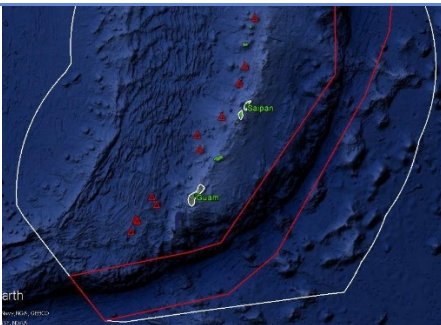


OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	Kunanaf Hulo Seamount (Mud Volcano)			
ROV Lead/ Expedition Coordinator	Jim Newman / Kelley Elliott			
Science Team Leads	Deborah Glickson & Diva Amon			
General Area Descriptor	Southern Marianas			
ROV Dive Name	Cruise Season	Leg	Dive Number	
	EX1605	1	DIVE 13	
Equipment Deployed	ROV:	Deep Discoverer		
	Camera Platform:	Seirios		
ROV Measurements	<input checked="" type="checkbox"/> D2 CTD	<input checked="" type="checkbox"/> Depth	<input checked="" type="checkbox"/> Altitude	
	<input checked="" type="checkbox"/> Scanning Sonar	<input checked="" type="checkbox"/> USBL Position	<input checked="" type="checkbox"/> Heading	
	<input checked="" type="checkbox"/> Pitch	<input checked="" type="checkbox"/> Roll	<input checked="" type="checkbox"/> HD Camera 1	
	<input checked="" type="checkbox"/> HD Camera 2	<input checked="" type="checkbox"/> ROV HD 2	<input checked="" type="checkbox"/> Seirios CTD	
	Temperature Probe	<input checked="" type="checkbox"/> D2 DO Sensor	<input checked="" type="checkbox"/> Seirios DO sensor	
Equipment Malfunctions				
ROV Dive Summary (From processed ROV data)	Dive Summary: EX1605L1_DIVE13			
	~~~~~			
	In Water:	2016-05-03T20:23:31.228000 16°, 01.772' N ; 147°, 06.990' E		
	Out Water:	2016-05-04T04:44:14.540000 16°, 02.139' N ; 147°, 07.351' E		
	Off Bottom:	2016-05-04T02:36:45.308000 16°, 01.824' N ; 147°, 06.711' E		
	On Bottom:	2016-05-03T22:35:37.558000 16°, 01.652' N ; 147°, 06.886' E		
	Dive duration:	8:20:43		
Bottom Time:	4:1:7			
Max. depth:	3703.7 m			
<b>Special Notes</b>				
<b>Scientists Involved (please provide name / location / affiliation / email)</b>	<p>Scott France, UL Lafayette; <a href="mailto:france@louisiana.edu">france@louisiana.edu</a>  Patty Fryer, UH; <a href="mailto:pfryer@soest.hawaii.edu">pfryer@soest.hawaii.edu</a>  Mackenzie Gerring, UH; <a href="mailto:mgerring@hawaii.edu">mgerring@hawaii.edu</a>  Tara Harmer Luke, Stockton University; <a href="mailto:Tara.Luke@stockton.edu">Tara.Luke@stockton.edu</a>  Julie Huber, MBL; <a href="mailto:jhuber@mbl.edu">jhuber@mbl.edu</a>  Chris Kelley, UH; <a href="mailto:ckelley@hawaii.edu">ckelley@hawaii.edu</a>  Jonathan Kellogg, U Victoria; <a href="mailto:jkellogg@uvic.ca">jkellogg@uvic.ca</a>  Machel Malay, U Guam; <a href="mailto:machel.malay@gmail.com">machel.malay@gmail.com</a>  Asako Matsumoto, Chiba Institute of Technology; <a href="mailto:amatsu@gorgonian.jp">amatsu@gorgonian.jp</a></p>			

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**Purpose of the Dive**

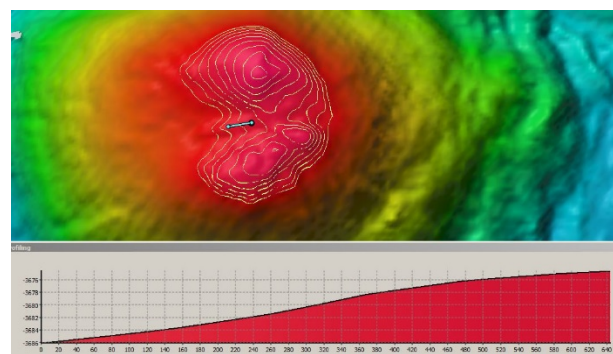
The edifice is very similar in morphology to other serpentinite mud volcanoes on the Mariana Forearc. It had never been dived on, and lies farther from the trench axis (thus a proxy for greater depth to the top of the subducting Pacific Plate) than nearby mud volcanoes that had been sampled. Active springs on these seamounts are known to have chimneys of carbonate and/or brucite. The morphology of chimney structures and their composition changes with distance from the trench at the springs. There are benthic animals at active springs and the sidescan show high backscatter that indicates a rough seafloor. Obtaining subbottom profiles would be very useful for determining if there are thick or thin mudflows on the summit area of this edifice. Usually there are thinner flows near active springs, but some mudflows appear to be voluminous and cover up to a half of the edifice flank. The dive track was planned to begin at 3685 m and to move along the crest for 650 m to a depth of 3675 m.

