

Cruise: AT29-02 / Dave Valentine & Chris Reddy

Dates: June 15 – June 29

Vessel: RV Atlantis, with ALVIN and SENTRY

General Program Overview:

1. Scientific objectives and activities:

The primary scientific objective of the cruise is to track the chemical changes to oil during the weathering progression from sea floor to sea surface to weathered slick.

Secondary objectives include assessing the ability of bacteria to consume select components of oil, testing of new methods for in-situ measurement of sulfate reduction rate, testing of new sampling methodologies for seeps, and a survey of deep ocean dump sites.

Activities:

Alvin Operation at Oil and Gas Seeps and Brine Pools. This will include: Gas sampling; Oil Sampling; Water Sampling; deployment and recovery of in-situ incubations; Slurp sampling; mineral sampling; Coring.

CTD Casts: We plan CTD casts to collect water samples. Estimated number of casts for the entire cruise is 12.

Sentry Operations: We plan Sentry operations when Alvin is not in the water (= mainly overnight). We plan to use the MBES, camera system, side scan sonar, subbottom profiler, CTD, and oxygen sensor.

Small boat (RHIB) sampling of oil slick from natural seeps. This will be accomplished using a pole and net approach and is dependent on weather and sea state. We would like to conduct these operations simultaneous with Alvin operations.

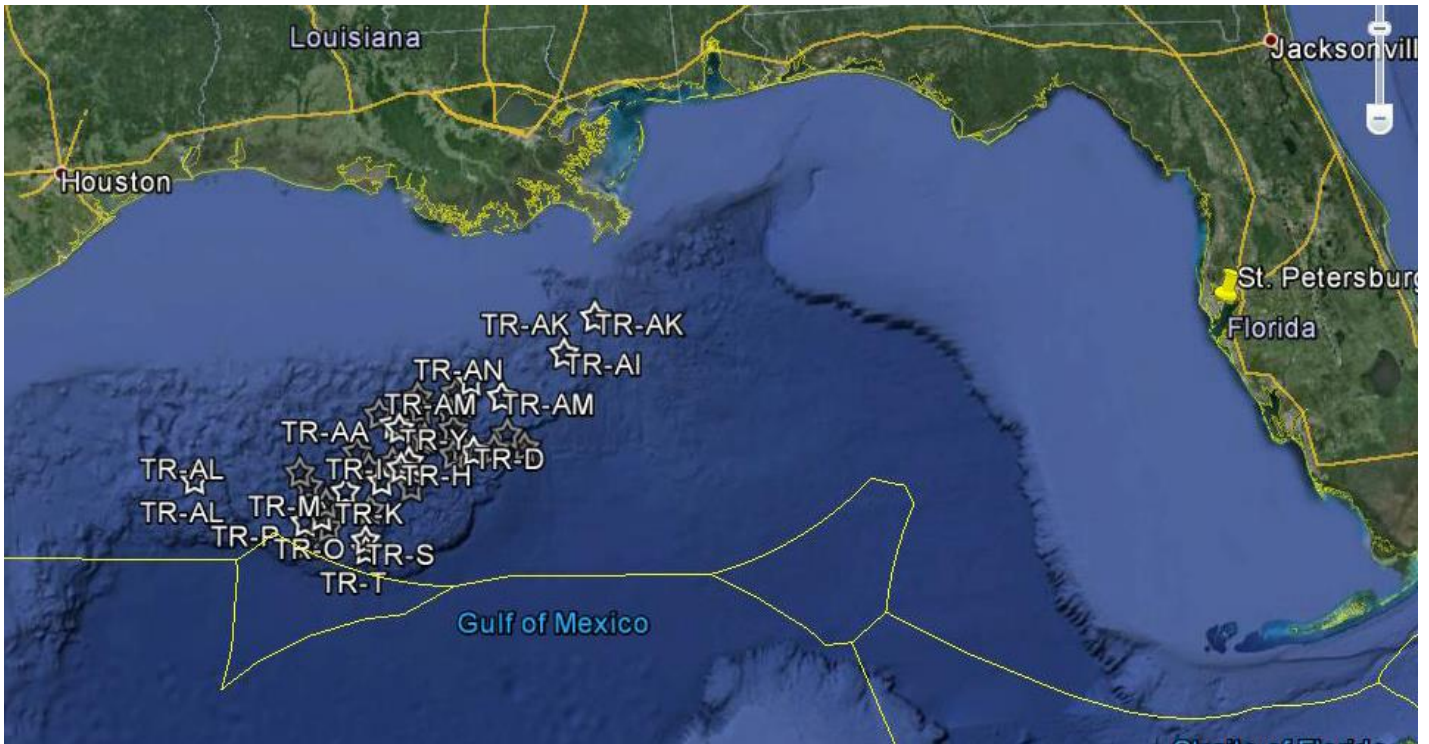
2. Identify PIs participating in this cruise:

Chris Reddy, Charlie Sharpless, Dave Valentine,

3. Identify the at-sea Chief Scientist:

Dave Valentine

4. **Identify operating area (See cruise synopsis for details):**
Gulf of Mexico:



Depth range;

5. **Voyage Dates and Leg #:** June 5 to June 29 // AT29-02
Start Port: St. Petersburg FL
End Port: St. Petersburg FL
Mobe: June 13 & 14 incl. SENTRY / Pre mobe @ WHOI Jun1 & 2 (sci hold and labs).
Move aboard date June 13
Demobe March June 30 / WHOI July 28, 29
Science moves off June 30
6. **Science party (size) – 19**

Pre-cruise and Administrative:

1. **Diplomatic clearance requirements for operations in EEZs:**
N/A

2. **Financial responsibility;** PO for UCSB, WHOI, others? Pressure testing PO?
3. **Personnel forms (Passports, Driver's License, Visas, Entry Fees)**
Personnel forms are req. 1 month prior to cruise.
We will need list for foreign collaborators if any.
4. **Any Special Food Requirements (Gluten Free, Vegetarian, Kosher, etc.)**
5. **Berthing Plan - 1 week prior to mobilization;**
<http://www.whoi.edu/page.do?pid=822>
6. **Lab Layout plan:**
<http://www.whoi.edu/main/ships/atlantis/lab-science-spaces>

RV ATLANTIS Instrumentation & Technician Support

[Shipboard Installed Scientific Equipment]

1. **General Duties of Marine Technicians (SSSG techs)**
Scheduled SSSG techs for this cruise are *Catie Graver and Allison Heater*
Each tech works a 12 hr shift. Techs will train science team w/ CTD deployments & recoveries.
2. **WHOI general use equipment required for cruise [Installed Scientific Equipment]:**
 - A) CTD rosette w/ dual T/C Sensors
 - i) SBE O2 sensor, Wet Labs Flurometer, Wet Labs FLNTURTD. ECO-AFL Flurometer
 - B) Di H2O – how much / day?
 - C) 3.5 kHz Bathy
 - D) ADCP 75 kHz
 - E) Multibeam EM 122 - generate maps?
 - F) High Seas Net – normal activity
 - G) Navigation position / heading readouts.
 - H) Met Sensors – all.
 - I) Sample storage –Walk in Freezer, Walk in Refer, 3.2 c/ft -070 freezers, 25 c/ft -75 freezer
 - J) Fume Hood
 - K) USBL
 - L) Chemical storage van
 - M) RHIB

3. Science Party Supplied Equipment:

Nothing identified for ship side. See Alvin info.

HOV ALVIN- AT29-02

It is most important to communicate with Bruce Strickrott and Pat Hickey directly and to **refer to *Alvin Operations* published on the WHOI website:**

<http://www.whoi.edu/page.do?pid=10695>

1. General work description / Brief operation description or comments:

We will visit oil and gas seeps, and brine pools. I expect 3-4 oily dives. We also have ~six days of transit. We could use advice on brine pool sampling, as Bruce has more experience with brine pools than we do.

We will bring sampling devices to collect seeping oil and gas. Some have been used with Alvin/Jason, most have not.

We are also developing methods for sampling of brine pool water (advice is appreciated), and for conducting incubations of the brine in-situ. Any chance we could attach a hose to the SLURP pump that we could dangle in a brine pool? This development is in progress, clearly.

2. Number of instruments / samples to recover and their most accurate positions:

The Oil and gas samplers will be mounted to the front basket and deployed/retrieved with handles, using the manipulator.

The in-situ incubation system is still being designed.

The in-situ incubation system will be left at the sea floor for recovery on a subsequent dive. Oil and gas samplers will not be deployed off the vehicle.

3. Other sampling from Alvin

- (a) CTD
- (b) Bio Boxes – 12x12x12 & 12x12x24
- (c) Rock Drill
- (d) Search Sonar
- (e) Large Slurp samplers multi chamber
- (f) Low temp probe
- (g) Major water samplers
- (h) Push cores (12 pk rack)
- (i) Small slurp samplers
- (j) Video Duplication
- (k) Elevators (2 +?)

4. Please give a brief description of the equipment, its intended purpose, the cruise # it was last used on if any and its deployment method.

