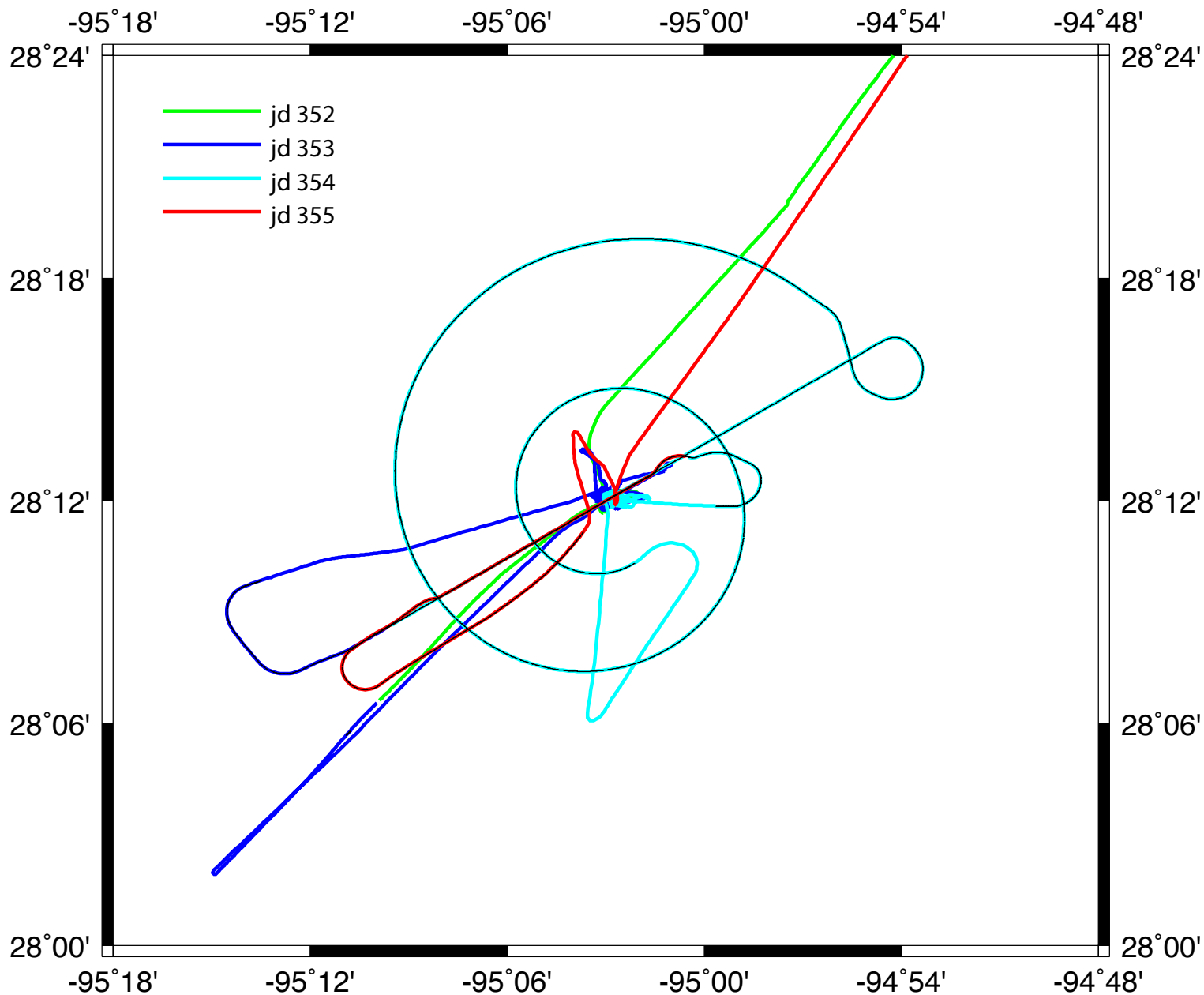


# MGL0707 17 - 21 December, 2007

## Cruise Report John Diebold



## **R/V Marcus Langseth**

NATIONALITY - U.S.A.

