38	SeaBird SBE38 Pod Thermometer Pod Unit #2	Full	serial logs	MGL-temppod02.*	1s
PCO2	LDEO PCO2 System	Full	serial logs	MGL-pco2.*	~180s

All timestamps in this report are presented using UTC time and day of year in order to avoid confusion with local time changes.

Science Navigation Instrumentation

FE700

Logging interval: 1 second

File id: bath01

The FE700 only operated to 800m depth. The echosounder is normally switched off before the unit goes out of depth.

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.6804		Logging officially started
2011:102:03:08:40.9997 - 2011:102:17:08:52.7555	Missing data	Instrument turned off in deep waters
2011:103:02:50:40.4754 - 2011:103:02:50:57.6531	Missing data	Instrument turned off in deep waters
2011:103:02:57:03.0898 - 2011:103:12:32:22.0590	Missing data	Instrument turned off in deep waters
2011:106:09:09:49.2609 - 2011:106:21:45:40.9997	Missing data	Instrument turned off in deep waters
2011:107:05:41:12.4886 - 2011:107:13:46:42.2958	Missing data	Instrument turned off in deep waters
2011:110:03:51:21.6666 - 2011:110:13:43:08.5143	Missing data	Instrument turned off in deep waters
2011:110:15:19:15.7576 - 2011:110:15:19:50.7622	Missing data	Instrument turned off in deep waters
2011:111:16:08:53.0149 - 2011:111:16:09:04.6293	Missing data	Instrument turned off in deep waters
2011:112:09:21:07.8379 - 2011:112:21:05:42.7057	Missing data	Instrument turned off in deep waters

2011:113:03:26:52.0456 - 2011:113:11:34:12.1428	Missing data	Instrument turned off in deep waters
2011:116:09:43:26.2689 - 2011:116:20:11:03.0866	Missing data	Instrument turned off in deep waters
2011:117:05:53:59.6712 - 2011:117:14:15:42.8947	Missing data	Instrument turned off in deep waters
2011:118:01:28:49.0882 - 2011:118:09:33:59.9809	Missing data	Instrument turned off in deep waters
2011:118:09:40:18.3801 - 2011:118:11:14:22.1364	Missing data	Instrument turned off in deep waters
2011:120:11:42:47.6893 - 2011:120:20:36:32.7616	Missing data	Instrument turned off in deep waters
2011:121:07:46:46.6232 - 2011:121:17:37:22.7293	Missing data	Instrument turned off in deep waters
2011:122:04:33:38.7783 - 2011:122:12:53:14.4652	Missing data	Instrument turned off in deep waters
2011:129:13:26:06.0084 - 2011:129:13:53:57.7142	Missing data	Instrument turned off in deep waters
2011:130:12:38:55.5154 - 2011:130:13:53:09.3469	Missing data	Instrument turned off in deep waters
2011:131:17:23:34.9260		Logging officially ended

bath01 data sample:

```
bath01      2008:220:13:45:42.0681   $SDDBT,,,,,,
bath01      2008:220:13:45:42.0690   $SDDBS,,,,,,
bath01      2008:220:13:45:42.0691   $SDDPT,,0006.6*49
bath01      2008:220:13:45:42.1482   $PFEC,Alarm,0,0*6F
bath01      2008:220:13:45:42.1483   $PFEC,xdr,FORE,050*79
```

EM-122 Mutibeam

The EM122 multibeam sonar was operated throughout the cruise. The system is designed for deeper water, and does not track ground well in less than 50m of water.

EM122 swath data is saved to the cruise archive under MGL1106/multibeam. Center beam depth is recorded separately to serial log. MicroSV (microsv01) probe in the pod supplied sound velocity to the EM122.

Logging interval: variable with water depth

File id: bath02

Interruptions greater than one hundred and twenty seconds are displayed in the following table.

Log Date	**Event**	**Comment**

2011:098:21:23:36.0020		Logging officially started
2011:099:11:53:58.9307 - 2011:099:12:23:44.4416	Missing data	Instrument offline for computing calibration values
2011:108:21:03:07.9687 - 2011:108:21:26:32.7880	Missing data	Power/propulsion failure
2011:109:23:38:23.1682 - 2011:109:23:50:09.0915	Missing data	Instrument secured for BIST test
2011:110:15:19:34.3824 - 2011:110:15:42:31.0993	Missing data	Power failure
2011:114:15:55:09.6202 - 2011:114:16:00:14.0462	Missing data	Restart instrument to sync TRU
2011:130:18:56:27.2143 - 2011:130:19:43:06.6957	Missing data	Instrument testing
2011:132:00:10:32.1356		Logging officially ended

bath02 data format:

```
bath02      2008:192:00:00:12.6663   $KGDPT,2938.25,0.0,12000.0*4a
bath02      2008:192:00:00:30.3301   $KGDPT,2954.08,0.0,12000.0*4f
bath02      2008:192:00:00:46.5831   $KGDPT,2958.32,0.0,12000.0*4a
bath02      2008:192:00:01:03.0606   $KGDPT,2954.18,0.0,12000.0*4e
```

Knudsen Engineering 3260 Sub-bottom Profiler

File id: n/a
Logging interval: Variable with water depth

The Knudsen 3260 is a chirp echosounder/sub-bottom profiler. It was in operation for the length of the cruise.

DS50 Speedlog

File id: slog01
Logging interval: 1 second

The Furuno DS-50 is a Doppler speed log. It was in operation for the length of the cruise.