**Description of the Dive:**

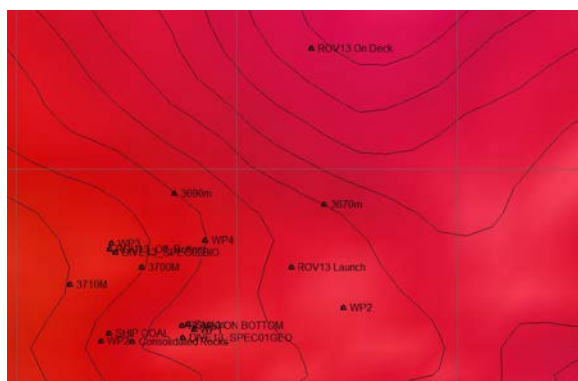
This dive began at a depth of 3662 m near a ridge at the summit of the Kunanaf Hulo mud volcano. This was fairly heavily sedimented area with small areas of rocks, none of which were in situ. Most rocks appeared to have a Mn crust. We picked up a small Mn-crust rock in this area (D2_DIVE13_SPEC01GEO). As we moved, we saw more indurated platy sediment and some rocks. We saw also small Mn nodules in areas with less sediment. After traversing to the west along our WP line, we then traversed north for 300 m and then headed east. The entire dive had very little relief or slope. We also did not encounter any seeps or venting.

Most of the biology encountered on this dive was what is commonly seen on sedimented abyssal plains and was similar to that seen at these depths elsewhere in the Pacific Ocean. There was a high abundance of lebensspuren, indicating that there are many sediment-dwelling fauna, although few were actually seen. One of the dominant fauna observed was a *Caulophacus* sp. with a *Relicanthus* living commensally on the stalk. Other interesting fauna observed included *Ipnops meadi*, enteropneusts, benthic ctenophores, and a parapagurid hermit crab with commensal actinarian. One biology sample was collected: one of the *Caulophacus* sp. which had a root structure likely acting as an anchor for this individual in the sediment (rather than the more conventional attachment base to hard substrate).

**Map of ROV Dive Area**

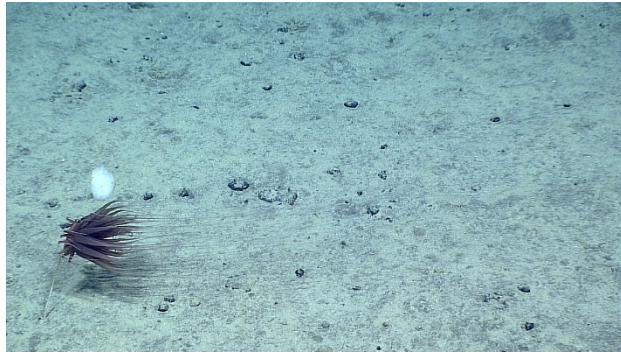


Fledermaus map of planned dive EX1605L1-DIVE13 track.



Hypack screengrab of actual dive EX1605L1-DIVE13 track.

**Representative Photos of the Dive**



Most of Dive 13 was on a sedimented seafloor with patchy outcrops. Here, a *Relicanthus* sp. is seen on a *Caulophacus* sp.

An enteropneust observed during Dive 13.

**Samples Collected**

Sample ID	D2_DIVE13_SPEC01GEO
Date (UTC)	20160503
Time (UTC)	23:14:07
Depth (m)	3677.3
Temperature (°C)	1.504
Field ID(s)	Mn-crusted rock



Comments One commensal juvenile crinoid (D2_DIVE13_SPEC01BIOCO1)

Sample ID	D2_DIVE13_SPEC02BIO
Date (UTC)	20160504
Time (UTC)	02:22:36
Depth (m)	3701.0
Temperature (°C)	1.483
Field ID(s)	<i>Caulophacus</i> sp.



Comments No commensals.

Please direct inquiries to:

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