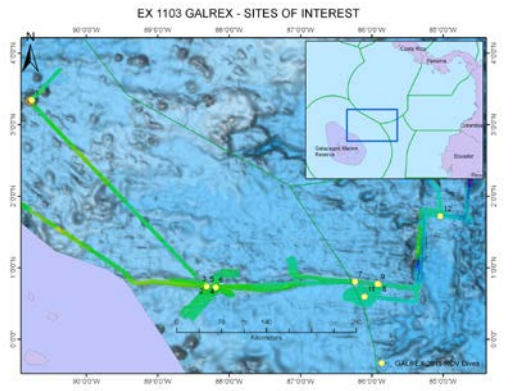
OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	2a		
ROV Lead/ Expedition Coordinator	Dave Lovalvo/ Jeremy Potter		
General Area Descriptor	Site 2a, ~175nm northeast of the Galapagos Islands		
ROV Dive Name	Cruise Season	Leg	Dive Number
	EX1103	2	DIVE04
Equipment Deployed	ROV:	Little Hercules	
	Camera Platfom:	Seirios	
ROV Measurements	☒ CTD	☒ Depth	☒ Altitude
	☒ Scanning Sonar	☒ USBL Position	☒ Heading
	☒ Pitch	☒ Roll	☒ HD Camera
	☒ Low Res Cam 1	☒ Low Res Cam 2	
Equipment Malfunctions	None		
ROV Dive Summary (From processed ROV data)	Dive Summary: EX1103L2_DIVE04 ^^ In Water at: 2011-07-17T14:29:32.727000 00°, 44.130' N ; 088°, 18.617' W Out Water at: 2011-07-17T22:38:56.608000 00°, 44.237' N ; 088°, 18.260' W Off Bottom at: 2011-07-17T21:16:28.681000 00°, 44.267' N ; 088°, 18.295' W On Bottom at: 2011-07-17T15:55:33.401000 00°, 44.204' N ; 088°, 18.638' W Dive duration: 8:9:23 Bottom Time: 5:20:55 Max. depth: 1968.7 m		
Special Notes	Click here to enter text.		
Scientists Involved *(please provide name / location / affiliation / email)*	Timothy M. Shank/ Okeanos Explorer Lead Scientist/WHOI/tshank@whoi.edu Edward T. Baker/NOAA-PMEL, Washington/Edward.baker@noaa.gov Robert W. Embley/NOAA-PMEL, Oregon/Robert.w.embley@noaa.gov Stephen Hammond/ NOAA-PMEL, Oregon/Stephen.r.hammond@noaa.gov James F. Holden/ UMASS Amherst/jholden@microbio.umass.edu Scott White/University of South Carolina/swhite@geol.sc.edu Sharon L. Walker/ NOAA-PMEL, Washington/sharon.l.walker@noaa.gov Santiago Herrera/ WHOI Exploration Command Center/WHOI/sherrera@whoi.edu T. Jennifer Lin/UMASS Amherst/tjennlin@gmail.com Catriona Munro/ WHOI Exploration Command Center WHOI/catmunro89 @gmail.com		

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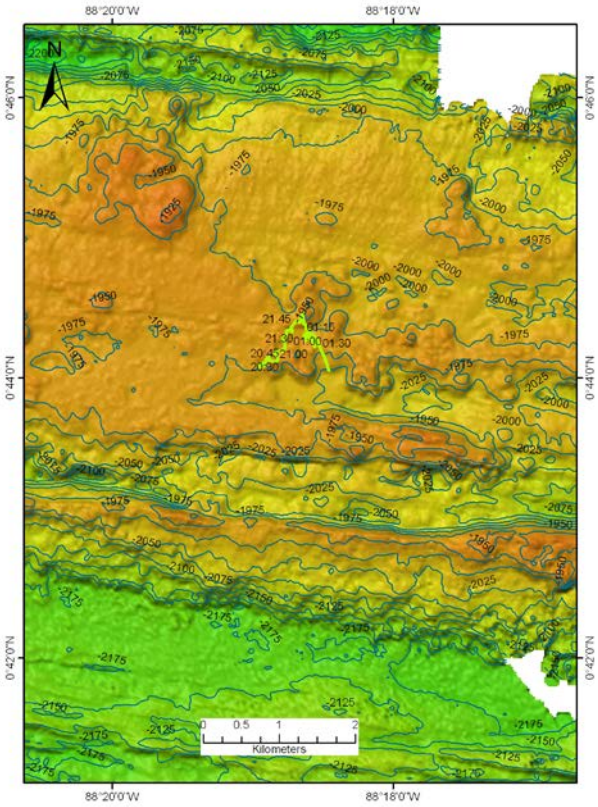
Purpose of the Dive

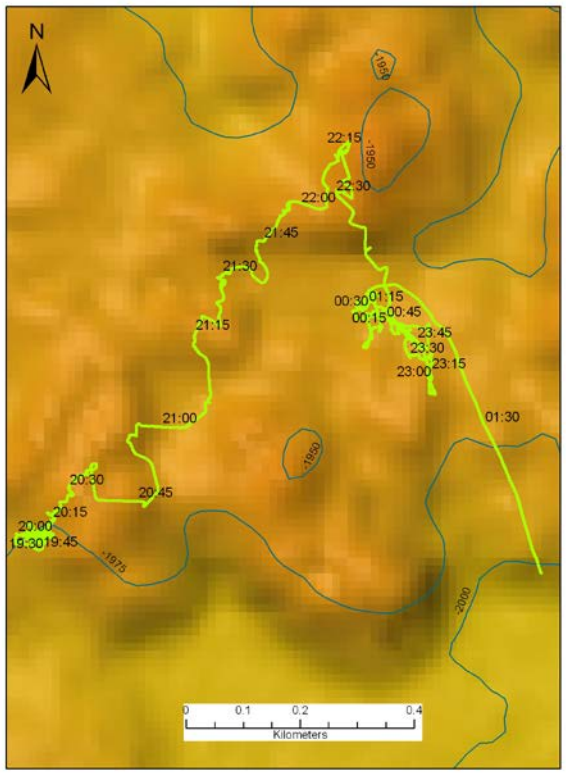
Our seafloor target was a position 100 meters SW of our active hydrothermal plume signal (called 2a) near 1970 meters. This dive continued the exploration for hydrothermal activity on the Galapagos Rift where strong hydrothermal plume signals were detected.

Description of the Dive:

Huge billows of vent smoke were seen as ROV *Little Hercules* and *Seirios* maneuvered approximately 20 to 80 meters above the seafloor but no expansive vent fields had yet been found. Large extinct sulfide structures with flanges and multiple diffuse vents were seen again at the start of this dive and we moved with *Little Hercules* to the SE to traverse along the active graben. The lava flow had a west/east length of over 70 meters and the graben (with fresh lava) was 83-90 meters long. We started to see contacts of fresh lava flow with older lava at the base of the wall of the graben as we traversed over the seafloor following lava contacts. We saw extensive diffuse venting through young flows with some light colored smoke in places. We continued moving on to explore targets in an area of younger lava flow at 1954 meters but lost the fresh lava flow and came into complex lobates with a fissure. Multiple large extinct sulfide structure with flanges were discovered and approximately 120 meters from active "Diffuse flow, white staining" site, we came upon a 30 m high dead tower chimney structure with ROV *Little Hercules* and this structure was imaged extensively before the end of the dive.

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





Representative Photos of the Dive

Complex lobates with a fissure

A recent lava flow showing white microbial staining on the broken basaltic rocks, caused by discharge of warm hydrothermal fluids through the seafloor.

Please direct inquiries to:

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