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.5924		Logging officially started

2011:108:21:03:08.8528 - 2011:108:21:03:43.0445	Missing data	Power/propulsion failure
2011:110:15:19:33.3264 - 2011:110:15:20:07.3269	Missing data	Power failure
2011:132:00:10:40.3940		Logging officially ended

slog01 data format:

```
slog01      2008:231:00:00:00.0744   $VDVHW,,T,,M,09.68,N,17.93,K*4C
slog01      2008:231:00:00:00.1906   $VDVBW,009.68,000.09,A,009.68,000.09,V*46
slog01      2008:231:00:00:00.1908   $VDVLW,0005960.30,N,0005960.30,N*5F
```

RMYoung Integrated Weather

File id: wx01
Logging interval: 1 second

The weather station is used to log wind speed, direction, air temperature, and barometric pressure. The unit was functioning during the cruise. See also mwv01 below.

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.4964		Logging officially started
2011:108:21:03:08.8528 - 2011:108:21:03:43.0445	Missing data	Power/propulsion failure
2011:110:15:19:33.3264 - 2011:110:15:20:07.3269	Missing data	Power failure
2011:132:00:10:41.0068		Logging officially ended

wx01 data format:

```
wx01  2011:130:00:00:00.3553    19.0   18.6   19.3   22.5 328 328   2  16.6   17.1    3.7
21.1 355 355    0  28.2   31.1   28.0   31.2  96  85   97 1006

wx01  2011:130:00:00:01.2983    18.8   18.6   19.3   22.5 331 328   2  16.2   17.1    3.7
21.1 355 355    0  28.2   31.1   28.0   31.2  96  85   97 1006
```

File id: mwv01
Logging interval: 1 second

The weather station is used to log wind speed, direction, air temperature, and barometric pressure. The wx01 strings are converted in real-time to produce mwv strings for the DP. The mwv output is strictly a derivative of the w01 output. See also the wx01 description above.

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.4964		Logging officially started
2011:108:21:03:09.1719 - 2011:108:21:03:19.4894	Missing data	Power/propulsion failure
2011:110:15:19:33.6105 - 2011:110:15:19:43.7659	Missing data	Power failure
2011:132:00:10:40.0010		Logging officially ended

mwv01 data sample:

```
mwv01 2008:231:00:00:00.5173  6.1   6.6   6.6   8.8 354 321   5   0.0   0.0   0.0
0.0 355 355   0 ***** ***** ***** *****  8  8  8 1009.7
mwv01 2008:231:00:00:01.5172  5.9   6.6   6.6   8.8 353 321   5   0.0   0.0   0.0
0.0 355 355   0 ***** ***** ***** *****  8  8  8 1009.6
mwv01 2008:231:00:00:02.5190  6.3   6.6   6.6   8.8 354 321   5   0.0   0.0   0.0
0.0 355 355   0 ***** ***** ***** *****  8  8  8 1009.8
```

CNAV

File id: cnav

Logging interval: 1 second

The C-NAV is a global satellite-based differential receiver. This was used as a secondary GPS system on the ship. This system was operational during the cruise.

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.0294		Logging officially started
2011:132:00:10:40.9630		Logging officially ended

cnav data format:
```
cnav  2008:231:00:00:00.6936
$GPGGA,000000.00,1434.94372,N,10444.85748,W,2,8,1.1,15.52,M,-20.60,M,9,0108*65
cnav  2008:231:00:00:00.7137  $GPVTG,006.5,T,,M,9.64,N,17.85,K*53
```

CNAV3050

File id: cnav3050

Logging interval: 1 second

The C-NAV 3050 is a global satellite-based differential receiver. This is the best individual receiver currently on the ship. This system was operational during the cruise.

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.0294		Logging officially started
2011:097:10:24:12.0829 - 2011:097:10:24:35.0719	Missing data	Reason not specified
2011:097:10:25:22.0880 - 2011:097:10:25:45.0780	Missing data	Reason not specified
2011:097:10:27:47.0972 - 2011:097:10:28:13.0724	Missing data	Reason not specified
2011:098:15:52:57.0956 - 2011:098:15:53:11.0792	Missing data	Reason not specified
2011:099:06:55:24.0872 - 2011:099:06:55:42.0609	Missing data	Reason not specified
2011:100:20:11:56.0685 - 2011:100:20:12:07.0669	Missing data	Reason not specified
2011:101:20:21:23.0909 - 2011:101:20:21:41.0816	Missing data	Reason not specified
2011:101:23:26:23.0951 - 2011:101:23:28:15.0781	Missing data	Reason not specified
2011:101:23:28:28.0886 - 2011:101:23:28:39.0711	Missing data	Reason not specified
2011:101:23:28:56.0877 - 2011:101:23:29:17.0797	Missing data	Reason not specified
2011:102:09:22:08.0829 - 2011:102:09:22:19.0654	Missing data	Reason not specified
2011:102:17:43:31.0902 - 2011:102:17:43:47.0699	Missing data	Reason not specified
2011:102:18:08:58.0701 - 2011:102:18:09:17.0659	Missing data	Reason not specified
2011:103:17:26:33.0836 - 2011:103:17:26:47.0692	Missing data	Reason not specified
2011:103:18:20:59.0809 - 2011:103:18:21:23.0599	Missing data	Reason not specified
2011:103:21:39:18.0874 - 2011:103:21:39:29.0719	Missing data	Reason not specified
2011:104:17:45:24.0665 - 2011:104:17:45:35.0650	Missing data	Reason not specified
2011:104:18:12:07.0648 - 2011:104:18:12:23.0766	Missing data	Reason not specified
2011:104:18:25:33.0898 - 2011:104:18:25:51.0655	Missing data	Reason not specified
2011:104:18:26:08.0823 - 2011:104:18:26:43.0747	Missing data	Reason not specified
2011:104:18:26:44.0808 - 2011:104:18:26:57.0594	Missing data	Reason not specified
2011:104:18:28:28.0843 - 2011:104:18:28:43.0740	Missing data	Reason not specified
2011:105:09:35:04.0859 - 2011:105:09:35:17.0655	Missing data	Reason not specified
2011:105:17:44:14.0604 - 2011:105:17:44:32.0681	Missing data	Reason not specified

