

IODP Expedition 340T: Atlantis Massif Oceanic Core Complex APL

Week 1 Report (15-19 February 2012)

Operations

Port call activities in preparation for Expedition 340T took place in Lisbon during the extended stay to effect repairs on the vessel's hull and sea chests in the Naval Rocha drydock. The ship's crew, USIO technical staff and the limited science party boarded the ship on various days prior to the departure.

IODP Expedition 340T began when the vessel released the last line from the REPSOL bunkering pier at 0638 hours on 15 February 2012. The pilot departed the vessel at 0704 hours and the vessel began its 1713 nmi voyage to Site U1309. By 0000 hours on 19 February, the vessel had traveled 1133 nmi at an average speed of 12.5 knots. An estimated 580 nmi of the voyage to the site remained and the ETA at ~12 knots is around 2300 on 20 February 2012. The vessel's excellent transit speed can most likely be attributed to a recently cleaned hull, newly polished propellers and favorable winds and seas.

Science Results

The primary scientific objective of IODP Expedition 340T is to investigate hydration of the crust within the domal core of Atlantis Massif, located just west of the spreading axis of the Mid-Atlantic Ridge at 30°N. To accomplish this, Expedition 340T will complete the wireline logging of existing Hole U1309D on the Central Dome of Atlantis Massif, focusing on temperature and acoustic velocity measurements, and a zero-offset vertical seismic profile (VSP). The study will provide insight into potential sources of considerable seismic reflectivity within the footwall of this oceanic core complex, which could be attributed to variations in alteration between lithologic units or to narrow fault zones with higher porosity and potentially pore fluids.

The first week of the expedition was dominated by scientists' orientation and introduction to all aspects of an IODP expedition. The science party also received tours of the ship's laboratories and the hotel stack. The structure of the final science report was defined and the science party began to prepare the background and methods sections of the report.

The vessel was making better time than expected in the transit to Site U1309 and, by the end of the week, the science party began exploring the possibility of adding a short coring program to the planned work at Atlantis Massif. Coring would only be carried out if time remains following completion of the planned logging at Site U1309 but prior to the designated departure date for the end port in San Juan. The proposed coring program would contribute to the scientific objectives of IODP Expeditions 304/305 as well as the current expedition, focusing on sampling the sediments and upper few meters of basement.

Education and Outreach

Education and outreach activities were carried out during the first week of Expedition 340T by the Education Officer and several scientists and members of the technical staff.

Two live broadcasts took place with classes in Corpus Christi, Texas on 17 February. On 19 February, filming began on a video that will document the journey of the winning entries in the “J/aRt - Art Under Pressure” Contest, as they travel to the bottom of the sea and back. The Education Officer also began to share her experiences at sea on the JR Web Portal Blog (www.thejr.org) and through several social networks (e.g., Twitter and Facebook).

Technical Support and HSE Activities

Science Mission Support: After a three-week dry dock in Lisbon, staff secured the labs for transit to Hole U1390D. During the transit we collected routine bathymetric and magnetic data. A presentation was given to staff to explain the role and responsibilities of Protected Species Observers and operational policy for using the seismic source during a Vertical Seismic Profile (VSP).

Seismic source and cable leads for the VSP experiment were tested and found operational. Technical staff are working to verify that all analytical systems are up and running after our power down in dry dock.

Other Technical Activities:

- Developers are in the process of updating LabView software to version 2011. Issues were encountered on the Section Half Image Logger (SHIL) and it will remain at version 2009. Most systems have been vetted and found operational.
- SHIL color and density were calibrated;
- A New Agico spinner and Hall probe were installed in the paleomagnetism lab;
- Core Description (DESClogik) values list were refreshed in preparation of Expedition 340 templates;
- Work continues on the Cold Lab repairs. Installations of the suspended ceiling supports were completed and installation of furniture has begun.
- Installation of shelving in the emergency spill locker was completed;
- Conference room lights have been removed for repairing paint damage on the interior bezels;
- The Bathy 2010 system is unstable and troubleshooting is in progress with IT staff; however, the system is currently collecting data.
- Work continues on 3D camera project:
 - Operational parameters have been established
 - Work begun on laser mounting hardware
- Core Storage: Installation of the fan coil foundations is nearly complete.

HSE Activities: The science party and new technical staff completed Siem's safety induction and the IODP's Lab Safety Tour. The weekly fire and abandon ship drill was held as scheduled.