

December 6, 2004

**IODP EXPEDITION 304:
OCEAN CORE COMPLEX FORMATION, ATLANTIS MASSIF
WEEK 3 REPORT**

OPERATIONS

Coring continued from Core U1309B-14R to Core -20R at 101.8 mbsf. Bit failure occurred after 86 rotating hours. The Mechanical Bit Release (MBR) was activated and the bit was released at the bottom of the hole. The annulus was displaced with drill (fresh) water for logging and the pipe pulled back to 25 mbsf to log. Schlumberger was rigged up for logging and made three logging runs, a triple combo, an FMS-sonic and a third run to test the active heave compensated winch. Logging was completed and Hole U1309B ended at 0805 hrs 1 December 2004.

The HRRS was run in an attempt to install 31.5 meters of casing in Hole U1309C, 20 m west of Hole U1309B. Hammer in casing attempt started at 0945 hours 2 December 2004. After ~5-6 m penetration, high torque and loss of pipe rotation dictated an inspection with the subsea camera. This inspection revealed that the casing running tool had prematurely released, disconnecting the BHA with the SDS hammer from the casing string. With no further advancement possible, Hole U1309C was abandoned. A 25 meter length of 13 3/8 in casing was left sticking out of the seabed at Hole U1309C. A new drilling target (Hole U1309D) was selected, the HRRS system was prepared and the vessel was offset 20 m N of Hole U1309B. Hole U1309D was spudded at 0120 hours 4 December 2004. The HRRS was drilled to 20.5 mbsf leaving 4.5 m of casing above the seafloor. After running the re-entry cone, the VIT (camera) was run to inspect the HRRS. All components appear to be in good order. The BHA was pulled clear and tripped back to surface. An RCB BHA was then assembled to re-enter Hole U1309D to core ahead from 20.5 mbsf.

SITE U1309 INITIAL SCIENTIFIC RESULTS

Coring continued at Hole U1309B (30°10.1086'N, 42° 07.1115'W) to 101.8 mbsf (average 46% recovery for hole). The interlayered sequence of diabase and gabbro recovered in the upper part of the hole continues at depth. The effects of both high and low temperature alteration occur; high temperature deformation features are rare. Moderately dipping, centimeter scale compositional layering in the gabbroic rocks occurs in one core. Hole U1309B was terminated at 101.8 mbsf when the bit failed.

Downhole logging was completed following coring operations in Hole U1309B (triple combo tool string, and FMS). Two passes with the triple combo indicated a clear, nearly gauge hole and continuous data were recorded from near the bottom of the hole to within about 30 m of the seafloor. Excellent quality FMS images are easily correlated with the core and provide data where core was not recovered. Downhole measurements showed the hole deviated ~7° to the northeast.

A hammer tool and casing were prepared and deployed in Hole U1309C, 20 m west of Hole U1309B. Hole U1309C was terminated at ~5 mbsf, due to problems with the casing/running tool release. A second HRRS was prepared and successfully deployed in Hole 1309D (30°10.120'N, 42°07.14'W, 1645 mwd), 20 m N of Hole U1309B with casing to 20 mbsf. Rotary core drilling at this site is underway. The proximity of

Hole U1309D to Hole U1309B provides a test of lithologic unit correlation between the holes.

LABORATORY STATUS

This week the skies have cleared and the seas are calm. All cores have been split, shipboard samples taken, and cores are racked for now. Few of the core descriptions were hand written on the image form (most data entered into electronic files from spreadsheets). Shipboard samples have pretty much been processed though the XRD laboratory; ICP and thin sections are still in the works. 46.7 m of basement rocks have been recovered, representing 45.9% recovery ratio. There are 98 D-tubes to box.

Work continued through the week, getting the micro image management software installed and usable and trouble shooting the NGR that would run for a few cores and then stop saving data, forcing a reboot. Recently a driver that caused the failure was reinstalled. The DIS has not been used recently which would enable us to determine whether the rough seas we experienced contributed to the image artifacts observed.

Fantail hardware maintenance is in progress, chipping and painting the gear pullers; the wheels are being painted. The level wind cable followers were disassembled and the corrosion cleaned from them.

HSE

The abandon ship drill was conducted in fine weather allowing the lifeboats to be lowered to the embarkation deck and the doors and portholes of the boats were opened. Again, the use of the canister life rafts was explained and it was pointed out there are four others located on the stern. With the staff dismissed, the drill continued with the crew simulating a fire in the forward boson's locker and then rescuing a casualty high in the scaffolding supporting mast maintenance.