

Dive Plan 4903– May 6, 2017

Port: Stefan Sievert **Starboard:** Andrew Babbin **Pilot:** Phil Forte

On Bottom Target: Vent-SID landing site

Objectives: Deploy Vent-SID at Crab Spa, take majors, pick up Crab Trap, collect Riftia and mussels

Basket List

1. Large biobox w/ Crab Trap
2. 5 majors
3. T probe

<u>Locations:</u>	Lat	Long	m	x	y
Pvent	9 50.276	104 17.474	2511	4628	77926
Bio9	9 50.296	104 17.476	2514	4624	77962
Crab Spa MkF	9 50.396	104 17.489	2505	4600	78147
Tica	9 50.406	104 17.490	2505	4598	78165
Teddy Bear	9 50.50	104 17.51	2514		

1. Transit to Vent-SID landing site
2. Pick up Vent-SID and proceed to Crab Spa
3. At Crab Spa, position instrument (needs to be positioned w/ wand inserted by 11:00 local time, 17:00 GMT)
4. Deploy intake nozzle of Vent-SID
 - a. Insert wand
 - b. Stabilize wand
 - c. Measure T at wand tip, should read about 25°C
5. Proceed to Bio9
6. Pick up Crab Trap near Bio9
7. Deploy new Trap further away on rocky substrate
8. Pick up half a dozen mussels
9. Move to Teddy Bear
10. Take out wand of LVP
11. Take 5 majors at same spot
12. Reinsert wand of LVP

13. Collect Riftia in Riftia colony close by
14. Before collecting Riftia, proceed with following:
 - a. Measure T at base of Riftia clump,
 - b. Make a T measurements at plume level
15. Proceed with collection and put worms in large biobox. Make sure worms fit into biobox and nothing sticks out. Don't fold them!

Alvin Dive 4903 — AT37-12
06 May 2017

Pilot: Phil Forte
Port Observer: Stefan Sievert
Starboard Observer: Andrew Babbitt

GMT	Comments
1354	Descending
1512	On bottom, neutrally buoyant above seafloor
1517	Arrived at Vent-SID landing site, utilize both arms to grab
1530	Began to move Vent-SID to Crab Spa
1600	Arrived at Crab Spa and began positioning Vent-SID so that the instrument was stable and safely away from hot vent fluids while the sampling hose was inserted deep into fissure. Temperature at wand tip was 26°C (x 4448, y 78156, hdg 56, d 2506)
1646	Instrument positioning complete
1657	Departed Crab Spa for Bio9
1715	Picked up crab trap with approximately half a dozen fish and one crab (x 4631, y 77975, hdg 115, d 2512)
1720	Deployed new crab trap on nearby rocky substrate
1722	Picked up 10 or so mussels (x 4631, y 77975, hdg 117, d 2512); Temp = 9°C. Moved to Teddy Bear.
1750	Arrived at Teddy Bear and removed large volume pump's wand from fissure to allow Majors to sample fluid (x 4559, y 78362, hdg 28, d 2516).
1805	Fired Yellow Major. Both chambers fired well. ICL Temperature 18°C but it was high for ambient seawater
1814	Fired Black Major. Both chambers fired well. ICL Temperature 12°C
1824	Fired Green Major. Both chambers fired well. ICL Temperature 12°C
1833	Fired Blue Major. Both chambers fired well. ICL Temperature 11°C
1841	Fired Red Major. Both chambers fired well. ICL Temperature 11.5-12°C
1850	Repositioned large volume pump sampling wand into vent, and used rock to stabilize the wand and minimize entrainment of bottom seawater when pump samples
1900	Proceeded to nearby Riftia colony
1905	Collected 8 healthy Riftia. Temperature at base = 32°C; Temperature above = 17°C (x 4556, y 78394, hdg 358, d 2514)
1925– 1940	Attempted to find CV 1 colonizer deployed on first Alvin dive of cruise; unable to locate
1950	Arrived at Alvinella Mound (Wedding Cake) to check on colonizer (x 4599, y 78164, h 137, d 2512); looked good
1955	Arrived at Crab Spa to check on Vent-SID. Chamber did not look engaged and tracer bags still appeared inflated. Looks like the Vent-SID did not operate as hoped
2025	Arrived at Bio9 to check on colonizer deployed there; looked good.
2030	Proceeded to pillowed lava plains off axis for ascent
2100	Ascending; end to an incredible dive

