

Okeanos Explorer ROV Dive Summary

Dive Information	
General Location	
General Area Descriptor	Musicians Seamounts
Site Name	Wagner Seamount
Science Team Leads	John R. Smith/Meagan Putts
Expedition Coordinator	Kasey Cantwell
ROV Dive Supervisor	Karl McLetchie
Mapping Lead	Mike White
ROV Dive Name	
Cruise	EX1708
Leg	-
Dive Number	DIVE08
Equipment Deployed	
ROV	Deep Discoverer

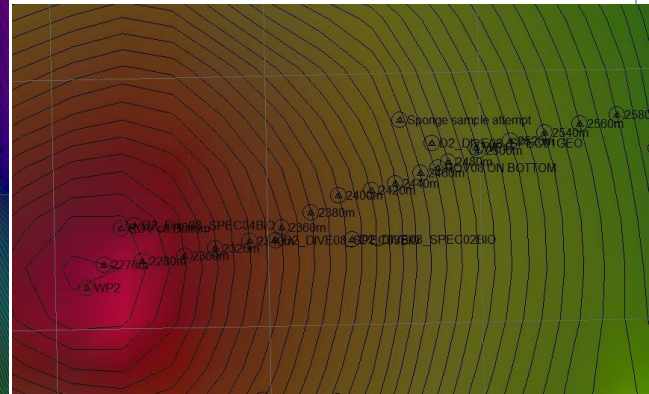
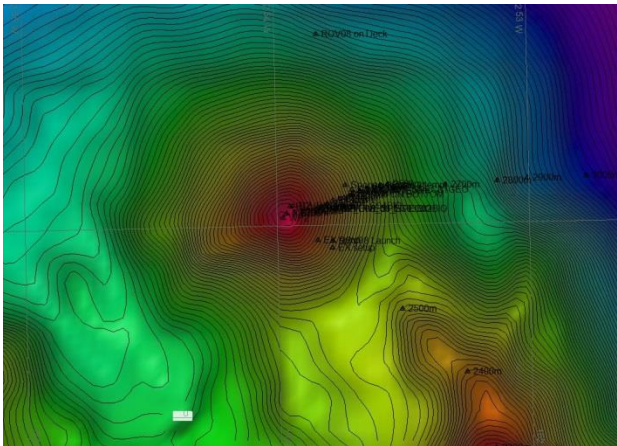
	John Smith	jrsmith@hawaii.edu	University of Hawaii
	Katie Wagner	katie.wagner@noaa.gov	NOAA OER
	Les Watling	watling@hawaii.edu	University of Hawaii at Manoa
	Luke McCartin	lmccartin@whoi.edu	WHOI
	Malcolm Clark	malcolm.clark@niwa.co.nz	NIWA
	Meagan Putts	Meagan.putts@noaa.gov	University of Hawaii
	Megan McCuller	mccullermi@gmail.com	Williams-Mystic Maritime Studies Program
	Nolan Barrett	barrettmh@g.cofc.edu	FAU Harbor Branch Oceanographic Institute
	Scott France	france@louisiana.edu	University of Louisiana at Lafayette
	Tara Luke	luket@stockton.edu	Stockton University
	Tim Shank	tshank@whoi.edu	WHOI
	Tina Molodtsova	tina@ocean.ru; tina.molodtsova@gmail.com	P.P.Shirshov Institute of Oceanology RAS
	Tom Hansknecht	tjhansk@comcast.net	Barry Vittor and Associates, Inc. retired
Purpose of the Dive	<p>One of the main objectives of this dive was to collect representative rock samples of the feature for geochemical analysis and isotopic dating so as to examine the interaction of hot spot and mid-ocean ridge interactions. The other objective for this dive is to characterize the distribution and abundance of benthic fauna, in particular corals, to examine the diversity, biogeography, and connectivity of corals living the northern seamount group compared to those observed in the southern seamount group and to the rest of the sites visited during this expedition. A comparison of the diversity and distribution of coral and sponge communities across the seamounts to the north and to the Hawaiian Ridge and the broader North Pacific will help describe the biogeography and connectivity of communities in the Pacific. The dive satisfies the CAPSTONE science themes to "investigate the geologic history of Pacific seamounts" and to "identify and map vulnerable marine habitats – particularly high-density deep-sea coral and sponge communities."</p>		
Description of the Dive	<p>The ROV Deep Discoverer (D2) arrived on bottom near the base of a volcanic pillow cone at a water depth of 2428 m. The seafloor here was composed of talus of various sizes including large boulders and some intact lava flow outcrops. Soon after, contact was made with an extensive sheet flow unit ~one-meter-thick at 2430 m that persisted upslope. An in place rock sample was obtained from the flow edge and does appear to be basalt with a broken edge showing alteration. Regarding biology, the dive started slow with some low density communities. As we transected up the slope of the cone feature, the community increased in density with Chrysogorgid coral, <i>Anthomastus</i> sp. mushroom coral, and a diversity of Antipatharians, black coral, along the way. The slope increased to 30-40° at 2024 m and a mix of sheet flow and pillow outcrops with talus were presented. A unique white sea star, likely <i>Zorroaster</i> sp., with a single row of upward facing spines was observed at time stamp 20:46 and a depth of 2415 m. Large, isolated boulders with abundant corals were seen atop mostly barren sheet flows at 2235 m on slopes of 40-50°. The slope again steepened at 2310 m to possibly 50-60°</p>		



