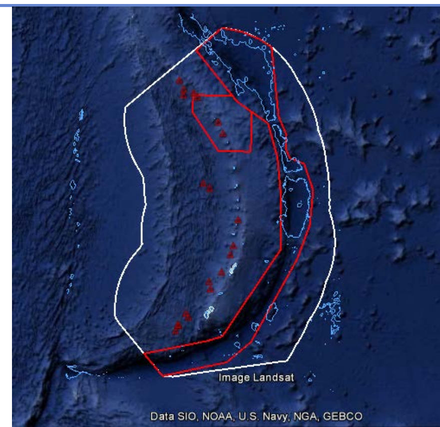
OKEANOS EXPLORER ROV DIVE SUMMARY



Site Name	Supply Reef		
ROV Lead/Expedition Coordinators	Jim Newman/ Kasey Cantwell		
Science Team Leads	Shirley Pomponi (HBOI-FAU, CIOERT) Patty Fryer (UH)		
General Area Descriptor	Areas in and around the Marianas Trench Marine National Monument		
ROV Dive Name	Cruise	Leg	Dive Number
	EX1605	3	DIVE06
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 2
Equipment Malfunctions			
ROV Dive Summary (From processed ROV data)	Dive Summary: EX1605L3_DIVE06 ^^ In Water: 2016-06-22T20:20:33.878000 20°, 09.243' N ; 145°, 06.266' E Out Water: 2016-06-23T04:29:02.481000 20°, 08.990' N ; 145°, 06.440' E Off Bottom: 2016-06-23T04:16:42.858000 20°, 09.014' N ; 145°, 06.384' E On Bottom: 2016-06-22T20:51:06.876000 20°, 09.271' N ; 145°, 06.267' E Dive duration: 8:8:28 Bottom Time: 7:25:35 Max. depth: 363.6 m		
Special Notes			
Scientists Involved			

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Purpose of the Dive

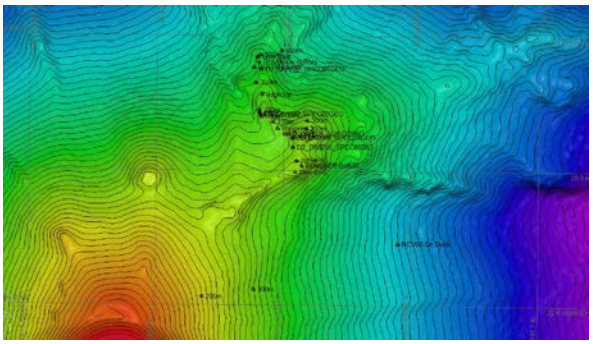
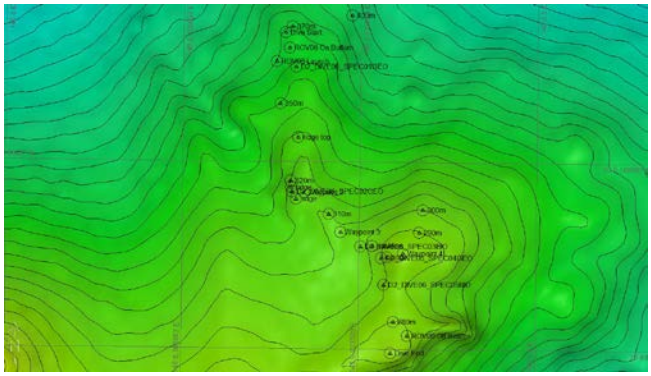
Supply Reef is a small to medium size stratovolcano (~150 km^3 ; Bloomer et al., 1989 Bull Volc.) that lies within the Islands Unit of the MTMNM. It is an active volcano, with confirmed eruptions in 1969 and 1989 (ttp://volcano.si.edu/volcano.cfm?vn=284142). The purpose of this dive is to examine and sample lavas (especially

glass, in order to determine magmatic volatiles) to 250 m and see whether or not life is significantly affected by being on the shallow flanks of an active submarine volcano.

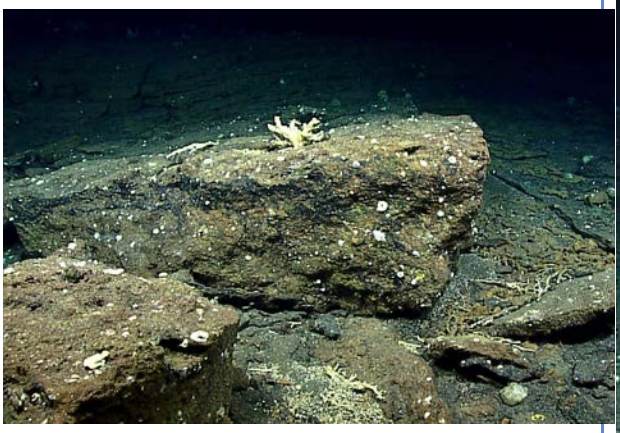
Description of the Dive:

This was supposed to be a geology focused dive, but you could hardly see the rocks for all the biology! Actually there were only two types of rock: dark gray, coarse-grained layered sections of volcaniclastics, some of which had large “bombs”, and a very fine-grained, brown ash. The light volcaniclastics were very strikingly layered and some of the layers are heavily pockmarked on the exposed surface. There were also several rounded holes in the ash that could have been burrows from animals “disturbing" the rocks. The crest of the ridge that the ROV climbed was generally covered with the brown ash. It was distinctly layered and in many places slabs of it had broken off and lay scattered on the sea floor beneath exposed ledges of the ash layers. When ROV *Deep Discoverer* (D2) reached the shallowest part of the ridge, at the last waypoint, D2 came off bottom and descended down the east face of what appeared to be a slump scar (curved scarp, concave southeastward on the bathymetry). As we turned toward the slope again, it was covered with loose rubble, likely material broken free from boulders farther up the slump face. As D2 rose, we saw increasingly numerous large boulders; in some places they had a jig-saw puzzle fit. At the top of the scarp where we ended the dive, coarse volcaniclastic masses were cracked with surfaces fit close to one another.