PORT OF REGISTRY - NEW YORK, NEW YORK

IMO# 9010137

GROSS TONS – 3834

NET TONS - 1150

At: Galveston, Texas

DATE – Dec. 17, 2007

### **CREW LIST**

#	NAME	POSITION
1	O'Loughlin, James E.	Master
2	Zeigler, Stanley P. Jr.	Chief Mate
3	Wolford, David H.	2 <sup>nd</sup> Mate
4	Crum, Breckenridge C.	3 <sup>rd</sup> Mate
5		
6	Rimando, Inocencio B	AB
7	Davis, Alvin M.	AB
8	Oboza, Salvador O.	AB
9	Applewhite, Nicky, R.	OS
10	Magnan, Richard R.	OS
11	Karlyn, Albert D.	Chief Engr.
12	Evjen, Brian	2 <sup>nd</sup> Engr.
13	Kenny, Brian T.	3 <sup>rd</sup> Engr.
14	Vetting, Ryan P.	3 <sup>rd</sup> Engr.
15		Oiler
16	Thibault, Louis J.	Oiler
17	Gray, Pearle	Oiler
18	Neis, Philip D.	Electrician
19	Glenn, Richard D.	Steward
20	Cannon, Jeffrey J.	Cook

## **R/V MARCUS G. LANGSETH**

At: Galveston, Texas

DATE – Dec. 17, 2007

### **SCIENCE LIST**

#	NAME	POSITION
1	Dawe, Bradley E.	MMO
2	Koczynski, Theodore	Science Off.
3	Finsterwald, Paul G.	Science Tech
4	Webb, Spahr	Co-Ch.Scientist
5	Diebold, John B.	Ch/Scientist
6	Holst, Meike	MMO
7	Troychansky, Eli	Science Tech
8	Hurley, Brendan J.	MMO
9	McKiernan, Bernard	Science Tech
10	Walsh, Justin	Science Tech
11	Gunn, Robert C.	Science Tech
12	Kane, Robert B.	Science Tech
13	Nooner, Scott L.	Scientist
14	Doerman, Lindsey E.	Scientist
15	Holmes, Robert C.	Scientist
16	Stroup, Danielle	Scientist
17	Goodick, Brian E.	Science Tech
18	Jankowski, Meaghan S.	MMO
19	Claudio, Fossati	MMO

TOTAL CREW & SCIENTISTS – 38

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James E. O'Loughlin – MASTER

MGL0707 – cruise log, John Diebold

15 Dec – arrived at the ship fairly late – the day started badly with an unacceptably high quote from WHOI for personnel and materiel

16 Dec – Sunday

I visited West Marine, and bought a nice-looking, but expensive anchor.

A shipment of Ariel compressor parts arrived, but the wrong parts

Starboard Ariel is running in “endurance” test at 2000 psi – the Fisher control has been properly set up.

David Martinson is here, working on Spectra [seems OK] and the Sonardyne controller (which is not.) He reports:

“Hit a brick wall on that one. I did verify that the controller unit is OK and the voltages are correct (it connects to the streamers and the gun strings and does all of the signal generating and processing). They just need to finish wiring in the gun strings to it. The SIPS processors..... I wouldn't even fool around with the oldest one. Should be able to make any 150 watt PC power supply work on the newest of the two units and there is software already installed on it. On the replacement supply, we would have to take the cable end off of the unit currently in the machine and graft it on to the new power supply. Power supply would probably have to set external to the unit. About a half dozen RS232 Lemo connectors will be needed to build the interface cables that connect it to the controller. It should be good to go then. I am trying to get in contact with Sonardyne USA which is based in Houston to see if they have any resources available. I will also check tomorrow and see if Harvey Lynch has some old Sonardyne stuff lying around that could be had for free or close to it. I am also sending a detailed list of options to Anthony and Eli.”

MMO Brendan Hurley showed up, unexpectedly.

I continued to refine the Autotrak preplot software for the shallow spiral.

During the evening the rest of the MMOs, buoy crew and science officer Ted Koczynski arrived.

17 Dec - Monday. Waiting on 1<sup>st</sup> Assistant Engineer.

Buoy group unpacked and set up the BBN buoy. Its HD was full, but after Erasing test files, software performed correctly.

Rental cars were returned, I finalized the spiral track. During the afternoon, the buoy crew and ships crew secured the buoys. We unreeled the shallow hydrophone cable, flaked it on deck and reeled it up on the spares winch. The 1<sup>st</sup> A/E appeared at 17:30. 23:00 – sailed

18 Dec – Tuesday

06:30 – ETA at the point, 08:00. Warm wind from the S-SE, ca. 20 kt

11:00 BBN buoy in the water, but will not turn on. While pulling it back with Hydrophone cable, the superstructure was damaged. 12:15 onboard in gun slip.  
14:45 – Launched Spahr’s buoy – it floats sideways, apparently lacking ballast weight.  
15:30 – buoy seems to be locked into GPS and working, will shoot anyway.  
15:45 – guns start deployment  
17:00 two strings out.  
17:15 – I am advised that we must start shooting one of the deployed strings because darkness is coming on. For the next hour I struggled with the DigiShot gun controller, until darkness did come on and it was too late. I was about to call the I/O service 24 hour number when I found the secret in the manual. I ran some tests, and am now confident that we can go in the morning. Shot times were logged on MGL data logger. Will have to retrieve the gun strings, and Spahr’s buoy first  
20:10 – last gun string aboard, steaming for the original site.  
22:00 Spahr’s buoy & anchor aboard. There was some lack of decent grappling and over-the-side lighting equipment. And I got scolded by capt’n about not wearing a hard hat – I had not planned to have to help, but I did.

