Week 1 Drilling and Scientific Report for IODP Expedition 381
Corinth Active Rift Development 2017

23rd Oct 00:00 – 29th Oct 24:00 EET Eastern European Time (UTC+2)

1. Operations

The *Fugro Synergy* departed Corinth at 20:00 (UTC+3) on the 22nd October and transited to the first site COR-02 (IODP site M0078A). The vessel arrived on station two hours later and a DP model was established at 22:05 prior to deployment of the CTD at 23:20.

At 01:48 on the 23rd the SEADEVIL template was lowered before running in of pipe commenced. The first core was recovered to deck at 21:35 on the 23rd of October. Coring then continued throughout the 23rd and 24th with good recovery of high quality core.

On the 25th at 1600 the decision was made to change the coring tool from the piston corer to the Fugro Corer (push mode) which resulted in an increase in run length. However at 22:30 it was necessary to recover the SEADEVIL to deck in order to carry out maintenance. The morning of the 26th was spent working on the SEADEVIL, prior to deployment and continuation of coring operations. Coring continued successfully, with a brief break to carry out an in-situ temperature measurement (100 mbsf).

Following this, coring recommenced and continued throughout the 27th and 28th. Various modifications were made to the drilling system in order to optimize recovery and efficiency. At 23:00 on the 28th the approach changed from push to percussive methods.

Coring continued into the 29th with a break at 01:30 to conduct a second in-situ temperature measurement (200 mbsf). Following this, coring continued throughout the day with variable recovery. At 21:30, the decision was made to change to rotary coring in an attempt to increase the rate of advance. The first rotary core was recovered at 23:40 with good recovery.

2. Hole summary

Hole	M0078A
Latitude	38° 8' 41.802" N
Longitude	22° 45' 30.251" E
First core	1P
Last core	84R
Cores recovered	84
Drilled length (Coring)	226.14 m
Drilled Length (Open Hole)	0
Recovered length	197.75 m
Depth in hole	226.14 mbsf
Hole recovery	87.5%

3. Science

The 9-member science party joined the vessel in Corinth Port and started training and familiarisation with the labs onboard Fugro Synergy, which had been setup by the ESO staff during passage from Malta to Corinth. For this MSP expedition the cores will not be split, so only minimal sedimentological, paleontological, geochemical and physical properties description and analysis will be conducted.

Following arrival on site (Site M0078A) and preparations for coring, coring began on 23rd October. Coring to date has extended to ~200 metres below seafloor. This section includes multiple alternations between marine and lacustrine conditions in the Gulf of Corinth, with these changes controlled by the combined effects of fluctuating sea level and sills at the boundaries of the basin.

Micropaleontological analysis indicates quite complex assemblages representing these changing conditions. Sedimentological analysis has identified predominantly greenish-grey mud with thin interbeds of very fine to fine sand including organic matter. Several core sections are gas-rich. Interstitial pore water extracted from the cores, first by rhizons and now by whole round squeezing, have been analysed onboard for salinity, alkalinity and ammonium. Additional pore water samples extracted here will be analysed as part of the scientists' post-cruise research. All cores are being run through the Multi Sensor Core Logger (MSCL), which measures natural gamma ray, magnetic susceptibility, resistivity, density and P-wave velocity. Most datasets are showing reasonable values, however P-wave velocity data are anomalously low. MSCL density data and existing velocity data are being used to generate initial synthetic seismograms to correlate cores with the seismic data. This is yielding good results with good matches to the different amplitude packages identified with the seismic data and tentatively correlated with changing Gulf environment and sediment properties.

In addition to the standard measurements for an MSP expedition, strength measurements have been made every 20 m with a hand-held penetrometer, and downhole measurements of in situ formation temperature and strength have been taken twice (at 100 and 200 mbsf) using a cone penetrometer.

4. HSE Activity

A Muster drill was completed by all Scientists and ESO personnel on 24th October.

A Shallow gas was completed by all Scientists and ESO personnel on 27th October.

5. Outreach Activity

On Thursday 19th a press conference was held at the Alexandreio Convention Centre in Loutraki. Coincident with this, a press release was issued to 170 national and international media agencies. Following the press conference a film crew from a national Greek TV company visited the vessel for more information and to film interviews with both Co-chiefs. Also attending were some of the onshore Greek science party.

