RV Langseth Data Reduction Summary

MGL0812

Manzanillo, Mexico -- Manzanillo, Mexico

v2.3, 2008-10-14

Lamont-Doherty Earth Observatory, Columbia University

Tue August 19 05:44:03 2008

Date	Julian Date	Time	Port
2008-06-29	2008-181	1200 L, 1700 UTC	Manzanillo, Mexico
2008-08-19	2008-232	0900 L, 1400 UTC	Manzanillo, Mexico

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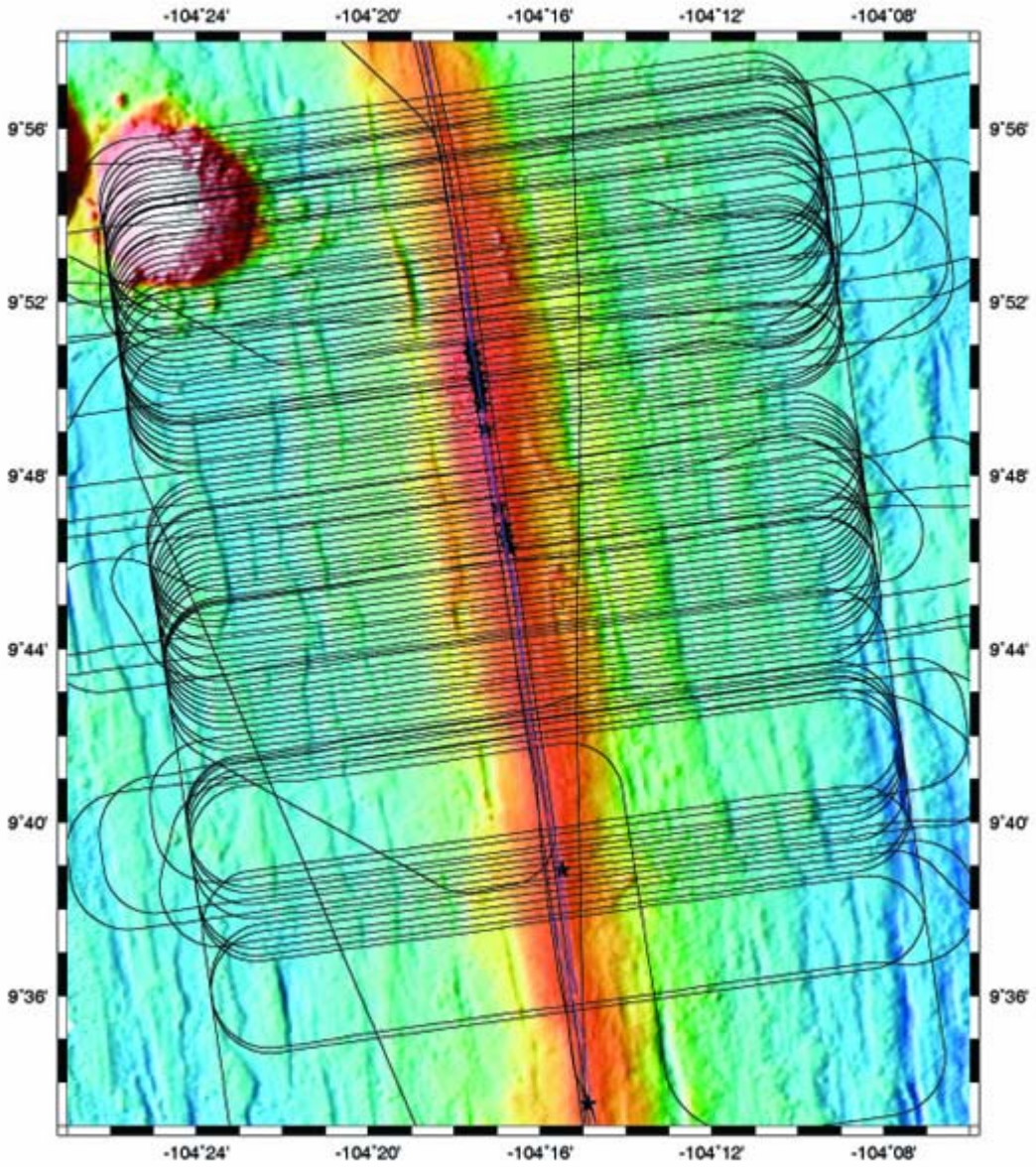
Please refer to the Langseth Data Report Supplement for information regarding data formats.

