

30<sup>th</sup> Oct 00:00 – 5<sup>th</sup> Nov 24:00 EET Eastern European Time (UTC+2)

### 1. Operations

Rotary coring continued into October 30<sup>th</sup>. Coring progressed well, with excellent recovery. However, at 20:45, recovery of the SEADEVIL was required for maintenance purposes. The work on the SEADEVIL was completed by 09:00 hrs on the 31<sup>st</sup> October, following which the seabed template was redeployed and on the seafloor by 10:30. Coring resumed with the first core recovered at 14:00 hrs, and continued for the remainder of the day.

Coring continued uninterrupted throughout the 1<sup>st</sup> November and into the 2<sup>nd</sup> when it was necessary to recover the SEADEVIL for further maintenance at 08:00. Following inspection of the SEADEVIL, the decision was made to continue with coring without the use of the SEADEVIL and coring recommenced at 16:45.

Rotary coring continued on the 3<sup>rd</sup> November and throughout the 4<sup>th</sup> and 5<sup>th</sup> November without interruption. Core recovery was generally very good, with high quality cores acquired.

### 2. Hole summary

Hole	M0078A
Latitude	38° 8' 41.802" N
Longitude	22° 45' 30.251" E
First core	85R
Last core	142R
Cores recovered	58
Drilled length (Coring)	238.35 m
Drilled Length (Open Hole)	0
Recovered length	213.57 m
Depth in hole	464.49 mbsf
Hole recovery	88.6%

### 3. Science

The offshore science party continued their preliminary characterization of core recovered at Site M0078A, with the core recovered this week between ~200 to 450 mbsf. This part of the section includes alternating marine and lacustrine sequences of Seismic Unit 2, the younger synrift unit in the Gulf of Corinth, and the transition to Seismic Unit 1, the older synrift unit.

Onboard pore water analysis results represent the overall expected profiles with depth, including a salinity decrease below the seafloor. Intriguing patterns with depth are observed in alkalinity and ammonium. Even at the maximum depths reached this week where the material is noticeably more compacted, it is still possible to extract sufficient pore water by squeezing of core whole rounds.

Based on through-liner descriptions and core-catcher materials, the core continues to be dominated by greenish grey mud with rare, thin interbeds of very fine to fine sand, although we have found assessing lithological variability by through-liner descriptions to be challenging. The composition is still dominated by calcite, quartz and feldspar in variable amounts. As part of the process of preparing the core whole rounds for pore water geochemistry squeezing, the sedimentologists have the opportunity to see the split face of a short core section. Thin beds and laminations of the muddy sediments, including darker (organic-rich?) layers, can be observed. These whole rounds also allow us to assess how representative the through core liner appearance may be. Onboard micropaleontological characterization of material from core catchers continues to show significant variability in the paleoenvironment.

Analysis of the Multi Sensor Core Logger (MSCL) data shows a good correlation with sedimentological and paleontological core interpretations and with the interpreted changes in basin environment. Synthetic seismograms calculated using density measurements acquired by the MSCL are able to reproduce some of the major features of the seismic reflection data and provide preliminary links between seismic reflection data and the core. We are comparing the different chronostratigraphic models for the most recent sedimentary unit with our drilling results so far and using these to assess the potential age of the Unit 1-2 boundary. But detailed work on paleontology and chronostratigraphy will need to wait until the cores are split at the Onshore Science Party in February and for post-cruise research.

In addition to holding cross over meetings at each shift change to exchange results, the scientists held an informal science meeting on 31 October to compare and synthesize results from the different disciplines. One of the primary objectives was to link together the data that indicate likely unit boundaries related to the changing paleoenvironment of the basin. The plan is to hold similar science meetings approximately once a week for the rest of the expedition and to regularly report back more details on preliminary observation and results to the rest of the Exp 381 science party based onshore.

#### **4. HSE Activity**

A fire drill was completed by all Scientists and ESO personnel on 5<sup>th</sup> November.

#### **5. Outreach Activity**

Four blogs were posted on the Expedition blog-site between the 30<sup>th</sup> October and 5<sup>th</sup> November. During this period, it received 3,980 views, 441 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**

