Week 4 Drilling and Scientific Report for IODP Expedition 381
Corinth Active Rift Development 2017

13th Nov 00:00 – 19th Nov 24:00 EET Eastern European Time (UTC+2)

1. Operations

As 13th November began, preparations were underway to depart Hole M0078B for Corinth, leaving at 04:00 for the Pilot Station. The vessel was alongside and tied up by 06:30, then supplies and equipment were loaded on board, and a crew change occurred. At 20:20 hrs, the vessel departed and transit to Site M0079 began. At 24:00 hrs the vessel was settling on DP.

Once DP was established at the site on the 14th, lowering of the Sea Bed Frame (SBF) and running pipe began. An issue with the SBF resulted in it being recovered to deck for maintenance before being lowered to the seafloor again. Coring commenced and was progressing well at 24:00 hrs.

On the 15th, coring operations continued throughout the morning until the tool became stuck on a core run. Unsuccessful attempts were made to fish for the tool, which necessitated tripping the pipe to recover the tool.

During the morning of the 16th, the Bottom Hole Assembly (BHA) was recovered to deck and the bit removed for inspection. Running pipe then commenced and coring began. A pause in coring was necessary for a downhole CPT measurement. Coring recommenced, with a brief pause in operations for lightning.

Coring continued throughout the day on the 17th using the Fugro corer in both percussive and push mode. During the evening, the operational decision was made to switch to rotary method of coring.

Rotary coring continued on the 18th, except for a brief pause in coring to undertake a second in-situ CPT/temperature measurement at Site M0079. Coring progressed well through the 19th November.

2. Hole summary

Hole	M0079A
Latitude	38° 9' 30.243" N
Longitude	22° 41' 43.316" E
First core	1P
Last core	68R
Cores recovered	68
Drilled length (Coring)	274.3 m
Drilled Length (Open Hole)	0
Recovered length	233.06 m
Depth in hole	274.3 mbsf
Hole recovery	85%

3. Science

During a port call at the beginning of the week, the science party hosted visits to the ship by Greek colleagues and a representative from the Ephorate of Underwater Antiquities, and spent some time onshore in Corinth. The port call and the transit to Site M0079 also gave shipboard scientists a chance to catch up on the characterization of core from Site M0078 (Holes A and B) and to continue to work on the Offshore Methods section of the Expedition Report.

On 14 November, coring at Hole M0079A began, and the normal routine of sampling and analysis commenced. Onboard characterization of the ~300 m of core recovered at this site so far suggests some interesting similarities and differences to the equivalent section at Site M0078. Hand-held penetrometer measurements and MSCL density data at M0079A are lower in the upper part of the hole than M0078A. Preliminary identifications were made of the shallowest transitions between

marine and isolated conditions by combining sedimentology, micropaleontology and petrophysics datasets. These marine-isolated transitions were deeper than their interpreted equivalents in M0078A, as predicted based on seismic data interpretations. Micropaleontology analyses suggest that the basin experienced a range of paleoenvironments during the marine and lake intervals and transitions between these two states. Geochemistry data indicate different trends in pore-fluid properties with depth at M0079A compared with M0078A.

The sedimentologists were able to identify discrete and distinctive sandy turbidite layers through the core liner, which were deposited during the lowstand isolated mode of the Gulf of Corinth. Examination of whole rounds taken for geochemistry also indicates that some intervals of the core have laminations including layers rich in aragonite.

In Hole M0079A, three CPT measurements were made at ~100, 200 and 300 mbsf. These data provide some indication of in situ temperature (for geothermal gradient) and friction/strength of the sediments.

On 17 November, the Co-Chiefs and Operations Manager presented an introduction to IODP, the Expedition and the preliminary results from Site M0078 to the crew that joined the ship at the port call.

4. HSE Activity

On the 14th November at 1300 hrs, an Abandon Ship drill was performed by all crew on board.

5. Outreach Activity

On 15th November, Co-Chief Donna Shillington presented the first live Ship to Shore outreach event with a geography class at Rabanus-Maurus Schule, Germany, taught by Martin Böttcher, schoolteacher and ECORD Outreach Officer, which included meeting some of the scientists, a tour of the labs and some background on the Expedition. Filming of operations and ESO and Fugro staff took place throughout the week, with editing and production underway for publishing in Week 5.

