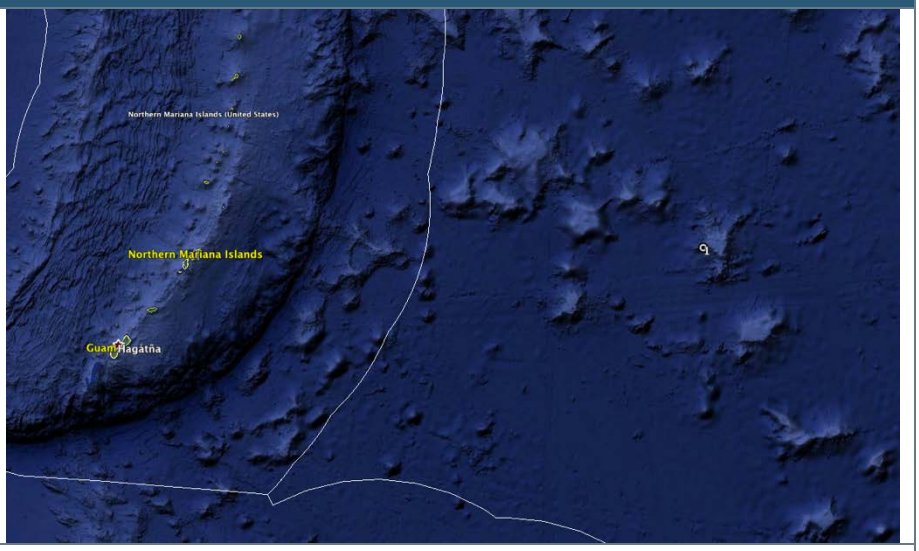
Ocean Exploration and Research

Okeanos Explorer ROV Dive Summary

Dive Information			
Dive Map			
Site Name	Alba Seamount in Russian Federation Mn Crust Lease Block 65		
Expedition Coordinator(s)	Brian RC Kennedy		
ROV Lead(s)	Dan Rogers		
Science Team Lead(s)	Chris Kelly and Jasper Konter		
General Area Descriptor	Areas between Guam and Wake and inside the Wake Unit of the Pacific Remote Islands Marine National Monument		
ROV Dive Name			
Cruise	EX-16-06		
Leg	0		
Dive Number	01		
Equipment Deployed			
ROV	Deep Discoverer (D2)		
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

none

ROV Dive Summary
(from processed ROV data)

Dive Summary: EX1606_DIVE01
^^

In Water:	2016-07-29T21:29:51.014000 16°, 51.128' N ; 154°, 03.702' E
Out Water:	2016-07-30T05:30:25.696000 16°, 51.421' N ; 154°, 03.659' E
Off Bottom:	2016-07-30T04:20:12.891000 16°, 51.479' N ; 154°, 03.665' E
On Bottom:	2016-07-29T22:46:55.251000 16°, 51.128' N ; 154°, 03.788' E
Dive duration:	8:0:34
Bottom Time:	5:33:17
Max. depth:	2319.1 m

Special Notes

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

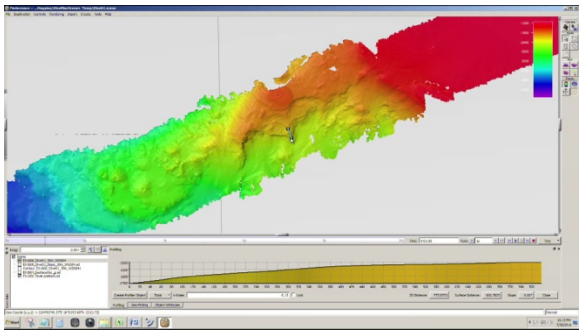
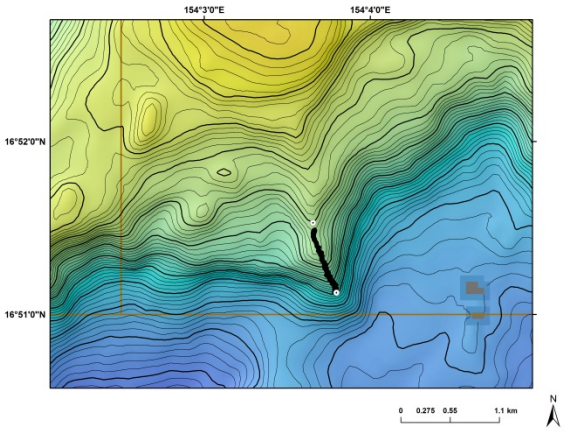
Diva Amon	Univ. Hawaiʻi at Mānoa (UHM)	divaamon@hawaii.edu
Patricia Fryer	Univ. Hawaiʻi at Mānoa (UHM)	pfryer@hawaii.edu
Deborah Glickson	FAU-Harbor Branch Oceanographic Institute	dglickson@fau.edu
Asako Matsumoto	Chiba Institute of Technology (Chitech)	amatsu@gorgonian.jp
Tina Molodtsova	P.P.Shirshov Institute of Oceanology RAS	tina@ocean.ru, tina.molodtsova@gmail.com
Bruce Mundy	NOAA NMFS PIFSC	bruce.mundy@noaa.gov
Charles Wahle	National Marine Protected Areas Center	charles.wahle@noaa.gov
Barrett Nolan		barrettnh@g.cofc.edu
Michael Vecchione	Smithsonian	Michael.Vechionne@noaa.gov
Kazuya Naito	Japan Oil, Gas and Metals National Corporation	naito-kazuya@jogmec.go.jp

