

**R/V WESTERN FLYER MARS Survey
Daily Operations Report #1 1 December, 2003**

To: Fugro Seafloor Surveys, Inc.
Attn: Debra Peat
mars@seafloor.com

Copy: MBARI
Attn: Keith Raybould
keith@mbari.org

Note: All Daily Operations Report times are Local (PST), which is UTC-8 hours.
All geophysical data and logbooks will be UTC, except for the seismic log which will be in PST.

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HEALTH, SAFETY AND ENVIRONMENT (HSE)

A Mobilization Safety briefing was held by the FSSI survey party this morning.

	<u>Today</u>	<u>Total</u>
Project Safety Meetings	1	1
Emergency Drills	0	0
Incident Notifications	0	0

MIDNIGHT SHIP'S POSITION

In port at MBARI, Moss Landing

PERSONNEL ON BOARD

The FSSI survey party boarded today. It consists of:

Gordon Ness	Party Chief / Geo
Steve Reynolds	Engineer
George Latchford	Engineer
Mike Barth	Sparker Engineer
Chuck Chamberline	Sparker Engineer
Eric Roach	Processor
Jim Tamminga	Processor/ GLOG-GPLOT
Vaughn Woodford	Navigator
Tom Miller	Navigator

WEATHER

In port. Rainy.

**R/V WESTERN FLYER MARS Survey
Daily Operations Report #4 4 December, 2003**

To: Fugro Seafloor Surveys, Inc.
Attn: Debra Peat
mars@seafloor.com

Copy: MBARI
Attn: Keith Raybould
keith@mbari.org

Note: All Daily Operations Report times are Local (PST), which is UTC-8 hours.

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HEALTH, SAFETY AND ENVIRONMENT (HSE)

	<u>Today</u>	<u>Total</u>
Project Safety Meetings	0	3
Emergency Drills	0	1
Incident Notifications	0	0

MIDNIGHT SHIP'S POSITION

36° 42.8' N, 122°14.3' W

PERSONNEL ON BOARD

Total FSSI aboard: 9
Client Representative 1
Ship's crew 10

WEATHER

The forecast calls for a small front to pass through over the weekend.

Noon:

Wind NW 6 kts, seas NW 1 ft, swell NW 4 ft, Fair to good visibility. 1023 mB

Midnight:

Wind NW 4-6 kts, slight sea, swell NW 3-5 ft, Very good visibility. 1022 mB

SURVEY OPERATIONS

DAILY SUMMARY:

<u>From</u>	<u>To</u>	<u>Duration</u>	<u>Code</u>	
0000	0236	2.6 hrs	MOB	Deep water sparker test
0236	2400	21.4	SUR	Sarker survey

CUMULATIVE TIMES (in decimal hours):

<u>Activity</u>	<u>Code</u>	<u>Total to Yesterday</u>	<u>Total Today</u>	<u>Total to Date</u>
Mobilization	MOB	52.0	2.6	54.6
Transit	TRA	2.5	0.0	2.5
Calibration	CAL	9.5	0.0	9.5
Survey	SUR	0.0	21.4	21.4
Development	DEV	-	-	-

INTENTIONS FOR NEXT 24 HOURS:

Complete the sparker survey by about 0700 and proceed to port to offload the sparker people and equipment and to exchange MBARI Client Reps. We need to arrive dockside as early as possible to permit this to be done in an orderly fashion and still have time to exit before the falling tide forces us to stay in port until 1900 or 2000. Low water is at 1500.

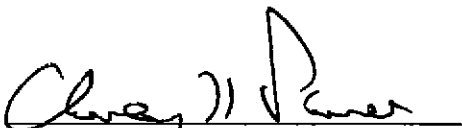
PARTY CHIEF COMMENTS:

The sparker survey has gone very well so far, with clean data, good penetration and no blows.

CLIENT REPRESENTATIVE COMMENTS:



Gordon Ness
Survey Party Chief
Fugro Seafloor Surveys, Inc.



Charles Paull
Client Representative
Monterey Bay Aquarium Research Inst.

R/V WESTERN FLYER MARS Survey
Daily Operations Report #5 5 December, 2003

To: Fugro Seafloor Surveys, Inc.

