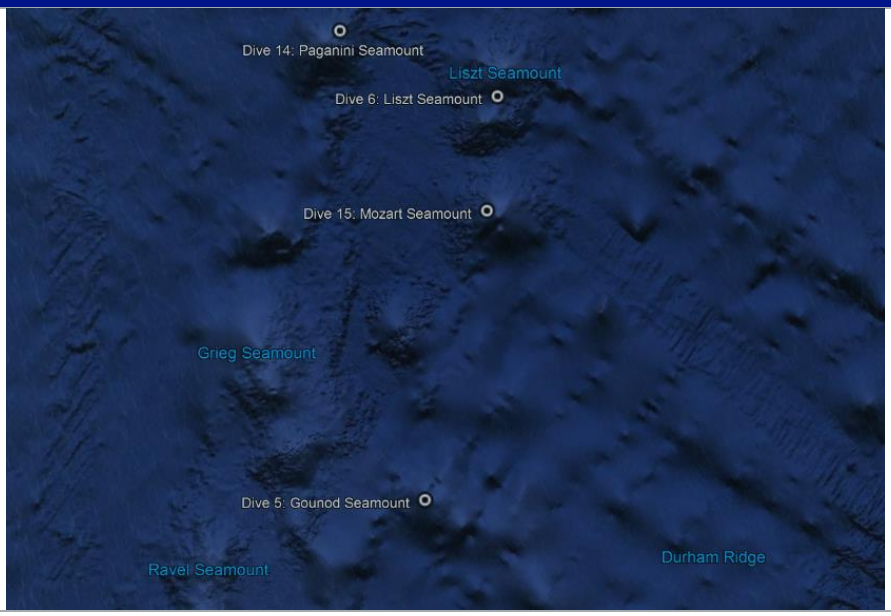
Ocean Exploration and Research

Okeanos Explorer ROV Dive Summary

Dive Information			
General Location			
General Area Descriptor	Musicians Seamounts		
Site Name	Gounod 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	DIVE05		
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	Persistent issues with DO sensors- Seirios's has a ground fault, and D2's is creating artificial spikes. The ROV team is working to resolve this issue.

ROV Dive Summary (from processed ROV data)

Dive Summary: EX1708_DIVE05

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In Water:	2017-09-11T18:27:55.699000 27°, 50.212' N ; 161°, 17.682' W
Out Water:	2017-09-12T02:37:13.825000 N/A ; N/A
Off Bottom:	2017-09-12T01:04:07.426000 27°, 50.467' N ; 161°, 17.517' W
On Bottom:	2017-09-11T20:12:13.477000 27°, 50.251' N ; 161°, 17.646' W
Dive duration:	8:9:18
Bottom Time:	4:51:53
Max. depth:	2934.3 m

Special Notes	Dive was shortened due to escalating weather state. There were some issues with the ship holding station during the dive resulting in delays in progression along the dive track. This was to be expected as we were operating on the edge of the allowable weather window.