Cruise MGL0812



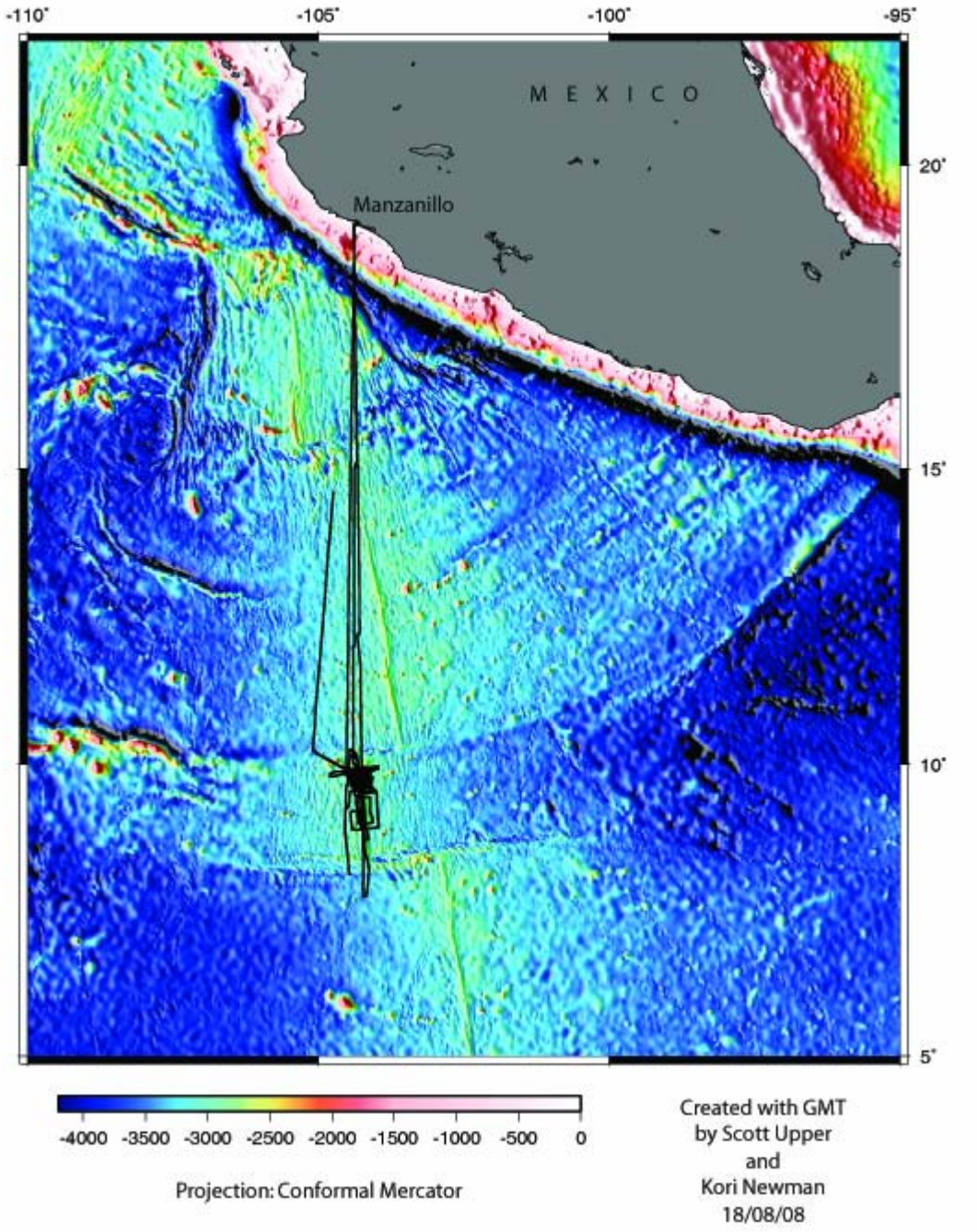
Projection: Conformal Mercator

Created with GMT
by Suzanne Carbotte

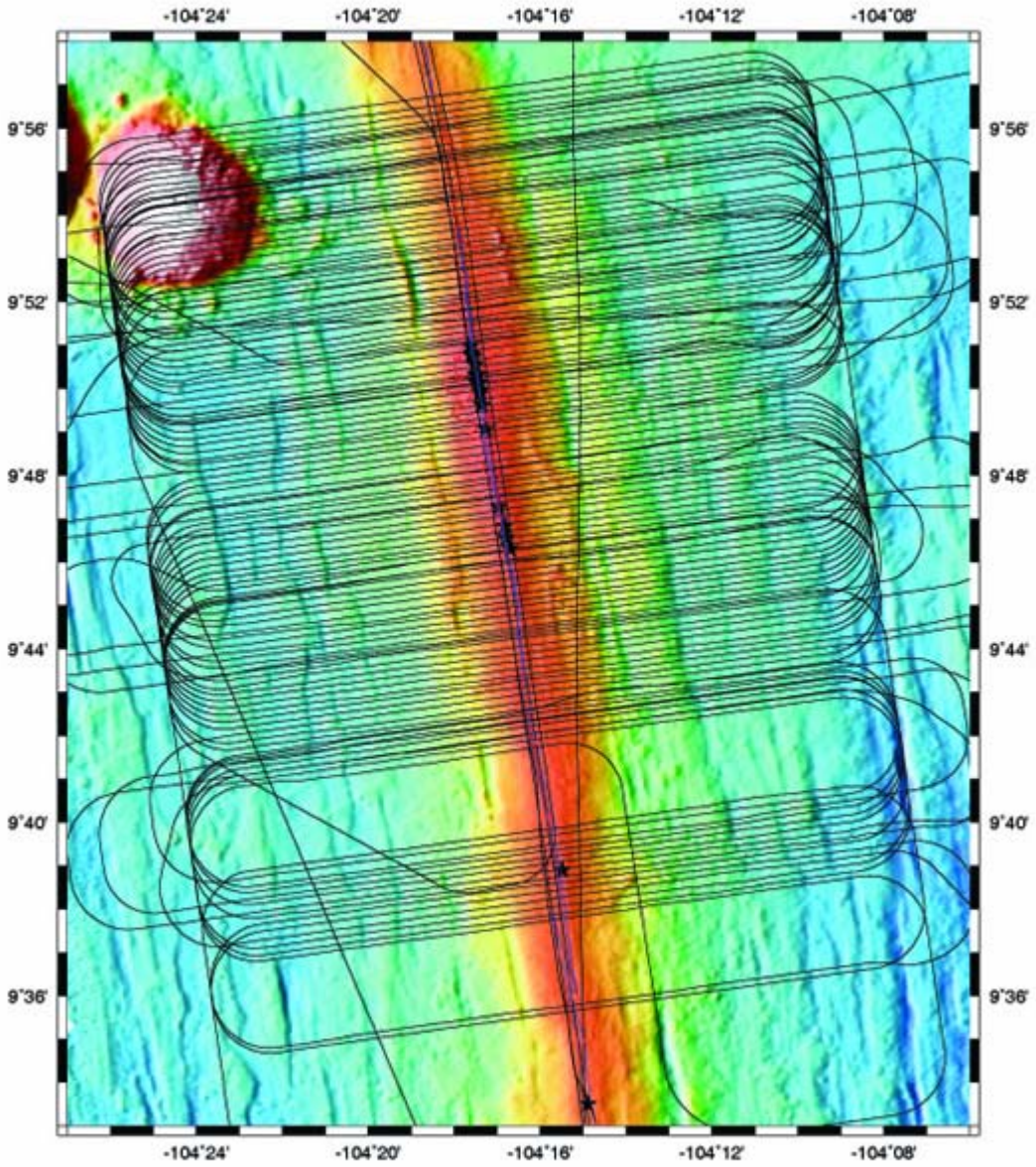
I. Background and Scientific Objectives

The primary goals of expedition MGL0812 were use the newly available multi-streamer capability of the R/V Langseth to create an accurate 3D seismic reflection image of the magmatic-hydrothermal system within the East Pacific Rise 9°50'N site by imaging the structure of the axial magma chamber (AMC) lid and shallow oceanic crust at a resolution, geometric accuracy, and scale comparable to seafloor observations of hydrothermal, biological, and volcanic activity. 3D migration techniques will allow us to construct geometrically accurate high-resolution images of the magma system and its distribution in the subsurface, while 3D amplitude variation with offset (AVO) analysis will allow us to determine the seismic properties (e.g., velocity, density, Poisson's ratio) that are proxies for the porosity and fluid content of the magma body. The 6 km offset of the hydrophone streamers will permit a detailed 3D characterization of the thickness and velocity of seismic Layer 2A and the upper part of Layer 2B. By providing 3D images and