

AT26-17

Cruise dates: Departure: Astoria, Oregon on Jul 14, 2014
Arrival: Astoria, Or. on Aug 7, 2014

Location: Axial Volcano (Ashes Vent Field), MEF

Project title/description: Deployment of In-Situ Chemical Sensor and Sampler Systems (In-Situ Calibration/Autonomous operation)

Vehicles used: (Atlantis/Alvin)

Brief summary of cruise research accomplishments/highlight:

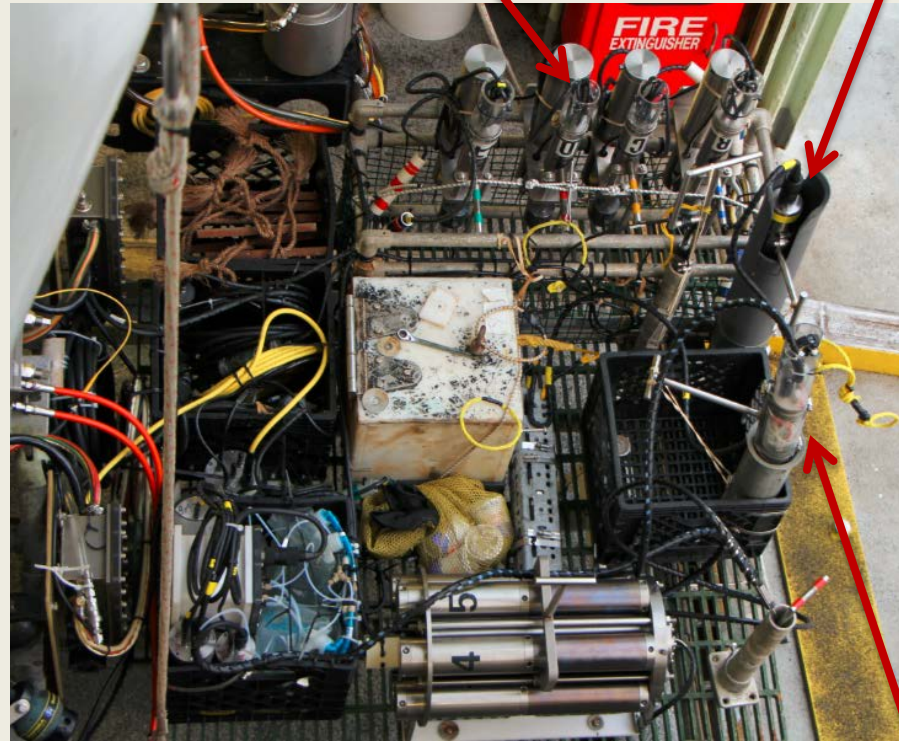
1. Deployment and testing of In-situ chemical sensor systems with auto-calibration capability
2. Deployment and testing of newly designed Autonomous Isobaric Hydrothermal Vent fluid Sampler
 - a. Remote operation (stand alone)
 - b. Facilitates Alvin Operations
 - c. Can be used with sensor systems for Event Response

AT26-17: Instrument Deployment and Testing of In-Situ Chemical Sensors and Samplers for Hydrothermal Applications



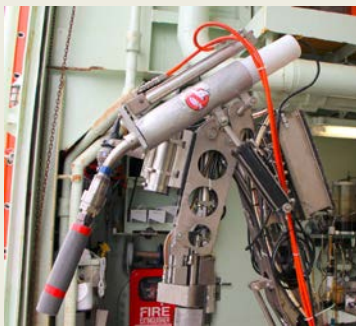
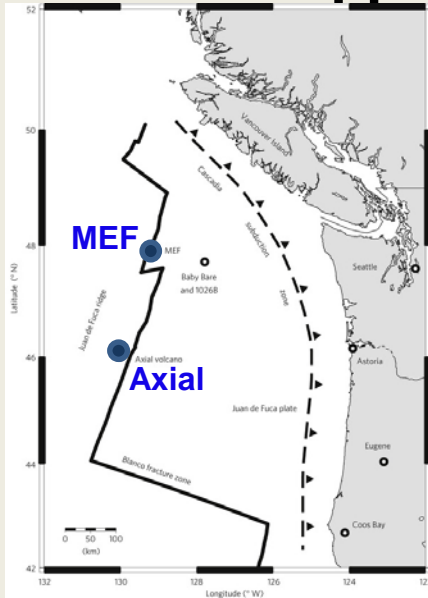
2. High T YSZ sensor