19 Dec – Wednesday

08:00 Maneuvering for the site, the buoy marking yesterday’s “lost” anchor was sited.  
09:00 – missed grappling for the anchor line, sent out the FRC  
09:30 – the FRC returns the line from the ship, maneuvering to recover the anchor.  
12:00 – completed deployment of the BBN buoy. Will take another hour or so for Spahr’s buoy to be ready.  
13:30 - XBT  
14:10 Spahr’s buoy in. The plan now is to steam up the line at full speed for 40 minutes, then slow down to 3kt, put the guns in, and start rampup asap.  
14:45 – guns begin to go out. BBN buoy computer seems to be hung – phone call with Scott Ritter doesn’t help a lot.

“Hi John & Scott,

This error is file-system-related and I believe it can only be cleared by power-cycling the CPU (buoy). It may simply begin to behave after this; but it might take a few minutes before you can log in again, as Linux might need to spend some time fscking (repairing) the file system before booting up all of the way.

As to what caused it:

It's possible that the hard disk is failing, but this strikes me as unlikely. Very worst case, you can swap in the spare disk.

It could also be a failure of the hard disk controller (extremely unlikely) or a loose hard disk controller cable (more plausible).

Another possibility is that the disk is getting perilously (90+%) full. Check whether

this is the case. If it is, delete any old data files. I don't recall whether the system was ultimately configured to come up and automatically start capturing data. If so, then I would manually stop the data acquisition, before leaving the system/scheduler on its own, to prevent filling the disk with unwanted files.

One other possibility (long-shot), is that spotty connectivity is interfering with the file system due to an unidentified Linux bug. For this, you might not want to remain logged in for hours at a time during transits.

If you like/can, zip & email me the var/log/messages\* files to review.

Hoping for the best,  
Scott"

15:55 [21.55, GMT] the guys got the EM120 working [power cycles got a relay working?] and after I forced it to 50m, it started tracking the bottom.

16:20 – guns nearly out, ship nearly abreast of BOL.

16:27 35-min rampup begins – shots are being logged.

17:42 – passed point 1 with all guns firing. One 360 cluster has an uncommunicative module and I turned two of the spares on to compensate.

19:21 – 19:23 – passed point 2, and the buoys. Only Spahr's buoy is operating.

21:10 – passed point 3, begin the cloverleaf turn @ 8.5 degrees/minute, had to enlarge this to 5 degrees/minute [approx radius 1700m]

22:30 – Chad has plotted up the short spate of data we recorded on the Spahr buoy yesterday, and finds it contaminated with the 1/sec GPS telemetry radio bursts. I.e, this data we are now collecting will likely be largely contaminated.

20 Dec – Thursday

Ended the line at 07:40 – 2633 shots, according to DigiShot. will haul strings, buoys while I sleep – bed at 08:00.

12:00 – up for lunch – buoys are recovered, but not the BBN cable, which parted at the subsurface float connection. Searching for the anchor buoy while Spahr's computer battery charges. Gunners repairing string damage. BBN cable anchor buoy sighted and grappled 12:30. moving the tie point to streamer deck.

13:15 – line lost due to excessive tension

13:30 – anchor buoy sighted floating freely, and abandoned.

14:00 – waiting on battery recharge.

15:00 – redeploy

15:30 – sucked the buoy under the stern, comes out floating funny – need to recover and check out.

16:15 – buoy back in, guns going in as we steer east towards a reciprocal line 2 miles south of line 1-2-3

We shot this line with 2 strings. Very solid for the most part. I subbed the spare for gun 10 on string 4, and subbed gun5 for gun 4 on string 3. 787 shots, according to DigiShot.

- ended line at 22:00 local, recovered buoy 23:30 local.

21 Dec – eta pilots 09:00

1

1:00 at the dock

My simple, sanitized cruise report for Paul and the MLSOC:

Langseth cruise ML0707 17 - 21 December 2007, Galveston-Galveston, met with mixed success and failure. The mission was to obtain calibrated measurements of the water- borne noise levels arising from firing Langseth's seismic sources in shallow water.