AT 37-12 Sample Sheet

Alvin Dive# 4903 Date 6 May 2017 Logged by Andrew Babbain
 Port Obs. Stefan Sievert Starboard Obs. Andrew Babbain Pilot Phil Forte
 Descend: 1350 GMT At Seafloor: 1512 Ascend: 2100

FLUID SAMPLES

Major# Yellow Time 1805 Temp ICL 18°C* Vent Teddy Bear
 X 4559 Y 78362 Hdg 28 Depth 2516 Alt 0 Marker _____ (type/#)
 Comments * ICL had high seawater reading, 11°C

Major# Black Time 1814 Temp ICL 12°C Vent Teddy Bear
 X 4559 Y 78362 Hdg 28 Depth _____ Alt 0 Marker _____ (type/#)
 Comments ICL increased from 11°C - 13°C during firing

Major# Green Time 1824 Temp ICL 12°C Vent Teddy Bear
 X 4559 Y 78362 Hdg 28 Depth _____ Alt 0 Marker _____ (type/#)
 Comments _____

Major# Blue Time 1833 Temp ICL 11°C Vent Teddy Bear
 X 4559 Y 78362 Hdg 28 Depth _____ Alt 0 Marker _____ (type/#)
 Comments _____

Major# Red Time 1841 Temp ICL 11.5-12°C Vent Teddy Bear
 X 4559 Y 78362 Hdg 32 Depth _____ Alt 0 Marker _____ (type/#)
 Comments _____

Major# _____ Time _____ Temp ICL _____ Vent _____
 X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
 Comments _____

BIOLOGICAL SAMPLES

Take photos before collection, in the claw (if possible), and after collection.

If needed, make sketches with scales.

Sample # 1 Time 1715 Temp n/a Vent Bio 9
 X 4631 Y 77975 Hdg 115 Depth 2512 Alt 0 Marker _____ (type/#)
 Sample type half a dozen fish + 1 crab
 Basket location large bio box

Assoc. water sample # n/a Assoc. rock sample # n/a (type) _____

Description of associated fauna &/or type of venting _____

Sample # 2 Time 1722 Temp 9°C Vent Bio 9

X 4631 Y 77975 Hdg 117 Depth 2512 Alt 0 Marker _____ (type/#)

Sample type ~10 mussels

Basket location large bio box

Assoc. water sample # n/a Assoc. rock sample # n/a (type) _____

Description of associated fauna &/or type of venting Riftia patch

Sample # 3 Time 1905 Temp base = 32°C, above = 17.8°C Vent Teddy Bear

X 4556 Y 78394 Hdg 358 Depth 2514 Alt 0 Marker _____ (type/#)

Sample type 8 Riftia

Basket location large bio box

Assoc. water sample # n/a Assoc. rock sample # n/a (type) _____

Description of associated fauna &/or type of venting diffuse, active flow

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____
Basket location _____
Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____
Description of associated fauna &/or type of venting _____

ROCK SAMPLES **NONE.**

Take photos before collection and in the claw. If needed, make sketches w/ scales.

Sample # _____ Time _____ Temp _____ Vent _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
Sample type _____ Basket location _____
Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
Descriptive comments _____

Sample # _____ Time _____ Temp _____ Vent _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
Sample type _____ Basket location _____
Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
Descriptive comments _____

Sample # _____ Time _____ Temp _____ Vent _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
Sample type _____ Basket location _____
Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
Descriptive comments _____

Sample # _____ Time _____ Temp _____ Vent _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
Sample type _____ Basket location _____
Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
Descriptive comments _____

Sample # _____ Time _____ Temp _____ Vent _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
Sample type _____ Basket location _____
Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
Descriptive comments _____

EXPERIMENT DEPLOYMENTS/RECOVERIES

Take photos before and after deployment or recovery. Make sketches with scales.