Purpose of the Dive

This dive was conducted in Cobalt-Rich Ferromanganese Crust Exploration block 65 granted to the Government of the Russian Federation by the International Seabed Authority (ISA). The objective of the dive was to survey an actual Mn-crust lease block for the presence of deep water coral and sponge communities that could be impacted by mining operations in the future. A second aspect of this dive lies in the geology of the seamount. This seamount is one of the rare seamounts that was previously dredged

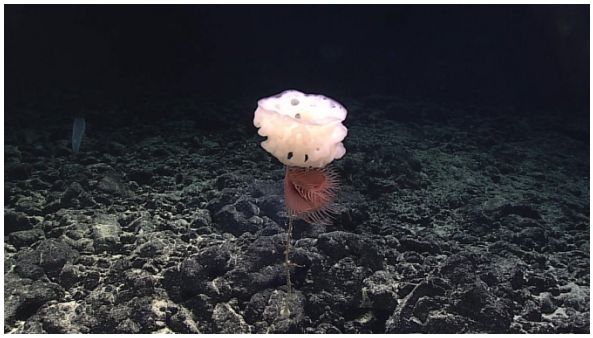
	for geological samples. The technique of dredging has very limited depth resolution, and carefully sampled rocks from this seamount will allow geologists to place existing data within a framework of volcanic construction.
Description of the Dive	The ROV (D2) reached the bottom at about 22:44 UTC time, at a depth near 2300m. This location represents the southwest side of Alba Seamount (also reported as Vlinder). The seamount is a Cretaceous guyot, given its flat top and the radiometric age obtained from a 1980s dredge sample. The dive location focuses on one of the volcanic rift zones that emanate from the central guyot platform. At first sight, the bottom consisted of scattered rocks, with light colored sand. The rocks were thickly coated in Mn-crust, while the sand appeared mostly white-ish. The sand is likely sourced from the flat platform above, and probably consists of reef debris, mixed with some pelagic sediment. The first rock sample was collected from this area, at the beginning of the dive; this sample was entirely encrusted, and may contain a volcanic rock. However, the rocks in this area are thickly covered in Mn-crust and this sample may turn out to contain hardly any or no significant core. As the ROV ascended the terrain alternated between more broken up Mn-covered rocks with sand, and steeper more massive rocky outcrops that mostly represent Mn-coated pillow and tube structures. The Mn-crust still mimicked these shapes, but did show mm-cm scale texture. These rocky formations were usually at least a few meters high, and contained large, meter-scale boulders. We observed one or two sheet flow edges as well. Near the end of the dive, the topography leveled off for a while, while the bottom changed to significantly more sediment rich. Near the end of the dive, the slope became steeper again, with more rocky outcrops. A last rock sample was taken shortly before leaving the seafloor at 1993 m; a sediment clast with Mn crust. The more massive, rocky areas also served as the more common substrate for the animals that were seen during the dive. The density of the community was sparse to modest but the diversity was high. The first animals recorded were stalked and unstalked glass sponges (Saccocalx sp, Tretopleura sp, Aspidoscopulia sp), primnoid octocorals (Calyptrophora angularis, Narella sp), and