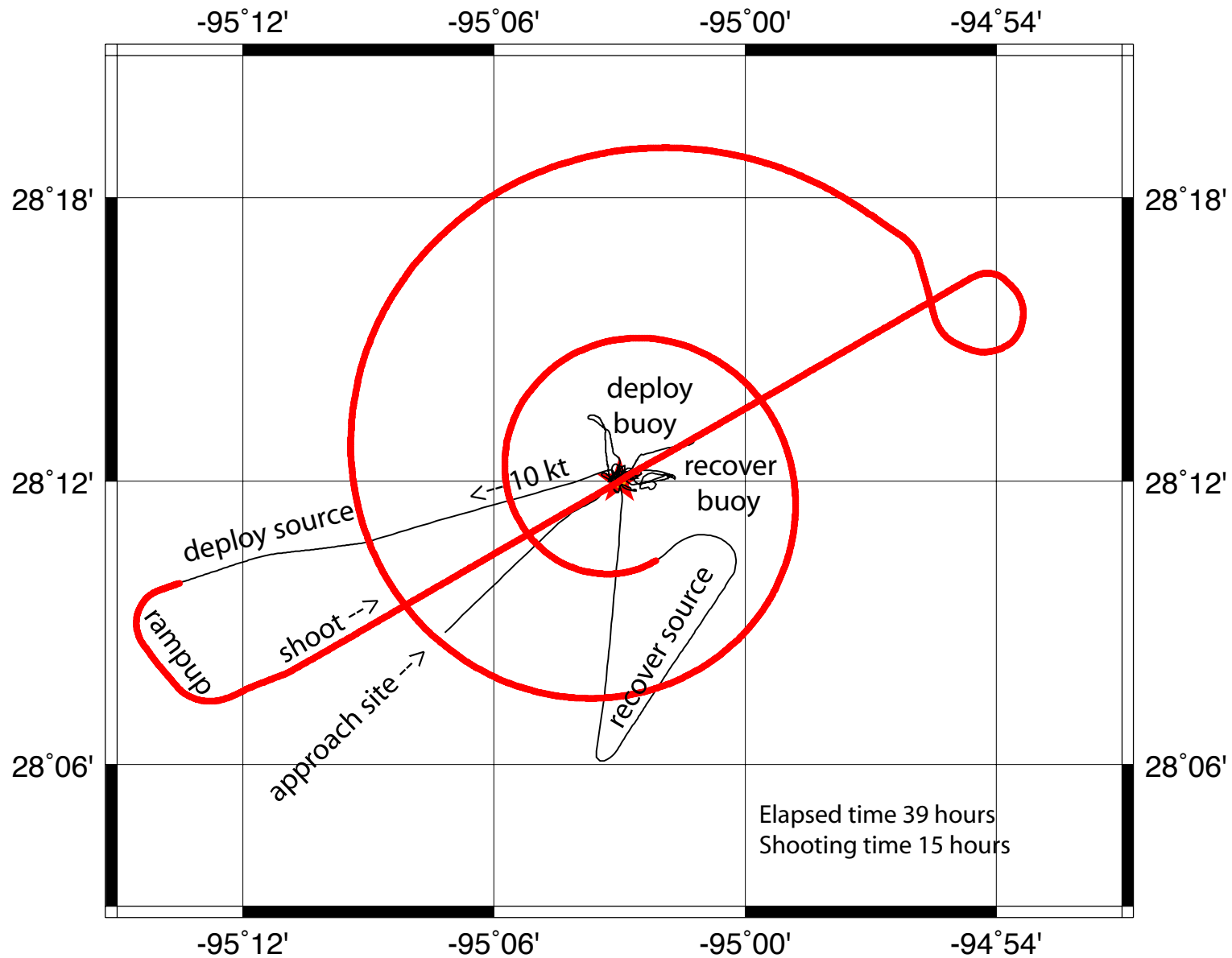
A site was selected in a flat, unobstructed area south of Galveston and just north of the shelf break, where water depths average 50m. Two calibration buoys were employed; a two-channel system built at Lamont and a four-channel system purchased from BBN, Cambridge Mass.

Both systems were deployed multiple times, and each suffered from mechanical and electronic problems at one time or another. No data were recorded using the BBN Buoy. Two runs were successfully carried out using the Lamont buoy. Two runs were required because the new digital airgun controller is incapable of alternating between firing two strings and four strings of guns. Both runs were also curtailed due to limits on the amount of data that could be recorded. During the first, 4-string exercise, more than 2600 shots were fired. During the second, 2-string run, 790 shots were fired. It is not yet known exactly how many were recorded.