Attn: Debra Peat
mars@seafloor.com

Copy: MBARI

Attn: Keith Raybould
keith@mbari.org

Note: All Daily Operations Report times are Local (PST), which is UTC-8 hours.

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HEALTH, SAFETY AND ENVIRONMENT (HSE)

	<u>Today</u>	<u>Total</u>
Project Safety Meetings	0	3
Emergency Drills	0	1
Incident Notifications	0	0

MIDNIGHT SHIP'S POSITION

36° 45.6' N, 122° 17.1' W

PERSONNEL ON BOARD

With there sparker work completed, Mike Barth and Chuck Chamberline departed the vessel today along with their equipment. Charlie Paull of MBARI also departed the vessel as planned. Gary Greene of MBARI was transported to the ship by boat and boarded at 1220.

Total FSSI aboard: 7
Client Representative 1
Ship's crew 10

WEATHER

Rain should moderate tomorrow. There no other disturbances in the multi-day forecast.

Noon:

Overcast. Winds calm, seas smooth, swell WNW 5 ft, fair visibility. 1022 mB

Midnight:

Overcast. Winds calm, seas smooth, swell WNW 6-8 ft, poor to fair visibility.
1020 mB

SURVEY OPERATIONS

DAILY SUMMARY:

<u>From</u>	<u>To</u>	<u>Duration</u>	<u>Code</u>	
0000	0600	6.0 hrs	SUR	Sparker survey
0600	0820	2.3	TRA	To port
0820	1100	2.7	STB	In port
1100	1220	1.3	STB	At sea standby
1220	1830	6.2	TRA	While testing Chirp
1830	2005	1.6	TRA	To Cal point
20.05	2400	3.9	CAL	USBL quadrature

CUMULATIVE TIMES (in decimal hours):

<u>Activity</u>	<u>Code</u>	<u>Total to Yesterday</u>	<u>Total Today</u>	<u>Total to Date</u>
Mobilization	MOB	54.6	0	54.6
Transit	TRA	2.5	10.1	12.6
Calibration	CAL	9.5	3.9	13.4
Survey	SUR	21.4	27.4	48.8
Development	DEV	-	-	-
Standby	STB	0.0	4.0	4.0

INTENTIONS FOR NEXT 24 HOURS:

We should complete the calibration by 0100, and then transit back to about 110 mwd, launch the Chirp, identify the source of the subbottom noise, correct it, then start surveying.

PARTY CHIEF COMMENTS:

We had to leave port (at 1100) before Gary Greene could arrive because of an ebbing tide. We waited outside until 1220 when he was delivered by boat.

During our transit from shore out to the working area at the shelf edge I decided to run the Chirp along the centerline. Near the start of line we crossed the shallow, multiple heads of Monterey Canyon, which were slightly deeper and certainly steeper than expected. We also clearly imaged the Duke Energy pipe. It is very obvious in the side-scan, which is working fine.

But, we immediately started having difficulty with the subbottom. There is a strong noise pattern that swamps the signal - which is extremely weak. In fact the multiples are significantly stronger than the seabed returns, which is a thin single line with no layering.

It is not a multiple echo problem. The noise is synchronous with our ping rate (i.e. the stripes are horizontal), so the problem is within the system itself, not due to ship noise or competing echo sounders. It also does not appear to be a grounding problem.

So far have been unsuccessful in finding the cause. It could be in the fish telemetry, but we have focused so far the on-board Chirp processor. When we reached the shelf break we pulled the fish to examine it for bad connections, then steamed out to do the USBL cal. When that is done, we will have a go at the problem again.

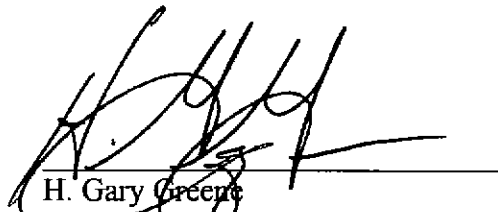
Also, after ten years in this business, I am starting to learn that calibrations always take much longer to accomplish than expected.

CLIENT REPRESENTATIVE COMMENTS:

The first 12 hours of my time on board was spent observing the operation and debugging of the chirp/side-scan sonar system. Perplexing problems with noise interference in the subbottom profiler were being tackled, but a solution was not obtained. Although the side-scan looked good, the lack of good subbottom data was disturbing to all aboard. I'm confident that the problem will be solved as the Fugro personnel appear competent and professional. I agreed to run the calibration exercise and then to return to trouble shooting the subbottom profiler.