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

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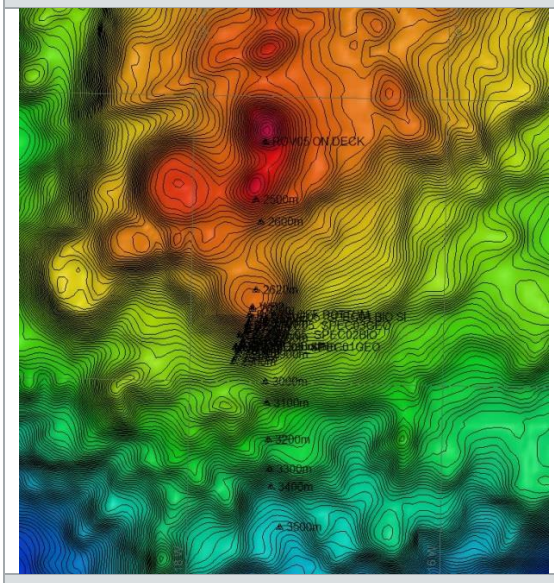
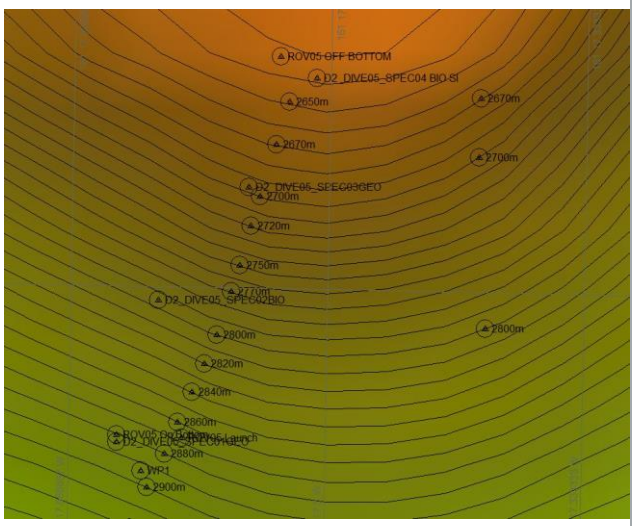
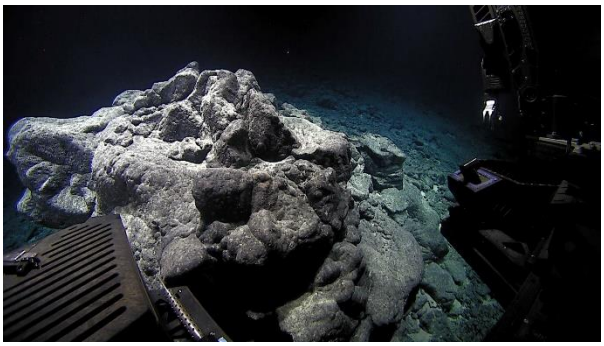
	Tom Hansknecht	tjhansk@comcast.net	Barry Vittor and Associates, Inc. retired
Purpose of the Dive	The primary objective for this dive was to characterize the distribution and abundance of benthic fauna at Gounod Seamount. A comparison of the diversity and distribution of coral and sponge communities across the seamounts to the north and to the Hawaiian Ridge and the broader North Pacific is of particular importance to understanding biogeography and connectivity of communities in the Pacific. The first priority was to complete a photographic survey along the transect, covering as much of the feature as possible. Secondarily, sample collections occurred for unusual sightings, or rare/novel species. A representative rock sample was also taken for further petrologic, geochemical, and/or dating analyses.		
Purpose of the Dive	The dive plan was to survey one of a series of small cratered features close to the summit of Gounod Seamount. These volcanic constructs were identified in the multibeam data as a sequence of terraced pancake cones, a landform seen elsewhere in the main and Northwestern Hawaiian Islands. While not especially rare, it is a curious feature because of its eruption style and geomorphological representation. The primary objective for this dive was to characterize the distribution and abundance of benthic fauna and to collect rock samples that can be used to determine the age of the feature and geochemistry of its host rock. 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 is of particular importance to understanding the biogeography and connectivity of communities in the Pacific. The dive satisfies the CAPSTONE science themes to "Identify and map vulnerable marine habitats – particularly high-density deep-sea coral and sponge communities," and to “investigate the geologic history of Pacific seamounts”.		

Description of the Dive	The ROV D2 arrived on bottom near the base of one of the more eastern pancake cones at a water depth of 2908 m, and was greeted by a talus slope consisting of various sizes of broken rock with sediment interspersed. Dead sponge stalks abounded, although few living biologics were observed. A talus rock sample was collected from the landing area. The talus field briefly became more uniform in size at 2930 m before rapidly alternating back to variable. This pattern of variation in talus size occurred through the dive. The first living coral was observed at 2927 m and the first living sponge at 2925 m. The first in place rock outcrop occurred at time stamp 20:57. We observed a contact with an intact and isolated sheet flow at 2902 m. From there, alternating intact pillow flows, talus, and sheet flows were observed to 2886 m and above to 2825 m, after which the slope steepened at 2776 m. Large live sponges and medium corals began to present themselves at 2719 m. At 2675 m, D2 came upon the base of an intact pillow wall of 50-60° slope, with some fractured pillows observed. While the steep wall did not harbor as dense a community as observed at shallower depths on other seamounts previously dove upon, there was a relatively high diversity and abundance organisms present in comparison to other dives at these depths. The slope began leveling off at 2640 m, whereupon large sponges were observed populating intact lava flow outcrops and talus blocks. In the end, more living sponges were observed than corals, and there actually was an impressive abundance of diversity with over 50 different organisms logged. D2 left bottom from a water depth of 2633 m.

