IODP Expedition 384: Engineering Testing

Week 5 Report (16–22 August 2020)

Operations

Week 5 of International Ocean Discovery Program (IODP) Expedition 384, Engineering Testing, began on 16 August 2020 with the end of the pipe at 85.7 m driller's depth below sea floor (DSF) in Hole U1555G, and the rig crew rigging up the triple combo wireline logging tool string in preparation for logging the sediment section. At 0500 h, while the tool string was being deployed down the drill pipe, the logging line winch motor failed. Initial troubleshooting indicated that the failure was with one of the motor bearings. Using two T-bar clamps, the logging line was pulled up until ~200 m of line were available to be transferred over and spooled onto the coring line winch, which was then used to recover the logging tools by 1330 h.

At this point, drilling and coring operations had to be suspended for safety reasons because a functioning logging winch is required in case the drill pipe gets stuck and needs to be severed. The drill string was retrieved, ~1500 m of logging line was unspooled from the coring line reel and discarded, and the bit cleared the rig floor at 2300 h, ending operations in Hole U1555G.

Shipboard engineers spent 17 August disconnecting and disassembling the wireline logging winch to assess its condition. On 18 August the logging winch electric drive motor was found not to be repairable onboard. When it failed, the heat had been so intense that the steel balls of the bearing became severely deformed and the inner bearing race was welded to the shaft.

The ship switched from dynamic positioning (DP) to cruise mode and we left Site U1555 at 0812 h for the transit to Kristiansand, Norway. The ship's clocks were advanced by 1 h, to UTC + 2 h, at 0200 h on 20 August. Heavy seas and 40+ kt winds slowed the ship's speed to <5 kt average on 20 August. At the end of week 5, we had completed 949 of the 1174 nmi transit to Kristiansand. Expected time of arrival at the pilot station in Kristiansand was 0700 h on 24 August.

Science Results

The IODP JRSO staff continued activities in support of Expedition 395 science objectives and started to prepare expedition reports. They continued to split, curate, and image the basalt cores from Hole U1555G and send the images to shore so Expedition 395 scientists could select samples for thin sections and geochemistry. The samples were cut and will be further processed aboard before they are sent to scientists on shore.

Technical Support and HSE Activities

Laboratory Activities

- Processed core sections and samples from Site U1555 through the Core Laboratory.
- Prepared thin sections and samples for shore-based analysis.
- Performed further troubleshooting to resolve the issue reported previously with the Bathy2010 Echosounder.
- Worked on the replacement of lighting in the pallet stores to create more storage space.
- Technical staff worked on projects including:
    - GEODESC project programming and testing;
    - Catwalk Module testing;
    - Examining in detail the effects of core disturbance and drilling overprint on magnetic measurements of core material;
    - Assembling the automatic point counters and documenting proper use;
    - Miscellaneous individual small projects.

IT Support Activities

- Continued applying monthly updates to the Windows workstations and servers.
- Started preparations for end of expedition procedures and crew change.
- Reviewed the shipboard IT Security Risk Assessment document.
- Updated the legal notice presented to users prior to login on shipboard computers in order to meet TAMU system requirements.
- Assisted with the transfer of logging data to the LDEO servers.

Application Support Activities

- Continued work on Catwalk Module.
- Fixed two problems with the drill report related to the time change.
- Created concatenated core images with different depth scales for all Site U1554 cores for a proof of concept toward a future data product.
- Created sample request codes in LIMS as needed.

HSE Activities

- Tested safety shower and eye wash stations.