

Purpose of the Dive

This dive was nominated by the University of Texas, Institute for Geophysics. The focus was the westward-facing slope near the deep-water entrance to Keathley Canyon. Objectives included looking for evidence for brine escape at the seafloor, based upon subsurface seismic evidence for rising salt beneath this slope. The vehicles landed on a slight westward-facing slope at a water depth of 2,655 m, on rippled soft sediment. Until the last 15-20 min of the dive, the bottom was characterized by this type of sedimented seafloor; ripples, consistently suggesting intermittent downslope/down-canyon currents, were often present. The vehicles transited ~2.4 km over the course of the ~5.3 hr. dive, up a ~11 degree slope, across a flat bench at ~2,500 m of water, then up another ~11 degree slope until the end of the dive, at ~2,266 m of water.

Description of the Dive:

Towards the top of the second slope and the end of the dive, a more hummocky seafloor was encountered, and with abundant nodular carbonate hardground outcrops.

Biological Summary

Throughout the dive, there were many unidentified shrimp, *Benthodytes typica* (swimming holothurian) and Echiura (spoon worm) feeding marks. Hexactinellid tube sponges (*Euplectella*?-type) were common, all with osculum facing towards the north (up-canyon). In addition, ophiroids, *Bathysaurus* (lizardfish), asteroids, cerianthid anemones, Goniasteridae- batstars, *Calyptogena*? (dead, bivalve) and a stalked crinoid were all present, all in low abundance.

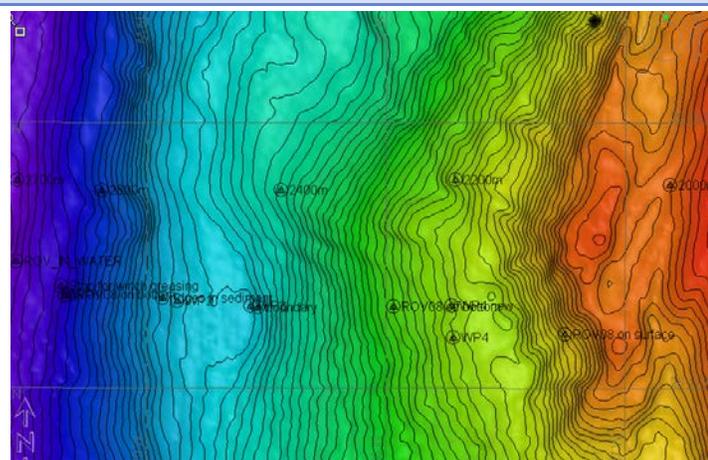
Crossing the bench were holothurians – *Eynpniastes* sp., shrimp - Sergestidae, Goniasteridae, *Euplectella*-type, and tripod fish (2 different species), as well as *Plesiopenaeus armatus* (relative of the shallower royal red shrimp) and Polychaete – tubeworms encrusted with sediment and pteropod shells.

On the higher slope, *Hyalonema* (stalked glass sponge) were seen living and dead, in association with (up to two) flytrap anemones on their stalks. Rare burrows arranged in a circle were possibly created by *Glyphocrangon* (armored shrimp) were rare.

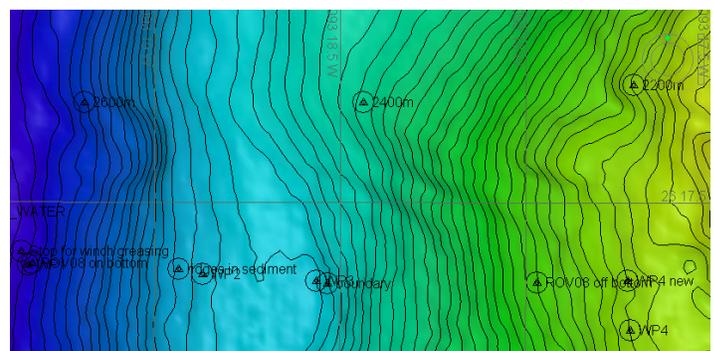
Near the top of the higher slope, there were more *Hyalonema* (with polychaetes, but with no anemones) - *Hyalinoecia* (sediment covered Polychaete), holothurian – *Benthothuria* were common. One empty paper nautilus shell was observed on the bottom.

At the end of dive there was a small rock ledge (hummocks): sighted was one *Paramuricea* octocoral with associated goose neck barnacles. There were also *Munida* sp. and *Munidopsis* sp. squat lobsters present. There were several different Hexactinellida sponges including a few *Ferrea*?-type and fan shaped individuals.

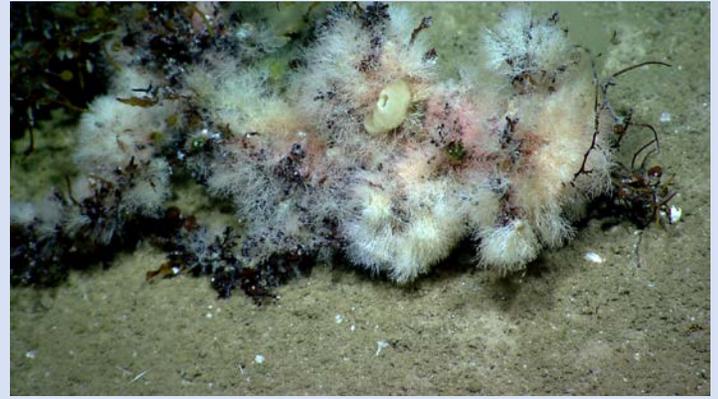
Overall Map of ROV Dive Area



Close-up Map of Main Dive Site



Representative Photos of the Dive



EX1402L3_IMG_20140420T171840Z_ROVHD_SPO_JFH:
Euplectella type glass sponge facing up-canyon.

EX1402L3_IMG_20140420T154906Z_ROVHD_PINK_WHITE_COL
ONIA: A bryozoan covered piece of debris

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