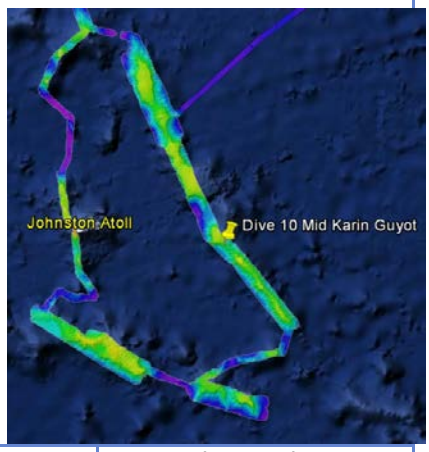
OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	Mid Karin Guyot	
ROV Lead/Expedition Coordinator	Karl Mcletchie/ Brian RC Kennedy	
Science Team Leads	Scott France and Mackenzie Gerringer	
General Area Descriptor	Johnston Atoll Pacific Remote Islands Marine National Monument	

ROV Dive Name	Cruise Season	Leg	Dive Number
	EX1504	4	DIVE10
Equipment Deployed	ROV:	Deep Discoverer	
	Camera Platform:	Seirios	
ROV Measurements	☒ D2 CTD	☒ Depth	☒ Altitude
	☒ Scanning Sonar	☒ USBL Position	☒ Heading
	☒ Pitch	☒ Roll	☒ HD Camera 1
	☒ HD Camera 2	☒ ROV HD 2	☒ Seirios CTD
	Temperature Probe	☒ D2 DO Sensor	☐ Seirios DO sensor
Equipment Malfunctions	VSAT continues to underperform		

ROV Dive Summary (From processed ROV data)

Dive Summary: EX1504L4_DIVE10

In Water:	2015-09-23T18:27:38.515000 16°, 32.655' N ; 168°, 12.441' W
Out Water:	2015-09-24T02:32:24.609000 16°, 32.595' N ; 168°, 12.508' W
Off Bottom:	2015-09-24T01:16:42.937000 16°, 32.454' N ; 168°, 12.854' W
On Bottom:	2015-09-23T19:55:32.062000 16°, 32.358' N ; 168°, 12.473' W
Dive duration:	8:4:46
Bottom Time:	5:21:10
Max. depth:	2326.5 m

Special Notes

Scientists Involved *(please provide name / location /*

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Purpose of the Dive

To explore the bathyal community of a hard bottom on crest of a ridge extending from the southern rim of a plateau on the Karin Ridge in the Pacific Remote Islands Marine National Monument

Description of the Dive:

During descent the ROV was stopped at a depth of 150 m to investigate a layer of “twinkling lights” that had been observed in the water column in a narrow depth range on previous dives. The ship’s sonar was unable to detect the layer but the clear outlines of small fish were observed. We believe the “twinkling lights” to be reflections of the ROV lights from a tight collection of small mesopelagic fishes (*Sternoptychidae, Myctophidae*) that do not show on sonar perhaps because it was not running at a low enough frequency to pick up the small swim bladders of these fish.

On arrival at bottom, the substrate observed was smoothed-over pillow formations that appeared heavily encrusted with manganese coating. Little sedimentation was visible. As we progressed the pillow flows alternated with rubble fields of broken pillow basalts. A rock from such rubble was collected from a depth of 2325 m.

The community and substrata observed on dive 10 showed many similarities to those of dive 10, which was also on a north-south aligned ridge on the Karin Seamounts only 30 nautical miles to the south. Again we saw a high abundance of corals, although with lower diversity, including species of primnoid octocorals (*Narella dichotoma*, *Candidella gigantea*), chrysogorgiid octocorals (*Chrysogorgia chryseis, Iridigorgia magnispiralis*), bamboo corals (*Acanella ?weberi,* lyrate *Isidella, Isidella trichotoma, Keratoisis, Jasonisis,* “*Lepisisis”* unbranched Isididae), and black corals (*Stauropathes, Bathypathes*). Two bamboo corals were collected, one with nodal and one with internodal branching, from 2155 and 2254 m. The internodal branching colony had small bumps arising from between the base of polyps that had not been previously seen on a bamboo coral but were hypothesized to be dactylozooids or nematocyst batteries, as known from other octocorals.