2011:108:17:48:35.0926 - 2011:108:17:48:47.0640	Missing data	Reason not specified
2011:110:09:14:42.0835 - 2011:110:09:14:53.0650	Missing data	Reason not specified
2011:111:17:29:00.0851 - 2011:111:17:29:13.0626	Missing data	Reason not specified
2011:111:18:24:07.0571 - 2011:111:18:24:17.0645	Missing data	Reason not specified
2011:112:09:18:07.0963 - 2011:112:09:18:23.0739	Missing data	Reason not specified
2011:112:18:07:06.0619 - 2011:112:18:07:17.0754	Missing data	Reason not specified
2011:114:17:44:19.0575 - 2011:114:17:44:29.0658	Missing data	Reason not specified
2011:115:18:08:28.0621 - 2011:115:18:09:07.0718	Missing data	Reason not specified
2011:116:08:50:35.0867 - 2011:116:08:50:51.0643	Missing data	Reason not specified
2011:116:08:51:16.0924 - 2011:116:08:51:27.0739	Missing data	Reason not specified
2011:117:17:28:34.0923 - 2011:117:17:28:47.0689	Missing data	Reason not specified
2011:118:19:27:57.0838 - 2011:118:19:28:09.0705	Missing data	Reason not specified
2011:120:17:34:58.0541 - 2011:120:17:35:11.0627	Missing data	Reason not specified
2011:120:18:17:20.0651 - 2011:120:18:17:37.0639	Missing data	Reason not specified
2011:121:18:54:32.0840 - 2011:121:18:54:47.0717	Missing data	Reason not specified
2011:123:07:54:28.0827 - 2011:123:07:54:39.0641	Missing data	Reason not specified
2011:123:16:00:20.0838 - 2011:123:16:00:33.0764	Missing data	Reason not specified
2011:123:16:05:48.0919 - 2011:123:16:06:09.0657	Missing data	Reason not specified
2011:123:18:42:55.0980 - 2011:123:18:43:37.0768	Missing data	Reason not specified
2011:124:17:41:52.0633 - 2011:124:17:42:05.0719	Missing data	Reason not specified
2011:124:18:41:14.0562 - 2011:124:18:41:37.0722	Missing data	Reason not specified
2011:125:18:14:53.0690 - 2011:125:18:15:05.0725	Missing data	Reason not specified
2011:127:07:20:56.0967 - 2011:127:07:21:07.0781	Missing data	Reason not specified
2011:127:18:25:23.0674 - 2011:127:18:25:37.0821	Missing data	Reason not specified
2011:128:17:49:04.0574 - 2011:128:17:49:17.0661	Missing data	Reason not specified
2011:128:18:43:41.0641 - 2011:128:18:43:53.0668	Missing data	Reason not specified
2011:129:18:36:55.0617 - 2011:129:18:37:05.0691	Missing data	Reason not specified
2011:130:17:33:19.0924 - 2011:130:17:33:35.0702	Missing data	Reason not specified
2011:130:17:57:16.0982 - 2011:130:18:07:39.0769	Missing data	Reason not specified
2011:130:18:13:29.0660 - 2011:130:18:16:07.0848	Missing data	Reason not specified
2011:132:00:10:40.0919		Logging officially ended

cnav3050 data format:

```
cnav3050    2011:132:00:00:00.0717
      $GNGGA,000000.00,0842.538264,N,08427.839561,W,2,16,0.9,28.395,M,0.0,M,9.0,035
8*48
cnav3050    2011:132:00:00:00.0877  $GNVTG,338.4,T,,M,5.78,N,10.71,K,D*27
```

GC80 Gyrocompass

The GC80 gyrocompass is installed on the bridge and used for ship and seismic navigation.

File id: gy01
Logging interval: 1 second

The GC80 gyrocompass original board 061 failed and was replaced with board 031 on April 21st.

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.4684		Logging officially started
2011:132:00:10:40.3070		Logging officially ended

gy01 data format:

```
gy01  2008:231:00:00:00.4110  $PTKM,HEALM,0000,0,G1*09
gy01  2008:231:00:00:00.6395  $HEHDT,005.8,T*22
gy01  2008:231:00:00:00.6396  $HEROT,-005.25,A*34
gy01  2008:231:00:00:01.6394  $HEHDT,005.7,T*2D
gy01  2008:231:00:00:01.6395  $HEROT,-004.53,A*34
```

POSMV Integrated Nav

The POS/MV is a receiver that uses CNAV input in addition to its own antennae, an inertial sensor and optional RTG, WTC, or WAAS corrections and a Kalman filter to produce a smooth navigation output and very accurate heading.

The PosMV operated normally during the cruise.