physical property mapping at a resolution comparable to the scale of variation of surface phenomenon, we can address several of major questions that focus on the relationships and interactions between subsurface magmatism and hydrothermalism and it's surface expression at mid-ocean ridges. Furthermore, our 3D seismic study will establish a baseline image of the magma body and upper crust against which changes in geometry and physical properties can be detected in the future using 4D time-lapse seismic imaging technology.

Cruise MGL0812



Cruise MGL0812



Projection: Conformal Mercator

Created with GMT
by Suzanne Carbotte

II. Personnel

Science Party

1	John Mutter	Chief Scientist	LDEO, Columbia University
2	Suzanne Carbotte	Co-Chief Scientist	LDEO, Columbia University
3	Pablo Canales	Co-Chief Scientist	WHOI
4	Mladen Nedimovic	Co-Chief Scientist	Dalhousie University
5	Helene Carton	Scientist	LDEO, Columbia University
6	Kori Newman	Scientist Graduate Student	LDEO, Columbia University
7	Milena Marjanovic	Scientist Graduate Student	LDEO, Columbia University
8	Min Xu	Scientist Graduate Student	WHOI
9	Omid Aghaei	Scientist Graduate Student	Dalhousie University
10	Lucy Stowe	Scientist Undergraduate Student	LDEO, Columbia University