Does this equipment require manipulation?

If yes, please describe how the equipment is to be manipulated.

Scientific Instrumentation for AUV SENTRY:

(It is important to communicate with Carl Kaiser directly and to Refer to the Sentry Fact Sheet published on the WHOI website: <http://www.whoi.edu/page.do?pid=38095>)

- EL for the cruise Sean Kelley

General work description & brief operations description or comments;

Sentry operations worked in between Alvin dives, e.g., overnight. Sentry will be used to scout potential dive targets for Alvin, with typical dives involving MBES, Sidescan, (subbottom?), and photoimaging. One dive is expected at a dump site where we will use the above tools (plus a magnetometer if you have one...) to search for barrels and other signs of industrial waste dumping.

1. Science will provide detailed charts for work area -
2. Science will need to have Sentry generate maps –
3. USBL Navigation
4. Doppler/GPS Nav
5. Digital still camera
6. Magnetometer ?

Ship [Other Requirements] [Shipboard Equipment/Nav]

1. Science / Ship Operations
 - A. Instrument Deployment / Recovery Procedures:

CTD ops, Alvin ops & Sentry ops, Small boat ops

B. Vans: 2 SENTRY vans (1 on Main deck, 1 on 01 deck).

C. Night Operations: **YES. Sentry ops and CTD's.**

D. Deck Safety – Safety Shoes (X), Experience (X)

E. Science personnel have Training/Experience to operate/deploy gear.

F. Lab Safety – PPE (X), Lab Training (X) Spill Kits (X)

G. Hazardous Material- Please Fill out HAZMAT INVENTORY FORM

[Weight, bulk, chemical, pres.] Types?

- **Gas**
- **Chems**
- **Other ?**

<http://www.whoi.edu/sbl/liteSite.do?litesiteid=7092&articleId=10875>

- Chemicals & Compressed Gases? **Yes.**
- Spill Kits
- Loading and waste removal logistics. **Pre load WHOI – Off load ST. Pete or WHOI.**

I. Isotope Use [Isotope Use Approval] – **none req.**

<http://ehs.whoi.edu/ehs/DesktopDefault.aspx?tabindex=2&tabid=5&itemID=543>

2. Policies: (speed, departure/arrival times, moving aboard, etc
3. Ship Navigation
4. Communication (voice, fax, e-mail)
5. Equipment
 - a. Cranes (X)
 - b. Oceanographic winches: Hydro (), Trawl (X),
 - c. CTD (X)
 - d. Electrical power (X)

Cruise Logistics

1. Shipping gear to and from vessel.

Shipping to WHOI

TO:

Master RV ATLANTIS
c/o Eric Benway – AT29-02
Woods Hole Oceanographic Institution
266 Woods Hole Road
Woods Hole MA. 02543

WHOI Agent Information:

Eric Benway
Woods Hole Oceanographic Institution
MS 37
266 Woods Hole Rd.
Woods Hole, MA. 02543
508-289-3770
ebenway@whoi.edu

SHIPPING ADDRESS FOR ALL PACKAGES FOR ST. PETESBURG FL:

TO:

RV ATLANTIS (in transit)
Master R/V ATLANTIS Attn:
Scientist's Name - AT29-02
Port of St. Petersburg, FL.
250 Eight Ave. SE
ST. PETERSBURG. FL. 33701
tel: (727) 893 7051

Ship Agent on site will be Vasile Tudoran.

c/o Vasile Tudoran Transport
819 Ohio Ave. Long Beach, CA 90804
Contact: Vasile Tudoran
Phone: (562) 882-5590
Fax: (562) 434-9800
Email: vtudoran@aol.com

Note: Agent and Eric Benway should be copied on all communications. It is requested that shipment information of any equipment be communicated to the Agent and WHOI contacts.

Post-Cruise Responsibilities

1. Actions departing ship.
 - a. **CLEAN** your work areas, cabins and heads before disembarking.
 - b. **LABEL** all items left behind and properly packed.
Please make arrangements with Eric Benway prior to leaving anything on board.

2. Items remaining on board for transit to WHOI.
Eric Benway will need full list of items including items by end of cruise.

3. UNOLS cruise evaluation [Chief Scientist & Master] – **UNOLS PCA.**
4. Reports to foreign government/State Department [required for work in EEZs] N/A
5. Data delivery [shipboard underway data].
6. Data archiving policy:

All data on a WHOI Cruise Data Distribution (which includes all underway data) will, by default be considered publicly available once a copy of it has been delivered to the chief scientist at the end of the cruise. Please review the Cruise Assignment of Data Access Protection