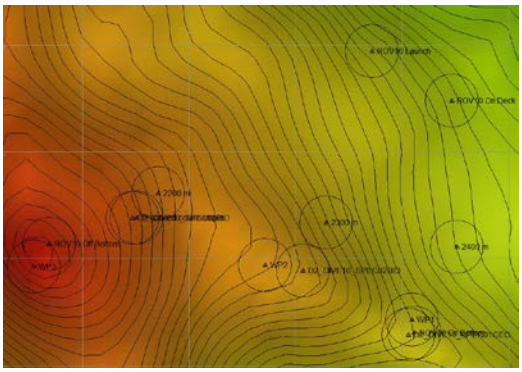
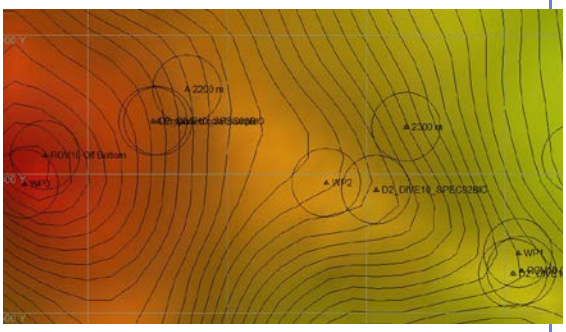
A number of different sponge species were observed, including *Tretopleura, Bolosoma, Caulophacus, Monorhaphis*-like*, Euplectella, Saccocalyx,* and the flabellate branched-sponge collected on Dive 9. Many dead sponge skeletons were also seen, though not in as great abundance as on previous dives.

We saw a few echinoderms, including the usual high abundances of ophiuroids. The ROV imaged several instances of predation on corals, such as *Hippasteria musipula* feeding on *Keratoisis*. A few other asteroids were imaged, including *Henricia pauperrima*. Numerous *Nematocarcinus* shrimp, and a galatheid crab (squat lobster) with a bopyrid isopod parasite, were seen.

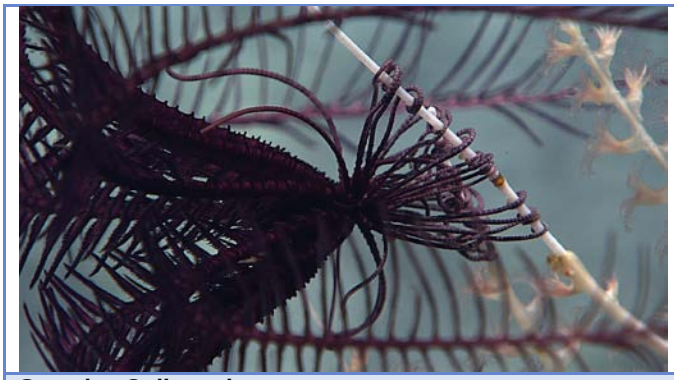
Again fish abundances were very low. We saw an ophidiid that we had imaged on previous dives (perhaps female *Eremichthys*) and a small macrourid also seen earlier, thought to be *Kumba hebetate*, which is known only from the holotype and has not been recorded before this expedition since the Albatross collected the original specimen in the 1890s.

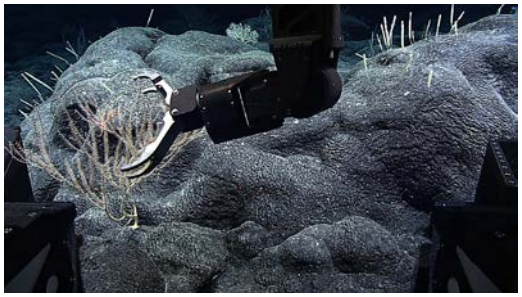
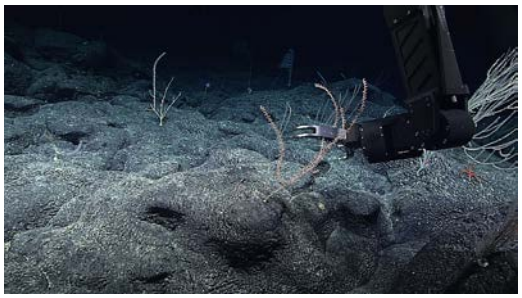
During the ascent a mastigoteuthid ‘love heart squid’ (*Idioteuthis cordiformis*) grasped the port light bar of the ROV at

about 145 m depth and was imaged when it released; a similar encounter occurred during the descent on Dive 6, at about 700 m.

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

Representative Photos of the Dive



Samples Collected		
Sample ID	EX1504L4_20150923T203538_D2_DIVE10_SPEC01GEO	
Date (UTC)	20150923	
Time (UTC)	203538	
Depth (m)	2324.08	
Temperature (^{o}C)	2.03	
Field ID(s)	Basalt	
Comments		
Sample ID	EX1504L4_20150923T223400_D2_DIVE10_SPEC02BIO	
Date (UTC)	20150923	
Time (UTC)	223400	
Depth (m)	2254.85	
Temperature (^{o}C)	2.1	
Field ID(s)	Orstomisis	
Comments		
Sample ID	EX1504L4_20150924T003615_D2_DIVE10_SPEC03BIO	
Date (UTC)	20150924	
Time (UTC)	003615	
Depth (m)	2153.19	
Temperature (^{o}C)	1.92	
Field ID(s)	Isididae branched	

Comments	Unknown bumps between polyps, potentially dactylozooids.
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