Shipboard Technical Staff

1	Robert Steinhaus	Technician-in-charge, Chief Acquisition
2	Anthony Johnson	2nd Technician-in-charge, Chief Navigator
3	Michael Zhang	Nav/IT
4	David M. Martinson	Watch Leader, Nav/IT Shift Leader
5	Michael C. Martello	Nav/IT
6	Thomas Spoto	Chief Sound Source/Handing
7	Bern McKiernan	Watch Leader, Acq Shift Leader
8	Michael Tatro	Acquisition/ET
9	Robert Gunn	Sond Source/Handling Shift Leader
10	Carlos Gutierrez	Sound Source Mechanic
11	Ryan Eaton	Acquisition /ET
12	Lance Conrad	Acquisition/ET
13	Luis Villalobos	Sound Source Mechanic
14	Brian Goodick	Sound Source Mechanic
15	Maikol Badilla	Sound Source Mechanic
16	Scott Upper	MATE Intern, Acquisition/ET
17	Kaori Kobayashi	MATE Intern, Nav/IT
18	Joseph Beland	Lead Marine Mammal Observer
19	Giovanni Caltavuturo	Marine Mammal Observer, Lead Passive Acoustic Monitor Observer
20	Nicholas Engelmann	Marine Mammal Observer
21	Bradley Dawe	Marine Mammal Observer
22	Brendan Hurley	Marine Mammal Observer

Ship's Crew

1	Mark Landow	Master
2	Stanley Zeigler	Chief Mate
3	David Wolford	2nd Mate
4	Clint Acoutin	3rd Mate
5	Jason Woronowicz	Bosun
6	George Cereno	AB
7	Salvador Oboza	AB
8	Petronio Paragas	AB
9	Nicky Applewhite	OS
10	Jeromie Webster	OS
11	Steve Pica	Chief Engineer
12	Peter Chizmar	1st Asst. Engineer
13	Thidiane Kanoute	2nd Asst. Engineer
14	Zachary Gallant	3rd Asst. Engineer
15	Jack Schwartz	Electrician
16	Fernando Uribe	Oiler
17	Charles Billips	Oiler
18	Isaias Sanchez	Oiler
19	Gary Brodock	Steward
20	Ricky Rios	Cook

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
EM120	Kongsberg EM120 Multibeam Sonar	Full	raw output to file	See below	variable
			centerbeam serial logs	MGL-bath02.*	variable
DS50	Furuno DS50 Doppler Speedlog	Full	serial logs	MGL-slog01.*	1s
XBT	Sippican MK21 XBT Launcher		raw output to file	See below	n/a
			converted output to file	See below	
WX1	RM Young 5103 Weather Bird and Translator	Full	serial logs	MGL-wx01.*	1s
			mwv conversion	MGL-mwv01.*	
TSG	SeaBird SBE23 Thermosalinograph	Full	raw serial logs	MGL-tsg.*	1s
			converted data	MGL-tsgconv.*	
CNAV	C&C Tech. CNAV DGPS Receiver	Full	serial logs	MGL-cnav.*	1s
MAG01	GeoMetrics 882 Magnetometer	Partial	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	Full	serial logs	MGL-stu1.*	10s
TAGGER	Spectrum Instruments intelligent reference TM-4	Full	serial logs	MGL-tagger01.*	shot
			filtered logs	MGL-shot01.*	shot

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

Note: We returned to Manzanillo, Mexico on Julian date 192 for compressor repair. We departed again for the work area on Julian date 194. Missing data on 192 and 194 is due to a power failure while pierside.

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. The unit was operational during the entire cruise.

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

Log Date	Event	Comment
2008:192:20:39:27.5733		Logging officially started
2008:194:05:46:36.4531 -- 2008:194:06:28:41.2507	Missing data	Reason unrecorded
2008:194:06:44:01.9857 -- 2008:195:15:56:05.1453	Missing data	Reason unrecorded
2008:195:18:50:17.3406 -- 2008:220:13:45:42.0681	Missing data	Reason unrecorded
2008:220:13:45:45.1900		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-120 Mutibeam

The EM120 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.

EM120 swath data is saved to the cruise archive under <cruiseid>/multibeam. Center beam depth is recorded separately to serial log.

Logging interval: variable with water depth

File id: bath02

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

Log Date	Event	Comment

2008:182:14:16:04.2473		Logging officially started
2008:192:01:29:00.7879 --2008:192:13:43:47.7251	Missing data	Reason unrecorded
2008:192:13:52:30.3235 -- 2008:192:17:09:21.9835	Missing data	Reason unrecorded
2008:192:17:17:29.0785 -- 2008:192:17:21:58.4723	Missing data	Reason unrecorded
2008:192:18:08:19.5322 -- 2008:194:06:28:41.2770	Missing data	Reason unrecorded
2008:194:06:44:01.9773 -- 2008:196:21:13:34.4360	Missing data	Reason unrecorded
2008:220:13:43:27.0505 -- 2008:220:13:46:01.4846	Missing data	Reason unrecorded
2008:229:17:25:42.9277 -- 2008:229:18:18:20.5342	Missing data	Reason unrecorded
2008:231:00:14:52.0602		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

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
2008:182:00:00:01.3582		Logging officially started
2008:194:05:46:37.0122 -- 2008:194:06:28:41.2509	Missing data	Reason unrecorded
2008:194:06:44:01.9770 -- 2008:194:13:36:26.3981	Missing data	Reason unrecorded
2008:221:17:25:57.6844 -- 2008:221:17:26:23.9134	Missing data	Reason unrecorded
2008:231:00:15:21.8285		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.