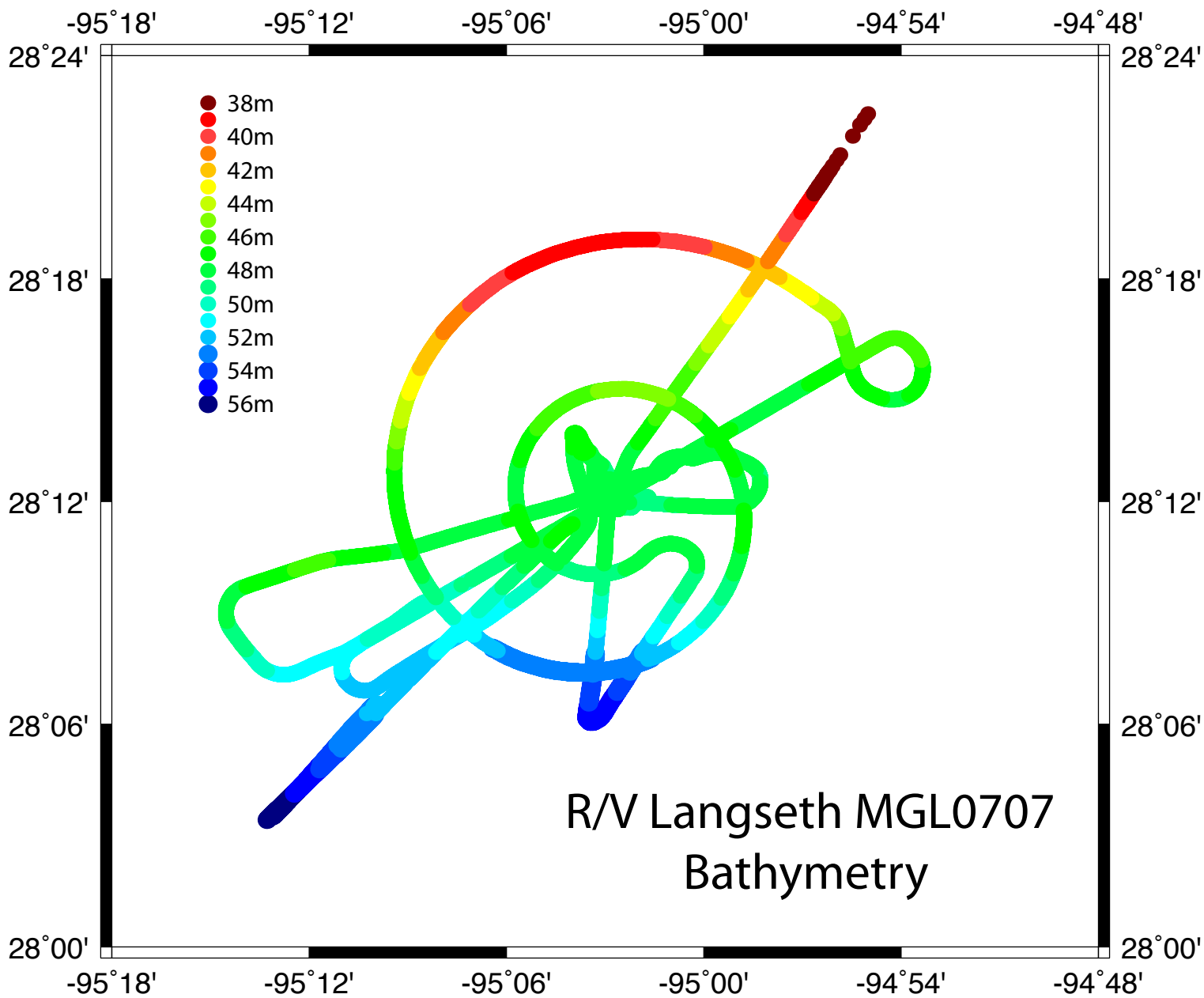
First looks at the data indicate that they are high in quality, with very little surge-induced noise. Some clipping is observed at near offsets, but the dB level at which this occurs is not yet known. A once-per-second pulse, presumably due to crosstalk from GPS traffic, is present. While this will be a nuisance in data analysis, it is not fatal.