File id: posmv
Logging interval: 1 second

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.2344		Logging officially started
2011:132:00:10:40.7540		Logging officially ended

posmv data format:

```
posmv  2008:231:00:00:00.0885
       $INGGA,235959.842,1434.95002,N,10444.85734,W,2,,1.1,12.71,M,,,9.0,0108*2E
posmv  2008:231:00:00:00.0889  $INHDT,15.0,T*11
posmv  2008:231:00:00:00.2047  $INVTG,7.0,T,,M,9.7,N,17.9,K*46
posmv  2008:231:00:00:00.3208  $INGST,235959.842,,0.9,0.9,0.0,0.9,0.9,2.5*51
posmv  2008:231:00:00:00.4411  $PASHR,235959.842,15.05,T,-
0.58,0.48,0.15,0.069,0.069,0.045,2,0*05
posmv  2008:231:00:00:00.4412  $INZDA,235959.0000,17,08,2008,,*73
```

SeaPath Integrated Nav

The Kongsberg Seapath is an integrated navigation system. It was in operation for the length of the cruise.

Logging interval: 1 second

File id: seapath

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.2194		Logging officially started
2011:114:15:46:20.5505 - 2011:114:15:47:07.0216	Missing data	Instrument found to have invalid position
2011:132:00:10:40.9550		Logging officially ended

seapath data format:

```
seapath    2008:231:00:00:00.0504  $INZDA,235959.99,17,08,2008,,*73
seapath    2008:231:00:00:00.1686
       $INGGA,235959.99,1434.953109,N,10444.859147,W,2,08,1.1,-
16.30,M,,M,1.0,0291*70
seapath    2008:231:00:00:00.1687  $INVTG,5.97,T,,M,9.7,N,,K,D*03
seapath    2008:231:00:00:00.1688  $INHDT,5.82,T*1A
```

Sercel Streamer Tension Unit

The Sercel Streamer Tension Unit measures streamer tension in pounds. It was in operation while streamers were deployed.

Logging interval: 15 seconds

File id: stu1

Data intermittent interruptions greater than thirty seconds are displayed in the following table.

Log Date	Event	Comment
2011:099:21:39:51.9209		Logging officially started
2011:119:12:56:20.9975 - 2011:119:12:57:50.2333	Missing data	Streamer 1 STU restarted
2011:132:00:10:38.6838		Logging officially ended

Streamer deployment gaps greater than thirty seconds are displayed in the following table.

Time	Event
2011:099:22:22:41.9063 - 2011:099:22:36:41.9187	Streamer deployment
2011:100:00:06:41.9049 - 2011:100:00:07:11.9062	Streamer deployment
2011:100:00:46:31.9036 - 2011:100:00:47:01.9049	Streamer deployment
2011:100:02:06:41.8881 - 2011:100:02:07:11.8895	Streamer deployment
2011:100:03:17:11.8926 - 2011:100:03:17:41.8938	Streamer deployment
2011:100:03:38:31.8860 - 2011:100:03:39:01.8873	Streamer deployment
2011:100:04:01:11.8899 - 2011:100:05:58:11.8789	Streamer deployment
2011:100:05:58:31.8741 - 2011:100:06:02:21.8741	Streamer deployment
2011:100:06:16:41.8703 - 2011:100:06:17:11.8715	Streamer deployment
2011:100:06:32:21.8660 - 2011:100:06:32:51.8663	Streamer deployment
2011:100:07:20:51.8661 - 2011:100:07:21:21.8684	Streamer deployment
2011:100:07:41:21.8614 - 2011:100:07:41:51.8636	Streamer deployment
2011:100:08:00:41.8586 - 2011:100:08:01:11.8599	Streamer deployment
2011:100:08:42:01.8620 - 2011:100:08:42:31.8633	Streamer deployment

2011:100:08:44:01.8522 - 2011:100:08:44:31.8534	Streamer deployment
2011:100:08:52:41.8517 - 2011:100:08:53:11.8530	Streamer deployment
2011:100:08:59:31.8516 - 2011:100:09:00:01.8528	Streamer deployment
2011:100:09:05:01.8519 - 2011:100:09:05:31.8542	Streamer deployment
2011:100:09:07:11.8486 - 2011:100:09:07:41.8659	Streamer deployment
2011:100:09:16:31.8559 - 2011:100:09:17:01.8572	Streamer deployment
2011:100:09:18:11.8502 - 2011:100:09:18:51.8580	Streamer deployment
2011:100:10:01:51.8457 - 2011:100:10:02:21.8480	Streamer deployment
2011:100:10:02:51.8493 - 2011:100:10:03:41.8465	Streamer deployment
2011:100:10:04:21.8533 - 2011:100:10:04:51.8545	Streamer deployment
2011:100:10:09:01.8413 - 2011:100:10:09:31.8426	Streamer deployment
2011:100:10:14:21.8522 - 2011:100:10:14:51.8535	Streamer deployment
2011:100:10:46:31.8467 - 2011:100:10:47:01.8490	Streamer deployment
2011:100:10:54:31.8415 - 2011:100:10:55:01.8429	Streamer deployment
2011:100:11:55:41.8424 - 2011:100:11:56:11.8448	Streamer deployment
2011:100:12:34:51.8354 - 2011:100:12:35:21.8367	Streamer deployment
2011:100:13:01:11.8389 - 2011:100:13:01:46.8354	Streamer deployment
2011:100:13:19:34.8327 - 2011:100:13:20:04.8340	Streamer deployment
2011:100:13:20:24.8299 - 2011:100:13:21:04.8376	Streamer deployment
2011:100:13:28:34.8301 - 2011:100:13:29:04.8316	Streamer deployment
2011:100:13:31:04.8216 - 2011:100:13:31:34.8239	Streamer deployment
2011:100:13:31:44.8294 - 2011:100:13:32:14.8307	Streamer deployment
2011:100:13:36:44.8294 - 2011:100:13:37:14.8316	Streamer deployment
2011:100:13:39:04.8324 - 2011:100:13:39:34.8338	Streamer deployment
2011:100:13:43:24.8247 - 2011:100:13:44:04.8484	Streamer deployment
2011:100:13:48:54.8270 - 2011:100:13:49:24.8283	Streamer deployment
2011:100:13:52:04.8262 - 2011:100:13:52:54.8234	Streamer deployment
2011:100:13:53:54.8269 - 2011:100:13:54:34.8348	Streamer deployment
2011:100:13:58:24.8257 - 2011:100:13:59:04.8334	Streamer deployment
2011:100:14:00:04.8211 - 2011:100:14:00:44.8278	Streamer deployment
2011:100:14:09:24.8293 - 2011:100:14:10:14.8425	Streamer deployment
2011:100:14:24:54.8156 - 2011:100:14:25:34.8234	Streamer deployment