Gordon Ness
Survey Party Chief
Fugro Seafloor Surveys, Inc.



H. Gary Greene
Client Representative
Monterey Bay Aquarium Research Inst.

R/V WESTERN FLYER MARS Survey
Daily Operations Report #6 6 December, 2003

To: Fugro Seafloor Surveys, Inc.

Attn: Debra Peat
mars@seafloor.com

Copy: MBARI

Attn: Keith Raybould
keith@mbari.org

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HEALTH, SAFETY AND ENVIRONMENT (HSE)

	<u>Today</u>	<u>Total</u>
Project Safety Meetings	0	3
Emergency Drills	0	1
Incident Notifications	0	0

MIDNIGHT SHIP'S POSITION

36° 50.5' N, 122°08.5' W

PERSONNEL ON BOARD

Total FSSI aboard: 7
Client Representative 1
Ship's crew 10

WEATHER

Noon:

Overcast, visibility poor, wind SE 10-12 kts, sea SE 1-2', swell W 6-8', 1018 mB

Midnight:

Overcast. Visibility poor, wind S 20 kts, sea S 1-2', swell WNW 6-8', 1017 mB

SURVEY OPERATIONS

DAILY SUMMARY:

<u>From</u>	<u>To</u>	<u>Duration</u>	<u>Code</u>	
0000	0538	5.6 hrs	CAL	USBL quadrature
0538	0810	2.5	EDN	No subbottom
0810	1100	2.8	EDN	Changed fish
1100	1441	3.7	SUR	S deep line
1441	1843	4.1	SUR	Transit to top
1843	2218	3.6	SUR	Deep centerline
2218	2400	1.7	SUR	Transit to top

CUMULATIVE TIMES (in decimal hours):

<u>Activity</u>	<u>Code</u>	<u>Total to Yesterday</u>	<u>Total Today</u>	<u>Total to Date</u>
Mobilization	MOB	54.6	0	54.6
Transit	TRA	12.6	0	12.6
Calibration	CAL	13.4	5.6	19.0
Survey	SUR	48.8	13.1	61.9
Development	DEV	-	-	-
Standby	STB	4.0		4.0
Equipment Down	EDN	0.0	5.3	5.3

INTENTIONS FOR NEXT 24 HOURS:

Complete the third deep water line then start on the centerline of the 3 shelf lines; do the shallow work off the landings in daylight; start on two remaining shelf lines.

PARTY CHIEF COMMENTS:

We swapped the Chirp towfish trying to find the reason for the bad subbottom data. The first has the hydrophones in the tail fin; the second has a small streamer. We put the second in the water and immediately experienced a short to seawater problem. We recovered it and found a small salt water leak into the streamer that affected the preamp. We repaired the streamer and essentially vulcanized the head of it. Redeployed the fish with good subbottom. Then started surveying.

In the early morning we noticed that the traction winch had become very noisy. We suspect a bad bearing in the small cog shaft at the motor. FSSI in Seattle was contacted and has shipped a spare motor assembly to MBARI for us if we need it.

We spent about two hours trying to get turned around in deep water, near the planned node, with about 2000 meters of wire out so we could run part of one of the deep lines upslope and save time. The problem faced was being able to reacquire bottom (as distinct from a multiple) with only about 50 meters of towfish altitude and no towfish depth sensor. Finally ended up deciding that trying to make the turn was a waste of time, so we hauled up wire, recovered the fish and headed at speed to the top of the hill to resume surveying downslope only.

CLIENT REPRESENTATIVE COMMENTS:

After tackling a multitude of problems (i.e. no subbottom and a noisy winch), the Fugro team was able to get a handle on the glitches and de-bugged the system to start surveying. Good side-scan sonar and subbottom data were collected along one (centerline) of the deep line segments. Good penetration was accomplished in the subbottom profiles, especially in deep water; side-scan was also good and very homogeneous in deep water. At the end of day all systems operating well and data collection progressing as planned.



Gordon Ness
Survey Party Chief
Fugro Seafloor Surveys, Inc.



H. Gary Greene
Client Representative
Monterey Bay Aquarium Research Inst.

**R/V WESTERN FLYER MARS Survey
Daily Operations Report #7 7 December, 2003**

To: Fugro Seafloor Surveys, Inc.

