Daily Drilling and Scientific Report for IODP Expedition 357
Atlantis Massif Serpentinization and Life, 2015

28th Nov 00:00 - 24:00 Local Time (-2 GMT)

1. Location

30^0 03.6' N 42^0 03.7' W
IODP-MSP: N/A – Conducting multibeam survey whilst on equipment downtime
Prospectus borehole: N/A – Conducting multibeam survey whilst on equipment downtime
Water Depth: 3357m

2. Science Report

MeBo drilling operations at Hole M0071C (proposal site AM-04) were terminated due to difficult drilling conditions after penetrating 12.15 m. Two passes of the spectral gamma ray memory logging tool were conducted through pipe. The drill pipe could not be tripped out of the hole, so it was not possible to install a borehole packer. Nine cores were recovered totaling 4.48 m (36.9% recovery). Cores consisted primarily of serpentinized peridotite with varying degrees of talc-amphibole alteration and mylonitic to ultramylonitic deformation and with minor gabbro. Degree of serpentinization in the cores is variable with intervals of relict olivine. Five whole round core samples were taken from cores 2R, 3R, 5R, 6R, and 9R after fast track multi-sensor core logging for ephemeral microbiology, geochemistry and contamination testing, with the rest of the material archived for OSP sampling. Niskin water bottles on the rock drill were collected at the end of drilling for comparative geochemistry and microbiology analyses. A sensor package on the rock drill collected logs of methane, temperature, and dissolved oxygen while drilling.

The RD2 drill was briefly deployed at Hole M0075A (proposal site AM-03) and penetrated 1.72 m before needing recovery due to a technical issue. A core totaling 0.65 m was recovered, consisting of serpentinite fragments in unconsolidated pelagic carbonate overlying serpentinite with talc-amphibole alteration. One whole round core sample was taken for ephemeral microbiology, geochemistry and contamination testing, with the rest of the material archived for OSP sampling. Niskin water bottles on the rock drill were collected at the end of drilling for comparative geochemistry and microbiology analyses. A sensor package on the rock drill collected logs of methane, temperature, and dissolved oxygen while drilling.

Multibeam surveys continued through the evening over the southern wall of the Atlantis Massif while both drill rigs underwent maintenance.

3. Core Recovery Details

Hole	M0071C	M0075A
Cores recovered	9	1
Drilled length (Coring, m)	12.15 (14.26)	1.72
Drilled length (Open hole, m)	0	0
Recovered length (m)	4.48	0.65
Recovery (%)	36.87 (31.42)	37.79

Two depths are given in the core recovery table for M0071C due to having to ream back down to the base of hole, and in runs 7 and 9, core infill. The total depth of hole was 12.15mbsf with the length of core drilled being 14.26m including the infill. The recovery percentages quoted reflect the hole recovery, based on depth reached, and the curated recovery based on core recovered against length drilled including the cored infill on reaming down.

4. Weather

Wind ENE 18 decreasing to 14 knots. Slight seas a d a low, confused swell (from 2 directions). Fine and dry with good visibility. 2/8 cloud cover increasing to 5/8 by the end of the day. Maximum temperature 23.9^0C.
Next 24 hours: Winds light from the E veering to SW and freshening. Swell dropping.

5. Planned Activity for the next 24 hours

Continue running a multibeam survey over the eastern conjugate margin until RD2 is operational and then return to station AM-03A (M0075B)

6. Health and Safety and Environmental

N/A

7. Photo of the day

Marv working on the triggering control unit for the on-drill Niskin bottles. YukiMorono@ECORD_IODP