2011:100:14:54:04.8246 - 2011:100:14:54:34.8259	Streamer deployment
2011:100:15:39:24.8175 - 2011:100:15:39:54.8189	Streamer deployment
2011:100:15:45:44.8221 - 2011:100:15:48:34.8214	Streamer deployment
2011:100:15:50:44.8140 - 2011:100:15:51:14.8143	Streamer deployment
2011:100:15:52:44.8172 - 2011:100:15:53:14.8175	Streamer deployment
2011:100:15:53:34.8124 - 2011:100:15:54:04.8137	Streamer deployment
2011:100:16:03:44.8189 - 2011:100:16:04:14.8191	Streamer deployment
2011:100:16:13:14.8186 - 2011:100:16:13:44.8199	Streamer deployment
2011:100:16:13:44.8199 - 2011:100:16:14:14.8202	Streamer deployment
2011:100:16:16:14.8084 - 2011:100:16:16:44.8087	Streamer deployment
2011:100:16:18:04.8221 - 2011:100:16:20:04.8094	Streamer deployment
2011:100:16:24:14.8062 - 2011:100:16:24:44.8075	Streamer deployment
2011:100:16:25:54.8145 - 2011:100:16:26:34.8213	Streamer deployment
2011:100:16:27:34.8068 - 2011:100:16:28:24.8190	Streamer deployment
2011:100:16:28:24.8190 - 2011:100:16:28:54.8195	Streamer deployment
2011:100:16:29:14.8152 - 2011:100:16:30:24.8072	Streamer deployment
2011:100:16:30:24.8072 - 2011:100:16:30:54.8075	Streamer deployment
2011:100:16:32:34.8159 - 2011:100:16:33:04.8172	Streamer deployment
2011:100:16:39:04.8118 - 2011:100:16:39:34.8131	Streamer deployment
2011:100:16:49:54.8112 - 2011:100:16:59:14.8073	Streamer deployment
2011:100:17:29:34.8143 - 2011:100:17:43:54.8066	Streamer deployment
2011:100:17:48:04.8044 - 2011:100:17:48:34.8057	Streamer deployment
2011:100:17:48:54.8015 - 2011:100:17:49:24.8019	Streamer deployment
2011:100:18:00:14.8031 - 2011:100:18:00:44.8045	Streamer deployment
2011:100:18:02:44.8086 - 2011:100:18:03:24.7994	Streamer deployment
2011:100:18:03:44.8101 - 2011:100:18:40:34.8069	Streamer deployment
2011:100:18:41:44.7982 - 2011:100:18:42:54.8062	Streamer deployment
2011:100:18:42:54.8062 - 2011:100:18:46:34.8040	Streamer deployment
2011:100:19:42:44.8003 - 2011:100:19:43:14.8016	Streamer deployment
2011:100:19:46:14.7924 - 2011:100:20:08:14.7957	Streamer deployment
2011:100:20:08:14.7957 - 2011:100:20:08:54.7864	Streamer deployment
2011:100:20:20:14.7898 - 2011:100:20:20:44.7912	Streamer deployment