On Friday 20th another film crew visited the vessel and also conducted interviews on-board.

On Wednesday 25th the Co-Chief Scientists gave a presentation detailing the project and progress to-date to the ECORD Council/ESSAC meeting being held in Southampton, UK.

A blog-site has also been set up, publishing more informal blogs on a range of subjects. In the week from October 23rd - 29th, it received 3,678 views and is being followed in 37 countries.

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

6. Figures

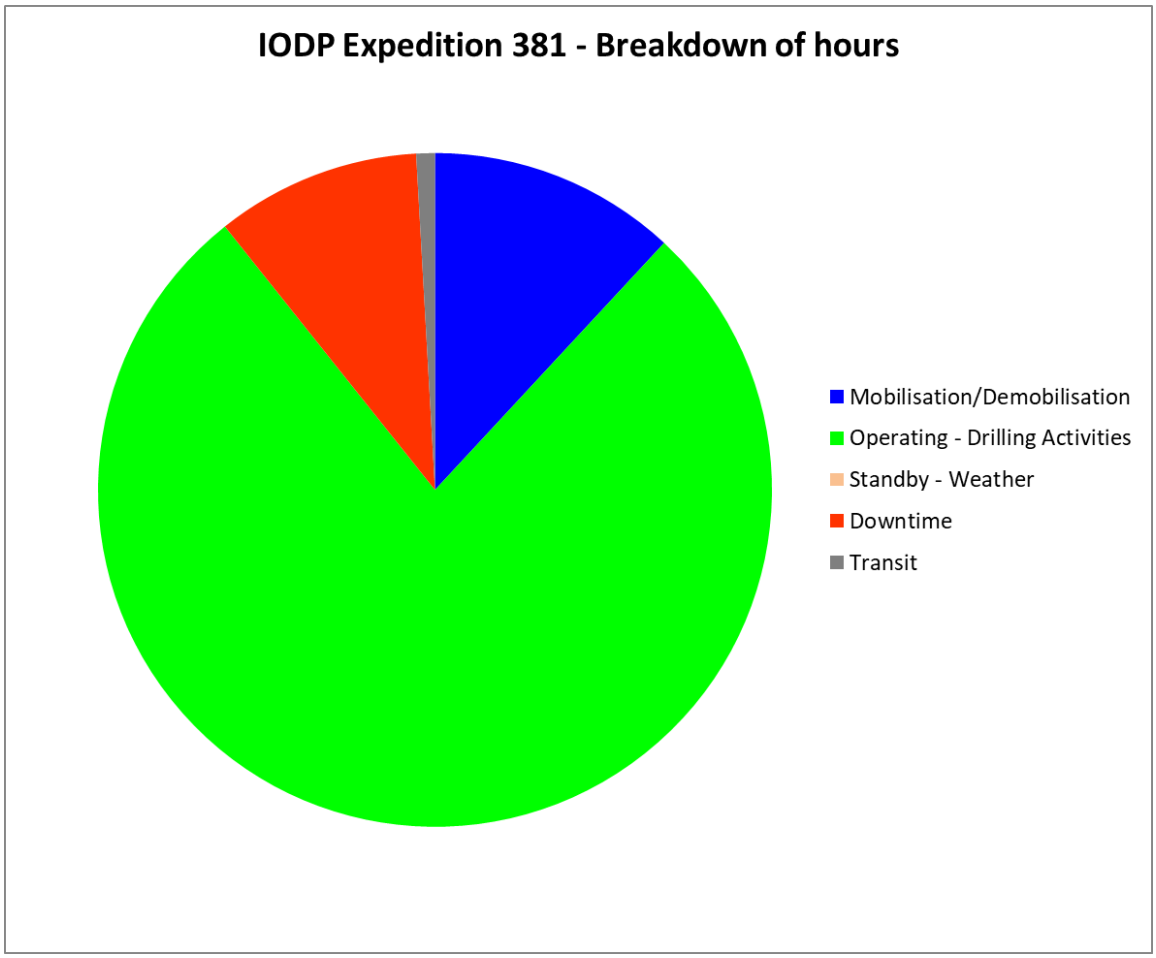

Figure 1: Breakdown of hours from 00:00 October 22rd to October 29th 2017. Note that this plot includes an additional day to cover the end of the mobilisation and transit to the first site.