1. Isobaric-Sampler

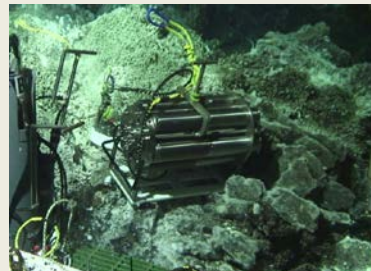


3. Mobile Calibrator

4. Serial Isobaric Sampler



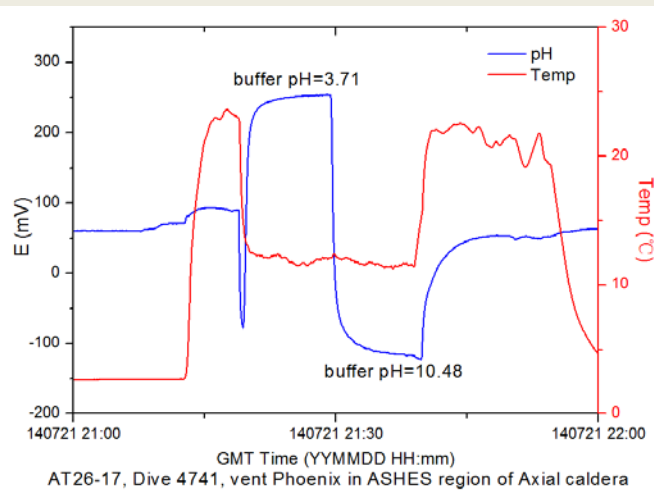
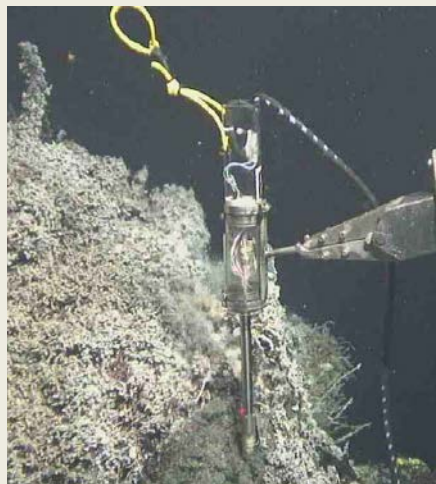
5. High T YSZ sensor



Anemone diffuse site (Axial Caldera).

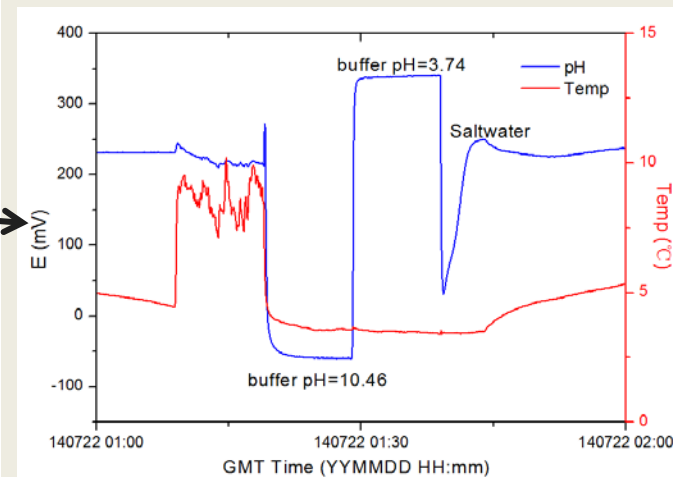
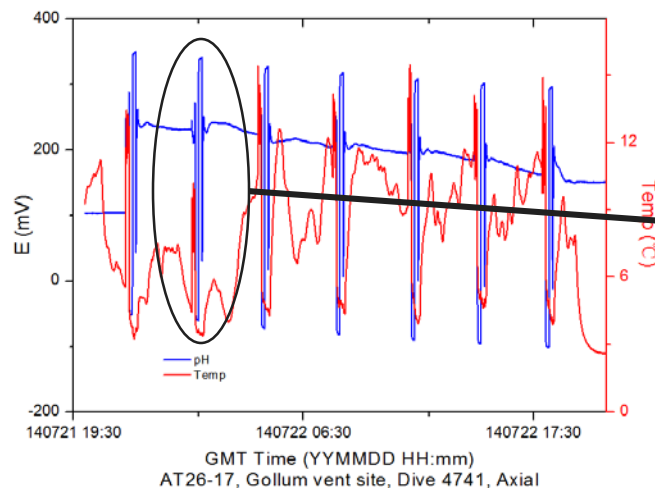
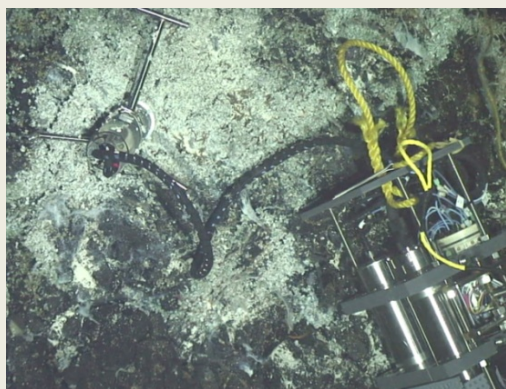
Chemical Sensors: In-Situ Calibration and Measurement (pH, Redox (Eh, H₂S, H₂), Temp.)

Mobile Calibrator



	pH	Potential (mV)	standard deviation	Temp °C
buffer 1	3.71	253.6	0.5	12.05
buffer 2	10.48	-116.8	0.4	11.55
sample 1	6.67	91.6	0.6	23.28
sample 2	7.38	53.0	0.3	21.26

Deployable Calibrator



	pH	Potential (mV)	standard deviation	Temp °C
buffer 1	3.74	340.7	0.3	3.4
buffer 2	10.46	-59.5	0.3	3.6
sample	5.83	216.3	1.5	9.0

Presentations at this Meeting

OS51B-0966 An *in-situ* Mobile pH Calibrator for application with *HOV* and *ROV* platform in deep sea environments

- Friday, December 19, 2014, 08:00 AM - 12:20 PM , Moscone West-Poster Hall

V21A-4738 Recent Investigation of *In-Situ* pH in Hydrothermal Vent Fluids at Main Endeavour Field (MEF) and ASHES Vent Field (ASHES): Implications for Dynamic Changes in Subseafloor Hydrothermal System

- Tuesday, December 16, 2014, 08:00 AM - 12:20 PM , Moscone South-Poster Hall

OS21B-1142 Development and field application of a 6-bottle serial gas-tight fluid sampler for collecting seafloor cold seep and hydrothermal vent fluids with autonomous operation capability

- Tuesday, December 16, 2014, 08:00 AM - 12:20 PM , Moscone West-Poster Hall