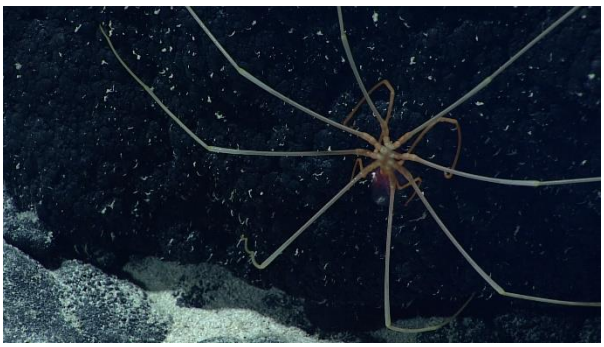
Overall Map of the ROV Dive Area	Close-up Map of Main Dive Site
	

Representative Photos of the Dive

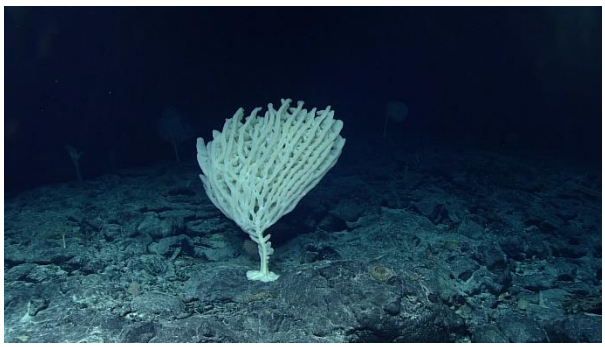


Pronounced lava rock outcrop, in this case mostly devoid of significant biology

Synallactidae sea cucumber amidst a field of talus and intact lava flows



Sea spider, in the family Colossendiedae, likely predating on an anemone.



Large *Aspidoscopulia* sp.? glass sponge attached to an intact lava flow

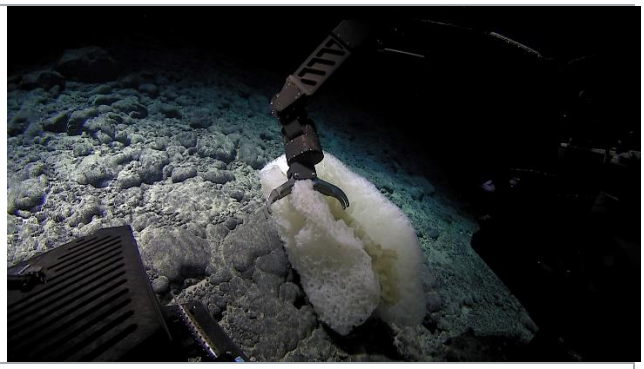
Samples Collected

Sample

Sample ID	EX1708_D2_DIVE05_SPEC01GEO
Date (UTC)	9/11/2017
Time (UTC)	20:22
Depth (m)	2931.4
Temperature (°C)	1.6
Field ID(s)	Manganese crusted basalt
Commensal ID and Field Identification	
Comments	

Sample

Sample ID	EX1708_D2_DIVE05_SPEC02BIO
Date (UTC)	9/11/2017
Time (UTC)	22:19
Depth (m)	2856.2
Temperature (°C)	1.6
Field ID(s)	Corbitellinae?



Commensal ID and Field Identification	EX1708_D2_DIVE05_SPEC02BIO_A01 Polycheata
Comments	

Sample

Sample ID	EX1708_D2_DIVE05_SPEC03GEO
Date (UTC)	9/11/2017
Time (UTC)	23:48
Depth (m)	2761.1
Temperature (°C)	1.6
Field ID(s)	Manganese crusted Basalt

Commensal ID and Field Identification	
Comments	

Sample

Sample ID	EX1708_D2_DIVE05_SPEC04BIO
Date (UTC)	9/11/2017
Time (UTC)	00:56
Depth (m)	2643.3
Temperature (°C)	1.6
Field ID(s)	Metallogorgia sp.

Commensal ID and Field Identification	EX1708_D2_DIVE05_SPEC04BIO_A01 *Uroptichus* sp.
Comments	

Please direct inquiries to:

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