

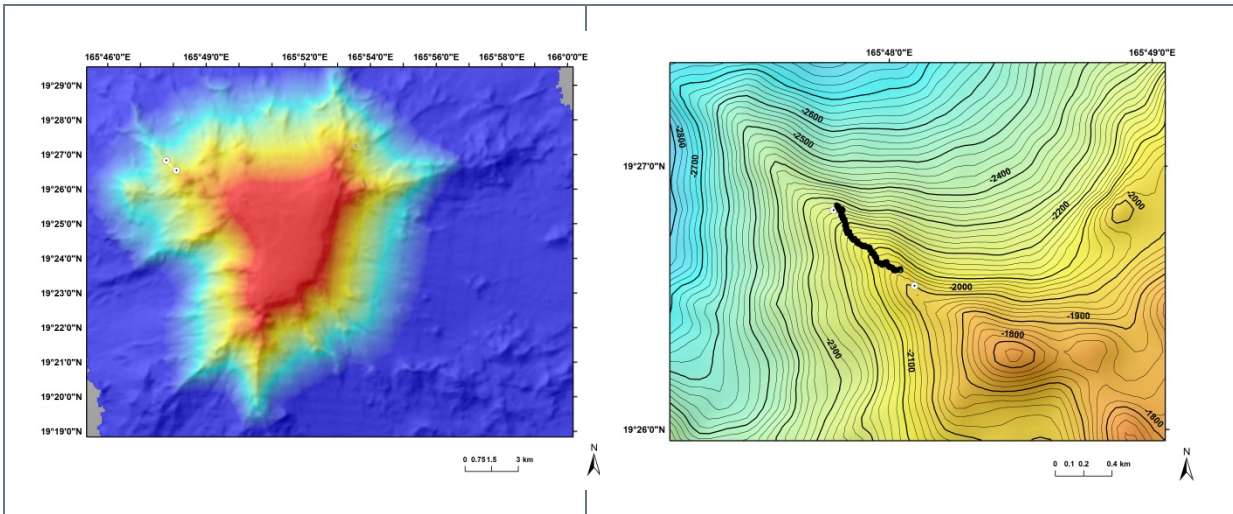


Okeanos Explorer ROV Dive Summary

Dive Information	
Area Map	
Site Name	Unnamed Guyot
Expedition Coordinator(s)	Brian RC Kennedy
ROV Lead(s)	Dan Rogers
Science Team Lead(s)	Chris Kelley and Jasper Konter
General Area Descriptor	Wake Unit of the Pacific Remote Islands Marine National Monument
ROV Dive Name	
Cruise	EX-16-06
Leg	0

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Purpose of the Dive	<p>The purpose of the dive was to survey of the deepwater coral and sponge community on a ridge extending to the north-northwest from an unnamed guyot, 60 miles west of Wake Islands, inside the Wake Monument. The dive was planned to examine a shallower depth range compared to the previous dive, on a similar ridge (in terms of its condition). We chose a depth range of approximately ~2250-1950m, shallower than the 2500m limit above which we expect the densest communities of deepwater corals. The age of the seamount is likely to be just short of 100 Ma, judged from similarities to seamounts further north that were age-dated. Therefore, a significant coating of Mn is expected. This location allows us to document the environmental limits for animals found at the site, and this should increase our knowledge of the species that are potentially at risk from deep sea mining activities in the future. Documenting Mn crust communities is furthermore a major CAPSTONE priority. Another purpose of this dive was to provide data and samples for use in determining the geologic history of this seamount. The geology of the seamounts in this area of the Pacific is poorly understood.</p>		
Description of the Dive	<p>The vehicles made it to the seafloor at 00:04 UTC, at a depth of approx. 2240m. Due to weather constraints, and to compare to the previous dive, we selected a north-northwest rift zone to perform a complementary dive to yesterday's dive, at a slightly shallower depth (2240-1950m vs. ~2500-2300m). This particularly seamount is unnamed, and located approximately 50 miles west of Wake Island. Its morphology again defines a flat-topped guyot type, with a summit near 1200m. The seafloor was quite similar to yesterday's dive, although the amount of sand was overall less. The ridge that the vehicles ascended was actually made up of 3 significant pillow mounds, with more level areas in between. Near the bottoms of the relatively steep sides of each mound, loose cobbles and boulders (that originally were formed as pillow and tube lavas) occurred as individual rocks surrounded by some light-colored sand. As we ascended, it was clear in the steepest sections where pillows had broken off, that the mounds indeed consisted of pillows and tubes, covered in a thick blanket of Mn crust (broken open in some places). In the first part of the dive, truly loose rocks were not common, but after about an hour and a half, a small field of pillows and pillow fragments was found and sampled, on top of a cracked open are of the first pillow mound. Further uphill, the sedimentation increased slightly, and in one of the deepest patches, some current ripples were observed (much less common than the previous dive). The last sample (a lava tube segment) was collected between the second and third pillow mound, as a loose samples that likely traveled down-hill from the last pillow mound. Final depth on the seafloor was approximately 1965m, just short of the</p>		

