



THE UNIVERSITY OF TEXAS AT AUSTIN  
INSTITUTE FOR GEOPHYSICS  
AUSTIN, TEXAS 78751

4920 North I.H. 35  
(512) 451-6468

MEMORANDUM

June 16, 1983

TO: Dr. Arthur Maxwell  
FROM: Yosio Nakamura *YN*  
RE: Cruise Report - OBS Field Test (FM-17)

The R/V Fred H. Moore cruise FM-17 for the second OBS field test sailed from Galveston at about 1220 on June 8, 1983 and returned to Galveston at about 1620 on June 9, 1983. The primary objective of the cruise was to field test the recently modified and reprogrammed OBS's for air gun refraction survey. With the excellent performance of both the ship's crew and of the scientific/engineering support group, the cruise went very smoothly and well. The calm sea with not much more than a foot of swell also helped the OBS operations. Three OBS's were deployed and recovered as planned and all recorded air gun signals were of good quality.

The following personnel participated in the scientific party:

OBS Operation:	Yosio Nakamura, Phil Roper, Paul McPherson, Bill O'Brien
Air Gun Operation:	Archie Roberts, Ty Keimig, George Percy
Navigation/ data logging:	Patty Ganey, Dale Sawyer, Eddie Nicol, Chris Bennett
Electronics:	Ken Griffiths, Stirling Gilfillan
Observers:	Art Maxwell, Bill Mitchell, Dave Meyers (Geoscience)

A summary of scientific activities that took place during the cruise is as follows:

Wednesday, June 8

09:00:00	OBS No. 1 was started and verified for operation
09:05:00	OBS No. 2 was started and verified for operation
09:10:00	OBS No. 3 was started and verified for operation

Wednesday, June 8 (Cont'd)

- ~ 10:30 OBS clock check revealed that all OBS's were losing time at a rate of approximately 1 second per hour. (It was later found out that this was due to an incorrectly programmed clock correction factor.) Since all three OBS's were losing time at approximately the same rate, it was decided not to reprogram the units but instead to adjust the shooting schedule to match the shifting OBS time windows.
- 17:15:54 OBS No. 1 (3-component unit with two 10 Hz horizontal and a 2.0 Hz vertical geophones) was deployed at 28°44.02'N, 94°28.08'W, approximately 36 nm SSE of ship channel seabuoy.
- 17:59:23 OBS No. 2 (single-component unit with a 4.5 Hz vertical geophone) was deployed at 28°48.09'N, 94°22.99'W, approximately 6 nm (11 km) NE of OBS #1.
- 18:40:50 OBS No. 3 (single-component unit with a 2.0 Hz vertical geophone) was deployed at 28°52.11'N, 94°18.04'W, approximately 6 nm (11 km) further NE of OBS #2.
- 20:15 Both of the 2000 in<sup>3</sup> air guns were deployed, towed at about 30 foot depth, and started test firings. A Benthos hydrophone was also deployed and towed near the surface slightly behind the air guns.
- 21:00:13 Line 1 (66 km line) shooting started at 28°52.35'N, 94°17.91'W, a few hundred meters NE of OBS #3, cruising SW at 6 knots and shooting both air guns simultaneously at 30 second intervals, or approximately every 90 m.
- 21:07:10 First sonobuoy was deployed at 28°51.94'N, 94°18.56'W
- 22:00\*23:00 Shooting sequence was delayed by 1 second to compensate for the OBS clock delay
- 23:35 Second sonobuoy was deployed at 28°41.86'N, 94°30.85'W, but was found to be not functioning.
- 23:52 Third sonobuoy was deployed at 28°40.85'N, 94°32.39'W

Thursday, June 9

- 00:00, Shooting sequence was delayed by 1 second again to compensate  
01:00 & for the OBS clock delay.  
02:00
- 03:00:18 Completed the last shot of line 1 at 28°27.85'N, 94°48.29'W. A total of 721 shots had been fired and recorded.
- ~ 06:30 Returned to OBS #2 site. Starboard air gun was fitted with a debubbling device and deployed.
- 07:00:24 to Line 2 (11 km line) from OBS #2 to OBS #1 was shot with this single  
08:00:24 debubbled air gun at 60 second intervals, cruising again SW at 6 knots. A total of 61 shots were fired and recorded.

Thursday, June 9 (Cont'd)

08:20 OBS #1 was sighted following a successful timed release burn that started at 08:15.

08:25:16 OBS #1 was recovered on board.

~ 10:00 Returned to OBS #2 site to wait for the release of OBS #2. The work boat was launched to observe and record the recovery.

10:37 OBS #2 was sighted following a successful timed release burn that started at 10:30.

10:43:20 OBS #2 was picked up by the work boat.

10:47:50 OBS #2 was recovered on board Fred Moore.

~ 12:00 Returned to OBS #3 site to wait for the release of OBS #3. The work boat was again launched to observe and record the recovery.

12:41 OBS #3 was sighted following another successful timed release burn that started at 12:30.

12:47:46 OBS #3 was recovered on board Fred Moore.

13:00-13:30 Magnetometer was deployed during the cruise back to Galveston for a check out, and was found to be functioning properly.

16:20 Returned to Galveston.

In summary, the cruise went very well. The success of the cruise was due in large part to all support personnel, who, among others, helped this inexperienced chief scientist tremendously by keeping a good communication between the scientific party and the ship's crew to maintain the correct course and schedule.

YN:km