Attn: Debra Peat
mars@seafloor.com

Copy: MBARI

Attn: Keith Raybould
keith@mbari.org

Note: All Daily Operations Report times are Local (PST), which is UTC-8 hours.

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HEALTH, SAFETY AND ENVIRONMENT (HSE)

	<u>Today</u>	<u>Total</u>
Project Safety Meetings	0	3
Emergency Drills	0	1
Incident Notifications	0	0

MIDNIGHT SHIP'S POSITION

36° 49.9' N, 122°08.4' W

PERSONNEL ON BOARD

Total FSSI aboard: 7
Client Representative 1
Ship's crew 10

WEATHER

Noon:

Mostly cloudy; good visibility; winds NW 10 kts; seas NW 1-2'; swell WNW 3-5';
1020mB

Midnight:

Clear; good visibility; winds NW 20-24 kts; seas NW 2-3'-; swell WNW 6'; 1024 mB

SURVEY OPERATIONS

DAILY SUMMARY:

<u>From</u>	<u>To</u>	<u>Duration</u>	<u>Code</u>	
0000	0030	0.5 hrs	SUR	Transit to top
0030	0425	3.9	SUR	North deep line
0425	0640	2.3	SUR	Transit to top
0640	1100	4.3	SUR	Shelf centerline
1100	1220	1.3	SUR	Nearshore lines
1220	1255	0.6	SUR	Pipe search
1255	1745	4.7	SUR	South shelf line
1745	1825	0.7	DEV	1st North development line
1825	1910	0.8	DEV	Transit to top
1910	2050	1.7	DEV	2 nd North development
2050	2230	1.7	DEV	Transit to top
2230	2330	1.0	DEV	1 st south development line
2330	2400	0.5	DEV	Transit to top

CUMULATIVE TIMES (in decimal hours):

<u>Activity</u>	<u>Code</u>	<u>Total to Yesterday</u>	<u>Total Today</u>	<u>Total to Date</u>
Mobilization	MOB	54.6	0.0	54.6
Transit	TRA	12.6	0.0	12.6
Calibration	CAL	19.0	0.0	19.0
Survey	SUR	61.9	17.6	79.5
Development	DEV	0.0	6.4	6.4
Standby	STB	4.0	0.0	4.0
Equipment Down	EDN	5.3	0.0	5.3

INTENTIONS FOR NEXT 24 HOURS:

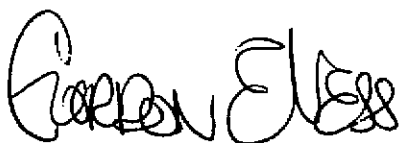
The 3 deep lines necessary to cover the basic 1000 meter wide corridor requirement there (on the neck and farther down on Smooth Ridge) are done. 3 of the 4 development lines on the neck (2 between approx 110 to 480 mwd, and 1 of the 2 short ones) are also done, as is the nearshore work and 2 out of the 3 shelf lines. We will first complete the last short development line, then continue downhill to widen the corridor there to the south and east of the main lines. Only the north wing line on the shelf will remain to satisfy the basic corridor requirements. We plan to run that last, on our way to port. At first light we will recover the USBL beacon.

PARTY CHIEF COMMENTS:

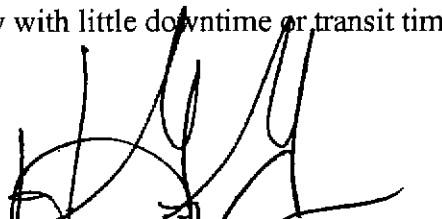
Once we got the subbottom system lit off and running the surveying part has been relatively easy. We still have a noisy traction winch but it looks to be holding on.

CLIENT REPRESENTATIVE COMMENTS:

All systems are working nicely and we are obtaining good data. Images collected in the upper neck area of Smooth Ridge show lots of bedrock outcrops. Further down the Ridge distinct slump scarps have been imaged, and out along the northeastern flank of the Ridge fairly thick, well-bedded, unconsolidated sediments are seen in the subbottom data. Altogether this has been a very productive day with little downtime or transit time.



Gordon Ness
Survey Party Chief
Fugro Seafloor Surveys, Inc.



