November 8, 2004

IODP EXPEDITION 303: NORTH ATLANTIC CLIMATE I
WEEK 7 REPORT

OPERATIONS

We departed Site 1307 for Site 1308 (IRD1A) at 1300 hr on 30 October using an indirect route to minimize the effects a passing low pressure system. After an 1111 nmi, 103.8 hr transit, we arrived at Site 1308 at 2230 on 3 November. Hole 1308A was spudded with the APC at 1005 hr on 4 November. Recovery of the mudline core indicated a seafloor depth of 3871 m below sea level. Piston coring advanced the hole to a total depth of 341.1 mbsf with an average recovery of 94.9%. Heave conditions (maximum of ~6 m) during coring resulted in variable core quality. Coring was terminated because extending APC coring depth by drill over was not possible in this sea state. The drill string was pulled clear of the seafloor at 1825 hr on 6 November, concluding operations at Hole 1308A. The ship offset 30 m east of Hole U1308A. Because the swell responsible for the large heave was expected to increase during the evening (eventually reaching a maximum of ~7 m), coring operations were suspended to wait on weather. The heave gradually abated to less than 3 m by 1030 hr on 7 November, and coring operations continued in Hole 1308B.

Site U1307 Preliminary Science Results

The sedimentary succession at Site U1307 is composed of lower Pliocene to Pleistocene terrigenous and biogenic components (mostly quartz, detrital carbonate, nannofossils, and foraminifers), and is subdivided into three units. The most common lithologies are silty clay with foraminifers, foraminifer silty clay, and nannofossil silty clay in Unit I (0-49.55 mcd), silty clay in Unit II (49.55–133.86 mcd), and silty clay, silty clay with nannofossils, and nannofossil silty clay in Unit III (133.86-173.6 mcd). Calcium carbonate content is low ranging from <1-58 wt% (mean = 5.5 wt%). Calcareous, siliceous, and organic-walled microfossils at Site 1307 are common to rare with moderate to poor preservation. A ~0.24 my hiatus or condensed section (~1.21-1.45 Ma) is indicated between ~56-61 mcd. Paleomagnetic directional data provide unambiguous identification of the Brunhes, Matuyama, and Gauss Chronozones. The Jaramillo, Olduvai, Reunion, Kaena, and Mammoth Subchronozones are also clearly recognized. With only two holes cored, it was impossible to construct a complete spliced record for Site 1307. However, several long intervals of overlap between holes allowed segments to be correlated. The mean linear sedimentation rate calculated using biostratigraphic and magnetostatigraphic datums is 4.9 cm/ky. Results from Site U1307 extend the Quaternary records from Sites U1305 and U1306 back to 3.58 Ma. This older record at Site U1307 will not only contribute to our understanding of sedimentary architecture of the Eirik Drift, but also extend the high-resolution environmental record from the Eirik Drift into the Early Pliocene.

Technical Support and HSE Activities

Week 7 of Expedition 303 saw the completion of Site U1307, a 4.3-day transit to Site U1308 (IRD-1A) and commencement of coring at this site. As of the end of Site U1307, 3922 m of core have been recovered and processed. A total of 3237 samples and 195 IW whole rounds have been taken.

Laboratory Status: The labs are running smoothly. The magnetic susceptibility core logger (MSCL) was reconfigured with one loop after testing was completed using the

two-loop configuration. With ~4 km of core aboard, the Lower Tween core storage refrigerator is almost full. The tensor tools are undergoing testing to determine which tools need to be returned to the beach for service. The end of expedition calendar has been posted.

HSE: A fire and boat drill was held on 8 November 2004 for the entire ship's complement. The yeoperson completed laminated instruction sheets for the use of CO_2 fire extinguishers and the EVAC-8U evacuation smoke hoods, which will be posted.