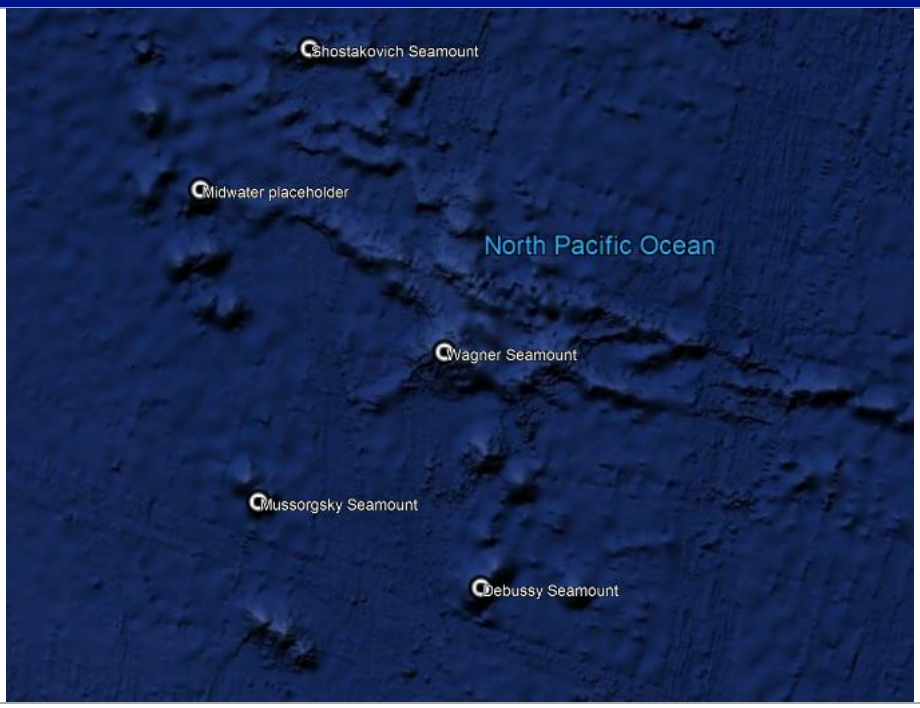
Ocean Exploration and Research

Okeanos Explorer ROV Dive Summary

Dive Information	
General Location	
General Area Descriptor	Musicians Seamounts
Site Name	Debussy Seamount (attempt 2)
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	DIVE07
Equipment Deployed	
ROV	Deep Discoverer

Camera Platform	Seirios		
ROV Measurements	☒ CTD	☒ Depth	☒ Altitude
	☒ Scanning Sonar	☒ USBL Position	☒ Heading
	☒ Pitch	☒ Roll	☒ HD Camera 1
	☒ HD Camera 2	☒ Low Res Cam 1	☒ Low Res Cam 2
	☒ Low Res Cam 3	☒ Low Res Cam 4	☒ Low Res Cam 5
Equipment Malfunctions	USBL for D2 pinging less frequently due to running off of battery power versus external power.		
ROV Dive Summary (from processed ROV data)	Dive Summary: EX1708_DIVE07 ^^ In Water: 2017-09-13T22:59:32.364000 N/A ; N/A Out Water: 2017-09-14T04:30:02.746000 N/A ; N/A Off Bottom: 2017-09-14T03:23:02.104000 30°, 20.368' N ; 162°, 03.333' W On Bottom: 2017-09-14T00:15:17.832000 30°, 20.446' N ; 162°, 03.269' W Dive duration: 5:30:30 Bottom Time: 3:7:44 Max. depth: 2054.1 m		
Special Notes	Dive was shortened ahead of deployment because of failed first attempt due to ground faults. Recovery was extended by two hours and planned midwater transects were canceled.		

Scientists Involved (please provide name, location, affiliation, email)