where mostly sheet flows were observed and little else. Following a collection of a glass sponge that may be an undescribed species at 2293 m, a contact from a ledge feature to more talus and decreasing slope was observed approximately 200 m laterally from the summit. A contact with a thick ledge of lava outcrop was observed at 2258 m just prior to reaching the summit area. Upon reaching the summit of the cone, we were surrounded by a bamboo coral forest at 2248 m. The high density community was made up of large bamboo colonies all around with numerous black coral, chrysogorgid coral, *Swiftia* sp., paragorgids, glass sponges, and more organisms interspersed between. We were able to collect a new species of Goniasteridae sea star predated upon a *Umbellapathes* sp., a new species of glass sponge, and Stoloniferan coral and Hydrozoans overgrowing a bamboo skeleton. Another contact with a thick flow unit was observed at 2338 m. After completing the planned track, it was realized that we were on a false summit and decided to pursue the real summit based on the Seirios scanning sonar. This area, a local high, was nearly flat with variable rock types and depth of 2232 m. A second rock was collected at 2230 m that turned out to be crumbly and friable and a mix of material including small black phenocrysts that may be basalt amongst a jumbled matrix of yellowish material resembling scrambled eggs, possibly being the remnants of a pyroclastic flow. There was also an attempt to collect the same type of rock occurred on Dive #01 at "Tropic of Cancer" Seamount. Two crabs were seen locking in what was determined as a mating embrace at time stamp 00:30 and 2230 m. ROV D2 moved into a depression at 2234 m that included talus, low relief outcrops, and much less biologic density with smaller organisms. A lobate outcrop with high density coral colonies was observed at 2233 m. A final coral was collected from this depth and ROV D2 left bottom from a depth of 2235 m shortly thereafter.

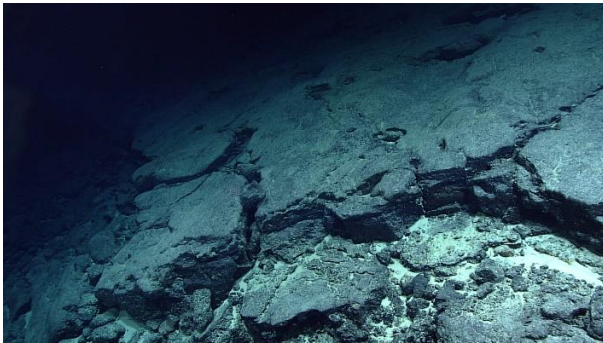
Overall Map of the ROV Dive Area

Close-up Map of Main Dive Site

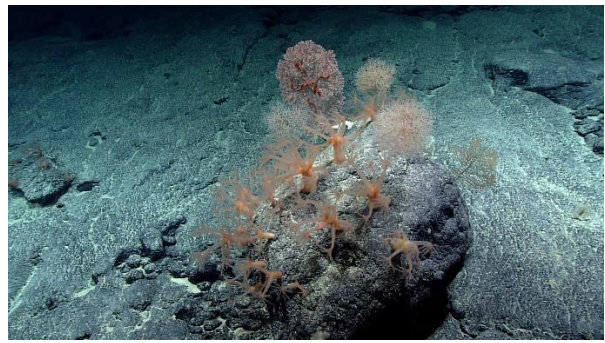


Representative Photos of the Dive





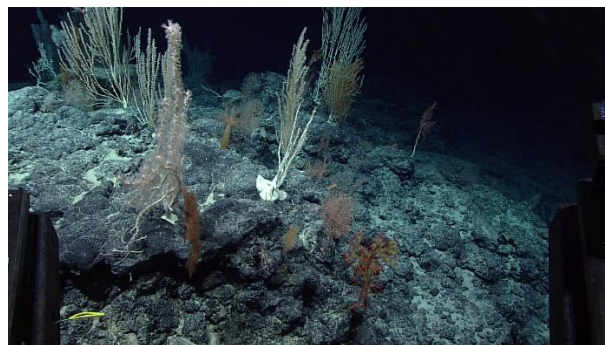
Nearly barren of life, this lava sheet flow with broken downslope edge at the beginning of the dive is a source of talus