	several shrimp. Many other species of glass sponges were recorded during the rest of the dive along with other species of primnoids, several species of isidids (Lepidisis sp, Eknomisis sp, and an unidentified Keratoisidinae), feather stars and sea lilies (Sarametra lateralis, Atelocrinus conifer?, Hyocrinidae), holothuroideans, several species of seastars (Henricia sp and a possible slime star) long legged shrimp (Nematocarcinus sp), squat lobsters (Uroptychus sp) brittle stars, and fish. Only two species of fish were recorded and included a single ophidiid (Porogadus sp) and a number of cutthroat eels (Synaphobranchus cf brevidorsalis). Other noteworthy biological observations were a tumbling snail (Gaza sp) and a massive unidentified anemone (possibly in the family Exocoelactinidae). Only 2 colonies of chrysogorgiids (Chrysogorgia sp) and only 1 colony of an antipatharian (Bathypathes sp) were observed. Biological samples were taken of an unusual stalked sponge and a stalked crinoid (stalked sponge from a more massive outcrop, stalked crinoid on a rock surrounded by sandy pockets). The stalked crinoid, although rare across the Pacific region, was one of the most common animals during this particular dive.

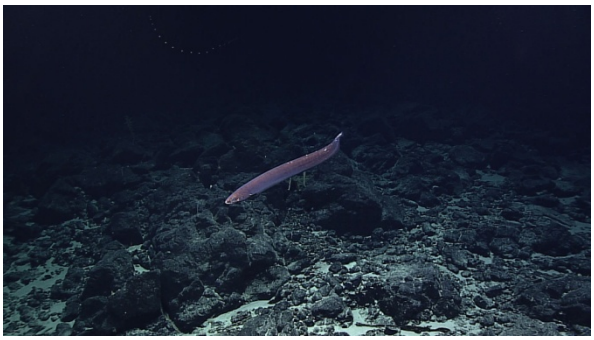
Overall Map of the ROV Dive Area	**Close-up Map of Main Dive Site**
	

Proposed start (green) and end (red) points for Dive 01	

Representative Photos of the Dive



Glass sponge (Saccocalyx sp) with anemone on Mn crusted boulders and cobbles



Cutthroat eel (Synaphobranchus sp) swimming over Mn crusted boulders, cobbles, and sediment.

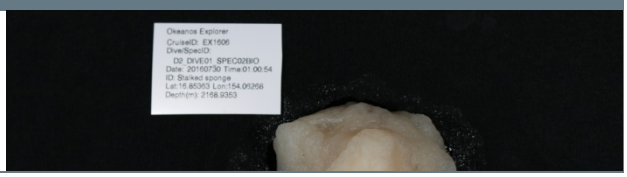
Samples Collected

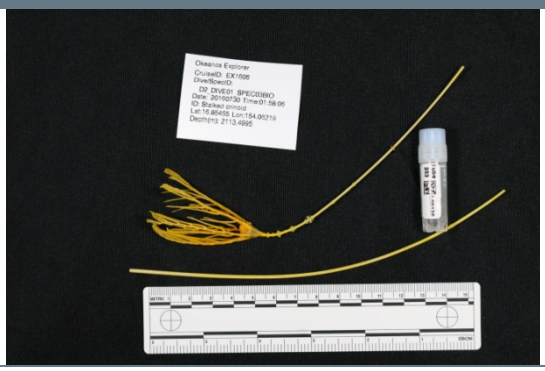
Sample

Sample ID	SPEC01GEO
Date (UTC)	20160730
Time (UTC)	
Depth (m)	2316
Temperature (°C)	1.95
Field ID(s)	ROCK
Comments	Mn crusted rock

Sample

Sample ID	SPEC02BIO
Date (UTC)	20160730
Time (UTC)	1:00:54



Depth (m)	2169	
Temperature (°C)	1.98	
Field ID(s)	Stalked sponge (Bolosominae)	
Comments	Unusual stalked sponge that appears to be a euplectellid.	
Sample		
Sample ID	SPEC03BIO	
Date (UTC)	20160730	
Time (UTC)	1:58:06	
Depth (m)	2114	
Temperature (°C)	2.17	
Field ID(s)	Hyocrinidae new genus	
Comments		
Sample		
Sample ID	SPEC04GEO	
Date (UTC)	20160730	
Time (UTC)	4:02:00	
Depth (m)	1993	
Temperature (°C)	2.11	
Field ID(s)	Mn crusted calcareous sediment	
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