

November 15, 2004

IODP EXPEDITION 303: NORTH ATLANTIC CLIMATE I WEEK 8 REPORT

Operations

Hole 1308B was spudded at 1320 hr on 7 November. Piston coring advanced the hole to a total depth of 198.3 mbsf with an average recovery of 93.9%. The last three cores returned with an average recovery of only 30%. All three were partial strokes with overpulls of 20,000 to 40,000 pounds required to extract the core barrels. Suspecting problems in the base of the hole, we terminated coring, ending Hole 1308B operations when the bit cleared the seafloor at 2315 hr on 8 November.

The ship was offset 60 m east of Hole 1308B. Incomplete firing of the APC resulted in two unsuccessful attempts to spud Hole 1308C. The bit was positioned 15 m above the seafloor for a firing test, which resulted in another incomplete stroke suggesting the bit was plugged with detritus accumulated during coring at the end of Hole 1308B. The core barrel was recovered and a bit deplugger was dropped to clear the blockage at the bit throat and inside the seal bore drill collar. Following the recovery of the deplugger, the ship was offset 30 m north of Hole 1308A. Hole 1308C was successfully spudded with the APC at 0730 hr on 9 November. Piston coring advanced to 279.9 mbsf with an average recovery of 96.8%. Six cores (Cores 1308C-22H through 27H, 29H and 30H) were obtained by drill over. The final two coring runs resulted in bent core barrels. The last barrel was difficult to retrieve and extract from the drill string. Coring was terminated to avoid a potential reoccurrence, ending operations in Hole 1308C at 0045 hr on 11 November ending Hole 1308C.

The ship was offset 30 m north of Hole 1308C, and Hole 1308D was spudded with the APC at 0230 hr on 11 November. The core was recovered with a crushed liner. To ensure that a gap in the splice near the top of the section was filled, it was decided to make another attempt at a mudline core.

Hole 1308E was spudded with the APC at 0340 hr on 11 November, recovering a full core. Piston coring and drilling advanced the hole to 200.5 mbsf with an average recovery for the cored interval of 89.4%. Three intervals were drilled (57.0 to 60.0 mbsf, 83.0 to 84.0 mbsf, and 93.5 to 97.0 mbsf) to maintain stratigraphic offset with previous holes. The bit cleared the seafloor at 0730 hr on 12 November concluding operations in Hole 1308E.

Before initiating further coring, an XCB core barrel, fitted with a center bit, was dropped to the bit. High pump rates were applied to clear the bit nozzles and the internal surfaces of the seal bore drill collar of debris that we suspected had accumulated and was causing the abnormally high frequency of crushed core liners and affecting core recovery. Following recovery of the XCB barrel, Hole 1308F was spudded with the APC at 1055 hr on 12 November. Piston coring continued until available time expired reaching a total depth of 227.0 mbsf, with an average recovery of 100.7% (Table 1308-B-1). The last three core barrels required drilling over. The bit was pulled free of the seafloor at 1545 hr ending operations in Hole 1308F. After recovering the drill string, the ship was prepared for transit and we departed for Ponta Delgada at 0030 hr on 14 November 2004.

Site U1308 Preliminary Science Results

The sedimentary succession at Site U1308 is composed of upper Miocene to Quaternary terrigenous and biogenic components. The most common lithologies are nannofossil ooze, nannofossil silty clay and silty clay. Calcium carbonate content ranges from 12-94 wt%

(mean = 70 wt%), which is variable in the upper ~250 mbsf, then increases in the lower part of the succession. Calcareous microfossils are abundant with good preservation in the upper ~200 mcd, grading to moderate below this depth. Siliceous microfossils are locally abundant and moderately preserved above ~180-200 mbsf (~2.7 Ma), but are rare to absent below. Paleomagnetic directional data provide unambiguous identification of the Brunhes, Matuyama, and Gauss Chronozones, with the tentative identification of the Gilbert Chronozone in the lower part of Hole 1308A. Although six holes were necessary to recover a demonstrably complete sedimentary record, an apparently continuous and undisturbed stratigraphic sequence was constructed to ~260 mcd. The reoccupation of DSDP Site 609 at Site U1308 provides a unique record of central Atlantic detrital layer stratigraphy, as well as a means of monitoring NADW, within a well-constrained chronostratigraphy.

Technical Support and HSE Activities

Week 8 of Expedition 303 saw the completion of Site U1308, the expedition's final site. As of the end of Site U1308 4656 m of core have been recovered and processed. A total of 3304 samples and 195 IW whole rounds have been taken.

Laboratory Status: The labs are in the process of being cleaned and shipments packed.

HSE: Radiation dosimeters were installed at 4 locations in the lab stack.