2011:100:20:32:54.7890 - 2011:100:20:33:24.7902	Streamer deployment
2011:100:20:36:14.7906 - 2011:100:20:36:44.7920	Streamer deployment
2011:100:20:58:44.7932 - 2011:100:20:59:14.7936	Streamer deployment
2011:100:21:48:04.7770 - 2011:100:21:48:34.7794	Streamer deployment
2011:100:22:52:24.7787 - 2011:100:22:54:34.7753	Streamer deployment
2011:100:23:37:04.7731 - 2011:100:23:39:24.7752	Streamer deployment
2011:100:23:41:04.7694 - 2011:100:23:57:54.7663	Streamer deployment
2011:101:01:14:04.7567 - 2011:101:01:14:34.7590	Streamer deployment
2011:101:01:21:24.7577 - 2011:101:01:21:54.7591	Streamer deployment
2011:101:03:36:14.7490 - 2011:101:03:36:44.7504	Streamer deployment
2011:101:05:03:14.7346 - 2011:101:05:03:44.7359	Streamer deployment
2011:101:05:22:14.7400 - 2011:101:05:22:44.7424	Streamer deployment
2011:101:05:28:44.7420 - 2011:101:05:29:14.7443	Streamer deployment
2011:101:05:50:34.7349 - 2011:101:05:51:04.7352	Streamer deployment
2011:101:06:20:04.7346 - 2011:101:06:20:34.7360	Streamer deployment
2011:101:06:45:44.7305 - 2011:101:06:46:14.7318	Streamer deployment
2011:101:06:48:14.7370 - 2011:101:06:48:54.7278	Streamer deployment
2011:101:06:48:54.7278 - 2011:101:06:49:24.7291	Streamer deployment
2011:101:07:21:04.7245 - 2011:101:07:21:34.7258	Streamer deployment
2011:101:07:38:34.7251 - 2011:101:07:39:04.7264	Streamer deployment
2011:101:07:41:14.7210 - 2011:101:07:41:44.7233	Streamer deployment
2011:101:07:53:14.7223 - 2011:101:07:53:44.7245	Streamer deployment
2011:101:08:06:24.7165 - 2011:101:08:06:54.7179	Streamer deployment
2011:101:08:08:54.7230 - 2011:101:08:09:24.7244	Streamer deployment
2011:101:08:15:14.7197 - 2011:101:10:51:52.9574	Streamer deployment
2011:101:14:21:22.6429 - 2011:101:14:26:29.5481	Streamer deployment
2011:101:14:26:59.9455 - 2011:101:14:31:53.1371	Streamer deployment
2011:101:14:47:35.1959 - 2011:101:14:49:00.9268	Streamer deployment
2011:101:15:03:27.0273 - 2011:101:15:28:40.1008	Streamer deployment
2011:101:15:30:25.0204 - 2011:101:15:46:14.1698	Streamer deployment

stu1 data format:

```
stu1  2011:130:00:02:12.8968  111 129  22  0 49   1  0     3360      3472      -179
33   1  1     3643      3643      -157      31  1  2     3964      3994      -157
34   1  3     3487      3584      -157      32

stu1  2011:130:00:02:27.8994  111 129  22  1  4   1  0     3375      3487      -164
33   1  1     3643      3793      -157      31  1  2     3950      4002      -164
34   1  3     3509      3606      -179      32
```

Spectrum Instruments TDM-4 Event Logger

The Event logger time stamps time-break triggers from DigiShot in all fire modes. This instrument was not used on this cruise, and instead recorded a different set of serially logged data.

File id: tagger01

Logging interval: 1 second

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.0413		Logging officially started
2011:132:00:10:40.0409		Logging officially ended

tagger1 data format:
```
tagger1    2008:231:00:00:00.0383   #51,08182008,000001
tagger1    2008:231:00:00:00.2027   #79,00000000
tagger1    2008:231:00:00:00.2948   #68,2
tagger1    2008:231:00:00:00.3689   #70,0
tagger1    2008:231:00:00:00.4010   #56,-00000
tagger1    2008:231:00:00:00.4210   #72,FF
```

Geometrics 882 Magnetometer

The Geometrics 882 magnetometer is towed behind the ship. Raw serial output is logged using LDS. Deployment is dependent upon seismic operations. See the deployment notes below. Except where noted, the source was not deployed when the magnetometer was at 300m, and the source was deployed when the magnetometer was at 100m.

Magnetometer Deployment Notes

Time	Event
2011:104:16:06:00.000	Maggie deployed and logging

2011:106:12:49:00.000	Maggie power secured
2011:106:12:56:00.000	Maggie on board
2011:106:15:01:00.000	Maggie deployed and powered on
2011:108:21:05:00.000	Maggie recovered
2011:109:01:54:00.000	Maggie deployed
2011:109:13:04:00.000	Maggie deployed and powered on
2011:109:22:25:00.000	Recovering maggie
2011:109:22:40:00.000	Maggie on board
2011:110:08:00:00.000	Maggie deployed
2011:110:08:06:00.000	Maggie powered on and logging
2011:110:15:27:00.000	Maggie secured, towed behind vessel
2011:110:15:35:00.000	Maggie on board
2011:110:20:28:00.000	Maggie deployed
2011:114:23:01:00.000	Maggie on board
2011:116:00:05:00.000	Start maggie deployment
2011:116:00:13:00.000	Maggie powered on and logging
2011:123:02:57:00.000	Maggie power secured and begin recovery
2011:123:06:15:00.000	Begin maggie deployment
2011:123:06:21:00.000	Maggie deployed and powered on
2011:125:02:27:00.000	Recovered to pick up string 1
2011:125:02:28:00.000	Maggie on board
2011:125:04:25:00.000	Start deployment
2011:125:04:38:00.000	Maggie in position and logging
2011:125:10:35:00.000	Maggie powered off for recovery
2011:125:10:38:00.000	Begin recovery
2011:125:10:42:00.000	Maggie towed 2-3m behind vessel
2011:125:12:09:00.000	Deploy maggie
2011:125:12:16:00.000	Maggie powered on
2011:125:16:16:00.000	Bring maggie partially in for source maintenance
2011:126:22:22:00.000	Maggie secured 5m from stern
2011:127:00:40:00.000	Maggie in position and logging
2011:131:05:33:00.000	Retrieving maggie