Log Date	Event	Comment
2008:182:00:00:00.6808		Logging officially started
2008:194:05:46:37.4911 -- 2008:194:13:37:38.0037	Missing data	Reason unrecorded
2008:222:19:47:49.2776 -- 2008:222:21:50:53.4412	Missing data	Reason unrecorded
2008:222:21:50:53.4412 -- 2008:222:21:58:25.8983	Missing data	Reason unrecorded
2008:222:21:58:25.8983 -- 2008:222:22:45:30.7346	Missing data	Reason unrecorded
2008:222:22:45:30.7346 -- 2008:222:22:47:34.4591	Missing data	Reason unrecorded
2008:222:22:47:34.4591 -- 2008:222:22:49:12.9065	Missing data	Reason unrecorded
2008:222:22:49:12.9065 -- 2008:222:22:50:01.4249	Missing data	Reason unrecorded
2008:222:22:50:01.4249 -- 2008:222:23:02:17.5498	Missing data	Reason unrecorded
2008:222:23:02:23.7212 -- 2008:222:23:57:11.9956	Missing data	Reason unrecorded
2008:222:23:57:11.9956 -- 2008:223:02:16:47.4678	Missing data	Reason unrecorded
2008:223:03:57:08.2203 -- 2008:223:04:01:05.9902	Missing data	Reason unrecorded
2008:229:17:24:56.6630 -- 2008:229:18:17:14.7211	Missing data	Reason unrecorded
2008:231:00:15:08.5292		Logging officially ended

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
2008:182:00:00:00.6808		Logging officially started
2008:194:05:46:37.4911 -- 2008:194:13:37:38.0037	Missing data	Reason unrecorded
2008:222:19:47:49.2776 -- 2008:222:21:50:53.4412	Missing data	Reason unrecorded
2008:222:21:50:53.4412 -- 2008:222:21:58:25.8983	Missing data	Reason unrecorded
2008:222:21:58:25.8983 -- 2008:222:22:45:30.7346	Missing data	Reason unrecorded
2008:222:22:45:30.7346 -- 2008:222:22:47:34.4591	Missing data	Reason unrecorded
2008:222:22:47:34.4591 -- 2008:222:22:49:12.9065	Missing data	Reason unrecorded
2008:222:22:49:12.9065 -- 2008:222:22:50:01.4249	Missing data	Reason unrecorded
2008:222:22:50:01.4249 -- 2008:222:23:02:17.5498	Missing data	Reason unrecorded
2008:222:23:02:23.7212 -- 2008:222:23:57:11.9956	Missing data	Reason unrecorded
2008:222:23:57:11.9956 -- 2008:223:02:16:47.4678	Missing data	Reason unrecorded
2008:223:03:57:08.2203 -- 2008:223:04:01:05.9902	Missing data	Reason unrecorded
2008:229:17:24:56.6630 -- 2008:229:18:17:14.7211	Missing data	Reason unrecorded
2008:231:00:15:08.5292		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
Logging interval: 1 second

File id: cnav

The C-NAV 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
2008:182:00:00:00.7390		Logging officially started

2008:192:18:54:07.7357 -- 2008:192:18:59:22.6997	Missing data	Reason unrecorded
2008:192:21:26:59.7666 -- 2008:192:21:28:12.7000	Missing data	Reason unrecorded
2008:194:06:12:12.7345 -- 2008:194:06:28:41.2378	Missing data	Reason unrecorded
2008:194:06:44:01.9779 -- 2008:194:13:35:19.7281	Missing data	Reason unrecorded
2008:194:13:37:32.7551 -- 2008:194:13:37:53.7715	Missing data	Reason unrecorded
2008:229:17:25:48.7470 -- 2008:229:18:15:28.7169	Missing data	Reason unrecorded
2008:231:00:15:03.7162		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
```

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 operated normally.

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

Log Date	Event	Comment
2008:182:00:00:00.4704		Logging officially started
2008:194:06:44:01.9865 -- 2008:194:13:37:11.0637	Missing data	Reason unrecorded
2008:229:17:25:49.0275 -- 2008:229:18:17:56.3976	Missing data	Reason unrecorded
2008:231:00:15:06.4515		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
2008:182:00:00:00.1818		Logging officially started
2008:194:06:44:01.9869 -- 2008:194:13:35:45.7205	Missing data	Reason unrecorded
2008:197:19:58:51.3915 -- 2008:197:20:00:11.0368	Missing data	Reason unrecorded
2008:229:17:25:48.5766 -- 2008:229:18:15:48.4729	Missing data	Reason unrecorded
2008:231:00:15:16.1359		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
2008:182:00:00:00.1538		Logging officially started
2008:192:01:30:20.2898 -- 2008:192:01:31:14.0523	Missing data	Reason unrecorded
2008:192:15:05:02.3658 -- 2008:192:15:48:54.1535	Missing data	Reason unrecorded
2008:194:06:44:01.9867 -- 2008:194:13:35:27.6501	Missing data	Reason unrecorded
2008:231:00:15:20.1374		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
```

Spectrum Instruments TDM-4 Event Logger

The Event logger time stamps time-break triggers from DigiShot in all fire modes.