H. Gary Greene
Client Representative
Monterey Bay Aquarium Research Inst.

R/V WESTERN FLYER MARS Survey
Daily Operations Report #8 8 December, 2003

To: Fugro Seafloor Surveys, Inc.

Attn: Debra Peat
mars@seafloor.com

Copy: MBARI

Attn: Keith Raybould
keith@mbari.org

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HEALTH, SAFETY AND ENVIRONMENT (HSE)

	<u>Today</u>	<u>Total</u>
Project Safety Meetings	0	3
Emergency Drills	0	1
Incident Notifications	0	0

MIDNIGHT SHIP'S POSITION

Dockside at MBARI

PERSONNEL ON BOARD

Total FSSI aboard: 7
Client Representative 0
Ship's crew 10

WEATHER

Noon:

Approaching Moss Landing Entrance under clear skies in calm seas.

SURVEY OPERATIONS

DAILY SUMMARY:

<u>From</u>	<u>To</u>	<u>Duration</u>	<u>Code</u>	
0000	0007	0.1 hrs	DEV	Transit to top
0007	0034	0.5	DEV	South short line
0034	0317	2.7	SUR	South deep line
0317	0647	3.5	CAL	Transit to beacon
0647	0714	0.5	CAL	Recover beacon
0714	0818	1.0	SUR	Transit to top
0818	1244	4.4	SUR	North shelf line
1244	1315	0.5	TRA	Transit to port
1315	2400	10.8	MOB	Demobilize

CUMULATIVE TIMES (in decimal hours):

<u>Activity</u>	<u>Code</u>	<u>Total to Yesterday</u>	<u>Total Today</u>	<u>Total to Date</u>
Mobilization	MOB	54.6	10.8	65.4
Transit	TRA	12.6	0.5	13.1
Calibration	CAL	19.0	4.0	23.0
Survey	SUR	79.5	8.1	87.6
Development	DEV	6.4	0.6	7.0
Standby	STB	4.0	0.0	4.0
Equipment Down	EDN	5.3	0.0	5.3

INTENTIONS FOR NEXT 24 HOURS:

We will complete the demobilization of the geophysical equipment tomorrow morning, when the FEBV CPT team will begin their mobilization. We will leave the navigation equipment aboard for their use.

PARTY CHIEF COMMENTS:

The beacon pickup was flawless.

We were experiencing some electrical noise in the Chirp records on the north line across the shelf. These are considered to be acceptable for their purpose.

We ran several extra lines in the area of the Duke Energy pipe end. On our first pass through there on 5 December we imaged a long reflective feature on the seafloor projecting seaward from the shore, and ending near nadir beneath the survey centerline as expected. The south edge of it was sharp and linear. The north edge was less well

defined. It appears to be an exposed length of pipe with sands banked up on its north side by longshore transport. When we returned to that area today we imaged 5 additional targets that are small and sharply edged, with square corners. These are perhaps old anchoring blocks, and their distribution pattern is consistent with this.

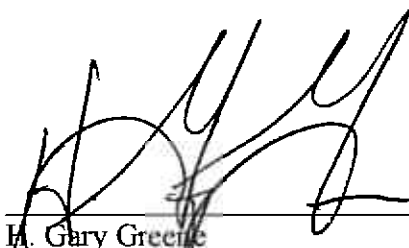
The basic cable route survey plan was accomplished along with considerable development along the sides, particularly in the problem area of the neck of Smooth Ridge. A limited amount of additional side-scan and subbottom data were obtained near the node.

CLIENT REPRESENTATIVE COMMENTS:

This last day of the survey we recovered the beacon without a problem and steamed to the start of our last line. This line was primarily across the continental shelf and like our other there were mainly unremarkable. Some transient instrumental errors interfered with the side-scan and subbottom image, but I suggested that we keep collecting data as the noise appeared not to prevent interpretation of the data. We picked positions of what appeared as anchoring blocks, possibly associated with the Duke Energy pipeline, but did not see the pipe on this northernmost pass. We concluded the survey at the northern Monterey Canyon head, secured gear and returned to port. Good cruise; nice cooperation of the Fugro team.



Gordon Ness
Survey Party Chief
Fugro Seafloor Surveys, Inc.



H. Gary Greene
Client Representative
Monterey Bay Aquarium Research Inst.