

Experimental results: species abundance from transplants between active and inactive areas around methane seeps from R/V Atlantis AT18-10 in the Pacific Ocean, off USA from 2011-2011 (CROCKS II project)

Website: <https://www.bco-dmo.org/dataset/3764>

Version:

Version Date: 2012-10-31

Project

» [Short-term colonization processes at Costa Rica methane seeps](#) (Seep Carbonate Ecology CROCKS II)

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Dataset Description

Species counts (per 200cm²) on rocks that were transplanted between active and inactive areas of Hydrate Ridge North seeps (AT 18-10).

Methods & Sampling

Alvin submersible placed and collected rocks.

Data Processing Description

Specimens were identified to most specific level possible.

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Data Files

File
seep_transplant.csv (Comma Separated Values (.csv), 123.63 KB) MD5:9105b0b633eb686eb5aea2f0049f4a93
Primary data file for dataset ID 3764

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Parameters

Parameter	Description	Units
cruise_id	cruise identification; Atlantis	alphanumeric
region	broad area of study	text
site	location within region	text
station	station name	alphanumeric
lat	latitude; West is negative	decimal degrees
lon	longitude; North is positive	decimal degrees
taxon	taxonomic name	text
sample_size	sample size	integer
abundance_200sqcm	taxon abundance	per 200 cm ²
abund_stderr	standard error of abundance value	dimensionless
abund_pcent	percent taxon abundance of total sample	percent

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Instruments

Dataset-specific Instrument Name	Alvin tube core
Generic Instrument Name	Alvin tube core
Generic Instrument Description	A plastic tube, about 40 cm (16 inches) long, is pushed into the sediment by Alvin's manipulator arm to collect a sediment core.

Dataset-specific Instrument Name	Multi Corer
Generic Instrument Name	Multi Corer
Dataset-specific Description	Ocean Instruments MultiCorer
Generic Instrument Description	The Multi Corer is a benthic coring device used to collect multiple, simultaneous, undisturbed sediment/water samples from the seafloor. Multiple coring tubes with varying sampling capacity depending on tube dimensions are mounted in a frame designed to sample the deep ocean seafloor. For more information, see Barnett et al. (1984) in Oceanologica Acta, 7, pp. 399-408.

Deployments

AT18-10

Website	https://www.bco-dmo.org/deployment/58871
Platform	R/V Atlantis
Start Date	2011-08-31
End Date	2011-09-08
Description	<p>Cruise information and original data are available from the NSF R2R data catalog.</p> <p>Methods & Sampling Species counts (per 200cm²) on rocks that were transplanted between active and inactive areas of Hydrate Ridge North seeps (AT 18-10).</p> <p>Processing Description AT 15-68 was conducted with ALVIN at the northern, southern and southeast summits of Hydrate Ridge from July 30-Aug. 9, 2010, and AT 18-10 was conducted with ROV Jason, to recover experiments placed at Hydrate Ridge in 2010.</p>

Project Information

Short-term colonization processes at Costa Rica methane seeps (Seep Carbonate Ecology CROCKS II)

Coverage: Costa Rica seafloor methane seeps 8 deg 55 N 84 deg 18 W depth 990m

This RAPID project will conduct 5 submersible or ROV dives to collect a series of colonization experiments deployed in March 2009 on Mound 12 off Costa Rica (997 m). These experiments were deployed opportunistically, and to optimize the information that could be obtained, the PIs needed to recover them within a 12 month time frame. Early colonization of rock, wood, shell and tube substrates will be studied. The microbes, foraminiferans and metazoans present after 6-12 mo will be compared to those colonizing similar experiments to be deployed at Hydrate Ridge, where seeps occur within an oxygen minimum zone. The overall project goal is to integrate physical, geological, chemical and biological data to develop a holistic view of the influence of seep-generated carbonate hard-ground ecosystems on margins.

The objectives of the research are to (a) Compare colonizers at seeps off Costa Rica and Hydrate Ridge to assess the importance of different oxygen regimes in the development of anaerobic methane oxidation, sulfide oxidizers and other microbial metabolisms on hard substrates, and to evaluate their roles in driving protozoan and metazoan succession at methane seeps. (b) Deploy a suite of biotic and abiotic substrates to distinguish the specific roles of carbonate substrate from those of other hard substrates (wood, clam and mussel shells, worm tubes) available. (c) Explore the similarity of vent and seep colonization processes by comparing colonization at the Costa Rica seeps, where vent species are common, to the Hydrate Ridge seeps, where they are not. (d) Determine whether there are diagnosable biogeographic isotope or other biomarker signatures from newly recruited Costa Rica microbial, foraminiferal and animal populations at active vs. inactive seeps, and whether these differ from those at Hydrate Ridge.

This research will involve international participation from Costa Rican scientists at the Univ. of Costa Rica.

Funding

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