File id: tagger1

Logging interval: 1 second

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

Log Date	Event	Comment
2008:182:00:00:00.0356		Logging officially started
2008:184:12:35:48.8457 -- 2008:184:12:36:38.5296	Missing data	Reason unrecorded
2008:194:05:46:36.4190 -- 2008:194:06:28:41.2373	Missing data	Reason unrecorded
2008:194:06:44:01.9771 -- 2008:199:07:53:56.2000	Missing data	Reason unrecorded
2008:231:00:15:35.3418		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.

Magnetometer Deployment Notes

Time	Event
2008:186:06:40	Deployed
2008:186:07:00	Recovered
2008:186:15:00	Recovered
2008:187:16:45	Deployed
2008:210:13:06	Recovered
2008:210:14:50	Deployed
Unrecorded	Recovered
2008:211:14:55	Deployed
2008:212:12:01	Disconnected to re-rig cable
2008:212:12:38	Reconnected
2008:214:17:49	Internal instrument failure
2008:214:19:20	Recovered

Logging interval: 1 second

File id: mag01

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

Log Date	Event	Comment
2008:182:13:23:32.8238		Logging officially started
2008:182:14:53:47.5895 -- 2008:182:16:35:02.5127	Missing data	Reason unrecorded
2008:182:17:34:50.3682 -- 2008:182:17:36:29.7571	Missing data	Reason unrecorded
2008:182:19:04:50.5302 -- 2008:185:09:45:58.1820	Missing data	Reason unrecorded
2008:185:10:17:45.9470 -- 2008:185:10:43:41.4447	Missing data	Reason unrecorded
2008:185:10:48:26.4317 -- 2008:185:11:27:11.5586	Missing data	Reason unrecorded
2008:185:11:29:26.5527 -- 2008:186:07:06:02.7463	Missing data	Reason unrecorded
2008:186:15:00:52.5311 -- 2008:187:16:43:41.7113	Missing data	Reason unrecorded
2008:189:19:57:09.8150 -- 2008:189:19:57:51.5457	Missing data	Reason unrecorded

2008:189:19:59:15.5369 -- 2008:194:06:28:41.2371	Missing data	Reason unrecorded
2008:194:06:44:01.9784 -- 2008:198:21:58:24.1103	Missing data	Reason unrecorded
2008:210:13:06:16.9569 -- 2008:210:14:53:36.4119	Missing data	Reason unrecorded
2008:210:21:07:41.4460 -- 2008:211:14:54:51.6508	Missing data	Reason unrecorded
2008:212:12:01:57.3844 -- 2008:212:12:37:54.7117	Missing data	Reason unrecorded
2008:214:17:26:43.5524 -- 2008:214:17:29:31.5496	Missing data	Reason unrecorded
2008:214:17:29:31.5496 -- 2008:214:17:40:04.5204	Missing data	Reason unrecorded
2008:214:17:40:04.5204 -- 2008:214:17:40:34.5162	Missing data	Reason unrecorded
2008:214:17:40:34.5162 -- 2008:214:17:40:46.5165	Missing data	Reason unrecorded
2008:214:17:40:46.5165 -- 2008:214:17:44:19.5060	Missing data	Reason unrecorded
2008:214:17:44:19.5060 -- 2008:214:17:49:37.4923	Missing data	Reason unrecorded
2008:214:17:49:37.4923	Logging ends	Instrument Failure

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: tsg

Logging interval: 1 second

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

2008:183:18:59:31.2385		Logging officially started
2008:214:17:40:46.5165 -- 2008:214:17:44:19.5060	Missing data	Reason unrecorded
2008:214:17:44:19.5060 -- 2008:214:17:49:37.4923	Missing data	Reason unrecorded
2008:231:00:15:31.9154		Logging officially ended

tsg data sample:

tsg	2008:231:00:00:01.9179	B479CB5528A6D6ABFB2D
tsg	2008:231:00:00:11.9187	B474CB5428A799ABBB2D
tsg	2008:231:00:00:21.9176	B46FCB5328A70CAB8B2D

File id: tsgconv

Logging interval: 1 second

2008:183:18:59:31.2385		Logging officially started
2008:214:17:40:46.5165 -- 2008:214:17:44:19.5060	Missing data	Reason unrecorded
2008:214:17:44:19.5060 -- 2008:214:17:49:37.4923	Missing data	Reason unrecorded
2008:231:00:15:31.9154		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

File id: vc01
Logging interval: 1 second

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

2008:182:00:00:00.9934		Logging officially started
2008:194:06:44:01.9869 -- 2008:194:13:36:44.5465	Missing data	Reason unrecorded
2008:229:17:25:49.0394 -- 2008:229:18:18:55.0549	Missing data	Reason unrecorded
2008:231:00:15:36.0932		Logging officially ended

Mk21 XBT System

Files: *.RDF,*.EDF

Many XBT drops were made during this cruise. Refer to the Expendable_Drops spreadsheet in the deck_log directory of the cruise archive.