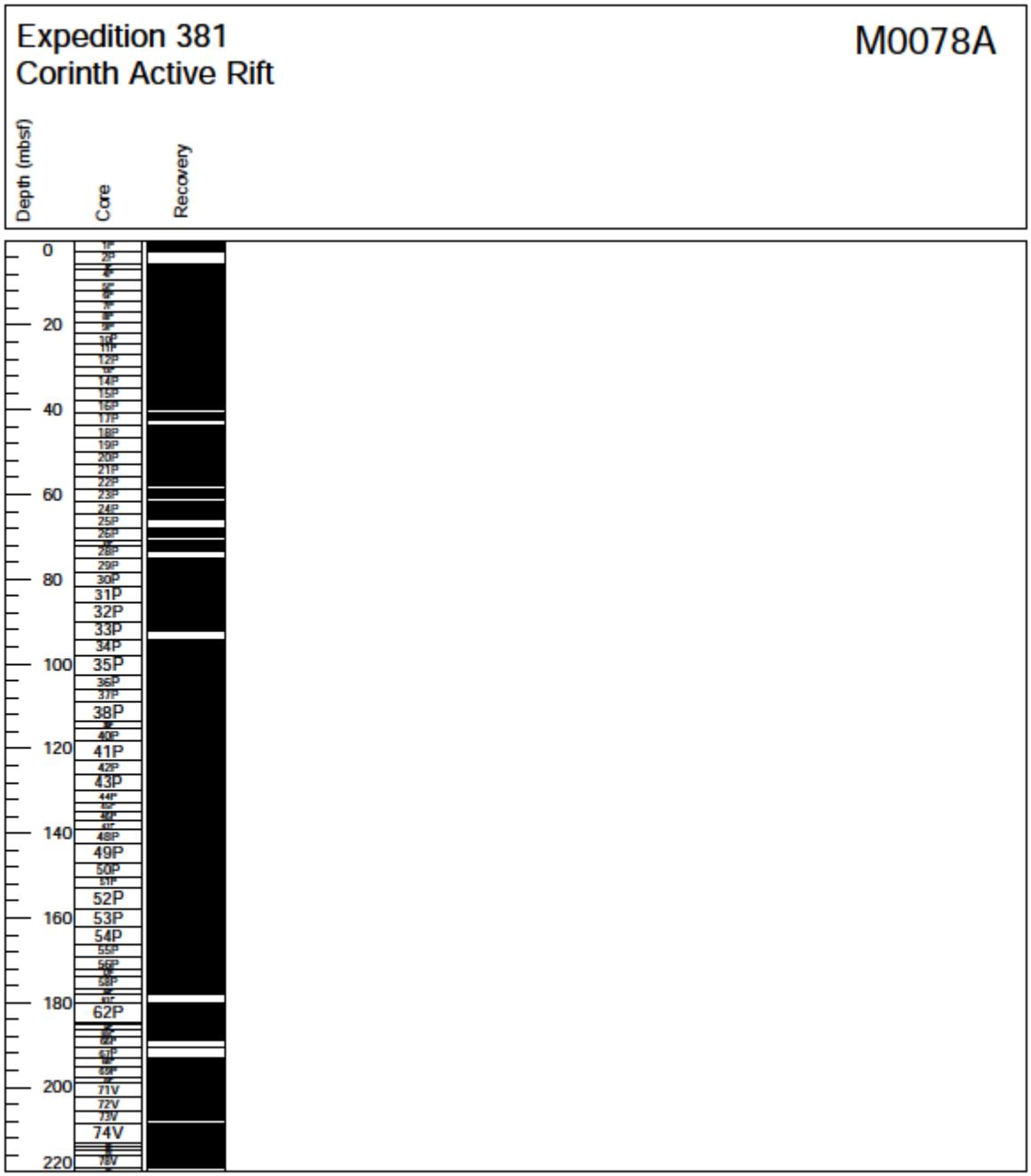

Figure 2: Core recovery for Week 1 (23rd to 29th October 2017).

7. Photographs

Figure 3: Photos from Week 1 of Expedition 381.