Large “lithistid” sponges were the dominant fauna at the start of our dive track, and several different species of smaller demosponges were abundant along the entire dive track. The fish fauna were also particularily interesting today- grouper aggregations among large boulders and outcrops, onaga, at least 2 species of moray eels, a really interesting flounder (not seen in the Marianas previously?), and thousands of smaller fish (and that’s just a few of the species!). At one point, one of the shore-based scientists remarked that it was impossible to log all of the species; he was just concentrating on the new ones that hadn’t been seen yet! There were many octocoral and associates observed during this dive. Of particular interest was the sea star, *Rhipidaster* sp., that has never been seen alive (we saw THREE)! And this is just a small sample of all the fauna we documented during the dive.

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

Representative Photos of the Dive



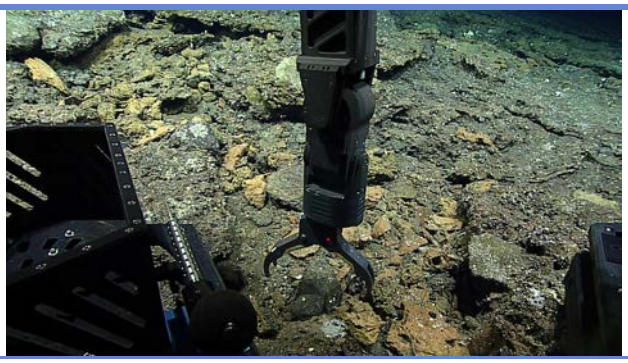
On the left side of this image are large boulders of indurated, coarse-grained volcaniclastics, very typical of the early part of the dive. The thin slabs of lighter-colored, finer-grained rock on the right (below the boulders) are made of medium-brown volcanic ash, that typified the end of the dive. You can zoom on the layers of ash in the dark background at the top of the image.

The long-tail red snapper, *Etelis coruscans*, or onaga, is one of the most valuable of the commercial fisheries of CNMI. It's considered a delicacy, served on special occasions.

Samples Collected

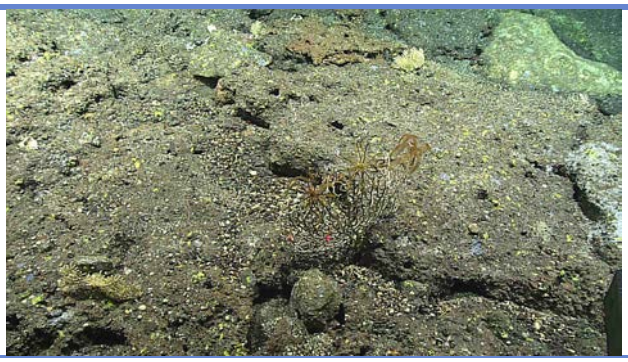
Sample ID	SPEC01GEO
Date (UTC)	20160622
Time (UTC)	220203
Depth (m)	359.4
Temperature (ºC)	14.88
Field ID(s)	ASH LAYER
Comments	9x2.5x3.5cm, very small sample, substrate was layered volcaniclastic

Sample ID	SPEC02GEO
Date (UTC)	20160622
Time (UTC)	234430
Depth (m)	311.92
Temperature (ºC)	16.23
Field ID(s)	Broken fragments of semi-consolidated volcanic ash



Comments	18x13x13cm

Sample ID	SPEC03BIO
Date (UTC)	20160623
Time (UTC)	010710
Depth (m)	296.88
Temperature (ºC)	16.28
Field ID(s)	EUPLEXAURA SP. W/ CRINOID

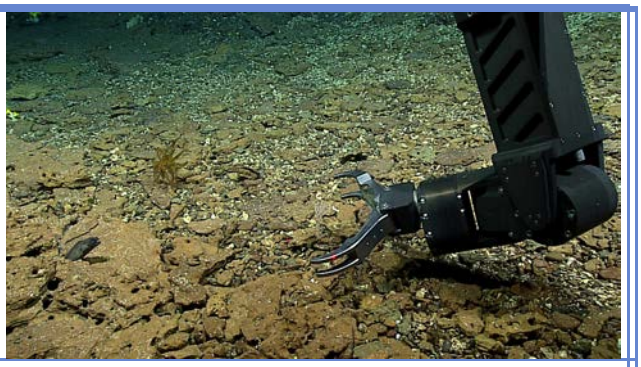


Comments	Has a brown exudate.

Sample ID	SPEC04GEO
Date (UTC)	20160623
Time (UTC)	014643
Depth (m)	286.28
Temperature (ºC)	16.47
Field ID(s)	WELDED VCL W/EPIBIONT SPO

Comments	9x16x12cm

Sample ID	SPEC05BIO
Date (UTC)	20160623
Time (UTC)	023023
Depth (m)	286.21
Temperature (ºC)	16.09
Field ID(s)	COR NARELLA
Comments	Delicately branching, pink



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