IV. Seismic Summary

A. Acquisition Parameter Table

Acquisition Parameter Table	
AcquisitionParameterID	MGL0812_ACQ01
FieldActivityID	MGL0812
ReceiverType	Hydrophone Streamer
SourceType	Airgun
Acquisition System Name	Syntron Syntrack 960
Acquisition System Type	Digital
Seismic_Nav_System	C-Nav primary
Survey_datum	WGS84
Navigation Reference Point	Fore/Aft+4.2 m
NRP_to_Antennae	4.87 m
NRP to source	295 m
Antenna_to_Source	
Source_to_Near_Channel	200 m
Number _of_channels_recorded	1872
Number _of_cables	4
Number_of_channels_each_cable	468
Channel_length	12.5 m
Cable_length	6000 m
Cable_spacing	150 m
Near_Channel_Number	468
Cable_depth	7.5 m (AXIS1, AXIS2, AXIS3, AXIS2R1), 9 m (rest)
Number_source_arrays	2
Alternate_Shooting	Yes
Source_array_separation	75 m nominal
Source_volume	3300 cu in
Source_pressure	2000 psi nominal
Source_make,model	Bolt
Source_number	10
Source_depth	7.5 m
Shot_control	Distance
Shot_Interval	37.5 m
Sample_interval	2 ms
Record_length	8 (AXIS1, AXIS2, AXIS3, AXIS2R1), 10 sec (rest)
Compass_birds	Yes
Tail_buoy_Positioning	Yes

Recording_delay	No

B. Seismic Overview

The primary objectives of the cruise were survey lines in a 3D survey block using four gun strings set up as an alternating source (2 gun strings per source) and four 6km streamers deployed by Lamont-Doherty Earth Observatory.

Physical Configuration

The towing configuration for the air guns and streamers is detailed in the document titled ***MGL0812.xls***. All antenna, vessel, and in water equipment offsets are also detailed in the aforementioned document.

Spectra

Spectra was used for all timing and navigation during the cruise. Spectra P294 data was processed using Sprint and a post-acquisition P190 data set was generated for the cruise.

Misc Comments

Other information pertinent to the East Pacific Rise cruise is included in the ***Job Book with Nav & Technical Support Final Rpt – MGL 0812***.

V. Client Instrumentation

No client instrumentation was used during this cruise.

VI. RV Langseth Gravity Tie Information

MGL0812 Tie #1, Manzanillo, Mex.

Pier/Ship	Latitude	Longitude
7/11/2008	19 03.32690 N	104 18.8812 W

Manzanillo municipal pier.

Reference	Latitude	Longitude
1996	44 37.2 N	124 02.8 W

University of Colima, Naranjo campus.

Time (UTC)	Entry	Value	
20:01	Main Deck Level BELOW Pier	1.50	
20:01	Pier 1 L&R Value	2250.65	L&R
21:30	Reference L&R Value	2261.60	L&R
22:18	Pier 2 L&R Value	2250.70	L&R
	Reference Gravity	978595.13	mGals
21:30z	Grav Meter Value (BGM Reading)	978595.20	mGals, filtered
	Potsdam Correction	0	1 if correction required

Difference in meters between pier and main deck	1.000	meters
Difference in meters between main deck and BGM	3.075	meters

(positive value means deck is below pier, bgm is below deck)

Difference in mGals between Pier and Reference

(Pier (avg) -	Reference) *	1.06 L&R/mGal		Delta L&R	
2250.68	2261.60	1.06		-11.58	mGals

Computed Pierside Gravity in mGals

Reference + Delta mGals [+ Potsdam]			=	Pier Gravity	
978595.13	-11.58	0.00		978583.54	mgals

Height Correction in mGal

(Pier Height+BGMHeight)		* FAA Constant		Height Correction	
4.08	1.00	0.31		1.57	mGals/min

Calculated Gravity in mGals at Meter

Pier Gravity+	Height Correction (mGal)	=		Gravity@meter	
978583.54	1.57			978585.12	mGals

Current Mistie

Filtered BGM Reading -	Calc. Gravity	=		Current Mistie	
978595.20	978585.12			10.08	mGals

	Id	Julian	Date	Mistie	Drift/Day	
Pre Cruise	n/a	n/a	n/a	n/a	n/a	*(from previous tie)*
Post Cruise	MGL0811	193	11. Jul 08	10.08	n/a	*(calculated here)*
Total Days			n/a	n/a		

MGL0812 Tie #2, Manzanillo, Mex.