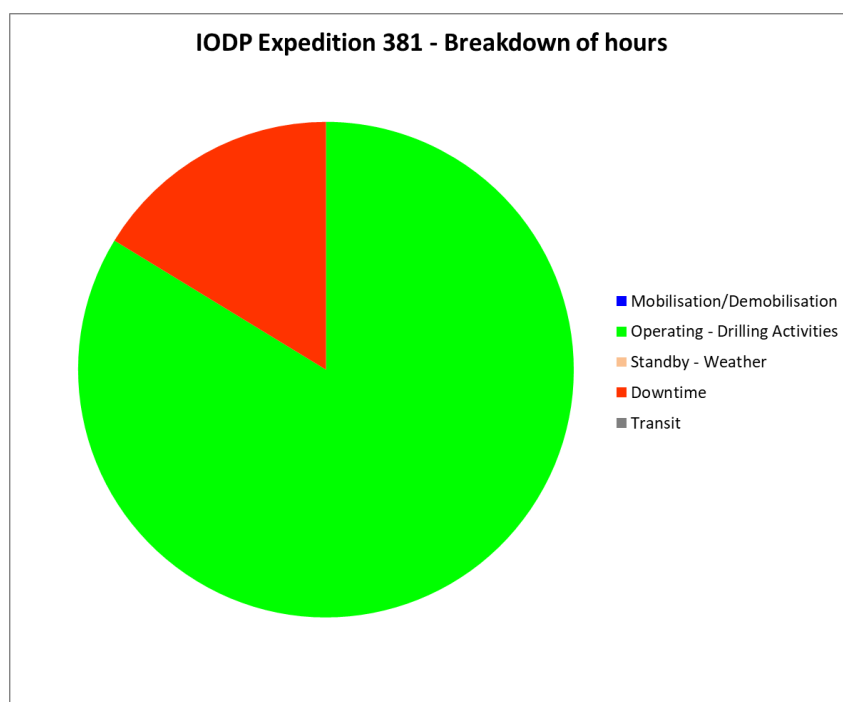


Figure 1: Breakdown of hours from 00:00 October 30<sup>th</sup> to 24:00 November 5<sup>th</sup> 2017.

Expedition 381  
Corinth Active Rift

M0078A

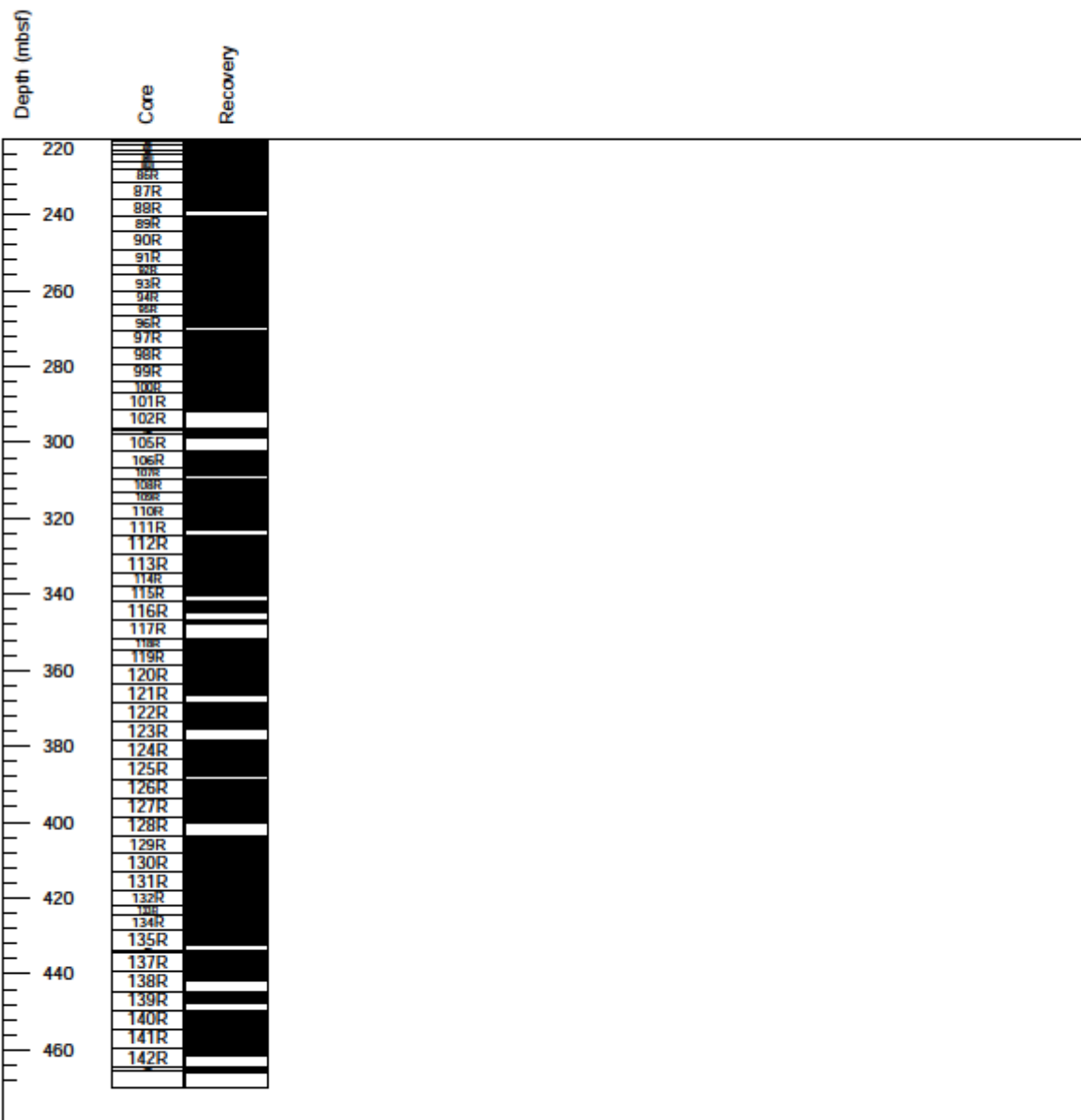


Figure 2: Core recovery for Week 2 (30<sup>th</sup> Oct to 5<sup>th</sup> Nov 2017).

## 7. Photographs



Figure 3: Photos from Week 2 of Expedition 381.