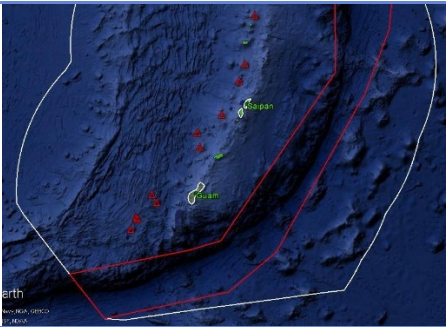


OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	Fina Nagu Caldera A			
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 07	
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_DIVE07 ~~~~~			
	In Water:	2016-04-27T20:24:09.039000 12°, 51.689' N ; 143°, 49.771' E		
	Out Water:	2016-04-28T04:27:13.816000 12°, 51.844' N ; 143°, 50.116' E		
	Off Bottom:	2016-04-28T03:09:33.589000 12°, 51.694' N ; 143°, 49.700' E		
	On Bottom:	2016-04-27T21:51:01.723000 12°, 51.685' N ; 143°, 49.857' E		
	Dive duration:	8:3:4		
	Bottom Time:	5:18:31		
Max. depth:	2379.1 m			
Special Notes				
Scientists Involved (please provide name / location / affiliation / email)	Stace Beaulieu, WHOI; sbeaulieu@whoi.edu Maryjo Brounce, CA Institute of Technology, mbrounce@gps.caltech.edu Ben Frable, OSU; ben.frable@oregonstate.edu Scott France, UL Lafayette; france@louisiana.edu Patty Fryer, UH; pfryer@soest.hawaii.edu Tara Harmer Luke, Stockton University; Tara.Luke@stockton.edu Chris Kelley, UH; ckelley@hawaii.edu Chris Mah, Smithsonian; brisinga@gmail.com			

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Purpose of the Dive

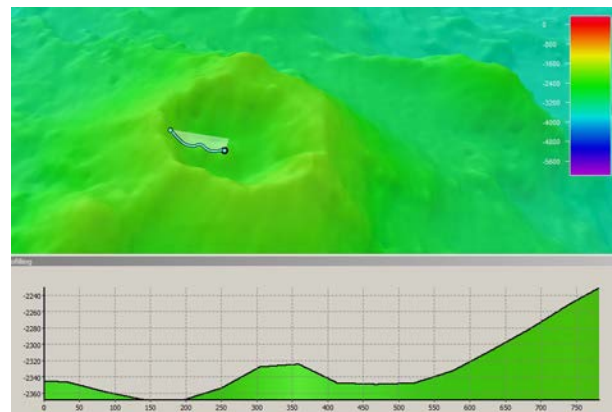
The Fina Nagu Volcanic Chain is poorly studied, and none of its several calderas have been examined by ROV or manned submersible for signs of hydrothermal activity or biological communities. Based on location, we thought that volcanic activity would increase northward but are not sure. Fina Nagu A is the most likely of the chain to harbor hydrothermal activity. This dive was planned to begin at 2321 m and to traverse 760 m upslope to the west, ending at a depth of 2234 m.

Description of the Dive:

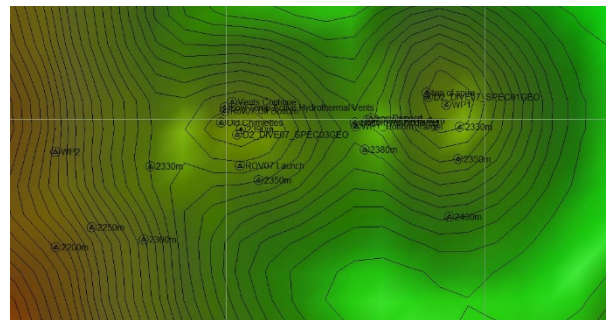
The dive began on a saddle between two resurgent domes in the center of the caldera. We traversed east to the top of Dome #1, the central dome of the caldera. The traverse upslope was mostly volcanoclastic sediment and isolated blocks of Mn-coated basalt. Almost immediately upon landing, we saw evidence of hydrothermal alteration – iron oxidation. At the top of the dome, we encountered a 14-m tall extinct hydrothermal vent chimney and collected a sample (D2_DIVE07_SPEC01GEO). After imaging the chimney, we flew back to the saddle and traversed the eastern slope of Dome #2. As we moved upwards, we saw more volcanoclastics and outcrops of either sedimentary or igneous rock. The Mn crust was so heavy that it was hard to determine. We picked up a rock sample that appeared to be basalt (D2_DIVE07_SPEC03GEO). At the top of Dome #2, there was a rim of volcanoclastics and a small depression, upon which we found hydrothermal vent sulfides with several very small patches of very weak, diffuse hydrothermal flow (3-5.5 degrees C).

The biology on the extinct hydrothermal vent chimney was mainly comprised of suspension feeders except for some *Desbruyeresia* gastropods that were observed on exposed rocks of the interior of the hydrothermal-vent chimney. After moving off the chimney into the saddle between re-emergent domes where holothurians, predatory ascidians (*Megalodicopia* sp.), pectinid bivalves and an *Umbellula* sea pen (among other species) were noted. On the other re-emergent dome visited, in the area of diffuse hydrothermal flow, patches of polychaete tubes were observed.

Map of ROV Dive Area



Fledermaus map of planned dive EX1605L1-DIVE07 track.



Hypack screengrab of actual dive EX1605L1-DIVE07 track

Representative Photos of the Dive



The extinct high-temperature chimney with D2 as viewed by Seirios

Pectinidae bivalves with mantles extended.

Samples Collected

Sample ID	D2_DIVE07_SPEC01GEO
Date (UTC)	20160427
Time (UTC)	23:18:03
Depth (m)	2297
Temperature (°C)	1.992
Field ID(s)	Hydrothermal vent sulfide pieces



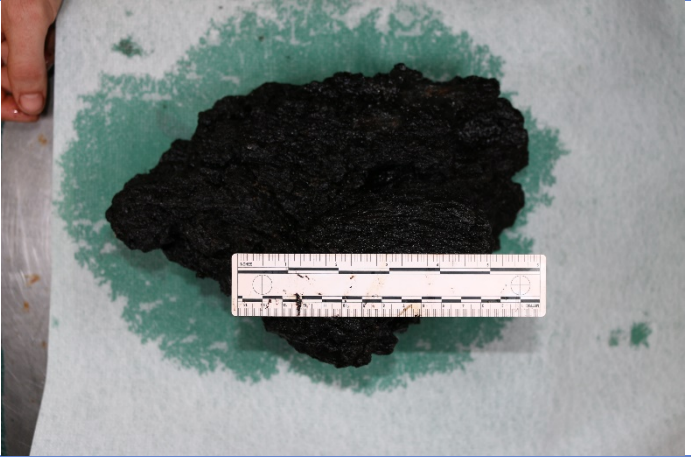
Comments: No commensals.

Sample ID	D2_DIVE07_SPEC02BIO
Date (UTC)	20160427
Time (UTC)	00:41:26
Depth (m)	2378
Temperature (°C)	2.013
Field ID(s)	Asciacea: <i>Megalodicopia</i> sp.



Comments: No commensals.

Sample ID	D2_DIVE07_SPEC03GEO
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Date (UTC)	20160427	
Time (UTC)	01:33:40	
Depth (m)	2294	
Temperature (°C)	2.004	
Field ID(s)	Mn-encrusted ropy basalt	
Comments	No commensals.	
Please direct inquiries to:	NOAA Office of Ocean Exploration & Research 1315 East-West Highway (SSMC3 10 th Floor) Silver Spring, MD 20910 (301) 734-1014	