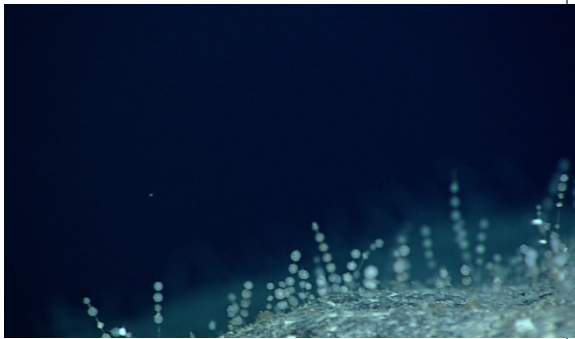
	<p>intended final way point.</p> <p>With respect to the biology, this site could be characterized as having a moderate density and moderate diversity coral and sponge community. Most animals were again concentrated on the harder, rockier bottom. Sponges were observed right from the start, several of which were not recognized by any of the participants, and one of these was sampled later in the dive (<i>Regadrella new species</i>). The animals seemed well exposed to the southwestern current on the ridge that sometimes only spanned a few feet across near its crest. In the lower areas with slightly more sediments the sponges were more dominant, but otherwise there was a good balance of sponges and corals. Sponges included <i>Tretopleura</i> sp, <i>Poliopogon</i> sp, <i>Dictyaulus</i> sp, <i>Aspidoscopulia</i> sp, <i>Bolosoma</i> sp, <i>Farrea</i> sp, and a possible auloplacid. Corals included primnoids (<i>Narella</i> sp, <i>Candidella</i>, unbranched primnoid (collected), <i>Calyptrophora cf angularis</i>, <i>Paracalyptrophora</i> sp), isidids (<i>Keratoisis sparse</i>, <i>Lepidisis</i> sp), chrysogorgiids (<i>Chrysogorgia cf stellata</i>, <i>Chrysogorgia</i> sp, <i>Iridogorgia magnaspiralis</i>, I. sp), antipatharians (<i>Bathypathes</i> sp, <i>Trissopathes</i> sp, <i>Stauropathes</i> sp, <i>Parantipathes</i> sp), and a <i>Paragorgia</i> sp, some colonies of which were overgrown by parazoanthids. Anemones (<i>Exocoelactis</i> sp and others) along with tubulariid hydrozoans, zoanthids, a ceriantharian were among the other cnidarians observed. Brittlestars (astroschematids) and seastars (<i>Tibogaster</i> sp, <i>Asthenactis</i> sp, a <i>Mediaster/Ceramaster</i> sp) were perhaps the most numerous echinoderms, however there were still several holothurians (<i>Hansenothuria</i> sp?, synallactid) and urchins (<i>Tromikosoma cf hispidum?</i>, and a strange green spherical one) also encountered. Arthropods seen were squat lobsters (<i>Uroptychus</i> sp, <i>Munidopsis</i> sp, shrimp (<i>Nematocarcinus</i> sp, aristeid, and two commensal species found on the sponge collected), barnacles (both scalpellids and balanoids) and both free living and parasitic isopods. Of particular interest was a field of thousands of "kebab tunicates", off which several were found on a rock that was collected). More fishes were observed on this dive than previous dives, with several cusk eels (<i>Bassozetus</i> sp), cut-throat eels (<i>Synaphobranchus brevidorsalis?</i>, <i>S. oregoni?</i>, <i>Ilyophis</i> sp), a sea toad (<i>Chaunacops</i> sp) and a rattail (<i>Kumba</i> sp).</p>
Overall Map of the ROV Dive Area	Close-up Map of Main Dive Site