Corals densely populating an isolated boulder resting on a smooth sheet flow unit



Two crabs (*Paralomis* sp.) locked in a loving embrace, crustacean style




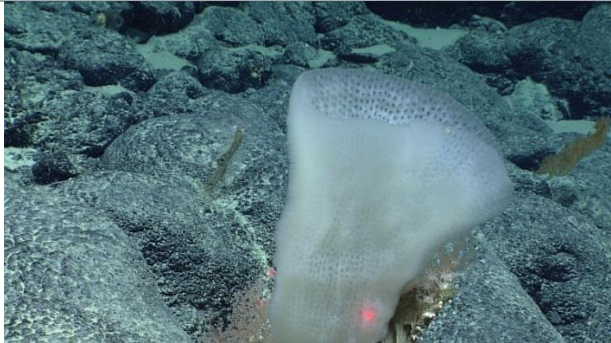

Dense coral community, with some sponges, on the summit of the pillow cone

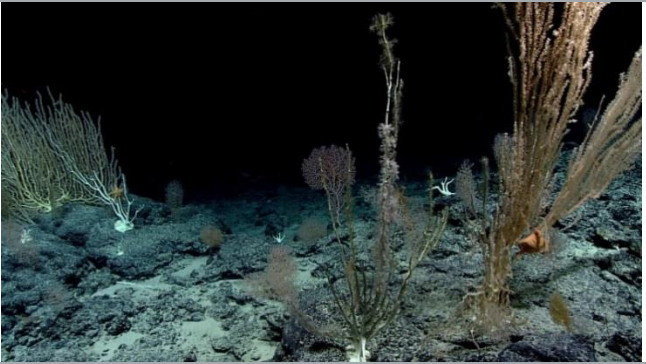
Samples Collected

Sample

Sample ID	EX1708_D2_DIVE08_SPEC01GEO
Date (UTC)	9/14/2017
Time (UTC)	20:29
Depth (m)	2425.12
Temperature (°C)	1.7
Field ID(s)	Manganese encrusted rock in place sheet flow
Commensal ID and Field Identification	
Comments	



Sample		
Sample ID	EX1708_D2_DIVE08_SPEC02BIO	
Date (UTC)	9/14/2017	
Time (UTC)	22:33	
Depth (m)	2352.5	
Temperature (°C)	1.8	
Field ID(s)	<i>Umbellapathes</i> sp.	
Commensal ID and Field Identification	EX1708_D2_DIVE08_SPEC02BIO_A01 Manganese encrusted rock EX1708_D2_DIVE08_SPEC02BIO_A02 Hydrozoa EX1708_D2_DIVE08_SPEC02BIO_A03 Goniasteridae	
Comments		
Sample		
Sample ID	EX1708_D2_DIVE08_SPEC03BIO	
Date (UTC)	9/14/2017	
Time (UTC)	23:21	
Depth (m)	2292.1	
Temperature (°C)	1.8	
Field ID(s)	Euplectellidae	
Commensal ID and Field Identification	EX1708_D2_DIVE08_SPEC03BIO_A01 Gastropoda EX1708_D2_DIVE08_SPEC03BIO_A02 Stolonifera EX1708_D2_DIVE08_SPEC03BIO_A03 Polychaeta EX1708_D2_DIVE08_SPEC03BIO_A04 Amphipoda	
Comments	Portion of dead sponge was collected with specimens	
Sample		
Sample ID	EX1708_D2_DIVE08_SPEC04GEO	
Date (UTC)	9/15/2017	
Time (UTC)	00:04	
Depth (m)	2230.5	
Temperature (°C)	1.8	
Field ID(s)	Manganese encrusted rock	
Commensal ID and Field		

Identification		
Comments	Associate corals were lost between collection and ROV recovery; no associates were collected with the rock sample	
Sample		
Sample ID	EX1708_D2_DIVE08_SPEC05BIO	
Date (UTC)	9/15/2017	
Time (UTC)	01:07	
Depth (m)	2233.2	
Temperature (°C)	1.8	
Field ID(s)	Stolonifera on bamboo	
Commensal ID and Field Identification	EX1708_D2_DIVE08_SPEC05BIO_A01	
	EX1708_D2_DIVE08_SPEC05BIO_A02	Isididae skeleton
	EX1708_D2_DIVE08_SPEC05BIO_A03	Polychaeta?
Comments		

Please direct inquiries to:

NOAA Office of Ocean Exploration & Research
1315 East-West Highway (SSMC3 10th Floor)
Silver Spring, MD 20910
(301) 734-1014