Expt ID/# Vent-SID Time 1530 Temp n/a Vent landing site
 X 4448 Y 78201 Hdg 229 Depth 2505 Alt 0 Marker _____ (type/#)
 Description of associated fauna &/or type of venting _____
moving Vent-SID to Crab Spa.
 Additional assoc. samples: type/ID _____
 Additional descriptive comments _____

Expt ID/# Vent-SID Time 1635 Temp 26°C Vent Crab Spa
 X 4595 Y 78152 Hdg 56 Depth 2506 Alt 0 Marker _____ (type/#)
 Description of associated fauna &/or type of venting _____
positioned Vent-SID for in situ incubation to start @ 1730 GMT
 Additional assoc. samples: type/ID _____
 Additional descriptive comments _____

Expt ID/# Crab Trap Time 1730 Temp n/a Vent Bio 9
 X 4633 Y 77969 Hdg 115 Depth 2510 Alt 0 Marker _____ (type/#)
 Description of associated fauna &/or type of venting _____
deployed new Crab Trap on rocky substrate away from Riftia
 Additional assoc. samples: type/ID _____
 Additional descriptive comments _____

Expt ID/# _____ Time _____ Temp _____ Vent _____
 X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
 Description of associated fauna &/or type of venting _____

 Additional assoc. samples: type/ID _____
 Additional descriptive comments _____

Expt ID/# _____ Time _____ Temp _____ Vent _____
 X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
 Description of associated fauna &/or type of venting _____

 Additional assoc. samples: type/ID _____
 Additional descriptive comments _____

MARKERS DEPLOYED

Time _____ Marker type _____ Marker # _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
Reason/ assoc. sample(s) _____
Comments _____

Time _____ Marker type _____ Marker # _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
Reason/ assoc. sample(s) _____
Comments _____

Time _____ Marker type _____ Marker # _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
Reason/ assoc. sample(s) _____
Comments _____

ADDITIONAL NOTES:

AT 37-12 Sample Sheet

Alvin Dive# 4903 Date 5-6-17 Logged by Sievert
 Port Obs. Sievert Starboard Obs. Babbini Pilot Forte
 Descend 13:54 At seafloor 15:11 Ascend 20:54

FLUID SAMPLES

Major# yellow Time 18:08 Temp ICL 19.0°C* Vent Teddy Bear
 X 4554 Y 7836 Hdg 29 Depth 2516 Alt _____ Marker _____ (type/#)
 Comments * Background read ~ 10°C; T is questionable

Major# Black Time 18:14 Temp ICL 11.5°C^{-12°C} Vent TB
 X 4559 Y 7836 Hdg 29 Depth 2516 Alt _____ Marker _____ (type/#)
 Comments _____

Major# green Time 18:~~40~~²⁹ Temp ICL 12.3°C Vent TB
 X 4559 Y 7836 Hdg 29 Depth 2516 Alt _____ Marker _____ (type/#)
 Comments _____

Major# Blue Time 18:33 Temp ICL 11.5°C Vent TB
 X 4559 Y 7836 Hdg 29 Depth 2516 Alt _____ Marker _____ (type/#)
 Comments _____

Major# Red Time 18:41 Temp ICL 11.8°C Vent TB
 X 4559 Y 7836 Hdg 29 Depth 2516 Alt _____ Marker _____ (type/#)
 Comments _____

Major# _____ Time _____ Temp ICL _____ Vent _____
 X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
 Comments _____

BIOLOGICAL SAMPLES

Take photos before collection, in the claw (if possible), and after collection.
 If needed, make sketches with scales.