John Diebold  
Chief Scientist for Marine Ops,

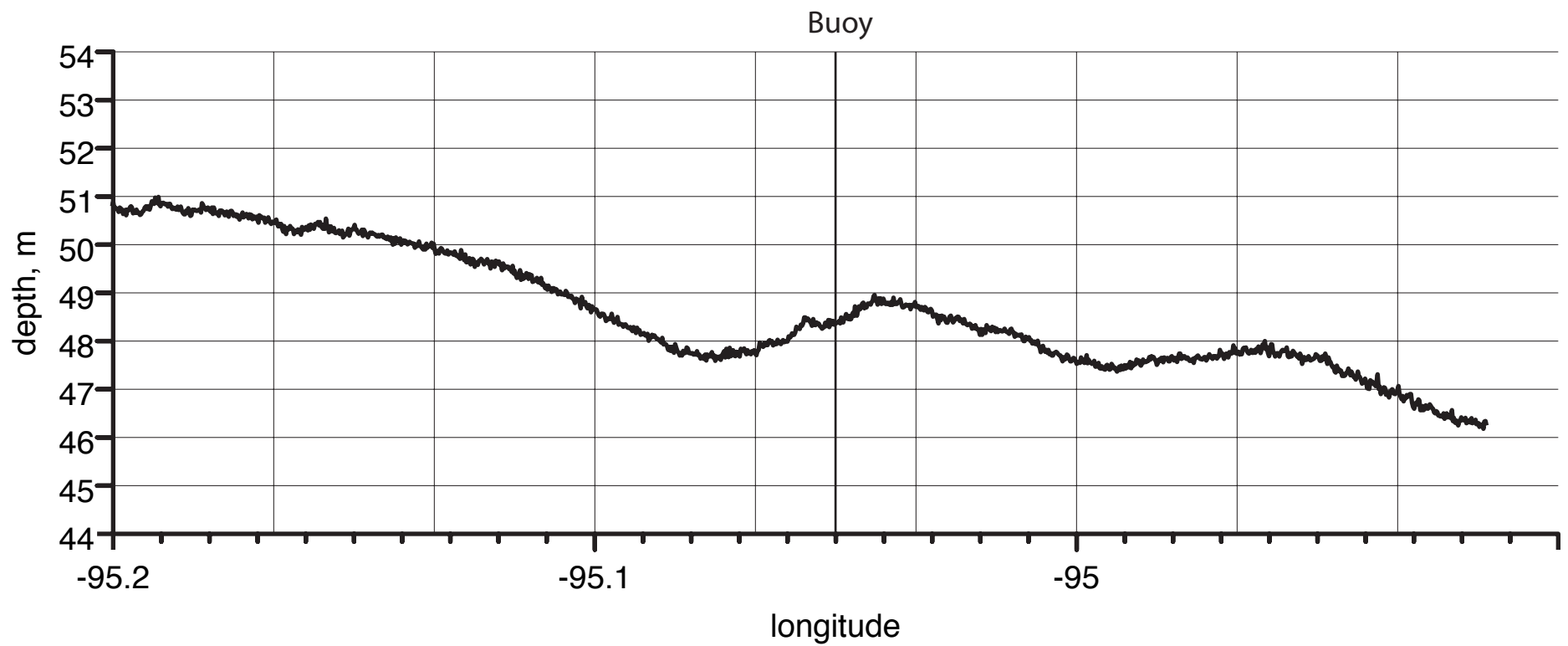
shallow calibration  
MGL0707 19 - 20 December 2007