2011:131:05:52:00.000	Maggie on board

Logging interval: 1 second

File id: mag01

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:104:16:06:30.6618		Logging officially started
2011:106:12:48:59.9289 - 2011:106:15:01:22.7215	Missing data	Instrument turned off to recover gear
2011:109:12:40:57.2586 - 2011:109:13:04:20.7238	Missing data	Instrument secured for deployment
2011:110:15:28:02.9803 - 2011:110:20:41:24.6724	Missing data	Instrument recovered due to power loss
2011:123:02:58:05.7772 - 2011:123:06:21:18.7397	Missing data	Instrument secured for recovery
2011:125:02:20:09.9991 - 2011:125:04:38:04.6051	Missing data	Instrument recovered for source maintenance
2011:125:10:34:38.6959 - 2011:125:12:16:24.2749	Missing data	Instrument recovered for source maintenance
2011:131:05:43:03.1306		Logging officially ended

mag01 data sample:
```
mag01 2008:185:09:45:58.1820   $107714.673,0042,0024,0110,3533,1143
mag01 2008:185:09:46:01.0333   $ 63703.933,0042,0024,0110,3533,1143
mag01 2008:185:09:46:04.0330   $ 44031.029,0042,0027,0110,3533,1143
```

SBE-23 Thermosalinograph

The Seabird TSG output is logged by LDS to the "tsg" set. Output is also converted in real-time and recorded to the "tsgconv" data set.

File id: tsgraw

Logging interval: 1 second

Data intermittent interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment

2011:099:02:29:02.0415		Logging officially started
2011:099:03:29:12.0195		Noisy serial data line causes intermittent dropouts
2011:108:21:03:17.7171 - 2011:108:22:02:37.7011	Missing data	Power/propulsion failure
2011:117:21:10:44.5143		Noisy data line resolved
2011:132:00:10:32.5896		Logging officially ended

tsgraw data sample:
```
tsgraw      2008:231:00:00:01.9179   B479CB5528A6D6ABFB2D
tsgraw      2008:231:00:00:11.9187   B474CB5428A799ABBB2D
tsgraw      2008:231:00:00:21.9176   B46FCB5328A70CAB8B2D
```

File id: tsgconv

Logging interval: 1 second

Data intermittent interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:099:02:29:02.0415		Logging officially started
2011:099:03:29:12.0195		Noisy serial data line causes intermittent dropouts
2011:108:21:03:17.7171 - 2011:108:22:02:37.7011	Missing data	Power/propulsion failure
2011:117:21:10:44.5143		Noisy data line resolved
2011:132:00:10:32.5896		Logging officially ended

tsgconv data sample:
```
tsgconv     2008:231:00:00:01.9179   B479CB5528A6D6ABFB2D 1531.59 28.85 24.35 5.53
33.74
tsgconv     2008:231:00:00:11.9187   B474CB5428A799ABBB2D 1531.61 28.85 24.36 5.53
33.74
tsgconv     2008:231:00:00:21.9176   B46FCB5328A70CAB8B2D 1531.60 28.85 24.35 5.53
33.74
```

BGM-3 Gravimeter

The Bell Aerospace BGM-3 Gravimeter boards were replaced due to failed boards. The original gyro board 061 tripped the MALF lamp light. The new boards installed are:

BGM 210
currently installed
Interconnect board: 125
Control board: 039
Stab. elex board: 044
Gyro board: 031

The gravimeter operated normally after replacement of the failed boards.

File id: vc01
Logging interval: 1 second

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.9235		Logging officially started
2011:132:00:10:40.4420		Logging officially ended

vc01 data format:
```
vc01   2011:130:00:00:08.2866   01:024436 00

vc01   2011:130:00:00:09.2926   01:024548 00
```

Applied Microsystems MicroSV Pod Unit #1

File id: svpod01
Logging interval: 1 second

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.4154		Logging officially started
2011:132:00:10:40.3510		Logging officially ended

svpod01 data format:
```
svpod01     2011:130:00:00:08.6626     1540.52

svpod01     2011:130:00:00:09.6527     1540.53
```

Applied Microsystems MicroSV Pod Unit #2

File id: svpod02

Logging interval: 1 second

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.8755		Logging officially started
2011:132:00:10:40.4280		Logging officially ended

svpod02 data format:

```
svpod02     2011:130:00:00:08.0686    1541.87

svpod02     2011:130:00:00:09.0746    1541.88
```

Applied Microsystems MicroSV USS Unit

File id: svuss01
Logging interval: 1 second

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.4884		Logging officially started
2011:132:00:10:40.4280		Logging officially ended

svuss01 data format:

```
svuss01     2011:100:00:00:08.6390    1540.62

svuss01     2011:100:00:00:09.6440    1540.62
```

Seabird SBE38 Temperature Probe Pod Unit

File id: temppod01
Logging interval: 1 second

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.3914		Logging officially started

2011:132:00:10:40.7610		Logging officially ended

temppod01 data format:

```
temppod01   2011:130:00:00:07.0855   29.4851

temppod01   2011:130:00:00:07.9476   29.4850
```

Seabird SBE38 Temperature Probe Pod Unit

File id: temppod02
Logging interval: 1 second

Interruptions greater than ten seconds are displayed in the following table.

Log Date	Event	Comment
2011:097:00:00:00.8145		Logging officially started
2011:132:00:10:40.3370		Logging officially ended

temppod02 data format:

```
temppod02   2011:130:00:00:07.2015   29.4884

temppod02   2011:130:00:00:08.0786   29.4883
```

LDEO PCO2 System

The LDEO PCO2 system output is logged by LDS to the "pco2" set.

The atmospheric gas flow was secured during the cruise as condensation in the wet lab clogged the system. See below for more information.

File id: pco2
Logging interval: ~180 seconds

Interruptions greater than three hundred seconds are displayed in the following table.