Sample # Murels Time 17:20 Temp ~ 9.5°C Vent Bio 9 - Red/ta moul
 X 4629 Y 7797 Hdg 148 Depth 2513 Alt _____ Marker _____ (type/#)
 Sample type murels
 Basket location bio box

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # Riftia Time 19:12 Temp 33°C Vent Riftia col.
X 4556 Y 7839 Hdg 353 Depth 2514 Alt _____ Marker _____ (type/#) west B

Plume: 17°C
13.5°C
8.3°C
17.8°C
Base: 32°C

Sample type Riftia
Basket location Rio box

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____
X _____ Y _____ Hdg 356 Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____
Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____
Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____
Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____
Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____
 Basket location _____
 Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____
 Description of associated fauna &/or type of venting _____

ROCK SAMPLES

Take photos before collection and in the claw. If needed, make sketches w/ scales.

Sample # _____ Time _____ Temp _____ Vent _____
 X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
 Sample type _____ Basket location _____
 Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
 Descriptive comments _____

Sample # _____ Time _____ Temp _____ Vent _____
 X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
 Sample type _____ Basket location _____
 Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
 Descriptive comments _____

Sample # _____ Time _____ Temp _____ Vent _____
 X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
 Sample type _____ Basket location _____
 Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
 Descriptive comments _____

Sample # _____ Time _____ Temp _____ Vent _____
 X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
 Sample type _____ Basket location _____
 Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
 Descriptive comments _____

Sample # _____ Time _____ Temp _____ Vent _____
 X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
 Sample type _____ Basket location _____
 Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
 Descriptive comments _____

EXPERIMENT DEPLOYMENTS/RECOVERIES

Take photos before and after deployment or recovery. Make sketches with scales.

Expt ID/# VentSID Time 16:40 Temp 26°C Vent Crab Spa
 X 4595 Y 7815 Hdg 56 Depth 2506 Alt ___ Marker F (type/#)
 Description of associated fauna &/or type of venting _____

 Additional assoc. samples: type/ID _____
 Additional descriptive comments _____

Expt ID/# Crab Trap Time 17:12 Temp _____ Vent Bio 9 - ~~Puffia~~ mound
 X 4629 Y 7797 Hdg ~~148~~ 148 Depth 2513 Alt ___ Marker _____ (type/#)
 Description of associated fauna &/or type of venting _____
Puffia, mound, diffuse flow
 Additional assoc. samples: type/ID _____
 Additional descriptive comments 1 crab, 7 fishes

Expt ID/# Crab Trap ^{Deployment} Time 17:20 Temp _____ Vent Bio 9 - Puffia Mound
 X 4633 Y 7796 Hdg 95 Depth 2510 Alt ___ Marker _____ (type/#)
 Description of associated fauna &/or type of venting _____

 Additional assoc. samples: type/ID _____
 Additional descriptive comments deployed on rocky substrates away from Puffia + mounds

Expt ID/# _____ Time _____ Temp _____ Vent _____
 X _____ Y _____ Hdg _____ Depth _____ Alt ___ Marker _____ (type/#)
 Description of associated fauna &/or type of venting _____

 Additional assoc. samples: type/ID _____
 Additional descriptive comments _____

Expt ID/# _____ Time _____ Temp _____ Vent _____
 X _____ Y _____ Hdg _____ Depth _____ Alt ___ Marker _____ (type/#)
 Description of associated fauna &/or type of venting _____

 Additional assoc. samples: type/ID _____
 Additional descriptive comments _____

MARKERS DEPLOYED

Time _____ Marker type _____ Marker # _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
Reason/ assoc. sample(s) _____
Comments _____

Time _____ Marker type _____ Marker # _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
Reason/ assoc. sample(s) _____
Comments _____

Time _____ Marker type _____ Marker # _____
X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)
Reason/ assoc. sample(s) _____
Comments _____

ADDITIONAL NOTES:

At Vent-SID : 15:17
Moving Vent-SID : 15:35
Vent-SID at Crab Spa : 15:59
Cleared on Vent-SID ~ 20:10