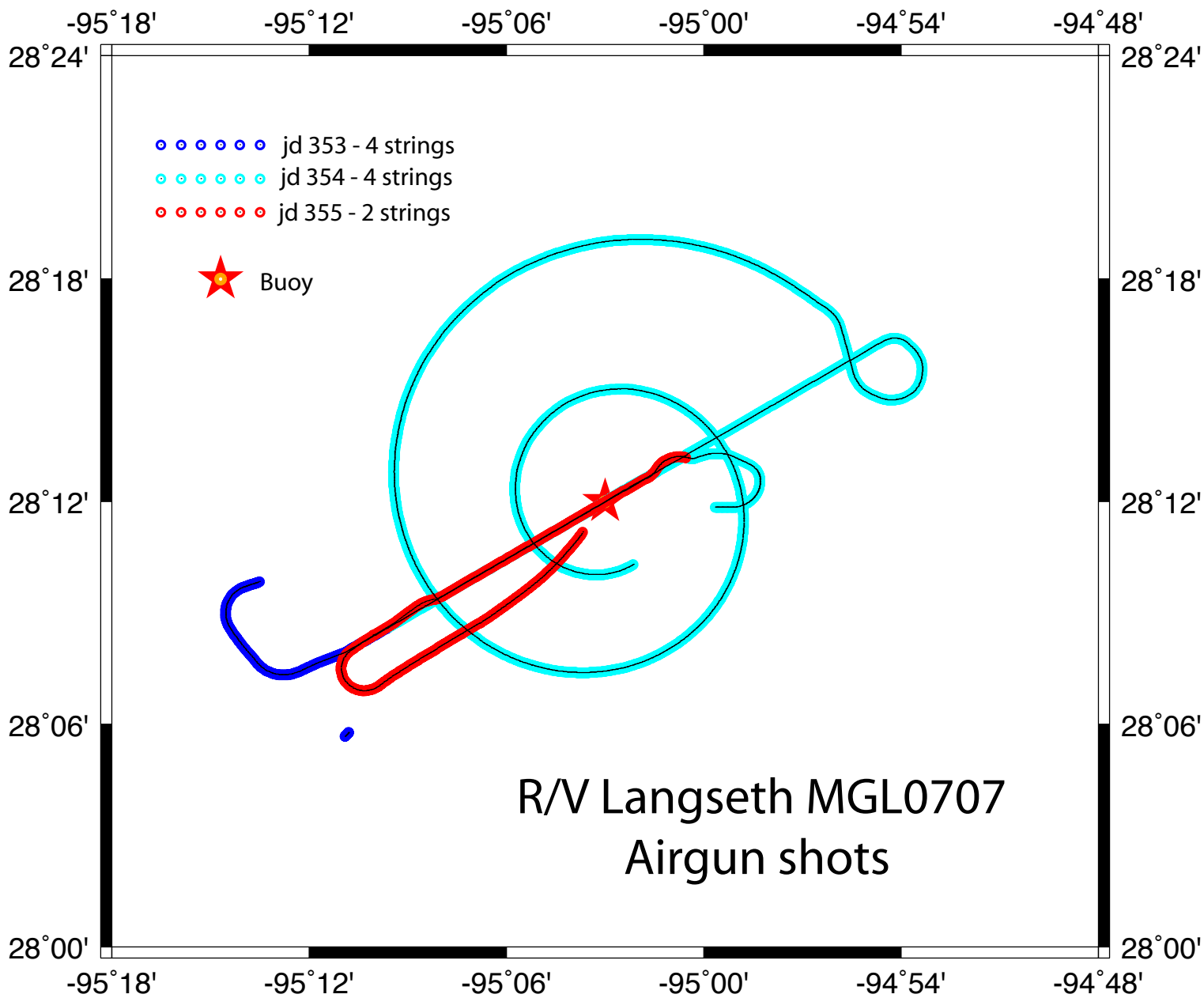


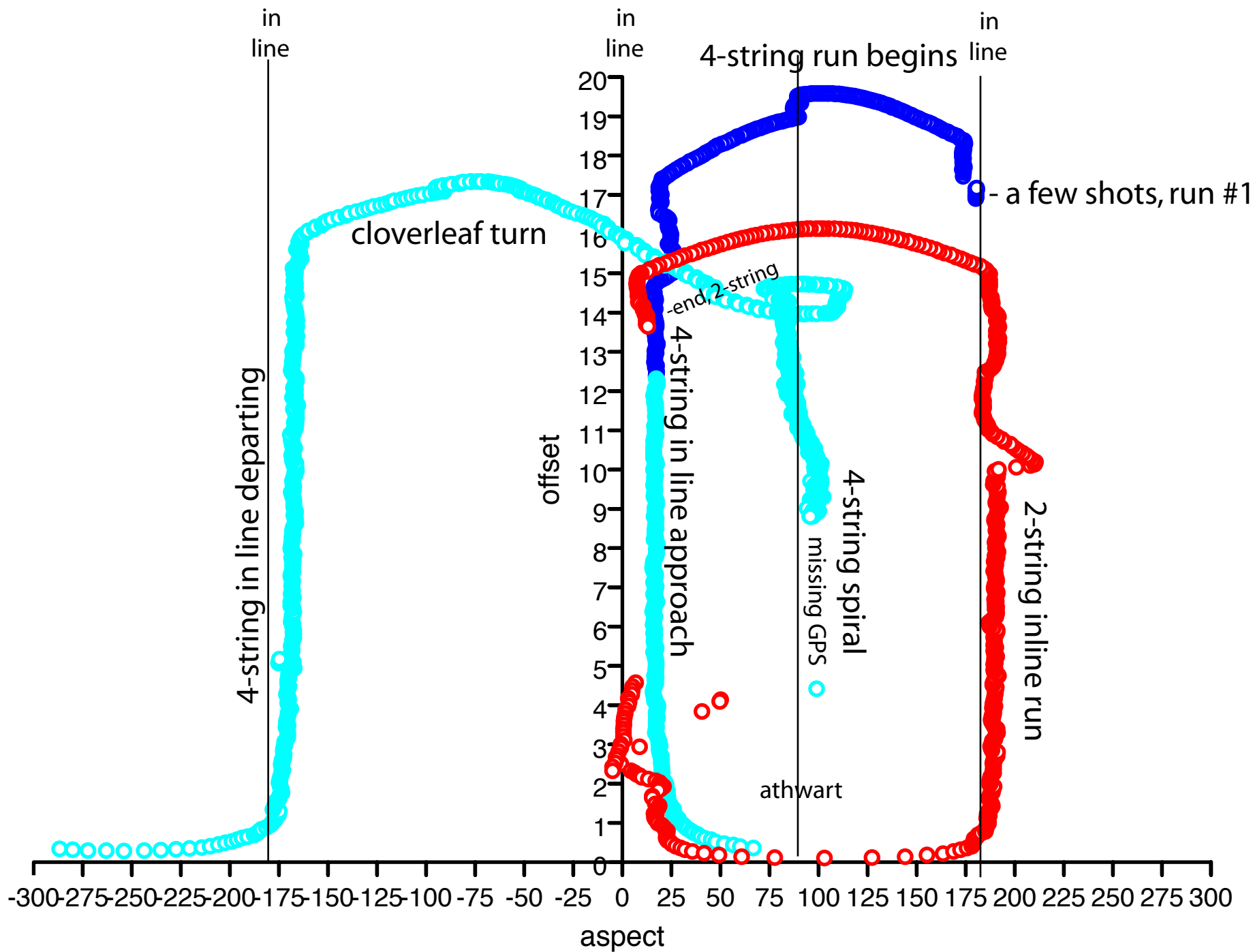




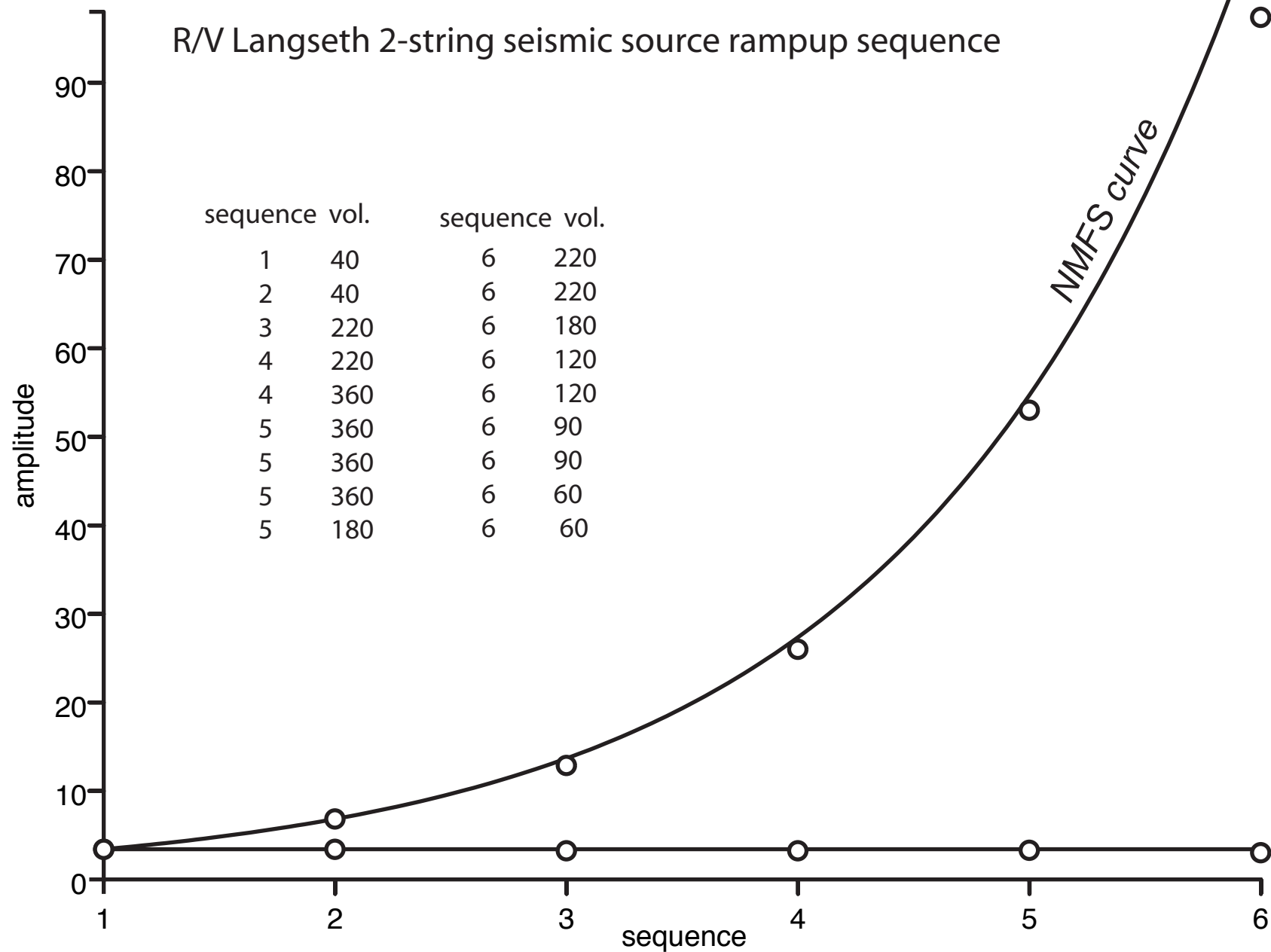
# R/V Langseth echo sounder bathymetry, 4-string calibration in-line run







# R/V Langseth 2-string seismic source rampup sequence



# R/V Langseth 2D source array rampup sequence