Between the 13th and 19th November, the Expedition blog-site received 1038 views, 221 visitors, and is being followed in 30 countries.

Daily reports detailing coring progress and a brief scientific summary are also released onto the ECORD Expedition 381 webpage.

6. Figures

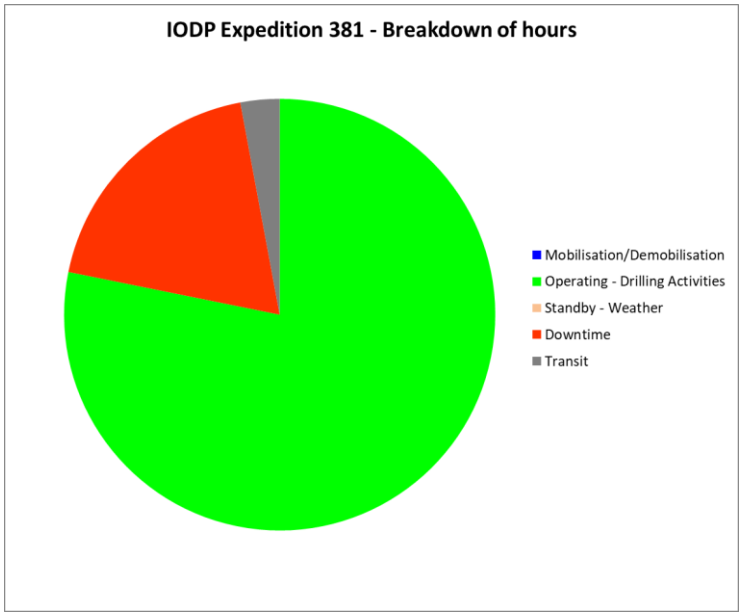

Figure 1: Breakdown of hours from 00:00 November 13th to 24:00 November 19th 2017.

M0079A

Expedition 381
Corinth Active Rift

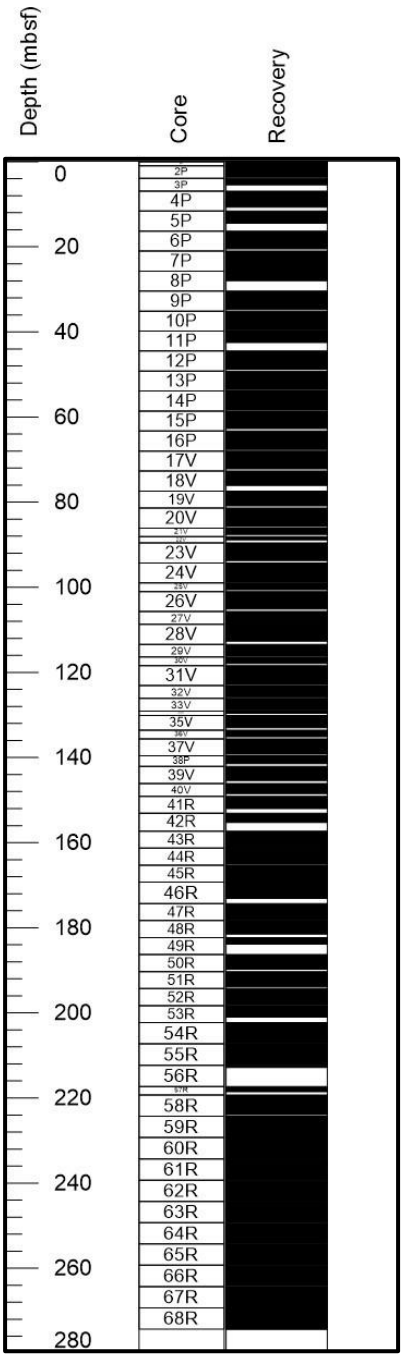

Figure 2: Core recovery for Week 4 (13th Nov to 19th Nov 2017).

7. Photographs

Figure 3: Photos from Week 4 of Expedition 381.