Log Date	Event	Comment
2011:099:03:08:37.4836		Logging officially started
2011:099:03:23:59.7061 - 2011:099:04:59:31.4115	Missing data	Instrument stopped logging data
2011:099:05:13:47.2502 - 2011:099:05:30:51.5213	Missing data	Instrument stopped logging data

2011:102:23:14:56.9720 - 2011:102:23:20:50.8003	Missing data	Instrument reset to troubleshoot cycling issue
2011:103:00:17:59.0509 - 2011:103:00:42:47.3225	Missing data	Instrument reset to troubleshoot cycling issue
2011:132:00:09:46.6426		Logging officially ended

pco2 data format:

```
pco2  2011:130:00:27:11.9162  2011130.02002        2370.39     37.54      1007.07
        404.51       28.42        386.9   5000.00          19            0
Equil

pco2  2011:130:00:30:00.5374  2011130.02198        2370.02     37.53      1007.14
        404.42       28.46        386.8   5000.00          19            0
Equil
```

Mk21 XBT System

Files: *.RDF,*.EDF

Twenty eight XBT drops were made during this cruise. Refer to the MGL1106_Expendable_Drops.xls spreadsheet in the operations directory of the cruise archive.

IV. Seismic Summary

A. Acquisition Parameter Table

Acquisition Parameter Table	
AcquisitionParameterID	MGL1106_ACQ01
FieldActivityID	MGL1106
ReceiverType	Hydrophone Streamer
SourceType	Airgun
Acquisition System Name	Syntron Syntrak 960
Acquisition System Type	Digital
Seismic_Nav_System	C-Nav 3050 primary
Survey_datum	WGS84
Navigation Reference Point	29.5m fwd of stern, 0.0m stbd, 0.0m up from WL
NRP to source	269.2m
Source_to_Near_Channel	198.0m
Number _of_channels_recorded	1872
Number _of_cables	4
Number_of_channels_each_cable	468
Channel_length	12.5m
Cable_length	6000m
Cable_spacing	150m
Near_Channel_Number	468
Cable_depth	8m
Number_sources	2
Sub-arrays_per_source	2
Alternate_Shooting	Yes
Source_separation	75m nominal
Sub-array_separation	8.0m
Source_volume	3300 cu in
Source_pressure	2000 psi nominal
Source_make,model	Bolt 1500LL & 1900LL
Source_number	9 + 1 spare, per subarray
Source_depth	7m
Shot_control	Distance
Shot_Interval	25m
Sample_interval	2ms
Record_length	9s, 8s
Compass_birds	Yes
Recording_delay	No

B. Seismic Overview

The primary objectives of the cruise were survey lines in a 3D survey block using one source with four sub-array set up deployed by Lamont-Doherty Earth Observatory.

Physical Configuration

The towing configuration for the air guns and streamers is detailed in the document titled ***MGL1106_TowConfig.doc***.

Offsets

All antenna and in-water offset drawings are in the file ***MGL1106_TowOffsets.xls***

Spectra

Spectra was used for all timing and navigation during the cruise. Shotlogs were generated from spectra header logs, P190 and P294 files using shotlog processing code contained on the archive in /supplemental/code/shotlog.

V. Gravity Tie Information

The Gravimeter was tied before and after the cruise at the tie point located at the pier in Astoria.

Date / Time	Ship Location	Reference Location
2011-04-08	Honolulu, HI, UH Marine Center 21 18.962 N 157 53.180 W	Puntarenas 21 16.758 N 157 50.044 W
2010-	Honolulu, HI, UH Marine Center 21 18.971 N 157 53.170 W	Waikiki, HI, Outside Army Museum 21 16.766 N 157 50.055 W

Please refer to the supplemental gravity distribution for more information.

VI. Archive Contents

Key files are bolded.

MGL1106/docs	Cruise documents and logs
MGL1106/docs/config/spectra/survey	Spectra configuration archive
MGL1106/docs/elog	Cruise elog
MGL1106/docs/gravity_tie	Gravity Tie information
MGL1106/docs/map	Cruise maps, track map
MGL1106/docs/operations/	Operations documents
MGL1106/docs/operations/Daily_Reports	Cruise Daily Reports from Chief Science Officer
MGL1106/docs/operations/NavLogs	Seismic navigation logs (spectra)
MGL1106/docs/operations/ObsLogs	Seismic acquisition logs (gun controller)
MGL1106/docs/operations/MGL1106_B15_line_log_multi_channel_seismics.xls	**Master line log table**
MGL1106/docs/permits	Clearance Documents
MGL1106/docs/waypoints	Waypoint files
MGL1106/docs/personnel	Personnel rosters, org chart, bunk and phone lists
MGL1106/docs/reports	Cruise Report and supplemental docs
MGL1106/docs/reports/MGL1106_DataReport_v1.0.doc	**This file**
MGL1106/docs/offsets/MGL1106_TowOffset.xls	**Seismic tow drawings**
MGL1106/docs/screencaps	Screen captures
MGL1106/processed	Processed data
MGL1106/processed/reflex	Spectra reflex files
MGL1106/processed/shotlogs	Spectra shot log files in CSV format
MGL1106/processed/sprint	Sprectra spring files
MGL1106/processed/svp	Sound velocity profiles
MGL1106/raw	Raw data
MGL1106/raw/adcp	Raw ADCP data
MGL1106/raw/knudsen	Raw Knudsen sub-bottom profiler data
MGL1106/raw/multibeam	Raw EM122 data
MGL1106/raw/serial	Underway serial data: gps, tsg, weather, etc.
MGL1106/raw/spectra/P1	Spectra underway p190
MGL1106/raw/spectra/P2	Raw seismic navigation, p294
MGL1106/raw/XBT	Raw XBT data