Overview map of the Un-named Guyot W of Wake

Closeup of the dive site showing the actual tracking data.

Representative Photos of the Dive



Field of "kabob" sponges.



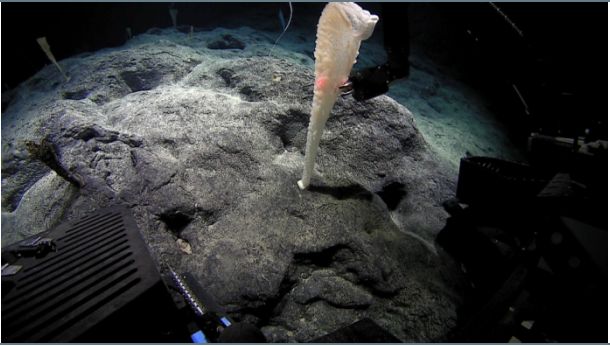
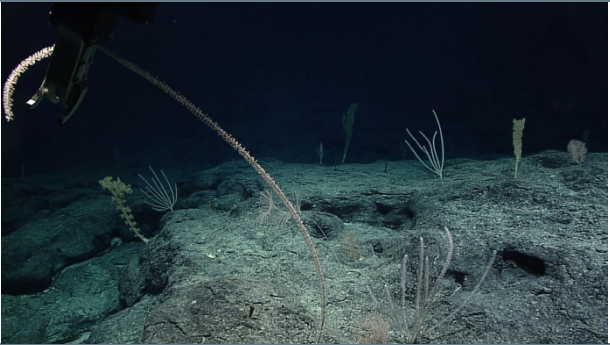
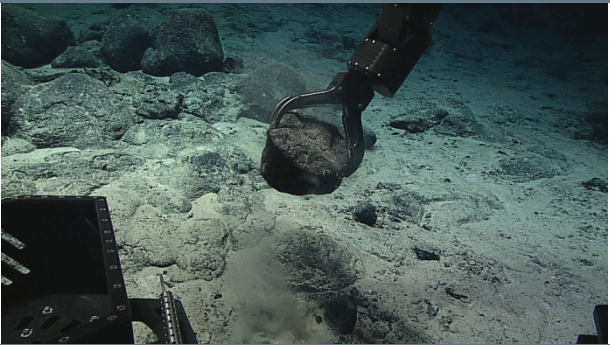
Moderate density coral and sponge community.

Samples Collected

Sample

Sample ID	D2_DIVE06_SPEC01GEO
Date (UTC)	20160806
Time (UTC)	1:40:44
Depth (m)	2160
Temperature (°C)	1.92359
Field ID(s)	Mn crusted possible small pillow



Comments		
Sample		
Sample ID	D2_DIVE06_SPEC02BIO	
Date (UTC)	20160806	
Time (UTC)	2:20:28	
Depth (m)	2149	
Temperature (°C)	1.95336	
Field ID(s)	Regadrella sp new	
Comments		
Sample		
Sample ID	D2_DIVE06_SPEC03BIO	
Date (UTC)	20160806	
Time (UTC)	3:51:41	
Depth (m)	2073	
Temperature (°C)	1.99129	
Field ID(s)	Calyptrophora unbranched	
Comments		
Sample		
Sample ID	D2_DIVE06_SPEC04GEO	
Date (UTC)	20160806	
Time (UTC)	4:18:53	
Depth (m)	2069	
Temperature (°C)	2.03175	
Field ID(s)	Lava tube slice with Mn	
Comments		

Please direct inquiries to:

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