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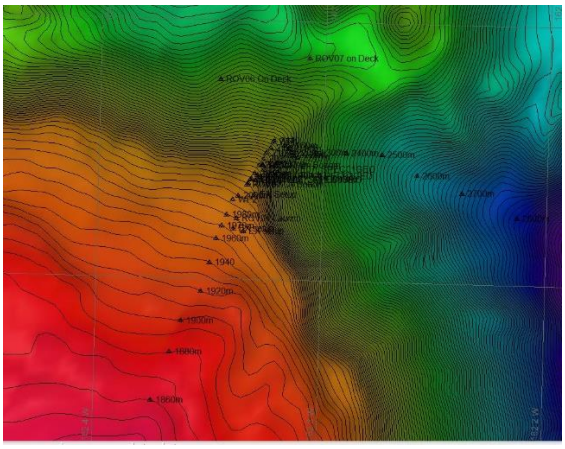
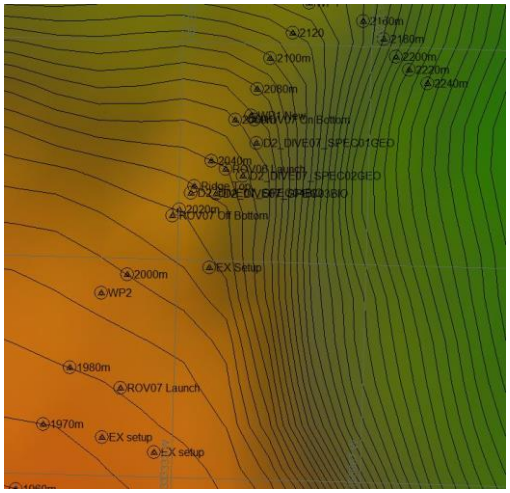
Purpose of the Dive	This is the first of two dives that will investigate the similarities and differences in community composition between two relatively isolated seamounts (Mussorgsky and Debussy) that occupy the gap between the two main groups of the Musicians Seamounts. The primary objective for this dive was to characterize the distribution and abundance of benthic fauna, in particular corals, to examine the diversity, biogeography, and connectivity of coral living at Debussy Seamount compared to the isolated Mussorgsky Seamount 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 theme to "Identify and map vulnerable marine habitats – particularly high-density deep-sea coral and sponge communities."		
Description of the Dive	Following a delayed deployment, ROV *Deep Discoverer* (D2) arrived on bottom at a water depth of 2044 m to low relief lava flow outcrop, talus, and light colored sediment. Coral colonies abounded immediately along with some sponges, and showing great diversity. A novel find was a *Asthenactis* sp. sea star predating on a *Acanthogorgia* sp. coral at time stamp 00:47 and 2051 m depth. This was the first time this genus of sea star has been observed predating upon a coral. A large intact lava flow was found at 2047 m and was traversed. Dense corals, including numerous Primnoids, likely in the genus *Narella*, were observed on the nose of a massive rock outcrop forming a ledge. Another unusual sighting was that of a *Bathysaurus mollis* at 2031 m depth, the upper limit of its known depth range. Alternating talus fields, intact lava flow units, and combinations of both were observed from 2030 m until end of the dive. Large, inflated lobate lavas with pillowed toes were the norm, along with thinner flows adjoining them. The slope from beginning to end of the dive was almost negligible, and yet this dive possibly produced the most continuous high density coral and sponge community of the expedition to date,		

from start to finish. Throughout the dive, two representative rock samples and two unique bamboo coral specimens were collected as described below. D2 left bottom from a depth of 2012 m.

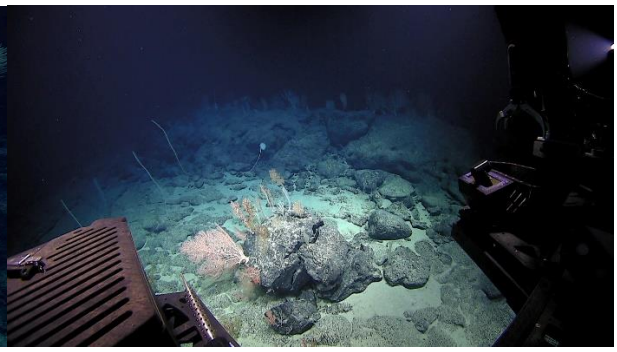
Overall Map of the ROV Dive Area	Close-up Map of Main Dive Site
	

Representative Photos of the Dive

Deep-sea coral community on lava flow outcrop that was present right at ROV touchdown site. The fun never stopped.

Asthenactis sp. sea star "keepin' on truckin'" as it devours an *Acanthogorgia* sp. coral. Note extended stomach and blackened coral stem and polyps inside its translucent gut.

White Primnoid coral garden on the edge of an intact lava flow outcrop



Broken pillow in the process of breaking into talus with coral community along for the ride. Note line of coral trees on edge of outcrop extending into the background.

Samples Collected

Sample

Sample ID	EX1708_D2_DIVE07_SPEC01GEO
Date (UTC)	9/14/2017
Time (UTC)	01:17
Depth (m)	2050.8
Temperature (°C)	2.0
Field ID(s)	Manganese encrusted basalt

Commensal ID and Field Identification		
	EX1708_D2_DIVE07_SPEC01GEO_A01	Ascidian tunicate
	EX1708_D2_DIVE07_SPEC01GEO_A02	Stolonifera "purple"
	EX1708_D2_DIVE07_SPEC01GEO_A03	Primnoidae
	EX1708_D2_DIVE07_SPEC01GEO_A04	Octocoral
Comments		

Sample

Sample ID	EX1708_D2_DIVE07_SPEC02GEO
Date (UTC)	9/14/2017
Time (UTC)	02:11
Depth (m)	2023.9
Temperature (°C)	2.1
Field ID(s)	Manganese encrusted basalt

Commensal ID and Field		
	EX1708_D2_DIVE07_SPEC02GEO_A01	Hexactinellida 1
	EX1708_D2_DIVE07_SPEC02GEO_A02	Hexactinellida 2

Identification	EX1708_D2_DIVE07_SPEC02GEO_A03	Ascidian tunicate
	EX1708_D2_DIVE07_SPEC02GEO_A04	Primnoidae
	EX1708_D2_DIVE07_SPEC02GEO_A05	Isididae
	EX1708_D2_DIVE07_SPEC02GEO_A06	Octocoral
Comments		

Sample

Sample ID	EX1708_D2_DIVE07_SPEC03BIO
Date (UTC)	9/14/2017
Time (UTC)	02:42
Depth (m)	2018.7
Temperature (°C)	2.1
Field ID(s)	Keratoisidinae “Nodal”
Commensal ID and Field Identification	
Comments	

Sample

Sample ID	EX1708_D2_DIVE07_SPEC04BIO
Date (UTC)	9/14/2017
Time (UTC)	03:11
Depth (m)	2013.2
Temperature (°C)	2.0
Field ID(s)	Keratoisidinae “Internodal”
Commensal ID and Field Identification	
Comments	

Please direct inquiries to:

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