Pier/Ship	Latitude	Longitude
8/20/2008	19 03.9465 N	104 17.5258 W

Manzanillo municipal pier.

Reference	Latitude	Longitude
1996	44 37.2 N	124 02.8 W

University of Colima, Naranjo campus.

Time (UTC)	Entry	Value	
20:01	Main Deck Level BELOW Pier	0.00	
14:57	Pier 1 L&R Value	2246.44	L&R
15:55	Reference L&R Value	2261.63	L&R
17:35	Pier 2 L&R Value	2245.76	L&R
	Reference Gravity	978595.13	mGals
	Grav Meter Value (BGM Reading)	?	mGals, filtered
	Potsdam Correction	0	1 if correction required

Difference in meters between pier and main deck	0.000	meters
Difference in meters between main deck and BGM	3.075	meters

(positive value means deck is below pier, bgm is below deck)

Difference in mGals between Pier and Reference

(Pier (avg) -	Reference) *	1.06 L&R/mGal		Delta L&R	
2246.10	2261.63	1.06		-16.46	mGals

Computed Pierside Gravity in mGals

Reference + Delta mGals [+ Potsdam]			=	Pier Gravity	
978595.13	-16.46	0.00		978578.66	mgals

Height Correction in mGal

(Pier Height+BGMHeight)	* FAA Constant			Height Correction	
3.08	0.00	0.31		0.95	mGals/min

Calculated Gravity in mGals at Meter

Pier Gravity+	Height Correction (mGal)		=	Gravity@meter	
978578.66	0.95			978579.62	mGals

Current Mistie

Filtered BGM Reading -	Calc. Gravity		=	Current Mistie	
?	978579.62			#VALUE!	mGals

	Id	Julian	Date	Mistie	Drift/Day	
Pre Cruise	n/a	n/a	n/a	10.39	n/a	*(from previous tie)*
Post Cruise	MGL0811	193	20. Aug 08	#VALUE!	n/a	*(calculated here)*
Total Days			n/a	n/a		

Note: 07/11 first tie of Gravimeter since June 2008 repair. Gravimeter reading for 8/20 unavailable at time of writing. See updated report when available.

VII. Archive Contents

Key files are bolded.

MGL0812/docs	Cruise documents and logs
MGL0812/docs/elog	Cruise elog
MGL0812/docs/Operations/	Operations documents
MGL0812/docs/Operations/MGL0812_ReelLog.xls	**Seismic reel log**[†]
MGL0812/docs/Operations/bird_logs	Bird Logs, fin angle logs and reports, bird QC
MGL0812/docs/Operations/Nav_Logs	Seismic navigation logs (spectra)
MGL0812/docs/Operations/Nav_Logs/CompletedLines/Daily_Field_Logs.xls	**Master nav log table**
MGL0812/docs/Operations/Observer_Logs	Seismic acquisition logs (syntrak/gun controller)
MGL0812/docs/Operations/ObserverLogs/MGL0812_Obs_Log_Master.xls	**Master acquisition log table**
MGL0812/docs/Operations/ShipmentDocuments	Shipment logs/invoices
MGL0812/docs/Operations/StreamerSheets	Streamer logs (deploy/recovery, ballast)
MGL0812/docs/Operations/Waypoints	Waypoint files
MGL0812/docs/Personnel	Personnel rosters, org chart, bunk and phone lists
MGL0812/docs/Personnel/Cruise Photos	Cruise photos
MGL0812/docs/planning	Planning documents
MGL0812/docs/Report	Cruise Report and supplemental docs
MGL0812/docs/Report/Job Book with Nav & Technical Support Final Rpt - MGL 0.doc	**Seismic navigation report**
MGL0812/processed/sprint_nav/Documents/LangsethProcessing.xls	**Seismic nav processing master**
MGL0812/docs/Report/MGL0812_DataReport.doc	**This file**
Cruisedata/MGL0812/docs/Report/MGL0812_drawings.xls	**Seismic tow drawings**
MGL0812/docs/Report/Sequence_Report.xls	**Sequence report**
MGL0812/docs/ScreenCaps	Screen captures
MGL0812/docs/Tape_backup	MCS tape logs
MGL0812/processed	Processed data
MGL0812/processed/sprint_nav	Processed seismic navigation (p190)
MGL0812/processed/svp	Sound velocity profiles
MGL0812/raw	Raw data
MGL0812/raw/knudsen	Raw Knudsen sub-bottom profiler data
MGL0812/raw/multibeam	Raw EM120 data
MGL0812/raw/serial	Underway data: gps, tsg, weather, etc.
MGL0812/raw/spectra/P1	Spectra underway p190
MGL0812/raw/spectra/P2	Raw seismic navigation, p294
MGL0812/raw/spectra/survey	Spectra config archive

[†] File incomplete

MGL0812/raw/XBT	Raw XBT data
MGL0812/scratch	Miscellaneous files